

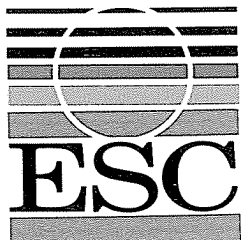
# **ENVIRONMENTAL**

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# **STRATEGIES CORPORATION**

**ENVIRONMENTAL SUMMARY REPORT  
AND PRELIMINARY ENGINEERING EVALUATION**

**AL TECH SPECIALTY STEEL CORPORATION  
DUNKIRK, NEW YORK FACILITY**





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**ENVIRONMENTAL SUMMARY REPORT  
AND PRELIMINARY ENGINEERING EVALUATION**

**AL TECH SPECIALTY STEEL CORPORATION  
DUNKIRK, NEW YORK FACILITY**

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NYSDEC

OCT 30 1998

BUREAU OF  
HAZARDOUS WASTE FACILITIES  
DIV. OF SOLID & HAZ. MATERIALS

**PREPARED**

**BY**

**ENVIRONMENTAL STRATEGIES CORPORATION**

**OCTOBER 28, 1998**

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## 1.0 Introduction

The purpose of this report is to compile the current understanding, and the basis for that understanding, of the scope of known environmental liabilities for the AL Tech Specialty Steel Corporation (AL Tech) facility, in Dunkirk, New York (Figure 1). Estimated costs associated with these conditions are also presented.

An Order on Consent (Order) was entered into by the New York State Department of Environmental Conservation (NYSDEC) for the AL Tech facilities in Dunkirk and Watervliet, New York (NYSDEC 1995). Among other things, the Order required the implementation of a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) at the Dunkirk facility under the RCRA Corrective Action Program.

The first phase of the RFI was implemented in 1996 and 1997. This report presents a summary of the Phase I scope of work and the findings of the investigation. These findings have been used to identify issues that require additional investigation (i.e., limited Phase II RFI) or interim corrective measures (ICMs). The draft Phase I RFI Report summarizing the findings of the investigation is being submitted to NYSDEC with this summary report. Therefore, the NYSDEC has not yet had the opportunity to review or approve the Phase I RFI Report. Consequently, it is possible that the NYSDEC may not fully concur with the Phase II scope of work presented herein. However, based on the approvals received for the Phase I RFI at the Watervliet facility, AL Tech is confident that the agency will either concur with (or have only minimal comments on) the recommended scope of the Phase II RFI presented below for the Dunkirk facility. Further, it is not anticipated that the results of a Phase II RFI will have a material impact on matters addressed in Section 4.0 of this report (or the cost estimates set out in Table 5).

In addition to issues related to the RCRA Corrective Action Program, this report includes descriptions of environmental-related activities that were undertaken historically, are on going, and that are anticipated.

This summary report is not intended to provide a comprehensive compendium of historical operations, environmental actions or violations, but to provide an overview of current known environmental conditions and the estimated costs of addressing them. Detailed information relating to these issues is provided in the following documents:

- RCRA Facility Assessment Report (McLaren/Hart 1992a)
- RCRA Facility Investigation, Description of Current Conditions (McLaren/Hart 1992b)

- Order on Consent (NYSDEC 1995)
- Pre-Investigation Evaluation of Corrective Measures Report (ESC 1996a)
- Phase I RCRA Facility Investigation Work Plan (ESC 1996b)
- Interim Corrective Measures – Lucas Avenue Plant and Bar Finishing and Storage (ESC 1996c)
- Phase I RCRA Facility Investigation Report (ESC 1998)

## **1.1 Facility Description**

The following subsections provide a general understanding of the facility and its operations.

### **1.1.1 Facility Location**

The AL Tech facility occupies approximately 90 acres in the City of Dunkirk, Chautauqua County, New York (Figure 1). The areas to the north, east, and south of the facility are zoned residential. The area to the west is zoned light industrial, although the current primary land use is residential.

The facility is bordered by Lucas and Willowbrook avenues to the north and south, and Brigham Road to the west. East of the facility are open fields, private residences, and municipal buildings. The northern portion of the facility is bisected by a right-of-way and track for the Norfolk and Western railroad (Figure 2).

Special Metals, Inc., operates a facility on Willowbrook Avenue which is bordered on three sides by AL Tech operations (Main Office Building, general plant area, and Willowbrook Pond) (Figure 2). This facility was constructed by Allegheny Ludlum Steel Company (former owner of the AL Tech facility) in 1961 to house a forging press operation. AL Tech has never owned or operated the facility occupied by Special Metals, Inc.

### **1.1.2 Facility Operations**

Atlas Crucible Steel Company began manufacturing operations at the facility in 1908. In 1925, the company changed its name to Atlas Alloy Steel Company to reflect the change in the operations from crucible melting to electric arc furnaces. In 1929, the company merged with Ludlum Steel Company, of Watervliet, New York, and, in 1938, Ludlum Steel Company merged with Allegheny Steel Company, of Pittsburgh, Pennsylvania, to form the Allegheny Ludlum Steel Company (Allegheny Ludlum).

In 1948, Allegheny Ludlum purchased an adjacent building (now the Brigham Road Plant) from the federal government. This building, which was operated by Allegheny Ludlum, produced alloy rod for the manufacture of armor piercing bullet core material.

Allegheny Ludlum continued to operate the facility to 1976, when it was purchased by AL Tech Specialty Steel Corporation. Between 1981 and 1989, the company was owned by GATX and Rio Algom. In 1989, Rio Algom sold the company to Sammi Steel, Ltd., of Korea.

The Dunkirk facility currently produces stainless steel bar, rod, and wire. These products are produced from 4.5-inch square and smaller billets. The current processes include hot and cold finishing. The hot finishing operations include billet conditioning, hot rolling, annealing, and abrasive cutting. The cold finishing operations include straightening, drawing, turning, pickling, and finish grinding. The facility also operates cleaning operations.

The facility has historically included four main operating areas. These areas and the ongoing and historical operations are as follows.

- The Lucas Avenue Plant (LAP) was idled in 1997 when remaining operations were moved to the newly constructed wire mill (1997).
  - Historical operations:
    - LAP West – pickling, annealing, and lime coating (pickling operations were idled in 1989) K062
    - LAP East – pickling, lead and copper coating, bright annealing, annealing, cutting, drawing, and degreasing (pickling operations were idled in the early 1980s) K062
- The Brigham Road Plant (BRP)/Bar and Rod Mill rolls 4.5-inch stainless steel billets into coil or bar stock.
  - Current operations: billet grinding, cutting, hot rolling, and annealing.
  - Historical operations (in addition to the above): pickling, drawing, lime coating, finish grinding, cold drawing, and straightening (pickling operations were idled in 1991).
- The Bar Finishing and Storage (BFS) facility cold finishes bar and coiled material from the hot rolling operations in the BRP and Howard Avenue Plant (HAP) mills.
  - Current operations: drawing, straightening, turning, grinding, cutting, and pickling.
- The HAP produces bars, rounds, and miscellaneous shapes directly from billets.
  - Current operations: rolling, cutting, annealing, heat treating, and billet reconditioning (grinding).
  - Historical operations (in addition to the above): melting (crucible and electric arc), coal gasification, annealing, forging, and billet pickling (billet pickling operations were idled in the early 1980s).



Construction of a wire mill adjacent to BFS was completed in 1997. Operations within this new area include electrolytic wire cleaning, bright annealing, lime coating, wire drawing, and shaving. The five areas are identified in Figure 2.

## 1.2 Environmental Regulatory Issues

Applicable environmental regulatory programs at the facility address:

- air
- storm water
- wastewater
- hazardous materials and wastes

### 1.2.1 Air

Emissions at the facility are currently regulated under the Clean Air Act's source specific operating permits. AL Tech submitted a Clean Air Act Title V permit application to the NYSDEC for the Dunkirk facility in December 1997. The agency notified AL Tech that the application was "complete for the purpose of commencing review" (NYSDEC 1998). The application is currently undergoing technical review by the agency. NYSDEC is scheduled to complete the draft permit for public notice in December 1998 (NYSDEC 1998).

### 1.2.2 Storm Water

The facility is authorized to discharge storm water runoff under the terms and conditions imposed by the NYSDEC's state pollutant discharge elimination system (SPDES) storm water general permit (No. NYR008269) (NYSDEC 1994). The discharge points are identified below.

- Outfall #1 – Located on the northeast end of the LAP. This outfall discharges storm water from LAP East and the HAP. Discharge is ultimately to Crooked Brook.
- Outfall #3 – Located behind the facility's wastewater treatment plant (WWTP). This outfall discharges storm water from the central portion of the facility. Discharge is to a storm drain on Brigham Road and, subsequently, to Crooked Brook.
- Outfall #4 – Located upstream of the point at which the unnamed tributary is conveyed beneath the facility (north of Willowbrook Avenue). This outfall discharges storm water from the central and western portion of the facility to the unnamed tributary.
- Outfall #5 – Located upstream of the point at which the unnamed tributary resurfaces (west of Brigham Road). This outfall discharges storm water from BRP to the unnamed tributary.

Each of these outfalls is monitored on a quarterly basis.

### 1.2.3 Wastewater

The facility discharges wastewater to the City of Dunkirk publicly-owned treatment works (POTW) through three outfalls, which include:

- the facility's onsite WWTP (Outfall 5a)
- the HAP annealing non-contact cooling tower (Outfall 5b)
- Willowbrook Pond (Outfall 7)

Each of these outfalls is monitored on a quarterly basis in accordance with an industrial wastewater discharge permit (01.9711.19), issued by the City of Dunkirk (City of Dunkirk 1997).

The onsite WWTP was constructed in 1974 (Figure 2). Wastewaters treated at the WWTP include spent pickle liquor, scrubber water, etch room acids, spent rinse waters, lime, and sodium sulfate. These wastewaters are transferred to the treatment plant through underground pipelines. The wastewaters contain caustics, acids, metal oxides, and dissolved metals. Spent pickle liquor is a listed hazardous waste, K062. Pretreatment of the wastewater removes solids, reduces chromium from the hexavalent to trivalent state, precipitates dissolved metals, and adjusts the pH. The effluent is discharged to the city POTW from Outfall 5a.

The HAP non-contact cooling tower cools the furnaces in the HAP annealing bay. The blowdown from this cooling tower is discharged to the city POTW from Outfall 5b.

Willowbrook Pond is an onsite reservoir used to hold and recirculate contact and non-contact cooling water from the BRP rolling mill, the BRP Olson furnace quench, the HAP Rolling mills (round, shape, and mini mills) and HAP cooling bosh. Wastewaters from the HAP rolling mill and bosh are treated in oil/water separators before discharging to Willowbrook Pond. In 1978, an oil skimmer and collection system was installed at the outfall from Willowbrook Pond to reduce the potential release of oil to the POTW. Overflow from the reservoir is discharged to the city POTW from Outfall 7.

### 1.2.4 RCRA

The Dunkirk facility is a large-quantity generator of hazardous waste (EPA I.D. No. NYD030215529) and management of these wastes is, therefore, subject to RCRA regulations. There are currently no units at the facility which are regulated under RCRA. AL Tech submitted a Part A permit application for the former surface impoundment associated with the WWTP (Closed Surface Impoundment) in 1984. The impoundment was used to equalize the flow of spent pickle liquor (K062) and rinse water. The Part B permit application was never submitted; a closure plan was submitted instead and the impoundment was clean closed under NYSDEC supervision in 1989.

### 1.3 Environmental Investigations

Several investigations have been performed at the Dunkirk facility that have generated information on environmental conditions. Section 1.3.1 presents summaries of those activities that were not performed under the Order. Section 1.3.2 addresses those activities that were performed under the Order (i.e., RFI).

#### 1.3.1 Pre-RFI Investigations

Pre-RFI activities performed by AL Tech that have generated information on environmental conditions at the facility included:

- the closure of the WWTP surface impoundment and post-closure groundwater monitoring
- the evaluation of Willowbrook Pond and subsequent groundwater monitoring
- the installation of an oil recovery system near an aboveground fuel oil tank
- the investigations related to AL Tech's claim in Allegheny International's (AI) bankruptcy proceedings

##### 1.3.1.1 Closed Surface Impoundment

From 1976 to 1988, AL Tech used a lined impoundment, with an approximate capacity of 750,000 gallons, to equalize spent pickle liquor (K062) and rinsate waters that were subsequently discharged to the WWTP for treatment.

In 1984, AL Tech submitted a Part A permit application for this unit. Subsequently, the unit was operated under RCRA Interim Status. AL Tech decided to close the impoundment in 1987 rather than complete the Part B permit application upgrade the surface impoundment to RCRA standards. Use of the impoundment was suspended in 1988 and it was closed under NYSDEC supervision and in accordance with RCRA regulations in the spring of 1989. Certification of clean closure was submitted to NYSDEC in October 1989.

The closure plan included a provision for quarterly monitoring of wells installed in the immediate vicinity of the former impoundment for a period of three years (WT-series compliance wells; Figure 2). In May 1992, following completion of these monitoring requirements, AL Tech submitted a request for NYSDEC to grant final approval for clean closure. The monitoring data indicated, to AL Tech, that clean closure had been accomplished.

Because NYSDEC determined that molybdenum and fluoride present at elevated concentrations in groundwater samples on several occasions (NYSDEC 1993), final approval for clean closure was not granted. AL Tech subsequently suggested that these levels were attributable to the existence of an industrial fill area located in the same general area. Despite this

fact, approval of clean closure was not granted. The NYSDEC indicated that approval could be given following confirmation of another source through the RFI, proving that the closed impoundment was not the source. Since that time, AL Tech has performed annual groundwater monitoring for these wells.<sup>1</sup>

Both the closed surface impoundment and the industrial waste fill have subsequently been identified as solid waste management units (SWMUs). Soil and groundwater conditions in this area were evaluated during the Phase I RFI. (Refer to Section 2.0 for additional discussion.)

#### 1.3.1.2 Willowbrook Pond

As discussed above, Willowbrook Pond is used to recirculate contact and non-contact cooling waters. In 1986, the City of Dunkirk had requested that (in addition to contact and non-contact cooling water) AL Tech divert all WWTP effluent to Willowbrook Pond to equalize the nitrates being discharged from the WWTP to the POTW. AL Tech complied with this request. USEPA commenced an enforcement action against AL Tech in 1986. The USEPA alleged that because the wastewater effluent resulted from treatment of K062 (a listed hazardous waste) and Willowbrook Pond was not a permitted RCRA unit (nor otherwise exempt from RCRA), the facility's action was in violation of RCRA. AL Tech subsequently initiated several investigations of the pond (McLaren/Hart 1992b).

- In June 1987, URS Company, Inc. collected nine sediment samples from the pond. Polychlorinated biphenyl (PCB) Aroclor 1232 was present in seven of these samples at concentrations greater than 50 milligrams per kilogram (mg/kg). *22/10/87*
- In 1988, Ecology and Environment, Inc. installed a series of eight shallow monitoring wells around the perimeter of the pond (WP-series wells; Figure 2). Neither PCBs, nickel, nor chromium, was detected in the groundwater samples collected from these wells. *6/10/88 - no PCBs, nickel, chromium*

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<sup>1</sup> During the Phase I RFI, statistical analysis of the fluoride and molybdenum concentrations in the WT-series wells was performed. The findings indicated that fluoride was present at statistically higher concentrations in groundwater samples collected from the downgradient compliance monitoring wells (WT-3 and WT-4) and molybdenum was present at statistically higher concentrations in groundwater samples collected from WT-4. Based on further evaluation of these data and the existing and historical process sewers, AL Tech believes that releases from the process sewers are more likely the source of the elevated concentrations.

Furthermore, the evaluation of soil and groundwater data generated for samples collected from the industrial fill area do not differ significantly from conditions encountered across the facility and also do not appear to be the source of the elevated molybdenum or fluoride concentrations observed in the compliance wells.

- In 1988, Hazard Evaluations, Inc. also performed an investigation of Willowbrook Pond. Trace concentrations of oil and grease, nickel, and chromium were detected in discharges to the pond. In addition, sediment samples collected from one of the facility's storm sewer lines (which crosses the Special Metals, Inc. property) contained PCBs.
- In 1989, during an assessment of the facility for AL Tech's claim in the AI bankruptcy, McLaren/Hart collected sediment samples from the pond. Total chromium, iron, nickel, and PCBs were detected in these samples.

PCBs  
detected in  
sediments

Based on historical practices and these investigations, AL Tech believes that the source of the PCBs in the pond sediments was from cooling waters impacted by historical use of hydraulic oils containing PCBs in the BRP rolling mill.

Since 1988, AL Tech has monitored groundwater quality on a quarterly basis (WP-series wells) to evaluate potential impact from the pond, but no remedial action has been taken. Willowbrook Pond has been identified as a SWMU. Soil and groundwater conditions in this area were investigated during the Phase I RFI. (Refer to Section 2.0 for additional discussion.)

#### 1.3.1.3 Aboveground Fuel Oil Tank

From 1967 to 1983, the facility stored No. 2 fuel oil in a 100,000-gallon capacity above ground steel tank. The fuel was used to supply the facility's steam boilers and production furnaces.

In 1983, a rupture in the underground pipeline that supplied the HAP furnaces was found. A quantity of oil accumulated in the gravel rail ballast in that area. A french drain was installed to capture and contain residual oil (Figure 2). The drain is still present but no oil sheen is present on the water that collects in the system.

#### 1.3.2 RCRA Corrective Action Program

AL Tech initiated the RCRA Corrective Action Program at the site in 1990. In accordance with this program, RCRA Facility Assessment and Description of Current Conditions reports were prepared for the facility and submitted to NYSDEC in 1992 (McLaren/Hart 1992a and 1992b). The purpose of these evaluations was to identify SWMUs and areas of concern (AOCs) which, based on process knowledge of historical and current practices, could potentially release hazardous waste or hazardous constituents to the environment. The information generated was used to aid in the development of the corrective action requirements for the facility that are identified in the Order. The 24 SWMUs and 11 AOCs recommended for inclusion in the Order, based on these reports, and their listed numbers and descriptions are provided in Tables 1 and 2; the locations are shown in Figure 2. The SWMUs and AOCs for which NYSDEC subsequently determined no action was necessary are also identified in these tables.

Each of the four main current or historical pickling operations areas encompass several AOCs and/or SWMUs. These areas were defined in the Phase I RFI Work Plan as corrective action management units (CAMUs). The use of the CAMU designation permitted the implementation of an overall evaluation of potential impact from these operations areas in lieu of evaluating individual units.

The Phase I RFI was implemented at the facility in 1996 and 1997 in accordance with a NYSDEC-approved work plan (ESC 1996b). The Phase I scope of work included physical and chemical characterization of several environmental media and implementation of miscellaneous activities.<sup>2</sup> A general summary of the Phase I scope of work is presented below; the locations of investigation are shown in Figures 3 and 4.

- Soils Investigation

Surface soil samples were collected from offsite (background) locations, transformer substations, and other facility locations. The results of analysis for the TAL Inorganics (plus hexavalent chromium and molybdenum) for surface soil samples collected from the offsite locations were used to calculate background concentrations. The TAL Inorganic data and geotechnical data for the onsite surface soil samples were also used to perform an Air Pathway Analysis for the Site.

Subsurface soil samples were collected from various locations within the facility. The subsurface soil data were also evaluated to determine the relative distribution of constituents with depth. Geotechnical data for the subsurface soils were used to evaluate general site characteristics and evaluate the vertical permeability of the confining clay layer underlying the facility.

Several surface and subsurface soil samples were submitted for Toxicity Characteristic Leaching Procedure (TCLP) extraction and analysis of the leachate for various metals. The purpose of the extraction and analysis was to evaluate the potential for influence on groundwater quality using the toxicity characteristic (TC) limits.

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<sup>2</sup> The laboratory analytical program included analysis for: Target Compound List (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and PCBs; Target Analyte List (TAL) Inorganics (including 23 metals and cyanide) and hexavalent chromium and molybdenum; and, miscellaneous parameters. The miscellaneous parameters included:

- soil: total petroleum hydrocarbons (TPHs), pH, total phenols, and total organic carbon (TOC)
- groundwater: pH, total alkalinity, total phenols, chloride, fluoride, nitrate, sulfate, ammonia, specific conductance, TOC, chemical oxygen demand, total suspended solids, temperature, and turbidity
- surface water: TPH, pH, total alkalinity, total phenols, chloride, fluoride, sulfate, and specific conductance
- sediment: TPH, total phenols, chloride, fluoride, nitrate, sulfate, and TOC.

The laboratory analytical program applicable to the second round of groundwater samples collected during the Phase I RFI was reduced based on the results of the first round of sample data and as approved by NYSDEC.

- Groundwater Investigation  
A network of groundwater monitoring wells was completed during the Phase I RFI. The network includes wells installed along the facility boundaries and within the facility proximate to (typically downgradient of) various SWMUs and AOCs.
- Groundwater Investigation (continued)  
Groundwater quality data were generated from of two sampling and analytical events. Both events included the collection of samples from all newly installed wells and select existing wells. Physical data were generated to determine aquifer characteristics.
- Surface Water and Sediment Investigation  
Surface water and sediment samples were collected for laboratory analysis from three locations in the unnamed tributary to Crooked Brook, which transverses the southwestern corner of the facility.
- Air Pathway Analysis  
Data generated from the site surface soil samples submitted for analysis of TAL Inorganics (plus hexavalent chromium and molybdenum) were used to perform an Air Pathway Analysis to predict concentrations of these constituents at the property boundary and to compare the predicted concentrations to established regulatory criteria.
- Miscellaneous Investigation Tasks
  - evaluation of the integrity of the existing monitoring wells at the site
  - preliminary assessment of Crooked Brook
  - evaluation of the integrity of various process pits and tanks (Figure 4)
  - identification of the process sewer lines.

#### 1.4 Summary Report Format

Section 2.0 of this report presents a summary of environmental conditions at the facility largely based on information generated during implementation of the Phase I RFI. During implementation of the Phase I RFI, AL Tech identified the need to perform two ICMs. The scope of work and findings generated during implementation of the ICM at CAMU A (LAP West) is also presented in Section 2.0.

Section 3.0 presents the anticipated scope of work to be implemented during the limited and focused Phase II RFI, the recommended ICMs, and various operations-related projects.

Section 4.0 summarizes the remaining actions required under the RCRA Corrective Action Program, specifically the Phase II RFI, ICMs, Corrective Measures Study (CMS), and CM implementation. The potential costs associated with implementation of these actions are also presented.

## 2.0 Description of Environmental Conditions

A summary of the general environmental conditions at and near the facility is presented in Section 2.1. A summary of the conditions of the facility's environmental media, determined during implementation of the Phase I RFI, is presented in Section 2.2. Section 2.2 also identifies limited additional investigation (i.e., Phase II RFI) or ICMs recommended based on the Phase I findings. The ICM for CAMU A has been initiated pursuant to an NYSDEC-approved work plan (NYSDEC 1997). The scope of this ICM and the findings generated to date are presented in Section 2.3.

### 2.1 Physiography

General physiographic and environmental information for the facility indicate the following:

- the facility is located on the coastal reaches of Lake Erie, which is approximately 1 mile northwest of the facility
- the facility's property includes approximately 90 acres which are relatively flat; the surface elevations across the property range from approximately 635 to 640 feet above mean sea level (ft-msl)
- the average annual precipitation in the vicinity of the facility is approximately 38 inches
- the 30-year average snowfall for November to April is 2 to 20 inches per month; the highest average snowfalls were reported for December and January
- the 30-year maximum and minimum average temperatures are 57.8 and 40.2 degrees Fahrenheit; January and July are the coldest and warmest months
- the wind directions for Jamestown, located approximately 27 miles south-southwest of the facility, and Buffalo, located approximately 52 miles north of the facility, are from the southwest

#### 2.1.1 Hydrology

There are two streams located on or proximate to the facility: Crooked Brook and an unnamed tributary (western branch) to Crooked Brook. The confluence of these streams is approximately 0.75 mile northwest of the facility. Crooked Brook discharges to Lake Erie approximately 1 mile northwest of the facility.

Crooked Brook, which is rated as a Class D stream (recreational use), flows roughly from southeast to northwest approximately 0.1 mile from and parallel to the eastern boundary of the



facility. The 10-year flood plain of Crooked Brook is 627.5 ft-msl at the facility. Consequently, potential impact to the site from this stream is minimal.

The unnamed tributary, which is not rated, enters the southwest corner of the facility near Willowbrook Avenue, is conveyed underground approximately 500 linear feet in two buried 36-inch diameter culverts and resurfaces west of Brigham Road.

Willowbrook Pond, which is a manmade unit, is the only on site surface water body.

### 2.1.2 Geology

The subsurface geologic data collected during implementation of the Phase I RFI indicate that there are four significant units underlying the facility. In descending sequence, these units include:

- fill
- lacustrine sediments
- weathered shale
- shale bedrock

The shale is differentiated between weathered shale and (competent) shale bedrock. Weathered bedrock includes the fractured rock zone between the unconsolidated deposits and the competent shale bedrock. The limit of the Phase I RFI investigation was the interface between the weathered shale and shale bedrock.

- Fill  
The fill at the site varies between boring locations and reflects the various construction activities that were conducted. The fill is comprised of disturbed soil or mill debris (e.g., slag, metal fragments, brick, concrete, and coal) mixed with soil. The geotechnical results indicate the soil fill is generally comprised of clay- and sand-sized material with gravel. The thickness of fill ranges from approximately 1 to 6 feet across much of the site. The fill was generally unsaturated.
- Lacustrine Sediments  
Two distinct zones of soil, which were deposited as lacustrine sediments, underlie the facility: a fine-grained silt and clay zone and a coarser-grained gravelly silt and clay. The overall thickness of this lacustrine unit varied from approximately 6 to 10 feet across the site.
  - The finer-grained soils consist of clay, clayey-silt, and silt. These soils were encountered beneath the fill material and typically included a layer of clayey-silt or clay grading to a silt-rich layer with depth. This zone was typically 4 to 10 feet in thickness. Geotechnical testing results for an undisturbed sample of this material included a vertical permeability of  $7.1 \times 10^{-6}$  centimeters per second ( $2.3 \times 10^{-7}$  feet per second).

- The coarser-grained soils consist of very hard, non-plastic silt and clay with rounded gravel and shale fragments. The thickness of this zone ranges from 2 to 5 feet. Typically this zone underlies and grades into the silt and clay zone and is present immediately above the weathered shale. Typically this material was encountered at or below the saturated zone and groundwater within this zone is semi-confined by the overlying finer-grained soils.

- Weathered Shale

The weathered shale is part of the upper Dunkirk Shale Member. The material is very friable, weakly cemented, and ranges in color from gray to dark gray. Typically, groundwater was encountered above the weathered shale. This unit averages 1 to 3 feet in thickness across the facility. The weathered shale was encountered at depths ranging from 8 feet (approximately 627 ft-msl) near the center and north-central portions of the facility to greater than 24 feet (below 615 ft-msl) in the east. The weathered shale surface slopes to the north, east, and west from the central portion of the facility. An elevation contour map of the weathered shale is shown in Figure 5.

- Shale Bedrock

The shale bedrock beneath the facility is part of the upper Dunkirk Shale Member. The color of the shale ranges from gray to dark gray; the shale is well cemented. This unit appears to be acting as a confining layer beneath the unconsolidated material and weathered shale.

### 2.1.3 Hydrogeology

The unconsolidated deposits underlying the site consist of clay and silt that typically grades, with depth, into gravelly clay zone. These deposits range in thickness from 8 feet to 24 feet and are underlain by 1 to 3 feet of weathered shale, and shale bedrock. Typically, groundwater was encountered in the gravelly clay layer above the weathered shale.

Although the measured potentiometric groundwater surface ranges from 1 to 8 feet below ground surface (ft-bgs), water was typically not encountered during drilling until the coarse-grained lacustrine sediments were penetrated. These data suggest that the groundwater is under confined conditions (i.e., an upward vertical hydraulic gradient). In addition, the vertical permeability data for the fine-grained lacustrine sediments of  $7.1 \times 10^{-6}$  centimeters per second suggest limited potential for downward groundwater migration from the surface to the saturated zone.

Potentiometric surface maps were developed using water levels recorded in November 1996 and March 1997. These maps, which are presented in Figures 6 and 7, show a groundwater

divide in the central area of the facility.<sup>3</sup> The direction of groundwater flow at the site appears to mimic or be influenced by the weathered shale surface (Figure 5). This is not inconsistent with the presence of confined conditions.

The estimated velocities of groundwater flow within the coarser-grained lacustrine sediments underlying much of the facility for November 1996 and March 1997 were 0.13 feet per day (ft/day) and 0.17 ft/day. For these same periods, the estimated velocity of groundwater flow within this material in the southwestern portion of the facility was 1.5 ft/day. The higher velocity values in this area are a result of the greater hydraulic gradient in the steeper weathered shale topography.

## 2.2 Phase I RFI Findings

Summaries of the Phase I RFI findings for the various environmental media (soil, groundwater, surface water, sediments, and air) are presented in the following sections. Included for each media and parameter group (TCL VOCs, TCL SVOCs, TCL PCBs, TAL Inorganics, and miscellaneous parameters), is an evaluation of the analytical results and potentially applicable criteria and other considerations. This evaluation was used to quantify the scope of known environmental issues, identify those CAMUs, SWMUs, and AOCs that require additional investigation during the limited Phase II RFI, identify those units that require an ICM, and identify those units to be addressed in the CMS. A summary of this information is also presented in Table 3.

### 2.2.1 Soil

#### 2.2.1.1 TAL Inorganics (Plus Hexavalent Chromium and Molybdenum)

Surface soil samples collected at the facility during the Phase I RFI typically contained elevated concentrations of metals (i.e., metals concentrations are present at concentrations above potentially applicable criteria). Elevated concentrations were also present, but at lesser frequency, in subsurface soil samples.

At this time, AL Tech anticipates no further action with regard to metals concentrations in soils based on the following factors.

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<sup>3</sup> Because several of the existing wells were installed in the upper portion of the shale bedrock, typically only the groundwater elevations for the newly installed wells (RFI-series) were used to develop these maps and to determine the direction of groundwater flow.

- The two main surface soil migration pathways are particulates in air and surface water runoff. The Air Pathway Analysis indicates that the metals concentrations in the facility's surface soils do not pose unacceptable risks (Section 2.2.4) and the surface water data indicate no apparent impact.<sup>4</sup> This suggests surface soils have not significantly impacted these media and are not migrating.
- The metals that are fairly consistently detected at elevated concentrations in the samples of facility soils<sup>5</sup> (cadmium, total chromium, molybdenum, and nickel) are rarely detected at elevated concentrations in any of the groundwater samples. In addition, total chromium was present above the TC limit in 1 of 19 soil samples submitted for TCLP extraction and analysis of the leachate. Lead was detected in 2 of the 19 samples at concentrations above the TC limit. This supports the conclusion that the elevated metals concentrations in soil pose little potential impact to site groundwater quality.
- The nature of the facility operations requires that metals be handled throughout the site. Metals will continue to come into contact with the soils. Therefore, further investigation or corrective measures (pursuant to potentially applicable criteria) is impractical and provides no long-term benefit.
- The findings of the Air Pathway Analysis completed during the Phase I RFI indicate that the maximum impacts from the metals and particulate matter (PM<sub>10</sub>) are below their respective state and/or federal standards at the fence line (i.e., facility boundary).

As discussed in Section 3.0, AL Tech anticipates the collection of a limited number of subsurface soil samples during the Phase II RFI or ICM for laboratory analysis of RCRA and facility-related metals<sup>6</sup> to address data gaps that were identified for these units:

- Phase II RFI
  - SWMU 11 – Shark Pit Residual Material Loading Area
  - SWMU 15 – Former Waste Acid Surface Impoundments
  - CAMU B – BRP Pickle Facility (downgradient locations)
- ICM
  - CAMU A – Former LAP West Pickling Facility
  - RFI-08 (surface soil)

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<sup>4</sup> The sediment sample data generated during the Phase I RFI were inconclusive. Additional investigation of sediments in the unnamed tributary is recommended as part of the Phase II RFI.

<sup>5</sup> Arsenic and beryllium are not considered in this discussion because both metals were present at concentrations above potentially applicable criteria in three to seven of the background soil samples.

<sup>6</sup> The facility-related metals include: aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, selenium, silver, vanadium, and zinc. This list of metals, which was developed by AL Tech and NYSDEC, was also used in the implementation of the Phase II RFI at AL Tech's Watervliet facility

In addition, AL Tech recommends that the Phase II RFI scope of work include the calculation of site-specific risk-based concentrations for select metals (RCRA and facility-related metals, including hexavalent chromium).<sup>7</sup> The metals data for soil samples collected during the Phase I and Phase II RFIs will be compared to the calculated concentrations. Exceedances of the calculated concentrations will result in a recommendation for the evaluation of potential remedial action for soils during the CMS.

#### 2.2.1.2 TCL VOCs

TCL VOCs were detected at elevated concentrations in soil samples collected from two units during the Phase I RFI: AOC 3B (Rust Furnace Cooling Tower) and CAMU D (Former LAP East Pickling Facility).

- 1,3-Dichlorobenzene was detected in a single subsurface soil sample that was collected from 6 to 8 ft-bgs in AOC 3A. Further evaluation of this unit, with regard to TCL VOCs, is not warranted based on the absence of this constituent in any other environmental media samples collected at the facility.
- TCL VOCs trichloroethene and cis-1,2-dichloroethene were detected in soil samples collected from CAMU D at concentrations slightly above one of the potentially applicable criteria.<sup>8</sup> These constituents and several of their “daughter products” were detected in groundwater samples collected from LAE-4 at concentrations above several potentially applicable criteria.<sup>9</sup> The extent of these constituents in both media will be addressed during the Phase II RFI (Section 3.0).

During implementation of the Phase II RFI, AL Tech will collect a limited number of subsurface soil samples these areas for analysis of TCL VOCs to aid in the identification of the source of these constituents and fully define the extent of impact (Section 3.0). Because TCL

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<sup>7</sup> This protocol for evaluating the presence of metals in facility soils was approved by NYSDEC for AL Tech’s Watervliet facility.

<sup>8</sup> U.S. Environmental Protection Agency, May 1996, “Soil Screening Guidance: Technical Background Document,” EPA/54/R-95/128. Specifically, the reported concentrations exceeded the 20 DAF (Dilution/Attenuation Factor) which addresses the potential for migration of these constituents to groundwater.

<sup>9</sup> These criteria included:

- New York State Department of Environmental Conservation, November 30, 1992, “Contained-In Criteria for Environmental Media,” Technical Administrative Guidance Memorandum (TAGM) 3028 (revised 1997).
- New York Codes, Rules, and Regulations (NYCRR), Title 6, Chapter X, Parts 700-705 (NYS Water Quality Standards for Class GA Waters).
- U.S. Environmental Protection Agency, Final Maximum Contaminant Levels (MCLs) for drinking water.

VOCs were also detected at elevated concentrations in groundwater samples collected from RFI-15, RFI-16, and WP-4 (near SWMU 16) and WT-2 (near SWMU 17), groundwater samples will also be collected for analysis of TCL VOCs in these areas during the Phase II RFI.

#### 2.2.1.3 TCL SVOCs

TCL SVOCs (typically polynuclear aromatic hydrocarbons) were detected at elevated concentrations in approximately one-quarter of the soil samples collected during the Phase I RFI. The elevated concentrations were almost exclusively reported for surface soil samples. Many of the locations were near roadways or in areas of oil or coal handling (e.g., API oil/water separator, former coal gasification plant, former coal pile). AL Tech does not recommend additional investigation for TCL SVOCs, based on the following factors.

- These constituents do not typically migrate to or otherwise affect groundwater quality. In fact, the only TCL SVOC detected in the facility groundwater samples at an elevated concentration was naphthalene, which was detected in the first round groundwater sample collected from LAE-4 (CAMU D).
- Given the nature of the facility operations, the sources of these constituents will continue to be utilized at the facility.

In addition, AL Tech recommends that the Phase II RFI Scope of work include the calculation of site-specific risk-based concentrations for those PAHs detected in soil at elevated concentrations. Similar to the metals calculations recommended in Section 2.2.21.1, a comparison of the calculated PAHs concentrations and sample data will be used to determine if potential remedial action for soil should be evaluated in the CMS.

#### 2.2.1.4 TCL PCBs

PCBs were detected in soil samples collected from the following units, at concentrations above the potentially applicable concentration of 25 mg/kg for soil in restricted areas (CFR 761.125).

- SWMU 13 - Aroclor 1260 was detected at a concentration of 31 mg/kg in the 8 to 10 ft-bgs sample from RFI-11.
- AOC 1 – Aroclors 1248 was detected at a concentration of 87 mg/kg the surface soil sample collected near Transformer T3, at Location T3-01.

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– “Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facility; Proposed Rule,” 55 FR 30798, July 27, 1990.

No further action is anticipated for SWMU 13, because:

- PCBs were only detected in one of the soil samples collected from RFI-11, which suggests that the presence of PCBs is not pervasive
- PCBs were only present in a subsurface soil sample, which indicates there is not a current, complete exposure pathway.

An ICM is recommended for Transformer T3. The ICM will include the delineation of the extent of PCBs above 25 mg/kg in surface soil in this area and implementation of appropriate engineering controls (e.g., excavation, cover, limit access).

AL Tech also recommends the collection of surface soil samples near AOC 3B, HAP Cooling Tower, during the Phase II RFI for analysis of PCBs. This area is not accessible to a drill rig. Consequently, the boring completed to assess potential impact from the cooling tower during the Phase I RFI was not possible.

### 2.2.2 Groundwater

#### 2.2.2.1 TAL Inorganics (Plus Hexavalent Chromium and Molybdenum)

Groundwater samples collected from 13 of the 30 facility wells during the Phase I RFI for analysis of metals contained elevated concentrations of one or more of the TAL Inorganics plus molybdenum for one or both sampling rounds. Hexavalent chromium was only detected at elevated concentrations in groundwater samples collected from MW-3, LAW-5, and LAW-6 during the Phase I RFI.

Wells B-1 and RFI-01 are not ideally situated background wells. Therefore, AL Tech believes that it is appropriate to consider the data generated for B-1 and RFI-01 as background because there is little potential for site-related groundwater impact at these locations, as the majority of site operations are on the opposite side of the site groundwater divide from these two wells. Constituents that were detected at elevated concentrations in samples collected from Wells B-1 and RFI-01 included: aluminum, beryllium, iron, magnesium, manganese, sodium, and thallium. Deleting these constituents from consideration to focus the evaluation of potential impact from facility operations, data for the remaining metals indicate that groundwater has potentially been impacted by facility operations in several areas:

- SWMU 16 – Willowbrook Pond
- CAMU A – Former LAP West Pickling Facility
- CAMU B – Former BRP Pickling Facility

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- CAMU C – BFS Pickle Facility
  - CAMU E – Northwest Quadrant Fill Area<sup>10</sup>
  - general facility wells (RFI-02, RFI-03, RFI-08, RFI-12, and RFI-16)

AL Tech recommends further action (sampling or CMS) to address metals at elevated concentrations in groundwater samples for:

- CAMU A and CAMU C, which are being addressed through the NYSDEC-approved ICM
- CAMU B, for which additional wells are to be installed during the Phase II RFI to address the absence of downgradient monitoring locations
- CAMU E, is recommended for additional investigation during the Phase II RFI to address the presence of TCL VOCs; analysis of the groundwater samples will include molybdenum and fluoride
- RFI-08, which is to be addressed through additional investigation during the Phase II RFI to address the presence of lead at an elevated level in groundwater (an ICM is also recommended for soil in this area)

AL Tech does not recommend further action to address metals at elevated concentrations in groundwater samples for SWMU 16 and the general facility wells. This decision takes into consideration the following factors:

- only a limited number of metals were detected at elevated concentrations these wells
- the absence of any exposure pathway; groundwater is not used for potable purposes
- an anticipated groundwater compliance monitoring program along the facility's downgradient boundaries that will be used to evaluate potential offsite migration of impacted groundwater

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<sup>10</sup> Groundwater quality in the vicinity of SWMU 13C, SWMU 17, and SWMU 22 has been impacted by facility operations. The potential sources of impact include: historical and existing process sewer lines, the crucible disposal area (SWMU 13C), the former surface impoundment (SWMU 17), and the WWTP (SWMU 22). Because of the overlapping physical nature of these operations and similarities in the associated substances of concern, accurate identification of the source is difficult. Consequently AL Tech proposes to evaluate groundwater quality associated with this general area as a CAMU (CAMU E, Northwest Quadrant Fill Area). This CAMU will include Wells WT-1A, WT-1B, WT-2, WT-3, WT-4, RFI-09, RFI-10, and RFI-11 and the wells recommended for the Phase II RFI.



#### 2.2.2.2 TCL VOCs

TCL VOCs were detected in groundwater samples collected from four areas:

- SWMU 15 – Former Waste Acid Surface Impoundments (RFI-02)
- SWMU 16 – Willowbrook Pond area (north and upgradient of Willowbrook Pond at WP-4, RFI-15, and RFI-16)
- CAMU D – Former LAP East Pickling Facility (LAE-4)
- CAMU E – Northwest Quadrant Fill Area (WT-2)

AL Tech recommends additional limited and focused investigation of each of these areas as part of the Phase II RFI (Section 3.1). Further evaluation of SWMU 15 is only recommended to address an identified data gap (i.e., the installation of a well within or downgradient of the unit is recommended, as RFI-02 does not meet this requirement).

#### 2.2.2.3 TCL SVOCs

TCL SVOCs were typically not detected or were not detected at elevated concentrations in groundwater samples collected during the Phase I RFI. Naphthalene was the only TCL SVOC detected at an elevated concentration in a groundwater sample collected during the Phase I investigation (CAMU D, Well LAE-4 during one sampling round). Consequently, further investigation or evaluation of these constituents in groundwater is not recommended.

#### 2.2.2.4 TCL PCBs

TCL PCBs were not detected in any site groundwater samples. Consequently, no further investigation or evaluation of these constituents in groundwater is warranted.

#### 2.2.2.5 Miscellaneous Parameters

One or more of the miscellaneous parameters (pH, total phenols, chloride, fluoride, nitrate, sulfate, and ammonia) was detected at levels that are beyond the bounds of potentially applicable criteria in groundwater samples collected proximate to four units (in at least one well) and in four general site wells:

- CAMU A - Former LAP West Pickling Facility
- CAMU B - Former BRP Pickling Facility
- CAMU C - BFS Pickling Facility
- CAMU E - Northwest Quadrant Fill Area
- general facility wells (RFI-02, RFI-03, and RFI-06)

AL Tech does not believe that the measurements for these miscellaneous parameters indicate a need for additional investigation. This conclusion is based on the following factors.

- Groundwater quality proximate to each of the CAMUs will be addressed as part of the Phase II RFI or an ICM.
- The anticipated long-term perimeter groundwater monitoring program will evaluate the potential presence of elevated levels of the miscellaneous parameters in groundwater downgradient from the individual facility wells.

### 2.2.3 Surface Water and Sediment

Surface water and sediment samples were collected from the unnamed tributary to Crooked Brook during the Phase I RFI. AL Tech does not recommend any additional investigation of surface water quality for the unnamed tributary based on the absence of detected constituents at elevated levels in these samples.

Seven metals and several TCL SVOCs (polynuclear aromatic hydrocarbons) were detected at elevated concentrations in one or more of the three sediment samples collected from this tributary. The background soil concentrations for three of these metals were higher than the potentially applicable criteria suggesting naturally elevated concentrations of these metals in the vicinity of the facility. The remaining data are inconclusive, because the background sample collected for the stream (S-1) may also have been affected by a source. Consequently, AL Tech will perform additional evaluation of potential impact to the sediments in the tributary from the facility as part of the limited Phase II RFI (Section 3.0).

### 2.2.4 Air Pathway Analysis

The Air Pathway Analysis modeled the offsite migration of TAL Inorganics plus hexavalent chromium and molybdenum as particulates (PM<sub>10</sub>), using the Phase I RFI surface soil analytical data. The modeling results indicate that the maximum impacts from the metals at the fenceline were below their respective state and federal standards. The highest predicted impact for any time period evaluated (on a percent of guideline basis) was the annual PM<sub>10</sub> concentration which was 81 percent of the federal standard. This information, together with the surface water and sediment results, suggest that no further evaluation of the facility's surface soils is warranted with regard to potential offsite particulate migration.

## 2.3 **CAMU A (Former LAP West Pickling Facility) ICM**

During implementation of the Phase I RFI, groundwater in the vicinity of CAMUs A and B was determined to be affected by historical facility operations. Various metals and miscellaneous parameters were detected in groundwater samples collected from shallow monitoring wells located in these areas at concentrations above potentially applicable action levels:

- CAMU A – Former LAP West Pickling Facility
  - LAW-5
  - LAW-6
  
- CAMU C – BFS Pickling Facility<sup>11</sup>
  - MW-3

Consequently, AL Tech prepared and submitted an ICM work plan to address limited investigation of these areas and, as appropriate, implement corrective measures (ESC 1996). The work plan was approved by NYSDEC (NYSDEC 1997).

CAMU A is located at the perimeter of the facility and poses the greatest potential for offsite impact, therefore, implementation of the ICM work plan in this area was identified as a priority. CAMU C is located within the central portion of the facility and poses negligible potential for offsite impact. Based on this consideration and the fact that BFS is currently operational, implementation of the ICM work plan in this area was not identified as a priority. AL Tech intends to begin implementation of the ICM on an appropriate schedule. The proposed scope of work for CAMU C is presented in Section 3.2.

Implementation of the CAMU A ICM began in September 1997. The scope of work included the installation of three temporary monitoring wells (TW-1 through TW-3) monitoring shallow groundwater and a temporary piezometer (TPZ-1) installed in the underlying bedrock (Figure 8). Each of these installations was completed offsite and immediately north of the facility's property boundary along Lucas Avenue.

Groundwater samples were collected from each of the new installations and the existing monitoring wells (LAW-5 and LAW-6) and submitted for laboratory analysis of hexavalent chromium. The results indicated that hexavalent chromium was present at concentrations above the potentially applicable action levels at each of the shallow offsite locations, as well as LAW-5 and LAW-6. A fourth temporary well (TW-4) was subsequently installed to aid in delineating the extent of impact to the west. Hexavalent chromium was detected in the groundwater sample from this location.

Hexavalent chromium was not detected in the groundwater sample collected from bedrock. In addition, the groundwater elevations indicate that there is an upward vertical gradient between the bedrock and overburden (shallow) wells.

In addition to the well installation and sampling, two test pits were excavated near Manhole MH-1, which was believed to have been a migration pathway for the impacted water.

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<sup>11</sup> CAMU C is the facility's only pickling facility that is currently operating.

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The purpose of the pits (TP-1 and TP-2) was (1) to evaluate the condition of the sewer lines extending from the facility to the manhole, and (2) to determine if water was migrating along the sewer line or through the sewer line backfill.

The findings indicated that the sewer lines were in good condition and that water was not present in the backfill material. Therefore, neither the lines nor backfill was considered to be a source of the observed groundwater impact.

The most likely source of the impact in this area is now believed to be the former Kolene (caustic soda) operation that was located in the LAP West pickling area. The most probable route of migration was initial dissolution of crystalline Kolene by rainwater leaking through the building roof with migration through the vadose zone to groundwater. (Much of the lacustrine material underlying the building is believed to have been disrupted by construction of footings and other subsurface building appurtenances.) Consequently, these materials do not present the significant barrier to groundwater migration that is present throughout the rest of the facility.

AL Tech's personnel properly removed approximately 95 percent of the crystalline Kolene that remained in LAP West. The leaks through the roof have also been addressed. Consequently, the key source and routes of migration have been addressed.

AL Tech intends to complete the implementation of the NYSDEC-approved work plan for this unit.

### 3.0 Proposed Scopes of Work

Based on information generated during implementation of the Phase I RFI (as well as earlier investigation efforts), AL Tech has developed recommended scopes of work for a limited and focused Phase II RFI and ICMs. The units are identified in Table 3; the scopes of work are presented in Sections 3.1 and 3.2.

#### 3.1 Phase II RFI

It is anticipated that the focused Phase II RFI scope of work will be limited to the following units or areas:

- SWMU 11 – Shark Pit Residual Material Loading Area (a)
- SWMU 15 – Former Waste Acid Surface Impoundments (a)
- SWMU 16 – Willowbrook Pond area (b)
- AOC 3 B – HAP Cooling Tower (a)
- • AOC 9 – Unnamed Tributary to Crooked Brook
- CAMU B – Former BRP Pickling Facility (a)
- CAMU D – Former LAP East Pickling Facility
- • CAMU E – Northwest Quadrant Fill Area
- • RFI-08 (c)

- a/ Investigation of SWMUs 11 and 15, AOC 3B, and CAMU B is recommended to address data gaps from the Phase I RFI.
- b/ The TCL VOCs detected at elevated concentrations in groundwater samples from SWMU 16 are not believed to be related to operation the pond. This unit has merely been cited to indicate the area of interest.
- c/ Groundwater quality at RFI-08 will be evaluated during the Phase II RFI. The presence of lead in the surface soil at this location will be addressed by an ICM.

The Phase II scope of work will further address sediments in the unnamed tributary to Crooked Brook.

The anticipated general scope of work includes:

- SWMU 11 – Shark Pit Residual Material Loading Area
  - completion of one soil boring
  - collection and analysis of one surface and two subsurface soil samples from this boring for analysis of RCRA and facility-related metals, TCL SVOCs, and TCL PCBs
- SWMU 15 – Former Waste Acid Surface Impoundments
  - installation of one downgradient shallow groundwater monitoring well
  - collection and laboratory analysis of two subsurface soil samples from this well boring for RCRA and facility-related metals

- SWMU 15 – Former Waste Acid Surface Impoundments (continued)
  - two rounds of groundwater sample collection and laboratory analysis for RCRA and facility-related metals and miscellaneous parameters from:
    - one proposed Phase II RFI well
    - two existing nearby wells (RFI-02 and RFI-03)
  
- SWMU 16 – Willowbrook Pond Area<sup>12</sup>
  - completion of adequate soil borings (maximum of six)
  - installation of adequate shallow temporary monitoring wells (maximum of three)
  - collection and laboratory analysis of a maximum of 10 subsurface soil samples from the soil and well borings for TCL VOCs
  - two rounds of groundwater sample collection and laboratory analysis for TCL VOCs and miscellaneous parameters from:
    - three proposed Phase II RFI wells
    - five existing nearby wells (RFI-15, RFI-16, WP-1, WP-2, and WP-4)
  
- AOC 3B – HAP Cooling Tower
  - collection and laboratory analysis of a maximum of six surface soil samples for PCBs
  
- AOC 9 - Unnamed Tributary
  - collection and laboratory analysis of sediment samples for RCRA and facility-related metals from:
    - two locations upstream of the facility (south of Willowbrook Avenue)
    - one location at the point of discharge from the culvert immediately west of Brigham Road
    - two locations downstream of S-3.
  
- CAMU B – Former BRP Pickling Facility
  - installation of two downgradient shallow groundwater monitoring wells
  - collection and laboratory analysis of four subsurface soil samples from the well borings for RCRA and facility-related metals
  - two rounds of groundwater sample collection and laboratory analysis for RCRA and facility-related metals and miscellaneous parameters from:
    - two proposed Phase II RFI wells
    - three existing nearby wells (RFI-13, MW-1, and RFI-14)
  
- CAMU D – LAP East
  - completion of adequate soil borings (maximum of six)
  - installation of adequate shallow temporary groundwater monitoring wells (maximum of four)
  - collection and laboratory analysis of a maximum of 15 subsurface soil samples from the soil and well borings for TCL VOCs

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<sup>12</sup> Chlorinated VOCs were detected in groundwater samples collected from three wells located near Willowbrook Pond, including RFI-16. RFI-16 is located hydraulically upgradient of the pond and, therefore, the pond itself is not believed to be the source of these constituents.

- two rounds of groundwater sample collection and laboratory analysis for TCL VOCs and miscellaneous parameters from:
  - four proposed Phase II RFI wells
  - two existing nearby wells (LAE-4 and RFI-05)
- CAMU E – Northwest Quadrant Fill Area
  - installation of one shallow downgradient perimeter monitoring well
  - completion of adequate soil borings (maximum of six)
  - installation of adequate shallow temporary monitoring wells (maximum of three)
  - collection and laboratory analysis of a maximum of 15 subsurface soil samples from the soil and well borings for TCL VOCs
  - two rounds of groundwater sample collection and laboratory analysis for TCL VOCs, molybdenum, and miscellaneous parameters from:
    - one proposed Phase II RFI well (samples collected from this well will also be submitted for analysis of RCRA and facility-related metals)
    - three proposed Phase II RFI wells
    - four existing nearby wells (WT-1A, WT-1B, WT-2, and WT-3)<sup>13</sup>
- RFI-08
  - collection of total and dissolved groundwater sample aliquots for laboratory analysis of lead

As discussed in Section 2.2, AL Tech will recommend no further action for facility soils impacted by metals (except as expressly identified above) and PAHs. However, as part of the Phase II scope of work, AL Tech will calculate site-specific risk-based concentrations for metals and PAHs in soil based on potential risk to human health. These values will be used to determine if it is necessary to further evaluate facility soils “hot spots” as part of the CMS. These values will also be used to develop necessary and appropriate health and safety requirements for potential construction scenarios in which exposure to subsurface soils might occur.

### 3.2 ICMs

ICMs have been recommended for the following AOC, CAMUs, and area of interest:

- AOC 1, Transformer T3
- CAMU A, Former LAP West Pickling Facility
- CAMU C, BFS Pickling Facility
- RFI-08

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<sup>13</sup> Chlorinated VOCs were detected in groundwater samples collected from Well WT-2 located northeast of SWMU 17. Based on the general absence of VOCs in facility operations and process wastewaters, neither of the units is believed to be the source of these constituents.

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AL Tech recommends that the extent of the constituents of concern (PCBs and lead) in the surface soil near Transformer T3 and RFI-08 be delineated. Subsequently, appropriate engineering controls will be implemented (e.g., excavation, cover, and limited access). The NYSDEC previously approved an ICM scope of work for CAMU A and CAMU C.

### **3.3 Miscellaneous Operations Activities**

The process pit and tank evaluation performed during the Phase I RFI indicated the need for repair of several pits. Because these units are integral to the facility's operations, AL Tech proposes to implement the repairs when manufacturing operations and scheduling allow.

Historical releases from the process wastewater lines in early 1997 were determined to be associated with the collapse of a polyethylene wastewater transfer line which conveys spent material from the BFS Pickle House to the WWTP. This line was subsequently been taken out of service. In September and October 1998, the integrity of the two remaining in-service lines was performed via pressure testing (i.e., hydrotesting). Small repairs were necessary to both lines. AL Tech intends to pressure test these lines to confirm their integrity on a periodic testing. If the test results indicate leakage at anytime, necessary repairs will be made and subsequent replacement of the line(s) will be given priority.



## 4.0 Environmental Concerns

In this section, the known environmental concerns<sup>14</sup> are described in terms of actions that will be required to meet environmental regulations or the existing Order. In addition, the estimated costs required to address the conditions to the point where the facility is in compliance or satisfies the Order are presented. The issues addressed in this section are presented in Table 3. The table lists all of the environmental concerns that have been identified at the site. The table also presents the anticipated actions required to address the issue: No Further Action, Phase I RFI, Phase II RFI, ICM, CMS, and Corrective Measures Implementation.

### 4.1 RCRA Related Activities

The following sections briefly discuss the activities that are considered necessary to complete the requirements of the RCRA Corrective Action Program as defined under the terms of the Order. The anticipated range of costs associated with each of these activities is presented in Table 4.

#### 4.1.1 Order

Appendix B of the Order defines the corrective action requirements for the identified SWMUs and AOCs at the Dunkirk facility. In the Order, two SWMUs and three AOCs were identified with a “No Action Requirement.” These units are listed in Table 3 and the “NFA” designation is assigned. One of these units, SWMU 8 (Former Lucas Avenue Acid North Plant) was evaluated as part of CAMU A during the Phase I RFI.

#### 4.1.2 Phase II RFI

All of the other identified SWMUs or AOCs were investigated during the Phase I RFI.

The Phase I RFI Report identifies three categories of SWMUs and AOCs, those for which No Further Action (NFA) is required, those units that require further action (i.e., Phase II RFI) and those for which an ICM is recommended<sup>15</sup> to address conditions in the short term. Table 3 presents the summary interpretations for the Phase I RFI, under the column heading “Phase I RFI.”

In addition to the recommendations summarized in Table 3, the general scope of work to be implemented during either the limited Phase II RFI or ICM are presented in the Phase I RFI Report. Based on the close working relationship and open exchange of information between the

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<sup>14</sup> The term “environmental concerns” is referring to site conditions, not operations. This chapter does not address the compliance of active operations with their associated regulations.

NYSDEC, AL Tech and its consultants, acceptance of the Phase I report and the general scope of work by NYSDEC is anticipated. A draft Phase II RFI Work Plan will be prepared and submitted for review by the agency. The limited Phase II RFI will be implemented subsequent to work plan approval by NYSDEC.

AL Tech is recommending that the limited Phase II RFI scope of work be focused on the issues that require clarification. The scope of work will include:

- soil investigation
  - 22 shallow soil bearings
  - 7 surface and 2 subsurface soil samples for TCL PCBs
  - 1 surface and 8 subsurface soil samples for RCRA and facility-related metals
  - 40 subsurface soil samples for TCL VOCs
  - 1 surface and 2 subsurface soil samples for TLC VOCs
- groundwater investigation
  - 14 temporary and long-term shallow groundwater monitoring wells
  - 2 rounds of samples from select wells (including the 14 new wells and 16 existing wells) and analysis for select constituents
  - 4 rounds of water-level measurements
- sediment investigation
  - 5 sediment samples for RCRA and facility-related metals and TCL SVOCs
- calculation of site-specific risk-based concentrations for TAL Inorganics (plus hexavalent chromium and molybdenum) and PAHs.

This program will fill all of the data requirements to allow the NYSDEC commissioner to determine if a CMS is required or for AL Tech to determine if additional ICMs are warranted.

Within the Phase II RFI Report:

- the chemical analytical data generated for soil, groundwater, and sediment samples collected during the investigation will be compared to potentially applicable criteria to determine the need for further action; presently, it is believed that such action will be limited to ICMs or the CMS (i.e., no additional investigation is anticipated)
- the soil data for TAL Inorganics (plus hexavalent chromium and molybdenum) and PAHs, generated during the Phase I and Phase II investigations, will be compared to the site-specific risk-based concentrations calculated during the Phase II RFI
- the groundwater data (both chemical and physical) will be used to identify wells for abandonment and to select long-term perimeter compliance monitoring points.

Following approval of the Phase II RFI Report by NYSDEC, the Order requires the preparation of a summary report that more briefly summarizes the RFIs.

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<sup>15</sup> An ICM could be recommended for two reasons; imminent threat of a release from the site, or because the conditions can be defined more effectively by an ICM than by further investigation.

Table 4 presents a range of costs associated with each of these activities

- preparation of the Phase II RFI Work Plan
- implementation of the Phase II RFI
- preparation of the Phase II RFI Report
- preparation of the Summary Report

#### 4.1.3 ICMs

ICMs have been proposed to date for: CAMU A (LAP West) and CAMU C (BFS Pickle House). The two identified ICMs are focused on groundwater associated with LAP West and the BFS Pickle House. In both areas groundwater samples containing pickling related constituents were detected. Because of the proximity to the property line and because the concentrations were much higher in the samples from the LAP West CAMU, the ICM was started at this location as approval could be obtained. Implementation of the ICM for CAMU A began in 1997.

ICMs have also been recommended for AOC 1, Transformer T3, and RFI-08 (soils only). The proposed work scope for both areas were presented in Section 3.2.

##### 4.1.3.1 CAMU A (Former LAP West Pickling Facility) ICM

The ICM for LAP West (CAMU A) was initiated in 1997. During the initial phase of the ICM, exploratory borings, monitoring wells and test pits were advanced/installed. Sources of seepage from the pickle house were identified and eliminated and the sewer was investigated to verify that it was not a migration pathway. The conclusions from the initial phase of the ICM were that groundwater is impacted by hexavalent chromium and other constituents, the sewer line is not acting as a preferential pathway, and the lateral extent of the plume has yet to be defined.

AL Tech believes that the next step in the CAMU A ICM is the installation of additional temporary groundwater monitoring wells or points to define the onsite and offsite limits of impact. Based on the existing Phase I RFI and initial ICM data additional monitoring wells, and 10 groundwater samples and 4 soil samples (for analysis of hexavalent chromium) will be required to complete the ICM investigation phase. Following delineation of the extent of impact an evaluation will be performed to identify the most effective means of addressing this issue. At this time it is anticipated that a collection system will be installed along Lucas Avenue. The collection system will be configured to collect the impacted water and pump it to the sump at the former pickle house. Water from the sump is pumped directly to the WWTP for on-site treatment and discharge. The anticipated range of costs associated with this scope of work are presented in Table 4.

AL Tech anticipates that it may be necessary to further evaluate this CAMU and the ICM during the CMS process although the majority of the evaluation in the CMS is expected to center

on the area of the building and former process equipment. The costs presented in Table 4 (for both the CAMU A ICM and CMS) reflect this assumption.

#### 4.1.3.2 CAMU C (BFS Pickling Facility) ICM

The scope of work proposed for this CAMU was described in Section 3.2. Based on the absence of significant impact at Wells RFI-07 and RFI-17, which are proximate to the impacted well, MW-3, AL Tech does not anticipate that significant additional investigation or remediation in this area will be necessary or that this area will be addressed in a CMS. The costs provided in Table 4 (for the CAMU C ICM and CMS) reflect these assumptions.

The presence of lead and chromium at concentrations above the TC limits in soil samples collected from RB-04 and LWB-03, during the Phase I RFI, will be addressed as part of the proposed ICM.

#### 4.1.4 CMS

The CMS for the facility will provide a focused systematic approach to the implementation of corrective measures. The CMS will meet the requirements defined by the RFI and the Commissioner.<sup>16</sup> The CMS will address all of the data collected during the Phase I and II RFIs and the ICMs. The CMS will be a comprehensive document that identifies the specific corrective measures and schedule for implementation necessary to achieve no further action modifications under the Corrective Action Program. The CAMUs, SWMUs, and AOCs that are expected to be addressed in the CMS are:

- SWMU 16 - Willowbrook Pond
- AOC 1 – Transformer 3
- AOC 9 – Unnamed Tributary to Crooked Brook
- CAMU A – Former LAP West Pickling Facility
- CAMU B - BRP Pickling Facility
- CAMU D – Former LAP East Pickling Facility
- CAMU E – Northwest Quadrant Fill Area
- soil “hot spots”

The CMS will include preparation of a draft CMS, meetings with ALTech, submission of a revised draft CMS, a meeting with the NYSDEC, and revision of the CMS following receipt of the NYSDEC comments. Based on the experience to date with NYSDEC, significant comments are not anticipated. Based on the results of the RFI and CMS, the Corrective Measures will be selected by the commissioner per the Order. The anticipated CMs are listed in Table 5 along with the associated costs. Overall implementation of the CMs is anticipated to cost between \$7,500,000 and \$8,000,000.

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<sup>16</sup> In New York State the Commissioner of the NYSDEC calls for the completion of a CMS based on the NYSDEC interpretation of the RFI results.

#### 4.1.5 CM Implementation

The activities anticipated for implementation as CMs are listed in Table 5. The range of costs associated with anticipated CMs reflects the unknown extent of impact in each of these areas.

##### 4.1.5.1 SWMU 16 – Willowbrook Pond

There are two distinct issues at the Willowbrook Pond SWMU. There have been groundwater samples collected from near and hydraulically upgradient of the pond that contain VOCs and the pond is known to contain sludges with detectable PCB concentrations. To address the VOCs detected in groundwater samples, natural attenuation may be the most appropriate means of remediation. Otherwise, in-situ treatment or groundwater collection, pretreatment and discharge to the onsite WWTP is a likely alternative. In-situ treatment could include air sparging with soil vapor extraction or in-situ recirculation/stripping. The pretreatment would be VOC removal with either carbon or air stripping. Provisions will have to be made to ensure metals do not precipitate out in the VOC treatment equipment.

The pond remediation has been included in the Order (Appendix B). A previous estimate for the pond, verified by an Environmental Strategies Corporation engineer is \$3,700,000.

##### 4.1.5.2 AOC 9 - Unnamed Tributary to Crooked Brook

The sediment samples from the unnamed tributary to Crooked Brook had detectable concentrations of metals that are possibly site related. Although these concentrations are close to background soil concentrations, it is anticipated that measures to eliminate future contributions from the site to the tributary will be required. Following the Phase II RFI sampling and analysis, it is anticipated that on-site storm water controls will be established. No action is anticipated within the tributary. The concentrations detected are not significantly different from background soil concentrations that could be conveyed by stormwater erosion of adjacent soils and the damage that would be done by excavating the creek would exceed any potential harm due to the metals detected.

##### 4.1.5.3 CAMU A – Former LAP West Pickling Facility

The LAP West pickle house is still standing and contains several pieces of equipment from the former pickling operations. The demolition of the pickle house is required in the Order (Appendix B). Some of the residual materials and tanks within this area were removed. Some of the equipment and interior surfaces of the building have been cleaned and removed. Based on the condition of the building, it is anticipated that demolition of the building may be the most appropriate means of removing the residuals and equipment. Within the building there are areas of floor that have been impacted by the former pickling operations. It is anticipated that the floor and impacted soils beneath will be removed.

#### 4.1.5.4 CAMU B – Former BRP Pickling Facility

The BRP Pickle Facility has been idle since 1991 and the majority of the equipment has been removed. Following equipment removal an area of contaminated soil was removed from within the pickle house. The excavation was never backfilled and has partially filled with groundwater. Closure of the excavation is required in the Order (Appendix B). The groundwater and soils around the base of the excavation show signs of residual contamination. It is anticipated that the remaining equipment in the building will have to be removed, the excavation will have to be dewatered, soils around the perimeter of the excavation will have to be removed, and the excavation will have to be backfilled with a porous material below the water table, and soil to the surface. Following backfilling, it is anticipated that the building will be demolished.

#### 4.1.5.5 CAMU D – Former LAP East Pickling Facility

The former pickling area of LAP East contains some surfaces that show signs of the former operations. It is anticipated that the CMS will conclude that these surfaces must be decontaminated. In addition there is a section of floor that appears to have been impacted. In order to address this issue, all equipment and materials will have to be removed from the area, the affected surfaces will have to be cleaned or removed and the floor areas that had been previously removed should be replaced

VOCs have been detected in soil and groundwater samples collected in this vicinity. Additional sampling to be conducted during the Phase II RFI may lead to a determination in the CMS that natural attenuation may address the problem. Otherwise, in-situ treatment or groundwater collection, pretreatment and discharge to the onsite WWTP is a likely alternative. In-situ treatment could include air sparging with soil vapor extraction or in-situ recirculation/stripping. The pretreatment would be VOC removal with either carbon or air stripping. Provisions will have to be made to ensure metals do not precipitate out in the VOC treatment equipment.

#### 4.1.5.6 CAMU E – Northwest Quadrant Fill Area

The area around SWMU 17 has been investigated in conjunction with the surface impoundment closure and the RFI. Groundwater in the area has been impacted by an unknown source of VOCs. Additional sampling to be conducted during the Phase II RFI is expected to lead to a determination in the CMS that natural attenuation may address the VOC problem. Otherwise, in-situ treatment or groundwater collection, pretreatment and discharge to the onsite WWTP. In-situ treatment could include air sparging with soil vapor extraction or in-situ recirculation/stripping. In-situ treatment could be complicated by the concentrations of metals in

the groundwater in this area. The pretreatment would be VOC removal with either carbon or air stripping. Provisions will have to be made to ensure metals do not precipitate out in the VOC treatment equipment.

#### 4.1.5.7 Soil

Site-specific risk-based concentrations will be used to identify areas of the site, if any, where soils pose a potential risk to human health. Based on the risk assessment, it is possible that concentrations of metals in limited areas of the site could pose a potential hazard to on-site workers. The areas represented by soil samples containing concentrations exceeding the calculated action standards would be further evaluated during the CMS. It is likely that some action or measure maybe necessary to address identified "hot spots".

#### 4.1.5.8 Establish an Onsite CAMU

Although of low priority, Willowbrook Pond must be closed at some point in the future. Through proper management, the sludges in Willowbrook Pond can be isolated on one side of the pond, while the other side is dewatered and a double lining system is installed. The sludges could then be moved and stabilized within the unit and isolated on the double lining system while the double lining system is completed on the second half of the pond. Back filling of the cell could then be completed using the soils and building debris to be removed from the LAP West and BRP Pickle Facilities and the soils to be potentially removed from "hot spots". This completed cell would completely isolate all of the materials of concern without having to generate the materials by taking them from the site-wide CAMU or AOC.

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## References

- 40 Code of Federal Regulations. Part 176.125. "Requirements for PCB Spill Cleanup."
- 55 Federal Register. 1990. "Corrective Action for Solid Waste Management Units at Hazardous Waste Management Facilities." (Subpart S). July 27.
- City of Dunkirk, New York. 1997. "Industrial Wastewater Discharge Permit." (Permit No. 01.9711.19). November 19.
- Environmental Strategies Corporation. 1996a. "Pre-Investigation Evaluation of Corrective Measures Report, AL Tech Specialty Steel Corporation, Dunkirk, New York." April 18.
- Environmental Strategies Corporation. 1996b. "Phase I RCRA Facility Investigation Work Plan, AL Tech Specialty Steel Corporation, Dunkirk, New York." May 17 (revised October 16).
- Environmental Strategies Corporation. 1996c. "Interim Corrective Measures, AL Tech, Dunkirk, New York." December 30 (revised March 7, 1997).
- McLaren/Hart Environmental Engineering Corporation. 1992a. "RCRA Facility Assessment Report, AL Tech Specialty Steel Corporation, Dunkirk, New York." December.
- McLaren/Hart Environmental Engineering Corporation. 1992b. "RCRA Facility Investigation Description of Current Conditions, AL Tech Specialty Steel, Dunkirk, New York." December.
- New York Codes, Rules, and Regulations (NYCRR). Title 6, Chapter X, Parts 700-705 (NYS Water Quality Standards for Class GA Waters).
- New York State Department of Environmental Conservation. 1998. "Air Title V Application, AL Tech Specialty Steel Corp., City of Dunkirk, Chaut. Co." March 30.
- New York State Department of Environmental Conservation. 1997. "RCRA Interim Corrective Measures at Lucas Avenue Plant West and Bar Finishing and Storage, EPA I.D. No. NYD030215529." Correspondence to Mr. Dennis Zurakowski, AL Tech Specialty Steel Corporation, Watervliet, New York. May 9.
- New York State Department of Environmental Conservation. 1995. "Order on Consent between the State of New York Department of Environmental Conservation and AL Tech Specialty Steel Corporation (respondent)." NYSDEC No. R4-1467-93-02. August 4.
- New York State Department of Environmental Conservation. 1994. "State Pollutant Discharge Elimination System, Storm Water General Permit Coverage Notice." (NYSDEC No. NYR008269). August 11.
- New York State Department of Environmental Conservation. 1993. "Closure Plan for the Surface Impoundment at AL Tech Specialty Steel, Dunkirk, NY." Correspondence to Mr. Dennis Zurakowski, AL Tech Specialty Steel Corporation, Watervliet, New York. September 1.



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**References (continued)**

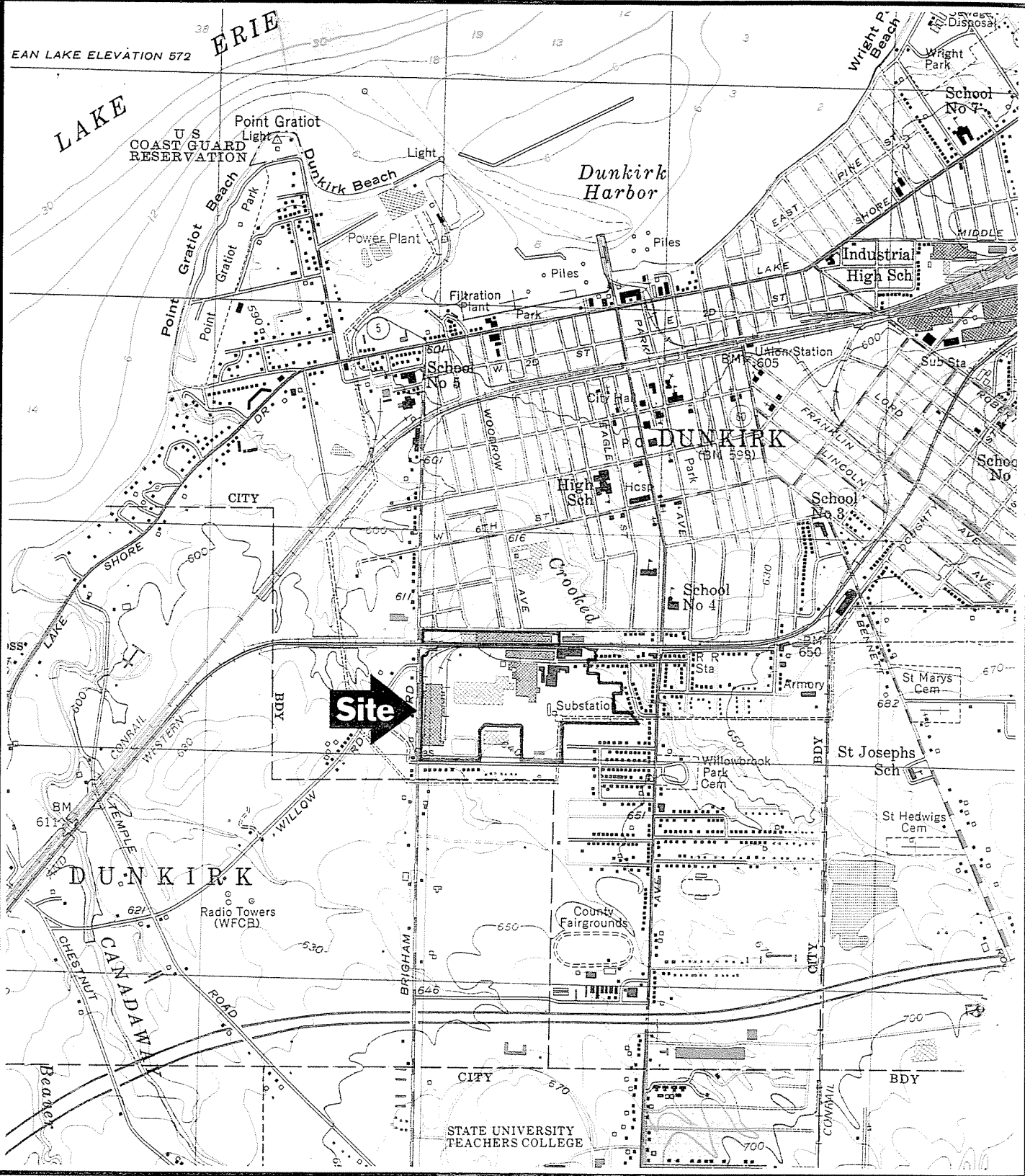
New York State Department of Environmental Conservation. 1992. "Contained-In Criteria for Environmental Media." Technical Administrative Guidance Memorandum (TAGM) 3028. November 30 (revised 1997).

U.S. Environmental Protection Agency. 1996. "Soil Screening Guidance: Technical Background Document." EPA/54/R-95/128. May.

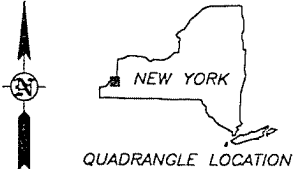
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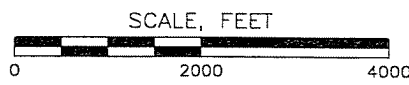
## Figures

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 Drawn By: [Signature]  
 Date: 05/1998



**REFERENCE:**  
 USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, DUNKIRK, NY, DATED 1954, PHOTOREVISED 1979. SCALE 1:24000.


 QUADRANGLE LOCATION


 SCALE, FEET


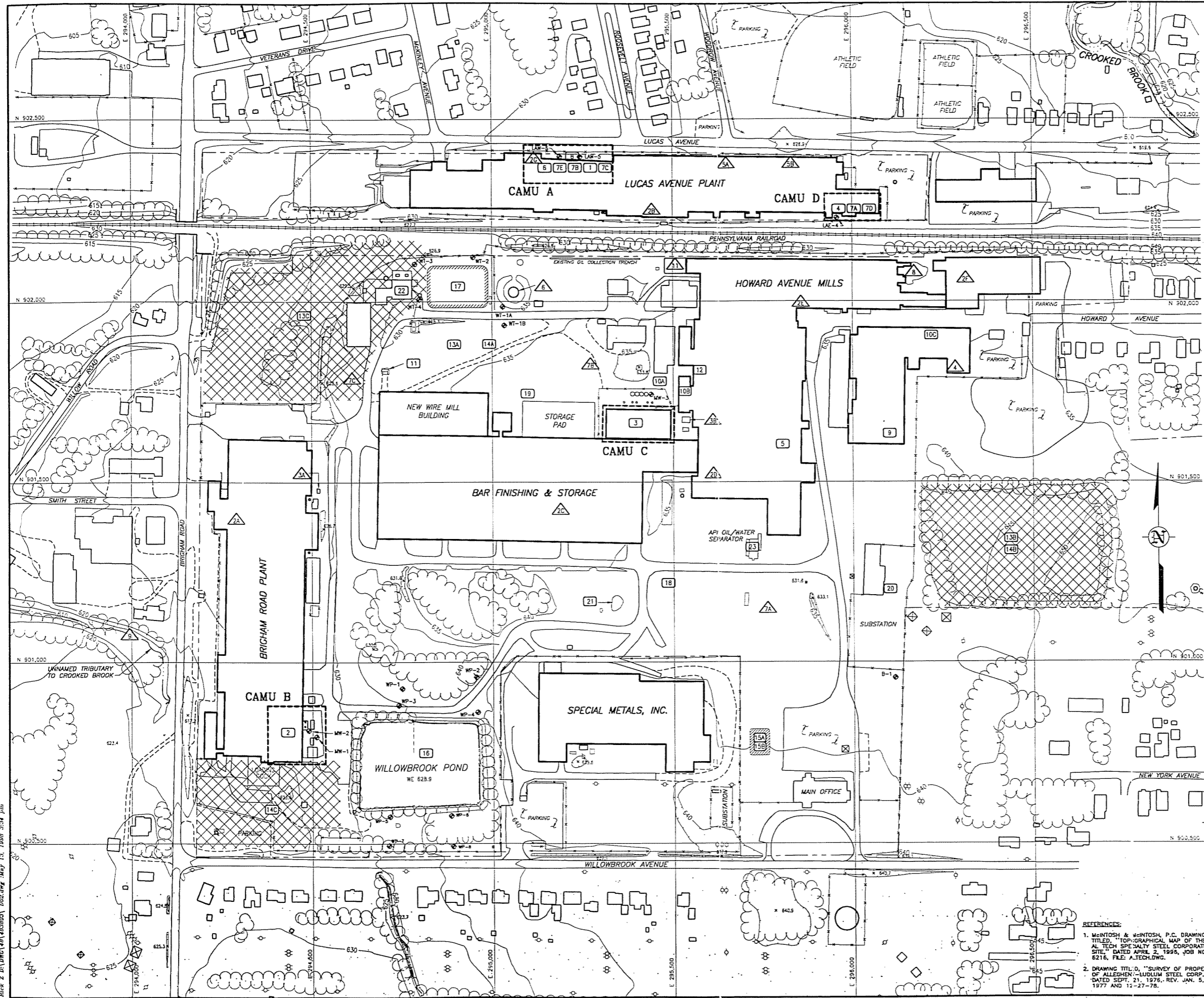

**ENVIRONMENTAL STRATEGIES CORPORATION**  
 Four Penn Center West, Suite 315  
 Pittsburgh, Pennsylvania 15276  
 (412) 787-5100

Figure 1-1  
**SITE LOCATION MAP**

AL TECH SPECIALTY STEEL CORPORATION  
 DUNKIRK, NEW YORK  
 PHASE I RFI

TMB 2: D:\G\40\483803\ AB.dwg :10 22, 1998 3:22p



- SWMUs**
- 1 FORMER LUCAS AVENUE PLANT WEST PICKLE FACILITY
  - 2 FORMER BRIGHAM ROAD PLANT PICKLE FACILITY
  - 3 BAR FINISHING AND STORAGE PICKLE FACILITY
  - 4 FORMER LUCAS AVENUE PLANT EAST PICKLE FACILITY
  - 5 FORMER GRINDING ROOM PICKLING PROCESS
  - 6 FORMER BARIUM CHLORIDE BATH
  - 7 FORMER PLATING OPERATIONS (A through E)
  - 8 FORMER LUCAS AVENUE PLANT ACID NEUTRALIZATION PLANT
  - 9 FORMER TRICHLOROETHANE CONTAINER STORAGE AREA
  - 10 WASTE CONTAINER STORAGE AREAS (A through C)
  - 11 SHARK PIT RESIDUAL MATERIAL LOADING AREA
  - 12 FORMER LIME DISPOSAL AREA
  - 13 CRUCIBLE DISPOSAL AREAS (A through C)
  - 14 WASTE DISPOSAL FACILITIES (A through C)
  - 15 FORMER WASTE ACID SURFACE IMPOUNDMENTS (A and B)
  - 16 WILLOWBROOK POND
  - 17 CLOSED SURFACE IMPOUNDMENT
  - 18 GRINDING DUST TRANSFER PILE
  - 19 FORMER WASTE PILE
  - 20 WASTE ASBESTOS ACCUMULATION AREA
  - 21 GRINDING SWarf STORAGE AREA
  - 22 WASTEWATER TREATMENT PLANT
  - 23 API OIL/WATER SEPARATOR
  - 24 PROCESS SEWERS (NOT SHOWN)

- AOCs**
- ▲ TRANSFORMERS (REFER TO FIGURE 2)
  - ▲ BATTERY STORAGE AREAS (A through G)
  - ▲ COOLING TOWERS (A and B) AND PROCESS PITS (REFER TO FIGURE 4)
  - ▲ FORMER HEAT TREATING FACILITY
  - ▲ LUCAS AVENUE OIL TANKS (A and B)
  - ▲ FORMER ABOVEGROUND FUEL OIL TANK
  - ▲ SCRAP STEEL STORAGE AREAS (A through C)
  - ▲ FORMER COAL STORAGE AREA
  - ▲ UNNAMED TRIBUTARY TO CROOKED BROOK
  - ▲ OILED ROADS (LOCATIONS UNKNOWN)
  - ▲ FORMER COAL GASIFICATION PLANT

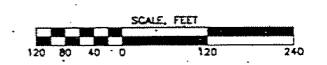
- CAMUs**
- A FORMER LUCAS AVENUE PLANT WEST PICKLE FACILITY
  - B FORMER BRIGHAM ROAD PLANT PICKLE FACILITY
  - C BAR FINISHING AND STORAGE PICKLE FACILITY
  - D FORMER LUCAS AVENUE PLANT EAST PICKLE FACILITY

- LEGEND**
- MW-1 ◊ EXISTING MONITORING WELL LOCATION AND DESIGNATION
  - ▨ APPROXIMATE AREA OF SWMUs
  - ▩ LOCATION OF FORMER IMPOUNDMENTS
  - - - FENCE LINE
  - - - PROPERTY LINE
  - - - UNPAVED ROADWAYS
  - - - CAMU LINES

- NOTES:**
1. ELEVATIONS SHOWN REFER TO NGVD 29.
  2. THE LOCATION OF WELL MW-2 IS APPROXIMATE. THE WELL COULD NOT BE LOCATED AT THE TIME OF THE SURVEY.
  3. PROPERTY LINE WAS ADJUSTED DUE TO NON-CLOSURE AND NO COORDINATES TO PLACE IT ON THE DRAWING.

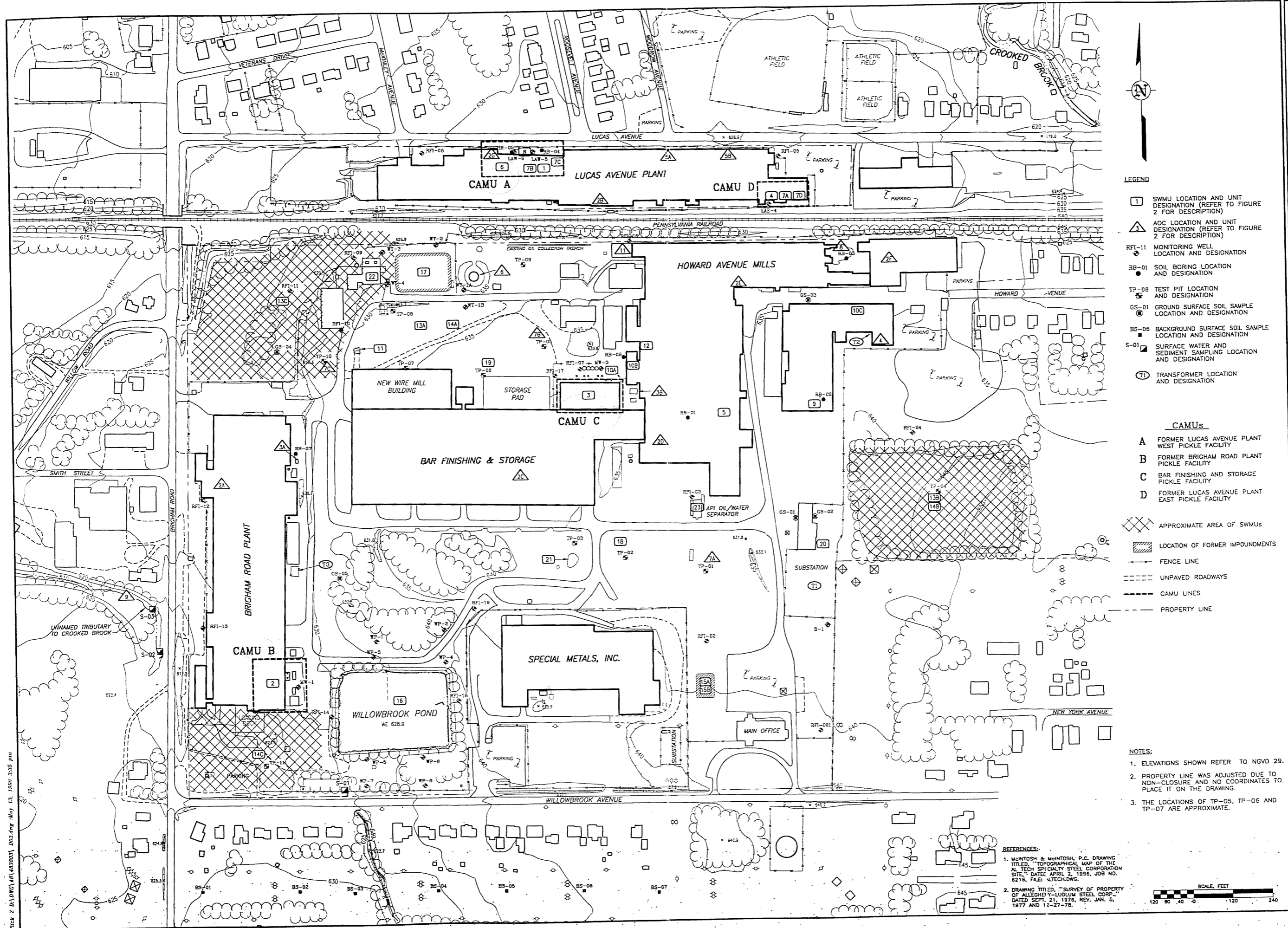
**REFERENCES:**

1. McINTOSH & McINTOSH, P.C. DRAWING TITLED, "TOPOGRAPHICAL MAP OF THE AL TECH SPECIALTY STEEL CORPORATION SITE," DATED APRIL 2, 1998, JOB NO. 6216, FILE: A.TECH.DWG.
2. DRAWING TITLED, "SURVEY OF PROPERTY OF ALLEGHENY-LUDLUM STEEL CORP.," DATED SEPT. 21, 1976, REV. JAN. 5, 1977 AND 12-27-78.



BY	
REVISIONS	
DATE	
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CHECKED	
APPROVED	
	05/13/08
	05/13/08
<p><b>SITE LAYOUT, SWMU, AND AOC LOCATIONS</b></p> <p><b>CAMU, SWMU, AND AOC LOCATIONS</b></p> <p>AL TECH SPECIALTY STEEL CORPORATION DUNKIRK, NEW YORK</p> <p>ENVIRONMENTAL SUMMARY REPORT AND PRELIMINARY ENGINEERING EVALUATION</p>	
<p><b>ENVIRONMENTAL STRATEGIES CORPORATION</b></p> <p>Four Penn Center West Suite 315 Pittsburgh, PA 15276 (412) 787-5100</p>	
<p><b>Figure 2</b></p> <p>Drawing Number <b>483803-D02</b></p>	

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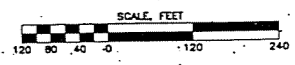
- LEGEND**
- 1 SWMU LOCATION AND UNIT DESIGNATION (REFER TO FIGURE 2 FOR DESCRIPTION)
  - 3 AOC LOCATION AND UNIT DESIGNATION (REFER TO FIGURE 2 FOR DESCRIPTION)
  - RFI-11 MONITORING WELL LOCATION AND DESIGNATION
  - RB-01 SOIL BORING LOCATION AND DESIGNATION
  - TP-08 TEST PIT LOCATION AND DESIGNATION
  - GS-01 GROUND SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
  - BS-08 BACKGROUND SURFACE SOIL SAMPLE LOCATION AND DESIGNATION
  - S-01 SURFACE WATER AND SEDIMENT SAMPLING LOCATION AND DESIGNATION
  - TI TRANSFORMER LOCATION AND DESIGNATION

- CAMUs**
- A FORMER LUCAS AVENUE PLANT WEST PICKLE FACILITY
  - B FORMER BRICHAM ROAD PLANT PICKLE FACILITY
  - C BAR FINISHING AND STORAGE PICKLE FACILITY
  - D FORMER LUCAS AVENUE PLANT EAST PICKLE FACILITY
- APPROXIMATE AREA OF SWMUS
  - LOCATION OF FORMER IMPOUNDMENTS
  - FENCE LINE
  - UNPAVED ROADWAYS
  - CAMU LINES
  - PROPERTY LINE

- NOTES:**
1. ELEVATIONS SHOWN REFER TO NGVD 29.
  2. PROPERTY LINE WAS ADJUSTED DUE TO NON-CLOSURE AND NO COORDINATES TO PLACE IT ON THE DRAWING.
  3. THE LOCATIONS OF TP-05, TP-06 AND TP-07 ARE APPROXIMATE.

**REFERENCES:**

1. McINTOSH & McINTOSH, P.C. DRAWING TITLED, "TOPOGRAPHICAL MAP OF THE AL TECH SPECIALTY STEEL CORPORATION SITE," DATED APRIL 2, 1996, JOB NO. 6216, FILE: \LTCHE.DWG.
2. DRAWING TITLED, "SURVEY OF PROPERTY OF ALLEGHENY-LUDLUM STEEL CORP.," DATED SEPT. 21, 1976, REV. JAN. 5, 1977 AND 11-27-78.



REVISIONS	DATE	DESCRIPTION	BY

DRAWN BY: <i>MC</i> CHECKED: <i>MC</i> APPROVED: <i>MC</i> DATE: 10/20/98	NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE PROVISIONS OF THE STATE LAW FOR PROFESSIONAL ENGINEERING. IT IS THE RESPONSIBILITY OF THE ENGINEER TO VERIFY THE ACCURACY OF ALL INFORMATION, STATISTICS, AND DATA. THE ENGINEER'S LIABILITY IS LIMITED TO THE DESIGN AND CALCULATIONS SHOWN HEREON. NO OTHER LIABILITY IS ASSUMED. THIS DRAWING IS NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.
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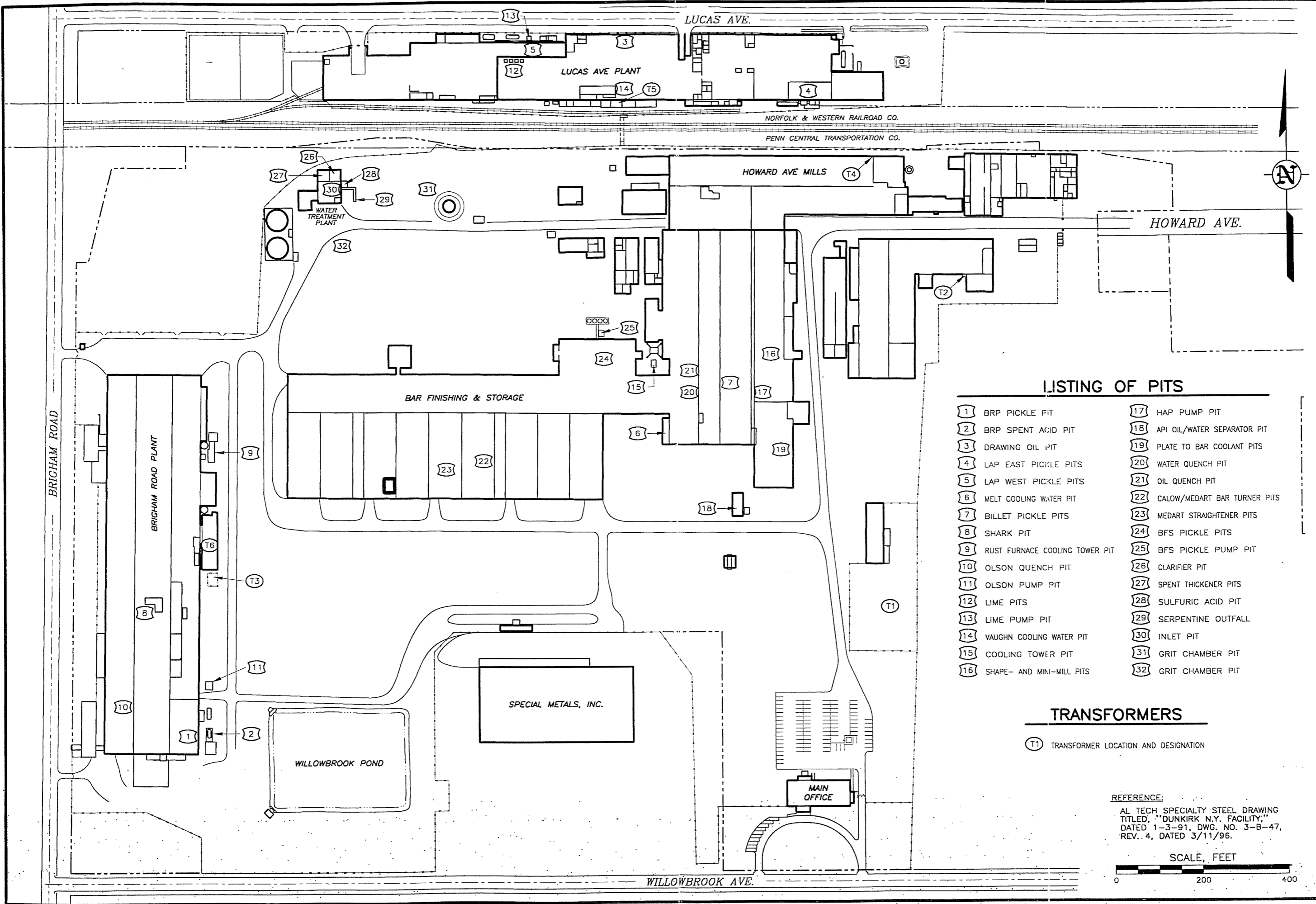
**SITE LAYOUT AND RF1 LOCATIONS**  
 AL TECH SPECIALTY STEEL CORPORATION  
 DUNKIRK, NEW YORK  
 ENVIRONMENTAL SUMMARY REPORT AND  
 PRELIMINARY ENGINEERING EVALUATION

**ENVIRONMENTAL STRATEGIES CORPORATION**  
 Four Penn Center West  
 Suite 315  
 Pittsburgh, PA 15276  
 (412) 787-5100

**Figure 3**  
 Drawing Number  
**483803-D03**

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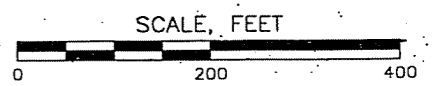
**LISTING OF PITS**

- |                                  |                                 |
|----------------------------------|---------------------------------|
| 1 BRP PICKLE PIT                 | 17 HAP PUMP PIT                 |
| 2 BRP SPENT ACID PIT             | 18 API OIL/WATER SEPARATOR PIT  |
| 3 DRAWING OIL PIT                | 19 PLATE TO BAR COOLANT PITS    |
| 4 LAP EAST PICKLE PITS           | 20 WATER QUENCH PIT             |
| 5 LAP WEST PICKLE PITS           | 21 OIL QUENCH PIT               |
| 6 MELT COOLING WATER PIT         | 22 CALOW/MEDART BAR TURNER PITS |
| 7 BILLET PICKLE PITS             | 23 MEDART STRAIGHTENER PITS     |
| 8 SHARK PIT                      | 24 BFS PICKLE PITS              |
| 9 RUST FURNACE COOLING TOWER PIT | 25 BFS PICKLE PUMP PIT          |
| 10 OLSON QUENCH PIT              | 26 CLARIFIER PIT                |
| 11 OLSON PUMP PIT                | 27 SPENT THICKENER PITS         |
| 12 LIME PITS                     | 28 SULFURIC ACID PIT            |
| 13 LIME PUMP PIT                 | 29 SERPENTINE OUTFALL           |
| 14 VAUGHN COOLING WATER PIT      | 30 INLET PIT                    |
| 15 COOLING TOWER PIT             | 31 GRIT CHAMBER PIT             |
| 16 SHAPE- AND MINI-MILL PITS     | 32 GRIT CHAMBER PIT             |

**TRANSFORMERS**

- T1 TRANSFORMER LOCATION AND DESIGNATION

REFERENCE:  
 AL TECH SPECIALTY STEEL DRAWING  
 TITLED, "DUNKIRK N.Y. FACILITY,"  
 DATED 1-3-91, DWG. NO. 3-B-47,  
 REV. 4, DATED 3/11/96.

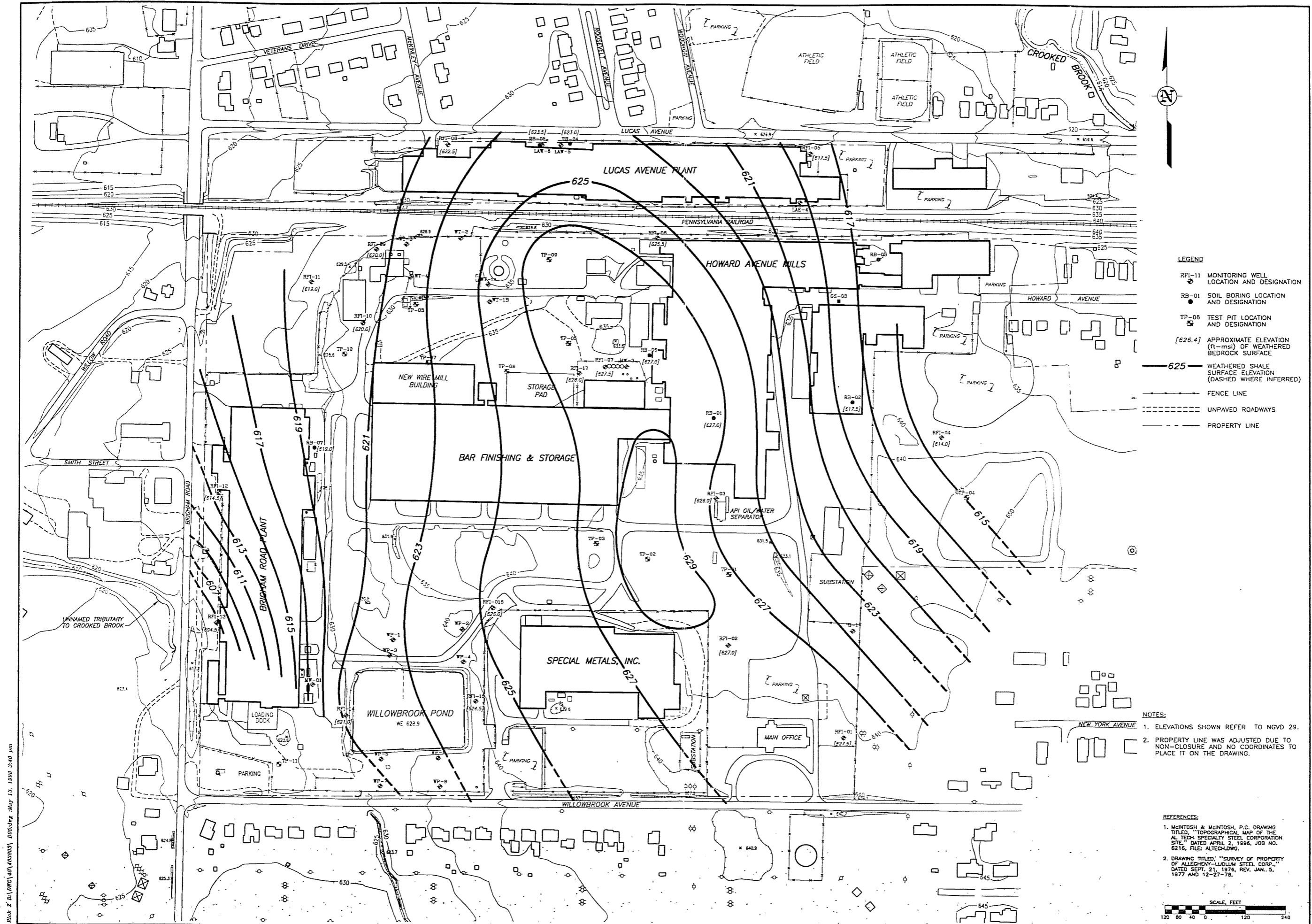


Drawn By: RAZ 051398  
 Checked: MLY 10/20/98  
 Approved: [Signature]  
 Drawing Number: 483803-B11

AL TECH SPECIALTY STEEL CORPORATION  
 DUNKIRK, NEW YORK  
 ENVIRONMENTAL SUMMARY REPORT AND PRELIMINARY ENGINEERING EVALUATION

Figure 4  
 PROCESS PIT AND TRANSFORMER SUBSTATION LOCATIONS

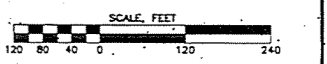
ENVIRONMENTAL STRATEGIES CORPORATION  
 Four Penn Center West, Suite 315  
 Pittsburgh, Pennsylvania 15276  
 (412) 787-5100



- LEGEND**
- RFI-11 MONITORING WELL LOCATION AND DESIGNATION
  - RB-01 SOIL BORING LOCATION AND DESIGNATION
  - TP-08 TEST PIT LOCATION AND DESIGNATION
  - [626.4] APPROXIMATE ELEVATION (ft-msl) OF WEATHERED BEDROCK SURFACE
  - 625 WEATHERED SHALE SURFACE ELEVATION (DASHED WHERE INFERRED)
  - FENCE LINE
  - UNPAVED ROADWAYS
  - PROPERTY LINE

- NOTES:**
1. ELEVATIONS SHOWN REFER TO NGVD 29.
  2. PROPERTY LINE WAS ADJUSTED DUE TO NON-CLOSURE AND NO COORDINATES TO PLACE IT ON THE DRAWING.

- REFERENCES:**
1. MCINTOSH & MCINTOSH, P.C. DRAWING TITLED, "TOPOGRAPHICAL MAP OF THE AL TECH SPECIALTY STEEL CORPORATION SITE," DATED APRIL 2, 1998, JOB NO. 6216, FILE: ALTECH.DWG.
  2. DRAWING TITLED, "SURVEY OF PROPERTY OF ALLEGHENY-LUDLUM STEEL CORP.," DATED SEPT. 21, 1976, REV. JAN. 5, 1977 AND 12-27-78.



DATE	DESCRIPTION	BY

DRAWN BY	CHECKED	APPROVED
RAE		

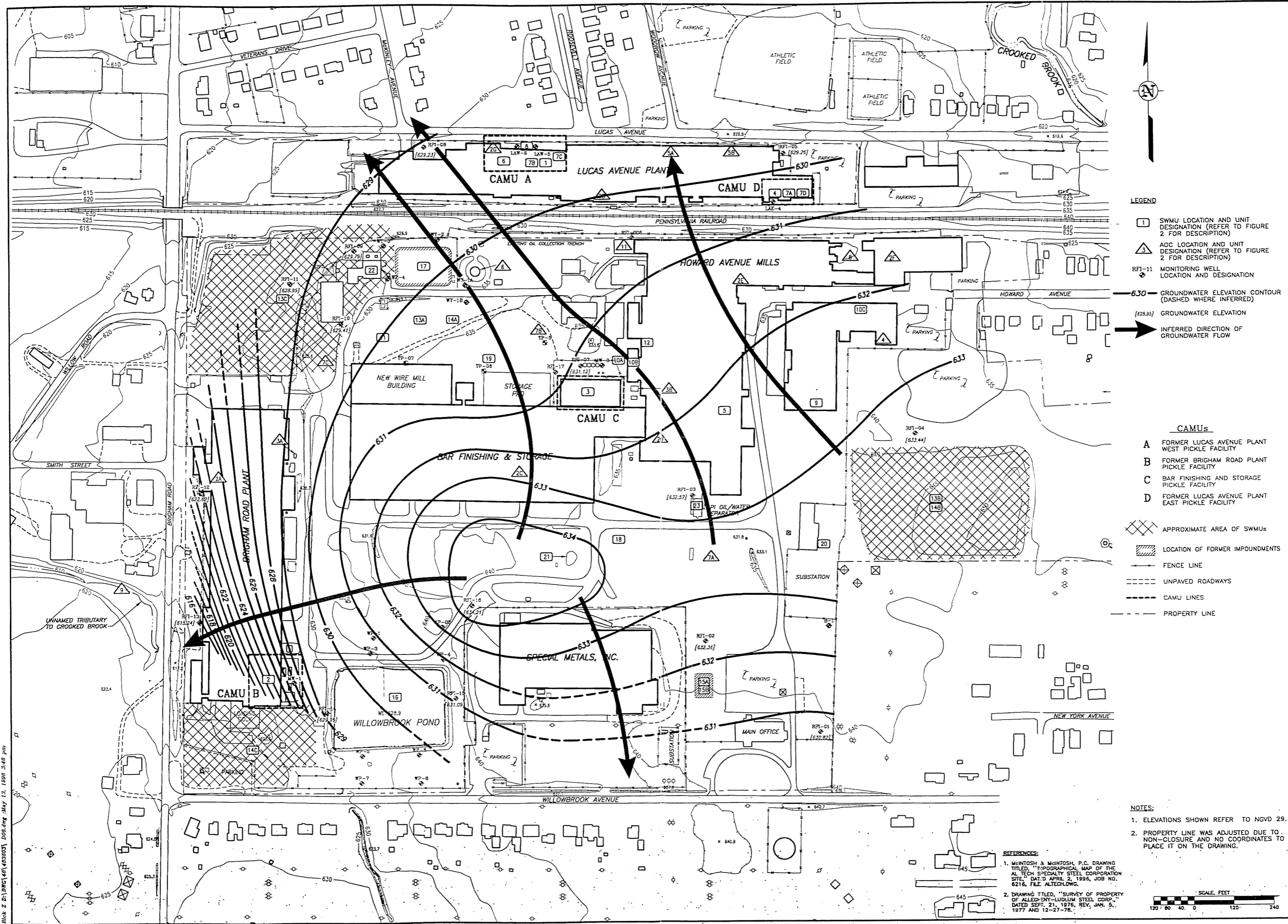
DATE: 10/20/98

**WEATHERED SHALE SURFACE CONTOUR MAP**  
**AL TECH SPECIALTY STEEL CORPORATION**  
 DUNKIRK, NEW YORK  
**ENVIRONMENTAL SUMMARY REPORT AND PRELIMINARY ENGINEERING EVALUATION**

**ENVIRONMENTAL STRATEGIES CORPORATION**  
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 Suite 315  
 Pittsburgh, PA 15276  
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**Figure 5**  
 Drawing Number:  
**483803-D05**

Plot: 2-D, DWG, 401, 4/20/98, 11:00, 3:40 pm



**LEGEND**

- 1 SWMU LOCATION AND UNIT DESIGNATION (REFER TO FIGURE 2 FOR DESCRIPTION)
- 2 AOC LOCATION AND UNIT DESIGNATION (REFER TO FIGURE 2 FOR DESCRIPTION)
- RFI-11 MONITORING WELL LOCATION AND DESIGNATION
- 630 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- [625.52] GROUNDWATER ELEVATION
- ➔ INFERRED DIRECTION OF GROUNDWATER FLOW

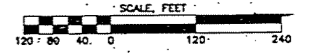
**CAMUs**

- A FORMER LUCAS AVENUE PLANT WEST PICKLE FACILITY
- B FORMER BRIGHAM ROAD PLANT PICKLE FACILITY
- C BAR FINISHING AND STORAGE PICKLE FACILITY
- D FORMER LUCAS AVENUE PLANT EAST PICKLE FACILITY
- APPROXIMATE AREA OF SWMUs
- LOCATION OF FORMER IMPOUNDMENTS
- FENCE LINE
- UNPAVED ROADWAYS
- CAMU LINES
- PROPERTY LINE

**NOTES:**

1. ELEVATIONS SHOWN REFER TO NGVD 29.
2. PROPERTY LINE WAS ADJUSTED DUE TO NON-CLOSURE AND NO COORDINATES TO PLACE IT ON THE DRAWING.

**REFERENCES:**  
 1. McINTOSH & McINTOSH, P.C. DRAWING TITLED, "TOPOGRAPHICAL MAP OF THE AL TECH SPECIALTY STEEL CORPORATION SITE," DATED APRIL 2, 1995, JOB NO. 6216, FILE ALTECH.DWG.  
 2. DRAWING TITLED, "SURVEY OF PROPERTY OF ALLEGHENY-LUDLUM STEEL CORP.," DATED SEPT. 21, 1976, REV. JAN. 5, 1977 AND 12-27-78.



REVISIONS	DATE	DESCRIPTION	BY

DRAWN BY: [Signature]  
 CHECKED: [Signature]  
 APPROVED: [Signature]  
 DATE: 10/20/98  
 PROJECT: 071-107  
 TITLE: GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR MAP (NOVEMBER 1996)  
 CLIENT: AL TECH SPECIALTY STEEL CORPORATION, DUNKIRK, NEW YORK  
 PROJECT: ENVIRONMENTAL SUMMARY REPORT AND PRELIMINARY ENGINEERING EVALUATION

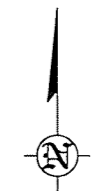
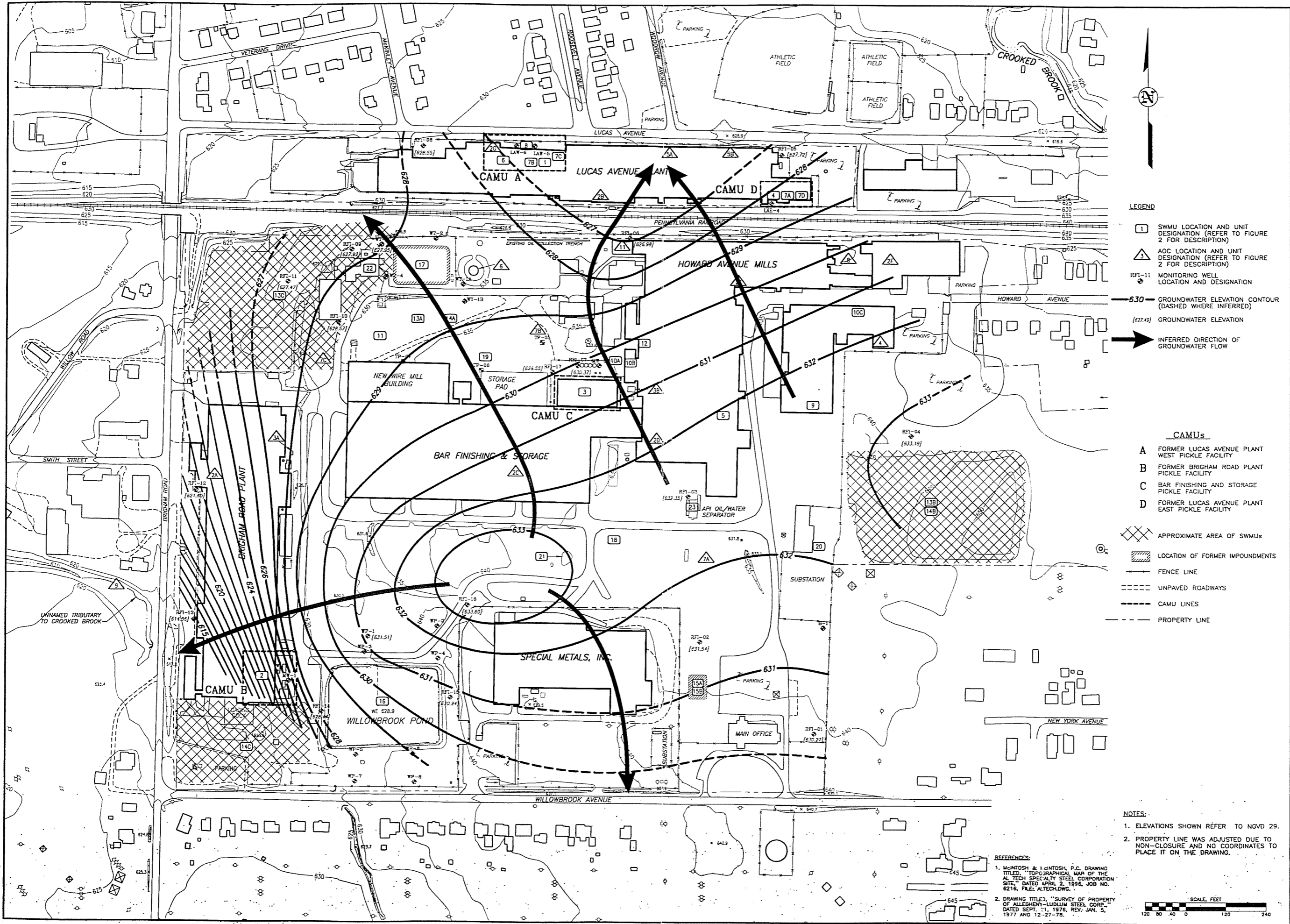
**ENVIRONMENTAL STRATEGIES CORPORATION**  
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**ESC**  
**Figure 6**  
 Drawing Number  
**483803-D06**

Risk & Environmental Services, Inc. 10/20/98 10:48 AM



Block 2 2A(DWG) 401 (483803) 1007.dwg May 13, 1998 3:53 pm



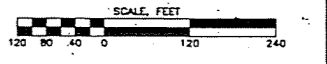
- LEGEND**
- 1 SWMU LOCATION AND UNIT DESIGNATION (REFER TO FIGURE 2 FOR DESCRIPTION)
  - 3 ACC LOCATION AND UNIT DESIGNATION (REFER TO FIGURE 2 FOR DESCRIPTION)
  - RPT-11 MONITORING WELL LOCATION AND DESIGNATION
  - 630 GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
  - [627.49] GROUNDWATER ELEVATION
  - INFERRED DIRECTION OF GROUNDWATER FLOW

- CAMUs**
- A FORMER LUCAS AVENUE PLANT WEST PICKLE FACILITY
  - B FORMER BRIGHAM ROAD PLANT PICKLE FACILITY
  - C BAR FINISHING AND STORAGE PICKLE FACILITY
  - D FORMER LUCAS AVENUE PLANT EAST PICKLE FACILITY
- Approximate Area of SWMUs
  - Location of Former Impoundments
  - Fence Line
  - Unpaved Roadways
  - CAMU Lines
  - Property Line

- NOTES:**
1. ELEVATIONS SHOWN REFER TO NGVD 29.
  2. PROPERTY LINE WAS ADJUSTED DUE TO NON-CLOSURE AND NO COORDINATES TO PLACE IT ON THE DRAWING.

**REFERENCES:**

1. MCINTOSH & MCINTOSH, P.C. DRAWING TITLED, "TOPOGRAPHICAL MAP OF THE AL TECH SPECIALTY STEEL CORPORATION SITE," DATED APRIL 2, 1996, JOB NO. 6216, FILE: ATECH.DWG.
2. DRAWING TITLED, "SURVEY OF PROPERTY OF ALLEGHENY-LUDLUM STEEL CORP.," DATED SEPT. 1, 1976, REV. JAN. 5, 1977 AND 12-27-78.



REVISIONS	DATE	DESCRIPTION	BY

DRAWN BY: JAC 05/13/98  
 CHECKED: May 19/98  
 APPROVED: [Signature]

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NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE PROVISIONS OF THE FEDERAL ACQUISITION REGULATION (FAR) AND THE FEDERAL ACQUISITION REGULATION (FAR) AND THE FEDERAL ACQUISITION REGULATION (FAR). IT IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF ENVIRONMENTAL STRATEGIES CORPORATION.

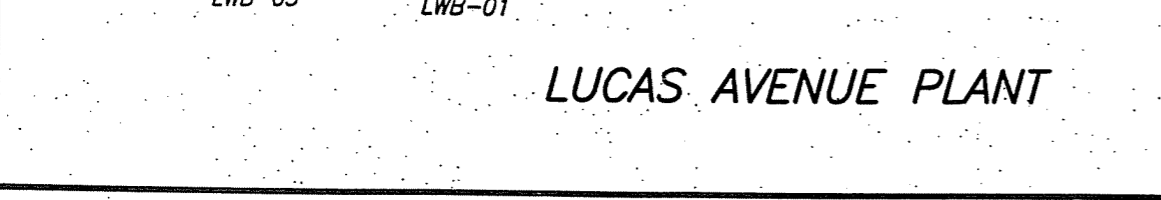
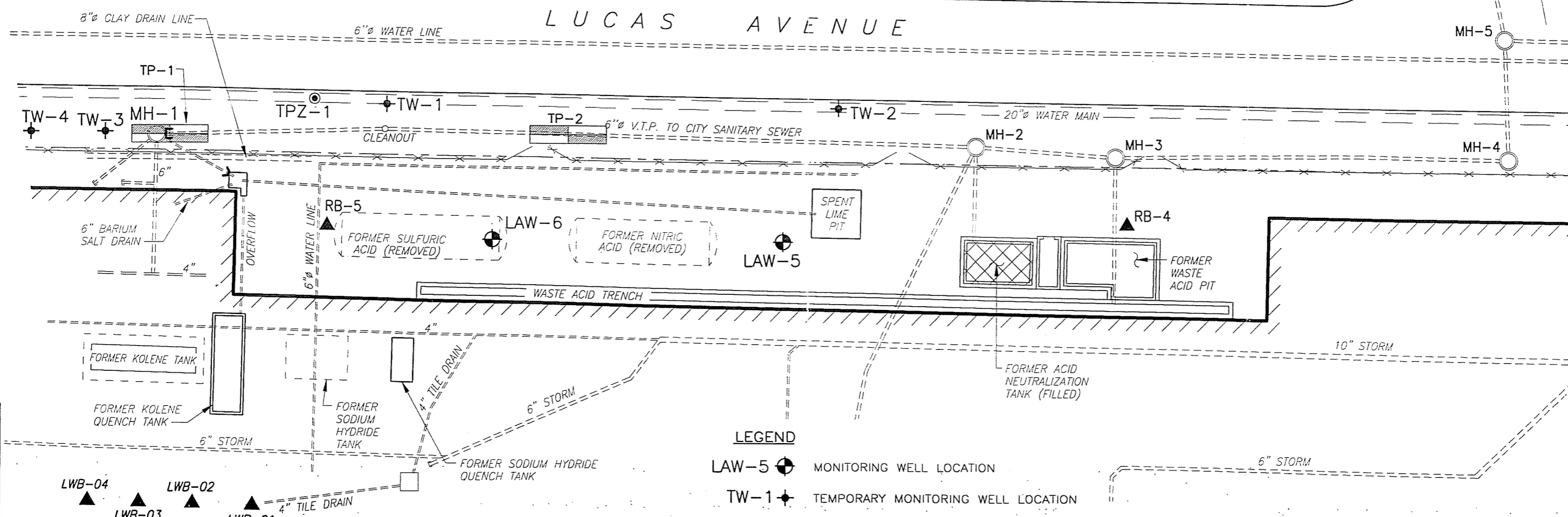
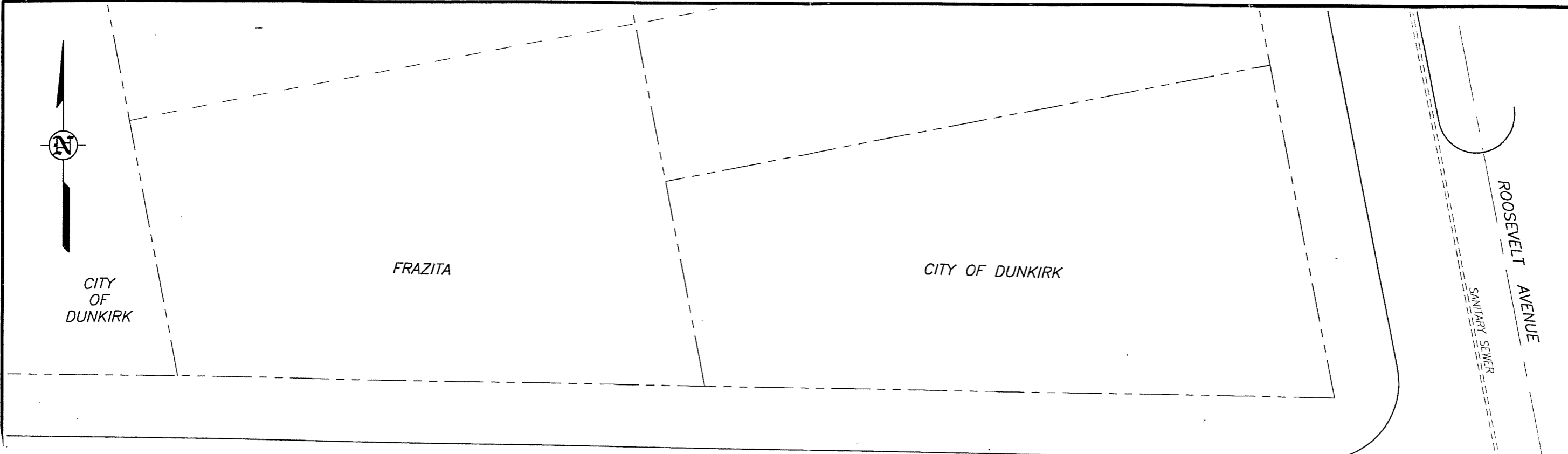
**GROUNDWATER POTENTIOMETRIC SURFACE CONTOUR MAP (MARCH 1997)**

AL TECH SPECIALTY STEEL CORPORATION  
 DUNKIRK, NEW YORK

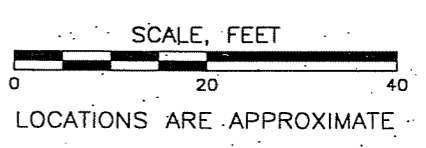
ENVIRONMENTAL SUMMARY REPORT AND  
 PRELIMINARY ENGINEERING EVALUATION

**ENVIRONMENTAL STRATEGIES CORPORATION**  
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 Suite 315  
 Pittsburgh, PA 15276  
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- LEGEND**
- LAW-5 MONITORING WELL LOCATION
  - TW-1 TEMPORARY MONITORING WELL LOCATION
  - TPZ-1 TEMPORARY BEDROCK PIEZOMETER LOCATION
  - LWB-01/RB-5 SOIL BORING LOCATION
  - TP-1 TEST PIT LOCATION



**LUCAS AVENUE PLANT**

Drawn By: RAZ-051998  
 Checked: Mly 10/20/98  
 Approved:  
 DWG Number: 483803-B10

AL TECH SPECIALTY STEEL CORPORATION  
 DUNKIRK, NEW YORK  
 ENVIRONMENTAL SUMMARY REPORT AND  
 PRELIMINARY ENGINEERING EVALUATION

Figure 8  
 LAP WEST ICM

**ENVIRONMENTAL STRATEGIES CORPORATION**  
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 Pittsburgh, Pennsylvania 15276  
 (412) 787-5100

{RAZ} Z:\DWG\48\400

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## Tables

Table 1

**Solid Waste Management Units  
Environmental Summary Report  
and Preliminary Engineering Evaluation  
AL Tech Specialty Steel Corporation  
Dunkirk, New York Facility**

SWMU Category (a)	Unit No. (b)	Unit Description	
Tank Systems	1	Former Lucas Avenue Plant West Pickle Facility (CAMU A)	
	2	Former Brigham Road Plant Pickle Facility (CAMU B)	
	3	Bar Finishing and Storage Pickle Facility (CAMU C)	
	4	Former Lucas Avenue Plant East Pickle Facility (CAMU D)	
	5	Former Grinding Room Pickling Process	
	6	Former Barium Chloride Bath (CAMU A)	
	7	Former Plating Operations	
	7A	(CAMU D - Continuous Lead Coating)	
	7B	(CAMU A - Continuous Lead Coating)	
	7C	(CAMU A - Batch Lead Coating)	
	7D	(CAMU D - Copper Coating)	
	7E (c)	(CAMU A - Non-Electrolytic Copper Coating)	
	8 (d)	Former Lucas Avenue Plant Neutralization Plant (CAMU A)	
	Container Storage Units	9	Former Trichloroethane Container Storage Area
		10 (d)	Waste Container Accumulation Areas
10A		(near Bar Finishing and Storage)	
10B		(in Old Hot Top Building/Howard Avenue Plant)	
10C		(in Warehouse/Howard Avenue Plant)	
11		Shark Pit Residual Material Loading Area	
Waste Disposal Units	12	Former Lime Disposal Area	
	13	Crucible Disposal Areas	
	13A	(near Bar Finishing and Storage)	
	13B	(near Howard Avenue Plant Parking Lot)	
	13C	(near Brigham Road Plant)	
	14	Waste Disposal Facilities	
	14A	(near Bar Finishing and Storage)	
	14B	(near Howard Avenue Plant Parking Lot)	
Surface Impoundments	14C	(near Brigham Road Plant)	
	15	Former Waste Acid Surface Impoundments	
	(15A and 15B)		
Waste Piles	16	Willowbrook Pond	
	17	Closed Surface Impoundment	
	18	Grinding Dust Transfer Pile	
	19	Former Waste Pile	
	20	Waste Asbestos Accumulation Area	
Wastewater Treatment Units	21	Grinding Swarf Storage Area	
	22	Wastewater Treatment Plant	
Waste Oil Handling Units	23	API Oil/Water Separator	
Sewers handling hazardous waste or hazardous constituents	24	Process Sewers	

a/ SWMU = solid waste management unit; CAMU = corrective action management unit.

b/ Unit numbers are as defined in the Order, not necessarily as defined in the RCRA Facility Assessment (RFA).

c/ During the Phase I RFI, it was determined that the non-electrolytic copper coating system was never constructed.

d/ Appendix B, Section C.1 of the Order, indicates that no further action was required for these units based on information presented in the RFA.

Table 2

**Areas of Concern  
Environmental Summary Report  
and Preliminary Engineering Evaluation  
AL Tech Specialty Steel Corporation  
Dunkirk, New York Facility**

AOC Category (a)	Unit No. (b)	Unit Description
Electrical Equipment	1	Transformers
	2 (c)	Battery Storage Areas
	2A	(Brigham Road Plant - northwest)
	2B	(Lucas Avenue Plant - south central)
	2C	(Bar Finishing and Storage)
	2D	(Howard Avenue Plant - southwest)
	2E	(Howard Avenue Plant - north central)
	2F	(Howard Avenue Plant - northeast)
Tank Systems	2G	(near Lucas Avenue Plant West Pickle Facility) (CAMU A)
	3	Cooling Towers and Process Pits
	3A	(Rust Furnace Cooling Tower)
	3B	(Howard Avenue Plant Cooling Tower)
	4 (c)	Former Heat Treating Facility
	5	Lucas Avenue Oil Tanks
	5A	(Lucas Avenue West Oil Tanks)
	5B	(Lucas Avenue East Oil Tanks)
Raw Materials Piles	6	Former Aboveground Fuel Oil Tank
	7	Scrap Steel Storage Areas
	7A	(Howard Avenue Plant)
	7B	(Bar Finishing and Storage - east)
	7C	(Bar Finishing and Storage - west)
8	Former Coal Storage Area	
Surface Water	9	Unnamed Tributary to Crooked Brook
Dust Control Areas	10 (d)	Oiled Roads
Process Waste Disposal Area	11	Former Coal Gasification Plant

a/ AOC = area of concern; CAMU = corrective action management unit.

b/ Unit numbers are as defined in the Order, not necessarily as defined in the RCRA Facility Assessment (RFA).

c/ Appendix B, Section C.1 of the Order, indicates that no further action was required for these units based on information presented in the RFA.

d/ Due to the period of time which has elapsed since the facility used hydraulic, lubricating, and coolant oils for dust control on the the plant roads, it is unlikely that constituents associated with these oils would still be present. Consequently, AL Tech proposed no further action in the Phase I RFI Work Plan which was subsequently approved by NYSDEC.

Table 3

RCRA Corrective Action Program Summary  
Phase I RFI  
AL Tech Specialty Steel Corporation  
Dunkirk, New York Facility

Unit No. (a)	Unit Description (b)	Action Items (c)				
		Identified Action Items (d)		Anticipated Action Items (e)		
		Order	Phase I RFI	Phase II RFI	ICM	CMS
<b>SWMUs</b>						
SWMU 5	Former Grinding Room Pickling Process	RFI	NFA	-	-	-
SWMU 9	Former TCA Container Storage Area	RFI	NFA	-	-	-
SWMU 10 (f)	Waste Container Accumulation Areas	NFA	-	-	-	-
SWMU 10A	- near BFS					
SWMU 10B	- in Old Hot Top Building/HAP					
SWMU 10C	- in Warehouse/HAP					
SWMU 11	Shark Pit Residual Material Loading Area	RFI	Phase II RFI (g) ✓	NFA	-	-
SWMU 12	Former Lime Disposal Area	RFI	NFA	-	-	-
SWMU 13	Crucible Disposal Areas	RFI	NFA	-	-	-
SWMU 13A	- near BFS					
SWMU 13B	- near HAP Parking Lot					
SWMU 13C	- near BRP					
SWMU 14	Waste Disposal Facilities	RFI	NFA	-	-	-
SWMU 14A	- near BFS					
SWMU 14B	- near HAP Parking Lot					
SWMU 14C	- near BRP					
SWMU 15	Former Waste Acid Surface Impoundments (15A and 15B)	RFI	Phase II RFI (g)	NFA	-	-
SWMU 16 (h)	Willowbrook Pond					
	- investigation	RFI	Phase II RFI (i)	CMS	-	CM
	- closure	-	-	-	-	CM (j)
SWMU 17	Closed Surface Impoundment	RFI	NFA ✓	-	-	-
SWMU 18	Grinding Dust Transfer Pile	RFI	NFA	-	-	-
SWMU 19	Former Waste Pile	RFI	NFA	-	-	-
SWMU 20	Waste Asbestos Accumulation Area	RFI	NFA	-	-	-
SWMU 21	Grinding Swarf Storage Area	RFI	NFA	-	-	-
SWMU 22	Wastewater Treatment Plant	RFI	NFA	-	-	-
SWMU 23	API Oil/Water Separator	RFI	NFA	-	-	-
SWMU 24	Process Sewers	RFI	NFA (k)	-	-	-
<b>AOCs</b>						
AOC 1	Transformers					
	- Transformer T1	RFI	NFA	-	-	-
	- Transformer T2	RFI	NFA	-	-	-
	- Transformer T3	RFI	ICM ✓	-	CMS	NFA
	- Transformer T4	RFI (l)	NFA (l)	-	-	-
	- Transformer T5	RFI (l)	NFA (l)	-	-	-
	- Transformer T6	RFI (l)	NFA (l)	-	-	-
AOC 2 (f)	Battery Storage Areas	NFA	-	-	-	-
AOC 3	Cooling Towers and Process Pits	RFI				
AOC 3A	- Rust Furnace Cooling Tower		NFA ✓	-	-	-
AOC 3B	- HAP Cooling Tower		Phase II RFI (g)	NFA	-	-
Process Pits			NFA (m)	-	-	-
AOC 4 (f)	Former Heat Treating Facility	NFA	-	-	-	-
AOC 5	Lucas Avenue Oil Tanks	RFI	NFA	-	-	-
AOC 5A	- LAP West Oil Tanks					
AOC 5B	- LAP East Oil Tanks					
AOC 6	Former Aboveground Fuel Oil Tank	RFI	NFA	-	-	-
AOC 7	Scrap Steel Storage Areas	RFI	NFA	-	-	-
AOC 7A	- HAP					
AOC 7B	- BFS west					
AOC 7C	- BFS east					
AOC 8	Former Coal Storage Area	RFI	NFA	-	-	-
AOC 9	Unnamed Tributary to Crooked Brook	RFI	Phase II RFI	CMS	-	CM
AOC 10 (f)	Oiled Roads	NFA	-	-	-	-
AOC 11	Former Coal Gasification Plant	RFI	NFA	-	-	-

Table 3 (continued)

RCRA Corrective Action Program Summary  
Phase I RFI  
AL Tech Specialty Steel Corporation  
Dunkirk, New York Facility

Page 2 of 2

Unit No.	Unit Description	Action Items				
		Identified Action Items		Anticipated Action Items		
		Order	Phase I RFI	Phase II RFI	ICM	CMS
<b>CAMUs</b>						
CAMU A	Former LAP West Pickling Facility	RFI	ICM	-	CMS	CM (n)
SWMU 1 (o)	Former LAP West Pickle Facility					
SWMU 6	Former Barium Chloride Bath					
SWMU 7B	Continuous Lead Coating					
SWMU 7C	Batch Lead Coating					
SWMU 7E (p)	Non-Electrolytic Copper Coating					
SWMU 8 (f)	Former LAP West Neutralization Plant					
CAMU B	Former BRP Pickling Facility	RFI	Phase II RFI (i)	CMS	-	CM
SWMU 2 (q)	Former BRP Pickle Facility					
CAMU C	BFS Pickling Facility	RFI	ICM	-	NFA	-
SWMU 3	BFS Pickle Facility					
CAMU D	Former LAP East Pickling Facility	RFI	Phase II RFI	ICM	CMS	CM
SWMU 4	Former LAP East Pickle Facility					
SWMU 7A	Continuous Lead Coating					
SWMU 7D	Copper Coating					
CAMU E (r)	Northwest Quadrant Fill Area	NA	Phase II RFI	CMS	-	NFA
<b>Other</b>						
	Site Soils (r)	RFI	Phase II RFI (t)	CMS	-	CM
	RFI-08	NA	Phase II RFI (u) and ICM (v)	NFA (u)	CMS (v)	NFA (v)

a/ Unit numbers are as listed in the Order, not necessarily as defined in the RCRA Facility Assessment (RFA).

SWMU = solid waste management unit; AOC = area of concern; CAMU = corrective action management unit.

b/ TCA = 1,1,1-Trichloroethane; BFS = Bar Finishing & Storage; HAP = Howard Avenue Plant; BRP = Brigham Road Plant; LAP = Lucas Avenue Plant.

c/ Identified Action Items include those actions required under the Order and as identified based on the findings of the Phase I RCRA Facility Investigation. Anticipated Action Items include those actions that have yet to be identified in an approved document.

d/ RFI = RCRA Facility Investigation (Phase I RFI); ICM = interim corrective measure; NFA = no further action; "-" = not applicable.

e/ CMS = Corrective Measure Study; CM = corrective measure.

f/ The Order indicates that no further action was required for these SWMUs and AOCs based on information presented in the RCRA Facility Assessment (Appendix B, Section C).

g/ Investigation during the Phase II RFI is necessary to address data gaps identified during the Phase I RFI (i.e., inaccurate location of monitoring wells or soil samples).

h/ The Order requires both the investigation of this area as part of the RFI and closure of the impoundment (Appendix B, Prioritization Schedule, Tier II).

i/ At present, it is not believed that the source of chlorinated volatile organic compounds at concentrations above the potentially applicable criteria (detected in groundwater samples collected from WP-4, RFI-15, and RFI-16) is Willowbrook Pond. The SWMU has been identified to provide an understanding of the general area of interest.

j/ A conceptual plan for closure of the impoundment was previously developed. It is likely that AL Tech may wish to re-evaluate the existing plan as part of the CMS.

k/ As part of facility operations practices, AL Tech intends to perform periodic pressure testing of the process sewers to ensure their integrity. No further action is believed to be warranted under the RCRA Corrective Action Program.

l/ As agreed to by representatives of AL Tech and NYSDEC, these transformer areas were cleaned and wipe test performed. Additional cleaning and confirmatory sampling of T4 and T6 are to be performed.

m/ As part of facility operations practices, AL Tech intends to make necessary repairs to the process pits. No further action is believed to be warranted under the RCRA Corrective Action Program.

n/ The corrective measure is anticipated to address groundwater. It is anticipated that the ICM for soil at RB-04 will suffice as a final measure.

o/ The Order requires both the investigation of this area as part of the RFI and demolition of the Former LAP West Pickling Facility (Appendix C, Prioritization Schedule, Tier II).

p/ During the Phase I RFI, it was determined that the non-electrolytic copper coating system was never constructed.

q/ The Order requires both the investigation of this area as part of the RFI and closure of the waste acid pit (Appendix B, Prioritization Schedule, Tier II).

r/ This CAMU includes areas potentially impacted by SWMUs 13C, 17, and 22, and historical and recent process line leaks.

s/ Surface and subsurface soil samples were collected throughout the facility, including locations not associated with a specific unit (i.e., general sample locations). Impact to the soils typically appears to be associated with general operations and CAMU-, SWMU-, or-AOC-specific operations. Therefore, further evaluation of soils during the Phase II RFI, with regard to metals and PAHs, will be on a facility-wide basis.

t/ The Phase II RFI will include the calculation of site-specific risk-based action levels for metals and PAHs in soil for further evaluation in the CMS, consistent with that performed for the AL Tech facility in Watervliet, New York.

u/ Groundwater quality at RFI-08 will be re-evaluated as part of the Phase II RFI; no further action is anticipated.

v/ Surface soil conditions at RFI-08 will be addressed through an ICM. It is anticipated that the ICM for soil at RFI-08 will suffice as a final measure.

Table 4

**Estimated Costs for  
RCRA RFI/CMS Activities  
Environmental Summary Report  
and Preliminary Engineering Evaluation  
AL Tech Specialty Steel Corporation  
Dunkirk, New York Facility**

Activity (a)	Range of Anticipated Costs (\$,000s)
<b>Phase II RFI</b>	
- preparation of Phase II RFI Work Plan	\$15 - \$25
- implementation of Phase II RFI Work Plan	\$130 - \$180
- preparation of Phase II RFI Report	\$40 - \$60
- preparation of Summary RFI Report	\$8 - \$14
<b>ICM</b>	
- completion of CAMU A ICM	
investigation	\$30 - \$90
groundwater recovery and treatment	\$50 - \$150
- implementation of CAMU C ICM	
well installation	\$15 - \$25
recovery well and equipment installation	\$25 - \$30
operation and maintenance (pump to onsite WWTP)	\$15 - \$20
- implementation of AOC 1, Transformer T3, ICM	\$5 - \$10
- implementation of RFI-08 ICM	\$5 - \$10
<b>CMS</b>	
- completion of CMS (draft and final)	\$60 - \$90
- meeting with NYSDEC	\$8 - \$15
- public participation (if required)	\$0 - \$15
<b>CM Implementation</b>	
- CMIP	\$60 - \$85
- CAMU A	\$1,000 - \$3,000
- CAMU B	\$500 - \$2,000
- CAMU D (VOCs only)	\$100 - \$900
- SWMU 16	\$2,000 - \$5,000
- AOC 9	\$50 - \$100
- "hot spot" soil removal (metals and PAHs only)	\$0 - \$150

a/ RFI = Resource Conservation and Recovery Act (RCRA) Facility Investigation;  
 ICM = interim corrective measure; CMS = Corrective Measures Study;  
 CM = corrective measure; CAMU = corrective action management unit  
 SWMU = solid waste management unit; AOC = area of concern;  
 CMIP = corrective measure implementation plan; VOC = volatile organic compound;  
 PAH = polynuclear aromatic hydrocarbon.



Table 5

Anticipated Corrective Measures  
 Environmental Summary Report  
 and Preliminary Engineering Evaluation  
 AL Tech Specialty Steel Corporation  
 Dunkirk, New York Facility

Unit No. (a)	Unit Description (b)	Anticipated Corrective Measure (c)	Component	Subtotal
CAMU A	Former LAP West Pickling Facility	Demolish building following, or in conjunction with CMs Remove floor and affected soils Remove tank, floor and affected soils Remove floor and affected soils Remove floor and affected soils Upgrade tank for use with ICM	Building Demo.	(Order)
SWMU 1	Former LAP West Pickling Facility		Removal (ton)	
SWMU 6	Former Barium Chloride Bath		Removal (ton)	
SWMU 7B	Continuous Lead Coating		Removal (ton)	
SWMU 7C	Batch Lead Coating		Removal (ton)	
SWMU 7E (d)	Non-Electrolytic Copper Coating			
SWMU 8 (e)	Former LAP West Neutralization Plant		Lining and Pump	
			\$	
CAMU B	Former BRP Pickling Facility	Dewater excavation, remove process equipment, remove accumulated process residuals, demolish building		
SWMU 2	Former BRP Pickling Facility		Dewater Excavation Equipment Removal Removal (ton) Demolition	\$ 1,052,465
CAMU D	Former LAP East Pickling Facility	(1) Decontaminate walls and floor, remove shallow soils, replace floor(d). (2) In-situ treatment of VOC impacted groundwater.		
SWMU 4	Former LAP East Pickling Facility		Decontamination	
SWMU 7A	Continuous Lead Coating		Removal (ton)	
SWMU 7D	Copper Coating		Floor (cy) In-situ Treatment	\$ 770,412
SWMU 16	Willowbrook Pond	(1) Groundwater in area of pond has been impacted by an unrelated source. In-situ treatment of shallow groundwater is anticipated. (2) Willowbrook pond will be closed in place as planned.	In-situ Treatment and Closure	\$ 3,950,000
AOC 9	Unnamed Tributary to Crooked Brook		Surface Water Control	\$ 69,000
Other	Facility-Wide Surface Soils	Limited soil removal as defined by surface soil sampling and risk-based concentrations.	Removal (ton)	\$ 29,700
				\$ 7,905,153

a/ Unit measures are as listed in the Order, not necessarily as defined in the RCRA Facility Assessment (RFA).  
 CAMU = corrective action management unit; SWMU = solid waste management unit; AOC = area of concern.  
 b/ LAP = Lucas Avenue Plant; BRP = Brigham Road Plant.  
 c/ CM = corrective measure; ICM = interim corrective measure; VOC = volatile organic compound.  
 d/ Construction of this unit was not apparently implemented/completed.  
 e/ Portions of the floor had been removed when the pickling equipment was removed.