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September 13, 2021

Via Email ([lgibson@foxboroughma.gov](mailto:lgibson@foxboroughma.gov))

Leah B. Gibson, Chairwoman  
Foxborough Board of Selectmen  
40 South Street  
Foxboro, MA 02035

**Re: Proposed 40B Development at 119 Morse Street  
Environmental and Public Health Issues**

Dear Chairwoman Gibson,

I write to you in opposition to the proposed Chapter 40B development at 119 Morse Street. The 40B proposal was brought to my attention last week by Karl and Kathy VandenBoom, who live at 109 Morse Street, directly adjacent to the proposed development parcel.

The VandenBooms have concerns about the proposal, relating to matters specifically impacting their property, and I will be representing them in addressing those concerns. However, those concerns are not the focus of this letter. Rather, the issues I want to bring to your attention relate to the environment and public health.

I will be blunt: What the developer is proposing — and asking the Board of Selectmen to *sponsor* through the 40B LIP process — is to build 52 new homes in the midst of numerous uncontrolled, unmitigated industrial waste sites. It would be grossly irresponsible and reckless — an abdication of the Board's responsibility to the public — for the Selectmen to endorse this project. I have faith that the Board, once it is aware of the relevant circumstances, will do the right thing. I implore you to refrain from hastily endorsing the project, and to instead conduct a thorough review of the serious public health risk it may pose.

## Background and Context

It may help the Board to know a little bit about my background. From 1995 to 2005, I served as an environmental attorney for the Commonwealth of Massachusetts, in the Executive Office of Environmental Affairs (1995-1998) and the Department of Environmental Protection (1998-2005). At MassDEP, I was a staff attorney for the Bureau of Waste Site Cleanup (“BWSC”), and later the manager of BWSC’s enforcement program in the Northeast Region. In my years at MassDEP, I reviewed hundreds of environmental assessment reports for hazardous waste sites throughout the Commonwealth.

Upon moving back to Foxboro (Summerfield) in 2007 (having lived in town previously from 1996 to 1999), I soon became familiar with the major Chapter 21E waste sites that exist in the section of town bounded by Cocasset Street, Belcher Road, Morse Street, and the Mansfield town line. Those waste sites include the Evelyn Porter Estate (MassDEP Release Tracking Numbers 4-0000792 and 4-0012178), the former Mansfield Bleachery (4-0000572), the former Summit Casting Corporation site (4-0000255; part of the larger Bleachery site), and a portion of the Hatheway & Patterson site that straddles the town line on Morse Street / County Street (4-0000571).

These waste sites are the legacy of industrial use during the 1800s and 1900s. The environmental contamination left behind is so expansive, toxic, and pervasive that cleanup and re-development of the area has proven to be economically infeasible. With a few exceptions, the sites listed above are in various states of regulatory noncompliance, with little progress being made toward assessment and remediation.

Despite the lack of adequate environmental assessment — much less cleanup — the Town has allowed residential development to encroach closer and closer to the contaminated areas. For instance, the Town allowed a subdivision to be created at the Belcher Road end of the Porter Estate site, even though the inland portion of the site contains extensive, uncontrolled contamination, including dioxin in surficial soils. Proceeds from the development were presumably intended to help fund assessment and cleanup, but not surprisingly, that plan did not come to fruition. The developer has not performed any remediation of the site. Instead, it appears that the developer has simply extracted revenue by selling housing lots at the periphery of the site, without making any progress on the contamination further from the street.

Neither the Town nor MassDEP appears to have any comprehensive plan to address the industrial waste legacy sites in the Morse-Cocasset-Belcher area. Trusting private developers (e.g. the owner of the Porter Estate site) to assess and remediate the sites has proven to be an unsuccessful strategy. Yet there is also no apparent appetite or effort to conduct a publicly funded assessment or cleanup. Instead, the plan is apparently to wait, and do little or nothing, hoping that a white knight developer may someday come along and solve this intractable problem for us.

“Wait and hope” may be the best we can do at the moment. But while we wait and hope, we must — at a bare minimum — remain aware of the hazard posed by these uncontrolled industrial waste sites, and make sure that we prevent current and future town residents from being exposed to contamination. It is through that lense that the Board of Selectmen must evaluate the 40B proposal for 119 Morse Street.

### The Mansfield Bleachery Site

The former Mansfield Bleachery industrial site is located directly west of the proposed 40B development parcel. The 40B parcel was actually owned by the Mansfield Bleachery Company property until 1976, when the company subdivided its land and sold the proposed 40B parcel to Maurice Kelley. Mr. Kelley sold the parcel to the current owner in 2008.

To say the Bleachery site has a troubling environmental history is a gross understatement. A summary report written for EPA in 1991 reads like an environmental horror story, with descriptions of chemical dumps, buried cars, medical waste, wastewater lagoons, illegal hazardous waste burial, and drums of “thick reddish liquid” labeled with “low intensity radiation” warnings being buried in a 15-foot-deep pit. A copy of the report narrative is attached as Exhibit 1. I encourage you to read the report, especially the history of waste disposal on pages 8-10.

For your convenience, I’ve prepared an overlay of the site sketch (Figure 2 on page 4 of the report) and a MassGIS map showing the boundaries of neighboring properties, including the proposed 40B development site (shown as lot 119). The overlay is attached at Exhibit 2. As you can see, the Bleachery site is located directly adjacent to the proposed 40B site.

MassDEP’s file for the Bleachery site contains a site plan showing various areas of environmental concern. A copy of the plan is attached as Exhibit 3, and an overlay of the plan and a current MassGIS map is attached as Exhibit 4. The plan shows the “Approx. location of area including abandoned storage tanks and 55 gallon drums” *directly adjacent* to the proposed 40B development parcel, on property *owned by the Foxborough Conservation Commission*, part of the Rumford River Greenbelt. It also shows a landfill on the northeastern corner of the Bleachery site, directly on the border of Conservation Commission property (and probably extending into it), 320 feet or less from the proposed 40B development parcel.

Shockingly, the majority of issues raised in EPA’s 1991 report have not been further investigated. There has been some environmental assessment work on the southern portions of the property, which are still in active use (including the former Summit Casting site). But there does not appear to have been any progress since 1991 on the northern parts of the site, including the lagoon and landfill in the northeastern corner of the site and the area of abandoned tanks and drums on Conservation Commission property, directly adjacent to the proposed housing. State and town regulators appear content to let sleeping dogs lie, with MassDEP occasionally

conducting drive-by inspections. The owner of the rear portion of the site is easily locatable with a few clicks of the mouse (I won't name him in this letter), but neither MassDEP nor the Town has made any apparent effort to compel the owner to help assess or remediate the property.

The question now before the Board of Selectmen is whether to bring 52 families, including children, into close proximity of the Bleachery site and to potentially put their health at risk.

How might residents to be harmed by industrial waste from the Bleachery site? They could be harmed by breathing contaminated indoor air, poisoned by fumes rising from contaminated soil and/or groundwater under their homes. Children could be exposed to lead-contaminated soils — or arsenic, or PCBs, or dioxin, etc. — in the woods and trails behind the proposed development, or in the soils of the neighborhood itself. Kids could be exposed to highly contaminated sediments and surface water in Glue Factory Pond, while wading for tadpoles or turtles. Without a thorough environmental assessment, it is impossible to know what risk the Bleachery site would pose to the residents of the proposed development; it is not hard to imagine numerous ways in which residents could be exposed.

### The Evelyn Porter Estate

Less than a half mile from the proposed 40B development parcel is the Evelyn Porter Estate 21E disposal site. The site is easily accessible from the proposed housing parcel, via walking trails through Town-owned parcels comprising the Rumford River Greenbelt. The 40B proposal shows those trails as an amenity, but what they actually are is an invitation for future residents (especially teens) to wander into an uncontrolled industrial waste disposal site where dioxin, heavy metals, and other contaminants are ubiquitously present in surface soils.

The contamination at the Porter Estate site is the result of 50 years of sewage sludge disposal at the property, by the Bentley F. Porter Pumping and Disposal Company. The disposal facility consisted primarily of two bermed waste lagoons, six open-sand filter beds, and at least 12 additional areas located throughout the site where sludge waste was disposed of on the surface of the property. A site sketch prepared for EPA in 2006 is attached as Exhibit 6 (note the lagoons, the filter beds [1-6], and the 12 “surface impoundments,” SI-1 through SI-12, scattered throughout the site).

Contaminants in soil and groundwater include dioxin, pentachlorophenol (“PCP,” a restricted pesticide once widely used as a wood preservative), heavy metals (e.g., arsenic, cadmium, lead, and mercury), cyanide, volatile organic compounds (e.g., trichloroethylene, dichloroethane, toluene), and petroleum (including free-floating oil in groundwater).

In July 2002, MassDEP notified EPA that “the dioxin and PCP in the surficial soils at the site constitutes a public health threat,” and requested that EPA perform an

emergency removal action. MassDEP's primary concern was that site visitors from nearby neighborhoods would be exposed to contamination in surface soils.

EPA conducted an emergency removal action in 2002-2003. EPA's intervention addressed only a small portion of the site, where the surficial PCP and dioxin contamination levels were at their highest. EPA removed approximately 385 tons of contaminated soil, then capped and fenced the area.

Apart from the EPA removal action, there has been no effort to remediate the site. Contamination remains present throughout the property. The site remains a substantial risk to visitors from nearby neighborhoods — including teenagers, who evidently use the site as a place to hang out, ride dirtbikes, etc.

The property is currently owned by two limited liability companies controlled by mega-rich Hingham land developer Thomas Hastings. Hastings has not made any effort to remediate the site, but instead has focused on carving off a residential subdivision at the relatively uncontaminated periphery of the property, along Belcher Road. The apparent plan is to extract profit from the useful parts of the property, without any cleanup of the contaminated interior. MassDEP's latest note to the file makes reference to a potential solar development, but there are no plans for solar development currently pending with the Planning Board or Zoning Board of Appeals. Given the extremely high cost of remediation, it is a fantasy to think that a developer could fund an adequate cleanup of the site from the proceeds of a solar farm — even if he were actually motivated to do so.

The Porter Estate, and the Mansfield Bleachery site, are festering wounds that the Town will at some point need to address, with help and additional public funding from MassDEP and EPA. It will cost many millions of dollars to remediate those sites and make them safe for human use and habitation. The remediation cost is likely higher than what the properties will be worth after they are cleaned up. No “white knight” company is going to come to town and solve the problem — developers like Hastings will do what developers do, which is to extract profits from the sites for themselves, leaving an even more economically untenable situation in their wake.

There is no obvious solution for these legacy industrial waste sites in the near future. But what *is* obvious is that the Town should not promote the creation of new residential development in proximity to those sites. To do so invites exposure, and exacerbates the existing public health risk.

Affordable and moderately-priced housing is clearly needed in Foxboro, and the Town has done a good job in recent years meeting its obligation to facilitate development. Unlike many communities, Foxboro has met and exceeded its 10% obligation under Chapter 40B. Further progress is to be encouraged — but not by creating housing on the periphery of uncontrolled industrial waste sites. The proposed location at 119 Morse Street is among the worst locations one could think of for new housing in Foxboro.

## Request for Further Investigation and Discussion of Environmental Concerns

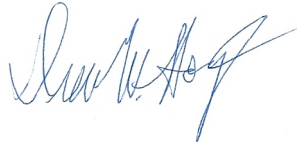
I apologize, but I am unable to attend the Board's September 14 meeting, where the proposed 40B development will be discussed. I am already committed to attend another board meeting at the same time, which cannot be rescheduled.

I would like the chance to address the Board before any vote is taken on the proposed project. Before the Board's next meeting, I would also like to meet with the Planning Director and Conservation Agent to discuss the concerns raised in this letter. I will reach out to them by phone and/or email and request a meeting.

In the meantime, I implore you not to vote on the proposed 40B project until you have conducted a thorough review of the environmental issues it poses. It would not be responsible to endorse the project at this juncture.

Thank you for taking the time to consider these comments.

Very Truly Yours,



Drew W. Hoyt

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4-0572

# ARCS

Remedial Planning Activities  
at Selected Uncontrolled  
Hazardous Substance Disposal  
Sites in Region I

SCANNED

Exhibit 1



Environmental Protection Agency  
Region I

ARCS Work Assignment No. 06-1JZZ

Former Mansfield Bleachery  
Foxborough, MA  
MAD985276138

Screening Site Inspection  
Final Report

July 1991

**TRC**  
**Companies, Inc.**

Alliance Technologies Corporation  
TRC Environmental Consultants, Inc.

TAMS Consultants, Inc.  
PEI Associates, Inc.  
Jordan Communications, Inc.

SCREENING SITE INSPECTION  
FORMER MANSFIELD BLEACHERY  
FOXBOROUGH, MA

MAD985276138

FINAL REPORT

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY  
Region I  
90 Canal Street  
Boston, Massachusetts 02203-2211

Work Assignment No.:	06-1JZZ
EPA Region:	I
Contract No.:	68-W9-0033 (ARCS)
TRCC Document No.:	A91-199
TRCC Project No.:	1-636-007-0-1J21
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## **INTRODUCTION**

TRC Companies (TRCC) Inc. was contracted by the Region I U.S. Environmental Protection Agency (EPA) Waste Management Division to perform a Screening Site Inspection of the Former Mansfield Bleachery in Foxborough, Massachusetts. All tasks were conducted in accordance with Work Assignment Number 06-1JZZ under EPA Contract Number 68-W9-0033. The EPA performed a Preliminary Assessment (PA) of this site on July 28, 1980. A second PA was performed by HMM Associates, Inc. and WCH Industries, Inc. under contract to the Massachusetts Department of Environmental Protection (MADEP), formerly the MA Department of Environmental Quality Engineering (MA DEQE) on June 28, 1989 on four of the seven parcels of land which compose the site. On the basis of information provided in the PA, a Screening Site Inspection was initiated.

Background information used in the generation of this report was obtained through file searches conducted at the MADEP and Foxborough Town Offices. Information was also collected during the TRCC field activity conducted on November 20, 1990.

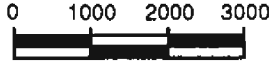
This report follows guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, commonly referred to as Superfund. However, this report does not necessarily fulfill the requirements of other EPA regulations such as those under the Resource Conservation and Recovery Act (RCRA) or other Federal, state, or local regulations. Screening Site Inspections are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

## **SITE DESCRIPTION**

The Former Mansfield Bleachery site is located at 42°2'44.6" north latitude and 71°12'51.6" west longitude on the northwest side of Morse Street in Foxborough, Massachusetts (Figure 1: USGS, 1987). The site occupies approximately 22 acres of land comprised of seven



BASE MAP IS A PORTION OF THE FOLLOWING 7.5' x 15' U.S.G.S. QUADRANGLE(S):  
 BROCKTON, MA, 1987



Scale in feet



QUADRANGLE LOCATION

**LOCATION MAP**

LOCATION OF FORMER MANSFIELD BLEACHERY  
 FOXBOROUGH, MA

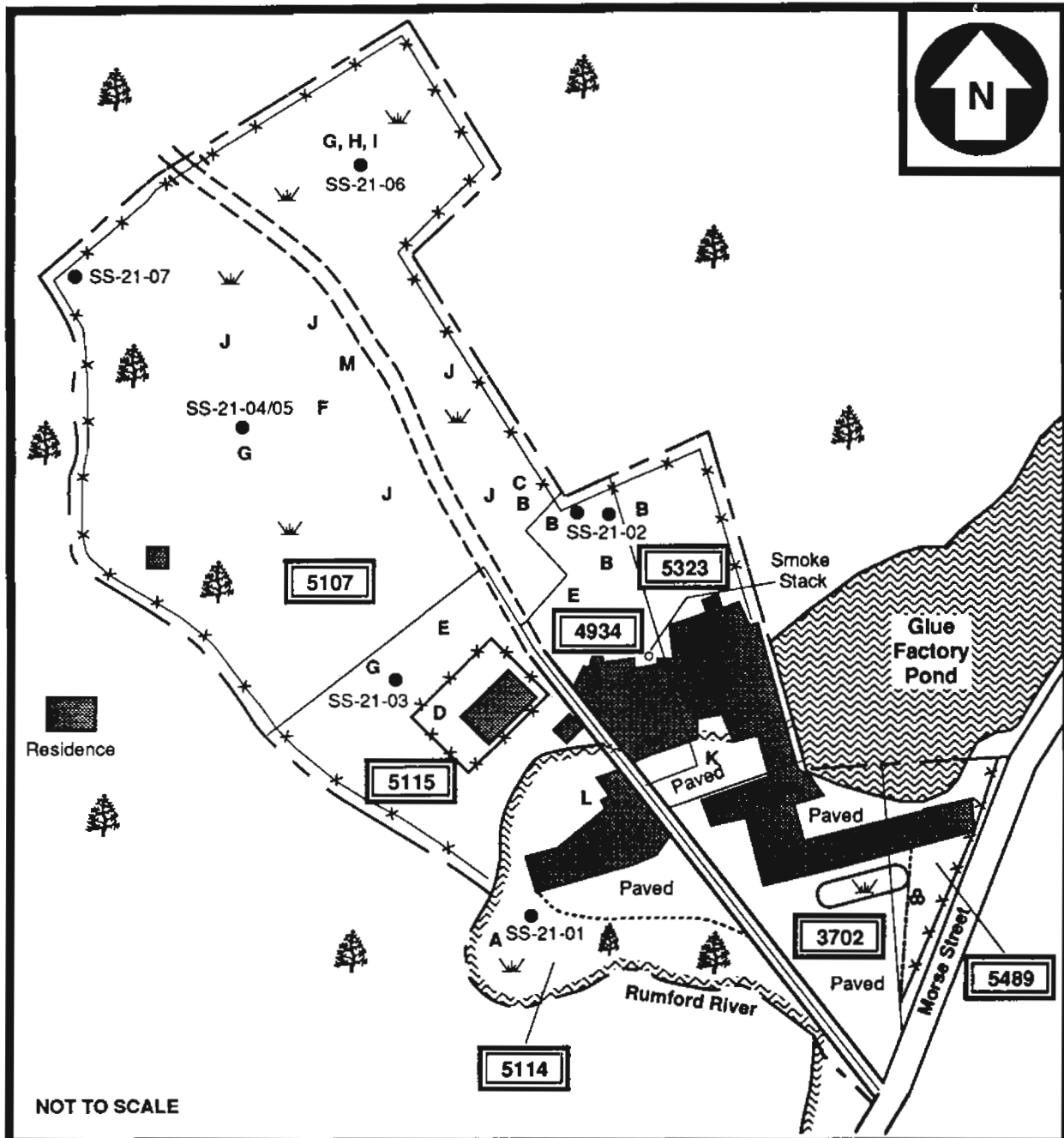


FIGURE 1.

adjoining parcels listed as 5107, 5115, 4934, 5323, 5489, 3702, and 5114 on the Foxborough Tax Assessor's Map. The site is located in a wooded, mixed residential and commercial area.

A three-story mill building is located on the southeastern portion of the site and occupies parcels 5323, 5489, 3702, and 4934 (Figure 2). This building is used by various tenants for offices, service, and manufacturing. The occupants of the building include Light 'N Leisure, Bay State Envelope, Polychem (operated by Joseph Neipris, who also owns parcels 4934 and 3702), Full Circle Padding, Clover News, Space Age (operated by Edward and Steve Goldman, the owners of parcel 5489), Summit Castings (operated by William Schmidt and John Thibeault, the owners of parcel 5323), Cove Polymers, Neponset Systems, Wood Form, Mansfield Woodworkers, and the Workout Warehouse (Teltron Engineering, 1990; Nelson, 1990a). Glue Factory Pond is located east of the mill. The Rumford River flows west, southwest from Glue Factory Pond, under the mill and across the site. During the site reconnaissance on November 20, 1990, TRCC noted a sheen on the river near the site access road. Dumpsters, empty and trash filled 55-gallon drums, piles of wood pallets, and trash were present around the perimeter of this building (TRCC, 1990). Table 1 summarizes the owners of the different parcels on the site.

Parcel 5114, located on the southwestern portion of the site, is occupied by two buildings used by Teltron Engineering for precision sheet metal parts manufacturing. On the northwest side of this building is a vertically oriented cylindrical oil storage tank surrounded by a four foot high cinder block wall. The gravel outside the wall of the tank was stained. A gravel lined waste dye bed surrounded by a one foot concrete wall is also located in this area (TRCC, 1990). This structure was used by the Mansfield Bleachery during its operation (HMM Associates and WCH Industries, 1989). West of this building is a brush covered area which was reportedly used in the past as a drum disposal area. Teltron Engineering employees reportedly used this area in the past as a vegetable garden (TRCC, 1990).



NOT TO SCALE

Drums	Soil Sample Location	A Former Drum Disposal Area	H Former Waste Disposal Area
Site Boundary	Dirt Road	B Used Casting Sand Piles	I Former Landfill
Paved Road	Forest	C Abandoned Excavated Underground Storage Tanks	J Piles of Fill and Gravel
Fence with Gate	Brush, Grass	D Quonset Hut and Impounded Cars	K Dumpsters and Metal Trash
Building	Edge of Pavement	E Junked Cars	L Oil Tank and Waste Dye Beds
River	Parcel Boundary	F Hill with Concrete Rubble and Former Clarifiers	M One Gallon Containers of Water Oil with Stained Soil
		G Former Unlined Lagoon	

**SITE SKETCH**

**SITE SKETCH OF THE FORMER MANSFIELD BLEACHERY, FOXBOROUGH, MA.**

**TRC** Companies, Inc.

**FIGURE 2.**

TABLE 1. SITE PROPERTY OWNERS

Parcel Number	Owner
4934, 3702	Krane Realty Trust
5489	Edward and Steven Goldman
5323	Summit Castings
5114	Teltron Engineering
5115, 5107	Irwin and Marie Kamen

North of the Teltron property on parcel 5115 is a small unoccupied brick building and a fenced in quonset hut. On the day of the site inspection this fence was locked and, therefore, TRCC was unable to gain access to this area. Inside the fenced in area were impounded automobiles, tires, and car parts. Numerous junked cars were also present outside the fence. The property owner indicated that they were unclaimed, impounded cars parked in front of the fence to block access to the northern part of the site (TRCC, 1990). The owner, Irwin Kamen, utilizes parcel 5115 for automobile repair and storage for vehicles that have been impounded by the state and/or local municipalities. Mr. Kamen indicated to TRCC that he has made no use of parcel 5107 during his ownership (Nelson, 1990b).

Summit Castings, a metal casting company, disposes their used casting sand in an area north of the large mill building. The sand pile appeared to have an orange tint, but no liquid appeared to be leaching from the pile on the day of TRCC's site inspection. An empty 20,000 gallon steel underground storage tank is located near the pile of casting sand (TRCC, 1990).

Parcel 5107, located on the northern half of the site, is a brush covered gravelly area. This area was formerly the site of the wastewater treatment plant used by the textile mill.

This plant was composed of concrete clarifiers, sulfuric acid waste holding tanks, alkali waste holding tanks, concrete sludge drying beds, and lagoons (HMM Associates and WCH Industries, 1989). Only remnants of the concrete clarifiers remain in this area. A small shed is located in woods along the western property boundary and construction debris was found scattered around this area. In addition, stained soil was observed near one-gallon containers of waste oil and signs of extensive excavation and earth moving were noted.

The northeastern corner of the site was covered by grass and brush. This area was formerly used as a landfill (HMM Associates and WCH Industries, 1989). TRCC observed a partially buried car, plastic, wood pallets, unknown industrial parts, and medical waste (tubing and syringes), (TRCC, 1990). Wet marshy areas are present in the northwestern area of the site.

A chain link fence surrounds the site except at the site entrance on Morse Street and along the Rumford River, on the southern perimeter of the site. There is a locked gate in the fence on the northern boundary. Several junked cars block the dirt road leading to the northern portion of the site.

The area surrounding the site is wooded, scarcely populated residential and commercial land. The closest residence is located approximately 500 feet west of the site. There are no CERCLIS or NPL sites within a one mile radius of the site. Table 2 lists the RCRA hazardous waste generators located within a one mile radius of the site.

#### **SITE ACTIVITY/HISTORY**

The Mansfield Bleachery ran a textile manufacturing operation on the site from approximately 1890 until 1966. Prior to 1890, a glue factory was operated on the site (Nelson, 1991c).

TABLE 2. RCRA FACILITIES LOCATED WITHIN A ONE MILE RADIUS OF THE FORMER MANSFIELD BLEACHERY

Facility Name	Address	Facility ID No.
Rounds Auto Inc.	E. Belcher Rd. Foxborough	MAD981071061
Merckens Chocolate Nabisco Confs.	150 Oakland St. Mansfield	MAD037097292
Owens Illinois Inc.	241 Francis Ave. Mansfield	MAD063901136
Vicino Buick Pontiac GMC	2 Chauncy St. Mansfield	MAD019470277
Hatheway & Paterson Co.	15 County St. Mansfield	MAD001060805
Tom Flurkey Chevrolet	12 Pratt St. Mansfield	MAD101309466
ASM Enterprises Inc.	35 County St. Mansfield	MAD043398221

In 1966, the Mansfield Bleachery sold the property to the Mansfield Finishing Company. Between 1966 and 1969, the New England Sales Corporation, and finally Krane Realty Trust owned the property. In 1972, Krane purchased the small piece of land on the southwestern corner of the site from Reichhold Chemicals which had acquired the property from Blane Realty Corp. Krane sold parcels 5115 and 5107 to Theodore Riccard, Jr. in 1973 and 1975, respectively. These two parcels were then sold to Irwin and Marie Kamen, the current owners, in 1985. In 1978, Teltron Engineering purchased parcel 5114 and remains the current owner.



Summit Castings which had been a tenant on the site since 1969, purchased parcel 5323 in 1978 (HMM Industries and WCH Associates, 1989). Edward and Steven Goldman currently own parcel 5489. Krane still retains ownership of parcels 3702 and 4934.

The history of waste disposal, and state, local, and federal government involvement at the site is summarized below:

- During its history, the Mansfield Bleachery allegedly disposed of chemicals, dyestuffs, and other waste products in the northeastern corner of parcel 5107 (Marlyn Engineering Corp., 1975).
- By 1950, a wastewater treatment plant had been constructed on parcel 5107. This plant consisted of three concrete clarifiers, one concrete sludge drying bed, a concrete aeration and mixing tank, one alkali waste holding tank, and two sulfuric acid waste holding tanks. A lagoon or pond also was present southwest of this plant (HMM Associates and WCH Industries, 1989).
- A site plan for the Mansfield Bleachery dated March 2, 1950 shows, in addition to the wastewater treatment plant, the following potential contaminant source areas (GEI Consultants, 1987):
  - three lagoons in the northeastern part of parcel 5107, southwest of the treatment plant, and north of the quonset hut;
  - ten underground storage tanks;
  - four 3000 gallon, and two 1500 gallon sulfuric acid tanks on the northern portion of parcel 4934, and three caustic tanks and a leach field on parcel 5323;
  - junked cars north of the quonset hut;
  - abandoned 55-gallon drums west of the Teltron Engineering buildings; and
  - two chemical dumps, one in the northeast area of parcel 5107, and the other north of the quonset hut.
- Between 1972 and 1982, Theodore Riccard, Jr., the owner of Wells Trucking, a rubbish removal firm and part owner of Marlyn Engineering, buried hazardous waste on the site. A MADEP memo indicated that Riccard excavated a 100 ft. x 100 ft. x 20 to 25 ft. deep hole on his property into which he disposed of liquid wastes and "grayish white powder" and other wastes from Blane Chemical

Company. In 1973 or 1974 Riccard allegedly disposed of eight to ten yellow 55-gallon drums labeled "Low Intensity Radiation" containing a thick reddish liquid. These wastes were buried into a 15' deep pit (MADEP, 1988).

- Aerial photographs taken of the site on May 4, 1974 show the clarifiers of the wastewater treatment plant and several lagoons. A considerable amount of disturbed earth and solid waste is visible on the photographs in the northeast corner of the site (Foxborough Conservation Commission, 1974).
- In 1973, the MADEP documented that oil spills had occurred at the site in 1971 and 1973. These 300 to 500 gallon spills had reached and impacted the Rumford River (MADEP, 1973).
- In 1975 Marlyn Engineering and Theodore Riccard, Jr. submitted a proposal to operate a landfill to dispose of petroleum based sludges in the northeastern corner of the site. This proposal indicated that debris and contaminated soil resulting from sludge previously disposed by the Mansfield Bleachery would be buried in the landfill (Marlyn Engineering, 1975). The Town of Foxborough and the MADEP approved of the proposal. However, this landfill was never used (MADEP, 1981).
- In October 1975, the MA Water Resources Commission (MAWRC) cited Marlyn Engineering for illegal storage and disposal of hazardous waste materials. These materials were collected from asphalt and gasoline spills in offsite areas. Seventy-five cubic yards of this material were removed from the site (MAWRC, 1975). Marlyn was licensed for conveyance of hazardous waste, but not for storage or disposal.
- On March 29, 1976 a representative of the Foxborough Conservation Commission visited the site and photographed pits containing stained soil and floating petroleum products; piles of solid waste, a pile of abandoned drums, and abandoned oil trucks (Foxborough Conservation Commission, 1976).
- On April 1, 1976 the MAWRC and representatives of the Foxborough Conservation Commission visited the site and observed that waste oils had been disposed of into two of three percolation test holes. It was noted that Marlyn Engineering was storing undetermined quantities of various types of waste oils in above ground storage tanks and underground storage tanks. As a result of this inspection, the MAWRC revoked Marlyn's hazardous waste conveyance license (MAWRC, 1976).
- Between 1977 and 1979, Foxborough Conservation Commission inspections and communications reported large pits of orange and green waste sludge and liquids on the northern part of parcel 5107, possible filling of wetlands, and a large pit containing heavy oil at the base of the smokestack (HMM Associates and WCH Industries, 1989).

- On July 28, 1980 the USEPA conducted a PA at the site. Patriot Fence and Wells Trucking were listed as the site operators. The PA lists possible wastes present as bleach, dyes, and inks disposed in surface impoundments. The PA also indicated that extensive landfilling had been done (USEPA, 1980).
- As a result of a site inspection by the Foxborough Board of Health on February 17, 1982, it was determined that Mr. Riccard was illegally operating a landfill at the site. To avoid legal action Mr. Riccard agreed to stop the landfilling and remove the contents of the dumpsite. There is no documentation for the removal of the materials. It is not known whether this was done (Foxborough Board of Health, 1982). Photographs taken on this date show considerable earthmoving activities and a large volume of solid waste on the site (Foxborough Conservation Commission, 1982a).
- During Mr. Riccard's ownership of part of the site he excavated and removed sand and gravel from the site for use as fill offsite. In 1984, the Foxborough Conservation Commission issued a MA Wetlands Protection Act Enforcement Order to Mr. Riccard for removal of gravel down to the water table within 100 feet of a wetland (Foxborough Conservation Commission, 1982b). Photographs of the site from 1982 show evidence of extensive removal activities (Foxborough Conservation Commission, 1982a). The current owner of parcel 5107 informed TRCC that 15 to 20 feet of sand and gravel were removed from areas of the site (Nelson, 1990b).
- As a result of discovering oil seeping through a basement wall of their building, Summit Casting removed two 20,000 gallon underground storage tanks from their property. Floating petroleum product was noted in one of the excavations and in several of the test pits excavated by GEI (GEI Consultants, 1987). On November 25, 1988 and November 15, 1989 the MADEP issued Notices of Responsibility to Summit Casting for investigation of the oil leaks (MADEP, 1986; MADEP, 1989). On October 25, 1987 GEI Consultants submitted a Phase II Investigation Report on the oil leak on the Summit Casting Property. This study consisted of the advancement of five soil borings, the installation of four monitoring wells, the collection of one soil sample from the used casting sand pile, and the collection of surface water samples. A Phase II and Short Term Measure (STM) Evaluation under the Massachusetts Contingency Plan (MCP): 310 CMR 40.000 is currently ongoing at the Summit Casting Site.

## ENVIRONMENTAL SETTING

The Former Mansfield Bleachery is located in Foxborough, Norfolk County, Massachusetts. The site lies between 177 and 200 feet above sea level (USGS, 1987). The site is located in

a suburban area occupied by a mixture of low density residences, commercial businesses, and woodlands.

Bedrock underlies the northern portion of the site within five feet of the surface to approximately 35 feet below the ground surface in the southern part of the site (Williams and Willey, 1973). In borings advanced in the central area of the site, bedrock was encountered at between 19 and 23 feet below the ground surface (GEI Consultants, 1987). The bedrock has been described as the Proterozoic Z age Denham Granite, a light grayish-pink to greenish-gray equigranular to slightly porphyritic, variably altered granite. A major regional contact between rock groups crosses from east to west in the extreme southern part of the site. The rocks south of this contact are part of the Pennsylvanian age Rhode Island Formation of the Narragansett Basin. These rocks consist of sandstone, graywacke, shale, and conglomerates (Zen, 1983; Williams and Willey, 1973).

The overlying unconsolidated deposits are composed of Pleistocene age glacial till in the northwestern part of the site, and sandy gravel glacial stratified drift in the remainder of the site (Williams and Willey, 1973). Till is composed of a poorly permeable, unsorted and unstratified mixture of clay, silt, sand, and gravel. The sandy gravel deposits are predominantly stratified beds and lenses of well sorted fine to coarse sandy gravel, including numerous beds and lenses of sand, silt, and clay. Boring logs for borings advanced in the central area of the site show fill over silty medium to coarse sand and gravel (Appendix B; GEI Consultants, 1987).

The overlying surficial soil deposits in the southern portion of the site consist of sandy Udorthents, Urban Land, and Freetown muck in the vicinity of the Rumford River. The soils in the northern part of the site consist of Merrimack fine sandy loam on 3 to 8 percent slopes, sand and gravel pits, Canton fine sandy loams on 8 to 15 percent slopes, and Hinckley sandy loam on 8 to 15 percent slopes (US Soil Conservation Service, 1989).

The aquifer underlying the site exists within interconnected fractures in the bedrock and in the thicker portions of the stratified drift. Typical well yields for the bedrock aquifer are only

sufficient for domestic needs and generally are less than 10 gallons per minute (gpm). Glacial till yields "only a few gpm" (Lapham, 1988). Wells constructed into the stratified drift aquifer supply most of the water needs for the surrounding communities and can yield greater than 300 gpm. Transmissivities of the underlying materials range from 0 gallons per day per foot for the till and bedrock to 30,000 gallons per day per foot for the more permeable stratified drift. Based upon monitoring wells installed in the central portion of the site, ground water flows south to south west and is 1.04 to 5.48 feet below the ground surface (GEI Consultants, Inc., 1987).

The water departments for the towns of Foxborough, Mansfield, Sharon, and Attleborough have public water supply wells located within a four mile radius of the site. All ten of Foxborough's municipal wells, which serve a total of approximately 10,680 persons, are within a four mile radius of the site. Four of the nine public water supply wells in the town of Mansfield are within a four mile radius of the site. These nine wells serve 11,745 persons. The Attleborough Water Department maintains two wells in Mansfield which serve an undetermined proportion of the supply for 34,100 persons. Three out of six wells in the town of Sharon are located within a four mile radius of the site. The Sharon Water Department serves approximately 14,065 persons. The public water supply well closest to the site is (Cate Springs Well) at Maple Street and Copeland Road in Mansfield. It is 0.8 miles east of the site (Figure 1). Table 3 summarizes the public drinking water supply wells located within a four mile radius of the site. Table 4 summarizes the population served by private drinking water supply wells within a four mile radius of the site. The closest private drinking water well is located on Summer Street in Foxborough, approximately 0.5 miles northeast of the site (Figure 1).

There are no surface water intakes for public water supply along the 15-mile surface water pathway downstream from the site. Surface water runoff drains into Glue Factory Pond and the Rumford River which traverses the site from the pond to the southwest. The Rumford River empties into Norton Reservoir 4.9 downstream miles from the site.

TABLE 3. PUBLIC WATER SUPPLY WELLS WITHIN A FOUR MILE RADIUS OF THE FORMER MANSFIELD BLEACHERY

Source Name	Distance/Direction from the Site	Population Served	Source Type
<b>Foxborough</b>			
Station 1, Pumping Station Rd.	2.5 miles/NW	2136	2 gravel packed wells
Station 2, Sprague Rd.	2.7 miles/W	3204	3 gravel packed wells
Station 3, Lamson Rd.	2.0 miles/N	3204	3 gravel packed wells
Station 3A, Lamson Rd.	1.8 miles/N	1068	1 gravel packed well
Station 4, Main and Cross St.	3.8 miles/NW	1068	1 gravel packed well
<b>Mansfield</b>			
Maple St. and Copeland Rd.	0.8 miles/E	1305	1 gravel packed well
Canoe River	1.2 miles/SE	2610	2 gravel packed wells
East St.	3.1 miles/SE	1305	1 gravel packed well
Jewell St.	4.0 miles/SW	28,050 (1)	2 gravel packed wells
<b>Sharon</b>			
E. Foxborough St. and Wolomolopoag St.	3.0 miles/NE	2344	1 gravel packed well
Interstate 95 Interchange	3.4 miles/N	2344	1 gravel packed well
Gavins Pond at Furnace St.	2.5 miles/N	2344	1 gravel packed well

Footnotes and References on following page.

**Footnotes and References for Table 2.**

- (1) The two Attleborough public water supply wells in Mansfield serve an unknown proportion of the estimated 25,050 persons using the Attleborough water supply.

References: Foxborough Water Department, undated; Nelson, 1991d; Nelson, 1991f; Nelson, 1991g; Nelson, 1991h; Nelson, 1991j; Yaeger, 1991a; Yaeger, 1991b; Yaeger, 1991c; Yaeger, 1991d; Yaeger, 1991f; Yaeger, 1991g.

**TABLE 4. PRIVATE WATER SUPPLY WELL USERS WITHIN A FOUR MILE RADIUS OF THE FORMER MANSFIELD BLEACHERY**

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<b>Town</b>	<b>Approximate Population Served by Private Wells (1)</b>
Foxborough	29-3957
Mansfield	170
Sharon	58
Easton	99
Norton	0-362

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- (1) Based on 3.1 persons per residence.

References: Nelson, 1991c; Nelson, 1991e; Nelson, 1991i; Yaeger, 1991b; Yaeger, 1991e; Yaeger, 1991g.

Norton Reservoir is drained by Three Mile River 6.1 downstream miles from the site. The 15-mile point downstream of the site is located along the Three Mile River in Taunton approximately halfway between the Harvey Street and the Tremont Street bridges.

The Rumford River is classified by the MA Division of Water Pollution Control as Class B, High Quality Water (MA Division of Water Pollution Control, 1990). The Three Mile River is classified as Class B, Warm Water Fisheries. Class B waters "are designated as a habitat for fish, other aquatic life, and wildlife, and for primary and secondary contact recreation". They can also be designated "suitable as a public water supply with appropriate treatment". In addition, Class B waters are "suitable for irrigation and other agricultural use and for compatible industrial cooling and process use". High quality waters are protected from degradation by Massachusetts regulations. Warm water fisheries are defined as having a maximum mean monthly temperature generally exceeding 68°F during the summer months and are generally not capable of sustaining a year-round population of cold water aquatic life.

The Rumford and Three Mile Rivers are popular for fishing for stocked trout. Based on fish population surveys performed in 1955, both rivers host a healthy population of warm water fish species consisting of large mouth bass, perch, pickerel, dace, shiners, pumpkinseed, sunfish, bluegill, and stocked trout. River quality and fish populations and diversity have improved in these rivers since 1955 (Nelson, 1991e).

There are numerous wetland areas along the surface water pathway from the site to the Three Mile River in Taunton, Massachusetts (U.S. Fish and Wildlife Service, undated). The closest downstream wetland is classified as Palustrine scrub/shrub broad leaved deciduous/emergent. This area is approximately nine acres in size and is located 500 feet southwest of the site. U.S. Fish and Wildlife Service maps indicate that there are three small wetland areas classified as Palustrine open water in the northern part of the site, each of these areas is likely to be less than one acre in size.

Along the surface water pathway described above there are no occurrences of plant and animal species which have been designated endangered or threatened by the Federal Endangered Species Act or by the MA Division of Fisheries and Wildlife (MA Division of Fisheries and Wildlife, 1991).



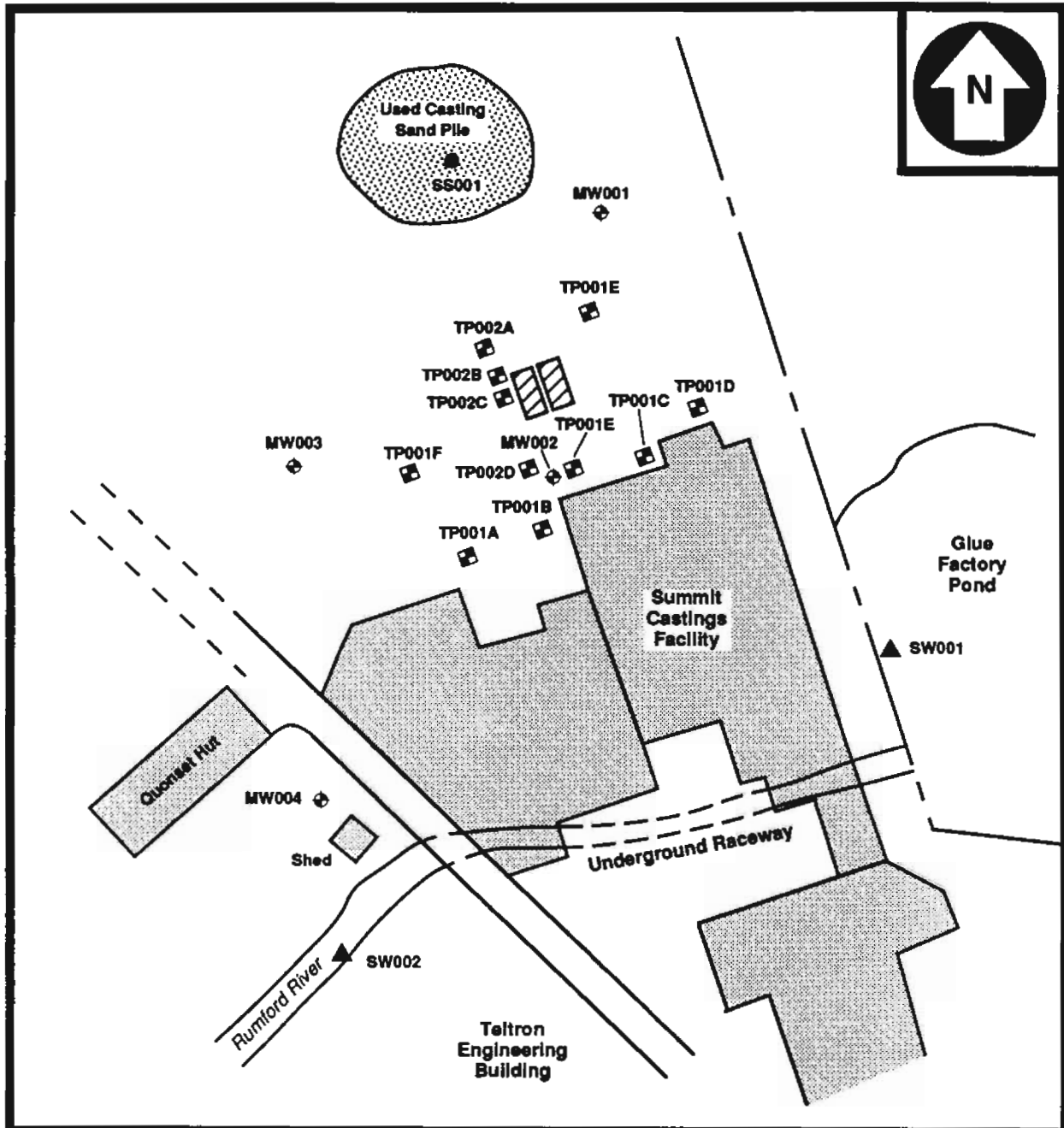
## RESULTS

GEI Consultants, under contract to Summit Castings has performed two phases of environmental sampling investigations at the site since 1986. In 1986 GEI observed the excavation and removal of two 20,000 gallon underground storage tanks from the Summit Castings property. These tanks were located between the used casting sand piles and the northeastern edge of the largest building. As part of this investigation eleven test pits were excavated and two soil samples analyzed (Figure 3). Soil samples from test pits TP001 A, B, and C were composited and analyzed for volatile organic compounds (VOCs) by EPA method 624, EP Toxicity Metals, oil and grease, and flash point. A composite soil sample from test pits TP002 D and E was analyzed for VOCs. Toluene, ethylbenzene, and total xylenes were detected at 85 nanograms per gram (ng/g), 120 ng/g, and 790 ng/g, respectively in the composite from TP001. No metals were detected in the sample. The composite from TP002 yielded 1,1-dichloroethane, 1,1,1-trichloroethane, and total xylenes at 150 ng/g, 850 ng/g, and 1900 ng/g, respectively.

In 1987, GEI drilled five soil borings at the site, four of which were constructed into monitoring wells (Figure 3). A composite soil sample was obtained from the used casting sand piles. Two surface water samples were also collected and analyzed; one from Glue Factory Pond, and the other from the Rumford River.

The composite soil sample (SS001) was analyzed for VOCs by EPA method 8240, EP Toxicity Metals, and oil and grease. Toluene, chlorobenzene, ethylbenzene, and total xylenes were detected in this soil sample at 59 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ), 81  $\mu\text{g}/\text{kg}$ , 100  $\mu\text{g}/\text{kg}$ , and 910  $\mu\text{g}/\text{kg}$  respectively. No metals were detected in the sample.

The surface water samples were analyzed for VOCs (by EPA method 624) and oil and grease. The upgradient surface water sample (SW001) obtained from Glue Factory Pond yielded trans-1,2-dichloroethene at 2.7 micrograms per liter ( $\mu\text{g}/\text{l}$ ). The downgradient surface water sample obtained from the Rumford River (SW002) yielded trans-1,2-dichloroethene at 2.6  $\mu\text{g}/\text{l}$ .



Road	Building	Soil Sample	0      60      120  Scale in feet
Dirt Road	Surface Water Sample	Monitoring Well	
Property Line	Test Pit	Former Underground Storage tank	

**GEI SAMPLING LOCATIONS**

**TRC** Companies, Inc.

**FIGURE 3.**

The four ground water monitoring wells were analyzed for VOCs by EPA method 624. Oil and grease analyses were performed on samples GW001 and GW003. A marine petroleum scan was performed on samples GW002 and GW004. Sample GW001 (the upgradient well) contained 1,1-dichloroethane at 2.5 µg/l. Sample GW002 contained 1,1-dichloroethane, vinyl acetate, benzene, toluene, and total xylenes at 10 µg/l, 17 µg/l, 3.1 µg/l, 5.1 µg/l, and 23 µg/l, respectively. GW003 yielded 1,1-dichloroethane and vinyl acetate at 5.4 µg/l and 14 µg/l, respectively. GW004 yielded these two compounds at 15 µg/l and 9.7 µg/l, respectively. Only 1,1-dichloroethane and vinyl acetate were detected in samples GW003 (5.4 µg/l and 14 µg/l) and GW004 (15 µg/l and 9.7 µg/l).

On November 20, 1990, TRCC conducted onsite reconnaissance and soil sampling. Ms. Debra Kelley-Dominick, a MADEP inspector and Mr. Irwin Kamen, the owner of part of the site, accompanied TRCC. GEI's field investigations in 1986 and 1987 concentrated on source areas of contamination related to the underground storage tanks on Summit Castings property and the used casting sand piles. Since other historical contaminant source areas exist on the site which are unrelated to these areas, EPA requested that TRCC conduct additional sampling on the site. As required by EPA's scope of work, eight samples were collected including six surface soil samples, one of which was from an upgradient location, a field blank, and a duplicate sample (Table 5). All samples were analyzed through the Contract Laboratory Program for full Target Compound List (TCL) organic compounds [volatile organic compounds (VOCs), semivolatile organic compounds, pesticides, and polychlorinated biphenyls (PCBs), Target Analyte List (TAL) metals, and cyanide.

The soil samples were obtained by using sample dedicated decontaminated stainless steel trowels, spoons, and bowls. Soil samples can be described as brown, moist, silty sands with gravel.

Problems were identified during data validation resulting in estimated data ("J" and "UJ" qualifiers), and rejected data ("R" and "UR" qualifiers). All results for cyanide and beryllium, were rejected due to instrument calibration problems. Additionally, several cobalt and cadmium results were rejected because of instrument calibration problems. Other analytical

data were qualified as estimated due to instrument calibration problems, problems with matrix/matrix spike duplicate results, and blank contamination.

Table 5 summarizes the locations and times at which all samples were collected. Numerous organic and inorganic constituents were detected at values greater than three times the reference sample (Appendix A, Table A1 through A8). Table 6 summarizes these results.

Soil samples collected from the site, with the exception of the upgradient sample, SS-21-07, displayed elevated levels of semivolatile organic compounds, mainly in the form of polynuclear aromatic hydrocarbons (PAHs) and pesticides.

Among the PAHs detected, phenanthrene, flouranthene, pyrene, benzo(a)anthracene, and chrysene were detected at the highest concentrations in the most samples. Concentrations of phenanthrene ranged from 330 µg/kg in sample SS-21-01, collected from the former drum disposal area, to 35,000 µg/kg in sample SS-21-06, collected near a former waste disposal area. Concentrations of fluoroanthene ranged from 130 µg/kg in sample SS-21-04, collected west of the waste treatment plant, to 24,000 µg/kg in sample SS-21-06. Concentrations of pyrene ranged from 140 µg/kg in sample SS-21-04, to 26,000 µg/kg in sample SS-21-06. Concentrations of benzo(a)anthracene ranged from 170 µg/kg in sample SS-21-01, to 11,000 in sample SS-21-06. Concentrations of chrysene ranged from 230 µg/kg in sample SS-21-01, to 11,000 µg/kg in sample SS-21-06. Other semivolatile compounds detected at greater than three times the reference sample included naphthalene, 2-methylnaphthalene, acenaphthene, dibenzofuran, fluorene, anthracene, butylbenzylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene. Sample SS-21-06 contained the highest concentrations and the greatest number of semivolatile compounds detected.

Several pesticides were detected in samples SS-21-06 and SS-21-01. Specifically, beta-BHC, endrin, endosulfan II, 4,4'-DDT, and endrin ketone were detected in these samples, but at concentrations less than three times the reference sample. PCBs were not detected in any samples collected at the site by TRCC.

TABLE 5. SAMPLE SUMMARY: FORMER MANSFIELD BLEACHERY  
 Samples collected by TRCC on November 27, 1990

Sample Location	Matrix	OTR#	ITR#	Collection Time	Remarks	Depth	Source
SS-21-01	SOIL	AX917	MAS243	1145	GRAB	4-6"	Southwestern portion of the site, behind the Teltron Engineering building in a former drum disposal area.
SS-21-02	SOIL	AX918	MAS244	1215	GRAB	4-6"	East central area of the site, between used casting sand piles.
SS-21-03	SOIL	AX919	MAS245	1230	GRAB	4-6"	West central area of the site, in a former lagoon and waste disposal area northwest of the quonset hut.
SS-21-04	SOIL	AX920	MAR173	1245	GRAB	4-6"	Central area of the site, west of the former waste treatment plant in a former lagoon area.
SS-21-05	SOIL	AX921	MAR174	1245	GRAB	4-6"	Duplicate of SS-21-04.
SS-21-06	SOIL	AX922	MAR175	1315	GRAB	4-6"	MS/MSD from the northeast corner of the site near a former lagoon and waste disposal area.
SS-21-07	SOIL	AX998	MAR176	1340	GRAB	4-6"	Upgradient background sample; at the top of a small hill in the northwest corner of the site.
SS-21-08	AQUEOUS	AX999	MAR177	0700	GRAB		Equipment rinsate blank for quality control.

Common and heavy metal inorganic analytes, specifically arsenic, barium, chromium, cobalt, copper, lead, magnesium, nickel, vanadium, and zinc were detected in various soil samples at concentrations greater than three times the reference sample. Arsenic was present at 3.1 mg/kg in SS-21-06, and 3.4 mg/kg in SS-21-02, collected between used casting sand piles. Barium was present at 101 mg/kg in SS-21-06, and 50.1 mg/kg in SS-21-01. Cobalt and magnesium were detected in sample SS-21-04 at 8.4 mg/kg and 5,140 mg/kg, respectively. Copper was present in samples SS-21-06 and SS-21-01 at 126 mg/kg and 15.9 mg/kg, respectively. Lead was detected

in samples SS-21-01, SS-21-02, SS-21-06, and SS-21-07 at values ranging from 64.9 mg/kg in sample SS-21-07 to 169 mg/kg in sample SS-21-06. Chromium, nickel, vanadium, and zinc were detected in sample SS-21-06 at 23.8 mg/kg, 25.6 mg/kg, 112 mg/kg, and 289 mg/kg, respectively.

## **SUMMARY**

The Former Mansfield Bleachery is located on the northwest side of Morse Street in Foxborough, Massachusetts. The site is occupied by six buildings, four of which are occupied by various manufacturing and service oriented companies. The Mansfield Bleachery was a textile mill that operated on the site prior to 1966. This mill operated a wastewater treatment plant on the northern part of the site. This plant has since been demolished. The Mansfield Bleachery reportedly engaged in the uncontrolled disposal of wastes in the northern part of the site. Prior to textile operations on the site a glue factory had operated there for an undetermined period of time.

After 1966, the site was divided into seven parcels of land and sold to different individuals and companies. There is documentation of considerable waste disposal on the site after 1966 by Marlyn Engineering and Wells Trucking. These firms disposed of various liquid and solid waste including waste oils and low level radioactive wastes. Wastes were reportedly buried, released directly onto the ground, and dumped into excavated pits. There is documentation of the release of petroleum products at the site by leaking underground storage tanks owned by Summit Castings Corp. During sampling activities conducted in 1986 and 1987 by GEI Consultants for Summit Castings on and near their property, floating petroleum product was encountered in test pits. During TRCC's site inspection on November 20, 1990, other potential sources of contamination were noted which included waste dye beds, remnants of a wastewater treatment plant, evidence of landfilling in the northeastern part of the site, numerous fill piles, an abandoned underground storage tank, and used casting sand piles.

TABLE 6. SAMPLE RESULTS SUMMARY TABLE: FORMER MANSFIELD BLEACHERY

Samples Collected by TRCC on November 20, 1990

Location	Compound/Element	Concentration	Appendix Table	Comments
SS-21-01	Phenanthrene	330 J µg/kg	A3	detected*
	Anthracene	66 J µg/kg	S3	detected
	Flouranthene	440 J µg/kg	A3	detected
	Pyrene	360 J µg/kg	A3	detected
	Benzo(a)anthracene	170 J µg/kg	A3	detected
	Chrysene	230 J µg/kg	A3	detected
	Benzo(b)fluoranthene	470 J µg/kg	A3	detected
	Benzo(k)flouranthene	260 J µg/kg	A3	detected
	Benzo(a)pyrene	240 J µg/kg	A3	detected
	4,4'-DDT	53 µg/kg	A5	detected
	Aluminum	6,920 J mg/kg	A7	detected
	Arsenic	1.7 mg/kg	A7	detected
	Barium	50.1 J mg/kg	A7	3.2 times RS (SS-21-07)
	Calcium	1,440 mg/kg	A7	detected
	Copper	15.9 J mg/kg	A7	3.8 times RS (SS-21-02)
	Lead	74.8 mg/kg	A7	4.6 times RS (SS-21-03)
	Magnesium	1,440 mg/kg	A7	detected
	Manganese	170 mg/kg	A7	detected
	Nickel	10.5 J mg/kg	A7	detected
	Potassium	240 mg/kg	A7	detected
	Sodium	95.4 mg/kg	A7	detected
	Vanadium	13.2 J mg/kg	A7	detected
	Zinc	57.9 J mg/kg	A7	detected
SS-21-02	Phenanthrene	1,200 µg/kg	A3	3.2 times RS (SS-21-07)
	Anthracene	210 µg/kg	A3	detected
	Flouranthene	440 J µg/kg	A3	4.6 times RS (SS-21-07)
	Pyrene	1,300 µg/kg	A3	3.5 times RS (SS-21-07)
	Benzo(a)anthracene	630 J µg/kg	A3	detected
	Chrysene	790 µg/kg	A3	detected
	Benzo(b)fluoranthene	810 µg/kg	A3	detected
	Benzo(k)flouranthene	680 J µg/kg	A3	detected
	Benzo(a)pyrene	760 µg/kg	A3	detected
	Indeno(1,2,3-cd)pyrene	880 µg/kg	A3	detected
	Benzo(g,h,i)perylene	760 µg/kg	A3	detected
	Arsenic	3.4 mg/kg	A7	5.0 times RS (SS-21-03)

TABLE 6. (CONTINUED)

Location	Compound/Element	Concentration	Appendix Table	Comments
SS-21-02 (cont.)	Barium	25.3 J mg/kg	A7	detected
	Calcium	848 mg/kg	A7	detected
	Iron	9,730 mg/kg	A7	detected
	Lead	101 mg/kg	A7	6.2 times RS (SS-21-03)
	Manganese	172 mg/kg	A7	detected
	Nickel	8.4 J mg/kg	A7	detected
	Potassium	207 mg/kg	A7	detected
	Sodium	119 mg/kg	A7	detected
SS-21-03	Butylbenzylphthalate	1,600 µg/kg	A3	4.4 times RS (SS-21-05)
	bis(2-Ethylhexyl) phthalate	250 J µg/kg	A3	detected
	Aluminum	9,750 mg/kg	A7	detected
	Barium	25.4 J mg/kg	A7	detected
	Calcium	1,330 mg/kg	A7	detected
	Cobalt	3.1 J mg/kg	A7	detected
	Copper	11.8 J mg/kg	A7	detected
	Iron	12,100 J mg/kg	A7	detected
	Magnesium	1970 mg/kg	A7	detected
	Manganese	171 mg/kg	A7	detected
	Nickel	12.1 J mg/kg	A7	detected
	Potassium	172 mg/kg	A7	detected
	Sodium	113 mg/kg	A7	detected
	Vanadium	12.4 J mg/kg	A7	detected
	Zinc	37.9 J mg/kg	A7	detected
SS-21-04	Fluoranthene	130 J µg/kg	A3	detected
	Pyrene	140 J µg/kg	A3	detected
	Aluminum	11,300 J mg/kg	A7	detected
	Arsenic	1.2 mg/kg	A7	detected
	Barium	35.7 mg/kg	A7	detected
	Calcium	1,790 mg/kg	A7	detected
	Cobalt	8.4 J mg/kg	A7	3.1 times RS (SS-21-06)
	Copper	12.4 J mg/kg	A7	detected
	Iron	21,100 J mg/kg	A7	detected
	Lead	19.3 mg/kg	A7	detected
	Magnesium	5,140 mg/kg	A7	4.6 times RS (SS-21-02)



TABLE 6. (CONTINUED)

Location	Compound/Element	Concentration	Appendix Table	Comments
SS-21-04 (cont.)	Manganese	239 mg/kg	A7	detected
	Nickel	16.7 J mg/kg	A7	detected
	Potassium	271 mg/kg	A7	detected
	Sodium	101 mg/kg	A7	detected
	Vanadium	28.6 J mg/kg	A7	detected
	Zinc	55.3 J mg/kg	A7	detected
SS-21-05	Phenanthrene	800 J µg/kg	A3	detected
	Anthracene	92 J µg/kg	A3	detected
	Fluoranthene	810 J µg/kg	A3	detected
	Pyrene	610 J µg/kg	A3	detected
	Benzo(a)anthracene	230 J µg/kg	A3	detected
	Chrysene	310 J µg/kg	A3	detected
	Benzo(b)fluoranthene	310 J µg/kg	A3	detected
	Benzo(k)fluoranthene	240 J µg/kg	A3	detected
	Benzo(a)pyrene	270 J µg/kg	A3	detected
	Indeno(1,2,3-cd)pyrene	290 J µg/kg	A3	detected
	Benzo(g,h,i)perylene	280 J µg/kg	A3	detected
	Aluminum	7,460 J mg/kg	A7	detected
	Arsenic	1.1 mg/kg	A7	detected
	Barium	23.1 J mg/kg	A7	detected
	Calcium	755 mg/kg	A7	detected
	Chromium	10.7 J mg/kg	A7	detected
	Cobalt	3.9 J mg/kg	A7	detected
	Copper	11.9 J mg/kg	A7	detected
	Iron	10,700 J mg/kg	A7	detected
	Lead	18.8 mg/kg	A7	detected
	Magnesium	1,960 mg/kg	A7	detected
	Manganese	189 mg/kg	A7	detected
	Mercury	0.15 mg/kg	A7	detected
	Nickel	9.50 J mg/kg	A7	detected
	Potassium	252 mg/kg	A7	detected
	Sodium	98.4 mg/kg	A7	detected
	Vanadium	17.3 J mg/kg	A7	detected
	Zinc	38.1 J mg/kg	A7	detected

TABLE 6. (CONTINUED)

Location	Compound/Element	Concentration	Appendix Table	Comments
SS-21-06	Naphthalene	5,300 µg/kg	A3	15 times RS (SS-21-05)
	2-Methylnaphthalene	3,200 µg/kg	A3	8.9 times RS (SS-21-05)
	Acenaphthene	3,500 J µg/kg	A3	9.7 times RS (SS-21-05)
	Dibenzofuran	4,000 µg/kg	A3	11 times RS (SS-21-05)
	Fluorene	4,700 µg/kg	A3	13 times RS (SS-21-05)
	Phenanthrene	35,000 µg/kg	A3	95 times RS (SS-21-07)
	Anthracene	5,900 µg/kg	A3	16 times RS (SS-21-07)
	Fluoranthene	24,000 µg/kg	A3	65 times RS (SS-21-07)
	Pyrene	26,000 µg/kg	A3	70 times RS (SS-21-07)
	Benzo(a)anthracene	11,000 µg/kg	A3	30 times RS (SS-21-07)
	Chrysene	10,000 µg/kg	A3	27 times RS (SS-21-07)
	Benzo(b)fluoranthene	9,100 µg/kg	A3	25 times RS (SS-21-07)
	Benzo(k)fluoranthene	6,200 µg/kg	A3	17 times RS (SS-21-07)
	Benzo(a)pyrene	9,600 µg/kg	A3	26 times RS (SS-21-07)
	Indeno(1,2,3-c)pyrene	5,400 µg/kg	A3	15 times RS (SS-21-07)
	Benzo(g,h,i)perylene	4,900 µg/kg	A3	13 times RS (SS-21-07)
	beta-BHC	260 J µg/kg	A5	detected
	Endrin	62 J µg/kg	A5	detected
	4,4'-DDT	110 µg/kg	A5	detected
	Endrin ketone	49 J µg/kg	A5	detected
	Aluminum	6,170 J mg/kg	A7	detected
	Arsenic	3.1 mg/kg	A7	4.6 times RS (SS-21-03)
	Barium	101 J µg/kg	A7	6.4 times RS (SS-21-07)
	Calcium	1,970 mg/kg	A7	detected
	Chromium	23.8 J mg/kg	A7	4.2 times RS (SS-21-04)
	Copper	126 J mg/kg	A7	30 times RS (SS-21-02)
	Iron	11,800 J mg/kg	A7	detected
	Lead	169 mg/kg	A7	10 times RS (SS-21-03)
	Magnesium	1,630 mg/kg	A7	detected
	Mercury	0.31 mg/kg	A7	detected
	Nickel	25.6 J mg/kg	A7	3.4 times RS (SS-21-07)
	Silver	0.32 J mg/kg	A7	detected
	Sodium	101 mg/kg	A7	detected
Vanadium	112 J mg/kg	A7	9.4 times RS (SS-21-02)	
Zinc	289 J mg/kg	A7	7.9 times RS (SS-21-02)	

TABLE 6. (CONTINUED)

Location	Compound/Element	Appendix Concentration	Table	Comments
SS-21-07	Aluminum	8,130 J mg/kg	A7	detected
	Arsenic	1.5 mg/kg	A7	detected
	Cobalt	3.2 J mg/kg	A7	detected
	Iron	11,500 J mg/kg	A7	detected
	Lead	64.9 mg/kg	A7	4.0 times RS (SS-21-03)
	Magnesium	1,510 mg/kg	A7	detected
	Manganese	269 mg/kg	A7	detected
	Potassium	180 mg/kg	A7	detected
	Vanadium	15.9 mg/kg	A7	detected
	Zinc	53.3 J mg/kg	A7	detected

- µg/kg - micrograms per kilogram
- mg/kg - milligrams per kilogram
- RS - reference sample
- J - value is estimated due to limitations identified during data validation.
- \* - less than three times the reference sample value

A surface soil sample collected within the used casting sand pile (SS-21-02) contained three semivolatile organic compounds, specifically phenanthrene, fluoranthene, and pyrene and the metals arsenic and lead at elevated concentrations (greater than three times reference sample concentrations). The elevated levels of these semivolatiles may be attributed to the onsite disposal of petroleum products. The metals contamination at this sample location may be attributable to metals present within the used casting sand.

Butylbenzylphthalate was the only semivolatile organic compound detected at a concentration greater than three times the reference sample concentration in sample SS-21-03 which was collected near a former lagoon area north of the quonset hut. A chemical dump was also reported to be present at this location in the past. Other than waste oil, it is unknown what types of wastes have been disposed of at this sample location.

The surface soil sample collected from the top of the landfill/chemical dump/lagoon area in the northeastern corner of the site (SS-21-06) contained elevated levels of semivolatile organic compounds, primarily polycyclic aromatic hydrocarbons. Phenanthrene, fluoroanthene, pyrene, benzo(a)anthracene, and chrysene were present at elevated concentrations in sample SS-21-06 between 27 and 95 times the reference sample. Eleven other semivolatile organic compounds were present at elevated concentrations in sample SS-21-06. There is documentation of the disposal of unknown types of waste by the Mansfield Bleachery and for waste oil and other unknown waste types by Wells Trucking in the area of the site from which sample SS-21-06 was collected.

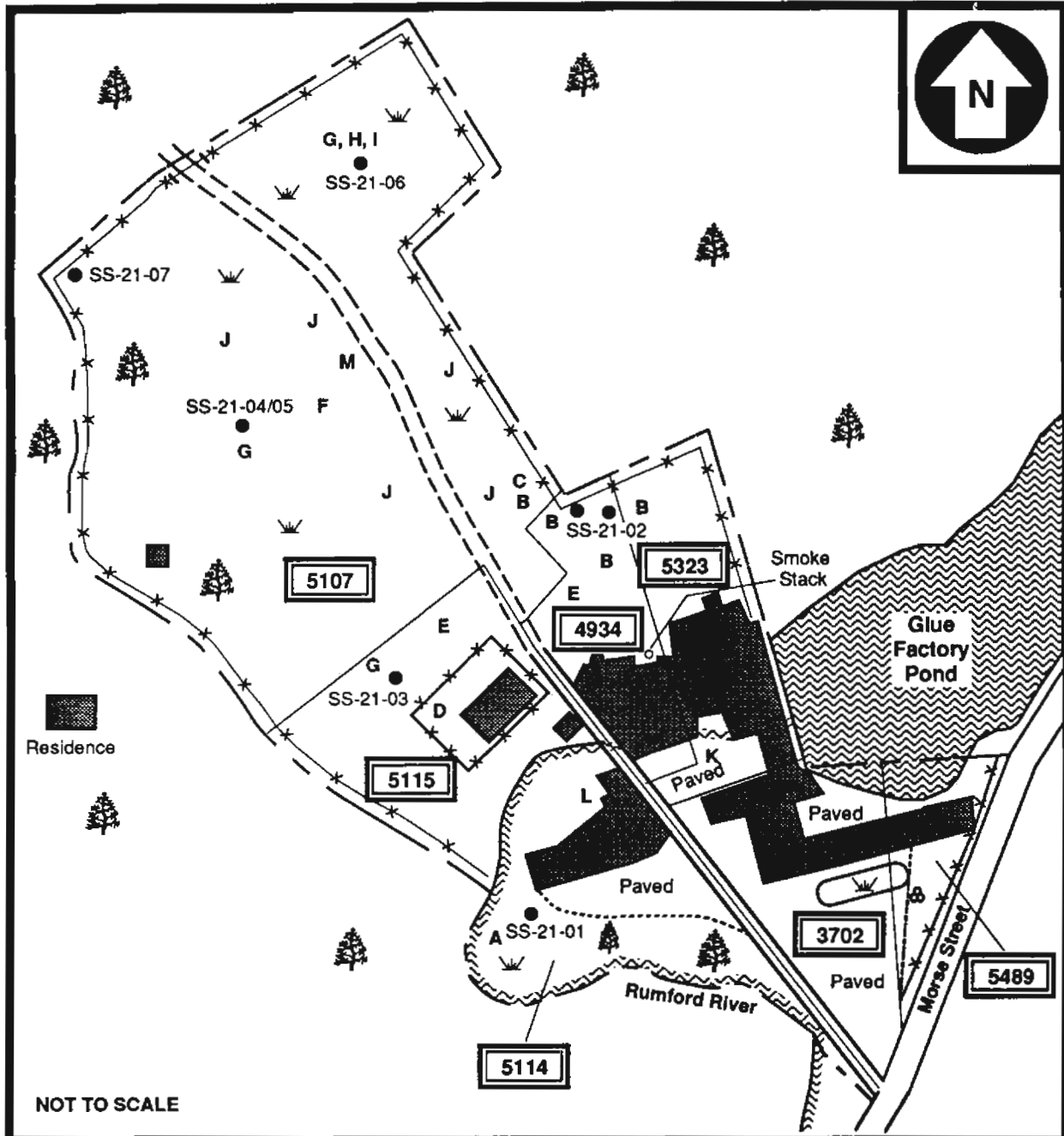
Analysis of ground water, surface water, and soil samples collected by GEI Consultants for Summit Castings detected volatile organic compounds in all media at the site as well as free floating petroleum product in test pits.

Ten inorganic constituents were present at concentrations greater than three times the reference sample across the site. Potential receptors of contamination from the Former Mansfield Bleachery include the following:

- the Rumford River which flows across the site and an associated nine acre wetland located 500 feet southwest of the site, Glue Factory pond, and their associated flora and fauna;
- nineteen public water supply wells serving up to 50,982 persons located within a four mile radius of the site, including one located 0.8 miles east of the site;
- a private water supply well at a residence located approximately one half mile northwest of the site and between 356 and 4646 private water supply well users within a four mile radius of the site;
- a private residence located approximately 500 feet west of the site; and
- stocked trout and other native fish within the downstream drainage pathway which are presumably eaten by humans;
- site workers and trespassers.

Based on the degree of surface soil contamination found at the Former Mansfield Bleachery, the history of waste disposal at the site, and numerous potential receptors near the site, TRCC recommends continued investigative work under CERCLA at the Former Mansfield Bleachery site.

**Exhibit 2**



NOT TO SCALE

Drums	Soil Sample Location	A Former Drum Disposal Area	H Former Waste Disposal Area
Site Boundary	Dirt Road	B Used Casting Sand Piles	I Former Landfill
Paved Road	Forest	C Abandoned Excavated Underground Storage Tanks	J Piles of Fill and Gravel
Fence with Gate	Brush, Grass	D Quonset Hut and Impounded Cars	K Dumpsters and Metal Trash
Building	Edge of Pavement	E Junked Cars	L Oil Tank and Waste Dye Beds
River	Parcel Boundary	F Hill with Concrete Rubble and Former Clarifiers	M One Gallon Containers of Water Oil with Stained Soil
		G Former Unlined Lagoon	

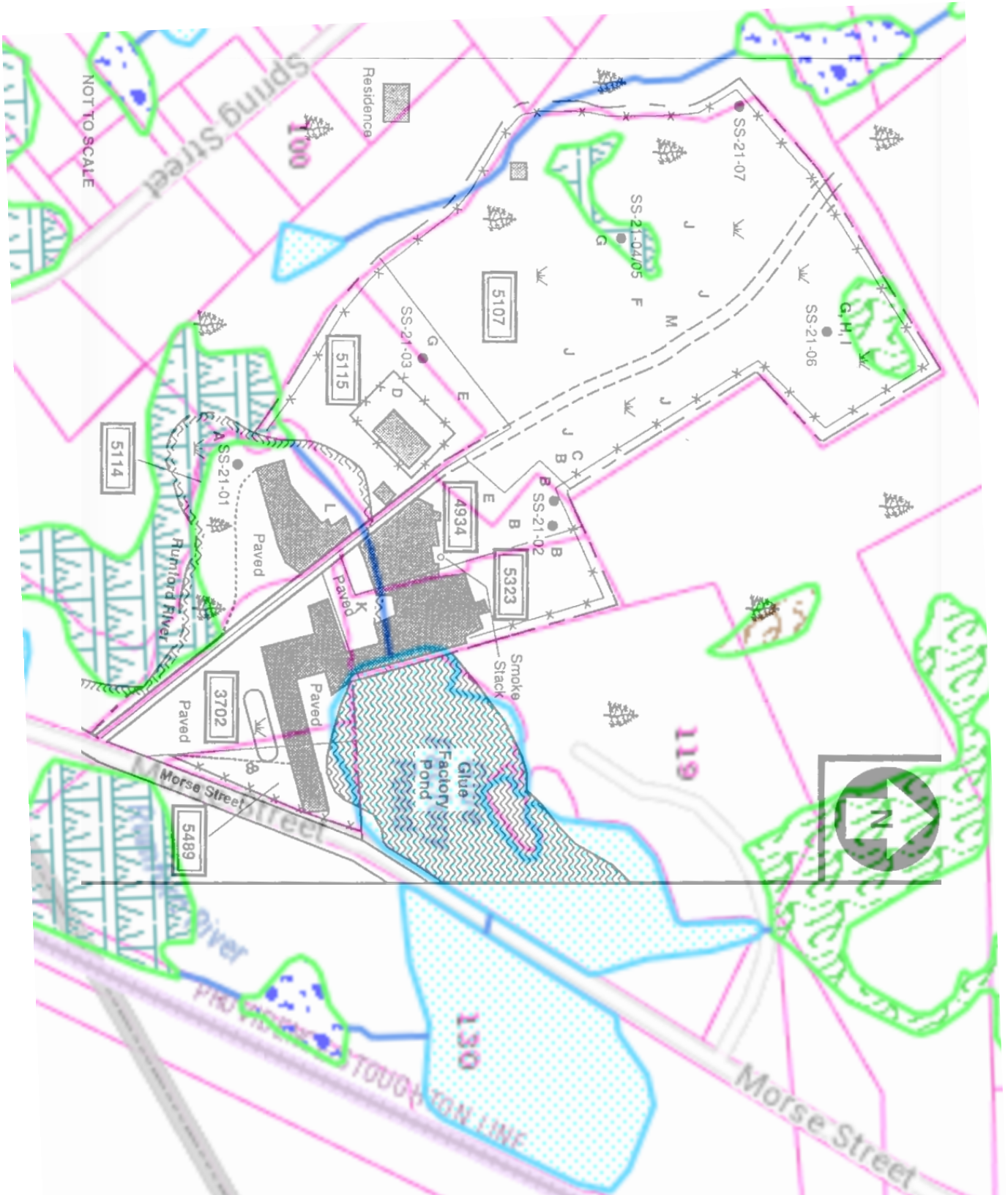
**SITE SKETCH**

**SITE SKETCH OF THE FORMER MANSFIELD BLEACHERY, FOXBOROUGH, MA.**

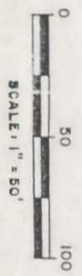
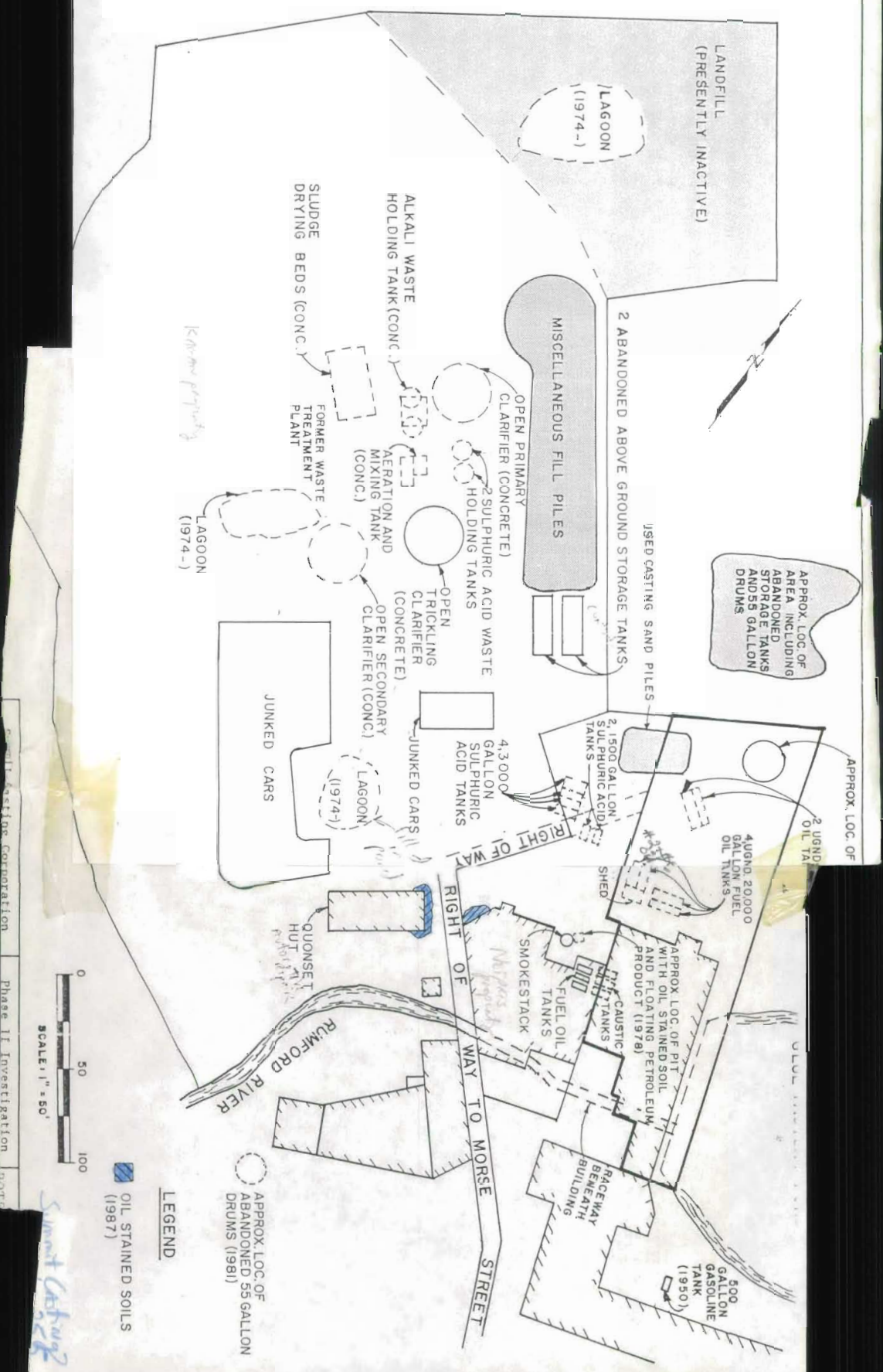
**TRC** Companies, Inc.

**FIGURE 2.**

**Exhibit 3**



**Exhibit 4**



- LEGEND**
- OIL STAINED SOILS (1987)
  - APPROX. LOC. OF ABANDONED 55 GALLON DRUMS (1981)

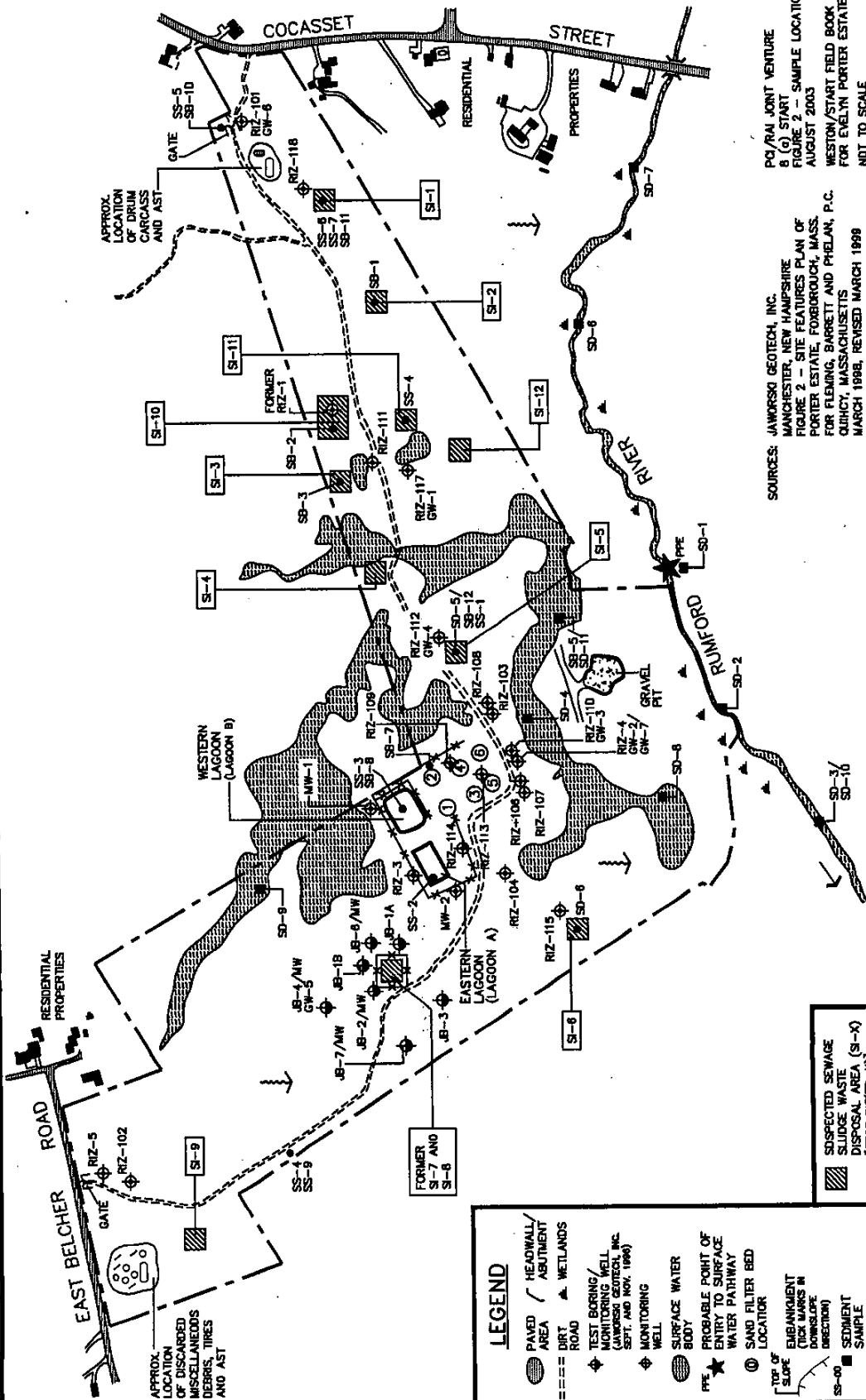
... Corporation  
 Phase II Investigation

Sweet Casting?





**Exhibit 6**



**WESTON SOLUTIONS**  
 REGION I SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM

DATE: 1/24/06  
 DRAWN BY: L. COOK  
 TDD # 05-12-0012  
 FILE NAME: S:\D512D012\FIGURES\FIG2A.DWG

**FIGURE 2A**

**SITE SKETCH**  
 (B (g) START GROUNDWATER, SEDIMENT, AND SOIL SAMPLING LOCATIONS--2003)

EVELYN PORTER ESTATE  
 EAST BELCHER ROAD/COCASSET STREET  
 FOXBOROUGH, MASSACHUSETTS

SOURCES: JAWORSKI GEOTECH, INC. MANCHESTER, NEW HAMPSHIRE  
 FIGURE 2 - SITE FEATURES PLAN OF PORTER ESTATE, FOXBOROUGH, MASS. FOR FLEMING, BARRETT AND PHELAN, P.C. QUINCY, MASSACHUSETTS MARCH 1998, REVISED MARCH 1999  
 NOT TO SCALE