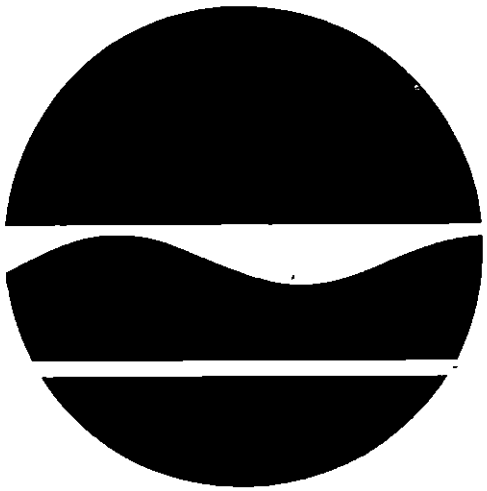
PROPOSED REMEDIAL ACTION PLAN
Independent Leather Tannery

Environmental Restoration Project
321-333 South Main Street
City of Gloversville, Fulton County, New York
Site No. B00158-5

November 20, 2003



Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

A 1996 Clean Water/Clean Air Bond Act
Environmental Restoration Project

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the Independent Leather Tannery located at 321-333 South Main Street in the City of Gloversville, Fulton County. The presence of hazardous substances has created threats to human health and/or the environment that are addressed by this proposed remedy.

The 1996 Clean Water/Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. Under the Environmental Restoration (Brownfields) Program, the state provides grants to municipalities to reimburse a portion of eligible costs for site investigation and remediation activities. Once remediated the property can then be reused.

As more fully described in Sections 3 and 5 of this document, leather tanning operations at the location since the beginning of the 20th Century have resulted in the disposal of hazardous substances, including free phase petroleum, metals (especially arsenic and chromium), volatile organic compounds, and semi-volatile organic compounds. These hazardous substances have contaminated the soil, sediment, and groundwater at the site, and have resulted in:

- a threat to human health, through direct contact, ingestion, or inhalation (dusts) of contaminated soils or sediments, associated with a release of metals, oils and hazardous materials related to tannery operations at the site.
- a threat to human health, through inhalation exposure, to volatilized organic compounds (VOCs) via vapor intrusion in current or future site structures.
- an environmental threat associated with metals, oil, and hazardous materials in the groundwater and the potential migration of these materials in the groundwater.

To eliminate or mitigate these threats, the NYSDEC proposes the following remedy to allow for commercial/industrial use of the site:

- Demolition and proper disposal of the secondary tannery building to allow access to contaminated areas under the structure.

- Excavation and proper disposal of an estimated 3,225 tons of petroleum contaminated soils and placement of clean fill in the excavated areas on the eastern portion of the property.

- Further sampling, investigation and potential excavation of 1,770 tons of arsenic contaminated soils on the eastern portion of the property.

- Provide a barrier to contact in site locations where arsenic, chromium and petroleum contamination above SCGs exists on the ground surface.

- Design a soil management plan for use during pre and post redevelopment or excavation on site, as any soils that are excavated would have to be characterized, managed, and properly disposed of in accordance with NYSDEC regulations and directives.

- An institutional control confirming that the barrier to contact is in place would be imposed. The property owner would complete and submit to the NYSDEC an annual certification until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal would contain certification that the institutional controls put in place, pursuant to the Record of Decision, are still in place, have not been altered, and are still effective.

- A restriction and/or environmental easement would be imposed limiting future site development to commercial/industrial use; vapor intrusion in proposed site structures due to volatilized organic compounds from residual petroleum contaminants must be appropriately evaluated and addressed prior to redevelopment.

- A restriction and/or environmental easement would be imposed, in such form as the NYSDEC may approve, that would prevent the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the NYSDOH.

- Since the remedy results in residual contamination remaining at the site, a long term monitoring program would be instituted. Periodic monitoring of select monitoring wells would allow the extent of residual contamination to be monitored and would be a component of the operation and monitoring for the site.

- Notification of the NYSDEC prior to site development and change in ownership.

The proposed remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The NYSDEC will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The NYSDEC has issued this PRAP as a component of the Citizen Participation Plan developed pursuant to the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375. This document is a summary of the information that can be found in greater detail in the November 2003 Site Investigation (SI) Report, the November 2003 Remedial Alternatives Report (RAR), and other relevant documents.

The public is encouraged to review the project documents, which are available at the following repositories:

City of Gloversville-Public Works Office
City Hall 3 Frontage Street
Gloversville, New York 12078-2897
Contact: Mr. Ronald Ellis
Telephone: 518-773-4556
Hours: M-F 8AM - 3PM

Gloversville Free Library
58 East Fulton Street
Gloversville, New York 12078
Telephone: 518-725-2819
Hours: T-W 10AM - 7PM
Th-F 10AM - 6PM
Sa 10AM - 4PM

NYSDEC-Region 5 Office
PO Box 296, Route 86
Ray Brook, New York 12977
Contact: Michael P. McLean, P.E.
Telephone: (518) 897-1242
Hours: M-Fr 8AM - 4PM

The NYSDEC seeks input from the community on all PRAPs. A public comment period has been set from November 21, 2003 to January 5 , 2004 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for December 16, 2003 at the City Hall-City of Gloversville beginning at 7pm.

At the meeting, the results of the SI/RAR will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Michael P. McLean at the above address through January 5, 2004.

The NYSDEC may modify the preferred alternative or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the NYSDEC's final selection of the remedy for this site.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Independent Leather site is located at 321-333 South Main Street in the City of Gloversville, Fulton County. The site is approximately 3.7 acres in size, and is bounded by South Main Street to the west, Hill Street to the south, a recreational bike path to the east, and a car wash to the north. The Cayadutta Creek bisects the property, with approximately 600 feet of creek shoreline on the property. The property is located in a commercial area. Refer to Figure 1-Site Location Map.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Independent Leather Tannery site has been used to de-hair, tan, dye, and finish animal skins since the beginning of the 20th Century. The tanning and finishing of hides involves many processes, each of which utilizes particular chemicals and generates various liquid and solid waste streams. The common chemicals and products used in these processes and identified at the location include: sulfuric acid, formic acid, muriatic acid, caustic soda, sodium hypochlorite, sodium bicarbonate, methylene chloride, hydrate lime, magnesium oxide, titanium oxide, sodium nitrate, Stoddard solvent, methanol, Derminol liquor, Tanasol 9W, Catilix T, Retan resin, sodium chloride, chromium sulfate, numerous pigments, formaldehyde, detergents, Ucar G-50, Atasol, biocides, petroleum products, and fungicides.

During the years of operation prior to the establishment of waste water treatment facilities in Gloversville, the liquid wastes generated in the various site processes were most likely discharged directly to the Cayadutta Creek, which bisects the site. In the early 1980's tanneries were mandated to construct and maintain waste water

pretreatment plants and monitoring stations. The pretreatment plant at Independent Leather began operation around 1984 with liquid waste being discharged to the Gloversville municipal sewer system.

In the mid 1990's, Independent Leather shut down operations. Based on conditions of the site in 2000, it appeared that the tannery was vacated in an "as is" condition at that time. Numerous animal hides, supplies, equipment, and hundreds of various sized metal, plastic, and fiber containers and tanks of numerous and varying chemicals were scattered and abandoned throughout the facility. In early 2000, the main tannery building was in severe disrepair and portions of the roof structure had collapsed.

3.2: Remedial History

In 1988 C.T. Male conducted investigative work for the former owners of the site. The work included a 1988 Environmental Audit and Site Assessment Report, which included an Asbestos Containing Materials Survey. No other previous site investigations were reported to exist for the site.

According to NYSDEC spills database, one petroleum spill is registered for Independent Leather. The NYSDEC Spill Number 0105001 was reported to NYSDEC on August 8, 2001 concerning a sheen on the water (unknown type of oil) and a slight odor in the air. Workers from EPA, who were engaged in a cleanup of the Independent Leather site noticed a sheen on the creek and put out boom and then traced it upstream to a local dealership. The sheen reportedly dissipated and the car dealership has recently upgraded pollution prevention systems and no floor drains were visible. No material was recovered and no further discharge was noted. The spill was closed on August 14, 2001.

On December 6, 2001, as a part of a Niagara Mohawk coal tar investigation and cleanup, NYSDEC and Blasland, Bouck and Lee (BBL) conducted a stream survey in Cayadutta Creek to probe sediments upstream of Hill Street to determine if sheens and odors were produced. NYSDEC's survey also sought to determine where coal tar was seeping into the creek. It was reported that sheens, ranging from light silver to visible product thickness were observed over the entire length of creek along the Independent Leather site, and Spill Number 0108925 was assigned to the incident. NYSDEC noted that no significant sheens and no petroleum odors were observed upstream of the Independent Leather site. Subsequent investigation by Spill Response staff on January 24, 2002 and February 13, 2002 could not identify a sheen or additional release in this area. Spill Response staff concluded that the spill was most probably the result of a release to a nearby storm sewer, and the spill was closed on November 18, 2002.

From April 2001 until December 2001, the United States Environmental Protection Agency (EPA), under their Emergency Removal Action Program was on-site packaging and removing hundreds of drums of chemicals, including corrosives, metallic pigments, resins, acids, lab chemicals, water reactive solids, chromium solutions, and biological waste consisting of animal hair, skin fleshing, and small body parts. Once the wastes were properly disposed off-site or relocated on-site for subsequent disposal, EPA demolished three buildings, the main tannery building, a smaller maintenance building on the west side of the creek and the storage shed located on the east side of the creek. EPA also cleaned the interior of the secondary tannery building on the east side of the creek. All of the building demolition debris was transported to the Fulton County Landfill. Due to inclement weather, EPA demobilized for the winter months and again mobilized to the site on May 13, 2002 to finish the removal action. This final phase of the work consisted of the following: final cleaning and demolition of the waste water treatment plant and concrete foundation walls, excavation and disposal of arsenic and chromium contaminated soil hot spots, disposal/recycling of remaining scrap steel and wood beams from the old bridges, closure of an unknown 300 gallon underground storage tank found along West Main Street, closure of an abandoned 20,000 gallon underground storage tank and removal of associated petroleum contaminated soil, preparation of a report on the

fate and transport (geochemical modeling) of chromium and arsenic contamination present on the site, reconstruction of damaged areas of creek banks, and excavation of exploratory trenches in designated areas where geophysical surveys identified anomalies. EPA also constructed a barrier to contact (fill one to eight feet in depth covered with grass) throughout the majority of the western portion of the site. EPA demobilized all of their equipment from the site in September 2002. EPA prepared weekly Pollution Reports that summarized the work completed under their $1.6M Emergency Response Action. Refer to Figure 2-EPA Emergency Response Action Work. Information contained within the EPA Pollution Reports is summarized within the SI Report and copies are provided in supplemental documents to that report.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past owners and operators, waste generators, and haulers.

The Potential Responsible Parties (PRPs) for the site, documented to date, include the former owner of the Independent Leather Tannery. The EPA- Region 2 Emergency Removal Action Office is investigating whether to pursue the PRP for costs involved with the 2001-2002 Emergency Removal Action.

The City of Gloversville will assist the state in their efforts by providing all information to the state which identifies PRPs. The City of Gloversville will also not enter into any agreement regarding response costs without the approval of the NYSDEC.

SECTION 5: SITE CONTAMINATION

The City of Gloversville has recently completed a SI/RAR to determine the nature and extent of any contamination by hazardous substances at this environmental restoration program site.

5.1: Summary of the Site Investigation

The purpose of the SI was to define the nature and extent of any contamination resulting from previous activities at the site. The SI was conducted between November 2001 and February 2003. The field activities and findings of the investigation are described in the SI report.

The following activities were conducted during the SI:

- Research of historical information; including prior site investigations and EPA work in relation to the Emergency Removal Action;
- Geophysical surveys to locate potential tanks, piping, dry wells, drums, and other buried structures in cooperation with actions performed by EPA;
- Characterization and disposal of abandoned materials in cooperation with actions performed by EPA.;
- Evaluation of pretreatment water at wastewater treatment plant in cooperation with action performed by EPA;
- Subsurface investigation of aboveground and underground storage tanks locations in cooperation with actions performed by EPA;
- Evaluation of creek sediments and surface waters;
- Fish and Wildlife Impact Analysis;
- Subsurface and hydrogeologic evaluation via installation and sampling of eleven soil borings and thirteen monitoring wells (two monitoring wells preexisting) for analysis of soils and groundwater as well as physical properties of soil and hydro geologic conditions;

- Surface soil sampling and analysis via collection of surface soil samples for suspect contaminants;

- Site survey.

To determine whether the soil, groundwater, stream sediment, and surface water contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on NYSDEC "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the NYSDEC "Technical and Administrative Guidance Memorandum (TAGM) 4046; Determination of Soil Cleanup Objectives and Cleanup Levels".

- Sediment SCGs are based on the NYSDEC "Technical Guidance for Screening Contaminated Sediments" and in comparison with TAGM 4046.

Based on the SI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below. More complete information can be found in the SI report.

5.1.1: Site Geology and Hydrogeology

Surficial geology in the vicinity of the site is defined as kame moraine and fluvial deltaic sand. Kame morain soils vary from boulders to sand with a thickness of 30 to 60 feet. Fluvial deltaic sands consist of fine sands ranging in thickness from 6 to 30 feet. Test borings identified fill material from the surface to 4 to 14 feet below grade, silty sand, sandy silt, sand and gravel from 4 to 12 feet below grade, and glacial till or silt embedded with sand or gravel at depths of 8 to 16 feet below grade. Depth to bedrock was not identified in the investigation processes, but sampler refusal occurred in the till approximately 15 feet below grade. Fill materials were primarily silt and fine sand intermingled with coal, ash, cinders, wood, brick, concrete, and organic matter. The Cayadutta Creek flows through the site generally from north to south, entering the site near the center line of the northern boundary and exiting near the southeast corner. Groundwater flow converges on the Cayadutta Creek in an easterly and westerly direction, and is approximately 3 feet to 11 feet below existing site grades. Groundwater is not utilized in the area for drinking water purposes.

5.1.2: Nature of Contamination

As described in the SI report, many soil, groundwater, surface water, and sediment samples were collected to characterize the nature and extent of contamination. As summarized in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and inorganics (metals).

Volatile organic compounds (VOCs) above SCGs were identified in the following locations:

- Ethylbenzene and xylenes in the soils directly under the slab of the Secondary Tannery Building (SS-5, SS-6);

- Acetone in the subsurface soils along the eastern portion of the site (MW-11, MW-13) and to a lesser extent on the western portion (MW-10);

- Benzene, ethylbenzene, and xylenes in the groundwater beneath the secondary tannery building (MW-13 and MW-15) and a lesser extent in the groundwater on the western side of the site (MW-7, MW-10).

Semivolatile organic compounds (SVOCs) above SCGs were identified in the following locations:

- Benzo(a)anthracene, benzo(a)pyrene, chrysene, 2-methylnapthalene, napthalene, benzo(b)fluoranthene, and

benzo(k)fluoranthene in the subsurface soils beneath, or immediately adjacent t the secondary tannery building;

- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo (k)fluoranthene, chrysene, benzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene in the subsurface soils beneath the main tannery building;

- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and dibenzo(a,h)anthracene in the stream sediment taken from the Cayadutta Creek;

- Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, and dibenzo(a,h)anthracene in the subsurface soils collected near the location of monitoring wells MW-8, MW-10, and MW-12;

- Phenol, naphthalene, and pentachlorophenol in the groundwater beneath and immediately down gradient of the secondary tannery building. In addition, these compounds were detected to a lesser degree in the groundwater at monitoring well MW-7, which is beneath the former location of the main tannery building.

Inorganics (metals) above SCGs were identified in the following location:

- Arsenic, chromium, copper, iron, mercury, nickel, and zinc in the surface soil on the eastern portion the site;

- Aluminum and iron in the surface water of the Cayadutta Creek.;

- Copper, iron, and zinc in the stream sediment of the Cayadutta;
- Arsenic, beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium, vanadium, and zinc in the subsurface soils throughout the site;

- Antimony, arsenic, chromium, iron, magnesium, manganese, and sodium in the groundwater in select monitoring wells across the site.

Pesticides and PCBs were analyzed for and were not identified on the site. Potential exposure routes are direct contact with and ingestion of contaminated soils that exist on the site, and inhalation of VOCs from soil gas. Please refer to Table 1 for concentration range and frequency of exceeding SCGs for contaminants and all media, and Table 2 for specific concentrations of surface soil contaminants on the east and western portions of the site. The majority of the western portion of the site has been covered with a barrier to contact by EPA during the Emergency Removal Action.

5.1.3: Extent of Contamination

This section describes the findings of the investigation for environmental media that were investigated.

Chemical concentrations are reported in parts per billion (ppb) for water, and parts per million (ppm) for soil and sediment. For comparison purposes, where applicable, SCGs are provided for each medium.

Table 1 summarizes the degree of contamination for the contaminants of concern and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soil

Surface soil at this site is defined as soil less than six inches below the ground surface. Analytes identified that exceeded TAGM 4046 Recommended Soil Cleanup Objectives (RSCOs) were SVOCs, arsenic, and chromium in the area east of the Cayadutta Creek. The western portion of the site has been covered with a barrier to contact by EPA. Refer to Figures 3 and 4-Concentrations in Soil Outside Areas Filled By EPA.

Subsurface Soil

Subsurface soil at the site is defined as soil greater than six inches below the ground surface. Analytes identified that exceeded TAGM 4046 Recommended Soil Cleanup Objectives (RSCOs) were SVOCs and free product (suspect fuel oil) in the area of the former 20,000 gallon fuel oil tank; SVOCs, arsenic, and chromium in the area of the former wastewater treatment plant; VOCs, SVOCs, arsenic, chromium, copper, iron, mercury, nickel, and zinc in the soil beneath the secondary tannery building. Refer to figures 3 through 7.

Sediments

The Cayadutta Creek bisects the Independent Leather property. Two SVOCs (Benzo(a)pyrene, Dibenzo(a,h)anthracene) were detected in all three sediment samples at concentrations above acceptable SCGs. The concentrations of the SVOC were highest within the upstream sample. Copper, iron, and zinc were the only metals detected above the SCGs. Based on a comparison of the detected concentrations to typical background comparisons and the relationship of concentrations from upstream to downstream, it does not appear that these contaminants are at levels that warrant remedial action or are the result of past tanning activities performed at the site.

Groundwater

Groundwater samples collected from monitoring wells located throughout the site identified contaminants above SCGs, which included VOCs, SVOCs, arsenic, chromium, iron, manganese, magnesium, and sodium in the area of the former wastewater treatment plant; and VOCs, SVOCs, arsenic, iron, manganese and sodium on the eastern side of the property, primarily in the area beneath the secondary tannery building. Refer to Figures 8 and 9.

Surface Water

Aluminum and iron were the only parameters that were detected at concentrations above applicable SCGs. Both of these metals were elevated within the upstream sample only. It does not appear that these contaminants are at levels that warrant remedial action or are the result of past tanning activities performed at the site.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the SI/RAR.

Recent IRMs performed by EPA under their $1.6M Emergency Removal Action are discussed in the remedial history, Section 3.2.

There were no IRMs performed by the municipality using New York State Brownfield funds at this site.

5.3: Summary of Human Exposure Pathways:

This section describes the type of human exposures that may present health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 1.6 of the RA report.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An

exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Potential current exposures to site-related contaminants are limited since the site is vacant. The site could present exposures to construction/utility workers, remedial workers, trespassers and future occupants. Construction, utility and remedial workers could be exposed to site-related chemicals though incidental soil ingestion, inhalation of constituents volatilizing from soil or groundwater, inhalation of contaminated (dust) soils and dermal contact with surface and subsurface soils and groundwater. Trespassers could be exposed through dermal contact with surface soils east of Cayadutta Creek. Individuals recreating at Cayadutta Creek in the vicinity of the site may be exposed to contamination through prolonged dermal contact with sediments and surface water. Exposures associated with Cayadutta Creek are unlikely since the Creek is not used for recreation in the vicinity of the site. Future use of the Creek may present exposures. Future occupants of the site could be exposed to site-related contamination via several pathways depending directly on site use. Occupants could be exposed through incidental soil ingestion, inhalation of VOCs from soil gas especially in indoor environments, inhalation of contaminated (dust) soil and dermal contact with surface soils east of Cayadutta Creek.

5.4: Summary of Environmental Impacts

This section summarizes the existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The Fish and Wildlife Impact Analysis, which is included in the SI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

Since this site is in a commercial/industrial area with residential areas in the vicinity, the likelihood of wildlife being impacted is low. Access to the Independent Leather site is restricted by sign, fencing, and other features, and there is no hunting allowed within the City of Gloversville.

Additionally, samples from the creek receiving drainage from the site did not contain elevated levels of contaminants, therefore a viable exposure pathway to fish and wildlife receptors is not present. There is no significant fish resource present in the Cayadutta at this site.

Site contamination has also impacted the shallow groundwater aquifer. This shallow aquifer is not utilized, as the area is serviced by a public water system.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND THE PROPOSED USE OF THE SITE

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous substances disposed at the site through the proper application of scientific and engineering principles.

The proposed future use for the Independent Leather Site would be commercial or light industrial. The remediation goals for this site are to eliminate or reduce to the extent practicable:

- Exposures of persons at or around the site to VOCs, SVOCs, and numerous metals (especially chromium and arsenic) in surface soils, subsurface soils, and groundwater at the site.
- The further release and migration of petroleum contaminants (VOCs and SVOCs) from soil into groundwater that may create exceedences of groundwater quality standards; and
- The release of VOCs, SVOCs, and metal contaminants (esp. chromium and arsenic)

from surface soil and subsurface soils into the groundwater and the Cayadutta Creek through storm water erosion, infiltration, and/or wind borne dust.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, and comply with other statutory requirements. Potential remedial alternatives for the Independent Leather Site were identified, screened and evaluated in the Remedial Alternatives Report which is available at the document repositories identified in Section 1.

A summary of the remedial alternatives that were considered for this site are discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated surface soils, subsurface soils, and groundwater at the site.

Alternative 1: No Action

Present Worth: *$66,258*
Capital Cost: *$0*
Annual O&M:
(Years 1-5): *$6,000*
(Years 5-30): *$6,000*

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. Monitoring would consist of annual groundwater well sampling, analysis, and reporting.

Alternative 2: Soil Barrier To Contact For Contaminated Areas With Institutional Controls

Present Worth: *$179,253*
Capital Cost: *$90,909*
Annual O&M:
(Years 1-5): *$8,000*
(Years 5-30): *$8,000*

This alternative would place a protective soil barrier over all areas of contamination (oils, metals, VOCs, SVOCs) at the site. Soils west of the Cayadutta Creek have been previously covered by EPA with a protective soil barrier, and consist predominantly of metals contamination. Remaining contaminated soil east of the Cayadutta Creek would also be covered with at least one foot of soil cover. Top soil and grass would be placed on top of the soil cover. The grassed soil cover would require periodic maintenance (O&M). Since this alternative would leave contaminated soil on site, institutional controls in the form of deed restrictions or environmental easements would be required to notify future owners and/or developers of the restricted use of the property.

Optional Protective cover possibilities for Alternative 2 would be: concrete sidewalks, asphalt/concrete parking lots, building footprints, or other acceptable strategies that provide a barrier to contact with the contaminated soils. Any excavated contaminated soil, needed to implement an acceptable alternative protective cover, would be properly disposed of according to NYSDEC regulations.

The secondary tannery building would remain as is. Additionally, areas identified with elevated levels of VOCs, SVOCs, and free phase fuel oil would not be further investigated and defined.

Groundwater sampling of select monitoring wells on a periodic basis would occur to monitor residual contaminants, including volatiles, semivolatiles, chromium, and arsenic. Deed restrictions or easements on groundwater usage, future use and development, and indoor air issues are included with this alternative. Refer to Figure 10-Alternative No. 2.

Alternative 3: Limited Excavation of Petroleum Contaminated Soil and Soil Barrier To Contact for Remaining Contaminated Areas With Institutional Controls

Present Worth: *$298,474*
Capital Cost: *$210,130*
Annual O&M:
(Years 1-5): *$8,000*
(Years 5-30): *$8,000*

This alternative would further investigate and remediate the area of fuel oil contaminated soils by the former 20,000 gallon fuel tank and investigate the subsurface conditions beneath the Secondary Tannery Building. An amount of approximately 500 tons of contaminated soils would be excavated from the former 20,000 gallon fuel tank until TAGM 4046 values are met, and properly disposed of according to NYSDEC regulations.

Demolition and proper disposal of the Secondary Tannery Building is included in this alternative to allow for access to investigate the area beneath the building via test pitting. This will also provide for a significantly improved barrier to contact in this area than achieved with leaving the existing structure in place. The building collects precipitation into specific areas and the roof drains direct all water to the floor slab; which in turn seeps into the ground through the incompetent floor drains and slab.

Contaminated soils west of the Cayadutta Creek have been previously covered by EPA with a protective soil barrier, and consist predominantly of arsenic and chromium contamination. Under EPA's Emergency Removal Action, arsenic and chromium was modeled for site specific conditions. The chromium identified is trivalent, and appears very stable in the soil at the site and the potential for leaching and mobilization is minimal. Arsenic is not as stable in the site soil.

Remaining contaminated soil east of the Cayadutta Creek would also be covered with at least one foot of soil cover and graded to minimize remaining contaminant mobility. Top soil and grass would be placed on top of the soil cover. The grassed soil cover would require periodic maintenance (O&M). Since this alternative would leave contaminated soil on site, institutional controls in the form of deed restrictions or easements would be required to notify future owners and/or developers of the restricted use of the property.

Optional Protective cover possibilities for Alternative 3 would be: concrete sidewalks, asphalt/concrete parking lots, building footprints, or other acceptable strategies that provide a barrier to contact with the contaminated soils. Any excavated contaminated soil, needed to implement an acceptable alternative protective cover, would be properly disposed of according to NYSDEC regulations.

Groundwater sampling of select monitoring wells on a periodic basis would occur to monitoring residual contaminants, including volatiles, semivolatiles, chromium, and arsenic. Deed restrictions or easements on groundwater usage, future use and development, and indoor air issues are included with this alternative. Refer to Figure 11-Alternative No. 3.

Alternative 4: Expanded Soil Excavation and Disposal of Select Contaminated Areas and Soil Barrier To Contact With Institutional Controls for Remaining Contaminated Areas

Present Worth: *$975,632*
Capital Cost: *$887,288*
Annual O&M:
(Years 1-5): *$8,000*
(Years 5-30): *$8,000*

This alternative would further investigate and remediate the areas where soil contamination

levels are elevated, in particular, the excavation and disposal of fuel oil contaminated soils in the former 20,000 fuel tank area to achieve TAGM values, the majority of VOCs and SVOCs contaminated soils that potentially exist underneath the Secondary Tannery Building to TAGM values, and soils that exhibit high levels of arsenic on the eastern side of the property. An amount of approximately 3,225 tons of petroleum contaminated soils and 1,770 tons of elevated arsenic contaminated soils would be excavated and properly disposed of off site.

Demolition and proper disposal of the secondary tannery building is included in this Alternative. The slab of the secondary tannery building may remain at the location, dependent on contamination extent identified beneath the slab. This area, with or without slab, will also be covered with a barrier to contact.

Contaminated soils west of the Cayadutta Creek have been previously covered by EPA with a protective soil barrier, and consist predominantly of arsenic and chromium contamination. EPA modeled arsenic and chromium for site specific conditions. The chromium identified is trivalent, and appears very stable in the soil at the site and the potential for leaching and mobilization is minimal. Arsenic is not as stable in the site soil. Arsenic and chromium groundwater contamination exists in a limited area on the western portion site, with a arsenic "hot spot" located at MW-8 with a level of 4,780 ug/l, and a chromium "hot spot" near MW-10 with a level of 148 ug/l. Sampling of both locations in September of 2003 identified similar results. Arsenic contamination is present on the eastern portion of the site, and will be further investigated and addressed under this alternative.

Remaining contaminated soil east of the Cayadutta Creek would also be covered with at least one foot of soil cover and graded to minimize remaining contaminant mobility. Top soil and grass would be placed on top of the soil cover. The grassed soil cover would require periodic maintenance (O&M). Since this alternative would leave contaminated soil on site, institutional controls in the form of deed restrictions or easements would be required to notify future owners and/or developers of the restricted use of the property.

Optional Protective cover possibilities for Alternative 4 would be: concrete sidewalks, asphalt/concrete parking lots, building footprints, or other acceptable strategies that provide a barrier to contact with the contaminated soils. Any excavated contaminated soil needed to implement an acceptable alternative protective cover would be properly disposed of according to NYSDEC regulations. Refer to Figure 10.

Groundwater sampling of select monitoring wells on a periodic basis would occur to monitoring residual contaminants, including volatiles, semivolatiles, chromium, and arsenic. Deed restrictions or easements on groundwater usage, future use and development, and indoor air issues are included with this alternative. Refer to Figure 12-Alternative No. 4.

Alternative 5: Excavation and Disposal of All Contaminated Soil Areas In Excess of SCGs

Present Worth: *$2,959,608*
Capital Cost: *$2,867,373*
Annual O&M:
(Years 1-5): *$6000*
(Years 5-30): *$6000*

This alternative would remediate all contamination areas (petroleum products, SVOCs, VOCs, and metals) to meet TAGM 4046 soil cleanup objectives. The areas include all locations on both sides of the Cayadutta Creek. Soils would be excavated and properly disposed of according to NYSDEC regulations. Confirmatory samples would be collected and analyzed to ensure TAGM 4046 objectives are met. An estimated amount of 11,400 tons of contaminated soils would be excavated and disposed of. Institution controls and deed restrictions on groundwater usage and future use and development would be necessary. Refer to Figure 13-Alternative No. 5.

Alternative 6: On Site Stabilization, Groundwater Treatment and Barrier to Contact

Present Worth: *$4,531,725*
Capital Cost: *$4,297,374*
Annual O&M:
(Years 1-10): *$30,000*

This alternative is offered as a comparison to contaminated soil excavation and disposal. This alternative would involve the active pumping and treating of VOC and SVOC contaminated groundwater in the area of the secondary tannery building and the injection of chemicals to bind metal contaminants and further deter migration of the contaminants (on both sides of the Cayadutta Creek) , via ex-situ and/or in-situ methods. This alternative would attempt to remediate all contamination areas (petroleum products, SVOCs, VOCs, and metals) to meet TAGM 4046/ SCG levels.

Groundwater sampling of select monitoring wells on a periodic basis would occur to monitor residual contaminants, including volatiles, semivolatiles, chromium, and arsenic. Deed restrictions or easements on groundwater usage, future use and development, and indoor air issues are included with this alternative. Refer to Figure 14-Alternative No. 6.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of environmental restoration projects in New York State. A detailed discussion of the evaluation criteria and comparative analysis is included in the RA report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment.

   This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs).

   Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the NYSDEC has determined to be applicable on a case-specific basis.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness.

   The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence.

   This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility or Volume.

   Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

6. Implementability.

The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectiveness.

Capital costs and operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 3 . See cost table at the end of the PRAP.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance.

Concerns of the community regarding the SI/RA reports and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the NYSDEC will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

The NYSDEC is proposing Alternative 4, Expanded Soil Excavation and Disposal of Select Contaminated Areas and Soil Barrier To Contact With Institutional Controls for Remaining Contaminated Areas as the remedy for this site. The elements of this remedy are described at the end of this section.

The proposed remedy is based on the results of the SI, RAR, and the evaluation presented in Section 7 of the six alternatives developed for the site.

Alternative 4 is being proposed because, as described below, it satisfies the site specific threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by removing the soils that create the most significant threat to public health and the environment, would further reduce the source of contamination to groundwater, protecting the surface waters of the Cayadutta Creek, and would provide a barrier to contact to the remaining contaminants. Alternatives 5 and 6 would better comply with the threshold selection criteria of meeting SCGs, but at a much more significant expense of hundreds of thousands to millions of dollars.

Alternative 1 would involve no further investigation or reduction of contaminants, no barrier to contact, and would incur a significant expense of annual monitoring of several groundwater wells located throughout the facility.

Alternative 2 also would involve no further investigation or reduction of contaminants, but would provide a barrier to contact. Free phase fuel oil contamination has been identified in one area and is suspect in the area of the secondary tannery building and may be a continuing source of groundwater contamination.

Alternative 3 would involve the limited excavation of petroleum contaminated soils, and would provide a barrier to contact. Free phase

fuel oil contamination has been identified in one area and is suspect in the area of the secondary tannery building and may be a continuing source of groundwater contamination. This alternative would not further define or address the arsenic contamination present on the eastern portion of the property.

Alternatives 2-6 would all have short-term impacts which can be easily controlled. The time needed to achieve the remediation goals would be longest for Alternative 6 and similar for Alternatives 3, 4, and 5.

Achieving long-term effectiveness would best be accomplished by excavation and removal of the contaminated overburden soils (Alternatives 3, 4 and 5). Alternative 4 is favorable because it would result in the removal of source areas, there by preventing additional groundwater contamination. Alternatives 5 would result in additional soils removal, but at a significant cost and decreased return. Alternative 5 may remove the need for property use restrictions and long-term monitoring, but at a cost much greater than the costs of such restrictions and monitoring.

Alternative 4 is favorable in that it would be readily implementable. Alternatives 1, 2 and 3, and to a lesser extent, alternative 5 would also be achievable. The implementability of Alternative 6 would be much more complex.

Alternative 4 would reduce the volume of waste on-site, addressing the areas of the most significant soil contamination. Approximately 4,995 tons of material would be removed with Alternative 4. Alternative 3 would remove approximately 500 tons of petroleum contaminated soil. Contaminated soils would remain in the saturated and unsaturated zones. Alternative 5 would remove approximately 11,400 tons. Removing grossly contaminated soil that acts as a source area is pursued. Removing slightly contaminated soil that poses no environmental impact results in negligible additional environmental benefit.

In an effort to avoid excavation and off site disposal, treatment on site consisting of groundwater treatment for petroleum contaminated areas and soil stabilization of areas of metal contamination (arsenic and chromium) is considered in Alternate 6. Groundwater treatment would occur over a period of years, and would be maintenance and sampling intensive. On site stabilization via chemical injection would be initially labor and engineering intensive, but would achieve improved levels of compliance with SCGs in that the contaminants would be physically and chemically bound within a solidified matrix or converted into a more immobile form using a chemical reaction.

The cost of the alternatives varies significantly. Although barrier to contact only (Alternative 2) would be less expensive than excavation (Alternatives 3, 4 and 5) or treatment (Alternative 6), it is not an acceptable remedy. Alternative 4 is very favorable because it is a remedy that would eliminate a continuing source of groundwater contamination at the site, from both petroleum and arsenic contaminated areas. Treatment (Alternative 6) is the most costly remedy.

The estimated present worth cost to implement the preferred remedy (Alternative 4) is $975,632. The cost to construct the remedy is estimated to be $887,288 and the estimated average annual operation, maintenance, and monitoring costs for 30 years is $8,000.

The elements of the proposed remedy are as follows:

- Demolition and proper disposal of the secondary tannery building to allow access to contaminated areas under the structure.
- Excavation and proper disposal of an estimated 3,225 tons of petroleum contaminated soils and placement of clean fill in the excavated areas on the eastern portion of the property.

- Further sampling, investigation and potential excavation of 1,770 tons of arsenic contaminated soils on the eastern portion of the property.

- Provide a barrier to contact in site locations where arsenic, chromium and petroleum contamination above SCGs exists on the ground surface.

- Design a soil management plan for use during pre and post redevelopment or excavation on site, as any soils that are excavated would have to be characterized, managed and properly disposed of in accordance with NYSDEC regulations and directives.

- An institutional control confirming that the barrier to contact is in place would be imposed. The property owner would complete and submit to the NYSDEC, an annual certification until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal would contain certification that the institutional controls put in place, pursuant to the Record of Decision, are still in place, have not been altered, and are still effective.

- A restriction and/or environmental easement would be imposed limiting future site development to commercial/industrial use; vapor intrusion in proposed site structures due to volatilized organic compounds from residual petroleum contaminants must be appropriately evaluated and addressed prior to redevelopment.

- A restriction and/or environmental easement would be imposed, in such form as the NYSDEC may approve, that would prevent the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the New York State Department of Health.

- Since the remedy results in residual contamination remaining at the site, a long term monitoring program would be instituted. Periodic monitoring of select monitoring wells would allow the extent of residual contamination to be monitored and would be a component of the operation and monitoring for the site.

- Notification of the NYSDEC prior to site development and change in ownership.

TABLE 1
Nature and Extent of Contamination
Sampling dates: June 2002-December 2002

SURFACE SOIL (0-6" below ground surface)	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Ethylbenzene	.037 to 40	5.5	1 of 2[f]
	Total Xylenes	.44 to 33	1.2	1 of 2[f]
Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene [e]	2 to 3.5	0.224 or MDL	2 of 2[f]
	Benzo(a)pyrene [e]	1.6 to 4.2	0.061 or MDL	2 of 2[f]
	Benzo(b)fluoranthene [e]	ND[(d)] to 5.2	0.224 or MDL	1 of 2[f]
	Benzo(k)fluoranthene [e]	ND to 5.0	0.224 or MDL	1 of 2
	Chrysene [e]	2 to 4.5	0.4	2 of 2[f]
	2-Methylnaphthalene	ND to 37	36.4	1 of 2[f]
	Napthalene	ND to 110	13	1 of 2[f]
Metals	Arsenic (As) [e]	2.1 to 3510	7.5 of SB	2 of 3
	Chromium (Cr) [e]	ND to 605	50	8 of 15
	Copper (Cu) [e]	6.9 to 128	25 or SB	1 of 3
	Iron (Fe) [e]	7,000 to 34,000	2,000 or SB	3 of 3
	Mercury (Hg) [e]	ND to 3.1	0.1	1 of 3
	Nickel (Ni) [e]	3.6 to 34.8	13 or SB	1 of 3
	Zinc (Zn)	56.3 to 255	20 or SB	3 of 3

TABLE 1
Nature and Extent of Contamination (Continued)

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Acetone	ND to 0.75	0.2	3 of 13
Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene[e]	ND to 7.6	0.224 or MDL	6 of 13
	Benzo(a)pyrene[e]	ND to 8.3	0.061 or MDL	6 of 13
	Benzo(b)fluoranthene[e]	ND to 8.3	0.224 or MDL	6 of 13
	Benzo(k)fluoranthene[e]	ND to 8.2	0.224 or MDL	6 of 13
	Chrysene[e]	ND to 8.2	0.4	5 of 13
	Dibenzo(a,h)anthracene[e]	ND to 0.48	0.014 or MDL	2 of 13
	Indeno(1,2,3-cd)pyrene[e]	ND to 4.4	3.2	1 of 13
	2,4,5 Trichlorophenol[e]	ND to 0.54	0.1	1 of 13
Metals	Arsenic (As)[e]	1.2 to 987	7.5 or SB	7 of 13
	Beryllium (Be)[e]	0.24 to 1.1	0.16 or SB	10 of 13
	Cadmium (Cd)	ND to 23.4	10	2 of 13
	Chromium (Cr)[e]	ND to 9,870	50	28 of 34
	Copper (Cu)	1.6 to 459	25 or SB	6 of 13
	Iron (Fe)	5,610 to 107,000	2,000 or SB	13 of 13
	Mercury (Hg)	ND to 27.3	0.1	6 of 13
	Nickel (Ni)	3.2 to 71.6	13 or SB	5 of 13
	Selenium (Se)	ND to 4.1	2 or SB	1 of 10
	Vanadium	8.8 to 180	150 or SB	2 of 13
	Zinc (Zn)	12.5 to 990	20 or SB	9 of 13

TABLE 1
Nature and Extent of Contamination (Continued)

SEDIMENTS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene	0.14 to 2.7	0.224 or MDL	2 of 3
	Benzo(a)pyrene	0.14 to 2.6	0.061 or MDL	3 of 3
	Benzo(b)fluoranthene	0.15 to 2.4	0.224 or MDL	2 of 3
	Benzo(k)fluoranthene	0.14 to 2.2	0.224 or MDL	2 of 3
	Chrysene	0.2 to 3.5	0.4	1 of 3
	Dibenzo(a,h)anthracene	0.056 to 0.93	0.014 or MDL	3 of 3
Metals	Copper	7.9 to 33.8	25 or SB	3 of 3
	Iron (Fe)	8,770 to 11,800	2,000 or SB	3 of 3
	Zinc (Zn)	47.5 to 99.5	20 or SB	3 of 3

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Benzene	ND to 3	1	1 of 13
	Ethylbenzene	ND to 10	5	3 of 13
	Total Xylenes	ND to 75	5	4 of 13
Semivolatile Organic Compounds (SVOCs)	Naphthalene	ND to 130	5	4 of 13
	Pentachlorophenol	ND to 3	1	1 of 13
	Phenol	ND to 22	1	1 of 13
Metals	Antimony (Sb)	ND to 54.9	3	1 of 13
	Arsenic (As)	ND to 4,780	25	7 of 13
	Chromium (Cr)	ND to 148	50	1 of 13
	Iron (Fe)	332 to 33,900	300	13 of 13
	Magnesium (Mg)	4,170 to 72,800	35,000 (GV)	2 of 13

TABLE 1
Nature and Extent of Contamination (Continued)

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Metals Cont.	Manganese (Mn)	33.8 to 7,420	300	6 of 13
	Sodium (Na)	6,600 to 3,910,000	20,000	10 to 13

SURFACE WATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Metals	Aluminum (Al)	ND to 202	100	1 of 3
	Iron (Fe)	195 to 393	300	1 of 3

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values; {list SCGs for each medium}

[c] LEL = Lowest Effects Level and SEL = Severe Effects Level. A sediment is considered to be contaminated if either of these criteria is exceeded. If both criteria are exceeded, the sediment is severely impacted. If only the LEL is exceeded, the impact is considered to be moderate.

[D] ND=no contaminants detected above method detection limit

[e] EPA=EPA provided a portion of the analytical data. No data validation was performed.

[f] Surface Samples=Eight Surface samples were initially collected from the location, six locations are now under EPA cover so have been transferred to the subsurface section. Numbers at these six locations were similar or less than the numbers reported in these columns.

Table 2
Current/Former Surface Soil Contaminants-Eastern and Western* Portions of Site
Specific Concentrations For Various Contaminants Above SCG[b] (0 to 6" below ground surface)

Contaminants of Concern	Location	Concentration Range Detected (ppm) [a]	SCG[b] (ppm) [a]	Specific Location	Concentration To Remain In Subsurface (ppm) [a]
Ethylbenzene	East	40	5.5	SS-6	5.5 or less
Total Xylenes	East	33	1.2	SS-6	1.2 or less
Benzo(a)anthracene	East	2.0	0.224	SS-6	.224 or less
	East	3.5		SSE-4	.224 or less
	West*	.28		SS-8	.28
	West*	7.6		SSW-19	7.6
	West*	2.0		SSW-9	2.0
Benzo(a)pyrene	East	1.6	0.061	SS-6	.061 or less
	East	4.2		SSE-4	.061 or less
	West*	.28		SS-8	.28
	West*	2.2		SSW-9	2.2
	West*	8.3		SSW-19	8.3
Benzo(b)fluoranthene	East	5.2	0.224	SSE-4	.224 or less
	West*	.32		SS-8	.32
	West*	2.5		SSW-9	2.5
	West*	8.3		SSW-19	8.3
Benzo(k)fluoranthene	East	5.0	0.224	SSE-4	.224 or less
	West*	.29		SS-8	.29
	West*	2.5		SSW-9	2.5
	West*	8.2		SSW-19	8.2
Chrysene	East	2.0	0.4	SS-6	0.4 or less
	East	4.5		SSE-4	0.4 or less
	West*	2.7		SSW-9	2.7
	West*	8.2		SSW-19	8.2
Dibenzo(a,h)anthracene	West*	.092	0.014	SS-8	.092

Table 2 (Continued)

Contaminants of Concern	Location	Concentration Range Detected (ppm) [a]	SCG [b] (ppm) [a]	Specific Location	Concentration To Remain In Subsurface (ppm) [a]
Indeno(1,2,3-cd)pyrene	West*	4.4	3.2	SSW-19	4.4
2-Methylnaphthalene	East	37	36.4	SS-6	36.4 or less
Naphthalene	East	110	13	SS-6	13 or less
2,4,5-Trichlorophenol	West*	0.54	0.1	SSW-31	0.54
Arsenic (As)	East	3510	7.5	SS-6	less than 3510[c]
	East	42		SSE-4	42 or less
	West*	987		SS-8	987
	West*	63		SSW-9	63
	West*	39		SSW-31	39
Beryllium (Be)	West*	1.1	0.16/SB	SSW-19	1.1
Chromium (Cr)	East	605	50	SS-6	less than 605[c]
	East	239		SSE-8	239 or less
	East	177		SSE-13	177 or less
	East	300		SSE-14	300 or less
	East	360		SSE-15	360 or less
	West*	63.3		SS-7	63.3
	West*	73.1		SS-8	73.1
	West*	150		SSW-2	150
	West*	120		SSW-3	120
	West*	190		SSW-4	190
	West*	137		SSW-5	137
	West*	190		SSW-6	190
	West*	210		SSW-9	210
	West*	520		SSW-10	520
	West*	128		SSW-11	128
Chromium (Cr) Cont.	West*	141		SSW-12	141

Table 2 (Continued)

Contaminants of Concern	Location	Concentration Range Detected (ppm) [a]	SCG [b] (ppm) [a]	Specific Location	Concentration To Remain In Subsurface (ppm) [a]
	West*	195		SSW-15	195
	West*	290		SSW-16	290
	West*	110		SSW-19	110
	West*	157		SSW-20	157
	West*	1,200		SSW-25	1,200
	West	531		SSW-28	531 or less
	West	350		SSW-29	350 or less
	West*	359		SSW-30	359
	West*	1,400		SSW-31	1,400
	West	177		SSW-33	177 or less
	West*	200		SSW-37	200
	West*	212		SSW-38	212
	West*	930		SSW-39	930
	West*	163		SSW-40	163
	West*	354		SSW-41	354
	West*	124		SSW-43	124
Copper (Cu)	West*	55		SSE-9	55
	West*	470		SSW-19	470
	West*	74		SSW-31	74
Iron (Fe)	East	30,400	2,000/SB	SS-6	30,400 or less
	East	10,000		SSE-4	10,000 or less
	East	7,000		SSE-5	7,000 or less
	West*	8,110		SS-7	8,110
	West*	17,800		SS-8	17,800
Iron (Fe) Cont.	West*	29,000		SSW-9	29,000
	West*	34,000		SSW-19	34,000

Table 2 (Continued)

Contaminants of Concern	Location	Concentration Range Detected (ppm) [a]	SCG [b] (ppm) [a]	Specific Location	Concentration To Remain In Subsurface (ppm) [a]
	West*	10,000		SSW-31	10,000
	West*	8,600		SSW-42	8,600
Mercury (Hg)	East	3.1	0.1	SS-6	3.1 or less
	West*	.31		SS-8	.31
	West*	.18		SSW-9	.18
	West*	0.4		SSW-19	0.4
	West*	.33		SSW-31	.33
Nickel (Ni)	East	34.8	13/SB	SS-6	34.8 or less
	West*	78		SSW-9	78
	West*	79		SSW-19	79
	West*	20		SSW-31	20
Vanadium (V)	West*	170	150/SB	SSW-9	170
	West*	180		SSW-19	180
Zinc (Zn)	East	255	20/SB	SS-6	255 or less
	East	45		SSE-4	45 or less
	East	21		SSE-5	21 or less
	West*	90.2		SS-7	90.2
	West*	56.3		SS-8	56.3
	West*	890		SSW-9	890
	West*	990		SSW-19	990
	West*	240		SSW-31	240
	West*	58		SSW-42	58

*EPA has provided barrier to contact throughout western portion of site excluding small grass area on extreme southwest of site, refer to Figure 13.

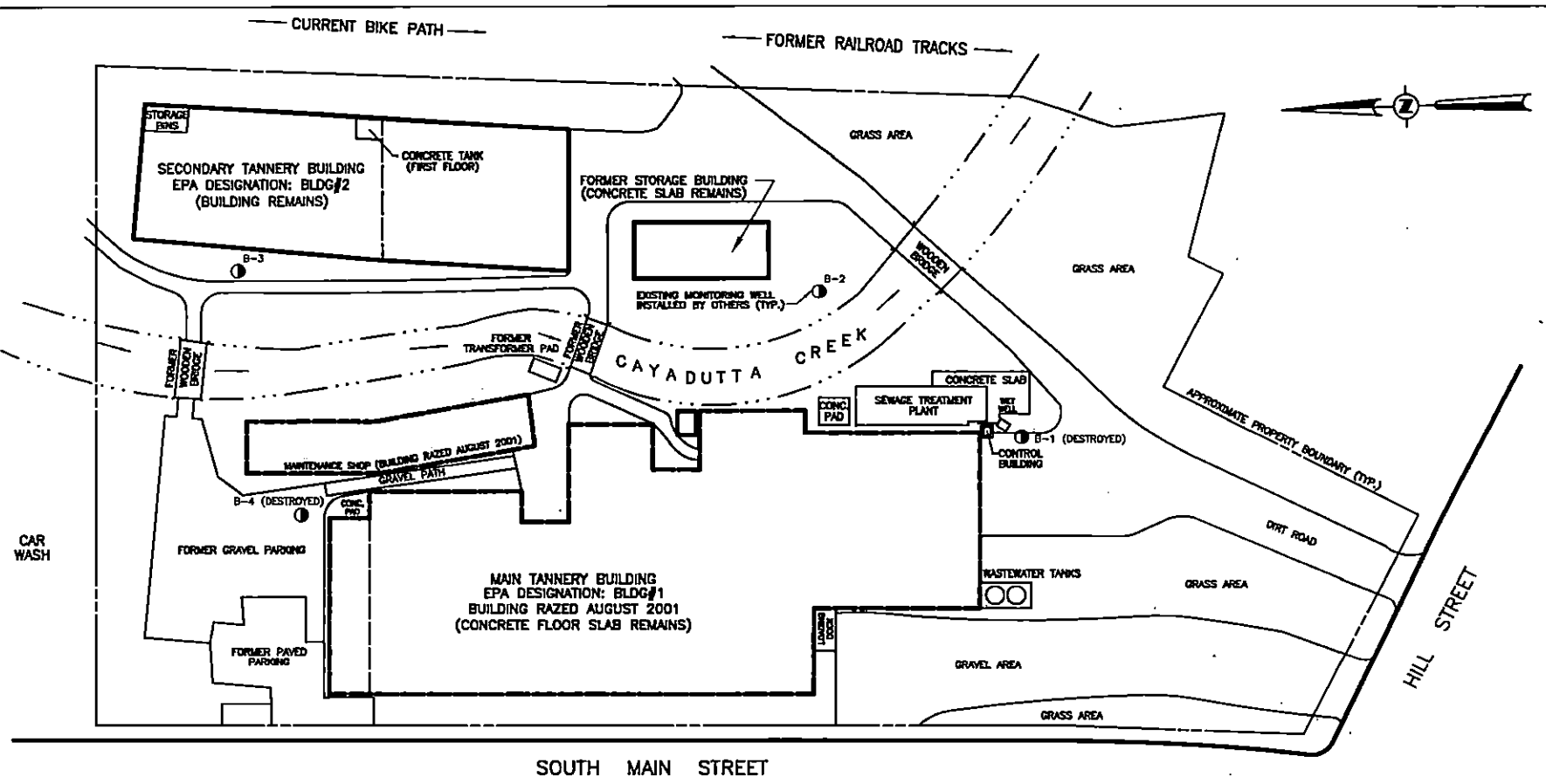
[a] ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil

[b] SCG = standards, criteria, and guidance values; {list SCGs for each medium}

[c] Arsenic hot spots will be excavated, contaminant concentration remaining will be substantially lower

Table 3
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
1. No Action	$0	$6,000	$66,258
2. Barrier To Contact	$90,909	$8,000	$179,253
3. Limited Excavation/Barrier/IC	$210,130	$8,000	$298,474
4. Additional Excavation/Barrier/IC	$887,288	$8,000	$975,632
5. Complete Excavation	$2,867,373	$6,000	$2,959,608
6. Stabilization/GWT/Barrier/IC	$4,297,374	$30,000	$4,531,735



GENERAL NOTES:
THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

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SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 1
SITE LOCATION MAP

INDEPENDENT LEATHER TANNERY

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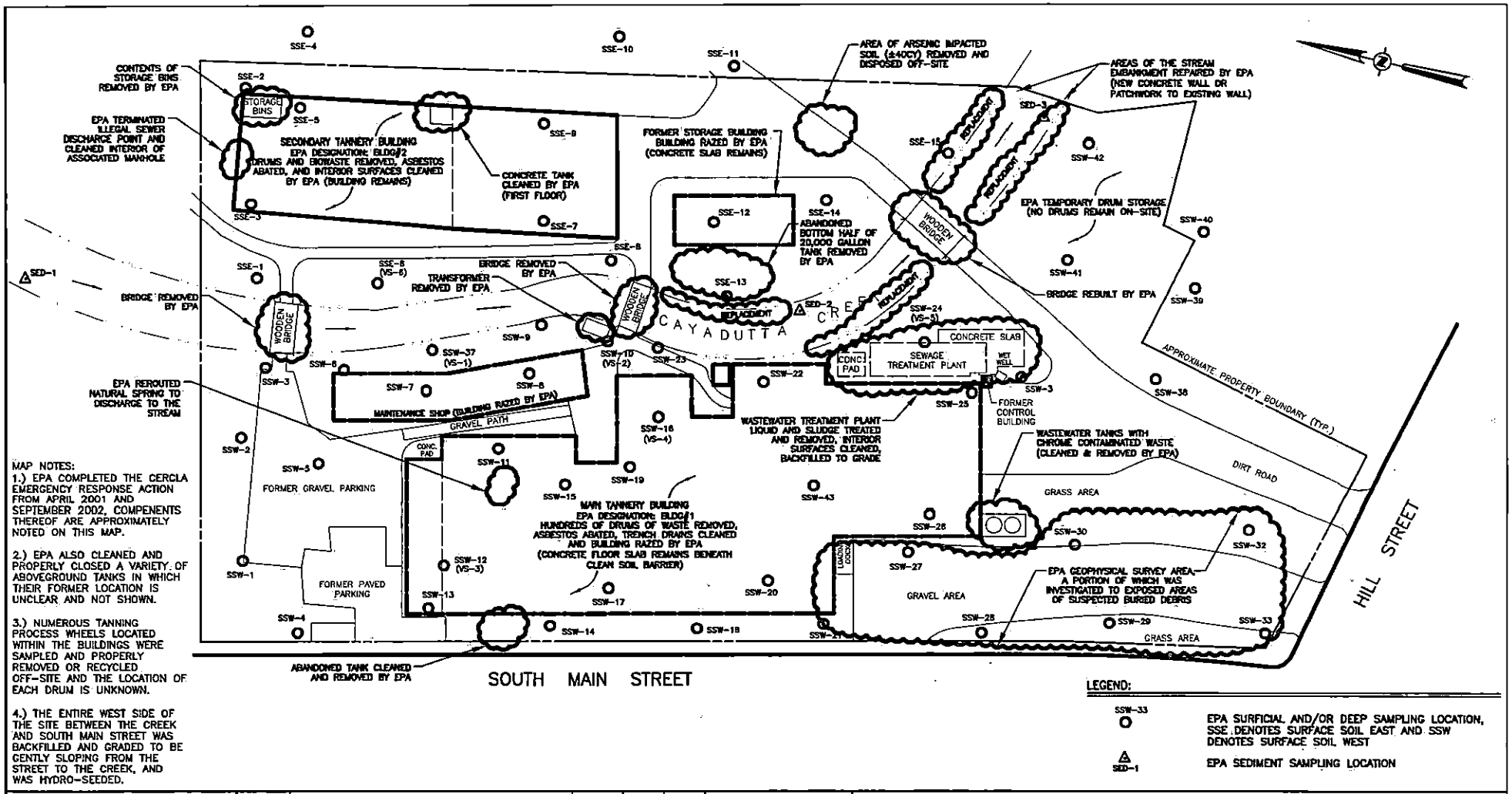
PRAP FIG. 1
SHEET 1 OF 1
DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP Fig 1.DWG
NO SCALE



MAP NOTES:

1.) EPA COMPLETED THE CERCLA EMERGENCY RESPONSE ACTION FROM APRIL 2001 AND SEPTEMBER 2002, COMPONENTS THEREOF ARE APPROXIMATELY NOTED ON THIS MAP.

2.) EPA ALSO CLEANED AND PROPERLY CLOSED A VARIETY OF ABOVEGROUND TANKS IN WHICH THEIR FORMER LOCATION IS UNCLEAR AND NOT SHOWN.

3.) NUMEROUS TANNING PROCESS WHEELS LOCATED WITHIN THE BUILDINGS WERE SAMPLED AND PROPERLY REMOVED OR RECYCLED OFF-SITE AND THE LOCATION OF EACH DRUM IS UNKNOWN.

4.) THE ENTIRE WEST SIDE OF THE SITE BETWEEN THE CREEK AND SOUTH MAIN STREET WAS BACKFILLED AND GRADED TO BE GENTLY SLOPING FROM THE STREET TO THE CREEK, AND WAS HYDRO-SEEDED.

LEGEND:

SSW-33 — EPA SURFICIAL AND/OR DEEP SAMPLING LOCATION, SSE DENOTES SURFACE SOIL EAST AND SSW DENOTES SURFACE SOIL WEST

SED-1 — EPA SEDIMENT SAMPLING LOCATION

GENERAL NOTES:

1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'

DATE : OCTOBER 2003

FIGURE 2
EPA EMERGENCY RESPONSE ACTION WORK

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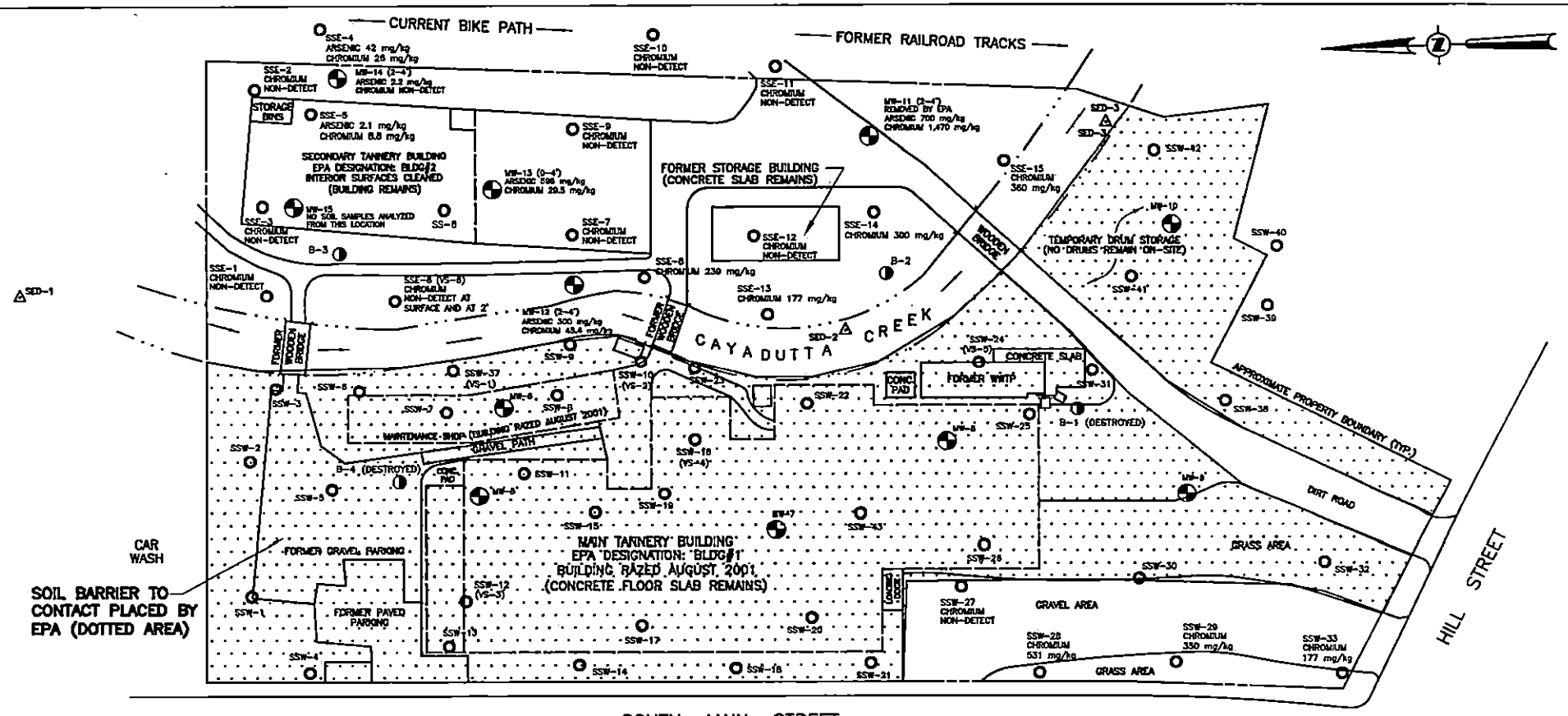
PRAP FIG. 2

SHEET 1 OF 1

DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP FIG 2.DWG

NO XREFS



GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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FIGURE 3
ARSENIC AND CHROMIUM CONCENTRATIONS IN SOIL OUTSIDE AREAS FILLED BY EPA

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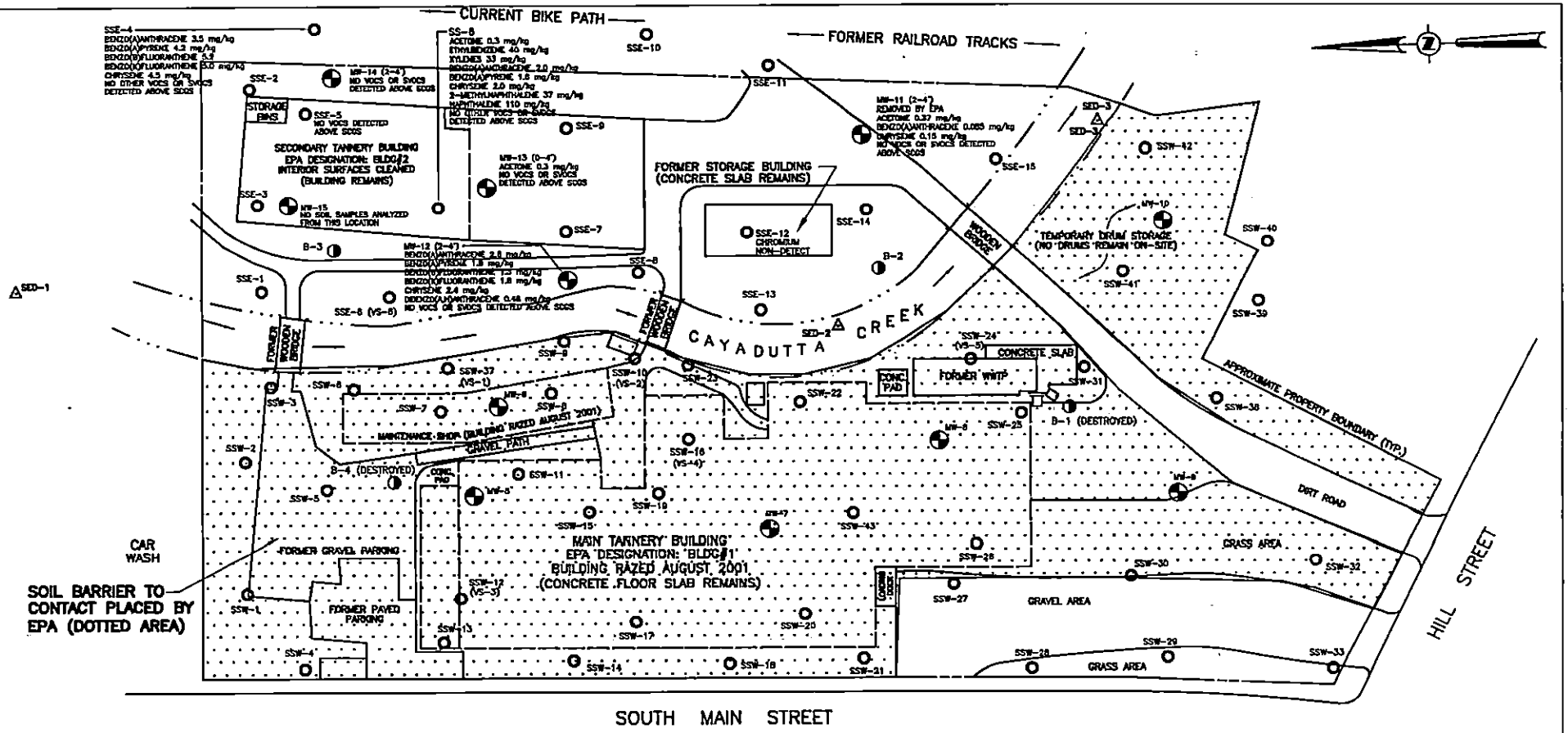
PRAP FIG. 3
SHEET 1 OF 1
DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP FIGS 101014.DWG
NO XREFS



BAR SCALE
50 0 25 50 100
1 inch = 50 ft.

LEGEND:

- B-1 — EXISTING MONITORING WELLS B-1 THROUGH B-4 (NO ANALYTICAL AVAILABLE)
- SSW-28 — EPA SURFICIAL AND/OR DEEP SAMPLING LOCATION. ANALYTICAL RESULTS PROVIDED BY EPA.
- SED-1 — EPA SEDIMENT SAMPLING LOCATION
- MW-5 (2-4') ACETONE 0.3 mg/kg NO VOCS OR SVOCS DETECTED ABOVE SCGS — C.T. MALE TEST BORING & MONITORING WELL LOCATIONS. DEPTH INDICATES THE INTERVAL SUBJECTED TO LABORATORY ANALYSES.

GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 4
VOCS AND SVOC CONCENTRATIONS IN SOIL OUTSIDE AREAS FILLED BY EPA

INDEPENDENT LEATHER TANNERY

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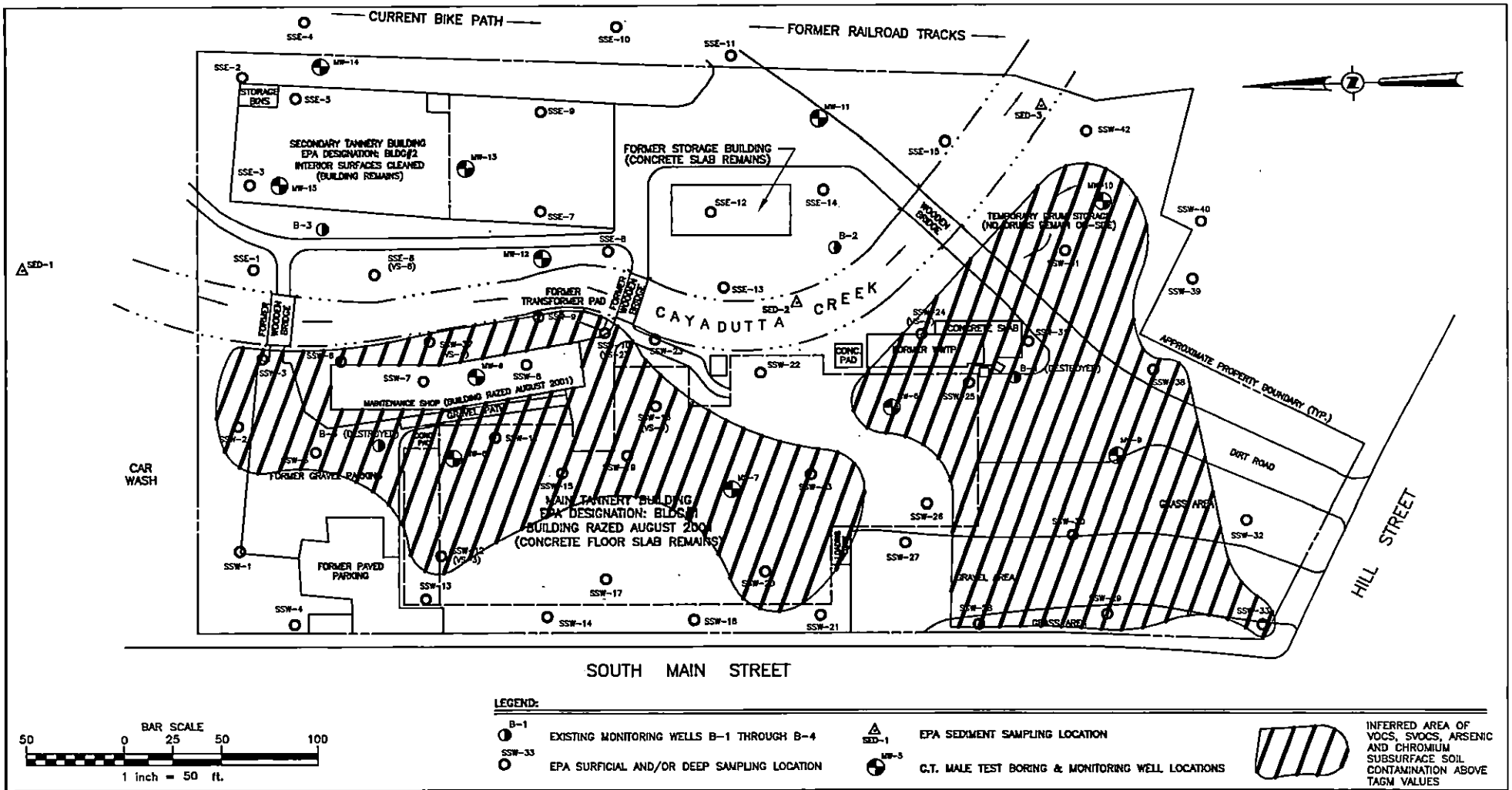
PRAP FIG. 4
SHEET 1 OF 1
DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP FIGS 10701403.DWG
NO XREFS



BAR SCALE
50 0 25 50 100
1 inch = 50 ft.

LEGEND:

- B-1 — EXISTING MONITORING WELLS B-1 THROUGH B-4
- SSW-33 — EPA SURFICIAL AND/OR DEEP SAMPLING LOCATION
- SED-1 — EPA SEDIMENT SAMPLING LOCATION
- MW-5 — C.T. MALE TEST BORING & MONITORING WELL LOCATIONS
- INFERRED AREA OF VOCS, SVOCS, ARSENIC AND CHROMIUM SUBSURFACE SOIL CONTAMINATION ABOVE TAGM VALUES

GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 5
SUBSURFACE SOIL - WESTERN SIDE OF THE SITE

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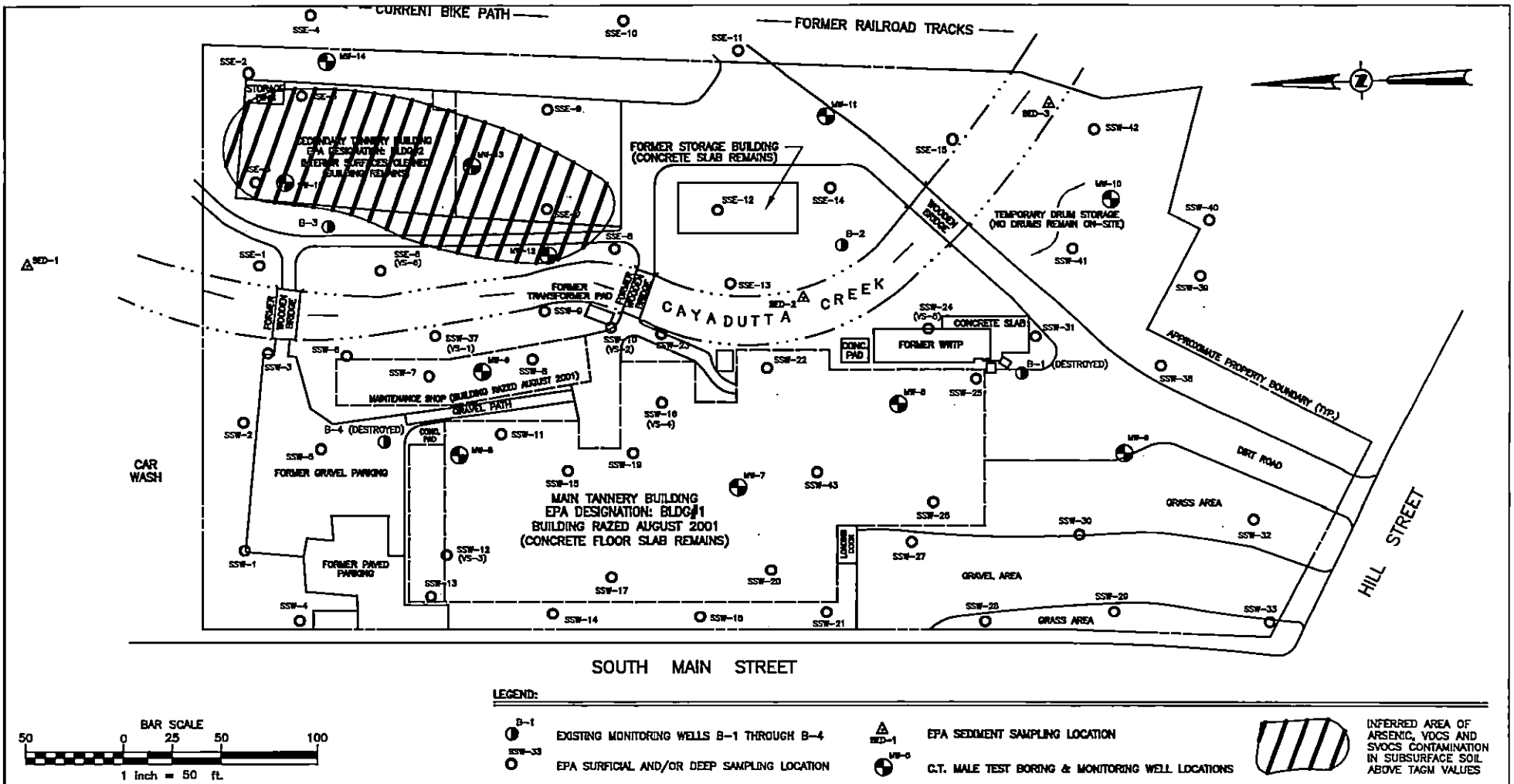
PRAP FIG. 5
SHEET 1 OF 1
DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP FIGS STD.DWG
NO XREFS



GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 6
SUBSURFACE SOIL - SECONDARY TANNERY BUILDING

INDEPENDENT LEATHER TANNERY

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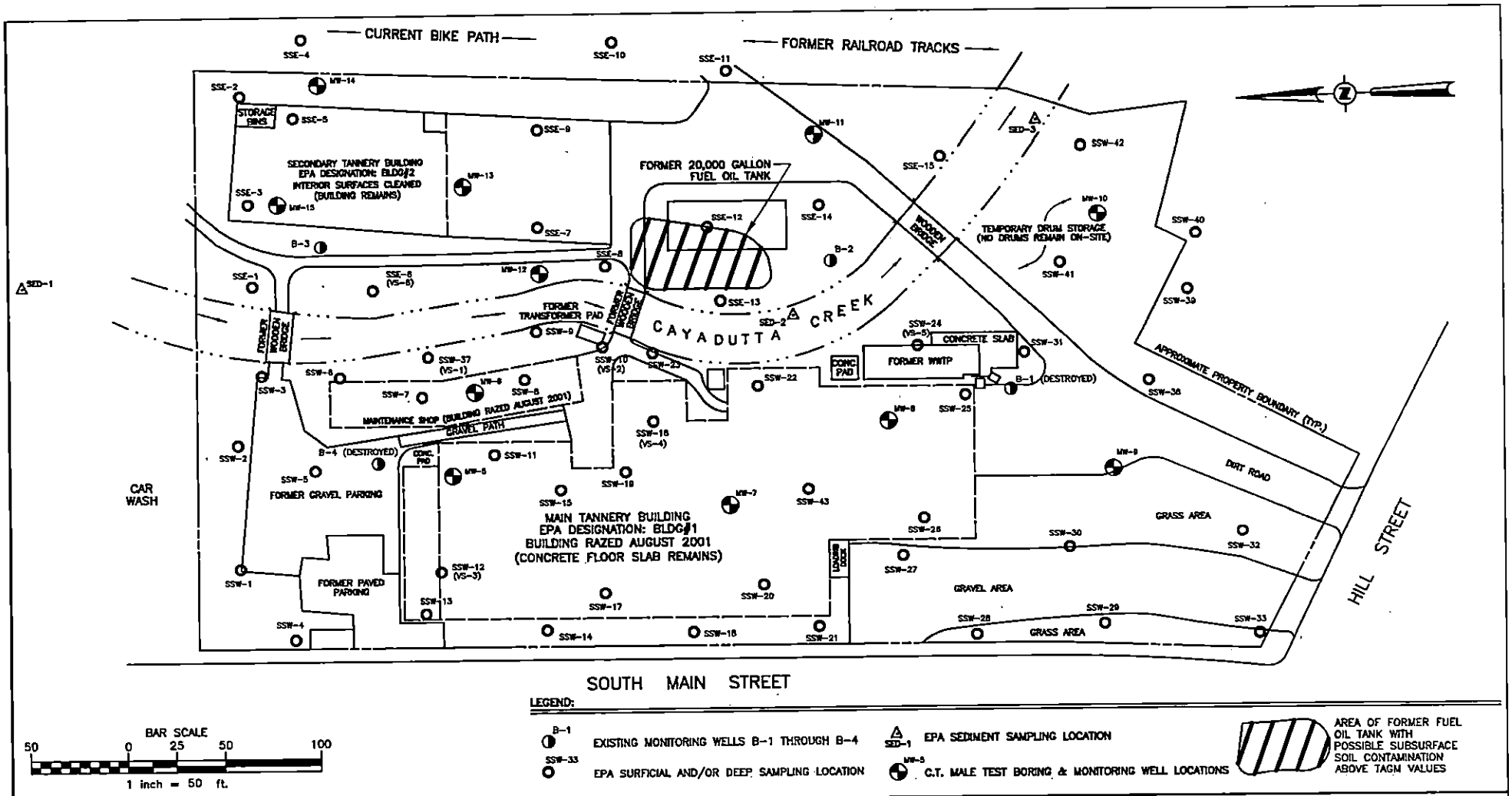
PRAP FIG. 6
SHEET 1 OF 1
DWG. NO: 03-194

NO XREFS
CAD DWG. FILE NAME: PRAP FIGS STDY.DWG



GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'
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FIGURE 7
SUBSURFACE SOIL
FORMER 20,000-GALLON FUEL OIL TANK

INDEPENDENT LEATHER TANNERY

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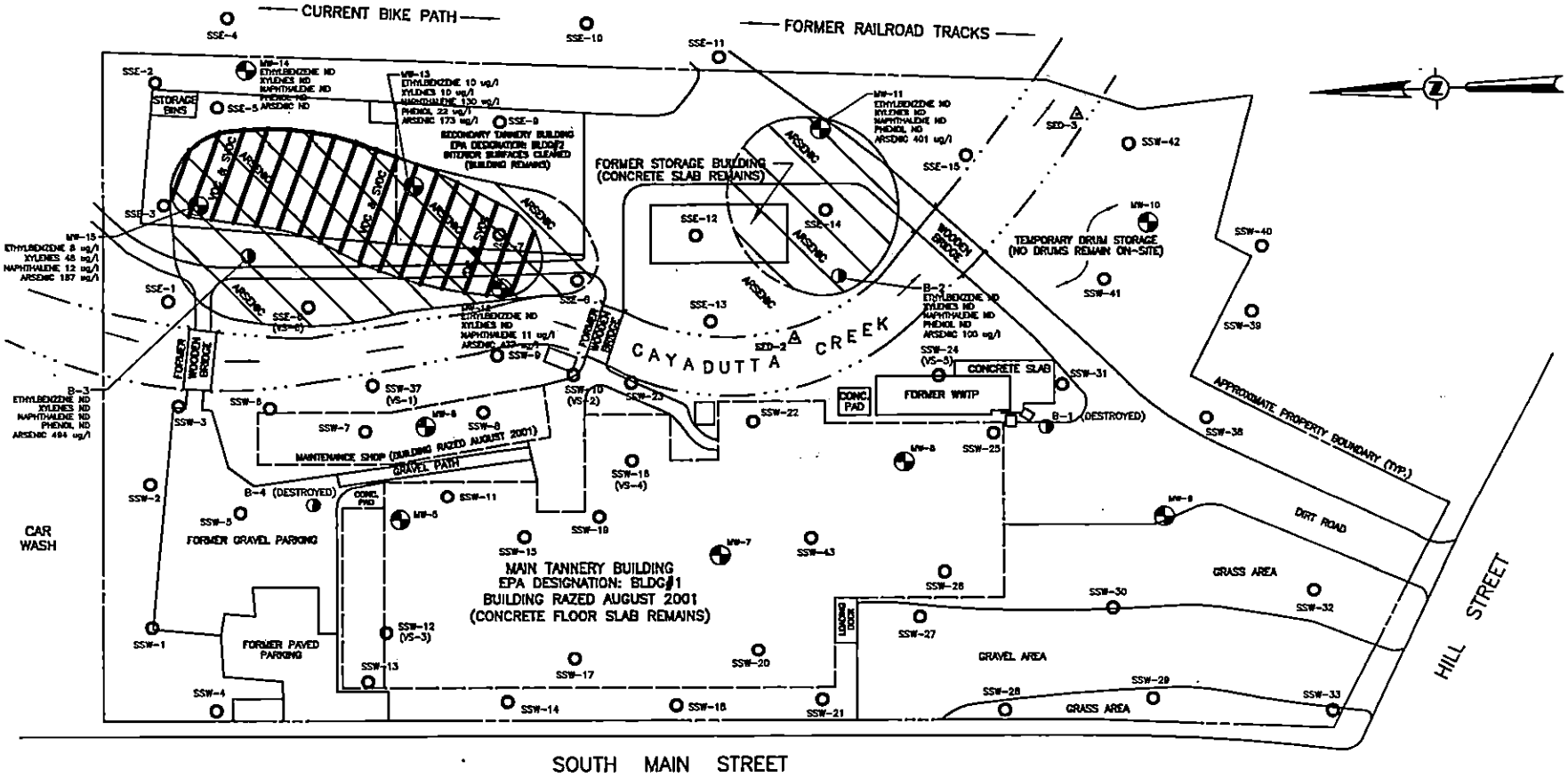
PRAP FIG. 7
SHEET 1 OF 1
DWG. NO: 03-184

CAD DWG. FILE NAME: PRAP FIGS STOR.DWG
NO SCALE



LEGEND:

BAR SCALE
50 0 25 50 100
1 inch = 50 ft.

B-1 EXISTING MONITORING WELLS B-1 THROUGH B-4

SSW-33 EPA SURFICIAL AND/OR DEEP SAMPLING LOCATION

SED-1 EPA SEDIMENT SAMPLING LOCATION

MW-5 C.T. MALE TEST BORING/MONITORING WELL LOCATIONS

VOC & SVOC — INFERRED AREA OF SELECT VOC AND SVOC, AS NOTED) GROUNDWATER CONTAMINATION ABOVE TOGS NO. 1.1.1 VALUES

ARSENIC — INFERRED AREA OF ARSENIC (AS NOTED) GROUNDWATER CONTAMINATION ABOVE TOGS NO. 1.1.1 VALUES

GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 8
GROUNDWATER - EASTERN SIDE OF THE SITE

INDEPENDENT LEATHER TANNERY

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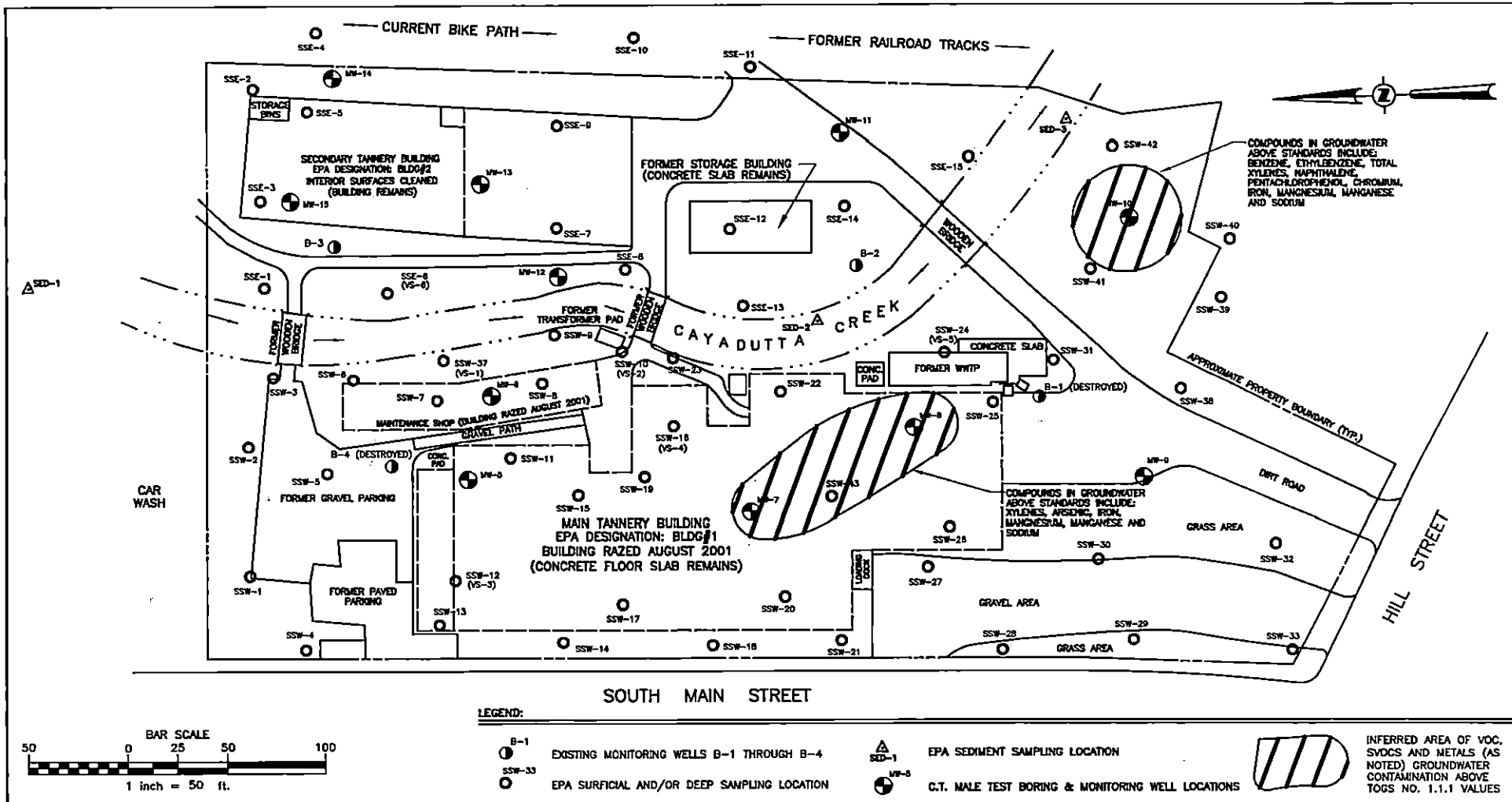
PRAP FIG. 8
SHEET 1 OF 1
DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP FIGS ST09.DWG

NO XREFS



BAR SCALE
50 0 25 50 100
1 inch = 50 ft.

LEGEND:

- B-1 — EXISTING MONITORING WELLS B-1 THROUGH B-4
- SSW-33 — EPA SURFICIAL AND/OR DEEP SAMPLING LOCATION
- SED-1 — EPA SEDIMENT SAMPLING LOCATION
- MW-5 — C.T. MALE TEST BORING & MONITORING WELL LOCATIONS
- INFERRED AREA OF VOC, SVOCS AND METALS (AS NOTED) GROUNDWATER CONTAMINATION ABOVE TOGS NO. 1.1.1 VALUES

GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 9
GROUNDWATER - WESTERN SIDE OF THE SITE

INDEPENDENT LEATHER TANNERY

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PRAP FIG. 9
SHEET 1 OF 1
DWG. NO: 03-194

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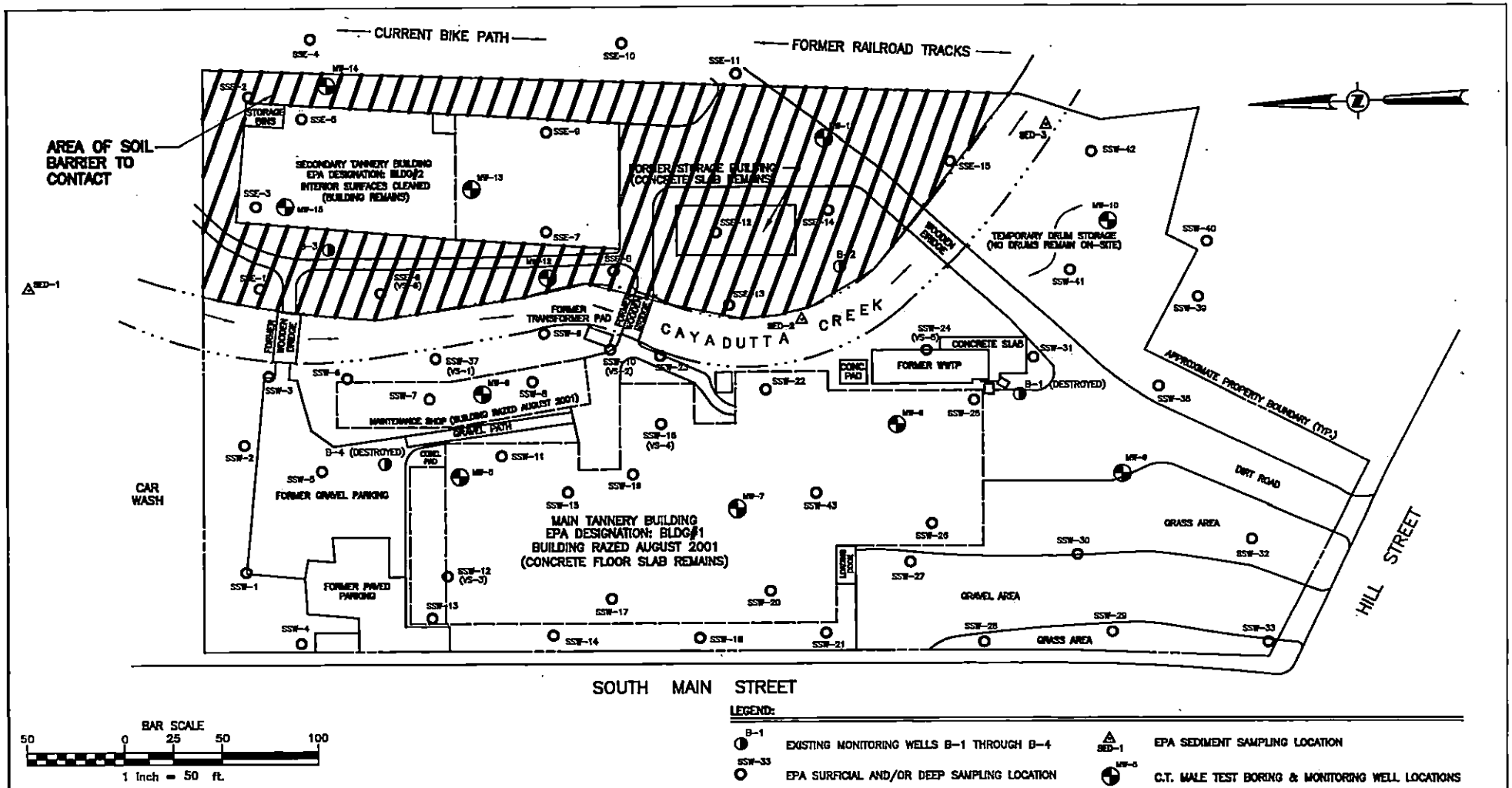

GENERAL NOTES:
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DATE : OCTOBER 2003

FIGURE 10 - ALTERNATIVE NO. 2 SOIL BARRIER TO CONTACT FOR CONTAMINATED AREAS WITH INSTITUTIONAL CONTROLS

INDEPENDENT LEATHER TANNERY

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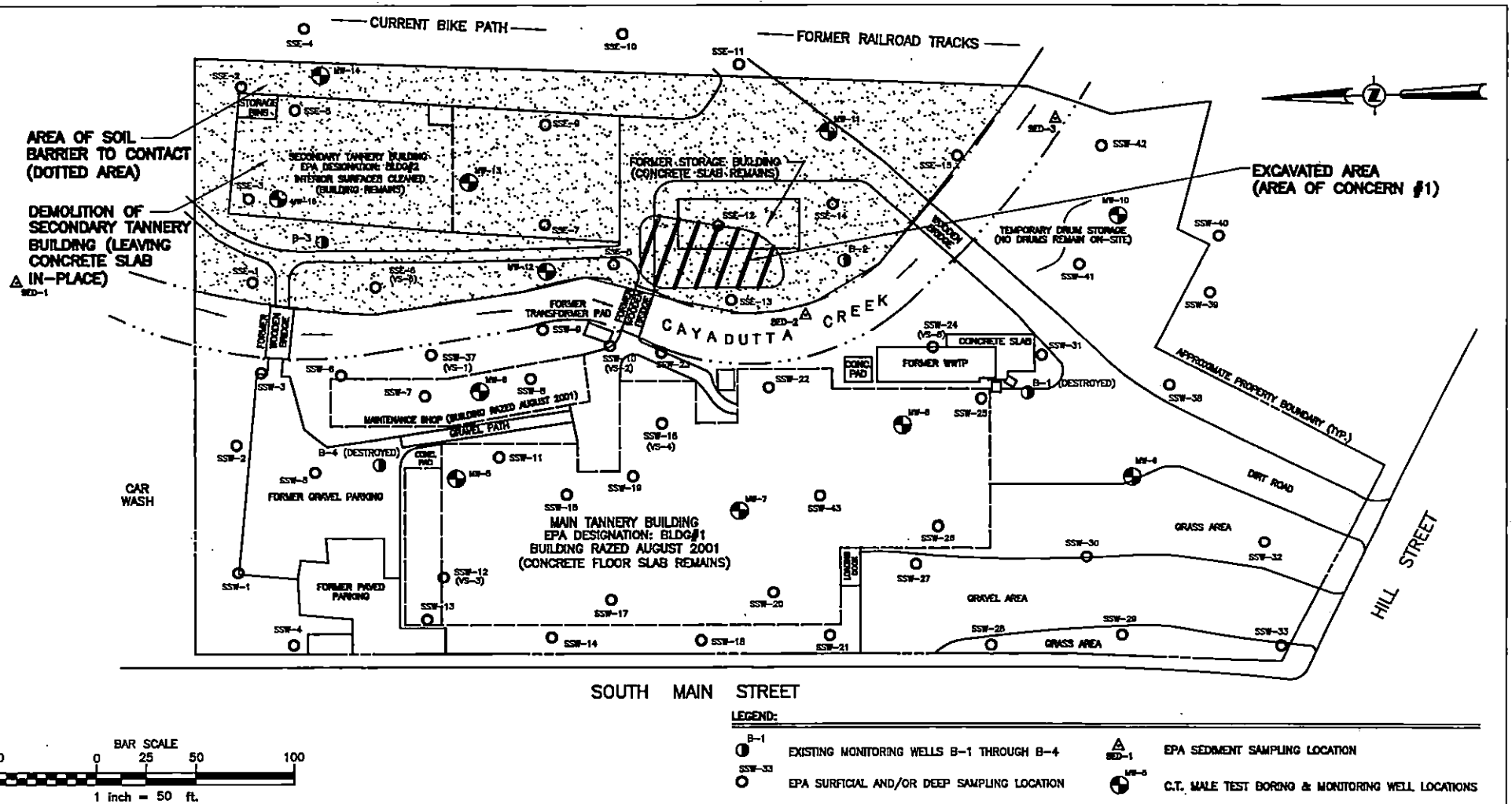
PRAP FIG. 10
SHEET 1 OF 1
DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP FIG5 10TO14.DWG
NO XREFS



GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 11 - ALTERNATIVE NO. 3 LTD. EXCAVATION OF FUEL OIL CONTAMINATED SOIL AND SOIL BARRIER TO CONTACT ON REMAINING

INDEPENDENT LEATHER TANNERY

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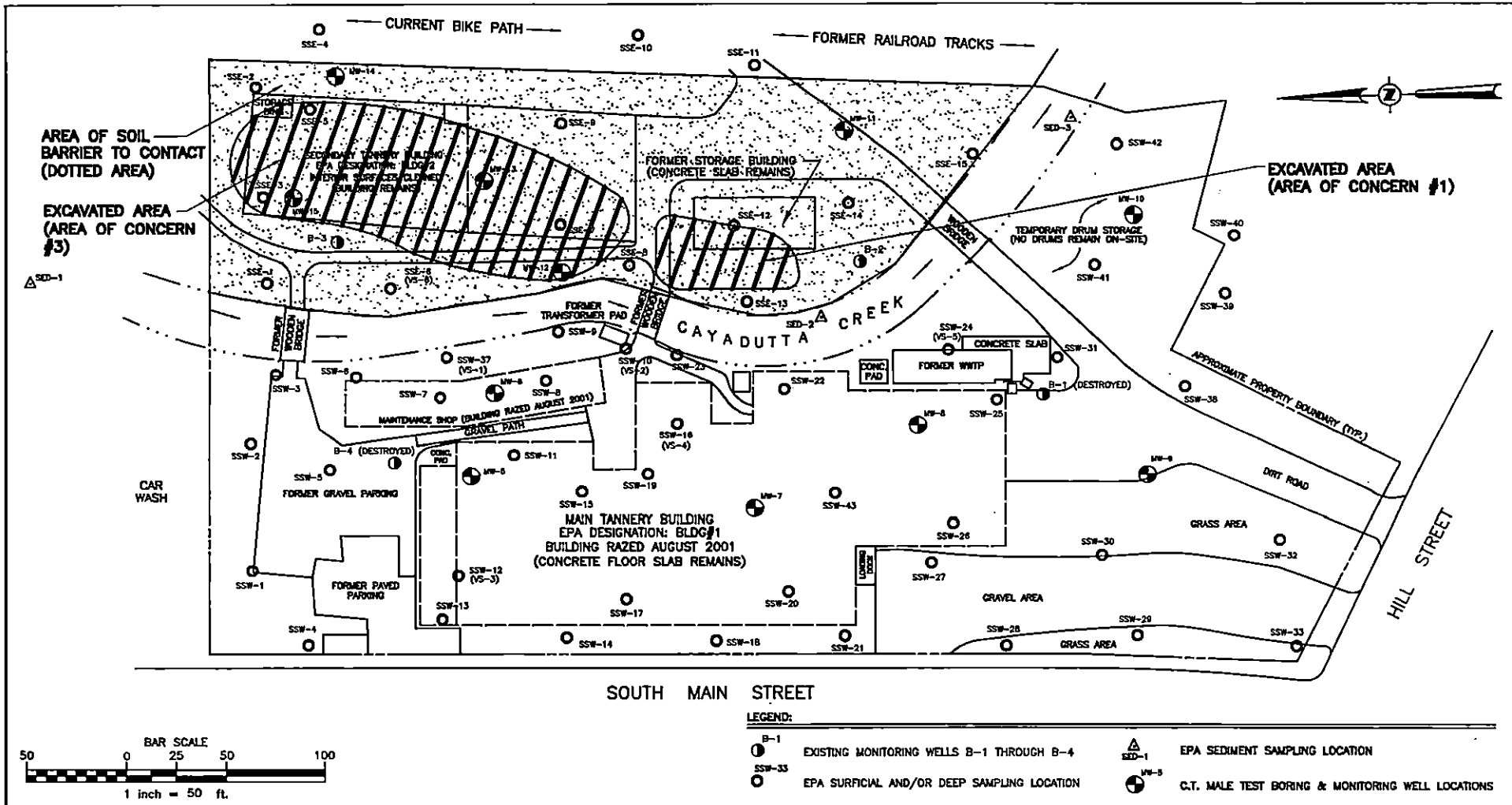
PRAP FIG. 11
SHEET 1 OF 1
DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP FIGS 1GTO14.DWG
NO XREFS



GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 12 - ALTERNATIVE NO. 4
EXP. SOIL EXCAVATION OF CONTAMINATED AREAS AND SOIL BARRIER TO CONTACT ON REMAINING

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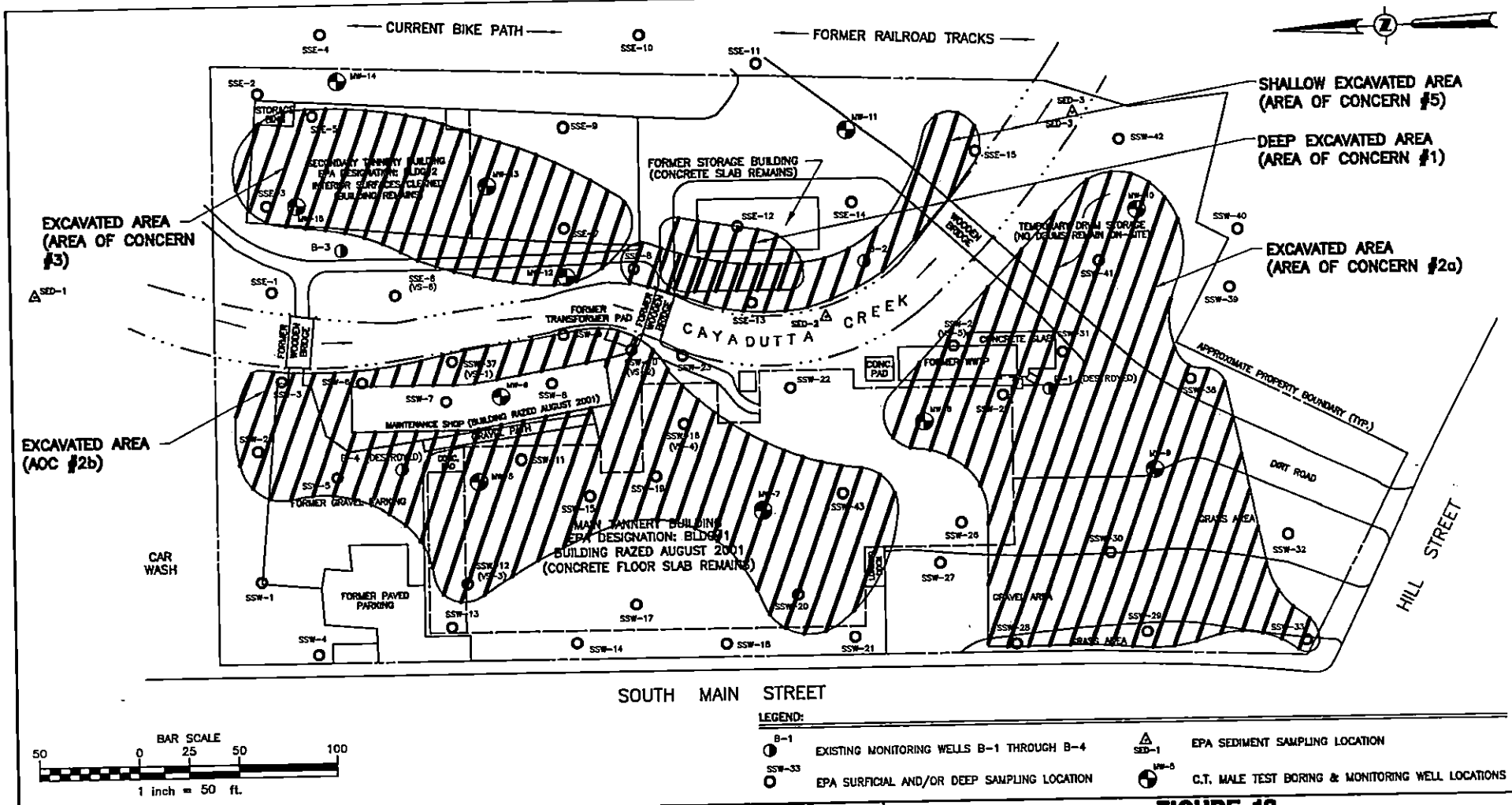
PRAP FIG. 12
SHEET 1 OF 1
DWG. NO: 03-194

NO XREFS
CAD DWG. FILE NAME: PRAP FIGS 10TO14.DWG



GENERAL NOTES:
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2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

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FIGURE 13
ALTERNATIVE NO. 5 - EXCAVATION AND DISPOSAL OF ALL CONTAMINATED SOIL IN EXCESS OF SCGS

INDEPENDENT LEATHER TANNERY

CITY OF GLOVERSVILLE — FULTON COUNTY, NEW YORK

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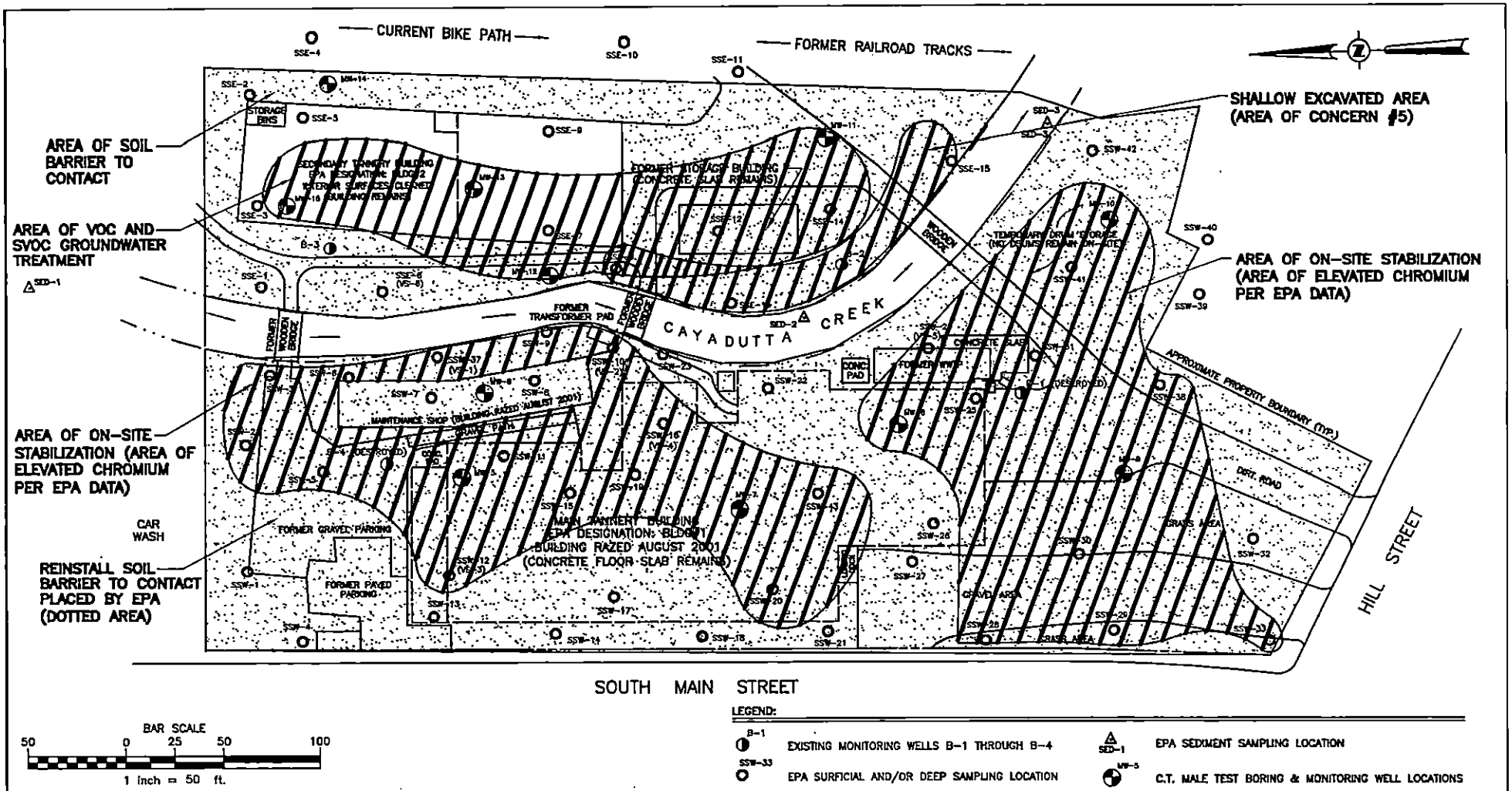
50 CENTURY HILL DRIVE, P.O. BOX 727, LATHAM, NY 12110
518.786.7400 • FAX 518.786.7299
ARCHITECTURE & BUILDING SYSTEMS ENGINEERING • CIVIL ENGINEERING
ENVIRONMENTAL SERVICES • SURVEY & LAND INFORMATION SERVICES

PRAP FIG. 13
SHEET 1 OF 1
DWG. NO: 03-194

CAD DWG. FILE NAME: PRAP FIGS 10TO14.DWG
NO XREFS



GENERAL NOTES:
1.) THE LOCATIONS AND FEATURES DEPICTED ON THIS MAP ARE APPOXIMATE AND DO NOT REPRESENT AN ACTUAL FIELD SURVEY.

2.) THE LOCATIONS OF EPA SAMPLING POINTS WERE ELECTRONICALLY PROVIDED BY EPA AND ARE APPROXIMATE.

DATE	REVISIONS RECORD/DESCRIPTION	DRAFTED	CHECK	APPR.
	1			
	2			
	3			
	4			
	5			
	6			
	7			
	8			
	9			

DESIGNED:
DRAFTED : JAM
CHECKED : KM
PROJ. NO : 01.7293
SCALE : ±1"=50'
DATE : OCTOBER 2003

FIGURE 14 - ALTERNATIVE NO. 6 ON-SITE STABILIZATION, GROUNDWATER TREATMENT AND SOIL BARRIER TO CONTACT

INDEPENDENT LEATHER TANNERY

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PRAP FIG. 14
SHEET 1 OF 1
DWG. NO: 03-194

NO XREFS

CAD DWG. FILE NAME: PRAP FIG5 10701A.DWG