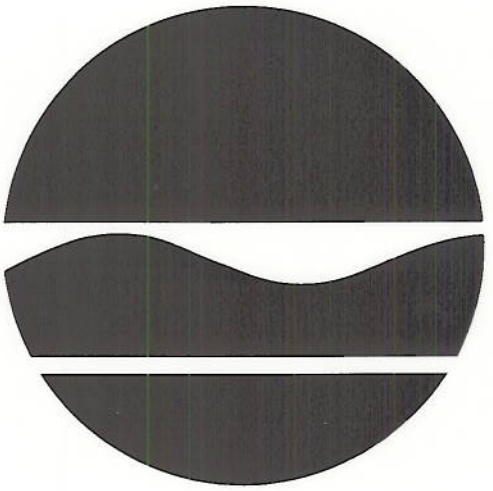
FORMER JARED HOLT COMPANY

City of Albany, Albany County, New York
Brownfields No. B00005-4

Environmental Restoration

PROPOSED REMEDIAL ACTION PLAN

February 2001



Prepared by:
Division of Environmental Remediation
New York State Department of Environmental Conservation

A 1996 Clean Water/Clean Air Bond Act Project

Environmental Restoration
PROPOSED REMEDIAL ACTION PLAN

Former Jared Holt Company
Albany County, New York
Site No. B-00005-4
February 2001

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) is proposing a remedy to address the significant threat to human health and/or the environment created by the presence of hazardous substances at the Former Jared Holt Manufacturing Site.

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 up to 75 percent 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 4 of this document, improper drummed and other container storage practices have resulted in the disposal of a number of hazardous substances, including polycyclic aromatic hydrocarbons (PAHs).

These disposal activities have resulted in direct contact threats to the public health and/or the environment from surface soils.

In order to eliminate or mitigate the threats to the public health and/or the environment that the hazardous substances disposed at the Former Jared Holt Manufacturing brownfield site have caused, the following remedy is proposed to allow for multi-family, medium density residential.

- Two feet of clean soil cover over the entire site to address the potential for human exposure to hazardous substances;

- Deed restrictions would be placed on the property which includes preventing the use of groundwater at the site and taking appropriate action (excavation and proper disposal) should intrusive activities disturb contaminated soils; and

- Maintenance of protective cover.

The proposed remedy, discussed in detail in Section 7 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Proposed Remedial Action Plan (PRAP) in conformity with applicable standards, criteria, and guidance (SCGs).

This 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 (ECL) and 6 NYCRR Part 375. This document is a summary of the information that can be found in greater detail in the Site Investigation (SI) reports and the Remedial Alternative Report (RAR) available at the document repositories.

To better understand the site and the investigations conducted, the public is encouraged to review the project documents at the following repositories:

Mr. Ralph T. Keating
NYSDEC Central Office
50 Wolf Road, Albany, NY 12233-7010
Phone (518) 457-5677
Hours Mon. through Fri., 8:30 to 4:45

NYSDEC Region 4 Office
1150 Westcott Road
Schenectady, NY 12306-2014
Phone (518) 357-2234
Hours Mon. through Fri., 8:30 to 4:45

Albany Industrial Development Authority
Attn.: Anthony J. Ferrara, Chairman
21 Lodge Street
Albany, NY 12207
Phone (518) 434-2532
Hours Mon. through Fri., 9:00 to 4:00

Albany Public Library, John A. Howe Branch
Attn: Reference Desk
Schuyler and Broad Street
Albany, NY 12202
Phone (518) 472-9485
Hours:
Mon. and Wed., 12:30-5:30
Tues., 12:30-8:00
Fri., 12:30 to 5:30
Sat., 1:00 to 5:00

The NYSDEC seeks input from the community on all PRAPs. A public comment period has been set from February 6, 2001 to March 22, 2001 to provide an opportunity for public participation in the remedy selection process for this site. A public meeting is scheduled for February 20, 2001 at the Albany Public Library, John A. Howe Branch beginning at 7:00 PM.

At the meeting, the results of the SI and RAR reports will be presented along with a summary of the proposed remedy. After the presentation, a question and answer period will be held, during which you can submit verbal or written comments on the PRAP.

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 responses provided in the Responsiveness Summary section of the Record of Decision. The Record of Decision is the NYSDEC's final selection of the remedy for this site. Written comments on the PRAP can be submitted to Mr. Ralph Keating, Project Manager, at the above address.

SECTION 2 SITE LOCATION AND DESCRIPTION

The City of Albany Industrial Development Agency (IDA) applied for a State assistance application for the Jared Holt Manufacturing Site. This Environmental Restoration Project was approved by the New York State Department of Environmental Conservation (NYSDEC) on May 13, 1997. This property consists of approximately 1 acre in the south end of the City of Albany at the intersection of Broad Street and Third Avenue, Albany County, New York. This property has a history of industrial use going back more than 100 years. This industrial history as well as the potential for soil and groundwater contamination are discussed in two reports prepared by Northeastern Environmental Technologies Corporation and a report prepared by the NYSDEC that are discussed in Section 4.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The manufacturing use of the Former Jared Holt Manufacturing site began on or about 1885 and continued until 1987. The principal operations were in the leather and shoe-making industry. Jared Holt Manufacturing Company made "stitching wax" which was a wax made from a mixture of plant gums, beeswax, tallow, and paraffin waxes. Stitching wax was used on shoes to lubricate the thread, protect it from moisture, and to help hold the threads in place.

The Jared Holt Manufacturing process involved a high temperature blending/emulsification process where large kettles were heated to various temperatures. Modernization of the equipment occurred in the 1940's and the products that Jared Holt Manufacturing produced expanded to include specialty cleaners, polishes and floor waxes. The facility also included a laboratory for research and development.

Drum and storage containers were kept in interior and exterior portions of the property - more specifically, the manufacturing space and its associated rear yard. With the exception of the exterior storage area, the majority of the drums were placed on concrete or similar improved floor surfaces. These drums contained various chemical products including dyes, reagents, acids, oxidizers, solvents, pigments, paints, cleaning products, and petroleum products.

The Jared Holt Manufacturing buildings have since been raised and removed from the site after a drum removal operation that took place from 1994-1995. The site is now a vacant urban parcel surrounded by residential homes.

3.2: Environmental Restoration History

From 1994-1995, the majority of the drummed wastes and chemical inventory was removed and properly disposed by Clean Harbors, Inc. In addition to the drums, three underground storage tanks were removed from the site in February 2000. The hazardous waste manifest documents listed petroleum based compounds as the principal waste product of concern.

SECTION 4: SITE CONTAMINATION

To determine the nature and extent of any contamination by hazardous substances of this environmental restoration site, the Albany Industrial Development Authority has recently completed a Site Investigation (SI) report with addenda.

4.1: 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 July 1998 and October 2000 by Northeastern Environmental Technologies Corporation. Two reports were generated from this investigation, entitled "Site Investigation - Former Jared Holt Co. Site - Broad and Clinton Streets, Albany, N.Y.," dated December 1998 with revisions dated July 20, 1999 and a closure report entitled, "Tank Closure Report - Former Jared Holt Manufacturing Facility, Albany, New York (Brownfields Site No. B00005-4)," dated November 2000. Another report prepared by the NYSDEC presents: 1) the remedial alternatives and 2) rationale for the selected remedy. This report is entitled, "Remedial Alternatives Report at the Former Jared Holt Manufacturing Site, City of Albany, New York," dated October 2000.

The SI included the following activities:

- Soil gas survey
- Soil borings and monitoring wells
- Monitoring well sampling
- Surface soil sampling
- Background soil sampling

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the SI analytical data were compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. NYSDEC TAGM 4046 soil cleanup guidelines for the protection of groundwater, background conditions and risk-based remediation criteria are all used as SCGs for soils.

Chemical concentrations are reported in parts per billion (ppb). For comparison purposes, SCGs are given for each medium (Table 1).

Based upon the results of the site investigation in comparison to the SCGs and potential public health and environmental exposure routes, contamination was identified in certain areas and media at the site. This type of exposure may be remedied by a technique that includes encapsulating the site to prevent contact with the contaminated media. The following sections highlight the remedy that was selected for this site and a more complete discussion of the investigation can be found in the SI and RAR reports.

4.1.1 Site Geology and Hydrogeology

Overburden soils encountered during the site investigation consisted of fine sands and silts. Since the subsurface soils had been excavated previously for the construction of buildings, native soils and various fill materials created a mixture of various soil types.

Groundwater was found to be approximately 16 feet below ground surface. Groundwater flow direction was determined from the monitoring wells installed across the site. The groundwater flow direction is to the east - southeast. The groundwater flow direction in the overburden aquifer appears to follow the site's surface topography. Groundwater movement is generally toward the Hudson River.

4.1.2 Nature of Contamination

As described in the SI report, many surface and subsurface soil tests and groundwater tests were conducted to characterize the nature and extent of the contaminants that may be present at this site. The soil tests indicate that contamination from the former industrial activities at this site may have resulted in the deposition of by-products of combustion. In addition, the former drum storage areas were investigated for possible industrial contamination. Finally, the underground storage tank areas were investigated, because of the suspicion that the tanks may be leaking and possibly causing groundwater contamination.

Several semi-volatile organic compounds (SVOCs) were detected in the soil during the course of the investigation. The groundwater beneath this site showed no evidence of widespread groundwater contamination. Groundwater samples were taken from both monitoring wells installed at the site and through the direct push soil borings when groundwater was reached. Samples collected from monitoring wells, which are a better indicator of groundwater contamination than grab samples did not reveal any volatile organic compounds (VOC) or SVOC contamination. The groundwater samples retrieved below the soil boring holes revealed 1 of 21 samples with three different VOC compounds and 1 of 14 samples with five different SVOC compounds. Since there are no drinking water wells located on-site or downgradient of this site and no widespread contamination was found, exposure to contaminants in groundwater is not a concern at this site. Also, regarding water concerns, no surface waters were found on or near this site.

Very little information regarding the handling and storage of chemicals within the site boundary was available. Drums containing various chemical products were used on the site, but the specific type chemicals these drums contained are not known since this site has such a long history. The types of test performed were done to uncover various types of contaminants that could have been disposed of or spilled on the site.

4.1.3 Extent of Contamination

Table 1 summarizes the extent of contamination for the contaminants of concern in surface soils, subsurface soils, and groundwater and compares the data with the proposed remedial action levels (SCGs) for the Site. The following are the media which were investigated and a summary of the findings of the investigation.

Soil Gas Survey

The soil gas survey was conducted to better delineate the areas where soil borings and monitoring wells should be located. This procedure is performed by surveying the levels of volatile compounds found in pockets of gases in the soil. The main focus of this survey included the locations of underground storage tanks(USTs) as well as the former drum storage area. Samples were analyzed for the VOCs benzene, toluene, ethylbenzene, xylenes, trichloroethene, and vinyl chloride. Only one sample from the soil gas survey contained any of the target compounds (toluene at 195 ppb) in the northwest corner of the manufacturing space adjacent to the former fuel oil UST. Since this was the only occurrence of a VOC in soil gas, it is concluded that no significant soil gas contamination exists over the site.

Surface Soil

Two background surface soil samples were collected in February 1999 and are identified as SB-1 and JHC-1 on Figure 2. Four additional surface soil samples were collected based on a request by the NYS Department of Health in June 1999 and analysis for inorganic compounds (metals), SVOCs, and polychlorinated biphenyls (PCBs). No VOC or PCB contaminants exceeding TAGM 4046 guidelines were detected in the surface soils. In general, the inorganics detected were found at concentrations that are typical for urban soil levels and for eastern USA background levels as illustrated in TAGM 4046. Background soil levels for lead were found as high as 1,756 ppm and on-site soils as high as 951 ppm. The source of the lead in both on-site and off-site soils is unknown, but it could be from past use of lead paints, auto exhaust, or other products containing lead. It does not seem to be associated with waste disposal at the site.

SVOCs were found to exceed TAGM 4046 levels at several locations. Table 1 lists the following compounds which were found to exceed TAGM 4046 levels: chrysene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indendo(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene. These compounds are in a subgroup of SVOCs, known as polycyclic aromatic hydrocarbons (PAHs). All of the above compounds are carcinogenic substances. The highest level of a carcenogenic PAH found was benzo(k)fluoranthene at 7,900 ppb. The highest level of any PAH found was the noncarcinogenic PAH fluoranthene at 12,070 ppb. (The background (off-site) levels of carcinogenic SVOCs ranged from 880 ppb to 1953 ppb. Similarly, the on-site surface soil results ranged from 1730 ppb to 7900 ppb.) These levels pose a significant threat to the public health from direct contact with these surface soils, although they are not unusual for former urban-industrial areas.

Subsurface Soils

Based on the results of the field screening activities, soil boring locations were identified and a total of 21 soil borings advanced. The purpose of this work was to characterize subsurface soil conditions across the site. Soil boring locations can be found in the SI report and on Figure 2. Samples from the soil borings were analyzed for inorganic compounds and SVOCs. Two samples were also analyzed for VOCs.

None of the samples collected from soil borings contained concentrations of VOCs in excess of TAGM 4046 soil cleanup values. Benzene, toluene, ethylbenzene, and xylene, which are indicators for gasoline contamination or industrial solvents, were below detection levels, even though toluene showed up in the soil gas survey. The subsurface soil results for inorganics (metals) were typical for urban areas and representative of eastern USA background levels as shown in TAGM 4046. The inorganic results were similar to those found in the surface soils. Table 2 in the SI report lists the inorganic levels and their respective concentrations. Of the 21 samples taken, measurable concentrations of SVOCs were found in 7 borings with some exceedences of TAGM 4046 guidelines.

The soil boring program advanced more borings in the area around the USTs where toluene gas was detected during the soil gas survey. The samples taken from these locations showed low levels of SVOCs with one sample found to exceed TAGM 4046 guidelines for chrysene, benzo(a)anthracene, benzo(a)pyrene, and indendo(1,2,3-cd)pyrene.

Since it was suspected that the USTs may be leaking, additional subsurface soil samples were collected when the USTs were excavated. Samples were taken both beneath and sidewall to these underground tanks to determine if a release occurred. Six subsurface soil samples were collected during the removal in February 2000. There were no visual stained soils or observable cracks in the tanks during the excavation. Two of these soil samples contained levels of SVOCs exceeding TAGM 4046 guidelines for chrysene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indendo(1,2,3-cd)pyrene, and dibenzo(g,h,i)perylene. These were the same analytes that exceeded TAGM 4046 in the surface soils and the levels found were not significantly different.

Since the site subsurface soils contained no SVOC levels that were significantly different from the surface soils, it was determined that there was no release from the tanks. Similar to the surface soil results, this group of SVOC compounds are known as polycyclic aromatic hydrocarbons (PAHs). Although elevated, these levels are not unusual for a former urban, industrial site. Therefore, the soils containing SVOCs around these USTs were likely from surficial fill used during the tank installation.

Groundwater

Shallow overburden groundwater wells were installed at 5 locations with depths between 16 and 17 feet below ground surface. The locations were selected based on the head-space analysis from the soil borings. In addition to the monitoring well samples, 16 groundwater grab samples were collected from the boring locations using the direct push sampling equipment.

Groundwater samples from the monitoring wells were collected and analyzed for VOCs, SVOCs and inorganics. No exceedences were observed to the New York State Groundwater Standards (6 NYCRR Part 703) for VOC, SVOC, or PCB compounds. Monitoring well locations can be found in the SI report and on Figure 2.

Two of the five groundwater samples collected from the monitoring wells contained inorganic compounds and one well slightly exceeded the State groundwater standards for Barium and

Selenium. These levels for Barium and Selenium were found in monitoring well number 17 at 1.1 parts per million (ppm) and 0.011 ppm, respectively. The groundwater standards for Barium and Selenium are 1.0 ppm and 0.010 ppm, respectively. These levels do not present a concern since there are no drinking water wells on the site. These inorganics are likely naturally occurring in soil particles and the results may be from highly turbid samples. They are not believed to be linked to any on-site contamination.

Four of the direct push groundwater samples were found to exceed the groundwater standard for Barium as well, but these were highly turbid samples and not true representation of groundwater quality. Highly turbid samples often give false elevated results for inorganics. Since no significant source of metals was found in the site soils, the levels of inorganics found are likely occurring from natural characteristics of site soils and not related to site contamination.

Grab groundwater samples were also collected from direct push sampling equipment and analysis was performed for VOCs, SVOCs, and inorganics. VOC contamination was observed in two samples collected from a former UST area. An analysis of groundwater samples from different areas of the site shows that this contamination has been found in only two of 21 samples, and these contaminants were not found in any of the monitoring wells on site. As mentioned previously, the groundwater results from the monitoring wells are more representative of groundwater quality then the grab samples taken from the direct push sampling equipment. Therefore, groundwater contamination is not widespread.

In summary, the groundwater testing from the monitoring wells revealed no VOC or SVOC contamination. From the direct push sampling equipment, the groundwater samples revealed two locations where VOC contamination was present. These were locations next to an UST. Toluene and xylene were found to be above the groundwater standard immediately next to the UST at GP-14 and GP-15 locations. Samples collected down gradient of these location were found to be free of VOC contamination. The direct push samples are grab samples and not the most representative measures of true groundwater quality since soil particles are unusually present in the samples. Since these contaminants were localized and not present in the monitoring wells, there does not appear to be significant groundwater contamination from VOCs.

4.3 Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in Sections 5.0 and 6.0 of the SI report and also in Section 3.4 of the RAR report.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

PAHs were detected at levels of concern in surface and subsurface soils at the site. The source of the PAHs is unknown, but PAHs are typically introduced into the environment from combustion processes.

Industrial activities involving high temperature blending and emulsification processes from the past used a great deal of coal and other fuel sources to make products at this site. The by-products of combustion activities, such as ash, contained SVOCs, and in particular, PAHs. This ash and other by-products of combustion may have contributed to the elevated levels that are found today.

Since the site is presently uncovered, with no grass or pavement barrier to prevent contact with surface soils, and is not completely fenced to prevent trespassing across the site, people could potentially be exposed to contaminated surface soils at the site through ingestion, inhalation, and/or direct contact. The main route of exposure is through direct human contact with site surface soils contaminated with PAHs.

In the soils, some inorganic compounds were detected above TAGM 4046 levels, but the concentrations were consistent with background levels. These inorganics may be related to urban activities or natural background, rather then attributed to waste disposal. There is no known source for these inorganic contaminants other than construction activities or or deposition from atmospheric sources such as car exhaust. No PCB or VOC contamination was found in site soils.

The inorganic contamination found in the groundwater appears to be related to the levels detected in soil particles and is not representative of groundwater quality. No site related contaminants were found in monitoring wells on-site. Also, no drinking water supply wells exist in this area, therefore no threat to public or private water supplies is present.

VOC, PCBs and inorganic contamination do not pose a problem at the site to either the soils or the groundwater and the SVOCs in the soil have not contaminated the groundwater.

4.4 Summary of Environmental Exposure Pathways:

Since this site is in the middle of an urban area no wildlife impacts are considered to exist. The closest waterbody is the Hudson River, approximately one quarter mile from the site. With no significant site contaminants shown to be moving in the groundwater, no impacts to fish and wildlife resources are considered to exist.

SECTION 5: 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.

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the State to recover State response costs should PRPs be identified. The City of Albany and the Albany Industrial Development Authority will assist the State in its efforts by providing all information to the State which identifies PRPs. The City of Albany and the Albany Industrial Development Authority will also not enter into any agreement regarding response costs without the approval of the NYSDEC.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND FUTURE 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. The overall remedial goal is to meet all Standards, Criteria, and Guidance (SCGs) and be protective of human health and the environment. At a minimum, the remedy selected must eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous substance disposed at the site through the proper application of scientific and engineering principles.

The proposed future use for the Jared Holt site is for multi-family medium density residential with possible variances for commercial usage. The goals selected for this site are:

- Reduce, control, or eliminate to the extent practicable the contamination present within the soils on site.
- Eliminate the potential for direct human or animal contact with the contaminated soils on site.

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 Jared Holt site were identified, screened and evaluated based on presumptive remedies for this site.

Remedial alternatives were developed with consideration given to presumptive remedies. Presumptive remedies are preferred technologies for common categories of sites, based on the collective experience of the USEPA and the NYSDEC. The objective of the presumptive remedies initiative is to streamline site characterization and speed up the selection of cleanup actions. Over time, presumptive remedies are expected to ensure consistency in remedy selection and reduce the cost and time required to clean up similar types of sites.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy or procure contracts for design and construction.

7.1: Description of Alternatives

The potential remedies are intended to address contaminated soil at the site.

1. No Action

Present Worth:		$ 0
Capital Cost:		$ 0
Annual O&M:	$ 0	
Time to Implement:		n/a

The no action alternative is typically evaluated as a procedural requirement and as a basis for comparison. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Since this site has no protective cover and is not fenced, this approach offers no benefit to the protection of public health or the environment. The levels of SVOCs in surface soils are above the TAGM 4046 guidelines and pose a threat to

public health. Unacceptable exposure would continue indefinitely from this alternative.

2. Full Depth Excavation / Landfill Disposal / Backfill with clean fill material

Present Worth:	$ 1,741,000
Capital Cost:	$ 1,741,000
Annual O&M:	$ 0
Time to Implement	1 year

Under this alternative, the entire site would be excavated to a depth of approximately 4 to 6 feet below the existing grade to remove PAH contaminated fill. Once the contaminated material has been removed, clean fill would be used to bring the excavation back to existing grade. Inorganic compounds in native (deep) soils would not be removed. No deed restriction would be needed for reuse after implementation of this remedy.

3. Shallow Depth Removal with PAH Hotspot Excavation / Landfill Disposal / Backfill with clean fill material / Deed Restrictions

Present Worth:	$ 604,648
Capital Cost:	$ 604,648
Annual O&M:	$ 0
Time to Implement	1 year

Under this alternative, surface soils would be removed to a depth of 2 feet across the whole site. In addition, selected contaminated hot-spot areas would be excavated to a depth of approximately 4 to 6 feet below existing grade to remove known PAH contaminated soil from around the UST locations. After the excavations are complete, 2 feet of clean fill and the necessary fill for the UST areas will be brought in to bring the site back to its preexisting grade. Since some PAH impacted areas at depth may remain, a deed restriction would require notification before any excavation is commenced.

The deed restriction would notify owners and site developers that the protective barrier layer (2 feet of clean soil) must be maintained and that the subsurface soils, if excavated, will have to be removed from the site to an approved and permitted landfill.

4. Protective Cover Over the Site / Deed Restriction / Operation and Maintenance

Present Worth:	$ 74,174
Capital Cost:	$ 58,802
Annual O&M:	$ 1,000
Time to Implement	1 month

The site will be regraded and covered with a protective layer of two feet of clean soil over green spaces, that is, areas not occupied by buildings, pavement or sidewalk. Beneath the two-foot soil layer, commercial grade filter fabric or orange plastic snow fencing will be placed as a demarcation of where the contaminated layer begins. This demarcation will prevent future contact with contaminated soils.

Where necessary, the site will be excavated to allow the soil cover material to be sloped to the required two-foot elevation, to allow for gradual elevation rise. Any excavated material not used for regrading purposes will be shipped off site to an approved and permitted landfill.

Acceptable alternative protective cover possibilities are sidewalks, parking lots, building footprints, or other approved strategies that provide a barrier to contact with the contaminated subsurface soils.

A deed restriction will be used to require owners to maintain the protective layer materials as provided to in this proposed plan and subsequent Record of Decision and prohibit the usage of groundwater. If development or excavation occurs on site, any subsurface soils below the protective layer that are excavated will have to be disposed off site at an approved and permitted landfill in accordance with NYSDEC regulations. A plan will be submitted and approval must be given before any development or excavation work proceeds.

The deed restriction will also require future owners to annually certify to the NYSDEC that the remedy and protective cover have been maintained and that the conditions at the site are fully protective of public health and the environment in accordance with the proposed plan and subsequent Record of Decision.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of environmental restoration project sites in New York State (6 NYCCR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is included in the Remedial Alternatives Report.

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

Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The No Action alternative (alternative 1) would leave in place levels of PAH contaminated soils found to be above the SCG levels. The PAH levels found in the surface soils are above soil cleanup objectives according to TAGM 4046. These levels may be typical for an urban setting, however, many of the compounds found are categorized as carcinogenic PAHs and could pose a significant threat from direct contact with soils. Note, however, the metals detected in subsurface soils would not cause problems with groundwater contamination.

The 'Full Depth Excavation' alternative (alternative 2) would meet the SCG's for site contaminants by removing all known contaminants. The 'Shallow Depth Excavation' alternative (alternative 3) also would meet SCG's for previously identified UST areas on the site, but not guarantee that all PAHs are removed from the site. Inorganic compounds appear to be spread uniformly across the site. The elevated lead in surface soils would be removed from the site. The other inorganics that exist on site are representative of an urban background. The 'Protective Cover' (alternative 4) over the site alternative would meet the SCGs by providing a barrier to contact with soils. A deed restriction would be used to require future owners to maintain the protective layer materials as agreed to in this alternative and that if development or excavation occurs on site, the subsurface soils may have to be removed and disposed of as solid waste and placed in a secure landfill.

2. 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.

Only alternatives 2, 3, and 4 would be protective of human health and the environment. These alternatives would result in incomplete pathways for health and environmental exposures. Some alternatives would remove contaminants (excavation alternatives) while others would leave the contaminated soils in place while relying on the existing or new cover and deed restrictions for protection. Alternative 1 offers no protection to human health or the environment.

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.

The No Action alternative would not be effective in the short term since exposure to contaminated soils would still exist and contaminants would pose a threat to the public health and the environment. Alternatives 2 and 3 involve excavation to varying depths and moving or managing soil in some way, thereby creating the possibility of short term exposures to noise, dust, or contaminants. Alternative 4 would not create much exposure to noise, dust, or contamination since it is the shortest to implement and requires little existing soil movement.

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 controls intended to limit the risk, and 3) the reliability of these controls.

Alternative 1 would leave soils with elevated PAH concentrations in place for the long term. There is a continued risk from exposure to contaminated surface soils. Alternative 2 would remove all the contaminants and therefore, removing all of the long term risks. Alternative 3, the Shallow Depth Excavation alternative, while removing some of the long term risks, would still need some form of institutional controls to prevent the possibility of exposure to contaminants in the soils below the fill.

Alternative 4 would provide long term effectiveness by providing a barrier to contact with soils. The associated deed restrictions to ensure safety to workers and the surrounding community would also be a long term solution to threats from future Full Depth Excavations.

5. Reduction of Toxicity, Mobility or Volume.

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

Alternative 1 would not change the toxicity, mobility, or volume of contaminants. Since current conditions do not show much mobility of contamination this alternative remains viable with appropriate deed restrictions. Similarly, alternative 4 would prevent future mobility with a cover and deed restrictions.

Alternative 2, full depth excavation, would reduce the mobility of on-site contaminants since the full volume of contamination and its corresponding toxicity of PAHs would be removed to a secure landfill. The actual volume

and toxicity will remain unchanged in the secure landfill since there are no plans chemically or physically treat the waste.

Similarly, alternative 3, the shallow depth excavation alternative, would reduce the mobility of on-site contaminants since some of the volume of contamination and its corresponding toxicity of PAHs would be removed to a secure landfill. The volume removed from the site would be less then alternative 2. It should be noted that all alternatives would result in some risk of contaminant mobility as discussed in section 3 'Short Term Effectiveness'.

6. Implementability.

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

Alternative 1, no action, would continue to raise the issue of site exposure and pose a threat to public health and the environment.

Alternative 2, may present difficulties in excavation if thick-walled foundations are encountered. Also, an excavation to a six foot depth would require fencing around the hole during construction to keep people away from the site.

Similarly, alternative 3, like alternative 2, may present difficulties in excavation if thick-walled foundations are encountered. Excavation to a six foot depth would require fencing around these locations, but not as much fencing as is necessary for alternative 2. This alternative would require determining where the tanks were so some surveying may be required.

Alternative 4, the protective cover, is easily implemented as clean fill is readily available and no excavations are necessary.

7. Cost. Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

8. Community Acceptance - Concerns of the community regarding the SI/RAR reports and the Proposed Remedial Action Plan are evaluated. A "Responsiveness Summary" will be prepared that describes public comments received and how the Department 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

Based upon the results of the SI/RAR, the evaluation presented in Section 7, the NYSDEC is proposing alternative 4 as the remedy for this site.

This selection is based upon the fact that alternative 4 would provide an adequate direct contact barrier with the proposed protective cover layer and would allow for the intended use of this site, "multi-family medium density residential and possible variances for commercial

usage." SCG compliance would not be a problem since groundwater has not been impacted by current site conditions and surface conditions would be protective of human health and the environment. Alternative 4 provides protection from contaminated subsurface soils via the placement and maintenance of a 2 foot soil cover. Therefore, deed restrictions regarding future excavations must be put in place to ensure this 2 foot cover is maintained. This alternative would be easily implemented with no short or long term impacts, given the requirement for a deed restriction. The costs for this alternative are relatively low when compared with other protective alternatives.

Alternative 1 is not recommended, as it would not be protective of human health. Alternatives 2 and 3 are not recommended as they are relatively high cost, have some degree of implementability problems, result in short term impact issues, and would provide no incremental advantages to alternative 4 that would justify the increased cost.

The elements of the proposed remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction and operation and maintenance of the remedy.

2. The site will be regraded and covered with a protective layer of two feet of clean soil over green spaces, that is, areas not occupied by buildings, pavement or sidewalk. Beneath the two-foot soil layer, commercial grade filter fabric or orange plastic snow fencing will be placed as a demarcation of where the contaminated layer begins. This demarcation will help prevent future contact with contaminated soils.

   Where necessary, the site will be excavated to allow the soil cover material to be sloped to the required two-foot elevation, to allow for gradual elevation rise. Any excavated material not used for regrading purposes will be shipped off site to an approved and permitted landfill.

   Acceptable alternative protective cover possibilities are sidewalks, parking lots, building footprints, or other approved strategies that provide a barrier to contact with the contaminated subsurface soils.

3. A deed restriction will be used to require owners to maintain the protective layer materials as provided for in this proposed plan and subsequent Record of Decision and to also prohibit the usage of groundwater. If development or excavation occurs on site, any subsurface soils below the protective layer that are excavated will have to be disposed off site at an approved and permitted landfill in accordance with NYSDEC regulations. A plan will be submitted and approval must be given before any development or excavation work proceeds.

   The deed restriction will also require owners to annually certify to the NYSDEC that the remedy and protective cover have been maintained and that the conditions at the site are fully protective of public health and the environment in accordance with the proposed plan and subsequent Record of Decision.

Table 1
Nature and Extent of Contamination

MEDIA	CLASS	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG* (ppb)
Groundwater (from grab samples for direct push bore holes)	Volatile Organic Compounds (VOCs)	toluene	ND to 223	1 of 21	5
		m-xylene/p-xylene	ND to 6.8	1 of 21	5
		1,2,4-trimethylbenzene	ND to 5.1	1 of 21	5
Groundwater (grab samples for direct push bore holes)	Semivolatile Organic Compounds (SVOCs)	benzo(a)anthracene	ND to 363	1 of 14	0.002
		chrysene	ND to 380	1 of 14	0.002
		benzo(b)fluoranthene	ND to 449	1 of 14	0.002
		benzo(k)fluoranthene	ND to 177	1 of 14	0.002
		benzo (a) pyrene	ND to 360	1 of 14	ND
Soils	Semivolatile Organic Compounds (SVOCs)	benzo(a)anthracene	ND to 6,667	4 of 14	224
		chrysene	ND to 7,033	3 of 14	400
		benzo(b)fluoranthene	ND to 5,967	3 of 14	1,100
		benzo(k)fluoranthene	ND to 7,900	3 of 14	1,100
		benzo (a) pyrene	ND to 5,733	4 of 14	61
		indendo(1,2,3-cd) pyrene	ND to 5,467	1 of 14	3,200
		dibenzo (a,h) anthracene	ND to 1,730	1 of 14	14

* SCGs for Groundwater are from the: NYSDEC, Division of Water, Technical and Operational Guidance Series No. (1.1.1)

SCGs for Soils are from the: NYSDEC, Division of Environmental Remediation, Technical and Administrative Guidance Memoranda No. 4046

ND = non detectable

Note: Groundwater sample results taken form the monitoring wells were all non-detectable.

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
1- No Action	$0	$0	$0
2 - Excavation / Landfill Disposal / Backfill with clean fill material	$1,741,643	$0	$1,741,648
3 - PAH Hotspot Excavation/Landfill Disposal / Backfill with clean fill material.	$604,648	$0	$604,648
4 - Protective Cover Over the Site	$58,802	$1,000 *	$74,174

* O& M costs are to maintain the protective cover over the site. The present worth calculation assumed a 5% interest rate and a 30 year life for the cover.

Figure 1: Former Jared Holt Manufacturing Site

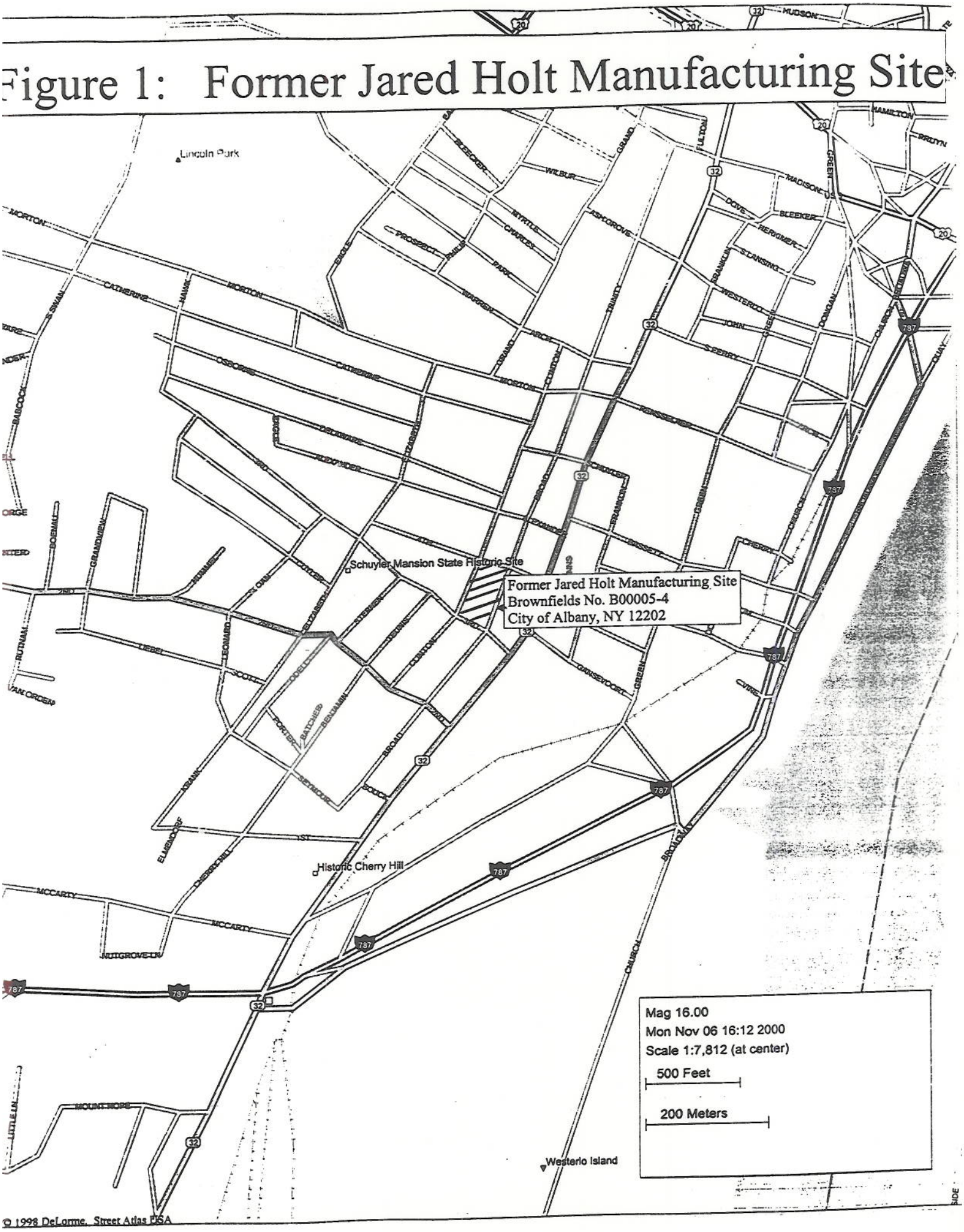


Figure 2: Former Jared Holt Manufacturing Site