Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
115 Front Street (Mitchell Property)
Village of Greenport, Suffolk County
Site Number B-00027-1

March 2000

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT
ENVIRONMENTAL RESTORATION RECORD OF DECISION

115 Front Street Environmental Restoration Site
Village of Greenport, Suffolk County, New York
Site No. B-00027-1

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the 115 Front Street environmental restoration site which was chosen in accordance with the New York State Environmental Conservation Law.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the 115 Front Street environmental restoration site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous substances and petroleum products from this site, if not addressed by implementing the remedy selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based on the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the 115 Front Street site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Alternative #3 - Off-Site Disposal of Impacted Surface Soils and Selected Subsurface Soils. The components of the remedy are as follows:

- Off-site disposal of up to one foot of the surface soils in those unpaved areas with elevated concentrations of arsenic above background to allow placement of a surface cover of one foot of clean fill. The surface cover will be vegetated with grass, as necessary, for reuse of the site as a public park.

- Off-site disposal of petroleum contaminated subsurface soils in the area immediately south of the former USTs in southeastern portion of the site.

- Off-site disposal of surface soils which are contaminated with petroleum related compounds around the light pole area in the eastern portion of the site.
- Periodic monitoring of the groundwater for a minimum of two years.
- Institution of a deed restriction to prevent future direct contact with contaminated subsurface soils and the underlying groundwater.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective.

3/30/2000
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

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Environmental Restoration
RECORD OF DECISION

115 FRONT STREET (MITCHELL PROPERTY)

Village of Greenport, Suffolk County
Site No. B00027-1
March 2000

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected this remedy to address the threat to human health and/or the environment created by the presence of hazardous substances at the 115 Front Street brownfield project.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Under the Environmental Restoration (Brownfields) Program, the State may provide a grant to the Village of Greenport to reimburse up to 75 percent of the eligible costs for site remediation activities. Once remediated the property can then be reused.

The 115 Front Street site, also known as Mitchell's Property, is a public park for the Village of Greenport. As more fully described in Sections 3 and 4 of this document, leaking underground storage tanks and other previous site activities have resulted in the disposal of a number of hazardous substances, including gasoline, diesel fuel, and fuel oil which threatened the adjacent harbor area. The removal of nine abandoned underground storage tanks (USTs) and most of the heavily contaminated soils in the vicinity of these tanks during the site investigation has, to a large extent, mitigated the threat to the adjacent water body. However, the residual contamination still presents the following threat to the public health:

- a threat to human health associated with potential direct contact with soils and groundwater contaminated by petroleum related volatile and semi-volatile organic compounds and elevated concentrations of heavy metals, including arsenic and lead.

- a threat to human health associated with potential inhalation of vapors from those soils which are highly impacted by petroleum related volatile organic compounds.

In order to eliminate or mitigate the threats to the public health that the hazardous substances disposed at the 115 Front Street brownfield site have caused, the following remedy was selected to allow for continued use of the site as a public park:

- Off-site disposal of up to one foot of the surface soils in those unpaved areas with elevated concentrations of arsenic above background to allow placement of a surface cover of one foot of clean fill. The surface cover will be vegetated with grass, as necessary, for reuse of the site as a public park.

- Off-site disposal of petroleum contaminated subsurface soils in the area immediately south of the former USTs in southeastern portion of the site.

- Off-site disposal of surface soils which are contaminated with petroleum related compounds around the light pole area in the eastern portion of the site.

- Periodic monitoring of the groundwater for a minimum of two years.

- Institution of a deed restriction to prevent future direct contact with contaminated subsurface soils and the underlying groundwater.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Record of Decision (ROD) in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2: SITE LOCATION AND DESCRIPTION

The 115 Front Street site is located in the downtown portion of the Village of Greenport. This 3.19 acre site is bounded on the north by Front Street and on the south by Greenport Harbor (See Figure 2). The south side of the site is characterized by bulkheading and piers used to dock boats. Currently, the majority of the site is being utilized by the Village as a public park. The park is being renovated. The Village is constructing an amphitheater and a building to house a carousel ride.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The 115 Front Street site was acquired by the Village on September 5, 1996. Prior to this date, the property was known as Mohring's Marina and was also the location of Kokomos Restaurant. Even further back, parts of the site were used by a car dealer with auto repair capabilities, a gasoline station, various marine boat and engine repairing facilities, and an oyster company which reportedly painted boats at the site.

More than nine feet of fill has been brought to the site over the years to raise the original grade. This fill may contain low levels of heavy metal contamination.

Portions of the site have been used for bulk storage of gasoline, diesel fuel, and fuel oil in aboveground and underground storage tanks. The former aboveground storage tanks (ASTs) were located in the southeastern portion of the site in an area known as "Texaco Alley". USTs believed to be associated with the former marina were located in the central portion of the site and in Texaco Alley. A fuel oil tank, possibly used by a former restaurant, was located in the north central portion of the site. All these petroleum storage tanks were removed during the Site Investigation. Further discussion of these activities will be described in Sections 3.2 and 4.1.3.

3.2: Environmental Restoration History

During August 1991, flooding by a hurricane resulted in the discharge of "oil" from a 3,000 gallon UST. Records indicate that the spill was satisfactorily cleaned up.

One 3,000 gallon UST was reportedly removed around this time period. Minor soil contamination was noted in the area of the fill pipe. This spill was cleaned up to the satisfaction of the Department.

Nine other USTs were removed during the Brownfields Site Investigation. These removals will be discussed further in Section 4.1.3.

SECTION 4: SITE CONTAMINATION

To determine the nature and extent of any contamination by hazardous substances of this environmental restoration site, the Village of Greenport has recently completed a Site Investigation and a Remedial Alternatives Report (SI/RAR) at the 115 Front Street site.

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 field work for the SI was performed between August 1998 and March 1999. A report entitled Site Investigation Report, July, 1999 has been prepared which describes the field activities and findings of the SI in detail.
The SI included the following activities:

- Geophysical survey to identify the presence of subsurface utilities and to locate previously unidentified USTs.
- USTs in three separate areas were removed to visually determine whether they had leaked petroleum into the subsurface.
- Ten surface soil samples were collected and analyzed based upon the reported potential disposal of contaminants directly onto the surface soils.
- Eighteen soil borings were conducted to evaluate potential impacts to subsurface soils due to leakage from USTs and other potential historic subsurface discharges based on site usage.

- Ten monitoring wells were installed and sampled to evaluate impacts to the underlying groundwater.

To determine which media (soil, groundwater, etc.) are contaminated at levels of concern, the SI analytical data was compared to environmental Standards, Criteria, and Guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the 115 Front Street site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of New York State Sanitary Code. The NYSDEC Spill Technology and Remediation Series (STARS) Memo #1 Petroleum-Contaminated Soil Guidance Policy, dated August 1992, has been used to provide direction on the handling, disposal and/or reuse of petroleum-contaminated soils. For non-petroleum issues in soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions and health-based exposure scenarios. In addition, for soils, background concentration levels can be considered for certain categories of contaminants.

The list of volatile and semi-volatile organic compounds (VOCs and SVOCs) which were analyzed for this investigation are in accordance with guidance in the STARS Memorandum. For short, this list of chemicals is known as STARS VOCs and SVOCs. All the STARS SVOCs are common polynuclear aromatic hydrocarbons (PAHs) associated with fuels and lubricating oils.

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

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

4.1.1: Site Geology and Hydrogeology

The subsurface soils at the site are dominated by fill material to between 9.5 to 12 feet below grade where a fine-grained clay unit was encountered. The fill material is primarily sand, gravel, and silt with assorted pieces of wood, metal, brick, concrete, glass, coal fragments, and clam, oyster, and scallop shells. The underlying clay consists of a black, dark brown, or green stiff clay with a low estimated hydraulic conductivity. The clay was not penetrated during the investigation since this unit is believed to be retarding downward migration of contaminants in the groundwater.

The underlying groundwater was found between 2.85 feet and 5.38 feet below grade. Slight tidal effects were seen in all of the monitoring wells constructed for the investigation. The maximum rise detected in the water table was 0.35 feet. The groundwater flow direction was to the south to south southwest. There appears to be little or no variation in the groundwater flow direction in response to tidal changes in Greenport Harbor.

4.1.2: Nature of Contamination

As described in the SI report, many soil and groundwater samples were collected at the site to characterize the nature and extent of contamination. Many different areas were studied.

Three separate areas at the site were used for the storage of petroleum related compounds in underground storage tanks. Each area was investigated by excavating the tanks. A total of 9 underground tanks were located. None of these tanks were in use. Gasoline, diesel fuel, and fuel oil were formerly stored in these abandoned tanks. The bottoms of all these tanks were sitting in the underlying groundwater. This condition apparently accelerated corrosion of the bottoms of the tanks. Additionally, some of the tanks exhibited evidence of leakage around the fill and pump areas. Significant leakage was evident in each of the three storage areas. The surrounding soils and underlying groundwater were impacted. These impacts have been significantly reduced by the removal of all known USTs and most of the highly contaminated soils in the vicinity of these tanks. See Section 4.1.3 for further discussion on the UST removal actions.

Low concentrations of petroleum related compounds, slightly above SCGs, were also detected in other areas of the site. These detections are attributed to the discharges of relatively small amounts of fuels and/or lubricating oils in these areas.

Some elevated concentrations of heavy metals, such as arsenic, lead, and zinc, were detected above typical background concentrations. It is suspected that some of these metals may have been brought to the site in the nine to ten feet of fill used to raise the original elevation of the site. Previous site usage such as boat and engine repairs, including the painting of boats, may be partially responsible for some of the metals that were detected.

No hazardous wastes as defined by New York State Law under 6 NYCRR Part 371 have been discovered at this site.

4.1.3: 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.

Besides serving as an investigative tool, the removals of underground tanks in three separate areas of the site also qualify as Interim Remedial Measures (IRMs). For this site, these IRM tank removals have, to a large extent, mitigated the threat of potential discharges of contaminated groundwater to the adjacent saltwater body.

The underground storage tanks at this site were used to hold either gasoline, diesel fuel, or fuel oil. Each of these areas were investigated for leakage by actually removing the tanks and any associated piping. All the liquids in the tanks were pumped out and disposed of at an approved facility. Similarly, all sludges were removed from inside of each of the tanks and disposed of at an approved off-site location. The highly contaminated soils surrounding the tanks in each of the three underground tank locations were acting as a continuing source for the groundwater contamination

at the site. As part of these IRMs, most of the highly impacted soils were removed and disposed of at an approved off-site location. These three areas are discussed below and shown on Figure 2.

South UST Area - Five 4,000 gallon tanks in the south central portion of the site were removed in August 1998. All the tanks were pitted. Each of the five tanks had at least one pinhole. Significant leakage was evident, and based on visual observation, approximately 135 cubic yards of petroleum impacted soils were excavated and disposed of at an approved off-site location. The excavation extended to approximately two feet below the water table. A thin layer of petroleum which was floating on top of the exposed groundwater was removed by skimming off the floating petroleum and by using absorbent pads specifically designed for this purpose. The bulk of the soil contamination was removed, however, some residual soil contamination was visible around the edges of the excavation at the water table.

Four test pits outside of each wall of the excavation were dug to expose the underlying groundwater. These test pits were used to investigate the potential migration of the fuels which had leaked from the USTs. No floating product was evident in any of these test pits. However, a slight fuel odor was detected near the water table in the north and east test pits.

North UST Area - In December 1998, one 1,000 gallon fuel oil tank was removed from the north central portion of the site. The tank was pitted and several holes were observed in the bottom of the tank. Leakage from this tank was evident, and based on visual screening, approximately 40 cubic yards of petroleum contaminated soils were removed to a depth of 10 feet to 12 feet below grade. All of the contaminated soils were removed except for a thin band of contaminated soils seen at the water table around the edges of the excavation. A thin layer of petroleum floating on top of the exposed groundwater was removed with absorbent pads.

Southeast UST Area - The southeast UST area is also known as the Texaco Alley area. Three 4,000 gallon USTs near the eastern property border were removed in January 1999. Approximately 350 gallons of product were recovered from the tanks. All the tanks were severely pitted. Two of them had small holes. Significant leakage was visually evident and approximately 130 cubic yards of petroleum impacted soils beneath the tanks were removed. The soil removal extended to 1.5 feet below the water table. Some contaminated soils are still present in the sidewalls of the excavation, particularly along the south wall. A thin layer of petroleum floating on top of the exposed groundwater was removed by skimming off the floating petroleum and by using absorbent pads.

4.1.4: Extent of Contamination

Most of the soil and groundwater sampling for the Site Investigation was performed after the UST removals. The only exception was most of the soil borings, around the Southeast UST area, were performed before this removal. The extent of contamination identified is the residual soil and groundwater contamination remaining after the completion of the IRM UST removals discussed in Section 4.1.3. It should be emphasized that a total of approximately 315 cubic yards of petroleum impacted soils were removed as part of all the IRM UST removals.

The following sections will discuss the extent of contamination by media. Only the significant detections will be discussed.

Surface Soils

Arsenic has been detected in the surface soils throughout the site at concentrations above typical background. In a background sample, arsenic was detected at 8.7 ppm. Arsenic was detected at the site at concentrations above background in 9 out of 10 surface soil samples collected from the surface to three inches deep at concentrations as high as 67.8 ppm. Supplemental shallow soil samples were collected at four of these nine surface soil sample locations to ensure that the results were representative and to collect additional samples slightly deeper at 3 to 6 inches and at one location at 6 to 9 inches below grade. Arsenic was detected above site background in 3 out of 4 of the 3 to 6 inches samples indicating that the arsenic is not restricted to the top three inches of the surface soils. Table 1 summarizes the significant detections in the surface soil samples. Figure 3 shows all the surface and subsurface soil samples which detected arsenic above the site background of 8.7 ppm. The only significant detections were in the shallow soils up to one foot below grade.

Due to the concentrations of arsenic detected in some of the surface soil samples, potential prolonged direct contact/accidental ingestion is a concern.

Subsurface Soils

The following potential areas of concern were investigated:

- South UST Area
- North UST Area
- Southeast UST Area
- Suspected East UST Area
- Light Pole Area
- Dredge Spoils Area
- Water-Line Area
- Boat-Bottom Scraping Area

Table 1 also summarizes the significant detections from the soil samples collected from the subsurface soils. Figure 2 shows the location of these areas of concern. Each of these areas will be discussed separately.

South UST Area - Eight soil borings were performed around the South UST area where 5 USTs were removed to determine the extent of the residual soil contamination due to tank leakage. Four out of the eight soil samples detected petroleum related semi-volatile organic compounds (SVOCs) slightly above their respective NYSDEC guidance values. Of these four samples, sample SB-16 collected at 14 inches to 29 inches below grade from a boring northwest of the UST excavation detected the highest concentrations. Twelve different STARS SVOCs were detected at a combined total of 8.4 ppm in this sample. This sample was collected from an area where a citizen alleged that

waste oils were discharged in the past. None of the exceedences in these four samples were significant enough to require additional cleanup evaluation.

Of the eight samples collected, six were subsurface soil samples collected near the water table at various locations outside of the tank excavation. These six samples detected only trace concentrations of STARS VOCs, well below their respective NYSDEC guidance values. Only two of these samples detected any appreciable concentrations of STARS SVOCs. This data indicates that there has not been significant migration from the former source area of the petroleum related contaminants which would float on top of the groundwater.

North UST Area - No soil borings were performed in the vicinity of the former fuel oil tank. However, a post-excavation bottom soil sample and a composite soil sample of the four sidewalls of the excavation were collected. The sidewall composite sample was collected from the "smear zone" created by the rise and fall of petroleum related compounds floating on top of the constantly changing water table. The highest concentrations would be expected in the smear zone. These two samples are adequate to indicate the extent of the residual soil contamination in this area. The bottom soil sample was within STARS guidance values. The following petroleum related volatile organic compounds (VOCs) were detected in the sidewall sample above their respective NYSDEC guidance values as stated in the STARS guidance document: 0.25 ppm of total xylenes, 0.48 ppm of n-propylbenzene, 2.1 ppm of p-isopropyltoluene, 1.1 ppm of 1,2,4-trimethylbenzene, 0.24 ppm of 1,3,5-trimethylbenzene, 1.4 ppm of n-butylbenzene, and 0.24 ppm of sec-butylbenzene. Since natural attenuation is expected to remediate this residual contamination now that the source has been removed, none of these exceedences were significant enough to require additional cleanup evaluation. Natural attenuation of petroleum related compounds includes volatilization, dispersion, dilution, and biodegradation. The petroleum related VOCs are particularly susceptible to biodegradation as long as adequate oxygen is available for the growth of the natural occurring microbes which consume the contaminants as a food source and ultimately produce non-toxic end products such as carbon dioxide and water.

Southeast UST Area - Three soil borings were performed in this area prior to the tank removal. However, since all these borings are outside of the excavation for the tank removal, the results of this soil sampling are being used as a conservative estimate of the residual soil contamination in this area. Additionally, two more soil borings were performed after the tank removal to assist in determining the extent of the residual soil contamination. It should also be noted that the two borings immediately south of the tank excavation are also being used to evaluate potential spills from old above ground storage tanks which were formerly located in the southeastern corner of the property. Soil samples were collected from all 5 soil borings near the water table, where floating product in the "smear zone" would be located.

The soil sample from Boring #7, just outside what would later be the southern edge of the excavation, had strong visual and olfactory evidence of petroleum related contamination. The soil sample (SB-7) from boring #7 and the one from boring #8 (SB-8), further south of the excavation, contained petroleum related VOCs above STARS guidance values. As expected, the sample closer to the tank excavation (SB-7) had much higher concentrations. Sample SB-7 detected a total of 780

ppm of 8 different STARS VOCs. Seven of these compounds have STARS Alternative Guidance Values (AGV) of 0.1 ppm. The actual detections for these seven compounds were: 29 ppm ethylbenzene, 160 ppm total xylenes, 30 ppm n-propylbenzene, 210 ppm 1,2,4-trimethylbenzene, 24 ppm isopropylbenzene, 150 ppm n-butylbenzene, and 89 ppm 1,3,5-trimethylbenzene. The eighth compound, naphthalene (AGV 0.2 ppm), was detected at 88 ppm. In comparison, sample SB-8 detected a total of 11.47 ppm of STARS VOCs.

Additionally, a total of almost 24 ppm of STARS SVOCs were detected in sample SB-7. The following compounds were detected above their respective contract required detection limits (CRDL) and STARS AGVs: 4.2 ppm acenaphthene (AGV 0.4 ppm), 6.9 ppm fluorene (AGV 1 ppm), and 10 ppm phenanthrene (AGV 1 ppm). Seven other STARS SVOCs, each with a low STARS AGV of only 0.04 ppb, were detected at low estimated concentrations, below their respective CRDLs. The three other soil samples located east (SB-19), west (SB-20), and southwest (SB-9) of the tank excavation contained low estimated concentrations of STARS SVOCs, some slightly above STARS guidance values.

Soil sample SB-9, collected at 4 feet to 4 feet, 8 inches below grade, also contained an elevated concentration of lead at 613 ppm, above the typical range for lead of 200 to 500 ppm in suburban areas. This exceedence was not significant enough to require additional cleanup evaluation for the following reasons: 1) the surface soils are not impacted by lead, therefore, direct contact with surface soils is not a concern, and 2) the deed restriction to prevent uncontrolled excavations which would be necessary for other reasons, as discussed later, would serve to prevent direct contact with these subsurface soils.

Suspected East UST Area - Based on the geophysical survey results, it was suspected that another UST was located to the east of the North UST area. A backhoe was used to expose the potential UST. Instead, it was discovered that the anomaly was an abandoned storm drain that had been filled in. No further investigation was deemed necessary.

Light Pole Area - A citizen reported seeing soil contamination around two light poles in the eastern portion of the site. Soil boring SB-6 was performed next to the eastern light pole in a slight depression next to the pole. A sample was collected from the surface to 18 inches below grade. Chrysene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, and indeno(1,2,3-cd)pyrene, each with a STARS AGV of only 0.04 ppb, were detected at a combined total of 11.8 ppm. These concentrations are of concern, especially since they are present in the surface soils where direct contact is possible. Three other STARS SVOCs were detected slightly above their respective AGVs.

It is suspected that waste oils may have been discharged to the surface soils in the depression. Consequently, the affected area may be limited in size.

Dredge Spoils Area - It is alleged that dredge spoils resulting from the dredging of the adjacent saltwater body were placed in the northwestern corner of the property. Low estimated concentrations of 7 STARS SVOCs, detected at a combined total of 1.3 ppm, were slightly above

their respective STARS guidance values. None of these exceedences were significant enough to require additional cleanup evaluation.

Water-Line Area - A citizen reported seeing petroleum related contamination during the installation of a water line in the northern portion of the site. Soil borings SB-4, SB-5, and SB-18 were drilled in this area. The highest concentrations were detected in the soil sample from SB-4, collected at one foot, ten inches to two feet, ten inches below grade. Nine STARS SVOCs were detected above their respective AGVs in this sample at a combined total of 5.4 ppm. Based on the depth of the sample and the concentrations detected, none of these exceedences were judged to be significant enough to require additional cleanup evaluation.

Lead was detected in sample SB-5, collected at three feet, five inches below grade, at 969 ppm. This concentration is above the typical range for lead of 200 ppm to 500 ppm in suburban areas. This exceedence was not significant enough to require additional cleanup evaluation for the following reasons: 1) the surface soils are not impacted by lead, therefore, direct contact with surface soils is not a concern, and 2) the deed restriction to prevent uncontrolled excavations which would be necessary for other reasons, as discussed later, would serve to prevent direct contact with these subsurface soils. To a lesser extent, copper, zinc, and mercury concentrations were slightly elevated.

Groundwater

Groundwater sampling was designed to evaluate groundwater quality in the vicinity of the South UST, North UST, and Southeast UST areas. The excavations for these tank removals, as discussed in Section 4.1.3, extended into the underlying groundwater. The exposed groundwater at the bottoms of each of these excavations was visually contaminated. Measures were implemented to recover a thin layer of floating petroleum from each of the excavations before each excavation was backfilled with clean fill. The groundwater quality in each of these three areas will be discussed separately. Table 2 summarizes the significant groundwater detections. All groundwater samples were collected after the UST removals. Each well was checked for the potential presence of floating product utilizing an interface probe. No floating product was detected in any of the wells.

South UST Area Groundwater - Three monitoring wells were installed to a depth of 12 feet below grade in this area. A groundwater sample from MW-4, located near the southern edge of the backfilled tank excavation, detected the highest concentrations of petroleum related compounds for this area. Nine different petroleum related volatile organic compounds totaling less than 6,000 ppb were detected in this sample. All 9 compounds were detected in excess of their Class GA groundwater standard. The three highest detections were: 2,800 ppb of total xylenes, 1,200 ppb of 1,2,4-trimethylbenzene, and 740 ppb of ethylbenzene. Each of these compounds have a GA groundwater standard of 5 ppb.

Groundwater samples from MW-5 and MW-6, located further south and southeast of the tank excavation, respectively, detected much lower concentrations. MW-5 detected only 36 ppb of total STARS VOCs while MW-6 detected 328 ppb of total STARS VOCs. These wells are located between 20 feet and 25 feet from the edge of the UST excavation. The most significant detection

in the groundwater sample from MW-6 was 94 ppb of benzene which has a GA groundwater standard of 1 ppb.

It has been concluded that the bulk of the residual VOC groundwater contamination is limited to a very localized area near to the South UST excavation for the following reasons:

1. MW-5 and MW-6, located at relatively short distances downgradient of the UST excavation, have much lower concentrations of petroleum related contaminants than MW-4 which was constructed near the south wall of the UST excavation. Consequently, there is essentially no groundwater plume attributable to this area.

2. The visual appearance of the remaining soils at the sides and bottom of the UST excavation suggest that the bulk of the contaminated soils has been removed.

3. The four test pits used to visually inspect the underlying groundwater outside of the four walls of the UST excavation did not indicate any significant migration of the fuels which leaked from the USTs.

4. Six of the eight soil samples used to evaluate the residual soil contamination in this area were collected from the smear zone near to the water table where the highest concentrations would be expected. Three of these samples were collected a short distance from the south side of the excavation in the direction of groundwater flow. One sample each was collected a short distance from the east, west, and north sides of the excavation. All of these samples contained only trace levels of STARS VOCs, well below their applicable STARS AGVs. Only the samples collected west and southeast of the UST excavation had any appreciable concentrations of STARS SVOCs. These samples detected 4.6 ppm and 2.4 ppm of total STARS SVOCs, respectively.

5. Most of the residual soil contamination attributable to the former USTs is apparently very limited in extent and consists of a small volume of soils at the water table near the sidewalls of the UST excavation. The significant detections in the groundwater sample from MW-4 are probably caused by this well being located along the southern edge of the excavation where most of the residual soil contamination is located.

Although the groundwater contamination by MW-4 is considerable, it is believed that this groundwater contamination will naturally attenuate quickly because the source area has essentially been eliminated and the groundwater contamination is localized to the immediate area around MW-4. However, periodic groundwater monitoring will be necessary to verify this.

Lead was detected above its GA groundwater standard of 25 ppb in MW-4 and MW-5 at 279 ppb and 193 ppb, respectively. It is possible that some of this lead may be attributable to the lead formerly used in leaded gasoline. These exceedences were not significant enough to require additional cleanup evaluation since the underlying groundwater will not be consumed due to saltwater intrusion and lead has limited migration potential in groundwater.

North UST Area Groundwater - Three monitoring wells were constructed by the North UST Area. MW-1, constructed in the backfilled excavation, detected relatively low concentrations of STARS VOCs. A total of 218 ppb of total STARS VOCs were detected. GA groundwater standards were exceeded by several of the compounds.

The groundwater sample from MW-2, located slightly south of the excavation, detected 9 different STARS VOCs at concentrations above their respective GA groundwater standard or guidance value. The sum of the detections of these 9 compounds was 899 ppb. The most significant detections were: 210 ppb of 1,2,4-trimethylbenzene, 140 ppb of total xylenes, 85 ppb of ethylbenzene, 84 ppb of 1,3,5-trimethylbenzene and 220 ppb naphthalene. The GA groundwater standard for the first four of these compounds is 5 ppb while the last compound, naphthalene, has a GA guidance value of 10 ppb.

The groundwater sample from MW-3, located southeast of the excavation, did not have any detections above GA groundwater standards.

The groundwater sampling results for this area, supported by the results from the closure samples, indicate that the former source area by MW-1 has been successfully removed by the soil removal which was performed concurrently with the tank removal. There has been some slight migration of the contaminants from the former source area as indicated by the results from MW-2. However, now that the source area has been removed, it is expected that this groundwater contamination will naturally attenuate relatively quickly.

Lead was detected at 226 ppb in MW-3, above its applicable groundwater standard of 25 ppb. This groundwater sample contained excessive silt. The suspended particles in this sample may have resulted in an unrepresentative sample result for the metals analysis. The 226 ppb may be greater than the actual concentration of lead present in the groundwater at this location. This potential exceedence was not significant enough to require additional cleanup evaluation since the underlying groundwater will not be consumed due to saltwater intrusion and lead has limited migration potential in groundwater.

Southeast UST Area Groundwater - Four monitoring wells were sampled in the Southeast UST area, also known as the Texaco Alley area. MW-7 was constructed in the center of the backfilled tank excavation. MW-8 and MW-9 were both constructed just south of the tank excavation and were located on the western and eastern sides of the excavation, respectively. MW-10 was located further downgradient (south) of the tank excavation. The highest concentration of both volatile and semi-volatile organic compounds were detected in MW-8. Ten different STARS VOCs were detected at a combined total of 2,764 ppb. Most of these VOCs were detected above their respective groundwater standards. The three highest VOC detections were: 1,200 ppb of total xylenes, 870 ppb of 1,2,4-trimethylbenzene, and 320 ppb of ethylbenzene. The GA groundwater standard for these three compounds is 5 ppb.

The groundwater sample from MW-9 also detected significant concentrations of STARS VOCs. Nine different VOCs were detected at a combined total of 2,490 ppb. The most significant

detections were: 1,100 ppb of total xylenes, 790 ppb of 1,2,4-trimethylbenzene, and 88 ppb of benzene. The GA groundwater standards for these three compounds are 5 ppb, 5 ppb, and 1 ppb, respectively.

The groundwater sample from MW-7, located by the former source area, detected lower concentrations of STARS VOCs with 10 different compounds being detected at a total concentration of 335 ppb. MW-10 detected 11 different STARS VOCs at a combined concentration of 122 ppb.

Since the groundwater sample from MW-7, constructed in the backfilled tank excavation, detected much lower concentrations of contaminants than the samples from MW-8 and MW-9, which are both located just outside the southern limit of the UST excavation, it has been concluded that the soil removal performed in conjunction with the tank removal has been effective in removing the primary source area beneath the tanks. However, the results from MW-8 and MW-9 indicate that the petroleum related contaminants have migrated in groundwater to the area immediately downgradient of the tank excavation or there is some residual soil contamination in this area which continues to impact the groundwater. Based on the much lower concentrations in MW-10, which is further downgradient of the source area, this residual contamination is localized to the area around MW-8 and MW-9.

Considering both the groundwater results from MW-8 and MW-9 and the soil sampling results from SB-7, the Department has concluded that there is a residual source area of petroleum related VOCs and SVOCs which would act as a continuing source of groundwater contamination. This source area is located immediately south of the Texaco Alley tank excavation.

This source area could also present an inhalation threat should these highly impacted subsurface soils be excavated without adequate controls.

4.2: 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 Section 7.0 of the SI Report.

An exposure pathway is the manner by which an individual may come in 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.

Pathways which are known to or may exist at the site include:

- Ingestion of contaminated soil
- Inhalation of vapors

- Dermal adsorption of contaminants via direct contact with contaminated soil

- Dermal adsorption of contaminants via direct contact with contaminated groundwater

These potential human exposure pathways at the 115 Front Street site would be addressed through the remedial actions to be implemented at the Site.

4.3: Summary of Environmental Exposure Pathways

No pathways for environmental exposure have been identified for this site. The IRM underground tank removals have, to a large extent, mitigated the potential impact which might have resulted from the discharge of contaminated groundwater to the adjacent saltwater body. The residual groundwater contamination should not result in any environmental impacts to the surface water especially when one considers the constant flushing resulting from tidal changes. NYSDEC personnel have visually inspected the adjacent surface water body for any signs of discharge on four separate occasions. No sheen was visible during any of these inspections.

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 Village of Greenport will assist the State in its' efforts by providing all information to the State which identifies PRPs. The Village 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 115 Front Street site will continue to be used as a public park. The goals selected for this site are:

- *Reduce, control, or eliminate to the extent practicable the contamination present within the surface soils on site.*

- *Eliminate the potential for direct human or animal contact with the contaminated soils or groundwater on site.*
- *Eliminate to the extent practible the source areas for groundwater contamination.*
- *Eliminate to the extent practible source areas of VOCs which could present a threat due to potential inhalation of vapors.*
- *Provide for attainment of SCGs for contaminated surface soils at the limits of the area of concern (AOC), to the extent practicable.*
- *Mitigate the impacts of contaminated groundwater to the environment.*

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

Potential remedial alternatives for the 115 Front Street site were identified, screened and evaluated in a Remedial Alternatives Report. This evaluation is presented in the report entitled Remedial Alternatives Report, January 2000 for 115 Front Street.

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 Remedial Alternatives

The potential remedies are intended to address the contaminated soils and groundwater at the site.

Alternative #1 - No Further Action

Present Worth:	*$ 104,964*
Capital Cost:	*$ 2,800*
Annual O&M:	*$ 23,600*
Time to Implement:	0 months

This alternative recognizes remediation of the site conducted under previously completed IRM UST removals. No further remedial actions would be performed.

This alternative would include the following:

1. Continued monitoring would be necessary to evaluate the effectiveness of the remediation completed under the IRMs. Five years of monitoring is proposed since it is expected that groundwater would take longer to recover without further source removal in the Texaco Alley area.

2. A deed restriction would be necessary to prevent future site activities which would result in direct contact with contaminated subsurface soils and groundwater. Uncontrolled excavations which would expose contaminated soils would be prohibited.

This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. Under this alternative, the potential for direct contact with the contaminated surface soils would not be mitigated. The residual source of petroleum related groundwater contamination in the Texaco Alley area would not be eliminated.

Alternative #2 - Off-Site Disposal of Contaminated Surface Soils

Present Worth:	*$ 643,586*
Capital Cost:	*$ 541,422*
Annual O&M:	*$ 23,600*
Time to Implement:	1 month

This alternative would include the following remedial actions:

1. Off-site disposal of up to one foot of the surface soils in those unpaved areas with elevated concentrations of arsenic above background to allow placement of a surface cover of one foot of clean fill. The surface cover would be vegetated with grass, as necessary, for reuse of the site as a public park.

The site background concentration for arsenic is 8.7 ppm. Additional surface soil sampling for arsenic would be performed during the remedial phase to better define the affected areas of the site. If all the surface soils are impacted and one foot of the surface soils was removed across the site, approximately 3,040 cu. yds. of soils would be excavated.

Some of the arsenic impacted surface soils would be placed under the carousel building. These soils would be covered by the concrete slab for this building.

Some of the arsenic impacted soils would be placed under the raised area for the amphitheater. A surface cover of one foot of clean fill would be placed over these soils.

2. Excavation and off-site disposal of the SVOC impacted soils in the Light Pole area from the surface to approximately two feet below grade.

Additional sampling during the remedial phase of this project would be performed to better define the affected area. If the depth and area of the excavation allows, some of the soils under Item #1, which are unsuitable solely due to their arsenic content, would be used to backfill this area up to one foot below grade. A surface cover of one foot of clean fill would be placed over these soils.

3. Groundwater monitoring for at least five years. Five years of monitoring is proposed since it is expected that groundwater would take longer to recover without further source removal in the Texaco Alley area.

4. Deed restriction to prevent future site activities which would result in direct contact with contaminated subsurface soils and groundwater. Uncontrolled excavations which would expose contaminated subsurface soils would be prohibited.

Under this alternative, the potential for direct contact with contaminated surface soils would be eliminated. The potential for direct contact with contaminated subsurface soils would be mitigated. The remaining source area for the groundwater contamination by petroleum related compounds in the Texaco Alley area would not be eliminated.

Alternative #3 - Off-Site Disposal of Impacted Surface Soils and Selected Subsurface Soils.

Present Worth:	*$ 689,092.*
Capital Cost:	*$ 645,219*
Annual O&M:	*$ 23,600*
Time to Implement:	2 months

This alternative would include the following remedial actions:

1. Off-site disposal of up to one foot of the surface soils in those unpaved areas with elevated concentrations of arsenic above background to allow placement of a surface cover of one foot of clean fill. The surface cover would be vegetated with grass, as necessary, for reuse of the site as a public park.

The site background concentration for arsenic is 8.7 ppm. Additional surface soil sampling for arsenic would be performed during the remedial phase to better define the affected areas of the site. If all the surface soils are impacted and one foot of the surface soils was removed across the site, approximately 3,040 cu. yds. of soils would be excavated.

Some of the arsenic impacted surface soils would be placed under the carousel building. These soils would be covered by the concrete slab for this building.

Some of the arsenic impacted soils would be placed under the raised area for the amphitheater. A surface cover of one foot of clean fill would be placed over these soils.

2. Excavation and off-site disposal of the SVOC impacted soils in the Light Pole area from the surface to approximately two feet below grade.

Additional sampling during the remedial phase of this project would be performed to better define the affected area. If the depth and area of the excavation allows, some of the soils under Item #1, which are unsuitable solely due to their arsenic content, would be used to backfill this area up to one foot below grade. A surface cover of one foot of clean fill would be placed over these soils.

3. Excavation and off-site disposal of the subsurface soils in the area immediate south of the former underground tanks in the Texaco Alley area which are acting as a continuing source of groundwater contamination by petroleum related volatile and semi-volatile organic compounds.

This soil removal would be intended as a source removal only. At the completion of the soil removal, some low concentrations of petroleum related contaminants would be expected in some of the sidewalls of the excavation. At a minimum, none of the residual soil contamination would exceed 10 ppm of total STARS VOCs and 50 ppm of total STARS SVOCs. Much better results would be anticipated. Any residual petroleum related soil contamination left in this area would be expected to naturally attenuate within a reasonable period of time.

Some of the soils in Item #1, which would be unsuitable solely due to their arsenic content, would be used to backfill this excavation up to one foot below grade. A surface cover of one foot of clean fill would be placed over these soils.

Based on the available data, the residual source area is estimated to encompass a 55 feet by 55 feet area to a depth of 7 feet below grade, located directly south of the Southeast UST excavation. Figure 4 illustrates the proposed area. The actual dimensions of the area to be remediated would be determined by visual and olfactory evidence of soil contamination. It is expected that some of the shallow soils above the smear zone would not be impacted and would be reused as fill. The tie backs for the nearby bulkhead present a physical restraint regarding the potential eastern and southern extent of the excavation. These tie backs would not be removed since they support the bulkhead. However, it is not anticipated that the residual source area would extend to the tie backs. For cost estimating purposes, the 55' x 55' x 6' volume of soils (the top one foot of soils would be accounted for under Item #1) is equivalent to 672 cu. yds. of soils.

4. Groundwater monitoring for at least 2 years. As opposed to Alternatives #1 and #2, less monitoring would be needed since groundwater would be expected to return to acceptable levels quicker after the removal of the Texaco Alley source area.

5. Deed restriction to prevent future site activities which would result in direct contact with contaminated subsurface soils and groundwater. Uncontrolled excavations which would expose contaminated subsurface soils would be prohibited.

Under this alternative, the potential for direct contact with surface soils would be eliminated. The potential for direct contact with subsurface soils would be mitigated. Additionally, the remaining source of petroleum related groundwater contamination in the Texaco Alley area would be eliminated.

Alternative #4 - Off-Site Disposal of Impacted Surface Soils and In-Situ Treatment of Selected Subsurface Soils and Groundwater

Present Worth:	*$ 842,578*
Capital Cost:	*$ 737,359*
Annual O&M:	*$ 56,600*
Time to Implement:	3 months

This alternative would include the following remedial actions:

1. Off-site disposal of up to one foot of the surface soils in those unpaved areas with elevated concentrations of arsenic above background to allow placement of a surface cover of one foot of clean fill. The surface cover would be vegetated with grass, as necessary, for reuse of the site as a public park.

The site background concentration for arsenic is 8.7 ppm. Additional surface soil sampling for arsenic would be performed during the remedial phase to better define the affected areas of the site. If all the surface soils are impacted and one foot of the surface soils was removed across the site, approximately 3,040 cu. yds. of soils would be excavated.

Some of the arsenic impacted surface soils would be placed under the carousel building. These soils would be covered by the concrete slab for this building.

Some of the arsenic impacted soils would be placed under the raised area for the amphitheater. A surface cover of one foot of clean fill would be placed over these soils.

2. Excavation and off-site disposal of the SVOC impacted soils in the Light Pole area from the surface to approximately two feet below grade.

Additional sampling during the remedial phase of this project would be performed to better define the affected area. If the depth and area of the excavation allows, some of the soils under Item #1, which are unsuitable solely due to their arsenic content, would be used to backfill this area up to one foot below grade. A surface cover of one foot of clean fill would be placed over these soils.

3. In-situ treatment of petroleum contaminated soils and groundwater using Air Sparging/Soil Vapor Extraction (SVE) in the portion of the Texaco Alley area which is acting as a source area for groundwater contamination by petroleum related compounds.

4. Groundwater monitoring for at least 2 years. In the Texaco Alley area, a minimum of one year of groundwater monitoring would take place after the closure of the Air Sparging/SVE system. As opposed to Alternatives #1 and #2, less monitoring would be expected since this remedy would actively remediate the groundwater in the Texaco Alley area where there is a residual source of contamination.

5. Deed restriction to prevent future site activities which would result in direct contact with contaminated subsurface soils and groundwater. Uncontrolled excavations which would expose contaminated subsurface soils would be prohibited.

Under this alternative, the potential for direct contact with surface soils would be eliminated. The potential for direct contact with subsurface soils would be mitigated. Additionally, the remaining source of petroleum related VOC groundwater contamination in the Texaco Alley area would be eliminated. However, the In-situ treatment in this area would have little effect on the heavier petroleum related SVOCs in the subsurface soils and groundwater.

Alternative #5 - Off-Site Disposal of all Impacted Soils and Groundwater Treatment

Present Worth:	*$ 1,807,290*
Capital Cost:	*$ 993,517*
Annual O&M:	*$104,520 - $ 108,120*
Time to Implement:	4 months

This alternative would include the following remedial actions:

1. Excavation and off-site disposal of all impacted soils from the site. The contaminated soils in the surface soils, Light Pole area, Texaco Alley area, Dredge Spoils area, Water Line area, South UST area, and Boat Bottom Scraping area would total more than 5,000 cu. yds.

2. Groundwater treatment via extraction wells using liquid phase granular activated carbon to remove organic compounds from the extracted groundwater. This portion of the alternative is commonly referred to as "pump and treat".

3. Periodic groundwater monitoring to observe the progress made by the groundwater treatment system.

The intent of this remedial alternative is to evaluate the feasibility of bringing this site back to pre-release conditions. A deed restriction would not be needed since the site would be completely restored.

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.

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

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 relevant soil SCGs for this site are found in NYSDEC Spill Technology and Remediation Series (STARS) Memo #1 for petroleum related contamination and in NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4046, "Determination of Soil Cleanup Objectives and Cleanup Levels" for other environmental contamination. The relevant groundwater SCGs are found in NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1), "Ambient Water Quality Standards and Guidance Values".

The GA groundwater standards listed in TOGS 1.1.1, which assumes that the underlying groundwater at the site may be used as a source of drinking water, have been used at this site as SCGs. However, the groundwater at the site is influenced by the adjacent saltwater body. Saltwater intrusion would severely limit the possible future use of this groundwater for drinking water purposes. Also, the bulk of the petroleum related groundwater contamination will naturally attenuate with time and will eventually meet most of the GA groundwater standards. Additionally, the groundwater at this site flows directly into the saltwater body thereby preventing migration of the contaminants to nearby groundwater which might be usable for drinking water purposes.

All alternatives except for Alternative #5 require a waiver of the groundwater SCGs. This waiver would be granted for Alternatives #1, #2, #3, and #4 due to the saltwater intrusion which makes the underlying groundwater unsuitable for use as a drinking water source. The waiver includes both petroleum and lead contamination in groundwater.

Alternative #4 would treat the portion of the contaminated groundwater by VOCs in the Texaco Alley area which is considered to be a source area but would not effectively treat SVOCs. Alternative #3 would result in an improvement in groundwater quality near Texaco Alley since the primary residual source of the existing groundwater contamination by petroleum related VOC and SVOC compounds in this area would be removed. Alternatives #1 and #2, which would not address the Texaco Alley source area, would take a longer time for the groundwater quality in this area to improve by natural attenuation. Consequently, Alternatives #3 and #4 are preferred over Alternatives #1 and #2.

STARS Memo #1 and TAGM 4046 provide guidance values for soils. Both these documents consider health related concerns such as direct contact or accidental ingestion of impacted soils and potential leaching of the contaminants to the underlying groundwater. However, since a waiver would be granted for groundwater SCGs at this site as noted previously, the potential leaching of the contaminants in the soils to the underlying groundwater is not considered further. By applying engineering judgement as allowed under 6 NYCRR Part 375-1.10(c)(1)(ii), the Department has determined that, in this site-specific instance, soil guidance values would not be applied directly. However, the Department would consider the health risks that the contaminated soils might present. Consequently, the ability of an alternative to meet soil SCGs would be evaluated solely on its ability to prevent health related exposures. If all potential exposures would be prevented by an alternative, it will be concluded that this alternative would satisfy the soil SCGs.

Alternative #1, no further action, does not comply with soil SCGs due to the surface soil contamination by arsenic and SVOCs. Direct contact and/or accidental ingestion of the surface soils is not prevented. This alternative does not satisfy the remedial goals.

Alternatives #2, #3, and #4 would use a deed restriction and placement of a surface cover of one foot of clean fill to prevent contact with the impacted subsurface soils. These alternatives would prevent all potential health related exposures. Consequently, soil SCGs would be satisfied under the limits discussed above.

TABLE 1 - RANGE OF DETECTIONS IN SOIL SAMPLES (PPM) - Page 1 of 2
SIGNIFICANT DETECTIONS ONLY

AREA OF CONCERN	SURFACE SOILS	BOAT SCRAPING AREA	DREDGE SPOILS AREA	WATER LINE AREA	STARS TCLP ALTERNATIVE GUIDANCE VALUE	TAGM-4046
STARS VOCs (ppm)						
Benzene	NO SIGNIFICANT DETECTIONS	NO SIGNIFICANT DETECTIONS	NO SIGNIFICANT DETECTIONS	NO SIGNIFICANT DETECTIONS	.014	.06
Ethylbenzene					0.1	5.5
MTBE					1.0	Not Available
Toluene					0.1	1.5
Xylenes (total)					0.1	1.2
Isopropylbenzene					0.1	Not Available
n-Propylbenzene					0.1	Not Available
p-Isopropyltoluene					0.1	Not Available
1,2,4-Trimethylbenzene					0.1	Not Available
1,3,5-Trimethylbenzene					0.1	Not Available
n-Butylbenzene					0.1	Not Available
sec-Butylbenzene					0.1	Not Available
Naphthalene					0.2	13
STARS SVOCs (ppm)						
Acenaphthene	NO SIGNIFICANT DETECTIONS				0.4	50
Fluorene					1.0	50
Phenanthrene					1.0	50
Anthracene					1.0	50
Fluoranthene					1.0	50
Pyrene					1.0	50
Benzo(a)anthracene		0.27J - 0.32J		0.17J - 0.39	0.00004	0.224 or MDL
Chrysene		0.42 - 0.47		0.18J - 0.93	0.00004	0.4
Benzo(b)fluoranthene		0.41J - 0.48	0.31J	0.2J - 0.58	0.00004	0.224 or MDL
Benzo(k)fluoranthene		0.21J - 0.23J		0.13J - 0.28J	0.00004	0.224 or MDL
Benzo(a)pyrene		0.32J - .35J	0.19J	0.17J - 0.3J	0.00004	0.061 or MDL
Indeno(1,2,3-cd)pyrene					0.00004	3.2
Dibenzo(a,h)anthracene					1.0	0.014 or MDL
Benzo(g,h,i)perylene					0.00004	50
METALS (ppm)					**BACKGROUND CONCENTRATION**	**TAGM-4046**
Arsenic	1.9 - 67.8		NO SIGNIFICANT DETECTIONS		8.7	7.5 or SB
Copper		37.2 - 167		28.5 - 208	10.9	25 or SB
Lead		118 - 421		117 - 969	24.6	★
Zinc				146 - 479	43.6	20 or SB

★ Background levels vary widely. Average background levels in metropolitan or suburban areas near highways typically range from 200-500 ppm.

J = Estimated Value; Detection is Below the Contract Required Detection Limit ppm = parts per million ND = Not Detected

TAGM = Technical and Administrative Guidance Memorandum MDL = Method Detection Limit SB = Site Background

TABLE 1 - RANGE OF DETECTIONS IN SOIL SAMPLES (PPM) - Page 2 of 2
SIGNIFICANT DETECTIONS ONLY

AREA OF CONCERN	SOUTHEAST UST AREA TEXACO ALLEY	SOUTH UST AREA	NORTH UST AREA	LIGHT POLE AREA	STARS TCLP ALTERNATIVE GUIDANCE VALUE	TAGM-4046
STARS VOCs (ppm)						
Benzene	ND - 1.9	NO SIGNIFICANT DETECTIONS		NO SIGNIFICANT DETECTIONS	.014	.06
Ethylbenzene	ND - 29				0.1	5.5
MTBE	ND - 0.001				1.0	not available
Toluene	ND				0.1	1.5
Xylenes (total)	0.003 - 160		ND - 2.5		0.1	1.2
Isopropylbenzene	ND - 24				0.1	not available
n-Propylbenzene	ND - 30		ND - 0.48		0.1	not available
p-Isopropyltoluene	ND - 0.7		0.042 - 2.1		0.1	not available
1,2,4-Trimethylbenzene	0.001 - 210		0.022 - 1.1		0.1	not available
1,3,5-Trimethylbenzene	ND - 89		ND - 0.24		0.1	not available
n-Butylbenzene	0.006 - 150		0.045 - 1.4		0.1	not available
sec-Butylbenzene	ND - 2.4		0.007 - 0.24		0.1	not available
Naphthalene	0.006 - 88				0.2	13
STARS SVOCs (ppm)						
Acenaphthene	ND - 4.2		NO SIGNIFICANT DETECTIONS		0.4	50
Fluorene	ND - 6.9				1.0	50
Phenanthrene	ND - 10				1.0	50
Anthracene					1.0	50
Fluoranthene		ND - 1.1			1.0	50
Pyrene		ND - 1.3			1.0	50
Benzo(a)anthracene	ND - 0.35J	ND - 0.64J		1.8	0.00004	0.224 or MDL
Chrysene	ND - 0.54J	ND - 0.78		2.1	0.00004	0.4
Benzo(b)fluoranthene	ND - 0.66J	ND - 0.97		2.4	0.00004	0.224 or MDL
Benzo(k)fluoranthene	ND - 0.39J	ND - 0.43J		1.3	0.00004	0.224 or MDL
Benzo(a)pyrene	ND - 0.47J	ND - 0.73J		1.6	0.00004	0.061 or MDL
Indeno(1,2,3-cd)pyrene	ND - 0.38J	ND - 0.63J		1.2	0.00004	3.2
Dibenzo(a,h)anthracene	ND - 1.0J			0.44	1.0	0.014 or MDL
Benzo(g,h,i)perylene	ND - 0.47J	ND - 0.79		1.4	0.00004	50
METALS (ppm)					**BACKGROUND CONCENTRATION**	**TAGM-4046**
Arsenic		LIMITED METALS DATA	NO METALS DATA	NO SIGNIFICANT DETECTIONS	8.7	7.5 or SB
Copper					10.9	25 or SB
Lead	21.4 - 613				24.6	★
Zinc					43.6	20 or SB

★ Background levels vary widely. Average background levels in metropolitan or suburban areas near highways typically range from 200-500 ppm.

J = Estimated Value; Detection is Below the Contract Required Detection Limit ppm = parts per million ND = Not Detected

TAGM = Technical and Administrative Guidance Memorandum MDL = Method Detection Limit SB = Site Background

TABLE 2 - RANGE OF DETECTIONS IN GROUNDWATER SAMPLES (PPB)

SIGNIFICANT DETECTIONS ONLY

AREA OF CONCERN	SOUTHEAST UST AREA TEXACO ALLEY	SOUTH UST AREA	NORTH UST AREA	CLASS GA GROUNDWATER STANDARDS
STARS VOCs (ppb)				
Benzene	4 - 88	2 - 94	ND - 5	1
Ethylbenzene	11 - 320	2 - 740	ND - 85	5
MTBE				50**
Toluene	3 - 130	3 - 250		5
Xylenes (total)	51 - 1,200	10 - 2,800	ND - 140	5
Isopropylbenzene	4 - 40	ND - 65	ND - 37	5
n-Propylbenzene				5
p-Isopropylbenzene		ND - 22		5
1,2,4-Trimethylbenzene	25 - 870	5 - 1,200	ND - 210	5
1,3,5-Trimethylbenzene	1 - 85	1 - 180	ND - 84	5
n-Butylbenzene	5 - 100	2 - 190	ND - 65	5
sec-Butylbenzene	ND - 14		ND - 53	5
Naphthalene*	11 - 140	3 - 480	ND - 220	GA Guidance Value = 10
STARS SVOCs (ppb)				
Naphthalene*	ND - 57	1 - 90	ND - 64	GA Guidance Value = 10
Acenaphthene				GA Guidance Value = 20
Fluorene				GA Guidance Value = 50
Phenanthrene				GA Guidance value = 50
Anthracene				GA Guidance Value = 50
Fluoranthene				GA Guidance Value = 50
Pyrene				GA Guidance Value = 50
Benzo(a)anthracene		ND - 2J		GA Guidance Value = 0.002
Chrysene		ND - 2J		GA Guidance Value = 0.002
Benzo(b)fluoranthene		ND - 2J		GA Guidance Value = 0.002
Benzo(k)fluoranthene				GA Guidance Value = 0.002
Benzo(a)pyrene		ND - 2J		Not detectable
Indeno(1,2,3-cd)pyrene				GA Guidance Value = 0.002
Dibenzo(a,h)anthracene				50**
Benzo(g,h,i)perylene				50**
METALS (ppb)				
Lead		ND - 279	ND - 226	25

* Naphthalene was analyzed using two different analytical methods

** Regulated as an Unspecified Organic Contaminant (UOC) at 50 ppb under Part 5 Public Water Systems (NYSDOH Part 5)

ND = Not Detected

J = Estimated Value Below the Contract Required Detection Limit

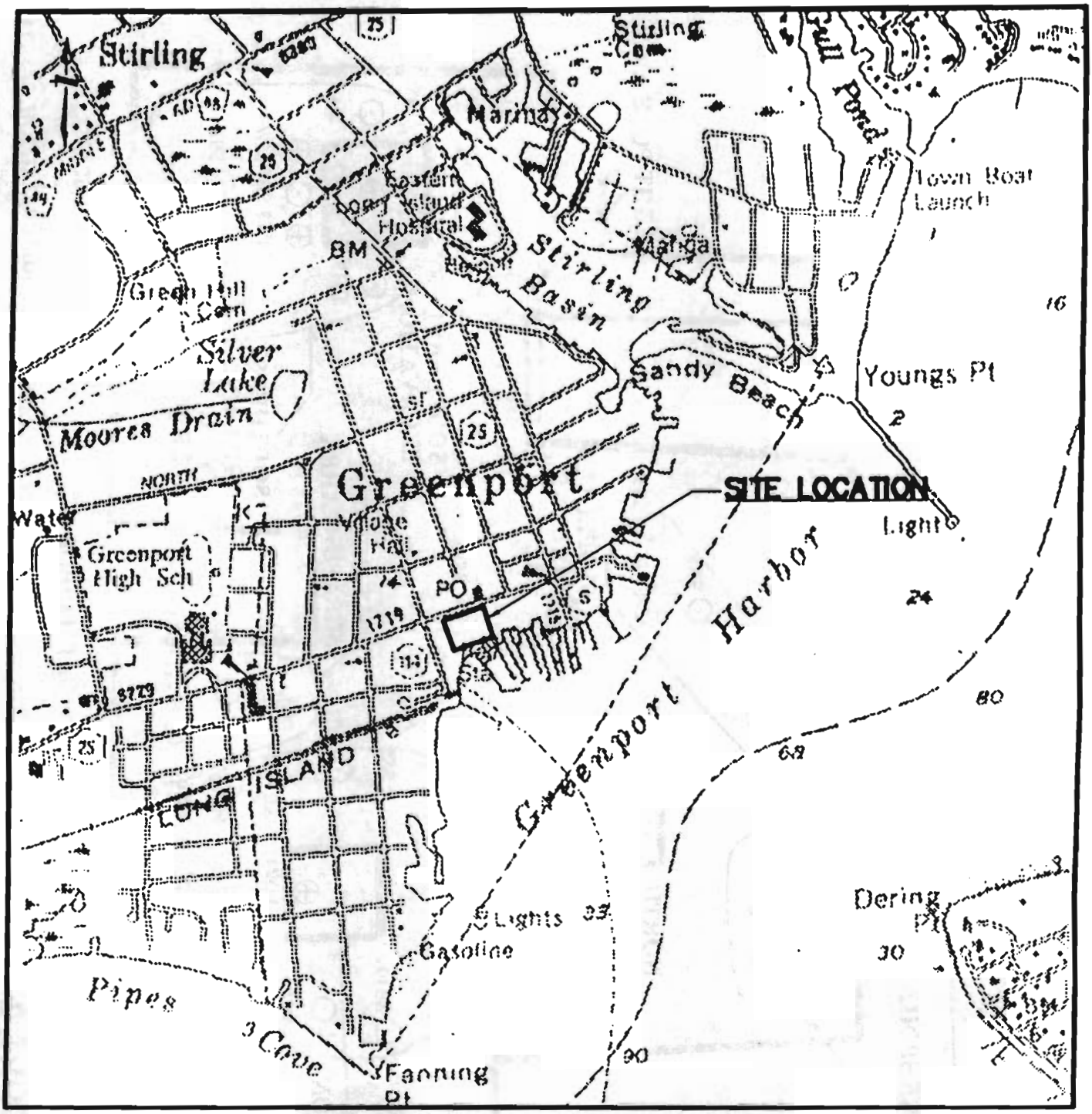


FIGURE 1

SITE LOCATION MAP
115 FRONT STREET PROPERTY
SITE LOCATION MAP

SCALE: 1" = 2000'

SOURCE: U.S.G.S. AMITYVILLE QUADRANGLE 1969

H2MGROUP · ENGINEERS · ARCHITECTS · PLANNERS · SCIENTISTS · SURVEYORS
MELVILLE, N.Y. TOTOWA, N.J.

FRONT STREET

115 FRONT STREET
SITE MAP WITH AREAS OF CONCERN

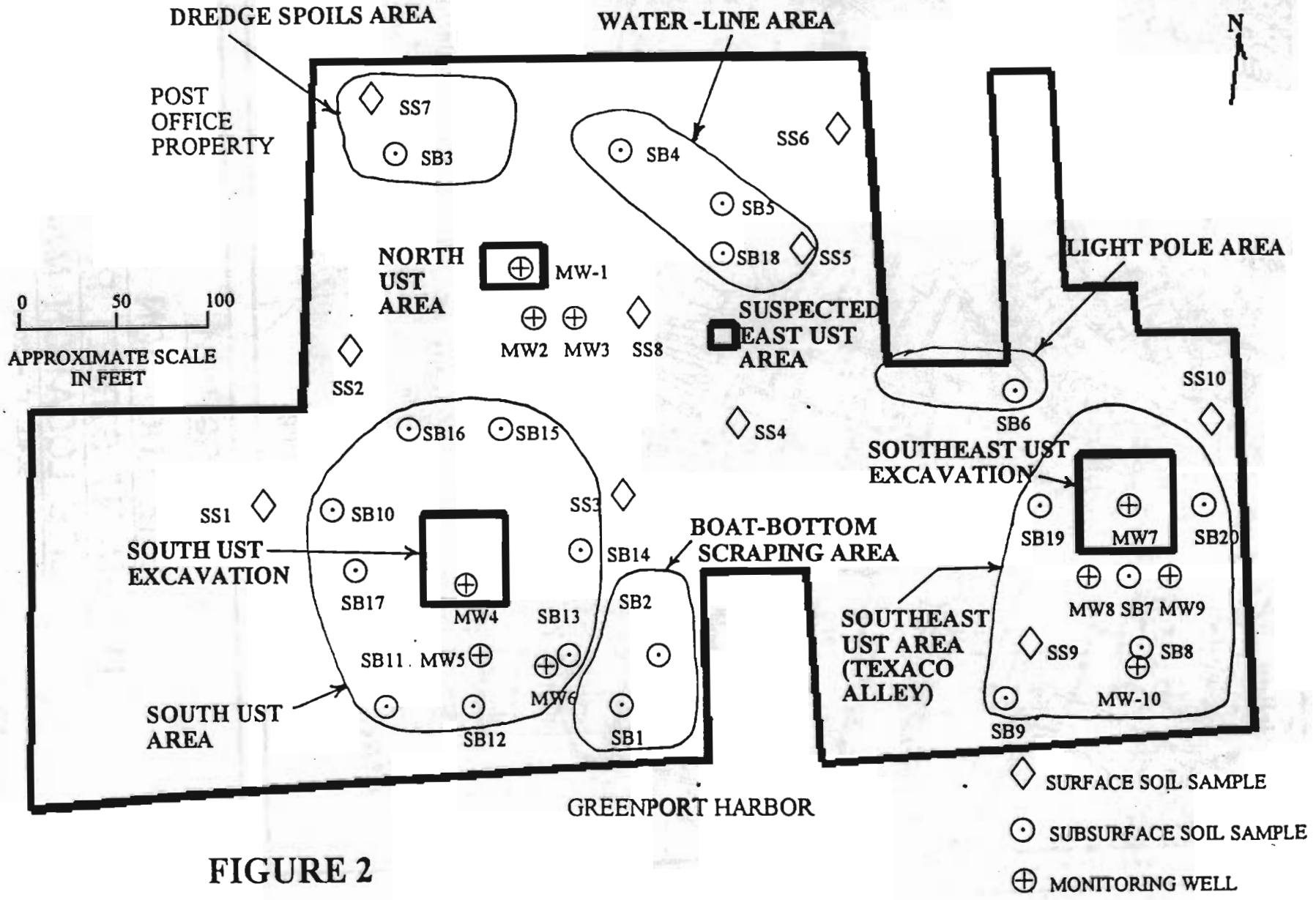
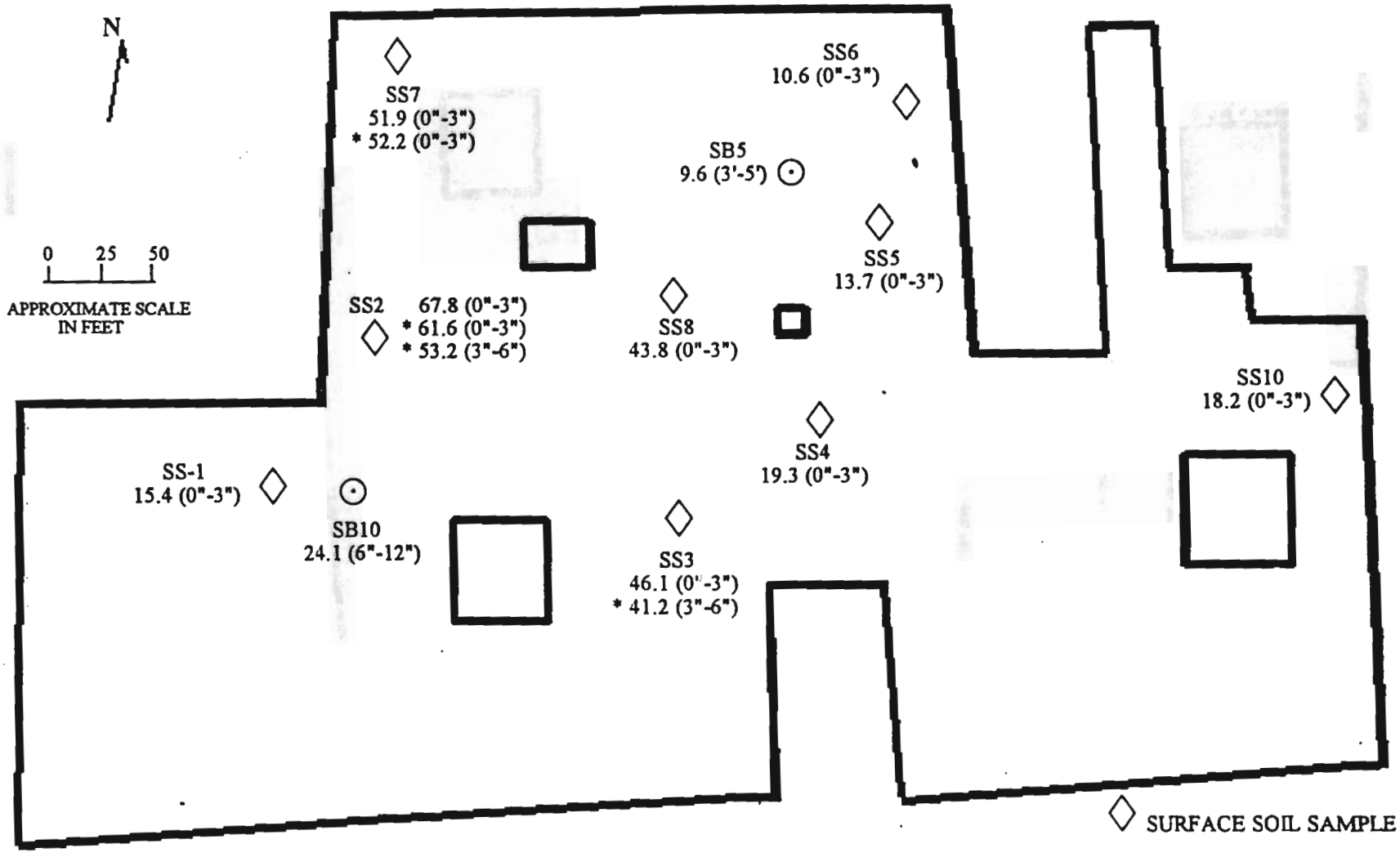


FIGURE 2

115 FRONT STREET

ARSENIC CONCENTRATIONS DETECTED ABOVE SITE BACKGROUND



RESULTS IN PARTS PER MILLION (ppm)

FIGURE 3

115 FRONT STREET
PROPOSED TEXACO ALLEY EXCAVATION FOR ALTERNATIVE #3

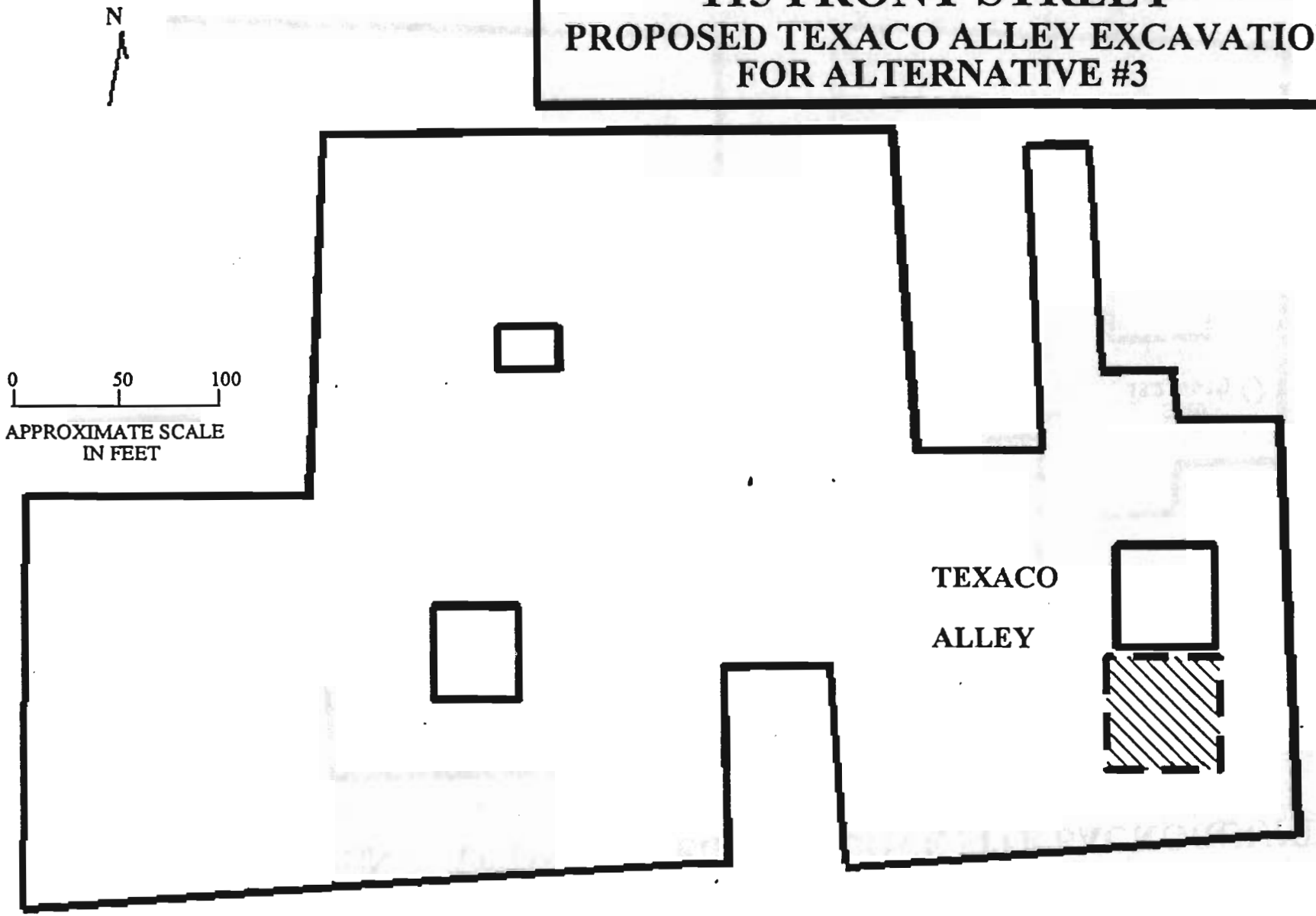


FIGURE 4

PROPOSED EXCAVATION

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

115 Front Street (Mitchell Property)
Environmental Restoration Proposed Remedial Action Plan
Village of Greenport, Suffolk County
Site No. B00027-1

The Proposed Remedial Action Plan (PRAP) for the 115 Front Street site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on February 9, 2000. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil and groundwater at the 115 Front Street site. The preferred remedy is off-site disposal of impacted surface soils and selected subsurface soils.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on March 8, 2000 which included a presentation of the Site Investigation (SI) and Remedial Alternatives Report (RAR) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. No written comments were received.

The public comment period for the PRAP ended on March 26, 2000.

This Responsiveness Summary responds to all questions and comments raised at the March 8, 2000 public meeting.

The following are the comments received at the public meeting, with the NYSDEC's responses:

COMMENT 1: What was the background level of Arsenic at the site?

RESPONSE 1: The background sample detected 8.7 ppm of arsenic.

COMMENT 2: Where was the background sample collected?

RESPONSE 2: The background sample was collected just beyond the southern edge of the parking lot on the property immediately west of the site.

COMMENT 3: If you were to test the soils in the vicinity of the meeting location for arsenic, what would you expect to find?

RESPONSE 3: Naturally occurring arsenic is present in all soils. The range of concentrations in uncontaminated soils in New York State is from 3 ppm to 12 ppm. Since no arsenic contamination is expected in the area around the meeting room, the Department would expect the soils near the meeting room location to contain arsenic within this range for uncontaminated soils.

COMMENT 4: What is the source of the elevated concentrations of arsenic?

RESPONSE 4: There is not enough data to determine the exact source of the arsenic contamination. The original elevation of the site, prior to any development, was approximately nine feet below the existing grade. It is possible that the arsenic contamination may have been brought to the site in the fill which was used to raise the original elevation of the site. However, historical commercial and industrial activities at the site are another potential source of the arsenic contamination.

COMMENT 5: The present worth for Alternative #3 is approximately $689,000. Does this include the costs of the removal of the underground tanks?

RESPONSE 5: The removal of the underground tanks and the highly contaminated soils around the tanks was covered under the investigation costs. There was a separate investigation grant for these costs. The $689,000 includes only the future costs associated with implementing Alternative #3.

COMMENT 6: Does Alternative 3 include the removal of the large pile of soils at the site. Does an additional one foot of soils have to be removed in the area where they are building the carousel building and the amphitheater?

RESPONSE 6: The Village has already removed one foot of the surface soils where they are constructing the carousel building and the amphitheater in anticipation of this being required under the selected remedial alternative for the site. The large pile of soils currently at the site consists of the stockpiled soils impacted with arsenic resulting from this effort. Alternatives 2, 3, 4, or 5 would include the removal of this large pile of soils. If Alternative 2, 3, or 4 were selected, no additional soils would have to be removed in the carousel/amphitheater area since this work has already been performed by the Village.

COMMENT 7: What is the cost of the previous investigative work which included the tank removals? Does it include engineering costs and your time?

RESPONSE 7: The actual costs are still being determined. The budget for the investigation is $227,412. Up to 75% of this figure is eligible for funding under the brownfields investigation grant. This includes the costs of the Village's consultants and contractors who performed the work. There are no costs to the Village associated with the various NYSDEC staff who have contributed to this project.

COMMENT 8: Where would the large pile of arsenic impacted soils go?

RESPONSE 8: The remedial work will be the subject of a competitive bid. There are various facilities which could accept this material. At this time, the Department does not know which facility will be selected. However, the competitive nature of the bidding process will ensure that the material is sent to a facility which is cost effective. The bidding documents will specify that the facility which accepts this material must be in compliance with all applicable environmental laws and regulations.

APPENDIX B

Administrative Record

Administrative Record

List of Documents

1) Investigation Work Plan, 115 Front Street, Village of Greenport, September 1998 by H2M Group

2) Site Investigation Report, 115 Front Street, Village of Greenport, July 1999 by H2M Group

3) Remedial Alternatives Report, 115 Front Street Property, Village of Greenport, January 2000 by H2M Group

4) Proposed Remedial Action Plan, 115 Front Street, February 2000 by NYSDEC