Department of Environmental Conservation

**Division of Environmental Remediation**

# Environmental Restoration
# Record of Decision
## Cold Spring Former MGP Site
## Cold Spring (V), Putnam County, New York
## Site Number E340026

**February 2010**

New York State Department of Environmental Conservation
David Paterson, *Governor* Alexander B. Grannis, *Commissioner*

# DECLARATION STATEMENT
# ENVIRONMENTAL RESTORATION RECORD OF DECISION

## Cold Spring Former MGP Environmental Restoration Site
## Cold Spring (V), Putnam County, New York
## Site No. E340026

**Statement of Purpose and Basis**

The Record of Decision (ROD) presents the selected remedy for the Cold Spring Former MGP site, an environmental restoration site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Cold Spring Former MGP environmental restoration site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the Department. 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 releases of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

**Description of Selected Remedy**

Based on the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the Cold Spring Former MGP site and the criteria identified for evaluation of alternatives, the Department has selected source removal and institutional/engineering controls. The components of the remedy are as follows:

### A. Remedial Actions

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. A pre-design investigation will be necessary to confirm conditions.

2. The source area east of the existing Boat Club Building, which includes the subsurface remnants of the former MGP structure, will be excavated and transported off-site to an appropriately permitted treatment or disposal facility. This excavation will include all visible

coal tar, and will extend vertically to bedrock or the confining clay layer. The excavation will be carried out under a temporary structure to control odors and organic vapors, unless alternative controls are approved by the Department. The site will be backfilled with clean soil (granular material from a virgin source or soil meeting restricted residential SCOs). The excavation area will have a minimum of 2 feet of clean soil over any remaining soil which does not meet restricted residential SCOs, and a demarcation layer will be provided between if soil which meets SCOs overlies soils that do not meet SCOs . The complete excavation is expected to remove approximately 3,300 cubic yards of material. See Figure 5.

To the north and east, the contamination does not extend beyond any limiting physical conditions or property lines, so these sidewalls are expected to be clean (no visible tar and no confirmation samples with total PAHs above 500 ppm). To the north and west, excavation will be limited by the road and the boat club building. Contamination under the road is believed to be limited to a relatively thin seam, well below utilities. Excavation of this seam does not appear to be justified due to the lack of potential exposure to this deep contamination and the community disruption and cost associated with excavation within the roadway. Targeted excavation within the road may be necessary if contamination is observed in the sidewall which would represent a potential exposure risk to utility workers.

Significant contamination will remain under the boat club. The excavation will extend as close to the boat club building as possible without impacting the structural integrity. A low permeability barrier or other control will be provided between the boat club and the excavation to ensure the clean fill is not recontaminated. The contamination between the excavation and the building will be isolated from the surface by an appropriate, low permeability barrier. The barrier will include a demarcation layer underlying either two feet of clean soil or a one foot cover which includes an asphalt or concrete surface.

**B. Engineering Controls**

3. The existing boat club building will function as a cover to prevent exposure to the underlying contamination.

4. A barrier wall will be installed between the excavation and the remaining contamination under the building.

**C. Institutional Controls**

5. Imposition of an institutional control in the form of an environmental easement or other form acceptable to the Department which will be imposed on the property identified as lot 48.12-1-51 and which will require (a) compliance with the approved site management plan; (b) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; (c) limiting the property to restricted residential use, which will also permit commercial or industrial use, as well as the passive recreation currently taking place on the property; (d) if the boat club building is ever demolished, or if there is a significant change of use of this structure, the NYSDEC will evaluate the need for additional remediation prior to redevelopment; and (e) the property

owner is to complete and submit to the Department a periodic certification of institutional and engineering controls.

6. Development of a site management plan which will include the following institutional and engineering controls: (a) restrict excavation below the on-site soil, pavement, or the boat club building. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (b) monitoring of groundwater north and west of the boat club building.

7. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

**New York State Department of Health Acceptance**

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is 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.

FEB 04 2010

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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# Environmental Restoration
# RECORD OF DECISION

## Cold Spring Former MGP Site
**Cold Spring (V),** Putnam **County New York**
**Site No.E340026**
**February 2010**

## SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the Cold Spring Former MGP site. The presence of hazardous waste has created significant threats to human health and the environment that are addressed by the selected remedy.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Under the Environmental Restoration Program, the state provides grants to municipalities to reimburse up to 90 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 5 of this document, past operation of the former manufactured gas plant (MGP) has resulted in the disposal of hazardous wastes, including volatile organic chemicals and polycyclic aromatic hydrocarbons. These wastes have contaminated the soil and groundwater at the site, and have resulted in:

- a significant threat to human health associated with potential exposure to soil and groundwater.

- a significant environmental threat associated with the current impacts of contaminants to soil and groundwater and potential for impacts to the sediment and surface water of the adjacent Hudson River.

To eliminate or mitigate these threats, the Department selected source removal and institutional/engineering controls. Soil from the most heavily contaminated area would be excavated and disposed of or treated off-site. Remaining contamination would be isolated from the public by the existing building, soil, and asphalt cover. Institutional controls would provide for the continued monitoring of the remaining contamination, restrict the use of groundwater, and would require a site management plan (SMP) which would address any future intrusive activities.

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

criteria and guidance are hereafter called SCGs.

## SECTION 2: SITE LOCATION AND DESCRIPTION

The Cold Spring Former Manufactured Gas Plant (MGP) site is located at 5 New Street in the Village of Cold Spring, Putnam County, New York (Figure 1). The site occupies the eastern portion of a real estate parcel owned by the Village of Cold Spring. The western portion of the parcel is leased to the Cold Spring Boat Club. The Boat Club building is the only structure on the parcel. A parking lot serving the Hudson House River Inn is also located on that parcel, just east of the Boat Club building. The MGP itself (approximately 0.2 acres) occupies a portion of that parking lot and the grass-covered area directly to the east. See Figure 1 for the layout of the site and its surroundings.

Along the southern site boundary, outcropping rock is exposed, with no soil cover. Soil thicknesses increase steadily to the north and west. The soils on the northern side of the site consist of historic fill material to a depth of 11-13 feet, consisting of a mixture of building debris, wood fragments, and loose soils which were placed on the site during historic times to level the site for development. The fill is underlain by a clay layer which appears to be at least 15 feet thick, which in turn overlies the bedrock.

Most of the contamination related to the former MGP is contained in the fill material. Most of the movement of site contaminants has also occurred in this unit, since the underlying clay and bedrock are far less permeable.

Both groundwater and surface water flow generally from the northeast to the southwest, toward the Hudson River.

## SECTION 3: SITE HISTORY

### 3.1: Operational/Disposal History

The MGP used a “coal carbonization” process which involved heating of coal in a closed vessel with minimal air contact, converting the coal to coke and releasing a combustible gas which was piped into the surrounding community for lighting, heating, and cooking purposes. The principal waste product was coal tar, which is a dark brown to black liquid with an objectionable odor similar to driveway sealer. Coal tar condensed from the hot gas produced by the plant as it cooled.

Although coal tar was typically considered a waste product, it was also sometimes used in chemical processing and for wood treatment. This may be relevant at this location since the property across the street at One Main Street was historically a lumber yard.

Historic information on the MGP operation at this site is sparse, due to the age of the facility. The MGP operated in the mid-to-late 1800's, and apparently ceased operations before 1887. The

earliest available fire insurance map for the site, dated 1887, states that the retort building was vacant, which indicates that the plant was no longer operating at that time. The records of the New York State Public Service Commission, which are typically used to research the history of MGP sites, begin in 1907 and contain no reference to gas manufacturing operations in Cold Spring.

Subsequent utility providers in the Village did not provide gas, so it does not appear that environmental liability for the plant site was passed on. The earliest known subsequent utility provider was the Cold Spring Light Heat and Power Company, which was established on October 16, 1899. A review of their Public Service Commission records did not reveal any history of gas service.

## 3.2: Remedial History

In February, 2005, a shallow archaeological excavation at One Main Street (the former lumber yard, across the street from the MGP site) encountered black-stained soil. This was reported to the NYSDEC as a petroleum spill (Spill #04-12054). An environmental contractor was hired by the site owner to investigate the suspected spill. Soil samples were collected from the four archeological test pits and also from four new soil boring locations on the One Main Street site, and submitted for laboratory analysis.

The analyses of these samples identified significant subsurface contamination at only one test pit location. The contaminant was tentatively identified as coal tar, not the originally suspected petroleum. Historic research by NYSDEC staff identified maps which showed the location of a historic MGP, across the street from the reported spill location. Consequently, Spill #04-12054 was closed and the site was referred to NYSDEC staff who specialize in investigating coal tar contaminated sites.

The small area of contamination on the lumber yard property was remediated under NYSDEC oversight in June of 2006. All MGP related contamination was excavated and transported off-site for treatment/disposal. Confirmation samples did not detect any remaining MGP related chemicals in the sidewalls or bottom of the excavation. The property was subsequently redeveloped for residential use. The area of this remediation is shown on Figure 1.

Between May 11 and 13, 2005 a site characterization investigation was conducted by the NYSDEC. Eleven soil borings were completed, and three of these borings were completed as monitoring wells. Five soil samples and 3 groundwater samples were collected and analyzed for site-related contamination. The June 2005 PSA Report confirmed the existence of the MGP site and recommended a full Remedial Investigation to fully characterize the nature and extent of contamination at the site.

In April 2007, the Village of Cold Spring applied for admittance into the Environmental Restoration Program (ERP), and on August 9, 2007, their application was approved. The Remedial Investigation and alternatives analysis were carried out by the Village under this program.

## SECTION 4: ENFORCEMENT STATUS

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

Based the review of historical information to date, there does not appear to be an identifiable corporate successor to the original gas plant operator.

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 Cold Spring 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 Department.

## SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

### 5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. Field work for the RI took place from September to November, 2008. The results were presented in the Site Investigation/Remedial Alternatives Report dated April 2009.

#### 5.1.1: Standards, Criteria, and Guidance (SCGs)

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

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

- Soil SCGs are based on the Department's Cleanup Objectives (6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives).

- Soil vapor intrusion assessment was conducted using the New York State Department of Health's "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" October

2006.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

### 5.1.2: Nature and Extent of Contamination

The principal waste product produced at the former MGP site was coal tar, which is an oily, dark colored liquid with a strong, objectionable odor. Unlike most materials labeled as "tar", this is not a semi-solid, viscous material. Rather, it has a physical consistency similar to motor oil, which enables it to move through the subsurface. Coal tar is referred to as a dense non-aqueous phase liquid or DNAPL since it is slightly heavier than water and will not readily dissolve in water. When released into the subsurface, it will sink through the groundwater until it reaches some less permeable material which it cannot penetrate. It can, under certain conditions, move laterally away from the point where it was initially released.

The tar contains high levels of volatile and semi-volatile organic compounds (VOCs and SVOCs). The principal VOCs are benzene, toluene, ethylbenzene, and xylenes. These compounds, collectively known as BTEX, are slightly soluble in water. Groundwater which comes into contact with tar or tar-contaminated soils will become contaminated with BTEX compounds. This contaminated groundwater can then move through the subsurface along with the ordinary groundwater flow.

The principal SVOCs in the tar are a group of compounds known as polycyclic aromatic hydrocarbons, commonly abbreviated as PAHs. PAH compounds are generally less soluble than BTEX, and are consequently less likely to dissolve in groundwater. This makes PAH compounds less mobile in the subsurface, so the highest levels of PAHs are normally found in close proximity to the tar from which they are derived. The specific semivolatile organic compounds of concern in soil and groundwater are the following polycyclic aromatic hydrocarbons (PAHs):

| | | | |
|---|---|---|---|
| acenaphthene | acenaphthylene | anthracene | benzo(a)anthracene |
| benzo(a)pyrene | benzo(b)fluoranthene | benzo(g,h,i)perylene | benzo(k)fluoranthene |
| dibenzo(a,h)anthracene | chrysene | fluoranthene | fluorene |
| indeno(1,2,3-cd) pyrene | 2-methylnaphthalene | naphthalene | phenanthrene |
| pyrene | | | |

In this document, PAH concentrations are referred to as total PAHs (TPAHs). The TPAH concentration is the sum of the concentrations of each PAH listed above.

All of the BTEX and PAH contaminants which dissolve in groundwater are subject to degradation by natural processes. Common soil bacteria are capable of using these chemical compounds as a food source, converting them to carbon dioxide and water. This degradation process takes place more rapidly when abundant oxygen is present in the groundwater, and can

in many cases be expedited by the introduction of additional oxygen. However, contaminants which still remain in the tar itself, undissolved in water, remain beyond the reach of bacteria and can remain in their undegraded state indefinitely.

Figures 2 and 3 summarize the degree of contamination for the contaminants of concern in soil, groundwater, sediment and surface water and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

## Waste Materials

The distribution of tar is shown on Figure 2. Tar was found as a discrete substance - as visible droplets or pools of liquid - in the vicinity of the subsurface remains of the former MGP structures. From the structures, tar has migrated downward to the underlying clay, and tar is still seen throughout this interval near the former MGP structures. Tar also appears to have migrated through the subsurface soils to the west, toward the Hudson River. Tar contamination is found in successively thinner and less prominent layers as distance from the MGP site increases. Only thin seams of contamination are found near the river bank.

One soil boring near the Hudson River, identified as SB-15, requires special comment. This boring was originally described as having coal tar impacts from 13-15 feet below ground surface, but subsequent boring logs included observations of coal tar droplets ("blebs") as shallow as 5 feet below ground surface. It will be necessary to conduct additional investigations in this area during the pre-design investigation to clarify this discrepancy. The coal tar migrating from the MGP structures appears to be deeper than 10 feet in this area, so any shallow coal tar is likely from discrete dumping or possibly from wood treatment activities. The description in the boring log of the shallow impacts is consistent with shallow impacts observed at the lumberyard.

To the south of the site, there is very little soil cover over the bedrock. The soil cover becomes thicker to the north, where a row of uncontaminated borings along the northern edge of New Street establishes a "clean line" beyond which the tar has not migrated. Downward migration of tar is limited in most locations by a continuous layer of clay at approximately 10-13 feet below ground surface. This clay layer becomes thinner to the south. Along the southern boundary of the site, the clay is absent and tar was found in direct contact with the bedrock.

The bedrock in this area has very little primary porosity, so the bedrock is not expected to be a significant reservoir or conduit of tar. However, no bedrock borings have been completed to date. It is possible, but unlikely, that some tar may be present in fractures in the bedrock. This possibility will need to be evaluated during the pre-design investigation.

Waste identified during the RI/FS will be addressed in the remedy selection process.

## Subsurface Soil

Subsurface soil in the vicinity of coal tar is contaminated with PAHs and BTEX compounds.

Total PAH concentrations ranged from not detected (in 2 of 19 samples) to 1,896 ppm in boring SB-10. The highest PAH levels were in the area of the subsurface coal tar deposits discussed above. Total BTEX concentrations ranged from not detected (in 8 of 19 samples) to 833 ppm in sample SB-4. The highest BTEX levels were in the area of the subsurface coal tar deposits discussed above. Cyanide was not detected in any samples at levels above SCGs.

Subsurface soil contamination identified during the RI/FS will be addressed in the remedy selection process.

### Surface Soil

MGP-related contamination was not identified. Concentrations of MGP-related compounds were generally consistent with typical background levels. Elevated TPAHs were observed at one location, SS-5, at levels of 364 ppm; however, this is not believed to be related to the MGP. There was no visual or olfactory evidence of MGP contamination observed at this location. Historic dumping of ash or other material could account for the analytical results.

Regardless of the source, the surface soils near location SS-5 will be addressed by the remedy selection process.

### Groundwater

Monitoring wells were constructed and groundwater samples were collected from wells located both on and off the site. MGP related chemicals were found at levels above applicable SCGs in the groundwater in each of the three source areas where tar was found in the subsurface soil.

Total BTEX concentrations ranged from not detected (in 4 of 7 samples) to levels of 20 ppb in GW-4, which is located west of the boat club building. GW-4 was the only well where VOCs were found at concentrations above groundwater quality standards. Total PAH concentrations in on-site groundwater ranged from not detected (in 3 of 7 samples) to 78 ppb in GW-4. Wells with elevated levels of PAHs are located west of the boat club building. Cyanide was not detected at levels above SCGs.

Groundwater contamination identified during the RI/FS will be addressed by the remedy selection process.

### Sediments

Three shallow sediment samples were collected from the Hudson River, adjacent to the site. No site-related contamination was detected. Total PAH concentrations ranged from 0.9 ppm to 2.4 ppm. BTEX chemicals and cyanide were not detected in any samples.

Since sediments investigated were not impacted by the contamination at this site, no remedial alternatives will be evaluated for sediments.

**Soil Vapor/Sub-Slab Vapor/Air**

A vapor intrusion investigation was completed at the boat club building. No significant soil vapor impacts were observed; therefore, no remedial alternatives will be evaluated for soil vapor.

## 5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. There were no IRMs performed at this site during the RI/FS.

## 5.3: 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 human exposure pathways can be found in Section 8.3 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.
The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

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

Under the current and future use scenarios, the following potential exposure pathways have been identified:

- On-site and off-site workers and utility workers may come in contact with MGP waste during sub-surface excavation and may be exposed to site related contamination through dermal contact, incidental ingestion, or inhalation of vapors and airborne particulates.

- While the potential for future exposures resulting from ingestion to contamination in on-site and off-site groundwater is unlikely due to the availability of a public water supply, the potential exposure to contaminated groundwater exists, if a drinking water well were to be installed.

## 5.4: Summary of Environmental Assessment

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

The following environmental exposure pathways and ecological risks have been identified:

- Coal tar has impacted the groundwater resource in the shallow aquifer at the site, and contamination is migrating off-site as a non-aqueous phase liquid (NAPL) and in the groundwater in a dissolved phase.

- While there is no evidence that coal tar has migrated to the Hudson River, there is a need to eliminate the source and control migration to prevent possible migration in the future.

# SECTION 6: SUMMARY OF THE REMEDIATION GOALS

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

The remediation goals for this site are to prevent, eliminate or reduce to the extent practicable:

Groundwater
- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards. Prevent contact with contaminated groundwater.
- Restore the groundwater aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of groundwater contamination.

Soil
- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.
- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards and

- recommended soil cleanup objectives in the Department's Cleanup Objectives (Determination of Soil Cleanup Objectives and Cleanup Levels." and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives).

## SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Cold Spring former MGP site were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

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

### 7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated soil, groundwater, and sediment at the site.

#### Alternative 1: No Action

*Present Worth:* .....$0
*Capital Cost:* .....$0
*Annual Costs:*
*(Years 1-30):* .....$0

The No Action Alternative is 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.

#### Alternative 2: Soil Removal - Contamination above Restricted Residential Levels

*Present Worth:* .....$6,151,700
*Capital Cost:* .....$6,151,700
*Annual Costs:*
*(Years 1-30):* .....$0

This alternative (shown in Figure 4) would maximize removal of coal tar and contaminated soil from the site. All coal tar-contaminated soil, MGP structures/piping and soil exceeding the Soil Cleanup Objectives for restricted Residential uses (an estimated 14,700 cubic yards) would be removed. Removed material would be transported off site to appropriately licensed treatment and disposal facilities. The site would then be backfilled with clean fill material. This alternative would include removal of the existing Boat Club building and closing of New Street during the excavation.

**Alternative 3: Partial Removal**

*Present Worth:* .....$1,792,600
*Capital Cost:* .....$1,632,600
*Annual Costs:*
*(Years 1-30):* .....$5,000

As shown in Figure 5, this alternative would remove the MGP structures and adjacent soil which represent the "source area" at this site. The excavation would remove the remaining MGP structures and all soil east of the boat club building and south of New Street which contains visible coal tar. The southern limit of the excavation area is bounded by a rock outcropping. Adjacent to the outcrop, the excavation would be limited (vertically) to the top of bedrock. To the north, a clay layer approximately 10-12 feet below ground surface overlays the bedrock and limits the downward migration of coal tar. The excavation would be expected to be vertically bounded by that clay layer in the northern half of the proposed excavation area. Excavated material (an estimated 3,300 cubic yards) would be transported off-site for treatment or disposal. Remaining contamination in the excavation area would be separated from clean backfill (meeting restricted residential soil cleanup objectives) by a demarcation layer. All remaining contamination would be on property owned by the Village, and would be addressed by an institutional control in the form of an environmental easement or deed restriction and an associated site management plan (SMP). The SMP would include provisions for continued monitoring of groundwater and of contamination near the Hudson River, would require periodic certification, and would limit intrusive work where contamination remains under the boat club building and between the building and the Hudson River.

**Alternative 4: Partial Removal with Off-Site In-Situ Solidification**

*Present Worth:* .....$2,224,700
*Capital Cost:* .....$2,086,700
*Annual Costs:*
*(Years 1-30):* .....$5,000

As shown in Figure 6, this Alternative would remove the same material as described in Alternative 3. It would augment that alternative by including a subsurface barrier near the Hudson River to contain the remaining contamination to assure it would not reach the Hudson River. While the detailed construction of the barrier would be determined during the remedial

design, an area of in-situ solidification is proposed, which would provide a more reliable barrier than conventional sheet piling or slurry walls and which would provide the added benefit of immobilizing the contamination closest to the River. Remaining contamination would be addressed by institutional controls in the form of an environmental easement and an associated site management plan. The SMP would include provisions for continued monitoring of groundwater and of contamination near the Hudson River and periodic certification, and would limit intrusive work where contamination remains under the boat club building, and between the building and the Hudson River.

**Alternative 5: In Situ Solidification**

*Present Worth:*.....$1,383,000
*Capital Cost:*.....$1,223,000
*Annual Costs:*
*(Years 1-30):*.....$5,000

This Alternative would treat the area east of the Boat Club building using in-situ solidification (ISS). This technology uses excavators to mix cement and other materials with the soil to form a low permeability, high strength monolith which would prevent the contamination from moving. The subsurface barrier wall described in alternative 4 would also be included in this alternative. Remaining contamination would be addressed by institutional and engineering controls in the form of an environmental easement which would require a site management plan providing for continued groundwater monitoring, and periodic certification

## 7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York A detailed discussion of the evaluation criteria is included in the FS report and a comparative analysis is provided in Section 8.

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

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative’s ability to protect public health and the environment. Alternative 4 would be protective of public health and the environment since the shallow coal tar impacted soil (source material) would be removed for off-site treatment/disposal and the source material at depth and remaining soil and groundwater contamination remaining on-site, would be physically isolated from human or environmental receptors.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis. Alternative 4 would

comply with SCGs by removing or controlling the media impacted by the MGP contamination at levels exceeding SCGs.

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

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives. Alternative 4 would have some short term impacts during implementation, but these impacts could be mitigated using well established operating practices.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls. Alterative 4 would be effective in the long term since the shallow coal tar impacted soil (source material) would be removed for off-site treatment/disposal and the source material at depth and remaining soil and groundwater contamination remaining on-site, would be physically isolated from human or environmental receptors.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site. Alternative 4 would be effective in reducing the toxicity, mobility and volume of contamination since the shallow coal tar impacted soil (source material) would be removed for off-site treatment/disposal. The mobility of the remaining soil and groundwater contamination remaining on-site would be controlled by the subsurface containment barrier

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth. Alternative 4 would be readily implementable.

7. Cost-Effectivness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2. Alternative 4 would be cost effective.

8. Land Use - The current, intended, and reasonably anticipated future use of the site are considered where restoration to pre-disposal conditions is not feasible. Preference is given to

alternatives which would allow the full range of planned or anticipated uses without unreasonable use restrictions. Alternative 4 would allow the site to be used for commercial/industrial purposes, which is the intended and reasonably anticipated use of the site. If residential use were proposed in the future, this change of use would have to be approved by the NYSDEC and NYSDOH. Additional soil cover would be required, and the potential for soil vapor intrusion would have to be addressed. The site management plan and environmental easement would also have to be modified.

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

9. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised. In general, the public comments received were supportive of the selected remedy. Several comments were received, however, pertaining to potential impact to the community during remedial action, which will be addressed during the remedial design.

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York State. For each criterion, a brief description is provided, followed by an evaluation of the alternatives against that criterion. The rationale for the remedy appears in Section 8.

## SECTION 8: SUMMARY OF THE SELECTED REMEDY

### 8.1 Selected Remedy and basis for Selection

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 3: Partial Removal with Institutional Controls as the remedy for this site. The elements of this remedy are described at the end of this section.

The selected remedy is based on the results of the RI, the evaluation of alternatives presented in the FS, and the analysis presented below. Alternative 3 has been selected because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. A detailed comparative analysis of each alternative to each criterion is provided below:

The No Action alternative would not be protective of human health or the environment since it would not achieve the threshold criterion of protectiveness as described in Section 7. It is not considered further. Each of the remaining alternatives would be protective of human health and the environment, but would attain this protectiveness through different means.

Alternatives 3 and 4 would remove most of the significant contamination at this site (the "source

area"). Alternative 2 would additionally remove the contamination that has migrated from the source area toward the Hudson River. Most of this material is located at least 10 feet below ground surface, well below both utilities and the water table, so utility workers coming into contact with this contamination is unlikely. The additional excavation in Alternative 2 would also be far more disruptive to the community, including the closure of the roadway and disruption to the boat club and marina. This community is particularly sensitive to the potential disruption due to the fairly recent completion of the Marathon Battery cleanup (site number 3-40-006). The additional removal considered in Alternative 2 would have significantly greater short term impacts (i.e. community disruption), higher cost, and would not result in a significant decrease in exposure risk, as compared to Alternatives 3 and 4. As such, Alternatives 3 and 4 would be preferred over Alternative 2.

Alternative 4 includes an additional barrier to migration of contamination toward the Hudson River over Alternative 3. There is no evidence that the contamination extends past the shoreline into the Hudson River. Removing the source material would eliminate the driving force which resulted in migration toward the river in the past, and the potential for future migration would be significantly reduced. If pre-design monitoring should provide additional concerns regarding potential migration, then additional measures could be considered. However, absent these concerns, installing a subsurface barrier could create more problems than benefits. The process of forcing low permeability material into the ground (in-situ solidification) could force the contamination into previously uncontaminated areas. The barrier would also change the flow of groundwater which could also lead to mobilization of contamination, as well as causing groundwater mounding, which could lead to groundwater appearing is basements, utilities or even surfacing.

Alternative 3 is preferred over Alternative 5 because it would permanently remove the contamination instead of encapsulating it on-site. The remediation of contaminated sites in New York State is carried out pursuant to a number of standards, criteria, and guidance (SCGs). The principal SCGs are contained in 6 NYCRR Part 375 (Part 375). Section 1.8.c of Part 375 provides a hierarchy of source removal and control measures which are to be used, ranked in order of preference. This hierarchy also guides the Department in comparing how different alternatives achieve the required protection of human health and the environment. The preferred option is removal and/or treatment of all source material. This would provide a preference for the removal alternatives over the use of in-situ solidification. In this case, due to the limited volume and shallow depth of the material to be removed, the cost savings for Alternative 5 over Alternative 3 is not sufficient to justify leaving the contamination in place.

## 8.2 **Elements of the Selected Remedy**

The estimated present worth cost to implement the remedy is $1,792,600. The cost to construct the selected remedy is estimated to be $1,632,600 and the estimated average annual costs for 30 years is $5,000.

The elements of the selected remedy are as follows:

## A. Remedial Actions

3. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. A pre-design investigation will be necessary to confirm conditions.

4. The source area east of the existing Boat Club Building, which includes the subsurface remnants of the former MGP structure, will be excavated and transported off-site to an appropriately permitted treatment or disposal facility. This excavation will include all subsurface remains of the former MGP structures, including piping, and all soil containing visible coal tar. The excavation will extend vertically to bedrock or the confining clay layer.

   The excavation will be carried out under a temporary structure to control odors and organic vapors, unless alternative controls are approved by the Department. The site will be backfilled with clean soil (granular material from a virgin source or soil meeting restricted residential SCOs). The excavation area will have a minimum of 2 feet of clean soil over any remaining soil which does not meet restricted residential SCOs, and a demarcation layer will be provided between if soil which meets SCOs overlies soils that do not meet SCOs. The complete excavation is expected to remove approximately 3,300 cubic yards of material. See Figure 5.

   To the north and east, the contamination does not extend beyond any limiting physical conditions or property lines, so these sidewalls are expected to be clean (no visible tar and no confirmation samples with total PAHs above 500 ppm). To the north and west, excavation will be limited by the road and the boat club building. Contamination under the road is believed to be limited to a relatively thin seam, well below utilities. Excavation of this seam does not appear to be justified due to the lack of potential exposure to this deep contamination and the community disruption and cost associated with excavation within the roadway. Targeted excavation within the road may be necessary if contamination is observed in the sidewall which would represent a potential exposure risk to utility workers.

   Significant contamination will remain under the boat club. The excavation will extend as close to the boat club building as possible without impacting the structural integrity. A low permeability barrier or other control will be provided between the boat club and the excavation to ensure the clean fill is not recontaminated. The contamination between the excavation and the building will be isolated from the surface by an appropriate, low permeability barrier. The barrier will include a demarcation layer underlying either two feet of clean soil or a one foot cover which includes an asphalt or concrete surface.

## B. Engineering Controls

3. The existing boat club building will function as a cover to prevent exposure to the underlying contamination.

4. A barrier wall will be installed between the excavation and the remaining contamination

under the building.

### C. Institutional Controls

5. Imposition of an institutional control in the form of an environmental easement or other form acceptable to the Department which will be imposed on the property identified as lot 48.12-1-51 and which will require (a) compliance with the approved site management plan; (b) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; (c) limiting the property to restricted residential use, which will also permit commercial or industrial use, as well as the passive recreation currently taking place on the property; (d) if the boat club building is ever demolished, or if there is a significant change of use of this structure, the NYSDEC will evaluate the need for additional remediation prior to redevelopment; and (e) the property owner is to complete and submit to the Department a periodic certification of institutional and engineering controls.

6. Development of a site management plan which will include the following institutional and engineering controls: (a) restrict excavation below the on-site soil, pavement, or the boat club building. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (b) monitoring of groundwater north and west of the boat club building.

7. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

## SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the environmental restoration process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.
- Fact sheets were produced prior to the Site Characterization field work, upon the release

of the Site Characterization Report, following remediation of the lumberyard, prior to the field work for the Remedial Investigation, and upon the release of the PRAP.

- Representatives from the Department attended Village board meetings to discuss the site in November 2005, March 2006, and October 2007.

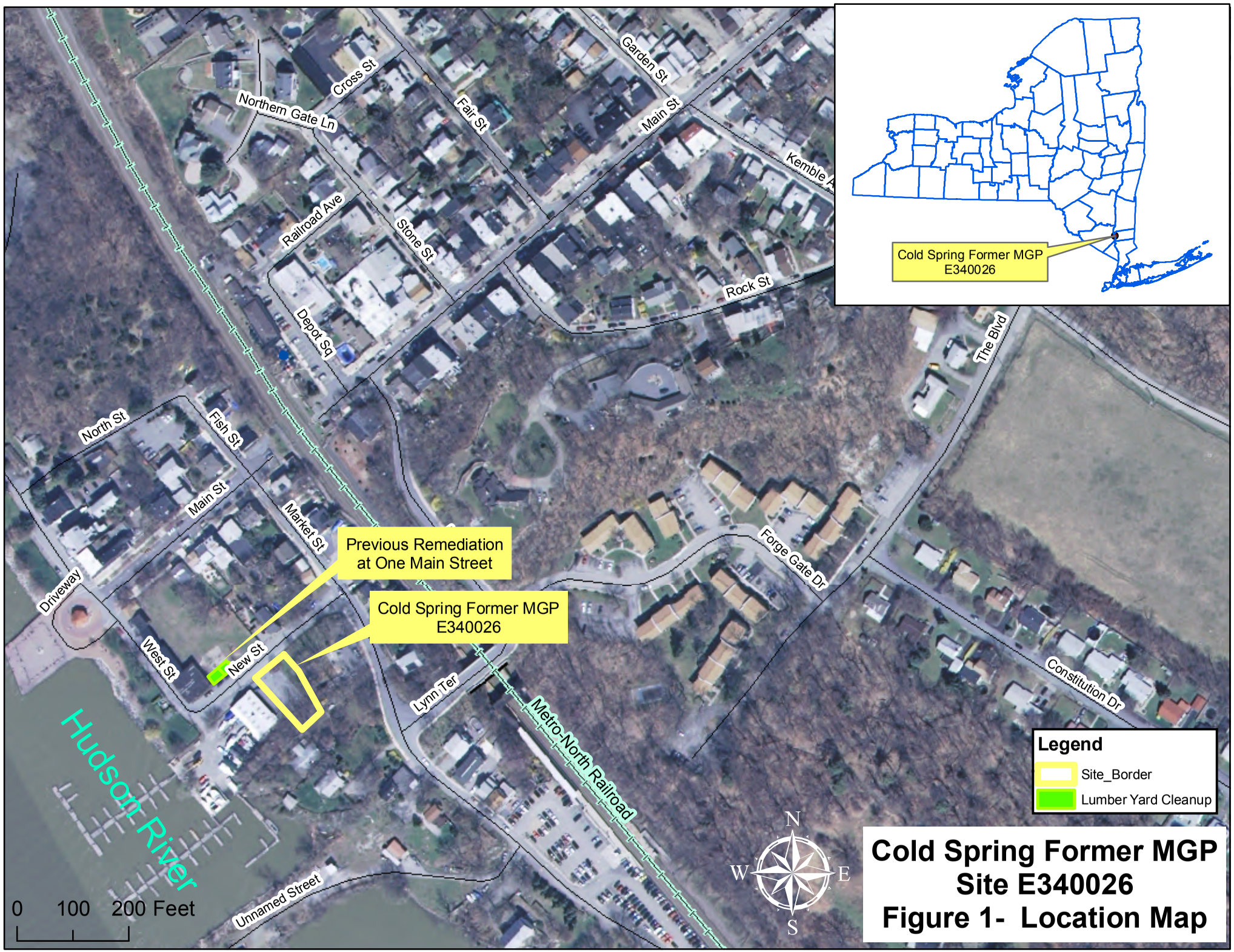
- Representatives from the Department met with Village officials and members of the Cold Spring Boat Club in September 2009 to discuss potentially excavating contamination under the boat club building.

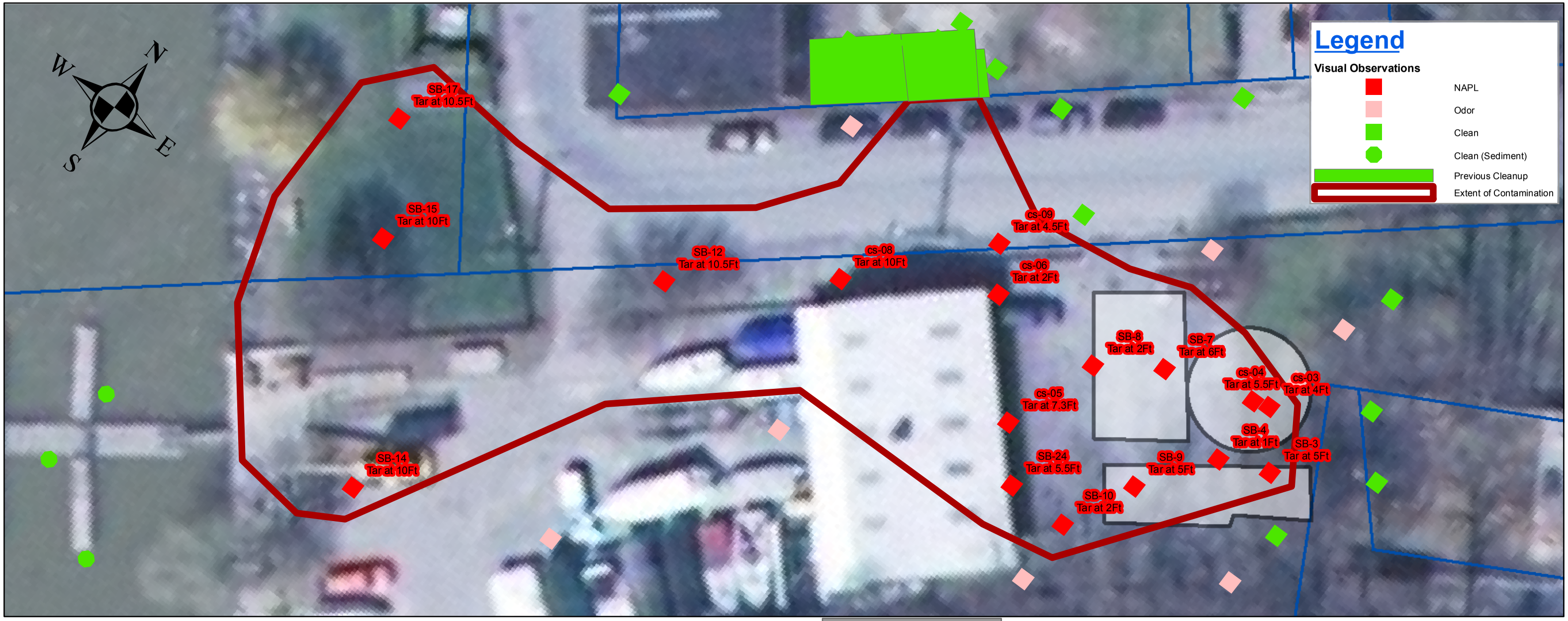
- A public meeting was held on December 2, 2009 to present and receive comment on the PRAP.

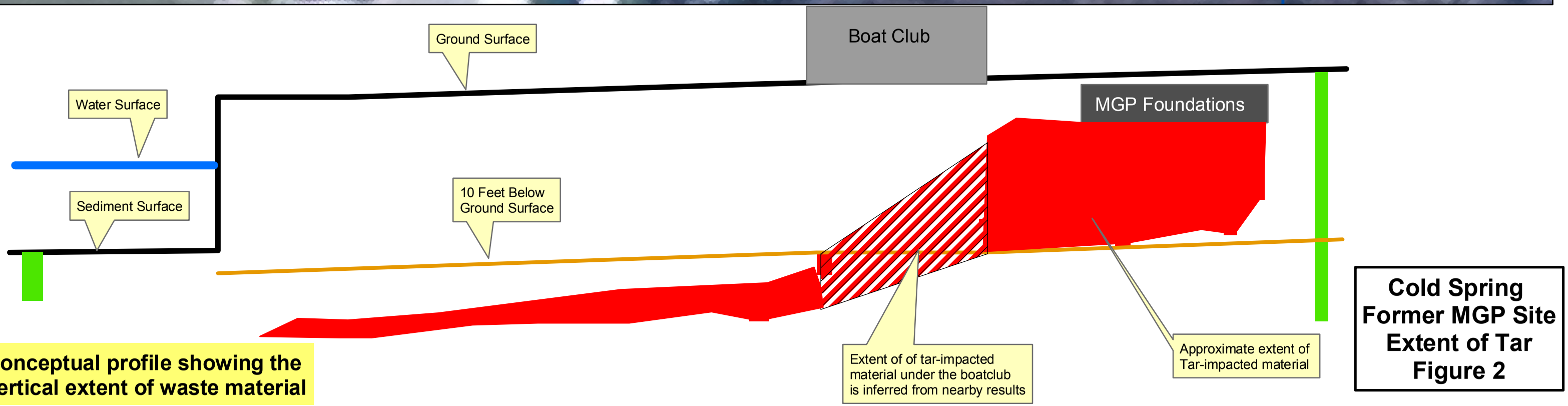
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

**Table 1**
**Remedial Alternative Costs**

| Remedial Alternative | Capital Cost ($) | Annual Costs ($) | Total Present Worth ($) |
|---|---|---|---|
| **1. No Action** | $0 | $0 | $0 |
| **Alternative 2: Soil Removal - Contamination above Restricted Residential Levels** | $6,151,700 | $0 | $6,151,700 |
| **Alternative 3: Partial Removal with Institutional Controls** | $1,632,600 | $5,000 | $1,792,600 |
| **Alternative 4: Partial Removal with Engineering Controls** | $2,086,700 | $5,000 | $2,246,700 |
| **Alternative 5: In Situ Solidification** | $1,233,000 | $5,000 | $1,383,000 |
| | | | |

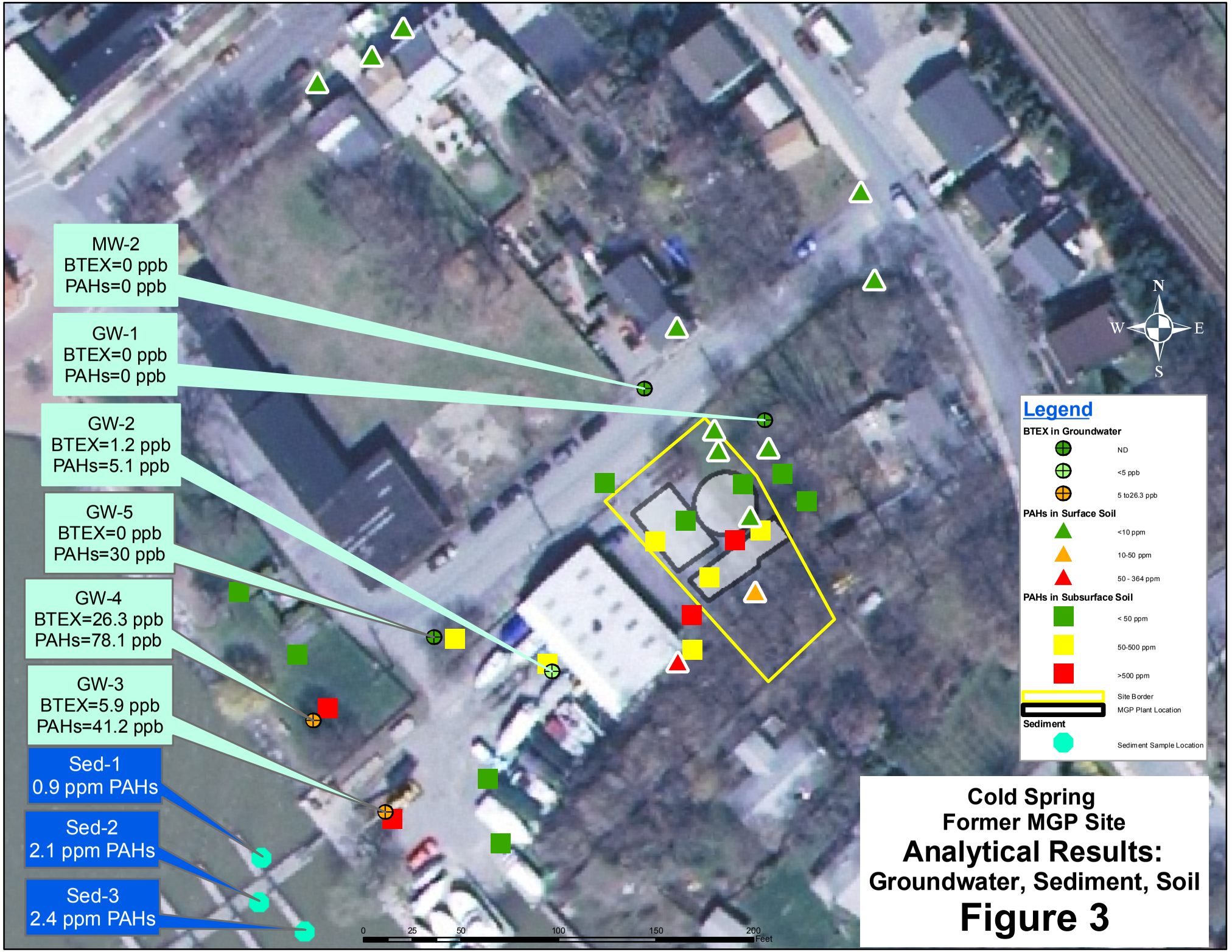

Cross St
Northern Gate Ln
Fair St
Garden St
Main St
Kemble Ave
Railroad Ave
Stone St
Depot Sq
Rock St
The Blvd
North St
Fish St
Main St
Market St
Forge Gate Dr
Driveway
West St
New St
Lynn Ter
Constitution Dr
Metro-North Railroad
Hudson River
Unnamed Street
Previous Remediation at One Main Street
Cold Spring Former MGP E340026
Cold Spring Former MGP E340026
Legend
Site_Border
Lumber Yard Cleanup
N
W
E
S
0 100 200 Feet
Cold Spring Former MGP Site E340026
Figure 1- Location Map

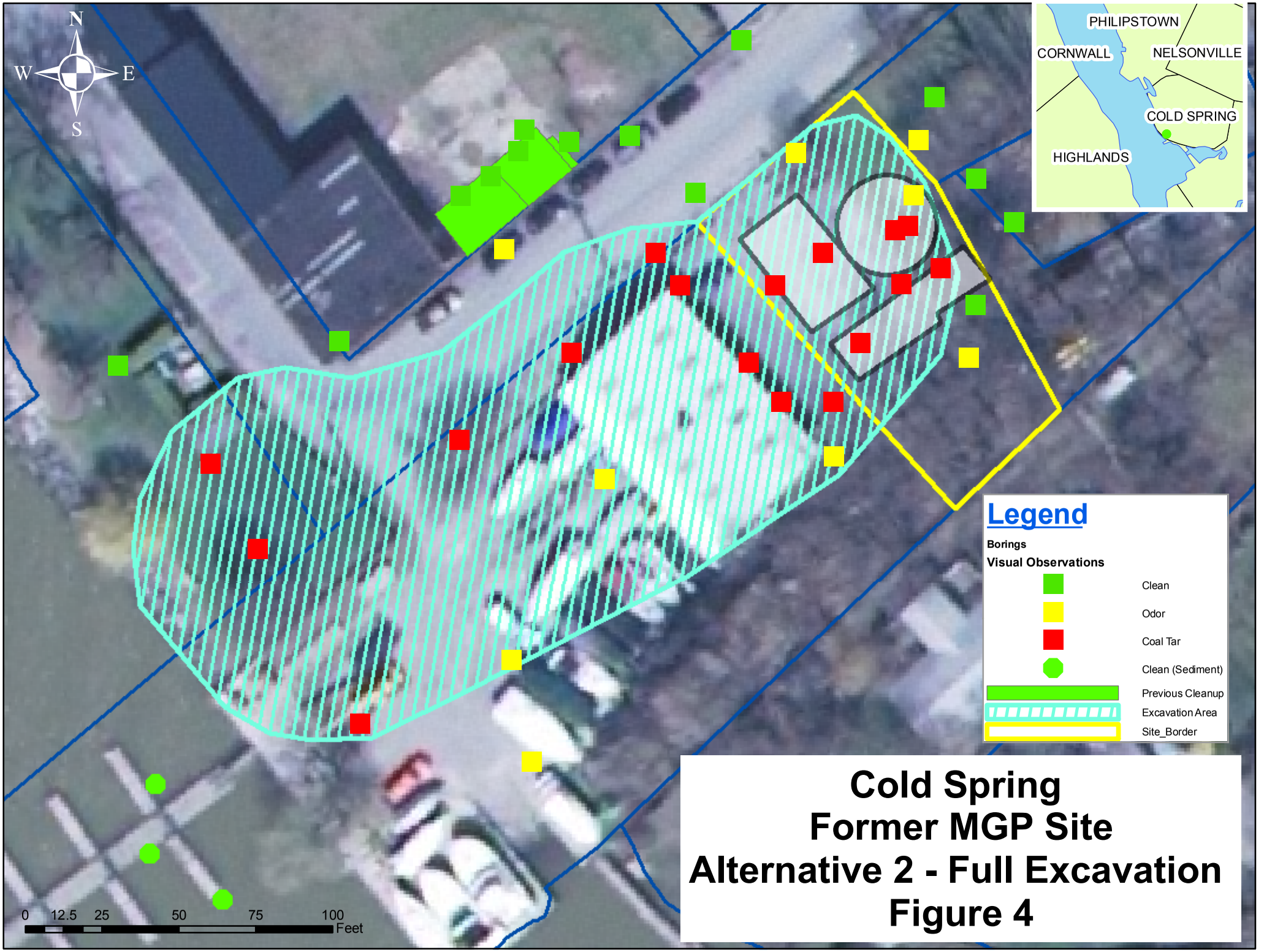


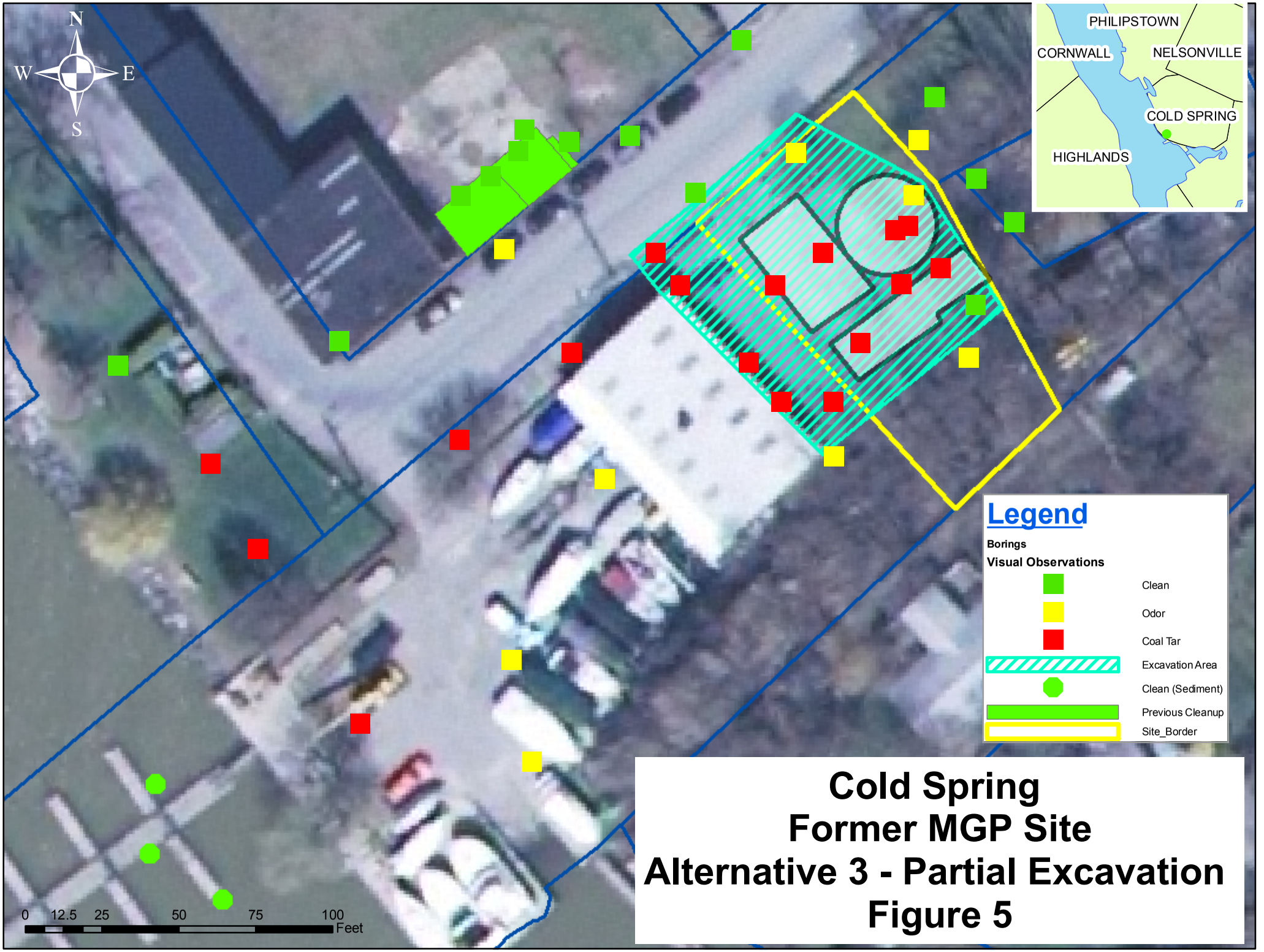




**Conceptual profile showing the vertical extent of waste material**

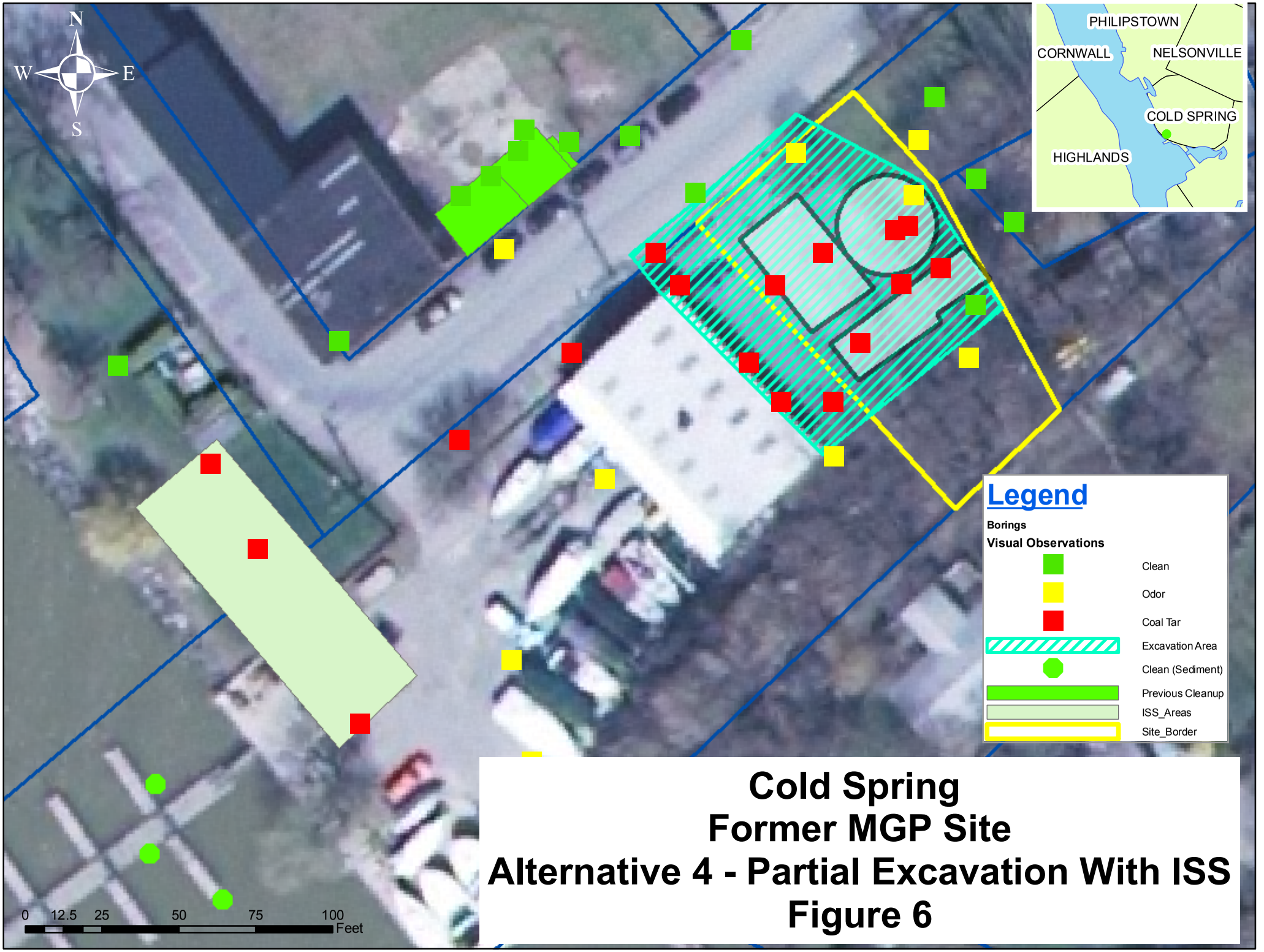
**Cold Spring Former MGP Site Extent of Tar Figure 2**


MW-2
BTEX=0 ppb
PAHs=0 ppb
GW-1
BTEX=0 ppb
PAHs=0 ppb
GW-2
BTEX=1.2 ppb
PAHs=5.1 ppb
GW-5
BTEX=0 ppb
PAHs=30 ppb
GW-4
BTEX=26.3 ppb
PAHs=78.1 ppb
GW-3
BTEX=5.9 ppb
PAHs=41.2 ppb
Sed-1
0.9 ppm PAHs
Sed-2
2.1 ppm PAHs
Sed-3
2.4 ppm PAHs
N
W
E
S
Legend
BTEX in Groundwater
ND
<5 ppb
5 to26.3 ppb
PAHs in Surface Soil
<10 ppm
10-50 ppm
50 - 364 ppm
PAHs in Subsurface Soil
< 50 ppm
50-500 ppm
>500 ppm
Site Border
MGP Plant Location
Sediment
Sediment Sample Location
0
25
50
100
150
200
Feet
Cold Spring
Former MGP Site
Analytical Results:
Groundwater, Sediment, Soil
Figure 3


N
W
E
S
PHILIPSTOWN
CORNWALL
NELSONVILLE
COLD SPRING
HIGHLANDS
Legend
Borings
Visual Observations
Clean
Odor
Coal Tar
Clean (Sediment)
Previous Cleanup
Excavation Area
Site_Border
0 12.5 25 50 75 100
Feet
Cold Spring
Former MGP Site
Alternative 2 - Full Excavation
Figure 4




# Cold Spring
# Former MGP Site
# Alternative 3 - Partial Excavation
# Figure 5




# Cold Spring
# Former MGP Site
# Alternative 4 - Partial Excavation With ISS
# Figure 6

# APPENDIX A

## Responsiveness Summary

# RESPONSIVENESS SUMMARY

## Cold Spring Former MGP Environmental Restoration Site
## Cold Spring (V), Putnam County, New York
## Site No. E340026

The Proposed Remedial Action Plan (PRAP) for the Cold Spring Former MGP site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on November 9, 2009. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the Cold Spring Former MGP site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on December 2, 2009, which included a presentation of the Site Investigation (SI) and the 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. The public comment period for the PRAP ended on January 4, 2010.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

**COMMENT 1:** What do the different colors on the sampling map indicate? (see Figure 4).
**RESPONSE 1:** The locations that are shown in red have visible tar. The locations in green are free of any visible contamination. The other colors have an odor or sheen, but no visible tar.

**COMMENT 2:** How long will it actually take to remove all the soil?
**RESPONSE 2:** The excavation is expected to take a few months. The duration of work will depend primarily on treatment capacity and transportation. The project is expected to take 6-9 months including time to setup and restore the site.

**COMMENT 3:** Will this contaminated soil be treated on-site or off site?
**RESPONSE 3:** The contamination will be treated/disposed off-site.

**COMMENT 4:** If this has been in the ground for over 100 years, why do you have to dig it out now?
**RESPONSE 4:** The contamination represents a potential threat to public health and the environment. The concern is exposure to underground utility workers or others excavating at the site. The site came to the Department’s attention because someone dug into shallow soil contaminated with waste and reported a petroleum spill. The heaviest and shallowest contamination is located at the location of the former gas plant, behind the present-day boat club building. The significant deposit of waste in this area results in the migration of the thin layer of

contamination identified between the boat club building and the River. With this contamination in place, activities such as construction, or dewatering in this area could mobilize the tar and lead to the contamination entering the Hudson River.

**COMMENT 5:** Web sites I've researched say coal tar is used in shampoo and skin cream. If that is the case, what exactly is the threat from this stuff?
**RESPONSE 5:** Coal tar, as well as some of the chemicals in coal tar (e.g., benzene), is known to cause cancer in humans who have been exposed to high levels over long periods of time. Pure coal tar is also known to cause other types of health effects, such as irritation of the respiratory tract, eyes and skin. Since coal tar has the ability to cause cancer in humans, measures are taken to reduce the potential for long-term human exposure to this contaminant in soil. Small amounts of coal tar are permitted in some medicated shampoos, soaps and ointments, since some of the ingredients in coal tar are effective in treating certain skin conditions, such as psoriasis. The FDA permits over the counter products to contain coal tar concentrations between 0.5 and 5%.

**COMMENT 6:** This work will create exposure issues for the community that doesn't presently exist. Why not just leave it and cap it?
**RESPONSE 6:** As determined in the ROD, a combination of removal and containment best satisfy the remedy selection criteria set forth in 6 NYCRR Part 375-1.8. Relative to the exposure concerns during implementation of the remedy, a Health and Safety Plan will be developed during the remedial design stage. The plan will eliminated or minimize impacts on the surrounding community during remedy implementation.

**COMMENT 7:** What will this do to Terrace Bridge? The trucks will undermine the integrity of the bridge and create a real problem for the residents. The bridge can't handle such heavy loads.
**RESPONSE 7:** The Terrace Bridge may require restrictions on the weight and/or type of trucks used to transport material to and from the site. This will be addressed in the remedial design by designating truck routes.

**COMMENT 8:** Will the remedy require that sheet piling be used to support the excavation and control groundwater, or is that up to the contractor?
**RESPONSE 8:** Excavation support and dewatering techniques will be addressed in the remedial design. The engineering design could require a very specific technology to address these issues, or it may only describe performance criteria. In the latter case, implementation is up to the contractor. The proposals from both the design engineer and the contractor will be reviewed and approved by the Department.

**COMMENT 9:** Years back, we had a major cleanup in the Village at the Marathon Battery site (Site No. 340006). To remediate the site they installed a railroad spur. Is that being considered rather than have all the truck traffic?
**RESPONSE 9:** No. This project is much smaller in scale. Accordingly, a railroad spur probably is not an option. The same would be true for removing soil by barge.

**COMMENT 10:** The metal sheeting at the existing bulkhead is deteriorated and needs to be replaced. Does the bulkhead prevent the tar from getting into the River? Why not spend your efforts on the bulkhead now? i.e., the bulkhead issues should be worked into the remediation work.

**RESPONSE 10:** Based on the information collected during the remedial investigation, it does not appear that any significant contamination has reached the area of the bulkhead. Therefore the bulkhead is not containing any contamination associated with this site. If the additional investigation called for in the ROD identifies additional contamination, then the need for a barrier (which could be co-located with the bulkhead) would be reconsidered.

**COMMENT 11:** Village Mayor Seth Gallagher read and submitted a letter from County Legislator Tamagna, which urged that the bulkhead be addressed at the same time as the remedy.
**RESPONSE 11:** See response to comment 10

**COMMENT 12:** Is the Village on the hook for the cost of this project?
**RESPONSE 12:** No. The Village has met its obligations pursuant to the State Assistance Contract (SAC) it entered into under the Environmental Restoration Program (ERP). Based on its participation and completion of its obligations under the ERP SAC, the Village will be entitled to the benefits set forth at ECL 56-0509, subject to the limitations therein.

**COMMENT 13:** I live at 10 New Street. Just implementing this remedy will cause destruction to neighboring homes from the pile driving being proposed. This happened to nearby homes when pile driving was used on another project. Although I understand the bigger picture, I would personally just leave the MGP in the ground.
**RESPONSE 13:** It will be the responsibility of the Department to ensure that the implementation of the remedy does not result in the type of short term construction impacts described. Some of the items which will need to be considered include vibration from sheetpiling, truck traffic and control of any odors which may be generated during removal activities. These issues will be addressed in the remedial design. As part of the remedial design process, a Health and Safety Plan will be prepared. Among other areas to be addressed, a community air monitoring program will monitor and control odors, vapors and dust. Vibration monitoring will be required if sheet piling is installed. The traffic patterns used by trucks and construction vehicles will be discussed with the Village ahead of time, and daily work schedules will take into account the times of day when foot and vehicle traffic is heaviest. (See Response #6)

**COMMENT 14:** How will this site be protected/policed at night? This is near the train station. We have transients trespassing all the time. Who do we call at 10 o'clock at night when there is a problem at the site?
**RESPONSE 14:** The site will be fenced during the cleanup.

**COMMENT 15:** The cleanup will impact the Village in areas beyond the site itself. Equipment will likely be stored or parked off-site, and activities could affect foot traffic and vehicular traffic, particularly during rush hour near the train station. Homes on nearby streets, like Fish and North Street, could be impacted by noise, dust, odors and vibration. What will be done to minimize these impacts to the community?
**RESPONSE 15:** See response to comment 6 and 13.

**COMMENT 16:** How will this stuff be transported through the village without exposing residents to contamination?

**RESPONSE 16:** All trucks will be lined, covered, and cleaned before leaving the site. If the transported material is generating odors, the load will also be covered with foam or some other odor suppressant. These measures have proven effective at other MGP site cleanups statewide.

**COMMENT 17:** Is this going to be a slurry that you are taking out of there in trucks?
**RESPONSE 17:** No. If any excavated material contains excessive moisture, the material must be stabilized before transporting.

**COMMENT 18:** How many truck loads will be going out with contaminated soil, how many coming in with clean fill?
**RESPONSE 18:** Approximately 330 trucks, assuming the trucks are able to carry 10 cubic yards. However, it may be necessary to limit the weight or size of trucks based on the weight limit on the bridge or traffic restrictions within the Village, in which event, the number of trucks would increase.

**COMMENT 19:** What time of the day will the trucks be coming and going, what about weekends?
**RESPONSE 19:** Remedial construction typically takes place during regular business hours.

**COMMENT 20:** If your preference is to do this in the winter, when road conditions are bad enough already, won't this just complicate the issues about truck traffic?
**RESPONSE 20:** Winter weather can be a burden to the contractor performing the remedial activity. However, our experience is that winter construction minimizes odors, and this benefit often outweighs the burden created by winter weather.

**COMMENT 21:** Since the coal tar hasn't migrated, what conditions could happen to make it move?
**RESPONSE 21:** The coal tar has migrated from the plant site in the subsurface. Some activities which could result in further migration or changes in tar mobility include changes in groundwater flow, significant vibration or construction activity in the area of the contamination.

**COMMENT 22:** I live on Main Street, and I just put a sump pump in my basement to deal with water. Do I need to worry about possible exposures issues or a scenario where I might be actually pulling the coal tar toward my house?
**RESPONSE 22:** No. Groundwater contamination has not been identified in that location. The groundwater contamination has been limited to the area south of New Street.

**COMMENT 23:** How many sampling events have you done; are you going further out beyond the perimeter with more, and are these sampling events actually encouraging the spread of this pollution?
**RESPONSE 23:** There have been 2 major sampling events. Some additional sampling is called for in this ROD, in the river and on the river bank. This sampling is intended to confirm the conclusions reached in the investigation report. The sampling techniques do not encourage the spread of contamination.

**COMMENT 24:** Who "owns" the problem here if something goes wrong during or as a result of this project?

**RESPONSE 24:** If this project proceeds under the State Superfund program as anticipated, either a responsible party (if one can be identified) or the Department will be responsible for the completion of the remedial action.

**COMMENT 25:** What are the exposure risks associated with the casual exposure which may happen during the remediation? What about long term risks?
**RESPONSE 25:** See response to comment #5, 6, and 13.

**COMMENT 26:** Since we likely have old gas pipes associated with this facility under the Village streets, do we need to worry about a pocket of pollution being disturbed if these pipes break or are dug up at some later date?
**RESPONSE 26:** In some cases, contamination can be transported through former piping in the immediate vicinity of the site. The description of the remedy has been modified to specifically call for removal of any piping associated with the former MGP identified.

**COMMENT 27:** What do you consider a "Good Cleanup" for a site like this? Is there a “cleanup number,” a concentration of the chemical of concern below which human health and environmental threats are no longer expected?
**RESPONSE 27:** The requirement is to select a remedy which is protective of public health and the environment.

**COMMENT 28:** Why leave anything behind? Why not just clean this up completely?
**RESPONSE 28:** Alternative 2 in the PRAP evaluates a complete removal of the contamination. This alternative was carefully evaluated and based upon local input was considered to be too disruptive to the community to justify the relatively limited incremental increase in protection and effectiveness. For example, the full Alternative 2 cleanup would require removing the boat club building and the need for an additional 1,140 truckloads of material leaving the site. See Section 8.1 of the ROD for a full evaluation.

**COMMENT 29:** In answer to a previous question, you said you expected Superfund to pay for this, not us. Who pays for the Superfund?
**RESPONSE 29:** The Superfund Program is funded from annual appropriations and reappropriations in the New York State annual budget.

**COMMENT 30:** Can you give me a list of other nearby MGP sites along the Hudson that have been remediated so I can contact people there to see what problems they encountered during this type of remediation?
**RESPONSE 30:** Manufactured gas plant sites along the Hudson River where remedies have been selected include the MGP sites in Nyack (344046), Hudson (411005), Newburgh (3-36-042) and Tarrytown (C360064). Information on each of these sites is available on our website at http://www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3 .

Vincent Tamagna, Putnam County Legislator submitted a letter (dated December 2, 2009) which included the following comment:

**COMMENT 31:** The remediation project needs to include the sheeting for the bulkhead for the boat club facility.

**RESPONSE 31:** See response to comment 10.

John Pavlik submitted an e-mail (dated December 1, 2009) which included the following comment:

**COMMENT 32:** What's the likely time frame for the clean up?
**RESPONSE 32:** Construction activity is not expected to start before 2012.

**COMMENT 33:** Will there be some sort of air scrubbers used, and if so, how loud are they and will they run 24/7? My teen-age daughter suffers from migraines and sounds such as would be expected from the 24-hour air scrubbers are one of her migraine triggers. Whatever form the clean-up takes, please install high quality sound barriers around the site.
**RESPONSE 33:** There are a number of ways that odors and vapors can be controlled during removal activity. One way is to enclose the work area in a temporary structure. When that is done, there would be blowers that provide a negative pressure in the structure to ensure air does not leak out. The discharge air from the blowers would be treated with activated carbon to remove vapors and odors. These blowers would run continuously and may be heard off-site. To address potential noise problems, the blowers would be enclosed in acoustic dampening material and the system would also be designed to run at a lower flow rate off-hours, which would further reduce the noise after work hours.

Sandra R. Galef, Member of the New York State Assembly submitted a letter (dated December 10, 2009) which included the following comment:

**COMMENT 34:** The remediation project needs to include the sheeting for the bulkhead for the boat club facility.
**RESPONSE 34:** See response to comment 10.

# APPENDIX B

## Administrative Record

# Administrative Record

## Cold Spring Former MGP Site
## Site No. E340026

Proposed Remedial Action Plan for the Cold Spring Former MGP site, dated October 2009, prepared by the Department.

"Site Characterization Report Cold Spring Former Manufactured Gas Plant," July 2005, Prepared by NYSDEC

"Site Investigation /Remedial Alternatives Report, Cold Spring Former Manufactured Gas Plant Site" October 2009, Prepared by Dvirka and Bartilucci Consulting Engineers.

Fact Sheet: "Remedy Proposed for the Cold Spring Former MGP Site, Public Meeting, Comment Period Announced" November 2009, Prepared by NYSDEC

Fact Sheet: "Investigation to Begin, Cold Spring Former MGP Site #E340026, 5 Main Street, Village of Cold Spring," October 2008, Prepared by NYSDEC

Fact Sheet: "Project Update, Former Lumberyard Property, One Main Street, Village of Cold Spring" July 2006, Prepared by NYSDEC

Fact Sheet: "Cold Spring Former MGP Site, Village of Cold Spring, Site No. 3-40-026" July 2005, Prepared by NYSDEC

Fact Sheet: "Village of Cold Spring, One Main Street" April 2005, Prepared by NYSDEC

E-Mail dated December 1, 2009 from John Pavlik

Letter dated December 2, 2009 from Vincent Tamagna, Putnam County Legislator

Letter dated December 10, 2009 from Sandra R. Galef, Member of the New York State Assembly