Proposed Plan

Sutton Brook Disposal Area Superfund Site
Tewksbury, MA

A Snapshot of the Cleanup Proposal...

- Excavation of contaminated soil and sediment above site-specific cleanup levels;
- Consolidation of excavated soil, sediment, & debris into the landfill;
- Construction of multi-layer, impermeable cap over landfill lobes;
- Interception of groundwater from southern lobe;
- Collection & treatment of some groundwater;
- Monitored natural attenuation for some groundwater;
- Implementation of Institutional Controls;
- Long-term groundwater, surface water, & sediment monitoring;
- Estimated total cost is approximately $30 million.

More details on page 14

What do you think?

EPA is accepting public comment on this cleanup proposal from **June 28, 2007 through July 28, 2007**. You don't have to be a technical expert to comment. If you have a concern or preference regarding EPA's proposed cleanup plan, EPA wants to hear from you before making a final decision on how to protect your community. Comments can be sent by mail or e-mail. People can also offer oral or written comments at the formal public hearing:

Formal Comment Session
Wednesday, July 18, 2007 at 6:00 pm
Tewksbury Public Library
300 Chandler Street
Tewksbury, MA

Send written comments, postmarked no later than July 28, 2007, to:
Don McElroy
Remedial Project Manager
EPA New England
1 Congress Street
Suite 1100 (HBO)
Boston, MA 02114-2023

E-mail comments to:
mcelroy.don@epa.gov

If you have questions about how to comment, if you have specific needs for the public hearing or questions about the facility and it's accessibility, please contact EPA Community Involvement Coordinator Sarah White at 617-918-1026.

In accordance with the Comprehensive Environmental Response, Compensation and Liability Act, (Section 117) the law that established the Superfund program, this document summarizes EPA's cleanup proposal. For detailed information on the options evaluated for use at the site, see the Sutton Brook Disposal Area Feasibility Study available for review at the information repositories at the Public Library Tewksbury, MA and at EPA's 1 Congress Street Office in Boston.

A Closer Look at EPA's Proposal...

After careful study of the Sutton Brook Disposal Area Superfund Site, the United States Environmental Protection Agency (EPA), with the assistance of the Massachusetts Department of Environmental Protection (MassDEP), is proposing the following cleanup plan to reduce potential current and future unacceptable risks from site contamination:

- Excavation of contaminated soils exceeding site-specific cleanup levels from the Former Drum Disposal Area (FDDA) and the former Garage and Storage Area (GSA);
- Excavation of contaminated soils and sediments exceeding site-specific cleanup levels from a portion of Sutton Brook between the two landfill lobes and excavation of other impacted sediments and wetland soils at the site;
- Consolidation of excavated soils and sediments, along with other debris adjacent to the landfill, into the landfill;
- Construction of a multi-layer, impermeable cap over both landfill lobes, including systems to collect and manage gases and storm water from the landfills;
- Construction of a vertical barrier to intercept groundwater from the southern landfill lobe to prevent it from entering Sutton Brook, thereby directing the flow of the groundwater from the southern landfill lobe towards the west;
- Collection and treatment of contaminated groundwater from the area west of the southern landfill lobe;
- Monitored natural attenuation of areas of groundwater contamination not captured by the extraction system, with a contingency to expand the area of active groundwater remediation, if necessary;
- Implementation of institutional controls such as deed restrictions and/or local ordinances to prevent unacceptable exposures to wastes left in place and to restrict exposure to contaminated groundwater until cleanup levels are met;
- Long-term groundwater, surface water, and sediment monitoring, and periodic five-year reviews of the cleanup approach.
- The estimated total cost of EPA's preferred cleanup alternative is $29.98 million.

Sutton Brook Disposal Area: Site History

1957	Tewksbury Board of Health assigns property as a disposal area
1957-1988	Site receives municipal, commercial, and industrial waste
2000	EPA removes 300 to 400 buried drums and associated contaminated soil. Additional contaminated soil is stockpiled at the removal location.
2001-2002	Potentially Responsible Parties remove contaminated soil pile
2004	EPA reaches a settlement with a group of 25 Potentially Responsible Parties: group agrees to conduct Remedial Investigation/Feasibility Study
2004-2007	Remedial Investigation/Feasibility Study conducted to determine extent of contamination and potential cleanup approaches

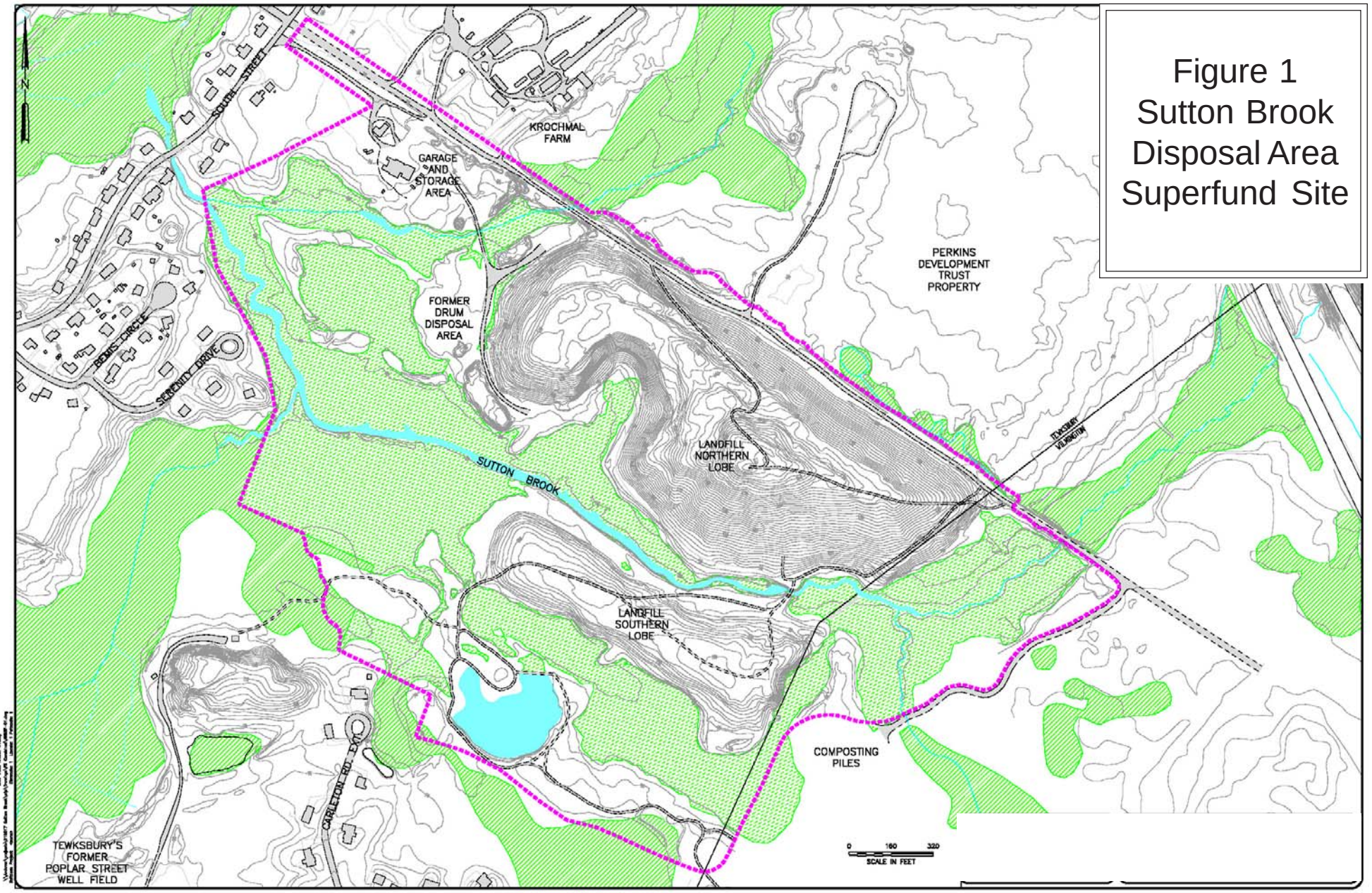


Figure 1
Sutton Brook
Disposal Area
Superfund Site

Site Description & Uses

The Sutton Brook Disposal Area, referred to during most of its history as the Rocco's Landfill or Tewksbury Town Dump, is located on approximately 100 acres of land off South Street on the eastern boundary of the Town of Tewksbury, Middlesex County, Massachusetts. A small portion of the landfill also extends into the Town of Wilmington, as shown on Figure 1. Two major source areas exist on the site: the Landfill Lobes, which include the Northern Lobe and Southern Lobe; and the Former Drum Disposal Area (FDDA). The Landfill Lobes comprise about 40 acres of the site. In 2000, between 300 and 400 buried drums were removed from the FDDA, which is located outside the southwest edge of the Northern Lobe. Sutton Brook (and associated wetlands) flows east to west through the property. Sutton Brook itself divides the landfill into the Northern and Southern lobes. Additional wetland areas are located south of the landfill and along the eastern and western portions of the property.

The Site is bounded approximately by: a piggery, greenhouses, stables, and a wooded area to the north; a wooded area, Route 93, and the Boston & Maine railroad line to the east; wetlands, conservation land and open space owned by the Town of Tewksbury, and a number of residences located along Carleton Road to the south; and wetlands and a number of residences located along South Street, Serenity Drive, and Bemis Circle to the west.

In 2001, EPA issued a Unilateral Administrative Order (UAO) to twelve Potentially Responsible Parties (PRPs) for the removal of a contaminated soil pile associated with EPA's drum removal activity. Eight PRPs responded to the UAO and removal of the pile was completed by February 2002. In February 2004, following investigations and negotiations, EPA reached an agreement with 25 PRPs, including transporters and generators, large and small business entities, to conduct the Remedial Investigation and Feasibility Study (RI/FS) at the site.

Land Use, Groundwater, and Surface Water Use

Current land use at the site is limited to some vehicular storage and maintenance in the Garage and Storage Area (GSA). Aside from the GSA and a small upland area adjacent to the Former Drum Disposal Area (FDDA), the balance of the site is comprised of the Landfill Lobes or wetlands (vegetated or brook/pond). The Landfill Lobes are currently unused with no plans or proposals for future use at this time. Future use of the lobe area would require coordination with the final selected remedy to ensure that the remedy would remain protective. Because there are no plans or proposals at this time, the reasonably anticipated future land use for the Landfill Lobes is solely as a landfill, with restrictions on what activities could take place on the landfill.

The undeveloped parcels of land to the northeast of the Sutton Brook Disposal Area have been the subject of a great deal of development discussion. These parcels, which total approximately 110 acres, are located both in Tewksbury (87 acres) and Wilmington (23 acres). Both commercial and residential developments have been examined for these parcels. At the Sutton Brook Disposal Area site, possible development is limited by the presence and spacing of wetland areas, as well as by the 40 acres of landfill lobe area. Future development could potentially take place in a portion of the FDDA and in the GSA.

The Massachusetts Department of Environmental Protection (MassDEP) performed a groundwater use and value determination on the groundwater beneath the site. Factors considered in the evaluation include: quantity and quality of the aquifer, the location of a public water supply (and whether it may be impacted by the site), the potential for impacts to private drinking water supplies, the likelihood of future drinking water use, and ecological value (i.e., groundwater discharge to surface water, thereby providing hydrologic support for a significant amount of freshwater wetlands located adjacent to Sutton Brook). The MassDEP's recommendation supports a medium use and value for the groundwater beneath the site. Further, MassDEP classifies the groundwater as GW-1, which means that it is considered a current or future source of drinking water.

The small size of Sutton Brook and the lack of fish found during surveys eliminate recreational fishing, swimming and boating as surface water uses which can be reasonably anticipated. Therefore, wading is the only anticipated use.

Nature and Extent of Contamination at Sutton Brook Disposal Area

For the purpose of the RI/FS, and to help with the performance of the risk assessments, the Sutton Brook Disposal Area has been divided into several areas. These areas are based on either historical land use or similarities of media or habitat. The different areas are the Landfill Lobes, the Former Drum Disposal Area (FDDA), the Garage and Storage Area and the Non-Source Areas (see Figure 1 and Figure 2).

Contamination in Landfill Lobes

Of the two landfill lobes, the Northern Lobe is the largest at approximately 30 acres (estimated 1.9 million cubic yards of waste material), whereas the Southern Lobe comprises approximately 10 acres (estimated 0.3 million cubic yards of waste material). Small debris/waste piles have also been identified in five distinct areas proximate to the Landfill Lobes. The Landfill Lobes constitute the primary source areas at the Site.

The primary migration pathways for contaminants from the Landfill Lobes are:

- infiltration/leaching of contaminants from the waste material with subsequent transport via groundwater flow;
- soil erosion and wind blown transport of contaminants that are exposed at the surface, including both dust and surface water runoff; and
- volatile air emissions and transport.

Landfill gases generated from the two lobes consist of methane, carbon dioxide, and volatile organic compounds (VOCs). The VOCs detected at the greatest frequency in the samples were toluene, xylene, ethyl benzene, n-hexane, and dichlorofluoromethane.

Based on data collected during the Remedial Investigation (RI), groundwater migration is the primary contaminant migration pathway associated with the Landfill Lobes given that: 1) the uncapped/uncontained nature of the landfill does not limit infiltration and subsequent leaching; 2) wastes are most likely located at or near the water table surface; 3) the proximity of Sutton Brook to the Landfill Lobes and the discharge of contaminated groundwater which has been impacted by the Landfill Lobes to Sutton Brook; 4) typical landfill gas levels in the subsurface and low to undetectable concentrations of VOCs in ambient air indicate minimal mass transport in air; and 5) the majority of the material in the Landfill Lobes is covered on the ground surface with soil and/or vegetation, thereby reducing transport by runoff.

The primary constituents detected in groundwater samples were VOCs and metals. The highest concentrations of VOCs were detected in the groundwater collected from monitoring wells located adjacent to the northern, eastern and western sides of the Southern Lobe. Total VOC concentrations in these wells ranged from 3,450 to 57,210 micrograms per liter (ug/l) or parts per billion (ppb). The VOC generally detected at the highest concentration in these wells was toluene. Groundwater data from the wells along the perimeter of the Northern Lobe were much lower in concentration (total VOCs ranged from 53 to 842 ug/l). Unlike the Southern Lobe, the VOC generally detected at the highest concentration in the wells at the Northern Lobe was either 1,4-dioxane or tetrahydrofuran. Based on information collected during the RI, the Southern Lobe appears to be the primary contributor to the elevated concentrations of volatile organics in groundwater and in Sutton Brook sediments adjacent to the Landfill Lobes (see Figure 3).

The overall distribution of the total VOCs in groundwater supports the understanding of the flow of groundwater on both sides of Sutton Brook in the direction of the brook. Similar constituents to those detected in groundwater were also detected in leachate samples and in surface water and sediment samples. The samples with the highest concentrations were detected in the stretch of Sutton Brook between the two Landfill Lobes.

Contamination in Former Drum Disposal Area

A removal action was conducted in this area, initially by EPA in 2000 and completed by eight PRPs in 2001, in which approximately 300 to 400 crushed drums and 13,786 tons of associated contaminated soils were excavated and transported

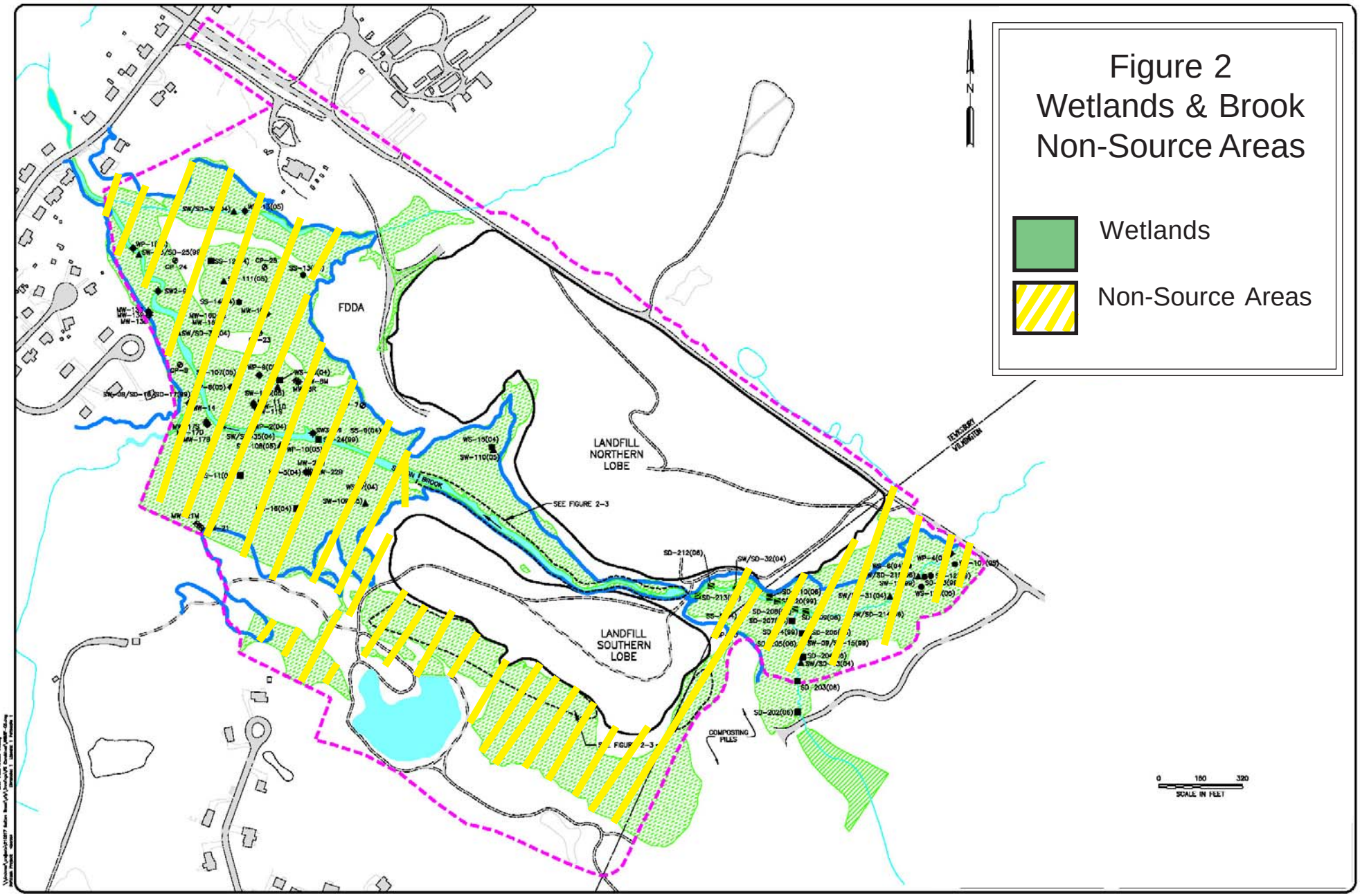


Figure 2
Wetlands & Brook
Non-Source Areas
Wetlands
Non-Source Areas
N
FDDA
LANDFILL
NORTHERN
LOBE
LANDFILL
SOUTHERN
LOBE
W. BROOK
SEE FIGURE 2-3
COMPOSTING
PILES
TEWKSBURY
WILMINGTON
0
180
320
SCALE IN FEET

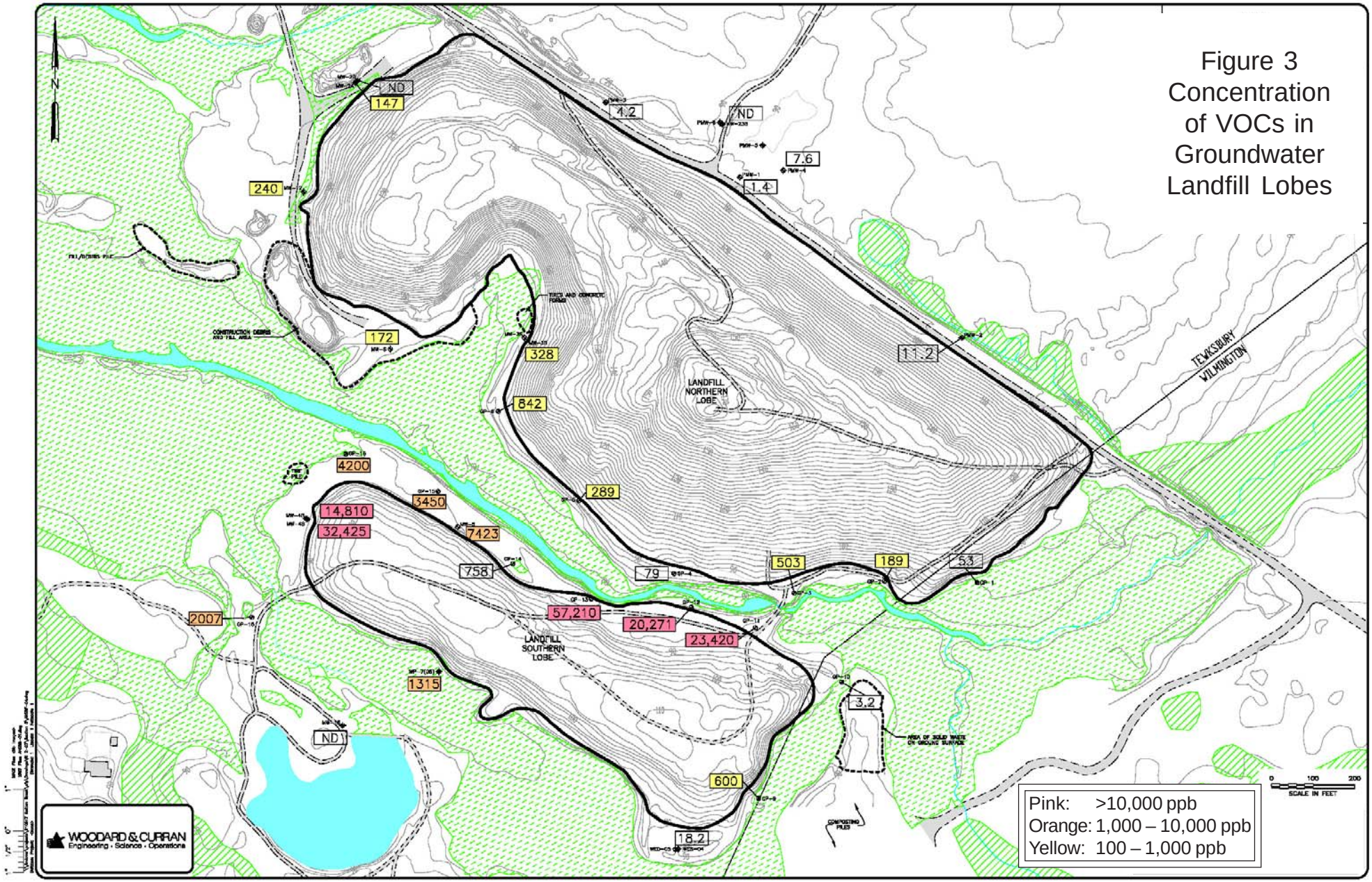


Figure 3
Concentration
of VOCs in
Groundwater
Landfill Lobes
N
ND
147
1.2
ND
7.6
1.4
240
172
328
842
11.2
LANDFILL
NORTHERN
LOBE
TEWKSBURY
WILMINGTON
4200
14,810
32,425
3450
7423
289
758
79
503
189
53
2007
57,210
20,271
23,420
LANDFILL
SOUTHERN
LOBE
1315
ND
3.2
600
18.2
WOODARD & CURRAN
Engineering · Science · Operations
Pink: >10,000 ppb
Orange: 1,000 – 10,000 ppb
Yellow: 100 – 1,000 ppb
SCALE IN FEET

off-site for disposal. Post-excavation soil data indicate that residual levels of VOCs (TCE, toluene, PCE, ethyl benzene, trimethylbenzenes, and xylenes) are present in soils, with toluene and xylenes exhibiting the highest concentrations and greatest frequency of detection. The highest total VOC concentration was detected in samples located on the southeast portion of the area. This area (southeast portion) also corresponds to an area of elevated semi-volatile organic compounds (SVOCs), and the area where more of the drums were formerly located. These elevated VOC and SVOC concentrations are found at depths up to 7 feet below ground surface.

Similar to soils, VOCs were the primary contaminants detected in the groundwater samples, with relatively higher concentrations of benzene, toluene, ethyl benzene and xylenes (BTEX) and lower concentrations of 1,1,1-TCA, TCE, and 1,1-DCA being detected at the greatest frequency. Elevated concentrations of SVOCs (4-methyl-2 pentanone, 2-butanone, and phenols) were also detected in groundwater associated with the FDDA.

The dissolved VOC concentrations in groundwater were found to be decreasing with distance from this source area (the southeast portion of the FDDA). The highest concentrations of VOCs are located at an intermediate depth within the overburden aquifer. The groundwater data indicate that impact is limited to the overburden and has not migrated into the bedrock aquifer.

As the groundwater plume approaches Sutton Brook, the groundwater flow patterns and the presence of conditions supporting natural degradation appear to be the controlling factors to the nature and extent of the groundwater contamination in this area. Local groundwater (immediate sides of the brook and wetland areas) flows towards the brook and wetlands. There is also a net northerly component of flow (regional flow path) that parallels the flow of the brook.

Historical contaminant analytical data and the existing subsurface geochemistry indicate that a combination of natural attenuation processes (biodegradation, dispersion, dilution, adsorption, volatilization, and/or chemical or biological stabilization, transformation, or destruction of contaminants) are reducing VOC contaminant concentrations and limiting the continued downgradient migration. The combination of hydrological conditions and natural degradation factors has resulted in a stable plume configuration that has limited migration off site.

Former Garage and Storage Area

This area is located on the northern portion of the property and consists of the former residence, garage, and storage areas. The majority of the area contains debris on the ground surface from past and recent storage activities. Impacted soils (petroleum hydrocarbons, polycyclic aromatic hydrocarbons (PAHs), and metals) are present on the south central portion of the area at up to 3 feet below ground surface and most likely were caused by the storage or operation activities in this area. A subsurface fill area, comprised of wood, metal, and concrete, is present on the southern portion of the area. Groundwater is not impacted from operations within this area.

Non-Source Areas

The “non-source” areas primarily consist of the wetlands in areas away from the source areas (i.e., hydraulically downgradient areas, upstream areas of Sutton Brook, and the nearby tributaries). The surface water and sediment in these areas are impacted by the same contaminants found in soil and groundwater in other areas of the site, but at generally lower concentrations.

Non-source Downgradient Groundwater Area

The non-source areas also include the area of groundwater located hydraulically downgradient of the “Source Areas” with organic and inorganic constituents detected in excess of drinking water standards, referred to as maximum contaminant limits (MCLs). This downgradient groundwater is located between the Former Drum Disposal Area and Sutton Brook, and to the west of the Southern Lobe, between the Southern Lobe and Sutton Brook (Figure 4).

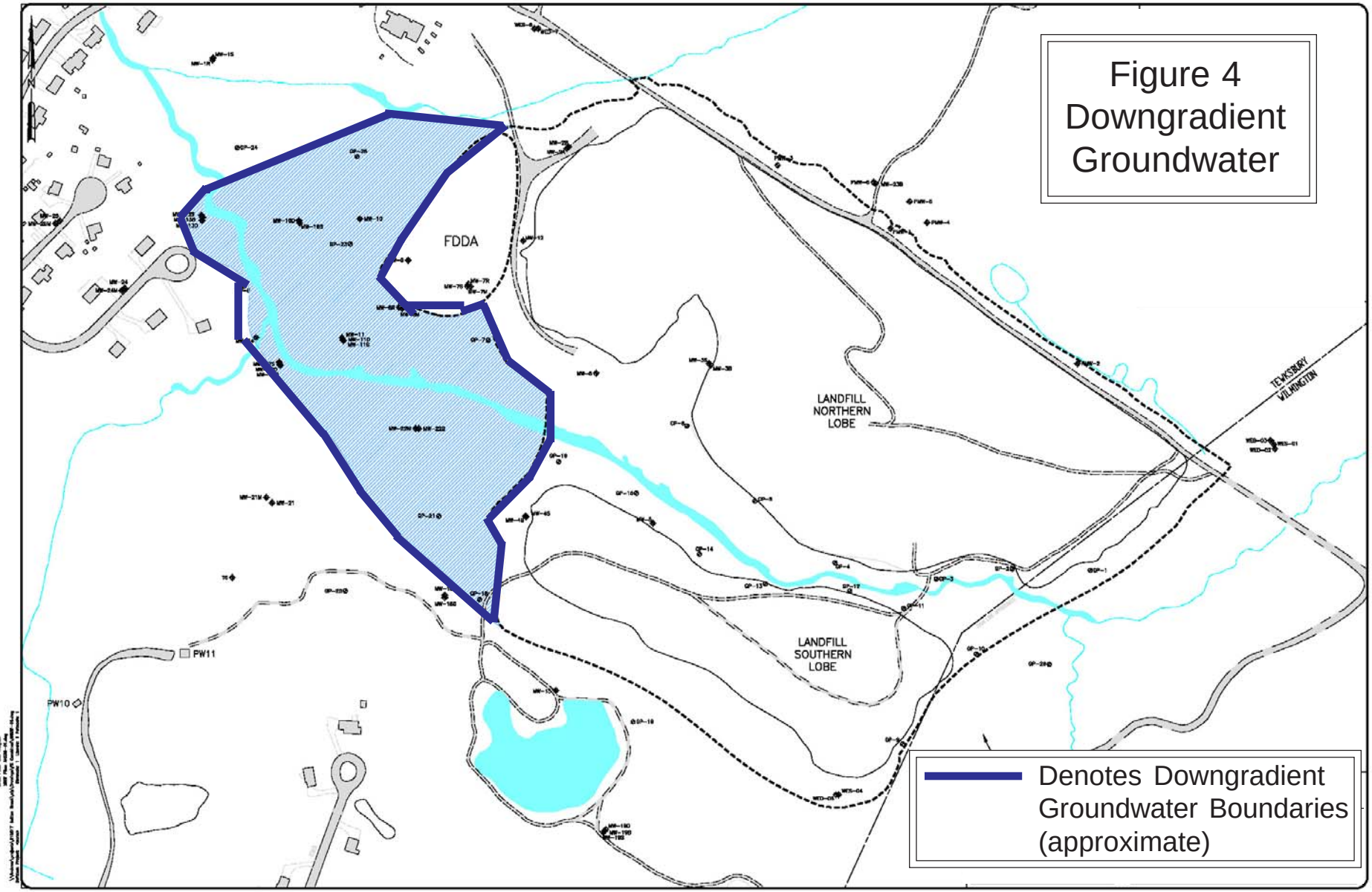


Figure 4
Downgradient
Groundwater
FDDA
LANDFILL
NORTHERN
LOBE
LANDFILL
SOUTHERN
LOBE
PW11
PW10
TEWKSBURY
WILMINGTON
Denotes Downgradient
Groundwater Boundaries
(approximate)

Human Health and Ecological Risk Assessments

As part of the RI/FS, human health and ecological risk assessments have been prepared to determine if and where there are current or potential future unacceptable risks at the site from exposure to contamination based upon a number of circumstances or exposure scenarios.

For human health, risks were evaluated for current and potential future conditions for trespasser/recreational user and local resident receptors, and hypothetical future conditions for the site resident, construction worker, and commercial worker. The following pathways resulted in unacceptable human health risks at the site:

- Landfill Lobe Area: unacceptable risk to humans from exposure to wastes and contaminated soils in landfills (presumptive risk).
- Former Drum Disposal Area and Garage & Storage Area: Unacceptable risk to future resident based primarily upon exposure to PAHs, arsenic, and other contaminants.
- Groundwater: Unacceptable risk from future drinking water exposure to contaminants, including tetrahydrofuran, PCBs, methylphenols, acrylonitrile, toluene, xylenes, chlorinated VOCs, arsenic, and cadmium.

The ecological assessment evaluated the potential for effects on aquatic and semi-aquatic receptors, waterfowl, and terrestrial wildlife at the site. Areas/media which were determined to pose significant risk to ecological receptors and which require remedial action include the following:

- Upper Sutton Brook – Site Channel (sediment): unacceptable risk to benthic invertebrates based on exposure to 1,3,5-trimethylbenzene, ethylbenzene, and xylenes, among others.
- Upland Soils (soil): unacceptable risk to birds and soil invertebrates based on exposure to di-n-octylphthalate and lead (robin); and xylenes and zinc (soil invertebrate)

Feasibility Study

Based on the findings of the Remedial Investigation and risk assessments, a Feasibility Study was prepared to examine the potential options for cleanup to address the unacceptable risks outlined above and to meet the following Remedial Action Objectives (RAOs) for the site:

- Prevent direct contact/ingestion of landfill contents;
- Prevent direct contact/ingestion/inhalation of residual levels of chemicals in soils in the FDDA and garage and storage area above unacceptable levels of risk to human or ecological receptors;
- Prevent direct exposure to impacted surface water and sediments in those areas of the wetlands and brook determined by the risk assessment;
- Prevent contaminant migration via surface run-off and erosion through the “source areas” to surface water or sediments in the brook or wetlands;
- Control landfill gas;
- Reduce contaminant leaching via infiltration through the “source areas” with subsequent migration to groundwater at concentrations in excess of State or Federal Maximum Contaminant Levels (MMCLs or MCLs) and applicable groundwater quality standards;
- Prevent exposure to groundwater impacted by site contaminants at concentrations that exceed State or Federal drinking water standards (MMCLs or MCLs). For contaminants where no state or Federal drinking water standard has been established, prevent exposure to concentrations which exceed human health risk-based levels (i.e., greater than 1×10^{-6} excess carcinogenic risk or non-carcinogenic Hazard Quotient [HQ] greater than 1);
- Limit the discharge of impacted groundwater to Sutton Brook to prevent site contaminants in surface water or sediment from exceeding Federal human health or ecological based criteria or unacceptable levels of risk to human or ecological receptors; and
- Prevent migration of contaminants off-site via groundwater or surface water at levels in excess of Federal and/or State standards/criteria or unacceptable levels of risk to human or ecological receptors.

Cleanup Alternatives Considered for the Sutton Brook Disposal Area Site

Once areas of risk have been identified at a site, cleanup alternatives are developed to address the identified risks and achieve the Remedial Action Objectives (RAOs). A short synopsis of the alternatives considered for the site cleanup are outlined below. A more detailed description and analysis of each alternative is presented in the Feasibility Study report which is also available for public review.

Landfill Lobes Area Cleanup Alternatives

Alternative LF-1: No Action

The no action alternative is required to be evaluated by EPA's Superfund regulations and is used throughout the Feasibility Study (FS) process as a baseline for comparison to other cleanup alternatives. This alternative does not consider any further cleanup or monitoring and does not include any costs.

Alternative LF-2a: Containment of Waste, Vent Landfill Gas, Restoration of Wetlands and Brook, Partial Containment of Groundwater at the Southern Lobe. Monitored Natural Attenuation (MNA) With a Contingency For More Active Groundwater Treatment
Under this alternative, a low-permeability engineered barrier (cap) would be installed over the Landfill Lobes. Impacted sediment (between the Lobes) would be excavated and consolidated under the landfill cap. A vertical barrier would be constructed between the Southern Lobe and Sutton Brook to prevent migration of contaminated groundwater to the Brook. Contaminated groundwater would be addressed by a contingent groundwater approach, starting with monitored natural attenuation processes. If necessary, active groundwater remediation would be implemented. The estimated cost of this alternative (based on the assumption that MNA will be sufficient to address groundwater), is $20.52 million.

Alternative LF-2b: Containment of Waste, Vent Landfill Gas, Restoration of Wetlands and Brook, Partial Containment of Groundwater at the Southern Lobe. Groundwater Remediation Through Extraction and Treatment of Groundwater or Enhanced In-Situ Treatment at the Southern Lobe, MNA at the Northern Lobe. This is EPA's preferred alternative which is described on page 14.

Alternative LF-3: Containment of Waste, Vent Landfill Gas, Restoration of Wetlands and Brook, Contaminated Groundwater Collection and Treatment at both Lobes
Under this alternative, a low-permeability engineered barrier (cap) would be installed over the Landfill Lobes. Impacted sediment (between the Lobes) would be excavated and consolidated under the landfill cap. Groundwater would be extracted for treatment along the downgradient edges of both Landfill Lobes. The estimated cost of this alternative is $40.93 to 51.13 million.

Alternative LF-4: Containment of Waste, Vent Landfill Gas, Re-route Brook, Excavate Impacted Sediment, Partial Containment of Groundwater, Groundwater Treatment at the Southern Lobe, MNA at the Northern Lobe
Under this alternative, a low-permeability engineered barrier (cap) would be installed over the Landfill Lobes. Sutton Brook would be rerouted along the southern edge of the Southern Lobe. A vertical barrier would be constructed between the Southern Lobe and the rerouted Brook to prevent migration of contaminated groundwater to the Brook. Groundwater at the Southern Lobe would be remediated by extraction and treatment or enhanced in-situ treatment. The estimated cost of this alternative is $31.42 million.

Former Drum Disposal Area Cleanup Alternatives

Alternative FDDA-1: No Action

The no action alternative is required to be evaluated by EPA's Superfund regulations and is used throughout the Feasibility Study (FS) process as a baseline for comparison to other cleanup alternatives. This alternative does not consider any further cleanup or monitoring and does not include any costs.

Alternative FDDA-2: Containment of Soil and Hydraulic Containment of Groundwater
Under this alternative, a low-permeability engineered barrier (cap or cover) would be installed over contaminated soils exceeding cleanup levels. Hydraulic containment of contaminated groundwater would be addressed through extraction, treatment, and discharge. This alternative would also include long-term groundwater monitoring, operation and maintenance of the cap, and institutional controls to restrict land and groundwater use in the impacted area. The estimated cost of this alternative is $7.53 to 8.33 million.

Alternative FDDA-3: Excavation of Soil and Hydraulic Containment of Groundwater
Under this alternative, contaminated soils exceeding cleanup levels would be excavated, treated, if necessary, prior to consolidation within one of the landfill lobes. If determined to be more cost-effective, soils may also be disposed off-site. Removal of the remaining source material will eliminate future leaching into groundwater and expedite the timeframe to meet groundwater cleanup levels. Hydraulic containment of contaminated groundwater would be addressed through extraction, treatment, and discharge. This alternative would also include long-term groundwater monitoring, operation and maintenance of the groundwater remediation systems, and institutional controls to restrict land and groundwater use in the impacted area. The estimated cost of this alternative is $7.62 to 9.22 million.

Alternative FDDA-4: Excavation of Soil and Source Area Groundwater Remediation (MNA With a Contingency For Active Groundwater Treatment if Necessary)
This is EPA's preferred alternative, which is described further on page 15.

Alternative FDDA-5: Excavation of Soil and Groundwater Treatment for Area-Wide Contaminant Reduction
Under this alternative, contaminated soils exceeding cleanup levels would be excavated, treated, if necessary, prior to consolidation within one of the landfill lobes. If determined to be more cost-effective, soils may also be disposed off-site. Removal of the remaining source material will eliminate future leaching into groundwater and expedite the timeframe to meet groundwater cleanup levels. In addition, groundwater extraction, treatment, and discharge would be implemented for an aggressive approach to meet groundwater cleanup levels in this area in an accelerated timeframe. This alternative would also include long-term groundwater monitoring, operation and maintenance of the groundwater remediation systems, and institutional controls to restrict land and groundwater use in the impacted area. The estimated cost of this alternative is $9.93 to 12.33 million.

Garage and Storage Area Cleanup Alternatives

Alternative GSA-1: No Action
The no action alternative is required to be evaluated by EPA's Superfund regulations and is used throughout the Feasibility Study (FS) process as a baseline for comparison to other cleanup alternatives. This alternative does not consider any further cleanup or monitoring and does not include any costs.

Alternative GSA-2: Excavation of Soil and Consolidation Within One of the Landfill Lobes
This is EPA's preferred alternative, which is described further on page 18.

Downgradient Groundwater Cleanup Alternatives

Alternative DGGW-1: No Action
The no action alternative is required to be evaluated by EPA's Superfund regulations and is used throughout the Feasibility Study (FS) process as a baseline for comparison to other cleanup alternatives. This alternative does not consider any further cleanup or monitoring and does not include any costs.

Alternative DGGW-2: Monitored Natural Attenuation
This is EPA's preferred alternative, which is described further on page 18.

Alternative DGGW-3: Groundwater Containment and Treatment
This alternative utilizes a containment approach to minimize potential downgradient migration of impacted groundwater. In the Feasibility Study, it was assumed that contaminated groundwater would be addressed through extraction, treatment, and discharge at a flowrate of approximately 75 gallons per minute. This alternative would also include long-term groundwater monitoring, operation and maintenance of the groundwater remediation systems, and institutional controls to restrict groundwater use in the impacted area until cleanup goals are met. The estimated cost of this alternative is $9.83 to 12.83 million.

Alternative DGGW-4: Area-wide Groundwater Extraction and Treatment
This alternative would take the most aggressive approach to contaminant mass reduction with the goal of restoring the aquifer to drinking water standards in the shortest timeframe. Under this alternative, contaminated groundwater would be addressed through extraction, treatment, and discharge at a flowrate of approximately 140 gallons per minute. This alternative would also include long-term groundwater monitoring, operation and maintenance of the groundwater remediation systems, and institutional controls to restrict groundwater use in the impacted area until cleanup goals are met. The estimated cost of this alternative is $11.13 to 16.83 million.

A Closer Look at EPA's Proposed Cleanup Approach (Preferred Alternatives)

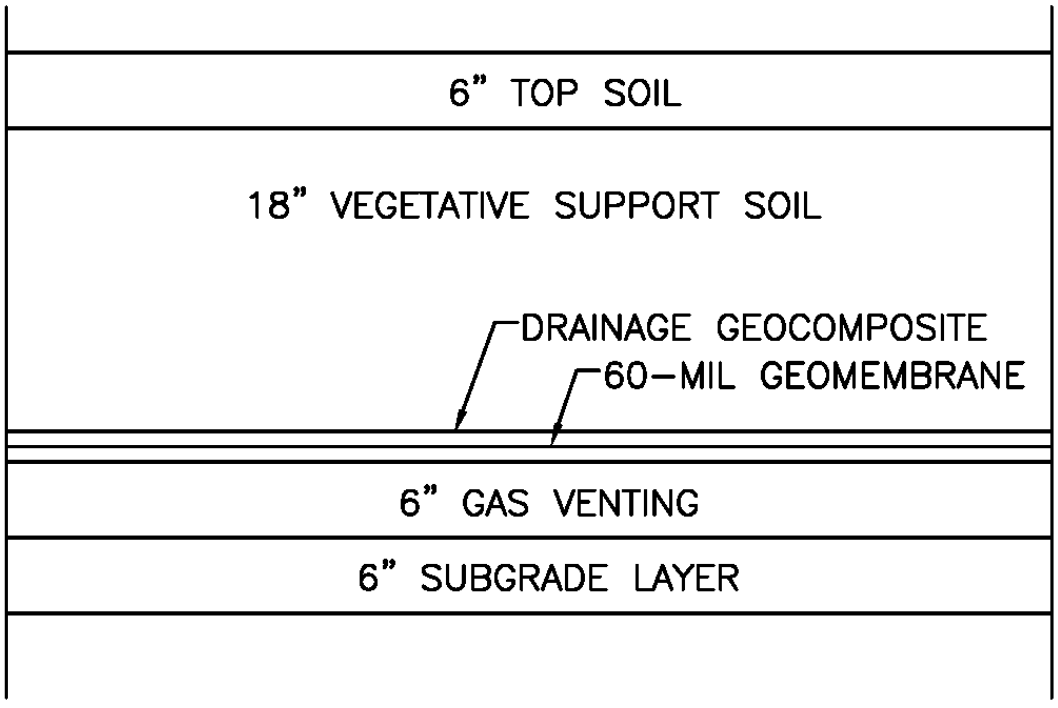
Based upon the alternatives evaluated in the Feasibility Study and outlined above, EPA's preferred alternative for cleanup at the Sutton Brook Disposal Area site is a combination of alternatives LF-2b, FDDA-4, GSA-2, and DGGW-2. The estimated total present value of this preferred alternative, including construction and operation and maintenance is approximately $29.98 million. Each aspect of the preferred alternative is outlined in greater detail below:

Landfill Lobes

EPA's preferred alternative for the Landfill Lobes is LF-2b: Containment of Waste, Vent Landfill Gas, Restoration of Wetlands and Brook, Partial Containment of Groundwater at the Southern Lobe. Groundwater Remediation Through Extraction and Treatment of Groundwater or Enhanced In-Situ Treatment at the Southern Lobe, MNA at the Northern Lobe.

The proposed remedy would include the excavation of approximately 750 cubic yards of impacted sediment in Sutton Brook (between the two landfill lobes) exceeding cleanup levels and consolidation of this material into one of the landfill lobes. In addition, prior to capping, miscellaneous debris piles adjacent to the landfill will be consolidated into the area to be capped. The landfill lobes will be graded and a low permeability RCRA (Resource Conservation and Recovery Act) Subtitle C hazardous waste cover system will be installed over both landfill lobes will include a gas vent layer, low permeability soil, a HDPE geomembrane, drainage, and vegetative cover. A landfill gas collection system will also be designed and constructed as well as the construction of detention ponds adjacent to each lobe of the landfill to manage stormwater. A conceptual cross-section of the cover system is shown in Figure 5.

Figure 5
Conceptual Cross-Section of Cover System



The cleanup goals for all site groundwater outside of the footprint of the landfill are based upon restoration to drinking water standards (Federal or State maximum contaminant limits (MCLs) or other risk-based standard). The preferred alternative LF-2b also includes the containment of groundwater via a vertical barrier along a portion of the Southern Lobe to limit the direction of groundwater migration and to eliminate future impacts to Sutton Brook via groundwater discharge (this barrier is estimated at 1,700 linear feet to a depth of approximately 30 feet below current grade). The type of impermeable vertical barrier (sheet pile, slurry wall, etc.) will be determined during remedial design. Contaminated groundwater from the Southern Lobe is currently discharging to Sutton Brook, or is initially migrating in a westerly direction and discharging to Sutton Brook further downstream. With the installation of this vertical barrier, groundwater contaminants should migrate towards the west and through the "Area for Focused Groundwater Treatment," bringing high concentrations of additional contamination through this area. Due to the significant groundwater contaminant levels at the Southern Lobe, the preferred alternative LF-2b includes the extraction and treatment of groundwater at the "Area for Focused Groundwater Treatment" at the start of implementation of the remedy. Figure 6 shows the proposed locations for the vertical barrier and groundwater collection/treatment. Cost estimates for this portion of the remedy were based on the assumption that contaminated groundwater at the western/northwestern end of the Southern Lobe will be intercepted by a series of groundwater extraction wells. Due to the wide range of contaminants in groundwater, further pre-design studies will be required to develop the precise combination of processes, but will likely include a combination of metals precipitation, UV-oxidation, carbon adsorption and/or air stripping. Treated groundwater is expected to be discharged to the local publicly owned treatment works (POTW); however, on-site discharge to Sutton Brook (or other on-site location) will be evaluated as part of remedial design. Design of the groundwater component of this portion of the remedy will take into account the proposed phased approach outlined for other areas of the site. That is, a single treatment plant may be constructed with the ability to handle potential additional flows from potential future extraction wells from other areas of the site. As discussed earlier, groundwater at the Northern Lobe exhibits significantly lower contaminant concentrations than groundwater at the Southern Lobe. Because of the lower contaminant concentrations, MNA is proposed for groundwater at the Northern Lobe.

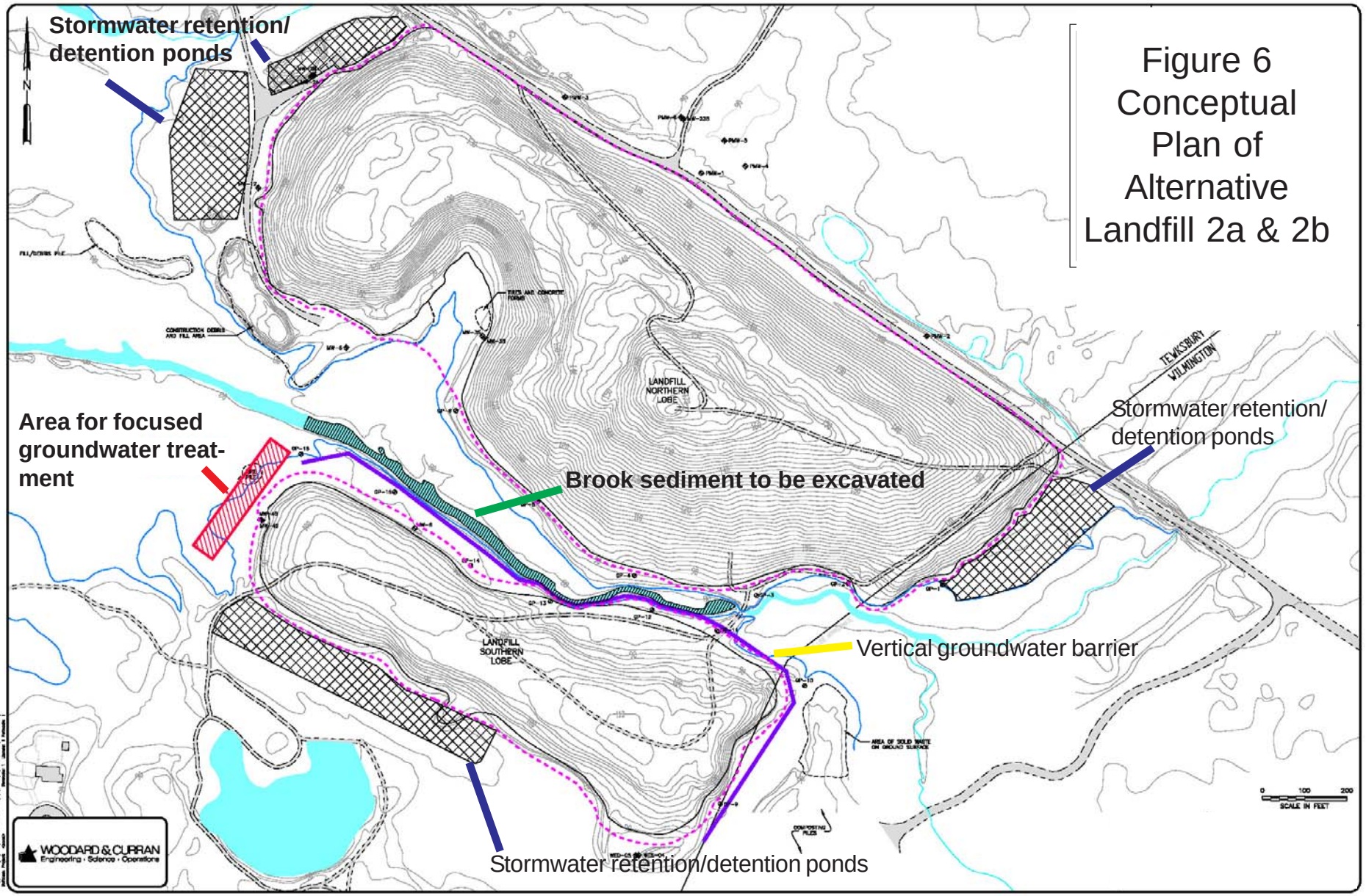
In addition to the source control measures, the proposed remedy will also include long-term monitoring of groundwater, surface water, landfill gas and leachate; operation and maintenance of each component of the remedy (cap repairs, mowing, groundwater treatment plant operation, etc.); and, institutional controls to prohibit landfill excavation, restrict the future use/access to the landfill, and restrict the future use of groundwater until remedial goals are met.

Alternative LF-2b will achieve RAOs by: capping the waste to prevent contact, surface water runoff and leaching; prevent exposure to contaminated groundwater by treating groundwater and removing contamination sources; and prevent contamination of Sutton Brook surface water and sediment from groundwater, by capping and installation of a vertical barrier.

The total cost of the preferred alternative for the Landfill Lobes, including the subtitle C cap and extraction and treatment of groundwater, is $25.22 million.

Former Drum Disposal Area

EPA's preferred alternative for the Former Drum Disposal Area is Alternative FDDA-4. FDDA-4 includes the excavation of contaminated soils exceeding site-specific cleanup levels and consolidation of these materials under the landfill cover to be constructed per alternative LF-2b outlined above. It is estimated that approximately 8,900 cubic yards of soils will be excavated and consolidated. The need for pre-treatment of these soils prior to consolidation into the landfill is not expected but will be evaluated as part of remedial design. If determined to be more cost-effective, these soils may also be disposed of at an appropriate off-site facility. Removal of the remaining source material will eliminate future leaching into groundwater and expedite the timeframe to meet groundwater cleanup levels. A conceptual plan is shown in Figure 7.


Stormwater retention/
detention ponds
Figure 6
Conceptual
Plan of
Alternative
Landfill 2a & 2b
Area for focused
groundwater treat-
ment
Brook sediment to be excavated
Stormwater retention/
detention ponds
Vertical groundwater barrier
Stormwater retention/detention ponds
LANDFILL
NORTHERN
LOBE
LANDFILL
SOUTHERN
LOBE
TEWKSBURY
WILMINGTON
WOODARD & CURRAN
Engineering · Science · Operations
SCALE IN FEET

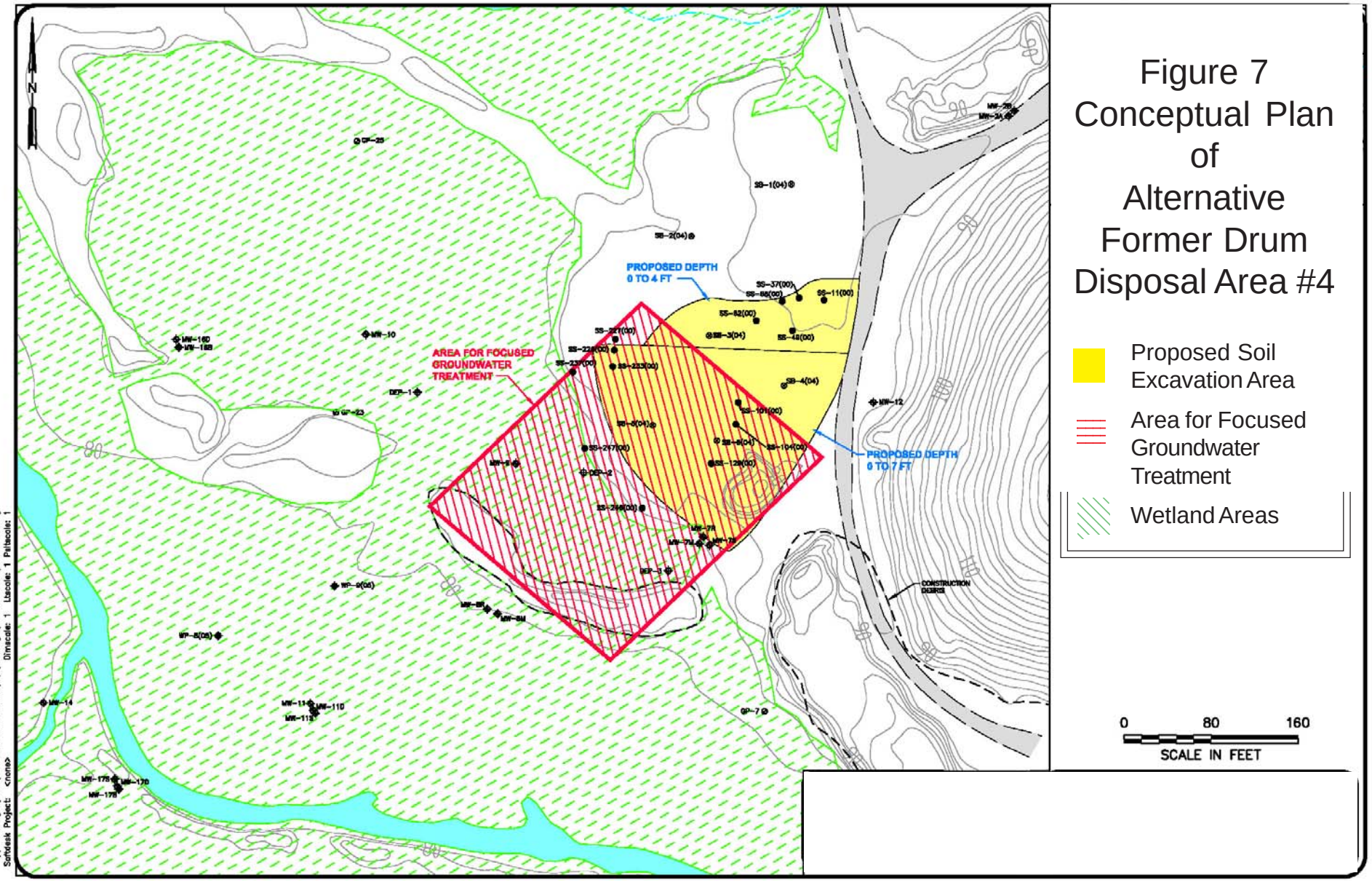


Figure 7
Conceptual Plan of Alternative Former Drum Disposal Area #4

Management of contaminated groundwater from this area will be addressed using a phased approach. The basic phased implementation plan would incorporate a period of time between the completion of source area remedial measures where groundwater flow, geochemistry, contaminant distribution and migration would be monitored. A monitored natural attenuation (MNA) approach would be initiated immediately upon soil removal. Monitoring would be performed to determine the resulting flow regime, as well as an ongoing evaluation of contaminant levels, and effectiveness of the existing conditions to address contaminants through natural attenuation. Should active groundwater extraction and treatment become necessary, an extraction and treatment system would be designed and implemented. Extracted groundwater would either be directed to the treatment plant proposed as part of LF-2b or in a second treatment plant designed along the same parameters as outlined in LF-2b above.

Alternative FDDA-4 will achieve RAOs by: Removing the contamination source material to prevent direct contact/ingestion/inhalation of residual levels of contaminants in soils as well as preventing leaching of contaminants from soil to groundwater; and utilizing MNA processes to address groundwater contamination. If monitoring criteria determine that MNA is not adequate, active groundwater remediation will be implemented.

The cost for this alternative, assuming the initial MNA approach is sufficient, is $2.81 million.

Garage and Storage Area

EPA's preferred alternative for the Garage and Storage Area is GSA-2. This alternative involves the excavation of approximately 530 cubic yards of contaminated soils above risk-based cleanup levels and consolidation of these soils into the area to be capped under alternative LF-2b. If determined to be more cost-effective, soils may also be disposed off-site.

Alternative GSA-2 achieves RAOs by excavating and removing the contaminated soils.

The total cost of the preferred alternative for the Garage and Storage Area is $207,000.

Downgradient Groundwater

EPA's preferred alternative for downgradient groundwater is DGGW-2. DGGW-2 is a monitored natural attenuation remedy with a contingency for more active groundwater treatment if determined to be necessary in the future. Based upon the preferred alternative's source control remedies and source-area groundwater remediation outlined for other areas of the site , active groundwater extraction and treatment in the extended area of the plume will not be included as part of the initial remedy. However, the proposed remedy will include a contingency to expand the area of active groundwater remediation, if warranted. After the completion of source area remedial measures and after the source-area groundwater remediation is initiated, groundwater flow, geochemistry, contaminant distribution and migration would be monitored. Monitoring would be performed to determine the resulting flow regime, as well as an ongoing evaluation of contaminant levels, and effectiveness of the existing conditions to treat contaminants through natural attenuation. Should EPA determine in the future that active groundwater extraction and treatment become necessary, it is estimated that contaminated groundwater could be captured by a series of three extraction wells pumping at a combined rate of 75 gpm. It is likely that should this contingency need to be implemented, that extracted groundwater would be treated in a separate treatment plant using similar parameters as outlined in LF-2b above. However, a cost/benefit analysis will be conducted as part of the remedial design for the LF-2b remedy to consider the potential for designing that treatment plant to handle potential future flows from the FDDA and DGGW. For purposes of estimating costs, only the monitored natural attenuation remedy for this area of the site is included, at $1.75 million.

This portion of the remedy, similar to other portions, also includes long-term monitoring and institutional controls (to prohibit groundwater use until cleanup goals are met).

Alternative DGGW-2 will achieve RAOs by utilizing MNA processes to address groundwater contamination. If monitoring criteria determine that MNA is not adequate, active groundwater remediation will be implemented.

Why Does EPA Recommend this Proposed Cleanup Plan?

Based on the results of the Remedial Investigation and human health and ecological risk assessments, EPA has reviewed the Feasibility Study and recommends this proposed cleanup plan for the Sutton Brook Disposal Area site because EPA believes it achieves the best balance among EPA's nine criteria used to evaluate various alternatives (criteria discussed on page 20).

The proposed plan is protective of both human health and the environment while, at the same time, is cost effective. This cleanup plan provides both long and short term protection to human health and the environment; attains Federal and State applicable or relevant and appropriate requirements (ARARs); reduces toxicity, mobility, and/or volume of contaminants through treatment of contaminated groundwater and consolidation and capping of soils, sediments, and other wastes in the landfills; and utilizes permanent solutions to the maximum extent practicable by consolidation and capping of soils, sediments, and other wastes in the landfills, capturing and treating contaminated groundwater, and using institutional controls to prevent unacceptable exposures in the future.

What Impacts would the cleanup have on the local community?

Air Quality

Excavation of contaminated soils and sediments will be required as part of the proposed remedy. Any option that disturbs the wastes during cleanup has the potential to present short-term risks during excavation, consolidation, capping, or other construction activities. Air monitoring will be performed to protect workers and to ensure that the surrounding neighborhood air quality is not impacted. Dust suppression methods will be employed as necessary.

Truck Traffic

Building materials and process equipment for construction of the on-site groundwater treatment facility will be brought to the site by trucks. In addition, soil and other capping materials will also need to be delivered to the site by trucks in order to backfill excavated areas and construct the landfill covers. EPA will work with the community to determine the best routes for minimizing traffic concerns and will notify the community before activities begin.

Impacts to the Flood Plain and Wetlands

Section 404 of the Clean Water Act, Executive Order 11990 (Protection of Wetlands), and Executive Order 11988 (Protection of Flood Plains) require a determination that there is no practical alternative to taking federal actions in a wetland or floodplain areas. Soils and sediments in Sutton Brook and in other wetland areas at the site pose an unacceptable human health and/or ecological risk. Through its analysis of the data collected in the Remedial Investigation (RI) as well as evaluations in the human health and ecological risk assessments, EPA has determined that because significant high-level contamination exists in and adjacent to these wetland areas, there is no practical alternative to conducting work in the wetlands and floodplains.

Once EPA determines that there is no practical alternative to conducting work in wetlands, EPA is then required to minimize potential harm or avoid adverse effects to the extent practicable. Contaminated materials from these areas will be excavated and consolidated within the landfills. In addition, it is assumed that construction of the cover systems on the landfills will impact adjacent wetland areas, particularly between the landfill lobes. Best management practices will be used to minimize adverse impacts on the wetlands, wildlife, and it its habitat. Damage to these wetlands will be mitigated through erosion control measures and proper re-grading and re-vegetation of the impacted areas with indigenous species. Following excavation activities, wetlands will be restored or replicated consistent with the requirements of Federal and State wetlands protection laws and to ensure that there is no lost flood storage capacity.

Next Steps

This fall, EPA expects to have reviewed and evaluated all comments received on this proposal and sign a Record of Decision (ROD), which is a document which will describe the chosen cleanup plan. The ROD and a summary of responses to any public comments (the Responsiveness Summary) will then be made available to the public at the Tewksbury Public Library, EPA's Records Center in Boston, and via the internet. EPA will announce the final decision on our cleanup plan through the local media and via our website.

The Nine Criteria for Choosing a Cleanup

EPA uses nine criteria to compare alternatives and select a final cleanup plan. EPA has already evaluated how well each of the cleanup alternatives developed for the Sutton Brook Disposal Area Superfund site meets the first seven criteria (see tables on pages 21-23). Once comments from the state and the community are received, EPA will select the cleanup plan.

1. **Overall protection of human health and the environment:** Will it protect you and the plant and animal life on and near the site? EPA will not choose a plan that does not meet this basic criterion.

2. **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs):** Does the alternative meet all federal and state environmental statutes, regulations and requirements? The chosen cleanup plan must meet this criterion.

3. **Long-term effectiveness and permanence:** Will the effects of the cleanup plan last or could contamination cause future risk?

4. **Reduction of toxicity, mobility or volume through treatment:** Does the alternative reduce the harmful effects of the contaminants, the spread of contaminants, and the amount of contaminated material?

5. **Short-term effectiveness:** How soon will site risks be adequately reduced? Could the cleanup cause short-term hazards to workers, residents or the environment?

6. **Implementability:** Is the alternative technically feasible? Are the right goods and services (i.e. treatment machinery, space at an approved disposal facility) available for the plan?

7. **Cost:** What is the total cost of an alternative over time? EPA must find a plan that gives necessary protection for a reasonable cost.

8. **State acceptance:** Do state environmental agencies agree with EPA's proposal?

9. **Community acceptance**: What objections, suggestions or modifications does the public offer during the comment period?

Four Kinds of Cleanup

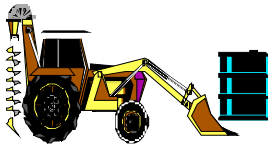
EPA looks at numerous technical approaches to determine the best way to reduce the risks presented by a Superfund site. The EPA then narrows the possibilities to approaches that would protect human health and the environment. Although reducing risks often involves combinations of highly technical processes, there are really only four basic options.

Limited or no action

Limited or no action: Leave the site as it is, or just restrict access and monitor it.

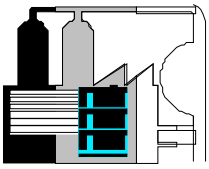
Contain contaminants

Leave contamination where it is and cover or contain it in some way to prevent exposure to, or spread of, contaminants. This method reduces risks from exposure to contamination, but does not destroy or reduce it.



Move contaminants off site

Remove contaminated material (soil, groundwater etc.) and dispose of it or treat it elsewhere.



Treat contamination on site

Use a chemical or physical process on the site to destroy or remove the contaminants. Treated material can be left on site. Contaminants captured by the treatment process are disposed in an off-site hazardous waste facility.

Comparison of Cleanup Alternatives for Landfill Lobes

	No Action	Cap Waste & Partial Groundwater Containment		Cap Waste	
Nine Criteria	#1 No Action	#2a MNA Contingent Groundwa-ter treatment	✻ #2b Groundwa-ter treatment at Southern Lobe	#3 Groundwater collection & treatment both Lobes	#4 Re-route brook & groundwater treatment
Protects human health & environment	✗	✓	✓	✓	✓
Meets federal & state requirements	✗	✓	✓	✓	✓
Provides long term protection	✗	✓	✓	✓	✓
Reduces mobility, toxicity & volume	✗	✓	✓	✓	✓
Provides short-term protection	✗	✓	✓	✓	✓
Implementable	✓	✓	✓	✓	✓
Cost (millions)	$0	$20.5	$25.2	$40.9-$51.1	$31.4
State agency acceptance	**To be determined after the public comment period**				
Community acceptance	**To be determined after the public comment period**				
Time to reach cleanup goals	Will not meet	65- 210 yrs	65-210 yrs	52-164 yrs	65-210 yrs

✓ **Meets or Exceeds Criterion**

✗ **Does NOT Meet Criterion**

✓ **Partially Meets Criterion**

✻ **EPA's Preferred Alternative**

Comparison of Cleanup Alternatives for Former Drum Disposal Area

	No Action	Cap Soil	Excavate & Consolidate Soil		
Nine Criteria	#1 No Action	#2 Contain groundwater by extraction & treatment	#3 Contain groundwater by extraction & treatment	✻ #4 MNA with groundwater treatment contingency	#5 Area-wide groundwater extraction & treatment
Protects human health & environment	✗	✓	✓	✓	✓
Meets federal & state requirements	✗	✓	✓	✓	✓
Provides long term protection	✗	✓	✓	✓	✓
Reduces mobility, toxicity & volume	✗	✓	✓	✓	✓
Provides short-term protection	✗	✓	✓	✓	✓
Implementable	✓	✓	✓	✓	✓
Cost (millions)	$0	$7.5 - $8.3	$7.6-9.2	$2.8	$9.9 - $12.3
State agency acceptance	**To be determined after the public comment period**				
Community acceptance	**To be determined after the public comment period**				
Time to reach cleanup goals	Will not meet	30 - 134 yrs	24-89 yrs	36-103 yrs	23-85 yrs

✓ **Meets or Exceeds Criterion**

✗ **Does NOT Meet Criterion**

✓ **Partially Meets Criterion**

✻ **EPA's Preferred Alternative**

Comparison of Cleanup Alternatives for Downgradient Groundwater

	No Action	In-Situ *(in place)*	Groundwater Containment	Area Wide
Nine Criteria	#1 No Action	✻ #2 MNA Contingent Groundwa-ter treatment	#3 Groundwater extraction & treatment	#4 Groundwater extraction & treatment
Protects human health & environment	✗	✓	✓	✓
Meets federal & state requirements	✗	✓	✓	✓
Provides long term protection	✗	✓	✓	✓
Reduces mobility, toxicity & volume	✗	✓	✓	✓
Provides short-term protection	✗	✓	✓	✓
Implementable	✓	✓	✓	✓
Cost (millions)	$0	$2.75	$9.8-$12.8	$11.1 - $16.8
State agency acceptance	**To be determined after the public comment period**			
Community acceptance	**To be determined after the public comment period**			
Time to reach cleanup goals	Will not meet	67-79 yrs	57-68 yrs	57-68 yrs

✓ **Meets or Exceeds Criterion**

✗ **Does NOT Meet Criterion**

✓ **Partially Meets Criterion**

✻ **EPA's Preferred Alternative**

What is a Formal Comment?

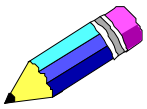
During the 30-day formal comment period, EPA will accept formal written comments and hold a hearing to accept formal verbal comments. EPA uses public comments to improve the cleanup proposal.

To make a **formal** comment you need only speak during the public hearing on July 18, 2007 or submit a written comment during the comment period.

Federal regulations require EPA to distinguish between "formal" and "informal" comments. While EPA uses your comments throughout site investigation and cleanup, EPA is **required to respond to formal comments in writing only.** EPA will not respond to your comments during the formal hearing on July 18, 2007.

The fact that EPA responds to formal comments in writing only does not mean that EPA can not answer questions. Once the meeting moderator announces that the formal hearing portion of the meeting is closed, EPA can respond to informal questions.

EPA will review the transcript of all formal comments received at the hearing, and all written comments received during the formal comment period, before making a final cleanup decision. EPA will then prepare a written response to the all formal written and oral comments received.

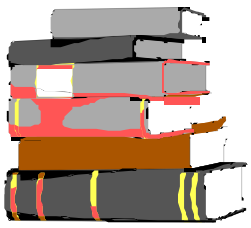


Your formal comment will become part of the official public record. The transcript of comments and EPA's written responses will be issued in a document called a Responsiveness Summary when EPA releases the final cleanup decision.

For More Detailed Information

To help the public understand and comment on the proposal for the site, this publication summarizes a number of reports and studies. All of the technical and public information publications prepared to date for the site are available at the following information repositories:

EPA Records Center
1 Congress Street
Boston, Massachusetts 02114
(617) 918-1440



Tewksbury Public Library
300 Chandler Street
Tewksbury, MA
(978) 640-4490

Information is also available for review on the world wide web at: www.epa.gov/region1/superfund/sites/suttonbrook. All documents may be downloaded and printed.

Send us Your Comments

Provide EPA with your written comments about the proposed plan for the Sutton Brook Disposal Area Superfund site. You can use the form below to send written comments. Please mail this form and any additional written comments, postmarked no later than July 28, 2007 to:

Don McElroy

U.S. EPA

1 Congress St., Suite 1100 (HBO)

Boston MA 02114

or

e-mail: mcelroy.don@epa.gov

Comments Submitted by: _____ (Attach additional sheets as needed)

public comment sheet (continued)

Fold, staple, stamp, and mail

place stamp here

Mr. Don McElroy
US EPA
1 Congress Street, Suite 1100 (HBO)
Boston , MA 02114-2023