Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
Riverside Technology Park Site

Schenectady, New York
Site Number B-00053-4

March 2003

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* ERIN M. CROTTY, *Commissioner*

DECLARATION STATEMENT
ENVIRONMENTAL RESTORATION RECORD OF DECISION

Riverside Technology Park Environmental Restoration Site
Schenectady, New York
Site No. B-00053-4

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Riverside Technology Park 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 (NYSDEC) for the Riverside Technology Park environmental restoration site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened releases of petroleum products 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 Riverside Technology Park site and the criteria identified for evaluation of alternatives, the NYSDEC has selected excavation and transport of contaminated soil to a solid waste landfill. The components of the remedy are as follows:

- A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction of the remedial program. Any uncertainties identified during the SI/RAR would be resolved.

- Excavation, transport and disposal of approximately 3600 tons of contaminated soil from two areas, delineated as "Estimated area of VOC Contamination" on Figure 5, to a NYSDEC permitted solid waste landfill. Backfill to grade with clean soil material.

- Excavation, transport and disposal of approximately 1000 tons of contaminated fill material from one area, delineated as "Estimated area of SVOC/TOC Contamination" on Figure 5, (to be removed at owner's expense) to a NYSDEC permitted, solid waste landfill. Backfill to grade with clean soil material.

- Institutional controls in the form of existing use and development restrictions preventing the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the Schenectady County Department of Health.

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.

MAR 25 2003

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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RECORD OF DECISION

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health has selected a remedy at the Riverside Technology Park Environmental Restoration Site.

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

The Riverside Technology Park brownfield project site is Lot No. 6 in a 40 acre tract of land near the Mohawk River. The City of Schenectady Industrial Development Agency is redeveloping the tract for the establishment of a number of light industrial businesses. Lot No. 6 is located on the north side of Technology Drive and adjacent to the City of Schenectady wastewater treatment facility and the Mohawk River. (See Figures 1A, 1B and 2).

As more fully described in Sections 3 and 4 of this document, the site was part of the former Sousa Petroleum Bulk Storage Facility. This storage facility was operated until the late 1960's which resulted in the disposal of hazardous substances, including petroleum contamination in the subsurface soils and the groundwater. A number of these petroleum-derived constituents including ethylbenzene, xylene and acetone have resulted in:

- A threat to human health associated with potential exposure to petroleum contaminated soil and/or groundwater.

- An environmental threat associated with the impact of contaminants to the groundwater.

To eliminate or mitigate these threats, the NYSDEC has selected the following remedy:

- A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction of the remedial program. Any uncertainties identified during the SI/RAR would be resolved.

- Excavation, transport and disposal of approximately 3600 tons of contaminated soil from two areas, delineated as "Estimated area of VOC Contamination" on Figure 5, to a NYSDEC permitted solid waste landfill. Backfill to grade with clean soil material.

- Excavation, transport and disposal of approximately 1000 tons of contaminated fill material from one area, delineated as "Estimated area of SVOC/TOC Contamination" on Figure 5, (to be removed at owner's expense) to a NYSDEC permitted, solid waste landfill. Backfill to grade with clean soil material.

- Institutional controls in the form of existing use and development restrictions preventing the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the Schenectady County Department of Health.

The selected remedy, discussed in detail in Section 8 of this document, is intended to attain the remediation goals selected for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. Standards, criteria, and guidance are hereafter called SCGs.

SECTION 2: SITE LOCATION AND DESCRIPTION

Riverside Technology Park is a 40 acre tract of land in Schenectady County that was donated to the City of Schenectady in 1982. The industrial park is being developed by the City of Schenectady Industrial Development Agency for the establishment of light industrial businesses. See Figure #1B.

Brownfield Site No. B00053-4 is Lot No. 6 of the industrial park. It is a 2.44 acre parcel located on the north side of Technology Drive, and bordered to the north by the City of Schenectady wastewater treatment facility and the Mohawk River. It is bordered to the west by Lot No. 7 (recently redeveloped by Bitwise Designs, Inc.) and to the east by Anthony Street.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

A portion of the eleven acre Sousa Petroleum Bulk Storage Facility existed on the site until the late 1960s, at which time it was decommissioned. During its operation the terminal contained seven major oil tanks (designated as Tank 1 through Tank 7) with a total volume of roughly 8.8 million gallons, and the two smaller non-designated tanks of unknown volume. Previous investigations revealed that former Storage Tanks No. 6 and No. 7, along with two smaller non-designated storage tanks, were situated within the brownfield site. (See Figure 3). Most of remaining former tank sites are west of the project site.

3.2: Environmental Restoration History

In 1982, a field inspection of the former petroleum storage facility was performed and consisted of the completion of five soil borings and groundwater analysis. The resulting report concluded that "...petroleum products were evident in the soils and groundwater. However, based on sampling and analysis that was undertaken, we find no indication of significant concentrations of hazardous materials in the groundwater."

In 1987, ownership of the former Sousa facility was transferred to the City of Schenectady Industrial Development Agency (COSIDA). In 1990, the above ground storage tanks (ASTs) and manmade structures associated with the former Sousa Petroleum Bulk Storage Facility were removed under the guidance of the Region 4 NYSDEC Office.

A subsequent Phase II field study advanced seven more soil borings and analyzed composite soil samples. It was determined that unacceptable levels of petroleum-derived constituents were present. NYSDEC was notified, and the site was subsequently investigated under the NYS Spill Program and assigned Spill No. 9109934 to the site.

In 1996, test pits were observed and sampled in anticipation of road construction for the proposed Riverside Technology Park. Light to heavy contamination of soils and groundwater was observed in six of the nine test pits located within Lot No. 6 and 7.

SECTION 4: SITE CONTAMINATION

In 1997, COSIDA (City of Schenectady Industrial Development Agency) initiated a brownfield application for Lot No. 6 and 7 of the Technology Park. However, in 1999, COSIDA sold a portion of the proposed project site to Bitwise Designs who constructed a building and a parking lot on Lot 7.

During construction of the Bitwise facility, new fill material was also placed on the western portion of Lot No. 6 to a depth of two to five feet. The brownfield application was amended to omit Lot 7, and the boundaries of the project site were redrawn. COSIDA agreed to fund field work to determine whether the new fill brought to the project site was contaminated. In early 2000, NYSDEC and COSIDA approved a project workplan and project budget, and field work was initiated in June 2000.

To determine the nature and extent of any contamination by hazardous substances of this environmental restoration site, COSIDA has recently completed a Site Investigation/Remedial Action Report (SI/RAR).

4.1: Summary of the Site Investigation

The purpose of the SI (Site Investigation) was to define the nature and extent of any contamination resulting from previous activities at the site. The SI was conducted in three phases. The first phase was conducted between June and September 2000, the second phase between September and November 2001, and a third phase, during August 2002. A report

entitled "Site Investigation/Remedial Alternatives Report Brownfield Environmental Restoration Project No. B00053-4; Lot No. 6 - Riverside Technology Park; December 2002" has been prepared which describes the field activities and findings of the SI in detail.

The SI included the following activities:

- *Topographic survey*
- *Test pit excavation and screening of soil/fill material of new fill and the soil underlying new fill material0*
- *Follow up organic analysis of fill material at three locations*
- *Surface soil sampling at six locations*
- *Soil test boring advancement and discrete soil sampling in six areas*
- *Installation of eight monitoring wells*
- *Three sampling rounds of monitoring wells*
- *Hydraulic conductivity testing of shallow aquifer*
- *Collection and evaluation of water table elevation data*
- *Soil gas survey and associated test pit excavation and soil sampling*
- *Supplemental Geoprobe boring including additional soil, fill material and groundwater sampling.*

To determine which media (soil, groundwater) are contaminated at levels of concern, the SI analytical data was compared to environmental standards, criteria, and guidance values (SCGs). Groundwater, drinking water and surface water SCGs identified for the Riverside Technology Park- Lot No. 6 brownfield site are based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part 5 of New York State Sanitary Code. For soils, NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 provides soil cleanup guidelines for the protection of groundwater, background conditions and health-based exposure scenarios.

Based on the Site Investigation results in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized below.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, where applicable, SCGs are provided for each medium. More complete information can be found in the SI Report.

4.1.1: Site Geology and Hydrogeology

The entire project site contains a surficial layer of miscellaneous fill material that varies in thickness from 3 to 10 feet. At some locations, the native material underlying the fill is a 4 foot layer of loose sand. At other locations, the underlying material is a 2 to 13 foot layer of sandy clay/silt. Beneath these layers is a 2-3 foot thick layer of coarse gravel, then a thin layer of dense glacial till. Shale bedrock was encountered at depths ranging from 16 to 36 feet from the surface. See Figure 4: Geologic Cross Sections.

In order to evaluate site conditions, eight groundwater monitoring wells were placed throughout Lot 6. Two of the wells were bedrock wells. The predominant direction of groundwater flow at the site is to the west-northwest towards the Mohawk River. The groundwater gradient over the site is 0.0064 feet/foot. The depth to groundwater table ranged from 2 to 8 feet during wetter seasons and from 7 to 14 feet during drier periods.

4.1.2: Nature of Contamination

As described in the SI report, many surface and subsurface soil, groundwater and soil gas tests were conducted to characterize the nature and extent of contamination that may be present at the site. Contamination from the site's former petroleum storage facility exceeded the SCGs. As summarized in Table 1, the main categories of contaminants were volatile and semi-volatile compounds measured in significant amounts as total petroleum hydrocarbons and total volatiles and total organic contaminants. Individual volatile contaminants measured on site included ethyl benzene, xylene and acetone. The following semi-volatile compounds were found exceeding SCGs-- benzo(a)anthracene, chrysene, benzo(k)fluoranthene and benzo(a)pyrene. Although eight inorganic compounds were measured above SCGs, none of these exceedances were significant.

4.1.3: Extent of Contamination

Table 1 summarizes the degree of contamination for the contaminants of concern in the fill material (recently placed on the western portion of Lot 6), surface soil, subsurface soil and groundwater, and compares the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soils

Surface soil samples were collected from 0-2 inches at each of the six shallow monitoring well sites. There were no detections of volatile compounds in accordance with the soil guidance document, TAGM 4046. Although there were detections of semi-volatile compounds, all organic, pesticide and PCB parameters were well below the applicable SCG levels found in TAGM 4046.

All inorganic constituents were within ranges typical of area soils and consistent with background values found in urban areas with the exception of one shallow sample at HC-6A with an elevated level of arsenic (53.6 ppm). However, follow-up sampling at the same location found arsenic concentrations of 5.5 ppm, 8.0 ppm and 12.2 ppm. The range of arsenic values typical for uncontaminated soils in New York State is 3 - 12 ppm (Walsh, Sumner and Keeney.

"Occurrence and Distribution of Arsenic in Soils and Plants". Environmental Health Perspectives, 19:67-71, 1977).

Subsurface Soil

Based on historic records and previous investigations, six soil boring and monitoring well locations were selected in the initial site investigation (SI). A photo-ionization detector (PID) was used to screen soil and identify distinct zones of subsurface soil contamination. Soil samples were collected and analyzed from the zones of soil with the highest PID readings.

Distinct zones of subsurface volatile contamination were found to exist at four of the six boring locations. Volatile contamination, including ethylbenzene (25 ppm), total xylenes (89 ppm), o-xylene (3.6 ppm) and total volatiles (180.6 ppm and 21.8 ppm) exceeded soil guidance values at one location. This area is within the delineated contaminated area surrounding well pair HC-2s and HC-2d on Figure 5. No detectable PCBs or pesticides were measured; and measurements of inorganic compounds were within ranges consistent with values found in background soils.

Subsequent to soil gas screening of the entire site on a fifty foot grid, seven supplemental test pits were excavated down to the water table. Soils were screened with a PID to confirm the presence of organic vapors. Based on this screening, five subsurface soil samples were collected and analyzed. One sample, HP-A5, contained volatile contaminants above soil guidance levels for ethylbenzene (17 ppm), m/p-xylene (55 ppm), o-xylene (2.3 ppm) and total volatiles (331 ppm). Sample location HP-A5 is shown on Figure 6: Soil Contaminants (Soil Borings & Fill Test Pits). All five samples exceeded the guidance level of 10 ppm for total volatile concentrations. These five sample locations are found within the two "estimated areas of VOC contamination" identified on Figure 5.

A third phase of soil boring and sampling was conducted in August 2002 at eight locations in the western portion of the site. Three of the sampling locations were on the site's western and southwestern boundary. Two borings were completed at soil gas test locations B-10 and C-10; and three borings were completed at former test pit locations where petroleum hydrocarbons had been measured.

At these boring locations, seven subsurface samples were collected and analyzed for organic contaminants. Low levels of 18 semi-volatile compounds were estimated in the subsurface samples. None of these detections were a concern except in one sample where the level of benzo(a)anthracene (0.250 ppm) was estimated to be near the compound's guidance value of 0.224 ppm and the level of benzo(a)pyrene (0.300 ppm) was estimated above the guidance value of 0.061 ppm.

Groundwater

The groundwater on Lot 6 has been impacted by previous site use and conditions. Impacts include low level contamination by petroleum products generally throughout the site. No pesticides or PCBs were detected in groundwater samples.

Four volatile compounds (acetone, ethyl benzene, m&p xylene and o-xylene) were identified at concentrations above groundwater standards. (See Table 1).

In some areas of the site, the estimated concentration of total organic substances (ranging from 8.3 ppb near HC-6 to 1437 ppb near HC-2S) exceeded the New York State groundwater effluent limitation standard of 100 ppb. The specific locations of onsite groundwater contamination include the areas adjacent to monitoring wells HC-2S, HC-4S and HC-5.

Contamination by metals was suspected near HC-5, however subsequent analysis of (field) filtered and unfiltered groundwater samples concluded that no metals contamination has been demonstrated. This conclusion is based on the fact that high metals content are typically found in lab analyses of turbid groundwater samples which are due to interference of suspended particles and not to the presence of soluble contaminants.

Fill Material in Western Portion of Site

Following the acceptance of the Riverside Technology Park site into the Brownfields program, contaminated fill material was brought to the western portion of Lot 6 during the redevelopment of adjacent Lot 7. COSIDA has agreed to be responsible for all costs of the investigation and remediation of this fill.

In order to determine the contamination level of this material, nine locations were sampled. No detections of volatile compounds on the target compound list (TCL) were measured. Detections of nine (9) TCL semi-volatile compounds were measured at two of the nine locations. At one location, four compounds exceeded TAGM 4046 guidance values. This location is delineated as the "estimated area of SVOC/TOC contamination" on Figure 5: Soil Contaminants, and is estimated to be 1000 tons of fill material. Remediation of this area will be addressed by the owner and will not be funded under the brownfield program.

The compounds exceeding TAGM levels were benzo(a)anthracene at 1.5 ppm (an exceedance of the TAGM 4046 guidance value of 0.224 ppm), chrysene at 1.3 ppm (an exceedance of the guidance value of 0.400 ppm), and benzo(k)fluoranthene at 1.3 ppm (an exceedance of the guidance values of 1.100 ppm), and benzo(a)pyrene at 1.1 ppm (an exceedance of TAGM value of 0.061 ppm).

Inorganic compounds, pesticides and PCBs were measured at three locations in the new fill. Five low-level detections of pesticides and PCBs were detected, however all five were below TAGM levels. The concentrations of inorganic compounds measured at these locations were typical of background levels.

4.2: Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 5 of the SI 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 are documented. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Currently, there are no known exposure pathways which exist at the site. Potential exposure pathways which could exist in the future include the following:

- Dermal contact, incidental ingestion and inhalation of vapors from contaminants in sub-surface soil by construction workers involved in future excavation activities.

- Inhalation of vapors accumulating in the indoor air of structures constructed on-site in the future.

- The potential for future exposures to contaminants in on-site groundwater is unlikely due to the on-site availability of a public water supply. However, potential exposures to contaminated groundwater could occur in the future if a drinking water well is installed on-site.

4.3: Summary of Environmental Impacts

This section summarizes the types of environmental exposures and ecological risks which may be presented by the site. The following pathways for environmental exposure or ecological risks have been identified:

1. There is potential for a low level plume containing volatile organic compounds to migrate offsite. However, there is no known or suspected data that indicates that contamination migrates into the Mohawk River.

2. Contaminated subsurface soils and groundwater present no exposure to wildlife on or adjacent to the site, and therefore there are presently no risks to populations. However, future

development of the site will bring contaminated subsurface soils to the surface and could therefore bring wildlife in contact with petroleum hydrocarbons.

SECTION 5: ENFORCEMENT STATUS

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

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. The City of Schenectady Industrial Development Agency (COSIDA) will assist the State in its efforts by providing all information to the State which identifies PRPs. COSIDA will also not enter into any agreement regarding response costs without the approval of the NYSDEC.

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

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

The proposed future use for the Riverside Technology Park Lot No. 6 brownfield site is light industrial. The cleanup goals selected for this site are:

- *Reduce, control, or eliminate to the extent practicable the petroleum contamination present within the soils on site.*
- *Eliminate the potential for direct human or animal contact with the contaminated soils during site redevelopment.*
- *Prevent, to the extent possible, migration of contaminants in the subsurface to groundwater.*
- *Provide, to the extent practicable, for attainment of SCGs for soils and groundwater quality.*

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost effective and comply with other statutory requirements. Potential remedial alternatives for the Riverside Technology Park, Lot No. 6, Brownfield Site No. B00053-4 were identified, screened and evaluated in a Remedial Alternatives Report. This evaluation is presented in the report entitled "Site

Investigation/Remedial Alternatives Report. Brownfield Environmental Restoration Project No B00053-4; Lot No.6-Riverside Technology Park; November, 2002".

This report contains a summary of the remedial alternatives that were considered. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy or procure contracts for design and construction.

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

7.1: Description of Remedial Alternatives

The potential remedies are intended to address only contaminated soils at the site. Groundwater is slightly above standards and
does not presently impact human health. Institutional controls will mitigate potential impacts during future site redevelopment. In addition, removal of the source of contamination will reduce groundwater contamination over time.

Alternative No. 1: No Action

The No Action alternative is typically evaluated as a procedural requirement and as a basis for comparison. This alternative allows the site to remain in an unremediated state. This site would be left in its present condition and would not provide any additional protection to human health or the environment. Long term groundwater monitoring, if required, would be performed for a five year.

No Action

Present Worth:	*$67,500*
Capital Cost:	*none*
Five years of monitoring:	*$67,500*
Time to Implement	immediate

Alternative No 2: Excavation and Transport of Contaminated Soil To a Solid Waste Landfill/Institutional Controls

Alternative No. 2 would excavate and transport an estimated 3600 tons of contaminated subsurface soil, exceeding TAGM 4046 levels, to a NYSDEC-permitted solid waste landfill for disposal or for use as cover soil. Excavated areas would be backfilled with clean soil material and regraded.

Institutional controls would be implemented to protect the public and the environment from groundwater contamination exceeding standards which remains onsite following remediation. The

institutional controls would prevent the use of groundwater as a source of potable or process water without necessary water quality treatment.

Concurrent with the above remedy would be the removal of 1000 tons of contaminated fill material by the owner.

Excavation and Transport of Contaminated Soil To a Solid Waste Landfill/Institutional Controls

Present Worth:	*$190,000*
Capital Cost:	*$190,000*
Annual O&M:	*none*
Time to Implement	2-4 months

Alternative No 3: Excavation of Soil With Onsite Biopile Treatment/Institutional Controls

Alternative No. 3 involves excavation of the 3600 tons of contaminated soil and followed by treatment in a biopile created onsite in accordance with Spill Technology And Remediation Series Memo #2: Biocell and Biopile Designs for Small-Scale Petroleum-Contaminated Soil Projects (STARS Memo #2). Prior to pile construction, bio-nutrients and perhaps oxygen releasing compounds (ORCs) would be added and blended with the soil. The excavation site would be regraded, then once treatment is determined to be complete, the treated soils would be utilized as backfill.

Institutional controls would be implemented to protect the public and the environment from groundwater contamination exceeding standards which remains onsite following remediation. The institutional controls would prevent the use of groundwater as a source of potable or process water without necessary water quality treatment.

Concurrent with the above remedy would be the removal of 1000 tons of contaminated fill material by the owner.

Excavation of Soil With Onsite Biopile Treatment/Institutional Controls

Present Worth:	*$135,000*
Capital Cost:	*$135,000*
Annual O&M:	*none*
Time to Implement	18-24 months

7.2 Evaluation of Remedial Alternatives

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

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

1. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance.

The No Action Alternative No 1 would not meet this criterion and would not comply with applicable SCGs. Compliance with soil guidance would be met by Alternative No 2: Excavation with Offsite Disposal in a Solid Waste Landfill Facility. Soil guidance limits would also be met by the completion of Alternative No 3: Soil Excavation with Biopile Treatment. In addition, Alternatives 2 and 3 would remove the source of groundwater contamination, thereby allowing the plume to naturally attenuate.

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

The No Action Alternative No 1 would not protect the public health. Both Alternative No. 2: Excavation with Offsite Disposal and Alternative No. 3: Excavation with Onsite Biopile Treatment would protect the public health by reducing and removing the identified contamination in subsurface soils. Institutional controls would also protect human health by preventing future exposure to residual contamination in the groundwater by prohibiting use or consumption of the onsite groundwater.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies as a minimum. Alternative No 1: No Action was not evaluated any further since it does not meet threshold criteria.

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

The adverse onsite impacts resulting from Excavation with Onsite Treatment could be slightly greater than those resulting from Excavation with Offsite Disposal since the onsite treatment would take up to 24 months to complete.

Potential worker and community exposure during excavation would be minimized with the use of engineering controls (noise and dust suppression) during the remedial work. The estimated time to achieve the remedial objectives for Alternative No 2 would be two to four months. The estimated time to achieve the remedial objectives for the Onsite Treatment Alternative No 3 would be 18-24 months.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of

the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

Alternatives No 2 and 3 involve excavation and off-site removal or onsite treatment processes which permanently remove and/or reduce the contaminant loading of the onsite media. However, varying amounts of residual groundwater contamination would likely be present onsite after the completion of both alternatives. However, once the source is removed, groundwater contamination will be reduced over time.

There would be no human or wildlife exposure to this subsurface residual contamination unless a significant amount was brought to the surface during site redevelopment. Proposed restrictions prohibiting groundwater use for future development would effectively limit potential human exposure to residual groundwater contamination.

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

Alternative No 2: Excavation with Offsite Disposal and Alternative No 3: Excavation with Onsite Treatment would both permanently reduce the volume and mobility of site contaminants. Excavation with Offsite Disposal in a Solid Waste Landfill would permanently reduce the mobility of the contaminated soil, and Excavation with Onsite Treatment would permanently reduce the volume and mobility of contaminated soil through treatment.

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

Both Alternatives would require excavation and backfill. This work would pose typical construction safety issues which could be addressed by appropriate construction management controls. Both alternatives would be feasible, and would present no administrative barriers to implementation. The alternative utilizing off-site disposal would be easily implementable and would be completed in a shorter time period which may facilitate the redevelopment of the site.

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

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

8. Community Acceptance. Concerns of the community regarding the SI/RAR reports and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" 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.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the NYSDEC has selected Alternative No 2: Excavation with Offsite Disposal as the remedy for this site. The elements of this remedy are described at the end of this section.

This selected remedy is based upon the on the results of the SI and the evaluation of alternatives presented in Section 7 and in the RAR.. The No Action Alternative was not an acceptable choice because it does not meet the first two critical, threshold criteria. Both Alternatives 2 and 3 meet all seven criteria. They have similar elements; and only differ in the method of contaminant removal/reduction. Both Excavation with Offsite Disposal and Excavation with Onsite Treatment offer equal compliance with SCGs, equal protection of human health and the environment and permanent reduction of contaminant volume or mobility.

The estimated cost of Alternative No 3 is $55,000 or 29% less than Alternative No 2. However, Alternative No 2 will take only 2-4 months to complete, as compared to the 18-24 months it would take to complete onsite treatment in Alternative No 3. As a result, Alternative No 2 will facilitate redevelopment of the property since it will make Lot 6 available for productive reuse 14-22 months sooner than would Alternative No 3.

The cost to construct the remedy is estimated to be $190,000. This cost does not include removal of the contaminated fill material. The costs of the removal of the contaminated fill are ineligible for brownfields funding and would be paid by the owner. There will be no operation and maintenance and therefore no additional costs beyond construction.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction of the remedial program. Any uncertainties identified during the SI/RAR would be resolved.

2. Excavation, transport and disposal of approximately 3600 tons of contaminated soil from two areas, delineated as "Estimated area of VOC Contamination" on Figure 5, to a NYSDEC permitted solid waste landfill. Backfill to grade with clean soil material.

3. Excavation, transport and disposal of approximately 1000 tons of contaminated fill material from one area, delineated as "Estimated area of SVOC/TOC Contamination" on Figure 5, (to be removed at owner's expense) to a NYSDEC permitted, solid waste landfill. Backfill to grade with clean soil material.

4. Institutional controls in the form of existing use and development restrictions preventing the use of groundwater as a source of potable or process water without necessary water quality treatment as determined by the Schenectady County Department of Health.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the Riverside Technology Park 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 at the Schenectady County Library, NYSDEC Region 4 Headquarters in Schenectady, and the NYSDEC Central Office.

- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.

- Fact Sheet No 1,"Site Investigation Planned for the Riverside Technology Park Site", was distributed to the public contact list in July 2000.

- Fact Sheet No 2, ""Remedial Action Proposed for Riverside Technology Park, Public Meeting, Comment Period Announced", was distributed to the public contact list on January 23, 2003.

- A public meeting was held on February 10, 2003 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
Nature and Extent of Contamination – Subsurface Soil

CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY OF EXCEEDING SCGs (> MQL)	SCG TAGM 4046 (ppm)
Volatiles	ethyl benzene	ND– 25	2 of 19 samples	5.5
	total xylenes	ND – 89	1 of 7 samples	1.2
	m & p-xylene	ND – 55	1 of 12 samples	1.2
	o-xylene	ND – 3.6	2 of 19 samples	1.2
	total volatiles	D – 331J	7 of 19 Samples	10
Semi-Volatiles				
	Benzo (a) anthracene	ND – 0.25J	1 of 19 samples.	0.224
	Benzo (a) pyrene	ND – 0.3J	1 of 19 samples.	0.061

Nature and Extent of Contamination – Surface Soil

CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY OF EXCEEDING SCGs (> MQL)	SCG TAGM 4046 (ppm)
Inorganic Compounds	Arsenic	3.1 – 53.6	1* of 10 samples	Background**
			*Repeat sampling did not reproduce the exceedance.	**Typical background levels for New York State are 3-12 ppm.

Nature and Extent of Contamination – Fill Material

CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppm)	FREQUENCY OF EXCEEDING SCGs (> MQL)	SCG TAGM 4046 (ppm)
Semi-Volatiles				
	benzo (a) anthracene	ND – 1.5	1 of 9 samples.	0.224
	chrysene	ND – 1.3	1 of 9 samples.	0.400
	benzo (k) fluoranthene	ND – 1.3	1 of 9 samples.	1.100
	benzo (a) pyrene	ND – 1.1	5 of 9 samples.	0.061

Table 1 (continued)

Nature and Extent of Contamination – Ground Water

CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY OF EXCEEDING SCGs	SCG (ppb)
Volatiles	ethyl benzene	ND – 180	2 of 23 samples	5
	m&p xylenes	ND – 43	1 of 23 samples	5
	o-xylene	ND - 24	1 of 23 samples	5
	acetone	ND – 52	5 of 23 samples	5
Organic Substances	Total Organic Substances	8.3J - 1437J	15 of 23	100

"J" indicates estimated value below procedure Method Quantification Limit

"ND" indicates not detected or estimated

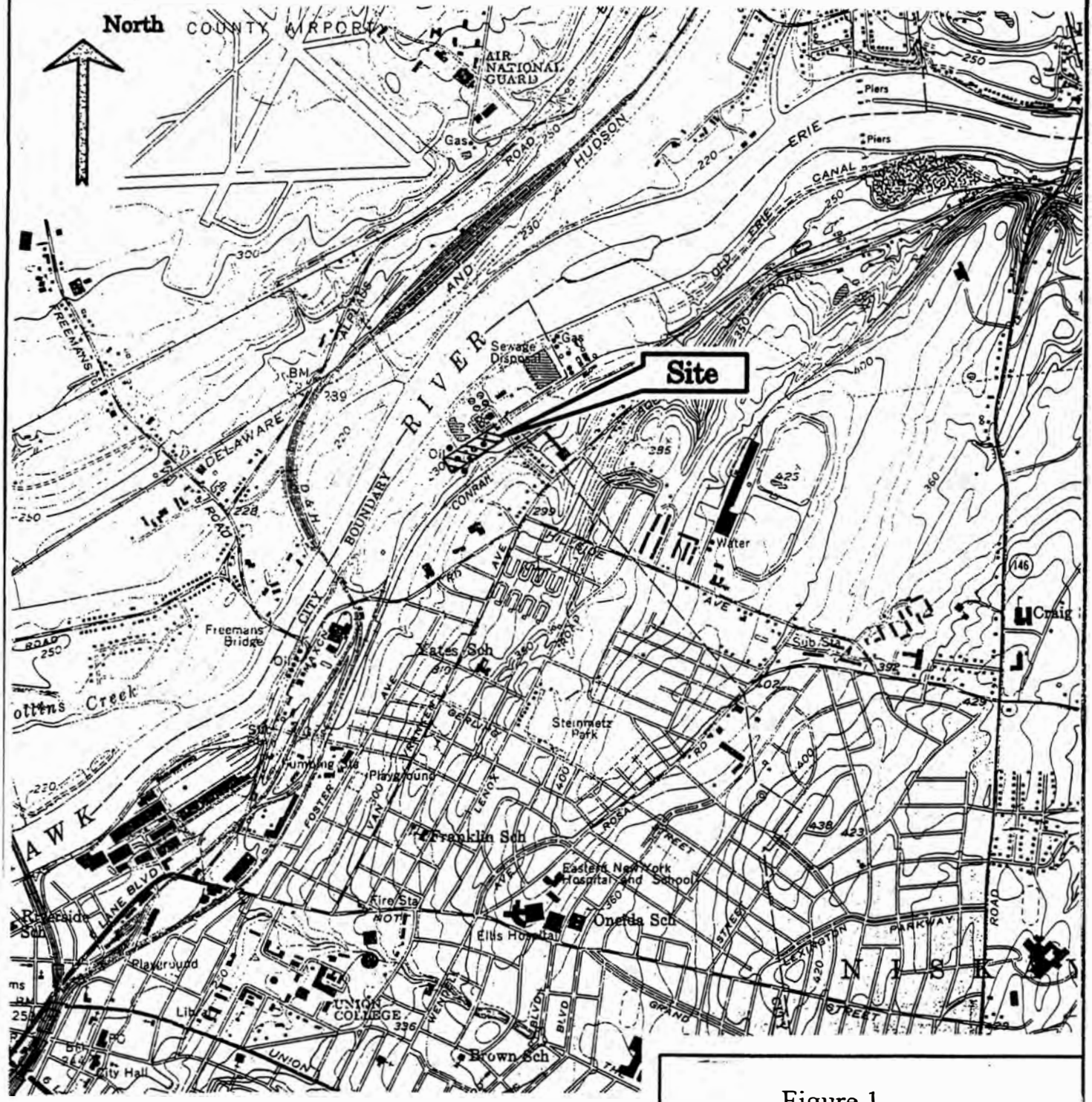
**Walsh, Sumner, and Keeney."Occurrence and Distribution of Arsenic in Soils and Plants", 1977.

Table 2

Remedial Alternative Costs

Remedial Alternative	Capital Cost	Annual O&M	Total Present Worth
No Action	none	$13,500	$67,500(5 years)
Excavation with Off-Site Disposal	$190,000	none	$190,000
Excavation with Onsite Treatment in Biopiles	$135,000	none	$135,000

sitemap



Source: USGS 7.5 Min Topographic Quadrangle Schenectady, NY 1980

Approximate Scale: 1" = 2,000'

Figure 1.

Brownfield Environmental Restoration Project
Lot 6 Riverside Technology Park
City of Schenectady, New York

Site Location Map

Dwg. By: JRH	Chk. By: JRH		
Scale: As Noted	Date: 2/10/99	Dwg. No.: 99-158.01-S1	Sheet No.: 1 of 1

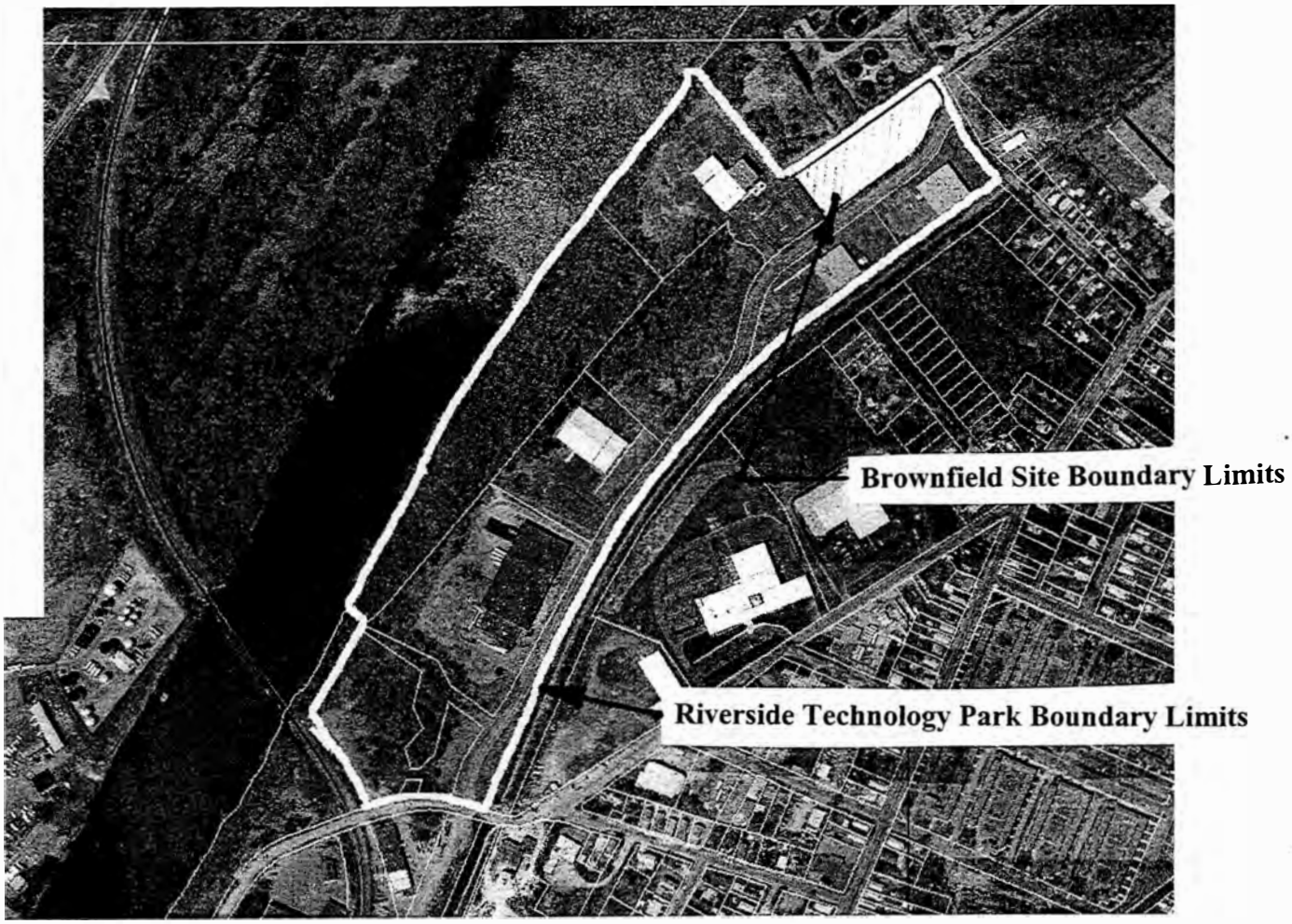
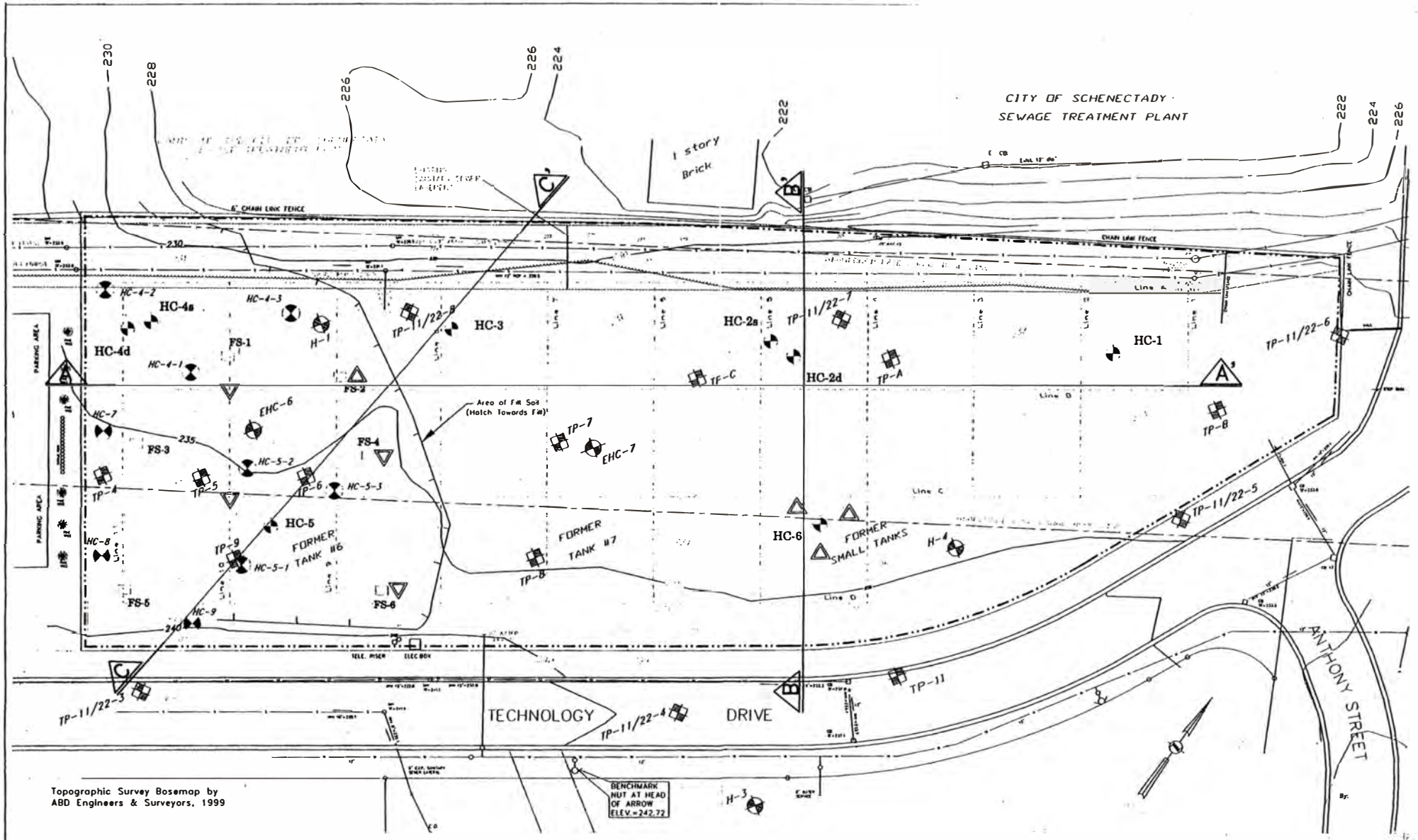


Figure 1B

Riverside Technology Park
Location of Brownfield Site within the Technology Park
Not to Scale



Topographic Survey Basemap by ABD Engineers & Surveyors, 1999

LEGEND

- HC-4s — SI Installed Monitor Well Location (7/00)
- FS-1 — Fill Soil Test Pit Location (6/00)
- Erie Canal Blue Line (Estimated) (Approx. Location Canal P.L.)
- Ground Surface Elevation Contour (Feet, Mean Sea Level)
- Lot 6 Study Area Limits
- HC-5-1 — SI "Geoprobe" Ground Water Sample Location (9/01)
- TP-B — EHC Test Pit (9/96)
- H-3 — O'Brien & Gere Well (1981) & EHC Boring (1992)
- TP-11/22-7 — EHC Test Pit (11/96)
- Line B — Soil Gas Survey Grid, 50-foot Interval
- HC-8 — SI (S2) "Geoprobe" Ground Water Sample Location (8/02)
- SI (S2) "Geoprobe" Soil Sample Location (8/02)
- SI (S2) Fill Soil Sample Location (8/02)
- A — Geologic Cross-Section

No.	Date:	REVISION
0	7/15/02	Issued with Suppl III Work Plan

It is unlawful to revise, alter, or change this drawing other than by a licensed Professional Engineer

Dwg. By: JRH Chk. JRH

Scale: 1" = 30'

Figure 2

Project: Site Investigation/Remedial Alternatives Report
Lot 6 - Riverside Technology Park
City of Schenectady IDA
Schenectady, New York

Title: Field Investigation Location Plan
Work Tasks, Supplemental No. 2

Date: 7/15/02 Dwg. No.: 02-15803-152 Sheet No.: 1 of 1

BITWISE DESIGNS, INC.

LANDS OF THE CITY OF SCHENECTADY
(SEWAGE TREATMENT PLANT)

ABANDONED ERIE CANAL BLUE LINE

6' CHAIN LINK FENCE

EXISTING SANITARY SEWER EASEMENT

1 story Brick

EX CB

INV 18" HDPE = 226.3

INV 5'-7" ARCH = 220.6 (THRU)

INV 42" RCP = 220.4 (THRU)

INV 42" RCP = 220.5

ABANDONED ERIE CAN

"Light Odor" @ 4'-10"
PID=0, Water @ 4'
TP-11/22-1

EHC-2
PID = ND
soil - benzene = 3 ppb

EHC-4
PID = 40 ppm
soil - BCTX = 12 ppb

FORMER TANK #2

FORMER TANK #4

PARKING AREA

TP-2
Water @ 8'
"Strong Smell" @ 5'-8"

TP-3
"Contaminated" @ 3'-8"
Water @ 8'

EHC 6
(Destroyed)

EHC-5
PID = 200 ppm
grab Soil - BCTX 21 ppb
naphthalene 65 ppb
toluene 25 ppb
Shale @ 13' (el. 220')

FORMER TANK #5

TP-1
"Light Contamination" @ 3'-4'

HC-4-2
HC-4s
HC-4-3
HC-4d
HC-4-1
FS-1
H-1
B-10
FS-2
HC-7
FS-3
EHC-6
HC-5-2
FS-4
TP-4
TP-5
TP-6
HC-5-3
C-10
HC-5
HC-8
TP-9
HC-5-1
FORMER TANK #6
FS-5
FS-6
HC-9

TP-11/22-8
HC-3
TP-11/22-7
HC-2s
HC-2d
TP-A
TP-C
"Light Contamination" (smell)
Area of Fill Soil (Hatch Towards Fill)
"Blue" Sands, contaminated 4'-9' - water @ 8'
TP-7
EHC-7
PID = 2.5 ppm @ water table
Comp. soil - BCTX 74 ppb
FORMER TANK #7
HC-6
FORMER SMALL TANKS
Possible light contamination 5'-7' - water @ 7'
TP-8

Line 11
Line 10
Line 9
Line 8
Line 7
Line 6
Line 5
Line 4
Line D

8" WATER
TELE. RISER
ELEC.BOX

TECHNOLOGY DRIVE

TP-11/22-2
PID = 48 ppm @ 7' w/ odor
Water @ 7'
Grab Soil - naphthalene 1 ppb
butylbenzene 9 ppb

PID = 10 ppm @ 7'-9'
w/ odor, Water @ 6'
TP-11/22-3

PID = ND
No Visual Contamination
Rock @ 5.5'
TP-11/22-4

TP

PID = 75 ppm
Grab Soil BCTX 4 ppb
Shale @ 14' (el. 228')
EHC-3

FORMER TANK #3

Water Sample
No contamination
EHC 9
(Destroyed)

BENCHMARK
NUT AT HEAD OF ARROW
ELEV. = 242.72

H-3

C.O.

Northeast Analytical Building

M&P Parking

M & P Labs Building

LEGEND

- HC-4s — SI Installed Monitor Well Location (7/00)
- FS-1 — Fill Soil Test Pit Location (6/00)
- Erie Canal Blue Line (Estimated) (Approx. Location Canal P.L.)
- 236 — Ground Surface Elevation Contour (Feet, Mean Sea Level)
- Lot 6 Study Area Limits
- HC-5-1 — SI "Geoprobe" Ground Water Sample Location (9/01)
- TP-B — EHC Test Pit (9/96)
- H-3 — O'Brien & Gere Well (1981) & EHC Boring (1991)
- TP-11/22-7 — EHC Test Pit (11/96)
- PID = 45 ppm soil - BCTX 12 ppb — Previous Investigation Contamination Description
- Line A / Line B — Soil Gas Survey Grid, 50-foot Interval
- HC-8 — Phase III "Geoprobe" Soil or Water Sample Location (8/02)

No.	Date:	REVISION
0	11/15/02	Issued with SI/RAR, Final

It is unlawful to revise, alter, or change this drawing other than by a licensed Professional Engineer

Dwg. By: JRH | Chk. By: JRH

Scale: 1' = 30'

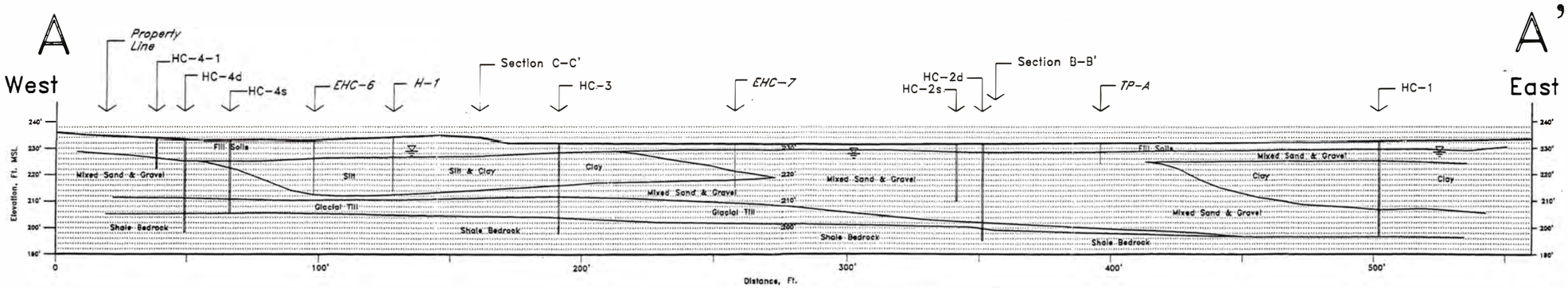
Figure 3

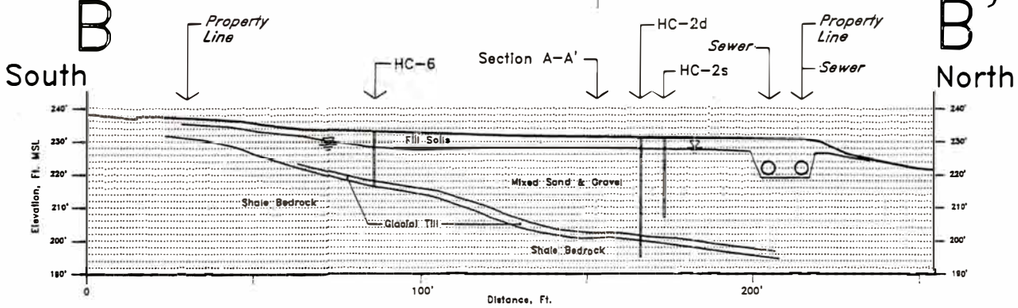
Project: **Site Investigation/Remedial Alternatives Report**
Lot 6 - Riverside Technology Park
City of Schenectady IDA
Schenectady, New York

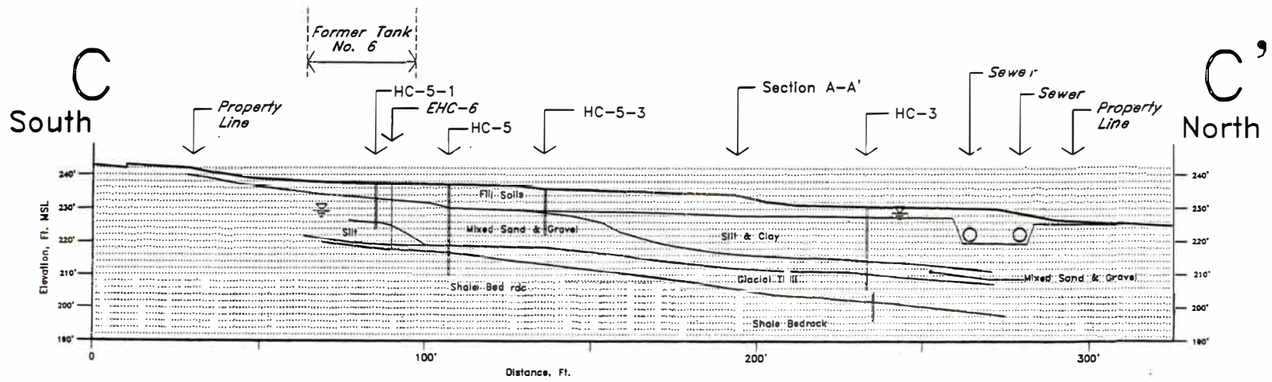
Title: **Previous Investigations Indicated Contamination**

Date: 11/15/02 | Dwg. No.: 02-158.03-1A | Sheet No.: 1 of 1

SJRAR-8-0100







NOTES

1. Geologic interpretation from logs of soil borings by Holt Consulting, supplemented by previous investigations by others (in italic).
2. Some boring locations off-set from Section Lines, see Drawing 01-158.03-1.
3. Ground water elevation from data taken on 5/1/01, indicated by: ▽

No.	Date:	REVISION
0	2/22/02	Issued with SI/RAR

STATE OF NEW YORK JEFFREY H. HOLT 87039 LICENSED PROFESSIONAL ENGINEER

Dwg. By: JRH | Chk. By: JRH

Scale: 1' = 30'

Figure 4

Project: Site Investigation/Remedial Alternatives Report
Lot 6 - Riverside Technology Park
City of Schenectady IDA
Schenectady, New York

Title: Geologic Cross Sections

Date: 2/1/02 | Dwg. No.: 01-158.03-8 | Sheet No.: 1 of 1

LANDS OF THE CITY OF SCHENECTADY (SEWAGE TREATMENT PLANT)

CITY OF SCHENECTADY SEWAGE TREATMENT PLANT

EXISTING SANITARY SEWER EASEMENT

1 story Brick

6' CHAIN LINK FENCE

CHAIN LINK FENCE

ABANDONED ERIE CANAL BLUE LINE

PARKING AREA

HC-4d

HC-4s

HC-3

HC-2s

HC-2d

HC-1

HC-7

HC-8

HC-9

HC-5

HC-6

FS-1

FS-2

FS-3

FS-4

FS-5

FS-6

B-10

C-10

Area of Imported Western Fill Soil (Hatch Towards Fill)

Estimated Area of SVOC/TOC Contamination (Imported Western Fill Soils)

Estimated Area of VOC Contamination (See Dwg. 01-158.03-7)

FORMER TANK #7

FORMER TANK #6

FORMER SMALL TANKS

Line A

Line B

Line C

Line D

TECHNOLOGY DRIVE

ANTHONY ST.

BENCHMARK NUT AT HEAD OF ARROW ELEV.=242.72

Area of Excavation of approx. 3600 tons of contaminated soil (Brownfield eligible)

Area of Excavation of approx. 1000 tons of contaminated soil (removed at owner's expense)

LEGEND

HC-4s — Sample Depth / Total VOC's / Total SVOC's / TOC's / TPH — SI Installed Soil Boring Location, w/ Organics, Sum of Positive, Estimated and Tentative Identifications Shown for B "deep" Sample. *

HC-8 / FS-4 — C-10 10' VOC's: 1,636 SVOC's: 34,773 TOC's: 36,409 TPH: 2,300; 4' NA 4,998 4,998 NA — Phase III "Geoprabe" Soil Sample (8/02) Organics, Sum of Positive, Estimated and Tentative Identifications Shown (Imported Fill Data in Italic)

FS-1 — TPH (mg/kg) upper/lower sample — Imported Fill Soil Test Pit Location w/ upper (fill) and lower (native) TPH Indications

Erie Canal Blue Line (Estimated) (Approx. Location Canal P.L.)

236 — Surface Elevation Contour (Feet, Mean Sea Level)

Lot 6 Study Area Limits

Approx. Limit of VOC Contamination (See Dwg 01-158.03-7)

20,000 — Organic Compound Iso-contour TOC, ug/kg.

Line 4 / Line B — Soil Gas Survey Grid, 50-foot Interval

* Organic Results Reported in ug/kg (ppb). TPH Reported in mg/kg (ppm).

Note: Summarized data from SI/RAR Tables 7 & 7A, and Table 21.

No.	Date:	REVISION
0	5/30/01	Issued with Interim SI Report
1	2/22/02	Issued with SI/RAR, draft
2	11/15/02	Issued with SI/RAR, final

Dwg. By: JRH | Chk. By: JRH

Scale: 1' = 30'

Figure 5

Project: **Site Investigation/Remedial Alternatives Report**
Lot 6 - Riverside Technology Park
City of Schenectady IDA
Schenectady, New York

Title: **Soil Contaminants**
(Soil Borings & Fill Test Pits)

Ds 5/1/01 | Dwg. No.: 01-158.03-2 | Sheet No.: 1 of 1

CITY OF SCHENECTADY
SEWAGE TREATMENT PLANT

1 story Brick

EXISTING SANITARY SEWER EASEMENT

CHAIN LINK FENCE

Area A

Area B

Area of Fill Soil (Hatch Towards Fill)

HC-3

HC-2s

HC-2d

HC-1

HC-6

FORMER SMALL TANKS

FORMER TANK #7

TECHNOLOGY DRIVE

Line A

Line B

Line C

Line D

TPH: 2,500
VOC: 331,300
SVOC: 61,920

15,038 A-5

TPH: 99
No Other Testing

20,755+B-2.5 +OTHER

49,741+ B-2 +OTHER

TPH: 7,200
VOC: 153,600
SVOC: 52,930

2,776 B-5 +OTHER

207,930+ B-4 +OTHER

TPH: 2,500
VOC: 112,400
SVOC: 39,991

TPH: 10,000
No Other Testing

	4'	7'
TPH:	2,500	6,600
VOC:	217,100	281,000
SVOC:	46,750	66,500

1,486 C-2

TPH: 71
No Other Testing

-PID at BR-
No Testing

Figure 6

Organics In Supplemental Test Pits & Impacted Soil Delineation

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Riverside Technology Park Environmental Restoration Site
City of Schenectady, New York
Site No. B-00053-4

The Proposed Remedial Action Plan (PRAP) for the Riverside Technology Park site, was prepared by the New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on January 23, 2003. The PRAP outlined the remedial measure proposed for the contaminated subsurface soil and fill material at the Riverside Technology Park 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 February 10, 2003, 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 March 10, 2003.

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

COMMENT 1: Are the [estimated remedial] costs provided in the PRAP set costs? Or will the project be bid?

RESPONSE 1: The cost in the PRAP for construction of the Environmental Restoration Program-eligible remedial work is an estimate; the project will be bid. This $190,000 estimate is limited to excavation and disposal of 3600 tons of contaminated subsurface soils and does not include any costs for the removal of the 1000 tons of contaminated fill material.

COMMENT 2: Is the estimated amount of contaminated soils, 3600 tons, the worst case scenario?

RESPONSE 2: The estimate is conservative. Our calculation of the volume of contaminated soil included the soils from 0-6.5 feet in depth. We expect that the soils in the contaminated area from 0 to 3 feet deep are relatively uncontaminated. In the field investigation, the VOC contamination was generally found at 4-6 foot depths in the "smear zone" (which is the area where floating petroleum product

would have been found rising and falling with the fluctuating water table). It may be cost-effective to segregate and test the soils above a 3 foot depth to see if they can be used for clean backfill rather than taken off-site for disposal.

COMMENT 3: Does the "time to implement" of 2-4 months [referred to in the PRAP] include assembling the contract documents and bidding the project?

RESPONSE 3: No. This time period does not include the design completion and the State-required bidding process.

COMMENT 4: Approximately how long will it take to execute the new State Assistance Contract (SAC) for remedial construction [once the application is submitted]? How long will it take to execute an amendment to the investigation SAC [once the final closeout budget has been approved]?

RESPONSE 4: It is likely to take six months to fully execute the new SAC after an application is submitted by COSIDA and accepted by NYSDEC. This six month projection assumes that COSIDA and NYSDEC will take two months to agree on the design and construction budget and scope of work and that COSIDA will sign and return the new SAC at the end of the second month. Following NYSDEC's receipt of the contract, it is likely to take an additional 3-4 months to process the contract and encumber the project funds.

An amendment to the existing investigation SAC will probably take 3-4 months to process and encumber the funds.

COMMENT 5: Will the State reimburse 75% of the cost of removing the fill? Do you estimate these costs to be about $4000-5000?

RESPONSE 5: The cost of removing the contaminated fill is not eligible under the Environmental Restoration Program. COSIDA allowed the fill to be brought on site in 1999 and has agreed to be responsible for the cost of its investigation and remediation. The cost of removing the contaminated fill material is estimated to be $25,000.

COMMENT 6: So in the bid documents, you give them, [the contractors], the estimated number of units for each bid item. Is that correct?

RESPONSE 6: Yes it is. The number of tons of contaminated soil to be excavated and disposed will be determined in the field using screening/monitoring and confirmation sampling. Also, because of the nature of remedial work, the contract and bid documents will contain specific additional requirements **for**

health and safety, confirmation sampling, construction water management and treatment, air monitoring, and quality assurance/quality control.

COMMENT 7: Are we required to backfill the excavations with clean soil (since the site will be immediately marketed and sold for redevelopment)?

RESPONSE 7: It is standard practice to backfill excavated areas to grade. However, NYSDEC will allow some modifications to this practice in the remedial design documents. The design must demonstrate that final side slopes will be stabilized; there will be no potential exposure to contaminated groundwater at the surface, and the site will drain properly.

COMMENT 8: Mr. Holt, how long will it take you to put the bid documents together? [To get the project ready to bid?]

RESPONSE 8: It will take 1-2 months to complete bid documents–a set of plans and specifications and a detailed construction cost estimate which are suitable for bidding and construction. Once the documents have been approved by NYSDEC, the bid may be advertised.

COMMENT 9: Will excavation of contaminated subsurface soils be carried out below the water table?

RESPONSE 9: Yes, much of the contaminated soils are saturated. The water table is at 4-6 feet below ground surface (BGS). During the field investigation, some contaminated material was found down to the clay layer which is about 10-12 feet BGS. The 3600 ton estimate of contaminated material was made to 6.5 foot depth which is 0.5-2.5 feet below the water table.

COMMENT 10: Will water generated during the remediation need to be managed by the contractor?

RESPONSE 10: Yes. Water in the excavated area will probably require removal and treatment prior to disposal. It may have a greater contaminant loading than adjacent groundwater due to agitation during excavation.

COMMENT 11: Does the onsite watertable rise during the summer when nearby canal locks are functioning? If so, should the excavation occur when the water table is lower when less construction water and saturated soil will be generated?

RESPONSE 11: The depths to water were recorded in the eight onsite groundwater monitoring wells over a two year period. Their water table depths did not rise during the

summer when the nearby locks were in use on the Mohawk River. However, decreasing water table levels did correspond with drought conditions.

COMMENT 12: Is it possible that the presence of the historic Erie Canal route onsite impacted plume migration on the site?

RESPONSE 12: We did not see any evidence of that. We think the former canal structures are too far below the surface to influence the migration of the petroleum contamination created by the Sousa facility.

COMMENT 13: Was there any other fill material, debris or "weathering" found during the field investigation?

RESPONSE 13: There appears to be 1-2 foot thick layer of old fill in the area of subsurface soil contamination. We did find some piping (perhaps power conduits associated with the old distribution system) at a depth of 3-4 feet in one of the test pits in the area of impacted subsurface soil.

COMMENT 14: Are there any tanks or structures left on-site?

RESPONSE 14: No. They were removed in 1990 while Regional NYSDEC inspectors from the Spills Program were present.

COMMENT 15: On behalf of the COSIDA Board, we want to expedite the remediation process as much as possible. Lot No 6 is the last vacant lot in the industrial park, and we are anxious to get the property back on the tax rolls. In recent years, we have had parties interested in purchasing the property. Once construction is underway, we will start marketing the site.

RESPONSE 15: Comment noted.

APPENDIX B

Administrative Record

Administrative Record

Riverside Technology Park

Site No. B00053-4

1. Proposed Remedial Action Plan for the Riverside Technology Park, dated March 2003, prepared by the NYSDEC.

2. "Site Investigation/Remedial Alternatives Report", Volume 1, dated November 2002, prepared by Holt Consulting.

3. "Site Investigation/Remedial Alternatives Report", Volume 2, dated November 2002, prepared by Holt Consulting.

4. "Site Investigation/Remedial Alternatives Work Plan", Volume I, dated January 2000, prepared by Holt Consulting.

5. "Site Investigation/Remedial Alternatives Work Plan", Volume II, dated January 2000, prepared by Holt Consulting.

6. "Site Investigation/ Remedial Alternative Work Plan Work Tasks, Supplemental No. 1", dated August 2001, prepared by Holt Consulting.

7. " Site Investigation/Remedial Alternative Work Plan Work Task, Supplemental No 2", dated July 2002, prepared by Holt Consulting.

8. "Environmental Assessment Study Phase II Former Sousa Bulk Storage Facility NYSDEC Spill 39109934", dated December 31, 1991, prepared by Environmental Hydrogeology Corporation.

9. "Citizen Participation Plan", dated January 2000, prepared by Holt Consulting.

10. Fact Sheet, "Remedial Action Proposed for Riverside Technology Park, Lot 6, Public Meeting, Comment Period Announced", dated January 23, 2003, prepared by NYSDEC.

11. Fact Sheet,"Site Investigation Planned for the Riverside Technology Park Site", dated July 2000, prepared by NYSDEC.

12. Correspondence from David Smith at NYSDEC to George Robertson at COSIDA, dated August 11, 1999.