RECORD OF DECISION

Former Greiner Orchards
Environmental Restoration Project
East Syracuse, Onondaga County
Site No. E734105
February 2013

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

DECLARATION STATEMENT - RECORD OF DECISION

Former Greiner Orchards
Environmental Restoration Project
East Syracuse, Onondaga County
Site No. E734105
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Statement of Purpose and Basis

This document presents the remedy for the Former Greiner Orchards site, an environmental restoration site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Former Greiner Orchards site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Restricted residential use soil cleanup objectives (SCOs) relevant to the planned use of the site will be used to guide excavation of contaminated soils. On-site soils which exceed restricted residential SCOs will be excavated and transported off-site for disposal. It is estimated an area measuring approximately 6.5 acres, corresponding closely to the Northern Orchard Area, will need to be excavated to a depth of approximately one foot. This will result in approximately 10,500 cubic yards of soil being removed. On-site soil meeting the requirements of 6 NYCRR 375-6.7(d) for the identified use of the site may be used as backfill to establish the designed grades at the site. If importation of off-site fill is necessary, clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) for the identified use of the site will be brought in to establish the designed grades at the site.

3. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property that

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- requires compliance with the Department approved Site Management Plan.

4. Site Management Plan

A Site Management Plan is required, which includes the following:

a. an Institutional Control Plan that identifies all use restrictions for the site and details the steps and media-specific requirements necessary to ensure the following institutional controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 3 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and/or groundwater and/or surface water use restrictions;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional controls.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy 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. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

February 28,2013

Date

Robert W. Schick, P.E., Director
Division of Environmental Remediation

RECORD OF DECISION

Former Greiner Orchards
East Syracuse, Onondaga County
Site No. E734105
February 2013

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled, or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. Under the Environmental Restoration Program, the state provides grants to municipalities to reimburse up to 90 percent of eligible costs for site investigation and remediation activities. Once remediated, the property can then be reused.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by the Department in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

East Syracuse Minoa Central School District
Administration Offices
407 Fremont Road
East Syracuse, NY 13057
Phone: 315-434-3004

Minoa Library
Attn: Laura Ravera
242 N. Main Street
Minoa, NY 13116
Phone: 315-656-7401

NYSDEC Region 7 Offices
Attn: Joshua Cook
615 Erie Blvd West
Syracuse, NY 13204
Phone: 315-426-7411

East Syracuse Free Library
Attn: Laurie Rachetta
4990 James Street
East Syracuse, NY 13057
Phone: 315-437-4841

A public meeting was also conducted. At the meeting, the findings of the remedial investigation (RI) and the alternatives analyses (AA) were presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period was held, during which verbal or written comments were accepted on the proposed remedy.

Comments on the remedy received during the comment period are summarized and addressed in the responsiveness summary section of the ROD.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Former Greiner Orchards site is located in a suburban area on the south and east

side of Kirkville Road in the Town of Manlius across Kirkville Road from the grounds of East Syracuse-Minoa (ESM) Central High School. It is made up of Tax Parcels 055.-01-03.0 and 055.-01-02.0, totaling 42.84 acres.

Site Features: The site consists of open fields and wooded lands. There are no structures on the site. There is a small area where scrap metal was found to have been dumped in the east-central portion of the site. The site is essentially flat, with a gradual elevation change from approximately 415-feet above mean sea level (amsl) in the southwest to approximately 405-feet amsl in the northeast. There are several shallow surface drainage features on site (swales), and man-made drainage ditches also exist along portions of the southern and along the eastern site boundaries. The site is primarily drained by the southern and eastern perimeter ditches. An unnamed Class C tributary to Butternut Creek flows south to north just east of the site and crosses the northeast corner of the site.

Current Zoning and Land Use: The site is currently zoned commercial. The ESM Central School District (ESM CSD) is currently using portions of the site for recreational purposes such as running and cross-country skiing trails. Adjacent properties are residential or owned by the ESM CSD. There are several residential properties along Kirkville Road and a residential subdivision along a portion of the southern site boundary. Adjoining to the south of the western portion of the site are athletic fields located on the grounds of an ESM CSD middle school (Pine Grove Middle School) and elementary school (Woodland Elementary School). Athletic fields on the grounds of the ESM Central High School are located across Kirkville Road. There is also a wooded area which adjoins the site to the east.

Past Use of the Site: The site was formerly used for agricultural purposes, including apple orchards which were located in the north-central and southeastern portions of the property. The northern orchard area covers approximately 6.5 acres in the north-central portion of the site. It extends south from Kirkville Road to the approximate center of the site. The southern orchard area covers approximately 3 acres located in the southeast portion of the site. The site was used for agriculture for at least 40 years prior to ESM CSD acquiring the property in 1974. Pesticide usage associated with the orchards has led to contamination of the site.

Site Geology and Hydrogeology: The surficial geology in this area has been mapped as glaciolacustrine silt and clay. In three of the borings completed on-site the soil encountered consisted of silt and fine sand to the termination depth of the boring at 12 feet below grade. In the other three borings completed in the northeastern portion of the site, the silt and sand layer was underlain by a two to three foot thick layer of coarser sand and gravel, which was encountered at depths ranging from 6 to 9 feet below grade. In each of these borings the sand and gravel layer was underlain by stiff soil consisting of silt, clay and gravel, which was interpreted as till.

Groundwater is present approximately two-feet below grade and the flow direction appears to fluctuate. On one occasion during the investigation, flow appeared to be generally to the north-northwest, while on two other occasions flow was to the east-northeast.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) were/was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the RI to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

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

No PRPs have been documented to date.

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified. East Syracuse Minoa Central School District will assist the state in its efforts by providing all information to the state which identifies PRPs. East Syracuse Minoa Central School District will also not enter into any agreement regarding response costs without the approval of the Department.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,

- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- soil
- sediment

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

ARSENIC	DDE
LEAD	DDD
DDT	DIELDRIN

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- soil

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Record of Decision.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

The Fish and Wildlife Resources Impact Analysis (FWRIA) for OU 01, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination: The primary contaminants of concern are arsenic; lead; dieldrin; 4,4'-DDT (dichlordiphenyl trichloroethane); 4,4' –DDE (dichlordiphenyl dichloroethene); and 4,4'-DDD (dichlordiphenyl dichloroethane), all of which were used as pesticides or are breakdown products of DDT, and all were found in surface soils within the former orchard areas at elevated concentrations.

Soil – The areas where samples identified impacts by the contaminants at concentrations greater than soil cleanup objectives (SCOs) for the protection of public health for residential use corresponded directly to the two orchard areas.

In the northern orchard area, arsenic was the most widespread contaminant and the area impacted by arsenic encompassed the areas impacted by other contaminants. In the southern orchard area dieldrin was the only contaminant detected at concentrations greater than its SCO for the protection of public health for residential use, but was not detected at concentrations greater than its SCO for protection of public health for restricted residential use.

Dieldrin was detected at a concentration slightly greater than its SCO for the protection of groundwater in the southern orchard area in one sample (0.14 parts per million [ppm], compared to the groundwater SCO of 0.1 ppm); however, dieldrin was not detected in groundwater in the surrounding wells in any sampling event.

Groundwater – With limited exceptions, groundwater impacts were not identified. Dieldrin was detected slightly above groundwater quality standards in groundwater samples collected in July 2008 from two monitoring wells located in the northern orchard area. These samples may have been affected by turbidity. Dieldrin was not detected in any groundwater samples collected in November 2008. Several metals were detected above groundwater standards from several wells; however, those samples exhibited high turbidity. Samples that did not exhibit high turbidity did not show impacts to groundwater.

Sediments – Sediment samples were collected from two artificial drainages ditches along the southern and eastern site boundaries. The ditches receive storm runoff from the site and surrounding properties. There were no site-related contaminants of concern detected above applicable sediment criteria or applicable soil cleanup objectives.

Special Resources Impacted/Threatened: Impacts were not noted within the wetland areas on the site. A Fish and Wildlife Resource Impact Analysis (FWRIA) was performed as part of the

investigation. The FWRIA noted that exposure to each of the site contaminants of concern may occur through ingestion, and possibly absorption. It concluded that the contaminants could enter the food chain by being consumed by earthworms or by being ingested by other burrowing animals, such as woodchuck, weasels, foxes, rodents, or turtles in terrestrial habitats, or burrowing invertebrates or bottom feeding fish or amphibians in aquatic habitats. No burrowing animals were directly observed on the site, but appropriate habitat exists on the site that could support them, and travel corridors from adjacent lands provide a means of access for terrestrial and aquatic wildlife, so presence on the site may be assumed.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

People are not drinking the groundwater because the area is served by a public water supply that is not affected by site-related contamination. Also, direct contact with on-site groundwater does not pose a concern because environmental sampling has indicated groundwater is not adversely impacted by site-related soil contamination. People may come into contact with site-related soil contamination if they disturb surface soils or dig in the shallow sub-surface.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

SECTION 7: SUMMARY OF THE SELECTED REMEDY

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in

Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the alternatives analysis (AA) report.

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

The basis for the Department's remedy is set forth at Exhibit D.

The selected remedy is referred to as the Excavation to Restricted Residential Use remedy.

The estimated present worth cost to implement the remedy is $1,380,000. The cost to construct the remedy is estimated to be $1,370,000 and the estimated average annual cost is $670.

The elements of the selected remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

Restricted residential use soil cleanup objectives (SCOs) relevant to the planned use of the site will be used to guide excavation of contaminated soils. On-site soils which exceed restricted

residential SCOs will be excavated and transported off-site for disposal. It is estimated an area measuring approximately 6.5 acres, corresponding closely to the Northern Orchard Area, will need to be excavated to a depth of approximately one foot. This will result in approximately 10,500 cubic yards of soil being removed. On-site soil meeting the requirements of 6 NYCRR 375-6.7(d) for the identified use of the site may be used as backfill to establish the designed grades at the site. If importation of off-site fill is necessary, clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) for the identified use of the site will be brought in to establish the designed grades at the site.

3. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property that

- requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3);
- allows the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- requires compliance with the Department approved Site Management Plan.

4. Site Management Plan

A Site Management Plan is required, which includes the following:

a. an Institutional Control Plan that identifies all use restrictions for the site and details the steps and media-specific requirements necessary to ensure the following institutional controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 3 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use, and/or groundwater and/or surface water use restrictions;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional controls.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into two categories; pesticides/ polychlorinated biphenyls (PCBs), and inorganics (metals). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 6.1.1 are also presented.

Groundwater

Groundwater samples were collected from six overburden monitoring wells to assess groundwater conditions on-site. Samples were collected on two occasions from each well and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides and PCBs. In addition, groundwater samples were collected from thee wells and analyzed for metals on a third occasion. No VOCs, SVOCs or PCBs were detected at concentrations greater than groundwater SCGs in any sample.

Dieldrin was detected in two wells in the first round of groundwater sampling at concentrations greater than its groundwater SCG. In the second round of groundwater sampling it was not detected in any well. Both wells in which it was detected in the first round were located in the northern orchard area. Both samples in which dieldrin was detected may have been affected by turbidity.

Several metals were detected in several wells, including upgradient wells at concentrations greater than groundwater SCGs; however, it is suspected these samples were affected by turbidity. When they were re-sampled such that turbidity was below levels proscribed for groundwater samples by guidance, the only metals detected above groundwater SCGs were iron and thallium. Both were detected in upgradient wells above groundwater SCGs and neither are believed to be associated with past operations at the site.

No site-related groundwater contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for groundwater.

Soil

Surface and subsurface soil samples were collected at the site during the RI. Surface soil samples were collected from a depth of 0 to 2 inches to assess direct human exposure. Subsurface soil samples were collected to assess the extent of soil contamination and the potential for impacts to groundwater. The results indicate that soils at the site exceed the unrestricted use SCOs and applicable restricted use SCOs for certain metals and pesticides. There were no PCBs detected at the site and there were no VOCs or SVOCs detected in soil at concentrations greater than unrestricted SCOs.

Soil samples from across much of the site contain concentrations of arsenic, lead and several organochlorine pesticides, specifically dieldrin, DDT, DDE and DDD, at concentrations greater than their unrestricted use SCOs. Each of the contaminants of concern is present due to the past usage of pesticides at the site.

Exceedances of the unrestricted use SCOs were primarily found in surface soils and concentrations decreased with depth. The highest levels of contaminants were found in the former orchard areas, primarily the northern orchard. Outside of the orchard areas, no contaminant of concern (COC) was detected at a concentration greater than its SCO for the protection of public health for restricted residential use. Nor were SCOs for the protection of public health for restricted residential use exceeded in any sample collected from depths greater than one foot anywhere on-site. See Figure 2 for the approximate bounds of the orchard areas.

The highest concentrations of COCs were found in the northern orchard area. Arsenic was detected in samples from across the northern orchard at concentrations greater than its SCO for the protection of public health for restricted residential use. The area impacted by arsenic in the northern orchard area is larger than and encompasses the areas impacted by other COCs at concentrations greater than their restricted residential use SCOs. Exceedances of restricted residential use SCOs for the other COCs were generally contained to the northwest portion of the northern orchard area.

In the southern orchard area dieldrin was present at slightly elevated concentrations greater, as compared to background; however, it was not present at concentrations greater than its SCO for the protection of public health for restricted residential use. No other contaminants were present at concentrations greater than their SCO for the protection of public health for restricted residential use in the southern orchard.

There was a small area identified during the investigation where scrap metal had been dumped. The investigation showed that the dumping was limited to the surface. A surface soil sample collected from this area showed exceedances of unrestricted use SCOs for several metals and for restricted residential use SCOs for arsenic and copper. This was the only location where other metals were detected above SCOs. Subsurface soil samples from this area did not show the presence of contamination. This area is located at the northern end of the southern orchard area and is indicated on Figure 2 at the sample location labeled TP-1 and SS-Test Pit

The extent of soil contamination is indicated on Figure 2. The gray line indicates the approximate boundary of the former orchard areas. It coincides with the area where samples collected during the remedial investigation identified the presence one or more of the COCs at concentrations greater than SCOs for the protection of public health for residential use, except along the eastern boundary of the northern orchard area, where exceedances of residential use SCOs are indicated by the blue line. The area encompassed by the blue line indicates the area impacted by one or more of the COCs at concentrations greater than SCOs for the protection of public health for restricted residential use. As noted previously, the limits of this area coincide with the area impacted by arsenic.

Table 1 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted Use SCG
Inorganics					
Arsenic	2.3 - 215	13	13 / 52	16	11/52

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Residential Use SCG[c] (ppm)	Frequency Exceeding Restricted Use SCG
Lead	3.4 - 630	63	10 / 52	400	1 / 52
Pesticides/PCBs					
Dieldrin	ND – 1.1	0.005	15 / 52	0.2	4 / 52
4,4'-DDD	ND – 2.6	0.0033	21 / 52	13	0 / 52
4,4'-DDE	ND - 24	0.0033	26 / 52	8.9	1 / 52
4,4'-DDT	ND - 11	0.0033	29 / 52	7.9	1 / 52

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Restricted Residential Use, unless otherwise noted.

The primary soil contaminants are arsenic, lead, dieldrin, DDT, DDE and DDD, with arsenic and dieldrin being the most widespread. Contaminants are present in surface soil at concentrations greater than applicable SCOs due to past usage of pesticides at the site.

Based on the findings of the Remedial Investigation, the presence of arsenic, lead, dieldrin, DDT, DDE and DDD has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are the same.

Sediments

Eight samples were collected during the RI which were intended to be sediment samples. The sediment samples were collected to assess the potential for impacts to sediment from the site. The samples were given sample identification numbers SED-1 through SED-8. SED-1, 2, 3, 4 and 7 were collected from swales located within the site. SED-5, 6 and 8 were collected from the perimeter ditches along the south and east boundaries of the site. The swales from which SED-1, 2, 3 4 and 7 were collected were dry, and therefore the results were evaluated as soil samples and are included in the summary of soil contamination above, while SED-5, 6 and 8 were evaluated as sediment samples. None of the site-related COCs were detected in SED-5, 6 or 8 at concentrations greater than sediment SCGs as listed in the Department's guidance document *Technical Guidance for Screening Contaminated Sediments*. In addition, none of the site-related COCs were detected in SED-5, 6 or 8 at concentrations greater than the SCOs for the protection of public health for restricted residential use.

No site-related sediment contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for sediment.

Exhibit B

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

Alternative 2: Restoration to Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative includes excavation of soil across much of the site to depths of at least one foot, and large areas will require excavation to two feet. Certain locations will require deeper excavation, potentially up to four feet.

Prior to implementing the excavations at the site, a remedial design will be implemented to provide the details necessary for the construction of the remedial program. The design phase will include collection of additional data in certain locations to more accurately define the areas to be excavated and to better define areas of soil which may be acceptable for reuse. The remedial design will include development of detailed engineering plans and specifications. It is estimated the remedial design will take four to six months to complete.

Based on the RI results, approximately 97,000 cubic yards of soil will be excavated from an area of approximately 30 acres. The soil will be transported off-site for proper disposal or reuse. The excavations will then be restored with clean backfill which meets the requirement of 6 NYCRR 375-6.7(d) for unrestricted use. Excavation and off-site disposal is a conventional remedial method for sites contaminated by metals or pesticides. It is estimated that construction of Alternative 2 will take 18 to 20 weeks to complete. The estimated cost of Alternative 2 is as follows.

Capital Cost:.....$ 13,300,000

Alternative 3: Excavation to Residential Use

This alternative includes excavation and off-site disposal or off-site reuse of all soil impacted at concentrations greater than the SCOs for the protection of public health for residential use and restoration of the excavated area with clean soil. Site usage will be restricted through an environmental easement.

Prior to implementing the excavations at the site, a remedial design will be implemented to provide the details necessary for the construction of the remedial program. The remedial design will include conducting additional investigation to confirm the limits of excavation, and to determine whether any contaminants are present at concentrations greater than the SCOs for residential use at depths of up to 15 feet below grade across the site. The design process will also include the development of detailed engineering plans and specifications. It is estimated the remedial design will take approximately 12 to 15 months to complete.

It is estimated the top one foot of soil will need to be excavated from the northern and southern orchard areas, and from an area between the northern orchard and Kirkville Road. The total area to be excavated is approximately 10 acres, resulting in a total excavation volume of approximately 16,100 cubic yards. The excavated soil will be disposed of off-site or reused off-site. Any backfill brought to the site will meet the requirements of 6 NYCRR 375-6.7(d) for the identified use. It is estimated that construction of Alternative 3 will take 16 to 18 weeks to complete.

Since contamination will remain at the site, an institutional control will be placed on the site. The institutional control, in the form of an environmental easement, will require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3). The environmental easement will allow the use and development of the site for residential, restricted residential, commercial and industrial uses as defined by Part 375-1.8(g).

The estimated cost of Alternative 3 is as follows.

Present Worth:.....*$ 2,140,000*
Capital Cost:.....*$ 2,140,000*
Annual Costs:.....*$ 100*

Alternative 4: Excavation to Restricted Residential Use

This alternative includes excavation and off-site disposal of all soil impacted at concentrations greater than the SCOs for the protection of public health for restricted residential use and restoration of the excavated area with clean soil. Site usage will be restricted through an environmental easement or easements and a Site Management Plan.

Prior to implementing the excavations at the site, a remedial design will be implemented to provide the details necessary for the construction of the remedial program. The remedial design will include development of detailed engineering plans and specifications. It is estimated the remedial design will take three to four months to complete.

It is estimated the top one foot of soil over an area of approximately 6.5 acres will need to be excavated and disposed of off-site. This will result in an excavation of approximately 10,500 cubic yards of soil. The approximate area to be excavated is depicted by the blue line on Figure 2. Any backfill brought to the site will meet the requirements of 6 NYCRR 375-6.7(d) for the identified use. It is estimated that construction of Alternative 4 will take 12 to 14 weeks to complete.

Since contamination will remain at the site, an institutional control will be placed on the site. The institutional control, in the form of an environmental easement will: require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3); allow the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g); restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and require compliance with the Department approved Site Management Plan.

The Site Management Plan will identify and implement the required institutional controls. It will include, but not necessarily be limited to the following: an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination; descriptions of the provisions of the environmental

easement including any land use restrictions; maintaining site access controls and Department notification; and the steps necessary for the periodic reviews and certification of the institutional controls.

The estimated cost of Alternative 4 is as follows.

Present Worth:.....*$ 1,380,000*
Capital Cost:.....*$ 1,370,000*
Annual Costs:.....*$ 670*

Alternative 5: Cover System

This alternative includes construction of a cover system over areas of the site where soil in the top two feet contains contaminants of concern at concentrations greater than the SCOs for the protection of public health for restricted residential use. Site usage will be restricted through an environmental easement or easements and a Site Management Plan.

The cover system is required over an area of approximately 6.5 acres. Soil over the rest of the site already complies with restricted residential use SCOs. The cover system will consist of two feet of clean, imported soil or structures such as buildings, pavement or sidewalks. Assuming no structures are installed, the two-foot clean soil cover system will require approximately 21,000 cubic yards of soil be imported to the site. The cover system will be underlain by a demarcation barrier and the upper six inches of soil will be of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified use as set forth in 6 NYCRR Part 375-6.7(d). It is estimated that construction of Alternative 5 will take approximately 12 weeks to complete.

Since contamination will remain at the site, an institutional control will be placed on the site. The institutional control, in the form of an environmental easement will: require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional controls in accordance with Part 375-1.8 (h)(3); allow the use and development of the controlled property for restricted residential, commercial and industrial uses as defined by Part 375-1.8(g); restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and require compliance with the Department approved Site Management Plan.

The Site Management Plan will identify and implement the required institutional controls and engineering controls, as well as any necessary monitoring of the remedy. It will include, but not necessarily be limited to the following: an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination; descriptions of the provisions of the environmental easement including any land use, and/or groundwater and/or surface water use restrictions; provisions for the management and inspection of the cover system; maintaining site access controls and Department notification; and the steps necessary for the periodic reviews and certification of the institutional controls.

The estimated cost of Alternative 5 is as follows.

Present Worth:.....*$ 737,000*
Capital Cost:.....*$ 597,000*
Annual Costs:.....*$ 9,500*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Action	0	0	0
Alternative 2: Restoration to Unrestricted Conditions	13,300,000	0	13,300,000
Alt. 3: Excavation to Residential Use	2,140,000	100	2,140,000
Alternative 4: Excavation to Restricted Residential Use	1,370,000	670	1,380,000
Alternative 5: Cover System	597,000	9,500	737,000

Exhibit D

SUMMARY OF THE SELECTED REMEDY

The Department is proposing Alternative 4, Excavation to Restricted Residential Use as the remedy for this site. Alternative 4 achieves the remediation goals for the site by removing soil containing contamination at concentrations greater than the SCOs for the protection of public health for restricted residential use, which is the proposed use of the site. The elements of this remedy are described in Section 7. The selected remedy is depicted in Figure 2.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the AA 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. 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 selected remedy (Alternative 4: Excavation to Restricted Residential Use) satisfies this criterion by removing soil containing contamination at concentrations greater than the SCOs for the protection of public health for restricted residential use, which is the proposed use of the site. Alternatives 2 (Restoration to Unrestricted Conditions) and 3 (Excavation to Residential Use), meet this threshold criteria by removing all soil contaminated above the unrestricted SCOs and residential use SCOs, respectively. Alternative 5 (Cover System) provides for the protection of human health and the environment by covering contaminated soil thus preventing exposure to the contaminants. Alternative 1 (No Action) does not protect human health and the environment, since contamination will remain in surface soil above applicable soil cleanup objectives under this alternative. It does not satisfy this threshold criterion and will not be considered further.

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

Alternatives 2, 3 and 4 comply with SCGs by removing all soil contaminated at levels greater than SCOs pertinent to the goals of each alternative. Alternative 4 complies with the restricted residential use soil cleanup objectives, Alternative 3 complies with the residential use SCOs, and Alternative 2 complies with unrestricted use soil cleanup objectives. Alternative 5 complies with restricted residential use SCOs over most of the site without further action, and complies with restricted-residential use SCOs at the surface in the northern orchard area through the cover system.

Since Alternatives 2, 3, 4 and 5 satisfy both threshold criteria, the remaining criteria are particularly important in selecting a remedy for the site.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the

remedial strategies.

3. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Alternatives 2, 3 and 4 will be effective in the long term. Since Alternative 2 removes all contamination from the site there is no need for controls and there is no remaining risk. Alternatives 3 and 4 remove contamination at the site above residential use SCOs and restricted residential use SCOs, respectively, and the remaining risk will be very low. Alternatives 3 and 4 rely on institutional controls; however, they do not rely on engineering controls, since soil at the site will meet applicable SCOs following the excavation. Alternative 5 will be effective in the long term, but to a somewhat lesser extent than Alternatives 2, 3 and 4. The cover system constructed under Alternative 5 will require occasional maintenance to ensure two feet of clean soil is maintained over contaminated areas. Issues that may create the need for maintenance include soil loss through erosion or soil loss caused by rutting by vehicles, such as all-terrain vehicles.

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

Alternatives 2, 3 and 4 reduce the volume of contamination at the site by excavation and off-site disposal or reuse. Alternative 2 will result in a greater reduction of volume of contaminated media than Alternatives 3 or 4. Despite the large increase in the volume of soil removed under Alternative 2, it will result in only a modest increase in the reduction of mass of contaminant, since the concentration of COCs is low in the soil that will be removed only under Alternative 2. Alternative 5 will not result in a reduction of toxicity or volume of contaminants, but will result in a reduction in mobility, since the contaminated soil will be isolated under the cover system and thus prevented from transport through erosion.

5. Short-term Impacts and 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.

None of the alternatives under consideration involve on-site treatment of wastes or contaminated media, and therefore all will achieve the remedial action objectives upon completion of construction.

The potential and actual short-term adverse impacts are greatest for Alternative 2 followed by Alternative 3. Alternatives 4 and 5, which will likely both result in a similar level of short term impacts, will create lower short-term impacts than Alternatives 2 or 3. Each alternative will create noise and considerable traffic, due to the operation of construction equipment and hauling soil to and from the site, and will require disturbance of contaminated soils. During intrusive activities the potential exists to generate dust which could migrate off-site if not controlled. The potential also exists to generate contaminated runoff from exposed soils. The greater the volume of soil disturbed, the greater the potential for off-site impacts, though controls employed during construction will minimize these risks.

Alternative 2 will take considerably longer to implement than the other alternatives (18 to 20 weeks, compared to 12 to 14 weeks) and will create a substantially greater amount of traffic and noise than any other alternative.

It is estimated Alternative 2 will require the disturbance of 97,000 cubic yards of soil which will have to be transported off-site for disposal or reuse. An approximately equal quantity of soil will then have to be transported to the site to restore the excavations. This will result in approximately 5000 truckloads of soil in and out (10,000 truckloads total). Alternative 3 will result in the disturbance of approximately 16,100 cubic yards of soil to be disposed or reused off-site, and will result in approximately 800 truckloads of soil in and out (1600 total). Alternative 4 will result in the disturbance of approximately 10,500 cubic yards of soil to be disposed off-site. This will result in approximately 550 truckloads of soil in and out (1100 total). Alternative 4 will require the importation of approximately 21,000 cubic yards of soil or approximately 1100 truckloads of soil into the site. It should be noted that under Alternative 3, it is likely a lesser amount of soil will be able to be imported than stated here; however, it is not determined what that quantity will need to be in order to prevent the creation of ponds given the shallow groundwater table at the site. As such, it is assumed that an equivalent quantity of soil will need to be imported.

Alternative 2 requires more energy input in order to implement than Alternatives 3, 4 or 5, and therefore results in greater greenhouse gas (GHG) emissions during implementation of the remedy due to the longer construction period and the greater number of truck loads needed to haul soil to and from the site. Alternative 3 will result in the next highest amount of GHG emissions. Alternative 4 will probably result in greater GHG emissions than Alternative 5. Despite the fact that the same or similar quantity of total truckloads of soil will be generated by both alternatives, it is likely a source for imported soil will be able to be located which is closer to the site than the nearest landfill, and therefore Alternative 5 will likely result in a lower number of total miles traveled.

Considerably more landfill space will be utilized by Alternative 2 than Alternative 3, which, in turn will utilize more landfill space than Alternative 4. Alternative 5 will not use any landfill space. The amount of landfill space required by Alternative 2, and to a lesser extent Alternative 3, may be reduced if suitable sites can be found to reuse some of the soil to be hauled off-site, a substantial portion of which does not exceed SCOs for a wide variety of uses. However, reuse will require identification of a project or projects which require significant quantities of fill at the same time the remediation of the site is occurring. More natural resources (clean soil) need to be utilized in order to implement Alternative 2 than Alternative 3 or 5, and Alternative 4 will utilize the least amount of clean soil.

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

All of the alternatives being considered are readily implementable using standard construction equipment. The groundwater table at the site is quite shallow, so if certain areas require excavation deeper than 3 or 4 feet under Alternative 2, dewatering may be required, which may complicate implementation somewhat compared to Alternatives 3, 4 or 5.

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

Alternative 2 costs nearly 10 times the cost of Alternative 4 ($ 13,300,000 compared to $ 1,380,000). Alternative 3 will cost considerably more than the selected remedy, Alternative 4 ($ 2,140,000 compared to $

1,380,000). Since the long term management requirements for Alternative 4 are limited, the long-term maintenance cost is relatively small, and, given the limited scope of site management for Alternative 4, is very unlikely to increase significantly. Alternative 5 costs considerably less to construct than Alternative 3 ($ 1,370,000 vs. $597,000), but will result in greater long-term maintenance costs for the remedial party/property owner, since it relies on an engineering control (the cover system) which must be maintained. The need for maintenance of the cover system also creates more uncertainty in the estimate of annual costs for Alternative 5 as compared to Alternative 4. The estimated annual cost for ESM CSD for Alternatives 4 and 5 are $ 670 and $ 9,500, respectively.

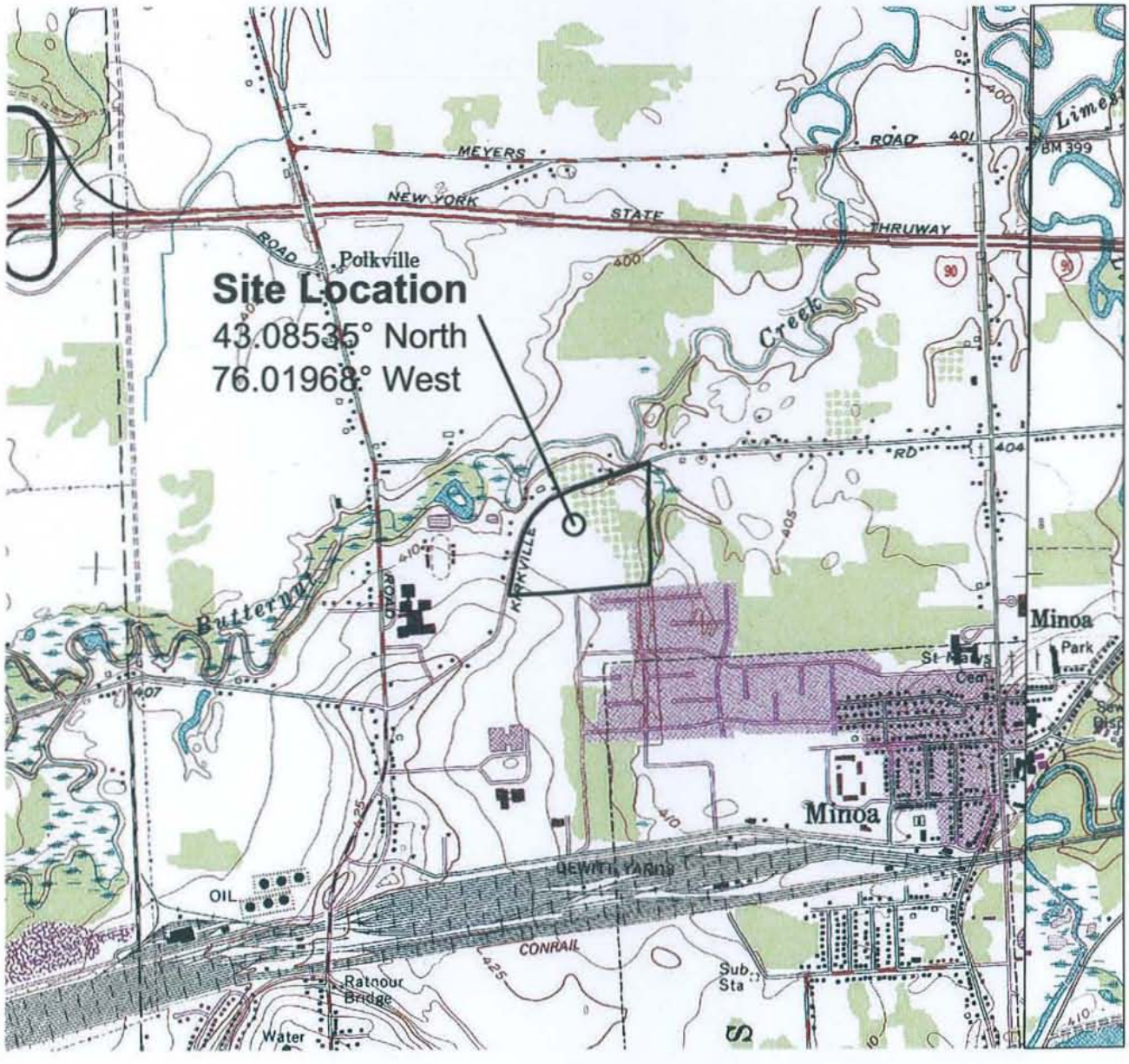
8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

Each alternative under consideration allows for the anticipated next use of the site (active recreational usage, which is a considered restricted-residential use). Alternative 2 will not result in any restriction on future use. Alternative 3 will allow for residential usage of the site, which is less restrictive than the planned use.

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

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary has been prepared that describes public comments received and the manner in which the Department will address the concerns raised.

Alternative 4: Excavation to Restricted Residential Use has been selected because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion since it results in a greater reduction of volume of contaminated media than Alternative 5 and results in a much lower annual cost for the remedial party/property owner, which is currently ESM CSD than Alternative 5. It costs less and results in less short-term impacts than Alternative 3.



SCALE: 1" = 2,000'

1,000 0 1,000 3,000 5,000

Contour Intervals 5 & 10 Feet

Map Taken From: USGS 7.5 Minute Series Topographic
Syracuse East (1957 Photorevised 1978) &
Manlius (1973 Revised 1993)
(www.nysgis.state.ny.us/quads/usgsdrg.htm)

QUADRANGLE LOCATION

S&W Redevelopment of North America, LLC Syracuse, New York DATE: JOB No.:	East Syracuse–Minoa Central School District Kirkville Road East Syracuse, NY 13057
	Figure – 1 Site Location Map

X-REF: Syracuse East043076a1.tif, Manlius043075a8.tif
2007/March/syracuse/am
Z:\PROJECTS\N-xxxx\N6000\N6005 - ESM Greiner Site ERP\40 Remedial Investigation\RI Figures\RI Phase II CAD Figures\ESM RI PhII Figure 1.dwg

Modified 11-13-2012 by JPC
1 - Changed Figure Number and Title
2 - Modified Legend

S&W Redevelopment
of North America, LLC.
Syracuse, NY
DATE: 11/2011 JOB No: N6005

Alternatives Analysis Report
East Syracuse-Minoa Central School District
Greiner Orchards
East Syracuse, NY

Figure 2
Extent of Contamination & Selected Remedy

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Former Greiner Orchards
Environmental Restoration Project
Town of Manlius, Onondaga County, New York
Site No. E734105

The Proposed Remedial Action Plan (PRAP) for the Former Greiner Orchards site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on December 3, 2012. The PRAP outlined the remedial measure proposed for the contaminated soil at the Former Greiner Orchards site.

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

A public meeting was held on December 20, 2012, which included a presentation of the remedial investigation and alternative analysis (RI/AA) for the Former Greiner Orchards site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on January 17, 2013.

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

COMMENT 1: Will the remedy include backfill of the excavated soil?

RESPONSE 1: The excavations will be backfilled. For purposes of the cost estimate, it was assumed the entire excavation depth (one foot) will be filled. However, it is possible some areas may not require a full foot of backfill. The final elevation of the ground surface required within the excavation area will be determined during the remedial design phase.

COMMENT 2: Will there be provisions to preserve trees within the excavation area?

RESPONSE 2: Yes. Typically trees of a certain diameter or greater will be identified to be preserved. Specifics on which trees will be preserved will be included in the remedial design and those trees will be flagged prior to the start of construction.

COMMENT 3: Would use of the site outside of the contaminated area be allowed prior to the excavation?

RESPONSE 3: Usage consistent with restrictions placed on the site will be allowed outside the area which requires excavation, which is the northern orchard area. The site usage outside of the

northern orchard area will be restricted residential use, which allows for active recreational uses, such as playgrounds or athletic fields.

COMMENT 4: Several comments were made regarding drainage. The individuals stated the area is somewhat prone to flooding and that a change in site grade could adversely affect drainage on-site and/or in surrounding areas. Another commenter stated specifically that they would not want the grades of the site raised.

RESPONSE 4: The proposed alternative will not result in an increase in site grade so should not adversely affect drainage in off-site areas. If anything, the grade may be lowered slightly, which would be more likely to promote drainage from surrounding areas.

COMMENT 5: Could a path be excavated through the orchard to allow for usage of that pathway without completing the entire remediation?

RESPONSE 5: Prior to the full remediation being conducted, if the school district decided they wanted and were able to remediate a portion of the site, they could do so, subject to provisions of an interim Site Management Plan, which could be developed for that limited use of the site.

COMMENT 6: There is another orchard area across the street from the northern orchard area which has restarted operations within the last several years.

RESPONSE 6: The Department was aware that historic photographs and maps depicted what appeared to be an orchard area across the street from the site.

COMMENT 7: What is the blue circle in the southern orchard area depicting on the figure showing dieldrin in surface soil?

RESPONSE 7: That line indicates the area impacted by dieldrin at concentrations greater than the soil cleanup objective (SCO) for the protection of groundwater. However, there was no groundwater contamination identified by the investigation; therefore, the protection of groundwater SCO is not applicable to the site. The dieldrin concentration identified is lower than the restricted residential SCO therefore no action was required.

Michael Hooker, Executive Director of Onondaga County Water Authority submitted a letter dated December 4, 2012 which included the following comments:

COMMENT 8: There is a water main located within the Kirkville Road Right of Way at the northwestern edge of the remediation site. The water main should be protected from excavation activities and proper cover of the main maintained.

RESPONSE 8: All remedial work will require utility locations be marked prior to the start of intrusive activities and will require protection of utilities during the remediation.

APPENDIX B

Administrative Record

Administrative Record

Former Greiner Orchards
Environmental Restoration Project
Town of Manlius, Onondaga County, New York
Site No. E734105

1. Proposed Remedial Action Plan for the Former Greiner Orchards site, dated November 2012.

2. State Assistance Contract, Contract No. C302998, between the Department and the East Syracuse Minoa Central School District dated June 2, 2006 and Amendments 1 & 2.

3. "Remedial Investigation Report", March 2011, prepared by S&W Redevelopment of North America, LLC.

4. "Alternatives Analysis", October 2011, prepared by S&W Redevelopment of North America, LLC.

5. Letter dated December 4, 2012 from Michael Hooker, Executive Director of Onondaga County Water Authority.