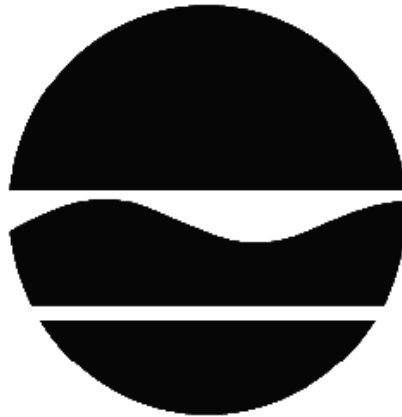


# PROPOSED REMEDIAL ACTION PLAN

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Noss Industrial Park  
Environmental Restoration Project  
Cortland, Cortland County  
Site No. E712011  
February 2018



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

# PROPOSED REMEDIAL ACTION PLAN

Noss Industrial Park  
Cortland, Cortland County  
Site No. E712011  
February 2018

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## **SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN**

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing 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 proposed by this Proposed Remedial Action Plan (PRAP). The disposal of contaminants at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred 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 Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York; (6 NYCRR) Part 375. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

## **SECTION 2: CITIZEN PARTICIPATION**

The Department seeks input from the community on all PRAPs. This is an opportunity for public participation in the remedy selection process. The public is encouraged to review the reports and documents, which are available at the following repository:

NYSDEC Region 7 Headquarters  
Attn: Stephanie Fitzgerald  
615 Erie Blvd West  
Syracuse, NY 13204  
Phone: 315-426-7411

Cortland Free Library  
32 Church Street  
Cortland, New York 13045  
Phone: 607-753-1042  
Hours: M-Th, 9:30 a.m. – 8 p.m.; F, 9:30 a.m. – 5:30 p.m.; Sat, 9:30 a.m. – 4:30 p.m.

**A public comment period has been set from:**

**February 9, 2018 to March 26, 2018**

**A public meeting is scheduled for the following date:**

**Wednesday, March 7, 2018 at 6:00 pm**

**Public meeting location:**

**City Hall, 25 Court Street, 3<sup>rd</sup> floor conference room**

At the meeting, the findings of the remedial investigation (RI) and the alternatives analyses (AA) will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP.

Written comments may also be sent to:

Stephanie Fitzgerald  
NYS Department of Environmental Conservation  
Division of Environmental Remediation  
615 Erie Blvd W  
Syracuse, NY 13204  
stephanie.fitzgerald@dec.ny.gov

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed remedy identified herein. Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

## **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 Noss Industrial Park site is a 5+/- acre unimproved parcel located at Noss Park Drive and Main Street, Cortland, Cortland County.

**Site Features:** The property is currently an unimproved parcel, but was formerly the location of industrial activity. The site is densely wooded and is at the terminus of Noss Park Drive, on the east side of Main Street. The former Rosen Brothers property creates the eastern boundary of the site, an EPA designated National Priorities List site (Region 7, DEC class 2; Site ID No. 7-12-004). The northern boundary of the site consists of a small strip of City-owned property followed by a rail line.

**Current Zoning and Land Use:** The site is currently inactive, and is zoned for industrial use. The surrounding parcels are currently used for a combination of commercial, light industrial, and mix of residential.

**Past Use of the Site:** A Phase I Environmental Risk Report, published in August 1998 for the subject property, indicates the site was occupied by the former Wickwire Brothers, Inc. wire factory from about 1866 to 1970. The site was formerly covered by the Nail Mill, Netting Mill, Glass Cloth Weave Mill and several storage buildings while the company was in existence. When buildings were demolished, a considerable amount of rubble was reportedly bulldozed into basements and was used to fill excavations, depressions, and large trenches. Some concrete floor slabs, foundation walls, and footings at or below ground level were reportedly not removed. The Phase I report also indicates that past use of the property as a wire and woven wire manufacturing site. In addition, chemical pickling of wire involved the use of strong acids. The property has been served by public sewers since approximately 1900. The City of Cortland obtained ownership of the site on November 1, 1979.

**Site Geology and Hydrogeology:** The geology at the site consists of approximately 4 to 6 feet of fill containing ash, brick, concrete and rubble. A silty sand unit approximately 4 feet thick underlays the fill, and sandy gravel unit for the remainder of the borings, terminated at approximately 20 feet below ground surface. Groundwater at the site is encountered at approximately 10-17 feet below ground surface. Groundwater flows in a north to northeasterly direction. Groundwater within this unit comprises the Cortland-Homer-Preble Aquifer System, designated by the USEPA as a sole-source aquifer and by the NYSDEC as a primary aquifer.

This aquifer serves as the potable water supply for the City of Cortland and the town of Cortlandville. City wells (2) are located approximately two miles upgradient of the site.

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 commercial use (which allows for industrial use) as described in Part 375-1.8(g) are/is being evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation 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. The City of Cortland will assist the state in its efforts by providing all information to the state which identifies PRPs. The City of Cortland 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

### **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:

benzo(b)fluoranthene	benzo(a)anthracene
benzo(a)pyrene	arsenic
dibenz[a,h]anthracene	lead
indeno(1,2,3-CD)pyrene	cadmium
copper	trichloroethylene (TCE)

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

- soil
- groundwater

## **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.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary.

### Nature and Extent of Contamination:

Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), and pesticides. Based upon investigations conducted to date, the primary contaminants of concern include benzo (a) anthracene, benzo(b)fluoranthene, benzo(a)pyrene, dibenz[a,h]anthracene, arsenic, and trichloroethene (TCE).

Soil - Benzo (a)pyrene, benzo(b)fluoranthene, dibenz[a,h]anthracene, and arsenic are found in shallow soils exceeding industrial soil cleanup objectives (SCOs) at the western center portion of the site. Benzo (a) anthracene, indeno(1,2,3-CD)pyrene, copper and lead are found slightly exceeding commercial SCOs in this location. Cadmium is found slightly exceeding commercial SCOs in the south-western portion of the site. One surface sample in a ditch just north of the site, SD-2, has four PAHs slightly exceeding unrestricted SCOs. The ditch is at the bottom of a bank that extends up to the railroad. Surface soil samples on site near the northern portion of the site do not indicate PAHs above unrestricted SCOs, therefor indicating the detections in SD-2 are likely to be related to the railroad. Data does not indicate any off-site impacts in soil related to this site, based on samples collected at the perimeter of the site.

Groundwater - TCE is found at the north end of the site slightly exceeding standards (5 parts per billion (ppb)), with a maximum concentration of 9 ppb. Off-site impacts in groundwater related to the site thus are limited.

## **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*.

Persons who enter the site can contact contaminants in the soil by walking on the site, and contaminants in the soil and groundwater by digging below the surface, or otherwise disturbing the soil. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in the groundwater may move into the soil vapor (air spaces within the soil), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of contaminants due to soil vapor intrusion does not represent a current concern. However, the potential exists for the inhalation of site contaminants due to soil vapor intrusion for any future on-site development. Sampling indicates soil vapor intrusion is not a concern for off-site buildings.

## **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:

### **Groundwater**

#### **RAOs for Public Health Protection**

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

#### **RAOs for Environmental Protection**

- Prevent the discharge of contaminants to surface water.

### **Soil**

#### **RAOs for Public Health Protection**

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of/exposure to contaminants in soil

#### **RAOs for Environmental Protection**

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

### **Soil Vapor**

#### **RAOs for Public Health Protection**

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.



## **SECTION 7: SUMMARY OF THE PROPOSED 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 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 proposed remedy is set forth at Exhibit D.

The proposed remedy is referred to as the Excavation remedy.

The estimated present worth cost to implement the remedy is \$176,000. The cost to construct the remedy is estimated to be \$130,000 and the estimated average annual cost is \$3,000.

The elements of the proposed remedy are as follows:

### **1. Remedial Design**

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, 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 gases 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

All soils in the upper foot which exceed the commercial SCOs will be excavated and transported off-site for disposal.

It is estimated approximately 1,000 cubic yards of contaminated soil will be removed from the site.

Clean backfill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and 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 which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for commercial and/or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- 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.

## 4. Site Management Plan

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

A. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering 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 groundwater use restrictions;
- a provision for evaluation of the potential for exposure via soil vapor intrusion for any buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

B. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department;
- monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

## 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 four categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/ polychlorinated biphenyls (PCBs), and inorganics (metals and cyanide). 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 4 and Section 6.1.1 are also presented.

### Groundwater

Groundwater samples were collected from overburden monitoring wells. The samples were collected to assess groundwater conditions on-site. The results indicate that contamination in shallow groundwater at the site slightly exceeds the SCGs for the volatile organic compound trichloroethene. Figure 2 summarizes the pertinent results of the groundwater sampling.

**Table #1 - Groundwater**

Detected Constituents	Concentration Range Detected (ppb) <sup>a</sup>	SCG <sup>b</sup> (ppb)	Frequency Exceeding SCG
<b>VOCs</b>			
Trichloroethene	ND-9	5	4/10
<b>SVOCs</b>			
Benzo(a)anthracene	ND-0.2	0.002	1/10
<b>Inorganics</b>			
Sodium	31,800-72,000	20,000	8/8

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.

b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, and Part 5 of the New York State Sanitary Code (10 NYCRR Part 5).

The primary groundwater contaminants is the chlorinated VOC trichloroethene (TCE), which was present at concentrations exceeding NYSDEC Class GA Groundwater Standards in samples collected from four monitoring wells (MW-6, MW-7, MW-9, and MW-10). The maximum concentration of 9 parts per billion (ppb) was detected in the groundwater sample from MW-6. Initial groundwater sampling indicated several metals above groundwater standards. A second round of groundwater sampling was conducted for metals due to highly turbid conditions during the initial sampling event. Data results from the second groundwater sampling event indicated the only metal above standards to be sodium, which is not expected to be site related. Benzo(a)anthracene was detected in one well in the center of the site. Benzo(a)anthracene was not detected in the downgradient wells, therefore is not considered a contaminant of concern. Pesticides and PCBs were not detected in groundwater.

## Soil

Surface and subsurface soil samples were collected at the site during the RI. Surface soil samples were collected from a depth of 0-2 inches to assess human exposure via direct contact. Shallow and subsurface soil samples were collected from a depth of 2 to 12 inches and 2 - 22 feet to assess soil contamination impacts to groundwater. The results indicate that soils at the site exceed the unrestricted SCOs for semi-volatile, metals, and pesticides/PCBs. VOCs were not detected in soils.

Figure 3 summarizes the pertinent results of the soil sampling.

**Table #2 - Soil**

Detected Constituents	Concentration Range Detected (ppm) <sup>a</sup>	Unrestricted SCG <sup>b</sup> (ppm)	Frequency Exceeding Unrestricted SCG	Commercial Use SCG <sup>c</sup> (ppm)	Frequency Exceeding Restricted SCG
<b>SVOCs</b>					
Benzo(a)anthracene	ND-11	1	5/42	5.6	1/42
Benzo(a)pyrene	ND-9.9	1	4/42	1	2/42
Benzo(b)fluoranthene	ND-14	1	6/42	5.6	1/42
Benzo(k)fluoranthene	ND-13	0.8	2/42	56	0/42
Chrysene	ND-13	1	6/42	56	0/42
Dibenzo(a,h)anthracene	ND-1.5	.033	2/42	0.56	2/42
Indeno(1,2,3-cd)pyrene	ND-5.8	0.5	5/42	5.6	1/42
Phenol	ND-1.4	0.33	1/42	500	0/42
<b>Inorganics</b>					
Arsenic - Total	3.5-28	13	2/42	16	1/42
Cadmium - Total	ND-11	2.5	5/42	9.3	1/42
Chromium - Total	11.0-35.5	30.0	2/42	1,500	0/42
Nickel - Total	11.1-81	30.0	3/42	310	0/42
Copper - Total	34.1-390	50.0	17/42	270	2/42
Lead - Total	6.4-1,600	63.0	11/42	1,000	1/42
Manganese - Total	163-2,900	1,600	3/42	10,000	0/42
Mercury - Total	0.015-0.655	0.18	6/42	2.8	0/42
Zinc - Total	54-2,700	109.0	25/42	10,000.0	0/42
<b>Pesticides/PCBs</b>					
4,4'-DDT	ND-0.0298	0.0033	4/42	47	0/42

Detected Constituents	Concentration Range Detected (ppm) <sup>a</sup>	Unrestricted SCG <sup>b</sup> (ppm)	Frequency Exceeding Unrestricted SCG	Commercial Use SCG <sup>c</sup> (ppm)	Frequency Exceeding Restricted SCG
Dieldrin	ND-0.0154	0.005	2/42	1.4	0/42
Aroclor 1260	ND-0.153	0.1	2/42	1	0/42

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 Commercial Use, unless otherwise noted.

d - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.

The primary soil contaminants are SVOCs and metals from the former wire manufacturing operations.

Soils containing levels of several metals exceeding “Unrestricted Use” SCOs are present within both the vadose zone and the saturated zone (to the approximately twenty-foot terminal depth of investigation). One or more PAHs were detected at levels exceeding “Unrestricted Use” SCOs at one of twelve soil boring locations and at one of eleven test pit locations. There were no detections of analytical parameters in subsurface soil that exceeded “Commercial Use” SCOs. There were no detections of analytical parameters in surface soil from the 2015 sampling that exceeded “Commercial Use” SCOs with the exception of the samples from location SS-6. The contaminants include benzo(a)pyrene at 9.9 parts per million (ppm) at 0” to 2” interval and 3.3 ppm (CU-SCO 1 ppm), benzo(b)fluoranthene at 14 ppm at 0” to 2” (CU-SCO 5.6 ppm), dibenzo(a,h)anthracene at 1.5 ppm at 0” to 2” (CU-SCO 0.56 ppm) and arsenic at 28 ppm at 0” to 2” (CU-SCO 16 ppm).

Based on the findings of the Remedial Investigation, the past disposal of hazardous waste 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, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and arsenic.

**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: Soil Excavation Meeting Commercial Use Soil Cleanup Objectives with Off-Site Disposal**

This alternative includes excavation of soil in the top foot exceeding commercial SCOs from areas measuring approximately 29,000 square feet (approximately 1,000 cubic yards). This area is in the eastern portion of the site. See Figure 4 for the extent of the excavations. Clean backfill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

Trichloroethene is present at the northern boundary of the site at levels slightly exceeding groundwater standards. Groundwater monitoring will determine if natural attenuation has occurred or is occurring that will allow for attainment of the groundwater standard. After a minimum of 5 years of monitoring, should natural attenuation be determined insufficient; in-situ/ex-situ remediation of groundwater will be evaluated further.

Prior to implementing the excavation, a remedial design program 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 for the excavation, including restoration of the excavation. It is estimated the design of the excavation will take four to six months to complete.

This alternative includes institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any remaining contamination identified at the site.

<i>Present Worth:</i> .....	<i>\$161,000</i>
<i>Capital Cost:</i> .....	<i>\$115,000</i>
<i>Annual Costs:</i> .....	<i>\$3,000</i>

### **Alternative 3: 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 would include: excavation and off-site disposal of all waste and soil contamination above the unrestricted soil cleanup objectives to 15 feet below ground surface. The excavation area will be approximately 174,000 square feet. Backfill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

This alternative might require institutional controls due to residual groundwater contamination, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any remaining contamination identified at the site, until data determines controls are no longer necessary.

Trichloroethene is present at the northern boundary of the site at levels slightly exceeding groundwater standards. Groundwater monitoring will determine if natural attenuation has occurred or is occurring to allow for attainment of groundwater standards. After a minimum of 5 years of monitoring, should natural attenuation be determined insufficient; in-situ/ex-situ remediation of groundwater will be evaluated further.

Prior to implementing the excavation, a remedial design program 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 for the excavation, including restoration of the excavation. It is estimated the design of the excavation will take four to six months to complete.

*Capital Cost:* ..... \$7,587,000



**Exhibit C****Remedial Alternative Costs**

<b>Remedial Alternative</b>	<b>Capital Cost (\$)</b>	<b>Annual Costs (\$)</b>	<b>Total Present Worth (\$)</b>
No Action	0	0	0
Excavation and Backfill to commercial use	\$115,000	\$3,000	\$161,000
Excavation and Backfill to unrestricted use	\$7,541,000	\$3,000	\$7,587,000

## **Exhibit D**

### **SUMMARY OF THE PROPOSED REMEDY**

The Department is proposing Alternative #2, Soil Excavation Meeting Commercial Use Soil Cleanup Objectives with Off-Site Disposal as the remedy for this site. Alternative #2 would achieve the remediation goals for the site by removing soils that exceed commercial use SCOs from the site and managing remaining contamination through ICs and SMP. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 4.

### **Basis for Selection**

The proposed 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 proposed remedy (Alternative 2: Soil Excavation Meeting Commercial Use Soil Cleanup Objectives with Off-Site Disposal) would satisfy this criterion by preventing exposure to contamination through excavation of all soils which exceed the commercial SCOs in the upper foot, and institutional controls, namely an environmental easement.

Alternative 1 (No Action) does not provide any additional protection to public health and the environment and will not be evaluated further.

Alternatives 1 and 2 rely on a restriction of groundwater use at the site to protect human health. Alternative 3 may require a short-term restriction on groundwater use; however, it is expected the restriction will be able to be removed once analytical results verify SCGs have been attained. The potential for soil vapor intrusion is expected to be reduced by Alternative 3, resulting from the remedial action. The potential for soil vapor intrusion will be assessed for on-site buildings in both Alternative 2 and 3 and appropriate actions will be implemented to address exposures.

Alternative 3, by removing all soil contaminated above the unrestricted soil cleanup objective, and through institutional controls until analytical verifies SCGs attained, meets the threshold criteria.

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

Alternative 2 complies with SCOs to the extent practicable. It complies with the restricted use soil cleanup objectives at the surface through excavation of the upper foot which exceeds commercial SCOs. Alternative 3, by restoring the site to unrestricted conditions, also complies with this criterion. Alternative 3 will achieve groundwater SCGs by the evaluation and potential implementation of in-situ/ex-situ remediation if SCGs have not been attained by natural attenuation within 5 years, while groundwater contamination above SCGs may remain on-site under Alternatives 2 for many years. Alternative 2 and 3 complies with SVI SCGs by evaluating on-site buildings and implementing actions to address exposures.

Because Alternatives 2 and 3 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final 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.

Alternative 2 will require a restriction on groundwater for the foreseeable future. A soil management plan will be included in the Site Management Plan under Alternative 2. Restrictions of on-site groundwater usage will be removed once analytical results verify SCGs have been met under Alternative 3. The potential for soil vapor intrusion will be evaluated for both Alternative 2 and 3 with appropriate actions implemented to address exposures.

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.

Alternative 3 will result in the largest reduction in the volume of contamination at the site by a large margin, followed by Alternative 2. Alternative 2 controls potential remaining exposures with institutional controls, while Alternative 3 permanently reduces the toxicity, mobility and volume of contaminants and is not expected to require long term institutional controls. Alternative 3 requires the excavation of approximately 1,000 cubic yards of contaminated soil.

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.

The potential and actual short-term adverse impacts are greater for Alternative 3 than Alternative 2. Both alternatives will create noise and traffic, due to the operation of construction equipment and hauling soil to and from the site. Alternative 3 will create noise and traffic for a longer period of time. Each also requires the 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 mitigate these risks. The greater amount of construction necessary produces greater Green House Gas emissions from construction equipment and trucks.

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

Alternative 2 is favorable in that it is readily implementable. Alternative 3 is also implementable, but the volume of soil excavated under this alternative necessitates increased truck traffic on local roads for several months. Alternative 3 will need shoring due to depth, and possible dewatering or treatment of groundwater during excavation activities.

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.

The costs of the alternatives vary significantly. Alternative 2 has a moderately low cost and allows the site to be used for commercial use. With its large volume of soil to be handled, Alternative 3 (excavation and off-site disposal) has the higher present worth cost than Alternative 2. Excavation and off-site disposal of the top foot is much less expensive than Alternative 3, yet it reduces risk of exposure. Alternative 2 requires annual maintenance costs, but present worth costs under Alternative 3 remain considerably greater.

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.

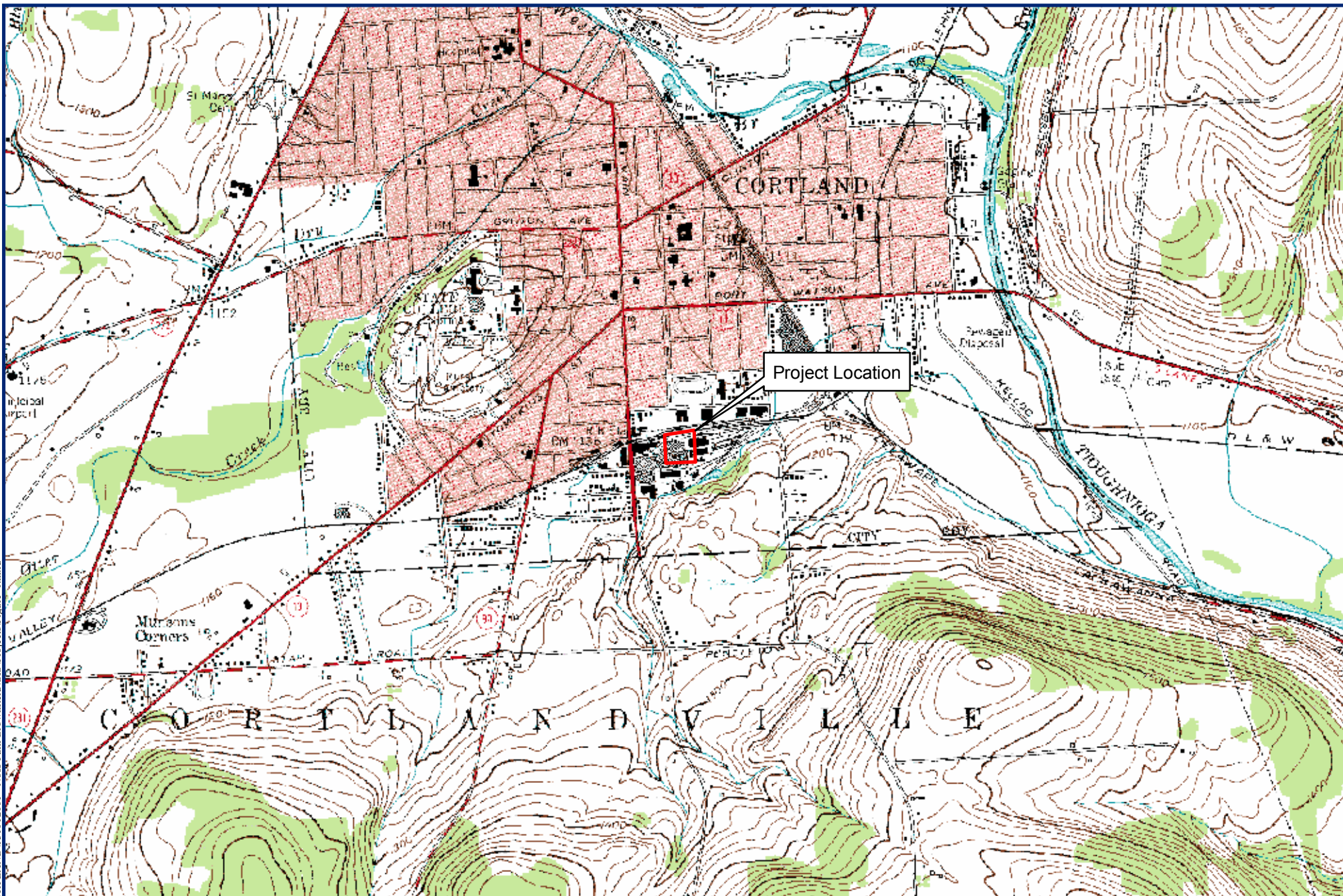
Alternative 2 allows the site to be used for commercial use, which is its reasonable anticipated future use. Alternative 3 results in no restrictions on the future use of the site.

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 will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Alternative 2 is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

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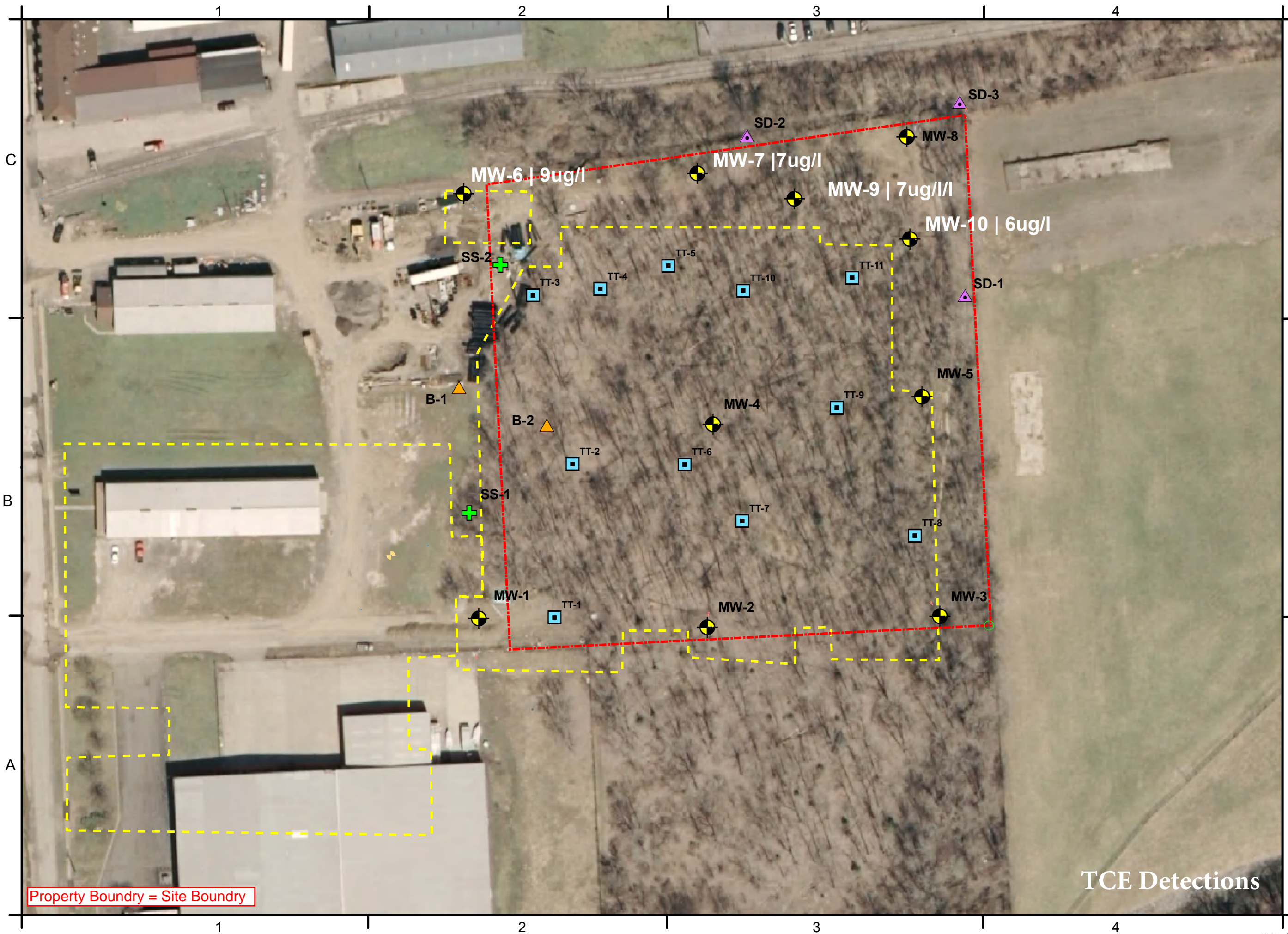


Property Boundary

Source: USGS Cortland Quadrangle

**Project Location and Topographic Map**  
**Noss Park Brownfield Site - RI/RAA Report**  
**City of Cortland, Cortland County, New York**

**Figure 1**



Property Boundary = Site Boundary

TCE Detections

**C&S COMPANIES**  
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**Legend**

- Monitoring Well
- Test Pit
- Boring Location
- Surface Sample
- Sediment Sample
- Property Boundary
- Approximate Former Building Limits

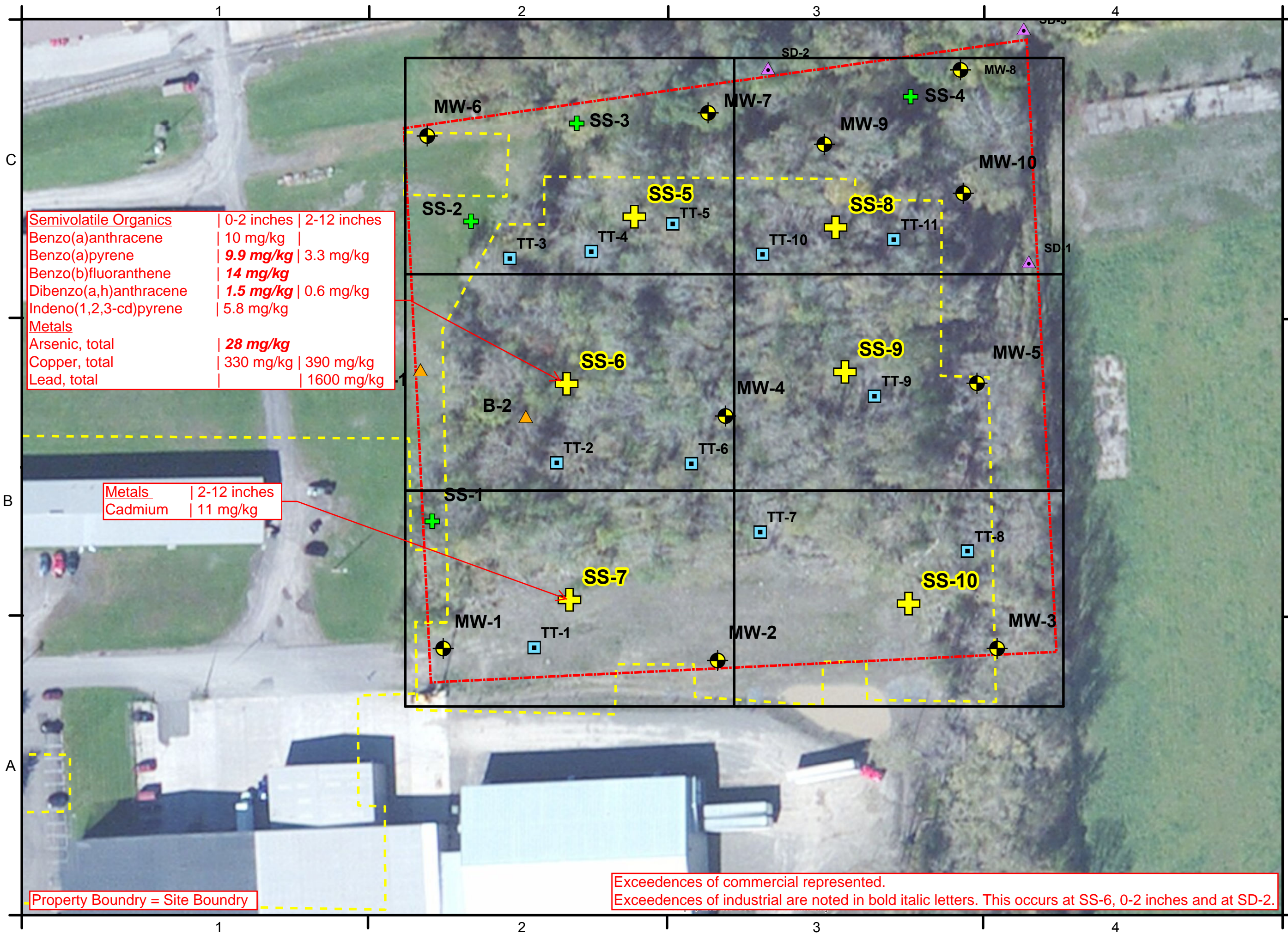
Noss Park Brownfield Site  
 City of Cortland  
 Cortland County, New York

0 Feet 100

PROJECT NO:	
DATE:	September 29, 2009
SCALE:	AS SHOWN
DRAWN BY:	WNR
DESIGNED BY:	WNR
CHECKED BY:	RW

RI/RAA Report  
 Groundwater  
 Analytical Results

**Figure 2**



<b>Semivolatile Organics</b>	0-2 inches	2-12 inches
Benzo(a)anthracene	10 mg/kg	
Benzo(a)pyrene	<b>9.9 mg/kg</b>	3.3 mg/kg
Benzo(b)fluoranthene	<b>14 mg/kg</b>	
Dibenzo(a,h)anthracene	<b>1.5 mg/kg</b>	0.6 mg/kg
Indeno(1,2,3-cd)pyrene	5.8 mg/kg	
<b>Metals</b>		
Arsenic, total	<b>28 mg/kg</b>	
Copper, total	330 mg/kg	390 mg/kg
Lead, total		1600 mg/kg

<b>Metals</b>	2-12 inches
Cadmium	11 mg/kg

Property Boundry = Site Boundry

Exceedences of commercial represented.  
 Exceedences of industrial are noted in bold italic letters. This occurs at SS-6, 0-2 inches and at SD-2.

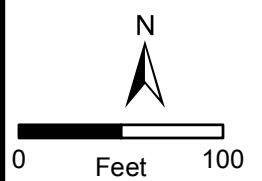


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**Legend**

- + Surface Samples (November 2015)
- ▲ Previous Sediment Sample
- Previous Monitoring Well
- + Previous Surface Sample
- Previous Test Pits
- ▲ Previous Boring Location
- Property Boundary
- Approx. Former Building Limits

Noss Park Brownfield Site  
 City of Cortland  
 Cortland County, New York

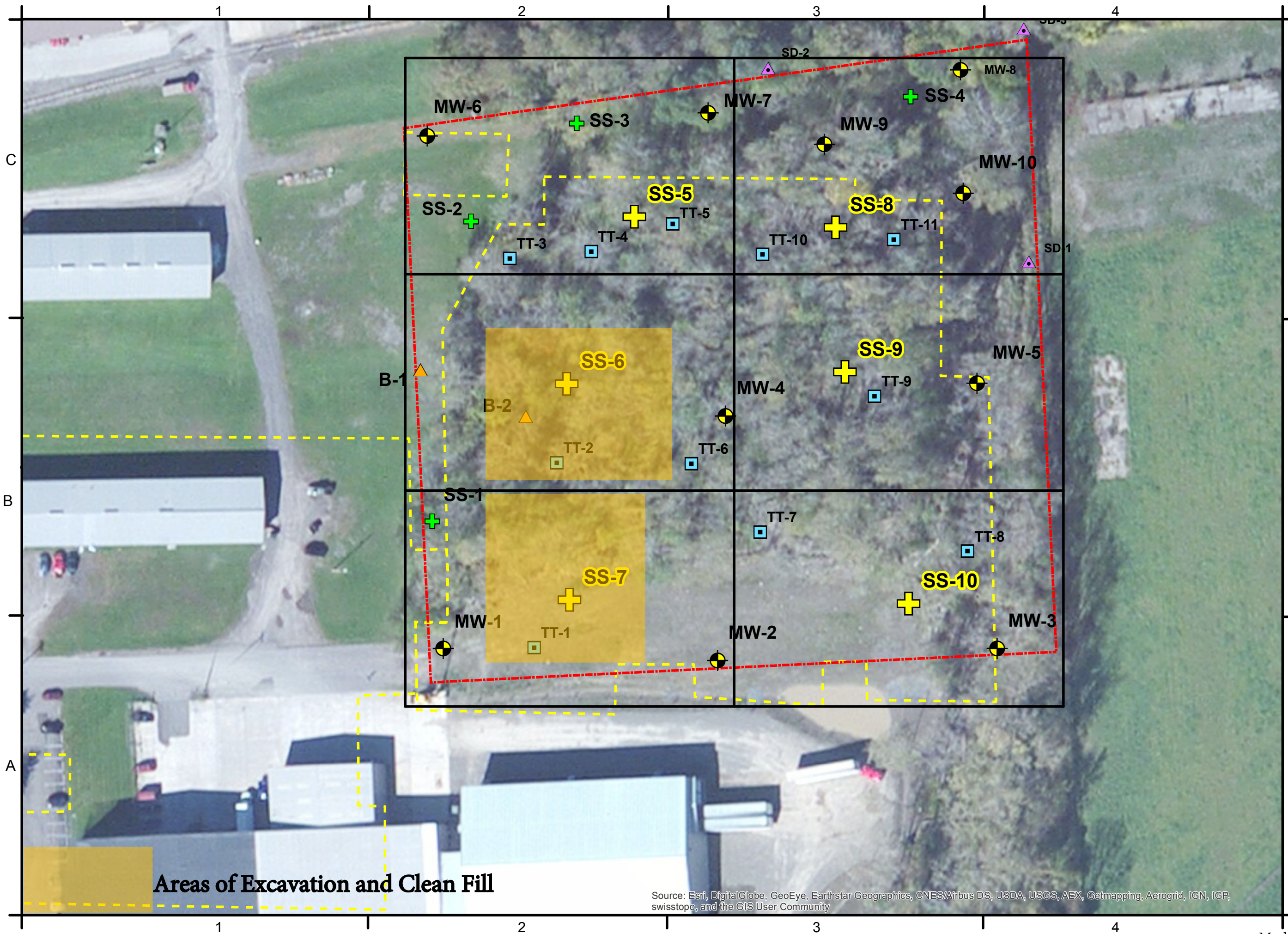


PROJECT NO:	
DATE:	Decemberr 2015
SCALE:	AS SHOWN
DRAWN BY:	WNR
DESIGNED BY:	WNR
CHECKED BY:	RW

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RI/RAA Report  
 Soil Analytical  
 Results

**Figure 3**



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**Legend**

- + Surface Samples (November 2015)
- ▲ Previous Sediment Sample
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Noss Park Brownfield Site  
 City of Cortland  
 Cortland County, New York

N  
 0 Feet 100

PROJECT NO:	
DATE:	Decemberr 2015
SCALE:	AS SHOWN
DRAWN BY:	WNR
DESIGNED BY:	WNR
CHECKED BY:	RW

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RI/RAA  
 Proposed  
 Remedy

**Figure 4**

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community