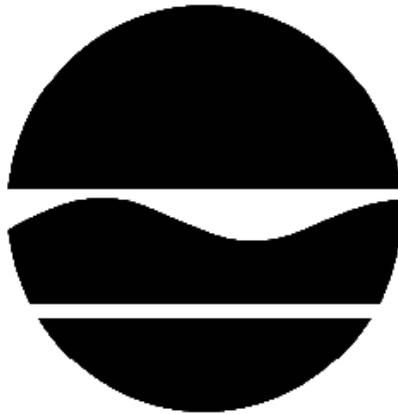


PROPOSED REMEDIAL ACTION PLAN

Former Geneva Foundry Site
Environmental Restoration Project
Operable Units 1, 2 and 3
Geneva (C), Ontario County
Site No. B00019
October 2016



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

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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:

Geneva Free Library
Attn: Reference Librarian

244 Main Street
Geneva, NY 14456
Phone: (315) 789-5303

A public comment period has been set from:

October 11, 2016 to November 25, 2016

A public meeting is scheduled for the following date:

October 18, 2016 at 6:30 pm

Public meeting location:

**Parish Center of St. Francis de Sales Church
130 Exchange Street
Geneva, NY 14456**

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 through **November 25, 2016** to:

Frank Sowers
NYS Department of Environmental Conservation
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, NY 14414
frank.sowers@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 former foundry is located on 2.5 acres at 43 Jackson Street in a mixed urban residential/commercial neighborhood.

Site Features: The former foundry buildings were removed; only the slabs and foundations remain.

Current Zoning and Land Use: The site is currently inactive and is zoned commercial/industrial. A railroad and commercial property borders the site to the south and west with an automotive repair garage and residential properties to the east and north.

Past Use of the Site: A foundry was present at the site since the late 1800s and part of the site was a coal yard until expansion of the foundry in the 1940s. Foundry operations ceased in 1988. The Department completed a preliminary environmental investigation of the site in 1995. The results identified some areas of metals contamination in site soils. Based on these results the City of Geneva entered the Environmental Restoration Program in 1997.

Operable Units: The site was divided into three operable units. An operable unit represents a portion of a remedial program for a site that for technical or administrative reasons can be addressed separately to investigate, eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination.

Operable Unit 1 (OU 01) is the on-site parcel located south of Jackson Street and identified as 23 Jackson Street (104.8-1-34). OU 01 was the primary area for past industrial operations. OU 02 is the on-site parcel located north of Jackson Street and identified 44 Jackson Street (104.8-1-50). OU 02 included a warehouse and other foundry support operations. OU 03 consists of off-site areas impacted by contaminant deposition related to historical air emissions from the foundry.

Site Geology: The site is underlain by fine to medium sand. Groundwater occurs at about 8 feet and flows southward.

Operable Unit (OU) Numbers 01, 02, and 03 are the subject of this document.

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 (which allows for commercial use and 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. For the off-site area, alternatives (or an alternative) appropriate for residential use (which allows for restricted

residential, commercial use and 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.

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. City of Geneva will assist the state in its efforts by providing all information to the state which identifies PRPs. City of Geneva 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:

For OU: 01

| | |
|----------------------|----------|
| benzo(a)anthracene | mercury |
| benzo(a)pyrene | lead |
| benzo(b)fluoranthene | chromium |

For OU: 02

| | |
|---------|----------|
| mercury | chromium |
|---------|----------|

For OU: 03

| | |
|------|---------|
| lead | arsenic |
|------|---------|

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.

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

Abandoned Container Removal IRM

In 1998, abandoned containers including drums, pails, gas cylinders, and aerosol cans were removed from the site and properly disposed of off-site.

Foundry Demolition IRM

In 2005, asbestos was removed from the foundry buildings and the buildings were demolished, leaving concrete slabs and foundation walls.

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 for OUs 01, 02, and 03.

Nature and Extent of Contamination

OU 01: 23 Jackson St. (On-Site Area South of Jackson Street)

Soil was analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, and polychlorinated biphenyls (PCBs). Groundwater was analyzed for VOCs, SVOCs, and metals. Based upon investigations conducted to date, the primary contaminants of concern for OU 01 include mercury, chromium, lead, and polycyclic aromatic hydrocarbons (PAHs). PAHs are a category of SVOCs.

Soil- PAHs are found in shallow soil (upper two feet) at three locations: near a filled pit in the northwest section of OU 01; near a former sump in the southeast section of OU 01, and near a former machine shop in the southernmost section of OU 1. Mercury is intermixed with the PAHs near the filled pit. Chromium and lead are intermixed with the PAHs near the former sump. Concentrations of the PAHs benz(a)anthracene (up to 4.9 parts per million (ppm)), benzo(a)pyrene (up to 5.4 ppm), and benzo(b)fluoranthene (up to 8 ppm) exceed the soil cleanup objective (SCO) for unrestricted use and restricted residential use (both 1 ppm). Mercury (1.2 ppm) exceeds the SCO for unrestricted use (0.18 ppm) and restricted residential use (0.81 ppm). Lead (590 ppm) exceeds the SCO for unrestricted use (64 ppm) and restricted residential use (400 ppm). Chromium (70 ppm) exceeds the SCO for unrestricted use (30 ppm), but not restricted residential use (180 ppm). Off-site impacts are discussed under OU 3.

Groundwater- The investigation did not identify any impacts to groundwater from OU 01.

OU 02: 44 Jackson St. (On-Site Area North of Jackson Street)

Soil and groundwater were analyzed for VOCs, SVOCs, and metals. Based upon investigations conducted to date, the primary contaminants of concern for OU 02 are chromium and mercury.

Soil- Mercury is found in shallow soil (upper two feet) in the southeast section of OU 02. The concentration of mercury (1 ppm) exceeds the SCO for unrestricted use (0.18 ppm) and restricted residential use (0.81 ppm). Chromium (95 ppm) exceeds the SCO for unrestricted use (30 ppm), but not restricted residential use (180 ppm).

Groundwater- The investigation did not identify any impacts to groundwater from OU 02.

OU 03: Off-Site Soil

Surface soil samples were collected on residential and commercial properties and analyzed for metals. The primary contaminants of concern for OU 03 are lead and arsenic.

Soil- Lead and arsenic associated with deposition of particulate matter from air emissions at the foundry are found in surface soil in the surrounding area extending up to approximately 1,300 feet from the site. Concentrations of lead found in off-site soil ranged from 12 to 6,380 ppm, compared to the residential use SCO of 400 ppm. Concentrations of arsenic found in off-site soil ranged from 0.9 to 228 ppm, compared to the residential use SCO of 16 ppm. Other sources of lead and arsenic that are not site-related (lead based paint, coal ash and other fill, other industrial operations, etc.) also contribute to off-site lead and arsenic concentrations.

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*.

The site is not fenced and people who enter the site (Operable Units 1 and 2) could contact contaminants in the soil by walking on the soil, digging, or otherwise disturbing the soil. People may also contact site-related contaminants in soils in off-site areas surrounding the site (Operable Unit 3). There is the potential for direct contact, incidental inhalation, or ingestion of dust containing site-related contaminants by digging or otherwise disturbing the soil both on and off-site. People are not drinking contaminated groundwater associated with the site because the area is served by a public water supply that is not affected by this contamination.

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:

For OUs 01, 02 and 03:

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

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

OU 01: 23 Jackson Street. (On-Site Parcel South of Jackson Street): The estimated present worth cost to implement the remedy is \$206,000. The cost to construct the remedy is estimated to be \$175,000 and the estimated average annual cost is \$2,000.

OU 02: 44 Jackson St. (On-Site Parcel North of Jackson St.): The estimated present worth cost to implement the remedy is \$106,000. The cost to construct the remedy is estimated to be \$75,000 and the estimated average annual cost is \$2,000.

OU 03: Off-Site: The estimated present worth cost to implement the remedy is \$16,600,000. The cost to construct the remedy is estimated to be \$16,600,000 and the estimated average annual cost is \$0.

The elements of the proposed remedy are as follows:

1. Remedial Design

OU 01, 02 and 03: 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

Excavation and off-site disposal of contaminant source areas, including:

OU 01 and 02: All on-site soils which exceed restricted-residential SCOs, as defined by 6 NYCRR Part 375-6.8 in the upper two feet, will be excavated and transported off-site for disposal. Approximately 700 cubic yards of contaminated soil will be removed from OU 01 and approximately 300 cubic yards of contaminated soil will be removed from OU 02.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site. The site will be re-graded to accommodate installation of a cover system as described in remedy element #3.

OU 03: All site-related off-site soils which exceed residential SCOs, as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal. Contaminated soil associated with deposition from site emissions will be removed from approximately 220 off-site properties which will be identified during the remedial design. Excavation depths will be identified during the remedial design, but are expected to be limited to the upper 1 foot of soil.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at each property.

3. Cover System

OU 1 and 02: A site cover will be required to allow for restricted residential use of the site. The cover will consist either of the structures such as buildings, pavement, and sidewalks comprising the site development or a soil cover in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d).

4. Institutional Control

OU 01 and 02: 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 restricted residential use, commercial use 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.

5. Site Management Plan

OU 01 and 02: 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 4 above.

Engineering Controls: The cover system discussed in Paragraph 3 above.

This plan includes, but may not be limited to:

- o an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- o descriptions of the provisions of the environmental easement including any land use and/or groundwater water use restrictions;
- o provisions for the management and inspection of the identified engineering controls;
- o maintaining site access controls and Department notification; and
- o the steps necessary for the periodic reviews and certification of the institutional and/or engineering 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; semi-volatile organic compounds (SVOCs), 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. Two rounds of groundwater sampling were completed for each of the six monitoring wells. Five wells were located in OU 01 and one well in OU 02. Volatile organic compounds (VOCs) and SVOCs did not exceed SCGs in any samples. Lead in one of the OU 01 wells exceeded SCGs during the first sampling round, but was not detected in that well during the second round. No other metals of concern exceeded SCGs in groundwater. The results indicate that contamination in groundwater at the site is not a concern.

Table #1 - Groundwater

| Detected Constituents | Concentration Range Detected (ppb) ^a | SCG ^b (ppb) | Frequency Exceeding SCG |
|-----------------------|---|------------------------|-------------------------|
| Lead | Non Detect - 158 | 25 | 1 of 9 |

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).

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 during the RI. Surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure. Subsurface soil samples were collected from depths of 0–1 feet and 1-2 feet on the site. All on-site samples are subsurface soil samples and all off-site samples are surface soil samples. The results indicate that soils in OU 01 exceed the unrestricted SCG for semi-volatile organics and metals and soils in OU 02 and OU 03 exceed the unrestricted SCG for metals. VOCs and PCBs did not exceed SCGs in any samples.

Figure 2 presents the nature and extent of the on-site soil contamination for OU 01 and OU 02. Figure 3A presents the estimated extent of the off-site surface soil contamination for OU 03.

Table #2 - On-Site Soil (OU 01 and OU 02)

| Detected Constituents | Concentration Range Detected (ppm) ^a | Unrestricted SCG ^b (ppm) | Frequency Exceeding Unrestricted SCG | Restricted Use SCG ^c (ppm) | Frequency Exceeding Restricted SCG |
|-----------------------|---|-------------------------------------|--------------------------------------|---------------------------------------|------------------------------------|
| SVOCs | | | | | |
| Benzo(a)anthracene | Non Detect - 4.9 | 1 | 4 of 48 | 1 | 4 of 48 |
| Benzo(a)pyrene | Non Detect - 5.4 | 1 | 4 of 48 | 1 | 4 of 48 |
| Benzo(b)fluoranthene | Non Detect - 8 | 1 | 5 of 48 | 1 | 5 of 48 |
| Inorganics | | | | | |
| Chromium | 2.1 - 95 | 30 | 3 of 48 | 180 | 0 of 48 |
| Lead | 3.2 - 590 | 63 | 17 of 48 | 400 | 1 of 48 |
| Mercury | Non Detect - 1.2 | 0.18 | 10 of 29 | 0.81 | 2 of 29 |

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.

Table #2A - Off-Site Soil (OU 3)

| Detected Constituents | Concentration Range Detected (ppm) ^a | Unrestricted SCG ^b (ppm) | Frequency Exceeding Unrestricted SCG | Restricted Use SCG ^c (ppm) | Frequency Exceeding Restricted SCG |
|-----------------------|---|-------------------------------------|--------------------------------------|---------------------------------------|------------------------------------|
| Inorganics | | | | | |
| Arsenic | 0.094 - 228 | 13 | 223 of 347 | 16 | 182 of 347 |
| Lead | 12 - 6,380 | 63 | 373 of 383 | 400 | 208 of 383 |

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 Residential Use, unless otherwise noted.

For OU 01, the primary soil contaminants are polycyclic aromatic hydrocarbons (PAHs), chromium, lead, and mercury. As noted on Figure 2, there are three discrete areas of soil contamination in OU 01. These areas are associated with a filled pit in the northwest section of OU 01; a former sump in the southeast section of OU 01, and a former machine shop in the southernmost section of OU 01.

For OU 02, the primary soil contaminants are chromium and mercury. As noted on Figure 2, there are two discrete areas of soil contamination in OU 02. The chromium is located in the northwest section of OU 02 and the mercury is located in the southeast section of OU 02.

For OU 03 (off-site), arsenic and lead surface soil contamination was found above the Protection of Public Health SCO for a residential property. The arsenic and lead contamination are associated with historical air emissions from the foundry. These emissions contained arsenic and lead, which were deposited onto the soil in the surrounding area. Other sources that are not related to the foundry also contribute to the levels of arsenic and lead found off-site. These sources include lead-based paint, ash and other fill materials, and other historical industrial operations.

Based on the findings of the Remedial Investigation, the presence of PAHs and inorganics 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)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, arsenic, chromium, lead, and mercury.

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 Pre-Disposal or 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: all on-site soils (OU 01 and OU 02) which exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8, will be excavated and transported off-site for disposal. All off-site soils (OU 03) which exceed unrestricted SCOs, as defined by 6 NYCRR Part 375-6.8, for contaminants associated with deposition from site emissions, will be excavated and transported off-site for disposal.

Approximately 4,200 cubic yards of contaminated soil will be removed from the site. The full extent of off-site contamination was not delineated to the unrestricted SCOs, but it is assumed that the number of properties would be at least 440 which is double the number of properties which are estimated to exceed the residential SCOs. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

Capital Cost:..... \$26,200,000

Alternative 3: Limited Excavation to Restricted Residential SCOs On-Site and Excavation to Residential SCOs Off-Site

This alternative would include, excavating and off-site disposal of on-site soils (OU 01 and OU 02) which exceed restricted residential SCOs, as defined by 6 NYCRR Part 375-6.8, in the upper two feet, preventing exposures based on the intended use of the site for restricted residential. Approximately 700 cubic yards of contaminated soil will be removed from OU 01 and approximately 300 cubic yards of contaminated soil will be removed from OU 02. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site. A cover system will be constructed to allow for restricted residential use of the site. Upon completion of the remedy, a site management plan (SMP) will be developed which includes: imposition of an environmental easement; restricts site use to restricted residential, commercial and industrial uses; and restricts groundwater use.

For OU 03, all off-site soils which exceed residential SCOs, as defined by 6 NYCRR Part 375-6.8, for contaminants associated with deposition from site emissions, will be excavated and transported off-site for disposal, preventing exposure to site-related contamination. Site-related contaminated soil will be removed from approximately 220 properties which will be identified during the remedial design. The depth of excavation will be determined during the remedial design, but deposition related contamination is expected to be limited to the top 1 foot of soil. Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil or complete the backfilling of the excavation and establish the designed grades at the site.

The design and implementation of on-site remedy will be completed in approximately 2 years. The off-site remedy will be implemented in phases. It is estimated that design activities will be completed in year 1 and that approximately 20 properties per year can be remediated starting in year 2.

| | |
|-----------------------------|--------------|
| <i>Present Worth:</i> | \$16,800,000 |
| <i>Capital Cost:</i> | \$16,800,000 |
| <i>Annual Costs:</i> | \$2,000 |

Exhibit C**Remedial Alternative Costs**

| Remedial Alternative | Capital Cost (\$) | Annual Costs (\$) | Total Present Worth (\$) |
|--|--------------------------|--------------------------|---------------------------------|
| #1 No Action | 0 | 0 | 0 |
| #2 Restoration to Pre-Disposal or Unrestricted Conditions | \$26,200,000 | 0 | \$26,200,000 |
| #3 Limited Excavation to Restricted Residential SCOs On-Site and Excavation to Residential SCOs Off-Site | \$16,800,000 | \$2,000 | \$16,800,000 |

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 3, Limited Excavation, as the remedy for this site. Alternative #3 would achieve the remediation goals for the site by excavation and off-site disposal of contaminated soils and fill exceeding restricted residential SCOs on-site and residential SCOs off-site. The elements of this remedy are described in Section 7. The proposed on-site remedy is depicted in Figure 3. The proposed off-site remedy is depicted in Figure 3A. The proposed extent of the off-site remedy shown in Figure 3A represents properties that are most likely to be impacted by the foundry, but it is not a bright line separating areas impacted by the foundry from areas not impacted by the foundry. Additionally, properties with elevated levels of lead and/or arsenic that appear to be primarily associated with sources other than the foundry are not included in the proposed off-site remedy. The Department, in consultation with the New York State Department of Health, will continue to evaluate all available data throughout the Remedial Design and Remedial Action process and make adjustments to the extent of the remedial area as needed.

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 3) would satisfy this criterion by removing the contaminated soils from the site and impacted off-site properties and properly disposing of them off-site. Alternative 3 addresses the soil contamination near the surface, which is the primary interval that is contaminated and the most significant threat to the environment. Alternative 1 (No Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 2, by removing all soil contaminated above the unrestricted soil cleanup objective, meets the threshold criteria. Alternative 3 relies on a cover system, a site use restriction, and a Site Management Plan to protect public health on-site with cleanup to residential use with no restrictions off-site. Alternative 3 will also include a restriction on groundwater use on the site as a precautionary measure.

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 3 complies with SCGs to the extent practicable. It complies with the restricted residential use soil cleanup objectives at the surface through construction of a cover system on-site and it complies with the residential use soil cleanup objectives for site-related impacts off-site. Alternative 2, by removing all soil contaminated above the unrestricted" soil cleanup objective, also complies with this criterion. 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.

Long-term effectiveness is best accomplished by those alternatives involving excavation of the contaminated overburden soils (Alternatives 2 and 3). Alternative 2 results in removal of all of the chemical contamination on-site and off-site and removes the need for property use restrictions. Alternative 3 provides for a lower level of cleanup than Alternative 2, but since most of the contamination is present in the upper two feet of soil, Alternative 3 results in removal of almost all of the chemical contamination at the site for the restricted residential intended use. Alternative 3 also requires an environmental easement restricting site use, a cover system, and long-term site management for on-site, but no restrictions for off-site properties. Alternative 3 will also include a groundwater use restriction on the site as a precautionary measure.

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 and 3, excavation and off-site disposal, reduce the toxicity, mobility and volume of on-site waste by transferring the material to an approved off-site location. However, depending on the disposal facility, the volume of the material would not be reduced. Alternative 2 requires the excavation and disposal of a much larger volume of soil than Alternative 3.

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.

Alternatives 2 and 3 both have short-term impacts which could easily be controlled, however, Alternative 3 would have the least impact due to the lower volume of soil to removed and replaced, thereby limiting the impacts of noise, traffic and possible accidents as a result of the lower number of truck trips required to implement alternative 3. The time needed to achieve the remediation goals is the shortest for Alternative 3 and longer for Alternative 2.

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 3 is favorable in that the on-site remedy is readily implementable. Alternative 2 is also implementable, but the volume of soil excavated under this alternative would necessitate increased truck traffic on local roads for a longer period of time. Alternatives 2 and 3 both have challenges with implementing the off-site remedy such as obtaining access and coordinating activities with property owners and utilities. Distinguishing between site

related contamination and contamination related to other sources is a significant challenge for Alternative 3 and may not be feasible for Alternative 2. The off-site remedy for Alternative 3 is more easily implemented than Alternative 2 because Alternative 3 includes fewer properties and removes a smaller volume of soil from each property.

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 3 has a lower cost, but has on-going annual costs on-site associated with long-term maintenance of the cover system and other site management activities. However, once development is complete, annual site management costs are expected to be low. Alternative 2 is much more expensive, but does not provide a proportional increase in protection.

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.

Since the anticipated use of the site is restricted residential, Alternatives 3 would be less desirable because at least some contaminated soil would remain on the property whereas Alternative 2 would remove all of the contaminated soil permanently. However, the remaining contamination with Alternative 3 would be controllable with construction of a cover system, an environmental easement limiting on-site use to restricted residential, commercial, or industrial activities, and implementation of a Site Management Plan. Off-site use under Alternative 3 would not be restricted. With Alternative 2, all soil above the unrestricted use soil cleanup objective would be removed and restrictions on the site use would not be necessary. Impacted off-site properties include a mix of residential, commercial, and industrial uses. In this setting, Alternative 2 would not provide significant additional protection compared to Alternative 3.

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.

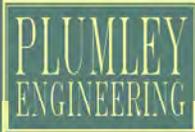
9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

Alternative 3 is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.



REF.: USGS - GENEVA SOUTH (NY) QUAD., 2013, 7.5 MIN. SCALE: 1"=2000'

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PLUMLEY ENGINEERING, P.C.
8232 LOOP ROAD
BALDWINVILLE, NY 13027
TELEPHONE: (315) 638-8587
FAX: (315) 638-9740
WWW.PLUMLEYENG.COM

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PROJECT:

GENEVA FOUNDRY SITE

DWG. TITLE:

SITE LOCATION MAP

CLIENT:

CITY OF GENEVA

LOCATION:

CITY OF GENEVA, ONTARIO COUNTY, NEW YORK

Note: No alteration permitted herein except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

PROJECT No.: 2015003(SRIA)

FILE NAME: FIGURE 1

SCALE: AS NOTED

DATE: DEC 2015

ENG'D BY: DKM

DRAWN BY: JMD

CHECKED BY: DRV



OU2

STATE ST

CENTER ST

MIDDLE ST

JACKSON ST

EXCHANGE ST

WADSWORTH ST

OU1

OU3 includes all offsite properties

GENESEE PARK

RAILROAD PL

LEWIS ST

Figure 1A. Operable Units
Former Geneva Foundry Site B0019

Legend

- Property Boundaries
- Former Geneva Foundry Site



0 50 100 200 Feet

1 inch = 100 feet

| SS-37 | ppm | SCO* |
|----------|-----|--------|
| Chromium | 95 | 30/180 |

| BH-22-D | ppm | SCO* |
|---------|-----|-----------|
| Mercury | 1 | 0.18/0.81 |

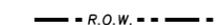
| BH-30-S | ppm | SCO* |
|----------------------|-----|--------|
| Chromium | 70 | 30/180 |
| Lead | 590 | 63/400 |
| Benzo(b)fluoranthene | 2.7 | 1/1 |

| BH-25-S | ppm | SCO* |
|----------------------|-----|-----------|
| Mercury | 1.2 | 0.18/0.81 |
| Benzo(a)anthracene | 4.9 | 1/1 |
| Benzo(a)pyrene | 5.4 | 1/1 |
| Benzo(b)fluoranthene | 8 | 1/1 |

| BH-24-S | ppm | SCO* |
|----------------------|-----|------|
| Benzo(a)anthracene | 1.6 | 1/1 |
| Benzo(a)pyrene | 1.6 | 1/1 |
| Benzo(b)fluoranthene | 2.4 | 1/1 |

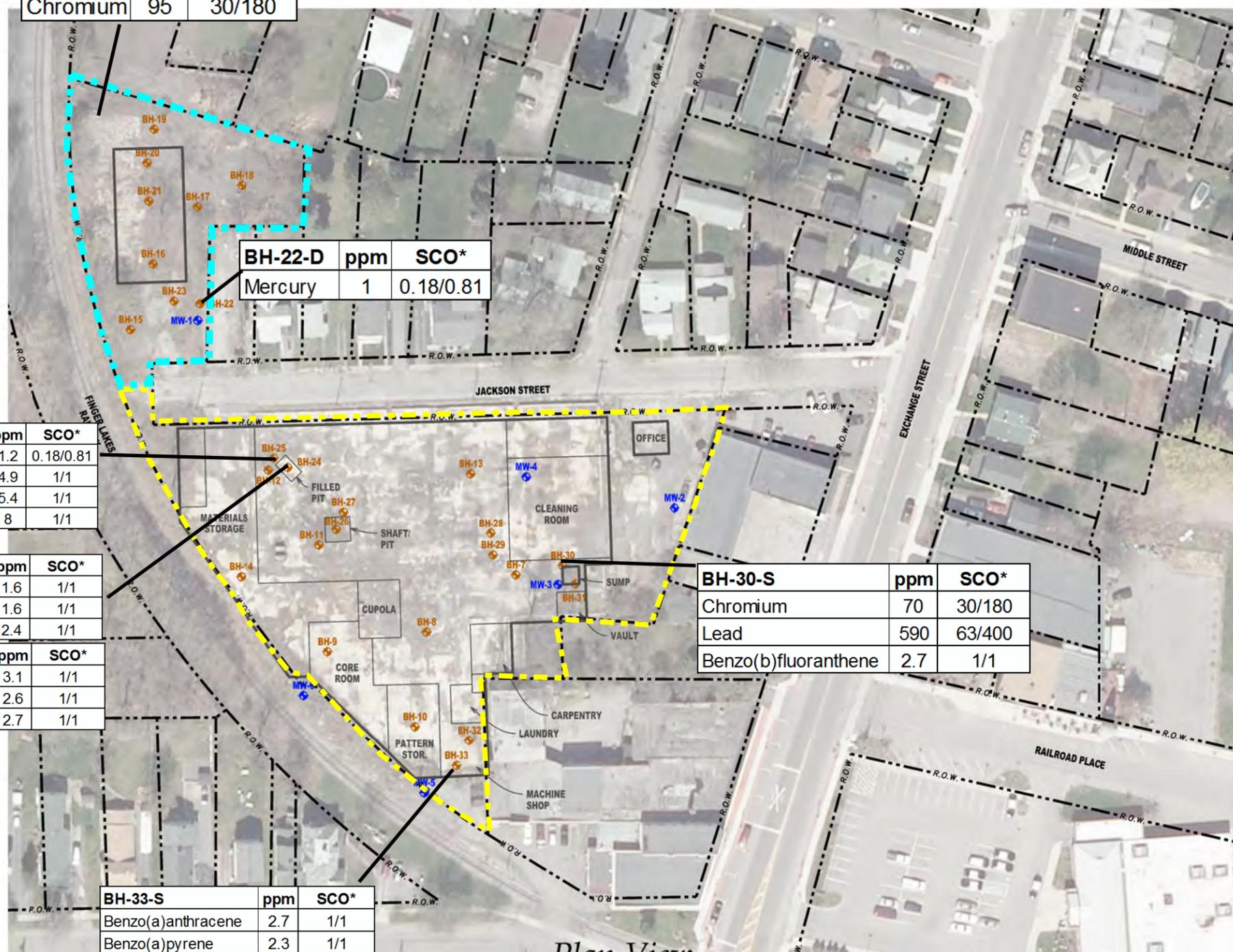
| BH-24-D | ppm | SCO* |
|----------------------|-----|------|
| Benzo(a)anthracene | 3.1 | 1/1 |
| Benzo(a)pyrene | 2.6 | 1/1 |
| Benzo(b)fluoranthene | 2.7 | 1/1 |

| BH-33-S | ppm | SCO* |
|----------------------|-----|------|
| Benzo(a)anthracene | 2.7 | 1/1 |
| Benzo(a)pyrene | 2.3 | 1/1 |
| Benzo(b)fluoranthene | 3.2 | 1/1 |

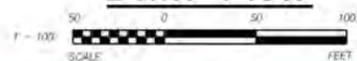
-  Right of Way
-  Property Line
-  Monitoring Well (Installed by Others)
-  Soil Boring (Performed by Others)

-  Operable Unit 1
-  Operable Unit 2

*Unrestricted/Restricted Residential



Plan View



PLUMLEY ENGINEERING
 PLUMLEY ENGINEERING, P.C.
 8232 LOOP ROAD
 BALDWINVILLE, NY 13127
 TELEPHONE: (315) 638-8887
 FAX: (315) 638-9740
 WWW.PLUMLEYENG.COM

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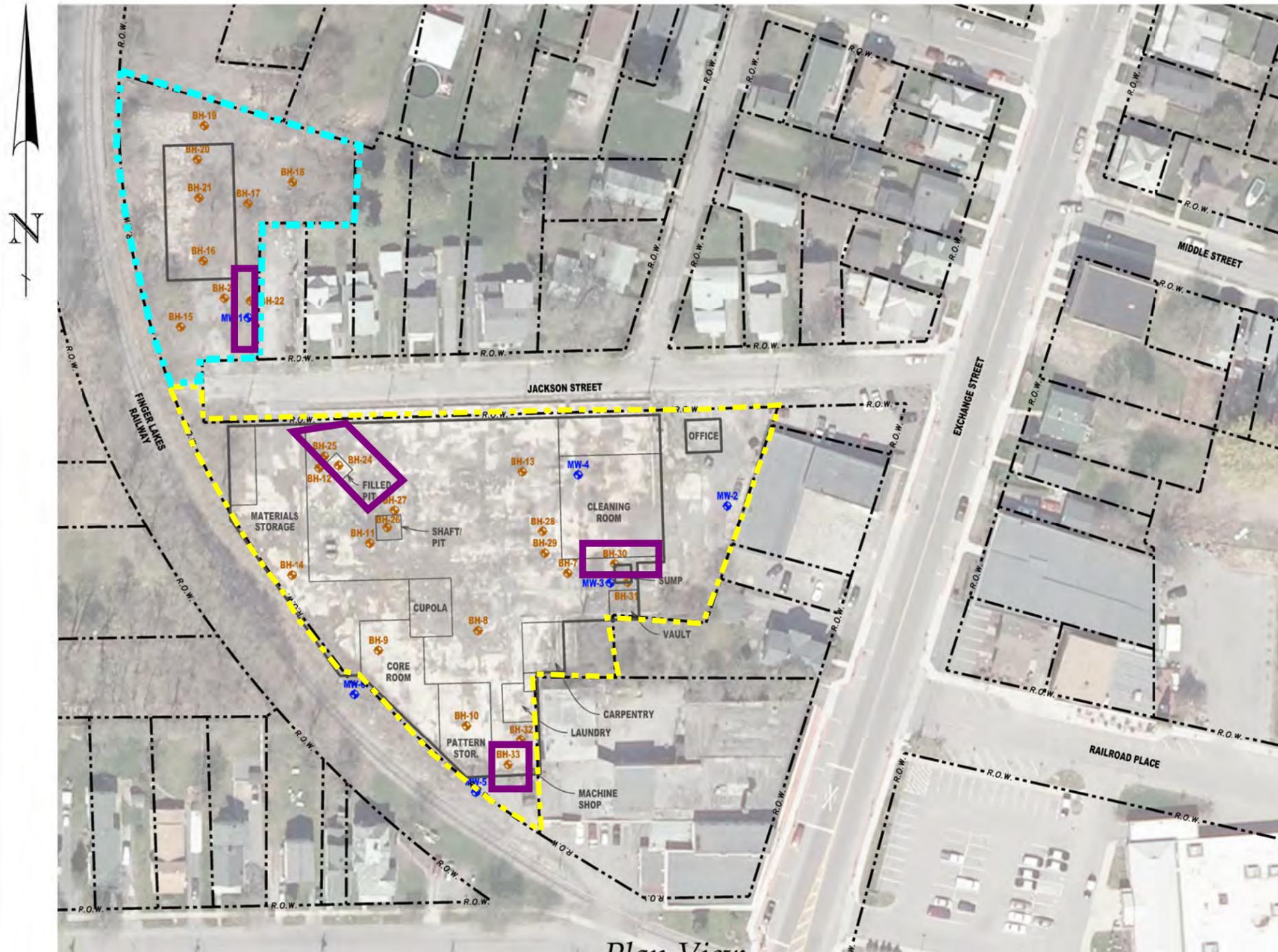
| REVISIONS: | DATE: | BY: |
|------------|-------|-----|
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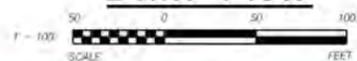
PROJECT: **GENEVA FOUNDRY SITE**
 DWG. TITLE: **On-Site Remedial Investigation Results**
 CLIENT: **CITY OF GENEVA**
 LOCATION: **CITY OF GENEVA, ONTARIO COUNTY, NEW YORK**
 Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

| | |
|--------------|----------------|
| PROJECT No.: | 2015003 |
| FILE NAME.: | FIGURE2(SRIAA) |
| SCALE: | AS NOTED |
| DATE: | DEC. 2015 |
| ENGD BY: | DKM |
| DRAWN BY: | JMD |
| CHECKED BY: | DRV |

SHEET NO.:
FIGURE 2
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Plan View



- Right of Way
- Property Line
- Monitoring Well (Installed by Others)
- Soil Boring (Performed by Others)

- Operable Unit 1
- Operable Unit 2

Estimated Extent of Excavations for Restricted Residential SCOs

Cover system and environmental easement required for entire site.

PLUMLEY ENGINEERING
 PLUMLEY ENGINEERING, P.C.
 8232 LOOP ROAD
 BALDWINVILLE, NY 13127
 TELEPHONE: (315) 638-8887
 FAX: (315) 638-9740
 WWW.PLUMLEYENG.COM

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PROJECT: **GENEVA FOUNDRY SITE**
ALTERNATIVE #3: On-Site
 CLIENT: CITY OF GENEVA

LOCATION: CITY OF GENEVA, ONTARIO COUNTY, NEW YORK
 Note: No alteration permitted hereon except as provided under Section 7209 Subdivision 2 of the New York State Education Law.

| | |
|--------------|----------------|
| PROJECT No.: | 2015003 |
| FILE NAME.: | FIGURE2(SRIAA) |
| SCALE: | AS NOTED |
| DATE: | DEC. 2015 |
| ENGD BY: | DKM |
| DRAWN BY: | JMD |
| CHECKED BY: | DRV |

SHEET NO.:
FIGURE 3



**Figure 3A. Alternative #3
Proposed Offsite Remedy**
Former Geneva Foundry Site B0019

- Legend**
- Property Boundaries
 - Former Geneva Foundry Site
 - Proposed Estimated Offsite Remedial Boundary



0 75 150 300 450 Feet

1 inch = 200 feet