NEW YORK STATE OF OPPORTUNITY. | Department of Environmental Conservation

FINAL STATEMENT OF BASIS CORRECTIVE MEASURES SELECTION

Revere Smelting & Refining

65 Ballard Road

Middletown, Orange County

EPA ID No. NYD030485288 / Site No. 336053

Operable Unit 4 - RCRA Facility

June 2017

PREPARED BY

DIVISION OF ENVIRONMENTAL REMEDIATION

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INTRODUCTION

This document presents the final corrective measures for the Revere Smelting & Refining Facility, Operable Unit 4. The final corrective measures were selected in accordance with 6 NYCRR 373. This decision is based on the Administrative Record for the New York State Department of Environmental Conservation (the Department) for the Revere Smelting & Refining Facility, Operable Unit 4 (see Reference List) and the public's input to the proposed corrective measures presented in the Statement of Basis (SB).

PUBLIC PARTICIPATION AND RESPONSE TO COMMENTS

The public comment period for the SB started on February 15, 2017 and ended on April 17, 2017. A public meeting was held to present the statement of basis on March 29, 2017. All comments and/or requests for public hearing were required to be submitted no later than April 17, 2017.

No public comments were received from the public on the corrective measures proposed in the SB.

FINAL CORRECTIVE MEASURES
The elements of the final corrective measure are as follows:

Near-Term Actions

1. Groundwater Containment, Extraction & Treatment

Groundwater beneath the OU-4 area is currently contained, extracted and treated by the Interim Corrective Measure (ICM) completed in 2014. Pursuant to the ICM, groundwater is extracted from the subsurface of OU-4 within the confines of the containment barrier wall system in the southern portion of the site. The extracted groundwater is treated using the existing on-site water treatment system and the treated effluent is sent to the local wastewater treatment plant. This system will continue to operate and be maintained and monitored until groundwater meets ambient water quality standards or until the contaminated soil is removed and the remedial action objectives are shown to be satisfied. Once the soils are removed, groundwater is expected to improve since the source of contamination will no longer exist.

2. Institutional Control

Imposition of an institutional control in the form of an environmental easement to be placed on the controlled property (OU-4) within 180 days of approval of the Statement of Basis which will:

- requires 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 industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or Orange County Health Department; and
- requires compliance with the Department approved Site Management Plan.

3. Site Management Plan

A Site Management Plan (SMP) for OU-4 is required, and will be combined with the SMP for OU-1, which is required by the OU-1 Order on Consent and environmental easement. The portion of the SMP which pertain to OU-4 include the following:

a) an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for OU-4 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 2 above.

- When the soil remediation (described in Paragraphs 4 through 7 below) is completed, modification of the environmental easement to allow the use and development of the controlled property (OU-4) for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws.

Engineering Controls: Maintenance of the existing groundwater extraction system.

This plan includes, but may not be limited to:
- a provision for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately and thoroughly investigated pursuant to a plan approved by the Department. Based on the investigation results and the Department determination of the need for a remedy, a Remedial Action Work Plan (RAWP) will be developed for the final remedy for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation Plan (CPP) activities will continue through this process. Any necessary remediation will be completed prior to, or in association with, redevelopment. This includes all areas within OU-4.
- a provision for demolition of any site building within the OU-4 area if and when they become unsafe, inactive or vacant unless RSR demonstrates that it should remain.
- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination (if any);
- descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
- 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) 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, this plan will be incorporated into the monitoring plan for the entire site; and
- a schedule of monitoring and frequency of submittals to the Department;

c) an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - compliance monitoring of extraction well pumping systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.

Future Actions

4. 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/Green Remediation policy. 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.

5. Excavation

All on-site RCRA Solid Waste Management Units and Areas of Concern (Exhibit A) will be closed pursuant to applicable regulations and guidance. The on-site buildings in OU-4 will be demolished and materials which cannot be beneficially reused on-site or off-site with Department approval will either be placed in the containment cell or transported off-site for proper disposal in order to implement the remedy. This may be done in phases as individual units and buildings are removed from service at the facility.

All on-site soils within the area of OU-4 which exceed the restricted residential soil cleanup objectives (SCOs) and the protection of groundwater SCOs, as defined by 6 NYCRR Part 375-6.8(b), will be excavated, treated as necessary, and placed in the on-site containment cell or transported off-site for disposal.

On-site soil which does not exceed the restricted residential and protection of groundwater SCOs may be used to backfill the excavation and re-establish the original grades at the site. 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.

6. Treatment of Excavated Soils

Ex-situ stabilization will be required to treat excavated soil which fails the toxicity characteristic leaching procedure (TCLP) testing for lead and/or arsenic. Ex-situ stabilization is a process that mixes reagents with contaminated soil to physically and/or chemically modify the material to render it non-hazardous, allowing it to be placed in an off-site landfill or the on-site containment cell. For this process the contaminated soil will be excavated and mixed with stabilizing agents using a backhoe or other method (i.e., pug mill, mixer, etc.) in a temporary lined mixing area to treat those soils containing high levels of lead and/or arsenic.

7. On-site Consolidation and Off-site Disposal

The treated soil will be placed in the on-site containment cell located in OU-1 until the containment cell reaches capacity. The current containment cell cover will be removed and then replaced with an engineered cap that is designed, constructed and maintained in conformance with the substantive requirements of 6NYCRR Part 360 regulations. The available remaining capacity of the existing on-site containment cell located in OU-1 is estimated to be 15,900 cubic yards (cy). The excess treated soils will be disposed off-site at a facility permitted to receive such waste.

The containment cell was constructed from 2012 to 2016 and is located on OU-1 approximately 200 feet northeast of the OU-4 boundary. It has a design capacity of 180,000 cy and currently contains approximately 120,000 cy of soils derived from the remediation of OU-1. The cell is fully lined with leachate collection, and has an interim cap which incorporates a 60 mil high density polyethylene (HDPE) liner covering 77 % of its area which meets the substantive requirements of NYCRR Part 360, and an interim soil cover over the remaining 23 % of its area.

It is currently estimated that 36,400 cy of soil will need to be excavated from the area of OU-4. Most excavation areas are estimated to be to a depth of 4 feet, although some areas will be to 15 feet. This volume estimate includes 29,200 cy within the fenced area of OU-4, 6,000 cy between the fence and the containment barrier wall, and 1,200 cy under the front entrance driveway. The final extent and depth of excavation, and associated volumes will be established based on the SCOs in effect at the time of the work, to allow for restricted residential use.

DECLARATION

The final corrective measures are protective of human health and the environment, comply with State and Federal requirements that are legally applicable or relevant, appropriate to the remedial action to the extent practicable, and are cost effective. This remedy utilizes permanent solutions and alternative treatment, or resource recovery technologies to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

June 22, 2017

Date

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

Statement of Basis

Revere Smelting & Refining
65 Ballard Road
Middletown, Orange County
EPA ID No. NYD030485288 / Site No. 336053
Operable Unit 4 - RCRA Facility

June 2017

INTRODUCTION

The purpose of this Statement of Basis (SB) is to provide background information related to the site contamination and investigation, and to present the remedy selected by the New York State Department of Environmental Conservation (the Department).

Due to the presence of an active industrial facility at the site, the Revere Smelting & Refining Corporation (RSR), the selected remediation of Operable Unit 4 (OU-4) identifies both near term and future actions. The near term action addresses site groundwater. The future actions are to address site soils and will occur after the facility closes down or otherwise relocates off the current manufacturing areas footprint, thus enabling the remedial program required pursuant to this Statement of Basis. The plant is currently expected to be in operation for at least another 30 years.

The SB selects continued operation and maintenance of the current groundwater remediation (site containment barrier wall and groundwater pumping) as the near-term remedy for groundwater. This SB also selects the removal of contaminated soils exceeding restricted residential soil cleanup objectives (SCOs) from the manufacturing area (OU-4) of the RSR facility as the future remedy to address environmental contamination pursuant to the Resource Conservation and Recovery Act (RCRA) corrective action at the RSR Site.

The site is also currently classified as a Class 2 site on the New York State Registry of Inactive Hazardous Waste Disposal Sites. The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375, and it will serve as the Record of Decision for OU-4 under the State Superfund program. This document is a summary of the information that can be found in the site-related reports and documents.

FACILITY BACKGROUND

Location: The RSR site is located in an industrial use area of the Town of Wallkill, approximately 0.9 miles east of the intersection of Route 17 & Route 211. The site is at 65 Ballard Road just off NYS Route 211.

Site Features: The facility is located on 154.9 contiguous acres comprised of seven parcels Eco Bat New York LLC. Three of these parcels, comprising 60.6-acres, are listed as a Class 2 site on the Department's Registry of Inactive Hazardous Waste Disposal Sites. The site is the location of an active secondary lead smelter. There are several large buildings that house industrial processes on the site. The facility stores hazardous waste in two RCRA regulated units: the Containment Building and the Battery Storage Unit. Other structures at the facility include the main smelter building, a crystallizer building, a wastewater treatment building, six 350,000-gallon aboveground storm water tanks, and employee and truck parking areas (Figure 2). A rail spur

from the Norfolk and Southern Railroad tracks to the south of the facility services the east side of the facility. The operational portion of the facility consists of approximately 14 acres and is surrounded by undeveloped areas in varying degrees of past disturbance ranging from second growth forest, reverting farmlands, maintained lawns, and wetlands.

Current Zoning and Land Use: The site is zoned as Light Enterprise (Industrial) by the Town of Wallkill. The facility is bordered to the north by overgrown fields, wetlands, mature woodlands, and a service station; to the west by a stream, light industrial properties, and Ballard Road; to the east by overgrown fields, wetlands and mature woodlands; and to the south by light industrial and vacant industrial zoned properties, and Interstate Highway 84.

Past Use of the Site: Prior to the construction of the facility in 1970, the site was unimproved but may have been used as farm land. During the late 1970s and early 1980s, process operations by RSR generated large quantities of material consisting of soil, lead slag, battery parts, and other wastes which were used as fill at the site. These wastes were placed immediately to the east of the active plant. A State Superfund Remedial Investigation (RI) was initiated by the Department to address facility-derived contamination outside of the active plant area.

Operable Units: The facility had previously been segregated into four operable units (OU) to aid in identifying cleanup options for each. The OUs, as defined in the 2011 Order on Consent between the Department and Revere/Eco-Bat, are:

OU-1, which is comprised nine contiguous tax parcels (Parcels, 41-1-70.22, 41-1-70.232, 41-1-71.22, 41-1-73.1, 41-1-73.22, 41-1-74.82, and 41-1-76 owned by Eco Bat New York LLC and two off-site parcels 60-1-120 and 41-1-72.2) totaling 167 acres, less the plant facility and groundwater.

OU-2, which represents the groundwater contamination.

OU-3, which represents all off-site media, other than groundwater, impacted by site activities.

OU-4, which represents the plant facility (see Figure 3).

This Statement of Basis modifies the boundaries of OU-4 to include areas where contaminated soil still remains in the vicinity of the operating plant site which were not removed during the OU-1 remediation project. OU-4 is hereby expanded to include the main driveway entering the site from Ballard Road, to extend the boundary on the eastern and southern sides of the active facility to include those areas up to and including the barrier wall, and to add the wet electrostatic precipitator (WESP) building currently under construction, which will become part of the operating facility. In addition, groundwater within the barrier wall beneath the site is added to OU-4 (see Figure 4). Based on these changes, OU-1 and OU-2 are subsequently reduced by the areas added to OU-4. OU-1 and OU-4 comprise approximately 167 acres, of which the modified OU-4 is approximately 14.8 acres.

Site Geology and Hydrology: Soil beneath and around the active plant consists of fill, reworked glacial till, and glacial till. Overburden soils generally extend ten to twenty feet below ground surface (bgs) and are underlain by bedrock composed of shale and limestone. Groundwater is encountered in both overburden soil and bedrock and generally flows to the south across the site. Overburden groundwater is generally encountered at a depth of ten feet bgs, and there is no confining layer between overburden and bedrock groundwater. The depth to bedrock in OU-4 varies from approximately two to twenty four feet.

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.

The PRPs for the site, documented to date, include:

Revere Smelting & Refining, RSR Corporation and Eco-Bat New York LLC

In February 2011, Eco-Bat and Revere entered into an Order on Consent and Administrative Settlement Agreement (Index #3-20100528-80) with the Department. This 2011 Order on Consent superseded all previous orders for the site and required the completion of a RCRA Facility Investigation and Corrective Measures Study for the operating facility. In addition, the facility holds a 6NYCRR Part 373 Hazardous Waste Management Permit, which includes provisions for RCRA Corrective Action. The corrective action requirement requires owners and/or operators of hazardous waste treatment, storage and disposal facility to investigate and, when appropriate, remediate releases of hazardous wastes and/or constituents to the environment. In relation to this facility, the Department issued a Part 373 Hazardous Waste Management Permit No. 3-3352-00145/00001-0 to Revere Smelting & Refining Corporation dated July 28, 1995.

ENVIRONMENTAL ASSESSMENT

Nature and Extent of Contamination:

Soil: The field work for the Remedial Investigation (RI) of OU-1 was conducted in 2001 through 2010. The RI report was completed in 2011 and remedial activities are currently taking place in the OU-1 portion of the site. Surface soils are being remediated to achieve commercial or industrial SCOs for the top one foot, to serve as a site-wide cover system, on the associated land use. Soils which exceed the toxicity characteristic leaching procedure (TCLP) value of 5 mg/l for lead are excavated to depth. Ecological areas are being remediated to a site specific value of 400 ppm of lead in the upper two feet. Sediments are being remediated to the lowest effects limit for the upper two feet, and the soil cleanup objectives (SCOs) for the protection of ecological resources between two and three feet. In most areas of OU-1 a level of 450 ppm lead was achieved.

A RCRA Facility Investigation (RFI) completed in 2012 for OU-4 confirmed that the main contaminants of concern at this site are lead and arsenic. Other metal contaminants found at the site are: barium, cadmium, copper, nickel, selenium, silver and zinc. None of these other metals exceed the SCOs for protection of groundwater, and none exceed the SCOs for unrestricted use without also containing lead or arsenic above the SCOs for unrestricted use. Based on this, the other metals which are present at low concentrations, are not considered to be contaminants of concern. Soil in OU-4 contains up to 150,000 parts per million (ppm) of lead and 3,030 ppm of arsenic. Most of the soil in the southern two thirds of OU-4 exceeds the commercial SCO of 1000 ppm lead and the TCLP threshold of 5 mg/l in the upper foot. Elevated levels continue to depths of 15 feet, primarily in the south-eastern quadrant of OU-4.

Low levels of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), none of which exceed the residential SCOs, were detected in soil samples. The maximum detections of VOCs consisted of: acetone (28 parts per million (ppm)), carbon disulfide (0.29 ppm), cis-1,2-dichloroethene (0.52 ppm), methyl acetate (23.8 ppm), methylene chloride (3.1 ppm) and the SVOCs di-n-octyl phthalate (71.1 ppm), dimethyl phthalate (35.4 ppm) and bis(2-ethylhexyl)phthalate (up to 442 ppm). In light of these low concentrations, these compounds are not considered to be contaminants of concern.

Groundwater: The RI results indicate that VOCs, SVOCs, PCBs, and pesticides were generally not detected in the groundwater. Chloroform and bis(2-ethylhexyl)phthalate were detected at concentrations below the New York State groundwater quality standard of 5 parts per billion (ppb). As a result, these compounds are not considered to be contaminants of concern at the site.

The most recent overburden groundwater monitoring results from May 2015 indicate maximum concentrations of lead (74 ppb), antimony (58.3 ppb), arsenic (29.3 ppb) and sulfate (4,540,000 ppb) all of which exceed drinking water standards. Over the last three years, the maximum groundwater concentrations

were: lead (1020 ppb), antimony (267 ppb), arsenic (93.6 ppb) and sulfate (5,190,000 ppb). Sulfate and pH impacts exceeding water quality standards extend approximately 1000 feet south of the containment building.

The most recent bedrock groundwater monitoring results from May 2015 indicate maximum concentrations of lead (58.8 ppb) and sulfate (1,120,000 ppb).

HEALTH ASSESSMENT

Persons who enter the site (OU-1 and OU-4) could contact contaminants in soil by walking on soil, digging soil, or otherwise disturbing the soil. There is the potential for incidental inhalation or ingestion of dust containing site-related contaminants as well. Dust may be generated in any number of ways including from wind blowing across the site, through the operation of motor vehicles over exposed areas of contamination, or through digging into soil either by hand or with equipment. People may come in contact with contaminants present in on-site and off-site shallow creek sediments and wetlands (OU-1 and OU-3) while entering or exiting during recreational activities. People are not coming into contact with the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination.

INTERIM CORRECTIVE MEASURES

The groundwater beneath OU-4 is currently contained by a groundwater collection system that was installed in 2007 as an interim corrective measure (ICM). The groundwater collection system is located within the confines of a containment barrier wall system which completely surrounds the manufacturing portion of OU-4. The barrier wall is a sub-surface wall constructed of combinations of high density polyethylene plastic, bentonite clay, cement and soil keyed into the underlying bedrock around the OU-4 area, which is designed to reduce the amount of groundwater which can flow out of the active plant area. The barrier wall was constructed in stages starting in 1999 and completed in 2014. Groundwater is pumped to the on-site treatment system which adjusts pH, clarifies and filters the water, which is then discharged to the Town's wastewater treatment plant. A groundwater monitoring plan was also approved by the Department. The ICM construction completion report was approved by the Department in April 2015.

SUMMARY OF ALTERNATIVES

In the Corrective Measures Study (CMS) several alternatives to clean up the site were evaluated. These included no action, using the current facility as a cover with groundwater management, and several excavation alternatives to meet the various soil cleanup objectives (SCOs)presented in Part 375 (unrestricted, residential, restricted residential, commercial and industrial), including demolition of on-site buildings and groundwater management. All of the excavation alternatives included the possible use of the containment cell in OU-1 for disposal of excavated soil and groundwater containment and treatment as noted in the ICM.

The Department considers the no action and use of the current facility as a cover system alternatives to not be protective of human health and/or the environment, and these were not considered further. The Department considers all of the excavation and groundwater management alternatives to be protective of the environment and/or human health and to meet the Standards, Criteria and Guidance (SCGs) for the corresponding land uses. All of the excavation alternatives have relatively equal short and long term impacts and are considered to be implementable. Based on the relatively small increase in cost compared to alternatives that achieve lower levels of land use, the Department's selected alternative is excavation of site soil to meet the restricted residential SCOs with groundwater management. This alternative provides a higher degree of cleanup and increases the opportunity for future reuse of the site after the RSR facility closes by providing more land use options for redevelopment or recreational use. The present worth cost of the Department's selected remedy is estimated to be $13,200,000. This represents a relatively modest increase in cost to remediate the site from industrial to restricted residential when the RSR facility closes. Details on the descriptions and evaluations of these alternatives can be found in the 2014 Corrective Measures Study Report.

SCOPE AND EVALUATION OF CORRECTIVE MEASURE(S)

The selected remediation of Operable Unit 4 (OU-4) identifies both near term and future actions. The near term action addresses site groundwater. The future actions are to address site soils, and will occur in the future after the facility has closed down. The plant is currently expected to be in operation for at least another 30 years.

For the near term action, the Department is selecting continued operation and maintenance of the Interim Corrective Measure for groundwater (site containment barrier wall and groundwater pumping). The selected near-term remedy would include an interim Site Management Plan to continue the current groundwater monitoring at the site.

For the future action, the Department is selecting excavation of soil containing lead and/or arsenic contamination. The selected remedy will require closure of the hazardous waste management units, demolition of most buildings and complete excavation of soil exceeding the SCOs for restricted residential use and groundwater protection from the OU-4 area. Excavated soil that exceeds the restricted residential and the protection of groundwater SCOs will be either placed in the containment cell located in the OU-1 area (Figure 5), stabilized and rendered non-hazardous and placed in the containment cell, or sent off-site for proper disposal.

For OU-1 an environmental easement will be granted, and a site management plan will be developed and implemented when construction is completed (presently planned for late 2017) which will ensure maintenance of the containment cell. For OU-4, institutional controls in the form of an environmental easement and an interim site management plan (ISMP) that includes a groundwater monitoring plan will be in place until groundwater meets applicable water quality standards, to ensure that exposure to remaining contamination does not occur.

REMEDIAL ACTION OBJECTIVES

The remedial action objectives and remedial actions to attain them are presented in the following table:

Remedial Objectives	Remedial Action
1. Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards	• Will be achieved through an institutional control in the form of an environmental easement and an SMP which will prohibit groundwater use at the Site until such time that it meets drinking water standards and a groundwater monitoring plan. • Achieved by availability and connection of the site to the municipal public water supply.
2. Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.	• An interim corrective measure consisting of a containment barrier wall keyed into the underlying bedrock around OU-4 area with a groundwater collection and treatment system has been implemented at the site. The ISMP will include provisions for continued operation and periodic groundwater monitoring to ensure the effectiveness of the collection system until such time as ambient water quality standards are achieved or until the contaminated soils are removed. Once the soils are removed, groundwater is expected to improve since the source of contamination will no longer exist within OU-4.

Remedial Objectives	Remedial Action
3. Remove the source of ground or surface water contamination	• The excavation of areas where soil which exceeds the protection of groundwater and restricted residential SCOs will address the source of groundwater contamination.
4. Prevent ingestion/direct contact with contaminated soil	• Excavation of the areas where soil exceeds protection of groundwater and restricted residential SCOs. • The existing site cover system (consisting of buildings, uncontaminated concrete and clean soil) will be maintained on portions of the site where the underlying soils exceed the restricted residential SCOs in the upper two feet until the excavation can be completed.
5. Prevent migration of contaminants that would result in groundwater or surface water contamination	See remedial objective 2.

SELECTED REMEDY

This Statement of Basis selects a remedy to address near term and future environmental contamination at the Revere Smelting & Refining site. The elements of the remedy address groundwater contamination in the near term and contaminated soil in the future throughout OU-4. Provisions for institutional controls and interim site management are also included.

The selected remediation of Operable Unit-4 (OU-4) identifies both near term and future actions. The near term action address site groundwater. The future actions are to address site soils and will occur in the future after the facility has closed down; the plant is currently expected to be in operation for at least another 30 years.

The estimated cost for implementation of the selected remedy is $13,200,000. The funds necessary to implement the remedy will be placed in a dedicated account as financial assurance to guarantee they will be available when needed. Periodic reviews of inflationary costs may require the addition of more funding to the account.

Near-Term Actions

1. Groundwater Containment, Extraction & Treatment

Groundwater beneath the OU-4 area is currently contained, extracted and treated by the Interim Corrective Measure (ICM) completed in 2014. Pursuant to the ICM, groundwater is extracted from the subsurface of OU-4 within the confines of the containment barrier wall system in the southern portion of the site. The extracted groundwater is treated using the existing on-site water treatment system and the treated effluent is sent to the local wastewater treatment plant. This system will continue to operate and be maintained and monitored until groundwater meets ambient water quality standards or until the contaminated soil is removed and the remedial action objectives are shown to be satisfied. Once the soils are removed, groundwater is expected to improve since the source of contamination will no longer exist.

2. Institutional Control

Imposition of an institutional control in the form of an environmental easement to be placed on the controlled property (OU-4) within 180 days of approval of the Statement of Basis which will:

- requires 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 industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restricts the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the New York State Department of Health (NYSDOH) or Orange County Health Department; and
- requires compliance with the Department approved Site Management Plan.

3. Site Management Plan

A Site Management Plan (SMP) for OU-4 is required, and will be combined with the SMP for OU-1, which is required by the OU-1 Order on Consent and environmental easement. The portion of the SMP which pertain to OU-4 include the following:

a) an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for OU-4 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 2 above.

- When the soil remediation (described in Paragraphs 4 through 7 below) is completed, modification of the environmental easement to allow the use and development of the controlled property (OU-4) for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws.

Engineering Controls: Maintenance of the existing groundwater extraction system.

This plan includes, but may not be limited to:

- a provision for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. The nature and extent of contamination in areas where access was previously limited or unavailable will be immediately and thoroughly investigated pursuant to a plan approved by the Department. Based on the investigation results and the Department determination of the need for a remedy, a Remedial Action Work Plan (RAWP) will be developed for the final remedy for the site, including removal and/or treatment of any source areas to the extent feasible. Citizen Participation Plan (CPP) activities will continue through this process. Any necessary remediation will be completed prior to, or in association with, redevelopment. This includes all areas within OU-4.
- a provision for demolition of any site building within the OU-4 area if and when they become unsafe, inactive or vacant unless RSR demonstrates that it should remain.
- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination (if any);
- descriptions of the provisions of the environmental easement including any land use, and/or groundwater use restrictions;
- 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) 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, this plan will be incorporated into the monitoring plan for the entire site; and

- a schedule of monitoring and frequency of submittals to the Department;

c) an Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:

- compliance monitoring of extraction well pumping systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting;
- maintaining site access controls and Department notification; and
- providing the Department access to the site and O&M records.

Future Actions

4. 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/Green Remediation policy. 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.

5. Excavation

All on-site RCRA Solid Waste Management Units and Areas of Concern (Exhibit A) will be closed pursuant to applicable regulations and guidance. The on-site buildings in OU-4 will be demolished and materials which cannot be beneficially reused on-site or off-site with Department approval will either be placed in the containment cell or transported off-site for proper disposal in order to implement the remedy. This may be done in phases as individual units and buildings are removed from service at the facility.

All on-site soils within the area of OU-4 which exceed the restricted residential soil cleanup objectives (SCOs) and the protection of groundwater SCOs, as defined by 6 NYCRR Part 375-6.8(b), will be excavated, treated as necessary, and placed in the on-site containment cell or transported off-site for disposal.

On-site soil which does not exceed the restricted residential and protection of groundwater SCOs may be used to backfill the excavation and re-establish the original grades at the site. 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.

6. Treatment of Excavated Soils

Ex-situ stabilization will be required to treat excavated soil which fails the toxicity characteristic leaching procedure (TCLP) testing for lead and/or arsenic. Ex-situ stabilization is a process that mixes reagents with contaminated soil to physically and/or chemically modify the material to render it non-hazardous, allowing it to be placed in an off-site landfill or the on-site containment cell. For this process the contaminated soil will be excavated and mixed with stabilizing agents using a backhoe or other method (i.e., pug mill, mixer, etc.) in a temporary lined mixing area to treat those soils containing high levels of lead and/or arsenic.

7. On-site Consolidation and Off-site Disposal

The treated soil will be placed in the on-site containment cell located in OU-1 until the containment cell reaches capacity. The current containment cell cover will be removed and then replaced with an engineered cap that is designed, constructed and maintained in conformance with the substantive requirements of 6NYCRR Part 360 regulations. The available remaining capacity of the existing on-site containment cell located in OU-1 is estimated to be 15,900 cubic yards (cy). The excess treated soils will be disposed off-site at a facility permitted to receive such waste.

The containment cell was constructed from 2012 to 2016 and is located on OU-1 approximately 200 feet northeast of the OU-4 boundary. It has a design capacity of 180,000 cy and currently contains approximately 120,000 cy of soils derived from the remediation of OU-1. The cell is fully lined with leachate collection, and has an interim cap which incorporates a 60 mil high density polyethylene (HDPE) liner covering 77 % of its area which meets the substantive requirements of NYCRR Part 360, and an interim soil cover over the remaining 23 % of its area.

It is currently estimated that 36,400 cy of soil will need to be excavated from the area of OU-4. Most excavation areas are estimated to be to a depth of 4 feet, although some areas will be to 15 feet. This volume estimate includes 29,200 cy within the fenced area of OU-4, 6,000 cy between the fence and the containment barrier wall, and 1,200 cy under the front entrance driveway. The final extent and depth of excavation, and associated volumes will be established based on the SCOs in effect at the time of the work, to allow for restricted residential use.

DOCUMENT AVAILABILITY

This document summarizes information that can be found in greater detail in the administrative record for the facility. The administrative record contains many reports, including investigations and sampling results which the Department used to select the final corrective measures. A list of all relevant reports is referenced in the reference list at the end of this Statement of Basis and the referenced reports are available for review. The public is encouraged to review these documents, which are available at the following repositories:

Middletown Thrall Public Library
11-19 Depot Street
Middletown, NY 10940
Phone: (845) 341-5454

NYSDEC Region 3 Office
21 South Putt Corners Road
New Paltz, NY 12561
Phone: (845) 256-3154
(please call for an appointment)

REFERENCE LIST

Record of Decision, Operable Unit 1, Revere Smelting & Refining Site, September 2011.

RCRA Facility Investigation Report for Operable Unit 4, Revere Smelting & Refining Facility – Revision No. 1 - June 22, 2012.

Corrective Measures Study – Revision 2.0 - February 7, 2014 with revised Table 4.

Interim Corrective Measure Completion Report – Phase III Barrier Wall Installation and Phase I and Phase II Barrier Wall Extensions – Operable Unit 4 - February 18, 2015.

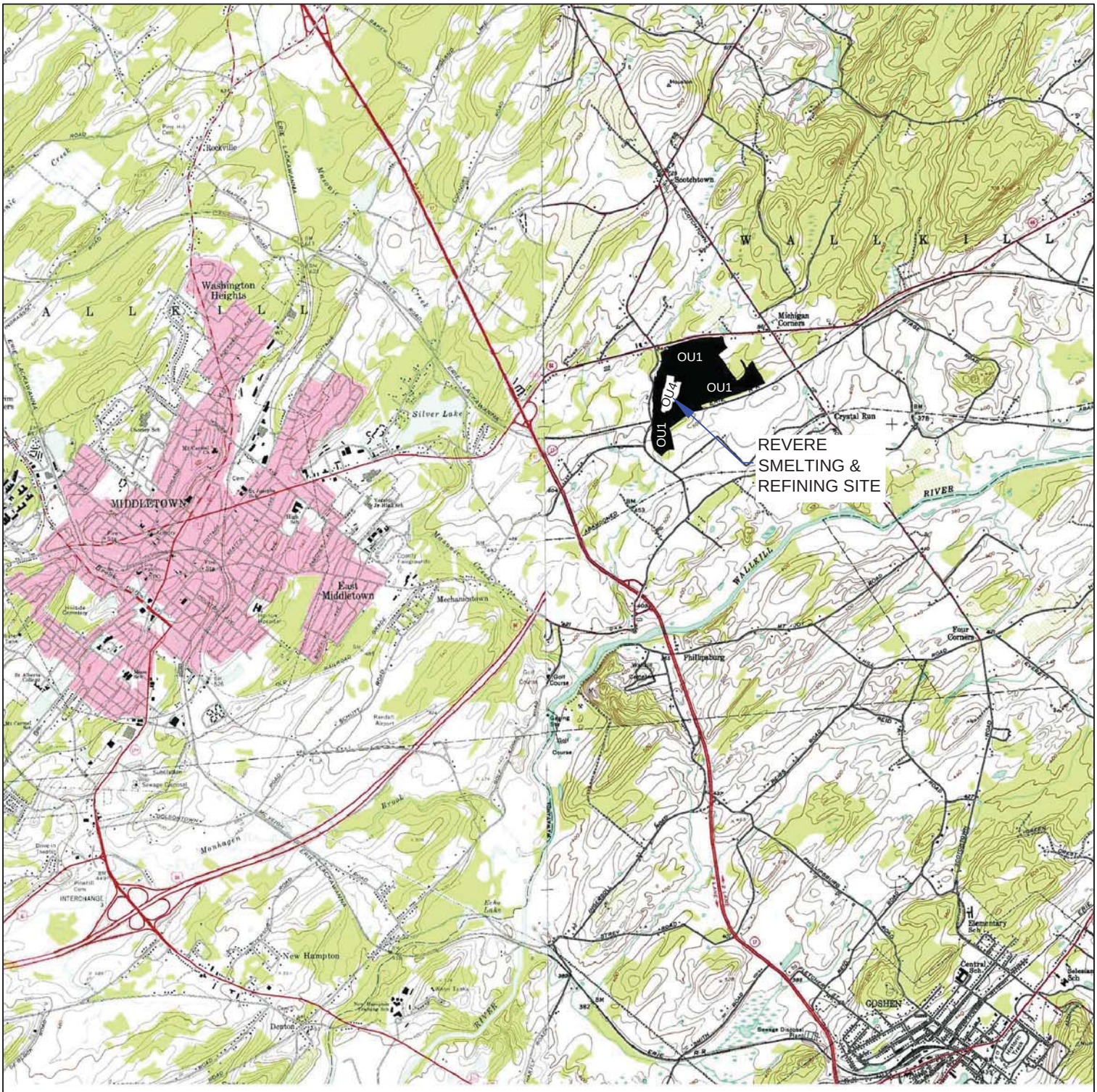
Groundwater Extraction System Monitoring and Contingent Expansion Work Plan for Operable Unit 4 – September 24, 2014.

Response to Conditional Approval Comments and Work Plan Addendum Interim Corrective Measure Work Plan - Phase III Barrier Wall Installation and Phase I and Phase II Barrier Wall Extensions – May 5, 2014.

Interim Corrective Measure Work Plan - Phase III Barrier Wall Installation and Phase I and Phase II Barrier Wall Extensions – Operable Unit 4 – April 7, 2014.

List of SWMUs and AOC's – November 2016.

Order on Consent and Administrative Settlement Agreement (Index #3-20100528-80) – February 2011.



After U.S.G.S. 7.5 Minute Topographic Quadrangles, Goshen and Middletown, New York, 1983.

N

Scale in Miles

0 ½

NEW YORK

QUADRANGLE
LOCATION

SITE LOCATION MAP

REVERE SMELTING &
REFINING SITE OU4
MIDDLETOWN, NY

FIGURE 1

NO.	DATE	REVISION	APP.

Scale: SEE_DWG | Drawn By: MA | Checked By: JS | Date: 05/2013

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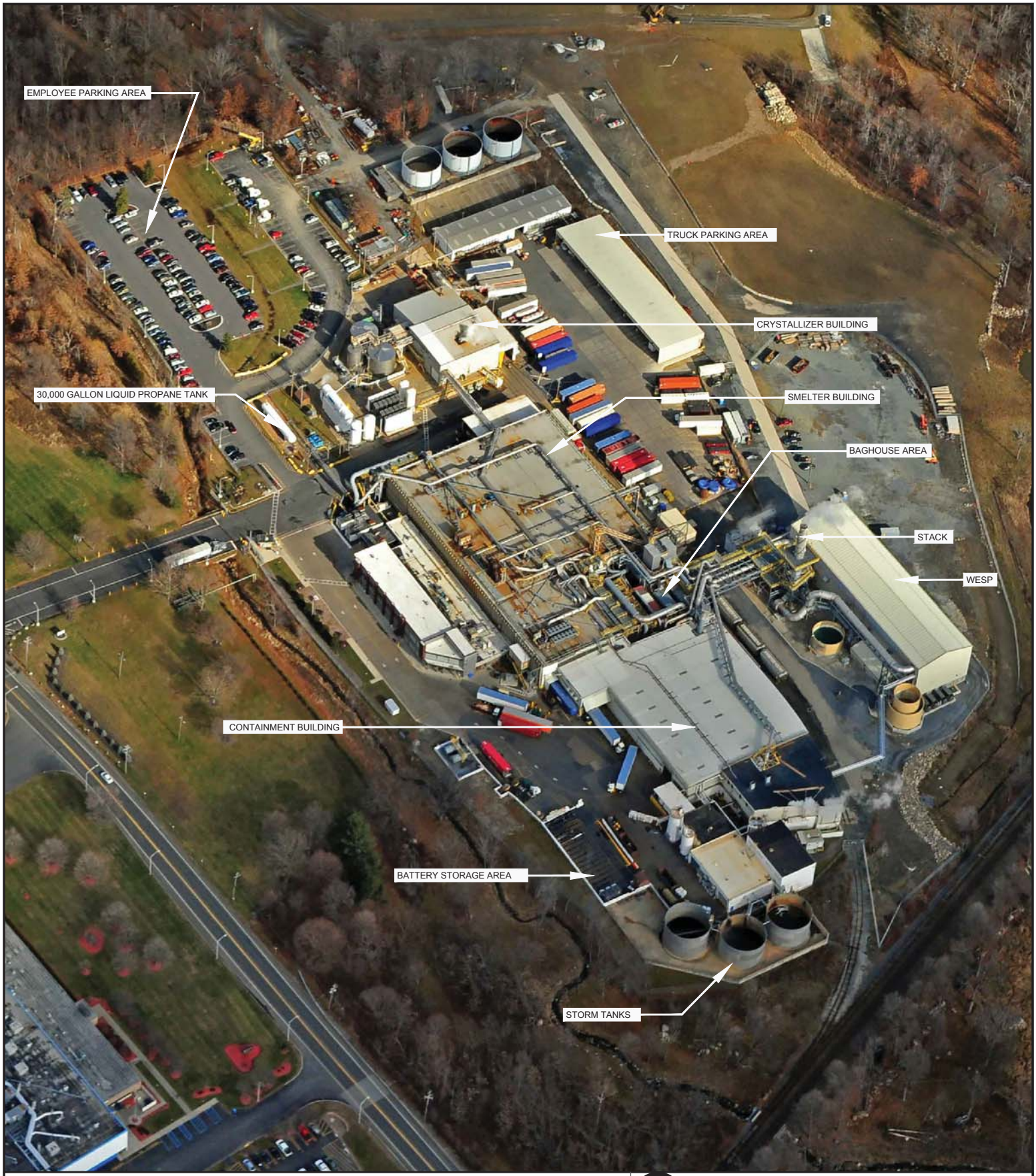

NORTH

NOT TO SCALE

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DRAWING NAME: FIGURE 2
OU4

PROJECT NAME & LOCATION: REVERE SMELTING & REFINING CORPORATION
MIDDLETOWN, NY

DRAWN BY	D. MONTG	APPROVED BY	J. SELF	REV	A
DATE	12-16-16	DATE	12-16-16	SHEET NO.	1 OF 1
DRAWING NO.		FIGURE NO.	2	PROJECT NO.	

P:\Projects\Projects\RSR Middletown OU4\Drawings\rsr-03.dwg (Fig 2)

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DRAWING NAME: FIGURE 3
OPERABLE UNITS

PROJECT NAME & LOCATION: REVERE SMELTING & REFINING CORPORATION
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DATE	12-16-16	DATE	12-16-16	SHEET NO.	1 OF 1
DRAWING NO.		FIGURE NO.	4	PROJECT NO.	

P:\Projects\Projects\RSR Middletown OU4\Drawings\rsr-03.dwg (Fig 3)

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DRAWING NAME: FIGURE 4
OU4 BOUNDARY

PROJECT NAME & LOCATION: REVERE SMELTING & REFINING CORPORATION
MIDDLETOWN, NY

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DATE	12-16-16	DATE	12-16-16	SHEET NO.	1 OF 1
DRAWING NO.		FIGURE NO.	4	PROJECT NO.	

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DRAWING NAME: FIGURE 5
CONTAINMENT CELL LOCATION

PROJECT NAME & LOCATION: REVERE SMELTING & REFINING CORPORATION
MIDDLETOWN, NY

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DATE	12-16-16	DATE	12-16-16	SHEET NO.	1 OF 1
DRAWING NO.		FIGURE NO.	5	PROJECT NO.	

P:\Projects\Projects\RSR Middletown OU4\Drawings\rsr-03.dwg (Fig 5)

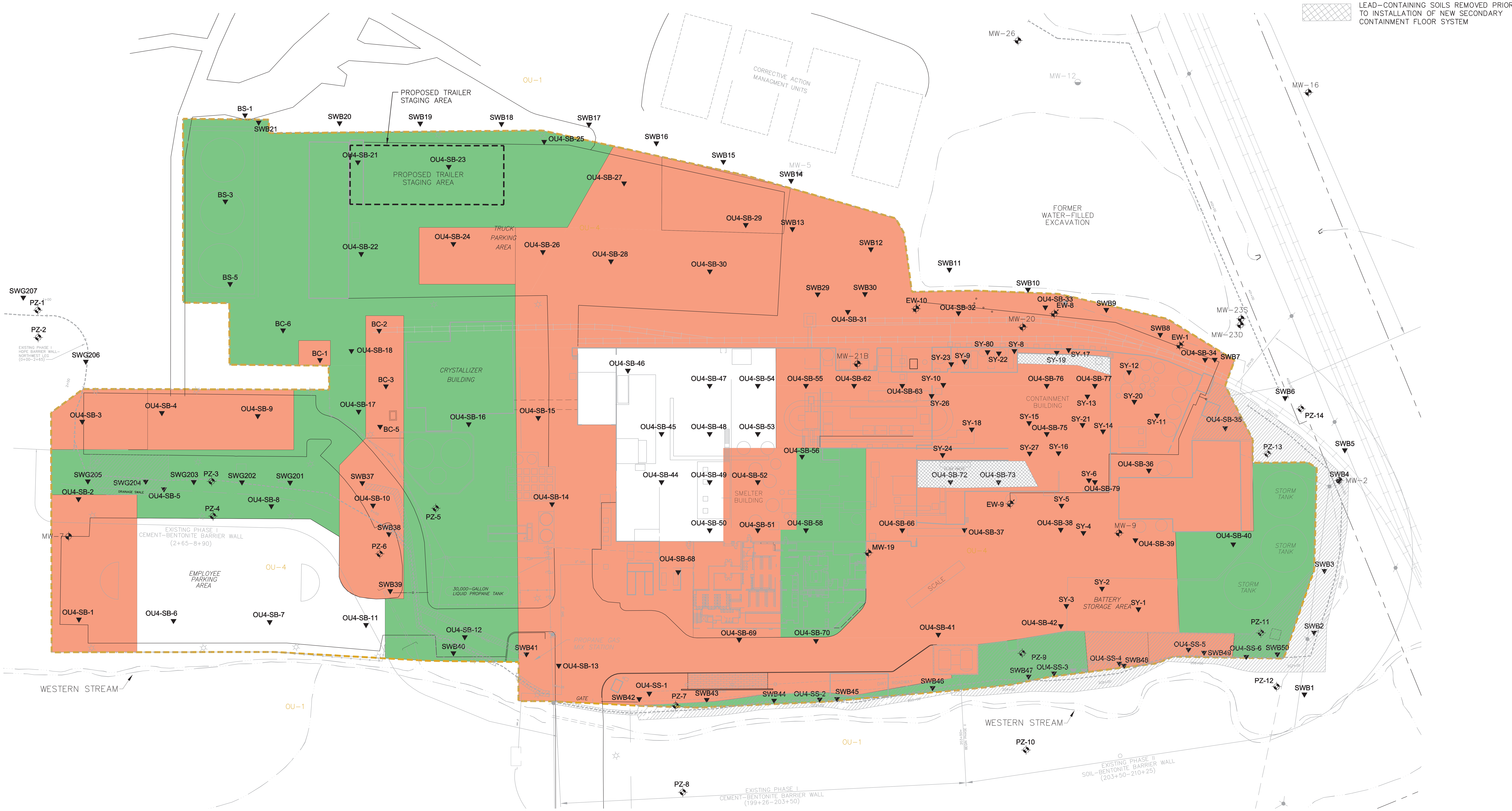
NOTES:

1. ONLY SAMPLE LOCATIONS WITHIN AND ADJACENT TO THE LIMITS OF OU4 THAT HAVE AVAILABLE SAMPLE DATA ARE SHOWN.
2. SAMPLE LOCATIONS IN BLACK BEGINNING WITH "OU4-SB" AND OU4-SS" WERE COLLECTED AS PART OF THE SCOPE OF WORK UNDER THE MAY 12, 2011 RCRA FACILITY INVESTIGATION/CORRECTIVE MEASURES STUDY WORK PLAN.
3. SAMPLE LOCATIONS IN GRAY BEGINNING WITH "SY", "BC", OR "BS" WERE COLLECTED BETWEEN 1991 AND 1993 AS PART OF AN ENVIRONMENTAL MONITORING PLAN CONDUCTED UNDER THE SEPTEMBER 28, 1990 ORDER ON CONSENT (INDEX #A3-0402-9911).
4. SAMPLE LOCATIONS BEGINNING WITH "SWB" AND "SWG" WERE COLLECTED BETWEEN 1997 AND 1998 AS PART OF THE PHASE I, PHASE II, AND PHASE IV BARRIER WALL CORRECTIVE MEASURE CONDUCTED IN ACCORDANCE WITH THE MAY 6, 1999 ORDER ON CONSENT (INDEX #C3-5528-11-98).

EXCEEDS RESIDENTIAL AND RESTRICTED-RESIDENTIAL USE SCO OF 400 mg/kg
EXCEEDS LEAD UNRESTRICTED USE SCO OF 63 mg/kg
EXCEEDS LEAD CHARACTERISTIC HAZARDOUS WASTE THRESHOLD OF 5 mg/l
EXCEEDS ARSENIC COMMERCIAL USE SCO OF 16 mg/kg
EXCEEDS ARSENIC UNRESTRICTED USE SCO OF 13 mg/kg

LEGEND

MW-12 ABANDONED MONITORING WELL LOCATION
MW-18 SHALLOW MONITORING WELL LOCATION
MW-18B BEDROCK MONITORING WELL LOCATION
PZ-1 PIEZOMETER
EW-9 EXTRACTION WELL
OU4-SB-1 RFI SAMPLE
FIRE HYDRANT
PROPERTY LINE
OU BOUNDARY LINE
EXISTING BARRIER WALL
LEAD-CONTAINING SOILS REMOVED PRIOR TO INSTALLATION OF BARRIER WALL
LEAD-CONTAINING SOILS REMOVED PRIOR TO INSTALLATION OF NEW SECONDARY CONTAINMENT FLOOR SYSTEM



REFERENCES:

1. 1988 AND 2006 TOPOGRAPHY WAS GENERATED FROM GIS DATABASE PROVIDED BY THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION.
2. ADAPTED FROM EXHIBIT A TO CONSENT ORDER INDEX #3-2010058-80 BETWEEN THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND REVERE SMELTING AND REFINING CORPORATION, RSR CORPORATION, AND ECO-BAT NEW YORK LLC.
3. BAUER-SILVERS DRAWING TITLED, "BARRIER WALL", DATED 11/3/98, REVISION DATED 1/4/99, REFERENCE NO. 6598. SCALE: 1"=50'.
4. BAUER-SILVERS DRAWING TITLED, "AS-BUILT SLURRY WALL", DATED 7/30/99, REFERENCE NO. 4599. SCALE: 1"=50'.
5. RSR CORPORATION DRAWING TITLED, "PLOT PLAN", DATED 10/30/02, DWG NO. 4-199-121 SCALE: 1"=40'.
6. TETRA TECH SURVEY, ACAD FILE BOREHOLE LOCATIONS 02.DWG.

D

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

0 50 100 150
SCALE IN FEET

REVISIONS

REV	DESCRIPTION	Appr.	Chkd.	Revised:

SEAL

DATE

DRAWN BY	EGC	1/13/2014
CHECKED		1/13/2014
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AREAS OF LEAD AND ARSENIC AFFECTED SOIL ABOVE SCGs 0 TO 1 FEET BGS

REVERE SMELTING & REFINING CORPORATION
MIDDLETOWN, NEW YORK

PREPARED FOR
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Figure 6

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