

# **RECORD OF DECISION**

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Old Upper Mountain Road Site  
Operable Unit Number 01: Landfill - Old Upper  
Mountain Road Parcel  
Operable Unit Number 02: Gulf Creek  
State Superfund Project  
Lockport, Niagara County  
Site No. 932112  
March 2013



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

# **DECLARATION STATEMENT - RECORD OF DECISION**

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Old Upper Mountain Road Site  
Operable Unit Numbers: 01 and 02  
State Superfund Project  
Lockport, Niagara County  
Site No. 932112  
March 2013

## **Statement of Purpose and Basis**

This document presents the remedy for Operable Unit Numbers 01: Landfill - Old Upper Mountain Road Parcel and 02: Gulf Creek of the Old Upper Mountain Road Site, a Class 2 inactive hazardous waste disposal site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375, and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit Numbers 01 and 02 of the Old Upper Mountain Road Site and the public's input to the proposed remedy presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

## **Description of Selected Remedy**

For OU 01:

The elements of the selected remedy are as follows:

1. A remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program, including the re-routing of a sewer line that crosses the landfill and improvement of access roads into the ravine. Some modification to the Part 360 requirements may be contemplated during the design. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;

- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. To prepare for the construction of a multi-layer cap (Part 360 cap or a modified Part 360 Cap; item 4 below) over ash waste that exceeds the unrestricted soil cleanup objectives, relocation and contouring of the ash waste will be necessary to achieve the 3:1 slopes required for cap stability. This material will be placed into the open ravine at the base of OU 01 to extend the current footprint of the landfill farther into the ravine. To accomplish this an approximate 800 foot long section of Gulf Creek (approximately 1.75 acres) will be culverted to allow for the relocation of ash to the ravine. Mitigation to offset the loss of the stream and any associated wetland areas from the filling will be required elsewhere in Gulf Creek or the Eighteenmile Creek watershed. This mitigation will be detailed in a mitigation plan which, at a minimum, will replace the area of lost stream/wetland at a 1:1 ratio and be consistent with the requirements of 6 NYCRR Part 608.

3. Prior to extending the landfill into the open ravine, a groundwater drainage and diversion system will be installed to convey groundwater that naturally flows down the filled portion of the ravine to Gulf Creek at a fixed point(s) along the toe of the extended landfill. Groundwater drainage and diversion is necessary to keep it from building up under the cap and eventually causing cap failure. Construction of the diversion system will require the use of filter fabrics or other means to filter the groundwater entering this system to achieve surface water quality discharge limits for site-related contaminants, before discharge. The flow from the extended culvert will flow down an armored diversion swale constructed across the top of the extended landfill.

4. The site cap will be constructed to allow for commercial use of the site. The cap will consist of either the structures, such as buildings, pavement and sidewalks comprising site development, or a multi-layer cap (Part 360 cap or a modified Part 360 Cap) in areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs). Any fill material brought to the site will meet the requirements for the commercial use SCOs on the upland areas and the protection of ecological resources SCOs in the ravine area, as set forth in 6 NYCRR Part 375-6.7(d).

5. Imposition of an institutional control in the form of an Environmental Easement for the controlled property that:

- Requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- Allows the use and development of the controlled property for commercial and 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 NYSDOH or County DOH;
- Prohibits agriculture or vegetable gardens on the controlled property; and
- Requires compliance with the Department approved Site Management Plan.

6. A Site Management Plan that includes the following:

- 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:
  - (a) Institutional Controls: The Environmental Easement discussed in Paragraph 5 above; and
  - (b) Engineering Controls: The cap discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

- (1) An Excavation Plan that details the provisions for management of future excavations in areas of remaining contamination;
- (2) Descriptions of the provisions of the environmental easement including any land use and groundwater restrictions;
- (3) Provisions for the management and inspection of the identified engineering controls;
- (4) Maintaining site access controls and Department notification; and
- (5) The steps necessary for periodic reviews and certification of the institutional and engineering controls.

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

- (a) Monitoring of sediment, surface water, biota, groundwater and the creek restoration actions to assess the performance and effectiveness of the remedy;
- (b) Monitoring of the discharge from the diversion system to ensure that surface water quality discharge standards for site-related contaminants are achieved; and
- (c) A schedule of monitoring and frequency of submittals to the Department.

For OU 02:

The elements of the selected remedy are as follows:

1. A remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program, including the full delineation of sediment requiring removal, the re-routing of a sewer line that underlies the creek, improvement of access roads into the ravine, and diversion of creek flow during remedial action. A floodplain and hydraulic study will be completed to help with a design for a creek restoration plan that optimizes aquatic and riparian habitat. 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 the same as described for OU 01 above.

2. The complete excavation of all contaminated sediment in Gulf Creek between the site and Niagara Street that exceeds the sediment SCGs (approximately 18,100 cubic yards). All excavated sediment will be dewatered at a facility constructed at the site before being placed in OU 01 prior to the construction of the multi-layer cap (Part 360 cap or a modified Part 360 Cap) proposed for OU 01 (Landfill Capping with a Part 360 Cap - Extended Landfill Footprint).

3. Following removal of all contaminated sediments, the excavation area will be restored to its original grade. To the extent possible, restoration will be with material similar to the existing substrate. A restoration plan will be developed during design and will meet the substantive requirements of Article 15 and 6 NYCRR Part 608.

4. Monitoring of sediment, surface water, biota, groundwater and the creek restoration actions as described for the proposed remedy of OU 01.

#### **New York State Department of Health Acceptance**

The New York State Department of Health (NYSDOH) concurs that the remedy for this site is protective of human health.

#### **Declaration**

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

March 29, 2013

Date



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

# **RECORD OF DECISION**

Old Upper Mountain Road Site  
Lockport, Niagara County  
Site No. 932112  
March 2013

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## **SECTION 1: SUMMARY AND PURPOSE**

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

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

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

## **SECTION 2: CITIZEN PARTICIPATION**

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

Lockport Public Library  
23 East Avenue  
Lockport, NY 14094  
Phone: (716) 433-5935

NYSDEC Region 9 Office  
Attn: Glenn M. May

270 Michigan Avenue  
Buffalo, NY 14203  
Phone: (716) 851-7220

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

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

### **Receive Site Citizen Participation Information By Email**

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

### **SECTION 3: SITE DESCRIPTION AND HISTORY**

#### **Location:**

The Old Upper Mountain Road Site is located near the intersection of NY State Routes 31 and 93 in both the City and Town of Lockport, Niagara County, New York in a mixed residential, commercial and industrial neighborhood. The site is bounded on the west by Old Upper Mountain Road, on the south by the active CSX and Somerset railroads, on the east by the active Somerset Railroad and an abandoned rail spur, and on the north by residential property and a steep ravine known as The Gulf.

#### **Site Features:**

The Old Upper Mountain Road Site is approximately 7 acres in size and located on a relatively flat-lying plateau separated by the Somerset Railroad, which is approximately 10 feet higher than the surrounding topography. The topography slopes steeply to the north into The Gulf; there is an approximate 80-foot difference in elevation between the site and the base of the ravine. A portion of this ravine underlies the site and has been filled in with waste material. A narrow stream, Gulf Creek, emerges from a storm sewer culvert at the west side of the site and flows along the bottom of the ravine, eventually discharging into Eighteenmile Creek approximately one mile to the northeast.

#### Current Zoning/Use:

The Old Upper Mountain Road Site consists of fifteen parcels owned by eight individuals, municipalities and corporations. Different parcels of the site are zoned for residential, commercial, industrial and public utility use. Eight parcels contain active rail lines, one parcel contains a single family dwelling, and six parcels are vacant.

#### Operable Units:

The Old Upper Mountain Road Site has been subdivided into three Operable Units (OUs) defined as follows: OU 01: Landfill - Old Upper Mountain Road Parcel, OU 02: Gulf Creek (including the associated riparian area), and OU 03: Landfill - Otto Park Place Parcel. OUs 01 and 03 are the former landfill that is divided into two operable units by the Somerset Railroad. OU 01 is located north of the Somerset Railroad, and is approximately 6 acres in size. OU 03 is located between the active Somerset and CSX railroads, and the abandoned rail spur. This operable unit is approximately 1 acre in size. OU 02 consists of approximately 4,400 linear feet of contaminated Gulf Creek sediment between the site and Niagara Street to the north.

#### Past Use of the Site:

The Old Upper Mountain Road Site was reportedly operated as a municipal landfill by the City of Lockport from 1921 through the 1950's. Access to the landfill was from a viaduct under the CSX Railroad just north of Old Upper Mountain Road (now known as Otto Park Place). In later years, a gate was placed at the viaduct in an attempt to control unauthorized dumping. This gate is no longer present. Incinerator ash from garbage and other wastes was apparently dumped at the landfill and then pushed into the ravine. It has also been reported that local companies dumped their wastes directly into the landfill.

#### Site History:

In November 1997 the NYSDEC collected thirteen soil/waste samples from OU 01. All samples contained elevated concentrations of semivolatile organic compounds (SVOCs) and metals.

In October 1998 the NYSDOH collected five surface soil samples from OU 01. These samples contained elevated concentrations of metals.

In 2007 the NYSDEC conducted a Site Characterization at OUs 01 and 03.

In August 2008, based upon the results from the Site Characterization, the Old Upper Mountain Road Site was listed as a Class 2 Site in the Registry of Inactive Hazardous Waste Disposal Sites in New York State.

#### Site Geology and Hydrogeology:

Native soils underlying the site include a thin glaciolacustrine deposit consisting primarily of tan to brown silty clays and clayey silts containing rock fragments, and light brown very fine sand



with a trace of silt. Native soils directly overly weathered bedrock.

The uppermost bedrock unit underlying the site is the Guelph Dolostone Formation of the Lockport Group. Depth to bedrock ranges from 2 feet at OU 03 to greater than 78 feet in the former ravine at OU 01.

Groundwater underlying the Old Upper Mountain Road Site occurs primarily in the upper fractured bedrock, and flows in a radial pattern toward the former ravine. Groundwater ultimately discharges into Gulf Creek at seeps emanating from the ash waste that fills the former ravine.

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

A Record of Decision was issued previously for OU 03.

A site location map is attached as Figure 1, with the operable units shown on Figure 2.

#### **SECTION 4: LAND USE AND PHYSICAL SETTING**

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

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

#### **SECTION 5: ENFORCEMENT STATUS**

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

No PRPs have been documented to date.

After the remedy is selected, the Department will again attempt to identify PRPs to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, or none are identified, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

#### **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
- surface water
- soil
- sediment

#### **6.1.1: Standards, Criteria, and Guidance (SCGs)**

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

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

#### **6.1.2: RI Results**

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste 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)PYRENE  
ARSENIC  
BARIUM  
CADMIUM  
CHROMIUM  
LEAD  
MERCURY  
NICKEL

ZINC  
COPPER  
BENZ(A)ANTHRACENE  
BENZO(B)FLUORANTHENE  
BENZO[K]FLUORANTHENE  
CHRYSENE  
DIBENZ[A,H]ANTHRACENE  
INDENO(1,2,3-CD)PYRENE

For OU 02:

BENZ(A)ANTHRACENE  
ANTIMONY  
ARSENIC  
CADMIUM  
CHROMIUM  
COPPER  
LEAD  
MERCURY

NICKEL  
ZINC  
BENZO(A)PYRENE  
BENZO(B)FLUORANTHENE  
BENZO[K]FLUORANTHENE  
INDENO(1,2,3-CD)PYRENE  
PHENANTHRENE

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

- groundwater
- surface water
- soil
- sediment

## **6.2: Interim Remedial Measures**

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

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

## **6.3: Summary of Environmental Assessment**

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

The Fish and Wildlife Resources Impact Analysis (FWRIA) for OUs 01 and 02, which is/are included in the RI report(s), present(s) a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

The FWRIA identified the following environmental exposure pathways and ecological risks at OU 01 and OU 02 from metals, and to a lesser extent, semivolatile organic compounds: (1) dermal contact of contaminated soil, waste and sediment by terrestrial and aquatic organisms; (2) inhalation of contaminated particulates by terrestrial organisms; and (3) ingestion of contaminated soil, waste and sediment by terrestrial and aquatic organisms.

Waste consisting primarily of white to gray ash containing metal, glass, rock, ceramic, coal, brick and concrete fragments with occasional layers of black foundry sand is exposed at the surface throughout the site. This waste ranges in thickness from 0.5 to 78 feet. The thickest fill was encountered at OU 01 where the former ravine was filled with ash. The estimated volume of waste material at the site is approximately 210,000 cubic yards; 10,000 cubic yards of the total volume is found at OU 03. Incinerator ash was found throughout the site, with thirteen samples of this ash failing the Toxicity Characteristic Leaching Procedure (TCLP) Regulatory Limit for lead, indicating that characteristic hazardous waste (D008) was present at the site. This ash also contains elevated concentrations of SVOCs and other metals.

#### **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 partially fenced and persons who enter the site could contact contaminants in the soil by walking on the soil, digging or otherwise disturbing the soil. People are not drinking the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Although access is difficult, people may come in contact with contaminated creek water and shallow creek sediments when entering or exiting the creek.

#### **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 OU 01:

##### **Groundwater**

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

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.

### **RAOs for Environmental Protection**

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water.

### **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.

For OU 02:

### **Surface Water**

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

- Prevent ingestion of water impacted by contaminants.
- Prevent contact or inhalation of contaminants from impacted water bodies.
- Prevent surface water contamination which may result in fish advisories.

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

- Restore surface water to ambient water quality criteria for the contaminant of concern.
- Prevent impacts to biota from ingestion/direct contact with surface water causing toxicity and impacts from bioaccumulation through the marine or aquatic food chain.

### **Sediment**

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

- Prevent direct contact with contaminated sediments.
- Prevent surface water contamination which may result in fish advisories.

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

- Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of ambient water quality criteria.
- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain.
- Restore sediments to pre-release/background conditions to the extent feasible.

## **SECTION 7: SUMMARY OF THE SELECTED REMEDY**

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

Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the feasibility study (FS) report.

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

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

For OU 01: Landfill - Old Upper Mountain Road Parcel, the selected remedy is referred to as the Landfill Capping with a Part 360 Cap - Extended Landfill Footprint remedy.

The estimated present worth cost to implement the remedy is \$5,974,000. The cost to construct the remedy is estimated to be \$5,693,000 and the estimated average annual cost is \$9,400.

The elements of the selected remedy are as follows:

1. A remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program, including the re-routing of a sewer line that crosses the landfill and improvement of access roads into the ravine. Some modification to the Part 360 requirements may be contemplated during the design. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

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

2. To prepare for the construction of a multi-layer cap (Part 360 cap or a modified Part 360 Cap; item 4 below) over ash waste that exceeds the unrestricted soil cleanup objectives, relocation and contouring of the ash waste will be necessary to achieve the 3:1 slopes required for cap stability.

This material will be placed into the open ravine at the base of OU 01 to extend the current footprint of the landfill farther into the ravine. To accomplish this an approximate 800 foot long section of Gulf Creek (approximately 1.75 acres) will be culverted to allow for the relocation of ash to the ravine. Mitigation to offset the loss of the stream and any associated wetland areas from the filling will be required elsewhere in Gulf Creek or the Eighteenmile Creek watershed. This mitigation will be detailed in a mitigation plan which, at a minimum, will replace the area of lost stream/wetland at a 1:1 ratio and be consistent with the requirements of 6 NYCRR Part 608.

3. Prior to extending the landfill into the open ravine, a groundwater drainage and diversion system will be installed to convey groundwater that naturally flows down the filled portion of the ravine to Gulf Creek at a fixed point(s) along the toe of the extended landfill. Groundwater drainage and diversion is necessary to keep it from building up under the cap and eventually causing cap failure. Construction of the diversion system will require the use of filter fabrics or other means to filter the groundwater entering this system to achieve surface water quality discharge limits for site-related contaminants, before discharge. The flow from the extended culvert will flow down an armored diversion swale constructed across the top of the extended landfill.

4. The site cap will be constructed to allow for commercial use of the site. The cap will consist of either the structures, such as buildings, pavement and sidewalks comprising site development, or a multi-layer cap (Part 360 cap or a modified Part 360 Cap) in areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs). Any fill material brought to the site will meet the requirements for the commercial use SCOs on the upland areas and the protection of ecological resources SCOs in the ravine area, as set forth in 6 NYCRR Part 375-6.7(d).

5. Imposition of an institutional control in the form of an Environmental Easement for the controlled property that:

- Requires the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- Allows the use and development of the controlled property for commercial and 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 NYSDOH or County DOH;
- Prohibits agriculture or vegetable gardens on the controlled property; and
- Requires compliance with the Department approved Site Management Plan.

6. A Site Management Plan that includes the following:

- 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:

- (a) Institutional Controls: The Environmental Easement discussed in Paragraph 5 above; and
- (b) Engineering Controls: The cap discussed in Paragraph 4 above.

This plan includes, but may not be limited to:

- (1) An Excavation Plan that details the provisions for management of future excavations in areas of remaining contamination;
- (2) Descriptions of the provisions of the environmental easement including any land use and groundwater restrictions;
- (3) Provisions for the management and inspection of the identified engineering controls;
- (4) Maintaining site access controls and Department notification; and
- (5) The steps necessary for periodic reviews and certification of the institutional and engineering controls.

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

- (a) Monitoring of sediment, surface water, biota, groundwater and the creek restoration actions to assess the performance and effectiveness of the remedy;
- (b) Monitoring of the discharge from the diversion system to ensure that surface water quality discharge standards for site-related contaminants are achieved; and
- (c) A schedule of monitoring and frequency of submittals to the Department.

For OU 02: Gulf Creek, the selected remedy is referred to as the Complete Removal with Disposal remedy.

The estimated present worth cost to implement the remedy is \$4,638,000. The cost to construct the remedy is estimated to be \$4,638,000 and the estimated average annual cost is \$0.

The elements of the selected remedy are as follows:

1. A remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program, including the full delineation of sediment requiring removal, the re-routing of a sewer line that underlies the creek, improvement of access roads into the ravine, and diversion of creek flow during remedial action. A floodplain and hydraulic study will be completed to help with a design for a creek restoration plan that optimizes aquatic and riparian habitat. 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 the same as described for OU 01 above.

2. The complete excavation of all contaminated sediment in Gulf Creek between the site and Niagara Street that exceeds the sediment SCGs (approximately 18,100 cubic yards). All excavated sediment will be dewatered at a facility constructed at the site before being placed in OU 01 prior to the construction of the multi-layer cap (Part 360 cap or a modified Part 360 Cap) proposed for OU 01 (Landfill Capping with a Part 360 Cap - Extended Landfill Footprint).



3. Following removal of all contaminated sediments, the excavation area will be restored to its original grade. To the extent possible, restoration will be with material similar to the existing substrate. A restoration plan will be developed during design and will meet the substantive requirements of Article 15 and 6 NYCRR Part 608.

4. Monitoring of sediment, surface water, biota, groundwater and the creek restoration actions as described for the proposed remedy of OU 01.

## **Exhibit A**

### **Nature and Extent of Contamination**

This section describes the findings of the Remedial Investigation (RI) and Supplemental RI 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, 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 three groups: volatile organic compounds (VOCs), 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 6.1.1 are also presented.

### **Waste/Source Areas**

As described in the RI report, waste/source areas were identified at the site and are impacting groundwater, surface water and sediment.

Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375(au). Source areas are areas of concern at a site where substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and source areas that were identified at the site include the ash waste of OU 01. This waste consists primarily of white to gray ash containing metal, glass, rock, ceramic, coal, brick and concrete fragments with occasional layers of black foundry sand. The primary contaminants of concern in the ash include metals, and to a much lesser degree SVOCs (Table 1). The SVOCs detected consisted primarily of polycyclic aromatic hydrocarbons (PAHs). Of these compounds, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene and indeno(1,2,3-cd)pyrene were detected at concentrations that exceeded the NYSDEC Part 375 unrestricted soil cleanup objectives (Table 1; Figure 4). Samples exceeding the NYSDEC Part 375 commercial soil cleanup objectives for SVOCs are shown on Figure 5 and in Table 1. PAHs are a group of over 100 different chemicals that are common in the environment. Sources of PAHs include incomplete combustion of coal, oil, gasoline, garbage, wood, automobiles and incinerators.

Metals were the predominant contaminants detected in the ash waste at OU 01. Of these compounds, arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver and zinc were detected at concentrations that exceeded the NYSDEC Part 375 unrestricted soil cleanup objectives (Table 1; Figure 4). Samples exceeding the NYSDEC Part 375 commercial soil cleanup objectives for metals are shown on Figure 5 and in Table 1. Sixty-seven waste samples were also analyzed for the characteristics of hazardous waste using the Toxicity Characteristic Leaching Procedure (TCLP). These results reveal that ash throughout OU 01 is a characteristic hazardous waste for lead (D008; Figure 6). The estimated volume of ash waste at OU 01 is 200,000 cubic yards.

The waste/source areas identified will be addressed in the remedy selection process.

<b>Table 1 - Waste (OU 01)</b>					
Detected Constituents	Concentration Range Detected (ppm) <sup>a</sup>	Unrestricted SCG <sup>b</sup> (ppm)	Frequency Exceeding Unrestricted SCG	Restricted SCG <sup>c</sup> (ppm)	Frequency Exceeding Restricted SCG
SVOCs					
Benzo(a)anthracene	ND – 70	1	7 of 17	5.6	2 of 17
Benzo(a)pyrene	ND – 50	1	6 of 17	1	6 of 17
Benzo(b)fluoranthene	0.12 – 160	1	10 of 17	5.6	2 of 17
Benzo(k)fluoranthene	ND – 37	0.8	4 of 17	56	0 of 17
Chrysene	ND – 78	1	8 of 17	56	1 of 17
Dibenzo(a,h)anthracene	ND – 22	0.33	7 of 17	0.56	3 of 17
Indeno(1,2,3-cd)pyrene	ND – 70	0.5	8 of 17	5.6	1 of 17
Metals					
Arsenic	ND – 1,000	13	77 of 99	16	68 of 99
Barium	11 – 6,500	350	66 of 99	400	62 of 99
Cadmium	ND – 130	2.5	61 of 99	9.3	21 of 99
Chromium	7.3 – 1,100	30	58 of 99	1,500	0 of 99
Copper	30 – 25,000	50	45 of 46	270	33 of 46
Lead	28 – 23,000	63	98 of 99	1,000	64 of 99
Mercury	ND – 20	0.18	76 of 99	2.8	14 of 99
Nickel	15 – 590	30	36 of 46	310	3 of 46
Selenium	ND – 10.0	3.9	14 of 46	1,500	0 of 46
Silver	ND – 110	2	19 of 46	1,500	0 of 46
Zinc	270 – 22,000	109	46 of 46	10,000	3 of 46

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 Commercial Soil Cleanup Objectives.

## Groundwater

Groundwater samples were collected from overburden and bedrock monitoring wells installed at OU 01 (Figure 7) to determine if contaminants in the ash waste at this operable unit were adversely impacting site groundwater. The contaminants of concern in site groundwater include SVOCs and metals (Table 2). VOCs were also detected in site groundwater (Table 2), but as discussed below, are not considered contaminants of concern at the site.

The contaminants of concern in groundwater at OU 01 that are associated with the ash waste are SVOCs and metals. The extent of groundwater contamination by these contaminants is shown on Figure 7. The highest concentrations of these contaminants were detected in well MW-4, which monitors the ash waste in the former ravine where waste thickness is greatest. Twenty-one of twenty-two SVOC exceedances and 51% of the metals exceedances were associated with this well.

To determine if metals were leaching from the ash waste at OU 01 under natural conditions, both filtered and unfiltered groundwater samples were analyzed. Due to the high concentrations and large percentage of exceedances in well MW-4, the results from this well are summarized in Table 3. This table shows numerous exceedances for the unfiltered sample, but only one exceedance (sodium) for the filtered sample. These results suggest that turbidity (sediment) in the sample is the cause of the high contaminant concentrations in this well. The filtered and unfiltered results from well MW-3 show the same relationship.

It is important to note that the VOCs detected in groundwater at OU 01 were not detected in the ash waste at this operable unit. The absence of VOCs in the ash waste, combined with the presence of VOCs in upgradient wells and at known upgradient sites, suggests an off-site source(s) for this contamination. Therefore, the VOCs found in groundwater are not considered site specific contaminants of concern. In addition, iron, magnesium and sodium are naturally occurring, with concentrations of these metals likely representing background concentrations in this area of Lockport.

Since high turbidity in the samples is the apparent cause of the groundwater contamination identified at OU 01 during the RI and Supplemental RI, specific remedial alternatives for groundwater do not need to be evaluated.

Table 2 – Groundwater (OU 01)			
Detected Constituents	Concentration Range Detected (ppb) <sup>a</sup>	SCG <sup>b</sup> (ppb)	Frequency Exceeding SCG
VOCs			
1,1-Dichloroethane	ND – 5.5	5	1 of 10
Chloroform	ND – 25	7	2 of 10

Cis-1,2-Dichloroethene	ND – 18	5	6 of 10
Toluene	ND – 5.6	5	1 of 10
Trichloroethene	ND – 17	5	4 of 10
Vinyl Chloride	ND – 6.6	2	4 of 10
SVOCs			
Acenaphthene	ND – 22	20	1 of 10
Benzo(a)pyrene	ND – 45	ND	2 of 10
Benzo(b)fluoranthene	ND – 61	0.002	2 of 10
Benzo(k)fluoranthene	ND – 27	0.002	2 of 10
Bis(2-ethylhexyl)phthalate	ND – 28	5	3 of 10
Chrysene	ND – 61	0.002	2 of 10
Fluoranthene	ND – 140	50	2 of 10
Indeno(1,2,3-cd)pyrene	ND – 29	0.002	2 of 10
Naphthalene	ND – 37	10	2 of 10
Phenanthrene	ND – 180	50	2 of 10
Pyrene	ND – 130	50	2 of 10
Metals			
Aluminum	ND – 110,000	100	13 of 14
Antimony	ND – 64	3	3 of 9
Arsenic	ND – 110	25	3 of 14
Barium	ND – 8,100	1,000	3 of 14
Beryllium	ND – 32	3	2 of 14
Cadmium	ND – 200	5	3 of 14
Chromium	ND – 2,900	50	6 of 14
Cobalt	ND – 290	5	3 of 14
Copper	ND – 17,000	200	3 of 14
Iron	380 – 1,200,000	300	14 of 14
Lead	ND – 49,000	25	7 of 14

Magnesium	11,000 – 160,000	35,000	8 of 14
Manganese	ND – 21,000	300	8 of 14
Mercury	ND – 8.9	0.7	4 of 14
Nickel	ND – 1,200	100	3 of 14
Sodium	20,000 – 220,000	20,000	14 of 14
Zinc	ND – 120,000	2,000	3 of 14

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).

**Table 3 – Filtered vs Unfiltered Groundwater Results for MW-04**  
(Exceedances are Shaded)

Detected Constituents	Unfiltered Concentration (ppb) <sup>a</sup>	Filtered Concentration (ppb)	SCG <sup>b</sup> (ppb)
Metals			
Aluminum	11,000	ND	100
Antimony	27	ND	3
Arsenic	45	ND	25
Barium	1,700	440	1,000
Cadmium	16	ND	5
Chromium	320	ND	50
Cobalt	18	ND	5
Copper	1,700	ND	200
Iron	150,000	ND	300
Lead	3,100	5.1	25
Magnesium	41,000	32,000	35,000
Manganese	1,100	91	300
Mercury	2.3	ND	0.7
Nickel	87	ND	100

Sodium	130,000	130,000	20,000
Zinc	7,400	ND	2,000

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).

## Soil

Nine surface soil samples (0-2 inches depth) were collected from OU 01 during the RI to assess direct human exposure to the ash waste, while three subsurface soil samples were collected from the native soil below the ash waste to assess the downward migration of contaminants (Figure 3). The surface soil results are summarized in Table 4, while the subsurface soil results are summarized in Table 5.

The contaminants of concern in surface soil at OU 01 include SVOCs and metals (Table 4). The SVOCs and metals detected consisted primarily of the same SVOCs and metals detected in the ash waste (compare Table 4 with Table 1). Surface soil samples at OU 01 that exceeded the NYSDEC Part 375 unrestricted soil cleanup objectives are shown on Figure 4, while surface soil samples that exceeded the NYSDEC Part 375 commercial soil cleanup objectives are shown on Figure 5.

Seven of the nine surface soil samples at OU 01 were also analyzed for the characteristics of hazardous waste by TCLP. These results reveal that some surface soil at OU 01 is a characteristic hazardous waste for lead (D008; Figure 6).

Table 4 - Surface Soil (OU 01)					
Detected Constituents	Concentration Range Detected (ppm) <sup>a</sup>	Unrestricted SCG <sup>b</sup> (ppm)	Frequency Exceeding Unrestricted SCG	Restricted SCG <sup>c</sup> (ppm)	Frequency Exceeding Restricted SCG
SVOCs					
Benzo(a)anthracene	0.17 – 5.1	1	6 of 9	5.6	0 of 9
Benzo(a)pyrene	0.12 – 5.0	1	6 of 9	1	6 of 9
Benzo(b)fluoranthene	ND – 7.8	1	7 of 9	5.6	1 of 9
Benzo(k)fluoranthene	ND – 2.5	0.8	4 of 9	56	0 of 9
Chrysene	0.14 – 5.5	1	6 of 9	56	0 of 9
Dibenzo(a,h)anthracene	ND – 1.1	0.33	6 of 9	0.56	2 of 9

Indeno(1,2,3-cd)pyrene	ND – 2.9	0.5	6 of 9	5.6	0 of 9
Metals					
Arsenic	6.2 – 35	13	5 of 9	16	4 of 9
Barium	96 – 1,000	350	4 of 9	400	4 of 9
Cadmium	ND – 20	2.5	6 of 9	9.3	2 of 9
Chromium	9.5 – 190	30	6 of 9	1,500	0 of 9
Copper	65 – 3,700	50	9 of 9	270	6 of 9
Lead	170 – 19,000	63	9 of 9	1,000	7 of 9
Mercury	ND – 3.0	0.18	6 of 9	2.8	1 of 9
Nickel	16 – 250	30	8 of 9	310	0 of 9
Silver	ND – 33	2	5 of 9	1,500	0 of 9
Zinc	170 – 33,000	109	9 of 9	10,000	1 of 9

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 Commercial Soil Cleanup Objectives.

Three samples of subsurface soil below the ash waste were collected from OU 01 and analyzed for arsenic, barium, cadmium, chromium, lead and mercury. None of these metals were detected at concentrations that exceeded the NYSDEC Part 375 unrestricted or commercial soil cleanup objectives (Table 5). These results indicate that contaminants in the ash waste are not migrating into the underlying native soils.

Table 5 - Subsurface Soil (OU 01)					
Detected Constituents	Concentration Range Detected (ppm) <sup>a</sup>	Unrestricted SCG <sup>b</sup> (ppm)	Frequency Exceeding Unrestricted SCG	Restricted SCG <sup>c</sup> (ppm)	Frequency Exceeding Restricted SCG
Metals					
Arsenic	ND – 7.6	13	0 of 3	16	0 of 3
Barium	ND – 64	350	0 of 3	400	0 of 3
Cadmium	ND	2.5	0 of 3	9.3	0 of 3
Chromium	6 – 8.4	30	0 of 3	1,500	0 of 3



Lead	16 – 42	63	0 of 3	1,000	0 of 3
Mercury	ND	0.18	0 of 3	2.8	0 of 3

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 Commercial Soil Cleanup Objectives.

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of surface soil at OU 01 of the site. The site contaminants identified in surface soil that are considered to be the primary contaminants of concern, to be addressed by the remedy selection process, are SVOCS and metals. Native subsurface soils have not been adversely impacted by the ash waste and will not require remediation.

### Surface Water

Thirteen surface water samples were collected from Gulf Creek (OU 02) during the RI and Supplemental RI to determine if contaminants in the ash waste at OU 01 were adversely impacting surface water in the creek (Figure 8). Surface water samples were also collected from sanitary and storm sewers near the site to further evaluate the presence of VOCs in surface water discharging from a storm sewer into Gulf Creek (Figure 8). The surface water results from Gulf Creek are summarized in Table 6, while the surface water results from the sewers are summarized in Table 7. The contaminants of concern in surface water at OU 02 include SVOCs and metals (Table 6). VOCs were also detected in surface water (Tables 6 and 7), but as discussed below, are not considered contaminants of concern at the site. The extent of surface water contamination is shown on Figure 8.

VOCs were detected in surface water from Gulf Creek (Table 6) and in the sanitary and storm sewers near the site (Table 7). The absence of VOCs in the ash waste at OU 01, the presence of VOCs in the storm sewer that discharges to Gulf Creek, and the presence of VOCs in the sanitary sewer upgradient of the site, suggests an off-site source(s) for this contamination. Therefore, the VOCs found in surface water of Gulf Creek are not considered site specific contaminants of concern.

Benzo(b)fluoranthene and bis(2-ethylhexyl)phthalate were the only SVOCs detected in surface water from Gulf Creek that exceeded NYSDEC surface water standards (Table 6). Bis(2-ethylhexyl)phthalate also exceeded NYSDEC surface water standards in the storm and sanitary sewer samples (Table 7). This contaminant, however, was not detected in ash waste samples at concentrations that exceeded NYSDEC soil cleanup objectives. Therefore, bis(2-ethylhexyl)-phthalate in surface water is not considered a site specific contaminant of concern. Benzo(b)fluoranthene was detected in the ash waste at OU 01.

Aluminum, iron, lead, magnesium and manganese were the only metals detected in surface water from Gulf Creek that exceeded NYSDEC surface water standards (Table 6). Aluminum and iron also exceeded NYSDEC surface water standards in the storm and sanitary sewer samples (Table 7). In addition, iron and magnesium are naturally occurring, with concentrations of these metals likely

representing background concentrations in this area of Lockport. Only lead appears to be related to the ash waste at OU 01.

To determine if lead (and other metals) was leaching from the ash waste at OU 01 under natural conditions, both filtered and unfiltered samples of seeps originating from the filled ravine were analyzed. The results from Seep-3, which contained the highest concentrations of metals, are summarized in Table 8. This table shows several exceedances for the unfiltered sample, but only one (sodium) for the filtered sample. These results suggest that turbidity in the sample is the cause of the high contaminant concentrations in this sample. The filtered and unfiltered results from the other seep samples show the same relationship, with only sodium exceeding the NYSDEC surface water standards in all filtered samples.

The absence of arsenic, barium and copper in the surface water samples (Table 6), coupled with the absence of contamination (except for sodium) in the filtered seep samples, suggests that the ash waste of OU 01 is not adversely impacting surface water in Gulf Creek. As a result, specific remedial alternatives for surface water at OU 02 do not need to be evaluated.

**Table 6 – Surface Water from Gulf Creek (OU 02)**

Detected Constituents	Concentration Range Detected (ppb) <sup>a</sup>	SCG <sup>b</sup> (ppb)	Frequency Exceeding SCG
VOCs			
Chloroform	ND – 7.7	7	1 of 5
1,2-Dichloroethene (total)	ND – 8.7	5	1 of 5
Tetrachloroethene	ND – 3.9	0.7	1 of 5
Toluene	ND – 5.7	5	1 of 5
Trichloroethene	ND – 12	5	3 of 5
SVOCs			
Benzo(b)fluoranthene	ND – 2.4	0.002	1 of 4
Bis(2-ethylhexyl)phthalate	ND – 5.7	5	1 of 4
Metals			
Aluminum	ND – 7,500	100	8 of 13
Iron	ND – 9,800	300	8 of 13
Lead	ND – 220	50	5 of 13
Magnesium	12,000 – 39,000	35,000	3 of 13

Manganese	ND – 430	300	2 of 13
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a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.

b - SCG: Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1) and 6 NYCRR Part 703, Surface Water and Groundwater Quality Standards.

<b>Table 7 – Surface Water from Storm &amp; Sanitary Sewers</b>			
Detected Constituents	Concentration Range Detected (ppb) <sup>a</sup>	SCG <sup>b</sup> (ppb)	Frequency Exceeding SCG
VOCs			
Acetone	ND – 74	50	2 of 5
1,2-Dichloroethene (total)	ND – 20	5	2 of 5
Tetrachloroethene	ND – 7.8	0.7	2 of 5
Trichloroethene	ND – 9.1	5	1 of 5
Vinyl Chloride	ND – 5.9	0.3	1 of 5
SVOCs			
Bis(2-ethylhexyl)phthalate	6.6 – 7.3	5	2 of 2
Metals			
Aluminum	5,600 – 6,700	100	2 of 2
Iron	980 – 1,100	300	2 of 2

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

b - SCG: Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1) and 6 NYCRR Part 703, Surface Water and Groundwater Quality Standards.

<b>Table 8 – Filtered vs Unfiltered Surface Water Results from Sample Seep-3 (Exceedances are Shaded)</b>			
Detected Constituents	Unfiltered Concentration (ppb) <sup>a</sup>	Filtered Concentration (ppb)	SCG <sup>b</sup> (ppb)
Metals			
Aluminum	<b>5,600</b>	ND	100
Arsenic	10	ND	25
Barium	110	56	1,000

Cadmium	4.3	ND	5
Cobalt	2	ND	5
Copper	<b>250</b>	ND	200
Iron	<b>6,600</b>	ND	300
Lead	<b>220</b>	4.5	25
Magnesium	<b>39,000</b>	34,000	35,000
Manganese	98	ND	300
Sodium	<b>140,000</b>	<b>120,000</b>	20,000
Zinc	820	260	2,000

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

b - SCG: Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1) and 6 NYCRR Part 703, Surface Water and Groundwater Quality Standards.

### Sediments

Fifty-eight sediment samples were collected from Gulf Creek (OU 02) during the RI and Supplemental RI to determine if contaminants in the ash waste at OU 01 were adversely impacting creek sediment. These samples were collected from the site to Niagara Street, a distance of approximately 4,400 feet (Figure 9). Samples from Niagara Street to Eighteenmile Creek were collected by the United States Environmental Protection Agency (USEPA) as part of the Eighteenmile Creek NPL Site.

The primary contaminants of concern in Gulf Creek sediment include SVOCs and metals (Table 9). The SVOCs and metals that exceeded sediment SCGs consisted primarily of the same SVOCs and metals detected in the ash waste (compare Table 9 with Table 1). The extent of sediment contamination by these contaminants is shown on Figure 9. The estimated volume of contaminated sediment at OU 02 is approximately 18,100 cubic yards. Concentrations of SVOCs and metals are generally highest near OU 01 and decrease downstream.

Four sediment samples were also analyzed for the characteristics of hazardous waste by TCLP. These results reveal that none of the sediment in OU 02 is a characteristic hazardous waste.

Based on the findings of the RI and Supplemental RI, the past disposal of hazardous waste has resulted in the contamination of sediment at OU 02 of the site. The site contaminants identified in sediment that are considered to be the primary contaminants of concern, to be addressed by the remedy selection process, are SVOCs and metals.

**Table 9 – Sediment (OU 02)**

Detected Constituents	Concentration Range Detected (ppm) <sup>a</sup>	SCG <sup>b</sup> (ppm)	Frequency Exceeding SCG	Site Derived Value <sup>c</sup> (ppm)	Frequency Exceeding Site Derived Value
SVOCs					
Benzo(a)anthracene	ND – 3.9	0.122 <sup>f</sup>	14 of 17	0.448 <sup>e</sup>	10 of 17
Benzo(a)pyrene	ND – 3.5	0.013 <sup>d</sup>	14 of 17	0.047 <sup>d</sup>	14 of 17
Benzo(b)fluoranthene	ND – 4.9	0.013 <sup>d</sup>	16 of 17	0.047 <sup>d</sup>	16 of 17
Benzo(k)fluoranthene	ND – 1.8	0.013 <sup>d</sup>	11 of 17	0.047 <sup>d</sup>	11 of 17
Indeno(1,2,3-cd)pyrene	ND – 2.9	0.013 <sup>d</sup>	14 of 17	0.047 <sup>d</sup>	14 of 17
Phenanthrene	ND – 4.9	1.2 <sup>f</sup>	8 of 17	4.3 <sup>e</sup>	1 of 17
Metals					
Antimony	ND – 13	LEL: 2.0	11 of 58		
		SEL: 25.0	0 of 58		
Arsenic	ND – 38	LEL: 6.0	48 of 58		
		SEL: 33.0	2 of 58		
Cadmium	ND – 16	LEL: 0.6	50 of 58		
		SEL: 9.0	11 of 58		
Chromium	ND – 150	LEL: 26.0	48 of 58		
		SEL: 110	2 of 58		
Copper	18 – 8,200	LEL: 16.0	58 of 58		
		SEL: 110	45 of 58		
Iron	7,900 – 120,000	LEL: 20,000	41 of 58		
		SEL: 40,000	10 of 58		
Lead	43 – 2,700	LEL: 31.0	58 of 58		
		SEL: 110	54 of 58		
Manganese	200 – 5,100	LEL: 460	46 of 58		
		SEL: 1,100	11 of 58		
Mercury	ND – 2.9	LEL: 0.15	32 of 58		
		SEL: 1.3	1 of 58		
Nickel	ND – 120	LEL: 16.0	54 of 58		
		SEL: 50.0	38 of 58		

Silver	ND – 8.7	LEL: 1.0	4 of 58		
		SEL: 2.2	4 of 58		
Zinc	100 – 3,700	LEL: 120	57 of 58		
		SEL: 270	54 of 58		

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in sediment;

b - SCG: The Department's "Technical Guidance for Screening Contaminated Sediments."

c – Site Derived Value: values derived using the Department's "Technical Guidance for Screening Contaminated Sediments" with the lower confidence limit (3.58%) of the average TOC concentration.

d – Value is based on Human Health Bioaccumulation

e - Value is based on Benthic Aquatic Life Chronic Toxicity

LEL = Lowest Effects Level and SEL = Severe Effects Level. A sediment is considered contaminated if either of these criteria is exceeded. If the SEL criteria are exceeded, the sediment is severely impacted. If only the LEL is impacted, the impact is considered moderate.

## 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.

#### **Remedial Alternatives for OU 01**

##### **OU 01 Alternative 1A: 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.

##### **OU 01 Alternative 1B: Site Management**

The Site Management Alternative requires only institutional controls for the site. This alternative includes institutional controls, in the form of an environmental easement, a site management plan and fencing, which are necessary to protect public health and the environment from any contamination identified at the site. Long-term costs associated with this alternative include periodic inspections and repairs to the fence when required.

*Present Worth:* .....\$160,000  
*Capital Cost:* .....\$99,000  
*Annual Costs:* .....\$2,100

##### **OU 01 Alternative 2: Complete Removal with Off-Site Disposal**

This alternative achieves all of the SCGs discussed in Section 5.1.1 and soil meets the unrestricted soil clean objectives listed in Part 375-6.8(a). This alternative consists of the excavation of all ash waste at OU 01 that exceeds the unrestricted soil cleanup objectives (approximately 200,000 cubic yards). The area to be excavated is shown on Figure 10. Excavation is a common remedy used to remove contaminated soil or waste from a source area, and is effective at eliminating exposure and preventing transport of contaminants.

Special considerations are required at OU 01 due to the physical setting and steep slopes of the ravine. Modification and maintenance of ravine access is needed to allow for complete waste removal. In addition, a sewer line runs through the existing waste and will need to be re-routed before excavation takes place.

During excavation, the ash waste will be segregated (hazardous versus non-hazardous) based upon chemical analysis, and transported to the appropriate off-site disposal facilities. The collection of verification samples following excavation will confirm that all waste exceeding the unrestricted soil cleanup objectives has been removed from OU 01.

The excavated area of OU 01 will not be restored to pre-existing grade, but will be restored with a sufficient quantity of clean soil backfill and topsoil to support the growth of native grasses and shrubs.

Since all waste exceeding the unrestricted soil cleanup objectives is removed from OU 01 under this alternative, institutional controls and long-term monitoring are not required.

The time required to complete this alternative is estimated to be 40 months.

*Present Worth:* .....\$43,609,000  
*Capital Cost:* .....\$43,609,000  
*Annual Costs:* .....\$0

### **OU 01 Alternative 3: Ex-Situ Stabilization with Off-Site Disposal**

This alternative consists of all elements of Alternative 2 with the difference being that the excavated material from OU 01 will be staged on-site and stabilized prior to off-site disposal. The area to be excavated is shown on Figure 10. Ex-situ stabilization is a process that uses a stabilizing agent to bind contaminants in place to reduce their solubility and/or mobility. Under this process, the excavated material is mixed in a temporary mixing facility (i.e., pug mill, mixer, etc.) with a stabilizing agent. The stabilization process allows the waste to be disposed as solid waste at appropriate off-site disposal facilities.

Since all waste exceeding the unrestricted soil cleanup objectives is removed from OU 01 under this alternative, institutional controls and long-term monitoring are not required.

The time required to complete this alternative is estimated to be 40 months.

*Present Worth:* .....\$40,509,000  
*Capital Cost:* .....\$40,509,000  
*Annual Costs:* .....\$0

### **OU 01 Alternative 4: Landfill Capping with a Part 360 Cap - Existing Landfill Footprint**

This alternative consists of the construction of a multi-layer cap (Part 360 cap) over ash waste at OU 01 that exceeds the unrestricted soil cleanup objectives to prevent direct contact exposures and the leaching of contaminants from the waste. The area to be capped is shown on Figure 11. Capping with a Part 360 Cap is a common remedy, and is effective at eliminating exposure, preventing the infiltration of precipitation into contaminated material, and preventing the transport of contaminants. Some modification to the Part 360 requirements (e.g., reduce/eliminate of gas collection) may be contemplated during the design.

Special considerations are required for cap construction at OU 01 due to the physical setting and steep slopes of the ravine. Modification and maintenance of ravine access is needed to allow for



access to the embankment. Existing grades of the waste are steep, and will require considerable earth work to achieve the 3:1 slopes required for cap stability. Due to space constraints, excavated material will be segregated (hazardous versus non-hazardous) and transported to the appropriate off-site disposal facilities. The area to be excavated prior to capping is shown on Figure 11. In addition, a permeable barrier wall will be constructed at the base of the landfill to keep groundwater that naturally flows down the filled portion of the ravine from building up under the cap and eventually causing cap failure. Lastly, a sewer line runs through the existing waste and will need to be re-routed around the site before earth work and capping take place.

Since contaminated waste will remain at OU 01 under this alternative, institutional controls, in the form of an environmental easement, a site management plan and fencing, are necessary to protect public health and the environment from contamination remaining on-site. Long-term monitoring includes the periodic sampling and analysis of groundwater. Long-term costs associated with this alternative include periodic inspections of the cap, repairs when required, and annual mowing.

The time required to complete this alternative is estimated to be 21 months. Long-term monitoring would continue for 30 years.

*Present Worth:* .....\$26,975,000  
*Capital Cost:* .....\$26,552,000  
*Annual Costs:* .....\$14,000

#### **OU 01 Alternative 5: Landfill Capping with a Part 360 Cap - Extended Landfill Footprint**

This alternative consists of the construction of a multi-layer cap (Part 360 cap) over ash waste at OU 01 that exceeds the unrestricted soil cleanup objectives to prevent direct contact exposures and the leaching of contaminants from the waste. The area to be capped is shown on Figure 12. Capping with a Part 360 Cap is a common remedy, and is effective at eliminating exposure, preventing the infiltration of precipitation into contaminated material, and preventing the transport of contaminants. Some modification to the Part 360 requirements (e.g., reduce/eliminate of gas collection) may be contemplated during the design.

Special considerations are required for cap construction at OU 01 due to the physical setting and steep slopes of the ravine. Modification and maintenance of ravine access is needed to allow for access to the embankment. Existing grades of the waste are steep, and will require considerable earth work to achieve the 3:1 slopes required for cap stability. This material will be placed into the open ravine at the base of OU 01 to extend the current footprint of the landfill farther into the ravine (Figure 12). Prior to extending the landfill into the open ravine, a groundwater drainage and diversion system will be installed to convey groundwater that naturally flows down the filled portion of the ravine to Gulf Creek at a fixed point(s) along the toe of the extended landfill (Figure 13). Groundwater drainage and diversion is necessary to keep it from building up under the cap and eventually causing cap failure. In addition, a sewer line runs through the existing waste and will need to be re-routed around the site before earth work and capping take place.

Since contaminated waste will remain at OU 01 under this alternative, institutional controls, in the form of an environmental easement, a site management plan and fencing, are necessary to protect public health and the environment from contamination remaining on-site. Long-term monitoring includes the periodic sampling and analysis of groundwater. Long-term costs associated with this alternative include periodic inspections of the cap, repairs when required, and annual mowing.

The time required to complete this alternative is estimated to be 9 months. Long-term monitoring would continue for 30 years.

*Present Worth:* .....\$5,974,000  
*Capital Cost:* .....\$5,693,000  
*Annual Costs:* .....\$9,400

### **OU 01 Alternative 6: Landfill Capping with a Clean Soil Cover – Extended Landfill Footprint**

This alternative consists of all elements of Alternative 5 with the difference being that a 2-foot thick clean soil cover with a demarcation layer will be constructed over the ash waste at OU 01 rather than a Part 360 cap. The top 6 inches of the soil cover will consist of topsoil to be planted with native grasses and/or shrubs. The area to be covered is the same as the area to be capped under Alternative 5 (Figure 12). Capping with a clean soil cover is a common remedy that is effective at eliminating exposure and preventing the transport of waste by erosion.

Since contaminated waste will remain at OU 01 under this alternative, institutional controls, in the form of an environmental easement, a site management plan and fencing, are necessary to protect public health and the environment from contamination remaining on-site. Long-term monitoring includes the periodic sampling and analysis of groundwater. Long-term costs associated with this alternative include periodic inspections of the soil cover, repairs when required, and annual mowing.

The time required to complete this alternative is estimated to be 9 months. Long-term monitoring would continue for 30 years.

*Present Worth:* .....\$4,208,000  
*Capital Cost:* .....\$3,927,000  
*Annual Costs:* .....\$9,400

### **OU 01 Alternative 7: Partial Removal and Off-Site Disposal with In-Situ Stabilization of Shallow Waste**

This alternative consists of the excavation of approximately 152,000 cubic yards of contaminated ash waste from the filled ravine that is too thick to effectively stabilize, with in-situ treatment of the remaining ash at OU 01 with a stabilizing amendment. In-situ stabilization is a process that uses a stabilizing agent to bind contaminants in place to reduce their solubility or mobility. The waste and binding agent are typically mixed in-situ by augers. Excavated material will be segregated (hazardous versus non-hazardous) and transported to appropriate off-site disposal facilities. The

areas to be excavated and stabilized in-situ are shown on Figure 14.

Special considerations are required at OU 01 due to the physical setting and steep slopes of the ravine. Modification and maintenance of ravine access is needed to allow for partial removal of ash waste from the filled ravine. In addition, a sewer line runs through the existing waste and will need to be re-routed before excavation and in-situ stabilization take place.

The stabilized mass at OU 01 will be restored to 3:1 grades to limit erosion, and covered with 6 inches of topsoil to be planted with native grasses and/or shrubs.

Since contaminated waste will remain at OU 01 under this alternative, institutional controls, in the form of an environmental easement, a site management plan and fencing, are necessary to protect public health and the environment from contamination remaining on-site. Long-term monitoring includes the periodic sampling and analysis of groundwater. Long-term costs associated with this alternative include periodic inspections of the soil cover and stabilized mass, and repairs to the cover when required.

The time required to complete this alternative is estimated to be 34 months. Long-term monitoring will continue for 30 years.

<i>Present Worth:</i> .....	\$41,721,000
<i>Capital Cost:</i> .....	\$41,500,000
<i>Annual Costs:</i> .....	\$7,400

#### **OU 01 Alternative 8: Partial Removal, Ex-Situ Stabilization and On-Site Placement with In-Situ Stabilization of Shallow Waste**

This alternative consists of all elements of Alternative 7 with the difference being that the excavated ash waste from the filled ravine that is too thick to effectively stabilize in-situ will be stabilized ex-situ and placed into the open ravine at the base of OU 01 to extend the current footprint of the landfill (Figure 15). A groundwater drainage and diversion system will be installed as described in OU 01 Alternative 5.

Special considerations are required at OU 01 due to the physical setting and steep slopes of the ravine. Modification and maintenance of ravine access is needed to allow for partial removal of ash waste from the filled ravine. In addition, a sewer line runs through the existing waste and will need to be re-routed before excavation and in-situ stabilization take place.

The stabilized mass at OU 01 will be restored to 3:1 grades to limit erosion, and covered with 6 inches of topsoil to be planted with native grasses and/or shrubs.

Since contaminated waste will remain at OU 01 under this alternative, institutional controls, in the form of an environmental easement, a site management plan and fencing, are necessary to protect public health and the environment from contamination remaining on-site. Long-term monitoring includes the periodic sampling and analysis of groundwater. Long-term costs associated with this

alternative include periodic inspections of the soil cover and stabilized mass, and repairs to the cover when required.

The time required to complete this alternative is estimated to be 43 months. Long-term monitoring will continue for 30 years.

*Present Worth:* .....\$23,557,000  
*Capital Cost:* .....\$23,336,000  
*Annual Costs:* .....\$7,400

### **Remedial Alternatives for OU 02**

#### **OU 02 Alternative 1A: 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.

#### **OU 02 Alternative 1B: Site Management**

The Site Management Alternative requires only institutional controls for the site. This alternative includes institutional controls, in the form of an environmental easement, a site management plan and fencing, which are necessary to protect public health and the environment from any contamination identified at the site. Long-term costs associated with this alternative include periodic inspections and repairs to the fence when required.

*Present Worth:* .....\$87,000  
*Capital Cost:* .....\$41,000  
*Annual Costs:* .....\$1,500

#### **OU 2 Alternative 2: Multi-Media Sub-Aqueous Capping**

This alternative consists of the construction of a multi-media sub-aqueous cap (clean sand, soil, cobbles, topsoil, and/or organic matter and demarcation layer) over contaminated sediments in Gulf Creek. The area to be capped is shown on Figure 16, and includes Gulf Creek from the site to Niagara Street. Sub-aqueous capping is a common remedy, and is effective at eliminating exposure, preventing the transport of contaminated sediments, and preventing the uptake of contaminants by aquatic organisms.

Due to the continuous flow of water in Gulf Creek, flows will need to be managed during capping activities. In addition, the existing sewer line will need to be re-aligned outside of OU 02 or in such a way as to limit its impact during remediation, and to accommodate future maintenance activities without jeopardizing the cap.

Following capping, Gulf Creek will be restored, to the extent possible, to its original grade with material similar to the existing substrate. A restoration plan will be developed during design and will meet the substantive requirements of Article 15 and 6 NYCRR Part 608.

Long-term monitoring of sediment, surface water and biota will be conducted to assess the effectiveness of the remediation. Long-term costs associated with this alternative include periodic inspections of the cap and repairs when required.

The time required to complete this alternative is estimated to be 24 months. Long-term monitoring would continue for 30 years.

*Present Worth:*.....\$2,889,000  
*Capital Cost:*.....\$2,775,000  
*Annual Costs:*.....\$3,800

### **OU 2 Alternative 3: In-Situ Sediment Amendment**

This alternative consists of the in-situ amendment of contaminated sediments with apatite and gypsum. Apatite has been used as a remediation amendment because it binds lead, zinc, and other metals in forms that are not soluble, bioavailable, or toxic, while gypsum has been used for mercury because it produces a form of mercury that is relatively non-toxic and non-bioavailable. The area to be amended in-situ is shown on Figure 16, and includes Gulf Creek from the site to Niagara Street.

Due to the continuous flow of water in Gulf Creek, flows will need to be managed during in-situ amendment activities. In addition, the existing sewer line will need to be re-aligned outside of OU 02 or in such a way as to limit its impact during remediation, and to accommodate future maintenance activities without jeopardizing the remediation.

Following in-situ amendment, Gulf Creek will be restored, to the extent possible, to its original grade with material similar to the existing substrate. A restoration plan will be developed during design and will meet the substantive requirements of Article 15 and 6 NYCRR Part 608.

Long-term monitoring of sediment, surface water and biota will be conducted to assess the effectiveness of the remediation.

The time required to complete this alternative is estimated to be 24 months. Long-term monitoring would continue for 30 years.

*Present Worth:*.....\$2,334,000  
*Capital Cost:*.....\$2,295,000  
*Annual Costs:*.....\$1,300

### **OU 2 Alternative 4: Complete Removal with Disposal**

This alternative consists of the complete excavation of all sediment in Gulf Creek that exceeds the

sediment SCGs (approximately 18,100 cubic yards). The area to be excavated is shown on Figure 16, and includes Gulf Creek from the site to Niagara Street. Excavation is a common remedy used to remove contaminated sediments from shallows creeks, and is effective at eliminating exposure and preventing transport of contaminants.

Due to the continuous flow of water in Gulf Creek, flows will need to be managed during excavation activities. In addition, the existing sewer line will need to be re-aligned outside of OU 02 or in such a way as to limit its impact during remediation.

Verification samples will be collected following sediment removal to confirm that all contaminated sediment has been removed from OU 02. All excavated sediment will be dewatered at a facility constructed at the site before being transported to approved off-site disposal facilities or placed in the landfill created in the open ravine under OU 01 Alternatives 5 (Landfill Capping with a Part 360 Cap - Extended Landfill Footprint), 6 (Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint) or 8 (Partial Removal with Ex-Situ Stabilization and On-Site Disposal, with In-Situ Stabilization).

Following excavation, Gulf Creek will be restored, to the extent possible, to its original grade with material similar to the existing substrate. A restoration plan will be developed during design and will meet the substantive requirements of Article 15 and 6 NYCRR Part 608.

Since all sediment exceeding the sediment SCGs is removed from OU 02 under this alternative, long-term monitoring is not required.

The time required to complete this alternative is estimated to be 12 months.

<i>Present Worth:</i> .....	\$4,638,000
<i>Capital Cost:</i> .....	\$4,638,000
<i>Annual Costs:</i> .....	\$0

### **OU 2 Alternative 5: Partial Removal with Multi-Media Sub-Aqueous Capping**

This alternative consists of the excavation of contaminated sediments from the ponded water area immediately downstream of OU 01 (approximately 17,200 cubic yards) with multi-media sub-aqueous capping over the remaining contaminated sediments. The areas to be excavated and capped are shown on Figure 17. Excavation and capping are common remedies used to remove or contain contaminated sediments, and are effective at eliminating exposure, preventing the transport of contaminated sediments, and preventing the uptake of contaminants by aquatic organisms.

Due to the continuous flow of water in Gulf Creek, flows will need to be managed during excavation and capping activities. In addition, the existing sewer line will need to be re-aligned outside of OU 02 or in such a way as to limit its impact during remediation, and to accommodate future maintenance activities without jeopardizing the cap.

Verification samples will be collected following sediment removal to confirm that all contaminated sediment has been removed from the ponded water area of OU 02. All excavated sediment will be dewatered at a facility constructed at the site before being transported to approved off-site disposal facilities or placed in the landfill created in the open ravine under OU 01 Alternatives 5 (Landfill Capping with a Part 360 Cap - Extended Landfill Footprint), 6 (Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint) or 8 (Partial Removal with Ex-Situ Stabilization and On-Site Disposal, with In-Situ Stabilization).

Following excavation and capping, Gulf Creek will be restored, to the extent possible, to its original grade with material similar to the existing substrate. A restoration plan will be developed during design and will meet the substantive requirements of Article 15 and 6 NYCRR Part 608.

Long-term monitoring of sediment, surface water and biota will be conducted to assess the effectiveness of the remediation. Long-term costs associated with this alternative include periodic inspections of the cap and repairs when required.

The time required to complete this alternative is estimated to be 12 months. Long-term monitoring would continue for 30 years.

<i>Present Worth:</i> .....	<i>\$3,887,000</i>
<i>Capital Cost:</i> .....	<i>\$3,875,000</i>
<i>Annual Costs:</i> .....	<i>\$1,000</i>

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

<b>Remedial Alternative</b>	<b>Capital Cost (\$)</b>	<b>Annual Costs (\$)</b>	<b>Total Present Worth (\$)</b>
<b>Operable Unit 01</b>			
Alternative 1A: No Action	0	0	0
Alternative 1B: Site Management	99,000	2,100	160,000
Alternative 2: Complete Removal with Off-Site Disposal	43,609,000	0	43,609,000
Alternative 3: Ex Situ Stabilization with Off-Site Disposal	40,509,000	0	40,509,000
Alternative 4: Landfill Capping with a Part 360 Cap – Existing Landfill Footprint	26,552,000	14,000	26,975,000
Alternative 5: Landfill Capping with a Part 360 Cap – Extended Landfill Footprint	5,693,000	9,400	5,974,000
Alternative 6: Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint	3,927,000	9,400	4,208,000
Alternative 7: Partial Removal and Off-Site Disposal with In-Situ Stabilization of Shallow Waste	41,500,000	7,400	41,721,000
Alternative 8: Partial Removal, Ex- Situ Stabilization and On-Site Placement with In-Situ Stabilization of Shallow Waste	23,336,000	7,400	23,557,000



### Remedial Alternative Costs

Remedial Alternative	Capital Cost (\$)	Annual Costs (\$)	Total Present Worth (\$)
<b>Operable Unit 02</b>			
Alternative 1A: No Action	0	0	0
Alternative 1B: Site Management	41,000	1,500	87,000
Alternative 2: Multi-Media Sub-Aqueous Capping	2,775,000	3,800	2,889,000
Alternative 3: In-Situ Sediment Amendment	2,295,000	1,300	2,334,000
Alternative 4: Complete Removal with Disposal	4,638,000 <sup>a</sup> 5,239,000 <sup>b</sup>	0	4,638,000 <sup>a</sup> 5,239,000 <sup>b</sup>
Alternative 5: Partial Removal with Multi-Media Sub-Aqueous Capping	3,875,000 <sup>a</sup> 4,591,000 <sup>b</sup>	1,000	3,887,000 <sup>a</sup> 4,603,000 <sup>b</sup>

a – on-site disposal at OU 01.

b – off-site disposal at appropriate facilities.

## **Exhibit D**

### **Summary of the Proposed Remedy**

The Department has selected the following alternatives as the remedy for this site. The elements of this remedy are described in Section 7. The selected remedy is shown in Figures 12 and 15.

- OU 01: Landfill - Old Upper Mountain Road Parcel: Alternative 5: Landfill Capping with a Part 360 Cap - Extended Landfill Footprint; and
- OU 02: Gulf Creek: Alternative 4: Complete Removal with Disposal.

### **Basis for Selection**

The selected remedy is based on the results of the RI, the Supplemental 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 FS 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.

OU 01 and OU 02 Alternatives 1A (No Action) do not satisfy this criterion as ash waste and sediment exceeding SCGs remain on-site and continue to present a significant threat to public health and the environment. Furthermore, the No Action alternatives do not address transport mechanisms, such as erosion and loading from seeps, that allow contaminated ash from OU 01 to remain a potential source of contamination to Gulf Creek, and for contaminated sediment to continue to migrate downstream. The site also remains in its current state under OU 01 and OU 02 Alternative 1B (Site Management), although the presence of access controls (e.g., environmental easement, fencing) provides some long-term protection to public health by restricting access to the contaminated media. Once again, transport mechanisms are not addressed. As OU 01 and OU 02 Alternatives 1A and 1B are not fully protective of public health and the environment they are not considered for implementation at the Old Upper Mountain Road Site.

OU 01 Alternatives 2 (Complete Removal with Off-Site Disposal) and 3 (Ex-Situ Stabilization with Off-Site Disposal) best satisfy this criterion by removing all ash waste that exceeds the unrestricted soil cleanup objectives. The stabilization process of Alternative 3 reduces the solubility or mobility of contaminants, and also reduces disposal costs. OU 01 Alternatives 4 and 5 (Landfill Capping with a Part 360 Cap – Existing or Extended Landfill Footprint), 6 (Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint), 7 (Partial Removal and Off-Site Disposal with In-Situ Stabilization) and 8 (Partial Removal, Ex-Situ Stabilization and On-Site Placement with In-Situ

Stabilization) also satisfy this criterion, although ash waste remains at OU 01 under these alternatives.

OU 02 Alternative 4 (Complete Removal with Disposal) best satisfies this criterion by removing all sediment that exceeds the sediment SCGs. OU 02 Alternatives 2 (Multi-Media Sub-Aqueous Capping), 3 (In-Situ Sediment Amendment) and 5 (Partial Removal with Multi-Media Sub-Aqueous Capping) also satisfy this criterion, although contaminated sediment remains at OU 02 under these alternatives.

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.

OU 01 Alternatives 2 (Complete Removal with Off-Site Disposal) and 3 (Ex-Situ Stabilization with Off-Site Disposal) best satisfy this criterion by removing all ash waste that exceeds the unrestricted soil cleanup objectives. OU 01 Alternatives 4 and 5 (Landfill Capping with a Part 360 Cap – Existing or Extended Landfill Footprint), 6 (Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint), 7 (Partial Removal and Off-Site Disposal with In-Situ Stabilization) and 8 (Partial Removal, Ex-Situ Stabilization and On-Site Placement with In-Situ Stabilization) also satisfy this criterion, with the waste capped under Alternatives 4, 5 and 6, or stabilized under Alternatives 7 and 8. Because Alternatives 2 through 8 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for OU 01.

OU 02 Alternative 4 (Complete Removal with Disposal) best satisfies this criterion by removing all sediment that exceeds the sediment SCGs. OU 02 Alternatives 2 (Multi-Media Sub-Aqueous Capping), 3 (In-Situ Sediment Amendment) and 5 (Partial Removal with Multi-Media Sub-Aqueous Capping) also satisfy this criterion, with the contaminated sediments capped under Alternatives 2 and 5, partially removed under Alternative 5, or stabilized in place under Alternative 3. Because Alternatives 2 through 5 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for OU 02.

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.

OU 01 Alternatives 2 (Complete Removal with Off-Site Disposal) and 3 (Ex-Situ Stabilization with Off-Site Disposal) best satisfy this criterion by removing all ash waste that exceeds the unrestricted soil cleanup objectives. Complete waste removal eliminates the need for property use restrictions and long-term monitoring and maintenance. OU 01 Alternatives 4 and 5 (Landfill Capping with a

Part 360 Cap – Existing or Extended Landfill Footprint), 7 (Partial Removal and Off-Site Disposal with In-Situ Stabilization) and 8 (Partial Removal, Ex-Situ Stabilization and On-Site Placement with In-Situ Stabilization) also satisfy this criterion, although these alternatives require environmental easements, long-term monitoring and maintenance to ensure their long-term effectiveness. The long-term effectiveness of Alternative 6 (Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint) is uncertain as leaching of lead from the ash waste could occur through the infiltration of precipitation and snow melt into the waste. An environmental easement, long-term monitoring and maintenance are also required under Alternative 6.

OU 02 Alternative 4 (Complete Removal with Disposal) best satisfies this criterion by removing all sediment that exceeds the sediment SCGs. Complete sediment removal eliminates the need for long-term monitoring and maintenance. OU 02 Alternatives 2 (Multi-Media Sub-Aqueous Capping) and 5 (Partial Removal with Multi-Media Sub-Aqueous Capping) also satisfy this criterion, although these alternatives require long-term monitoring and maintenance to ensure their long-term effectiveness. The long-term effectiveness of OU 02 Alternative 3 (In-Situ Sediment Amendment) is unknown.

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.

OU 01 Alternatives 2 (Complete Removal with Off-Site Disposal) and 3 (Ex-Situ Stabilization with Off-Site Disposal) reduce the toxicity, mobility and volume of contaminants by removing all ash waste that exceeds the unrestricted soil cleanup objectives. The mobility of the on-site waste is reduced under OU 01 Alternatives 4 and 5 (Landfill Capping with a Part 360 Cap – Existing or Extended Landfill Footprint), 7 (Partial Removal and Off-Site Disposal with In-Situ Stabilization) and 8 (Partial Removal, Ex-Situ Stabilization and On-Site Placement with In-Situ Stabilization). The mobility of contaminants from the on-site waste is not significantly reduced under Alternative 6 (Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint) as a clean soil cover will not prevent the infiltration of precipitation and snow melt into the waste.

OU 02 Alternatives 4 (Complete Removal with Disposal) and 5 (Partial Removal with Multi-Media Sub-Aqueous Capping) best satisfy this criterion by removing some (Alternative 5) or all (Alternative 4) sediment that exceeds the sediment SCGs. The mobility of contaminants is reduced under OU 02 Alternatives 2 (Multi-Media Sub-Aqueous Capping), 3 (In-Situ Sediment Amendment) and 5 (Partial Removal with Multi-Media Sub-Aqueous Capping).

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.

OU 01 Alternatives 2 through 8, and OU 02 Alternatives 2 through 5, include the excavation and handling of contaminated ash waste and sediment. As a result, these alternatives all have potential short-term exposure risks to construction workers and the surrounding community (e.g., increased truck traffic, odors, dust, noise, etc.) that could occur during the implementation of these

alternatives. These impacts, however, are easily mitigated through standard construction practices. The time needed to complete the remediation at OU 01 is the shortest for Alternatives 5 and 6 (9 months) and the longest for Alternative 8 (43 months). The time needed to complete the remediation at OU 02 is the shortest for Alternatives 4 and 5 (12 months) and the longest for Alternatives 2 and 3 (24 months).

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.

OU 01 Alternatives 2 through 8, and OU 02 Alternatives 2 through 5, are implementable as there is ample availability of remedial contractors and equipment to: (1) complete the excavation activities of OU 01 Alternatives 2 and 3, and OU 02 Alternatives 4 and 5; (2) construct the multi-layer cap system of OU 01 Alternative 4 and 5, and the multi-layer sub-aqueous cap of OU 02 Alternatives 2 and 5; (3) complete the in-situ stabilization of OU 01 Alternatives 7 and 8, and the in-situ amendment of OU 02 Alternative 3; (4) complete the ex-situ stabilization of OU 01 Alternatives 3 and 8; and (5) construct the clean soil cover of OU 01 Alternative 6. In addition, the earthwork and transportation technologies necessary for the implementation of these alternatives are proven and reliable.

It is important to note that site conditions could adversely impact implementability. For example, bedrock outcrops are present along the ravine. The presence of similar outcrops in the filled ravine of OU 01 will make excavation, grading, and stabilization activities more difficult to implement.

For OU 02, the sediment in the ponded water area has low bearing capacity due to the saturated and fine grained nature of the sediment, and will need to be stabilized to support the cap under Alternative 2 (Multi-Media Sub-Aqueous Capping). In addition, a large section of creek north of the ponded water area is extremely rocky and shallow. This area of the creek will be more difficult to amend (Alternative 3) or cap (Alternatives 2 and 5).

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

OU 01 Alternative 6 (Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint) has the lowest cost, followed by Alternative 5 (Landfill Capping with a Part 360 Cap – Extended Landfill Footprint). OU 01 Alternatives 4 (Landfill Capping with a Part 360 Cap – Existing Landfill Footprint) and 8 (Partial Removal, Ex-Situ Stabilization and On-Site Placement with In-Situ Stabilization) have the next lowest costs. These costs, however, are 4 to 5 times higher than the costs for Alternatives 5 and 6. The highest costs are associated with OU 01 Alternatives 2 (Complete Removal with Off-Site Disposal), 3 (Ex-Situ Stabilization with Off-Site Disposal) and 7

(Partial Removal and Off-Site Disposal with In-Situ Stabilization). These costs are significantly higher than the costs for Alternatives 5 and 6.

OU 02 Alternative 3 (In-Situ Sediment Amendment) has the lowest cost for OU 02, followed closely by Alternative 2 (Multi-Media Sub-Aqueous Capping). Both alternatives require long-term monitoring and maintenance to ensure their long-term effectiveness, and have implementability issues that could increase the capital cost of these alternatives. OU 02 Alternative 5 (Partial Removal with Multi-Media Sub-Aqueous Capping) has the next highest cost, and also requires long-term monitoring and maintenance to ensure its effectiveness. OU 02 Alternative 4 (Complete Removal with Disposal) has the highest cost if the excavated sediment is disposed off-site. If the sediment is placed in OU 01 the cost for this alternative is similar to that of Alternative 5.

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.

OU 01 consists of nine parcels that are zoned for residential, commercial, industrial and public utility use. Eight parcels are vacant, with the ninth parcel containing a single family dwelling (Figure 3). The residential parcel is located on Old Upper Mountain Road, and extends eastward across the ravine and up the far embankment to the east (Figure 3). A large portion of this parcel is unsuitable for development due to the presence of the ravine and by access limitations. The dwelling is not located on waste material and is not part of the Old Upper Mountain Road Site. There are no known anticipated uses for the remaining parcels, and several are tax delinquent.

The plateau areas on either side of the ravine could be redeveloped under OU 01 Alternatives 2 (Complete Removal with Off-Site Disposal) and 3 (Ex-Situ Stabilization with Off-Site Disposal) as no waste remains on-site under these alternatives. Future use of this operable unit is limited under OU 01 Alternatives 4 and 5 (Landfill Capping with a Part 360 Cap – Existing or Extended Landfill Footprint), 6 (Landfill Capping with a Clean Soil Cover - Extended Landfill Footprint), 7 (Partial Removal and Off-Site Disposal with In-Situ Stabilization) and 8 (Partial Removal, Ex-Situ Stabilization and On-Site Placement with In-Situ Stabilization) as the plateau areas will contain either a multi-layer cap system (Alternatives 4 and 5), ash waste stabilized in place (Alternatives 7 and 8), or a clean soil cover (Alternative 6).

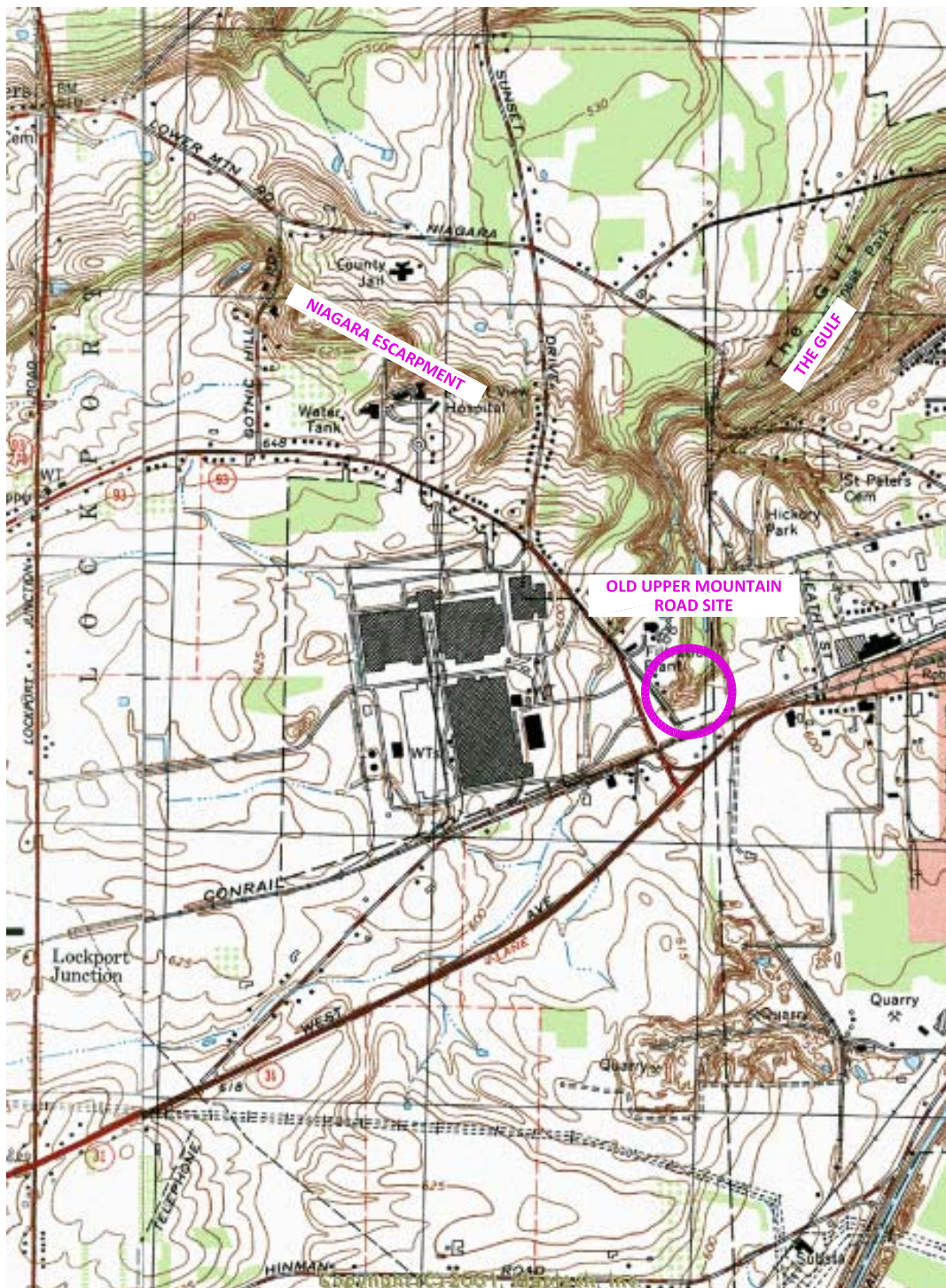
OU 02 is a creek and not subject to redevelopment.

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 5 (Landfill Capping with a Part 360 Cap – Extended Footprint Landfill) has been selected for OU 01, while Alternative 4 (Complete Removal with Disposal) has been selected for OU 02 because, as described above, they satisfy the threshold criteria and provides the best balance of the balancing criterion.





Cambria & Lockport  
Quadrangles

Scale Depends on Final Plotted Size

## SITE LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 06/21/11

DRAWING: Site Location Map.dwg

SITE:




OLD UPPER MOUNTAIN ROAD SITE

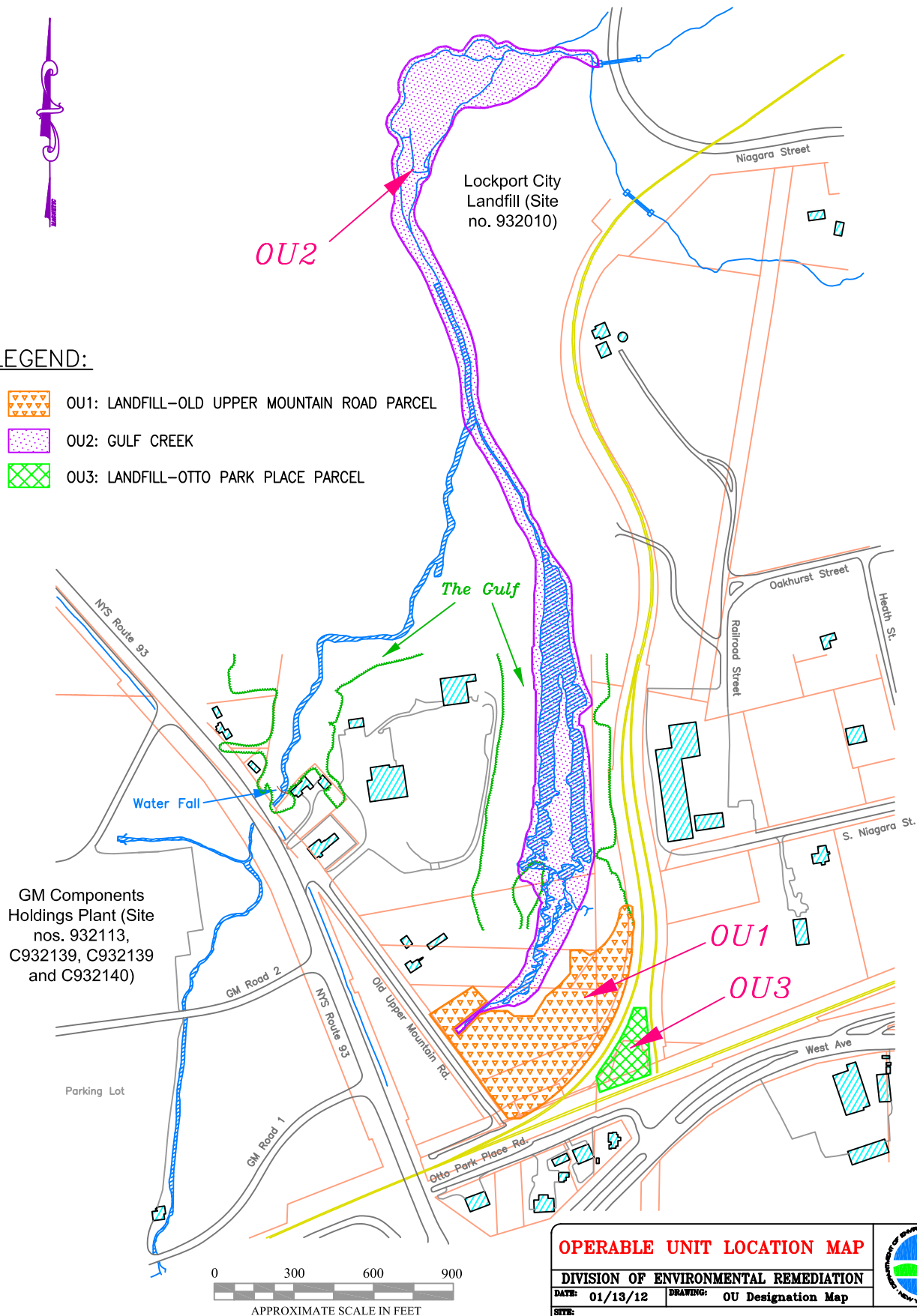


FIGURE 1



# LEGEND:

-  OU1: LANDFILL—OLD UPPER MOUNTAIN ROAD PARCEL
-  OU2: GULF CREEK
-  OU3: LANDFILL—OTTO PARK PLACE PARCEL



## OPERABLE UNIT LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/13/12

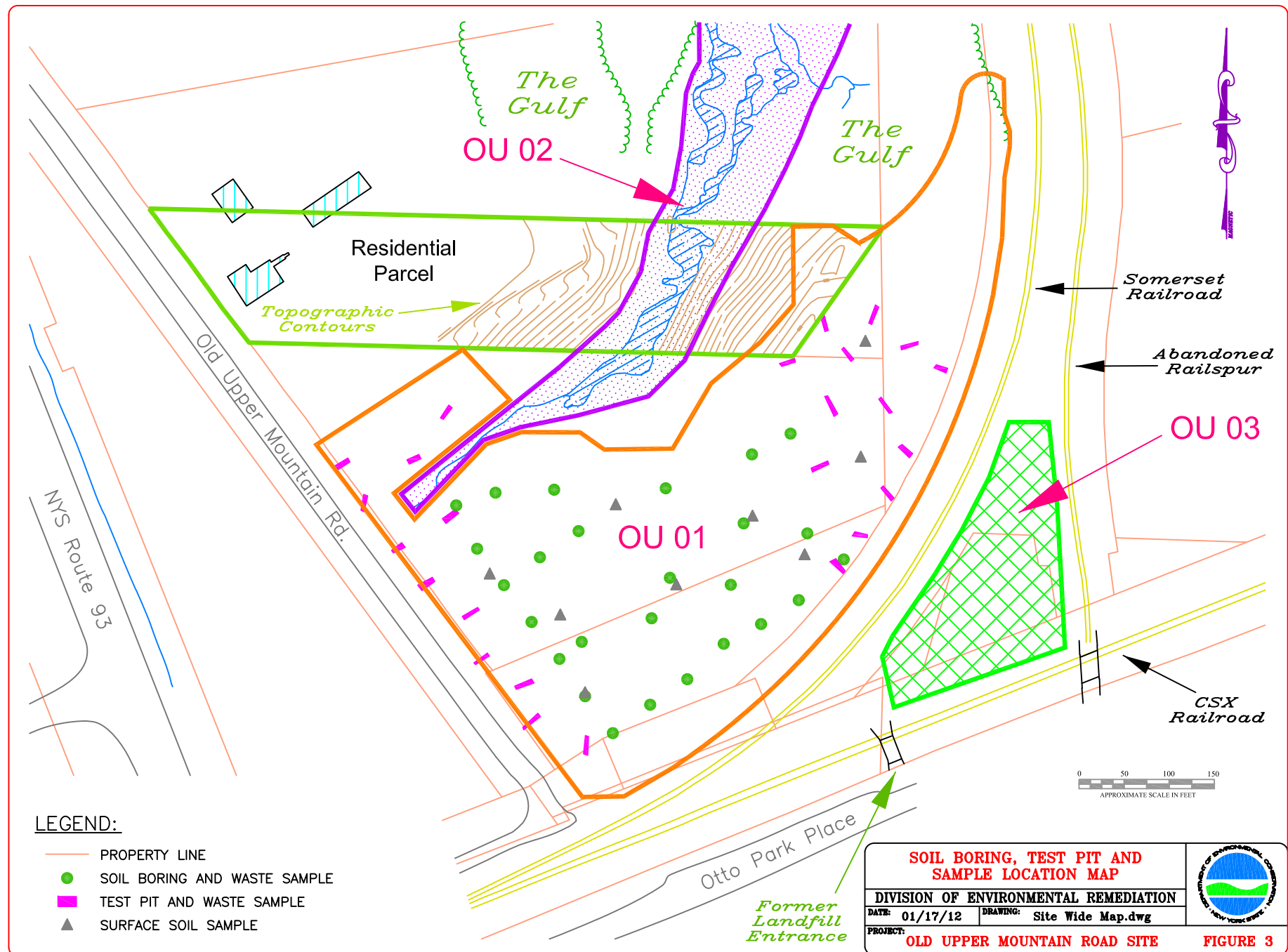
DRAWING: OU Designation Map

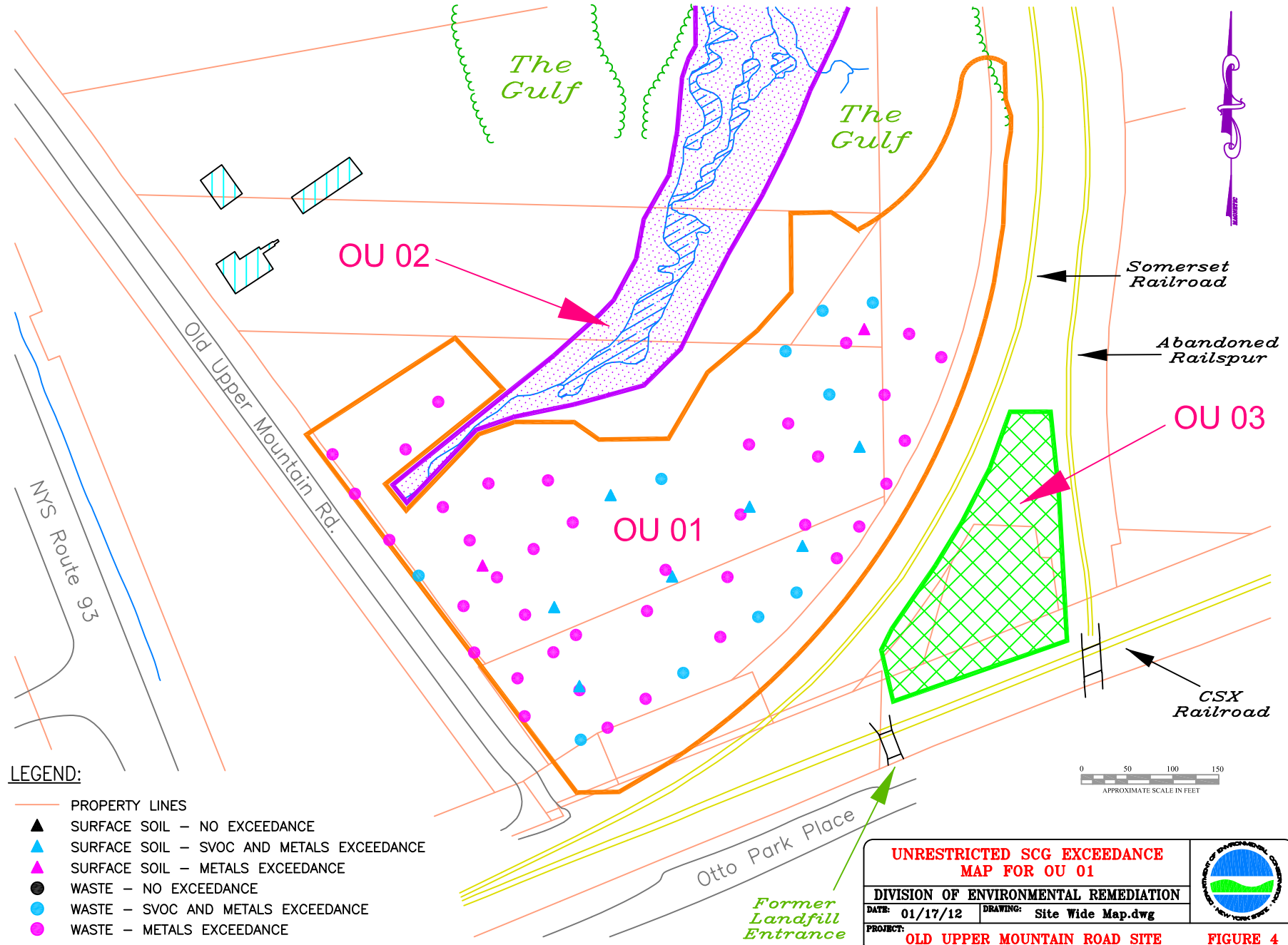
SITE:

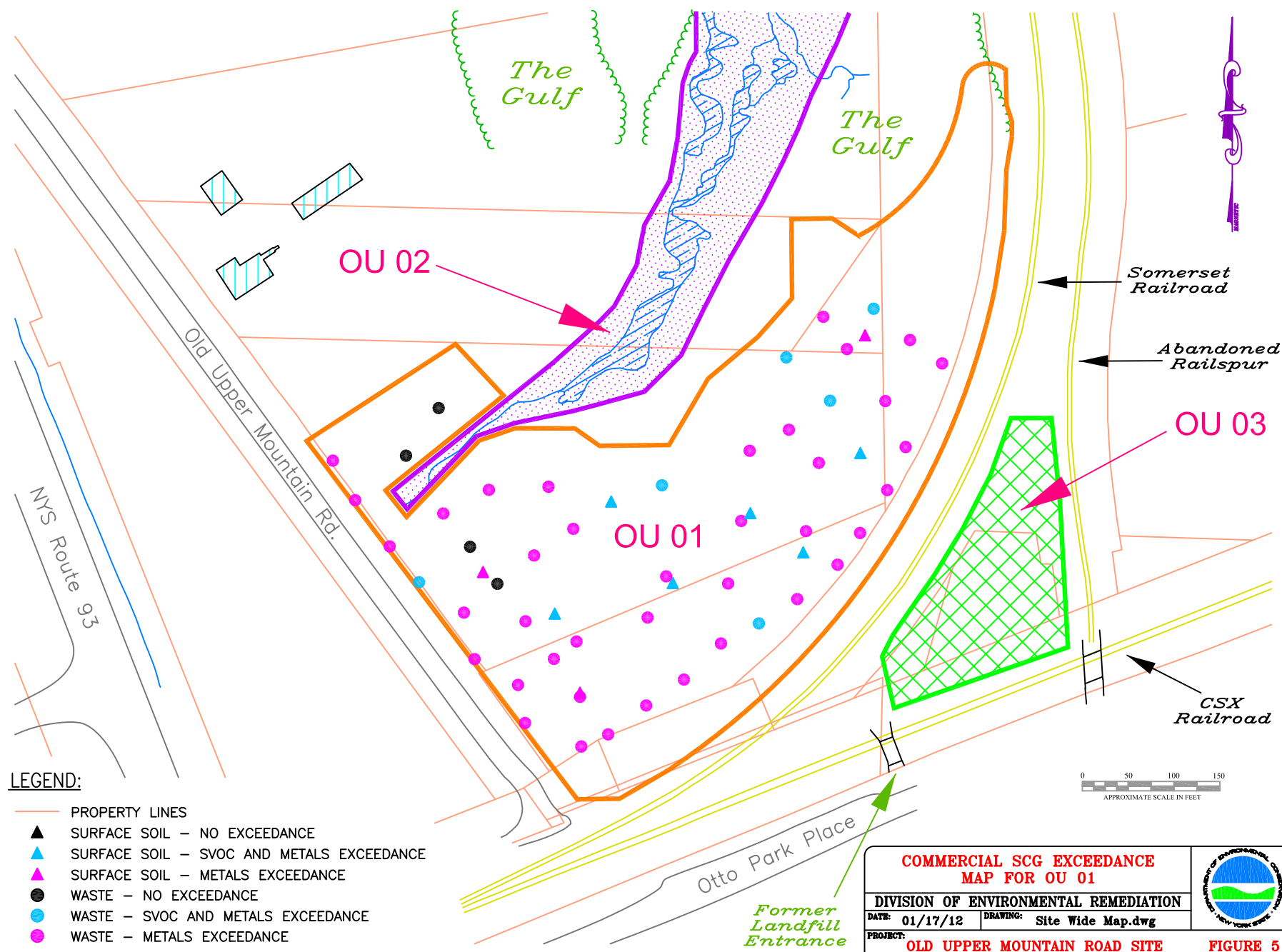
OLD UPPER MOUNTAIN ROAD SITE

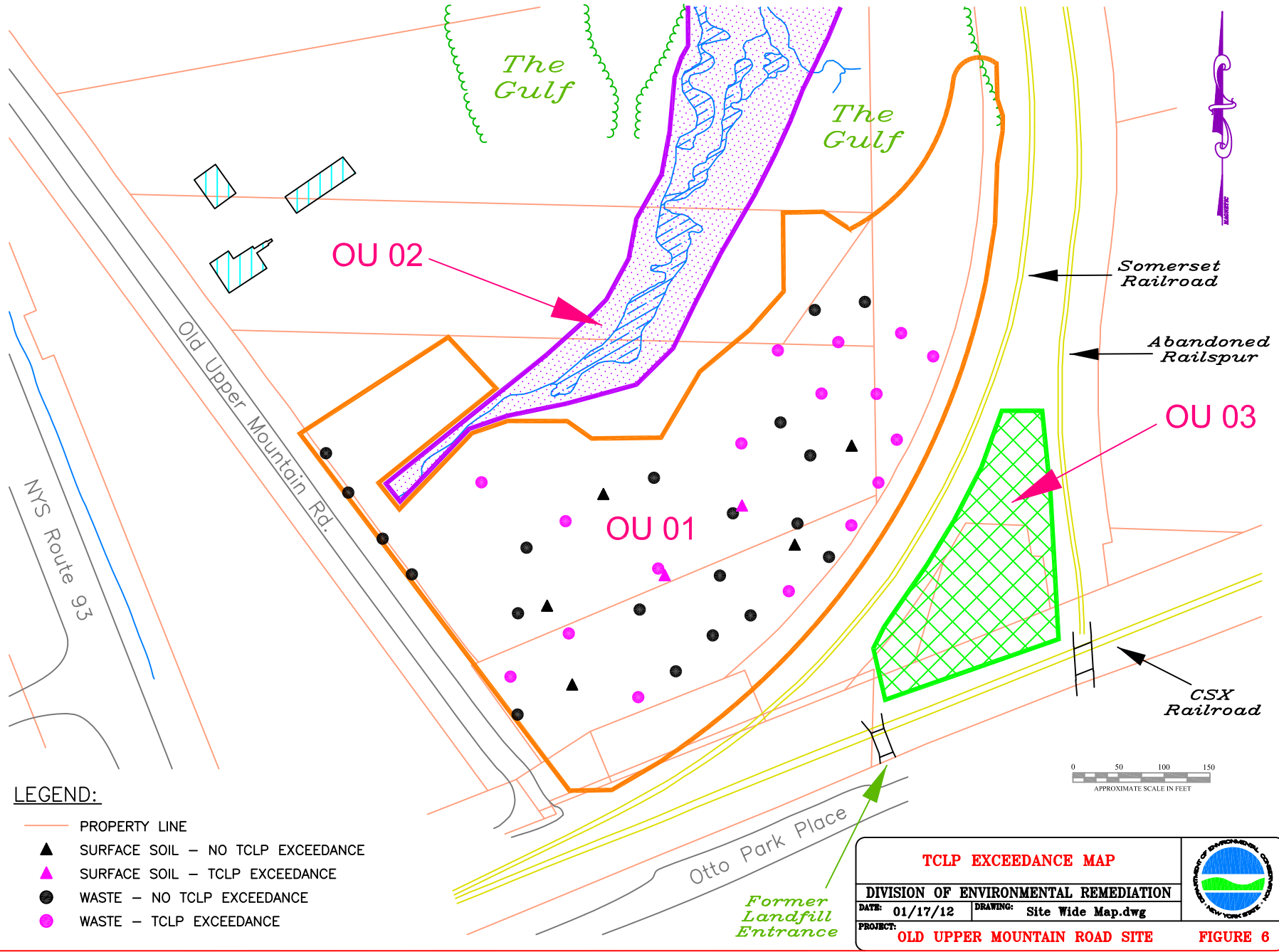


FIGURE 2

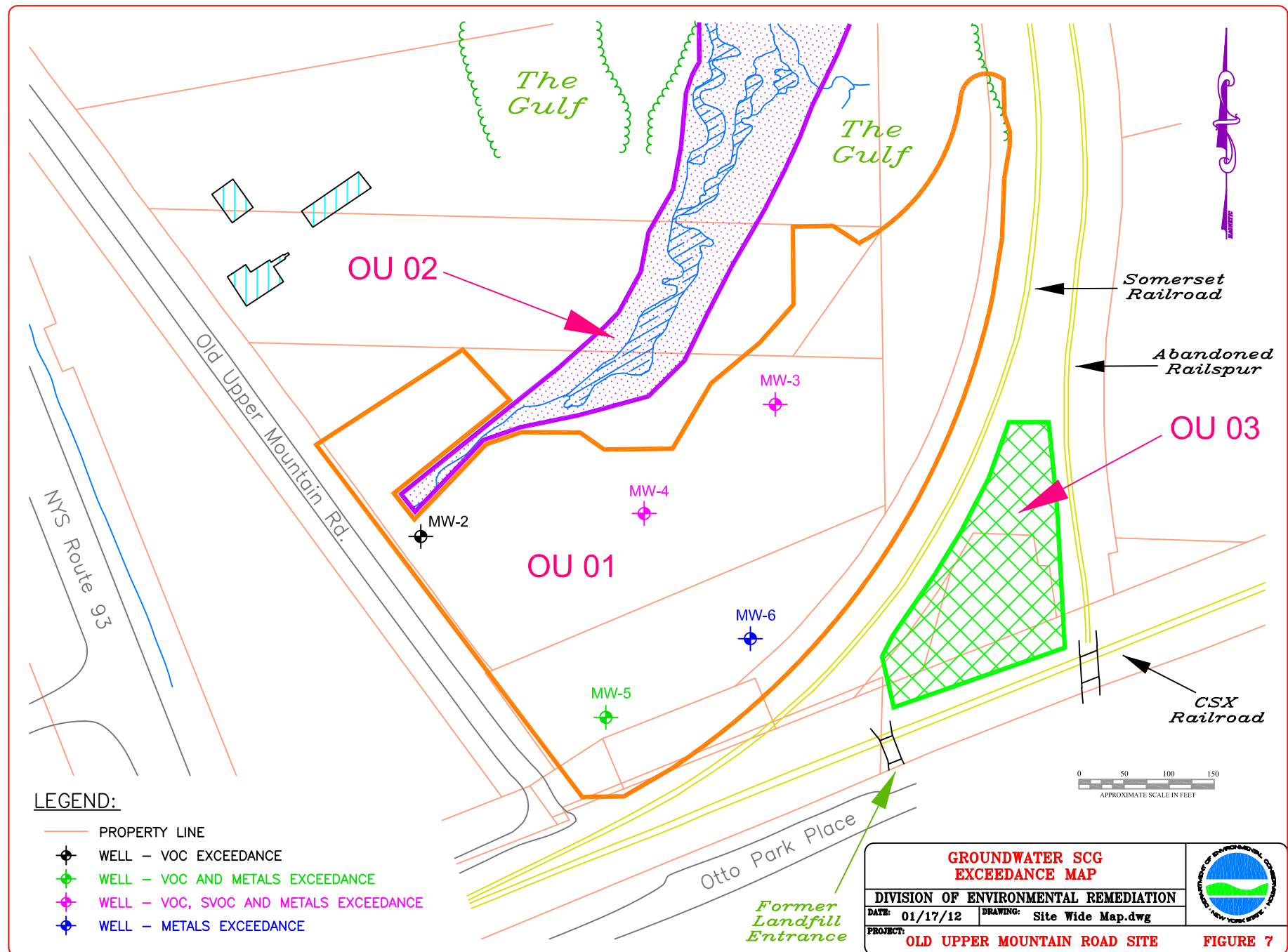


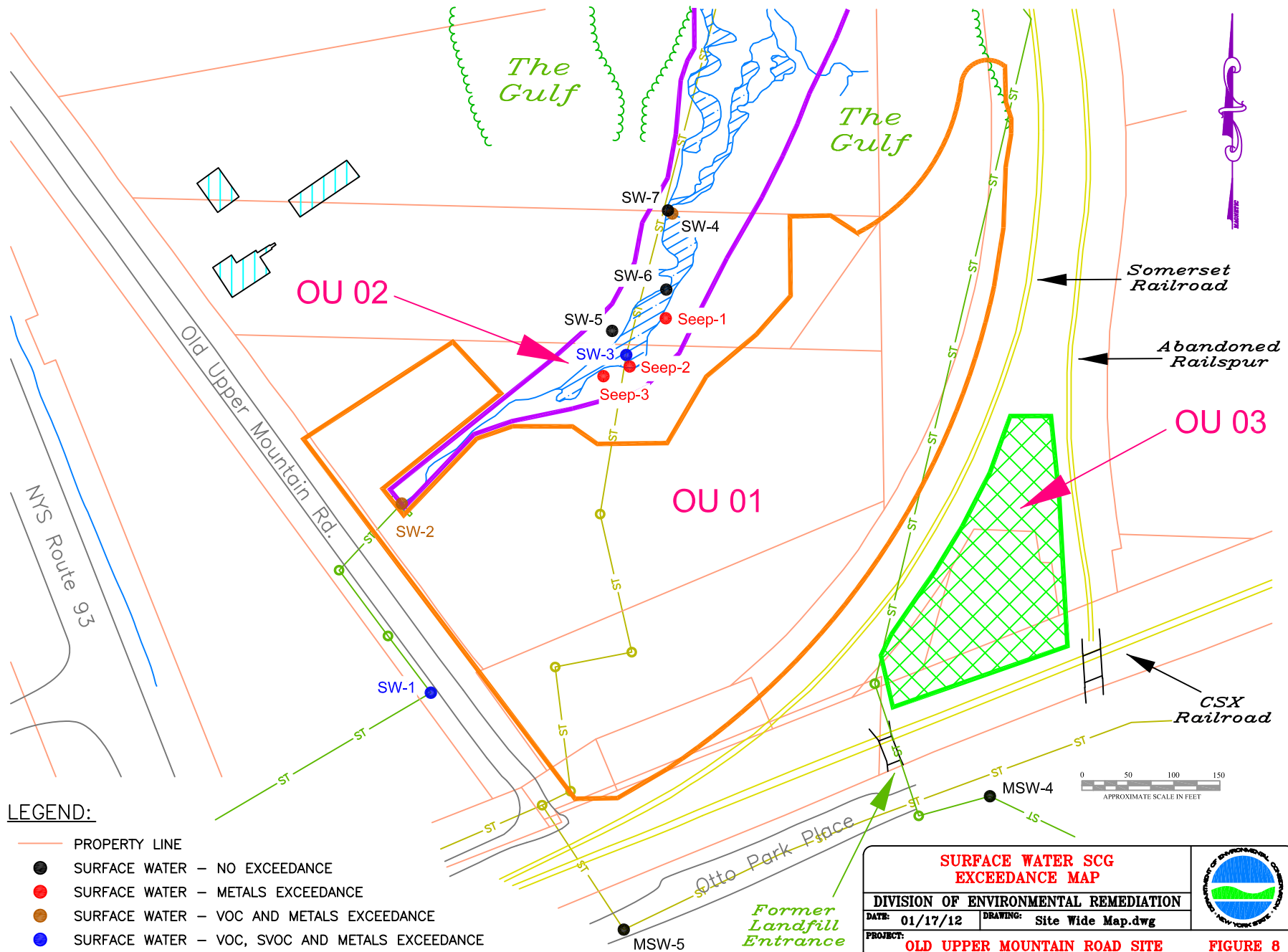






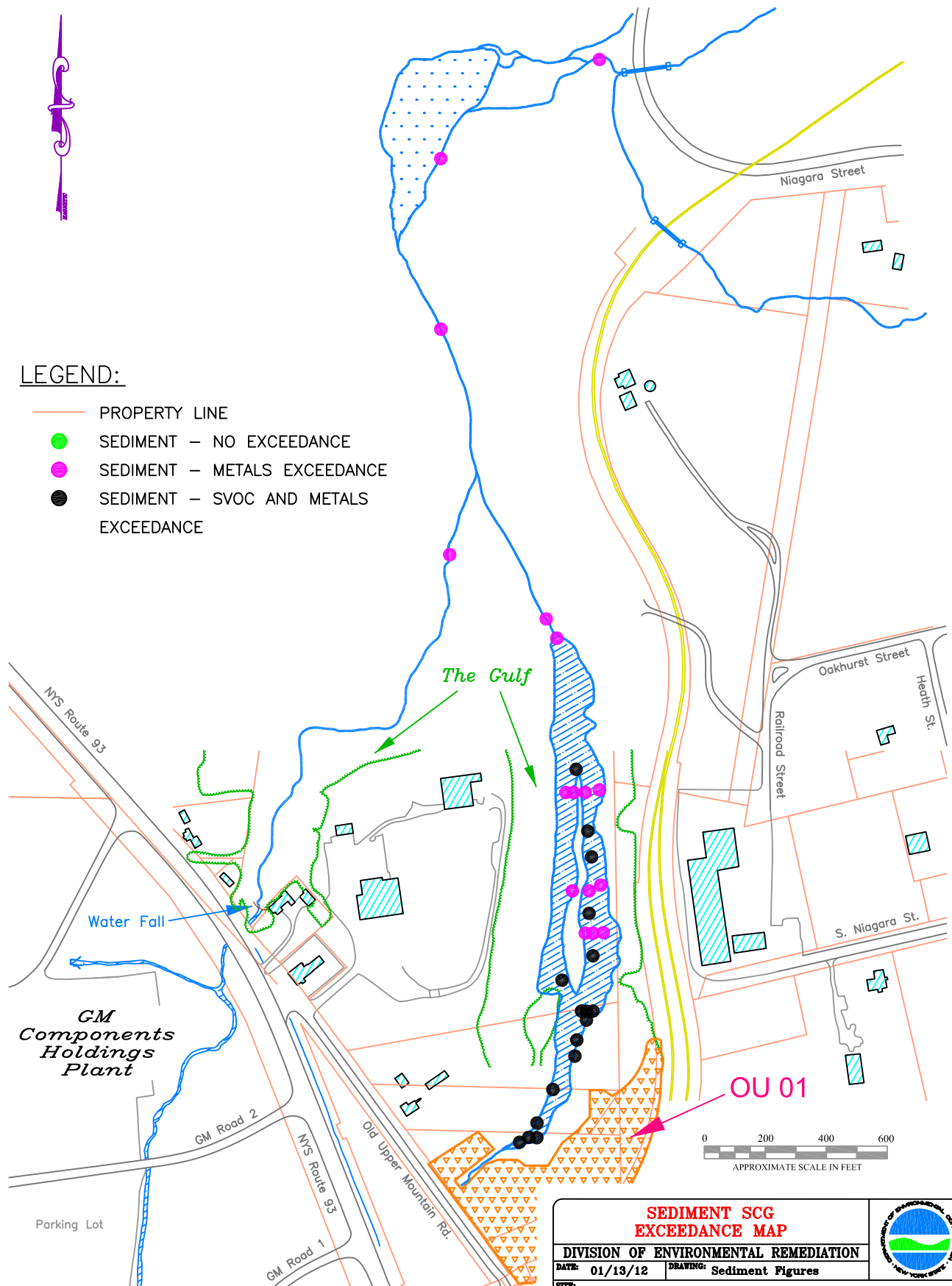






# LEGEND:

- PROPERTY LINE
- SEDIMENT – NO EXCEEDANCE
- SEDIMENT – METALS EXCEEDANCE
- SEDIMENT – SVOC AND METALS EXCEEDANCE

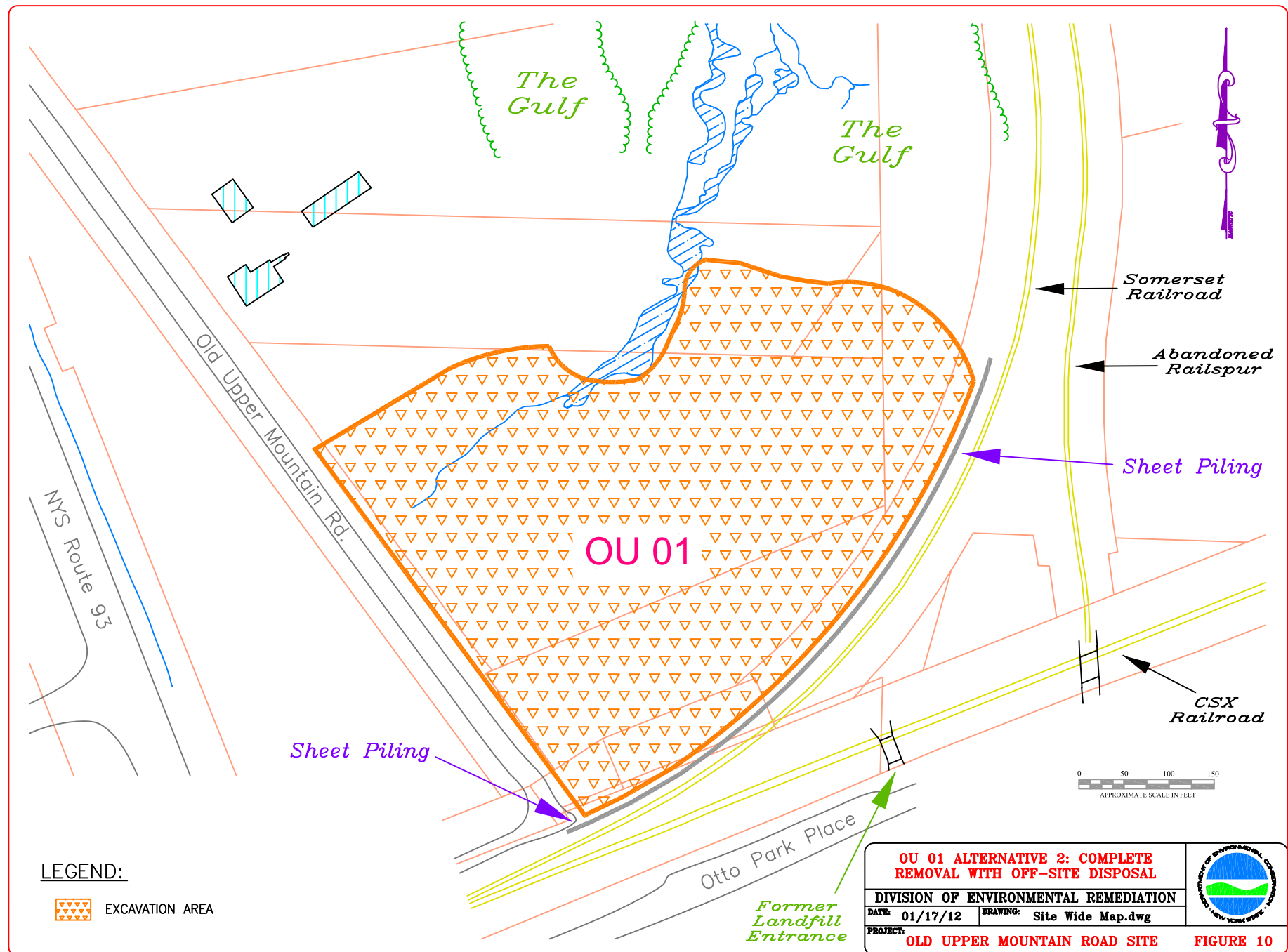


SEDIMENT SCG EXCEEDANCE MAP	
DIVISION OF ENVIRONMENTAL REMEDIATION	
DATE: 01/13/12	DRAWING: Sediment Figures
SITE: OLD UPPER MOUNTAIN ROAD SITE	



FIGURE 9





**LEGEND:**



EXCAVATION AREA

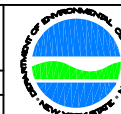
**OU 01 ALTERNATIVE 2: COMPLETE  
REMOVAL WITH OFF-SITE DISPOSAL**

**DIVISION OF ENVIRONMENTAL REMEDIATION**

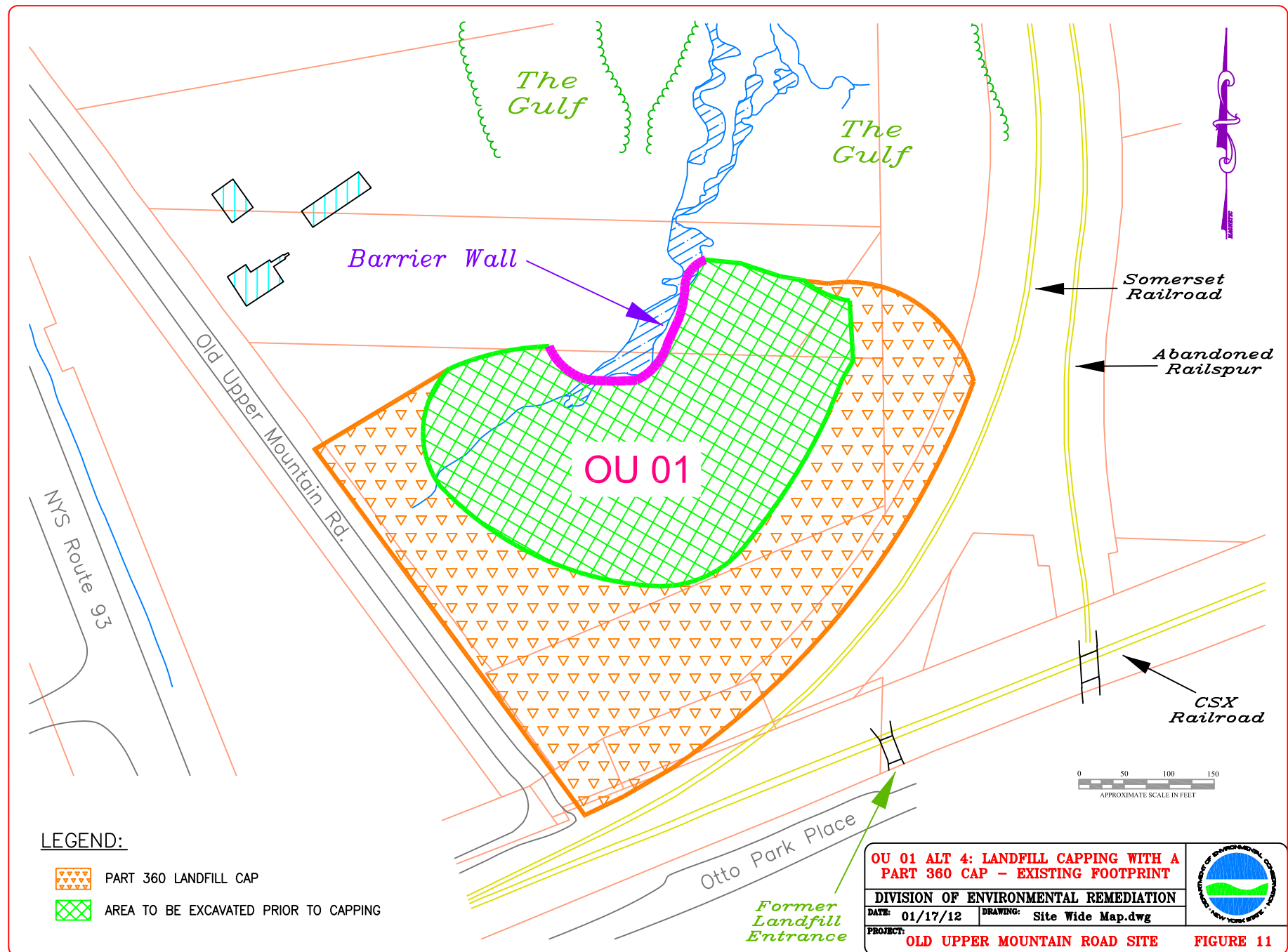
DATE: 01/17/12

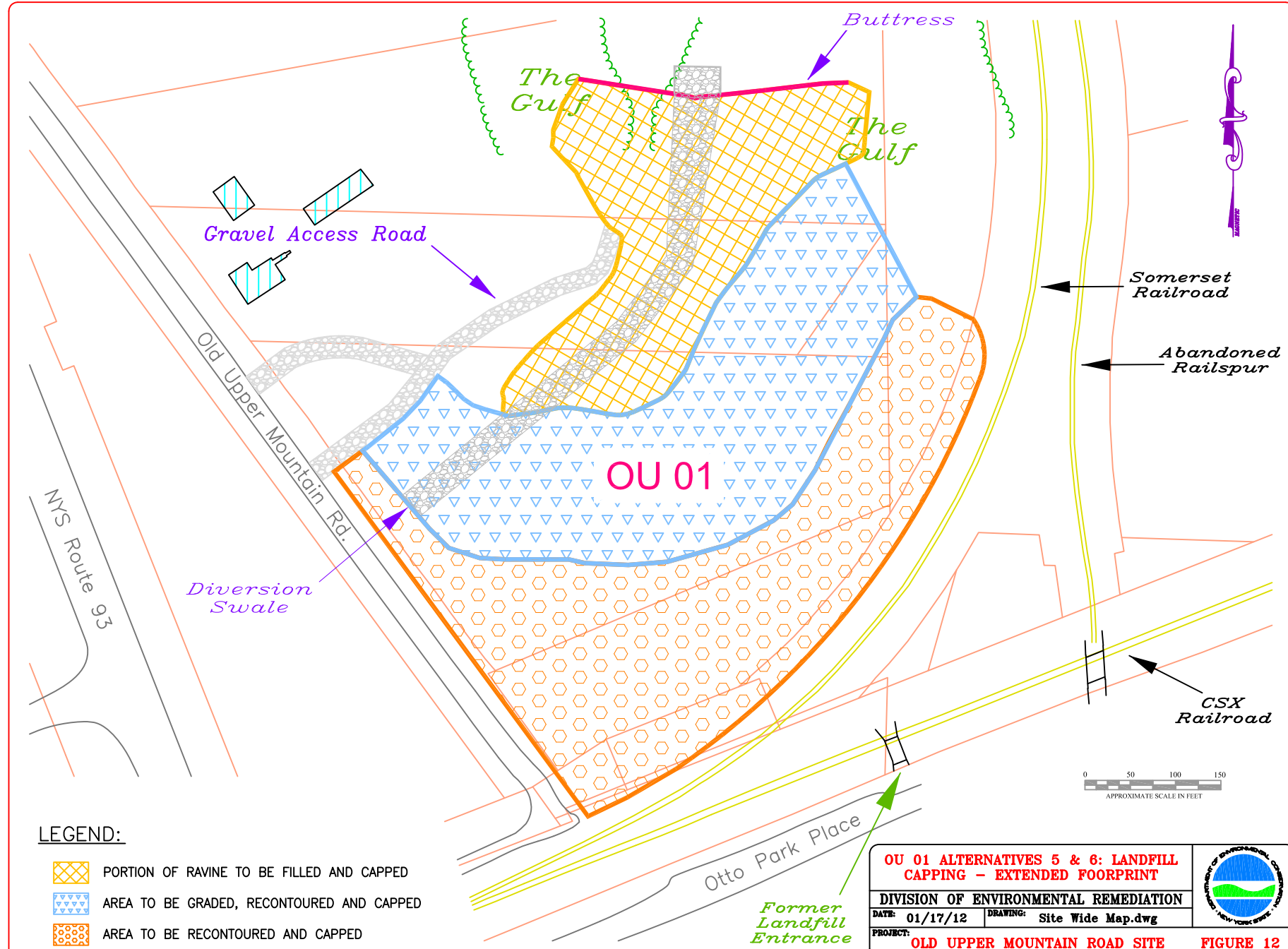
DRAWING: Site Wide Map.dwg

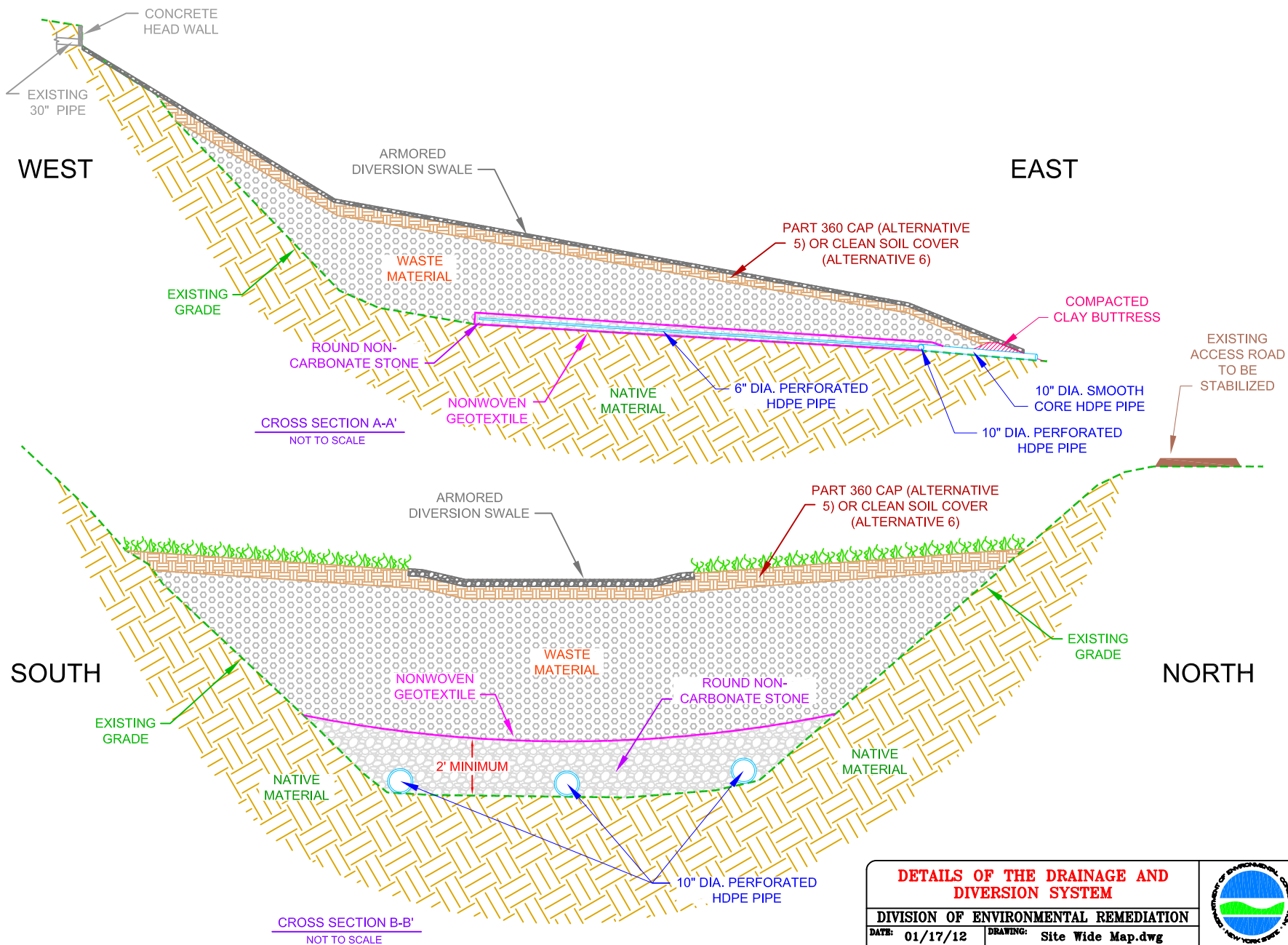
PROJECT: **OLD UPPER MOUNTAIN ROAD SITE**



**FIGURE 10**







**DETAILS OF THE DRAINAGE AND DIVERSION SYSTEM**

**DIVISION OF ENVIRONMENTAL REMEDIATION**

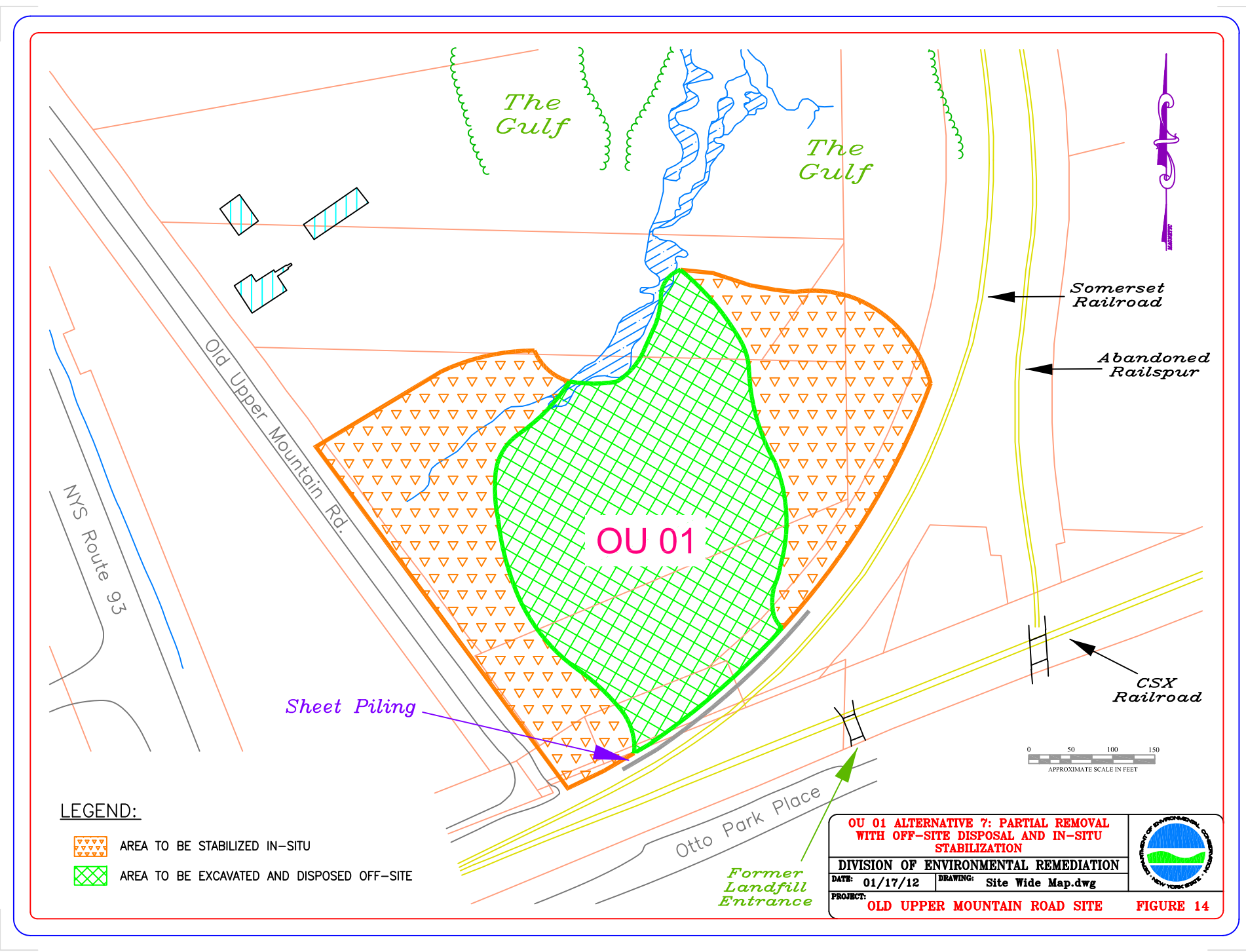
DATE: 01/17/12

DRAWING: Site Wide Map.dwg

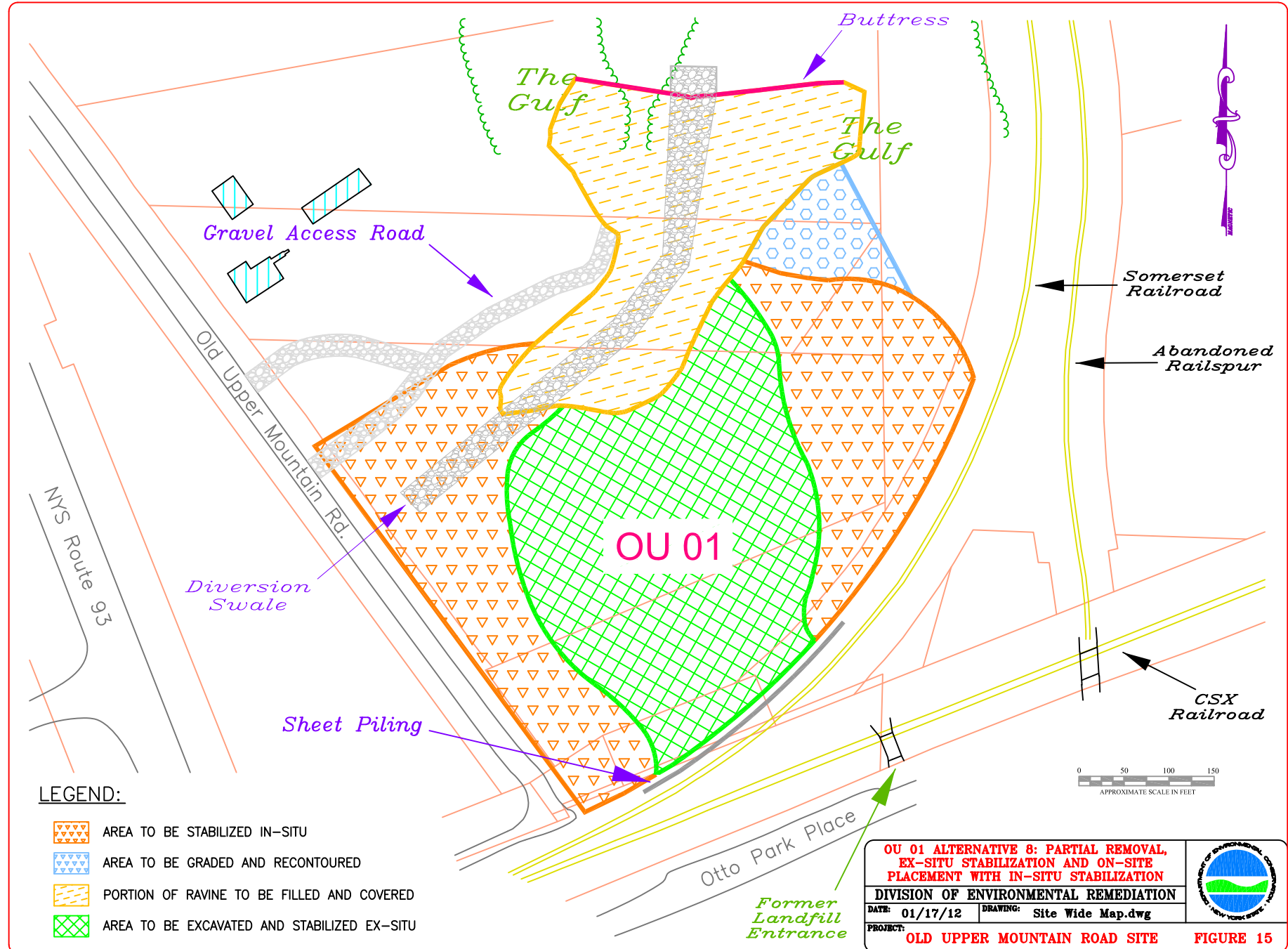
PROJECT: OLD UPPER MOUNTAIN ROAD SITE




**FIGURE 13**

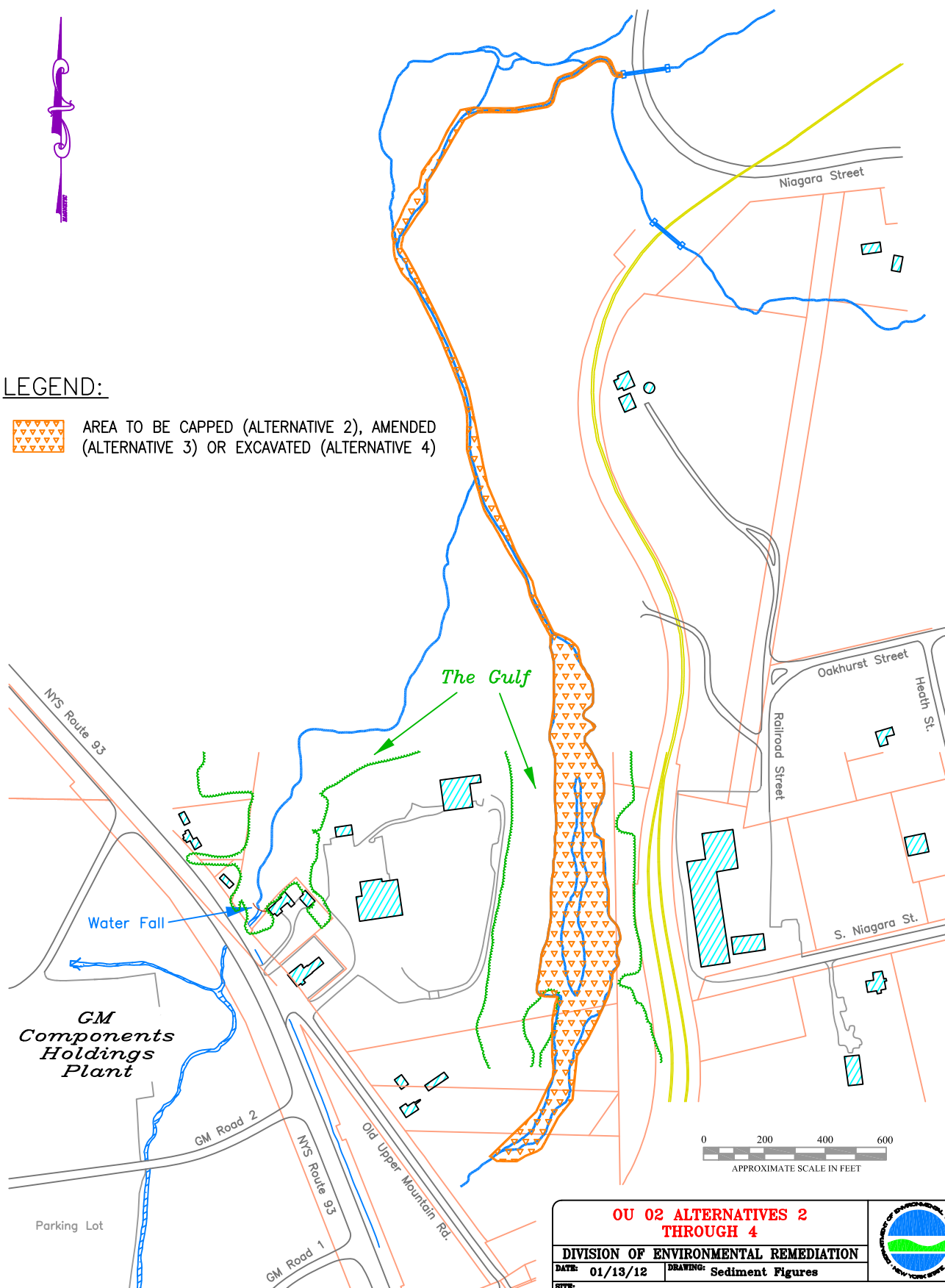






LEGEND:

 AREA TO BE CAPPED (ALTERNATIVE 2), AMENDED (ALTERNATIVE 3) OR EXCAVATED (ALTERNATIVE 4)



**OU 02 ALTERNATIVES 2  
THROUGH 4**

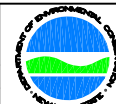
## DIVISION OF ENVIRONMENTAL REMEDIATION

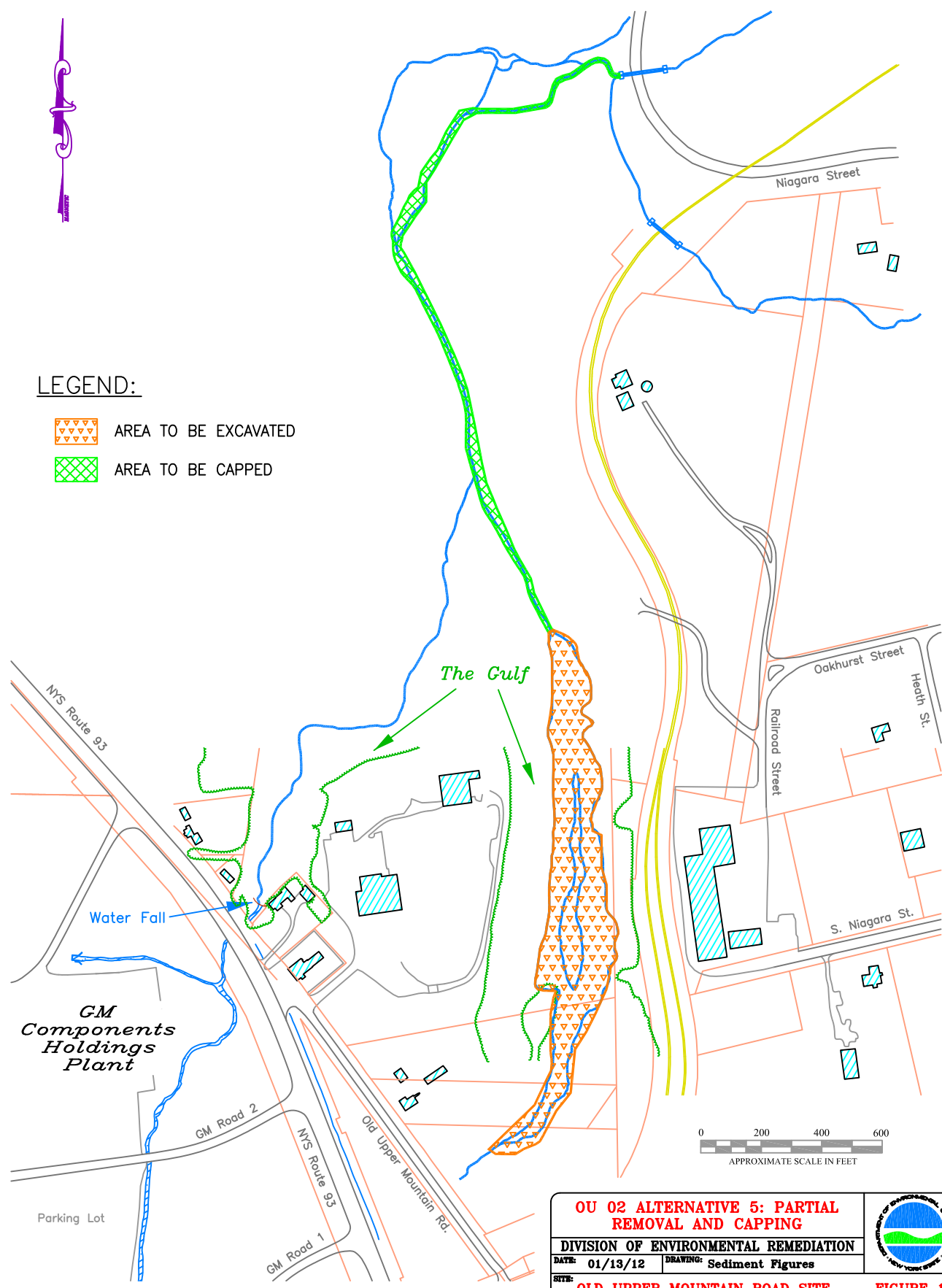
**DATE:** 01/13/12

**DRAWING: Sediment Figures**

**SITE:**

## OLD UPPER MOUNTAIN ROAD SITE

**FIGURE 16**



<b>OU 02 ALTERNATIVE 5: PARTIAL REMOVAL AND CAPPING</b>		
<b>DIVISION OF ENVIRONMENTAL REMEDIATION</b>		
DATE: 01/13/12	DRAWING: Sediment Figures	
SITE: OLD UPPER MOUNTAIN ROAD SITE		

**FIGURE 17**



# **APPENDIX A**

## **Responsiveness Summary**

# **Responsiveness Summary**

**Old Upper Mountain Road Site  
Operable Unit No. 01: Landfill - Old Upper Mountain Road Parcel and  
Operable Unit No. 02: Gulf Creek  
State Superfund Project  
Lockport, Niagara, New York  
Site No. 932112**

The Proposed Remedial Action Plan (PRAP) for Operable Units 01 and 02 of the Old Upper Mountain Road Site was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 27, 2013. The PRAP outlined the remedial measure proposed for contaminated waste, soil and groundwater at Operable Unit 01, and contaminated sediment at Operable Unit 03 of the Old Upper Mountain Road Site.

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

A public meeting was held on March 14, 2013, which included a presentation of the remedial investigation/feasibility study (RI/FS) for Operable Units 01 and 02 of the Old Upper Mountain Road Site as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions, and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 28, 2013.

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

**COMMENT 1:** Who is responsible for the remediation? How long will it take?

**RESPONSE 1:** An initial search for Potential Responsible Parties (PRPs) during the site listing process did not identify any viable PRPs, so it is possible this site will be referred to State Superfund for remediation. It is estimated that it will take 9 months over two construction seasons to complete the remediation of Operable Unit 01 (Landfill Capping with a modified Part 360 Cap - Extended Landfill Footprint) and 24 months to complete the remediation of Operable Unit 02 (Complete Removal with Disposal).

**COMMENT 2:** How long did it take to prepare these documents?

**RESPONSE 2:** The Old Upper Mountain Road Site was listed in the NYSDEC's Registry of Inactive Hazardous Waste Sites in August 2008. A State Superfund Remedial Investigation/Feasibility Study (RI/FS) began in August 2009, with a Supplemental RI completed in August 2010. The RI report was completed in May 2011, with the Supplemental RI report completed in October 2011. The FS report for Operable Unit 03 was completed in February 2012, with the FS report for Operable Units 01 and 02 completed in February 2013.

**COMMENT 3:** Is the incinerator ash at the site only from domestic waste?

**RESPONSE 3:** The presence of large quantities of glass bottles throughout the ash suggests that the source of the ash was primarily domestic waste. Evidence of industrial waste (e.g., drums, sludge) was not encountered during the Remedial Investigation.

**COMMENT 4:** What's going to happen with the air (unwanted particulates released into the air) when the site is remediated?

**RESPONSE 4:** During remediation of the Old Upper Mountain Road Site, a Community Air Monitoring Program (CAMP) will be followed during all ground-intrusive activities. This CAMP includes provisions for air monitoring of downwind communities. Dust control is generally accomplished through standard construction practices (e.g., dust suppression, such as water misting; minimizing disturbed areas to the extent practical, etc.). These controls will minimize potential health risks to remedial contractors and the surrounding community during the implementation of the selected remedial alternatives.

**COMMENT 5:** Is there a chance to video tape the sewer that needs to be realigned while NYSDEC is completing the remediation of Operable Unit 2?

**RESPONSE 5:** The need for videotaping the sewer will be assessed as part of the remedial design.

**COMMENT 6:** Would you want someone to break up the beaver dams before remediation starts?

**RESPONSE 6:** The presence of several beaver dams in Gulf Creek between Operable Unit 1 and Niagara Street appears to be preventing the migration of contaminated sediment further down the creek. The need to retain or dismantle (and the timing of such action) the beaver dams will be assessed as part of the remedial design and will incorporate appropriate procedures identified by the Department's Division of Fish, Wildlife and Marine Resources.

**COMMENT 7:** This was once a beautiful area, and it will be great to have it restored. Once remediation is complete, will the area be open to the public?

**RESPONSE 7:** The land surrounding Gulf Creek is currently owned by the City of Lockport and several private individuals. While the landfill area may be restricted to prevent damage to the cap, the use and access to remaining areas of Gulf Creek that were remediated will be up to the individual property owners, although no restrictions on such access are required by the ROD.

Bill Rutland, President AFSCME Local 182, submitted a letter dated March 26, 2013 that included the following comment:

**COMMENT 8:** My only concern is the fact that Gulf Creek will only be de-contaminated downstream to the Niagara Street Bridge. It is very obvious that further contamination would have settled downstream from the Old Upper Mountain Road Site to the intersection of Gulf Creek and Eighteenmile Creek. Please consider the further north expansion of the Old Upper Mountain Road Site to include the stretch of Gulf Creek from the Niagara Street Bridge to Eighteenmile Creek.

**RESPONSE 8:** Sediment samples in Gulf Creek between Niagara Street and Eighteenmile Creek were collected by the United States Environmental Protection Agency (USEPA) as part of the Eighteenmile Creek Legacy Act investigation. The remediation of this section of Gulf Creek will be completed by the USEPA as part of the Eighteenmile Creek NPL Site.

Dorisann Csizmar sent an e-mail dated March 28, 2013, which included the following comments:

**COMMENT 9:** Cleanup should be targeted toward the highest allowable future use - Unrestricted Use with no Easement. If funding is going to be allocated for cleanup, it should be done to fully remediate the site(s) and present it worthy of redevelopment.

**RESPONSE 9:** OU 01 Alternative 2 (Complete Removal with Off-Site Disposal) and OU 01 Alternative 3 (Ex-Situ Stabilization with Off-Site Disposal) are the two alternatives evaluated that would remediate the site to unrestricted use. These alternatives were subject to a detailed analysis and, as explained in the Feasibility Study and summarized in Exhibit D, are not preferred for a number of factors including, but not limited to, implementability and cost.

**COMMENT 10:** The remediation alternative mentions long-term monitoring and maintenance. What type of monitoring is implied? Monitoring wells? And, is the city willing to accept maintenance responsibility for grounds and grass?

**RESPONSE 10:** Long-term monitoring includes the periodic sampling and analysis of sediment, surface water, biota, groundwater and the creek restoration actions to assess the performance and effectiveness of the remedy. Long-term maintenance includes periodic inspections of the cap, repairs when required, and annual mowing. To date, the City of Lockport has not been approached about any site management responsibility at the site.

**COMMENT 11:** If the area is to be fenced with exclusions for use, then the effort for proposed cleanup has an unfavorable limited objective.

**RESPONSE 11:** Certain restrictions on use are required (e.g., excavation plan) as is the case with many remedial programs, to ensure the long-term effectiveness of the remedy. Permissible uses include passive recreational uses, which are public uses with limited potential for soil contact, such as hiking trails. Fencing is not an element of the selected remedy; however, it is not precluded should a property owner or the City find it necessary or desirable to restrict access to the site to prevent illegal dumping given its isolated location.

**COMMENT 12:** What is the success rate for same type of suggested remediation in other areas of Western New York?

**RESPONSE 12:** Construction of Part 360 or modified Part 360 caps have been implemented at many sites in Western New York and throughout the State. With proper site management, including groundwater monitoring and inspections of the cap system, experience at these sites demonstrates that the caps remain protective of public health and the environment.

# **APPENDIX B**

## **Administrative Record**

# **Administrative Record**

**Old Upper Mountain Road Site  
Operable Unit No. 01: Landfill - Old Upper Mountain Road Parcel and  
Operable Unit No. 02: Gulf Creek  
State Superfund Project  
Lockport, Niagara, New York  
Site No. 932112**

1. "Proposed Remedial Action Plan for the Old Upper Mountain Road Site, Operable Unit Number 01: Landfill - Old Upper Mountain Road Parcel and Operable Unit Number 02: Gulf Creek", dated February 2013, prepared by the Department.
2. "Site Investigation Report for the Old Upper Mountain Road Site", dated December 2007, prepared by the Department.
3. "Remedial Investigation/Feasibility Study Work Plan for the Old Upper Mountain Road Site (932112), Niagara County, Lockport, New York", dated November 2009, prepared by EA Engineering, P.C. and its Affiliate EA Science and Technology.
4. "Final Field Investigation Report for the Old Upper Mountain Road Site (932112), Niagara County, Lockport, New York", dated March 2010, prepared by EA Engineering, P.C. and its Affiliate EA Science and Technology.
5. "Remedial Investigation Report for the Old Upper Mountain Road Site (932112), Lockport, Niagara County, New York", dated April 2011, prepared by EA Engineering, P.C. and its Affiliate EA Science and Technology.
6. Supplemental Remedial Investigation Report for the Old Upper Mountain Road Site (932112), Lockport, Niagara County, New York", dated August 2011, prepared by EA Engineering, P.C. and its Affiliate EA Science and Technology.
7. "Final Feasibility Study Report for Operable Units 1 and 2 of the Old Upper Mountain Road (932112), Lockport, New York", dated February 2013, prepared by EA Engineering, P.C. and its Affiliate EA Science and Technology.
8. Letter dated March 26, 2013 from Mr. Bill Rutland, President AFSCME Local 182.
9. E-Mail dated March 28, 2013 from Dorisann Csizmar.