PROPOSED REMEDIAL ACTION PLAN

Old Upper Mountain Road Site
Operable Unit Number: 03
State Superfund Project
Lockport, Niagara County
Site No. 932112
February 2012

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

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of hazardous wastes at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy.

The 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 Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York; (6 NYCRR) Part 375. This document is a summary of the information that can be found in the site-related reports and documents in the document repository identified below.

SECTION 2: CITIZEN PARTICIPATION

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

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

A public comment period has been set from:

2/27/2012 to 3/27/2012

A public meeting is scheduled for the following date:

3/15/2012 at 6:30 PM

Public meeting location:

Lockport City Hall

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

Written comments may also be sent through 3/27/2012 to:

Glenn May
NYS Department of Environmental Conservation
Division of Environmental Remediation
270 Michigan Ave
Buffalo, NY 14203-2915
gmmay@gw.dec.state.ny.us

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

Receive Site Citizen Participation Information By Email

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

SECTION 3: SITE DESCRIPTION AND HISTORY

Location:

The Old Upper Mountain Road Site consists of fifteen parcels near the intersection of NY State

Routes 31 and 93 in both the City and Town of Lockport, Niagara County, New York. The total area of the site is approximately 7 acres 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 railspur, and on the north by residential property and a steep ravine, known as The Gulf. The fifteen parcels are owned by eight individuals, municipalities and corporations.

Site Features:

The Old Upper Mountain Road Site is 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 into The Gulf, and 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, flows from a culvert along the bottom of the ravine and eventually discharges into Eighteenmile Creek approximately one mile to the northeast.

Current Zoning/Use:

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 Sediment, and OU 03: Landfill - Otto Park Place Parcel. OUs 01 and 03 are the former landfill that is separated into two parcels 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 railspur. 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.

Site History:

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. Clientele allegedly included Harrison Radiator, VanDeMark Chemical, Milward Alloys, Vanchlor, Upson, and Cotton Batting.

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 Investigation at OUs 01 and 03. Incinerator ash was found throughout the site at thicknesses ranging to over 36 feet. Thirteen samples of this ash failed the Toxicity Characteristic Leaching Procedure (TCLP) Regulatory Limit for lead, indicating that characteristic hazardous waste (D008) was present at the site. This ash also contained elevated concentrations of SVOCs and other metals.

Site Geology and Hydrogeology:

Ash waste consisting primarily of white to gray ash containing metal, glass, rock, ceramic, coal, and brick/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 8 feet at OU 03, and from 4.5 to 78 feet at OU 01. 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 240,000 cubic yards; 10,000 cubic yards of the total volume is found at OU 03.

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 a layer of 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.

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, into the ravine, then down the ravine to discharge into Gulf Creek.

Operable Unit (OU) Number 03 is the subject of this document.

A Record of Decision has yet to be issued for OU 01,02.

A site location map is attached as Figure 1.

SECTION 4: LAND USE AND PHYSICAL SETTING

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

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site

contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: ENFORCEMENT STATUS

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

No PRPs have been documented to date.

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.

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 Information

The analytical data collected on this site includes data for:

- groundwater
- soil

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 for this Operable Unit at this site is/are:

ARSENIC	ZINC
BARIUM	SELENIUM
CADMIUM	BENZ(A)ANTHRACENE
CHROMIUM	BENZO(A)PYRENE
COPPER	BENZO(B)FLUORANTHENE
LEAD	BENZO[K]FLUORANTHENE
MERCURY	CHRYSENE
NICKEL	DIBENZ[A,H]ANTHRACENE
SILVER	INDENO(1,2,3-CD)PYRENE

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

- soil

6.2: Interim Remedial Measures

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

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

6.3: Summary of 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.

6.4: Summary of Environmental Assessment

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

The Fish and Wildlife Resources Impact Analysis (FWRIA) for OU 03, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

The Fish and Wildlife Impact Analysis identified the following environmental exposure pathways and ecological risks at OU 03 from metals, and to a lesser extent, semivolatile organic compounds: (1) dermal contact of contaminated soil/waste by terrestrial organisms; (2) inhalation of contaminated soil/waste by terrestrial organisms; and (3) ingestion of contaminated soil/waste by terrestrial organisms.

6.5: Summary of the Remediation Objectives

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

The remedial action objectives for this site are:

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

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

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

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

Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the 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 proposed remedy is set forth at Exhibit D.

The estimated present worth cost to implement the remedy is $446,000. The cost to construct the remedy is estimated to be $345,000 and the estimated average annual cost is $3,500.

The elements of the proposed remedy are as follows:

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

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

2. Landfill Capping with a Clean Soil Cover. This alternative consists of the construction of a clean soil cover over ash waste that exceeds the unrestricted soil cleanup objectives. A site cover will be required to allow for commercial use of the site. The cover will consist either of the structures such as buildings, pavement, sidewalks comprising the site development or a soil cover in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where the soil cover is required it will be a minimum of one foot of soil, meeting the SCOs for cover material as set forth in 6 NYCRR Part 375-6.7(d) for commercial use. The soil cover will be placed over a demarcation layer, with the upper six

inches of the soil of sufficient quality to maintain a vegetation layer. Any fill material brought to the site will meet the requirements for the identified site use as set forth in 6 NYCRR Part 375-6.7(d).

3. 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 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.

4. A Site Management Plan is required, which 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 3 above; and
(b) Engineering Controls: The clean soil cover discussed in Paragraph 2 above.
This plan includes, but may not be limited to:
(a) An Excavation Plan that details the provisions for management of future excavations in areas of remaining contamination;
(b) Descriptions of the provisions of the environmental easement including any land use and groundwater restrictions;
(c) Provisions for the management and inspection of the identified engineering controls;
(d) Maintaining site access controls and Department notification; and
(e) 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 groundwater to assess the performance and effectiveness of the remedy; and
(b) A schedule of monitoring and frequency of submittals to the Department.

Exhibit A

Nature and Extent of Contamination

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

For each medium, 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: 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 fill of OU 03. 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 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. 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 03. 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. Ten waste samples were also analyzed for the characteristics of hazardous waste using the Toxicity Characteristic Leaching Procedure (TCLP). These results reveal that some ash at OU 03 is a characteristic hazardous waste for lead (D008; Figure 6).

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

Table 1 - Waste (OU 03)

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted SCG[c] (ppm)	Frequency Exceeding Restricted SCG
SVOCs					
Benzo(a)anthracene	0.33 – 20	1	4 of 7	5.6	1 of 7
Benzo(a)pyrene	0.29 – 15	1	4 of 7	1	4 of 7
Benzo(b)fluoranthene	0.45 – 21	1	4 of 7	5.6	1 of 7
Benzo(k)fluoranthene	0.15 – 7.5	0.8	3 of 7	56	0 of 7
Chrysene	0.37 – 18	1	4 of 7	56	0 of 7
Dibenzo(a,h)anthracene	ND – 4	0.33	4 of 7	0.56	1 of 7
Indeno(1,2,3-cd)pyrene	0.26 – 10	0.5	4 of 7	5.6	1 of 7
Metals					
Arsenic	7.4 – 52	13	9 of 14	16	6 of 14
Barium	100 – 1,300	350	9 of 14	400	9 of 14
Cadmium	1.2 – 31	2.5	9 of 14	9.3	3 of 14
Chromium	15 – 580	30	8 of 14	1,500	0 of 14
Copper	59 – 45,000	50	14 of 14	270	11 of 14
Lead	220 – 23,000	63	14 of 14	1,000	10 of 14
Mercury	0.23 – 6.9	0.18	14 of 14	2.8	2 of 14
Nickel	18 – 400	30	10 of 14	310	1 of 14
Selenium	ND – 7.2	3.9	4 of 14	1,500	0 of 14
Silver	ND – 130	2	7 of 14	1,500	0 of 14
Zinc	540 – 8,800	109	13 of 14	10,000	0 of 14

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 the single bedrock monitoring well installed at OU 03 (Figure 7) to determine if the ash waste at this operable unit was adversely impacting site groundwater. The contaminants of concern in site groundwater include VOCs and metals. Of these compounds, only the concentrations of 1,1-dichloroethane, 1,1-dichloroethene, chloroethane, iron and sodium exceeded the NYSDEC groundwater standards (Table 2).

It is important to note that the volatile organic compounds (VOCs) detected in groundwater at OU 03 were not detected in the ash samples collected from this operable unit. The absence of VOCs in the ash waste at OU 03 suggests an off-site source for the groundwater contamination. Therefore, the VOCs found in groundwater are not considered site specific contaminants of concern. In addition, iron and sodium are naturally occurring, and do not appear to be site related. Concentrations of these metals likely represent background concentrations in this area of Lockport.

No site-related groundwater contamination of concern was identified at OU 03 during the RI. Therefore, no remedial alternatives need to be evaluated for groundwater.

Table 2 – Groundwater (OU 03)

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
1,1-Dichloroethane	48 – 63	5	2 of 2
1,1-Dichloroethene	7.5 – 11	5	2 of 2
Chloroethane	7.6 – 8.7	5	2 of 2
Metals			
Iron	ND – 460	300	1 of 2
Sodium	65,000 – 67,000	20,000	2 of 2

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

Two surface soil samples (0-2 inches depth) were collected from OU 03 during the RI to assess direct human exposure to the ash waste (Figure 3). The results for these samples are summarized in Table 3. Subsurface soil samples were not collected from this operable unit during the RI.

The primary contaminants of concern in surface soil at OU 03 include metals, and to a much lesser degree SVOCs (Table 3). The SVOCs detected consisted primarily of the same PAHs detected in the ash (Table 3; Figure 4). Surface soil samples at OU 03 that exceeded the NYSDEC Part 375 commercial soil cleanup objectives for SVOCs are shown on Figure 5.

The same metals in the ash were the predominant contaminants detected in surface soil at OU 03. 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. One surface soil sample was also analyzed for the characteristics of hazardous waste by TCLP. These results reveal that some surface soil at OU 03 is a characteristic hazardous waste for lead (D008; Figure 6).

Table 3 - Surface Soil (OU 03)

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted SCG[c] (ppm)	Frequency Exceeding Restricted SCG
SVOCs					
Benzo(a)anthracene	0.51 – 1.3	1	1 of 2	5.6	0 of 2
Benzo(a)pyrene	0.49 – 1.3	1	1 of 2	1	1 of 2
Benzo(b)fluoranthene	1 – 2.3	1	1 of 2	5.6	0 of 2
Chrysene	0.63 – 1.5	1	1 of 2	56	0 of 2
Dibenzo(a,h)anthracene	0.15 – 0.41	0.33	1 of 2	0.56	0 of 2
Indeno(1,2,3-cd)pyrene	0.3 – 0.85	0.5	1 of 2	5.6	0 of 2
Metals					
Arsenic	28 – 40	13	2 of 2	16	2 of 2
Barium	450 – 980	350	2 of 2	400	2 of 2
Cadmium	3.7 – 3.8	2.5	2 of 2	9.3	0 of 2
Chromium	45 (both samples)	30	2 of 2	1,500	0 of 2
Copper	360 – 460	50	2 of 2	270	2 of 2
Lead	900 – 2,800	63	2 of 2	1,000	1 of 2
Mercury	0.46 – 1	0.18	2 of 2	2.8	0 of 2

Nickel	48 (both samples)	30	2 of 2	310	0 of 2
Selenium	ND – 8.4	3.9	1 of 2	1,500	0 of 2
Silver	ND – 2.3	2	1 of 2	1,500	0 of 2
Zinc	1,000 – 2,100	109	2 of 2	10,000	0 of 2

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 03 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 metals, and to a lesser degree, semivolatile organic compounds.

Surface Water and Sediment

There are no surface water bodies or ditches in the vicinity of OU 03. As a result, surface water and sediment samples were not collected during the RI.

Exhibit B

Description of Remedial Alternatives

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

Alternative 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.

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:.....*$44,000*
Capital Cost:.....*$38,000*
Annual Costs:.....*$400*

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 03 that exceeds the unrestricted soil cleanup objectives. The area to be excavated is shown on Figure 8. 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.

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 the site.

The excavated area of OU 03 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 03 under this alternative, institutional controls and long-term monitoring are not required.

The time required to complete this alternative is estimated to be 3 months.

Present Worth:.....*$2,895,000*
Capital Cost:.....*$2,895,000*
Annual Costs:.....*$0*

Alternative 3: Landfill Capping with a Part 360 Cap

This alternative consists of the construction of a multi-layer cap (Part 360 cap) over ash waste at OU 03 that exceeds the unrestricted soil cleanup objectives to prevent direct contact exposures and the leaching of lead from the waste. The area to be capped is shown on Figure 9. 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.

Since contaminated waste will remain at OU 03 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 from wells. 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 2 months. Long-term monitoring would continue for 30 years.

Present Worth:.....*$663,000*
Capital Cost:.....*$562,000*
Annual Costs:.....*$3,500*

Alternative 4: In-Situ Stabilization

This alternative consists of the in-situ treatment of ash at OU 03 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. The area to be stabilized in-situ is shown on Figure 10.

The stabilized mass at OU 03 will be covered with 6 inches of topsoil and planted with native grasses and/or shrubs.

Since contaminated waste will remain at OU 03 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 2 months. Long-term monitoring will continue for 30 years.

Present Worth:.....*$2,037,000*
Capital Cost:.....*$1,993,000*
Annual Costs:.....*$2,500*

Alternative 5: 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 03 will be staged on-site and stabilized prior to off-site disposal. The area to be excavated is shown on Figure 11. Ex-situ stabilization is a process that uses a stabilizing agent to bind contaminants in place to reduce their solubility 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 03 under this alternative, institutional controls and long-term monitoring are not required.

The time required to complete this alternative is estimated to be 3 months.

Present Worth:.....*$2,245,000*
Capital Cost:.....*$2,245,000*
Annual Costs:.....*$0*

Alternative 6: Landfill Capping with a Clean Soil Cover

This alternative consists of the construction of a 2-foot thick clean soil cover along with the placement of a demarcation layer over ash waste at OU 03 that exceeds the unrestricted soil cleanup objectives to prevent direct contact exposures. 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 3 (Figure 9). 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 03 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 from wells. Long-term costs associated with this alternative include periodic inspections of the cover and repairs when required.

The time required to complete this alternative is estimated to be 2 months. Long-term monitoring would continue for 30 years.

Present Worth:.....*$446,000*

Capital Cost:.....$345,000
Annual Costs:.....$3,500

Exhibit C

OU 03 Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1A: No Action	0	0	0
Alternative 1B: Site Management	38,000	400	44,000
Alternative 2: Complete Removal with Off-Site Disposal	2,895,000	0	2,895,000
Alternative 3: Landfill Capping with a Part 360 Cap	562,000	3,500	663,000
Alternative 4: In Situ Stabilization	1,993,000	2,500	2,037,000
Alternative 5: Ex Situ Stabilization with Off-Site Disposal	2,245,000	0	2,245,000
Alternative 6: Landfill Capping with a Clean Soil Cover	345,000	3,500	446,000

Exhibit D

Summary of the Proposed Remedy

The Department is proposing the following alternative as the remedy for OU 03 of this site. The elements of this remedy are described in Section 7. The proposed remedy is shown in Figure 9.

- OU 3: Landfill – Otto Park Place Parcel: Alternative 6 – Landfill Capping with a Clean Soil Cover.

Basis for Selection

The proposed remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the 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.

Alternative 1A (No Action) does not satisfy this criterion as ash waste exceeding regulatory limits remains on-site and continues to present a significant threat to public health and the environment. The site also remains in its current state under 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 waste. As Alternatives 1A and 1B are not fully protective of public health and the environment they are not considered for implementation at OU 03 of the Old Upper Mountain Road Site.

Alternatives 2 (Complete Removal) and 5 (Ex-Situ Stabilization) satisfy this criterion completely by removing all ash waste that exceeds the unrestricted soil cleanup objectives. The stabilization process of Alternative 5 reduces the solubility or mobility of contaminants, and also reduces disposal costs. Alternatives 3 (Landfill Capping with a Part 360 Cap), 4 (In-Situ Stabilization) and 6 (Landfill Capping with a Clean Soil Cover) also satisfy this criterion, although ash waste remains on-site under both 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.

Alternatives 2 (Complete Removal) and 5 (Ex-Situ Stabilization) satisfy this criterion by removing all ash waste that exceeds the unrestricted soil cleanup objectives. Alternatives 3 (Landfill Capping with a Part 360 Cap), 4 (In-Situ Stabilization) and 6 (Landfill Capping with a Clean Soil Cover) also

satisfy this criterion, with the waste capped under Alternatives 3 and 6, or stabilized in place under Alternative 4. Because Alternatives 2, 3, 4, 5, and 6 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for OU 03.

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

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

Alternatives 2 (Complete Removal) and 5 (Ex-Situ Stabilization) satisfy this criterion the most 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. Alternatives 3 (Landfill Capping with a Part 360 Cap), 4 (In-Situ Stabilization) and 6 (Landfill Capping with a Clean Soil Cover) also satisfy this criterion, although these alternatives require environmental easements, long-term monitoring and long-term maintenance to ensure their effectiveness.

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

Alternatives 2 (Complete Removal) and 5 (Ex-Situ Stabilization) reduce the toxicity, mobility and volume of contaminants by removing all ash waste that exceeds the unrestricted soil cleanup objectives. This waste is stabilized prior to off-site disposal under Alternative 5, and segregated (hazardous versus non-hazardous) for off-site disposal under Alternative 2. The mobility of the on-site waste is reduced under Alternatives 3 (Landfill Capping with a Part 360 Cap), 4 (In-Situ Stabilization) and 6 (Landfill Capping with a Clean Soil Cover) by the construction of a multi-layer cap system (Alternative 3), in-situ stabilization (Alternative 4), or construction of a clean soil cover. While mobility is reduced less under Alternative 6, the absence of groundwater contamination at OU 03 indicates that leaching of contaminants from the ash at this operable unit is not occurring.

5. Short-Term Impacts and Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternatives 2 through 6 involve the excavation, grading and handling of contaminated waste to varying degrees. 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 03 is the shortest for Alternatives 3, 4 and 6 (2 months), and the longest for Alternatives 2 and 5 (3 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.

Alternatives 2 through 6 are implementable to varying degrees. There is ample availability and capacity of remedial contractors and equipment to: (1) complete the excavation activities of Alternatives 2 and 5; (2) construct the multi-layer cap system of Alternative 3; (3) complete the in-situ stabilization of Alternative 4; (4) complete the ex-situ stabilization of Alternative 5; and (5) construct the clean soil cover of Alternative 6. In addition, the earthwork and transportation technologies necessary for the implementation of these alternatives are proven and reliable.

Alternative 2 (Complete Removal) includes the segregation of hazardous from non-hazardous waste during excavation activities. Segregation may prove difficult, however, as the hazardous ash occurs randomly across OU 03 (Figure 6), is not found in distinct layers, nor is it visually different from the non-hazardous ash.

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

Alternative 6 (Landfill Capping with a Clean Soil Cover) has the lowest cost for OU 03, followed by Alternative 3 (Landfill Capping with a Part 360 Cap). Alternatives 2 (Complete Removal), 4 (In-Situ Stabilization) and 5 (Ex-Situ Stabilization) have similar costs, but Alternative 4 requires an environmental easement, long-term monitoring and long-term maintenance to ensure its effectiveness. Alternatives 3 and 6 also require an environmental easement, long-term monitoring and long-term maintenance.

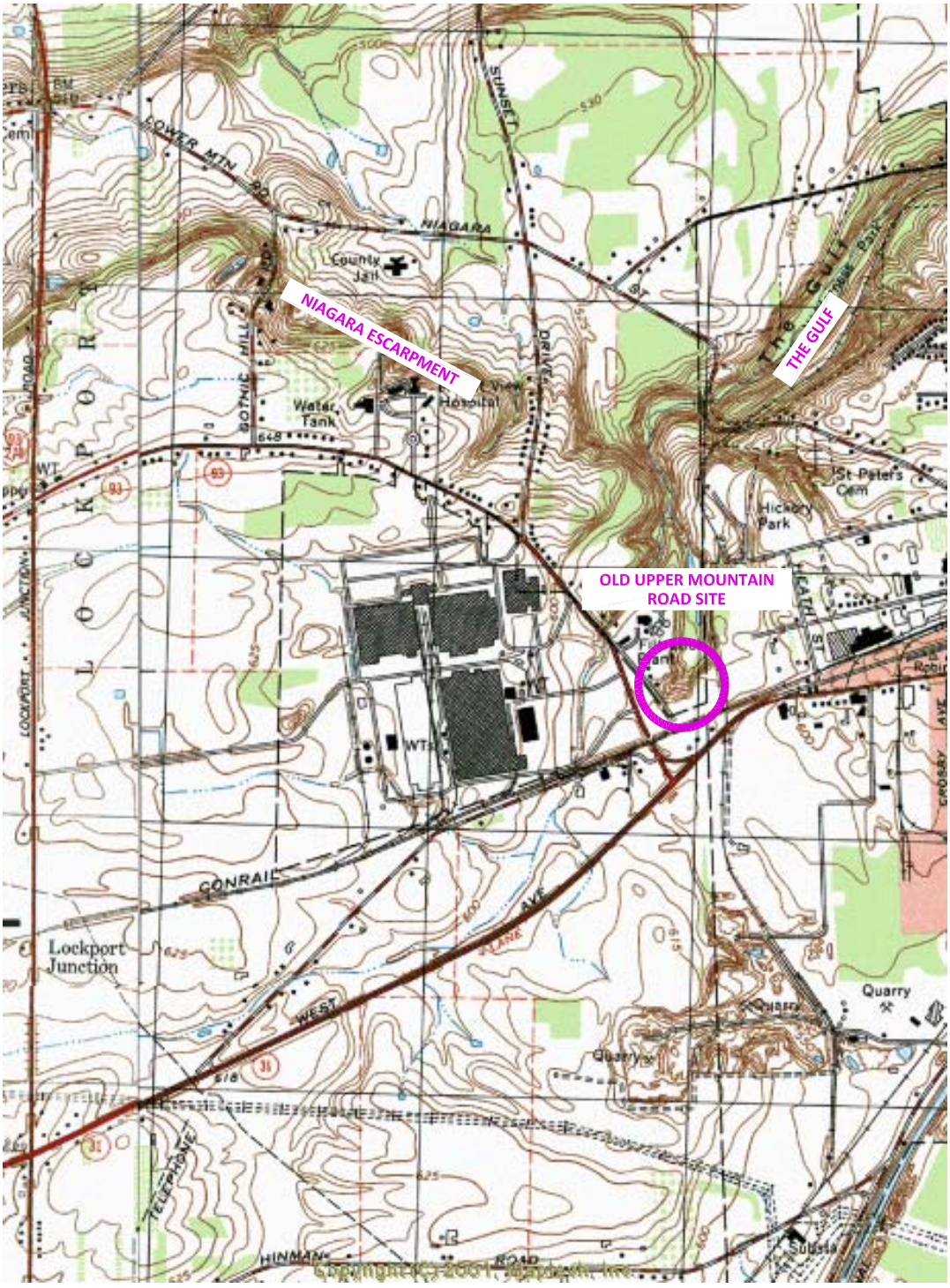
8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

OU 03 consists of several parcels that are zoned for commercial and public utility use. All parcels are landlocked and surrounded by active and abandoned rail lines. As a result, future redevelopment of this operable unit is limited regardless of the remedy selected.

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 6 is being proposed for OU 03 because, as described above, it satisfies the threshold criteria and provides the best balance of the remaining criterion.



Cambria & Lockport Quadrangles

Scale Depends on Final Plotted Size

SITE LOCATION MAP

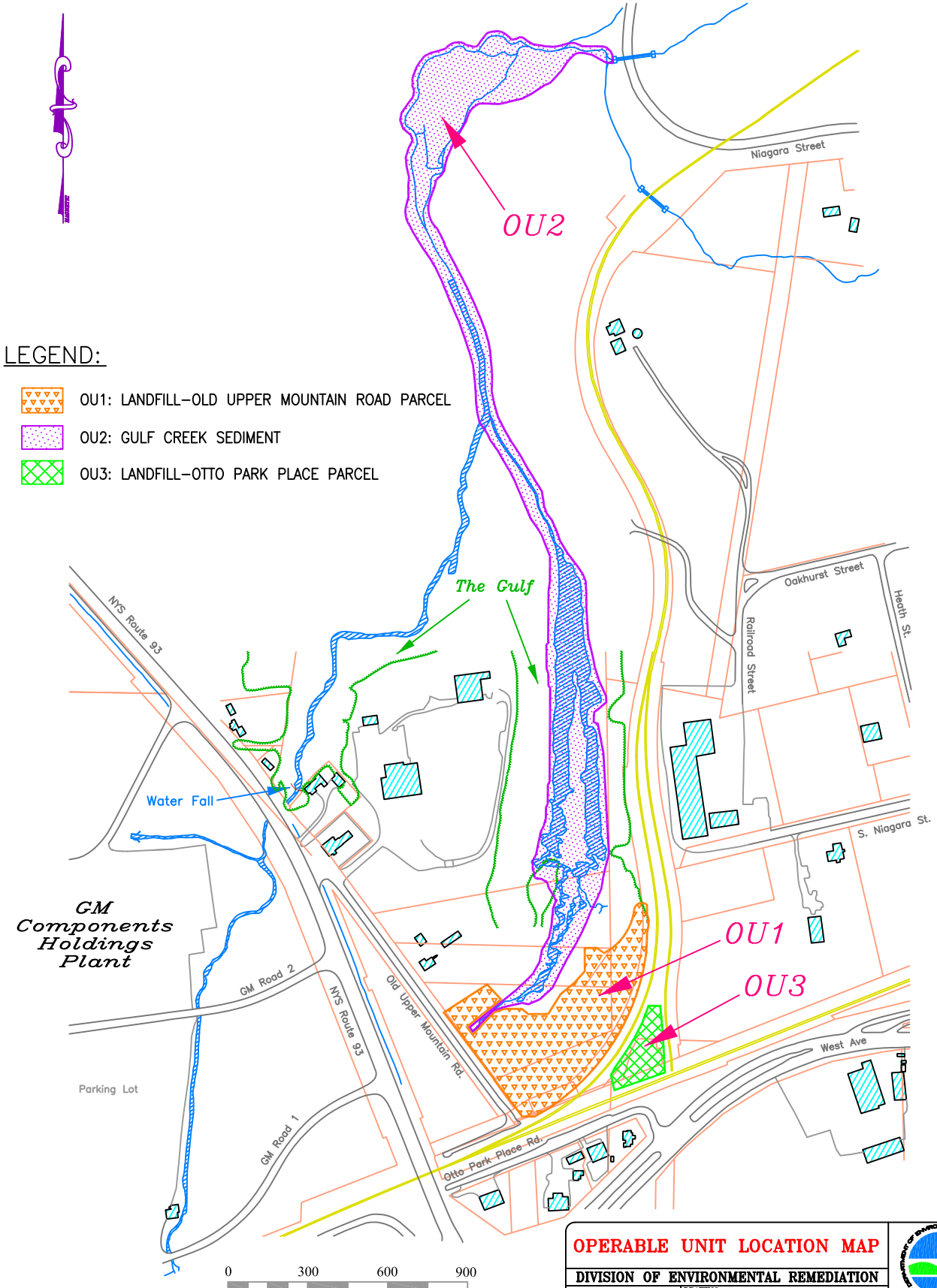
DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 06/21/11

DRAWING: Site Location Map.dwg

SITE: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 1



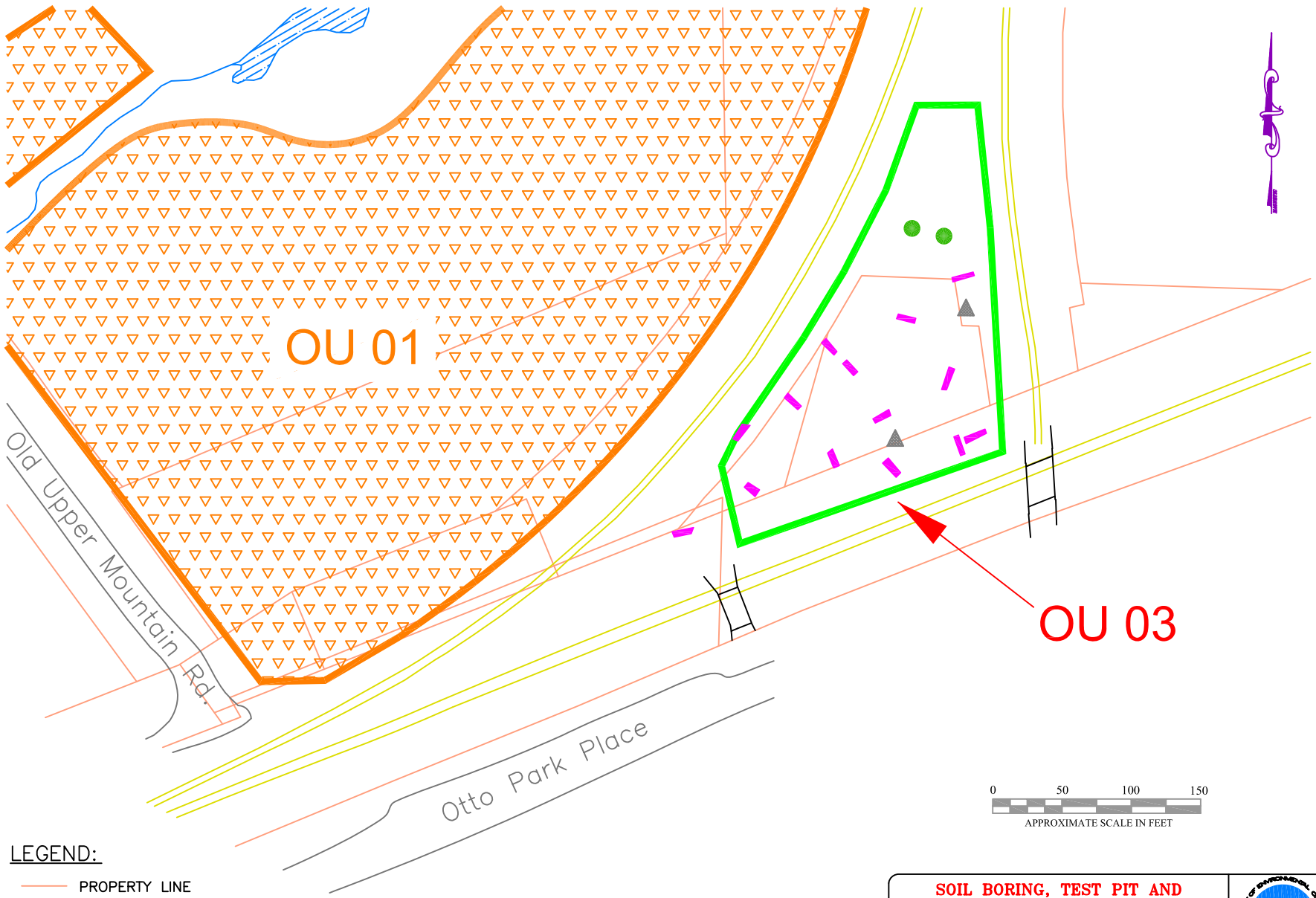
OPERABLE UNIT LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/13/12 | DRAWING: OU Designation Map

SITE: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 2



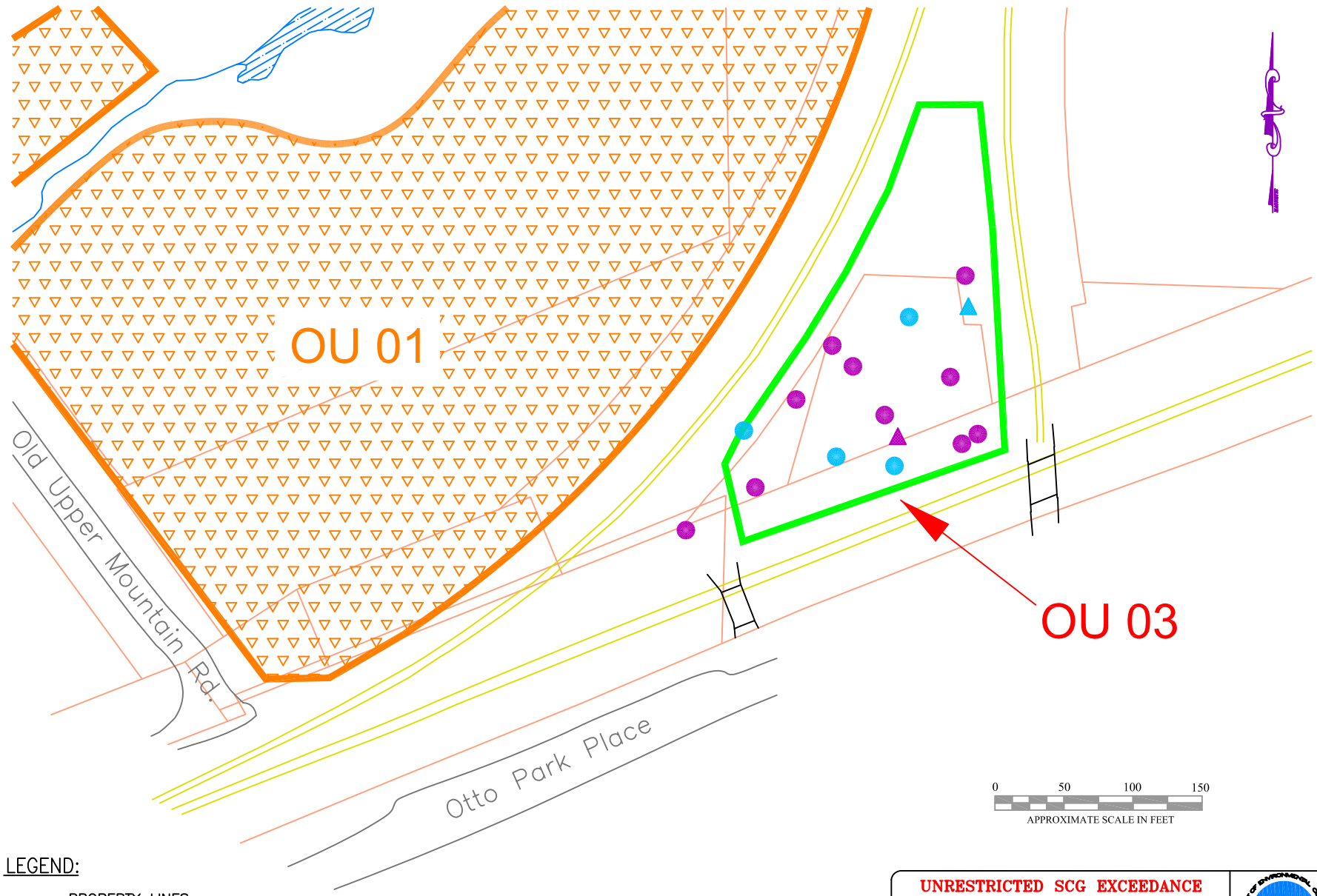
SOIL BORING, TEST PIT AND SAMPLE LOCATION MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 3



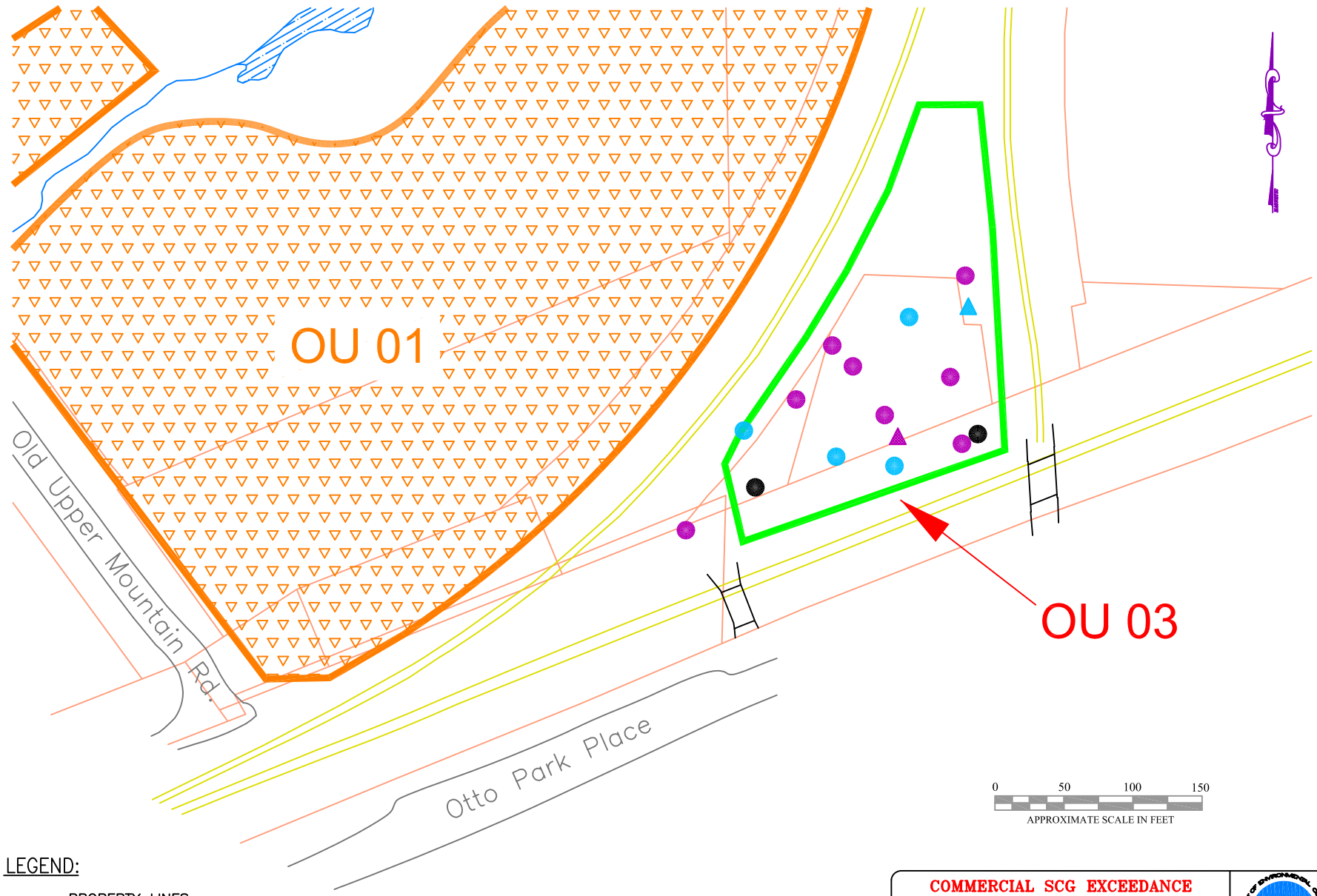
UNRESTRICTED SCG EXCEEDANCE MAP FOR OU 03

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 4



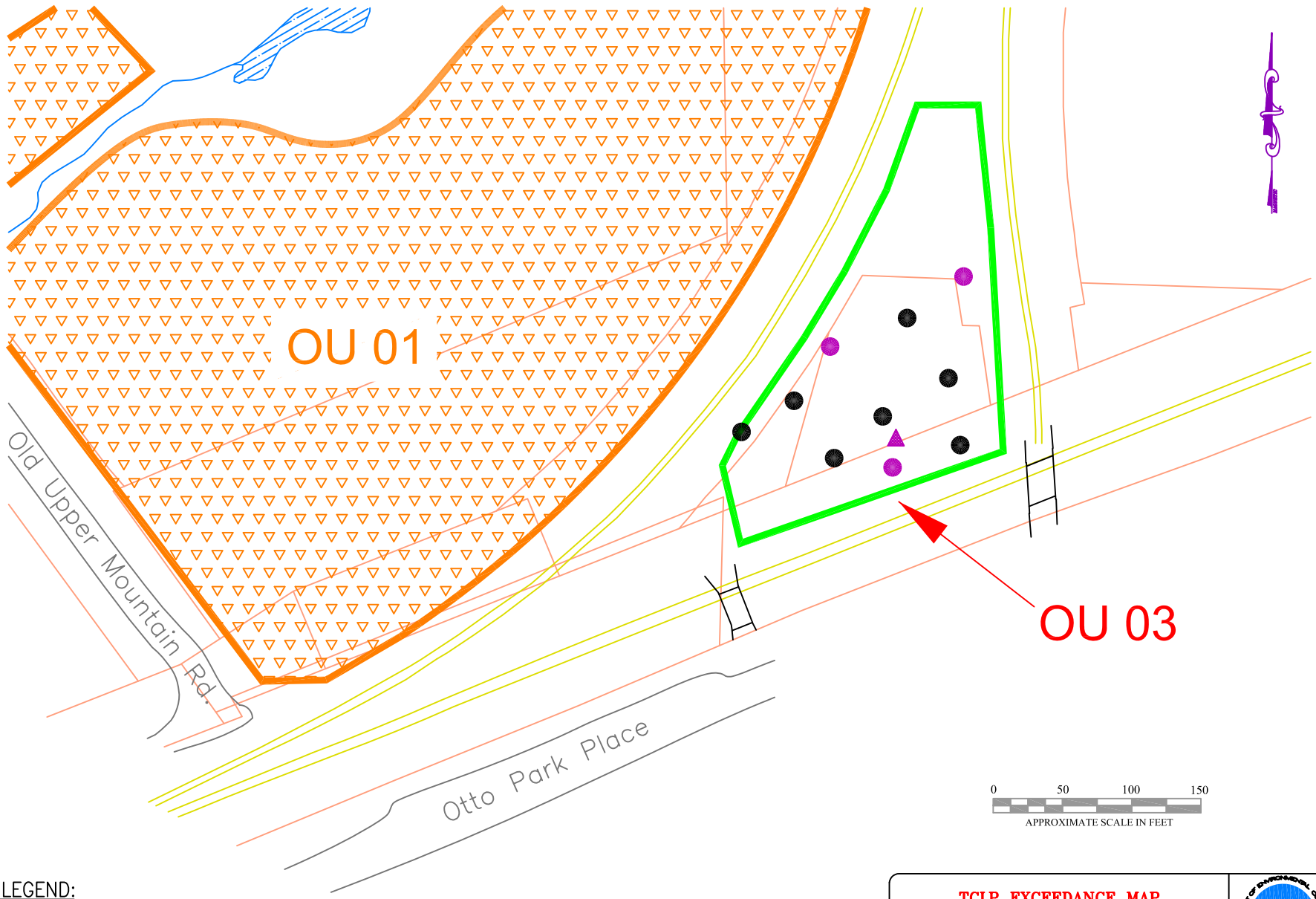
COMMERCIAL SCG EXCEEDANCE MAP FOR OU 03

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 5



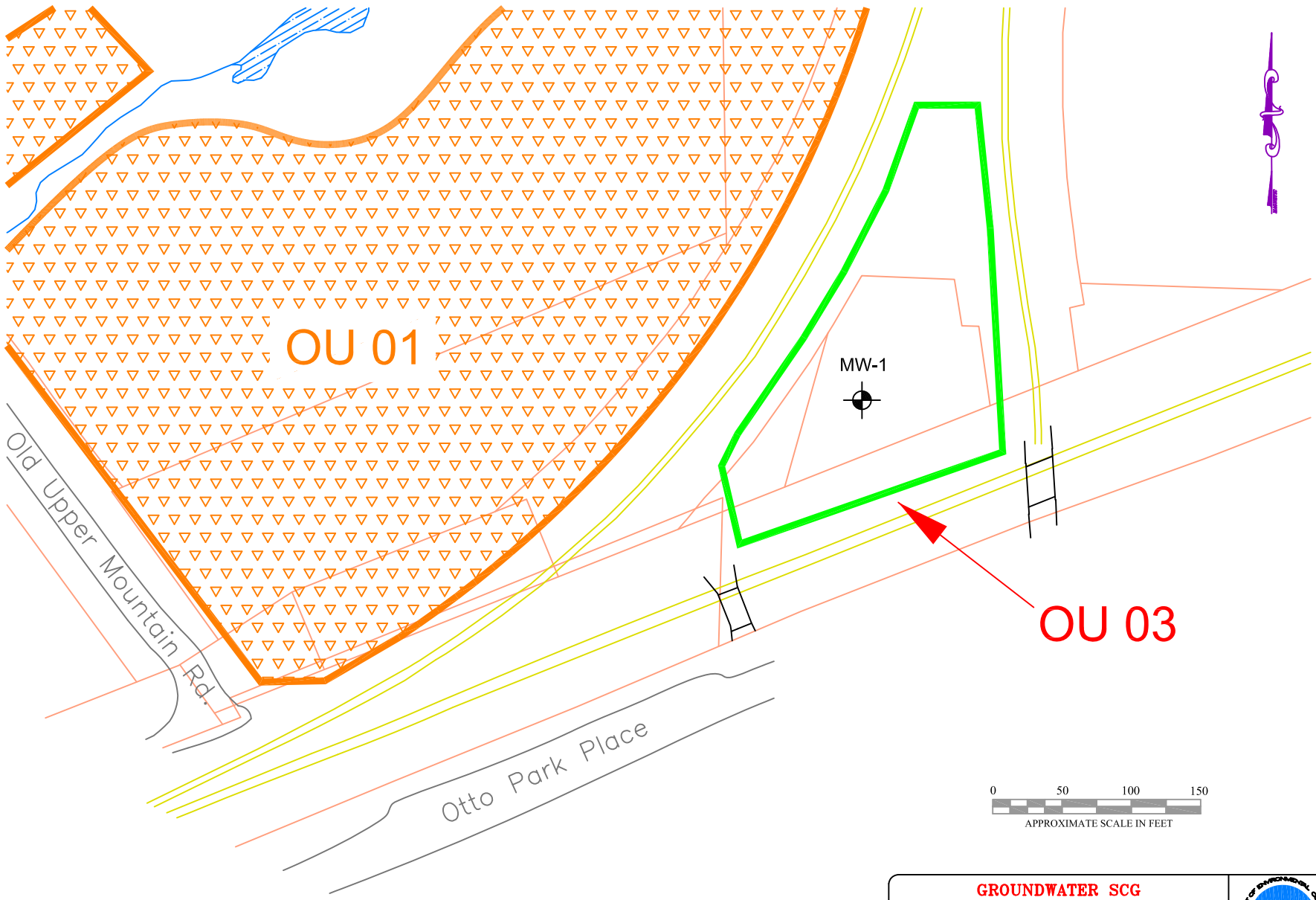
TCLP EXCEEDANCE MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 6



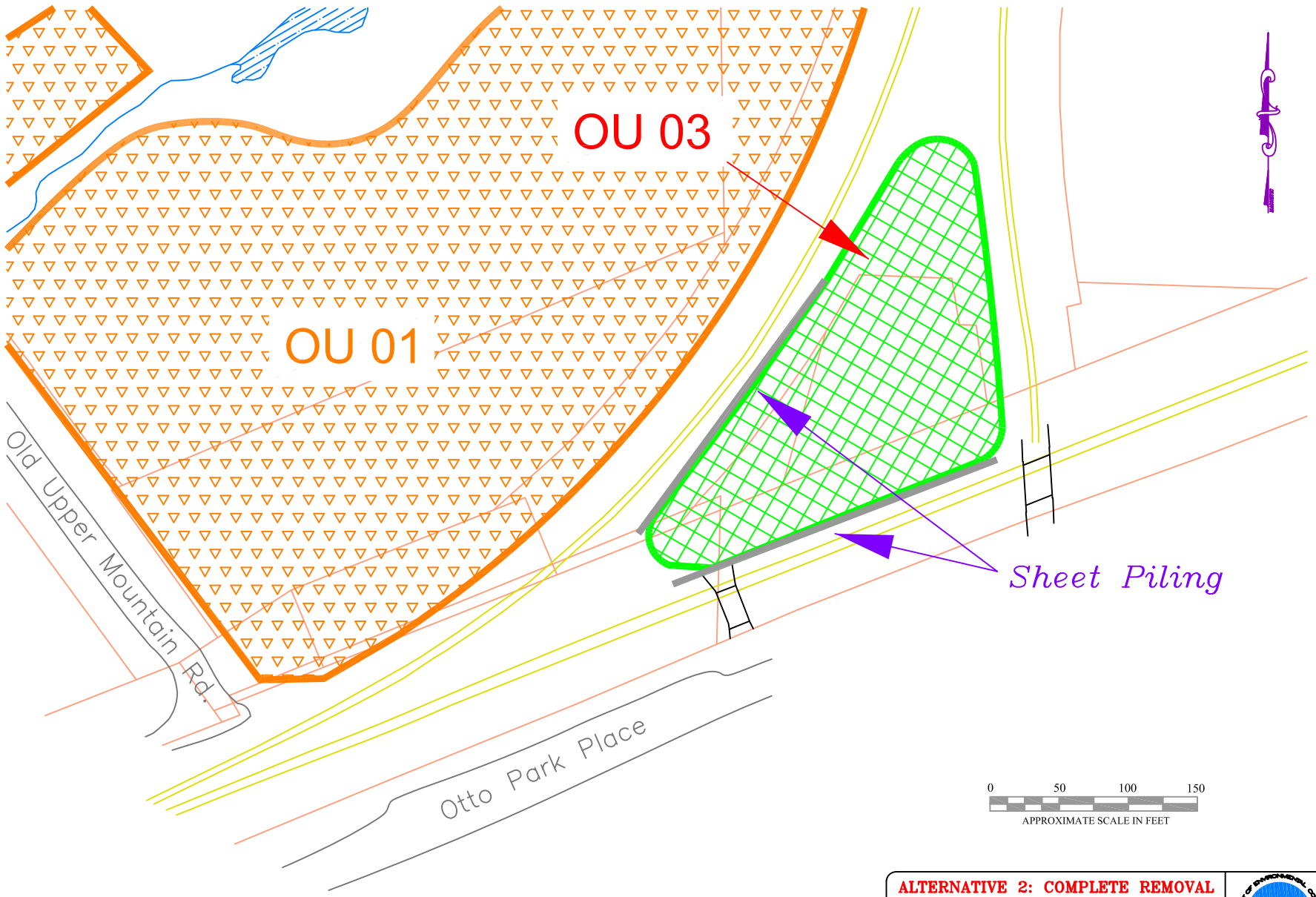
GROUNDWATER SCG EXCEEDANCE MAP

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 7



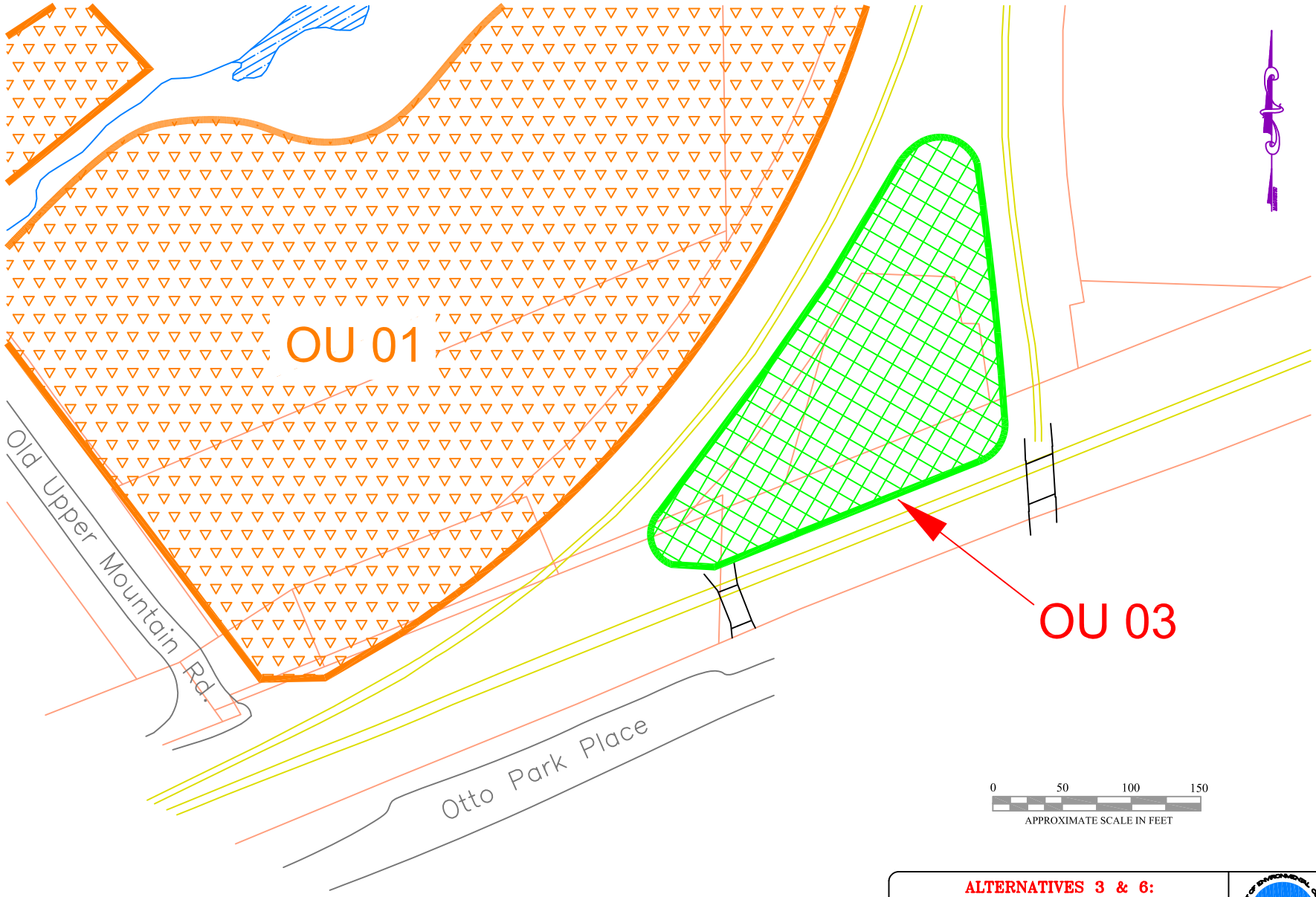
ALTERNATIVE 2: COMPLETE REMOVAL WITH OFF-SITE DISPOSAL

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 8



LEGEND:

PART 360 LANDFILL CAP (ALT 3) OR CLEAN SOIL COVER (ALT 6)

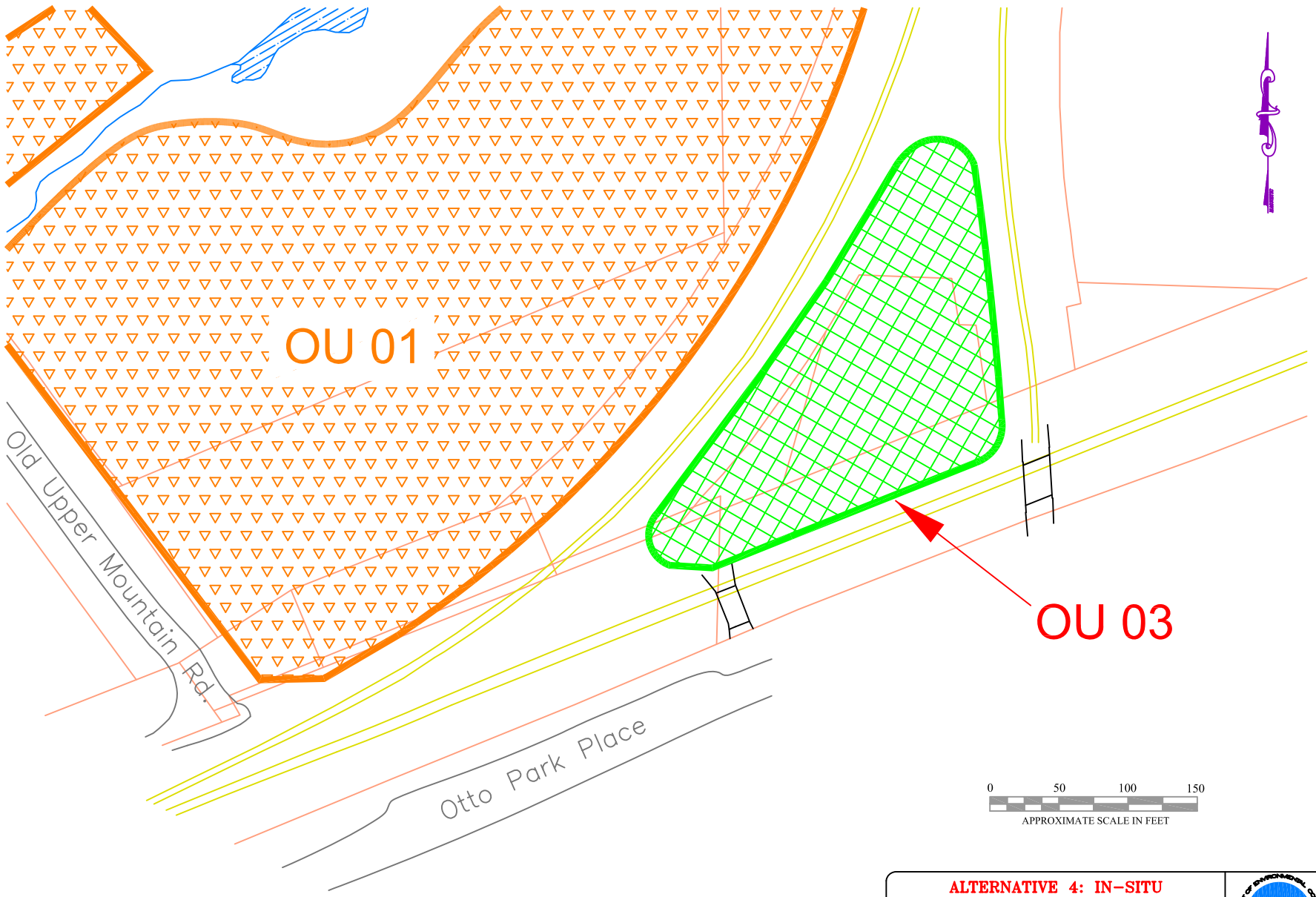
ALTERNATIVES 3 & 6:
LANDFILL CAPPING

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 9



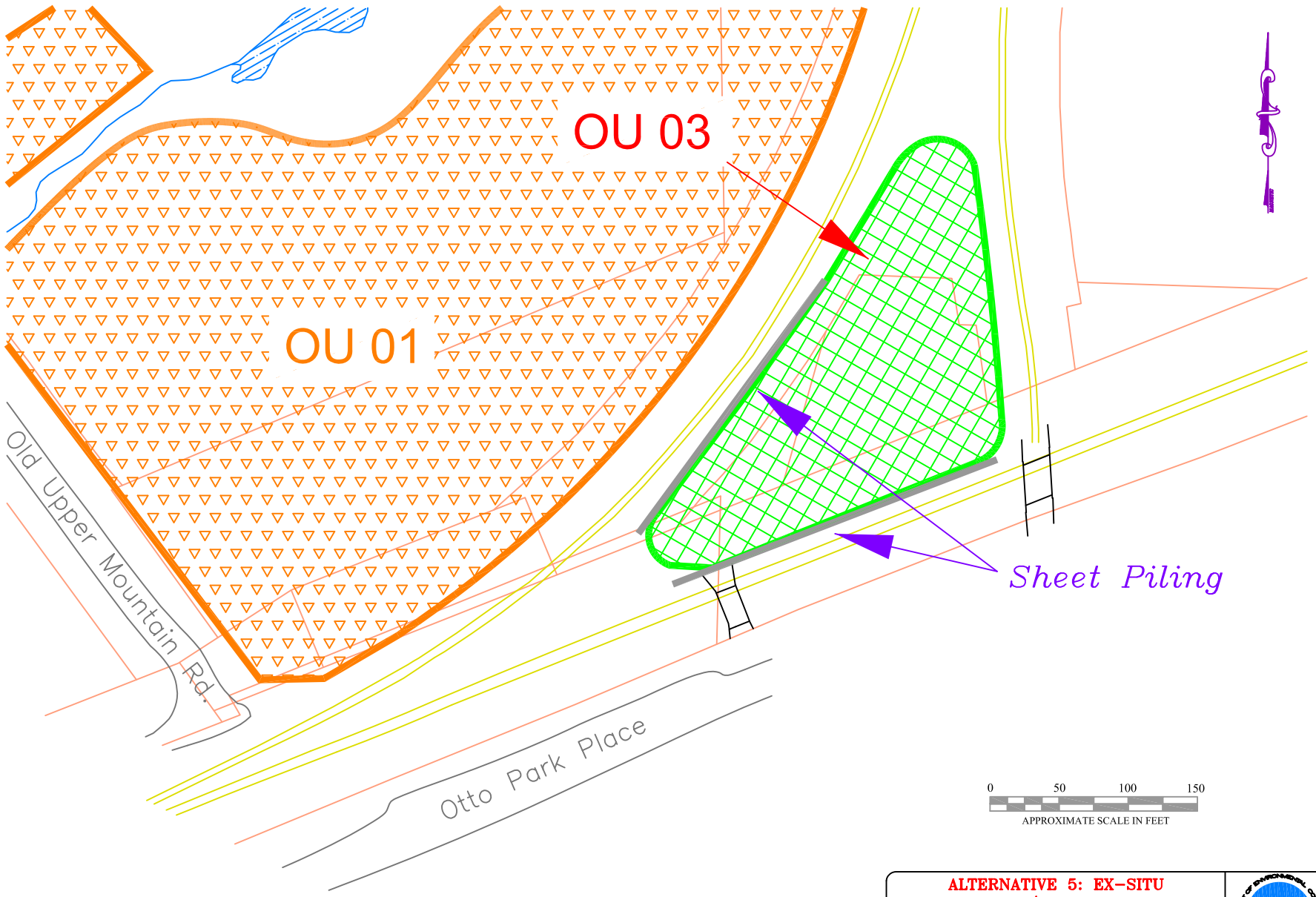
ALTERNATIVE 4: IN-SITU STABILIZATION

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 10



LEGEND:

EXCAVATION AREA (WASTE TO BE STABILIZED EX-SITU)

ALTERNATIVE 5: EX-SITU STABILIZATION/OFF-SITE DISPOSAL

DIVISION OF ENVIRONMENTAL REMEDIATION

DATE: 01/17/12 DRAWING: Site Wide Map.dwg

PROJECT: OLD UPPER MOUNTAIN ROAD SITE

FIGURE 11