PROPOSED REMEDIAL ACTION PLAN

Tonawanda Forge Site
Operable Unit Number 01: Soil Contamination
State Superfund Project
Tonawanda, Erie County
Site No. 915274
February 2020

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 repositories:

Buffalo and Erie County Public Library
1 Lafayette Square
Buffalo, NY 14203
Phone: (716) 858-8900

Elaine M. Panty Branch Library
820 Tonawanda Street
Buffalo, NY 14207
Phone: (716) 875-0562

A public comment period has been set from:

02/07/2020 to 03/09/2020

A public meeting is scheduled for the following date:

02/26/2020 at 7:00 pm

Public meeting location:

Kenmore Branch Library
160 Delaware Road
Tonawanda, NY 14217

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 03/09/2020 to:

Jenelle Gaylord
NYS Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233
jenelle.gaylord@dec.ny.gov

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

Receive Site Citizen Participation Information By Email

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

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The Tonawanda Forge Site is a 33.2-acre site located in an urban area (Fig. 1A). The site is approximately 2,300 feet southeast of the intersection of Kenmore Avenue and Sheridan Drive.

Site Features: The site is relatively flat and primarily covered with asphalt, concrete, brick, and former building foundations. Two multi-story brick buildings, one single-story building, and one pole barn that were a part of the original manufacturing complex, which are currently unoccupied, abandoned or used for storage, remain. The eastern portion of the site, identified as Area of Concern 1 (AOC 1), is a grass covered landfill with an elevation approximately six feet above the surrounding grade (Fig. 1B). Multiple areas of ponding occur on the concrete and asphalt throughout the site.

Current Zoning and Land Use: The site is currently inactive and is zoned for heavy industrial use. The surrounding parcels are currently used for heavy industrial applications. The nearest residential area is approximately 700 feet directly south of the site.

Past Use of the Site: The site property was originally part of the General Motors - Tonawanda Engine Plant facility that borders the site to the north, west and south. The site was sold in 1994 to American Axle and Manufacturing, Inc. (American Axle). In 2008, American Axle sold the property to the current owner, Lewis Brothers, LLC (Lewis), of Richmond, Virginia. Lewis began the demolition of the main facility building starting with the removal of the interior equipment and ending with the demolition of all but four of the buildings.

Lewis failed to expeditiously address petroleum contamination on the site, in violation of a stipulation agreement with the Department. The Department proceeded with the remediation of petroleum contamination and a Site Characterization of the property under Spill number 0911809. During the demolition of the building (near the die room, maintenance section, and I.T. room), a subcontractor did not properly manage a PCB transformer, which resulted in a release of PCB oil within the facility. Again, upon the subcontractor and property owner's failure to adequately address the spill in a timely manner, DEC commenced clean-up under Spill number 1112690. While a majority of this contamination has been addressed, several areas of the site exhibit PCB concentrations above the regulatory criteria for a hazardous waste.

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

Operable unit 1 (OU1) addresses the on-site soil, sewer sediment, and surface water contamination. OU2 consists of the on-site groundwater.

Site Geology and Hydrogeology: Soil boring results from the subsurface investigation revealed brown silt and clay with some clay containing trace amounts of gravel. Bedrock was not encountered at depths up to 24 feet below ground surface (bgs) but is believed to consist of the

Upper Silurian-aged Salina Group, which is generally shale and dolostone.

Depth to groundwater at the property ranged from 0.5 feet to 15.82 feet. The local groundwater flow direction is presumed to be west towards the Niagara River, and may be influenced by local drainage features, seasonal groundwater level fluctuations, subsurface geology, surface topography, and/or other local site features.

Operable Unit (OU) Number 01 is the subject of this document.

A Record of Decision will be issued for OU 02 in the future.

A site location map is attached as Figure 1A.

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 that restrict the use of the site to industrial use as described in Part 375-1.8(g) are 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.

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

Lewis Brothers LLC

American Axle and Manufacturing, Inc.

General Motors Corporation (GMC)

General Motors, LLC (GM)

The PRPs for the site declined to implement a remedial program when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, 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
- storm sewer 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 contaminants of concern identified for this Operable Unit at this site are:

arsenic	dibenz[a,h]anthracene
benzo(a)anthracene	iron
benzo(a)pyrene	lead
benzo(b)fluoranthene	mercury
benzo[k]fluoranthene	pyrene
chrysene	polychlorinated biphenyls (PCB)
indeno(1,2,3-CD)pyrene	

As illustrated in Exhibit A, the contaminants of concern exceed the applicable SCGs for:

- surface water
- soil

6.2: <u>Interim Remedial Measures</u>

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

The following IRMs have been completed at this site based on conditions observed during the RI.

<u>Interim Remedial Measures</u>

The Department initiated the first IRM at this site in 2015. The remedial measure involved the removal of construction and demolition debris from the site. The main goal of this IRM was to remove contaminated surficial debris that was hindering investigations required to properly complete the ongoing RI. Specifically, the IRM included the removal, transportation, and off-site disposal of three large surficial piles containing approximately 6,000 tons of construction and demolition debris contaminated with asbestos and/or polychlorinated biphenyls (PCBs). The IRM was completed in January 2016 and the Construction Completion Report (CCR) was approved in August 2016.

In November 2016, 15.5 feet of oil was observed in groundwater monitoring well AOC-14-MW-21I. This Light Non-Aqueous Phase Liquid (LNAPL) was shown to contain a PCB concentration of 270 parts per million (ppm). An additional investigation in November 2018 was conducted to locate and remove the source of the PCB LNAPL that appeared in monitoring well AOC-14-MW-21I. A ground penetrating radar (GPR) survey identified a pipeline adjacent to AOC-14-MW-21I that extends approximately 260 feet to the southeast, ending at a vault in AOC-02, approximately 100 feet west of the Administration Building. However, the source was not found. The Department recovered approximately 155 gallons of LNAPL in AOC-14-MW-21I from November 2016 to May 2019.

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), 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 results of the FWRIA indicate that there is limited potential for wildlife at the site due to lack of suitable habitat. Furthermore, the site does not provide any current or potential value to humans as a nature recreation area.

Groundwater, surface water, soil, and sewer sediments were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, PCBs, and pesticides. Groundwater was also sampled for emerging contaminants (ECs). Based upon investigations conducted to date, the primary contaminants of concern include SVOCs, PCBs, and metals for groundwater, SVOCs (i.e. polycyclic aromatic hydrocarbons [PAHs]), PCBs, and various metals (i.e. arsenic, chromium, and mercury) for soil, and PAHs, iron, and lead for surface water (see Exhibit A for details).

Groundwater – With the exception of acetone and methylene chloride, no VOCs were detected in groundwater at concentrations exceeding NYSDEC TOGS (1.1.1) Class GA groundwater standards (SCG). However, SVOCs, PCBs, and metals exceed their corresponding SCGs. The maximum concentration of a single PAH, acenaphthene, was 61 parts per billion (ppb), exceeding the standard of 20 ppb. PCBs were detected in groundwater at concentrations exceeding the SCG of 0.09 ppb at numerous locations across the site. In general, PCB impacts are relatively low. However, PCB impacts in AOC-13 (Fig. 1B) are considerably higher (19.8 ppb) than at other locations across the site. Various metals exceeded applicable groundwater standards. For example, maximum concentrations of arsenic (230 ppb), chromium (total; 85 ppb), and lead (70 ppb) exceeded standards of 25 ppb, 50 ppb, and 25 ppb, respectively.

On-site groundwater was also sampled for ECs, which include per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. For PFAS, perfluorooctanoic acid (PFOA) and perflourooctanesulfonic acid (PFOS) were reported at concentrations of up to 4.2 and 0.99 parts per trillion (ppt), respectively, below the 10 ppt screening levels for groundwater for each. No other individual PFAS exceeded the 100 ppt screening level. The total concentration of PFAS, including PFOA and PFOS, were reported at concentrations of up to 19.37 ppt, below the 500 ppt screening level for total PFAS in groundwater. 1,4-dioxane was reported at concentrations of up to 0.17 ppb, below the 1 ppb screening level in groundwater.

The groundwater is not used as a source of drinking water. There are no known wells used as sources of drinking water within at least one-half mile of the site. The Town of Tonawanda provides drinking water to the site vicinity from a separate source that is not affected by this contamination.

Surface water – While the storm water sewer system remains in place, the outlets have been blocked at the property boundaries by the adjacent property owner, General Motors, LLC (GM), in order to prevent contaminated surface water from entering their property. This has resulted in storm water ponding across the site. Neither VOCs nor PCBs were detected above Class A Ambient Water Quality Standards and Guidance Values. However, PAHs and metals (aluminum, iron, lead, and zinc) were present above the Class A standards (generally between 0.0012 and 0.002 ppb, 100 ppb, 300 ppb, 7 ppb, and 134 ppb, respectively).

Soil – No VOCs exceed Soil Cleanup Objectives (SCO) for Industrial Use. SVOCs, PCBs, and metals were found in surface and subsurface soil samples across the site. As groundwater is present at shallow depths (1-2 feet bgs), the majority of the subsurface soils are present in the saturated zone. Of the SVOCs analyzed, six constituents (primarily PAHs) had maximum concentrations that exceeded SCOs: benzo(A)anthracene (190 ppm; SCO 11 ppm), benzo(A)pyrene (170 ppm; SCO 1.1 ppm), benzo(B)fluoranthene (240 ppm; SCO 11 ppm), chrysene (200 ppm; SCO 110 ppm), dibenz(A,H)anthracene (10 ppm; SCO 1.1 ppm), and indeno(1,2,3-C,D)pyrene (32 ppm; SCO 11 ppm). Metals (arsenic and mercury) exceeded industrial use SCOs of 16 ppm and 5.7 ppm with maximum concentrations of 93.2 ppm and 6.6 ppm, respectively.

The highest PCB levels in soils were found in AOC-8 (54 ppm), AOC-12 (167 ppm), AOC-13 (54 ppm), and AOC-15 (260 ppm; Fig. 1B), which exceed the SCOs for industrial use (25 ppm). PCBs were also present in stained concrete. Metals such as arsenic (93 ppm) and mercury (6.6 ppm) also exceed industrial use SCOs (16 ppm and 5.7 ppm, respectively). Asbestos containing material (ACM) is present on the ground surface in every AOC except for AOC-1, AOC-7, and AOC-8 (Fig. 2). These materials are primarily roofing material left over from the demolition, and sealant used between concrete sections. ACM does not require removal; however, if excavation is performed in areas where asbestos is present, proper disposal according to the appropriate New York State Department of Labor regulations is required.

Storm Sewer Sediments – Although no specific criteria exist for sewer sediment contaminant concentrations, they are compared to the Class A Sediment Guidance Values (SGV). Aside from two exceedances of 1,1-dichloroethene (maximum concentration of 1.2 ppm with an SGV of 0.52 ppm) and toluene (maximum concentration of 6.9 ppm with an SGV of 0.93 ppm), there are no exceedances of VOCs or SVOCs. Metals and PCBs are present in the vast majority of the sediment samples. Exceedances of total PCBs were found in 43 of 48 samples and range from 0.59 to 880 ppm (SGV of 0.1 ppm).

6.4: <u>Summary of Human Exposure Pathways</u>

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 fenced and mostly covered by pavement and building slabs. Four small, unoccupied structures remain on-site after the manufacturing building was demolished. Trespassers may come into contact with contaminated surface soils and ponded surface water. Contact with contaminated sewer sediments is unlikely due to the physical locations of the sediment. People may come into contact with contaminated surface water runoff from a former landfill/disposal area, as the runoff is not contained. Contaminated groundwater at the site is not used for drinking purposes and the area is served by a public water supply that is not affected by this contamination. Volatile organic compounds in contaminated soil or contaminated groundwater may move into the soil vapor (air spaces within the soils), which in turn, may move into overlying structures and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Inhalation of site contaminants in indoor air is not a current concern as the site buildings are unoccupied. An evaluation of the potential for soil vapor intrusion to occur is recommended prior to occupancy in re-developed or occupied buildings.

6.5: <u>Summary of the Remediation Objectives</u>

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:

<u>Soil</u>

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.

<u>Surface Water</u>

RAOs for Public Health Protection

- Prevent ingestion of water impacted by contaminants.
- Prevent contact or inhalation of contaminants from impacted water bodies.

<u>Soil Vapor</u>

RAOs for Public Health Protection

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

SECTION 7: <u>SUMMARY OF THE PROPOSED REMEDY</u>

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 proposed remedy is referred to as the Cover System, Contaminated Sewer Cleaning and Grouting, Surface Water Control, and Surface and Subsurface Soil Excavation with an Institutional Control and Site Management Plan remedy.

The estimated present worth cost to implement the remedy is $7,174,000. The cost to construct the remedy is estimated to be $7,003,000 and the estimated average annual cost is $11,400.

The elements of the proposed remedy are as follows:

1. Remedial Design

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

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

2. Excavation

Excavation and off-site disposal of contaminant source areas, including surface and subsurface soils**:**

- grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u);
- soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead;
- non-aqueous phase liquids;
- soil with visual waste material or non-aqueous phase liquid; and
- soil containing total SVOCs exceeding 500 ppm.

Excavation and off-site disposal of all on-site soils which exceed industrial SCOs, as defined by 6 NYCRR Part 375-6.8, except in the landfill area at the east end of the site (AOC-1). This includes soils containing PCBs above 25 parts per million, as defined in 40 CFR Part 761.61(a)(4)(B)(1) and disposed of according to 40 CFR Part 761.61(a)(5)(i)(B).

Approximately 2,400 cubic yards of contaminated soil will be removed from the site. Excavation and removal of any underground storage tanks (USTs), fuel dispensers, underground piping, or other structures associated with a source of contamination will be completed. It is anticipated that a significant amount of piping will be encountered during the surface and subsurface excavation.

3. Backfill

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

4. Cover System

A site cover will be required to allow for industrial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs. This excludes approximately 200 cubic feet of PCB contaminated concrete that will be demolished, removed, and properly disposed as PCB contaminated waste.

5. Contaminated Sewer Cleaning and Grouting

Approximately 19,000 linear feet of contaminated on-site sewer lines will be cleaned using jetting or a similar, practical sewer cleaning technology. Liquid and solid spoils from the cleaning will be collected, sampled, and either treated on-site or transported and disposed of off-site as appropriate. Sewer cleaning will immediately be followed by the sealing of sewers with flowable fill, pumped, or tremied, as appropriate.

6. Surface Water Control

A series of new, clean catch basins and storm water collection systems will be constructed to connect to the existing Town of Tonawanda municipal separate storm sewer system (MS4). The new catch basins and collection system will drain ponded water from the Parking Lot area, the ponded area between AOC-1 (Fig. 1B) and Kenmore Avenue, along with other areas of ponding on-site. Detention of the storm water collected, if necessary, to meet peak flow criteria established by the Town of Tonawanda, will be achieved within the collection system. Samples will be collected prior to discharge and must meet city discharge limits.

7. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for low occupancy, industrial use as defined by Part 375-1.8(g) and 40 CFR 761.3, although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan.

8. Site Management Plan

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

1. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

   Institutional Controls: The Environmental Easement discussed in Paragraph 7 above.

   Engineering Controls: The soil cover discussed in Paragraph 4 and the Surface Water Control discussed in Paragraph 6 above.

   This plan includes, but may not be limited to:

   - an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;

- descriptions of the provisions of the environmental easement, including any land use, and groundwater;
- a provision for evaluation of the potential for soil vapor intrusion for any occupied buildings on the site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- a provision requiring a risk-based approval from the United States Environmental Protection Agency prior to any change of use to high occupancy, industrial use as defined by 40 CFR 761.3 and 40 CFR 761.61 (a)(4)(i)(B)(3)(v);
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 4 above will be placed in any areas where the upper one foot of exposed surface soil exceeds the applicable soil cleanup objectives (SCOs);
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

2. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - a schedule of monitoring and frequency of submittals to the Department; and
   - monitoring for vapor intrusion for any buildings on the site, as may be required by the Institutional and Engineering Control Plan discussed above.

Exhibit A

Nature and Extent of Contamination

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

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), and inorganics (metals and cyanide). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Waste/Source Areas

As described in the RI report, waste/source materials were identified at the site and are impacting groundwater, soil, sewer sediments, and surface water.

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 were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and Source areas were identified at the site include:

Waste/Source Areas – Asbestos

A total of 123 bulk samples for asbestos analysis were collected across the Site. As indicated on Figure 2, the majority of the Site has asbestos containing material (ACM) present at the surface. Along the southern edge of the property and the western edge of the asbestos survey area there is an approximate 100-foot wide area zone where no ACM was identified.

Waste/Source Areas – LNAPL

Seven light non-aqueous phase liquid (LNAPL) samples were collected from aboveground storage tanks (ASTs), manholes, and one monitoring well. A summary of the PCB detected results and properties of all LNAPL samples is shown on Figure 3.

VOCs were detected at low concentrations (less than 1.1 part per million (ppm)) in all but one LNAPL sample. Petroleum-related compounds (i.e., benzene, toluene, ethylbenzene, isopropylbenzene, and/or xylene) were found in two samples. Other VOCs detected in one or more of the LNAPL samples include 1,1-dichloeroethane, 1,1-dichloroethene, 1,2,4-trichlorobenzene, methyl acetate, and methylene chloride.

SVOCs bis(2-ethylhexyl)phthalate and caprolactam, along with several polycyclic aromatic hydrocarbons (PAHs), were detected in the standpipe, manhole, and one monitoring well sample.

PCBs were detected in the LNAPL samples collected from each of the four manholes sampled, and in the monitoring well AOC-14-MW-21I with a total PCB concentration of 270 ppm. Soil or waste containing PCB concentrations greater than 50 ppm is a hazardous waste in New York State.

Results for the identification of specific petroleum products in the LNAPL samples were inconclusive.

Waste/Source Areas – Surface Materials

Twenty-four concrete chip samples, fifteen brick chip samples, two asphalt samples, two bulk solids samples, and six wipe samples were collected for PCB analysis and compared to the Toxic Substances Control Act (TSCA) definition of PCB remediation waste (50 ppm).

Concrete chip samples: none of the results exceeded the 50 ppm for total PCBs.

Brick chip samples: PCBs were detected in 12 of the 15 samples. Brick chip sample results exceeded 50 ppm total PCBs at one location.

Bulk Solids Samples: PCBs were detected in both samples. Bulk solid sample results exceeded 50 ppm total PCBs at one location.

Asphalt Samples: No PCBs were detected in either of the two samples.

Wipe Samples: PCBs were detected in five of the six samples from various non-porous surfaces. Five of the samples had total concentrations greater than the SCG criterion of 10 micrograms per 100 square centimeters ($\mu g/100\ cm^2$), or microgram per wipe (µg/wipe). Two of those wipe samples contained PCB concentrations greater than 100 $\mu g/100\ cm^2$.

A summary of the detected results and properties of all surface material samples where results exceed PCB SCGs are shown on Figure 4.

Waste/Source Areas – Sewer Sediments

Forty-eight sediment samples were collected from 11 manholes, 34 catch basins, two ASTs, and one 8-inch diameter pipe connecting the two ASTs. Although there are no cleanup standards specific to sewer sediments, sediments are located at depth and could be encountered by a construction worker during future development. Therefore, analytical results, presented in Figure 5, are compared to Part 375 Industrial Use Soil Cleanup Objectives (SCOs). The manholes and catch basins are not connected to public owned treatment works sewers or outfalls.

Of the 48 samples, none exceeded the Industrial Use SCO for VOCs. However, 36 samples exceeded Industrial Use criteria for SVOCs, including PAHs.

PCBs exceeded Industrial Use criteria in ten catch basin and five manhole locations. Six catch basins and three manholes had a total PCB concentration between 50 and 500 ppm and require management as hazardous wastes. PCB concentrations in the western manholes/catch basins ranged from 32 to 380 ppm. The maximum total PCB concentration was 880 ppm.

Metals exceeding Industrial Use criteria include arsenic at eight locations and copper at one location.

Certain waste/source areas identified at the site were addressed by the IRM(s) described in Section 6.2. The remaining waste/source area(s) identified during the RI will be addressed in the remedy selection process.

Soil

Surface and subsurface soil samples were collected at the site during the RI. A total of 48 surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure. In addition, 272 subsurface soil samples were collected from a depth of 2 - 30 feet to assess soil contamination impacts to groundwater. Figures 6A through 6X depict the surface and subsurface sample locations and concentrations, respectively. The results indicate that soils at the site exceed the unrestricted SCOs for volatile and semi-volatile organics, PCBs and metals. Several metals, PAHs, and PCBs were present above industrial SCOs, including benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, arsenic, mercury, and PCBs.

Table 2 – Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG (ppm)[b]	Frequency Exceeding Unrestricted SCG	Industrial SCG (ppm)[c]	Frequency Exceeding Industrial SCG	Protection of Groundwater (PGW) SCG (ppm)[d]	Frequency Exceeding PGW SCG
VOCs							
Acetone	0.00480-0.370	0.05	21/317	1,000	0/317	0.05	21/317
Benzene	0.000290-0.00500	0.06	0/319	89	0/319	0.06	0/319
Chlorobenzene	0.000890-0.000890	1.1	0/317	1,000	0/317	1.1	0/317
Chloroform	0.000350-0.000680	0.37	0/319	700	0/319	0.37	0/319
Ethylbenzene	0.000410-0.00220	1	0/315	780	0/315	1	0/315
Methyl Ethyl Ketone (2-Butanone)	0.00910-0.0540	0.12	0/319	1,000	0/319	0.12	0/319
Methylene Chloride	0.00250-0.0580	0.05	2/317	1,000	0/317	0.05	2/317
Tetrachloroethylene (PCE)	0.00660-0.0260	1.3	0/317	300	0/317	1.3	0/317
Trichloroethene	0.07-0.07	0.47	0/319	400	0/319	0.47	0/319
Toluene	0.000450-0.00460	0.7	0/315	1,000	0/315	0.7	0/315
Xylenes, Total	0.000960-0.00850	0.26	0/315	1,000	0/315	1.6	0/315
SVOCs							
2-Methylphenol (O-Cresol)	0.00720-0.0300	0.33	0/320	1,000	0/320	0.33	0/318
4-Methylphenol (P-Cresol)	0.0150-4.70	0.33	3/320	1,000	0/320	0.33	3/320
Acenaphthene	0.00560-29.0	20	2/318	1,000	0/318	98	0/318

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG (ppm)[b]	Frequency Exceeding Unrestricted SCG	Industrial SCG (ppm)[c]	Frequency Exceeding Industrial SCG	Protection of Groundwater (PGW) SCG (ppm)[d]	Frequency Exceeding PGW SCG
Acenaphthylene	0.00870-1.80	100	0/318	1,000	0/318	107	0/318
Anthracene	0.00600-61.0	100	0/318	1,000	0/318	1,000	0/318
Benzo(A) Anthracene	0.00740-190	1	42/318	11	8/318	1	42/318
Benzo(A) Pyrene	0.00880-170	1	43/318	1.1	38/318	22	4/318
Benzo(B) Fluoranthene	0.00630-240	1	57/318	11	11/318	1.7	42/318
Benzo(G,H,I) Perylene	0.00580-30.0	100	0/318	1,000	0/318	1,000	0/318
Benzo(K) Fluoranthene	0.00230-110	0.8	32/318	110	0/318	1.7	21/318
Chrysene	0.00680-200	1	48/318	110	1/318	1	48/161
Dibenz(A,H) Anthracene	0.00530-10.0	0.33	24/318	1.1	11/318	1,000	0/318
Dibenzofuran	0.00840-16.0	7	3/318	1,000	0/318	210	0/318
Fluoranthene	0.00760-490	100	1/318	1,000	0/318	1,000	0/318
Fluorene	0.0110-28.0	30	0/318	1,000	0/318	386	0/318
Indeno(1,2,3-C,D)Pyrene	0.00550-32.0	0.5	66/318	11	4/318	8.2	8/318
Naphthalene	0.0110-9.70	12	0/318	1,000	0/318	12	0/318
Phenanthrene	0.00610-290	100	1/318	1,000	0/318	1,000	0/318
Phenol	0.0450-16.0	0.33	1/318	1,000	0/318	0.33	1/318
Pyrene	0.00920-310	100	1/318	1,000	0/318	1,000	0/318
Metals							
Arsenic	0.560-93.2	13	23/318	16	17/318	16	17/318
Barium	2.50-557	350	4/320	400	0/320	820	0/320
Beryllium	0.0840-6.70	7.2	0/318	2700	0/318	47	0/318
Cadmium	0.0420-29.0	2.5	14/320	60	0/320	7.5	4/320
Chromium, Total	3.40-1,040	30	106/318	800	0/318	19	0/318
Copper	1.90-4,850	50	68/318	10,000	0/318	1,720	4/318
Lead	1.20-2,950	63	51/320	3900	0/320	450	3/320
Manganese	61.3-7,310	1,600	29/318	10,000	0/318	2,000	19/318
Mercury	0.00820-6.60	0.18	25/320	5.7	1/320	0.73	6/320
Nickel	3.40-340	30	117/318	10,000	0/318	130	15/318
Selenium	0.460-11.3	3.9	4/320	6,800	0/320	4	4/320
Silver	0.240-9.80	2	2/320	6,800	0/320	8.3	1/320
Zinc	11.5-4,000	109	75/318	10,000	0/318	2,480	2/318
Pesticides/PCBs							
Total PCBs	0.055-260	0.1	143/304	25	8/304	3.2	52/304

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG (ppm)[b]	Frequency Exceeding Unrestricted SCG	Industrial SCG (ppm)[c]	Frequency Exceeding Industrial SCG	Protection of Groundwater (PGW) SCG (ppm)[d]	Frequency Exceeding PGW SCG
Endrin	0.000031-0.000031	0.014	0/2	410	0/2	0.06	0/2
gamma-BHC (Lindane)	0.001-0.001	0.1	0/2	23	0/2	0.1	0/2
Heptachlor	0.00008-0.00008	0.042	0/2	29	0/2	0.38	0/2

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 Use Soil Cleanup Objectives for the Protection of Public Health for Industrial Use, unless otherwise noted.
d - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.

Based on the findings of the Remedial Investigation, the past disposal of hazardous waste has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, indeno(1,2,3-c,d)pyrene, arsenic, mercury, and PCBs.

Surface Water

One surface water sample was collected from the drainage swale adjacent to Kenmore Avenue (AOC-1-LFSW-01) during the RI Phase I sampling event. Due to inadequate drainage, ponding occurs across the site. A second surface water sample was collected from such an area in the parking lot during the RI Phase II sampling event (Parking Lot Water). A summary of detected analytical results for the surface water samples compared to Class A surface water SCGs is presented in Table 3. Surface water results exceeding criteria are shown on Figure 7.

Neither sample contained VOCs or PCBs with concentrations above Class A surface water SCGs. Furthermore, the parking lot standing water sample did not exceed Class A surface water SCGs for SVOCs and metals. However, SVOCs (i.e. PAHs) and metals (aluminum, iron, lead, and zinc) were detected above Class A surface water SCGs in the AOC-1-LFSW-01 sample.

Table 3 - Surface Water

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
Acetone	ND-4.9	50	0/2
Carbon disulfide	ND-0.44	60	0/2
SVOCs			
Anthracene	ND-0.54	3.8	0/2

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
Benzo(a)anthracene	ND-3.7	0.002	1/2
Benzo(a)pyrene	ND-5.6	0.0012	1/2
Benzo(b)fluoranthene	ND-11	0.002	1/2
Benzo(k)fluoranthene	ND-4.4	0.002	1/2
Chrysene	ND-6.8	0.002	1/2
Fluoranthene	ND-9.9	50	0/2
Indeno(1,2,3-cd)pyrene	ND-3.4	0.002	1/2
Phenanthrene	ND-3.3	5	0/2
Pyrene	ND-8.3	4.6	1/2
Inorganics			
Aluminum	ND-1,200	100	1/2
Barium	27-55	1,000	0/2
Chromium	ND-0.0036	50	0/2
Cobalt	ND-0.00097	5	0/2
Copper	6-11	14.6	0/2
Iron	300-24,600	300	1/2
Lead	ND-18	7	1/2
Magnesium	9,100-12,500	35,000	0/2
Manganese	36-290	300	0/2
Nickel	0.0048-7	84	0/2
Sodium	2,200-17,600	20,000	0/2
Vanadium	ND-0.0049	14	0/2
Zinc	5.5-220	134	1/2

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.
ND: Non-detect

Based on the findings of the Remedial Investigation, the disposal of hazardous waste has resulted in the contamination of surface water. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of surface water to be addressed by the remedy selection process are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, indeno(1,2,3-cd)pyrene, pyrene, aluminum, iron, lead, and zinc.

Exhibit B

Description of Remedial Alternatives

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

Alternative 1: No Further 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.

Present Worth: *$0*
Capital Cost: *$0*
Annual Costs: *$0*

Alternative 2: No Further Action with Site Management

The No Further Action with Site Management Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 6.2 and Site Management and Institutional Controls and Engineering Controls are necessary to confirm the effectiveness of the IRM. This alternative maintains engineering controls which were part of the IRM and includes institutional controls, in the form of and environmental easement and site management plan, necessary to protect public health and the environment from contamination remaining at the site after the IRMs.

Present Worth: *$175,000*
Capital Cost: *$0*
Annual Costs: *$11,400*

Alternative 3: Cover System, Contaminated Sewer Cleaning and Grouting, Surface Water Control, and Surface Soil Excavation with an Institutional Control and Site Management Plan

This alternative includes excavation and off-site disposal of surface contaminant source areas, including grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead; concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1); non-aqueous phase liquids (NAPL) encountered during excavation; soil with visual waste material or non-aqueous phase liquid; soil containing total SVOCs exceeding 500 ppm; and surface soils containing PCBs greater than 25 ppm.

Alternative 3 includes removal of sewer sediments (to the extent practicable) via jet cleaning an estimated 19,000 linear feet of sewer line (disposal of approximately 109,000 gallons of sludge), sealing of the sewers with flowable fill, and removal and disposal of surface soil (0-1 foot below ground surface) with contamination above industrial use SCOs (roughly 1,500 cubic yards). Some areas where surface soil exceeds these criteria are primarily due to low levels of PAHs and metals would be addressed by placement of a 1-foot clean soil cover instead of excavation to reduce direct contact exposures over an area of roughly 46,200 square yards in the eastern portion of the site.

Approximately 200 cubic feet of contaminated concrete would be demolished, removed, and disposed as PCB contaminated waste.

The management of surface water runoff (i.e. storm water) after construction is established by a series of new, clean catch basins and storm water pipes connected to the existing Municipal Separate Storm Sewer System (MS4) at several locations. The new catch basins and pipes will drain ponded water from the Parking Lot area, the ponded area between AOC-1 and Kenmore Avenue, and any other areas of ponding on-site. Detention of the storm water, if necessary, to meet peak flow criteria established by the Town, can be achieved within the collection system. Samples will be collected prior to discharge and a must meet city discharge limits.

The alternative also includes institutional controls in the form of an environmental easement restricting the use of the site to low occupancy, industrial use, Site Management Plan, groundwater use restriction, site use restriction, excavation plan and, if necessary, further evaluation of soil vapor intrusion.

Present Worth:..*$5,965,000*
Capital Cost:...*$5,780,000*
Annual Costs:...*$11,400*

Alternative 4: Cover System, Contaminated Sewer Cleaning and Grouting, Surface Water Control, and Surface and Subsurface Soil Excavation with an Institutional Control and Site Management Plan

This alternative includes excavation and off-site disposal of surface and subsurface contaminant source areas, including grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u); soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead; concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1); non-aqueous phase liquids (NAPL) encountered during excavation; soil with visual waste material or non-aqueous phase liquid; soil containing total SVOCs exceeding 500 ppm; and all soils containing PCBs greater than 25 ppm, except for subsurface soils in the landfill area at the eastern end of the site.

Alternative 4 includes removal of sewer sediments (to the extent practicable) via jet cleaning an estimated 19,000 linear feet of sewer line (disposal of approximately 109,000 gallons of sludge), sealing of the sewers with flowable fill, and removal and disposal of surface and subsurface soil (up to 5 feet below ground surface, with one limited area up to 10 feet below ground surface) with contamination above industrial use SCOs (roughly 2,400 cubic yards). Some areas where surface soil exceeds these criteria are primarily due to low levels of PAHs and metals would be addressed by placement of a 1-foot clean soil cover instead of excavation to reduce direct contact exposures over an area of roughly 46,200 square yards in the eastern portion of the site (see Fig. 8). Approximately 200 cubic feet of contaminated concrete would be demolished, removed, and disposed as PCB contaminated waste.

The management of surface water runoff (i.e. storm water) after construction is established by a series of new, clean catch basins and storm water pipes connected to the existing MS4 at several locations. The new catch basins and pipes will drain ponded water from the Parking Lot area, the ponded area between AOC-1 and Kenmore Avenue, and any other areas of ponding on-site. Detention of the storm water, if necessary, to meet peak flow criteria established by the Town, can be achieved within the collection system. Samples will be collected prior to discharge and a must meet city discharge limits.

The alternative also includes institutional controls described in Alternative 3.

Present Worth: *$7,174,000*
Capital Cost: *$7,003,000*
Annual Costs: *$11,400*

Alternative 5: Restoration to Unrestricted Conditions, Excavation of Entire Site

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil cleanup objectives listed in Part 375-6.8 (a). This alternative would include: excavation and off-site disposal of all waste and soil contamination above the unrestricted soil cleanup objectives (i.e. sewer decontamination and sealing, demolition and disposal of former building floors, and excavation of contaminated soil). Excavation of contaminated soils (up to 10 feet below ground surface) and other concrete/floor material would produce approximately 427,500 cubic yards of material for disposal. The removal of all source material combined with natural attenuation of residual groundwater contamination will result in predisposal conditions. Therefore, the remedy will not rely on institutional or engineering controls to prevent future exposure. There is no Site Management, no restrictions, and no periodic review. This remedy will have no annual cost, only the capital cost.

Capital Cost: *$149,556,000*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
1: No Further Action	$0	$0	$0
2: No Further Action with Site Management	$0	$11,400	$175,000
3: Cover System, Contaminated Sewer Cleaning and Grouting, Surface Water Control, and Surface Soil Excavation with an Institutional Control and Site Management Plan	$5,780,000	$11,400	$5,965,000
4: Cover System, Contaminated Sewer Cleaning and Grouting, Surface Water Control, and Surface and Subsurface Soil Excavation with an Institutional Control and Site Management Plan	$7,003,000	$11,400	$7,174,000
5: Restoration to Unrestricted Conditions, Excavation of Entire Site	$149,556,000	$0	$149,556,000

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 4: Cover System, Contaminated Sewer Cleaning and Grouting, Surface Water Control, and Surface and Subsurface Soil Excavation with an Institutional Control and Site Management Plan as the remedy for this site. Alternative 4 would achieve the remediation goals for the site by decontaminating the sewers, excavating the bulk of the contaminated soils, providing a site cover and mitigating the surface water migration issue. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 8.

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.

The proposed remedy, Alternative 4, would satisfy this criterion by removal of sewer sediments (to the extent practicable), sealing of the sewers with flowable fill, and removal of most surface and subsurface soil with contamination above the 6 NYCRR Part 375 industrial use SCOs and 40 CFR Part 761.61(a)(4)(B)(1) low occupancy area criteria. Contaminated concrete would be demolished, removed, and disposed off-site to eliminate potential exposure to PCBs absorbed into it. Alternative 4 addresses the source of the surface and subsurface soil contamination, and contaminated surface water migration, both of which are the most significant threat to public health and the environment. Neither Alternative 1 (No Further Action) nor Alternative 2 (No Further Action with Site Management) provide any protection to public health and the environment and will not be evaluated further. Alternative 4, by removing all soil contaminated above the industrial soil cleanup objectives and mitigating contaminated surface water migration, meet the threshold criteria. Alternative 3 also complies with this criterion; however, subsurface soil contamination would remain on-site. Alternative 5 meets the threshold criteria and would not require restrictions. Alternatives 3 and 4 rely on the Town of Tonawanda's restriction of private groundwater use at the site to protect human health. Remaining contamination in on-site groundwater will be addressed further in the future OU2 PRAP. The potential for soil vapor intrusion for Alternatives 3 and 4 is addressed by institutional controls and the Site Management Plan and will require further evaluation in the event of on-site construction or building re-development. Alternative 5 would remove all source material, therefore eliminating the potential for soil vapor intrusion in the soil. The potential for soil vapor intrusion through groundwater contamination will be addressed through natural attenuation of groundwater contaminants and through a vapor intrusion elevation in the event a new building is constructed or an existing structure is occupied on the site.

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

applicable on a case-specific basis.

Alternative 4 complies with SCGs to the extent practicable. The alternative addresses source areas of contamination and complies with the industrial use soil cleanup objectives at the surface and subsurface through excavation and placement of clean backfill as part of a cover system. It also creates the conditions necessary to restore groundwater quality to the extent practicable through source removal and natural attenuation. Alternative 4 also prevents the migration of surface water to groundwater via infiltration. Alternatives 3 and 5 also comply with this criterion. As Alternatives 3, 4, and 5 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site.

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

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

Long-term effectiveness and permanence are directly related to the quantity of contaminants remaining on the site and, therefore, are best accomplished by those alternatives involving excavation of the contaminated overburden soils (Alternatives 4 and 5). Alternative 4 removes both surface and subsurface soil and is more effective long term than Alternative 3, which just addresses surface soil. For Alternatives 3 and 4, monitoring and institutional controls in the form of environmental easements and an SMP would be an effective means of managing residual contamination. Alternatives 3 and 4 require a groundwater use restriction and a soil vapor intrusion investigation for any current and future habitable structures. Alternative 5 would result in no remaining contamination.

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.

Through the removal of 4,500 cubic yards of contaminated surface soil and concrete and sewer cleaning, Alternative 3 would reduce the mobility and volume of on-site waste by transferring the material to an approved off-site location. Alternative 4 requires the excavation of approximately 5,500 cubic yards of contaminated soil and concrete, which significantly reduces the volume and mobility by removing additional subsurface soil sources. Alternatives 3 and 4 both significantly reduce the mobility of contamination migration at the surface by redirecting surface water flow and, therefore, preventing further groundwater contamination through infiltration. Alternative 5, through the removal of 427,500 cubic yards of contaminated surface and subsurface material, would reduce the most mobility and volume of contamination of all alternatives and does not require a surface water remedial component.

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 3 through 5 all have short-term impacts which could easily be controlled. Alternative 3 has the least intrusive activities during remediation, and therefore, would pose the smallest short-term risks. Alternatives 3 through 5 include excavation of soil to varying degrees and, therefore, require air and dust monitoring to protect residents which represents a short-term risk to local residents. As Alternative 5 has the greatest amount of excavation, it would present the greatest short-term impacts to the surrounding vicinity due to the total quantity excavated and duration of construction. Alternatives 3 and 4 could all be constructed in less than a year, but Alternative 5 would require 2 years to complete.

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.

The technologies employed for Alternative 3, 4, and 5 are conventional and reliable technologies for remediation. However, Alternative 5 would be the most difficult alternative to implement due to the extensive subsurface structures present from the former plant operations, which would require demolition prior to excavation. The extensive excavation would be very disruptive to nearby residences and businesses, and the transportation of the great volume of waste would impact the community for a much longer duration.

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

The costs of the alternatives vary significantly. Alternative 3 has a low cost, but a significant amount of contaminated soil would not be addressed other than by institutional controls. With its large volume of soil to be handled, Alternative 5 (excavation and off-site disposal for unrestricted use) would have the highest present worth cost. Alternative 4 would address both surface and subsurface soil at an intermediate cost. Therefore, Alternative 4 has the best balance between cost and effectiveness.

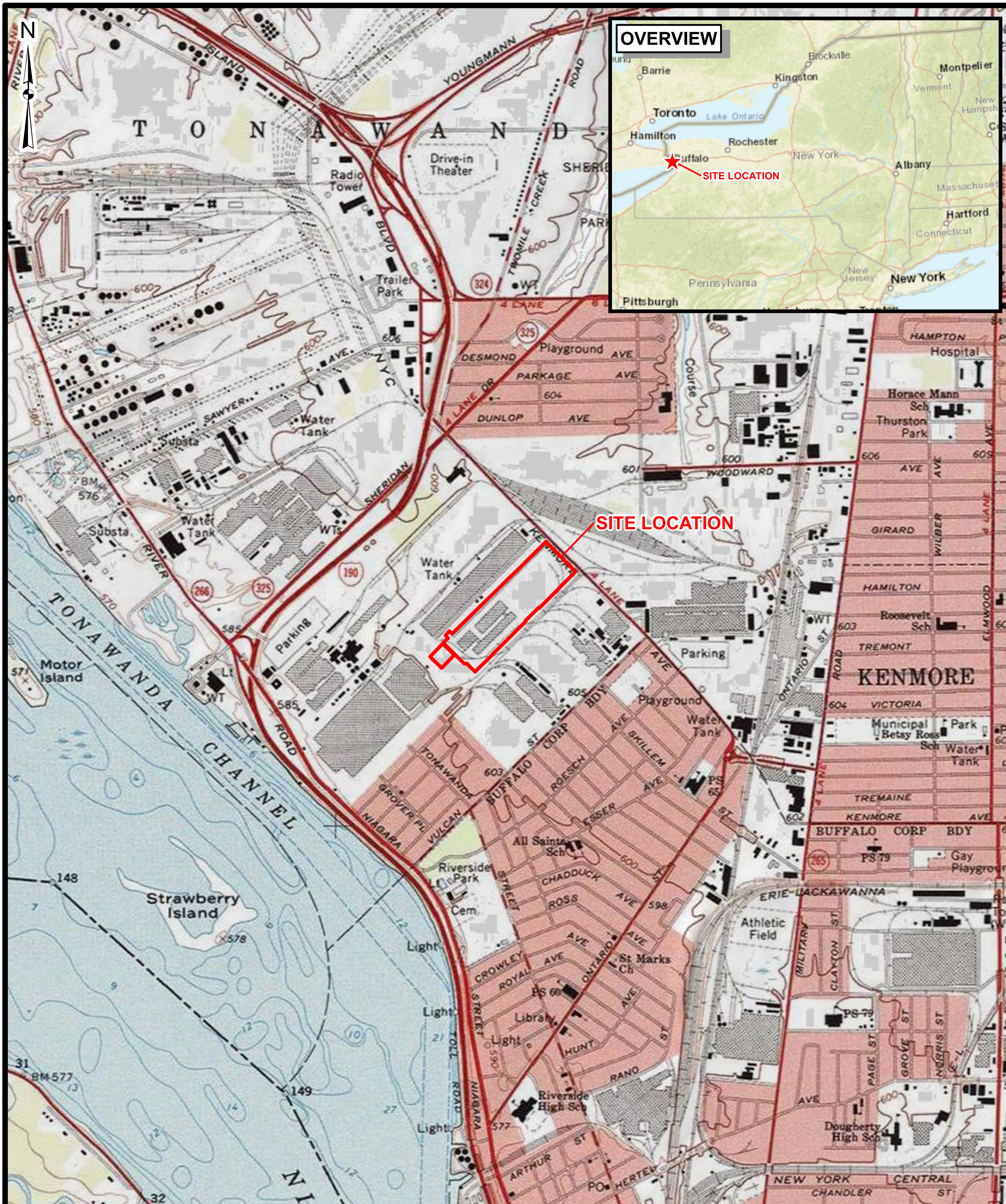
8. Land Use. When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

Alternative 5 would allow for unrestricted use of the site regardless of future zoning changes. Contamination remaining at the site under Alternatives 3 and 4 are consistent with current zoning and surrounding industrial land use and would be controlled with implementation of a Site Management Plan.

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 4 is being proposed because, as described above, these satisfy the threshold criteria and provides the best balance of the balancing criterion.



Sources: © 2013 National Geographic TOPO!
ESRI World Street Map

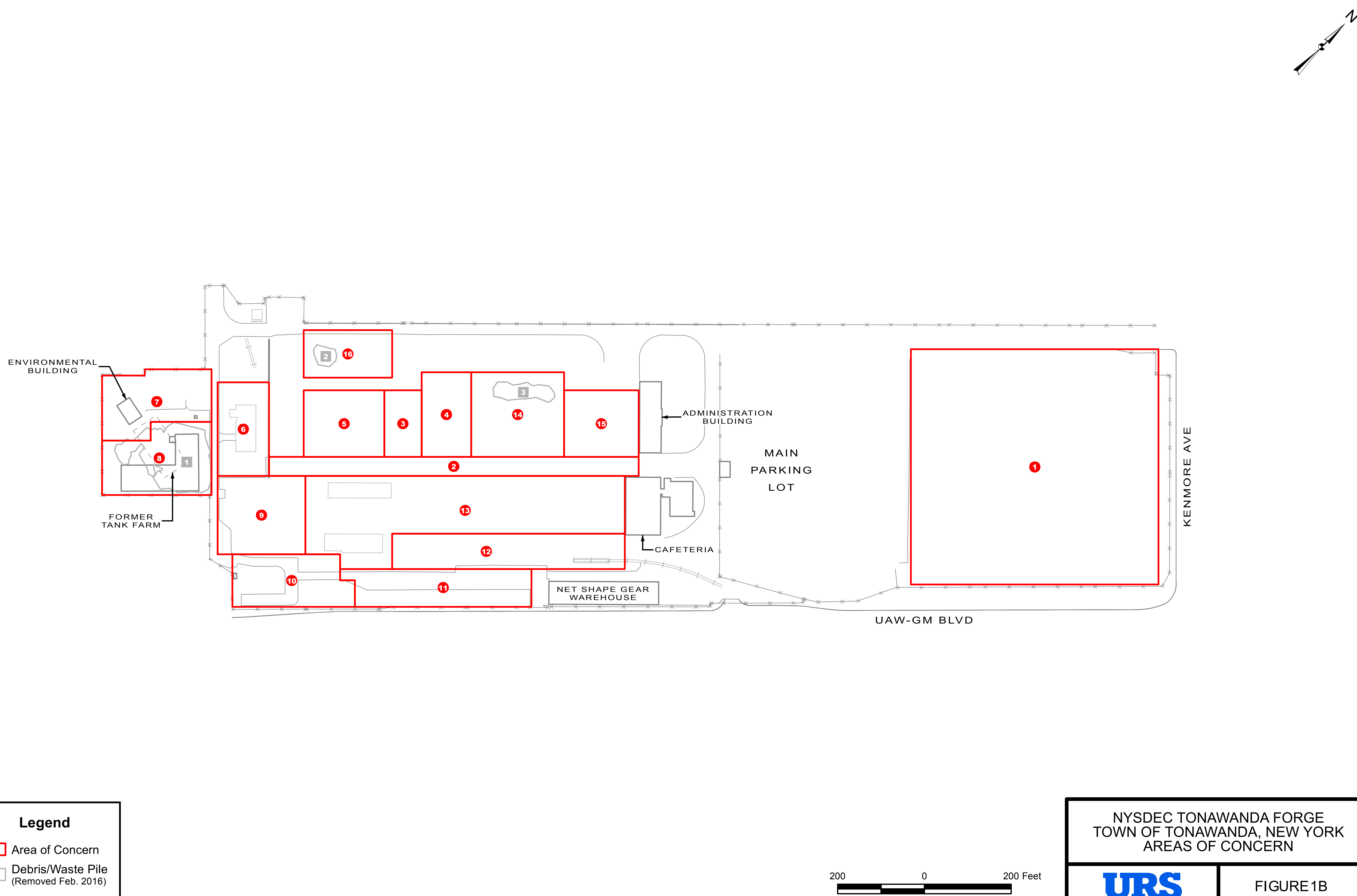
2,000 0 2,000 Feet

URS

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
SITE LOCATION

FIGURE 1A

J:\Projects\11176989\GIS\MAPS\FS\01-01 SITE LOCATION.mxd 4/17/2018



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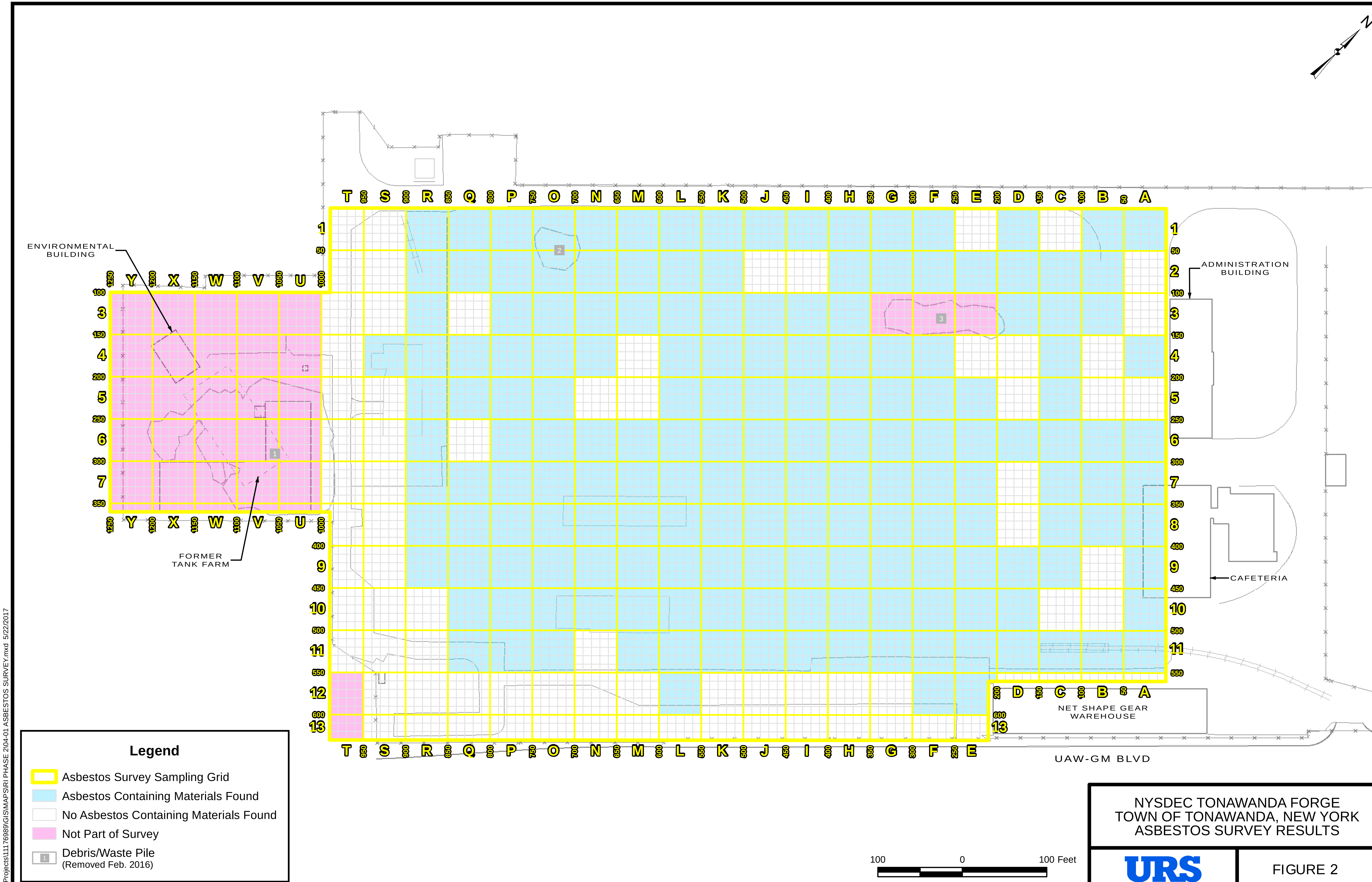
NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AREAS OF CONCERN

URS

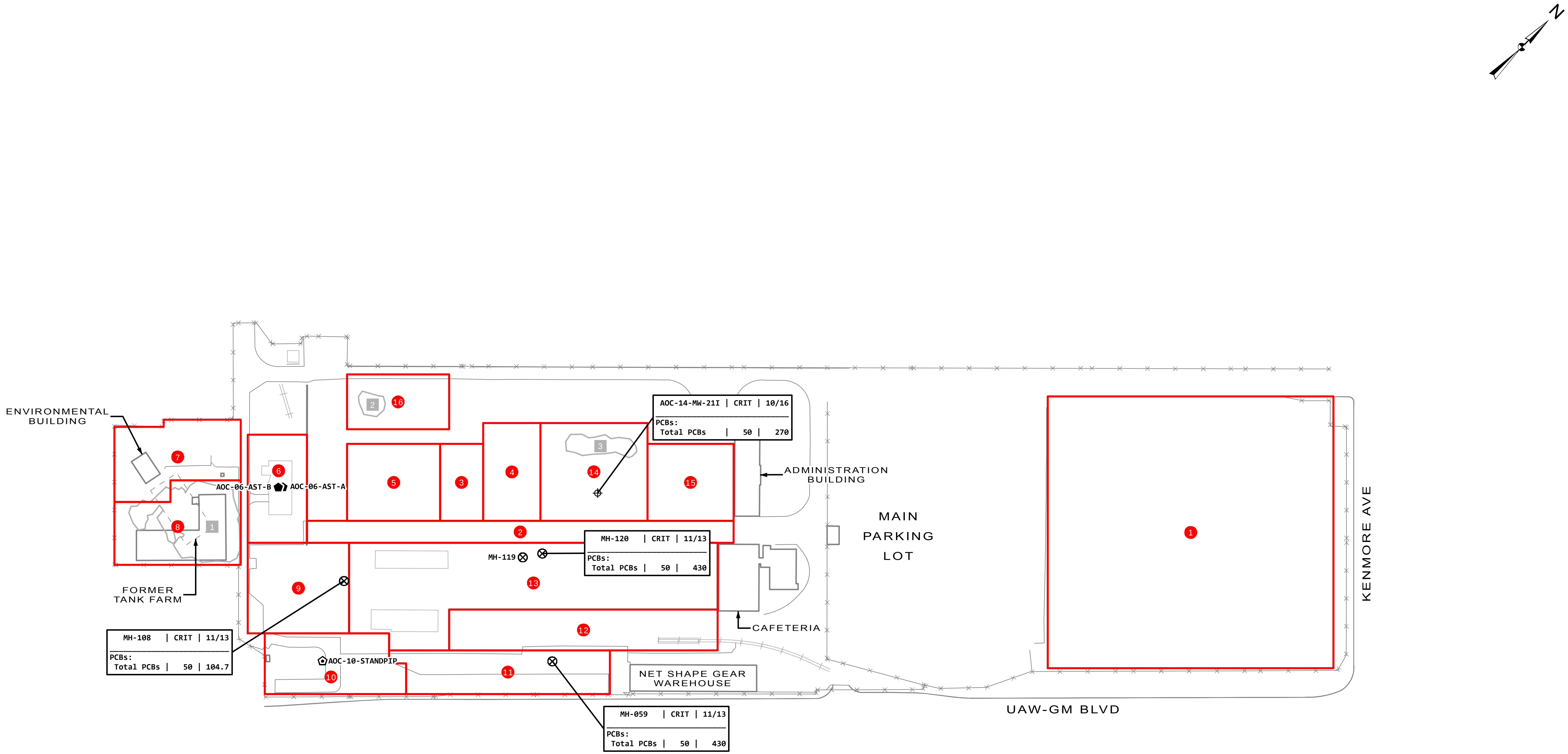
FIGURE 1B



NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
ASBESTOS SURVEY RESULTS

URS

FIGURE 2



Legend

- AST Sample
- Standpipe Sample
- Manhole
- Monitoring Well
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in µg/L; Locations shown without results indicate that no compounds exceeded criteria
Criteria: 40 CFR Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, and 6 NYCRR Part 371.4 (e)

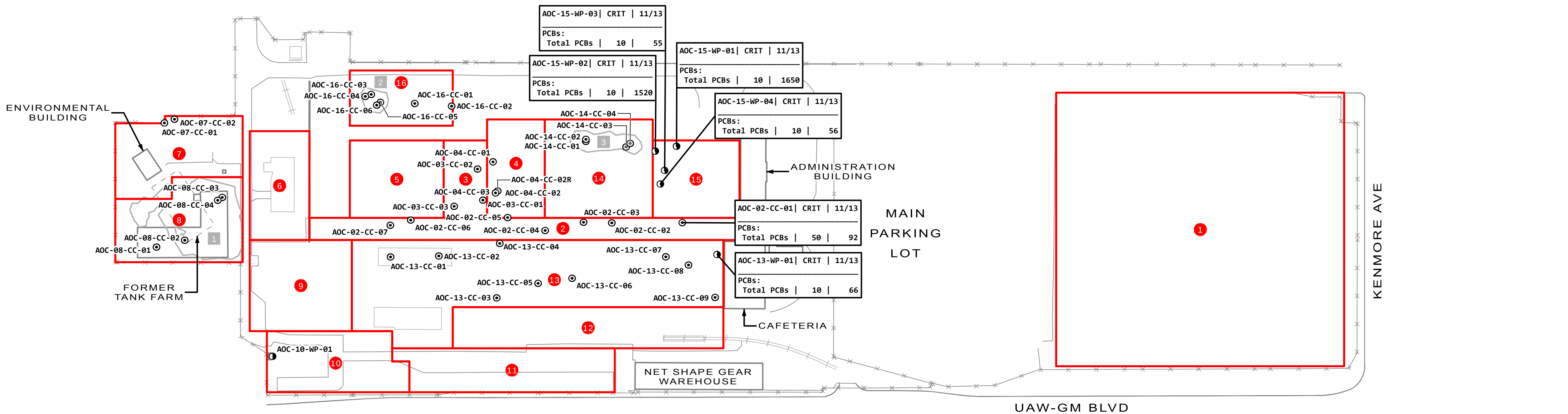
200 0 200 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
NON-AQUEOUS PHASE LIQUID
ANALYTICAL RESULTS

URS

FIGURE 3

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-02 NAPL ANALYTICAL.mxd 5/22/2017



Legend

- Chip Sample (Concrete, Brick, & Asphalt)
- Wipe Sample
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg, except for Wipe Samples, which are in µg/wipe; Locations shown without results indicate that no compounds exceeded criteria

Criteria: 40 CFR Part 761, Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions, and 6 NYCRR Part 371.4 (e)

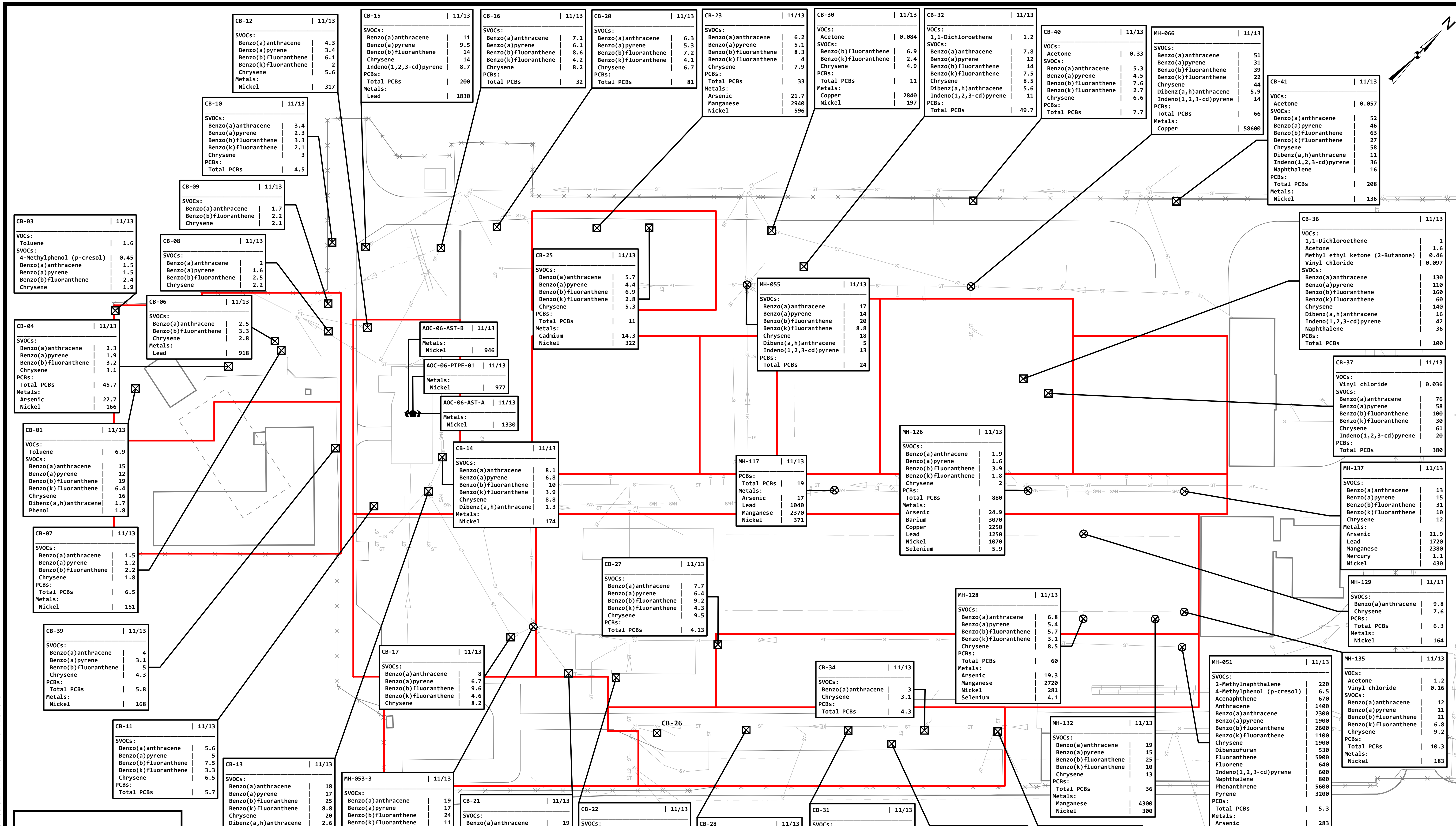
200 0 200 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
CONCRETE AND ASPHALT CHIP, BRICK, & WIPE SAMPLES PCB ANALYTICAL RESULTS

URS

FIGURE 4

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-04 MISC ANALYTICAL.mxd 6/5/2017



Legend
- AST & Pipe Sample
- Catch Basin
- Manhole
- Area of Concern

Notes:
- Units are in mg/kg
- Results only shown where they exceed Part 375 Industrial Use SCOs and Protection of Groundwater Use SCOs

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
MANHOLE SEWER SEDIMENT ANALYTICAL RESULTS

URS

FIGURE 5

J:\Projects\11176989\GIS\MAPS\FS\02-05 SE ANALYTICAL.mxd 4/23/2018

AOC-01-TP-X02 (2.5' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	3.1
Metals:				
Calcium	10000	--	--	13900
Chromium	30	6800	--	132
Copper	50	10000	1720	166
Iron	2000	--	--	68900
Lead	63	3900	450	65.6
Nickel	30	10000	130	61.8

AOC-01-TP-05 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.052
Metals:				
Aluminum	10000	--	--	18500
Calcium	10000	--	--	61200
Chromium	30	6800	--	252
Copper	50	10000	1720	62.8
Iron	2000	--	--	32300
Lead	63	3900	450	2950
Manganese	1600	10000	2000	3740
Mercury	0.18	5.7	0.73	0.26
Nickel	30	10000	130	30.3
Zinc	109	10000	2480	230

AOC-01-MW-11I (2' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.052
Metals:				
Aluminum	10000	--	--	14000
Calcium	10000	--	--	54700
Iron	2000	--	--	23600
Nickel	30	10000	130	34.1

AOC-01-MW-11I (6' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.89
Metals:				
Arsenic	13	16	16	43.6
Calcium	10000	--	--	45300
Chromium	30	6800	--	736
Cobalt	20	--	--	32.2
Copper	50	10000	1720	702
Iron	2000	--	--	492000
Manganese	1600	10000	2000	4140
Nickel	30	10000	130	259
Selenium	3.9	6800	4	7.6

AOC-01-TP-08 (3' - 3.5')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.37
PCBs:				
Total PCBs	0.1	25	3.2	8.63
Metals:				
Arsenic	13	16	16	26.7
Calcium	10000	--	--	24500
Chromium	30	6800	--	525
Cobalt	20	--	--	23
Copper	50	10000	1720	613
Iron	2000	--	--	257000
Lead	63	3900	450	131
Manganese	1600	10000	2000	2860
Mercury	0.18	5.7	0.73	0.51
Nickel	30	10000	130	216
Zinc	109	10000	2480	350

AOC-01-TP-10 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	4.7
Metals:				
Iron	2000	--	--	9330

AOC-01-TP-09 (1' - 1.3')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.23
PCBs:				
Total PCBs	0.1	25	3.2	5.96
Metals:				
Arsenic	13	16	16	32.4
Calcium	10000	--	--	17800
Chromium	30	6800	--	1040
Cobalt	20	--	--	33.2
Copper	50	10000	1720	874
Iron	2000	--	--	381000
Lead	63	3900	450	350
Manganese	1600	10000	2000	3410
Mercury	0.18	5.7	0.73	0.59
Nickel	30	10000	130	340
Selenium	3.9	6800	4	7.3
Vanadium	39	--	--	67
Zinc	109	10000	2480	422

AOC-01-TP-11 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	2.7
Benzo(a)pyrene	1	1.1	22	2.3
Benzo(b)fluoranthene	1	11	1.7	4.1
Benzo(k)fluoranthene	0.8	110	1.7	1.4
Chrysene	1	110	1	2.4
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.82
PCBs:				
Total PCBs	0.1	25	3.2	33.4
Metals:				
Arsenic	13	16	16	16.2
Cadmium	2.5	60	7.5	10.7
Calcium	10000	--	--	11200
Chromium	30	6800	--	380
Copper	50	10000	1720	621
Iron	2000	--	--	213000
Lead	63	3900	450	649
Manganese	1600	10000	2000	1810
Mercury	0.18	5.7	0.73	6.6
Nickel	30	10000	130	250
Zinc	109	10000	2480	1310

AOC-01-TP-X01 (4' - 4.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	18.3
Metals:				
Calcium	10000	--	--	42300
Chromium	30	6800	--	170
Copper	50	10000	1720	96.5
Iron	2000	--	--	44300
Manganese	1600	10000	2000	3470
Nickel	30	10000	130	47.2
Zinc	109	10000	2480	212

AOC-01-TP-X03 (3' - 3.5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.66
Metals:				
Calcium	10000	--	--	49700
Chromium	30	6800	--	36.8
Copper	50	10000	1720	50.4
Iron	2000	--	--	22700

AOC-01-TP-X09 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.7
Benzo(a)pyrene	1	1.1	22	1.9
Benzo(b)fluoranthene	1	11	1.7	3.7
Benzo(k)fluoranthene	0.8	110	1.7	1.2
Chrysene	1	110	1	2.3
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.66
PCBs:				
Total PCBs	0.1	25	3.2	3.86
Metals:				
Calcium	10000	--	--	42200
Chromium	30	6800	--	70.3
Iron	2000	--	--	29400
Zinc	109	10000	2480	244

AOC-01-MW-13I (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.5
Chrysene	1	110	1	1.2
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1
PCBs:				
Total PCBs	0.1	25	3.2	1.8
Metals:				
Calcium	10000	--	--	41100
Chromium	30	6800	--	129
Copper	50	10000	1720	115
Iron	2000	--	--	59900
Lead	63	3900	450	66.9
Nickel	30	10000	130	46.6
Zinc	109	10000	2480	151

AOC-01-MW-13I (19' - 20')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Calcium	10000	--	--	91200
Iron	2000	--	--	13900

AOC-01-TP-X08 (3' - 3.5')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.072
PCBs:				
Total PCBs	0.1	25	3.2	1.4
Metals:				
Arsenic	13	16	16	16
Chromium	30	6800	--	429
Copper	50	10000	1720	296
Iron	2000	--	--	174000
Manganese	1600	10000	2000	1960
Nickel	30	10000	130	119
Zinc	109	10000	2480	125

AOC-01-TP-X07 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.2
Benzo(a)pyrene	1	1.1	22	1.2
Benzo(b)fluoranthene	1	11	1.7	1.8
Benzo(k)fluoranthene	0.8	110	1.7	0.9
Chrysene	1	110	1	1.4
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.54
PCBs:				
Total PCBs	0.1	25	3.2	5.8
Metals:				
Calcium	10000	--	--	38300
Chromium	30	6800	--	103
Copper	50	10000	1720	77.6
Iron	2000	--	--	48900
Lead	63	3900	450	63.2
Nickel	30	10000	130	38.5
Zinc	109	10000	2480	141

AOC-01-TP-02 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)pyrene	1	1.1	22	1.1
Benzo(b)fluoranthene	1	11	1.7	1.4
Di-n-butylphthalate	0.014	--	8.1	0.13
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.1
PCBs:				
Total PCBs	0.1	25	3.2	1.55
Metals:				
Calcium	10000	--	--	19000
Chromium	30	6800	--	137
Copper	50	10000	1720	136
Iron	2000	--	--	79800
Lead	63	3900	450	150
Mercury	0.18	5.7	0.73	0.23
Nickel	30	10000	130	67.9
Zinc	109	10000	2480	716

AOC-01-TP-X06 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	1.2
Benzo(a)anthracene	1	11	1	4.6
Benzo(a)pyrene	1	1.1	22	3.3
Benzo(b)fluoranthene	1	11	1.7	4.8
Benzo(k)fluoranthene	0.8	110	1.7	2.6
Chrysene	1	110	1	5.1
Dibenz(a,h)anthracene	0.33	1.1	1000	0.46
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.3
PCBs:				
Total PCBs	0.1	25	3.2	2.35
Metals:				
Calcium	10000	--	--	26300
Chromium	30	6800	--	173
Copper	50	10000	1720	163
Iron	2000	--	--	85900
Lead	63	3900	450	88.4
Mercury	0.18	5.7	0.73	0.2
Nickel	30	10000	130	61.9
Zinc	109	10000	2480	160

AOC-01-TP-X05 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.1
PCBs:				
Total PCBs	0.1	25	3.2	7.9
Metals:				
Arsenic	13	16	16	13.9
Calcium	10000	--	--	67500
Chromium	30	6800	--	378
Copper	50	10000	1720	312
Iron	2000	--	--	160000
Lead	63	3900	450	281
Manganese	1600	10000	2000	2980
Mercury	0.18	5.7	0.73	0.34
Nickel	30	10000	130	124
Zinc	109	10000	2480	260

AOC-01-MW-12I (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.1
Benzo(a)pyrene	1	1.1	22	1.1
Benzo(b)fluoranthene	1	11	1.7	1.8
Chrysene	1	110	1	1.4
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.81
PCBs:				
Total PCBs	0.1	25	3.2	37
Metals:				
Aluminum	10000	--	--	10300
Calcium	10000	--	--	76200
Chromium	30	6800	--	54.6
Copper	50	10000	1720	79.1
Iron	2000	--	--	37200
Nickel	30	10000	130	53

AOC-01-MW-12I (21' - 22')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	11000
Calcium	10000	--	--	51600
Iron	2000	--	--	16500

AOC-01-TP-X04 (4.8' - 5')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Iron	2000	--	--	18500
Zinc	109	10000	2480	119

AOC-01-MW-10I (2' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	1.73
Metals:				
Calcium	10000	--	--	98700
Chromium	30	6800	--	55.3
Copper	50	10000	1720	63.3
Iron	2000	--	--	38500
Mercury	0.18	5.7	0.73	1.1
Nickel	30	10000	130	42.3

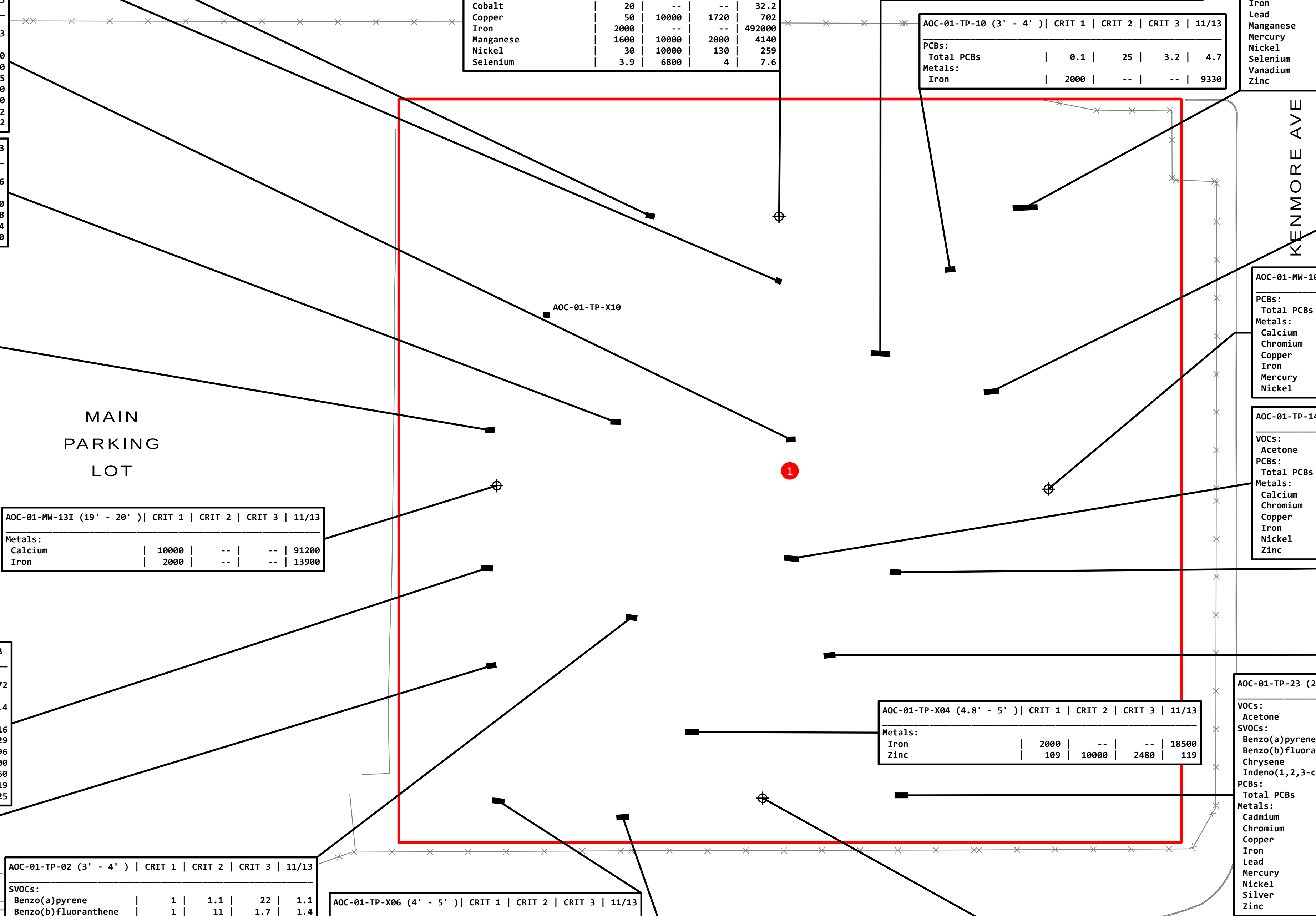
AOC-01-MW-10I (19' - 20')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	11600
Calcium	10000	--	--	58100
Iron	2000	--	--	20400

AOC-01-TP-14 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.067
PCBs:				
Total PCBs	0.1	25	3.2	14
Metals:				
Calcium	10000	--	--	21700
Chromium	30	6800	--	147
Copper	50	10000	1720	118
Iron	2000	--	--	59700
Nickel	30	10000	130	80.8
Zinc	109	10000	2480	124

AOC-01-TP-15 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.17
PCBs:				
Total PCBs	0.1	25	3.2	4.4
Metals:				
Calcium	10000	--	--	22100
Chromium	30	6800	--	162
Copper	50	10000	1720	118
Iron	2000	--	--	68500
Lead	63	3900	450	72.5
Nickel	30	10000	130	57.7
Zinc	109	10000	2480	230

AOC-01-TP-23 (2.4' - 3.4')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.12
SVOCs:				
Benzo(a)pyrene	1	1.1	22	1.1
Benzo(b)fluoranthene	1	11	1.7	1.3
Chrysene	1	110	1	1.3
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.1
PCBs:				
Total PCBs	0.1	25	3.2	9.7
Metals:				
Cadmium	2.5	60	7.5	4
Chromium	30	6800	--	133
Copper	50	10000	1720	171
Iron	2000	--	--	71000
Lead	63	3900	450	314
Mercury	0.18	5.7	0.73	4
Nickel	30	10000	130	74.4
Silver	2	6800	8.3	9.8
Zinc	109	10000	2480	4000

AOC-01-TP-20 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.5
Benzo(a)pyrene	1	1.1	22	1.5
Benzo(b)fluoranthene	1	11	1.7	2.3
Benzo(k)fluoranthene	0.8	110	1.7	0.9
Chrysene	1	110	1	1.8
Dibenz(a,h)anthracene	0.33	1.1	1000	0.34
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.5
PCBs:				
Total PCBs	0.1	25	3.2	7.31
Metals:				
Aluminum	10000	--	--	27300
Calcium	10000	--	--	114000
Chromium	30	6800	--	168
Copper	50	10000	1720	243
Iron	2000	--	--	106000
Lead	63	3900	450	248
Manganese	1600	10000	2000	4470
Mercury	0.18	5.7	0.73	0.41
Nickel	30	10000	130	113
Zinc	109	10000	2480	206



Legend

- Monitoring Well
- Test Pit
- 1 Area of Concern

Notes: Units are in mg/kg; Locations shown without results indicate that no compounds exceeded criteria
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

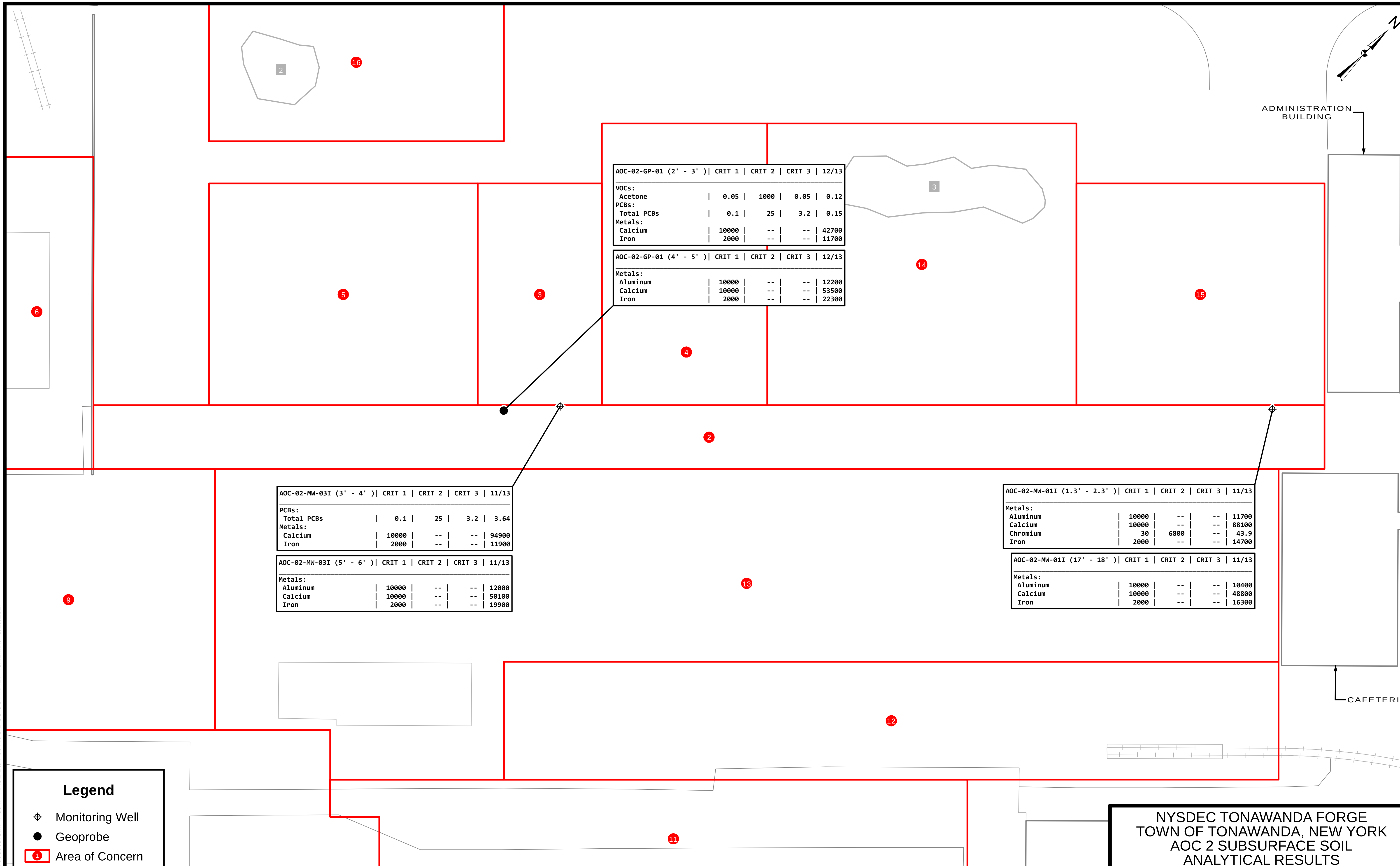
100 0 100 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 1 SUBSURFACE SOIL ANALYTICAL RESULTS

URS

FIGURE 6A

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-05 AOC 1 SS SO ANALYTICAL.mxd 5/19/2017



AOC-02-GP-01 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
VOCs:				
Acetone	0.05	1000	0.05	0.12
PCBs:				
Total PCBs	0.1	25	3.2	0.15
Metals:				
Calcium	10000	--	--	42700
Iron	2000	--	--	11700

AOC-02-GP-01 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	12200
Calcium	10000	--	--	53500
Iron	2000	--	--	22300

AOC-02-MW-03I (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	3.64
Metals:				
Calcium	10000	--	--	94900
Iron	2000	--	--	11900

AOC-02-MW-03I (5' - 6')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	12000
Calcium	10000	--	--	50100
Iron	2000	--	--	19900

AOC-02-MW-01I (1.3' - 2.3')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	11700
Calcium	10000	--	--	88100
Chromium	30	6800	--	43.9
Iron	2000	--	--	14700

AOC-02-MW-01I (17' - 18')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	10400
Calcium	10000	--	--	48800
Iron	2000	--	--	16300

Legend

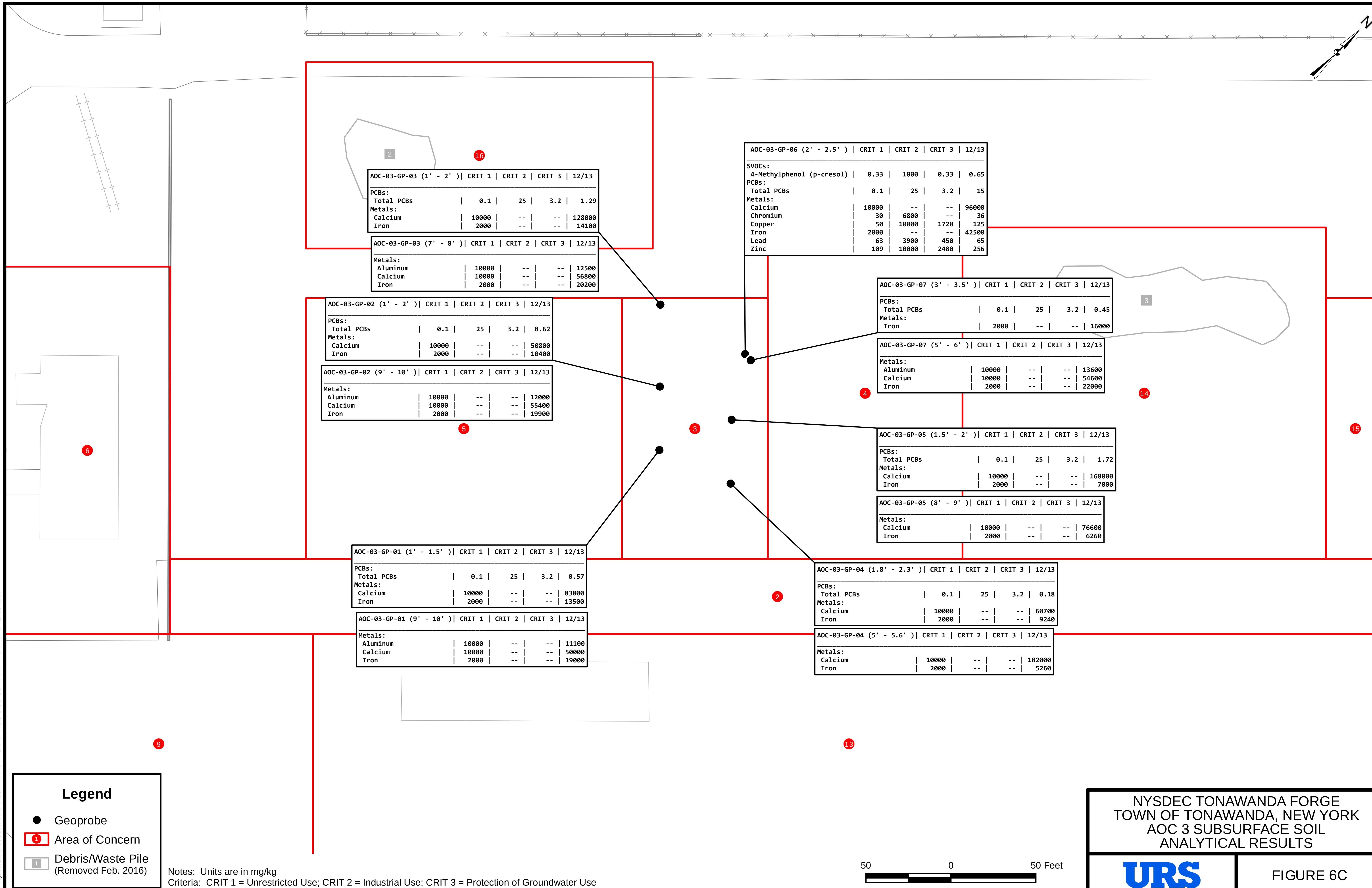
- Monitoring Well
- Geoprobe
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 2 SUBSURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6B



AOC-03-GP-03 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	1.29
Metals:				
Calcium	10000	--	--	128000
Iron	2000	--	--	14100

AOC-03-GP-03 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	12500
Calcium	10000	--	--	56800
Iron	2000	--	--	20200

AOC-03-GP-02 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	8.62
Metals:				
Calcium	10000	--	--	50800
Iron	2000	--	--	10400

AOC-03-GP-02 (9' - 10')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	12000
Calcium	10000	--	--	55400
Iron	2000	--	--	19900

AOC-03-GP-06 (2' - 2.5')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
4-Methylphenol (p-cresol)	0.33	1000	0.33	0.65
PCBs:				
Total PCBs	0.1	25	3.2	15
Metals:				
Calcium	10000	--	--	96000
Chromium	30	6800	--	36
Copper	50	10000	1720	125
Iron	2000	--	--	42500
Lead	63	3900	450	65
Zinc	109	10000	2480	256

AOC-03-GP-07 (3' - 3.5')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	0.45
Metals:				
Iron	2000	--	--	16000

AOC-03-GP-07 (5' - 6')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	13600
Calcium	10000	--	--	54600
Iron	2000	--	--	22000

AOC-03-GP-05 (1.5' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	1.72
Metals:				
Calcium	10000	--	--	168000
Iron	2000	--	--	7000

AOC-03-GP-05 (8' - 9')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	76600
Iron	2000	--	--	6260

AOC-03-GP-01 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	0.57
Metals:				
Calcium	10000	--	--	83800
Iron	2000	--	--	13500

AOC-03-GP-01 (9' - 10')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	11100
Calcium	10000	--	--	50000
Iron	2000	--	--	19000

AOC-03-GP-04 (1.8' - 2.3')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	0.18
Metals:				
Calcium	10000	--	--	60700
Iron	2000	--	--	9240

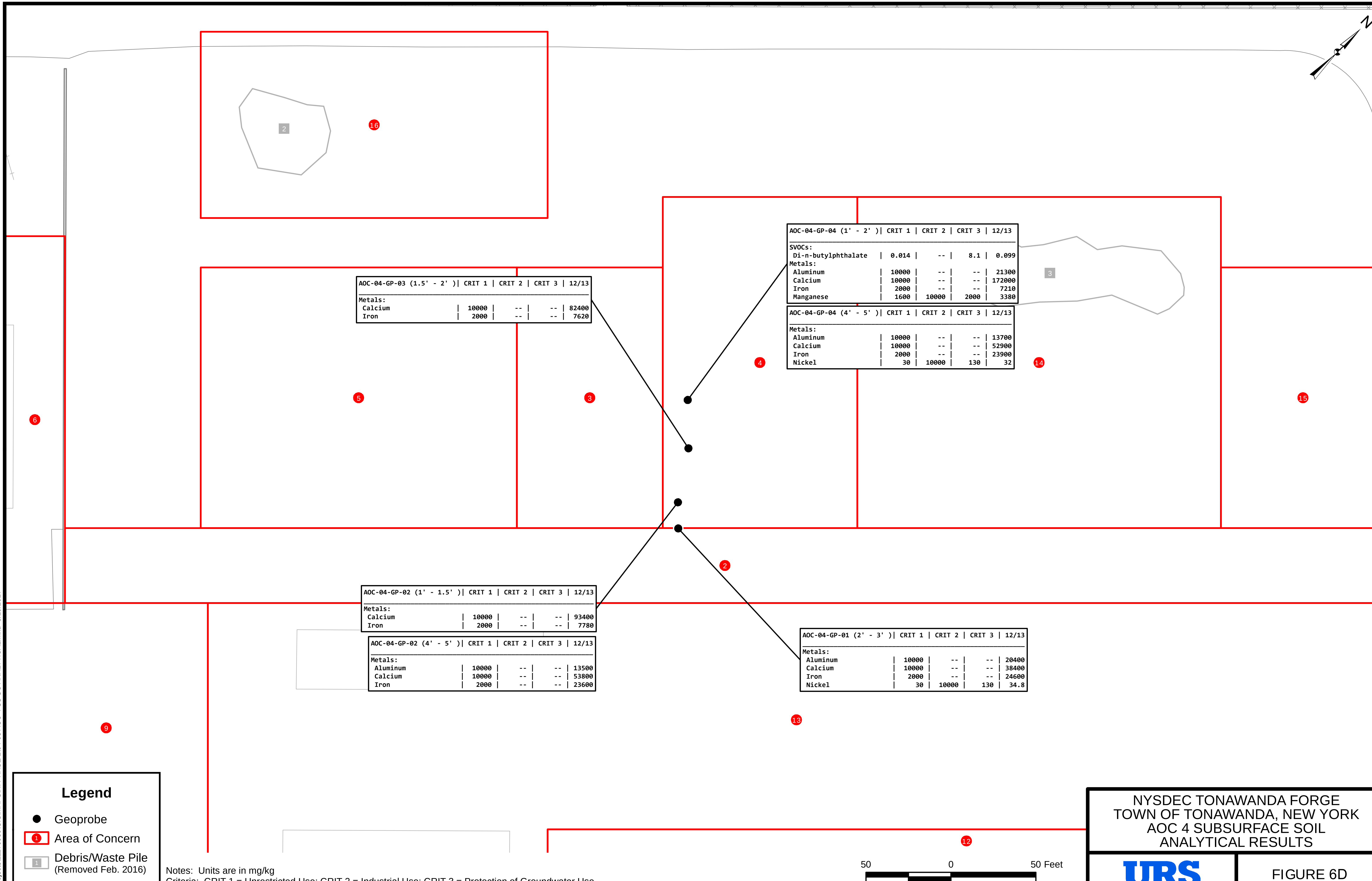
AOC-03-GP-04 (5' - 5.6')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	182000
Iron	2000	--	--	5260

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 3 SUBSURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6C



AOC-04-GP-04 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
Di-n-butylphthalate	0.014	--	8.1	0.099
Metals:				
Aluminum	10000	--	--	21300
Calcium	10000	--	--	172000
Iron	2000	--	--	7210
Manganese	1600	10000	2000	3380

AOC-04-GP-04 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	13700
Calcium	10000	--	--	52900
Iron	2000	--	--	23900
Nickel	30	10000	130	32

AOC-04-GP-03 (1.5' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	82400
Iron	2000	--	--	7620

AOC-04-GP-02 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	93400
Iron	2000	--	--	7780

AOC-04-GP-02 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	13500
Calcium	10000	--	--	53800
Iron	2000	--	--	23600

AOC-04-GP-01 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	20400
Calcium	10000	--	--	38400
Iron	2000	--	--	24600
Nickel	30	10000	130	34.8

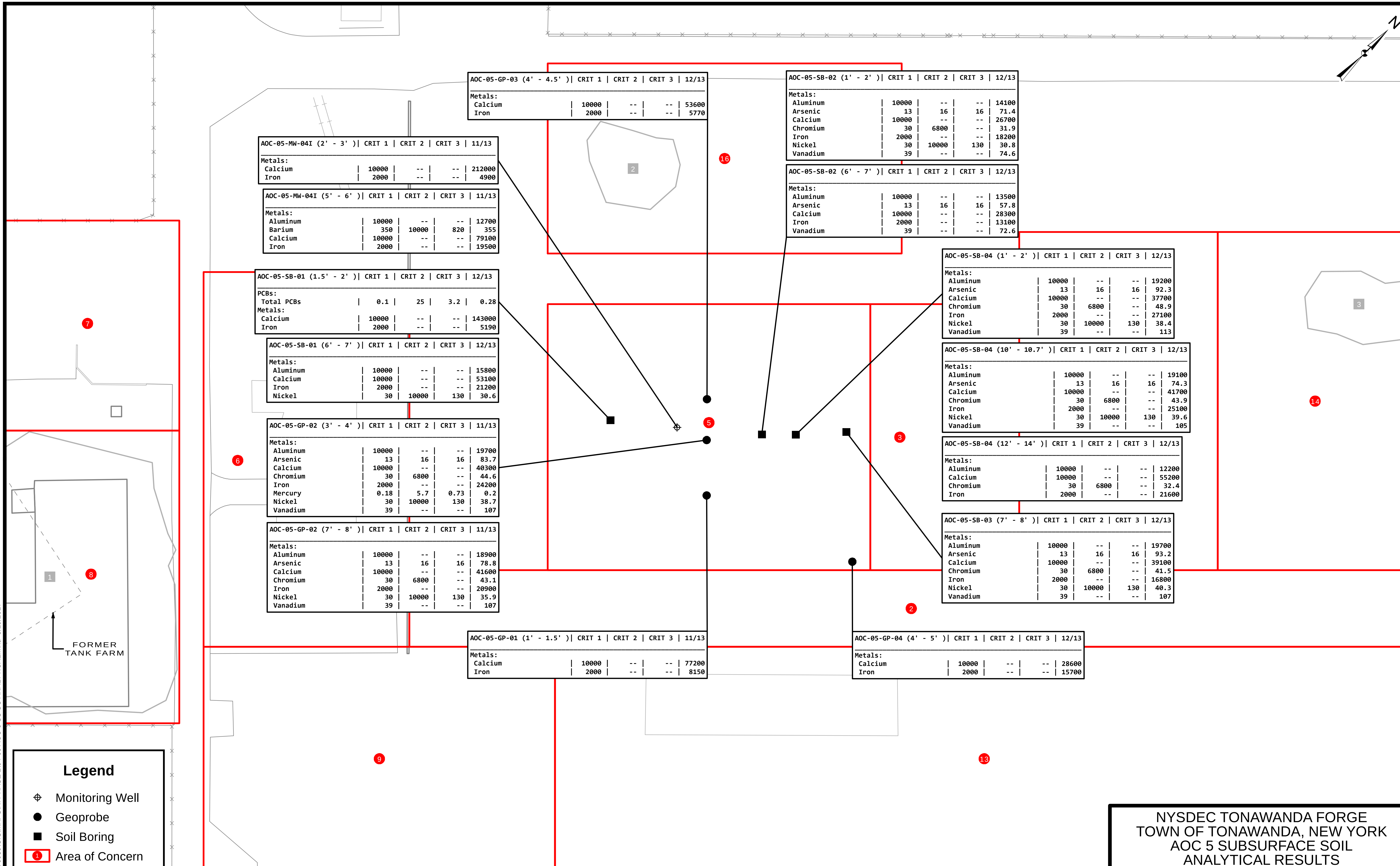
Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 4 SUBSURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6D

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-08 AOC 4 SS SO ANALYTICAL.mxd 5/19/2017



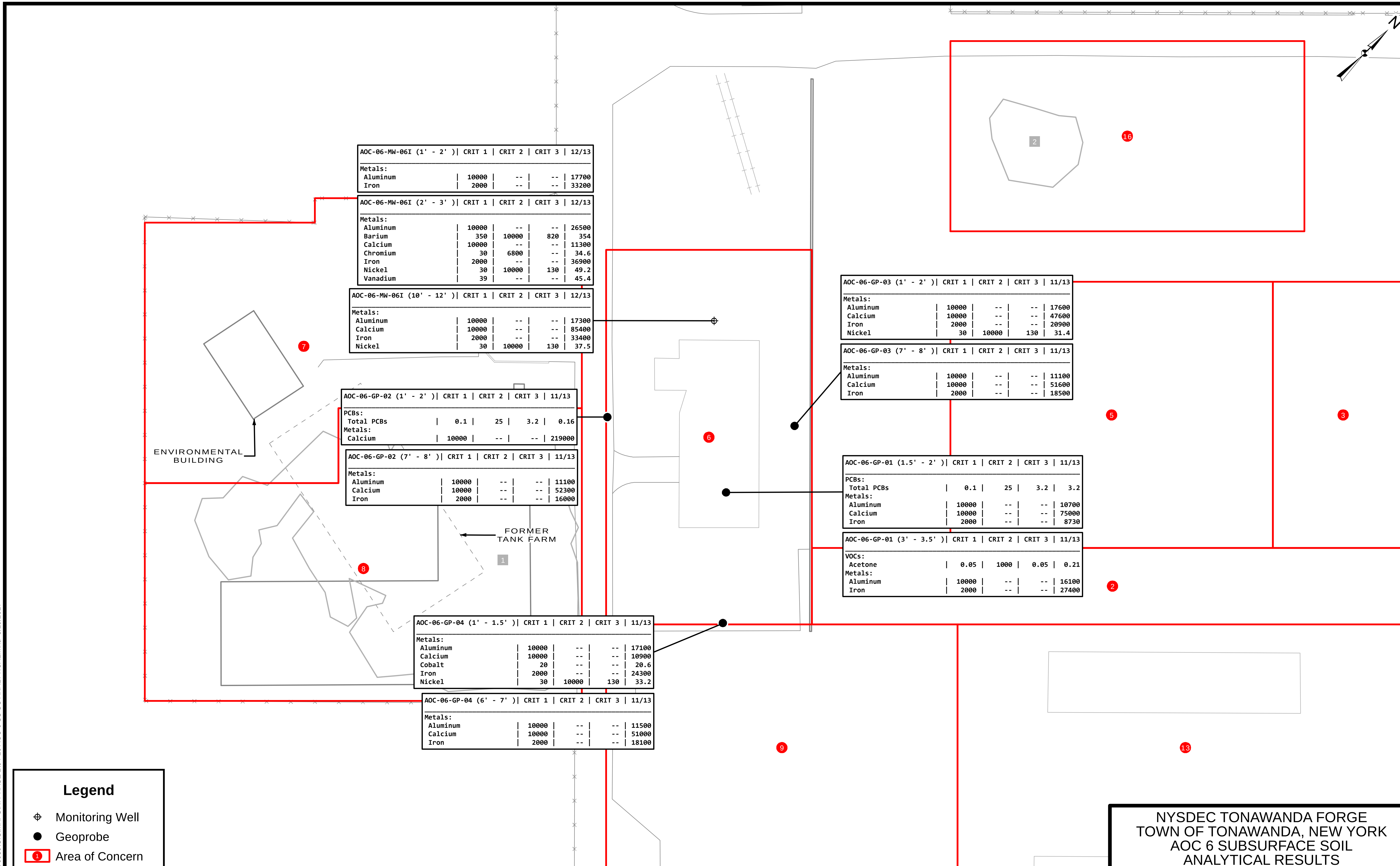
Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 5 SUBSURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6E

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-09 AOC 5 SS SO ANALYTICAL.mxd 5/19/2017



AOC-06-MW-06I (1' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	17700
Iron	2000	--	--	33200

AOC-06-MW-06I (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	26500
Barium	350	10000	820	354
Calcium	10000	--	--	11300
Chromium	30	6800	--	34.6
Iron	2000	--	--	36900
Nickel	30	10000	130	49.2
Vanadium	39	--	--	45.4

AOC-06-MW-06I (10' - 12')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	17300
Calcium	10000	--	--	85400
Iron	2000	--	--	33400
Nickel	30	10000	130	37.5

AOC-06-GP-02 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.16
Metals:				
Calcium	10000	--	--	219000

AOC-06-GP-02 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	11100
Calcium	10000	--	--	52300
Iron	2000	--	--	16000

AOC-06-GP-03 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	17600
Calcium	10000	--	--	47600
Iron	2000	--	--	20900
Nickel	30	10000	130	31.4

AOC-06-GP-03 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	11100
Calcium	10000	--	--	51600
Iron	2000	--	--	18500

AOC-06-GP-01 (1.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	3.2
Metals:				
Aluminum	10000	--	--	10700
Calcium	10000	--	--	75000
Iron	2000	--	--	8730

AOC-06-GP-01 (3' - 3.5')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.21
Metals:				
Aluminum	10000	--	--	16100
Iron	2000	--	--	27400

AOC-06-GP-04 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	17100
Calcium	10000	--	--	10900
Cobalt	20	--	--	20.6
Iron	2000	--	--	24300
Nickel	30	10000	130	33.2

AOC-06-GP-04 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	11500
Calcium	10000	--	--	51000
Iron	2000	--	--	18100

Legend

- Monitoring Well
- Geoprobe
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

50 0 50 Feet

NYSDEC TONAWANDA FORGE
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AOC 6 SUBSURFACE SOIL
ANALYTICAL RESULTS

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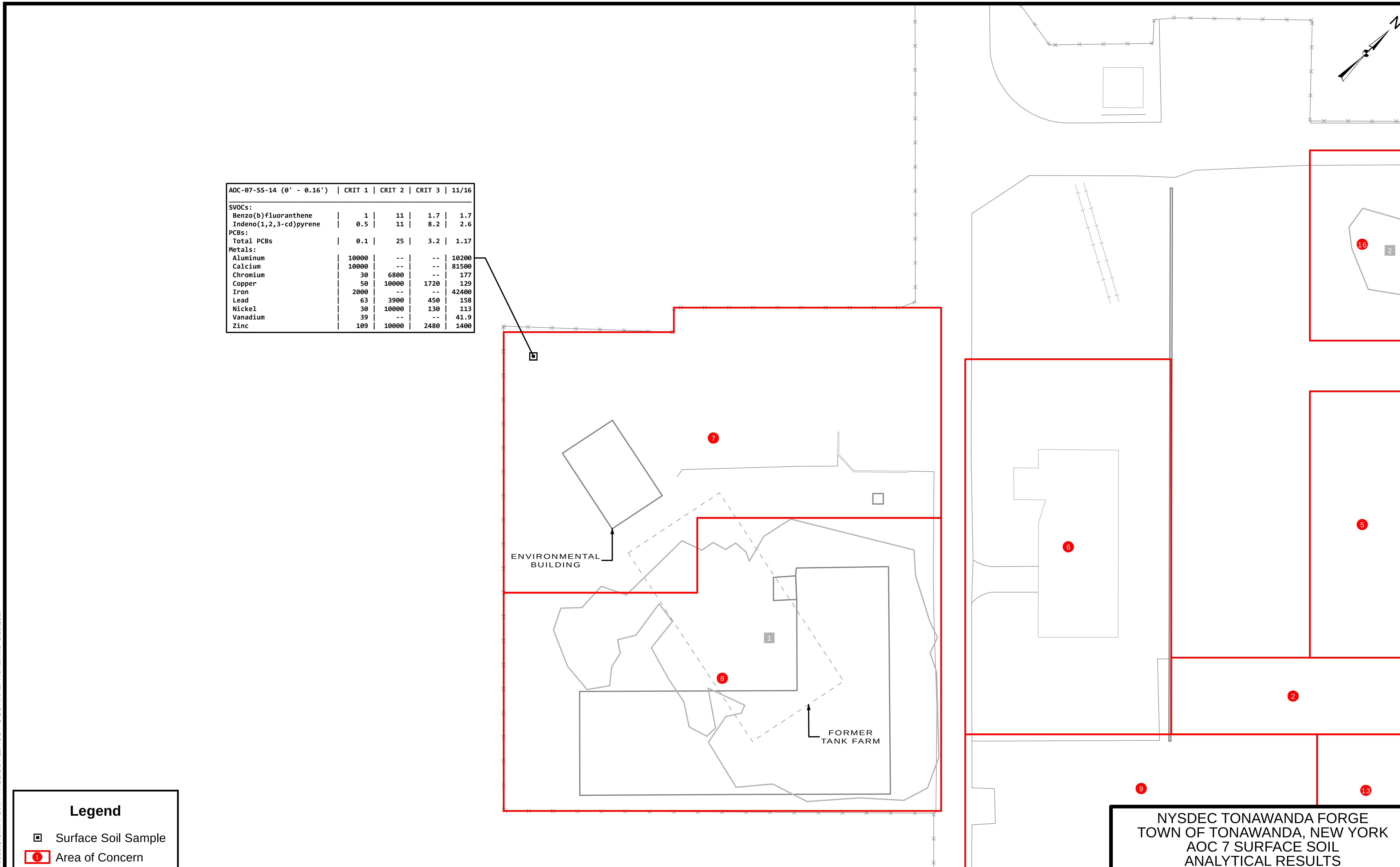
FIGURE 6F

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-10 AOC 6 SS SO ANALYTICAL.mxd 5/19/2017



AOC-07-SS-14 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.7
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	2.6
PCBs:				
Total PCBs	0.1	25	3.2	1.17
Metals:				
Aluminum	10000	--	--	10200
Calcium	10000	--	--	81500
Chromium	30	6800	--	177
Copper	50	10000	1720	129
Iron	2000	--	--	42400
Lead	63	3900	450	158
Nickel	30	10000	130	113
Vanadium	39	--	--	41.9
Zinc	109	10000	2480	1400

Legend

- Surface Soil Sample
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

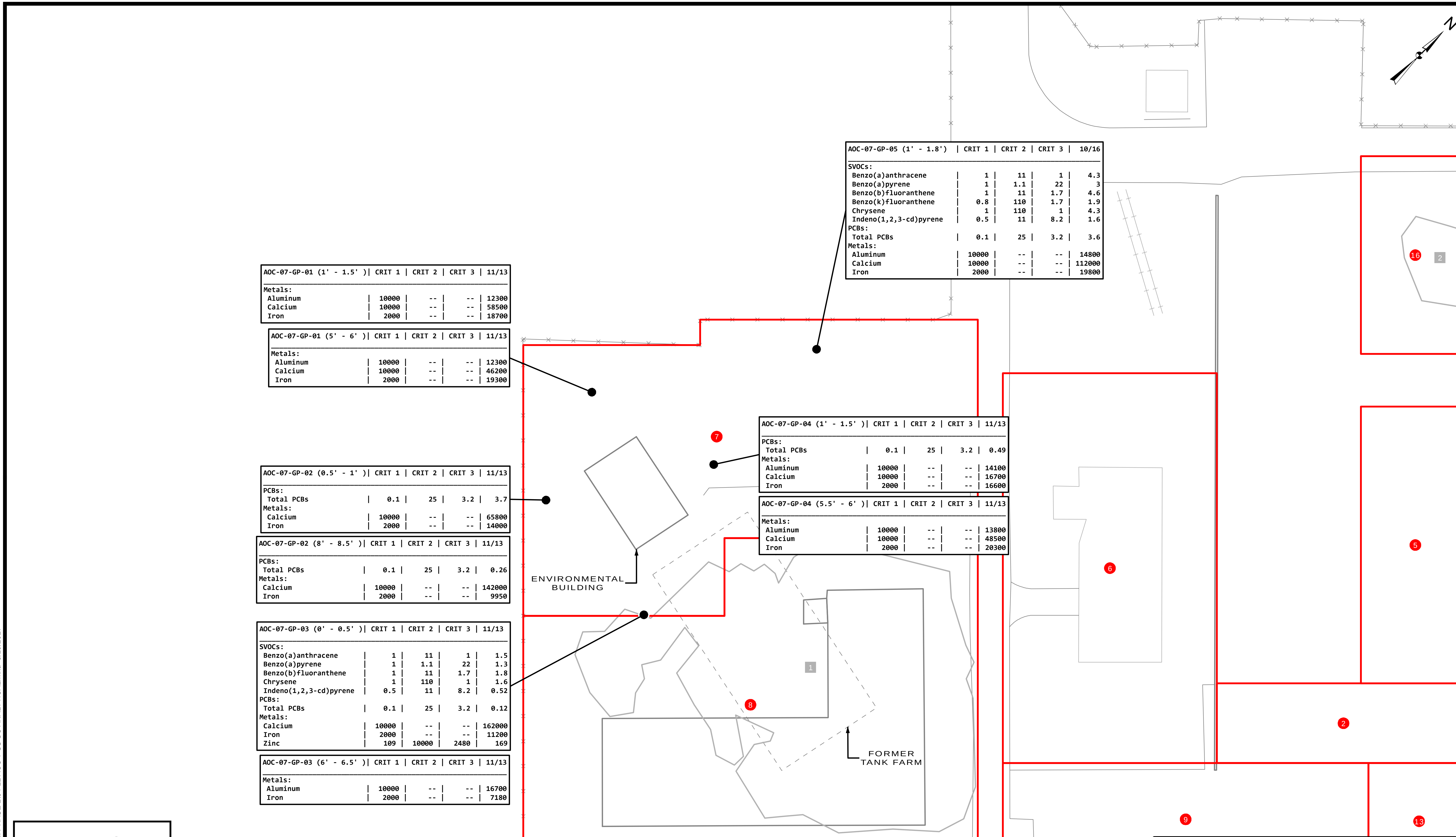
50 0 50 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 7 SURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6G

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-11 AOC 7 S SO ANALYTICAL.mxd 5/19/2017



AOC-07-GP-05 (1' - 1.8')	CRIT 1	CRIT 2	CRIT 3	10/16
SVOCs:				
Benzo(a)anthracene	1	11	1	4.3
Benzo(a)pyrene	1	1.1	22	3
Benzo(b)fluoranthene	1	11	1.7	4.6
Benzo(k)fluoranthene	0.8	110	1.7	1.9
Chrysene	1	110	1	4.3
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.6
PCBs:				
Total PCBs	0.1	25	3.2	3.6
Metals:				
Aluminum	10000	--	--	14800
Calcium	10000	--	--	112000
Iron	2000	--	--	19800

AOC-07-GP-01 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	12300
Calcium	10000	--	--	58500
Iron	2000	--	--	18700

AOC-07-GP-01 (5' - 6')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	12300
Calcium	10000	--	--	46200
Iron	2000	--	--	19300

AOC-07-GP-04 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.49
Metals:				
Aluminum	10000	--	--	14100
Calcium	10000	--	--	16700
Iron	2000	--	--	16600

AOC-07-GP-04 (5.5' - 6')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	13800
Calcium	10000	--	--	48500
Iron	2000	--	--	20300

AOC-07-GP-02 (0.5' - 1')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	3.7
Metals:				
Calcium	10000	--	--	65800
Iron	2000	--	--	14000

AOC-07-GP-02 (8' - 8.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.26
Metals:				
Calcium	10000	--	--	142000
Iron	2000	--	--	9950

AOC-07-GP-03 (0' - 0.5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.5
Benzo(a)pyrene	1	1.1	22	1.3
Benzo(b)fluoranthene	1	11	1.7	1.8
Chrysene	1	110	1	1.6
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.52
PCBs:				
Total PCBs	0.1	25	3.2	0.12
Metals:				
Calcium	10000	--	--	162000
Iron	2000	--	--	11200
Zinc	109	10000	2480	169

AOC-07-GP-03 (6' - 6.5')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	16700
Iron	2000	--	--	7180

Legend

- Geoprobe
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
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AOC 7 SUBSURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6H

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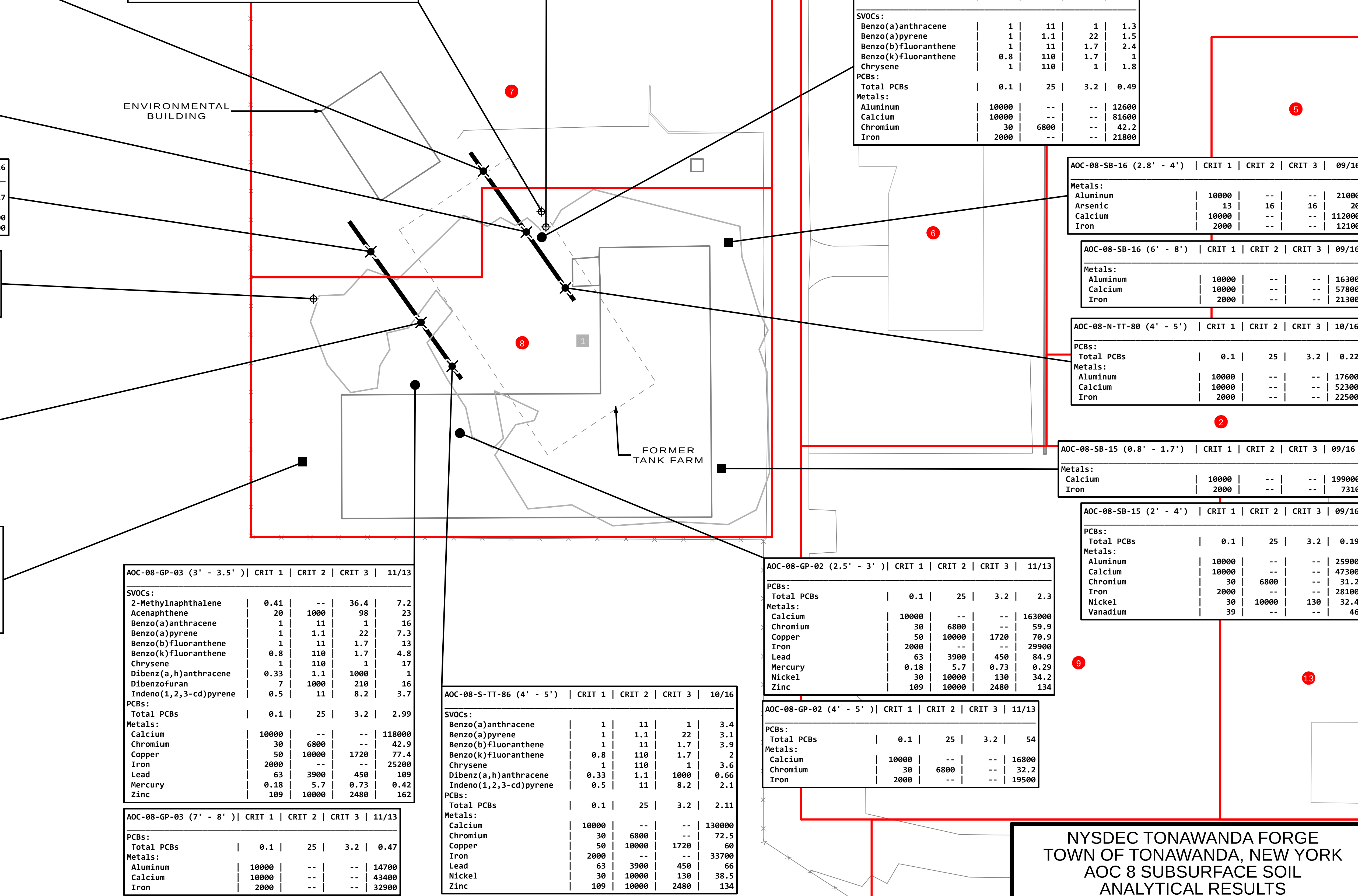

AOC-08-N-TT-11 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	10/16
SVOCs:				
Benzo(a)anthracene	1	11	1	1.3
Benzo(a)pyrene	1	1.1	22	1.5
Benzo(b)fluoranthene	1	11	1.7	2.8
Benzo(k)fluoranthene	0.8	110	1.7	1
Chrysene	1	110	1	1.8
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.1
PCBs:				
Total PCBs	0.1	25	3.2	1.42
Metals:				
Aluminum	10000	--	--	18600
Calcium	10000	--	--	82000
Chromium	30	6800	--	91.6
Copper	50	10000	1720	60.1
Iron	2000	--	--	39900
Mercury	0.18	5.7	0.73	0.23
Nickel	30	10000	130	36.7

AOC-08-N-TT-47 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	17300
Calcium	10000	--	--	57200
Iron	2000	--	--	22300

AOC-08-S-TT-18 (4' - 4.5')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	17
Metals:				
Calcium	10000	--	--	194000
Iron	2000	--	--	10400

AOC-08-MW-18I (12' - 14')	CRIT 1	CRIT 2	CRIT 3	09/16
Metals:				
Aluminum	10000	--	--	15600
Calcium	10000	--	--	47700
Iron	2000	--	--	21100

AOC-08-S-TT-60 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	10/16
SVOCs:				
Benzo(a)anthracene	1	11	1	5.8
Benzo(a)pyrene	1	1.1	22	4.5
Benzo(b)fluoranthene	1	11	1.7	5.9
Benzo(k)fluoranthene	0.8	110	1.7	3.2
Chrysene	1	110	1	5.6
Dibenz(a,h)anthracene	0.33	1.1	1000	0.85
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	2.6
PCBs:				
Total PCBs	0.1	25	3.2	1.02
Metals:				
Aluminum	10000	--	--	17200
Calcium	10000	--	--	52400
Chromium	30	6800	--	33.2
Iron	2000	--	--	22100
Nickel	30	10000	130	30.6

AOC-08-SB-14 (3' - 3.6')	CRIT 1	CRIT 2	CRIT 3	09/16
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.1
PCBs:				
Total PCBs	0.1	25	3.2	0.27
Metals:				
Aluminum	10000	--	--	16900
Calcium	10000	--	--	150000
Iron	2000	--	--	12300

AOC-08-MW-07I (15' - 17')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	13200
Iron	2000	--	--	30000

AOC-08-MW-07I (19' - 21')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	10600
Calcium	10000	--	--	51300
Iron	2000	--	--	15900

AOC-08-MW-07S (8' - 10')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	1.5
Metals:				
Aluminum	10000	--	--	10600
Calcium	10000	--	--	87100
Iron	2000	--	--	15400

AOC-08-GP-01 (0.5' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.43
Metals:				
Aluminum	10000	--	--	11400
Calcium	10000	--	--	76700
Chromium	30	6800	--	33.4
Iron	2000	--	--	21300
Zinc	109	10000	2480	127

AOC-08-GP-01 (3' - 3.5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.3
Benzo(a)pyrene	1	1.1	22	1.5
Benzo(b)fluoranthene	1	11	1.7	2.4
Benzo(k)fluoranthene	0.8	110	1.7	1
Chrysene	1	110	1	1.8
PCBs:				
Total PCBs	0.1	25	3.2	0.49
Metals:				
Aluminum	10000	--	--	12600
Calcium	10000	--	--	81600
Chromium	30	6800	--	42.2
Iron	2000	--	--	21800

AOC-08-SB-16 (2.8' - 4')	CRIT 1	CRIT 2	CRIT 3	09/16
Metals:				
Aluminum	10000	--	--	21000
Arsenic	13	16	16	20
Calcium	10000	--	--	112000
Iron	2000	--	--	12100

AOC-08-SB-16 (6' - 8')	CRIT 1	CRIT 2	CRIT 3	09/16
Metals:				
Aluminum	10000	--	--	16300
Calcium	10000	--	--	57800
Iron	2000	--	--	21300

AOC-08-N-TT-80 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	0.22
Metals:				
Aluminum	10000	--	--	17600
Calcium	10000	--	--	52300
Iron	2000	--	--	22500

AOC-08-SB-15 (0.8' - 1.7')	CRIT 1	CRIT 2	CRIT 3	09/16
Metals:				
Calcium	10000	--	--	199000
Iron	2000	--	--	7310

AOC-08-SB-15 (2' - 4')	CRIT 1	CRIT 2	CRIT 3	09/16
PCBs:				
Total PCBs	0.1	25	3.2	0.19
Metals:				
Aluminum	10000	--	--	25900
Calcium	10000	--	--	47300
Chromium	30	6800	--	31.2
Iron	2000	--	--	28100
Nickel	30	10000	130	32.4
Vanadium	39	--	--	46

AOC-08-GP-03 (3' - 3.5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	7.2
Acenaphthene	20	1000	98	23
Benzo(a)anthracene	1	11	1	16
Benzo(a)pyrene	1	1.1	22	7.3
Benzo(b)fluoranthene	1	11	1.7	13
Benzo(k)fluoranthene	0.8	110	1.7	4.8
Chrysene	1	110	1	17
Dibenz(a,h)anthracene	0.33	1.1	1000	1
Dibenzofuran	7	1000	210	16
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	3.7
PCBs:				
Total PCBs	0.1	25	3.2	2.99
Metals:				
Calcium	10000	--	--	118000
Chromium	30	6800	--	42.9
Copper	50	10000	1720	77.4
Iron	2000	--	--	25200
Lead	63	3900	450	109
Mercury	0.18	5.7	0.73	0.42
Zinc	109	10000	2480	162

AOC-08-GP-03 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.47
Metals:				
Aluminum	10000	--	--	14700
Calcium	10000	--	--	43400
Iron	2000	--	--	32900

AOC-08-S-TT-86 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	10/16
SVOCs:				
Benzo(a)anthracene	1	11	1	3.4
Benzo(a)pyrene	1	1.1	22	3.1
Benzo(b)fluoranthene	1	11	1.7	3.9
Benzo(k)fluoranthene	0.8	110	1.7	2
Chrysene	1	110	1	3.6
Dibenz(a,h)anthracene	0.33	1.1	1000	0.66
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	2.1
PCBs:				
Total PCBs	0.1	25	3.2	2.11
Metals:				
Calcium	10000	--	--	130000
Chromium	30	6800	--	72.5
Copper	50	10000	1720	60
Iron	2000	--	--	33700
Lead	63	3900	450	66
Nickel	30	10000	130	38.5
Zinc	109	10000	2480	134

AOC-08-GP-02 (2.5' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	2.3
Metals:				
Calcium	10000	--	--	163000
Chromium	30	6800	--	59.9
Copper	50	10000	1720	70.9
Iron	2000	--	--	29900
Lead	63	3900	450	84.9
Mercury	0.18	5.7	0.73	0.29
Nickel	30	10000	130	34.2
Zinc	109	10000	2480	134

AOC-08-GP-02 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	54
Metals:				
Calcium	10000	--	--	16800
Chromium	30	6800	--	32.2
Iron	2000	--	--	19500

Legend

- Monitoring Well
- Geoprobe
- Soil Boring
- Test Trench Sample
- Test Pit
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

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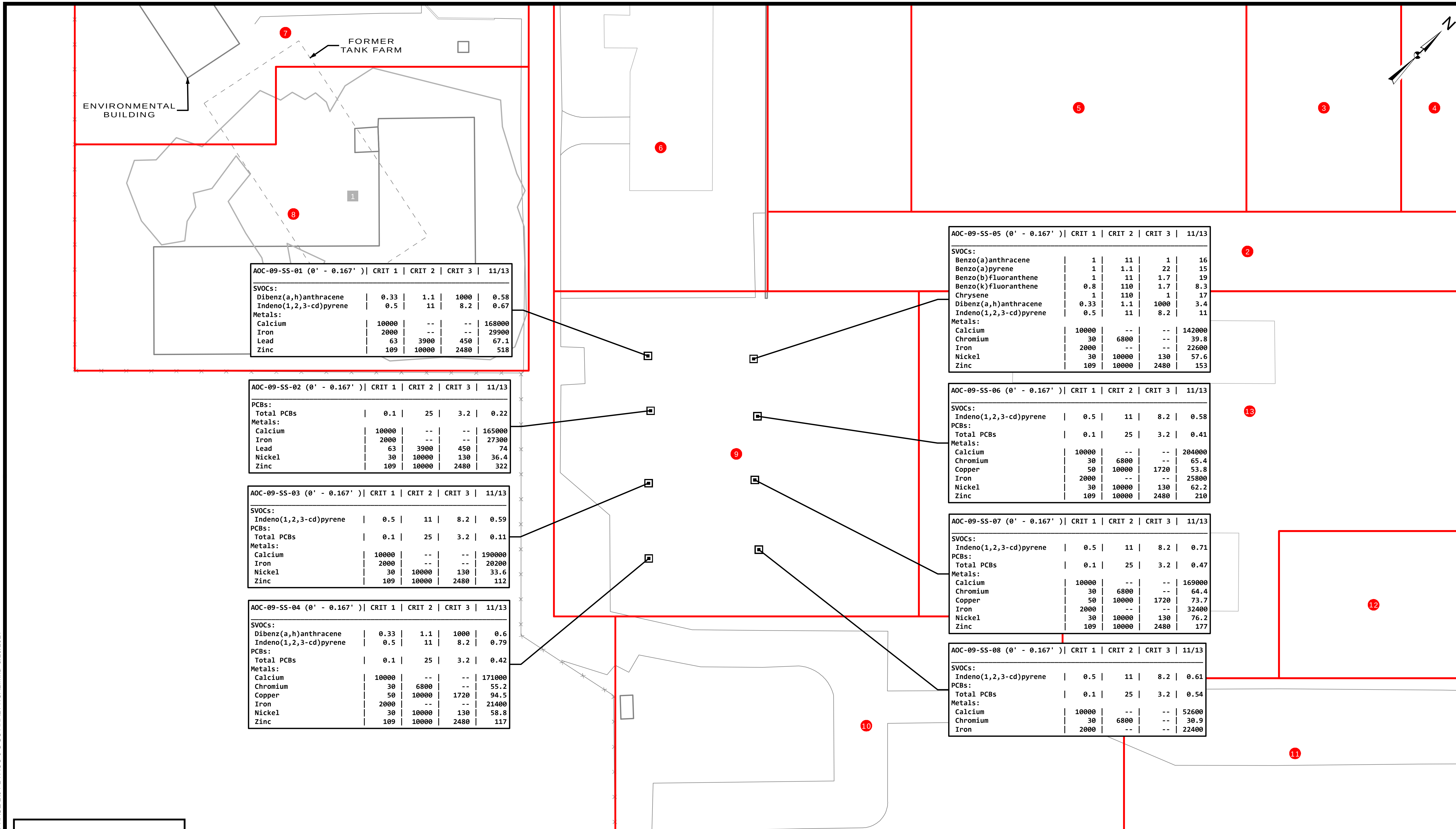
FIGURE 6I



AOC-09-SS-01 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Dibenz(a,h)anthracene	0.33	1.1	1000	0.58
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.67
Metals:				
Calcium	10000	--	--	168000
Iron	2000	--	--	29900
Lead	63	3900	450	67.1
Zinc	109	10000	2480	518

AOC-09-SS-02 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.22
Metals:				
Calcium	10000	--	--	165000
Iron	2000	--	--	27300
Lead	63	3900	450	74
Nickel	30	10000	130	36.4
Zinc	109	10000	2480	322

AOC-09-SS-03 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.59
PCBs:				
Total PCBs	0.1	25	3.2	0.11
Metals:				
Calcium	10000	--	--	190000
Iron	2000	--	--	20200
Nickel	30	10000	130	33.6
Zinc	109	10000	2480	112

AOC-09-SS-04 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Dibenz(a,h)anthracene	0.33	1.1	1000	0.6
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.79
PCBs:				
Total PCBs	0.1	25	3.2	0.42
Metals:				
Calcium	10000	--	--	171000
Chromium	30	6800	--	55.2
Copper	50	10000	1720	94.5
Iron	2000	--	--	21400
Nickel	30	10000	130	58.8
Zinc	109	10000	2480	117

AOC-09-SS-05 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	16
Benzo(a)pyrene	1	1.1	22	15
Benzo(b)fluoranthene	1	11	1.7	19
Benzo(k)fluoranthene	0.8	110	1.7	8.3
Chrysene	1	110	1	17
Dibenz(a,h)anthracene	0.33	1.1	1000	3.4
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	11
Metals:				
Calcium	10000	--	--	142000
Chromium	30	6800	--	39.8
Iron	2000	--	--	22600
Nickel	30	10000	130	57.6
Zinc	109	10000	2480	153

AOC-09-SS-06 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.58
PCBs:				
Total PCBs	0.1	25	3.2	0.41
Metals:				
Calcium	10000	--	--	204000
Chromium	30	6800	--	65.4
Copper	50	10000	1720	53.8
Iron	2000	--	--	25800
Nickel	30	10000	130	62.2
Zinc	109	10000	2480	210

AOC-09-SS-07 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.71
PCBs:				
Total PCBs	0.1	25	3.2	0.47
Metals:				
Calcium	10000	--	--	169000
Chromium	30	6800	--	64.4
Copper	50	10000	1720	73.7
Iron	2000	--	--	32400
Nickel	30	10000	130	76.2
Zinc	109	10000	2480	177

AOC-09-SS-08 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.61
PCBs:				
Total PCBs	0.1	25	3.2	0.54
Metals:				
Calcium	10000	--	--	52600
Chromium	30	6800	--	30.9
Iron	2000	--	--	22400

Legend

- Surface Soil Sample
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

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ANALYTICAL RESULTS

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FIGURE 6J

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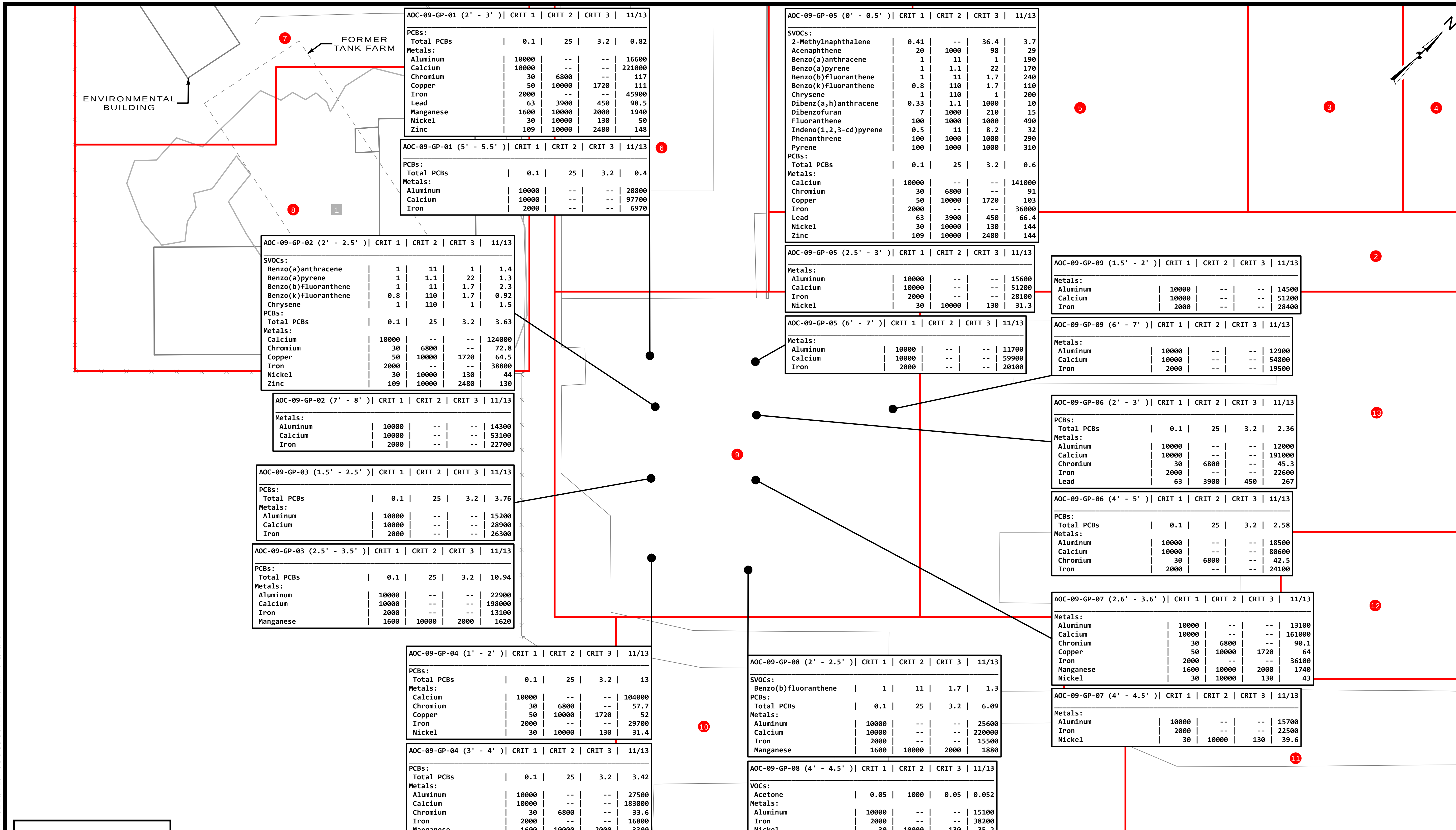

AOC-09-GP-01 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.82
Metals:				
Aluminum	10000	--	--	16600
Calcium	10000	--	--	221000
Chromium	30	6800	--	117
Copper	50	10000	1720	111
Iron	2000	--	--	45900
Lead	63	3900	450	98.5
Manganese	1600	10000	2000	1940
Nickel	30	10000	130	50
Zinc	109	10000	2480	148

AOC-09-GP-01 (5' - 5.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.4
Metals:				
Aluminum	10000	--	--	20800
Calcium	10000	--	--	97700
Iron	2000	--	--	6970

AOC-09-GP-05 (0' - 0.5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	3.7
Acenaphthene	20	1000	98	29
Benzo(a)anthracene	1	11	1	190
Benzo(a)pyrene	1	1.1	22	170
Benzo(b)fluoranthene	1	11	1.7	240
Benzo(k)fluoranthene	0.8	110	1.7	110
Chrysene	1	110	1	200
Dibenz(a,h)anthracene	0.33	1.1	1000	10
Dibenzofuran	7	1000	210	15
Fluoranthene	100	1000	1000	490
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	32
Phenanthrene	100	1000	1000	290
Pyrene	100	1000	1000	310
PCBs:				
Total PCBs	0.1	25	3.2	0.6
Metals:				
Calcium	10000	--	--	141000
Chromium	30	6800	--	91
Copper	50	10000	1720	103
Iron	2000	--	--	36000
Lead	63	3900	450	66.4
Nickel	30	10000	130	144
Zinc	109	10000	2480	144

AOC-09-GP-05 (2.5' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	15600
Calcium	10000	--	--	51200
Iron	2000	--	--	28100
Nickel	30	10000	130	31.3

AOC-09-GP-05 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	11700
Calcium	10000	--	--	59900
Iron	2000	--	--	20100

AOC-09-GP-09 (1.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	14500
Calcium	10000	--	--	51200
Iron	2000	--	--	28400

AOC-09-GP-09 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	12900
Calcium	10000	--	--	54800
Iron	2000	--	--	19500

AOC-09-GP-02 (2' - 2.5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.4
Benzo(a)pyrene	1	1.1	22	1.3
Benzo(b)fluoranthene	1	11	1.7	2.3
Benzo(k)fluoranthene	0.8	110	1.7	0.92
Chrysene	1	110	1	1.5
PCBs:				
Total PCBs	0.1	25	3.2	3.63
Metals:				
Calcium	10000	--	--	124000
Chromium	30	6800	--	72.8
Copper	50	10000	1720	64.5
Iron	2000	--	--	38800
Nickel	30	10000	130	44
Zinc	109	10000	2480	130

AOC-09-GP-02 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	14300
Calcium	10000	--	--	53100
Iron	2000	--	--	22700

AOC-09-GP-06 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	2.36
Metals:				
Aluminum	10000	--	--	12000
Calcium	10000	--	--	191000
Chromium	30	6800	--	45.3
Iron	2000	--	--	22600
Lead	63	3900	450	267

AOC-09-GP-03 (1.5' - 2.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	3.76
Metals:				
Aluminum	10000	--	--	15200
Calcium	10000	--	--	28900
Iron	2000	--	--	26300

AOC-09-GP-06 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	2.58
Metals:				
Aluminum	10000	--	--	18500
Calcium	10000	--	--	80600
Chromium	30	6800	--	42.5
Iron	2000	--	--	24100

AOC-09-GP-03 (2.5' - 3.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	10.94
Metals:				
Aluminum	10000	--	--	22900
Calcium	10000	--	--	198000
Iron	2000	--	--	13100
Manganese	1600	10000	2000	1620

AOC-09-GP-07 (2.6' - 3.6')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	13100
Calcium	10000	--	--	161000
Chromium	30	6800	--	90.1
Copper	50	10000	1720	64
Iron	2000	--	--	36100
Manganese	1600	10000	2000	1740
Nickel	30	10000	130	43

AOC-09-GP-04 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	13
Metals:				
Calcium	10000	--	--	104000
Chromium	30	6800	--	57.7
Copper	50	10000	1720	52
Iron	2000	--	--	29700
Nickel	30	10000	130	31.4

AOC-09-GP-08 (2' - 2.5')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.3
PCBs:				
Total PCBs	0.1	25	3.2	6.09
Metals:				
Aluminum	10000	--	--	25600
Calcium	10000	--	--	220000
Iron	2000	--	--	15500
Manganese	1600	10000	2000	1880

AOC-09-GP-07 (4' - 4.5')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	15700
Iron	2000	--	--	22500
Nickel	30	10000	130	39.6

AOC-09-GP-04 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	3.42
Metals:				
Aluminum	10000	--	--	27500
Calcium	10000	--	--	183000
Chromium	30	6800	--	33.6
Iron	2000	--	--	16800
Manganese	1600	10000	2000	3300

AOC-09-GP-08 (4' - 4.5')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.052
Metals:				
Aluminum	10000	--	--	15100
Iron	2000	--	--	38200
Nickel	30	10000	130	35.2

Legend

- Geoprobe
- 1 Area of Concern
- 1 Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

50 0 50 Feet

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FIGURE 6K

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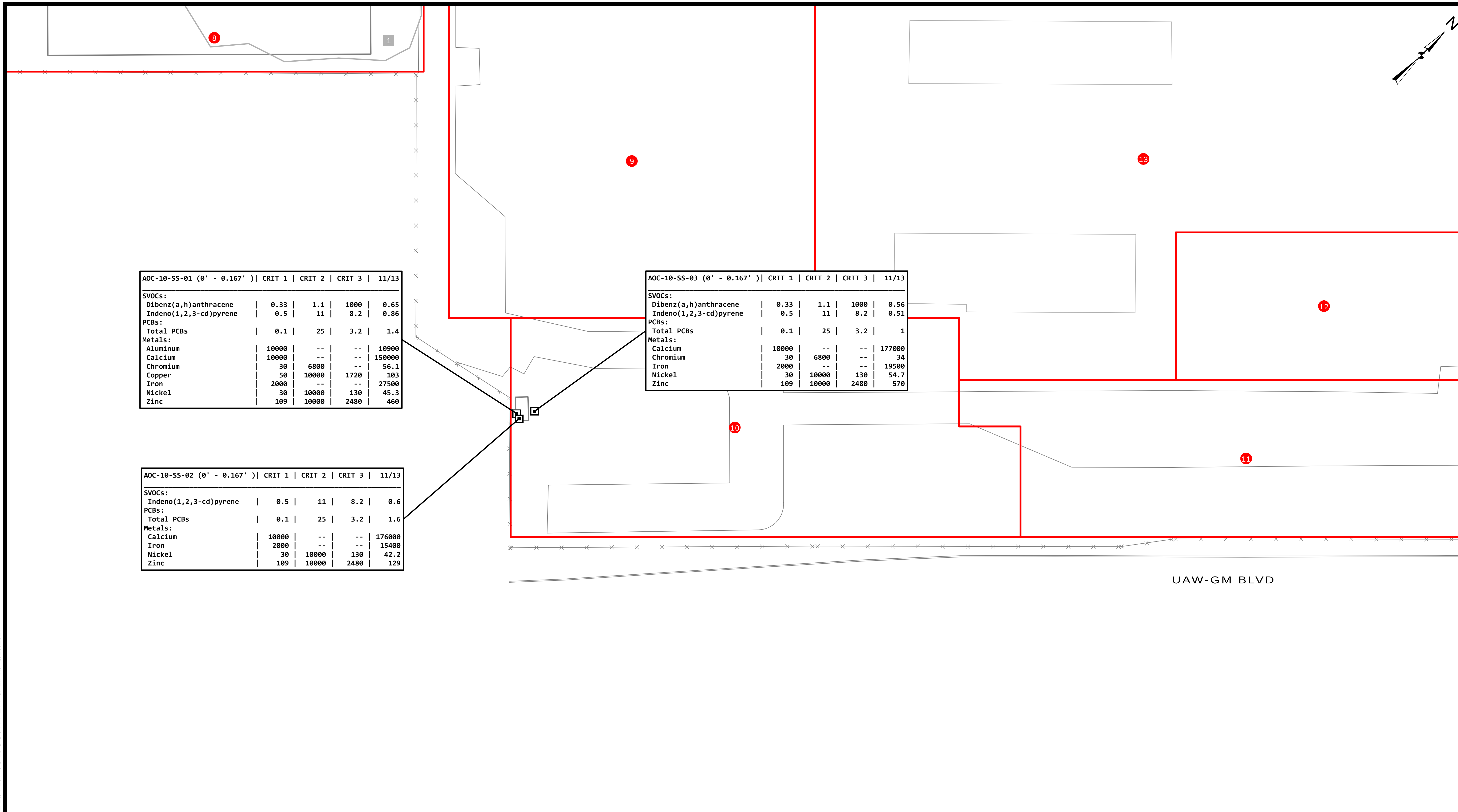

AOC-10-SS-01 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Dibenz(a,h)anthracene	0.33	1.1	1000	0.65
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.86
PCBs:				
Total PCBs	0.1	25	3.2	1.4
Metals:				
Aluminum	10000	--	--	10900
Calcium	10000	--	--	150000
Chromium	30	6800	--	56.1
Copper	50	10000	1720	103
Iron	2000	--	--	27500
Nickel	30	10000	130	45.3
Zinc	109	10000	2480	460

AOC-10-SS-03 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Dibenz(a,h)anthracene	0.33	1.1	1000	0.56
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.51
PCBs:				
Total PCBs	0.1	25	3.2	1
Metals:				
Calcium	10000	--	--	177000
Chromium	30	6800	--	34
Iron	2000	--	--	19500
Nickel	30	10000	130	54.7
Zinc	109	10000	2480	570

AOC-10-SS-02 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.6
PCBs:				
Total PCBs	0.1	25	3.2	1.6
Metals:				
Calcium	10000	--	--	176000
Iron	2000	--	--	15400
Nickel	30	10000	130	42.2
Zinc	109	10000	2480	129

Legend

- Surface Soil Sample
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

50 0 50 Feet

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AOC 10 SURFACE SOIL
ANALYTICAL RESULTS

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FIGURE 6L

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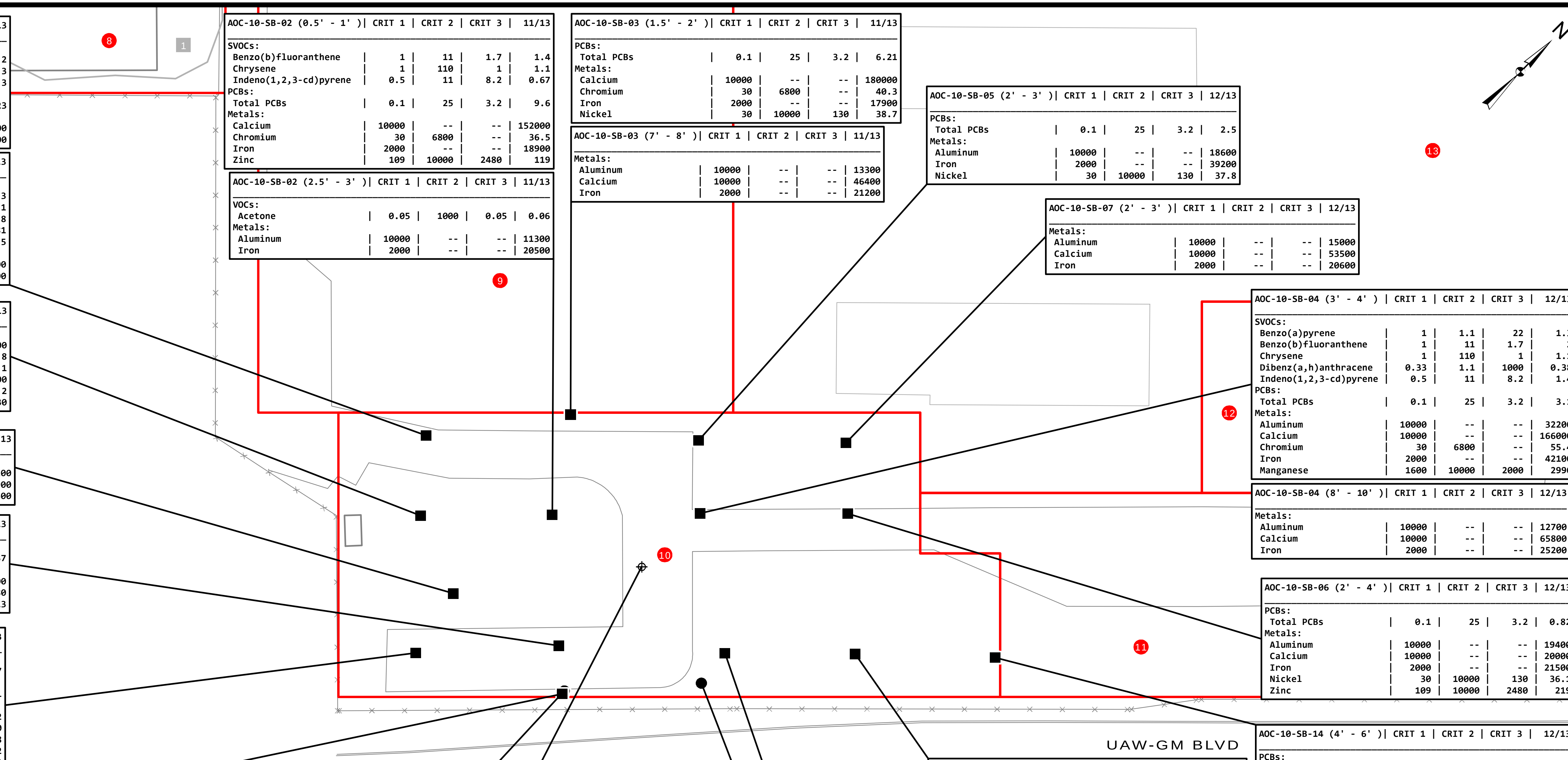

AOC-10-SB-08 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.2
Benzo(b)fluoranthene	1	11	1.7	1.3
Chrysene	1	110	1	1.3
PCBs:				
Total PCBs	0.1	25	3.2	0.23
Metals:				
Calcium	10000	--	--	135000
Iron	2000	--	--	12000

AOC-10-SB-08 (5' - 6')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.3
Benzo(a)pyrene	1	1.1	22	1.1
Benzo(b)fluoranthene	1	11	1.7	1.8
Benzo(k)fluoranthene	0.8	110	1.7	0.81
Chrysene	1	110	1	1.5
Metals:				
Calcium	10000	--	--	142000
Iron	2000	--	--	10100

AOC-10-SB-09 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	164000
Chromium	30	6800	--	35.8
Copper	50	10000	1720	52.1
Iron	2000	--	--	17200
Nickel	30	10000	130	41.2
Zinc	109	10000	2480	130

AOC-10-SB-11 (10' - 12')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	12200
Calcium	10000	--	--	56900
Iron	2000	--	--	21300

AOC-10-SB-10 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	0.37
Metals:				
Calcium	10000	--	--	173000
Iron	2000	--	--	6980
Zinc	109	10000	2480	313

AOC-10-SB-12 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
VOCs:				
Acetone	0.05	1000	0.05	0.17
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	1
Metals:				
Arsenic	13	16	16	14.2
Calcium	10000	--	--	10600
Chromium	30	6800	--	55.8
Copper	50	10000	1720	88.2
Iron	2000	--	--	40200
Nickel	30	10000	130	34.8

AOC-10-SB-01 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	48
Metals:				
Calcium	10000	--	--	121000
Chromium	30	6800	--	32
Iron	2000	--	--	16700

AOC-10-SB-01 (2' - 2.5')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.2
Metals:				
Aluminum	10000	--	--	18200
Iron	2000	--	--	30200

AOC-10-SB-02 (0.5' - 1')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.4
Chrysene	1	110	1	1.1
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.67
PCBs:				
Total PCBs	0.1	25	3.2	9.6
Metals:				
Calcium	10000	--	--	152000
Chromium	30	6800	--	36.5
Iron	2000	--	--	18900
Zinc	109	10000	2480	119

AOC-10-SB-02 (2.5' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
VOCs:				
Acetone	0.05	1000	0.05	0.06
Metals:				
Aluminum	10000	--	--	11300
Iron	2000	--	--	20500

AOC-10-SB-03 (1.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	6.21
Metals:				
Calcium	10000	--	--	180000
Chromium	30	6800	--	40.3
Iron	2000	--	--	17900
Nickel	30	10000	130	38.7

AOC-10-SB-03 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	13300
Calcium	10000	--	--	46400
Iron	2000	--	--	21200

AOC-10-SB-05 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	2.5
Metals:				
Aluminum	10000	--	--	18600
Iron	2000	--	--	39200
Nickel	30	10000	130	37.8

AOC-10-SB-07 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	15000
Calcium	10000	--	--	53500
Iron	2000	--	--	20600

AOC-10-SB-04 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
Benzo(a)pyrene	1	1.1	22	1.3
Benzo(b)fluoranthene	1	11	1.7	2
Chrysene	1	110	1	1.1
Dibenz(a,h)anthracene	0.33	1.1	1000	0.38
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.4
PCBs:				
Total PCBs	0.1	25	3.2	3.1
Metals:				
Aluminum	10000	--	--	32200
Calcium	10000	--	--	166000
Chromium	30	6800	--	55.4
Iron	2000	--	--	42100
Manganese	1600	10000	2000	2990

AOC-10-SB-04 (8' - 10')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	12700
Calcium	10000	--	--	65800
Iron	2000	--	--	25200

AOC-10-SB-06 (2' - 4')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	0.82
Metals:				
Aluminum	10000	--	--	19400
Calcium	10000	--	--	20000
Iron	2000	--	--	21500
Nickel	30	10000	130	36.1
Zinc	109	10000	2480	219

AOC-10-SB-14 (4' - 6')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	1
Metals:				
Calcium	10000	--	--	145000
Iron	2000	--	--	9190
Nickel	30	10000	130	38.3

AOC-10-SB-14 (8' - 10')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	0.18
Metals:				
Aluminum	10000	--	--	13600
Calcium	10000	--	--	56500
Iron	2000	--	--	20900

AOC-10-SB-13 (2' - 4')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.2
Chrysene	1	110	1	1.2
PCBs:				
Total PCBs	0.1	25	3.2	0.28
Metals:				
Calcium	10000	--	--	125000
Iron	2000	--	--	13000
Lead	63	3900	450	65.6

AOC-10-SB-13 (10' - 11')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	12400
Calcium	10000	--	--	56000
Iron	2000	--	--	20300

AOC-10-GP-02 (2.5' - 3.1')	CRIT 1	CRIT 2	CRIT 3	10/16
VOCs:				
Acetone	0.05	1000	0.05	0.2
Metals:				
Aluminum	10000	--	--	26200
Iron	2000	--	--	23500
Vanadium	39	--	--	44.4

AOC-10-MW-08I (3' - 4')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	2.3
Benzo(a)pyrene	1	1.1	22	1.5
Benzo(b)fluoranthene	1	11	1.7	2.5
Benzo(k)fluoranthene	0.8	110	1.7	1.4
Chrysene	1	110	1	2.5
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.7
PCBs:				
Total PCBs	0.1	25	3.2	0.21
Metals:				
Calcium	10000	--	--	169000
Iron	2000	--	--	9020

AOC-10-MW-08I (5' - 6')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	12600
Calcium	10000	--	--	72000
Iron	2000	--	--	19100

AOC-10-GP-01 (2.4' - 3.4')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	203000
Iron	2000	--	--	7380

AOC-10-SB-15 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
Benzo(a)anthracene	1	11	1	5.4
Benzo(a)pyrene	1	1.1	22	4.9
Benzo(b)fluoranthene	1	11	1.7	7.9
Benzo(k)fluoranthene	0.8	110	1.7	4.1
Chrysene	1	110	1	5.7
Dibenz(a,h)anthracene	0.33	1.1	1000	0.52
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.6
PCBs:				
Total PCBs	0.1	25	3.2	11
Metals:				
Calcium	10000	--	--	133000
Iron	2000	--	--	10500

Legend

- Geoprobe
- Monitoring Well
- Soil Boring
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

50 0 50 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 10 SUBSURFACE SOIL ANALYTICAL RESULTS

URS

FIGURE 6M

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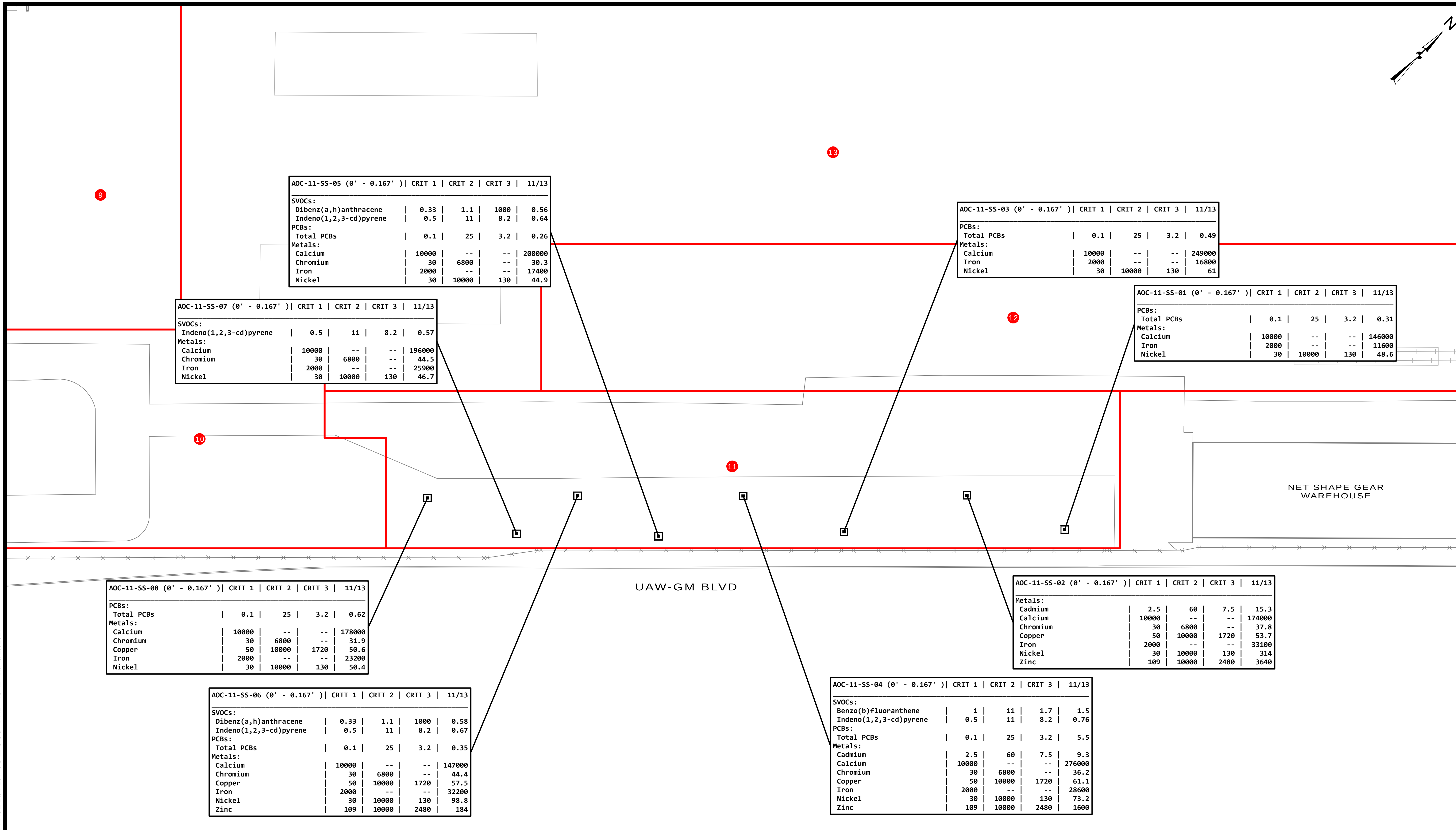

AOC-11-SS-05 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Dibenz(a,h)anthracene	0.33	1.1	1000	0.56
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.64
PCBs:				
Total PCBs	0.1	25	3.2	0.26
Metals:				
Calcium	10000	--	--	200000
Chromium	30	6800	--	30.3
Iron	2000	--	--	17400
Nickel	30	10000	130	44.9

AOC-11-SS-03 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.49
Metals:				
Calcium	10000	--	--	249000
Iron	2000	--	--	16800
Nickel	30	10000	130	61

AOC-11-SS-07 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.57
Metals:				
Calcium	10000	--	--	196000
Chromium	30	6800	--	44.5
Iron	2000	--	--	25900
Nickel	30	10000	130	46.7

AOC-11-SS-01 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.31
Metals:				
Calcium	10000	--	--	146000
Iron	2000	--	--	11600
Nickel	30	10000	130	48.6

AOC-11-SS-08 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.62
Metals:				
Calcium	10000	--	--	178000
Chromium	30	6800	--	31.9
Copper	50	10000	1720	50.6
Iron	2000	--	--	23200
Nickel	30	10000	130	50.4

AOC-11-SS-02 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Cadmium	2.5	60	7.5	15.3
Calcium	10000	--	--	174000
Chromium	30	6800	--	37.8
Copper	50	10000	1720	53.7
Iron	2000	--	--	33100
Nickel	30	10000	130	314
Zinc	109	10000	2480	3640

AOC-11-SS-06 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Dibenz(a,h)anthracene	0.33	1.1	1000	0.58
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.67
PCBs:				
Total PCBs	0.1	25	3.2	0.35
Metals:				
Calcium	10000	--	--	147000
Chromium	30	6800	--	44.4
Copper	50	10000	1720	57.5
Iron	2000	--	--	32200
Nickel	30	10000	130	98.8
Zinc	109	10000	2480	184

AOC-11-SS-04 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.5
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.76
PCBs:				
Total PCBs	0.1	25	3.2	5.5
Metals:				
Cadmium	2.5	60	7.5	9.3
Calcium	10000	--	--	276000
Chromium	30	6800	--	36.2
Copper	50	10000	1720	61.1
Iron	2000	--	--	28600
Nickel	30	10000	130	73.2
Zinc	109	10000	2480	1600

Legend

- Surface Soil Sample
- Area of Concern

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

50 0 50 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 11 SURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6N

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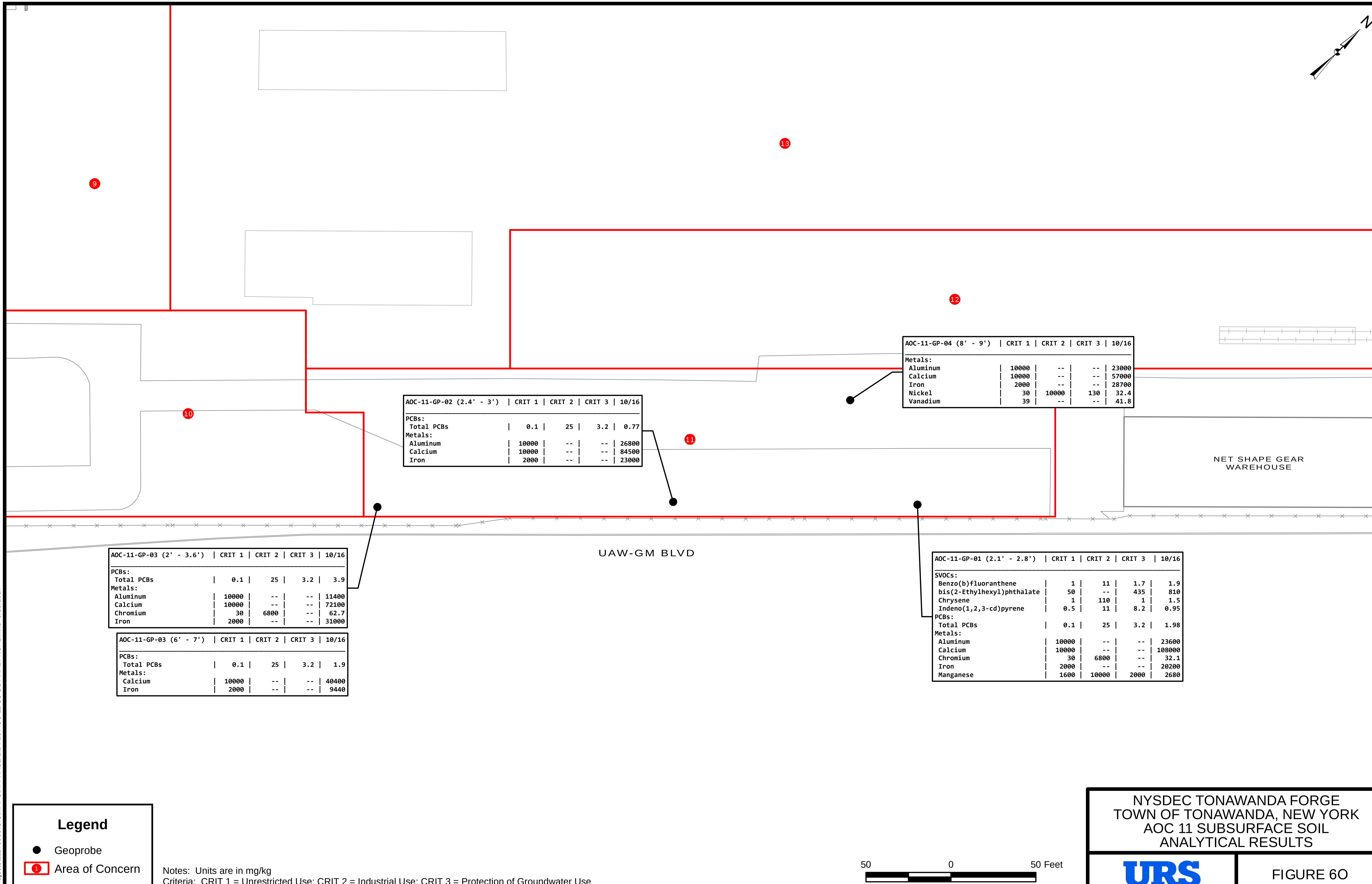
NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 11 SUBSURFACE SOIL ANALYTICAL RESULTS



AOC-11-GP-04 (8' - 9')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	23000
Calcium	10000	--	--	57000
Iron	2000	--	--	28700
Nickel	30	10000	130	32.4
Vanadium	39	--	--	41.8

AOC-11-GP-02 (2.4' - 3')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	0.77
Metals:				
Aluminum	10000	--	--	26800
Calcium	10000	--	--	84500
Iron	2000	--	--	23000

AOC-11-GP-03 (2' - 3.6')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	3.9
Metals:				
Aluminum	10000	--	--	11400
Calcium	10000	--	--	72100
Chromium	30	6800	--	62.7
Iron	2000	--	--	31000

AOC-11-GP-03 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	1.9
Metals:				
Calcium	10000	--	--	40400
Iron	2000	--	--	9440

AOC-11-GP-01 (2.1' - 2.8')	CRIT 1	CRIT 2	CRIT 3	10/16
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.9
bis(2-Ethylhexyl)phthalate	50	--	435	810
Chrysene	1	110	1	1.5
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.95
PCBs:				
Total PCBs	0.1	25	3.2	1.98
Metals:				
Aluminum	10000	--	--	23600
Calcium	10000	--	--	108000
Chromium	30	6800	--	32.1
Iron	2000	--	--	20200
Manganese	1600	10000	2000	2680

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

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FIGURE 6O

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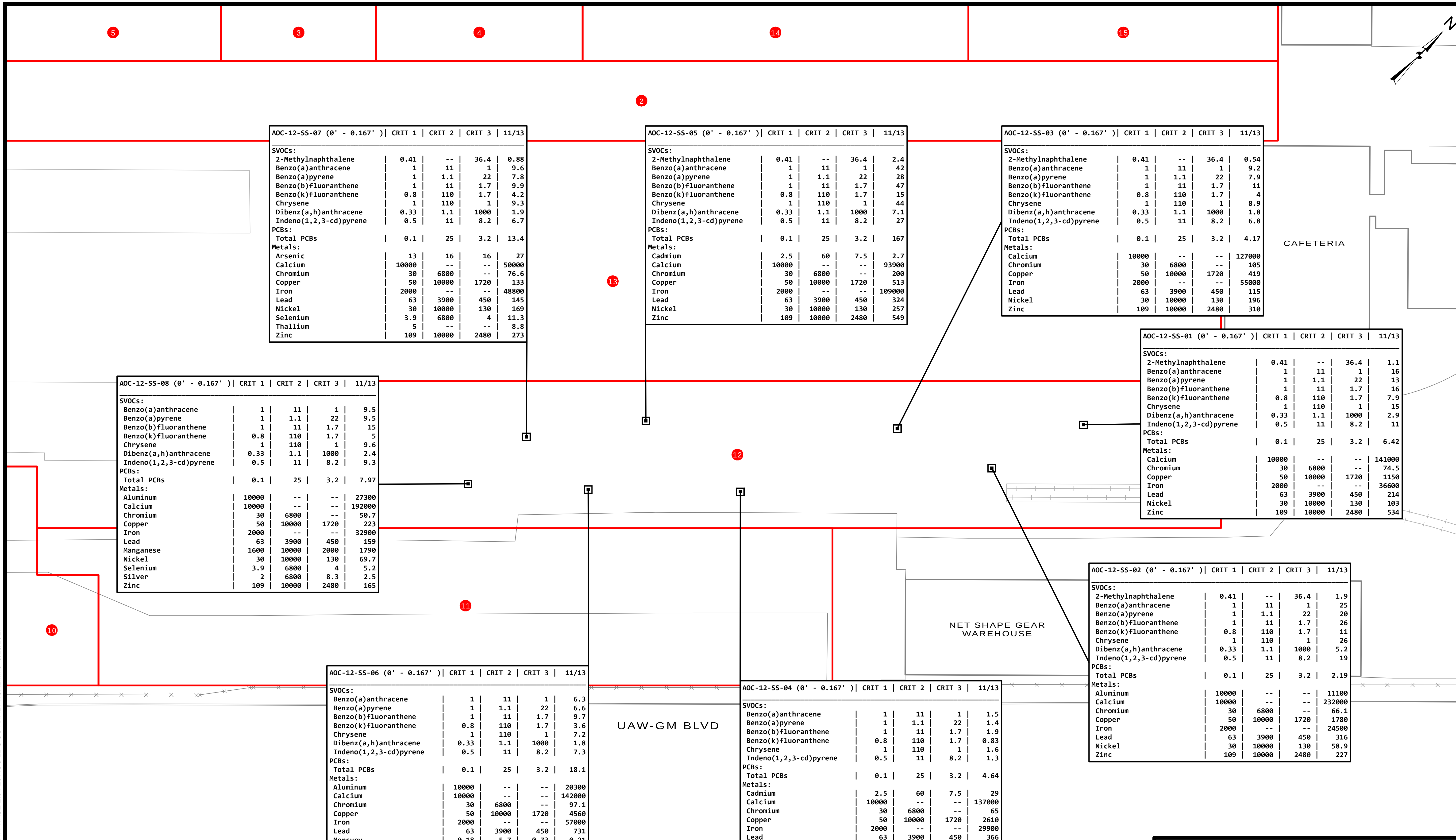

AOC-12-SS-07 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	0.88
Benzo(a)anthracene	1	11	1	9.6
Benzo(a)pyrene	1	1.1	22	7.8
Benzo(b)fluoranthene	1	11	1.7	9.9
Benzo(k)fluoranthene	0.8	110	1.7	4.2
Chrysene	1	110	1	9.3
Dibenz(a,h)anthracene	0.33	1.1	1000	1.9
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	6.7
PCBs:				
Total PCBs	0.1	25	3.2	13.4
Metals:				
Arsenic	13	16	16	27
Calcium	10000	--	--	50000
Chromium	30	6800	--	76.6
Copper	50	10000	1720	133
Iron	2000	--	--	48800
Lead	63	3900	450	145
Nickel	30	10000	130	169
Selenium	3.9	6800	4	11.3
Thallium	5	--	--	8.8
Zinc	109	10000	2480	273

AOC-12-SS-05 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	2.4
Benzo(a)anthracene	1	11	1	42
Benzo(a)pyrene	1	1.1	22	28
Benzo(b)fluoranthene	1	11	1.7	47
Benzo(k)fluoranthene	0.8	110	1.7	15
Chrysene	1	110	1	44
Dibenz(a,h)anthracene	0.33	1.1	1000	7.1
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	27
PCBs:				
Total PCBs	0.1	25	3.2	167
Metals:				
Cadmium	2.5	60	7.5	2.7
Calcium	10000	--	--	93900
Chromium	30	6800	--	200
Copper	50	10000	1720	513
Iron	2000	--	--	109000
Lead	63	3900	450	324
Nickel	30	10000	130	257
Zinc	109	10000	2480	549

AOC-12-SS-03 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	0.54
Benzo(a)anthracene	1	11	1	9.2
Benzo(a)pyrene	1	1.1	22	7.9
Benzo(b)fluoranthene	1	11	1.7	11
Benzo(k)fluoranthene	0.8	110	1.7	4
Chrysene	1	110	1	8.9
Dibenz(a,h)anthracene	0.33	1.1	1000	1.8
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	6.8
PCBs:				
Total PCBs	0.1	25	3.2	4.17
Metals:				
Calcium	10000	--	--	127000
Chromium	30	6800	--	105
Copper	50	10000	1720	419
Iron	2000	--	--	55000
Lead	63	3900	450	115
Nickel	30	10000	130	196
Zinc	109	10000	2480	310

AOC-12-SS-01 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	1.1
Benzo(a)anthracene	1	11	1	16
Benzo(a)pyrene	1	1.1	22	13
Benzo(b)fluoranthene	1	11	1.7	16
Benzo(k)fluoranthene	0.8	110	1.7	7.9
Chrysene	1	110	1	15
Dibenz(a,h)anthracene	0.33	1.1	1000	2.9
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	11
PCBs:				
Total PCBs	0.1	25	3.2	6.42
Metals:				
Calcium	10000	--	--	141000
Chromium	30	6800	--	74.5
Copper	50	10000	1720	1150
Iron	2000	--	--	36600
Lead	63	3900	450	214
Nickel	30	10000	130	103
Zinc	109	10000	2480	534

AOC-12-SS-08 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	9.5
Benzo(a)pyrene	1	1.1	22	9.5
Benzo(b)fluoranthene	1	11	1.7	15
Benzo(k)fluoranthene	0.8	110	1.7	5
Chrysene	1	110	1	9.6
Dibenz(a,h)anthracene	0.33	1.1	1000	2.4
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	9.3
PCBs:				
Total PCBs	0.1	25	3.2	7.97
Metals:				
Aluminum	10000	--	--	27300
Calcium	10000	--	--	192000
Chromium	30	6800	--	50.7
Copper	50	10000	1720	223
Iron	2000	--	--	32900
Lead	63	3900	450	159
Manganese	1600	10000	2000	1790
Nickel	30	10000	130	69.7
Selenium	3.9	6800	4	5.2
Silver	2	6800	8.3	2.5
Zinc	109	10000	2480	165

AOC-12-SS-06 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	6.3
Benzo(a)pyrene	1	1.1	22	6.6
Benzo(b)fluoranthene	1	11	1.7	9.7
Benzo(k)fluoranthene	0.8	110	1.7	3.6
Chrysene	1	110	1	7.2
Dibenz(a,h)anthracene	0.33	1.1	1000	1.8
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	7.3
PCBs:				
Total PCBs	0.1	25	3.2	18.1
Metals:				
Aluminum	10000	--	--	20300
Calcium	10000	--	--	142000
Chromium	30	6800	--	97.1
Copper	50	10000	1720	4560
Iron	2000	--	--	57000
Lead	63	3900	450	731
Mercury	0.18	5.7	0.73	0.21
Nickel	30	10000	130	120
Zinc	109	10000	2480	409

AOC-12-SS-04 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
Benzo(a)anthracene	1	11	1	1.5
Benzo(a)pyrene	1	1.1	22	1.4
Benzo(b)fluoranthene	1	11	1.7	1.9
Benzo(k)fluoranthene	0.8	110	1.7	0.83
Chrysene	1	110	1	1.6
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.3
PCBs:				
Total PCBs	0.1	25	3.2	4.64
Metals:				
Cadmium	2.5	60	7.5	29
Calcium	10000	--	--	137000
Chromium	30	6800	--	65
Copper	50	10000	1720	2610
Iron	2000	--	--	29900
Lead	63	3900	450	366
Nickel	30	10000	130	82.3
Zinc	109	10000	2480	265

AOC-12-SS-02 (0' - 0.167')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	1.9
Benzo(a)anthracene	1	11	1	25
Benzo(a)pyrene	1	1.1	22	20
Benzo(b)fluoranthene	1	11	1.7	26
Benzo(k)fluoranthene	0.8	110	1.7	11
Chrysene	1	110	1	26
Dibenz(a,h)anthracene	0.33	1.1	1000	5.2
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	19
PCBs:				
Total PCBs	0.1	25	3.2	2.19
Metals:				
Aluminum	10000	--	--	11100
Calcium	10000	--	--	232000
Chromium	30	6800	--	66.1
Copper	50	10000	1720	1780
Iron	2000	--	--	24500
Lead	63	3900	450	316
Nickel	30	10000	130	58.9
Zinc	109	10000	2480	227

Legend

- Surface Soil Sample
- Area of Concern

Notes: Units are in mg/kg

Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

50 0 50 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 12 SURFACE SOIL ANALYTICAL RESULTS

URS

FIGURE 6P

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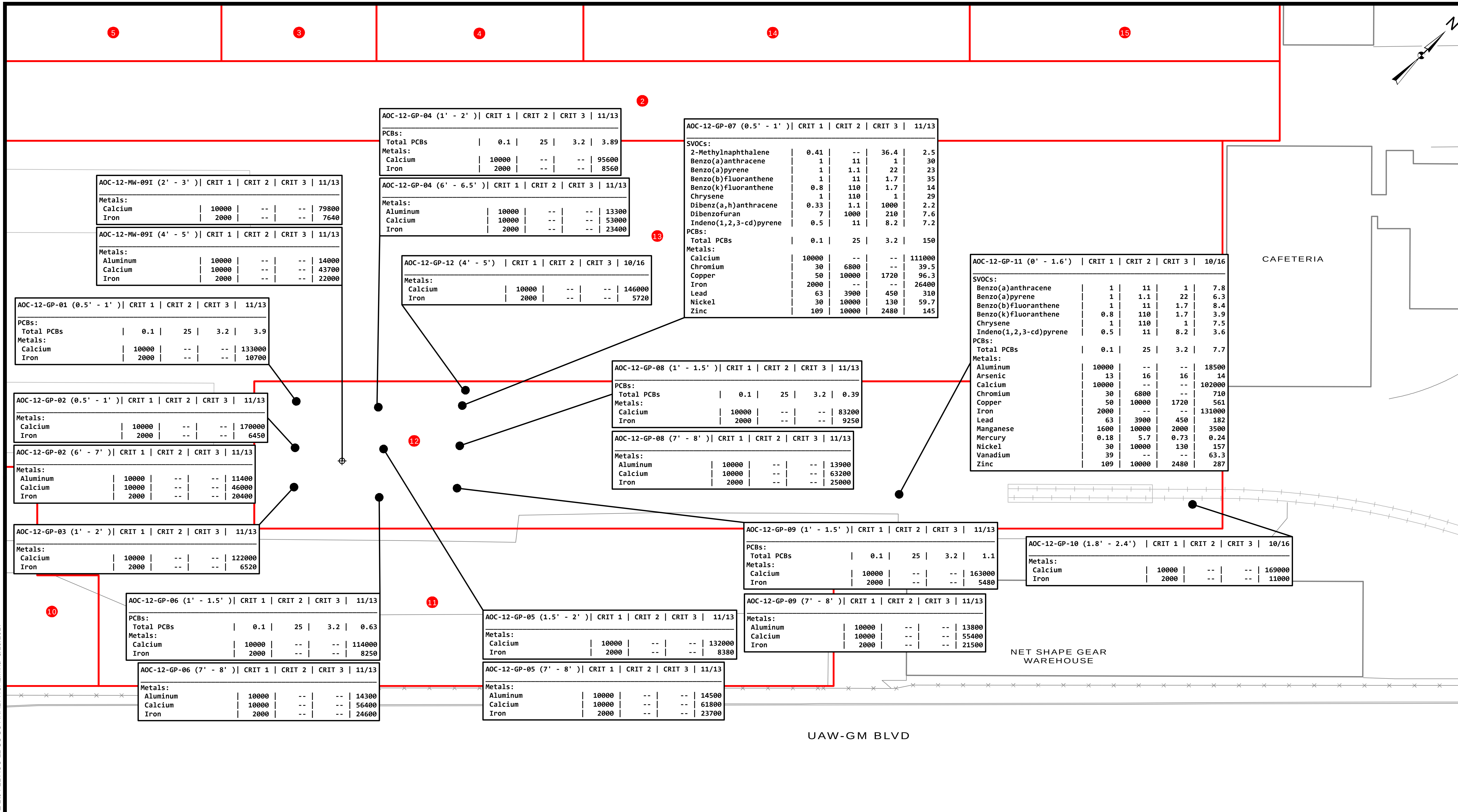

AOC-12-GP-04 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	3.89
Metals:				
Calcium	10000	--	--	95600
Iron	2000	--	--	8560

AOC-12-GP-04 (6' - 6.5')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	13300
Calcium	10000	--	--	53000
Iron	2000	--	--	23400

AOC-12-MW-09I (2' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Calcium	10000	--	--	79800
Iron	2000	--	--	7640

AOC-12-MW-09I (4' - 5')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	14000
Calcium	10000	--	--	43700
Iron	2000	--	--	22000

AOC-12-GP-12 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	146000
Iron	2000	--	--	5720

AOC-12-GP-07 (0.5' - 1')	CRIT 1	CRIT 2	CRIT 3	11/13
SVOCs:				
2-Methylnaphthalene	0.41	--	36.4	2.5
Benzo(a)anthracene	1	11	1	30
Benzo(a)pyrene	1	1.1	22	23
Benzo(b)fluoranthene	1	11	1.7	35
Benzo(k)fluoranthene	0.8	110	1.7	14
Chrysene	1	110	1	29
Dibenz(a,h)anthracene	0.33	1.1	1000	2.2
Dibenzofuran	7	1000	210	7.6
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	7.2
PCBs:				
Total PCBs	0.1	25	3.2	150
Metals:				
Calcium	10000	--	--	111000
Chromium	30	6800	--	39.5
Copper	50	10000	1720	96.3
Iron	2000	--	--	26400
Lead	63	3900	450	310
Nickel	30	10000	130	59.7
Zinc	109	10000	2480	145

AOC-12-GP-11 (0' - 1.6')	CRIT 1	CRIT 2	CRIT 3	10/16
SVOCs:				
Benzo(a)anthracene	1	11	1	7.8
Benzo(a)pyrene	1	1.1	22	6.3
Benzo(b)fluoranthene	1	11	1.7	8.4
Benzo(k)fluoranthene	0.8	110	1.7	3.9
Chrysene	1	110	1	7.5
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	3.6
PCBs:				
Total PCBs	0.1	25	3.2	7.7
Metals:				
Aluminum	10000	--	--	18500
Arsenic	13	16	16	14
Calcium	10000	--	--	102000
Chromium	30	6800	--	710
Copper	50	10000	1720	561
Iron	2000	--	--	131000
Lead	63	3900	450	182
Manganese	1600	10000	2000	3500
Mercury	0.18	5.7	0.73	0.24
Nickel	30	10000	130	157
Vanadium	39	--	--	63.3
Zinc	109	10000	2480	287

AOC-12-GP-01 (0.5' - 1')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	3.9
Metals:				
Calcium	10000	--	--	133000
Iron	2000	--	--	10700

AOC-12-GP-08 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.39
Metals:				
Calcium	10000	--	--	83200
Iron	2000	--	--	9250

AOC-12-GP-08 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	13900
Calcium	10000	--	--	63200
Iron	2000	--	--	25000

AOC-12-GP-02 (0.5' - 1')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Calcium	10000	--	--	170000
Iron	2000	--	--	6450

AOC-12-GP-02 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	11400
Calcium	10000	--	--	46000
Iron	2000	--	--	20400

AOC-12-GP-03 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Calcium	10000	--	--	122000
Iron	2000	--	--	6520

AOC-12-GP-09 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	1.1
Metals:				
Calcium	10000	--	--	163000
Iron	2000	--	--	5480

AOC-12-GP-10 (1.8' - 2.4')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	169000
Iron	2000	--	--	11000

AOC-12-GP-06 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.63
Metals:				
Calcium	10000	--	--	114000
Iron	2000	--	--	8250

AOC-12-GP-05 (1.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Calcium	10000	--	--	132000
Iron	2000	--	--	8380

AOC-12-GP-09 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	13800
Calcium	10000	--	--	55400
Iron	2000	--	--	21500

AOC-12-GP-06 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	14300
Calcium	10000	--	--	56400
Iron	2000	--	--	24600

AOC-12-GP-05 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	14500
Calcium	10000	--	--	61800
Iron	2000	--	--	23700

Legend

- Monitoring Well
- Geoprobe
- Area of Concern

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

50 0 50 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 12 SUBSURFACE SOIL
ANALYTICAL RESULTS

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FIGURE 6Q

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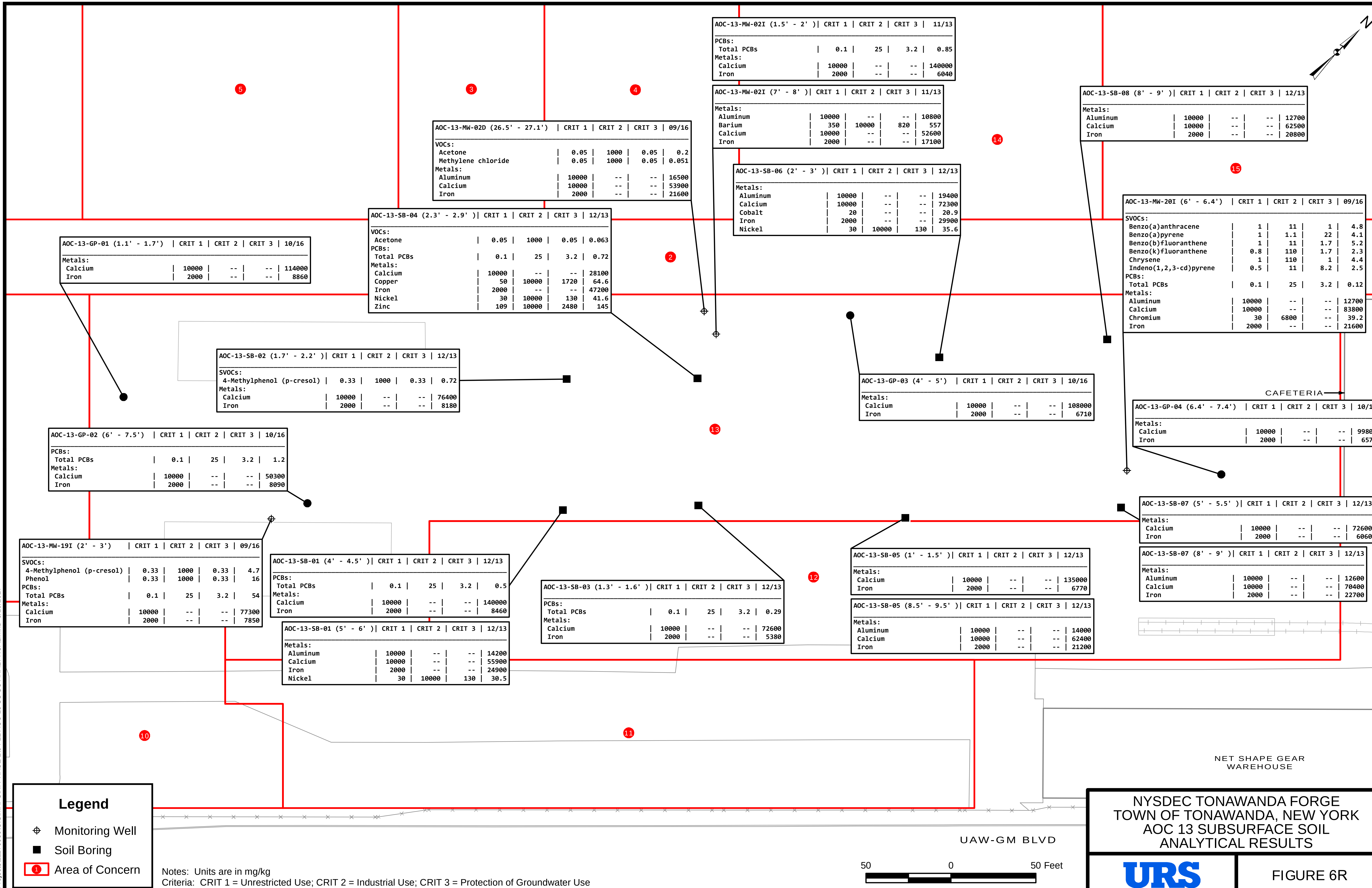

AOC-13-MW-02I (1.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/13
PCBs:				
Total PCBs	0.1	25	3.2	0.85
Metals:				
Calcium	10000	--	--	140000
Iron	2000	--	--	6040

AOC-13-MW-02I (7' - 8')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	10800
Barium	350	10000	820	557
Calcium	10000	--	--	52600
Iron	2000	--	--	17100

AOC-13-SB-08 (8' - 9')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	12700
Calcium	10000	--	--	62500
Iron	2000	--	--	20800

AOC-13-MW-02D (26.5' - 27.1')	CRIT 1	CRIT 2	CRIT 3	09/16
VOCs:				
Acetone	0.05	1000	0.05	0.2
Methylene chloride	0.05	1000	0.05	0.051
Metals:				
Aluminum	10000	--	--	16500
Calcium	10000	--	--	53900
Iron	2000	--	--	21600

AOC-13-SB-06 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	19400
Calcium	10000	--	--	72300
Cobalt	20	--	--	20.9
Iron	2000	--	--	29900
Nickel	30	10000	130	35.6

AOC-13-MW-20I (6' - 6.4')	CRIT 1	CRIT 2	CRIT 3	09/16
SVOCs:				
Benzo(a)anthracene	1	11	1	4.8
Benzo(a)pyrene	1	1.1	22	4.1
Benzo(b)fluoranthene	1	11	1.7	5.2
Benzo(k)fluoranthene	0.8	110	1.7	2.3
Chrysene	1	110	1	4.4
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	2.5
PCBs:				
Total PCBs	0.1	25	3.2	0.12
Metals:				
Aluminum	10000	--	--	12700
Calcium	10000	--	--	83800
Chromium	30	6800	--	39.2
Iron	2000	--	--	21600

AOC-13-SB-04 (2.3' - 2.9')	CRIT 1	CRIT 2	CRIT 3	12/13
VOCs:				
Acetone	0.05	1000	0.05	0.063
PCBs:				
Total PCBs	0.1	25	3.2	0.72
Metals:				
Calcium	10000	--	--	28100
Copper	50	10000	1720	64.6
Iron	2000	--	--	47200
Nickel	30	10000	130	41.6
Zinc	109	10000	2480	145

AOC-13-GP-01 (1.1' - 1.7')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	114000
Iron	2000	--	--	8860

AOC-13-SB-02 (1.7' - 2.2')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
4-Methylphenol (p-cresol)	0.33	1000	0.33	0.72
Metals:				
Calcium	10000	--	--	76400
Iron	2000	--	--	8180

AOC-13-GP-03 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	108000
Iron	2000	--	--	6710

AOC-13-GP-04 (6.4' - 7.4')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	99800
Iron	2000	--	--	6570

AOC-13-GP-02 (6' - 7.5')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	1.2
Metals:				
Calcium	10000	--	--	50300
Iron	2000	--	--	8090

AOC-13-SB-07 (5' - 5.5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	72600
Iron	2000	--	--	6060

AOC-13-MW-19I (2' - 3')	CRIT 1	CRIT 2	CRIT 3	09/16
SVOCs:				
4-Methylphenol (p-cresol)	0.33	1000	0.33	4.7
Phenol	0.33	1000	0.33	16
PCBs:				
Total PCBs	0.1	25	3.2	54
Metals:				
Calcium	10000	--	--	77300
Iron	2000	--	--	7850

AOC-13-SB-01 (4' - 4.5')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	0.5
Metals:				
Calcium	10000	--	--	140000
Iron	2000	--	--	8460

AOC-13-SB-03 (1.3' - 1.6')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	0.29
Metals:				
Calcium	10000	--	--	72600
Iron	2000	--	--	5380

AOC-13-SB-05 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	135000
Iron	2000	--	--	6770

AOC-13-SB-07 (8' - 9')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	12600
Calcium	10000	--	--	70400
Iron	2000	--	--	22700

AOC-13-SB-05 (8.5' - 9.5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	14000
Calcium	10000	--	--	62400
Iron	2000	--	--	21200

AOC-13-SB-01 (5' - 6')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	14200
Calcium	10000	--	--	55900
Iron	2000	--	--	24900
Nickel	30	10000	130	30.5

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 13 SUBSURFACE SOIL
ANALYTICAL RESULTS

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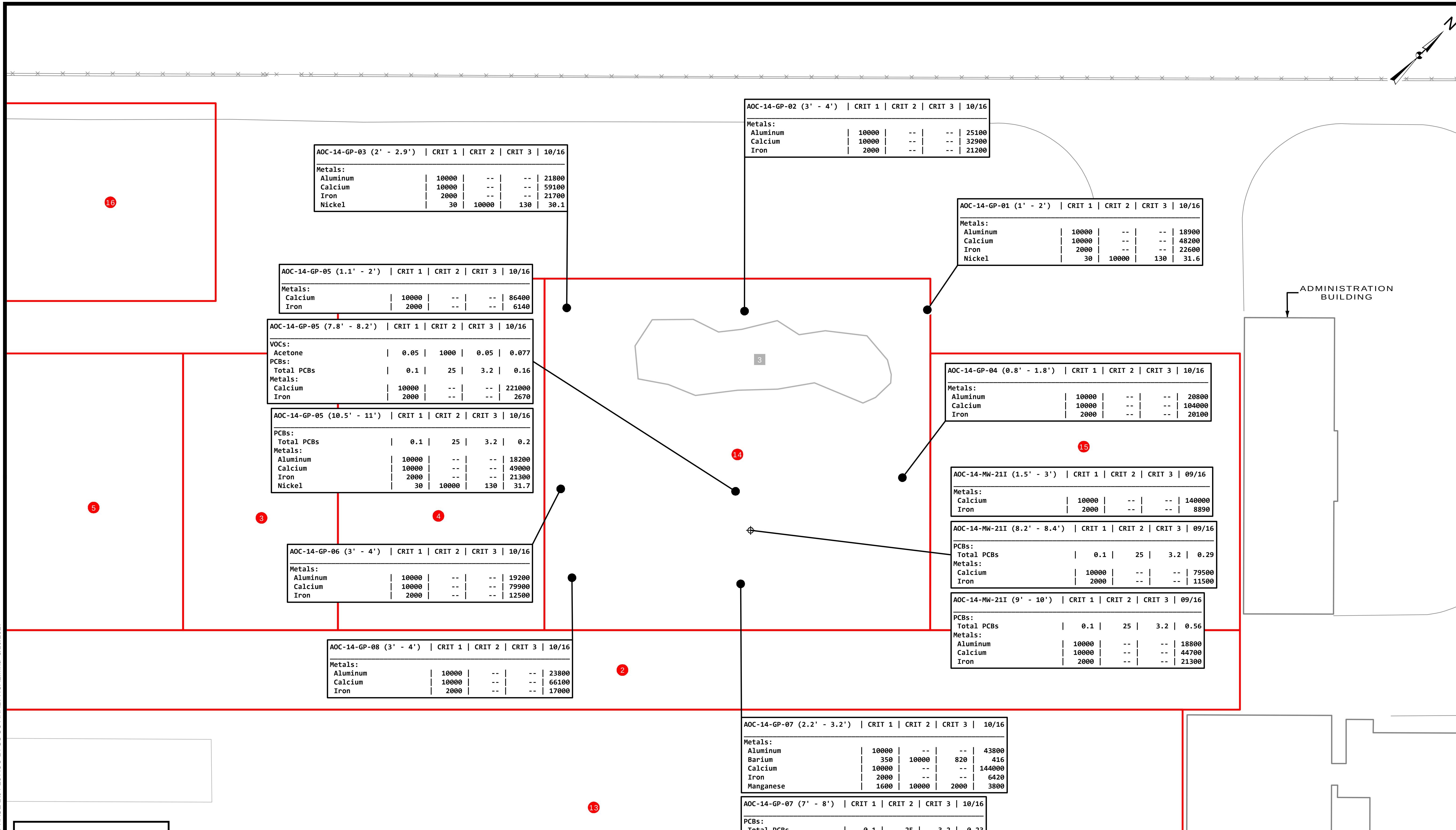
FIGURE 6R



AOC-14-GP-03 (2' - 2.9')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	21800
Calcium	10000	--	--	59100
Iron	2000	--	--	21700
Nickel	30	10000	130	30.1

AOC-14-GP-02 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	25100
Calcium	10000	--	--	32900
Iron	2000	--	--	21200

AOC-14-GP-01 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	18900
Calcium	10000	--	--	48200
Iron	2000	--	--	22600
Nickel	30	10000	130	31.6

AOC-14-GP-05 (1.1' - 2')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	86400
Iron	2000	--	--	6140

AOC-14-GP-05 (7.8' - 8.2')	CRIT 1	CRIT 2	CRIT 3	10/16
VOCs:				
Acetone	0.05	1000	0.05	0.077
PCBs:				
Total PCBs	0.1	25	3.2	0.16
Metals:				
Calcium	10000	--	--	221000
Iron	2000	--	--	2670

AOC-14-GP-05 (10.5' - 11')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	0.2
Metals:				
Aluminum	10000	--	--	18200
Calcium	10000	--	--	49000
Iron	2000	--	--	21300
Nickel	30	10000	130	31.7

AOC-14-GP-04 (0.8' - 1.8')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	20800
Calcium	10000	--	--	104000
Iron	2000	--	--	20100

AOC-14-MW-21I (1.5' - 3')	CRIT 1	CRIT 2	CRIT 3	09/16
Metals:				
Calcium	10000	--	--	140000
Iron	2000	--	--	8890

AOC-14-MW-21I (8.2' - 8.4')	CRIT 1	CRIT 2	CRIT 3	09/16
PCBs:				
Total PCBs	0.1	25	3.2	0.29
Metals:				
Calcium	10000	--	--	79500
Iron	2000	--	--	11500

AOC-14-GP-06 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	19200
Calcium	10000	--	--	79900
Iron	2000	--	--	12500

AOC-14-MW-21I (9' - 10')	CRIT 1	CRIT 2	CRIT 3	09/16
PCBs:				
Total PCBs	0.1	25	3.2	0.56
Metals:				
Aluminum	10000	--	--	18800
Calcium	10000	--	--	44700
Iron	2000	--	--	21300

AOC-14-GP-08 (3' - 4')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	23800
Calcium	10000	--	--	66100
Iron	2000	--	--	17000

AOC-14-GP-07 (2.2' - 3.2')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	43800
Barium	350	10000	820	416
Calcium	10000	--	--	144000
Iron	2000	--	--	6420
Manganese	1600	10000	2000	3800

AOC-14-GP-07 (7' - 8')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	0.23
Metals:				
Aluminum	10000	--	--	20100
Calcium	10000	--	--	43700
Iron	2000	--	--	23800
Nickel	30	10000	130	31.2

Legend

- Soil Boring
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

50 0 50 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 14 SUBSURFACE SOIL
ANALYTICAL RESULTS

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FIGURE 6S

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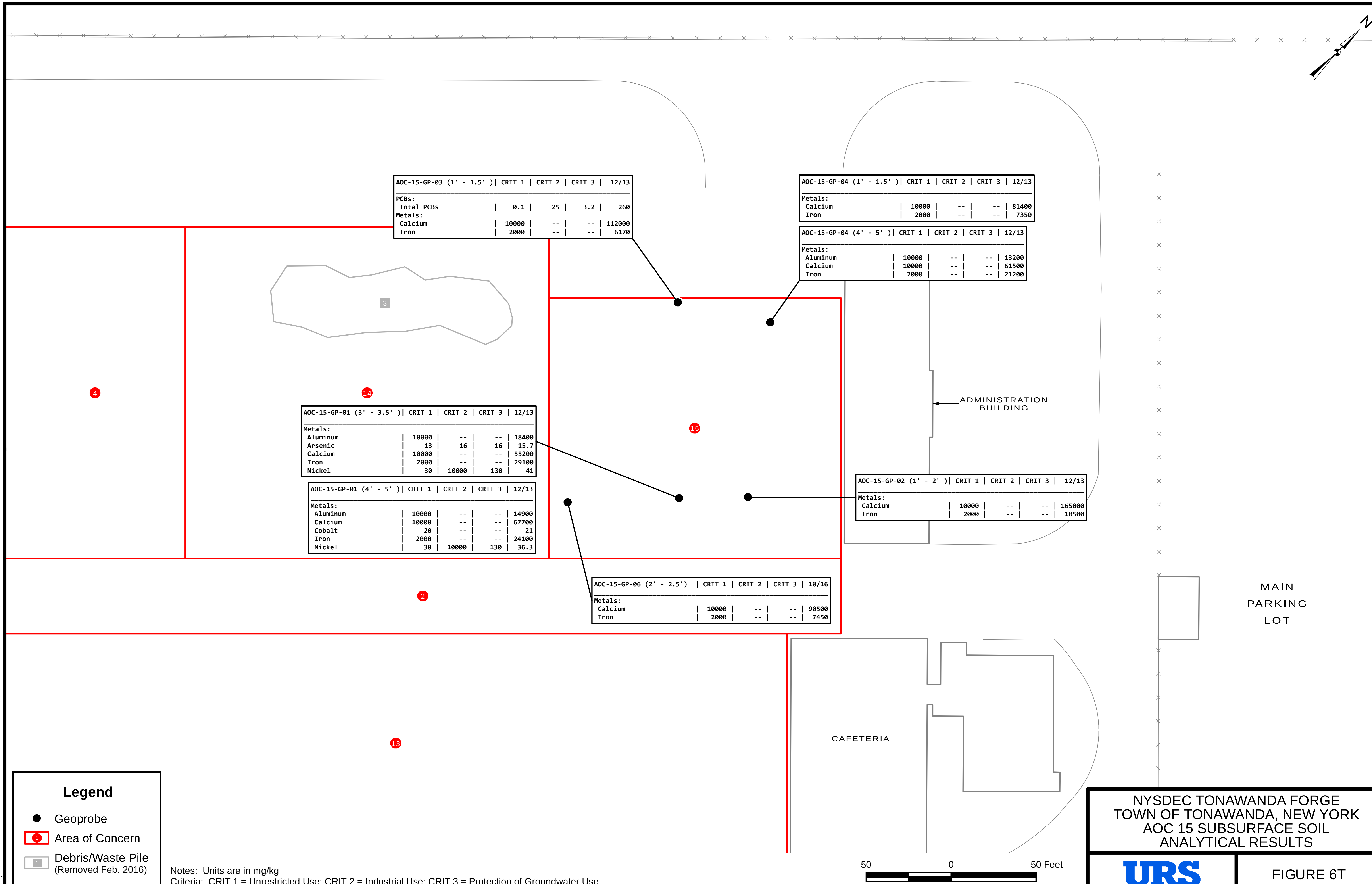

AOC-15-GP-03 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	260
Metals:				
Calcium	10000	--	--	112000
Iron	2000	--	--	6170

AOC-15-GP-04 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	81400
Iron	2000	--	--	7350

AOC-15-GP-04 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	13200
Calcium	10000	--	--	61500
Iron	2000	--	--	21200

AOC-15-GP-01 (3' - 3.5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	18400
Arsenic	13	16	16	15.7
Calcium	10000	--	--	55200
Iron	2000	--	--	29100
Nickel	30	10000	130	41

AOC-15-GP-01 (4' - 5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	14900
Calcium	10000	--	--	67700
Cobalt	20	--	--	21
Iron	2000	--	--	24100
Nickel	30	10000	130	36.3

AOC-15-GP-02 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Calcium	10000	--	--	165000
Iron	2000	--	--	10500

AOC-15-GP-06 (2' - 2.5')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	90500
Iron	2000	--	--	7450

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 15 SUBSURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6T

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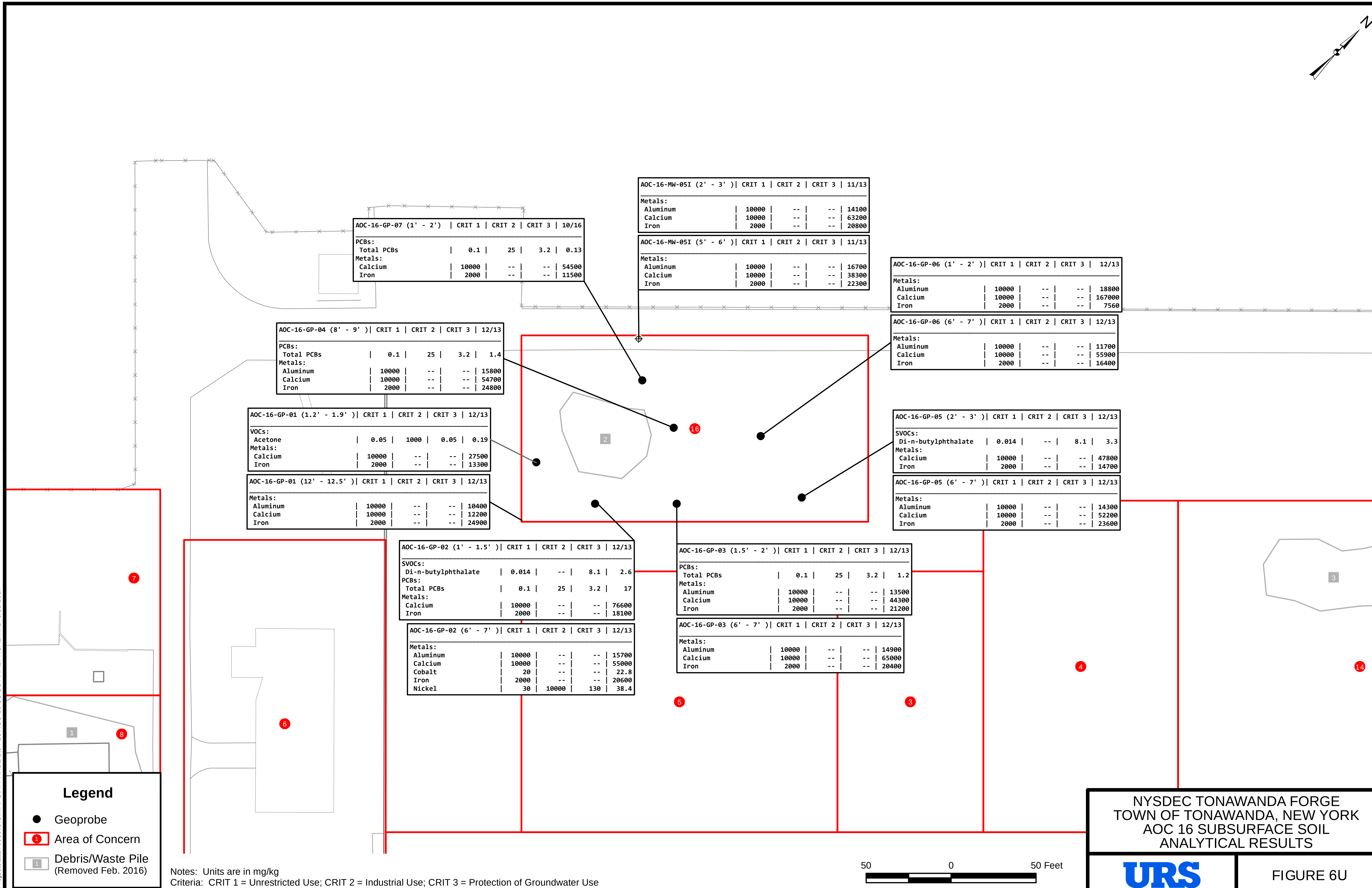


AOC-16-GP-07 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	10/16
PCBs:				
Total PCBs	0.1	25	3.2	0.13
Metals:				
Calcium	10000	--	--	54500
Iron	2000	--	--	11500

AOC-16-MW-05I (2' - 3')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	14100
Calcium	10000	--	--	63200
Iron	2000	--	--	20800

AOC-16-MW-05I (5' - 6')	CRIT 1	CRIT 2	CRIT 3	11/13
Metals:				
Aluminum	10000	--	--	16700
Calcium	10000	--	--	38300
Iron	2000	--	--	22300

AOC-16-GP-06 (1' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	18800
Calcium	10000	--	--	167000
Iron	2000	--	--	7560

AOC-16-GP-06 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	11700
Calcium	10000	--	--	55900
Iron	2000	--	--	16400

AOC-16-GP-04 (8' - 9')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	1.4
Metals:				
Aluminum	10000	--	--	15800
Calcium	10000	--	--	54700
Iron	2000	--	--	24800

AOC-16-GP-01 (1.2' - 1.9')	CRIT 1	CRIT 2	CRIT 3	12/13
VOCs:				
Acetone	0.05	1000	0.05	0.19
Metals:				
Calcium	10000	--	--	27500
Iron	2000	--	--	13300

AOC-16-GP-01 (12' - 12.5')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	10400
Calcium	10000	--	--	12200
Iron	2000	--	--	24900

AOC-16-GP-05 (2' - 3')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
Di-n-butylphthalate	0.014	--	8.1	3.3
Metals:				
Calcium	10000	--	--	47800
Iron	2000	--	--	14700

AOC-16-GP-05 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	14300
Calcium	10000	--	--	52200
Iron	2000	--	--	23600

AOC-16-GP-02 (1' - 1.5')	CRIT 1	CRIT 2	CRIT 3	12/13
SVOCs:				
Di-n-butylphthalate	0.014	--	8.1	2.6
PCBs:				
Total PCBs	0.1	25	3.2	17
Metals:				
Calcium	10000	--	--	76600
Iron	2000	--	--	18100

AOC-16-GP-02 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	15700
Calcium	10000	--	--	55000
Cobalt	20	--	--	22.8
Iron	2000	--	--	20600
Nickel	30	10000	130	38.4

AOC-16-GP-03 (1.5' - 2')	CRIT 1	CRIT 2	CRIT 3	12/13
PCBs:				
Total PCBs	0.1	25	3.2	1.2
Metals:				
Aluminum	10000	--	--	13500
Calcium	10000	--	--	44300
Iron	2000	--	--	21200

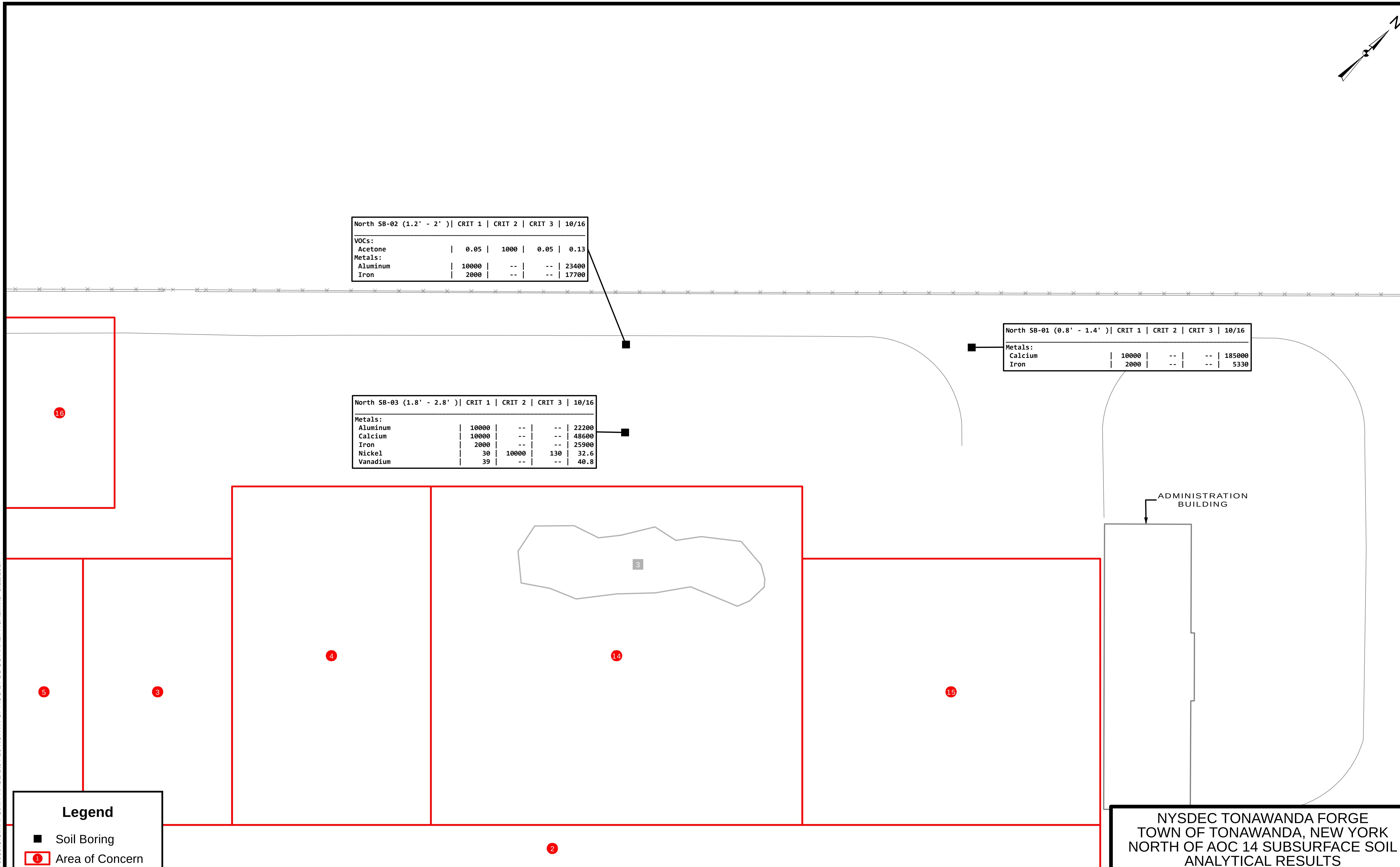
AOC-16-GP-03 (6' - 7')	CRIT 1	CRIT 2	CRIT 3	12/13
Metals:				
Aluminum	10000	--	--	14900
Calcium	10000	--	--	65000
Iron	2000	--	--	20400

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
AOC 16 SUBSURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6U



North SB-02 (1.2' - 2')	CRIT 1	CRIT 2	CRIT 3	10/16
VOCs:				
Acetone	0.05	1000	0.05	0.13
Metals:				
Aluminum	10000	--	--	23400
Iron	2000	--	--	17700

North SB-01 (0.8' - 1.4')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Calcium	10000	--	--	185000
Iron	2000	--	--	5330

North SB-03 (1.8' - 2.8')	CRIT 1	CRIT 2	CRIT 3	10/16
Metals:				
Aluminum	10000	--	--	22200
Calcium	10000	--	--	48600
Iron	2000	--	--	25900
Nickel	30	10000	130	32.6
Vanadium	39	--	--	40.8

Legend

- Soil Boring
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
NORTH OF AOC 14 SUBSURFACE SOIL ANALYTICAL RESULTS

URS

FIGURE 6V

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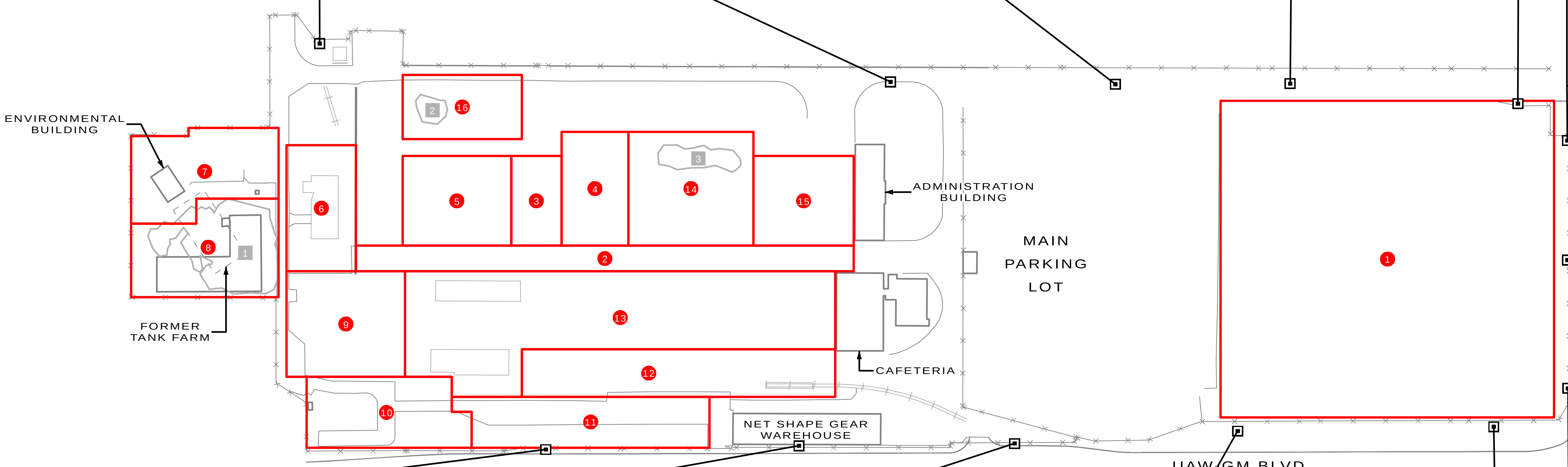


SS-13 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
PCBs:				
Total PCBs	0.1	25	3.2	0.13
Metals:				
Calcium	10000	--	--	112000
Chromium	30	6800	--	33.9
Iron	2000	--	--	19700
Nickel	30	10000	130	51.8
Zinc	109	10000	2480	243

SS-12 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(a)anthracene	1	11	1	6.3
Benzo(a)pyrene	1	1.1	22	6.1
Benzo(b)fluoranthene	1	11	1.7	12
Chrysene	1	110	1	6.7
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	6.5
PCBs:				
Total PCBs	0.1	25	3.2	6.8
Metals:				
Cadmium	2.5	60	7.5	2.7
Calcium	10000	--	--	45900
Chromium	30	6800	--	145
Copper	50	10000	1720	126
Iron	2000	--	--	49100
Lead	63	3900	450	260
Nickel	30	10000	130	63
Zinc	109	10000	2480	451

SS-11 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(a)anthracene	1	11	1	2.3
Benzo(a)pyrene	1	1.1	22	2.6
Benzo(b)fluoranthene	1	11	1.7	3.7
Benzo(k)fluoranthene	0.8	110	1.7	1.7
Chrysene	1	110	1	2.8
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	3.2
PCBs:				
Total PCBs	0.1	25	3.2	1
Metals:				
Aluminum	10000	--	--	12700
Cadmium	2.5	60	7.5	3.2
Calcium	10000	--	--	36000
Chromium	30	6800	--	99.7
Copper	50	10000	1720	87.3
Iron	2000	--	--	38800
Lead	63	3900	450	376
Nickel	30	10000	130	44.8
Zinc	109	10000	2480	1070

SS-10 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(a)anthracene	1	11	1	7.5
Benzo(a)pyrene	1	1.1	22	7.8
Benzo(b)fluoranthene	1	11	1.7	16
Chrysene	1	110	1	9.2
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	8.6
PCBs:				
Total PCBs	0.1	25	3.2	3.02
Metals:				
Cadmium	2.5	60	7.5	3
Calcium	10000	--	--	70100
Chromium	30	6800	--	151
Copper	50	10000	1720	175
Iron	2000	--	--	50400
Lead	63	3900	450	342
Nickel	30	10000	130	65.7
Zinc	109	10000	2480	486

SS-09 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.3
PCBs:				
Total PCBs	0.1	25	3.2	0.13
Metals:				
Aluminum	10000	--	--	10800
Calcium	10000	--	--	58200
Iron	2000	--	--	14000

SS-08 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.1
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.9
PCBs:				
Total PCBs	0.1	25	3.2	2.58
Metals:				
Aluminum	10000	--	--	17500
Arsenic	13	16	16	14.4
Calcium	10000	--	--	39900
Chromium	30	6800	--	210
Copper	50	10000	1720	264
Iron	2000	--	--	116000
Lead	63	3900	450	131
Mercury	0.18	5.7	0.73	0.23
Nickel	30	10000	130	82.5
Zinc	109	10000	2480	200

SS-07 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
Metals:				
Aluminum	10000	--	--	12500
Calcium	10000	--	--	10800
Iron	2000	--	--	13500

SS-01 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
Metals:				
Aluminum	10000	--	--	10900
Iron	2000	--	--	13500

SS-02 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
Metals:				
Aluminum	10000	--	--	12300
Iron	2000	--	--	16400

SS-03 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
PCBs:				
Total PCBs	0.1	25	3.2	0.11
Metals:				
Aluminum	10000	--	--	11700
Iron	2000	--	--	14700
Lead	63	3900	450	79.4
Zinc	109	10000	2480	120

SS-04 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(a)anthracene	1	11	1	2.2
Benzo(a)pyrene	1	1.1	22	2.3
Benzo(b)fluoranthene	1	11	1.7	3.6
Benzo(k)fluoranthene	0.8	110	1.7	1.9
Chrysene	1	110	1	2.8
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	2.4
PCBs:				
Total PCBs	0.1	25	3.2	6.36
Metals:				
Calcium	10000	--	--	53200
Chromium	30	6800	--	222
Copper	50	10000	1720	136
Iron	2000	--	--	123000
Lead	63	3900	450	94.5
Mercury	0.18	5.7	0.73	0.32
Nickel	30	10000	130	72.7
Zinc	109	10000	2480	150

SS-05 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
PCBs:				
Total PCBs	0.1	25	3.2	6.53
Metals:				
Aluminum	10000	--	--	13000
Arsenic	13	16	16	16.7
Cadmium	2.5	60	7.5	4.5
Calcium	10000	--	--	27400
Chromium	30	6800	--	252
Copper	50	10000	1720	151
Iron	2000	--	--	82900
Lead	63	3900	450	294
Manganese	1600	10000	2000	2170
Mercury	0.18	5.7	0.73	1.2
Nickel	30	10000	130	93.4
Zinc	109	10000	2480	569

SS-06 (0' - 0.16')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.74
Metals:				
Aluminum	10000	--	--	12900
Iron	2000	--	--	13700

Legend

- Surface Soil Sample
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

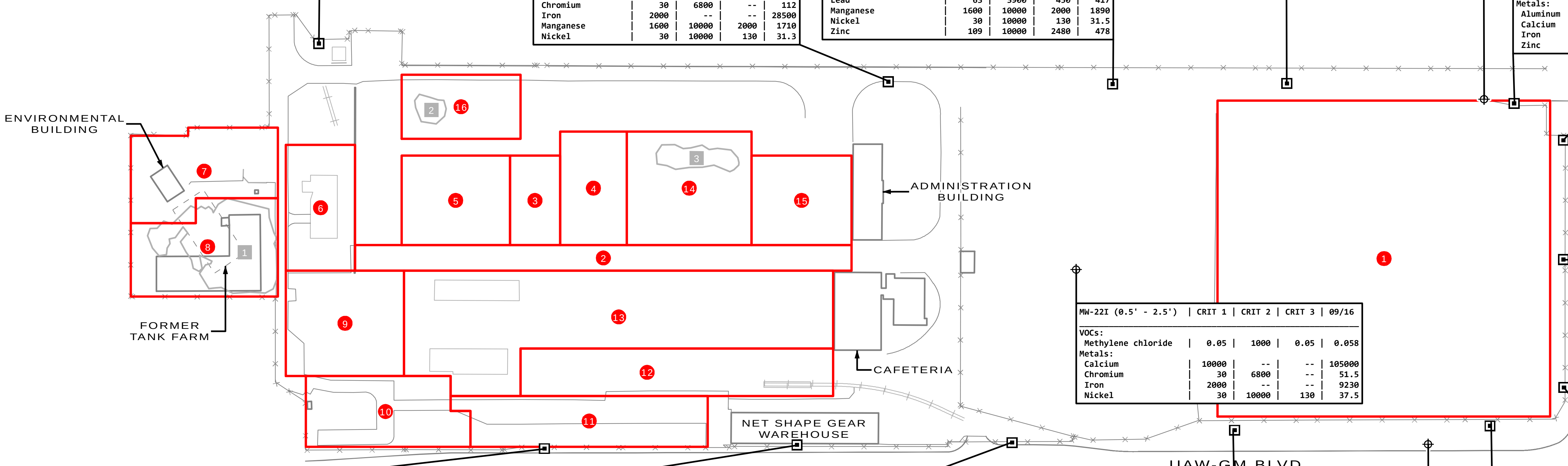
200 0 200 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
SITE PERIMETER SURFACE SOIL
ANALYTICAL RESULTS

URS

FIGURE 6W

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-27 SITE PERIMETER S SO ANALYTICAL.mxd 5/22/2017



SS-10 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
PCBs:				
Total PCBs	0.1	25	3.2	0.91
Metals:				
Aluminum	10000	--	--	25600
Calcium	10000	--	--	72000
Chromium	30	6800	--	343
Iron	2000	--	--	26500
Manganese	1600	10000	2000	6550
Vanadium	39	--	--	51.8

MW-23I (0' - 2')	CRIT 1	CRIT 2	CRIT 3	10/16
SVOCs:				
Benzo(a)anthracene	1	11	1	6.8
Benzo(a)pyrene	1	1.1	22	6.2
Benzo(b)fluoranthene	1	11	1.7	8.1
Benzo(k)fluoranthene	0.8	110	1.7	3.5
Chrysene	1	110	1	6.1
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	3.5
Metals:				
Calcium	10000	--	--	132000
Iron	2000	--	--	10700
Lead	63	3900	450	70.3

SS-11 (0.5' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(b)fluoranthene	1	11	1.7	1.3
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	1.5
PCBs:				
Total PCBs	0.1	25	3.2	2.77
Metals:				
Aluminum	10000	--	--	10900
Cadmium	2.5	60	7.5	3
Calcium	10000	--	--	34900
Chromium	30	6800	--	131
Copper	50	10000	1720	62.2
Iron	2000	--	--	32900
Lead	63	3900	450	417
Manganese	1600	10000	2000	1890
Nickel	30	10000	130	31.5
Zinc	109	10000	2480	478

SS-09 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(a)anthracene	1	11	1	1.8
Benzo(a)pyrene	1	1.1	22	1.7
Benzo(b)fluoranthene	1	11	1.7	3.3
Chrysene	1	110	1	2
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	2
PCBs:				
Total PCBs	0.1	25	3.2	0.21
Metals:				
Aluminum	10000	--	--	12600
Calcium	10000	--	--	20500
Iron	2000	--	--	15600
Zinc	109	10000	2480	125

SS-13 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
Metals:				
Aluminum	10000	--	--	23300
Chromium	30	6800	--	33.5
Iron	2000	--	--	25300
Vanadium	39	--	--	42.1

SS-12 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
PCBs:				
Total PCBs	0.1	25	3.2	10
Metals:				
Aluminum	10000	--	--	19200
Calcium	10000	--	--	28300
Chromium	30	6800	--	112
Iron	2000	--	--	28500
Manganese	1600	10000	2000	1710
Nickel	30	10000	130	31.3

SS-08 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
Metals:				
Aluminum	10000	--	--	28300
Chromium	30	6800	--	33.3
Iron	2000	--	--	27100
Vanadium	39	--	--	51.5
Zinc	109	10000	2480	115

SS-07 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
PCBs:				
Total PCBs	0.1	25	3.2	2.71
Metals:				
Arsenic	13	16	16	19
Cadmium	2.5	60	7.5	3.7
Calcium	10000	--	--	20000
Chromium	30	6800	--	362
Cobalt	20	--	--	20.3
Copper	50	10000	1720	478
Iron	2000	--	--	171000
Lead	63	3900	450	249
Manganese	1600	10000	2000	1730
Mercury	0.18	5.7	0.73	0.2
Nickel	30	10000	130	152
Zinc	109	10000	2480	475

MW-22I (0.5' - 2.5')	CRIT 1	CRIT 2	CRIT 3	09/16
VOCs:				
Methylene chloride	0.05	1000	0.05	0.058
Metals:				
Calcium	10000	--	--	105000
Chromium	30	6800	--	51.5
Iron	2000	--	--	9230
Nickel	30	10000	130	37.5

SS-06 (0.5' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/16
PCBs:				
Total PCBs	0.1	25	3.2	0.14
Metals:				
Aluminum	10000	--	--	17500
Calcium	10000	--	--	52100
Iron	2000	--	--	23300
Mercury	0.18	5.7	0.73	0.29

SS-01 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
Metals:				
Calcium	10000	--	--	101000
Iron	2000	--	--	10100

SS-02 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
Metals:				
Aluminum	10000	--	--	23600
Iron	2000	--	--	26900
Nickel	30	10000	130	32.1
Vanadium	39	--	--	42.5

SS-03 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.82
PCBs:				
Total PCBs	0.1	25	3.2	0.4
Metals:				
Aluminum	10000	--	--	11300
Calcium	10000	--	--	59300
Chromium	30	6800	--	40.9
Copper	50	10000	1720	95.2
Iron	2000	--	--	23300
Lead	63	3900	450	75.4
Zinc	109	10000	2480	121

SS-04 (0.5' - 1.5')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Benzo(a)anthracene	1	11	1	1.5
Benzo(a)pyrene	1	1.1	22	1.7
Benzo(b)fluoranthene	1	11	1.7	2.4
Chrysene	1	110	1	2
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	2
PCBs:				
Total PCBs	0.1	25	3.2	12.1
Metals:				
Calcium	10000	--	--	16800
Chromium	30	6800	--	390
Copper	50	10000	1720	4850
Iron	2000	--	--	184000
Lead	63	3900	450	352
Manganese	1600	10000	2000	1910
Nickel	30	10000	130	130
Zinc	109	10000	2480	285

SS-05 (0.5' - 2')	CRIT 1	CRIT 2	CRIT 3	11/16
SVOCs:				
Indeno(1,2,3-cd)pyrene	0.5	11	8.2	0.93
PCBs:				
Total PCBs	0.1	25	3.2	15.49
Metals:				
Aluminum	10000	--	--	18700
Cadmium	2.5	60	7.5	3.9
Calcium	10000	--	--	95000
Chromium	30	6800	--	307
Copper	50	10000	1720	124
Iron	2000	--	--	46200
Lead	63	3900	450	170
Manganese	1600	10000	2000	7310
Mercury	0.18	5.7	0.73	2
Nickel	30	10000	130	38.2
Zinc	109	10000	2480	391

MW-17I (13.5' - 14')	CRIT 1	CRIT 2	CRIT 3	09/16
Metals:				
Aluminum	10000	--	--	15700
Calcium	10000	--	--	47700
Iron	2000	--	--	21600

Legend

- Surface Soil Sample
- Monitoring Well
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

Notes: Units are in mg/kg
Criteria: CRIT 1 = Unrestricted Use; CRIT 2 = Industrial Use; CRIT 3 = Protection of Groundwater Use

200 0 200 Feet

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
SITE PERIMETER SUBSURFACE SOIL ANALYTICAL RESULTS

URS

FIGURE 6X

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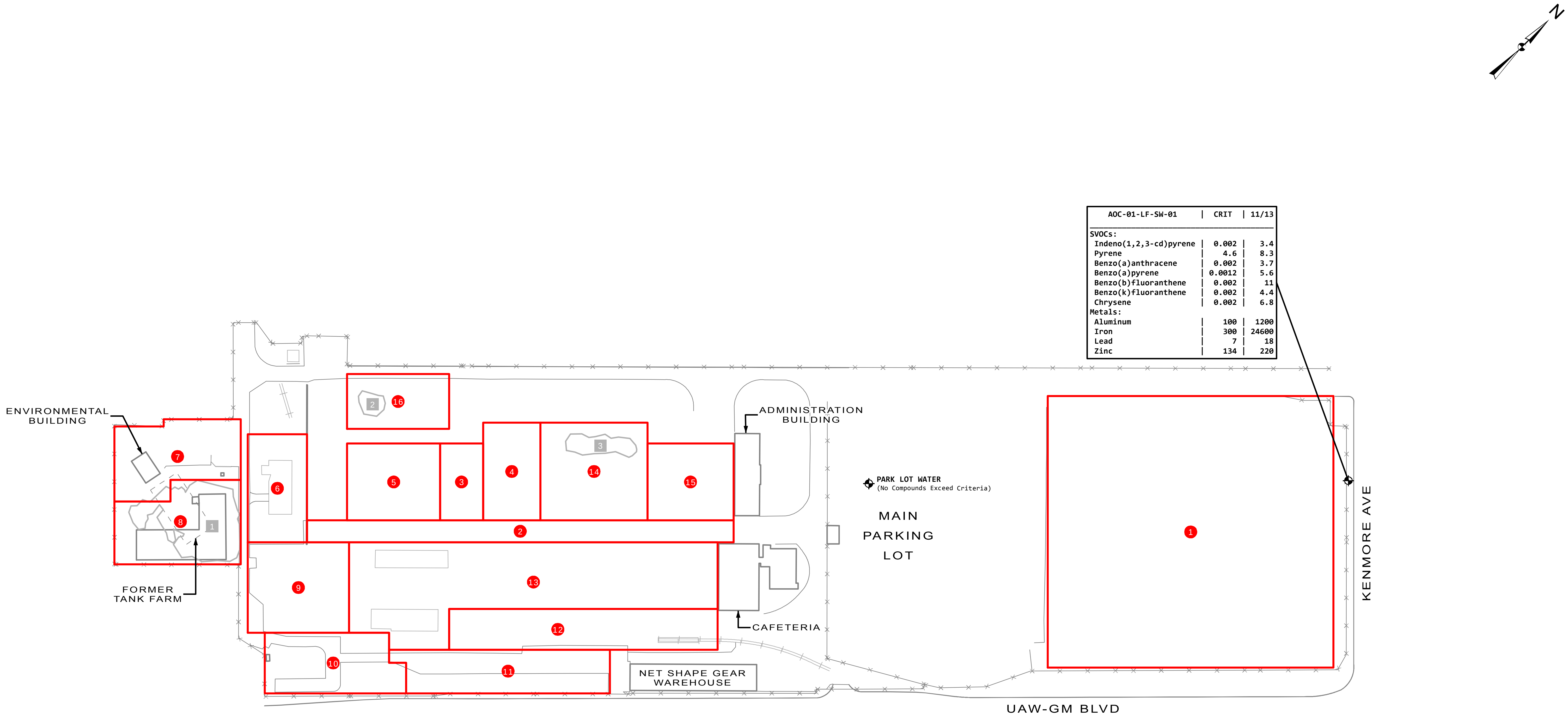


AOC-01-LF-SW-01	CRIT	11/13
SVOCs:		
Indeno(1,2,3-cd)pyrene	0.002	3.4
Pyrene	4.6	8.3
Benzo(a)anthracene	0.002	3.7
Benzo(a)pyrene	0.0012	5.6
Benzo(b)fluoranthene	0.002	11
Benzo(k)fluoranthene	0.002	4.4
Chrysene	0.002	6.8
Metals:		
Aluminum	100	1200
Iron	300	24600
Lead	7	18
Zinc	134	220

Legend

- Surface Water Sample
- Area of Concern
- Debris/Waste Pile (Removed Feb. 2016)

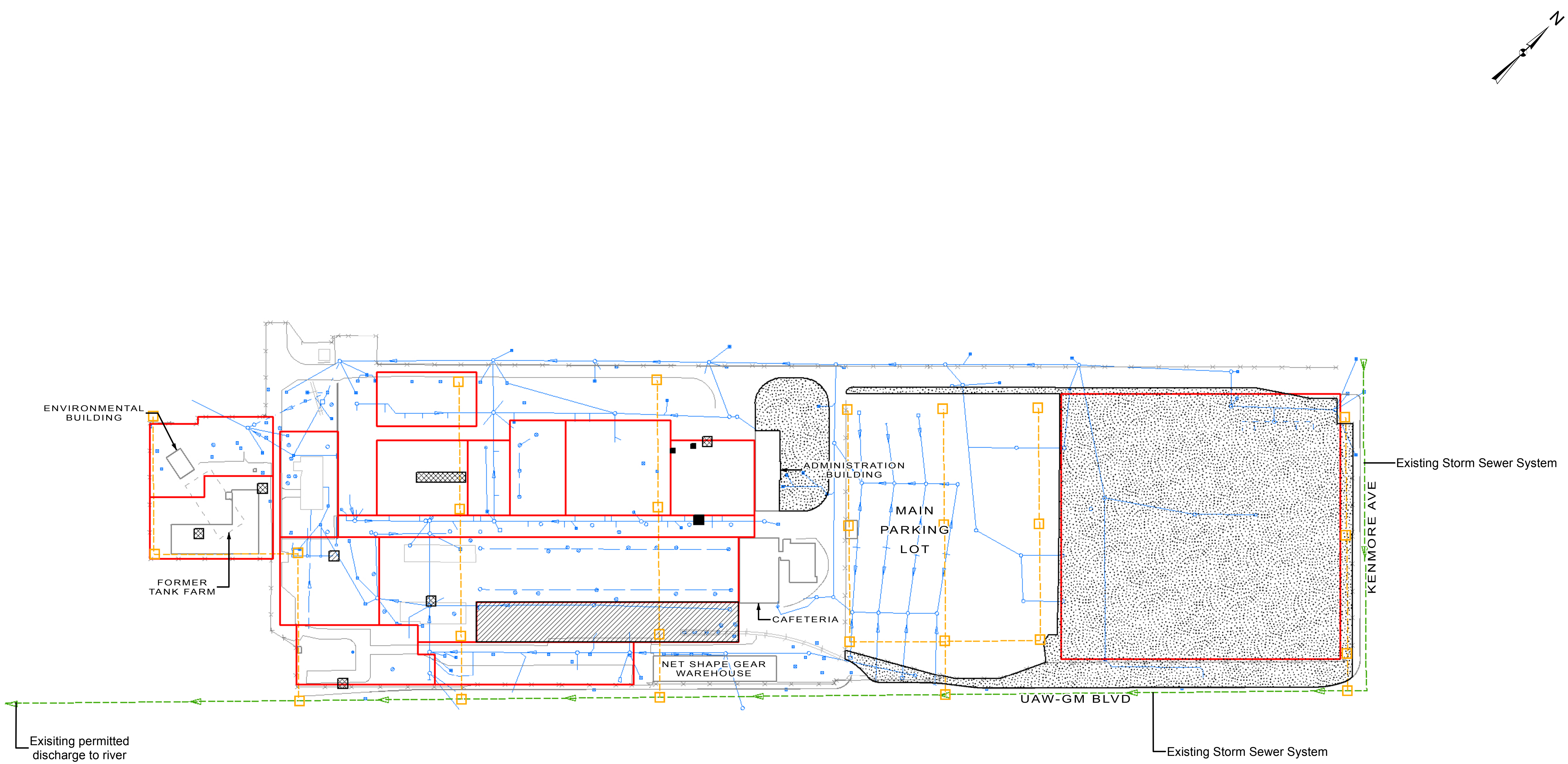
Notes: Units are in µg/L; Locations shown without results indicate that no compounds exceeded criteria
Criteria: NYSDEC TOGS 1.1.1 Ambient Water Quality Standards, Class A

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
SURFACE WATER ANALYTICAL RESULTS

URS

FIGURE 7

J:\Projects\11176989\GIS\MAPS\RI PHASE 2\04-29 SW ANALYTICAL.mxd 5/22/2017



Legend

- Existing Storm Sewer System
- Proposed Onsite Sewer System
- Sewer to be cleaned and sealed
- Areas of Concern
- One-foot Surface Cover
- Surface Soil Excavation
- Subsurface Soil Excavation
- Concrete or Brick Removal

NYSDEC TONAWANDA FORGE
TOWN OF TONAWANDA, NEW YORK
ALTERNATIVE 4

URS

FIGURE 8

J:\Projects\11176989\GIS\MAPS\FS\04-02 ALTERNATIVE 4.mxd 9/17/2019