NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
**Site Classification Report**

DATE: 1/17/2012

**Site Code:** 915193A
**Site Name:** Buffalo Lakeside Commerce Park - Parcel 4
**City:** Buffalo
**Town:** Buffalo (c)
**Region:** 9
**County:** Erie
**Current Classification:** P
**Proposed Classification:** 02
**Estimated Size (acres):** 5.50
**Disposal Area:** Dump
**Significant Threat:** Unknown
**Site Type:**
**Priority ranking Score:**
**Project Manager:** David Locey

**Summary of Approvals**

| | |
|---|---|
| **Originator/Supervisor:** Martin Doster | **11/30/2011** |
| **RHWRE:** Gregory Sutton / Martin Doster: | **11/30/2011** |
| **BEEI of NYSDOH:** | **12/27/2011** |
| **CO Bureau Director:** Michael Cruden, Director, Region 9: | **12/27/2011** |
| **Assistant Division Director:** Robert W. Schick, P.E.: | **12/28/2011** |

**Basis for Classification Change**

Based upon the investigations conducted to date, the primary contaminant of concern is lead. The Filter Cake/Flue Ash pile, contained lead at concentrations as high as 11,000 ppm, well above the unrestricted soil cleanup objective of 63 ppm. Leachate from one of the five samples of this ash that were tested for the Toxicity Characteristic Leachate Procedure during the 2006 ERP site investigation, contained 11.7 mg/L of lead, exceeding the hazardous waste threshold of 5 mg/L. One of twelve filter cake/flue ash waste samples collected in earlier investigations (1995, 2001 and 2003) contained lead in the leachate at a concentration characteristic of a hazardous waste. However, the largest quantity of filter cake/flue ash lies exposed in the western 5.5 acres of Parcel 4.

The concentration of lead in the filter cake/ash is well above commercial soil cleanup objectives and leachate samples exceeded the TCLP characteristic threshold of a hazardous waste.

Hazardous waste disposal at this site has been confirmed and a Record of Decision has been signed. A large portion of the filter cake/flue ash piles are exposed, tracks in the waste material are evidence of trespass by individuals with all terrain vehicles. Just a small portion of the site had been fenced and this fence is in disrepair; access to the site is unrestricted. The recently opened public greenspace of the adjacent Union Ship Canal Commons (Parcel 3) is likely to increase the risk of direct contact.

**Site Description - Last Review: 11/29/2011**

DATE: 1/17/2012

**Site Code:** 915193A **Site Name:** Buffalo Lakeside Commerce Park - Parcel 4

Location
The Buffalo Lakeside Commerce Park (BCLP) occupies over 200 acres at the southern edge of the City of Buffalo. Approximately 113 acres of the BLCP was formerly referred to as the Hanna Furnace Site (Site #915029). The Parcel 4 site is a 5.5-acre, vacant parcel located on the western edge of the BLCP, in the northwest corner of the former Hanna Furnace parcel and is the western portion of the 20-acre ERP site #E915193 by the same name.

The site is bordered to the west by New York State Route 5 and Fuhrmann Boulevard, and to the south by the remediated ERP site Hanna Furnace Subparcel 3 Site #B00164 (now known as the Union Ship Canal Commons public greenspace). The Union Ship Canal, a slip off of the Buffalo Outer Harbor, lies 200 feet south of the site.

Current Zoning/Uses
Buffalo Urban Development Corporation (BUDC), owner of the BLCP, intends to redevelop the land, including this site, consistent with the light industrial/commercial redevelopment that has taken place in Parcels 1 and 2. Two remediated and redeveloped BCP sites (BLCP-Krog, Site #C915185 and Cobey-BLCP, Site #C915202) are located in Parcels 1 and 2 of the BLCP. Parcel 4 is currently zoned for light industrial/commercial use.

Site Features
In earlier investigations, the site was often called the “Filter Cake/Flue Ash” area. Occupying much of the site is a mound of fill composed of the byproducts from the pig iron production: black fine-grained flue ash, collected from the exhaust of the iron blast furnaces; and filter cake, the solids screened from the wet “scrubbers” which separated impurities from the same furnace exhaust before the combustible gases were recycled back to the furnaces. The surface of the Filter Cake/Flue Ash area is “hummocky”; actually best characterized as several smaller, connected mounds with a maximum height of approximately 15 feet. Much of the filter cake/flue ash piles are covered with fill material (clay, crushed stone and concrete), which was reportedly excavated from the construction site of a supermarket in the City of Buffalo.

Historical Uses
Parcel 4 was the northern most of four adjoining parcels that comprised the Hanna Furnace iron foundry. The railroad yard that serviced the foundry and the production facilities themselves and were located to the south in Parcels 1 and 2 respectively. Parcel 3 surrounded the eastern end of the Union Ship Canal and is where the foundry’s raw materials (ore, coke and limestone) were delivered and stockpiled.

Hanna Furnace purchased Parcel 4 from the Pennsylvania Railroad in 1960. At that time, a marsh and pond occupied most of the site, with railroad tracks encircling it. Over the ensuing decades, the marsh was backfilled with slag, ash, and demolition debris generated by the foundry. Fill material covers the entire site and is the source of the site contamination.

There have been sixteen separate environmental investigations conducted on the former 200 acre Hanna Furnace property. Of these sixteen studies, six investigations included the Parcel 4 area.

In 2006 an Environmental Site Investigation was completed by Malcolm Pirnie for BUDC under the NYS

DATE: 1/17/2012

**Site Code:** 915193A **Site Name:** Buffalo Lakeside Commerce Park - Parcel 4

Environmental Restoration Program and a Record of Decision (ROD) was issued. The Parcel 4 site remedy required the excavation and off-site disposal of discrete solid waste materials, installation of a cover system over the entire site and the implementation of a site management plan to ensure long term care of the cover system and compliance with site use restrictions. The remediation of Parcel 4 (E915193) was not completed though discrete solid waste materials (i.e. the Debris Disposal pile) were removed for off –site disposal from the eastern two thirds of the parcel; the Filter Cake/Flue Ash area was left undisturbed.

Site Geology and Hydrogeology
The site geology can be characterized as a 25 to 30 foot-thick cover of natural and man-made overburden materials over a relatively flat shale bedrock surface. Natural overburden materials encountered include, in ascending order, glacial deposits (till), clay and peat. The fill material encountered varied from disturbed, natural soil materials from clay to boulders, dredged sediments and broken shale rock as well as the raw materials and byproducts of iron and steel manufacturing including: filter cake/flue ash, slag, iron ore, limestone, coke and construction and demolition debris. Fill material was encountered at every soil boring location on site and ranged in thickness from 10 to 25 feet.

The bedrock at the site is the Levanna Shale Member of the Middle Devonian Age Skaneateles Formation. The Levanna shale is described as a fissile shale, dark gray or black near the bottom and lighter gray in color near the top. Some calcareous (limey) beds and some pyrite concretions are present within this shale member. The Levanna is reportedly 45 feet thick and typically produces low quantitities of groundwater in the range of 10 to 15 gallons per minute. Being located near the shore of Lake Erie, surface water is the source of water for all uses in the area.

**Contaminants of Concern (Including Materials Disposed)** **Quantity Disposed**

**OU 01**
LEAD

**Analytical Data Available for :** Groundwater, Soil

**Applicable Standards Exceeded for:** Groundwater, Soil

**Site Environmental Assessment- Last Review: 11/29/2011**

Based upon the investigations conducted to date, the primary contaminant of concern is lead. The Filter Cake/Flue Ash pile, contained lead at concentrations as high as 11,000 ppm, well above the unrestricted soil cleanup objective of 63 ppm. Leachate from one of the five samples of this ash that were tested for the Toxicity Characteristic Leachate Procedure during the 2006 ERP site investigation, contained 11.7 mg/L of lead, exceeding the hazardous waste threshold of 5 mg/L. One of twelve filter cake/flue ash waste samples collected in earlier investigations (1995, 2001 and 2003) contained lead in the leachate at a concentration characteristic of a hazardous waste.

Contaminants found exceeding groundwater standards included: antimony, arsenic, beryllium, copper, iron, lead, magnesium, manganese, nickel, selenium, sodium, thallium, acetone, benzene, pentachlorophenol and phenol. Iron and sodium were found at elevated concentrations in all of the Parcel 4 wells. The pH of the groundwater was as high as 12.

Groundwater was encountered at depths between 1 and 7 feet with the most shallow groundwater found along

the northern boundary of Parcel 4 and adjacent to the Debris Disposal pile, where standing surface water was often found. The groundwater beneath Parcel 4 generally flowed southward except in the raised area of the Debris Disposal pile where there was a localized radial flow. Between Parcel 4 and Union Ship canal to the south, the groundwater appeared to be influenced by the canal's north wall and/or by the railroad beds which once bordered the canal. Northwest of the canal, in the vicinity of the Filter Cake/Flue Ash area, where the canal wall is largely intact, groundwater flowed parallel to the canal wall eastward to that end of the canal where the wall is weathered and damaged and the canal wall cap is absent.

It is not known if the removal of the Debris Disposal pile and re-grading of Parcel 4 has altered the groundwater flow.The discharge of groundwater contaminants to the Union Ship Canal is however considered a minor contributor to the potential environmental risks to aquatic receptors. The greater environmental threat is associated with the current and potential impact on terrestrial vegetation and wildlife receptors from direct contact with the exposed soil/fill, in particular the filter cake/flue ash waste.

**Site Health Assessment - Last Update: 11/01/2011**

The site is not fenced and persons who enter the site could contact contaminants in the soil by walking on the soil, digging, or otherwise disturbing the soil. People are not expected to come into direct contact with contaminated groundwater unless they dig below the ground surface.

| | Start | | End | |
|---|---|---|---|---|
| **OU 01** | | | | |
| Reclass Pkg. | 12/1/11 | ACT | 3/13/12 | PLN |
| Remedial Action | 1/18/13 | PLN | 12/19/13 | PLN |
| Remedial Design | 2/15/12 | PLN | 12/19/12 | PLN |

## Remedy Description and Cost

**Remedy Description for Operable Unit 01**

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. The filter cake/flue ash pile will be extensively sampled and analyzed to segregate that portion of the material which exhibits hazardous waste characteristics from the material which does not. The hazardous waste portion will be chemically stabilized on site before being disposed off site in a permitted landfill. As part of the remedial design, a determination will be made as to whether or not it will be feasible to further sort the filter cake/flue ash pile by lead contaminant concentrations. If so, a site-specific cleanup objective for just the flue ash/filter cake will be proposed which will be more cost effective but still protective of the public health and environment for the intended use of the site.

3. All other surface debris will be removed and the Site graded to the required elevations for redevelopment. Prior to placement of the Site cover system, a demarcation layer of synthetic fabric will be placed over the existing soil/fill. The clean final soil cover will be a minimum of twelve

inches thick. In those areas of the Site that will be covered by buildings or become roads, sidewalks or parking lots, the cover system will consist of a minimum of eight inches of pavement.

4. Imposition of an institutional control in the form of an environmental easement that will require: (a) limiting the use and development of the property to commercial or industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

5. Development of a site management plan which will include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the soil cover's demarcation layer, pavement, or buildings and ensure that excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (b) identification of any use restrictions on the site; and (c) provisions for the continued proper operation and maintenance of the components of the remedy.

6. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site;•and (c) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

**Total Cost**

| OU | Site Management Plan Approval: | Status: |
|---|---|---|

DATE: 1/17/2012

**Site Code:** 915193A **Site Name:** Buffalo Lakeside Commerce Park - Parcel 4

**NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION**
**Site Management Form**
12/28/2011

**SITE DESCRIPTION**

**SITE NO. 915193A**

**SITE NAME Buffalo Lakeside Commerce Park - Parcel 4**

SITE ADDRESS: 1714 Fuhrmann Blvd. ZIP CODE: 14203

CITY/TOWN: Buffalo

COUNTY: Erie

ALLOWABLE USE: Industrial

**SITE MANAGEMENT DESCRIPTION**

SITE MANAGEMENT PLAN INCLUDES: YES NO

IC/EC Certification Plan
Monitoring Plan
Operation and Maintenance (O&M) Plan

Periodic Review Frequency:

First Periodic Review Date:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
**Site Classification Report**

DATE: 1/17/2012

**Site Code:** 915193A **Site Name:** Buffalo Lakeside Commerce Park - Parcel 4

**Description of Institutional Control**

0

Not Applicable/No IC's

**Description of Engineering Control**

Not Applicable/No EC's

**New York State Department of Environmental Conservation**
**Division of Environmental Remediation**
**Bureau of Technical Support, 11th Floor**
625 Broadway, Albany, NY 12233-7020
**Phone:** (518) 402-9553 • **Fax:** (518) 402-9547
**Website:** www.dec.ny.gov

Joe Martens
Commissioner

**CERTIFIED MAIL**
**RETURN RECEIPT REQUESTED**

December 28, 2011

Buffalo Lakeside Lakeside Commerce Park I, LLC
c/o ECIDA - Peter M. Cammarata
Director of Urban Development
275 Oak Street, Suite 150
Buffalo, NY 14203

Dear Mr. Cammarata:

As mandated by Section 27-1305 of the Environmental Conservation Law (ECL), the New York State Department of Environmental Conservation (Department) must maintain a registry of all inactive disposal sites suspected or known to contain hazardous wastes. The ECL also mandates that this Department notify, by certified mail, the owner of all or any part of each site or area included in the Registry of Inactive Hazardous Waste Disposal Sites.

Our records indicate that you are the owner or part owner of the site listed below. Therefore, this letter constitutes notification of the inclusion of such site in the Registry of Inactive Hazardous Waste Disposal Sites in New York State. Once listed in the Registry, the site becomes subject to certain restrictions prescribed by provisions of 6 NYCRR Part 375. These regulations may be found at the following DEC website address: http://www.dec.ny.gov/regs/4373.html.

DEC Site No.: 915193A
Site Name: Buffalo Lakeside Commerce Park - Parcel 4
Site Address: 1714 Fuhrmann Blvd., Buffalo, NY 14203
Site Classification: 2

Enclosed is a copy of the Department's Inactive Hazardous Waste Disposal Site Report form as it will appear in the Registry. An explanation of the site classification is available at http://www.dec.ny.gov/chemical/8663.html. The Law allows the owner and/or operator of a site listed in the Registry to petition the Commissioner of the New York State Department of Environmental Conservation for deletion of such site, modification of site classification, or modification of any information regarding such site, by submitting a written statement setting forth the grounds of the petition.

Such petition may be addressed to:

Honorable Joseph J. Martens
Commissioner
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-1010

For additional information, please contact David Locey, the Project Manager, at 716-851-7220.

Sincerely,

Kelly A. Lewandowski, P.E.
Chief
Site Control Section

Enclosures

bec: w/o Enclosures
R. Schick
D. Weigel
A. English
K. Lewandowski
P. Humphrey
B. Anderson
S. Bates, NYSDOH
M. Cruden, Chief, Remedial Bureau E
M. Brady, Regional Attorney, Region 9
M. Doster, RHWRE, Region 9
D. Denk, Regional Permit Administrator, Region 9

New York State Department of Environmental Conservation

**PUBLIC NOTICE** | **State Superfund Program**

Receive Site Information by Email. See "For More Information" to Learn How.

**Site Name:** Buffalo Lakeside Commerce Park - Parcel 4 January 17, 2012
**Site No.** 915193A **Tax Map No.** 132.19-1-4.2
**Site Location:** 1714 Fuhrmann Blvd., City of Buffalo, Erie County 14203

# Inactive Hazardous Waste Disposal Site Classification Notice

The Inactive Hazardous Waste Disposal Site Program (the State Superfund Program) is the State's program for identifying, investigating, and cleaning up sites where the disposal of hazardous waste may present a threat to public health and/or the environment. The New York State Department of Environmental Conservation (Department) maintains a list of these sites in the Registry of Inactive Hazardous Waste Disposal Sites (the "Registry"). The site identified above, and located on a map on the reverse side of this page, was recently added to the Registry as a Class 2 site that presents a significant threat to public health and/or the environment for the following reason(s):

> The site listing is for the western most portion of Parcel 4 that is vacant and consists of piles of flue ash and other fill materials. High levels of lead and lead levels failing TCLP have been documented in the flue ash piles. Access is generally unrestricted and there is evidence of trespassing and off-road vehicle usage. Groundwater is found within 1 foot of the surface and has a pH value as high as 12. The recently completed Union Ship Canal Commons Greenway Park (Parcel 3) borders Parcel 4 to the south and allows public access to the canal.

The Department will keep you informed throughout the investigation and cleanup of the site.

**If you own property adjacent to this site and are renting or leasing your property to someone else, please share this information with them. If you no longer wish to be on the contact list for this site or otherwise need to correct our records, please contact the Department's Project Manager listed below.**

**FOR MORE INFORMATION**

Additional information about this site can be found using the Department's "Environmental Site Remediation Database Search" engine which is located on the internet at:
www.dec.ny.gov/cfmx/extapps/derexternal/index.cfm?pageid=3

Comments and questions are always welcome and should be directed as follows:


Project Related Questions
Mr. David Locey, Project Manager
NYS Department of Env. Conservation
Division of Environmental Remediation
270 Michigan Avenue
Buffalo, NY 14203
dplocey@gw.dec.state.ny.us
716-851-7220

Site Related Health Questions
Mr. Matthew Forcucci
NYS Department of Health
584 Delaware Avenue
Buffalo, NY 14202
beei@health.state.ny.us
716-847-4501


The Department is sending you this notice in accordance with Environmental Conservation Law Article 27, Title 13 and its companion regulation (6 NYCRR 375-2.7(b)(6)(ii)) which requires the Department to notify all parties on the contact list for this site of this recent action.

**Approximate Site Location**
Buffalo Lakeside Commerce Park - Parcel 4
Site ID: 915193A
1714 Fuhrmann Blvd.
Buffalo, NY 14203
Erie County


**Receive Site Updates by Email**

Have site information such as this public notice sent right to your email inbox. NYSDEC invites you to sign up with one or more contaminated sites county email listservs available at the following web page: www.dec.ny.gov/chemical/61092.html . It's *quick*, it's *free*, and it will help keep you *better informed*.

As a listserv member, you will periodically receive site-related information/announcements for all contaminated sites in the county(ies) you select.

You may continue also to receive paper copies of site information for a time after you sign up with a county listserv, until the transition to electronic distribution is complete.

**Note:** Please disregard if you received this notice by way of a county email listserv.

**Electronic copies:**

R. Schick, Acting Director, Division of Environmental Remediation
A. English, Director, Bureau of Technical Support
K. Lewandowski, Chief, Site Control Section
M. Cruden, Director, Remedial Bureau E
M. Doster, RHWRE, Region 9
D. Denk, Regional Permit Administrator, Region 9
M. Gollwitzer, Regional CPS, Region 9
S. Bates, NYSDOH
L. Ennist, DER, Bureau of Program Management
D. Locey, Project Manager
B. Anderson, Site Control Section

Buffalo Lakeside Commerce
Park I, LLC
275 Oak St, Suite 150
Buffalo, NY 14203

City of Buffalo
City Hall, Rm 323
65 Niagara Square
Buffalo, NY 14202

315 Ship Canal Parkway, LLC
100 Sonwil Dr
Cheektowaga, NY 14225

Buffalo Urban Development Corp
275 Oak St
Buffalo, NY 14203

Holcim (US) Inc.
201 Jones Rd
Waltham, MA 2451

Byron W Brown
Mayor, City of Buffalo
City Hall, Rm 201
65 Niagara Square
Buffalo, NY 14202

Michael P. Kearns, South District
Common Council Member
City Hall, Rm 1401
65 Niagara Square
Buffalo, NY 14202

Gerald Chwalinski
Buffalo City Clerk
City Hall, Rm 1308
65 Niagara Square
Buffalo, NY 14202

Buffalo Water Authority
Water Department
281 Exchange St
Buffalo, NY 14204

Christopher Collins
Erie County Executive
95 Franklin Street, 16th Floor
Buffalo, NY 14202

Kathy Hochul
Erie County Clerk
92 Franklin Street
Buffalo, NY 14202

Kathy Konst
Dept of Environment & Planning
95 Franklin Street, 16th Floor
Buffalo, NY 14202

City Editor
The Buffalo News
One News Plaza
P.O. Box 100,
Buffalo, NY 14240

NEW YORK
state department of
HEALTH

Nirav R. Shah, M.D., M.P.H.
Commissioner

Sue Kelly
Executive Deputy Commissioner

December 27, 2011

Mr. Michael Cruden
NYS Dept. of Environmental Conservation
Division of Environmental Remediation
625 Broadway – 11th Floor
Albany, NY 12233-7012

Re: Site Classification Package
Buffalo Lakeside Commerce Park – Parcel 4
Site #915193A
Buffalo (C), Erie County

Dear Mr. Cruden:

My staff reviewed the site classification package for the Buffalo Lakeside Commerce Park – Parcel 4 site, located in the City of Buffalo, Erie County that proposes listing the site as a Class 2. Based on that review, I understand that the site listing is for the western most portion of Parcel 4 that is vacant and consists of hummocky deposits of flue ash and other fill materials. High levels of lead and lead levels failing TCLP have been documented in the flue ash piles. Access is generally unrestricted and there is evidence of trespassing and off-road vehicle usage. Groundwater is found within 1 foot of the surface and has a pH value as high as 12. The recently completed Union Ship Canal Commons Greenway Park (Parcel 3) borders Parcel 4 to the south and allows public access to the canal. With this information, I concur with the proposal to list the site as a Class 2.

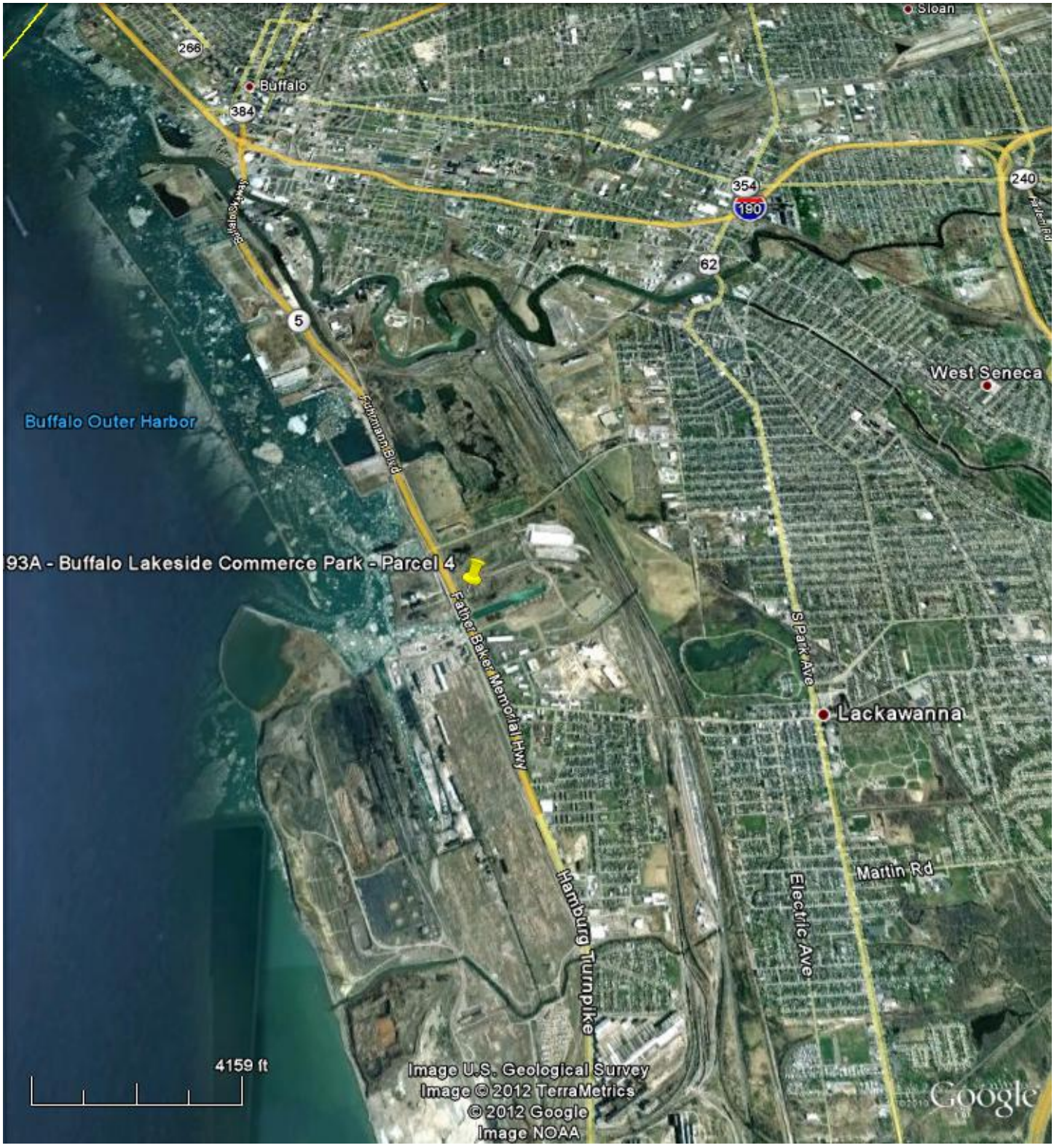
If you have any questions, please contact me or Mr. Rich Fedigan at (518) 402-7860.

Sincerely,

Steven M. Bates, Acting Director
Bureau of Environmental Exposure Investigation

ec: A. Salame-Alfie, Ph.D.
Ms. K. Anders/Mr. R. Fedigan
Mr. M. Forcucci, WRO
Mr. M. Kowalski - ECHD
Ms. K. Lewandowski, DEC Albany
Mr. M. Doster/Mr. D. Locey, DEC Region 9

P:\BUREAU\SITES\REGION_9\ERIE\915193\CRUDENLTR.DOC


Sloan
266
Buffalo
384
354
190
240
62
5
West Seneca
Buffalo Outer Harbor
Fuhrmann Blvd
93A - Buffalo Lakeside Commerce Park - Parcel 4
Father Baker Memorial Hwy
S Park Ave
Lackawanna
Martin Rd
Electric Ave
Hamburg Turnpike
4159 ft
Image U.S. Geological Survey
Image © 2012 TerraMetrics
© 2012 Google
Image NOAA
Google

Ohio St
Ramp
Fuhrmann Blvd
Ramp
Tifft St
Ramp
State Hwy 5
Buffalo Lakeside Commerce Park - Parcel 4
Marilla St
Driveway
State Hwy 5
Fuhrmann Blvd
Ramp
Commerce Dr
E St
N Gates Ave
5th St
Unnamed Street
Ramp
Unnamed Street

# SIGNIFICANT THREAT DETERMINATION WORKSHEET

✓ State Superfund Program
6 NYCRR 375-2.7

□ Brownfield Cleanup Program
ECL 27-1411.1(c)

Site Name: **Buffalo Lakeside Commerce Park Parcel 4** Site ID No. **915193**

City/Town: **City of Buffalo** County: **Erie**

| | | | |
|---|---|---|---|
| 1. Has all available and relevant evidence regarding the Site been reviewed and the factors in 375-2.7(a)(3) considered? | ✓ Yes (go to 2) | □ No (stop) | □ Unsure (stop) |
| 2. Does Site contamination result in significant adverse impacts (375-2.7(a)(1)) to: | | | |
| a. species that are endangered, threatened, or of concern? | □ Yes (go to b) | ✓ No (go to b) | □ Unsure (go to b) |
| b. protected streams, tidal/freshwater wetlands, or significant fish and wildlife habitat? | □ Yes (go to c) | ✓ No (go to c) | □ Unsure (go to c) |
| c. flora or fauna from bioaccumulation or leads to a recommendation to limit consumption? | □ Yes (go to d) | ✓ No (go to d) | □ Unsure (go to d) |
| d. fish, shellfish, crustacea, or wildlife from concentrations that cause adverse/chronic effects? | □ Yes (go to e) | ✓ No (go to e) | □ Unsure (go to e) |
| e. the environment due to a fire, spill, explosion, or reaction that generates toxic gases, vapors, fumes, mists or dusts? | □ Yes (go to f) | ✓ No (go to f) | □ Unsure (go to f) |
| f. areas where individuals or water supplies may be present and NYSDOH has determined there to be a significantly increased risk to public health (including from soil vapor)? | ✓ Yes (go to 3) | □ No (go to 3) | □ Unsure (go to 3) |
| 3. Does Site contamination result in significant environmental damage (375-2.7(a)(2))? | ✓ Yes (go to 4) | □ No (go to 4) | □ Unsure (stop) |
| 4. If any box in items 2 or 3 have been checked "Yes," the site presents a significant threat to public health or the environment; check here. | Significant threat to:<br>✓ Public Health<br>✓ Environment | | |
| 5. If no boxes in items 2 or 3 have been checked "Yes," the site does not present a significant threat to public health or the environment; check here. | □ Not a Significant Threat | | |

| | | |
|---|---|---|
| David Locey / Env. Engineer I | David Locey | 11.30.11 |
| Project Manager Name/Title (Print) | Project Manager Name (Signature) | Date |
| Martin Doster / RHWRE Region 9 | for Doster | 30 Nov 2011 |
| Bureau Director/RHWRE Name/Title (Print) | Bureau Director/RHWRE Name (Signature) | Date |

07/29/10

# SSF CLASSIFICATION WORKSHEET

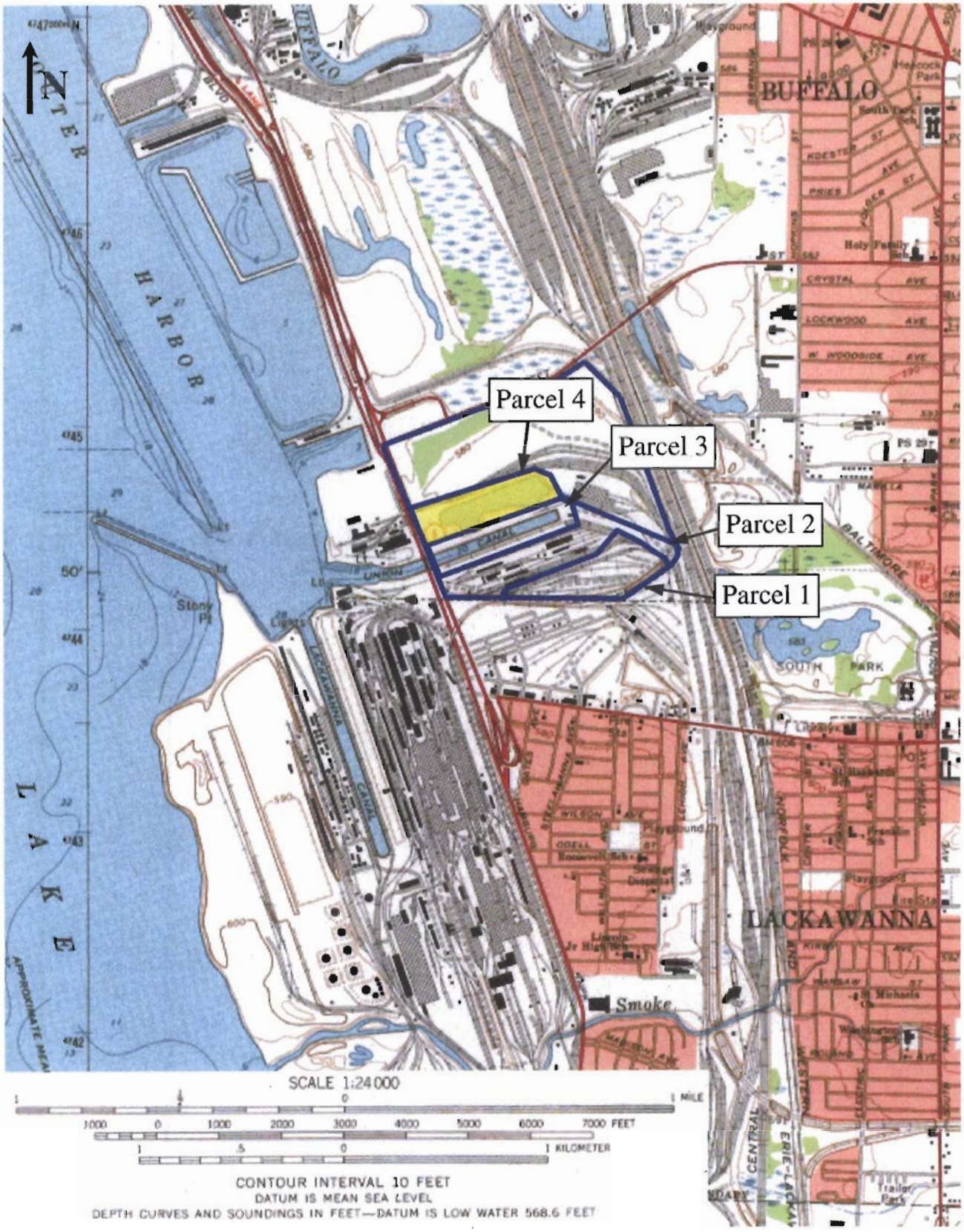
Site Name: **Buffalo Lakeside Commerce Park Parcel 4** Site ID No. **915193**

City/Town: **City of Buffalo** County: **Erie**

| | | | |
|---|---|---|---|
| 1. Has remediation been completed in accordance with a ROD including properly addressing institutional controls (ICs)? | ☐ Yes (go to 7) | ✓ No (go to 2) | |
| 2. Has hazardous waste as defined in ECL §27-1301.1 been disposed at the Site? | ✓ Yes (go to 3) | ☐ No (stop) | ☐ Unsure (go to 11) |
| 3. Does the Site present a current or reasonably foreseeable significant threat to public health or the environment (complete Significant Threat Determination Worksheet)? | ✓ Yes (go to 4) | ☐ No (go to 6) | ☐ Unsure (go to 11) |
| 4. Is the significant threat causing or presenting an imminent danger of causing irreversible or irreparable damage to public health or the environment? | ☐ Yes (Class 1) | ✓ No (go to 5) | ☐ Unsure (stop) |
| 5. Is the Site presenting a significant but not imminent threat to public health or the environment? | ✓ Yes (Class 2) | ☐ No (reevaluate) | |
| 6. Has hazardous waste been disposed but it does not present a significant threat to public health or the environment and the site is suitable for placement on the Registry? | ☐ Yes (Class 3) | ☐ No (go to 10) | |
| 7. Is the site properly remediated but still requires continued active site management to maintain/achieve protectiveness? | ☐ Yes (Class 4) | ☐ No (go to 8) | ☐ Unsure (stop) |
| 8. Is the site properly remediated, does not require continued active site management, but is not suitable for delisting or a required IC is not yet in place? | ☐ Yes (Class 5) | ☐ No (go to 9) | ☐ Unsure (stop) |
| 9. Is the site properly remediated, required ICs are in place, the site does not require continued active site management, and is suitable for delisting? | ☐ Yes (Class: C) | ☐ No (go to 10) | ☐ Unsure (stop) |
| 10. Based upon investigation, is the degree of contamination such that the Site does not qualify to be placed on the Registry and that additional remedial work is not anticipated at this time? | ☐ Yes (Class: N) | ☐ No (reevaluate) | ☐ Unsure (stop) |
| 11. Does insufficient information exist to properly classify the site? | ☐ Yes (Class P) | ☐ No (reevaluate) | ☐ Unsure (stop) |

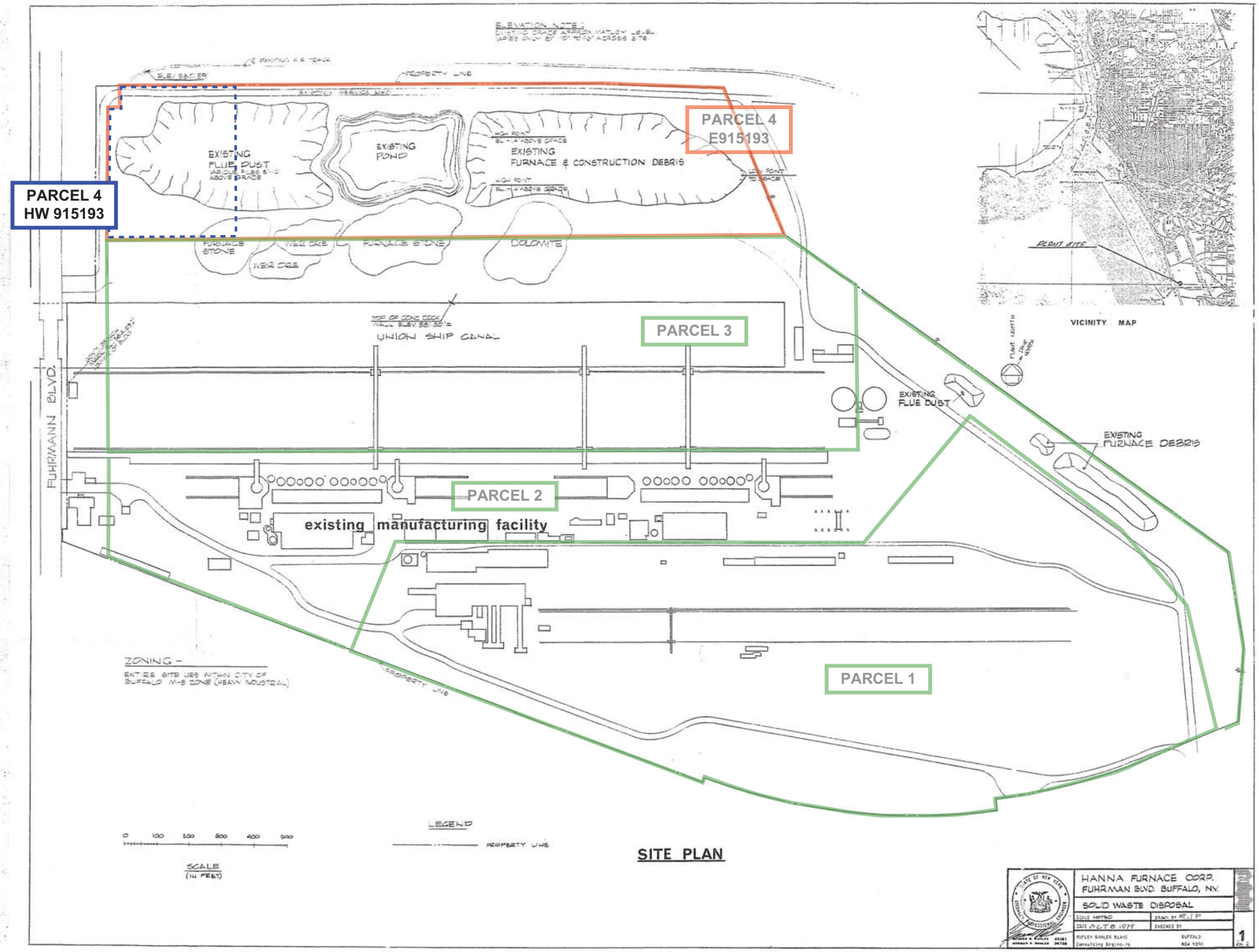
Current Classification: P Proposed Classification: 2

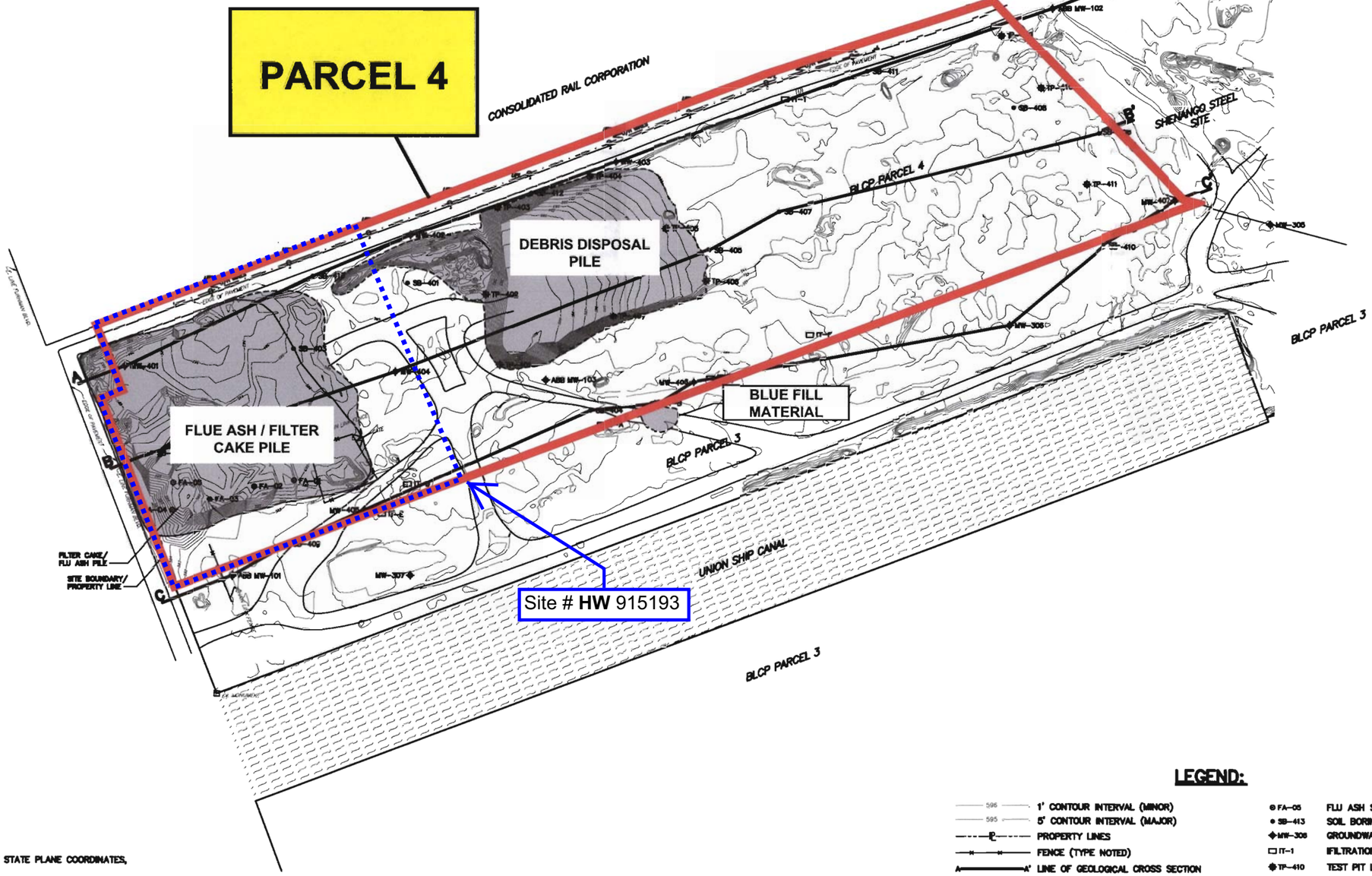
| | | |
|---|---|---|
| David P. Locey / Env. Engineer I | David P Locey | 11.30.11 |
| Project Manager Name/Title - Print | Project Manager Name - Signature | Date |
| Martin L. Doster /RHWRE Region 9 | M L Doster | 30 Nov 2011 |
| Bureau Director/RHWRE Name/Title - Print | Bureau Director/RHWRE Name - Signature | Date |




| | | |
|---|---|---|
| MALCOLM PIRNIE<br>AUG 2006 4080-004 | **BUFFALO LAKESIDE COMMERCE PARK (PARCEL 4)**<br>BUFFALO, NEW YORK | **FIGURE 1**<br>**SITE LOCATION MAP** |

Adapted from figure found in *Site Investigation / Remedial Alternatives Report, Buffalo Lakeside Commerce Park-Parcel 4,* Malcolm Pirnie Inc., Oct.2008


PARCEL 4
HW 915193
PARCEL 4
E915193
EXISTING
FLUE DUST
EXISTING
POND
EXISTING
FURNACE & CONSTRUCTION DEBRIS
FURNACE STONE
WEIR ORE
FURNACE STONE
DOLOMITE
UNION SHIP CANAL
PARCEL 3
FUHRMANN BLVD.
EXISTING
FLUE DUST
EXISTING
FURNACE DEBRIS
PARCEL 2
existing manufacturing facility
PARCEL 1
ZONING -
ENTIRE SITE LIES WITHIN CITY OF BUFFALO M-3 ZONE (HEAVY INDUSTRIAL)
PROPERTY LINE
0 100 200 300 400 500
SCALE
(IN FEET)
LEGEND
PROPERTY LINE
SITE PLAN
PLANT SITE
VICINITY MAP
HANNA FURNACE CORP.
FUHRMAN BLVD. BUFFALO, NY.
SOLID WASTE DISPOSAL
DATE OCT 8 1979
RIPLEY BANKER BLASE
Consulting Engineers
BUFFALO
NEW YORK
1




NOTES:

1. HORIZONTAL DATUM: NAD 27 NEW YORK STATE PLANE COORDINATES, WEST ZONE, US SURVEY FEET
2. VERTICAL DATUM: NGVD29
3. UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN IN THEIR APPROXIMATE LOCATION AND MAY NOT BE SHOWN IN THEIR ENTIRETY VERIFICATION IS REQUIRED PRIOR TO CONSTRUCTION.
4. TOPOGRAPHIC INFORMATION SHOWN ON THIS MAP WAS SURVEYED AND PREPARED BY WENDEL DUCHSCHERER FROM FIELD DATA GATHERED BETWEEN JANUARY 25 & JANUARY 30, 2008.

**LEGEND:**

| | |
|---|---|
| 596 — 596 | 1' CONTOUR INTERVAL (MINOR) |
| 595 — 595 | 5' CONTOUR INTERVAL (MAJOR) |
| ----P---- | PROPERTY LINES |
| —x—x— | FENCE (TYPE NOTED) |
| A——A' | LINE OF GEOLOGICAL CROSS SECTION |
| | SITE ROADS (APPROXIMATE LOCATIONS) |
| | DISTINCT FILL AREAS |
| ⊕ FA-05 | FLU ASH SAMPLE LOCATION (5) |
| ● SB-413 | SOIL BORING LOCATION (13) |
| ◆ MW-308 | GROUNDWATER MONITORING WELL LOCATION (13) |
| □ IT-1 | IFILTRATION TEST TRENCH (4) |
| ✱ TP-410 | TEST PIT LOCATION (11) |
| ○ IP | IRON PIN/PIPE |

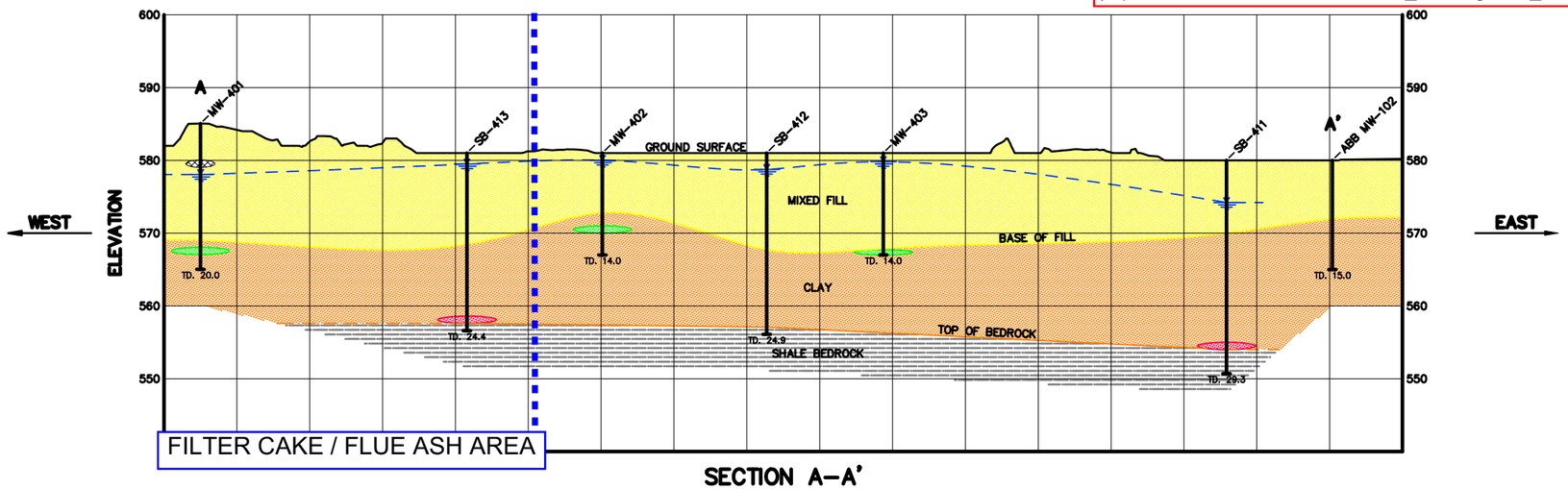
50 0 50 100
SCALE: 1" = 100'

Adapted from figure found in *Site Investigation / Remedial Alternatives Report, Buffalo Lakeside Commerce Park-Parcel 4*, Malcolm Pirnie Inc., Oct.2008

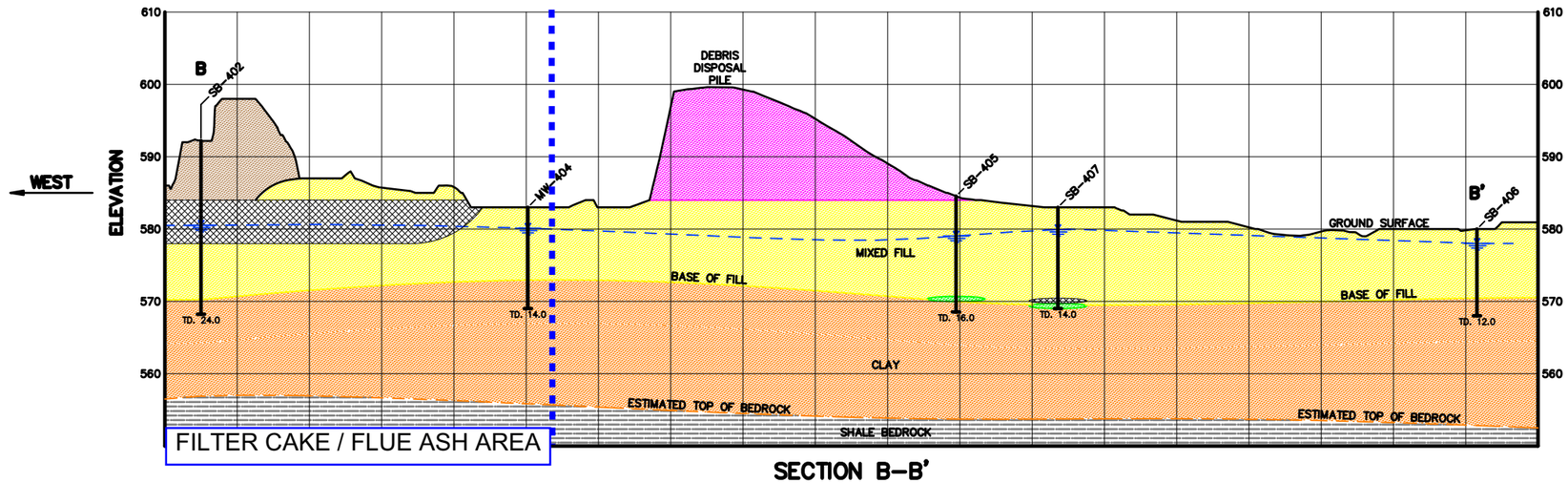
**BUFFALO LAKESIDE COMMERCE PARK PARCEL 4 SITE**
**BUFFALO, NEW YORK**

**FIGURE 2**
**SITE MAP**

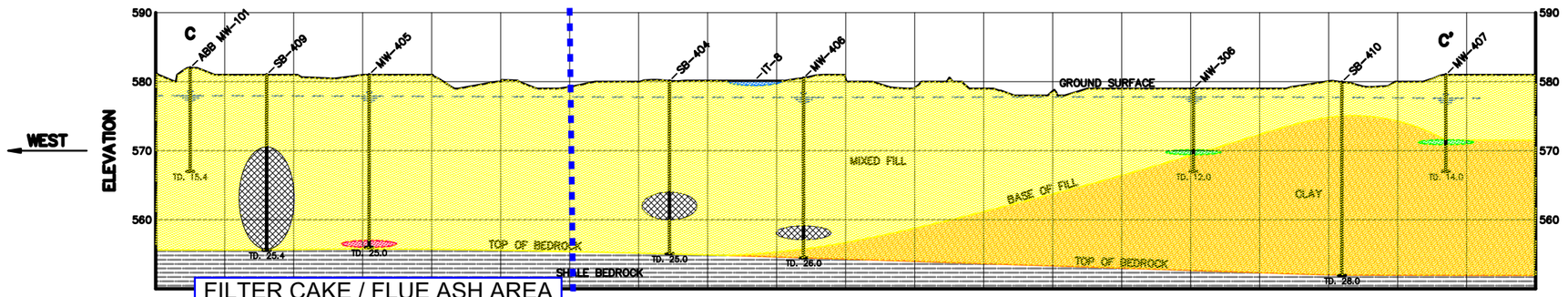
modified excerpt from ***Site Investigation / Remedial Alternatives Report***, Malcolm Pirnie Inc., October 2008 (report.hw915193.2008-10-17.Site_Investigation_Remedial_Aternatives_SI_RA.pdf)




SECTION A–A'




SECTION B–B'




SECTION C–C'

## LEGEND:

- SOIL FILL (CLAY WITH CRUSHED STONE AND CONCRETE)
- DEBRIS DISPOSAL PILE (SAND & GRAVEL WITH CLAY, BOULDERS, CONCRETE, IRON, AND C AND D
- MIXED FILL (VARIABLE SILT & CLAY WITH SLAG, BRICK, GRAVEL, WOOD, AND ASH)
- FLUE ASH
- BLUE FILL (WOOD CHIPS STAINED BLUE)
- PEAT
- CLAY (NATIVE SILTY CLAY, BROWN AND GRAY)
- TILL (GRAY CLAY WITH GRAVEL AND SHALE)
- BEDROCK (GRAY SHALE)
- TD. 24.9' TOTAL DEPTH OF BORING/ MONITORING WELL (ft.)
- WATER TABLE

50 0 50 100
HORIZONTAL SCALE
5 0 5 10
VERTICAL SCALE

**NOTE:**

1. VERTICAL EXAGERATION = 10%
2. ELEVATIONS ARE IN FEET ABOVE MEAN SEA LEVEL

MALCOLM PIRNIE

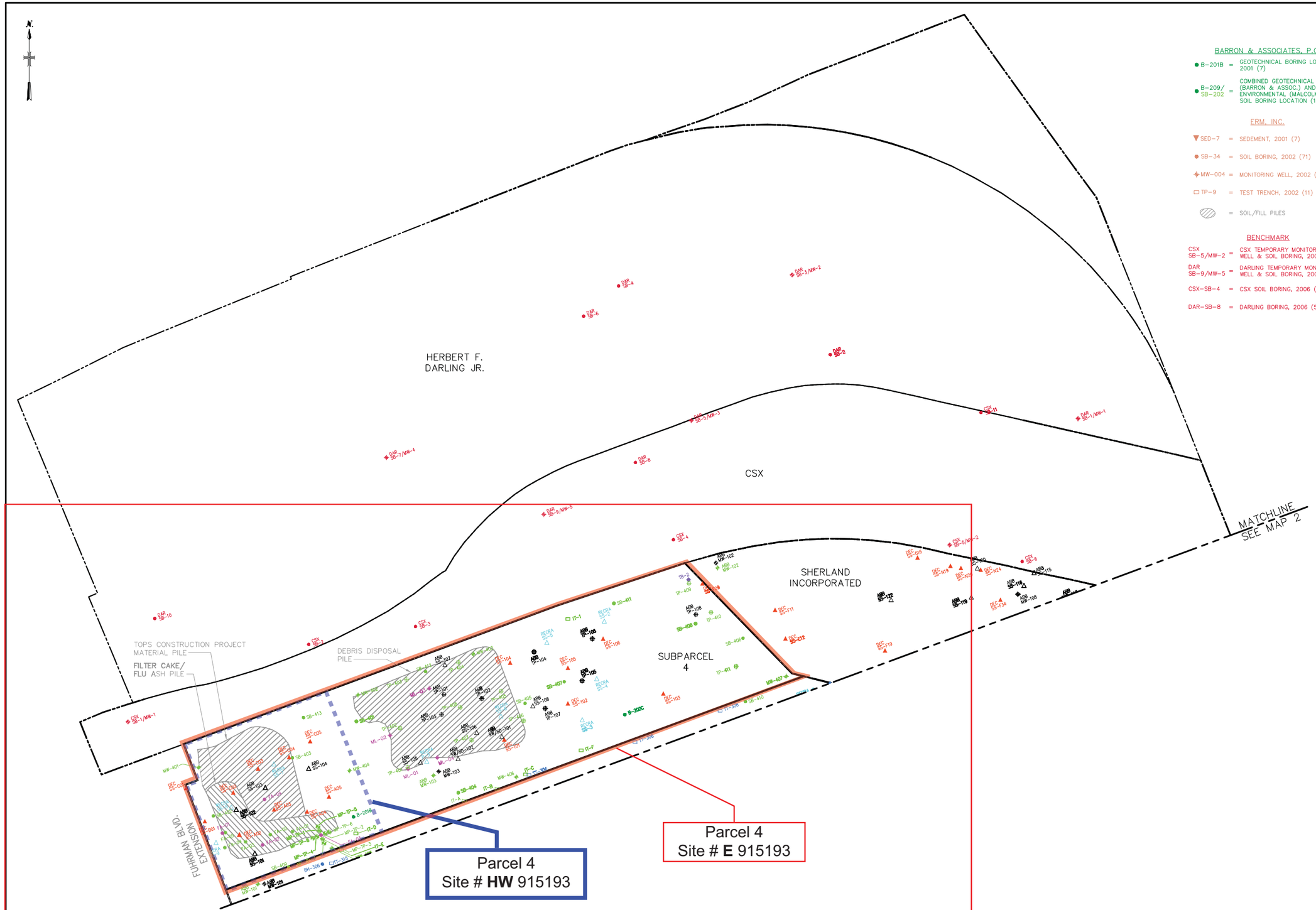
05/06 4080F003–1

# BUFFALO LAKESIDE COMMERCE PARK PARCEL 4

BUFFALO, NEW YORK

## FIGURE 3–1

GEOLOGICAL CROSS SECTIONS




## LEGEND

### BARRON & ASSOCIATES, P.C.

- B-201B = GEOTECHNICAL BORING LOCATION, 2001 (7)
- B-209/SB-202 = COMBINED GEOTECHNICAL (BARRON & ASSOC.) AND ENVIRONMENTAL (MALCOLM PIRNIE) SOIL BORING LOCATION (10)

### ERM, INC.

- SED-7 = SEDEMENT, 2001 (7)
- SB-34 = SOIL BORING, 2002 (71)
- MW-004 = MONITORING WELL, 2002 (3)
- TP-9 = TEST TRENCH, 2002 (11)
- = SOIL/FILL PILES

### BENCHMARK

- CSX SB-5/MW-2 = CSX TEMPORARY MONITORING WELL & SOIL BORING, 2006 (4)
- DAR SB-9/MW-5 = DARLING TEMPORARY MONITORING WELL & SOIL BORING, 2006 (5)
- CSX-SB-4 = CSX SOIL BORING, 2006 (23)
- DAR-SB-8 = DARLING BORING, 2006 (5)

### US GEOLOGICAL SURVEY

- TB-315 = SOIL BORING, 1982 (7)
- USC-6 = SEDIMENTATION SAMPLE, 2000 (6)

### RECRA ENVIRONMENTAL, INC.

- RECRA SS- = SURFACE SOIL SAMPLE, 1988 (27)
- RECRA SW/SD- = SURFACE WATER/SEDEMENT SAMPLE PAIR, 1988 (3)
- RECRA P- = POND WATER/SEDEMENT SAMPLE PAIR, 1988
- RECRA MW- = MONITORING WELL (DESTROYED), 1988 (7)

### NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

- DEC SS- = SURFACE SOIL SAMPLE, 1990 (2)
- DEC SS- = SURFACE SOIL SAMPLE, 1994 (38)

### ABB ENVIRONMENTAL SERVICES, INC.

- ABB MW- = MONITORING WELL LOCATION, 1995 (7)
- ABB SS- = SURFACE SOIL SAMPLE LOCATION, 1995 (14)
- ABB SW/SD- = SURFACE WATER/SEDEMENT SAMPLE LOCATION, 1995 (7)
- ABB TP- = TEST PIT LOCATION, 1995 (8)
- ABB WT- = DRUM SAMPLE LOCATION, 1995
- ABB CD/CL = STRUCTURE SEDEMENT/ LIQUID SAMPLE, 1995

### MALCOLM PIRNIE, INC.

- MPI SB- = SOIL BORING LOCATION, 1999 (36)
- MPI SB- = SHALLOW BORING, 2000 (7)
- MPI MW- = MONITORING WELL, 2000 (3)
- MPI SS- = DEBRIS PILE SAMPLE, 2000 (20)
- MP-TP-01 = FLU ASH TEST PITS, 2003 (8)
- MW-401 = MONITORING WELL, 2006 (7)
- FA-02 = FLU ASH SAMPLE, 2006 (5)
- SB-413 = SOIL BORING, 2006 (13)
- IT-1 = INFILTRATION TEST TRENCH, 2006 (6)
- TP-410 = TEST PIT, 2006 (11)

### ARMY CORP OF ENGINEERS

- ACOE USC- = SEDIMENT SAMPLE, 1999 (11)

### USEPA

- FA-02 = SAMPLE OF FLU ASH PILE, 2001 (4)
- ML-03 = SAMPLE OF MOUNTAIN LANDFILL, 2001 (4)
- US-IO-01 = IRON ORE PILE, 2001 (1)

### URS CORPORATION

- TT-315 = TEST TRENCH, 2001 (18)
- MW-302 = MONITORING WELL, 2001 (7)
- BH-303 = SOIL BORING, 2001 (9)
- SB-1 = GEOTECHNICAL BORING LOCATION, 2003 (10)

### CLOUGH, HARBOR & ASSOCIATES, LLP

- B-1 = GEOTECHNICAL BORING LOCATION, 2004 (8)

NOTE:
ALL SAMPLING LOCATIONS ARE ESTIMATED EXCEPT FOR MALCOLM PIRNIE, 2000 AND 2006 INVESTIGATION LOCATIONS.

150' 0' 150' 300'

SCALE: 1 INCH = 150 FEET

MALCOLM PIRNIE

| REVISIONS | | | |
|---|---|---|---|
| NO. | BY | DATE | REMARKS |

DES _____
DWN _____
CKD _____

BUFFALO URBAN DEVELOPEMENT CORPORATION

# BUFFALO LAKESIDE COMMERCE PARK
BUFFALO, NEW YORK

# HISTORICAL SAMPLING LOCATION MAP

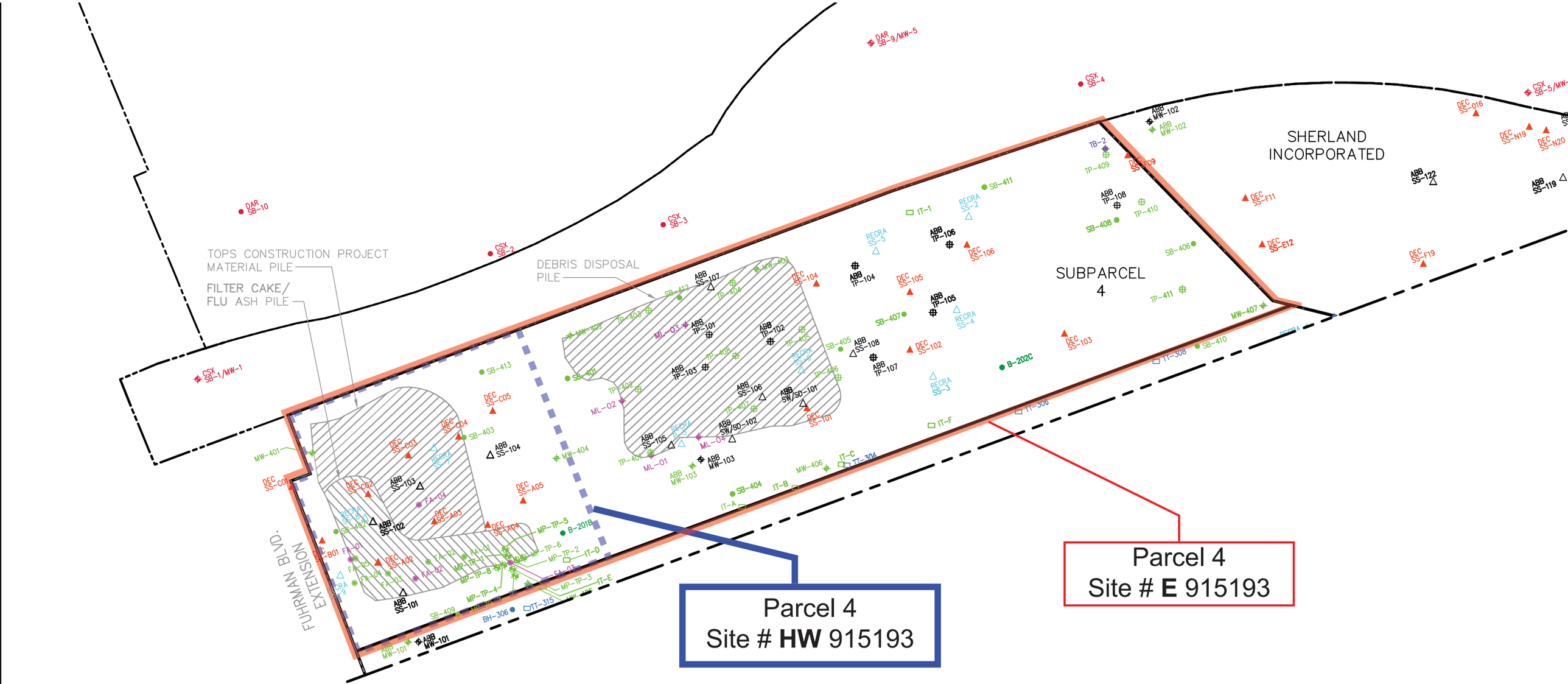
SCALE: AS NOTED



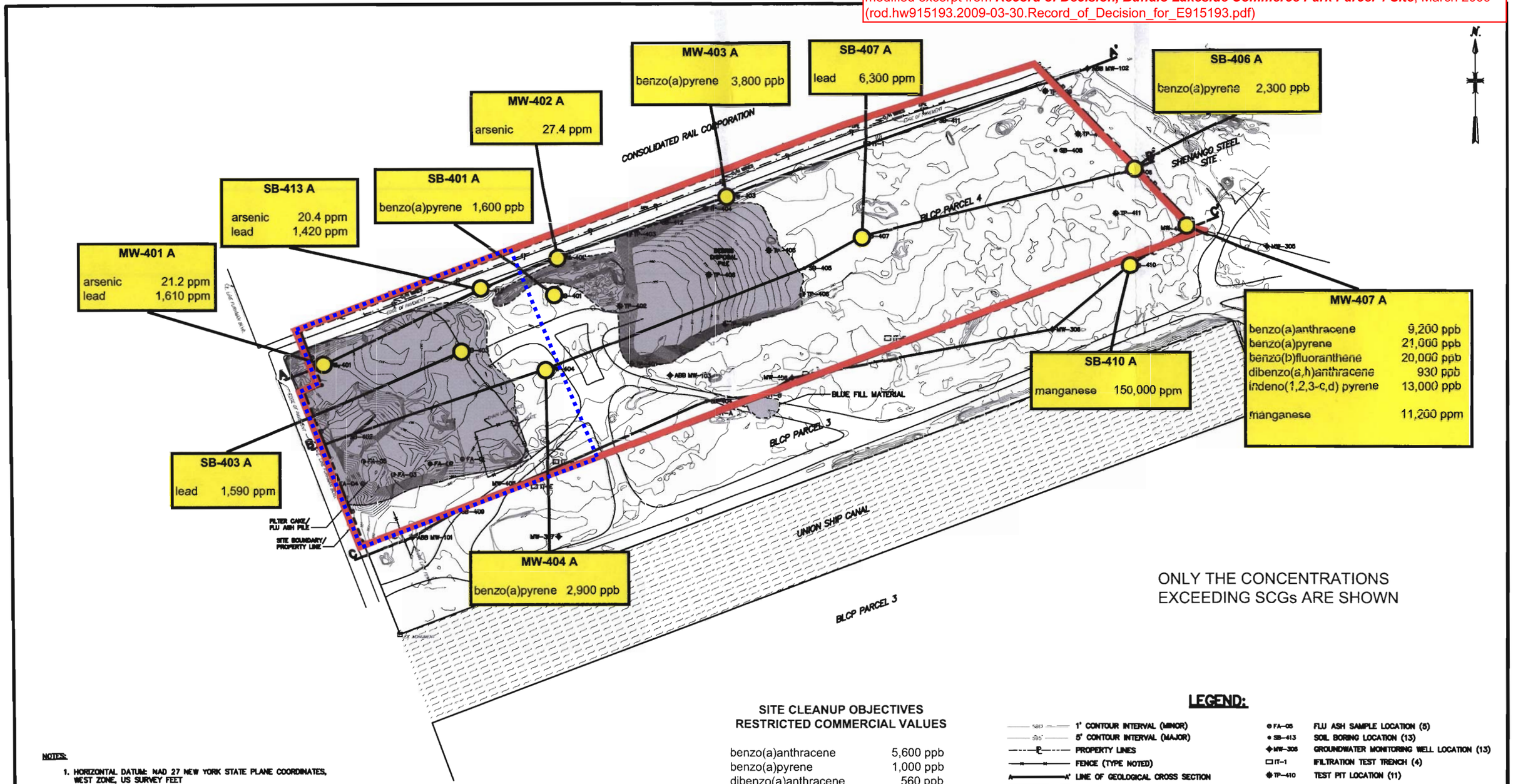
DATE NOVEMBER 2005

G SHEET X OF X

CAD REF. NO. 4080G007




| MALCOLM PIRNIE | | REVISIONS | | | | DES | BUFFALO URBAN DEVELOPEMENT CORPORATION |
|---|---|---|---|---|---|---|---|
| | | NO. | BY | DATE | REMARKS | DWN | BUFFALO LAKESIDE COMMERCE PARK |
| | | | | | | CKD | BUFFALO, NEW YORK |




ONLY THE CONCENTRATIONS EXCEEDING SCGs ARE SHOWN

**SITE CLEANUP OBJECTIVES**
**RESTRICTED COMMERCIAL VALUES**

| | |
|---|---|
| benzo(a)anthracene | 5,600 ppb |
| benzo(a)pyrene | 1,000 ppb |
| dibenzo(a)anthracene | 560 ppb |
| indeno(1,2,3-c,d)pyrene | 5,600 ppb |
| arsenic | 16 ppm |
| lead | 1,000 ppm |
| manganese | 10,000 ppm |

**LEGEND:**

- 1' CONTOUR INTERVAL (MINOR)
- 5' CONTOUR INTERVAL (MAJOR)
- PROPERTY LINES
- FENCE (TYPE NOTED)
- LINE OF GEOLOGICAL CROSS SECTION
- SITE ROADS (APPROXIMATE LOCATIONS)
- DISTINCT FILL AREAS
- FA-05 FLU ASH SAMPLE LOCATION (5)
- SB-413 SOIL BORING LOCATION (13)
- MW-306 GROUNDWATER MONITORING WELL LOCATION (13)
- IT-1 IFILTRATION TEST TRENCH (4)
- TP-410 TEST PIT LOCATION (11)
- IP IRON PIN/PIPE

50 0 50 100
SCALE: 1" = 100'

NOTES:

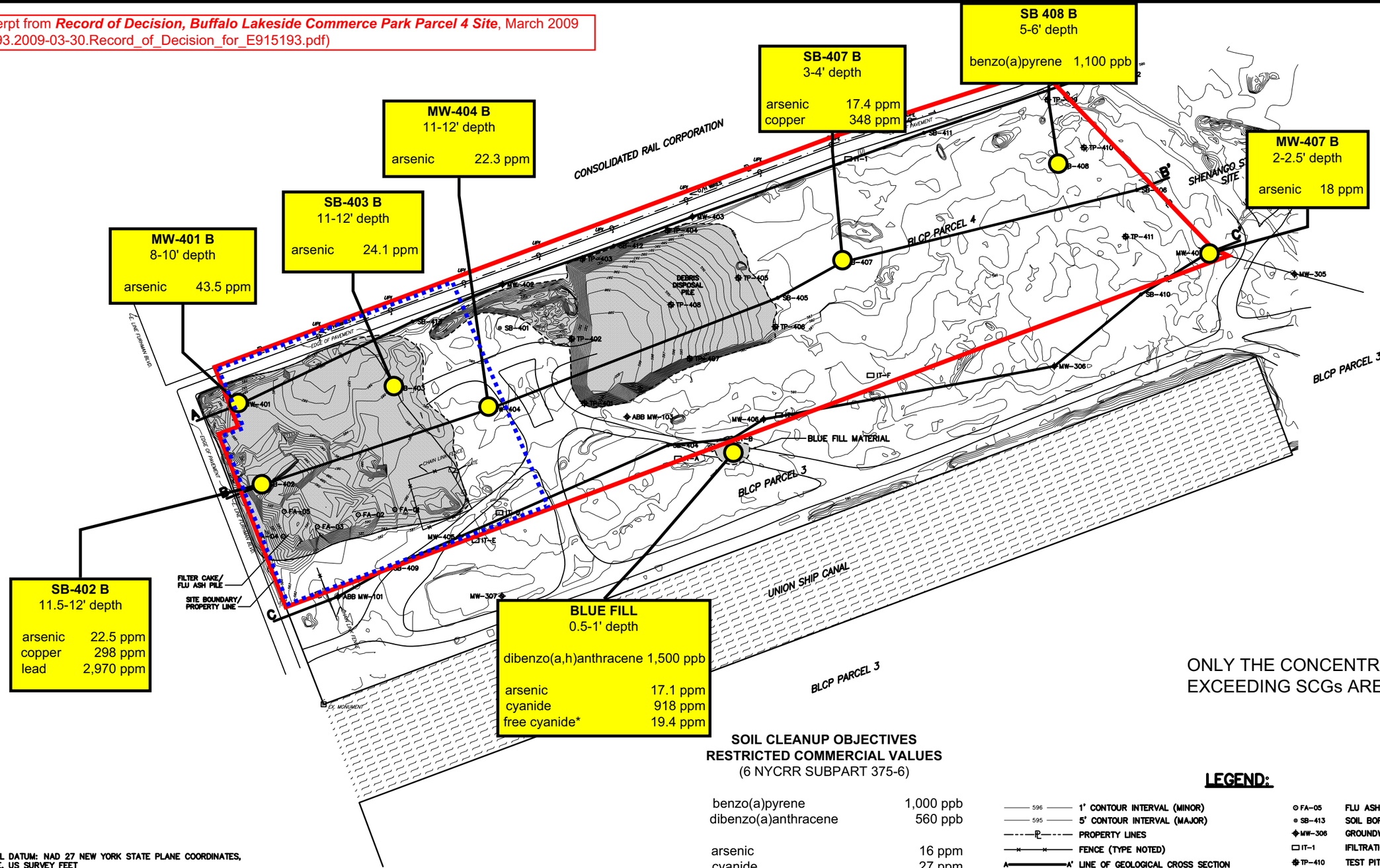
1. HORIZONTAL DATUM: NAD 27 NEW YORK STATE PLANE COORDINATES, WEST ZONE, US SURVEY FEET
2. VERTICAL DATUM: NGVD29
3. UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN IN THEIR APPROXIMATE LOCATION AND MAY NOT BE SHOWN IN THEIR ENTIRETY VERIFICATION IS REQUIRED PRIOR TO CONSTRUCTION.
4. TOPOGRAPHIC INFORMATION SHOWN ON THIS MAP WAS SURVEYED AND PREPARED BY WENDEL DUCHSCHERER FROM FIELD DATA GATHERED BETWEEN JANUARY 25 & JANUARY 30, 2008.

Adapted from figure found in *Site Investigation / Remedial Alternatives Report, Buffalo Lakeside Commerce Park-Parcel 4*, Malcolm Pirnie Inc., Oct.2008

# BUFFALO LAKESIDE COMMERCE PARK PARCEL 4 SITE
BUFFALO, NEW YORK

## FIGURE 3
## ANALYTICAL RESULTS
## SURFACE SOIL/FILL

modified excerpt from ***Record of Decision, Buffalo Lakeside Commerce Park Parcel 4 Site***, March 2009
(rod.hw915193.2009-03-30.Record_of_Decision_for_E915193.pdf)




ONLY THE CONCENTRATIONS EXCEEDING SCGs ARE SHOWN

**SOIL CLEANUP OBJECTIVES**
**RESTRICTED COMMERCIAL VALUES**
(6 NYCRR SUBPART 375-6)

| | |
|---|---|
| benzo(a)pyrene | 1,000 ppb |
| dibenzo(a)anthracene | 560 ppb |
| arsenic | 16 ppm |
| cyanide | 27 ppm |
| free cyanide* | 1,200 ppm |
| copper | 270 ppm |
| lead | 1,000 ppm |

*USEPA recommended preliminary remediation goal for residential settings

**LEGEND:**

- 596 — 1' CONTOUR INTERVAL (MINOR)
- 595 — 5' CONTOUR INTERVAL (MAJOR)
- PROPERTY LINES
- FENCE (TYPE NOTED)
- A — A' LINE OF GEOLOGICAL CROSS SECTION
- SITE ROADS (APPROXIMATE LOCATIONS)
- DISTINCT FILL AREAS
- FA-05 FLU ASH SAMPLE LOCATION (5)
- SB-413 SOIL BORING LOCATION (13)
- MW-306 GROUNDWATER MONITORING WELL LOCATION (13)
- IT-1 IFILTRATION TEST TRENCH (4)
- TP-410 TEST PIT LOCATION (11)
- IP IRON PIN/PIPE

50 0 50 100
SCALE: 1" = 100'

**NOTES:**

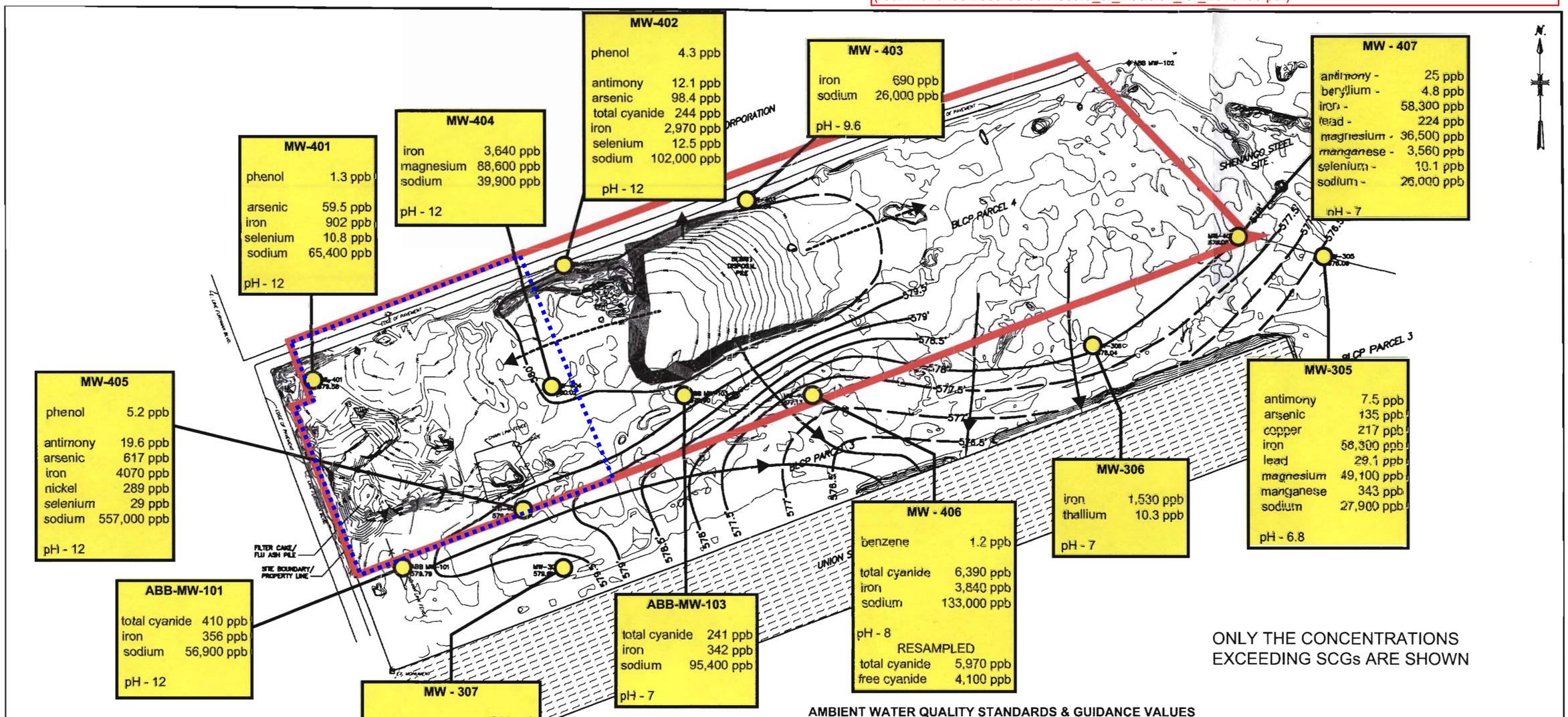
1. HORIZONTAL DATUM: NAD 27 NEW YORK STATE PLANE COORDINATES, WEST ZONE, US SURVEY FEET
2. VERTICAL DATUM: NGVD29
3. UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN IN THEIR APPROXIMATE LOCATION AND MAY NOT BE SHOWN IN THEIR ENTIRETY VERIFICATION IS REQUIRED PRIOR TO CONSTRUCTION.
4. TOPOGRAPHIC INFORMATION SHOWN ON THIS MAP WAS SURVEYED AND PREPARED BY WENDEL DUCHSCHERER FROM FIELD DATA GATHERED BETWEEN JANUARY 25 & JANUARY 30, 2006.

Adapted from figure found in *Site Investigation / Remedial Alternatives Report, Buffalo Lakeside Commerce Park-Parcel 4, Malcolm Pirnie Inc., Oct. 2008.*

# BUFFALO LAKESIDE COMMERCE PARK PARCEL 4 SITE
BUFFALO, NEW YORK

# FIGURE 4
# ANALYTICAL RESULTS
# SUB-SURFACE SOIL/FILL

modified excerpt from ***Record of Decision, Buffalo Lakeside Commerce Park Parcel 4 Site***, March 2009
(rod.hw915193.2009-03-30.Record_of_Decision_for_E915193.pdf)




ONLY THE CONCENTRATIONS EXCEEDING SCGs ARE SHOWN

**NOTES:**

1. HORIZONTAL DATUM: NAD 27 NEW YORK STATE PLANE COORDINATES, WEST ZONE, US SURVEY FEET
2. VERTICAL DATUM: NGVD29
3. UNDERGROUND UTILITIES AND STRUCTURES ARE SHOWN IN THEIR APPROXIMATE LOCATION AND MAY NOT BE SHOWN IN THEIR ENTIRETY VERIFICATION IS REQUIRED PRIOR TO CONSTRUCTION.
4. TOPOGRAPHIC INFORMATION SHOWN ON THIS MAP WAS SURVEYED AND PREPARED BY WENDEL DUCHSCHERER FROM FIELD DATA GATHERED BETWEEN JANUARY 25 & JANUARY 30, 2006.

**AMBIENT WATER QUALITY STANDARDS & GUIDANCE VALUES**
**GROUNDWATER**

| | | | |
|---|---|---|---|
| acetone | 50 ppb | lead | 25 ppb |
| benzene | 1 ppb | magnesium | 35,000 ppb |
| pentachlorophenol | 1 ppb | manganese | 300 ppb |
| phenol | 1 ppb | nickel | 100 ppb |
| | | selenium | 10 ppb |
| antimony | 3 ppb | sodium | 20,000 ppb |
| arsenic | 25 ppb | thallium | 0.5 ppb |
| beryllium | 3 ppb | | |
| copper | 200 ppb | total cyanide | 200 ppb |
| iron | 300 ppb | free cyanide* | 730 ppb |

*USEPA-recommended risk-based concentration limit for drinking water

**LEGEND:**

- 596 — 1' CONTOUR INTERVAL (MINOR)
- 595 — 5' CONTOUR INTERVAL (MAJOR)
- PROPERTY LINES
- FENCE (TYPE NOTED)
- MW-306 578.04 — GROUNDWATER MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION MEASURED ON 2/7/2006 AND ON 2/8/2006
- ISOPOTENTIAL CONTOUR (DASHED WHERE INFERRED)
- GROUNDWTAER FLOW DIRECTION

50 0 50 100

Adapted from figure found in *Site Investigation / Remedial Alternatives Report, Buffalo Lakeside Commerce Park-Parcel 4*, Malcolm Pirnie Inc., Oct.2008

# BUFFALO LAKESIDE COMMERCE PARK PARCEL 4

BUFFALO, NEW YORK

## FIGURE 5 ANALYTICAL RESULTS GROUNDWATER

TIFFT STREET

100' NYSDEC WETLAND BUFFER

LOT 10
18.0± ACRES
10.8± ACRES DEVELOPABLE

LOT 6
10.8± ACRES
5.5± ACRES DEVELOPABLE

LOT 11
17.4± ACRES
6.3± ACRES DEVELOPABLE

LOT 5
5.4± ACRES

SHIP CANAL PARKWAY

NY'S ROUTE 5

PROPOSED 15' WIDE UTILITY CORRIDOR (TYP. BOTH SIDES)

PROPOSED ROAD

FUHRMANN BLVD

LOT 9
5.5± ACRES

LOT 8
4.9± ACRES

PARCEL 4
HW 915193

LOT 7
4.8± ACRES

LOT 4
5.6± ACRES

STORMWATER TREATMENT FACILITY

SHIP CANAL COMMONS

UNION SHIP CANAL

NOTE:
THIS SHEET INDICATES MASS SITE GRADING TO PROVIDE FUTURE BUILDING PADS AND POSITIVE SITE DRAINAGE. THE EARTHWORK SHOWN OUTSIDE OF THE R.O.W. CONSTITUTES ADD-ALTERNATE BID #1. SEE SHEETS C-118 - C-121.

0 100' 200'

**Adapted from *Buffalo Lakeside Commerce Park, Phase IV*** June 2010 contract drawings


C&S COMPANIES®
C&S Engineers, Inc.
90 Broadway
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com


STATE OF NEW YORK — LORELL B. DEWEY — 059959 — LICENSED PROFESSIONAL ENGINEER

BUDC
Buffalo Urban Development Corporation

**BUFFALO URBAN DEVELOPMENT CORPORATION**
**BUFFALO LAKESIDE COMMERCE PARK**
**PHASE IV**
**ERIE COUNTY** **BUFFALO, NY**

| MARK | DATE | DESCRIPTION |
|---|---|---|
| REVISIONS | | |

| | |
|---|---|
| PROJECT NO: | 135D.001.001 |
| DATE: | 6/16/10 |
| DRAWN BY: | -M. SUTTON |
| DESIGNED BY: | -M. SUTTON |
| CHECKED BY: | -L. DEWEY |

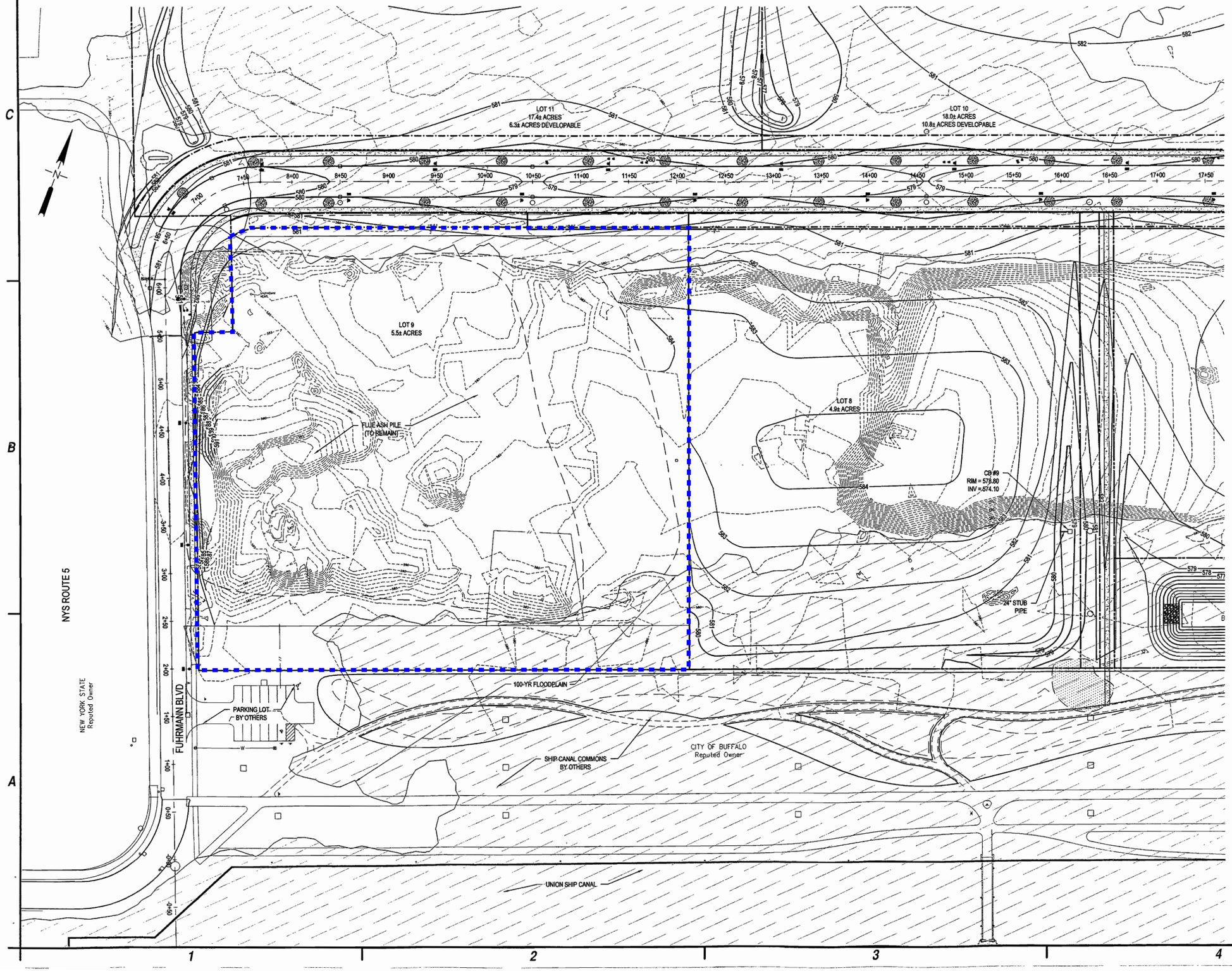
NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW

CIVIL

**OVERALL SITE PLAN**

**C-102**

Jun 17, 2010 – 5:13pm
F:\Project\135d – Buffalo Urban Development Corp\135d.001.001 – Buffalo Lakeside Commerce Park Phase IV\CADD\Design\Sheet Files\2692-C-102.dwg




C&S COMPANIES®
C&S Engineers, Inc.
90 Broadway
Buffalo, New York 14203
Phone: 716-847-1630
Fax: 716-847-1454
www.cscos.com

STATE OF NEW YORK
LORELL B. DEWEY
LICENSED PROFESSIONAL ENGINEER

BUDC
Buffalo Urban Development Corporation

# BUFFALO URBAN DEVELOPMENT CORPORATION
# BUFFALO LAKESIDE COMMERCE PARK PHASE IV
# BUFFALO, NY
## ERIE COUNTY

| MARK | DATE | DESCRIPTION |
|---|---|---|
| REVISIONS | | |

| | |
|---|---|
| PROJECT NO: | 135D.001.001 |
| DATE: | 6/16/10 |
| DRAWN BY: | -M. SUTTON |
| DESIGNED BY: | -M. SUTTON |
| CHECKED BY: | -L. DEWEY |



CIVIL

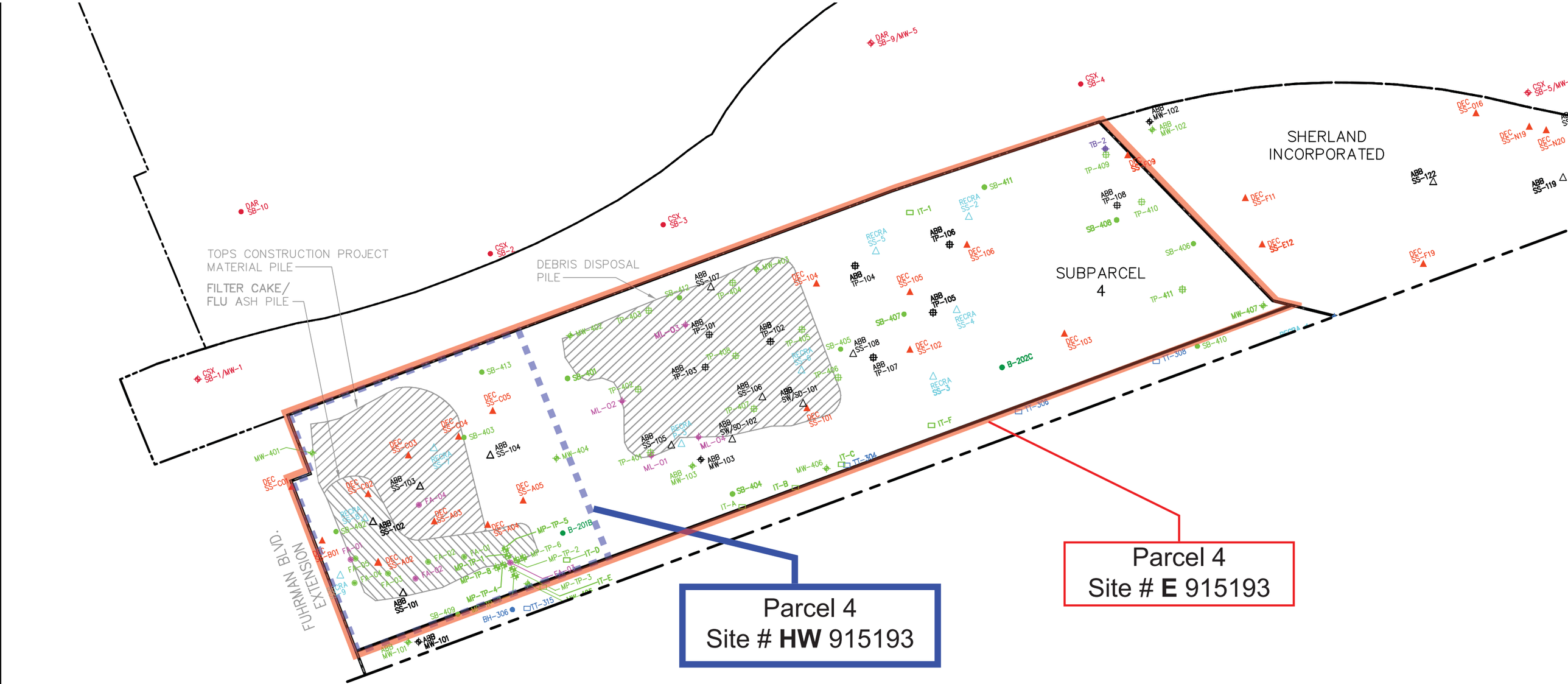
## SITE GRADING PLAN
## 3 OF 4

**C-120**


N
BUFFALO LAKESIDE COMMERCE PARK
Parcel 4 - E915193
Parcel 4 - HW 915193
UNION SHIP CANAL
Parcel 3 - B00164 Ship Canal Commons
Filter Cake/Flue Ash piles


2001 USEPA sampling of filter cake/flue ash piles

2007 south perimeter of filter cake/flue ash pile area




| MALCOLM PIRNIE | | REVISIONS | | | | DES | BUFFALO URBAN DEVELOPEMENT CORPORATION |
|---|---|---|---|---|---|---|---|
| | | NO. | BY | DATE | REMARKS | DWN | BUFFALO LAKESIDE COMMERCE PARK |
| | | | | | | CKD | BUFFALO, NEW YORK |

modified excerpt from ***Site Investigation / Remedial Alternatives Report***, Malcolm Pirnie Inc., October 2008 (report.hw915193.2008-10-17.Site_Investigation_Remedial_Aternatives_SI_RA.pdf)

MALCOLM PIRNIE

**TABLE 1-1**

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - SURFACE SOILS

Hanna Furnace Parcel 4 RECRA 1988 Investigation

Flue Ash/Debris Landfill- Surface Soil Results

Parcel 4 BCLP Site

FILTER CAKE/FLUE ASH AREA

| Sample Location | Restricted Commercial SCO Value | SS-1 | SS-2 | SS-3 | SS-4 | SS-5 | SS-6 | SS-7 | SS-8 | SS-9 | SS-10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds - VOCs (ug/kg)** | | | | | | | | | | | |
| Oil & Grease | | 340 | 400 | 900 | 670 | 640 | 590 | 540 | 21,000 | ---- | 2,000 |
| **PCBs - ( ug/Kg )** | | | | | | | | | | | |
| 4,4' --DDE | 8900 | | | | | | | | | | |
| Aroclor-1254 | 1000 | | | | | | 70 | | 530 | 170 | |
| Aroclor-1260 | 1000 | | | | 230 | | | | | | |
| **TAL Metals (mg/kg)** | | | | | | | | | | | |
| Arsenic | 16 | 7.5 | 5.9 | 12 | 9.1 | 11 | 7.3 | 5.6 | 13 | 9.8 | 10 |
| Chromium | 400 | 14 | 18 | 25 | 58 | 47 | 60 | 19 | 70 | 75 | 16 |
| Copper | 270 | 27 | 25 | 80 | 190 | 120 | 220 | 27 | 260 | 250 | 36 |
| Lead | 1,000 | 52 | 39 | 230 | 490 | 260 | 400 | 950 | **2,600** | **6,020** | 180 |

Notes:

*Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.*
*Blank space indicates analyte was not detected.*
*-- Indicates sample was not analyzed for this parameter.*
*Bolded concentrations exceed Restricted Commercial SCOs.*

*** New York State background concentration.*

*NA - Not Applicable or Not Available.*

**1994 NYSDEC INVESTIGATION**
**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOILS**
**BUFFALO LAKESIDE COMMERCE PARK - PARCEL 4**
**BUFFALO, NY**

| | | | | | | FILTER CAKE / FLUE ASH AREA | | | | | | | | | | | DEBRIS DISPOSAL PILE | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Sample Location** | **UNITS** | **SCO Unrestricted Values(1)** | **SCO Commercial Values** | **Urban Background Concentrations (2)(3)** | | SS-A02 | SS-A03 | SS-A04 | SS-A05 | SS-B01 | SS-C01 | SS-C02 | SS-C03 | SS-C04 | SS-C05 | | SS-101 | SS-102 | SS-103 | SS-104 | SS-105 | SS-106 |
| **Depth (ft bgs)** | | | | | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |
| **Collection Date** | | | | | | 5/3/94 | 5/3/94 | 5/3/94 | 5/3/94 | 5/3/94 | 5/3/94 | 5/3/94 | 5/3/94 | 5/3/94 | 5/3/94 | | 5/4/94 | 5/4/94 | 5/4/94 | 5/4/94 | 5/4/94 | 5/4/94 |
| **Inorganics / TAL Metals** | | | | | | | | | | | | | | | | | | | | | | |
| Aluminum | mg/Kg | | | 33,000 | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Antimony | mg/Kg | | | N/A | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Arsenic | mg/Kg | 13 | 16 | 3-12 ** | | ***47*** | ***52*** | ***43*** | ***39*** | ***77*** | ***54*** | ***46*** | ***66*** | ***53*** | ***54*** | | ***49*** | ***58*** | ***62*** | ***49*** | ***53*** | ***48*** |
| Barium | mg/Kg | 350 | 400 | 15-600 | | ***3,928*** | ***3,900*** | ***3,990*** | ***2,680*** | ***3,620*** | ***3,740*** | ***4,760*** | ***4,040*** | ***3,200*** | ***3,840*** | | ***3,200*** | ***3,140*** | ***3,070*** | ***3,180*** | ***3,400*** | ***2,300*** |
| Beryllium | mg/Kg | 7.2 | 590 | 0-1.75 | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Cadmium | mg/Kg | 2.5 | 9.3 | 0.1-1 | | ***30*** | ***29*** | ***26*** | ***23*** | ***34*** | ***32*** | ***23*** | ***32*** | ***30*** | ***24*** | | ***24*** | ***22*** | ***28*** | ***21*** | ***19*** | ***12*** |
| Calcium | mg/Kg | | | 130 - 35,000 ** | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Chromium | mg/Kg | 1 | 400 | 1.5 - 40 ** | | ***99*** | ***43*** | ***97*** | ***74*** | ***35*** | ***89*** | ***87*** | ***42*** | ***110*** | ***50*** | | ***25*** | ***39*** | ***50*** | ***25*** | ***20*** | ***23*** |
| Cobalt | mg/Kg | | | 2.5 - 60 ** | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Copper | mg/Kg | 50 | 270 | 1 - 50 | | ***165*** | ***97*** | ***238*** | ***140*** | ***160*** | ***188*** | ***108*** | ***140*** | ***240*** | ***160*** | | ***107*** | ***150*** | ***260*** | ***90*** | ***99*** | ***79*** |
| Cyanide | mg/Kg | 27 | 27 | N/A | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Iron | mg/Kg | | | 2,000 - 550,000 | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Lead | mg/Kg | 63 | 1,000 | 200 - 500 | | ***14,800*** | ***6,120*** | ***3,450*** | ***9,265*** | ***12,200*** | ***11,350*** | ***7,940*** | ***6,650*** | ***18,250*** | ***13,560*** | | ***1,200*** | ***1,540*** | ***3,310*** | ***1,850*** | ***1,200*** | ***1,100*** |
| Magnesium | mg/Kg | | | 100 - 5,000 | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Manganese | mg/Kg | 1,600 | 10,000 | 50 - 5,000 | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Mercury | mg/Kg | 0.18 | 2.8 | 0.001 - 0.2 | | ***0.30*** | ***0.25*** | ***0.20*** | ***0.20*** | ***0.20*** | | | | | | | ***0.3*** | | ***0.3*** | ***0.25*** | ***0.25*** | ***0.3*** |
| Nickel | mg/Kg | 30 | 310 | 0.5 -25 | | ***56*** | 28 | ***110*** | ***61*** | ***75*** | ***68*** | ***40*** | ***40*** | ***80*** | ***55*** | | ***35*** | ***35*** | ***80*** | ***37*** | ***42*** | ***32*** |
| Potassium | mg/Kg | | | 8,500 - 43,000 ** | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Selenium | mg/Kg | 3.9 | 1,500 | 0.1 - 3.9 | | **119** | **132** | **130** | **108** | **220** | **150** | **150** | **195** | **170** | **150** | | ***180*** | ***170*** | ***200*** | ***160*** | ***150*** | ***120*** |
| Silver | mg/Kg | 2 | 1,500 | N/A | | | | | | | | | | | | | | | | | | |
| Sodium | mg/Kg | | | 6,000 - 8,000 | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Thallium | mg/Kg | | | N/A | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Vanadium | mg/Kg | | | 1-300 | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |
| Zinc | mg/Kg | 109 | 10,000 | 9-50 | | - | - | - | - | - | - | - | - | - | - | | - | - | - | - | - | - |

*Blank space indicates analyte was not detected.*

*-- Indicates sample was not analyzed for this parameter.*

*Shaded and framed concentrations exceed restricted commercial SCO values.*

*Bold/Italic concentrations exceed unrestricted SCO values.*

*Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.*

*(1) 6 NYCRR subpart 375-6 soil cleanup objectives, Dec. 2006.*

*(2) TAL Inorganic Analytes from Eastern USA Background as shown in New York State Dept. of Environmental Conservation TAGM 4046, Dec. 2000.*

*(3) SVOCs background from Background Soil Concentrations of Poly Aromatic Hydrocarbons (PAHs), Urban Soils (U.S. and other), Toxicological Profile for PAHs, US Dept. of Health and Human Services, August 1995.*

*** New York State background concentration.*

modified excerpt from ***Site Investigation / Remedial Alternatives Report***, Malcolm Pirnie Inc., October 2008 (report.hw915193.2008-10-17.Site_Investigation_Remedial_Aternatives_SI_RA.pdf)

MALCOLM PIRNIE

**TABLE 1-3**

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - SURFACE SOILS

Hanna Furnace ABB Site Investigation

Flue Ash/Debris Landfill- Surface Soil Results

Parcel 4 BCLP Site

1995

FILTER CAKE/FLUE ASH AREA

| Sample Location | Restricted Commercial SCO Value | SS-101 | SS-101 D | SS-102 | SS-103 | SS-104 | SS-105 | SS-106 | SS-107 | SS-108 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organic Compounds - VOCs (ug/kg)** | | | | | | | | | | |
| Ethyl Benzene | 390,000 | | | | | | | | | 2 J |
| Tetrachloroethene | 150,000 | 3 J | 3 J | 9 J | 5 J | 9 J | 8 J | 14 | | |
| **Semi-Volatile Organic Compounds - SVOCs (ug/kg)** | | | | | | | | | | |
| 2-Methylnapthalene | NS | | 41 J | | | | | | | R |
| Anthracene | 500,000 | | | 60 J | | 49 J | 62 J | 42 J | | R |
| Benzo(a)anthracene | 5,600 | 110 J | 120 J | 150 J | | 110 J | 400 J | 360 J | 190 J | 170 J |
| Benzo(a)pyrene | 1,000 | 52 J | 53 J | 85 J | | 60 J | 420 J | 490 J | 270 J | 150 J |
| Benzo(b)fluoranthene | 5,600 | 190 J | 290 J | 320 J | | 230 J | 540 J | 540 J | 340 J | 230 J |
| Benzo(g,h,i)perylene | 500,000 | 70 J | 70 J | 94 J | | 61 J | 240 J | 230 J | 120 J | 82 J |
| Benzo(k)fluoranthene | 56,000 | 120 J | 140 J | 120 J | | 73 J | 370 J | 450 J | 190 J | 180 J |
| Chrysene | 56,000 | 240 J | 260 J | 300 J | | 220 J | 500 J | 490 J | 260 J | 260 J |
| Dibenz(a,h,)anthracene | 560 | | | | | | | | 40 J | R |
| Fluoranthene | 500,000 | 190 J | 180 J | 240 J | | 170 J | 640 J | 480 J | 290 J | 250 J |
| Indeno(1,2,3-cd)pyrene | 5,600 | 60 J | 55 J | 66 J | | 42 J | 240 J | 220 J | 140 J | 81 J |
| Naphthalene | 500,000 | | 46 J | 66 J | | | | | | R |
| Phenanthrene | 500,000 | 160 J | 160 J | 160 J | | 200 J | 290 J | 220 J | 130 J | 210 J |
| Pyrene | 500,000 | 210 J | 230 J | 270 J | | 210 J | 600 J | 490 J | 240 J | 340 J |
| **Pesticides/PCBs - ( ug/Kg )** | | | | | | | | | | |
| 4,4' --DDE | 8,900 | 5 J | | | | | | | | |
| Aroclor-1260 | 1,000 | 250 J | 310 J | 190 J | 28 J | 210 J | 79 J | 50 J | 18 | 71 J |
| Endosulfan II | 200,000 | 8 J | | | | | | R | | |
| Methoxychlor | NS | 17 J | | | | | 17 J | 16 J | | 26 J |
| **TAL Metals (mg/kg)** | | | | | | | | | | |
| Aluminum | NS | 8500 | 8670 | 12600 | 4010 | 6450 | 10100 | 7330 | 8440 | 6590 |
| Antimony | NS | 23.3 J | 28.8 J | 12.1 J | 39.5 J | 22.9 J | 15.8 J | 17.4 J | 15.1 J | |
| Arsenic | 16 | 15.4 J | 10.4 J | 14.4 | **20.5** | 15.9 | 15.4 | 13.7 | 14.9 | **19.1** |
| Barium | 400 | 112 | 109 | 178 | 52.6 | 89.5 | 113 | 84 | 77 | 77.8 |
| Beryllium | 590 | 2.1 | 1.9 | 2.9 | 0.9 J | 1.2 | 1.4 | 0.9 J | 0.9 J | 0.9 J |
| Cadmium | 9.3 | **14.9** | **16.5** | **12.7** | 6.2 | **17.6** | 5.2 | 3.9 J | 3.1 J | 4.3 J |
| Calcium | NS | 42,400 | 42,100 | 54,700 | 27,500 | 33,400 | 50,500 | 34,500 | 38,900 | 78,600 |
| Chromium | 400 | 285 | 164 | 81.9 | 251 | 149 | 85.1 | 40.2 | 22.4 | 23.2 |
| Cobalt | NS | 18.4 | 19.8 | 10.2 | **33.4** | 18.1 | 16.1 | 12.2 | 11.5 | 11 J |
| Copper | 270 | 228 J | 191 J | 79.3 J | **689 J** | **290 J** | 178 J | 92.9 J | 52.1 J | 156 J |
| Cyanide | 27 | 4.1 J | 11.4 J | 8.7 J | | 5.8 J | | | | |
| Iron | NS | 156,000 J | 181,000 J | 114,000 J | 343,000 J | 186,000 J | 159,000 J | 124,000 J | 124,000 J | 116,000 J |
| Lead | 1,000 | **4460** | **4460** | **3240** | 523 | **5880** | 500 | 294 | 222 | 337 |
| Magnesium | NS | 10,600 | 10,800 | 13,200 | 5,700 | 7,800 | 11,800 | 7670 | 10,200 | 11400 |
| Manganese | 10,000 | 4,720 | 4,860 | 4,220 | 7,540 | 3,670 | 4,940 | 4310 | 4,430 | 4260 |
| Mercury | 2.8 | 0.1 | 0.1 | 0.1 | | 0.3 | 0.1 | 0.3 | 0.3 | |
| Nickel | 310 | 82.7 | 95.4 | 37.7 | 183 | 87.6 | 62.4 | 28.8 | 15.9 | 24.5 |
| Potassium | NS | 1,220 | 1,180 | 3,730 | 691 J | 818 J | 4,250 | 1330 | 805 J | 2650 |
| Selenium | 1,500 | 2.2 J | | 2.6 J | | 2.3 J | | | | |
| Sodium | NS | 353 J | 542 J | 764 J | 301 J | 272 J | 535 J | 404 J | 916 J | 656 J |
| Thallium | NS | 7.3 | 6.2 | 8.1 | | 7.7 | | 1.5 J | | |
| Vanadium | NS | 62.2 | 67.2 | 44.1 | 85.2 | 55.5 | 52.6 | 45.6 | 44.4 | 39.8 |
| Zinc | 10,000 | 4,500 | 4710 | 3290 | 942 | 4860 | 1,010 | 780 | 457 | 729 |
| **EPTOX Metals (ug/L)** | | | | | | | | | | |
| Arsenic | | 52 J | | | | | | | | |
| Cadmium | | 52.4 J | 50.4 J | 96.6 J | | 144 J | 5 J | 2.9 J | | |
| Chromium | | | | 6.5 J | 6 J | 7.7 J | 8.4 J | | 7.9 J | |
| Lead | | 410 J | 3552 J | 752 J | 49.8 J | 1,630 J | 91.2 J | | 85 J | 55.7 J |
| Silver | | | | | | 6.1 J | | | | |

Notes:

*Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.*

*Blank space indicates analyte was not detected.*

*-- Indicates sample was not analyzed for this parameter.*

*Bolded concentrations exceed Restricted Commercial SCOs.*

modified excerpt from ***Site Investigation / Remedial Alternatives Report***, Malcolm Pirnie Inc., October 2008 (report.hw915193.2008-10-17.Site_Investigation_Remedial_Aternatives_SI_RA.pdf)

MALCOLM PIRNIE

**TABLE 1-5**

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - SUBSURFACE SOILS

Hanna Furnace USEPA 2001 Site Invstigation

Flue Ash/Debris Landfill- Subsurface Soil Results

Parcel 4 BCLP Site

FILTER CAKE/FLUE ASH AREA

| Sample Location | 40 CFR Part 261 | Restricted Commercial SCO Value | FA-01 | FA-02 | FA-03 | FA-04 | ML-01 | ML-02 | ML-03 | ML-04 |
|---|---|---|---|---|---|---|---|---|---|---|
| **TAL Total Metals (mg/kg)** | | | | | | | | | | |
| Aluminum | | NS | 10200 | --- | --- | --- | 6760 | | 7850 | |
| Antimony | | NS | 1 | --- | --- | --- | 0.64 | | 1 | |
| Arsenic | | 16 | 12.4 | --- | --- | --- | 15.3 | | 13.8 | |
| Barium | | 400 | 128 | --- | --- | --- | 106 | | 118 | |
| Beryllium | | 590 | 1.9 | --- | --- | --- | 1.2 | | 1.4 | |
| Cadmium | | 9.3 | 6.5 | --- | --- | --- | 4.9 | | 4.6 | |
| Calcium | | NS | 62400 | --- | --- | --- | 45000 | | 45600 | |
| Chromium | | 401 | 51.4 | --- | --- | --- | 66.5 | | 104 | |
| Cobalt | | NS | 2.9 | --- | --- | --- | 5.1 | | 4.7 | |
| Copper | | 270 | 80.3 | --- | --- | --- | 173 | | 169 | |
| Cyanide | | 27 | 11.8 | 0.0164 | 0.0096 | 0.0053 | 11.8 | 0.0056 | 8.7 | 0.0059 |
| Iron | | NS | 88000 | --- | --- | --- | 139000 | | 132000 | |
| Lead | | 1,000 | **1420** | --- | --- | --- | 399 | | 396 | |
| Magnesium | | NS | 9620 | --- | --- | --- | 10700 | | 9380 | |
| Manganese | | 10,000 | 2490 | --- | --- | --- | 3360 | | 3660 | |
| Mercury | | 2.8 | 0.1 | --- | --- | --- | 0.15 | | 0.14 | |
| Nickel | | 310 | 30.6 | --- | --- | --- | 53.2 | | 56.9 | |
| Potassium | | NS | 2350 | --- | --- | --- | 2380 | | 1710 | |
| Selenium | | 1,500 | 3.9 | --- | --- | --- | 3.1 | | 2.6 | |
| Silver | | 1,500 | 2.8 | --- | --- | --- | 0.92 | | 0.72 | |
| Sodium | | NS | --- | --- | --- | --- | --- | | 56.5 | |
| Thallium | | NS | 17.6 | --- | --- | --- | 25 | | 25.8 | |
| Vanadium | | NS | 18.6 | --- | --- | --- | 21.4 | | 21.9 | |
| Zinc | | 10,000 | 1790 | --- | --- | --- | 1050 | | 926 | |
| **PCBs (mg/kg)** | | | | | | | | | | |
| Aroclor - 1242 | | 1 | | | 0.17 | | | | | |
| Aroclor - 1254 | | 1 | | 0.14 | 0.21 | 0.2 | | | | |
| Aroclor - 1260 | | 1 | 0.098 | | 0.11 | 0.14 | | | | |
| **TCLP Volatile Organic Compounds - VOCs (ug/L)** | | | | | | | | | | |
| | | | | | --- | --- | | --- | --- | --- |
| **TCLP Semi-Volatile Organic Compounds - SVOCs (ug/L)** | | | | | | | | | | |
| | | | | | --- | --- | | --- | --- | --- |
| **TCLP Pesticides/PCBs - (ug/L)** | | | | | | | | | | |
| Silvex | 1,000 | | | | --- | --- | 2.5 | --- | --- | --- |
| **TCLP Total Metals (ug/L)** | | | | | | | | | | |
| Arsenic | 5000 | | 2.6 | 2.2 | 4.6 | --- | 3.9 | --- | --- | 3.4 |
| Barium | 10,000 | | 581 | 836 | 577 | 274 | 352 | 526 | 468 | 368 |
| Cadmium | 1,000 | | 37.1 | 107 | 150 | 64.9 | 12.2 | 13.9 | 8.8 | 7.4 |
| Chromium | 5,000 | | 1.8 | 16.5 | 20.2 | 6.8 | 4.9 | 6.7 | 7.2 | 10.5 |
| Lead | 5,000 | | 209 | 1,560 | **14,700** | 256 | 28.6 | 55.1 | 23.8 | 22.4 |
| Selenium | 1,000 | | 20.9 | 24.9 | 26.7 | 28.2 | 18.5 | 16.6 | 18.1 | 15.2 |
| Silver | 5,000 | | | 2.2 | 2.5 | 2.7 | 0.9 | --- | 0.73 | 0.94 |
| **RCRA Characteristics** | | | | | | | | | | |
| Corrosivity | <2 or >12.5 | | 7.77 | 7.11 | 7.79 | 8.13 | 8.57 | 8.75 | 8.52 | 8.53 |
| Ignitability | < 140° F | | > 140° | > 140° | > 140° | > 140° | > 140° | > 140° | > 140° | > 140° |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Notes:

*Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.*

*Blank space indicates analyte was not detected.*

*-- Indicates sample was not analyzed for this parameter.*

*Bolded concentrations exceed Restricted Commercial SCOs or TCLP guidance criteria.*

**2006 SITE INVESTIGATION**
**SUMMARY OF ANALYTICAL RESULTS - GROUNDWATER SAMPLES**
**BUFFALO LAKESIDE COMMERCE PARK - PARCEL 4**
**BUFFALO, NY**

| Sample ID<br>Sampling Date | NYSDEC Class GA Standards[1] | ABB-MW-101<br>02/08/06 | ABB-MW-103<br>02/07/06 | MW-305<br>02/08/06 | MW-306<br>02/07/06 | MW-307<br>02/07/06 | MW-401<br>02/08/06 | MW-402<br>02/08/06 | MW-403<br>02/08/06 | MW-404<br>02/08/06 | MW-405<br>02/08/06 | MW-406<br>02/07/06 | GWDUP-1<br>02/07/06 | MW-407<br>02/07/06 | TB-0207<br>02/07/06 | EQ-BLANK<br>02/08/06 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **VOCs - Method 8260 (ppb)** | | | | | | | | | | | | | | | | |
| 1,1,1-Trichloroethane | 5* | | | | | | | | | | | | | | | |
| 2-Butanone | 50 | | | | | 18.0 J | | | | | | | | | | |
| 4-Methyl-2-Pentanone | NA | | | | | 2 J | | | | | | | | | | |
| Acetone | 50 | | | | | **210** | 23 J | | | | | | | | | |
| Benzene | 1 | | | | | 0.55 J | | | | 0.75 J | | **1.2 J** | **1.3 J** | | | |
| Carbon Disulfide | 60 | | | | | 5.8 | | | | | | 3.3 J | 3.5 J | | | |
| Tetrachloroethene | 5* | | | | | | | | | | | | | | | 1.9 JB |
| Toluene | 5* | 0.98 J | | | | 1.1 J | 0.89 J | | 0.84 J | 0.99 J | | 1 J | 1 J | 0.91 J | | |
| Total Confident Conc. VOC | NA | 2.68 | 0.41 | 2 | 0 | 237.45 | 30.29 | 180 | 2.44 | 3.84 | 43 | 5.5 | 5.8 | 0.91 | 0 | 1.9 |
| Total TICs | NA | 0 | 0 | 0 | 0 | 11.2 | 0 | 0 | 0 | 26 | 0 | 8.9 | 8.6 | 0 | 0 | 0 |
| **SVOCs- Method 8270 (ppb)** | | | | | | | | | | | | | | | | |
| 2,4,6-Trichlorophenol | NA | | | | | | | | | | | 2.3 J | | | -- | |
| 2,4-Dichlorophenol | 5* | | | | | | | | | | | 4.9 J | **5.4 J** | | -- | |
| 2,4-Dimethylphenol | (50) | | | | | 1.4 J | | | | | | | | | -- | |
| 2-Methylnaphthalene | NA | | | | | | | | | 1.2 J | | | | | -- | |
| 3+4-Methylphenols | NA | | | | | 3.6 J | | | | | | | | | -- | |
| Acenaphthene | (20) | | | | | | | | | 6.7 J | | | | | -- | |
| Anthracene | (50) | | | | | | | | | 1.7 J | | | | | -- | |
| Carbazole | NA | | | | | | | | | 16 | | | | | -- | |
| Dibenzofuran | NA | | | | | | | | | 4 J | | | | | -- | |
| Fluoranthene | (50) | | | | | | | | | 2 J | | | | | -- | |
| Fluorene | (50) | | | | | | | | | 6.6 J | | | | | -- | |
| Naphthalene | (10) | 5.2 J | 2.5 J | | | | 1.7 J | 1.5 J | | 7.2 J | | 5.7 J | 6 J | | -- | |
| Pentachlorophenol | 1[F] | | | | | **5.6 J** | | | | | | | | | -- | |
| Phenanthrene | (50) | | | | | | | | | 3.6 J | | | | | -- | |
| Phenol | 1[F] | | | | | **16** | **1.3 J** | **4.3 J** | | | **5.2 J** | | | | -- | |
| Total Confident Conc. SVOC | NA | 10.2 | 7.4 | 6.4 | 2.3 | 31.8 | 8 | 9.7 | 3.5 | 54.1 | 9.3 | 16 | 15 | 6.7 | -- | 6.6 |
| Total TICs | NA | 12.7 | 15.7 | 5.8 | 5.9 | 126.2 | 6.5 | 91.7 | 26.4 | 73 | 40.4 | 112.2 | 122.9 | 6.4 | -- | 12 |
| **Pesticides - Method 8081 (ppb)** | | | | | | | | | | | | | | | | |
| All Pesticides | NA | | | | | | | | | | | | | | -- | |
| **PCBs- Method 8082 (ppb)** | | | | | | | | | | | | | | | | |
| Total PCBs | 0.09 | | | | | | | | | | | | | | -- | |
| **TAL Metals, Mercury, & Cyanide- Methods 6010, 7470, 9012 (ppb)** | | | | | | | | | | | | | | | | |
| Aluminum | NA | 113 J | 101 J | 860 | 225 | 1870 | 6760 | 12400 | 432 | 390 | 3260 | 220 | 201 | 26300 | -- | 50.8 J |
| Antimony | 3 | | | **7.5 J** | | | | **12.1 J** | | | **19.6 J** | | | **25.0 J** | -- | |
| Arsenic | 25 | | | **135.0** | | **47.3** | **59.5** | **98.4** | | | **617.0** | 14.4 | 13.3 | 18.2 | -- | |
| Barium | 1000 | 65.9 J | 28.1 J | 497.0 | 18.8 J | 46.4 J | 12.3 J | 18.2 J | 13.1 J | 319.0 | 20.7 J | 41.5 J | 36.8 J | 288.0 | -- | 4.3 J |
| Beryllium | (3) | | | 0.27 J | | | 0.16 J | 0.97 J | 0.09 J | | | 0.1 J | | **4.8 J** | -- | |
| Cadmium | 5 | | | | | | | | | | | | | 0.6 J | -- | |
| Calcium | NA | 199000 | 49700 | 144000 | 75300 | 180000 | 24400 | 27100 | 20300 | 72800 | 13300 | 126000 | 113000 | 175000 | -- | 1290 J |
| Chromium | 50 | | 3.1 J | 14.4 J | | | 8.2 J | 47.6 J | 1.7 J | 2.9 J | | | | 34.8 J | -- | |
| Cobalt | NA | | 0.43 J | 2.8 J | | 1.9 J | 0.53 J | 3.7 J | | | 10.2 J | 6.5 J | 5.2 J | 9.3 J | -- | |
| Copper | 200 | 15.7 J | 16.8 J | **217.0** | 5.6 J | 8.5 J | 5.40 J | 7.50 J | 9.20 J | 7.0 J | 13.1 J | 7.4 J | 12.2 J | 114.0 | -- | 10.9 J |
| Cyanide | 200 | **410.0** | **241.0** | | 57.0 | **5710.0** | 163.0 | **244.0** | 74.0 | 43.0 | 72.0 | **6390.0 J** | **1380.0 J** | 35.0 | -- | |
| Iron | 300 | **356** | **342** | **58300** | **1530** | **3010** | **902** | **2970** | **690** | **3640** | **4070** | **3840** | **3520** | **58300** | -- | |
| Lead | 25 | | 4.4 J | **29.1** | 5.9 | | 6.6 | 5.9 | | 17.3 | | | | **224.0** | -- | |
| Magnesium | (35,000) | 378 J | 2500 J | **49100** | 17200 | 483 J | 430 J | 432 J | 2240 J | **88600** | | 3010 J | 3210 J | **36500** | -- | 256 J |
| Manganese | 300 | 1.0 J | 11.9 J | **343.0** | 188.0 | 10.4 J | 25.8 | 99.8 | 25.6 | 191.0 | 4.8 J | 32.8 | 29.8 | **3560.0** | -- | 0.9 J |
| Mercury | 0.7 | | 0.100 J | | | | | 0.090 J | | | 0.310 | | | 0.140 J | -- | |
| Nickel | 100 | 2.0 J | | 5.9 J | | 22.8 J | 18.2 J | 57.3 | | | **289.0** | 7.6 J | 6.9 J | 22.9 J | -- | |
| Potassium | NA | 76600.0 DL | 225000.0 DL | 1840.0 J | 20700.0 | 727000.0 DL | 1220000.0 DL | 342000 DL | 110000.0 | 196000.0 DL | 547000.0 DL | 608000.0 DL | 553000.0 DL | 33600.0 | -- | |
| Selenium | 10 | 3.1 J | | 5.3 J | 8.1 J | 7.5 J | **10.8** | **12.5** | | | **29.0** | 4.3 J | | **10.1** | -- | |
| Silver | 50 | | | 1.8 J | | | | | | | | | | 2.6 J | -- | |
| Sodium | 20,000 | **56900 J** | **95400 J** | **27900 J** | 11300 J | **112000 J** | **65400 J** | **102000 J** | **26000 J** | **39900 J** | **557000 J** | **133000 J** | **111000 J** | **26000 J** | -- | |
| Thallium | (0.5) | | | | **10.3** | | | | | | | | | | -- | |
| Vanadium | NA | 9.2 J | | 17.0 J | | 29.0 J | 95.6 | 284.0 | 4.4 J | 9.9 J | 478.0 | 5.2 J | 4.7 J | 43.3 J | -- | 0.83 J |
| Zinc | (2,000) | | | | | | | | | | | | | 747.0 | -- | 35.3 |
| **Water Quality pH-Method 150.1** | | | | | | | | | | | | | | | | |
| pH (2) | NA | 12.4 | 9.8 | 6.80 | 8.1 | 12.6 | 12.8 | 12.8 | 10.2 | 7.9 | 12.8 | 10.2 | | 10.5 | -- | |
| pH (3) | NA | 12 | 7 | 6.8 | 7 | 10 | 12 | 12 | 9.6 | 7.7 | 12 | 8 | 8 | 7 | -- | 5.9 |

**Notes:**

*[1] Class GA Ambient Water Quality Standards and Guidance Values from TOGS series 1.1.1, June 1998, and April 2000 Addendum.*

*[2] pH values measured in the field immediately prior to sample collection.*

*[3] pH values measured in the laboratory*

*Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.*

*Blank space indicates analyte was not detected.*

*-- Indicates sample was not analyzed for this parameter.*

*Shaded and framed concentrations exceed Class GA groundwater standards or guidance values.*

*Values in ( ) represent Guidance Values.*

*NA - Not Applicable or Not Available.*

*F - applies to the sum of these subsatnces*

***Data Qualifiers***

*J - Organics: Indicates and estimated value. Inorganics: The reported value is less than CRDL, but greater than the IDL.*

*D - Indicates result from secondary dilution run.*

*B - Indicates analyte was found in the blank as well as the sample result.*

**2006 SITE INVESTIGATION**
**SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL/FILL SAMPLES**
**BUFFALO LAKESIDE COMMERCE PARK - PARCEL 4**
**BUFFALO, NY**

**FLUE ASH / FILTER CAKE AREA**

| Sample Location | SCO Unrestricted | SCO Restricted | Urban Background | MW401B | MW-404B | MW-405B | MW-000B-DUP | SB-402B | SB-403B | SB-409B | SB-413B | MW402B | MW403B | MW406B | MW407B | SB-401B | SB-404B | SB-405B | SB-406B | SB-407B | SB-408B | SB-410B | SB-411B | SB-412B | BLUE FILL-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft bgs) | | | | (8 - 10) | (11 - 12) | (24 - 25) | (MW-405B) | (11.5 - 12) | (11 - 12) | (10 - 11) | (12 - 13) | 8 - 10 | 12.5 - 13 | 24.5 - 25 | 2 - 2.5 | (14 - 14.5) | (8 - 10) | (8 - 9) | (3.5 - 4) | (3 - 4) | (5 - 6) | (3 - 4) | (6 - 7) | (2 - 4) | (0.5 - 1) |
| Collection Date | Values(1) | Commercial Values(1) | Concentrations (2)(3) | 1/9/2006 | 1/12/2006 | 1/11/2006 | 1/11/2006 | 1/12/2006 | 1/12/2006 | 1/16/2006 | 1/18/2006 | 1/9/2006 | 1/10/2006 | 1/10/2006 | 1/10/2006 | 1/12/2006 | 1/16/2006 | 1/17/2006 | 1/13/2006 | 1/13/2006 | 1/17/2006 | 1/17/2006 | 1/19/2006 | 1/18/2006 | 1/19/2006 |
| **VOCs - Method 8260 (ppb)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2-Dichlorobenzene | 1,100 | 500,000 | N/A | | | | | | 4.8 J | | | | | | | | | | | | | | | | |
| 2-Butanone | | | N/A | | 38 J | | | | | | | | 26 J | 61 J | | 87 J | | 27 JB | | 120 J | | | | | |
| Acetone | 50 | 500,000 | N/A | ***67 J*** | | | | | | | | | ***220 J*** | | | | | | ***330*** | | | | | | |
| Benzene | 60 | 44,000 | N/A | | | | | 22 J | | | | 17 J | | | 3.4 J | | | | | | | | | | |
| Carbon Disulfide | | | N/A | | 51 J | 15 J | 17 J | | | 34 | | | 29 J | 110 | | 31 J | | 23 J | | | | | | | |
| Cyclohexane | | | N/A | 50 J | | | | | | | 110 J | | | 20 J | | | | | | | | | 100 J | 130 J | |
| Ethyl Benzene | 1,000 | 390,000 | N/A | | | | | | 3.4 J | | | | | 5.3 J | 4.2 J | | | | | | | | 18 J | 31 J | |
| Methyl Acetate | | | N/A | | | | | | | | | | | | | | | | | | | | | | |
| Methylcyclohexane | | | N/A | 50 J | | | | | | | 190 J | | | | | 5.8 J | | | | | | | | 230 J | |
| Methylene Chloride | 50 | 500,000 | N/A | | | | | | | | | | 25 JB | | 30 JB | | | | | | | | | | |
| Toluene | 700 | 500,000 | N/A | | | | | 28 J | | | 20 J | | | | 5.6 J | | | | 20 J | | | | 23 J | 34 J | |
| m/p-Xylenes | | | N/A | 8.6 J | | | | | 17 J | | 110 J | | | | | | | | | | | | 140 J | 260 J | |
| o-Xylene | | | N/A | 6 J | | | | 3.4 J | 14 J | | 26 J | | | 5.4 J | | | | | | | | | 37 J | 58 J | |
| Total Xylenes | 260 | 500,000 | N/A | 14.6 | 0 | 0 | 0 | 3.4 | 31 | 0 | 136 | 0 | 0 | 5.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 177 | ***318*** | 0 |
| TICs | | | N/A | 1345 | 160 | 34 | 90 | | 2680 | | 1759 | 550 | | 6650 | | 770 | | | 3390 | 12200 | | | 2920 | 400 | |
| Total VOCs | | | N/A | 1526.6 | 249 | 49 | 107 | 53.4 | 2719.2 | 34 | 2215 | 567 | 300 | 6851.7 | 43.2 | 893.8 | 0 | 50 | 3740 | 12320 | 0 | 0 | 3238 | 1143 | 0 |
| **SVOCs - Method 8270 (ppb)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,1-Biphenyl | | | N/A | | | | | | | | | | | | | | | | | | | | | 82 J | |
| 2-Methylnaphthalene | | | N/A | 160 J | | | | | | | | | | | | 290 J | | | 210 J | | | | | | |
| 3+4-Methylphenols | | | N/A | | | | | | | | | 98 J | | | | | | | | | | | | | |
| 4-Nitrophenol | | | N/A | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene | 20,000 | 500,000 | N/A | 110 J | | | | | | | | | | | | 250 J | 82 J | 120 J | | | 100 J | | | | |
| Anthracene | 100,00 | 500,000 | N/A | 380 J | | | | 83 J | | | | | | | | 450 J | 280 J | | | | | | | 81 J | |
| Benzo(a)anthracene | 1,000 | 5,600 | 169 -59,000 | 280 J | | | | 150 J | | | | | 310 J | | 240 J | 540 J | 630 | 310 J | | | 750 | | | 83 J | ***1300 J*** |
| Benzo(a)pyrene | 1,000 | 1,000 | 165 - 220 | | | | | 90 J | | | | | 420 J | | 260 J | 370 J | 400 J | 610 J | | 71 J | ***1100 J*** | | | | 780 J |
| Benzo(b)fluoranthene | 1,000 | 5,600 | 15,000 - 62,000 | 250 J | | | | 250 J | | | | | 490 | | 410 J | 450 J | 590 J | 650 J | | 76 J | ***1400 J*** | | | 88 J | ***1300 J*** |
| Benzo(g,h,i)perylene | 100,000 | 500,000 | 900 - 47,000 | | | | | | | | | | 220 J | | 100 J | 270 J | 150 J | 340 J | | | 440 | | | | |
| Benzo(k)fluoranthene | 800 | 56,000 | 300 - 26,000 | | | | | | | | | | | | | 190 J | 160 J | 210 J | | | 530 J | | | | |
| bis(2-Ethylhexyl)phthalate | | | N/A | | | | | | | | | | | 120 J | | | | | | | | | | | |
| Carbazole | | | N/A | | | | | | | | | | | | | 260 J | | | | | | | | | |
| Chrysene | 1,000 | 56,000 | 251 - 640 | 460 J | | | | 250 J | | | | | 390 J | | 270 J | 430 J | 500 | 200 J | | | 880 | | | 130 J | |
| Dibenz(a,h)anthracene | 330 | 560 | N/A | | | | | | | | | | | | | 330 J | 160 J | | | | 120 J | | | | ***1300 J*** |
| Dibenzofuran | | | N/A | | | | | | | | | | | | | | | | | | | | | | |
| Fluoranthene | 100,000 | 500,000 | 200 - 166,000 | 800 J | | | | 310 J | | | 95 J | | 290 J | | 370 J | 1600 | 1300 | 200 J | | 72 J | 710 | | | 120 J | 3200 |
| Fluorene | 30,000 | 500,000 | N/A | 290 J | | | | | | | | | | | | 470 J | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | 500 | 5,600 | 8,000 - 61,000 | | | | | 72 J | | | | | 200 J | | | 270 J | 130 J | 210 J | | 69 J | 270 J | | | | |
| Isophorone | | | N/A | | | | | | | | | | | | | | | | | | | | | | |
| Naphthalene | 12,000 | 500,000 | N/A | 140 J | | | | | | | | | | | | 1300 | | | 230 J | | | | | | 3200 |
| Nitrobenzene | | | N/A | | | | | | | | | | | | | | | | | | | | | | |
| Pentachlorophenol | | | N/A | | | | | | | | | | | | | | | | | | | | | | 16000 |
| Phenanthrene | 100,000 | 500,000 | N/A | 1100 J | | | | 270 J | | | 140 J | | 130 J | 840 J | 240 J | 2100 | 1400 | | | | | | | 180 J | 3400 |
| Phenol | | | N/A | | | | | | | | | 170 J | | | | | | | | | | | | | |
| Pyrene | 100,000 | 500,000 | 145 - 147,000 | 910 | | | | 270 J | | | 98 J | | 330 J | | 460 | 1300 | 1200 | 410 J | | | 960 | | | 140 J | 2000 J |
| TICs | | | N/A | 15,000 | 7,500 | 1,160 | 1,000 | 3,830 | 2,030 | 3,121 | 10,360 | 3,210 | 2,779 | 9,680 | 2,302 | 19,720 | 3,249 | 3,020 | | | 6,770 | 1,400 | 2,200 | 3,840 | 43,700 |
| Total SVOCs | | | N/A | 19880 | 7500 | 1160 | 1000 | 5575 | 2030 | 3121 | 10693 | 3478 | 5559 | 10640 | 4652 | 30590 | 10231 | 6280 | 440 | 288 | 14030 | 1400 | 2200 | 4744 | 76380 |
| Total BaP Equivalent(4) | | | N/A | 57.6 | 0 | 0 | 0 | 139.7 | 0 | 0 | 0 | 0 | 523.9 | 0 | 327.7 | 502.2 | 541.6 | 731.1 | 0 | 85.5 | 1476.1 | 0 | 0 | 18.4 | 2540 |
| **PESTICIDES - Method 8081 (ppb)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| All Pesticides | | | N/A | 56 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Endosulfan I | 2,400 | 200,000 | - | 56 PJ | | | | | | | | | | | | | | | | | | | | | |
| Endrin | 14 | 89,000 | - | | | | | 4.7 PJ | | | | | | | | | | | | | | | | | |
| Endrin aldehyde | | | - | | | | | 2.3 J | | | | | | | | | | | | | | | | | |
| **PCBs - Method 8082 (ppb)** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1254 | | | N/A | 520 PJ | | | | | | | | | | | | | | | | | | | | 43 PJ | |
| Aroclor-1260 | | | N/A | | | | | 140 | | | | | | | | | | | | | | | | | |
| Total PCBs | 100 | 1,000 | N/A | 520 | 0 | 0 | 0 | 140 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 | 0 |
| **Inorganics / TAL Metals (ppm)** | | | | | | | | | | | | AVERAGE | AVERAGE | | | | | | | | | | | | |
| Aluminum | | | 33,000 | 21000 J | 10100 | 9050 | 10100 | 9060 | 18800 | 8930 J | 12400 J | 12430 | 9495 | 12800 J | 15300 J | 14300 J | 5820 J | 12500 | 6850 J | 4380 J | 8650 J | 7150 J | 3480 J | 8110 J | 12600 J | 11500 J | 40.3 J |
| Antimony | | | N/A | | | 27.1 NJ | | 249 NJ | | | 48.9 NJ | 108 | 49 | | 84.6 N*J | | 121 N*J | | 6.13 N*J | 54.1 N*J | 5.33 NJ | 73.2 NJ | | | 13.9 NJ | 37.4 NJ | 10.0 NJ |
| Arsenic | 13 | 16 | 3-12 ** | ***43.5 NJ*** | ***22.3 N*** | 10.6 N | ***13.3 N*** | ***22.6 NJ*** | ***24.1 N*** | 3.12 N | 3 | 18 | 9 | 11.8 NJ | 12.3 NJ | 2.96 NJ | ***18 NJ*** | 8.96 N | 5.66 N | 10.4 N*J | 1.87 | ***17.4*** | 1.58 N | 10.7 N | 3.61 | 10 | ***17.1*** |
| Barium | 350 | 400 | 15-600 | 147 NJ | 133 NJ | 44.3 NJ | 54.4 NJ | 96.3 NJ | 189 NJ | 8.98 J | 123 N*J | 99 | 69 | 77 NJ | 115 NJ | 73.5 NJ | 65.5 NJ | 76.1 NJ | 61.6 J | 57.7 J | 17.4 J | 95.1 J | 12.6 J | 79.6 J | 51.2 N*J | 112 N*J | 18.3 N*J |
| Beryllium | 7.2 | 590 | 0-1.75 | 1.64 NJ | 0.786 J | 0.767 J | 0.81 J | 1.86 J | 1.54 J | 0.44 J | 0.698 J | 1 | 1.1 | 0.784 NJ | 2.81 NJ | 2.3 NJ | 0.975 NJ | 0.702 J | 1.28 J | 0.738 J | 0.121 J | 1.35 J | 0.12 J | 1.31 J | 0.807 J | 1.4 J | 0.186 J |
| Cadmium | 2.5 | 9.3 | 0.1-1 | ***3.13 NJ*** | | | | ***7.66 NJ*** | ***3.81 NJ*** | | | 5 | 1.1 | 0.106 NJ | | | | | 0.483 NJ | | | ***3.56*** | | | | 0.073 NJ | |
| Calcium | | | 130 - 35,000 ** | 267000 DJ | 96600 J | 24300 J | 38400 J | 31000 J | 243000 DJ | 51500 J | 8050 J | 94981 | 32398 | 20700 J | 66800 J | 47600 J | 36800 J | 8490 J | 38800 J | 25100 J | 820 J | 35800 J | 967 J | 50200 J | 38000 J | 51100 J | 18600 J |
| Chromium | 1 | 400 | 1.5 - 40 ** | ***36.3 NJ*** | ***44.5 NJ*** | ***18.9 NJ*** | ***21.4 NJ*** | ***182 NJ*** | ***27.5 NJ*** | ***15.6 J*** | ***14.8 NJ*** | 45 | 33 | ***19.3 NJ*** | ***20.8 NJ*** | ***3.45 NJ*** | ***23.4 NJ*** | ***21.2 NJ*** | ***4.66 J*** | ***180 J*** | ***6.95 J*** | ***104 J*** | ***5.33 J*** | ***11.5 J*** | ***15.1 NJ*** | ***10.6 NJ*** | ***4.930 NJ*** |
| Cobalt | | | 2.5 - 60 ** | 11.6 NJ | 7.49 NJ | 12.1 NJ | 10.7 NJ | 14.1 NJ | 11.2 NJ | 9.96 J | 13.2 J | 11 | 6.1 | 7.71 NJ | 4.57 NJ | 1.6 NJ | 7.6 NJ | 10.2 NJ | 1.4 J | 6.78 J | 0.721 J | 12.7 J | | 3.62 J | 10.5 J | 5.2 J | |
| Copper | 50 | 270 | 1 - 50 | 41.9 NJ | ***109*** | 24.9 | 26.3 | ***298*** | 40.5 | 20.4 N | 22.8 NJ | 73 | 68 | 33.5 NJ | 45.7 NJ | 13 NJ | ***62.7 NJ*** | 38.9 | ***62.5 N*** | ***205 N*** | 2.99 | ***348*** | 3.02 N | 28.3 N | 18.3 N | 15.7 N | 2.440 NJ |
| Cyanide | 27 | 27 | N/A | | 13 | 2.64 J | 0.95 J | 24 | | | | 10 | 107 | 9.27 | 6.04 | 7.25 | 8.07 | | 6.04 | 4.56 | | 1.64 | | 5.86 | | | ***918*** |
| Cyanide - Amenable | | | N/A | - | - | 1.1 J | | - | - | - | - | | | - | - | - | - | - | - | - | - | - | - | - | - | - | 19.4 |
| Iron | | | 2,000 - 550,000 | 20100 J | 112000 J | 114000 J | 78600 J | 244000 DJ | 17400 J | 19400 J | 44100 J | 81200 | 60705 | 33300 J | 55900 J | 11000 J | 186000 DJ | 21600 J | 39700 J | 115000 J | 4720 J | 212000 DJ | 4640 J | 45700 J | 20000 J | 39600 J | 10100 J |
| Lead | 63 | 1,000 | 200 - 500 | ***102 J*** | ***165 J*** | | 17.7 J | ***2970 J*** | ***126 J*** | 15.3 J | 5.32 N*J | 486 | 77 | 61.2 J | 44.7 J | 5.98 J | ***69 J*** | 22.8 J | 33.5 J | ***218 J*** | 6.75 J | ***434 J*** | 6.14 J | 43.6 J | 18.7 N*J | 35.3 N*J | 27.5 N*J |
| Magnesium | | | 100 - 5,000 | 4100 J | 6490 J | 4410 J | 5090 J | 8590 J | 3110 J | 5410 NJ | 7260 NJ | 5558 | 7440 | 5300 J | 17600 J | 4450 J | 10400 J | 4820 J | 7400 NJ | 5600 NJ | 231 J | 9030 J | 299 NJ | 14000 NJ | 7090 NJ | 10500 NJ | 173 NJ |
| Manganese | 1,600 | 10,000 | 50 - 5,000 | 180 | ***1640*** | 1090 | 728 | ***4960*** | 182 | 439 NJ | 1350 J | 1321 | 1917 | 668 | ***2450*** | 544 | ***4050*** | 320 | ***2270 NJ*** | ***3120 NJ*** | 51.2 NJ | ***4970 NJ*** | 46.3 NJ | 1030 NJ | 576 J | ***4830 J*** | 77.2 J |
| Mercury | 0.18 | 2.8 | 0.001 - 0.2 | 0.031 N* | ***0.231 NJ*** | 0.014 NJ | 0.064 NJ | ***0.292 NJ*** | 0.023 NJ | | 0.046 | 0.10 | 0.04 | 0.031 N* | 0.024 N* | 0.017 N* | 0.063 N* | 0.05 NJ | | | | 0.05 N | | | 0.018 | 0.064 | |
| Nickel | 30 | 310 | 0.5 -25 | 22.9 NJ | ***34.9 NJ*** | 23.5 NJ | 26.6 NJ | ***103 NJ*** | 23 NJ | ***36.3*** | ***31.1*** | 38 | 24 | 25.7 NJ | 16.8 NJ | 3.1 NJ | 12.2 NJ | ***37.4 NJ*** | 8.52 | ***75.6*** | 0.841 J | ***72.2*** | 2.82 J | 8.24 | ***38.1*** | 13.6 | |
| Potassium | | | 8,500 - 43,000 ** | 9520 NJ | 8030 J | 5800 J | 7660 J | 2310 J | 11000 J | 3570 N | 4810 | 6588 | 2682 | 9310 NJ | 2310 NJ | 3700 NJ | 1080 NJ | 6380 J | 2260 N | 1150 N | 675 | 1840 | 284 NJ | 1070 N | 2520 | 2290 | 425 J |
| Selenium | 3.9 | 1,500 | 0.1 - 3.9 | 3.61 N | | | | | ***6.43 NJ*** | 0.832 NJ | | 4 | 2 | 1.36 NJ | 1.05 NJ | 1.63 N | | 1.9 NJ | 1.52 N | 2.72 N | 0.448 NJ | ***5.22 N*** | | 1.96 N | | | 1.460 NJ |
| Silver | 2 | 1,500 | N/A | 1.75 NJ | ***34.6 N*J*** | ***42.1 N*J*** | ***25.6 N*J*** | ***80.4 N*J*** | | | 1.23 J | 31 | 10 | ***5.45 NJ*** | ***12.4 NJ*** | 1.63 NJ | ***31.6 NJ*** | ***2.11 N*J*** | | | 0.811 NJ | ***28.2 NJ*** | | | 0.772 J | 0.278 J | |
| Sodium | | | 6,000 - 8,000 | 614 NJ | 865 NJ | 191 NJ | 362 NJ | 887 NJ | 942 NJ | 141 NJ | 138 NJ | 518 | 308 | 575 NJ | 633 NJ | 304 NJ | 101 NJ | 406 NJ | 435 NJ | 99.5 NJ | 200 NJ | 555 NJ | 117 NJ | 191 NJ | 172 NJ | 220 NJ | 208 NJ |
| Thallium | | | N/A | 1.55 N | | 2.47 NJ | 1.54 NJ | 6.92 NJ | 2 NJ | | | 3 | | | | | | | | | | | | | | | |
| Vanadium | | | 1-300 | 35.3 NJ | 27.2 J | 36.2 J | 29.4 J | 28.1 J | 42.7 J | 11.9 J | 20.5 J | 29 | 14 | 18.5 NJ | 10.8 NJ | 4.94 NJ | 23.9 NJ | 28.5 J | 7.92 J | 22.4 J | 5.28 J | 25.1 J | 3.06 J | 12.2 J | 10.6 J | 10.2 J | |
| Zinc | 109 | 10,000 | 9-50 | ***778 NJ*** | ***573 N*** | 42.9 NJ | ***137 NJ*** | 6830 N | ***956 N*** | 38.1 J | ***63.1 J*** | 1177 | 290 | ***275 NJ*** | ***341 NJ*** | 35.1 | ***585*** | ***141 N*** | ***520 J*** | ***513 J*** | 6.8 NJ | ***895 NJ*** | 8.93 J | ***239 J*** | 27.6 J | ***188 J*** | 17.4 J |

**Of the samples collected from the Flue Ash/Filter Cake area, only SB402 and MW401 contained flue ash and/or filter cake waste material.**

*Blank space indicates analyte was not detected.*
*-- Indicates sample was not analyzed for this parameter.*
*Shaded and framed concentrations exceed restricted commercial SCO values.*
*Bold/Italic concentrations exceed unrestricted SCO values.*
*Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.*
*(1) 6 NYCRR subpart 375-6 soil cleanup objectives, Dec. 2006.*
*(2) TAL Inorganic Analytes from Eastern USA Background as shown in New York State Dept. of Environmental Conservation TAGM 4046, Dec. 2000.*
*(3) SVOCs background from Background Soil Concentrations of Poly Aromatic Hydrocarbons (PAHs), Urban Soils (U.S. and other), Toxicological Profile for PAHs, US Dept. of Health and Human Services, August 1995.*
*(4) Total BaP equivalent - Benzo (a) pyrene equivalent is calculated by multiplying the following individual PAH concentrations by their multiplier (#) and summing the results. Benzo (a) pyrene (1.00); Dibenzo (a,h) anthracene (1.00); Benzo (a) anthracene (0.10); Benzo (b) fluoranthene (0.10); Ideno (1,2,3-cd) pyrene (0.10); Benzo (k) fluoranthene (0.01); Chrysene (0.01).*
*** New York State background concentration.*

*Data Qualifiers*
*U - The compound was not detected at the indicated concentration.*
*D - Indicates result from secondary dilution run.*
*J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.*
*B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.*
*P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.*
** - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.*
*N - Presumptive evidence of a compound or element.*

**2006 SITE INVESTIGATION**
**SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL/FILL SAMPLES**
**BUFFALO LAKESIDE COMMERCE PARK - PARCEL 4**
**BUFFALO, NY**

**FLUE ASH / FILTER CAKE AREA**

| Sample Location | SCO Unrestricted Values(1) | SCO Restricted Commercial Values | Urban Background Concentrations (2)(3) | MW401A | MW-404A | MW-404A-DUP | MW-405A | SB-402A | SB-403A | SB-409A | SB-413A | | | | MW402A | MW403A | MW406A | MW407A | SB-401A | SB-404A | SB-405A | SB-406A | SB-407A | SB-408A | SB-410A | SB-411A | SB-412A |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Depth (ft bgs) | | | | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | | | | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) | (0 - 0.5) |
| Collection Date | | | | 1/9/2006 | 1/11/2006 | 1/11/2006 | 1/11/2006 | 1/12/2006 | 1/12/2006 | 1/16/2006 | 1/18/2006 | | | | 1/9/2006 | 1/10/2006 | 1/10/2006 | 1/10/2006 | 1/12/2006 | 1/16/2006 | 1/17/2006 | 1/13/2006 | 1/13/2006 | 1/17/2006 | 1/17/2006 | 1/19/2006 | 1/18/2006 |
| **PAHs - Method 8270 (ppb)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Acenaphthene | 20,000 | 500,000 | - | | 520 J | | | | | | | | | | | | | 2300 J | | | | | 90 J | | | | 130 J |
| Anthracene | 100,00 | 500,000 | N/A | | 1400 J | 840 J | | 180 J | | | | | | | | | | 1100 J | 860 J | | | | | | | | 79 J |
| Benzo(a)anthracene | 1,000 | 5,600 | 169 -59,000 | | ***3300*** | ***1600 J*** | | 320 J | | | | | | | | ***2200*** | 540 | ***9200*** | ***1900 J*** | 320 J | 70 J | ***1500*** | 360 J | 150 J | | | 79 J |
| Benzo(a)pyrene | 1,000 | 1,000 | 165 - 220 | | ***2900*** | ***1200 J*** | | 240 J | | | | | | | | ***3800*** | 64 J | ***21000*** | ***1500 J*** | 250 J | 120 J | ***2300*** | 720 | 240 J | | 680 | ***1000*** |
| Benzo(b)fluoranthene | 1,000 | 5,600 | 15,000 - 62,000 | | ***4100*** | ***1700 J*** | | 320 J | 56 J | | | | | | 51 J | ***4500*** | 220 J | ***20000*** | ***2100*** | 350 J | 150 J | ***3000*** | 680 | 310 J | | 950 | ***1200*** |
| Benzo(g,h,i)perylene | 100,000 | 500,000 | 900 - 47,000 | | 1200 J | 520 J | | | | | | | | | | 2300 | | 16000 | 610 J | 96 J | | 1000 | 500 | 120 J | | 250 J | 420 J |
| Benzo(k)fluoranthene | 800 | 56,000 | 300 - 26,000 | | ***1400 J*** | 650 J | | | | | | | | | | | | ***5800*** | 670 J | 97 J | | ***1000*** | | | | | 140 J |
| Chrysene | 1,000 | 56,000 | 251 - 640 | | ***2900*** | ***1300 J*** | | 270 J | | | | | | | | ***2800*** | ***3100 D*** | ***9800*** | ***1700 J*** | 210 J | | ***2000*** | 460 | | | 600 | 730 |
| Dibenz(a,h)anthracene | 330 | 560 | - | | | | | | | | | | | | | | | ***930 J*** | | | | 70 J | 82 J | | | | |
| Fluoranthene | 100,000 | 500,000 | 200 - 166,000 | | 7200 | 3900 | | 750 J | 80 J | | | | | | | 2000 | 1300 | 10000 | 4800 | 660 | | 1600 | 400 J | | | 560 | 680 |
| Fluorene | 30,000 | 500,000 | - | | 560 J | 410 J | | | | | | | | | | | | | | | | | | | | | |
| Indeno(1,2,3-cd)pyrene | 500 | 5,600 | 8,000 - 61,000 | | ***1200 J*** | ***550 J*** | | | | | | | | | | ***1700 J*** | | ***13000*** | ***710 J*** | 68 J | | ***850*** | 460 | 80 J | | 170 J | 310 J |
| Naphthalene | 12,000 | 500,000 | - | | 390 J | | | | | | | | | | | | | | | | | | | | | | |
| Phenanthrene | 100,000 | 500,000 | N/A | | 5300 | 3200 | | 800 J | 78 J | | | | | | 120 J | | 270 J | 4000 J | 3300 | 510 | | 290 J | 190 J | | | 130 J | 320 J |
| Pyrene | 100,000 | 500,000 | 145 - 147,000 | | 6400 | 2900 | | 710 J | 78 J | | | | | | | 2400 | 220 J | 10000 | 3800 | 700 | 100 J | 1700 | 420 | 200 J | | 700 | 820 |
| TICs | | | N/A | | | | | | | | | | | | | | | | | | | | | | | | |
| Total PAHs | | | N/A | 0 | 38,770 | 18,770 | 0 | 3,590 | 292 | 0 | 0 | | | | 171 | 21,700 | 5,714 | 123,130 | 21,950 | 3,261 | 440 | 15,310 | 4,362 | 1,100 | 0 | 4,040 | 5,908 |
| Total BaP Equivalent(4) | | | N/A | 0 | 3,803 | 1,605 | 0 | 307 | 6 | 0 | 0 | | | | 5 | 4,668 | 171 | 26,306 | 1,995 | 327 | 142 | 2,935 | 957 | 294 | 0 | 798 | 1,168 |
| **PCBs - Method 8082 (ppb)** | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Aroclor-1254 | | 1,000 | N/A | 99 PJ | | | | | 41 | | | | | | 78 PJ | | | | 99 PJ | | | | | | | | |
| Total PCBs | 100 | | N/A | 99 | | | | | 41 | | | | | | 78 | | | | 99 | | 160 | | | | | | |
| **Inorganics / TAL Metals (ppm)** | | | | | | | | | | | | AVERAGE | | AVERAGE | | | | | | | | | | | | | |
| Aluminum | | | 33,000 | 10500 J | 8620 | 7760 | 6800 | 10700 | 5320 | 3180 J | 7320 J | 7525 | | 6088 | 6140 J | 7200 J | 4200 J | 6300 J | 8830 | 7140 J | 6890 J | 4300 J | 7020 J | 4680 J | 1640 J | 8740 J | 6060 J |
| Antimony | | | N/A | 15.1 N*J | | | 20.7 NJ | 124 NJ | 26.4 NJ | 137 NJ | 50.4 N*J | 262 NJ | 91 | | 73 | 118 N*J | | | 11.2 N*J | | | 92.3 N*J | | 127 NJ | 9.05 N*J | 80.5 N*J | 14.6 NJ | 135 NJ |
| Arsenic | 13 | 16 | 3-12 ** | ***21.2 NJ*** | 7.51 N | 7.38 NJ | 12.2 NJ | 7.05 NJ | ***14.3 NJ*** | 7.78 N*J | ***20.4*** | 12 | | 9 | ***27.4 NJ*** | 2.56 NJ | 4.39 NJ | 10.5 NJ | 8.18 N | 3.6 N | 11.4 N*J | 2.7 | 7.3 | 6.31 N*J | 10.1 N*J | 6.21 | 11.9 |
| Barium | 350 | 400 | 15-600 | 103 NJ | 155 NJ | 152 NJ | 87.7 NJ | 119 NJ | 64.3 NJ | 26.8 J | 122 N*J | 104 | | 73 | 75.8 NJ | 14.8 NJ | 39.4 NJ | 79.9 NJ | 240 NJ | 59.2 J | 83.2 J | 20.3 J | 100 J | 46.4 J | 34.9 J | 66.7 N*J | 83.5 N*J |
| Beryllium | 7.2 | 590 | 0-1.75 | 1.46 NJ | 0.701 J | 0.764 J | 1.31 J | 0.779 J | 1.1 J | 0.83 J | 1.54 J | 1 | | 0.9 | 1.44 NJ | 0.159 NJ | 0.715 NJ | 0.737 NJ | 0.767 J | 1.36 J | 1.35 J | 0.201 J | 1.45 J | 0.64 J | 0.432 J | 1.22 J | 0.98 J |
| Cadmium | 2.5 | 9.3 | 0.1-1 | ***5.26 NJ*** | | | 1.59 NJ | 0.402 NJ | ***6.89 NJ*** | 0.676 N | ***6.86 N*** | ***4*** | | 1.4 | | | | 1.24 NJ | | 0.515 NJ | 1.02 N | 0.066 J | ***5.74*** | | | 0.158 NJ | 1.09 N |
| Calcium | | | 130 - 35,000 ** | 60000 J | 51400 J | 44600 J | 70800 J | 60100 J | 25800 J | 39200 J | 43200 J | 49388 | | 45801 | 31800 J | 1240 J | 203000 DJ | 57600 J | 57500 J | 199000 DJ | 50500 J | 3670 J | 54900 J | 13100 J | 18400 J | 29800 J | 28100 J |
| Chromium | 1 | 400 | 1.5 - 40 ** | ***54.4 NJ*** | ***36.2 NJ*** | ***38.1 NJ*** | ***67.6 NJ*** | ***21.6 NJ*** | ***184 NJ*** | ***22.3 J*** | ***93.7 NJ*** | 65 | | ***40*** | ***18 NJ*** | ***8.41 NJ*** | ***9.44 NJ*** | ***196 NJ*** | ***22.6 NJ*** | ***10.2 J*** | ***88.1 J*** | ***9.11 J*** | ***42.9 J*** | ***42.8 J*** | ***4 J*** | ***8.13 NJ*** | ***56.9 NJ*** |
| Cobalt | | | 2.5 - 60 ** | 7.32 NJ | 5.03 NJ | 5.06 NJ | 5.85 NJ | 6.39 NJ | 7.24 NJ | 3.77 J | 6.84 J | 6 | | 4 | 10.2 NJ | 0.488 NJ | 1.18 NJ | 6.43 NJ | 5.6 NJ | 0.921 J | 6.5 J | 1.17 J | 4.99 J | 4.31 J | 6.03 J | 2.19 J | 5.69 J |
| Copper | 50 | 270 | 1 - 50 | ***124 NJ*** | ***75.7*** | ***91.8*** | ***121*** | 44.1 | ***239*** | 41.9 N | ***165 N*** | ***113*** | | ***70*** | 49.4 NJ | 6.02 NJ | 27 NJ | ***261 NJ*** | 42.8 | 26.4 N | ***156 N*** | 12.9 | ***80.6*** | ***57.6 N*** | 11.6 N | 15.1 N | ***158 N*** |
| Cyanide | 27 | 27 | N/A | 6.05 | 3.23 | 1.42 | 6.92 | 12 | 4.35 | 8.34 | 3.94 | 6 | | 6.5 | 8.76 | | 7.125 | 8.48 | 0.939 | 17 | 5.85 | | 3.22 | 2.86 | | | 4.69 |
| Iron | | | 2,000 - 550,000 | 109000 J | 36100 J | 50600 J | 87700 J | 29100 J | 190000 DJ | 51600 J | 129000 | 85388 | | 68076 | 217000 D | 7990 J | 28100 J | 107000 J | 30000 J | 19300 J | 107000 J | 15600 J | 92600 | 59100 J | 105000 J | 13100 J | 83200 J |
| Lead | 63 | 1,000 | 200 - 500 | ***1610 J*** | ***331 J*** | ***467 J*** | ***776 J*** | ***358 J*** | ***1590 J*** | ***328 J*** | ***1420 N*J*** | ***860*** | | ***676*** | ***258 J*** | 7.31 J | ***88.2 J*** | ***244 J*** | ***376 J*** | 61.6 J | ***281 J*** | 27.9 J | ***6300 J*** | ***120 J*** | | 45.9 N*J | ***297 N*J*** |
| Magnesium | | | 100 - 5,000 | 11600 J | 13300 J | 10400 J | 13400 J | 14400 J | 5950 J | *7330* NJ | 9040 NJ | 10678 | | 11461 | 7120 J | 535 J | 38200 J | 6510 J | 17200 J | 29300 NJ | 7910 NJ | 826 J | 16900 J | 3330 NJ | 9970 NJ | 5080 NJ | 6110 NJ |
| Manganese | 1,600 | 10,000 | 50 - 5,000 | ***3820*** | 1020 | 1460 | ***2000*** | 955 | ***2810*** | 1350 NJ | ***5790 J*** | ***2401*** | | ***14187*** | ***7570*** | 115 | 1240 | ***11200 D*** | 880 | 1310 NJ | ***3360 NJ*** | 481 NJ | ***2190 NJ*** | ***1830 NJ*** | ***150000 DJ*** | 567 J | ***3690 J*** |
| Mercury | 0.18 | 2.8 | 0.001 - 0.2 | 0.089 N* | ***0.25 NJ*** | ***0.354 NJ*** | 0.05 NJ | ***0.278 NJ*** | 0.165 NJ | 0.103 | 0.086 | 0.17 | | 0.13 | 0.036 N* | | 0.027 N* | ***0.232 N**** | ***0.573 NJ*** | ***0.211*** | 0.077 | 0.049 N | 0.08 NJ | 0.067 | 0.026 | 0.04 | 0.14 |
| Nickel | 30 | 310 | 0.5 -25 | 27 NJ | 18.7 NJ | 19.8 NJ | ***49.4 NJ*** | 19.1 NJ | ***48.7 NJ*** | 20.7 | ***57.6*** | ***33*** | | 20 | 8.57 NJ | 2.3 NJ | 4.36 NJ | ***41.9 NJ*** | 23.6 NJ | 7.29 | ***42*** | 3.56 J | 16.8 | 25.9 | | 9.76 | ***57.3*** |
| Potassium | | | 8,500 - 43,000 ** | 2220 NJ | 2860 J | 1950 J | 1540 J | 2100 J | 693 J | 503 NJ | 1010 | 1610 | | 925 | 917 NJ | 591 NJ | 798 NJ | 1080 NJ | 1950 J | 912 N | 1320 N | 407 J | 1040 | 636 NJ | 194 NJ | 935 | 1240 |
| Selenium | 3.9 | 1,500 | 0.1 - 3.9 | 3.18 N | | | | | ***12.6 NJ*** | 1.78 N | 0.866 NJ | ***4.6*** | | 1.7 | | | | | | 0.92 NJ | 1.82 N | 1.15 NJ | 3.56 NJ | 2.94 N | 1.69 N | 0.678 NJ | 0.698 NJ |
| Silver | 2 | 1,500 | N/A | ***21.3 NJ*** | ***8.5 N*J*** | ***14.8 N*J*** | ***29.7 N*J*** | ***6.42 N*J*** | | | ***5.63 J*** | ***14*** | | 11 | ***37.4 NJ*** | 1.27 NJ | ***3.96 NJ*** | ***21.1 NJ*** | ***6.22 N*J*** | | | ***2.52 NJ*** | ***13.9 NJ*** | | | ***4.41 J*** |
| Sodium | | | 6,000 - 8,000 | 327 NJ | 364 NJ | 337 NJ | 371 NJ | 216 NJ | 441 NJ | 193 NJ | 204 NJ | 307 | | 235 | | 58.7 NJ | 424 NJ | 253 NJ | 331 NJ | 324 NJ | 260 NJ | 93.7 NJ | 382 NJ | 58.3 NJ | 34.7 NJ | 309 NJ | 296 NJ |
| Thallium | | | N/A | 3.52 N | | 0.833 NJ | 3.55 NJ | | 4.98 NJ | 0.681 J | 4.03 | 3 | | | | | | | | | | | | | | | |
| Vanadium | | | 1-300 | 28.5 NJ | 18.4 J | 18.7 J | 20.5 J | 21.8 J | 20.6 J | 17.1 J | 15.8 J | 20 | | 15 | 17.8 NJ | 7.27 NJ | 5.8 NJ | 47.7 NJ | 23.5 J | 6.18 J | 20.3 J | 4.96 J | 12.2 J | 13.2 J | 17.5 J | 3.46 J | 19.3 J |
| Zinc | 109 | 10,000 | 9-50 | ***846*** | ***389 N*** | ***606 N*** | ***1040*** | ***459 N*** | ***4910 N*** | ***475 J*** | | ***1246*** | | ***400*** | ***921*** | 7.53 | ***258*** | ***950*** | ***360 N*** | ***417 J*** | ***717 J*** | 76 NJ | ***379 NJ*** | ***327 J*** | 14.7 J | *64.7* ***J*** | ***706 J*** |

**Of the samples collected from the Flue Ash/Filter Cake area shown here, only SB403 contained flue ash and/or filter cake.**

*Blank space indicates analyte was not detected.*
*-- Indicates sample was not analyzed for this parameter.*
*Shaded and framed concentrations exceed restricted commercial SCO values.*
*Bold/Italic concentrations exceed unrestricted SCO values.*
*Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.*
*(1) 6 NYCRR subpart 375-6 soil cleanup objectives, Dec. 2006.*
*(2) TAL Inorganic Analytes from Eastern USA Background as shown in New York State Dept. of Environmental Conservation TAGM 4046, Dec. 2000.*
*(3) SVOCs background from Background Soil Concentrations of Poly Aromatic Hydrocarbons (PAHs), Urban Soils (U.S. and other), Toxicological Profile for PAHs, US Dept. of Health and Human Services, August 1995.*
*(4) Total BaP equivalent - Benzo (a) pyrene equivalent is calculated by multiplying the following individual PAH concentrations by their multiplier (#) and summing the results. Benzo (a) pyrene (1.00); Dibenzo (a,h) anthracene (1.00); Benzo (a) anthracene (0.10); Benzo (b) fluoranthene (0.10); Ideno (1,2,3-cd) pyrene (0.10); Benzo (k) fluoranthene (0.01); and Chrysene (0.01).*
*** New York State background concentration.*

*Data Qualifiers*
*U - The compound was not detected at the indicated concentration.*
*D - Indicates result from secondary dilution run.*
*J - Data indicates the presence of a compound that meets the identification criteria. The result is less than the quantitation limit but greater than zero. The concentration given is an approximate value.*
*B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.*
*P - For dual column analysis, the percent difference between the quantitated concentrations on the two columns is greater than 40%.*
** - For dual column analysis, the lowest quantitated concentration is being reported due to coeluting interference.*
*N - Presumptive evidence of a compound or element.*

A total of 12 groundwater samples plus a field duplicate, a rinsate blank, and a matrix spike (MS), and matrix spike duplicate (MSD) were collected. Well Purging and Sampling Logs are included in Appendix C. Analytical results for the groundwater samples are discussed in detail in Section 5.4, Site Contaminant Characterization. Based on the analytical results of the groundwater samples, two wells that yielded water with elevated total cyanide were resampled on January 4, 2007 for total cyanide and free cyanide.

## 2.8 Pilot Test for Field Analysis of Lead

A pilot test was performed on ash material collected from the filter cake/flue ash pile to determine the accuracy of a field measurement tool that can be used to measure the content of total lead in soils or other solids. Specifically, the pilot test was to determine if X-ray fluorescence (XRF) would produce reasonably accurate quantification of total lead in the ash during possible removal actions.

Five near-surface samples of the flue ash (FA-01 through FA-05) were collected from the 0.5 to 1.0 foot depth interval. Each sample was brought to an indoor location and allowed to equilibrate to room temperature. Each sample was placed in a zip-sealed plastic bag and was measured using the XRF gun five times for a period of 1 minute each. The five readings were recorded and averaged. A portion of each of the five samples was then placed into new glass sample jars and sent off-site for laboratory measurement of total lead. Results of the XRF and laboratory measurements of total lead in the flue ash samples are presented in Table 2-3. As seen on Table 2-3 and Figure 2-2, the correlation between the field screening results and the results from the analytical laboratory indicates that the field screening method would likely not provide the level of accuracy needed during remedial action thus requiring alternative on-site or off Site analysis of all samples.

## 2.9 Hydraulic Conductivity Testing

In-situ hydraulic conductivity tests were conducted to determine the hydraulic conductivity of the fill overburden in which the monitoring wells were completed.

Tests were conducted in all seven newly installed groundwater-monitoring wells. Hydraulic conductivity testing consisted of performing rising-head slug tests with the

MALCOLM PIRNIE

**TABLE 2-3**
**XRF PILOT STUDY ANALYTICAL RESULTS**
**BUFFALO LAKESIDE COMMERCE PARK - PARCEL 4**
**BUFFALO, NY**

| Sample Location | | NYSDEC TAGM 4046 (2) TCLP Limit (3) | Urban Background Concentrations(4) | FA-01 | FA-02 | FA-03 | FA-04 | FA-05 |
|---|---|---|---|---|---|---|---|---|
| Sampling Depth (ft. bgs)(1) | | | | (0.5 - 1.5) | (0.5 - 1.5) | (0.5 - 1.5) | (0.5 - 1.5) | (0.5 - 1.5) |
| Collection Date | UNITS | | | 1/27/2006 | 1/27/2006 | 1/27/2006 | 1/27/2006 | 1/27/2006 |
| **Inorganics / TAL Metals (mg/kg)** | | | | | | | | |
| Total Lead | mg/Kg | 400 | 200 - 500 | ***4440*** | ***11000*** | ***1940*** | ***1470*** | ***2490*** |
| **TCLP Lead (mg/L)** | | | | | | | | |
| TCLP Lead | | 5 | | 0.86 | 11.7 | 1.51 | 0.61 | 0.85 |
| **Lead - XRF Pilot Study** | | | | | | | | |
| Lead | | 400 (6) | 200 - 500 | 2,998 65 | 4,924 90 | 1,508 39 | 1,731 45 | 1,862 46 |
| | | 400 (6) | 200 - 500 | 3,102 69 | 4,718 87 | 1,443 38 | 1,487 41 | 1,640 43 |
| | | 400 (6) | 200 - 500 | 2,955 66 | 4,578 83 | 1,496 39 | 1,428 43 | 1,775 45 |
| | | 400 (6) | 200 - 500 | 3,018 Avg | 4,740 Avg | 1,482 Avg | 1,549 Avg | 1,759 Avg |

*Shaded and framed concentrations exceed TAGM values.*
*Bold/Italic values exceed upper limits of background concentrations.*

*(1) Sample depths in parentheseis ( ) represent depths of grab sample for VOC analysis.*
*(2) New York State Dept. of Environmental Conservation TAGM 4046, Recommended Soil Cleanup Objectives, Dec. 2000.*
*(3) Target Compound Leaching Procedure limit, above which is considered hazardous.*

*(4) TAL Inorganic Analytes from Eastern USA Background as shown in New York State Dept. of Environmental Conservation TAGM 4046, Dec. 2000.*

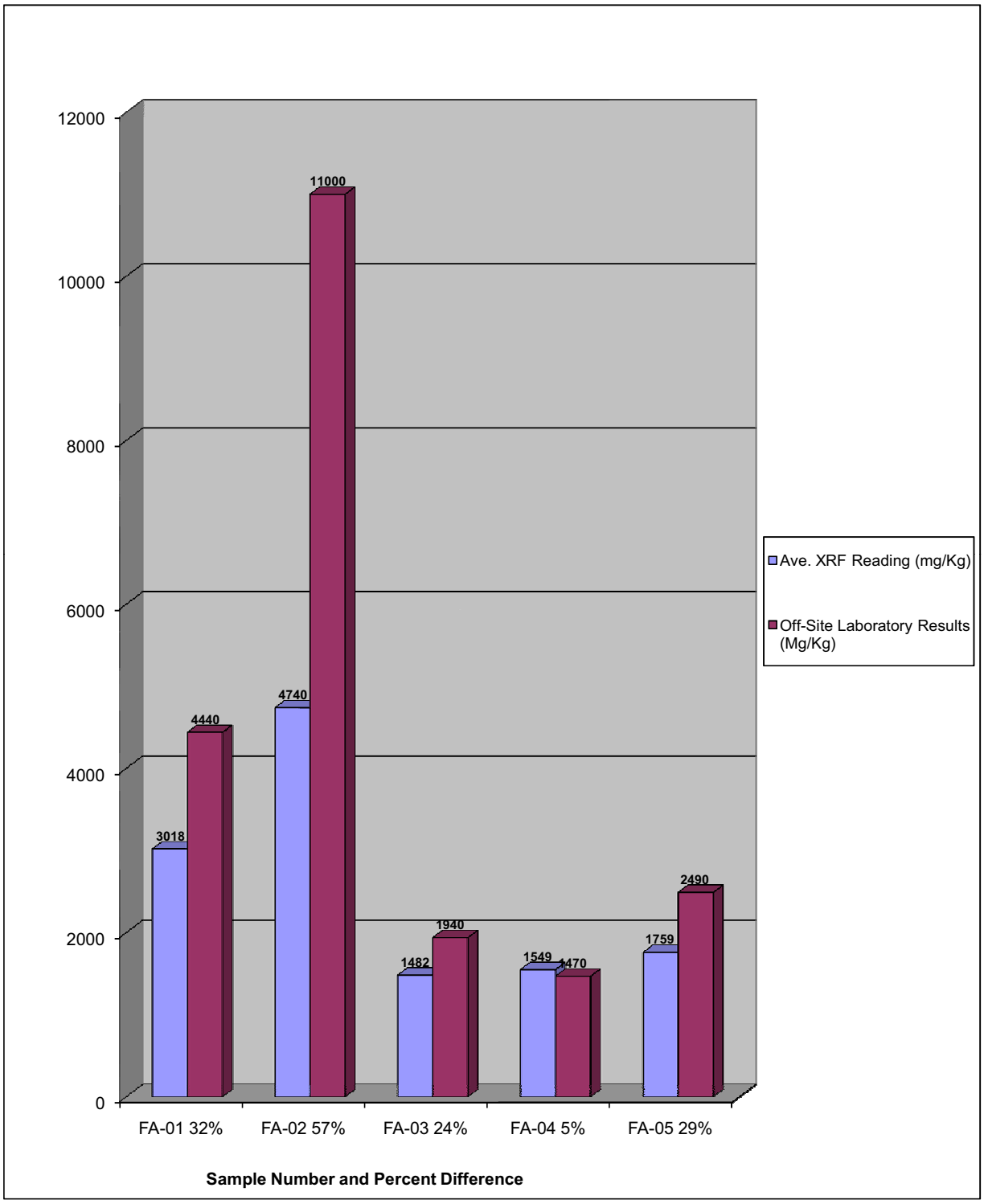
*NR - Not analyzed*


*Created by: BW Date: 05/16/2005*
*Checked by: MM Date: 07/07/2005*

excerpt from ***Site Investigation / Remedial Alternatives Report***, Malcolm Pirnie Inc., October 2008
(report.hw915193.2008-10-17.Site_Investigation_Remedial_Aternatives_SI_RA.pdf)

**FIGURE 2-2**

**XRF PILOT STUDY RESULTS**



# SUMMARY OF ANALYTICAL RESULTS - FILTER CAKE/FLUE ASH SAMPLES
# BUFFALO LAKESIDE COMMERCE PARK - PARCEL 4
# BUFFALO, NY
# SITE #915193

**Total Lead (mg/kg)**

| | **Recra 1988** | | **NYSDEC 1994** | | **ABB 1995** | | | **USEPA 2001** | | **MPI 2003** | | | **ERP 2006** | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| sample depth | (0.5-1.5') | | (0 - 0.5') | | (0 - 1.0') | | DUP | (2-4') | | subsurface | | | (0.5-1.5') | |
| sample location | SS-7 | 950 | A02 | 14800 | SS-101 | 4460 | 4460 | US-FA-01 | 1420 | TP-1 | NA | | FA-01 | 4440 |
| | SS-8 | 2600 | A03 | 6120 | SS-102 | 3240 | | US-FA-02 | NA | TP-2 | NA | | FA-02 | 11000 |
| | SS-9 | 6020 | A04 | 3450 | SS-103 | 523 | | US-FA-03 | NA | TP-3 | NA | | FA-03 | 1940 |
| | | | A05 | 9265 | SS-104 | 5880 | | US-FA-04 | NA | TP-4 | NA | | FA-04 | 1470 |
| | | | B01 | 12200 | | | | | | | | | FA-05 | 2490 |
| | | | C01 | 11350 | | | | | | | | | | |
| | | | C02 | 7940 | | | | | | | | | | |
| | | | C03 | 6650 | | | | | | | | | | |
| | | | C04 | 18250 | | | | | | | | | | |
| | | | C05 | 13560 | | | | | | | | | | |

**TCLP/EPTOX Lead (mg/L)**

| **Recra 1988** | EPTOX | **NYSDEC 1994** | EPTOX | **ABB 1995** | EPTOX | DUP | **USEPA 2001** | TCLP | **MPI 2003** | TCLP | DUP | **ERP 2006** | TCLP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COMP-1* | 0.31 | NA | NA | SS-101 | 0.41 | 0.352 | US-FA-01 | 0.209 | TP-1 | 0.0498 | | FA-01 | 0.86 |
| | | | | SS-102 | 0.752 | | US-FA-02 | 1.56 | TP-2 | 1.88 | | FA-02 | ***11.7*** |
| | | | | SS-103 | 0.0498 | | US-FA-03 | ***14.7*** | TP-3 | 2.78 | | FA-03 | 1.51 |
| | | | | SS-104 | 1.63 | | US-FA-04 | 0.256 | TP-4 | 0.761 | 1.95 | FA-04 | 0.61 |
| | | | | | | | | | | | | FA-05 | 0.85 |

Shaded and italicized concentration exceeded the hazardous waste threshold of 5 mg/L lead.

*COMP-1 was a composite of samples SS-7 to -9, collected from the filter cake/flue ash piles, and samples SS-3 to -6, which were collected from the Debris Disposal pile.

NA - not analyzed