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Project Site numbers will be proceeded by the following:

Municipal Brownfields - b
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LOCATED

Original

MALCOLM PIRNIE

CLEAN WATER/CLEAN AIR BOND ACT APPLICATION

HANNA FURNACE SITE
THE UNION SHIP CANAL AND 200-FOOT BUFFER AREA
(SUBPARCEL 3)

CITY OF BUFFALO

DOWNTOWN DEVELOPMENT INC.
BUFFALO, NEW YORK

JANUARY 2001

MALCOLM PIRNIE, INC.

P. O. Box 1938
Buffalo, New York 14219

APPLICATION

NYSDEC-1996 CLEAN WATER/CLEAN AIR BOND ACT
ENVIRONMENTAL RESTORATION PROJECTS-TITLE 5

Part 1

NAME OF APPLICANT (Municipality): City of Buffalo/Downtown Development Inc.

TYPE OF ENVIRONMENTAL RESTORATION PROJECT: (Check one) Investigation _X_ Remediation ___

PROJECT NAME: Hanna Furnace Site: Union Ship Canal and Surrounding 200-foot Buffer Area (Subparcel 3)_____

PROJECT LOCATION: STREET ADDRESS: 1818 Fuhrmann Boulevard, ¼ mile east of U.S. Rte: 5 and 3/8 mile south of Tifft St. (see Figure 1-1).

CITY/TOWN: Buffalo ZIP CODE: 14220 COUNTY: Erie

PROPERTY SIZE (acres): 29 (including the 9-acre canal and 20-acre Buffer area)
LATITUDE: _42° 50' 5" N_ LONGITUDE: _78° 51' 1" W____

APPLICANT CURRENTLY OWNS PROPERTY: YES __X__ NO ____
(If yes, include proof of ownership with application)

PROPERTY IS LISTED ON NYS REGISTRY OF INACTIVE HAZARDOUS WASTE SITES:
YES ___ NO _X_
(If yes, fill in current registry classification) CLASSIFICATION _____

TYPE OF KNOWN OR SUSPECTED CONTAMINATION: Petroleum ____ Other Hazardous Substances __X__

PROJECT DESCRIPTION: Please attach a description of the project which includes the following components:
(Refer to Environmental Restoration Projects Procedures Handbook for detailed instructions)

- Purpose and Scope of the Project;
- Environmental History of the Property;
- Proposed Future Use of the Property;
- Estimated Project Cost;
- Other Actual or Potential Funding Sources for the Project;
- How the Project Would Satisfy the Criteria of ECL 56-0505; and
- Site Maps (USGS quad map and a property tax map)

SCHEDULE: Field work will commence within 1-2 months of Department approval of the application.

Part 2 (To be completed for Remediation applications only)

The DEC has issued a Record of Decision for the property?
___Yes___No
Groundwater or a surface water body has been contaminated above standards.
If yes, answer a, b or c below: ___ a. The influent to a public or private water supply has been contaminated or threatened.
___ b. A class A or AA surface water body, primary or principal aquifer has been contaminated without affecting an existing water supply.
___ c. Groundwater has been contaminated above standards or a surface water has been impacted.
___Yes___No
A health advisory has been issued by a New York state or local health agency due to releases from the site.
___Yes___No
Endangered, threatened or rare species, State protected streams or State regulated wetlands have been impacted by releases from the site.
___Yes___No
Site contaminants are present in soils/waste at levels that exceed DEC Division of Environmental Remediation guidance values (DHWR TAGM 4046 or STARS Memo #1).
___Yes___No
Property is located in a designated economic development zone or zone equivalent area.
___Yes___No
All or part of the Property has been idle or abandoned for more than one year.
If yes, indicate the percent of the total property that applies _____ %
___Yes___No
Municipality has a signed agreement with a private party to reuse the property once it is restored. If yes, attach a copy of the agreement.
___Yes___No
Municipality has legally committed to a specific new public or recreational use of all or part of the property. (Public use includes, but is not limited to, public housing, daycare, education, gov't. offices, environmental centers, and museums. Recreational use includes, but is not limited to, parks, playgrounds, sports and cultural centers, and scenic vistas.) If yes, attach documentation of the legal committment and indicate below the intended use and the % of the total property area that will devoted for that use.
Intended Use: _____ (0-100%) ____
___Yes___No
Municipality is aware of other funding sources for remediating the property.
If yes, provide source(s) and dollar amount(s) in the attached project description.
___Yes___No
Municipality has complied with State Environmental Quality Review Act (SEQR) regarding this action.
If yes, include the determination (negative declaration or findings statement) in the attached project description and identify all involved agencies in the coordinated review.
___Yes___No

Part 3

INDIVIDUAL AUTHORIZED TO SIGN APPLICATION: (Please Print)

NAME Alan DeLisle TITLE President

MAILING ADDRESS Buffalo Economic Renaissance Corporation

617 Main Street, Buffalo, New York 14203

PHONE NUMBER: 842-6923 FAX NUMBER: 842-6943

CERTIFICATION: The undersigned on behalf of the applicant municipality does hereby certify that:

The Applicant has not generated, transported or disposed of, arranged for, or caused the generation, transportation or disposal of hazardous substance on that Property, and has not undertaken, and will not undertake, any indemnification obligation respecting a party responsible under law for the remediation of the Property; and

if the applicant leased such property to another party that generated, transported or disposed of, or that arranged for or caused the generation, transportation or disposal of hazardous substances on such property, the applicant did not know that such other party generated, transported or disposed of, arranged for or caused the generation, transportation or disposal of such hazardous substances or so knew and took action to remediate, or cause the remediation of such hazardous substances.

No other funding sources currently exist to undertake the project except the applicant's and those other sources identified in this application ;

All statements made for the purpose of obtaining State assistance for the proposed project either are set out in full on this application, or are set out in full in exhibits attached to this application and incorporated by this reference;

The individual whose signature appears hereon is authorized to sign this application for the applicant.

A FALSE STATEMENT MADE HEREIN IS PUNISHABLE AS A CLASS "A" MISDEMEANOR PURSUANT TO SECTION 210.45 OF THE PENAL LAW

Alan DeLisle

Signature of individual authorized to sign application Date 01/31/01

FOR STATE USE ONLY:

DATE RECEIVED _____ PROJECT NO. _____

DATE COMPLETE _____

DATE APPROVED _____

Rev. December 15, 1997

1.0 Purpose and Scope

The City of Buffalo has developed a conceptual redevelopment plan for the reuse of former industrial properties in South Buffalo. The redevelopment of the Hanna Furnace Site makes up an important portion of the redevelopment effort, and its redevelopment will spur the regeneration of South Buffalo.

The Hanna Furnace Site occupies approximately 113 acres at the southern edge of the City of Buffalo as shown on Figure 1-1. The site is bordered to the west by New York State Route 5, to the south by Lackawanna Commerce Park, to the east by railroad tracks, and to the north by railroad tracks, wetland areas, and the former Shenango furnace property. The Hanna Furnace Site includes the eastern portion of the Union Ship Canal. Based on its historic use, the City's current development needs and plans, and the findings of previous investigations, the Hanna Furnace Site was divided into four subparcels for characterization and redevelopment purposes.

This Bond Act Application has been created specifically for Subparcel 3, which includes the Union Ship Canal (approximately 8.7 acres) and the surrounding 200-foot Buffer Area (approximately 20.1 acres). As part of the proposed commercial/industrial redevelopment of the Hanna Furnace Site, Subparcel 3 will be investigated to fulfill the requirements of the New York State Department of Environmental Conservation (NYSDEC) Environmental Quality Bond Act (EQBA). A detailed work plan (attached) has also been created specifically for the investigation of Subparcel 3.

The detailed work plan was prepared by Malcolm Pirnie, Inc. The City of Buffalo, Development Downtown, Inc. (DDI) and Buffalo Economic Renaissance Corporation (BERC) used a competitive procurement process in 1998 to select Malcolm Pirnie, Inc. to assist with environmental analysis and remediation efforts associated with the South Buffalo redevelopment effort. The procurement process was performed in compliance with General Municipal Law. Details regarding the selection process can be provided if necessary. As such, the City intends to utilize Malcolm Pirnie to implement the attached work plan.

2.0 Site History

The southern portion of the Hanna Furnace Site was purchased and incorporated by the Buffalo Union Steel Corporation in 1900. The Union ship canal was constructed near the northern edge of the property in 1910 to provide the pig iron manufacturing operations access to barges with raw materials transported via Lake Erie. The canal was approximately 20 feet deep when it was constructed. Pig iron manufacturing commenced during the period of 1900 to 1915 with the construction of the blast furnaces. Following the construction of the blast furnaces, the Hanna Furnace Company acquired the property from Buffalo Union Steel. The National Steel Company subsequently purchased the property in 1929, and the new corporate entity became known as the Hanna Furnace Corporation. During peak production, the Hanna Furnace Corporation employed over 800 personnel at its facility in South Buffalo.

The Pennsylvania Railroad first owned the land to the north of the canal and used the property for unloading ores into train cars. The Hanna Furnace Corporation purchased approximately 25 acres of this property from the Pennsylvania Railroad in 1960. Swampy ponds with depths up to 15 feet occupied much of the property at the time. The swampy area was subsequently filled in with silty sand and gravel, with some black cinders, as described in Recra Environmental, Inc.'s 1988 report. Based on a review of aerial photographs, it appears that this area was subsequently used for the unloading and storage of iron ore and limestone.

Based on a review of Sanborn maps, the area immediately to the south of the canal and north of the manufacturing area was used to unload and store iron ore and limestone brought in to the site by ship and barge. Apparently, the limestone and ore were placed on massive concrete pads that occupy the bulk of the southern portion of Subparcel 3, and the concrete pads are four feet thick.

The Hanna Furnace Corporation ceased all operations during 1982 due to foreign competition, and due to the closure of the Shenango Furnace Company, a primary recipient of pig iron from Hanna Furnace. The Jordan Foster Scrap Corporation purchased the site in 1983 and subsequently dismantled the blast furnaces, the casting mill and several other buildings. The Jordan Foster Scrap Corporation filed for bankruptcy during 1986, and leased the site briefly to the Equity Scrap Processing Company. The Hanna Furnace Site has been essentially unoccupied and unsecured since 1986. The City of Buffalo gained title to the property in 1997 due to the non-payment of

taxes.

1.3 Environmental History

The New York State Department of Environmental Conservation (NYSDEC) prepared an "Inactive Hazardous Waste Disposal Site Report" regarding the Hanna Furnace Site in 1983. The NYSDEC subsequently identified the property as Site # 915029, and assigned the site a classification of "2A," indicating that the site was a potential hazardous waste site; but that insufficient data were available to properly characterize potential issues at the site. Following several environmental investigations at the site (see Section 2), ABB Environmental Services conducted a Preliminary Site Assessment of the Hanna Furnace Site in 1995 for the NYSDEC. The results of this investigation confirmed that contaminants present on the Hanna Furnace Site did not pose a serious threat to human health or the environment. Based on the results of this investigation, the Hanna Furnace Site was delisted from the registry of potential hazardous waste sites. The delisting of the Hanna Furnace Site provides the opportunity for funding under the 1996 Bond Act.

In addition to the 1995 investigation performed by the NYSDEC, several environmental investigations have been performed at the Hanna Furnace Site over the last 20 years by various agencies, none of which concluded that remedial action was necessary. However, the areas investigated at the Hanna Furnace Site have varied between investigations; therefore, it is important to keep in mind the area of investigation when evaluating and comparing data results and recommendations. Figure 1-3 shows the locations of samples collected in Subparcel 3 during these historical investigations. The following is a chronological summary of the significant site investigations performed at the Hanna Furnace Site and the results or recommendations of each:

- In 1979 Rupley, Bahler, and Blake, Consulting Engineers prepared a Solid Waste Management Facility Report for the Hanna Furnace Corporation. This report includes an evaluation of surface water quality in the Union Ship Canal and an on-site pond. The samples collected from the Canal contained phenols, cyanide, and iron at concentrations above NYSDEC Class C Water Quality Guidance Values. The historical surface water sampling results are shown in Table 1-1.

- In April 1982, after the cessation of pig iron manufacturing at the site, the Erie County Department of Environmental Protection inspected the site and prepared a report entitled "Inactive Site Profile Report". The report recommended that the NYSDEC downgrade the classification of the site to a "class F" which pertains to a

site where no further action is warranted and little to no environmental hazard potential exists.

- In 1983, the NYSDEC, after inspection of the site, prepared an "Inactive Hazardous Waste Disposal Site Report". The inactive landfill located on Subparcel 4 was assigned a site number (# 915029).

- Also in 1983, the United States Geological Survey (USGS) drilled and sampled seven test borings on the north side of the Union Ship canal. Samples from these borings were analyzed for chromium, copper, iron, and lead. In their report entitled "Draft Report of Preliminary Evaluation of Chemical Migration to the Niagara River from Hazardous Waste Disposal Sites in Erie and Niagara Counties," the USGS concluded that there was potential for lateral migration of contaminants at and away from the site. As shown in Table 1-2, the analysis of the five samples located in Subparcel 3 showed that the NYSDEC TAGM 4046 Soil Cleanup Objectives were exceeded for copper and iron.

- In 1985, a site inspection and Phase I investigation was performed for the NYSDEC by Engineering-Science and Dames & Moore. The Phase I investigation was limited to areas north of the Union Ship Canal and included a records search and scoring the site using the Hazard Ranking Scoring (HRS) system. The study area was assigned a score of 8.73 out of 100 in the Phase I report. Sites with scores greater than 28.5 are generally considered to pose an immediate threat to human health and the environment and are recommended for placement on the National Priorities List. Additional data needs were identified by the Phase I investigation and a Phase II investigation was recommended and outlined.

- In 1988, Recra Environmental, Inc. (Recra) performed a "Site Characterization and Environmental Assessment" for the New York State Department of Transportation. The characterization and assessment included the entire 113-acre site. The work involved the collection of samples of surface and subsurface soil/fill, surface water, sediment and groundwater, performance of a risk assessment, and an evaluation of remedial alternatives. The investigation included the collection and analysis of eight surface soil, six subsurface soil, three sediment, three surface water, and three groundwater samples in Subparcel 3.

The surface soil, surface water, and sediment samples were analyzed for arsenic, chromium, copper, lead, cyanide, oil and grease, ammonia, and PCBs, and the groundwater samples were analyzed for those parameters as well as VOCs, SVOCs, pesticides, and PCBs. The analytical results are summarized in Tables 1-1, 1-3, 1-4, and 1-5. Analytical results indicated that concentrations of the metals were detected in excess of the applicable guidelines in the surface soil, groundwater, and sediment samples. PCBs were detected at concentrations above the applicable guidelines in one of the

surface soil samples and the three sediment samples. No VOCs, SVOCs, or PCBs were detected in the groundwater samples, but two pesticides were detected at concentrations above the applicable guidelines.

The HRS score of the Hanna Furnace site was recalculated using the data collected from the site characterization. The revised HRS, as scored by Recra, remained low at 12.28 out of 100, and Recra concluded that the site does not pose an immediate threat to human health and the environment.

- In 1990, The NYSDEC collected and analyzed surface soil samples from the Former Production Area (Subparcel 2). No samples were collected in Subparcel 3 during this investigation.

- In 1994, the NYSDEC collected 36 surface soil samples from the Hanna Furnace Site, however; none were collected in Subparcel 3.

- In 1995, ABB Environmental Services performed a Preliminary Site Assessment (PSA) for the NYSDEC at the site. The PSA included not only the 113-acre Hanna Furnace site but also the adjacent Shenango Steel Site. The purpose of the PSA was to more thoroughly characterize the site, recalculate the site score using the HRS system, and reclassify the site. Of the sampling conducted during the PSA, one subsurface soil, one groundwater, four sediment, and four surface water samples were collected in Subparcel 3. The soil and groundwater samples were analyzed for Target Compound List (TCL) volatile organic compounds (VOCs), SVOCs, pesticides/PCBs, and Target Analyte List (TAL) metals plus cyanide.

The analytical results from the Preliminary Site Assessment are summarized in Tables 1-1, 1-2, 1-4, and 1-5. Analytical results for the surface soil samples indicated that no VOCs were detected at concentrations in excess the applicable guidelines in the samples, and PCBs were not detected in the samples. One pesticide and three SVOCs were detected at concentrations above the Sediment Criteria in the sediment samples. One SVOCs was also detected at a concentration above the Water Quality Standards in one of the surface water samples. Metals were detected at concentrations exceeding the applicable guidelines in samples collected from all four media sampled during this investigation.

No disposal of listed or characteristic hazardous waste was documented at the Hanna Furnace Site. Therefore, the NYSDEC removed the Hanna Furnace Site from its Registry of Inactive Hazardous Waste Disposal Sites.

- In 1997, Ecology and Environment, Inc. performed an Environmental Site Assessment for the Buffalo Urban Renewal Agency. The objective of the assessment was to summarize all available and pertinent environmental information, to identify variations in current site conditions relative to those defined in earlier investigations, and to identify potential areas of concern. The assessment involved a review of records as well as the performance of three site inspections.

The assessment report presented the findings in order of environmental concern by area. The report concluded that the elevated contaminant concentrations in the sediment samples were within expected ranges for industrial areas, and that these concentrations may become an issue if the canal is developed for non-industrial uses.

3.0 Proposed Investigation

Although several environmental investigations have been performed on the Hanna Furnace site, additional characterization of the Former Production Area will be required by the NYSDEC to fulfill the requirements for Environmental Quality Bond Act (EQBA). The proposed EQBA Investigation will provide the additional information necessary to complete the characterization of the Union Ship Canal and Buffer Area. Based on the historical use of the site and historical analytical results of sampling in and near this area, Malcolm Pirnie developed an investigation scope to more thoroughly characterize the Union Ship Canal and Buffer Area commensurate with the property's proposed intended end use.

The EQBA Investigation Work Plan will be submitted as a separate, detailed document, but the investigation will consist of the following elements:

3.1 Land Surrounding the Union Ship Canal (extending 200 feet from canal edge)

- Borings are proposed to be completed every 300 feet along side of the canal 100 feet from its edge.

- One additional boring shall be placed at the northeast end of the canal for a total of 15 borings.

- Two samples will be collected from every boring. One sample will be a surface soil sample (viz. 0 – 1 feet) and the second will be a composite subsurface soil collected from every split spoon interval of each boring. Each composite sample will be

analyzed for Target Compound List (TCL) semivolatile organic compounds (SVOCs), pesticides, polychlorinated benzenes (PCBs) and Target Analyte List (TAL) metals plus cyanide. TCL SVOCs, pesticides, PCBs, and TAL metals plus cyanide.

- A discrete sample will be collected from each of the borings from the interval with the highest PID measurement and analyzed for TCL volatile organic compounds (VOCs).

- Monitoring wells will be installed in four of the borings during drilling activities. The wells will be developed and sampled. The groundwater samples will be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and TAL metals plus cyanide.

3.2 Union Ship Canal Sediments

- Malcolm Pirnie will select ten sampling locations in the Union Ship Canal. The proposed sample pattern is based on an offset grid pattern across the canal and samples will be collected approximately every 300 feet. Seven sampling locations will be selected in this manner.

- Three additional locations will be sampled; one at the outlet of the canal and two at suspected discharge points into the canal.

- Malcolm Pirnie will collect thirty sediment samples from the ten sample locations in the canal. The samples will be collected from three sediment depths in order to segregate the layers of sediment.

- Samples will be collected using a vibracore sampler, from a boat or barge located in the canal. Each sample will be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and TAL metals plus cyanide.

3.3 Qualitative Risk Assessment

Following the collection of appropriate characterization information for Subparcel 3, Malcolm Pirnie will perform a Qualitative Risk Assessment, which includes both qualitative human and qualitative ecological health risk assessments. Each assessment seeks to identify relevant environmental media and chemicals of potential concern that may present a health risk to the populations in and around the vicinity of Subparcel 3 of the Hanna Furnace Site. The results of the qualitative risk assessment will be important in considering the potential for reuse of Subparcel 3 of the Hanna Furnace Site.

3.4 Report

All analytical results generated during the characterization of Area 3 will be validated by a third-party validator. The validator will evaluate the accuracy and precision of the analytical results and provide a Data Usability Summary Report (DUSR) detailing the results of the evaluation. Following receipt of the validated analytical results, Malcolm Pirnie will prepare a report detailing the results of the characterization activities. The report will include Malcolm Pirnie's recommendations for further characterization of Area 3, if any. If no additional characterization is required, the report will include a Qualitative Risk Assessment.

4.0 Proposed Future Use

The City of Buffalo intends to redevelop the terrestrial portion of the site (Subparcel 3) as greenspace and create a park-like setting that utilizes the canal as its focus. This greenspace will make the remaining portion of the Hanna Furnace Site significantly more attractive for redevelopment. The canal would be opened for recreational use including fishing, although swimming will likely be prohibited.

5.0 Estimated Project Costs

The City of Buffalo has estimated that its costs for the investigation are $115,000, as shown on Table 1. These costs consist of the consulting engineer's (Malcolm Pirnie, Inc.'s) estimated costs for the site investigation, which are detailed in Table 2.

6.0 Other Actual of Potential Funding Sources

Although the City is pursuing funding for other portions of this project (viz. construction) from various sources, there are no other funding sources for the investigation of Subparcel 3.

7.0 Evaluation of ECL 56-0505 Criteria

According to ECL 56-0505, the NYSDEC determines the eligibility of an environmental restoration project for state assistance under based upon the four criteria. These criteria

are listed below, and are followed by a discussion as to how Subparcel 3 of the Hanna Furnace Site meets these criteria.

a) The benefit to the environment realized by the expeditious remediation of the property proposed to be subject to such project.

Response: The investigation of Subparcel 3 of the Hanna Furnace Site will characterize the contamination known to be present in both the terrestrial and aquatic portions of the site, allowing for successful remediation of those contaminants. The long-term goal of the project is to create a park-like setting on the terrestrial portion of the site. This outcome will take poor habitat that contains contamination and replace it with an uncontaminated habitat much better suited for use by humans and wildlife. The remediation of contaminated sediments in the Union Ship Canal will also provide a significantly improved habitat for aquatic wildlife and allow for recreational use (viz., fishing) by humans. Additionally, as with all brownfield sites, the redevelopment of brownfields conserves greenspace, providing a substantial benefit to the environment.

b) The economic benefit to the state by the expeditious remediation of the property proposed to be subject to such project.

Response: The City of Buffalo has aggressively pursued the redevelopment of former industrial facilities throughout the City since the economic downturn in the area caused the closure of those facilities. This project represents the City's continued effort to redevelop and utilize former industrial sites to create job opportunities and restore a stable tax base.

The Hanna Furnace Site Redevelopment Plan includes the redevelopment of Subparcels 1 and 2 of the Hanna Furnace Site as light industrial/commercial properties. The creation of a park-like setting on Subparcel 3 would make those properties significantly more attractive, and thus marketable, to potential business owners.

c) The potential opportunity of the property proposed to be subject to such project to be used for public recreational purposes; and

Response: As discussed above, the Hanna Furnace Site Redevelopment Plan includes the creation of a park-like setting in Subparcel 3 specifically for public recreational use. This recreational area is envisioned to utilize the Union Ship Canal as its focus, with activities including walking and fishing planned.

d) The opportunity for other funding sources to be available for the remediation of such property, including, but not limited to, enforcement actions against responsible parties (other than the municipality to which state assistance was provided under this title; or a successor in title, lender, or lessee who was not otherwise a responsible party prior to such municipality taking title to the

property), state assistance payments pursuant to title thirteen of article twenty-seven of this chapter, and the existence of private parties willing to remediate such property using private funding sources. Highest priority shall be granted to projects for which other such funding sources are not available.

Response: At this time, there are no other known or potential sources of funding for the investigation of Subparcel 3 of The Hanna Furnace Site. Although the City has initiated discussion with the U. S. Army Corps of Engineers regarding dredging of the canal sediment, no agreement has been reached.

8.0 Site Maps

A USGS Quadrangle Map (Figure 1-1) and a property tax map (Figure 1-4) have been attached.

TABLE 1-1

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - SURFACE WATER
HANNA FURNACE - SUBPARCEL 3

ANALYTES [1]	Canal	SW-103	SW-104	SW-105	SW-106	SW-107	SW-A	SW-B	SW-C	NYSDEC Class C Standards [2]
	1979	10/12/94	10/11/94	10/12/94	10/11/94	10/12/94	3/16/88	3/16/88	3/16/88	
	Rupley	ABB	ABB	ABB	ABB	ABB	RECRA	RECRA	RECRA	
TCL VOLATILE ORGANIC COMPOUNDS (ug/L)										
Total VOCS	-						-	-	-	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/L)										
Bis(2-Ethylhexyl)phthalate	-		1.0 J				-	-	-	0.6
4-Methylphenol	-				2.0 J		-	-	-	5.0
PESTICIDES / PCBs (ug/L)										
Total Pesticides	-						-	-	-	NA
Total PCBs	-									NA
INORGANIC ANALYTES (ug/L)										
Aluminum	-		289 J		21700 J		-	-	-	100
Arsenic	-				16.6					190
Barium	-	21 J	21.6 J	21 J	212	18 J	-	-	-	NA
Calcium	-	36000	37900	34700	134000	30700	-	-	-	NA
Chromium	-				59.8		10	9		HD
Copper	-				127		6			HD
Iron	1090						-	-	-	300
Lead	-		9.4 J		455		-	-	-	HD
Magnesium	-	8770	8220	8670	22800	8710	-	-	-	NA
Mercury	-				0.54		-	-	-	0.2
Nickel	-				79.9		-	-	-	HD
Potassium	-	3510 J	4370 J	3000 J	6140	911 J	-	-	-	NA
Sodium	-	14100	12500	14100	13000	12,000	-	-	-	NA
Vanadium	-				60.7		-	-	-	14
Zinc	-		65.2 J		1180 J		-	-	-	HD
Cyanide	20									5.2
OTHER ANALYTES										
pH	-	8.6	7.8	8.6	8.1	8.6	-	-	-	NA
Ammonia (mg/L)	0.13	-	-	-	-	-				NA
Oil & Grease total (mg/L)	-	-	-	-	-	-				NA
Phenolics total (mg/L)	0.004	-	-	-	-	-				0.001

Notes:
(1) Only those parameters having a value above the laboratory detection limit, and found at a minimum of one location are shown.
(2) NYSDEC Water Quality Guidance Values for Class C Waters from NYS Ambient Water Quality Standards and Guidelines (June 1998).
"-" - Parameter not analyzed.
Blank space indicates analyte was not detected.
Shading indicates guidance criteria was exceeded.
J - Indicates an estimated value.
NA - Water Quality Standard or Guideline not available.
HD - Guidance Value dependent on water hardness. Hardness and Guidance Values were calculated for those samples with results for calcium and magnesium.

TABLE 1-2

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - SUBSURFACE SOIL
HANNA FURNACE - SUBPARCEL 3

ANALYTES[1]	TB-3 6.5' 08/02/82 USGS	TB-4 5.5' 08/02/82 USGS	TB-5 6.0' 08/02/82 USGS	TB-6 5.5' 08/02/82 USGS	TB-7 10' 08/02/82 USGS	BS-101 4-6' 10/20/94 ABB	NYSDEC TAGM VALUES[2]	EASTERN U.S. BACK-GROUND RANGE[2]
TCL VOLATILE ORGANIC COMPOUNDS (ug/kg)								
Total VOCS	-	-	-	-	-		NA	NA
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
Phenanthrene	-	-	-	-	-	81 J	50,000	NA
2-Methylnaphthalene	-	-	-	-	-	110 J	36,400	NA
Naphthalene	-	-	-	-	-	110 J	13,000	NA
PESTICIDES/PCBs (ug/kg)								
Total Pesticides/PCBS	-	-	-	-	-		NA	NA
INORGANIC ANALYTES (mg/kg)								
Aluminum	-	-	-	-	-	29900 J	SB	33000
Arsenic	-	-	-	-	-	35.1 J	7.5 or SB	3 - 12
Barium	-	-	-	-	-	224 J	300 or SB	15 - 600
Beryllium	-	-	-	-	-	2.4 J	.016 or SB	0 - 1.75
Cadmium	-	-	-	-	-	2.4 J	(10)	0.1-1
Calcium	-	-	-	-	-	249000 J	SB	130-35000
Chromium	6	3	4	10	3	53.4 J	(50)	1.5 - 40
Cobalt	-	-	-	-	-	13.7 J	30 or SB	2.5 - 60
Copper	4	11	11	28	12	31.7 J	25 or SB	1 - 50
Iron	18700	3700	4200	6000	5000	19300 J	2000 or SB	2000 - 550000
Lead	10	20	30	30	10	144 J	(1000)	4 - 500
Magnesium	-	-	-	-	-	5360 J	SB	100 - 5000
Manganese	-	-	-	-	-	216 J	SB	50 - 5000
Nickel	-	-	-	-	-	25.6 J	13 or SB	0.5 - 25
Potassium	-	-	-	-	-	53600 J	SB	8500 - 43000
Sodium	-	-	-	-	-	2090 J	SB	6,000 - 8,000
Thallium	-	-	-	-	-	4.2 J	SB	NA
Vanadium	-	-	-	-	-	62.2 J	150 or SB	1 - 300
Zinc	-	-	-	-	-	491 J	20 or SB	9 - 50

Notes:
(1) Only those parameters having a value above the laboratory detection limit, and found at a minimum of one location are shown.
(2) Soil Cleanup Guidelines from NYSDEC TAGM 4046 (1/24/94). Value in parentheses are NYSDEC revised values for nonresidential sites but have not yet been incorporated into TAGM 4046.
"-" - Parameter not analyzed.
"" - Guidance value is for the sum of these compounds.
Blank space indicates analyte was not detected.
Shading indicates guidance criteria or background range, when no guidance value available, was exceeded.
J - Indicates an estimated value.
SB - Site background concentration.
NA - Soil cleanup guideline or background range not available.

TABLE 1-3

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - SURFACE SOIL
HANNA FURNACE - SUBPARCEL 3

ANALYTES[1]	SS-1 0-1' 12/31/87 RECRA	SS-10 0-1' 12/31/87 RECRA	SS-11 0-1' 01/06/88 RECRA	SS-12 0-1' 01/06/88 RECRA	SS-14 0-1' 01/06/88 RECRA	SS-15 0-1' 01/06/88 RECRA	SS-16 0-1' 01/06/88 RECRA	SS-18 0-1' 01/06/1988 RECRA	NYSDEC TAGM VALUES[2]	EASTERN U.S. BACK-GROUND RANGE[2]
POLYCHLORINATED BIPHENYLS (ug/kg)										
Aroclor 1242						390	1000		1000*	NA
Aroclor 1254							430		1000*	NA
INORGANIC ANALYTES (mg/kg)										
Arsenic	7.5	10	11	6	91	12	9	2.1	7.5 or SB	3 - 12
Chromium	14	16	8.7	11	40	390	170	7.1	(50)	1.5 - 40
Copper	27	36	79	79	420	190	410	15	25 or SB	1 - 50
Cyanide	6.3	2.7	290	12	29	370	22	2.8	NA	NA
Lead	52	180	110	96	1100	370	2300	44	(1000)	4 - 500
OTHER ANALYTES										
Ammonia (ug/g)	52	53	27	43	64	60			NA	NA
Oil & Grease total (ug/g)	340	380	520	320	2100	440	3900	520	NA	NA
Phenolics (ug/g)									NA	NA

Notes:
(1) Only those parameters having a value above the laboratory detection limit, and found at a minimum of one location are shown.
(2) Soil Cleanup Guidelines from NYSDEC TAGM 4046 (1/24/94). Value in parentheses are NYSDEC revised values for nonresidential sites but have not yet been incorporated into TAGM 4046.
"*" - Guidance value is for the sum of these compounds.
Blank space indicates analyte was not detected.
Shading indicates guidance criteria or background range, when no guidance value available, was exceeded.
SB - Site background concentration.
NA - Soil cleanup guideline or background range not available.

TABLE 1-4

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - GROUNDWATER
HANNA FURNACE - SUBPARCEL 3

ANALYTES [1]	MW-101 [3] 11/29/94 ABB	MW - 5 3/15/88 RECRA	MW - 6 3/15/88 RECRA	MW - 7 3/15/88 RECRA	NYSDEC Class GA Standards [2]
VOLATILE ORGANIC COMPOUNDS (ug/L)					
Total VOCS					NA
SEMI-VOLATILE ORGANIC COMPOUNDS (ug/L)					
Naphthalene	ND/2.0 J				10
2,4-Dimethylphenol	ND/1.0 J				50
Bis(2-Ethylhexyl)phthalate	ND/2.0 J				5
4-Methylphenol	2.0 J/3.0 J				1
Pentachlorophthalate	1.0 J/ND				NA
PESTICIDES / PCBs (ug/L)					
Aldrin		0.012			ND
Endosulfan Sulfate			0.094		NA
Heptachlor		0.120	0.081	0.080	0.04
Endrin Ketone		0.012			5
Methoxychlor		0.160		0.085	35
INORGANIC ANALYTES (ug/L)					
Aluminum	797/881	-	-	-	NA
Arsenic		7	-	9	25
Barium	100 J/104 J	-	-	-	1000
Calcium	110000/114000	-	-	-	NA
Chromium	12.9 J/17.7	18	13	10	50
Copper		41	23	31	200
Cyanide	3090/2960	-	490	81	200
Iron	1100/1180	-	-	-	300
Lead				50	25
Magnesium	8770/8800	-	-	-	35000
Potassium	823000/86100	-	-	-	NA
Selenium	8.0 J/12.2 J	-	-	-	10
Sodium	64800/65800	-	-	-	20000
Vanadium	24.1 J/25.6 J	-	-	-	NA
OTHER ANALYTES					
pH	12.3	-	-	-	NA
Ammonia (mg/L)	-	5.7	1.3	4.5	NA
Oil & Grease total (mg/L)	-				NA
Phenolics total (mg/L)	-	0.02		0.013	1

Notes:
(1) Only those parameters having a value above the laboratory detection limit, and found at a minimum of one location are shown.
(2) NYSDEC Water Quality Guidance Values for Class GA Waters from NYS Ambient Water Quality Standards and Guidelines (June 1998).
(3) Analytical results for sample and duplicate sample.
"-" - Parameter not analyzed.
Blank space indicates analyte was not detected.
Shading indicates guidance criteria was exceeded.
J - Indicates an estimated value.
NA - Water Quality Standard or Guideline not available.

TABLE 1-5

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - CANAL SEDIMENTS
HANNA FURNACE - SUBPARCEL 3

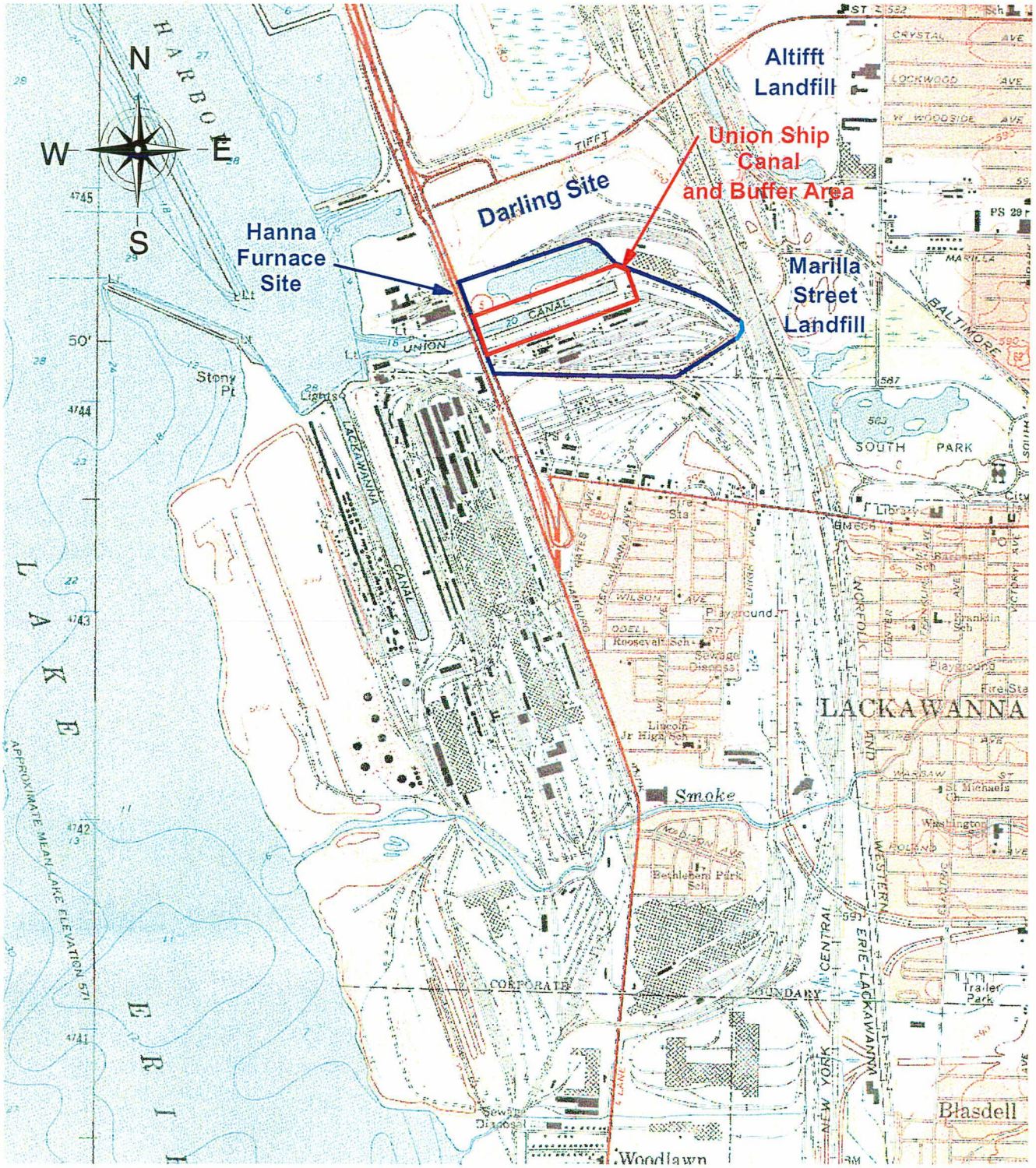
ANALYTES[1]	SD-103 10/12/94 ABB	SD-104 10/11/94 ABB	SD-105 10/12/94 ABB	SD-107 10/12/94 ABB	SD-A 3/16/88 RECRA	SD-B 3/16/88 RECRA	SD-C 3/16/88 RECRA	NYSDEC Sediment Criteria[2]
VOLATILE ORGANIC COMPOUNDS (ug/kg)								
Acetone				12 J	-	-	-	NA
2-Butanone		3 J			-	-	-	NA
Tetrachloroethene				3 J	-	-	-	8
SEMIVOLATILE ORGANIC COMPOUNDS (ug/kg)								
1,2,4 - Trichlorobenzene				760	-	-	-	9100
2 - Methylnaphthalene		86 J			-	-	-	NA
4 - Methylphenol				80 J	-	-	-	5
Acenaphthene				85 J	-	-	-	NA
Acenapthylene			410 J	630	-	-	-	NA
Anthracene			330 J	1800	-	-	-	NA
Phenanthrene	160 J	240 J	440 J	3600	-	-	-	1200
Fluoranthene	280 J	590 J	1800 J	4000	-	-	-	10200
Pyrene	290 J	710 J	4800	4800	-	-	-	NA
Chrysene	220 J	700 J	3100	2800	-	-	-	NA
Benzo (b) fluoranthene	100 J	790 J	2300 J	1600	-	-	-	NA
Benzo (k) fluoranthene	75 J	770 J	2200 J	1100	-	-	-	NA
Bis(2-ethylhexyl)phthalate	87 J		720 J	220 J	-	-	-	1995
Benzo (a) pyrene	46 J	690 J	2400 J	1600	-	-	-	13
Dibenzofuran				330 J	-	-	-	NA
Fluorene				680	-	-	-	NA
Carbazole				96 J	-	-	-	NA
Ideno (1,2,3-cd) pyrene		290 J		440 J	-	-	-	NA
Benzo (ghi) perylene		130 J	940 J	340 J	-	-	-	NA
Benzo (a) anthracene	120 J	430 J	2000 J	2700	-	-	-	NA
PESTICIDES/PCBS (ug/kg)								
4,4' - DDD	2.7 J		R	R	-	-	-	0.1
Aroclor 1248			R	R	350	470	230	0.008*
Aroclor 1260			R	R	260	180	150	0.008*
INORGANIC ANALYTES (mg/kg)								
Aluminum	19600	7260	6230	4870	-	-	-	NA
Arsenic	9	3 J	21.4	6.1	22	33	25	2.0
Barium	188	81.2	77.3	70.8	-	-	-	NA
Beryllium	3.5	1			-	-	-	NA
Cadmium	1.8 J	2.2 J	2.8 J		-	-	-	0.6
Calcium	159000	72500	42500	154000	-	-	-	NA

TABLE 1-5

SUMMARY OF HISTORICAL ANALYTICAL RESULTS - CANAL SEDIMENTS
HANNA FURNACE - SUBPARCEL 3

ANALYTES[1]	SD-103 10/12/94 ABB	SD-104 10/11/94 ABB	SD-105 10/12/94 ABB	SD-107 10/12/94 ABB	SD-A 3/16/88 RECRA	SD-B 3/16/88 RECRA	SD-C 3/16/88 RECRA	NYSDEC Sediment Criteria[2]
Chromium	10.8	48.6	37.3 J	38.8 J	79	77	80	26.0
Cobalt	5 J	8.6 J	9.3 J		-	-	-	NA
Copper	23.4	30.7	82.4	14.1	200	170	130	16.0
Cyanide					120	130	28	NA
Iron	43400	46600	82300	11000	-	-	-	2000000
Lead	84.2	132	333	45.4	980	1440	650	31.0
Magnesium	18200	6200	16900	7320	-	-	-	NA
Manganese	2500	1270	3020	420	-	-	-	460.0
Mercury		0.1			-	-	-	0.15
Nickel	11.2	17.1	28.8		-	-	-	16.0
Potassium	1640	1410	335 J	591 J	-	-	-	NA
Sodium	530 J	496 J		260 J	-	-	-	NA
Vanadium	20.6	20.2	34.8	11.9 J	-	-	-	NA
Zinc	392	846	799	161	-	-	-	120.0
EPTOX Metals (ug/L)								
Barium	1520	588	834	1430	-	-	-	NA
Cadmium	5.2 J			2.3 J	-	-	-	NA
Chromium	9.7	9.2 J		11.6	-	-	-	NA
Lead		153		31.5	-	-	-	NA
Silver		3.8 J			-	-	-	NA
OTHER ANALYTES								
Ammonia (ug/g)	-	-	-	-	110	83		NA
Oil & Grease total (ug/g)	-	-	-	-	14,300	19000	14200	NA
Phenolics total (ug/g)	-	-	-	-	1.8		2.1	NA

Notes:
(1) Only those parameters having a value above the laboratory detection limit, and found at a minimum of one location are shown.
(2) Sediment Criteria from NYSDEC Technical Guidance for Screening Contaminated Sediments (July 1994). These conservative criteria were derived using the lowest sediment criteria in the guidance document and an organic content of 1 percent.
"-" - Parameter not analyzed.
"*" - Guidance value is for the sum of these compounds.
Blank space indicates analyte was not detected.
Shading indicates guidance criteria was exceeded.
J - Indicates an estimated value.
SB - Site background concentration.
NA - Sediment Criteria not available.

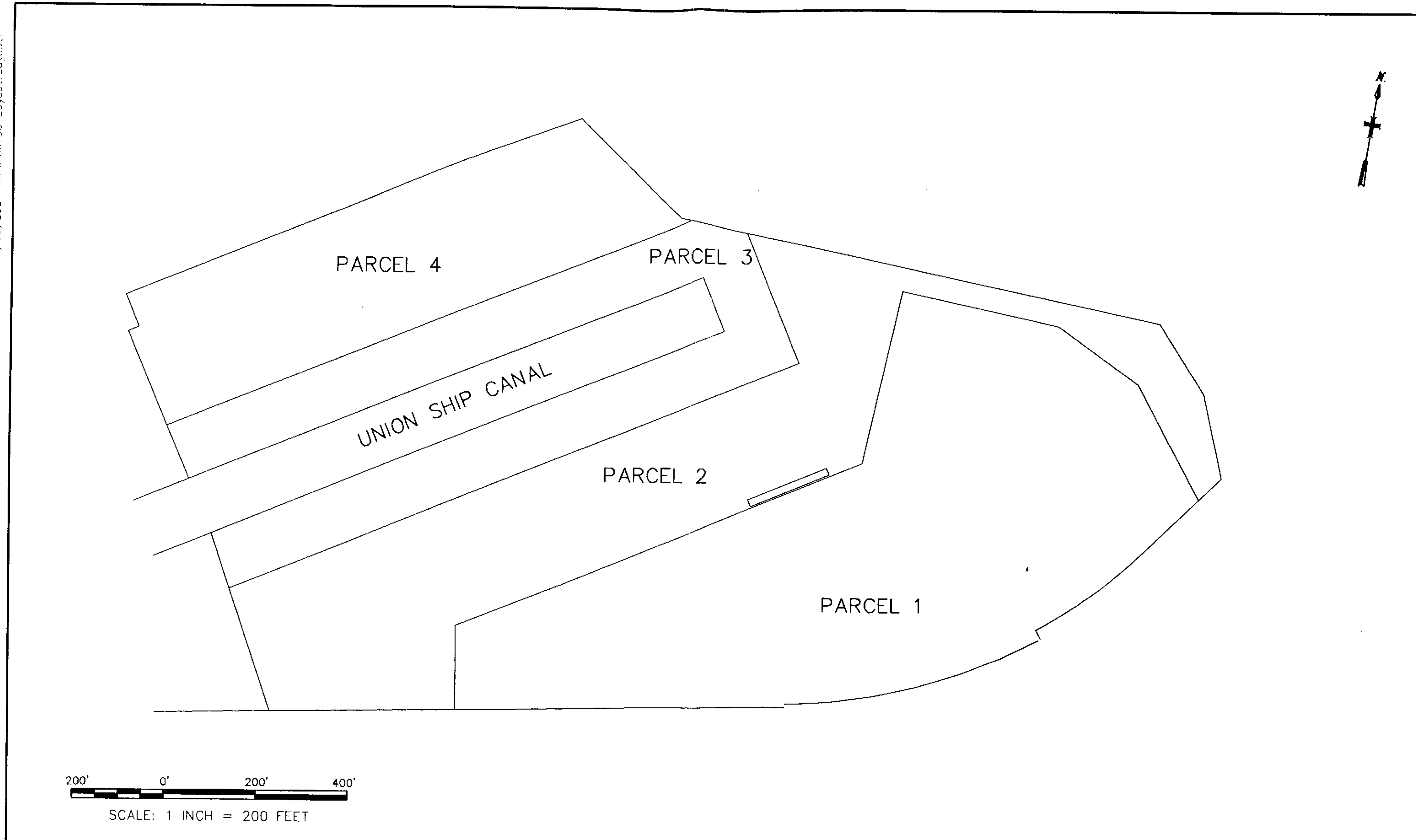


Source: Buffalo SE, NY USGS Quadrangle

0 2500 feet

APPROXIMATE SCALE

MALCOLM PIRNIE JAN 2001 4080-001-400	**HANNA FURNACE SITE - UNION SHIP CANAL AND BUFFER AREA (SUBPARCEL 3)** BUFFALO, NEW YORK	**FIGURE 1-1** **SITE LOCATION MAP**

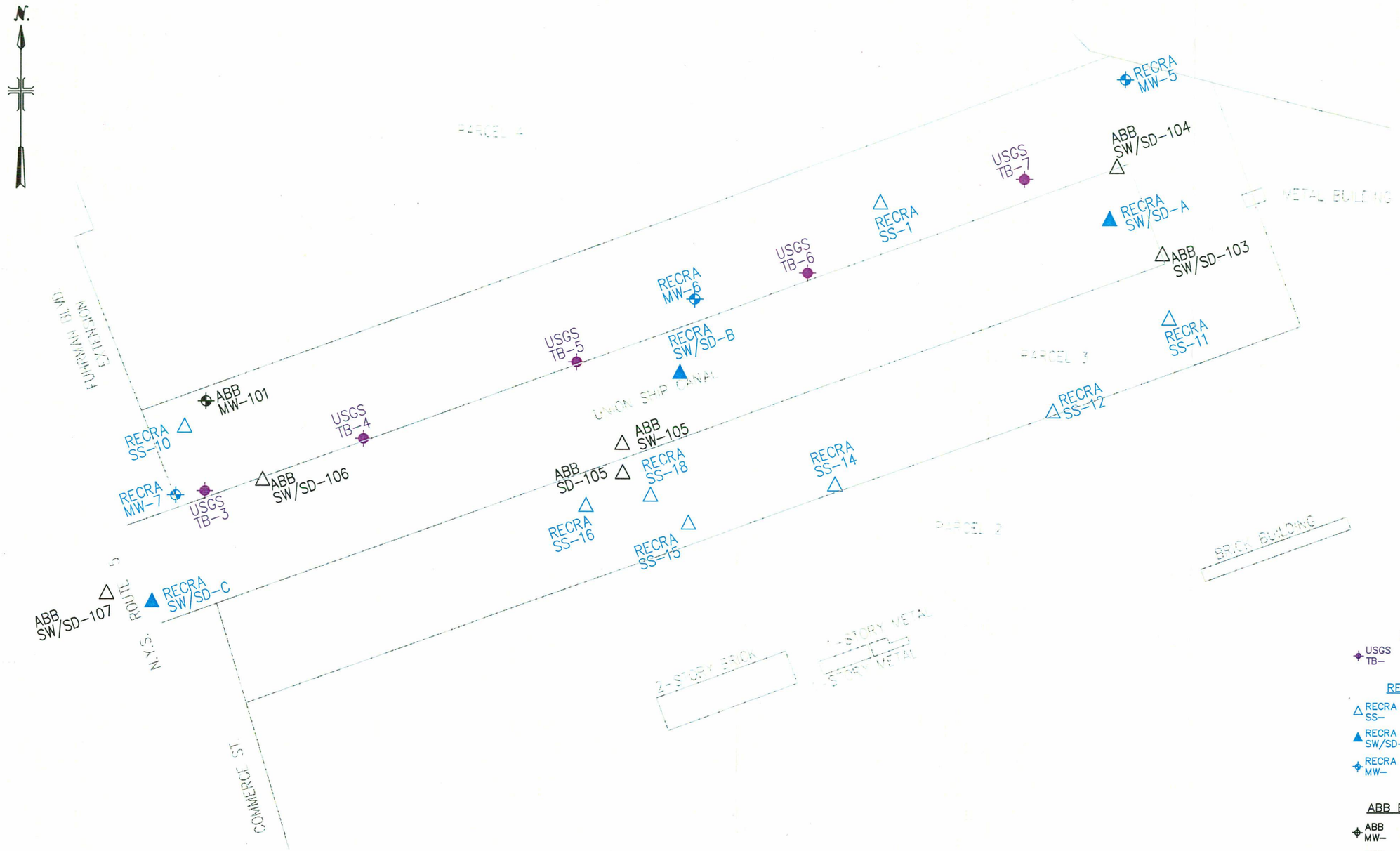


MALCOLM PIRNIE
12/00 4080F003

ENVIRONMENTAL QUALITY BOND ACT INVESTIGATION
SUBPARCEL 3
HANNA FURNACE SITE
BUFFALO, NEW YORK

FIGURE 1-2

SITE MAP



LEGEND

US GEOLOGICAL SURVEY

- USGS TB– = SOIL BORING, 1982

RECRA ENVIRONMENTAL, INC.

- RECRA SS– = SURFACE SOIL SAMPLE, 1988
- RECRA SW/SD– = SURFACE WATER/SEDEMENT SAMPLE PAIR, 1988
- RECRA MW– = MONITORING WELL (DESTROYED), 1988

ABB ENVIRONMENTAL SERVICES, INC.

- ABB MW– = MONITORING WELL LOCATION, 1995
- ABB SS– = SURFACE SOIL SAMPLE LOCATION, 1995
- ABB SW/SD– = SURFACE WATER/SEDEMENT SAMPLE LOCATION, 1995
- = SOIL/FILL PILE

NOTE:
ALL SAMPLING LOCATIONS ARE ESTIMATED

MALCOLM PIRNIE

12/00 4080F001

ENVIRONMENTAL QUALITY BOND ACT INVESTIGATION

SUBPARCEL 3
HANNA FURNACE SITE
BUFFALO, NEW YORK

FIGURE 1–3

HISTORICAL SAMPLING LOCATIONS

APPLICATION

NYSDEC-1996 CLEAN WATER/CLEAN AIR BOND ACT
ENVIRONMENTAL RESTORATION PROJECTS-TITLE 5

Part 1

NAME OF APPLICANT (Municipality): City of Buffalo/Downtown Development Inc.

TYPE OF ENVIRONMENTAL RESTORATION PROJECT: (Check one) Investigation _X_ Remediation ___

PROJECT NAME: Hanna Furnace Site: Union Ship Canal and Surrounding 200-foot Buffer Area (Subparcel 3)_____

PROJECT LOCATION: STREET ADDRESS: 1818 Fuhrmann Boulevard, ¼ mile east of U.S. Rte. 5 and 3/8 mile south of Tifft St. (see Figure 1-1).

CITY/TOWN: Buffalo ZIP CODE: 14220 COUNTY: Erie

PROPERTY SIZE (acres): 29 (including the 9-acre canal and 20-acre Buffer area)
LATITUDE: _42° 50' 5" N_ LONGITUDE: _78° 51' 1" W____

APPLICANT CURRENTLY OWNS PROPERTY: YES __X__ NO ____
(If yes, include proof of ownership with application)

PROPERTY IS LISTED ON NYS REGISTRY OF INACTIVE HAZARDOUS WASTE SITES:
YES ___ NO _X_
(If yes, fill in current registry classification) CLASSIFICATION _____

TYPE OF KNOWN OR SUSPECTED CONTAMINATION: Petroleum ____ Other Hazardous Substances __X__

PROJECT DESCRIPTION: Please attach a description of the project which includes the following components:
(Refer to Environmental Restoration Projects Procedures Handbook for detailed instructions)

- Purpose and Scope of the Project;
- Environmental History of the Property;
- Proposed Future Use of the Property;
- Estimated Project Cost;
- Other Actual or Potential Funding Sources for the Project;
- How the Project Would Satisfy the Criteria of ECL 56-0505; and
- Site Maps (USGS quad map and a property tax map)

SCHEDULE: Field work will commence within 1-2 months of Department approval of the application.

Part 2 (To be completed for Remediation applications only)

The DEC has issued a Record of Decision for the property?
___Yes___No
Groundwater or a surface water body has been contaminated above standards.
If yes, answer a, b or c below: ___ a. The influent to a public or private water supply has been contaminated or threatened.
___ b. A class A or AA surface water body, primary or principal aquifer has been contaminated without affecting an existing water supply.
___ c. Groundwater has been contaminated above standards or a surface water has been impacted.
___Yes___No
A health advisory has been issued by a New York state or local health agency due to releases from the site.
___Yes___No
Endangered, threatened or rare species, State protected streams or State regulated wetlands have been impacted by releases from the site.
___Yes___No
Site contaminants are present in soils/waste at levels that exceed DEC Division of Environmental Remediation guidance values (DHWR TAGM 4046 or STARS Memo #1).
___Yes___No
Property is located in a designated economic development zone or zone equivalent area.
___Yes___No
All or part of the Property has been idle or abandoned for more than one year.
If yes, indicate the percent of the total property that applies _____ %
___Yes___No
Municipality has a signed agreement with a private party to reuse the property once it is restored. If yes, attach a copy of the agreement.
___Yes___No
Municipality has legally committed to a specific new public or recreational use of all or part of the property. (Public use includes, but is not limited to, public housing, daycare, education, gov't. offices, environmental centers, and museums. Recreational use includes, but is not limited to, parks, playgrounds, sports and cultural centers, and scenic vistas.) If yes, attach documentation of the legal committment and indicate below the intended use and the % of the total property area that will devoted for that use.
Intended Use: _____ (0-100%) ____
___Yes___No
Municipality is aware of other funding sources for remediating the property.
If yes, provide source(s) and dollar amount(s) in the attached project description.
___Yes___No
Municipality has complied with State Environmental Quality Review Act (SEQR) regarding this action.
If yes, include the determination (negative declaration or findings statement) in the attached project description and identify all involved agencies in the coordinated review.
___Yes___No

Part 3

INDIVIDUAL AUTHORIZED TO SIGN APPLICATION: (Please Print)

NAME _____ TITLE _____

MAILING ADDRESS _____

_____

PHONE NUMBER: _____ FAX NUMBER: _____

CERTIFICATION: The undersigned on behalf of the applicant municipality does hereby certify that:

The Applicant has not generated, transported or disposed of, arranged for, or caused the generation, transportation or disposal of hazardous substance on that Property, and has not undertaken, and will not undertake, any indemnification obligation respecting a party responsible under law for the remediation of the Property; and

if the applicant leased such property to another party that generated, transported or disposed of, or that arranged for or caused the generation, transportation or disposal of hazardous substances on such property, the applicant did not know that such other party generated, transported or disposed of, arranged for or caused the generation, transportation or disposal of such hazardous substances or so knew and took action to remediate, or cause the remediation of such hazardous substances.

No other funding sources currently exist to undertake the project except the applicant's and those other sources identified in this application ;

All statements made for the purpose of obtaining State assistance for the proposed project either are set out in full on this application, or are set out in full in exhibits attached to this application and incorporated by this reference;

The individual whose signature appears hereon is authorized to sign this application for the applicant.

A FALSE STATEMENT MADE HEREIN IS PUNISHABLE AS A CLASS "A" MISDEMEANOR PURSUANT TO SECTION 210.45 OF THE PENAL LAW

_____ _____

Signature of individual authorized to sign application Date

FOR STATE USE ONLY:

DATE RECEIVED _____ PROJECT NO. _____

DATE COMPLETE _____

DATE APPROVED _____

Rev. December 15, 1997