Bruno/Brickyard Associates/Alonzo Site
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2. Phase I Environmental Site Assessment

2.1 Site Location, Description, and Environmental Setting

The Bruno/Brickyard Associates/Alonzo Final Candidate Site (FCS) is located in the Hudson-Mohawk Lowland physiographic province. The topography of this province has been produced primarily by erosion along outcrop belts of sedimentary rocks that lie between the Catskills and the metamorphosed shale hills of the Taconics. The province generally has low relief and elevation and is underlain by Ordovician shales that have been exposed by the erosion of Silurian and Devonian limestones (University of the State of New York 1966). The site comprises three parcels of different ownership. Site photos are found in Appendix A.

2.1.1 Bruno

The approximately 72-acre Bruno parcel group is located in the town of Schaghticoke and is on the east side of the Hudson River at river mile 166.5 (see Figure 2-1). It is owned by a private citizen and consists of three mostly wooded areas characterized by a relatively moderate west-to-east incline throughout, no river frontage, and an abutting railroad right-of-way (ROW). It is not currently developed. One area is west of Knickerbocker Road, and the other two are east of Knickerbocker Road. The westernmost area is bordered to the west by the Alonzo property, to the north by the rail ROW, and to the south by a golf course operation. The eastern areas are bordered on the east by Brickyard Associates and on the west by Knickerbocker Road and the rail ROW.

There are no structures. Two dirt roads, one open and one overgrown, lead into the central area of the property; the western and eastern areas do not contain roads or established paths. While the westernmost parcel contains scrub vegetation and grassland, forestland with minor scrub vegetation dominates the central and eastern areas.

No rock outcrop was noted on the Bruno property. While no utility services are located on these parcels, electrical service is present on Knickerbocker Road. Water service also extends along the road, but the area reportedly has no sewer service. Natural gas service is reportedly located in the area.

Surrounding property uses include a golf course (the Mechanicville Golf Club, Inc.) to the southwest and residential property to the north along Knickerbocker Road. Land use along the west side of the Hudson River is primarily commercial and industrial, with residential use dominating further inland to the west. A former clay mining and brick manufacturing operation is located to the east; that site now houses a construction company. A campground operates farther to the northeast. Land use within 1 mile includes minor agricultural, some small businesses, a power line ROW that traverses an area to the north, and extensive woodlands. Within 1 mile west of the river, land use is primarily residential with some industrial and commercial uses and open space to the far west.

According to the property representative, a depression on the southern side of the central parcel has historically been used for occasional surface dumping of solid household wastes. Several other small dumping areas were observed on the central parcel hill slope, including small piles of waste concrete located in an area devoid of trees near the south-central part of the northern parcel. In addition, another surficial dumping area covers approximately 100 square feet near the northwestern corner of the westernmost area. Other than the surficial dumping, the property representative stated he is not aware of any other fill being brought to the site. Reportedly, no hazardous materials are stored there. Key features are presented on Figure 2-1.

2.1.2 Brickyard Associates

The approximately 250-acre Brickyard Associates parcel is located in the town of Schaghticoke and is on the east side of the Hudson River at river mile 166.0 (see Figure 2-1). It is owned by William Larned & Sons, Inc. and is a mostly wooded parcel characterized by extreme differences in topographic elevations, no river frontage, an abandoned railroad siding, and extensive railroad ROW frontage. A partially paved access road leads into this unfenced former brick manufacturing site from a residential area, with light commercial use dispersed along Route 67. Two dirt roads access the quarried parts of the site; both traverse extreme topographic gradients.

There are two buildings on the property: one brick building is intact and serves as an office building for HMA Contracting Corporation (a construction company); the other building is partially intact and is used for equipment storage and repair by HMA Contracting Corporation. (A tornado in the late 1990s destroyed approximately 250 feet of the 400-foot galvanized sheet metal building.) Additional structures include the former end of the sheet metal storage building, the former brick kiln (destroyed in a 1957 fire), two small (15 feet by 6 feet) demolished buildings, and two leased double-walled, transportable aboveground storage tanks (ASTs).

A number of small borrow pits scattered across the property are still periodically used. Each pit is less than 1 acre in size and they total about 3 acres. A pond and some streams and wetlands are present. According to the Draft Environmental Impact Statement (EIS) for the mining permit, almost no topsoil exists across the parcel, and the soils to a large extent reflect glacio-lacustrine sediments. Surficial soils consist of clay-rich soil throughout most of site with sand and silt deposits. A thin layer (6-inch maximum) of silty organic loam covers some areas.

An overhead electrical service line provides power, and potable water service is also available. Natural gas and sewer service are available on-site. A leach field was noted on-site adjacent to the brick building mentioned above.

An existing railroad bridge with a dirt road underpass exists near the southwest corner, near the midpoint of the western site boundary. The elevation difference between the site and the waterfront is approximately 80 feet.

Materials stored on-site include diesel fuel in two 1,000-gallon, portable above ground double-walled tanks, and paints and lubricants in the maintenance shop. The tanks are used to fuel construction equipment. Two drums of unidentified material were also noted stored on-site. Three pole-mounted transformers belonging to the local power utility are located on-site. No staining associated with the transformers was noted. Key features are presented on Figure 2-1.

There are woodlands to the west and north boundaries of the property. In addition, there is a railroad along one part of the western side, residential property at the northwest and southwest corners, open space to the southeast and east, and a campground to the east. Light commercial uses, a golf course, and some industrial land uses are within 1 mile of the site.

2.1.3 Alonzo

The Alonzo property is located in the town of Schaghticoke on the east side of the Hudson River (see Figure 2-1) and is currently undeveloped. The property consists of a mixture of wooded and open areas paralleling the Hudson River. The topography is very gently sloping, toward the Hudson River to the west. In the northern portion of the property is a slight, approximately 3-foot drop in elevation at the shoreline. Shoreline areas contain floodplain vegetation. No structures are located on the parcel, and there is no evidence of any utility services. Key features are presented on Figure 2-1. The site is bordered on the northwest by the Hudson River and on the southeast by the Bruno parcel.

2.2 Historical Use Information

The Bruno property was reportedly farmed until several years ago. It is currently not used for any specific purpose. The Alonzo property was likely used for similar purposes. The Brickyard Associates parcel is a former brick manufacturing facility. The owners reportedly currently hold a mining permit.

2.3 Summary of Previous Studies

According to the Bruno site representative, no previous site assessments have been conducted on the Bruno portion of the site. Two Phase I investigations were previously conducted on the Brickyard Associates property. The reports from these investigations have been requested from the Resources Manager of William M. Larned & Sons, Inc. No groundwater monitoring wells are located on-site. In addition, C.T. Male Associates, P.C. produced a Draft EIS for the Brickyard Associates site in 1989. This document covers the impacts for mining shale, clay, sand, and gravel and the preparation of the site for construction of a brick manufacturing facility. A Supplemental Addendum to this document was produced in 1990 to address concerns of the New York State Department of Environmental Conservation about noise, traffic, and stormwater impacts. C.T. Male also prepared an application for a mining permit for Spaulding Brick Co. in 1989. There were no records available indicating an environmental investigation had been conducted at the Alonzo property.

3. Phase II Investigation

3.1 Field Investigation

The initial phase of the environmental assessment consisted of collecting environmental and geotechnical samples. Results of the geotechnical sampling are provided in Section 4 of this report. Site photos are found in Appendix A. Boring logs and supplemental geotechnical information are found in Appendix B. Environmental samples were collected from surface soil, surface water, sediment, subsurface soil, and groundwater. Surface and subsurface soil samples were collected in areas of surficial dumping, adjacent to fuel tanks, a former coal storage area, and areas of the site where construction operations would be expected to occur if the site is selected. Surface water and sediment samples were collected along present site runoff flow pathways. Upgradient and downgradient groundwater samples were collected to provide an indication of overall environmental conditions.

All environmental field investigations were performed in accordance with the August 2003 *Hudson River PCBs Superfund Site Facility Siting Work Plan* (Ecology and Environment, Inc.) and the September 2003 addenda to that plan, the *Site-Specific Field Investigations of the Final Candidate Sites* (Ecology and Environment, Inc.). Investigations at this site were performed in September and October 2003. A summary of investigation activities is provided in Table 3.1-1.

Deviations from the Work Plan

The following deviations from the work plan occurred during the field program:

- Due to lack of permission to access the Bruno property, surface soil sample BBA-SS08 was moved from the Bruno parcel to the Alonzo parcel; BBA-SS11A and BBA-SS11B were moved from the Bruno parcel to the Brickyard parcel; and BBA-SS06, BBA-SS07, and BBA-SS11C were eliminated.

- Surface water and sediment samples BBA-SW04 and BBA-SE04 were eliminated due to lack of permission to access the Bruno property.

- Geotechnical boring BBA-GT03 was eliminated, and BBA-GT01 was moved from the northwest corner of the Bruno property to the southeast corner of the Alonzo property due to lack of permission to access the Bruno property. In addition, the BBA-GT01 boring was combined with Geoprobe boring BBA-GP03, and a temporary 2-inch well was installed (BBA-GP03).

- Geoprobe boring BBA-GP04 was moved from the northwest corner of the Bruno property to the northeast corner of the Alonzo property due to lack of permission to access the Bruno property.

- Due to poor recharge, the field team was initially unable to collect all groundwater parameters on October 15 from temporary well BBA- GP02. However, the remaining volumes were collected on October 16.

3.2 Environmental Sampling Program

3.2.1 Temporary Well Installation and Groundwater Flow

One temporary 2-inch well (BBA-GP03) and three 1-inch polyvinyl chloride (PVC) wells were installed via hollow-stem augering and direct push technologies (DPT). Well construction information is provided in Table 3.2-1. Before groundwater sampling, each temporary well was purged of three times the volume of water standing in the casing or to dryness (whichever occurred first). Water quality parameters measured in the field during purging are presented in Table 3.2-2. Groundwater sample results are described below.

Groundwater elevations were measured from each temporary well upon well completion and at two separate times following completion of the sampling program. In addition, a surface water elevation was obtained from an existing stream gauge on the north end of Lock 3. The top of each temporary well and a reference mark on the stream gauge were surveyed so that an accurate elevation could be obtained. Table 3.2-3 summarizes the recorded elevations. Based on the limited information available from this study (four wells spaced at least 300 feet apart), groundwater flow beneath the site appears to be to the west towards the Hudson River (see Figure 3-1).

3.2.2 Field Sampling and Surveying

The environmental investigations at this site included collecting ten surface soil samples and three surface water and sediment samples; subsurface soil sampling and installation of temporary monitoring wells via DPT at three locations and via hollow-stem auguring at one location (BBA-GP03); groundwater sampling of four temporary monitoring wells; and collecting soil samples for geotechnical analysis from two soil borings. Table 3.2-4 summarizes the total number of field and quality assurance/quality control (QA/QC) samples collected and the parameters for which they were analyzed. Figure 3-1 illustrates all environmental investigation locations. All sample locations and an existing stream gauge were surveyed for both horizontal and vertical positions. Survey data is presented in Appendix C. All samples were collected in accordance with the project work plans. Field chemistry data recorded from surface water sample locations are presented in Table 3.2-2. Results from each sample medium are described below.

3.2.3 Data Usability

Soil, sediment, surface water, and groundwater samples were collected from various locations at each FCS (see Section 3.3). The samples were submitted to several environmental analytical laboratories for analytical testing as directed by EPA. Appendix D provides the complete analytical results, field quality control (QC) samples, and data qualification. The specific data usability concerns regarding each FCS are still under evaluation as part of a detailed review of the hard copy data assessment reports. The following is a summary of general information regarding data usability determined from the electronic data review.

Out of a total of 4,360 reported values, 519 values were qualified during the data validation process. The data points that were qualified as estimated, bias low, or non-detect are considered useable for the purposes of this project. A total of 73 values were

flagged as unusable, resulting in a completeness of more than 99.9%. Further evaluation of the data will include determining potential limitations of other qualified data and the impact of rejected data. In general, potential data limitations for the site are minor, as noted below:

- Low levels of several volatiles and pesticides were flagged "U" as non-detected. The results were generally below the reporting limit and, therefore, the data qualification has no impact on the data usability.

- Data qualified as unusable are for compounds that are generally highly reactive and not typically found during site investigations.

- Field blanks, including trip blanks, rinseates, and field duplicates, were collected to be applicable to all FCSs. The results are summarized in Appendix D. The results demonstrate good overall sampling and analysis precision and no significant field contamination.

- The laboratory reported tentatively identified compounds (TICs) for volatile and semivolatile compounds on the hard copy data package. TIC values are reported as "NJ" with presumptive evidence that the compounds are present and concentrations are considered highly estimated. The TICs are being reviewed to determine any indications of significant contamination not identified by the results for the known target compounds.

3.3 Environmental Sample Results and Evaluation

State and federal standards, criteria, and guidances were used for preliminary screening purposes during review of the analytical sample results for surface soil, subsurface soil, surface water, sediment, and groundwater. Exceedances of the criteria (with the exception of metals) are noted in Tables 3.3-1 through 3.3-5 by shading those values that exceeded the criteria.

Metals cannot be directly compared to the criteria without additional evaluation (including evaluation of background levels) because metals occur naturally in the environment. Additionally, turbidity in surface water and groundwater samples can cause interference with metals analysis. These factors were considered in the evaluation of the significance of detected compounds.

The criteria were selected based on a review of available EPA and New York State Department of Environmental Conservation (NYSDEC) standards, criteria, and guidances for the various media sampled. The applicability of these preliminary screening criteria to the FCSs will be determined as part of further evaluation by EPA in consultation with NYSDEC and the New York State Department of Health (NYSDOH).

The following discussion identifies the samples, by medium, with compounds exceeding the screening criteria. Those compounds without appropriate screening criteria also are identified. Where available, pertinent information for comparison purposes is provided.

Soil (Surface and Subsurface)
NYSDEC, *Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels* (1994), and subsequent amendments (December 20, 2000) (TAGM 4046). The recommended soil cleanup objectives and typical eastern USA background concentrations for metals contained in TAGM 4046 were used as preliminary screening guidance for soil. Where specific guidance values were available for surface and subsurface soils (such as for polychlorinated biphenyls [PCBs]) they were applied based on the depth of the samples collected. TAGM 4046 assumes a total organic carbon (TOC) of 1%.

Surface Water
NYSDEC, *Technical and Operational Guidance Series (T.O.G.S. 1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (1998). These standards and guidance provide values for various water classes. Since the majority of the surface water samples were collected from unnamed ditches and ponded water areas at the site, the surface water samples collected are assumed to be Class D waters. Class D waters are best used for fishing. However, due to natural conditions such as intermittent flow, water conditions may not be conducive to fish propagation. Class C waters are considered conducive to fish propagation. Surface water standards and guidance values are calculated for some inorganics based on water hardness.

Sediment
NYSDEC, *Division of Fish, Wildlife and Marine Resources, Technical Guidance for Screening Contaminated Sediments* (1999). This guidance requires organic contaminants in sediments to be calculated based on sample TOC. TOC data were collected and used to calculate these screening values. Various criteria for bioaccumulation and acute and chronic toxicity are presented in this document for protection of human health, benthic aquatic life, and wildlife. The benthic aquatic life chronic toxicity protection level for sediment was selected as the preliminary screening value for all collected sediment samples.

Groundwater
NYSDEC, *Technical and Operational Guidance Series (T.O.G.S. 1.1.1): Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations* (1998) provides Class GA standards and guidance values. The *National Primary and Secondary Drinking Water Regulations, Current Drinking Water Standards* (2002) maximum contaminant levels (MCLs) were used for preliminary screening for groundwater samples collected from temporary wells.

3.3.1 Surface Soil

Volatile Organic Compounds (VOCs)
No VOCs exceeding screening criteria were detected in surface soil samples (see Table 3.3-1).

Compounds without screening criteria that were detected were isopropylbenzene in BBA-SS02 (69 µg/kg) and BBA-SS11 (23 µg/kg [R]); methyl acetate in BBA-SS02 (4 µg/kg [J]) and BBA-SS11 (10 µg/kg [J]); and methylcyclohexane in BBA-SS02 (14 µg/kg). Isopropylbenzene in BBA-SS11 was determined to be unusable through the data validation process.

Semivolatile Organic Compounds (SVOCs)
Exceedances of screening values (see Table 3.3-1) occurred in the following samples: BBA-SS05, from the former coal storage area, (benzo(a)pyrene 110 µg/kg [J]); and BBA-SS12, composite adjacent to the railroad, (benzo(a)anthracene 5,200 µg/kg, benzo(a)pyrene 3,400 µg/kg, benzo(b)fluoranthene 4,900 µg/kg, benzo(k)fluoranthene 2,900 µg/kg, chrysene 5,100 µg/kg, and dibenzo(a,h)anthracene 1,100 µg/kg).

Compounds detected without screening criteria were benzaldehyde in BBA-SS01 (130 µg/kg [J]) and BBA-SS10 (210µg/kg [J]); caprolactam in BBA-SS05 (duplicate) (160 µg/kg [J]); and carbazole in BBA-SS12 (260 µg/kg [J]).

Pesticides
No pesticides exceeding the screening criteria were detected (see Table 3.3-1).

Herbicides
No herbicides were detected.

PCBs
No PCBs were detected in the surface soil samples.

Hexane Extractable Materials (Total Petroleum Hydrocarbons [TPHs])
TPHs were detected in samples BBA-SS02 (adjacent to fuel storage tanks) and BBA-SS12 (adjacent to the railroad tracks) at concentrations of 2,590 mg/kg, and 593 mg/kg, respectively (see Table 3.3-1). There are no screening criteria for TPHs.

Inorganics
Arsenic, beryllium, cadmium, chromium, copper, iron, magnesium, mercury, nickel, selenium, and zinc were detected at levels above the screening criteria (see Table 3.3-1). However, metals are naturally occurring common constituents of soil that often exceed criteria. Most of the levels detected were within or close to the eastern USA background range. However, two metals were detected at concentrations more than three times the high end of the eastern USA background range: cadmium (5 mg/kg) in BBA-SS04 (near the demolished building) and zinc at 226 mg/kg in BBA-SS01 (near a former structure) and at 505 mg/kg in BBA-SS04 (near the demolished building).

Low levels of cyanide (0.16 mg/kg to 0.5 mg/kg), a compound without screening criteria, were detected in eight of the ten surface soil samples (see Table 3.3-4). However, these low levels are not of concern.

3.3.2 Subsurface Soil

VOCs
No VOCs that exceeded the screening criteria were detected.

Trichlorofluoromethane, a compound without screening criteria, was detected at low levels (see Table 3.3-2). This is a Freon compound and is believed to be present as a laboratory artifact. The presence of trichlorofluoromethane at these low levels is not of concern.

SVOCs
No SVOCs that exceeded the screening criteria were detected.

Pesticides
No pesticides that exceeded the screening criteria were detected.

PCBs
No PCBs were detected in the subsurface soil samples.

Inorganics
Beryllium, copper, iron, mercury, nickel, and zinc were found above the screening criteria (see Table 3.3-2). However, metals are naturally occurring common constituents of soil that often exceed criteria. Most of the levels were within or close to the eastern USA background range. Therefore, the presence of these metals is not of concern.

3.3.3 Surface Water

VOCs
No VOCs that exceeded screening criteria were detected (see Table 3.3-3). The compound acetone, a compound without screening criteria, was detected at very low concentrations in all three samples. Acetone is a common laboratory artifact; therefore its presence in the samples at low levels is not a concern.

SVOCs
No SVOCs were detected in the surface water.

Pesticides
No pesticides were detected in the surface water.

PCBs
No PCBs were detected in the surface water.

Inorganics
Iron was detected above its screening criteria at 335µg/L at BBA-SW01 and at 507 µg/L at BBA-SW02. Iron is a naturally occurring constituent of surface waters that often exceeds criteria.

Anions
Compounds detected without screening criteria were chloride, nitrate-N, and sulfate (see Table 3.3-3). Chloride and sulfate concentrations vary and nitrate-N was detected only in BBA-SW01.

Hardness
Hardness concentrations ranged between 335 and 380 mg/L (see Table 3.3-3).

3.3.4 Sediment

VOCs
No VOCs above screening criteria were detected (see Table 3.3-4). Very low levels (4 μg/kg or less) of the following compounds without screening criteria were detected: carbon disulfide, chloromethane, cyclohexane, and methyl acetate (see Table 3.3-4). Since these compounds were detected at very low levels, they are not of concern at this site.

SVOCs
No SVOCs above screening criteria were detected (see Table 3.3-4). The compound benzo(g,h,i)perylene, a compound without screening criteria, was detected at an estimated concentration of 150 μg/kg [J] in BBA-SE01/D (upstream location).

Pesticides
No pesticides were detected in the surface water.

PCBs
No PCBs were detected in the surface water.

Inorganics
Arsenic, copper, iron, and manganese were detected at least once above their screening values (see Table 3.3-4). However, metals are naturally occurring common constituents of sediment that often exceed criteria. All the detected concentrations of metals were below the NYSDEC guidance value for severe effect level.

Total Organic Carbon (TOC)
Total organic carbon concentrations ranged from 4,800 mg/kg to 26,000 mg/kg (see Table 3.3-4).

3.3.5 Groundwater

VOCs
No VOCs were detected in the groundwater samples.

SVOCs
Benzo(a)anthracene (3 µ/L [J]), benzo(k)fluoranthene (2 µ/L [J]), and chrysene (3 µ/L [J]) were detected in sample BBA-GP01-GW, and bis(2-ethylhexyl)phthalate (190 µ/L) was detected in sample BBA-GP02-GW (see Table 3.3-5) at concentrations exceeding the screening criteria.

Pesticides
No pesticides that exceeded the screening criteria were detected.

PCBs
No PCBs were detected in the groundwater samples.

Inorganics
Iron and manganese were detected above the screening criteria (see Table 3.3-5). However, these metals are naturally occurring constituents of groundwater that often exceed criteria. Therefore, the presence of these metals is not of concern.

4. Geotechnical Assessment

A subsurface field investigation was conducted at the Bruno/Brickyard Associates/ Alonzo site to obtain geotechnical information. The primary purpose of collecting this data was to determine if there are geotechnical limitations associated with the use of the site for a sediment processing/transfer facility. Data collection included:

- Review of available subsurface information from previous studies;
- Soil borings installation (which included logging the subsurface geology and obtaining standard penetration test [SPT] data); and
- Submitting soil samples for geotechnical testing.

Presented below is a summary of the site geologic and geotechnical data collected.

Subsurface soil investigation locations were selected to provide general coverage of the site. Additionally, locations were selected based on the possible location of facility operations. Geotechnical investigations were not conducted on two parcels at Bruno due to limitations on permission to conduct intrusive activities. One borehole, BBA-GT01, was installed at the southwest corner of the Alonzo property. The remaining subsurface exploration locations are positioned near the current operations buildings. Figure 3-1 shows the locations of borings BBA-GT01 and BBA-GT02.

At each geotechnical boring location, a continuous vertical soil profile was collected from the ground surface to a depth of approximately 26 feet below ground surface (bgs) in 2-foot increments. A 2-inch outer diameter (OD) by 24-inch long split spoon sampler was advanced through 4.25-inch inner diameter (ID) hollow stem augers to collect the samples. Standard penetration tests using the split spoon sampler were conducted per

ASTM Method D1586-99. Blow count data was recorded on drill logs, presented in Appendix B. Granular soil density and cohesive soil consistency were classified using SPT n-values, which are the sums of the blows recorded over the second and third 6-inch penetration intervals of the tests.

Soil samples from geotechnical borings were collected and submitted for Atterberg limits, particle size, and moisture content analysis. The overall goal of sample collection from geotechnical borings was to collect at least one soil sample from each prominent soil horizon encountered within the top 25 feet of overburden. One sample for geotechnical analysis was collected at each of the two boreholes. Also at both boreholes, one soil sample from each depth interval between the ground surface to the total borehole depth was collected and submitted for moisture content testing, creating two continuous moisture profiles. Particle size gradation curves and their respective summary sheets, which also list Atterberg limit data and moisture content data, are included in Appendix B.

In addition to the geotechnical borings, subsurface geology was also recorded at two environmental boring locations, BBA-GP01 and BBA-GP02. Direct-push technology (DPT) was used to conduct these investigation activities. A 4-foot soil collection interval was used by the DPT system to collect a continuous soil profile from the surface to approximately 25 feet below ground surface (bgs). DPT soil boring logs are also presented in Appendix B.

Along the Hudson River shore, at the southwest corner of the site, silty sands containing a trace of gravel are present to a depth of 6 feet bgs. This soil has a loose density based on recorded SPT n-values of 5 to 8. These deposits are underlain by approximately 9 feet of sand and silt, also of loose density, based on SPT n-values. Very fine-grained sand was encountered above refusal (anticipated shale bedrock). Refusal was encountered at a depth of 18 feet bgs.

The collective subsurface soil data from around the site buildings indicated overburden soils consist of clay and silty clay layers interbedded with silt and sand layers. Density of the silt and sand layers is classified as loose, based on SPT n-values of 2 to 3. Clay in the 10- to 12-foot bgs interval is stiff, based on SPT n-values of 12. Weathered shale was noted as split spoon refusal.

C.T. Male Associates, P.C. (1989) reports the site surficial geology as consisting primarily of sand, silt, and clay that reflect a glacial lake depositional setting. They note that almost no topsoil exists on-site. They also report the soil series classification of each soil group found on-site.

5. Utility Assessment

5.1 Preliminary Assessment

A preliminary utility assessment was completed as part of the site-specific field investigation of the Final Candidate Sites. Major site utilities identified on-site are shown on Figure 2-1. The assessment included the following steps:

1) Observations of site surface utilities such as overhead power or telephone lines, electrical transformers, manholes, sewer outfalls, and water hydrants were made.

2) Dig Safely New York (Dig Safe) was contacted as part of the utility clearance process before subsurface/intrusive work activities, including direct communication with various utility operators, as needed. Operators of on-site utilities provided information.

3) Available site maps were reviewed. Maps were obtained from various sources, including property owners.

It is anticipated that further utility assessments will be completed at the Recommended Sites. Further assessment may include contacting local municipal offices for information, opening manholes to determine flow paths, and dye testing. Further assessment may be conducted as part of the design evaluation process or during other additional investigation of Recommended Sites.

5.2 Findings and Observations

Utilities identified at the Bruno/Brickyard/Alonzo site include the following:

- A high-voltage overhead electric power line right-of-way traverses the north end of the Brickyard Associates parcel. The power line right-of-way also abuts the northern end of the western Bruno parcel.

- Electric service enters the Brickyard Associates site buildings via overhead power lines located south of the site buildings.

- Level 3 Communications, Inc. operates a fiber optic cable within the railroad right-of-way located between the eastern Bruno parcel and the Brickyard Associates parcel. The fiber optic cable runs north-south.

6. Survey of Terrestrial, Archaeological, and Architectural Resources (STAAR)

Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effect that facility siting may have on cultural resources that are listed or are eligible for listing on the National Register of Historic Places (NRHP). Phase IB field investigations continued the cultural resources studies and are specifically designed to determine the presence and extent of cultural resources within the Bruno/Brickyard

Associates/Alonzo site (see *Addenda to the Hudson River PCBs Superfund Site Facility Siting Work Plan: Site-Specific Field Investigations of the Final Candidate Sites*). Field activities involved archaeological, geomorphological, and architectural investigations.

6.1 Archaeological Investigation

Initial reconnaissance was conducted in July 2003 and the field investigations were conducted October 31, November 1, and November 3-5, 2003. A total of 56 shovel test pits were excavated. No surveys were conducted on the 72-acre Bruno Property due to lack of access. Before investigations began the General Electric design team indicated that approximately 197 acres are not expected to be used for the sediment processing/transfer facility. Consequently, this area was excluded from the field investigations (see Figure 6-1). Within the remaining area of the Brickyard Associates property (approximately 60 acres), Phase I fieldwork was conducted on approximately 20 acres. The remaining acreage will require some additional investigations.

Three sites were found during the Phase IB investigation. Artifacts found include prehistoric ceramics, lithic debitage, and fire-cracked rocks.

6.2 Geomorphological Investigation

Field investigations were conducted October 17, 2003. Two 10-meter long backhoe trenches were excavated in an area that could contain alluvial deposits. Both trenches were placed parallel to the Hudson River. Much of the area was littered and it was apparent that it has been used as a modern dump. The trenches were found to contain very sandy soils that are subject to erosion. Neither trench contained any signs of early human habitation or geomorphic features of interest.

Prehistoric Site Sensitivity

Because of the highly mobile, sandy characteristics of this site, it is doubtful that any archaeological indicators would exist. Contextual integrity would be unlikely.

6.3 Architectural Assessment

Fieldwork was conducted in July 2003. No standing structures are presently within the Bruno property. However, the site presents several potential viewshed concerns that will require evaluation if this location receives further consideration. The site is located immediately north of the NRHP-listed Champlain Canal Lock 3. A series of concrete piers, apparently part of a former docking facility, are located in the river to the south of the lock. A steel truss bridge is visible crossing the river to the south of the site. Numerous industrial and residential buildings, many of which exceed 50 years of age, also are visible across the river on the western shore of the river. If the facility is constructed within the southern portion of the site (western/riverside parcel), it may create a visual impact on this historic canal landscape. A stone railroad trestle, also more than 50 years old, is located immediately north of the site. Two New York State Historic Resource Inventory (HRI) forms are being completed for this site. Additional Phase IB investigations are recommended to determine and assess the NRHP-eligibility of the structures and viewsheds associated with the Bruno property.

Three standing structures are located within the Brickyard Associates property. Two of these are a late-1950s warehouse building and one c.1880 brick office building, both situated near the central portion of the site. The warehouse is a rectangular, corrugated metal structure of no particular architectural merit. The office building is a two-story rectangular brick structure with restrained Victorian influences such as segmental discharging arches over each window and door opening. Some alterations are evident, such as replacement windows and a significant moderation of the front doorway. The original function of this building is unknown, as is its relationship to at least one other recently demolished structure on the property. The third structure within the Brickyard property is a metal water tower associated with the brick manufacturing facility that occupied the property beginning in the 1920s. This tower stands alone near the heavily wooded northeast portion of the site and, by itself, does not give any clues as to the context in which it was used.

A recreational campground is located immediately adjacent to the eastern boundary of the site. Few permanent structures are associated with the campground, and none are older than 50 years of age. Its presence therefore presents no viewshed concerns. Analysis of field observations and historic documentation is ongoing. Therefore, preliminary recommendations have not been determined.

Architectural investigations have not been conducted at the Alonzo property. No buildings are present within the property. The potential for viewshed impacts has not yet been determined.

7. Wetland Assessment

7.1 Determination and Delineation Methods

Wetland determinations and delineations of the Bruno/Brickyard/Alonzo site on October 14-16 and 29, 2003, followed the routine approach noted in the U.S. Army Corps of Engineers (USACE) 1987 *Wetland Delineation Manual*, as outlined in Section 3.6.2.2 of the *Hudson River PCBs Superfund Site Facility Siting Work Plans* (Master Work Plans) (Ecology and Environment, Inc. 2003). Applicable data (e.g., soil surveys, National Wetland Inventory [NWI] mapping, etc.) were reviewed beforehand to provide background information (see Master Work Plans, Section 3.6.2.1). Determination and delineation activities were limited to those areas previously identified as potential wetlands through data review (i.e., NWI and NYSDEC mapping) and previous site reconnaissance efforts.

The Bruno property reportedly was farmed until several years ago. It is currently not used for any specific purpose. The Alonzo property consists of a mixture of wooded and open areas paralleling the Hudson River. The shoreline areas contain floodplain vegetation. The Brickyard Associates parcel is a former brick manufacturing facility. Evidence of past dumping and filling activities using bricks was evident during surveys.

7.2 Review of Existing Information

Review of NWI wetland mapping showed the site to have approximately 16.75 acres of wetland. The 4.9 acres of NWI wetlands mapped within the Alonzo property are classified as PFO1Ch (palustrine, forested, broadleaved deciduous, seasonally flooded, diked/impounded), PEM1Ch (palustrine, emergent, broadleaved deciduous, seasonally flooded, diked/impounded), and PSS1Fh (palustrine, scrub-shrub, broadleaved deciduous, semi-permanently flooded, diked/impounded). The Bruno property was previously mapped by NWI as containing 6.29 acres of wetlands, consisting of PFO1B (palustrine, forested, broadleaved deciduous, saturated), PFO1C (palustrine, forested, broadleaved deciduous, seasonally flooded), PFO1Ch (palustrine, forested, broadleaved deciduous, seasonally flooded, diked/impounded), PUB/SS1Fx (palustrine, unconsolidated bottom, scrub-shrub, broadleaved deciduous, semi-permanently flooded, excavated) and PFO1E wetlands (palustrine, forested, broadleaved deciduous, seasonally flooded/saturated). The 5.56 acres of NWI wetlands on the Brickyard Associates property are classified as PFO1E (palustrine, forested, broadleaved deciduous, seasonally flooded/saturated), and PSS1E (palustrine, scrub-shrub, broadleaved deciduous, seasonally flooded/saturated). Review of NYSDEC wetland mapping did not indicate the presence of any NYSDEC-identified wetlands on these parcels.

Although NWI wetland maps identify the shoreline along the river as lacustrine wetlands, sample plots and determinations along the shoreline were limited to areas that exhibited wetland characteristics and occurred above the ordinary high water mark. Determination and delineation efforts did not extend into the river.

The Rensselaer County Soil Survey was reviewed to determine the soil types mapped on this site (U.S. Department of Agriculture 1988). The mapped soil types within the site boundaries are Hoosic gravelly sandy loam, Hudson silt loam hilly/steep, Limerick silt loam, Madalin silt loam, Nassau-Manlius complex undulating, Nassau-Rock outcrop rolling/hilly, Rhinebeck silt loam, Raynham silt loam, Windsor loamy sand, Udorthents, and gravel pits. The Limerick, Madalin, and Raynham soils all appear on the Rensselaer County hydric soils list. They are deep, somewhat to very poorly drained soils and indicate locations where wetlands are more likely to occur. Rhinebeck silt loam and gravel pits both are types with the potential for hydric soil inclusion (U.S. Department of Agriculture 1988).

Limerick silt loam is deep and poorly drained. The soil is formed from alluvial deposits of silt and fine sand and is found most often in floodplain areas. Madalin silty clay loam is deep and poorly drained. This soil is typically found in low-lying areas, where it receives surface runoff from surrounding areas. Because of poor drainage it has a tendency to ponding. Raynham silt loam is deep and somewhat poorly to poorly drained. This soil was formed in glacial lake deposits. Rhinebeck silt loam is deep and somewhat poorly drained. The water table in this series is typically found between 6 and 18 inches below the surface during the spring and wet periods. Gravel pits are likely to have hydric inclusions due to the disturbed nature of the soil profile (U.S. Department of Agriculture 1988).

7.3 Results of the Wetland Assessment

NWI mapping indicated that 16.75 acres of wetland occur within the boundary of the site. During determination activities a number of observation plots were completed, which led to the determination and delineation of 13 wetland areas representing four wetland community types (see Figure 7-1). Approximately 11.93 acres of wetland were delineated within the Bruno/Brickyard/Alonzo site (see Table 7-1). Part of this discrepancy between NWI mapped acreage and field-delineated acreage resulted from the determination that 5.56 acres are non-wetland. Past disturbance was evident in this area and the soils had a high sand/silt content. In addition, 1.42 acres of NWI-mapped wetland within the Bruno parcel were determined to be non-wetland. A deeply incised stream channel was present where this PFO1C wetland was mapped, and the surrounding area was dominated by upland vegetation. A mapped PUB/SS1Fx wetland was excluded in the northeast portion of the Bruno parcel as well. This area had been subjected to past dumping/fill, and vegetation and soils were characteristic of an upland area. Alterations in the landscape on these two sites have occurred in the past as a result of logging, mining, and storage of excess material from the brick manufacturing facility. Wetland identification labeling corresponds to observation plot numbers (see Figure 7-1).

Table 7-1 Wetland Delineation Summary

Wetland ID	Community Type	Acreage
B/B/A-1	PEM/UB	1.53
B/B/A-2	PEM	0.09
B/B/A-5	PFO	0.90
B/B/A-6	PFO	0.11
B/B/A-7	PEM/PSS	2.43
B/B/A-8	PEM/PUB	0.93
B/B/A-9	PSS	0.83
B/B/A-10	PFO	0.42
B/B/A-11	PFO/PEM	1.64
B/B/A-12	PFO	1.25
B/B/A-13	PFO/PEM/PSS	1.62
B/B/A-16	PFO	0.04
B/B/A-17	PFO/PSS	0.14
Total Acreage		11.93

Key:

PEM = Palustrine, emergent.
PFO = Palustrine, forested.
PSS = Palustrine, scrub-shrub.
PUB = Palustrine, unconsolidated bottom.

Generally, the species found within wetland areas on these three parcels were similar. Typical tree species within forested components of the wetlands included green ash (*Fraxinus pennsylvanica*), swamp white oak (*Quercus* bicolor), red maple (*Acer rubrum*), silver maple (*Acer saccharinum*), black willow (*Salix nigra*), slippery elm (*Ulmus rubra*), gray birch (*Betula populifolia*), and northern cottonwood (*Populus deltoides*). Common

species in scrub-shrub components included stiff dogwood (*Cornus foemina)*, red-osier dogwood (*Cornus stolinifera*), silky dogwood (*Cornus amomum*), brookside alder (*Alnus serrulata*), buttonbush (*Cephalanthus occidentalis*), spicebush (*Lindera benzoin*), and winterberry (*Ilex verticillata*). Vegetation occurring in emergent components included sensitive fern (*Onoclea sensibilis*), false nettle (*Boehmeria cylindrica*), arrow-leaf tearthumb (*Polygonum sagittatum*), broadleaf cattail (*Typha latifolia*), reed canary grass (*Phalaris arundinacea*), woolgrass (*Scirpus cyperinus*), common reed (*Phragmites australis*), hop sedge (*Carex lupilina*), Devil's beggar-ticks (*Bidens frondosa*), rice cutgrass (*Leersia oryzoides*), swamp jack-in-the-pulpit (*Arisaema triphyllum*), New England aster (*Aster novae-angliae*), rough-leaf goldenrod (*Solidago patula*), giant goldenrod (*Solidago gigantea*), false nettle (*Boehmeria cylindrica*), purple loosestrife (*Lythrum salicaria*), joe-pye weed (*Eupatorium maculatum*), arrow-leaf tearthumb (*Polygonum saggitatum*), smooth scouring rush (*Equisetum laevigatum*), soft rush (*Juncus effusus*), uptight sedge (*Carex stricta*), and shallow sedge (*Carex lurida*).

The field wetland determination and delineation activities located wetland areas on the Bruno and Brickyard Associates parcels that had not been previously mapped by NWI. A large open-water wetland is located on the Brickyard Associates parcel near the manufacturing facility. This feature appears to be a manmade and disturbed area, apparently created or disturbed by previous mining activities. Additional wetlands were found on the Bruno parcel both east and west of Knickerbocker Road, which bisects the parcel. In the southern portion of the parcel, along the east side of the road, several wetlands were delineated (wetlands B/B/A-5, B/B/A-6, and B/B/A-12 [see Figure 7-1]). The roadway appears to influence the hydrology of these wetlands by impeding and slowing downgradient drainage from the slope to the east. Raised berms also were placed between the three wetlands, splitting what may have been one complex. Additional wetlands not on the NWI mapping were also delineated in the northern portion of the western parcel.

Wetland B/B/A-10 (0.42 acres) is hydrologically influenced by groundwater seepage through an excavated bank. Mining may have occurred here in the past. Plant species were typical of a disturbed area and included scouring rush, brookside alder, and common reed.

Wetland B/B/A-11, located in the middle of the eastern Bruno parcel, is a 1.6-acre forested area that sits in a depression in the landscape. Water appears to collect in this area and drain southeast, eventually forming a channel that gradually becomes more incised and flows southwest.

A large (approximately 4.2-acre) wetland complex is located in the southwestern portion of the Alonzo property. The entire complex comprises wetlands B/B/A-7 through B/B/A-9. The northern half of the wetland is predominantly an emergent area with hydrologic influence from both the river and runoff/drainage from the east. The shoreline lacks vegetation and appears to be a mudflat. Further inland, this area is characterized by dense emergent vegetation with some shrub species along the fringe. A large number of standing, dead, and fallen trees are also in this portion of the complex. B/B/A-8 in the

southwestern corner of the complex is an approximately 1-acre open-water area that appears to be manmade (see Figure 7-1). It is surrounded on the west, north, and east sides by an approximately 18-foot high berm. Water from the river flows into this area during high water events and is impounded when the river is low. Several standing dead trees are located on small "islands" within the open-water area. The southeast corner is a dense stand of buttonbush. At the time of survey there was standing water within the stand of buttonbush. Some green ash, black willow, and silver maple were found along the fringe of this area. Given that river stage and flood control structures influence the Hudson River, the actual acreage of the shoreline wetlands may be larger than delineated at the time of survey. Several areas displaying emergent wetland vegetation were noted within the river along the shoreline. However, as stated previously, determination and delineation efforts did not extend into the river.

Wetland B/B/A (13) (corresponds to observation plots B/B/A-13, -13b, and -13c) includes emergent/scrub-shrub and forested communities (Figure 7-1). This wetland receives a substantial amount of storm water runoff from upgradient areas to the east and across Knickerbocker Road. Wetland characteristics persist along this sloped area due to a series of north-south oriented shallow swales and corresponding downgradient ridges or berms. The ridges/berms act to inhibit sheet flow downslope to the west. Consequently, there are periods of prolonged inundation and soil saturation throughout this complex. Surface flow is typically directed to a relatively narrow end of a given swale, which subsequently flows and collects in another swale or shallow depressional area. The upgradient areas within the wetland are characterized by emergent/scrub-shrub communities. The wetland eventually grades into a forested community as the ground surface becomes less uneven and descends toward the river.

Wetland B/B/A (15) (corresponds to observation plot B/B/A-15) is a forested community that receives flow through a "notch" in the small ridgeline that separates this wetland from B/B/A (13). The upper end of this wetland begins as a narrow drainage (from the ridgeline) and ultimately spreads out due to the braiding of drainage flow.

Wetland B/B/A (16) (corresponds to observation plot B/B/A-16) is a forested wetland close to the banks of the Hudson River, downgradient of B/B/A (15). Wetland conditions are perpetuated from surface and storm water flow from areas upgradient and to the east. An overland, shallow drainage way flows from B/B/A (15) into this wetland. The area is level and slightly depressional so that flow from the upgradient drainage spreads out and collects before becoming re-organized as a outflow drainage, directing flow into the river.

Wetland B/B/A (17) (corresponds to observation plot B/B/A-17) is a forested/scrub-shrub community that occurs to the west of Knickerbocker Road and is next to and due north of the access road to the Alonzo property. The area comprises a low-lying swale that is oriented in a north-south direction. The area holds water long enough to create wetland conditions at its deepest points. The western and northern boundaries of the wetland are defined by a ridgeline that keeps water from flowing further downgradient toward the river. In addition, there is no culvert underneath the access road. The roadbed, therefore,

acts as a dam on the south end of the wetland and the ridge inhibits drainage on the northern end.

Field observations indicated the presence of aquatic bed wetland areas within the river channel to the west of the Alonzo property. These areas have been noted. However, delineation procedures did not involve mapping and boundary identification of wetlands within the river channel.

8. Floodplain Assessment

An initial floodplain assessment was conducted on the Bruno/Brickyard Associates/ Alonzo) site in order to determine the presence, extent, and orientation of Federal Emergency Management Agency (FEMA)-mapped floodplain within site boundaries. Flood magnitudes and historic river stages from gauging stations as close as available to the site were examined to obtain an initial sense of the characteristics of on-site flooding. Appendix E provides the methodology and assumptions involved in this assessment.

8.1 Location and Orientation of the Floodplain

Figure 8-1 shows that portions of the site are located within the 100-year and 500-year floodplains. The floodplain areas were obtained from Flood Hazard Boundary Maps and the Town of Schaghticoke Flood Insurance Study (January 1984) from FEMA's Federal Insurance Administration.

The site is located on the east side of the Hudson River in the Town of Schaghticoke. The total area of the site is approximately 349.2 acres (see Table 8-1). Approximately 3.67% (12.8 acres) of the site is within the base (100-year) floodplain. The floodplain is restricted to land adjacent to the Hudson River and is oriented parallel to the river along the western edge of the site. River frontage is 2,230 feet in length. The greatest width of the 100-year floodplain is 420 feet. The 500-year floodplain extends approximately 100 feet beyond the 100-year floodplain boundary (see Figure 8-1).

Table 8-1 Summary of Bruno/Brickyard Associates/Alonzo Site and Floodplain Characteristics

Is a portion of the site in the base (100-year) floodplain?	Yes
Total area of the site	349.2 acres (15,212,415 ft^2)
Area of site within the base (100-year) floodplain	12.8 acres (558,365 ft^2)
Percentage of the site within the base (100-year) floodplain	3.67%
Perimeter of the site (total length)	31,534 ft
Perimeter of the site bordering Hudson River (river frontage)	~2,230 ft
Greatest width between the outer boundary of the base floodplain and Hudson River boundary	~420 ft

8.2 100-year Flood

The FEMA maps show the 100-year flood elevation at the site to be 82 feet National Geodetic Vertical Datum (NGVD). A brief examination of site topography and the FEMA mapping suggest that site elevation characteristics have not changed dramatically since the FEMA floodplain modeling and mapping occurred.

The closest gauge station with historic flow data is in Stillwater, approximately 2 miles upstream of the site. The Waterford gauge station is approximately 6 miles downstream. The National Weather Service does not track either of these gauge stations for flood stage.

Flood magnitudes were calculated from twenty-six years of flow data at the Stillwater gauge station. Based on this data, the 100-year flood stream flow for this station is 60,258 cubic feet per second (cfs). A flood of this magnitude has not occurred in the twenty-six years of modern data. In that time, there have been two flow events greater than 10-year floods (March 15, 1977 and May 4, 1983).

Flood magnitudes were calculated from twenty-one years of flow data at the Waterford gauge station. Based on this data, the 100-year flood stream flow for this station is 80,950 cfs. A flood of this magnitude has not occurred in the twenty-one years of modern data. In that time, there has been one flow event greater than a 10-year flood (May 30, 1984).

8.3 Local Flooding

Historic water level data (1916 to 2000) are available from NYSCC Lock 3. Lock 3 is approximately 0.1 mile from the site. The highest water level at the upstream side of Lock 3 was 78.22 feet NGVD (January 1, 1949). Therefore, based on NYSCC data, the 100-year flood elevation (82 feet NGVD) was not reached between 1916 and 2000.

Ground elevations at two points surveyed on the edge of the Hudson River at the site boundary were 68.32 feet and 68.87 feet NGVD (October 2003). The contour information (5-foot intervals) provided with 2002 aerial photography of the site shows a 70-foot contour line running along the shoreline. Therefore, the 100-year flood would put the area along the river under 13 feet of water.

While the probability of a 13-foot inundation event (100-year flood) is remote, NYSCC water level data on the upstream side of Lock 3 provide evidence that flooding on a smaller scale occurs almost annually at this site. The site shoreline boundary would have been under approximately 8 feet of water during the maximum high water level on January 1, 1949 and under an average of 2.7 feet of water during each year's maximum flow. Field observations have also indicated that portions of the Alonzo property are subject to flooding.

The Flood Insurance Study shows the 10-year flood profile in the vicinity of the site to be 78 feet NGVD. The Flood Insurance Study for the Town of Schaghticoke indicates that "low-lying areas in the town are subject to periodic flooding caused by the overflow of

the Hudson River. Heavy rainfall, especially occurring in the spring, combined with snowmelt causes high water and local flooding."

9. Coastal Management Area Assessment

The Bruno/Brickyard Associates/Alonzo site is not located in the state-designated coastal zone. Therefore, no direct impacts are expected as a result of the potential use of this site. EPA will prepare an additional phase of its coastal zone consistency assessment and subsequent coastal zone consistency determination, covering potential indirect and cumulative impacts from the operation of sediment processing/transfer facilities, once the Phase 1 and Phase 2 dredging facility locations are selected.

10. Baseline Habitat and Threatened and Endangered Species Assessment

10.1 Site Habitat Description

The Bruno/Brickyard Associates/Alonzo site description is presented in the *Addenda to the Hudson River PCBs Superfund Site Facility Siting Work Plans: Site-Specific Field Investigations of the Final Candidate Sites* (Ecology and Environment, Inc. September 2003). The site is situated on the east side of the river and is located on the upstream side of Lock and Dam 3 in Mechanicville. This site comprises several parcels that have been used for agriculture, mining, and brick manufacturing. The only remaining structures on the site are located on the Brickyard Associates parcel, where an active construction company has an administration building and garage. These disturbances have influenced the availability, extent, and diversity of on-site habitats across the three parcels. The majority of habitats on-site are early (< 20 years) to mid-successional (20 to 60 years) vegetation communities, with several areas of late successional (greater than 60 years) along the shoreline and within the inland portions.

Figure 10-1 shows the habitat community types, as defined by Edinger et al. (2002) that are present on the site. Field investigations were conducted on October 14 and 15, 2003 to determine habitat availability within the site and to provide descriptions of existing habitat structure, diversity, and condition. Fifteen community types are found on this 152-acre site (Figure 10-1). No significant or unique habitats were among them. The predominant communities (relative to total cover across the site) are briefly described below. A description of the different community types from Edinger et al. (2002) is presented in Appendix F.

Successional Northern Hardwood/Appalachian Oak Hickory Forest

The dominant community type on this site is a mixture of the successional northern hardwoods (SNH) and Appalachian oak hickory forest (AOF) community types (22% area). The SNH/AOF areas include a mixture of the SNH community located west of this community and the AOF communities on the hillsides east of the community. The predominant tree species include cottonwood, quaking aspen, red oak, burr oak, black willow, box elder, gray birch, bitternut hickory, mockernut hickory, shagbark hickory, paper birch, white ash, sugar maple, black cherry, swamp white oak, slippery elm,

basswood, American hop hornbeam, American hornbeam, and bigtooth aspen. Some locations have little understory, but the majority of the community has a shrub and herb layer present. The predominant shrubs include spicebush, maple-leaf *Viburnum*, sumac, gray dogwood, red osier dogwood, honeysuckle, elderberry, pine berry, and winterberry. *Rubus* spp., various ferns, *Carex* spp., and goldenrods dominate the herbaceous layer.

- **Appalachian Oak Hickory Forest.** The AOF forest community accounts for approximately 20% of the site area. The predominant species include black birch, red oak, paper birch, American hop hornbeam, black cherry, and red maple on the sloped portions of the forest and red oak, paper birch, bitternut hickory, American hop hornbeam, and basswood on the flat portions of the community. The predominant species in the shrub layer are maple-leaf *Viburnum* in areas that are sloped and spicebush within level areas. The herbaceous layers of both areas are relatively sparse and are dominated by blackberries.

- Successional Northern Hardwood. The successional northern hardwood (SNH) community is the third most prevalent, accounting for approximately 13% of the site. Predominant species include gray birch, quaking aspen, black cherry, cottonwood, slippery elm, red oak, burr oak, and black willow. The predominant species in the shrub layer include honeysuckle, sumac, dogwoods (gray and red osier), winterberry, and chokecherry. The predominant species in the herbaceous layer include Queen Anne's lace, sedges, goldenrods, white snakeroot, blackberries, ostrich fern, and garlic mustard.

Successional Southern Hardwood

An area that resembles a successional southern hardwoods (SSH) is located in the northern portion of the Brickyard Associates parcel. This community type comprises approximately 9% of the site. Edinger et al. differentiates the northern and southern successional hardwoods by the dominance of more northerly or southerly species in the respective community type. Slippery elm is the predominant species in the SSH community, whereas cottonwood and gray birch are the predominant trees in the SNH communities. In addition, the SSH contained white ash, red maple, silver maple, gray birch, and chokecherry. Shrubs include chokecherry and buckthorn. Young (0 to 20 years) to middle-aged (20 to 60 years) white ash stands dominated certain areas of this community. The predominant shrubs, herbs, and vines in these areas are spicebush, winterberry, wild grape, goldenrods, and various ferns.

Successional Old Field

Successional old field communities are dominated by goldenrod, blackberries, and sedges. Buckthorn, red osier dogwood, gray dogwood, wild grape, and honeysuckle dominated the shrub and vine layers. These communities are mostly surrounded by stands of cottonwood, red oak, black birch, paper birch, quaking aspen, and sumac.

Rich Mesophytic Forest

The predominant species in the northern rich mesophytic forest (RMF) community are Eastern white pine, gray birch, American hop hornbeam, bitternut hickory, black cherry,

red oak, sugar maple, basswood, paper birch, and shagbark hickory, with relatively no understory at the time of the field visit. The predominant species in the southern RMF are red and white oaks, red maple, bigtooth aspen, gray birch, beech, American hornbeam, bitternut hickory, white ash, black cherry, shagbark hickory, basswood, and an occasional Eastern white pine. Chokecherry and spicebush dominate the shrub layer. The predominant shrubs include wood fern, white snakeroot, blackberries, and poison ivy.

Other Communities

The RMF/AOF community contains a mixture of species from both of these community types, as discussed above. The predominant species in the successional shrubland (SS) community include honeysuckle, gray dogwood, silky dogwood, red osier dogwood, and white ash. Blackberries, white snakeroot, and sedges characterize the herb layer in this area.

Aquatic communities on the site include a pond-wetland complex and marsh headwater stream. A number of wetlands were mapped as occurring on-site, and these are discussed in further detail in Section 7. The marsh headwater stream community type traverses the southern end of the inland parcels of the site. The stream is a low gradient riffle/pool/run stream with a moderately incised channel. The stream appeared to be perennial but did not have much flow during the field visit. Substrate is dominated by sand and gravel. Large woody debris is present in moderate abundance. The Hudson River shoreline is shallow along the extent of the Alonzo property, which is characterized by a predominantly sand and/or muck substrate. Emergent vegetation occurs within portions of the shoreline. Several large trees (black willow) are located within and adjacent to the shoreline area.

Common vegetation species and the community structure of the site have an influence on wildlife occurrences. The availability of forested, shrubland, and old field communities provides for a diverse habitat for wildlife species. Incidental wildlife observations included whitetail deer, Eastern gray squirrel, treefrog, green frog, mallard, great blue heron, and a variety of songbirds.

10.2 Endangered Species Act Issues

Bald eagles were identified as a potential threatened and endangered species that could occur on the site. According to NYSDEC, there is no documented nesting activity in this area of the river. Coordination and consultation with NYSDEC and the U.S. Fish and Wildlife Service have occurred as part of the facility siting process and for determining the details of a biological assessment document for the Hudson River PCBs Superfund Site project. This consultation revealed that the portion of the river in the vicinity of the site is a known wintering area for the bald eagle. The biological assessment will address any potential impacts to the bald eagle as a result of the construction and operation of a sediment processing/transfer facility at this site. The biological assessment will include a literature review and any pertinent studies that are related to the habitat near this site as well as life history information on the bald eagle.

Table 3.1-1 Summary of Activities, Hudson River PCBs Superfund Site

		Energy Park/Longe/ NYS Canal Corporation Site	Old Moreau Dredge Spoils Area/NYS Canal Corporation Site	Georgia Pacific/ NYS Canal Corporation Site	NYS Canal Corporation/ Allco/Leyerle Site	Bruno/Brickyard Associates/ Alonzo Site	State of New York/First Rensselaer/ Marine Management Site	OG Real Estate Site
Environmental Investigation	Environmental Sampling	09/29/03 - 09/30/03	09/30/03 - 10/01/03	10/08/03 - 10/09/03	10/01/03 - 10/03/03	10/03/03 - 10/07/03	10/08/03	10/07/03
	Temporary Well Installation	09/29/03 - 10/01/03	10/02/03	10/08/03	10/09/03	10/09/03 - 10/10/03	10/03/03 - 10/06/03	10/07/03
	Temporary Well Sampling	10/16/03	10/14/03 - 10/16/03	10/13/03 - 10/14/03	10/15/03	10/15/03 - 10/16/03	10/10/03 - 10/15/03	10/15/03
Surveying		10/01/03 - 11/11/03	10/08/03 - 11/11/03	10/09/03 - 10/29/03	10/21/03 - 10/31/03	10/15/03 - 10/29/03	10/21/03 - 11/10/03	11/11/03 - 11/13/03
Geotechnical Investigation		09/29/03 - 10/01/03	NA	10/08/03	10/07/03 - 10/09/03	10/09/03 - 10/10/03	10/03/03 - 10/06/03	NA
Utilities Assessment		09/29/03 - 09/30/03	09/30/03 - 10/01/03	10/08/03 - 10/09/03	10/01/03 - 10/03/03	10/03/03 - 10/07/03	10/08/03	10/07/03
STAAR		10/06/03 - 10/16/03	10/13/03 - 10/30/03	10/11/03 - 10/28/03	10/23/03 - 11/13/03	10/17/03 - 11/05/03	10/25/03 - 11/14/03	11/15/03
Wetland Assessment		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
Floodplain Assessment		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
Coastal Management Areas		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
Baseline Habitat Assessment		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
Threatened and Endangered Species Assessment		09/17/03 - 09/18/03	09/17/03 - 09/18/03	09/19/03 - 10/08/03	10/07/03 - 10/10/03	10/14/03 - 10/15/03	10/13/03	10/15/03
IDW Disposal		TBD	TBD	TBD	TBD	TBD	TBD	TBD

Key:

IDW = Investigation-derived waste.
NYS = New York State.
PCBs = Polychlorinated biphenyls.
STAAR = Survey of Terrestrial Archaeological and Architectural Resources
TBD = To be determined.

Table 3.2-1 Summary of Temporary Well Construction, Hudson River PCBs Superfund Site

Site	Well/Piezometer No.	Date Started	Date Completed	Drilling Company	Date Sampled	Depth Drilled (Feet BGS)	Ground Elevation (Feet AMSL)	PVC Well Casing/ Screen I.D. (inches)	Total Depth (Feet TOIC)	TOIC Casing Elevation (Feet AMSL)	Screened (0.010 slot) Interval (Feet BGS)	Sand Interval (Feet BGS)	Seal Interval (Feet BGS)	Stick-up (Feet AGS)
EPL	EPL-GP01	9/29/03	9/29/03	N	10/16/03	25.4	135.11	1	27.4	137.2	15.4-25.4	5-25.4	2-5	2.0
	EPL-GP02	9/29/03	9/29/03	N	10/16/03	25	137.91	1	27.4	140.42	15-25	4-25	2-4	2.4
	EPL-GP03	9/29/03	9/29/03	N	10/16/03	25.1	135.52	1	27.51	137.99	15.1-25.1	4-25.1	0.6-4	2.41
	EPL-GP04	10/1/03	10/1/03	N	10/16/03	25	129.47	1	27.3	131.79	15-25	4-25	2-4	2.3
	EPL-GP05	10/1/03	10/1/03	N	10/16/03	25	132	1	27.5	134.53	15-25	4-25	2-4	2.5
OM	OM-GP01	10/2/03	10/2/03	N	10/16/03	25	157.67	1	27.4	160.19	15-25	4-25	2-4	2.4
	OM-GP02	10/2/03	10/2/03	N	10/16/03	25.4	141.79	1	27.62	144.2	15.3-25.3	4-25.3	2-4	2.32
	OM-GP03	10/2/03	10/2/03	N	10/15/03	25	155.84	1	27.3	158.37	10-25	4-25	2-4	2.3
	OM-GP04	10/2/03	10/2/03	N	10/15/03	25	143.5	1	22.5	146	10-20	4-25	0-4	2.5
	OM-GP05	10/2/03	10/2/03	N	10/14/03	25	133.43	1	27.5	135.93	15-25	4-25	0-4	2.5
GPS	GPS-GP01	10/9/03	10/9/03	N	10/13/03	25	108.4	1	28.15	111.60	15-25	4-25	2-4	3.15
	GPS-GP02	10/8/03	10/8/03	N	10/14/03	9.3	108.68	1	11.8	111.19	4.3-9.3	3-9.3	0.5-3	2.5
	GPS-GP03	10/8/03	10/8/03	N	10/14/03	25.5	102.76	1	27.55	104.76	15.5-25.5	4-25.5	2-4	2.05
	GPS-GP04	10/8/03	10/8/03	N	10/14/03	25.7	112.02	1	28.2	114.48	15.7-257	4-25.7	2-4	2.5
	GPS-GP05	10/8/03	10/8/03	N	10/13/03	25	100.71	1	27.45	103.31	14.85-24.85	4-25	2-4	2.6
	GPS-GP06	10/9/03	10/9/03	N	10/14/03	25	110.76	1	17.5	113.24	5-15	3-15 [A]	1-3	2.5
	GPS-GP07	10/9/03	10/9/03	N	10/14/03	25	112.98	1	22.4	115.38	10-20	3-20[B]	0.5-3	2.4
	GPS-GP08	10/8/03	10/8/03	N	10/13/03	18.5	113.36	1	19.7	114.74	8.5-18.5	3-18.5	1-3	1.2
NCC	NCC-GP01	10/9/03	10/9/03	N	10/15/03	25	48.53	1	25.5	51.02	13-23	4-23[C]	2-4	2.5
	NCC-GP02	10/7/03	10/7/03	N	-	6.9	52.5	Dry hole - no well constructed						
	NCC-GP03	10/9/03	10/9/03	N	10/15/03	22.9	43.56	1	23.65	46.2	11-21	4-22.9	2-4	2.65
	NCC-GP04	10/3/03	10/3/03	N	-	2	65.89	Not accessible by rig, boring was hand-augered						
	NCC-GP05	10/7/03	10/7/03	N	-	11	51.52	Dry hole - no well constructed (same as boring NCC-GT01)						
BBA	BBA-GP01	10/10/03	10/10/03	N	10/15/03	25	131.88	1	18.6	134.39	6-16	4-16 [D]	0.5-4	2.6
	BBA-GP02	10/10/03	10/10/03	N	10/16/03	25	144.41	1	18.55	146.87	6-16	4-18 [E]	0.5-4	2.55
	BBA-GP03	10/9/03	10/9/03	N	10/15/03	18.3	76.45	2	19.62	77.77	3.8-13.8	2.8-18.3	0-2.8	1.32
	BBA-GP04	10/10/03	10/10/03	N	10/15/03	14	77.57	1	16.8	80.38	3.5-13.5	2-14	0.5-2	2.8

Table 3.2-1 Summary of Temporary Well Construction, Hudson River PCBs Superfund Site

Site	Well/Piezometer No.	Date Started	Date Completed	Drilling Company	Date Sampled	Depth Drilled (Feet BGS)	Ground Elevation (Feet AMSL)	PVC Well Casing/	Total Depth (Feet TOIC)	TOIC Casing Elevation (Feet AMSL)	Screened (0.010 slot) Interval (Feet BGS)	Sand Interval (Feet BGS)	Seal Interval (Feet BGS)	Stick-up (Feet AGS)
MM	MM-GP01	10/6/03	10/6/03	N	10/10/03	25	18.73	1	27.4	20.52	15-25	4-25	2-4	2.4
	MM-GP02	10/3/03	10/3/03	N	10/10/03	25	5.87	1	27.6	7.75	15-25	4-25	2-4	2.6
	MM-GP04	10/6/03	10/6/03	N	10/15/03	25	15.50	1	27.4	17.22	14.5-24.5	4-24.5	2-4	2.9
OG	OG-GP01	10/7/03	10/7/03	N	10/15/03	25	10.28	1	17.70	12.94	5.35-15.35	3-16 [E]	1-3	2.35
	OG-GP02	10/7/03	10/7/03	N	10/15/03	25.1	14.26	1	27.35	16.46	15.1-25.1	4-25.1	2-4	2.25
	OG-GP03	10/7/03	10/7/03	N	10/15/03	25	17.95	1	27.45	20.4	15-25	4-25	2-4	2.45

[A] Hole was allowed to collapse to 10.15 feet BGS.
[B] Hole was allowed to collapse to 20 feet BGS.
[C] Hole was allowed to collapse to 23 feet BGS.
[D] Hole was allowed to collapse to 18 feet BGS.
[E] Hole was allowed to collapse to 16 feet BGS.

Key:

AGS = Above ground surface.
AMSL = Above mean sea level.
BBA = Bruno/Brickyard Associates/Alonzo Site.
BGS = Below ground surface.
EPL = Energy Park/Longe/NYS Canal Corporation Site.
GP = Geoprobe temporary well location.
GPS = Georgia Pacific/NYS Canal Corporation Site.
I.D. = Inner diameter.
MM = State of New York/First Rensselaer/Marine Management Site
N = Northstar Drilling.
NCC = NYS Canal Corporation/Allco/Leyerle Site.
NYS = New York State.
OG = OG Real Estate.
OM = Old Moreau Dredge Spoils Area / NYS Canal Corporation Site.
PVC = Polyvinyl chloride.
TOIC = Top of inner casing.

Table 3.2-2 Groundwater and Surface Water Field Measurements
Bruno/Brickyard Associates/Alonzo Site

Sample ID	Date	pH (s.u.)	Temerature (°C)	Conductivity (µS/cm)	Turbidity (NTU)
Groundwater					
BBA-GP01-GW	10/15/03	6.94	14.3	644.1	933
BBA-GP02-GW	10/15/03	6.76	12.1	658.3	>1,000
BBA-GP03-GW	10/15/03	6.64	15.6	524.2	35.0
BBA-GP04-GW	10/15/03	6.70	12.0	404.1	>1,000
Surface Water					
BBA-SW01	10/6/03	7.79	11.9	412.1	4.10
BBA-SW02	10/6/03	8.29	12.8	460.9	15.5
BBA-SW03	10/6/03	8.30	10.1	375.4	3.30
BBA-SW04	Not Sampled				

Key:

BBA = Bruno/Brickyard Associates/Alonzo Site.
°C = Degrees Celsius.
GP = Boring location.
GW = Groundwater sample.
ID = Identification.
mS/cm = MicroSiemens per centimeter.
NTU = Nephelometric turbidity units.
NYS = New York State.
s.u. = Standard units.
SW = Surface water sample.
> = Greater than.

Table 3.2-3 Summary of Water Level Elevations
Bruno/Brickyard Associates/Alonzo Site

Well/ Stream Gauge ID	Ground Elevation (ft AMSL)	Reference Elevation (ft AMSL)[a]	10/15/03		10/23/03		11/6/03	
			Water Level (ft TOIC)	Water Elevation (ft AMSL)	Water Level (ft TOIC)	Water Elevation (ft AMSL)	Water Level (ft TOIC)	Water Elevation (ft AMSL)
BBA-GP01	131.88	134.39	7.97	126.42	8.00	126.39	7.44	126.95
BBA-GP02	144.41	146.87	11.69	135.18	10.80	136.07	5.36	141.51
BBA-GP03	76.45	77.77	8.28	69.49	7.91	69.86	6.65	71.12
BBA-GP04	77.57	80.38	11.30	69.08	11.34	69.04	9.16	71.22
BBA-SG01	NA	75.49	NM	NM	6.65	68.84	1.15	70.64

[a] Reference elevation is TOIC for borings and 3-foot mark on gauge for stream gauges.

Key:

AMSL = Above mean sea level.
BBA = Bruno/Brickyard Associates/Alonzo Site.
ft = Feet.
GP = Geoprobe.
GP = Boring location.
NA = Not applicable.
NM = Not measured.
SG = Stream gauge location.
TOIC = Top of inner casing.

Table 3.2-4 Bruno/Brickyard Associates/Alonzo Site Sample Listing, Hudson River PCBs Superfund Facility Siting

							CLP														Geotechnical Analyses			
							Organics				Inorganics	Non-CLP													
Media	Date	Sample Location	CLP Number	Matrix Code	Depth A	Type	TCL VOCs (OLM04.2)	TCL SVOCs (OLM04.2)	TCL Pesticides/PCBs (OLM04.2)	TAL Metals/Mercury (ILM04.1)	TAL Cyanide (ILM04.1)	% Solids (ASTM_D2216)	Chlorinated Herbicides (8151A)	Anions (9056)	TOC (Lloyd Kahn)	Hardness (130.2)	Hexane Extractable Material (9071B)	TCLP VOCs	TCLP SVOCs	TCLP Metals/Mercury	Particle Size (ASTM_D422-63)	Atterberg Limits (ASTM_D4318-00)	Moisture Content (ASTM_D2216-98)	Area of Interest
Surface Soil	10/3/03	BBA-SS01	B1560	SO	0-2 in	M		X	X	X	X	X												Scrap metal area
	10/3/03	BBA-SS02	B1561	SO	0-2 in	N	X	X	X	X	X	X					X							Composite around fuel storage tanks, VOA from the front
	10/3/03	BBA-SS03	B1562	SO	0-2 in	N		X	X	X	X	X												Scrap metal dumping area along west side of building
	10/6/03	BBA-SS04	B1563	SO	0-2 in	N		X	X	X	X	X												Demolished structure
	10/3/03	BBA-SS05	B1564	SO	0-2 in	N		X	X	X	X	X												Former coal storage area
	10/3/03	BBA-SS05/D	B1572	SO	0-2 in	FD		X	X	X	X	X												
	-	BBA-SS06	-	SO	-	N																		Surficial dumping area/coverage
	-	BBA-SS07	-	SO	-	N																		Surficial dumping area/coverage
	10/7/03	BBA-SS08	B1567	SO	0-2 in	N		X	X	X	X	X												Coverage
	10/6/03	BBA-SS09	B1568	SO	0-2 in	N		X	X	X	X	X												Coverage
	10/6/03	BBA-SS10	B1569	SO	0-2 in	N		X	X	X	X	X												Coverage
	10/6/03	BBA-SS11	B1570	SO	0-2 in	N	X	X	X	X	X	X	X				X							Composite sample of 2 locations (A and B) adjacent to railroad tracks (VOC portion was a discrete sample from the location of aliquot A)
	10/6/03	BBA-SS11/D		SO	0-2 in	FD	X	X	X	X	X	X	X				X							
	10/6/03	BBA-SS12	B1571	SO	0-2 in	M	X	X	X	X	X	X	X				X							Composite sample of 2 locations (A, B) adjacent to railroad tracks (VOC portion was a discrete sample from the location of aliquot A)
	TBD	BBA-SS12 (MS/MSD)		SO	MS	MS	X	X	X	X	X		X				X							
	TBD	BBA-SS12 (MS/MSD)		SO	MSD	MSD	X	X	X	X	X		X				X							
Surface Water	10/6/03	BBA-SW01	B1556	SW	-	N	X	X	X	X	X			X		X								Upstream
	10/6/03	BBA-SW02	B1557	SW	-	N	X	X	X	X	X			X		X								Pond
	10/6/03	BBA-SW02/D		SW	-	FD	X	X	X	X	X			X		X								
	10/6/03	BBA-SW03	B1558	SW	-	M	X	X	X	X	X			X		X								Pond
	-	BBA-SW04	-	SW	-	N																		Downstream
	10/6/03	BBA-SW04 (MS/MSD)		SW		MS	X	X	X	X	X			X		X								
	10/6/03	BBA-SW04 (MS/MSD)		SW		MSD	X	X	X	X	X			X		X								
Sediment	10/6/03	BBA-SE01	B1552	SE	0-2 in	N	X	X	X	X	X	X			X									Upstream
	10/6/03	BBA-SE01/D	B15A7	SE	0-2 in	FD	X	X	X	X	X	X			X									Upstream
	10/6/03	BBA-SE02	B1553	SE	0-2 in	N	X	X	X	X	X	X			X									Upstream
	10/6/03	BBA-SE02/D		SE	0-2 in	FD	X	X	X	X	X	X			X									
	10/6/03	BBA-SE03	B1554	SE	0-2 in	N	X	X	X	X	X	X			X									Pond
	-	BBA-SE04	-	SE	-	N																		Downstream
	TBD	BBA-SE04 (MS/MSD)		SE		MS	X	X	X	X	X				X									
	TBD	BBA-SE04 (MS/MSD)		SE		MSD	X	X	X	X	X				X									
Geoprobe Subsurface Soil	10/10/03	BBA-GP01-SB	B1573	SO	8-11	N	X	X	X	X	X	X												Upgradient of Brickyard facility
	10/10/03	BBA-GP01-SB/D	B15C6	SO	8-11	FD	X	X	X	X	X	X												
	10/10/03	BBA-GP02-SB	B1575	SO	7-11	M	X	X	X	X	X	X												Downgradient of Brickyard facility
	10/9/03	BBA-GP03-SB	B15A8	SO	5.5-6.5	N	X	X	X	X	X	X												Downgradient
	10/10/03	BBA-GP04-SB	B15C0	SO	8-10	N	X	X	X	X	X	X												Downgradient

Key at the end of Table

Table 3.2-4 Bruno/Brickyard Associates/Alonzo Site Sample Listing, Hudson River PCBs Superfund Facility Siting

							CLP															Geotechnical Analyses			
							Organics				Inorganics	Non-CLP														
Media	Date	Sample Location	CLP Number	Matrix Code	Depth A	Type	TCL VOCs (OLM04.2)	TCL SVOCs (OLM04.2)	TCL Pesticides/PCBs (OLM04.2)	TAL Metals/Mercury (ILM04.1)	TAL Cyanide (ILM04.1)	% Solids (ASTM_D2216)	Chlorinated Herbicides (8151A)	Anions (9056)	TOC (Lloyd Kahn)	Hardness (130.2)	Hexane Extractable Material (9071B)	TCLP VOCs	TCLP SVOCs	TCLP Metals/Mercury	Particle Size (ASTM_D422-63)	Atterberg Limits (ASTM_D4318-00)	Moisture Content (ASTM_D2216-98)	Area of Interest
Geoprobe Temporary Well Groundwater	10/15/03	BBA-GP01-GW	B15C2	GW	6-16	N	X	X	X	X	X													Upgradient of Brickyard facility
	10/16/03	BBA-GP02-GW	B15C3	GW	6-16	N	X	X	X	X	X													Downgradient of Brickyard facility
	10/15/03	BBA-GP03-GW	B15C4	GW	3.8-13.8	N	X	X	X	X	X													Downgradient
	10/15/03	BBA-GP03-GW/D	B15D0	GW	3.8-13.8	FD	X	X	X	X	X													
	TBD	BBA-GP03-GW/D		GW		FD	X	X	X	X	X													
	10/15/03	BBA-GP04-GW	B15C5	GW	3.5-13.5	N	X	X	X	X	X													Downgradient
Geotechnical Boring Subsurface Soil	10/9/03	BBA-GT01-SB	-	SO	0-18 B	N															X	X	X	Downgradient
	10/10/03	BBA-GT02-SB	-	SO	0-26B	N															X	X	X	Facility/Railyard area
	-	BBA-GT03-SB	-	SO	-	N															X	X	X	Haul Road
Blanks	TBD	BBA-TB01		Field QC		TB	X																	General to accompany surface water samples
	TBD	BBA-TB02		Field QC		TB	X																	General to accompany groundwater samples
IDW	TBD	BBA-WA01	-	WA	-	N												X	X	X				General
	TBD	BBA-WW01	-	WW	-	N												X	X	X				General

[A] Depth in feet below ground surface unless otherwise specified.

[B] Continuous sampling for Moisture Content analysis. The 4-6 and 5-5.5 foot BGS depth intervals were used for the Particle Size and Atterberg Limits analyses for GPS-GT01 and GPS-GT02, respectively.

Key:

BBA = Bruno/Brickyard Associates/Alonzo Site
CLP = Contract Laboratory Protocol
/D = duplicate sample
FD = field duplicate sample (Type)
GP = Geoprobe boring location
GT = geotechnical boring location
GW = groundwater sample
IDW = investigation-derived waste
in = inch
M = matrix spike/matrix spike duplicate (Type)
N = original sample (Type)
PCB = polychlorinated biphenyl
QA = quality assurance
QC = quality control
SB = subsurface soil
SE = sediment sample
SO = soil sample
SS = surface soil
SVOCs = semivolatile organic compounds
SW = surface water
TBD = to be determined
TCL = target compound list
TCLP = toxicity characteristic leachate procedure
TOC = total organic carbon
VOCs = volatile organic compounds
WA = IDW solid waste
WW = IDW waste water

Key at the end of Table

Table 3.3-1 Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Bruno/Brickyard Associates/Alonzo Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID:	BBA-SS01	BBA-SS02	BBA-SS03	BBA-SS04	BBA-SS05	BBA-SS05/D
			Date:	10/3/2003	10/3/2003	10/3/2003	10/6/2003	10/3/2003	10/3/2003
			Depth:	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in
TCL Volatile Organic Compounds (µg/Kg)									
Acetone	200	NA		- -	18 U	- -	- -	- -	- -
Carbon Disulfide	2700	NA		- -	10 U	- -	- -	- -	- -
Ethylbenzene	5500	NA		- -	110	- -	- -	- -	- -
Isopropylbenzene	NA	NA		- -	69	- -	- -	- -	- -
Methyl Acetate	NA	NA		- -	4 J	- -	- -	- -	- -
Methylcyclohexane	NA	NA		- -	14	- -	- -	- -	- -
Toluene	1500	NA		- -	25	- -	- -	- -	- -
Xylenes (Total)	1200	NA		- -	910 J	- -	- -	- -	- -
TCL Semivolatile Organic Compounds (µg/Kg)									
4-Chloro-3-methylphenol	240 or MDL	NA		480 U	340 U	380 U	650 U	390 U	94 J
Acenaphthene	50000	NA		480 U	230 J	380 U	650 U	390 U	390 U
Acenaphthylene	41000	NA		480 U	340 U	380 U	650 U	390 U	390 U
Anthracene	50000	NA		480 U	320 J	380 U	650 U	390 U	91 J
Benzaldehyde	NA	NA		130 J	340 U	380 U	650 U	390 U	390 U
Benzo(a)anthracene	224 or MDL	NA		480 U	340 U	380 U	650 U	390 U	110 J
Benzo(a)pyrene	61 or MDL	NA		480 U	340 U	380 U	650 U	**110 J**	**86 J**
Benzo(b)fluoranthene	1100	NA		480 U	340 U	380 U	650 U	190 J	270 J
Benzo(g,h,i)perylene	50000	NA		480 U	340 U	380 U	650 U	390 U	390 U
Benzo(k)fluoranthene	1100	NA		480 U	340 U	380 U	650 U	130 J	190 J
Bis(2-ethylhexyl)phthalate	50000	NA		480 U	350	460	650 U	390 U	390 U
Caprolactam	NA	NA		480 U	340 U	380 U	650 U	390 U	160 J
Carbazole	NA	NA		480 U	340 UJ	380 U	650 U	390 U	390 U
Chrysene	400	NA		100 J	110 J	380 U	650 U	170 J	330 J
Dibenzo(a,h)anthracene	14 or MDL	NA		480 U	340 U	380 U	650 U	390 U	390 U
Di-n-octylphthalate	50000	NA		480 U	120 J	380 U	650 U	390 U	390 U
Fluoranthene	50000	NA		120 J	340 U	380 U	650 U	130 J	200 J
Fluorene	50000	NA		480 U	570	380 U	650 U	390 U	390 U
Indeno(1,2,3-cd)pyrene	3200	NA		480 U	340 U	380 U	650 U	390 U	120 J
Phenanthrene	50000	NA		480 U	1300	380 U	650 U	83 J	180 J
Pyrene	50000	NA		110 J	540	380 U	650 U	130 J	210 J

Source: Ecology and Environment, Inc., 2004

Table 3.3-1 Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Bruno/Brickyard Associates/Alonzo Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID:	BBA-SS01	BBA-SS02	BBA-SS03	BBA-SS04	BBA-SS05	BBA-SS05/D
			Date:	10/3/2003	10/3/2003	10/3/2003	10/6/2003	10/3/2003	10/3/2003
			Depth:	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in
TCL Pesticide and PCBs (µg/Kg)									
4,4'-DDD	2900	NA		4.8 U	3.4 U	2 J	3.8 J	4.6 J	3.9 U
4,4'-DDE	2100	NA		4.8 U	3.4 U	3.8 U	20	3.9 U	3.9 U
4,4'-DDT	2100	NA		2 J	3.2 J	3.8 U	11	6.7	8.2 JN
alpha-Chlordane	540 (3)	NA		2.5 U	1.8 U	2 U	6.2	2 U	2 U
beta-BHC	200	NA		3.6 JN	1.8 U	2 U	3.3 U	2 U	2 U
Dieldrin	44	NA		4.8 U	3.4 U	3.8 U	3.5 UJ	3.9 U	5 J
Endosulfan Sulfate	NA	NA		4.8 U	2.3 J	3.8 U	6.5 U	3.9 U	3.9 U
Endrin Ketone	NA	NA		4.8 U	3.4 U	9.6	6.5 U	6.5 JN	6.3 J
TAL Metals and Mercury (mg/Kg)									
Arsenic	7.5 or SB	3-12 (NYS BG)		5.1	5	4.2	19.8	6.2 J	9.4 J
Barium	300	15-600		194	33.3 B	34.8 B	202	17.9 B	38.7 B
Beryllium	0.16 or SB	0-1.75		0.37 B	0.25 B	0.27 B	1.2 B	0.1 B	0.1 B
Cadmium	1 or SB	0.1-1		0.81 B	0.1 U	0.88 B	5	0.12 U	0.12 U
Calcium	SB	130-35000 (NYS BG)		6520	9220	2800	8360	1110 B	1040 B
Chromium	10 or SB	1.5-40 (NYS BG)		10	11.8	8.5	18.1	1.2 B	1.4 B
Cobalt	30 or SB	2.5-60 (NYS BG)		6.3 B	5.3 B	5.9 B	18.1	1.4 B	1.4 B
Copper	25 or SB	1-50		99.4 J	11.4 J	23.9 J	42.5	11	9.2
Iron	2000 or SB	2000-550000		15300	12700	12000	33400	6060	7320
Lead	SB or 200 - 500	200-500		113	6.9	31.5	63.1	10.8	10.4
Magnesium	SB	100-5000		2930	4170	2940	6620	361 B	373 B
Manganese	NA	50-5000		512	275	493	1570 J	57.6 J	65.8 J
Nickel	13 or SB	0.5-25		23	11	10.8	30.3	2.3 B	2.9 B
Potassium	SB	8500-43000 (NYS BG)		777 B	869 B	404 B	1640 B	196 B	187 B
Selenium	2 or SB	0.1-3.9		0.53 U	0.39 U	0.43 U	2.3 J	1.2 J	2.3 J
Sodium	SB	6000-8000		153 U	113 U	123 U	326 B	195 B	127 U
Vanadium	150 or SB	1-300		14	7.3 B	8.8 B	65.1	4.7 B	4.8 B
Zinc	20 or SB	9-50		226	34	129	505	13.4	14.6
Mercury	0.1	0.001-0.2		0.07 U	0.05 U	0.06 U	0.14 BJ	0.14 J	0.34
Total Cyanide (mg/Kg)									
Cyanide	NA	NA		0.37	0.13 U	0.14 U	0.23 U	0.21	0.17 L
Total Petroleum Hydrocarbons (mg/Kg)									
N-Hexane Extractable Material	NA	NA		- -	2590	- -	- -	- -	- -

Source: Ecology and Environment, Inc., 2004

Table 3.3-1 Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Bruno/Brickyard Associates/Alonzo Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID:	BBA-SS08	BBA-SS09	BBA-SS10	BBA-SS11	BBA-SS12
			Date:	10/7/2003	10/6/2003	10/6/2003	10/6/2003	10/6/2003
			Depth:	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in	0 - 2 in
TCL Volatile Organic Compounds (µg/Kg)								
Acetone	200	NA		- -	- -	- -	120 J	12 U
Carbon Disulfide	2700	NA		- -	- -	- -	1 J	12 U
Ethylbenzene	5500	NA		- -	- -	- -	23 R	12 UJ
Isopropylbenzene	NA	NA		- -	- -	- -	23 R	12 UJ
Methyl Acetate	NA	NA		- -	- -	- -	10 J	12 U
Methylcyclohexane	NA	NA		- -	- -	- -	23 UJ	12 UJ
Toluene	1500	NA		- -	- -	- -	5 J	12 UJ
Xylenes (Total)	1200	NA		- -	- -	- -	23 R	12 UJ
TCL Semivolatile Organic Compounds (µg/Kg)								
4-Chloro-3-methylphenol	240 or MDL	NA		350 U	460 U	420 U	560 U	960 U
Acenaphthene	50000	NA		350 U	460 U	420 U	560 U	960 U
Acenaphthylene	41000	NA		350 U	460 U	420 U	560 U	1400
Anthracene	50000	NA		350 U	460 U	420 U	560 U	2200
Benzaldehyde	NA	NA		350 U	460 U	210 J	560 U	960 U
Benzo(a)anthracene	224 or MDL	NA		350 U	110 J	420 U	560 U	**5200**
Benzo(a)pyrene	61 or MDL	NA		350 U	460 U	420 U	560 U	**3400**
Benzo(b)fluoranthene	1100	NA		350 U	200 J	420 U	560 U	**4900**
Benzo(g,h,i)perylene	50000	NA		350 U	460 U	420 U	560 U	800 J
Benzo(k)fluoranthene	1100	NA		350 U	110 J	420 U	120 J	**2900**
Bis(2-ethylhexyl)phthalate	50000	NA		350 U	460 U	420 U	560 U	960 U
Caprolactam	NA	NA		350 U	460 U	420 U	560 U	960 U
Carbazole	NA	NA		350 U	460 U	420 U	560 UJ	260 J
Chrysene	400	NA		350 U	190 J	420 U	140 J	**5100**
Dibenzo(a,h)anthracene	14 or MDL	NA		350 U	460 U	420 U	560 U	**1100**
Di-n-octylphthalate	50000	NA		350 U	460 U	130 J	560 U	960 U
Fluoranthene	50000	NA		350 U	240 J	420 U	170 J	11000
Fluorene	50000	NA		350 U	460 U	420 U	560 U	960 U
Indeno(1,2,3-cd)pyrene	3200	NA		350 U	460 U	420 U	560 U	2300 J
Phenanthrene	50000	NA		350 U	460 U	420 U	130 J	710 J
Pyrene	50000	NA		350 U	220 J	420 U	150 J	10000

Source: Ecology and Environment, Inc., 2004

Table 3.3-1 Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Bruno/Brickyard Associates/Alonzo Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID: / Date: / Depth:	BBA-SS08 10/7/2003 0 - 2 in	BBA-SS09 10/6/2003 0 - 2 in	BBA-SS10 10/6/2003 0 - 2 in	BBA-SS11 10/6/2003 0 - 2 in	BBA-SS12 10/6/2003 0 - 2 in
TCL Pesticide and PCBs (µg/Kg)								
4,4'-DDD	2900	NA		3.5 U	4.6 U	4.2 U	5.6 U	4.8 U
4,4'-DDE	2100	NA		2 J	6.6 J	4.3 J	5.6 U	7.4 JN
4,4'-DDT	2100	NA		3.5 U	6.9 J	4.2 U	5.6 U	4.8 U
alpha-Chlordane	540 (3)	NA		1.8 U	2.4 U	2.2 U	2.9 U	2.5 U
beta-BHC	200	NA		1.8 U	5.5 R	2.2 U	2.9 U	3.3 R
Dieldrin	44	NA		3.5 U	4.6 U	4.2 U	5.6 U	4.8 U
Endosulfan Sulfate	NA	NA		3.5 U	4.6 U	4.2 U	5.6 U	4.8 U
Endrin Ketone	NA	NA		3.5 U	4.6 U	4.2 U	5.6 U	41 J
TAL Metals and Mercury (mg/Kg)								
Arsenic	7.5 or SB	3-12 (NYS BG)		4.8 J	15.8	2.3 BJ	4 J	9.2 J
Barium	300	15-600		36.9 B	50.4 B	66.2	63.3 B	57.5
Beryllium	0.16 or SB	0-1.75		0.34 B	0.27 B	0.34 B	0.43 B	0.37 B
Cadmium	1 or SB	0.1-1		0.11 U	0.14 U	0.13 U	0.17 U	0.14 U
Calcium	SB	130-35000 (NYS BG)		1400	3560	1530	7860	4960
Chromium	10 or SB	1.5-40 (NYS BG)		8.8	4.7	4.8	7.8	6.9
Cobalt	30 or SB	2.5-60 (NYS BG)		5.5 B	3.1 B	3.9 B	7 B	6 B
Copper	25 or SB	1-50		13.4	17.1	9.5	21.5	27.1
Iron	2000 or SB	2000-550000		11300	13900	9330	13800	14500
Lead	SB or 200 - 500	200-500		35.3	17.6	22.5	38.9	50
Magnesium	SB	100-5000		2430	1480	1480	4340	2510
Manganese	NA	50-5000		267 J	111 J	655 J	306 J	300 J
Nickel	13 or SB	0.5-25		10.6	7.8 B	7.9 B	14	11.8
Potassium	SB	8500-43000 (NYS BG)		287 B	511 B	298 B	529 B	518 B
Selenium	2 or SB	0.1-3.9		0.4 UJ	1.1 BJ	0.48 UJ	0.97 BJ	0.59 BJ
Sodium	SB	6000-8000		120 B	194 B	139 U	185 U	201 B
Vanadium	150 or SB	1-300		13	17.6	10.6 B	15.5 B	20
Zinc	20 or SB	9-50		73.5	43.4	30.8	54.7	87.7
Mercury	0.1	0.001-0.2		0.11 J	0.08 BJ	0.06 U	0.08 BJ	0.1 BJ
Total Cyanide (mg/Kg)								
Cyanide	NA	NA		0.5	0.28	0.16	0.3	0.29
Total Petroleum Hydrocarbons (mg/Kg)								
N-Hexane Extractable Material	NA	NA		- -	- -	- -	335 U	593

Source: Ecology and Environment, Inc., 2004

Table 3.3-1 Analytical Data Summary of Detected Analytes for Surface Soil Samples from the Bruno/Brickyard Associates/Alonzo Site

(1) New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

(2) Eastern United States background values.

Key:

B =	The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
BBA =	Bruno/Brickyard Associates/Alonzo Site.
BG =	Background.
/D =	Duplicate sample.
in =	Inches.
J =	The reported value is an estimated quantity.
JN =	The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.
MDL =	Method detection Limit
mg/Kg =	Milligrams per kilogram.
NA =	Not applicable/available.
NYSDEC =	New York State Department of Environmental Conservation.
PCB =	Polychlorinated biphenyl.
R =	The data is unusable.
SB =	Site background.
SS =	Surface soil sample.
TAL =	Target Analyte List.
TCL =	Target Compound List.
U =	The analyte was analyzed for but not detected at the value reported.
UJ =	The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.
µg/Kg =	Micrograms per kilogram.
- =	Sample was not analyzed for this parameter.
110 J	Shaded cells with bold exceed the NYSDEC screening value (except for metals).

Source: Ecology and Environment, Inc., 2004

Table 3.3-2 Analytical Data Summary of Detected Analytes for Subsurface Soil Samples from the Bruno/Brickyard Associates/Alonzo Site

Analyte	NYSDEC TAGM 4046 (1)	Eastern USA Background (2)	Sample ID: / Date: / Depth:	BBA-GP01-SB 10/10/2003 8 - 11 ft	BBA-GP01-SB/D 10/10/2003 8 - 11 ft	BBA-GP02-SB 10/10/2003 7 - 11 ft	BBA-GP03-SB 10/9/2003 5.5 - 6.5 ft	BBA-GP04-SB 10/10/2003 8 - 10 ft
TCL Volatile Organic Compounds (µg/Kg)								
1,1,2-Trichloro-1,2,2-Trifluoroethane	6000	NA		0.4 J	10 UJ	10 R	3 J	10 UJ
Carbon Disulfide	2700	NA		10 UJ	10 UJ	10 R	1 J	10 UJ
Toluene	1500	NA		10 U	10 U	10 R	17 U	10 U
Trichlorofluoromethane	NA	NA		10 U	0.8 J	10 R	17 U	10 U
TCL Semivolatile Organic Compounds (µg/Kg)								
Fluoranthene	50000	NA		410 U	410 U	410 U	170 J	420 U
Phenanthrene	50000	NA		410 U	410 U	410 U	110 J	420 U
Pyrene	50000	NA		410 U	410 U	410 U	120 J	420 U
TCL Pesticide and PCBs (µg/Kg)								
4,4'-DDE	2100	NA		4.1 U	0.8 J	4.1 U	4.2 U	4.2 U
alpha-BHC	110	NA		2.1 U	2.1 U	2.1 U	1.1 J	2.2 U
TAL Metals and Mercury (mg/Kg)								
Aluminum	SB	NA		4570	3850	6050	3950	6320
Arsenic	7.5 or SB	3-12 (NYS BG)		3.3	3	6	2.2 B	4.3
Barium	300	15-600		27.6 B	21.3 B	53.9	24 B	49.8 B
Beryllium	0.16 or SB	0-1.75		0.23 B	0.22 B	0.28 B	0.19 B	0.3 B
Calcium	SB	130-35000 (NYS BG)		1970	1590	2010	1460	1950
Chromium	10 or SB	1.5-40 (NYS BG)		7.2	6.6	7.3	9.2	7.9
Cobalt	30 or SB	2.5-60 (NYS BG)		8.5 B	6.5 B	8.3 B	5 B	8.2 B
Copper	25 or SB	1-50		13.5	13.3	18.7	11.6	37.3
Iron	2000 or SB	2000-550000		12000	10400	14800	10000	16400
Lead	SB or 200 - 500	200-500		6.1	7.1	9.9	14.5	11.9
Magnesium	SB	100-5000		2260	1840	2970	2240	2910
Manganese	NA	50-5000		340	213	533	96.9	551
Nickel	13 or SB	0.5-25		13.7	10.9	16.2	9.6 B	15.4
Potassium	SB	8500-43000 (NYS BG)		552 B	479 B	723 B	397 B	605 B
Vanadium	150 or SB	1-300		12.1 B	12.8 B	12	6.1 B	10 B
Zinc	20 or SB	9-50		35.6	33.5	39.5	79.7	42.7
Mercury	0.1	0.001-0.2		0.06 U	0.07 U	0.06 U	0.33	0.06 U

Source: Ecology and Environment, Inc., 2004

Table 3.3-2 Analytical Data Summary of Detected Analytes for Subsurface Soil Samples from the Bruno/Brickyard Associates/Alonzo Site

(1) New York State Department of Environmental Conservation, Technical and Administrative Guidance Memorandum #4046: Determination of Soil Cleanup Objectives and Cleanup Levels, 1994.

(2) Eastern United States background values.

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
BBA = Bruno/Brickyard Associates/Alonzo Site.
BG = Background.
/D = Duplicate sample.
ft = Feet.
J = The reported value is an estimated quantity.
JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.
MDL = Method detection Limit
mg/Kg = Milligrams per kilogram.
NA = Not applicable/available.
NYSDEC = New York State Department of Environmental Conservation.
PCB = Polychlorinated biphenyl.
R = The data is unusable.
SB = Site background.
-SB = Subsurface soil sample.
TAL = Target Analyte List.
TCL = Target Compound List.
U = The analyte was analyzed for but not detected at the value reported.
UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.
µg/Kg = Micrograms per kilogram.

Source: Ecology and Environment, Inc., 2004

Table 3.3-3 Analytical Data Summary of Detected Analytes for Surface Water Samples from the Bruno/Brickyard Associates/Alonzo Site

Analyte	NYSDEC CLASS D (1)	Sample ID: Date:	BBA-SW01 10/6/2003	BBA-SW02 10/6/2003	BBA-SW03 10/6/2003
TCL Volatile Organic Compounds (µg/L)					
Acetone	NA		5 J	6 J	4 J
Toluene	480 for A(A)		6 J	10 U	10 U
TAL Metals and Mercury (µg/L)					
Aluminum	NA		19 U	164 B	76.6 B
Barium	NA		16.3 B	36 B	25.7 B
Calcium	NA		60300	59900	52600
Chromium	CV		1.1 B	1.1 U	1 U
Copper	CV		2.9 B	1.2 B	1.1 B
Iron	300		335	507	52.9 B
Magnesium	NA		19700	26200	19200
Manganese	NA		50.2	243	56.2 J
Nickel	CV		2.9 B	1.8 U	2.3 U
Potassium	NA		1990 B	1610 B	669 B
Sodium	NA		4150 B	3980 B	1850 B
Vanadium	190 for A(A)		1.6 U	1.6 B	0.9 U
Zinc	CV		23 J	21.1 J	26.2 J
Anions (mg/L)					
Chloride	NA		6.6	4.42	1.34
Fluoride	CV		0.156	0.191	0.125
Nitrate-N	NA		0.199	0.100 U	0.100 U
Sulfate	NA		8.79	21	12.8
Hardness (mg/L)					
Hardness (As $CaCO_3$)	NA		345	380	335

Source: Ecology and Environment, Inc., 2004

Table 3.3-3 Analytical Data Summary of Detected Analytes for Surface Water Samples at the Bruno/Brickyard Associates/Alonzo Site

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance Series #1.1.1: Class D Ambient Water Quality Standards and Guidance Value and Groundwater Effluent Limitations, 1998.

Key:

A(A) = Standard/guidance value is for the protection of fish survival (fresh waters).

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.

BBA = Bruno/Brickyard Associates/Alonzo Site.

CV = Value calculated based on hardness as per NYSDEC TOGS 1.1.1, 1998.

J = The reported value is an estimated quantity.

JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.

mg/L = Milligrams per liter.

NA = Not applicable/available.

NYSDEC = New York State Department of Environmental Conservation.

SW = Surface water sample.

TAL = Target Analyte List.

TCL = Target Compound List.

U = The analyte was analyzed for but not detected at the value reported.

UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.

µg/L = Micrograms per liter.

Source: Ecology and Environment, Inc., 2004

Table 3.3-4 Analytical Data Summary of Detected Analytes for Sediment Samples from the Bruno/Brickyard Associates/Alonzo Site

Analyte	NYSDEC Screening Criteria (1), (2)	Sample ID:	BBA-SE01	BBA-SE01/D	BBA-SE02	BBA-SE03
		Date:	10/6/03	10/6/03	10/6/03	10/6/03
TCL Volatile Organic Compounds (µg/Kg)						
Carbon Disulfide	NA		10 U	10 U	28 UJ	0.7 J
Chloromethane	NA		10 U	10 U	28 UJ	1 J
Cyclohexane	NA		0.3 J	10 U	28 UJ	10 U
Methyl Acetate	NA		10 U	10 U	28 UJ	4 J
Toluene	CV		0.5 J	10 U	28 UJ	0.9 J
TCL Semivolatile Organic Compounds (µg/Kg)						
Benzo(g,h,i)perylene	NA		420 U	150 J	630 U	410 U
Bis(2-ethylhexyl)phthalate	CV		420 U	410 U	630 U	220 J

Analyte	NYSDEC Screening Criteria (1)		Sample ID:	BBA-SE01	BBA-SE01/D	BBA-SE02	BBA-SE03
	Lowest Effect (2)	Severe Effect (2)	Date:	10/6/03	10/6/03	10/6/03	10/6/03
TAL Metals and Mercury (mg/Kg)							
Aluminum	NA	NA		5730	4510	6180	6100
Arsenic	6.0	33		7.6 J	5.4 J	1.7 UJ	1.3 UJ
Barium	NA	NA		44.3 B	39.9 B	56 B	34.4 B
Beryllium	NA	NA		0.34 B	0.39 B	0.33 B	0.27 B
Calcium	NA	NA		2320	1960	42100	9670
Chromium	26	110		6.5	5.6	7.7	6.5
Cobalt	NA	NA		7.6 B	7.3 B	8.1 B	7.4 B
Copper	16	110		10.8	9.6	19.4	17.5
Iron	20000	40000		21100	16600	15700	13500
Lead	31	110		9	11.1	11.1	9.6
Magnesium	NA	NA		2920	2090	13200	6380
Manganese	460	1100		530 J	527 J	458 J	349 J
Nickel	16	50		12.2	10.2	14.5 B	13.2
Potassium	NA	NA		439 B	388 B	856 B	564 B
Sodium	NA	NA		143 U	136 U	223 B	160 U
Vanadium	NA	NA		10.1 B	8.9 B	11.6 B	8 B
Zinc	120	270		40.1	33.7	54.8	39.8
Total Organic Carbon (mg/Kg)							
Total Organic Carbon	NA	NA		6200	4800	19000	26000
Percent Solids (%)							
Percent Solids	NA	NA		81	78	53	52

Source: Ecology and Environment, Inc., 2004

Table 3.3-4 Analytical Data Summary of Detected Analytes for Sediment Samples from the Bruno/Brickyard Associates/Alonzo Site

(1) New York State Department of Environmental Conservation, Division of Fish, Wildlife and Marine Resources, Technical Guidance for Screening Contaminated Sediments, 1999. The benthic aquatic life chronic toxicity protection level was used.

(2) As per the 1999 NYSDEC Guidance, the screening criteria for organic contaminants in sediments are calculated based on sample Total Organic Carbon concentration. However, two levels of risk are established for metals contamination in sediments (Lowest Effect Level and Severe Effect Level).

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.
BBA = Bruno/Brickyard Associates/Alonzo Site.
CV = Value calculated based on total organic carbon as per NYSDEC Guidance.
/D = Duplicate sample.
J = The reported value is an estimated quantity.
mg/Kg = Milligrams per kilogram.
NA = Not applicable/available.
NYSDEC = New York State Department of Environmental Conservation.
PCB = Polychlorinated biphenyl.
SE = Sediment sample.
TAL = Target Analyte List.
TCL = Target Compound List.
U = The analyte was analyzed for but not detected at the value reported.
UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.
µg/Kg = Micrograms per kilogram.
% = Percent.

Source: Ecology and Environment, Inc., 2004

Table 3.3-5 Analytical Data Summary of Detected Analytes for Groundwater Samples from Temporary Wells at the Bruno/Brickyard Associates/Alonzo Site

Analyte	NYSDEC CLASS GA (1)	Sample ID: / Date: EPA MCLs (2)	BBA-GP01-GW 10/15/2003	BBA-GP02-GW 10/16/2003	BBA-GP03-GW 10/15/2003	BBA-GP03-GW/D 10/15/2003	BBA-GP04-GW 10/15/2003
TCL Semivolatile Organic Compounds (µg/L)							
Benzo(a)anthracene	0.002 (g)	NA	**3 J**	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	0.002 (g)	NA	**2 J**	10 U	10 U	10 U	10 U
Bis(2-ethylhexyl)phthalate	5	NA	10 U	**190**	10 U	10 U	10 U
Chrysene	0.002 (g)	NA	**3 J**	10 U	10 U	10 U	10 U
Fluoranthene	50	NA	7 J	10 U	10 U	10 U	10 U
Phenanthrene	50 (g)	NA	3 J	10 U	10 U	10 U	10 U
Pyrene	50 (g)	NA	5 J	10 U	10 U	10 U	10 U
TCL Pesticide and PCBs (µg/L)							
Endrin Ketone	5	2 (4)	0.071 J	0.1 U	0.1 U	0.1 U	0.1 U
Heptachlor Epoxide	0.03	0.2	0.016 J	0.05 U	0.05 U	0.05 U	0.05 U
TAL Metals and Mercury (µg/L)							
Barium	1000	2000	50.5 B	64.7 B	55.5 B	56.1 B	42.5 B
Calcium	NA	NA	97100	99700	70300	70100	42000
Chromium	50	100 (5)	1 U	2.2 B	7.5 B	1 U	1 U
Cobalt	NA	NA	1.3 U	4.8 B	1.9 B	1.3 U	1.3 U
Copper	200	1300 (a)	1.1 B	1 U	1.5 B	1.8 B	1.5 B
Iron	300 (3)	300 (s)	27.9 U	27.9 U	4230	4030	27.9 U
Lead	25	15 (a)	2.2 U	2.2 B	2.2 U	2.2 U	2.2 B
Magnesium	35000 (g)	NA	28100	34800	21700	21600	16100
Manganese	300 (3)	50 (s)	685	785	1150	1140	266
Nickel	100	NA	2.3 U	4.9 B	8.4 B	2.3 U	2.3 U
Potassium	NA	NA	2060 B	1570 B	1620 B	1630 B	1190 B
Selenium	10	50	4.2 BJ	3.8 U	3.8 U	3.8 U	5.1
Sodium	20000	NA	3010 B	9160 J	9640 J	9640 J	14100 J
Zinc	2000 (g)	5000 (s)	20 B	23.8	26.6	28.7	23.5

Source: Ecology and Environment, Inc., 2004

Table 3.3-5 Analytical Data Summary of Detected Analytes for Groundwater Samples from Temporary Wells at the Bruno/Brickyard Associates/Alonzo Site

(1) New York State Department of Environmental Conservation, Technical and Operational Guidance Series #1.1.1: Class GA Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, 1998.

(2) EPA National Primary and Secondary Drinking Water Standards, 2002.

(3) Screening value is for sum of Iron and Manganese is 500 µg/L.

(4) Screening value is for endrin.

(5) Screening value for total chromium.

(a) Action level is used in lieu of MCL.

(g) Guidance value used.

(s) Secondary standard used.

Key:

B = The reported value was less than the Contract Required Detection Limit but greater than or equal to the Instrument Detection Limit.

BBA = Bruno/Brickyard Associates/Alonzo Site.

/D = Duplicate sample.

EPA = Environmental Protection Agency.

GP = Boring.

GW = Groundwater sample.

J = The reported value is an estimated quantity.

JN = The presence of the analyte has been "tentatively identified". The associated numeric value represents the estimated concentration.

MCL = Maximum Contaminant Level.

NA = Not applicable/available.

NYSDEC = New York State Department of Environmental Conservation.

PCB = Polychlorinated biphenyl.

TAL = Target Analyte List.

TCL = Target Compound List.

U = The analyte was analyzed for but not detected at the value reported.

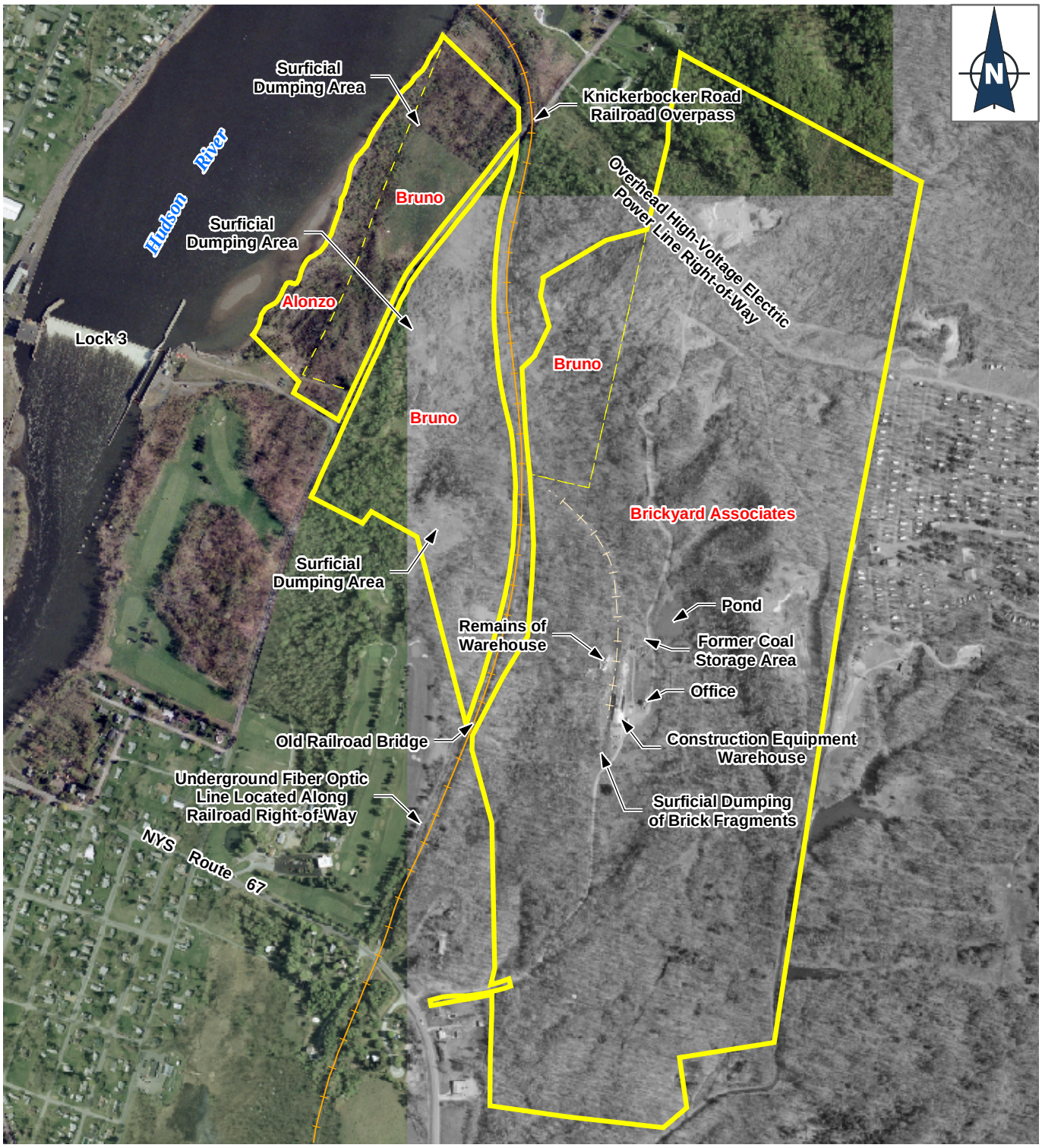
UJ = The analyte was analyzed for but not detected. The reported quantitation limit is approximate and may be inaccurate.

µg/L = Micrograms per liter.

3 J Shaded cells with bold exceed the NYSDEC Class GA Standard or Guidance Value (except for metals).

Source: Ecology and Environment, Inc., 2004

SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



LEGEND

- Approximate Site Boundary
- Tax Parcel Boundary
- Active Railroad
- Abandoned Railroad

Hudson River PCBs SUPERFUND SITE

Figure 2-1
Key Site Features
Bruno / Brickyard Associates / Alonzo

500 250 0 500 1,000 1,500
Feet

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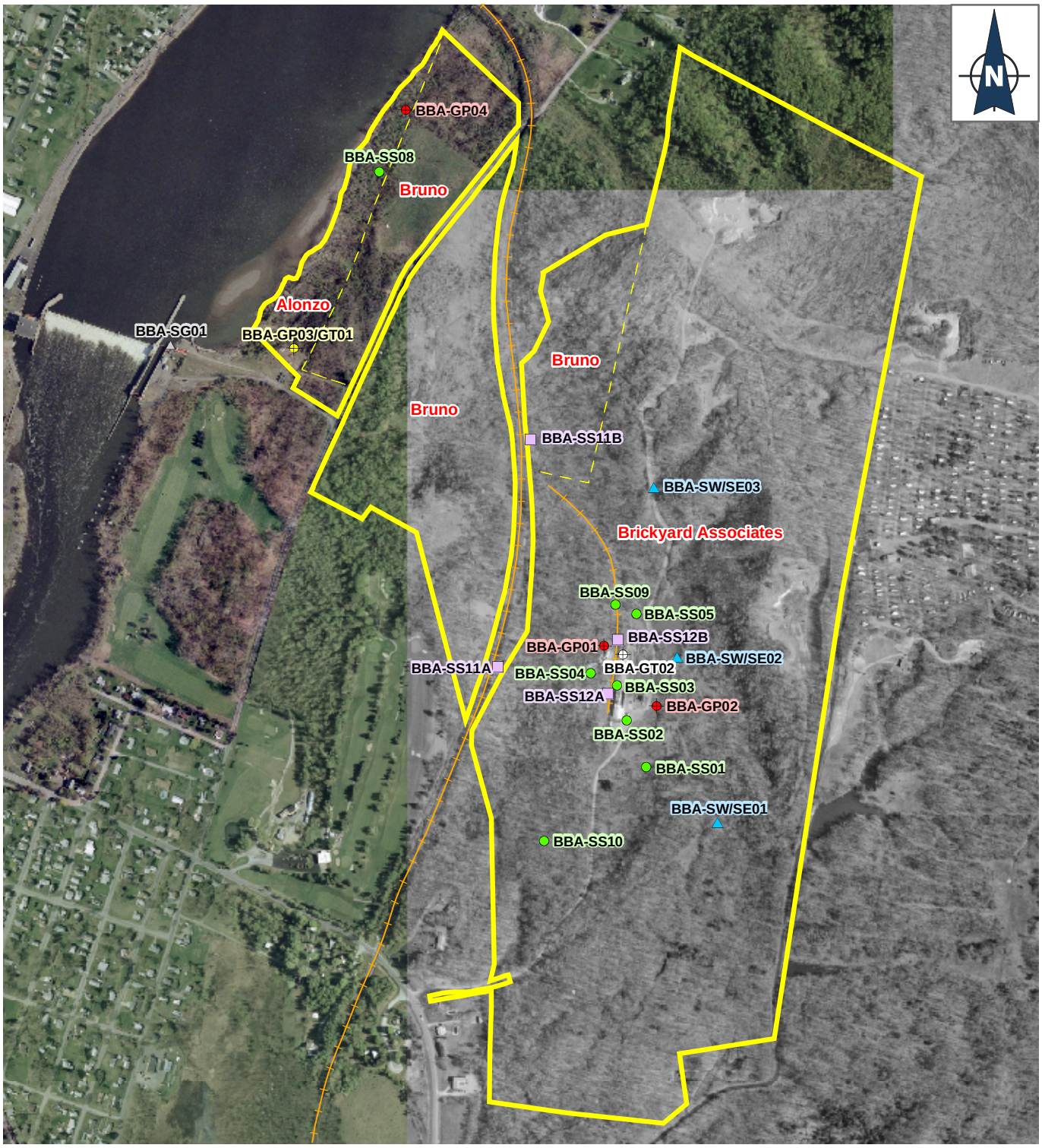
SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



LEGEND

- Geoprobe Soil Boring
- Geoprobe Soil Boring & Temporary Well
- Geoprobe & Geotechnical Boring
- Geotechnical Boring
- Surface Soil
- Soil Sample Adjacent to Railroad
- Surface Water / Sediment
- Stream Gauge
- Railroads
- Potential Site Boundary

Hudson River
PCBs SUPERFUND SITE

Figure 3-1
Sample Locations
Bruno / Brickyard Associates / Alonzo

500 250 0 500 1,000 1,500 2,000
Feet

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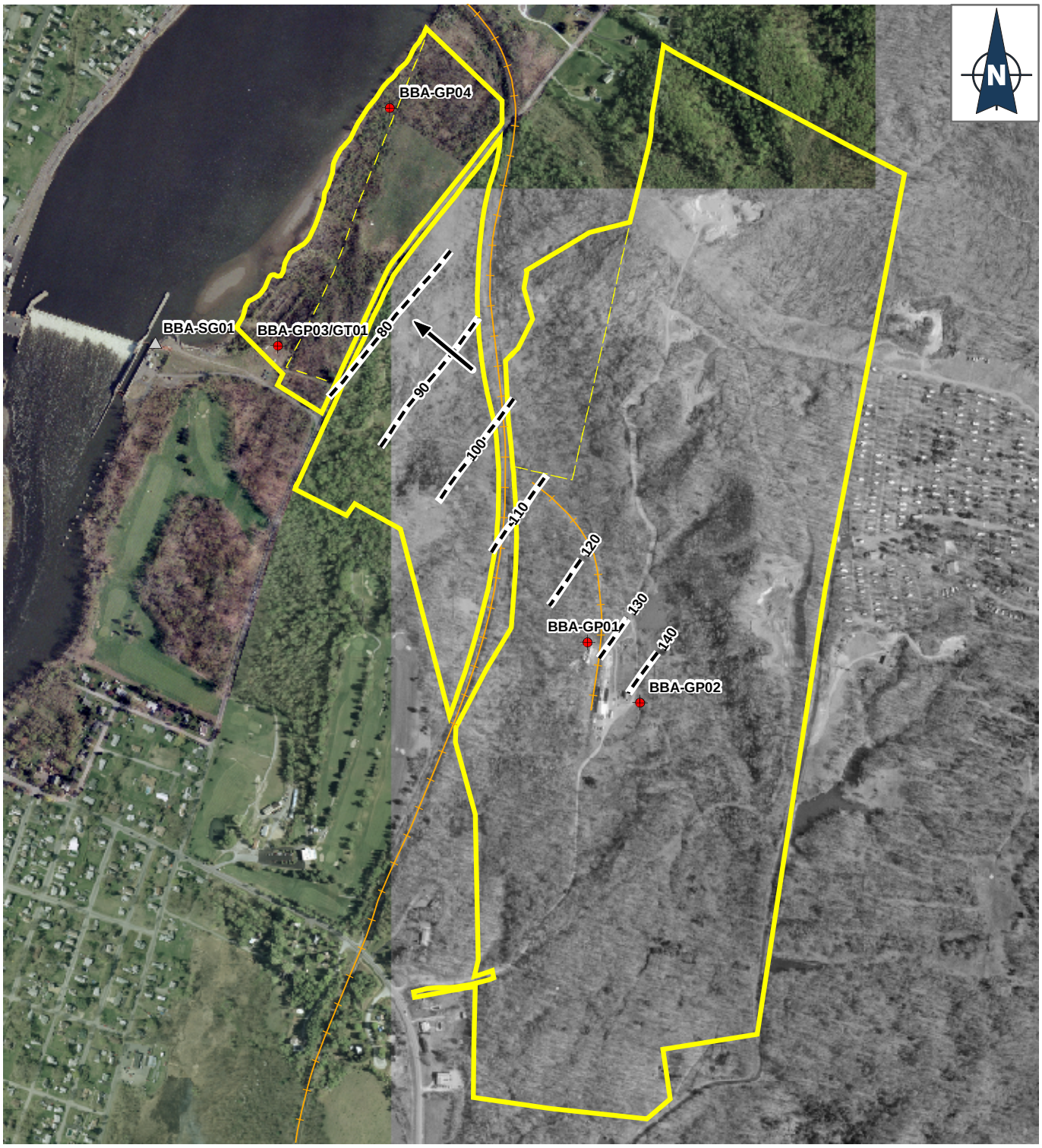
L:\Buffalo\Hudson_River\Maps\MxdFinalCandidateSites\Samples\Bruno_Brickyard_Alonzo_Samples.MXD - GIS

SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



LEGEND

- Groundwater Contour
- Temporary Well
- Stream Gauge
- Railroad
- Potential Site Boundary
- Direction of Groundwater Flow

Water Level Elevations Measured on 11/6/2003
10 ft. Contour Interval

Hudson River
PCBs SUPERFUND SITE

Figure 3-2
Overburden Groundwater Contour Map
Bruno / Brickyard Associates / Alonzo

500 250 0 500 1,000 1,500
Feet

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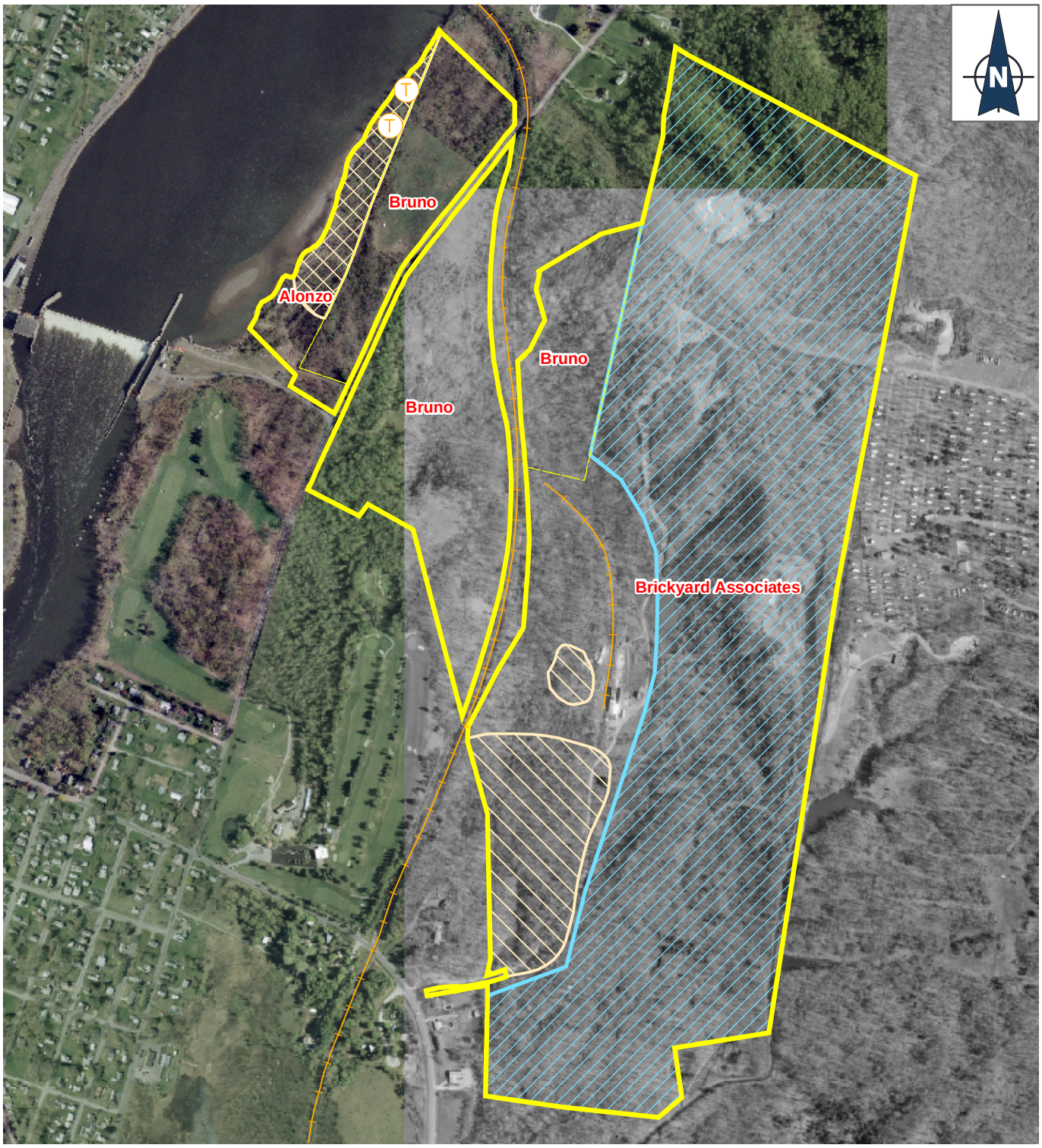
L:\Buffalo\Hudson_River\Maps\Mxd\FinalCandidateSites\Samples\Bruno_Brickyard_Alonzo_Groundwater.MXD - GIS

SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



LEGEND

Potential Site Boundary

Archaeological Testing Method

Backhoe Test

Shovel Test

Backhoe & Shovel Test

T Backhoe Trench Locations

[1] Bruno Property Not Surveyed

Hudson River PCBs SUPERFUND SITE

Figure 6-1
Field Sampling Areas[1]
Phase I B Cultural Resources Investigation
Bruno / Brickyard Associates / Alonzo

500 250 0 500 1,000 1,500
Feet

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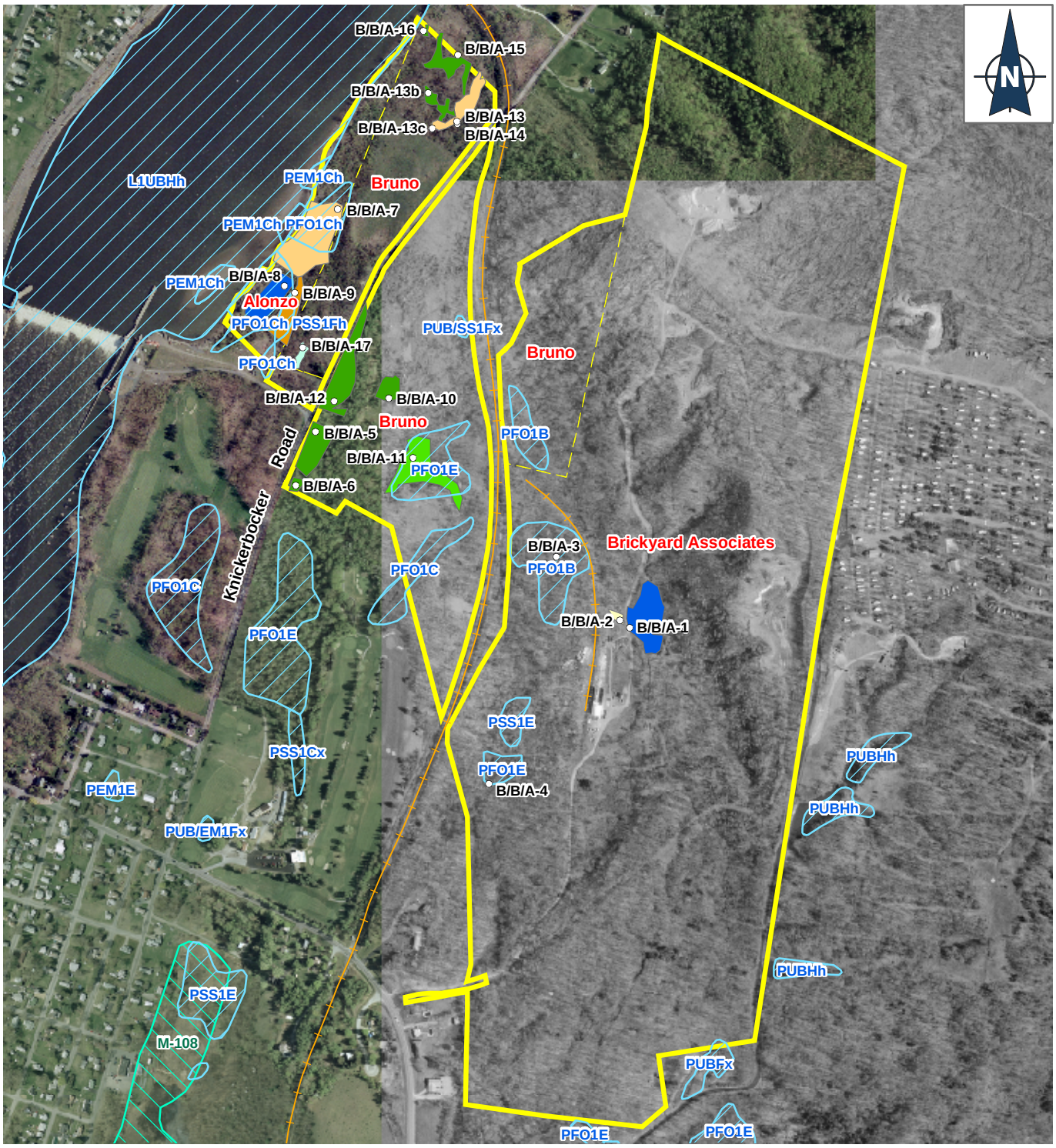
SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



LEGEND

- NYS DEC Mapping
- National Wetland Inventory Mapping

Delineated Wetlands

- Emergent
- Emergent / Scrub-Shrub
- Forested
- Forested / Emergent
- Forested / Scrub-Shrub
- Scrub-Shrub
- Open Water / Emergent
- Observation Plots

Hudson River PCBs SUPERFUND SITE

Figure 7-1
Wetland Locations
Bruno / Brickyard Associates / Alonzo

500 250 0 500 1,000 1,500
Feet

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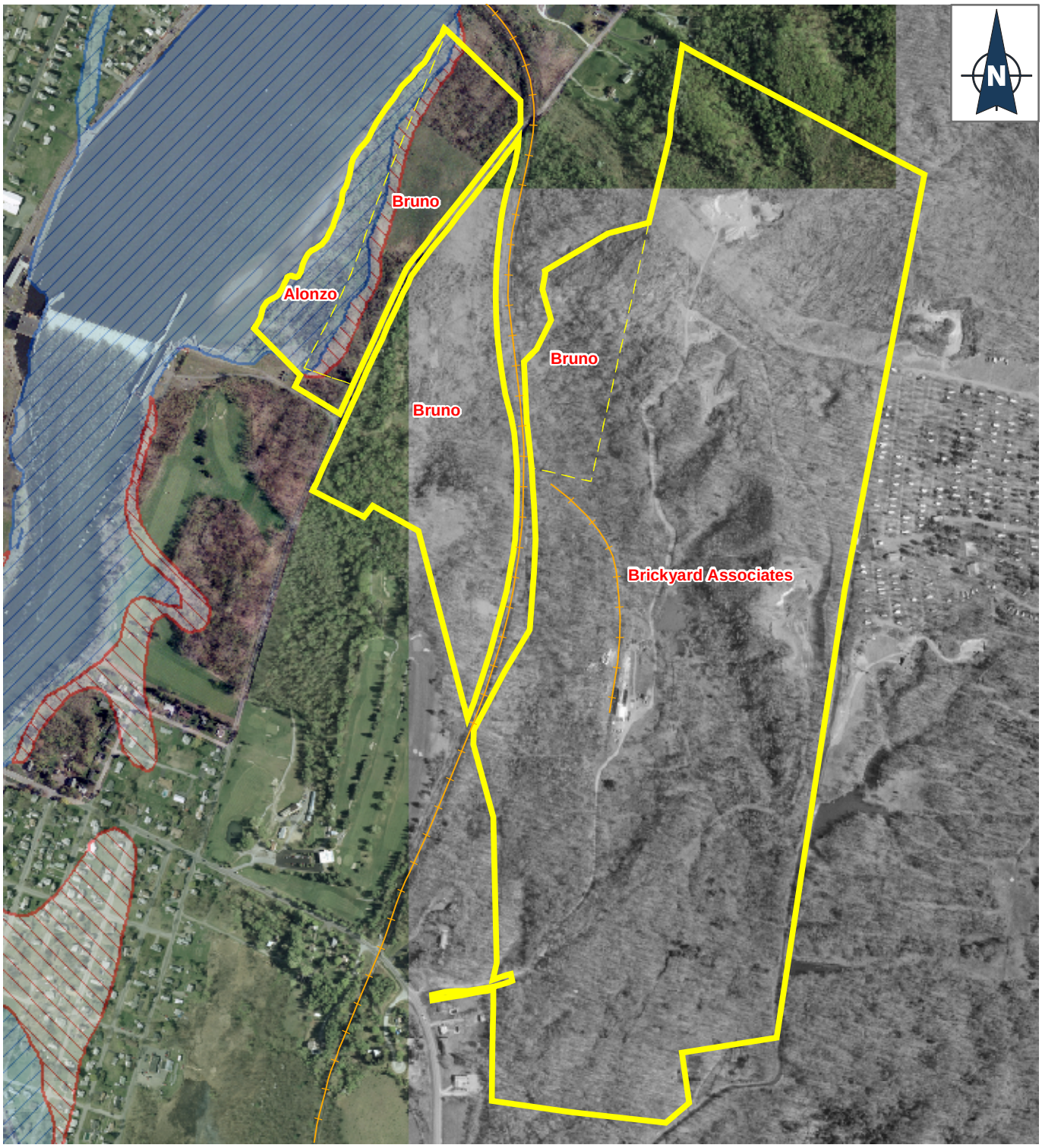
SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



LEGEND

- Potential Site Boundary
- Tax Parcels

FEMA Floodplain

- 100 Year Floodplain
- 500 Year Floodplain

Hudson River PCBs SUPERFUND SITE

Figure 8-1
FEMA Floodplain Mapping
Bruno / Brickyard Associates / Alonzo

500 250 0 500 1,000 1,500 2,000 Feet

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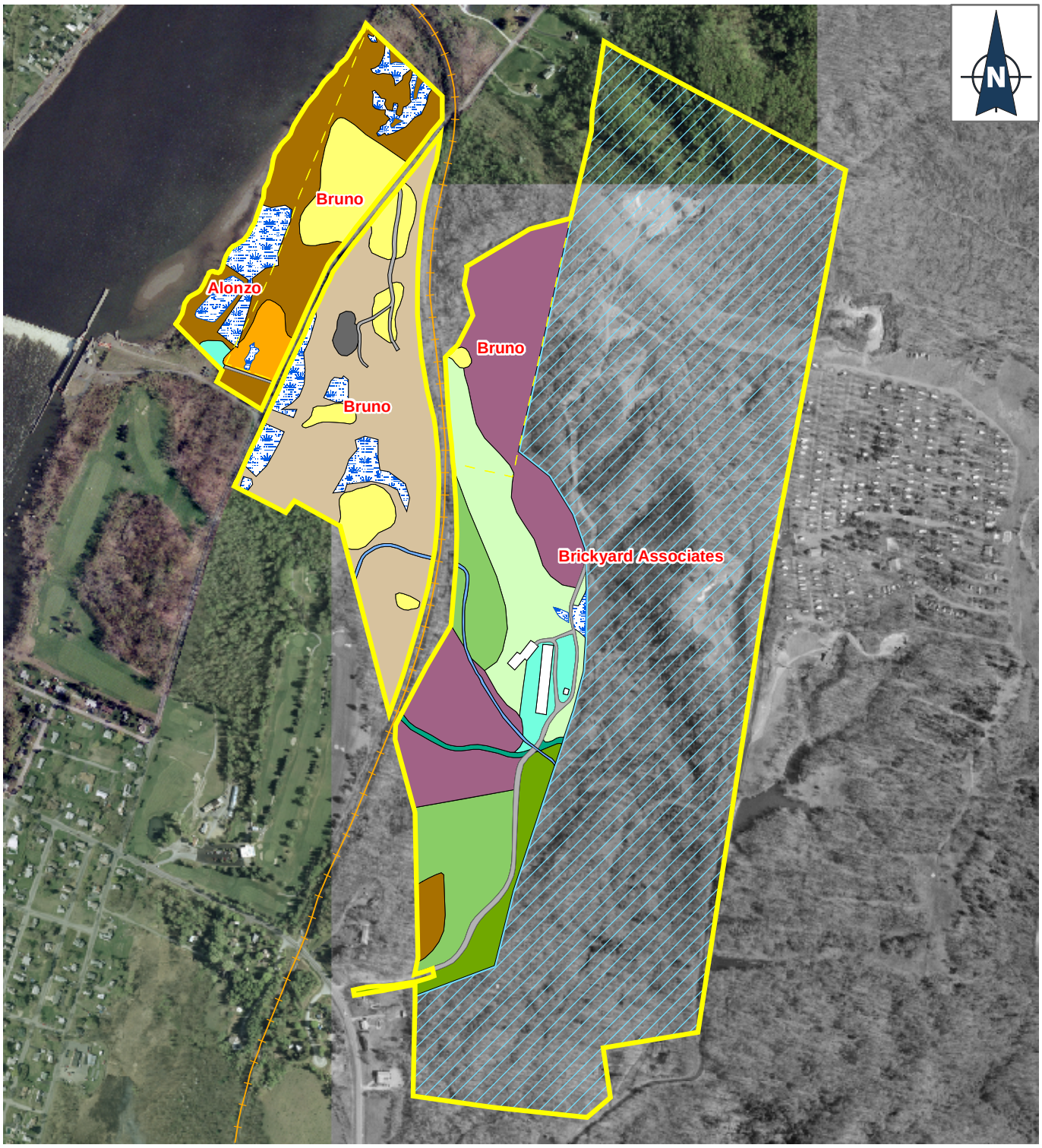
SOURCE; ECOLOGY & ENVIRONMENT, INC. 2003;



Ecological Communities

- Unpaved Road
- Wetland
- Successional Northern Hardwoods (SNH)
- Successional Old Field
- Successional Shrubland
- Successional Southern Hardwoods
- Rich Mesophytic Forest (RMF)
- Appalachian Oak-Hickory Forest (AOF)
- SNH / AOF
- RMF / AOF
- Marsh Headwater Stream
- Gravel Pit
- Rural Structure Exterior
- Mowed Pathway
- Mowed Roadside
- Potential Excluded Area

Hudson River PCBs SUPERFUND SITE

Figure 10-1
Site Ecological Communities
Bruno / Brickyard Associates / Alonzo

500 250 0 500 1,000 1,500 2,000 Feet

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