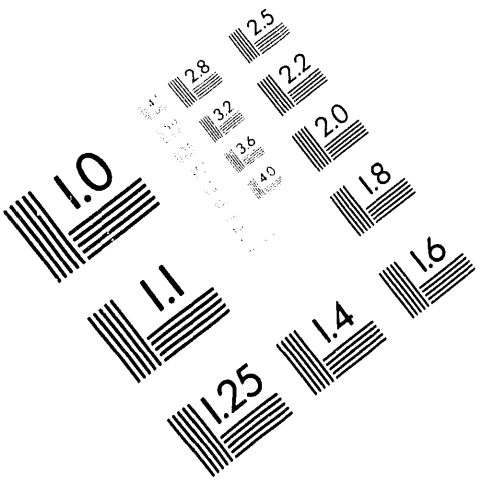

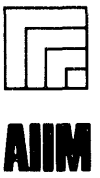

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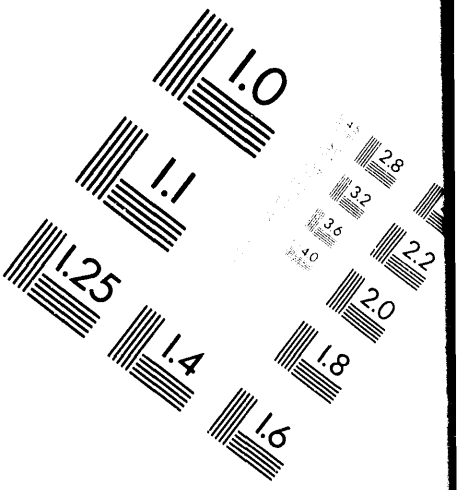

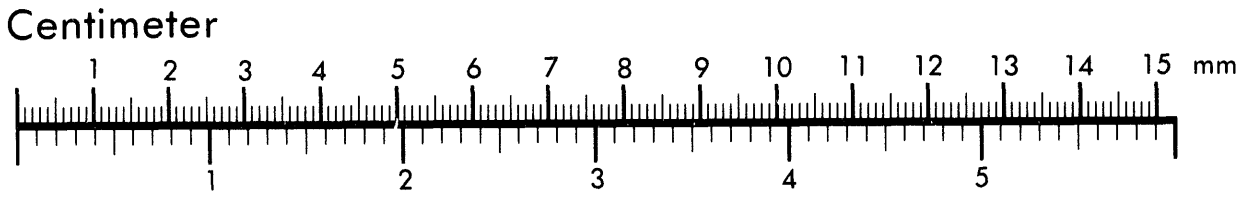

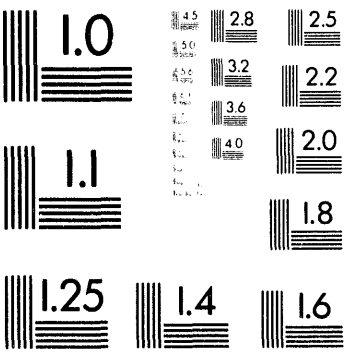

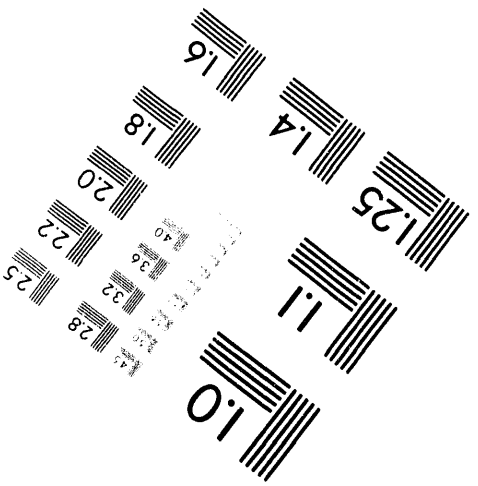

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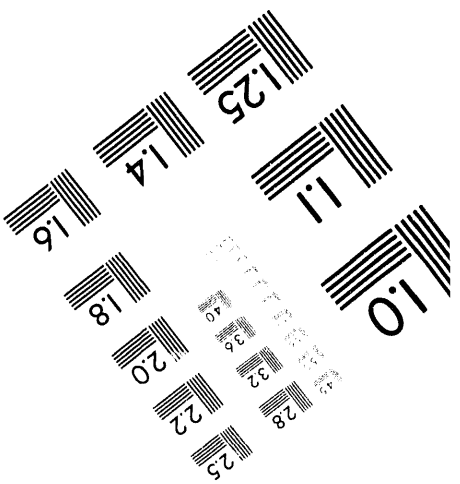

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ANL/EAD/TM-12

Wetlands of Argonne National Laboratory-East, DuPage County, Illinois

Environmental Assessment Division
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ANL/EAD/TM-12

Wetlands of Argonne National Laboratory-East, DuPage County, Illinois

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WETLANDS OF ARGONNE NATIONAL LABORATORY-EAST, DUPAGE COUNTY, ILLINOIS

by

R.A. Van Lonkhuyzen and K.E. LaGory

ABSTRACT

Jurisdictional wetlands of the Argonne National Laboratory-East (ANL-E) site in DuPage County, Illinois, were delineated in the summer and autumn of 1993 in accordance with the 1987 U.S. Army Corps of Engineers methodology. Potential wetland sites with an area greater than 500 m^2 (0.05 ha [0.124 acre]) were identified for delineation on the basis of aerial photographs, the DuPage County soil survey, and reconnaissance-level field studies. To qualify as a jurisdictional wetland, an area had to support a predominance of hydrophytic vegetation as well as have hydric soil and wetland hydrology. Thirty-five individual jurisdictional wetlands were delineated at ANL-E, totaling 180,604 m^2 (18.1 ha [44.6 acres]). These wetlands were digitized onto the ANL-E site map for use in project planning. Characteristics of each wetland are presented — including size, dominant plant species and their indicator status, hydrologic characteristics (including water source), and soil characteristics.

1 INTRODUCTION

Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers (Corps) to regulate the discharge of dredge or fill material into waters of the United States. Included in "waters of the U.S." are wetlands and other special aquatic sites. For purposes of administering the Section 404 program, the Corps defines wetlands as follows:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

The Corps has developed a methodology for defining the boundaries of (delineating) such jurisdictional wetlands (Environmental Laboratory 1987).

To facilitate project planning at Argonne National Laboratory-East (ANL-E), a research and development facility of the U.S. Department of Energy, a sitewide delineation of jurisdictional wetlands on the laboratory grounds was performed in the summer and fall

of 1993. This report presents the methodology used to delineate the ANL-E wetlands and describes the characteristics of these wetlands — including size, location, dominant plant species, soil characteristics, and hydrological characteristics.

2 SITE DESCRIPTION

The ANL-E site occupies about 689 ha (1,700 acres) of land and is located about 40 km (25 mi) southwest of Chicago in DuPage County, Illinois. The ANL-E research and development facility has been in operation since the late 1940s and contains a number of laboratory, office, and support buildings, parking lots, and roadways. Developed areas (including mowed lawns and fire lanes) occupy about 425 ha (1,050 acres). The remaining 264 ha (650 acres) are relatively undisturbed woodlots, old fields, and wetlands.

The Waterfall Glen Forest Preserve, covering 809 ha (2,000 acres), surrounds the ANL-E property and serves as a public recreation area and nature preserve. The forest preserve contains much of the same vegetation types as are present on the ANL-E site, and both areas are within the drainage basin of Sawmill Creek, a tributary of the Des Plaines River. The preserve includes about 105 ha (260 acres) of wetlands. Additional wetlands occur along the Des Plaines River to the south of the forest preserve and ANL-E.

Lands surrounding ANL-E and Waterfall Glen Forest Preserve have experienced rapid development over the last two decades. Most of this development has been construction of residential dwellings, office space, and retail businesses. This development has resulted in a marked alteration of the landscape, much of which had been used previously for agricultural purposes, and a loss or alteration of drainage patterns and wetlands. This development increases the importance of existing wetlands, such as those at ANL-E and Waterfall Glen Forest Preserve.

3 METHODS

Potential wetlands at ANL-E with an area greater than 500 m^2 (0.05 ha [0.124 acre]) were identified on the basis of aerial photographs, the DuPage County soil survey (Soil Conservation Service 1979), and reconnaissance-level field studies. Wetland boundaries were delineated in accordance with the currently approved methodology described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and subsequent guidance issued by the Corps. To qualify as a wetland with this methodology, an area must have hydric soil and wetland hydrology, and must support a predominance of hydrophytic vegetation.

The method for routine determination was followed (Section D, Subsection 2, of the *Wetlands Delineation Manual*). Plant communities were determined at each site, and data were collected at a representative location within each community. If a community occupied

a relatively large proportion of a site or bordered upland communities at widely separated locations, data were collected at more than one location within the community. If the boundary between wetland and upland communities was indistinct, data were collected near the apparent boundary to produce more accurate delineations.

Data collected at each location included dominant plant species (after Swink and Wilhelm 1979), hydrological conditions, and soil characteristics. A standard data sheet was used for each location. Dominant plant species were determined for the following strata: herbs, trees, shrubs and saplings, and woody vines. Dominance was based on percent areal coverage. The hydrophytic vegetation parameter was considered met if more than 50% of all dominant plant species had an indicator status of facultative, facultative wetland, or obligate wetland. The indicator status of plant species was determined from Reed (1988). The status categories are defined in Table 1.

Hydrological conditions were determined at each sampling location. Depth to water table was determined with a steel soil probe 2 cm (0.75 in.) in diameter. Soil cores were obtained by using the probe, and depth to water was measured in the probe hole. The

TABLE 1 Plant Indicator Status Categories

Indicator Category	Indicator Symbol	Definition
Obligate wetland plants	OBL	Plants that occur almost always in wetlands under natural conditions (estimated probability >99%), but may also occur rarely in nonwetlands (estimated probability <1%)
Facultative wetland plants	FACW	Plants that occur usually in wetlands (estimated probability >67 to 99%), but also occur in nonwetlands (estimated probability 1 to 33%)
Facultative plants	FAC	Plants with a similar likelihood of occurring in both wetlands and nonwetlands (estimated probability 33 to 67%)
Facultative upland plants	FACU	Plants that occur sometimes in wetlands (estimated probability 1 to <33%), but occur more often in nonwetlands (estimated probability >67 to 99%)
Obligate upland plants	UPL	Plants that occur rarely in wetlands (estimated probability <1%), but occur almost always in nonwetlands under natural conditions (estimated probability >99%)

[a] The three facultative categories may be subdivided by "+" (more wet) or "–" (less wet).

Source: Environmental Laboratory (1987).

wetland hydrology parameter was considered met if at least one primary indicator, or two secondary indicators, were present (Environmental Laboratory 1987). Primary indicators were (1) inundation; (2) saturated soil within 30 cm (12 in.) of the soil surface; (3) water marks, drift lines, or sediment deposits on surface features; and (4) drainage patterns in wetlands. Secondary indicators were (1) oxidized root channels within 30 cm (12 in.) of the soil surface; (2) water-stained leaves; (3) local soil survey data; and (4) a positive facultative-neutral test (more than 50% of dominant species wetter than facultative).

Soils were collected for examination at each location with the soil probe or a spade. Soil color was determined according to the *Munsell Soil Color Charts* (Kollmorgen Corporation 1990). Matrix color, mottle color and abundance, and soil texture were recorded for each soil horizon or at a depth of 25 cm (10 in.). The hydric soil parameter was considered met if at least one of the following hydric indicators was present: (1) histosol, (2) histic epipedon, (3) sulfidic odor, (4) aquic moisture regime, (5) reducing conditions, (6) gleyed or low-chroma colors (at 25 cm [10 in.] or immediately below the A horizon), (7) concretions, (8) high organic content in the surface layer in sandy soils, (9) organic streaking in sandy soils, (10) soil listed on the local hydric soils list, or (11) soil listed on the national hydric soils list. Soils were assumed to be hydric if all dominant plant species at the location were obligate wetland species or if all dominants were obligate wetland and facultative wetland species and the wetland/upland boundary was abrupt (Environmental Laboratory 1987). Soils that were known to be inundated for a long time during the growing season (i.e., more than two weeks) were considered to be hydric, as allowed in the *Wetlands Delineation Manual*.

Communities in which all three wetland parameters were met were considered wetland. Wetland boundaries were drawn around contiguous wetland plant communities. Where this boundary was indistinct, the wetland boundary was established between two data collection points, one upland and one wetland.

Wetland boundaries were digitized onto the ANL-E site map from aerial photographs taken on March 19, 1992. Locations of wetland boundaries were verified in the field.

4 RESULTS

The delineation of wetlands at ANL-E identified 35 wetlands with a total area of approximately 180,604 m^2 (8.06 ha [44.6 acres]) on the ANL-E site. In addition, a relatively large wetland (4.1 ha [10.2 acres]) was delineated adjacent to the ANL-E boundary in Waterfall Glen Forest Preserve. The locations and boundaries of these wetlands at the time of the survey are shown in Plate 1 (inserted at the back of the report). Wetlands are numbered consecutively within ANL-E building areas by a three-digit code; for example, the eight wetlands in the 200 Area of the laboratory are numbered 201 through 208.

The delineated wetlands represent a variety of types, including (1) floodplain or riparian wetlands (e.g., 002 and 103); (2) forested wetlands (e.g., 101 and 307); and (3) marshes, dominated by cat-tails, grasses, sedges, and rushes (e.g., 201 and 406). Some

of the wetlands are of relatively recent origin and have been formed as a result of human or beaver activities. Beaver dams have created five wetlands along intermittent streams at ANL-E (numbers 201, 302, 303, 402, and 803); these wetlands total 9.1 ha (22.6 acres).

Some wetlands on the ANL-E site are relatively disturbed, including five wetlands (203, 204, 205, 206, and 208) and parts of two others (306 and 802) that are along drainage ditches (total area approximately 0.6 ha [1.5 acres]). These wetlands show atypical soil profiles that reflect past disturbance and generally support degraded plant communities with relatively weedy species and low species diversity. Several disturbed wetlands are near active construction sites (e.g., wetlands 304 and 406) and have experienced altered hydrological conditions or received sediments eroded from the construction area. These wetlands are undergoing changes in species composition as they become drier.

Several high-quality, relatively undisturbed wetlands that support unusual plant species or high species diversity were also delineated. Wetlands 401 through 405, in the southwest part of the ANL-E site, support relatively complex plant communities with high species diversity. Hairy marsh cress (*Rorippa islandica hispida*), listed as threatened in Illinois, was found at wetlands 402 and 406; Engelmann's flatsedge (*Cyperus engelmanni*), a rare wetland species, at wetland 201; and bristly smartweed (*Polygonum setaceum interjectum*), another rare species, at wetland 301.

A summary of information regarding each delineated jurisdictional wetland at ANL-E is provided on the following pages.

Wetland Number: 001

Size: 854 m^2 (0.211 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Phalaris arundinacea	Reed canary grass	FACW+

Hydrology:

Hydrologic Regime: Surface water occurs in spring in the intermittent stream that flows through the wetland and near the culvert running beneath Front Street. The rest of the wetland is saturated to the surface in spring.

Water Source(s): Unnamed intermittent stream running southwest from Waterfall Glen Forest Preserve and a drainage ditch running east along Front Street.

Soil:

Map Unit Name:	Morley silt loam
Inclusion:	Ashkum
Taxonomy:	Typic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2.5/1

Wetland Number: 002

Size: 16,618 m^2 (4.106 acres)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Phalaris arundinacea	Reed canary grass	FACW+
Tilia americana	Basswood	FACU
Ulmus americana	American elm	FACW-

Hydrology:

Hydrologic Regime: Surface water is frequently present in spring, and soil is saturated within 30 cm (12 in.) of the surface for extended periods in spring.

Water Source(s): Primarily the annual floodwaters of Sawmill Creek. Freund Brook also passes through the southern portion of the site.

Soil:

Map Unit Name:	Sawmill silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 3/1.5, 10 YR 3/2

Wetland Number: 101

Size: 1,405 m^2 (0.347 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Acer negundo	Box elder	FACW-
Boehmeria cylindrica	False nettle	OBL
Fraxinus pennsylvanica	Red ash	FACW
Leersia virginica	White grass	FACW
Pilea pumila	Clearweed	FACW
Polygonum punctatum	Smartweed	OBL
Populus deltoides	Cottonwood	FAC+
Ulmus americana	American elm	FACW-

Hydrology:

Hydrologic Regime: Surface water is present throughout the site for extended periods in spring.

Water Source(s): Seasonally high water table and surface flow from the surrounding area.

Soil:

Map Unit Name:	Sawmill silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2.5/1, 10 YR 3.5/1

Wetland Number: 102

Size: 1,799 m^2 (0.445 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Agrostis alba	Redtop	FACW
Carex cristatella	Crested sedge	FACW+
Carex lanuginosa	Wooly sedge	OBL
Carex trichocarpa	Hairy-fruit sedge	OBL
Fraxinus pennsylvanica subintegerrima	Green ash	FACW
Iris virginica shrevei	Blue flag	OBL
Juncus tenuis	Roadside rush	FAC
Juncus torreyi	Torrey's rush	FACW
Phalaris arundinacea	Reed canary grass	FACW+
Poa pratensis	Kentucky blue grass	FAC-
Rhus radicans	Poison ivy	FAC+
Salix nigra	Black willow	OBL
Solidago graminifolia nuttallii	Grass-leaved goldenrod	FAC
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present in the eastern portion of the site in spring. Soil in the remainder of the wetland is saturated within 30 cm (12 in.) of the surface for extended periods in spring.

Water Source(s): A small intermittent stream entering the site from the south-west, surface runoff from the surrounding area, and a seasonally high water table.

Soil:

Map Unit Name:	Sawmill silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2/1, 10 YR 2/0, 10 YR 2.5/0.5, 10 YR 4/1

Wetland Number: 103

Size: 4,858 m^2 (1.200 acres)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Phalaris arundinacea	Reed canary grass	FACW+
Salix nigra	Black willow	OBL

Hydrology:

Hydrologic Regime: Surface water is present in spring. Soil is saturated to the surface for extended periods.

Water Source(s): Annual floodwaters of Sawmill Creek and surface flow from the surrounding area.

Soil:

Map Unit Name:	Sawmill silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 3/1

Wetland Number: 201

Size: 16,820 m^2 (4.156 acres)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Bidens frondosa	Common beggar's ticks	FACW
Cirsium arvense	Canada thistle	FACU
Leersia oryzoides	Rice cut grass	OBL
Mentha arvensis villosa	Wild mint	FACW
Phalaris arundinacea	Reed canary grass	FACW+
Polygonum punctatum	Smartweed	OBL
Typha latifolia	Common cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the year within the stream channels on the site. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods. A small area in the northwest part of the site is ponded by remnants of a beaver dam.

Water Source(s): An unnamed intermittent tributary of Sawmill Creek entering at the southern end of the site, storm sewer drainage from the areas of Buildings 206, 207, and 208 entering at the eastern end, and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Peotone silty clay loam, Beecher silt loam
Inclusion:	Ashkum (in Beecher)
Taxonomy:	Cumulic Haplaquoll, Typic Haplaquoll
Drainage Class:	Very poorly drained, poorly drained
Matrix Color:	10 YR 2.5/1, 10 YR 3/1, 10 YR 2/1, 10 YR 2/0

Wetland Number: 202

Size: 2,190 m^2 (0.541 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Carex stricta	Upright sedge	OBL
Poa pratensis	Kentucky blue grass	FAC-
Solidago gigantea	Late goldenrod	FACW
Solidago graminifolia nuttallii	Grass-leaved goldenrod	FAC
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods in spring.

Water Source(s): Storm sewer drainage from the area of Building 203 entering at the south end of the site and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 3/2, 10 YR 2/1

Wetland Number: 203

Size: 1,328 m^2 (0.328 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Cyperus strigosus	Straw-color flatsedge	FACW
Juncus torreyi	Torrey's rush	FACW
Salix interior	Sandbar willow	OBL
Scirpus atrovirens	Dark green rush	OBL
Solidago graminifolia nuttallii	Grass-leaved goldenrod	FAC
Spartina pectinata	Prairie cord grass	FACW+
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season.

Water Source(s): Storm sewer drainage from the areas of Buildings 203 and 221 entering at the west end of the site and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	2.5 Y 3.5/1, 2.5 Y 5/0, 10 YR 4/3.5

Wetland Number: 204

Size: 580 m^2 (0.143 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Acorus calamus	Sweetflag	OBL
Leersia oryzoides	Rice cut grass	OBL
Scirpus atrovirens	Dark green rush	OBL
Solidago graminifolia nuttallii	Grass-leaved goldenrod	FAC
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season within the drainage channel.

Water Source(s): Storm sewer drainage from the area of Building 202 entering at the west end of the site, drainage from wetland 205 entering at the east end, and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Morley silt loam, Ashkum silty clay loam
Inclusion:	Ashkum
Taxonomy:	Typic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2/1, 10 YR 3/2, 10 YR 4/3

Wetland Number: 205

Size: 1,644 m^2 (0.406 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Ribes americanum	Wild black currant	FACW
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season in the stream channel. Soil is saturated within 30 cm (12 in.) of the surface for extended periods in spring throughout the rest of the site.

Water Source(s): Storm sewer drainage from the area of Building 202 entering at the west end of the site and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Ashkum silty clay loam, Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Typic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	2.5 Y 4/0, 10 YR 2/1, 2.5 Y 3.5/0

Wetland Number: 206

Size: 622 m^2 (0.154 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Solanum dulcamara	Bittersweet nightshade	FAC
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods in spring.

Water Source(s): Storm sewer drainage from the area of Building 200 entering at the west end of the site, two undetermined drainages entering near the east end, and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 4/4, 10 YR 4/5

Wetland Number: 207

Size: 1,301 m^2 (0.321 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Alliaria officinalis	Garlic mustard	FAC
Boehmeria cylindrica	False nettle	OBL
Circaea quadrisulcata canadensis	Enchanter's nightshade	FACU
Cirsium arvense	Canada thistle	FACU
Cornus obliqua	Pale dogwood	FACW+
Cornus racemosa	Gray dogwood	FACW-
Eupatorium serotinum	Late boneset	FAC+
Phragmites australis	Common reed	FACW+
Pilea pumila	Clearweed	FACW
Rhus radicans	Poison ivy	FAC+
Ribes americanum	Wild black currant	FACW
Salix alba	White willow	FACW
Salix nigra	Black willow	OBL
Sambucus canadensis	Elderberry	FACW-
Typha angustifolia	Narrow-leaved cat-tail	OBL
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season within the stream channels. The remaining area is saturated within 30 cm (12 in.) of the surface for prolonged periods in spring.

Water Source(s): Storm sewer drainage from the areas of Buildings 201 and 213 and wetland 206 (which receives drainage from the area of Building 200) entering the site at the northwest end and another drainage from the area of Building 201 entering at the southwest end.

Soil:

Map Unit Name:	Ashkum silty clay loam
Inclusion:	Undetermined
Taxonomy:	Typic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2.5/1, 10 YR 2/1, 10 YR 3/2, 10 YR 3/1.5

Wetland Number: 208

Size: 1,148 m^2 (0.284 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season.

Water Source(s): Storm sewer system drainage from the area of Building 205 entering at the west end of the site and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Morley silt loam, Peotone silty clay loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 5/3, 2.5 Y 4/2, 2.5 Y 3.5/2

Wetland Number: 301

Size: 1,807 m^2 (0.447 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Agrostis alba	Redtop	FACW
Carex bebbii	Bebb's sedge	OBL
Carex cristatella	Crested sedge	FACW+
Carex vulpinoidea	Fox sedge	OBL
Festuca elatior	Meadow fescue	FACU-
Juncus torreyi	Torrey's rush	FACW
Scirpus atrovirens	Dark green rush	OBL
Scirpus lineatus	Red bulrush	OBL
Solidago graminifolia nuttallii	Grass-leaved goldenrod	FAC
Spartina pectinata	Prairie cord grass	FACW+
Typha angustifolia	Narrow-leaved cat-tail	OBL
Typha latifolia	Common cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the year. Areas not inundated are saturated to the surface for extended periods.

Water Source(s): Drainage from Water Towers 565 and 566 (possibly due to leaks in the pumping system) entering the site at the northwest end.

Soil:

Map Unit Name:	Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 2/1, 10 YR 4/2, 10 YR 5/1.5, 10 YR 3/2

Wetland Number: 302

Size: 32,150 m^2 (7.944 acres)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Alisma subcordatum	Common water plantain	OBL
Bidens frondosa	Common beggar's ticks	FACW
Cyperus erythrorhizos	Red-rooted sedge	OBL
Echinochloa crusgalli	Barnyard grass	FACW
Leersia oryzoides	Rice cut grass	OBL
Lemna minor	Small duckweed	OBL
Lycopus americanus	Common water horehound	OBL
Penthorum sedoides	Ditch stone crop	OBL
Phalaris arundinacea	Reed canary grass	FACW+
Polygonum coccineum	Water heartsease	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the year. Water levels are controlled by a beaver dam at the northeast end, where water flows into wetland 303. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods. Water levels in this wetland vary considerably between years, depending on the condition of the beaver dam. Lower water levels allow wetland vegetation to colonize areas that under higher levels support only submergent aquatic plants and nonrooted floating plants.

Water Source(s): Freund Brook entering at the west side of the site, surface runoff from the surrounding area, an unnamed intermittent stream entering at the southwest end, and a channel from wetland 304 entering at the northeast (flows limited by a dam installed in the channel).

Soil:

Map Unit Name:	Sawmill silty clay loam, Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 3/1, 10 YR 2.5/1, 10 YR 2/1.5, 10 YR 4.5/1

Wetland Number: 303

Size: 30,538 m^2 (7.546 acres)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Acer negundo	Box elder	FACW-
Carex cristatella	Crested sedge	FACW+
Carex vulpinoidea	Fox sedge	OBL
Cornus racemosa	Gray dogwood	FACW-
Equisetum arvense	Horsetail	FAC
Leersia oryzoides	Rice cut grass	OBL
Lonicera tatarica	Tartarian honeysuckle	FACU
Phragmites australis	Common reed	FACW+
Polygonum hydropiperoides	Mild water pepper	OBL
Rosa multiflora	Multiflora rose	FACU
Salix interior	Willow	OBL
Scirpus atrovirens	Dark green rush	OBL
Typha angustifolia	Narrow-leaved cat-tail	OBL
Typha latifolia	Common cat-tail	OBL
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present throughout the year. Water levels are controlled by a beaver dam located at the northeast end on Freund Brook. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods. Water levels in this wetland vary considerably between years, depending on the condition of the beaver dam. Lower water levels allow wetland vegetation to colonize areas that under higher levels support only submergent aquatic plants and nonrooted floating plants.

Water Source(s): Freund Brook entering at the southwest end of the site, storm sewer system drainage from Buildings 200, 205, and 211 entering the site at the north end, and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Sawmill silty clay loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 4.5/3, 10 YR 5/3.5, 10 YR 2/0

Wetland Number: 304

Size: 2,046 m^2 (0.506 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Acer negundo	Box elder	FACW-
Agrostis alba	Redtop	FACW
Alisma subcordatum	Common water plantain	OBL
Ambrosia trifida	Giant ragweed	FAC+
Carex cristatella	Crested sedge	FACW+
Eupatorium serotinum	Late boneset	FAC+
Geum canadense	White avens	FAC
Glyceria striata	Fowl meadow grass	OBL
Leersia oryzoides	Rice cut grass	OBL
Prunella vulgaris	Self heal	FAC
Salix amygdaloides	Peach-leaved willow	FACW
Salix interior	Sandbar willow	OBL
Typha angustifolia	Narrow-leaved cat-tail	OBL
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface flow and standing water are present in spring. Because of the high sediment load of the surface flow, the original soil surface has been overlaid with sediment, which is approximately 0.6 m (2 ft) thick in some areas.

Water Source(s): Surface runoff from the surrounding area and a seasonally high water table. Water from this wetland drains to wetland 302.

Soil:

Map Unit Name:	Ashkum silty clay loam
Inclusion:	Undetermined
Taxonomy:	Typic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2/0, 10 YR 4/1, 2.5 Y 4/3

Wetland Number: 305

Size: 1,809 m^2 (0.447 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Bidens vulgata	Tall beggar's ticks	FACW
Glyceria striata	Fowl meadow grass	OBL
Pilea pumila	Clearweed	FACW
Populus deltoides	Cottonwood	FAC+
Tovara virginiana	Woodland knotweed	FAC
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present for extended periods in spring.

Water Source(s): Surface runoff from the surrounding area and a seasonally high water table.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 2/1

Wetland Number: 306

Size: 1,480 m^2 (0.366 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Boehmeria cylindrica	False nettle	OBL
Impatiens capensis	Orange jewelweed	FACW
Pilea pumila	Clearweed	FACW
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods in spring.

Water Source(s): Storm sewer drainage from the area of Building 212 entering at the north end of the site and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 3/1.5

Wetland Number: 307

Size: 2,776 m^2 (0.686 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Acer negundo	Box elder	FACW-
Acer saccharinum	Silver maple	FACW
Bidens frondosa	Common beggar's ticks	FACW
Boehmeria cylindrica	False nettle	OBL
Cornus racemosa	Gray dogwood	FACW-
Pilea pumila	Clearweed	FACW
Poa trivialis	Rough blue grass	FACW
Populus deltoides	Cottonwood	FAC+
Rhamnus cathartica	Buckthorn	FACU
Rhus radicans	Poison ivy	FAC+
Ulmus americana	American elm	FACW-
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present over most of the site throughout the early part of the growing season but is absent by the end of the growing season. Areas not inundated are saturated to the surface for prolonged periods.

Water Source(s): Surface runoff from the surrounding area and a seasonally high water table.

Soil:

Map Unit Name:	Blount silt loam
Inclusion:	Ashkum
Taxonomy:	Typic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2/0, 10 YR 2/1, 10 YR 2.5/1

Wetland Number: 308

Size: 1,313 m^2 (0.324 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Agrostis alba	Redtop	FACW
Carex vulpinoidea	Fox sedge	OBL
Juncus torreyi	Torrey's rush	FACW
Phalaris arundinacea	Reed canary grass	FACW+
Scirpus atrovirens	Dark green rush	OBL
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present for extended periods in spring. Areas not inundated are saturated within 30 cm (12 in.) of the surface for prolonged periods in spring.

Water Source(s): An unnamed intermittent stream entering at the west end of the site and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 2.5/2, 10 YR 4.5/3, 10 YR 4/4

Wetland Number: 309

Size: 3,919 m^2 (0.968 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Carex bebbii	Bebb's sedge	OBL
Elymus virginicus	Virginia wild rye	FACW-
Phalaris arundinacea	Reed canary grass	FACW+
Ribes americanum	Wild black currant	FACW
Scirpus atrovirens	Dark green rush	OBL
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present for prolonged periods in spring. Areas not inundated are saturated within 30 cm (12 in.) of the surface for prolonged periods in spring.

Water Source(s): An intermittent drainage from the area of Building 362 entering the site at the north end and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Ashkum silty clay loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 3/3, 10 YR 2.5/1.5, 10 YR 3/2

Wetland Number: 401

Size: 1,816 m^2 (0.449 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Bidens frondosa	Common beggar's ticks	FACW
Leersia oryzoides	Rice cut grass	OBL
Sparganium eurycarpum	Common bur reed	OBL

Hydrology:

Hydrologic Regime: Surface water is present for most of the growing season. Areas not inundated are saturated to the surface for extended periods.

Water Source(s): Surface runoff from the surrounding area and a seasonally high water table.

Soil:

Map Unit Name:	Morley silt loam
Inclusion:	Ashkum
Taxonomy:	Typic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2.5/1, 10 YR 2/0

Wetland Number: 402

Size: 1,129 m^2 (0.279 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Bidens frondosa	Common beggar's ticks	FACW
Eupatorium serotinum	Late boneset	FAC+
Leersia oryzoides	Rice cut grass	OBL
Pilea pumila	Clearweed	FACW

Hydrology:

Hydrologic Regime: Surface water is present throughout the year in a small area near the ANL-E boundary fence. The remainder of the site is saturated within 30 cm (12 in.) of the surface for extended periods.

Water Source(s): This wetland is part of a larger marsh in Waterfall Glen Forest Preserve. The marsh receives water from Freund Brook (draining from wetland 801B in Waterfall Glen Forest Preserve) and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	None
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 2/0

Wetland Number: 403

Size: 1,378 m^2 (0.340 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Agrostis alba	Redtop	FACW
Bidens frondosa	Common beggar's ticks	FACW
Carex scoparia	Pointed broom sedge	FACW
Eleocharis obtusa	Blunt spikerush	OBL
Iris virginica shrevei	Blue flag	OBL
Leersia oryzoides	Rice cut grass	OBL
Penthorum sedoides	Ditch stone crop	OBL
Polygonum coccineum	Water heartsease	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the site in spring and early summer, but is absent by the end of the growing season.

Water Source(s): Surface runoff from the surrounding area and a seasonally high water table.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	None
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 2/0

Wetland Number: 404

Size: 1,217 m^2 (0.301 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Bidens frondosa	Common beggar's ticks	FACW
Boehmeria cylindrica	False nettle	OBL
Cornus racemosa	Gray dogwood	FACW-
Glyceria striata	Fowl meadow grass	OBL
Pilea pumila	Clearweed	FACW
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present for extended periods early in the growing season over much of the site but is absent by the end of the growing season. Areas not inundated are saturated within 30 cm (12 in.) of the surface for prolonged periods early in the growing season.

Water Source(s): Surface runoff from the surrounding area and a seasonally high water table.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	Ashkum (in some areas)
Taxonomy:	Cumulic Haplaquoll, Typic Haplaquoll
Drainage Class:	Very poorly drained, poorly drained
Matrix Color:	10 YR 2.5/1

Wetland Number: 405

Size: 5,194 m^2 (1.283 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Acer saccharinum	Silver maple	FACW
Glyceria septentrionalis	Floating manna grass	OBL
Impatiens capensis	Orange jewelweed	FACW
Leersia virginica	White grass	FACW
Myriophyllum exalbescens	Spiked water milfoil	OBL
Sparganium eurycarpum	Common bur reed	OBL

Hydrology:

Hydrologic Regime: Surface water is present for most of the growing season. Areas not inundated are saturated to the surface for extended periods.

Water Source(s): Surface runoff from the surrounding area and a seasonally high water table.

Soil:

Map Unit Name:	Peotone silty clay loam, perennially ponded
Inclusion:	None
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 2/0, 10 YR 2/1

Wetland Number: 406

Size: 3,581 m^2 (0.885 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Agropyron repens	Quack grass	FACU
Agrostis alba	Redtop	FACW
Ambrosia artemisiifolia elatior	Common ragweed	FACU
Asclepias incarnata	Swamp milkweed	OBL
Eupatorium serotinum	Late boneset	FAC+
Carex cristatella	Crested sedge	FACW+
Carex tribuloides	Blunt-broom sedge	FACW+
Carex vulpinoidea	Fox sedge	OBL
Cyperus esculentus	Chufa	FACW
Phalaris arundinacea	Reed canary grass	FACW+
Polygonum pensylvanicum laevigatum	Pennsylvania knotweed	FACW+

Hydrology:

Hydrologic Regime: Surface water is present for brief periods in spring. Soil is saturated within 30 cm (12 in.) of the surface in spring in the central portion of the site but infrequently in the outer portions. This site had been inundated in previous years for extended periods during the growing season, but the hydrology has recently been altered.

Water Source(s): Surface runoff from the surrounding area and a seasonally high water table.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	None
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 2/0

Wetland Number: 601

Size: 1,094 m^2 (0.270 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Acer negundo	Box elder	FACW-
Bidens frondosa	Common beggar's ticks	FACW
Boehmeria cylindrica	False nettle	OBL
Impatiens capensis	Orange jewelweed	FACW
Leersia oryzoides	Rice cut grass	OBL
Lysimachia nummularia	Moneywort	FACW+
Phalaris arundinacea	Reed canary grass	FACW+
Pilea pumila	Clearweed	FACW
Polygonum punctatum	Smartweed	OBL
Rhus radicans	Poison ivy	FAC+
Rudbeckia laciniata	Wild golden glow	FACW+
Salix alba	White willow	FACW
Scirpus atrovirens	Dark green rush	OBL
Tilia americana	Basswood	FACU
Ulmus americana	American elm	FACW-
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present in spring. Soil is saturated within 30 cm (12 in.) of the surface for prolonged periods for much of the remainder of the growing season.

Water Source(s): Freund Brook entering at the west end of the site, a small intermittent stream entering at the north, and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 2.5/2, 10 YR 2/1, 10 YR 2/0

Wetland Number: 602

Size: 1,013 m^2 (0.250 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Apocynum sibiricum	Indian hemp	FAC+
Bidens cernua	Nodding bur marigold	OBL
Boehmeria cylindrica	False nettle	OBL
Cyperus erythrorhizos	Red-rooted sedge	OBL
Echinochloa crusgalli	Barnyard grass	FACW
Eupatorium serotinum	Late boneset	FAC+
Impatiens capensis	Orange jewelweed	FACW
Leersia oryzoides	Rice cut grass	OBL
Phalaris arundinacea	Reed canary grass	FACW+
Polygonum punctatum	Smartweed	OBL
Scutellaria lateriflora	Mad dog skullcap	OBL
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present throughout the year. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods for much of the growing season.

Water Source(s): Freund Brook entering at the south end of the site and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	5 Y 3.5/2, 2.5 Y 2/0, 10 YR 4/1

Wetland Number: 603

Size: 7,724 m^2 (1.909 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Acer negundo	Box elder	FACW-
Acer saccharinum	Silver maple	FACW
Aster lateriflorus	Side-flowered aster	FACW-
Bidens cernua	Nodding bur marigold	OBL
Bidens frondosa	Common beggar's ticks	FACW
Boehmeria cylindrica	False nettle	OBL
Carex vulpinoidea	Fox sedge	OBL
Celastrus orbiculatus	Oriental bittersweet	No indicator
Cirsium muticum	Swamp thistle	OBL
Cirsium arvense	Canada thistle	FACU
Cornus racemosa	Gray dogwood	FACW-
Eleocharis calva	Bald spikerush	OBL
Eupatorium serotinum	Late boneset	FAC+
Fraxinus pennsylvanica subintegerrima	Green ash	FACW
Hibiscus palustris	Swamp rose mallow	OBL
Impatiens capensis	Orange jewelweed	FACW
Leersia oryzoides	Rice cut grass	OBL
Lobelia siphilitica	Great blue lobelia	FACW+
Lonicera japonica	Japanese honeysuckle	FACU
Parthenocissus quinquefolia	Virginia creeper	FAC-
Phalaris arundinacea	Reed canary grass	FACW+
Phragmites australis	Common reed	FACW+
Polygonum punctatum	Smartweed	OBL
Potamogeton nodosus	Long-leaved pondweed	OBL
Rhus radicans	Poison ivy	FAC+
Ribes americanum	Wild black currant	FACW
Rosa multiflora	Multiflora rose	FACU
Rubus occidentalis	Black raspberry	UPL
Rudbeckia laciniata	Wild golden glow	FACW+
Sagittaria latifolia	Common arrowhead	OBL
Salix amygdaloides	Peach-leaved willow	FACW
Scirpus atrovirens	Dark green rush	OBL
Typha angustifolia	Narrow-leaved cat-tail	OBL
Ulmus americana	American elm	FACW-
Vitis riparia	Riverbank grape	FACW-

Wetland Number 603 (cont.)

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season at lower elevations. Remaining areas are saturated within 30 cm (12 in.) of the surface for prolonged periods in spring.

Water Source(s): Freund Brook entering at the southwest end of the site, an intermittent stream entering at the northwest (originating at wetland 207 and also receiving drainage from the area of Building 212), and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Morley silt loam, Sawmill silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll (Sawmill)
Drainage Class:	Poorly drained (Sawmill)
Matrix Color:	2.5 Y 2.5/0, 5 YR 2/0, 5 Y 3/1, 10 YR 3/1, 10 YR 3/1.5, 2.5 Y 3/1, 2.5 Y 3.5/1, 10 YR 2.5/1, 10 YR 4/1.5

Wetland Number: 801A

Size: 7,457 m^2 (1.843 acres)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Agrostis alba	Redtop	FACW
Phalaris arundinacea	Reed canary grass	FACW+
Phragmites australis	Common reed	FACW+
Polygonum coccineum	Water heartsease	OBL
Populus deltoides	Cottonwood	FAC+
Salix interior	Sandbar willow	OBL
Scirpus atrovirens	Dark green rush	OBL
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods in spring. Hydrologically connected (through culvert) to off-site wetland 801B.

Water Source(s): Surface runoff from the surrounding area.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	Undetermined
Taxonomy:	Undetermined
Drainage Class:	Undetermined
Matrix Color:	10 YR 3.5/2, 10 YR 4/2, 10 YR 2/1, 10 YR 3.5/1.5

Wetland Number: 801B (off-site)

Size: 41,345 m^2 (10.216 acres)

Dominant Plants:

Scientific Name	Common Name	Indicator Status
Acer negundo	Box elder	FACW-
Alliaria officinalis	Garlic mustard	FAC
Bidens frondosa	Common beggar's ticks	FACW
Geum canadense	White avens	FAC
Lycopus americanus	Common water horehound	OBL
Phalaris arundinacea	Reed canary grass	FACW+
Pilea pumila	Clearweed	FACW
Populus deltoides	Cottonwood	FAC+
Penthorum sedoides	Ditch stonecrop	OBL
Rhamnus cathartica	Common buckthorn	FACU
Typha angustifolia	Narrow-leaved cat-tail	OBL
Typha latifolia	Common cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water occurs throughout the growing season over much of this site. The remaining areas are saturated to the surface for extended periods. Hydrologically connected (through culvert) to on-site wetland 801A.

Water Source(s): Surface runoff from the surrounding area and a high water table. This site appears to be the headwaters of Freund Brook.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 3/1, 10 YR 2/0

Wetland Number: 802

Size: 5,864 m^2 (1.449 acres)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Agrostis alba	Redtop	FACW
Ambrosia trifida	Giant ragweed	FAC+
Andropogon gerardii	Big bluestem	FAC-
Bidens aristosa	Swamp marigold	FACW
Boehmeria cylindrica	False nettle	OBL
Carex cristatella	Crested sedge	FACW+
Carex lanuginosa	Wooly sedge	OBL
Carex vulpinoidea	Fox sedge	OBL
Cornus racemosa	Gray dogwood	FACW-
Cornus stolonifera	Red-osier dogwood	FACW
Eupatorium serotinum	Late boneset	FAC+
Juncus torreyi	Torrey's rush	FACW
Phalaris arundinacea	Reed canary grass	FACW+
Phleum pratense	Timothy	FACU
Populus deltoides	Cottonwood	FAC+
Pycnanthemum virginianum	Mountain mint	FACW+
Salix interior	Sandbar willow	OBL
Scirpus atrovirens	Dark green rush	OBL
Spartina pectinata	Prairie cord grass	FACW+
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present for extended periods in spring in the drainage channel. Areas not inundated are saturated within 30 cm (12 in.) of the surface for prolonged periods in spring.

Water Source(s): Surface runoff from the surrounding area, a small drainage from the landfill area originating at the west end of the site, and storm sewer drainage from the 800 Area entering at the northwest.

Soil:

Map Unit Name:	Ashkum silty clay loam, Morley silt loam
Inclusion:	Undetermined
Taxonomy:	Typic Haplaquoll
Drainage Class:	Poorly drained
Matrix Color:	10 YR 2.5/0.5, 10 YR 2/0, 10 YR 2/1, 10 YR 2.5/1, 10 YR 5/4

Wetland Number: 803

Size: 10,840 m^2 (2.679 acres)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Agrostis alba	Redtop	FACW
Carex vulpinoidea	Fox sedge	OBL
Cirsium arvense	Canada thistle	FACU
Eleocharis calva	Bald spikerush	OBL
Iris virginica shrevei	Blue flag	OBL
Poa pratensis	Kentucky blue grass	FAC-
Salix interior	Sandbar willow	OBL
Scirpus americanus	Chairmaker's rush	OBL
Scirpus atrovirens	Dark green rush	OBL
Spartina pectinata	Prairie cord grass	FACW+
Stachys palustris homotricha	Woundwort	OBL
Teucrium occidentale	Germander	FACW-
Typha angustifolia	Narrow-leaved cat-tail	OBL

Hydrology:

Hydrologic Regime: Surface water is present throughout the growing season. Areas not inundated are saturated within 30 cm (12 in.) of the surface for extended periods in spring.

Water Source(s): Storm sewer drainage from the 800 Area and the area of Building 200, drainage from wetlands 802 and 804, and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 2/1, 10 YR 3/1, 10 YR 5.5/4

Wetland Number: 804

Size: 3,292 m^2 (0.813 acre)

Dominant Plant Species:

Scientific Name	Common Name	Indicator Status
Bidens vulgata	Tall beggar's ticks	FACW
Boehmeria cylindrica	False nettle	OBL
Carex vulpinoidea	Fox sedge	OBL
Carex cristatella	Crested sedge	FACW+
Carex lanuginosa	Wooly sedge	OBL
Leersia oryzoides	Rice cut grass	OBL
Lemna minor	Small duckweed	OBL
Phalaris arundinacea	Reed canary grass	FACW+
Pilea pumila	Clearweed	FACW
Populus deltoides	Cottonwood	FAC+
Typha angustifolia	Narrow-leaved cat-tail	OBL
Vitis riparia	Riverbank grape	FACW-

Hydrology:

Hydrologic Regime: Surface water is present for extended periods in spring. Areas not inundated are saturated to the surface for prolonged periods in spring.

Water Source(s): A seasonally high water table, drainage from an excavated channel entering at the northwest, and surface runoff from the surrounding area.

Soil:

Map Unit Name:	Peotone silty clay loam
Inclusion:	Undetermined
Taxonomy:	Cumulic Haplaquoll
Drainage Class:	Very poorly drained
Matrix Color:	10 YR 2.5/1, 10 YR 2/1, 10 YR 3/2

5 DISCUSSION

This study of wetlands has identified the location, size, and characteristics of jurisdictional wetlands at the ANL-E site and provides valuable information for site planning and management. Project managers can use the information on location to aid in planning projects so as to avoid impacting wetlands. In those cases where impacts cannot be avoided, information on wetland size and other characteristics can be used in preparing applications for authorization of the proposed activity under Section 404 of the Clean Water Act and in preparing a wetlands assessment for compliance with 10 CFR Part 1022.

Although many potential impacts to wetlands are direct (e.g., location of an action within the boundaries of the wetland) and can be easily avoided in siting projects, wetlands are also susceptible to indirect impacts. Such indirect impacts usually result from impacts to the drainage basin of wetlands and include the runoff of sediment and other contaminants from construction sites and the alteration of a wetland's hydrology. Information on wetland hydrology is presented in this report to enable an evaluation of these indirect impacts. Any action that would affect the water source of wetlands (as presented in "Results") would require a wetlands assessment.

The results of this delineation should be used with caution for several reasons. First, wetlands change over time as a result of natural or human-induced changes in hydrological conditions (e.g., beaver activity or laboratory operations) and natural plant succession. Thus, the wetland boundaries and dominant plant species presented in this report should not be considered permanent.

Second, wetlands smaller than 500 m^2 occur within the ANL-E boundary, but delineating these sites was beyond the scope of this project. Thus, the total wetland acreage given here (18.1 ha [44.6 acres]) is not the total wetland acreage on the ANL-E site, and the smaller wetlands should be delineated, as appropriate, for development projects.

Third, inaccuracies in the ANL-E site map on which wetland boundaries were digitized may lead to apparent inaccuracies in Plate 1 with regard to the location of these wetlands. The site map used contains many inaccuracies regarding the locations of roads, buildings, stream channels, and other features. To minimize problems, the locations of the wetlands were digitized onto the map relative to objects that appeared to be accurately located on the basis of aerial photographs, such as the corner of a building. For example, wetland 204, which parallels Outer Circle Road, is accurately placed relative to the Visitor's Center at the Northgate Entrance, but inaccuracies in the original mapping of the road result in part of the wetland overlapping the road in Plate 1.

Although these problems exist, this delineation is useful. To avoid problems with shifting wetland boundaries and conditions, we recommend periodic reevaluation of wetland boundaries (every five years) or for any new proposed projects. New proposals should also be evaluated for impacts to wetlands smaller than 500 m^2 that were not delineated for this

report. Because of the complexity of wetlands, we suggest that potential impacts to wetlands always be evaluated by a qualified wetlands scientist.

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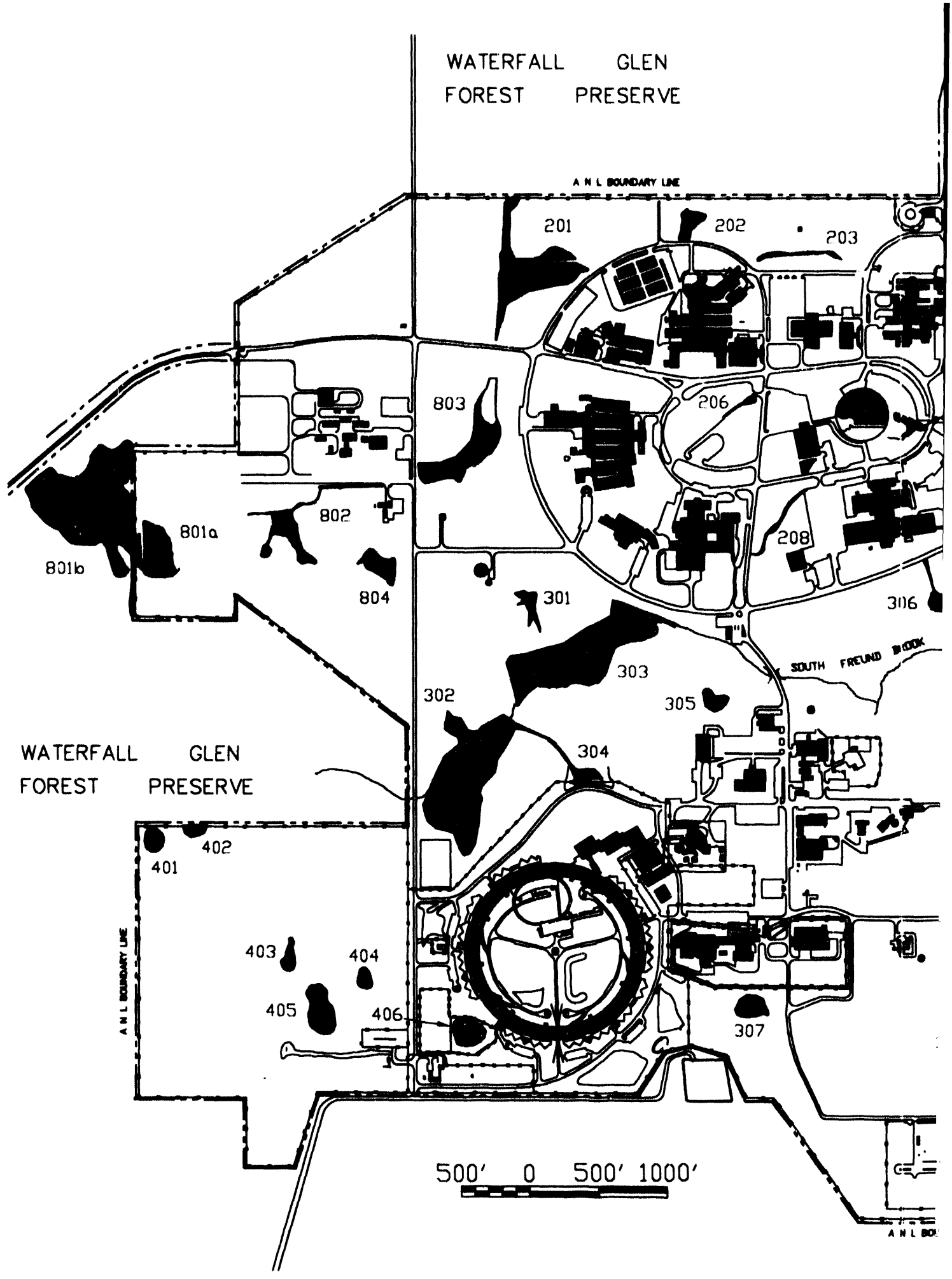
WATERFALL GLEN
FOREST PRESERVE
A N L BOUNDARY LINE
201
202
203
803
206
801a
802
801b
804
208
301
3116
SOUTH FREUND BROOK
303
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WATERFALL GLEN
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A N L BOUNDARY LINE
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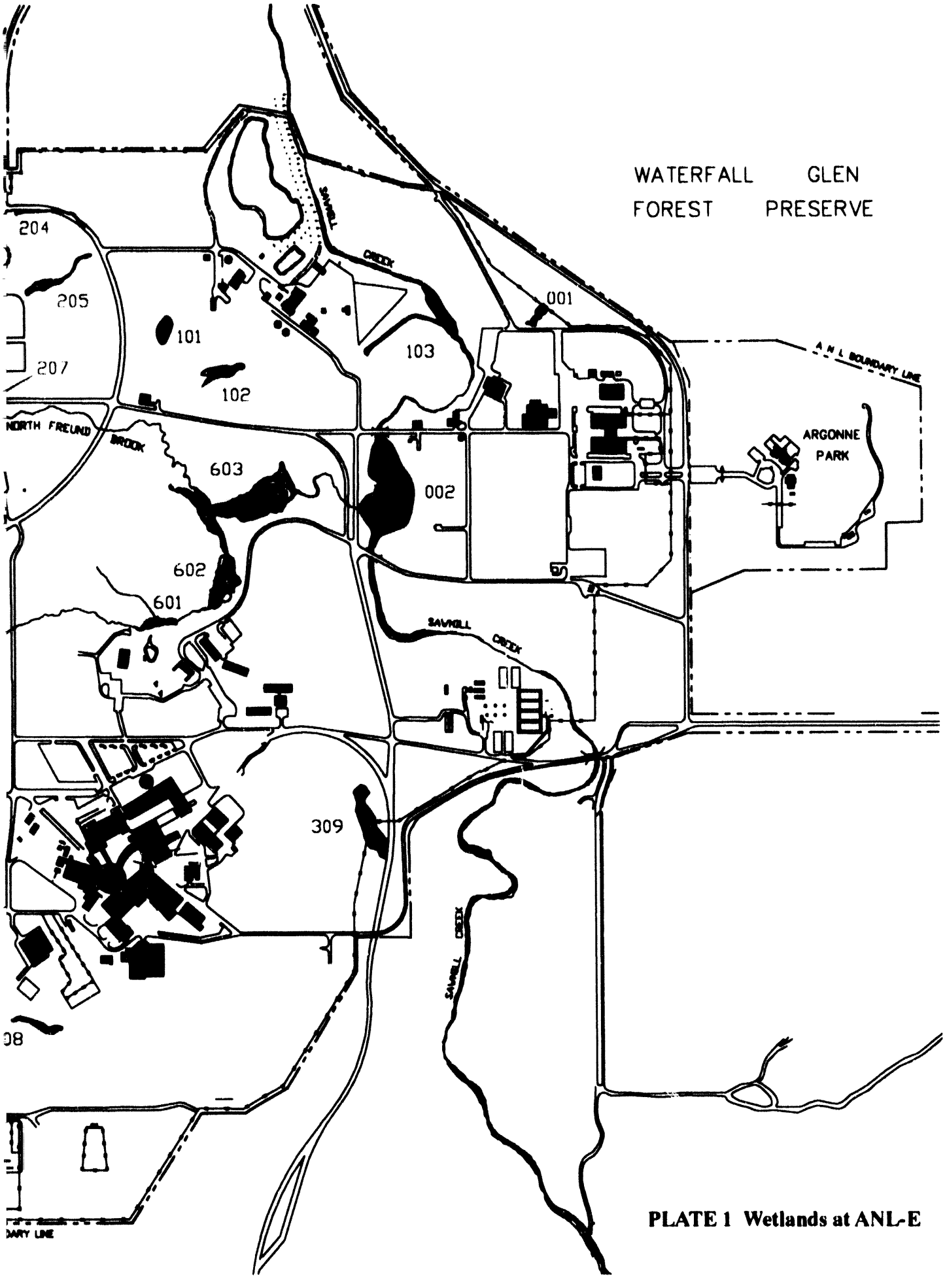

PLATE 1 Wetlands at ANL-E

DATE

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6/15/94

END