ecological field report

Project:	South Buffalo Golf Course Feasibility Study	EDR Project No:	13027
Date:	July 23, 2013		
Persons Present:	Michael Martin (EDR)		

On May 8, June13, and July 2, 2013, an Environmental Design and Research, Landscape Architecture and Engineering, P.C. (EDR) ecologist, visited the proposed South Buffalo Golf Course (Project) site located in the City of Buffalo, Erie County, on behalf of the Buffalo Urban Development Corporation (BUDC or Client). The purpose of the site visit was to identify the dominant ecological communities and habitats present and identify the potential for enhancement and/or restoration of these natural resources during the development of the proposed Project.

The proposed 196 acre Project site (Study Area) is located south of Tifft Street and bounded by Conrail Railroad to the west, South Park to the south, and Hopkins Street/Buffalo and Pittsburgh Railroad to the east (See Attachment A - Figure 1). Topography within the Study Area is generally flat but interrupted by slopes of the capped landfills (Figure 2). The Study Area consists largely of open meadows growing on previously capped landfills, with a large portion of wetlands/open water that receives runoff from landfill slopes. The remainder of the Study Area consists of developed/disturbed areas and several small, scattered areas of forest and wetlands (Figure 3).

A photolog is included as Attachment B of this report that provides representative photos of the different community types identified within the Study Area.

Inventory of Existing Cover Types

Property A-1

Property A-1 located east of Hopkins Street. This property is a capped landfill that is regularly mowed and maintained as an open meadow community. These meadows are dominated by various grasses and forbs including Canada goldenrod, red clover, asters, vetch, and meadow timothy. Railroad tracks pass through this property along with several service roads. State-regulated wetland BU-1 is located along the eastern boundary of the property and all wetlands found within property A-1 are part of wetland BU-1. These wetlands include open water areas in the northern and southern portions of the property, which are bordered by dense stands of phragmites.

Forested and emergent wetlands also occur in the southern portion of the property. The forested wetland has a diverse overstory that includes green ash, red maple, eastern cottonwood, pin oak, black willow, and American beech. The understory consists of saplings of overstory species as well as buckthorn, boxelder, and honeysuckle.

Herbaceous species within the forested wetland include sensitive fern, Japanese knotweed, poison ivy, mayapple, jack-in-the-pulpit, and garlic mustard. The emergent wetland on this property is dominated by phragmites and broad-leaf cattail with a few scattered willows.

A small area of northern deciduous forest is located in the southern portion of the property. The overstory in this area is dominated by eastern cottonwood, red oak, and red maple. The understory includes saplings of the overstory as well as hawthorn, buckthorn, box elder, and honeysuckle. Species in the herbaceous layer include Virginia creeper, poison ivy, garlic mustard, and aster species.

Property A-2

Property A-2 is located immediately west of Hopkins Street and Property A-1. The property appears to have been heavily disturbed in the past, possibly associated with landfill activities. Significant earthmoving has taken place in the area and a large amount of debris has been discarded on the property. A small portion of the property adjacent to Hopkins Street is maintained as a meadow with regular mowing. Upland grasses dominate this area along with Canada goldenrod, red clover, common vetch, and aster species. The remainder of the property consists of emergent wetlands, heavily dominated by phragmites, and forested wetlands. The overstory of the forested wetland is dominated by green ash, red maple, and eastern cottonwood. The understory consists of saplings of the overstory species as well as buckthorn and honeysuckle. The herbaceous layer was generally sparse with some sensitive fern, wetland grasses, and sedges present.

Properties B-1, D, F-1, F-2, I, and J

Property B-1 is the capped Alltift Landfill located south of Tifft Street. This property is largely a maintained meadow on the slopes of the landfill, with a vegetative community very similar to property A-1. Runoff from the landfill flows to wetlands in the southern portion of property B-1 and encompassing the vast majority of properties D, F-1, F-2, I and J. This wetland complex consists primarily of a large open water area surrounded by an emergent wetland. On properties J and F-2 this emergent wetland appears to transition to a shrub scrub wetland as you move west. During the site visit, access was only provided for property B-1. Properties D, F-1, F-2, I and J were observed from B-1.

The emergent wetlands in this area are characterized by phragmites, broad-leaved cattail, narrow-leaved cattail, sedges, reed canary grass, late goldenrod, and various wetland grasses. Eastern cottonwood, willow, and staghorn sumac are scattered in a few small areas. Small willows become more prevalent as you move into properties J and F-2 and the wetland appears to transition to a shrub scrub wetland community.

Property B-2

Property B-2 is located at 90 Hopkins Street. The dominant feature of this property is the large amount of lime that is stored in piles on-site. Most of this site has been heavily disturbed in the recent past. A small shrub scrub area surrounding the lime piles is dominated by honeysuckle, cherry, honeylocust, Staghorn sumac, and eastern cottonwood in the shrub/sapling layer. Herbaceous species in the area include phragmites, Japanese knotweed, wild grape, and various asters.

The western portion of this site consists of an emergent wetland dominated by phragmites and a small pond. This wetland extends in a small strip along the northern boundary of the site along an old railroad bed.

Property C

Property C (637 Tifft Street) is currently operated as Skyway Auto Parts, an automobile scrapyard. The vast majority of the site is heavily disturbed and filled with automobiles and automobile parts. Sapling eastern cottonwood and staghorn sumac are scattered throughout the site along with various grasses, asters, and goldenrod species. A small strip along the southeastern border is not currently used by the business and appears to be a forested wetland. This area has been disturbed in the past but currently has an overstory consisting of green ash, eastern cottonwood, and willow. The shrub/sapling layer includes staghorn sumac, silky dogwood, honeysuckle, and Japanese knotweed. Herbaceous species include late goldenrod, phragmites, tearthumb, and wild grape.

Property E

Property E is located at 49 Hopkins Street and appears to be unused. Access was not granted to this property but on-site conditions were readily observed from Hopkins Street. Signs indicate the property was formerly Bob and Don's Auto Parts, an automobile scrapyard. The site was heavily disturbed in the recent past and large amounts of scrap from previous operations remain on-site. A cell tower is located on the northern end of the property. A small forested area on the western side of the property appears to be dominated by eastern cottonwood. Staghorn sumac, goldenrod, aster, and various grasses are scattered throughout the site.

Property H

Property H (40 and 42 Hopkins Street) is the location of LKQ Auto Parts, an active automobile scrap yard. The site is completely filled with automobiles and associated access roads. Very little vegetation or habitat exists on this site. A narrow strip of vegetation (trees) surrounds the site on the northern, western and southern boundaries. The vegetation is primarily eastern cottonwood.

Habitat Assessment

As previously described, the Study Area is comprised of several ecological community types. The value of these communities to various wildlife species is summarized below.

Meadow Habitat

These grass/forb dominated areas are relatively short-lived. If not maintained, these areas succeed completely to shrubland, woodland, or forest community. In the interim, meadow communities provide good nesting and foraging habitat in the form of seeds and foliage for songbirds such as the field sparrow, finches, black-capped chickadee, and eastern bluebird. Meadows also provide preferred nesting and foraging habitat for open country and grassland bird species such as bobolink, red-winged blackbird, horned lark, eastern meadowlark, and savannah sparrow. Birds of prey, such as northern harrier, also use open fields as hunting areas.

Non-resident animals often visit meadows either at certain times of the day, or in certain seasons when food in other habitats is scarce. Meadows experience prolonged sun exposure during much of the day, resulting in the loss of snow cover before other communities. Grasses may begin to initiate growth here long before food sources become available in other communities. Therefore, browsing species, such as the white-tailed deer are frequent visitors in such areas, as are other mammals such as red fox and Eastern coyote out hunting for field mice or moles. Animal species documented within meadow habitats during the Study Area visit include:

- northern cardinal (*Cardinalis cardinalis*)
- American robin (*Turdus migratorius*)
- European starling (*Sturnus vulgaris*)
- tree swallow (*Tachycineta bicolor*)
- red-winged blackbird (*Agelaius phoeniceus*)
- eastern meadowlark (*Sturnella magna*)
- eastern kingbird (*Tyrannus tyrannus*)
- Canada goose (*Branta canadensis*)
- white-tailed deer (*Odocoileus virginianus*)
- eastern cottontail (*Sylvilagus floridanus*)
- groundhog (*Marmota monax*)

Shrub Scrub and Shrub Scrub Wetland Habitat

Shrub scrub areas are dominated by small trees (seedlings and saplings) and shrubs with some grass and forbs. Shrubland provides nesting and escape cover for a variety of wildlife species. Shrubland bird species are a wide, varied group that require low brushy vegetation but typically include northern cardinal, gray catbird, American goldfinch, various warblers, sparrows, indigo bunting and Carolina wren. Raptor species such as owls, red tailed hawk and American kestrel also use this habitat for feeding. These habitats are also important for a variety of other wildlife such as butterflies and bees, garter snakes, frogs and others. In addition, some of the shrubland plant species found in these areas produce berries (e.g., blackberries and raspberries) that are a food source for birds and mammals such as white-tailed deer, eastern cottontail, raccoon, striped skunk and opossum. Animal species documented within the shrub scrub habitat during the Study Area visit include:

- red-winged blackbird (*Agelaius phoeniceus*)
- white-tailed deer (*Odocoileus virginianus*)
- European starling (*Sturnus vulgaris*)

Upland Forest and Forested Wetland Habitats

Large areas of contiguous woodland provide habitat for forest wildlife species such as wood thrush, veery, eastern wood pewee, red-eyed vireo, black-and-white-warbler, black-capped chickadee, great crested flycatcher, and pileated woodpecker. Forested wetlands provide habitat for waterfowl, including Canada goose, great blue heron and wood duck. Mammals that utilize forest habitat include gray squirrel, eastern chipmunk, and whitetail deer. Smaller areas of contiguous woodland are found throughout the Study Area and provide habitat for forest edge species. Animal species documented within forested habitat during the Study Area visit include:

- red-headed woodpecker (*Melanerpes erythrocephalus*)
- Carolina wren (*Thryothorus ludovicianus*)
- American robin (*Turdus migratorius*)
- gray catbird (*Dumetella carolinensis*)
- downy woodpecker (*Picoides pubescens*)
- northern leopard frog (*Lithobates pipiens*)
- gray squirrel (*Sciurus carolinensis*)
- white-tailed deer (*Odocoileus virginianus*)

Emergent Wetlands and Open Water

These community types provide habitat for amphibians, fishes, aquatic invertebrates, waterfowl and other waterbirds. The emergent wetlands within the Study Area likely provide foraging habitat for aerial insectivores such as songbirds and bats. Wildlife species expected to use these areas include great blue heron, mallard duck, green frog, spring peeper, and American toad. Areas of open water likely support various fishes and turtles. During the site visit, the following species were documented in emergent wetlands and open water:

- Canada goose
- mallard duck (*Anas platyrhynchos*)
- blue-winged teal (*Anas discors*)
- red-winged blackbird
- common carp (*Cyprinus carpio*)
- white-tailed deer
- northern watersnake (*Nerodia sipedon*)

Developed/Disturbed

The developed/disturbed areas offer minimal wildlife habitat. Foraging by mammal and bird species is expected but this covertype is of poor quality for long term wildlife management. These areas lack cover and diversity within these areas is low.

Enhancement and Restoration Opportunities

Although much of the Study Area is heavily disturbed, there is also a significant amount of wetland and meadow habitat. Several opportunities for ecological/habitat enhancement and restoration are described below.

Non-Native Invasive Species Control

Non-native invasive species, such as Japanese knotweed and phragmites, are prevalent throughout the Study Area. New and more aggressive non-native invasive species are migrating into New York State. As a proactive measure to safeguard the Site and its natural resources, it is highly recommended that an Invasive Species Control Plan be developed and implemented while developing the Project site. As part of an Invasive Species Control Plan, a monitoring program would help to closely document the status and prevent the spread of invasive species that have

not yet become a nuisance. Examples of some of the items to be included in an Invasive Species Control Plan include:

- Control methods for invasive species, which may include cutting or pulling by hand, selective herbicide application, and biological controls.
- All herbicides should be applied by state certified applicators in accordance with label restrictions. These chemicals should not be used in any areas with documented rare plants.
- In general, do not mow areas with invasive plant infestations as this method fails to remove the roots/rhizomes and can serve to spread seeds.
- Concentrate initial control efforts on areas with light infestations or where invasive species are just becoming established as such areas are easiest to control.
- Do not spread soil or compost within the Site that may be contaminated with the roots, rhizomes or seeds of invasive plant species.
- When selecting any new plant material, give preference to shrubs that provide food and cover for wildlife. Planting food and cover producing shrubs (especially under existing stands of mature trees) will enhance the habitat value of the Site for a variety of wildlife species, especially songbirds. However, only native species of plants should be used.
- Encourage *structural diversity*. Plantings should provide a multi-layered effect, as this is attractive to songbirds for cover, feeding and nesting.
- Encourage *botanical diversity*. Consider planting more native vines, shrubs and mast producing trees (e.g., oak or beech).

Wildlife Habitat Management

Meadow Habitat Management: Effective management of the meadow habitats found within the Study Area would benefit many species that depend on this habitat are experiencing population declines throughout New York. These declines may be caused by a number of factors, but changes in land use and vegetation succeeding toward mature forest has resulted in less available habitat for these species. Meadow habitat requires ongoing, active management. If these habitats are not mowed, brush hogged, burned, cut, grazed or disturbed in some way, they will eventually revert to forest. A management plan for the old field habitat should be developed with consideration of the following guidelines:

- Management should increase plant diversity and structure (i.e., vegetation heights).
- Each area should be mowed or otherwise disturbed every 2-5 years depending on vegetation growth and desired habitat characteristics.
- Areas may be mowed on a rotation or in random patterns, but mowing should leave some areas undisturbed each year.
- Mowing and/or tree cutting should occur outside the primary nesting season.
- Minimum mower height should be 4-6 inches.
- Monitor and remove trees as they grow. Trees and shrubs that are cut may be used to create brushpiles, which are valuable cover for many wildlife species.

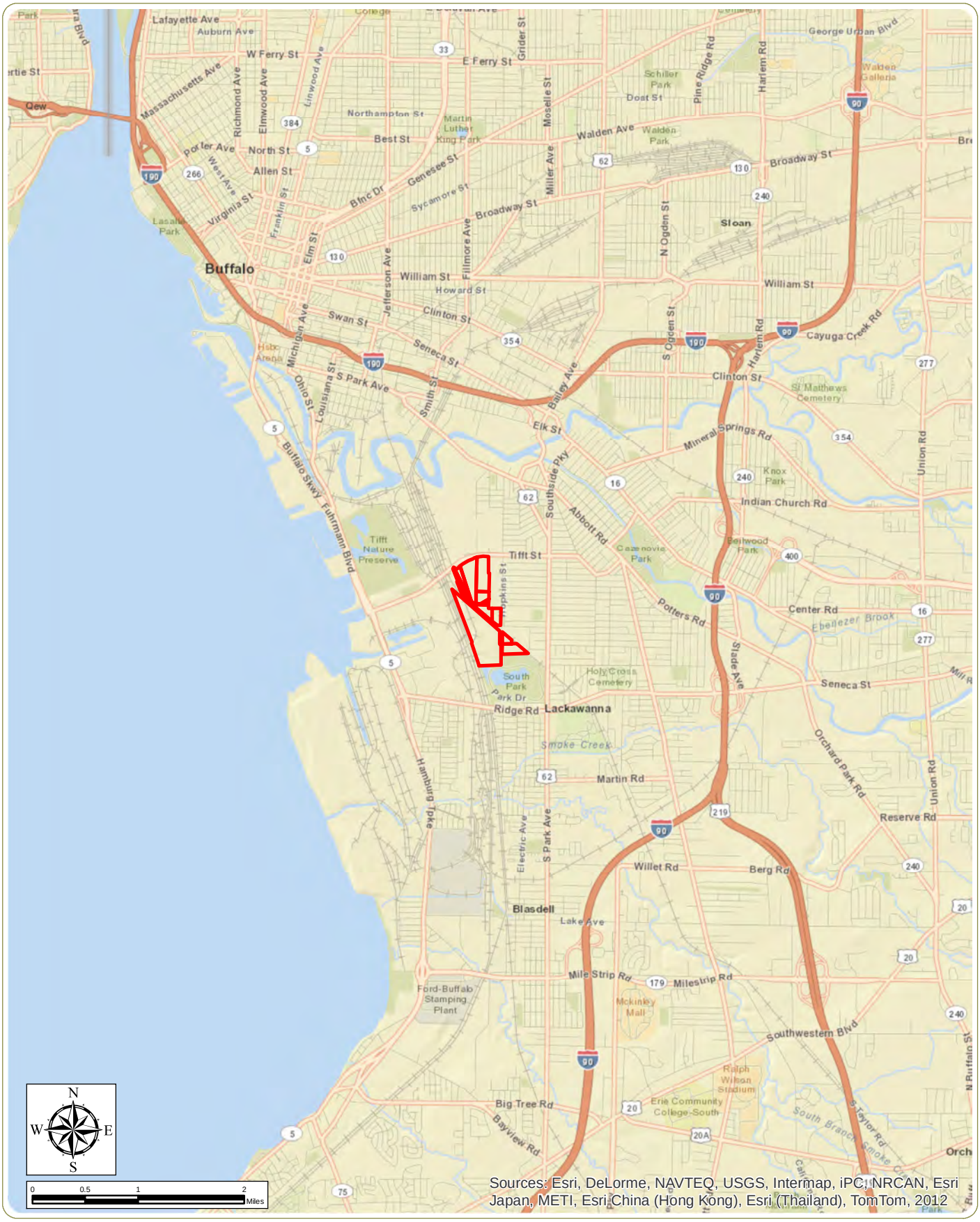
- Invasive species are often quick to overtake disturbed areas and the area should be monitored as management progresses. Control methods are most effective if used before invasive species become well established.

White-tailed Deer: During the site visit, evidence of heavy use by white-tailed deer was observed throughout the Study Area. It is recommended that an assessment of the Site's deer population be conducted. Overall deer population and health of the herd can be based on visual inspection of deer herds, evidence of overbrowsing, deer-vehicle collisions, and complaints of landscape damage by neighbors, etc. If overpopulation is indicated, coordination with the NYSDEC to develop an approach to population control/vegetation protection is recommended.

Copies To: Jim Pippin, EDR
Muffett Mauche George, Wendel

Attachment A

FIGURES



South Buffalo Golf Course Feasibility Study

City of Buffalo, Erie County, New York

Figure 1: Regional Project Location

July 2013

Approximate Study Area

Notes: 1) Basemap - ESRI online streets.
2) Parcel boundaries approximated from aerial imagery.

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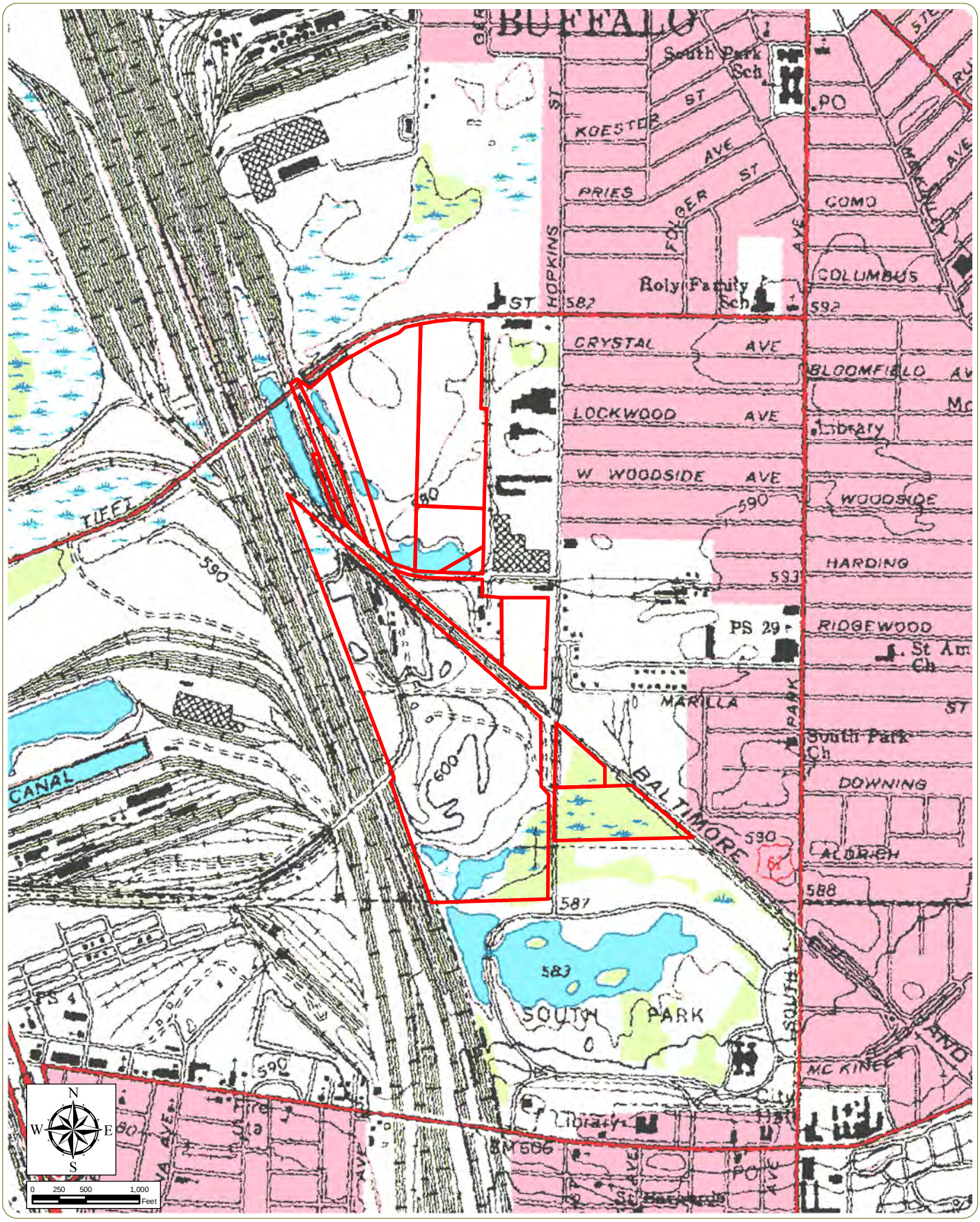

South Buffalo Golf Course Feasibility Study

City of Buffalo, Erie County, New York

Figure 2: Topographic Mapping

July 2013

Approximate Study Area

Notes: 1) Basemap - USGS 7.5 minute SE Buffalo quadrangle.
2) Parcel boundaries approximated from aerial imagery.

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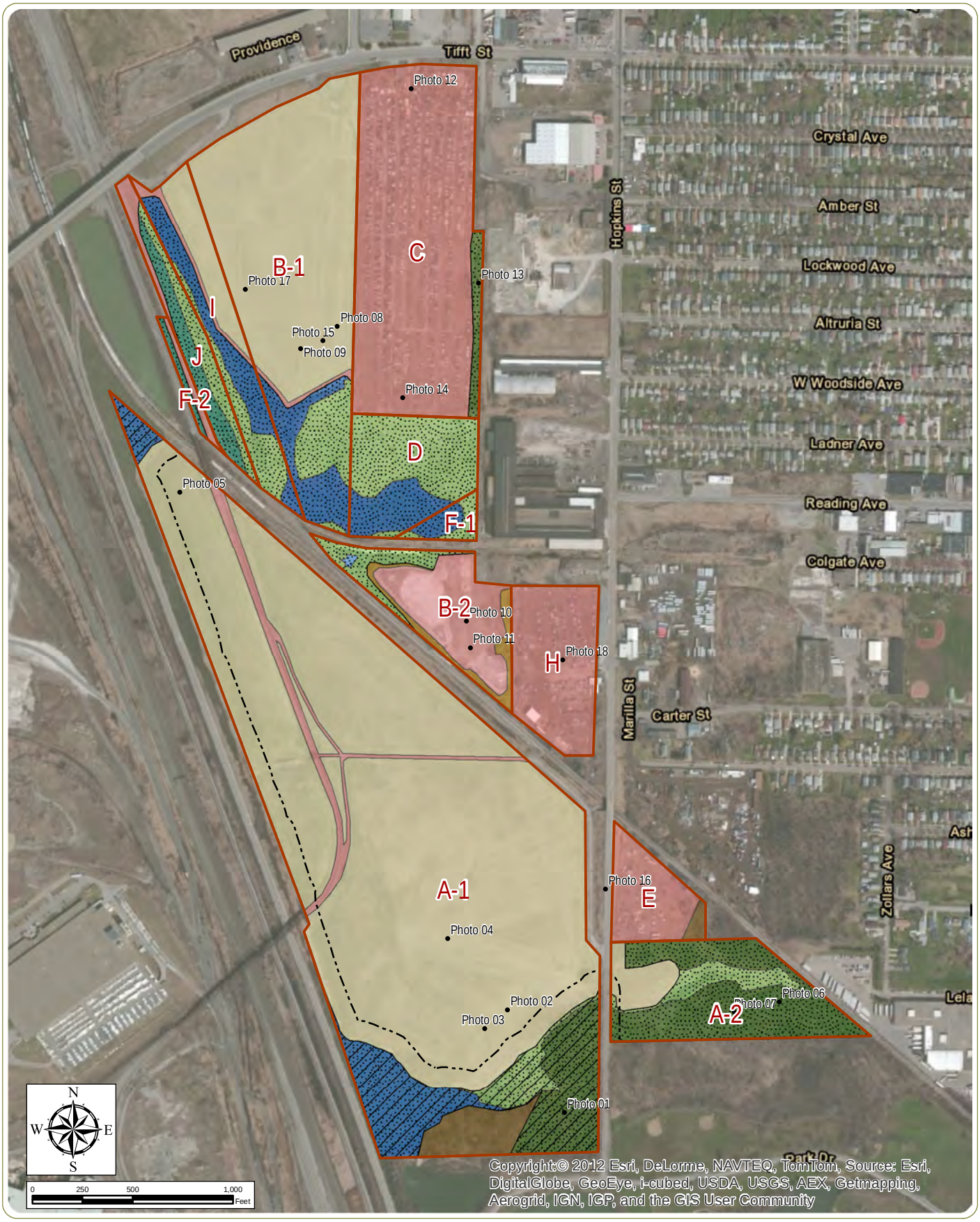

South Buffalo Golf Course Feasibility Study

City of Buffalo, Erie County, New York

Figure 3: Ecological Communities

July 2013

Notes: 1) Basemap - ESRI online imagery. 2) Parcel boundaries approximated from aerial imagery. 3) All wetland boundaries and buffers are approximate and are not based on a formal wetland delineation.

- Photo Locations
- Approximate Parcels
- 100' NYSDEC Wetland Buffer
- Approximate USACOE Wetlands
- Approximate NYSDEC Wetlands
- Disturbed/Developed
- Meadow
- Scrub Shrub
- Northern Deciduous Forest
- Emergent Wetland
- Scrub Shrub Wetland
- Forested Wetland
- Open Water

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Attachment B

PHOTOLOG

Photo 01

View of forested wetland on property A-1.

Photo 02

View of emergent wetland from capped landfill on property A-1.

Photo 03

View of open water on southern portion of property A-1.

Photo 04

View of meadow on property A-1.

Photo 05

View of open water on northern portion of property A-1.

Photo 06

View of forested wetland on property A-2.

Photo 07

View of debris on property A-2.

Photo 08

View of meadow and runoff on property B-1.

Photo 09

View looking south at wetlands on property B-1.

Photo 10

View of scrub shrub area on property B-2.

Photo 11

View of lime pile on property B-2.

Photo 12

Representative view of property C.

Photo 13

View of forested wetland on property C.

Photo 14

View of properties D and F-1 from property C.

Photo 15

View of properties D and F-1 (background) from property B-1.

Photo 16

View of property E from Hopkins Street.

Photo 17

View of properties I, J, and F-2 looking west from property B-1.

Photo 18

Representative photo of property H.