Appendix 4:
Rare Plant Species Investigation (2019)

PORT OF ALBANY

Joint Permit Application Package
Albany Port District Commission

Port of Albany Expansion Project

McFarland Johnson

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June 11, 2019

Mr. Thomas C. Wirickx, CSE, PWS, QAWB
Senior Environmentalist
McFarland Johnson
49 Court Street PO Box 198
Binghamton, New York 13902

RE: Endangered Species Investigation, Port of Albany, Town of Bethlehem, Albany County,NY
TES File No 4441

Dear Mr Wirickx:

Terrestrial Environmental Specialists, Inc. (TES) contracted with McFarland Johnson to conduct an endangered plant survey at the Port of Albany located in the Town of Bethlehem, Albany County, New York. The study area is approximately 94.75 acres and is located in two sections, north and south of where the Normanskill enters the Hudson River (Figure 1). Based on your contact with the New York Natural Heritage program, three state-listed plant species with potential to occur were located in close proximity to the project site. These three plants subject to this investigation are side-oats grama (*Bouteloua curtipendula var. curtipendula*), violet wood sorrel (*Oxalis violacea*), and Small's knotweed (*Polygonum buxiforme*).

TES performed three tasks relative to these species. First, TES reviewed available background information relative to the site and the natural history information for these plant species. Second, two TES botanists conducted a field review on May 10, 2019 to examine the site for the presence of these species and to conduct a habitat evaluation. The third task was for TES to prepare this report documenting our findings.

Background Information and Natural History Information

The project site is approximately 94.75 acres located in the Town of Bethlehem, Albany County, New York (Figure 1) and is divided into a northern and southern section that is separated by the Normanskill. The northern-most portion of the site is bounded by Normanskill Street and industrial uses of the Port of Albany to the east and by the Normanskill to the west and south. The southern portion of the site is bounded by River Road and the rail line to the

west, the Hudson River to the east and the Normanskill to the north. South of the site is the former Albany steam plant. The shoreline of the Hudson River has bulkheads along the entire length of the southern portion of the study area and is subject to tidal fluctuations.

Based on a review of soil information provided by McFarland Johnson, the original soil within the study area is Wayland silt loam, a hydric soil. However much of the site is covered with bottom ash and fly ash of varying depths.

TES reviewed an aerial photograph of the site prior to the field review which indicated that the site was primarily forested with several open areas in the southern portion of the study area (Figure 2).

Side-oats grama (*Bouteloua curtipendula var. curtipendula*)

Side-oats grama is listed as endangered in New York State. Side-oats grama is a perennial grass with stems up to 1 meter tall but typically less than 1 meter. The large spikes are well-spaced along a 1-sided raceme. It is most distinct during flowering in mid-summer or fruiting stage from mid-July through the fall, although the stalks may be seen in winter (Gleason & Cronquist 1991). Side-oats grama is a dominant species of the central grasslands of North America and its core range is found west of the Mississippi River and in the southwestern United States (Flora of North America 2003).

Side-oats grama can be found in rich, loamy,and well-drained prairie soils, specifically dry limestone-derived soils (Gleason & Cronquist 1991, Fernald 1951). It is most often found in disturbed areas, as well as open habitats. Habitats include riverside bluffs, shale cliffs and barrens, cedar glades, and limestone pavements, including abandoned sandpits and pastures, railroads, powerlines, dry hills and plains, and dry woods (NYNHP 2009).

Side-oats grama is found primarily scattered from Long Island and the Hudson Valley, as well as alvar and limestone areas in Western New York. It is found throughout most of the U.S. (NYNHP, 2009). Transport on rail car is thought to be the dispersal mechanism that introduced this species into the Port of Albany (S. Young NY Heritage botanist personal communication).

Violet wood sorrel (*Oxalis violacea*)

Violet wood sorrel is listed as threatened in New York State. It has a bulbous base and 3-parted (clover-like), glabrous leaves with purple undersides (Gleason & Cronquist 1991). There are several 5-petaled, purplish (rarely white) flowers per leafless flowering stalk. Flowering occurs from May to mid-June and the fruit persists to mid-July.

Violet wood sorrel is found primarily on steep rocky slopes and open summits, primarily on rich soils. The typical surrounding forest type is Appalachian oak-hickory forest. Many

populations are located along trails, ledges, or other openings. Other habitats where it can be found include dry upland woods, shaded slopes, gravelly banks, and prairies (Gleason & Cronquist 1991, Fernald 1950).

Violet wood sorrel is currently found from the Hudson Valley to Columbia County to the south, but it can also be found on Long Island. Historic records include Cattaraugus, Chemung, and Tioga counties in the western part of the state (NYNHP 2008).

Small's knotweed (*Polygonum buxiforme*)

Small's knotweed is listed as endangered in New York State. Small's knotweed is a bluish or grayish green annual herb. The fruit is dark brown with 3-sided achenes (Mitchell & Dean 1978). It can be identified when it is flowering. However, it can only be reliably separated from other closely related *Polygonums* by the presence of small pouches on the outer tepals. Flowering begins in July and the fruits will persist until the first frost (NYNHP 2012).

Small's knotweed can be found on packed, non-drifting sandy beaches in both maritime and inland habitats (Mitchell & Dean 1978). It can also occur on pebbly and gravelly beaches (Gleason & Cronquist 1991). It is currently found scattered throughout New York State in dry open habitats that can be either natural or human-disturbed. Most are located in rocky beach areas of far eastern Long Island. Many of the upstate locations are on roadsides, fields, and railroad yards. It is widespread across the U.S. (NYNHP, 2012).

Field Review

TES botanists, Bernard Carr and Elizabeth MacEwen conducted a field survey for the three listed plant species on May 10, 2019. TES examined the entire site looking for appropriate habitat for the three-state listed plant species. At the time of this field investigation, only violet wood sorrel would be expected to be in flower. Both side-oats grama and Small's knotweed would be found flowering later in the growing season.

The majority of the study area site consisted of a dense forest similar to a "dredge spoil forest" which is found on highly-disturbed sites along the Hudson River in Albany and Rensselaer County. This forest classification is not officially listed in the Ecological Communities of New York State (Edinger 2002). TES also found several wetlands area, a barren area with fly ash and a few open areas within the study area.

Wooded areas in the study area were dominated by Eastern cottonwood (*Populus deltoides*), box elder (*Acer negundo*), and American elm (*Ulmus americana*). Buckthorn (*Rhamnus cathartica*) was a dominant understory tree throughout the site. The study area had extensive stands of common reed grass (*Phragmites australis*), an invasive non-native species.

Other invasive plants such as garlic mustard *(Alliaria petiolata*), oriental bittersweet (*Celastrus orbiculatus*), and Japanese barberry (*Berberis thunbergii*) were dominant and extensive throughout the site.

TES search efforts were concentrated in finding habitat and plant communities that would support violet wood sorrel, side-oats grama, and Small's knotweed.

Violet wood sorrel would be expected to be in leaf or in flower during the time of the field survey. TES concentrated our effort in all of the forested areas on the project site. There was no habitat on the project site which met the requirements of violet wood sorrel. TES did not locate any areas of Appalachian oak-hickory forest (Edinger 2002).

Side-oats grama is a western species that is often found in association with railroad ballast in the eastern United States. This grass prefers to be located in areas of full sun and occasionally can be found in areas of moderate light intensity. TES noted one area in the southwest corner of the southern parcel next to the property fence that had the required open condition (Figure 2). TES found a variety of herbaceous plant species but did not locate side-oats grama. If further field investigations were necessary, this area would be the only portion of the site that would require further review. TES also noted an open area of fly ash in the southern-central portion of the site. This area was almost completely depauperate of all plant species with the exception of the invasive common reed grass. Side-oats grama would not be able to tolerate the soil conditions in this area.

Small's knotweed is a species that is considered state historical as its last sighting was in 1974. This species is most often known in New York State from sandy areas near the coast. TES did notice one small patch of *Polygonum sp*. immediately next to Normanskill Road edge (Figure 2). This was the only area with full sun where this species could occur. While this area could require further investigation, it is most likely that that this species is the common doorweed (*Polgyonum aviculare).*

Summary

McFarland Johnson contracted with TES to assist with a field investigation of an approximately 94.75 acre study area located at the Port of Albany. The study area consisted of two parcels both located west of River Road in the Town of Bethlehem, New York. The primary study area to the south is bounded by the Normanskill to the north, the Hudson River to the east, and a rail line and River Road to the west. South of the site is the former Albany steam plant. The majority of the project site was covered by fly ash and the forested areas have the characteristics of a "dredge spoil forest".

TES conducted a field investigation to determine whether two New York State listed endangered species: side-oats grama and Small's Knotweed and a state threatened species: violet wood sorrel occur on a site at the Port of Albany located in the Town of Bethlehem, Albany County, New York.

Based on our review, there was no potential for Violet wood sorrel on the site because its preferred habitat does not occur. In addition, the dense understory with non-native species does not provide any opportunity for this species to grow. While side-oats grama and Small's knotweed would not be in flower at the time of the field investigation, TES only found two very limited areas with potential for these species to occur. Based on our professional opinion, it is unlikely that side-oats grama or Small's knotweed occur on the site.

Sincerely,
TERRESTRIAL ENVIRONMENTAL SPECIALISTS, INC.

Bernard P. Carr
Principal Environmental Scientist

Literature Cited

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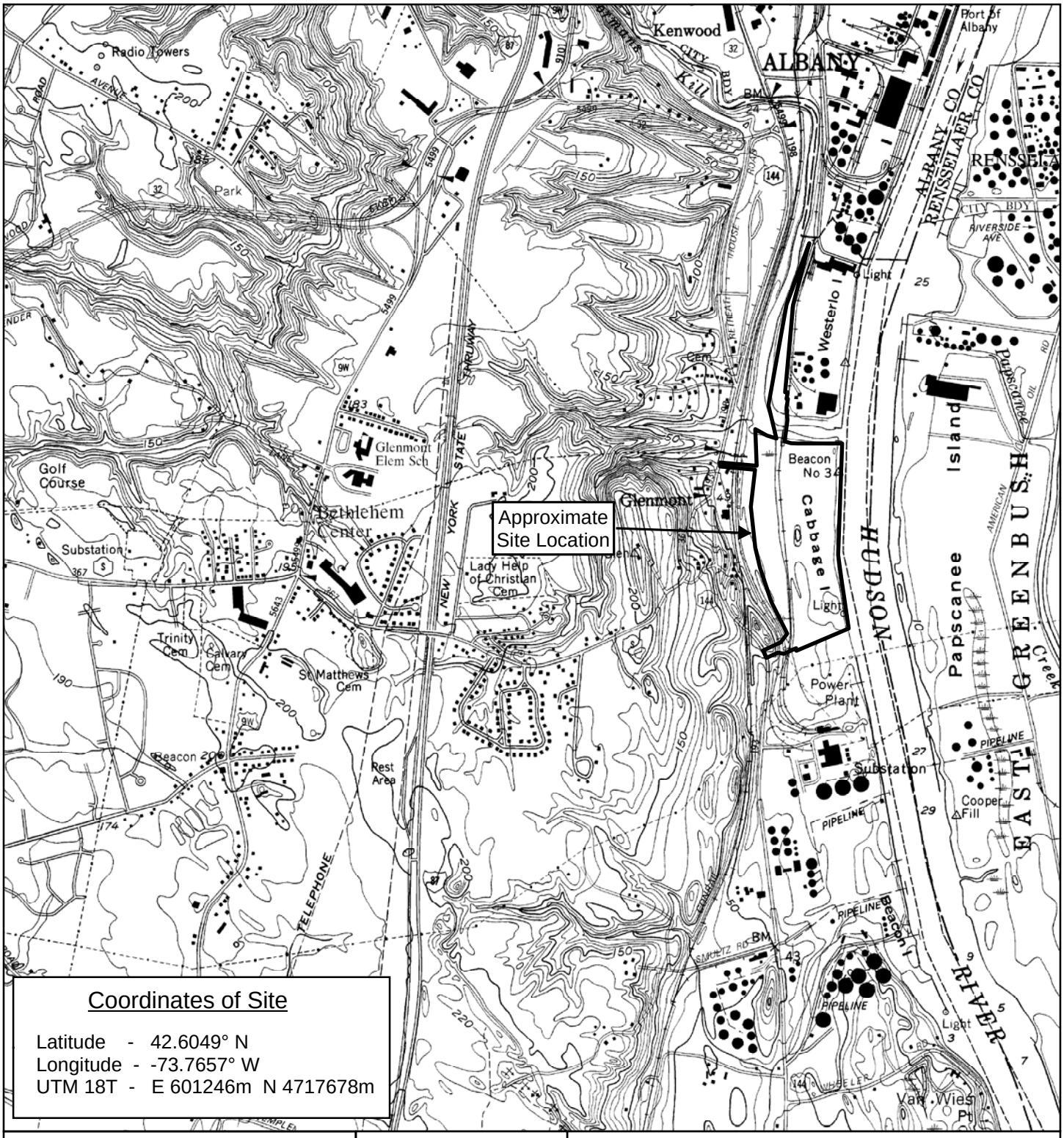


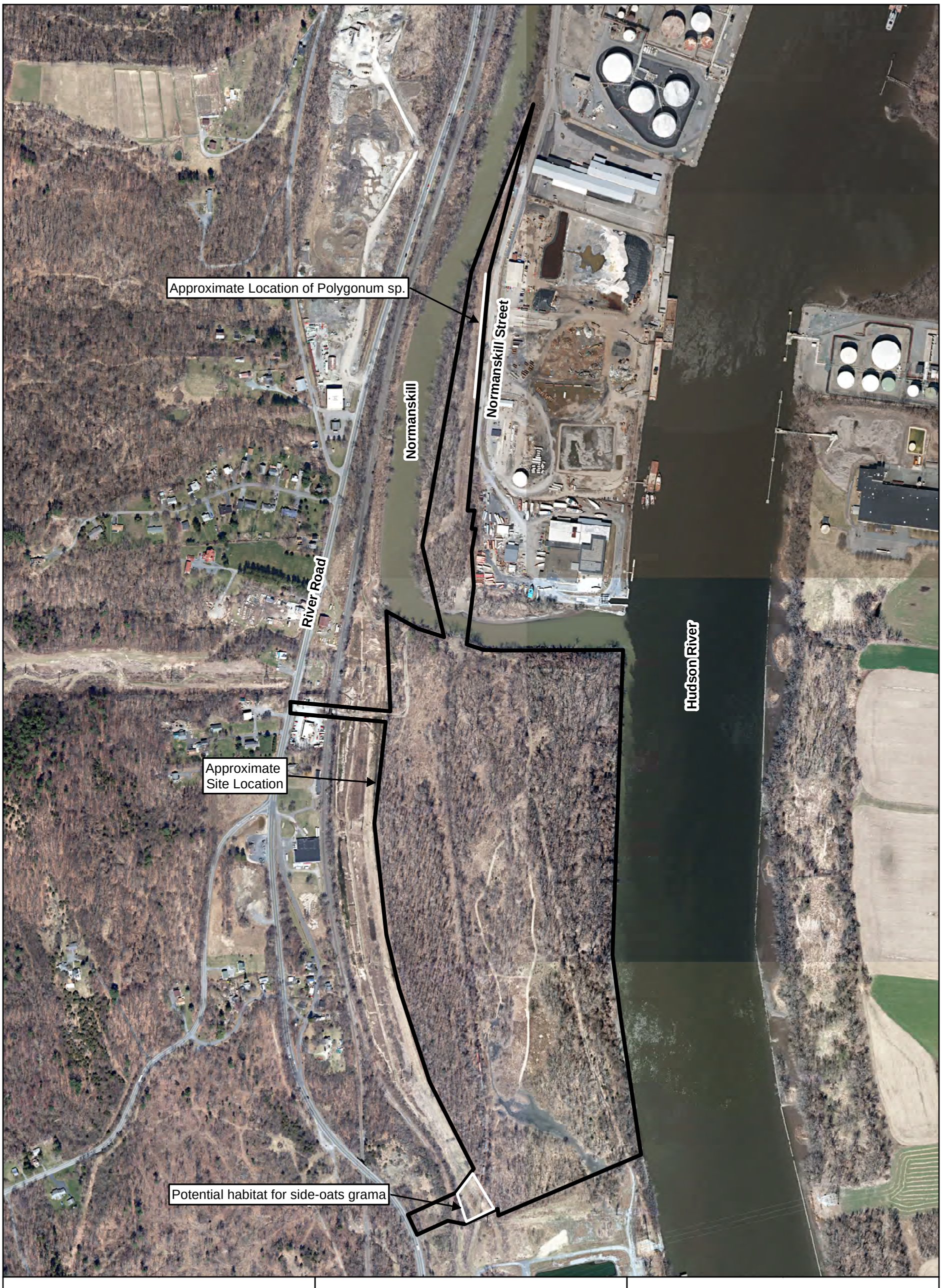
Figure 1. NYS DOT Topographic Map

Site Location

Delmar Quadrangle
1993

Prepared by TERRESTRIAL ENVIRONMENTAL SPECIALISTS, Inc.

TES File: MJI-4441\4441-Fig1.mxd\6-7-2019



N

0 500

Feet

1 inch = 500 feet

Aerial Photograph obtained from NYS GIS Clearinghouse 2017

Figure Prepared by Terrestrial Environmental Specialists, Inc.

Figure 2

Aerial Photograph of Site

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