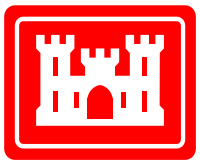
FOREST STAND DELINEATION REPORT
Bureau of Engraving and Printing
Traffic Mitigation
Beltsville Agricultural Research Center



December 2023

Prepared For:

Bureau of Engraving and Printing
Washington, DC

Prepared By:

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1. Introduction

The U.S. Army Corps of Engineers (USACE), Baltimore District, Planning Division prepared this report at the request of the United States Department of the Treasury, Bureau of Engraving and Printing (BEP), to identify and delineate forest stands and specimen trees found within the proposed site boundaries.

BEP proposes to construct and operate a new currency production facility (CPF) within the existing Beltsville Agricultural Center (BARC) in Prince George's County, Maryland. The new facility would replace BEP's current CPF located in Washington, D.C., with a more modern facility that meets production needs.

This report follows a 2019 forest stand delineation (FSD) conducted as part of the Environmental Impact Statement (EIS) for the Proposed Replacement CPF. To address traffic and utility measures identified since the EIS was completed, a supplemental Environmental Assessment (EA) is being prepared. The proposed action for this supplemental EA includes various improvements to the roadways and seven (7) intersections identified in the EIS as requiring mitigation to minimize delays and reduce queue lengths. It also includes utility infrastructure improvements required to accommodate the replacement CPF and additional improvements for the CPF that are outside of the limits of disturbance identified in the EIS. (Figure 1). In addition, current access to two (2) wells located just east of Poultry Road would be blocked by the new CPF, so a road has been proposed to access these wells.

BARC is comprised of approximately 6,850 acres of land northeast of Washington, D.C. The new CPF would be an approximately 1 million square foot facility located on an approximately 104-acre site in the Central Farm area of BARC, along Poultry Road. The areas for traffic mitigation and well access that were examined for this FSD total approximately 93 acres. Several of the forest stands expand outside of the bounds of the investigated area for this FSD. Any forest stand boundaries outside of the study areas are approximated for the purposes of mapping. The Edmonston Road project area and Odell Road (Sanitary Sewer Alternative One area) are the only parcels in which FSD plots were taken, as they are the only forested areas within the project areas described below. Specimen trees were marked whenever observed, on all project areas.

2. Site Description

The study area is approximately 93 acres located in Beltsville, Maryland. The areas described below were surveyed for the traffic mitigation action that proposes to improve the intersections as well as construct a well access road. The largest, forested portion of the project area includes Edmonston Road, beginning just north of Powder Mill Road and running south to Sunnyside Avenue, and encompasses the intersections of Edmonston Road and Powder Mill Road, Edmonston Road and Beaver Dam Road, and Edmonston Road and Sunnyside Avenue (Figure 5, Appendix B). A forested wetland system runs along the western edge of Edmonston Road, which drains to Indian Creek. BARC agricultural fields lie to the east of Edmonston Road, the Sanitary Sewer Alternative Two runs northeast through these fields, connecting to the laydown area.

Another portion of the project area includes 16 acres of land along Powder Mill Road expanding north, in the vicinity of Animal Husbandry Road (Figure 7, Appendix B). This area primarily consists of mowed and maintained lawn. The last two project areas are a 4-acre area around the intersections of Powder Mill Road and the Baltimore-Washington Parkway, and Powder Mill Road and Springfield Road (Figure 8, Appendix B); and a 1.8-acre Sanitary Sewer Alternative One area north of Odell Road and northeast of Poultry Road (Figure 6, Appendix B). Eighteen (18) specimen trees were identified within traffic mitigation areas and can be seen in Figures 5 and 7 in Appendix B. All other specimen trees were documented outside of traffic mitigation areas.

The geology at BARC consists of Lower Cretaceous sediments of the Potomac Group, which consists of the Patuxent, the Arundel, and the Patapsco Formations, respectively decreasing in age. The Patuxent and Patapsco Formations are composed primarily of sand and gravel and comprise the most prevalent water bearing aquifers in Prince George's County. The Arundel is mostly clay and creates artesian conditions in the underlying Patuxent Formation in some locations.

3. Methodology

Prior to field investigations, topographic maps, county soil surveys, and Maryland Department of Natural Resources digital aerial orthophotographs were reviewed to identify probable forest stand boundaries. The project area was surveyed between 15 April and 15 May 2021, with additional surveys in August and September 2023, to identify, delineate, and characterize forest stands. Forest stands were distinguished primarily by differences in species composition and successional stage.

A 1/10-acre fixed plot sampling technique was used to assess forest stand conditions and forest structure. Sampling plots were chosen to be evenly distributed throughout the stands. A stick flag was placed in the center of each plot and along the perimeter of the circular plot in each of the four cardinal directions. The plot center was marked in the field with pink tape flagging and the stand and plot number labeled with a black marker. All additional forest stand and forest structure procedures for data collection follow guidelines of the State Forest Conservation Technical Manual (Third edition, 1997). The priorities of the stands are given according to the guidelines in the Technical Manual. Priority 1 stands have wetlands, specimen trees, streams, steep slopes, and/or other sensitive areas. In some cases, a stand can have a sensitive area within its boundaries but be a low-quality stand based upon quality of vegetation, presence of invasive species, or other values. These are noted in the stand descriptions.

4. Results

Six forest stands, of two cover types, were identified within the study area. The cover types were red maple sweetgum and (*Acer rubrum*/*Liquidambar styraciflua*) oak/hickory with differing species of oak and hickory being the co-dominant species. Stand variations result from changes in topographic position, degree of slope, and amount and type of historical human disturbance. Forest stands were identified in two areas, the Edmonston Road area and the Odell Road/Sanitary Sewer Alternative 1 area (Figures 5 and 6, Appendix B). Specimen trees were only identified in the Edmonston Road area and the Powder Mill Road/Animal Husbandry Vicinity (Figures 5 and 7,

Appendix B).

Forest stand conditions and forest structure were assessed at sample plots within each stand as detailed in the following stand descriptions (see also Appendix A). A summary of forest conditions within the stands are also included in Appendix A. Figures 5 and 6 in Appendix B depict the approximate location of the boundary of forest cover type within the study area. A brief description of the forest stands are as follows:

Stand 1

Sample Plots: **2**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Red Maple/Sweetgum**

Stand 1 is co-dominated by red maple and sweet gum of size class 6" to 11.9" diameter at breast height (dbh), with approximately 70% canopy closure. Other trees in the canopy included ironwood *(Carpinus caroliniana*), pin oak (*Quercus palustris*), beech (*Fagus grandifolia*), Tulip poplar (*Liriodendron tulipifera*), red elm (*Ulmus rubra*), boxelder (*Acer negundo*), and red mulberry (*Morus rubra*).

The understory from 3' to 20' tall averages 100% coverage, and includes, southern arrowwood (*Viburnum dentatum*), northern spicebush (*Lindera benzoin*), green ash (*Fraxinus pennsylvanica*), winterberry holly (*Ilex verticillata*), Tatarian honeysuckle (*Lonicera tatarica*), and red elm.

Common herbaceous and woody species 0' to 3' tall consist of eastern poison ivy (*Toxicodendron radicans*), Solomon's seal (*Polygonatum* sp), common jewelweed (*Impatiens capensis*), common greenbrier (*Smilax rotundifolia*), pin oak, Virginia creeper (*Parthenocissus quinquefolia*), skunk cabbage (*Symplocarpus foetidus*), grape vine (*Vitis riparia*), strawberry bush (*Euonymus americanus*), stout woodreed (*Cinna arundinacea*), sedge species (*Carex* sp.), and blackberry (*Rubus allegheniensis*), with approximately 100% coverage.

Invasive species included Chinese privet (*Ligustrum sinense*), Japanese stiltgrass (*Microstegium vimineum),* garlic mustard (*Alliaria petiolata*), Japanese barberry (*Berberis thunbergii*), cleavers (*Galium aparine*), Tatarian honeysuckle, common mugwort (*Artemisia vulgaris*), and multiflora rose (*Rosa multiflora*), with approximately 25% coverage.

The wildlife value of the stand is moderate due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 1 for retention because of its mature successional stage and wetlands.

Environmental Features
Stand 1 contains a wetland, with a dense and healthy understory housing minimal invasive species. However, it does not contain specimen trees and has been impacted by the roadway.

Stand 2

Sample Plots: **1**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Red Maple/Sweetgum**

Stand 2 is co-dominated by red maple and sweetgum, of size class 2" to 5.9" dbh, with approximately 80% canopy closure. Other trees in the canopy include blackgum (*Nyssa sylvatica*), willow oak (*Quercus phellos*), beech and green ash.

The understory from 3' to 20' tall averages 80% coverage, and includes southern arrowwood, red maple, and northern spicebush.

Common herbaceous and woody species 0' to 3' tall consist of common greenbrier, Virginia creeper, and mayapple (*Podophyllum peltatum*), with approximately 80% cover.

Invasive species observed in sample plots were periwinkle (*Catharanthus roseus*), English ivy (*Hedera helix*), multiflora rose, and Japanese honeysuckle (*Lonicera japonica*), with a low coverage of 10%. The wildlife value of the stand is medium due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 1 for retention because of its mature successional stage, wetland presence, specimen trees, and lack of invasive species.

Environmental Features
Stand 2 contains one specimen tree within and one outside of the plot, two wetlands, a stream, and has a very low occurrence of invasive species. In addition, the stand is very small and impacted by adjacent roadway.

Stand 3

Sample Plots: **4**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Red Maple/Sweetgum**

Stand 3 is dominated by red maple and sweetgum, of size class 6" to 11.9" dbh, with approximately 70% canopy closure. Other trees in the canopy include tulip poplar, blackgum, pin oak, ironwood, beech, willow oak, American holly (*Ilex opaca*), and sweetbay magnolia (*Magnolia virginiana*).

The understory from 3' to 20' tall includes northern spicebush, pin oak, Tatarian honeysuckle, beech, American holly, red maple, white fringe tree (*Chionanthus virginicus*), highbush blueberry (*Vaccinium corymbosum*), and sweet pepperbush (*Clethra alnifolia*), with an average coverage of 55%.

Common herbaceous and woody species 0' to 3' tall consist of Virginia creeper, eastern poison ivy,

sensitive fern (*Onoclea sensibilis*), common greenbrier, sweetgum, common jewelweed, greater bladder sedge (*Carex intumescens*), blackberry, southern arrowwood, bristly dewberry (*Rubus hispidus*), strawberry bush, mayapple, skunk cabbage, Jack-in-the-pulpit (*Arisaema triphyllum*), netted chain fern (*Woodwardia areolata*), Canada mayflower (*Maianthemum canadense*), and white oak (*Quercus alba*), with an average 90% coverage.

Invasive species observed in sample plots were Tatarian honeysuckle, hog peanut (*Amphicarpaea bracteata),* Asiatic bittersweet (*Celastrus orbiculatus*), multiflora rose, garlic mustard, Japanese stilt grass, cleavers, and Japanese honeysuckle, with approximately 21% cover. The wildlife value of the stand is high due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 1 for retention because of its mature successional stage and wetlands.

Environmental Features
Stand 3 contains one specimen tree and has a moderate occurrence of invasive species. The stand houses parts of a large wetland system and contains 19 specimen trees outside of the plot radius. The stand has a low to moderate quantity of invasive species.

Stand 4

Sample Plots: **2**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Oak/hickory**

Stand 4 is co-dominated by southern red oak (*Quercus falcata*), northern red oak (*Quercus rubra*), and bitternut hickory of size class 6" to 11.9" dbh, with approximately 60% canopy closure. Other trees in the canopy include red maple, beech, white oak, sweetgum, and blackgum.

The understory from 3' to 20' tall includes northern spicebush, flowering dogwood (*Cornus florida*), ironwood, crabapple (*Malus* sp.), and winterberry holly, with and average coverage of 50%.

Common herbaceous and woody species 0' to 3' tall consist of white oak, beech, Virginia creeper, blackberry, northern spicebush, sensitive fern, mayapple, common greenbrier, Jack-in-the-pulpit, sedge, winterberry holly, ironwood, and sessile bellwort (*Uvularia sessilifolia*), with an average coverage of 90%.

Invasive species observed in sample plots were Japanese honeysuckle, garlic mustard, and hog peanut, with an approximate 10% coverage. The wildlife value of the stand is moderate due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 2 for retention because of its mature successional stage, lack of specimen trees, and wetland.

Environmental Features
Stand 4 contains a wetland, but no specimen trees. It has a very small percentage of invasive species cover.

Stand 5

Sample Plots: **1**
Successional Stage: **Mature**
Priority: **3**
Cover Type: **Oak/hickory**

Stand 5 is dominated by willow oak of size class 12" to 19.9" dbh, with approximately 80% canopy closure. Other trees in the canopy include red maple, beech, and sweetgum.

The understory from 3' to 20' tall includes tulip poplar, poison ivy, ironwood, persimmon (*Diospyros virginiana*), green ash, staghorn sumac (*Rhus typhinus*), Asiatic bittersweet, and porcelain-berry (*Ampelopsis brevipedunculata*) with 100% coverage.

Common herbaceous and woody species 0' to 3' tall consist of blackberry, black raspberry, Japanese barberry, Christmas fern (*Polystichum acrostichoides*), Virginia jumpseed (*Persicaria virginiana*), shallow sedge (*Carex lurida*), false nettle (*Boehmeria cylindrica*), strawberry bush, partridge-berry (*Mitchella repens*), and common greenbrier with 100% coverage.

Invasive species observed in sample plots were Asiatic bittersweet, multiflora rose, Tartarian honeysuckle, Japanese honeysuckle, Japanese barberry, English ivy, and Japanese stiltgrass with approximately 40% coverage. The wildlife value of the stand is moderate due to the presence of cover and forage, mostly in the form of hard mast. The stand rates a Priority 3 for retention because of its lack of sensitive features such as wetlands, streams, steep slopes, etc. The stand also exhibits relatively high coverage by invasive species.

Environmental Features
Stand 5 contains no sensitive environmental features and a higher percentage of invasive species cover than the other stands.

Stand 6

Sample Plots: **1**
Successional Stage: **Mature**
Priority: **1**
Cover Type: **Red maple/sweetgum**

Stand 6 is dominated by red maple of size class 12" to 19.9" dbh, with 100% canopy closure. Other trees in the canopy include sweetgum.

The understory from 3' to 20' tall includes black cherry (*Prunus serotina*), poison ivy, southern arrowwood, and green ash with 100% coverage.

Common herbaceous and woody species 0’ to 3’ tall consist of common greenbrier with 100% coverage.

Invasive species observed in sample plots were Asiatic bittersweet, Chinese privet, Tartarian honeysuckle, Japanese honeysuckle, and English ivy with approximately 35% coverage. The wildlife value of the stand is moderate to high due to the presence of cover, forage and water, and its connection to a larger forested corridor to the north with a stream. The stand rates a Priority 1 for retention because of its stream and wildlife value. The stand does, however, exhibit relatively high coverage by invasive species.

Environmental Features
Stand 6 contains a stream and a higher percentage of invasive species cover than the other stands.

5. Conclusions

Six forest stands were delineated and assessed on the site, comprised of two cover types – red maple/sweetgum and oak/hickory. There are 20 specimen trees documented within forest stands along Edmonston Road; only one of these is located within the project limit of disturbance. Seventeen (17) other specimen trees were documented within the limit of disturbance in the Powder Mill/Animal Husbandry area (Figure 7, Appendix B), but are not located within a forest stand. Invasive species coverage is low to moderate in all stands. Stands 1 and 3 have specimen trees and Stands 1, 2, 3, 4 and 6 have wetlands and/or a stream. Stands 1, 2, 3, 4 and 6 rank as Priority 1 retention stands due to the presence of sensitive areas (wetlands and streams), specimen trees, and their mature successional stage. Stand 5 is ranked as Priority 3 due to the lack of sensitive features and high occurrence of non-native invasive species.

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6. References

Eyre, F.H. 1980. Forest Cover Types of the United States and Canada. Society of American Foresters, Washington, D.C. 148 pp.

Maryland Dept. of Natural Resources, 3rd ed., 1997. State Forest Conservation Technical Manual. Dept. of Natural Resources, Annapolis, Maryland.

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7. Acronyms and Abbreviations

BARC	Beltsville Agricultural Research Center
BEP	Bureau of Engraving and Printing
CPF	Currency Production Facility
dbh	diameter at breast height
EIS	Environmental Impact Statement
FSD	Forest Stand Delineation
USACE	U.S. Army Corps of Engineers

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APPENDIX A

Field Sampling Data Sheets

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FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:1** | **Plot #: 1**
Forest Cover Type: Red Maple/Sweetgum | **Date:05/11/21**
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 100		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES		Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Ironwood						1											1
2	Pin Oak						2			1			1					4
3	Sweetgum					3			2									5
4	Red Maple		2			2			2									6
5	Tulip Poplar			1														1
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	3			8			5			1			0				17
	Number & Size of Standing Dead Trees							1										1

List of Woody Plant Species 3'-20':
Southern arrow-wood, Northern spicebush, hazelnut, green ash

Canopy Closure:

C	N	E	S	W	%
Y	Y	N	N	Y	60

Percent of Invasive Cover per Plot (all layers): 30%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
poison ivy, Solomon's seal, jewelweed, common greenbrier, pin oak, Virginia creeper, skunk cabbage, strawberry bush

Understory Cover 3'-20':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

List of Major Invasive Species per Plot (All Layers):
Chinese privet, Japanese stiltgrass, garlic mustard, Japanese barberry, cleavers

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? moderate
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	Y	N	N	Y	40

HABITAT: What species present? deer

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site? West of stream

Comments:
over 100% absolute cover
Northern spicebush understory and southern arrow-wood
Dry when surveyed
East of Powdermill Rd. just off road (DP 105)
picture facing Powder mill road , plot center

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 1 | **Plot #:** 2
Forest Cover Type: Red Maple/Sweetgum | **Date:** 5/11/2021
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 80		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Red elm			1														1
2	Boxelder			1			1											2
3	Red mulberry			1														1
4	Sweetgum		1			1			2			1						5
5	Beech			1														1
6	Tulip poplar									1			2					3
7	Red Maple					3			2									5
8																		0
9																		0
	Total Number of Trees per Size Class	5			5			5			3			0				18
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
Winterberry, Northern spicebush, Tartarian honeysuckle

Canopy Closure:

C	N	E	S	W	%
Y	Y	Y	Y	N	80

Percent of Invasive Cover per Plot (all layers): 20%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
poison ivy, Virginia creeper, stout wood reed, Sedge species, blackberry, Solomon's seal

Understory Cover 3'-20':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, cleavers, Japanese stiltgrass, garlic mustard, Tartarian honeysuckle, common mugwort, multiflora rose

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? light
Downed woody debris: light

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	Y	N	N	Y	40

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? small patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
Northern spicebush understory, healthy
Dense woods, futher into woods than plot 1
extends to site LOD
flat area, no wetlands

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 2 | **Plot #:** 1
Forest Cover Type: Red Maple/Sweetgum | **Date:** 5/11/2021
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 110	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Sweetgum					2			1									3
2	Red Maple		7			2			1									10
3	Blackgum			2			1											3
4	Willow oak						1											1
5	Beech			1														1
6	Green ash			1														1
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	11			6			2			0			1				
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
Southern arrow-wood, red maple, Northern spicebush

Canopy Closure:

C	N	E	S	W	%
Y	Y	Y	N	Y	80

Percent of Invasive Cover per Plot (all layers): 10%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
Common greenbrier, Virginia creeper, Mayapple, poison ivy, Solomon's seal

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	Y	Y	Y	80

List of Major Invasive Species per Plot (All Layers):
English ivy, periwinkle, multiflora rose, Japanese honeysuckle

Rare, etc. Species? No
Specimen Trees? Yes
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? moderate
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
Y	N	Y	N	N	40

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site? adjacent to wetland 4

Comments:
Wetland 4 adjacent
shaded, thick greenbrier presence, most of understory

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 3 | **Plot #:** 1
Forest Cover Type: | **Date:** 5/11/2021
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 190	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Sweetgum								5			2						7
2	Red maple					1			5									6
3	Tulip poplar									1								1
4	Blackgum			1														1
5	Pin oak												1					1
6	Ironwood			1														1
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	2			1			11			3			0				
	Number & Size of Standing Dead Trees	1						2										3

List of Woody Plant Species 3'-20':	Canopy Closure:						Percent of Invasive Cover per Plot (all layers):	Plot Successional Stage:
Northern spicebush, pin oak, Tartarian honeysuckle	C	N	E	S	W	%	25%	Mature
	Y	Y	N	Y	N	60		

List of Understory Species 0'-3':	Understory Cover 3'-20':						List of Major Invasive Species per Plot (All Layers):
Virginia creeper, sensitive fern, common greenbrier, sweetgum, jewelweed, greater bladder sedge, blackberry, southern arrow-wood	C	N	E	S	W	%	Japanese honeysuckle, hog peanut, multiflora rose, Tartaruan honeysuckle, garlic mustard, Japanese stiltgrass
	Y	N	N	N	Y	40	

		Herbaceous & Woody Cover 0'-3':						HABITAT: What species present?
Rare, etc. Species?	No	C	N	E	S	W	%	
Specimen Trees?	No	Y	Y	Y	Y	Y	100	Habitat size, location, configuration:
Historic Sites?	No							
Disease?	No							
Insects/Infestation?	No	Downed Woody Debris:						
Exotic Plants?	No	C	N	E	S	W	%	Wildlife cover/food/water?
Leaf litter?	light	N	Y	N	N	N	20	Y/Y/Y
Downed woody debris:	light							Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 3 | **Plot #:** 2
Forest Cover Type: Red Maple/Sweetgum | **Date:** 5/11/2021
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 210	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Red maple					5			1									6
2	Sweetgum					12			9									21
3	Beech			2			2											4
4	tulip poplar						2											2
5	Willow oak												1					1
6	Ironwood																	0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	2			21			10			1							
	Number & Size of Standing Dead Trees	1						1										2

List of Woody Plant Species 3'-20':
Northern spicebush

Canopy Closure:

C	N	E	S	W	%
Y	N	Y	N	Y	80

Percent of Invasive Cover per Plot (all layers): 30%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
Virginia creeper, common greenbrier, bristly dewberry, Jack-in-the-pulpit, mayapple, poison ivy, jewelweed

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	Y	Y	Y	80

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, multiflora rose, Japanese stiltgrass, and cleavers

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	Y	Y	Y	Y	80

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? moderate
Downed woody debris: moderate

HABITAT: What species present?
deer,red-winged blackbird

Habitat size, location, configuration:

Wildlife cover/food/water?
Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
not many saplings, lots of deer

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 3 | **Plot #:** 2
Forest Cover Type: Red Maple/Sweetgum | **Date:** 05.11.21
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 120		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES		Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Beech			11			3											14
2	Red Maple																	0
3	Sweetgum		2			6			4									12
4	Amercian holly						1		2									3
5	Willow oak															1		1
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	13			10			6			0			1				30
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
beech, Northern spicebush, American holly

Canopy Closure:

C	N	E	S	W	%
Y	N	Y	Y	N	60

Percent of Invasive Cover per Plot (all layers): 15%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
skunk cabbage, jewelweed, common greenbrier, Jack-in-the-pulpit, blackberry, mayapple, Virginia creeper, strawberry bush

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	Y	Y	Y	80

List of Major Invasive Species per Plot (All Layers):
Japanese stiltgrass, Japanese honeysuckle, cleavers

Rare, etc. Species? No
Specimen Trees? Yes
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? heavy
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	N	N	Y	N	20

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site? encroaches wetland 1

Comments:
near wetland off of Edmonston
very little understory or invasives
Lots of specimen trees in area

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 3 | **Plot #:** 4
Forest Cover Type: Red maple/ sweetgum | **Date:** 05.11.21
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 80		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES		Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Red maple		2			4												6
2	Sweetgum					2			2									4
3	Beech																	0
4	White oak									1			1					2
5	Blackgum			1			3											4
6	Sweetbay magnolia			1														1
7	American holly			1														1
8																		0
9																		0
	Total Number of Trees per Size Class	5			9			3			1			0				18
	Number & Size of Standing Dead Trees	1						1										2

List of Woody Plant Species 3'-20':
beech, red maple, white fringetree, American holly, highbush blueberry, sweet pepperbush, white fringetree

Canopy Closure:

C	N	E	S	W	%
Y	N	Y	Y	Y	80

Percent of Invasive Cover per Plot (all layers): 15%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
common greenbrier, bristly dewberry, beech, red maple, American holly, highbush blueberry, poison ivy, white oak, Canada mayflower, mayapple, Jack-in-the-pulpit, netted chainfern

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	N	N	N	20

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, cleavers, Japanese stiltgrass

Rare, etc. Species?
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? heavy
Downed woody debris: light

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
Y	N	Y	Y	Y	80

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
Southern portion of edmonstn near houses
littel understory growth, mostly greenbrier

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 4 | **Plot #:** 1
Forest Cover Type: Oak/Hickory | **Date:** 05.12.21
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 100	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Red maple			1			1											2
2	Beech			1			2			1			1					5
3	White oak					1			4									5
4	Bitternut hickory					2			1									3
5	Southern red											1						1
6	Sweetgum			1			5			2			4					12
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	3			11			8			6			0				28
	Number & Size of Standing Dead Trees				1													1

List of Woody Plant Species 3'-20':
Northern spicebush, flowering dogwood, winterberry holly, ironwood, crabapple

Canopy Closure:

C	N	E	S	W	%
Y	N	N	Y	Y	60

Percent of Invasive Cover per Plot (all layers): 15%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
white oak, beech, common greenbrier, Vriginia creeper, blackberry, Japanese honeysuckle, Northern spicebsuh, Sedge species, hog peanut, sensitive fern, mayapple

Understory Cover 3'-20':

C	N	E	S	W	%
N	Y	Y	N	Y	40

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, garlic mustard, hog peanut

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? No
Leaf litter? moderate
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
N	Y	Y	Y	Y	80

Downed Woody Debris:

C	N	E	S	W	%
N	Y	N	Y	Y	60

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y
Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
Semi-open canopy near wetland 4

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :LEJ/DRC**
Owner: BARC | **Stand #:** 4 | **Plot #:** 2
Forest Cover Type: Oak/Hickory | **Date:** 05.12.21
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 140	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Beech			2			8											10
2	Red maple			2			2											4
3	Sweetgum			1			4						5					10
4	Northern red oak					1												1
5	Blackgum			2														2
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class																	
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
Winterberry holly

Canopy Closure:

C	N	E	S	W	%
Y	Y	N	Y	N	60

Percent of Invasive Cover per Plot (all layers): 10%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
common greenbrier, sensitive fern, Jack-in-the-pulpit, Virginia creeper, winterberry holly, ironwood, sedge species, sessile bellwort

Understory Cover 3'-20':

C	N	E	S	W	%
N	N	Y	Y	Y	60

List of Major Invasive Species per Plot (All Layers): Japanese honeysuckle

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? Oak/Hickory
Leaf litter? moderate
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
Y	N	Y	Y	N	60

HABITAT: What species present?

Habitat size, location, configuration:

Wildlife cover/food/water? Y/Y/Y

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
open area, outskirts dense greenbrier

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :JH/DRC**
Owner: BARC | **Stand #:** 5 | **Plot #:** 1
Forest Cover Type: Oak/Hickory | **Date:** 08.02.2023
Plot Size 1/10 Acre (37.5' radius):

	Basal Area in Square Feet per Acre: 110	SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
	TREE SPECIES	Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Beech						1										80	1
2	Red maple			1						2							80	3
3	Sweetgum						3			2							80	5
4	Willow oak							1			1						80	2
5																		0
6																		0
7																		0
8																		0
9																		0
	Total Number of Trees per Size Class	1			4			5			1							11
	Number & Size of Standing Dead Trees																	0

List of Woody Plant Species 3'-20':
staghorn sumac, ironwood, green ash, porcelain berry, American holly, tulip poplar, poison ivy, Asiatic bittersweet, persimmon

Canopy Closure:

C	N	E	S	W	%
Y	Y	Y	Y	N	80

Percent of Invasive Cover per Plot (all layers): 40%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
common greenbrier, common blackberry, black raspberry, Christmas fern, partridge berry, strawberry bush, false nettle, lurid sedge, Japanese barberry, Virginia jumpseed

Understory Cover 3'-20':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, Asiatic bittersweet, multiflora rose, Japanese barberry, English ivy, Japanese stilt grass, bush honeysuckle

Rare, etc. Species?	No
Specimen Trees?	No
Historic Sites?	No
Disease?	No
Insects/Infestation?	No
Exotic Plants?	Yes
Leaf litter?	thin
Downed woody debris:	light

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
Y	N	N	Y	N	40

HABITAT: What species present?
White-tailed deer, grey squirrel

Habitat size, location, configuration:

Wildlife cover/food/water?
cover and hard mast, water on west side of Edmonston

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:
stand located on east side of Edmonston Road. Clearing for the road has increased light penetration, therefore increasing invasive coverage along the edge of the stand.

FOREST STAND DELINEATION
Field Sampling Data Sheet

Property: BEP Traffic Mitigation | **Prepared By: :JH/LEJ**
Owner: BARC | **Stand #:** 6 | **Plot #:** 1
Forest Cover Type: Red maple/Sweetgum | **Date:** 09.28.2023
Plot Size 1/10 Acre (37.5' radius):

Basal Area in Square Feet per Acre: 110		SIZE CLASS OF TREES >20' HEIGHT WITHIN SAMPLE PLOT																
TREE SPECIES		Number of Trees 2-5.9" dbh			Number of Trees 6-11.9" dbh			Number of Trees 12-19.9" dbh			Number of Trees 20-29.9" dbh			Number of Trees >30" dbh			Average Tree Height (ft)	
	Crown Position	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other	Dom	CoD	Other		Total
1	Sweetgum		1						2			3					80	6
2	Red maple					1			2								80	3
3																	80	0
4																	80	0
5																		0
6																		0
7																		0
8																		0
9																		0
Total Number of Trees per Size Class		1			1			4			3							9
Number & Size of Standing Dead Trees		1																1

List of Woody Plant Species 3'-20':
black cherry, poison ivy, southern arrowwood, green ash

Canopy Closure:

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Percent of Invasive Cover per Plot (all layers): 35%

Plot Successional Stage: Mature

List of Understory Species 0'-3':
common greenbriar

Understory Cover 3'-20':

C	N	E	S	W	%
Y	Y	Y	N	Y	80

List of Major Invasive Species per Plot (All Layers):
Japanese honeysuckle, Asiatic bittersweet, English ivy, bush honeysuckle, Chinese privet

Rare, etc. Species? No
Specimen Trees? No
Historic Sites? No
Disease? No
Insects/Infestation? No
Exotic Plants? Yes
Leaf litter? thin
Downed woody debris: moderate

Herbaceous & Woody Cover 0'-3':

C	N	E	S	W	%
Y	Y	Y	Y	Y	100

Downed Woody Debris:

C	N	E	S	W	%
N	N	N	Y	N	20

HABITAT: What species present?
White-tailed deer, grey squirrel

Habitat size, location, configuration:
patch of forest between townhomes

Wildlife cover/food/water?
cover, food and water

Stand corridor/patch? patch

FUNCTION: Where is stand in relation to sensitive areas on site?

Comments:

relatively high invasive coverage, very thick understory, stream located within stand north of plot,
plot on the edge of the woods

FOREST STAND DELINEATION - FOREST STAND SUMMARY SHEET

Project Name: BEP Traffic Mitigation **Prepared By:** LEJ/DRC

Owner: BARC

Location: BARC **Date: 05/11-05/12/21**

Stand Variable	Stand # 1	Stand #2	Stand # 3	Stand #4
1. Dominant species/ Codominant species	Red Maple,/ Sweetgum	Red Maple,/ Sweetgum	Red Maple/Sweetgum	Oak/Hickory
2. Successional stage	Mature	Mature	Mature	Mature
3. Basal area in s.f. per acre	90	110	130	120
4. Size class of dominant species	6-11.9"	2-5.9'	6-11.9"	6-11.9"
5. Percent of canopy closure	70%	80%	70%	60%
6. Average number of tree species per plot	6	6	6	6
7. Common understory species 3' to 20' tall	Southern arrow-wood, Northern spicebush, hazelnut, green ash, winterberry holly	Southern arrow-wood, red maple, Northern spicebush	Northern spicebush, pin oak, American holly, beech, Tartatrian honeysuckle, sweet pepperbush, highbush blueberry	winterberry holly, Northern spicebush, flowering dogwood, ironwood, crabapple
8. Percent of understory cover 3' to 20' tall	100%	80%	55%	50%
9. Number of woody plant species 3' to 20' tall	15	9	11	13
10. Common understory species 0' to 3' tall	poison ivy, Solomon's seal, jewelweed, common greenbrier, Virginia creeper, skunk cabbage, strawberry bush, blackberry, sedges, stout wood reed	Common greenbrier, Virginia creeper, Mayapple, poison ivy, Solomon's seal	Virginia creeper, sensitive fern, common greenbrier, jewelweed, greater bladder sedge, blackberry, southern arrow-wood, bristly dewberry, Jack-in-the-pulpit, mayapple, poison ivy, skunk cabbage	white oak, beech, common greenbrier, Vriginia creeper, blackberry, Japanese honeysuckle, Northern spicebsuh, Sedge species, hog peanut, sensitive fern, mayapple, Jack-in-the-pulpit
11. Percent of herbaceous & woody plant cover 0' to 3' tall	100%	100%	100%	90%
12. List of major invasive plant species & percent of cover	Chinese privet, Japanese stiltgrass, garlic mustard, Japanese barberry, cleavers, Tartarian honeysuckle, common mugwort, multiflora rose. 25% invasive coverage	English ivy, periwinkle, multiflora rose, Japanese honeysuckle. 10% invasive coverage	Japanese honeysuckle, hog peanut, multiflora rose, Tartaruan honeysuckle, garlic mustard, Japanese stiltgrass, cleavers. 21% invasive coverage	Japanese honeysuckle, garlic mustard, hog peanut. 10% invasive coverage
13. Number of standing dead trees ≥6" dbh per acre	5	0	17.5	20
14. Comments				
15. Priority (1,2,3)	1	1	1	1

FOREST STAND DELINEATION - FOREST STAND SUMMARY SHEET

Project Name: BEP Traffic Mitigation **Prepared By: JH/DRC**

Owner: BARC

Location: BARC **Date: 10.12.2023**

Stand Variable	Stand # 5	Stand #6	Stand # 7	Stand #
1. Dominant species/ Codominant species	Oak/Hickory	Red maple/sweetgum		
2. Successional stage	Mature	Mature		
3. Basal area in s.f. per acre	110	110		
4. Size class of dominant species	12-19.9"	12-19.9"		
5. Percent of canopy closure	80%	100%		
6. Average number of tree species per plot	4	2		
7. Common understory species 3' to 20' tall	tulip poplar, poison ivy, ironwood, persimmon, green ash, staghorn sumac, Asiatic bittersweet, porcelain berry	black cherry, poison ivy, southern arrowwood, green ash		
8. Percent of understory cover 3' to 20' tall	100%	80%		
9. Number of woody plant species 3' to 20' tall	8	4		
10. Common understory species 0' to 3' tall	blackberry, black raspberry, Japanese barberry, Christmas fern, Virginia jumpseed, lurid sedge, false nettle, strawberry bush, partridge berry, greenbrier	Common greenbrier		
11. Percent of herbaceous & woody plant cover 0' to 3' tall	100%	100%		
12. List of major invasive plant species & percent of cover	Asiatic bittersweet, multiflora rose, bush honeysuckle, Japanese honeysuckle, Japanese barberry, English ivy, Japanese stiltgrass. 40% invasive coverage	Japanese honeysuckle, Asiatic bittersweet, English ivy, bush honeysuckle, Chinese privet. 35% invasive coverage		
13. Number of standing dead trees ≥6" dbh per acre	0	1		
14. Comments				
15. Priority (1,2,3)	3	1		

APPENDIX B

Figures

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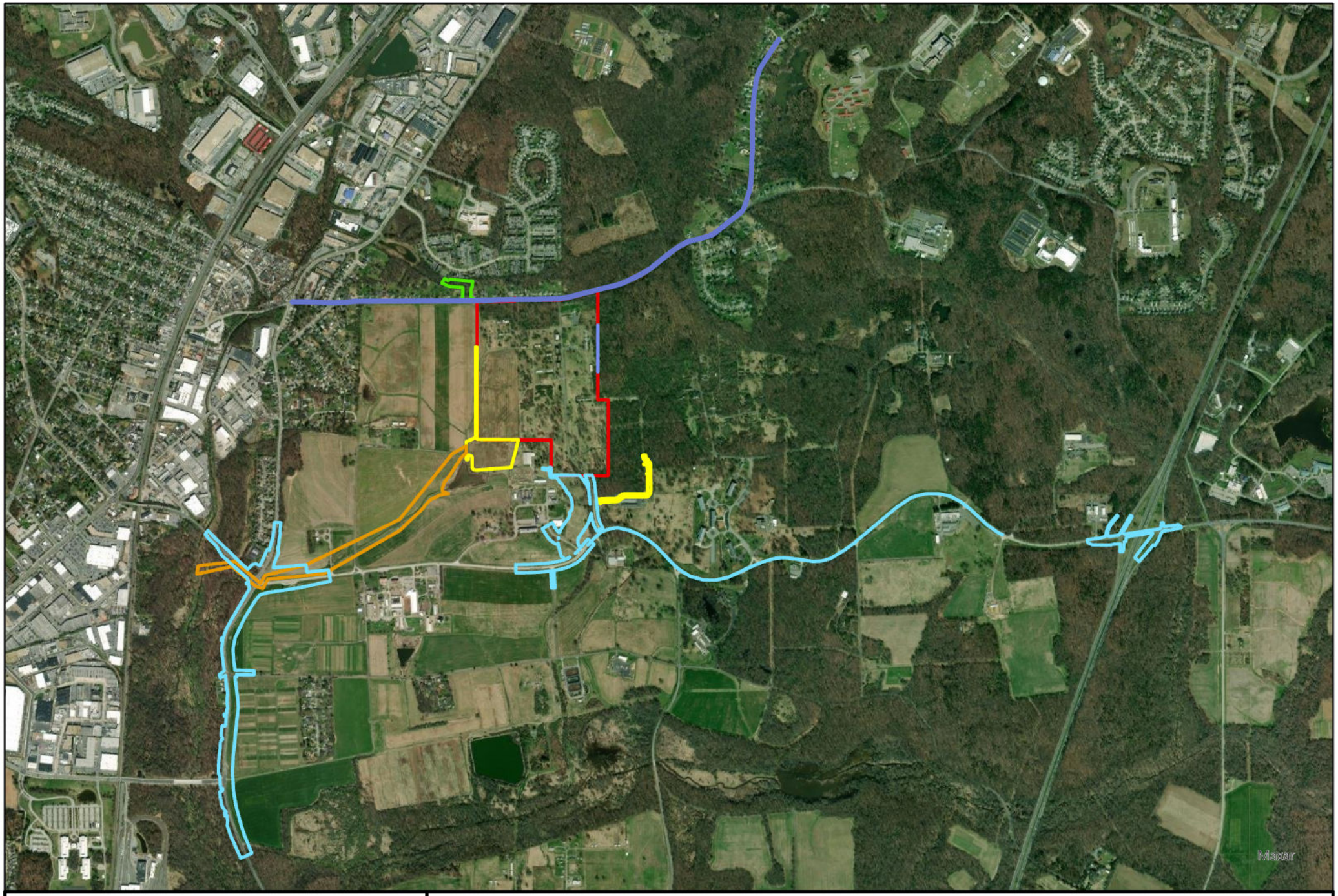


BEP Traffic and Utility Mitigation Vicinity Map 2023

N

0 0.4 Miles

Traffic Improvements

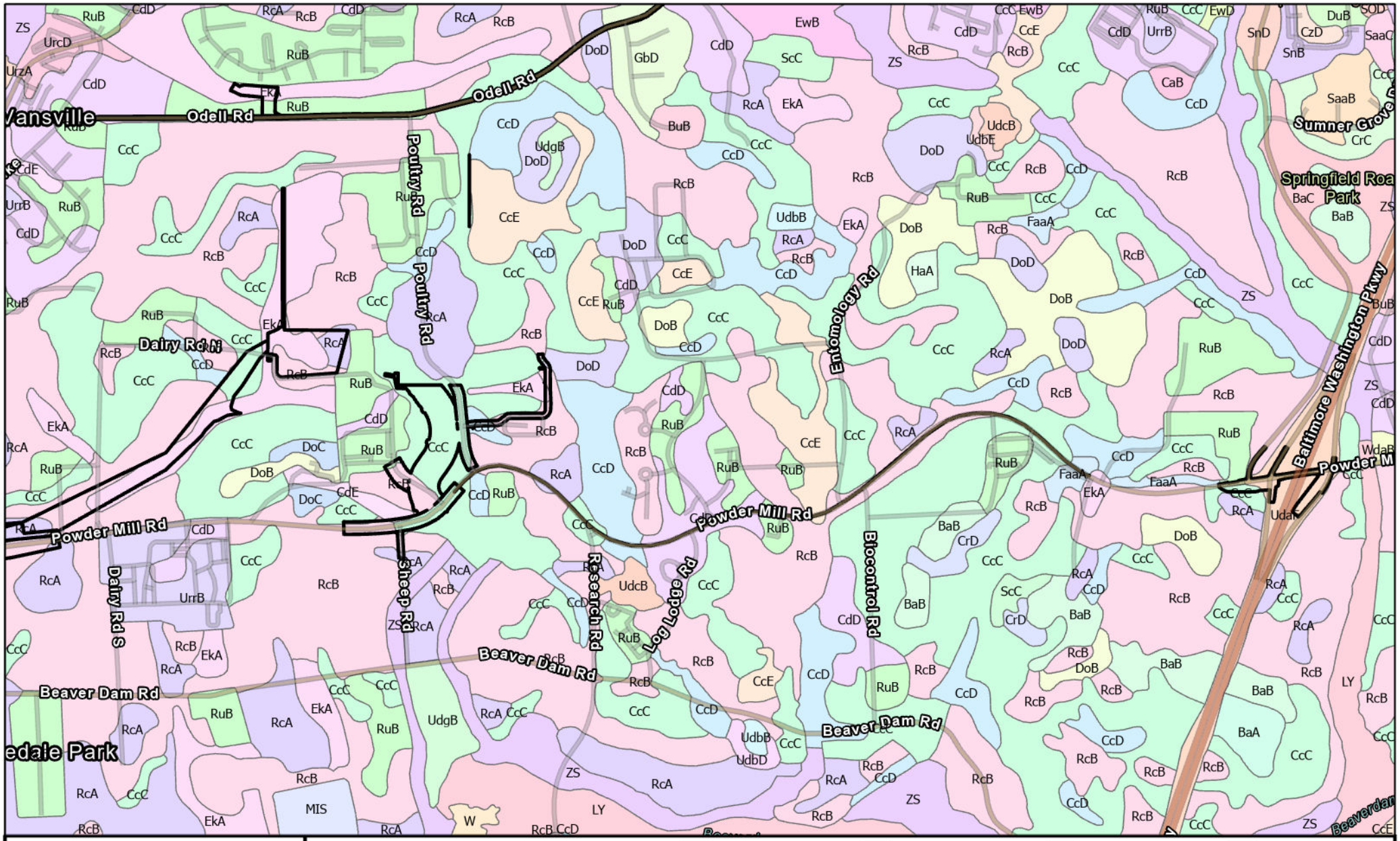
Utility Work

Sanitary Sewer Alternative 1

Sanitary Sewer Alternative 2

CPF Improvements

BEP Boundary



BEP Traffic and Utility Mitigation Soils Map (East) 2023

N

0 0.2 Miles

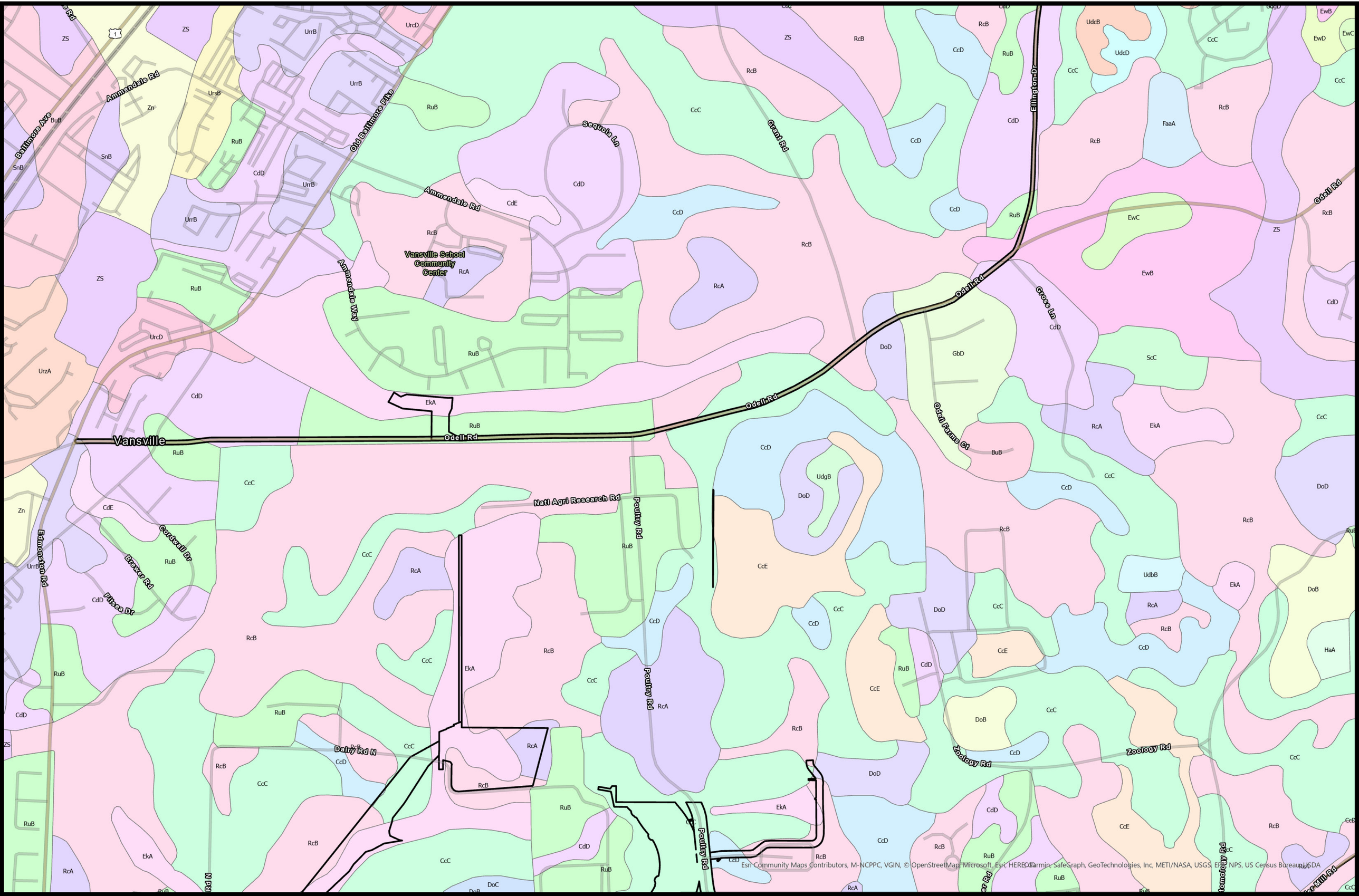
Limit of Disturbance

Layer

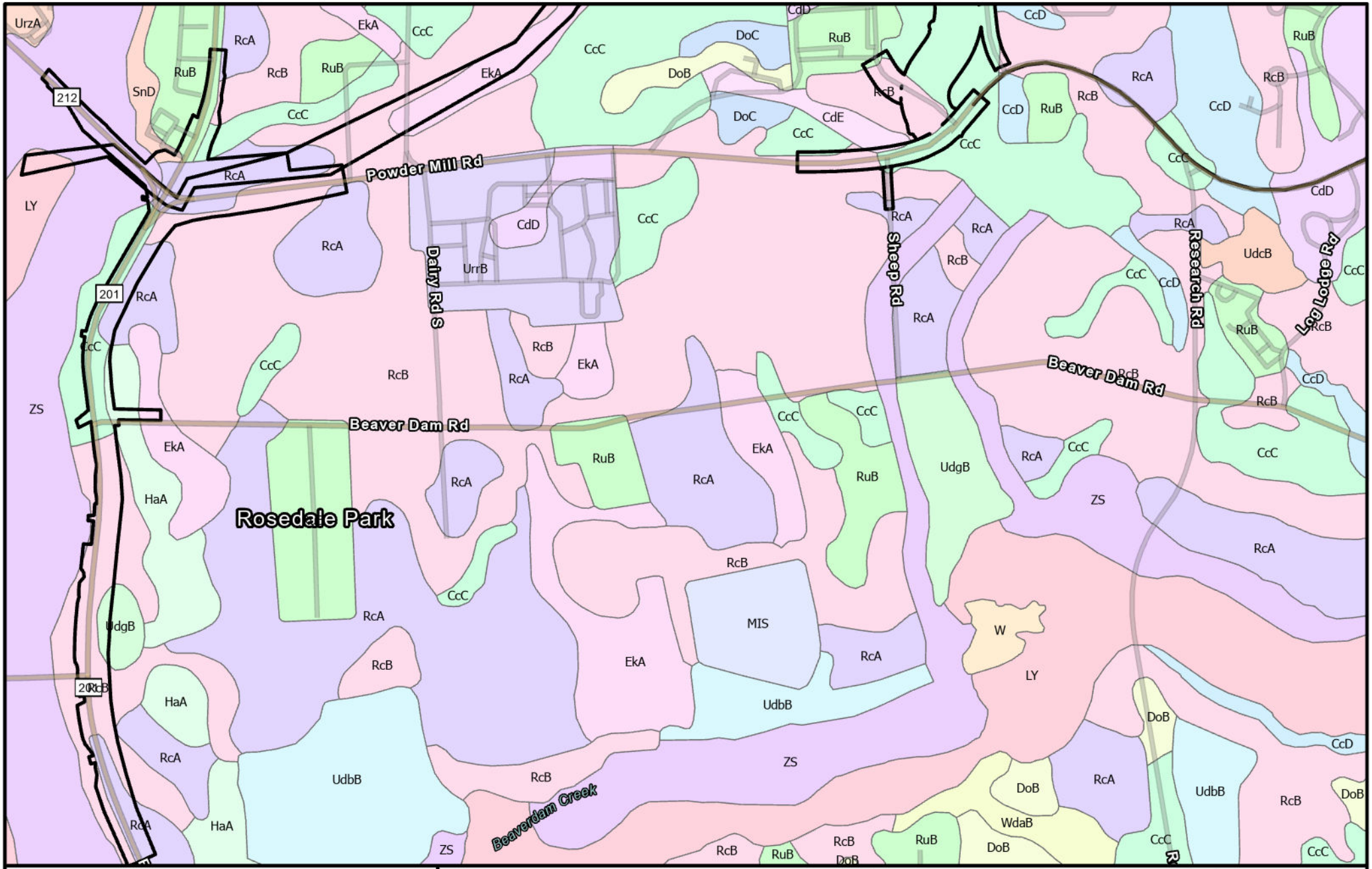
Soil Type

BaA
BaB
BaC
BuB
CaB
CcC
CcD
CcE
CdD
CdE
CrC
CrD
CzD
DoB
DoC
DoD
DuB
EkA
EwB
EwD
FaaA
GbD
HaA
LY
MIS
RcA
RcB
RuB
SOD
SaaB
SaaC
ScC
SnB
SnD
UdaF
UdbB
UdbD
UdbE
UdcB
UdgB
UrcD
UrrB
UrzA
W
WdaB
ZS

BEP Traffic and Utility Mitigation Soils Map (North/Northwest) 2023



Layer
Soil Type
CcE CdD CdE DoB DoC DoD EkA EwB EwC EwD FaaA GbD HaA RcA RcB RuB ScC SnB UdbB UdcB UdcD UdgB UdgD UrcD UrrB UrsB UrzA ZS Zn
BuB CcC CcD



BEP Traffic and Utility Mitigation Soils Map (Southwest)

N

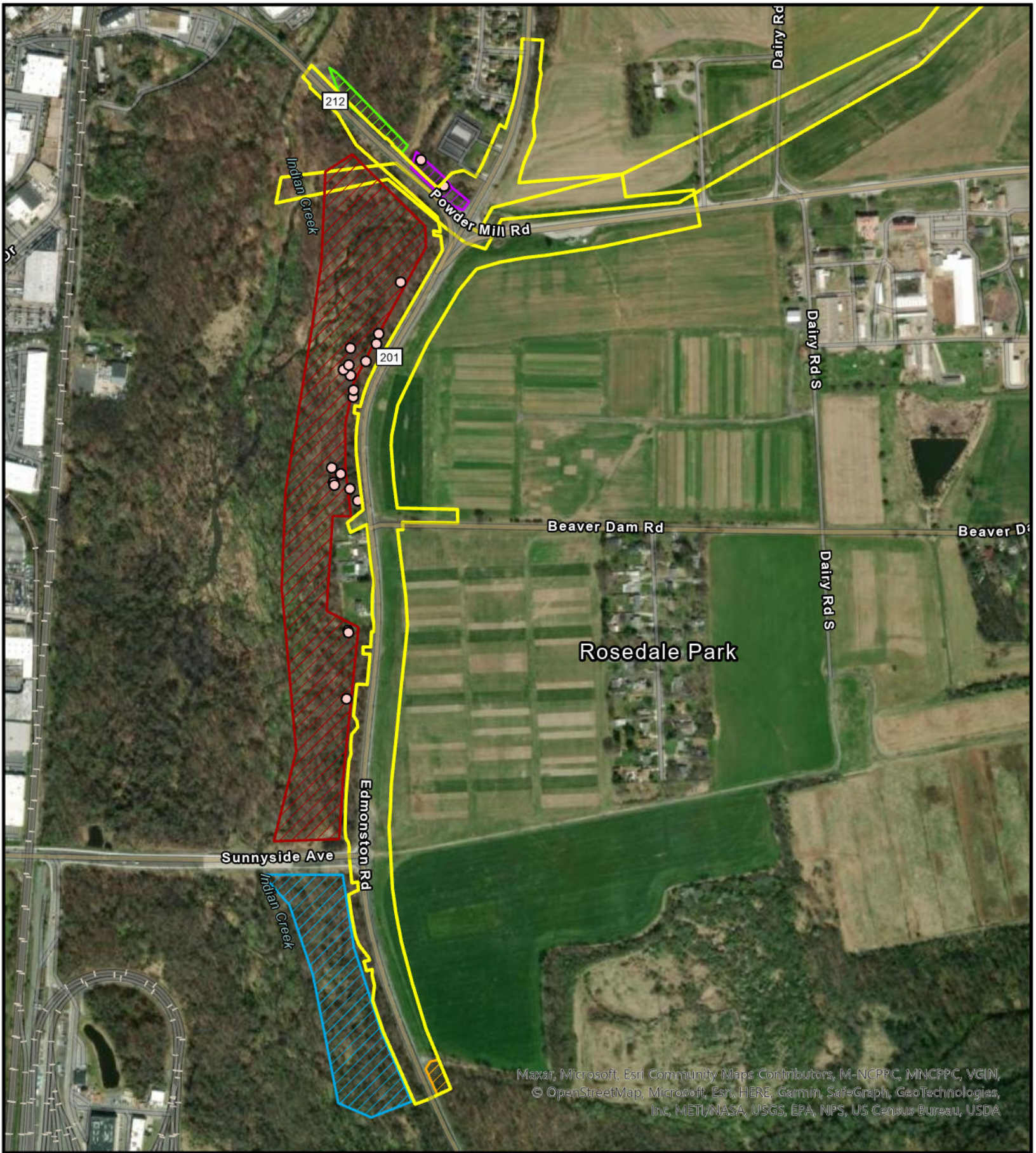
0 0.14 Miles

Limit of Disturbance

Layer

Soil Type

- CcC
- CcD
- CdD
- CdE
- DoB
- DoC
- EkA
- HaA
- LY
- MIS
- RcA
- RcB
- RuB
- SnD
- UdbB
- UdcB
- UdgB
- UrrB
- UrzA
- W
- WdaB
- ZS

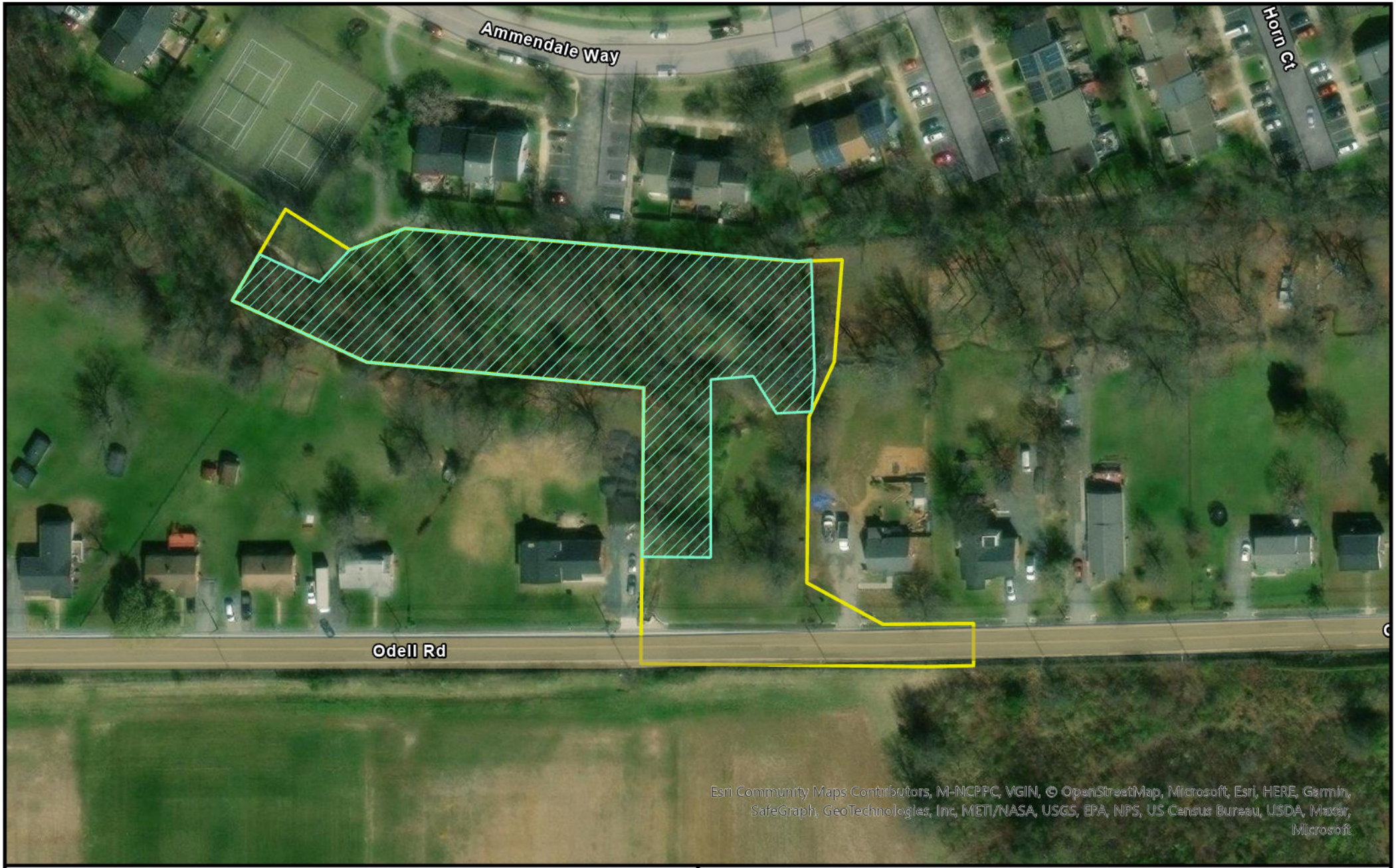


BEP Traffic Mitigation
Forest Stand Delineation 2023

N

350
US Feet

- Specimen Tree
- Project Area
- Stand T1
- Stand T2
- Stand T3
- Stand T4
- Stand T5



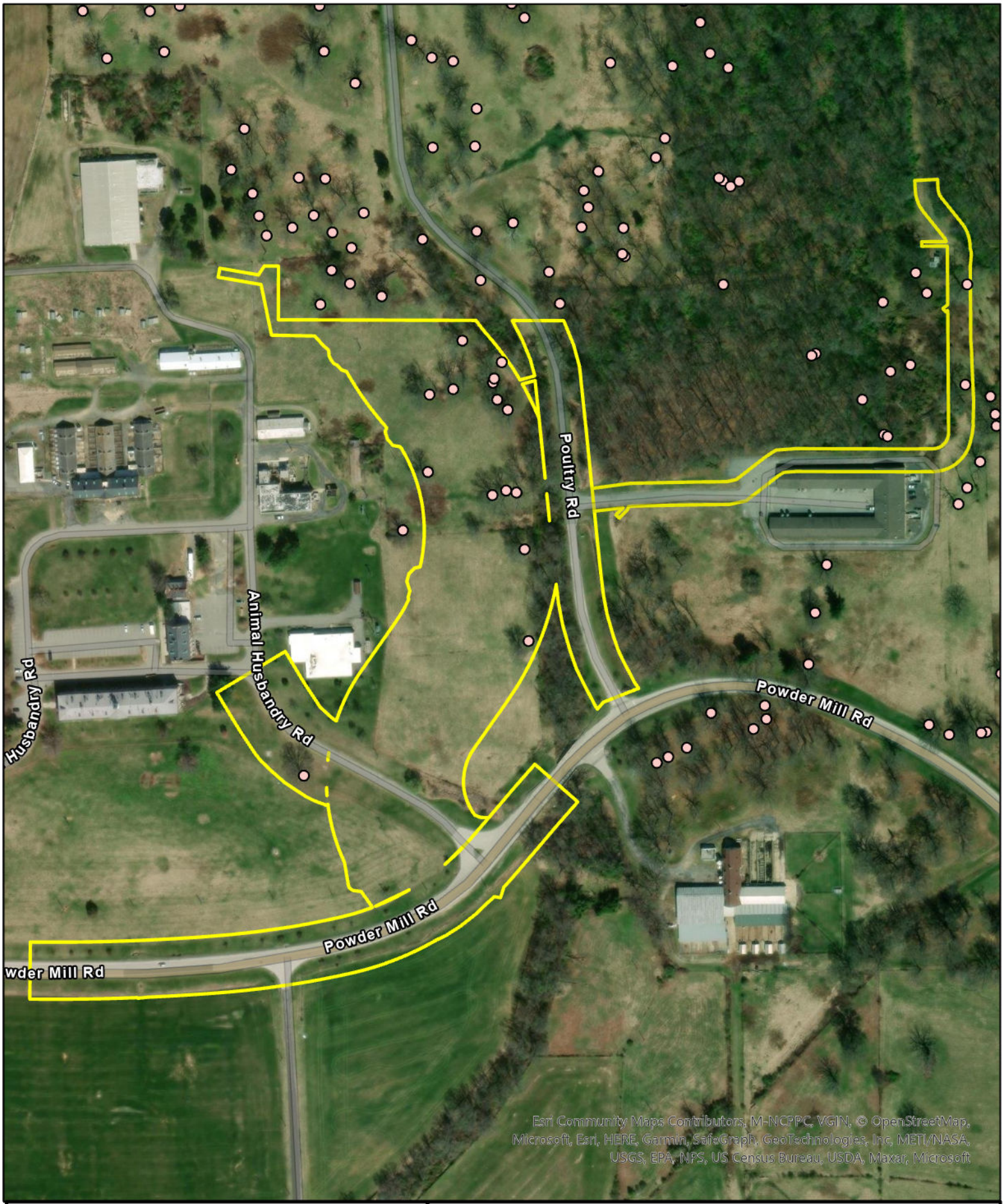
BEP Traffic Mitigation
Forest Stand Delineation 2023

N

0 50 100
US Feet

Project Area

Stand T6



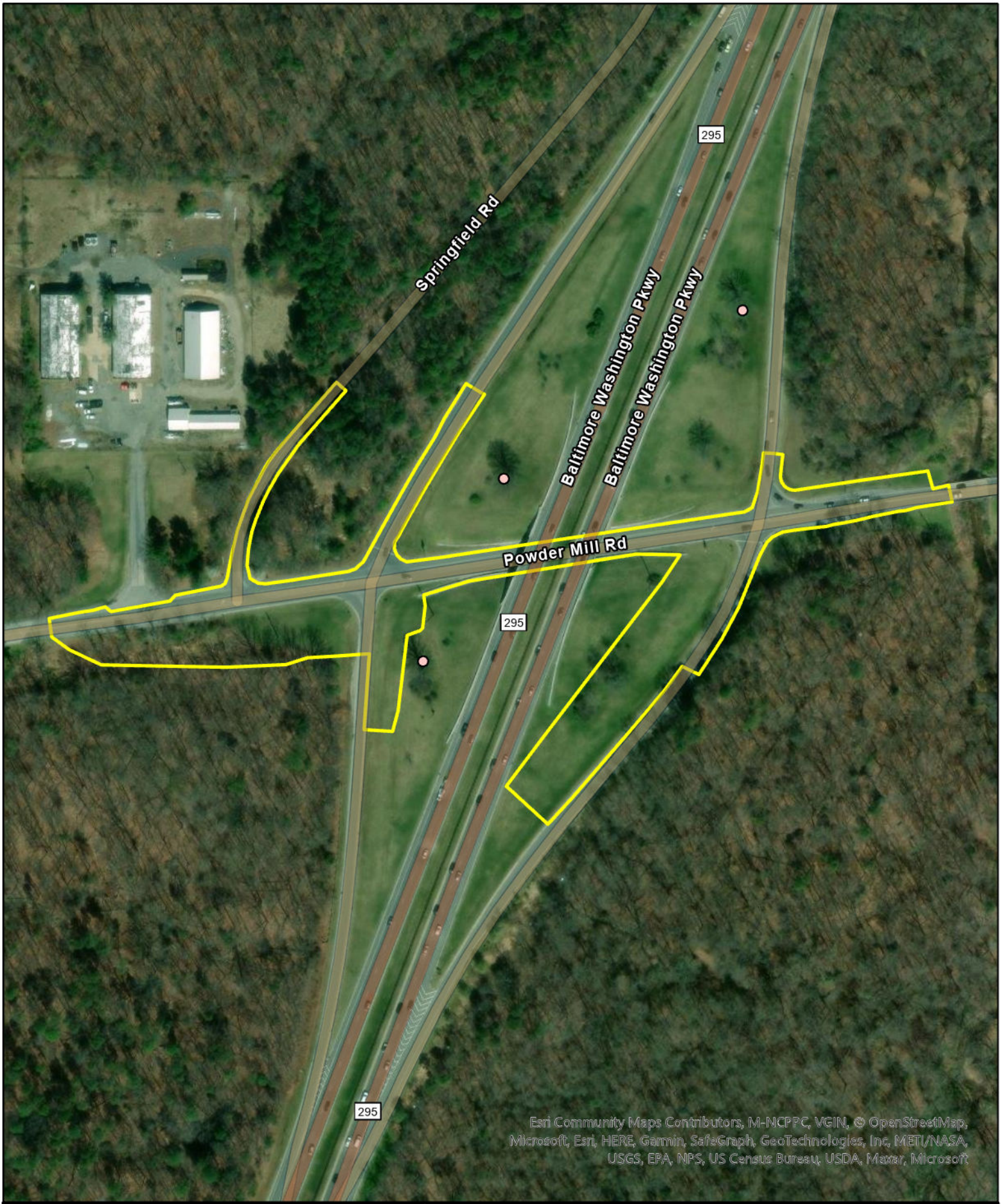
BEP Traffic Mitigation
Specimen Trees 2023

N

0 360 US Feet

Specimen Tree

Project Area



BEP Traffic Mitigation
Specimen Trees 2023

N

0 160
US Feet

Specimen Tree
Project Area

APPENDIX C

Specimen Tree List

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BEP Traffic Mitigation Specimen Trees			
BEP Specimen Tree	Scientific Name	Common Name	Diameter Breast Height (Inches)
1	*Quercus phellos*	Willow Oak	40
2	*Quercus alba*	White Oak	49
3	*Acer rubrum*	Red Maple	49
4	*Liquidambar styraciflua*	Sweetgum	35
5	*Liquidambar styraciflua*	Sweetgum	35
6	*Liquidambar styraciflua*	Sweetgum	38
7	*Liquidambar styraciflua*	Sweetgum	35
8	*Liquidambar styraciflua*	Sweetgum	33
9	*Liquidambar styraciflua*	Sweetgum	31
10	*Liquidambar styraciflua*	Sweetgum	33
11	*Liquidambar styraciflua*	Sweetgum	31
12	*Liquidambar styraciflua*	Sweetgum	31
13	*Quercus alba*		34.5
14	*Liquidambar styraciflua*	Sweetgum	32
15	*Liquidambar styraciflua*	Sweetgum	37
16	*Liquidambar styraciflua*	Sweetgum	35
17	*Quercus alba*	White Oak	39
18	*Quercus alba*	White Oak	38