

**Hopewell Valley Community Stewardship Plan
Friends of Hopewell Valley Open Space**

**Appendix 18.
Nexus Preserve**

Acreage: 24.52

Block and Lot: Multiple. B62; L12.04, 12.07, 12.08; B 62.01, L80.15

Ownership: FoHVOS (100%)

Year(s) Purchased: 2001

Location & Access: Preserve is located approximately one mile east of Bear Tavern Road/Route 579 on Pennington-Harbourton Road. Parking access along road shoulder. Additional roadside access along Hallett Way and Baker Way along the detention basins owned by FoHVOS (but managed by High Pointe at Hopewell Homeowners Association). **Nearest street address:** 350 Pennington Harbourton Road, Pennington, NJ 08534.

Structures: None.

Additional property information is summarized in Appendix W. The following Preserve maps are provided at the end of this document:

- Map 1 2007 Aerial Photography
- Map 2 1930 Aerial Photography
- Map 3 Topography
- Map 4 Bedrock Geology
- Map 5 Soils
- Map 6 Land Cover Types (2007)
- Map 7 Protected Lands
- Map 8 Deer Management
- Map 9 Invasive Plant Cover (Relative Infestation Severity for all species)

Website Description:

Nexus Preserve marks one end of the Jacob's Creek trail where several tributaries of Jacob's Creek converge. The Creek's floodplain is bounded by a steep wooded slope. An upland forest patch of black oak and American beech is visible from Baker Way.

BROAD PROPERTY DESCRIPTION

The Nexus Preserve (Map 1) is located at the central Hopewell Township. The topography (see Map 3) is slopes down to Jacob's Creek from 50' to 60' above sea level.

Based upon analysis of NJDEP's 2007 Land Use/Land Cover dataset, the preserve contains seven broad plant communities: Deciduous Forest (> 50% canopy) - Upland, Coniferous Woodland (10-50% canopy) - Upland, Meadows (<25% shrub cover) - Upland, Deciduous Forest (> 50% canopy) - Wetland, Open Water, Agricultural Lands and Urban Lands. Land Use/Land Cover is summarized in Appendix X and illustrated in Map 6.

The preserve's natural plant communities fall into two categories: shrubland and mature forest. Shrublands are dominated by crabapple species, autumn olive, Japanese stiltgrass, shrub honeysuckle, white snakeroot, and Chinese silvergrass. There are two mature forest types. One upland community can

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be found along Hallett Way and is comprised of black oak, American beech and sedges. The mature forest along the banks of the Creek is comprised of sugar maple, Norway maple, ash, spicebush, skunk cabbage (within the floodplain), and lesser celandine. A small patch of stone root (*Collinsonia canadensis*) hints at a richer herb layer before deer overabundance. Two detention basins are maintained as mowed lawn.

The preserve has two types of bedrock geology--the Passaic and Passaic Gray bed formation. See Map 4.

The preserve has eight soil types (see Map 5) with Penn channery silt loam, 6 to 12 percent slopes; Rowland silt loam, 0 to 2 percent slopes, frequently flooded; and Klinesville channery loam, 18 to 35 percent slopes being the three most common types. The preserve's soils are described in Appendix Y.

CONSERVATION VALUES

Based on Natural Heritage data, ENSP Landscape Project, 1930s forest presence/absence et al. the Preserve has a weighted Ecological Value at 25-50%. See Appendix A for a description of ranking factors.

Forest and Woodland Communities: The forest patch found on the Preserve and surrounding area is an important stop-over habitat (spring and fall resting and feeding) for migratory species. The fragmented nature of the forest and the lack of a woodland shrub layer reduces the chance of nesting and successful breeding.

The forest serves as a narrow buffer to Jacob's Creek. The preserve's forest lacks biodiversity and is largely isolated from more diverse plant communities, though a richer seed bank may be present but suppressed.

Old forest: A small upland patch occurs west of Field 48 and a floodplain forest occurred along Jacobs Creek in the southern portion of the Preserve. See Map 2.

Early Successional Communities:

Shrublands: Shrublands on the preserve are small and dominated by invasive species.

Meadows/Grasslands: Detention basins, as they currently stand, have minimal ecological value.

Waterbodies: Approximately 2000' of the Jacob's Creek are protected by the preserve. Green heron (WAP Priority Species) was observed foraging in Jacob's Creek near the powerline ROW.

Rare Species:

Rare Plants: None documented on the Preserve. Natural Heritage shows no species.

Rare Animals: The Landscape Project has the as habitat for State Special Concern species.

See Appendix L for a list of species.

THREATS

Deer: White-tailed deer have suppressed much of the native community. Regeneration of native woody plants is non-existent.

Invasive species: In 2008 staff began walk-through surveys for emerging invasive species on all preserves. Mapping documented each species and its population size. Chinese silvergrass and yellow iris

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were detected. The latter species was detected just outside the preserve's boundary. See www.njisst.org for the current status of emerging invasive species at the Preserve.

In 2011 staff completed surveys for invasive plant species on all preserves (see Map 9). Mapping documented each species found and its population size (See Table 1 below). The five species with the highest infestation scores include: Lesser Celandine, Multiflora Rose, Japanese Honeysuckle, Garlic Mustard, and Non-native cool season grass.

Winged euonymus was detected in 2008; mature individuals were treated with cut stump methods.

Forest soils appear highly erosive and lack a humus layer, possibly due to invasive earthworms.

Other: ATV trails were cut through portions of the preserve. Letters were sent to neighbors and Township police were called. Trespass issues have ceased in recent years but continue on surrounding properties. Trespass by large vehicles has occurred in the past and communications with neighboring property owners are ongoing.

STRATEGIES and ACTIONS:

Forest and Woodland Habitat Stewardship: The forest should be maintained as a stream buffer. To this end, biannual surveys for and eradication of emerging invasive species should continue.

No action is recommended for widespread invasive species, except winged euonymus - mature individuals should be treated with basal bark applications as detected. Reduced deer density will allow the native plant communities to recover and compete with the widespread invasive species.

Early Successional Habitat Stewardship: Conversion of the detention basins (Fields 48 & 49) to a native wildflower meadow is highly desirable, but will require grant funding following outreach with the homeowner's association. For habitat goals and maintenance schedule see Appendix T & U.

Deer Management: The preserve is enrolled in the DMP with bow hunting. See Map 8 for delineations of the 150' and 450' safety zones and hunting status.

Rare Species Management: Maintain forest habitat.

Neighboring Lands: Seek engagement of homeowner's association in usage of trails. See Map 7 for adjacent protected lands.

Waterbodies Management: No activities are recommended.

Undesirable Activities Management: Maintain presence on Preserve through hiking, regular trail maintenance, and maintaining secure access points.

Scientific Research Assessment: The Preserve is available for scientific research.

Recreational Opportunities Assessment: The Preserve contains a portion of the regional Jacob's Creek Trail. Roadside parking access occurs along Pennington-Harbourton Road.

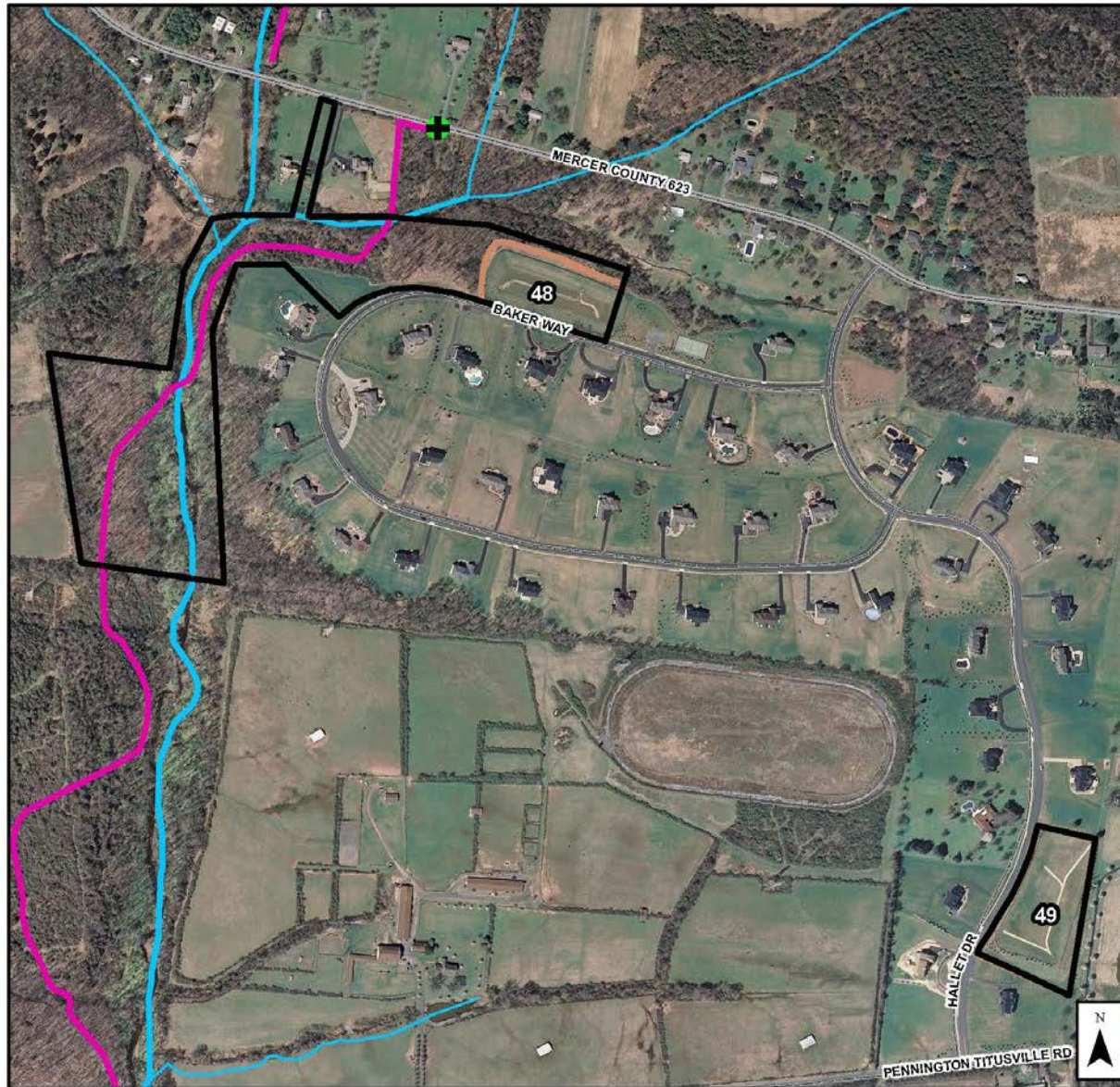
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Table 1. Invasive Plants – Species Abundance and Treatment Recommendations

Scientific Name	Common Name	Infestation Index Score ¹	Total Acres Present	Percent of Preserve Area Present	Treatment Recommendation	LOE Estimate (Hours)	Acreage by Percent Ground Cover Categories						
							Category 0: 0%	Category: Trace	Category 1: 1-10%	Category 2: 10-25%	Category 3: 25-50%	Category 4: 50-75%	Category 5: 75-100%
<i>Acer palmatum</i>	Japanese Maple	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Acer platanoides</i>	Norway Maple	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.00	0.0	0.00	0.0
<i>Ailanthus altissima</i>	Tree-of-Heaven	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Alliaria petiolata</i>	Garlic Mustard	37.4	17.1	69.5	None		7.49	0.0	7.8	0.9	5.6	2.7	0.0
<i>Artemisia vulgaris</i>	Common Mugwort	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Arthraxon hispidus</i>	Small Carpgrass	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Berberis thunbergii</i>	Japanese Barberry	0.0	2.8	11.3	None		21.78	2.8	0.0	0.0	0.0	0.0	0.0
<i>Cardamine impatiens</i>	Narrow-leaved Bittercress	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Catalpa bignonioides</i>	Northern Catalpa	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Celastrus orbiculatus</i>	Asiatic Bittersweet	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.00	0.0	0.0
<i>Centurea sp.</i>	Knapsweed sp.	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Cirsium arvense</i>	Canada Thistle	0.9	0.9	3.5	None		23.68	0.0	0.9	0.0	0.0	0.0	0.0
<i>Dipsacus sylvestris</i>	Teasel	0.0	0.0	0.0	N/A		24.55	0.0	0.00	0.0	0.0	0.0	0.0
<i>Eleagnus umbellata</i>	Autumn Olive	20.9	10.3	41.8	None		14.28	0.0	4.4	1.1	4.8	0.0	0.0
<i>Euonymus alata</i>	Winged Burning Bush	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.00
<i>Iris pseudoacris</i>	Yellow Iris	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Lespedeza cuneata</i>	Chinese Bushclover	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Ligustrum obtusifolium</i>	Border Privet	4.8	5.0	20.4	None		19.53	0.3	4.76	0.0	0.0	0.0	0.0
<i>Lonicera japonica</i>	Japanese Honeysuckle	47.9	17.3	70.5	None		7.23	0.0	3.5	5.5	0.0	8.4	0.0
<i>Lonicera maackii</i>	Amur Honeysuckle	0.3	0.3	1.1	None		24.29	0.0	0.3	0.0	0.0	0.0	0.0
<i>Lonicera morrowii</i>	Morrow's Honeysuckle	9.5	6.1	24.8	None		18.46	0.0	5.3	0.0	0.00	0.0	0.8
<i>Lysimachia nummularia</i>	Moneywort	4.4	4.4	17.8	None		20.17	0.0	4.4	0.0	0.0	0.0	0.0
<i>Lythrum salicaria</i>	Purple Loosestrife	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Malus toringo</i>	Toringo Crabapple	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Microstegium vimineum</i>	Japanese Stiltgrass	16.8	8.4	34.1	None		16.17	2.8	0.0	0.0	5.6	0.0	0.0
N/A	Non-native, cool season grass	36.2	7.2	29.5	None		17.31	0.0	0.0	0.0	0.0	0.0	7.2
<i>Phalaris arundinacea</i>	Reed Canary Grass	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Phragmites australis</i>	Common Reed	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Polygonum cuspidatum</i>	Japanese Knotweed	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Polygonum perfoliatum</i>	Mile-a-Minute	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Pyrus calleryana</i>	Callery Pear	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Ranunculus ficaria</i>	Lesser Celandine	49.4	9.9	40.2	None		14.67	0.0	0.0	0.0	0.0	0.0	9.9
<i>Robinia pseudoacacia</i>	Black Locust	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Rosa multiflora</i>	Multiflora Rose	49.3	17.3	70.5	None		7.24	2.8	0.7	1.7	7.8	0.0	4.4
<i>Rubus phoenicolasius</i>	Wineberry	5.3	5.3	21.4	None		19.30	0.0	5.3	0.0	0.0	0.0	0.0
<i>Securigera varia</i>	Crown vetch	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Viburnum dilatatum</i>	Linden Viburnum	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Viburnum sieboldii</i>	Siebold's Viburnum	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
<i>Wisteria floribunda</i>	Japanese Wisteria	0.0	0.0	0.0	N/A		24.55	0.0	0.0	0.0	0.0	0.0	0.0
Total LOE						0							

¹ The Infestation Index Score combines the extent of acreage infested and the intensity of the infestation. It was derived by multiplying the cover class number by the number of acres within each cover class.

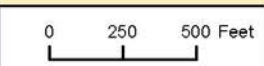
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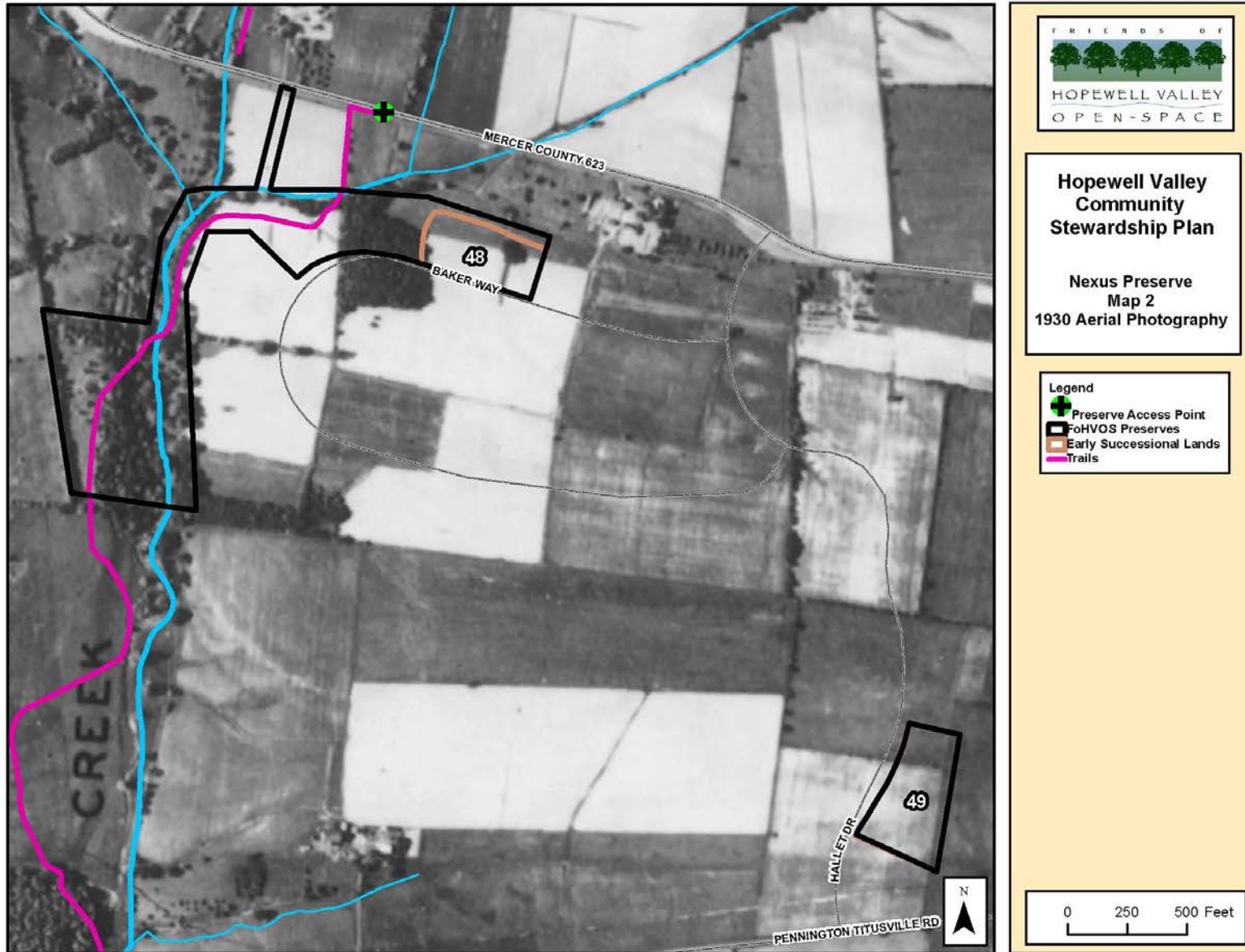
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Map 1
2007 Aerial Photography

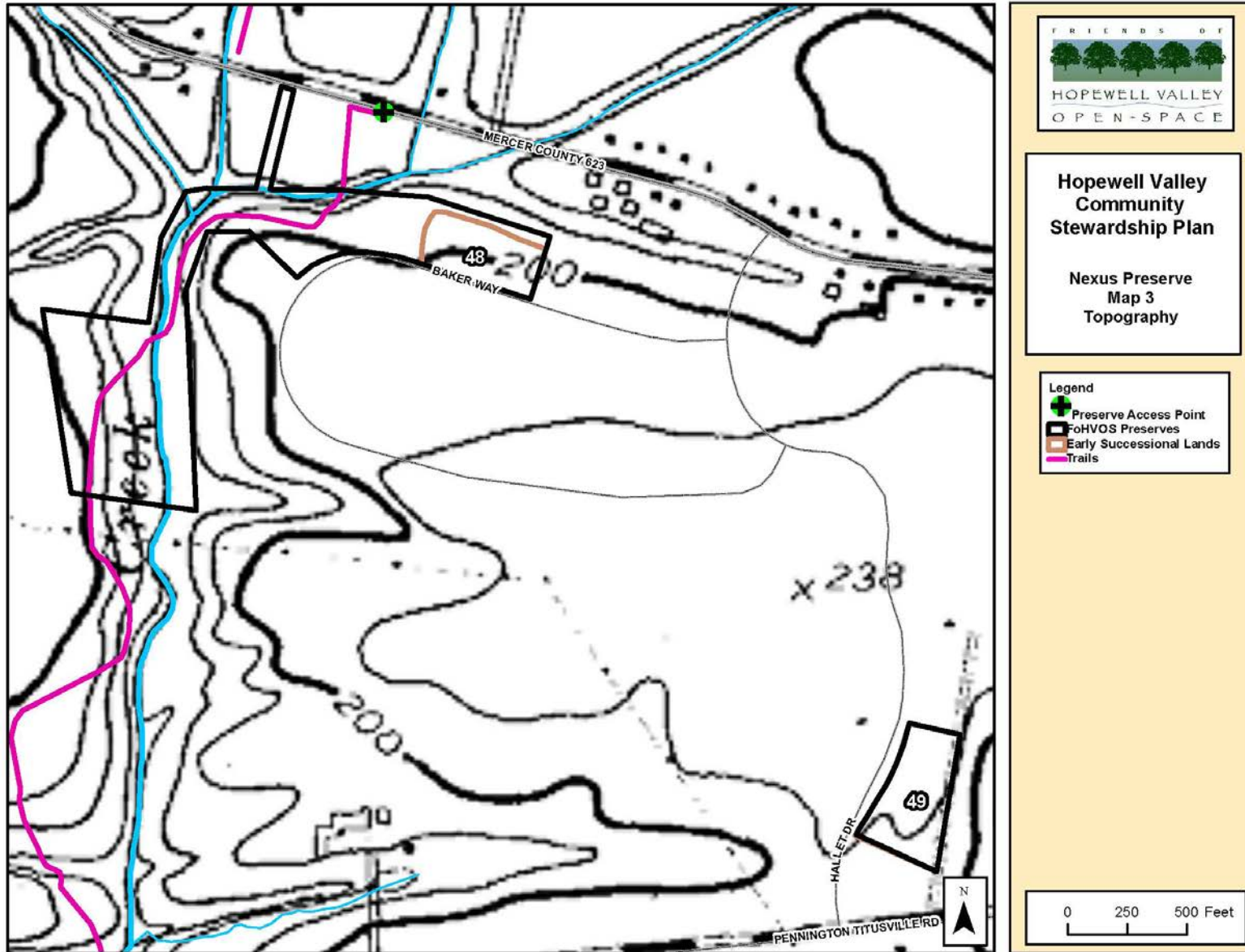
- Legend
- ➕ Preserve Access Point
 - ▭ FohVOS Preserves
 - ▭ Early Successional Lands
 - Trails



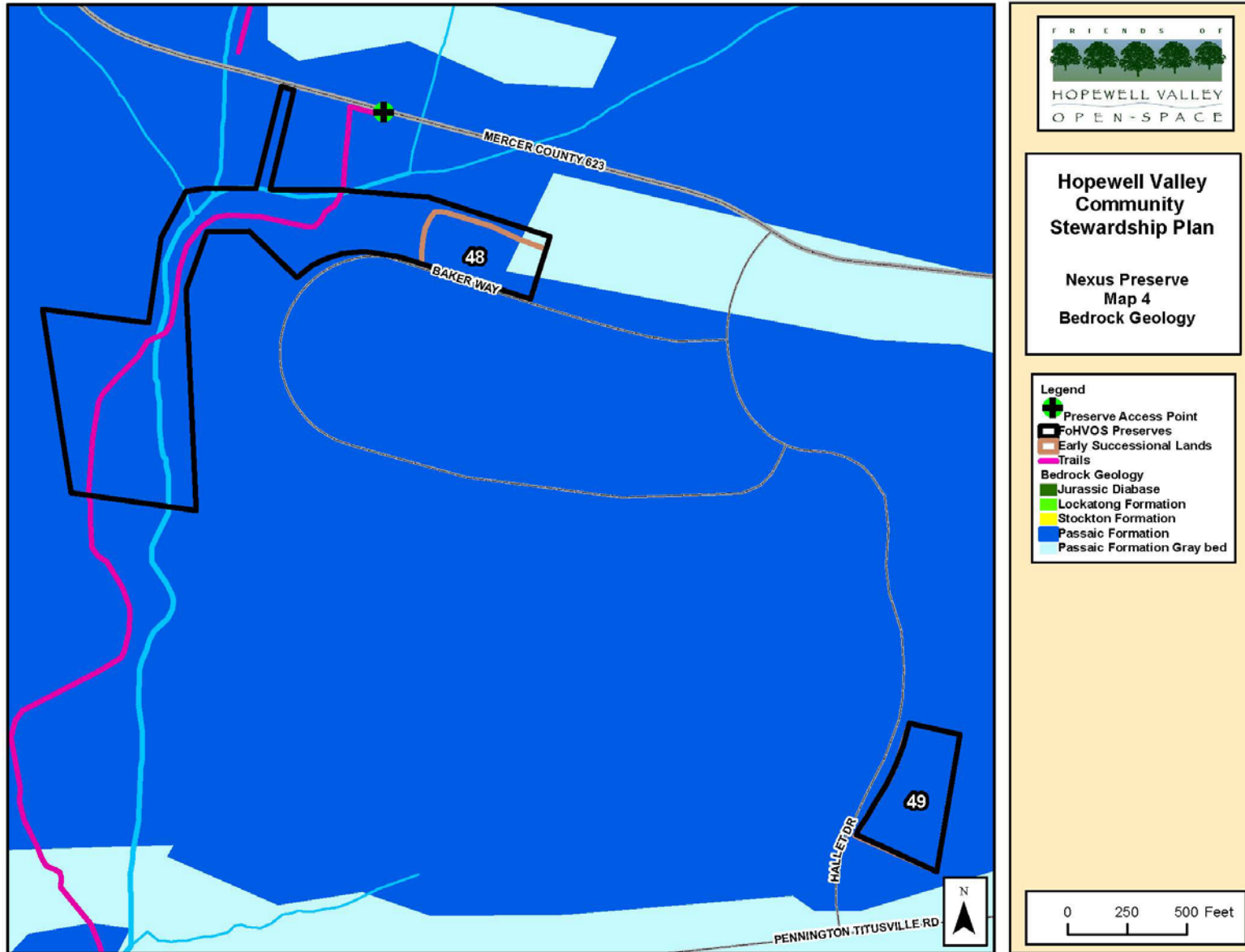
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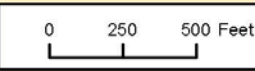
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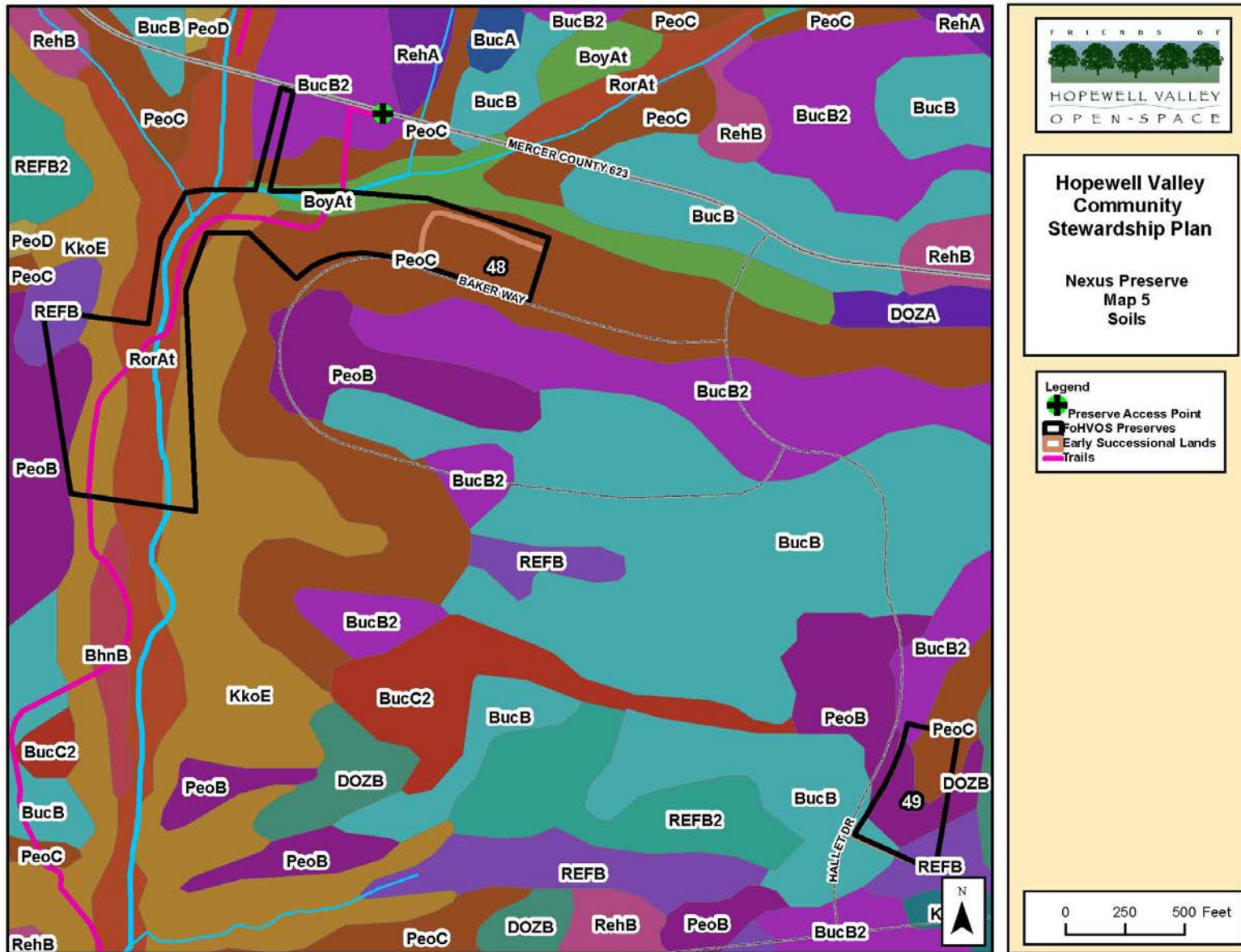
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**Nexus Preserve
 Map 4
 Bedrock Geology**

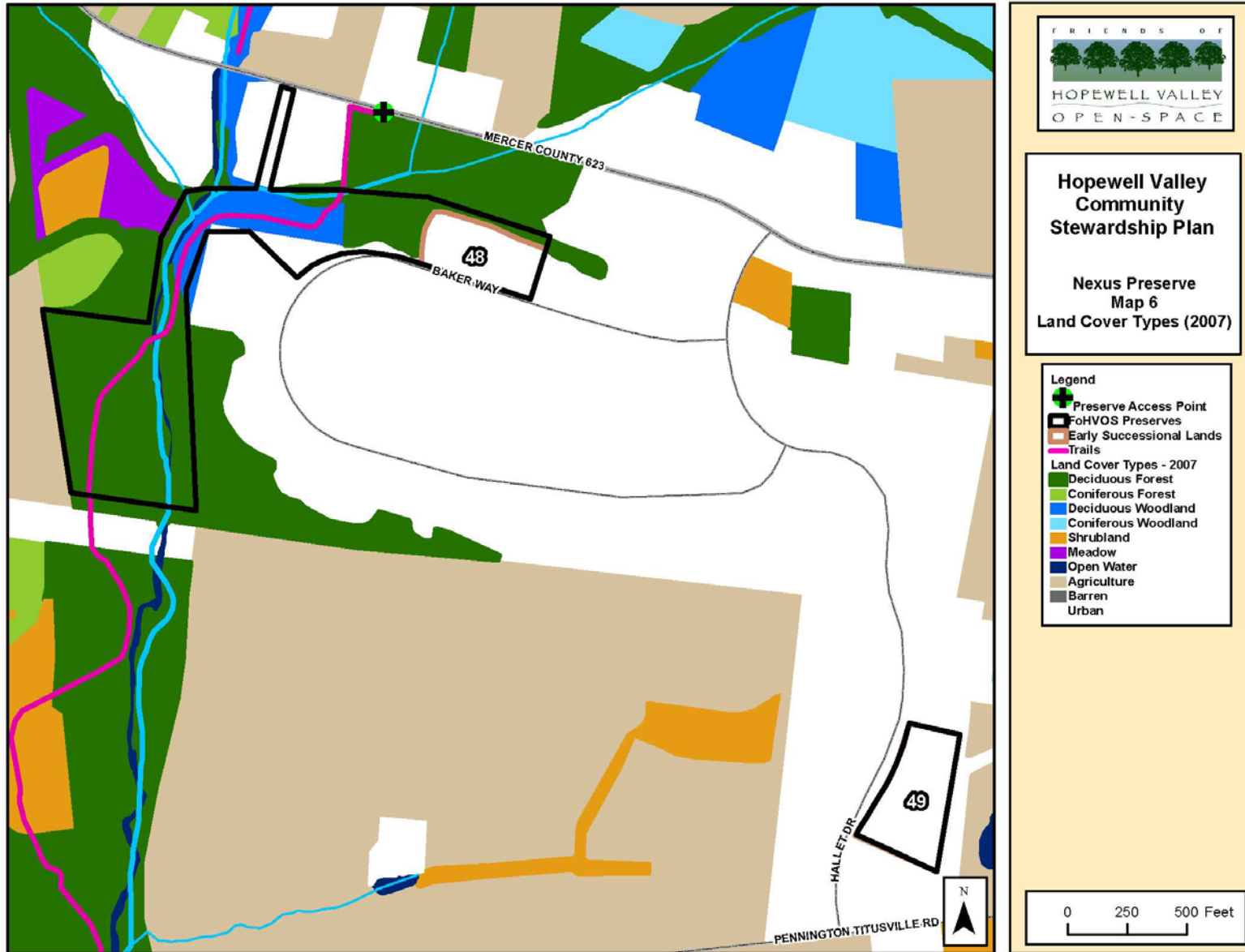
- Legend**
- Preserve Access Point
 - FoHVO Preserves
 - Early Successional Lands
 - Trails
 - Bedrock Geology**
 - Jurassic Diabase
 - Lockatong Formation
 - Stockton Formation
 - Passaic Formation
 - Passaic Formation Gray bed



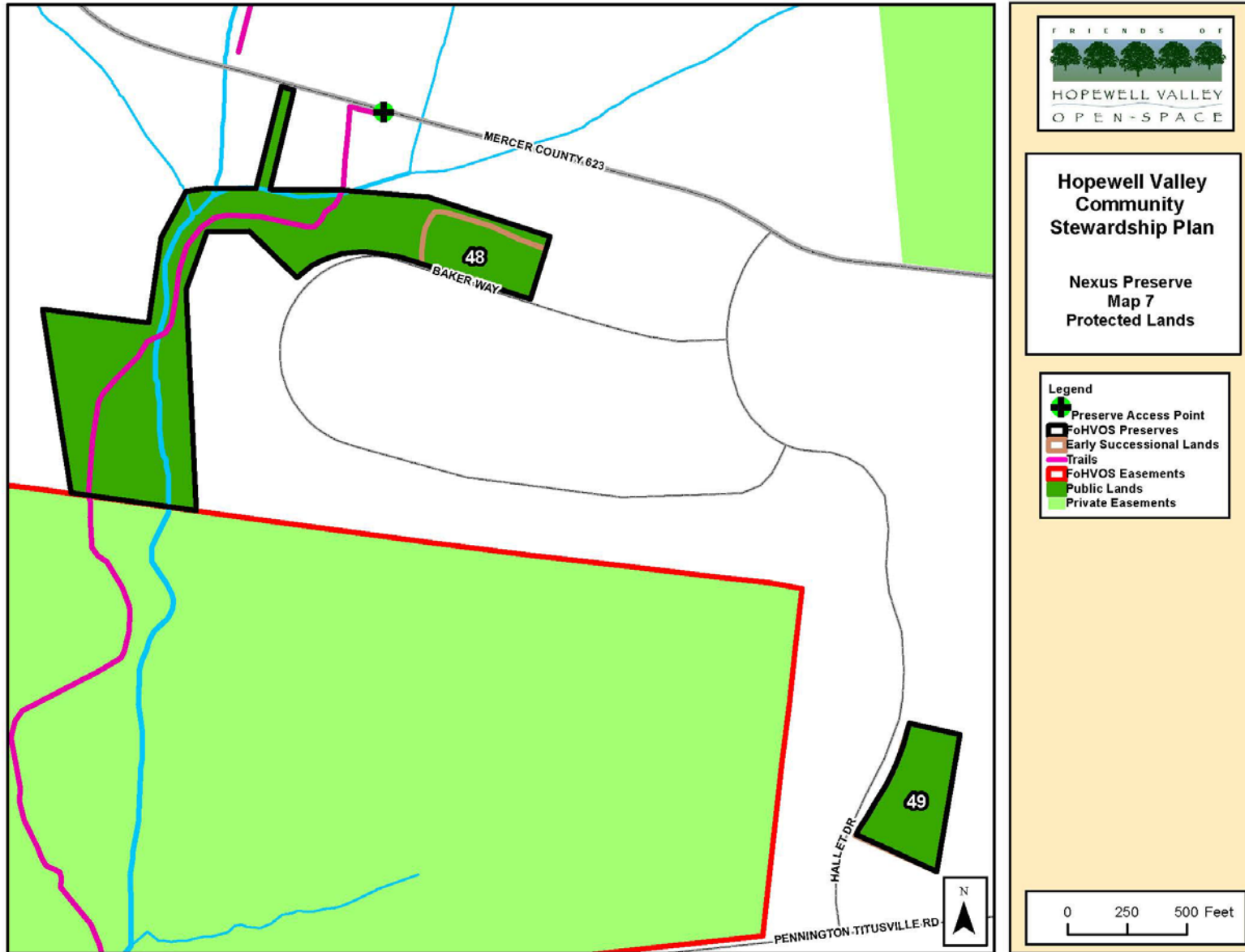
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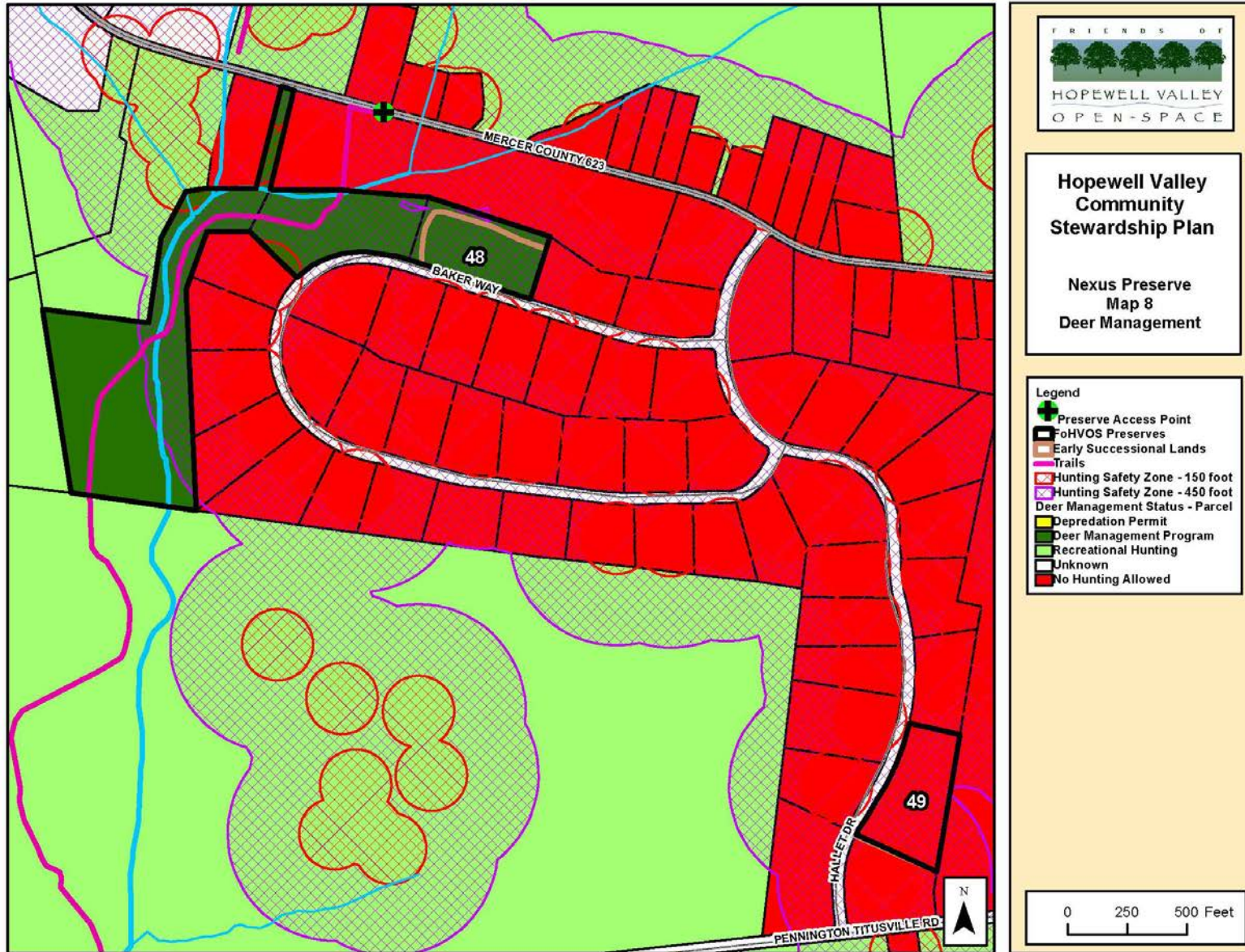
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