

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

**Appendix 10.
Heritage Preserve**

Acreage: 65.7

Block and Lot: Ewing Township - B225.03, L13
Hopewell Township - B88, L25; B78.06, L44

Ownership: FoHVOS (100%)

Year(s) Purchased: 2008

Location & Access: Preserve is located on the east side of Reed Rd., 1.3 miles south of the intersection of Reed and Pennington-Washington Crossing Roads. A formal gravel parking lot is installed at the preserve entrance. Nearest street address: 1564 Reed Road, Ewing, NJ 08618.

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:

Heritage Preserve features a unique trail experience that takes a visitor through several stages of forest succession—meadow, forested wetlands of red maples, mature forest, and a dense stand of sweet gum. The mature forest boasts a display of spring woodland wildflowers including spring beauty, Canada mayflower, and trout lily.

BROAD PROPERTY DESCRIPTION

The Heritage Preserve (see Map 1) is located in south central Hopewell Township and is currently FoHVOS' only preserve in the southern tier. The preserve is bounded by residential and commercial development, forest, farmland, and two major traffic corridors: Interstate 95 and Route 31. The topography (see Map 3) slopes southward, from 120 to 80 feet above sea level.

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

The preserve is accessed via a former farm road culvert that crosses Ewing Creek. The road leads to a highly disturbed former house site. Asiatic bittersweet, garlic mustard, periwinkle, and Japanese wisteria

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grow in this the area. In addition, the band of forest that stretches along Reed Road is young and features red maple, sassafras, dogwood, black cherry, wild grape, autumn olive, and multiflora rose.

Immediately east of the former house site are two meadows, divided by a hedgerow. The meadows contain a mix of native and agricultural grasses, rushes and wildflowers (mugwort, reed canary grass, common milkweed, mountain mint and goldenrod) and are ringed by autumn olive and multiflora rose. Japanese wisteria vines are running from the adjacent forest patch into the northern meadow.

The forest immediately east of the meadows is comprised of red maple, sedges, rice cut grass, multiflora rose, and Japanese stiltgrass. Approximately 500 feet east of the meadows, the forest begins to diversify and includes: shagbark hickory, red oak, swamp white oak, black cherry, sweet gum (saplings), New York fern, round leaved greenbriar, maleberry, jack-in-the-pulpit, spice bush, Solomon's seal, multiflora rose, Japanese stiltgrass, and Japanese barberry. The forest herb layer further diversifies to include Canada mayflower, goldenrods, wild yamroot, lizard's tail, skunk cabbage, jewelweed, tearthumb, mad dog skullcap, false nettle, and poison ivy. Spring beauty is found throughout the preserve's forests.

Near the preserve's midpoint, the forest has species such as black oak, American beech, maple leaf viburnum, spicebush, ironwood, and witch hazel. Moist areas are rich in wildflowers such as spring beauty, Canada mayflower, and trout lily.

The easternmost sections of forest feature very wet soils. The canopy is dominated by red maple, while the understory is comprised of goldenrods, rice cut grass, sedges, and multiflora rose.

Three successional areas with moist soils are found along Route 95. The western and central successional areas consist primarily of sweet gum saplings and multiflora rose. The eastern successional area is more open with Phragmites and reed canary grass as the predominant herbaceous plants with multiflora rose and sweet gum scattered throughout.

The preserve has one type of bedrock geology--the Lockatong formation. See Map 4.

The preserve has twelve soil types (see Map 5) with Doylestown and Reaville variant silt loams, 0 to 2 percent slopes; Readington and Abbottstown silt loams, 2 to 6 percent slopes; and Readington and Abbottstown silt loams, 0 to 2 percent slopes being the three most common types. The preserve's soils are described in Appendix Y.

CONSERVATION VALUES

Based on an analysis involving the ranking of ecological values and threats (See Community Stewardship Plan text), 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. Numerous forest interior dwelling birds were observed in the spring of 2009; however, the presence of cowbirds and the lack of a dense woodland shrub layer reduce the value for nesting and successful breeding bird species.

Old forest: Approximately 28 acres of the forest date to the 1930s—most of this is within the preserve's boundaries. Here, portions of the preserve (near the center) have species such as black oak, American beech, maple leaf viburnum, spicebush, ironwood, and witch hazel. Moist areas are rich in wildflowers such as spring beauty, Canada mayflower, and trout lily. See Map 2.

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Early Successional Communities:

Shrublands: Shrublands are located along I-95 and dominated by cool season grasses and non-native shrubs in the eastern half. In the western half of the shrubland area, sweet gum has recolonized the area.

Meadows/Grasslands: Meadows are heavily disturbed by past use and are predominantly hay grasses. Killdeer have been observed utilizing field 34.

Waterbodies: Ewing Creek passes through this area. The stream appears to have been deepened/channelized in the past. Undocumented streams and drainage channels leading from the adjacent farms wind through the center of the preserve. The elevated driveway to the south impounds water, especially in the spring, but little amphibian activity has been observed other than sparse calls of spring peepers.

Rare Species:

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

Rare Animals: Forested areas of the Preserve are identified as habitat for State Special Concern species. Wood thrush has been observed during nesting season.

See Appendix L for a list of species.

THREATS

Deer: The understory is severely browsed. Regeneration of the shrub and canopy layer are nearly non-existent. Forest canopy gaps are colonized by less-palatable sweet gum and to a much lesser extent, black cherry, while the tree species immediately surrounding the canopy gaps (oak, beech, maple) are not regenerating. Forest health monitoring was performed in 2007/2008 (See main plan, Table 9).

Invasive species: In 2008 staff began walk-through surveys for emerging invasive species on all preserves. Mapping documented each species and its population size. Japanese wisteria, Callery pear, and English ivy were detected. 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: Japanese Stiltgrass, Multiflora Rose, Japanese Honeysuckle, Non-Native cool season grass, and Autumn Olive.

Other: The preserve has a history of illegal parking in no-parking areas, dumping, and ATV usage. Neighbors were contacted about parking and dumping and these issues are currently resolved. Clean Communities participants and trail volunteers cleaned up dumpsites. Access to problem areas was blocked by lock and chain. Neighbors were contacted about ATV use, but ATV issues are ongoing and severe.

STRATEGIES and ACTIONS

Forest and Woodland Habitat Stewardship: Annual surveys for and eradication of emerging invasive species is a priority at this Preserve. Callery pear has been eradicated. Treatment of Japanese wisteria and English ivy is ongoing.

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No action is recommended for widespread invasive species, except for winged euonymus and Asiatic bittersweet. All fruiting plants should be treated with basal bark or cut stump (in the case of vines on trees) methods. Reduced deer density will allow the native plant communities to recover and compete with the widespread invasive species on a long-term basis.

Early Successional Habitat Stewardship: A biannual winter mowing or burning regime is recommended to maintain early successional habitat and remove invasive woody plants. Field 33 is quickly becoming infested by woody invasive species such as multiflora rose.

Burning and mowing may improve the species composition, but adjacent development and land use has degraded potential native seed sources. Control Canada thistle with foliar spray. All other invasive species will be controlled with field maintenance.

For habitat goals and maintenance schedule see Appendix T & U.

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

Rare Species Management: Maintain DMP goals to protect forest health and encourage recovery of herbaceous and shrub layers for improved nesting and foraging habitat.

Neighboring Lands: See Deer Management. See Map 7 for adjacent protected lands.

Waterbodies Management: Length of Ewing Creek and unnamed waterbodies within the preserve are too short to merit restoration.

Vernal pool activity should be monitored annually.

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: This property currently has a 1.5 miles loop trail and parking. Currently, there are no opportunities to connect to a regional trail system—none yet exist.

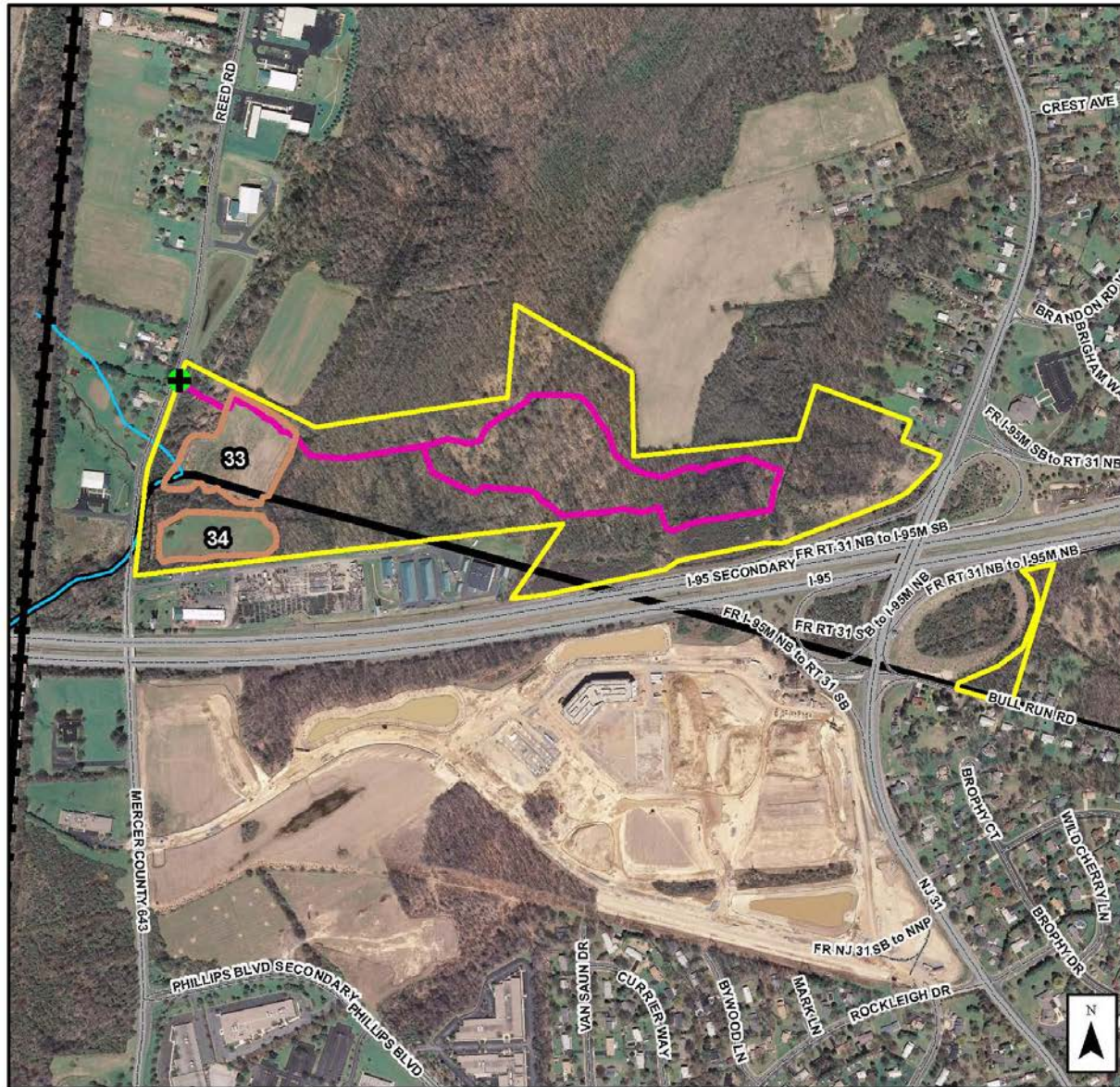
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Table 1. Invasive Plants – Species Abundance and Treatment Recommendations

| 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 | | 64.06 | 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 | | 64.06 | 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 | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Alliaria petiolata</i> | Garlic Mustard | 5.8 | 3.5 | 5.5 | None | | 60.52 | 1.3 | 1.1 | 0.0 | 0.0 | 1.2 | 0.0 |
| <i>Artemisia vulgaris</i> | Common Mugwort | 6.5 | 6.7 | 10.4 | Control - Field Maintenance | Strategy 3B | 57.38 | 0.4 | 6.0 | 0.3 | 0.0 | 0.0 | 0.0 |
| <i>Arthraxon hispidus</i> | Small Carpgrass | 4.2 | 7.4 | 11.5 | None | | 56.69 | 3.1 | 4.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Berberis thunbergii</i> | Japanese Barberry | 11.1 | 17.0 | 26.5 | None | | 47.07 | 5.9 | 11.1 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Cardamine impatiens</i> | Narrow-leaved Bittercress | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 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 | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Celastrus orbiculatus</i> | Asiatic Bittersweet | 1.7 | 7.4 | 11.6 | Control - Treat Fruiting Plants | 10 | 56.66 | 5.7 | 1.7 | 0.0 | 0.00 | 0.0 | 0.0 |
| <i>Centurea sp.</i> | Knapweed sp. | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Cirsium arvense</i> | Canada Thistle | 12.5 | 10.5 | 16.4 | Control - Field Maintenance | Strategy 3B | 53.54 | 0.4 | 7.7 | 2.4 | 0.0 | 0.0 | 0.0 |
| <i>Dipsacus sylvestris</i> | Teasel | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 0.0 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Elaeagnus umbellata</i> | Autumn Olive | 32.2 | 18.6 | 29.0 | Control - Field Maintenance | Strategy 3B | 45.51 | 4.5 | 3.2 | 6.7 | 2.6 | 0.0 | 1.6 |
| <i>Euonymus alata</i> | Winged Burning Bush | 1.2 | 1.2 | 1.8 | Control - Treat Fruiting Plants | 10 | 62.88 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.00 |
| <i>Iris pseudoacris</i> | Yellow Iris | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 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 | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Ligustrum obtusifolium</i> | Border Privet | 3.8 | 6.0 | 9.3 | None | | 58.08 | 4.5 | 0.29 | 0.0 | 1.2 | 0.0 | 0.0 |
| <i>Lonicera japonica</i> | Japanese Honeysuckle | 48.2 | 32.3 | 50.3 | None | | 31.81 | 2.2 | 16.7 | 9.7 | 2.5 | 1.1 | 0.0 |
| <i>Lonicera maackii</i> | Amur Honeysuckle | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Lonicera morrowii</i> | Morrow's Honeysuckle | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 0.0 | 0.0 | 0.0 | 0.00 | 0.0 | 0.0 |
| <i>Lysimachia nummularia</i> | Moneywort | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Lythrum salicaria</i> | Purple Loosestrife | 5.5 | 11.1 | 17.3 | None - Check for biocontrol agent | | 52.95 | 5.6 | 5.5 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Malus toringo</i> | Toringo Crabapple | 0.9 | 1.2 | 1.9 | Control - Field Maintenance | Strategy 3B | 62.83 | 0.3 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Microstegium vimineum</i> | Japanese Stiltgrass | 127.9 | 49.2 | 76.8 | None | | 14.83 | 11.6 | 0.9 | 12.3 | 7.7 | 4.4 | 12.4 |
| N/A | Non-native, cool season grass | 35.5 | 7.2 | 11.3 | Control - Field Maintenance | Strategy 3B | 56.85 | 0.0 | 0.0 | 0.0 | 0.3 | 0.0 | 6.9 |
| <i>Phalaris arundinacea</i> | Reed Canary Grass | 16.1 | 7.6 | 11.9 | Control - Field Maintenance | Strategy 3B | 56.43 | 0.0 | 3.4 | 0.0 | 4.2 | 0.0 | 0.0 |
| <i>Phragmites australis</i> | Common Reed | 2.4 | 2.4 | 3.7 | Control - Field Maintenance | Strategy 3B | 61.66 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Polygonum cuspidatum</i> | Japanese Knotweed | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Polygonum perforiatum</i> | Mile-a-Minute | 1.2 | 1.2 | 1.8 | None - Check for biocontrol agent | | 62.88 | 0.0 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Pyrus calleryana</i> | Callery Pear | 0.0 | 2.6 | 4.1 | Control - Field Maintenance | Strategy 3B | 61.42 | 2.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Ranunculus ficaria</i> | Lesser Celandine | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Robinia pseudoacacia</i> | Black Locust | 2.9 | 1.4 | 2.2 | Control - Field Maintenance | Strategy 3B | 62.62 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 |
| <i>Rosa multiflora</i> | Multiflora Rose | 122.3 | 62.2 | 97.1 | Control - Field Maintenance | Strategy 3B | 1.87 | 0.1 | 31.0 | 6.7 | 21.1 | 1.9 | 1.4 |
| <i>Rubus pheonculusiasus</i> | Wineberry | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Securigera varia</i> | Crowfoot vetch | 2.4 | 2.4 | 3.7 | Control - Field Maintenance | Strategy 3B | 61.66 | 0.0 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Viburnum dilatatum</i> | Linden Viburnum | 0.0 | 0.0 | 0.0 | N/A | | 64.06 | 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 | | 64.06 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| <i>Wisteria floribunda</i> | Japanese Wisteria | 8.9 | 4.3 | 6.7 | Eradicate | Strategy 2A | 59.77 | 0.0 | 0.02 | 4.1 | 0.0 | 0.2 | 0.0 |
| Total LOE | | | | | | 20 | | | | | | | |

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.

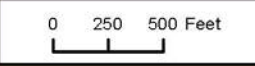
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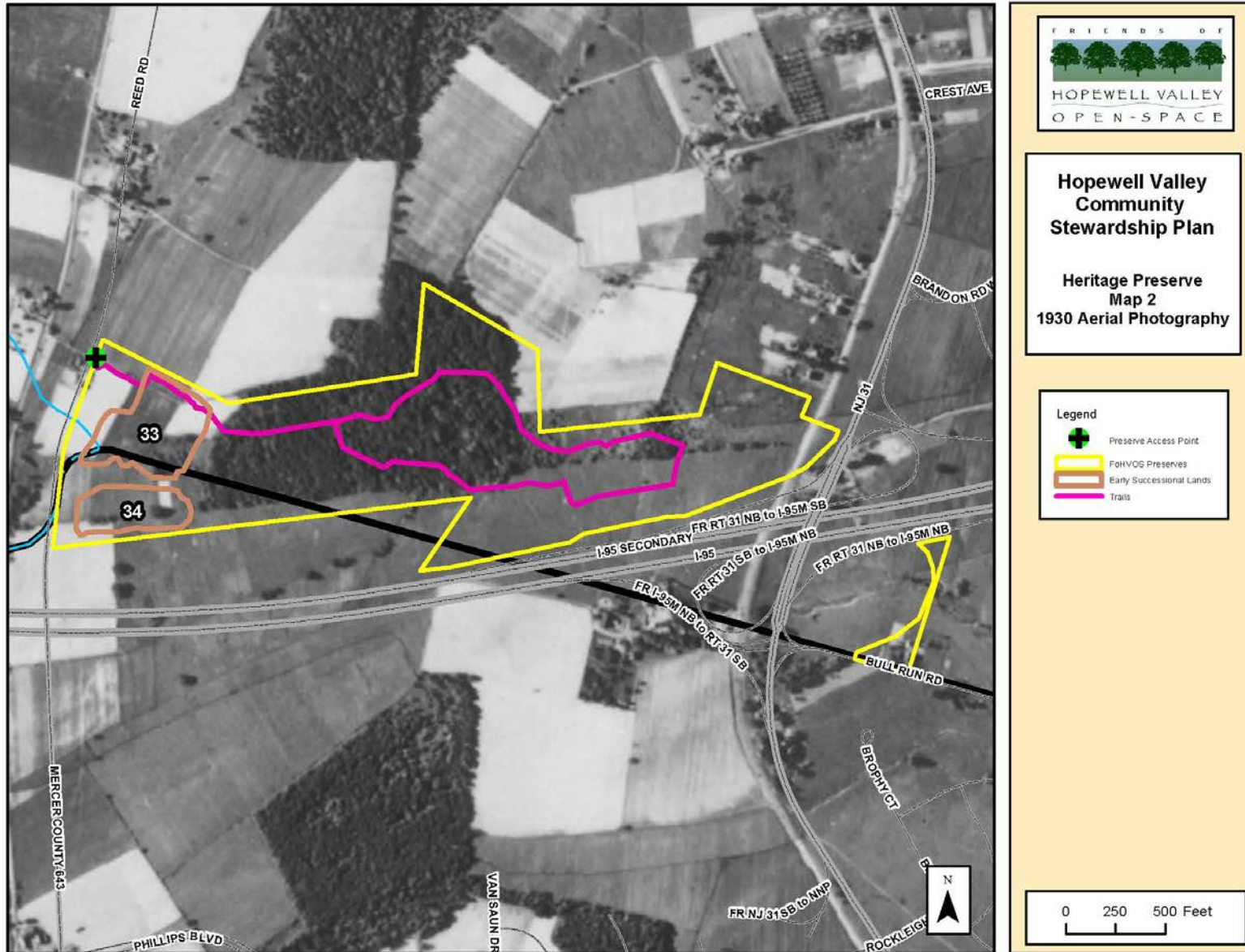
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**Heritage Preserve
Map 1
2007 Aerial Photography**

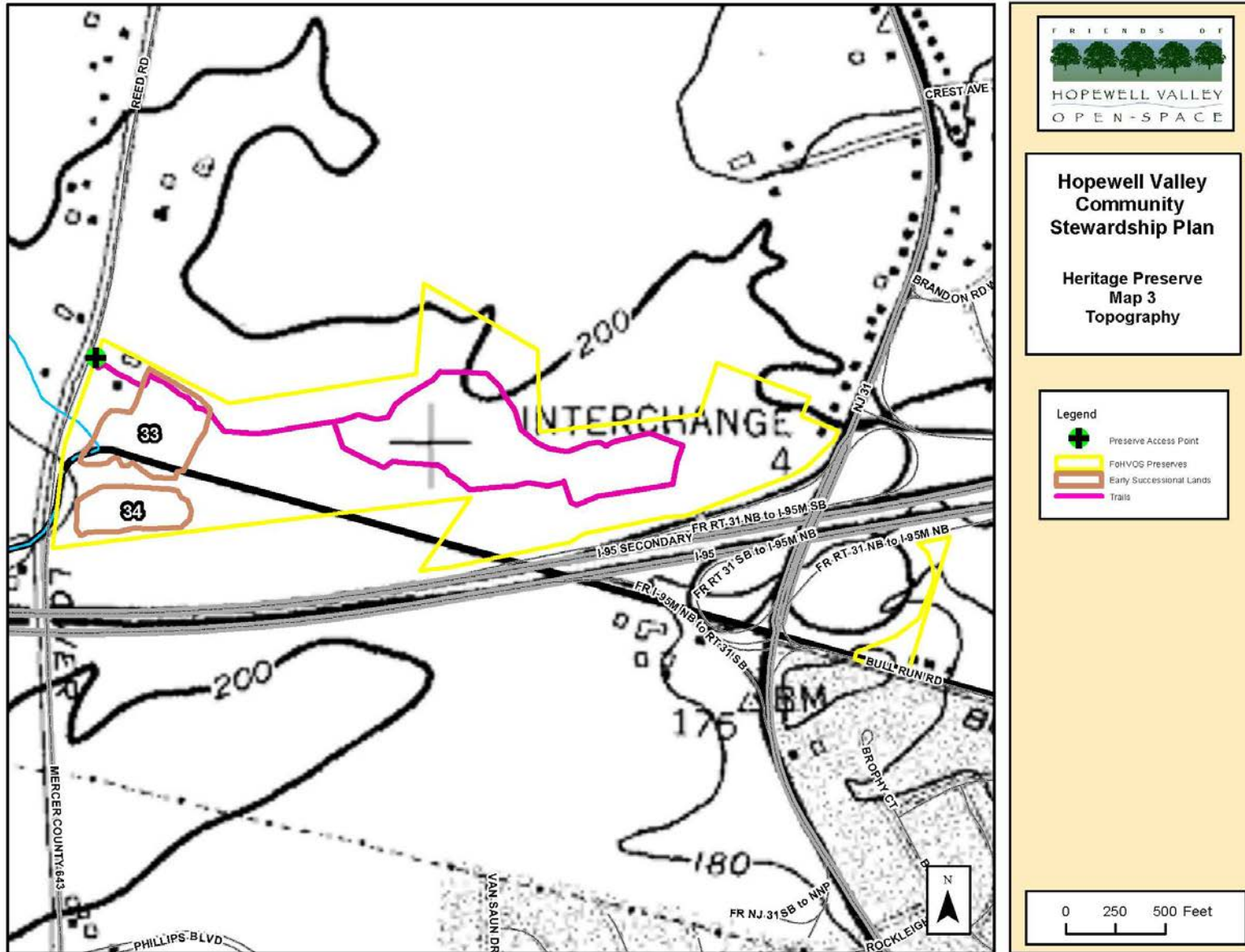
- Legend**
- + Preserve Access Point
 - FoHVOS Preserves
 - Early Successional Lands
 - Trails



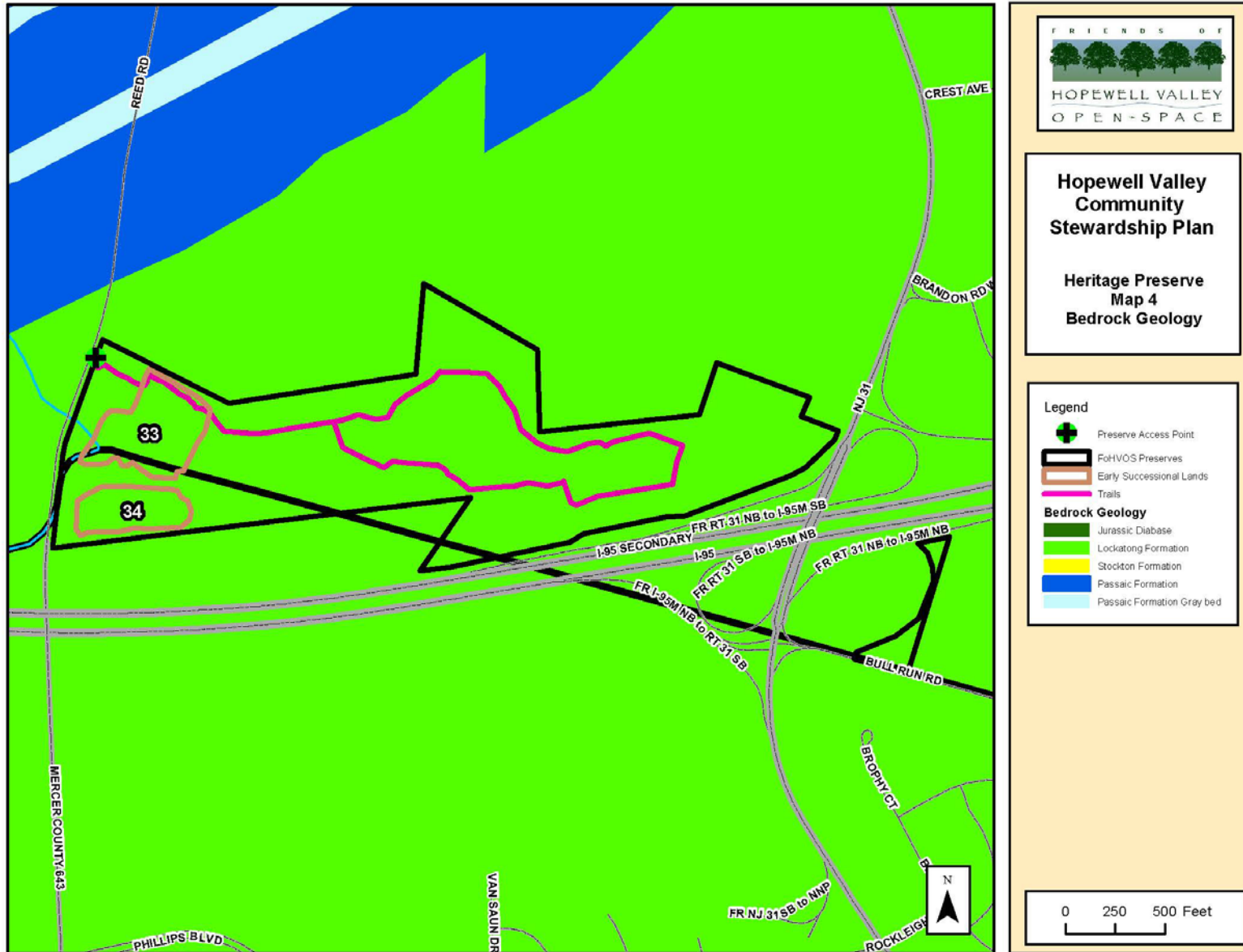
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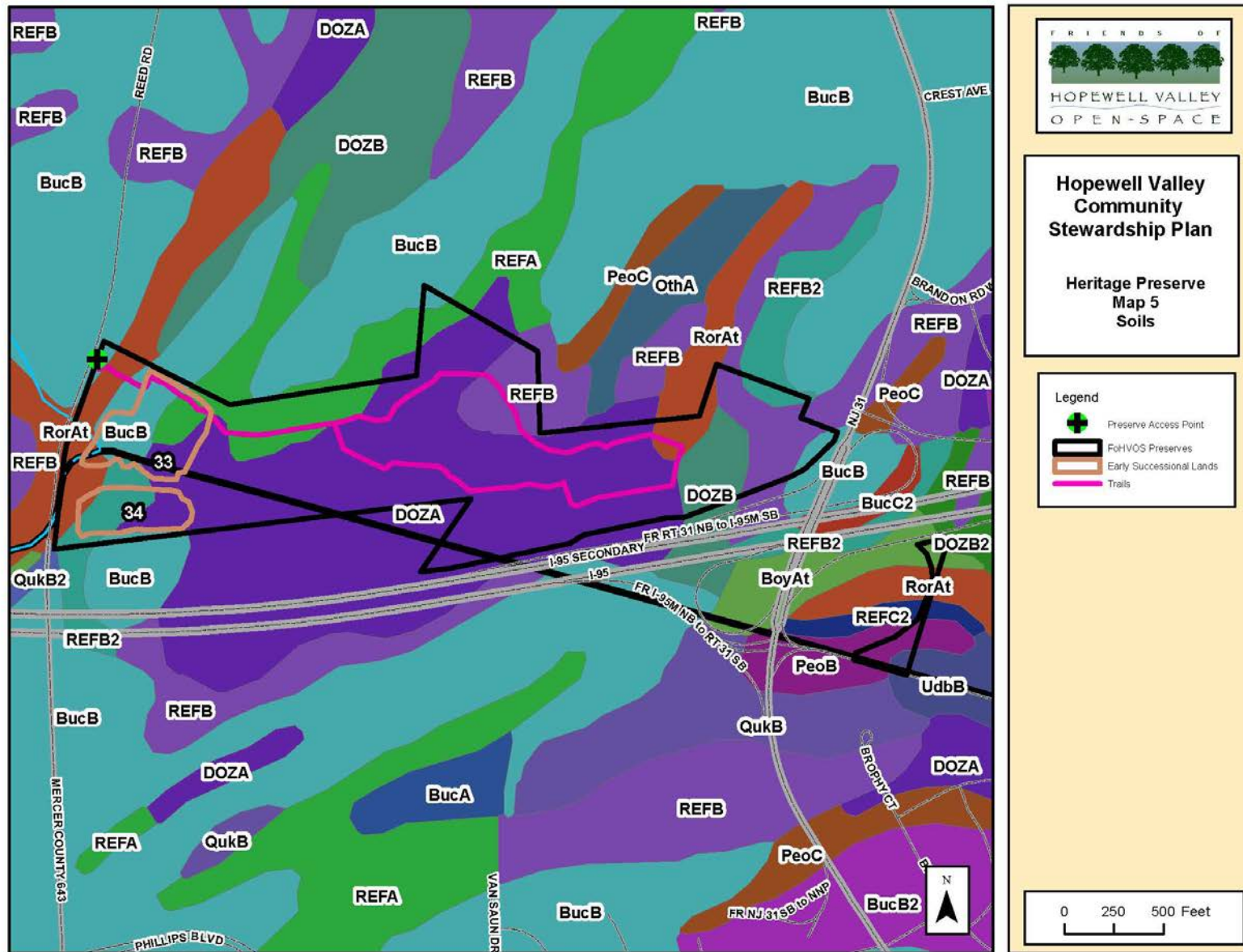
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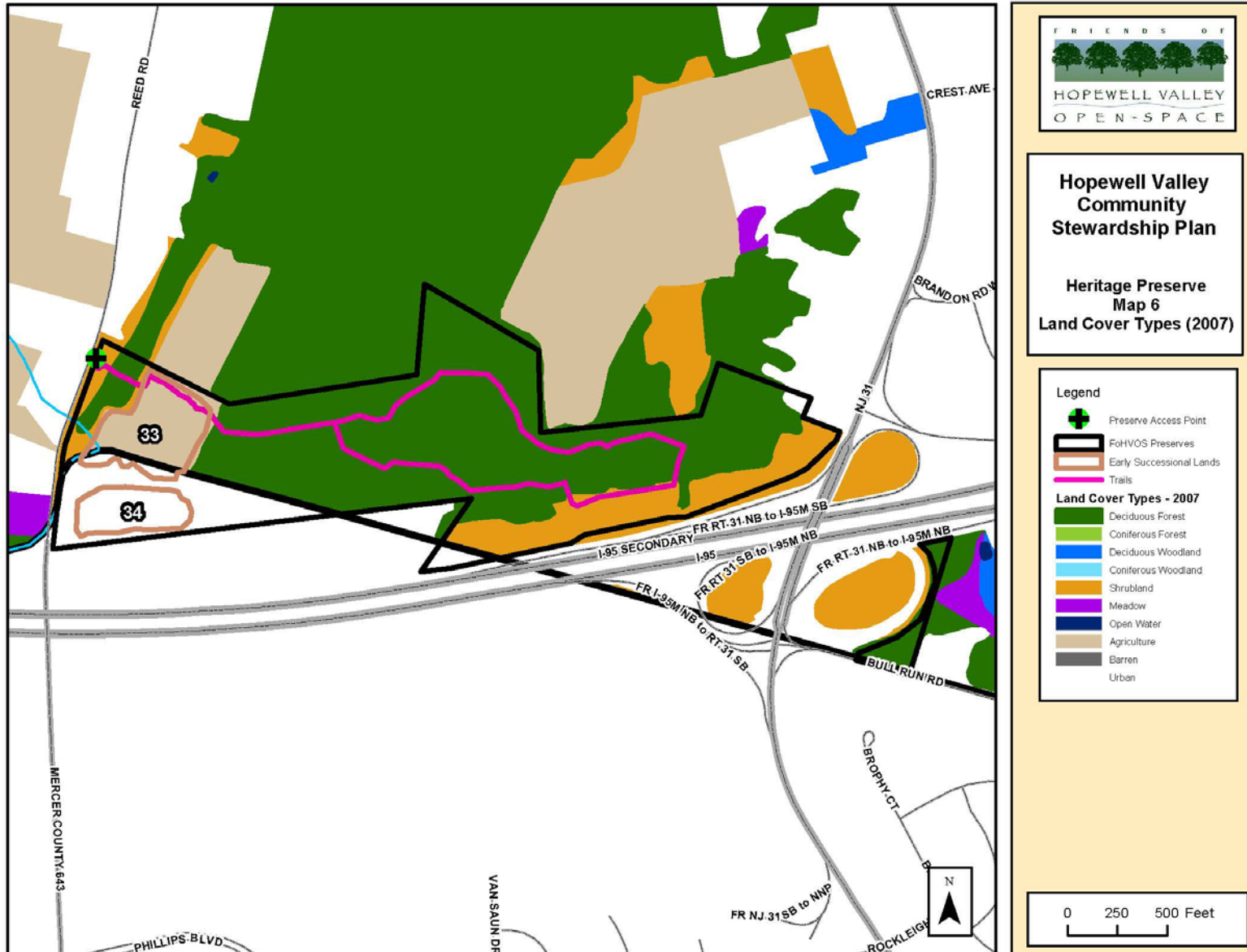
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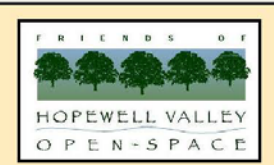
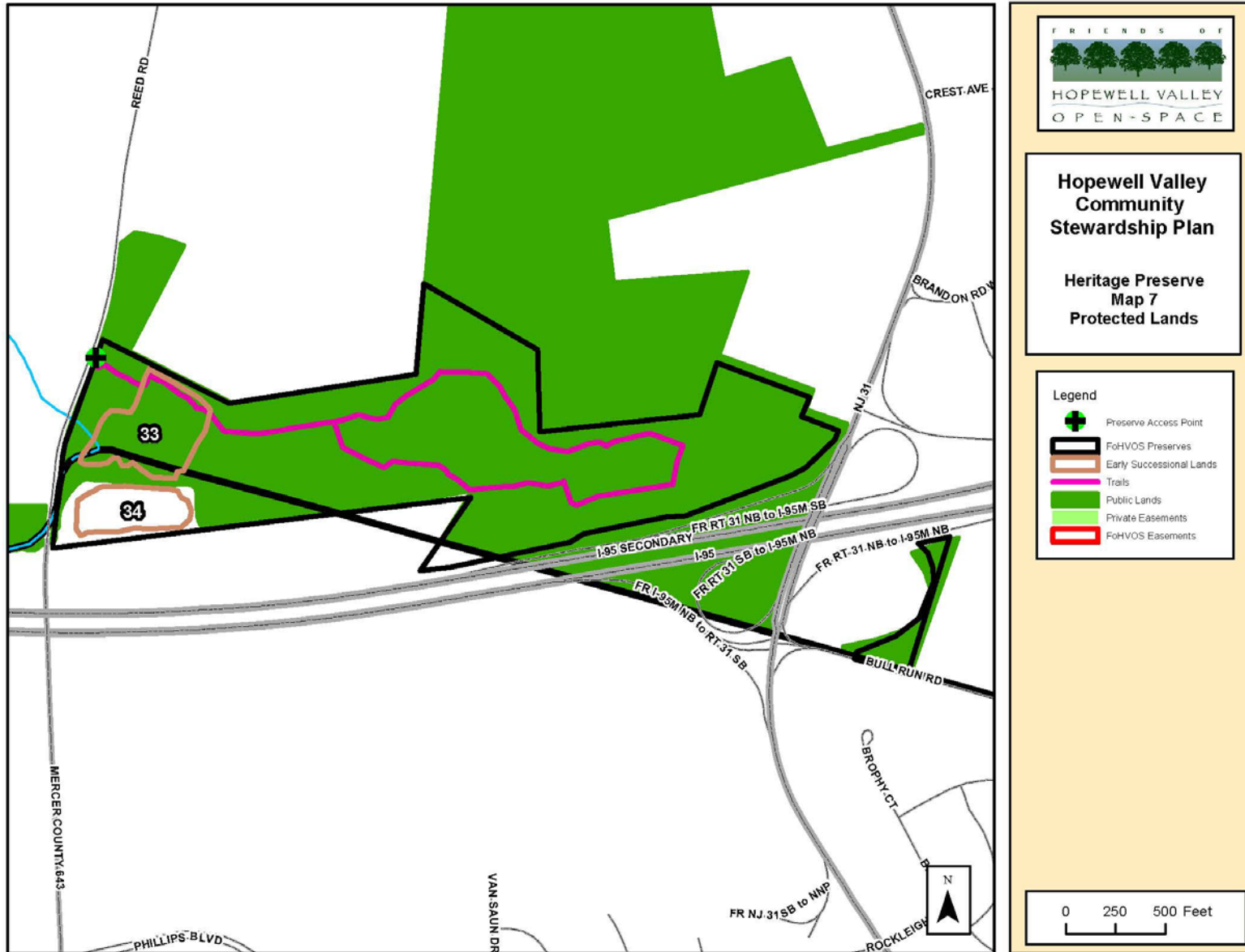
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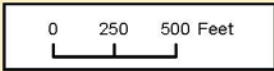
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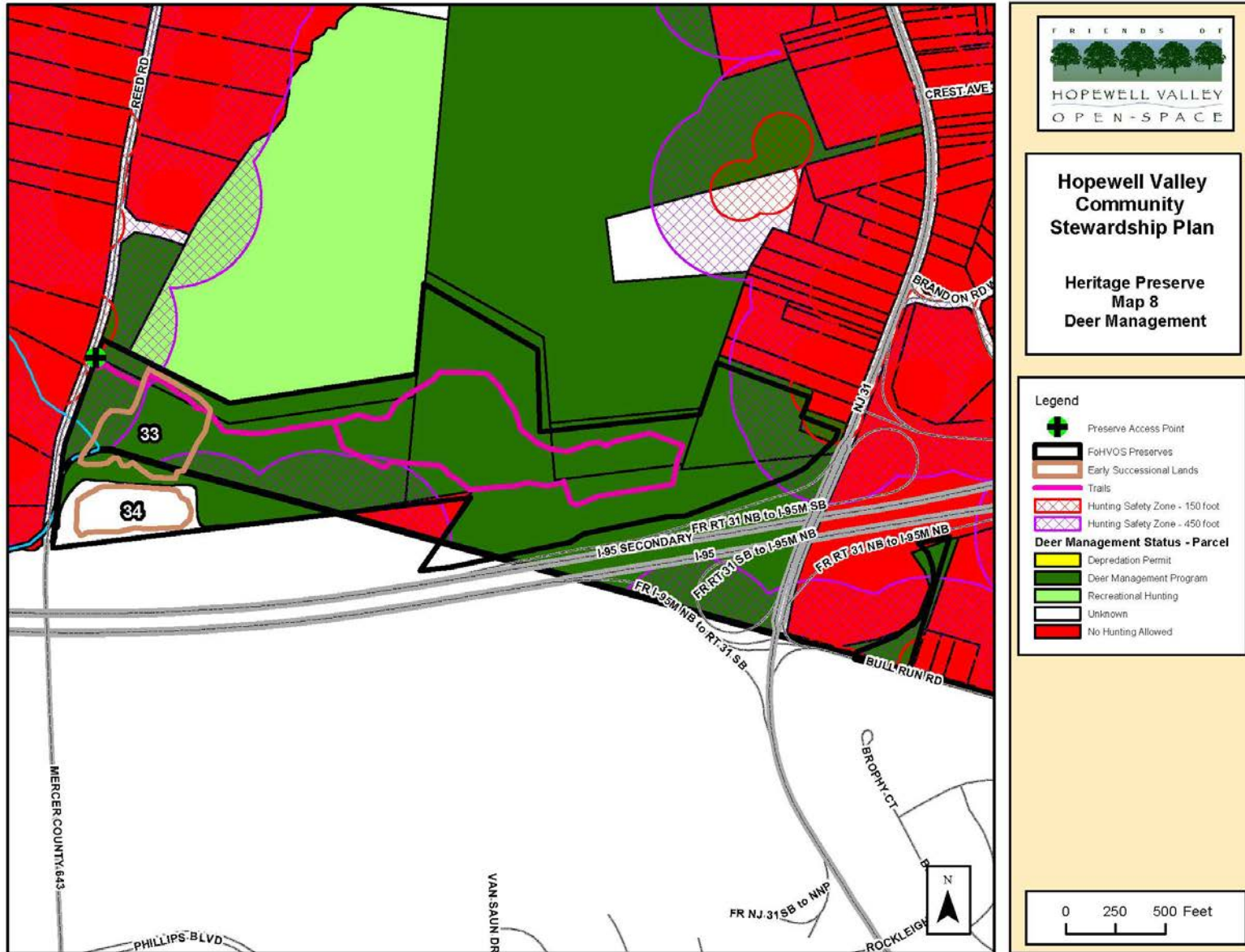
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Heritage Preserve
 Map 7
 Protected Lands

- Legend
- Preserve Access Point
 - FoHVOS Preserves
 - Early Successional Lands
 - Trails
 - Public Lands
 - Private Easements
 - FoHVOS Easements



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