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TOWN OF YORKTOWN

**Wildlife Habitat Assessment and  
Consideration of Focal Species of Concern  
Sandvoss Property  
Hanover Street, Town of Yorktown, NY**

At the request of the project sponsor, Tim Miller Associates completed a wildlife habitat assessment of the Sandvoss property, which included observations of resident wildlife and the potential for the site to support species that are listed as "endangered", "threatened" or "species of special concern" by the New York State DEC. Field investigations were conducted in November of 2015, January of 2016 and May of 2017. It is noted that the purpose of this assessment was not to conduct detailed wildlife surveys or plant inventories. It is our opinion that based on observations of habitat type, connectivity, existing development in the area and site history conclusions can be reached concerning the potential for sensitive species and impacts from future development schemes.

***Site Overview***

The subject property is approximately 15.93 acres. The property is mostly wooded, with an area of upland field on well drained soils on that portion of the property closest to Hanover Street. This eastern portion of the property consists of a mowed field and the existing house, fruit trees, an old garden site and landscaping. The balance of the property consists of a mature canopy forest with very little shrub or herbaceous layer, as shown on the attached photos.

As shown on the aerial photograph provided as Figure 1, the property to the north of the subject site is a single family house, commercial green house and open farm land. This farm is known locally as Hanover Hilltop Farm, which is owned and operated by Westchester County. The Farm consists of 178 acres and will stay open space in perpetuity. To the east of Hanover Street is low density single family homes and large tract of woodlands. To the south and west is a mix of low density residential development and woodlands.

The site features several habitat/ecosystem types that were evaluated.

1. Wetlands - scrub shrub
2. Upland woods - rocky substrate
3. Upland woods
4. Upland mowed field
5. Riparian corridor

Figure 2 shows the distribution of these areas on the property.

The scrub-shrub wetlands along the north central portion of the property are dominated by redosier dogwood, spicebush, Morrow honeysuckle, multiflora rose and blueberry, with tearthumb, skunk cabbage, and sensitive fern as the dominant vegetation in the herbaceous layer. Wetland hydrology is provided by an intermittent stream entering the site from an existing pond on the adjacent property, and from hillside runoff and seepage. This wetland is an edge habitat transitioning from the mowed field to the open woodland. This

area provides cover for many species of birds, such as robins and chickadees, as well as small mammals such as rabbits. The stream corridor that runs through the wetland was dry during both site visits, however it is apparent that it flows on a regular basis. During the site observations, rocks in this area were turned over looking for crayfish, salamanders, and macrobenthic organisms. None were observed. However, in wetter seasons these fauna may utilize this area as well as animals such as raccoon and skunk that utilize them as food.

A large portion of the property is an upland open woodland area with very little shrub or herbaceous layers. It is comprised mostly of a mixed deciduous forest with red and white oaks, tulip poplar, American beech, red maple, black birch and black cherry as the dominant trees. Understory is limited by lack of light penetration and deer browsing, and where it is present is dominated by witch hazel, with a few Japanese barberry. In some areas various fern species (Christmas fern and New York fern) are scattered. The tree canopy is dense enough that it allows very little light penetration, as shown in Photos 1 to 3. The upland area in the center of the property exhibits a rocky substrate, with some exposed bedrock and rock outcropping. Trees and shrubs in this area can be seen growing directly out of the rock substrate shown in Photo 4.

The remainder of the property was cleared land as recently as the 1960's, and has developed as a mixed southern hardwood forest. The Vegetative Associations Map, Figure 2, shows the approximate boundaries of the referenced cover types on 2013 aerial photography. Figure 3 shows the site outline on a 1947 aerial. The two residences shown on this 1947 photograph no longer exist.

Dominant Vegetative Species			
White ash	<i>Fraxinus americana</i>	Northern white cedar	<i>Thuja occidentalis</i>
Green ash	<i>Fraxinus pennsylvanica</i>	Black cherry	<i>Prunus serotina</i>
American beech	<i>Fagus grandifolia</i>		
Red maple	<i>Acer rubrum</i>		
Sugar maple	<i>Acer saccharum</i>	Mountain laurel	<i>Kalmia latifolia</i>
Pignut hickory	<i>Carya glabra</i>	Low bush blueberry	<i>Vaccinium angustifolium</i>
Shagbark hickory	<i>Carya ovata</i>	Witch hazel	<i>Hamamelis virginiana</i>
Red oak	<i>Quercus rubra</i>	Rhododendron	<i>Rhododendron maximum</i>
White Oak	<i>Quercus alba</i>	Japanese barberry	<i>Berberis japonica</i>
Black birch	<i>Betula lenta</i>		
Eastern hemlock	<i>Tsuga canadensis</i>		
Tulip poplar	<i>Liriodendron tulipifera</i>	Christmas fern	<i>Polystichum acrostichoides</i>
Hornbeam	<i>Carpinus caroliniana</i>	Pennsylvania sedge	<i>Carex pennsylvanica</i>
American elm	<i>Ulmus americanum</i>	New York fern	<i>Thelypteris novboracensis</i>
American holly	<i>Ilex opaca</i>		

The mowed field along Hanover Street, between the existing house and the neighbor's house adjacent and to the north of the property, provides habitat for field birds such as robins, sparrows and finches, and grazing opportunities for mammals such as rabbits, ground hogs, and white tail deer.

The intermittent stream corridors cut through the property from north to south approximately half way through the site. Two distinct channels intersect and become a larger channel in approximately the center of the site. The stream channels are mostly stone lined with some



vegetated areas. During the field investigation the stream channels were mostly dry, with a few pools still holding water. One green frog was observed in the pools; no salamanders, crayfish or other macro-benthic organisms were observed. Tracks of opossums, raccoons and skunks were observed in the soft mud along the one portion of the stream channel. Thus these animals are utilizing the stream channels for water and hunting for food. Photos 5, 6 and 7 are representative photos of the stream channel and pools observed.

The surrounding properties are developed with low density housing. Figure 4 shows the location of the adjacent residences relative to the property lines of the subject parcel.

### ***Wildlife Use of the Site***

The site provides several different types of ecosystems and localized ecotomes for use by wildlife species. The wooded uplands provide nuts and acorns from trees, berries, fruit and twigs for forage, and a healthy populations of earthworms, slugs and various insects within dead and decaying wood and in the leaf litter to form the basis for the food chain on this site. Some dead wood, including limbs and stumps, was observed on this site.

In the context of this overall landscape, a number of bird species which require closed canopy woodlands to thrive are likely to use this site, either for nesting or as a stopover during migration. These include vireos, ovenbirds, thrushes, woodpeckers, some of the owl species and some of the migratory warblers, among others. While these species are not specifically state protected, they are of conservation concern as areas of woodlands are cleared for development. The presence of wooded areas to the north and east of the site, as shown in Figure 1, will still provide this type of canopy, as will the remaining undisturbed woods on the subject property (Figure 6).

The central stream corridor of the site represents a significant wildlife habitat. Birds and mammals use it for water, and resident omnivorous mammals likely find food including frogs, salamanders, larvae and crayfish. Slimy, two-lined and red-backed salamanders are likely to be found in this corridor. Green frogs, pickerel frogs and wood frogs likely use the stream corridor and adjacent woodlands.

The Croton-to-Highlands Biodiversity Plan depicts the property within the "Biotic planning unit: Hilltop Hanover Farm and vicinity." This report states that in this vicinity the "amphibian and reptiles observed were slimy salamander, gray tree frogs, and wood frogs among others". The report also states that birds such as blue winged warblers, eastern bluebirds, indigo buntings, etc. were observed in the early-successional habitats such as the scrub-shrub wetland area on the site. The biodiversity plan also states that forest birds such as hooded warblers, Louisiana waterthrushes, worm-eating warblers, etc. were observed in the area. The dense canopy upland woods habit on the site provides habitat for these type of birds.

The Town Biodiversity Study that was completed in 2010 describes the nearby Hilltop Hanover Farm on Hanover Street. The undisturbed portions of this property are generally typical of the site conditions. Unfortunately the report mostly describes the edge habitat available to wildlife at the site, and the diversity of species that could be utilizing that property. "A diverse number of habitats existed on the property including vernal pools, ponds, successional old fields, mature successional northern hardwood forests, pastures,

agricultural crops, intermittent streams, and emergent wetlands. Such a diverse number of habitats aided in attracting a greater diversity of wildlife species. Dominant species on the farm varied based on habitat, but included black willow (*Salix nigra*), flowering dogwood (*Cornus florida*), sugar maple, red cedar (*Juniperus virginiana*), shagbark hickory (*Carya ovata*), black birch (*Betula nigra*), tree-of heaven (*Ailanthus altissima*), eastern hemlock, curled dock (*Rumex crispus*), teasel (*Dipsacus sylvestris*), and sweet pepper bush (*Clethra alnifolia*). Vernal pools located on the property provided breeding pools for amphibians, and also allowed for dispersal of amphibians across the landscape.” (Stearns and Wheler, 2010). The Sandvoss site does not exhibit such a diversity of habitat types, and no vernal pools were observed. However, the site does have a considerable area of forest that is known to be undisturbed for at least the last 70 years, with a number of mature large trees.

During the course of the fieldwork for this assessment numerous species of wildlife and signs were observed. The following is a list of wildlife species that were either observed on site or sign, including tracks or scat, was observed.

<b>Observed Wildlife List Sandvoss Subdivision</b>	
<b>Mammals</b>	
white-tail deer	<i>Odocoileus virginianus</i>
raccoon	<i>Procyon lotor</i>
eastern chipmunk	<i>Eutamias sp.</i>
opossum	<i>Didelphis virginian</i>
striped skunk	<i>Mephitis mephitis</i>
gray squirrel	<i>Sciurus carolinensis</i>
Eastern cottontail rabbit	<i>Sylvilagus floridanus</i>
woodchuck	<i>Marmota monax</i>
Red fox	<i>Vulpes vulpes</i>
<b>Amphibians</b>	
green frog	<i>Rana clamitans</i>
<b>Birds</b>	
robin	<i>Turdus migratorius</i>
red tailed hawk	<i>Buteo jamaicensis</i>
wild turkey	<i>Meleagris gallopavo</i>
hairy woodpecker	<i>Picoides villosus</i>
downy woodpecker	<i>Picoides pubescens</i>
red bellied woodpecker	<i>Melanerpes carolinus</i>
blue jay	<i>Cyanocitta cristata</i>
Mourning dove	<i>Zenaida macroura</i>
Pileated woodpecker	<i>Hylatomus pileatus</i>
chickadee	<i>Parus spp.</i>

**Potential for Use by Rare or Endangered Species**

On-site observations and assessments were conducted by James Bates and Steve Marino, PWS of Tim Miller Associates.

The investigation employed a series of random/zig-zag transects with observation, listening, and/or ground searches being conducted as site specific features changed along the walking transect route. The random nature of these transects allowed the investigator to



observe and actively investigate features of interest along the way. This tactic also allowed data to be collected from a greater variety of micro-habitats.

The site was examined for potential use by a number of rare, endangered or protected species, as listed by the New York State DEC. No known species of concern were identified on or near the site on the State's Environmental Resource Mapper (Figure 5). An inquiry has been made to the DEC Natural Heritage Program but no response has been received to date. Based strictly on the wooded nature of the property and the existence of identified wetland areas, habitat potential for the following species listed by the State as endangered or threatened was analyzed:

- Bog Turtle - Endangered
- Mud Turtle - Endangered
- Tiger Salamander - Endangered
- Northern Cricket Frog - Endangered
- Fence Lizard - Threatened
- Timber Rattlesnake - Threatened

Habitat potential for the following species of special concern was also evaluated:

- Spotted Turtle
- Wood Turtle
- Eastern Box Turtle
- Eastern Hognose Snake
- Worm Snake
- Marbled Salamander
- Jefferson Salamander
- Blue spotted salamander

Several of these species were eliminated from consideration due to the lack of known populations in Yorktown specifically or Westchester County generally:

- Mud turtle - north of its known range, lack of open field areas, lack of suitable open water, considered to be extirpated in Westchester County
- Tiger salamander - north of its known range, confined to eastern Long Island
- Northern cricket frog - requires a sunny pond, known only in the Hudson Highlands and Shawangunk area (Catskills)
- Timber rattlesnake - known in higher altitudes, rugged terrain with open areas of rocky ledges for basking. While timber rattlesnake has been reported to occur at Turkey Mountain Park, a large road (Route 118) and several residential communities lie between the park and the subject site. The higher elevations of the park (where timber rattlesnake would be most likely to overwinter) are more than 1.3 miles from the subject site and outside of the normal home range for these animals.

Habitat conditions available on the site (forested upland and wetland, watercourse corridors) were then considered, and several species eliminated from consideration.

- Bog turtle - It appears that the closed canopy of the scrub-shrub wetland would not provide the necessary basking and nesting opportunities for bog turtles.
- Wood turtle - lack of suitable perennial stream corridors with sandy banks and overhangs, combined with open meadows with suitable soils for nesting and foraging.
- Fence lizard - similar to Timber rattlesnake for terrain and basking, does not prefer closed canopy woodlands.
- Jefferson, Marbled and Blue-spotted salamander - these vernal pool dependent species are not likely to breed on this site given the absence of vernal pools within the property boundaries. The wetland offsite to the west may have potential breeding pools, but these salamanders tend to have a limited home range from their breeding pools. It is possible that some individuals may wander in and out of the site within the wetland corridor.

Evaluations of site specific requirements were then conducted for the remaining State listed species. An evaluation of the available ecosystem types resulted in the determination that the following species, which are considered to be species of special concern in New York State, may utilize this property. Specifically, these species tend to utilize wooded uplands and/or scrub-shrub wetlands as their preferred habitat. In some cases, these species may be adjacent to wooded areas or old farm/meadow areas that they utilize at some point during their life cycle.

<b>Potential State Listed "Species of Special Concern"</b> <b>Sandvoss Subdivision</b>		
<b>Common Name</b>	<b>Scientific Name</b>	<b>Habitat Requirements</b>
Eastern box turtle	<i>Terrapene carolina</i>	Moist upland woods and wooded wetlands
spotted turtle	<i>Clemmys guttata</i>	Wetlands adjacent to wooded areas; open water required
Eastern hognose snake	<i>Heterodon platyrhinos</i>	Wooded areas with basking opportunities
worm snake	<i>Carphophis amoenus</i>	Moist woody areas with sandy or rock substrate

### **Snakes**

There is the possibility that habitat on-site could support the eastern hognose snake (*Heterodon platyrhinos*). This species is listed by New York State as being a species of special concern, although it is identified as being locally common in Westchester County. It is a highly secretive species that may utilize the rocky areas and wooded areas of the site for cover and feeding. Since this species also is adaptable to new fields, pastures and suburban areas, the proposed residential development, should not result in a significant adverse impact to the hognose snake, if in fact it is present on this site.

A similar situation exists for the eastern worm snake (*Carphophis amoenus*). The worm snake inhabits moist wooded areas with sandy or rocky substrate, often burrowing



underground for long periods to avoid dry surface conditions. Its main food sources are earthworms and salamanders that should be available in the leaf litter and along the stream corridors on this site. If there is a population of worm snakes on this site, they are likely to avoid the areas of new development but should otherwise be unaffected by site development in the long term. In the short term, site excavation may cause some individuals close to areas of disturbance to relocate temporarily. No worm snakes were observed during on-site field investigations.

### ***Turtles***

The wetland on the site and the pond off site to the north combined provide areas that may support species that require basking opportunities. Based on site reconnaissance, these areas are most likely to be used by the eastern box turtle (*Terrapene carolina*), which will also use the more densely wooded areas of the property, and the spotted turtle (*Clemmys guttata*). Spotted turtles may utilize areas of scrub and woods fringing wetlands with open water components of the pond off site. Both of these species are listed by New York State as "species of special concern".

**Spotted turtle (*Clemmys guttata*).** The habitat for the spotted turtle is flooded wetlands and ponded areas adjacent to wooded areas. They spend their lives in marshy meadows, bogs, swamps, ponds, ditches or other small bodies of still water. Any spotted turtles utilizing the property would possibly be found foraging in the scrub-shrub edge habitat in the north central portion of the property, but spend most of its time within open water offsite in the adjacent pond to the north if they occur there.

**Eastern box turtle (*Terrapene carolina*).** Listed as a State species of special concern, the box turtle may wander the woods of this site. It is primarily a terrestrial turtle, although it may use stream beds or shallow ponds during the hot summer months. The major threat to box turtles appears to be pesticide poisoning and collection as pets.

### ***Potential Impacts to Habitat and Species of Conservation Concern***

Following the habitat assessment, we reviewed the current site plan to determine what if any impact the four proposed new dwellings may have on both individuals and the local populations of these species.

The applicant is proposing to subdivide the current property into five lots and construct four new residences. The applicant is thus able to keep all the buildings and associated and septic systems more than 100 feet from the flagged wetland/watercourse boundary. This project will require a stream crossing and buffer encroachment of the associated buffer for the access drives for Lots 4 & 5. As shown on Figure 6, a total of 5.6 acres of the 16 acre parcel will be disturbed for this development. A portion of this area will be in the existing mowed field in the northeast corner of the site.

The clearing of trees for the proposed development will open the canopy of the site in limited areas, but overall will not change the habitat characteristics. The surrounding properties are developed with similar sized lots, so that opening up the proposed lots will not represent a significant change or cause fragmentation in an area that is currently dense forest. As can be seen on the aerial photos, a large part of the Hanover Farm property is

open, as is the greenhouse site immediately to the north. However, large parcels to the north and east, several of which are protected as farm land, are entirely forested and will remain as open space for interior bird populations.

Of greater concern on this property is the wetland/stream corridor. This corridor is likely to provide habitat for turtle, frog and salamander species, and providing clean water for mammals and birds. The current proposal includes two stream crossings for the road in order to access the rear of the parcel, but both are proposed to span the stream course rather than pipe it, which will leave the channel open for animal movement and not disturb the stream bed. The road bed itself through the stream buffer will be constructed of pervious materials.

A comprehensive stormwater management plan has been prepared for the site, and will ensure that water quality in the stream corridor will be maintained after development. This SWPPP includes the provision of three stormwater quality basins within the wetland buffers. The location of these basins was determined based on slopes, soil conditions and final grading so that as much water as possible from disturbed areas could be routed through these structures. The basins will be graded and planted to resemble wetlands and will blend into the landscape as the vegetation matures.

No other disturbance will occur within the stream corridor or the 100 foot regulated buffer. As part of this proposal, the buffer will be expanded to include a total of 5.4 acres of the site, which will be mapped as part of a conservation easement as shown on Figure 6. Figure 7 is a graphic representation of what the site will look like after development, and it is clear that the vast majority of the site will remain wooded and undisturbed. Much of the area to be disturbed will be re-vegetated after development, either as lawn or as stormwater treatment structures.

The identified "species of special concern" include three species that if present are likely to utilize the upland portions of this site, and one species that would generally be restricted to the wetland on the north end of the property.

The eastern box turtle is a mobile turtle that may use any portion of this property. While construction of the site may temporarily alter some patterns of movement, there will be significant areas of undisturbed land for turtle foraging.

The hognose snake is known to be adaptable to new fields, pastures and suburban areas. Thus the proposed residential development, should not result in a significant adverse impact to the hognose snake, if in fact it is present on this site.

If there is a population of worm snakes on this site, they are likely to avoid the areas of new development but should otherwise be unaffected by site development in the long term. In the short term, site excavation may cause some individuals close to areas of disturbance to relocate temporarily. Large open space areas will remain to the north and east of the site, providing space for temporary movement if required. No worm snakes were observed during on-site field investigations.



Spotted turtles, which typically do not travel far from wetland corridors, are not expected to be impacted since the wetland corridors on this site will remain preserved and undisturbed by this development.

***Conclusion***

Based on site evaluations, this site potentially has suitable habitat for a few species that are listed as State species of special concern. No species listed as endangered, threatened, or species of special concern were observed during field investigations. Due to the nature of the surrounding development and the large tracts of the open space to the north and east of the property, it is unlikely that this project will have an adverse impact on focal species of concern. Some trees of significant size will be lost to this proposal, but more than two thirds of the site will remain undeveloped and undisturbed as dense woodland.



Figure 1: Regional Context of Site  
Sandvoss Subdivision  
Hanover Street, Town of Yorktown  
Source: Westchester County GIS

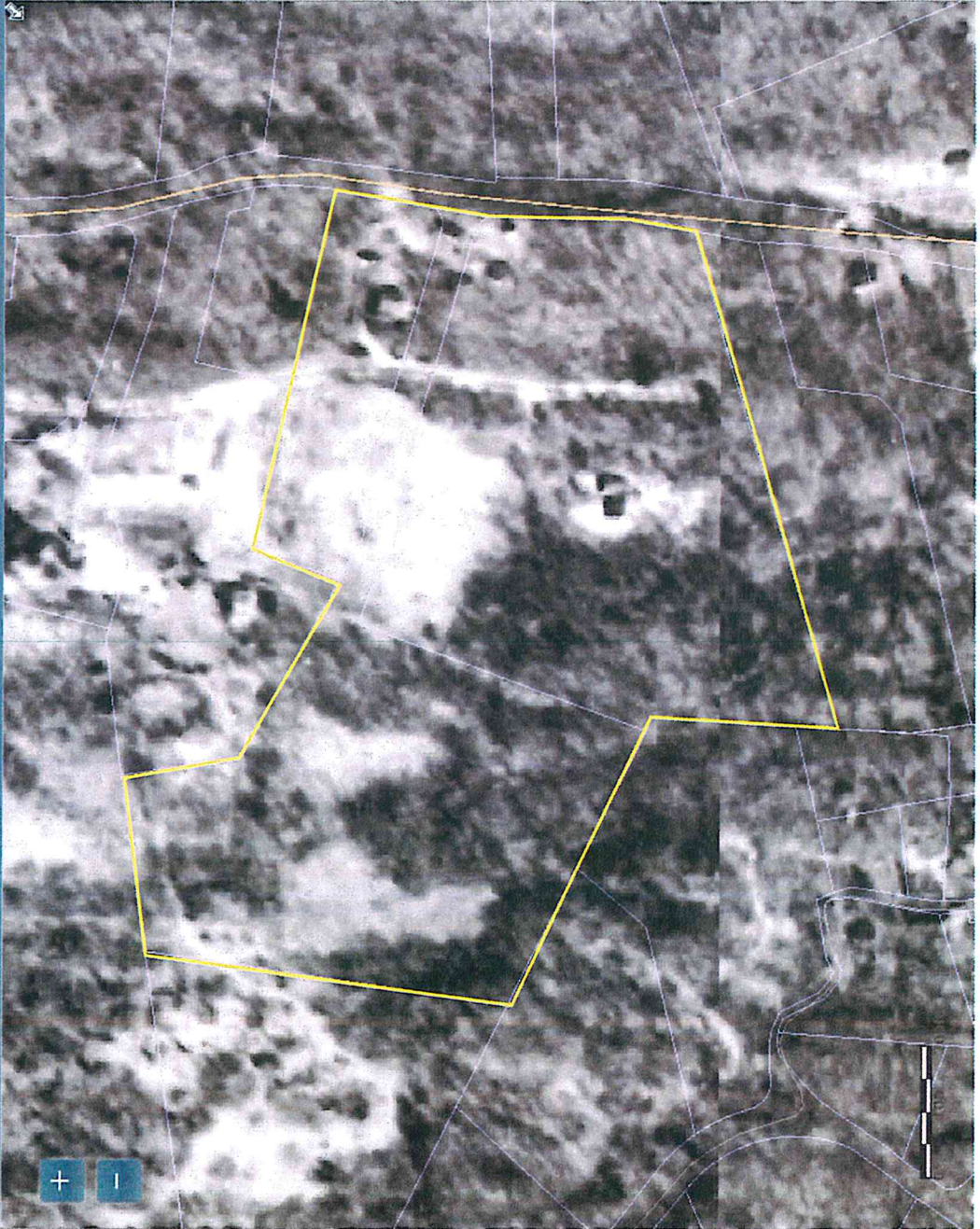




- UW - Upland woods
- SS - Scrub shrub wetland
- MF - Mowed field
- RC - Riparian Corridor
- UW (R) - Upland woods, rocky
- ML - Maintained landscape

Figure 2: Vegetative Associations  
 Sandvoss Subdivision  
 Hanover Street, Town of Yorktown  
 Source: Basemap from Westchester County GIS  
 Photo Interpretation by Tim Miller Associates





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Figure 3: 1947 Aerial Photo  
Sandvoss Subdivision  
Hanover Street, Town of Yorktown  
Source: Westchester County GIS



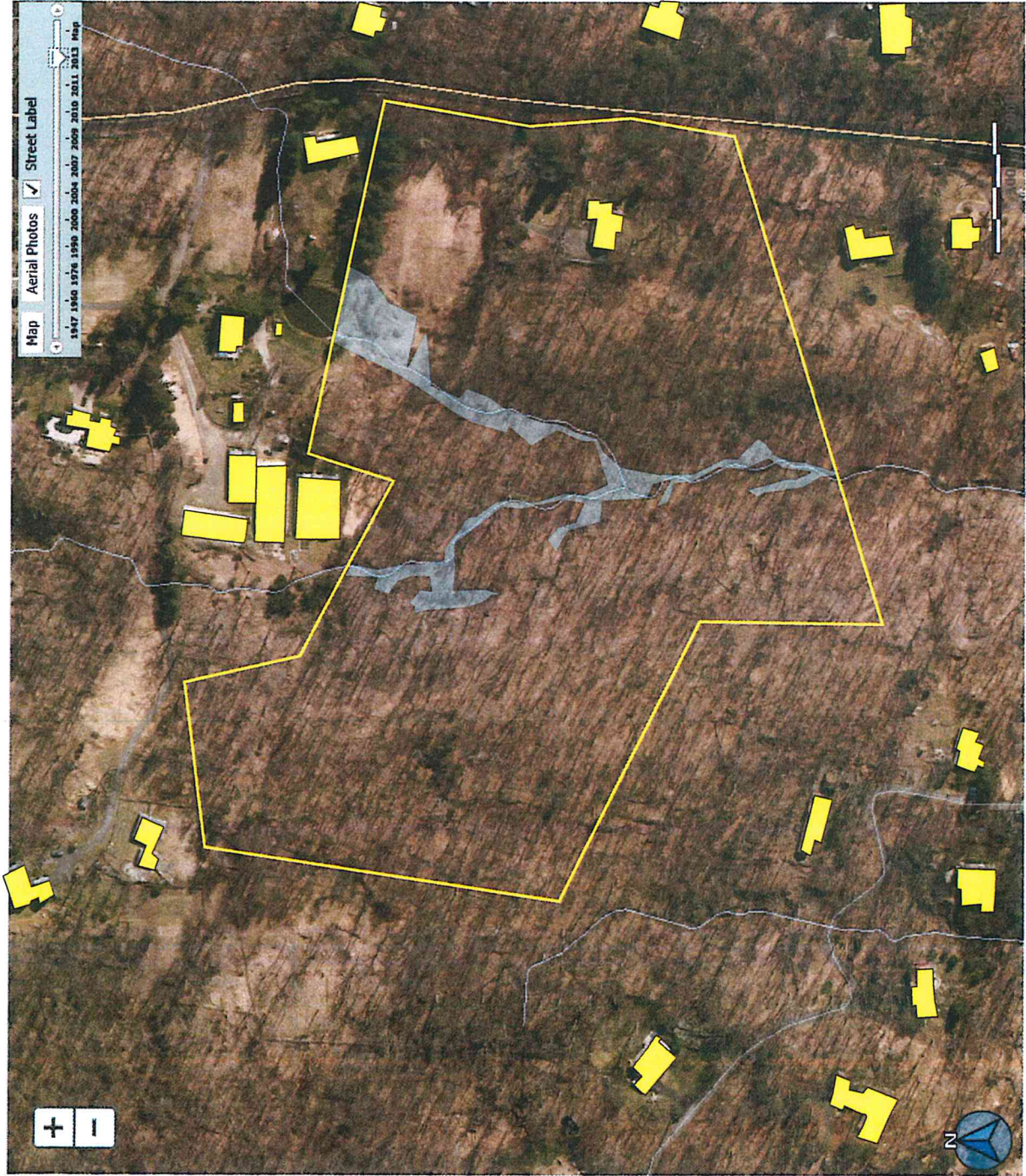


Figure 4: Existing Conditions  
Sandvoss Subdivision  
Hanover Street, Town of Yorktown  
Source: Westchester County GIS



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- Adirondack Park Boundary
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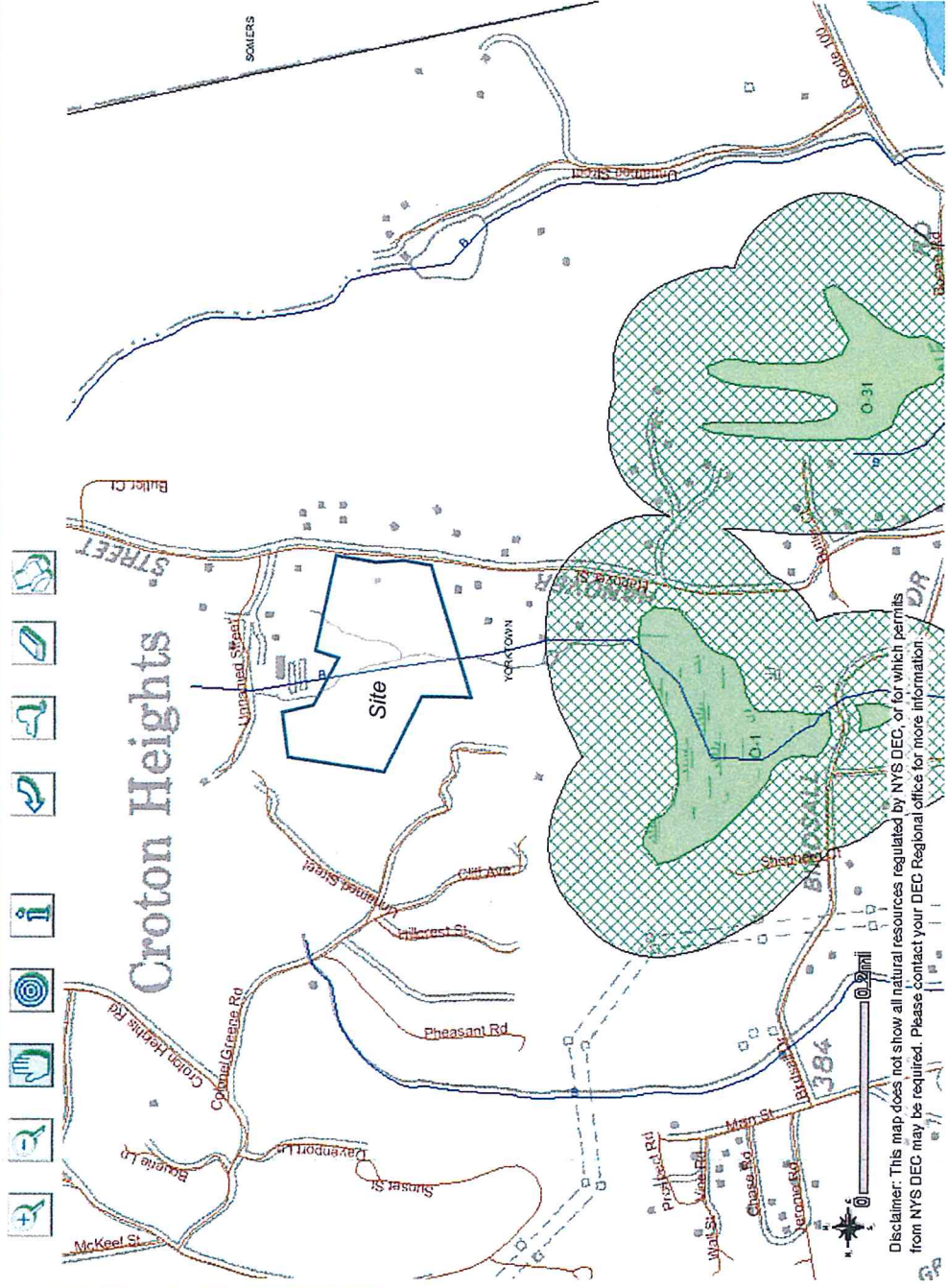


Figure 5: Environmental Resource Mapper  
 Sandvoss Subdivision  
 Hanover Street, Town of Yorktown  
 Source: New York State DEC



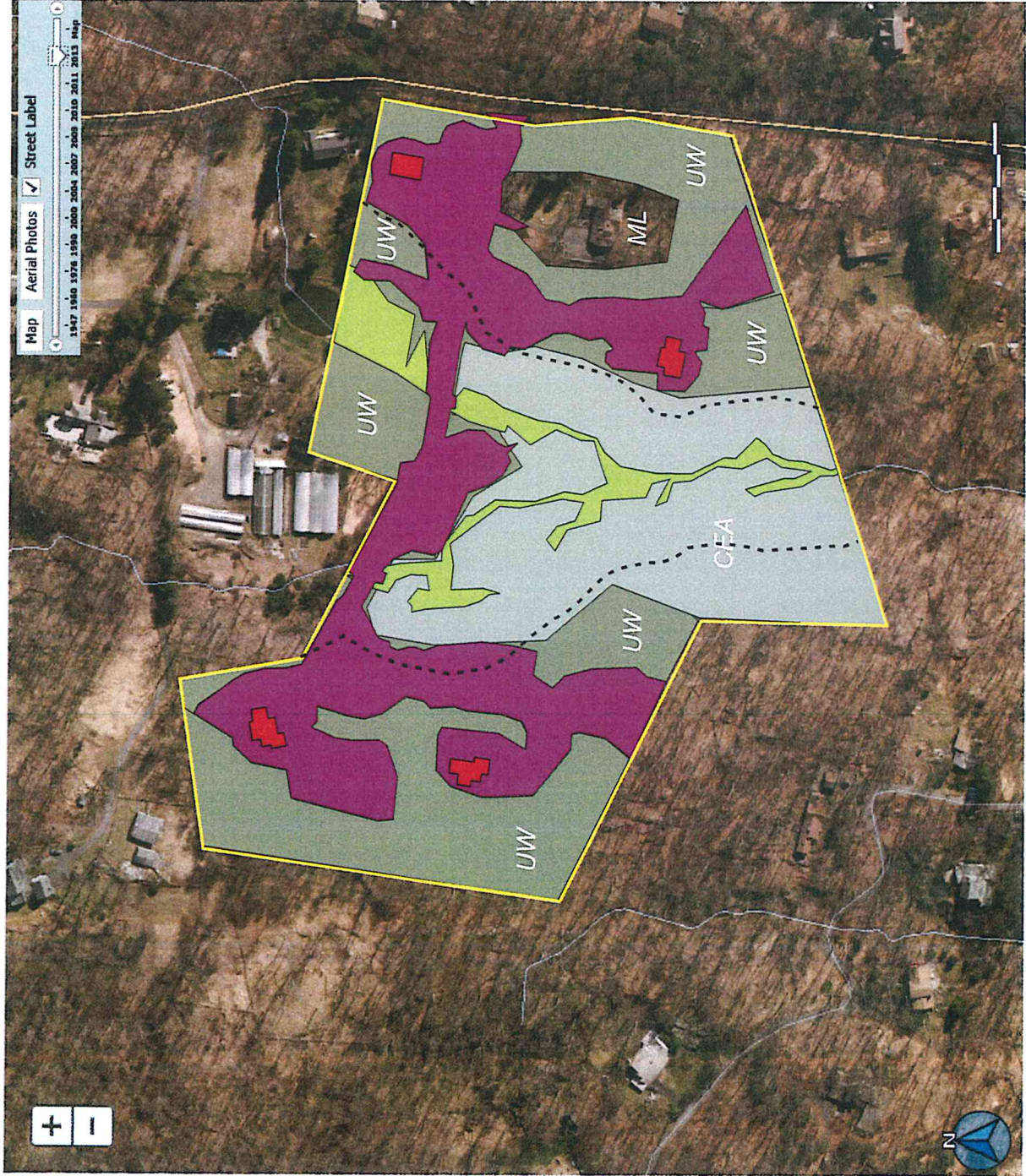


Figure 6: Proposed Site Development  
 Sandvoss Subdivision  
 Hanover Street, Town of Yorktown  
 Photo Source: Westchester County GIS  
 Site Plan: Ciarcia Engineering



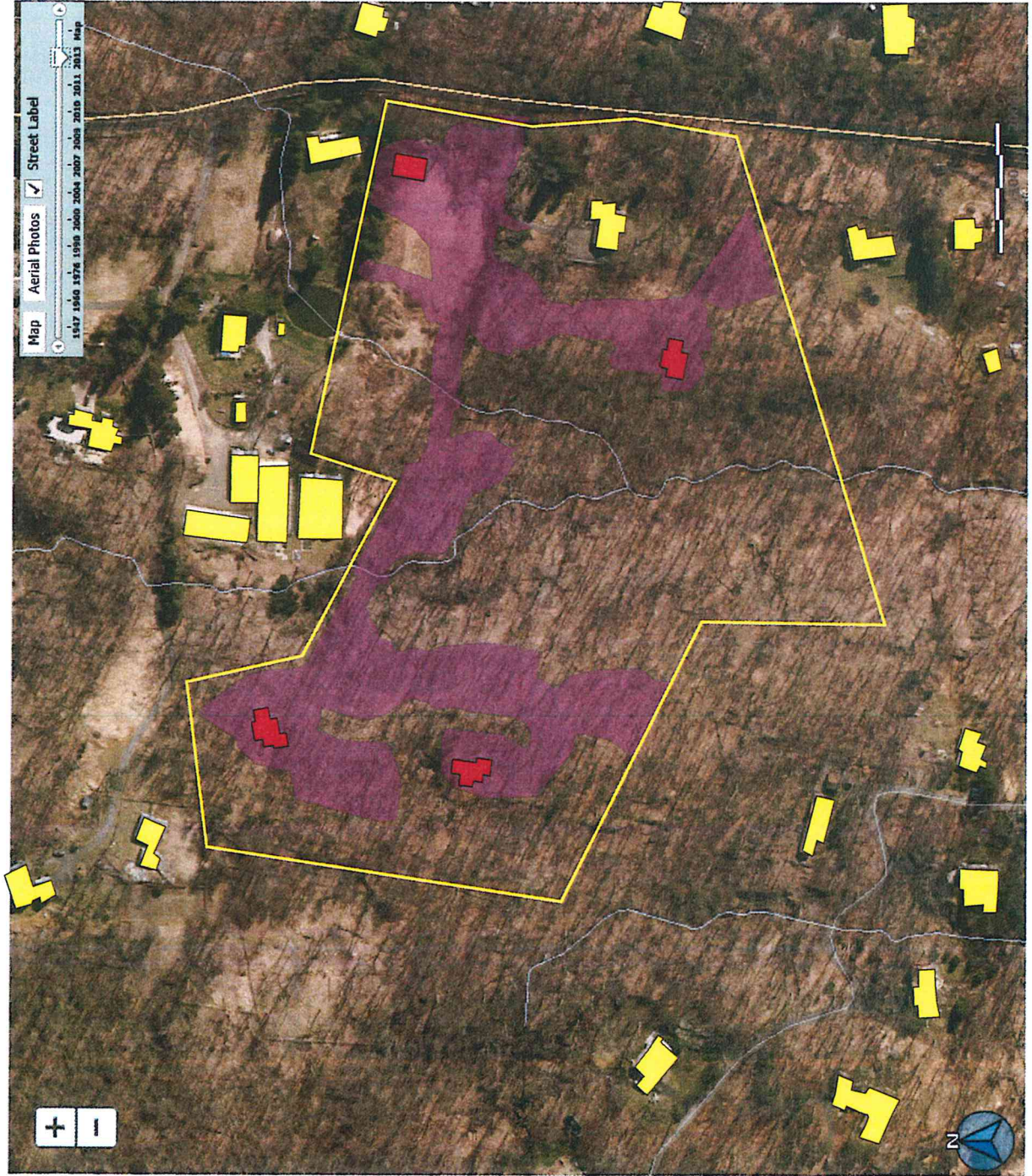


Figure 7: Site Post-Development  
Sandvoss Subdivision  
Hanover Street, Town of Yorktown  
Photo Source: Westchester County GIS  
Site Plan: Ciarcia Engineering