

APPENDIX F

NATURAL RESOURCES SURVEY AND ASSESSMENT

Wetlands & Natural Resources Survey/Assessment

Hudson Valley Wine Village, Inc.
Blue Point Road
Town of Lloyd, New York

December 15, 2012

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1.0 INTRODUCTION

The property owner, contracted with Ecological Solutions, LLC to complete a natural resources survey on the 428.53 acres HVWV. (HVWV) property located at the end Blue Point Road as shown on the Location Map attached as Figure 1.

The data contained in this report was gathered on March 24, 30, April 6, 21, May 8, 14, 22, 29, June 4, 15, 22, 28, July 6, 12, 2010 and March 15, 17, 20, 23, 28, 30, April 4, 7, 12, 13, 18, 20, 25, 27, May 2, 4, 7, 9, 15, 17, 22, 25, 29, 30, June 5, 8, 13, 15, and October 13, 2012. The 2010 fieldwork occurred generally in blocks from 5:30 am to 8:30 am, 10:00 am to 2:00 pm or from 5:30 pm to 8:30 pm and totaled approximately 100 man hours. The 2012 fieldwork focused on the tree (3) vernal pools on the property and varied by day, temperature, and precipitation. Weather conditions varied during the field visits from cool with rain to extremely hot, humid days. Extensive areas of the property were reviewed during each of the field visits so that the entire property was evaluated.

As mentioned the vernal pool study was undertaken from March 15 to June 15, 2012 to gather data for these sensitive areas. Three (3) vernal pools were included in the study and are mapped as wetland "U", "Q", and "HA". Wetland "U" and "Q" are considered isolated wetlands and therefore not subject to US Army Corps of Engineer (USACE) Section 404 regulation.

The purpose of the surveys was to document existing dominant vegetation within habitat cover types and wildlife species utilizing the property. A discussion of potential impacts to habitat types is included and mitigation measures are discussed.

2.0 METHODS

2.1 Agency Correspondence/Inquiry

As part of the environmental review for the subject property, Ecological Solutions, LLC, obtained correspondence from the New York State Department of Environmental Conservation (NYSDEC) Natural Heritage Program regarding the status of rare, threatened, or endangered species on the property. The correspondence indicates that shortnose sturgeon (*Acipenser brevirostrum*) is located along the tidal portion of the Hudson River bordering the property. A historical record from 1960 references Virginia snakeroot (*Endodeca serpentaria*) as possibly located on or near the property. The US Fish and Wildlife Service (USFWS) website search lists bog turtle (*Glyptemys muhlenbergii*), Indiana bats (*Myotis sodalis*), and northern wild monkshood (*Aconitum noveboracense*) as threatened or endangered species in Ulster County.

In addition to the correspondence and list, three vernal pools identified and verified during the property surveys in 2010 and 2011 were thoroughly investigated from March 15 to June 15, 2012 to determine if marbled salamander (*Ambystoma opacum*), Jefferson salamander (*Ambystoma jeffersonianum*), and blue spotted salamander (*Ambystoma laterale*) all NYSDEC designated "species of special concern" occur here. A separate report entitled, "Vernal Pool Surveys" contains the results of the vernal pool study. Other species of special concern including spotted turtle (*Clemmys guttata*), eastern box turtle (*Terrapene Carolina*) and wood turtle (*Clemmys insculpta*) were also searched for during the surveys. Only Eastern box turtle was identified on the property in a wooded area between vernal pool "U" and wetland "VAA".

2.2 Ecological Community and Habitat Field Inventory

The vegetation inventory on the property included identification of ecological communities or habitat cover types. Cover type surveys were conducted by first reviewing aerial photographs of the property and adjacent properties and subsequently by investigating the habitats on the property to identify and classify each. Within each cover type, visual searches for herbaceous and woody plant species or parts thereof, including leaves, bark, twigs, seeds, flowers, fruits, or other identifiable plant structures were conducted to identify and document vegetation on the property. Trees, shrubs, and fall flowering plants were identified to species levels where possible. A list of dominant or representative species observed in each habitat cover type is included in the [Findings](#) section of this report.

The Plot Transect method was employed for the vegetation inventory. The methods used to search for species on the property are outlined in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor*.

2.3 Wildlife Field Inventory

Extensive field surveys were conducted for wildlife species including mammals, birds, and herpetiles (reptiles and amphibians). Multiple methods were used in these surveys, as multiple methodologies increase the potential accuracy of surveys. Methods used are outlined below.

A. **Mammals.** The following survey methods that are outlined in detail in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor* were utilized during the field survey:

1. Sign search, in which the observer records any recognizable signs (tracks, droppings, hair, bones, etc.) of mammal species.
2. Opportunistic mammal sightings, in which the observer identifies mammals encountered in the field at random.

Mammals were identified based on visual encounters, vocalizations, tracks, fur, bones, rubs, scrapes, droppings, and other recognizable signs in habitats throughout the property. Sampling routes were established throughout the property and wildlife was recorded as encountered. Mammal species observed in each habitat cover type are included in the Findings section of this report.

B. **Birds.** Field methods used to survey for avian species were based on methods outlined in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor* and included:

1. Walking transects where the observer records all species encountered (seen/heard) along a trail.
2. Opportunistic bird sighting, where the observer records birds encountered randomly.
3. Sign search, where the observer records signs (feathers, nests, droppings, tracks, etc.) of birds encountered in the field.

Birds were detected and identified by visual encounter with individuals, vocalizations, tracks, feathers, bones, droppings, castings, nests, drillings, or other recognizable signs.

In addition, breeding bird surveys were completed on June 4, 15, 22, 28, July 6, and 12, 2010 and typically began at 5:30 am and ended at 8:30 am or occurred in early evening at around 5:30pm. June and July are the months when most birds in New York breed, although a small number of species breed anytime from January through August. Early July can be especially productive since many adults with food for young and recently fledged young can be seen at that time. Bird species observed in each habitat cover type are included in the Findings section of this report.

C. **Herptiles (Reptiles and Amphibians).** Special surveys were conducted to identify and locate seasonally active species of special concern such as the marbled salamander, Jefferson salamander, and blue spotted salamander, spotted, eastern box, and wood turtle all NYSDEC designated “species of special concern”. Field methods used to survey for herptile species were based on methods outlined in *Biodiversity Assessment Manual for the Hudson River Estuary Corridor* and included:

1. Log rolling (overturning logs, large stones, and other debris to reveal herptiles underneath).
2. Aural surveys were conducted for vocal herptiles. Herptiles were detected and identified by visual encounter, vocalizations, spermatophores, egg masses, and remains.
3. Just about the time most other amphibians are looking for places to hibernate, marbled salamanders are heading to breeding areas. The only fall breeding salamander, they seek out small areas (micro habitats) with temperatures around 60°F. The female will lay an average of 100 eggs in a nest constructed in a shallow depression under leaf litter or in a log. The female remains with the eggs until fall rains fill the nest property. Eggs will hatch within two weeks. In mild winters, larvae can feed and grow and transform in late spring or early summer. If the nest does not flood, eggs will go dormant until the following spring. The salamander larvae that hatch in fall metamorphose into terrestrial adults in late spring or June or July.

The habitat they select varies with the season. During the spring and summer, the adults spend their time in sandy upland deciduous forests. They seek shelter under logs or in underground tunnels of other animals. In autumn, they congregate in groups near lowland forested habitat to breed.

Both Jefferson and Blue spotted salamanders are early spring breeders and are often the first amphibians found breeding in vernal pools.

Herpetile species observed in each habitat cover type are included in the Findings section of this report.

In addition to the surveys completed in 2010 a vernal pool study was completed for the three identified and confirmed vernal pools from March 15 to June 15, 2012. A vernal pool study protocol was accepted by the NYSDEC and Town of Lloyd Planning Board. The results of the study are included in the report entitled, “Vernal Pool Surveys”.

3.0 SIGNIFICANT AREAS

3.1 The Esopus/Lloyd Wetlands and Ridges Significant Area¹

This area is bounded by the Thruway on the west, Route 9W on the east, Hardenburg, Union Center, and Esopus Avenue on the north and Route 44 to the south. Esopus/Lloyd Wetlands and Ridges contain wetland and upland habitat that is of particular importance to amphibian species and breeding waterfowl. Upland communities include ridges, ledges, and a mature hemlock-northern hardwood forest. The area has 32,391 acres. The main drainages in this area are the Swarte Kill, which flows into the Wallkill River to the north and Black Creek, which flows into the Hudson River to the east. The HVWV property lies several miles south of the southern boundary of this area and contains wildlife species and physical characteristics like ridges and ledges similar to the Esopus/Lloyd Significant Area. The hemlock-northern hardwood forest habitat type is not located on the HVWV property.

3.2 Blue Point Biodiversity Area

According to the Northern Wallkill Biodiversity Plan “Blue Point was designated a biodiversity area due to the large number of woodland warbler species found here, especially considering the small size of this area. Surprisingly, in the northern part of this area we observed no development-associated bird species. While some development-associated species likely do live in this area, such a low observance rate suggests that this habitat is of very high quality. The southern part of this area contains several observations of a state-listed, HDS bird species, the yellow breasted chat (*Icteria virens*), that is at the northern limit of its range here, an indication of high quality successional habitat. Other HDS bird species observed here include: alder flycatcher (*Empidonax alnorum*), black-billed cuckoo, black-throated blue warbler, magnolia warbler, scarlet tanager, willow flycatcher, and worm-eating warbler. Sixteen MDS bird species were also observed, including the brown thrasher and blue-winged warbler, among others. One MDS reptile, the northern black racer, was also observed here. The fact that this region is adjacent to the Hudson River is another strong reason for its designation as a Biodiversity Area, as quality riverside habitat is important for many species yet increasingly rare due to development.”

The northern section of the HVWV property includes most of the existing development with the remaining property reverted to second growth forest after serving as a vineyard for decades. Several of the bird species observed on the property are specified in the Northern Wallkill Biodiversity Assessment and included black-throated blue warbler, magnolia warbler, and scarlet tanager. All of the species observed on the property are expected to remain or return once development is completed because of the retention of forested acreage, wooded bluff areas, and wetlands and corridors connecting these habitats.

¹ www.dec.ny.gov/docs/remediation_hudson_pdf/hrebfc2sba.pdf

4.0 WETLAND IDENTIFICATION

4.1 Wetland Delineation

Federal wetlands were delineated on the property by Crawford and Associates Engineering, PC most recently in April 2009. Ecological Solutions, LLC field checked the delineated the wetlands on the property and obtained the Jurisdictional Determination (JD) for the property from the US Army Corps of Engineers (USACE). The JD is dated May 3, 2010 and is valid until May 3, 2015. The delineation was completed in accordance with the Routine Delineation Method outlined in the *US Army Corps of Engineers (USACE) Wetlands Delineation Manual, Technical Report Y-87-1*². The NYSDEC also field checked the wetlands on the property and verified that there are no potential State jurisdictional wetlands on the property (attached email dated March 16, 2010). Therefore there is no regulated 100 foot Adjacent Area.

4.2 Wetland Functional Evaluation

The property consists of 428.53(+/-) acres including developed area, upland forest, old field, and wetlands. The results of the property inspection indicate that a total of nine (9) principal wetland areas are present on the property and include D, E, GM, HA, N, K L, W and VAA. Isolated wetlands identified on the property include wetlands A, B, C, F, G, O, P, Q, R, U, and X. The flag series and corresponding wetland classification nomenclature are as follows:

Property Wetlands

All of the wetland areas observed on the property exhibited one or more of the following (1) pooled water; (2) flowing water; and (3) ground water seepage. On average water depths within the wetlands ranged from 0-8 inches. Water table elevations within wetlands are presumed to occur within a fairly wide range of elevations (up to one foot). Forested wetlands on the property exhibit a distinct hummock-hollow topography, which varies with the degree of water table fluctuations.

Wetlands associated with either an ephemeral, intermittent, or perennial stream channel include Wetlands VAA, E, GM, HA, K, L, N, V, W. Surface water and ground water trend in a southeasterly direction, and ultimately discharge to the Hudson River, which borders the eastern boundary of the property.

Several small, isolated wetlands were identified on the property, which mainly receive water through surface sheet flow and ground water seepage. Isolated wetlands identified on the property include wetlands A, B, C, F, G, O, P, Q, R, U, and X as per the US Supreme Court decision in Solid Waste Agency of Northern Cook County versus US Army Corps of Engineers No. 99-1178 (January 9, 2001).

The dominant hydric mapping unit on the property is the Ly (Lyon silt loam) and Canandaigua (Cd) soil series. All of the wetlands identified on the property occur in these series.

² (U.S. Army Corps of Engineers Environmental Laboratory, 1987) (1987 Federal Manual)

Herbaceous species identified generally within the property wetlands included *Symplocarpus foetidus* (skunk cabbage), *Onoclea sensibilis* (sensitive fern), *Osmunda cinnamomea* (cinnamon fern), *Carex stricta* (tussock sedge), and *Viola sp.* (violet). Shrub species observed included *Acer rubrum* (red maple), and *Lindera benzoin* (spicebush), *Ilex verticillata* (winterberry), and *Cornus amomum* (silky dogwood). Tree species included *Acer rubrum* (red maple), *Ostrya virginiana* (eastern hophornbeam), *Fraxinus pennsylvanica* (green ash), *Ulmus Americana* (American elm), *Quercus bicolor*, (swamp white oak), and *Platanus occidentalis* (American sycamore).

An assessment of wetland functions and values was conducted on the wetlands that were identified and delineated on the property. Using a widely accepted method for wetland functions and values assessment developed by the New England District, U.S. Army Corps of Engineers, 13 distinct wetland functions and values were assessed for the delineated wetlands on the property. This method yielded an objective, descriptive quality index of each wetland rather than a subjective quantified rating of each wetland. This assessment had two major objectives:

1. Objectively identify the functions and values provided by each of the wetlands identified on the property.
2. Provide baseline data with which the Applicant could work in planning land uses, and against which the Applicant could assess potential impacts of proposed development of the property

The descriptive quality index of each wetland, based on this methodology, is summarized in this report.

Wetlands are legally protected because of the functions they perform and the benefits that society reaps from those functions. Wetland functions are chemical, physical, and biological processes that wetlands naturally perform as a matter of course, such as absorption of nutrients or floodwaters, or provision of habitat for fish and wildlife. Wetland values are the benefits that society derives from wetland functions, such as flood abatement, or water quality maintenance.

The functions and values assessment conducted on the property was based on the method outlined in *The Highway Methodology Workbook Supplement: Wetland Functions and Values, A Descriptive Approach*, by the U.S. Army Corps of Engineers New England District (November 1995). This method was selected over an arbitrary numeric quantifying assessment scheme because it provides an objective, descriptive approach to functions and values assessment based on professional observation and judgment rather than a simple numeric value rating system. Quantified functions and values assessments do not always provide for descriptive information about wetlands and therefore may overlook important aspects of wetland functions and values.

The Highway Method provides for assessment of each wetland for thirteen defined functions and values. Of these, the first eight are considered wetland functions, and the last five are considered to be wetland values. These are:

1. **Groundwater Recharge/Discharge** – the potential for a wetland to serve as a recharge area for an aquifer or as a surface discharge point for groundwater.
2. **Floodflow Attenuation**– A wetland’s ability to store and attenuate floodwaters during prolonged precipitation events, thereby reducing or preventing flood damage.
3. **Fish and Shellfish Habitat** – The ability of permanent or temporary water bodies to provide suitable habitat for fish or shellfish.
4. **Sediment/Toxicant/Pathogen Retention** – The effectiveness of the wetland in trapping sediments, toxicants or pathogens, thereby protecting water quality.
5. **Nutrient Removal/Retention/Transformation** – The effectiveness of the wetland at absorbing, retaining, and transforming or binding excess nutrients, thereby protecting water quality.
6. **Production Export** – The wetland’s ability to produce food or usable products for humans or other living organisms.
7. **Sediment/Shoreline Stabilization** – The wetland’s ability to prevent erosion and sedimentation by stabilizing soils along stream banks or the shorelines of water bodies.
8. **Wildlife Habitat** – The ability of wetlands to provide food, water, cover, or space for wildlife populations typically associated with wetlands or their adjacent areas, both resident and migratory. *
9. **Recreation** – The value placed on a wetland by society for providing consumptive and non-consumptive as well as active or passive recreational opportunities such as canoeing/boating, fishing, hunting, bird/wildlife watching, hiking, etc.
10. **Education/Scientific Value** – The value placed on a wetland by society for providing subjects for scientific study or research or providing a teaching resource for schools.
11. **Uniqueness/Heritage** – The value placed on a wetland by society for having unique characteristics such areas of historical events, unusual aesthetic qualities, or unique plants, animals, or geologic features, etc.
12. **Visual Quality/Aesthetics** – The value placed on a wetland by society for having visual and/or other aesthetic qualities.
13. **Threatened or Endangered Species Habitat** – The value placed on a wetland by society for effectively harboring or providing habitat for threatened or endangered species.

Each function or value in the list has a set list of qualifiers for identifying which functions and values are performed or provided by each wetland. The qualifiers are referenced by number on a standard evaluation form to document the functions and values assessment. In addition to outlining qualifying rationale for each function and value, the data forms also document information on each wetland's size, distance to nearest road or other development, adjacent land uses, position in the watershed, impacts from human activity, tributaries, cover types, connectivity to other wetlands, and general condition. All of these elements factor into the functions and values assessment. Assessments were performed on wetlands on the property. Findings of the assessment are outlined below.

Wetlands VAA, E, GM, HA, K, L, N, V, W receives water primarily through ground water seepage and overland sheet flow, and are connected to the Hudson River by ephemeral or intermittent streams. Hydrological indicators identified within the wetlands included soil saturation, watermarks, drift lines, drainage patterns, and water stained leaves. These wetlands are typically broad-leafed deciduous forested wetland (PFO1E). These are red maple-spicebush dominated swamps with dense understory of skunk cabbage (*Syplocarpus foetidus*) that is seasonally inundated. These systems are surrounded by undeveloped upland mature second-growth forest. Functions and values provided by these wetlands include groundwater recharge, floodflow attenuation, sediment trapping, nutrient removal, production export, shoreline stabilization, wildlife habitat, recreation, educational/scientific resources, uniqueness/heritage, and visual quality. Of these, the most significant functions based on extent of rationale in identifying functions and values, are floodflow attenuation, sediment trapping, and wildlife habitat.

Wetlands A, B, C, F, G, O, P, Q, R, U, and X receive water primarily through surface sheet flow. Pooled water was identified in areas of some of these wetlands. Hydrologic indicators identified included inundation, watermarks and water stained leaves. Functions and values include floodflow attenuation, sediment trapping, nutrient removal, and wildlife habitat.

4.3 Anticipated Impacts to Wetlands, Wetland Adjacent Area, and Waterbodies

The proposed development of the property will require a Federal Section 404 Nationwide Permit #29 for development activities associated with the placement of fill in jurisdictional wetlands on the property. In addition, an Individual Section 401 Water Quality Certification is required by the NYSDEC if impacts to federal wetlands are greater than 0.25 acres. The impact area for Wetland GM is 0.293 acres and the impact area for Wetland VAA is 0.117 acres. A total of 0.410 acres of jurisdictional wetland will be impacted by the project development. The area of isolated wetlands that are impacted by the project development is 0.446 acres.

The regulated wetlands on the property will continue to provide the same functional benefits after completion of the proposed development of the property including: maintenance of flood, erosion and storm control; control of pollution and sedimentation; provision of area for wildlife habitat; and provision of areas for passive and active recreational use.

Short-term physical impacts to regulated wetlands on the property will be avoided by the use of erosion controls throughout the property especially in critical areas adjacent to regulated wetlands.

4.4 Wetland Mitigation

Avoidance

Avoidance of jurisdictional wetlands is not attainable however the proposed impacts are minimal so that the proposed project can obtain Nationwide Permit from the USACE.

Mitigation

Wetland mitigation measures are required since impacts to jurisdictional wetlands on the property are more than 0.10 acres. Wetland establishment will occur on the property so that there is no net loss of wetland area. The final design of the wetland establishment area must be submitted to the USACE for approval but may include the planting of wetland species which are common to this area. All of the following species are readily available from local nurseries and can tolerate periods of drought and are considered species which provide wildlife habitat. Typical plants include:

Cornus stolonifera - Red Osier Dogwood

This shrub is an understory species which typically ranges in size from 3-7' tall and usually sprouts from the base. Branches or twigs are red in color, fruit is berrylike and white in color. This species is often used as a landscaped species.

Viburnum dentatum - Arrowwood

This shrub is also an understory species and has approximately the same growth form as Red Osier Dogwood. Branches are very straight and the fruit is berrylike and purple in color.

Viburnum trilobum - Highbush Cranberry

This shrub is an understory species which ranges in size from 4-10' tall. Red berries persist long after leaves have dropped and is considered a good wildlife value.

Cletrha alnifolia - Sweet Pepperbush

This branches on this understory shrub species are very low to the ground. The plant generally ranges from 5' - 7' tall and the seed head resembles peppercorns.

Ilex verticillata - Winterberry

This understory shrub species generally grows to approximately 5 - 7 feet. Male and female plants must be in close proximity when planted to ensure the production of persistent red berries. This species is considered to have a high wildlife value.

Lindera benzoin - Spicebush

This understory shrub species sprouts early spring flowers that are yellow. The berries produced by this species are considered valuable for wildlife habitat.

Vaccinium corymbosum - Highbush Blueberry

This understory species grows to approximately 6 - 8 feet tall. Growth is dense. The species produces fruit that are important to wildlife habitat.

5.0 FINDINGS

5.1 Habitat

There are several distinct dominant cover types identified on the property as classified by Edinger 2002 and edited for this report.

**TABLE 5.1-1
 HVWV PROPERTY**

NO.	EDINGER 2002	ACRES IDENTIFIED	PROPOSED IMPACTS
1	Appalachian Oak - Hickory Forest	225.46	75.44
2	Rich Mesophytic Forest	99.00	44.11
3	Successional Old Field	39.92	28.60
4	Red Maple Hardwood Swamp	33.75	0.446 ³
5	Intermittent Woodland Pool	1.15	0
6	Pond	1.26	0.41
7	Developed Area	27.99	20.16
Total		428.53	169.17

5.1-1 Terrestrial System

The terrestrial system on the property consists of upland habitats and developed area. These habitats have well-drained soils that are dry to mesic (never hydric), and vegetative cover that is never predominantly hydrophytic, even if the soil surface is occasionally or seasonally flooded or saturated.

³ Impacts are to non-jurisdictional or isolated wetlands and jurisdictional wetlands.

OPEN UPLANDS

This subsystem includes upland communities with less than 25% canopy cover of trees; the dominant species in these communities are shrubs and herbs.

Successional Old Field

The successional old-field areas on the property are dominated by forbs and grasses. Characteristic herbs observed include goldenrods (*Solidago altissima*, *S. rugosa*, *canadensis*, and *Euthamia graminifolia*), bluegrasses (*Poa pratensis*, *P. compressa*), timothy (*Phleum pratense*), smooth brome (*Bromus inermis*), orchard grass (*Dactylis glomerata*), common chickweed (*Cerastium arvense*), common evening primrose (*Oenothera biennis*), cinquefoil (*Potentilla simplex*), New England aster (*Aster novae-angliae*), wild strawberry (*Fragaria virginiana*), Queen-Anne's lace (*Daucus carota*), ragweed (*Ambrosia artemisiifolia*), hawkweeds (*Hieracium* spp.), dandelion (*Taraxacum officinale*), and ox-eye daisy (*Chrysanthemum leucanthemum*). Shrubs are present, but collectively they have less than 50% cover in this community. Characteristic shrubs observed include gray dogwood (*Cornus foemina* ssp. *racemosa*), silky dogwood (*Cornus amomum*), arrowwood (*Viburnum recognitum*), raspberries (*Rubus* spp.), sumac (*Rhus typhina*, *R. glabra*), and eastern red cedar (*Juniperus virginiana*). This is a relatively short-lived community that will succeed to a shrubland, woodland, or forest community if not maintained. Wildlife observed in this habitat included deer mouse, eastern mole, raccoon, striped skunk, white tailed deer, coyote, red fox, big brown bat, snapping turtle, American goldfinch, barn swallow, yellow warbler, ruby throated hummingbird, American robin, eastern bluebird, northern cardinal, field sparrow, garter snake, and brown snake.

FORESTED UPLANDS

This subsystem includes upland communities on the property with more than 60% canopy cover; these communities occur on substrates with less than 50% rock outcrop or shallow soil over bedrock.

Appalachian Oak-Hickory Forest Community

This mesophytic hardwood forest occurs on areas of well-drained portions of the property generally on the upper slopes. The soils are loams or sandy loams. The dominant trees observed include the following oaks: red oak (*Quercus rubra*), white oak (*Quercus alba*), and black oak (*Quercus velutina*). Mixed with the oaks, at lower densities, are the following pignut hickory (*Carya glabra*), shagbark hickory (*Carya ovata*), white ash (*Fraxinus Americana*), red maple (*Acer rubrum*), and Eastern hop hornbeam (*Ostrya virginiana*). The trees are generally in same age class within sections of the property with a large section of containing trees in the 24+ inch dbh range. The subcanopy stratum contains small trees and tall shrubs including flowering dogwood (*Cornus florida*), witch hazel (*Hamamelis virginiana*), shadbush (*Amelanchier arborea*), and choke cherry (*Prunus virginiana*). Common low shrubs include maple-leaf viburnum (*Viburnum acerifolium*), blueberries (*Vaccinium angustifolium*), red raspberry (*Rubus idaeus*), and gray dogwood (*Cornus racemosa*). Wildlife observed in this habitat included deer mouse, raccoon, white tailed deer, coyote, red fox, red eft, slimy salamander, spotted salamander, gray tree frog, wood frog, indigo bunting, ovenbird, ruby throated hummingbird, wood thrush, chestnut sided warbler, summer tanager, eastern

phoebe, eastern towhee, brown thrasher, hermit thrush, American robin, American toad, northern cardinal, eastern chipmunk, gray squirrel, garter snake, red-backed salamander, and northern ringneck snake.

Rich Mesophytic Forest

This forest type also occurs on moist, well-drained areas of the property and is differentiated by the species observed. The dominant trees include a mixture of tulip tree (*Liriodendron tulipifera*), sugar maple (*Acer saccharum*), red oak (*Quercus rubra*), black birch (*Betula lenta*), beech (*Fagus grandifolia*), sassafras (*Sassafras albidum*), American basswood (*Tilia cordata*), red maple (*Acer rubrum*), and white oak (*Quercus alba*). The shrub layer includes flowering dogwood (*Cornus florida*) spicebush (*Lindera benzoin*), witch-hazel (*Hamamelis virginiana*), black cherry (*Prunus serotina*), maple leafed viburnum (*Viburnum acerifolium*) and blueberries (*Vaccinium spp*). Wildlife frequently observed in this habitat included deer mouse, raccoon, white tailed deer, coyote, red fox, red eft, gray tree frog, red-backed salamander, wood frog, indigo bunting, ovenbird, wood thrush, chestnut sided warbler, black-throated blue warbler, magnolia warbler, scarlet tanager, summer tanager, eastern phoebe, eastern towhee, brown thrasher, hermit thrush, American robin, gray catbird, and northern cardinal.

5.1-2 Palustrine System

The palustrine system consists of non-tidal, perennial wetlands characterized by hydrophytic vegetation. The system includes wetlands permanently saturated by seepage, permanently flooded wetlands, and wetlands that are seasonally or intermittently flooded (these may be seasonally dry) with vegetative cover that is predominantly hydrophytic with hydric soils. Wetland communities on the property are distinguished by their plant composition (hydrophytes), substrate (hydric soils), and hydrologic regime (frequency of flooding).

Red Maple Hardwood Swamp

In general on the property this ecological community is a hardwood swamp that occurs in poorly drained depressions on inorganic soils. Herbaceous species identified generally within the property wetlands included *Symplocarpus foetidus* (skunk cabbage), *Onoclea sensibilis* (sensitive fern), *Osmunda cinnamomea* (cinnamon fern), *Carex stricta* (tussock sedge), and *Viola sp.* (violet). Shrub species observed included *Acer rubrum* (red maple), and *Lindera benzoin* (spicebush), *Ilex verticillata* (winterberry), and *Cornus amomum* (silky dogwood). Tree species included *Acer rubrum* (red maple), *Ostrya virginiana* (eastern hophornbeam), *Fraxinus pennsylvanica* (green ash), *Ulmus americana* (American elm), *Quercus bicolor*, (swamp white oak), and *Platanus occidentalis* (American sycamore). This ecological community occurs in the protected wetlands occupying the low areas between the north south running ridges. This ecological community will remain almost completely undisturbed by the proposed development. Wildlife observed in this habitat also included white tailed deer, coyote, eastern chipmunk, red fox, red eft, gray tree frog, wood frog, spring peeper, green frog, slimy salamander, red-backed salamander, indigo bunting, scarlet tanager, kingbird, eastern phoebe, eastern towhee, brown thrasher, veery, American robin, gray catbird, and northern cardinal.

Intermittent Woodland Pool

Three (3) Intermittent or Vernal pools were identified on the property through the course of the field work. Wetland "U" and a portion of Wetland "HA" and "Q" serve as vernal pools since obligate vernal pool species were observed utilizing these areas. Wetland "U" and "Q" are considered isolated and are not directly regulated under Section 404 by the USACE or by the NYSDEC. These pools were observed to range from dry to wet with approximately ca 76 cm to 92 cm water depth. The vernal pool envelope and surrounding 200 feet of critical upland habitat will remain completely undisturbed by the proposed development. Wildlife observed in this habitat included red eft, gray tree frog, wood frog, spring peeper, green frog, spotted salamander, spring peeper, and eastern box turtle.

Ponds

There are several man made ponds located toward the existing developed area of the property and support two species of turtle (painted and snapping turtles) great blue heron, mallards, green frogs and bullfrogs. Several small deep man made ponds are located in the center of the property and are considered isolated by the USACE.

5.2 Wildlife

5.2.1 Breeding Birds

A review of the 2nd New York State Breeding Bird Atlas was conducted and the following is a list of breeding birds identified on the property in 2010. Most of the species were found in multiple habitats although some were observed in specific habitats as described previously. The list of observed species includes: Canada goose (*Branta canadensis*), wood duck (*Aix sponsa*), mallard (*Anas platyrhynchos*), turkey (*Meleagris gallopavo*), turkey vulture (*Cathartes aura*), broad-winged hawk (*Buteo platypterus*), red-tailed Hawk (*Buteo jamaicensis*), killdeer (*Charadrius vociferus*), mourning dove (*Zenaidura macroura*), Chimney Swift (*Chaetura pelagica*), Ruby throated hummingbird (*Archilochus colubris*), yellow-bellied sapsucker (*Sphyrapicus varius*), downy woodpecker (*Picoides pubescens*), northern flicker (*Colaptes auratus*), pileated woodpecker (*Dryocopus pileatus*), Eastern wood-pewee (*Contopus virens*), eastern phoebe (*Sayornis phoebe*), eastern kingbird (*Tyrannus tyrannus*), blue jay (*Cyanocitta cristata*), American crow (*Corvus brachyrhynchos*), barn swallow (*Hirundo rustica*), black throated blue warbler (*Setophaga caerulescens*), black-capped chickadee (*Poecile atricapillus*), tufted titmouse (*Baeolophus bicolor*), white-breasted nuthatch (*Sitta carolinensis*), house wren (*Troglodytes aedon*), eastern bluebird (*Sialia sialis*), veery (*Catharus fuscescens*), wood thrush (*Hylocichla mustelina*), American robin (*Turdus migratorius*), gray catbird (*Dumetella carolinensis*), northern mockingbird (*Mimus polyglottos*), European starling (*Sturnus vulgaris*), yellow warbler (*Dendroica petechia*), chestnut-sided warbler (*Dendroica pensylvanica*), American redstart (*Setophaga ruticilla*), Ovenbird (*Seiurus aurocapilla*), Scarlet Tanager (*Piranga olivacea*), Common Yellowthroat (*Geothlypis trichas*), eastern towhee (*Pipilo erythrophthalmus*), chipping sparrow (*Spizella passerina*), field sparrow (*Spizella pusilla*), northern cardinal (*Cardinalis cardinalis*), red-winged blackbird (*Agelaius phoeniceus*), indigo bunting (*Passerina cyanea*), common grackle (*Quiscalus quiscula*), brown-headed cowbird (*Molothrus ater*), Baltimore oriole (*Icterus galbula*), house finch (*Carpodacus*

mexicanus), American goldfinch (*Carduelis tristis*), great blue heron (*Ardea herodias*), and brown thrasher (*Toxostoma rufum*).

5.2.2 Mammals

The following is a list mammals identified on the property in 2010. Most of the species were found in multiple habitats although some were observed in specific habitats. The list of observed species includes: opossum (*Didelphis virginiana*), big brown bat (*Myotis lucifugus*), deer mouse (*Peromyscus maniculatus*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), woodchuck (*Marmota monax*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), red fox (*Vulpes vulpes*), white-tailed deer (*Odocoileus virginiana*), and coyote (*Canis latrans*).

5.2.3 Amphibian/Reptiles

The following is a list of amphibians and reptiles identified on the property in 2010. The list of observed species includes: red-backed salamander (*Plethodon cinereus*), garter snake (*Thamnophis sirtalis*), red eft (*Notophtalmus viridescens*), spotted salamander (*Ambystoma maculatum*), wood frog (*Rana sylvatica*), green frog (*Rana pipens*), gray tree frog (*Hyla versicolor*), slimy salamander (*Plethodon glutinosus*), eastern box turtle (*Terrapene Carolina*), spring peeper (*Hyla crucifer*), black rat snake (*Elaphe obsoleta*), bullfrog (*Rana catesbiana*), American toad (*Bufo americanus*), painted turtle (*Chrysemys picta*), snapping turtle (*Chelydra serpentina*), northern ringneck snake (*Diadophis punctatus*), and brown snake (*Storeria dekayi*).

6.0 POTENTIAL THREATENED/ENDANGERED SPECIES

6.1 Bog Turtle

According to the U.S. Fish and Wildlife Service, in the 2001 Bog Turtle (*Clemmys muhlenbergii*), Northern Population Recovery Plan. Hadley, Massachusetts. 103 pp. last revised on April 13, 2006 bog turtle habitat is recognized by three criteria:

1. **Suitable hydrology.** Bog turtle wetlands are typically spring-fed with shallow surface water or saturated soils present year-round, although in summer the wet area(s) may be restricted to near spring head(s). Typically these wetlands are interspersed with dry and wet pockets. There is often subsurface flow. In addition, shallow rivulets (less than 4 inches deep) or pseudo-rivulets are often present.

2. **Suitable soils.** Usually a bottom substrate of permanently saturated organic or mineral soils. These are often soft, mucky-like soils (this does not refer to a technical soil type); you will usually sink to your ankles (3-5 inches) or deeper in muck, although in degraded wetlands or summers of dry years this may be limited to areas near spring heads or drainage ditches. In some portions of the species' range, the soft substrate consists of scattered pockets of peat instead of muck.

3. **Suitable vegetation.** Dominant vegetation of low grasses and sedges (in emergent wetlands), often with a scrub-shrub wetland component. Common emergent vegetation includes, but is not limited to: tussock sedge (*Carex stricta*), soft rush (*Juncus effusus*), rice cut grass (*Leersia oryzoides*), sensitive fern (*Onoclea sensibilis*), tearthumbs (*Polygonum spp.*), jewelweeds (*Impatiens spp.*), arrowheads (*Sagittaria spp.*), skunk cabbage (*Symplocarpus foetidus*), panic grasses (*Panicum spp.*), other sedges (*Carex spp.*), spike rushes (*Eleocharis spp.*), grass-of-Parnassus (*Parnassia glauca*), shrubby cinquefoil (*Dasiphora fruticosa*), sweet-flag (*Acorus calamus*), and in disturbed property, reed canary grass (*Phalaris arundinacea*) or purple loosestrife (*Lythrum salicaria*). Common scrub-shrub species include alder (*Alnus spp.*), red maple (*Acer rubrum*), willow (*Salix spp.*), tamarack (*Larix laricina*), and in disturbed property, multiflora rose (*Rosa multiflora*). Some forested wetland habitats are suitable given hydrology, soils and/or historic land use. These forested wetlands include red maple, tamarack, and cedar swamps.

The wetlands on the property were surveyed and the wetland communities were assessed for the presence of habitat characteristics consistent with the bog turtle federal recovery plan (U.S. Fish and Wildlife Service, 2001): 1) soft, saturated organic and/or mineral soil; 2) hydrologic regime derived from perennial groundwater discharge; 3) plant community represented by a predominance of low-growing, native flora including sedges, rushes, grasses, forbs, mosses, and sometimes low shrubs; 4) tree canopy cover less than 50% allowing adequate sunlight to reach the ground, and 5) fen indicator plants (calcicoles) including, shrubby cinquefoil (*Pentaphylloides floribunda*), grass-of-parnassus (*Parnassia glauca*), and tamarack (*Larix laricina*).

None of the wetlands areas delineated and identified on the property met the criteria to be bog turtle habitat. None of the wetlands contained groundwater seepage, rivulets, open canopy and mucky substrate to be classified as potential bog turtle habitat.

6.2 Indiana Bats

Indiana bat hibernacula and hibernacula characteristics have been well documented by numerous observational studies reported in the literature. Indiana bats spend the winter months in secluded caves or mines. There are several hibernacula currently known in Albany, Essex, Warren, Jefferson, Onondaga and Ulster Counties. To date there are three known hibernacula located in the immediate vicinity of Kingston, New York. The hibernacula are critical to the survival of this species because so few are known to exist. The USFWS and NYSDEC are continually documenting habitat utilization by this species once emergence occurs.

With the coming of spring, Indiana bats disperse from their winter homes, known as hibernacula, some going hundreds of miles. They feed solely on flying insects and presumably males spend the summer preparing for the breeding season and winter that follows. Females congregate in nursery colonies, only a handful of which have ever been discovered. These were located along the banks of streams or lakes in forested habitat, under the loose bark of mature shagbark hickory trees, and some dead trees that have open or hanging bark to provide shelter for the bats, and which can contain from 50-100 females. A single young is born to each female, probably late in June, and is capable of flight within a month.

Outside the hibernation period, Indiana bats are very mobile and use live and dead trees of all sizes containing dead wood, holes, crevices, or exfoliating bark for roosts during the summer months. Although roosts have been documented in a wide array of hardwood and pine species, trees and snags that have exfoliating bark or crevices, such as shagbark hickory and black locust, appear to be most important to this species because females and their young rest under the bark. Trees with southern or western exposure and therefore good solar exposure appear to be the most important habitat for maternal colonies during the summer months.

In August or early September, Indiana bats swarm at the entrance of selected caves or mines. This is when mating takes place. Indiana bats spend the winter months in secluded caves or mines averaging 37 to 43 degrees F.

Since the property contains large areas of forest and therefore potential roosting, maternal colony, and foraging habitat characteristics a bat specific survey was undertaken in accordance with USFWS protocols. The report entitled, "*Summer Woodland Bat Survey Hudson Valley Winery Village Project*" prepared by Bat Management and Conservation" indicates that no State or Federally listed threatened or endangered bat species occur on the property.

6.3 Shortnose Sturgeon

The Shortnose sturgeon's life history is complex. Much of its spawning behavior and early life stages are still not fully understood. The Shortnose sturgeon is anadromous, migrating from salt water to spawn in freshwater. In the Hudson River, it spawns from April-May. Adult sturgeons migrate upriver from their mid-Hudson over wintering areas to freshwater spawning properties north of Coxsackie.

Unlike most fish species, spawning is not a yearly event for most shortnose sturgeon. Males spawn every other year and females every third year. Females lay between 40,000-200,000 eggs that hatch in approximately 13 days. Newly hatched fry are poor swimmers and drift with the currents along the bottom. As they grow and mature, the fish move downriver into the most brackish parts of the lower Hudson. Shortnose sturgeons are long-lived. The oldest known female reached 67 years of age and the oldest known male was 32. Bottom feeders, shortnose sturgeons eat a variety of organisms. Using their barbells to locate food and their extendable mouths to then vacuum it up, they eat sludge worms, aquatic insect larvae, plants, snails, shrimp, and crayfish.

In New York State, the shortnose sturgeon is only found in the lower portion of the Hudson River from the southern tip of Manhattan (river mile 0) upriver to the Federal dam at Troy (river mile 152). The property is not considered to possess important spawning or over wintering area since the property is slightly inland (west of the Hudson River) and is buffered from the Hudson River and potential habitat by existing Railroad tracks. If engineered properly stormwater basins will collect stormwater runoff from the development areas for treatment prior to discharge so that no impacts occur to the Hudson River, submerged vegetation, tidal wetlands, or this species from the proposed development of the property.

6.4 Virginia Snakeroot

A southern species primarily occurring in southeastern New York. Virginia snakeroot inhabits dry-mesic south to south-west facing oak-hickory forested slopes often with abundant non-weedy herbaceous species such as *Lespedeza intermedia*, *Agrimonia rostellata*, and *Carex willdenowii*. Often with dense *Dichanthelium boscii* stands and *Carya glabra* dominant in the canopy. Populations are usually small and not dense. Searches for this species revealed no observations.

6.5 Other Potential Plants/Wildlife

Scenic Hudson provided the Applicant with a list of rare plants that could potentially exist on the property. The list includes large twayblade, yellow giant hyssop, puttyroot, rattlebox, stiff tick trefoil, and southern bluet. These species were searched for on the property but no specimens were observed. This is consistent with the property's historic use as a vineyard and Winery where most of the acreage was in production for grapes.

Since the property borders the Hudson River several field walks occurred on the bluffs and interior of the property specifically to look for nesting bald eagles. Eagle nest are easy to observe since they are massive structures typically associated with satellite nests nearby. One white pine tree in the area of vernal pool "U" is a massive specimen suitable for nest building, however, no nest characteristics were observed there or anywhere on the property.

7.0 ANTICIPATED IMPACTS

The proposed development and its appurtenant features will necessarily require clearing of certain habitats as shown in Table 5.1-1. Earth moving (excavation, filling, and grading), operation of heavy machinery, construction, alteration of existing drainage patterns, addition of impervious surfaces, changes in traffic patterns, and increased human activity will occur on the property. However, 69 percent of the property will remain intact. Anticipated impacts from these activities are outlined below.

7.1 Impacts to Vegetation and Cover Types

1. **Appalachian Oak-Hickory Forest Loss.** The proposed activities will require the removal of approximately 33 percent of this cover type from the property.
2. **Rich Mesophytic Forest Loss.** The proposed activities will require the removal of approximately 45 percent of this cover type from the property.
3. **Successional Old Field Loss.** The proposed activities will require the removal of approximately 72 percent of this cover type from the property.
4. **Red Maple Hardwood Swamp.** Development activities have been planned to avoid impacts to wetlands except for two road crossings that will impact 0.41 acres of jurisdictional wetland. An additional 0.446 acres of non-jurisdictional or isolated wetland is proposed to be impacted.
5. **Intermittent Woodland Pools.** No impacts will occur to intermittent woodland or vernal pools.
6. **Ponds.** There will be loss of approximately 0.41 acres of this habitat type which has been designated as non-jurisdictional area by the USACE.
7. **Forest Fragmentation.** The closed canopy in the forested area will be partially cleared to allow for development. The majority of the forest, however, will be preserved leaving protection for forest interior species from invasion of and competition with edge species. Potential fragmentation of the Oak Hickory and Rich Mesophytic Forest habitats on this property is not anticipated to significantly alter property biodiversity because approximately 205 acres of these habitats will remain intact and will remain connected through the remaining forest areas.
8. **Habitat Fragmentation.** Habitat fragmentation differs from forest fragmentation in that forest fragmentation is the practice of opening up closed forest canopy, allowing edge-oriented species to penetrate into areas of the forest that they probably would not reach before. While this adversely impacts forest interior species, it potentially benefits edge species.

Habitat fragmentation is the separation and isolation of habitats and wildlife populations by placing impenetrable barriers between habitats that prevent mixing formerly connected or adjacent wildlife populations creating "habitat islands".

Development barriers can be as minor as a 6-inch curb on a road that prevents movement of amphibians, reptiles, or any small sized wildlife. Private fences around homes or lots if proposed can prevent wildlife movement to and from breeding, nesting, or feeding areas such as the watercourse.

Extensive concentrated clearing of overhead vegetation can also hinder summer movement of some wildlife, most notably amphibians, because of possible exposure to direct sunlight at midday in cleared areas, making it difficult for some species to travel without the risk of becoming desiccated.

7.2 Impacts to Wildlife

A. All Species. All wildlife species require food, water, and cover. Trees and woody plants provide two of these directly. Many wildlife species, particularly birds, shift their food habits seasonally. Many winter seed eaters switch to insects in summer. Some wildlife species are resident (they are present in the same general area all year). Many others are migratory. The main migratory periods in this area are: spring (April 15 through June 1); fall (August 15 through October 1). Migratory species are present only when passing through or during part of the year. Some species are here only in the summer and leave for warmer climates during the winter. Others breed north of the property and are present only during winter. A few species exhibit altitudinal migrations. That is, they spend part of the year at high elevations (summer, usually) and part of the year at low elevations (winter, usually). Direct impacts to wildlife biodiversity from the proposed development will primarily be displacement and direct loss of individuals that spend a large percentage of their life cycle underground. Species found on the property likely have already adapted to proximal human habitation. These species will remain on the undeveloped portion of the property since availability of basic habitat features (food, cover, and space) will remain and connective corridors will remain.

B. General Species Migration Patterns. The impact of habitat modification is most relevant for forest species, which includes forest interior birds, large mammals, amphibians and most reptiles. Of these species classes the less mobile amphibians and reptiles are more vulnerable to migratory barriers. Impacts to the habitats on a local level will not significantly affect large mammal, or migratory bird species movements since these species are highly mobile and not typically confined to small corridors within a property. Regulated wetlands on the property are left almost completely intact and are considered likely migratory corridors for wildlife species on the property, especially the more sensitive species of amphibians and reptiles. The prime migratory corridors and wildlife destinations for breeding found in the regulated wetlands will remain.

C. Threatened/Endangered Species. No other threatened or endangered species from the USFWS list or identified by the NYSDEC have the potential to be on the property.

D. Species of Special Concern. There were no marbled, blue spotted, or Jefferson salamanders or evidence of breeding by these species on the property. Also no spotted or wood turtle were observed on the property.

Eastern box turtle was encountered between vernal pool "U" and wetland VAA. It is clear that sufficient habitat will be available on the property for this species. The eastern box turtle is a small terrestrial turtle that possesses a high, domelike shell and a hinged plastron that allows total shell closure. The carapace can be of variable coloration, but is usually brownish or black and is adorned with a yellowish or orangish radiating pattern of lines, spots or blotches. Skin coloration, like that of the shell, is variable, but is usually brown with some yellow, orange, or white spots or streaks. Eastern box turtles possess a horny beak, stout limbs, and their feet are webbed only at the base. Box turtles are territorial: an individual turtle may spend its life in an area scarcely larger than a football field, provided habitat conditions remain favorable. Favoring moderately drained deciduous or mixed woodlands, particularly ones with sandy soil, the eastern box turtle is found almost exclusively on land. The species can also be found in thickets, fields, pastures, vegetated dunes, marshes and the edges of bogs. Areas with the highest turtle densities feature moist, open forest with ravines or mid-sized slopes. Access to water is important. The essential habitat characteristics such as open water and adjacent wooded area with good solar penetration to the ground layer coupled with thickets affords good potential habitat. Breeding age females often seek sandy/loamy soils to dig for nesting. The undeveloped portion of the property will remain habitat for this species.

8.0 MITIGATION MEASURES

Impacts relating to the road crossing were avoided as much as practicable by reducing grading and utilizing the area topography to site the road. The crossing design has minimized impacts as much as possible.

8.1 Mitigation for Impacts to Vegetation and Cover Types

The Applicant will minimize impacts by leaving undisturbed, naturally vegetated zones demarcated in the field by orange construction fencing and by clearing only necessary areas within the Limit of Disturbance area or within building envelopes.

The upland forest areas impacted by the development will not be fully replaced but will be enhanced by revegetating some areas within the development after construction with native plant material. Contiguous forested wetland areas and upland forest areas will continue to provide natural habitat and migratory corridors for many species. Native plantings may provide wildlife with some habitat and food source.

Other habitat aspects of the property should be preserved and include existing stonewalls and standing dead trees (snags). Old stonewalls provide microhabitats for small mammals, herptiles, and invertebrates. Snags provide perching, nesting, and feeding areas for a wide variety of wildlife. These elements or parts thereof should be protected where possible. Impacts from habitat and forest fragmentation can be minimized by maintaining substantial corridors between natural habitat areas. Connecting corridors do not have to be entirely unbroken, as long as breaks in the natural vegetation are not excessive.

The property provides year-round habitat for most of the species located there. The property will continue to be "connected" to adjacent undeveloped properties so that potential wildlife migratory routes remain.

8.2 Mitigation for Wildlife Impacts

Temporary wildlife displacement during construction is a short-term impact that will occur. In as much as possible earth moving and tree clearing activities should occur in phases to allow species to migrate and return unhindered to home. The stormwater basins proposed for the property once developed may also be utilized by some amphibians if hydrology is persistent. In addition, curbs should be used on internal roads and amphibian crossings should be installed in select locations to allow herpetiles to migrate through the property without obstruction.

Eastern box turtles use wooded upland habitats as well as shallow aquatic habitats. As stated above these habitats will remain on the property intact and will continue to support this species. No mitigation or habitat enhancement is proposed for this species. Although not mitigation for impacts, general amphibian microhabitat requirements that will remain intact on the property include:

- Breeding locations that hold water at least into June,
- Woody debris in adjacent forested areas,
- Canopy cover over breeding and foraging areas, and

- Deciduous leaf litter for moisture retention and feeding,

General reptile microhabitat requirements that will remain intact on the property include:

- Woody debris (standing and down),
- Small open patches for basking, mixed with well shaded areas during drought periods,
- Undisturbed areas in and around wetlands for feeding and breeding, and
- Access to safe den areas.

The habitat requirements listed above will remain intact with this proposed development plan and because large contiguous portions of the property particularly adjacent to wetlands will remain in a naturalized state.

9.0 REFERENCES

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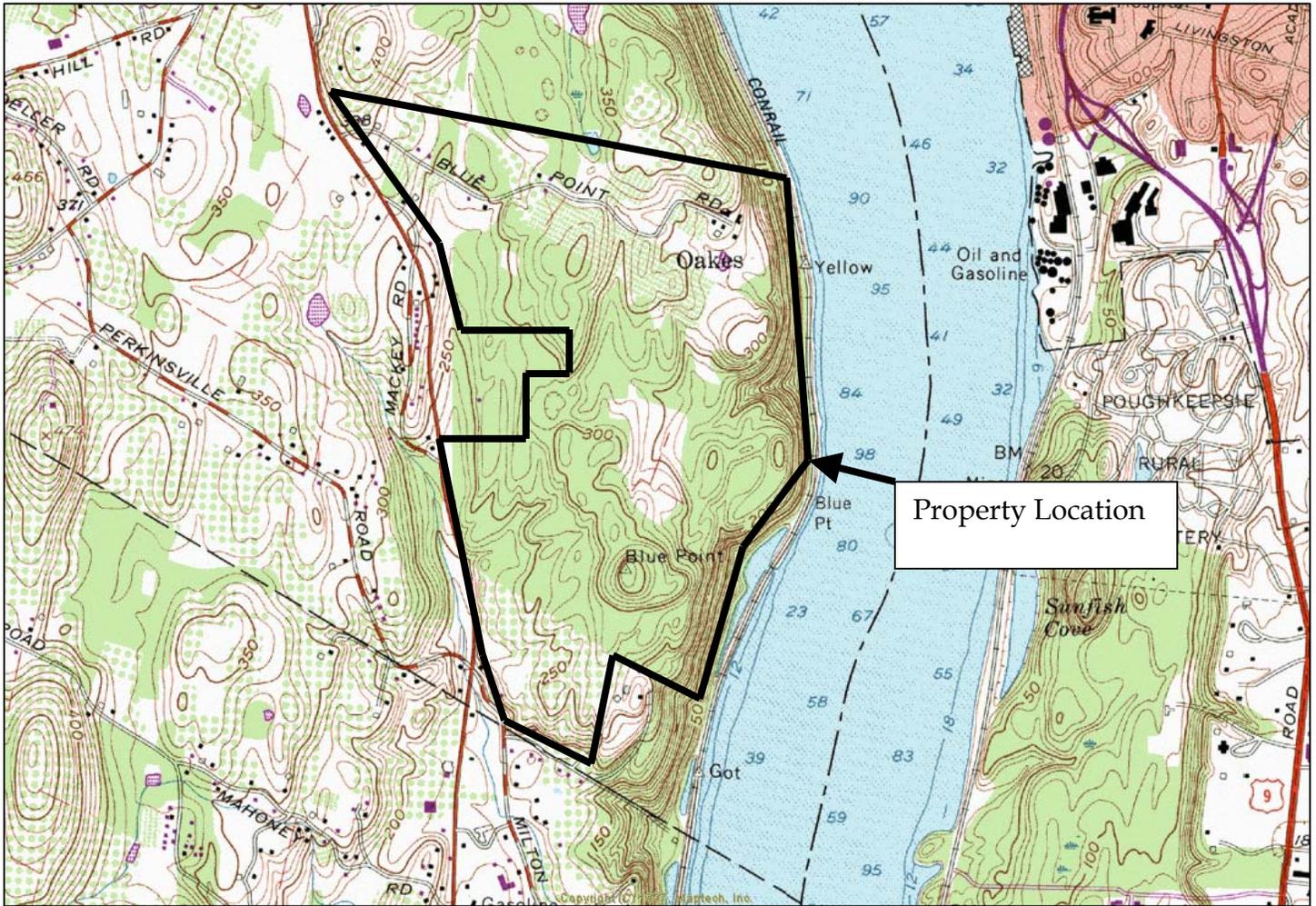


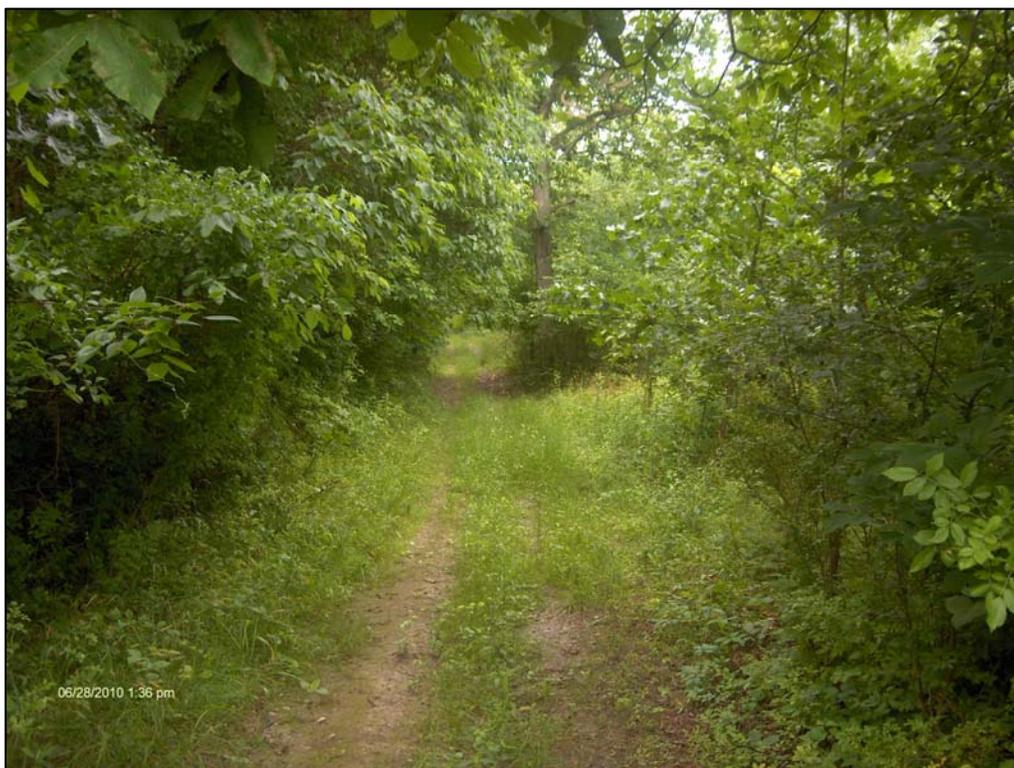
Figure 1 Location Map

Figure 2 Habitat Map

Typical area of Rich Mesophytic Forest on the property



Trail through Rich Mesophytic Forest on the property



Brown snake shed on trail in Appalachian Forest Type



Appalachian Oak-Hickory Forest on the property



Group	Name
Flowering Plants	Northern wild monkshood
Mammals	Indiana bat (<i>Myotis sodalis</i>)
Reptiles	Bog (=Muhlenberg) turtle

USFWS LIST – Ulster County

Mr. Nowicki,

On 3/9/2010 Mike Nowicki, James Pinheiro and Brian Drumm from NYSDEC meet at the property of the former Hudson Valley Winery in the Town of Lloyd, Ulster County. The NYSDEC Article 24 Freshwater Wetland Regulatory Maps do not currently depict any state regulated wetlands in the vicinity of this parcel. Wetlands that are 12.4 acres (5 hectares) or larger are eligible to be regulated by NYSDEC under Article 24. Wetlands that are less than 12.4 acres that have been determined to have "unusual local importance" can also be regulated by NYSDEC under Article 24.

Numerous wetlands have been identified on property. These wetlands are depicted on a set of maps entitled *Hudson Valley Winery Route 9W and Blue Point Road Highland, NY Town of Lloyd Topographic Plan - Wetland Jurisdiction*, Dated October 23, 2009 and last revised 12/16/2009 as per ACOE property wetland validation.

Based on the property visit to the subject property and observations of adjacent parcels from the property line and orthophotos it does not appear that any of the wetlands on this parcel are greater than 12.4 acres in total including adjacent parcels. As shown on the above referenced map wetland VAA is about 10.37 acres in total and wetland HA is about 10.53 acres in total, including adjacent parcels. The remaining wetlands on property are significantly smaller than 12.4 acres. No wetlands on property are eligible to be regulated by NYSDEC under Article 24 based on the size threshold of 12.4 acres.

If you have any questions please do not hesitate to contact me.

Brian Drumm
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845-255-4659 - fax

>>> <ecolsol@aol.com> 3/10/2010 7:13 AM >>>

Brian, Jim

Thanks for walking the property yesterday to determine if there are any potential NYSDEC regulated wetlands on the property. We field checked the wetlands to determine if any were 12.4 acres in size and if any could be combined to add up to that total.

As discussed rather than go through an Environmental Analyst for a formal response it would be sufficient to send me an email with your findings.

Thanks Mike

NYSDEC Wetland email



DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

MAY 3 - 2010

REPLY TO
ATTENTION OF:

Regulatory Branch

SUBJECT: Permit Application Number NAN-2009-00590-WOR
by Hudson Valley Winery Village Inc.

Andrew J. Didio
Crawford & Associates Engineering, PC
551 Warren Street, Suite 301
Hudson, New York 12534

Dear Mr. Didio:

On May 20, 2009, the New York District of the U.S. Army Corps of Engineers received a request for a Department of the Army jurisdictional determination for the above referenced project. The site consists of approximately 401.4 acres, in the Hudson River watershed, located on Blue Point Road in the Town of Lloyd, Ulster County, New York.

In a letter received on November 16, 2009, your office submitted a complete proposed delineation of the extent of waters of the United States within the subject property. A site inspection was conducted by a representative of this office on December 2, 2009, in which it was agreed that changes would be made to the delineation and that the modified delineation would be submitted to this office. On April 27, 2010, this office received the modified delineation.

Based on the material submitted and the observations of the representative of this office during the site visit, this site has been determined to contain jurisdictional waters of the United States based on: the presence of wetlands determined by the occurrence of hydrophytic vegetation, hydric soils and wetland hydrology according to criteria established in the 1987 "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1 that are either adjacent to or part of a tributary system; the presence of a defined water body (e.g. stream channel, lake, pond, river, etc.) which is part of a tributary system; and the fact that the location includes property below the ordinary high water mark, high tide line or mean high water mark of a water body as determined by known gage data or by the presence of physical markings including, but not limited to, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter or debris or other characteristics of the surrounding area.

These jurisdictional waters of the United States are shown on the drawings entitled "Hudson Valley Winery Route 9w and Blue Point Road Highland, N.Y. Town of Lloyd Topographic Plan-Wetland Jurisdiction", Sheet Numbers ACOE.1 through ACOE.8, prepared by Tinkelman Architecture PLLC, dated October 23, 2009, Sheet Numbers ACOE.1 and ACOE.5 last revised March 11, 2010, and Sheet Numbers

ACOE.2 through ACOE.4 and ACOE.6 through ACOE.8 last revised December 16, 2009. These drawings indicate that there are nine (9) principal wetland areas and a portion of the Hudson River on the project site which are part of a tributary system, and are considered to be waters of the United States.

The first two wetlands (Wetlands D and E) are located on the northeastern portion of the property and are a total of approximately 0.98 acres. The third, fourth and fifth wetlands (Wetlands GM, HA and N) are located on the northwestern portion of the property and are a total of approximately 14.09 acres within the subject property. The sixth, seventh and eighth wetlands (Wetlands K, L and W) are located on the southwestern portion of the property and are a total of approximately 5.91 acres within the subject property. The ninth wetland (Wetland VAA) is located on the central portion of the property and is approximately 10.37 acres within the subject property. A portion of the Hudson River, below its mean high water line, is located along the eastern property line and is approximately 6.28 acres within the subject property.

It should be noted that, in light of the U.S. Supreme Court decision (Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers, No. 99-1178, January 9, 2001), the remainder of the wetlands shown on the above referenced drawing (Wetlands A, B, C, F, G, O, P, Q, R, U and X) do not meet the current criteria of waters of the United States under Section 404 of the Clean Water Act. The Court ruled that isolated, intrastate waters can no longer be considered waters of the United States, based solely upon their use by migratory birds.

This determination regarding the delineation shall be considered valid for a period of five years from the date of this letter unless new information warrants revision of the determination before the expiration date.

This determination was documented using the Approved Jurisdictional Determination Form. A copy of that document is enclosed with this letter, and will be posted on the New York District website at:
<http://www.nan.usace.army.mil/business/buslinks/regulat/jurisdet/index.htm>.

This delineation/determination has been conducted to identify the limits of the Corps Clean Water Act jurisdiction for the particular site identified in this request. If you object to this determination, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed is a combined Notification of Appeal Process (NAP) and Request For Appeal (RFA) form. If you request to appeal this determination you must submit a completed RFA form to the North Atlantic Division Office at the following address:

Michael G. Vissichelli, Administrative Appeals Review Officer
North Atlantic Division, U.S. Army Engineer Division
Fort Hamilton Military Community
General Lee Avenue, Building 301
Brooklyn, New York 11252-6700

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR Park 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by JUL 2 - 2010. It is not necessary to submit an RFA form to the Division Office if you do not object to the determination in this letter.

This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service prior to starting work.

It is strongly recommended that the development of the site be carried out in such a manner as to avoid as much as possible the discharge of dredged or fill material into the delineated waters of the United States. If the activities proposed for the site involve such discharges, authorization from this office may be necessary prior to the initiation of the proposed work. The extent of such discharge of fill will determine the level of authorization that would be required.

In order for us to better serve you, please complete our Customer Service Survey located at <http://www.nan.usace.army.mil/business/buslinks/regulat/survey.htm>

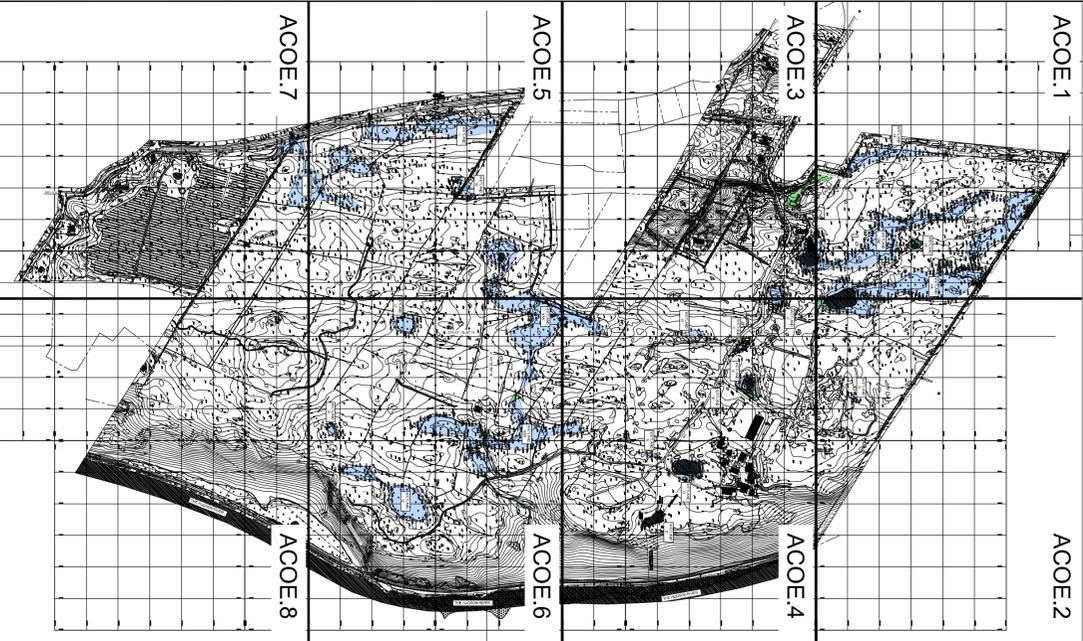
If any questions should arise concerning this matter, please contact Brian A. Orzel, of my staff, at (917) 790-8413.

Sincerely,



Christopher S. Mallery, Ph.D.
Chief, Western Section

Enclosures



1 INDEX SITE PLAN LEGEND
 NOT TO SCALE

TOTAL PROPERTY AREA: 401.4 ACRES
 LONGITUDE: 073 57 15.44" W LATITUDE: 041 40' 57.59" N
 SEE SHEET AC0E.6 FOR LONGITUDE & LATITUDE INTERSECTION

3 PROJECT INFORMATION
 NOT TO SCALE

PROPERTY OWNER: HUDSON VALLEY WINERY VILLAGE, INC.
 44 STONEWALL DRIVE
 LIVINGSTON, NJ 07039

ARCHITECT: TINKELMAN ARCHITECTURE, PLLC
 295 MAIN STREET, FLOOR 3
 POUGHKEEPSIE, NY 12601

PLAN NOTES:

1. THE BASE MAP TOPOGRAPHIC INFORMATION INCLUDING THE LONGITUDE AND LATITUDE INFORMATION WAS DEVELOPED FROM DRAWINGS THAT WERE PREPARED BY MAPMAKER PHOTOGRAMMETRIC SERVICES, ST. ALBANS, VERMONT.
2. THE BASE MAP SURVEY INFORMATION INCLUDING THE PROPERTY BOUNDARY, BUILDING, & ROADS WERE DEVELOPED FROM THE DRAWINGS PREPARED BY SANTO ASSOCIATES, CATSKILL, NEW YORK.
3. THE WETLANDS WERE DELINEATED IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS (ACOE) WETLAND DELINEATION MANUAL, 1987. THE WETLAND LINES ARE SUBJECT TO CONFIRMATION FROM THE U.S. ACOE.
4. THE WETLAND BOUNDARIES WERE RE-FLAGGED AND FLAG LOCATIONS WERE COLLECTED IN APRIL 2009 BY CRAWFORD AND ASSOCIATES ENGINEERING, P.C., HUDSON, NEW YORK. FLAG LOCATIONS WERE COLLECTED USING A TRIMBLE (R) SURVEY-GRADE HANDHELD GPS UNIT, PROVIDED BY SANTO ASSOCIATES LAND SURVEYORS, CATSKILL, NEW YORK.

ACOE.1

ACOE.2

ACOE.3

ACOE.4

ACOE.5

ACOE.6

ACOE.7

ACOE.8

WETLAND SUMMARY TABLE

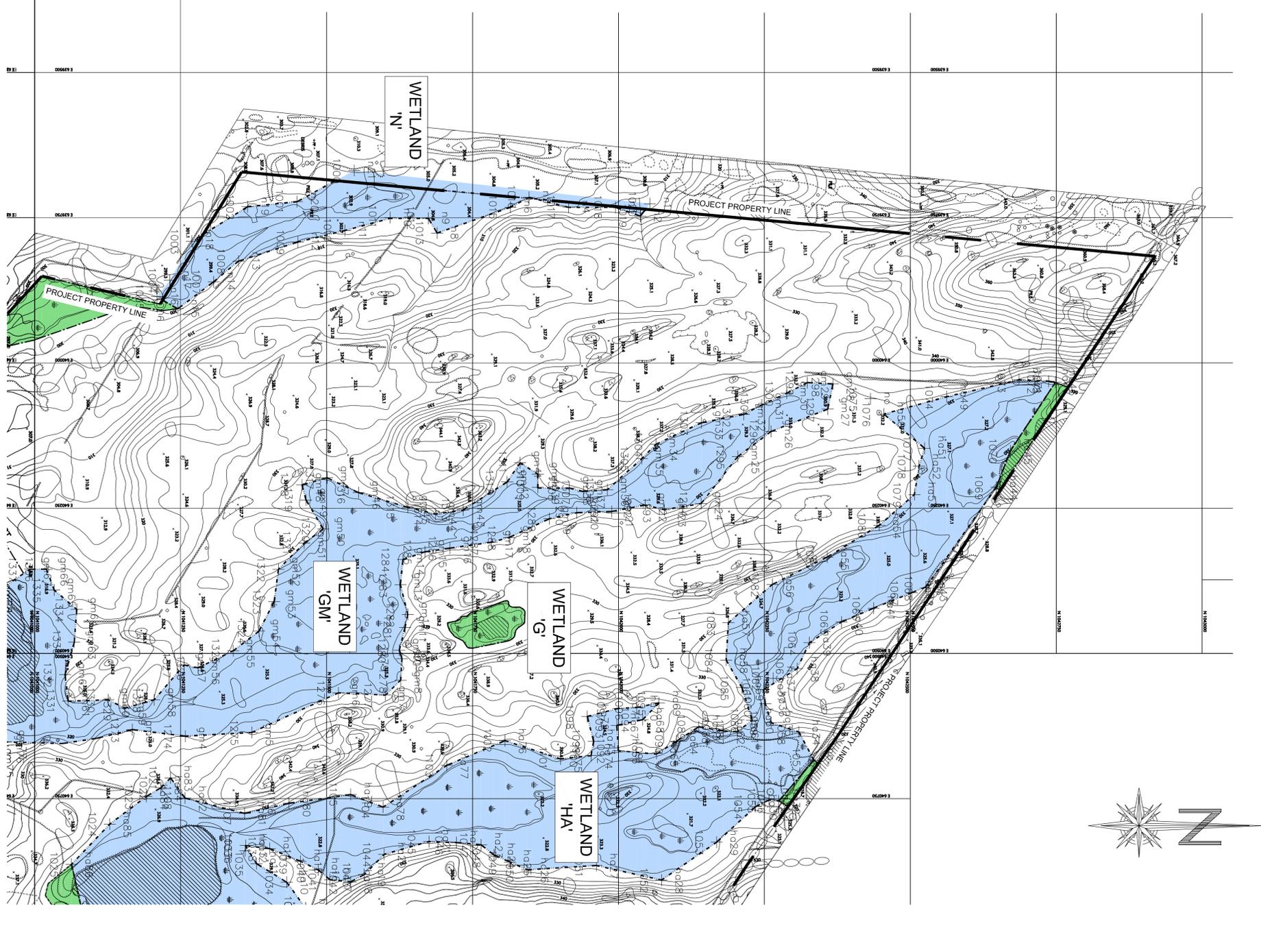
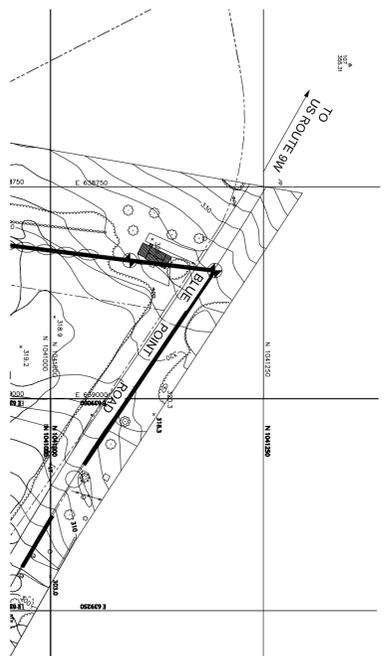
WETLAND IDENTIFICATION	WETLAND AREA (SQ. FT.)	WETLAND AREA (ACRES)
A	17,827 sf	0.41
B	2,381 sf	0.05
C	4,842 sf	0.11
D	31,154 sf	0.72
E	11,510 sf	0.26
F	21,556 sf	0.49
G	6,804 sf	0.16
GM	213,500 sf	4.90
HA	328,567 sf	7.54
K	131,097 sf	3.01
L	118,845 sf	2.73
N	71,875 sf	1.65
O	1,327 sf	0.03
P	9,493 sf	.22
Q	94,340 sf	2.16
R	5,613 sf	0.13
U	20,884 sf	0.48
W	5,626 sf	0.13
VAA	451,795 sf	10.37
X	2,809 sf	0.06
TOTAL	1,551,845 sf	35.61

AREA OF PROPERTY BELOW THE MEAN HIGH WATER LEVEL

AREA (SQUARE FOOT)	AREA (ACRES)
273,758 sf	6.28

4 PROJECT SITE LEGEND
 NOT TO SCALE

- PROJECT PROPERTY LINE
- MEAN HIGH WATER LEVEL FOR THE HUDSON RIVER
- EXISTING BUILDINGS
- EDGE OF TREE LINE
- INDIVIDUAL TREES & HEDGES
- STONE WALLS
- RAILROAD TRACKS
- PONDS
- FLAGGED WETLAND AREAS/FLAG IDENTIFICATIONS
- AREA OF WETLAND MODIFIED AS PER ACOE SITE WALK-THRU
- AREA OF PROPERTY BELOW MEAN HIGH WATER LEVEL



Hudson Valley Winery
 Route 9w and Blue Point Road
 Highland, N.Y. Town of Lloyd

REVISIONS

Revised as per AC0E 12/16/2009 site wetland validation comments
 Revised as per AC0E 11/11/2009 comments

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TINKELMAN ARCHITECTURE PLLC

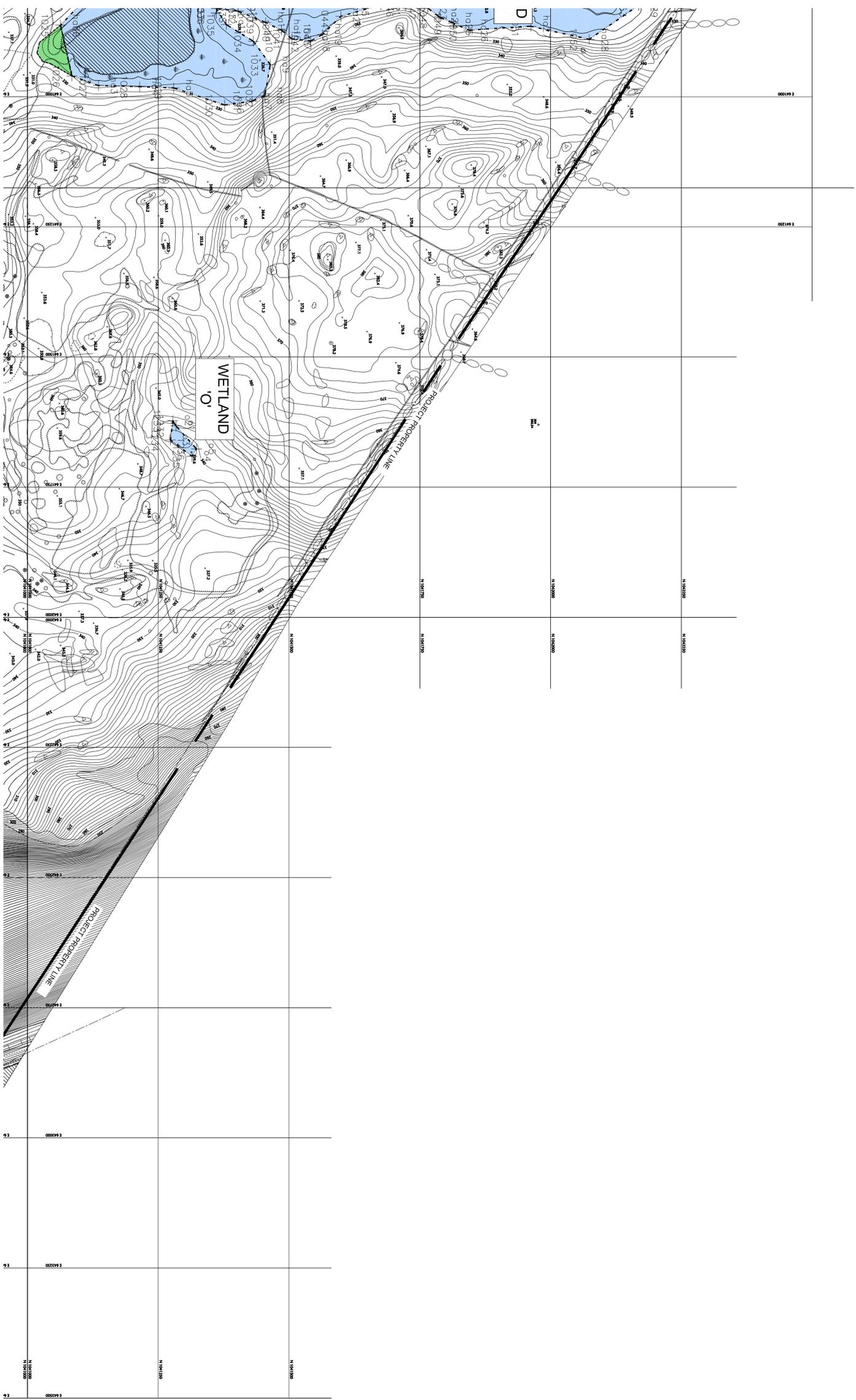
T.A.

295 MAIN STREET
 POUGHKEEPSIE, NEW YORK

Topographic Plan -
 Wetland Jurisdiction

DRAWN BY: NET
 JOB No. Y0811
 DATE: 23 Oct 2009

ACOE.1



4 TOPOGRAPHIC & WETLAND SITE PLAN
T.T. 10/09

<h1>Hudson Valley Winery</h1> <p>Route 9w and Blue Point Road Highland, N.Y. Town of Lloyd</p>	
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<p>REVISIONS</p>	

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||
||



Hudson Valley Winery

Route 9w and Blue Point Road
Highland, N.Y. Town of Lloyd

REVISIONS

Revised as per ACOE 12/16/2009
site wetland validation
Revised as per ACOE 11/11/2009
comments:

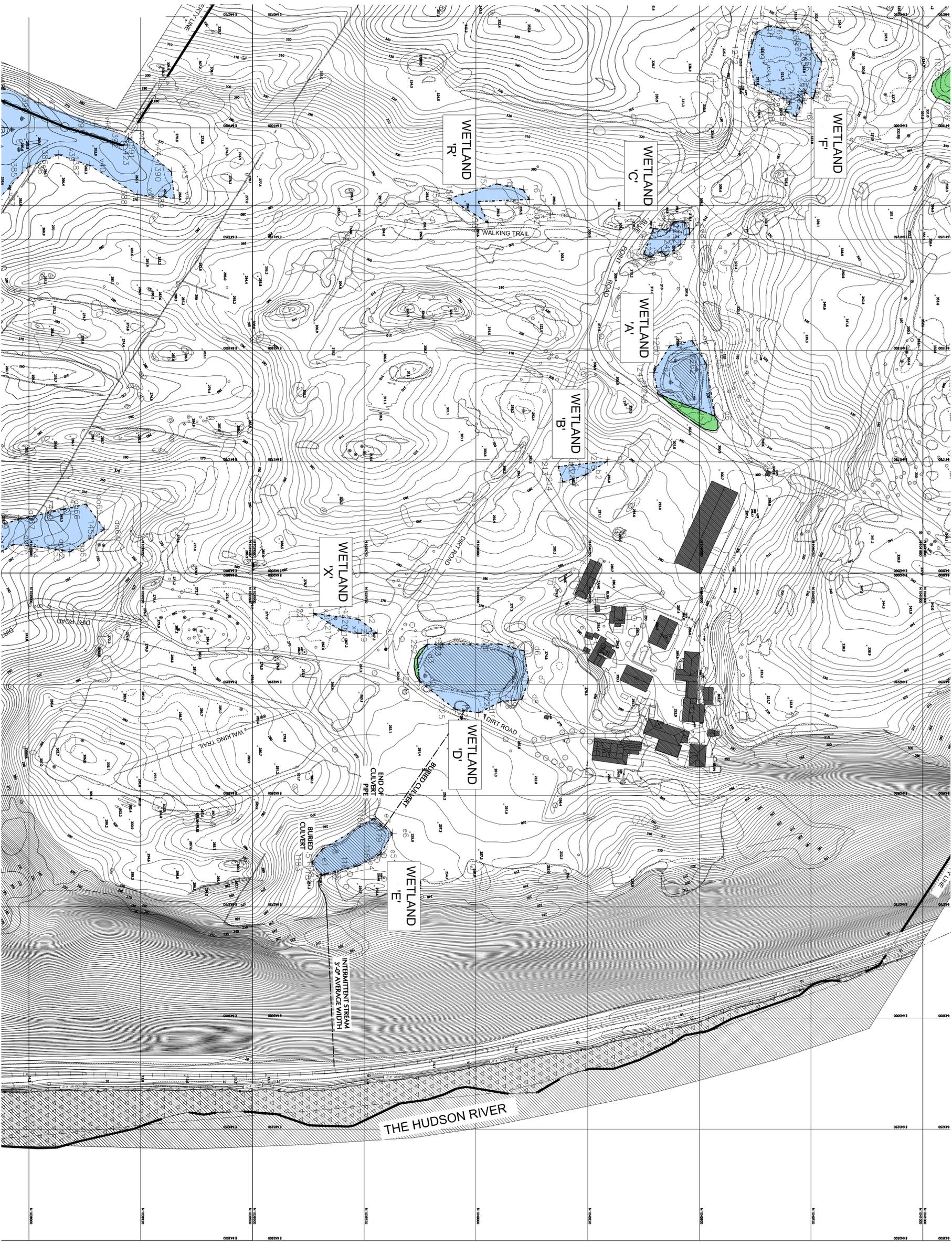
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295 MAIN STREET
POUGHKEEPSIE, NEW YORK

Topographic Plan -
Wetland Jurisdiction
DRAWN BY:
JOS. No. Y0811
DATE: 23 Oct 2009
ACOE.3

5 TOPOGRAPHIC & WETLAND PLAN



Hudson Valley Winery

Route 9w and Blue Point Road
Highland, N.Y. Town of Lloyd

REVISIONS

Revised as per ACOE 12/16/2009
site wetland validation
Revised as per ACOE 11/11/2009
comments

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295 MAIN STREET
POUGHKEEPSIE, NEW YORK

Topographic Plan -
Wetland Jurisdiction

ACOEF.4
DATE: 23, Oct 2009

6 TOPOGRAPHIC & WETLAND SITE PLAN
T-10007



A

B

C

D

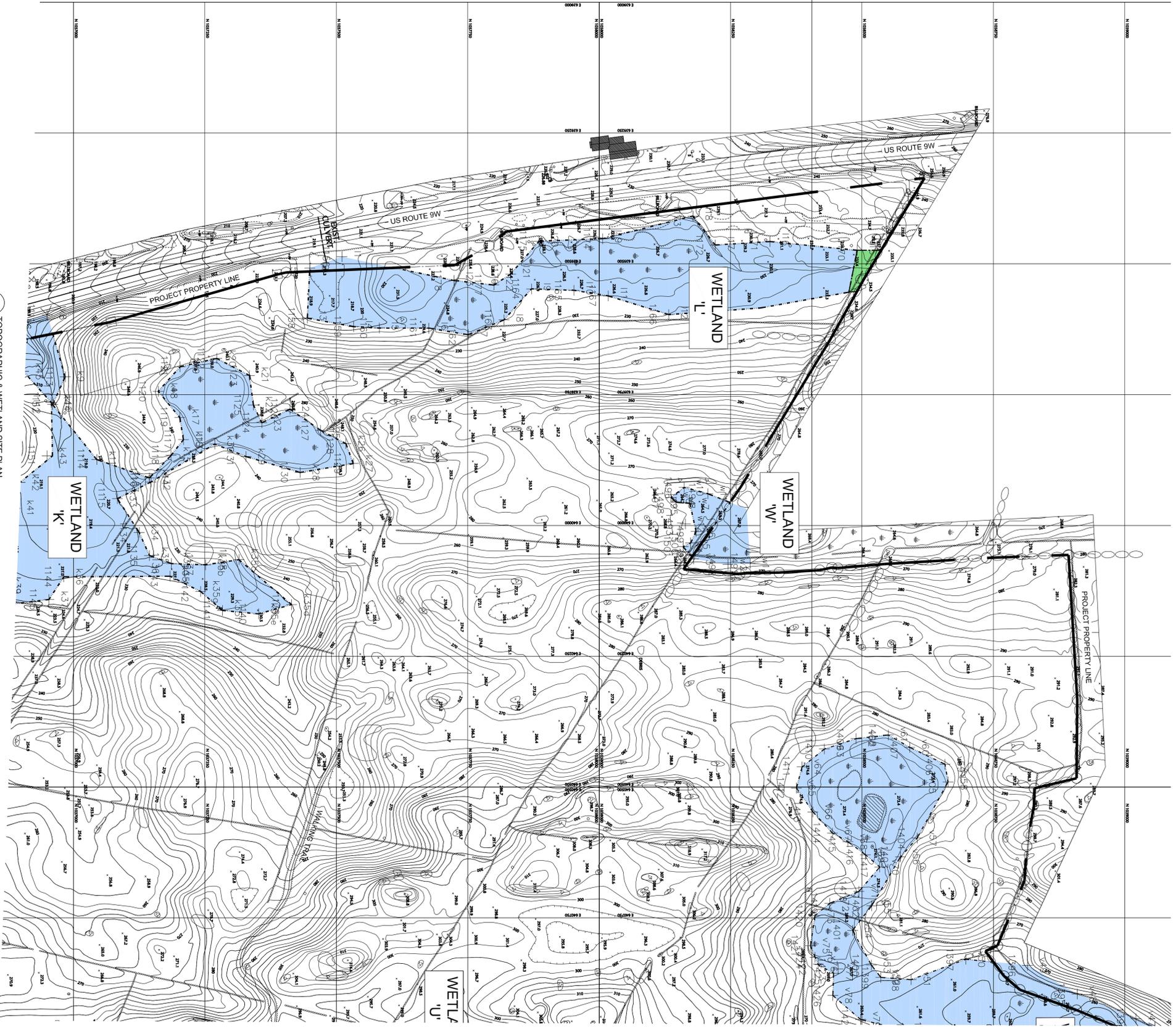
1

2

3

4

5



7 TOPOGRAPHIC & WETLAND SITE PLAN
T.A. - 10/2009

Hudson Valley Winery

Route 9w and Blue Point Road
Highland, N.Y. Town of Lloyd

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295 MAIN STREET
POUGHKEEPSIE, NEW YORK
**Topographic Plan -
Wetland Jurisdiction**

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Hudson Valley Winery

Route 9w and Blue Point Road
Highland, N.Y. Town of Lloyd

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Wetland Jurisdiction

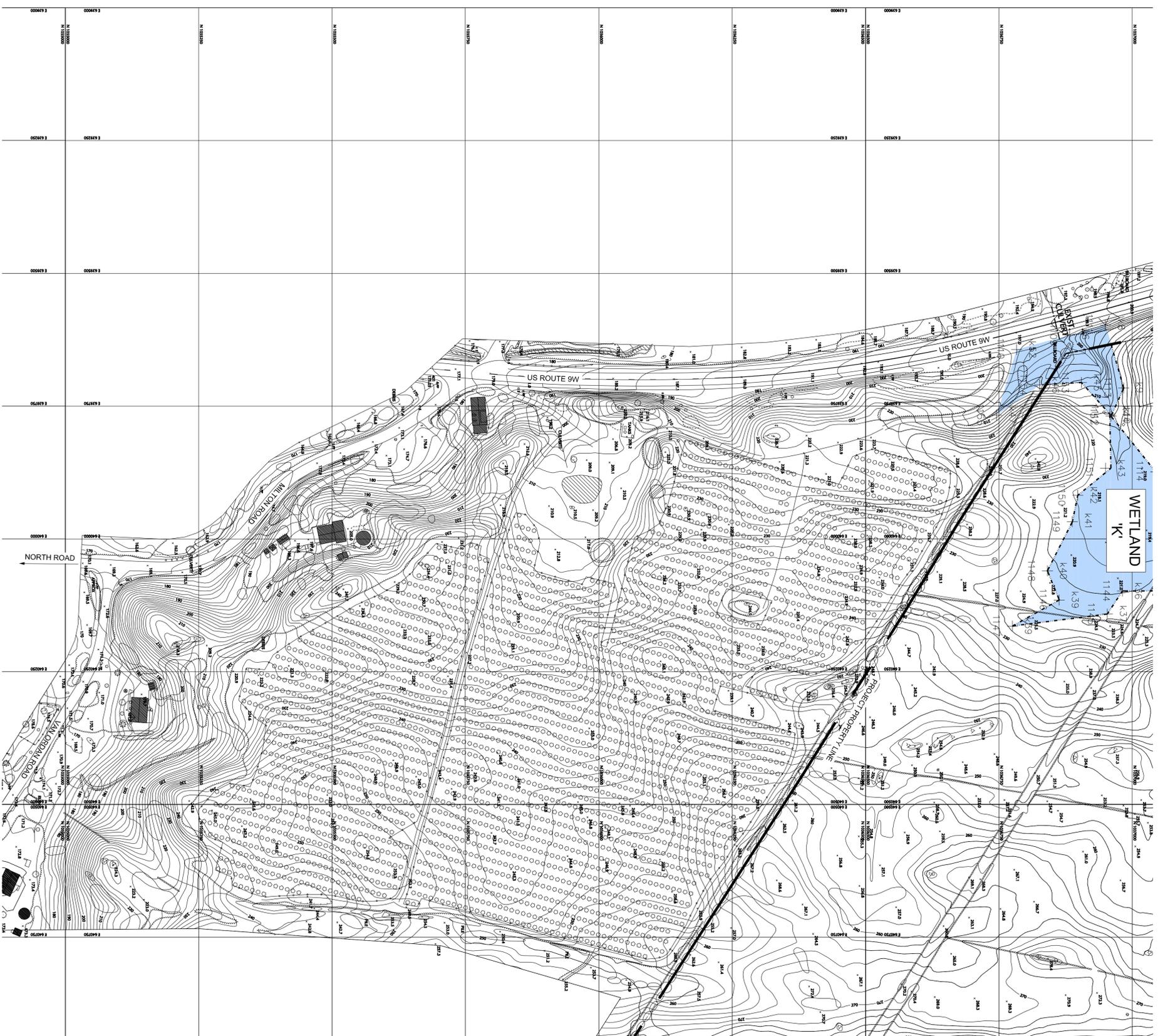
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JOB No.
Y0811
DATE:
23 Oct 2009

ACOE.6

8 TOPOGRAPHIC & WETLAND SITE PLAN
TT = 100/2'

1 2 3 4 5



9 TOPOGRAPHIC & WETLAND SITE PLAN
1"=100'-0"

Hudson Valley Winery

Route 9W and Blue Point Road
Highland, N.Y. Town of Lloyd

REVISIONS

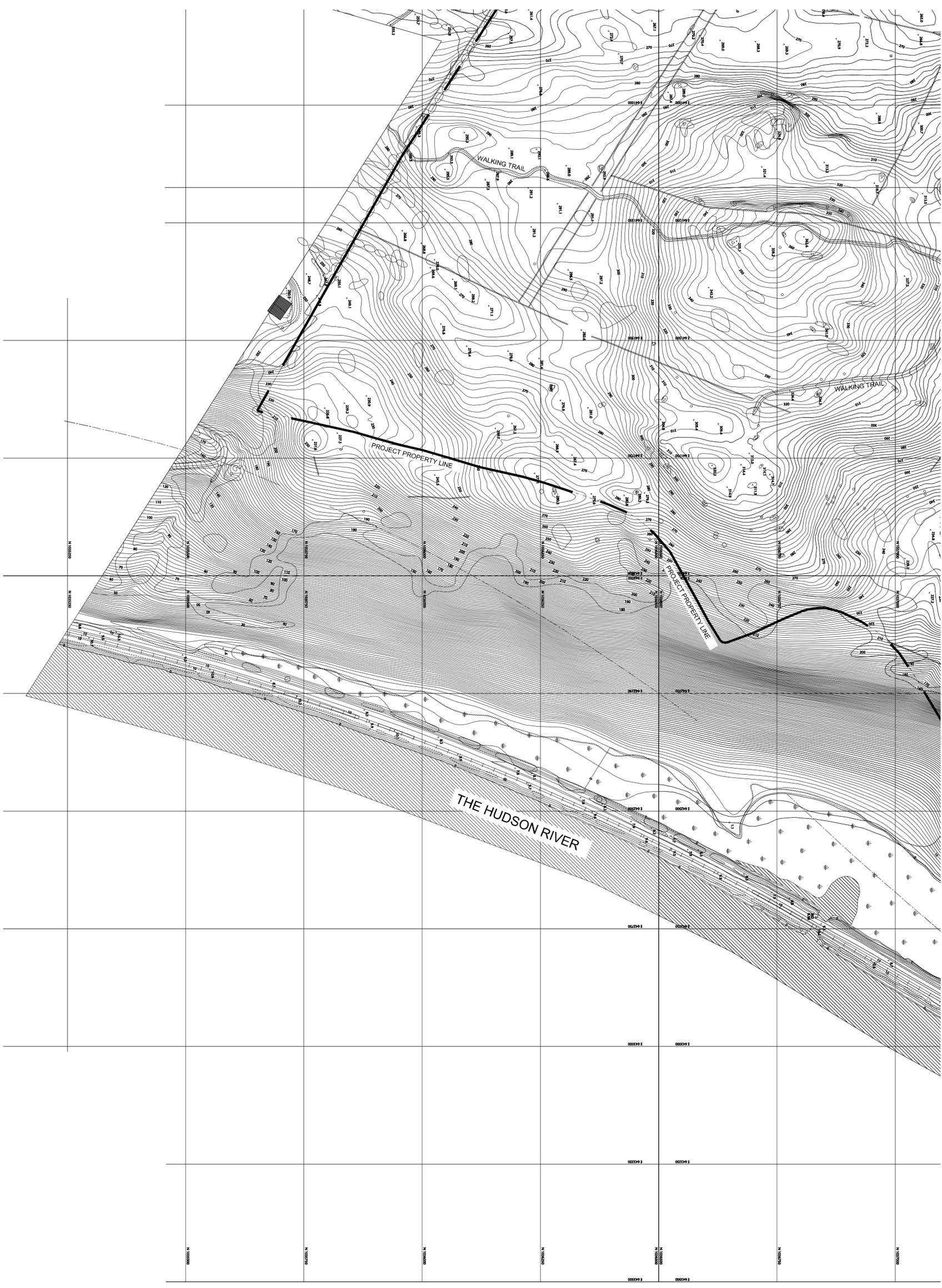
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Topographic Plan -
Wetland Jurisdiction

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DATE:
23 Oct 2009
ACOE.7



Hudson Valley Winery

Route 9w and Blue Point Road
Highland, N.Y. Town of Lloyd

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**Topographic Plan -
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23, Oct/2009
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10 TOPOGRAPHIC & WETLAND SITE PLAN
1"=100'

1 2 3 4 5