3.7 Wetlands

3.7.1 Existing Conditions

The majority of the subject site lies within the Peekskill Hollow Brook watershed, although the southeast corner of the site drains to the Muscoot Reservoir watershed. A flattened ridgeline generally runs diagonally across the property from northeast to southwest, with topographic elevations ranging from 614 to 533 feet. The site produces runoff that is conveyed through the existing low gradient drainageways that make up most of the site regulated wetlands. A portion of the northern part of the site drains to the south and ultimately to the New Croton Reservoir.

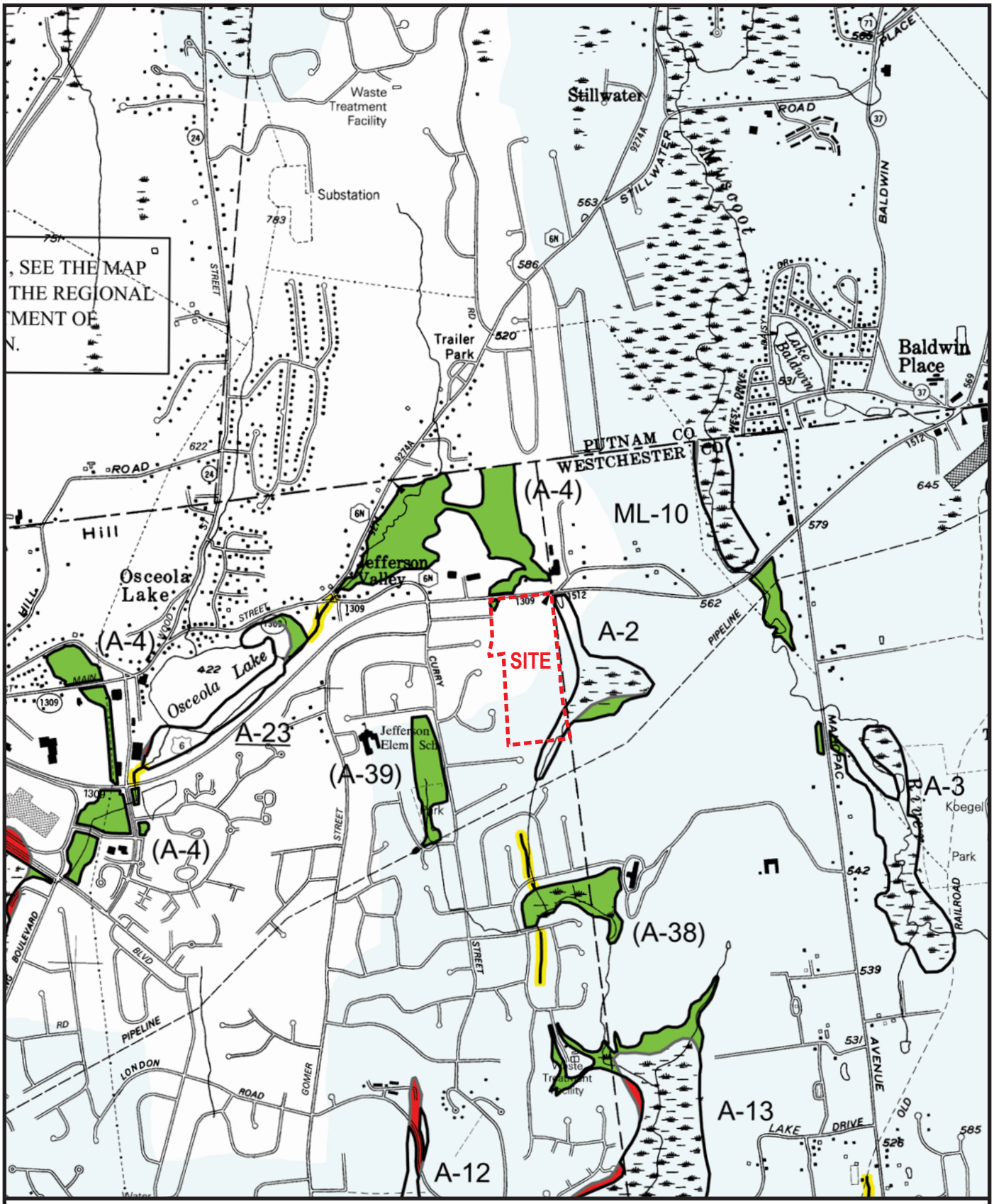
Wetlands on site were delineated in conformance with New York State, federal and Town of Yorktown criteria. Copies of the New York State DEC Wetland Map and National Wetlands Inventory map are presented as Figures 3.7-1 and 3.7-2. The proposed revisions to the New York State DEC Wetland map shows the approximate extent of DEC Wetland A-2, and shows it extending onto the subject property in its southeast corner. Field delineation was revisited on June 23, 2003, and it was confirmed that the southeast corner of this site is in fact a part of Wetland A-2 (identified as Wetland D in this analysis).

The delineation of the New York State DEC and Town-regulated wetlands was done in conjunction with site walks with staff from the Yorktown Planning Department in 2003 and early 2004. The original delineation and consultation with the Town was done in 2000; several revisions have been made to the wetland boundaries as shown on the submitted subdivision plan.

Wetland B and C (as described below) were originally delineated as separate wetland features, using the three parameter approach used by the Army Corps of Engineers and defined in the ACOE 1987 Delineation Manual. Since the original 2003 delineation, the Town expressed concern that the wetland may be larger in size according to Town delineation criteria, which requires only one of three parameters. Paul Jaehnig, a certified Professional Geologist, inspected the site and connected wetlands B and C by determining that hydric soils were present in the intervening area, although vegetative dominance and visible hydrology were absent. Wetlands B and C are now combined for the sake of this Town review and are evaluated as one wetland rather than two.

Based on the current plan, the applicant is seeking approval of a wetland permit from the Town of Yorktown Planning Board for the filling of a portion of Wetland B/C (described below), a crossing of Wetland B/C and for activities within the 100 foot setback to Town wetlands. Based on input from the Planning Board, the applicant is also proposing a road crossing of Wetland A for access from Gay Ridge Road, and construction of a stormwater management basin, parking area and soccer field within the 100 foot regulated setbacks. Proposed disturbance areas are discussed below.

Table 3.7-1 lists all of the regulated site features, including a description of size, wetland type and regulatory jurisdiction.



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File 0326 Fig 3.7-1 02/13/04

Figure 3.7-1: Project Site on NYSDEC Wetlands Map

Yorktown Farms Subdivision

Town of Yorktown, Westchester County, New York

Source: Proposed NYSDEC Wetlands Map Revision (2004), Lake Mohegan Quad

Scale: 1" = 2000'

* Note - Green areas are NYSDEC proposed additions to State-regulated wetlands, and have not yet been finalized.

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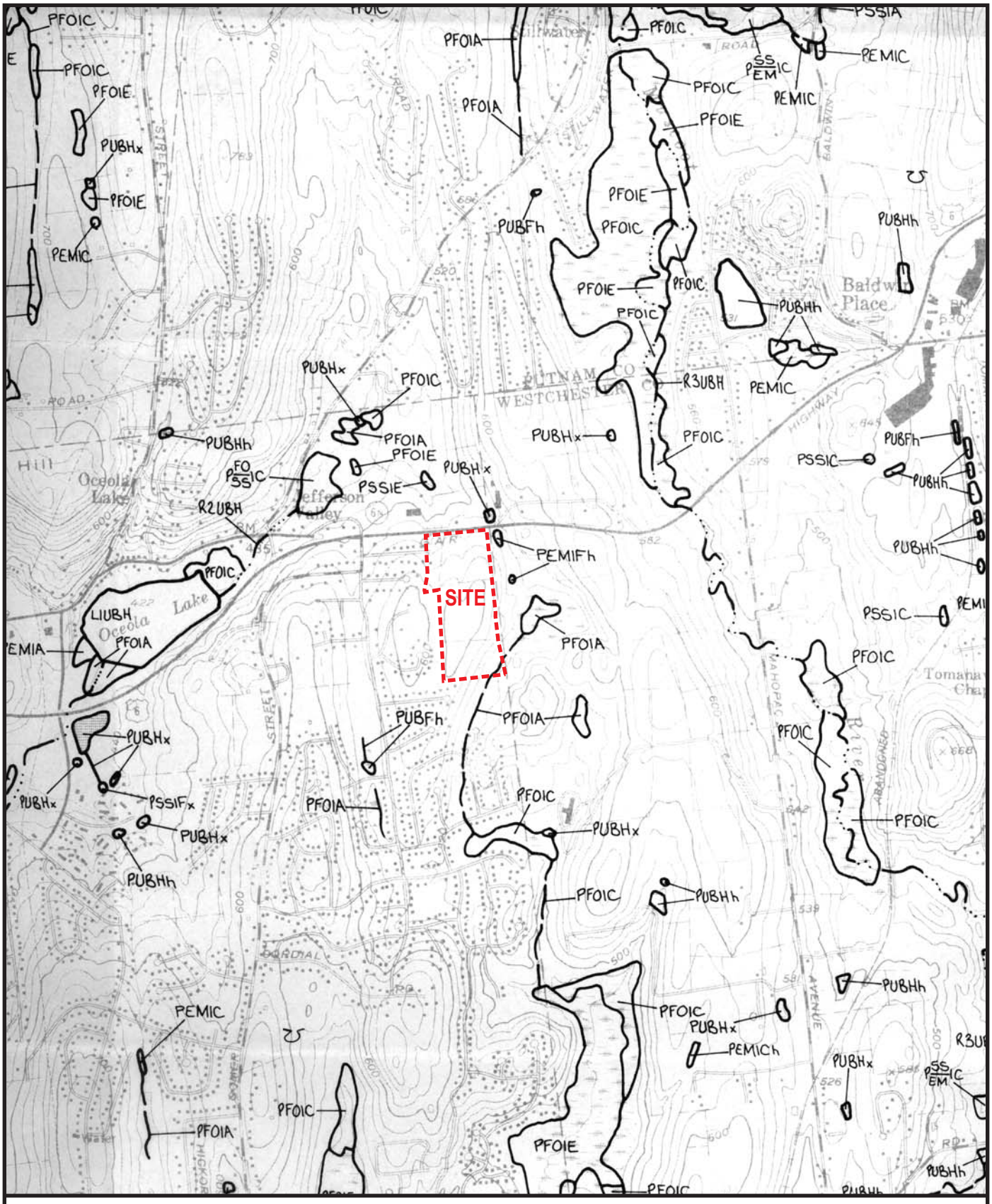

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File 0326 Fig 3.7-2 02/13/04

Figure 3.7-2: Project Site on NWI Map

Yorktown Farms Subdivision

Town of Yorktown, Westchester County, New York

Source: National Wetlands Inventory Map, Mohegan Lake Quad

Scale: 1" = 2000'

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

Table 3.7-1 **Site Wetlands** Yorktown Farms Subdivision, Yorktown				
Wetland ID	**Wetland Area (ac.)**	**Wetland Description**	**Regulatory Jurisdiction**	**Regulated Setback**
A (DEC A-4)	2.29	Drainageway	NYSDEC/ACOE/Y	100 feet
B/C	1.56*	Drainageway	ACOE/Y*	100 feet
D (DEC A-2)	1.77	Swamp	ACOE/NYSDEC/Y	100 feet
Total	5.62			
* Of the 1.56 ac. shown for Wetland B/C, 1.04 acres is regulated by the ACOE. The remainder is regulated by the Town of Yorktown.				

Functional Analysis

Included below with the description of each site wetland area is an evaluation of wetland functions. This evaluation was completed using parameters set up in Magee Hollands "Rapid Procedure for Assessing Wetland Functional Capacity." The model is set up to allow evaluation of several parameters related to wetland value and function. These parameters are:

1. Position in the landscape
2. Hydrology
3. Soils
4. Vegetation

These parameters are further divided into a number of specific variables, including:

1. Modification of groundwater discharge
2. Modification of groundwater recharge
3. Storm and Flood-water storage
4. Modification of Stream Flow
5. Modification of Water Quality
6. Export of Detritus
7. Contribution to Abundance and Diversity of Wetland Vegetation
8. Contribution to Abundance and Diversity of Wetland Fauna

Using these parameters as a basis for evaluation of the wetlands, it is possible to estimate the functional capacity of each area.

Wetland A

Wetland A is made up of a drainage corridor that flows from south to north along the western edge of the property (Figure 3.7-3). This drainageway begins in a flat area behind the cul de sac at Stonewall Court. Runoff from the adjacent slopes to the east and west collect in Wetland A and are conveyed to a culvert under Route 6. Within the corridor, seasonally saturated soil conditions have developed that resulted in a dominance of vegetation that is tolerant of wet conditions, including red maple, green ash, American elm, spicebush and winterberry. Groundcovers include tussock sedge, skunk cabbage and sphagnum moss. Braided intermittent channels carry runoff through the wetland, and runoff occasionally collects in small pockets. Canopy cover is relatively dense, with high stem count within the wetland mostly made up of young trees.

Soils within this wetland are generally typical of a Ridgebury loam, as shown on the Westchester County Soil Survey. The Ridgebury series consists of very deep, poorly and somewhat poorly drained soils formed in a coarse loamy mantle underlain by firm, compact glacial till. They occupy slopes ranging from 2 to 8 percent on uplands. The soils are formed in glacial till derived mainly from schist, gneiss or granite. These soils are very stony. A seasonal water table may exist within a depth of 1.5 feet during the Winter and Spring months. Permeability is moderate to moderately rapid in the surface layer and subsoil and slow or very slow in the substratum.

Following a site walk with a representative of the New York State DEC on April 20, 2004 to confirm the wetland boundary, a determination was made by the New York State DEC that this wetland is a part of New York State DEC Wetland A-4. Therefore any activities within 100 feet of this wetland would be regulated by the New York State DEC.

Wetland Function

In total this system covers approximately 2.29 acres of the site. Additional area extends to the south on Town-owned property. The primary function and benefit of the Wetland A corridor is storm and flood water control, the modification of stream flow and the modification of water quality. This low gradient, densely vegetated wetland helps to filter flows running off from the residences on Gay Ridge Road, Stonewall Court and other adjacent residential streets, as well as the undeveloped Yorktown Farms property. Due to the length and width of the corridor, and its dense canopy, this wetland also provides good habitat for species that utilize wetlands and transitional areas in close proximity to suburban uses. This wetland also provides cover and saturated conditions for wetland dependent species, including salamanders and frogs.

Wetland B/C

Following submission of the preliminary DEIS, the Town determined that a closer look at the Wetland B/C corridor was required, as historical soils maps indicated that the area between these two wetlands might contain hydric soils. If this was the case, this area would also be regulated as Town wetland.

The site was reviewed again on April 28, 2004 by Town representatives, consultants for the applicant, and Paul Jaehnig, who is a certified Professional Geologist. The conclusion was reached that this area does meet the criteria related to hydric soils and, although it does not exhibit a dominance of hydrophytic vegetation, is therefore regulated under the Town's ordinance as one larger wetland.

The Wetland B/C corridor is similar topographically to Wetland A, with collected runoff from two low ridges on either side draining through a narrow drainageway. The most significant difference is the vegetation, which is old field that has developed with herbaceous and shrub species that are tolerant of the moist conditions caused by the regular flow of runoff through the system. As described above, some of this wetland does not support a dominance of wetland vegetation, but does continue the flow path between the original Wetland B and C. This area was maintained as agricultural fields as recently as ten years ago, and is now beginning the succession process. Redosier dogwood, pussy willow and multifloral rose are the dominant woody species, with soft rush, soft-stem bulrush and occasional tussock sedge. No areas of standing water were observed, but a moist substrate and visible flow paths were evident. Soils

within the wetland are nutrient poor, owing primarily to the past agricultural uses and the possibility of topsoil being stripped from the site. The remaining soil surface is dense and where depressed forms the necessary flow paths for runoff while preventing significant infiltration. Soils are generally mapped as the Ridgebury series, as described above, but have been altered somewhat by past land uses.

Wetland Function

In total this system covers approximately 1.56 acres of the site, of which 1.04 acres meet the three-parameter approach used by the ACOE, and 0.52 acres are regulated by the Town only. Like Wetland A above, the primary function and benefit of Wetland B/C is the conveyance of storm flows, the modification of groundwater discharge and the filtering of collected runoff resulting in improved water quality. Due to the dense subsoils, no recharge function is associated with this wetland. This low gradient, densely vegetated wetland helps to filter stormwater and groundwater discharge flows to a culvert under Route 6, ultimately entering a tributary that eventually flows to Wetland A-4 and Osceola Lake. Due to its small size and long narrow geometry, this area is not used as primary habitat for these species, and is unlikely to act as a significant corridor since it does not connect to larger wetlands. It does provide dense cover and nesting opportunities for bird species. The level of this function as it relates to wetland dependent species is tempered by the narrow corridor and the lack of wetland vegetation in one third of the wetland.

The upper area of this wetland (formerly Wetland C) is a very small area of collected runoff within a small depressional area. Dominant species include red maple, barberry, bittersweet, spicebush, sugar maple and American elm. Hydrology is provided by overland runoff and shallow subsurface flow from the steeper slopes to the north. This wetland measures approximately 12 feet by 300 feet, or 0.08 acres. Due to its small size, lack of wetland-dependent vegetation and infrequent saturation, this area has only marginal wetland characteristics and few, if any, identifiable wetland functions. It does serve as a temporary collection point for overland runoff and infiltration. No visible surface connection to downstream areas was observed but, as stated above, a connection was made using soils analysis.

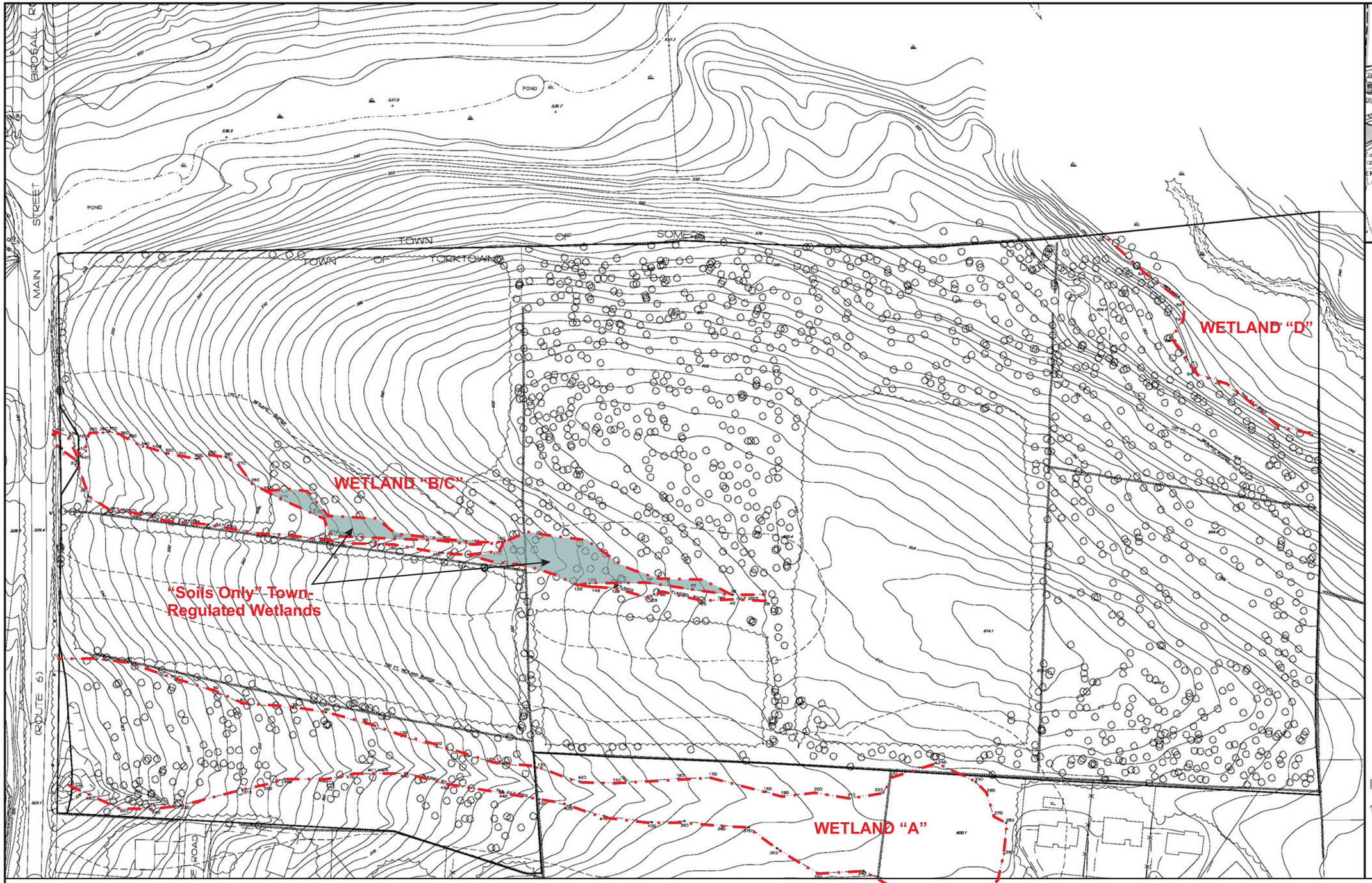
Wetland D

Wetland D is the onsite portion of New York State DEC Wetland A-2 (Figure 3.7-1). According to Westchester County GIS information, overall this wetland is 24.06 acres; 1.77 acres are on the subject property. It is identified as a Class 2 wetland by the DEC.

New York State wetland A-2 is a well-developed and undisturbed wooded swamp complex. Vegetation is dominated by red maple and American elm in the canopy, an understory of tall shrubs (primarily viburnums, spicebush and highbush blueberry) and an herbaceous layer of skunk cabbage and several wetland varieties of ferns.

Soils in this wetland are Palms Mucks (Pa) and Sun loam (Sh), although only the Sun soils were observed on this property. The Palms Muck soil exists deeper into the body of the wetland, on the property immediately to the east of this site.

Sun loam is very deep, poorly drained or very poorly drained located in nearly level lowland areas. These soils are extremely stony. These soils are formed in glacial till derived from granite, gneiss, and schist. Slopes range from 0 to 3 percent. A seasonal water table may flood



0 80 160
SCALE IN FEET

LEGEND

EXISTING	PROPOSED	
		CATCH BASIN
		DRAIN MANHOLE
		SAN. SEWER MANHOLE
		HYDRANT
		DRAIN INLET
		WATER VALVE
		HEADWALL
		DRY WELL
		STREET LIGHT
		MONUMENT
		WELL
		S.D.A.
		CONTOUR LINE

TOTAL LOT AREA:
1887861 s.f.
43.3 acres

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File 0326 Fig 3.7-3 02/13/04

Figure 3.7-3: Site Wetlands
Yorktown Farms Subdivision
Town of Yorktown, Westchester County, New York
Source: Ralph G. Mastromonaco, P.E., P.C., 7/04
Scale: As shown

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Figure 3.7-4: Proposed Wetland Impacts
Yorktown Farms Subdivision
Town of Yorktown, Westchester County, New York
Source: Ralph G. Mastromonaco, P.E., P.C., rev. 10/26/04
Scale: As shown

these areas, or rise to within a depth of 0.5 feet, during the Winter and Spring months. Permeability is moderate in the surface layer and slow or very slow in the subsoil and substratum.

Vegetation in Wetland A-2 is typical of that found in wooded swamp wetlands throughout Westchester County. Dominant tree species are red maple, American elm and green ash. Common shrub species include spicebush, winterberry, redosier dogwood, viburnum spp. and multifloral rose. Herbaceous species include tussock sedge, skunk cabbage, tearthumb and cinnamon and sensitive fern. Invasive species such as purple loosestrife and phragmites have had minimal impact on this portion of the wetland to date.

As expected, functional assessment of the portions of this wetland that are closest to the subject site indicate that the wetland is currently performing most identified functions at a moderate to high level. This is based on the size of the wetland, the low topographic gradient and storage capacity for stormwater. Functions related to stream and storm flow, modification of water quality and storm and flood water storage are particularly high for these reasons, in addition to the presence of well developed vegetation to filter and detain surplus flows.

Summary of Wetland Evaluations

As described above, Wetlands A, B/C and D provide some wetland functions and benefits at various levels. Wetland D, due to its connection to a much larger New York State DEC wetland to the east, has the highest functional value. These functions include stormwater filtering and detention, wildlife habitat potential and modification of stream flow (maintaining baseflow). Wetland A, considering its dense canopy and the level of saturation, performs many wetland functions at a generally high level. It provides these functions at a somewhat lower level than wetlands of a larger size. It is important, though, that this wetland is now recognized to be connected to a larger New York State DEC wetland offsite.

3.7.2 Potential Adverse Impacts

Direct Impacts to Site Wetlands

The project as proposed will result in activities within and adjacent to DEC and Town regulated wetlands. It is expected that a total of 0.72 acres of wetland will be affected.

Following discussions with the Planning Board, the applicant is proposing a connecting road to Gay Ridge Road to provide a second access point, better distribute traffic between this access and the Route 6 access, and ensure that emergency vehicle access is available when needed. This road connection will result in an unavoidable 0.25 acre disturbance to DEC Wetland A-4. Final design of the crossing is not yet completed, but will likely include arches or three sided box culverts to maintain hydrology from south to north and wildlife corridors.

The applicant is proposing to install a culvert over Wetland B/C for the site access road (Figure 3.7-4). This is necessary in order to create the most efficient road network to reach all of the site. The wetland in this area is a narrow drainageway (less than 10 feet wide). This activity will result in the loss of 0.14 acres of Town-regulated wetland. As long as the culvert is properly sized to allow the free flow of runoff from south to north, this action will not impact the functions of this wetland. Careful installation of erosion controls and timing of the culvert installation to

coincide with a low flow period will be necessary to ensure that there are no impacts to the drainageway or downstream areas.

The applicant is also proposing the alteration of that portion of Wetland B/C on proposed lots 14, 16 and 18 (0.33 acres, including new areas indicated as "soils only"). As described above, this portion of the wetland performs at a low level of wetland function, primarily as a conveyance for overland runoff towards Route 6. This portion of the wetland can only be marginally defined as a wetland under the Town Code. Mitigation for the areal loss of this wetland can be performed in a number of locations, most likely the expansion of Wetlands A or B. Mitigation for wetland function, i.e., the conveyance of storm flows, can be provided by re-grading the area after construction to provide a swale that conveys flows to the south towards the undisturbed portions of the wetland.

Activities Within Wetland Setbacks

A total of 4.41 acres of wetland buffer will be disturbed for the project as proposed, including 0.73 acres of NYSDEC buffer and 3.68 acres of town-regulated buffer. Of this acreage, more than 2.11 acres are associated with the portion of Wetland B/C, which will be permanently altered. Therefore, this area will cease to act as buffer to a wetland and is not considered in this evaluation. There are three areas of the site where disturbance within wetland setbacks are considered by the applicant to be unavoidable.

1. A stormwater management basin is proposed on the park parcel in order to meet water quality and quantity goals. Due to the long, linear nature of Wetlands A and B/C, the buffers between the wetlands leave only a narrow strip in what is an important drainage point for runoff management. This basin will temporarily impact approximately 7,000 square feet (0.16 acre) of wetland buffer. Following re-grading and planting, the area should resume its function as a buffer to the wetlands.

2. The crossing of Wetland B is necessary to access the southwestern portion of the site. As described above, the applicant is proposing a culvert that will cross the wetland. However, in order to get to this location the plan must include road grading and fill within the 100 foot regulated setback. Necessary grading within the buffer is minimal. The road layout has been designed to be perpendicular to the watercourse as much as possible to minimize the buffer disturbance. Approximately one acre of setback as regulated by the Town of Yorktown is affected.

3. The crossing of Wetland A-4 for the second access road will result in disturbance of the 100 foot setback area for the new roadbed. At this time it is also proposed to construct a new soccer field and parking area within the setback to meet Town recreation requirements. These activities will result in an additional 0.41 acres of buffer encroachment.

There are no impacts proposed to regulated setbacks associated with DEC Wetland A-2. Under the current plan, a wetland permit would be required from the Town of Yorktown Planning Board for the setback encroachments as described above.

3.7.3 Mitigation Measures

The applicant has designed the project to minimize wetland impacts while still providing necessary services and access to all portions of the site. A total of 0.72 acres of wetland will be

impacted. Of this total, 0.33 acres occur in Wetland B/C, in areas made up predominantly of hydric soils without a dominance of hydrophytic vegetation.

The applicant is proposing several methods to mitigate the loss of these wetlands. Regarding Wetland B/C, which does provide some stormwater storage and infiltration for water quality management, the applicant is providing water quality basins to replicate this function. In addition, the rear yard areas that will be created will be graded to provide swales to convey overland flows to follow the same flow path as in the existing condition.

The loss of wetland area at the road crossings results in a total loss of 0.39 acres, which will be mitigated on site. Opportunities exist at the rear of proposed Lot 12, as shown on Figure 3.7-5. The intent would be to expand the site wetlands, replicating and enhancing the functions and values that are lost due to the filling activities.

The construction of vegetated water quality basins, while recognized as a site disturbance, will still serve to enhance the water quality functions of the wetland buffer prior to discharge to the watercourses and will be appropriately landscaped to blend into the landscape with low maintenance native vegetation. These basins are required by DEC, DEP and Town regulatory requirements and are placed to make best use of the site topography for the treatment of the greatest volume of water from impervious surfaces. If, during the review and approval process, the applicant can work with the regulatory agencies to further refine the size and shape of these basins to minimize the buffer impacts, then plan adjustments will be made.

A detailed erosion control plan with construction sequencing and scheduling -- which in part is being implemented to protect on site wetlands during construction -- is included with this DEIS and is described in Section 3.6, Water Resources.

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Figure 3.7-5: Area of Potential Wetland Mitigation
Yorktown Farms Subdivision
Town of Yorktown, Westchester County, New York
Source: Ralph G. Mastromonaco, P.E., P.C., rev. 10/26/04
Scale: As shown