

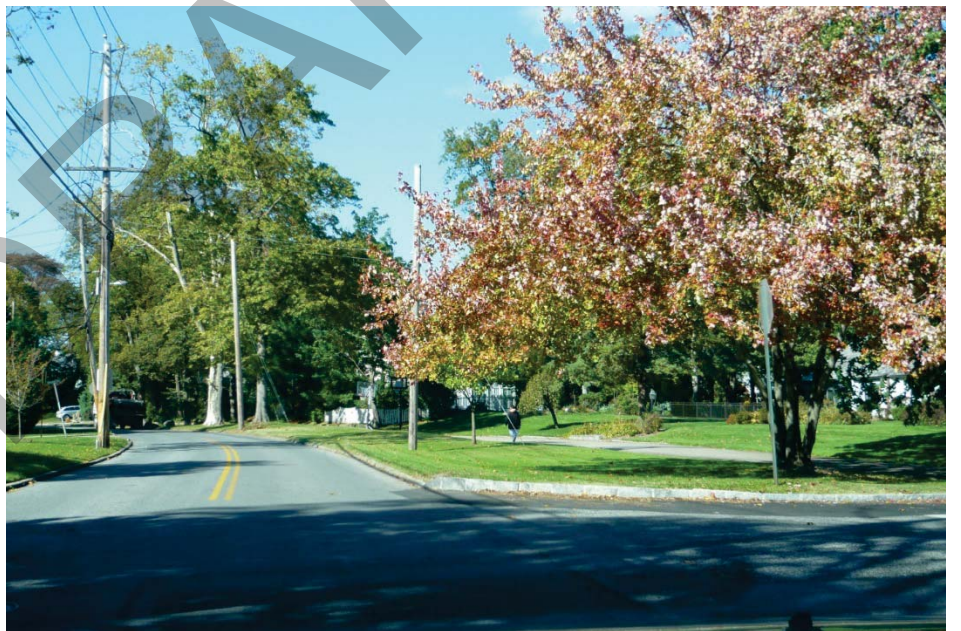
**Photo 16**

Orienta Avenue



**Photo 17**

Orienta Avenue



**Photo 18**

Fairway Green  
Townhouses







Between Hommocks Road and Orienta Avenue, directly behind the US Route 1 frontage, is the Fairway Green development to the north of the Project Site. This is a 54-unit multi-family townhouse development located on 10 acres. As seen in the Photographs 11 and 18, many of these townhouse units are directly adjacent to the Project Site.

Homes along other streets in the Orienta neighborhood that approach the Project Site to the north include Fairway Lane, Sylvan Lane, and Cooper Avenue, which also provides access to the existing maintenance area for Hampshire Country Club.

## **b) GIS Visibility Analysis**

A GIS viewshed analysis (the "GIS Visibility Analysis") was prepared utilizing ESRI ArcGIS Spatial Analyst, a computer modeling tool, to determine areas of potential visibility for the Proposed Action. LiDAR data was downloaded from Westchester County Geographic Information Systems for the area within approximately one mile of the Project Site. A digital surface model (DSM) was then created from the raw LiDAR data, which accounts for ground elevations and obstructions such as tree canopy, buildings, towers, and other manmade structures. The proposed grade surface changes on the Project Site were included in the DSM. In addition, a five-mile radius was examined utilizing the Westchester County 50-foot digital elevation model (DEM) from Westchester County GIS.

To obtain areas of potential visibility, the DSM surface was offset 6 vertical feet to represent a conservative viewing height, and the proposed structures at the site were offset 35 feet from the proposed grade surface.

The results of the one-mile GIS Visibility Analysis are presented in Exhibit 3B-3. According to this analysis, there was likely to be very little visibility outside of the one-mile radius of the Project Site, due to the large number of trees and single-family homes or condominiums in the Orienta neighborhood and immediately surrounding the Project Site. Based on this analysis, it was decided, in consultation with the Village of Mamaroneck, to limit any field testing to the one-mile radius and the major land uses within the three-mile radius of the Project Site, including parks, schools, and community facilities.

It should be noted, the GIS Visibility Analysis in Exhibit 3B-3 represents an over-approximation of potential areas of visibility to a typical observer due to limitations in the LiDAR data. Exhibit 3B-4, General Visibility, displays a more accurate map of visibility based on the balloon test and site visit described in Section 3 below.

## **2. Future without the Proposed Project**

Without the proposed project, conditions of community character and visual resources on the Project Site would remain, in the short term, as previously described in this chapter. As discussed in Section 3A, current economic factors at the Project Site driving the need for the proposed development would continue in the long term. These factors include a downward trend in golfing over the past decade





\\vhb\proj\WhitePlans\28677.02 Hampshire Subdivision\GIS\Project\Visibility - One-Mile DSM.mxd



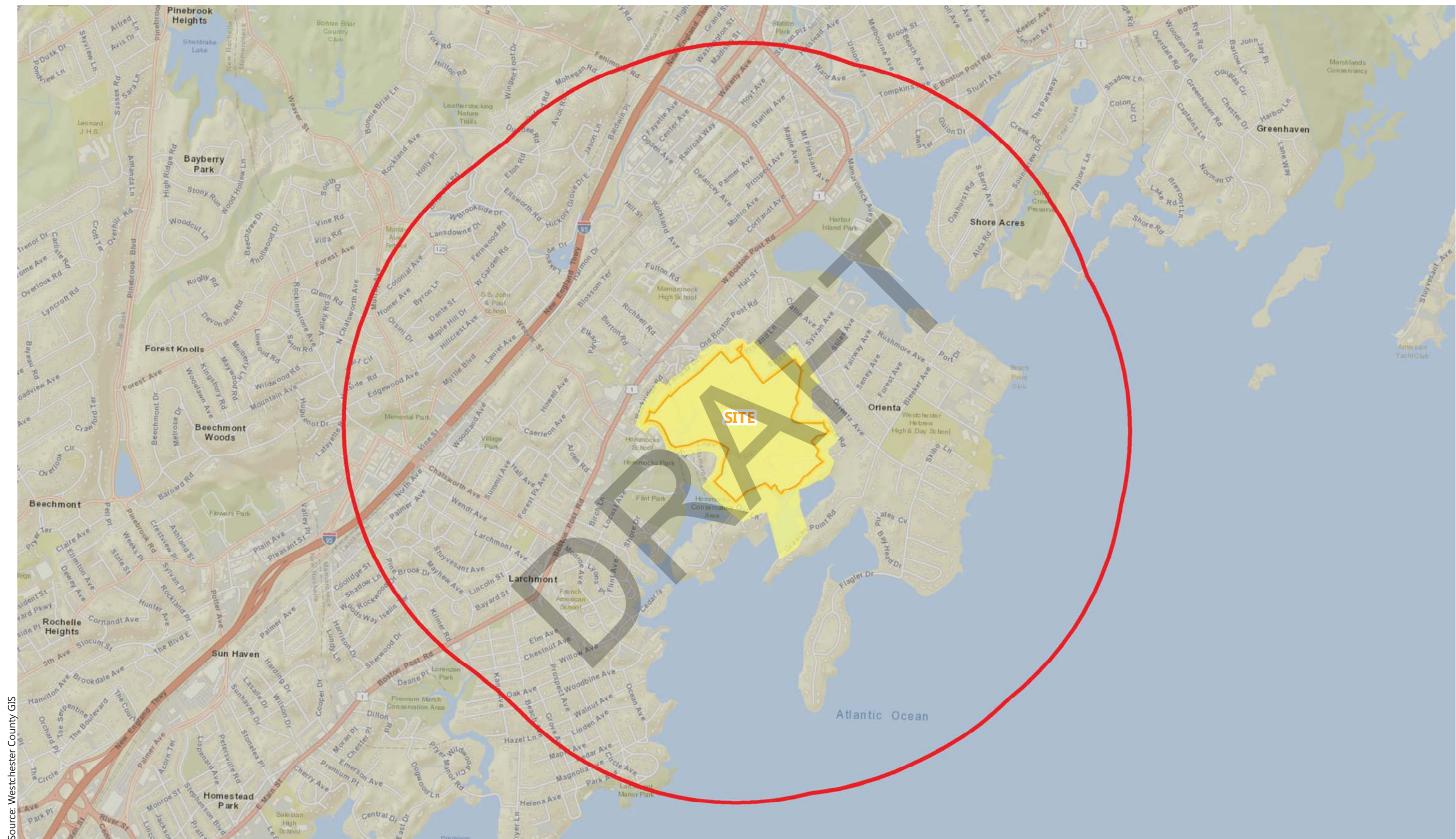
Site One-Mile Radius Visible

Hampshire Country Club - PRD | Village of Mamaroneck, NY

Visibility - One-Mile

Source: Westchester County GIS





Source: Westchester County GIS



## Legend

- Visibility Area
- Not Visible
- One-Mile Radius

Hampshire Country Club - PRD | Village of Mamaroneck, NY

General Visibility



consistent with regional and national trends on both public and private courses. This data establishes that it would be difficult for the membership club to remain viable without the introduction of other revenue sources. The future of the Project Site without the Proposed Action would result in the golf course and membership club not being a sustainable business in the long run. Operations of the club, and the continual maintenance of the open and recreational space at the Project Site, would cease. Without a custodian to manage these features of the Project Site, the visual character of the Project Site would diminish significantly.

### **3. Potential Impacts**

#### **a) Visibility from the Surrounding Neighborhood**

A balloon test was conducted at the Project Site on March 30, 2016 to further assess the existing viewshed of the surrounding neighborhood from photograph locations selected by the Village of Mamaroneck. For each round of the balloon test, an orange balloon was floated at a location and height specified to mimic the height and location of the proposed development. Based on the results of the GIS Visibility Analysis, photo locations were limited to within a one-mile radius of the Project Site or major land uses within a three-mile radius of the Project Site. Visibility Test photographs were taken using a Nikon D810 Full Frame Camera with an AF-S Nikkor 24-70mm f/2.8 E lens. These photographs were also used as the basis for the Photo Simulations described below.

The balloon test was conducted in two phases. The first phase tested visibility from major land uses or landmarks surrounding the Project Site. Exhibit 3B-5, Surrounding Viewpoint Photographs 19-29 display the photographs taken during this phase of the balloon test, including photographs from or near the following places of interest: Delancey Cove; Westchester Hebrew High School and Westchester Day School; Otter Creek Preserve; Shore Acres Point; Harbor Island Park; Hommocks Middle School; Mamaroneck Village Hall; Stanley Avenue Park; Mamaroneck High School; and Mamaroneck Central Elementary School. Phase one of the balloon test revealed that the orange balloon was only visible in two of the test locations: Hommocks Middle School and Delancey Cove/Greacen Point Road.

The second phase of the balloon test, the Visibility Test, included five rounds of photographs from 15 photograph locations selected in consultation with the Village of Mamaroneck. Before each round, the balloon was moved and elevated to the specified height to mimic different locations of the proposed development. Exhibit 3B-6 shows the five balloon locations, the 15 tested photograph locations, and the results from each round of the second phase Visibility Test. Photographs from the Visibility Test are also included.

The results of the second phase Visibility Test indicate that the proposed development would only be visible to locations immediately adjacent to the Project Site, including some public streets and the homes that directly border the existing golf course.



### Photo 19

View toward Hampshire  
Country Club looking  
north from Greacen Point  
Road and Delancey Cove



### Photo 20

View from intersection of  
Orienta Avenue and  
Bleeker Avenue west  
toward Hampshire  
Country Club; no visibility  
of the Project Site



**Photo 21**

View from entrance to Mamaroneck Beach and Yacht Club and southern tip of Otter Creek Preserve southwest toward Hampshire Country Club; no visibility of the Project Site



**Photo 22**

View from Shore Acres Point southwest toward Hampshire Country Club; no visibility of the Project Site



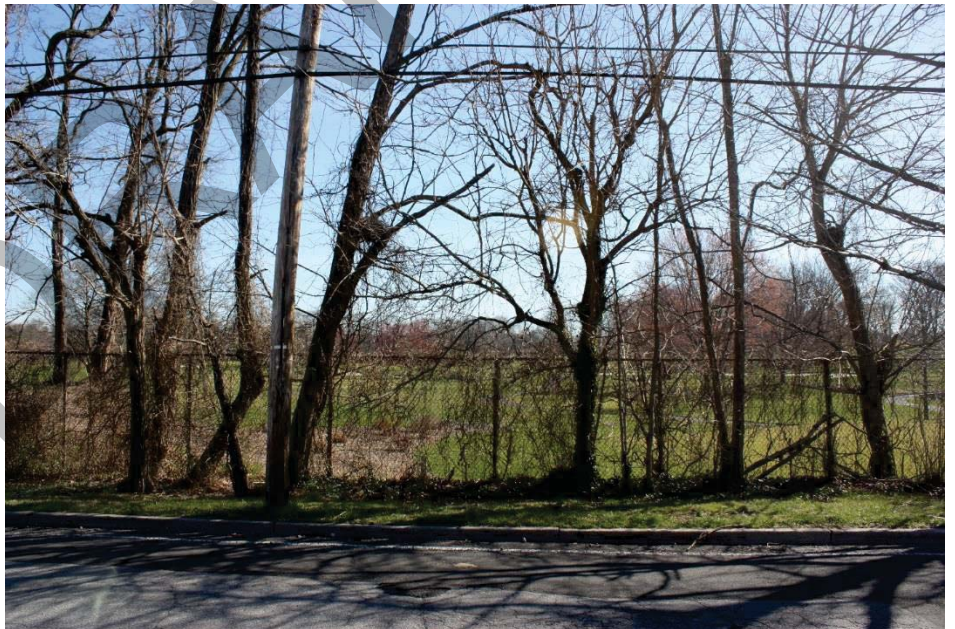


**Photo 23**

View from Harbor Island  
Park southwest toward  
Hampshire Country Club;  
no visibility of the Project  
Site

**Photo 24**

View from Hommocks  
Middle School northeast  
toward Hampshire  
Country Club; visibility of  
the Project Site





**Photo 25**

View from intersection of  
Prospect Avenue and  
Mount Pleasant Avenue  
near Mamaroneck Village  
Hall south toward  
Hampshire Country Club;  
no visibility of the Project  
Site

**Photo 26**

View from Stanley Avenue  
Park south toward  
Hampshire Country Club;  
no visibility of the Project  
Site





**Photo 27**

View from intersection of  
US Route 1 and Richbell  
Road southeast toward  
Hampshire Country Club;  
no visibility of the Project  
Site

**Photo 28**

View from intersection of  
US Route 1 and Rockland  
Avenue south toward  
Hampshire Country Club;  
no visibility of the Project  
Site



**Photo 29**

View from intersection of  
US Route 1 and Weaver  
Street near Mamaroneck  
Central Elementary  
School east toward  
Hampshire Country Club;  
no visibility of the Project  
Site







Source: Westchester County GIS



Hampshire Country Club - PRD

Village of Mamaroneck, NY

## Legend

- Balloon Location
- ▲ Tested Viewpoint

## Visibility Test Map Key





Source: Westchester County GIS



**Hampshire Country Club - PRD**

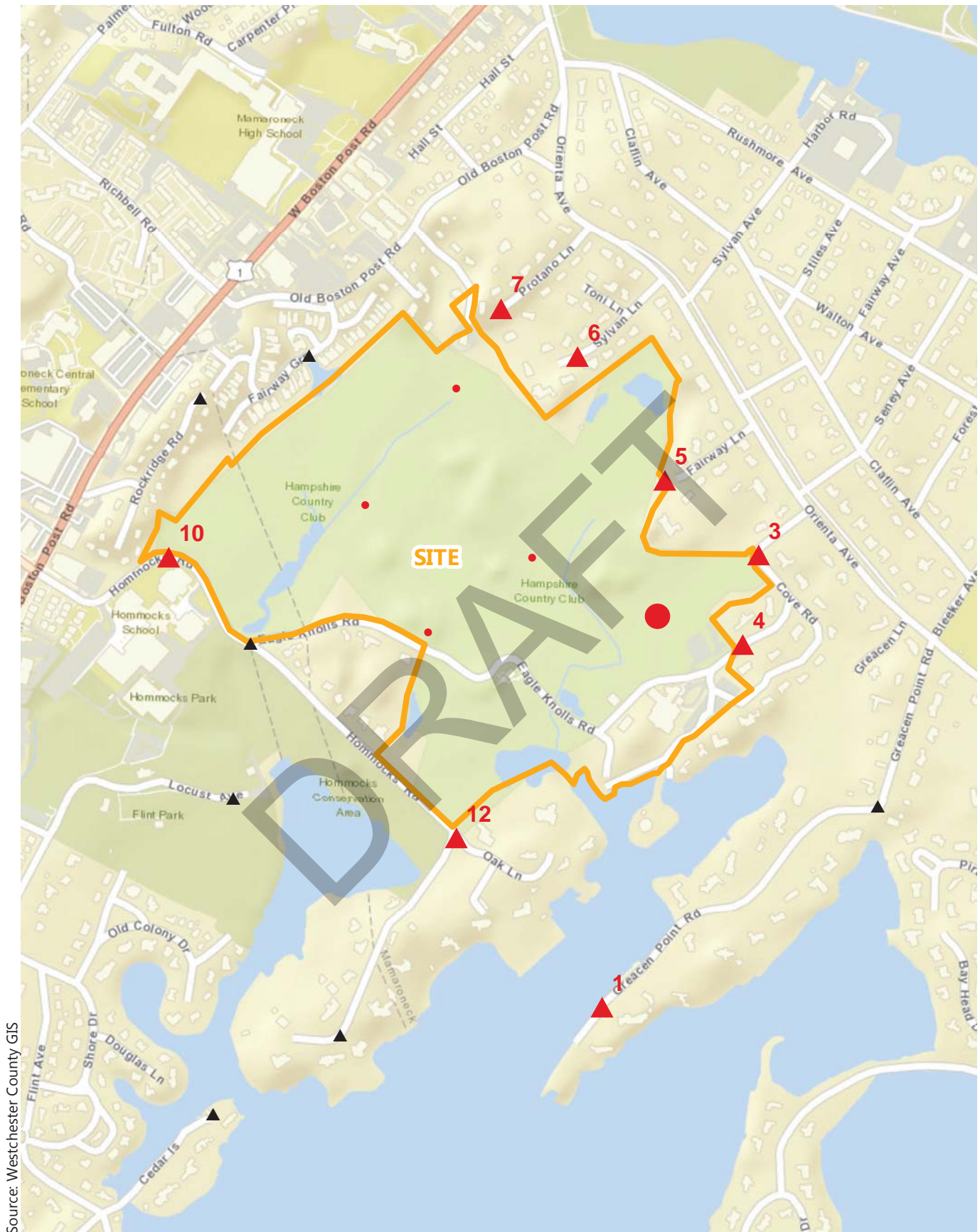
| Village of Mamaroneck, NY

### Legend

- Round 1 Balloon Location
- ▲ View to Balloon
- ▲ No View to Balloon

### Visibility Test Round 1





Source: Westchester County GIS



0 250 500 1000 Feet

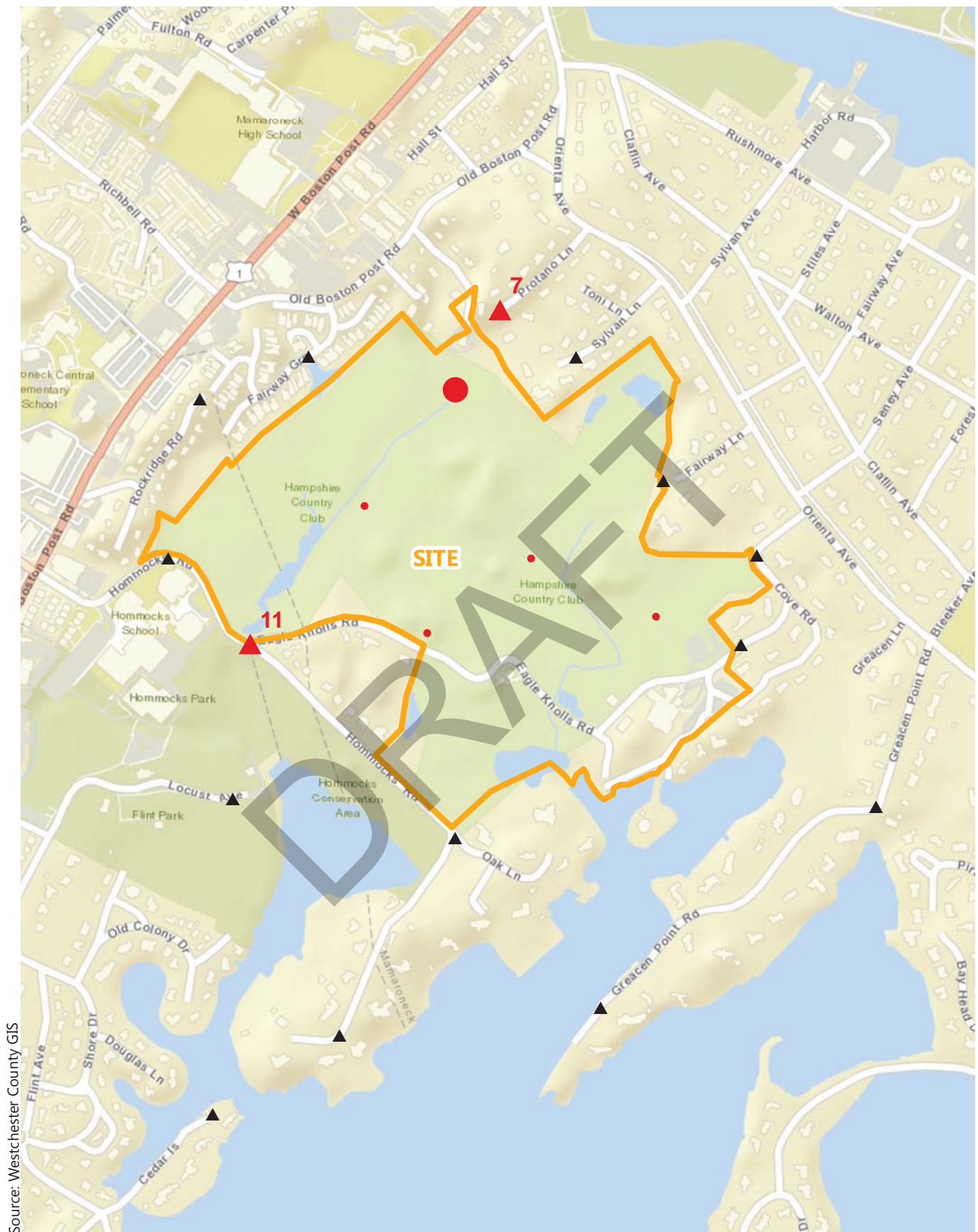
**Hampshire Country Club - PRD**

| Village of Mamaroneck, NY

## Legend

## Visibility Test Round 2

- Round 2 Balloon Location
- ▲ View to Balloon
- ▲ No View to Balloon



Source: Westchester County GIS



Hampshire Country Club - PRD

Village of Mamaroneck, NY

## Legend

- Round 3 Balloon Location
- View to Balloon
- No View to Balloon

## Visibility Test Round 3





Source: Westchester County GIS



0 250 500 1000 Feet

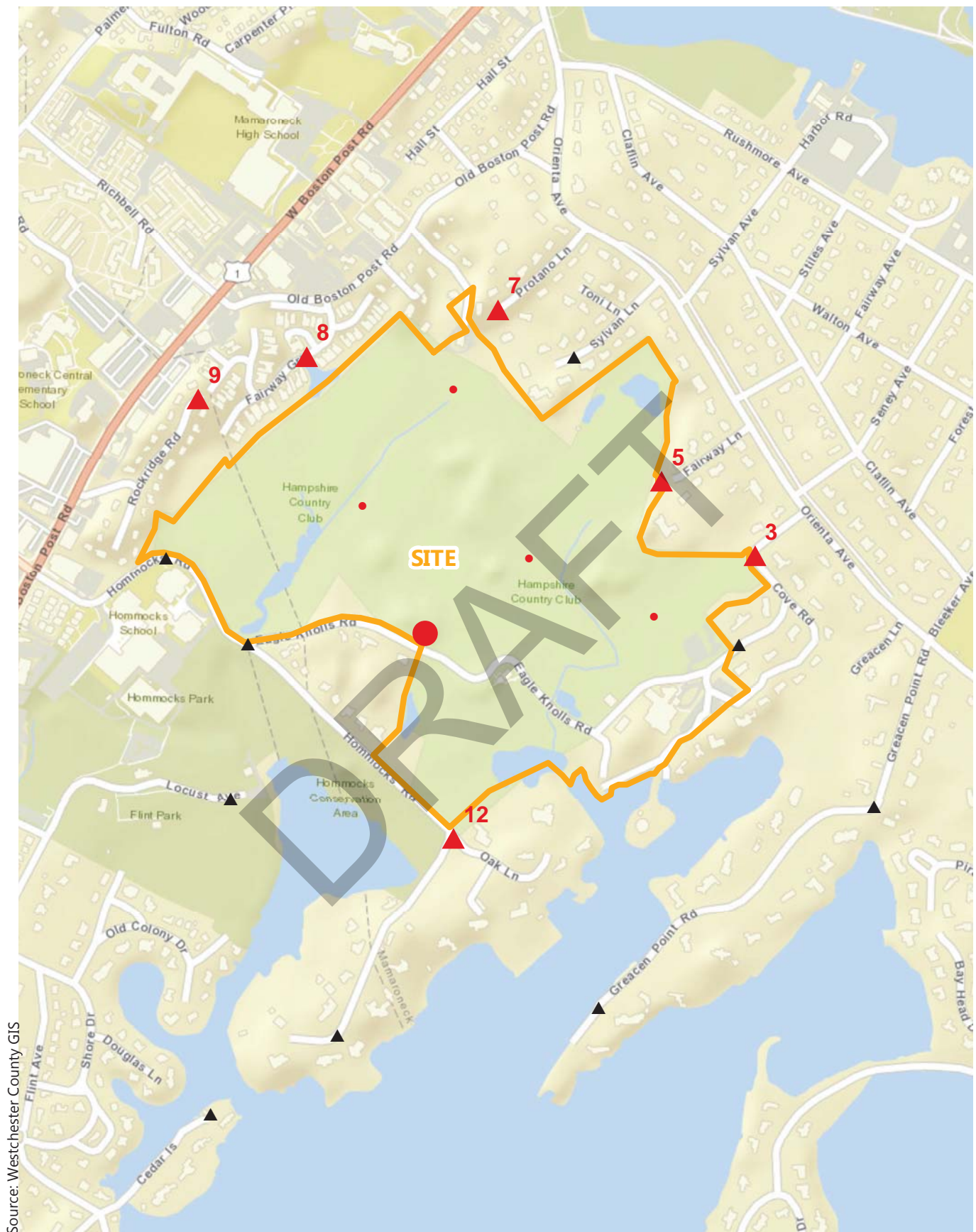
Hampshire Country Club - PRD

Village of Mamaroneck, NY

## Legend

- Round 4 Balloon Location
- ▲ View to Balloon
- ▲ No View to Balloon

## Visibility Test Round 4



## Legend

- Round 5 Balloon Location
- ▲ View to Balloon
- ▲ No View to Balloon

## Visibility Test Round 5



**Photo Location 1**

Balloon visible in round 2



**Photo Location 2**

Balloon not visible in any round





**Photo Location 3**

Balloon visible in  
rounds 1, 2, and 5



**Photo Location 4**

Balloon visible in  
rounds 1, 2, and 4





**Photo Location 5**

Balloon visible in  
rounds 1, 2, and 5

**Photo Location 6**

Balloon visible in round 2



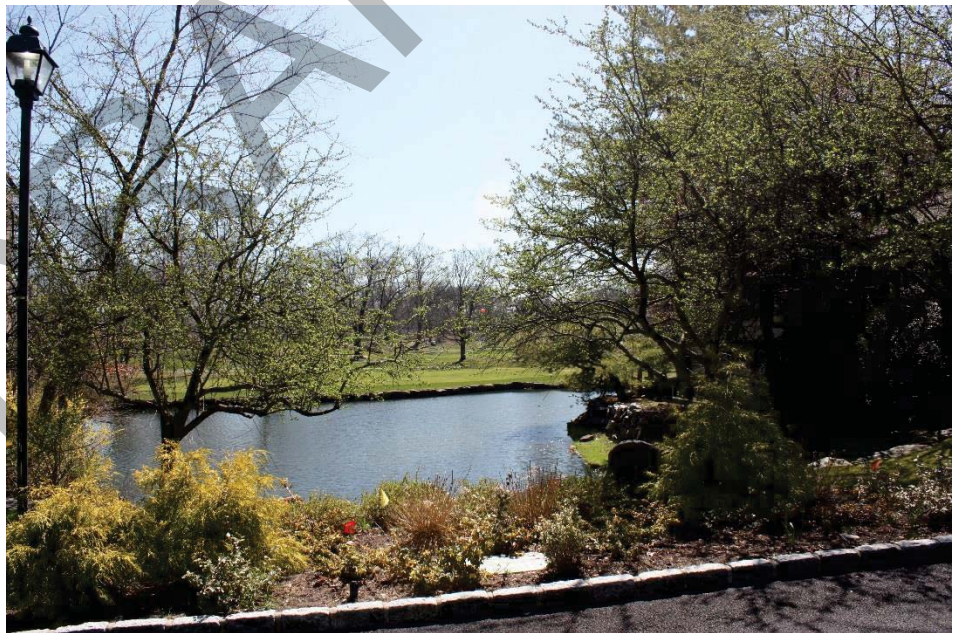


**Photo Location 7**

Balloon visible in  
rounds 2, 3, 4, and 5

**Photo Location 8**

Balloon visible in  
rounds 1, 4, and 5





### Photo Location 9

Balloon visible in  
rounds 4 and 5



### Photo Location 10

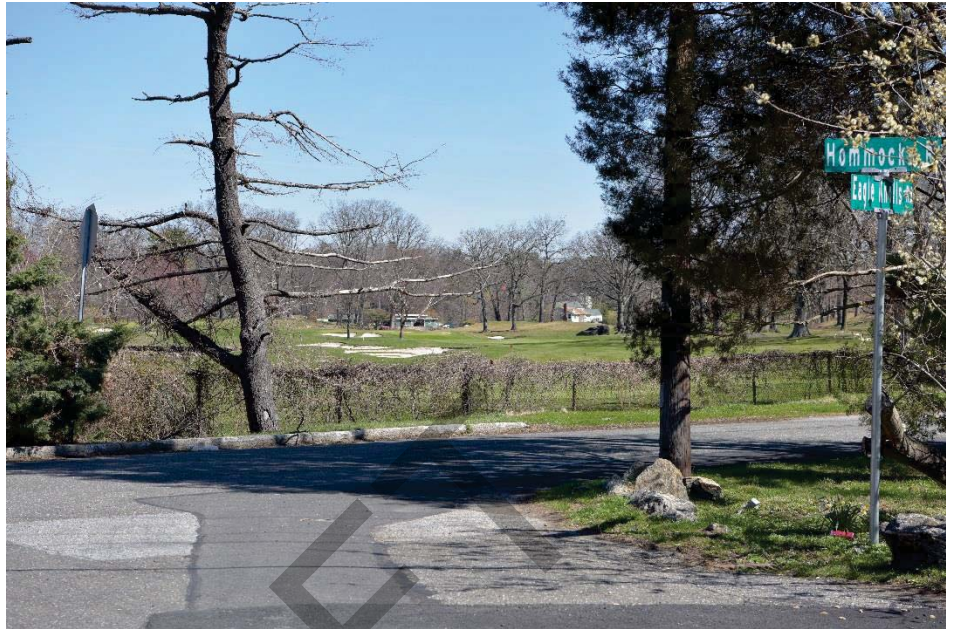
Balloon visible in  
rounds 1, 2, and 4





### Photo Location 11

Balloon visible in rounds 1, 3, and 4



### Photo Location 12

Balloon visible in rounds 1, 2, and 5





**Photo Location 13**

Balloon not visible in any round



**Photo Location 14**

Balloon not visible in any round



**Photo Location 15**

Balloon not visible in any  
round







Exhibit 3B-4 provides a map depicting general visibility of the proposed development within the one-mile radius of the Project Site, taking into consideration the results of the GIS Visibility Analysis and the balloon test phases one and two. As exhibited, visibility is limited to a very small buffer surrounding the Project Site and a portion of Delancey Cove and Greacen Point Road. Results of these analyses indicated that the large majority of the surrounding neighborhood has no visibility of the Project Site, and therefore would not be visually impacted by the Proposed Action.

## **b) Photo Simulations**

Based on the results of the Visibility Test, and in consultation with the Village of Mamaroneck, six surrounding neighborhood locations were chosen for photo simulations. These photo simulations were prepared to determine the visibility of the proposed project at full build-out for both leaf-on and leaf-off conditions, to represent summertime and wintertime. The Photo Simulations are depicted in Exhibit 3B-7 and described below.

### Location 1: Hommocks Road

The proposed project would be visible from Hommocks Road immediately adjacent to Hommocks Middle School. However, different landscaping features, including trees on the golf course, temper these views, particularly during the summertime when leaves are present. In addition, as discussed in Section 3c below, trees planted in association with the Proposed Action would provide additional screening from the Hommocks Road location.

### Location 2: Fairway Green

Given the distance from the proposed development and the landscaping features on the golf course, the proposed buildings would have a minimal visual impact on views from Fairway Green. During leaf-on conditions, the proposed buildings are not visible from this test location.

### Location 3: Protano Lane Dead End

The proposed project is visible from the dead end of Protano Lane immediately adjacent to the Project Site. However, given the elevation difference and the buffer of trees, mostly just the rooftops are visible, and these features are hidden under leaf-on conditions. In addition, as discussed in Section 3C below, trees planted in association with the Proposed Action would provide additional screening from Protano Lane.

### Location 4: Fairway Lane Dead End

A good portion of the proposed project would be visible from the Fairway Lane dead end. However, as Fairway Lane is surrounded by tree plantings, the visual impact is severely diminished in the summer time. In addition, trees would be planted along the perimeter of the proposed residential development, providing further screening from Fairway Lane.



**Location 1**  
**View from Hommocks Middle School**



**Leaf Off - Existing**



**Leaf Off - Proposed**



**Leaf On - Existing**



**Leaf On - Proposed**





Location 2  
View from Fairway Green



Leaf Off - Existing



Leaf Off - Proposed



Leaf On - Existing



Leaf On - Proposed





**Location 3**  
**View from Protano Lane**



**Leaf Off - Existing**



**Leaf Off - Proposed**



**Leaf On - Existing**



**Leaf On - Proposed**





**Location 4**  
**View from Fairway Lane**



**Leaf Off - Existing**



**Leaf Off - Proposed**



**Leaf On - Existing**



**Leaf On - Proposed**





**Location 5**  
**View from Cove Road**



**Leaf Off - Existing**



**Leaf Off - Proposed**



**Leaf On - Existing**



**Leaf On - Proposed**





**Location 6**  
**View from Greacen Point Road**



**Leaf Off - Existing**



**Leaf Off - Proposed**



**Leaf On - Existing**



**Leaf On - Proposed**







#### Location 5: Cove Road

Given the proposed project's proximity to Cove Road, the new single-family homes are highly visible from this test location in both the leaf-off and leaf-on conditions, although the existing trees temper the visual impact. Two homes would be accessed directly from this portion of Cove Road. The proposed conditions along Cove Road would match existing conditions across the street from the Project Site, which is largely characterized by single-family homes. See existing conditions photographs from Cove Road, Photographs 14-15 in Exhibit 3B-2. In addition, it should be noted, based on the general visibility analysis presented in Exhibit 3B-4, approximately ten homes along Cove Road fall within the area of general visibility of the proposed residential development. The majority of homes in the area would not experience visual impacts from the Proposed Action.

#### Location 6: Greacen Point Road

The Project Site's distance from Greacen Point Road and Dalancey Cove decreases visibility of the proposed project from this test location. The very small portion of the project site that is visible from this location during the wintertime is covered by leaves in the summertime. Visual impacts to this location are minimal.

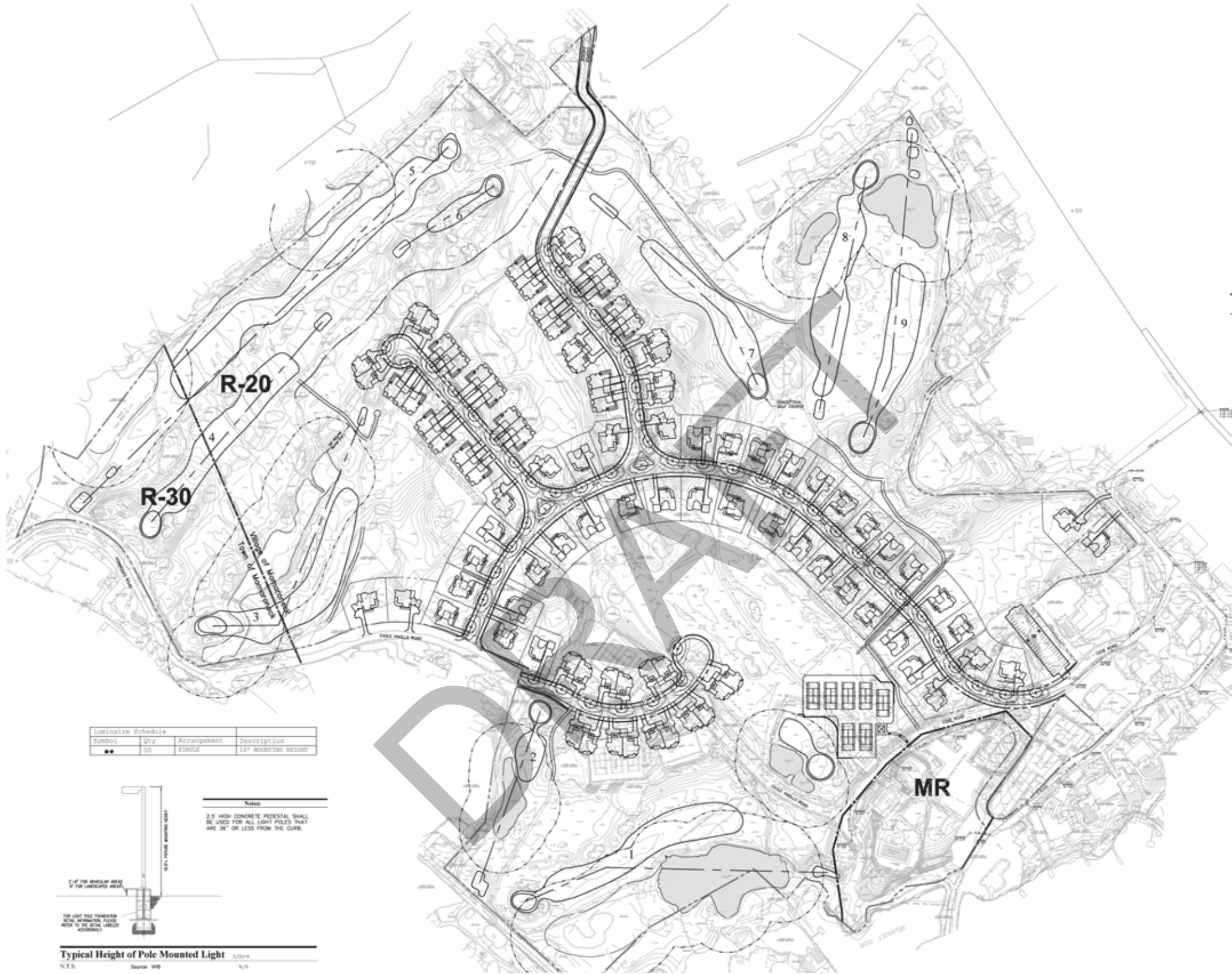
### **c) Project Site Lighting and Landscaping**

In order to provide for the safety and security of the Hampshire PRD residents, club members, and visitors, exterior lighting would be provided along all proposed roadways. All exterior lighting accessory to the proposed residential units, non-residential uses, recreation facilities and tennis courts would be of such type and location as to provide for a safe level of evening and nighttime lighting. Light levels would be the minimum recommended for nighttime safety, utility and security as specified by professional best-practice recommendations established by the Illuminating Engineering Society of North America (IESNA). No exterior lighting will be provided for the golf course.

Exterior lighting along the roadways would consist of decorative pole mounted fixtures, mounted at approximately 16 feet high. Exhibit 3B-8 provides a concept exterior lighting plan that has been prepared for the proposed project. The lighting plan design provides placement of the proposed 49 light poles. Lighting levels would not exceed 0.5 foot candles. In accordance with Village of Mamaroneck Code §342-18, Exterior Lighting, the proposed lighting will direct light downward and will prevent the source of the light from being visible from adjacent residential streets.

In addition, the Proposed Action would include the planting of approximately 432 trees (to replace those that would be removed during construction) on the Project Site, primarily located along the proposed roadways and along the perimeter of the proposed residential development. These trees would provide aesthetic value and significant screening from the surrounding neighborhood. In addition, plantings currently within the area of the 9-hole golf course would remain on the Project Site. Twenty-foot vegetative buffers would be planted around all existing wetlands. Exhibit 3B-9



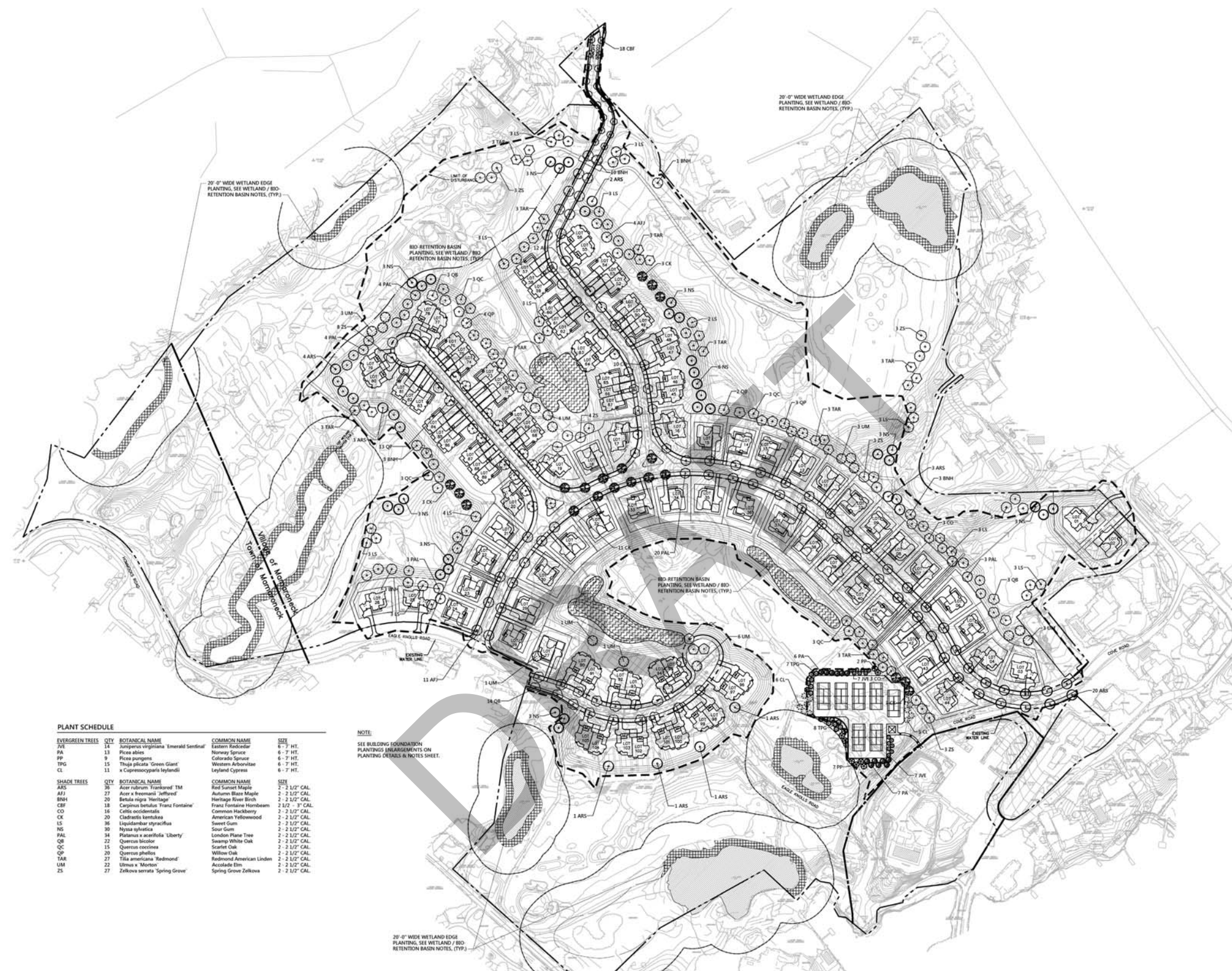


Hampshire Country Club - PRD | Village of Mamaroneck, New York

Lighting Plan

Source: VHB





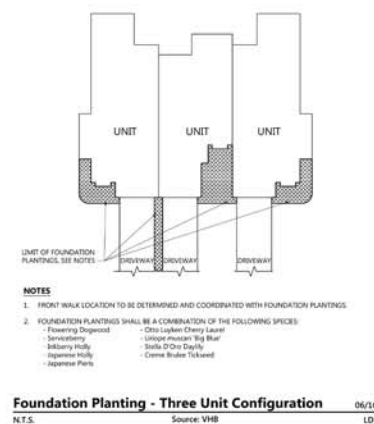
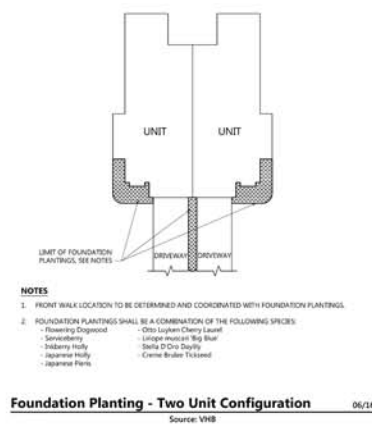
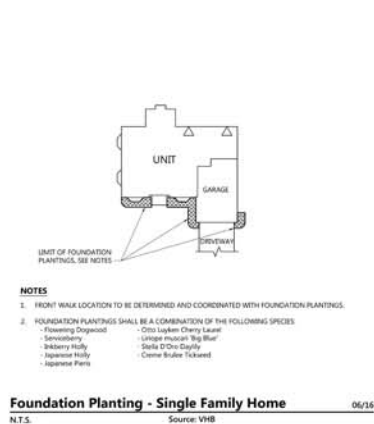
Hampshire Country Club - PRD | Village of Mamaroneck, New York

## Landscaping Plan

Source: VHB







#### Tree Protection

- EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY CONSTRUCTION FENCE. ERECT FENCE AT EDGE OF THE TREE DRIFTLINE PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR SHALL NOT OPERATE VEHICLES WITHIN THE TREE PROTECTION AREA. CONTRACTOR SHALL NOT STORE VEHICLES OR MATERIALS, OR DISPOSE OF ANY WASTE MATERIALS, WITHIN THE TREE PROTECTION AREA.
- DAMAGE TO EXISTING TREES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY A CERTIFIED ARBORIST AT THE CONTRACTOR'S EXPENSE.

#### Edge of Woods Clearing

- EXISTING TREES TO REMAIN SHALL BE PROTECTED WITH TEMPORARY EROSION CONTROL FENCE AND HAY BALE BARRIER. ERECT BARRIER AT EDGE OF THE EARTHWORK CUT LINE PRIOR TO TREE CLEARING. LAY OUT THIS LINE BY FIELD SURVEY.

#### Plant Maintenance Notes

- CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE LAWNS AND PLANTINGS. NO IRRIGATION IS PROPOSED FOR THIS SITE. THE CONTRACTOR SHALL SUPPLY SUPPLEMENTAL WATERING FOR NEW LAWNS AND PLANTINGS DURING THE ONE YEAR PLANT GUARANTEE PERIOD.
- CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK. WATER SHALL BE PROVIDED BY THE CONTRACTOR.
- WATERING SHALL BE REQUIRED DURING THE GROWING SEASON, WHEN NATURAL RAINFALL IS BELOW ONE INCH PER WEEK.
- WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
- CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS AT THE END OF THE ONE YEAR GUARANTEE PERIOD. CONTRACTOR SHALL TURN OVER MAINTENANCE TO THE FACILITY MAINTENANCE STAFF AT THAT TIME.

#### Planting Notes

- ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW GRADE AND ABOVE GROUND UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
- NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. CONTRACTOR SHALL NOTIFY OWNERS REPRESENTATIVE OF ANY CONFLICT.
- A 3 INCH DEEP MULCH PER SPECIFICATION SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS DIRECTED BY OWNERS REPRESENTATIVE.
- ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED IN THE DRAWINGS OR SPECIFICATION, OR APPROVED BY THE OWNERS REPRESENTATIVE.
- FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLANT LIST AND PLANT LABELS PRIOR TO BIDDING.
- ANY PROPOSED PLANT SUBSTITUTIONS MUST BE REVIEWED BY LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNERS REPRESENTATIVE.
- ALL PLANT MATERIALS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERMEN AND CONTRACT DOCUMENTS.
- ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
- AREAS DESIGNATED "LOAM & SEED" SHALL RECEIVE MINIMUM 6" OF LOAM AND SPECIFIED SEED MIX. LAWNS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC.
- ALL DISTURBED AREAS NOT OTHERWISE NOTED ON CONTRACT DOCUMENTS SHALL BE LOAM AND SEED OR MULCHED AS DIRECTED BY OWNERS REPRESENTATIVE.
- THIS PLAN IS INTENDED FOR PLANTING PURPOSES. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

#### WETLAND / BIO-RETENTION BASIN NOTES:

- WETLAND EDGE PLANTINGS & BIO-RETENTION BASINS SHALL CONSIST OF A COMBINATION OF THE FOLLOWING SPECIES:

##### TREES:

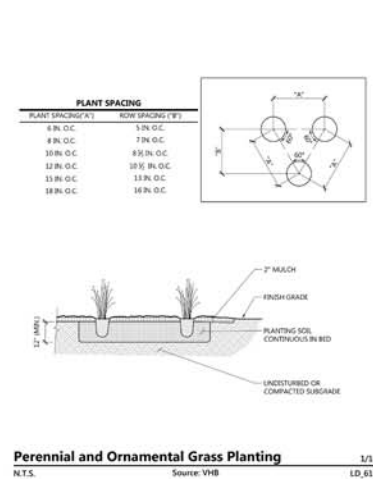
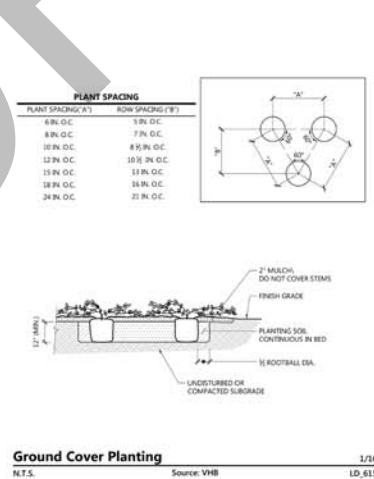
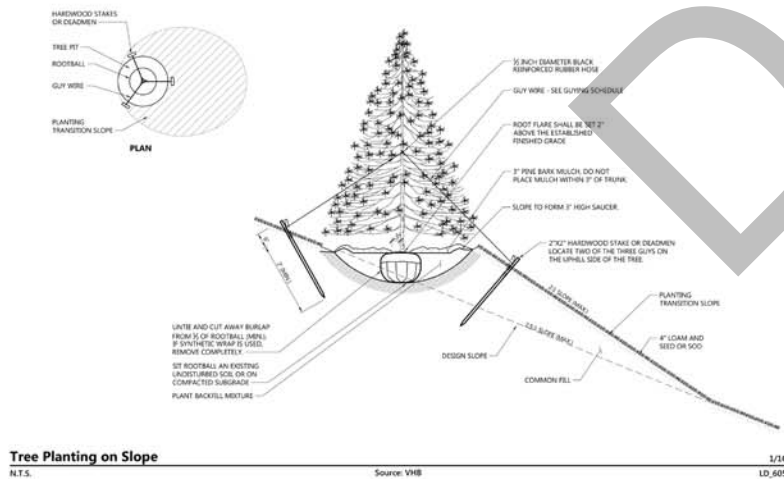
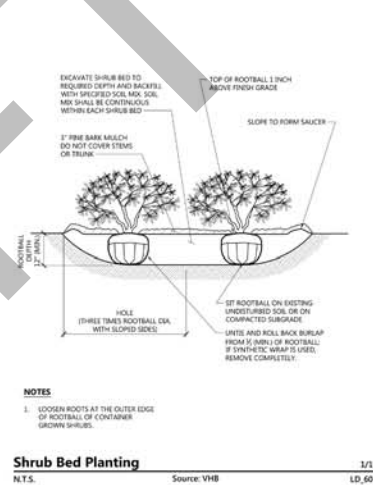
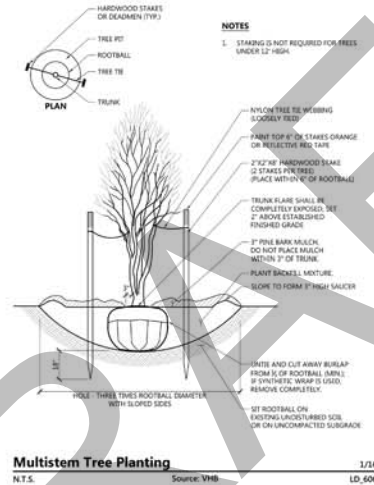
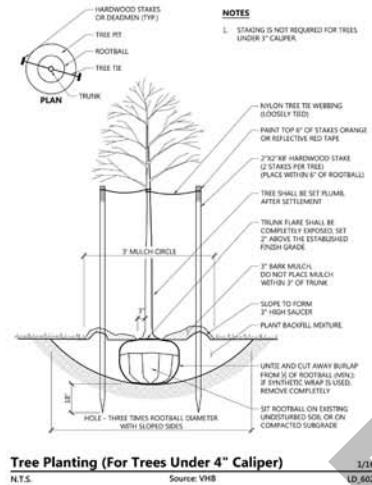
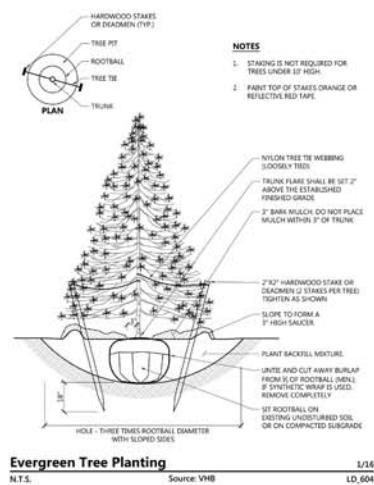
- Aster rubrum - Red Maple
- Betula nigra - River Birch
- Liquidambar styraciflua - Tulip
- Liquidambar styraciflua - Sweetgum
- Nyssa sylvatica - Tupelo

##### SHRUBS:

- Baccharis halimifolia - Groundsel Bush
- Celastrus scandens - Summerweet
- Cornus canadensis - Gray Dogwood
- Ilex glabra - Highberry Holly
- Ilex verticillata - Winterberry
- Indigofera tinctoria - Marsh Elder
- Sambucus racemosa - Elderberry

##### PERENNIALS / ORNAMENTAL GRASSES:

- Anemone pulsatilla - Swamp Milkwort
- Carex stricta - Tussock Sedge
- Carex lasiocarpa - Pink Turtleneck
- Deschampsia cespitosa - Tufted Hairgrass
- Dielsia spicata - Spike Grass
- Equisetum arvense - Blue Spikeweed
- Equisetum purpureum - Joe Pye Weed
- Hibiscus moscheutos var. palustris - Marsh Mallow
- Iris versicolor - Blue Flag Iris
- Juncus effusus - Common Rush
- Juncus gerardi - Black Grass
- Panicum virgatum - Switchgrass
- Solidago sempervirens - Swamp Goldenrod
- Spartina patens - Salt Meadow Cordgrass





contains the landscaping plans for the Project Site, including the proposed locations and a list of all tree and plant species proposed for the development. As discussed above, these buffers would significantly reduce any anticipated visual impacts from the photo simulation locations described above.

#### **d) Impacts**

The visual character of the Project Site would be altered from the existing conditions by the construction of the proposed development. Instead of the current active recreational use and associated open space character on the Project Site, the proposed project would include a development that is more consistent with the character of its immediate surroundings within the Orienta neighborhood, incorporating single-family homes similar in style to those along Orienta Avenue or Cove Road and attached two- and three-family carriage homes, similar in makeup to those within the Fairway Green development. The proposed buildings would be designed so as to appear architecturally attractive and compatible with the homes found in the surrounding residential area. Additionally, as proposed, the development would preserve 36 acres of shared open space and nine holes of the existing golf course to partially maintain the existing open space character of the Project Site.

Although the proposed buildings are still in concept design phase, the intended character and scale is shown in Exhibit 3B-10, Conceptual Streetscape. As depicted, in keeping with the surrounding neighborhood, materials and features may include shingle-style roofs with diverse pitches and details, cedar shingles, stone veneer, panel features, entry porches and porticos, among other things. The site planning also allows for landscaped green spaces and contemporary lighting elements that will elevate the physical character of the development.

As the clubhouse and accessory building portion of the Project Site would not change under the Proposed Project, the visual character of this area would remain unchanged.

### **4. Mitigation**

The Proposed Action would change the character of a portion of the Project Site from open space/recreational use to a newly constructed planned residential development of single-family detached and two- and three-family attached carriage homes, altering the visual appearance of the Project Site from only those locations that are immediately adjacent to the Project Site. Specifically, the proposed development would be visible from portions of Hommocks Road, Eagle Knolls Road, Cove Road, and Fairway Green, the dead ends of Protano Lane, Sylvan Lane, and Fairway Lane, and a portion of Delancey Cove and Greacen Point Road. However, trees, elevation changes, and varying distances provide varying degrees of buffer in each of these locations, minimizing the visual impacts of the Proposed Action. In addition, 36 acres of open space would be maintained on the Project Site, as would nine holes of the existing golf course, further minimizing any impacts on the character of the neighborhood. Finally, the Proposed Action would include the planting of approximately 432 trees









located along the perimeter of the proposed buildings, providing significant screening from the surrounding homes.

Given the existing development pattern in the vicinity of the Project Site, the Applicant believes the project would create a development that, although different from existing conditions, is consistent with the character of the Orienta neighborhood and the recommendations in the Village's adopted Comprehensive Plan. Furthermore, based on the results of the balloon test and field visit, it is evident that this visual impact would be limited to the immediate vicinity of the project and would not have any detrimental impact to any of the identified land uses or landmarks within the Village of Mamaroneck, including schools, parks, or community buildings. No other mitigation measures are proposed.

DRAFT



## C. GEOLOGY – SOILS, TOPOGRAPHY, AND STEEP SLOPES

### 1. Existing Conditions

#### a) Soils

According to the United States Department of Agriculture Soil Survey, which utilizes the 2006 Westchester County soil survey data, the Project Site contains five different soil groups, CrC, CtC, Uc, Uf, and UIC. Table 3C-1 displays the soil group, the number of acres of the Project Site that contains each soil group, and the percentage of the site with that soil group. Exhibit 3C-1, Soils Map, displays the soils classifications and their locations within the Project Site. See Appendix D for the soil survey map and full soil classification report.

**Table 3C-1 Project Site Soils**

Map Unit Symbol	Map Unit Name	Acres of Project Site	Percent of Project Site
CrC	Charlton-Chatfield complex, rolling, very rocky	7.7	7.2%
CtC	Chatfield-Hollis-Rock outcrop complex, rolling	24.1	22.5%
Uc	Udorthents, wet substratum	62.6	58.4%
Uf	Urban land	0.0	0.0%
UIC	Urban land-Charlton-Chatfield complex, rolling, very rocky	11.9	11.1%
W	Water	0.9	0.8%
<b>Totals for Area of Interest</b>		<b>107.2</b>	<b>100.0%</b>

Source: USDA 2016 Soil Survey, 1025 Cove Road, Mamaroneck, NY

The first soil group, which composes 7.2% of the Project Site, is the CrC (Charlton-Chatfield complex, rolling, very rocky). This soil group consists of very deep and moderately deep, well drained Chatfield soil and well drained Charlton soil. These soils are found on hilltops and hillsides that are underlain by highly folded bedrock. Typically, the surface layer is 0-2 inches in depth, the subsurface is 2-8 inches in depth, and the subsoil is 8-24 inches in depth before you reach either sandy loam or granitic bedrock. According to the Soil Survey of Putnam and Westchester Counties, this soil has a hydrologic classification of B, which is defined by soils having a moderate infiltration rate when thoroughly wet. The CrC is rated somewhat limited for dwellings with basements (which is one of the primary uses of the Proposed Action). This rating indicates that the soil has features





## Hampshire Country Club - PRD | Town of Harrison, New York

### Soils Map

Source: USDA Natural Resources  
Conservation Services





that are moderately favorable for the proposed land use. Appendix D contains the soil report and proposed use limitation report.

The second soil group, CtC (Chatfield-Hollis-Rock outcrop complex, rolling), composes 22.5% of the Project Site. This soil group consists of moderately well drained and somewhat excessively drained Chatfield soil, as well as drained and somewhat excessively drained Hollis soil. Areas of rock outcrops that are dominantly granite, gneiss, and schist also compose this soil group. The Chatfield sequence is typically 0-2 inches of surface layer, a subsurface of 2-7 inches in depth, and a subsoil of 7-24 inches in depth before reaching granitic bedrock. The Hollis sequence is no more than 1 inch of surface layer and up to 16 inches of subsoil before you reach folded granitic bedrock. According to the Soil Survey of Putnam and Westchester Counties, Chatfield soils have a hydrologic soil group of B, which is defined as soils having a moderate infiltration rate when thoroughly wet. Hollis soils have a hydrologic soil group of C/D, which consists of soils that have a slow infiltration rate and a high runoff potential when thoroughly wet. The CtC soil group is rated very limiting for dwellings with basements. This rating indicates that the soil has one or more features that are unfavorable for the proposed land use and may require structural fill, as some residential structures are proposed within the CtC soil group.

The third soil group is Uc (Udorthents), wet substratum, and composes 58.4% of the Project Site. This soil group consists of somewhat poorly and very poorly drained soils that have been altered mainly by filling. The fill material usually consists of sand to silt loam and is usually more than 20 inches deep over the original soils. The Uc is rated very limited for dwellings with basements (which is one of the primary uses of the Proposed Action). This rating indicates that the soil has one or more features that are unfavorable for the proposed land use and may require structural fill, as some residential structures are proposed within the Uc soil group.

The fourth soil group is Uf (Urban land). This soil group composes less than 1 acre of the site. This soil group consists of areas where at least 60% of the land surface is covered with buildings or other structures. The Urban land soil group is located by Hommocks Road near the Hommocks Middle school. This soil group is not rated for dwellings with basements. However, no building structures are proposed for that portion of the Project Site.

The fifth soil group is UIC (Urban land-Charlton-Chatfield complex, rolling, very rocky) and composes 11% of the Project Site. This soil group consists of Urban land, very deep well drained Charlton soil and the moderately deep well drained Chatfield soil. The Charlton sequence consists of a surface layer of 0-2 inches with the subsurface of 2-8 inches in depth and the subsoil of 8-24 inches in depth before you reach sandy loam. The Chatfield sequence is typically 0-2 inches of surface layer, the subsurface of 2-7 inches in depth, and the subsoil of 7-24 inches in depth before





you reach granitic bedrock. According to the Soil Survey of Putnam and Westchester Counties UIC has a hydrologic soil group of B, which is defined by soils having a moderate infiltration rate when thoroughly wet. This soil group is not rated for dwelling with basements.

A geotechnical investigation was performed in March 2016 by GZA GeoEnvironmental of NY to collect preliminary information on the subsurface conditions in the vicinity of the proposed improvements. The geotechnical investigation indicated groundwater elevations between 0.5 and 1.4 feet below grade and varying bedrock elevations. The subsurface conditions on the Project Site generally consist of the following: surface cover, composed of gravel and topsoil; fill, consisting of sand, gravel, silt and occasional asphalt pavement fragments; silt and clay immediately below the surface cover; fine to coarse sand, to depths ranging from 3 to 17.5 feet below ground surface; and bedrock at depths ranging from 3 to 17.5 feet below existing ground surface. Appendix F contains the GZA GeoEnvironmental geotechnical report.

#### **b) Existing Topography and Steep Slopes**

Exhibit 3C-2, Grading Plan, shows the topography of the Project Site. In general, the Clubhouse and pool area, at approximately 30 feet, are on a higher elevation than the rest of the Project Site. The land then slopes down to the golf course and Long Island Sound.

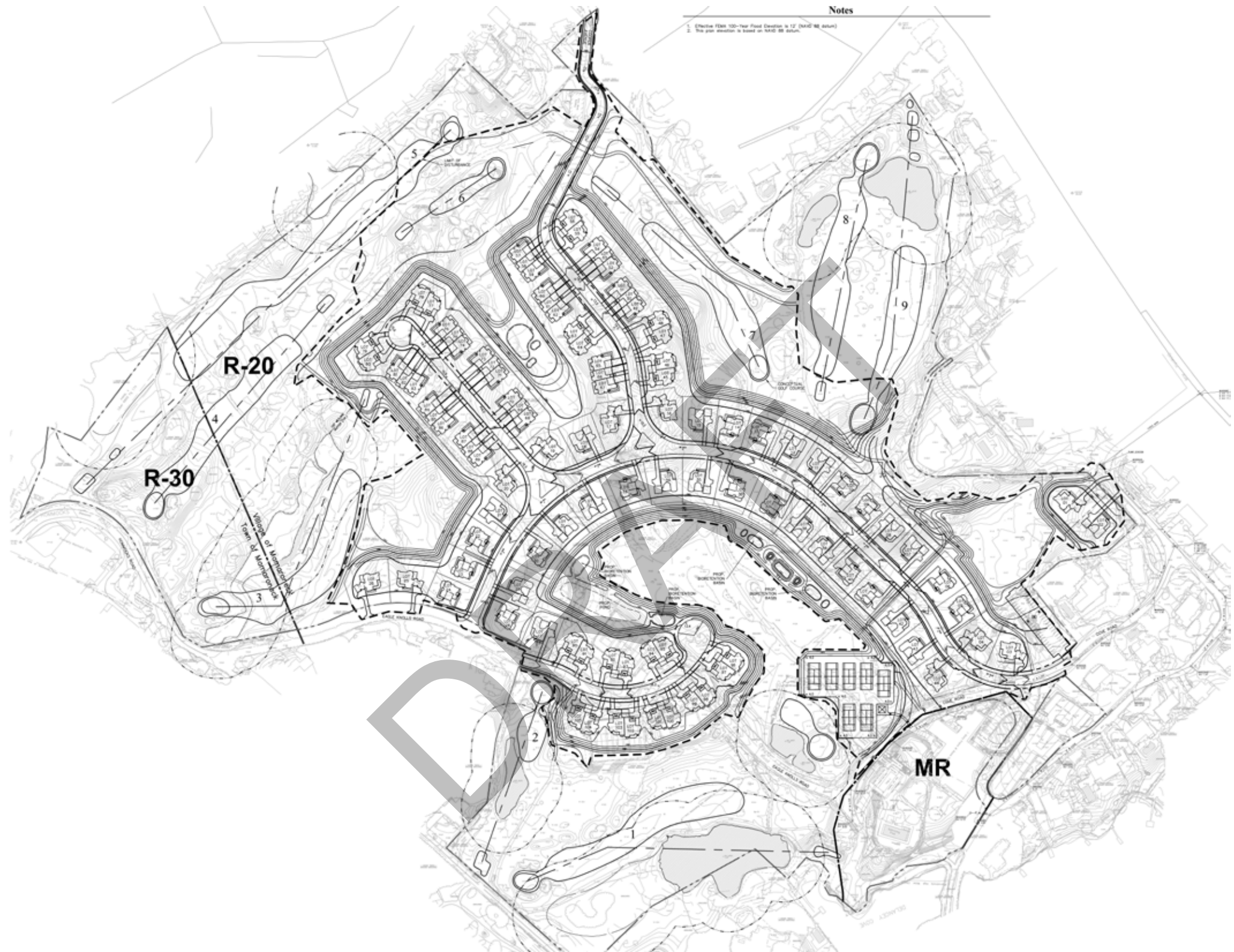
The existing golf course contains significant elevation changes, particularly in the center of the Project Site and along the eastern property border adjacent to homes on the south side of Fairway Lane. These areas range in elevation from 0.5 feet to 30 feet, a majority of which are manmade. With respect to the surrounding topography however, the existing golf course is lower in elevation, with several slopes down from the adjacent properties to the north and west of the Project Site.

Exhibit 3C-3 depicts the existing steep slopes on the Project Site. According to Westchester County Geographic Information Systems interactive mapping tool, steep slopes of between 15% and 25% are found clustered in the center of the golf course, southwest of the homes along Fairway Lane, and surrounding the accessory building and pool area of the Clubhouse down to the Long Island Sound and to Cove Road.

#### **c) Surface Conditions**

There are several prominent outcroppings of rock across the Project Site, including north of Eagle Knolls Road and northwest of the existing tennis courts. The proposed project has been designed to avoid the rocky area, and therefore it is not anticipated that rock removal would be required to accommodate construction of the 44 one-family detached homes and 61 semi-detached carriage homes associated with the proposed development.



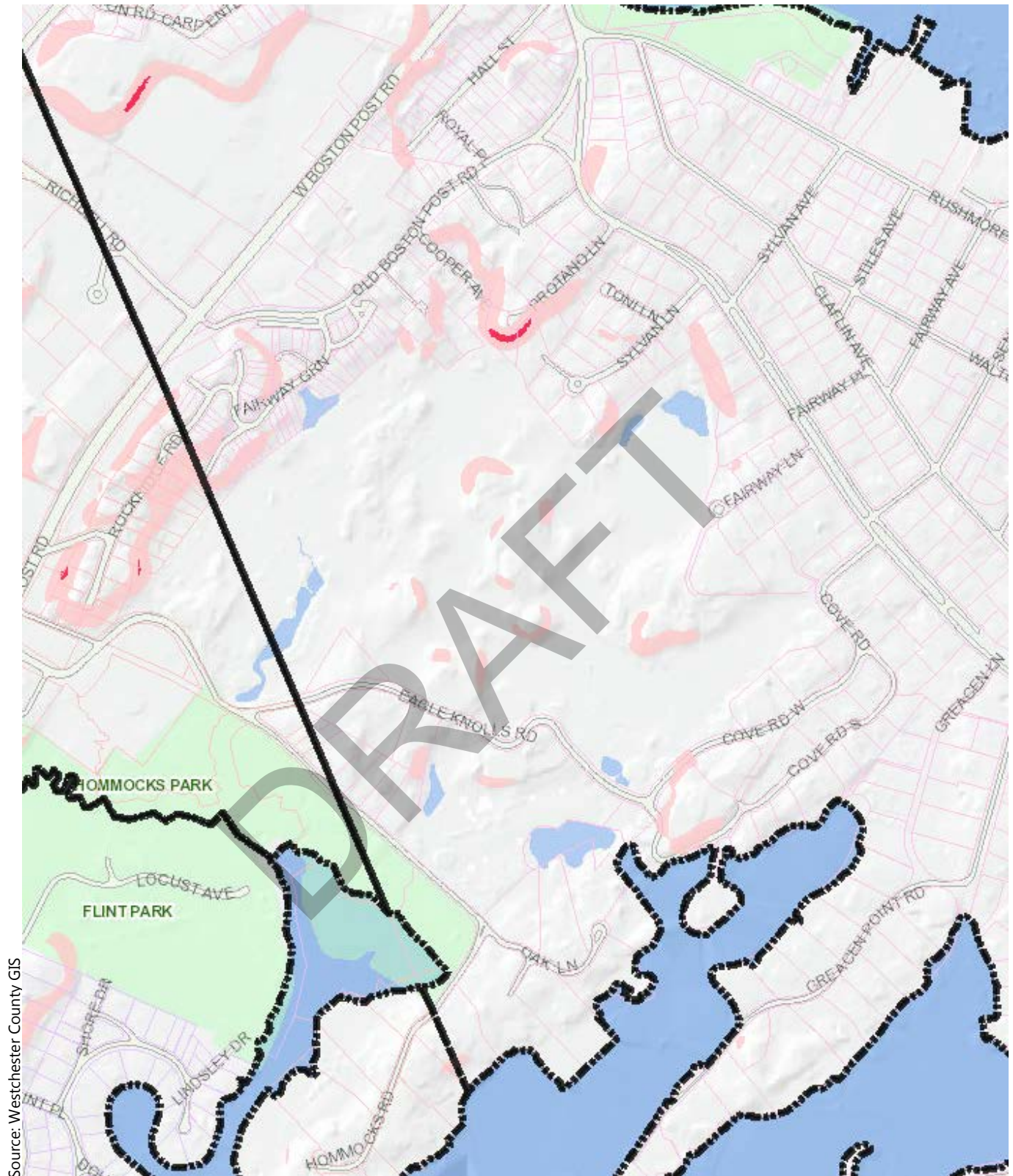


Hampshire Country Club - PRD | Village of Mamaroneck, New York

Grading Plan

Source: VHB





Source: Westchester County GIS

## Hampshire Country Club - PRD

Village of Mamaroneck, NY

- Slopes 15%-25%
- Slopes Over 25%

## Steep Slopes





## **2. Future without the Proposed Project**

In a future without the proposed project, the soils and topography of the Project Site would remain as previously described. See the No Action Alternative described in Chapter 4 for more detailed information.

## **3. Potential Impacts**

### **a) Preliminary Grading Plan**

The development would involve the re-grading of the existing site topography within the 55.6-acre area of disturbance on the Project Site. The Grading Plan is illustrated in Exhibit 3C-2. The grading design consists of grading for the proposed homes and other hardscape improvements.

As shown on the Grading Plan, some of the steep slopes and bedrock features would be reduced to grade to accommodate the proposed buildings and roadways. The steep slopes surrounding the clubhouse accessory building and pool area would be left unchanged under the Proposed Action. Approximately 432 trees, which fall within the area of disturbance on the Project Site, would be removed. However, the proposed landscaping plans include the planting of 432 trees, a mixture of evergreen and shade tree varieties. Exhibit 2-10 in Chapter 2, "Description of Proposed Project," contains the landscaping plans for the Project Site including the proposed locations and a list of all tree and plant species proposed for the development.

### **b) Cut and Fill**

The Proposed Action has been designed to balance cut and fill on the Project Site to the greatest extent practicable and to provide structural fill where necessary. The overall fill associated with the re-grading of the Project Site to accommodate the proposed development is approximately 84,104 cubic yards. Clean fill would be used on the Project Site, according to all proper certifications and construction standards as required by state, federal, and local requirements. There is no construction debris processing or reuse proposed for the development. The slope created by fill would be vegetated and landscaped to ensure the soil stability. No significant impacts are anticipated as a result of fill on the Project Site.

### **c) Potential Blasting**

As discussed, the preliminary geotechnical engineering report indicated that bedrock was encountered at depths ranging from 3 to 17.5 feet below existing ground surface on the Project Site. However, the Proposed Action has been designed to avoid rocky areas, and it is not anticipated that rock removal



would be required to achieve the proposed development approach. No significant areas of rock removal have been identified in a cut area.

#### **d) Soils**

Approximately 55.6 acres of the Project Site would be affected by building construction and infrastructure installation. This construction would affect all of the soil types outlined above in Table 3C-1. The anticipated impacts to these soils include direct impacts to currently landscaped areas where soils would be disturbed for site grading. Some soil erosion would occur during the construction of the Proposed Action. Structural soil that is required to accommodate the proposed development would be applied as necessary.

### **4. Mitigation**

The proposed development has been designed to minimize overall site impacts. Erosion and sediment controls would be used to protect the soils during construction as described in the preliminary Soil Erosion and Sediment Control chapter within the submitted Stormwater Pollution Prevention Plan (SWPPP) (Appendix E) and detailed below. All disturbed soils would be re-used to the extent practicable.

#### **a) Erosion and Sediment Control Plan**

The detailed Erosion and Sediment Control Plan would be implemented to mitigate the short-term impacts of soil erosion and the proposed disturbance to steep slopes. All of the sediment and erosion controls provided would be designed in accordance with the New York Standards and Specifications for Erosion and Sediment Control, dated August 2005, and the New York State Department of Environmental Conservation, Stormwater Management Design Manual, dated January 2015, as specified in Chapter 294 of the Village of Mamaroneck Code.

Stabilization practices to be used on the Project Site include straw mulching and temporary seeding. Stabilization practices would be initiated as soon as practicable in portions of the Project Site where construction activities have temporarily or permanently ceased. The Proposed Action has been designed to preserve existing vegetation where possible.

Upon completion of final grading, any areas not covered by pavement, landscaping, or other forms of stabilization and which are on slopes of 2:1 or greater would be protected with erosion control slope blankets and seeded with an erosion control seed mix.

In order to protect against erosion and water quality impacts on adjacent properties, structural erosion and sediment controls to be used on the Project Site include installation of a silt fence at the



downgradient limit of work, inlet protection from sediment inflow during the work period, installation of stone anti-tracking pads at each access point in the work area, and diversions to collection runoff from construction areas to a temporary sediment basin. If necessary, additional controls may include placement of hay bales or earthen berms and water spraying on dry and windy days. Monitoring of the Project Site would be in accordance with the New York Standards and Specifications for Erosion and Sediment Control, dated August 2005, and the New York State Department of Environmental Conservation, Stormwater Management Design Manual, dated January 2015, as specified in Chapter 294 of the Village of Mamaroneck Code.

#### **b) Cut and Fill**

The project has been designed to balance cut and fill on the Project Site to the greatest extent practicable and to provide structural fill where necessary. The overall fill associated with the re-grading of the Project Site to accommodate the proposed development is approximately 84,104 cubic yards. Clean fill would be used on the Project Site, according to all proper certifications and construction standards as required by state, federal, and local requirements. There is no construction debris processing or reuse proposed for the development. As mentioned, the slope created by fill would be vegetated and landscaped to ensure the soil stability. No significant impacts are anticipated as a result of Project Site fill; no further mitigation measures are proposed.

#### **c) Blasting**

It is not anticipated that rock removal would be required to achieve the proposed development approach. No significant areas of rock removal were identified in a cut area.



## **D. GROUNDWATER RESOURCES**

### **1. Existing Conditions**

As part of the geotechnical investigation conducted by GZA GeoEnvironmental of New York (see Appendix F), on March 1, 2016 a groundwater observation well was installed in the northern portion of the Project Site, to a depth of approximately 17 feet below ground surface. The measured depth to groundwater at the monitoring well ranged between approximately 0.5 to 1.4 feet below ground surface. This finding is consistent with US Department of Agriculture Soil Survey Data, which indicates that the Uc soil group, located on almost 60% of the Project Site, is characterized by a 1.2-foot depth to the water table. All other soil groups within the Project Site have a greater than six-foot depth to the water table. It should be noted that changes in groundwater levels will occur due to variations in seasonal influences, tidal fluctuations, precipitation amounts, local pumping, utility leakage, and other factors different from those existing at the time the groundwater observations were made.

The Project Site currently has two groundwater wells that provide irrigation water for the existing golf course. The well water is not utilized for any domestic supply. The wells are located on the north end of the Project Site near the end of Sylvan Lane. There are no State or Federally designated aquifers on the Project Site, according to US Environmental Protection Agency Region 2 resources, United States Geological Survey maps, and the NYS Department of Environmental Conservation.

### **2. Future without the Proposed Project**

In a future without the proposed project, the groundwater conditions of the Project Site would remain as described above. See the No Action Alternative described in Chapter Four for more detailed information.

### **3. Potential Impacts**

No usage of groundwater or cutting below the groundwater level is anticipated or proposed for the Proposed Action. Fill associated with the re-grading of the Project Site to accommodate the development would be approximately 84,104 cubic yards, which would elevate the development further above the water table. Therefore, no impacts to groundwater are expected as a result of the Proposed Action.

### **4. Mitigation**

Erosion control measures described in Chapter 3F, Stormwater Management, including sediment control measures to collect stormwater runoff from all construction areas, would be implemented on the Project





Site to reduce any potential impact to groundwater quality during construction. No other mitigation measures are proposed.

DRAFT





## E. SURFACE WATER COURSES AND WETLANDS

### 1. Existing Conditions

#### a) Wetland Functional Assessment

The surface water courses and wetlands at the Project Site (hereinafter collectively referred to as "wetlands") include seven ponds, several drainage ditches and two vegetated marshes. The wetlands comprise both artificially-created features and natural features that have been altered over time to provide drainage and irrigation for the golf course and/or to serve as water hazards. The wetlands at the Project Site also receive stormwater from onsite and offsite sources.

A wetland functional assessment of the Project Site wetlands was conducted by VHB (a copy of the wetland functional assessment report is included in Appendix A). The wetland functional assessment was conducted according to the methods developed by Denis W. Magee (with technical contributions from Garrett G. Hollands), as described in "*A Rapid Procedure for Assessing Wetland Functional Capacity based on Hydrogeomorphic (HGM) Classification*"<sup>1</sup> (the "Magee-Hollands Method"). Under the Magee-Hollands Method, the functional capacity for each of eight principal wetland functions is assessed, based partially on review of "desktop" resources (e.g., aerial imagery, maps and other references), but primarily upon field observations of hydrological, geological and biological characteristics of the wetland and the surrounding watershed uses and land uses. The eight principal wetland functions are:

- Modification of Groundwater Discharge
- Modification of Groundwater Recharge
- Storm and Flood Water Storage
- Modification of Stream Flow
- Modification of Water Quality
- Export of Detritus
- Contribution to Abundance and Diversity of Wetland Vegetation
- Contribution to Abundance and Diversity of Wetland Fauna

Following the Magee-Hollands Method procedures a Functional Capacity Index (FCI) score was generated for the Project Site wetlands, based upon the data collected for each of the eight wetland functions listed above. The FCI score is then compared to the FCI index range for other wetlands of the

<sup>1</sup> Magee, Denis W., with technical contributions by Garret G. Hollands. 1998. *A Rapid Procedure for Assessing Wetland Functional Capacity based on Hydrogeomorphic (HGM) Classification*. Normandeau Associates, Bedford Massachusetts.





same wetland class (e.g., depressional wetlands, etc.), based upon data from over 1,000 assessments performed on wetlands in the glaciated Northeast-Midwest Region, within which the Magee-Hollands Method was developed.

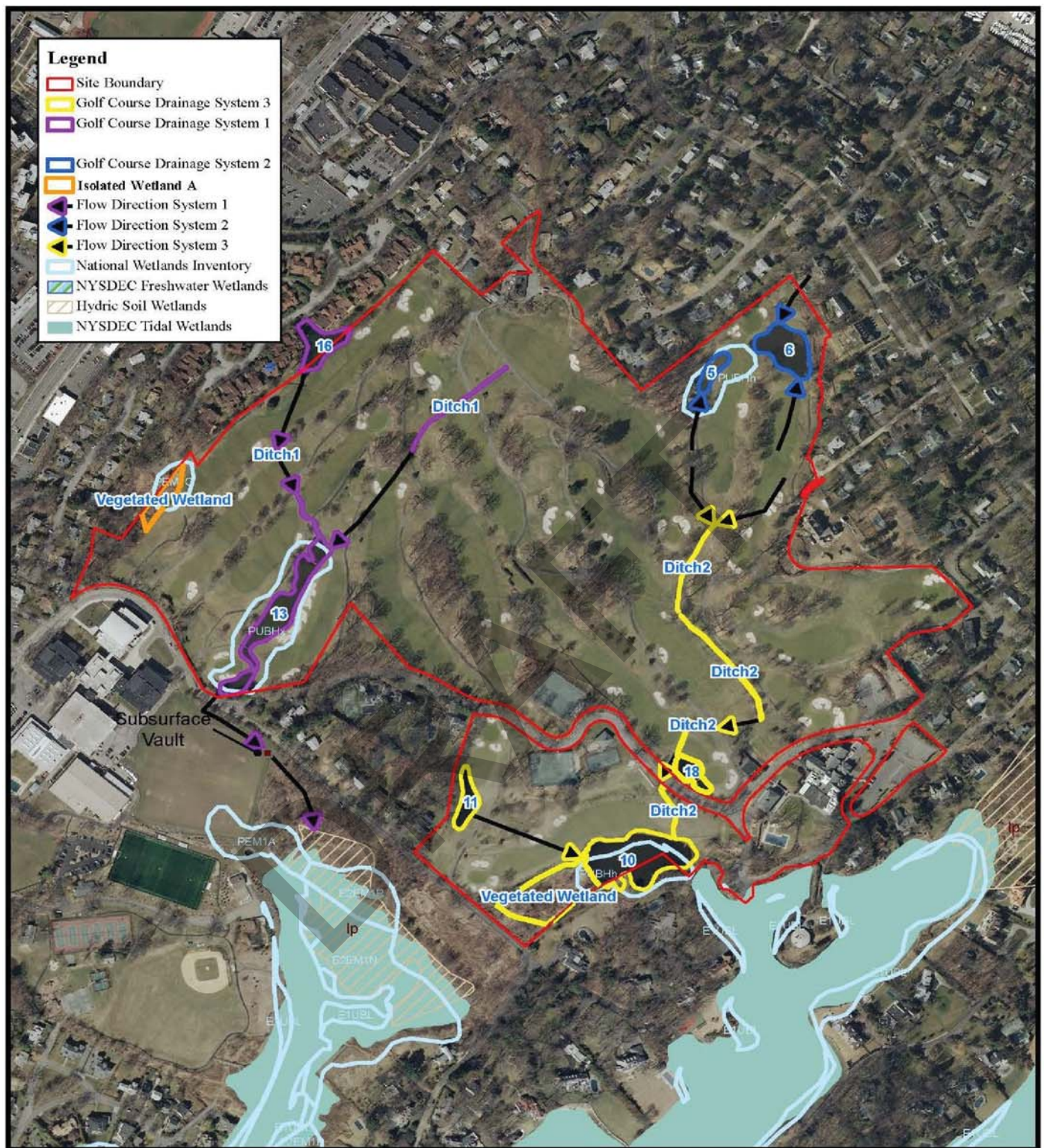
Field data for the wetland functional assessment were collected at the Project Site on May 17-18, 2016. Additional information for the assessment was collected during an interview with golf course superintendent Mr. Scott Olsen, as well as from the 2012 *Wetland Characterization Assessment* prepared by Nelson, Pope & Voorhis, LLC (NP&V) for the wetlands at the Project Site (copy included in Attachment D of Appendix A).

Based upon field observations of surface water connections or other hydrological connections, the various wetland features at the Project Site were grouped as four distinct wetlands for the purposes of the wetland functional assessment (Exhibit 3E-1, Drainage Systems and Wetlands):

- Golf Course Drainage System 1 (Pond 13, Pond 16 and Drainage Ditch 1)
- Golf Course Drainage System 2 (Pond 5 and Pond 6)
- Golf Course Drainage System 3 (Pond 10, Pond 11, Pond 18, vegetated wetland and Drainage Ditch 2)
- Isolated Wetland A

The results of the Magee-Hollands wetland functional assessment are presented in Table 3E-1 below:





0 175 350 700 Feet

Hampshire Country Club - PRD

Village of Mamaroneck, NY

## Drainage Systems and Wetlands

Source: Wetland Characterization Assessment - Figure 5, prepared by Nelson, Pope and Voorhis, LLC (September 17, 2012), as revised by VHB based on current conditions as observed on May 17-18, 2016



**Table 3E-1 Summary of Magee-Hollands Wetland Functional Capacity Scores**

<b>Wetland Function</b>	<b>Golf Course Drainage System 1 (FCI Score)</b>	<b>Golf Course Drainage System 2 (FCI Score)</b>	<b>Golf Course Drainage System 3 (FCI Score)</b>	<b>Isolated Wetland A (FCI Score)</b>
Modification of Groundwater Discharge (FCI Range = 0.19-1.0)	0.55	0.50	0.55	0.28
Modification of Groundwater Recharge (FCI Range = 0.19-1.0)	0.57	0.43	0.62	0.62
Storm and Flood Water Storage (FCI Range = 0.15-1.0)	0.55	1.0	0.52	1.0
Modification of Stream Flow (FCI Range = 0.11-1.0)	0.44	0.0	0.44	0.0
Modification of Water Quality (FCI Range = 0.22-1.0)	1.0	1.0	1.0	0.77
Export of Detritus (FCI Range = 0.27-1.0)	0.39	0.0	0.44	0.0
Contribution to Abundance and Diversity of Wetland Vegetation (FCI Range = 0.13-1.0)	0.20	0.13	0.46	0.60
Contribution to Abundance and Diversity of Wetland Fauna (FCI Range = 0.11-1.0)	0.39	0.36	0.55	0.44

Based on the wetland functional assessment, the wetlands at the Project Site are primarily anthropogenic features that were created or altered to provide drainage and irrigation for the golf course, and to serve as water hazards. These features have been adversely impacted due to stormwater inputs from onsite and offsite sources, as well golf course management practices. The results of the Magee-Hollands wetland functional assessment indicate that the primary functions performed by the Project Site wetlands are the Modification of Groundwater Quality and Storm and Floodwater Storage functions that these features were created or historically altered to perform. As a result of performing these functions, water quality is impaired and bottom substrates within the wetlands have been impacted by mineral and organic sediments. The Project Site wetlands as a whole also offer a moderate



degree of functionality with respect to the Modification of Groundwater Recharge and Modification of Groundwater Discharge functions to/from the underlying groundwater table. Due to their disturbed condition, impaired water quality and siltation impacts, overall functionality is low for the Diversity of Wetland Vegetation and Contribution to Abundance and Diversity of Wetland Fauna functions. Similarly, due primarily to the lack of permanent outlets, overall functionality is low to non-existent for the Export of Detritus and Modification of Stream flow functions.

## **b) Relevant Regulations**

The United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Maps provide information to the public on the extent and status of the Nation's wetlands. The NWI Maps are guidance documents made available *"...to provide [USFWS biologists] and others with information on the distribution of wetlands to aid in wetland conservation efforts."*<sup>2</sup> Although certain wetlands and surface waters that appear on the NWI maps *may* be regulated by the federal government as "waters of the United States," according to the NWI Wetlands Mapper website, *"There is no attempt to define the limits of proprietary jurisdiction of any Federal, state, or local government, or to establish the geographical scope of the regulatory programs of government agencies."*<sup>3</sup> The NWI classifies wetlands according to the Wetland and Deepwater Habitats Classification System.<sup>4</sup> According to the NWI Maps (Exhibit 3E-2), Ponds 10 and 13 are classified as PUBHh (Palustrine, Unconsolidated Bottom. Permanently Flooded, Diked/Impounded) and PUBHx (Palustrine, Unconsolidated Bottom. Permanently Flooded, Excavated) wetlands, respectively. Additionally, Isolated Wetland A, located at the northwestern portion of the Project Site, is classified as a PEM1C (Palustrine, Emergent, Persistent, Seasonally Flooded) wetland.

Currently, the United States Army Corps of Engineers (USACE) determines federal jurisdiction over waters of the United States on a case-by-case basis. In general, traditional navigable waters (TNWs) and their tributaries, as well as wetlands and surface waters with a "significant nexus" to TNWs are generally regulated as waters of the United States by the USACE, while isolated wetlands and surface waters with no significant nexus to TNWs are generally considered non-jurisdictional. Based upon these considerations, pending a formal Jurisdictional Determination by the USACE, it appears that Isolated Wetland A, and Golf Course Drainage System 2 (i.e., Ponds 5 and 6) may not be regulated by the USACE, while Golf Course Drainage Systems 1 and 3 would likely regulated by the USACE as waters of the United States. Land uses and activities that result in direct impacts to regulated waters of the United States (e.g., draining, filling, dredging, discharges, etc.) require a permit from the USACE.

<sup>2</sup> United States Fish and Wildlife Service National Wetland Inventory - Overview. 2016. Available online at <http://www.fws.gov/wetlands/NWI/index.html>. Accessed July 21, 2016.

<sup>3</sup> United States Fish and Wildlife Service National Wetlands Inventory – Data Limits, Exclusions and Precautions. 2016. Available online at: <https://www.fws.gov/wetlands/data/Limitations.html>. Accessed July 21, 2016.

<sup>4</sup> Cowardin, et al. *Classification of Wetlands and Deepwater Habitats of the United States*. United States Fish and Wildlife Service. 1979.





\\NYWPDATA\projects\28677.02 Hampshire Subdivision\GIS\Project\Wetlands Chapter Maps\NWI.mxd



0 175 350 700 Feet

Hampshire Country Club - PRD

Village of Mamaroneck, NY

**National Wetlands Inventory  
(NWI) Wetlands**

Source: U.S. Fish and Wildlife Service



The New York State Department of Environmental Conservation (NYSDEC) regulates freshwater wetlands pursuant to Article 24 of the New York State Environmental Conservation Law ("*Freshwater Wetlands Act*") and its implementing regulations (6 NYS Codes, Rules and Regulations (NYCRR) Part 663 and 664). Permits are required for land uses and activities that take place within regulated wetlands or the surrounding 100-foot adjacent area. Based on review of the NYSDEC Freshwater Wetlands Maps (Exhibit 3E-3), there are no NYSDEC-regulated freshwater wetlands located at or adjacent to the Project Site.

Surface waters and wetlands greater than 2,500 square-feet in area and the 100-foot adjacent area surrounding these features are regulated by the Board of Trustees of the Village of Mamaroneck ("the Village"), pursuant to Village Code Chapter 192 (Freshwater Wetlands), and by the Town Board of the Town of Mamaroneck (the "Town"), pursuant to Town Code Chapter 114 (Wetlands and Watercourses). Accordingly, the seven ponds and two vegetated wetlands at the Project Site, and the respective 100-foot adjacent areas surrounding these features are regulated by the Village or the Town. Specifically, Ponds 5, 6, 10, 11, 18, and the vegetated wetland located contiguous to the west of Pond 10 are located within the Village, while Isolated Wetland A is located within the Town. Portions of Pond 13 are located within both the Village and the Town.

The NYSDEC-regulated tidal wetlands of Delancey Cove occur to the south of the Project Site (Exhibit 3E-3). Tidal wetlands are protected under Article 25 of the New York State Environmental Conservation Law ("*Tidal Wetlands Act*") and its implementing regulations (6 NYCRR Part 661). Various land uses and activities within regulated tidal wetlands require a permit from the NYSDEC. The NYSDEC's tidal wetland jurisdiction also extends up to 300 feet landward of tidal wetlands, however this jurisdiction is limited by the ten-foot elevation contour above mean sea level or to the seaward edge of existing functional structures that were created on or before August 20, 1977 (e.g., hardened shoreline structures, paved roads and parking lots, buildings, etc.). As such, it appears that the NYSDEC's tidal wetland jurisdiction in the vicinity of the Project Site would be limited by the seaward edges of Hummocks Road, Oak Lane, Eagle Knolls Road and Cove Lane, or hardened shoreline structures occurring seaward of these roadways.

Additionally, both the Village and the Town regulate tidal wetlands and the 100-foot adjacent area associated with these features.

## **2. Future without the Proposed Project**

Under the No-Action Alternative, the wetlands at the Project Site would remain as described in Existing Conditions. The primary functions of the wetlands at the Project Site would continue to be stormwater management and drainage from onsite and offsite sources, as well as golf course water hazards. As such, it is anticipated that water quality within the wetlands would continue to be impaired and impacts to bottom sediments by mineral and organic sediments would continue. As implementation of the Landscaping Plan (described below) would not occur, the proposed stormwater management system







\\NYWPDATA\projects\28677.02 Hampshire Subdivision\GIS\Project\Wetlands Chapter Maps\Wetlands - Freshwater and Tidal.mxd



**Hampshire Country Club - PRD**

| Village of Mamaroneck, NY

-  DEC Freshwater Wetlands
-  DEC Tidal Wetlands

**DEC Wetlands**

Source: U.S. Fish and Wildlife Service



and plantings would not be installed and a reduction of the golf course use on the Project Site would not occur. As a result, it is anticipated that wetland vegetative diversity and the overall ecological functionality of the wetlands as habitat for wildlife would remain low.

As discussed in previous sections, current economic factors at the Project Site driving the need for the proposed development will also continue. It is anticipated that it will be difficult for the membership club at Hampshire Country Club to remain viable without the introduction of other revenue sources. The future of the Project Site without the Proposed Action would result in the golf course and membership club not being a sustainable business in the long run. Operations of the club, and maintenance of the ponds, drainage ditches and wetlands currently located at the Project Site, would cease. Without a custodian to manage the grounds, the quality of these features would diminish significantly.

### **3. Potential Impacts**

#### **a) Wetland Functionality**

As a result of the Proposed Action, no direct impacts (e.g., filling, draining, clearing of vegetation, etc.) to the wetlands at the Project Site would occur. Further, while some of the golf holes would be maintained along the perimeter of the Project Site, no development or ground disturbance from the proposed residential buildings or tennis courts would occur within a minimum of 100 feet of the wetlands at the Project Site.

The wetlands at the Project Site are primarily anthropogenic features that were created or altered to provide drainage and irrigation for the golf course, and to serve as water hazards. These features have been adversely impacted due to stormwater inputs from onsite and offsite sources, as well golf course management practices. The results of the May 2016 Magee-Hollands wetland functional assessment indicate that the primary functions performed by the Project Site wetlands are the Modification of Groundwater Quality and Storm and Floodwater Storage functions that these features were created or historically altered to perform.

Under the proposed PRD, stormwater would be directed to a stormwater management system consisting of a series of catch basins, drainage pipes, bio-retention basins and water quality ponds designed to filter pollutants and control runoff from impervious surfaces. Specifically, six bio-retention basins ranging in size from 1,000 square feet to 1,500 square feet will be concentrated at three locations at the Project Site. The bio-retention basins will discharge to three water quality ponds (3,500 sf, 5,000 sf, and 10,000 sf). Overflow from the water quality ponds will be conveyed overland via drainage swales to Delancey Cove. In addition, per the proposed PRD Landscaping Plan, the stormwater basins and wetlands on the Project Site would be landscaped with a 20-foot buffer of native plantings (see Exhibit 2-10 in Chapter 2, "Description of Proposed Project").





As a result of the proposed stormwater management system, onsite stormwater discharges to the three existing golf course drainage systems would decrease, with a corresponding reduction in discharges of pollutants, organic material and mineral sediments to the ponds that comprise these systems. Similarly, the proposed PRD would result in a partial change in use of the Project Site from an actively managed golf course to a smaller, 36.8-acre golf course and residential development with 36 acres of open space. As golf course management practices would be limited to the perimeter of the Project Site, an overall reduction in fertilizer, pesticide, and herbicide applications would occur. No applications of these materials are currently proposed or anticipated within the 36 acres of open space that surround the existing wetlands. Based upon the foregoing anticipated reductions in stormwater inputs and fertilizer, pesticide, and herbicide applications, an overall improvement in water quality is expected for the wetlands at the Project Site, resulting in improved functionality for the Magee-Hollands Modification of Groundwater Quality wetland function.

It is further anticipated that, given the maintenance of the golf courses along the perimeter of the Project Site, which includes many of the wetlands on the Project Site, these wetlands would continue to perform the Magee-Hollands Modification of Groundwater Quality and Storm and Floodwater Storage functions that these features were created or historically altered to perform. The wetlands would also continue to provide functionality with respect to the Modification of Groundwater Recharge and Modification of Groundwater Discharge functions. Finally, due to the anticipated water quality improvements, the scaling back of golf course management practices, and implementation of the PRD Landscape Plan, some improvements are anticipated for the Magee-Hollands Diversity of Wetland Vegetation and Contribution to Abundance and Diversity of Wetland Fauna functions as a result of the proposed PRD.

In summary, no direct disturbance would occur to any of the Project Site wetlands as a result of the proposed PRD. Moreover, no residential development would occur within the 100-foot adjacent areas of the Project Site wetlands. The Project Site wetlands would continue their current functions of providing drainage and irrigation for the golf course, and serving as water hazards. Accordingly, no significant adverse impacts to wetlands are anticipated as a result of the proposed PRD. Furthermore, taking into account the existing impaired/degraded ecological conditions with the wetlands at the Project Site, the proposed PRD would result in improvements to the overall functionality of the Project Site wetlands, with respect to water quality and stormwater storage/remediation functions.

## **b) Relevant Regulations**

As detailed in Section 3E-1(b), pending a formal Jurisdictional Determination by the USACE, it appears that Isolated Wetland A, and Golf Course Drainage System 2 (i.e., Ponds 5 and 6) may not be regulated by the USACE, while Golf Course Drainage Systems 1 and 3 would likely regulated by the USACE as waters of the United States. Land uses and activities that result in direct impacts to regulated waters of the United States (e.g., draining, filling, dredging, discharges, etc.) require a permit from the USACE.



However, as no such impacts are proposed, a USACE permit would not be required for the proposed PRD.

Based on review of the NYSDEC Freshwater Wetlands Maps (Exhibit 3E-3), there are no NYSDEC-regulated freshwater wetlands located at or adjacent to the Project Site. Accordingly, an NYSDEC Freshwater Wetlands Permit would not be required for the proposed PRD. As detailed in Section 3E-1(b), it appears that the NYSDEC's tidal wetland jurisdiction in the vicinity of the Project Site would be limited by the seaward edges of Hummocks Road, Oak Lane, Eagle Knolls Road and Cove Lane, or hardened shoreline structures occurring seaward of these roadways. Accordingly, pending receipt of a Determination of No Jurisdiction from the NYSDEC, it appears that a Tidal Wetlands permit would not be required for the proposed PRD.

Finally, as mentioned, surface waters and wetlands greater than 2,500 square-feet in area and the 100-foot adjacent area surrounding these features are regulated by the Board of Trustees of the Village of Mamaroneck, pursuant to Village Code Chapter 192 (Freshwater Wetlands), and by the Town Board of the Town of Mamaroneck, pursuant to Town Code Chapter 114 (Wetlands and Watercourses). Accordingly, the seven ponds and two vegetated wetlands at the Project Site, and the respective 100-foot adjacent areas surrounding these features are regulated by the Village or the Town. However, no activity or disturbance is proposed for the wetlands or adjacent areas; therefore, a wetlands permit from the Village or Town is not required.

#### 4. Mitigation

As detailed in the Landscaping Plan (see Exhibit 2-10 in Chapter 2, "Description of Proposed Project"), implementation of the proposed PRD would result in the installation of native plantings along perimeter areas of the proposed stormwater management basins, ponds and wetlands. The species to be planted include native trees, shrubs and herbaceous plant species that commonly occur within pond edge communities in southeastern New York State. Among the proposed species are red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), tupelo (*Nyssa sylvatica*), summersweet (*Clethra alnifolia*), winterberry (*Ilex verticillata*), gray dogwood (*Cornus racemosa*), switchgrass (*Panicum virgatum*), Joe-Pye weed (*Eupatorium purpureum*), tussock sedge (*Carex Stricta*) and others. It is anticipated that the vegetated bio-retention basins and ponds would improve overall plant and wildlife species diversity, stormwater storage/remediation and groundwater recharge.

The proposed PRD stormwater management system represents a significant mitigation measure, both for the Project Site wetlands and the Project Site overall. The system has been designed to filter pollutants and control runoff from impervious surfaces and includes six bio-retention basins ranging in size from 1,000 square feet to 1,500 square feet three water quality ponds (3,500 sf, 5,000 sf, and 10,000 sf) at various locations at the Project Site. As a result, onsite stormwater discharges to the three existing golf course drainage systems would decrease, with a corresponding reduction in discharges of pollutants, organic material and mineral sediments to the ponds that comprise these systems.





Additional wetland mitigation would occur through the establishment of 36 acres of open space within the wetland watershed, as compared to existing Project Site usage as an actively managed golf course. As golf course management practices would be limited to the perimeter of the Project Site, a significant overall reduction in fertilizer, pesticide, and herbicide applications would occur at the Project Site. Based upon the foregoing anticipated reductions in stormwater inputs and fertilizer, pesticide, and herbicide applications, a significant overall improvement in water quality is expected for the wetlands at the project site.

In summary, taking into account the existing impaired/degraded conditions of the Project Site wetlands, as well as the minor proposed impacts to these features (no development within the 100-foot wetland buffer areas), the proposed mitigation measures described above would result in substantial improvement over existing conditions. No State or Federal permitting is required.

DRAFT



## **F. STORMWATER MANAGEMENT**

### **1. Existing Conditions**

#### **a) Drainage Patterns and Existing Stormwater Runoff**

The Project Site is located within the Atlantic Ocean/Long Island Sound Watershed and what is known as the Larchmont Harbor Drainage Basin<sup>1</sup>. According to the NYS Department of Environmental Conservation, this watershed “experiences considerable impact and stress from a variety of sources throughout the densely populated urban area. However, in spite of these impacts, the waters of the basin remain a rich and valuable recreational, ecological and economic resource.”<sup>2</sup> The project is not located within a TMDL watershed, nor does it discharge into a 303(d) listed waterbody.

The golf course, with its associated landscaped fairways, roughs, trees, and several ponds, composes the majority of the Project Site. Existing impervious surfaces include the main clubhouse and accessory recreational buildings, parking lots, paved pathways, and tennis courts. Together, these impervious buildings and features constitute approximately six acres of the Project Site.

The Project Site is located within the 100-year tidal floodplain. According to the USDA, NRCS soil survey for Westchester County, NY, the majority of the golf course is hydrologic soil group D. The rest of the site is hydrologic soil group B. The USDA soils report is included in the Stormwater Pollution Prevention Plan (SWPPP) included in Appendix E and soils are detailed in Chapter 3C, Geology.

The Project Site currently contains three drainage systems. The first is located primarily within the Town of Mamaroneck’s portion of the Project Site, the second in the northeast corner of the Project Site, and the third on the southern portion of the Project Site. See Exhibit 3E-1 in Chapter 3E, Surface Water Courses and Wetlands, for an illustration of the Project Site drainage systems. In general, the golf course has a lower ground surface elevation in comparison to its surrounding area. Consequently, rainfall runoff from the surrounding areas will drain to the Project Site, through the three drainage systems, and ultimately to the Long Island Sound.

Per Chapter 4 of the New York State Stormwater Management Design Manual (SMDM) from January 2015<sup>3</sup>, given that the Project Site is located within the Long Island Sound tidal area and onsite runoff is

<sup>1</sup> Village of Mamaroneck Local Waterfront Revitalization Plan, Figure II-8, Drainage Basins Map

<sup>2</sup> “Atlantic Ocean/Long Island Sound Watershed.” New York State Department of Environmental Conservation

<sup>3</sup> New York State Stormwater Management Design Manual, Chapter 4, Section 4.4 “The C<sub>pv</sub> requirement does not apply in certain conditions, including the following: the site discharges directly tidal waters or fifth order (fifth downstream) or larger streams”; Section 4.5 “The overbank flood control requirement (Q<sub>p</sub>) does not apply in certain conditions, including: The site discharges directly tidal waters or fifth order (fifth





discharging into the tidal water, water quantity controls are not required for new development on the Project Site (See section 3a, Description of Proposed Drainage System and Analysis of Water Quality Impacts, below for further explanation). Therefore, peak rates of runoff were not evaluated for this analysis.

## **b) Drainage Infrastructure**

Existing on the Project Site is a system of seven ponds, two vegetated marshlands, drainage pipes, and several drainage ditches that channel runoff away from the property and toward the Long Island Sound. Ponds are located across the Project Site, including two ponds to the northeast; one long pond in the Town of Mamaroneck portion of the Project Site; one pond at the border between the existing golf course and the Fairway Green townhomes; and several ponds at the southern end of the Project Site that connect directly to the Long Island Sound. Two drainage ditches are located on the northwest portion of the Project Site, connecting the northeast ponds. Another series of ditches are located on the eastern and southern portions of the Project Site. The ponds and man-made drainage ditches have well defined, rock-lined edges, and serve a dual function as drainage infrastructure and water hazards for the golf course. A network of underground pipes connect the surface water features described above.

At the southern end of the Project Site near Hommocks Road, there is an existing flood gate that controls the input and output of water between the southern-most pond on the Project Site and the tidal wetlands of Delancey Cove and the Long Island Sound. During high tide, the flood gate will close to prevent tidal water from entering the Project Site. After the tidal waters recede, the flood gate will open to release any flooding within the Project Site. The flood gate is sized for a typical tide, not a tidal storm event. The Applicant performs routine maintenance and upkeep of the flood gate.

## **c) Relevant Regulations**

Chapter 294 of the Village of Mamaroneck Code outlines regulations for Stormwater Management and Erosion and Sediment Control. Any land development activity that results in the disturbance of land greater than 1,000 square feet requires a Stormwater Pollution Prevention Plan (SWPPP) per §294-4(A)(1). The Proposed Action will require a SWPPP and adherence to Chapter 294 of the Village of Mamaroneck Code. The following is a summary of the regulations as they relate to the project:

- The Stormwater Pollution Prevention Plan (SWPPP) must be prepared in accordance with the specifications per § 294-8(B), which outlines required contents of the document.
- Development activities must conform to the technical, performance and design standards defined in the New York State Stormwater Management Design Manual (SMDM) dated August 2010 and

---

downstream) or larger streams.”; Section 4.6 “The 100-year storm control requirement can be waived if: The site discharges directly tidal waters or fifth order (fifth downstream) or larger streams.”



the New York Standards and Specifications for Erosion and Sediment Control dated August 2005, per §294-9(A).

- Any land development activity shall not cause an increase in turbidity that will result in substantial visible contrast to natural conditions in surface waters of the State of New York, per §294-9(B).

## **2. Future without the Proposed Project**

Without the Proposed Action, conditions on the Project Site would remain as previously described in this chapter under Existing Conditions. See the No Action Alternative described in Chapter 4, for more detailed information.

## **3. Potential Impacts**

### **a) Description of Proposed Drainage System and Analysis of Water Quality Impacts**

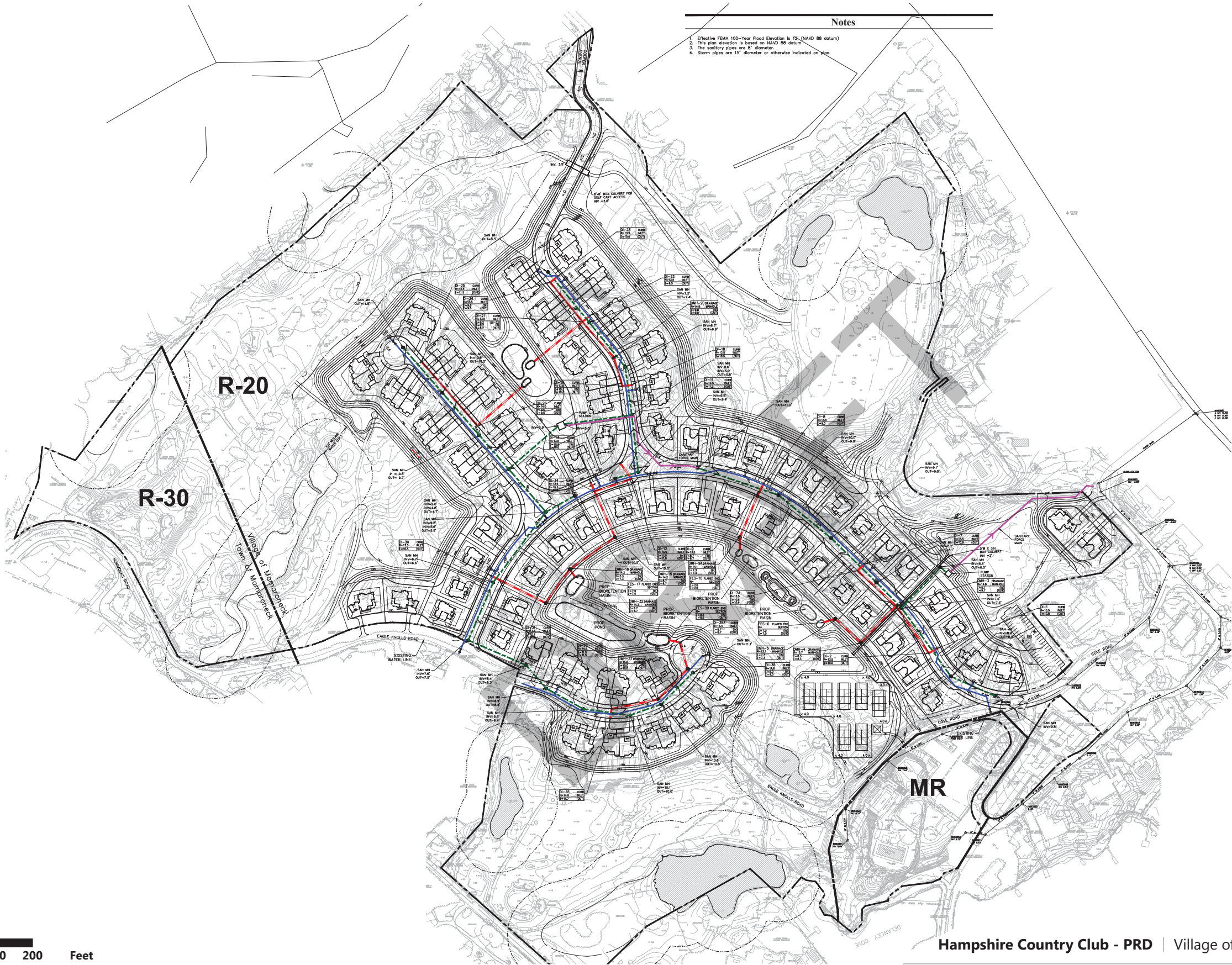
The Proposed Action will result in an increase in impervious surfaces on the Project Site. This will consist of approximately 14.3 acres of impervious area of which 8.3 acres is new impervious area. The total disturbance area of the development is approximate 55.6 acres. The increase in impervious surfaces will result in an increase in pollutants and likely a corresponding increase in the peak rate of stormwater runoff. However, per Chapter 4, Sections 4.4 through 4.6, of the SMDM, given that the Project Site is located within the Long Island Sound tidal area and onsite runoff is discharging into the tidal water, water quantity control, such as channel protection volume, overbank flood control, and extreme flood control, is not required (see footnote 3 above for exact language). Therefore, peak discharge rate control for the post-development scenario was not calculated, as proposed in the Scope under Section 3(b). A Stormwater Pollution Prevention Plan (SWPPP), provided in Appendix E, has been prepared to ensure that the quality of stormwater runoff after development will not be substantially altered from the existing conditions, in compliance with Village of Mamaroneck Code §294-4(A)(1).

As outlined in the SWPPP, the proposed drainage system for the Project Site consists of drainage pipes, bioretention basins, and stormwater ponds. The bioretention basins and stormwater ponds will treat water runoff to provide water quality control. Runoff from the Project Site will be collected via the proposed drainage system along the proposed roads. This runoff will then be discharged to the proposed bioretention basins and water quality ponds for water quality treatment. Exhibit 3F-1, Grading and Utility Plan, shows the locations of the proposed bioretention basins and water quality ponds. The six proposed bioretention basins range from 1,000 square feet to 1,500 square feet. The three proposed stormwater ponds are sized at 3,500 square feet, 5,000 square feet, and 10,000 square feet. The onsite runoff will continue to drain from the stormwater ponds south toward the Long Island Sound.



- Notes
1. Effective FEMA 100-Year Flood Elevation is 7'6" (NAVD 88 datum)
  2. This plan elevation is based on NAVD 88 datum.
  3. The sanitary pipes are 8" diameter.
  4. Storm pipes are 15" diameter or otherwise indicated on plan.

- Legend
- Sanitary Force Main
  - Water Main
  - Sanitary
  - Drainage Pipe



Hampshire Country Club - PRD | Village of Mamaroneck, New York

Grading and Utility Plan

Source: VHB





The proposed drainage system described above is designed to capture any sediment and mitigate an increased turbidity that may result from the Proposed Action. As a result of implementation, it is expected that there will be no significant water quality impacts on receiving wetlands or downstream discharge points, including the fields at Hommocks Middle School or Little Harbor, per §294-9(B) of the Village Code. Therefore, improvements to downstream components of the drainage system are not required.

### **b) Proposed Erosion and Sediment Impacts**

Soil erosion will occur during construction of the proposed project. A detailed Sediment and Erosion Control Program will be implemented to mitigate the short-term impacts of soil erosion. Erosion and sediment control practices that will be implemented for proposed disturbance areas include inlet protection, installation of a silt fence, straw bale, and erosion blanket. All of the sediment and erosion controls provided would be designed in accordance with the New York Standards and Specifications for Erosion and Sediment Control, dated August 2005, and the New York State Department of Environmental Conservation, SMDM, dated January 2015, as specified in Chapter 294 of the Village of Mamaroneck Code. As a result of the proposed Sediment and Erosion Control Program, it is expected that there will be no significant erosion or sediment impacts on the Project Site nor are there expected to be sedimentation impacts and induced turbidity in the Long Island Sound or other downstream water courses.

### **c) Stormwater Management Plan**

The following is a discussion of the five-step stormwater management design process performed for the Proposed Action, as required by the NYS SMDM.

#### Step 1: Site Planning

The site planning process allows for conservation of natural resources and the reduction of impervious coverage to reduce the impact on water quality from the Proposed Action. Strategies for natural resource conservation on the Project Site include: preservation of undisturbed areas; minimizing site clearing and grading; avoiding sensitive natural areas; and open space design. In addition, coverage from roadways, sidewalks, driveways, building footprints, and parking will be reduced to the maximum extent possible.

#### Step 2: Determine Water Quality Volume (WQv)

The required Water Quality Volume (WQv) for the Project Site was determined using the procedures described in Chapter 4 of the SMDM. WQv is designed to improve water quality by capturing and treating 90 percent of the average annual stormwater runoff volume. The required WQv was computed





from the NYSDEC equation  $WQ_v = P \times R_v \times A/12$  where  $P=90\%$  rainfall event,  $R_v = 0.05 + 0.009(I)$ ,  $I$  = percentage of impervious cover, and  $A$  = drainage area in acres.

#### Step 3: Runoff Reduction Volume

RRv requirements can be achieved through the application of green infrastructure and standard stormwater management with runoff reduction capacity. If the RRv provided by these techniques is greater than the required  $WQ_v$ , the RRv requirement is met. However, if the RRv is less than the required  $WQ_v$ , the project must, at a minimum, reduce a percentage of the runoff from impervious areas to be constructed on-site. The percent reduction is based on the Hydrologic Soil Groups present on the Project Site, and is determined by the Specific Reduction Factor. The required RRv was computed from the NYSDEC equation  $RR_v (\text{ac-ft}) = (P)(R_v^*)(A_i)/12$  where  $P = 90\%$  rainfall event,  $R_v^* = 0.05 + 0.009(I) = 0.95$  where  $I$  is 100% impervious,  $A_i = (S)(A_{ic})$  = impervious cover targeted for runoff reduction,  $(A_{ic})$  = total area of new impervious cover, and  $S$  = hydrologic soil ground (HSG) specific reduction factor.

The hydrologic soil ground for the Project Site consists of HSG B and D. The Specific Reduction Factor is 0.4 and 0.2 for HSG B and HSG D respectively. Green infrastructure or standard SMP with runoff reduction capacity techniques, including bioretention basins and water quality ponds, will be utilized to reduce the percentage of runoff from impervious areas to be constructed.

#### Step 4: Apply Standard Stormwater Management Practices to Address Remaining $WQ_v$

Required water quality volume is treated by standard stormwater management practices or stormwater management manufactured treatment devices certified by NYSDEC. Bioretention basins and water quality ponds, including forebay and permanent pools, will be constructed on the Project Site. The six proposed bioretention basins range from 1,000 square feet to 1,500 square feet. The three proposed stormwater ponds are sized at 3,500 square feet, 5,000 square feet, and 10,000 square feet. A Bioretention basin is a shallow stormwater basin or landscape area which utilizes engineering soils and vegetation to capture and treat runoff. The purpose of the forebay and permanent pools are to trap sediment from on-site runoff. Sediment removal in the forebay and permanent pools shall be performed every five to six years or after 50% of its capacity has been lost.

#### Step 5: Apply Volume and Peak Flow Rate Control Practices if Still Needed to Meet Requirements

Since the onsite runoff is discharging into the tidal water (Long Island Sound), channel protection volume ( $CP_v$ ), overbank flood control ( $Q_p$ ) and extreme flood control ( $Q_f$ ) are not required as per Chapter 4 of New York State SMDM. A SWPPP has been prepared in compliance with the New York State Department of Environmental Conservation SMDM and the Village of Mamaroneck Code Chapter 294 regulations. A copy of the SWPPP can be found in Appendix E



#### **4. Mitigation**

The proposed mitigation measures for stormwater management and drainage are outlined in Sections V through IX of the SWPPP. The SWPPP Sections V through VII are briefly summarized below.

##### **a) Stormwater Management Design**

The SWPPP includes the applicable stormwater management practices for the development. The proposed stormwater management system employs a series of catch basins, drainage pipes, bioretention basins, and water quality ponds to filter and reduce pollutants and control runoff from impervious surfaces. Catch basins along the proposed roadways will feed stormwater runoff through the drainage pipes into the proposed bioretention basins, of which there will be approximately six basins concentrated in three locations within the Project Site. The six basins range from 1,000 square feet to 1,500 square feet. The bioretention basins will then feed into three water quality ponds, sized at 3,500 square feet, 5,000 square feet, and 10,000 square feet. In addition, two pipes 48 inches in diameter will be located across Cooper Avenue to the north and south of Fairway Lane along the northeastern property line to avoid ponding as a result of the proposed grading changes, and the northernmost portion of Cooper Avenue will be paved with pervious pavement. See Exhibit 3F-1, Grading and Utility Plan. As a result of the proposed stormwater management system, water quality will be improved from the existing conditions, where currently no water quality measures are in place.

The Homeowner's Association, discussed in Chapter 2, Project Description, would be responsible for maintaining the common areas on the residential portion of the Project Site, and would therefore be responsible for the maintenance of the stormwater management facilities. All of the proposed stormwater management infrastructure would be located within the HOA portion of the Project Site. A description of the required maintenance activities for the stormwater management facilities is included in Chapter 8 of the SWPPP. The Club will maintain the facilities on the club property, pool, tennis courts, and the nine-hole golf course. Some of these will be located within the PRD as well.

##### **b) SWPPP Sections V and VI. Required and Additional Sediment and Erosion Control**

The purpose of a Sediment and Erosion (S&E) Control program is to minimize temporary impacts to downgradient wetlands during construction of the proposed project by retaining sediment on-site to the maximum extent practicable (see Section V of Appendix E). The S&E Control Plan will include descriptive specifications concerning land grading, topsoiling, temporary vegetative cover, permanent vegetative cover, vegetative cover selection and mulching, and erosion checks. All of the sediment and erosion controls will be designed in accordance with the New York Standards and Specifications for Erosion and Sediment Control, dated August 2005. The program will incorporate BMPs from the SMDM and complies with the requirements of the SPDES General Permit for Storm Water Discharges from Construction Activities.





Stabilization practices to be used on the Project Site include straw mulching and temporary seeding. Stabilization practices will be initiated as soon as practicable in portions of the Project Site where construction activities have temporarily or permanently ceased. The project has been designed to preserve existing vegetation where possible.

Upon completion of final grading, any areas not covered by pavement, landscaping, or other forms of stabilization and which are on slopes of 2:1 or greater will be protected with erosion control slope blankets and seeded with an erosion control seed mix.

A temporary vegetative cover will be established on areas of exposed soils (including stockpiles) that remain inactive and unstabilized for a period of more than 14 days. The seeded surfaces will be covered with a layer of straw mulch or hydro mulch.

Structural erosion and sediment controls to be used on the Project Site include the following: a barrier of staked hay bales and a silt fence will be installed at the downgradient limit of work; the inlets of the proposed catch basins will be protected from sediment inflow; stone anti-tracking pads will be installed at each access point to the work area; and diversions will be used to collect runoff from construction areas and convey it to a temporary sediment basin or trap. If necessary, additional controls may be implemented at the Project Site, including interior site erosion controls and water spraying to prevent dust on windy days.

No further mitigation measures are proposed for sediment and erosion control on the Project Site.

### **c) SWPPP Section VII. Water Quality Controls**

Section VII presents the controls that will be implemented to minimize impact to receiving waterbodies from stormwater pollution. As stormwater runoff travels across impervious surfaces, it collects pollutants such as sediments, oil, and trash and carries them to a receiving waterbody. Properly installed and maintained stormwater BMPs will capture these pollutants and reduce the impact that the proposed development has on the environment. The BMPs selected for this project were designed based on guidelines developed in the New York State SMDM.

Non-structural practices include pavement sweeping and catch basin cleaning while the structural practices will include a water quality pond. Additionally, a bioretention basin will capture and temporarily store the WQv and pass it through a filter bed of sand, organic matter or soil. Underdrain pipe is proposed at the bottom of the bioretention basins to collect the WQv runoff and discharge downstream. Larger flow will be diverted without filter through the filter bed.

The proposed water quality controls are expected to improve water quality conditions from existing conditions. No further water quality controls are proposed.



## **G. FLOODPLAINS**

### **1. Existing Conditions**

#### **a) Project Site Flood Conditions**

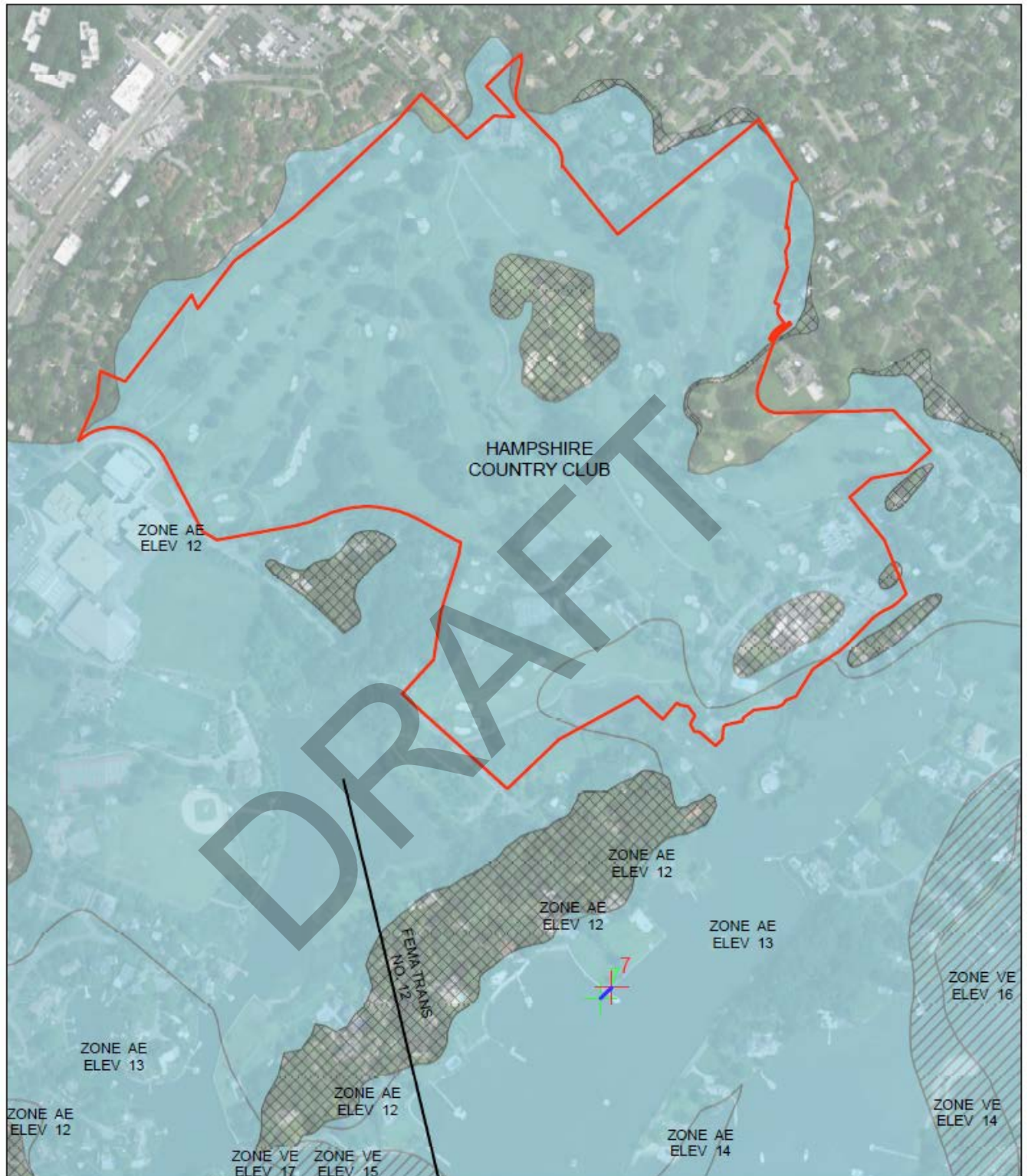
A Coastal Flooding Hydraulic Analysis was completed by VHB in April 2016, in part to assess existing floodplain conditions on the Project Site. For the purposes of this analysis, the Federal Emergency Management Agency (FEMA) Effective Flood Insurance Study (FIS) and Flood Insurance Rate Maps (FIRMs) from 2007 were evaluated as the existing condition on the Project Site. The FIS for Westchester County was developed as part of the National Flood Insurance Program.

According to these data sources, two types of flood hazard zones are found within the Project Site, including AE Zones, with a base flood elevation (BFE) of 12 feet NAVD 88, and X Zones. The AE Zone designation indicates that the area has been studied in detail and is an area subject to inundation by the 1% Annual Exceedance Probability (AEP), or 100-year flood, where wave heights are estimated to be less than 3 feet. The X Zone designation indicates areas subject to inundation by the 0.2% AEP, or 500-year flood, areas of 1% AEP flood with average depth less than one foot, or areas with drainage areas less than 1 square mile.

Exhibit 3G-1 shows the special flood hazard areas (SFHA) in the vicinity of the Project Site as mapped on the Effective FIRM (Panel 36119C0361F). There are no regulatory floodways on the Project Site (e.g., flooding occurring adjacent to a channel of a river or other watercourse). Both of these flood zone designations are a result of tidal basin flooding fed from the Long Island Sound, rather than rivers and streams. Tidal flooding is typically associated with a storm surge, which takes place when severe weather events combined with high tides or high astronomical tides create conditions that increase water level. In addition, strong winds and large waves can also contribute to the overall tidal flooding conditions.

The floodplain elevations on the Project Site are dictated by the 100-year storm event stillwater elevations from the Long Island Sound. The definition of stillwater elevation (SWEL) is the surface of water resulting from astronomical tides, storm surge, and freshwater inputs, but excluding wave setup contribution or the effects of waves. The Project Site has a history of tidal flood events and these events are directly associated with storm surge, not freshwater input. According to the 2015 Westchester County Hazard Mitigation Plan Update, the March 13, 2010 Nor'easter brought flooding of coastal waters to the Orienta and Harbor Heights section of the Village. On August 26, 2011, Hurricane Irene, and on October 29, 2012, Hurricane Sandy, flooded these sections of the Village as well.





**Legend**

- Property Line
- SFHAAE
- SFHA VE
- SFHA X



**Hampshire Country Club - PRD**

Village of Mamaroneck, NY

**Effective FIRM – Special Flood Hazard Areas**



Source: FEMA



## b) Village Regulations

Chapter 186 of the Village of Mamaroneck Code outlines the Village's Flood Damage Prevention regulations. The following is a summary of the regulations that will apply to the Proposed Action:

- §186-4. Administration: The full set of administrative regulations governing floodplains would apply to the Proposed Action. This section states that a floodplain development permit is required for all construction and other development to be undertaken in areas of special flood hazard (§186-4(B)(1)).
- §186-5(A)(2). Subdivision Proposals: Subdivision proposals shall be consistent with the need to minimize flood damage; public utilities and facilities such as sewer, gas, electrical and water systems shall be located and constructed so as to minimize flood damage; and adequate drainage shall be provided to reduce exposure to flood damage.
- §186-5(B). Standards for all structures: New structures in areas of special flood hazard shall follow all relevant regulations governing anchoring, construction materials and methods, and utilities.
- §186-5(C)(1). Elevation of residential structures within zone AE: New construction and substantial improvements shall have the lowest floor elevated to or above two feet above the base flood level. Other zone regulations are not applicable for the Project Site.

The following is a summary of the regulations that will not apply to the Proposed Action due to the fact that the flooding which takes place on the Project Site is tidal and not a result of river or stream flooding, or the regulations are for flood zones that are not located on the Project Site:

- §186-5(A)(1), Coastal high hazard areas: This section only applies to Zones V1-V30, VE, and V which are not located on the Project Site.
- §186-5(A)(3), Encroachments: Sections 186-5(A)(3)(a) and (b) are only applicable to flood zones located in a regulatory floodway which does not apply to this Project Site.
- Section 186-5(A)(3)(c) requires the volume of space occupied by the authorized fill or structure below the base flood elevation shall be compensated for and balanced by a hydraulically equivalent volume of excavated material taken from below the base flood elevation at or adjacent to the development site. Since the flood elevation for the site is controlled by tidal elevations from the Long Island Sound, placement of fill does not impact the base flood elevation as it would in a river basin. The impact of the fill on tidal flood elevation is limited to the interaction of water movement into and out the site and wave action with the placed fill. As demonstrated in the flood modeling performed by VHB for



the Project Site, attached in Appendix G, the Proposed Action does not increase overall flood elevations. There will be no change in the flood elevations to the neighboring properties as a result of the Proposed Action (See Section 3 of this Chapter). Therefore, hydraulic equivalency is achieved because there will be no impact on the flood elevation at the neighboring properties.

- §186-5(D). Residential Structures (coastal high hazard areas): This section only applies to coastal high hazard areas.
- §186-5(E). Nonresidential structures: This section applies to nonresidential structures, which will not be constructed under the Proposed Action.

## **2. Future without the Proposed Project**

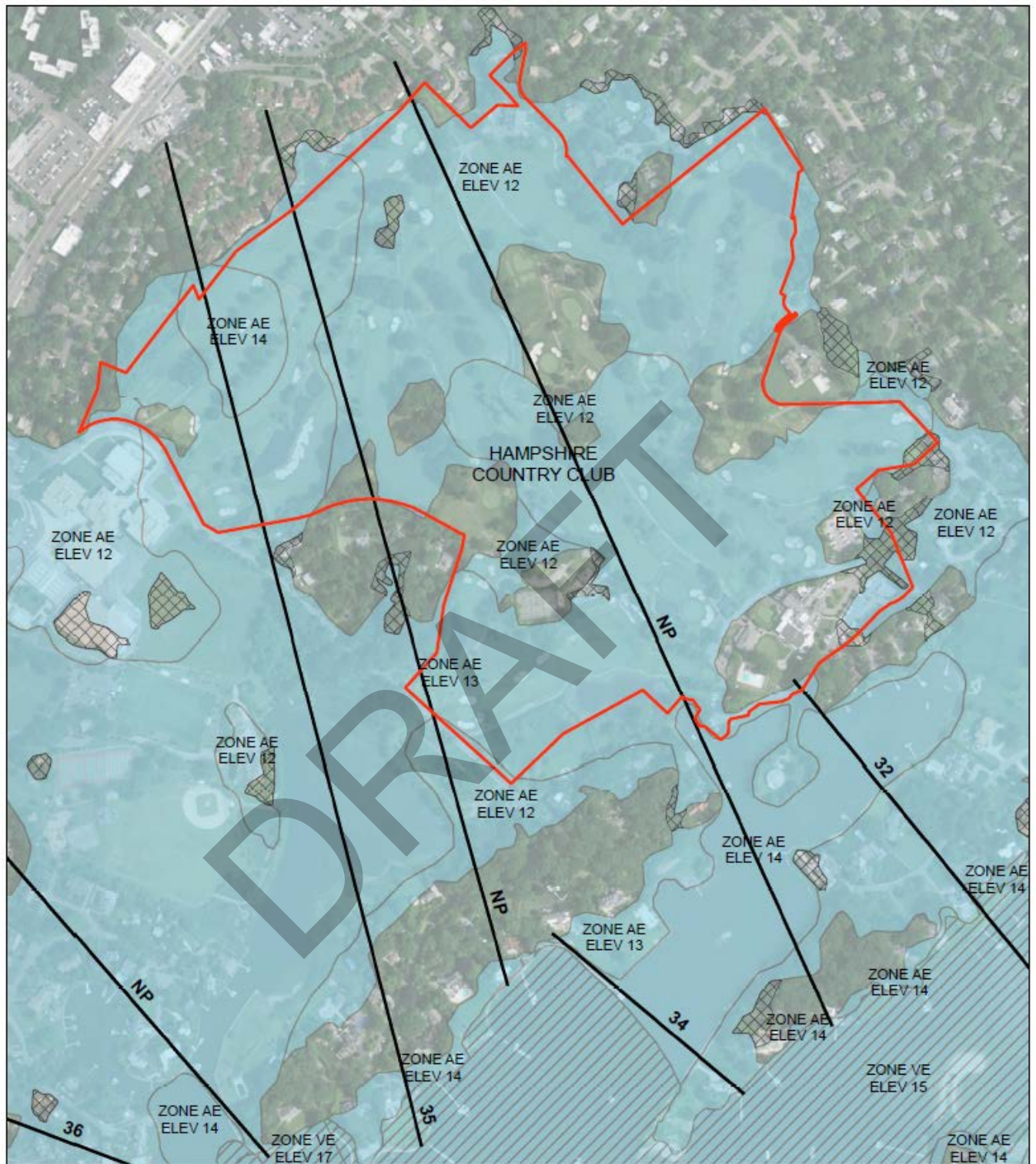
FEMA issued a Preliminary FIS and Preliminary FIRMs for Westchester County, NY in December 2014. Though the preliminary editions have not yet been adopted for regulatory purposes, FEMA has indicated that the Preliminary FIS is expected to become effective in December 2016. This document considers the Preliminary FIS and FIRMs to be the future FEMA condition without the proposed project. Exhibit 3G-2 shows the special flood hazard areas in the vicinity of the Project Site as mapped on the Preliminary FIRM. As shown, the two zones, AE and X, remain on the Project Site but their configuration has adjusted slightly compared to the Effective FIRM based on a revised coastal analysis and higher resolution topographic mapping. The Preliminary FIS and FIRM (Exhibit 3G-2) indicate that the Subject Property is partially located in two flood hazard zones including AE Zones with BFEs of 12 to 14 feet NAVD 88 and X Zones.

Without the Proposed Action, the current on-site roadways will continue to flood and there will be no emergency access from the Project Site in the case of a flood event. The Proposed Action will realign Cove Road at a 15-foot elevation, which is higher than the preliminary 100-year and 500-year flood elevations. Furthermore, Cooper Avenue will be extended to provide emergency access and the entire length of Cooper Avenue will be higher than the preliminary 100-year and 500-year flood elevations.

## **3. Potential Impacts**

### **a) Coastal Flooding Hydraulic Analysis**

The Coastal Flooding Hydraulic Analysis was completed primarily to assess potential changes in existing floodplain patterns and flows due to the Proposed Action. Impacts to the 100-year and 500-year floodplains were evaluated using model parameters based on the Effective (2007) and Preliminary (2014)



**Legend**

- Property Line
- FEMA Preliminary Transects
- SHFA AE
- SFHA VE
- SFHA X

**Hampshire Country Club - PRD**

Village of Mamaroneck, NY

**Preliminary FIRM – Special Flood Hazard Areas**

Source: FEMA







Flood Insurance Studies for Westchester County. The findings and outcomes of the analysis are summarized in this section. The full analysis, including data and methodology, is provided in Appendix G. All data collection and modeling was completed in coordination with FEMA.

VHB used the Coastal Hazards Analysis Modeling Program (CHAMP) v. 2.0, including the Wave Height Analysis for Flood Insurance Studies (WHAFIS) model data to estimate the magnitude of locally-generated, wind-driven waves and their potential impact on the Project Site and surrounding properties. VHB also used FEMA's Technical Advisory Committee for Water Retaining Structures (TAW) Wave Runup Methodology to evaluate estimated runup at breaking wave locations on the Project Site. The CHAMP program with WHAFIS module and the TAW Wave Runup Methodology are approved for use by FEMA for the purpose of performing coastal Flood Insurance Studies.

VHB evaluated potential coastal flood hazard impacts at the Project Site for four scenarios for both the 100-year and 500-year coastal storm events, taking into consideration the existing and proposed topography:

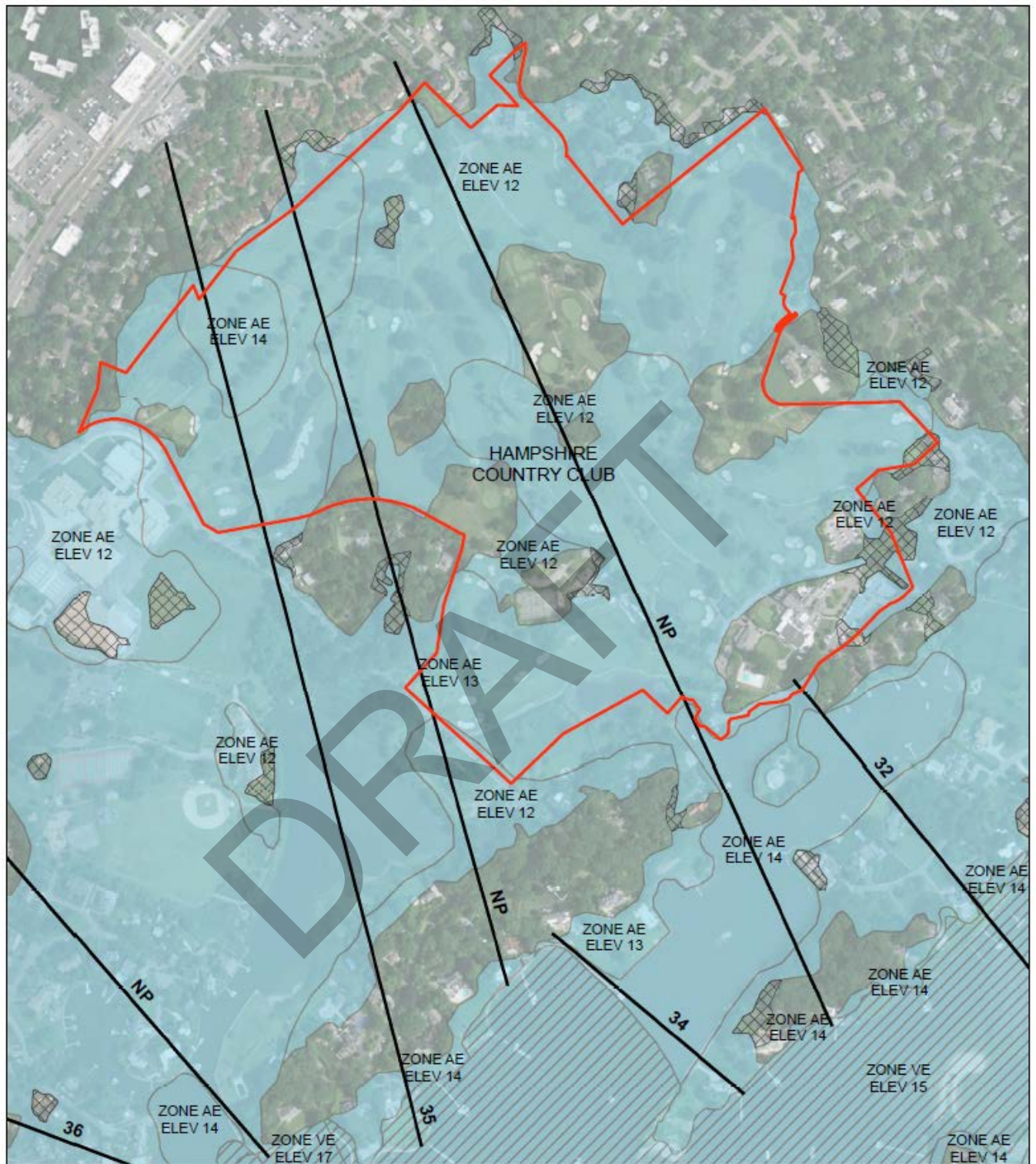
- Scenario 1: The Effective FIS inputs analyzed over the existing conditions topography,
- Scenario 2: The Effective FIS inputs analyzed over the proposed conditions topography,
- Scenario 3: The Preliminary FIS inputs analyzed over the existing conditions topography, and
- Scenario 4: The Preliminary FIS inputs analyzed over the proposed conditions topography.

For each of the four scenarios, a transect analysis was performed at four transect locations (Transects A-D), including two locations of FEMA defined transects within the Preliminary FIS and two VHB-generated transects, to evaluate effects of proposed changes across the Project Site. The four transects, depicted in Exhibit 3G-3, are focused over areas with proposed grading changes, where flooding could be altered.

### Results

The Wave Height Analysis model results indicate that the proposed site development will result in both decreases and increases in wave heights within the Project Site. Specifically, the project is expected to result in the following impacts to wave heights along the four transects:

- Transect "A": Increases in wave heights of 0.5 feet and 0.6 feet within the property boundary during the 100-year and 500-year flood events, respectively, and decreases in wave heights of up to 0.3 feet outside the landward property boundary during the 100-year and 500-year flood events;



**Legend**

- VHB-TRANSECTS
- FEMA Preliminary Transects
- Proposed Grading
- Proposed Buildings
- Property Boundary



**Hampshire Country Club - PRD**

Village of Mamaroneck, NY

**Transect Locations**





- Transect "B": Decreases in wave heights outside the property boundary of 0.3 feet and 0.8 feet during the 100-year and 500-year flood events, respectively. The proposed grading results in no increase to predicted wave heights within or outside the property;
- Transect "C": Decreases in wave heights within the property boundary during the 100-year and 500-year flood events. The proposed grading results in no change in wave height at the landward property boundary during the 100-year flood event and decreases in wave height by 0.3 feet within landward property boundary during 500-year flood events;
- Transect "D": Increases in wave heights of up to 0.1 feet within the landward property boundary during the 100-year and 500-year flood events. The proposed grading results in no change in wave heights at the landward property boundary during the 100-year flood event and increases of up to 0.2 feet at the property boundary during the 500-year flood event.

All wave height increases are within the Project Site limits and the model predicts no wave height increase outside of the property during the regulatory flood event. Results for Transect D predict a 0.2-foot increase during a 500-year flood event at the property boundary in localized areas, immediately south of the Fairway Lane dead end. However, the home at this property boundary is elevated above the calculated wave height and therefore would be unaffected by the predicted increase.

The TAW Method results indicate that the Proposed Action will result in an increase of the 2% runup heights of 0.2 feet during the 100-year flood event within the Project Site. The analysis also indicates that the proposed grading decreases the estimated 2% runup heights at the seaward face of the Project Site. Under the Preliminary FIS inputs, the increases in 2% wave runup occur only within the Project Site boundaries and are not predicted to propagate onto adjacent properties. Under the Effective FIS inputs, the model predicts a potential increase of up to 0.1 feet at the property boundary during the 100-year flood event. An increase of 0.1 feet would not increase the base flood elevation at that location.

In summary, the flood analysis demonstrates that the addition of 105 new residential structures and associated grading at the Project Site will not redirect flood flows to new off-site locations or otherwise increase existing flood flows occurring on adjacent properties. By the time floodwater reaches the property boundaries they will return to the base flood elevations as exist today. The analysis also indicates that, with the grading changes, all proposed buildings will be located outside the 100-year and 500-year floodplains. The site development proposes that all new buildings and roadways be built with a minimum finished first floor elevation of 15 feet which is higher than the preliminary 500-year annual exceedance probability stillwater elevation of 14.1 feet. The Proposed Action will realign Cove Road at a 15-foot elevation, which is higher than the preliminary 100-year and 500-year flood elevations. Furthermore, Cooper Avenue will be extended to provide emergency access and the entire length of Cooper Avenue will be higher than the preliminary 100-year and 500-year flood elevations. The improvements to the roadways will help area residents in a flood emergency. The clubhouse is outside



of the current and preliminary floodplains and there are no proposed changes to the club in the Proposed Action.

## **b) Compliance with Village Regulations**

All grading and development as proposed by the Applicant will be executed in accordance with a floodplain development permit, as required by §186-4-A.2 of the Village of Mamaroneck Code. In addition, the project has been designed to minimize flood damage on the Project Site. As demonstrated by the Coastal Flooding Hydraulic Analysis, the Proposed Action and grading changes in several cases actually decreases wave heights for the properties immediately adjacent to the northern property line.

Additionally, the project has been designed so that the lowest floor of the proposed homes will be elevated to a minimum of 15 feet, two and a half feet above the preliminary 100-year stillwater elevations, in accordance with §186-5-C.1 of the Village Code. Proposed public facilities are elevated as well to minimize flood damage, and the stormwater system is designed to provide adequate drainage, and erosion and sediment control. See Chapter 3F, Stormwater, and Chapter 3I, Sanitary Sewage, for a more detailed description of the project's stormwater control measurements and public utility infrastructure. Section 186-5(A)(3)(c) requires compensatory storage for any fill placed within a floodplain is directed at encroachments on a regulatory floodway to prevent an overall increase in flood elevation. The result is that any new construction needs to be hydraulically balanced to the existing conditions and as a result there would be no increase in the flood elevations due to the construction. The Proposed Action would not increase overall flood elevations. There will be no change in the flood elevations to the neighboring properties as a result of the Proposed Action (See Section 3 of this Chapter). Therefore, hydraulic equivalency is achieved and there will be no impact on the neighboring properties. Therefore, even though Section 186-5(A)(3)(c) related to Regulatory Floodways does not apply to the Project Site, the spirit and intent of this regulation is achieved by the Proposed Action.

## **c) Proposed Map Changes**

The Coastal Flooding Hydraulic Analysis predicts both increases of up to 0.5 feet and decreases in wave heights and flood elevations within the property limit, which will require revision to the NFIP flood maps. A Conditional Letter of Map Revision (CLOMR) will be completed and submitted to FEMA for review based on the final site grading for the project. This letter is required for any revision to the NFIP flood maps. Upon FEMA approval of the CLOMR, the Applicant will submit an as-built of the project with a Letter of Map Revision (LOMR) to change the NFIP flood maps to accurately reflect proposed conditions at the Project Site.





#### 4. Mitigation

The Coastal Flooding Hydraulic Analysis indicates that all wave height increases that may occur as a result of the Proposed Action during the regulatory flood event would be contained within the limits of the Project Site where no residential structures would be located, and that no wave height increases will negatively impact surrounding properties nor will the wave increases negatively affect the Proposed Action. Therefore, the Proposed Action will not result in an elevated risk of flood damage to any residential, recreational or commercial structure in the Village. The site development proposes that all new buildings be built with a minimum finished first floor elevation of 15 feet which is higher than the preliminary 500-year annual exceedance probability stillwater elevation of 14.1 feet. In addition, in several locations, the Proposed Action would result in a decrease in wave heights at the landward property boundary, actually improving conditions.

With the proposed grading changes, all proposed buildings on the Project Site will be located outside the 100-year and 500-year floodplains. The flood analysis demonstrates that there will be no impacts to the neighboring properties since all of the wave runups or surface water fluctuations will have dissipated by the time they reach the property boundaries and return to the base flood elevations as exists today. Risk of property damage and/or physical harm caused by flooding on local roadways will be decreased as a result of the Proposed Action. The Proposed Action will realign Cove Road at a 15-foot elevation, which is higher than the preliminary 100-year and 500-year flood elevations. Furthermore, Cooper Avenue will be extended to provide emergency access and the entire length of Cooper Avenue will be higher than the preliminary 100-year and 500-year flood elevations. This will improve safety conditions in the neighborhood during severe storms and flooding events, as safe egress out of the area would be preserved. The improvements to the roadways will help area residents in a flood emergency. The clubhouse is outside of the current and preliminary floodplains and there are no proposed changes to the club in the Proposed Action.

The project will be constructed in accordance with all Village regulations and requirements. As noted above, the Coastal Flooding Hydraulic Analysis predicts a slight increase in wave heights and flood elevations of up to 0.5 feet within the property limit which will require revision to the NFIP flood maps. A Conditional Letter of Map Revision (CLOMR) will be completed and submitted to FEMA for review based on the final site grading for the project. Upon FEMA approval of the CLOMR, the Applicant will submit an as-built of the project with a Letter of Map Revision (LOMR) to change the NFIP flood maps to accurately reflect proposed conditions at the Project Site.

No further mitigation measures are proposed.



## **H. WATER SUPPLY**

### **1. Existing Conditions**

The Project Site and existing clubhouse facilities are serviced by the Westchester Joint Water Works (WJWW), which serves the Village of Mamaroneck and the Towns of Mamaroneck and Harrison. The water source is Kensico Reservoir, which is part of the New York City water system (the WJWW purchases the water from the New York City system).

The existing area is currently serviced by a number of water mains operated by WJWW, including a 12" main in Orienta Avenue and Cove Road and a 10" line extending down Hommocks Road to its intersection with Eagle Knolls Road. Service lines extend down each adjacent street to all surrounding properties. An existing 6" water line along Eagle Knolls Road and another along Cove Road service the existing clubhouse and accessory buildings.

In addition to the existing municipal water supply, the Project Site currently has two groundwater wells that provide irrigation water for the existing golf course. The well water is not utilized for any domestic supply. The wells are located on the north end of the Project Site near the end of Sylvan Lane.

### **2. Future without the Proposed Project**

Without the proposed project, water supply and infrastructure conditions on the Project Site would remain as described above.

### **3. Potential Impacts**

The Proposed Action includes the construction of 105 residential units, including 44 single-family homes and 61 semi-detached carriage homes.

The estimated domestic average daily demand from the project would be 39,490 gallons of potable water per day (gpd) utilizing Westchester County Department of Health (WCDOH) multipliers of 110 gallons per day per bedroom. The existing wells will continue to be used for irrigation of the 9-hole golf course and potentially for irrigation in common areas.

The proposed project will provide a new 8" water main system connecting the existing Cove Road 12" line to the existing 10" line at Hommocks Road, creating a main redundancy feed from the east and west. The new water main will provide a series of hydrants at locations approved by the Fire Official. Domestic connections will also be serviced by the 10" main. See Exhibit 3H-1, Grading and Utility Plan.

VHB has held preliminary meetings with WJWW to explore connection of the proposed project to the existing system. WJWW did acknowledge access to water main and indicated that system wide water





capacity was available. To determine the system requirements to service the proposed project, system wide modeling will be required under coordination with the WJWW. Hydrant flow tests measuring flow and pressure drop will be required at each adjacent water main to establish baseline conditions. Collected data will be used to model the proposed development under anticipated domestic and fire demand. Results will determine which modifications, if any, are required to service the proposed development.

It is anticipated that the water lines will be owned and maintained by WJWW. The final limits of the Town and private system will be determined during the final site plan approval process. All construction would be in accordance with Village standards. Hydrants will be adequately spaced throughout the Project Site; spacing will be finalized in consultation with the Fire Department.

#### **4. Mitigation**

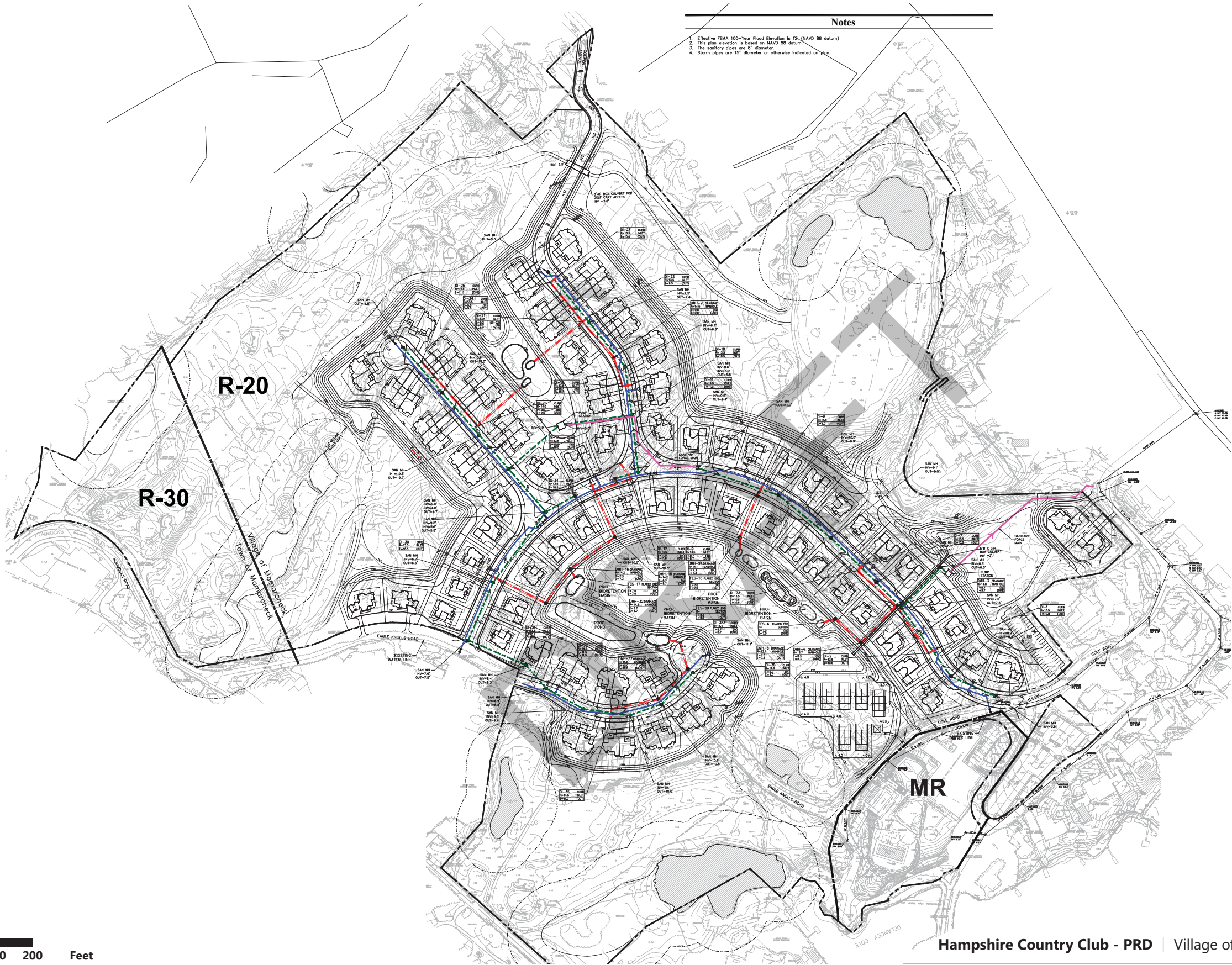
Since the water supply is currently available and sufficient capacity exists to service the Proposed Action, no mitigation measures are proposed for water supply.

DRAFT



- Notes
1. Effective FEMA 100-Year Flood Elevation is 7'6" (NAVD 88 datum)
  2. This plan elevation is based on NAVD 88 datum.
  3. The sanitary pipes are 8" diameter.
  4. Storm pipes are 15" diameter or otherwise indicated on plan.

- Legend
- Sanitary Force Main
  - Water Main
  - Sanitary
  - Drainage Pipe



Hampshire Country Club - PRD | Village of Mamaroneck, New York

Grading and Utility Plan





## **I. SANITARY SEWAGE**

### **1. Existing Conditions**

The Project Site and existing clubhouse facilities are located within the 30-square-mile Mamaroneck Sewer District, which includes the Village of Mamaroneck, parts of the Towns of Harrison and Mamaroneck, and the Cities of New Rochelle, Rye, and White Plains.

The Mamaroneck Wastewater Treatment Plant, located approximately 1.3 miles north of the existing clubhouse, was constructed in the 1930's. According to the 2012 Village Comprehensive Plan, the plant has been substantially upgraded four times since its original construction.

The existing area in the vicinity of the Project Site is serviced by a number of sanitary collection lines managed and maintained by the Village of Mamaroneck Department of Public Works (DPW). The current club use has several existing service connections. Within Cove Road, an existing 8" gravity main services connections to the clubhouse, pool area bathrooms and food counter, and the tennis facility on Eagle Knolls Road. An additional service connection exists at Cooper Avenue for the existing maintenance facility.

Sanitary flow from Cove Road is conveyed through an 8" gravity line that collects discharge from the above mentioned Project Site facilities and the existing residences on Cove Road and South Cove Road. Collected flow is discharged to a pump station on Cove Road west of its intersection with Orienta Avenue. The pump station operates via a 6" force main to a 10" sanitary gravity main in Orienta Avenue at the intersection of Cove Road.

VHB met with the Town Engineer for the Village of Mamaroneck, Hernane De Almeida, to review the existing sanitary collection network, identify potential connection points and system issues in the vicinity of the Project Site. Mr. De Almeida stated that the current system within Cove Road, where the club currently discharges, requires frequent maintenance due to the shallow slope of the existing conveyance lines and therefore would not be the best connection point for the proposed development. Instead, connection to the 10" line within Orienta Avenue at the Cove Road intersection was suggested as a better alternative.

### **2. Future without the Proposed Project**

Without the Proposed Project, conditions on the Project Site would remain as described above.



### 3. Potential Impacts

The estimated sewage generation for the proposed development is 39,490 gallons per day, with an estimated peak rate of 110 gpm utilizing the industry standard values for wastewater. The anticipated sewage generation calculations are illustrated below.

**Table 3I-1 Anticipated Wastewater Generation**

Unit Type	Number of Units	Bedrooms/ Unit	Hydraulic Load (gpd /single bedroom)	Design Flow Rate (gpd)
Carriage Home	61	3	110	20,130
Single-Family Home	44	4	110	19,360
	<b>105</b>			<b>39,490</b>

As noted above, the Village Engineer, Mr. De Almeida, recommended connection for the proposed development be directly to the existing 10" gravity main in Orienta Avenue at the intersection of Cove Road. To reach the Orienta Avenue line, a pump station is proposed within the development to convey Project Site sanitary discharge via force main down Cove Road to the Orienta Avenue 10" gravity main.

The proposed homes will be connected to a combined gravity and force main sewer system, as described and depicted in Exhibit 3I-1, Grading and Utility Plan. Sanitary waste will flow from the homes along the extended Eagle Knolls Road, the extended Cooper Avenue, the new cul-de-sac road and the homes along the western portion of Cove Road to the proposed pump station to be located just north of proposed Lots 17 and 18. The system will continue via force main to a proposed sanitary manhole along the re-routed Cove Road and will continue gravitationally along Cove Road to another proposed pump station between proposed Lots 2 and 3. Finally, sanitary waste will flow through a force main to connect to the existing 10" gravity main along Orienta Avenue.

Mr. De Almeida noted that investigation of the receiving sewer line and downstream segments in the vicinity of the Project Site would be required to ensure that the receiving pipe is in good condition and adequate to receive the proposed additional flow from the proposed project. This work will be undertaken during the site plan and building permit process and will be coordinated with Mr. De Almeida. Any noted deficiencies could be included in the required Inflow and Infiltration reduction requirements noted below.



#### 4. Mitigation

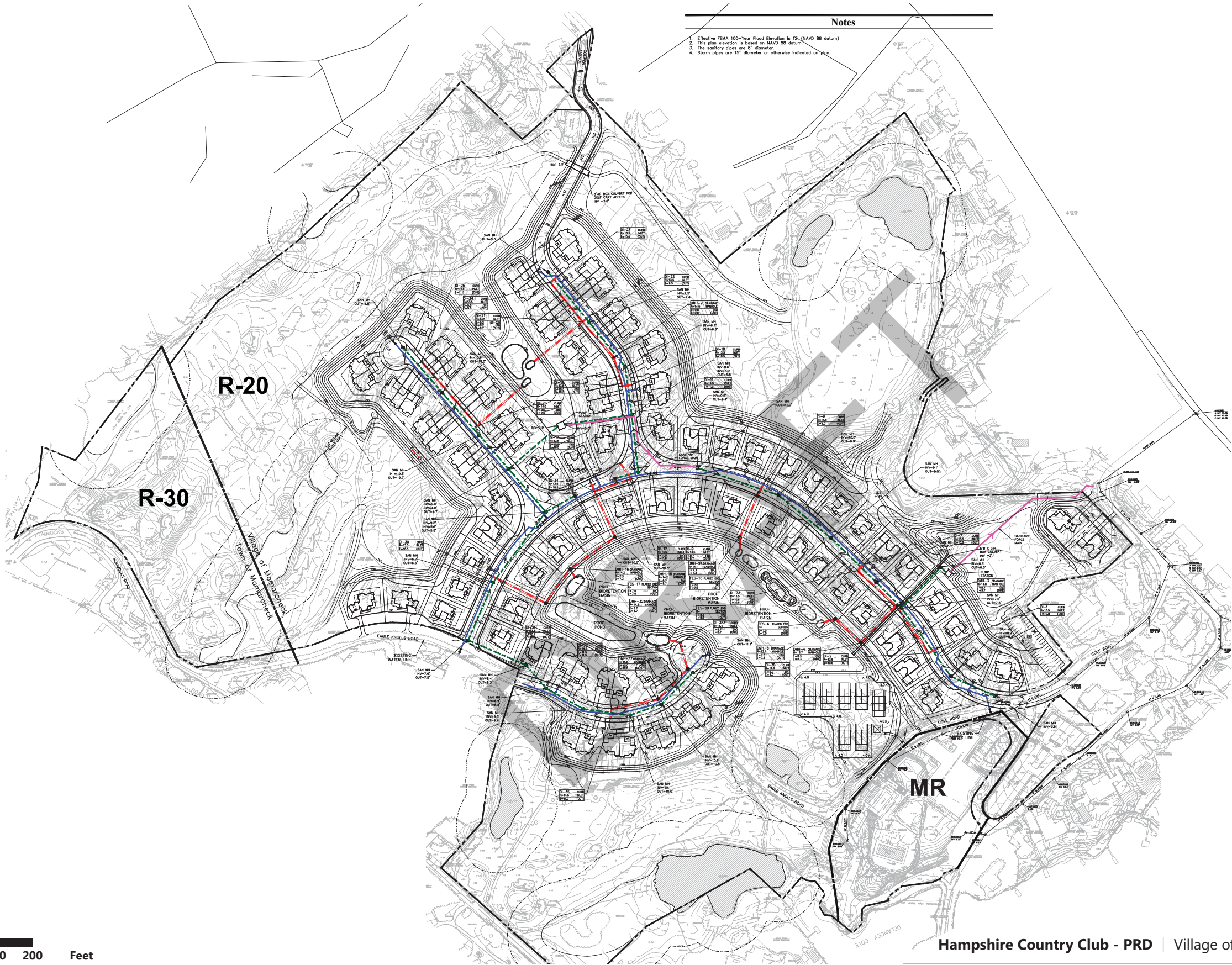
Since the sanitary service is currently available and sufficient capacity appears to exist, based on discussions with the Village Engineer, to service the project, no site specific mitigation measures are proposed for sanitary service. However, as typically recommended by Westchester County, sanitary discharge from the Project Site will need to be mitigated at a ratio of 3:1 by providing system flow reductions for Inflow and Infiltration (I&I). The Applicant and project engineer will meet with the Village Engineer and Department of Public Works to identify sanitary system segments in the Village of Mamaroneck that require rehabilitation either through reconstruction, lining and assess the reductions possible for each project. The Applicant will work with the Village Engineer and DPW to further investigate each project area and perform an assessment of reduction potential. Projects will be ranked and selected jointly by the Applicant, Town Engineer and DPW representatives. The Applicant will either provide engineering and construction services to perform the selected sanitary upgrades or provide reimbursement to the Village of Mamaroneck to self-perform the proposed upgrades.

DRAFT



- Notes
1. Effective FEMA 100-Year Flood Elevation is 7'6" (NAVD 88 datum)
  2. This plan elevation is based on NAVD 88 datum.
  3. The sanitary pipes are 8" diameter.
  4. Storm pipes are 15" diameter or otherwise indicated on plan.

- Legend
- Sanitary Force Main
  - Water Main
  - Sanitary
  - Drainage Pipe



Hampshire Country Club - PRD | Village of Mamaroneck, New York

Grading and Utility Plan

Source: VHB





## **J. SOLID WASTE**

### **1. Existing Conditions**

Solid waste at the Project Site is currently collected and stored in a compactor located in the loading dock area just outside the basement level of the existing clubhouse. The compactor services the clubhouse, pool, snack bar, and tennis facilities. Additionally, there are two yard garbage containers used by the golf course grounds department. Waste collected in these containers consists mainly of yard waste and discarded equipment parts.

Solid waste removal and recycling services are provided by Suburban Carting Company, a private company. The pickup schedule is by call in request and varies based on the season. In general, solid waste removal from the two yard containers and the compactor occurs two times per month.

Solid waste generation amounts to approximately 40 tons per year, or roughly 0.11 tons per day.

### **2. Future without the Proposed Project**

In a future without the proposed project, solid waste generation and management would remain as previously described for as long as the club use remains at the Project Site. Due to current economic pressures on private golf courses in the area, it is likely that the existing membership club use would be discontinued in the long run if the Proposed Action is not pursued, and solid waste generation and management would cease. See the No Action Alternative described in Chapter 4 for more detailed information.

### **3. Potential Impacts**

#### **a) Solid Waste Generation**

The addition of 105 new residential units and approximately 335 residents to the Project Site is expected to generate approximately 0.73<sup>1</sup> tons of additional solid waste per day, as demonstrated in Table 3J-1 below. The club facilities will continue to operate as a social, tennis, and swimming club under the Proposed Action; membership and frequency of events, both member and non-member, are expected to remain at the current level. No demolition activity is anticipated in association with the Proposed Action except for the current tennis courts. All construction debris would be disposed of in accordance with applicable regulations and procedures.

<sup>1</sup> Based on a municipal solid waste generation rate of .0022 tons per person per day; estimate from US EPA data – Generation, Materials Recovery, Composting, Combustion, and Discards of Municipal Solid Waste, 1960 to 2013



**Table 3J-1 Existing and Proposed Solid Waste Generation**

<b>Project Use</b>	<b>Existing</b>	<b>Proposed</b>	<b>Increment</b>
Residential	0	.73 tons/day	+ 0.73 ton/day
Recreational Club	.11 tons/day	.11 tons/day	0 tons/day
<b>TOTAL</b>	<b>.11 tons/day</b>	<b>.84 tons/day</b>	<b>+ 0.73 tons/day</b>

#### **b) Solid Waste Management**

The new houses of the proposed development will require public solid waste removal and public recycling services, with residential pick-up from individual disposal and recycling receptacles, in accordance with Village of Mamaroneck placement and enclosure regulations for Garbage, Rubbish and Refuse. Solid waste management, including collection and disposal, will remain as previously described for the existing club facilities.

The Village of Mamaroneck Department of Public Works (DPW) is responsible for garbage, recycling, bulk waste, and yard waste collections in the Village. Solid waste from residents of the Village of Mamaroneck is delivered to the South Columbus Avenue Transfer Station located in Mount Vernon; from there materials are delivered to the Charles Point Resource Recovery Facility in Peekskill, NY. According to the Westchester County Department of Environmental Facilities, the Charles Point Resource Recovery Facility processes up to 2,250 tons per day of municipal solid waste and has a permitted capacity of 710,000 tons per year. In 2014, the facility processed 684, 929 tons of solid waste.

The Daniel P. Thomas Material Recovery Facility serves Westchester County's recycling efforts, including processing recycling materials from the Village of Mamaroneck. The facility processed 73,013 tons of recyclables in 2014.

As mentioned, the projected increase in solid waste generation at full build-out of the Proposed Action is 0.73 tons per day for a total of 266 tons per year, significantly less than 1% of the Resource Recovery Facility's yearly processing capacity. It is the Applicant's belief that project-generated solid waste would not have a significant impact on the processing capacity at this resource recovery location.

All waste storage, removal, and disposal associated with the Proposed Action will be conducted in accordance with applicable county and local regulations.

#### **4. Mitigation**

As detailed above, the increase in solid waste generation as a result of the Proposed Action is small in comparison to the capacity of the local transfer station and resource recovery facility. The new residential units in the proposed development would require public solid waste removal and public recycling services, with residential pick-up from individual disposal and recycling receptacles, in accordance with





Village of Mamaroneck placement and enclosure regulations for Garbage, Rubbish and Refuse. In addition, the proposed project would result in a net positive impact for the taxing districts, including the Village of Mamaroneck and Westchester County. The development is anticipated to generate a combined total of \$5,215,568 in annual property taxes, of which approximately 25% would go to the Village. This represents an increase of approximately \$4,870,033 over the current taxes generated at the Project Site. This significant increase would off-set any increased costs to the Village DPW associated with solid waste generation from the proposed residential development. Solid waste management, including collection and disposal, would remain as previously described for the existing club facilities.

Therefore, no significant adverse impacts from solid waste generation at the Project Site are anticipated to result from implementation of the Proposed Action. No further mitigation measures are proposed.

DRAFT



## **K. VEGETATION AND WILDLIFE**

Existing ecological conditions at the Project Site were assessed through a review of United States Fish and Wildlife Service (USFWS), the New York Natural Heritage Program (NYNHP), and New York State Department of Environmental Conservation (NYSDEC) maps and records.

### **1. Existing Conditions**

#### **a) Habitats and Vegetation**

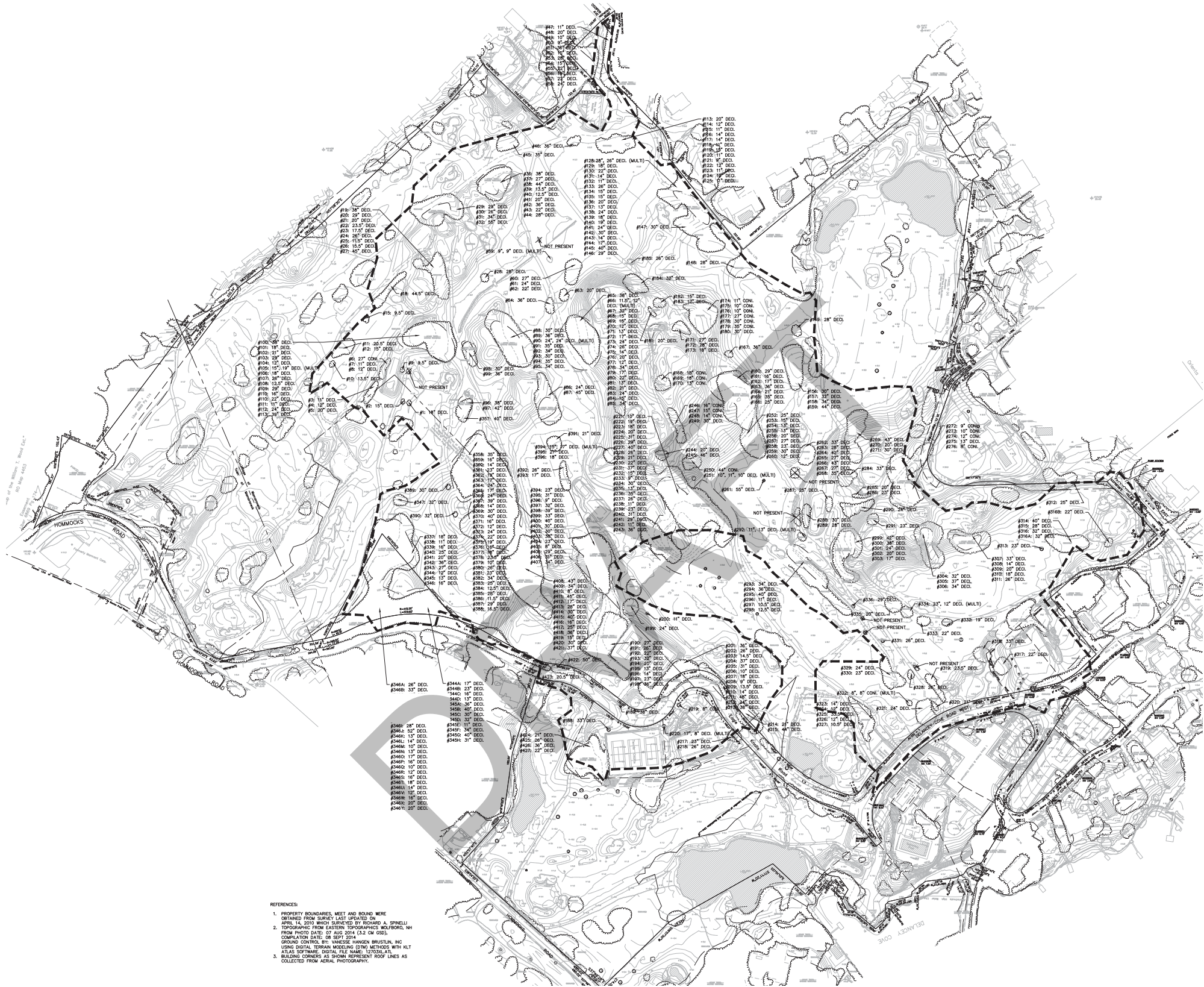
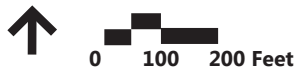
The Project Site has been in continual use as a golf course since it was constructed in the late 1920's. As a consequence, the most prominent vegetative cover types are the landscaped fairways, practice greens, roughs, and trees associated with this use, accounting for 81.6% of the Project Site. In addition, approximately 8.3% of the Project Site contains tall grass and brush, particularly along the perimeter of the golf course and surrounding the pond and inlet to the west of the clubhouse. Impervious surfaces, which make up 5.6% of the Project Site, include the clubhouse and accessory recreational buildings, paved pathways which run through the existing golf course, and tennis courts to the south of Eagle Knolls Road. Together, these cover types provide suitable habitat for common wildlife species adapted to predominantly developed/disturbed conditions and close human presence. The overall quality of the habitat on the Project Site is low due to the longstanding and ongoing maintenance of the golf course. The dominant vegetative species at the Project Site include common turf grasses and other landscaping, as well as common native and non-native trees.

Ponds and wetlands, located across the existing golf course, make up the final 4.4% of the Project Site. Based on the wetland functional assessment completed (described in detail in Chapter 3E, Surface Water Courses and Wetlands), the wetlands at the Project Site are primarily anthropogenic features that were created or altered to provide drainage and irrigation for the golf course, and to serve as water hazards. Due to their disturbed condition, impaired water quality and siltation impacts, overall functionality for diversity of wetland vegetation and contribution to habitat for wetland fauna is low.

The Project Site's area of disturbance would impact approximately 432 trees that are 8" or higher in diameter measured at three feet above the base trunk elevation (see Exhibit 3K-1, Tree Removal Plan).

The existing Project Site conditions are provided in Table 3K-1 below. See Exhibit 3K-2, Existing Cover Types, for a map of cover type locations within the Project Site.

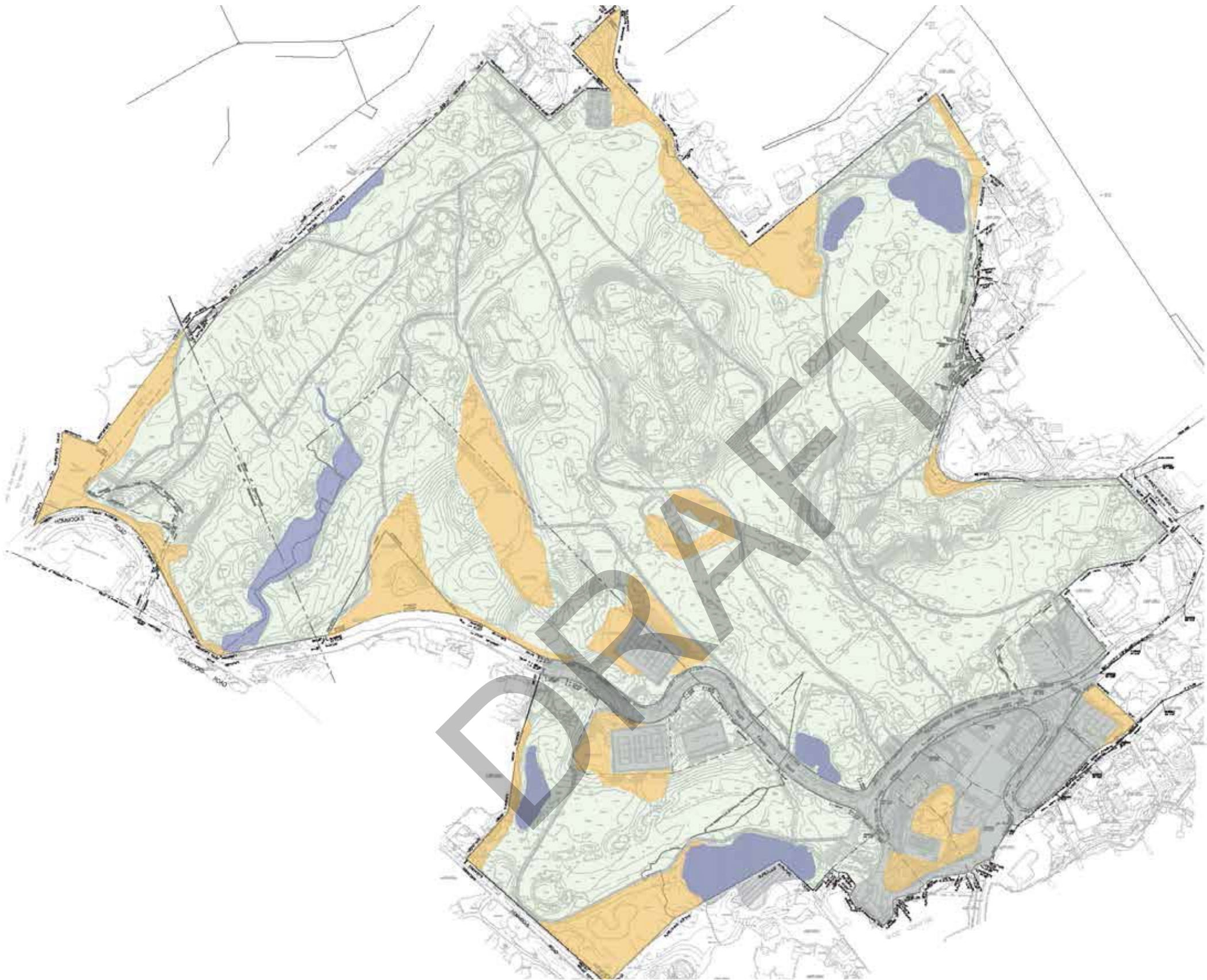




REFERENCES

1. PROPERTY BOUNDARIES, MEET AND BOUND WERE OBTAINED FROM SURVEY LAST UPDATED ON APRIL 14, 2010 WHICH SURVEYED BY ROSSARD A. SPINELLI
2. TOPOGRAPHIC FROM EASTERN TOPOGRAPHICS WOLFORD, NY FROM PHOTO DATED: 07 AUG 2014 (1:5.0 CM GSD). COMPILED DATE: 08 SEPT 2014. GROUND CONTROL: BY: VANESSA HANSEN BRUSTLIN, INC USING DIGITAL TERRAIN MODELING (DTM) METHOD WITH KLT ATLAS SOFTWARE. DIGITAL FILE NAME: 1770301.ALI
3. BUILDING CORNERS AS SHOWN REPRESENT ROOF LINES AS COLLECTED FROM AERIAL PHOTOGRAPHY.





Existing  
Cover Types

- Surface Water Features and Wetlands
- Meadows, Grasslands, or Brushlands
- Impervious Surfaces
- Landscaping

Hampshire Country Club - PRD | Village of Mamaroneck, New York

Existing Cover Types

Source: VHB



**Table 3K-1 Existing Cover Types**

<b>Cover Type (ECNYS Ecological Communities)</b>	<b>Site Coverage (acres)</b>	<b>Site Coverage (percent)</b>
Landscaping	86.7	81.6%
Meadows, Grasslands, or Brushlands	8.8	8.3%
Impervious Surfaces	6	5.6%
Surface Water Features and Wetlands	4.7	4.4%

The Project Site is also located adjacent to the Hommocks Salt Marsh Complex Critical Environmental Area (CEA), designated by the Town of Mamaroneck in 1989 (see Exhibit 3K-3, The Hommocks Salt Marsh Complex CEA), located within the Hommocks Conservation Area. According to the Town of Mamaroneck Local Waterfront Revitalization Plan, adopted in 1986, the Conservation Area encompasses tidal wetlands, the outfalls of East Creek and Gut Creek, five acres of sheltered waters off the southwest end of the Hommocks peninsula, and a strip of partly wooded ground skirting the south end of Flint Park. Together these off-site components support a habitat complex that is rich in wildlife. The sheltered waters provide an important feeding area for migrating waterfowl and the other components provide an upland bird nesting area.

The drainage system on the northeast portion of the Project Site is directly connected to the tidal wetlands located within the Hommocks Conservation Area. This connection is provided via underground piping feeding from the long surface pond within the Town of Mamaroneck portion of the Project Site, under Hommocks Road, ultimately discharging into the tidal wetlands. The proposed development would be sensitive to its potential impacts on the Hommocks Conservation Area and CEA through the use of a carefully designed stormwater retention system. Details are provided in section 3d below.

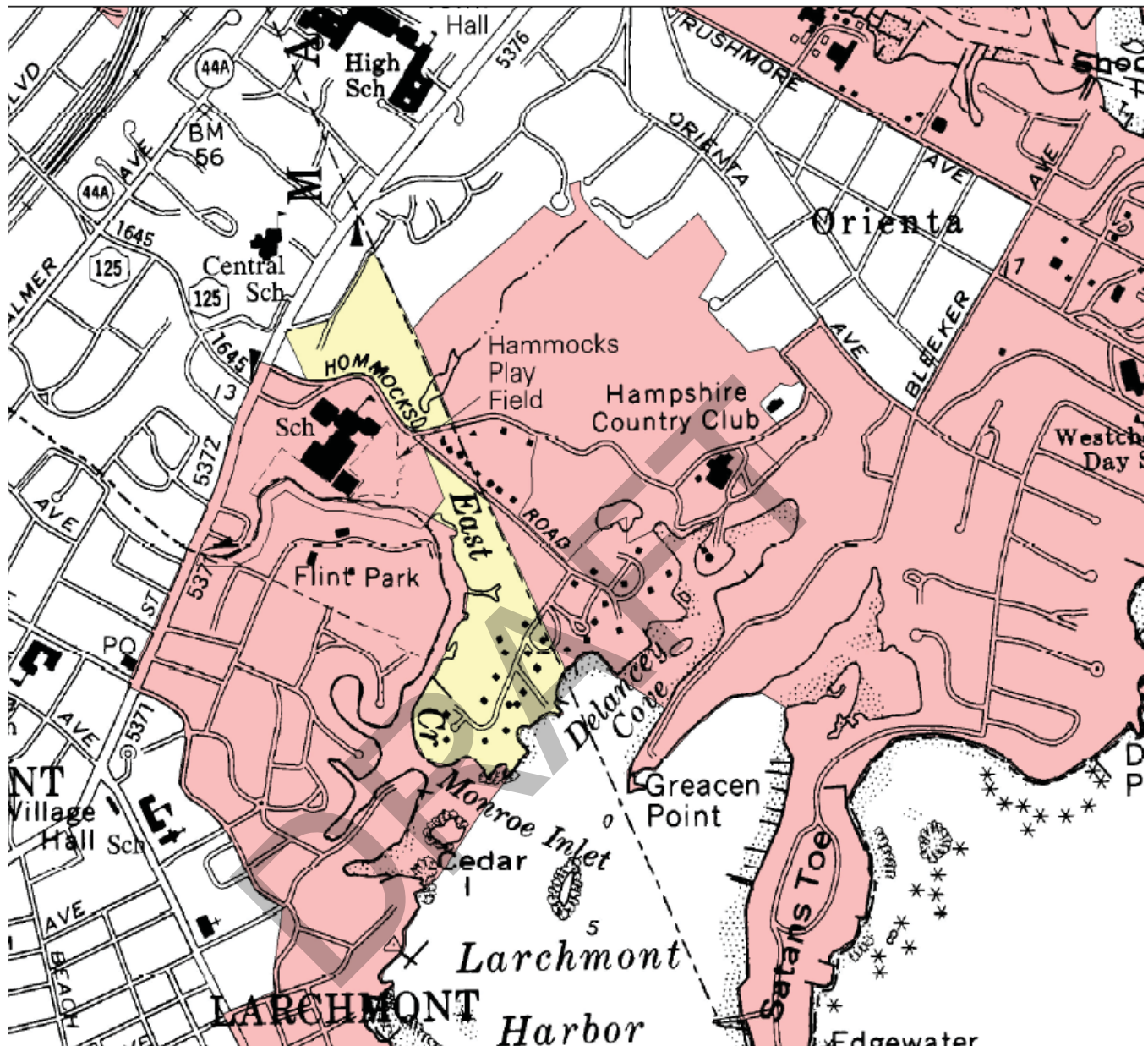
Correspondence was submitted to the New York Natural Heritage Program (NYNHP) on February 25, 2016 to determine whether records exist for known occurrences of rare or New York State-listed animals, plants, or significant natural communities on or in the immediate vicinity of the Project Site. In correspondence dated March 23, 2016, the NYNHP indicated that no State-listed animals, plants or significant natural communities have been recorded at the Project Site (copies of the NYNHP request and response letters are included in Appendix H).

## **b) Rare Protected Species and Communities**

A map generated by the Environmental Resource Mapper for the NYSDEC did not identify any significant natural communities at or near the Project Site. According to the USFWS, there are no critical habitats located on site. There are also no rare or endangered plant or animal species known to inhabit the site. Data was obtained from Federal and New York State records, detailed below.

Effective Date of Designation: 9-16-1989

Designating Agency: Town of Mamaroneck



**Legend**

- The Hommocks Salt Marsh Complex CEA
- Adjacent CEA

Base Map: DOT 1:24,000 Planimetric Images

Disclaimer: This map was prepared by the New York State Department of Environmental Conservation using the most current data available. It is deemed accurate but is not guaranteed. NYS DEC is not responsible for any inaccuracies in the data. Please contact the designating authority for additional information regarding legal boundary descriptions.

0 0.125 0.25 0.5 Miles  
1 inch equals 0.2 miles

For Adjacent CEAs see map:  
Hommonck's Conservation Area CEA  
Long Island Sound CEA  
Hampshire Country Club CEA

**Hampshire Country Club - PRD**

Village of Mamaroneck, NY

**The Hommocks Salt Marsh Complex CEA**

Source: Town of Mamaroneck



### New York State Records

Correspondence was submitted to NYNHP on February 25, 2016 to determine whether records exist for known occurrences of rare or New York State-listed animals, plants, or significant natural communities on the Project Site. The NYNHP indicated that no occurrences of rare or New York State-listed animals, plants or significant natural communities have been recorded at the Project Site (see Appendix H).

Additionally, data and maps provided by the NYSDEC show no rare animals or significant natural communities found on the Project Site.

### Federal Records

The USFWS Trust Resources Report for the Project Site (see Appendix I) indicates that there are no endangered species or critical habitats found on-site. The Trust Resources Report for the Project Site did identify a list of migratory species that could potentially be affected by activities on the Project Site, provided below.

American Oystercatcher	<i>Haematopus palliates</i>	Least Tern	<i>Sterna antillarum</i>
American Bittern	<i>Botaurus lentiginosus</i>	Peregrine Falcon	<i>Falco peregrinus</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Pied-billed Grebe	<i>Podilymbus podiceps</i>
Black Skimmer	<i>Rynchops niger</i>	Prairie Warbler	<i>Dendroica discolor</i>
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Purple Sandpiper	<i>Calidris maritima</i>
Blue-winged Warbler	<i>Vermivora pinus</i>	Rusty Blackbird	<i>Euphagus carolinus</i>
Canada Warbler	<i>Wilsonia Canadensis</i>	Saltmarsh Sparrow	<i>Ammodramus caudacutus</i>
Cerulean Warbler	<i>Dendroica cerulean</i>	Seaside Sparrow	<i>Ammodramus maritimus</i>
Fox Sparrow	<i>Passerella iliaca</i>	Short-eared Owl	<i>Asio flammeus</i>
Golden-winged Warbler	<i>Vermivora chrysoptera</i>	Snowy Egret	<i>Egretta thula</i>
Gull-billed Tern	<i>Gelochelidon nilotica</i>	Upland Sandpiper	<i>Bartramia longicauda</i>
Hudsonian Godwit	<i>Limosa haemastica</i>	Willow Flycatcher	<i>Empidonax traillii</i>
Kentucky Warbler	<i>Oporornis formosus</i>	Wood Thrush	<i>Hylocichla mustelina</i>
Least Bittern	<i>Lxobrychus exilis</i>	Worm Eating Warbler	<i>Helmitheros vermivorum</i>

## 2. Future without the Proposed Project

In a future without the project, the existing conditions of the Project Site would remain as previously described in the short term. In the long term, given current economic factors including a downward trend in golfing over the past decade, it is anticipated that the golf course and membership club would not be a sustainable business. Operations of the club, and the continual maintenance of the open and recreational space as well as the ponds on the Project Site, would cease. Without a custodian to manage these features of the Project Site, the existing habitat would become overgrown and the quality would diminish.



### 3. Potential Impacts

#### a) Trees

As a result of the Proposed Action, approximately 432 trees with a diameter of 8" or greater would be removed, as identified in Exhibit 3K-1, Tree Removal Plan. Tree removal would be limited to the 55.6-acre area of disturbance, and would not include trees immediately surrounding ponds or wetlands on the Project Site. The proposed Landscaping Plan, prepared in accordance with the *Coastal Planting Guide for the Village of Mamaroneck* in order to maximize benefits for local habitat, proposes to plant 432 trees, a mixture of evergreen and shade tree varieties, resulting in a 1:1 mitigation ratio. Exhibit 3K-4 includes the proposed Landscaping Plan with the locations of all plantings and a list of tree and plant species proposed for the development. As depicted, the trees would be located along the perimeter of the proposed buildings, providing significant screening from the surrounding neighborhood.

#### b) Habitats and Vegetation

As detailed in existing conditions, the majority of the Project Site consists of well maintained, highly manicured vegetative cover types, including mowed lawn, roughs, and greens associated with the existing golf course. The dominant vegetative species in this area includes common turf grasses and other landscaping, as well as common native and non-native trees. Currently, this area provides minimal habitat value to grazers, such as Canada geese and white-tailed deer, and aerial foragers. Overall habitat value of the Project Site is low due to the longstanding and ongoing maintenance of the golf course. Naturally-vegetated habitats are restricted primarily to certain perimeters of the Project Site, where some lightly-wooded brush and grasslands occur.

The Proposed Action would replace a portions of the golf course with approximately 29 acres of residential development and 36 acres of shared open space. The shared open space would be improved according to the proposed Landscaping Plan. In addition, nine holes of the golf course would be maintained, therefore maintaining portions of the existing habitat and minimizing the short-term disturbance associated with the construction of the proposed development. As golf course management practices would be limited to the perimeter of the Project Site, an overall reduction in fertilizer, pesticide, and herbicide applications would occur. No applications of these materials are currently proposed or anticipated within the 36 acres of open space. Therefore, an overall improvement in habitat quality is expected.

Existing and proposed cover types are provided in Table 3K-2 below.





PLANT SCHEDULE

EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
JVE	14	Juniperus virginiana 'Emerald Sentinel'	Eastern Redcedar	6' - 7' HT.
PA	13	Picea abies	Norway Spruce	6' - 7' HT.
PP	9	Picea pungens	Colorado Spruce	6' - 7' HT.
TPG	15	Thuja plicata 'Green Giant'	Western Arborvitae	6' - 7' HT.
CL	11	× Cupressocyparis leylandii	Leyland Cypress	6' - 7' HT.
SHADE TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE
ARS	36	Acer rubrum 'Franksred'™	Red Sunset Maple	2' - 2 1/2' CAL
AFJ	27	Acer x freemanii 'Jeffred'	Autumn Blaze Maple	2' - 2 1/2' CAL
BNH	20	Betula nigra 'Heritage'	Heritage River Birch	2' - 2 1/2' CAL
CBF	18	Carpinus betulus 'Franz Fontaine'	Franz Fontaine Hornbeam	2 1/2' - 3" CAL
CO	16	Celtis occidentalis	Common Hackberry	2' - 2 1/2' CAL
CK	20	Cladrastis hennipae	American Yellowwood	2' - 2 1/2' CAL
LS	36	Liquidambar styraciflua	Sweet Gum	2' - 2 1/2' CAL
NS	30	Nyssa sylvatica	Sour Gum	2' - 2 1/2' CAL
PAL	34	Platanus x acerifolia 'Liberty'	London Plane Tree	2' - 2 1/2' CAL
QB	22	Quercus bicolor	Swamp White Oak	2' - 2 1/2' CAL
QC	15	Quercus coccinea	Scarlet Oak	2' - 2 1/2' CAL
QP	20	Quercus phellos	Willow Oak	2' - 2 1/2' CAL
TAR	27	Tilia americana 'Redmond'	Redmond American Linden	2' - 2 1/2' CAL
UM	22	Ulmus x 'Morton'	Accolade Elm	2' - 2 1/2' CAL
ZS	27	Zelkova serrata 'Spring Grove'	Spring Grove Zelkova	2' - 2 1/2' CAL

NOTE:

SEE BUILDING FOUNDATION  
PLANTINGS ENLARGEMENTS ON  
PLANTING DETAILS & NOTES SHEET.



Hampshire Country Club - PRD | Village of Mamaroneck, New York

Landscaping Plan

Source: VHB



