


Brynwood Golf & Country Club

568 Bedford Road
Town of North Castle
Westchester County
New York

(Section 2, Block 8, Lot 7.C1A)

Prepared for **Brynwood Partners, LLC**
New York, New York

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BRYNWOOD GOLF & COUNTRY CLUB DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

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- B. Copies of all official correspondence related to issues discussed in the DEIS
- C. Petition and Proposed Zoning Amendment
- D. Report on Preliminary Subsurface Soil and Foundation Investigation (Carlin Simpson & Associates, 2/13/13)
- E. Integrated Turfgrass and Pest Management Plan with Environmental Risk Assessment (ITPMP), (A. Martin Petrovic, March 2013)
- F. Stormwater Pollution Prevention Plan (SWPPP), (John Meyer Consulting, PC, March 13, 2013) *Note: Appendices under separate cover*
- G. Phase IA Archeological and Historic Resources investigation (Historical Perspectives, Inc., January 2013)
- H. Wetland/Natural Resources documentation (including correspondence regarding wetlands and vegetation, Tree survey lists, Soils and Wetland Delineation Report, HGM model sheets, NYSDEC Management of Dredged Sediments information)
- I. Proposed Surface Water Sampling Program (LBG, 2/12/13); Surface Water Sampling Program, Leggette Brashears & Graham (May 13, 2013)
- J. Town of North Castle Water District No. 2 Well Field Parcel, Town of North Castle, NY (Leggette, Brashears & Graham, Inc. March 2013)
- K. Memorandum from VHB regarding school children generation (dated 6/5/12)

VOLUME 3:

- L. Phase 1 Environmental Site Assessment (ESA) (Ecosystems Strategies, Inc., 5/15/08)
- M. Traffic Impact Analysis (Maser Consulting, PA, March 2013; revised May 2013)
- N. Air Quality Appendix (VHB)
- O. Noise Appendix (VHB)
- P. Brynwood Golf & Country Club Residential Analysis (HR&A, March 18, 2013)
- Q. Brynwood Spill Prevention and Containment Protocol (2013)
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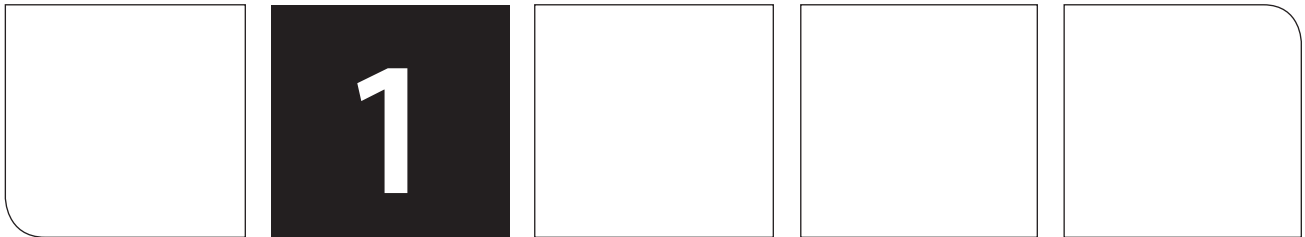
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Executive Summary

I. EXECUTIVE SUMMARY

This Draft Environmental Impact Statement (DEIS) is submitted on behalf of Brynwood Partners, LLC (Applicant) in compliance with the State Environmental Quality Review Act (SEQRA) and in accordance with the requirements of the Town Board of the Town of North Castle, the Lead Agency under SEQRA. The Draft Environmental Impact Statement (DEIS) examines the potential impacts of (i) the proposed development of a residential “golf course community” on the 156-acre site (Site) known as Brynwood Golf & Country Club (Club), (ii) improvements to Club facilities, including the golf course, and (iii) amendments to the Town Zoning Ordinance to permit the proposed residential use, and modify the regulations for “membership clubs”.

A. Summary Description of the Proposed Action

The Applicant acquired the Site, formerly known as the Canyon Club, in December 2009. Shortly after acquiring the Site, the Applicant made cosmetic renovations to existing club facilities and retained an operator/manager for the golf course, Troon Golf. In April 2010, after renovations were completed, the facility reopened as Brynwood Golf & Country Club. Improvements to the building’s infrastructure systems or golf course were not performed as part of the renovations.

The Applicant submitted a zoning petition and Environmental Assessment Form (EAF) to the Town Board in June 2011 in connection with proposed zoning amendments and a proposed 243-unit golf course community, but subsequently withdrew that application (August 2011). After consideration of public comments and redesign of the residences, the Applicant re-submitted a zoning petition and EAF to the Town Board in August 2012, for a golf course community having 98 residential units, and in September, 2012, further reduced the density to 88 residential units. The Town Board declared Intent to be Lead Agency and issued a positive declaration for the Proposed Action in November 2012. After a public scoping session held on November 26, 2012, additional meetings held in December and the expiration of the public comment period, the Town Board officially adopted the scope of this DEIS on January 23, 2013 (see Appendix A for Scoping Document and SEQRA documentation).

1. Existing Conditions

The Site was first approved for use as a membership based golf and country club pursuant to a special permit granted by the Town’s Zoning Board of Appeals in 1961. The special permit for operation of the golf and country club has been amended, extended and re-issued numerous times by the Zoning Board of Appeals, and then under successor zoning codes, by the Town Board. The specific conditions governing



the use of the property and operation of the Club that were imposed by the Zoning Board of Appeals and Town Board were last materially amended in June, 1978, to permit the Club to *“conduct outside affairs such as dinners, dances, weddings, [and] catering to persons who are not primarily members of the club.”*

Existing features of the Site include an 18-hole golf course with a practice range, putting green and chipping green; 14 outdoor tennis courts; and an approximately 65,000 square foot clubhouse with outdoor pool and terrace. The clubhouse contains 22 guest suites, a ballroom, restaurant and bar, locker rooms, lounge areas, administrative offices and a golf pro shop. Out-buildings currently on the Site include a maintenance building; wastewater treatment plant (WWTP); golf cart storage building; snack bar building, tennis building; irrigation pump house; and three golf course comfort canopies.

2. The Proposed Action

The Proposed Action consists of the proposed amendments to the Town Zoning Ordinance and includes: (1) construction of a new exit and private roads for site access and circulation; (2) renovations and upgrades to the Club core, including the clubhouse, tennis courts and other Club facilities; (3) development of a residential community with 80 market rate condominiums and 8 “fair and affordable” rental units; and (4) improvements to the golf course (collectively, the “Project”).

The residential community would be accessed solely from Bedford Road (NYS Route 22) at the common entrance with the Club.

The clubhouse renovations include a new façade, a reconfigured service entry and a new pool/recreation area. The existing clubhouse building would be reduced (at approximately the same location) from approximately 65,000 square feet to approximately 64,000 square feet (sf), and the existing tennis courts would be relocated near the clubhouse and reduced in number from 14 to six. A new tennis viewing pavilion would also be constructed. Club parking will continue to be in the existing parking lot located to the south of the clubhouse.

The proposed residential development, called the “Residences at Brynwood,” will include 80 market rate condominium units located in 19 structures in the area to the north of the clubhouse (on the approximately 14.5 acre “North Parcel”). The affordable rental units will be located in one structure in the area to the south of the clubhouse (on the approximately 9,000 sf “South Parcel”). The residences would be generally sited within currently developed areas designed to conform with the natural slope of the Site toward the west. The proposed condominium residences would be designed and age-targeted for active adults, and the architectural character and massing of the residential buildings would be rooted in the historic building traditions of the Town, Westchester



County and the surrounding region. Each of the 80 condominium residences would be served by two parking spaces, and each affordable rental unit would be served by one parking space plus ½ additional space per bedroom, enclosed in either common or private garages. Additional guest parking spaces would be located off the private driveways.

The Proposed Action includes a commitment to construction of 10 percent of the proposed market rate units as fair and affordable units, either on-site or at an off-site location. If the affordable units are located off-site, 88 market rate condominiums would be constructed on the Site, yielding a total of 97 residential units (88 market rate condominiums on-site; 9 affordable rental units off-site).

Proposed golf course renovations include adding and rebuilding tees to improve playability and drainage, constructing seven new green surfaces and green complexes, installing and rebuilding greenside and fairway bunkers, enhancing retention ponds and relocating three golf holes to improve the golf course experience and minor grading on select fairways. A new Integrated Turfgrass and Pest Management Plan (ITPMP) has been developed for the Project to improve environmental management practices, with the goal of the Club becoming a Certified Audubon International Cooperative Sanctuary.

A new, upgraded wastewater treatment plant will be constructed to accommodate new demand from the golf course community, and the maintenance building will be improved and relocated in its vicinity as well. A new water system with on-site wells will be developed to serve the clubhouse and the residential community.

The Site is located in the R-2A One-Family Residence District of North Castle. “Membership clubs” (which include golf and country clubs and similar recreation facilities) are permitted in the R-2A District upon the issuance by the Town Board of a special permit under Section 213-33.I of the Zoning Ordinance. The existing, traditional regulations are not sufficiently flexible to permit the business model necessary to support the Project. To permit this business model, the Applicant proposes that the definition of “membership club” and the special permit regulations governing membership clubs be amended.

The Applicant also proposes amendments to the Town Zoning Ordinance special permit regulations that would permit the residential “golf course community” to be developed in the R-2A District as a special permit use.



B. Summary of Significant Impacts and Proposed Mitigation Measures

This section briefly summarizes potential Project impacts, and required mitigation measures in each of the areas analyzed for the DEIS. Refer to Chapter III of this DEIS for a complete discussion of each of these potential impacts. Unless otherwise indicated, all opinions and conclusions stated below and in the other sections of this DEIS are the Applicant's opinions and conclusions.

1. Land Use and Zoning

The Project would alter the existing land use on the Site through the addition of a residential community with 88 units on the Site. Although the land use on a portion of the Site would change, the golf course and country club would be maintained in place and improved. The proposed residential and recreational uses on the Site would be consistent with the existing residential and institutional uses in the surrounding area.

The Project supports the Town of North Castle Comprehensive Plan by maintaining the open space on the Site and by adding diversity to the housing types in the Town. Additionally, the proposed floor area ratio (FAR) of 0.045 complies with the recommended FAR in *Patterns for Westchester*, the Westchester County Plan.

To permit the residential community to be developed, the Proposed Action includes amending the regulations of the R-2A District to add a new special permit use to be known as "golf course community." The proposed regulations would require the owners of all market rate condominium residences in a golf course community to be members of an affiliated membership club, establish especial bulk, dimensional and parking requirements, and permit certain types of limited design flexibility after site plan approval is granted.

Cumulative land use and zoning impacts are not anticipated. No other properties in the Town would be eligible for the development of a golf course community under the proposed zoning amendments.

Additional proposed and approved developments in the vicinity were also reviewed in terms of potential cumulative impacts. The only project identified by the Town is the St. Nersess Armenian Seminary, which recently received approvals.

2. Affordable Housing

The Proposed Action includes a commitment to the development of fair and affordable housing units equal in number to 10% of the market-rate housing units proposed at the Site. The fair and affordable units would meet the requirements of the settlement between Westchester County and the U.S. Department of Housing and Urban

Development.

As previously noted, this commitment would be met by providing affordable housing on-site or off-site. The Applicant is in the process of evaluating the feasibility of off-site locations. If a suitable site is not found, the fair and affordable units would be developed on-site.

If on-site, the eight affordable units would be located in the proposed structure to the south of the clubhouse on the South Parcel, with the 80 market rate condominium units located to the north of the clubhouse on the North Parcel. The residents of the eight affordable units would not be required to be members of the Club.

If the affordable units are located off-site, 88 market rate condominiums would be constructed on the Site, yielding a total of 97 residential units (88 market rate condominiums on-site; 9 affordable rental units off-site). .

3. Visual Resources

Overall, the Site's visual character would change from that of a membership club only to a mix of residential and club. The proposed Project would introduce residential development, with landscaping to buffer Bedford Road and the neighboring single-family residences north and east of the Project Site. The western portion of the Site would remain a golf course, resulting in little impact to views from the south. Impacts to specific views include the following:

- Views from Bedford Road will include visibility of the renovated clubhouse and of the new attractively designed and landscaped buildings and tennis courts. Landscaping would be installed in proximity to the road to soften the visible impact and maintain a four season buffer.
- Views from Ilana Court/Embassy Court will be limited from the neighborhoods to the north, as a result of topography as well as existing and proposed vegetation.
- Views from Evergreen Row will potentially include greater visibility of the two-story residential development than the existing view of the tennis courts. Additional landscape elements including proposed site walls, hedges, and a mix of native tree species will be installed to soften any visible impact and maintain a four season buffer.

The design of the proposed Project would incorporate the essential qualities of the area building traditions and will maintain the character of Bedford Road. Sloping topography and vegetation significantly limit views deep into the Project Site or from the north, west, and south. All views will be designed to maintain a landscape buffer to

surrounding land uses. The Project is not expected to result in any significant adverse impacts to the visual character of the Site or the area and will maintain the majority of the Site in open space as a golf course; therefore, no mitigation is required.

4. Historic, Archaeological and Cultural Resources

There are no historic structures on, adjacent to, or within one-half mile of the Site that have been listed on, or determined eligible for, the State or National Register of Historic Places. With regard to architectural resources, none of the existing buildings on the Site are historically or architecturally significant. However, it is possible that two discrete, small areas at the periphery of the existing golf course may retain pre-contact archeological sensitivity. Due to this potential pre-contact and historic period archaeological sensitivity, a Phase IB archaeological testing program is being undertaken in these areas and will be evaluated prior to any construction of either new development or golf course improvements. The fieldwork for a Phase IB archaeological testing program has recently been completed. The results of the Phase IB testing program in the area identified as having historic period archaeological sensitivity revealed several archaeological features, therefore, a Phase II archaeological evaluation is currently being conducted in this location. The results of the Phase IB and Phase II evaluations will be presented in the FEIS.

There are several architectural resources that are visible from the Site on the east side of Bedford Road, which while not officially documented at the Town, State, or National level, nonetheless have historic value and have been considered as part of the Site design.

5. Vegetation and Wildlife

The Site consists of two general vegetation cover types: 1) the cultural areas associated with the clubhouse, tennis courts, maintenance facility, and 2) golf course fairways, tees and greens and the second-growth hardwoods associated with areas that were not cleared initially for agriculture or for the past and present golf courses. These areas are more or less associated with the steeper sloping areas. No federal, State, endangered, threatened or species of special concern plant or animal occur on the Site.

A tree survey was conducted in the areas of disturbance, indicating a total of 1,524 trees with a dbh between 8 inches and 24 inches. Of those, it is estimated that approximately 879 trees will be removed in connection with the Project. In addition, 241 significant trees (24" dbh or greater) were identified within the area proposed to be disturbed. Of these, 128 trees are anticipated to be removed based on the preliminary grading plans (for a total of 1,007 trees on-site), although 68 of these are considered hazardous due to storm damage and condition. Tree removal permits will be obtained from the Town as



required. 72 percent of the forested areas of the Site remain undisturbed. Therefore, the vast majority of the trees on the Site, including significant trees, will be preserved. Approximately 6.6 acres of new impervious areas will be added to the Site (structures, driveways, etc.). The remainder of the Site (96 percent) will either remain as existing vegetation or be re-vegetated.

The development of the Site is planned to utilize, to the extent practical, already cleared and developed land, thereby reducing impacts to vegetation and wildlife. Significant impact to wildlife is not anticipated. Wildlife habitat, however, will be improved by implementation of the landscape plan, use of native plants where new plantings are proposed, and the creation/restoration of 1.25 acres of wetlands.

6. Geology and Soils

There are no special geological features or significant rock outcroppings on the Site. The proposed development (residential units plus golf course improvements) will involve the re-grading (altering) of the existing site topography within the 73.9 acre limit of disturbance area of the Site (20.6 acres for the residential development and 53.3 acres for the golf course renovation). The grading design is generally confined to the less steep portions of the property, and consists of grading for the reconstruction of the existing golf course and for the proposed homes and other hardscape improvements.

Earthwork activity will include a total of 137,300 cubic yards of excavation placed as fill. The overall cut and fill will be balanced, meaning that no excess excavation will leave the Site and no additional fill will be brought onto the Site.

Rock will need to be removed on the Site, however, blasting is not anticipated. Boulders and excavated rock will be processed by an on-site crusher to provide suitable fill material for the building and pavement areas.

An Erosion and Sediment Control Management Program will be implemented to mitigate potential impacts.

7. Topography and Steep Slopes

There are a total of approximately 11.44 acres of steep (25%+) slopes on the property. The Site design preserves the steep slopes of the property to the extent practicable. A total of 2.75 acres of steep slopes regulated by the Town of North Castle are proposed to be disturbed on the Site. A steep slope permit will be obtained for the regulated activities. Mitigation measures include establishment of an Erosion and Sediment Control Plan, implementation of a Stormwater Pollution Prevention Plan, and the use of retaining walls.



8. Wetlands and Surface Water Resources

There are six wetland areas on the Site, totaling approximately 6.6 acres. All but one of the on-site wetlands were disturbed during construction of the original golf course. The site contains almost 26 acres of regulated buffer/adjacent area on Site.

The Project will impact approximately 4.34 acres of wetland buffers. Most of this impact (± 3.6 acres) is within buffers that are currently golf course turf areas. The remainder, 0.76 acre, is in a wooded area. In addition, the wetland mitigation plan includes the dredging of two ponds and restoration/creation of 1.25 acres of wetlands. All wetlands on-site will be improved through the removal of non-native invasives and the replacement with native trees, shrubs and herbaceous plant material. Vegetated buffer strips and fescue areas will be added adjacent to wetland and surface water resources where appropriate.

9. Stormwater Management

The majority of the Site is within the Bryam River Watershed, with a small portion of the Site within the Mianus River Watershed. The southwest corner of the Site is located in a Zone A Flood Hazard Area, however, no disturbance is proposed within this area.

A hydrologic analysis of the Site under proposed peak conditions has been performed for the 1, 10, 25, and 100-year storm events. The proposed development will result in an increase in impervious surfaces. The increase in impervious surfaces will result in a corresponding increase in the peak rate of stormwater runoff as well as an increase in pollutants. A Stormwater Pollution Prevention Plan (SWPPP), provided in Appendix F, has been prepared to ensure that the quality and quantity of stormwater runoff after development will not be substantially altered from pre-development conditions. As a result of its implementation, it is expected that there will be no significant impact on receiving wetlands, streams, ponds or the 100-year floodplain. Mitigation measures include the implementation of the SWPPP, Erosion and Sediment Control Plan, and the Integrated Turfgrass and Pest Management Plan (ITPMP).

10. Hydrogeology, Groundwater and Water Supply

There are six existing wells located on the Site. Potable water for the clubhouse is currently supplied by the Town of North Castle Water District No. 2, as an out of district user. Water District No. 2 does not currently have sufficient surplus water to supply the water demand of the proposed Project.

The proposed Project is anticipated to have an average daily water usage of 51,955 gallons per day (gpd) based on residential and Club uses. The estimated peak daily flow for the Project is 103,910 gpd and the peak flow is 72.2 gallons per minute (gpm).



The goal of the current on-site well drilling program is to develop an on-site water supply to meet the Project's potable water demand requirements. If the results of the test well drilling program demonstrate that the development of an on-site public water-supply source is not feasible, the Project would pursue connection with Water District No. 2 to supply potable water. This would require the development of additional wells for Water District No. 2. The existing irrigation ponds and wells would continue to be used to supply water for the irrigation water demand for the golf course.

The potential impact of the proposed wells at the Site on existing off-site wells was assessed during the 72-hour pumping test on the proposed water supply wells and existing irrigation wells, which was conducted in May 2013. If significant off-site water-level interference is measured, a long-term water-level monitoring program may be proposed. Results of the pumping test indicate:

- Proposed supply Wells 1, 2B, 3 and 5 and Irrigation Wells 4 and 5 demonstrated stabilized yield and water-level drawdown during the simultaneous 72-hour pumping test conducted at pumping rates of 50 gpm, 12 gpm, 32 gpm, 19.5 gpm, 32 gpm and 40 gpm, respectively. The combined yield of the 6 pumping wells during the simultaneous 72-hour pumping test was 185.5 gpm.
- The combined stabilized yield demonstrated during the simultaneous pumping test of proposed supply Wells 1, 2B, 3 and 5 of 113.5 gpm is more than sufficient to meet twice the average water demand of the proposed Brynwood project of 72.2 gpm.
- Proposed supply Well 6A demonstrated stabilized yield and water-level drawdown at a pumping rate of 55 gpm. This well was tested individually as the best well and satisfies the NYSDOH well yield requirement of meeting twice the average water demand with the best well out of service.
- The most significant water-level interference effects on offsite wells was a result of pumping Wells 1, 2B, 3 and 5 and irrigation Wells 4 and 5 at a combined yield of 185.5 gpm (gallons per minute) for three days at rates significantly higher than expected average water demands of the project. Therefore, the water-level interference on the offsite wells which will occur from normal operation (12-hour daily pump cycles) and rotational use of supply wells to be developed to supply the actual water demands of the project should be significantly less than observed during the simultaneous pumping test event. The expected groundwater withdrawal to meet average water demands will not likely result in significant impact to any offsite wells or impact water usage.
- Neighboring well owners concerned about the projected withdrawals should realize that the use of the proposed Brynwood well supply sources will require the approval of the Town and regulatory agencies. Additional operational monitoring is recommended to take place once the wells go online. This additional monitoring will include offsite wells indicating water-level inference during recent pumping



tests (May 2013) to determine any significant impacts, if any, under normal operation of the proposed well source to meet the water demands of the project. The future monitoring program may be continued until two years following build-out of the proposed project.

Pesticides used on the golf course generally carry a designation of very small to medium leaching potential and strict buffer zones are observed around water features and streams to reduce risk of groundwater contamination through runoff or leaching. An Integrated Turfgrass and Pest Management Plan (ITPMP) will be implemented.

11. Wastewater

The Club's existing wastewater treatment plant (WWTP) treats an average of 8,000 gallons per day (gpd) during the winter months and an increased amount during the summer months. The plant's existing SPDES permit provides for an average daily permitted discharge of 16,000 gpd.

The Club and proposed residential development are expected to produce a flow of 51,955 gpd during the peak summer months, based on NYSDEC design standards. During the winter months, reduced flows would be anticipated. A new, upgraded treatment plant is proposed and is to be constructed in a timeframe such that sufficient treatment capacity is available as homes are completed and occupied. The existing WWTP will remain in operation while the upgraded plant is constructed. The upgraded plant will provide process equipment better suited to the proposed development, process redundancy that the current plant does not offer, and a higher quality effluent than the existing WWTP produces.

12. Community Facilities and Services

a) Schools

The Site is located within the Byram Hills School District and is adjacent to the Coman Hills elementary school. Two methods were used to estimate the total number of school-age children expected to be generated from the 88 residential units. Using standard Rutgers University Center for Urban Policy Research (CUPR) multipliers, the development of a traditional, non-golf course affiliated condominium development on the Site, with the same distribution of bedrooms and number of affordable units, would be expected to generate 20 school children. This would represent a 0.7% increase over the current district enrollment and is significantly less than the expected year-to-year declines in enrollment that have been forecast.

However, the condominium units are proposed to be age-targeted for active

adults with a country club lifestyle. Based on case research of local golf course communities, a more representative multiplier for the condominiums is 0.06 children generated per unit, which yields approximately 5 students (80 units x 0.06 = 4.8 students) at full build out. The affordable units would generate an additional 5.6 students based on the Rutgers multipliers. In either scenario, no significant adverse impact to schools is anticipated.

b) Open Space and Recreation

The Project would maintain the existing golf course as a private recreational space at the Site. The proposed “golf course community” special permit regulations provide that as a condition of site plan approval, the Applicant, as owner of the Club, must record in the Westchester County Clerk’s office a conservation easement or declaration of covenants and restrictions pursuant to which the Applicant agrees that the Club property shall be used solely for a membership club in accordance with the requirements of the Zoning Ordinance, and the portion of the Site on which the golf course is located shall permanently be used only as a golf course or otherwise as open space accessory to the golf course community. The recorded conservation easement/declaration would run with the land, and bind all successor owners of the property. Access to open spaces on the Site would remain private, resulting in no change from the existing conditions. Residents of the proposed condominium units would have a full array of recreation facilities at the Club.

Although the proposed Project would not have any significant impact on existing public open spaces and recreational facilities, a one-time recreation fee of \$3,000 per market rate unit and \$1,000 per fair and affordable unit would be paid to the Town of North Castle in accordance with Section 143-05 of the Town Code, totaling \$248,000.

c) Police Protection

The North Castle Police Department would continue to service the Site from its station in downtown Armonk, approximately two miles to the south, via Bedford Road. The proposed development would be protected by private security cameras in the clubhouse and maintenance building that have 24/7 digital video recording. In addition, a gatehouse is proposed to be added to the site entrance which will provide security at all times.

d) Fire Protection, Ambulance and EMS

The Site is located in the Armonk Fire District, which currently serves the Site. The nearest fire station is located at 400 Bedford Road in Armonk,

approximately one mile south of the Site. The Fire Department estimates that the proposed golf course community would generate an additional 12-15 ambulance calls per year, and an additional 8-15 fire calls per year.

The proposed private road system and buildings will comply with all applicable building and fire prevention codes and Fire Department requirements. All of the condominium units and the clubhouse will be fully sprinklered.

e) Other Services

Solid waste will be collected and disposed of by private carters. No Town services or facilities will be required for solid waste disposal. In accordance with local regulations, the proposed residences will participate in the Town and County recycling programs.

According to the Town Highway department, the Project “will not increase demands for services from North Castle Highway.” All on-site roads will be private. Since all roadways and parking areas on Site will be private, maintenance and snow plowing will be provided by the property owners, not the Town.

No significant adverse impacts are anticipated to electric, gas, telephone and cable television utilities.

13. Traffic and Transportation

The 88 residences would generate a total of 47 trips (8 entering trips and 39 exiting trips) during the Weekday Peak AM Hour and a total of 55 trips (37 entering trips and 18 exiting trips) during the Weekday Peak PM Highway Hour. During the Weekday AM and PM Peak Hours, most of the traffic would utilize Bedford Road to the south of the Site. In the AM, this would amount to approximately 30 trips during the Peak Hour, heading south toward I-684.

The Traffic Impact Study in DEIS Appendix M concludes that the proposed golf course community will not significantly affect the area roadways. Similar Levels of Service and delays will be experienced under Future No-Build and Future Build Conditions. As a result no roadway improvements are recommended as part of the Project.

Of the nine intersections required to be studied, only the Tripp Lane/Route 22 intersection operates at a low level of service, particularly in the Weekday AM Peak Hour when traffic heading through the Tripp Lane access to the Byram Hills High School affects Route 22. Although the vehicles from the Site that are expected to pass through this intersection in the Weekday AM Peak Hour will not materially affect the



intersection's level of service, this DEIS includes information on potential alternative access to Byram Hills High School, which could relieve some of the traffic that currently uses the Tripp Lane access.

As indicated in the Traffic Impact Study, there are no sight distance restrictions at the studied intersections and there is more than adequate sight distance provided at the Site access. A secondary access (right turn exit only) is being proposed from the existing Club parking lot. This will result in improved circulation and will serve additionally as an emergency access.

14. Socioeconomic and Fiscal Resources

a) Demographics

Based on proposed marketing and designs, the development of 88 residences would be expected to generate approximately 204 residents. The 204 people would represent an increase in Town population of approximately 1.7 percent. It is likely that the majority of condominium residents would be ages 55 and above, given design features, target marketing and the requirement that residents must be members of the Club.

b) Property Tax Revenues

To assess potential impacts of the Project, two taxation scenarios are analyzed: 1) the development of condominium residences, as proposed, and 2) a hypothetical "fee simple" ownership/taxation scenario with a townhome-only design.

Estimated real property taxes for the first scenario are based on an income capitalization approach, which values the condominium units as if they were income producing rental properties and then capitalizing the net income stream. This methodology results in an estimated \$993,223 in tax revenues from the residences. The Club would generate an additional \$500,000 in tax revenue annually, totaling \$1,493,223 for the Project.

The second, a hypothetical scenario, is based on percentage of market value. Based on these values and an assumed rate of 2%, the 80 residential units would theoretically generate \$2,183,272 in property tax revenue annually. The Club would generate an additional \$500,000 in tax revenue annually, totaling \$2,683,272 for this hypothetical scenario (excluding any property taxes attributable to the affordable units, which would be minimal). However, physical design constraints inherent in a fee simple ownership model would limit a fee simple townhome development to 69 units, of which 7 would be



affordable rental units, making this hypothetical the same as Alternative 4 to the Proposed Action. Fee simple ownership/taxation cannot be implemented for multifamily configured housing, because fee simple units must include ownership of the land under the unit, thereby precluding units located entirely above the “ground floor”. The socio-economic impacts of this hypothetical plan are considered in Section III.N. The Applicant has informed the Town that if a fee simple ownership/taxation alternative is selected by the Lead Agency, the increased risks due to the lack of marketability to “empty nesters” and decreased returns, coupled with the high cost of on-site infrastructure, improvements to the clubhouse and golf course, potential off-site contributions, and the significant cost of creating affordable housing, will render the Project economically unfeasible. Under these conditions, the Applicant will pursue a single family subdivision of the entire Site, rather than a townhouse project.

The Applicant currently pays \$275,671 in property taxes. With the Project, tax revenue of approximately \$1,493,223 will be generated, representing an increase of \$1,217,552, or 440%.

The Applicant also pays \$128,575 in sales taxes to New York State and Westchester County for merchandise sales in the pro shop and for all food and beverage sales, including catering. Sales taxes would increase with the proposed Project, mainly be due to the addition of another bar and a steadier stream of restaurant and banquet facility users generated by the on-site residential population.

The proposed Project would generate over \$1 million in school district taxes each year. For purposes of the DEIS, calculations of the cost to educate a modest number of additional students focus on “program costs,” which represent about 69 percent of the school district budget. Program costs do not include central administration, debt service and other costs that would not change with the addition of a few students. The analysis further factors the amount of revenues that come from the property tax, and exclude State aid, fees and other revenue sources. Based on an estimated net amount of \$18,734 in per pupil “program cost” that need to cover by the local property tax levy, the property taxes that would be necessary to educate the anticipated 20 project-generated school children would be \$374,680. This is substantially less than the estimated \$1,000,549 in school district taxes that would be paid by the Club and golf course community each year, creating a significant positive fiscal impact of approximately \$625,779 annually for the School District.

If the condominium development yields only 5 public school children, as

expected based on multipliers from local golf course communities, and the proposed marketing plan, the local education cost would be approximately \$93,670. This would provide an even greater positive fiscal impact for the School District.

The affordable housing units would also result in additional school age children. The 6 additional students anticipated from the eight affordable units, would result in an additional school district cost of \$112,404, still leaving a substantial surplus in revenues from the Project to cover expenditures.

Based on the size of the anticipated population, the project amenities and services, and existing Town services, the development of the Project would be expected to have a negligible impact on North Castle service costs. The anticipated property tax generation of approximately \$223,983 annually to the Town would therefore defray costs for the services that the Town would need to provide.

c) Employment

The Club currently has 92 full time equivalent (FTE) employees during the peak month of July. During January, when activity is reduced, the Club employs 28 full time equivalent employees. During the past three golf seasons, the Club has employed 15-20 students each summer from Byram Hills High School. It is estimated that the Project would generate approximately over 100 FTE positions during the peak summer months and 50 during the quieter winter months.

Construction would require an estimated investment of approximately \$104.5 million. This investment, during both construction and operation, would provide a significant benefit to the local, regional, and state economies, and also spur significant secondary economic benefits. In the short-term, it is expected that a total of 900 jobs would be supported by the construction of the Project. This includes 578 total direct construction and related services jobs and an additional 323 jobs in supporting industries.

d) Economic Spin-off

During construction, it is estimated that the proposed Project would generate \$145 million in expenditures in Westchester County. When operational, both the residences and Club would incur additional expenditures. Spending from the 88 households would amount to \$4.7 million per year. An additional \$3.8 million would result from Club activities.

15. Air Quality and Greenhouse Gas (GHG) Emissions

Studies of potential impacts to air quality and greenhouse gas emissions conclude that the proposed Project would have no long term significant impacts. Temporary short term, construction related impacts are identified and would be mitigated through a variety of best management practices. The proposed Project would include several site and building design features that address greenhouse gas emissions and energy efficiency, including: spray foam insulation; blown fiberglass insulation in the attic areas; EnergyStar compliant windows, doors, and appliances; energy efficient HVAC systems, light bulbs, hot water heaters and furnaces; caulking and sealing of top plates; infiltration tests; taped seams of all exterior house wraps; exhaust fans; programmable thermostats; and, split zone HVACs.

16. Noise

The noise analysis evaluated daytime and nighttime existing and future sound levels from vehicular traffic and mechanical equipment. The results of the noise analysis demonstrate that the proposed Project would not exceed the Town of North Castle's maximum permissible sound levels, and would meet the New York State Department of Transportation's and the Federal Highway Administration's noise impact criteria for all of the receptor locations

17. Hazardous Materials

A Phase I Environmental Site Assessment (ESA) of the entire Site was prepared by Ecosystems Strategies, Inc. (ESI) in May 2008 in accordance with established procedures and with the guidance of regulatory agencies. Asbestos-containing materials and lead-based paint may be encountered during reconstruction and renovation of the clubhouse and maintenance building. The maintenance building, where chemicals are stored, will be moved from its current location, along with all chemical storage tanks, but a change in the volume of chemicals used on-site is not expected. The debris pile of vegetative waste will be moved from its current location but the volume of material is expected to remain approximately the same. The debris pile does not contain hazardous materials.

Any suspect material encountered during renovation or demolition activities will be tested for asbestos or lead. All maintenance, renovation, or demolition activities will be conducted in accordance with applicable regulations. As of 2013, the Club has begun sampling stream outfalls at points of entry and exit. Sampling will become a part of standard operating procedures, as part of the 2012 Audubon International certification being sought for the Site.



18. Construction

The Project would be constructed in three phases over a 3 year construction period. The upgrading of the golf course would occur in two separate seasons, thereby permitting golfing on portions of the course during construction.

The first phase of the construction would include renovations of the clubhouse and the adjacent outdoor amenities, as well as the upgrading of nine holes of the golf course. This initial phase would also include the construction of 30 condominium units. The second phase would include an additional 26 condominiums and the balance of the golf course. The final construction phase would include the remaining 32 condominium units.

Construction related impacts would be addressed through a series of best management practices (BMP), including an erosion and sediment control plan and various measures designed to address dust, noise and other construction impacts.



C. Summary of Alternatives

1. Alternative 1: No Action

This No Action Alternative assumes that the Brynwood Golf & Country Club would continue operating as a membership golf course and country club, but that the facilities and golf course would not be improved, and that the proposed residential community would not be developed on the Site. The hypothetical “No Action” Alternative also assumes that the Zoning Ordinance would not be amended as proposed.

With this alternative, there would be no physical changes in the Site: no grading or alteration of topography; no loss of existing vegetation; and no construction activities. The Site would generate no additional traffic or additional population; there would be no visual impact; and there would be no effects on community services. There would be no need for additional water supply and the existing on-site wastewater treatment plant would continue its current operation.

The Applicant has advised the Town that this alternative does not satisfactorily address the current financial situation of the Club, and that selection of this alternative would therefore result in the demolition of the existing Club facilities and single family residential development of the Site under existing zoning, i.e., it would be the same as Alternative 2 described below.

2. Alternative 2: Existing R2-A Zoning – Conventional Subdivision

Without the golf course and country club, the Site could accommodate 49 single-family homes on 2 acre minimum lots. The club and golf course would be eliminated in this scenario.

Access to the subdivision would be provided through a single entry road off Bedford Road that would lead to a loop road providing access for 44 private driveways. A single cul-de-sac off the loop road would provide access for 5 private driveways. A total of 9,500 linear feet of new town roadway would be included.

This alternative would not require zoning amendments. However, unlike the Project and other alternatives, the conventional subdivision would not result in any common open space area, with the entire Site utilized for lots and roadways. Water supply would be provided by an individual well for each house lot. The on-site wastewater treatment plant would be expanded to serve the 49 homes. Alternative 2 would not include affordable housing.

Natural features would be affected with this Alternative, including vegetation clearing throughout the entire Site, 0.05 acre of wetland fill for a road crossing, and an additional



15 acres of impervious area.

It is anticipated that 49 homes would result in a population of over 208 persons, including 51 school age children. In addition to its effects on the School District, this population would utilize Town recreation facilities to a greater extent than would the Proposed Action with its empty nester population in households where golf, tennis and swimming facilities are provided on-site.

This alternative would generate \$1,470,000 in total tax revenues, 67% of which would go to the School District. With 51 students generated, at a cost of \$18,734 per student, the cost to the School District would be \$955,434, yielding an annual benefit to the School District of \$514,566.

3. Alternative 3: Existing R2-A Zoning – One Acre and Half-Acre Minimum Lot Area Conservation Subdivisions

In Alternative 3, two “conservation subdivision” plans are studied, each having 49 single family lots, based on a conventional subdivision lot count; one plan has lots with a minimum area of one-acre, and the other, lots with a minimum area of a half-acre. For either plan, the estimated population would be 207 persons, same as the conventional subdivision alternative, with the same 51 school age children estimated. The Club and golf course would be eliminated. Like Alternative 2, Alternative 3 would not include affordable housing.

The estimated taxes generated would be \$1,225,000 for the one-acre plan or \$980,000 for the half-acre plan, which is less than the \$1,470,000 that is estimated for the conventional subdivision. 67% of that total would go to the BHSD (\$820,750 or \$656,600). At a cost to of \$955,434 to educate, this alternative would have an annual deficit to the School District of \$134,684 for the one-acre plan, or \$298,834 for the half-acre plan.

Unlike the conventional subdivision plan, the conservation plan would result in the preservation of some environmental features as part of an open space system. However, with the one-acre plan, natural features would be affected by the construction of homes and roadways on the majority of the Site, including vegetation clearing on the majority of the Site, 0.05 acre of wetland fill for a road crossing, and an additional 15 acres of impervious area. The half-acre plan would have less impacts with a 6.8 acres of impervious area, less trees removed, less impact to steep slopes, and no impacts to wetlands or wetland buffers.

With the one-acre plan, there would be six new homes located along Bedford Road. The half-acre plan would include eight new homes on Bedford Road.

4. Alternative 4: Clustered Townhouse Plan

The alternative townhouse development would cluster 69 attached residences in the same areas of the Site as the Project, with each residence on its own fee simple lot. For purposes of comparison, this alternative includes 7 affordable rental units and 62 market-rate units. The townhomes would be a mix of three and four bedroom designs and would be marketed broadly to young professional families and empty nesters. The development area would include its own on-site amenities, including a small playground area for children.

An amendment to the Town Zoning Ordinance would be required to accommodate the density of the fee simple lots, as well as approval of a subdivision plat and site plan. The effects of this alternative on the Bedford Road frontage would be similar to the other alternatives. This alternative would result in ±141.6 acres of open space and 19.5 acres of impervious area.

The alternative townhouse development is more likely to attract families with children and would generate 240 residents and 43 school age children; both higher than the Project. Property taxes from the residences would be \$1,240,000. However, the residents here would also have maintenance fees for the homeowner's association and would be required to pay to be Club members. The additional children from this alternative would have a greater effect on the School District and Town recreation facilities and services than the Project.

Traffic generation from the 69 unit townhouse development would be similar to the traffic generated from the Project, with 37 Weekday AM Peak and 43 Weekday PM Peak trips. With the additional school age children, this alternative would likely result in additional trips in the critical morning rush hour with parents dropping children off at school.

5. Alternative 5: Reduced Density (49, 60 and 75 Units)

Alternative 5 is the development of a residential community, but at three lower densities than the Project. For this alternative, it is assumed that there would be 49, 60 or 75 total units in the community, inclusive of fair and affordable rental units equal to 10% of the number of market rate condominium units. As with the Project, the condominium units would be age-targeted luxury condominiums and owners would be members of the Club.

The less dense plans would require the same zoning amendments as the Project, except for the number of units that the zoning would permit. The reduced density plans would still maintain the development of the condominium units along Bedford Road, with the

road frontage having about the same number as the Project.

The impacts on steep slopes, wetlands and wooded areas among these alternatives would be similar to the Project. The reduced density plans would have impervious surface areas that are comparable to the Project.

The reduced density golf course community plans would generate fewer residents and fewer school age children than the Project. Taxes generated would be less than those estimated for the Project. Peak hour traffic generation would also be less than the traffic in the Project.

The reduced density plans are not financially feasible for the Applicant given the comprehensive program proposed in this DEIS, including on-site improvements and potential contributions to off-site improvements at the high school, to Town Water District No. 2, and the commitment to build fair and affordable housing.

A detailed comparison between the Alternatives and the Project is presented on Table I-1.



Table I-1
Comparative Table of Project Alternatives

	Proposed Action	Alt. 1: No Action	Alt. 2: Existing R-2A Zoning – Conventional Subdivision	Alt. 3: Existing R-2A Zoning – Conservation Subdivision (one-acre lots)	Alt. 3: Existing R-2A Zoning – Conservation Subdivision (half-acre lots)	Alt. 4: Cluster Subdivision/ Townhouse Alternative	Alt. 5: Reduced Density Alternative
# Residential Units	88	0	49	49	49	69	49 / 60 / 75
Open Space	141.6 acres	0 ¹	0	59.5 acres	124.7 acres	141.6	143 / 141 / 141 acres
Length of Public Road	0	0	9,500 lf	9,500 lf	3,725 lf	0	0
Impervious Area	17.5 ac. (6.6 ac. <i>new</i> impervious)	10.9 acres	15 acres	15 acres	6.8 acres	19.5 acres	17.0/17.3/17.5 acres
Trees Removed	1007	0 acres	9.5 acres ³	5.0 acres ³	3.5 acres ³	964	968 / 982 / 994
Steep Slope Impacts	2.75 acres	0 acres	1.43 acres	1.16 acres	0.25 acres	2.77 acres	2.5 / 2.67 / 2.75 acres
Wetland Impacts	add 1.25 acres of new wetland enhancements	0 acres	0.05 acre wetland fill	0.05 acre wetland fill	0 acres	add 1.25 acres of new wetland enhancements	add 1.25 acres of new wetland enhancements
Wetland Buffer Impacts	4.34 acres	0 acres	0.33 acre	0.33 acre	0 acres	4.34 acres	4.34 acres
Trip Generation (Peak)	47 AM / 55 PM	0 AM / 0 PM	37 AM / 49 PM	37 AM / 49 PM	37 AM / 49 PM	37 AM / 43 PM	26 AM / 30 PM 32 AM / 37 PM 40 AM / 47 PM
Additional Water Demand	29,775 gpd	0 gpd	26,950 gpd	26,950 gpd	26,950 gpd	30,150 gpd	17,375 / 21,175 / 26,075 gpd
Additional Wastewater Generation	29,775 gpd	0 gpd	26,950 gpd	26,950 gpd	26,950 gpd	30,150 gpd	17,375 / 21,175 / 26,075 gpd
Annual Tax Generation	\$1,493,223	\$275,671	\$1,470,000	\$1,225,000	\$980,000	\$1,240,000	\$851,205/ \$1,033,392/ \$1,290,224
Total Population	185-204	0	207	207	207	240	124 / 151 / 181
School Children -Rutgers & Local Experience	10-20	0	51	51	51	43	15 / 17 / 19
School Children - Rental Scenario ²	27	0	51	51	51	43	18 / 21 / 25
Visual Impacts	4 new residential buildings along Bedford Road, with extensive landscaping	No change from existing	5 new homes along Bedford Road	6 new homes along Bedford Road	8 new homes along Bedford Road	Townhomes along Bedford Road	4 new residential buildings along Bedford Road

¹ The Site would be subject to future development.

² Based on Rutgers CUPR multipliers.

³ Based on estimates using wooded areas on site.

D. List of Permits and Approvals

The Lead Agency for the review of the Proposed Action is the Town Board of the Town of North Castle. Agencies that have permit-granting authority over the project are described as Involved Agencies under SEQRA. Other related agencies are described as Interested Agencies. Involved agencies and their related project approval authority are listed in Table I-2. Interested agencies are listed in Table I-3.

Table I-2
Project Approvals Required
(Involved Agencies as per SEQRA)

Agency	Type of Approval/Review
North Castle Town Board (Lead Agency)	Amendment to Town Zoning Ordinance regulations for “membership clubs” and to establish “golf course community” as special permit use Amendment to the existing special permit of the Club Comprehensive Plan amendment to facilitate “golf course community” use Potential Water District No. 2 extension Consent to formation of sewer and water works corporations to serve the Club and golf course community
North Castle Planning Board	Site Plan approval Subdivision approval Tree Removal Permit Wetland Permit Steep Slope Permit
Westchester County Department of Health (WCDOH)	Water extension permit or public water supply approval Wastewater treatment plant expansion permit Approval of sewage works corporation plans
New York State Department of Environmental Conservation (NYSDEC)	SPDES permit for modification to wastewater treatment plant Storm Water Pollution Prevention Plan approval Storm Water SPDES permit Public water supply approval
New York State Department of Transportation (NYSDOT)	Highway Work Permit (NYS Route 22)



**Table I-3
Interested Agencies**

Agency	Type of Approval/Review
North Castle Conservation Board	Review of Project
North Castle Architectural Review Board	Review and Approval of Architectural Plans
North Castle Open Space Committee	Advisory review
North Castle Highway Department	Advisory review
North Castle Department of Water and Sewer	Advisory review
North Castle Building Department	Advisory review; Building Permit
North Castle Parks and Recreation Department	Advisory review
Byram Hills School District	Advisory review
Town of North Castle Fire District No. 2	Advisory review
Westchester County Planning Board	General Municipal Law advisory review
NYS Office of Parks, Recreation and Historic Preservation	Review of Project
US Army Corps of Engineers (USACOE)	Review of Project – if applicable
Residents of Windmill Inc.	Interested Party

E. List of Involved Agencies and Interested Agencies for DEIS Distribution

Lead Agency

Town of North Castle Town Board

Howard Arden, Supervisor, 15 Bedford Road, Armonk, NY 10504

Involved Agencies

North Castle Planning Board

Arthur Adelman, Chairman, 15 Bedford Road, Armonk, NY 10504

Westchester County Department of Health (WCDOH)

Sherlita Amler, Health Commissioner, 420 North Ave, New Rochelle, New York 10801

New York State Department of Environmental Conservation (NYSDEC), Region 3

Acting Regional Director, South Putt Corners, New Paltz



New York State Department of Transportation (NYSDOT), Region 8

William Gorton, P.E., Acting Regional Director, Eleanor Roosevelt State Office Building, 4
Burnett Road, Poughkeepsie, NY 12603

Interested Agencies

North Castle Conservation Board

John Fava, Chairman, 15 Bedford Road, Armonk, NY 10504

North Castle Architectural Review Board

Beata Buhl Tatka, Chairman , 15 Bedford Road, Armonk, NY 10504

North Castle Open Space Committee

Kerri Kazak, Chairman, 17 Bedford Road, Armonk, NY 10504

North Castle Highway Department

Jamie Norris, General Foreman, 15 Bedford Road, Armonk, NY 10504

North Castle Department of Sewer and Water

Sal Misiti, Director, 115 Business Park Drive, Armonk, NY 10504

North Castle Building Inspector

Town Hall Annex, 17 Bedford Road, Armonk, NY 10504

North Castle Parks and Recreation Department

Sue Snyder, Superintendent, 40 Maple Avenue, Armonk, NY 10504

Byram Hills School District

Dr. William Donohue, Superintendent, 12 Tripp Lane, Armonk, NY 10504

Town of North Castle Fire District No. 2

Fire Commissioners, PO Box 188, Armonk, NY 10504

Westchester County Planning Board

Edward Buroughs, Commissioner, 148 Martine Avenue, Room 432, White Plains, NY
10601

NYS Office of Parks, Recreation and Historic Preservation

Rose Harvey, Commissioner, 625 Broadway, Albany NY, 12238

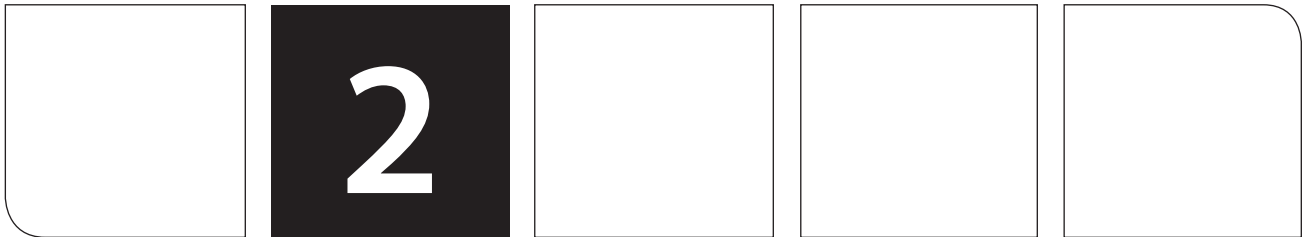
US Army Corps of Engineers (USACOE), New York District

Attn: Regulatory Branch, Room 1937, 26 Federal Plaza, New York, NY 10278-0090

Residents of Windmill Inc.

Jan Bernstein, President, 34 Evergreen Row, Armonk, NY 10504





Description of Proposed Action

II. DESCRIPTION OF PROPOSED ACTION

This Draft Environmental Impact Statement (the “DEIS”) analyzes the potential impact and proposed mitigation associated with a Proposed Action that includes (1) amendments to the Town of North Castle Zoning Ordinance to change the regulations for a “membership club,” and to add “golf course community” as a special permit use, and (2) the development of an 88-unit residential golf course community at Brynwood Golf & Country Club (the “Club”) and renovations to Club facilities, including the existing clubhouse and golf course (the “Project”).

A. Site Location, Description and History

1. Location

The subject site (the “Site”, or “Project Site”) is located at 568 Bedford Road (NYS Route 22) in the Town of North Castle, New York and is designated on the Tax Assessment Map of the Town as Section 2, Block 8, Lot 7.C1A. The Site fronts on the west side of Bedford Road and consists of approximately 156 acres. (See Exhibit II-1, Regional Location; Exhibit II-2, Site Location, Exhibit II-3, Aerial Photograph and Exhibit II-4A, Survey of Property). The Site is located in the R-2A One-Family Residence Zoning District.

2. Site History

The Applicant (Brynwood Partners, LLC) acquired the Site, which was formerly known as the “Canyon Club,” in December, 2009. Shortly after acquiring the property, the Applicant made significant cosmetic renovations to existing club facilities and retained an operator/manager for the golf course and country club (Troon Golf). In April 2010, the first significant renovations to the clubhouse and core amenities in more than 40 years were completed, and the facility reopened as Brynwood Golf & Country Club.

The 2010 renovations included interior decorating, bar and dining area redesigns, and patio, pool area and tennis court upgrades. Improvements to the building’s infrastructure systems were not performed as part of the renovations.

The Site was first approved for use as a membership based golf and country club pursuant to a special permit granted by the Zoning Board of Appeals of the Town in 1961. The Site has been continuously used and operated as a golf and country club since 1964. The Club was initially known as the Bel-Aire Country Club. The special permit for operation of the golf and country club has been amended, extended and re-issued numerous times by the Town Zoning Board of Appeals, and then under successor zoning codes, by the Town Board, most recently in April, 2000, to permit a professional



tennis tournament to be held at the Canyon Club in May of that year. The specific conditions governing the use of the property and operation of the Club that were imposed by the Zoning Board of Appeals and Town Board were last materially amended in June, 1978, to permit the Club to “conduct outside affairs such as dinners, dances, weddings, [and] catering to persons who are not primarily members of the club.”

The Applicant submitted a zoning petition and Environmental Assessment Form (EAF) to the Town Board in June 2011 in connection with proposed zoning amendments and a proposed 243-unit golf course community, but subsequently withdrew that application (August 2011). After consideration of public comments and redesign of the residences, the Applicant re-submitted a zoning petition and EAF to the Town Board in August 2012, for a golf course community having 98 residential units, and in September, 2012, further reduced the density of the golf course community to 88 residential units. The Town Board declared Intent to be Lead Agency and issued a positive declaration for the Proposed Action in November 2012. After a public scoping session held in November 2012, and additional meetings and comment periods held over to receive public comment on the scope, the Town Board adopted the scope of this DEIS in January 2013 (see Appendix A for Scoping Document and SEQRA documentation).

3. Frontage and Access/Regional and Local Roadway Network

The Site fronts on and has direct access to Bedford Road via a private driveway that leads to the existing clubhouse and parking area. This is the only access for vehicles and pedestrians. The Site is bordered to the east by I-684, to the north by a residential community, to the west by Bedford Road and Coman Hill School, and to the south by open space, residential uses and the Armonk Tennis Club.

Exhibits II-2 and II-3 show the regional and local roadway network surrounding the Site.

4. Existing Site Uses

The Club has an 18-hole golf course with a practice range, putting green and chipping green. There are 14 outdoor tennis courts located near the clubhouse, however, only 9 of these courts are currently playable.

The existing structures on the Site include an approximately 65,000 square foot clubhouse with outdoor pool and terrace. Within the clubhouse are 22 guest suites, a ballroom, restaurant and bar, men’s and women’s locker rooms, lounge areas, administrative offices and a golf pro shop.

Existing outparcel buildings on the property include: maintenance building (5,000 sf); sewage treatment plant (2,500 sq); golf cart storage building (2,900 sf); snack bar

building (1,500 sf), tennis building (400 sf); irrigation pump house (350 sf); and, three golf course comfort canopies.

5. Environmental Characteristics

The Site is currently developed with a golf course, tennis courts, a clubhouse and several smaller structures. The existing golf fairways and ponds are located in areas of lesser slope, with the areas of steepest topography situated in the central and west-central portions of the Site that are undeveloped. Steeper slopes also exist to the north of the existing tennis courts and within the northerly portion of the property. There are no special geological features or significant rock outcroppings on the Site, and the Site is not located within a Critical Environmental Area (CEA). There are wetlands on the Site, which totally approximately 6.5 acres. All but one of the on-site wetland areas were disturbed during original construction of the golf course.

See Exhibit II-4A, Survey of Property and Exhibit II-4B, Existing Site Characteristics.

6. Existing Easements and Restrictions

There are no existing easements or other restrictions of record that would prohibit the development and operation of the Project.

B. Detailed Description of Proposed Action

1. Proposed Development Plan

To ensure the financial stability of the Brynwood Golf & Country Club, the Applicant proposes to develop an ownership residential community geared to an active adult lifestyle, in which all homeowners of market-rate condominiums will be required to be members of the Club. As shown on the conceptual plan (see Exhibit II-5, Illustrative Master Plan), the 88 residences would be located on an approximately 14.7 acre portion of the ±156 acre Site, leaving 141 acres of open space, including the golf course. Most of the proposed housing would be contained in a residential neighborhood to be located in the northeast corner of the Site, on the plateau along Bedford Road, in the location of the existing tennis courts. This location takes advantage of some previously developed areas, where the units can be sited to fit within the Site's topography and minimize impacts to steep slopes, wetlands and vegetation.

The residential portion of the Site would comprise two parcels: an approximately 14.5 acre parcel in the northeast corner of the Site fronting on Bedford Road (the "North Parcel"), on which 80 units would be located, and an approximately 9,000 square foot parcel due west of the Club's existing parking area and south of the clubhouse (the

“South Parcel”), on which the remaining eight affordable units would be located. The two residential parcels would be subdivided from the remainder of the Site. See Exhibit II-6, Master Plan - Residential, and Exhibit II-7, Master Plan – Club for location of the North and South Parcels (final sizes of the parcels and location of subdivision lot boundaries will be determined as Project design is refined in the site plan and subdivision review processes).

a) Site Access and Circulation

The residential community would be accessed solely from Bedford Road (NYS Route 22) at the common entrance with the Club. A new exit from the Club parking area, limited to right-turns onto Bedford Road, is proposed to improve on-site traffic movement after Club events.

New, private access driveways will be constructed off of the main entrance drive to access the residential areas. The driveways will conform to applicable roadway standards to allow emergency vehicle access. A golf cart path, constructed out of materials that would allow for emergency vehicles to travel on them, is proposed to the west of the “Golf Residence” buildings, which would allow secondary emergency access to these buildings. All internal roadways will be private.

A gatehouse will be located at the entry road as shown on the proposed plan. The gatehouse will be staffed 24 hours a day, and both club members and residents would have a pass to enter.

b) Club Core/Clubhouse

The conceptual plan for the Project also includes improvements to the core facilities and amenities of the Club. As shown in Exhibit II-8, Master Plan - Club, the clubhouse would be completely renovated, including a new entry façade with expanded porte cochere facing Bedford Road and a reconfigured service entry. The existing clubhouse building would be reduced from approximately 65,000 square feet (sf) to approximately 64,000 sf. The renovated clubhouse would contain all current uses including banquet hall, restaurant, lodging, locker rooms, lounges, pro shop, fitness room and game and activity rooms, as well as new uses such as spa treatment area, roof terraces, employee housing, and additional food and beverage service facilities. Six guest lodging rooms, (each 500 sf), and eight rooms for employee housing (each 220 square feet), would be provided. Additionally, four to five guest rooms (for members’ guests) may be provided at the South Parcel residential building. The Applicant’s intent is for the design of the clubhouse to respond sensitively to the architectural traditions of the Town, County and region and to integrate contextually into the

established landscape along Bedford Road. See Exhibit II-14E, Clubhouse Entry and Elevation and Exhibit II-14F, Clubhouse Section.

Brynwood Golf & Country Club currently has approximately 350 members. The Club is permitted to have up to 500 members under the existing special permit, however, the optimal number of members for the Club is expected to be 300 to 350 members upon completion of the Project. Upgrading the existing facilities would not increase Club capacity, and would allow the Club to charge higher dues, as well as an initiation fee. The higher dues, initiation fee, and requirement that on-site condominium owners be members, would provide the Club with a stable base of long-term committed members, so that fewer total members are needed to support the Club operation. Throughout this DEIS, potential impacts (including traffic, water, sewer, and solid waste impacts) are evaluated assuming that Club membership is stable.

Dining Facilities

Proposed dining facilities on the entry floor level of the clubhouse include a banquet hall with approximately 250 seats (less than the existing seating), a restaurant with approximately 80 indoor seats plus 70 outdoor dining seats, and a bar and lounge with approximately 40 seats. The lower level of the clubhouse would contain a grille with approximately 50 indoor seats and an outdoor grill terrace with 30 seats near the pool. An additional bar with approximately 50 seats would be located above the pro shop and near the cart entry to mainly serve golfers. Dining facilities at the Club, including the banquet hall, are for use only by Club members and their guests. This policy will be continued after completion of the Project.

Recreation Facilities

The plan includes the construction of three new pools (a main pool, a lap pool and a children's pool) and a hot tub and fire pit with surrounding terraces. The existing tennis courts would be relocated closer to the clubhouse and reduced in number from 14 to six; the new courts would be lighted. A new tennis pavilion of approximately 800 square feet would also be constructed.

Club Parking

Club parking would be available in the existing parking lot located to the south of the clubhouse. Passenger drop-off would be permitted under the porte cochere at the main entrance to the clubhouse. There are currently 178 parking spaces in the parking lot serving the clubhouse; the number of spaces would remain the same. The current parking lot is more than sufficient to meet regular demand from members and from special events. Membership is expected to remain the same or slightly decrease, therefore, parking would



continue to be adequate and traffic generated by Club members would be the same or less than the current condition. Traffic to and from the Club generated by the residents of the golf course community would not impact local public roads.

c) Proposed Residential Development

Residential Unit Types and Architectural Design

The residences would be in 19 structures on the North Parcel, and one structure on the South Parcel, all generally sited within currently developed areas and located to maximize views of the adjoining golf course (see Exhibits II-5, II-6 and II-7). All residential units on the North Parcel would be condominiums. On the North Parcel, five of the structures would be four-bedroom “Golf Cottages,” four of the structures would each contain ten two-bedroom “Golf Residences,” three of the structures would each contain six two-bedroom and two three-bedroom “Golf Residences,” and seven structures would each contain two three-bedroom “Club Villas.” The structure on the South Parcel would contain eight “fair and affordable” rental units (one four-bedroom, one three-bedroom, and six two-bedroom units). Potentially up to five lodging rooms/suites would also be located in this building as hotel-like rooms available for periodic use by residents to reserve for guests and family members who are visiting and would be served by the clubhouse operations¹.

Following is a description of the different unit types (See Exhibit II-8 for Residential Building Type Diagram):

- **Golf Cottages** are 3,200 s.f. single-family units with 4 bedrooms and 2 parking spaces each. The five Golf Cottages (Buildings C1-C5) will be located across from (west of) the tennis courts.
- **Golf Residences** are 2-bedroom or 3-bedroom/loft units that range from 1,900 to 2,900 s.f. Buildings L1-L4 each contain ten 2-bedroom Golf Residence units. Buildings L5-L7 each contain six 2-bedroom units and two 3-bedroom/loft units. All Golf Residence buildings have basement common garages with two parking spaces per unit. There are 64 Golf Residence units proposed in total. Twelve of the Golf Residences would be served by grade level accessory cabanas and plunge pools. These higher density structures would step down an existing slope away from Bedford Road and toward the golf course.

¹ The Club currently has guest suites and employee lodging facilities. These rooms would be limited to temporary occupancy, and are considered to be Club facilities.

Cabanas would be accessed by resident owners and their guests through the private parking garage.

- **Club Villas** are 2,650 s.f., 3-bedroom, two-story townhouse units. Buildings V1-V7 each contain two Club Villa townhouses per building for a total of 14 Club Villa units. A 2-car garage is proposed for each of these units. The Club Villa buildings would be designed to emulate single-family homes and would be located closer to Bedford Road.
- **Affordable Housing units** will be 2, 3, and 4-bedroom apartments in the two-story building on the South Parcel. All apartments will have a basement common garage with one parking space + ½ space per bedroom.



Table II-1
Residential Building Type Summary

Building Number	# of Units					# of Parking Spaces	Building Gross Square Feet*
		Golf Cottages 4BR	Golf Residences 2BR	Golf Residences 3BR	Club Villa 3BR		
C1		1				2	3,730
C2		1				2	3,730
C3		1				2	3,730
C4		1				2	3,730
C5		1				2	3,730
L1			10			20	32,400
L2			10			20	32,400
L3			10			20	32,400
L4			10			20	30,600
L5			5	2		17	25,800
L6			5	2		17	25,800
L7			5	2		17	25,800
V1					2	4	6,940
V2					2	4	6,940
V3					2	4	6,940
V4					2	4	6,940
V5					2	4	6,940
V6					2	4	6,940
V7					2	4	6,940
		Affordable Units 4 BR	Affordable Units 2 BR	Affordable Units 3 BR			
Affordable Units		1	6	1		1 18	20,176
Subtotal		6	61	7	14	197	292,606
Total			88			197	292,606

* Includes garages.

The proposed residences would be designed and age-targeted for active adults. These luxury condos would contain amenities such as gourmet kitchens, en-suite bathrooms, large master bathrooms that are adaptable for accessibility, walk-in closets and accessible entryways. The multiple-unit residences would also contain additional storage units for residents. Floor Plans for each of the proposed unit types are included in Exhibits II-9, 10, 11, 12 and 13.

The architectural character and massing of the residential buildings would be rooted in the historic building traditions of the Town, Westchester County and the surrounding region. Asymmetrical volumes, varying roof types and heights and a combination of materials such as shingles, painted wood and stucco would help create a picturesque arrangement of homes set in a natural landscape. Details would include a variety of wood bracket and rafter designs,

window and door arrangements, and porches and terraces. Organized outdoor courtyards, pedestrian paths, and preservation of vegetation in undisturbed areas would encourage a sympathetic relationship of the structures fitting into the land. The landscape treatment along Bedford Road would include the use of stone walls and preservation of partial views to the west and existing large specimen trees. (See Chapter III.C – Visual Resources and Community Character, for more detail).

Residential Parking Plan

Each of the 80 condominiums would be served by two garage parking spaces, plus three extra spaces each in buildings L5, L6 and L7, for a total of 169 parking spaces. These parking spaces would be provided in either common or private garages. Each of the eight affordable units would be served by one garage parking space plus $\frac{1}{2}$ space per bedroom, which in the Applicant's opinion is more than sufficient. These parking spaces would be provided in a common garage. Club Villas and Golf Cottages will have private garages at grade, and Golf Residences and the affordable units will have common garages underneath the buildings. Additional guest parking spaces would be located at grade along the private driveways. The parking plan is summarized below and illustrated on the Master Plan exhibits (Exhibits II-6 and II-7), as well as garage floor plans (Exhibits II-9A and II-10A).

Table II-2
Residential Parking

# Units	Condominium Residential Spaces Required (2 spaces/Unit)	Condominium Residential Spaces Provided	Residential Guest Spaces Required (10% Total Required Spaces)	Residential Guest Spaces Provided	Affordable Units Required (1 per unit + $\frac{1}{2}$ per bedroom)	Affordable Units Spaces Provided	Total Parking Spaces Provided
88	160	169	18	25	16	16	210

Club Lifestyle/Memberships for Condominium Owners

All condominium homeowners would be required to be Club members. As such, all condominium residents would have access to the Club amenities such as golfing, tennis, swimming, special events, fitness room, spa facilities, and restaurant. Residents of the eight affordable units would not be required to be Club members and would not have access to the Club amenities.



d) Golf Course

The proposed amendments to the Town Zoning Ordinance that would permit the “golf course community” special permit use in the R-2A District include the requirement that the Applicant record a declaration of restrictive covenants (or conservation easement) that would provide that for so long as the affiliated golf course community exists, the Club property shall be used solely for a membership club in accordance with the requirements of the Zoning Ordinance, and the portion of the Site on which the golf course is located shall be maintained either as a golf course or otherwise as open space.

Proposed Golf Course Renovations

The golf course would be renovated and improved under the direction of Rees Jones, Inc. of Montclair, New Jersey. The improvements include adding additional championship and forward tees, select rebuilding of existing tees to improve playability and drainage, installing drainage in 12 of the existing greens, constructing seven new green surfaces and green complexes, rebuilding greenside bunkers and fairway bunkers, installing 10 to 12 additional fairway bunkers, relocating three golf holes to improve the golf course experience and minor grading on select fairways. The existing ponds would be expanded to improve surface water storage and increase capacity for golf course irrigation.

The following table describes the current and proposed yard lengths for each hole of the golf course, as well as the specific proposed improvements. See Exhibit II-15.

The golf course plan also includes addition of a comfort station (180 sf) and a halfway house (400 sf). Both of these features are shown on Exhibit II-5, Illustrative Plan.

Table II-3
Current and Proposed Golf Course Yardage and Proposed Improvements

Hole	Current Yards	Proposed Yards	Proposed Improvements
1	391	389	Rebuild tee and bunkers, expand fairway
2	363	365	Rebuild tee and bunkers, expand adjacent pond
3	522	580	Build new tee, rebuild bunker and greenside complex, add 2 new fairway bunkers, expand 2 adjacent ponds
4	428	437	Improve tee complex and fairway
5	441	445	Rebuild tees and bunker, reshape landing zone, expand fairway approach, rework surrounding area
6	193	218	Build new tee complex and cart path, rebuild bunkers, rework surrounding area
7	393	428	Build entire new green surface, green complex and tee complex,
8	216	183	Build entire new green, green complex and tee.
9	441	523	Build new tee complex, rebuild green complex and bunkers
10	210	175	Build entire new golf hole
11	350	323	Rebuild green surface and green complex, add new bunkers, reshape fairway, add new cart path
12	172	373	Build new green complex and fairway, add 3 new bunkers
13	344	168	Build new tee complex, rebuild bunkers, reshape fairway approach
14	332	378	Improve fairway, remove bunker
15	400	583	Build new tee complex, improve fairway, build new section of fairway and green complex, add new bunkers and cart path
16	175	173	Build new tee complex and cart path
17	500	523	Build new tee complex and fairway bunkers, rebuild green complex and greenside bunker
18	477	483	Rebuild tee, bunker, green complex and bunkers
Total	6,348	6,747	

Maintenance Area

An improved golf course maintenance building would be constructed in the vicinity of the existing wastewater treatment facility. The maintenance area contains an 8,000 sf, two-story maintenance building that includes an equipment storage area and a mechanic's bay for equipment maintenance on the lower level, and an employee break area and maintenance offices on the upper level. The maintenance yard contains a covered storage area for parking of larger maintenance equipment, three material storage bays for the storage of sand and gravel, a double walled diesel/unleaded fuel tank for fueling the maintenance equipment, a self-contained chemical storage building for golf course chemicals, and a wash area to clean maintenance equipment. The new



wastewater treatment plant, water filtration plant, and water storage tank are all proposed in this area as well. (See Exhibit II-14G, Maintenance Area).

Maintenance Programs

The existing maintenance program for the grounds, golf course, and the Club is managed by Troon Golf. The common areas of the golf course community will be maintained by the condominium association to be formed by the Applicant.

Environmental Plan for Golf Course

Audubon International² is an organization with the mission to work with others to deliver high-quality environmental education and to facilitate the sustainable management of land, water, wildlife, and other natural resources in all places people live, work, and play. Audubon International was established under a broad banner of environmental education and sustainable resource management. Audubon International has no formal affiliation with the National Audubon Society but they work with and partner with them to promote common goals.

The Club is currently working towards becoming a Certified Audubon Cooperative Sanctuary. Audubon International provides the tools to thoroughly perform a site assessment of the Site and form an environmental plan of action which can be implemented to help improve wildlife habitat and wetland management, reduce chemical use and create a safer protocol for needed chemical use, become more efficient with water usage, manage the quality of not only the water systems on the Site but surrounding water systems as well as groundwater, and finally, to reach out to the surrounding community to educate and communicate what the Club is doing to positively impact the local environment.

Implementation of new environmental programs and initiatives will help improve environmental performance and community relations, reduce environmental liability, and will enhance the conservation of environmental resources.

Integrated Turf and Pest Management Program

The golf course currently has an Integrated Pest Management Program which is implemented by the golf course superintendent. A new, more comprehensive Integrated Turfgrass and Pest Management Plan (ITPMP) has been developed for the Project (see Appendix E) to improve environmental management

² <http://www.auduboninternational.org/>

practices, with the goal of the Club becoming a Certified Audubon Cooperative Sanctuary. The proposed ITPMP conforms to the principles of sustainable resource management developed by Audubon International for golf courses.

The existing and proposed ITPMPs contain a program of fertilizer, pest control options and other maintenance practices. This program is designed to serve as the maintenance blueprint for the Club and golf course community. The ITPMPs rely heavily on environmental friendly practices including the use of: natural organic fertilizers that suppress diseases, pest resistant grasses, biological control material as the first line of defense against pests and careful use of fertilizers and water for irrigation.

Irrigation Needs and Water Sources

The irrigation water demand is estimated to be a daily average water usage of 51,240 gallons, a maximum day usage of 193,000 gallons (April) and the peak month (September) usage of 2,298,000 gallons. The daily average is notably lower than the maximum day because irrigation of the course does not occur every day.

The irrigation water demand is currently supplied by storm-water runoff captures in the irrigation ponds and supplemented by two existing on-site irrigation wells. These existing irrigation ponds and wells would continue to be used to supply water for the irrigation water demand for the golf course. Gray water reuse will be considered for irrigation.

Wetland Mitigation Plan

No direct impacts to wetlands are proposed, however, the Project will impact approximately 4.34 acres of wetland buffers. The wetland mitigation plan includes the dredging of two ponds and restoration/creation of 1.25 acres of wetlands. All wetlands on-site will be improved through the removal of non-native invasives and the replacement with native trees, shrubs and herbaceous plant material. Vegetated buffer strips will be added adjacent to wetland and surface water resources where appropriate.

e) Utilities

Sanitary Sewer and Wastewater Treatment Plant

The Site currently contains a wastewater treatment plant (WWTP) operated under a New York State Pollution Discharge Elimination System (SPDES) permit. This facility would be improved and expanded as necessary to meet the needs of the proposed residential community and the Club. The upgraded facility would meet all regulatory requirements (see Exhibit II-5, II-14G and Chapter III.K, Wastewater).

Water Supply

The Club is currently served as an out-of-district user by Water District No. 2 of the Town for fire protection and potable water and by on-site wells for all other water needs such as irrigation for the golf course. The proposed Project is anticipated to have an average daily water usage of 51,955 gallons per day (gpd) based on residential and Club uses. The estimated peak daily flow for the Project is 103,910 gpd and the peak flow is 72.2 gallons per minute.

The Applicant's goal is to develop an on-site water supply to meet the Project's potable water demand requirements. If the results of the test well drilling program demonstrate that the development of an on-site public water-supply source is not feasible, the Applicant would pursue connection with Water District No. #2 to supply potable water. (See also Chapter III.J, Hydrogeology, Groundwater and Water Supply as well as Appendix J, for report on Water District No. 2). The existing irrigation ponds and wells would continue to be used to supply water for the irrigation water demand for the golf course.

Stormwater

The location of the proposed storm water management facilities is shown on the preliminary plans and described in Chapter III.I, Stormwater.

f) Proposed Limits of Disturbance

Approximately 73.9 acres are proposed to be disturbed, see Exhibit II-16A and 16B, Grading Plans. The Site currently contains approximately 10.9 acres of impervious surfaces. The Project proposes an additional 6.6 acres, for a total of approximately 17.5 acres (11.2% of the Site) of impervious surfaces.

g) Proposed Landscaping, Signage and Lighting

The landscape concept for the site would incorporate an immediate screening impact where needed by means of evergreen shrubs and trees and include a longer term transformation by strengthening the overall forest canopy through the addition of understory trees and replacement of unhealthy trees. Proposed landscape concepts for the site are illustrated in Exhibits II-18 A through 18G.

The existing country road aesthetic along Bedford Road would be maintained by supplementing existing healthy tree cover with mid- and under-story trees and evergreens where necessary, and utilizing a dry-stack (appearance) stone wall as a feature along the property line, punctuated by the redesigned Club entrance which will replace hazardous, ailing trees with new native specimens. Layered screen plantings will be integrated between Bedford Road and the existing parking lot to provide a naturalistic visual buffer. New evergreen and flowering

shrubs in addition to the existing trees behind the stone wall will provide screening of the proposed residential units.

The residential landscape will utilize a regionally appropriate plant palette that allows for variety, layering, and multi-seasonal interest. The street trees will be scaled to complement residential building height and incorporate a regular pattern to unite the residential community. Permanent irrigation will be used for the residential and interior streetscape plantings to accelerate establishment of the proposed landscape character.

There will be directional and informational signage on the private interior roadways of the Site. This signage will complement the proposed architectural style of the clubhouse and residential buildings.

Exterior lighting will be provided at the entrance and exit driveways, along internal driveways and walkways, tennis courts, and within parking and recreational facility areas. No exterior lighting will be provided for the golf course, with the exception of the pro shop and maintenance area. The tennis courts, however, will be lighted to allow night-time play.

Exterior security lighting will automatically illuminate at dusk. Between midnight and sunrise, all exterior lighting except lighting along roadways and in parking and pedestrian areas will be reduced to an illumination level necessary to maintain nighttime safety and security, as well as to conserve electrical energy. Exterior architectural lighting will include decorative wall sconces at the residential buildings and clubhouse. Exterior lighting along the roadways, parking areas and pedestrian areas will consist of decorative pole mounted fixtures, mounted approximately 12 to 14 feet high. See Chapter III.C, Visual Resources and Community Character and Exhibit II-17, Preliminary Lighting Plan.

h) Project Scheduling

At this time, it is anticipated that the Project would be constructed in three phases, over a build-out period of three years. Phase 1 would include reconstruction of the back nine golf holes plus (minus the green for the 15th hole), building demolition, new clubhouse construction, and tennis courts, and construction of the Fairway Residences and residential buildings C1-C5, L1, L5 and V1, along with the proposed access driveway and related infrastructure. The proposed maintenance area will be constructed during Phase I which includes the new wastewater treatment plant and water tank and treatment system. The supply wells would be brought into service in this phase. During the first phase, the front nine holes of the golf course would be available to Club members on a limited basis. A total of 40.5 acres of disturbance are associated

with this phase.

Phase 2 would include reconstruction of the front nine golf holes plus the green for the 15th hole, and construction of the residential buildings L2, L6, and V2-V5. During the second phase, the reconstructed back nine holes would be open for play on a limited basis, and the clubhouse renovations would be complete. A total of 30.4 acres of disturbance are associated with phase 2.

Phase 3 (3.0 acres) would include construction of residential buildings L7, V6 and V7. Exhibit II-20 illustrates the phasing plan for construction and Exhibits II-19A, 19B and 19C describe the proposed layout and utilities of the project.

The estimated timetable for reaching full occupancy of the proposed golf course community indicated in the Market Study (Appendix P) is three years based on a projected assumption of ± 30 units per year.

2. Zoning

a) Existing Zoning

The Site is located in the R-2A One-Family Residence District of North Castle. "Membership clubs" (which include golf and country clubs and similar recreation facilities) are permitted in the R-2A District upon the issuance by the Town Board of a special permit under Section 213-33.I of the Zoning Ordinance. As previously noted, the Site was first approved for use as a membership based golf and country club pursuant to a special permit granted by the Zoning Board of Appeals of the Town on April 14, 1961.

As per the Zoning Ordinance, membership clubs are not permitted to operate for profit. The Zoning Ordinance (Section 213-3) defines a membership club as "Land, buildings and facilities operated by a membership corporation, association or fraternal order for the purpose of accommodating recreational, athletic, social, literary or similar activities. The members of the membership corporation, association or fraternal order shall have a financial interest in, and method of control of, the assets and management of the club. A "membership club" shall not be operated primarily for profit nor regularly render services to the general public."

In addition to operational control, special permit regulations of the Zoning Ordinance require the "membership club" to own or lease the club property (Section 213-33.I(5)).

b) Proposed Zoning

Definition of Membership Club

The existing, traditional regulations for membership clubs are not sufficiently flexible to permit the business model that the Applicant considers necessary to ensure the financial viability of the Club and induce continuing capital investment under current and foreseeable economic conditions. Instead, the Applicant proposes that the Club – including its golf course, recreational facilities and dining amenities – would be operated for the benefit of members (and the public, to the extent permitted under the special permit) by a professional owner/manager for profit. This alternative model differs from the traditional equity model by exposing the club owner, rather than the members, to unknown financial risks.

To permit this business model as well as the more traditional model (in which a club property typically is owned by a for-profit entity and is leased to a not-for-profit “membership” corporation), the Applicant proposes that the definition of “membership club” and the special permit regulations governing membership clubs be amended (see proposed zoning in Appendix C).

Amendment to Special Permit Regulations

In addition to the changes to permit alternative business models, the Applicant also proposes an amendment to the special permit regulations to expressly identify the different uses permitted as part of a membership golf and country club. These permitted uses would include: golf and tennis pro shops; health, fitness and spa facilities; facilities for the operation and maintenance of the club including employee and management housing, and buildings for the storage and repair of golf carts; and, restaurants and other food and beverage service facilities which primarily serve club members and their guests but which may also serve the general public at outings and catered events. The Applicant further proposes amendments to the special permit regulations to: (a) permit lodging rooms/suites for use by club members and their guests, guests attending catered special events, and club management and employees; and (b) permit compact car parking spaces. The text of the proposed amendments is included in Appendix C.

Addition of “Golf Course Community” as a Special Permit Use

The Applicant is also proposing to construct 88 residences on an approximately 14.7 acre portion of the Site largely in the area that is presently utilized for tennis courts. Residences at this density are not permitted under the existing regulations of the R-2A District.

To permit the residential community to be developed, the Applicant is requesting that the Town Board amend the regulations of the R-2A District to add a new special permit use to be known as “golf course community.” Under the proposed definition, a golf course community would be “a residential community designed for and marketed to active adults in which the central focus of the community is an affiliated membership club having an 18-hole golf course and other recreational facilities which adjoins the site of the golf course community.” The definition would also require the owners of all residences in a golf course community to be members of the affiliated club.

The definition and the proposed special permit regulations for a golf course community are included in Appendix C. The special permit regulations are designed to restrict the development of golf course communities by requiring the community to be affiliated with a currently existing membership club which has an 18-hole golf course and adjoins the site of the community, which must in turn have frontage on, and be directly accessed from, a State highway.

The proposed regulations require all homeowners to be members of the affiliated club. The proposed regulations also acknowledge that the golf course of the affiliated membership club functions as the open space for the golf course community, and that maintenance of that open space is the basis for the permitted density of a golf course community. The regulations therefore expressly provide that as a condition of site plan approval of a golf course community, the Applicant, as owner of the Club, must record in the Westchester County Clerk’s office a conservation easement or declaration of covenants and restrictions pursuant to which the Applicant agrees that the Club property shall be used solely for a membership club in accordance with the requirements of the Zoning Ordinance, and the portion of the Site on which the golf course is located shall permanently be used only as a golf course or otherwise as open space accessory to the golf course community. The recorded conservation easement/declaration would run with the land, and bind all successor owners of the property.

The regulations also establish special bulk, dimensional and parking requirements for a golf course community including a maximum permitted density of one “density unit” (as already defined in the Zoning Ordinance) per 12,000 square feet of the aggregate lot area of all lots comprising the community.

To maximize the ability of a golf course community to weather the kind of economic conditions that have been experienced for the past several years and permit the community to respond to other changes in marketplace demand, the

proposed regulations permit certain types of limited design flexibility after site development plan approval is granted without the need for additional or amended site development plan approval provided that: (a) overall density (measured in density units) and building coverage are not increased, and minimum yards are not decreased, from the amounts previously approved by the Planning Board; (b) the overall number of off-street parking spaces continues to comply with the Zoning Ordinance; (c) no principal building or structure is located any closer to any property line than under the approved site development plan; (d) the landscape plan approved by the Planning Board for the site frontage on Bedford Road and all yards and/or designated buffer areas which do not abut the adjoining membership club is not materially changed; (e) the Town Director of Planning determines and certifies to the Town Building Inspector that the overall architectural design and character of the golf course community is not materially changed; and (f) the Town Director of Planning determines and certifies to the Town Building Inspector that the changes do not present any new or different significant adverse environmental impacts, or significant adverse environmental impacts greater in degree than addressed in the initial review of the golf course community under the State Environmental Quality Review Act, and that any impacts requiring mitigation are adequately mitigated by the measures already imposed in connection with the site development plan approval of the golf course community.

c) Zoning Conformance

The Site is in the R-2A District. Zoning conformance is described in Chapter IV.A, Land Use and Zoning.



**Table II-4
Zoning Summary**

	Golf Course Community in the R-2A District	Proposed Action
Maximum Permitted Density	1 unit per 12,000 sf of the aggregate net lot area of all lots comprising the site	Complies
Building Coverage	To be determined by the Planning Board	Will comply with Planning Board requirement
Maximum Building Height	3 stories and 39½ feet to the mean level of the primary roof	Complies
Minimum Yards	Min front yard: 50 ft Min side and rear yards to be determined by the Planning Board	Will comply with Planning Board requirement
Minimum Floor Area ¹	Efficiency: 450 sf One-Bed: 700 sf Two-Bed: 900 sf Three-Bed: 1,100 sf	Complies
Minimum Parking	2 spaces per dwelling unit ²	Complies

¹ The Planning Board may allow balconies or paved terraces to be counted toward the minimum gross floor area requirement in an amount not to exceed 5% of that requirement.

² An amount equal to at least 10% of the total number of required spaces shall be available for use by visitors and guests.

3. Ownership and Management of the Club Amenities including the Golf Course and Open Space on the Site

All residences except the affordable units will be condominiums. In accordance with applicable State law, the Applicant, as developer/sponsor, would form a condominium association for the ownership and maintenance of common areas, facilities and infrastructure located within the subdivided lot on which the residences will be developed, including roads, landscaped areas and private common water, sewer and storm water drainage pipes and facilities. The affordable units would either be condominium units owned by the Applicant but restricted solely to use as affordable housing, or the South Parcel could potentially be a separate, subdivided lot, in which event the building on that lot and the affordable units would not be part of the condominium.

The Club and its facilities, including the golf course, will be owned by the Applicant, or a successor for-profit company. The proposed zoning regulations expressly provide that as a condition of site plan approval of a golf course community, the Applicant, as owner of the Club, must record in the Westchester County Clerk's office a conservation easement or declaration of covenants and restrictions pursuant to which the Applicant

agrees that the Club property shall be used solely for a membership club in accordance with the requirements of the Zoning Ordinance, and the portion of the Site on which the golf course is located shall permanently be used only as a golf course or otherwise as open space accessory to the golf course community. The recorded conservation easement/declaration would run with the land, and bind all successor owners of the property.

Although the precise legal structure of the residential community and Club, and the interrelationship between them, cannot be known with any reasonable degree of certainty at this point in the SEQRA review process, it is anticipated that the residential condominium association and the Club (and the owner of the South Parcel and affordable units, if they are not part of the condominium) would be parties to one or more reciprocal easements and other agreements for vehicular and pedestrian transit, joint use and maintenance of certain common infrastructure. The residential condominium association would also enter into an agreement pursuant to which the Club agrees to membership by homeowners, and the obligation to be a member and pay Club dues would be contained in the declaration of condominium, and highlighted in the condominium offering plan. The recorded declaration of condominium would run with the land, and bind the Applicant, as the sponsor/initial owner of the units, and successor owners of the units.

4. Age Targeted Community

The proposed residences are designed to be adult oriented. The neighborhood is intended to be walkable, with the residents using the clubhouse and recreational facilities frequently, as part of their active lifestyle. Sidewalks will connect the residences to the clubhouse and recreation facilities. Parking areas beneath the buildings will be served by elevators to the units. Unit types and amenities are described in Section II.B.1.c. and Exhibits II-8 to II-14E. See also Chapter III.N., Socioeconomics/Fiscal Resources.

5. Off-Site Improvements

No off-site improvements are necessary to mitigate any potential impacts of the Project. Notwithstanding this, if the Town is amenable to expanding Water District No. 2 to encompass the Site, and if the proposed 88 unit Project is approved, the Applicant would consider making improvements to the Districts facilities that would increase, and potentially create excess, water supply to serve existing homes in the District as well as the Club and golf course community, and would also consider contributing to the cost of creating a secondary access to the Byram Hills High School campus.

6. Affordable Housing

The Town of North Castle requires new multi-family housing developments to provide Middle-Income housing units. The Proposed Action includes a commitment to the development of “fair and affordable housing” units that satisfy the Stipulation and Order of Settlement entered in the case known as *United States of America ex rel. Anti-Discrimination Center of New York, Inc. v. Westchester County* (the “County settlement”) equal in number to 10% of the market-rate housing units proposed at the Site. With 80 market rate units, this commitment would result in eight fair and affordable housing units.

This commitment could be met by providing fair and affordable housing either on-site or off-site.

The Applicant is in the process of evaluating the feasibility of off-site location for the affordable units. If a suitable site is not found, the fair and affordable units would be developed on-site. If on-site, the eight fair and affordable units would be located in the proposed building on the South Parcel, with the 80 market rate condominium units located on the North Parcel. If the fair and affordable units are located off-site, the Applicant would construct 88 market rate condominiums on the Site, and nine off-site affordable units. See Chapter III.B., Affordable Housing, for additional details.

C. Project Purpose, Needs and Benefits

The primary purposes of the Proposed Action are to maintain the existing golf course as open space, improve the existing Club facilities including the golf course, and meet demand for a luxury, adult oriented residential community with country/golf club amenities and recreational resources. The residential community will be unlike any other available in North Castle at the present time, and the Club itself, which has already undergone a first phase of cosmetic renovation of the clubhouse, will be improved further.

The proposed Club renovations, in combination with the proposed residential golf course community, taken together, will provide the financial means for the golf course to be maintained as open space, and for the Club to be a year-round facility. Therefore, its membership is a community asset for the Town of North Castle.

The Site has been continuously used and operated as a golf and country club since 1964. In the almost 50 years since, the economics of golf and country clubs has changed significantly, primarily due to the ever-increasing costs of operating a labor-intensive enterprise that in the northeastern United States can only be fully operated for half the year. These economic changes have made the traditional private “not-for-profit”

membership model increasingly difficult to sustain, as demonstrated by the recent failures of other golf clubs in the region, such as: Hampshire Country Club in Mamaroneck and Ridgeway Country Club in White Plains.

The proposed changes to the permitted business model for membership club ownership and operation would facilitate the significant capital investment that is necessary to sustain a club in difficult economic environments, which cannot be attracted by the traditional not-for-profit model. Permitting the alternative business model would not negatively impact the Town, because the operation of a membership club would remain subject to control through the special permit, regardless of the form of club ownership and management.

The proposed golf course community would provide desirable housing of a type not currently available in the Town of North Castle. The proposed new golf course community would benefit the Town by expanding housing opportunities for adult residents with grown children who wish to remain in the Town and nearby areas, but no longer have need for the larger home where their family was raised; and by providing a significant new source of tax revenue to the Town and the Byram Hills Central School District (and potentially to Water District No. 2) that would exceed the costs of services provided by these taxing jurisdictions to the community. The architecture of the community would be consistent with local architectural traditions, and would embrace “green” design concepts. The development of the golf course community would help ensure the future financial viability of the Club, with the result that one of the Town’s significant recreational open spaces would be maintained.

Community benefits of the proposed Project to the Town of North Castle would include:

- Increased real estate tax revenue
- Revenue from building permit fees and recreation fees
- Maintenance of open space
- Low cost of services relative to tax revenues (due to low generation of school-age children, private roadways and drainage that will not require Town maintenance)
- Construction of fair and affordable housing units that can meet the requirements of the Federal Settlement Order entered into by the County
- Increase in local employment during construction and in the long term
- Preservation of existing Club jobs, including seasonal jobs for local teenagers
- Preservation of use of golf course by high school golf team
- Increased business to local merchants both during construction and from permanent residents.

- As part of the proposed 88-unit Project, potential off-site contributions to improvements for secondary access to Byram Hills High School and for improvements to the facilities of Water District No. 2.

The economic benefits of the Project are based on the 80 market rate residential units being condominiums. Alternative plans, including the “fee simple” townhouse plan discussed as Alternative 4 in Section IV of this DEIS, would eliminate many of the above benefits, including potential contributions for off-site improvements. Moreover, the Applicant has informed the Town that if a fee simple alternative is selected by the Town Board, as Lead Agency, the increased risks and decreased returns of fee simple residences will dictate that the Applicant pursue a single family subdivision of the entire Site.

D. Involved Agencies and Required Approvals

Under SEQRA, Involved Agencies are those which have approval authority over a proposed action. In this case, the North Castle Town Board is the Lead Agency, and the Involved Agencies, and their respective approvals, are listed in the Table II-5, below. Interested Agencies (without approval authority) are listed in Table II-6.

Table II-5
Involved Agencies/ Project Approvals

Agency	Type of Approval/Review
North Castle Town Board (Lead Agency)	Amendment to Town Zoning Ordinance regulations for “membership clubs” and to establish “golf course community” as special permit use Amendment to the existing special permit of the Club Comprehensive Plan amendment to facilitate “golf course community” use Potential Water District No. 2 extension Consent to formation of sewer and water works corporations to serve the Club and golf course community
North Castle Planning Board	Site Plan approval Subdivision approval Tree Removal Permit Wetland Permit Steep Slope Permit
Westchester County Department of Health (WCDOH)	Water extension permit or public water supply approval Wastewater treatment plant expansion permit Approval of sewage works corporation plans
New York State Department of Environmental Conservation (NYSDEC)	SPDES permit for modification to wastewater treatment plant Storm Water Pollution Prevention Plan approval Storm Water SPDES permit Public water supply approval
New York State Department of Transportation (NYSDOT)	Highway Work Permit (NYS Route 22)



**Table II-6
Interested Agencies**

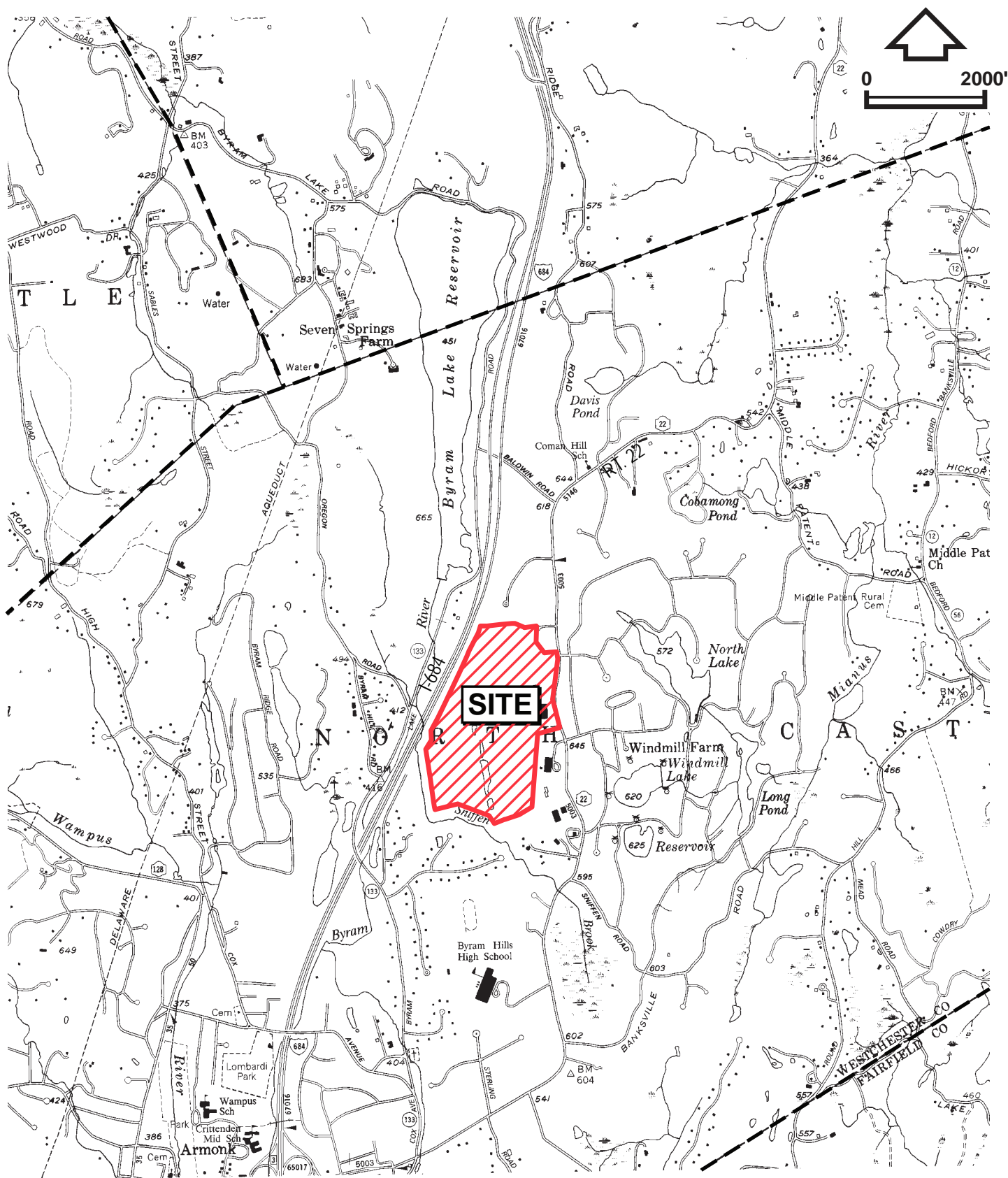
Agency	Type of Review
North Castle Conservation Board	Review of Project
North Castle Architectural Review Board	Review of Architectural Plans
North Castle Highway Department	Advisory review
North Castle Department of Sewer and Water	Advisory review
North Castle Building Inspector	Advisory review
North Castle Parks and Recreation Department	Advisory review
Byram Hills School District Superintendent	Advisory review
Town of North Castle Fire District No. 2	Advisory review
North Castle Open Space Committee	Advisory review
Westchester County Planning Board	General Municipal Law advisory review
NYS Office of Parks, Recreation and Historic Preservation	Review of Project
US Army Corps of Engineers (USACOE)	Review of Project (if necessary)
Residents of Windmill Inc.	Interested Party



BRYNWOOD
North Castle, New York

Regional Location

Exhibit
II-1

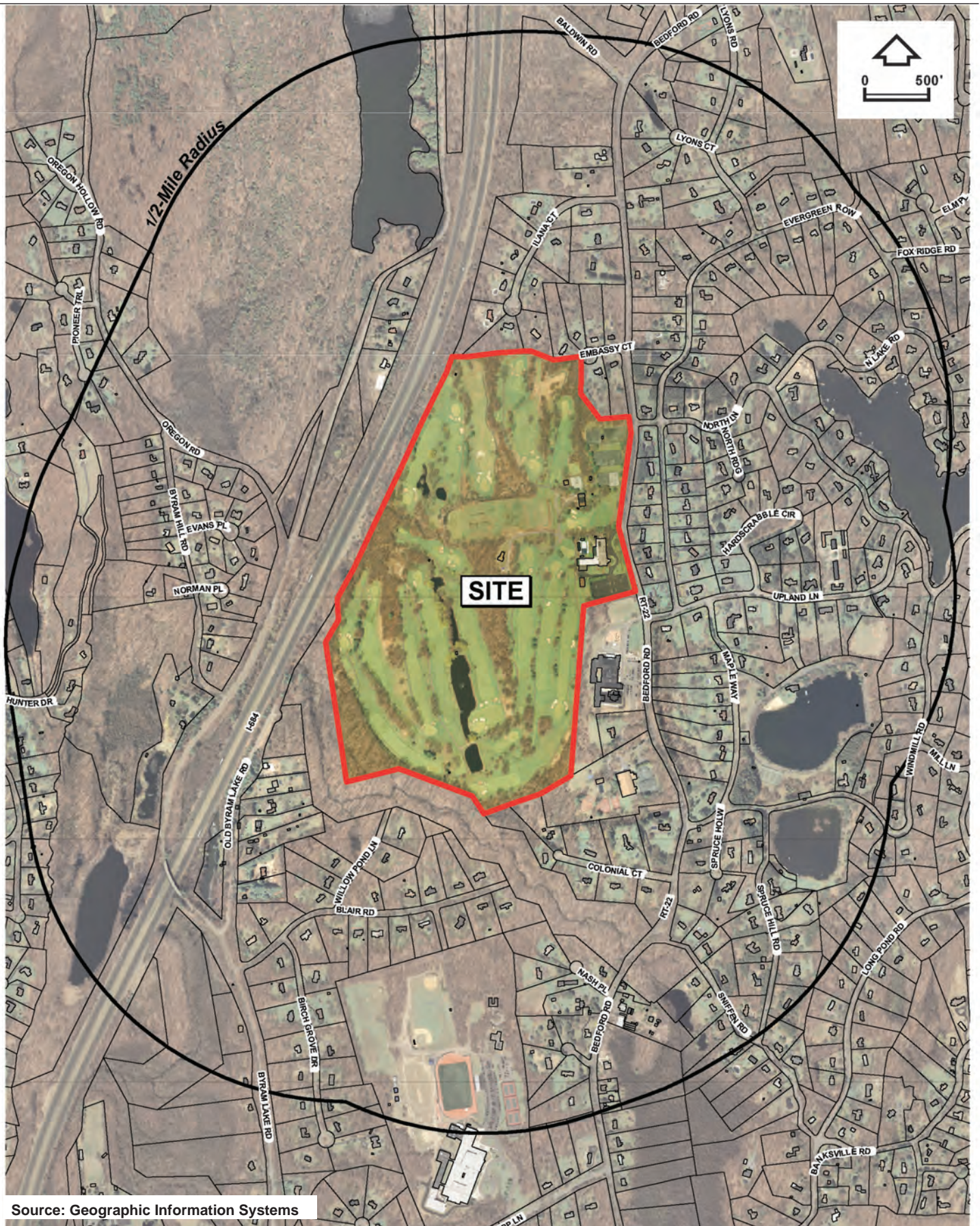


Source: Geographic Information Systems Clearinghouse

BRYNWOOD
North Castle, New York

Site Location

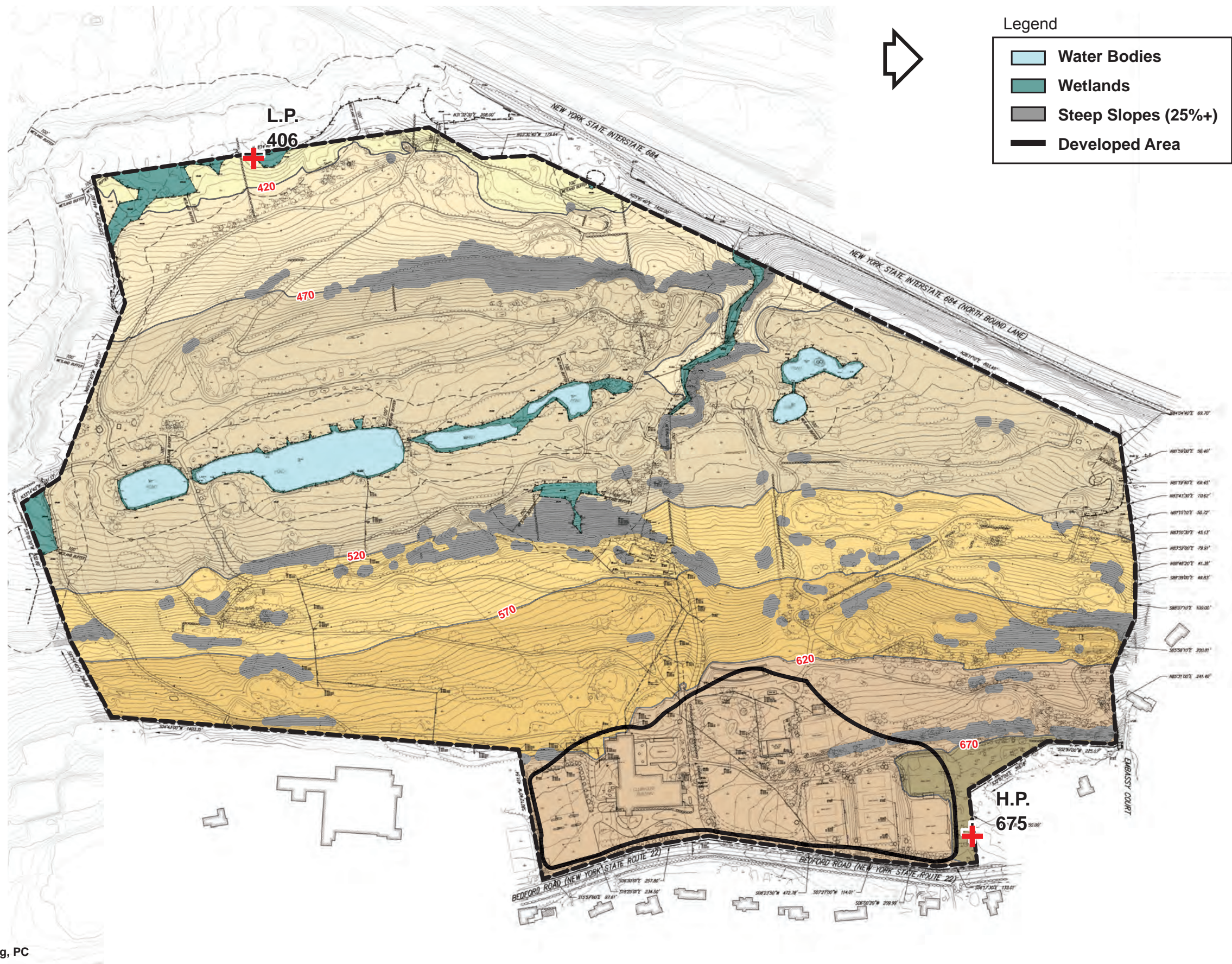
**Exhibit
II-2**



BRYNWOOD
North Castle, New York

Aerial Photograph

Exhibit
II-3



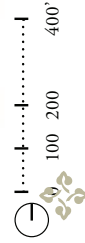
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Existing Site Characteristics

Exhibit
II-4B



BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Illustrative Master Plan

Exhibit
II-5



Golf Cottages	5
Golf Residences	64
Club Villas	14
Fairway Residences	5
TOTAL UNITS	88



BRYNWOOD

GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Master Plan - Residential

Exhibit

II-6

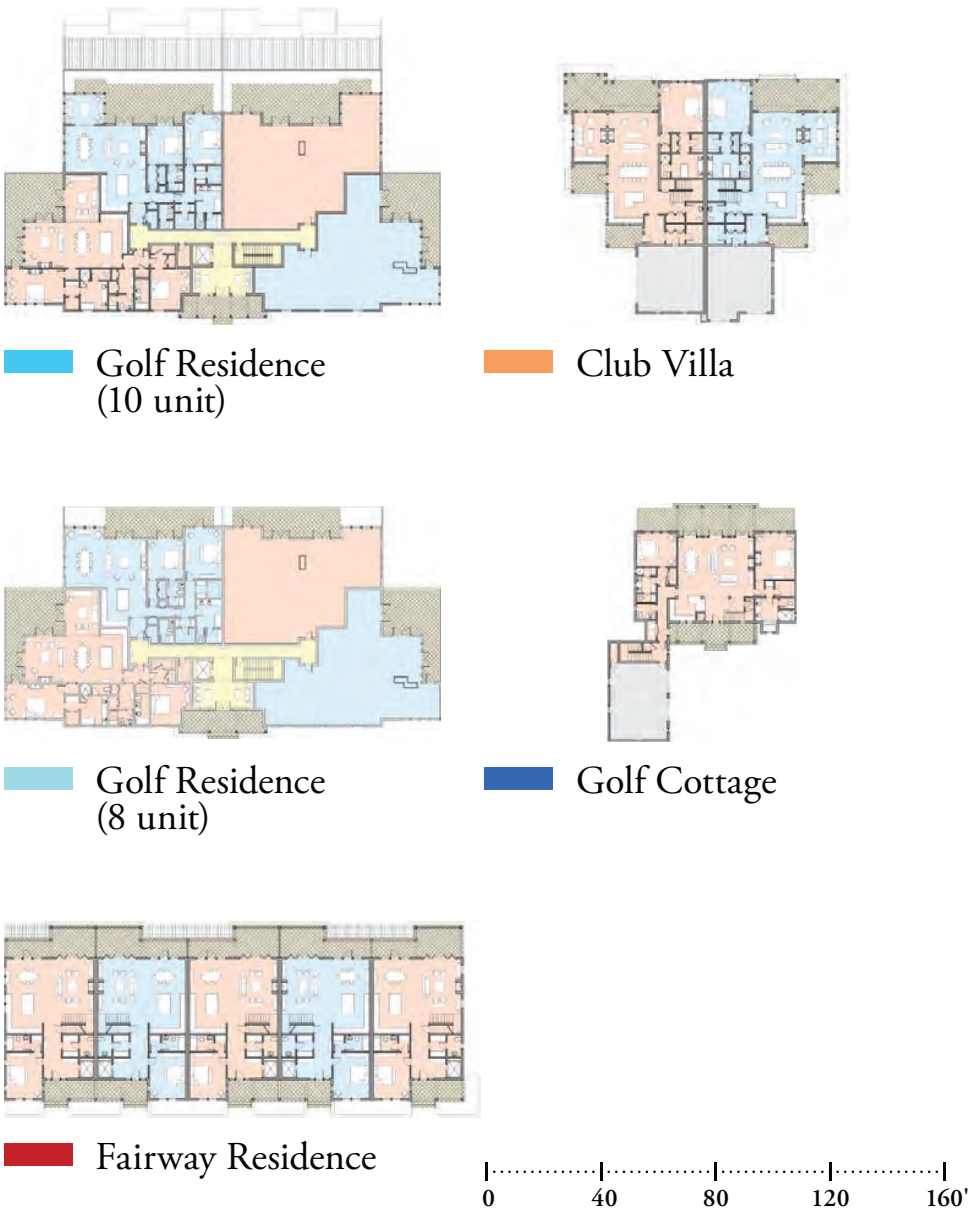
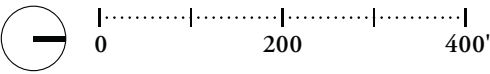


BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

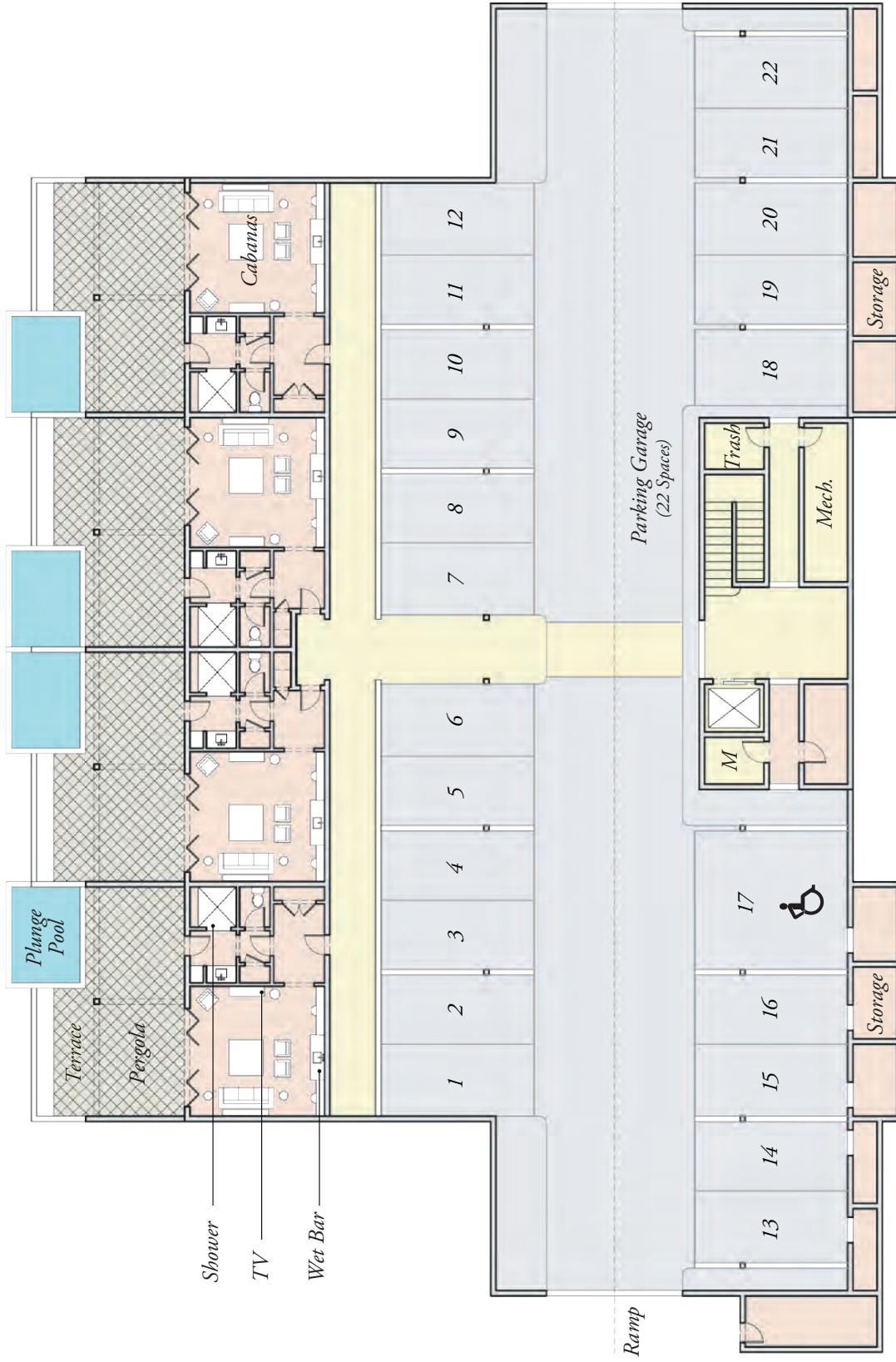
VHB Engineering, Surveying and Landscape Architecture, P.C.



Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



BRYNWOOD
GOLF & COUNTRY CLUB

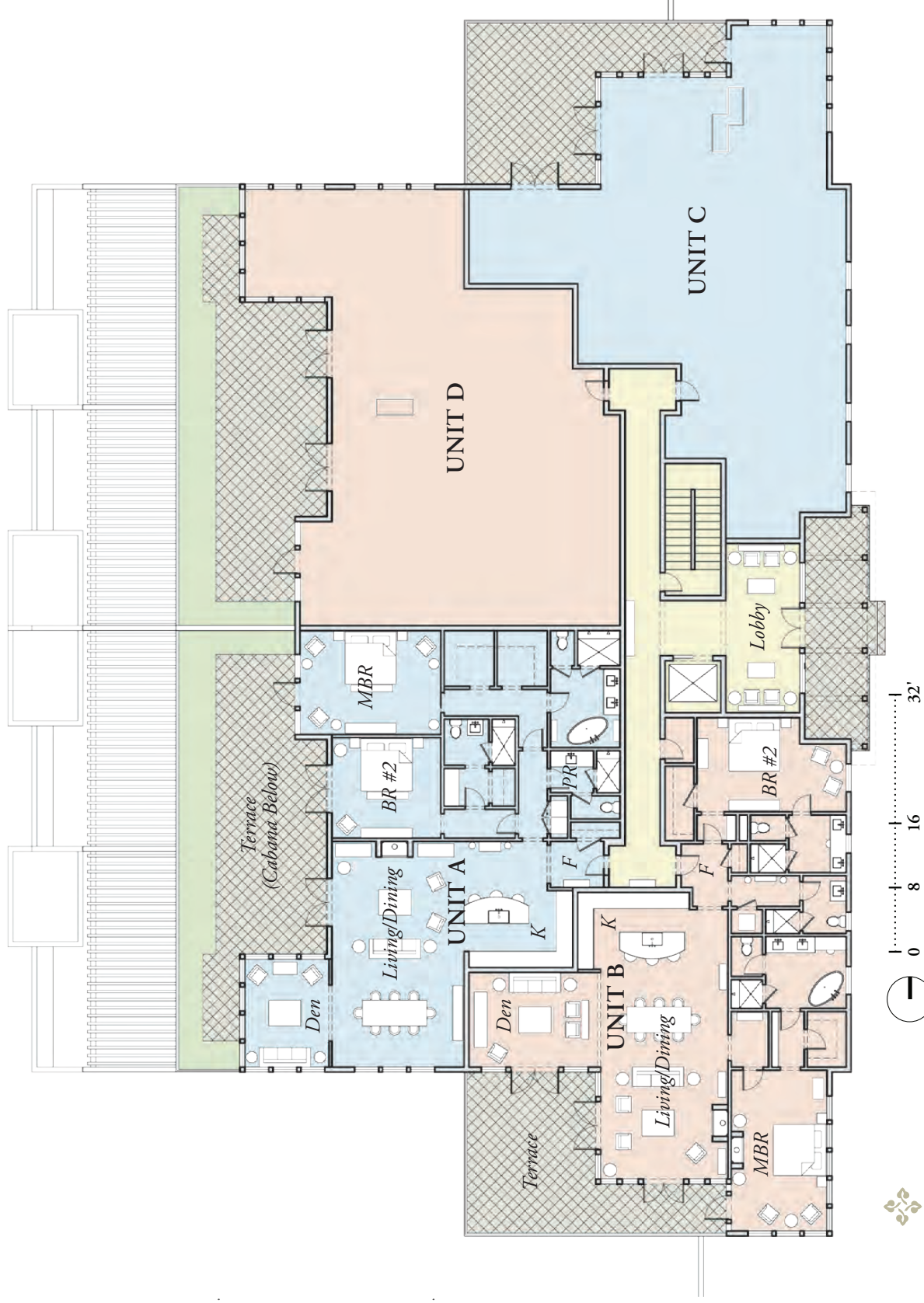
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Golf Residence 10 Units
Garage Plan

Exhibit
II-9A



BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

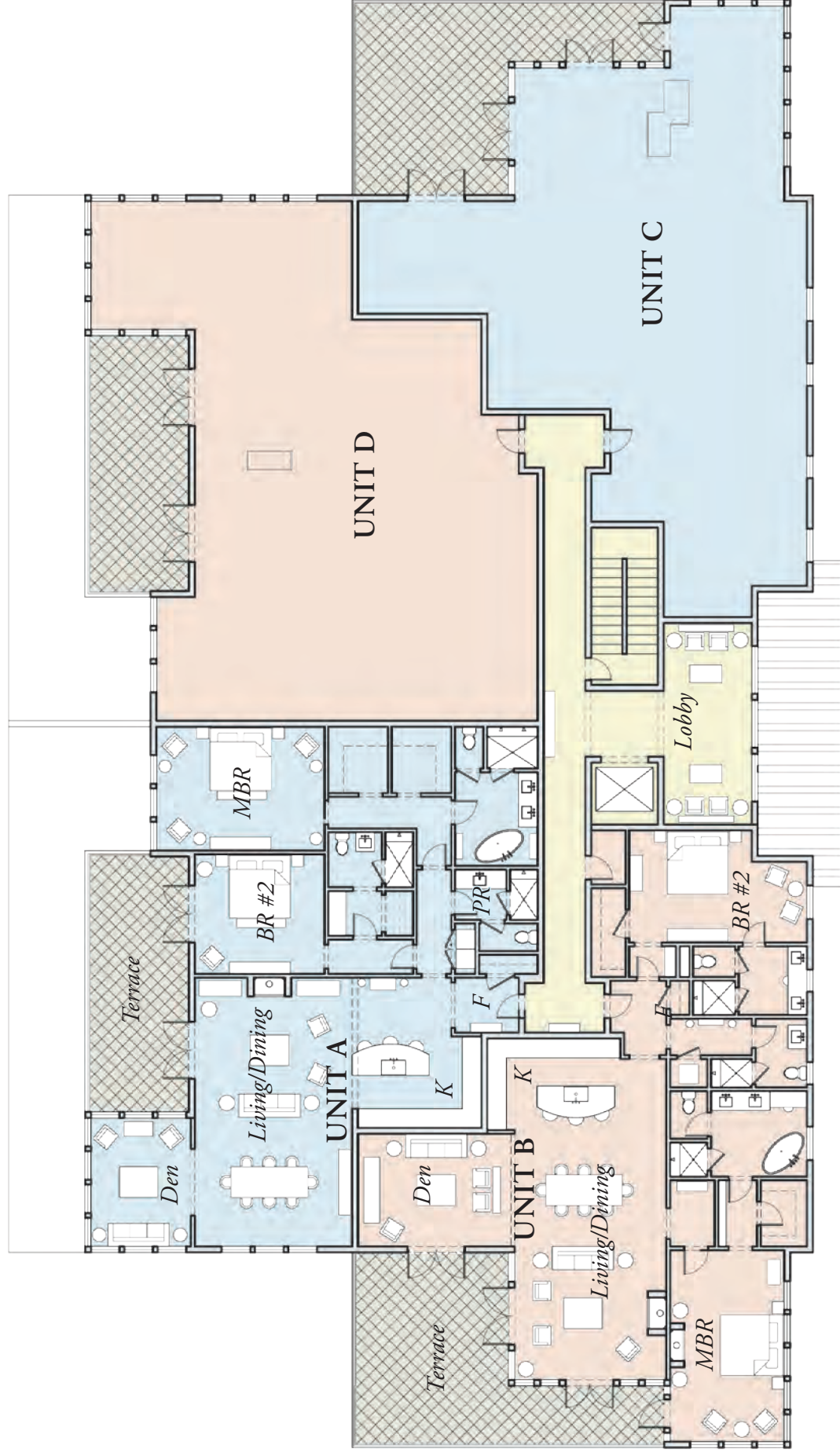
BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Golf Residence 10 Units
First Floor Plan

Exhibit
II-9B



BRYNWOOD
GOLF & COUNTRY CLUB

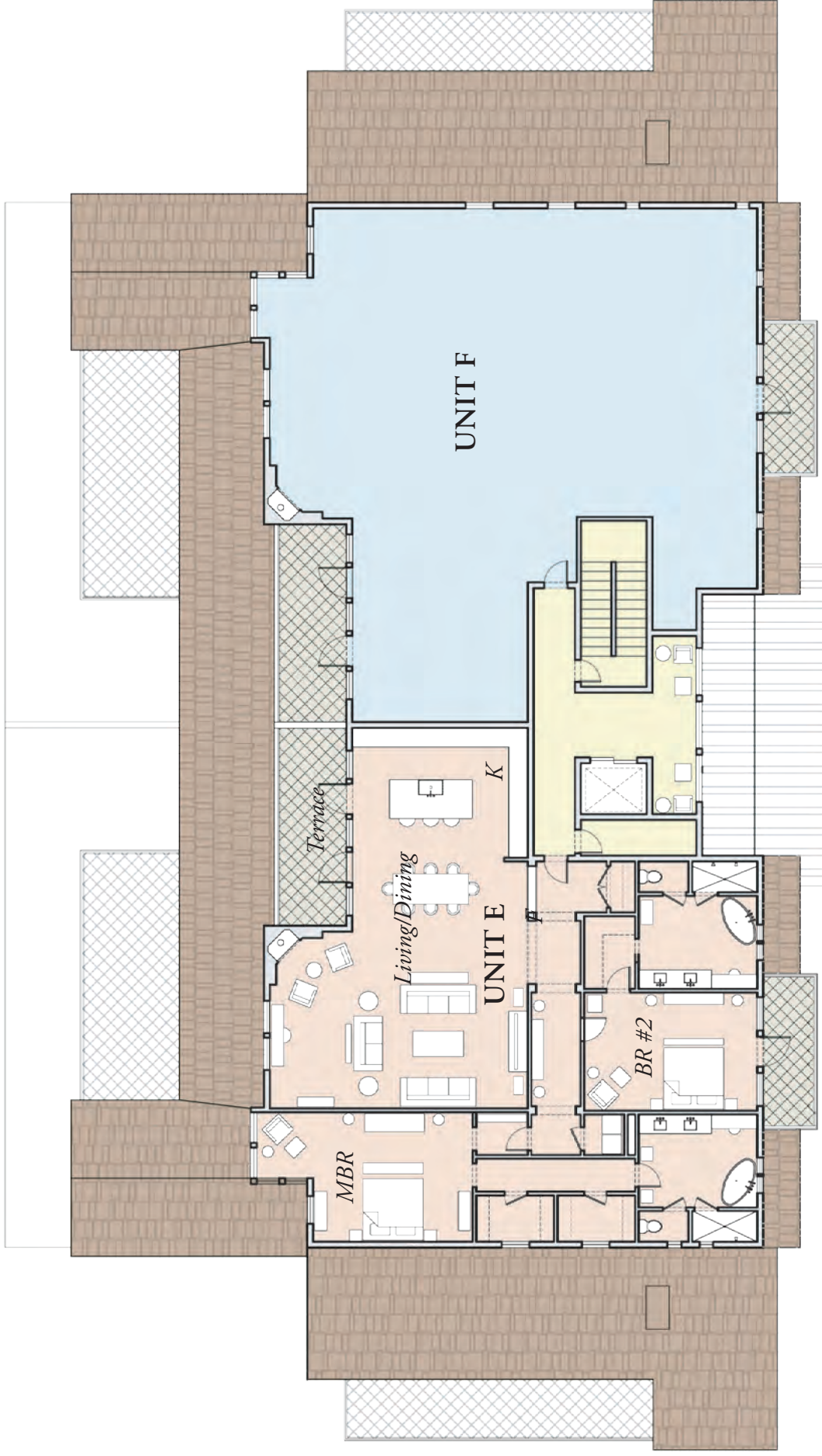
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Golf Residence 10 Units
Second Floor Plan

Exhibit
II-9C

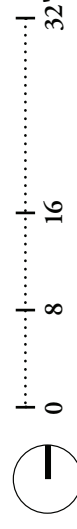


BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

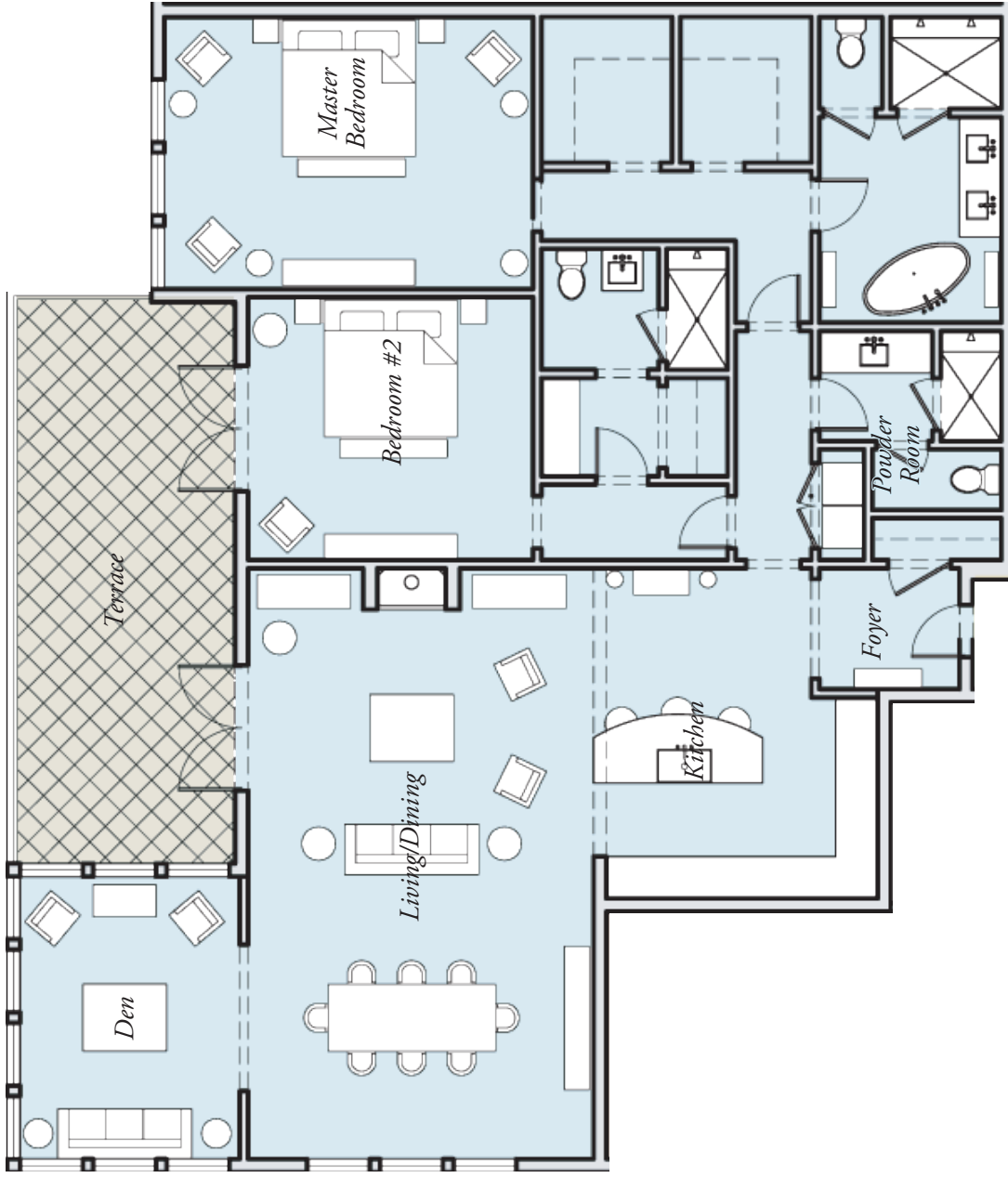
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



Golf Residence 10 Units
Penthouse

Exhibit
II-9D



BRYNWOOD
GOLF & COUNTRY CLUB

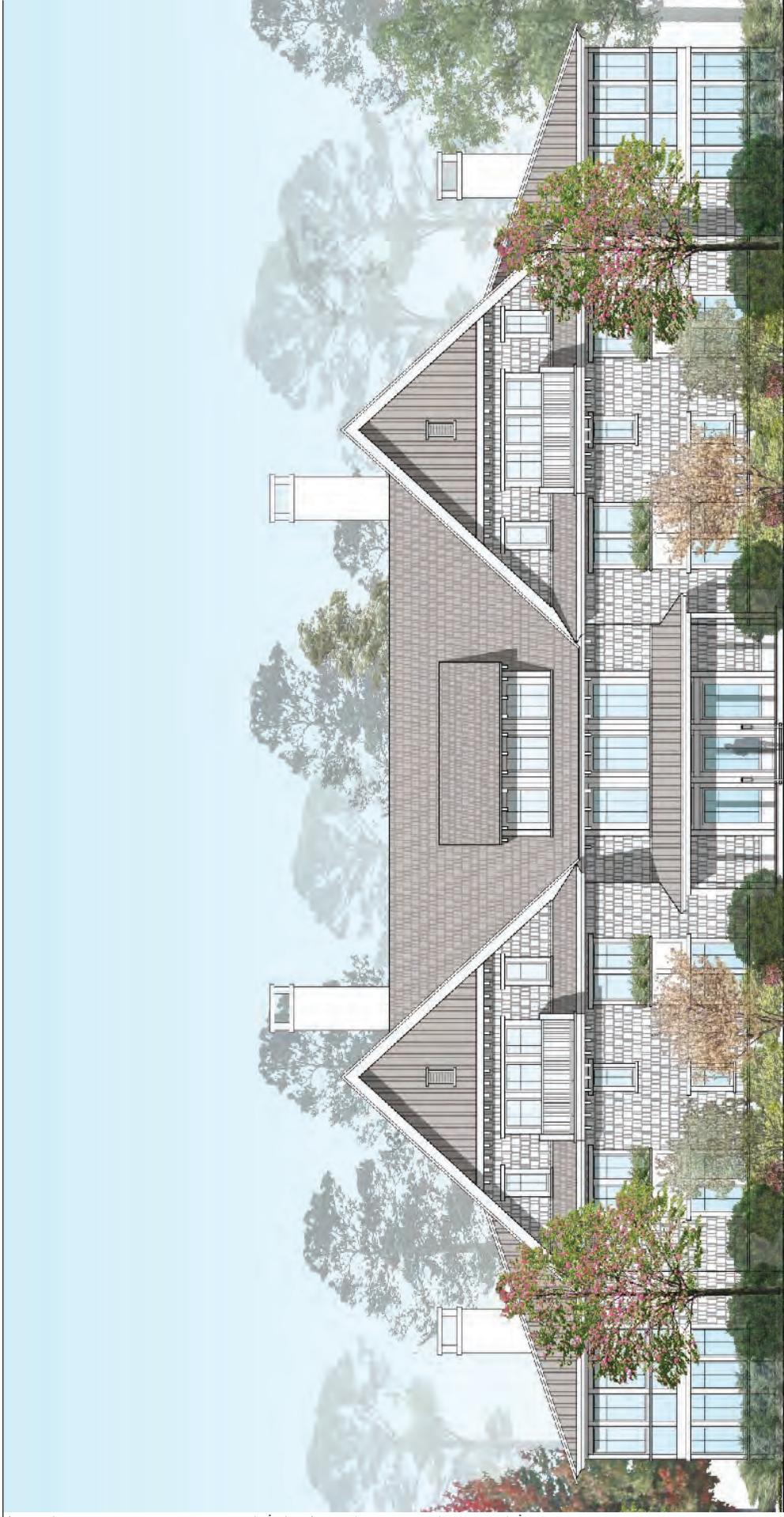
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Golf Residence 10 Units
Typical Unit Plan (2 BR)

Exhibit
II-9E



BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

0 8 16 32'

Golf Residence 10 Units
Entry Elevation

Exhibit
II-9F



BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

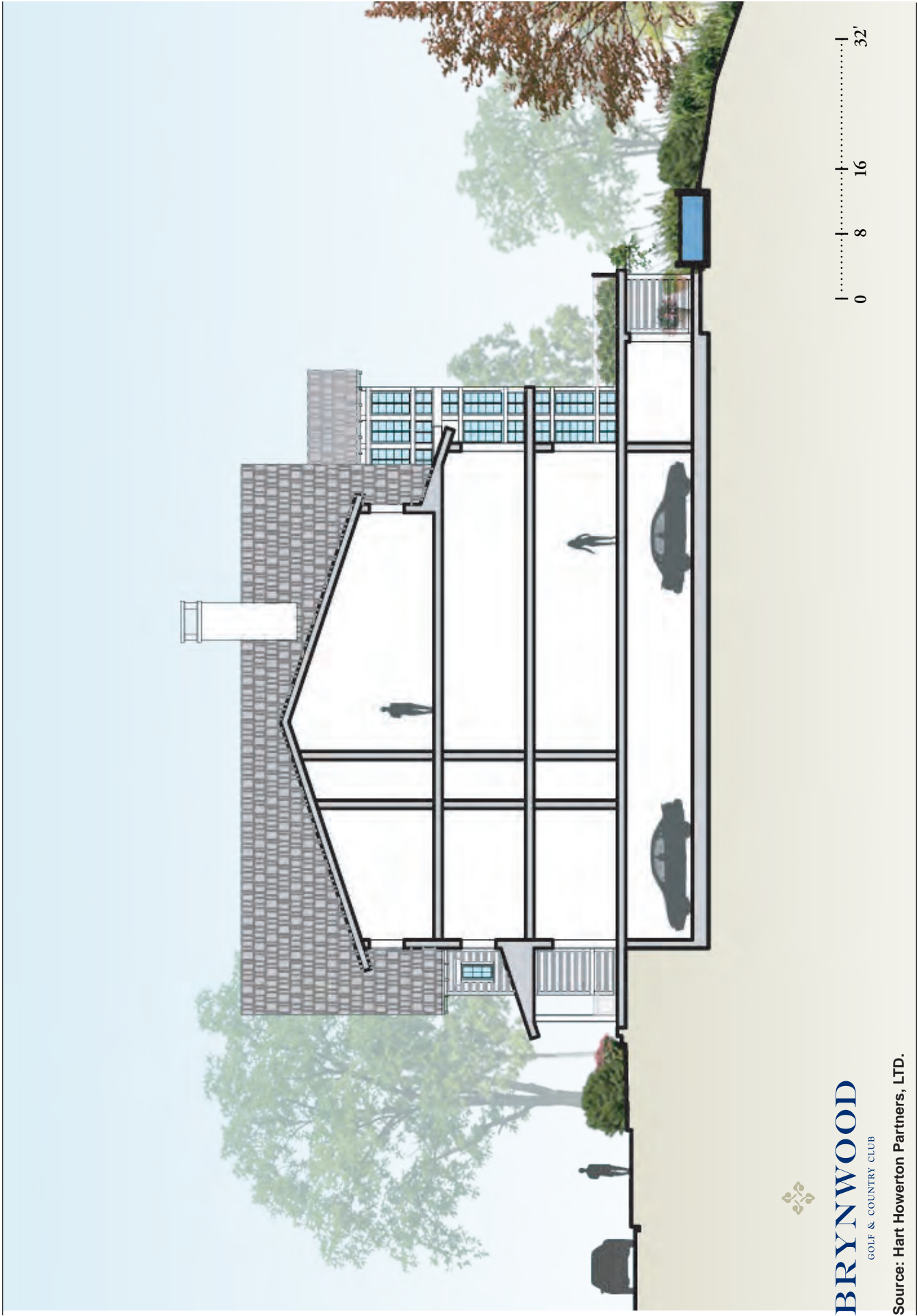
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

0 8 16 32'

Golf Residence 10 Units
Golf Elevation
II-9G

Exhibit



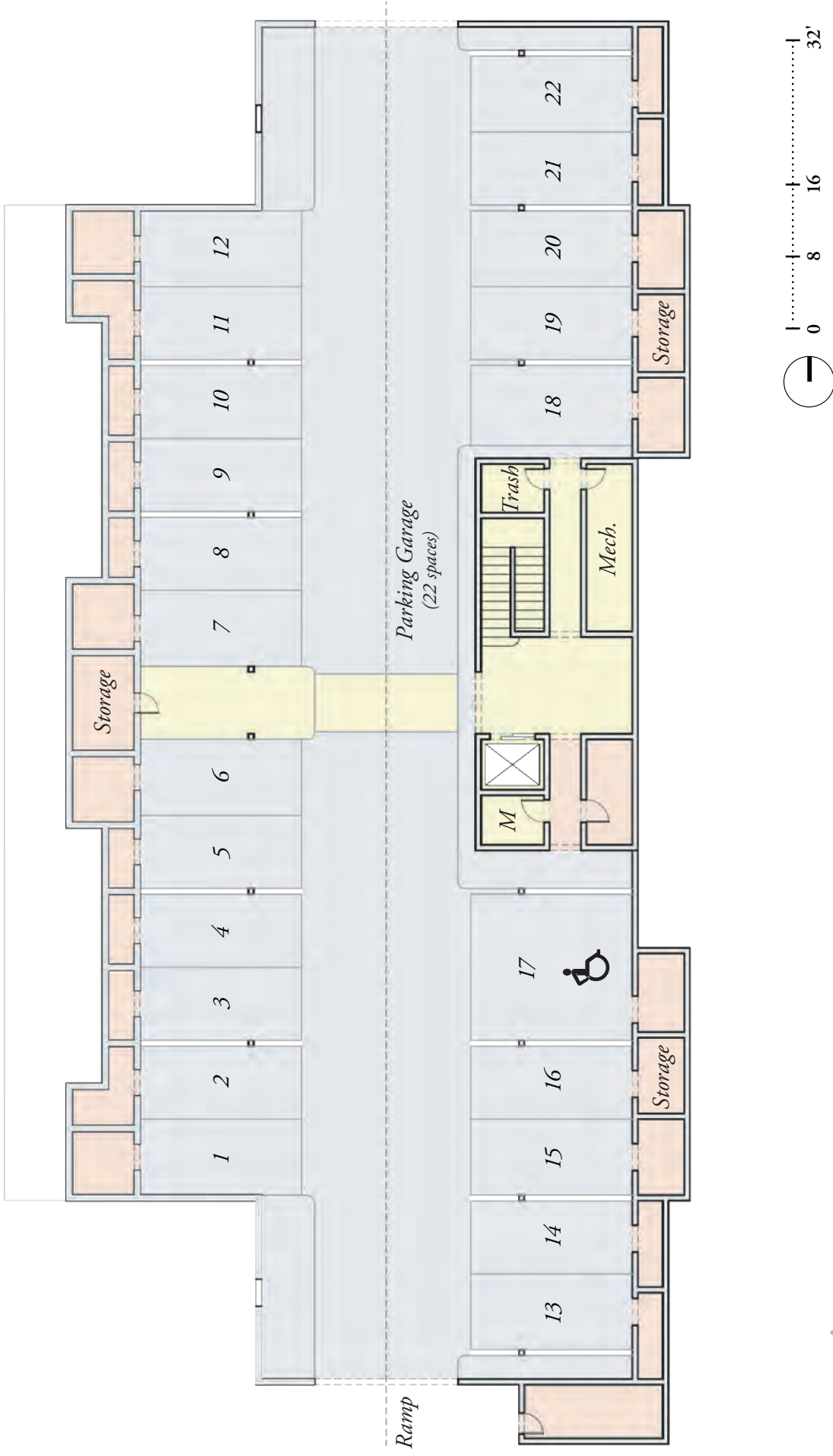
 **BRYNWOOD**
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

Golf Residence 10 Units
Cross Section (typical)

Exhibit
II-9H



BRYNWOOD
GOLF & COUNTRY CLUB

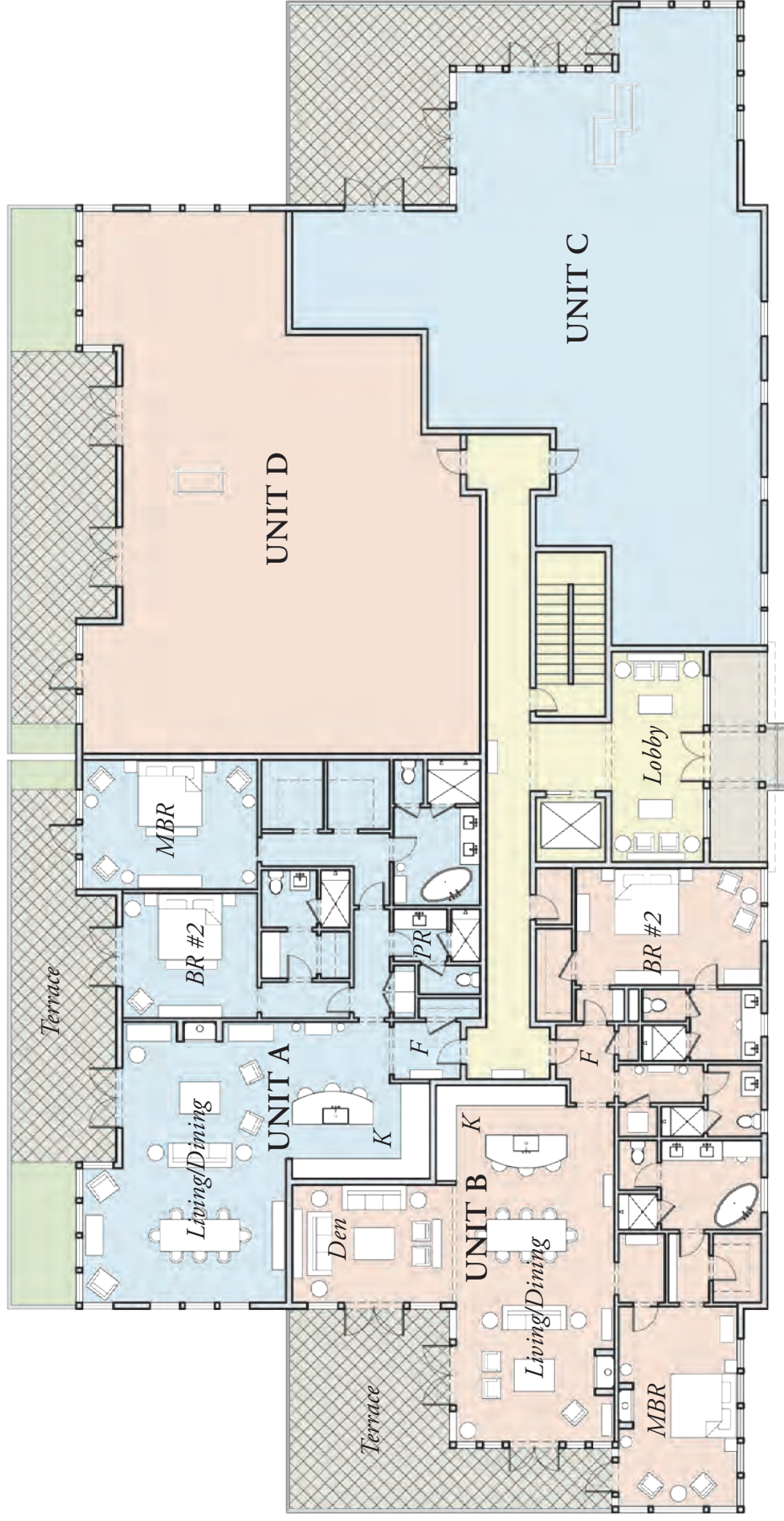
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Golf Residence 8 Units
Garage Plan

Exhibit
II-10A

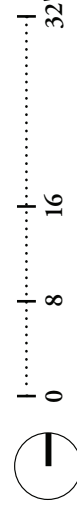


BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

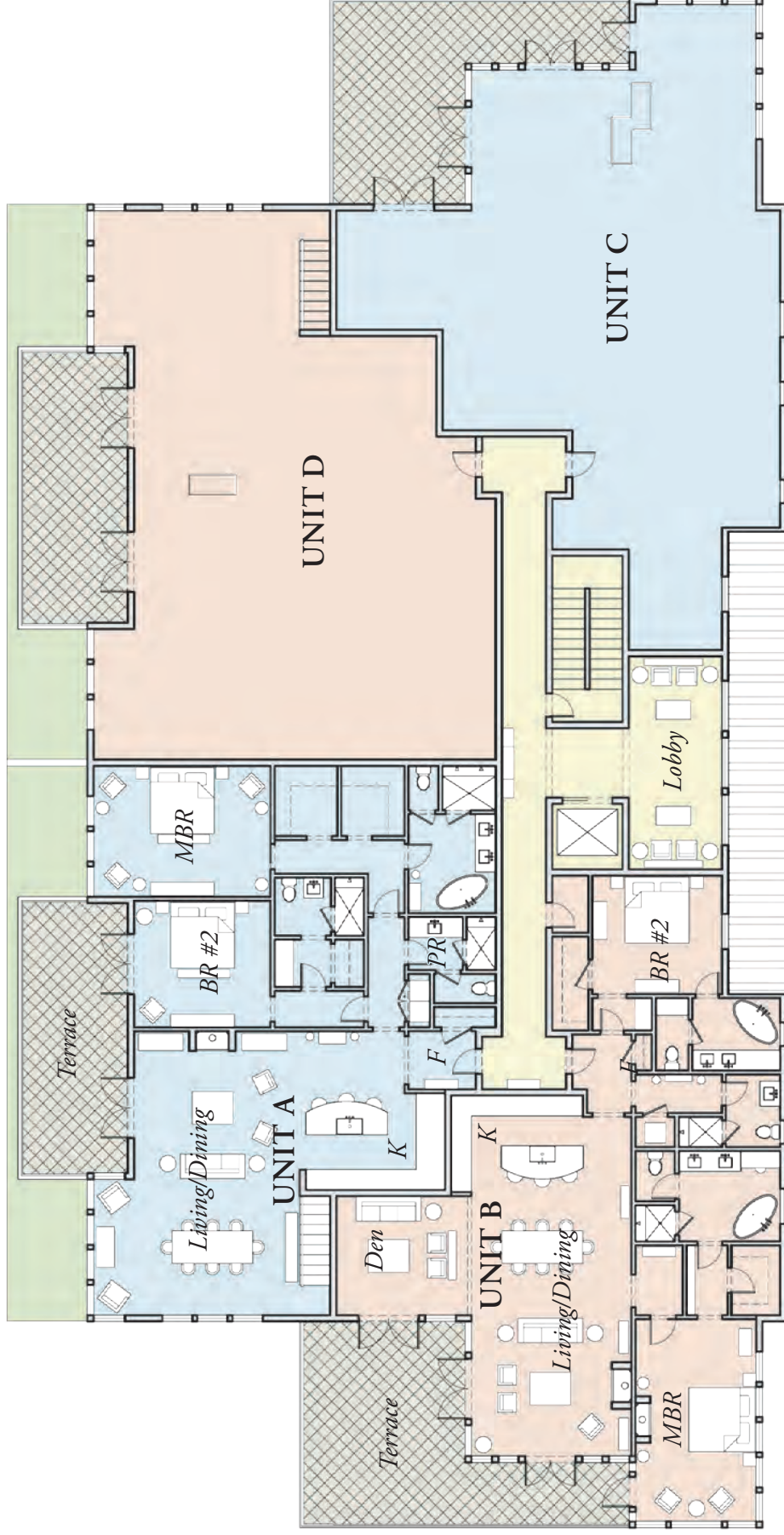
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



Golf Residence 8 Units
First Floor Plan

Exhibit
II-10B



BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Golf Residence 8 Units
Second Floor Plan

Exhibit
II-10C



BRYNWOOD
GOLF & COUNTRY CLUB

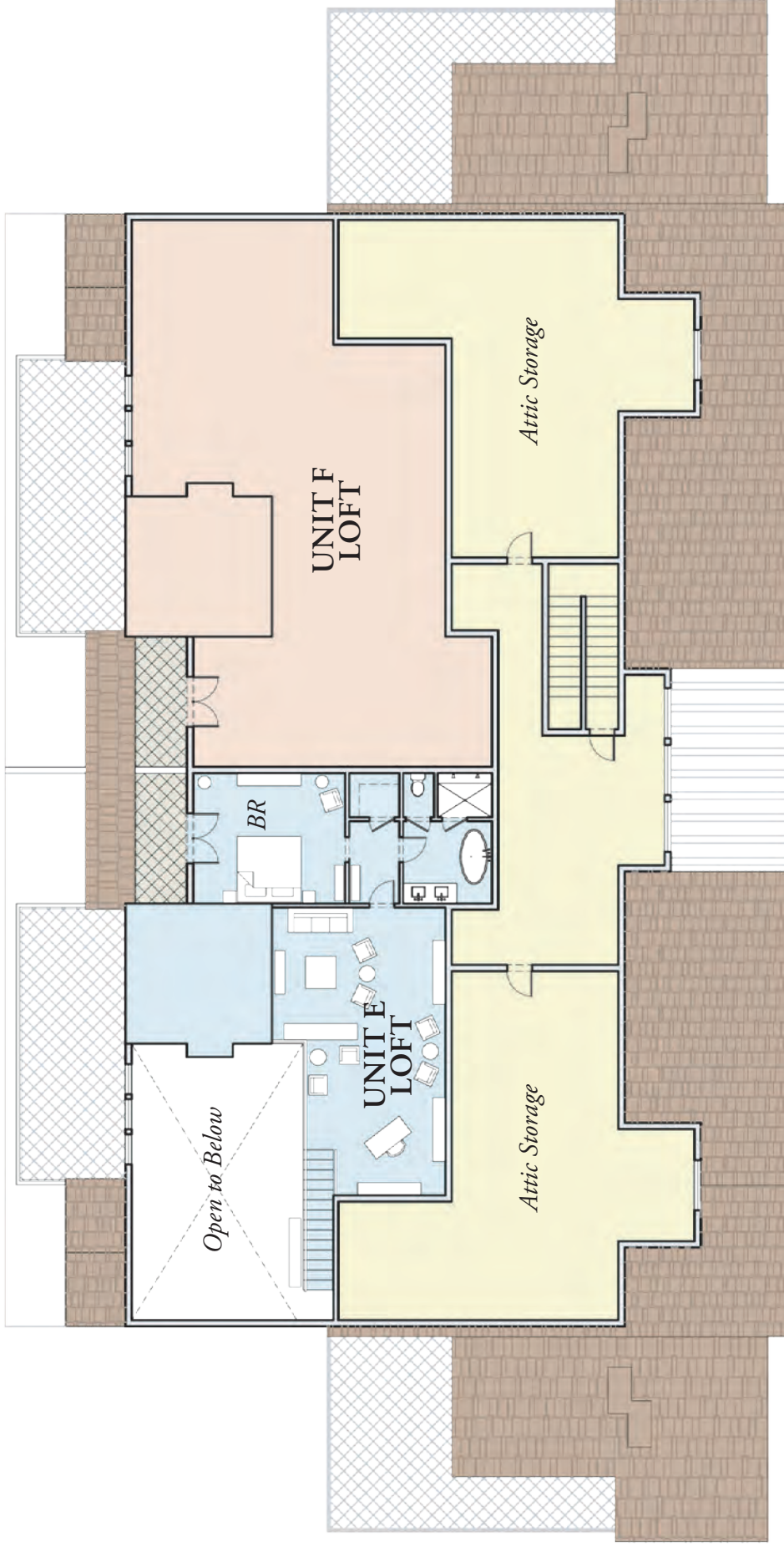
Source: Hart Howerton Partners, LTD.

0 8 16 32'

BRYNWOOD
North Castle, New York

Golf Residence 8 Units
Entry Elevation

Exhibit
II-10D

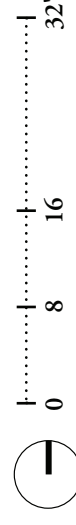


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GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

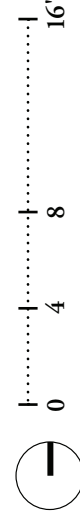
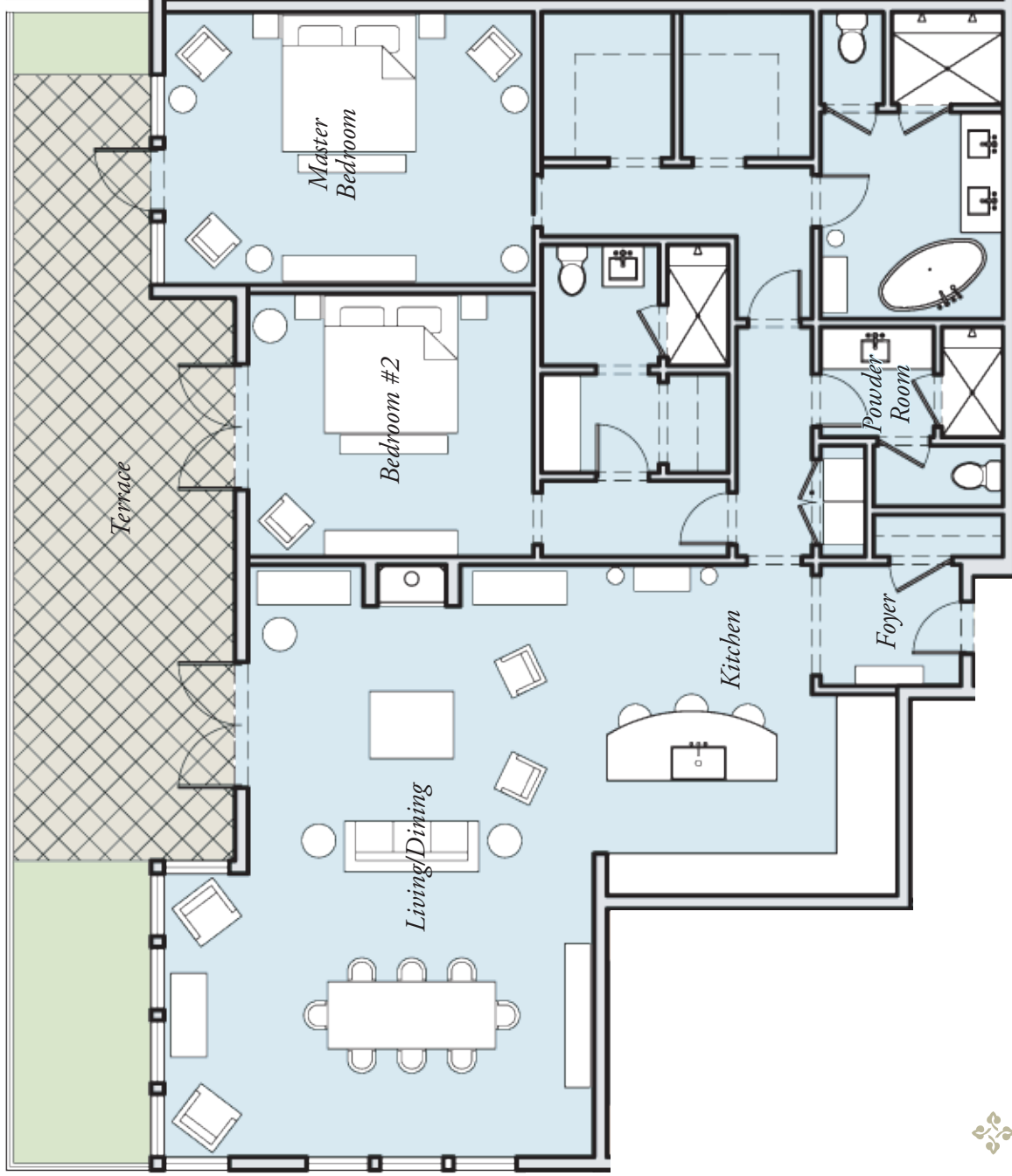
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



Golf Residence 8 Units
Duplex Loft

Exhibit
II-10E



BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Golf Residence 8 Units
Typical Unit Plan (2BR)

Exhibit
II-10F

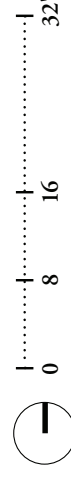
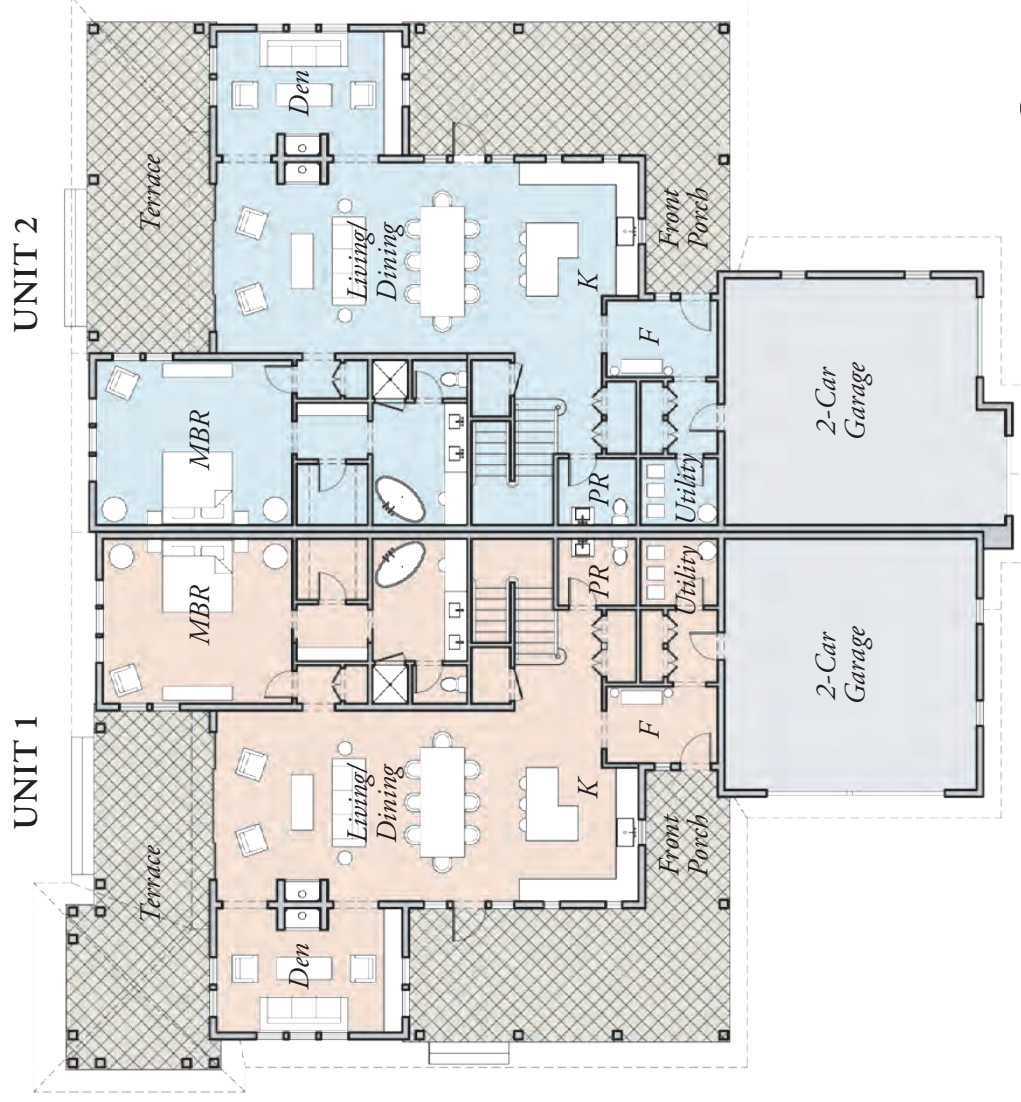
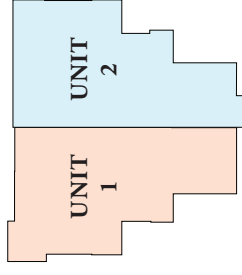


BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

Golf Residence 8 Units
Section
Exhibit
II-10G



BRYNWOOD
GOLF & COUNTRY CLUB

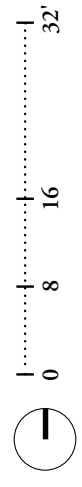
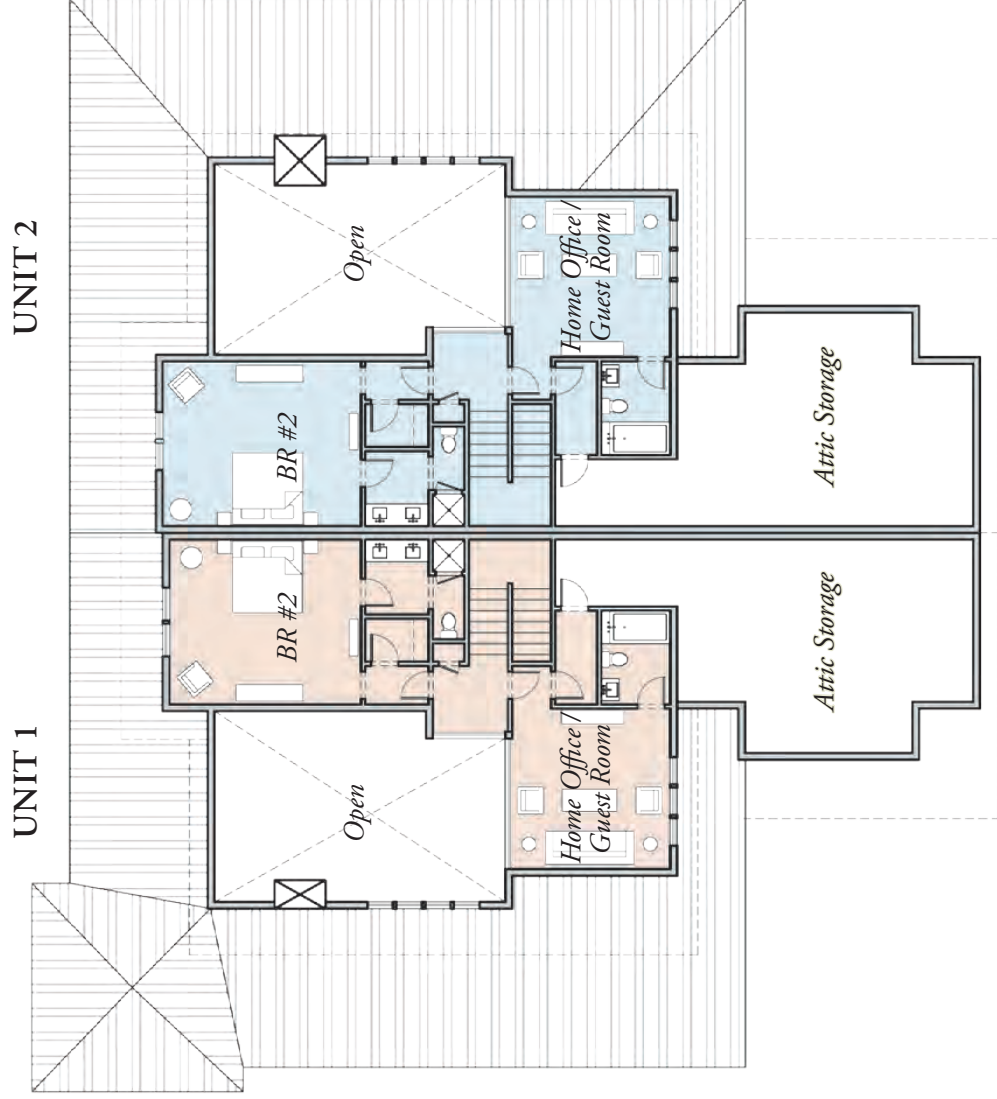
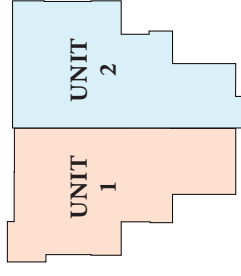
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Club Villa
First Floor Plan

Exhibit
II-11A





BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD

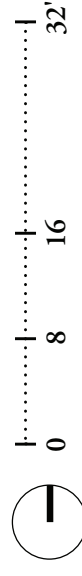
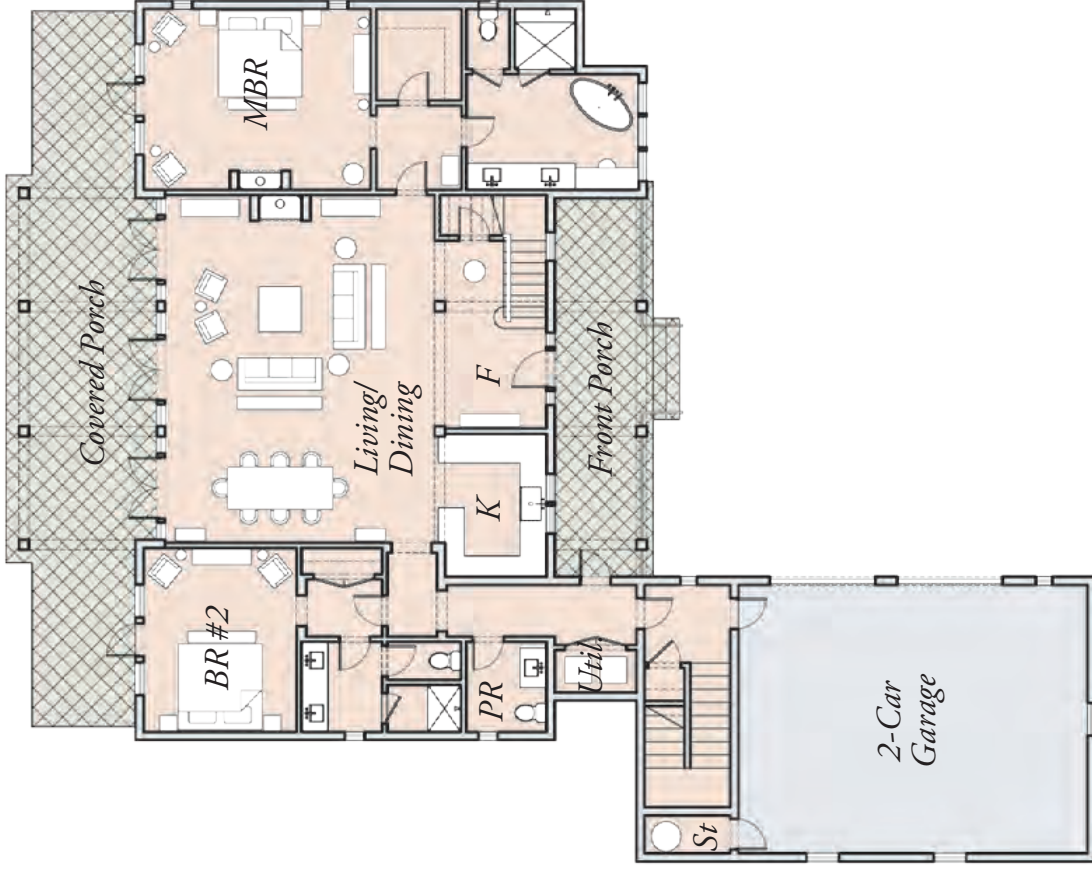
North Castle, New York

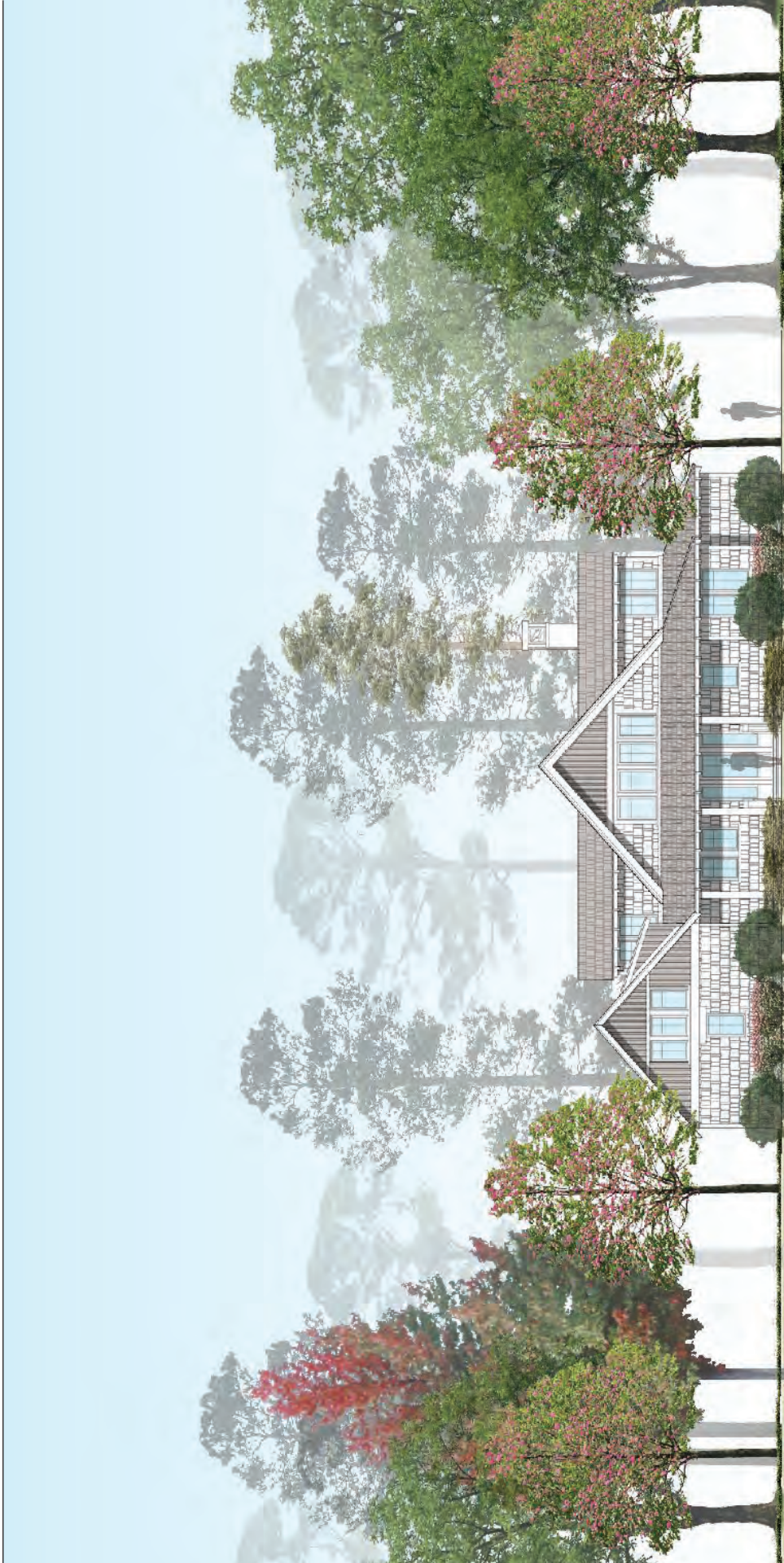
VHB Engineering, Surveying and Landscape Architecture, P.C.

Club Villa
Entry Elevation

Exhibit

II-11C





BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

0 8 16 32'

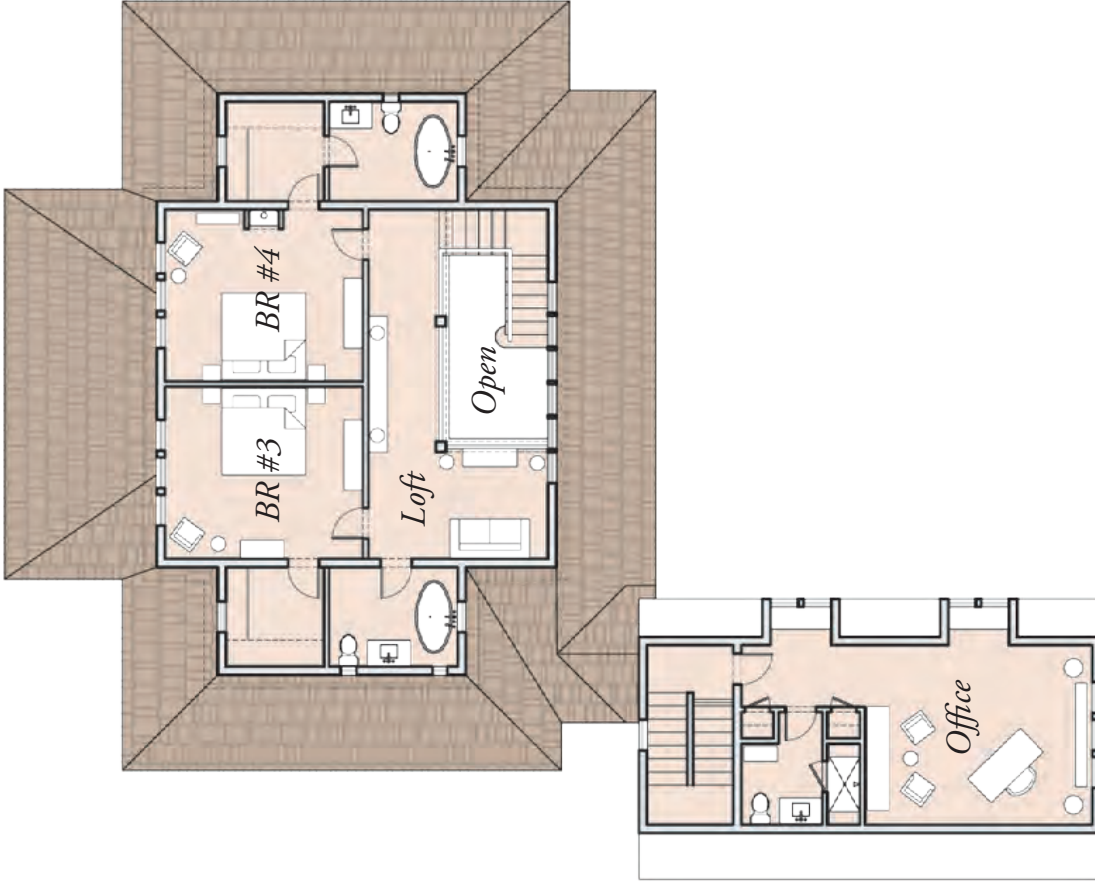
BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Golf Cottage
Entry Elevation

Exhibit
II-12B

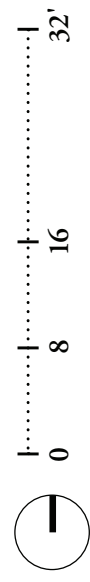


BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

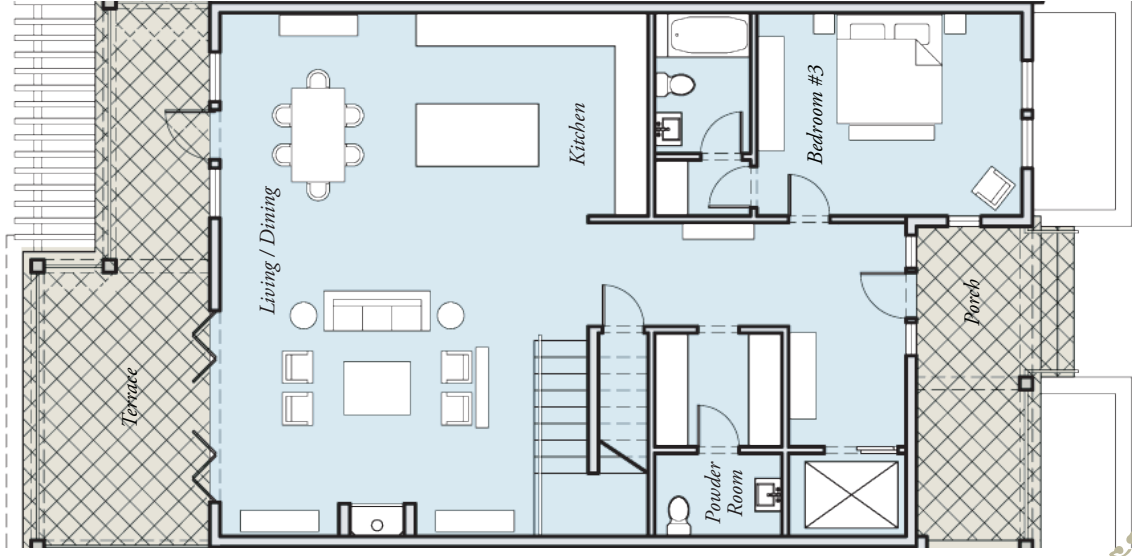
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North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

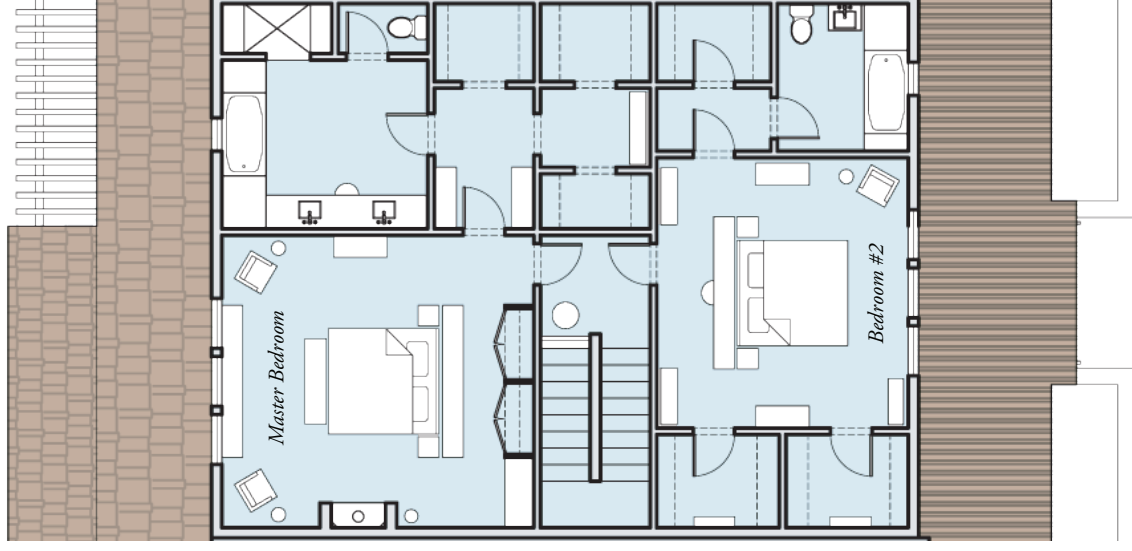


Golf Cottage
Second Floor Plan

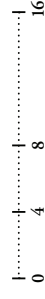
Exhibit
II-12C



First Floor



Second Floor



BRYNWOOD

GOLF & COUNTRY CLUB

Source: Hart Howetson Partners, LTD.

BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

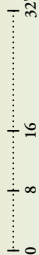
Fairway Residences
Typical Unit Floor Plan

Exhibit
II-13A



BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howetown Partners, LTD.



BRYNWOOD

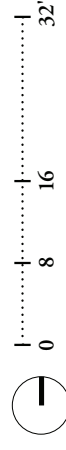
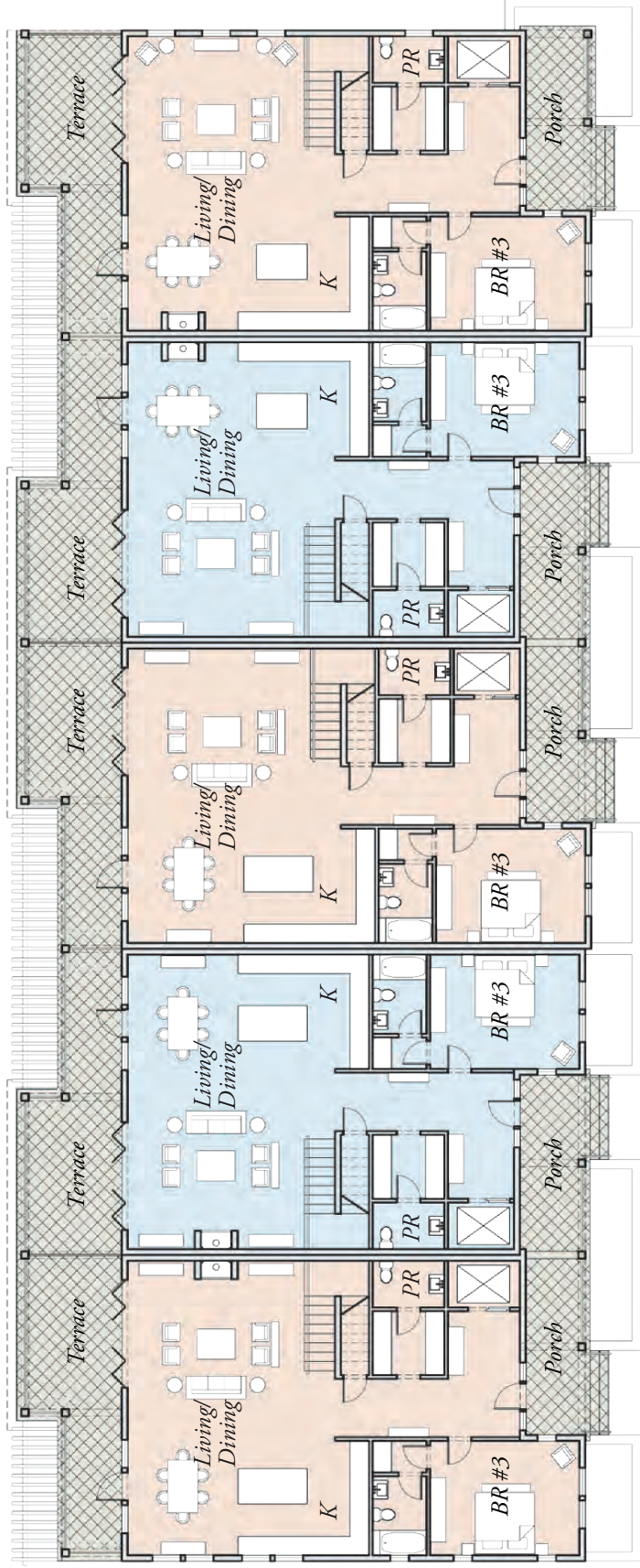
North Castle, New York

VHB *Engineering, Surveying and Landscape Architecture, P.C.*

Fairway Residences
Entry Elevation

Exhibit
II-13B





BRYNWOOD

GOLF & COUNTRY CLUB

Source: Hart Howetown Partners, LTD.

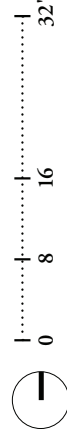
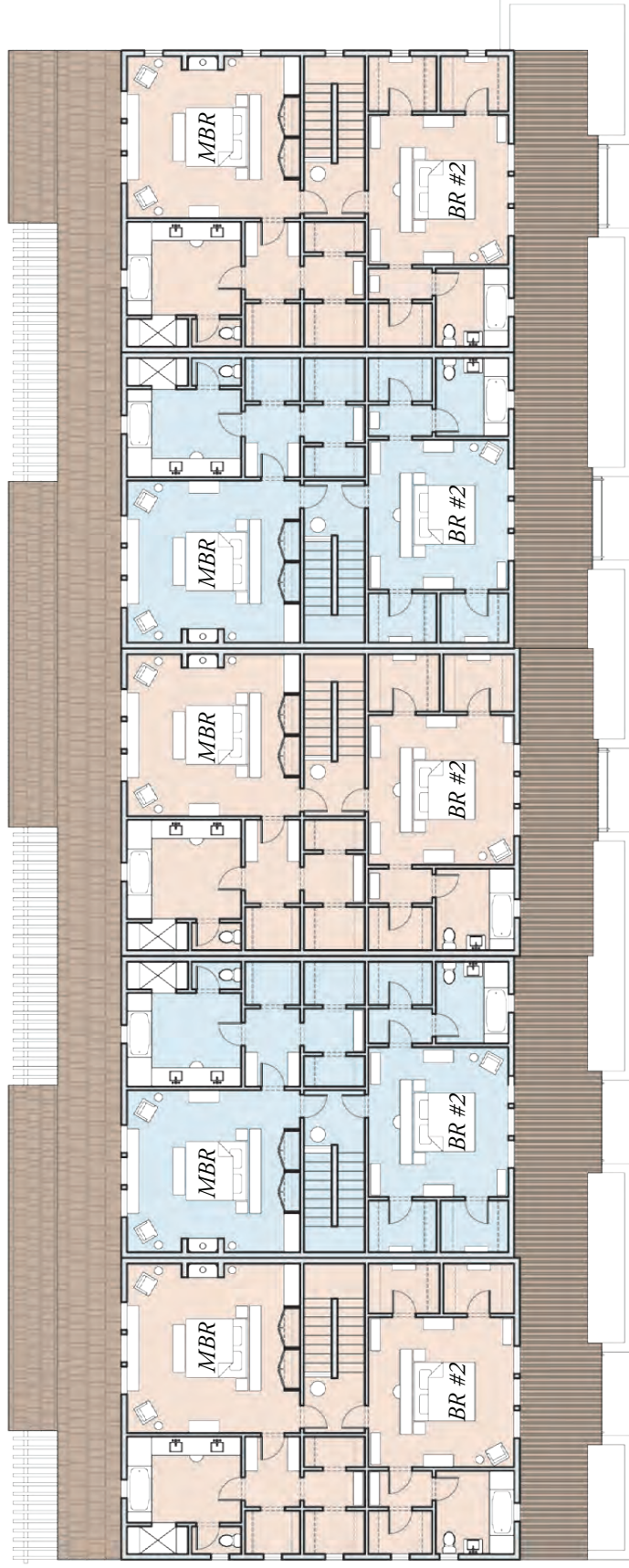
BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Fairway Residences
First Floor Plan

Exhibit
II-13D



BRYNWOOD
GOLF & COUNTRY CLUB

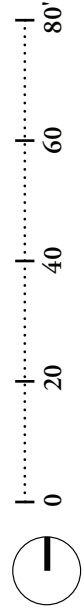
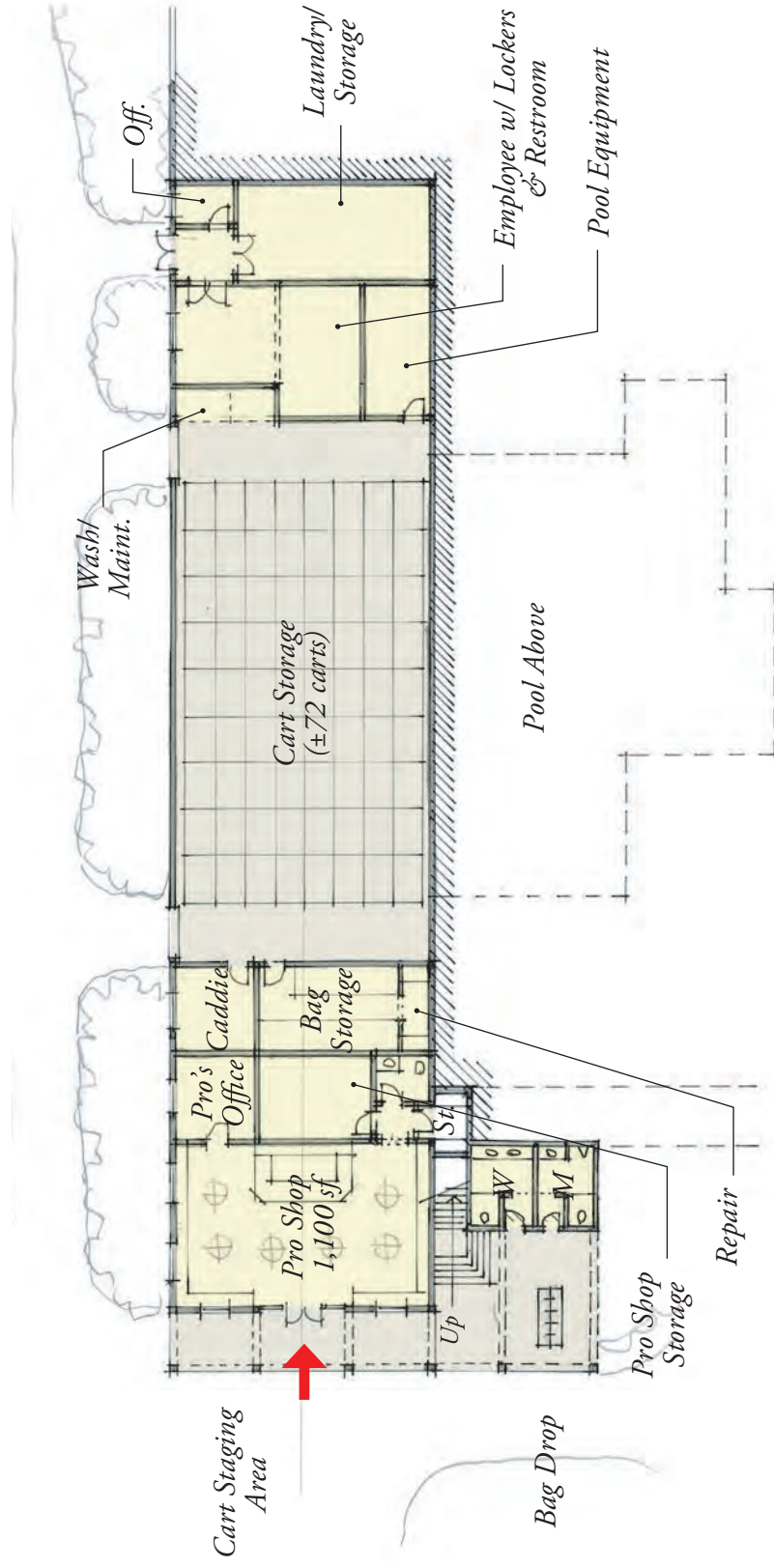
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Fairway Residences
Second Floor Plan

Exhibit
II-13E

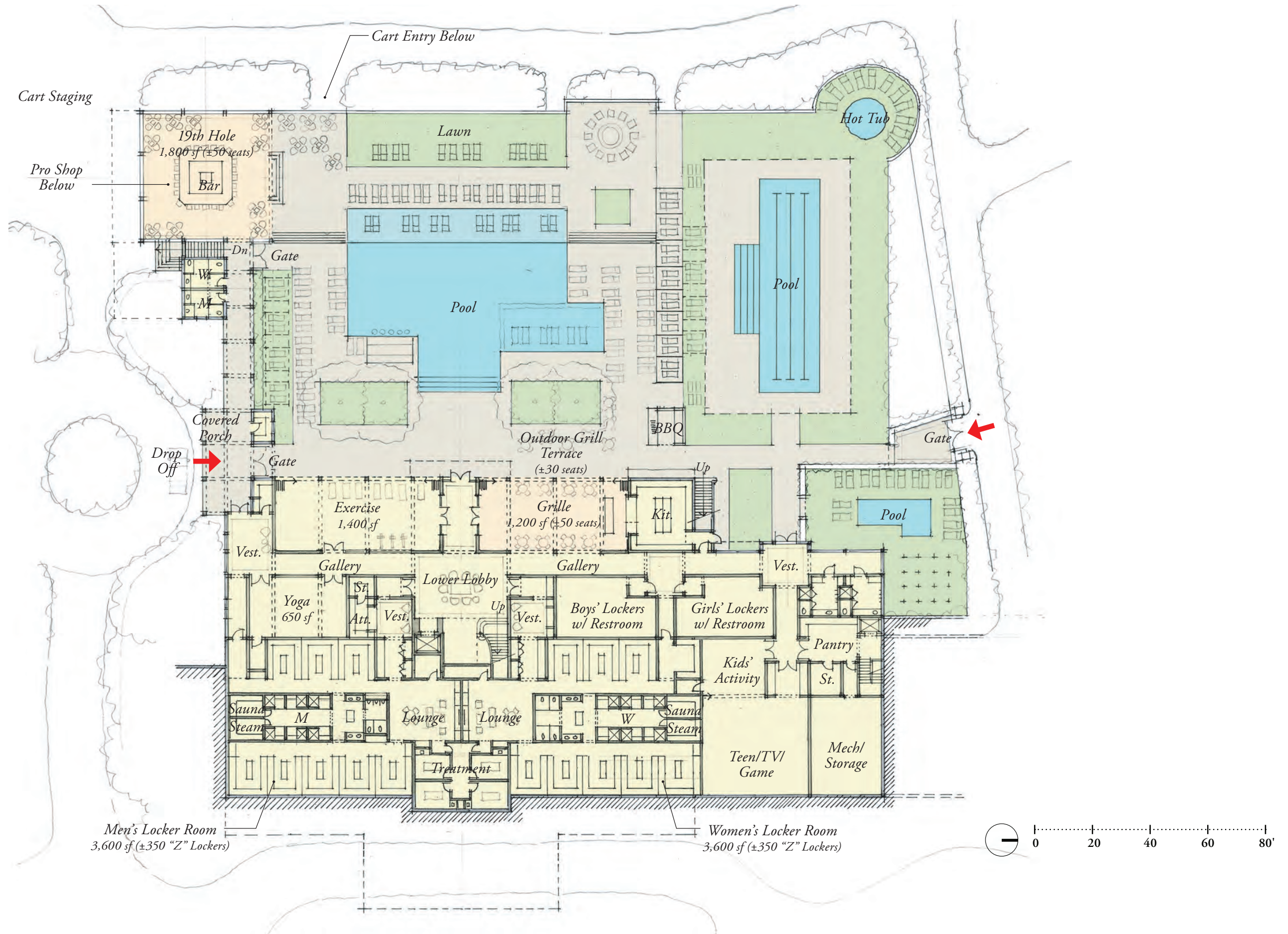


BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



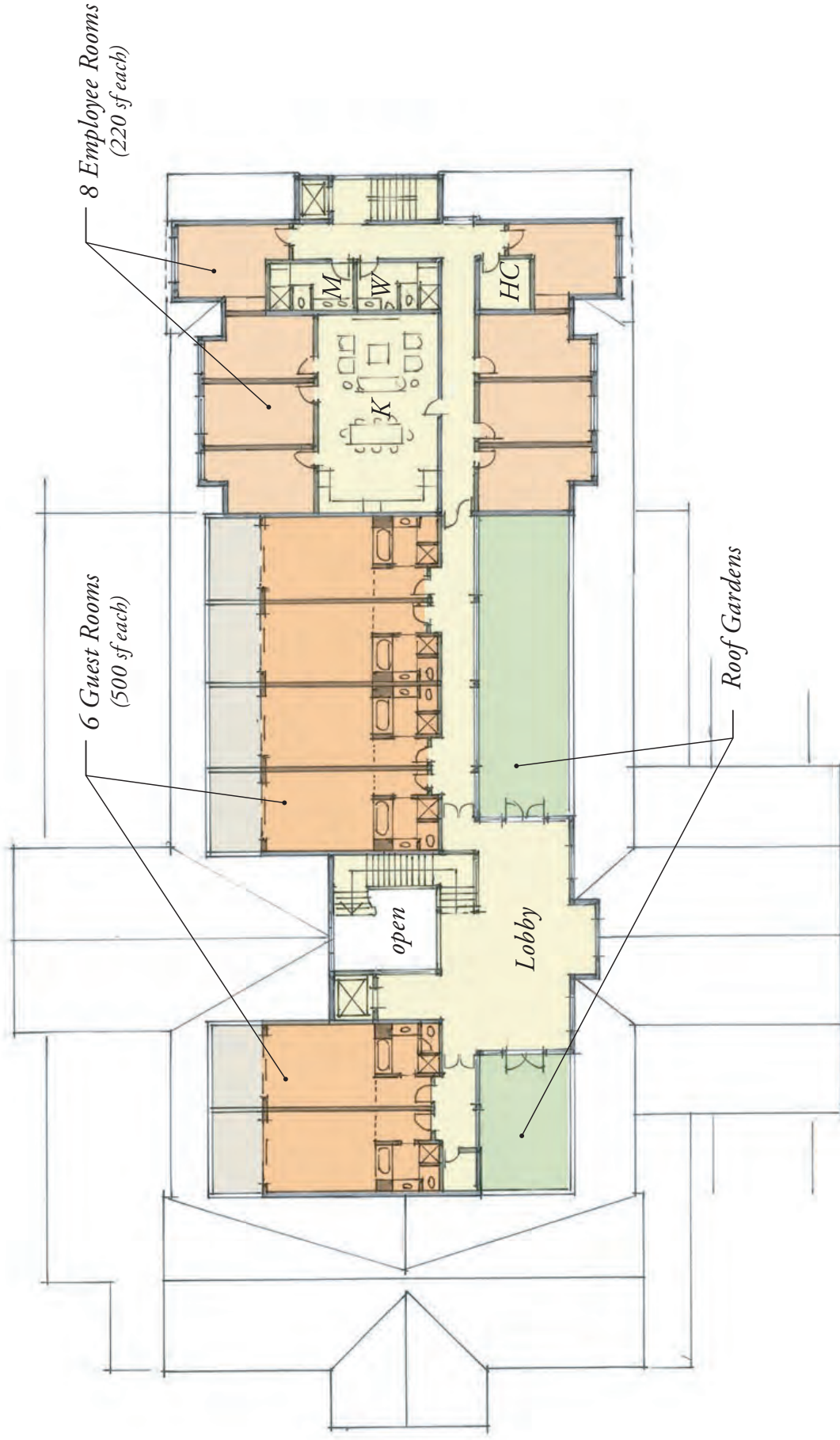
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Clubhouse
Lower Level Floor Plan with Terrace Plan

Exhibit
II-14B

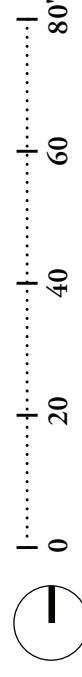


BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

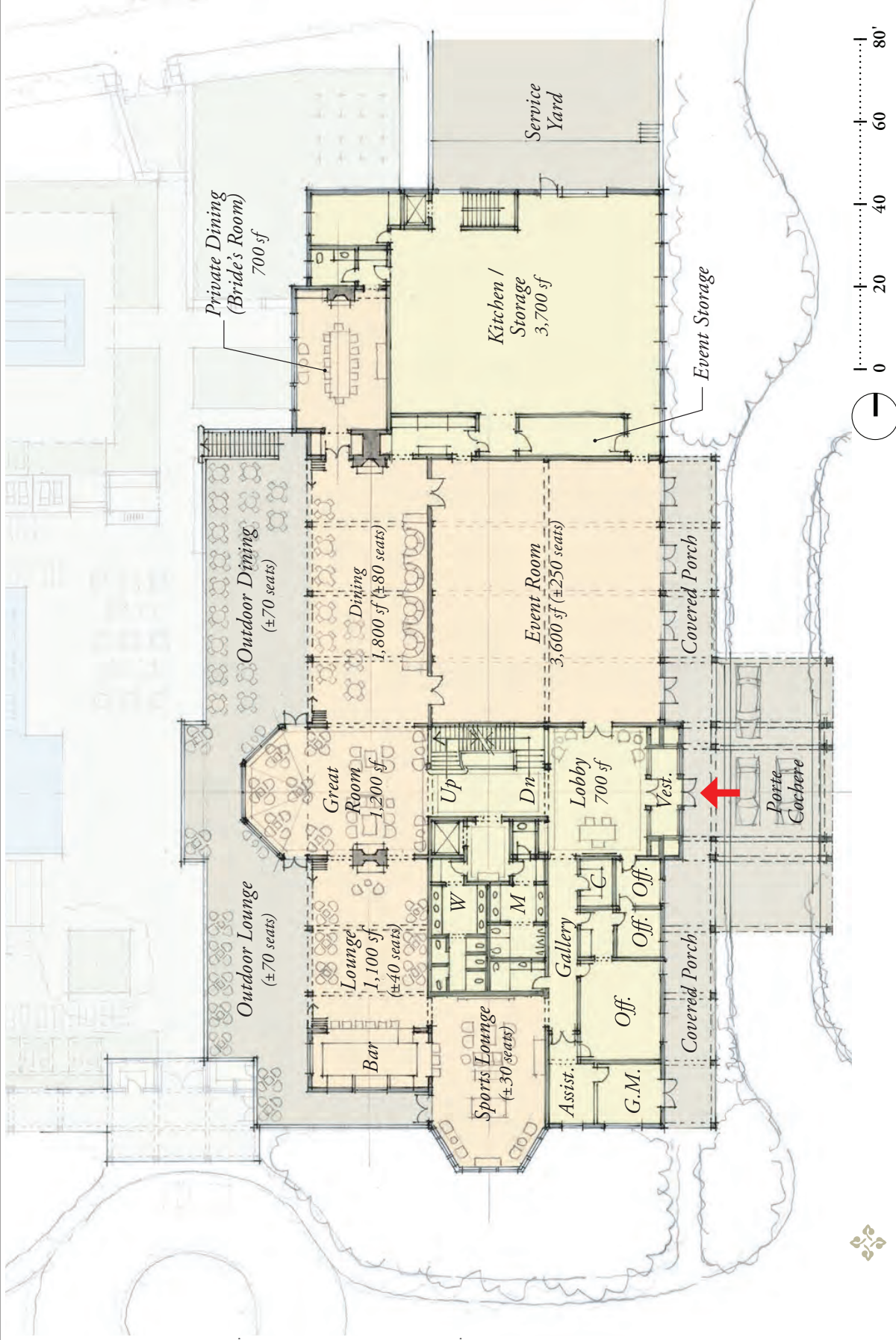
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



Clubhouse
Upper Floor Plan

Exhibit
II-14C



BRYNWOOD

GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Clubhouse

Entry Floor Plan

Exhibit

II-14D



BRYNWOOD
GOLF & COUNTRY CLUB

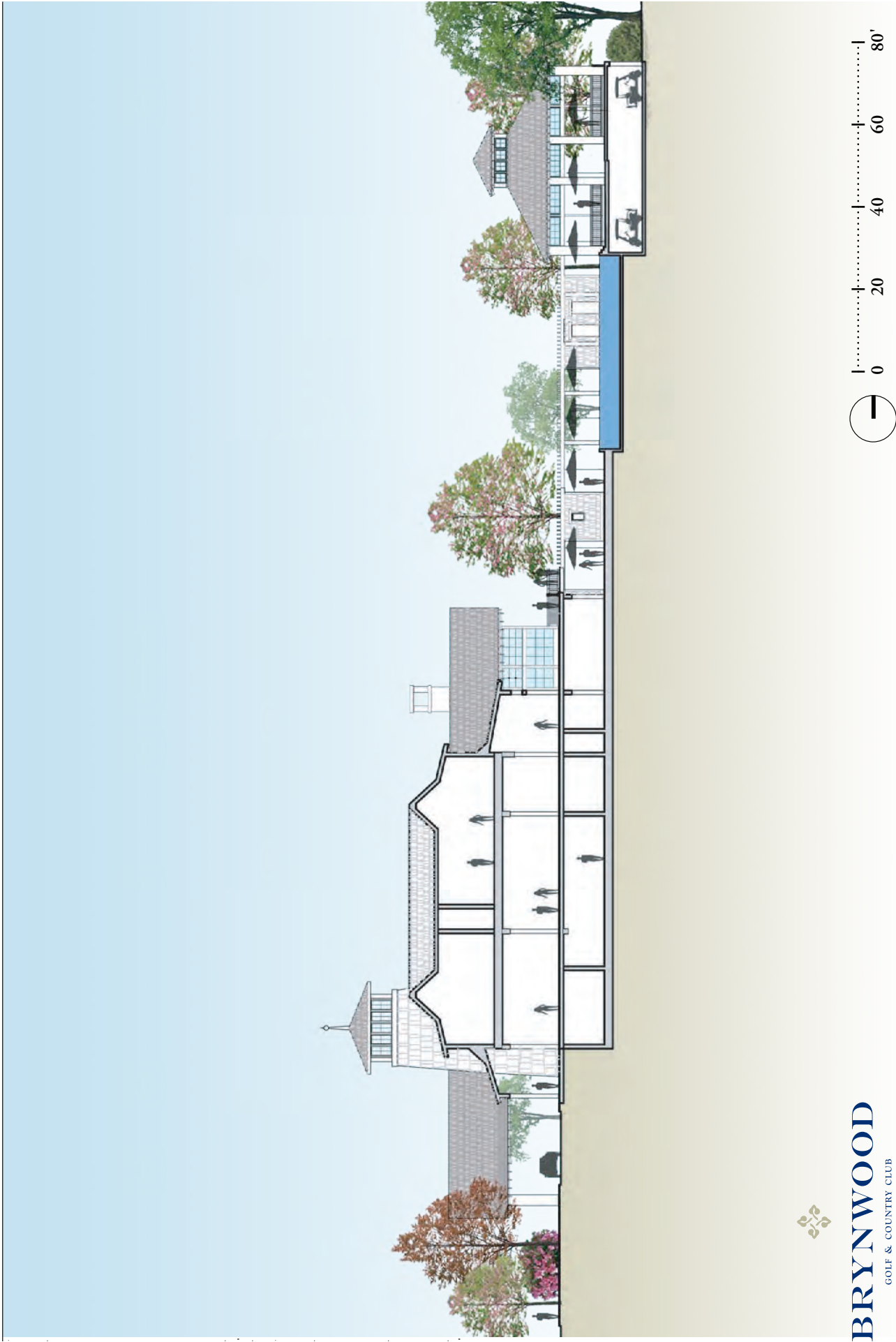
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Clubhouse
Entry Elevation

Exhibit
II-14E




BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

Clubhouse
Section

 *Engineering, Surveying and Landscape Architecture, P.C.*

Exhibit
II-14F



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.





Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.




Residential Area Grading Plan

Exhibit
II-16B



BASED ON THE INFORMATION PROVIDED, ALL DIMENSIONS AND LUMINAIRE LOCATIONS SHOWN REPRESENT RECOMMENDED POSITIONS. THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING OR FUTURE FIELD CONDITIONS.

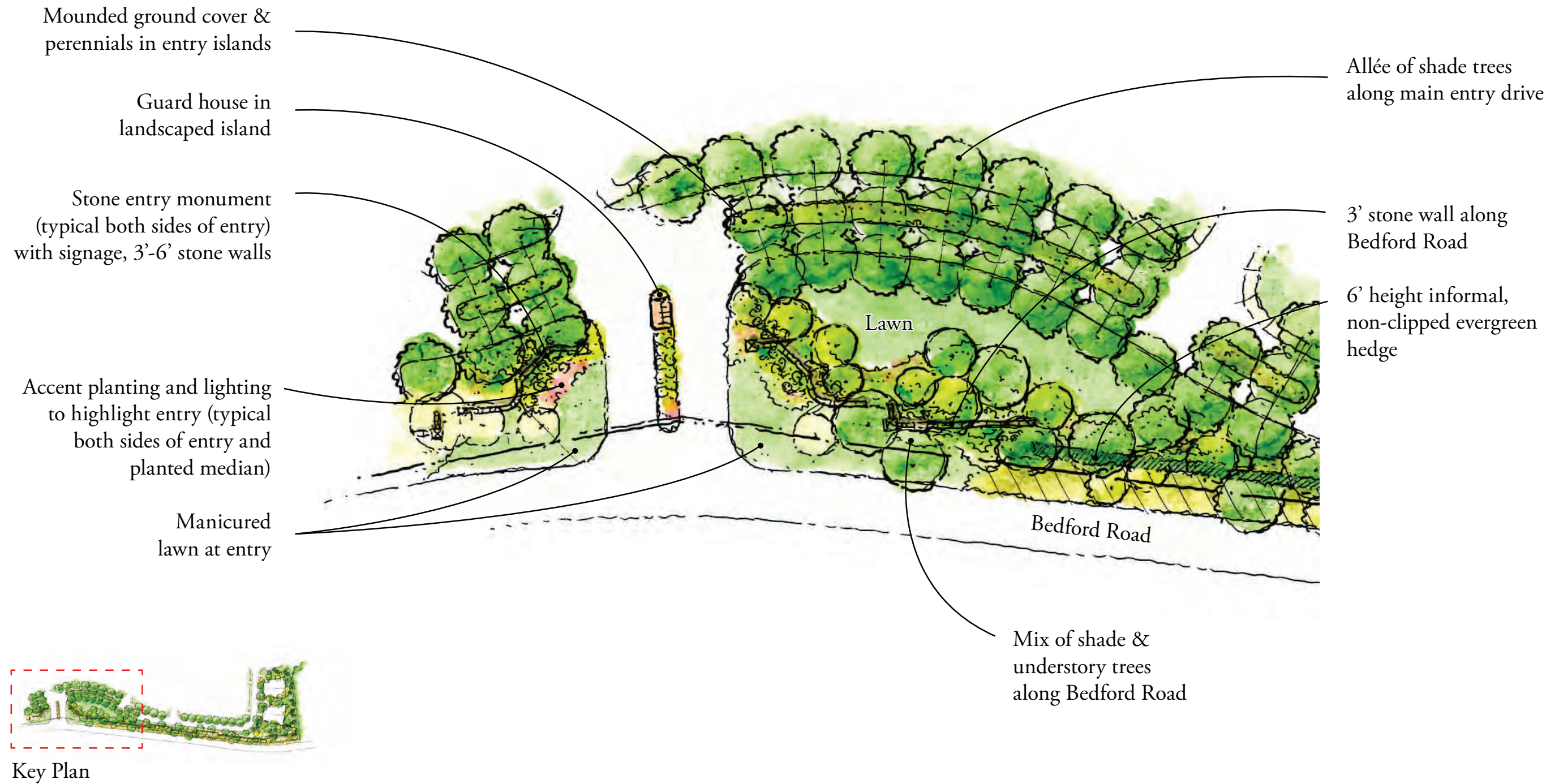
THIS LIGHTING PATTERN REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS UTILIZING CURRENT INDUSTRY STANDARD LAMP RATINGS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS AND OTHER VARIABLE FIELD CONDITIONS.

Luminaire Schedule					
WLS8947 BRYNWOOD ROADWAY ARMONK, NY PM: DEAN					
Symbol	Qty	Label	Lumens	LLF	Description
	92	A	14000	0.800	WLS-850-S-150-PSMH-A4 12' MOUNTING HEIGHT
	24	B	120000	0.750	WLS-APR-VFT-1000-PSMH-FG 26' MOUNTING HEIGHT
	6	C	120000	0.750	WLS-APR-VFT-1000-PSMH-FG 26' MOUNTING HEIGHT

Source: WLS Lighting

BRYNWOOD
North Castle, New York

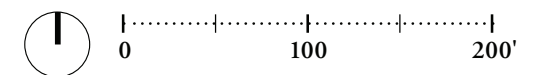




Source: Hart Howerton Partners, LTD.

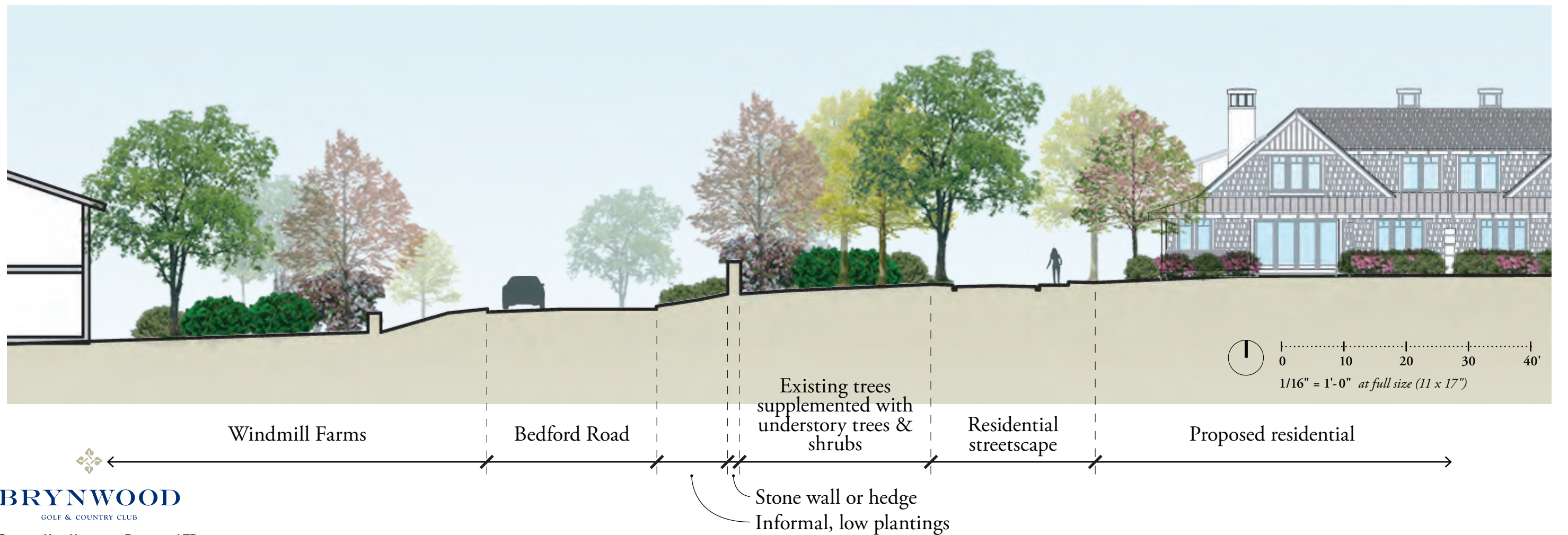
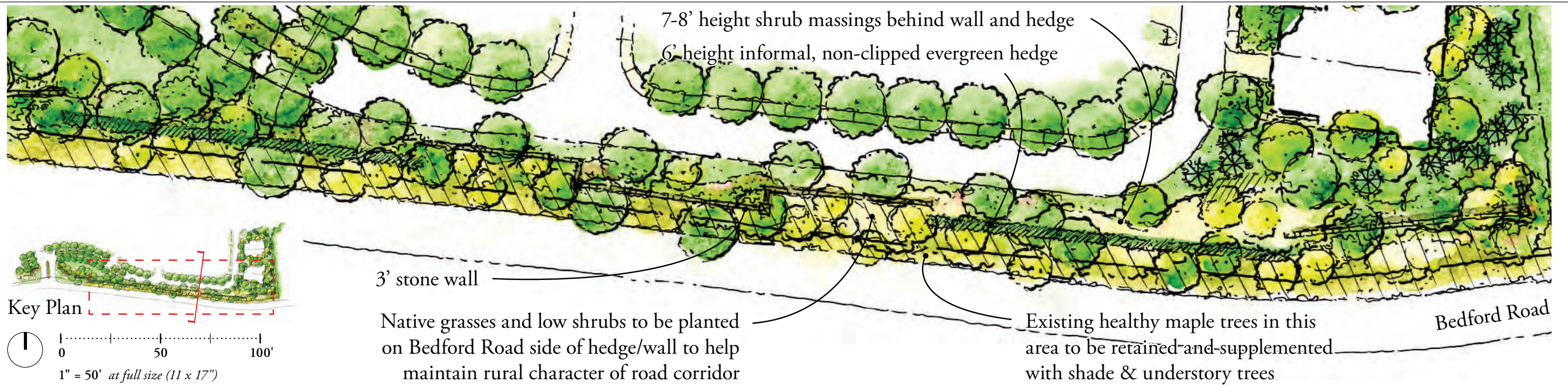
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



Landscape Concept Plan
Brynwood Entry

Exhibit
II-18B



BRYNWOOD
GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Landscape Concept Plan
Bedford Road Corridor

Exhibit
II-18C

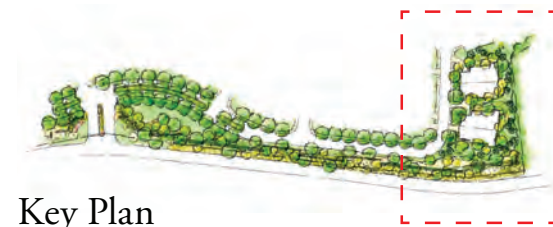
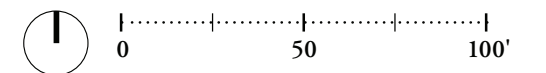


Possible rain gardens
per civil engineer's
recommendations

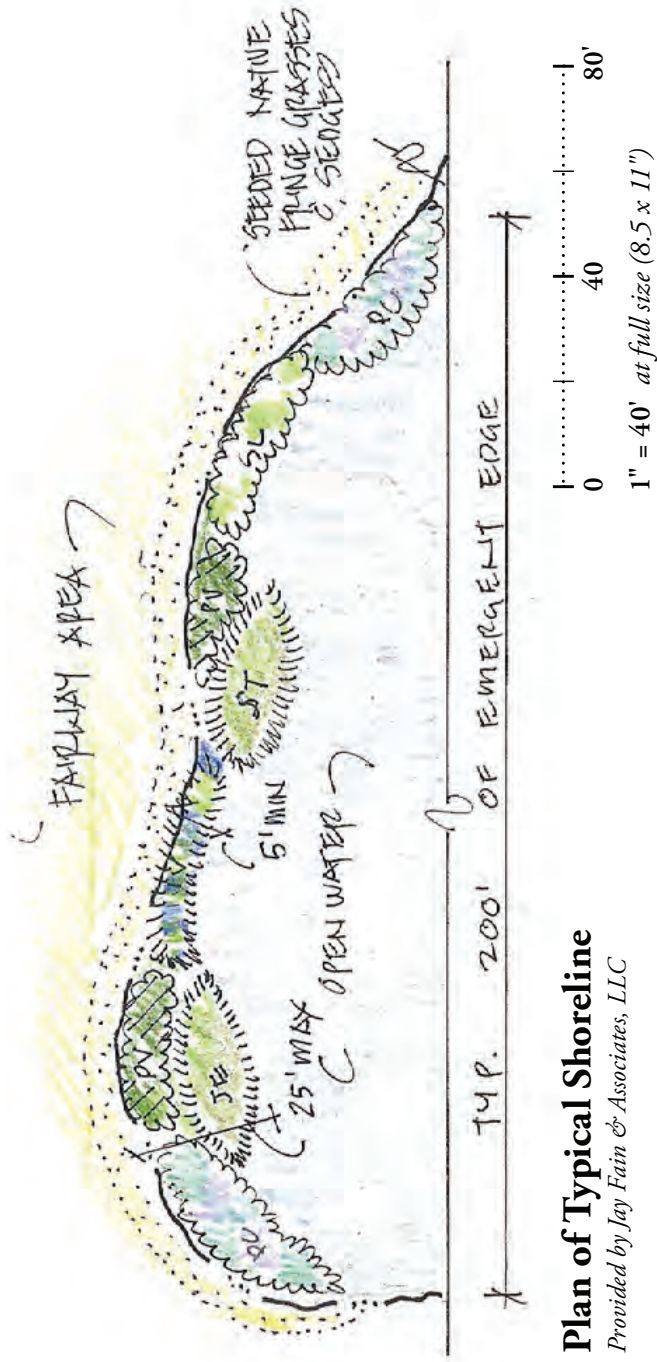
Evergreen trees to
be installed between
buildings and perimeter
to provide privacy

Heavy, layered foundation
planting of ornamental
trees and shrubs, ground
cover and perennials in
keeping with local and
surrounding single family
neighborhoods

Route 22

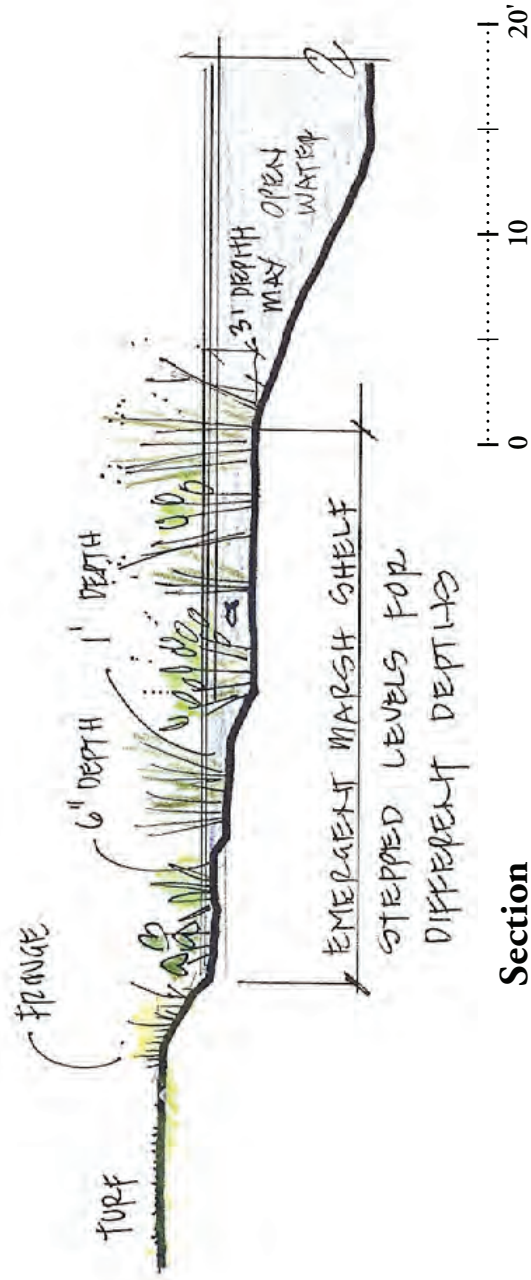


Key Plan



Plan of Typical Shoreline

Provided by Jay Fain & Associates, LLC



Section

Provided by Jay Fain & Associates, LLC



BRYNWOOD

GOLF & COUNTRY CLUB

Source: Hart Howerton Partners, LTD.

BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



Understory planting along new stone wall



Astilbe



Cercis canadensis



Rhododendron



Quercus alba



Quercus rubra



Picea glauca



Kalmia latifolia



BRYNWOOD

GOLF & COUNTRY CLUB

Source: Hart Howetson Partners, LTD.

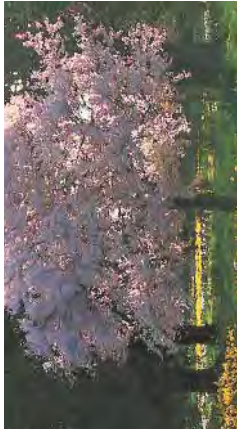
BRYNWOOD

North Castle, New York

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Viburnum pragnense



Flowering Ornamental Tree



Berries for Winter Interest



Acer rubrum



BRYNWOOD

GOLF & COUNTRY CLUB

Source: Hart Howetson Partners, LTD.

BRYNWOOD

North Castle, New York

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Hydrangea 'Little Lime'



Massachusets kinnikinnick



Ilex x meserveae



Layered foundation plantings at units



Spring Bulbs



Ilex glabra 'Shamrock'



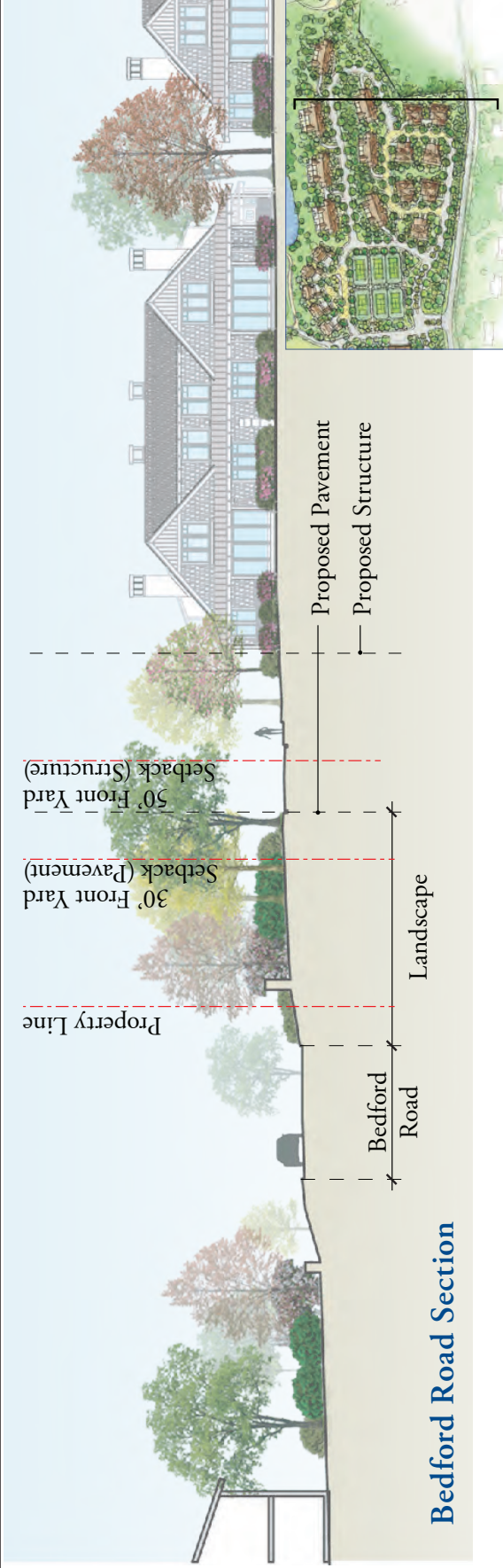
Cornus 'Kousa'

Planting Images

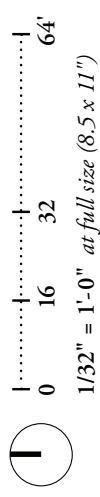
Bedford Road and Parking

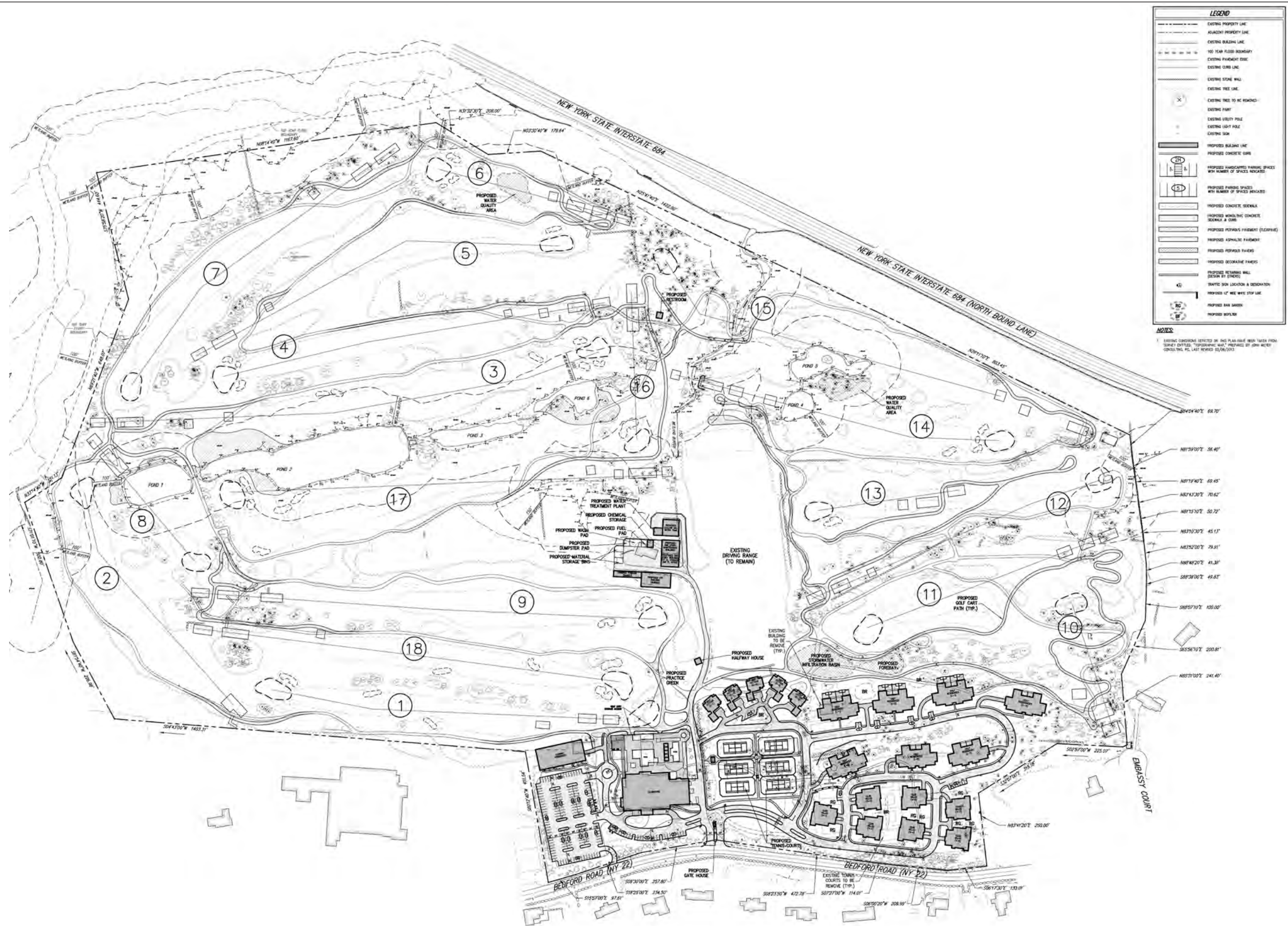
Exhibit

II-18G



Key Plan

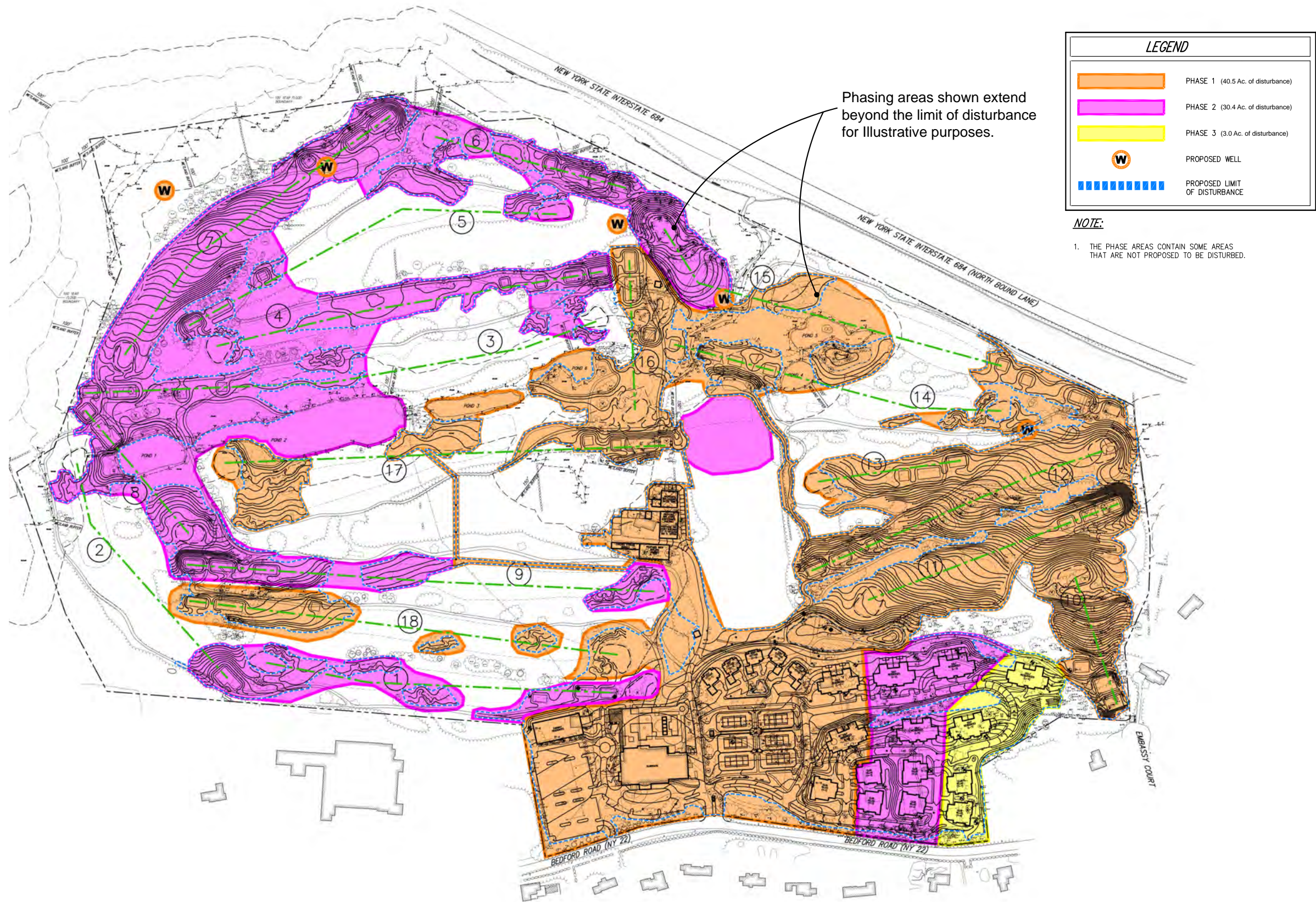




Source: John Meyer Consulting, PC

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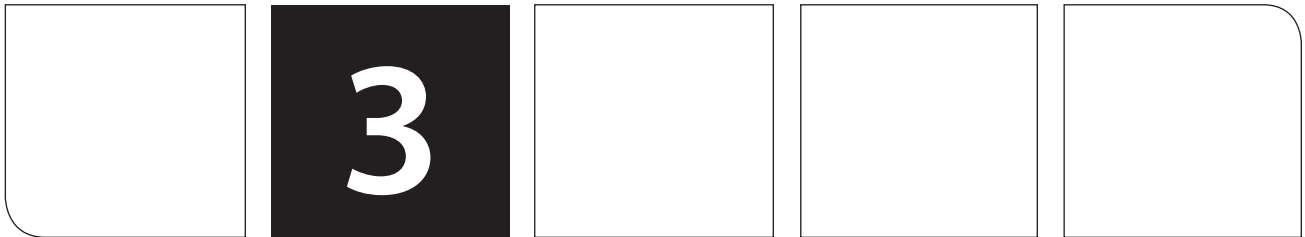
Source: John Meyer Consulting, PC

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Preliminary Phasing Plan

Exhibit
II-20



Environmental Analyses

III. Existing Environmental Conditions, Anticipated Impacts and Mitigation

This section analyzes potential Project impacts, and mitigation measures in each of the areas analyzed for this DEIS, as per the DEIS Scope. It is noted that the conclusions and opinions related to potential impacts in each chapter are those of the Applicant.

A. Land Use, Zoning and Public Policy

1. Existing Conditions

a) Land Use

The Site is located on the west side of Bedford Road (NYS Route 22) in North Castle. The Site is bordered to the north by private lands, to the east by Bedford Road and a public school, to the south by private lands and to the west by Interstate 684 (I-684).

The existing land uses on the Site are golf course with clubhouse and related infrastructure, driving range, tennis courts, swimming pools, and parking facilities.

Within a half-mile of the Site, land uses include: single-family residential (which is the prevalent surrounding land use); commercial; public/quasi-public; public utilities; private recreation; and open space. The table below depicts the distribution of land uses both by number of parcels as well as land area, within the half-mile radius surrounding the Site (the “Land Use Study Area”). See Exhibit III.A-1, Surrounding Land Use for location of the surrounding uses relative to the Site. Single-family residential is the most abundant land use within the Land Use Study Area. Open space uses constitute a large percentage of the surrounding area as well.

Table III.A-1
Surrounding Land Uses within Half-Mile

Land Use	Lots	Percent	Acres	Percent
Commercial (nursery)	1	0.2%	4	0.4%
Open Space	45	10.8%	322.3	28.6%
Private Recreation	6	1.4%	194.1	17.2%
Public/Quasi-Public (Schools)	2	0.5%	58.4	5.2%
Single-Family Residential	360	86.7%	544.8	48.4%
Public Utilities (Water Distribution Facility)	1	0.2%	1.7	0.2%
TOTAL	415	100%	1,125.3	100%

Source: Westchester County GIS

Immediately adjacent to the Site to the north are single-family residential uses, including homes on Embassy Court and Ilana Court, as well as open space and a public utility use. The majority of the open space to the north of the Site is located to the northwest, on the west side of I-684. This includes the southern end of Byram Lake. The utility use to the northeast of the Site is the water distribution facility for Town of North Castle Water District No. 2, located on Evergreen Road.

East of the Site, on the opposite side of Bedford Road, is primarily single-family residential (including Windmill Farms neighborhood), with private recreation, and open space. The private recreation use is the Windmill Club. Several areas of private open space are located to the east of the Site. Immediately adjacent to the Site to the southeast is the Coman Hills Elementary School, a public use.

South of the Site is primarily single-family residential mixed with open space, public school and commercial. The open space located to the south of the Site is a wetland/stream corridor which runs south of the Site from I-684 to Bedford Road. Further south of the Site is the Armonk Tennis Club, and single family homes along Colonial Court. Further south, within ½ mile of the Site, is the Byram Hills High School (public/quasi-public use), accessed by Tripp Lane. The high school property has athletic fields, parking, and the school building. The only commercial use within a ½ mile of the Site is a nursery located along Bedford Road, across from Nash Place.

To the west of the Site is I-684, which abuts the Site property line, and open space, primarily on the western side of I-684. There are also some single-family homes west of I-684 along Oregon Road and Byram Lake Road.



b) Zoning

The Site is zoned R-2A One-Family Residence District. The Land Use Study Area is all zoned residential. Areas to the north and south are in the R-2A One-Family Residence District, areas to the east and west are in the R-1A One-Family Residence District. Additional areas to the east are in the R-1.5A One-Family Residence District and R-2A District.

All of the residential districts permit the following principal uses: single-family dwellings; temporary storage of contractor's equipment; various municipal uses; and, farm uses. The following are special permit uses in these districts: places of worship; public/private/parochial elementary or high schools; public libraries; religious or charitable institutions; membership clubs, not operated for gain; nurseries or greenhouses; public telephone booths; public utility transmission lines, exchanges or substations; watershed or water supply facilities not part of the Town's water system; convalescent or nursing homes; scientific research centers, not operated for gain; and, private stables¹.

The minimum lot size in the R-2A District is 2 acres; in the R-1.5A District it is 1½ acres; and in the R-1 District it is 1 acre¹.

Membership Club Regulations

As noted above, membership clubs are a special permit use in the R-2A District. The Zoning Ordinance defines membership club as "Land, buildings and facilities operated by a membership corporation, association or fraternal order for the purpose of accommodating recreational, athletic, social, literary or similar activities. The members of the membership corporation, association or fraternal order shall have a financial interest in, and method of control of, the assets and management of the club...."

In addition to operational control, special permit regulations of the Zoning Ordinance require the "membership club" to own or lease the club property (Zoning Ordinance Section 213-33.I(5)).

The Site was first approved for use as a membership based golf and country club pursuant to a special permit granted by the Zoning Board of Appeals of the Town in 1961. The property has been continuously used and operated as a golf and country club since 1964. The special permit for operation of the golf and country club has been amended, extended and re-issued numerous times by the Zoning Board of Appeals, and then under successor zoning codes, by the Town

¹ Zoning Ordinance Section 213-19: Schedule of Residence District Regulations.

Board, most recently in April, 2000, to permit a professional tennis tournament to be held at the Site in May of that year. The specific conditions to the use of the property and operation of the club imposed by the Zoning Board of Appeals and Town Board were last materially amended in June, 1978, to permit the club to “conduct outside affairs such as dinners, dances, weddings, [and] catering to persons who are not primarily members of the club.”

c) Specific Land Uses in the Vicinity

Following is a description of the certain land uses in the vicinity of the Site:

- Coman Hill School is a public elementary school that serves grades K-2 in the Byram Hills Central School District. The school is located on Bedford Road, adjacent to the Site. The school had 525 enrolled students in the 2010/2011 school year.
- Armonk Tennis Club is a private membership tennis club and youth summer camp built in 1958. It is located on Bedford Road, just south of Coman Hill School. Club facilities include indoor and outdoor tennis courts, pool, snack bar, picnic and play areas.
- The Windmill Farm neighborhood is located on Bedford Road, directly across from the Site. This neighborhood was primarily built in the 1950s and is comprised of single-family homes on one- to two-acre lots. Windmill Lake is located in the neighborhood and provides private recreation for the community such as swimming, boating, fishing and tennis.
- Benedict Nursery is a plant nursery located at 521 Bedford Road. It is the closest commercial property to the Site. This business has been in operation for over 50 years and sells annuals, shrubs, trees and other nursery items.
- Byram Hills High School is a public high school located on Tripp Lane, off of Bedford Road, south of the Site. The school is part of the Byram Hills Central School District and had 858 enrolled students in the 2010/2011 school year.
- Congregation B’nai Yisrael of Armonk is a synagogue located at the corner of Banksville Road and Bedford Road, south of the Site. The synagogue opened in 1981.
- St. Nersess Armenian Seminary is currently located in New Rochelle but in July, 2012, received approvals from the Town for a new facility on a 5.5-acre site at 486 Bedford Road (south of the Site). The facility includes an 8,400 square foot Theological Center which includes a private chapel, library, classrooms and offices. Three existing structures

will be renovated and expanded for use as housing for students and faculty (residences for eight single residents in separate rooms, two one-bedroom apartments for married residents, four studios for resident and visiting faculty, and an on-site Dean's residence). Activities associated with the seminary include academic instruction, residence of seminarians, religious workshops and lectures, fundraising events and summer religious conferences.

- Surrounding residential areas are zoned in the R-2A, R-1.5A and R-1A Residential Districts. These areas are characterized with single-family homes on one- to two-acre lots.

d) Relevant Planning Studies

North Castle Town Comprehensive Plan Update (1996)/Revised Town Development Plan Map (2006)

Prepared for the Town of North Castle and adopted in 1996, the Comprehensive Plan Update is a statement of the community's goals and policies regarding land use, open space, retail, office and other commercial development, community facilities and services, and infrastructure.

The Comprehensive Plan Update specifically identifies Canyon Club, the predecessor to Brynwood Golf & Country Club, as an important private recreation facility and states the need to preserve the facility as a private open space resource.

The first residential goal listed in the Comprehensive Plan Update is that "The Town should continue to provide the opportunity for a variety of housing types and densities". Hamlet centers are identified as the main focus for residential growth in the Town. The Comprehensive Plan Update indicates that one significant reason for concentrating densities in the hamlet centers is to assure provision of necessary infrastructure. The Plan also indicates that the potential for residential development is highest in Armonk, namely the R-2A and R-1A Districts.

The Comprehensive Plan Update also notes that certain areas of Armonk, including Windmill Farms, should continue to retain their low-density residential, open and scenic character.

The Comprehensive Plan recommends that "Country clubs should be placed in the most restrictive adjacent residential district to encourage their continued open space/recreation use." The Comprehensive Plan also states that "The Town should do all it can to ensure permanent preservation of all private open

space, including the Whippoorwill Club, the Canyon Club, and the Daniel Grey Fishing Club, through the use of the right of first refusal." It is noted, however, that the Town does not have a right of first-refusal to acquire the Site.

The Revised Town Development Plan Map, adopted as part of the Comprehensive Plan Update in 2006, designates the Site as "Private Recreation." The surrounding neighborhoods are designated as Semi-Rural Residential Density (<1 DU/AC) and Suburban Residential Density (1-2 DU/AC), with pockets of Private Recreation (Brynwood Golf & Country Club, Armonk Tennis Club, Windmill Club) and Public/Semi-Public uses (Coman Hill School, Byram Hills High School and Congregation B'nai Yisrael of Armonk). There are also small areas designated as Permanent Open Space/Recreation (Existing).

Town of North Castle Open Space Index and Open Space Committee Report²

The Town of North Castle Open Space Index was created in 2000/2001 and lists all the public and private open spaces in the Town. The Site, as well as Coman Hill School, Armonk Tennis Club and Byram Hills High School, is listed in the Index. The Open Space Committee Report was prepared in 2003 by the Town's Open Space Study Committee. The purpose of the Report is to inventory and prioritize non-protected open space over 10 acres. All eligible parcels are ranked according to environmental features and cultural significance. Those parcels with the highest ratings are considered to have highest value for preservation. Brynwood Golf & Country Club, Armonk Tennis Club, and the Windmill Farm neighborhood are studied and ranked in the Report. The Site and Armonk Tennis Club are not listed as properties that should be considered for priority protection, although the Windmill Farm neighborhood is listed as such. Portions of the Site, however, are listed on the Environmentally Sensitive Area map (see Exhibit III.A-3, Environmentally Sensitive Areas).

Westchester County Plan, Patterns for Westchester (1995) and Westchester 2025

Prepared by the Westchester County Planning Board and adopted in 1995, *Patterns for Westchester (Patterns)* is a broad policy document about the County's physical development. *Patterns* functions as the County Planning Board's reference for the standards to be used in carrying out its three principal County Charter responsibilities: Long Range Planning; advising the County Executive and Legislature on capital spending for infrastructure, land acquisition

² The DEIS Scope requires discussion of the "Town of North of Castle Open Space Inventory," however, this document could not be located by the Planning Department or Conservation Board staff. Therefore, the Open Space Index and Open Space Committee Report are discussed instead.

and other public facilities; and bringing the County's perspective to bear on planning and zoning referrals from municipal governments.

The Patterns for Westchester Map is the land use map that provides "parameters for county and municipal planning decisions by providing a unified picture of density that surrounds existing centers." The Land Use Map in *Patterns* designates the Site as an "area of open space character" as well as Low Density Rural (LDR). The floor area ratio proposed by *Patterns* for the Site is from 0.0125 to 0.05, and the Gross Residential Density is 0.2-1.5 dwelling units per acre. The Land Use Map designates the surrounding area as LDR and Medium Density Suburban (MDS) 1-3. MDS 1-3 has a floor area ratio range of 0.025-0.1 and a Gross Residential Density of 1-3 dwelling units per acre.

Adopted by the Westchester County Planning Board in 2008, the Westchester 2025 plan reviews the County's planning policies in the context of the challenges facing the region today. The plan identifies land use policies and provides a context for a planning partnership between the County and its 45 municipalities.

Westchester 2025 currently is a Web-based format of its county-wide planning policies, with the intent of showing residents and municipalities the importance of working together. As part of Westchester 2025, detailed analyses of existing municipal zoning ordinances using new and innovative GIS-based and Web-based planning tools are occurring. The analysis of all zoning ordinances will become the basis for a wider "Vision Plan," Westchester 2025's county-wide map of recommended density ranges reflecting desires for future development and character balanced upon a variety of regional and intermunicipal issues.

2. Potential Impacts

a) Land Use

It is noted that the conclusions and opinions stated here are those of the Applicant. The Proposed Action would alter the existing country club land use on the Site through the addition of a golf course community with 88 residences on a 14.7-acre portion of the Site. Although the land use on the Site would change, significant uses on the Site, the golf course and country club, would be maintained and improved. It is not anticipated that the addition of residential uses would negatively impact the existing golf course, club house, and other recreation facilities. On the contrary, it is expected that the addition of the residential units, along with the renovation of the clubhouse and redesign of the golf course, would foster a greater sense of community for Brynwood Golf & Country Club and would provide a stronger, more stable membership for the

Club as well as increased utilization of the Club's facilities. In the Applicant's opinion, the addition of 88 residences on the Site would nominally impact the surrounding area by introducing a higher density residential use to a low density (1 to 2 acre minimum lot sizes) residential area. However, the golf course on the Site would remain, so the Site would retain most of its open space character. In addition, the Applicant would record either a conservation easement or declaration of restrictive covenants permanently precluding development of the approximately 141-acre golf course and permitting use of that land only as either a golf course or open space. Overall, the proposed 88 units would be built on a site having a total of 156 acres of gross lot area, or approximately 1 dwelling unit for each 1.8 acres. However, the residences would be located on an approximately 14.7 acre portion of the Site that is proposed to be subdivided from the remainder of the Site, yielding a density on the proposed, subdivided lot of approximately 1 dwelling unit for each 0.17 acre.

b) Compliance with Easements, Restrictive Covenants, and/or Other Conditions

The Proposed Action would not violate, or be prohibited by, any existing easements, restrictive covenants or similar encumbrances affecting the Site. The Proposed Action would maintain the existing golf course as an area of open space character, through a recorded conservation easement or declaration of restrictive covenants.

c) Compliance with Relevant Planning Studies

North Castle Town Comprehensive Plan Update (1996)/Revised Town Development Plan Map (2006)

In the Applicant's opinion, the Proposed Action would further the goals of the Town Comprehensive Plan Update. The Town Comprehensive Plan Update specifically identifies the Canyon Club (now Brynwood Golf & Country Club) as an important private recreation facility and states the need to preserve the facility as a private open space resource. The Proposed Action would enhance and maintain the existing golf course. The proposed zoning would require the recordation of either a conservation easement or a declaration of restrictive covenants/easement that provides that either the existing golf course would be maintained or the land used by the affiliated golf course community as open space. The Comprehensive Plan Update proposes zoning private golf courses in the low density R-2 District as a means to preserve private open space. The



Proposed Action would achieve the goal of preserving the golf course as open space.

The Town's Comprehensive Plan Update also contains the goal that "The Town should continue to provide the opportunity for a variety of housing types and densities." The proposed golf course community would introduce a new type of housing to the Town of North Castle with age-targeted luxury condos designed for and marketed to the empty nester buyer. The surrounding community would remain as low density one to two acre zoning. Housing choices for empty nesters is a major public policy issue driven by the aging of the baby boom generation.

The Revised Town Development Plan Map currently designates the Site as "Private Recreation," and would therefore need to be amended to reflect the new "golf course community" use.

Town of North Castle Open Space Index and Open Space Committee Report

Although the Report lists portions of the Site as an Environmentally Sensitive Area, any impacts to environmentally significant features of the Site would be avoided or mitigated to the extent possible. Further, the Proposed Action would maintain the existing golf course as an area of open space. Therefore, the Proposed Action would be compatible with the Index and Report.

Westchester County Plan, Patterns for Westchester (1995)/Westchester 2025

The Proposed Action would maintain the existing golf course as an area of open space character, through a recorded conservation easement or declaration of restrictive covenants, as designated on the *Patterns* Land Use Map. However, the proposed density for the golf course community would be higher than is designated on the *Patterns* Land Use Map. *Patterns* recommends a floor area ratio range of 0.0125 to 0.05 for the Site, while the proposed 88 units on 14.7 acres would have a floor area ratio of 0.48. However, if the floor area ratio is calculated based on the entire Site, the proposed floor area ratio would be 0.045, which would comply with the recommendation.

As the Westchester 2025 process continues to move forward, every attempt would be made to ensure that the Proposed Action is consistent with the goals, objectives, and recommendations of Westchester 2025.

d) Description of Proposed Zoning Ordinance Amendments

Definition of Membership Club

The Applicant respectfully submits that the existing, traditional regulations governing the use of membership clubs are not sufficiently flexible to permit a business model that is financially viable and will induce continuing capital investment under current and foreseeable economic conditions. Therefore, the Proposed Action includes amending the definition of “membership club” and the special permit regulations regarding membership clubs in Sections 213-3 and 213-33.I, respectively, of the Zoning Ordinance to permit operation of a club by a professional owner/manager for profit for the benefit of members (and the public, to the extent permitted under the special permit).

Amendment to Special Permit Regulations

The Proposed Action further includes an amendment to the special permit regulations (Section 213-33.I of the Zoning Ordinance) to specifically identify the different uses that would be permitted as part of a membership golf and country club. The proposed permitted uses include: golf and tennis pro shops; health, fitness and spa facilities; facilities for the operation and maintenance of the club including employee and management housing, and buildings for the storage and repair of golf carts; and, restaurants and other food and beverage service facilities which primarily serve club members and their guests but which may also serve the general public at outings and catered events. The Applicant further proposes amendments to the special permit regulations to: (a) permit lodging rooms/suites for use by residents, club members and their guests, guests attending catered special events, and club management and employees; and (b) permit compact car parking spaces. The text of the proposed amendments is included in Appendix O.

Addition of “Golf Course Community” as a Special Permit Use

The Proposed Action involves the construction of 88 residences on approximately 14.7 acres of the Site. Residences at this density are not permitted under the existing regulations of the R-2A District.

To permit the residential community to be developed, the Proposed Action includes amending the regulations of the R-2A District to add a new special permit use to be known as “golf course community.” Under the proposed definition, a golf course community would be “a residential community designed for and marketed to active adults in which the central focus of the community is an affiliated membership club having an 18-hole golf course and

other recreational facilities which adjoin the site of the golf course community.” The definition would also require the owners of all residences in a golf course community to be members of the affiliated club.

The definition and the proposed special permit regulations for a golf course community are included in Appendix O. The proposed special permit regulations are designed to limit the development of golf course communities by requiring the community to be affiliated with a currently existing membership club which has an 18-hole golf course and adjoins the site of the community, which must in turn have frontage on, and be directly accessed from, a State highway.

The proposed regulations require that all homeowners be members of the affiliated club. The proposed regulations also acknowledge that the golf course of the affiliated membership club functions as the open space for the golf course community, and that maintenance of that open space is the basis for the permitted density of a golf course community. The regulations therefore expressly provide that as a condition of site development plan approval of a golf course community, the affiliated membership club must record in the Westchester County Clerk’s office a conservation easement or declaration of covenants and restrictions pursuant to which the owner of the membership club property agrees that the portion of the property on which the golf course is located shall be maintained either as a golf course or otherwise as open space.

The proposed regulations also establish special bulk, dimensional and parking requirements for a golf course community including a maximum permitted density of one “density unit” (as already defined in the Zoning Ordinance) per 12,000 square feet of the aggregate lot area of all lots comprising the 156 acre Site.

Table III.A-2
Summary of Proposed Dimensional and Parking Requirements

	Requirements
Maximum Permitted Density	1 “density unit” per 12,000 sf of the aggregate net lot area of all lots comprising the site
Building Coverage	To be determined by the Planning Board
Maximum Building Height	3 stories and 39½ feet to the mean level of the primary roof
Minimum Yards	Min front yard: 50 ft Min side and rear yards to be determined by the Planning Board
Minimum Floor Area ¹	Efficiency: 450 sf One-Bed: 700 sf Two-Bed: 900 sf Three-Bed: 1,100 sf
Minimum Parking	2 spaces per dwelling unit ²

¹ The Planning Board may allow balconies or paved terraces to be counted toward the minimum gross floor area requirement in an amount not to exceed 5% of that requirement.

² An amount equal to at least 10% of the total number of required spaces shall be available for use by visitors and guests.

The proposed regulations also permit certain types of limited design flexibility after site development plan approval is granted without need for additional or amended site development plan approval provided that: (a) overall density (measured in density units) and building coverage are not increased, and minimum yards are not decreased, from the amounts previously approved by the Planning Board; (b) the overall number of off-street parking spaces continues to comply with the Zoning Ordinance; (c) no principal building or structure is located any closer to any property line than under the approved site development plan; (d) the landscape plan approved by the Planning Board for the site frontage on Route 22 and all yards and/or designated buffer areas which do not abut the adjoining membership club is not materially changed; (e) the Town Director of Planning determines and certifies to the Town Building Inspector that the overall architectural design and character of the golf course community is not materially changed; and (f) the Town Director of Planning determines and certifies to the Town Building Inspector that the changes do not present any new or different significant adverse environmental impacts, or significant adverse environmental impacts greater in degree than addressed in the initial review of the golf course community under the State Environmental Quality Review Act, and that any impacts requiring mitigation are adequately mitigated by the measures already imposed in connection with the site development plan approval of the golf course community.



Anticipated Impacts to Zoning

In the Applicant's opinion, the existing regulations regarding "membership clubs" in the Town's Zoning Ordinance threaten the financial viability of the Brynwood Golf & Country Club. The proposed zoning amendments would allow the Club to remain open, while maintaining the golf course as open space. The existing regulations, requiring the Club to be operated on a not for profit basis, further restricts the financial viability of membership clubs to be able to cover operating costs and fund necessary capital improvements.

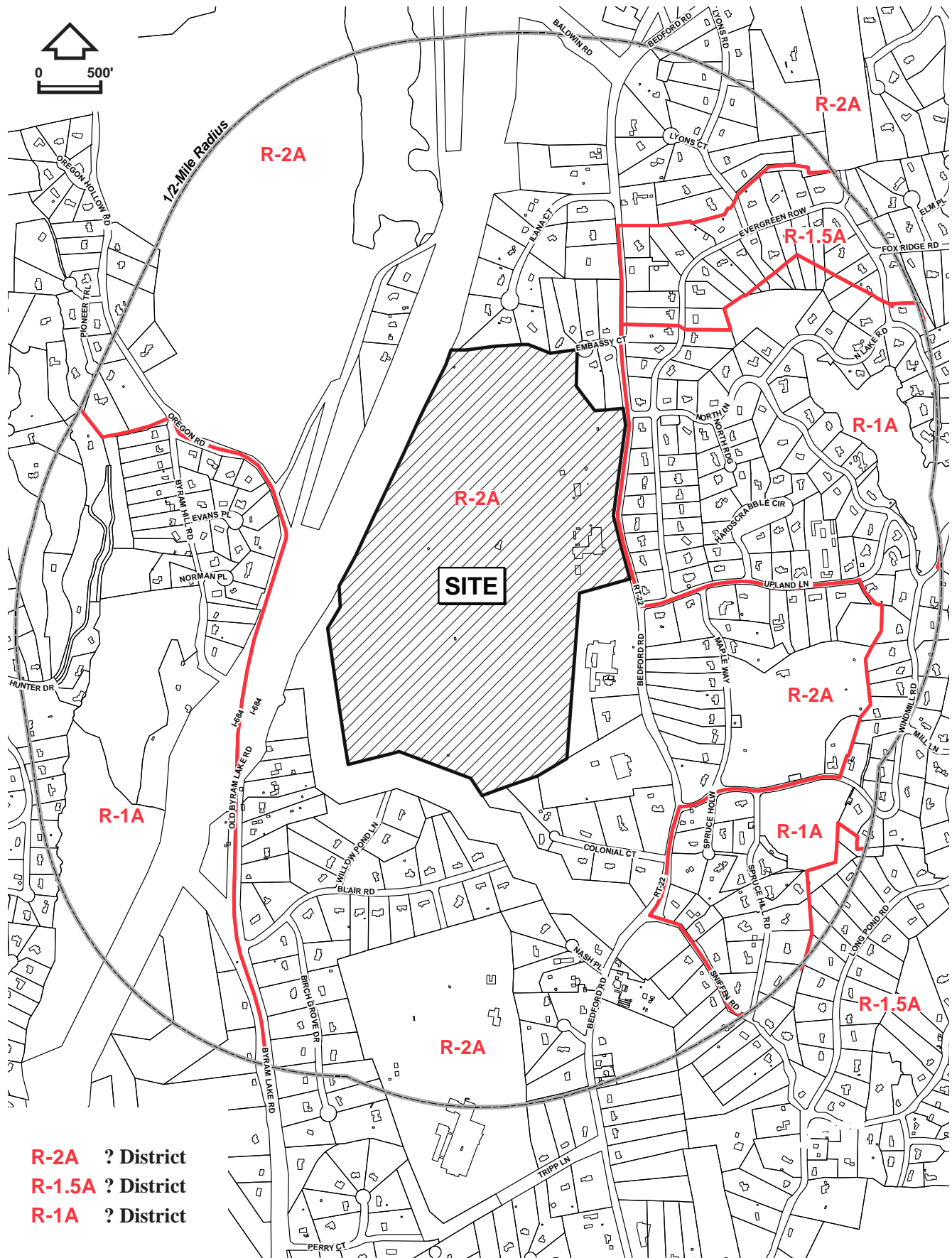
Changing the business model for ownership and operation of the Club would not alone assure the financial viability of Brynwood Golf & Country Club. The affiliated golf course community would be a source of revenues allowing the Club to continue operations with necessary capital improvements to the clubhouse and the golf course, both of which are obsolete.

Cumulative impacts to zoning are not anticipated. No other properties in the Town would meet the location criteria of the golf course community special permit regulations. The only nearby approved or currently proposed development project is the St. Nersess Armenian Seminary south of the Site on Bedford Road. This project, which has received site plan approval from the Town Planning Board, includes the construction of a theological center and adaptive reuse of buildings for student and faculty residences. The zoning amendments proposed by the Applicant will not affect that project.

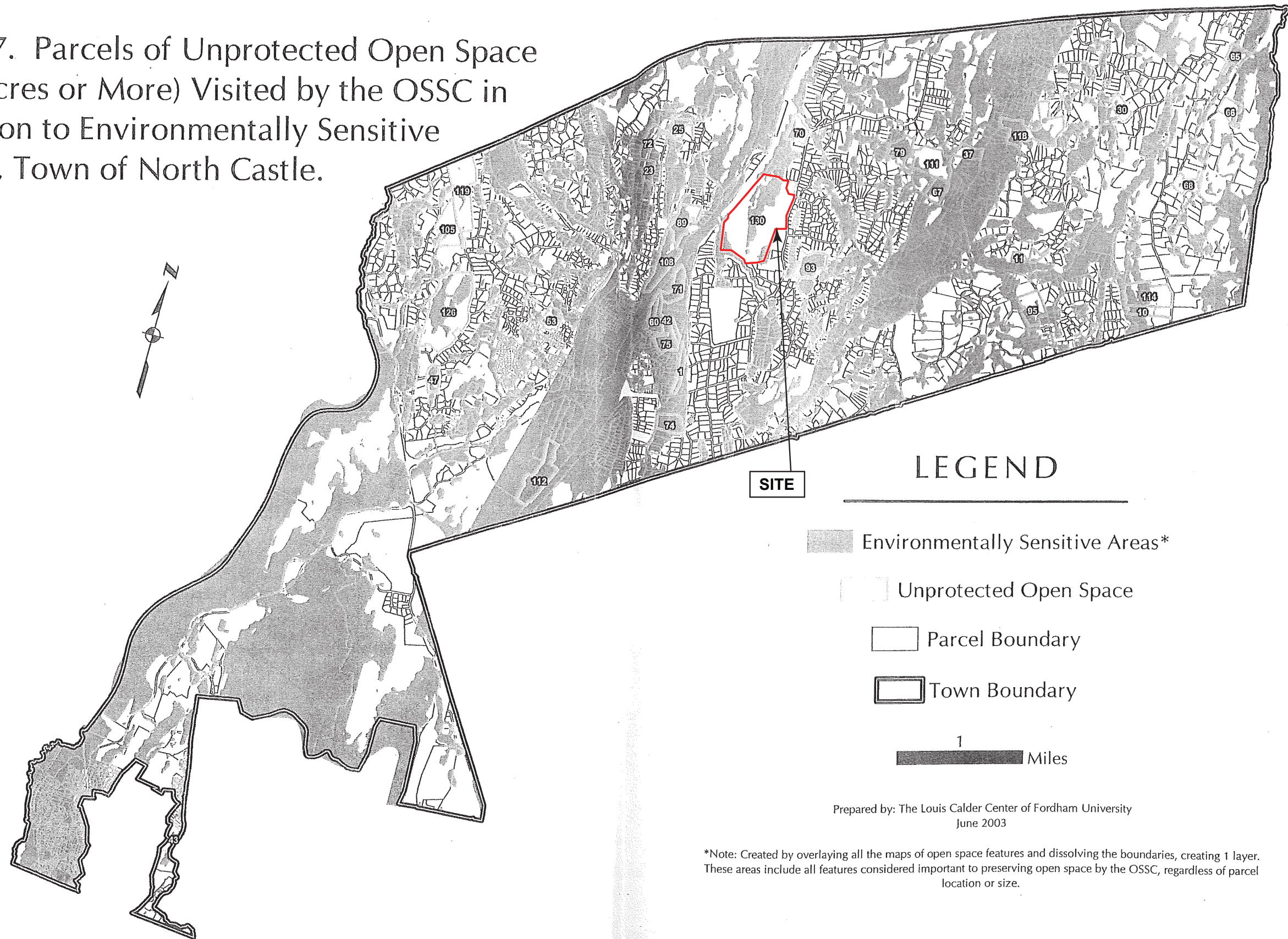
3. Mitigation

The development of a golf course community on a portion of the Site will impact surrounding land uses by introducing a higher density residential use than currently exists in the surrounding area. This impact will be mitigated in part through the addition of a landscaped buffer between the proposed housing units and Bedford Road. While the proposed plan does not rely on the Town's "conservation subdivision" regulations, it is a clustered development where the outcome will restrict residential use and the clubhouse to one corner of the Site and maintain the remainder of the Site (the golf course) as open space.

The potential impacts to zoning are mitigated by the maintenance of the golf course as open space, which would be required in the amended zoning.



Map 7. Parcels of Unprotected Open Space (10 Acres or More) Visited by the OSSC in Relation to Environmentally Sensitive Areas, Town of North Castle.



Source: Open Space Index and Report by the Open Space Study Committee

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Enviromentally Sensitive Areas

Exhibit
III.A-3

B. Affordable Housing

1. Existing Conditions

a) Middle Income Units in North Castle

The North Castle Zoning Ordinance requires the provision of affordable housing, known as Middle Income Units (MIUs), in multifamily developments throughout the Town. The purpose of the MIU program is to reduce housing cost burdens for households with lower incomes than average household incomes in the Town. Middle Income Family is defined in the Zoning Ordinance as a family whose aggregate income does not exceed specific multiples of the median annual Town-paid salaries of all full-time employees of the Town of North Castle.

The Town of North Castle Housing Board was created in the early 1990s to administer the MIU housing program. The Housing Board regulates maximum sale and rental prices for more than 30 existing MIU units located at Whippoorwill Commons on Whippoorwill Road East and at Whippoorwill Hills on Agnew Farm Road, both in Armonk. Additional units have been proposed as part of the Cider Mill development on a site on Old Route 22. A project with Middle Income Units has also been proposed on Route 128 to the north of the Armonk hamlet center.

Maximum rent and sales price of MIUs is regulated by the Zoning Ordinance to keep units affordable. MIUs are sold, resold or rented to those eligible Middle-Income Families who have the highest point value under the Town's criteria. Among other things, points are given to eligible applicants for length of Town residency, disability status, and whether the applicant is employed by the Town. The highest point values are given to long-standing North Castle Town residents, North Castle municipal and school district employees, and North Castle Volunteer Fire Department members.

In addition to income and residency requirements, the Zoning Ordinance sets minimum unit sizes and requires integration of the MIUs throughout the development.

The Zoning Ordinance also allows off-site MIU development. If provided off-site, the MIUs are to be within 1,000 feet of shopping facilities, and not more than 3,000 feet from the multifamily development that they are part of.



b) Westchester County Housing Settlement

In April 2006, the Anti-Discrimination Center of Metro New York (the Plaintiff), filed a lawsuit against Westchester County (the Defendant), claiming that the County falsely certified that it was in compliance with certain provisions of the U.S. Fair Housing and Community Development Acts. The U.S. Department of Housing and Urban Development subsequently joined as a plaintiff in the lawsuit. The Case Summary provided on www.clearinghouse.net states the following:

“In 2009, the parties reached a settlement that required, 1) Defendant adopt as its policy the elimination of residential segregation, and to implement the settlement in a way that develops housing on those Census blocks that currently have the lowest concentrations of African-Americans and Latinos, 2) Defendant earmark \$50 million for affordable housing development designed to open fair housing opportunities in areas of Westchester where those opportunities have traditionally been lacking, 3) Defendant take legal action against resistant municipalities where needed to fulfill the affirmatively furthering fair housing purposes of the settlement, 4) Defendant conduct a new analysis of impediments to fair housing choice that examines barriers based on race or on municipal resistance, 5) Defendant's performance of its obligations to be guaranteed by the appointment of an independent Monitor, by the Court retaining jurisdiction over the case, and by penalty provisions for non-compliance.”¹

Under the settlement agreement (which was embodied in an order of the U.S. District Court), the County needs to facilitate the construction of 750 “fair and affordable” units over a seven year period, with these units located in municipalities with limited racial and ethnic diversity (i.e., population less than 3% Black and 7% Hispanic). This encompasses most of the northern Westchester communities, including North Castle. The income guidelines for fair and affordable housing to be built under the settlement agreement require that the for-sale units be affordable to families having household income at 80% of the County median adjusted for family size, and rental units at 60% of the median adjusted for family size. These income limits are lower than those set by the Town in its MIU program, which are based on salaries for Town employees.

The fair and affordable housing units built under the settlement agreement are sold or rented in accordance with a Fair Housing Marketing Plan designed to

¹ <http://www.clearinghouse.net/detail.php?id=11371>, accessed on January 2, 2013.

attract potential households from a broad market area, without local preferences.

The County has developed a Model Ordinance for consideration by local Westchester municipalities as part of the housing settlement. Among other items, the Model Ordinance calls for a 10% affordable housing set aside in virtually all housing developments. The Town of North Castle has not adopted the Model Ordinance, but it is currently under consideration.

c) Westchester County Affordable Housing Allocation Plan

The Westchester County Affordable Housing Allocation Plan, created by the Westchester County Housing Opportunity Commission in 2005, analyzed the need for affordable housing and discussed specific allocations of affordable housing units per municipality for the period 2000-2015. This allocation was an update to the previous allocations that were made for the period of 1990 to 1999. Affordable housing is defined as “housing units the cost of which does not exceed 30% of household income and availability is limited to households with incomes of 80% or less of the County median income adjusted for family size.” The Allocation Plan stated a need for 10,768 affordable housing units in Westchester County and allocated 712 of those units in the Town of North Castle.²

The Housing Allocation Plan was only a policy statement, not a legal requirement and distinct from the Westchester County settlement. The Housing Allocation Plan was never adopted by Westchester County.

2. Potential Impacts

a) Proposed Affordable Housing

The Proposed Action includes a commitment to the development by the Applicant of fair and affordable housing units equal in number to 10% of the market-rate housing units at Brynwood.

² *Affordable Housing Allocation Plan 2000-2015*, Westchester County Housing Opportunity Commission, requirements in the Town Code. November 9, 2005.

There are two alternative approaches to meeting this commitment.

One alternative, Option A, is to include eight fair and affordable housing on the Site. The other alternative, Option B, is to develop nine fair and affordable housing at an off-site location.

On-site Housing--Option A

If the affordable housing is built on the Site, the eight units would be located in the "Fairway Residence" building that is proposed to the south of the Brynwood clubhouse. In Option A, the Fairway Residence units would be replaced with eight smaller, affordable units within the same building footprint.

As indicated on Table III.B-1, of the eight units, six would have two bedrooms, one would have three bedrooms and one would have four bedrooms, which reflects the bedroom distribution for the proposed market rate housing of the Project.

Although located on-site, renters of the fair and affordable housing would not be required to become members of the Brynwood Golf & Country Club, and they would not have use of the Club recreation facilities and other amenities.

Off-Site Housing-- Option B

With Option B, the total number of units, as shown on Table III.B-1, would be 97, with 88 market rate units on the Site and 9 units off-site.

The Applicant is currently exploring a variety of potential off-site locations and will continue to do so during the DEIS review process.

**Table III.B-1
Breakdown of Unit Types in Options A and B**

Option	Affordable Units				Market Rate Units				Total Units
	Total	2br	3br	4br	Total	2br	3br	4br	
Option A On-Site	8	6	1	1	80	55	20	5	88 On-site
Option B Off-Site	-	-	-	-	88	58	25	5	88 On-site
Option B Off-Site	9	7	1	1	-	-	-	-	9 Off-site

b) County Housing Settlement Agreement Compliance

The proposed fair and affordable housing would meet the requirements of the County housing settlement agreement. In accordance with the Model Ordinance promulgated under the settlement agreement, the fair and affordable units would have rents affordable to households with incomes at or below 60% of the County median income and for which the annual housing cost of the unit (rent plus any tenant paid utilities) does not exceed 33% of 60% of the Westchester County Area Median Income, adjusted for family size. The units would be marketed broadly and in accordance with the Westchester County Fair and Affordable Housing Affirmative Marketing Plan. There would be no local preferences.

The units would remain fair and affordable housing for a period of fifty years from the date of the initial certificate of occupancy for the Project. If built on the Site (i) the exterior design of the building will not distinguish the units from the market rate condominiums, and (ii) the units will be distributed among unit types (by bedrooms) in the same proportion as the market rate condominiums. If constructed on either the Site or off-site, the apartment sizes would meet or exceed the minimum requirements under the Model Ordinance, which are 750 square feet for a 2 bedroom unit, 1,000 square feet for a three bedroom unit, and 1,200 square feet for a 4 bedroom unit.

Applicants for fair and affordable units would, if eligible and if selected for occupancy, sign leases for a term of no more than two years. As long as a

resident remains eligible and has complied with the terms of the lease, the resident would be offered renewal leases for a term of no more than two years each. Renewal of a lease would be subject to the conditions of any federal, state or county provisions that may be imposed by the terms of any development funding agreements for the units or to the provisions of any future, applicable local law of the Town. If no such provisions are applicable and if a resident's annual gross income should subsequently exceed the maximum then allowable, then either:

(a) the resident would pay the greater of (i) the rent amount payable as set forth above, or (ii) 30% of the resident's monthly adjusted household income provided that the increased rent may not exceed the market rent in the development for units with the same number of bedrooms.

-OR-

(b): the resident would pay the greater of (i) the rent amount payable as set forth above, or (ii) 30% of the resident's monthly adjusted household income provided that the increased rent may not exceed the market rent in the development for units with the same number of bedrooms for a term of not more than one (1) year.

It is anticipated that the Town and the Applicant would meet with representatives of the County and the Federal Housing Monitor designated to oversee compliance with the settlement to review the proposed fair and affordable housing after this DEIS is accepted as complete by the Town Board pursuant to SEQRA.

c) Socio-economic Impacts

To the extent any potential impacts of 8 on-Site fair and affordable units are distinguishable from the impacts of the residential component of the Project as a whole (such as with respect to generation of schoolchildren, those impacts are specifically addressed in the other relevant sections of this DEIS. Because the location is not yet known, the potential impacts of off-site units are considered to be cumulative with the 88 market rate condominiums that would be developed on the Site, and are addressed below.

Table III.B-2 shows the population and school children generation impacts for the two options. As indicated, Option A with a total of 88 units would result in a

population of approximately 204 persons and 19-20 school age children. Option B would result in 227 persons and 22-23 school age children.

Table III.B-2
Demographic Projections Based on Rutgers Multipliers

Bedroom Type	Option A, Affordable On-Site			Option B, Affordable Off-Site		
	Number	Population	Public School Age Children	Number	Population	Public School Age Children
<i>Two Bedroom</i>						
Market Rate	55	103.4	2.75	58	109.04	2.9
Affordable	6	15.3	2.7	7	17.85	3.15
<i>Three Bedroom</i>						
Market Rate	20	57.62	6.86	25	72.62	9.31
Affordable	1	4.54	1.3	1	4.54	1.3
<i>Four Bedroom</i>						
Market Rate	5	18.35	4.35	5	18.35	4.35
Affordable	1	4.54	1.3	1	4.54	1.3
Totals	88	203.75	19.26	97	226.94	22.31

Source: All multipliers from Rutgers University, CUPR, Residential Demographic Multipliers (June 2006): New York

Note that the demographic projections for the market rate condominiums, presented in Table III.B-2, are based on the Rutgers University CUPR multipliers. As such, they do not reflect the Applicant's marketing plan for the proposed units, which will be specifically targeted to empty nester households with few, if any, school age children. See Section III.N (Socioeconomic/Fiscal Resources) of this DEIS for details. Based on those data, the developments under either Option A or Option B would result in fewer school age children, with five students from the 80 market rate units in Option A compared to 14 from the Rutgers multipliers, and six students from the 88 market rate units in Option B compared to 17 from the Rutgers multipliers.

Option B would generate additional property taxes for the Town, the School District and other taxing jurisdictions given the 8 additional market rate condominium units. The eight units would result in approximately \$24,000 in taxes per year, 67% of which would be provided to the Byram Hills School District. In the Applicant's opinion, it is unlikely that these eight units would generate any additional public school students.

d) Water, Sewer and Traffic Impacts

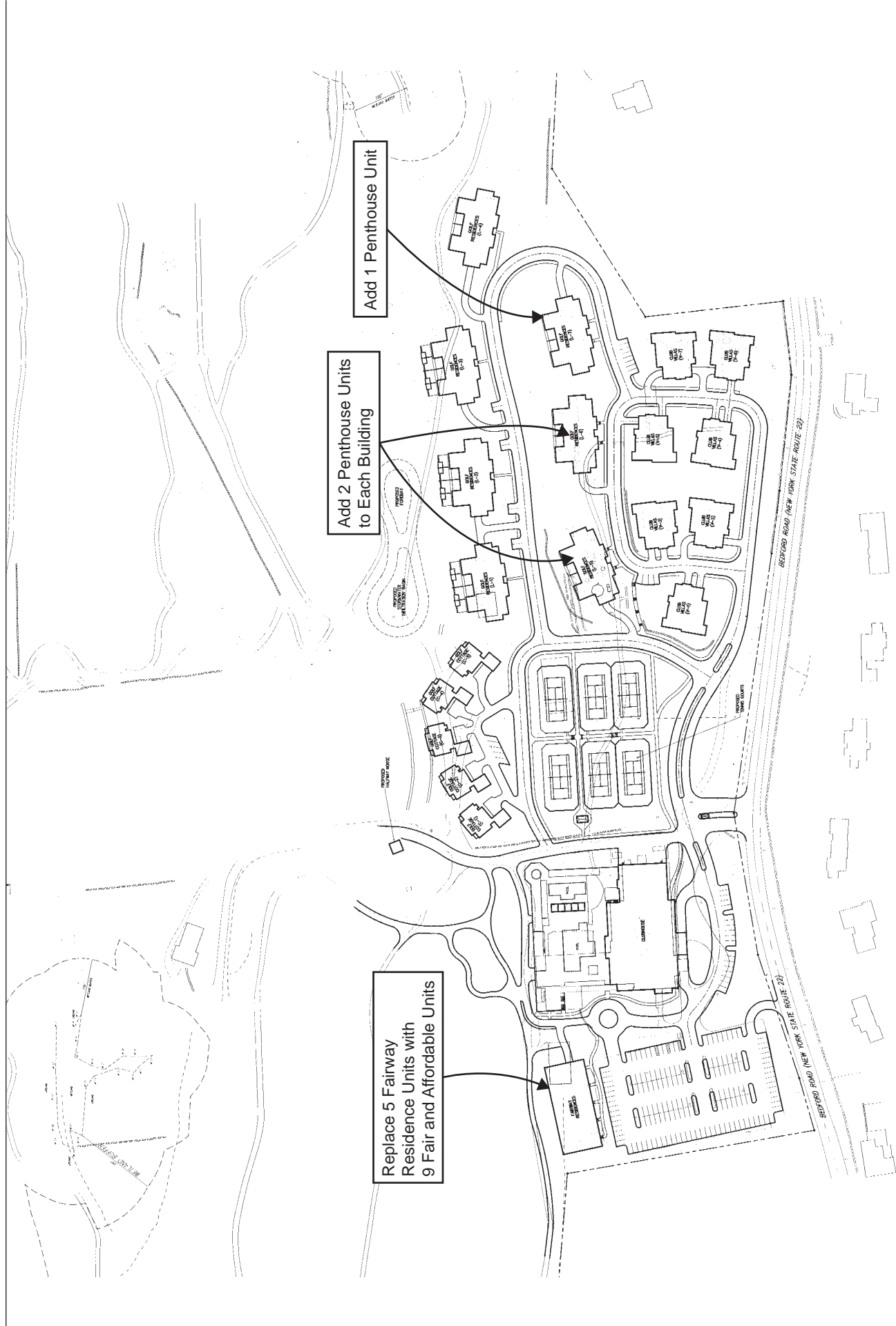
Table III.B-3 compares the difference between Option A and Option B in terms of water consumption, sewage effluent and traffic generation impacts.

Table III.B-3
Comparison of Impacts for Option A and Option B

	Residential Water Demand	Residential Wastewater Demand	Trip Generation (Peak)
Option A 88 Units On-Site	29,775 gpd	29,775 gpd	47 AM / 55 PM
Option B 88 Units On-Site	29,775 gpd	29,775 gpd	47 AM / 55 PM
Option B 9 Units Off-Site	2,975 gpd	2,975 gpd	5 AM / 6 PM
Subtotal Option B	32,750 gpd	32,750 gpd	52 AM / 61 PM

3. Mitigation

As mitigation, the Town Board could consider a modification in the bedroom distribution for the fair and affordable units. If the Town Board approves some one bedroom units in lieu of the three and four bedroom fair and affordable housing units, certain impacts would be reduced, given lesser demographic factors for the smaller units. Eliminating the three and four bedroom units, and making them one bedroom units, for example, could reduce the school children generation for the affordable units from 5-6 to 3-4 students. If the fair and affordable units are qualified and designated as eligible AFFH Units under the County settlement agreement, then federal Monitor approval might be required for a bedroom distribution that deviates from the requirement of the Model Ordinance.



Base Map Source: John Meyer Consulting, PC

BRYNWOOD

North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

On-Site Affordable Housing Plan
(97 Units)

Exhibit
III.B-1

C. Visual Resources and Community Character

1. Existing Conditions

On-Site Visual Character

The visual character of the Site varies due to its size and the variety of on-site land uses. Most of the Site has been developed as a golf course and country club and there are limited areas of contiguous woods. The Site is dominated by the 18-hole golf course, the clubhouse and supporting uses. The golf course, clubhouse and associated buildings are well maintained and landscaped and give the Site a club character within a natural setting.

The northern boundary of the property is characterized by a limited wooded area adjacent to larger wooded areas off-site and is contiguous with residential properties at Embassy Court and Ilana Court. The southern/eastern boundary varies in depth of wooded area and is adjacent to Coman Hill School, which is visible from the Site, and the Armonk Tennis Club.

Along Bedford Road, the Site has been developed with club facilities including 14 outdoor tennis courts, the approximately 65,000 sf clubhouse, the Site entry and access drives, and the clubhouse parking lot. The architecturally undistinguished clubhouse building is of a style popular in the mid-twentieth century for commercial buildings. In addition, the current entry to the clubhouse and view from Bedford Road leads directly to the service yard for the clubhouse and is not well maintained or buffered by landscaping. Of the 14 existing tennis courts, nine are useable while the remaining five are decaying.

See Exhibit III.C-1, Key Plan, and Photographs 1-22 for views of visual character of the Site and surrounding areas.

Views from Bedford Road

Bedford Road borders the Site's eastern edge running in a north/south direction. Bedford Road has existing stands of mature trees along either side of the roadway with the exception of a portion of the Coman Hill School frontage. Existing stone walls at varying heights, characteristic of the area, exist along Bedford Road including a portion of the Site. The majority of the landscaped areas along Bedford Road are well-maintained, though there are a significant number of trees that have suffered damage from the severe storms in 2011 and 2012. On the Site, along Bedford Road, there are a number of trees that have been damaged by storms. With the exception of damaged areas and except in winter, vegetation limits views from Bedford Road. Additionally,

many areas are populated with mature evergreens immediately adjacent to Bedford Road, which limit views from Bedford Road in all seasons.

Views to the clubhouse and tennis courts from Bedford Road are limited. Due to topography, the existing maintenance building, halfway houses, and golf course are not visible from Bedford Road (see Photographs 6, 7, and 15 through 22).

Views from I-684

Interstate 684 borders the Site's western edge. In the winter, several golf holes close to I-684 can be seen from the I-684 southbound and northbound lanes. The clubhouse cannot be seen from the highway. See Exhibit III.C-21 and Photograph 14, which shows the Site and its relationship to I-684.

Views from Ilana Court/Embassy Court

As a result of topography and vegetation, visibility of the Project Site is limited from the neighborhoods to the north. The Site is neither visible from the intersection of Ilana Court and Bedford Road nor from the cul-de-sac at Ilana Court looking south to the Site. The Site is neither visible from the intersection of Embassy Court and Bedford Road nor from the cul-de-sac at Embassy Court looking south to the Site (See Photographs 2, 3, 4).

Views from Residential Neighborhoods to South

As a result of topography and vegetation, visibility of the Project Site is limited from the neighborhoods to the south.

Views from Evergreen Row

Immediately across Bedford Road from the Site is the Armonk neighborhood known as Windmill Farms. Within Windmill Farms, Evergreen Row runs parallel to Bedford Road and residential lots on the western side of Evergreen Row back up to Bedford Road. The Site is not visible during summer months from Evergreen Row due to vegetation, including the existing landscape buffer along the east side of Bedford Road dominated by the namesake evergreens as well as the large number of existing evergreens in private backyards and high stone walls in this area. There is some visibility of the Site during the winter season. At the dead end terminus of North Lane west of Evergreen Row, there is a gate within the wall along Bedford Road where there is a break in the landscape buffer along the east side of Bedford Road. West of Evergreen Row, a single lot has access onto North Lane. From here there is no visibility of the Site with the exception of the winter season when there is limited visibility.



Visual Character of Surrounding Area

The surrounding area generally features a suburban residential pattern of development, including public/institutional and recreation uses and open space. Generally, the area has a suburban visual character, becoming denser with commercial and residential uses as one moves closer to the Armonk center area.

Bedford Road changes character as it moves through the area as well, transitioning between village centers at Armonk and Bedford through rural residential neighborhoods. Within the Project vicinity, Bedford Road has a residential character with multiple residential lots abutting the eastern and western sides of the roadway. On the western side of Bedford Road both Coman Hill School and the Brynwood Golf & Country Club are dominant uses and facilities with monument entries. The Windmill Farms neighborhood, Embassy Court, and Ilana Court are accessed from Bedford Road, and side and rear yard properties on Evergreen Row are immediately adjacent to, and visible from, Bedford Road.

Residential

In the vicinity of the Project Site, residential uses consist of single-family detached housing developments. Single-family residences in the vicinity of the Project Site were generally constructed either in the first half of the 20th century or within the last thirty years including homes within Windmill Farms. Homes surrounding the Site are generally located on larger building lots and are mostly one- and two-stories, are wood-framed and generally use traditional building materials and forms, though there are a number of houses in the surrounding neighborhoods that use more contemporary forms, window patterns, and building proportions.

Commercial

The only commercial use in the vicinity of the Site is a plant nursery located south of the Site on Bedford Road. The outside of the nursery is characterized with a variety of vegetation and flowers, plants, shrubs and trees for sale, and generally fits the character of the area.

Public/Institutional

There are limited public/institutional uses in the vicinity of the Project Site. To the south is the Coman Hill School, on a large parcel including a campus of one- and two-story buildings and athletic fields. The school parking lot and fields are adjacent to Bedford Road. Fronting Bedford Road, the school is predominantly a one-story, flat roof (parapet wall) building utilizing masonry as the primary façade material. Nearest the Site, the school is predominantly two-story, flat roof (parapet wall) building utilizing masonry as



the primary façade material.

Recreation/Open Space

In the vicinity of the Project Site, recreation and open space uses consist chiefly of the Armonk Tennis Club and Windmill Lake. Both are privately controlled with no or limited public access. There is a small public open space area located just south of the Site as well.

Views from the Site to Surrounding Areas

The main view from the clubhouse and several golf holes is to the west where distant hills dominate the view (see Photographs 9 and 10). The back and sides of Coman Hill School can be seen from the golf course and clubhouse parking lot (See Photographs 11 and 12). The roofs and high stone walls of the Windmill Farms neighborhood can be viewed from the existing tennis courts on the Site.

2. Potential Impacts

It is noted that the conclusions and opinions stated below are those of the Applicant.

On-Site

The proposed Project would consist of the renovated and improved club facilities and the 80 unit golf course community and 8 affordable units located on an approximately 14.7 acre portion of the Site, leaving 141 acres of maintained open space, including the golf course. Most of the proposed housing would be located in the northeast corner of the Site, on the plateau along Bedford Road, in the location of the existing tennis courts. This location takes advantage of previously developed areas, and minimizes impacts to steep slopes, wetlands and vegetation. The clubhouse would be renovated to include new pools, terraces, and exterior cladding. In addition, there would be six new tennis courts (all existing tennis courts would be demolished), terraced as one moves west toward the golf course to take advantage of the Site topography.

The visual character of the proposed Project would be different from the existing conditions. The Project would introduce a high quality residential use to the Site. Overall, the character of the Site would change from golf and country club to a residential golf course community and affiliated club improvements. The Applicant's intent is for the design of the clubhouse and residences to respond sensitively to the architectural traditions of the Town, County and region and to integrate contextually into the established landscape along Bedford Road.

Carefully set into the site's existing landscape, the residences are designed to incorporate the qualities of contemporary living that will take full advantage of the Site.

Employing varied massing and building composition, a rich palette of materials including stone, shingles, and wood, and a natural palette of colors, the clubhouse and residential buildings utilize the Arts & Crafts and Shingle styles distinct to the area to set the overall Project within the landscape.

Particular attention has been paid to the scale of the buildings and their relationship to Bedford Road and the adjacent neighborhoods. The interplay of roof lines and forms and massing reflect the scale of the surrounding homes. The building elevations have been designed to respond not just to the Site but to the context of the area and the architecture and landscape traditions that distinguish Armonk and the surrounding area. See Exhibits in Chapter II, Description of Proposed Action, including II-18 A through 18H. See also Exhibits III.C-3A and 3B (Cross Sections A through E).

Nestled within a classic New England forest setting, the Project will use the surrounding wooded context as a framework for the landscape design. The landscape concept for the Site would incorporate immediate screening where needed by means of evergreen shrubs and trees and include a longer term goal of strengthening the overall forest canopy through the addition of understory trees and replacement of unhealthy trees. Proposed landscape concepts for the Site are illustrated in Exhibits II-18A-G.

The existing country road aesthetic along Bedford Road would be maintained by supplementing existing healthy tree cover with mid- and under-story trees and evergreens where necessary, and utilizing the combination of a 6' tall informal, non-clipped evergreen hedge and a dry-stack (appearance) 3' tall stone wall as a feature along the property line, punctuated by the redesigned Site entrance which will replace hazardous, ailing trees with new native specimens. Layered screen plantings will be integrated between Bedford Road and the existing parking lot to provide a naturalistic visual buffer. New evergreen and flowering shrubs in addition to the existing trees behind the stone wall will provide screening of the proposed residential units. Landscape concepts for the entry and Bedford Road corridor are illustrated in Exhibits II-18B-C.

The residential landscape will utilize a regionally appropriate plant palette that allows for variety, layering, and multi-seasonal interest (see Exhibits II-18F and 18-G). Along the internal drives, the street trees will be scaled to complement residential building height and incorporate a regular pattern to unite the residential community.

The western portion of the Site would remain a golf course. Landscaping would be installed to buffer neighboring single-family residences north of the Site. In addition, existing landscape buffers around the club parking lot and along its Bedford Road frontage would be supplemented with new plantings including a mix of evergreens to reinforce the character of the area. Overall Planting Concept is included as Exhibit II-

18A and the Brynwood Entry is shown in Exhibit II-18B. See Also Exhibits II-18C, II-18-H for more description for proposed landscape conditions.

Compared to Surrounding Properties

In the vicinity of the Site, the existing development is predominately residential, consisting of generally 2-story single family residences, along with the Coman Hill School, and the Armonk Tennis Club.

While the proposed Project would add additional uses and buildings to the Site, the Applicant contends that it is compatible with the current pattern of development in the area and would preserve the overall visual character of the Site. In addition, the Project would be consistent and compatible with the existing and historic uses of the area and would create a cohesive site appearance evoking a distinct sense of place rooted in the history of Armonk and Westchester. Although the Project would result in some changes to the visual character of the Site, it is the Applicant's opinion that these changes would enhance the overall appearance of the Site, and contribute positively to the visual character of the area.

Views from Bedford Road

The Project would reinforce the dominant visual character of Bedford Road. In the Applicant's opinion, the view of the new attractively designed and landscaped residences and tennis courts and of the renovated clubhouse would be more aesthetically pleasing than the current view of the architecturally undistinguished clubhouse and overgrown tennis courts. Nevertheless, landscaping and reconstructed stone walls would be installed in proximity to the road to soften the visible impact and maintain a four season buffer. See Exhibit III.C-2, Key Plan, and Views 1 and 2, for photo simulations of proposed views from Bedford Road. For each view presented (View 1 and View 2), both leaf-off/winter and leaf-on/summer conditions are depicted.

Views from Coman Hill School

Views of the Site from the back of Coman Hill School and its field would continue to be of the golf course and clubhouse parking lot. The proposed Fairway Residences would also be seen from the school property.

Views from I-684

Views from I-684 would remain the same. The clubhouse and residential buildings would not be seen from I-684.

Views from Ilana Court/Embassy Court

As a result of topography and existing and proposed vegetation, visibility of the Site would be limited from the neighborhoods to the north. Cross Section D-D (exhibit IIIC-3B) runs south to north, through the Club Villas to the northern property line.

Views from Residential Neighborhoods to South

As a result of topography and existing and proposed vegetation and limited change to the golf course, visibility of the Site would remain limited from the neighborhoods to the south.

Views from Evergreen Row

The new residences would be visible from Evergreen Row. Buildings in proximity to Bedford Road would be 2 stories high, which is higher than the existing tennis court fencing. However, additional landscape elements including proposed site walls, hedges, and a mix of native tree species would be installed to soften any visible impact and maintain a four season buffer. As shown in Views 1 and 2, the existing view would be enhanced by new landscaping.

Additionally, Exhibit III.C-3, Cross-Sections, show the proposed buildings and landscaping and existing vegetation to remain from four points along Bedford Road. From south to north, Cross Section A-A shows a section through Route 22/Bedford Road at the Clubhouse; Cross Section B-B shows a section through the Tennis courts; Cross Section E-E shows a section through the Club Villas, and Cross Section C-C shows the golf residences, Golf Villas, Bedford Road, through to Windmill Farms neighborhood.

a) Photo Simulations

Photo simulations were prepared to determine the visibility of the proposed golf course community at two vantage points along Bedford Road. Exhibit III.C-2 includes a key map, and photo simulations at 2 different locations (views 1 and 2.) Views 1 and 2 illustrate views in both fall and winter from two locations along Bedford Road, from which the proposed development would only be visible indirectly through layers of landscape elements. The topography and vegetation east of Bedford Road would also buffer views of the proposed development. Spring and summer conditions of the proposed landscape design would limit visibility of the proposed development significantly. Cross sections in Exhibit III.C-3A and 3B also illustrate the relationship between the proposed structures and Bedford Road.



b) Construction Fencing

For each phase of construction, security fencing would be installed at construction entrances as needed. Construction fencing would also be installed at the limits of disturbance as required to prevent unauthorized entry to construction areas, prevent access to areas that could be hazardous to the public, to allow for use of the previously developed phases, and to protect existing facilities and adjacent properties from damage from construction operations. While the construction fencing may be visible within the Site, it would be temporary and removed prior to occupation. Due to the existing vegetation, the visibility would be limited from outside the Site.

Tree Protection

During construction, temporary fencing would be erected around existing trees proposed to remain. While the fencing would be visible along Bedford Road, it would be removed at the completion of construction. In addition, due to phasing of the construction, only portions of the Bedford Road frontage would require tree protection at any phase.

c) Water Storage Tank

New golf maintenance facilities, a sewage treatment plant, and a water storage tank would be located on-site as part of a compact service area within the golf course where an existing sewage treatment plant is currently located (See Exhibit II-14G). Due to topography, the designated area is not visible from outside the Site. Views of the facilities, from within the Site, would be screened by existing trees and a mix of evergreen plantings. In addition, the sewage treatment plant and a storage area would be built into the sloping grade and would not be visible from the golf hole immediately adjacent to it, as the landscape and green roof blend into the golf course environment. The 225,000 gallon water tank would be housed in an on-grade structure and would not be elevated. (See Exhibit III.C-4). As part of the service area mentioned above, the water storage tank would not be visible from outside the Site.

d) Site Lighting

In order to provide for the safety and security of the Brynwood residents, club members, invited guests and staff, exterior lighting will be provided at the entrance and exit driveways, along internal driveways and walkways, and within parking and recreational facility areas and tennis courts. All exterior lighting accessory to the proposed residential units, nonresidential uses, recreation facilities and tennis courts will 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, with the exception of the pro shop and maintenance area.

Exterior lighting will automatically illuminate at dusk and function until midnight. Between midnight and sunrise the exterior lighting will be reduced to an illumination level necessary to maintain nighttime safety and security, as well as to conserve electrical energy. Exterior architectural lighting will include decorative wall sconces at the residential buildings and clubhouse. Exterior lighting along the roadways, parking areas and pedestrian areas will consist of decorative pole mounted fixtures, mounted approximately 12 to 14 feet high.

A concept exterior site lighting plan, using current industry standard lamp ratings in accordance with Illumination Engineering Society of North America (IESNA) standards, has been prepared for the proposed project (Exhibit II-17, Preliminary Lighting Plan). The lighting plan design provides placement, screening and shielding of pole mounted light fixtures to contain significant illumination to within the Brynwood development area. As indicated on the lighting plan, there will be no light 'spillage' beyond the property line along the residential areas to the north. Lighting levels along the Route 22 right-of-way to the east will not exceed 0.5 foot candles at the property line, with the exception of the site driveway intersection.

Exterior landscape lighting such as 'up' lighting of trees and structures will be limited to focal trees and key architectural elements that have high visibility or importance, such as a tower feature at the clubhouse. Identification or monument sign lighting will typically be integrated with the sign and consist of down lighting or concealed back lighting. Small, low level landscape lights may be utilized, but will be concealed within the landscaping, shielded and aimed to avoid glare.

3. Mitigation Measures

The design of the Project would incorporate the essential qualities of area building traditions and maintain the visual character of Bedford Road. The area immediately adjacent to Bedford Road and existing landscape buffers around the club parking lot would be supplemented with new plantings including a mix of evergreens and stone walls and hedges to reinforce the character of the area and provide a visual buffer. Proposed landscape concepts for the Site are illustrated in Exhibits II-18A-G.

Topography and vegetation significantly limit views deep into the Site and from the north, west, and south. Landscaping would be installed to buffer neighboring single-family residences north of the Site. In the applicant's opinion, the Project is not expected to result in any significant adverse impacts to the visual character of the Site; therefore, no mitigation is required.





Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

Key Map

Exhibit
III.C-1



View from Coman Hill School looking west

1



View from Ilana Court looking south

2

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

Photographs 1-2

Exhibit
III.C-1



View from Embassy Court entry looking south

3



View from Embassy Court cul-de-sac looking south

4

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

Photographs 3-4

Exhibit
III.C-1



View from Evergreen Row looking west

5



View from existing entry looking west

6

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Photographs 5-6

Exhibit
III.C-1



View from existing tennis courts looking west

7



View from existing tennis courts to Embassy Court looking north

8

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

Photographs 7-8

Exhibit
III.C-1



View from existing driving range looking west

9



View from existing cart path looking west

10

Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

Photographs 9-10

Exhibit
III.C-1



View from existing cart path to Coman Hill School

11



View from existing parking lot to Coman Hill School

12

Source: Hart Howerton Partners, LTD.

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Photographs 11-12

Exhibit
III.C-1



View from Coman Hill School looking north

13



Oblique view from Interstate 684

14

Source: Hart Howerton Partners, LTD.

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Photographs 13-14

Exhibit
III.C-1



View from Bedford Road looking west to Club parking

15



View from Bedford Road looking west to Club parking

16

Source: Hart Howerton Partners, LTD.

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Photographs 15-16

Exhibit
III.C-1



View from Bedford Road looking west to Club

17



View from Bedford Road looking west to Club

18

Source: Hart Howerton Partners, LTD.

BRYNWOOD
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Photographs 17-18

Exhibit
III.C-1



View from Bedford Road looking west to Club entry

19



View from Bedford Road looking west to Club tennis

20

Source: Hart Howerton Partners, LTD.

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Photographs 19-20

Exhibit
III.C-1



View from Bedford Road looking west to Club tennis - lower courts

21



View from Bedford Road looking west to Club tennis - upper courts

22

Source: Hart Howerton Partners, LTD.

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Photographs 21-22

Exhibit
III.C-1

VHB Engineering, Surveying and Landscape Architecture, P.C.



Source: Hart Howerton Partners, LTD.

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VHB Engineering, Surveying and Landscape Architecture, P.C.

Key Map

Exhibit
III.C-2



Existing view of Route-22 (leafless) looking west



Photo simulation of proposed view (leafless)

Source: Hart Howerton Partners, LTD.

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View 1
(Leaf-Off)

Exhibit
III.C-2



Existing view of Route-22 looking west



Photo simulation of proposed view

Source: Hart Howerton Partners, LTD.

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View 1
(Leaf On)

Exhibit
III.C-2



Existing view of Route-22 (leafless) looking west



Photo simulation of proposed view (leafless)

Source: Hart Howerton Partners, LTD.

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View 2
(Leaf-Off)

Exhibit
III.C-2



Existing view of Route-22 looking west



Photo simulation of proposed view

Source: Hart Howerton Partners, LTD.

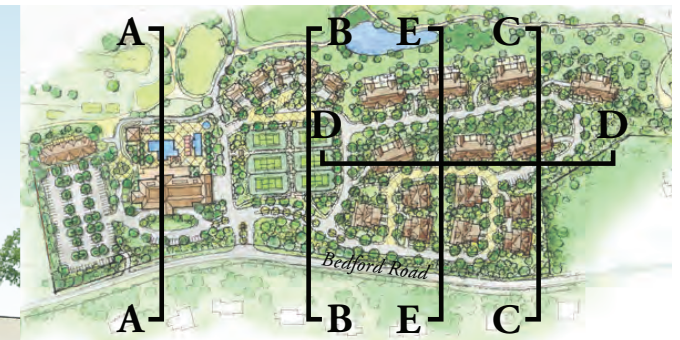
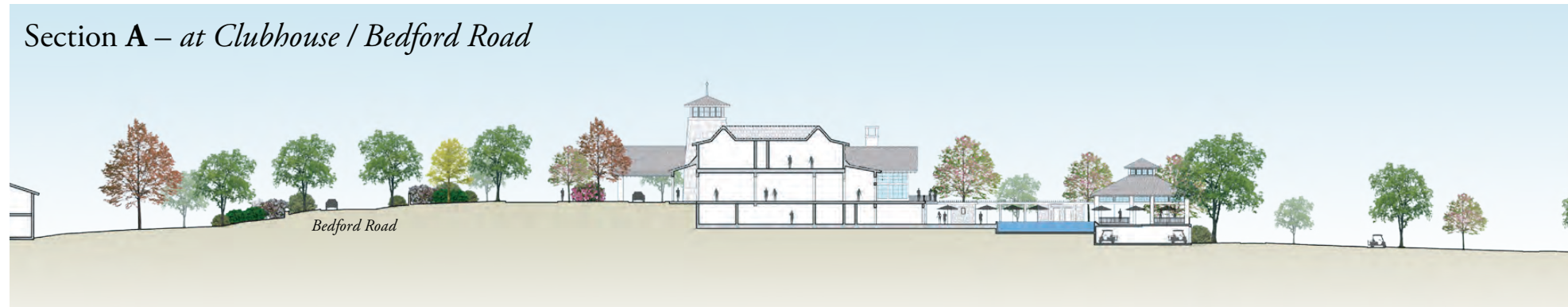
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View 2
(Leaf-On)

Exhibit
III.C-2

Section A – at Clubhouse / Bedford Road



Section B – at Tennis and Golf Cottages / Bedford Road / Windmill Farms



Section C – at Golf Residences / Villas / Bedford Road / Windmill Farms



Section E – at Golf Residences / Villas / Bedford Road / Windmill Farms



BRYNWOOD
GOLF & COUNTRY CLUB

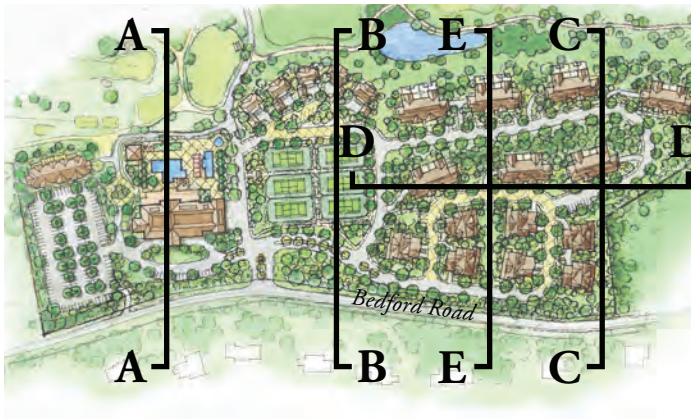
Source: Hart Howerton Partners, LTD.

BRYNWOOD
North Castle, New York

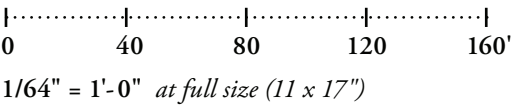
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Cross Sections A, B, C,E

Exhibit
III.C-3A



Section **D** – *at Club Villas*



Source: Hart Howerton Partners, LTD.

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D. Historic, Archaeological and Cultural Resources

1. Existing Conditions

Historical Perspectives, Inc. (HPI) has undertaken a Phase IA Archaeological and Historic Resources Investigation of the Project Site. See Appendix G for a copy of the complete report. The scope of the report is based on both New York State requirements (SEQR Handbook 2010; New York Archaeological Council 1994; NYSOPRHP 2005, 2010), as well as additional requirements set forth by the Town of North Castle in the DEIS Scope. The tasks for the Phase IA Archaeological and Historic Resources Investigation were:

- a. To identify any potential archaeological resources that might be present on the Site;
- b. To examine the construction history of the Site in order to estimate the probability that any such potential resources might have survived and remain on the Site undisturbed;
- c. To identify any previously recorded archaeological sites and surveys within one mile of the Project Site;
- d. To identify any historic or architectural resources on or substantially contiguous to the Project Site that have been listed, designated eligible, or may be eligible for the State and National Registers of Historic Places (S/NRHP);
- e. To identify any historic or architectural resources within one-half mile that are listed on the S/NRHP and within one-quarter mile that are locally designated historic resources; and
- f. To identify and map historic stone walls on the Project Site.

For the purpose of the report, the Archaeological Area of Potential Effect (APE) includes the Site as well as the area substantially contiguous to the Site.

The Site contains an 18-hole golf course, as well as a complex of buildings and other recreational facilities on the portion of the property fronting Bedford Road. There are nine structures on the Site, all of which post-date the acquisition of the property in 1963 and creation of the present golf course facility in 1964. None of the buildings have reached 50 years old, and none are architecturally significant.

There are no historic structures on, adjacent, or within one-half mile of the Site that have been listed or determined eligible for the State or National Register of Historic Places

(S/NRHP). The closest S/NRHP eligible or listed property is Smith's Tavern, at 440 Bedford Road, approximately one mile to the south of the Site. Additionally, there are no historic structures on, adjacent, or within one-quarter mile of the Site that are locally designated landmarks. The closest locally designated historic landmarks are the residential property at 481 Bedford Road, approximately one mile to the south of the Site, as well as Smith's Tavern, noted above.

The North Castle Historical Society is working on a historic resources survey, known as the Century Homes Designation, which will document historic structures one hundred years or older within the Town of North Castle boundaries. There are a number of resources that have been identified as part of this Town-wide, on-going survey that are within the Site vicinity, some within one-quarter mile of the project site. The survey may be completed in the next few years, although it is unknown at this point whether the survey will result in the creation of one or more official Town local historic districts (Shimer, personal communication 2013).

A historic Old Post Road mile marker (inscribed "39 Miles From New York") is located just north of the entrance to the Site, on the west shoulder of Bedford Road, surrounded by a stone and concrete structure colloquially known as a "dog house" (see Photograph 20 in Appendix G and Exhibit III.D-1, Precontact and Historic Period Sensitivity Areas).

Archeological Surveys

Records from the New York State Office of Parks, Recreation and Historic Places (OPRHP) and the New York State Museum (NYSM) identify 24 archaeological sites within a one mile radius of the Site, although it appears that several of the same sites are noted twice, with different numbers from the two offices. Below is a list of these sites and their descriptions.

Table III.D-1
Archaeological Sites Within a One Mile Radius of the Project Site

NYSOPRHP Site #/Name	NYSM #/Name	Site	Distance from APE	Time Period	Site Type
	5174	Finch's	Location is general, ca. 0.4 mile east	Unknown precontact	Rockshelter
	5173		Location is general, ca. 0.8 mile southeast	Unknown precontact	Rockshelter
	5170		Location is general, ca. 0.5 mile southwest	Unknown precontact	Rockshelter
	5167		Location is general, abutting project site at southeast end	Unknown precontact	Burial Ground
	5168		Location is general, ca. 0.3 mile southwest	Unknown precontact	Camp
	5169		Location is general, ca. 0.5 mile west	Unknown precontact	Rockshelter
	5165		Location is general, overlapping northwest end of project site	Unknown precontact	Village
	5166		Location is general, ca. 0.5 mile north	Unknown precontact	Camp
	8552		Location is general, ca. 0.1 mile northwest	Unknown precontact	Camp
11910.00007 Rockshelter III			Ca. 0.3 mile southwest	Unknown precontact	Rockshelter
11910.00055 Red Brook Glen Prehistoric Site #1			Abutting on south	Late Archaic	Camp
11910.00056 Red Brook Glen Prehistoric Site #2			Abutting on west	Middle-Late Woodland	Camp
11910.00006 Rockshelter II			Ca. 0.2 mile west	Unknown precontact	Rockshelter
11910.00004 Camp Site I			Ca. 0.2 mile southwest	Unknown precontact	Camp
11910.00003 Burial Ground Site			Ca. 0.1 mile west	Woodland	Burial ground
11910.00005 Rockshelter I			Ca. 0.2 mile west	Unknown precontact	Rockshelter
11910.00002 Village Site			Ca. 0.2 mile northwest, at the south end of Byram Lake	Unknown precontact	Village
11901.000297 Seven Springs Area 11, Locus 1			Ca. 0.9 mile northwest	Late Archaic	Camp
11901.000293 Seven Springs Area 8, W30S30			Ca. 0.9 mile northwest	Unknown precontact	Single quartz flake



NYSOPRHP Site #/Name	NYSM Site #/Name	Distance from APE	Time Period	Site Type
11901.000295 Seven Springs Area 10, Locus 1		Ca. 0.8 mile northwest	Unknown precontact	Lithic scatter
11901.000294 Seven Springs Area 8, W50S120		Ca. 0.8 mile northwest	Unknown precontact	Quartzite uniface
11901.000296 Seven Springs Area 10, Locus 2		Ca. 0.7 mile northwest	Unknown precontact	Camp
11901.000282 Seven Springs Area 1, Locus 1		Ca. 0.6 mile northwest	Unknown precontact	Quarry
11901.000298 Seven Springs Area 12, Locus 1		Ca. 0.6 mile northwest	Unknown precontact	Lithic scatter

There have been a number of pre-contact camps, rock shelters, and a burial ground reported along the Byram River immediately west and southwest of the Site, on both sides of Byram Lake Road and Interstate 684. Additionally, two precontact sites have been recorded along both sides of Red Brook Glen (a.k.a. Sniffen Brook), the tributary of the Byram River that runs immediately adjacent to the south and western sides of the Site. These sites were identified as part of the Red Brook Subdivision project (Weigand and Abraham 1996). Site 11910.00055, Red Brook Glen Prehistoric Site #1, was recorded abutting the Site property line on the south, on the north bank of Red Brook Glen, and Site 11910.00056, Red Brook Glen Prehistoric Site #2, was recorded on the west side of Red Brook Glen, approximately 100 feet west of the Site property line. Site 11910.00055, Red Brook Glen Prehistoric Site #1, was determined through Phase I and II archaeological investigations to be a single-component Late Archaic camp site or hunting station, and eligible for the S/NRHP. The site measures approximately 1,500 square meters, and was preserved through avoidance. Site 11910.00056, Red Brook Glen Prehistoric Site #2, was determined not eligible for the S/NRHP (Weigand and Abraham 1996).

Several additional archaeological survey reports for projects within a one-mile radius of the Site also were reviewed at the OPRHP, including for two other subdivisions west of Interstate 684 and the Byram River, the Leisure Farm Subdivision (Sheffield Archaeological Consultants 1994), the Benjamin Wall Subdivision (Weigand 1996), and the Seven Springs Farm project development on the west side of Byram Lake (HPI 2000, 2003, 2004, 2005).



There are no formally listed or eligible S/NRHP properties within one-half mile of the Site, nor any locally landmarked properties within one-quarter mile of the Site. However, the surrounding neighborhood contains buildings and structures over 50 years in age, with some of these resources 100 years or older. The North Castle Landmarks Preservation Committee has provided information about a number of these properties within approximately one-quarter mile of the Site, which is listed in the table below. Locations are shown on Figure 26 in Appendix G and photographs are provided for these resources. Construction dates have been provided by the North Castle Landmarks Preservation Committee (Shimer 2013, Woodyard 2013) and through historic map research. While this list does not include all structures over 50 years old in the Site vicinity (for example, many of the Windmill Farms houses to the east of the Site were constructed in the mid-1950s), it does highlight some of the oldest properties in the area.

Table III.D-2
Architectural Resources in the Project Site Vicinity

Location on Figure 26	Address and name	Approximate year built	Visible from the project site?	Photograph number
1	Stone gate house, Windmill Road and Route 22	1950s	No	33
2	1 Spruce Hollow Road	1820	No	34
3	2 Upland Lane	1880s	Yes	35
4	18 Maple Way Paterno Administration house	1940s	No	36
5	8 Upland Lane circular ice house	Unknown	No	37
6	15 Evergreen Row Carpenter House	Ca. 1790	Yes	38
7	North Lane at Evergreen Row Carpenter-Forman cemetery	1740+	Parts may be visible	39
8	28 Evergreen Row	1880s	No	40
9	604 Bedford Road	1920s?	No	41
10	601 Bedford Road Byram Lake Country Club house stone ruins and former staff house	1906	No	42, 43
11	70 Old Byram Lake Road Stone Wheel Farm	1880s	No	44
12	63 Old Byram Lake Road Mill buildings?	Possibly 1880s	No	45, 46

As the table above shows, there are several properties on Upland Lane and Evergreen Row that are in the near vicinity of the project site. The substantial stone walls with gates that run along the border of the Windmill Farms neighborhood on the east side of Bedford Road are considered to be “substantially contiguous”, and the cemetery on

North Lane could also be considered substantially contiguous. The remaining structures are not visible from the Site.

2. Potential Impacts

a) Precontact Sensitivity

From what is known of precontact period settlement patterns in Westchester County, most habitation and processing sites are found in sheltered, elevated sites close to wetland features, major waterways, and with nearby sources of fresh water. In its natural condition, prior to the transformation of the Site from farm and woodland to golf courses, there were many parts of the property that would have met these criteria. Particularly, those locations nearest to Red Brook Glen on the south side of the property and the Byram River on the west side of the property would have had high precontact sensitivity. Other sections of the project site that had relatively level areas also may have been sensitive for hunting sites. However, the disturbance to the Site during the twentieth century has been vast – there were two separate golf courses located on the property from the 1920s-1930s, both of which appear to have gone through at least one reconfiguration each. And creation of the present Brynwood golf course necessitated even greater amounts of grading and filling to construct the much larger course encompassing the entire Site. Aerial photographs, (as shown in Appendix G), illustrate the incredible degree to which the original landform was manipulated during the mid-twentieth century. While golf courses often follow the original landscape, modification is unavoidable. Greens, tee boxes, and bunkers are almost always artificial. Although many water hazards may be natural in origin, they are usually channeled, ponded, and shaped for drainage control. The flow of play often requires the installation of fairways in roughly parallel positions, dictating changes in the natural landform. The installation of underground drainage pipes and the inevitable irrigation system also contribute to subsurface impacts.

With these known disturbances in mind, it is still possible that several discrete locations at the periphery of the existing golf course may retain precontact sensitivity. These areas are relatively level stretches along the southwestern sides of the Site, in proximity to Red Brook Glen and the Byram River and in locations within or just bordering the Site's wooded areas. Two precontact period archaeological sites were identified along these waterways during the mid-1990s, both just over the Brynwood property border, and it is possible, if disturbance is not too great, that additional portions of these or other precontact sites could be located on the project site in proximity to these sites. Figure 27 in Appendix G and Exhibit III.D-1 illustrates the limited locations where HPI concludes there is



potential precontact sensitivity. There are both golf course renovations/improvements planned along the edge of this wood line, overlapping the sensitive area, and a new well proposed within the wooded area noted as sensitive. A Phase 1B study is proposed for those areas and is being finalized and the complete results of the Phase 1B study will be presented and summarized in the FEIS.

b) Historical Period Sensitivity

Archival research has shown that there were historic farm complex structures along the Route 22 side of the project site from at least the 1850s through the 1920s. There appear to have been two clusters of structures, one in the approximate location of the present Brynwood club house, and the second in the approximate location of the area south of the tennis courts and north of the entry driveway. Based on the amount of construction that has occurred for the present clubhouse area, HPI concludes that the area south of the entry driveway where the clubhouse is situated no longer retains historic period archaeological sensitivity. However, the area north of the entry driveway, which currently contains a swing set and an open grassy lawn, was part of a former fairway, but otherwise was undeveloped. A soil boring completed as part of the recent geotechnical study (Appendix D) indicates no obvious fill in this area, although there may have been grading that has removed some soils. Unlike precontact resources, historic period archaeological resources are not as dependent on the preservation of the original landform, as they may have been deposited in deeper trash pits or shaft features, such as wells, privies, or cisterns that could still be present despite later disturbance. Thus, it is possible that remains from the historic farm complex that once was located here could survive despite the changes to the area, and as such HPI concludes that this section retains historic period sensitivity. This area is slated for new development as part of the Project. (See Exhibit III.D-1 for location).

The fieldwork for a Phase 1B archaeological testing program has recently been completed. The results of the Phase 1B testing program in the area identified as having historic period archaeological sensitivity revealed several archaeological features, notably a stone foundation and a buried drainage pipe, as well as some historic period artifacts. Based on these results, HPI recommended that Phase II archaeological evaluation be conducted in this location. The objective of Phase II testing is to obtain detailed data on the boundaries, age, function, integrity, and research significance of an individual site to determine its potential eligibility for the State and National Register of Historic Places. This Phase II evaluation is being undertaken (May 2013) and the results will be presented in the FEIS.



Additionally, the project survey and the site inspection revealed that there are approximately 4,020 linear feet of existing stone walls throughout the Site, as highlighted on Figures 2a-g of Appendix G and Exhibits III.D-1 and III.D-2, Potential Impacts to Stone Walls. Many of these stone walls represent former property lines or farming plots, while others may have been built as retaining walls in sloping sections of the property. Some of the stone walls clearly are more modern in origin, such as some of the ones lining the cart paths that likely were installed during construction of the golf course. However, the large majority of the stone walls appear to pre-date the golf course use of the property, which began in the 1920s. Although the walls at one time may have been of greater individual extent, at the present time the Site's remaining walls are fragmented. The dispersed nature of the walls throughout the property makes it difficult to avoid individual wall fragments with the design. As a result of the Proposed Action, it is estimated that approximately 1,900 linear feet of existing stone walls will be affected, including the golf course improvements and the residential development. Some of the existing walls to be removed are modern, having been installed in conjunction with the existing uses on the property. Many of these walls will be repaired or reconstructed.

c) Architectural Resources

Architectural resources to be considered for the present project include resources within the Site boundaries, as well as resources substantially contiguous to the Site. As noted above, there are nine structures on the project site, all of which post-date the acquisition of the property in 1963 and creation of the present golf course facility in 1964. None of the buildings have reached 50 years old, and none are architecturally significant.

Also, as noted above, there are no formally listed or eligible S/NRHP properties within one-half mile of the project site, nor any locally landmarked properties within one-quarter mile of the project site. However, there are several properties identified as part of this project that are situated on the east side of Bedford Road (with addresses on Upland Lane and Evergreen Row) and may be visible from the project site. The substantial stone wall with gates that runs along the border of the Windmill Farms development on the east side of Bedford Road is also visible from the Site, and the cemetery on North Lane may also be visible. All the remaining structures identified within the Site vicinity do not appear to be visible from the project site. None of these resources have been evaluated for S/NRHP eligibility, although many are under consideration for Town of North Castle local designation.



3. Mitigation Measures

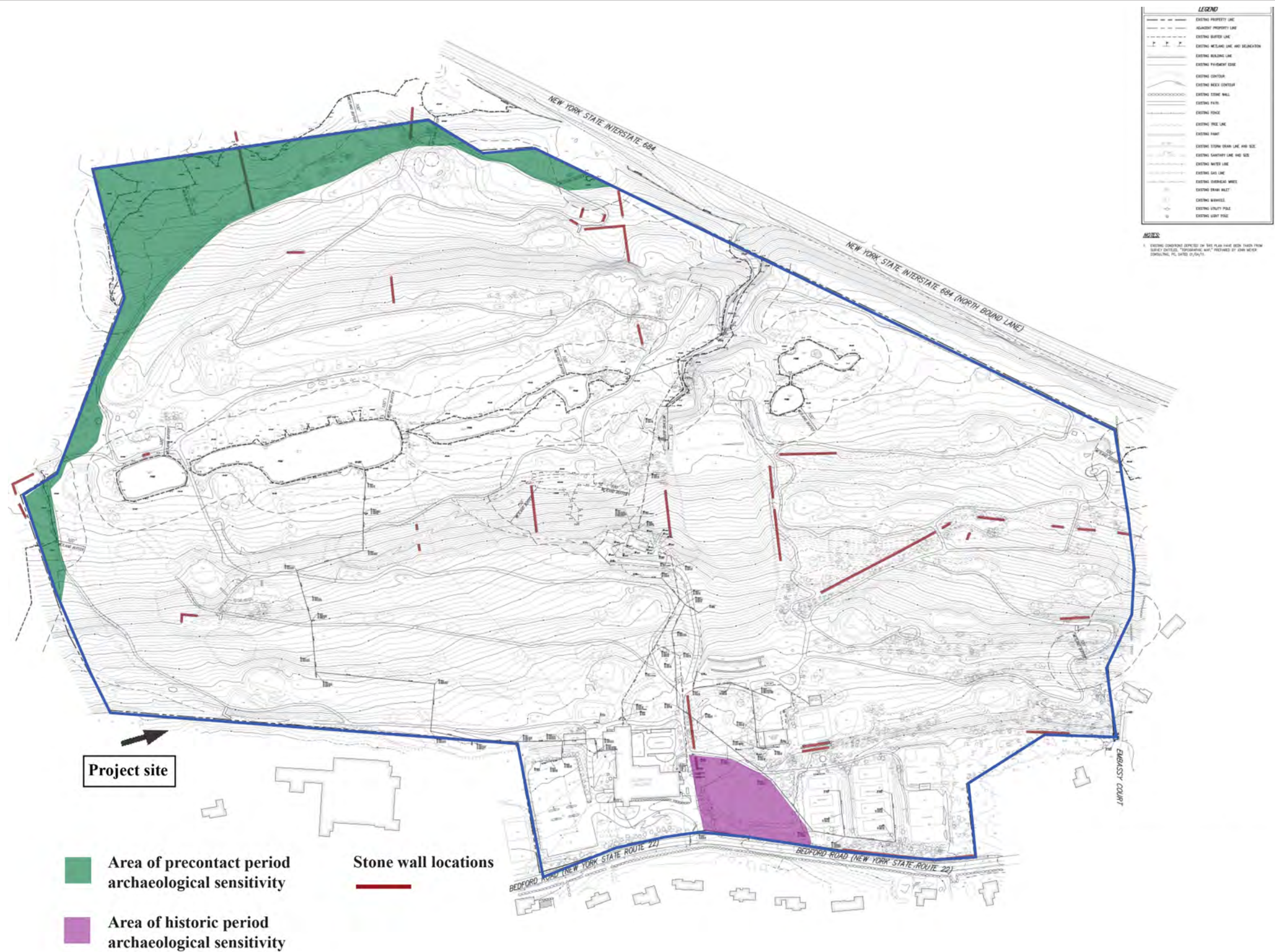
Due to the heightened precontact archaeological sensitivity at two discrete locations within the Site, a Phase IB archaeological testing program was undertaken in these areas prior to any construction of either new development or golf course improvements, including new well construction. In addition, Phase IB and Phase II evaluations are being conducted in an area of historical period sensitivity. The Phase IB testing consists of a systematic shovel testing program in all of the identified areas that are not obviously disturbed, as well as investigations of any recovered historical period features and will be implemented according to applicable archaeological standards (New York Archaeological Council 1994, NYSOPRHP 2005). As noted above, portions of the area noted as sensitive for precontact archaeological resources are slated for golf course renovations and improvements, and a new well is proposed within this area also. The area identified as sensitive for historic period archaeological resources is part of the new development area.

The completed Phase IB and Phase II reports will be provided and summarized in the FEIS.

Additionally, all stone walls on the project site will be preserved to the extent possible. While it is likely that approximately one half of the existing stonewalls may need to be removed or rebuilt to accommodate proposed development, whenever possible, these walls will be incorporated into the new design, and/or be stabilized if they are deteriorating, such as the stone walls located along the east side of the project site along the Bedford Road shoulder. The Old Post Road historic milestone marker located just north of the entrance to the Site on the west shoulder of Bedford Road will be preserved (the location of the mile marker is shown on Exhibit III.D-1). A construction management plan to protect this marker will be implemented prior to the initiation of site activities to protect against accidental damage during construction.

Last, there are several architectural resources that are visible from the project site on the east side of Bedford Road, which while presently not officially documented at the Town, State, or National level, nonetheless have historic value and should be considered as part of the impacts analyses. The proposed development along the Bedford Road portion of the Site will be appropriately set back and screened from view, so that there are no impact concerns for these resources (see Exhibit II-18A, Landscape Concept Plan).





Source: Historical Perspectives, Inc.

Figure 27: Overall project site topographical survey showing archaeological sensitivity and stone walls



Base Map Source: John Meyer Consulting, PC
 Source: Historical Perspectives

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Existing Stone Walls

Exhibit
III.D-2

E. Vegetation and Wildlife

1. Vegetation

a) Existing Conditions

Vegetation Cover Types

The Site has been divided into two general vegetation cover types: 1) the cultural areas associated with the clubhouse, tennis courts, maintenance facility and 2) golf course fairways, tees and greens and the second-growth hardwoods associated with areas that were not cleared initially for agriculture or for the past and present golf courses. These are generally steeper sloping areas that would practically preclude either golf course or agricultural activities.

Wetland communities are interspersed within these larger groups of upland vegetation. The largest of these wetlands is the pond system on the golf course. These man-made features are largely un-vegetated. Three watercourses are also found on the Site – one perennial and two intermittent. In addition, Sniffen Brook traverses the southwest border of the Site. Small portions of its associated riparian zone are found on the south-western property boundary.

Descriptions of the vegetation units identified are provided below. These unique assemblages were mapped on the Site topographic survey and are shown in Exhibit III.E-1. A list of the all plant species identified on-site is included at the end of this section. No threatened rare, or endangered species were identified during on-site investigations. The absence of any such species has been verified by consulting the NYS DEC Natural Heritage Program and the Town of North Castle Biodiversity Plan.

For a complete list of vegetation species identified on the Site, see Table III.E-3 Vegetation Diversity.

The Site has been historically used for both agriculture and most recently for recreational use as a golf course. The entire land area was cleared for agriculture around the time of the initial settlement of the region. Therefore, there are no old-growth, native forests on or adjacent to this Site. The Site was used for agriculture for most of the last two centuries and sometime in the 1930's the land was converted to recreational use with the construction of two golf courses. The 1947 aerial photograph shows that most of the Site was cleared at that time with the exception of the *Second Growth Hardwoods* – 80+



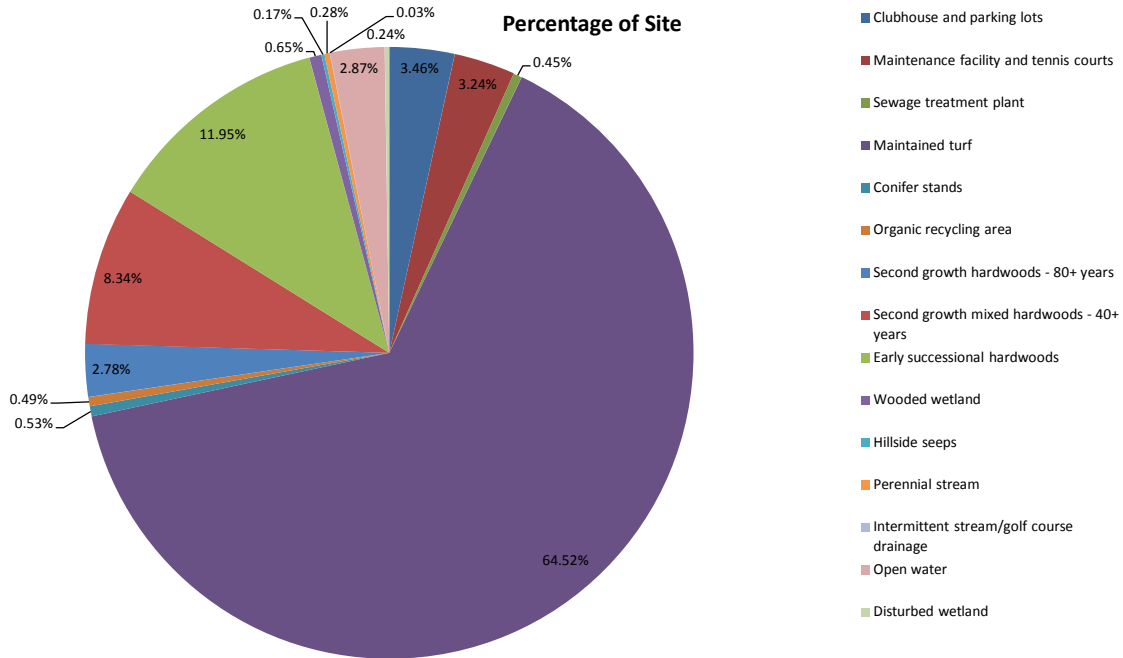
years. Most of the remaining forested vegetation now found on-site has become established since that time.

**Table III.E-1
Vegetation Type by Acreage**

Vegetation Type		Area In Acres	Percentage Of Site
UPLAND COMMUNITIES			
CULTURAL			
1A	Clubhouse and parking lots	5.41	3.46%
1B	Maintenance facility and tennis courts	5.07	3.24%
1C	Waste water treatment plant	0.71	0.45%
1D	Maintained turf fairways and greens, tees, rough, trees with fairways	100.85	64.52%
1E	Conifer stands	0.83	0.53%
1F	Organic recycling area	0.76	0.49%
TERRESTRIAL FORESTED			
2A	Second growth hardwoods - 80+ years	4.34	2.78%
2B	Second growth mixed hardwoods - 40+ years	13.04	8.34%
2C	Early successional hardwoods includes some invasive plant patches	18.68	11.95%
WETLAND COMMUNITIES			
(W1)	Wooded wetland	1.01	0.65%
(W2)	Hillside seeps	0.26	0.17%
(W3)	Perennial stream	0.44	0.28%
(W4)	Intermittent stream/golf course drainage	0.05	0.03%
(W5)	Open water	4.48	2.87%
(W6)	Disturbed wetland	0.37	0.24%
TOTAL		156.3	100.00%



VEGETATION TYPE BY ACREAGE



Upland Communities – Cultural

1A) Clubhouse and Parking Lot: The existing golf course, clubhouse, cart parking garage, pool and pool terrace, parking lot, driveway and cart paths and associated landscaping comprise this unit, measuring 5.41 acres. Virtually the entire area had been disturbed in association with the original clubhouse construction. Vegetation associated with this area includes masses of screening trees along Bedford Road and ornamental foundation plantings. Trees include sugar and Norway maple, eastern hemlock and white pine. Ornamental trees include crab apples and kousa dogwoods. Ornamental shrubs include rhododendrons and hydrangeas. Annual and perennial flowers are used in beds adjacent to the clubhouse entry and in the pool area. The majority of this unit is impervious surface interspersed with areas of planting and lawn. Species abundance, age and size vary considerably.

1B) Maintenance Facility and Tennis Courts: The existing maintenance building, maintenance building parking and storage area, tennis courts, tennis pavilion and cart paths and associated landscaping comprise this unit, measuring 5.07

acres. The vegetation is a combination of early successional hardwoods (age \pm 50 years) and ornamental trees. Trees include Norway and sugar maple, white pine, pitch pine and black locust. Sizes range from 14 to 22 inches dbh. Most of the trees are in poor condition due to successional status, prior storm damage, and/or disease. Vegetation is relatively sparse and those areas not paved are stabilized with mown lawn. The majority of this unit is impervious.

1C) Waste Water Treatment Plant: This is a small mapped unit, measuring less than an acre (0.71) that contains the existing waste water treatment plant and service driveway. Since this is a service building there is no ornamental landscaping. Consequently, the sparse vegetation is comprised of invasive and opportunistic plants subject to removal when they reach nuisance size. These include various goldenrods, mugwort, horseweed, grasses dandelions, knapweed, etc. Most of the unit is comprised of the waste water treatment plant and its service drive.

1D) Maintained Turf: Fairways, Green Tees, Rough, and Trees within Fairways: This unit, measuring 100.87 acres, comprises by far, the largest vegetation type found on the Site. Included are the 18 holes that comprise the golf course, the driving range, practice greens, cart paths and service roads. Each golf course fairway includes several tee boxes, the fairway, the rough (which may include two or more cuts) greens, and cart paths. The fairways, greens and tees are all irrigated and were planted initially with creeping bent grass and Kentucky blue grass (poa). Areas of fairways are maintained in different fashion with some of the greens and tees maintained daily. Fairway playing areas are also maintained frequently. Areas between fairways tees and greens are frequently populated with trees. In most instances the trees are remnants of previously forested areas or early successional hardwoods; few are planted. The origin of these trees explains the relatively high diversity. Size and species composition is highly variable but most trees range between 14 and 20 inches dbh with occasional larger specimens. Trees include black locust (dominant) black birch, red, sugar and Norway maple, black and red oak, weeping willow (planted), American elm, cottonwood and black cherry. Many of the early successional species are in severe decline. This is especially noticeable in the black locust population which is in severe senescence. Recent storm events have caused severe damage and uprooting to large numbers of locusts.

1E) Conifer Stands: Interspersed throughout the fairways, greens and tees on the property are a number of conifer stands, measuring less than an acre (0.83 acres) that were planted in association with the most recent manifestation of the golf course on the Site. These mostly mono-typic stands were planted to



serve several purposes: as aesthetic background, windbreaks, and to protect other golfers from play at adjacent holes. These conifers are largely white pines that are approximately 50 years in age and in relatively good condition. Occasionally, pitch pines and red cedars are also incorporated into these groupings. These trees are approximately 30 feet tall and there are relatively few, representing less than 1% of the total Site vegetation.

1F) Organic Recycling Area: This 0.76-acre area of the Site is dedicated to the stockpiling and recycling of organic debris generated from the operations of the property. Debris includes branches, brush, whole trees and other organic material. Because it is frequently used and disturbed, vegetation is sparse and limited to those species adaptable to harsh conditions. These plants would typically include pokeweed, horsetweed, mugwort, Canada thistle, raspberry and wineberry, poison ivy, etc.

Upland Communities – Terrestrial Forested

2A) Second Growth Hardwoods – 80+ Years: This area, measuring 4.34 acres, of mixed hardwoods is found in the southwest corner of the Site. This area represents the oldest trees on the Site but is definitely second-growth as evidenced by the stone walls (indications of earlier agricultural activities) that bisect the area. Earliest available aerial photographs show that the area was wooded in 1947 so it can be reliably dated to be at least 80+ years. This area has a well formed canopy demonstrating that the trees have reached maturity; there is little or no sorting of the tree population occurring. Trees range in size from saplings and seedlings to greater than 30 inches dbh, however dbh of approximately 20 to 26 inches is most common. Most of the larger trees are tulip poplars which tend to be rapid growing. Other trees include sugar and red maple, white red and black oak, shagbark hickory, black birch, black cherry, and American beech. Trees in these size ranges typically have stocking rates of from 50 to 75 stems per acre.

The understory is typically sparse, mostly due to light exclusion from the closed canopy. Understory species include saplings of the tolerant overstory species, spicebush, barberry, and euonymus. Forbs include Christmas fern, Pennsylvania sedge, white wood aster, Canada mayflower, false Solomon's seal and possibly New York fern.

2B) Second Growth Mixed Hardwoods – 40+ Years: Aerial photographs show that most of these 13.04 acres were cleared as late as 1947. However, these areas were allowed to become re-forested as they are today. The steeper slopes that underlie these trees are most logically the reason that they were

allowed to revert to forest, because the slopes were too steep to be used for golf fairways. Since they are early second-growth, species composition is highly variable and includes such diverse trees as black locust and ailanthus to the longer growth oaks and maples. Trees include sugar, red and occasional silver maple, red white and black oak, white ash, cottonwood, black birch, American elm, and shagbark and pignut hickory. Diameter distribution is highly variable and may include a few older trees with diameter in excess of 24 inches but more commonly sizes range from 12 to 20 inches dbh. Trees in this size class can range from stocking rates of 100 to 125 stems per acre. The understory can be highly diverse depending on light availability. Understory included sapling and seedlings, Japanese barberry, winged euonymus, blackberry and wineberry. Multiflora rose is prevalent along edges as is various vines and lianas including Oriental bittersweet, fox grape, poison ivy and Hall's honeysuckle.

Forbs and grasses are again highly variable but would include Pennsylvania sedge, goldenrod, white wood aster, and wild geranium. Garlic mustard, a short lived forb is prolific in the early growing season.

2C) Early Successional Hardwoods: Trees and plants have strategies for establishment and survival. After a disturbance event some sprout and grow rapidly to take advantage of available sunlight while others grow slower to be able to survive in lower light conditions. The majority of trees, shrubs and forbs in this 18.68 acre area all follow the former strategy. Since they are faster growing they tend to be shorter lived. Trees and shrubs of these types are typically referred to as pioneer species, with an approximate life span of 50 years.

Trees identified in this grouping tend to be diverse. Trees identified by relative abundance include black locust, black birch, ailanthus, white ash, Norway maple, cottonwood and weeping willow. Additional species include red and sugar maple, American beech, pignut and shagbark hickory, and an occasional American elm. The later trees tend to be smaller and less developed as they are the next wave of successional species behind the pioneer trees. Composition of these early successional hardwood areas tend to be highly variable. Because they are early successional species, tree diameter does not usually exceed 20 inches. Frequently, these trees are much smaller and are stunted by vines. The availability of light also frequently allows non-native invasive species to become established.

Shrub layer includes European privet, Tatarian honeysuckle, multiflora rose, blackberry, wineberry, winged euonymus, gray-stemmed, silky and red-osier dogwood, high bush blueberry, staghorn sumac buckthorn and thorn apple.



Forbs are common and very diverse and include non-native and native species including Canada thistle, horseweed, little bluestem, mugwort, goldenrod, asters, pokeweed, smartweed and hawkweed.

Vines include Porcelain berry, Oriental bittersweet, fox grape, Halls's honeysuckle, and poison ivy. Vines are so heavy in places as to completely obscure the underling tree and shrub layer.

Non-native invasive species are prevalent in this vegetation group. These include Japanese knotweed, Japanese stilt weed, common reed, (*Phragmites australis*), multiflora rose, Japanese barberry, European privet and Japanese Honeysuckle. These non-native plants are not desirable because of their ability to outcompete more desirable native plants. Native plants provide more habitat and food opportunities for native insects birds and mammals, enhancing ecosystem integrity.

Wetland Communities (and Watercourses)

In addition to supporting a number of upland community types, the Site supports several wetland community types. All of the wetlands on the Site have been impacted by past agricultural and cultural activities including golf course development in the 1920's and 30's and the development of the current course layout in the 1960's. Many of these activities would be regulated today, but were not when performed. For additional information and discussion of Wetlands on this Site, see Wetlands, Chapter III.H.

W1. Wooded Wetland

This wetland primarily occurs off-site in the southwest corner of the Site and is associated with the floodplain and riparian habitat associated with Sniffen Brook. Small fingers of this wetland enter onto the Site and include a seep area that supports an intermittent stream and a small area of hydric soils. While the off-site stream corridor supports diverse wetland vegetation, the on-site vegetation is sparse due to the limited area available. Vegetation observed consists largely of skunk cabbage and spicebush.

W2. Hillside Seep

This area is associated with the second growth mixed hardwoods area found in the central portion of the Site. Seeps are the result of water seeping along bedrock seams or along impervious soil layers coming to "daylight". This hillside seep is a natural feature

that was altered in the process of previous golf course construction causing a hydrological impoundment along the eastern border of the 17th fairway. Vegetation associated with the seep is sparse and consists largely of the seasonal plant skunk cabbage and an occasional spice bush. Vegetation associated with the disturbed impounded area is predominately *Phragmites australis* mixed with an occasional red-osier dogwood and shrub willow.

W3. Perennial Stream

This feature represents the only perennial stream on the Site and acts to convey the surface water runoff draining into the pond system. Water is conveyed from these surface water features through a steep rocky ravine and then to a culvert that conveys the water under Interstate 684. This stream is tributary to the Byram River. Vegetation associated with this stream is highly variable depending on location. To the east of the cart path on the new 15th fairway the vegetation is indicative of extensive past disturbance and includes Giant Reed Grass, Japanese knotweed, willows, red-osier dogwood, goldenrod, jewelweed, bedstraw, smartweed, and beggar tick. To the west of the existing cart bridge, the stream corridor is narrow and steep and deeply shaded. Consequently, the vegetation associated with this part of the stream is dominated by upland trees and shrubs. The perennial stream is also the discharge point for the Club's treated sewage effluent.

W4. Intermittent Stream/Golf Course Drainage

This is a narrow linear feature found along the northern portion of the Site. It was constructed to convey surface water runoff away from the golf course fairways and is an extension of a dry swale found between the 11th and 12th fairways. Total length of this feature on the Site is approximately 100 feet and width is two-six feet. Flow is contributed indirectly from surface water runoff and directly from a six inch pipe. This feature is generally dry during the growing season with the exception of immediately after a significant rainfall event. Vegetation is generally more indicative of a disturbed rather than wetland condition and consists of Giant Reed Grass, cattails, beggar tick, jewelweed, smartweed, goldenrod, purple loosestrife, multiflora rose, privet, etc.

W5. Open Water

The largest wetland type found on the Site are the series of five or six ponds located on the western portion of the Site. These ponds were constructed in the early 1960's as play features for the golf course and as source of water storage to irrigate the golf course fairways, greens and tees. The pond systems were constructed primarily as golf course hazards and there was no attempt at that time to address habitat or wetland concerns. Therefore, there is virtually no vegetation associated directly with the ponds beyond the turf grass around the pond edges.

W6. Disturbed Wetlands

There are two small areas of wetlands on the Site that were disturbed in conjunction with the construction of the golf course construction in the 1960s. These occur in the western and southern portion of the Site. The former is under 5,000 sq. ft. and has been filled to a depth of approximately six inches to one foot. Consequently, there is little vegetation associated with this area besides an occasional spicebush. The latter area is an area of cut where the overlying topsoil has been removed. In this area, vegetation has responded to the disturbance with mostly non-native invasive plants including, privet, multiflora rose, giant reed grass and catbriar.

Condition of Overstory Trees

The condition of the overstory trees is highly variable depending on location, successional status, origin and past land use history. Most of the trees located in the *Second Growth Hardwood – 80+ years* category are in relatively good condition. These trees are longer lived and therefore will remain viable for a longer period of time. Even those trees that may be in decline provide ecological services for cavity nesting birds and insect foragers.

Trees in the *Second Growth Mixed Hardwoods - 40+ years* category are more variable. While the majority of the trees are in relatively good condition, trees along the western and southern edge have been subject to extreme impacts due to growth of aggressive vines. In many instances these vines have reached the canopy effectively smothering the tree. In some instances the vines have actually girdled the tree causing mortality. In either instance, the net effect is poor tree health- regardless of size or species.



Trees in the *Early Successional* category are much more likely to be in poor health. This is due to the fact that these areas are about 60 years old and are already in substantial decline. These include virtually all the black locusts, cottonwoods and many of the black birches.

Special note should be given to two tree species that have been planted on the Site. After the 1936 hurricane, Norway Maples were extensively planted throughout Connecticut and south-eastern New York to re-vegetate the deforested area. Norway Maples are desirable since they are fast growing and have a dense, thick canopy. Unfortunately, they have the undesirable characteristic of being soft wooded and susceptible to insects, disease and frost cracking. The net result is that this species of tree is in severe decline. Norway maples have been identified as the number one tree species associated with power line damage during storm events. On the Site, Norway Maples are closely associated with the landscaped portion of the Site including significant plantings along Bedford Road. All of the trees examined showed significant damage including hollow stems and branches, broken crowns, bole splits and other life threatening conditions. These trees will have to be removed to protect the public health, welfare and safety.

Similarly, white pines have been extensively planted in landscaped environments – primarily as screening trees. White pines grown in the open differ significantly from their forest grown counterparts in that they grow rapidly. The difference in wood density significantly affects the wood strength and these open grown trees are extremely susceptible to wind damage. Consequently, consideration should be given to removing these trees where safety or property damage is of concern.

Location of Unique Trees on Subject Site that are not Regulated by the Town

The Site has been thoroughly investigated and mapped to determine individual species and vegetation groupings on the Site. No unique or unusual or otherwise “noteworthy” tree, shrub or herbaceous species were identified. There are no “unique” trees not regulated by the Town.

Tree Survey

In the Town of North Castle, certain tree removal activities are regulated. The DEIS scope required that a tree survey be undertaken of trees 8” dbh and greater in the estimated areas of disturbance. This tree survey also provides an inventory of the existing trees on the Site for use by the design team in planning the Project. It is important to note that only trees in areas likely to be disturbed for the proposed residential development and golf course renovation were

located (along with size and type) by the project surveyors (John Meyer Consulting, PC). See Exhibits III.E-2A through 2E.

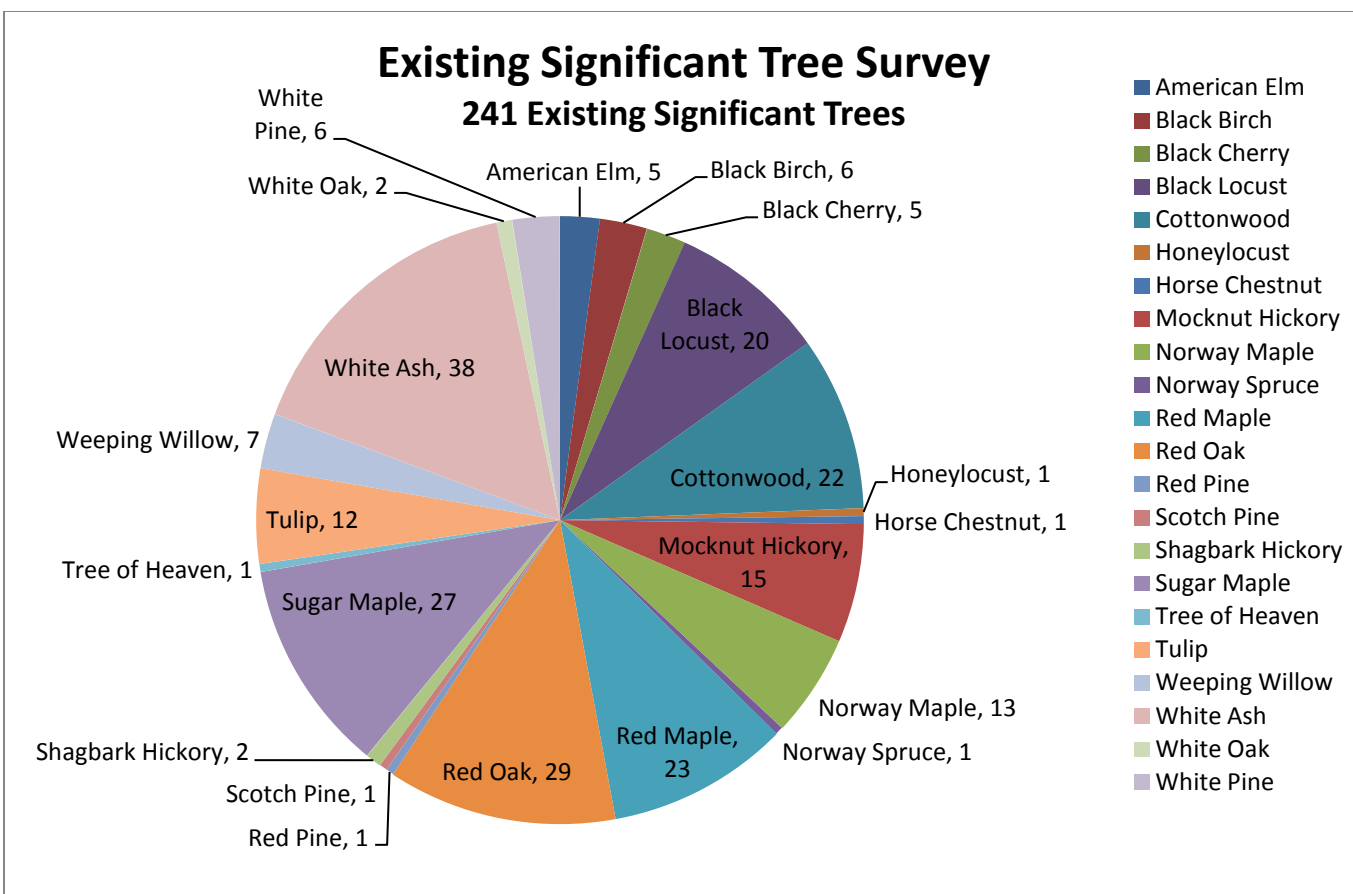
In addition, environmental scientists from Jay Fain & Associates visited the Site during the month of March 2013. Each significant tree (greater than 24 inches dbh) in the potential disturbance area was identified by species, measured using a standard dbh tape (English measurement units). These trees were evaluated for overall condition, health and vigor, structure and form and canopy position. Notes were recorded and a general recommendation for disposition was made on these trees, and all numbered trees were plotted on the project survey.

1,524 trees with dbh between 8 inches and 24 inches were located within the approximately 72 acres that will be potentially disturbed by the Project. This includes the trees located along interior construction routes (primarily existing driveways) and along Bedford Road within the area of disturbance. In addition, 223 significant trees (24 inches or greater) were identified within the potential disturbance area, for a total of 1,747 trees surveyed.

Data for these significant trees is presented in an overall list by number designated in the field (see table in Appendix H) and includes relevant data to health and vigor and disposition, as well as a list sorted by individual species. The species composition of the significant trees is included in the figure in Appendix H. Four species, white ash, cottonwood, black locust and Norway maple comprise 94 individuals or 42% of the significant trees inventoried. Individuals of each of these tree species are considered undesirable due to disease susceptibility, successional status and/or classification as a hazard tree.

Of the remaining 58% of the significant trees identified, the majority are comprised of five deciduous tree species: red oak, sugar maple, red maple, mockernut hickory, and yellow poplar – listed in order of relative abundance. See the following chart for the distribution of the significant trees inventoried by species type.

All significant trees inventoried are located in potential disturbance areas as exhibited on the Tree Survey (Exhibits III.E-2A-2E). All significant trees are classified as overstory trees and range in size from 24 inches to 48 inches, the most common size classes are between 24 and 30 inches dbh. There are 18 significant trees between 30 and 40 inches dbh and 10 significant trees between 40 and 44 inches dbh. Since there is not a strong relationship between size and age of most trees, it is difficult to assess age. However, based on aerial photographic interpretation, these trees are probably at least 50 to 90 years old.



b) Potential Impacts

The implementation of the Project will require the removal and modification of some of the overlying vegetation on a total of 73.9 acres (20.6 acres for the residential component, 53.3 acres for the golf course renovation). The following table quantifies the amount of disturbance area by vegetation community, based on the limit of disturbance line. The limit of disturbance line is provided on the grading plans (Exhibits II-16A and 16B), as well as Exhibit III.E-4, which illustrates the limit of disturbance on the Vegetative Communities, to illustrate potential impact areas).

**Table III.E-2
Vegetation and Wetland Area Disturbance**

Designated Vegetation & Wetland Areas	Total Area in Acres	Total Disturbed Area
Clubhouse & Parking Lots	5.41	5.03 acres
Maintenance Facility & Tennis Courts	5.07	5.07 acres
Waste water Treatment Plant	0.71	0.63 acres
Maintained Turf	100.85	52.85 acres
Conifer Stands	0.83	0
Organic Recycling Area	0.76	0.37 acres
Second growth hardwoods - 80+ years	4.34	0
Second growth mixed hardwoods - 40+ Years	13.04	2.85 acres
Early Successional Hardwoods	18.68	7.10 acres
Wooded Wetland	1.01	0
Hillside Seeps	0.26	0
Perennial Stream	0.44	0
Intermittent Stream / Golf Course Drainage	0.05	0
Open Water	4.48	4.48*
Disturbed Wetland	0.37	0
Total	156.3	73.9 acres

* Temporary disturbance for pond dredging.

The construction of the proposed residential community will require disturbance of ±20.6 acres, including portions of the clubhouse and parking lots, maintenance facility and tennis courts, maintained turf, and early successional hardwoods vegetation units. Virtually all of the vegetation in the first two areas will be removed for grading and building construction with the exception of some screening trees along Bedford Road and several specimen trees designated to be saved including some sugar maples, a black birch and red oak. Additional trees will also be removed for residential construction in the early successional hardwood areas, although tree removal in these areas is limited. Vegetation removal is also proposed in some of the maintained turf areas for the construction of residential units, roads, tennis courts and stormwater basins. Vegetation removal by cover type includes not just trees, but disturbance to herbaceous and shrub layers, if there are any existing in those communities.

Construction of the re-located maintenance facility and wastewater treatment plant disturb some areas of *Second Growth Hardwoods – 40+ years* and will include the removal of some specimen trees.



Regrading of portions of the golf course for renovation will require the disturbance of ± 53.3 acres of the Site and will require vegetation disturbance in most of the upland vegetated communities and several of the wetland communities. The *Second Growth Hardwoods – 80+ years* would not be affected. (See the Wetland Impact section below for descriptions for the impacts to wetland vegetation.)

Impacts in the *Second Growth Hardwoods – 40+ years* will be avoided where possible but will require the removal of approximately 2.8 acres for the expansion of proposed Hole 15.

The majority of vegetation disturbance will occur in the maintained turf areas and in the early successional hardwood areas.

Presence of Threatened, Rare and Endangered Plant Species

Plants identified on the Site are listed in Table III.E-4. This list of plants was cross-referenced with the *New York Natural Heritage Program Rare Plant Status Lists (Young et. al, 2010)*. No threatened, rare and/or endangered plant species were found on or immediately adjacent to the Site. This result is not unexpected given the long history of disturbance and use as a highly maintained and manicured recreational golf course.

Tree Permits/Tree Survey

In the Town of North Castle, the removal of “trees” is regulated under Chapter 192 of the Town Code: *Tree Preservation* (Local Law 4-2002). Under the provisions of this law a “tree” is defined as “any living woody plant which has a DBH of eight inches or more” and a “significant tree” is “twenty-four inches or greater DBH at 4 ½ feet”.

A permit is required to:

- Remove a tree within a property’s regulated setback or landscape buffer zone.
- Remove a significant tree.
- Remove any tree in wetlands, within clearing lines, or conservation easements.
- Clear/Thin
- Remove any street tree within the right-of-way.
- Remove, in any calendar year, more than 10 trees on any lot.

1,524 trees with dbh between 8 inches and 24 inches were located on the approximately 73.9 acres that will be potentially disturbed by the Project. Of those 1,524 trees, it is estimated that approximately 879 will be removed in connection with construction activities. See Exhibits II-16A and 16B, Preliminary Grading Plans, and Exhibits III.E-2A-2F, Tree Survey (with limits of disturbance) for trees estimated to remain and to be removed.

In addition, 241 significant trees (24 inches or greater) were identified in the 73.9 acres proposed to be disturbed. Data for these trees is presented in two formats in Appendix H. The first is an overall list by tag number designated in the field and includes relevant data to health and vigor and disposition. The second is a list sorted by individual species, including species composition of the significant trees. Four species, whiteash, cottonwood, black locust and Norway maple comprise 94 individuals or 42% of the significant trees inventoried. Individuals of each of these tree species are considered undesirable due to disease susceptibility, and/or classification as a hazard tree.

Of the 241 significant trees identified, 128 will be removed. Of these 128 removals, 68 trees are considered hazard trees because of their age, condition, health or species. A hazard tree has significant potential to endanger the public health, safety or welfare. Hazard trees include dead trees or those in severe decline, diseased trees, trees with hollow trunks, trees in open areas prone to wind throw or wind damage, etc.

Since the entire Site was not inventoried, the total number of “trees” (greater than 8 inches) and “significant trees” (greater than 24 inches) is not known. However, of the three forested vegetated units mapped on the site, 4.34 acres (100 percent) of the *Second Growth Mixed Hardwoods – 80+years* category is preserved; 10.19 acres (76 percent) of the *Second Growth Mixed Hardwoods – 40+years* category is preserved and 11.58 acres (62 percent) of the *Early Successional Hardwoods* category remains untouched. In total, 72 percent of the forested areas of the Site will remain undisturbed. Therefore, the vast majority of the trees on the Site, including significant trees, will be preserved.

Tree removal permits will be obtained from the Town for regulated tree removal activities.

Cumulative Loss of Vegetation

Construction of the residential community and renovation of the golf course will result in 73.9 acres proposed to be disturbed on Site. However, only approximately 6.6 acres of new impervious areas will be added to the site

(structures, driveways, etc.). The remainder of the site (96 percent) will either remain as existing vegetation or be re-vegetated.

Vegetation to Remain as a Result of Residential Construction

The majority of disturbance on the Site is proposed in the area of the existing clubhouse and parking lots and in the area of the existing maintenance facility and tennis courts. This disturbance is necessary to construct the proposed residential buildings, the pools and tennis courts, roads, driveways, and utilities, and for grading to accommodate these improvements. Clustering these improvements allows impacts to be reduced elsewhere on the Site but results in reduced flexibility to preserve existing trees and vegetation in the residential development area. Therefore, the majority of vegetation in this area will be cleared to accommodate the construction. Additional trees are also proposed to be removed because they are hazard trees or otherwise in poor health, and thus present a health and safety risk to the community.

Some trees will be preserved where there is no Site disturbance. This includes the preservation of a significant number of deciduous trees along the northern, western and eastern property lines adjacent to the residential development. Most of these trees are smaller than 20 inches and include red and sugar maples, hickories, black birches and oaks. A number of existing conifers will also be preserved.

Unique or Specimen Trees to be Preserved in the Residential Development Area

Of the 128 trees 24" dbh or greater, 43 significant trees are located in the general area of the proposed residential and clubhouse improvements. Significant trees as defined in the Town of North Castle Tree Ordinance are trees 24 inches or greater dbh at 4 ½ feet. Of these 43 trees, 33 trees are proposed to be removed to accommodate the proposed residential buildings, roads, drives and walks, underground utilities, storm water basins, and ancillary grading. A list of these significant trees in the residential development area, their overall health and reason for removal is provided in the table below.

Table III.E-3
Significant Trees in Area of Proposed Residential Development

Tag #	DBH (inches)	Common Name	Scientific Name	Condition	Removal/Save	Reason
1	26	White Ash	Fraxinus americana	Poor	Save	
2	28	Red Maple	Acer rubrum	Fair	Save	
3	28	Honeylocust	Gleditsia triacanthos	Excellent	Remove	Parking Lot
4	40	Norway Maple	Acer platanoides	Poor	Remove	Diseased
5	28	Norway Maple	Acer platanoides	Poor	Remove	Diseased
6	36	Horse Chestnut	Aesculus hippocastanum	Poor	Remove	Diseased
7	40	Norway Maple	Acer platanoides	Poor	Remove	Diseased
8	26	Norway Maple	Acer platanoides	Poor	Remove	Diseased
9	26	Norway Maple	Acer platanoides	Poor	Remove	Diseased
10	48	Sugar Maple	Acer saccharum	Fair	Remove	Diseased
11	38	Norway Maple	Acer platanoides	Poor	Remove	Diseased
12	42	Norway Maple	Acer platanoides	Poor	Remove	Diseased/Road
13	28	White Ash	Fraxinus americana	Dead	Remove	Diseased/Road
14	26	Mockernut Hickory	Carya glabra	Fair	Remove	Building
15	26	White Ash	Fraxinus americana	Poor	Remove	Road
16	24	White Ash	Fraxinus americana	Poor	Remove	Tennis Court
17	28	Norway Maple	Acer platanoides	Fair	Remove	Road
18	28	Sugar Maple	Acer saccharum	Fair	Save	
19	26	Norway Maple	Acer platanoides	Fair	Remove	
20	24	Mockernut Hickory	Carya glabra	Fair	Remove	Building/Grading
21	28	Black Locust	Robinia pseudoacacia	Poor	Remove	Building
22	28	Black Locust	Robinia pseudoacacia	Poor	Remove	Building
23	32	Black Locust	Robinia pseudoacacia	Poor	Remove	Building
24	26	Mockernut Hickory	Carya glabra	Fair	Remove	Building/Grading
25	24	Sugar Maple	Acer saccharum	Good	Save	
26	28	Tree of Heaven	Ailanthus altissima	Fair	Remove	Safety
27	24	Sugar Maple	Acer saccharum	Good	Save	
28	24	Sugar Maple	Acer saccharum	Fair	Save	
29	30	Sugar Maple	Acer saccharum	Fair	Save	
58	24	Black Cherry	Prunus serotina	Poor	Remove	Basin
59	28	Black Locust	Robinia pseudoacacia	Fair	Remove	Grading
60	30	Black Locust	Robinia pseudoacacia	Fair	Remove	Building/Grading
61	26	Black Locust	Robinia pseudoacacia	Fair	Remove	Biofilter
62	36	Red Maple	Acer rubrum	Fair	Remove	Basin
63	24	Mockernut Hickory	Carya glabra	Fair	Remove	Grading
64	26	MockernutHickory	Carya glabra	Fair	Remove	Cart Path
65	26	White Ash	Fraxinus americana	Poor	Remove	
66	28	White Ash	Fraxinus americana	Poor	Remove	
67	28	Black Birch	Betula lenta	Good	Save	
112	26	Mockernut Hickory	Carya glabra	Fair	Save	
113	30	White Ash	Fraxinus americana	Dead	Remove	Building/Grading
114	26	Mockernut Hickory	Carya glabra	Good	Remove	Grading
116	26	Mockernut Hickory	Carya glabra	Good	Remove	Grading



Of the 33 significant trees to be removed in this area, 28 trees were evaluated during the Tree Survey by Jay Fain & Associates to be in poor to fair condition and have some kind of obvious defect (disease, broken tops and branches, rot, splits, etc.) that presents a clear risk to the public health and safety and are recommended for removal.

The six trees in good health to be removed include:

- Tree tag #3, a 28-inch honey locust to be removed to accommodate the entrance and parking.
- Tree tag #24, a 26-inch mockernut hickory to be removed to accommodate a residential building and related grading.
- Tree tags #63 and #64, 24- and 26-inch mockernut hickories to be removed to accommodate grading.
- Tree tags #114 and #116, two 26 inch mockernut hickories proposed to be removed to accommodate grading.

A total of 9 significant trees will be preserved in the proposed residential development area:

- Tree tag #1, a 26-inch white ash is located along the southern frontage of Bedford Road.
- Tree tag #2 is a 28-inch red maple located in the same vicinity as tree #1.
- Tree tag #18 is a 28-inch sugar maple located along an existing stone wall in the interior of the proposed residential development.
- Tree tag #25 is a 24-inch sugar maple located immediately along the northern frontage of Bedford Road.
- Tree tag #27 is a 24-inch sugar maple located immediately along the northern frontage of Bedford Road.
- Tree tag #28 is a 24-inch sugar maple located immediately along the northern frontage of Bedford Road.
- Tree tag #29 is a 30-inch sugar maple located immediately along the northern frontage of Bedford Road.
- Tree tag #67 is a 28-inch black birch located approximately 150 west of proposed Golf Residence building L-4 and in an area not to be disturbed.
- Tree tag #112 is a 26-inch mockernut hickory located on the slope east of proposed Golf Residence Building L-6 in an area not to be disturbed.

All trees to be preserved will be identified on the project plans and appropriately protected prior to the start of construction. Tree protection will be maintained throughout the duration of construction.

Only one significant tree to be preserved, (tree tag # 18, 28-inch sugar maple) is located in the vicinity of any proposed construction road or access. This tree is located immediately adjacent to an existing asphalt drive which will be maintained during the initial phase of construction. Tree protection will be provided. Therefore, it is not anticipated that there will be any adverse impact to this tree from construction traffic during construction.

Increased Erosion Potential

When vegetation is removed during construction, the exposed earth will be susceptible to erosion and subsequent sedimentation. The impact of this to vegetation would be short term, as all areas stripped of vegetation during construction will be immediately re-vegetated post construction. In the short-term, these impacts will be mitigated by the implementation of the sediment and erosion control plan (see Chapter III.F., Geology and Soils and Exhibit III.F-4). Long-term, any area where vegetation is removed and earth is disturbed will be replanted with an appropriate vegetative cover, turf grass, fescue mix, or re-forested.

In the process of developing the Site, the area of development can become susceptible to erosion with the removal of the protective layer of overlying vegetation. Erosion, the removal of soil, water, wind or gravity, is caused by raindrops striking the bare surface of the soil and dislodging soil particles which are then transported by surface runoff. Scouring of the exposed soil by concentrated runoff causes rivulets and then gullies to be opened on the land surface if runoff is allowed to continue downslope without the implementation of adequate erosion and sediment controls.

The deposition of sediment occurs when the rate of surface flow is insufficient for the transport of the particles. Heavier particles, such as sand and gravel, settle more rapidly than the lighter silt and clay particles. Previously deposited sediment may be suspended by runoff from a subsequent storm event and transported down the watershed. In this way, sediment is relocated intermittently from its original point of origin.

If not properly controlled, erosion can impact the overlying vegetation by the physical removal of the soil substrate thus displacing the vegetation. Subsequently, sedimentation can alter and impact the underlying vegetation by preventing the flow of oxygen into the plant root systems. Erosion and

sedimentation have their greatest impact to aquatic systems where the presence of excess turbidity can smother aquatic plant life.

Potential Loss of Water Retention Capabilities of Soil

With the exception of additional impervious area for the residential community footprint, new road surfaces, cart paths, and new maintenance facility, the majority of the Site will remain vegetated either as turf grass, ornamental plantings or as forest. The water retention capacity of soils covered by impervious surfaces will be mostly lost but will be compensated by a stormwater management plan.

Forested areas converted to turfgrass will continue to have moisture retention capabilities once re-vegetated. Areas temporarily denuded of vegetation will lose some moisture retention capacity and may exhibit increased runoff. However, since exposed earth will be limited (as described in the SWPPP in Appendix F), the impact from this activity as a total percentage of site moisture retention capacity is anticipated to be negligible.

Change to Wetland Vegetation Composition

Generally, impacts to wetlands have been avoided to the maximum extent practicable. However, some vegetation composition will change as a result of 1) wetland restoration and creation, and 2) clearing of upland vegetation for play over areas. Wetland restoration and creation is proposed within and adjacent to the existing pond system (wetland community W5). This will consist of creating shallow shelves to be planted with emergent and wetland fringe vegetation. Wetland creation/enhancement in this area is proposed to improve water quality, create wildlife habitat, enhance storage capacity and improve the pond aesthetics.

Wetland enhancement is also proposed in wetlands W2 and W3. In these areas, stands of non-native plants have become established, specifically giant reed grass and Japanese knotweed. These are extremely aggressive plants and should be removed to prevent their expansion in geographical area. Areas of removed vegetation will be planted with appropriate native wetland shrubs and forbs.

A small number of upland trees is also proposed to be removed to create a play over area for golf hole 15. This is to the west of the existing cart path for a distance of approximately 150 feet. Approximately 6 trees will be removed and the area replanted with low growing trees and shrubs.



Impacts of Construction Traffic

Existing significant trees to remain have been identified and are shown on the Preliminary Grading Plans (Exhibits II-16A and 16B). These trees will be identified to the contractors prior to construction and protected from impact with tree armour and protected from root compaction by ringing the perimeter with construction fence. By providing these measures adequately, there should be no impact to trees from construction traffic traversing, accessing or leaving the Site.

c) Mitigation Measures

The Site has been historically used for both agriculture and most recently for recreational use as a golf course. The entire land area was cleared for agriculture around the time of the initial settlement of the region. Therefore, there are no old-growth, native forests on or adjacent to this Site. The Site was used for agriculture for most of the last two centuries and sometime in the 1930's the land was converted to recreational use with the construction of two golf courses. A 1947 aerial photograph shows that most of the Site was cleared at that time with the exception of the *Second Growth Hardwoods – 80+ years*. Most of the forested vegetation now found on-site has become established since that time. The proposed Project has been designed to re-use existing developed areas (tennis courts), already cleared areas, or areas of early successional second growth trees wherever practicable.

The clubhouse, pool and parking lot coincide closely with the existing facilities. The proposed residential community will be built on the location of the existing tennis courts, tennis pavilion, and maintenance facility or an existing fairway.

The proposed golf course renovation has been designed to utilize the existing fairways wherever possible. However, some additional clearing will be necessary to re-route portions of the golf course. Most of the golf course expansion in wooded areas is slated for the early successional hardwood forest. These are areas that were cleared for the golf courses in the 1930's but were allowed to re-vegetate and include areas on the edge of the property boundaries and areas between existing fairways. To allow for the expansion for the Hole 15, portions of the *Second Growth Hardwoods – 40+ years* will be cleared. This is an area of approximately 1.0 acre and would include about 75 trees.

Additional clearing in the *Second Growth Hardwoods – 40+ years* is also proposed for the golf course maintenance facility, which will consolidate all of the service functions into one location, including the new wastewater treatment



plant and equipment storage. This consolidation limits disturbance elsewhere by requiring one service road and eliminates the need to perform additional clearing in multiple locations for multiple facilities.

Generally, the renovated golf course is closely aligned with the existing golf course routing and is designed to reduce disturbance and vegetation removal.

Establishment of Clearing Limit Lines

The Preliminary Grading Plan for the Project incorporates Clearing Limit Lines to delineate site disturbance areas. Prior to disturbance all Clearing Limit Lines will be marked in the field by the project surveyor. Clearing Limit Lines will be physically marked by an erosion control fence or construction fence as appropriate. Compliance will be checked on a twice weekly basis by qualified inspector. It is also anticipated that the Town will perform periodic site inspection to ensure compliance with the approved site plan.

Schematic Landscape Plan and Buffer Screening

The landscape concept plan (see Exhibit II-18A) was designed to perform several functions. In the area of the clubhouse, the primary purpose of the landscape plan will be to provide an aesthetically pleasing setting for members and their guests. Trees, shrubs, perennials and annuals will provide a backdrop to buildings, provide textures and shadows and to provide color throughout the four seasons. The existing evergreen and deciduous buffers along Bedford Road will be maintained to the extent practical and enhanced to provide a visual buffer to the road. (See Chapter III.C, Visual Resources.)

Landscapes in the proposed residential community have been designed to provide a bucolic setting consistent with the upscale golf course and residential community and to provide visual buffers. The landscape buffers are of two types: perimeter buffers which will be incorporated along Bedford Road and existing neighboring residential units to provide privacy between new on-site residential units and facilities such as tennis courts roads, paths etc. (See also Chapter II, Description of Proposed Action, and Exhibits II-18A-18H.)

Landscape in the vicinity of the proposed maintenance facility is primarily to screen it from view from residential areas and the golf course. While existing trees and vegetation will be used on the south and west sides, it is anticipated that an evergreen buffer will be planted along the northern and eastern periphery, as necessary to screen neighboring properties.

Landscaping associated with the renovation of the existing golf course will serve multiple purposes. While it will not be possible to replace in number those trees removed during construction, trees and shrubs will be replaced to enhance the golfing experience, provide soil stabilization and enhance wildlife habitat by providing food and cover. Where possible, disease and deer resistant native trees and shrubs will be utilized to enhance the Site.

In association with the proposed pond dredging, it is proposed to create wetland areas populated with native wetland species. This will be done by incorporating shallow planting benches or shelves along the periphery of the renovated ponds. Native wetland plants such as pickerel weed, arrow arum, bur-reed, soft rush, soft-stemmed bulrush, three-square rush and three way sedge will be planted in the newly created wetland habitats. It is anticipated that these new wetland areas will improve surface water quality, provide habitat for fish, amphibians, birds and reptiles and add an aesthetic component to the now sterile pond environment. (See Exhibit II-18E, Typical Pond Details).

The installation of the landscape material will be closely coordinated with the phasing of each component of the Project. The Club is planned to remain operational during each phase of construction, therefore it is important to retain the aesthetic appeal of the facilities throughout the construction period. By phasing the Project it is possible to landscape in conjunction with construction. Upon completion of each phase, a finished landscape will be installed and maintained. The plan is designed so that each final landscape will be aesthetically pleasing when installed and will continue to evolve and provide changing character as it grows and matures. The net result will be a dramatic aesthetic setting for the residents, members and guests that maintains privacy between the Club and new residences and immediate neighbors.

Proposed Method of Identification and Preservation of Significant Trees

241 trees on the Site have been identified as significant trees in accordance

with the Town Tree Law. These trees have been uniquely numbered and identified on the Project plans. Significant trees to be removed will be clearly marked prior to the commencement of construction. Trees to remain in the general vicinity of any construction have been identified on the overall site plan. Significant trees in construction areas will be protected with trunk armoring and a perimeter fence which will be maintained throughout the duration of construction.

**Table III.E-4
Vegetation Diversity**

Common Name	Scientific Name	Stratum/ Indicator Status	Non-native(x) invasive(xx)
TREES			
Japanese Maple	<i>Acer japonica</i>	Understory/cultivated (NL)	X
Norway Maple	<i>Acer platanoides</i>	Overstory (NL)	XX
Red Maple	<i>Acer rubrum</i>	Overstory (FAC)	
Sugar Maple	<i>Acer saccharum</i>	Overstory (FAC)	
Tree of Heaven	<i>Ailanthus altissima</i>	Overstory (FACU)	XX
Black Birch	<i>Betula lenta</i>	Overstory (FACU)	
River Birch	<i>Betula nigra</i>	Overstory (FACW)	
Paper Birch	<i>Betula papyrifera</i>	Overstory (FACU)	
Gray Birch	<i>Betula populifolia</i>	Overstory pioneer (FAC)	
Ironwood	<i>Carpinus caroliniana</i>	Understory (FACW)	
Pignut Hickory	<i>Carya glabra</i>	Overstory (FACU-)	
Shagbark Hickory	<i>Carya ovata</i>	Overstory (FACU-)	
Flowering Dogwood	<i>Cornus florida</i>	Understory / cult. (FACU-)	
Chinese Dogwood	<i>Cornus kousa</i>	Understory /cult. (NL)	X
American Beech	<i>Fagus grandifolia</i>	Overstory (FACU)	
White Ash	<i>Fraxinus americanus</i>	Overstory (FACW)	
Honey Locust	<i>Gleditsia tricanthos inermis</i>	Overstory (FAC)	
Black Walnut	<i>Juglans nigra</i>	Overstory (FACU)	
Eastern Red Cedar	<i>Juniperus virginiana</i>	Understory (FACU)	
Tulip Tree	<i>Liriodendron tulipifera</i>	Overstory (FACW)	
Crabapple	<i>Malus sp</i>	Understory (NL)	
Norway Spruce	<i>Picea abies</i>	Overstory (NL)	X
Blue Spruce	<i>Picea pungens</i>	Overstory (FACU)	
Eastern White Pine	<i>Pinus strobus</i>	Overstory (FACU)	
Scotch Pine	<i>Pinus sylvestris</i>	Overstory (NL)	X
Eastern Cottonwood	<i>Populus deltoides</i>	Overstory (FAC)	
Purpleleaf Plum	<i>Prunus cerasifera</i>	Subcanopy/cult. (NL)	
Black Cherry	<i>Prunus serotina</i>	Overstory (FACU)	
Pin Oak	<i>Quercus palustris</i>	Overstory (FACW)	
White Oak	<i>Quercus alba</i>	Overstory (FACU)	
Swamp Oak	<i>Quercus bicolor</i>	Overstory (FACW+)	
Northern Red Oak	<i>Quercus rubra</i>	Overstory (FAC)	
Black Locust	<i>Robinia pseudo-acacia</i>	Overstory (FACU-)	XX
Weeping Willow	<i>Salix babylonica</i>	Overstory/ cult. (FACU)	X
Sassafras	<i>Sassafras albidum</i>	Overstory (FACU)	
American Arborvitae	<i>Thuja occidentalis nigra</i>	Understory cultivated (UPL)	
Eastern Hemlock	<i>Tsuga canadensis</i>	Overstory/subcanopy/cult. (FACU)	
American Elm	<i>Ulmus americanus</i>	Overstory (FACW-)	



SHRUBS			
Japanese Barberry	<i>Berberis thunbergi</i>	Understory (FACU)	XX
Sawara Falsecypress	<i>Chamaecyparis pisifera</i>	Understory/cultivated (NL)	X
Sweet Pepperbush	<i>Clethra alnifolia</i>	Understory (FAC+)	
Silky dogwood	<i>Cornus amomum</i>	Understory (FACW)	
Gray Dogwood	<i>Cornus racemosa</i>	Understory (FAC)	
Red-osier Dogwood	<i>Cornus sericea</i>	Understory (FACW+)	
Winged Burning Bush	<i>Euonymus alatus</i>	Understory (NL)	XX
Japanese Knotweed	<i>Fallopia japonica</i>	Understory (UPL)	XX
Border Forsythia	<i>Forsythia intermedia</i>	Understory/cultivated (NL)	X
Witch Hazel	<i>Hamamelis virginiana</i>	Understory (FAC-)	
Mophead Hydrangea	<i>Hydrangea macrophylla</i>	Understory/ cultivated (NL)	X
Winterberry	<i>Ilex verticillata</i>	Understory (FACW+)	
European Privet	<i>Ligustrum vulgare</i>	Understory (FACU)	XX
Spicebush	<i>Lindera benzoin</i>	Understory (FACW-)	
Morrow's Honeysuckle	<i>Lonicera morrowii</i>	Understory (FACU)	XX
Andromeda	<i>Pieris japonica</i>	Understory/ cultivated (NL)	X
Azalea & Rhod. hybrids	<i>Rhododendron sp.</i>	Understory/cultivated (NL)	X
Staghorn Sumac	<i>Rhus typhina</i>	Understory (NL)	
Multiflora Rose	<i>Rosa multiflora</i>	Understory (FACU)	XX
Pussy Willow	<i>Salix discolor</i>	Understory (FACW)	
Elderberry	<i>Sambucus canadensis</i>	Understory (FACW-)	
VINES			
Porcelain Berry	<i>Ampelopsis brevipedunculata</i>	Understory Vine (NL)	XX
Oriental Bittersweet	<i>Celastrus orbiculatus</i>	Understory Vine (FACU)	XX
Japanese Honeysuckle	<i>Lonicera japonica</i>	Groundcover /vine (FAC-)	XX
Virginia Creeper	<i>Parthenocissus quinquefolia</i>	Understory/Vine (FACU)	
Poison Ivy	<i>Rhus radicans</i>	Understory (FAC)	
Climbing Nightshade	<i>Solanum dulcamara</i>	Understory (FAC)	X
Grape	<i>Vitis sp.</i>	Understory/Vine (FACU)	
FORBS AND GRASSES			
Creeping Bentgrass	<i>Agrostis stolonifera</i>	Groundcover (FACU)	X
Garlic Mustard	<i>Alliaria petiolata</i>	Groundcover (FAC)	XX
Common Foxtail Grass	<i>Alopecurus carolinianus</i>	Groundcover (FACU)	X
Ragweed	<i>Ambrosia artemisiifolia</i>	Groundcover (FACU)	
Common Burdock	<i>Arctium minus</i>	Groundcover (UPL)	
Jack in Pulpit	<i>Arisaema triphyllum</i>	Groundcover (FACW-)	
Mugwort	<i>Artemisia vulgaris</i>	Groundcover (UPL)	XX
Tickseed Sunflower	<i>Bidens aritosa</i>	Groundcover (FACU)	
Pennsylvania Sedge	<i>Carex pennsylvanica</i>	Groundcover (FACU)	
Blue Cohosh	<i>Caulophyllum thalictroides</i>	Groundcover (NL)	
Spotted Knapweed	<i>Centaurea maculosa</i>	Groundcover (NL)	XX
Lamb's Quarters	<i>Chenopodium album</i>	Groundcover (FACU)	X
Chickory	<i>Cichorium intybus</i>	Groundcover (FACU)	X
Canada Thistle	<i>Cirsium arvense</i>	Groundcover (FACU)	X
Smooth Crabgrass	<i>Digitaria ischaemum</i>	Groundcover (UPL)	X



Common Fleabane	<i>Erigeron philadelphicus</i>	Groundcover (FACU)	
White Wood Aster	<i>Eurybia divaricatus</i>	Groundcover (NL)	
Wild Strawberry	<i>Fragaria virginiana</i>	Groundcover (FACU-)	
Wild Geranium	<i>Geranium maculatum</i>	Groundcover (FACU)	
Manna Grass	<i>Glyceria obtusa</i>	Groundcover (OBL)	
Rattlesnake Plantain	<i>Goodyera pubescens</i>	Groundcover (UPL)	
Yellow Hawkweed	<i>Hieracium pratense</i>	Groundcover (NL)	X
Jewelweed	<i>Impatiens capensis</i>	Groundcover (FACW)	
Peppergrass	<i>Lepidium virginicum</i>	Groundcover (UPL)	
Purple Loosestrife	<i>Lythrum salicaria</i>	Groundcover (FACW+)	XX
Canada Mayflower	<i>Maianthemum canadense</i>	Groundcover (FAC-)	
Japanese Stiltgrass	<i>Microstegium vimineum</i>	Groundcover (FAC)	XX
Maiden Grass	<i>Miscanthus sp.</i>	Groundcover/cultivated (UPL)	X
Switchgrass	<i>Panicum sp.</i>	Groundcover (FAC)	
Fountain Grass	<i>Pennisetum sp.</i>	Groundcover/cultivated (NL)	X
Common Name	Scientific Name	Stratum/ Indicator Status	Non-native(x) invasive(xx)
FORBS AND GRASSES (continued)			
Pokeweed	<i>Phytolacca americana</i>	Groundcover (FACU)	
Clearweed	<i>Pilea pumila</i>	Groundcover (FACU)	
Common Plantain	<i>Plantago major</i>	Groundcover (FAC)	
Kentucky Bluegrass	<i>Poa pratensis</i>	Groundcover /cultivated (FACU)	X
Pennsylvania Smartweed	<i>Polygonum pennsylvanica</i>	Groundcover (FACW)	
Cinquefoil	<i>Potentilla simplex</i>	Groundcover (FACU)	
Blackberry	<i>Rubus allegheniensis</i>	Understory (UPL)	
Black Raspberry	<i>Rubus occidentalis</i>	Understory (NL)	
Wineberry	<i>Rubus phoenicolasius</i>	Understory (NL)	XX
Sheep sorrel	<i>Rumex acetosella</i>	Groundcover (FACU)	
Little Bluestem	<i>Schizachyrium scoparium</i>	Groundcover (FACU)	
Bladder Campion	<i>Silene cucuhalus</i>	Groundcover (NL)	
Wreath Goldenrod	<i>Solidago caesia</i>	Groundcover (FACU)	
Zigzag Goldenrod	<i>Solidago flexicaulis</i>	Groundcover (FACU)	
Wrinkle-leaf Goldenrod	<i>Solidago rugosum</i>	Groundcover (FAC)	
Dandelion	<i>Taraxacum officinale</i>	Groundcover (FACU)	
Red Clover	<i>Trifolium pratense</i>	Groundcover (FACU)	X
White clover	<i>Trifolium repens</i>	Ground cover (FACU)	X
Common Mullein	<i>Verbascum thapsus</i>	Groundcover (FACU)	
Cow Vetch	<i>Vicia cracca</i>	Groundcover (NL)	X
FERNS, MOSS			
Lady Fern	<i>Athyrium filix- femina</i>	Groundcover (FACW)	
Queen Anne's Lace	<i>Daucus carota</i>	Groundcover (UPL)	
Intermediate Wood Fern	<i>Dryopteris intermedia</i>	Groundcover (FAC+)	
Sensitive Fern	<i>Onoclea sensibilis</i>	Groundcover (FAC)	
Cinnamon Fern	<i>Osmunda cinnamomea</i>	Groundcover (FACW)	
Christmas Fern	<i>Polystichum acrostichoides</i>	Groundcover (FACU-)	



EMERGENTS & AQUATICS, WETLAND SEDGES		
Wooly Sedge	<i>Carex lanuginosa</i>	Groundcover (OBL)
Tussock Sedge	<i>Carex stricta</i>	Groundcover (OBL)
Umbrella sedge	<i>Cyperus strigosus</i>	Groundcover (FACU)
Soft Rush	<i>Juncus effuses</i>	Groundcover (FACW+)
Common Duckweed	<i>Lemna minor</i>	Aquatic (OBL)
Common Reed	<i>Phragmites australis</i>	Understory (FACW) XX
Soft Stemmed Bulrush	<i>Scirpus validus</i>	Groundcover (OBL)
Skunk Cabbage	<i>Symplocarpus foetidus</i>	Groundcover (OBL)
Cattails	<i>Typha latifolia</i>	Groundcover (OBL)
Water Meal	<i>Wolffia sp.</i>	Aquatic (OBL)

Sources: Field inspection dates: 2/6/2013

2. Wildlife

a) Existing Conditions

The indigenous wildlife species on the Site were noted during field visits during the fall of 2010 (September 29, 2010, October 19, 26, 27, 2010, November, 4, 2010) and the fall of 2012 (November 16, 2012) and winter 2013 (January 11, 2013 and February 6, 2013.) Additional field investigations were performed on the following days in March 2013: 11, 12, 13, 17, 18, and 19. An additional field visit was made on April 24, 2013 to specifically verify the presence/absence of amphibians and reptiles that may utilize the Site. Actual sightings, as well as indirect evidence (scat, browse marks, burrows, nest and tracks) were evaluated and a species list compiled. Species that were not observed but that are known to inhabit various habitats in this geographical locale were added to the list as possible residents. The list is comprehensive and representative of the broad range of wildlife likely to be observed on the Site. However, because of the constantly changing environment, exceptions or omissions may occur. The highly mobile and seasonal nature of avian populations contributes to the difficulty of verifying the presence/absence of individual species.

Field investigation of the Site was performed by Jay Fain and Victoria Landau. Mr. Fain has a BS in Wildlife Ecology and MS in Forest and Plant Ecology from Cornell University. He has over 30 years of experience as a wetlands scientist/ecologist and municipal conservation officer and wetlands inspector. Ms. Landau has a BS from Connecticut College and MS in Landscape Architecture from the University of Massachusetts. She has over 30 years of experience as a licensed landscape architect in Connecticut and New York.

The information, format and conclusions in this section rely heavily on the *North Castle Biodiversity Plan* (the MCA study)¹. The purpose of this plan was to identify the portions of North Castle with biodiversity value in order to provide the Town with the information it needs to improve planning to protect wildlife resources.

Although the Site was not specifically included in the MCA study, the open space parcel immediately to the north adjacent to Baldwin Road was included. In addition, the tools provided in the report are relevant in helping to shape the proposed development toward a sustainable and more ecologically friendly model.

Additional materials cited or relied upon in this section include the following: *Amphibians and Reptiles of Connecticut and Adjacent Regions* (Klemens 1993); *Wildlife Resources of Westchester County* (Wear and Schreiner 1987); (McGowan, Corwin 2008), Park Place at Westchester Airport DEIS (AKRF, 2011) and the *Rare Animal Status List* (New York Natural Heritage Program, January 2013).

The Focal Species Approach

The MCA study concentrates its survey efforts on species which respond specifically to development impacts including habitat loss and habitat fragmentation. Those species that may experience population declines due to habitat alteration from urbanization are referred to as Development-Sensitive focal species. These are usually habitat specialists that have narrow ecological requirements and/or complex life-history requirements that involve use of larger areas of intact habitat or multiple, interconnected habitat types.

The Development-Sensitive focal species contrast with those species that are habitat generalists because they do not have highly specific habitat requirements. These species have been termed by the MCA study as Development-Associated focal species.

The MCA study refers to the process of evaluating the mix of focal species and its implications for ecosystem health and implications of land use and management as the Focal Species Approach or FoSA. The FoSA approach can be utilized in planning efforts by allowing a site to be assessed for the importance

¹ Labruna, D. T. and M. W. Klemens. 2007. North Castle Biodiversity Plan. MCA Technical Paper No.14, Metropolitan Conservation Alliance, Wildlife Conservation Society, Bronx, New York.

of its role in species conservation. This assessment is particularly relevant to the Site because of its long history of disturbance and development.

Herpetofauna

Amphibians and reptiles, known collectively as ‘herpetofauna’, are among the least known and studied group of vertebrates in Westchester County. Many species are extremely secretive, well camouflaged and active depending on climatic conditions. Therefore, these animals are much harder to observe than other groups of wildlife.

The MCA study identified a number of species of herpetofauna that occur in the North Castle Biodiversity Study Area. The majority of these animals are not present on the Site, simply because the habitat they need to survive is not present. The MCA study also identified four Development-Sensitive amphibians and one Development-Sensitive reptile that occur in the Biodiversity Study Area. Of the four amphibians, wood frogs may occur in association with the Sniffen Brook stream corridor system to the southwest of the Site but are not likely to breed on the Site, due to lack of suitable habitat. The Red-spotted newt is a common amphibian that may occupy portions of the Site but has not been observed. (See Table III.E-5 for Herpetofauna Diversity).

The Eastern Box Turtle is unlikely to occupy the Site due to a lack of suitable contiguous wooded habitat needed to support a viable population. In the Biodiversity Study Area only one individual was observed. The main Biodiversity Study Area is isolated from the Site by Interstate 684. Box turtles were not found in the portion of the Biodiversity Study Area located to the north of the Site adjacent to Baldwin Road.

**Table III.E-5
Herpetofauna Diversity**

DET	Species	General Habitat Preference					Status
		FD	BR	FW	P	RS	
Turtles-order Testudines							
PR	Snapping Turtle				X		C
	(Chelydra serpentine)						
PR	Eastern Painted Turtle				X	X	C
	(Chyrsemys picta)						
Snakes- order Squamata (suborder serpentes)							
PO	Black Rat Snake		X				U
	(Elaphe obsolete)						
PO	Eastern Garter Snake		X				A
	(Thamnophis sirtalis)						
PR	Northern Black Racer		X				C
	(Coluber constrictor)						
PO	Eastern Milk Snake		X				C
	(Lampropeltis t. triangulum)						
PR	Northern Water Snake				X		C
	(Nerodia sipedon)						
PO	Northern Brown Snake		X				C
	(Storeria d. dekayi)						
Salamanders- order Caudata							
PO	Red-backed Salamander	X		X			C
	(Plethodon cinerus)						
PO	Two-lined Salamander	X		X			C
	(Eurycea bislineata)						
Frogs and Toads – order Anura							
PR	American Toad	X	X				C
	(Bufo americanus)						
PO	Common Gray Treefrog	X		X			C
	(Hyla versicolor)						
PR	Green Frog				X		A
	(Rana clamitans)						
PO	Pickerel Frog			X			C
	(Rana palustris)						
PO	Spring Peeper				X		C
	(Hyla crucifer)						
PR	Bullfrog				X		A
	(Rana catesbeiana)						

Status: A – Abundant; C – Common; U – Uncommon

Habitat Preference: FD – Forest Deciduous; BR – Brushland, edges; FW – Forested Wetlands; RS – Rivers and Streams; P – Ponds



Mammals

The Site provides habitat for a number of mammalian species all of which are common to the surrounding geographical area. Mammal diversity ranges from the large white-tailed deer, to the diminutive short-tailed shrew. Most of the mammals identified are habitat generalists and are often associated with urban areas. Raccoons, grey squirrels, striped skunk and woodchucks are common. (See Table III.E-6, Mammal Diversity) .

Table III.E-6
Mammal Diversity

Species	General Habitat Preference					Status	DET
	FD	BR	FW	L	RS		
Shrews (order Soricomorpha)							
Short –tailed Shrew	X	X	X	X		C	PR
(Blarina brevicauda)							
Rabbits (order Lagomorpha)							
Eastern Cottontail	X	X	X	X		C	PR
(Sylvilagus floridanus)							
Rodents (order Rodentia)							
White Footed Mouse				X		C	PR
(Peromyscus leucopus)							
Deer Mouse	X	X		X		A	PR
(Peromyscus maniculatus)							
House Mouse						C	PR
(Mus musculus)							
Meadow Vole							PR
(Microtus pennsylvanicus)							
Muskrat						C	C
(Ondatra zibethicus)							
Woodchuck		X		X		C	C
(Marmota monax)							
Gray Squirrel	X		X	X		A	C
(Sciurus carolinensis)							
Eastern Chipmunk	X	X		X		C	PR
(Tamias striatus)							
American Red Squirrel						C	PR
(Tamiasciurus hudsonicus)							
Star nosed mole				X		C	PR
(Condylura cristata)							
Opossums							
Virginia Opposum	X	X	X	X		C/A	C
(Didelphis virginiana)							
Carnivores							
Coyote	X	X	X			C	C
(Canis latrans)							



Striped Skunk	X	X		X		C	C
(Mephitis mephitis)							
Raccoon						A	C
(Pracyon lotor)							
Even-toed Ungulates - order Artiodactyla							
White- tailed Deer	X	X	X	X		A	C
(Odocoileus virginanus)							

Determination (DET): PO – Possible, species a potential resident of study area, uncommon; PR – Probable, species likely to occupy study area; C- Confirmed, species observed in study area

Status: A – Abundant; C – Common; U – Uncommon

Habitat Preference: FD – Forest Deciduous; BR – Brushland, edges; FW – Forested Wetlands; RS – Rivers and Streams; L – Landscaped, suburban

Birds

Determination of the use of the Site by birds is more subjective than that of less mobile species. Birds are transitory and mobile, making temporal and spatial observation somewhat unreliable – the observation of a species on the Site does not necessarily mean that it relies on that area for essential habitat. Birds observed on-site include the American Robin, Canada Goose, Red-tailed Hawk, American Crow, Blue Jay, Chickadee, Mourning Dove, Tufted Titmouse, Turkey Vulture, House Sparrow, Downy Woodpecker, Northern Mockingbird and European Starling.

In general, the avian fauna represented on the Site present a suite of species characteristically found in early successional, grassland and open field habitats. These species may include MCA identified Development-Sensitive species including Eastern Kingbird, Field Sparrow, Eastern Towhee, Black-and-white Warbler, Chestnut-sided Warbler and Eastern Bluebird. All of these species are of conservation concern and the golf course provides potential habitat that would not continue to exist if the golf course were replaced by a conventional or cluster residential subdivision. Although usually associated with wooded riparian habitats the Warbling Vireo may utilize tree tops along forest edges.

The species identified in the MCA most clearly associated with large blocks of forest includes the Pileated Woodpecker, Scarlet Tanager, Worm-eating Warbler, Ovenbird, Wood Thrush and Veery. Potential habitat for these birds is limited to the small area of the more mature second-growth hardwoods located in the southwestern corner of the property, although it is suspect whether there is enough acreage of continuous wooded habitat adjacent to the Site to support breeding habitat for those forest-interior species identified as area sensitive (see Table III.E-7), Avian Diversity).



Table III.E-7
Avian Diversity

BDC	Species	General Habitat Preference						FoSA	FoSA
		FD	BR	FW	L	O	RS	Status	Designation
*	Canada Goose				X	X	X	A	DA
*	Mallard					X	X	C	
	Great Blue Heron					X	X	U	
	Green Heron					X		U	
	Killdeer				X			U	
	Herring Gull				X	X		C	
*	Wild Turkey	X	X	X				C	
*	Red Tailed Hawk	X	X					C	DN
	Turkey Vulture	X	X					C	DN
	Barred Owl	X		X				U	DS
*	Mourning Dove	X	X	X	X		X	A	DN
*	Domestic Pigeon				X			C	
*	Ruby Throated Hummingbird		X					C	DN
	Belted Kingfisher					X	X	U	
*	Northern Flicker	X		X				C	DS
*	Red- Bellied Woodpecker	X	X	X	X		X	U	DN
*	Downy Woodpecker	X		X				C	DN
	Pileated Woodpecker	X		X				U	DS
*	Eastern Kingbird	X	X	X	X		X	U	DS
*	Great Crested Flycatcher	X	X					U	DS
*	Eastern Phoebe	X	X	X	X		X	C	DN
*	Barn Swallow		X	X	X	X	X	A	
*	Tree Swallow	X	X	X			X	A	
*	Purple Martin		X		X	X		U	
*	American Crow	X	X					A	DA
*	Blue Jay	X	X					A	DA
*	Black Capped Chickadee	X						A	DA
*	Tufted Titmouse	X						C	
*	White- Breasted Nuthatch	X						C	
	Brown Creeper	X						U	
*	House Wren		X					C	DA
*	Carolina Wren		X					C	
*	Gray Catbird	X	X					A	
*	Northern Mocking Bird		X	X	X		X	C	
*	Eastern Bluebird		X					C	
*	American Robin	X	X	X	X		X	A	
*	Cedar Waxwing	X	X	X	X		X	C	
*	Red-eyed Vireo	X		X	X			C	
*	Black-and-White Warbler	X	X	X			X	U	
*	Yellow Warbler		X					C	
*	Chestnut Sided Warbler		X					U	
*	American Redstart		X					U	
*	Common Yellowthroat	X	X	X	X		X	A	



*	Red-Winged Blackbird		X			X	X	C	DN
*	Brown- Headed Cowbird				X			C	DA
*	Common Grackle		X	X				C	DA
*	European Starling	X	X	X	X		X	A	DA
*	Baltimore Oriole	X	X	X	X			A	DS
	Scarlet Tanager	X		X			X	U	DS
*	House Sparrow		X					A	DA
	Slate-Colored Junco				X			C	
*	Northern Cardinal	X			X		XX	C	DN
*	House Finch				X			C	DA
*	American Goldfinch	X	X	X	X		X	C	DS
	Rose-Breasted Grosbeak	X						U	DS
*	Rufous- Sided Towhee		X					C	DS
*	Indigo Bunting		X					U	DS
*	Field Sparrow		X					C	DN
*	Chipping Sparrow		X					C	
*	Song Sparrow		X	X	X			C	

FoSA Status: A – Abundant; C – Common; U – Uncommon

Habitat Preference: FD – Forest Deciduous; BR – Brushland, edges; FW – Forested Wetlands; RS – Rivers and Streams; L – Landscaped, suburban

Focal Species Approach (FoSA): DS – Development-Sensitive; DA – Development-Associated; DN – Development-Neutral

BDC -Identified by MCA Study or Breeding Bird AFLU as potentially breeding in immediate Geographical Area

Habitat Functions of Site Vegetation Groups

The on-site vegetation groups provide a variety of habitat functions for wildlife. Habitat functions are dependent on a number of factors including vegetation successional status, structure, density, basal area, biomass, productivity, condition and proximity to other habitat types.

The existing buildings and landscaped grounds provide habitat most conducive to species that are considered opportunistic and generalists. Because of the degree of disturbance and lack of suitable breeding habitat, amphibian and reptile habitat is extremely limited. An occasional garter snake may be found but that is an unusual occurrence. Mammals include opportunists such as the house and white-footed mouse, raccoon, skunk, opossum and white-tailed deer. Birds most commonly associated with this area include the house sparrow, purple finch, American robin, starling, blue jay and American crow. Canada geese are occasionally found on the fairways.



The fairways with trees provide feeding opportunities for a number of wildlife species. Fairways have relatively high primary productivity due to inputs of water from irrigation and fertilizer applications. Beneficiaries are the grazers such as Canada geese and white-tailed deer, and aerial foragers such as swallows and swifts and other insectivores. Mammals including the white-footed mice, voles and moles will use the edges. These in turn are fed on by birds of prey such as the red-tailed hawk.

Disturbed scrub-shrub habitats on the Site are not closely associated with any areas of open water, and are therefore mostly associated with terrestrial animals, and not amphibians. Mammals utilize the food and dense cover and include the eastern cottontail, white-footed and deer mouse, meadow vole, and gray squirrel. Understory seedeaters and insectivores utilize this habitat for feeding and possibly nesting.

The second-growth hardwood forests provide a different type of habitat than found on the majority of the Site - especially the more mature hardwood stands found in the southwest and central portions of the Site. The southwest forested area is associated with the Sniffen Brook riparian corridor that traverses the southern and western off-site portions of the Site. Amphibians associated with this habitat type include the red-backed salamander (terrestrial) and the two-lined salamander (Sniffen Brook). Mammals include the white tailed deer, gray squirrel, eastern chipmunk, raccoon, striped skunk, eastern coyote, and possibly long-tailed weasel (Sniffen Brook). The vertical stratification provides for a wide variety of bird types, including tree top gleaners (flycatchers), canopy seed eaters, tree bark gleaners (brown creeper), understory seedeaters and insectivores (American Robins, dark-eyed Junco), and other insectivores including the hairy, downy, red-headed woodpecker and flicker. Predators would include the barred owl. The overstory tree canopy provides nesting site for red-tailed and possible other buteos and accipiters.

The pond system found in the south central portion of the Site provides the only true aquatic habitat on the Site. These are man-made ponds created in association with the original golf course as a play feature and as a source of irrigation water. They are relatively shallow and exposed, making them capable of only supporting a warm water fishery. Fish populations are dependent on stocking but typically include bluegills and largemouth bass. Sterile carp may have been added for vegetation control. Amphibians typically include green frogs, bullfrogs, pickerel frogs, and possibly spring peepers. Reptiles likely include snapping and painted turtle, and northern water snake. Canada geese are highly associated with this system and the Site supports a resident



population of about 150 birds. An occasional great blue and green heron is not uncommon and mallard ducks are frequent visitors but not known to breed here. The pond system also provides a source of water for many animals utilizing the Site.

Huston's (1979, 1994) dynamic equilibrium provides a convenient model for predicting patterns of species diversity based on the interaction of productivity and disturbance. Although the model describes a continuum, it can be broken into four different parts to illustrate the interaction of productivity and disturbance on a site:

1. Diversity of highly productive, undisturbed systems tends to be low because dominate species tend to exclude non-dominant species through competition.
2. Conversely, unproductive and stable systems tend to have higher diversity because competitive exclusion is slow.
3. Unproductive and frequently disturbed sites tend to be lower in diversity because frequent disturbance reduce the ability of slower growing species to reproduce.
4. Productive, frequently disturbed sites tend to be high in diversity because growth rates are high, but frequent enough that competitive exclusion does occur.

While none of these models fits the Site exactly, the relatively high productivity of the irrigated and fertilized fairways, coupled with frequent mowing that mimics disturbance events suggests that species diversity should be relatively high although the presence of specialized species would be low. This conclusion is substantially supported by the species observed on the Site.

Presence of Rare or Endangered Species on or Near Subject Site

The NY Natural Heritage Program (NYNHP) was contacted to determine if there are records of known occurrences of rare or state-listed animals and plants, significant natural communities or other significant habitat on or adjacent to the Site. In a letter dated November 26, 2012 the NYNHP (see Appendix H) provided a response stating, "We have no records of rare or state listed animals or plants, or significant natural communities, on or in the immediate vicinity of your site."

The *Town of North Castle Biodiversity Plan* was also consulted and no rare or threatened endangered species are identified in that study.

In addition, a search of the US Fish and Wildlife Services online Endangered Species website for federally listed species was conducted. This search identified three wildlife species that can occur in Westchester County: Indiana Bat, New England Cottontail and bog turtle.

The Indiana bat is a federally endangered species and over winters in caves and mines. In New York State the population is stable or possibly increasing. Since the most vulnerable part of the life-cycle is during winter hibernation, management efforts are concentrated on protecting the hibernacula which are known sites located in Essex, Ulster, Jefferson, and Onondaga Counties. The substantial distance from known hibernacula makes it unlikely that Indiana Bats roost on-site. In addition, the preferred roosting habitat, the floodplain forest and upland forests associated with nearby aquatic features, is largely absent. However, to avoid the remote possibility of an accidental taking of summer roosting habitat, a mitigation measure would be to limit removal of trees with exfoliating bark, crevices or cavities to the period between October 1 and March 31.

The New England Cottontail is a NYS species of Special Concern. The New England Cottontail appears nearly identical to the Eastern Cottontail and is only reliably differentiated by genetic testing or by examining skull characteristics. The preferred habitat for the New England Cottontail is early successional habitats, including native shrub land on sandy soil and/or marshes, thickets or small scale forest disturbances. This habitat type is generally not available on the Site.

The bog turtle (*Clemmys muhlenbergii*) is a small (less than 4 inches), secretive animal that occurs in or near calcareous wet meadows and fens which are usually bordered by shrub and red-maple swamps. The bog turtle is identified by its brown, lightly sculpted carapace and bright orange blotch on each side of the head. The bog turtle is thought to be extirpated in Westchester County with the last sighting occurring in the northern part of the County in the early 1990's. The Site and adjacent areas do not contain suitable habitat to support bog turtles

The results of on-site investigations of the Site and review of relevant data sources indicate that no federal, State, endangered, threatened or species of special concern plant or animal occur on the Site.

b) Potential Impacts

The development of the Site is planned to utilize, to the extent practical, already cleared and developed land. The residential community is designed to closely coincide with the existing tennis courts, maintenance facility and fairway area. The renovated clubhouse is planned to coincide with the footprint of the existing facility. Wildlife utilizing this area is of the generalist type typically associated with urbanized environments. These are the types of wildlife the MCA study identifies as Development-Associated. There will be a short term, temporary impacts to wildlife associated with the development of the Site as the new residential area is cleared and prepared for construction. The increased noise and activity of people and vehicles will discourage the use of this area by wildlife during construction (see also Chapter III.H, Wetlands and Watercourses).

Post-construction, the same assemblage of urban generalist wildlife is expected to re-populate the areas. The relative amount of each population will remain approximately the same although there may be a small increase in numbers as some of the non-native plant species will be replaced with native plant material offering food and cover value.

Some limited clearing of the Early Successional Hardwoods and Second-Growth Mixed Hardwoods – 40+ years will be removed and replaced with turf areas to accommodate the renovation and expansion of the golf course. As these areas are relatively isolated, fragmented, and have high amount of “edge”, the removal is not expected to have a significant effect on wildlife habitat. No change in the species composition utilizing the Site is expected. There may be a small reduction in the population number of a limited number of individual types, although this effect is difficult to quantify.

Wetland habitat is proposed to be preserved or enhanced as part of the overall golf course renovation. No wetland or water course is proposed to be directly impacted by the proposed construction, with the exception of the pond system. Renovation of the existing ponds and incorporation of an emergent marsh will result in a net increase of on-site wetland of 1.25 acres. The creation of these wetlands is expected to increase species diversity by providing a wetland habitat that currently does not exist on-site or in the immediate geographical area. This will increase both the type and number of animals utilizing the Site. The emergent wetland will provide increased habitat for the amphibians currently utilizing the Site but it is doubtful that it will lead to additional species diversity for this class of animal. This is due to the lack of adjacent wooded habitat necessary for the terrestrial life history component of most salamanders.



Habitat is expected for waterfowl and wading birds such as ducks, herons, bitterns and plovers.

Dredging the existing ponds on the Site will require de-watering to allow machinery access to remove the accumulated sediments. The de-watering process will directly impact the animals utilizing the aquatic environment. These include largemouth bass, bluegill sunfish and sterile triploid carp; bullfrogs, green frogs, and pickerel frogs; and painted turtles and snapping turtles.

While the exact timing and sequence of pond dredging has not yet been determined, this process will be staged so that the golf course can remain in operation. Therefore, during the de-watering process as the waters become concentrated, the affected animals can be captured and relocated to the extant ponds. This process will minimize the mortality associated with the dredging process. It should be recognized that some mortality will occur due to the pumping process, stress and increased predation. It is expected that populations will rebound within a year of the pond levels returning to normal.

Some animals will benefit during the process. Fish eating birds (herons, egrets, bitterns) and raccoons will utilize the aquatic resource during the dredging process.

The utilization of the Site for those animals identified in the MCA study as Development-Sensitive is unlikely to change post construction, since the overall vegetation assemblage and habitat composition is to remain. Three of the species identified in the MCA report, the Worm-eating Warbler, the Oven Bird and Wood Thrush require larger tracts of undisturbed forest that are not readily available on or immediately adjacent to the Site. The MCA study also excludes the wooded area adjacent to Bedford Road as an area of potentially high biodiversity based on the presence of other Development-Sensitive species. The MCA study cites the potential edge effect of Interstate 684 and Bedford Road as a potential reason for the lack of these species, as well as the potential impact of the past construction of Interstate 684. The Site is similarly geographically located and thus is subject to the same constraints.

The notable exception is the potential to develop and enhance habitat on the site for the Eastern Bluebird. These are grassland birds that need open habitat for feeding and typically nest at field edges. They feed on insects, nuts and berries. Habitat for the Eastern Bluebird can be enhanced by increasing opportunities for breeding by providing nesting boxes.



The use of the Site by Canada Goose can be desirable when the population is limited and transitory, but the establishment of a large population (currently estimated at approximately 125 birds) is problematic. Problems include human-animal conflicts, over-grazing of lawns, accumulation of droppings in play and cart areas, nutrient loading to aquatic systems, and disruption of golf play.

Canada geese, including resident flocks, are protected by federal and State laws and cannot be removed by lethal means without a license or permit. The current policy is to harass the resident population. However, harassment simply displaces the flock to an alternative location but does nothing to diminish the numbers. Egg removal or addling can be done by registering at the *USFWS's Resident Canada Goose Nest and Egg Registration Site*. This does not require additional permitting or licensing from the NYSDEC. It is not anticipated that a permit for permanent removal of any of the goose population will be pursued because of the suburban location of the Site.

Canada Goose are currently deterred by noise and human presence. The Applicant is considering a manufactured form of deterrence called the "Goosinator," which is a remote operated goose deterrent device that has become popular for recreational facilities.

No endangered, threatened or species of special concern occur on or adjacent to the Site and therefore no impacts to endangered, threatened or species of special concern are expected from the Project.

c) Mitigation Measures

The geographical area of the Site has been identified in the MCA study as habitat already impacted from its location along Interstate 684 which the report identifies as an "insurmountable obstacle for the vast majority of wildlife species." However, the Site does provide habitat to a number of wildlife species. While the Site is not mapped as an area of great biodiversity, applying some of the strategies suggested by the MCA study will help to mitigate potential environmental impacts.

The primary wildlife mitigation for the Project is the clustering of the residential development in an area already highly altered and urbanized. By clustering the development in an already disturbed area, potential impacts are eliminated and the majority of natural vegetation on the Site can be preserved, continuing its use as a wildlife corridor.

Existing maintained lawn area will be reduced and replaced with native low-maintenance fescues. Vegetated buffers are proposed adjacent to wetlands

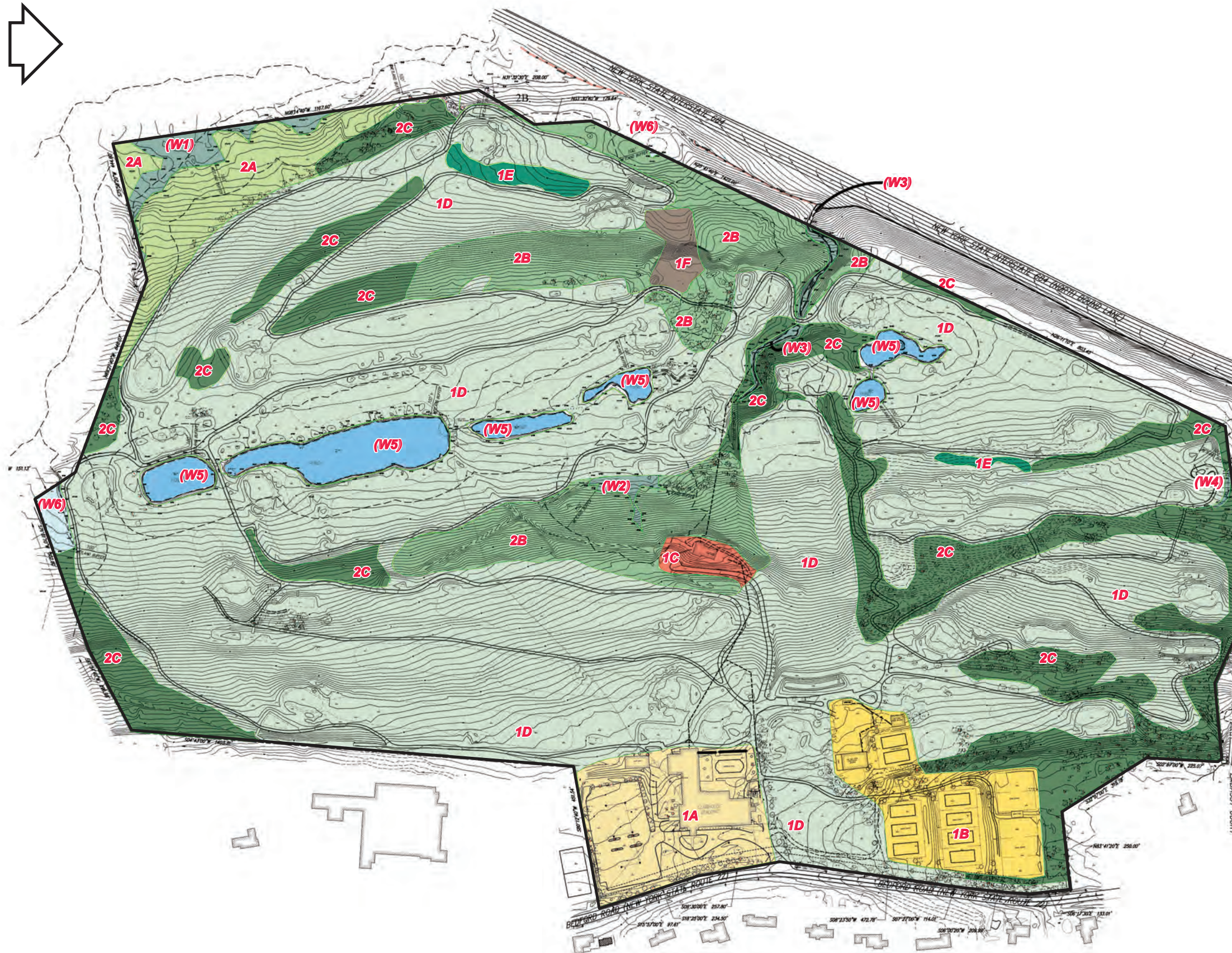
where they will not affect play. (See Schematic Landscape Plan, Exhibit II-18-A). Fertilizer, pesticide and herbicide use will be reduced by the preparation of a site specific Integrated Turfgrass and Pest Management Plan (ITPMP). Chemical use will also be reduced by the introduction of disease resistant turf grass varieties. All of these measures will increase ecosystem health and reduce potential impacts to wildlife from cultural management practices.

Wildlife habitat will be further enhanced by implementation of the landscape plan. The purpose of the landscape plan is to provide for the re-vegetation of all disturbed areas. Native plant material will be used where possible and where appropriate. Use of native plant material is in part to encourage wildlife usage and in part to discourage predation by deer.

As part of the Project, the Applicant also proposes to control and remove areas of aggressively growing non-native invasive vegetation including common reed, Japanese knotweed, porcelain berry privet and Tartarian honeysuckle. Where appropriate, areas of these vegetation types will be removed and replaced with native vegetation that provides habitat and food value for wildlife. Typical plantings include red-osier and grey-stemmed dogwood, high bush blueberry and cranberry, shadblow, flowering dogwood, and winterberry. Replacing non-native invasive plants with native plants helps restore ecosystem integrity and improve wildlife abundance and diversity.

Mitigation measures to discourage Canada Goose were described previously in this chapter, and include the continuation of using noise and human presence as a deterrent, as well as investigation of potential use of the "Goosinator."

Of the several bird species that the MCA study identifies as Development-Sensitive, habitat for the Eastern Bluebird has the greatest potential to be enhanced by the golf course renovation. The Eastern Bluebird requires open habitat with edges which is the type provided by a golf course. Reduction in pesticide use favors increase in insect populations which in turn provides enhanced opportunities for insectivorous birds. Breeding habitat would be enhanced by placing nesting boxes in strategic locations. Maintaining the golf course would also maintain habitat beneficial to other Development-Sensitive species identified in the MCA study including the Eastern Kingbird, Field Sparrow, Eastern Towhee, Black-and-white Warbler and the Chestnut-sided Warbler.



EXISTING CONDITIONS: VEGETATION DESCRIPTION

UPLAND COMMUNITIES CULTURAL

- 1A** Clubhouse and Parking lots
- 1B** Maintenance Facility and Tennis Courts
- 1C** Sewage Treatment Plant
- 1D** Maintained Turf
(fairways & greens, tees, rough, trees w/fairways)
- 1E** Conifer Stands
- 1F** Organic Recycling Area

TERRESTRIAL FORESTED

- 2A** Second Growth Hardwoods-80+ Years
- 2B** Second Growth Mixed Hardwoods-40+Years
- 2C** Early Successional Hardwoods
(includes some invasive plant patches)

WETLAND COMMUNITIES

- W1** Wooded Wetland
- W2** Hillside Seeps
- W3** Perennial Stream
- W4** Intermittent Stream/Golf Course Drainage
- W5** Open Water
- W6** Disturbed Wetland

Source: Jay Fain & Associates

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Existing Vegetative Cover Types
and Wetlands

Exhibit
III.E-1



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Tree Survey - Sheet 2

Exhibit
III.E-2B



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Tree Survey - Sheet 3

Exhibit
III.E-2C



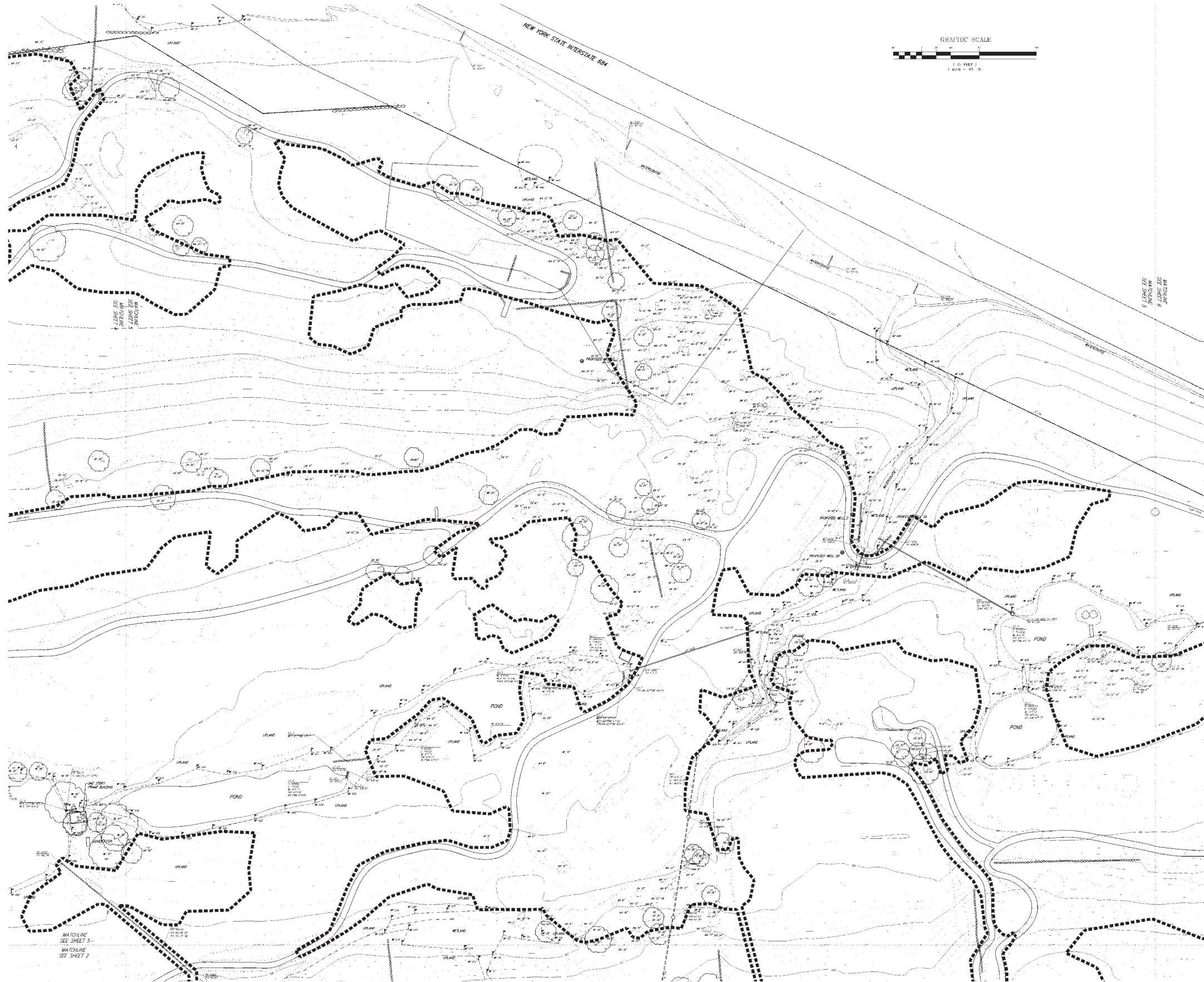
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Tree Survey - Sheet 4

Exhibit
III.E-2D



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Tree Survey - Sheet 5

Exhibit
III.E-2E



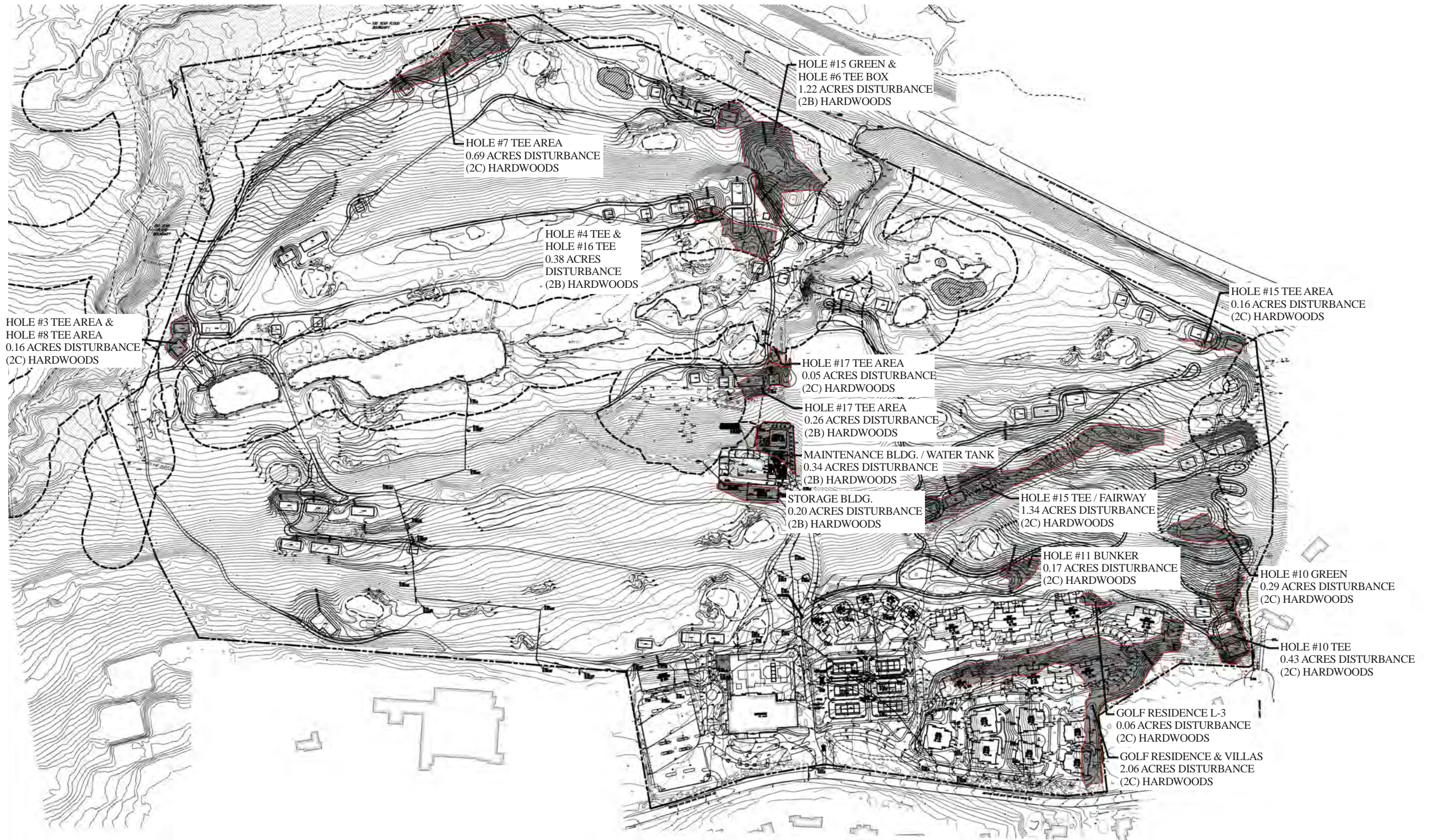
Source: John Meyer Consulting, PC

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North Castle, New York

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Tree Survey - Sheet 6
III.E-2F

Exhibit



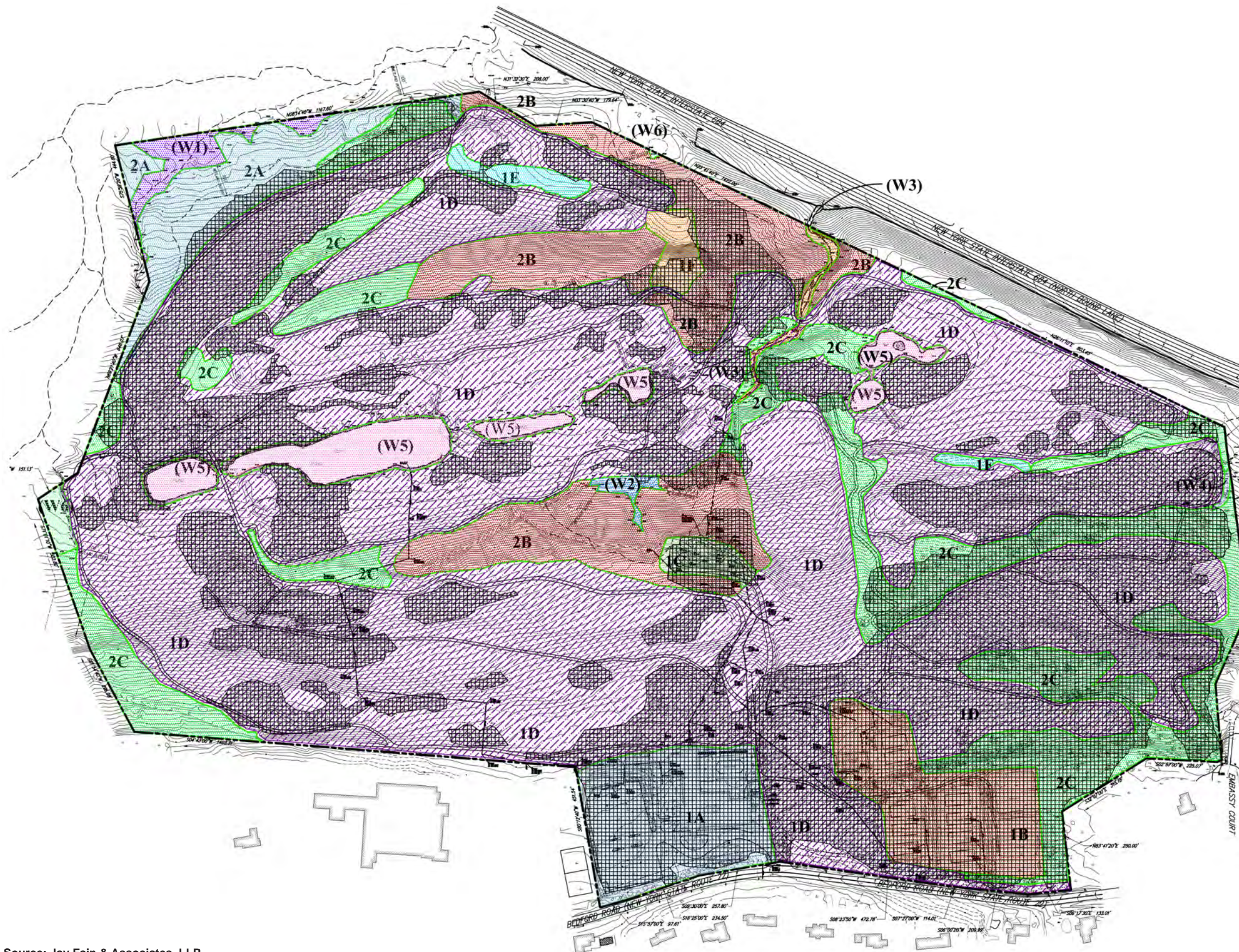
Source: Jay Fain & Associates

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Upland Wooded Area Disturbance

Exhibit
III.E-3



LEGEND

UPLAND COMMUNITIES

CULTURAL

- 1A: CLUBHOUSE AND PARKING LOTS
- 1B: MAINTENANCE FACILITY AND TENNIS COURTS
- 1C: SEWAGE TREATMENT PLANT
- 1D: MAINTAINED TURF
- 1E: CONIFER STANDS
- 1F: ORGANIC RECYCLING AREA

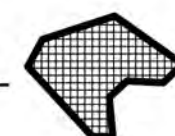
TERRESTRIAL FORESTED

- 2A: SECOND GROWTH HARDWOODS-80+ YEARS
- 2B: SECOND GROWTH MIXED HARDWOODS-40+ YRS.
- 2C: EARLY SUCCESSIONAL HARDWOODS

WETLAND COMMUNITIES

- (W1) WOODED WETLAND
- (W2) HILLSIDE SEEPS
- (W3) PERENNIAL STREAM
- (W4) INTERMITTENT STREAM / GOLF COURSE DRAINAGE
- (W5) OPEN WATER
- (W6) DISTURBED WETLAND

DISTURBANCE AREAS -



Source: Jay Fain & Associates, LLP

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Vegetation Disturbance

Exhibit
III.E-4

F. Geology and Soils

1. Existing Conditions

a) Regional and Bedrock Geology

According to the Geologic Map of New York, Lower Hudson Sheet, by the New York State Museum and Science Service, the Site is within the Cortlandt and smaller mafic complexes, geologic formations that date to the upper Ordovician period of the Paleozoic era. The Site is classified as being within the Od sequence. The Od sequence consists of diorite with hornblende and/or biotite, which are metamorphic in origin.

The Site lies within the New England Upland section of the New England physiographic province. In particular, much of the bedrock geology of central Westchester County is comprised of metamorphic and igneous rocks, with dominant outcrops of gneiss, schist, and granite.

b) Special Geological Features

There are no special geological features or significant rock outcroppings on the Site.

c) Soil Types

Soil types on the Site have been mapped per the Natural Resources Conservation Service (NRCS) Natural Cooperative Soil Survey, supplemented by an on-site survey conducted by Jay Fain & Associates.

As depicted on Exhibit III.F-1, the 16 soil mapping units present at the Site are as follows:

<u>SYM.</u>	<u>DESCRIPTION</u>
ChB	Charlton loam, 2-8% slopes, well drained
ChC	Charlton loam, 8-15% slopes, well drained
ChD	Charlton loam, 15-25% slopes, well drained
CrC	Charlton-Chatfield complex, rolling, very rocky, 2-15% slopes, well drained
CsD	Chatfield-Charlton complex, hilly, very rocky, 15-35% slopes, well drained
PnB	Paxton fine sandy loam, 2-8% slopes, well drained
PnC	Paxton fine sandy loam, 8-15% slopes, well drained



RdA	Ridgebury loam, 0-3% slopes, poorly to somewhat poorly drained
RdB	Ridgebury loam, 3-8% slopes, poorly to somewhat poorly drained
SuB	Sutton loam, 3-8% slopes, moderately well drained
Ub	Udorthents, smoothed, slopes mainly 0-15%, moderately well to excessively drained
Uc	Udorthents, wet substratum, slopes dominantly 0-3%, very poorly to somewhat poorly drained
UIC	Urban land-Charlton-Chatfield complex, rolling, very rocky, 2-15% slopes, well drained to somewhat excessively drained
W	Water
WdB	Woodbridge loam, 3-8% slopes, moderately well drained
WdC	Woodbridge loam, 8-15% slopes, moderately well drained

The soils with shallow depth to bedrock, shallow water table, high erodibility and 20%+ clay content are noted on Soils Exhibit III.F-1, Soils. The soil mapping units noted above are described further as follows:

ChB-Charlton Loam, 2 to 8 Percent Slopes, Well Drained: This soil is gently sloping, very deep, and well drained. It is on hilltops and parts of hillsides. It formed in glacial till derived from granite, schist, and gneiss. Many areas of this soil are used for community development or for recreation. Other areas are wooded, are covered by brush, or are used for farming.

ChC-Charlton Loam, 8 to 15 Percent Slopes, Well Drained: This soil is strongly sloping, very deep, and well drained. It is on hillsides. It formed in glacial till derived from granite, schist, and gneiss. Many areas of this soil are used for community development or for recreation. Other areas are wooded, are covered by brush, or are used for farming.

ChD-Charlton Loam, 15 to 25 Percent Slopes, Well Drained: This soil is moderately steep, very deep, and well drained. It is on hillsides. It formed in glacial till derived from granite, schist, and gneiss. Many areas of this soil are used for recreation. Some areas are used for community development. Other areas are wooded or are covered by brush.

CrC-Charlton-Chatfield Complex, Rolling, Very Rocky, 2 to 15 Percent Slopes, Well Drained: This unit consists of the very deep and moderately deep, well



drained and somewhat excessively drained Chatfield soil and the well drained Charlton soil. It is on hilltops and hillsides that are underlain by highly folded bedrock. Many areas are used for community development. Other areas are wooded or are used for pasture.

CsD-Chatfield-Charlton Complex, Hilly, Very Rocky, 15 to 35 Percent Slopes, Well Drained: This unit consists of the very deep and moderately deep, well drained and somewhat excessively drained Chatfield soil and the well drained Charlton soil. It is on the tops and sides of hills that are underlain by highly folded bedrock. Many areas are used for community development. Other areas are wooded or are used for pasture.

PnB-Paxton Fine Sandy Loam, 2 to 8 Percent Slopes, Well Drained: This soil is gently sloping, very deep, and well drained. It is on broad ridges and small hills. Many areas of this soil are used for community development. A few areas are used for farming, and other areas are wooded.

PnC-Paxton Fine Sandy Loam, 8 to 15 Percent Slopes, Well Drained: This soil is strongly sloping, very deep, and well drained. It is on the sides and tops of broad ridges and small hills. Many areas of this soil are used for community development. A few areas are used for farming, and other areas are wooded.

RdA-Ridgebury Loam, 0 to 3 Percent Slopes, Poorly to Somewhat Poorly Drained: This soil is nearly level, very deep, and poorly drained and somewhat poorly drained. It is in the uplands and along small drainageways. Most areas of this soil are wooded or are covered by brush. A few areas are used for community development or pasture.

RdB-Ridgebury Loam, 3 to 8 Percent Slopes, Poorly to Somewhat Poorly Drained: This soil is gently sloping, very deep, and poorly drained and somewhat poorly drained. It is on the lower parts of hillsides in the uplands and along small drainageways. Most areas of this soil are wooded or are covered by brush. A few areas are used for community development or pasture.

SuB-Sutton Loam, 3 to 8 Percent Slopes, Moderately Well Drained: This soil is gently sloping, very deep, and moderately well drained. It is on concave foot slopes and along drainageways in the uplands. Most areas are used for urban development or are forested. Some areas are covered by brush or are open fields.

Ub-Udorthents, Smoothed, Slopes Mainly 0 to 15 Percent, Moderately Well to Excessively Drained: This unit consists of very deep, excessively drained to moderately well drained soils that have been altered by cutting and filling. It is



mainly in and adjacent to urban areas, highways, and borrow areas. It is made up of soil material in alternating layers ranging from sand to silt loam. The properties and characteristics of the Udorthents are so variable that on-site investigation and evaluation are required to determine the suitability and limitations for proposed uses.

Uc-Udorthents, Wet Substratum, Slopes Dominantly 0 to 3 Percent, Very Poorly to Somewhat Poorly Drained: This unit consists of somewhat poorly drained to very poorly drained soils that have been altered mainly by filling. Filled areas are in the lower landscape positions, such as depressions and drainageways. The fill material ranges in texture from sand to silt loam. The properties and characteristics of the Udorthents are so variable that on-site investigation and evaluation are required to determine the suitability and limitations for proposed uses.

UIC-Urban Land-Charlton-Chatfield Complex, Rolling, Very Rocky, 2 to 15 Percent Slopes, Well Drained to Somewhat Excessively Drained: This unit consists of urban land; the very deep, well drained Charlton soil; and the moderately deep, well drained or somewhat excessively drained Charlton soil. It is on ridges and hilltops that are underlain by folded bedrock. This unit is used mainly for urban development. The open areas are lawns, gardens, or vacant and wooded land between structures.

WdB-Woodbridge Loam, 3 to 8 Percent Slopes, Moderately Well Drained: This soil is gently sloping, very deep, and moderately well drained. It is on the lower parts of hillsides in the uplands. Most areas of this soil are wooded or are covered by bushy plants. A few areas are used for community development or pasture.

WdC-Woodbridge Loam, 8 to 15 Percent Slopes, Moderately Well Drained: This soil is strongly sloping, very deep, and moderately well drained. It is on the lower parts of hillsides in the uplands. Most areas of this soil are wooded or are covered by bushy plants. A few areas are used for community development or pasture.

Typical soil characteristics of these soil units are summarized on the below Table.

**Table III.F-1
Soil Characteristics**

Soil Symbol	Soil Name and (Slope)	Erosion Hazard	Permeability (in/hr)	Surface Runoff	Depth to Bedrock (in)	Depth to Seasonal Watertable (ft)
ChB	Charlton loam (2-8%)	Slight	0.6-6.0	Medium	60+	6+
ChC	Charlton loam (8-15%)	Moderate	0.6-6.0	Medium	60+	6+
ChD	Charlton-loam (15-25%)	Severe	0.6-6.0	Rapid	60+	6+
CrC	Charlton-Chatfield, rolling (2-15%)	Moderate	0.6-6.0	Medium	60+	6+
CsD	Charlton-Chatfield, hilly (15-35%)	Severe	0.6-6.0	Rapid	20-40	6+
PnB	Paxton fine sandy loam (2-8%)	Slight	0.6-2.0 surface/<0.2 substratum	Medium	60+	1.5-2.5 (Feb. thru April)
PnC	Paxton fine sandy loam (8-15%)	Moderate	0.6-2.0 surface/<0.2 substratum	Medium	60+	1.5-2.5 (Feb. thru April)
RdA	Ridgebury loam (0-3%)	Slight	0.6-6.0 surface/<0.02 substratum	Slow	60+	1.5 (Nov. thru May)
RdB	Ridgebury loam (3-8%)	Slight	0.6-6.0 surface/<0.02 substratum	Medium	60+	1.5 (Nov. thru May)
SuB	Sutton loam (3-8%)	Moderate	0.6-6.0	Medium	60+	1.5-2.5 (Nov. thru April)
Ub	Udorthents smoothed	--	--	--	--	--
Uc	Udorthents, wet substratum	--	--	--	--	--
UIC	Urban land-Charlton-Chatfield complex	Severe during construction	0.6-6.0	Rapid	60+	6+
WdB	Woodbridge loam (3-8%)	Moderate	0.6-2.0 surface/<0.02 substratum	Medium	60+	1.5-2.5 (Nov. thru May)

Source: United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey



Table III.F-1 (Cont'd)
Soil Characteristics

Soil Symbol	Soil Name and (Slope)	Building Site Development			
		Shallow (Utility) Excavations	Dwellings without Basements	Dwellings With Basements	Local Roads and Streets/ Driveways
ChB	Charlton-loam (2-8%)	Slight	Slight	Slight	Slight
ChC	Charlton loam (8-15%)	Moderate: Slope	Moderate: Slope	Moderate: Slope	Moderate: Slope
ChD	Charlton-loam (15-25%)	Severe: Slope	Severe: Slope	Severe: Slope	Severe: Slope
CrC	Charlton-Chatfield, rolling (2-15%)	Moderate: Slope	Moderate: Slope	Moderate: Slope	Moderate: Slope
CsD	Charlton-Chatfield, hilly (15-35%)	Severe: Depth to Rock, Slope	Severe: Slope	Severe: Depth to Rock, Slope	Severe: Slope
PnB	Paxton fine sandy loam (2-8%)	Moderate: Dense Layer, Wetness	Moderate: Wetness	Moderate: Wetness	Moderate: Wetness, Frost Action
PnC	Paxton fine sandy loam (8-15%)	Moderate: Dense Layer, Wetness, Slope	Moderate: Wetness, Slope	Moderate: Wetness, Slope	Moderate: Wetness, Slope, Frost Action
RdA	Ridgebury loam (0-3%)	Severe: Wetness	Severe: Wetness	Severe: Wetness	Severe: Wetness, Frost Action
RdB	Ridgebury loam (3-8%)	Severe: Wetness	Severe: Wetness	Severe: Wetness	Severe: Wetness, Frost Action
SuB	Sutton loam (0-3%)	Severe: Wetness	Moderate: Wetness	Severe: Wetness	Severe: Frost Action
Ub	Udorthents smoothed	The properties and characteristics of this unit are variable and require on-site evaluation for most uses.			
Uc	Udorthents, wet substratum	The properties and characteristics of this unit are variable and require on-site evaluation for most uses.			
UIC	Urban land-Charlton-Chatfield complex	The properties and characteristics of this unit are variable and require on-site evaluation for most uses.			
WdB	Woodbridge loam (3-8%)	Severe: Wetness	Moderate: Wetness	Severe: Wetness	Severe: Frost Action

Source: United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey



Table III.F-1 (Cont'd)
Soil Characteristics

Soil Symbol	Soil Name and (Slope)	Septic Tank Absorption Fields	Clay Content (%)
ChB	Charlton loam (2-8%)	Slight	3-8
ChC	Charlton loam (8-15%)	Moderate: Slope	3-8
ChD	Charlton-loam (15-25%)	Severe: Slope	3-8
CrC	Charlton-Chatfield, rolling (2-15%)	Moderate: Slope	1-8
CsD	Charlton-Chatfield, hilly (15-35%)	Severe: Depth to Rock, Slope	7-18
PnB	Paxton fine sandy loam (2-8%)	Severe: Percs Slowly	3-12
PnC	Paxton fine sandy loam (8-15%)	Severe: Percs Slowly	3-12
RdA	Ridgebury loam (0-3%)	Severe: Percs Slowly, Wetness	2-10
RdB	Ridgebury loam (3-8%)	Severe: Percs Slowly, Wetness	2-10
RhB	Ridgebury loam (3-8%)	Severe: Poor Filter	1-10
SuB	Sutton loam (3-8%)	Severe: Wetness	2-10
Ub	Udorthents smoothed	The properties and characteristics of this unit are variable and require on-site evaluation for most uses.	
Uc	Udorthents, wet substratum	The properties and characteristics of this unit are variable and require on-site evaluation for most uses.	
UIC	Urban land-Charlton-Chatfield complex	The properties and characteristics of this unit are variable and require on-site evaluation for most uses.	
WdB	Woodbridge loam (3-8%)	Severe: Wetness, Percs Slowly	3-12

Source: United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey

On-Site Investigation

As part of a preliminary subsurface soil and foundation investigation (Appendix D), 11 test borings and 18 test pits were advanced at the Site. These investigations found that the soil conditions could be summarized as follows:

- The surface layer at most of the boring and test pit locations consisted of brown topsoil that typically ranged from about 0'3" to 0'10" in thickness.
- Beneath the topsoil and at the surface in some locations existing fill was found consisting of sand, silt, and gravel. Cobbles, boulders, and debris were also present within the fill at some of the test



locations. The existing fill was encountered to depths ranging from 1'0" to 7'0" beneath the existing ground surface.

- Underlying the topsoil and existing fill was virgin soil comprised of varying amounts of silt, sand, and gravel, with occasional cobbles and boulders. This ranged from depths of 2'0" to 12'0" below the existing ground surface.
- Below the sand and silt layer at several test locations completely weathered gneiss bedrock was found that generally consisted of dense sand, some silt and some gravel. Where encountered in the borings and test pits, the completely weathered bedrock was present at depths ranging from 2'0" to 7'0" beneath the ground surface and continued to depths ranging from 4'7" to 15'2" below the existing ground surface.
- Gneiss bedrock was encountered at 22 of the 29 test locations. Where encountered in the borings and test pits, gneiss bedrock was observed at depths ranging from 1'8" to 15'2" beneath the existing ground surface. In general, the quality of the bedrock improved with depth.

Groundwater was encountered at three of the 29 test locations, at a depth ranging from 3'3" to 4'1" beneath the ground surface. Groundwater was not encountered in any of the other borings or test pits that were performed at the Site during the investigation.

2. Potential Impacts

a) Description of Preliminary Grading Plan and Limit of Disturbance Line

The proposed development will involve the re-grading (altering) of the existing site topography within the 73.9 acre limit of disturbance area of the 156.3 acre Site. The Grading Plan is illustrated in Exhibits II-16A and 16B. The grading design is generally confined to the less steep portions of the property, and consists of grading for the reconstruction of the existing golf course and for the proposed homes and other hardscape improvements.

b) Cut and Fill Analysis and Impacts

The overall cut and fill associated with the re-grading of the Site to accommodate the proposed improvements represents a balance, meaning that no excess excavation will leave the Site and no additional fill will be brought onto the Site. In other words, all movement of material necessitated by the proposed earthwork will be confined to the Site. Therefore, there are no

trucking impacts associated with the earthwork because there is no import or export of soil.

Earthwork excavation will total 147,000 cubic yards of material, including excavation required for building foundations. Approximately 129,000 cubic yards of material will be used as fill within the golf course and residential area, and 18,000 cubic yards of material will be used for miscellaneous fill and improvements to the practice range.

The preliminary subsurface soil and foundation investigation (Appendix D), recommends that the boulders and excavated rock sourcing from excavation of the gneiss bedrock be processed by an on-site crusher to provide suitable fill material for the building and pavement areas.

Rock crushing could be utilized on the Site to process excavated rock into an aggregate used for construction of the Project. A permit to "Construct and Operate Portable Rock Crushing and Power Screening Equipment" would be obtained from the Westchester County Department of Health (WCDOH). The permit would require the Applicant submit an operating schedule, the type of particulate emission control, and a site plan depicting the rock crusher location at a minimum of 100 feet from offsite receptors such as sidewalks, buildings, and surrounding properties. Specifications or engineering data is required for a wet suppression system that meets opacity limitations for fugitive particulate emissions.

There are two main sources of dust from rock crushing operations. One source is the processing equipment that crushes, screens, and conveys the aggregate. The other is associated with stockpiles of pulverized rock where "fines" can become airborne by wind. Generally rock crushing equipment is not powerful enough to generate many PM-2.5 (particles smaller than 2.5 microns in diameter) particles, although generation of PM-10 (particles smaller than 10 microns in diameter) particles can be generated.

c) Potential Blasting

As discussed above, the preliminary subsurface soil and foundation investigation (Appendix D) encountered bedrock at 22 of the 29 test locations. The bedrock was encountered at depths ranging from 1'8" to 15'2" beneath the ground surface. The bedrock consisted of weathered gneiss. Based on the experience of the geotechnical engineers, the in-situ bedrock will range from highly weathered, fractured rock to massive, intact rock. Zones of weathered rock may exist deeper than 5'0" but conditions are expected to be highly



variable. Hard rock will be encountered during construction in the opinion of the geotechnical engineers.

As noted previously, there are no special geological features on the property.

In order to develop the Site, rock removal will be required in areas to achieve the proposed grades. Rock removal may also be required for the new pavement and utilities in portions of the Site.

To excavate the rock, the upper 1'0" to 5'0" of rock may be "rippable" by using large construction equipment. The use of hydraulic hammers will be required in order to achieve deeper excavations. Zones of weathered rock may exist deeper than 5'0" but conditions are expected to be highly variable. Based on test boring, rock blasting is not anticipated. Exhibit III.F-3 depicts the areas of potential rock removal.

Although blasting is not anticipated, following is a discussion of blasting protocol in the event that it is necessary. Blasting is regulated locally by the provisions of Chapter 71 "Blasting and Explosives" of the Town of North Castle Code. A blasting permit is required, with application to be made to the Building Inspector. Among the application requirements are:

- 1) Satisfactory evidence to the Building Inspector of the name, address, license number and expiration date of the blaster responsible for all work and whose name the permit will be issued to;
- 2) A description of all structures and utilities, including residential dwellings, garages, swimming pools, tennis courts, etc., located within 500 feet of the blast site and a list of the names and addresses of the owner or owners of any parcel within 500 feet of the property on which the blasting is to take place, as shown on the most recent tax rolls of the Town of North Castle;
- 3) A certificate of insurance is to be submitted which is issued by an insurance company authorized to do business in the State of New York, guaranteeing that the applicant has in full force and effect a policy of public liability insurance, including a specific endorsement covering the liabilities arising from blasting and providing bodily injury coverage of not less than \$500,000/\$1,000,000 and property damage insurance of not less than \$500,000/\$1,000,000;

- 4) A performance bond in an amount specified by the Building Inspector, however, not less than \$20,000, to cover the faithful performance of the permittee, is to be submitted with the application;
- 5) Conduct a pre-blast inspection, including of existing homes, structures, roadways, pools, utilities or facilities.
- 6) When determined necessary by the Town Building Inspector, the applicant is to prepare a blasting plan for the proposed work. The blasting plan is to be prepared by a professional engineer licensed in New York State.

No person is to conduct blasting operations within the Town of North Castle after the hour of 5:00 p.m. and before 8:00 a.m. nor at any time on Sunday or holidays, except in the case of emergency or necessity, and then only with permission of the Building Inspector.

With regard to the actual conduct of blasting operations, Chapter 71 of the Town Code requires the following:

- 1) No person is to use, in a blasting operation, a quantity of explosives greater than necessary to properly start the rock or other substances nor use such an amount as will endanger persons or property;
- 2) All blasts within 500 feet of any roadway, public area, occupied private area or structure, before firing, is to be covered with matting or other suitable protection of sufficient size, weight and strength to prevent the escape of broken rock or other material in a manner liable to cause injury or damage to persons or property. All blasts not within 500 feet of any roadway or structure are to have a suitable screen so as not to cause injury or damage to persons or property;
- 3) No person is to fire or explode or direct or cause to be fired or exploded any blast in or near any highway or public place in the Town of North Castle unless competent persons carrying a red flag and whistle have been placed at a reasonable distance on all sides of the blast to give proper warning thereof at least 3 minutes in advance of firing;
- 4) Handling of explosives including storage, amount, record keeping and route of travel through the Town to the Site are to be in accordance with the requirements as specified in the Code.



d) Soil Types to be Impacted

A grading limit line (limit of disturbance) is illustrated on the Site Grading Plans (Exhibits II-16A and 16B). The area of disturbance is 73.9 acres of the total 156.3 acre property, and of the 73.9 acres, 20.6 acres of disturbance is for the clubhouse and residential portion of the Site.

Table III.F-2, below, lists the soil types to be impacted by the proposed grading, and to what extent.

Table III.F-2
Soil Types to be Impacted

Soil Symbol	Soil Name and (Slope)	Area of Disturbance (acres)
ChC	Charlton loam (8-15%)	6.0
ChD	Charlton-loam (15-25%)	6.1
CrC	Charlton-Chatfield, rolling (2-15%)	19.9
CsD	Charlton-Chatfield, hilly (15-35%)	10.4
PnB	Paxton fine sandy loam (2-8%)	9.4
SuB	Sutton loam (3-8%)	6.5
Ub	Udorthents smoothed	4.7
UIC	Urban land-Charlton-Chatfield complex, rolling	9.2
W	Water	0.2
WdB	Woodbridge loam (3-8%)	0.6
WdC	Woodbridge loam (8-15%)	0.9
Total		73.9

Source: Jay Fain & Associates; John Meyer Consulting, PC

e) Potential Soil Limitation Impacts

The boring data indicates that existing fill is present within portions of the proposed building areas. Fill material may also be present in other unexplored portions of the Site. After the surface materials are removed, the existing fill is to be excavated from the new building areas. The removal of the existing fill from the new building areas is to extend through the existing fill, down to the virgin soil or weathered bedrock. At the bottom of the excavation, the removal of the unsuitable material is to extend horizontally beyond the building lines a minimum distance of 3 feet plus a distance equal to the depth of the excavation below the planned finished floor elevation. The removal of the existing fill from the planned building areas is to be performed under the full time observation of the geotechnical engineers.

After the surface materials and existing fill have been removed and prior to the placement of new structural fill, the exposed subgrade must be graded level and proofrolled by several passes of a vibratory drum roller. The proofrolling operation is necessary to densify the underlying soils. New structural fill required to achieve final grades is to consist of either suitable on-site soil or imported sand and gravel. After the installation of structural fill has been completed to the required subgrade elevations, the virgin soil and new structural fill may be used to support the proposed building foundations and floor slabs.

Where rock is encountered in the foundation excavations, "Special Construction Procedures" must be employed. When continuous wall footings or closely spaced column footings (20 feet or less) bear on dissimilar material (i.e. rock and soil) the potential for differential movement exists. A footing bearing in rock will not move, whereas a footing bearing on soil will settle slightly due to the compressive nature of all soils when subjected to new loads. The area between movement and non-movement will develop a (shear) stress point. Cracks in foundations and walls will be the result from such movement. Therefore, continuous wall footings must bear either entirely on rock or entirely on soil for any individual building. Alternatively, for larger structures, transition zones can be constructed to create a gradual transition from a soil to a rock bearing subgrade.

Adjacent column footings greater than 20 feet apart may bear on dissimilar material (i.e. soil and rock). Any individual column footing must bear entirely on the same type bearing material (i.e. all soil or all rock).



3. Mitigation Measures

a) Erosion and Sedimentation Control Plan

An Erosion and Sediment Control Management Program will be established for the proposed development, beginning at the start of construction and continuing throughout its course, as outlined in the "New York State Standards and Specifications for Erosion and Sediment Control," dated August 2005 (see Exhibit III.F-4).

The Operator shall have a qualified professional conduct an assessment of the Site prior to the commencement of construction and certify that the appropriate erosion and sediment controls, as shown on the Erosion and Sediment Control Plans, have been adequately installed to ensure overall preparedness of the Site for the commencement of construction. In addition, the Operator shall have a qualified professional conduct one site inspection at least every seven calendar days and at least two site inspections every seven calendar days when greater than five acres of soil is disturbed at any one time (except as may be permitted by NYSDEC).

Prior to the commencement of construction activity, the owner or operator must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The owner or operator shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the trained contractor. The owner or operator shall ensure that at least one trained contractor is on-site on a daily basis when soil disturbance activities are being performed. The owner or operator shall have each of the contractors and subcontractors identified above sign a copy of the certification statement before they commence any construction activity.

On-Site Pollution Prevention

Temporary pollution prevention measures used to control litter and construction debris on Site:

- Temporary Riser and Anti-Vortex Device
- Baled Filter

- Baled Fence and Checks
- Baled Erosion Fence
- Water Bars
- Stabilized Construction Entrance
- Silt Fence
- Silt Sack
- Stone Check Dam
- Excavated Drop Inlet Protection
- Curb Drop Inlet Protection
- Stone & Block Drop Inlet Protection

Inlet protection provided for all storm drains and inlets with the use of curb gutter inlet protection structures and stone & block drop inlet protection, which keep silt, sediment and construction litter and debris out of the on-site stormwater drainage system.

Temporary Control Measures

Temporary control measures and facilities will include silt fences, interceptor swales, stabilized construction entrances, temporary seeding, mulching and sediment traps with temporary riser and anti-vortex devices.

Throughout the construction of the proposed redevelopment, temporary control facilities will be implemented to control on-site erosion and sediment transfer. Interceptor swales, if required, will be used to direct stormwater runoff to temporary sediment traps for settlement. The sediment traps will be constructed as part of this project and will serve as temporary sediment basins to remove sediment and pollutants from the stormwater runoff produced during construction.

Descriptions of the temporary erosion and sediment controls that will be used during the development of the Site including silt fence, stabilized construction entrance, seeding, mulching and inlet protection are as follows:

- i. Silt Fence is constructed using a geotextile fabric. The fence will be either 18 inches or 30 inches high. The height of the fence can be increased in the event of placing these devices on uncompacted fills or extremely loose undisturbed soils. The fences will not be placed in areas which receive

concentrated flows such as ditches, swales and channels nor will the filter fabric material be placed across the entrance to pipes, culverts, spillway structures, sediment traps or basins.

- ii. Stabilized Construction Entrance consists of AASHTO No. 1 rock. The rock entrance will be a minimum of 50 feet in length by 20 feet in width by 8 inches in depth.
- iii. Seeding will be used to create a vegetative surface to stabilize disturbed earth until at least 70% of the disturbed area has a perennial vegetative cover. This amount is required to adequately function as a sediment and erosion control facility. Grass lining will also be used to line temporary channels and the surrounding disturbed areas.
- iv. Mulching is used as an anchor for seeding and disturbed areas to reduce soil loss due to storm events. These areas will be mulched with straw at a rate of 3 tons per acre such that the mulch forms a continuous blanket. Mulch must be placed after seeding or within 48 hours after seeding is completed.
- v. Inlet Protection will be provided for all stormwater basins and inlets with the use of curb & gutter inlet protection and stone & block inlet protection structures, which will keep silt, sediment and construction debris out of the storm system. Existing structures within existing paved areas will be protected using "Silt Sacks" inside the structures.
- vi. Erosion Control Matting will be utilized on slopes and within swales, where applicable, to provide stabilization in advance of vegetation being established. Such matting will be biodegradable to facilitate long term growth of vegetation in swales, on slopes and within stormwater management facilities.

The contractor shall be responsible for maintaining the temporary sediment and erosion control measures throughout construction. This maintenance will include, but not be limited to, the following tasks:

- i. For dust control purposes, moisten all exposed graded areas with water at least twice a day in those areas where soil is exposed and cannot be planted with a temporary cover due to construction operations or the season (December through March).
- ii. Inspection of erosion and sediment control measures shall be performed at the end of each construction day and immediately following each rainfall event. All required repairs shall be immediately executed by the contractor.



- iii. Sediment deposits shall be removed when they reach approximately $\frac{1}{3}$ the height of the silt fence. All such sediment shall be properly disposed of in fill areas on the Site, as directed by the Owner's Field Representative. Fill shall be protected following disposal with mulch, temporary and/or permanent vegetation and be completely circumscribed on the downhill side by silt fence.
- iv. Rake all exposed areas parallel to the slope during earthwork operations.
- v. Following final grading, the disturbed area shall be stabilized with a permanent surface treatment (i.e. turf grass, pavement or sidewalk). During rough grading, areas which are not to be disturbed for 14 or more days shall be stabilized with the temporary seed mixture, as defined on the plans. Seed all piles of dirt in exposed soil areas that will not receive a permanent surface treatment.

b) Corrective Measures Necessary to Overcome Soil Limitations

Section III.F.2.e, above, discusses potential soil limitations based on the on-site soil testing conducted.

c) Blasting Mitigation Plan and Alternatives to Blasting

Blasting is not anticipated, and other methods of rock removal will be employed first. The method of rock removal anticipated on the Project Site is the use of a large piece of construction equipment and/or with a hydraulic hammer that can "chip" and break the rock apart, without the use of blasting. As discussed in Section III.R.2.b), Construction, any rock chipping and ripping activity would occur during the hours of 7:30 am to 7:00 pm Monday through Friday and 8:00 am to 5:00 pm on Saturdays, as per Section 137-19 of the Town Code. Additionally as per Section 137-19 of the Town Code, during the hours of 8:00 a.m. to 6:00 p.m. or sundown, whichever is later, noise levels from the construction site as a whole will not exceed 70 dB(A)s when measured at a distance of 400 feet from the construction site; during the hours of 6:00 p.m. or sundown, whichever is later, to 8:00 a.m., noise levels will not exceed 55 dB(A)s.

Other impacts of rock ripping and chipping are ground vibrations in the immediate vicinity of the ripping and chipping machinery, and potential fly-off rock fragments again in the immediate vicinity of the ripping and chipping operation. While there is little that can be done to mitigate ground vibrations, there are a variety of steps that can be taken to mitigate the impacts of fly-off rock fragments. In the first instance, the impacts of fly-off rock fragments are



mitigated by providing the operator of the machinery working within an enclosed cab and/or wearing protective eye gear, by limiting the area of the ripping and chipping operation with signage and fencing to the machine operator, and by installing such controls as protective screening such that any potential fly-off rock fragments remain on-site. Other impacts, such as airborne dust created by the ripping and chipping operations, will be mitigated by wetting of the material being ripped.

However, if blasting is determined to be necessary, then (i) the blasting operation will be monitored by a seismologist using a seismograph, (ii) the “Peak Particle Velocity” emanating from any blast will be restricted to 2.0 in/sec, and (iii) each blast will be monitored to ensure that this criterion is not exceeded.

The U.S. Bureau of Mines [Nicholas et al (1971)] has established a vibrational threshold of 2.0 in/sec. This threshold has been used successfully in the industry. Each blast would be monitored independently to ensure that this threshold is not exceeded. The monitoring results would be provided to the blasting contractor as soon as possible so that the blasting program can be modified if necessary.

A minimum of four monitoring points would be established, to the north, east, south and west of the planned blast area. The seismograph sensors would be placed near the closest structure and at any structures identified during the pre-blast survey that are considered to be susceptible to vibration damage.

Prior to the start of any construction, a Blasting Management Plan would be prepared in accordance with the requirements of Town Code Chapter 71, discussed above, applicable State regulations and the Explosive Materials Code, NFPA No. 495, National Fire Prevention Association. Additionally, all blasting would adhere to the provisions of 29 CFR Ch. XVII Section 1910.109 for explosives and blasting agents.

Not more than 30 days or less than 72 hours prior to the intended blasting, a notice would be sent to the owner or owners of any parcel of property immediately adjoining or abutting the Site, and all residential and commercial property owners within a 500 foot radius of the blast area.

In the event that personal delivery of the notice of intent to blast cannot be effected, the notice of intent to blast is to be left or posted at the structure or dwelling in a conspicuous place or a certified letter, return receipt requested, will be sent to the affected structure or dwelling. The certified letter will be

mailed to the property owner. The addresses of property owners will be obtained from the Tax Assessor's office. The notice of intent to blast is also to be delivered to the Town Clerk, North Castle Police Department, Town Building Inspector and, if appropriate, the North Castle Water and Sewer Department no less than 72 hours prior to blasting.

A contact person will be established and named in this notice to respond to all concerns raised by nearby residents during the blasting phase of the project. The contact person is to respond to any inquiries within 24 hours.

For the subject project, prior to any blasting work being done, a licensed professional engineer will to be retained to perform a detailed pre-blast survey of existing structures located within 500 feet of the planned blast area. The pre-blast survey is to be conducted in accordance with the requirements of the Town of North Castle. A copy of all reports prepared by the licensed engineer will be submitted to the Town Engineer and the Owner's representative in a timely manner.

There are two main sources of dust at a rock crushing site. One source is the processing equipment that crushes, screens, and conveys the aggregate. The other is associated with stockpiles of pulverized rock where fines can become airborne by wind. Dust can be minimized using engineering controls. A dust suppression method which is suitable for mobile or temporary operations is wet suppression. Wet suppression consists of spraying water directly at the source, either into the inlet of the crusher, on top of the screen, or at the conveyor transfers. Spraying a very small amount of fine mist on the rock stream itself can help prevent airborne dust when rock is being processed. Wet suppression can reduce emissions by 70 to 95 percent. To further mitigate adverse impacts, rock and other material stockpiles will be tarped and properly maintained in a wet condition. Another method to reduce airborne dust is to keep the crushers as full as possible, by allowing less room for air.

An alternative to rock crushing would be to truck the excess rock off-site, although some unprocessed rock may be used as fill. For instance, small boulders up to 24 inches in diameter may be placed in parking lot fills deeper than 10 feet below the finished pavement. However, that is the largest size rock that may be used on-site without further processing.

As discussed in Section III.R.2.b, Construction, any rock crushing activity would occur during the hours of 7:30 am to 7:00 pm Monday through Friday and 8:00 am to 5:00 pm on Saturdays, as per Section 137-19 of the Town Code. Additionally as per Section 137-19 of the Town Code, during the hours of 8:00



a.m. to 6:00 p.m. or sundown, whichever is later, noise levels from the construction site as a whole will not exceed 70 dB(A)s when measured at a distance of 400 feet from the construction site; during the hours of 6:00 p.m. or sundown, whichever is later, to 8:00 a.m., noise levels will not exceed 55 dB(A)s.

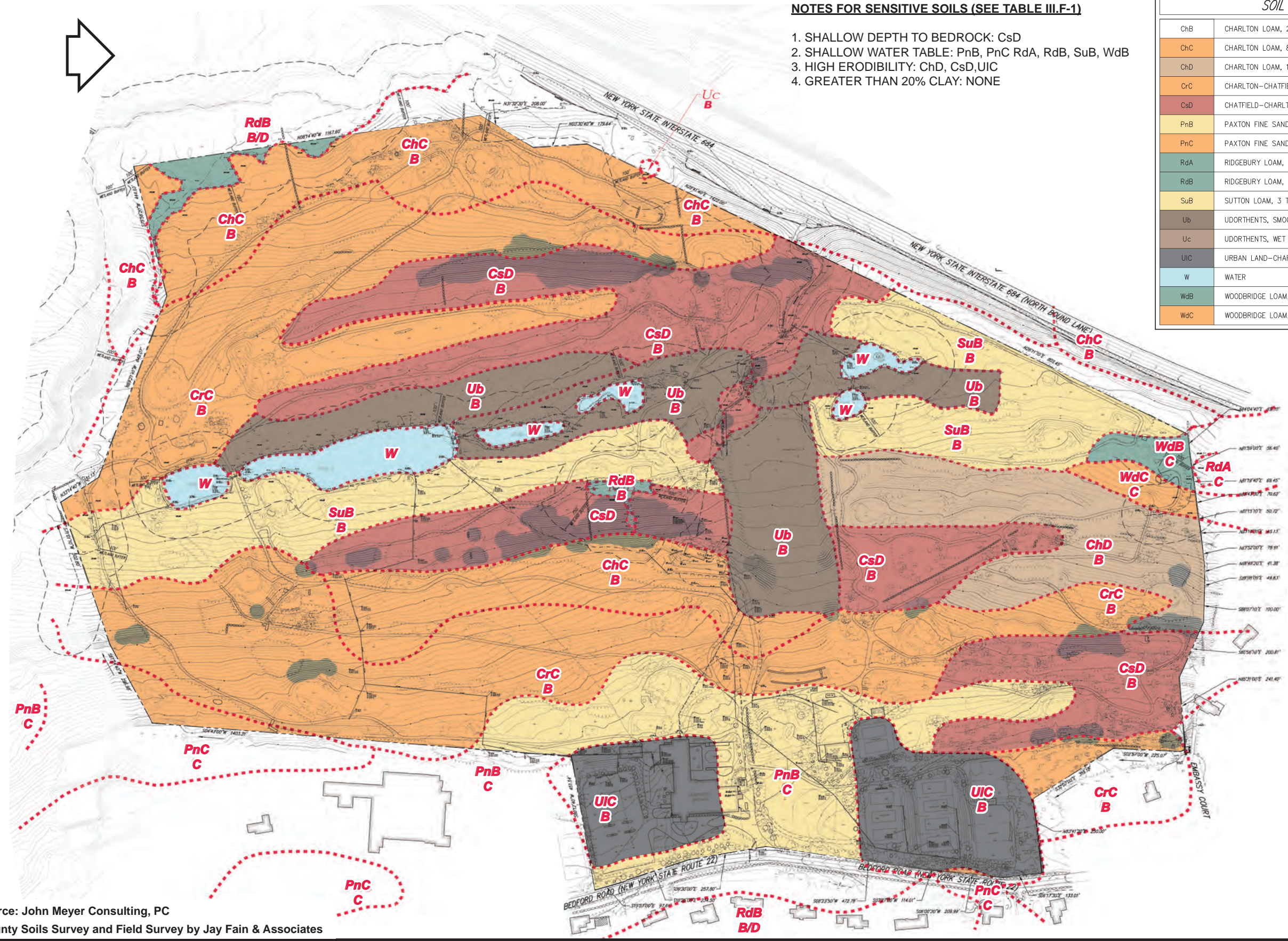
d) Construction Phasing Plan

The Project development plan would be constructed in three phases in three years. (See Exhibit II-20, Preliminary Phasing Plan). Phase 1 would include reconstruction of the back nine golf holes (plus the green for the 15th hole), clubhouse, and tennis courts, and construction of the Fairway Residences and residential buildings C1-C5, L1, L5 and V1, along with the proposed access driveway and related infrastructure. The proposed maintenance area (see Exhibit II-14G) will be constructed during Phase I which includes the new wastewater treatment plant and water tank and treatment system. The supply wells would be brought into service. A total of 40.5 acres of disturbance are associated with this phase.

Phase 2 would include reconstruction of the front nine golf holes plus the green for the 15th hole and construction of the residential buildings L2, L6, and V2-V5. A total of 30.4 acres of disturbance are associated with this phase. Phase 3 would include construction of residential buildings L7, V6 and V7. A total of 3.0 acres of disturbance are associated with this phase.

To minimize the disturbance at any one time, it is anticipated that demolition of existing improvements on the Site would occur within each construction phase as needed to permit construction to occur. In addition, landscaping would be put in place following the completion of each phase. See Exhibit II-20, Preliminary Phasing Plan, and Chapter III.R., Construction, for additional construction details. Note that the phasing plan depicts entire golf course holes within their particular phase, whether or not an area is proposed for disturbance. Thus, the phasing plan depicts larger areas than does the limit of disturbance plan because it includes areas not to be disturbed.





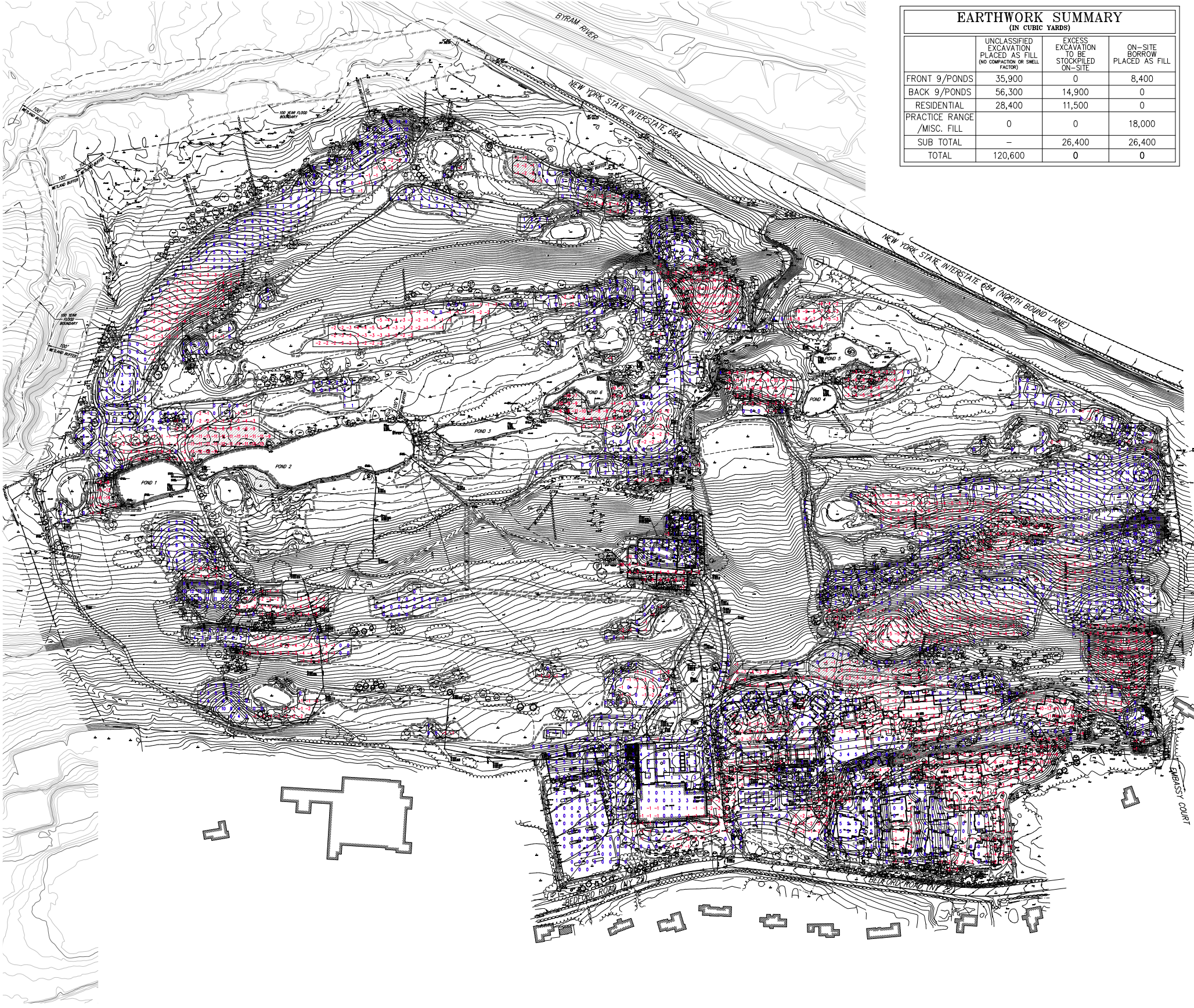
NOTES FOR SENSITIVE SOILS (SEE TABLE III.F-1)

1. SHALLOW DEPTH TO BEDROCK: CsD
2. SHALLOW WATER TABLE: PnB, PnC RdA, RdB, SuB, WdB
3. HIGH ERODIBILITY: ChD, CsD, UIC
4. GREATER THAN 20% CLAY: NONE

SOIL TYPE LEGEND	
ChB	CHARLTON LOAM, 2 TO 8 PERCENT SLOPES
ChC	CHARLTON LOAM, 8 TO 15 PERCENT SLOPES
ChD	CHARLTON LOAM, 15 TO 25 PERCENT SLOPES
CrC	CHARLTON-CHATFIELD COMPLEX, ROLLING, VERY ROCKY
CsD	CHATFIELD-CHARLTON COMPLEX, HILLY, VERY ROCKY
PnB	PAXTON FINE SANDY LOAM, 2 TO 8 PERCENT SLOPES
PnC	PAXTON FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES
RdA	RIDGEBURY LOAM, 0 TO 3 PERCENT SLOPES
RdB	RIDGEBURY LOAM, 3 TO 8 PERCENT SLOPES
SuB	SUTTON LOAM, 3 TO 8 PERCENT SLOPES
Ub	UDORTHENTS, SMOOTHED
Uc	UDORTHENTS, WET SUBSTRATUM
UIC	URBAN LAND-CHARLTON-CHATFIELD COMPLEX, ROLLING, VERY ROCKY
W	WATER
WdB	WOODBIDGE LOAM, 3 TO 8 PERCENT SLOPES
WdC	WOODBIDGE LOAM, 8 TO 15 PERCENT SLOPES

Base Map Source: John Meyer Consulting, PC
Soils from County Soils Survey and Field Survey by Jay Fain & Associates

BRYNWOOD
North Castle, New York



EARTHWORK SUMMARY (IN CUBIC YARDS)			
	UNCLASSIFIED EXCAVATION PLACED AS FILL (NO COMPACTION OR SHEL FACTOR)	EXCESS EXCAVATION TO BE STOCKPILED ON-SITE	ON-SITE BORROW PLACED AS FILL
FRONT 9/PONDS	35,900	0	8,400
BACK 9/PONDS	56,300	14,900	0
RESIDENTIAL	28,400	11,500	0
PRACTICE RANGE /MISC. FILL	0	0	18,000
SUB TOTAL	-	26,400	26,400
TOTAL	120,600	0	0

LEGEND

- EXISTING PROPERTY LINE
- ADJACENT PROPERTY LINE
- EXISTING BUILDING LINE
- 100 YEAR FLOOD BOUNDARY
- EXISTING PAVEMENT EDGE
- EXISTING CURB LINE
- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- EXISTING STONE WALL
- EXISTING RETAINING WALL
- EXISTING GUIDE RAIL
- EXISTING FENCE
- EXISTING TREE TO BE REMOVED
- EXISTING DRAIN INLET
- EXISTING MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING GAS VALVE
- EXISTING WATER VALVE
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING SIGN
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED CONCRETE SIDEWALK
- PROPOSED FINISHED GRADE
- PROPOSED SPOT GRADE
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED TYPE D DRAIN INLET
- PROPOSED TYPE D DRAIN INLET
- PROPOSED WATER QUALITY STRUCTURE
- PROPOSED SURFACE DRAINAGE OUTLET CONTROL STRUCTURE
- PROPOSED RETAINING WALL (DESIGN BY CIVILS)
- PROPOSED DITCH OR SWALE
- PROPOSED LIMIT OF DISTURBANCE
- PROPOSED CUT LABEL
- PROPOSED FILL LABEL

NOTES

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLES, "TOPOGRAPHIC MAP" PREPARED BY JOHN MEYER CONSULTING, PC. LAST REVISION 03/09/2012. PORTIONS OF EXISTING TOPOGRAPHY HAVE BEEN PROVIDED BY WESTCHESTER COUNTY GIS.

G. Topography and Steep Slopes

1. Existing Conditions

a) Description of Existing Topography

Exhibit III.G-1 depicts the existing topography of the Site. Elevations generally increase from southwest to northeast, ranging from approximately 400 feet along the westerly Site property line to approximately 674 feet along the northeastern Site property line, an elevation change of 274 feet.

The existing golf fairways and ponds are located generally in areas of lesser slope, with the areas of steepest topography situated in the central and west-central portions of the Site that are undeveloped. Steeper slopes also exist to the north of the existing tennis courts and within the northerly portion of the property. The steeper slopes are generally oriented in a northerly-southerly direction.

With respect to surrounding topography, the lands to the west of the Site continue to slope downward, towards I-684, while to the east of the property across Route 22 the land remains generally level with the eastern portion of the Site. To the north and south of the Site the land continues to slope in a similar manner to that of the Site, sloping downward to the west toward I-684 and upward to the east towards Route 22.

b) Slope Analysis of Existing Topography

Exhibit III.G-2 depicts the existing slopes on the Site by the slope categories 0-15%, 15-25%, and 25% and greater. The majority of the property (66 percent/102.3 acres) is comprised of slopes 0-15% in gradient. 21 Percent of the Site, or 33.05 acres, is comprised of slopes 15-25%, and the remaining 13 percent of the Site, or 20.96 acres, is comprised of slopes 25% and greater.

Exhibit III.G-3 depicts the Town-regulated “steep slopes” on the property. Steep slopes are defined under the Town Zoning Ordinance as a natural geographical area, whether on one or more lots, which has a ratio of vertical distance to horizontal distance of 25% or greater over a horizontal area measuring at least 25 feet in all directions. There are approximately 11.44 acres of Town regulated slopes on the property, which accounts for approximately 7% of the entire Site.

Table III.G-1, below, illustrates the quantities of existing slopes on the Site by both generalized slope categories and by Town-regulated slope categories.

**Table III.G-1
Existing Slope Analysis**

General Slope Categories	Slope Area (acres)	Percent of Total Area
0-15%	102.3	66%
15-25%	33.0	21%
25% and Greater	21.0	13%
Total	156.3	100%
Town Regulated Slope Categories		
0-24.99%	144.9	93%
25% and Greater	11.4	7%
Total	156.3	100%

2. Potential Impacts

a) Potential Impacts to Steep Slopes

As noted above, the Town's Zoning Ordinance defines a "steep slope" as "a natural geographical area, whether on one or more lots, which has a ratio of vertical distance to horizontal distance of 25% or greater over a horizontal area measuring at least 25 feet in all directions."

A total of 2.75 acres of Town-regulated steep slopes are proposed to be disturbed on the 156.3 acre Site. There are a total of approximately 11.44 acres of steep slopes on the property. Therefore, although approximately 49 percent of the property is proposed to be disturbed, only approximately 24 percent of the steep slopes on the property are proposed to be disturbed. The Site design therefore preserves to the extent practicable the steep slopes of the property.

See Exhibit III.G-4, Proposed Disturbance to Town Regulated Steep Slopes.

b) Steep Slope Permit Requirements

Steep slopes are regulated by Section 213-17 "Hilltops, Ridgelines and Steep Slopes" of the Town Code. The Code states that in any zoning district, no steep slope area, hilltop or ridgeline is to be disturbed in any manner, unless a disturbance permit is granted by the Planning Board in connection, in this case, with site plan approval. The Planning Board is not to grant the necessary permit

or approval if there is another alternative which, in the sole opinion of the Planning Board, is reasonable and practical and would help to preserve the steep slope, hilltop or ridgeline. If, however, the Planning Board determines that some disturbance of steep slopes is necessary or appropriate, the Planning Board may permit the disturbance, provided that the nature and extent of the disturbance is limited to the minimum amount practicable, consistent with the legislative intent of the Town regulations, and further provided that appropriate design and engineering techniques are employed which serve to minimize any potential environmental impacts.

- 1) The nature and extent of steep slope disturbance is to be minimized through appropriate and harmonious site design and engineering techniques, such as retaining walls, which respect and protect natural landforms and environmental features.
- 2) The removal of vegetation or the construction of buildings or other structures in publicly visible locations on hilltops or along ridgelines is to be permitted only if the natural visual quality of these features is appropriately protected, as determined by the Planning Board.
- 3) A stormwater pollution prevention plan (SWPPP) pursuant to Chapter 173 of the Town Code.
- 4) A plan for the protection of groundwater resources, if the Planning Board determines that such may be potentially affected by the proposed development as a whole or any part thereof.
- 5) A plan for appropriate landscaping and revegetation designed to minimize any potential impacts on scenic views and vistas or to wildlife habitat, as well as to assure the long-term stability of any remaining areas of steep slope.
- 6) Additional materials as may be required by the Planning Board are also to be submitted describing any other mitigative design features to be incorporated within the proposed development.

The design and engineering techniques to be employed to minimize environmental impacts include such methods as retaining walls to help limit the extent of grading impacts; benching of existing slopes where fill is to be placed; revegetation of slopes; reverse slope benches; slope stabilization using materials such as sod, gravel, riprap, or other stabilization method, slope roughening to facilitate revegetation.

The Overall Sediment and Erosion Control Plan is illustrated in Exhibit III.F-4.

3. Mitigation Measures

a) Erosion and Sediment Control Plan

An Erosion and Sediment Control Plan will be established for the proposed development, which will be implemented beginning at the start of construction and continuing throughout its course, as outlined in the "New York State Standards and Specifications for Erosion and Sediment Control," dated August 2005. Additional details are provided in Chapter III.F, Geology and Soils. The Overall Sediment and Erosion Control Plan is illustrated in Exhibit III.F-4.

b) Steep Slope Mitigation

The proposed Sediment and Erosion Control Plan will provide mitigation for the proposed disturbance to steep slopes. The Plan is part of the Stormwater Pollution Prevention Plan (SWPPP) prepared for the entire Site in accordance with the requirements of the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges Associated with Construction Activity (Permit No. GP-0-10-001) and Chapter 173 "Stormwater Management" of the Town of North Castle Zoning Code. The SWPPP is provided in Appendix F. The Overall Sediment and Erosion Control Plan is illustrated in Exhibit III.F-4.

The design and engineering techniques to be employed to minimize environmental impacts to steep slopes include such methods as retaining walls to help limit the extent of grading impacts; benching of existing slopes where fill is to be placed; revegetation of slopes; reverse slope benches; slope stabilization using materials such as sod, gravel, riprap, or other stabilization method, and slope roughening to facilitate revegetation.

c) Use of Retaining Walls to Minimize Grading Impacts

The use of retaining walls is proposed in selected portions of the redevelopment of the property in order to limit the extent of grading that would otherwise be necessary. The function of a retaining wall in the grading design of a project is to provide support the soil by resisting the tendency of soil to slump when there is a desired change in ground elevation that exceeds the natural angle of repose of the soil (where the soil would start to slump because the angle is too steep for the soil to support itself). This means that if no retaining wall were proposed, the area of ground disturbance would need to be increased to provide a shallower angle of repose of the soil (larger area that would need to be graded) to enable the proposed grading (the height of the proposed land surface) to meet the existing grading (the height of the existing land surface).



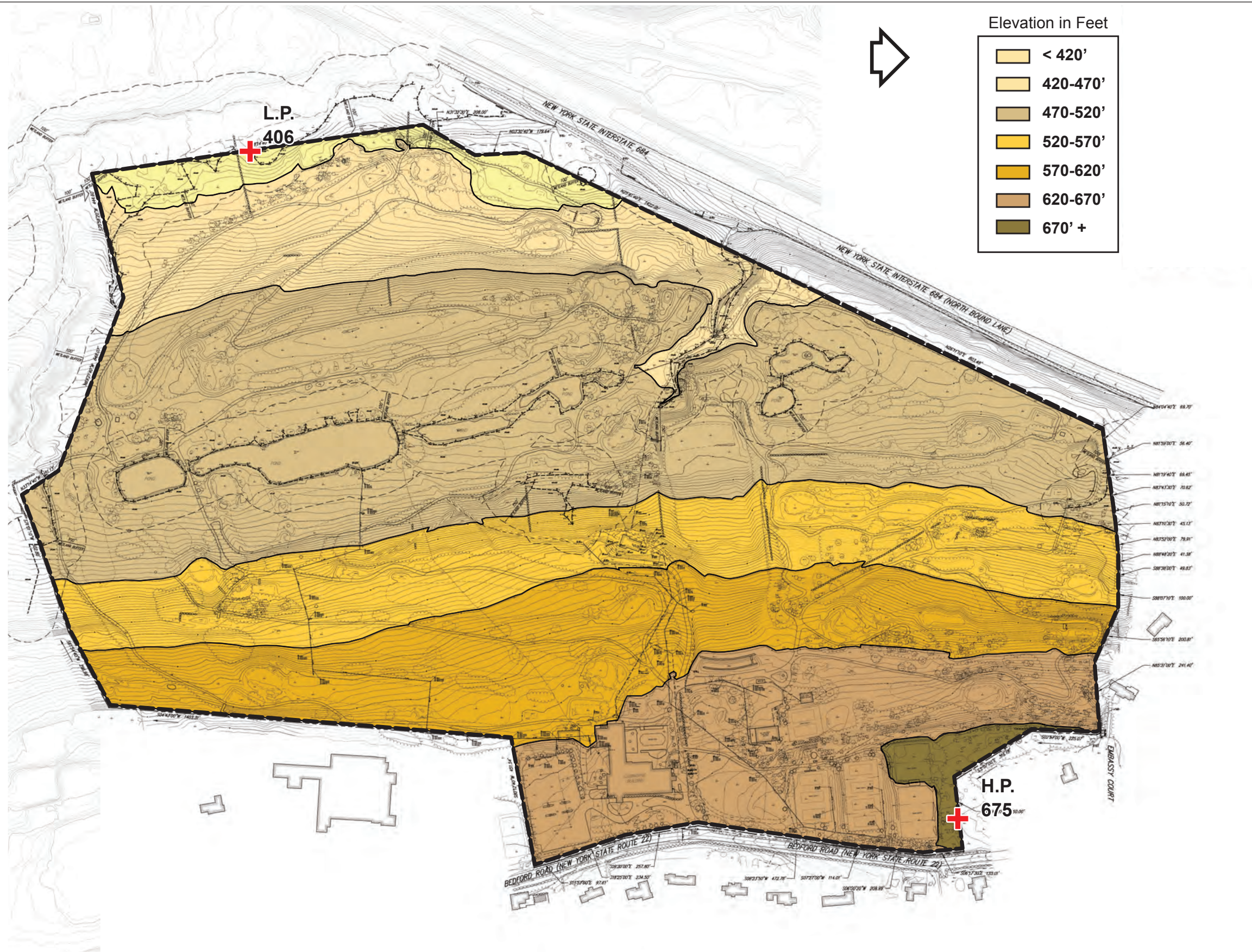
By supporting the soil, a retaining wall limits the extent of grading that would otherwise be necessary.

d) Project Phasing

In order to minimize the area of disturbance at any particular point during the project construction, it is proposed that the Project would be constructed in three phases in three years. Phase 1 would include reconstruction of the back nine golf holes (minus the green for the 15th hole), clubhouse, and tennis courts, and construction of the Fairway Residences and residential buildings C1-C5, L1, L5 and V1, along with the proposed access driveway and related infrastructure. The proposed maintenance area (see Exhibit II-14G) will be constructed during Phase I which includes the new wastewater treatment plant and water tank and treatment system. The water supply wells would be brought into service. Phase 2 would include reconstruction of the front nine golf holes plus the green for the 15th hole, and construction of the residential buildings L2, L6, and V2-V5. Phase 3 would include construction of residential buildings L7, V6 and V7.

To minimize the disturbance at any one time, it is anticipated that demolition of existing improvements on the Site would occur within each construction phase as needed to permit construction to occur. In addition, landscaping would be put in place following the completion of each phase. See Exhibit II-20, Preliminary Phasing Plan, and Chapter III.R., Construction, for more information. It is noted that the phasing plan depicts the entire golf course holes within their particular phase, whether or not an area is proposed for disturbance. Thus, the phasing plan depicts larger areas than does the limit of disturbance plan because it includes areas not to be disturbed.

It is anticipated that except as may be permitted by the NYSDEC, disturbance will be limited to 5 acres at any one time. This further breakdown of each phase into sub-phases is to be provided during site plan approval as the plans are finalized.



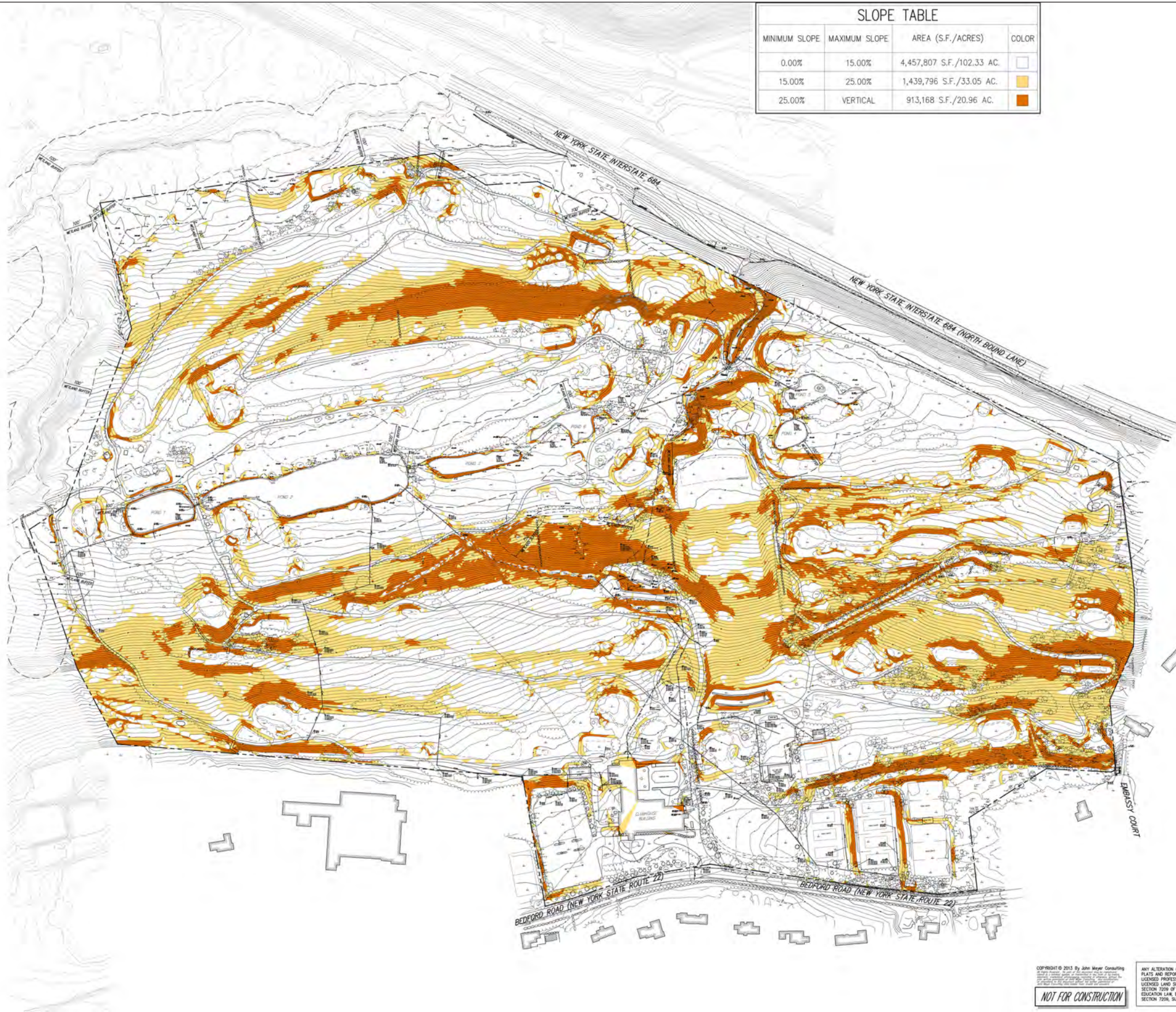
Base Map Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Topography

Exhibit
III.G-1



SLOPE TABLE			
MINIMUM SLOPE	MAXIMUM SLOPE	AREA (S.F./ACRES)	COLOR
0.00%	15.00%	4,457,807 S.F./102.33 AC.	Light Yellow
15.00%	25.00%	1,439,796 S.F./33.05 AC.	Orange
25.00%	VERTICAL	913,168 S.F./20.96 AC.	Dark Orange

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ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

NOT FOR CONSTRUCTION

Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Town Regulated Steep Slopes

Exhibit
III.G-3



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

**Proposed Disturbance to
Town Regulated Steep Slopes**

Exhibit
III.G-4

H. Wetlands and Surface Water Resources

1. Existing Conditions

Wetlands are regulated under federal law (Section 404 of the Clean Water Act), State law (Article 24 of the Environmental Conservation Law) and North Castle Town Code, Chapter 209, Wetlands and Watercourse Protection (the “Town Wetlands Law”).

Under the Town Wetlands Law, regulated activities include any activities in a wetland or the 100 foot wetland buffer/adjacent area including filling, clearing, grading, construction of any structure, discharge of fill, etc. The Planning Board is the approval authority for any of the regulated activities.

The Site was investigated by Jay Fain, Certified Soil Scientist, during the fall of 2012 for the purpose of delineating wetlands, wetland buffers and watercourses, and determining local jurisdiction under the Town Wetlands Law. Wetland identification was based on the presence of hydric soils, hydric vegetation and/or wetland hydrology. Watercourses were delineated on the basis of flow patterns. (See Soils Mapping and Wetland Delineation Report in Appendix H). Sampling began outside the observed bounds of the wetlands and continued until one of the three criteria was observed. These points on each transect were marked (flagged) with a sequentially numbered orange tape labeled “wetland boundary”. The boundaries of the wetland areas are along the lines that connect these sequentially numbered boundary points.

The flagged wetland boundaries were located by the Project surveyor and subsequently plotted on the overall site survey. The delineation map was provided to the Town Wetland Consultant, Kellard Sessions Consulting, P.C., for verification. On November 11, 2012, a wetland scientist from Kellard Sessions visited the Site to verify the field delineation. Kellard Sessions has issued verification of the delineation; the verification is in Appendix H.

The New York State Department of Environmental Conservation (NYSDEC) regulates wetlands under Article 24 of the New York State Environmental Conservation Law. Wetlands are defined by vegetation type and all NYSDEC wetlands have been mapped by the State (with the exception of the Adirondack region). No NYSDEC regulated wetlands (or 100 foot adjacent area) are found on the Site. The nearest regulated NYSDEC wetland is Wetland K-23 which is located southwest of the Site.



Per Section 404 of the U.S. Clean Water Act, the placement of dredged or fill material in waters of the United States, including wetlands, is not permitted without a permit from the U.S. Army Corps of Engineers (ACOE). Waters of the United States are navigable waters, their tributaries, adjacent wetlands, and other waters or wetlands where degradation or destruction could affect interstate or foreign commerce. Federal law does not regulate wetland buffer or adjacent area.

The “Federal Manual for Identifying and Delineating Jurisdictional Wetlands” (U.S. Army Corps of Engineers, 1987) defines wetlands based on the three parameter approach of hydric soils, hydrophytic vegetation and wetland hydrology. All three technical criteria must be met for an area to be identified as wetland. Because the federal criteria are less restrictive than the Town wetland criteria, the Town jurisdictional delineation of wetlands serves as the federal jurisdictional delineation.

**Table III.H-1
Summary of Wetland Areas by Jurisdiction**

Wetland #	JURISDICTION			Town of North Castle Regulated Buffer/Adjacent Area
	North Castle	ACOE 404	NYS Article 26	
W1	1.01	1.01	N/A	3.41 acres
W2	0.26	0.26	N/A	2.83 acres
W3	0.44	0.44	N/A	3.79 acres
W4	0.05	0.05	N/A	1.34 acres
W5	4.48	4.48	N/A	12.97 acres
W6	0.37	0.37	N/A	1.64 acres
TOTAL	6.61	6.61	N/A	25.98 acres
% of Site	4.2%	4.2%	N/A	16.6%

a) Existing Off-Site Wetlands

Two wetland areas were identified immediately off-site adjacent to the Site. The first is comprised of the Sniffen Brook watercourse corridor, associated wetlands and floodplain found immediately to the south and west of the Site. The approximate location of this wetland was obtained from field investigation

and from mapping provided from the Westchester County GIS system. Very little of the Site drains directly to this system.

A very small (2,000 sq. ft.) seep wetland is found on the northern property boundary and is partially fed by an intermittent drainage ditch found on the Site. The cover vegetation in this wetland is mostly disturbed and consists of privet, mulitfora rose, green briar and red maple trees as overstory. Drainage from this wetland continues to the west and under Interstate 684. The location of this wetland was field delineated.

The construction of Interstate-684 created a barrier to the drainage emanating from the Site. A series of culverts were installed at regular distances under the highway to accommodate surface water flows (see Exhibit III.H-1). To convey water to these culverts, a series of linear swales were constructed in the highway shoulder. These artifacts of the highway construction flow only after storm events, do not have associated hydric soils or hydric vegetation with them and therefore are not considered regulated wetlands or watercourses under Town, State or federal definitions.

b) Existing On-Site Wetland Characteristics

The Site is located in the Glaciated Northeast Eco-region as determined for wetland assessment using Hydrogeomorphic (HGM) region and wetland classification. References to the HGM classes and functions as defined in the publication "A Rapid Procedure for Assessing Wetland Functional Capacity" by Dennis W. Magee are made in the analysis of the on-site wetland communities. (See report and data sheets in Appendix H.) Six wetland communities have been identified by field investigation and have been flagged and mapped on the survey. The areas are labeled (W1) through (W6) and are indicated on Exhibit III.H-1: Wetlands. A total of 6.61 acres (4.2%) of wetlands and 24.34 (15.6%) of Town regulated wetland buffer are found on the Site.

The dominant characteristic of the wetlands on the Site is their disturbed and altered nature. With the exception of wetland **W1**, all of the on-site wetlands were disturbed, either partially or totally, in connection with the original golf course in the 1930's, or in connection with the most recent golf course construction in the 1960's. The largest wetland, the on-site pond system, was constructed in an area of a former wooded wetland and the upper portion perennial stream corridor was channelized to define flow. It is important to note that all these activities predate Town, State or federal wetlands regulation and that the Applicant currently complies with all applicable rules, laws and regulations.



(W1): This wooded wetland is located along the southern property boundary of the Site. This is the largest more or less intact wetland community type on the Site, although it is only a small on-site extension of a larger off-site wetland system associated with the Sniffen Brook corridor. The portion of the wetland on the Site is 1.01 acres. Vegetation is sparse and includes skunk cabbage (seasonally) and spicebush. The over story canopy in this area is upland type and dominated by tulip poplar and sugar maples. The canopy is closed and there is little understory, just occasional spicebush. The soils are Ridgebury loam and consist of very deep somewhat poorly drained to poorly drained soils that formed in glacial tills. The HGM classification of this wetland is “slope wetland, subclass groundwater driven”. This wetland functions to provide storm water conveyance, modification of stream flow into Sniffen Brook, water quality attenuation, and as wetland contiguous with the Sniffen Brook corridor it contributes to vegetation and fauna diversity.

(W2): This wetland is a side hill seep found within the central second growth mixed hardwood – 40+ year old wooded area. The seep is a small area of 0.26 acres. The upper part is vegetated with skunk cabbage (seasonally) and occasional spicebush. As the gradient decreases along the fairway of existing Hole 17 of the golf course, the overland flow is impounded and invasive plants including a robust stand of common reed has become established. Included within the reed stand are occasional red-osier dogwoods and willows. The soils are Ridgebury on the slope and udorthent with a wet substratum adjacent to the fairway. The HGM type of this wetland is “slope, subclass groundwater driven”. The seeping groundwater flows down a wooded slope to the edge of the maintained lawn area where it gathers in a lineal depression. Water conveyance and water quality improvement are the main wetland functions.

(W3): This perennial stream watercourse and associated wetland fringe is located in the center part of the Site flowing to a culvert under Interstate 684 and is 0.39 acres in area. Flows through this system are from three sources: overland storm flows, discharge from the on-site pond systems and treated effluent of the existing waste water treatment plant.

This watercourse has substantially varying character along its length. The upper portion to the east of the existing cart bridge was extensively disturbed during the various golf course constructions. It is unlikely that the stream in this area follows its original natural flow path but instead follows a man-made channel. Consequently, the area has been colonized by invasive common reed and contains other non-native invasive plants including Japanese knotweed, privet and multiflora rose. Other native plants include, red-osier dogwood, jewel weed, goldenrod, bedstraw, smartweed and beggar tick.



The character of the stream corridor changes dramatically to the west of the existing cart path. While the eastern portion has little gradient, the western portion steepens and narrows dramatically. The stream follows and is confined by the underlying bedrock. Consequently, there is little or no wetland vegetation with this portion of the system.

The function of this wetland is to transport the water to a culvert and under Interstate 684 and then eventually to the Bryam River. The area east of the cart path has some minor function to contribute to improved water quality by providing some filtering and settling. The channel to the west of the cart bridge is too steep and short to have any function that modifies the flow of the water before reaching the Bryam River.

Wetland W-3 does not fit within any HGM classification due to its nature as a linear stream system without associated riparian vegetation. The closest category under the HGM method is “riverine”.

(W4): This is a narrow man-made channel that was constructed as part of the golf course drainage system. It is an extension of the dry drainage swale between golf Holes 11 and 12. Flow in this channel is seasonal and is usually dry shortly into the growing season. Wetland soils are lacking and the vegetation is mostly non-native invasives including privet, common reed, multiflora rose and honeysuckle. A few facultative and obligate wetland species are found in the channel bottom including cattail, purple loosestrife and jewel weed. Functions include the transport of surface runoff and flow from a 6” subsurface drain pipe. Flows are directed to adjacent off-site Surface Depressional Wetlands. The small size and lineal nature of this watercourse limits its ability to perform most of the functions of larger wetland systems.

Wetland W-4 does not fit within any HGM classification due to its origin as a drainage swale and lack of apparent wetland vegetation. The closest category in the HGM system is “slope wetland, subclass ground water driven”.

(W5): This wetland is comprised of the series of small and large ponds that were created in association with the latest renovation of the golf course in the early 1960’s. Total surface area of the six ponds is 4.17 acres. This pond system was created to provide a golf course play hazard and to provide surface storage for water to irrigate the course. The source of water that sustains these ponds is surface and groundwater runoff and a series of irrigation wells.

The original pond design was largely based on aesthetics and little, if any, thought was given to wildlife habitat or water quality enhancement. The ponds were created without aquatic benches, and therefore lack emergent vegetation.



Currently, mowing and weed-whacking occur along the perimeter of the pond system right to the edge of the water. Consequently, wetland facultative or obligate is sparse and consists of an occasional umbrella sedge or hard rush.

The four ponds on the southern half of the course are connected by a series of pipes and spillway and drain to the north ultimately connecting with wetland **W3**. The two ponds on the northern part of the course drain to the south through a series of culverts and ultimately discharge to wetland **W3**. The ponds themselves function as a habitat for reptiles, amphibians and fish that tolerate shallow water with high nutrient levels. The main wetland function of the ponds is to store storm water and to improve water quality using the ecosystem within the water to uptake nutrients contained in the surface flow runoff that enters the ponds from the golf course grassed areas.

Under the HGM Classification system, the pond system is classified as a “lacustrine wetland”. The HGM system does not provide a functional evaluation methodology for lacustrine systems, therefore, this wetland system was evaluated under the “depressional” and “lacustrine fringe” classifications and the results were averaged.

W6: This wetland community is so highly disturbed as to be rendered functionally obsolete. The first wetland area is a 0.36 acre area located along the southern property boundary. This area is stripped of topsoil, smoothed and drained with a diversion channel. As a result, it retains little, if any, wetland function and contains vegetation more typical of a disturbance than wetland. Vegetation includes multiflora rose, European privet, green briar and common reed. The soils are Udorthents with a wet substratum. The HGM of this wetland is “slope, subclass ground water driven” and its main function is transportation of surface water flows.

The other area of disturbed wetland is an isolated surface water depression found along the western border of the Site. This wetland is small (0.1 acre) and does not contain any wetland vegetation or exhibit wetland hydrology. This wetland was filled in conjunction with the original construction of the golf course to a depth of 12 to 18 inches, thus the soils are Udorthents, smoothed. The HGM classification is Surface Water Depressional. This wetland area does not provide habitat for any obligate wetland wildlife.

c) Existing Surface Water Bodies, Drainage Patterns and Discharge Points

The Site is located in the Byram River watershed basin. The entire Site slopes to the west and drains under Interstate 684 before connecting to the Byram River just below Byram Lake. The Byram River flows to Long Island Sound.



General site surface flow drainage patterns and connections between individual wetlands are shown in Exhibit III-H-3, Existing Wetland Contributory Areas. The Site contains four sub-watersheds that flow beneath Interstate 684 in at least four separate culverts. The northern one-third of the Site, including wetland **W4**, drains north-westerly for a short distance before entering the highway drainage system. The highway drainage system conveys this flow in a southerly direction along the highway shoulder where it enters a 60-inch culvert.

The middle two-thirds of the Site drains to wetland/watercourse **W3** which conveys flow to a large culvert. Wetlands **W2** and **W5** drain to wetland **W3** by overland flow, spillways and culverts. Flow from watercourse W-3 flows under Interstate -684 via a 60-inch reinforced concrete pipe.

The southern third of the Site drains into two subwatersheds. The southern subwatershed drains to the Sniffen Brook wetland and then under Interstate-684. This subwatershed includes Wetland W-1. The northern subwatershed also drains via culvert under Interstate-684. Sniffen Brook, in turn, drains to the north before entering a culvert under Interstate-684.

No portion of the Site is located within or drains to a drinking water supply watershed.

None of the water bodies, streams or wetlands on-site are classified by the NYSDEC under Article 15 of the Environmental Conservation Law. However, Sniffen Brook, southwest of the Site, is a class "C" water. Class "C" waters are suitable for non-contact activities and support fisheries.

2. Potential Impacts

Residential Community

No disturbance in any wetland or wetland buffer area is necessary to construct the proposed residential community. The nearest wetland in relation to the residential component of the Project is wetland W-4, which is located off-site along the northern border of the Site. The distance from the wetland to any grading or other disturbance is approximately 700 feet. Therefore, there will be no direct disturbance or impact to this wetland associated with the residential construction.

Golf Course Improvements and Enhancement

There are no direct impacts to wetlands or watercourses from the renovation of the golf course. Regulated activities associated with the golf course renovation can be grouped into three general types: 1) pond dredging and enhancement,



including wetland creation and restoration, 2) re-grading and realignment of existing turf areas for maintenance activities and for golf course hole rerouting, and 3) clearing and/or grading of existing wooded areas for proposed golf course hole re-alignment.

Pond dredging and wetland restoration, enhancement and creation would directly impact 1.25 acres of on-site wetlands. The realignment of the existing fairways and clearing and grading for golf course renovation involves only activities within 4.34 acre of regulated wetland adjacent area. Wetland and wetland adjacent area disturbance by activity is summarized in Table III.H-2.

Pond Dredging and Wetland Enhancement and Creation

Although it is not necessary for the renovation of the golf course, the proposed pond dredging and wetland creation, enhancement and restoration is a beneficial activity. The ponds were created before wetland regulation and before the functions and values of wetland systems were recognized. They were therefore not designed to perform many of the functions associated with wetland systems including water quality improvement and provision of wildlife habitat. Pond dredging and enhancement, as well as wetland creation and restoration, is being proposed for water quality enhancement, to provide additional storage for irrigation water, to provide and enhance wildlife and finfish habitat, and as partial mitigation for proposed wetland and wetland adjacent area impacts. There will be some short-term impacts associated with the pond dredging. Initially, the ponds will have to be de-watered to allow access for construction equipment. Habitat for aquatic dependent animals will be eliminated during the de-watering. However, pond dredging will be done in stages so that there is always on-site aquatic habitat available for relocation of animals from the de-watered pond.

Increased sedimentation during the dredging process is not a concern as the goal of the dredging process is to remove accumulated sediments. Post dredging, the excavated pond will be protected with sediment and erosion controls to protect against the accidental re-introduction of sediments. Water will be gradually returned to the pond to prevent any scouring and suspension of any residual sediment remaining in the pond.

The dredged spoils will be stockpiled for a period of time to allow for de-watering. To prevent accidental re-introduction to the pond, the stockpile will be surrounded by erosion control protection and temporarily seeded and mulched.



The Applicant will seek a Beneficial Use Determination from the NYS DEC for re-use of the dredged material on-site. If a Beneficial Use Determination cannot be obtained, the Applicant will not pursue the dredging process due to the increased costs associated with off-site disposal. (See Appendix H for NYSDEC documentation about dredged spoils).

During the dredging operation, the pond system will also be altered and enlarged by the creation of several shallow water marshes adjacent to the existing ponds. This is proposed to create a wetland component to the existing open water pond system to increase water quality and provide wildlife habitat currently not available on the Site. As with the pond dredging, sedimentation is not a concern as the wetland creation process will involve removal of soil material, although it is also anticipated that some dredged material will be placed in the newly created area to provide a substrate for aquatic plants. Post construction, the newly created pond and marshes will be protected with erosion and sediment controls.

Dredging of the existing pond system will increase the depth of the ponds and creation of additional wetland areas will increase surface area and depth. This will allow for greater “dead storage” within the pond system. The source of water for the existing pond system is from surface and groundwater flows from the surrounding 104 acre watershed and from the existing irrigation wells. Post dredging and wetland creation, the source of water will be from the slightly enlarged 110 acre surrounding watershed and from the irrigation wells. Once the ponds have refilled with water, the hydrology of the enlarged pond system will be similar to the pre-construction condition. Even without the irrigation wells, the pond system still will have adequate water source to remain viable. The USDA NRCS recommends approximately 2 acres of contributing watershed for each acre-foot of volume. The proposed, enlarged pond system has an anticipated storage capacity of 18 acre-feet. Therefore, there is a ratio of approximately 8 acres of watershed for each acre-foot of anticipated volume – well in excess of the USDA recommendation.

Since the pond dredging and wetland creation/enhancement is creating only dead storage, once the ponds refill, the condition of the water course draining the pond system (wetland W-3 on Exhibit III.H-1) is expected to remain effectively the same as the pre-construction condition. This is due to the fact that the flow to this system is controlled by the pond outlet structure. Therefore, adverse impact to the downstream off-site wetlands is not anticipated. Additionally, the overall hydrology of the pre- and post-construction pond system will not be altered by the dredging and wetland



creation. The current watershed to pond surface area ratio is 4.5%, and will be 5.2% in the post improvement condition.

Regrading and Realignment of Existing Golf Course in Town Regulated Wetland Buffer/Adjacent Area

The Applicant is proposing to perform earth disturbance and grading within several areas of the existing golf course that are classified as Town regulated wetland buffer (adjacent area). These activities are proposed to improve the design of the existing golf course.

The re-grading and realignment of existing fairways, greens and tees has happened many times in the history of the golf course, including the original construction in the 1930's, the initial construction of the present course in the 1960's and the renovation of the course in the 1970's. The proposed golf course renovation is partially due to re-routing holes to accommodate the proposed residential units but largely to address deficiencies in the current course design.

Of the total of 25.98 acres of Town regulated buffer on the Site (16.6% of the Site), a total of 4.34 acres (2.7% of the Site) will be impacted due to the proposed golf course improvement activities. Of those 4.34 acres, 3.57 are currently maintained as manicured golf course surfaces (tees, greens and fairways) and 0.75 acres are woods in various stages of succession. (See Exhibit III.H-2, Wetland Activities, for locations).

A summary of the proposed activities within Town regulated buffer is shown on Table III.H.2. A brief description of these activities is as follows:

Hole #2 Green - Earthwork of approximately 0.14 acres is proposed within the 100 foot buffer of Wetland W-4. The area is currently maintained as turf grass. Post-construction the area will be maintained as turf grass and as a sand trap. There will be a potential short-term impact to Wetland W-4 from sedimentation due to removal of the existing turf grass cover. No long term impact is anticipated to the hydrology, vegetation composition, or hydroperiod of wetland W-4 as the proposed disturbance occurs in an area maintained as turf grass and overall superficial drainage patterns are not being changed. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls.

Hole #3 Fairway - Earthwork of approximately 0.10 acres is proposed within the 100 foot buffer of Wetland W-5, an area which is currently maintained



as turf grass. Post-construction the area will be maintained as turf grass and as a bunker. There will be a potential short-term impact to Wetland W-5 from sedimentation due to removal of the existing turf grass cover. No long term impact is anticipated to the hydrology, vegetation composition, or hydroperiod of Wetland W-5 as the proposed disturbance occurs in an area maintained as turf grass and overall superficial drainage patterns are not being changed. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls. Work will be coordinated during the period of pond dredging to avoid multiple disturbances.

Hole #3 Green - Earthwork of approximately 0.10 acres is proposed within the 100 foot buffer of Wetland W-5, an area which is currently maintained as turf grass. Post- construction the area will be maintained as turf grass and as a sand trap. There will be a potential short-term impact to Wetland W-5 from sedimentation due to removal of the existing turf grass cover. No long term impact is anticipated to the hydrology, vegetation composition, or hydroperiod of Wetland W-5 as the proposed disturbance occurs in an area maintained as turf grass and overall superficial drainage patterns are not being changed. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls. Work will be coordinated during the period of pond dredging to avoid multiple disturbances.

Hole #6 Tee Area - Earthwork of approximately 0.12 acres of turf and approximately 0.8 acres of existing wooded area are proposed within the 100 foot buffer of Wetland W-6 – an essentially filled and non-functioning wetland area. Post-construction the area will be maintained as tee boxes. There will be a potential short-term impact to Wetland W-6 from sedimentation due to removal of the existing turf grass cover and tree cover. No long term impact is anticipated to the hydrology, vegetation composition, or hydroperiod of Wetland W-6 due to the functional status of the existing wetland. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls.

Hole #8 Green – Earthwork of approximately 0.10 acres is proposed within the 100 foot buffer of Wetland W-5, an area which is currently maintained as turf grass. Post-construction the area will be maintained as turf grass and as a sand trap. There will a potential short-term to Wetland W-5 from sedimentation due to removal of the existing turf grass cover. No long term impact is anticipated to the hydrology, vegetation composition, or



hydroperiod of Wetland W-5 as the proposed disturbance occurs in an area maintained as turf grass and overall surficial drainage patterns are not being changed. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls. Work will be coordinated during the period of pond dredging to avoid multiple disturbances.

Hole #11 Tee Area – Hole #11 is proposed to be shifted to the west to accommodate revisions to the golf course necessary for the construction of residential units. Filling and grading is required to accommodate the new tee placement and will require the disturbance of approximately 0.4 acres of early successional hardwoods. Immediately adjacent to the proposed disturbance is the Town regulated intermittent watercourse which drains to Wetland W-4. The potential for increased sedimentation is relatively high here due to the proximity of the watercourse and the steep repose of the fill slope. Special measures will be implemented to prevent erosion and subsequent erosion. However, potential impacts to the wetlands are expected to be temporary. No substantial long-term impacts to the hydrology, vegetation composition or other functions of off-site Wetland W-4 are anticipated.

Hole #12 Green - Earthwork of approximately 0.36 acres is proposed within the 100 foot buffer of off-site Wetland W-4. The area is currently maintained as turf grass. Post-construction the area will be maintained partially as the green for Hole #12 and as a turf grass embankment. There will be a potential short-term impact to Wetland W-4 from sedimentation due to removal of the existing turf grass cover. No long term impact is anticipated to the hydrology, vegetation composition, or hydroperiod of Wetland W-4 as the proposed disturbance occurs in an area maintained as turf grass and overall superficial drainage patterns are not being changed. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls.

Hole #14 Tee Area - An area of 0.30 acres of existing turf and an area of 0.17 acres of early successional hardwoods is proposed to be cleared and regraded to accommodate new tee boxes for the lengthening of Hole #14. Adjacent wetlands include Wetland W-3 and Wetland W-5. The area proposed for the relocation of the tee boxes is comprised of remnant fill piles remaining from the construction of the original golf course. The trees in the location are early successional hardwoods (primarily cottonwoods) and are in severe decline. The short term impacts are primarily due to the potential erosion and subsequent sedimentation. Erosion and sediment



control will be used to mitigate this potential impact. There are no long-term impacts to wetland hydrology, hydroperiod or vegetation composition from the proposed activity. The upper part of Wetland W-3 is primarily fed from the effluent from the existing sewage treatment plant. The existing vegetation is largely non-native invasives including giant reed grass and Japanese knotweed. As part of overall site mitigation, these plants are proposed to be removed and native wetland plants installed. Wetland W-5 is an existing ornamental pond surrounded by turf grass. No overall change in hydrology, hydroperiod or vegetation composition (currently lacking) is anticipated.

Hole # 17 Tee Area – The relocation of the tee boxes on Hole #17 will impact 0.37 acres of existing golf course turf area and 0.11 acres of early successional hardwoods. The adjacent wetland is Wetland W-2. Since the area to be disturbed drains away from the adjacent wetland there is no anticipated impact for increased sedimentation or to wetland hydroperiod or hydrology. The area of vegetation adjacent to the proposed tee boxes is currently dominated by the non-native invasive giant reed grass. This invasive is proposed to be removed and replaced with native wetland plants as part of the overall project wetland mitigation plan. Therefore, there is no anticipated impact to the vegetation composition of Wetland W-2.

Hole #17 Fairway - Earthwork of approximately 0.50 acres is proposed within the 100 foot buffer of Wetland W-5 to re-grade the existing fairway. The area is currently maintained as turf grass. Post-construction the area will be maintained as turf grass. There will be a potential short-term impact to Wetland W-5 from sedimentation due to removal of the existing turf grass cover. No long term impact is anticipated to the hydrology, vegetation composition, or hydroperiod of Wetland W-5 as the proposed disturbance occurs in an area maintained as turf grass and overall superficial drainage patterns are not being changed. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls. Work will be coordinated during the period of pond dredging to avoid multiple disturbances.

Hole #17 Green - Earthwork of approximately 0.45 acres is proposed within the 100 foot setback from Wetland W-5. The proposed disturbance is necessary primarily to accommodate the proposed wetland enhancement and creation in this area. The area is currently maintained as turf grass. Post-construction the area will be maintained as turf grass with sand bunkers. There will be a potential short-term impact to Wetland W-5 from sedimentation due to removal of the existing turf grass cover. No long term



impact is anticipated to the hydrology, vegetation composition, or hydroperiod of Wetland W-5 as the proposed disturbance occurs in an area maintained as turf grass and overall superficial drainage patterns are not being changed. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls. Work will be coordinated during the period of pond dredging to avoid multiple disturbances.

Water Quality Basin Construction - A water quality basin is proposed to be constructed adjacent to Wetland W-5. The purpose of the proposed water quality basin is to collect water from surrounding turf areas and treat it for water quality before being released to the adjacent man-made pond. Approximately 0.25 acres of existing turf grass will be disturbed and removed to be replaced with a detention basin mix of native grasses and wildflowers. No long term impact is anticipated to the hydrology, vegetation composition, or hydroperiod of Wetland W-5 as the proposed disturbance occurs in an area maintained as turf grass and overall surficial drainage patterns are not being changed. The wetland will be protected during the period of temporary disturbance by the implementation of sediment and erosion controls. Work will be coordinated during the period of pond dredging to avoid multiple disturbances.



**Table III.H-2
Wetland Area Disturbance by Activity**

Area	Wetland	Wetland Disturbance In Acres	Wetland Buffer/Adjacent Area Disturbance In Acres	Vegetation Type	Proposed Activity
Hole 2 Green	W6	0	0.14	Maintained Turf	Rebuild green
Hole 3 Fairway	W5	0	0.07	Maintained Turf	Grading
Hole 3 Green	W5	0	0.10	Maintained Turf	Rebuild green
Hole 6 Tee Area	W6	0	0.20	(2B) Hardwoods = 0.08 acres; Maintained Turf = 0.12 acres	New tee complex
Hole 8 Tee Area	W5	0	0.46	Maintained Turf	New tee complex
Hole 8 Green	W5	0	0.13	Maintained Turf	New tee complex
Hole 11 Tee Area	W4	0	0.40	(2C) Hardwoods	New tee complex
Hole 12 Green	W4	0	0.36	Maintained Turf	New green complex & surface
Hole 14 Tee Area	W3, W5	0	0.48	(2C) Hardwoods = 0.17acres; Maintained Turf = 0.30 acres	Rebuild tee complex
Hole 15 Tee Area	W4	0	0.02	Maintained Turf	New tee complex
Hole 16 Tee Area	W3	0	0.30	Maintained Turf	New tee complex
Hole 17 Tee Area	W2	0	0.48	(2C) Hardwoods = 0.11acres; Maintained Turf = .037 acres	New tee complex
Hole 17 Fairway	W5	0	0.50	Maintained Turf	Fairway grading, new bunker
Hole 17 Green	W5	0	0.45	Maintained Turf	Rebuild green complex
Pond Expansion	W5	1.25	N/A	Maintained Turf	Expand ponds
Water Quality Basin	W5	0	0.25	Maintained Turf	Create water quality basin
Total		1.25	4.34		

Wetland Activity Permits

Wetland Activity Permits will be required from the Town of North Castle Planning Board for all activities described in Table III.H-2. It is anticipated that Wetland Activity Permits will be applied for in connection with the Site Plan Approval process.

The NYSDEC does not have jurisdiction over any of the wetlands or watercourses on the Site and therefore no State permits are required. It is



anticipated that a Section 401 Water Quality Certification from NYSDEC will be necessary if pond dredging activities are performed.

The Army Corp of Engineers (ACOE) has jurisdiction over Wetlands W1, W2, W3 and W5. Therefore, it is anticipated that Section 404 permits will be required for the pond dredging and wetland creation, restoration and enhancement activities.

Impacts of Fertilizer, Pesticides, Fungicides and Other Chemicals

A new site specific Integrated Turfgrass and Pest Management Plan (ITPMP) and Residential Lawn Management Plan (RLMP) has been prepared (see Appendix E). The ITPMP uses a sophisticated model, based on soil types, to predict the outcome of fertilizers, pesticides and herbicides applied to the golf course. The model helps predict the amount of product that should be applied to avoid surface runoff into wetlands and aquatic environments and to avoid groundwater contamination. The net result will be a significant decrease in the amount and frequency of chemical applied, and therefore a significant net decrease in potential contaminated runoff into aquatic resources. This is coupled with the increased native grass buffers along wetland and watercourse edges. The net result will be a subsequent beneficial increase in water quality. According to the Applicant's consultants, due to improved methods of application and other management practices included in the new ITPMP, amounts of fertilizer, pesticides and fungicides on the Site are anticipated to decrease.

The application of fertilizers, pesticides and herbicides is necessary in the management of the golf course. Fertilizer applications are necessary for proper grass, tree and shrub health. Pesticides are necessary to prevent outbreaks of insect and plant diseases so as to maintain a thick dense plant cover that reduces runoff. Herbicides are used to eliminate non-native, invasive vegetation and to control the establishment of non-desirable or nuisance vegetation. When used properly and in an environmentally responsible fashion, these chemicals can have a beneficial impact to the environment. However, if misused or overused, negative environmental impacts can occur.

Fertilizers: Negative impacts from fertilizers are primarily associated with overuse and subsequent runoff into the aquatic environment. Excessive fertilizer entry into aquatic systems can cause excessive plant and algae growth, a process termed eutrophication. When these plants die they decompose using oxygen in the process. Excessive rates of decomposition can cause hypoxia, a



condition where the oxygen levels in the water column fall below the level where they can support animal life.

In freshwater systems, the nutrient most associated with the process of eutrophication is phosphorous. Therefore, controlling the rate of phosphorous introduction into aquatic systems will substantially reduce the process of eutrophication. Westchester County and New York State law prohibits the use of phosphorous in fertilizers except for 1) for establishment of new turf areas and 2) turf areas that are confirmed through the use of soil tests to require supplemental phosphorous.

Pesticides and herbicides: These are chemicals that help to protect against crop, forest and ornamental landscape loss and aid in crop production. Pesticides must be applied with care by trained applicators so that the health of humans, animals and the environment are protected.

The disadvantage of the use of pesticides/herbicides is their potential toxicity to humans, animals and desirable plants and the potential for some of these chemicals to persist in the environment. When pesticides enter aquatic environments they can have unintended consequences including the mortality of fish, amphibians and reptiles, water birds, and/or other animals and affecting the ability of using the water for drinking purposes. Wildlife and water quality can be protected if chemicals are chosen and used carefully in strict compliance with the manufacturer's directions, in combination with other pest control measures. The ITPMP in Appendix E contains a list of potential fertilizers, pesticides and herbicides to be used.

Impacts on Upstream and Downstream Wetlands within the Watersheds of the Site

The proposed residential community, clubhouse reconstruction and golf course renovation has been carefully planned to coincide with existing landscaped or developed areas and to avoid changing surface water runoff patterns. The Sniffen Brook corridor is south and west of the Site. It is either upstream from any proposed activities or a natural wooded buffer of at least two hundred feet is maintained to the edge of the riparian system. In addition, surface water runoff patterns remain essentially unchanged from their pre-development condition and no direct discharge is directed to the Sniffen Brook corridor. (See Exhibit III.H-5, Surface Hydrology). Therefore, no impact from any of the proposed activities is anticipated. See Chapter III.I Storm Water Management, and Exhibits III.I-1 and III.I-3, for description of the drainage basins, watersheds and potential impacts and mitigation proposed.



The small depressional wetland found just off-site on the northern border of the Site receives runoff from the existing golf course drainage system. The renovation of the course has been designed to preserve the existing drainage patterns. Therefore, the hydrology of this wetland should remain relatively unchanged. Water quality draining to this wetland should be slightly improved through the introduction of the ITPMP and by the reduction in area of treated surface draining to the drainage swale.

The off-site watercourse adjacent and parallel to Interstate 684 is identified on Exhibits III.H-1, III.H-3, III.H-4, and III.H-5.

Potential Alterations to Drainage Patterns

The NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity requires that discharge from individual watersheds be maintained in the pre- and post-development condition. (See Exhibits III.H-3, III.H-4, and III.H-5). This Permit also contains stringent regulations for water quality, runoff reduction volume, channel protection and overbank flooding. These principles have been incorporated into overall Project design. The net result is that the existing and proposed runoff patterns are consistent. The only overall change is that a water quality component has now been integrated into the course design.

Analysis of Altered Wetland Drainage Basins

To mitigate potential impacts associated with increased stormwater from the proposed residential development, the Applicant is proposing to excavate an area in upland soils for the creation of a stormwater infiltration basin. The proposed basin is designed to infiltrate runoff in smaller storm events, but larger storms will over flow the basin. This runoff will be directed towards the interior pond system (Wetland W-5). Redirecting the water will cause a decrease in the area contributing to Wetland W-4 from 20.08 acres to 12.29 acres (-39%) and increase in the watershed draining to Wetland W-5 from 104.60 to 110.99 acres (+5.7%). (See Exhibit III.H-4).

In the opinion of the project wetland consultant, this change in watershed contributing area would not cause any adverse impact to either Wetland W-4 or W-5. The hydro-geomorphic classification of Wetland W-4 is "slope wetland". Slope wetlands have unidirectional flows through the wetland and are primarily groundwater fed. The existing watershed for Wetland W-4 was modified by the construction of a diversion channel along golf hole 11. While this diversion increases the effective size of the watershed, it has not been observed to direct



surface flow towards the wetland. Re-balancing the watershed will more closely mimic the pre-golf course pattern of runoff.

Similarly, redirecting treated stormwater towards Wetland W-5 is not anticipated to have any adverse effects on this system. Wetland W-5 is a lacustrine community that was created at the time of the original golf course construction to function as a play hazard and to provide a source of irrigation water. Currently, water levels fluctuate on a daily, weekly and seasonal basis. Water is withdrawn to irrigate the course and is supplemented from groundwater sources through the on-site well system. Adding stormwater from the residential development will serve to act as an additional source of water as well as provide for additional quality treatment.

Alternatively, the proposed discharge from the stormwater infiltration basin can be modified to duplicate the existing watershed patterns. In the opinion of the Applicant's wetland consultant, this alternative will not provide a significant reduction in impacts over the proposed condition.

Sustainable Stream Flows

The existing pond system is fed from surface and groundwater flows only, no concentrated surface waters including streams or rivers feed this system. Groundwater in the form of discharge from on-site wells is also used to replenish the pond system. The well water is needed to replenish the ponds during the growing season because of the large amount of water withdrawn from the pond system on a daily basis to irrigate the golf course.

Expansion and dredging of the pond will increase the volume of dead storage. Because of the relatively large watershed draining to the pond system, there should be sufficient volume to maintain the extra volume provided.

Potential Erosion and Sedimentation

In the process of developing the Site, the area of development can become susceptible to erosion with the removal of the protective layer of overlying vegetation. Erosion, the removal of soil, water, wind or gravity, is caused by raindrops striking the bare surface of the soil and dislodging soil particles which are then transported by surface runoff. Scouring of the exposed soil by concentrated runoff causes rivulets and then gullies to be opened on the land surface if runoff is allowed to continue downslope without the implementation of adequate erosion and sediment controls.



The deposition of sediment occurs when the rate of surface flow is insufficient for the transport of the particles. Heavier particles, such as sand and gravel, settle more rapidly than the lighter silt and clay particles. Previously deposited sediment may be suspended by runoff from a subsequent storm event and transported down the watershed. In this way, sediment is relocated intermittently from its original point of origin.

If not properly controlled, erosion can impact the overlying vegetation by the physical removal of the soil substrate thus displacing the vegetation. Subsequently, sedimentation can alter and impact the underlying vegetation by preventing the flow of oxygen into the plant root systems. Erosion and sedimentation have their greatest impact to aquatic systems where the presence of excess turbidity can smother aquatic plant life.

Re-establishing a dense vegetation cover is the best method to prevent erosion. During the golf course construction, the ponds will be protected from erosion and subsequent sedimentation by the implementation of a site specific erosion control plan. (See Chapter III.F., Geology and Soils.) Subsequent to construction the disturbed areas will be re-vegetated. Since maintenance on a golf course is continuous and on-going, the possibility of bare surfaces is reduced.

All pond systems, natural or artificial, are susceptible to erosion. It is anticipated that the on-site pond systems will need maintenance dredging every 50 to 75 years.

Pond Dredging

To avoid additional disturbance, pond dredging will be integrated into the golf course renovation. This is expected to occur in phases with the first nine holes as one phase and the second nine holes as a separate phase. This will allow the golf course to continue operating during construction. It is anticipated that the four ponds in the southern half of the course will be done as a separate phase from the two ponds on the northern half of the course.

Pond dredging will occur in a series of steps. Initially the pond will be dewatered using a diesel pump. In accordance with the Storm Water General Permit, only non-turbid water will be discharged. If turbid water is encountered it will be discharged to an upstream location or filtered through a sediment trap. Any animals encountered during the dewatering activities will be relocated to one of the other on-site ponds.

Once dewatered, the ponds will be “mucked out” by the use of an excavator. The resulting material will be stockpiled and allowed to dry in an adjacent



upland location. Once dry, it is anticipated that the dredged material will be disposed of elsewhere on-site. Total volume of material to be removed during the dredging operations is anticipated to be approximately 15,000 cubic yards.

The use of the spoils on-site is subject to a Section 401 Water Quality Certification by the NYSDEC. This certification exempts the activity from a Beneficial Use Determination under 6 NYCRR Part 30. However, as part of the Section 401 Water Quality Certification process, the material will be tested for toxicity. At a minimum, each sample will be analyzed for volatile organic compounds (EPA 8260B), semi-volatile organic compounds (EPA 8270C), pesticides (EPA 8081A), PCBs (EPA 8082), and the following toxic metals (EPA6010B): arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium and zinc.

The number of samples required to be analyzed are based on the number of cubic yards to be dredged. Under NYSDEC guidelines seven samples are required per 1,000 cubic yards to be removed. Therefore, approximately 105 samples will be required to meet these guidelines. In cases where sampling costs appear excessive in relation to total project costs, NYSDEC regional office may be consulted for methods of reducing sampling costs. (See NYSDEC documentation in Appendix H).

Final on-site disposal will be coordinated with the requirements of the NYSDEC. It is not anticipated that the material will be removed from the Site because of the cost.

Cumulative Impacts

No cumulative impacts to wetland and surface water resources are anticipated or have been identified as the result of the Project.

3. Mitigation Measures

Mitigation for Proposed Construction Related and Long Term Impacts to Wetlands and Their Functions

The proposed golf course renovation is designed to avoid wetland impacts where practicable, reduce and minimize unavoidable impacts to the maximum extent practicable, and improve the existing environmental conditions on the course, primarily through these measures:

- preparation and implementation of a new, state of the art ITPMP and Environmental Risk Assessment (Appendix E);

- integration of native grass buffers into strategic areas of the course to further reduce the use of fertilizers and chemicals; and
- creation of an additional 1.25 acres of emergent wetlands (shallow water marsh).

New varieties of golf course turf grass are available that require less fertilization and irrigation for vigorous growth. These grass varieties will be incorporated into the renovated golf course. In addition, areas of native fescues will be planted along aquatic resources and in non-play areas. These areas do not have to be fertilized, treated with pesticides or herbicides, or irrigated. In addition, mowing will be reduced which will significantly reduce the need to water, fertilize, treat for pests and disease as well as reduce use of energy.

Although it is not necessary for the renovation of the golf course, the proposed pond dredging and wetland creation, enhancement and restoration is a beneficial activity. Pond dredging and enhancement, as well as wetland creation and restoration, is being proposed for water quality enhancement, to provide additional storage for irrigation water, and as partial mitigation for proposed wetland and wetland buffer impacts.

The improvements proposed for the current pond system will also help to achieve a sustainable design. By removing the nutrient source contained in accumulated sediments and by incorporating wetland fringes and vegetated buffer strips along pond edges, runoff into the pond will be filtered and aquatic plants will uptake nutrients contained in the water column. The net result will be a significant increase in ambient water quality.

Water quality of the existing ponds will be improved in several ways. The on-site ponds were constructed in 1960, long before the advent of erosion and sediment controls. Consequently, the ponds were subject to large volumes of sediment as they were being built. Additionally, erosion and sedimentation is a natural process and has been occurring for the 50+ years since the ponds were initially excavated. An estimated 15,000 cubic yards have now accumulated in the pond bottoms. Accumulated sediments act to degrade water quality in several ways. First, the sediments act as a source of nutrients, especially phosphorous. These nutrients are bound in the sediment particles but are liberated as sediments become redoximorphic during anoxic conditions. Excess nutrients allow abundant growth of algae and other nuisance plants causing degradation in water quality.

Similarly, the creation, enhancement and restoration of the pond system to include the incorporation of emergent marsh communities will benefit water

quality and improve wildlife habitat. Aquatic plants act as sinks to remove excess nutrients from the water column, add oxygen to the rhizosphere, and provide food and cover for wildlife. Incorporating a wetland component to the pond system will also improve pond aesthetics. The wetland creation component will result in a net increase of 1.25 acres of on-site wetlands. Expansion of the ponds for wetland creation will not add significantly to pond volume and therefore will not affect on-site hydrology or water budgets.

Wildlife habitat will also be enhanced by improving water quality and by adding aquatic plants as a source of food cover. Waterfowl and wading birds will be encouraged to use the existing pond system. However, the use of the pond system by Canada Goose will continue to be discouraged due to the potential impact on water quality and to reduce goose droppings. (See Chapter III.E, Vegetation and Wildlife).

The stormwater run-off from current impervious areas of tennis courts and parking lots is not stored or treated. To mitigate potential impacts associated with increased stormwater from the proposed residential development, the Applicant is proposing to excavate an area in upland soils for the creation of a stormwater infiltration basin, resulting in an improvement in the quality and quantity of water that leaves the Site.

Mitigation for Proposed Impacts to Wetland and Watercourse Buffer Areas

Primary mitigation measures for impacts to wetland buffers (as described below) include:

- Water quality basins;
- Stormwater management plan/best management practices;
- Use of native, non-invasive plantings;
- Implementation of a new ITPMP and reduction of overall use of fertilizers and pesticides; and
- Sustainable design features such as low maintenance grasses, vegetative buffer strips.

When the existing golf course, clubhouse, pool and tennis courts were constructed, there was likely little or no thought given to sustainable design, including the potential impacts to water quality and water quantity. Today, water quality, quantity and balance are a higher priority.

Two water quality basins are proposed to treat runoff from the proposed residential community. Two basins are needed to balance the pre- and post-development watersheds (see Chapter III.I, Stormwater Management). The

basins are designed to treat runoff and to control the peak discharge from the Site equal to the 100 year storm event. Since the Site currently does not provide any treatment for water quality or quantity, this will be a net improvement over the existing condition.

In addition to water quality basins, many other Storm Water Best Management Practices are being incorporated into the design of the proposed residential community. These include: reduction of impervious surfaces; introduction of pervious surfaces where practical; use of native non-invasive vegetation in some landscaped areas; use of catch basins with sediment sumps and oil traps; and use of vegetated swales.

Impacts to wetland buffers, where practicable, have been avoided. Increased buffers are not specifically proposed, but buffers will be enhanced and the golf course will remain a managed, natural area. Since the golf course already traverses through wetland buffers, any renovation of the course will not be possible without impacting these areas. Impacts to wetland buffers have been minimized by reducing the amount of turf grass in these buffer areas where it will not affect play, and replacing it with vegetated buffer strips. Impacts will be further reduced by implementation of the new ITPMP.

Renovation of the golf course allows a unique opportunity to incorporate sustainable design features. This includes: the use of low maintenance turf grasses; conversion of some areas of existing turf into no mow or occasional mowed areas of native grasses; incorporation of vegetation buffer strips along aquatic resources (where it will not affect play); and reduction in the overall use of pesticides, herbicides and fertilizers. In addition, in order to incorporate water quality basins into the overall golf course design, a water quality basin is proposed adjacent to the pond on the proposed re-aligned Hole 14. The purpose is to collect surface water runoff from turf areas and treat it before discharging to the pond system and ultimately off-site to the Byram River.

Compliance with Town Wetland and Watercourse Ordinance Section 209-9: Mitigation Policy

Section 209-9 of the Town of North Castle Wetland and Watercourse Law provides mitigation guidelines if “losses of wetland or wetland buffer are necessary and unavoidable and have been minimized to the maximum extent practicable”. Guidelines for wetland mitigation include compensation for wetland losses at a ratio of not less than two for one, and for unavoidable wetland buffer losses at a ratio of two for one, unless the approval authority determines it is not possible or practicable.



No loss of wetland due to filling, grading or drainage is proposed or anticipated for any portion of the Project. Therefore, the Project is in compliance with the Section 209-9 regarding compensation for wetland loss.

Approximately 4.34 acres of locally regulated wetland buffer will be altered to renovate and enhance the existing golf course. Of that 4.34 acres, 3.57 acres is currently turf grass either as tees, fairways, or greens. The remaining 0.76 acres is currently almost exclusively vegetated as early successional hardwoods.

Since the golf course already traverses through wetland buffers, any renovation of the course will not be possible without impacting these areas. Impacts to wetland buffers have been minimized by reducing the amount of turf grass in these buffer areas where it will not affect play, and replacing it with vegetated buffer strips. Impacts will be further reduced by implementation of the new ITPMP. These mitigation measures are not quantifiable since they are management measures that affect the entire golf course. Therefore, the Applicant is requesting approval of these measures as mitigation for the 3.57 acres of disturbance to buffer area currently maintained as turf.

Mitigation for the clearing and regarding of the approximately 0.76 acres of early successional forest proposed to be cleared and regarded will take a variety of forms. Wetland creation and enhancement will result in a net gain of 1.25 acres of wetland on-site. Approximately 1.44 acres of existing turf within Town regulated buffers will be converted to low maintenance fescue. These areas will not be fertilized, treated with herbicides or pesticides, irrigated or mowed regularly. Two water quality basins (0.42 acres) will also be created to treat runoff from the course. Finally, approximately 0.5 acres of wetland buffer vegetated with non-native invasive plants will be cleared of the invasives and re-planted with native vegetation appropriate to the habitat type. A total of 3.61 acres of wetland creation and buffer enhancement is proposed as mitigation of the 0.76 acres of disturbance of the currently wooded wetland buffer area – a ratio of 4:75 to 1 (see table below).



**Table III.H-3
Mitigation Proposed**

	Impact/Disturbance	Mitigation proposed
Wetland Impact	1.25 acre- ponds	1.25 acre - wetland creation/improved pond and wetland health
Buffer impact	3.57 acres- existing turf	New ITPMP, replace some turfgrasses with vegetative buffer strips
Buffer impact	0.76 acre - early succ. forest	3.61 acres total: 0.42 ac – install 2 water quality basins 0.50 ac- clearing invasives/plant natives 1.44 ac – turf areas to fescue 1.25 ac – wetland creation

Section 209-8 of the Town of North Castle Wetland and Watercourse Law provides the standards and criteria for permit decisions. In granting or denying any application for a permit, the Planning Board is required to evaluate wetland functions and the role of the wetland in hydrologic and ecological system and shall determine the impact of the proposed activity upon public health and safety, rare and endangered species, water quality and the additional wetland functions listed in Section 209-1 of the Town Wetland and Watercourse Law.

In the Applicant's opinion, the Project meets all applicable requirements of the Town Wetland and Watercourse Law. No wetland will be filled or significantly altered to construct any portion of the Project. Direct disturbance to any natural flora or fauna, will be temporary in the case of the pond dredging, or will be avoided. Influx of sediments and increased turbidity will be avoided in the short-term by the implementation of erosion and sediment controls and in the long-term by the re-establishment of vegetation on the Site. Other than the pond dredging operation, wetland soils will not be disturbed. Pre- and post-hydrology patterns remain essentially unchanged thereby avoiding any reduction in wetland water supply. No obstructions or interference with wetland water circulation is anticipated. The reduction in wetland nutrients resulting from removal during the pond dredging operation is considered a beneficial aspect of the Project and will result in a significant improvement in water quality. No additional influx of toxic chemicals or heavy metals is proposed and runoff from golf course operations is anticipated to be improved due to the implementation of the new ITPMP. Temperatures in the wetland water supply will not be altered over the existing condition. The natural aesthetic value of the on-site wetland system will be enhanced through the implementation of the proposed landscape plan.

Integrated Turfgrass and Pest Management Plan (ITPMP) with Environmental Risk Assessment

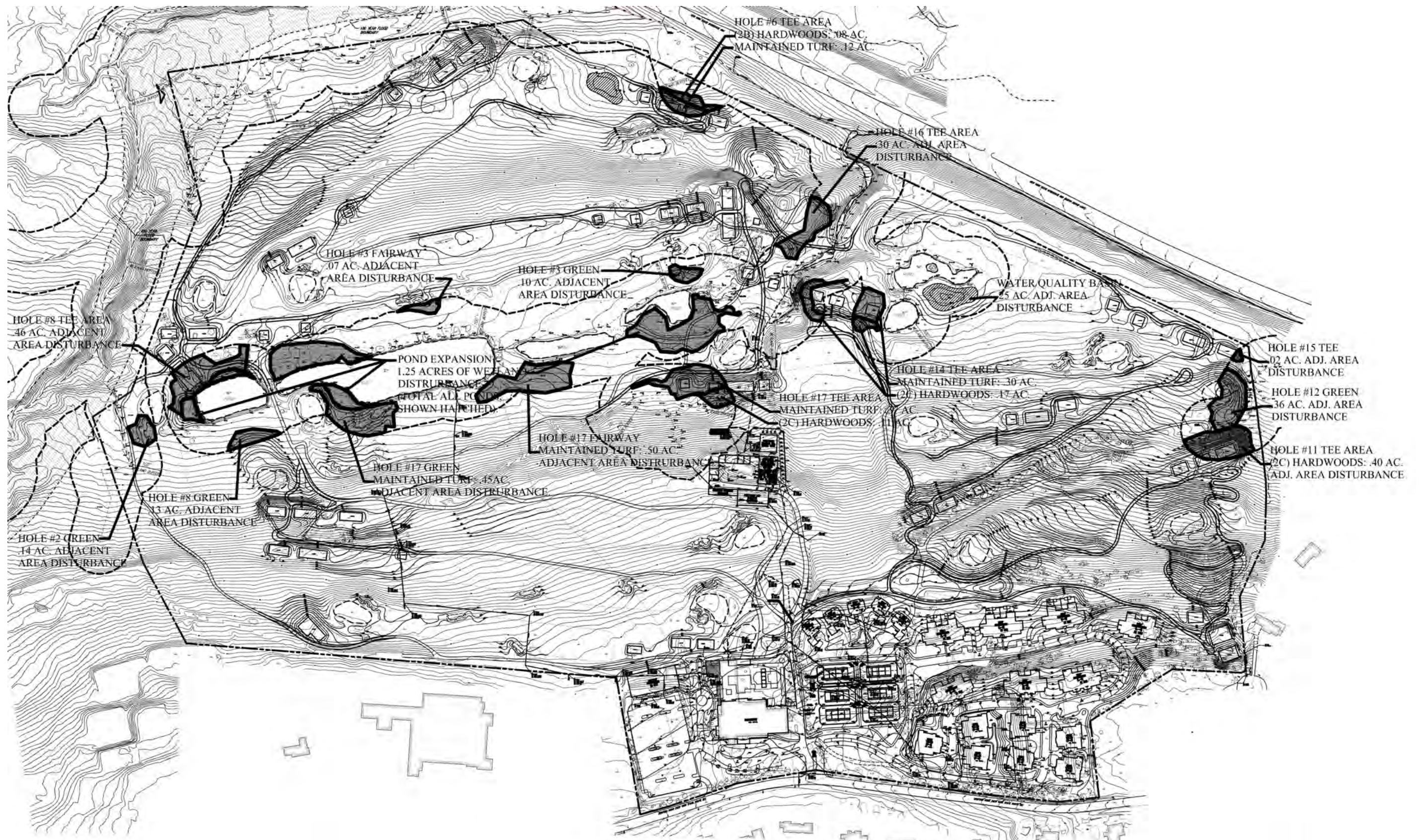
A new site specific Integrated Turfgrass and Pest Management Plan (ITPMP) and Residential Lawn Management Plan (RLMP) has been prepared (see Appendix E). The Environmental Risk Assessment included in the ITPMP uses a sophisticated model, based on soil types, to predict the outcome of fertilizers, pesticides and herbicides applied to the golf course. The model helps predict the amount of product that should be applied to avoid surface runoff into wetlands and aquatic environments and to avoid groundwater contamination. The net result will be a significant decrease in the amount and frequency of chemical applied, and therefore a significant net decrease in potential contaminated runoff into aquatic resources.

The new maintenance area will provide an area for golf course operations, and is designed to mitigate many potential impacts to the wetlands. This area will contain the wash pad/fuel/dumpster area, to contain potentially harmful materials from entering the surface or groundwater. All equipment wash bays will have a trench drain with a sedimentation area to drop out any grass clippings or other debris, as well as a sand/oil separator. All bays will flow through a naturalized grass and vegetative filtration swale and be discharged into the existing pond. Grading will be done to direct drainage of the entire maintenance area so it can be collected and discharged through a naturalized grass and vegetative filtration swale and eventually be discharged into the existing pond.

Participation in the Audubon Sanctuary Program

The Club is currently working towards becoming a Certified Audubon Cooperative Sanctuary. Audubon International provides the tools to thoroughly perform a site assessment of the Site and form an environmental plan of action which can be implemented to help improve wildlife habitat and wetland management, reduce chemical use and create a safer protocol for needed chemical use, become more efficient with water usage, manage the quality of not only the water systems on the Site but surrounding water systems as well as groundwater, and finally, to reach out to the surrounding community to educate and communicate what the Club is doing to positively impact the local environment.





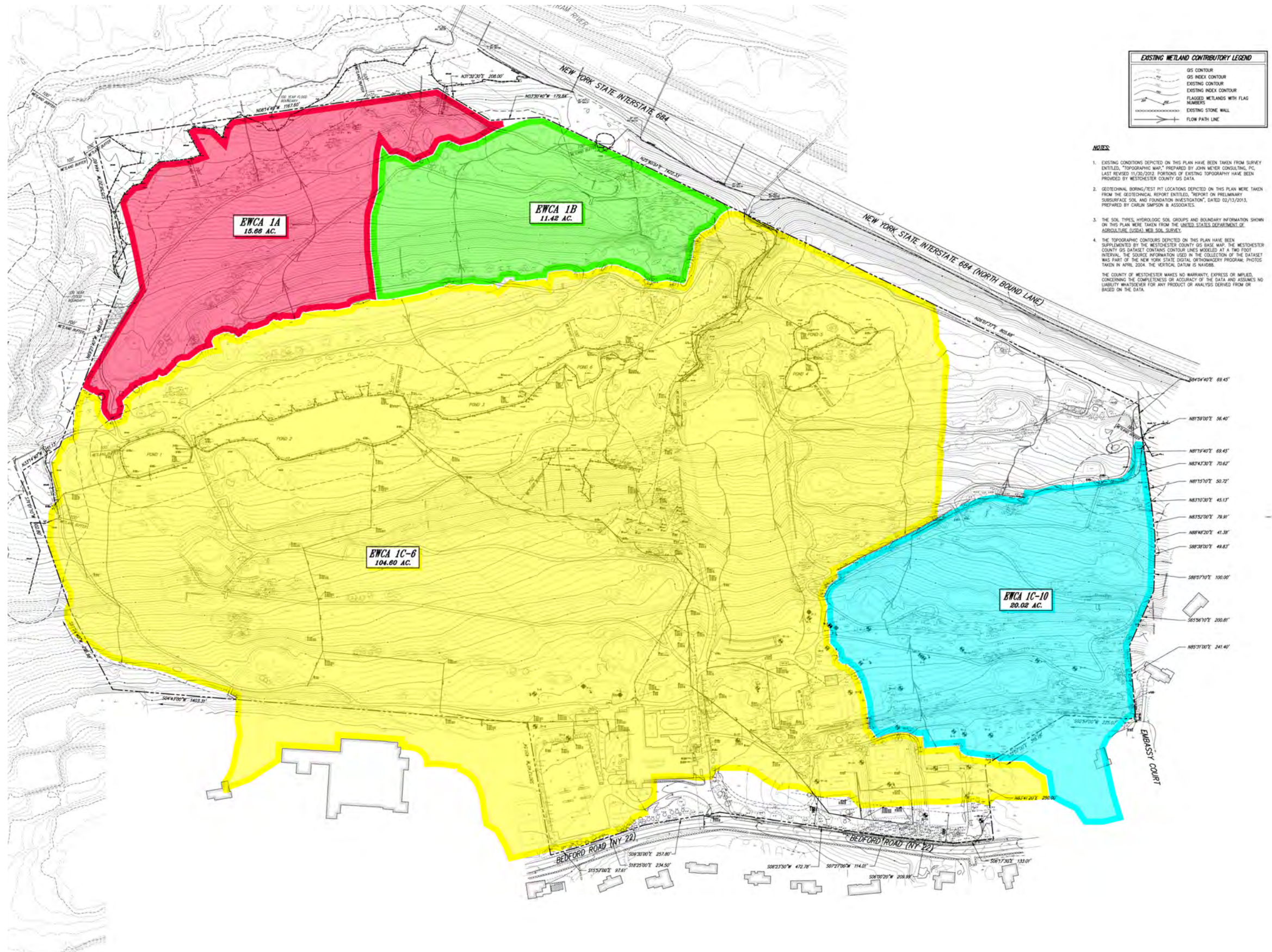
Source: Jay Fain & Associates

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Wetland and Wetland Adjacent Disturbance

Exhibit
III.H-2



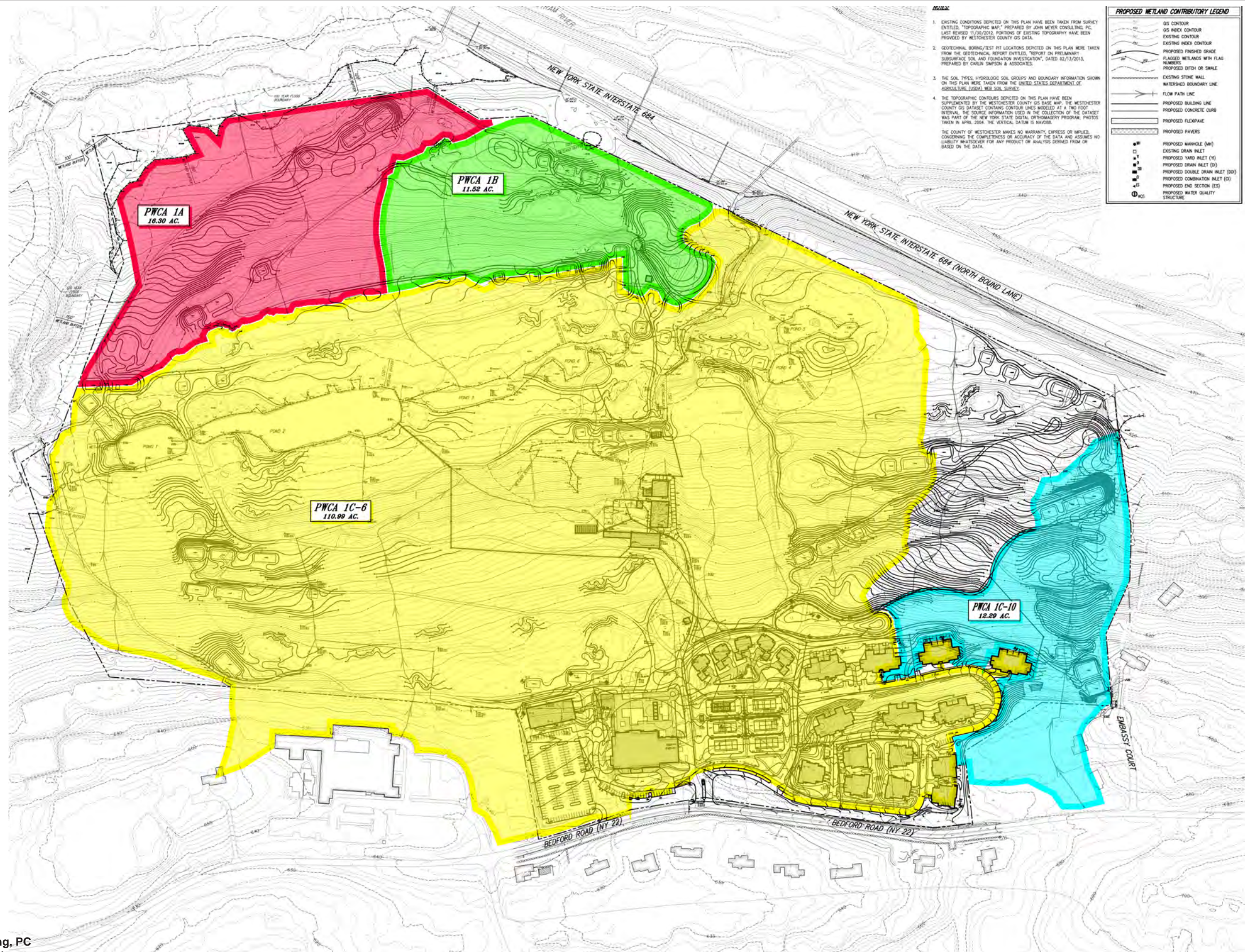
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Existing Wetland Contributory Areas

Exhibit
III.H-3



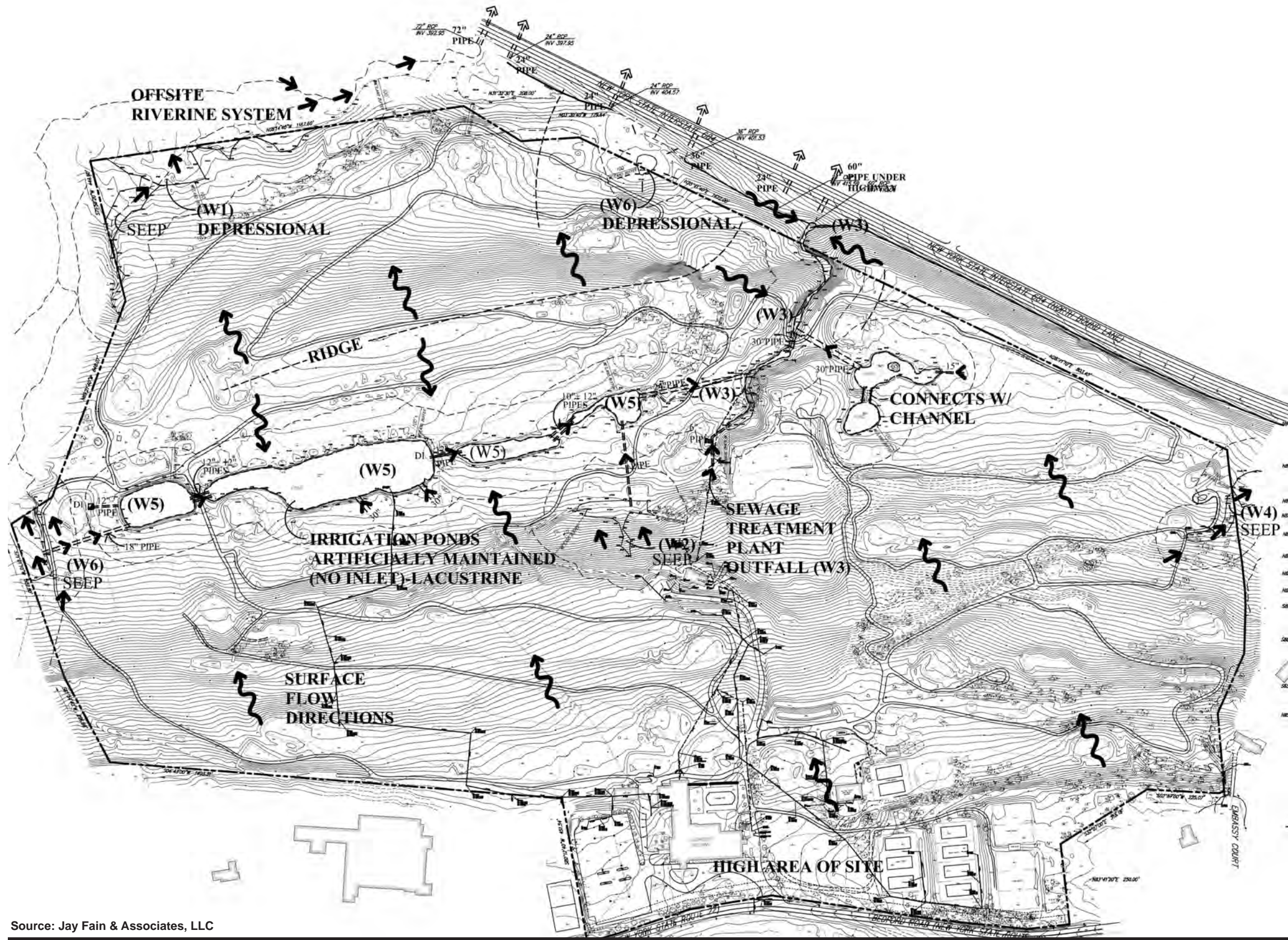
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Proposed Wetland Contributory Areas

Exhibit
III.H-4



LEGEND

Surface Water Flow Vector



WETLAND COMMUNITIES

- (W1) WOODED WETLAND
- (W2) HILLSIDE SEEPS
- (W3) PERENNIAL STREAM
- (W4) INTERMITTENT STREAM / GOLF COURSE DRAINAGE
- (W5) OPEN WATER
- (W6) DISTURBED WETLAND

Source: Jay Fain & Associates, LLC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Surface Hydrology

Exhibit
III.H-5

I. Stormwater Management

1. Existing Conditions

a) Existing Stormwater Runoff Quality and Quantity

A hydrologic analysis of the Site under existing conditions has been performed for the 1, 10, 25 and 100-year storm events. A summary of the existing peak rates of runoff to the discharge points for each of the storm events is provided on Table III.I-1 below:

Table III.I-1
Summary of Existing Peak Rates of Runoff
(Cubic Feet per Second)

Storm Recurrence Interval	DP 1A	DP 1B	DP 1C-6	DP 1C-9	DP 1C-10	DA 1 (Byram)	DA 2 (Mianus)
1 year	1.81	1.11	6.18	2.39	2.76	14.25	2.40
10 year	16.53	11.50	38.44	11.73	22.70	100.90	7.91
25 year	28.28	19.95	82.69	18.37	38.08	187.37	11.41
100 year	55.59	39.72	328.44	33.14	73.55	530.44	18.82

A summary of the existing runoff volumes for each of the storm events is provided on Table III.I-2 below:

Table III.I-2
Summary of Existing Runoff Volumes
(Cubic Feet)

Storm Recurrence Interval	DP 1A	DP 1B	DP 1C-6	DP 1C-9	DP 1C-10	DA 1 (Byram)	DA 2 (Mianus)
1 year	15,133	9,931	314,121	11,056	21,383	371,624	9,643
10 year	77,687	53,809	723,513	43,818	104,386	1,003,213	30,046
25 year	125,500	87,815	1,062,958	67,096	166,989	1,510,358	43,459
100 year	238,686	168,902	1,907,078	120,105	314,156	2,748,927	72,765

A Surface-Water Sampling Program has been designed to monitor the quality of existing and future surface water exiting from the Site. The Surface-Water Sampling Program is provided in Appendix I.

b) Existing Conditions in the Byram River Watershed

The Site is located in the upper main stem segment of the Byram River Watershed. The upper portions of the river flow through hilly forested landscape that is predominately residential. According to the Byram River Watershed Management Plan, nonpoint pollutants into the Bryram River include pathogens, nutrients, sediment, floatables, metals, pesticides and thermal pollution. Pathogens are considered the most significant source of pollutants at this time.

c) Existing Drainage Pattern and Existing Discharge Points

The majority of the Site, designated as Existing Drainage Area 1, is within the Bryam River Watershed. See Exhibit III.I-1, Existing Drainage Area. A small portion of the Site, designated as Existing Drainage Area 2, is within the Mianus River Watershed.

Existing Drainage Area 1 consists of three sub-drainage areas (EDA 1A through EDA 1C). Stormwater runoff from EDA 1A flows west and discharges to a wetland at the southwest corner of the Site. Stormwater runoff from EDA 1B flows west to a small wetland along the western property line designated as Discharge Point 1B (DP 1B). Existing Drainage Area 1C is further divided into ten sub-drainage areas (EDA 1C-1 through EDA 1C-10). Stormwater runoff from sub-drainage areas EDA 1C-1 through EDA 1C-8 flows east and west to ponds and watercourses that eventually discharge from the site at Discharge Point 1C-6 (DP 1C-6). Stormwater runoff from EDA 1C-9 flows west and discharges at the northwest corner of the Site. Stormwater runoff from EDA 1C-10 flows west to a swale and then flows north and discharges to a wetland designated as Discharge Point 1C-10 (DP 1C-10).

Existing Drainage Area 2 (EDA 2) is within the Mianus River Watershed. Stormwater runoff from EDA 2 flows east to a swale and then south, under the existing driveway and discharges to the west via a culvert under Route 22 at Discharge Point 2 (DP 2).

The existing clubhouse, parking lot, pool, cart shed, maintenance building and the majority of the tennis courts, within the residential and club core development areas, are within EDA 1C-2. Stormwater runoff from these areas is collected by roof drains and drain inlets and is piped down to Pond 2. Stormwater runoff from these areas does not receive any water quality treatment prior to discharging to the pond. The two westernmost tennis courts and the snack bar are within EDA 1C-7. Stormwater runoff from this area flows west overland to Pond 4. Stormwater runoff from this area does not receive

any water quality treatment prior to discharging to the pond. The remainder of the residential development is within EDA 1C-10. Stormwater runoff from this area flows west overland to an existing swale.

d) Existing Point and Nonpoint Pollution Sources

Subsurface Disposal System

The existing snack bar building within EDA 1C-7 has a subsurface sewage disposal system. The building will be demolished and the subsurface sewage disposal system will be abandoned.

Roadway Runoff

Stormwater runoff from roadways and parking areas, which typically contains suspended solids, metals, nutrients (nitrogen and phosphorus) and organic compounds (oil and grease) is a nonpoint source of pollution from the existing site.

Grass Clippings and Other Materials Containing Chemical Residues

There is a debris storage area, located between the tee boxes of existing golf holes 4 and 16, where grass clippings and other organic materials have been left over the years. (See Existing Vegetative Cover Types, Exhibit III.E-1) The debris in the storage area will be removed in order to construct new tee boxes for holes 4 and 16.

Wastewater Treatment Plant and Storm Drains

The outfall of the wastewater treatment plant and the outfalls of on-site storm drains are point pollution sources. The wastewater treatment plant discharges to the watercourse on the north side of hole 16. Three storm drains discharge to Pond 1, two storm drains discharge to Pond 2 and one storm drain discharges to Pond 5.

e) Mianus Watershed Regulations

The “Mianus River Watershed Based Plan” was finalized in September of 2012. The watershed maps in the plan do not show the Site as being located within the watershed. However, the site topography survey and Westchester County GIS information indicate that EDA 2 is within the Mianus River Watershed. It appears that the Plan has not yet been implemented and that regulations have not yet been issued.

f) Flooding Issues

The southwest corner of the Site is located in a Zone A Flood Hazard Area, in which no Base Flood Elevations have been determined. See Exhibit III.I-2, Flood Map. No disturbance is proposed within this area.

2. Potential Impacts

a) Stormwater Runoff Quantity

A hydrologic analysis of the Site under proposed peak conditions has been performed for the 1, 10, 25, and 100-year storm events. A summary of the proposed peak rates of runoff for each of the storm events is provided below:

Table III.I-3
Summary of Proposed Peak Rates of Runoff
(Cubic Feet per second)

Storm Recurrence Interval	DP 1A	DP 1B	DP 1C 6	DP 1C 9	DP 1C 10	DA 1 (Byram)	DA 2 (Mianus)
1 year	1.89	1.34	6.83	3.03	1.72	14.81	1.60
10 year	17.20	12.43	37.42	16.05	12.12	95.22	5.04
25 year	29.41	21.17	72.15	25.38	19.96	168.07	7.19
100 year	57.81	41.45	241.76	46.26	38.32	425.60	11.73

A summary of the proposed volumes runoff for each of the storm events is provided on Table III.I-4 below:

Table III.I-4
Summary of Proposed Runoff Volumes
(Cubic Feet)

Storm Recurrence Interval	DP 1A	DP 1B	DP 1C b6	DP 1C 9	DP 1C 10	DA 1 (Byram)	DA 2 (Mianus)
1 year	15,739	11,139	357,362	14,466	14,387	413,093	5,766
10 year	80,798	57,179	725,648	59,477	67,094	990,196	17,513
25 year	130,526	92,369	1,067,095	91,814	106,357	1,488,161	25,170
100 year	248,245	175,671	1,874	165,890	198,052	2,661,950	41,823

b) Surface Water Quality and Quantity Impacts

The proposed development will result in an increase in impervious surfaces. The increase in impervious surfaces will result in a corresponding increase in the

peak rate of stormwater runoff as well as an increase in pollutants. A Stormwater Pollution Prevention Plan (SWPPP), provided in Appendix F, has been prepared to ensure that the quality and quantity of stormwater runoff after development will not be substantially altered from pre-development conditions. As a result of its implementation, it is expected that there will be no significant impact on receiving wetlands, streams, ponds or the 100-year flood plain.

The application of pesticides and fertilizers to the golf course also has potential impacts. One potential impact could be fertilizers or pesticides on the grass clippings or in the green debris pile, if not disposed of properly, having a negative effect on surface water (via runoff) or groundwater (via leaching).

c) Stormwater Permits Required from the NYSDEC

The proposed development will require coverage under the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-10-001).

d) Proposed Erosion Control Improvements

Erosion is the removal of soil by water, wind or gravity. Erosion may be caused by raindrops striking the bare surface of the soil and dislodging soil particles which are then transported by surface runoff. Scouring of the exposed soil by concentrated, uncontrolled runoff causes rivulets and then gullies to be opened on the land surface.

The deposition of sediment occurs when the rate of surface flow is insufficient for the transport of the particles. Heavier particles, such as sand and gravel, settle more rapidly than the lighter silt and clay particles. Previously deposited sediment may be suspended by runoff from a subsequent storm event and transported down the watershed. In this way, sediment is relocated intermittently from its original point of origin.

If not properly controlled, erosion can impact vegetation by the physical removal of the soil substrate. Subsequently, sedimentation can alter and impact vegetation by preventing the flow of oxygen into the plant root systems. Erosion and sedimentation have their greatest impact to aquatic systems where excess turbidity can smother aquatic plant life.

An Erosion and Sediment Control Management Program will be established for the proposed development, beginning at the start of construction and

continuing throughout its course, as outlined in the "New York State Standards and Specifications for Erosion and Sediment Control," dated August 2005.

Erosion and sediment control practices will be implemented for proposed disturbed areas along the south side of the ravine which crosses the Hole 15 fairway. At a minimum, silt fence will be installed at the top and bottom of the slopes proposed to be disturbed. The disturbed areas will be stabilized temporarily with either mulch or erosion control fabric until the areas are vegetated.

e) Potential Alterations to Drainage Patterns

Drainage patterns in the residential development area will be altered. See Exhibit III.I-3, Proposed Drainage Area. Parts of EDA 1C-7 and EDA 1C-10 will be redirected to PDA 1C-2.

f) Impacts Associated with Construction of Proposed Infrastructure

Impacts associated with construction of proposed infrastructure include an increase in soil exposed to erosion from wind and water, increased water runoff, soil movement, sediment accumulation and peak flows caused by removal of plant cover and soil compaction by heavy equipment.

g) Cumulative Impacts of Other Developments

The only planned or proposed development in the immediate area of the Site is the St. Nersess Armenian Seminary. The seminary is proposed on a 5.5 acre site at 486 Bedford Road in the Town of North Castle, which is south of the Site and tributary to the Byram River. According to the SWPPP for the project, the peak rates of runoff and runoff volumes will be reduced for the 1, 10 and 100-year storm events. Therefore, no cumulative impacts from the St. Nersess Armenian Seminary project are anticipated.

3. Mitigation Measures

a) Erosion and Sediment Control Measures

An Erosion and Sediment Control Management Program will be established for the proposed development, beginning at the start of construction and continuing throughout its course, as outlined in the "New York State Standards and Specifications for Erosion and Sediment Control," dated August 2005.

The Preliminary Grading Plan for the Project incorporates Clearing Limit Lines to delineate site disturbance areas. Prior to disturbance all Clearing Limit Lines will be marked in the field by the project surveyor. Clearing Limit Lines will be

physically marked by an erosion control fence or construction fence as appropriate.

The Operator shall have a qualified professional conduct an assessment of the Site prior to the commencement of construction and certify that the appropriate erosion and sediment controls, as shown on the Erosion and Sediment Control Plans, have been adequately installed to ensure overall preparedness of the site for the commencement of construction. In addition, the Operator shall have a qualified professional conduct one site inspection at least every seven calendar days and at least two site inspections every seven calendar days when greater than five acres of soil is disturbed at any one time (except as may be permitted by NYSDEC, disturbance shall be limited to 5 acres at one time).

Prior to the commencement of construction activity, the owner or operator must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The owner or operator shall have each of the contractors and subcontractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the trained contractor. The owner or operator shall ensure that at least one trained contractor is on site on a daily basis when soil disturbance activities are being performed. The owner or operator shall have each of the contractors and subcontractors identified above sign a copy of the certification statement before they commence any construction activity.

On-Site Pollution Prevention

Temporary pollution prevention measures used to control litter and construction debris on-site:

- Stabilized Construction Entrance
- Silt Fence
- Silt Sack
- Stone Check Dam
- Excavated Drop Inlet Protection

- Curb Drop Inlet Protection
- Stone & Block Drop Inlet Protection

Inlet protection provided for all storm drains and inlets with the use of curb gutter inlet protection structures and stone & block drop inlet protection, which keep silt, sediment and construction litter and debris out of the on-site stormwater drainage system.

Temporary Control Measures

Temporary control measures and facilities will include silt fences, interceptor swales, stabilized construction entrances, temporary seeding, mulching, sediment traps and a sediment basin.

Throughout the construction of the proposed redevelopment, temporary control facilities will be implemented to control on-site erosion and sediment transfer. Interceptor swales, if required, will be used to direct stormwater runoff to temporary sediment traps/basins for settlement. The sediment traps/basins will remove sediment from the stormwater runoff produced during construction.

Descriptions of the temporary erosion and sediment controls that will be used during the development of the Site including silt fence, stabilized construction entrances, seeding, mulching and inlet protection are as follows:

1. Silt Fence is constructed using a geotextile fabric. The fence will be either 18 inches or 30 inches high. The height of the fence can be increased in the event of placing these devices on uncompacted fills or extremely loose undisturbed soils. The fences will not be placed in areas which receive concentrated flows such as ditches, swales and channels nor will the filter fabric material be placed across the entrance to pipes, culverts, spillway structures, sediment traps or basins.
2. Stabilized Construction Entrances consist of one to four inch stone underlain with geotextile. The entrances will be a minimum of 50 feet in length by 12 feet in width by 6 inches in depth.
3. Seeding will be used to create a vegetative surface to stabilize disturbed earth until at least 70% of the disturbed area has a perennial vegetative cover. This amount is required to adequately function as a sediment and erosion control facility. Grass lining will also be used to line temporary channels and the surrounding disturbed areas.



4. Mulching is used as an anchor for seeding and disturbed areas to reduce soil loss due to storm events. These areas will be mulched with straw at a rate of 3 tons per acre such that the mulch forms a continuous blanket. Mulch must be placed after seeding or within 48 hours after seeding is completed.
5. Inlet Protection will be provided for all stormwater basins and inlets with the use of curb & gutter inlet protection and stone & block inlet protection structures, which will keep silt, sediment and construction debris out of the storm system. Existing structures within existing paved areas will be protected using "Silt Sacks" inside the structures.
6. Erosion Control Matting will be utilized on slopes and within swales, where applicable, to provide stabilization in advance of vegetation being established. Such matting will be biodegradable to facilitate long term growth of vegetation in swales, on slopes and within stormwater management facilities.

The contractor shall be responsible for maintaining the temporary erosion and sediment control measures throughout construction. This maintenance will include, but not be limited to, the following tasks:

1. For dust control purposes, moisten all exposed graded areas with water at least twice a day in those areas where soil is exposed and cannot be planted with a temporary cover due to construction operations or the season (December through March).
2. Inspection of erosion and sediment control measures shall be performed at the end of each construction day and immediately following each rainfall event. All required repairs shall be immediately executed by the contractor.
3. Sediment deposits shall be removed when they reach approximately $\frac{1}{3}$ the height of the silt fence. All such sediment shall be properly disposed of in fill areas on the site, as directed by the Owner's Field Representative. Fill shall be protected following disposal with mulch, temporary and/or permanent vegetation and be completely circumscribed on the downhill side by silt fence.
4. Rake all exposed areas parallel to the slope during earthwork operations.
5. Following final grading, the disturbed area shall be stabilized with a



permanent surface treatment (i.e. turf grass, pavement or sidewalk). During rough grading, areas which are not to be disturbed for fourteen or more days shall be stabilized with the temporary seed mixture, as defined on the plans. Seed all piles of dirt in exposed soil areas that will not receive a permanent surface treatment.

b) Stormwater Pollution Prevention Plan

A Stormwater Pollution Prevention Plan (SWPPP) for the entire Site has been prepared in accordance with the requirements of the New York State Department of Environmental Conservation (NYSDEC) SPDES General Permit for Stormwater Discharges Associated with Construction Activity (Permit No. GP-0-10-001) and Chapter 173 "Stormwater Management" of the Town of North Castle Zoning Code. The SWPPP is provided in Appendix F. The SWPPP analyzes how stormwater runoff is treated before and after development.

c) Integrated Turfgrass and Pest Management Plan

A new, more comprehensive Integrated Turfgrass and Pest Management Plan (ITPMP) has been developed for the Project to improve environmental management practices. (See Appendix E.) The final ITPMP will address grass clippings from the golf course and implementation of water quality measures and maintenance practices. Potential impacts of not removing clippings could be fertilizers or pesticides in concentration on the clippings having a negative effect on surface water (via runoff) or groundwater (via leaching). In addition, impacts might result to stormwater runoff if chemicals were not properly stored, as well as if they were not applied in the proper amounts using the proper protocols. Impacts to receiving waterbodies would result, including impacts to water quality and to the health of aquatic vegetation and wildlife.

The objective of the ITPMP is to maintain a healthy, pest-resistant golf course that will have little or no impact on the surrounding environment. Selection and use of fertilizers and pest control materials will be based on producing healthy plants while not contaminating either surface water (via runoff) or groundwater (via leaching). There is no evidence to suggest that a golf course with an ITPMP like the one proposed here will contaminate surface or groundwater.¹

A Surface-Water Sampling Program has been designed which includes monitoring the quality of surface water exiting the Site after the completion of

¹ Over 40 golf courses in the NY/CT/NJ region use a similar ITPMP (many with monitoring). To the Applicant's knowledge, none of these courses have experienced surface or groundwater contamination from either nutrients or pesticides applied in accordance with the ITPMP.

construction. The data from the Surface-Water Sampling Plan is provided in Appendix I. Surface water samples were collected from one surface-water sampling location in the central stream channel on the project, as depicted on Figure 2 within Appendix I. Two sampling events are analyzed, one taken in March and one in April 2013. No NYSDEC criteria exceedances from Class GA groundwater and Class A surface-water standards and/or guidance values were found.

d) Compliance with NYSDEC SPDES General Permit for Stormwater Discharges Associated with Construction Activity (Permit No. GP-0-10-001)

The owner/operator, by submitting a Notice of Intent (NOI), will acknowledge that the SWPPP has been developed and will be implemented as the first element of construction, and agree to comply with all the terms and conditions of the general permit. All contractors and subcontractors associated with the project must comply with the SWPPP. The owner/operator shall at all times operate and maintain all facilities and systems of treatment and control which are installed or used by the owner/operator to achieve compliance with the conditions of the general permit and with the requirements of the SWPPP.

e) Green Infrastructure

The following green infrastructure techniques and practices are proposed to meet the minimum required runoff reduction volume:

- Sheetflow to filter strips is proposed to treat runoff from the golf course as illustrated on Exhibit II-18A. Fescue areas are proposed around enlarged Ponds 1, 2 and 6 and existing Pond 5. Fescue areas are also proposed to the west of holes 6 and 7 to treat runoff prior to discharging to on and off-site wetlands.
- Rain gardens are proposed to collect runoff from the rooftops of Club Villas.
- Stormwater planters are proposed to collect runoff from the western half of the rooftop of the Fairway Residences.
- Permeable paving, including Flexi-Pave and porous pavers, are proposed for parking areas and driveways, respectively.
- Bioretention systems are proposed to collect stormwater runoff from the rooftops of Club Villas, Golf Residences, parking areas and pavements.

- Extensive green roofs are proposed for the WWTP and covered storage buildings.

These measures address how runoff will be treated prior to discharge into on – and off site wetlands, water bodies and watercourses.

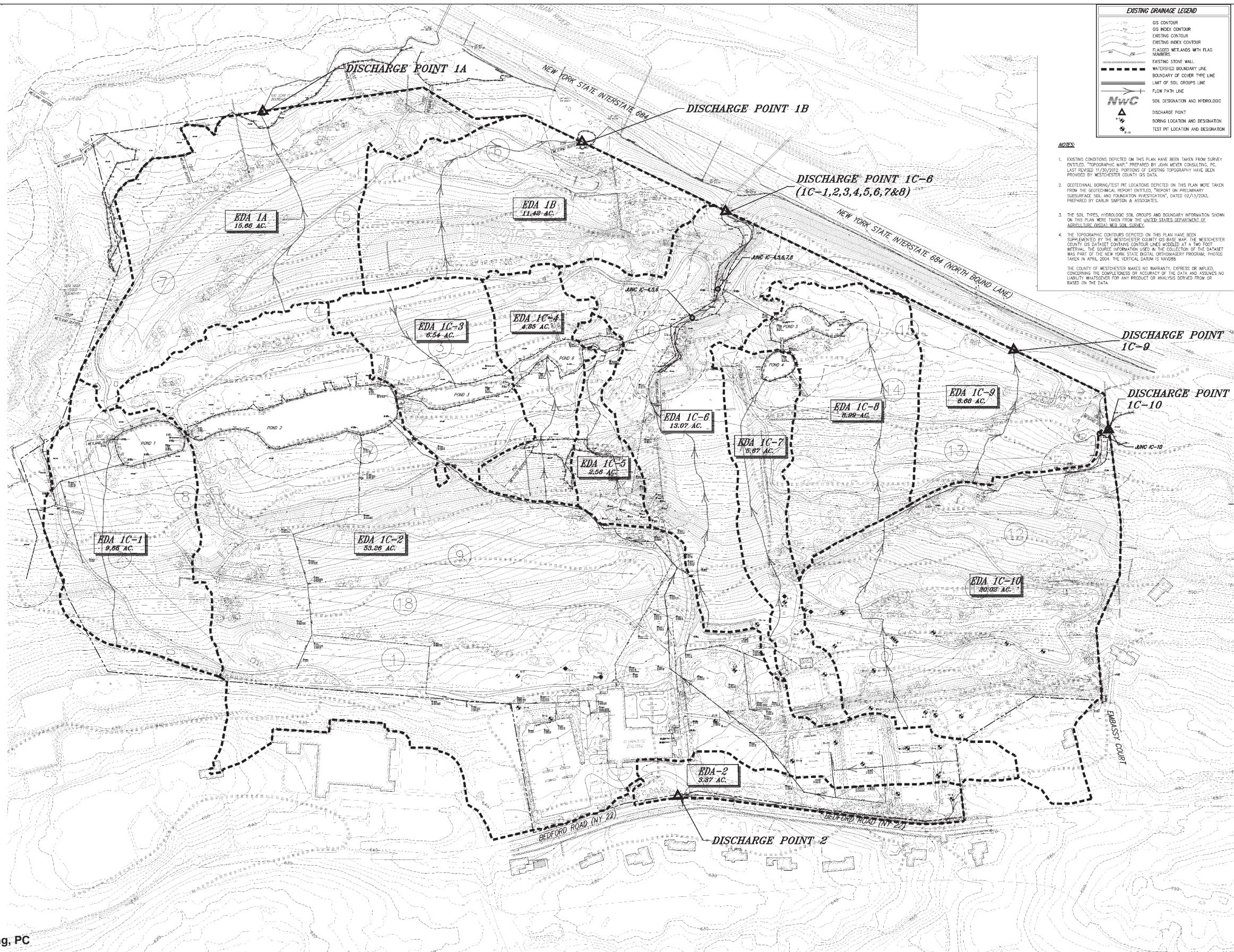
f) Measures to Minimize Impacts on Water Resources

Temporary erosion and sediment control measures will be implemented during construction as described in Section 3.a) above. These measures will include sediment traps and sediment basins to remove sediment from runoff prior to discharging to surface waters.

Infiltration practices (as defined by NYSDEC) are proposed to minimize impacts on water resources. Testing has been performed in areas of proposed infiltration practices to determine depth to bedrock, depth to groundwater and soil infiltration rates. The test results are provided in Appendix D, as well as in the SWPPP in Appendix F. Additional test pits and infiltration tests will be performed in areas of proposed infiltration practices, which will be witnessed by the Town Engineer, if required.

Prior to the final stabilization of the disturbed areas, soil restoration will be required for all vegetated areas to recover the original properties and porosity of the soil. Refer to the SWPPP provided in Appendix F for the soil restoration requirements.

The existing irrigation ponds will continue to be used to supply water for the irrigation water demand for the golf course. Grey water from the on-site wastewater treatment plant may be used to supplement the ponds and irrigation wells.



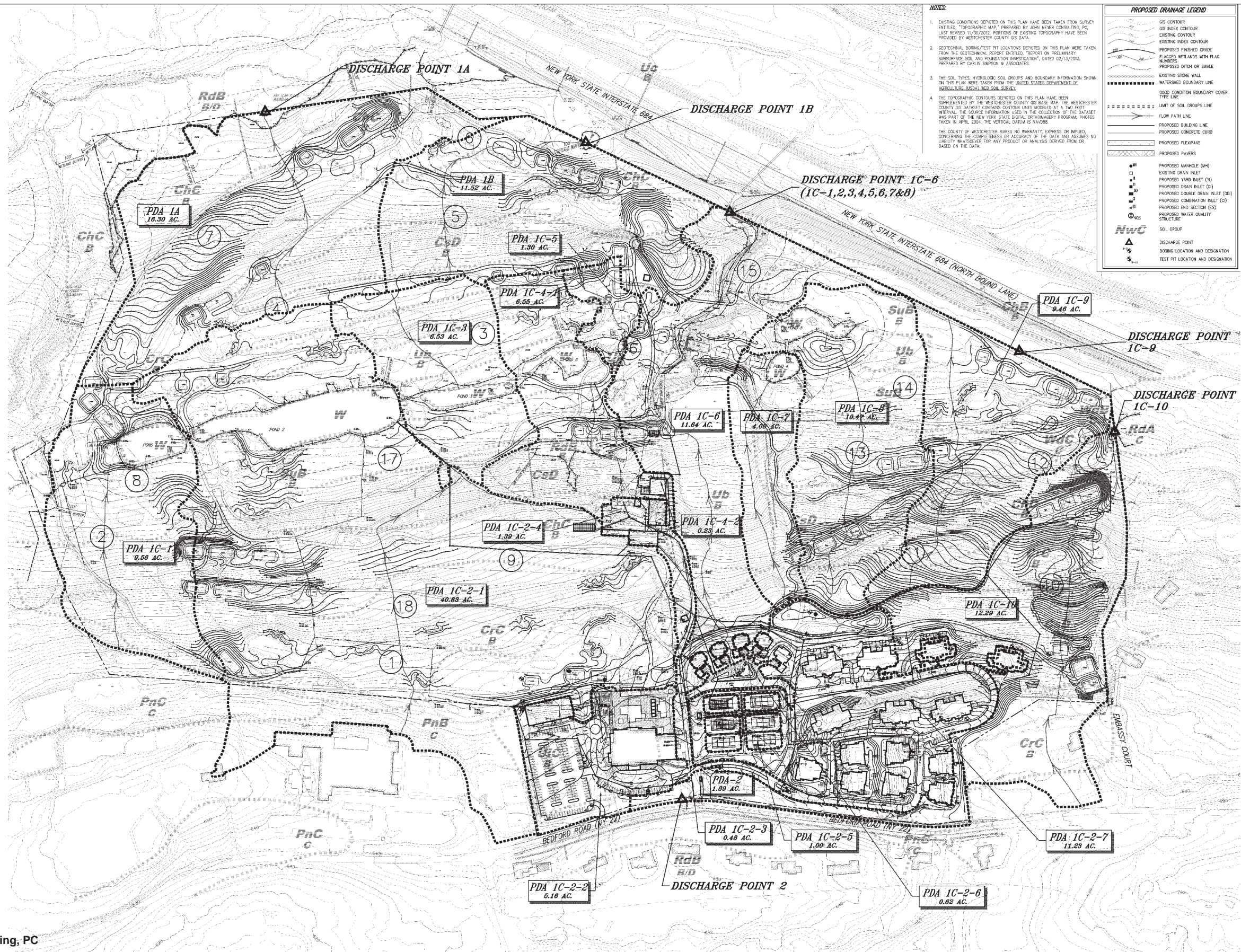
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Existing Drainage Areas

Exhibit
III.I-1



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Proposed Drainage Areas

Exhibit
III.I-3

J. Hydrogeology, Groundwater and Water Supply

1. Existing Conditions

a) Groundwater Geology

Groundwater is present at the Site in two forms. Shallow groundwater is present in the overburden soil which is composed of glacial till. Groundwater is also present in the bedrock which underlies the overburden soil.

Glacial till consists of non-sorted, non-stratified sediments deposited by glacial activity. The sediment contains varying proportions of clay, silt, sand, gravel and boulders. The groundwater present in the overburden glacial till soil is generally not suitable for public water-supply because the soil does not transmit water in sufficient quantity for the development of high-yielding wells.

Fordham Gneiss bedrock underlies the overburden soil at the Site. Groundwater in the bedrock is transmitted through interconnected openings in the rock such as fractures, joints, contacts and bedding planes. Target locations for potential high-yielding bedrock wells are where one or more interconnected fractures are present.

A fracture trace conducted for the Site showed potentially favorable fracture locations along the southern and western property boundaries. Wells sited near favorable fracture-trace locations have the potential to produce sufficient yields for use as a public water supply. Five test well locations near the fracture trace lineations on the southern and western property boundaries which meet maintaining County Health Department 200-foot sanitary control requirements for public water-supply wells have been drilled. The five test wells were drilled by April 2013. The driller's estimated yields for wells 1, 2B, 3, 4 and 5 were 75+ gpm, 20 gpm, 40 gpm, 7 gpm and 25 gpm, respectively. A 6th test well (well #6A) was drilled in May 2013, and this well was completed at a depth of 620 feet and was reported to yield 80 gpm. The results from the test well drilling completed to date indicate that wells with sufficient yield can be drilled on the property to meet the Project water demand requirements.

b) Existing Wells and Water Supply

There are existing water-supply wells located on residential parcels north, west and south of the Site. Residential properties to the east of the Site are supplied by municipal water from the Town of North Castle Water District No. 2.

All of the residential supply wells logs obtained to date from the Westchester

County Department of Health for nearby properties report the wells being in the underlying bedrock. The water for these wells comes from openings in the rock such as fractures, joints and contacts. The yields of the off-site wells vary as a result of location selection based on convenience and/or sanitary control requirements instead of the specific targeting of water-producing fractures in the underlying bedrock. In addition, drilling is typically terminated when the required yield (5 gpm) for domestic use is achieved.

There are no public water-supply wells within ¼-mile of the Site. The closest municipal public water-supply wells to the Site belong to the Town of North Castle Water District No. 2, and are located in Windmill Farms, approximately 5,000 feet east of the Site. All of the Water District No. 2 wells are in the sand and gravel aquifer formation at the well field. There are five existing wells and the maximum permitted yield capacity with the best well out of service is 290 gpm (gallons per minute). No interconnection between wells on the Site and the Water District No. 2 wells are anticipated because of the distance between the wells and because the wells are completed in different aquifer formations, the Site in the bedrock aquifer and Water District No. 2 in the sand and gravel aquifer.

Water District No. 2 has an existing 10,000-gallon chlorine contact tank, 600,000-gallon atmospheric storage tank and distribution system. A back-up generator located at the well field is sized to support the operation of the existing pumping and treatment equipment. The 10,000-gallon chlorine contact tank is located at the well field and the 600,000-gallon atmospheric storage tank is located approximately 5,500 feet northwest of the well field along Evergreen Row.

The submersible pumps in the water-supply wells activate and deactivate based on the water level in the 10,000-gallon chlorine contact tank. Treated water is pumped from the 10,000-gallon chlorine contact tank into the distribution system utilizing two 30 HP transfer pumps. The transfer pumps operate based on the pressure measured at the effluent transmission pipe from the 600,000-gallon atmospheric storage tank. The current water-supply system is configured to allow the operation of only one transfer pump at any particular time because the existing water main cannot accommodate the increased flow from two transfer pumps. Each transfer pump has the capability to pump approximately 235 gpm at the maximum system pressure of 145 psi (335 feet of water).

Water treatment for the District consists of the injection of a sodium hypochlorite solution for disinfection of the water supply. The disinfection

system is designed to provide a minimum of 4-log virus inactivation in accordance with the United States Environmental Protection Agency (USEPA) Ground Water Rule (GWR).

c) Water Storage and Supply

There are six existing wells located on the Site identified as Wells 3, 4, 5, 6, 8 and 9. Wells 3, 4, 5 and 6 were drilled as irrigation wells to supplement the irrigation water from the on-site ponds when needed. Wells 4 and 5 are currently the only irrigation wells in service. The yield of Well 4 is approximately 45 gpm and the yield of Well 5 is approximately 35 gpm (see Exhibit III.J-1).

Well 3 was drilled for use as an irrigation well; however, the well is not currently active. The approximate yield of Well 3 is 20 gpm. Well 6 was also drilled as an irrigation well. However, the estimated yield of the well at completion was 6 gpm, so the well was never equipped with a well pump or placed into service.

Well 8 is located in a subsurface well vault near the existing tennis court. It is unknown what the yield of this well is or when it was taken out of service. Well 8 would be abandoned in accordance with WCDH guidelines prior to the start of construction at the Site.

Well 9 is associated with the on-site wastewater treatment plant (WWTP). None of the existing on-site wells are currently used or proposed for future use as a potable water source.

Potable water at the Site is currently supplied by the Town of North Castle Water District No. 2. There are no potable water storage facilities currently in use on the Site.

Irrigation water is stored in the on-site irrigation ponds. The irrigation pump house that pumps water from the ponds is located on the south/central portion of the course. Upstream of the pump house are two ponds with a total combined storage volume of 4.12 million gallons at full capacity.

d) Public Water Supply

The closest municipal public water-supply to the Site is the Town of North Castle Water District No. 2. The Site is not located in Water District No. 2 or any other water district. Water District No. 2 currently supplies potable water for the Brynwood Golf & Country Club, under an "out of district" user agreement.

Connection of the Site to Water District No. 2 would require the development of adequate quantity of water from the District well field to meet the

requirements of the regulatory agencies. In addition, approvals from the Town Board, New York State Department of Health, New York State Department of Environmental Conservation and WCDH to expand the service area to include the Site would be required. (See Appendix J for the report on North Castle Water District No. 2 water supply capacity.)

e) On-Site Chemical Use

The judicious use of fertilizers and pesticides has been present on the Site since its inception as a golf course. This use has been conducted by or under the supervision of licensed pesticide applicators in compliance with New York State regulations. Records and documentation are kept and maintained on-site by the Golf Course Superintendent and are readily accessible to all agencies. Current on-site records date to 2000-2001 and are kept to the current season 2012-2013.

The documentation shows accurate records that display responsible use, following guidelines very close to the IPM strategies that are currently utilized. The chemical characteristics of leachability and environmental toxicity have been of high priority, and the pesticides and fertilizers that have been used on the golf course have generally been classified with very small to medium leaching potential. The available records show no over use of any fertilizer or pesticide in the past, and the use appears to be at or below labeled rates with proper application timing as per label instructions.

Groundwater samples were collected from the irrigation Wells 4 and 5 in November 2012. The samples were analyzed for herbicides and pesticides by EPA Methods 504.1, 505, 515.1, 525.2 and 531.1. All constituents analyzed for were reported as not detected in the samples from both wells.

f) Water Quality Requirements

Water quality for public water-supply wells is regulated by the Westchester County Department of Health (WCDOH) and the New York State Department of Health (NYSDOH). The list of drinking water standard maximum contaminant levels can be found in the NYSDOH Sanitary Code Part 5, subpart 5-1. Any proposed public water-supply well drilled on the Site would be analyzed for all parameters required by the Sanitary Code. The results of the water-quality testing would be submitted to the WCDOH and NYSDOH as part of the well approval process.

g) Aquifers and Recharge Areas

There are no stratified-drift (sand and gravel) aquifers on or near the Site.

Fordham Gneiss bedrock underlies the Site and surrounding area. Groundwater in a bedrock aquifer is continually being replenished by precipitation on the local watershed. Some of the water infiltrating the soil zone percolates downward to recharge the underlying bedrock. Recharge to till-covered metamorphic bedrock is estimated to be approximately 7-inches annually or about 520.7 gpd/acre (gallons per day per acre).

Currently there are ± 10.9 acres of impervious surface areas (parking lots, buildings, etc.) on the property. Most of the precipitation which falls on the impervious surfaces is collected as storm-water runoff and discharged into the on-site irrigation ponds. A portion of the storm water collected is discharged back to pervious areas of the Site (i.e. the golf course) as irrigation water.

The watershed area up-gradient of the Site is comprised of an additional 8.2 acres. Approximately 0.1 acres of this up-gradient watershed area are comprised of impervious surfaces. Some of the storm-water runoff from this area is also discharged to the existing irrigation pond system on the Site.

Although storm-water runoff is collected, stored in on-site ponds and a portion reused for irrigation, all of which provide some recharge to groundwater, the bedrock groundwater recharge on the Site under existing conditions has been conservatively calculated based on only the pervious acreage on the Site and in the upgradient watershed area which total 153.6. Therefore, based on the bedrock groundwater recharge rate of 520.7 gpd/acre the total recharge under existing conditions is about 79,980 gpd.

To evaluate drought recharge conditions, historical precipitation data from the Westchester County Airport rain gauge station were reviewed. The data indicate that average precipitation for this area of Westchester County is 50.45 inches. A precipitation probability graph created using the published data was used to determine the precipitation rate during an extreme drought period, defined as a one-year-in-thirty event. Based upon the graph, the extreme drought precipitation rate was 71-percent of the average annual precipitation, or about 36.0 inches. Assuming the groundwater recharge rate is similarly reduced during a drought event, the recharge rate during a one-year-in-thirty drought would be about 56,790 gpd for the Site.

Bedrock aquifers are not uniformly productive like stratified-drift (sand and gravel) aquifers. Water-bearing areas in the bedrock are located where

fractures and other openings in the bedrock interconnect. These openings can be located tens to hundreds of feet down into the rock and can have orientations ranging from vertical to horizontal. Because of this variability, although the recharge to bedrock from a watershed area (surface-water drainage area) can be calculated, the area may not be the only contributor to recharge to the interconnected fracture system which supplies a bedrock well.

In addition, because of the variability of the fracture locations, orientation, and sizes, the bedrock aquifer capacity cannot be calculated using existing equations designed for stratified-drift aquifer formations. Therefore, the capacity of the bedrock aquifer must be determined through yield testing of wells drilled in the formation.

There are no State or Federally designated aquifers at Site.

h) Existing On-Site Water Resources and Wells for Irrigation

LBG conducted a hydrogeologic review of water-supply development alternatives on the Water District's well field parcel. Both the sand and gravel and bedrock aquifers along the Mianus River corridor have significant potential to develop high-yielding well(s) on the Town's well field parcel. The water quality of the region's sand and gravel aquifer along the Mianus River corridor is generally good to excellent and typically requires no treatment with the exception of chlorination for disinfection. The water quality of the region's bedrock aquifers is also generally good and also typically requires no treatment with the exception of chlorination. The preliminary data indicate that high-yielding sand and gravel production well(s) with a yield of 100 – 300 gpm could likely be developed on the well field study parcel. However, an initial drilling exploration program would have to be conducted to determine if the aquifer material is suitable for the development of a high-yielding well. If the aquifer is suitable, the Town would need to design appropriate storage and distribution infrastructure. For additional detail, refer to Appendix J: Water District No. 2 Well Field Parcel (T) North Castle, New York.

There are four existing irrigation wells located on the Site, designated Wells 3, 4, 5 and 6, which were drilled to supplement the water from the irrigation ponds on the golf course when needed. Wells 4 and 5 are currently the only irrigation wells in service. The yield of Well 4 is approximately 45 gpm and the yield of Well 5 is approximately 35 gpm.

Well 3 was drilled for use as an irrigation well; however, the well is not currently in active use. The estimated yield of Well 3 is 20 gpm. Well 6 was also drilled as an irrigation well. However, the estimated yield of the well at completion was 6

gpm, so the well was never equipped with a well pump or placed into service.

Water stored in the irrigation ponds is pumped through the irrigation system for use on the golf course. Water from Wells 4 and 5 is pumped directly into the larger of the on-site irrigation ponds, when needed, to supplement the storm water collected in the ponds.

Documented past irrigation water usage is available in the form of an estimation from the golf course irrigation computer. This accounts for run times, nozzle and irrigation head types, pipe size and hydraulic systems, pump station capacities, etc. Available records for the 2012 irrigation season report an average daily water usage of 51,240 gallons, a maximum day usage of 193,000 gallons (April) and the peak month (September) usage of 2,298,000 gallons. The daily average is notably lower than the maximum day because irrigation of the course does not occurred every day.

Totalizing meters have been installed on Wells 4 and 5 and in the irrigation pump house. Starting in 2013, water withdrawal from the irrigation Wells 4 and 5 and through the irrigation pump house will be metered and recorded.

2. Potential Impacts

a) Water Supply Needs

The Project includes drilling on-site public water-supply wells to meet potable water supply needs. The irrigation water demand would be supplied by the existing on-site irrigation ponds which capture storm-water runoff and the existing irrigation wells which supplement the ponds. Grey water from on-site sewage treatment may be used to supplement the ponds and irrigation wells to provide a substantial and “green” source of irrigation water supply. The grey water will receive high level tertiary treatment including filtration, nutrient removal and disinfection and meet NYSDEC intermittent stream surface water discharge standards.

Assuming sufficient yield is obtained from drilling on-site bedrock public water-supply wells, a simultaneous yield test of the new potable wells and existing irrigation wells would be conducted in accordance with NYSDEC and NYSDOH requirements to demonstrate adequate yield and water quality.

The goal of the current on-site well drilling program is to develop an on-site water supply to meet the Project’s potable water demand requirements. If the results of the test well drilling program demonstrated that the development of an on-site public water-supply source is not feasible, the Project would pursue



connection with Water District #2 to supply potable water. The existing irrigation ponds and wells would continue to be used to supply water for the irrigation water demand for the golf course.

The Town of North Castle Water District No. 2 (District) presently supplies water to the clubhouse as an out-of-district user. Currently, the Water District does not have sufficient surplus capacity to meet the water demand requirements of the proposed build-out of the Project. The District currently serves an estimated population of 1,200 people with 368 service connections.

The present water supply consists of four sand and gravel production Wells 2, 3, 4 and 5. The yield capacities of the wells are: Well 2, 50 gpm; Well 3, 100 gpm; Well 4, 190 gpm; and Well 5, 280 gpm.

The total NYSDEC water-taking permit limits the taking to 290 gpm (0.42 mgd). Well 5 is eliminated from the combined total yield due to the redundancy requirement (best well out of service). In addition, Wells 2, 3 and 5 cannot be operated simultaneously because of mutual water-level interference effects.

From LBG's in-house records, the maximum peak water demand of the District is about 364,832 gpd (July 2012). Including the peak water demand of the Club of 103,910 gpd, the combined peak demand would be 468,742 gpd or about 325 gpm. Therefore, the combined yield of the District's wells would need to be a minimum of 325 gpm, with the best producing well out of service, to meet the combined peak demand.

Presently, with the best well out of service, the District maximum permitted yield is 290 gpm. The development of an additional well(s) with a yield of 50-100 gpm to augment the existing supply would be needed at the well field if the Club were to connect to the District to meet the increased demand. To incorporate a new water supply well into the system for Water District #2, a raw water transmission main would need to be extended from the proposed water-supply well to the existing treatment building. A sodium hypochlorite solution would be injected and the water conveyed to the 10,000-gallon chlorine contact tank. With the addition of a new water-supply well, the 10,000-gallon chlorine contact tank would need to be upgraded to remain compliant with the USEPA GWR. The 10 States Standards requires that the water supply system include at least two pumps and with any pump out of service, the remaining pump or pumps shall be capable of providing the maximum pumping demand from the system. Therefore, at a minimum, a third transfer pump would need to be incorporated to meet the peak demand. Other upgrades that would be needed include the replacement of the water main/distribution system to allow for



greater capacity to flow through the piping system. The controls for the transfer pumps would also need to be reconfigured to allow for the operation of multiple transfer pumps and the back-up generator would need to be evaluated to determine if it can support the increased power demand from the new pumps. Additionally, the size of the existing water storage tank would need to be assessed in regard to meeting peak water demand and fire flow requirements for both the Windmill Farm neighborhood and the Project.

b) Water Quantity

The table below summarizes the potable water demand requirements for the Project.

Table III.J-I
Potable Water Demand

Usage Type	Subcategory	Number	Water Usage Rate	Water Demand (gpd)	Water Demand (gpm)
Residential	2-bedroom residence	58 units	300 gpd/2-	17,400	12.1
	3-bedroom residence	25 units	400 gpd/2-	10,000	6.9
	4-bedroom residence	5 units	475 gpd/2-	2,375	1.6
	Seasonal employee	12	75 gpd/person	900	0.6
	Guest Suites	10 suites	120 gpd/room	1,200	0.8
Clubhouse	Club Members Peak Day	400	25 gpd/ member	10,000	6.9
	Restaurant/Bar	100 seats	35 gpd/seat	3,500	2.4
Banquet Hall		250 seats	20 gpd/person	5,000	3.5
Employees		92	15 gpd/person	1,380	1.0
Golf Course		2,000 sq. ft.	0.1 gpd/sq.ft.	200	0.1
Average Water Demand				51,955	36.1
Twice Average Water Demand				103,910	72.2

The fire flow volume is calculated as 1,000 gallons per minute for a two-hour duration. The amount of water storage to be provided is based on twice an average daily domestic water demand of 51,955 gpd plus and additional fire flow volume of 1,000 gallons per minute for a two-hour duration, $(51,955 \times 2) + (1,000 \text{ gpm} \times 120 \text{ minutes}) = 223,910$ gallons.

Available records for the 2012 irrigation season report an overall daily average water usage of 51,240 gallons, a maximum day usage of 193,000 gallons (April) and the peak month (September) usage of 2,298,000 gallons. During the grow-in season, the peak day was 193,000 gallons and peak month total was 1,730,000 gallons. Both peaks during the grow-in season occurred in April. The new turf will be developed in phases and limited to the amount installed at any



one time to that which can be supported by the existing irrigation water supply sources so as not to exceed the available irrigation water supply. Future irrigation water demand requirements are expected to be similar to the current irrigation demand.

Totalizing meters have been installed on irrigation Wells 4 and 5 and in the irrigation pump house. Starting in 2013, water withdrawal from the irrigation wells and through the irrigation pump house will be metered and recorded.

A representative number of neighboring homeowner wells, with particular attention to those along regional fracture trace trends, were contacted requesting their participation in the off-site site well monitoring program to be conducted during the 72-hour pumping test, as described below. Door to door solicitation of neighboring property owners was initiated on April 30, 2013 and a total of 15 owners granted the Applicant permission to monitor their wells.

c) Groundwater Recharge

Following build-out of the Project, the impervious surface area on the Site would increase to 17.5 acres. Storm-water management practices would remain in effect, which includes the discharge of a portion of the runoff collected into the on-site irrigation ponds for reuse. However, to be conservative, the bedrock groundwater recharge under the future build-out conditions has been calculated based on only the pervious acreage (147.0 acres) on the Site and in the upgradient watershed area. Based on the recharge calculations described for existing conditions in Section III.J.1.g, the bedrock groundwater recharge following build-out would be 76,540 gpd under normal precipitation conditions and 54,340 gpd under one-year-in-thirty drought precipitation conditions.

d) Well Capacity

The use of on-site water-supply wells has the potential to impact water levels in existing bedrock wells located near the Site. This potential has been assessed by a 72-hour pumping test on the proposed potable water supply wells for the Project. The impact of the pumping was measured on the levels of the wells of the 15 neighbors who agreed to participate in the test.

The test was conducted in May, 2013. The data are being analyzed in accordance with the NYSDEC guidelines Appendix 10, TOGS 3.2.1 (March 2013). The results of the test include following:

- Proposed supply Wells 1, 2B, 3 and 5 and Irrigation Wells 4 and 5 demonstrated stabilized yield and water-level drawdown during the simultaneous 72-hour pumping test conducted at pumping rates of 50 gpm, 12 gpm, 32 gpm, 19.5 gpm, 32 gpm and 40 gpm, respectively. The combined yield of the 6 pumping wells during the simultaneous 72-hour pumping test was 185.5 gpm.
- The combined stabilized yield demonstrated during the simultaneous pumping test of proposed supply Wells 1, 2B, 3 and 5 of 113.5 gpm is more than sufficient to meet twice the average water demand of the proposed Project of 72.2 gpm.
- Proposed supply Well 6A demonstrated stabilized yield and water-level drawdown at a pumping rate of 55 gpm. This well was tested individually as the best well and satisfies the NYSDOH well yield requirement of meeting twice the average water demand with the best well out of service.
- The most significant water-level interference effects on offsite wells was a result of pumping Wells 1, 2B, 3 and 5 and irrigation Wells 4 and 5 at a combined yield of 185.5 gpm (gallons per minute) for three days at rates significantly higher than expected average water demands of the project. Therefore, the water-level interference on the offsite wells which will occur from normal operation (12-hour daily pump cycles) and rotational use of supply wells to be developed to supply the actual water demands of the project should be significantly less than observed during the simultaneous pumping test event. The expected groundwater withdrawal to meet average water demands will not likely result in significant impact to any offsite wells or impact water usage.
- Neighboring well owners concerned about the projected withdrawals should realize that the use of the proposed Brynwood well supply sources will require the approval of the Town and regulatory agencies. Additional operational monitoring is recommended to take place once the wells go online. This additional monitoring will include offsite wells indicating water-level inference during recent pumping tests (May 2013) to determine any significant impacts, if any, under normal operation of the proposed well source to meet the water demands of the project. The future monitoring program may be continued until two years following build-out of the proposed project.

The data and analyses are provided in a Pumping Test Report prepared by LBG and included in Appendix R.

e) Water Demand and Availability

As described in Section III.J.2.b above, the average potable water demand requirement for the Project is calculated to be 51,955 gpd (gallons per day) or about 36.1 gpm (gallons per minute) and twice the average water demand is 103,910 gpd or about 72.2 gpm. This water demand is proposed to be met by the development of on-site public water supply wells.

Based on existing records, the irrigation water demand is estimated to be a daily average water usage of 51,240 gallons, a maximum day usage of 193,000 gallons (April) and the peak month (September) usage of 2,298,000 gallons. The daily average is notably lower than the maximum day because irrigation of the course does not occur every day.

The irrigation water demand is currently supplied by storm-water runoff captures in the irrigation ponds and supplemented by two existing on-site irrigation wells. Totalizing meters have been installed on Wells 4 and 5 and in the irrigation pump house. Starting in 2013, water withdrawal from the irrigation wells and through the irrigation pump house will be metered and recorded.

A FOIL (Freedom of Information Law) search was conducted of WCDOH files for records regarding wells at properties located within ¼-mile of the Site. A summary of the information from the well logs is provided in the table below.

Table III.J-2
Well Log Information Summary

Property Address	Yield (gpm)	Depth to Bedrock	Total Depth of Well
2 Embassy Court	10	8	125
3 Embassy Court	8	6	116
4 Embassy Court	6	11	122
8 Embassy Court	9	10	105
12 Ilana Court	8	35	125
15 Ilana Court	10	23	305
17 Ilana Court	6	17	125
19 Ilana Court	12	19	175
182 Byram Lake Road	12	70	265
190 Byram Lake Road	8	4	255
198 Byram Lake Road	20	8	230
6 Colonial Drive	6	23	185
7 Colonial Drive	6	65	165
3 Willow Pond Lane	6	36	305
10 Willow Pond Lane	8	9	225
14 Willow Pond Lane	8	21	205



Property Address	Yield (gpm)	Depth to Bedrock	Total Depth of Well
18 Blair Road	7	8	345
24 Blair Road	5	19	100
26 Blair Road	7	22	85
30 Blair Road	6	37	125
34 Blair Road	8	76	165
554 Bedford Road	8	114	425
606 Bedford Road	25	9	325
4 Nash Place	6	12	900
3 Norman Place	5	2	450
10 Evan Place	5	36	475
11 Illana Court	5	60	275
20 Byram Hill Road	5	9	507
8 Evan Place	5	24	580
5 Evan Place	2	12	465
7 Oregon Road	5.5	13	270
7 Evan Place	6	10	345
12 Blair Road	5	76	365
6 Blair Road	7	39	145
19 Blair Road	6	20	225
6 Evan Place	5	24	600
3 Nash Place	12	15	475
8 Byram Hill Road	5	9	550
9 Evan Place	8	6	300
3 Oregon Road	5	5	305
6 Norman Place	5	10	305
8 Illana Court	5	12	350
11 Blair Road	5	30	165
21 Blair Road	10	41	165
29 Blair Road	5	80	345
15 Blair Road	6	22	145
1 Colonial Court	5.5	30	210
3 Colonial Court	6	65	165
5 Colonial Court	6	23	185
13 Byram Hill Road	3.5	10	181
11 Blair Road	5	30	165
21 Blair Road	10	41	165
29 Blair Road	5	80	345
15 Blair Road	6	22	145
1 Colonial Court	5.5	30	210
3 Colonial Court	6	65	165
Average	7.2	29	272
Median	6.0	22	225



In addition to the search of WCDOH records, a questionnaire was sent via certified mail to all property owners outside of Water District No. 2 located within ¼-mile of the Site. The responses received to the questionnaires are summarized in the table below.

Table III.J-3
Well Information Questionnaire Responses

Property Address	Reported Well Type (Dug or Bedrock)	Reported Yield (gpm)	Reported Pump Setting (feet)	Reported Total Depth of Well (feet)	Reported Past Water Shortages (Y/N)	Reported Past Water-Quality Issues
6 Blair Rd	Bedrock	7	100	145	N	N
24 Blair Rd	Dug	UK	UK	UK	Y	Y
4 Norman Pl	UK	UK	UK	UK	N	Y
13 Byram Hill Rd	Bedrock	UK	130	180	N	Y
4 Evan Pl	UK	UK	UK	UK	N	Y
19 Ilana Ct	UK, poss. Dug	UK	UK	UK	N	Y
12 Blair Rd	Bedrock	UK	UK	600	N	Y
3 Nash Pl	UK	UK	UK	UK	N	Y
8 Byram Hill Rd	Bedrock	12-15	UK	450	N	Y
604 Bedford Rd	UK	UK	UK	UK	N	Y
89 Oregon Rd	NA	NA	NA	NA	NA	NA
4 Embassy Ct	UK	UK	UK	UK	N	N
11 Byram Hill Rd	Bedrock	3-4	160	300	N	N
5 Norman Pl	UK	UK	UK	UK	N	N
10 Evan Pl	Bedrock	UK	UK	575	N	N
188 Byram Lake Rd	UK	UK	UK	UK	N	Y
Unknown address	UK	UK	UK	UK	N	N
29 Blair Rd	Bedrock	5	260	345	N	N
Willow Pond Ln	NA	NA	NA	NA	NA	NA
70 Old Byram Lake Rd	Bedrock	12	180	250	N	N
9 Willow Pond Ln	NA	NA	NA	NA	NA	NA
13 Ilana Ct	Bedrock	UK	200	225	N	N
606 Bedford Rd	Bedrock	UK	UK	300	N	N
76 Old Byram Lake Rd	Bedrock	8	UK	300	N	Y
7 Ilana Ct	Bedrock	UK	UK	UK	N	N
10 Tripp Ln	Bedrock	10	150	300	N	N
558 Bedford Rd	NA	NA	NA	NA	NA	NA
39 Blair Rd	Bedrock	3	UK	120	N	N
538 Bedford Rd	Bedrock	UK	UK	UK	Y	Y
4 Colonel Dr.	Bedrock	18	200	220	N	Y

UK Unknown

NA Not applicable, no well on property



All of the wells logs obtained from the WCDOH to date for nearby properties report that the wells are completed in the bedrock aquifer. The proposed on-site potable supply wells and the on-site irrigation wells, which are used to supplement the irrigation system, are also completed in the bedrock aquifer on the Site. Two of the responses from the questionnaire sent to nearby property owners reported that the on-site well was a shallow dug well. These wells are supplied by water in the overburden soil, not from the bedrock aquifer, and the water level will vary seasonally with changes in the water table.

The potential impact of the proposed wells at the Site on existing off-site wells was assessed during the 72-hour pumping test conducted in May, 2013. A total of 15 owners granted the Applicant permission to monitor their wells. The data and analyses will be provided to the Town in a Pumping Test Report to be prepared by LBG.

f) Potential Impacts to Groundwater Recharge, Quality, and Quantity

Potential impact to groundwater quality could occur from land use changes associated with build-out of the Site. The only significant change proposed for the Site compared with existing conditions is the addition of the residences. An increase in storm-water runoff from landscaped areas and parking areas potentially containing trace amounts of hydrocarbons, metals, fertilizer and pesticides has the potential to impact water quality. The stormwater management practices proposed to address the potential impact to groundwater quality from storm-water runoff collection from this area is described in Chapter III.I.

The potential impact of the proposed wells at the Site on existing off-site wells was assessed during the 72-hour pumping test conducted in May, 2013. A total of 15 owners granted the Applicant permission to monitor their wells. The test was conducted in May, 2013. The data are being analyzed in accordance with the NYSDEC guidelines Appendix 10, TOGS 3.2.1 (March 2013). Preliminary results indicate no significant interference with off-site wells. Other results of the test are as follows:

- Proposed supply Wells 1, 2B, 3 and 5 and Irrigation Wells 4 and 5 demonstrated stabilized yield and water-level drawdown during the simultaneous 72-hour pumping test conducted at pumping rates of 50 gpm, 12 gpm, 32 gpm, 19.5 gpm, 32 gpm and 40 gpm, respectively. The combined yield of the 6 pumping wells during the simultaneous 72-hour pumping test was 185.5 gpm.

- The combined stabilized yield demonstrated during the simultaneous pumping test of proposed supply Wells 1, 2B, 3 and 5 of 113.5 gpm is more than sufficient to meet twice the average water demand of the proposed Project of 72.2 gpm.
- Proposed supply Well 6A demonstrated stabilized yield and water-level drawdown at a pumping rate of 55 gpm. This well was tested individually as the best well and satisfies the NYSDOH well yield requirement of meeting twice the average water demand with the best well out of service.

The data and analyses have been provided to the Town in the Pumping Test Report prepared by LBG (Appendix R).

g) Bedrock Aquifer Assessment

Bedrock groundwater recharge contributed by the Site and upgradient water shed area following build-out of the Project is calculated in Section III.J.2.c as 76,540 gpd under normal precipitation conditions and 54,340 gpd under one-year-in-thirty drought precipitation conditions.

The average water demand for the Project, which is proposed to be supplied by on-site bedrock wells, is 51,955 gpd or about 36.1 gpm as described in Section III.J.2.b.

The irrigation water demand is proposed to be supplied by the on-site ponds and supplemented by the on-site wells. The metered water usage from existing Wells 4 and 5 would be recorded during the 2013 season, starting with the grow-in season. The future records would be used for comparison with potable water demand and bedrock groundwater recharge calculation.

h) Potential for Groundwater Pollution

As a golf property, the use of fertilizers and pesticides are necessary. How they are used, where they are used, when they are used and who uses them are key priorities that are taken into consideration when applications are made. Weather records, spray application records and other documentation, as part of a strict ITPMP strategy, are used to determine the most effective and efficient times for applications of the necessary fertilizers and pesticides (see Appendix E for ITPMP).

Fertilization and nutrient applications are completed based on the results of soil and tissue testing. The plants are given the nutrition they need at the appropriate times needed for optimal growth and survival. Care is taken,

however, to avoid applications of excessive or unnecessary nutrients, and nutrients in unstable, leachable forms. All fertilizers are applied as needed on a foliar basis for rapid plant uptake or applied in a stabilized, non-leaching formulation. To reduce the need for chemical application, effort is also made to utilize the existing nutrients that are present in the soil through maintaining proper nutritional and pH balance in existing soils.

The application of chemical pesticides is a necessary practice. Strict ITPMP strategies are in place utilizing weather patterns, threshold levels, past spray records, proper maintenance and irrigation practices to ensure that pesticide use is kept to a minimum. All pesticides applied are labeled for use in New York State and Westchester County, and all applications are made at or below label rates. All product label and New York State regulations are followed from PPE to re-entry times. All regulated active ingredients are accurately tracked and documented. Pesticides used on the golf course generally carry a designation of very small to medium leaching potential and strict buffer zones are observed around water features and streams to reduce risk of groundwater contamination through runoff or leaching.

The following is a list of fertilizers and chemicals forecasted for use in 2013-2014:

Table III.J-4
Fertilizers and Chemicals Proposed for Use in 2013-2014

Curalan	Signature	Re-Wet
Emerald	Instrata	Fleet
Chipco 26GT	Insignia Intrinsic	Title Phyte
Torque	Bayleton FLO	30-0-0
Daconil Action	Clearys 3336	0-0-25
Interface	Concert II	NSM minors
Headway	Barricade 4FL	20-20-20
Tartan	Scimitar	22-0-11
Eagle	Acelepryn	22-0-11
Banner Maxx II	Talstar	17-0-19
Primo Maxx	Provaunt	
Proxy	Dylox granular	

i) **Potential Impacts Due to Construction**

Potential impact to groundwater due to construction would be associated with soil compaction which can reduce infiltration/recharge rate and water-quality impact from construction materials and heavy machinery brought on-site.

During construction, erosion control measures described in Chapter III.I would be implemented, including sediment control traps to collect storm-water runoff from the construction areas, to reduce potential impact to groundwater quality during construction. Soil restoration would also be completed before final stabilization of the disturbed areas to recover the original properties and porosity of the soil, reducing the potential impact to groundwater recharge.

j) Proposed Water Storage

An above ground, on-grade, on-site water tank would be constructed to provide storage for domestic consumption and fire protection. The tank would be located west of the proposed golf course maintenance area to be mostly hidden from view by the proposed maintenance building. The tank would be low in profile, approximately 12 to 16 feet in height and have a storage capacity of approximately 225,000 gallons of water. The tank would be either square or round in shape and constructed of either reinforced concrete or steel. (See Exhibit III.J-2). The tank will be situated within the new maintenance area. (See Exhibit II-14G). The amount of storage to be provided is based on twice an average daily domestic water demand of 51,955 gpd plus an additional fire flow volume of 1,000 gallons per minute for a two-hour duration $(51,955 \times 2) + (1,000 \text{ gpm} \times 120 \text{ minutes}) = 223,910$ gallons.

k) Potential Groundwater Impacts Due to Club Maintenance

The maintenance wash down area would be located on a centralized, contained pad. This area would be accessible and usable by maintenance vehicles, golf carts, and any other equipment within the facility that would need to be washed down. A hydrodynamic structure is proposed to pretreat the runoff from these wash down areas by removing floatables, oils and suspended solids prior to discharging to the stormwater management practice.

All chemical fill stations and gasoline dispensing sites would have self-contained spill protection to avoid contamination of surrounding soil and groundwater. All chemical containers would be disposed of in accordance with New York State and Westchester County guidelines and regulations. All waste oil and lubrications are kept in a certified waste oil container and disposed of via certified disposal agency, in accordance with New York State and Westchester County guidelines and regulations.

l) Cumulative Impacts

Nearby properties considered regarding potential cumulative impact are the Coman Hill Elementary School, the Armonk Tennis Club, the Windmill Farms

neighborhood, Benedict Nursery, Byram Hills High School, Congregation B'nai Yisrael and the St. Nersess Armenian Seminary. All of the developments, with the exception of the St. Nersess Armenian Seminary, are existing facilities.

The Coman Hill School and the Windmill Farm neighborhood are supplied by water from Water District No. 2. The water supply for the Tennis Club, Nursery, High School and Congregation are supplied by on-site wells. St. Nersess will also be supplied by on-site wells when the development and renovations are completed.

The cumulative impacts from these projects on groundwater withdrawal are expected to be minimal. The groundwater withdrawals from the Tennis Club, Nursery, High School and Congregation are existing and will not increase as a result of the Brynwood project. The water-supply developed for the St. Nersess Seminary consists of two wells, a main supply well that was tested at 5 gpm and a 3.5 gpm back-up well. The maximum day water withdrawal for St. Nersess is not expected to exceed 5 gpm and yield testing conducted on the St. Nersess wells showed that no negative impact to off-site neighboring wells is anticipated when the wells go into service.

The development of on-site water-supply wells for the Project has the potential to impact existing bedrock wells located near the Site. This potential would be assessed during the completion of the 72-hour pumping tests on the proposed supply wells. Water-level measurements would be collected from a representative number of off-site wells to assess pumping related impacts and to determine whether mitigation is warranted.

The cumulative impacts from these projects on groundwater recharge are also expected to be minimal. The Elementary School, Windmill Farm neighborhood, Tennis Club, Nursery, High School and Congregation are existing and no additional impervious surface areas that could potential reduce groundwater recharge are proposed in connection to the Project. The St. Nersess development will be renovating existing building on the property and will be implementing storm-water management practices for the site once renovation and construction is completed. No significant change in net groundwater recharge is anticipated as a result of the development on this site.

3. Mitigation Measures

Potential mitigation measures could include:

Connection to a public water supply system. The goal of the current on-site well drilling program is to develop an on-site water supply to meet the Project's

potable water demand requirements. If the results of the test well drilling program demonstrate that the development of an on-site public water-supply source is not feasible, the Applicant would pursue connection with the existing Water District No. 2 to supply potable water.

To meet the increased water demand of the Project, the development of a new water-supply well(s) would be required. In order to incorporate a new water-supply well into the water-supply system for Water District No. 2, a raw water transmission main would need to be extended from the new water-supply well to the existing treatment building. The report in Appendix J contains a detailed discussion of the potential infrastructure upgrade requirements that would likely be needed to accommodate the connection of the Project to Water District No. 2. Water storage facilities would need to be considered for any scenario utilizing Water District No. 2 to service the Project.

A 72-hour pumping test program was conducted (May 2013) to demonstrate that well yield capacity on the Site is sufficient to meet water demand requirements. Preliminary results indicate no significant interference with off-site wells. However, if after analyses have been completed, significant off-site water-level interference is determined to have occurred during the 72-hour pumping test conducted on the new potable wells, a long-term water-level monitoring program could be proposed. The long-term monitoring program would consist of water-level data collection of a selection of off-site wells prior to the new wells being placed in service and for a period of time after. The goal of the program would be to assess the long-term effect of pumping of the new production well on existing off-site wells. If the results of the study indicate that the use of the new production wells causes harm to nearby wells (i.e. a lowering of the water level that causes a reduction in yield), the Club would provide mitigation as described in a mitigation plan such as lowering of the homeowner well pump, drilling the off-site well deeper, hydrofracking the well, etc to increase the yield.

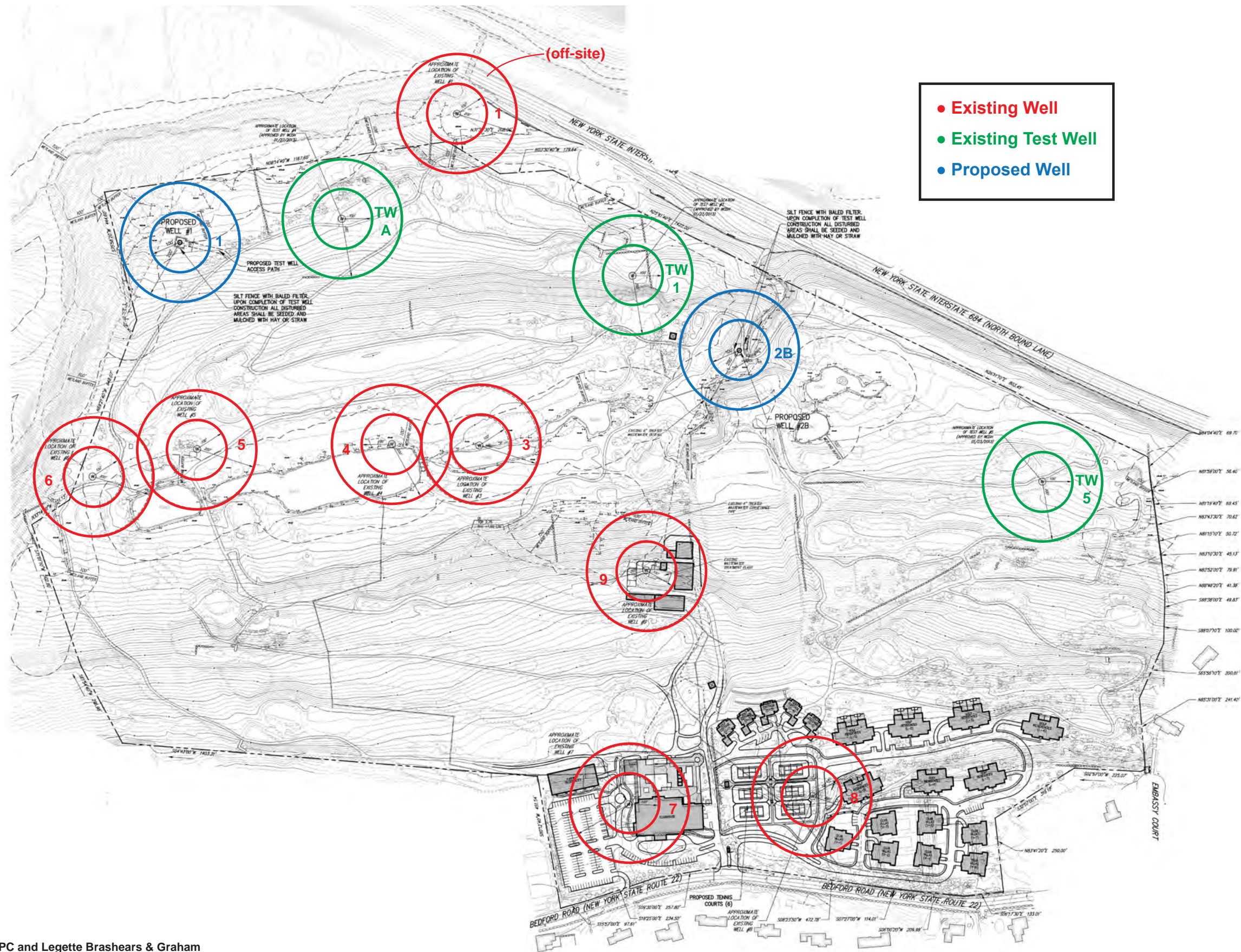
The proposed water storage tank size has been designed to meet peak potable water demand and fire flow needs.

Measures to reduce water consumption for irrigation, residential and clubhouse components, including use of water saving fixtures, and investigation of grey water reuse for irrigation will be implemented. High-efficiency plumbing fixtures and fittings (low-flow water control devices for all fixtures) will be used for the new clubhouse and residences to help mitigate water use. In addition, as discussed in Section IV.3.K.2(g), the proposed design of the wastewater treatment facility will consider grey water reuse for golf course irrigation during



the summer months. If implemented, the entire 51,955 gallons per day wastewater discharging will receive high level tertiary treatment and be directed to the existing ponds for storage and reuse as supplemental golf course irrigation water, which is an additional mitigation for water usage.





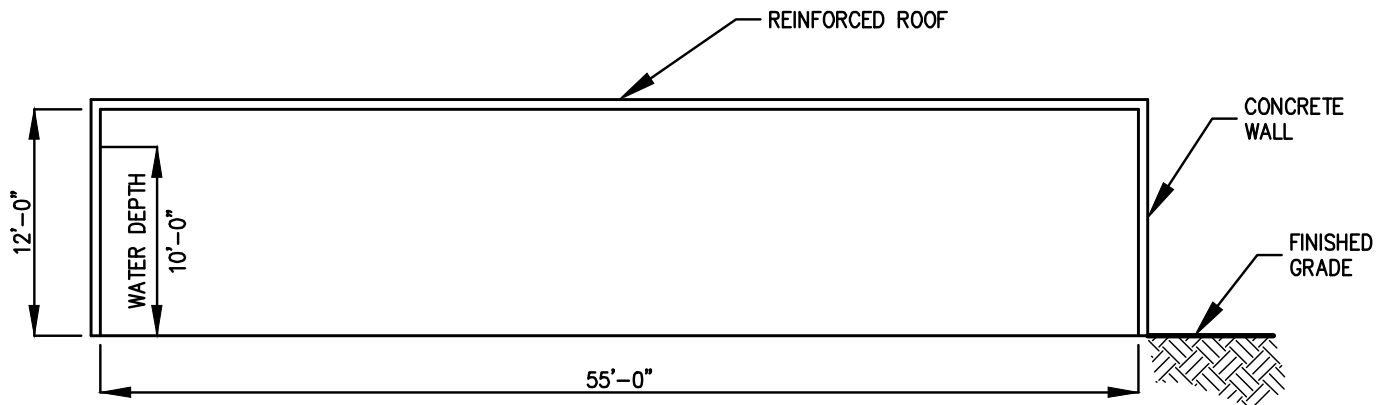
Source: John Meyer Consulting, PC and Legette Brashears & Graham

BRYNWOOD
North Castle, New York

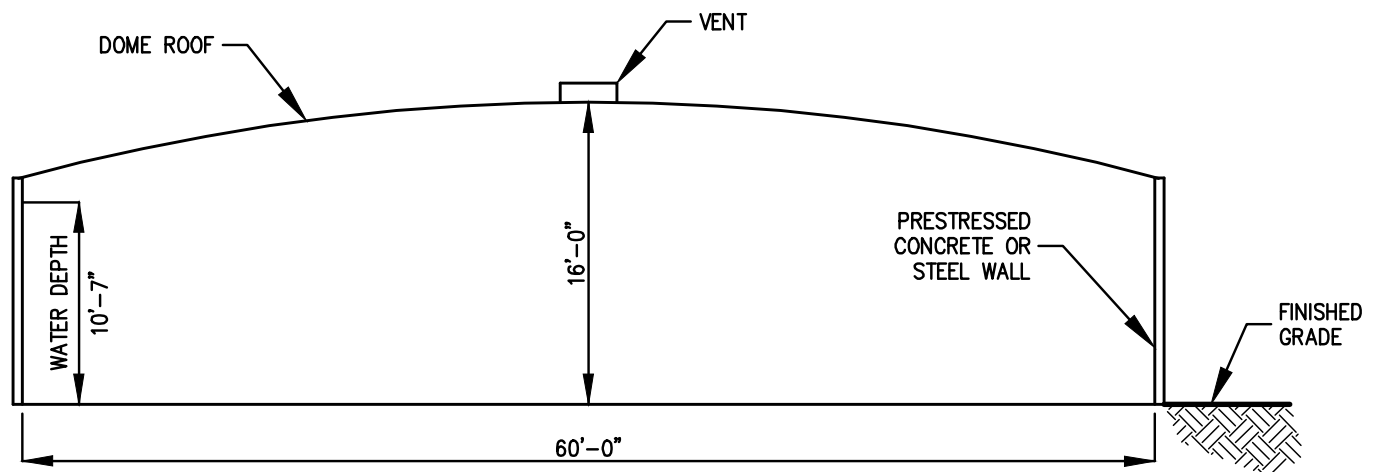
VHB Engineering, Surveying and Landscape Architecture, P.C.

Existing and Proposed Wells

Exhibit
III-J-1



55 FOOT SQUARE REINFORCED CONCRETE TANK



60 FOOT ROUND PRESTRESSED CONCRETE OR STEEL TANK

Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

Water Storage Tank Options

Exhibit
III.J-2

K. Wastewater

1. Existing Conditions

a) Description of Existing Wastewater Treatment Plant

The Club's existing wastewater treatment plant (WWTP) is located between the #9 hole green and the fairway bunker.

The plant discharges to an on-site unnamed tributary to the Byram River, NYSDEC classification Item No. 111 LIS 13-13, a Class D stream. This stream flows into the Byram River, NYSDEC classification Item No. 105 LIS-13, a Class C (T) waterway. The "Item Number" term refers to the "Waters Index Number" as assigned by the NYSDEC, "LIS" identifies both streams as draining the mainland and eventually draining to Long Island Sound, and the LIS number identifies the specific stream. The stream "Class" is an NYSDEC classification where, for instance, the best usage of Class C and Class D waters is fishing. Class C stream water quality is suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. With Class D streams, due to such natural conditions as intermittency of flow, water conditions are not conducive to propagation of game fishery, or because of stream bed conditions, these waters do not support fish propagation. The water quality of Class D waters is suitable for primary and secondary contact recreation, although other factors may limit the use for these purposes. The "(T)" classification means that the waters provide habitat in which trout can survive and grow within a normal range on a year-round basis, or on a year-round basis excepting periods of time during which almost all of the trout inhabiting such waters could and would temporarily retreat into and survive in adjoining or tributary waters due to natural circumstances.

Because of the stream flow rate and effluent dilution ratio, the stringent intermittent stream criteria regulations apply to the Brynwood WWTP and will govern over and above the Byram River classification criteria.

The plant's existing SPDES (State Pollution Discharge Elimination System) permit is NY0069299 with a year-round average monthly permitted discharge of 16,000 gallons per day (gpd). The permittee is North Castle Leisure Enterprises.

Between January 1, 2012 and December 31, 2012 the WWTP treated on average 8,805 gpd. A lesser average flow of 6,507 gpd occurred during the December through March off-season while a greater average flow of 9,953 gpd occurred during the more active April through November golf and summer



season. The average total volume of wastewater treated during 2012 averaged 9935 gpd. The highest monthly volume occurred in July 2012 when an average of 14,016 gpd was treated. Thus, the year-round average monthly volume of wastewater treatment and discharge complies with the plant's SPPDES permit. As permitted by the SPDES permit, the 16,000 gpd monthly average is occasionally exceeded. During 2012 there were 12 exceedances from May through August and during October, which averaged 22,307 gpd.

The existing plant consists of a surge tank, primary clarifier, rotating biological contactor (RBC) unit, final clarifier, tertiary sand filter, chlorine contact tank, post aeration tank, aerobic digester and standby power generation unit. The sanitary sewage facilities are buried tanks and/or housed within a building, all of which is enclosed with gated fencing.

The existing sanitary sewer collection system uses gravity to convey waste to the treatment facility. The closest public sanitary sewer is situated at the Town of North Castle wastewater treatment plant located near the Armonk Business Park, a distance of approximately 3 miles.

2. Potential Impacts

a) Anticipated Wastewater Generation Rates(*)

Based on NYCDEC design standards and without taking a customary 20% reduction for mandatory water saving devices the proposed Project is expected to produce a flow of 51,955 gpd during the peak summer months. During the winter months, reduced flows would be anticipated due to inactivity of the golf course, less active country club use and seasonal occupancy of a portion of the residential units. The anticipated wastewater generation calculations are illustrated below.

**Table III.K-1
Anticipated Wastewater Generation Table**

Usage Type	Subcategory	Number	Wastewater Generation Rate	Wastewater Generation (gpd)
Residential	2-bedroom residence	58 units	300 gpd/2-bedroom house	17,400
	3-bedroom residence	25 units	400 gpd/2-bedroom house	10,000
	4-bedroom residence	5 units	475 gpd/2-bedroom house	2,375
	Seasonal employee housing (dorm style)	12 employees	75 gpd/person	900
	Owner Lofts/Guest Suites	10 suites	120 gpd/room	1,200
Clubhouse	Club Members Peak Day	400 members	25 gpd/ member	10,000
	Restaurant/Bar	100 seats	35 gpd/seat	3,500
Banquet Hall		250 seats	20 gpd/person	5,000
Employees		92 employees	15 gpd/person	1,380
Golf Course Maintenance		2,000 sq. ft.	0.1 gpd/sq.ft.	200
Total Wastewater Generation				51,955

Source: *Based upon NYSDEC publication "Design Standards for Wastewater Treatment Works," 1988

b) Proposed Upgrades to the Existing Wastewater Treatment Plant

The WWTP is to remain in operation and serve initial Project flows until its 16,000 gpd permitted capacity is reached. A new wastewater treatment plant is proposed and is to be constructed during construction of Phase I of the Project so sufficient treatment capacity is available as the clubhouse renovation and homes are completed and occupied. It is anticipated that upon club membership reaching 200 members and occupancy of 15 residences or other equivalent, (at the approximate half-way point of Phase I) the new plant will be placed into service. The new plant will consist of an advanced biological treatment process, ultraviolet disinfection, and post aeration capable of meeting the stringent intermittent stream surface discharge and potential grey water reuse effluent requirements of the NYSDEC and Westchester County Department of Health (WCDOH). The new facility will be housed within a secure building and equipped with a process monitoring and alarm system. Once the new wastewater treatment facility is in operation the existing plant will be removed from service and demolished.



c) Construction Impacts from Infrastructure Construction

The Project will include new sanitary sewer pipes and manholes to provide sanitary sewer service to the proposed residences and club facilities. The sewer infrastructure will be installed near the beginning of each of the three construction phases following clearing, grubbing and grading. Construction impacts are discussed in detail in Section III.R Construction.

d) Ownership, Operation, Safeguards, and Default

The proposed wastewater treatment facility will be constructed by the Applicant at the Applicant's expense and then owned and operated by a "Sewage-works Corporation" to be formed by the Applicant in accordance with Article 10 of New York State Transportation Corporation Law.

The Operation and Maintenance (O&M) of the plant will be the responsibility of the Sewage Works Corporation, the costs of which will be paid by the club and the homeowners. The sharing of the cost between the Club and the individual homeowners is anticipated to be based on usage by metering or by some other fair and equitable calculation. The primary O&M expenses include personnel, utilities, grounds maintenance, generator and equipment service contracts, process chemicals, lab supplies, sludge disposal, fuel for space heating, insurance, accounting, clerical, engineering and legal. The total cost of the O&M is anticipated to be \$200,000 to \$250,000 per year. Based on the anticipated volumes of wastewater generation (Table III.K-1), the Club will be responsible for 39% of the cost while the residences will be responsible for 61% of the annual O&M cost, which would be divided amongst the 88 residential units. Thus, the anticipated cost to the Club is expected to range between \$75,000 and \$97,500 per year while the residents' costs are expected to range, on average, between \$1,386 and \$1,733 per year.

The NYSDEC certifies wastewater treatment plant operators to assure qualified and competent operation and management of the regulated facility. The proposed treatment facility will have a licensed Operator who will operate the plant in accordance with the plant's SPDES permit. The proposed facility will be housed within a secure building and include process monitoring alarms and backup power generation. The facility will be enclosed with gated fencing and the building will be locked. Consistent with New York State law, should the Sewage-works Corporation abandon or discontinue maintenance of the facility, ownership of the facility would transfer to the Town of North Castle.



e) Existing SPDES Permit

As described previously, the WWTP's existing SPDES permit is NY0069299, the permittee is North Castle Leisure Enterprises, with a year round average daily permitted discharge of 16,000 gallons per day (gpd).

Effluent limitations for intermittent streams are regulated by the NYSDEC and consist of:

Flow (existing)	16,000 gpd	30 day average
CBOD5	5.0 mg/l	daily max
Suspended Solids	10 mg/l	daily max
Settleable Solids	0.1 mg/l	daily max
Ammonia as NH3	1.3 mg/l	daily max
pH	6.0 – 9.0	
Dissolved Oxygen	7.0 mg/l	daily min
Coliform, Fecal	200/100 ml	30 day average
Coliform, Fecal	400/100 ml	7 day average
Temperature	70 Deg F	daily max

A proposed increase in permitted effluent flow to 51,955 gpd will be sought by the Applicant in order to provide sufficient treatment capacity for the renovated clubhouse and new homes. The following regulatory steps will be required in order to gain NYCDEC approval for an increase for the on-site WWTP discharge limits from the proposed new facility:

1. Flow confirmation letter from the Westchester County Department of Health.
2. Application of SPDES modification to the New York State Department of Environmental Conservation.
3. Application for Approval of Construction of Wastewater Treatment System Plans and Specification to the Westchester County Department of Health

Due to the current stringent intermittent stream classification of the on-site Class D unnamed tributary to Byram River presently receiving the treated wastewater discharge from the existing 16,000 gpd WWTP, it is not anticipated that, other than quantity, the SPDES effluent limits will change, although a phosphorous limit may be added and the nitrogen limit may be lowered. The wastewater treatment process selected shall include chemical precipitation and filtering which will remove phosphorous to low limits, as well as for algae control should a grey water recycling program be implemented to supplement



the seasonal golf course irrigation. The plan will also include a biological process which will further remove nitrogen should NYSDEC establish a lower limit so as not to compromise the Town of North Castle WWTP or negatively impact the Long Island Sound.

f) Restrictions on Future Town Sewer District #2 Treatment Plant Expansion

The proposed, increased discharge from the new on-site facility will not have any impact on any future expansion of the Town of North Castle Sewer District #2 Treatment Plant discharge limits. Although both facilities ultimately discharge to the Byram River, there is no cumulative limit on effluent discharge provided each facility meets its own SPDES permit requirements.

g) Grey Water Reuse

The design of the proposed wastewater treatment facility will consider grey water reuse for golf course irrigation during the summer months. Reuse will be taken into account when evaluating treatment process technologies, disinfection, and overall plant design. If implemented, the entire 51,955 gpd wastewater discharging will receive high level tertiary treatment and be directed to the existing ponds for storage and reuse as supplemental golf course irrigation water. Excess quantities of treated wastewater will exit the ponds as supplemental flow in the existing on-site stream as the existing wastewater treatment plant does at present the same as currently occurs.

3. Mitigation Measures

The existing WWTP will remain in operation while the proposed new treatment plant is constructed. The new wastewater treatment plant will provide process equipment better suited to the proposed development, process redundancy that the current WWTP does not offer, and a higher quality effluent than the existing WWTP produces.

The golf course currently uses on-site wells to provide water for irrigation purposes. Treated wastewater reuse (grey water) will minimize this demand on the aquifer.

L. Community Facilities and Services

1. Schools

a) Existing Conditions

The Site is located within the Byram Hills School District (BHSD). BHSD includes most of the Town of North Castle, and small portions of the Towns of New Castle, Mount Pleasant and Bedford, and is part of the Southern Westchester Board of Cooperative Education Services (BOCES). The school district includes four schools: Coman Hill Elementary School, Wampus Elementary School, HC Crittenden Middle School and Byram Hills High School. The location of each of the school facilities in relation to the Site can be seen in Exhibit III.L-1, Community Facilities.

Coman Hill Elementary School serves students in grades K-2, and is located at 558 Bedford Road, directly adjacent to the Site to the south. This elementary school borders the Site on two sides. The north end of the school property includes a multi-purpose/soccer field that is immediately adjacent to the existing parking lot of the Brynwood Golf & Country Club and an inner yard with a paved lot, basketball court and large playground. The west boundary of the school property runs parallel with the first hole of the existing golf course. Access to Coman Hill School is located just south of the Site on Bedford Road, across from Upland Lane.

Byram Hills High School serves students in grades 9-12 and is located at 12 Tripp Lane in Armonk, approximately 0.75 miles south of the Site. The high school campus has several baseball/softball/multi-purpose fields, a football/soccer field with a track, and six tennis courts. The school district office is also located on the high school campus at 10 Tripp Lane. Tripp Lane intersects with Bedford Road to the south of the Site. It is the only access to the school. The school district has noted that the high school campus would benefit from a secondary means of access to alleviate congestion on Tripp Lane.

Wampus Elementary School serves students in grades 3-5 and is located at 41 Wampus Avenue in Armonk. HC Crittenden Middle School serves students in grades 6-8 and is located at 10 MacDonald Avenue in Armonk. These two schools are adjacent to each other, with Wampus Elementary to the northwest of HC Crittenden Middle School. Both schools are adjacent to Lombardi Park.



The school district's facilities were built for a peak enrollment of approximately 3,000 students.¹ The current (2012 – 2013) enrollment of the BHSD was 2,615 students², which is approximately 87% of capacity. The school district budget cost per pupil for the 2012-2013 school year is estimated at \$30,754 (\$80,423,562 / 2,615 students = \$30,754). This is an increase of 2.2 percent, or \$676, from the previous year.³

As shown in Exhibit III.L-2, BHSD Enrollment Projections, BHSD projects a district enrollment of 2,599 students in the 2013-2014 school year, or 87% of capacity. Between 2013 and 2018, enrollment at the Byram Hills High School is expected to increase, then decrease, while enrollment at the Coman Hill, Wampus and HC Crittenden schools is expected to decrease. BHSD enrollments are declining in a manner similar to other Westchester communities, particularly in the lower grades. Consistent with current trends, enrollment is expected to decrease by one to two percent each year. By 2018, BHSD expects to be serving 2,349 students, 78% of its full capacity of 3,000 students, leaving an excess capacity of 651 spaces.⁴

Table III.L-1
Projected District Enrollment: Five-Year Fiscal Trend Analysis

School Year	District Enrollment	Percent Change
2008-2009 Actual	2,815	
2009-2010 Actual	2,794	-0.7%
2010-2011 Actual	2,714	-2.9%
2011-2012 Actual	2,652	-2.3%
2012-2013 Actual	2,615	-0.3%
2013-2014 Projected	2,599	-1.7%
2014-2015 Projected	2,531	-2.6%
2015-2016 Projected	2,482	-1.9%
2016-2017 Projected	2,418	-2.6%
2017-2018 Projected	2,349	-2.9%

Source: Byram Hills School District Budget Development Process, January 2013,
<http://www.byramhills.org/files/filesystem/BudgetDevelopmentProcess-2013-14.pdf>

¹ According to meeting with School Superintendent Bill Donohue on November 16, 2012.

² Includes 25 out-of-district students

³ Byram Hills School District, "Special Report – Adoption of 2012-13 Budget," April 2012,
<http://www.byramhills.org/files/filesystem/AdoptionBudget-0403-12.pdf>

⁴ Byram Hills School District Budget Development Process, January 2013,
<http://www.byramhills.org/files/filesystem/BudgetDevelopmentProcess-2013-14.pdf>

b) Potential Impacts

The Project includes a mix of condominium flats, townhouses and detached residential units. The residential units and related country club lifestyle are designed to target an affluent active adult market, for empty nesters and others who desire the country club lifestyle proposed by the Applicant. The estimate of the number of school children expected to be generated from the Project is based upon both: 1) standard planning demographic multipliers for condominium units in this region; and 2) information obtained on other golf course community developments in Westchester County. It is noted that the conclusions and opinions stated below are those of the Applicant.

The analysis below is for the 88 units (80 market, 8 affordable) proposed by the Applicant. Projected school age populations from the fee simple residential alternative to the Project, which are not part of the Proposed Action, are provided in Chapter IV, Alternatives.

The Project includes the construction of eight, single room units for employee housing in the clubhouse. These units would be dormitory style, with a communal kitchen. The rooms would be for seasonal workers and would not be conducive to families with children. The current clubhouse contains the same type of employee housing and has not generated any school children. Therefore, the following analysis of school children generation does not include any potential children from the employee housing.

The Applicant conferred with the BHSD Superintendent of Schools regarding student generation rates and the appropriate methodologies for the analysis.

The standard source for estimating school age population is the Rutgers University Residential Demographic Multipliers Study (June 2006), which is published by the Rutgers University Center for Urban Policy Research (CUPR)⁵, and sets out school child multipliers for different types of housing. In order to verify the Rutgers' multipliers, the Applicant conducted research as to the number of students in single family and multifamily developments in the Byram Hills School District. The study is presented in Appendix F, and is summarized below.

⁵ Rutgers University Center for Urban Policy Research (CUPR) *Residential Demographic Multipliers* (June 2006)

For the single family homes considered in Alternative 2 and Alternative 3 to the Proposed Action (see Chapter IV, Alternatives) the Rutgers' multiplier is 0.87 school age children in public schools. Recognizing the desirability of the Byram Hills School District, data on the actual number of students generated by recent housing developments in North Castle were obtained from the District Transportation Office and the Student Directory published by the Byram Hills PTSA. Based on these sources, the number of students from the approximately 500 homes in the Thomas Wright, Sands Mill, Leisure Farms and Windmill Farms developments range from a low of 0.76 per home in Windmill Farms to a high of 1.39 in Leisure Farms. The ratio for all ± 500 single family homes is 0.9 students per dwelling. However, for purposes of this DEIS, a conservative multiplier of 1.4 students per single family home is used.

There are no direct comparables for the proposed golf course community in the BHSD. As indicated below, the DEIS uses the Rutgers' multipliers, as well as data from comparable golf course condominium developments from around the County.

To verify the Rutgers' multipliers, an analysis of the number of students per unit at the Cider Mill, Whippoorwill Ridge and Whippoorwill Hills developments, which include both single family and multifamily housing, was undertaken. The data from the BHSD indicate a total of 136 students in 232 units at these developments, a ratio of 0.59 students per housing unit (both single family and multifamily combined). Applying the Rutgers' multipliers for single and multifamily housing to these developments results in an estimate of 153 students, which is higher than the actual number of students, thus verifying the relative accuracy of the Rutgers multipliers.

Additional research in the Town Planning Department records indicated that the number of students originally projected in the draft environmental impact statements for two of these developments (for Whippoorwill Ridge and Whippoorwill Hills; there was no draft environmental impact statement on file for the Cider Mill) in the 1980s is comparable to the number realized today. Although the approved developments are somewhat smaller than described in their respective draft environmental impact statements, they were also changed from all multifamily to the mix of single family and multifamily residences that exists today.



School Children Generation Based On Rutgers Multipliers

The following estimate, based on the Rutgers' multipliers, does not account for the design (and marketing) of the Project for empty nester households with very few, if any, school age children. The Rutgers multipliers are very conservative for this reason.

Table III.L-2
Estimate of School-Age Children in Public Schools
(Proposed Action: 88 Units)

	Number of Units	Multiplier	Number of School-age Children in Public Schools
Golf Residences - Condo Flats (2 BR/1,900-1,995 sf)	55	0.05 ¹	2.75
Golf Residences – Condo Flats (3 BR/2,900 sf)	6	0.49 ²	2.94
Golf Villas - Condo 2-story duplex (3 BR/2,650 sf)	14	0.28 ³	3.92
Golf Cottages – detached condos (4 BR/3,200 sf)	5	0.87 ⁴	4.35
Fairway Residences – 8 Affordable Units ⁵			
2 BR Units	6	0.45	2.7
3 BR Units	1	1.3	1.3
4 BR Units	1	1.3	1.3
Total	88 units		19.26 school-age children

¹ **Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units in buildings with 5+ units, costing more than \$329,500 (2 bedroom)

² **Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units in buildings with 5+ units, all values (3 bedrooms)

³ **Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units, Single-Family Attached, costing more than \$269,500 (3 bedrooms)

⁴ **Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, single family detached, costing more than \$329,500 (4 bedrooms)

⁵ **Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, rental units, two-bedrooms rented for \$750-\$1,100; three-bedrooms rented for \$750-\$1,250; no data for four-bedrooms so three-bedroom multiplier is used.

Based on the Rutgers multipliers, the total number of school-age children expected to be generated from the 88 units is 19 to 20. This represents a 0.76% increase over the current BHSD enrollment and is significantly less than the



expected year-to-year declines in enrollment. Moreover, the 19-20 students would be spread over 13 grades (K-12), giving an average of approximately 1.5 new students per grade in the district.

Schoolchildren Generated by Adult Luxury Golf Club Communities

The proposed Project is a luxury residential development targeted at adult-only households. The total costs for a residence (purchase price, condo fees, taxes and required Club membership) and the lack of amenities for families with children, would make these condominiums attractive to empty nester households and they would be specifically marketed to that demographic. The Applicant believes, therefore, that the Rutgers multipliers yield a significantly higher estimate of school children than would actually be generated by the Project. To verify this, local developments similar in nature to the proposed Project were surveyed.

Although there is currently no development or product type in the BHSD that is directly comparable to the Project, there are 3 golf course communities in the County located in towns with acknowledged high quality school systems. The number of public school children generated per unit in these communities is shown in Table III.L-3.

Table III.L-3
School-Age Children Generation at Local Golf Communities

Location	School District	Units	School-Age Children Living in Golf Community*
St. Andrew's	Ardsley UFSD	87 ¹	7
Arrowwood/Doral Greens	Blind Brook UFSD	138 ²	2
Trump National (1 st phase)	Briarcliff Manor UFSD	16 ³	5
Total		241 units	14 students (avg 0.06 students/unit)

Source: *Verified by e-mail requests and phone interviews with school district officials by VHB (Briarcliff Manor 1/10/13; Ardsley UFSD 1/10/13; Blind Brook UFSD 1/16/13)

¹Greenburgh Building Department 1/10/11

²Doral Greens Owners Association 1/10/11

³Briarcliff Manor Building Department 1/10/11

The total number of school children generated from the 241 total units in these three developments is 14. Therefore, the overall multiplier for these three developments is an average of 0.06 school-children per unit ($14 \div 241 = 0.06$).

For the Project, the multiplier of 0.06 children per condominium unit would yield approximately 5 students ($80 \times 0.06 = 4.8$) at full build out (vs. 12 students using standard multipliers). The public school age students for the 8 affordable units would result in an additional 5.3 students, for a total of 10 students for the 88 unit development ($4.8 + 5.3 = 10$ total).

As discussed in Chapter III.N – Socioeconomic/Fiscal Resources, tax revenue from the Project to the BHSD is expected to surpass cost to the school district, resulting in a significant net benefit to BHSD annually.

School Children Generated by a Rental Community

The following table shows the number of public school children that would be generated if the development consisted of 88 rental units instead of 80 condominiums plus 8 affordable rental units. Note that Rutgers CUPR multipliers are not available for rental single family units (attached or detached), therefore, the ownership multipliers for these categories are used. If the development consisted of 88 rental units, there would be approximately 26 public school children, compared to approximately 20 with the Proposed Project.



Table III.L-4
Estimate of School Age Children in Public Schools – Rental Units

	Number of Units	Multiplier	Number of School-age Children in Public Schools
Golf Residences - Condo Flats (2 BR/1,900-1,995 sf)	55	0.16 ¹	8.8
Golf Residences – Condo Flats (3 BR/2,900 sf)	6	0.63 ²	3.78
Golf Villas - Condo 2-story duplex (3 BR/2,650 sf)	14	0.28 ³	3.92
Golf Cottages – detached condos (4 BR/3,200 sf)	5	0.87 ⁴	4.35
Fairway Residences – 8 Affordable Units ⁵			
2 BR Units	6	0.45	2.7
3 BR Units	1	1.3	1.3
4 BR Units	1	1.3	1.3
Total	88 units		26.15 school-age children

¹**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, rental units in buildings with 5+ units, more than \$1,100 (2 bedroom)

²**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, rental units in buildings with 5+ units, more than \$1,250 (3 bedrooms)

³**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units, Single-Family Attached, costing more than \$269,500 (3 bedrooms)

⁴**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, single family detached, costing more than \$329,500 (4 bedrooms)

⁵**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, rental units, two-bedrooms rented for \$750-\$1,100; three-bedrooms rented for \$750-\$1,250; no data for four-bedrooms so three-bedroom multiplier is used.

c) Mitigation Measures

The number of schoolchildren expected to be generated by the proposed Project (10 students), even utilizing the more conservative multipliers (19-20 students), would have no significant impact on BHSD, which has ample capacity to serve the additional students; therefore, in the opinion of the Applicant, no mitigation is necessary.

Although not necessary as mitigation, alternative secondary access points to the Byram Hills High School are discussed in Chapter III.M, Traffic and Transportation.



2. Open Space and Recreation

a) Existing Conditions

The Site contains a private open space and recreational use, the Brynwood Golf & Country Club, and has been operated continuously as a private golf and country club since it first opened in 1964 as the Bel Air Country Club, and then became the Canyon Club. The Town has one other golf course, Whippoorwill Country Club. Both are private clubs with no public access. Brynwood Golf & Country Club also includes an outdoor pool and tennis courts on the Site. No public trails are located on the Site.

The Town of North Castle has many parks and recreational facilities available to the public. These facilities are listed in the table below.

Table III.L-5
Town of North Castle Parks and Recreation Facilities

Park	Facilities										
	Track	Tennis	Handball	Soccer	Baseball/ Softball	Playground	Picnic Pavilion	Gazebo	Fishing	Hiking	Basketball
North Castle Community Park	✓	✓	✓	✓	✓	✓	✓				
Wampus Brook Park								✓	✓		
Betsy Sluder Nature Preserve										✓	
Strauss Park											
Miller Park											
Legion Field					✓						
Clove Road Park				✓	✓	✓					
John A. Lombardi Park		✓			✓	✓	✓				✓
Cat Rock Park										✓	
Johnson Tract											
Fountains Park											
Quarry Park						✓					
Winkler Park		✓						✓			✓

Source: Town of North Castle Website, http://www.northcastleny.com/recreation_directory.php

There are three public parks, two private recreation facilities and several other open spaces in the vicinity of the Site, as depicted in Exhibit III.L-3. The largest



open space within a half-mile of the Site is the Eugene and Agnes Meyer Nature Preserve, a 247-acre preserve owned by the Nature Conservancy. There are walking trails inside the Eugene and Agnes Meyer Nature Preserve.⁶ Several small, Town-owned open spaces are within a half-mile radius of the Site, including Dubos Park to the north, small open spaces to the northeast of the Site (including a cemetery on Bedford Road), and open spaces near North Lake to the east of the Site. Also east of the Site is Windmill Lake, which is surrounded by a private recreation area. Private recreation facilities in the vicinity include Armonk Tennis Club directly southeast of the Site and the Al Ehrmann Park and Recreation Center just over a half-mile from the Site to the southwest. Nearby open spaces were confirmed in a meeting with the Town Planner.⁷

Approximately a mile from the Site, there is a bikeway along Round Hill Road.⁸ No proposed trails or open spaces currently being reviewed by the North Castle Open Space Committee are within a mile of the Site, according to the Town website.⁹ The Westchester County website does not list any trails within a mile of the Site. The closest County Park is Wampus Pond, 1.6 miles southwest of the Site.

Additionally, there are two public schools with outdoor recreational facilities within a quarter-mile of the Site. Coman Hill Elementary School has a small soccer field, and an inner yard with a paved lot, basketball court and large playground. Byram Hills High School has a track and field facility (compatible with football or soccer), another football field-sized field, six tennis courts, a baseball field and a basketball court. The high school girls golf team uses the Brynwood golf course.

b) Potential Impacts

The Applicant would record either a conservation easement or declaration of restrictive covenants permanently precluding development of the approximately 141-acre golf course and permitting use of that land only as either a golf course or open space. Access to open spaces on the Site would

⁶ Nature Conservancy Map

⁷ Meeting with Adam Kaufman, Town Planner on 1/25/13

⁸ Google Maps

⁹ Town of North Castle website, http://www.northcastleny.com/hall_committees_open_space.php and January 25.

remain private (no public access), resulting in no change from the existing conditions in this respect.

The Project is not expected to significantly impact existing public spaces and recreational facilities, since new residents at the development would comprise less than two percent of the Town's current population. In addition, and the homeowners would be required to be members of Brynwood Golf & Country Club, and would therefore utilize the renovated clubhouse and golf course, pools and tennis courts.

In the Applicant's opinion, recreational needs of any children generated by the condominium units would be sufficiently met with the on-site indoor and outdoor recreation facilities, as well as the facilities of the two neighboring schools described in the Existing Conditions section.

c) Mitigation Measures

Brynwood Golf & Country Club is proposed to be upgraded as part of the Project, including a renovated golf course. The existing golf course would be maintained either for that use or as open space in accordance with a conservation easement or declaration of restrictive covenants in favor of, and enforceable by, the Town.

In the Applicant's opinion, the recreational needs of the new residents would primarily be met through the provision of on-site facilities. The Project would not significantly impact open space resources in the Town. In addition, the population increase at the Site would not create a significant adverse impact to existing public parks and recreation resources.

Notwithstanding the above, the Project would pay a \$248,000 recreation fee to the Town of North Castle (\$3,000 per market rate unit and \$1,000 per affordable unit).

3. Police Protection

a) Existing Conditions

Police protection and services are currently provided to the Site by the North Castle Police Department, headquartered in Town Hall at 15 Bedford Road in Armonk, approximately 2 miles south of the Site. The location of Town Hall relative to the Site is indicated on Exhibit III.L-1, Community Facilities.

The Police Department currently has 29 sworn officers with 6 support staff, which includes the Chief of Police, 2 Lieutenants, 5 Patrol Sergeants, 1 Detective

Sergeant, 2 Detectives, and 18 Patrolmen. This is a ratio of approximately 1 police officer for every 400 residents, based on the Town of North Castle's 2010 population. The Police Department responded to 13,142 calls in 2008, 13,513 calls in 2009, 12,422 calls in 2011 and 11,572 calls in 2012. Average response time to the Site by the police is 5 to 8 minutes and is dependent upon other demands for service and/or the severity of the calls.¹⁰ The Site is accessed by police vehicles directly from Bedford Road, a NYS highway.

Additionally, the Site is currently protected by private security cameras at the clubhouse and maintenance building with 24/7 digital video recording (DVR).¹¹

b) Potential Impacts

The construction of 88 new residential units on the Site would bring approximately 185 to 204 new residents to the Site¹², who would require police services. The Police Department noted that the Project would result in an increase in service calls and additional traffic on Bedford Road. The Police Department anticipates that the development would require semi-regular police response and assistance, and an expected increase in service calls due to the increase in traffic flow.¹³ The Police Department did not provide an estimate of the expected cost of this increase in services. However, the Department did not raise any concerns about its ability to provide services to the Project.

Access to the Site by police vehicles is adequate. Although a manned gatehouse with a barrier arm gate is proposed, emergency services would always have access to the Site.

c) Mitigation Measures

Annual property taxes generated from the Project would exceed current taxes (see Chapter III.N, Socioeconomic/Fiscal Resources) and it is anticipated that the additional tax revenue would cover any incremental additional costs to the Police Department to service the Project. The proposed development plan is designed to provide appropriate emergency access to the Site and to all of the buildings. The Project would have additional security, including a 24/7 secure

¹⁰ Letter from North Castle Police Department (February 19, 2013). See Appendix B.

¹¹ Phone call with Golf Course Superintendent (January 29, 2013)

¹² See Chapter III.N, Socioeconomic/Fiscal Resources for population calculations

¹³ Letter from North Castle Police Department (February 19, 2013). See Appendix B.

gatehouse at the Site entrance, along with significant upgrades to the existing electronic security systems. No significant adverse impacts are anticipated to the Police Department, and therefore no mitigation measures are proposed and no cumulative impacts are anticipated.

4. Fire Protection, Ambulance and EMS

a) Existing Conditions

The Site is located in the Armonk Fire District and the closest fire station is located at 400 Bedford Road in Armonk, approximately 1.5 miles southwest of the Site. The Site is approximately 2.25 miles to the northwest of the Banksville Fire Station, and approximately 7.75 miles northeast of the North White Plains (North Castle South) fire station. The proximity of the Site to the three local fire stations is indicated on Exhibit III.L-1, Community Facilities.

The Armonk Fire Department is an all-volunteer department with approximately 50 members, of whom 25 to 30 members are very active. Some members are Emergency Medical Service (EMS) members only and are not active firefighters. The Fire Department also provides EMS to the Armonk and Banksville areas of North Castle. The Armonk Fire Department participates in the Westchester County Office of Emergency Management coordinated mutual aid program. The Fire Department averages approximately 1,000 calls-to-service per year, with a 50 percent split between fire and medical calls. The apparatus of the Armonk Fire Department includes: three basic life support ambulances; three 1,500 gpm pumpers; one rescue/1,500 gpm pumper; one 3,000 gallon/1,500 gpm tanker; one all-terrain vehicle; three chief's vehicles; and one utility vehicle.

According to the Fire Department, there have been 30 calls to the Site in the past five years. The average response time was seven minutes and 34 seconds. Sprinkler systems are installed at the clubhouse, but not in the existing maintenance building. There is a fire hydrant approximately 20 feet left of the clubhouse's front entrance that is regularly tested by the Fire Department. Water supply and capacity is sufficient.

b) Potential Impacts

The Fire Department anticipates that the 88 new residential units would generate an additional 12-15 ambulance calls per year and an additional 8-15 fire calls per year. In a letter requesting Fire Department input, the Fire Department noted that the additional calls could cause some increased costs for fuel and medical supplies.



The Fire Department requested that buildings be fully sprinkled including the below grade parking (even though not required by applicable building codes); that standpipes be installed in the garage areas under residential units; and that elevator cars be able to accommodate a 6 foot stretcher. The Fire Department expressed its concern with carbon monoxide levels in enclosed garages (which would be addressed as required by applicable building codes). The Fire Department also indicated that the Project would be a potential source of new volunteers, and that it would like to see affordable housing for Fire Department members¹⁴. (See also Chapter II.B, Affordable Housing.)

At a meeting with the Armonk Fire Department in December 2012, the Fire Department reviewed the turning radii on each of the private roads and found them acceptable. Also, at the clubhouse, the new porte cochere would be designed to an adequate height to accommodate ambulances, as requested, and all internal roads would be designed to accommodate snow clearing to ensure that access by emergency vehicles is not blocked. Although the Site would have a gatehouse with a barrier arm gate, emergency services would always have access to the Site.

c) Mitigation Measures

Annual property taxes from the Project to the Armonk Fire Department would exceed current taxes (see Chapter III.N, Socioeconomic/Fiscal Resources) and would cover incremental additional costs to the Fire Department. The proposed development plan is designed to provide appropriate emergency access to the Site and to all of the buildings. No significant adverse impacts are anticipated to the Armonk Fire Department; however, the following measures are proposed to reduce potential impacts from the Project.

The water supply for the Project is being designed by a professional engineer and will be submitted to the Fire Department for review. Alternative water supply sources for the Site are being investigated (See Chapter III.J, Hydrogeology, Groundwater and Water Supply). As requested, road names and residence addresses would be prominently displayed and easy to find, and hookups for fire trucks would be included on the sides of residential structures. The design of enclosed garages would comply with all applicable building codes including any

¹⁴ Letter from Armonk Independent Fire Company, dated January 22, 2013. (See Appendix B)

laws or regulations regarding venting to prevent unsafe carbon monoxide levels. The residences would have sprinklers, in accordance with Town Code.

5. Solid Waste

a) Existing Conditions

The Brynwood Golf & Country Club generates solid waste that currently is collected and disposed of by a private carter, Camo Pollution, on a regular basis.

The Town of North Castle has an active recycling initiative led by the North Castle Recycling Committee. Recycling has been mandated for businesses since 2008, with a penalty of fines for violators.

The Town has spearheaded numerous recycling initiatives. On-going projects (as listed on the Town website) include: the official release of Recyclopedia, an A to Z on-line guide, providing advice for local recycling, reuse, and responsible disposal of over 200 household items; the development of a North Castle commercial district recycling awareness campaign; and the opening of a permanent recycling center for the collection of electronic waste and scrap metal.¹⁵

b) Potential Impacts

There are currently ±350 members of Brynwood Golf & Country Club, and, after Project completion, it is anticipated that Club membership would remain the same or slightly decrease (see Chapter II.B for additional information). It is assumed that membership will remain the same for this analysis. Likewise, it is not anticipated that use of dining facilities would increase beyond current levels.

The golf course is not open year-round; currently, in season (for 6 months) 100 cubic yards a month of solid waste is generated and this reduces to 60 cubic yards a month out of season (6 months). Therefore, the yearly total for the Club is approximately 960 cubic yards.¹⁶ Based on an EPA conversion factor for solid waste, 960 cubic yards of solid waste would be approximately 288,000 lbs per year.

¹⁵ Source: Town of North Castle Website, http://northcastleny.com/r_s_about_rc.php

¹⁶ Analysis by Troon Golf. Current usage data was provided by Suburban Carting Co, given past and current usage.

Based on NYSDEC standard residential solid waste multipliers, new residents would generate approximately 5 lbs per person per day of solid waste. Given a conservative projected Site population of 204 persons (see Chapter III.N., Socioeconomic/Fiscal Resources), the residences would produce approximately 372,300 lbs per year (equal to 204 persons x 5 lbs/day x 365 days/year).

Combining the Club with the residential estimates, the Project would generate approximately 660,300 lbs of solid waste per year at full build out (27.5 tons/month).

Within each new residential building, there would be a location for solid waste and recycling pick up within the garage or adjacent to the garage entry.

c) Mitigation Measures

Solid waste would be collected and disposed of by private carters. No Town services or facilities would be required for solid waste disposal from the Project. In accordance with local regulations, the Project would participate in the Town and County recycling programs.

6. Other Utilities (Gas, Electric, Telephone, Cable TV)

a) Existing Conditions

Con Edison provides electric service to the Site from overhead service along Bedford Road.

Con Edison also supplies natural gas service to the Site from an 8-inch high pressure gas main beneath the easterly portion of Bedford Road.

Existing internet service to the Site is provided by Verizon. Cable TV and telephone service is provided by Cablevision.

The location of service lines and other infrastructure elements are shown on Exhibit III.L-4.

b) Potential Impacts

Discussions with Con Edison indicate that additional electrical service would be provided to the Site from the existing overhead electrical lines. Once the SEQR process is completed, anticipated loads may be submitted to Con Ed online via their www.coned.com/esweb Energy Services Project Center website. Con Edison's Energy Services Group provides a single point of contact for customers



and contractors with reference to electric and natural gas service. This website provides the recourses necessary to process requests for new, additional, removal or relocation of utility service provided by Con Edison. Customers or contractors wishing to obtain information on existing requests or file a new request can do so through the Energy Services Project Center application.

Discussions with Con Edison indicate that additional gas service would be provided to the Site from the existing 8-inch high pressure gas main beneath the easterly portion of Bedford Road. Initial indications are that there is sufficient capacity to service the Site. However, once the SEQR process has been completed, anticipated loads may be submitted to Con Ed online via the Energy Services Project Center website.

Any required upgrades to the existing telephone/TV/Internet service to the Site would be provided by Verizon and/or Cablevision in accordance with Town regulations.

c) Mitigation Measures

No significant adverse impacts are anticipated to electric, gas, telephone and cable television utilities, therefore no mitigation measures are proposed.

7. Town Highway Department

a) Existing Conditions

The Town Highway Department maintains Bedford Road, which is a NYS highway. The Town Highway Department currently does not access or maintain any driveways on the Site, however, access is adequate for private maintenance.

b) Potential Impacts

According to the Town Highway Department, the Project “will not increase demands for services from North Castle Highway.”¹⁷ Cumulative impacts are also not anticipated.

Access to the Site would be adequate for private maintenance.

¹⁷ Email from Town Highway Department, dated January 25, 2013. (See Appendix B)

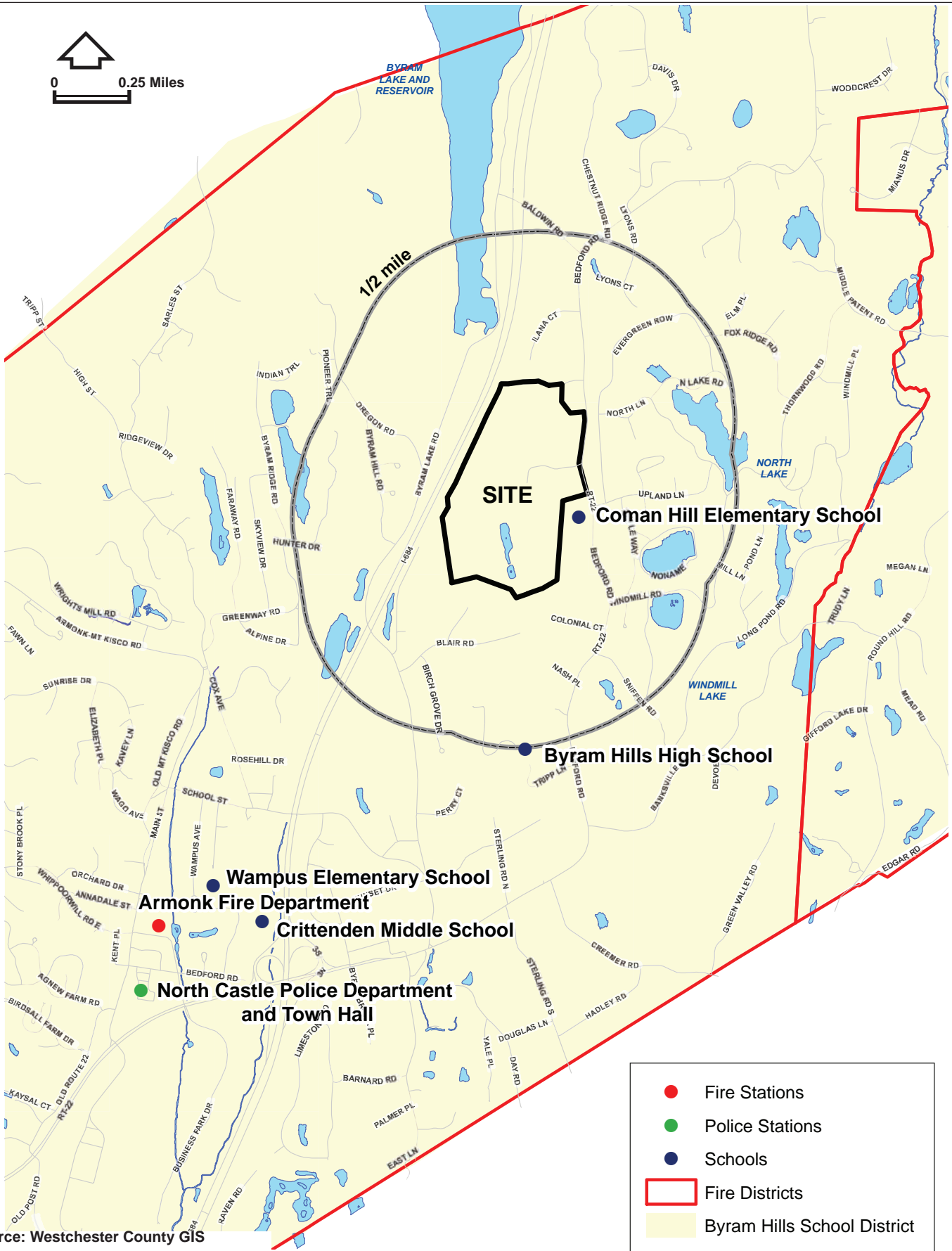
c) Mitigation Measures

No mitigation measures would be necessary, since the proposed Project is not expected to result in any adverse impacts to the Town Highway Department. All roads on site will be privately owned and maintained, including snow plowing, maintenance and paving. Annual property taxes generated from the Project would be an increase above the existing conditions and would exceed any incremental additional costs of services, and, therefore would be a benefit to the Town Highway Department.

8. Cumulative Impacts

The only new development anticipated in the vicinity of the site is the St. Nersess Armenian Seminary. In the Applicant's opinion, based on correspondence received and a review of the potential development, cumulative impacts relating to off-site development in the area are not anticipated.





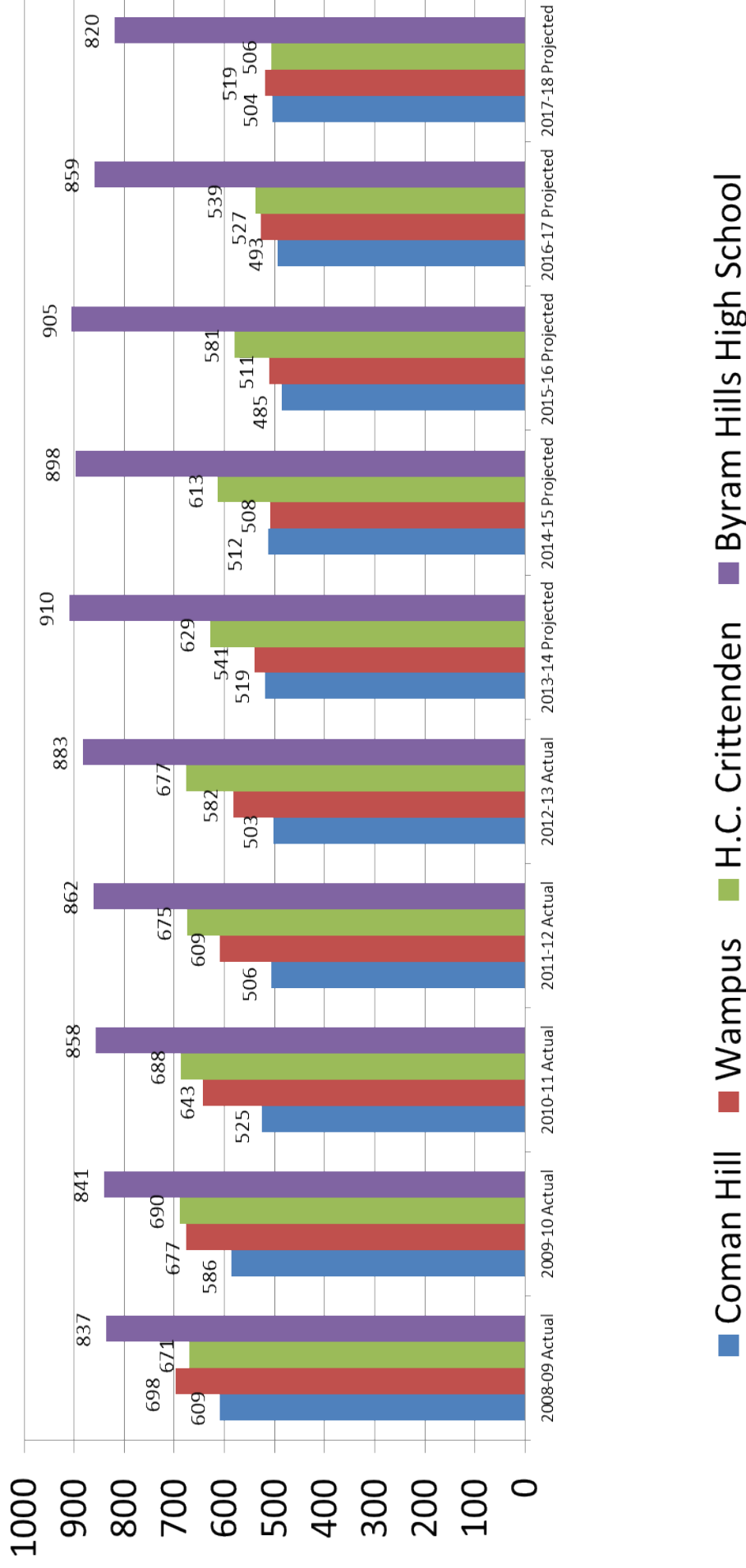
Source: Westchester County GIS

BRYNWOOD
North Castle, New York

Community Facilities

Exhibit
III.L-1

Enrollment by Building 2008-18



Source: Byram Hills School District

BRYNWOOD

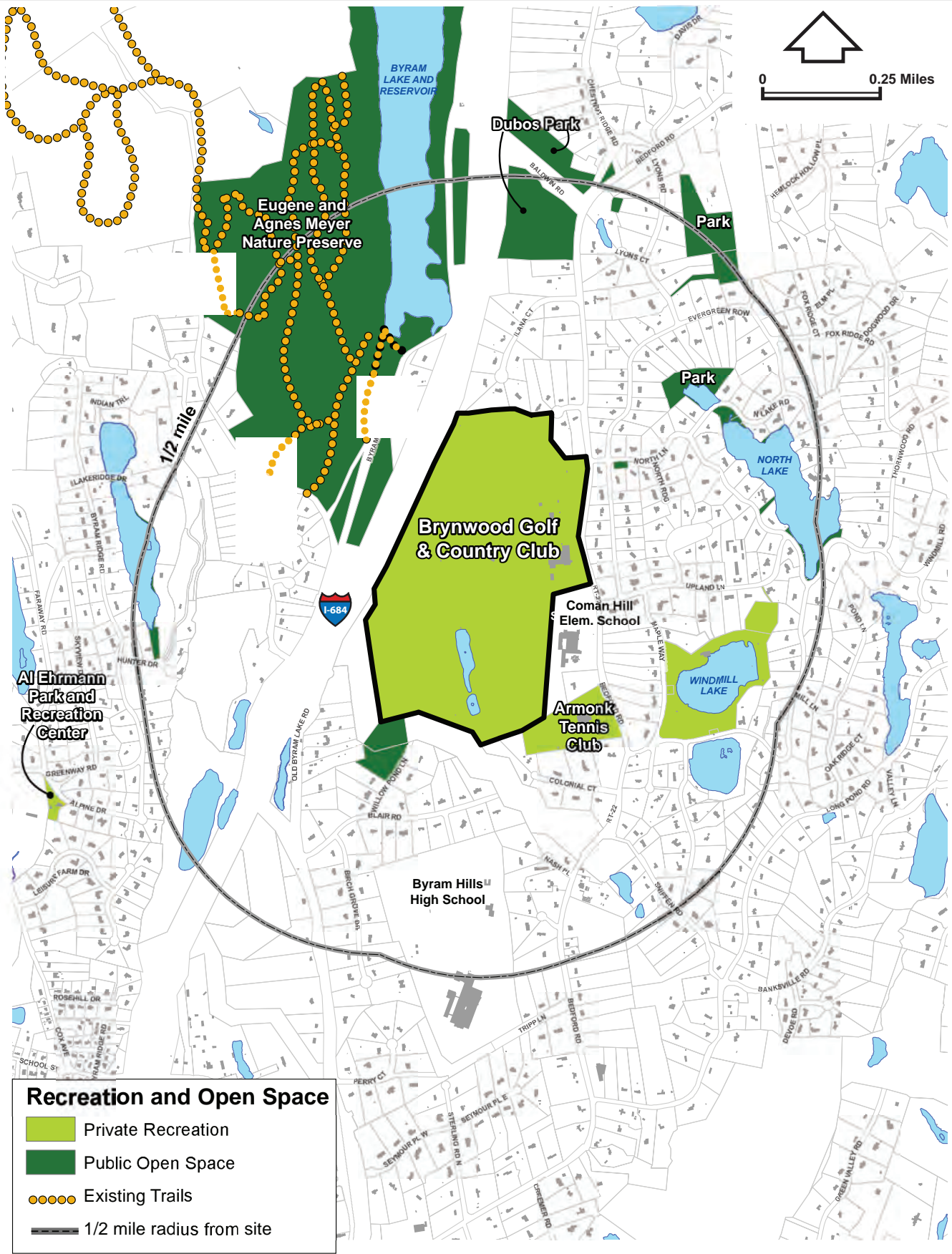
North Castle, New York

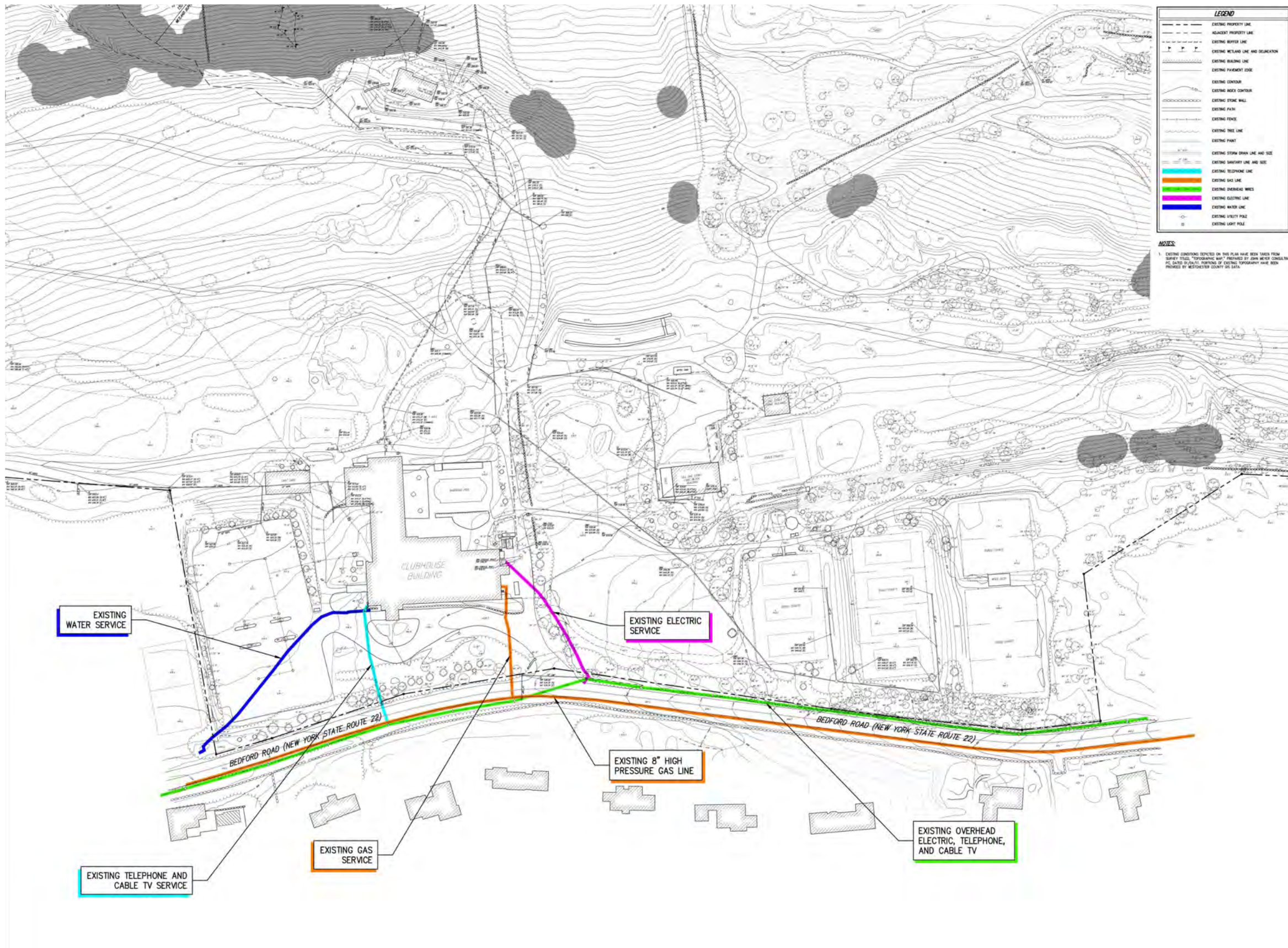


BHSD Enrollment Projections

Exhibit

III.L-2





Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Other Utility Services

Exhibit
III-L4

M. Traffic and Transportation

A copy of the Traffic Impact Study for the Project is included in Appendix M. Access to the Site is proposed via the existing driveway to Bedford Road (NYS Route 22) as shown on Exhibit III.M-1. In addition a secondary access (right turn exit only) is proposed from the existing clubhouse parking lot. This secondary access will result in improved circulation and serve as an emergency access.

As required by the Scoping Document and shown on Exhibit III.M-1A, the following intersections (the Study Area Intersections) were analyzed:

- NYS Route 22 and Chestnut Ridge Road
- NYS Route 22 and Baldwin Road
- NYS Route 22 and Site Access
- NYS Route 22 and Upland Lane/Coman Hill Elementary School
- NYS Route 22 and Tripp Lane (Byram Hills High School)
- NYS Route 22 and Banksville Road
- NYS Route 22 and NYS Route 433/Niles Avenue
- NYS Route 22 and I-684 NB On/Off Ramps
- NYS Route 22 and I-684 SB On/Off Ramps

1. Existing Conditions

a) Description of Roadways and Intersections

NYS Route 22 and Chestnut Ridge Road

Chestnut Ridge Road intersects NYS Route 22 at a “T” shaped, unsignalized intersection. All approaches to the intersection consist of one lane in each direction and the Chestnut Ridge Road approach is “Stop” sign controlled. There are no sight distance restrictions at this intersection.

NYS Route 22 and Baldwin Road

Baldwin Road intersects NYS Route 22 at a “T” shaped, unsignalized intersection. All approaches to the intersection consist of one lane in each direction and the Baldwin Road approach is “Stop” sign controlled. There are no sight distance restrictions at this intersection.

NYS Route 22 and Site Access

All approaches to the driveway consist of one lane in each direction and the driveway approach is “Stop” sign controlled. The sight distance provided at the Site access is in excess of 750 feet to the left and in excess of 750 feet to the right. For the posted 40 mph speed limit, the stopping sight distance is 305 feet and the intersection sight distance is 445 feet looking to the left and 385 feet

looking to the right. Based on the above, there is more than adequate sight distance at the Site access.

NYS Route 22 and Upland Road/Coman Hill Elementary School

Upland Road intersects NYS Route 22 opposite the Coman Hill Elementary School at a four-way unsignalized intersection. All approaches to the intersection consist of one lane in each direction and the Upland Road and Coman Hill Elementary School approaches are “Stop” sign controlled. There are no sight distance restrictions at this intersection.

NYS Route 22 and Tripp Lane (Byram Hills High School)

Tripp Lane (Byram Hills High School) intersects NYS Route 22 at a “T” shaped, signalized intersection. All approaches to the intersection consist of one lane in each direction. There are no sight distance restrictions at this intersection.

NYS Route 22 and Banksville Road

Banksville Road intersects NYS Route 22 at a “T” shaped, signalized intersection. All approaches to the intersection consist of one lane in each direction. There are no sight distance restrictions at this intersection.

NYS Route 22 and NYS Route 433/Niles Avenue

NYS Route 433 intersects NYS Route 22 opposite Niles Avenue at a full movement, signalized intersection. The NYS Route 22 northbound approach consists of two lanes in the form of a shared left/through lane and a separate right turn lane. All other approaches to the intersection consist of one lane in each direction. There are no sight distance restrictions at this intersection.

NYS Route 22 and I-684 NB On/Off Ramps

The I-684 Northbound On/Off Ramps intersects NYS Route 22 with the I-684 Northbound On-Ramp under signal control and the I-684 Northbound Off-Ramp to NYS Route 22 north under “Stop” sign control and the I-684 Northbound Off-Ramp to NYS Route 22 south under “Yield” sign control. The NYS Route 22 northbound approach consists of a double left turn lane for I-684 northbound traffic and two through lanes and the NYS Route 22 southbound approach consists of two through lanes and a separate right turn lane for I-684 northbound traffic. There are no sight distance restrictions at the NYS Route 22/I-684 NB On/Off Ramps.

NYS Route 22 and I-684 SB On/Off Ramps

The I-684 Southbound On/Off Ramps intersects NYS Route 22 with the I-684 Southbound Off-Ramp left turn under signal control and the I-684 Southbound Off-Ramp right turn to NYS Route 22 south under “Yield” sign control. The NYS Route 22 North On-Ramp and NYS Route 22 South On-Ramp to I-684

Southbound are free flow right turns. There are no sight distance restrictions at the NYS Route 22/I-684 SB On/Off Ramps.

b) Existing Traffic Volumes

In order to identify current traffic conditions for the Study Area Intersections, turning movement counts were conducted in December 2010, April 2011, January 2013 and February 2013 between the hours of 6:30 AM and 9:30 AM to determine the “Weekday Peak AM Hour” and between the hours of 3:00 PM and 6:30 PM to determine the “Weekday PM Peak Hour.” In addition Automatic Traffic Recorder (ATR) counts were also collected in September 2012. A copy of the traffic count data (manual traffic counts including a vehicle classification count at the NYS Route 22/Upland Lane/Coman Hill Elementary School and NYS Route 22/Tripp Lane (Byram Hills High School) intersections; and ATR counts) is contained in Appendix “E” of the Traffic Impact Study in DEIS Appendix M. Based on a review of the manual and ATR traffic count data it was determined that: (i) there were two distinct Weekday Peak AM Hours analyzed; 7:00AM to 8:00AM, which corresponds to the peaking of the Byram Hills High School, and 8:15AM to 9:15AM, which corresponds to the peaking of the Coman Hill Elementary School; and (ii) there was no peaking along NYS Route 22 during the 3:00 PM to 4:00 PM “School Peak Hour”, with the commuter peak hour occurring during the 5:00 PM to 6:00 PM time period (the Weekday Peak PM Highway Hour) Thus only one Weekday Peak PM Peak Hour was evaluated. However, to address the School Peak Hour, an analysis of the Byram Hills High School Driveway (NYS Route 22/Tripp Lane) has been evaluated for the 3:00 PM to 4:00 PM period and is further discussed in Section III.M.2.d. In addition, based on a comparison of the ATR counts, Saturday combined traffic volumes are lower than the Weekday Peak PM Highway Hour. Therefore, no intersection analysis is needed for Saturday.

The following peak hours were evaluated.

Weekday Peak AM Hour	7:00 AM – 8:00 AM
Weekday Peak AM Hour	8:15 AM – 9:15 AM
Weekday Peak PM Highway Hour	5:00 PM – 6:00 PM

The resulting Year 2013 Existing Traffic Volumes are shown on Exhibits III.M-2, 2A, 3, 3A and 4, 4A for each of the Peak Hours, respectively.

c) Capacity Analysis

In order to evaluate current and future traffic operating conditions at each of the Study Area Intersections, a SYNCHRO analysis was conducted. The SYNCHRO

analysis takes into consideration existing geometry including grades, conflict points, roadway widths and sight distances. The following is a summary of the existing conditions at each of the Study Area Intersections.

The Level of Service Summary Table, which is contained in Appendix “B” of the Traffic Impact Study in DEIS Appendix M, summarizes the results of the capacity analysis for the Year 2013 Existing Condition, Year 2018 No-Build Condition, and 2018 Build Condition. The capacity analysis, which also contains the lane geometry, lane widths, traffic control and speed limits, is in Appendix “D” of the Traffic Impact Study in DEIS Appendix M.

NYS Route 22 and Chestnut Ridge Road

Capacity analysis conducted utilizing the Year 2013 Existing Traffic Volumes indicates that the Chestnut Ridge Road eastbound approach (minor movements) is currently operating at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Baldwin Road

Capacity analysis conducted utilizing the Year 2013 Existing Traffic Volumes indicates that the Baldwin Road eastbound approach (minor movements) is currently operating at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Upland Road/Coman Hill Elementary School

Capacity analysis conducted utilizing the Year 2013 Existing Traffic Volumes indicates that the Upland Road westbound approach (minor movements) is currently operating at a Level of Service “C” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at a Level of Service “E” during the 8:15AM – 9:15AM Weekday Peak AM Hour (which corresponds to the peaking of the Coman Hill Elementary School), and is currently operating at a Level of Service “B” during the Weekday Peak PM Highway Hour, and the Coman Hill Elementary School eastbound approach is currently operating at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at a Level of Service “B” during the Weekday Peak PM Highway Hour.



NYS Route 22 and Tripp Lane (Byram Hills High School)

Capacity analysis conducted utilizing the Year 2013 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “F” during the 7:00AM – 8:00AM Weekday Peak AM Hour (which corresponds to the peaking of Byram Hills High School), is currently operating at an overall Level of Service “A” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Banksville Road

Capacity analysis conducted utilizing the Year 2013 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and NYS Route 433/Niles Avenue

Capacity analysis conducted utilizing the Year 2013 Existing Traffic Volumes indicates that the intersection is currently operating at an overall Level of Service “C” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at an overall Level of Service “C” during the Weekday Peak PM Highway Hour.

NYS Route 22 and I-684 NB On/Off Ramps

Capacity analysis conducted utilizing the Year 2013 Existing Traffic Volumes indicates that the NYS Route 22/I-684 Northbound On-Ramp which is under signal control is currently operating at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at an overall Level of Service “A” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at an overall Level of Service “B” during the Weekday Peak PM Highway Hour. The I-684 Northbound Off-Ramp to NYS Route 22 north which is under “Stop” sign control is currently operating at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at a Level of Service “B” during the Weekday Peak PM Highway Hour. The I-684 Northbound Off-Ramp to NYS Route 22 south which is under “Yield” sign control is currently operating at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is



currently operating at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and I-684 SB On/Off Ramps

Capacity analysis conducted utilizing the Year 2013 Existing Traffic Volumes indicates that the NYS Route 22/I-684 Southbound Off-Ramp left turn which is under signal control is currently operating at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at an overall Level of Service “A” during the Weekday Peak PM Highway Hour. The I-684 Southbound Off-Ramp right turn to NYS Route 22 south which is under “Yield” sign control is currently operating at a Level of Service “F” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is currently operating at a Level of Service “F” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is currently operating at a Level of Service “B” during the Weekday Peak PM Highway Hour. The NYS Route 22 South On-Ramp to I-684 Southbound and NYS Route 22 North On-Ramp to I-684 Southbound (free flow right turns) are currently operating at a Level of Service “A”.

d) Accident Data

Accident data was obtained from the New York State Department of Transportation Records Access Office for the Study Area Intersections (NYS Route 22 from Chestnut Ridge Road to NYS Route 433 and NYS Route 22 in the vicinity of the I-684 ramps) for the latest available three year period (January 1, 2009 to December 31, 2011).

Over this three year period there were 19 reported accidents in 2009, 20 reported accidents in 2010 and 19 reported accidents in 2011 along NYS Route 22 from Chestnut Ridge Road to NYS Route 433 and 7 reported accidents in 2009, 3 reported accidents in 2010 and 6 reported accidents in 2011 along NYS Route 22 in the vicinity of the I-684 Ramps.

Based on a review of the Accident Data, the type of accidents are typical, including rear end accidents and turning accidents with apparent contributing factors such as failure to yield right of way and driver following too close. It is expected that the Project will not have a significant impact on the accident rate on the area roadways. A copy of the accident data is contained in Appendix “F” of the Traffic Impact Study in DEIS Appendix M.

e) Sight Distance at Project Entry

The sight distance provided at the Site access is in excess of 750 feet to the left and in excess of 750 feet to the right. For the posted 40 mph speed limit, the stopping sight distance is 305 feet and the intersection sight distance is 445 looking to the left and 385 feet looking to the right. Based on the above, there is more than adequate sight distance at the Site access.

2. Potential Impacts

a) Future No-Build Traffic Volumes

For the purpose of analysis, a Design Year of 2018 has been utilized in completing the traffic analysis.

In order to account for normal background traffic growth in the area, the Year 2013 Existing Traffic Volumes were increased by a growth factor of 1% per year (NYSDOT historical data has shown little to no traffic growth in the area) to the 2018 Design Year for a total background growth of 5%. The resulting Year 2018 Projected Traffic Volumes are shown on Exhibits III.M- 5, 5A, 6, 6A and 7, 7A for each of the Peak Hours, respectively.

In addition, traffic for other potential developments in the area, including the approved St. Nersess Seminary, as well as 135 Bedford Road (vacant office building), 170 Bedford Road (retail/office), and 37-41 Maple Avenue (retail/office), all based on information contained in the Armonk CBD Area Traffic Management Study, 90-92 Business Park Drive based on information contained in the March 17, 2011 Traffic Impact Study for that project, and Armonk Square based on information contained in the August 11, 2011 Traffic Impact Study for that project, was included. The Other Development Traffic Volumes are shown on Exhibits III.M-8, 8A, 9, 9A and 10, 10A for each of the Peak Hours, respectively.

The resulting Year 2018 No-Build Traffic Volumes are shown on Exhibits III.M-11, 11A, 12, 12A and 13, 13A for each of the Peak Hours, respectively.

NYS Route 22 and Chestnut Ridge Road

Capacity analysis conducted utilizing the Year 2018 No-Build Traffic Volumes indicates that the Chestnut Ridge Road eastbound approach (minor movements) is projected to operate at a Level of Service "B" during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service "B" during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at a Level of Service "B" during the Weekday Peak PM Highway Hour.



NYS Route 22 and Baldwin Road

Capacity analysis conducted utilizing the Year 2018 No-Build Traffic Volumes indicates that the Baldwin Road eastbound approach (minor movements) is projected to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Upland Road/Coman Hill Elementary School

Capacity analysis conducted utilizing the Year 2018 No-Build Traffic Volumes indicates that the Upland Road westbound approach (minor movements) is projected to operate at a Level of Service “C” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service “F” during the 8:15AM – 9:15AM Weekday Peak AM Hour (which corresponds to the peaking of the Coman Hill Elementary School) and is projected to operate at a Level of Service “C” during the Weekday Peak PM Highway Hour and the Coman Hill Elementary School eastbound approach is projected to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Tripp Lane (Byram Hills High School)

Capacity analysis conducted utilizing the Year 2018 No-Build traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service “F” during the 7:00AM – 8:00AM Weekday Peak AM Hour (which corresponds to the peaking of Byram Hills High School), is projected to operate at an overall Level of Service “A” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Banksville Road

Capacity analysis conducted utilizing the Year 2018 No-Build traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.



NYS Route 22 and NYS Route 433/Niles Avenue

Capacity analysis conducted utilizing the Year 2018 No-Build traffic Volumes indicates that the intersection is projected to operate at an overall Level of Service “C” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at an overall Level of Service “C” during the Weekday Peak PM Highway Hour.

NYS Route 22 and I-684 NB On/Off Ramps

Capacity analysis conducted utilizing the Year 2018 No-Build Traffic Volumes indicates that the NYS Route 22/I-684 Northbound On-Ramp which is under signal control is projected to operate at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at an overall Level of Service “B” during the Weekday Peak PM Highway Hour. The I-684 Northbound Off-Ramp to NYS Route 22 north which is under “Stop” sign control is projected to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour. The I-684 Northbound Off-Ramp to NYS Route 22 south which is under “Yield” sign control is projected to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and I-684 SB On/Off Ramps

Capacity analysis conducted utilizing the Year 2018 No-Build Traffic Volumes indicates that the NYS Route 22/I-684 Southbound Off-Ramp left turn, which is under signal control, is projected to operate at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at an overall Level of Service “A” during the Weekday Peak PM Highway Hour. The I-684 Southbound Off-Ramp right turn to NYS Route 22 south which is under “Yield” sign control is projected to operate at a Level of Service “F” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service “F” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at a Level of



Service “B” during the Weekday Peak PM Highway Hour. The NYS Route 22 South On-Ramp to I-684 Southbound and NYS Route 22 North On-Ramp to I-684 Southbound (free flow right turns) are projected to operate at a Level of Service “A”.

b) Site Generated Traffic Volumes

As previously discussed as part of the Brynwood Golf & Country Club Project, an 88 unit adult oriented residential community is proposed. In addition, improvements and renovations to the Club’s facilities and amenities will be made. The improvements and renovations to the Club’s facilities and amenities would not generate additional traffic to the area roadways. As described in Chapter II.B, Club membership is expected to remain the same or decrease from current levels, and dining facilities would continue to be open only to members and their guests. Country Club generated traffic is already included in the existing traffic patterns.

Based on information published by the Institute of Transportation Engineers, “Trip Generation Handbook”, 9th Edition for ITE Land Use 230 – Residential Condominium/Townhouse units, the 88 residential units would generate a total of 47 trips (8 entering trips and 39 exiting trips) during the Weekday Peak AM Hours and a total of 55 trips (37 entering trips and 18 exiting trips) during the Weekday Peak PM Highway Hour. The Hourly Trip Generation Rates and anticipated Site Generated Traffic Volumes are summarized below:

Table III.M-1
Site Generated Traffic Volumes

	Entry		Exit		Total	
	HTGR	Volume	HTGR	Volume	HTGR	Volume
88 units						
Weekday Peak AM Hour	0.09	8	0.44	39	0.53	47
Weekday Peak PM Highway Hour	0.42	37	0.20	18	0.62	55

Based on Institute of Transportation Engineers, “Trip Generation Handbook”, 9th Edition
ITE Land Use 230 – Residential Condominium/Townhouse Units

Arrival / Departure Distribution

In order to assign the Site Generated Traffic Volumes to the roadway network, it was necessary to establish an arrival/departure distribution. Based on a review of the existing traffic volumes on the surrounding roadway network and

expected travel patterns, an arrival/departure distribution was established and is shown on Exhibits III.M-14 and 14A.

c) Year 2018 Build Traffic Volumes

The Site Generated Traffic Volumes were assigned to the roadway network based on the arrival/departure distribution patterns shown on Exhibit III.M-14. The resulting Site Generated Traffic Volumes are shown on Exhibits III.M-15, 16 and 17 for each of the Peak Hours, respectively. The Site Generated Traffic Volumes were then added to the Year 2018 No-Build Traffic Volumes to obtain the Year 2018 Build Traffic Volumes.

The resulting Year 2018 Build Traffic Volumes are shown on Exhibits III.M-18, 19 and 20 for each of the Peak Hours, respectively.

NYS Route 22 and Chestnut Ridge Road

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the Chestnut Ridge Road eastbound approach (minor movements) is projected to continue to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Baldwin Road

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the Baldwin Road eastbound approach (minor movements) is projected to continue to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Site Access

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the driveway eastbound approach (minor movements) is projected to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Upland Road/Coman Hill Elementary School

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the Upland Road westbound approach (minor movements) is projected to continue to operate at a Level of Service “C” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at a Level of Service “F” during the 8:15AM – 9:15AM Weekday Peak AM Hour (which corresponds to the peaking of the Coman Hill Elementary School) and is projected to continue to operate at a Level of Service “C” during the Weekday Peak PM Highway Hour and the Coman Hill Elementary School eastbound approach is projected to continue operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to operate at a Level of Service “C” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and Tripp Lane (Byram Hills High School)

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service “F” during the 7:00AM – 8:00AM Weekday Peak AM Hour (which corresponds to the peaking of Byram Hills High School), is projected to continue to operate at an overall Level of Service “A” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.

It should be noted that while the intersection will continue to operate at an overall Level of Service “F” during the 7:00AM – 8:00AM Weekday Peak AM Hour, the northbound approach is projected to experience an increase in delay. This can be reduced by increasing the amount of green time for the northbound approach. In addition, alternative access plans which would also improve the operating condition at this location are discussed in Section III.M.2.h.

NYS Route 22 and Banksville Road

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at an overall Level of Service “B” during the Weekday Peak PM Highway Hour.



NYS Route 22 and NYS Route 433/Niles Avenue

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the intersection is projected to continue to operate at an overall Level of Service “C” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at an overall Level of Service “C” during the Weekday Peak PM Highway Hour.

NYS Route 22 and I-684 NB On/Off Ramps

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the NYS Route 22/I-684 Northbound On-Ramp which is under signal control is projected to continue to operate at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at an overall Level of Service “B” during the Weekday Peak PM Highway Hour. The I-684 Northbound Off-Ramp to NYS Route 22 north which is under “Stop” sign control is projected to continue to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to operate at a Level of Service “C” during the Weekday Peak PM Highway Hour. The I-684 Northbound Off-Ramp to NYS Route 22 south which is under “Yield” sign control is projected to continue to operate at a Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at a Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour.

NYS Route 22 and I-684 SB On/Off Ramps

Capacity analysis conducted utilizing the Year 2018 Build Traffic Volumes indicates that the NYS Route 22/I-684 Southbound Off-Ramp (left turn) which is under signal control is projected to continue to operate at an overall Level of Service “B” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at an overall Level of Service “B” during the 8:15AM – 9:15AM Weekday Peak AM Hour, and is projected to continue to operate at an overall Level of Service “A” during the Weekday Peak PM Highway Hour. The I-684 Southbound Off-Ramp right turn to NYS Route 22 south which is under “Yield” sign control is projected to continue to operate at a Level of Service “F” during the 7:00AM – 8:00AM Weekday Peak AM Hour, is projected to continue to operate at a Level of Service “F” during the 8:15AM – 9:15AM Weekday Peak



AM Hour, and is projected to continue to operate at a Level of Service “B” during the Weekday Peak PM Highway Hour. The NYS Route 22 South On-Ramp to I-684 Southbound and NYS Route 22 North On-Ramp to I-684 Southbound (free flow right turns) are projected to continue to operate at a Level of Service “A”.

d) Evaluation of School Peak Hour (NYS Route 22/Tripp Lane)

As discussed in Section III.M.1.b above, based on a review of the manual and ATR traffic count data, it was determined that there was no peaking along NYS Route 22 during the 3:00 PM to 4:00 PM School Peak Hour with the commuter peak hour occurring during the 5:00 PM to 6:00 PM Weekday Peak PM Highway Hour. Thus, only the Weekday PM Peak Hour was evaluated. However to address the School Peak Hour, an analysis of the Byram Hills High School Driveway (NYS Route 22/Tripp Lane) has been evaluated for the 3:00 PM to 4:00 PM period. The Resulting Year 2013 Existing Traffic Volumes, Year 2018 No-Build Traffic Volumes, Site Generated Traffic Volumes (assuming the conservative Peak PM Hour trip generation rates), Year 2018 Build Traffic Volumes and resulting analysis (Level of Service Summary Table A) are contained in Appendix “G” of the Traffic Impact Study in DEIS Appendix M. As shown on Table A, the NYS Route 22 and Tripp Lane (Byram Hills High School) intersection is currently operating at an overall Level of Service “B” and is projected to continue operate at an overall Level of Service “B”.

e) Parking Impacts

Parking is outlined in Chapter II.B – Description of Proposed Action, including the number of parking spaces for the proposed residences.

The Club currently has 178 existing parking spaces; this amount would remain the same. The proposed 88 residential units will have two parking spaces each for a total of 176 parking spaces with an additional 25 residential guest parking spaces located in garages and along the private driveways.

f) Safety Concerns

As discussed in the Traffic Impact Study in DEIS Appendix M, the analysis takes into consideration existing geometry including grades, conflict points, roadway widths and sight distances. As further discussed in the Traffic Impact Study, the proposed Project will not significantly affect the area roadways. Similar Levels of Service and delays will be experienced under the future No-Build Condition and future Build Condition.



g) Gatehouse

A gatehouse will be located at the entry, approximately 65 feet from NYS Route 22, as shown on the proposed plan. The gatehouse will be staffed 24 hours a day. Based on a single lane channel queue analysis (Appendix I of the Traffic Impact Study in DEIS Appendix M) no significant queuing is expected at the gatehouse (less than 2 vehicles). In addition, since the gatehouse will be staffed 24 hours a day, any queuing that occurs can be controlled by the guard during peak times or during event conditions. During periods of high club activity, the gate may remain open to further reduce the potential of queuing onto NYS Route 22

h) Alternative Access

While the proposed Project would not significantly impact the operation of the NYS Route 22 and Tripp Lane (Byram Hills High School) intersection, the Scoping Document requested the evaluation of alternatives to reduce existing congestion at the High School during school hours. Although not proposed by the Applicant as part of the Project, two alternative access scenarios were developed for the Byram Hills High School. (See Exhibit III.M-21, High School Access Road Plan Key Map). Alternative 1 provides a connection to Perry Court providing access to Byram Lake Road. (See Exhibit III.M-22, High School Access Road Plan Alternative 1). Alternative 2 provides a connection to Blair Road also providing access to Byram Lake Road. (See Exhibit III.M-23, High School Access Road Plan Alternative 2). Each of these alternatives would reduce school traffic destined to/from the Byram Lake Road area as well as some traffic destined to/from NYS Route 22 south and would provide improved operation at Tripp Lane.

Appendix "H" of the Traffic Impact Study in DEIS Appendix M contains an analysis of the NYS Route 22 and Tripp Lane (Byram Hills High School) intersection with 25 percent of the exiting traffic diverted from the NYS Route 22 and Tripp Lane intersection to either of the above alternative access routes. As shown on the Level of Service Summary Table (Table B in this Appendix), the NYS Route 22 and Tripp Lane intersection will operate at improved Levels of Service with either of the alternative access plans. Given the configuration of on-site parking on the High School campus, the Byram Hills School District has indicated that it favors the Perry Court alternative. The Applicant will consider assisting in the construction of this roadway.



i) Construction Traffic

Construction/demolition traffic is discussed in this DEIS in Chapter III.R – Construction.

j) Primary Access Paths

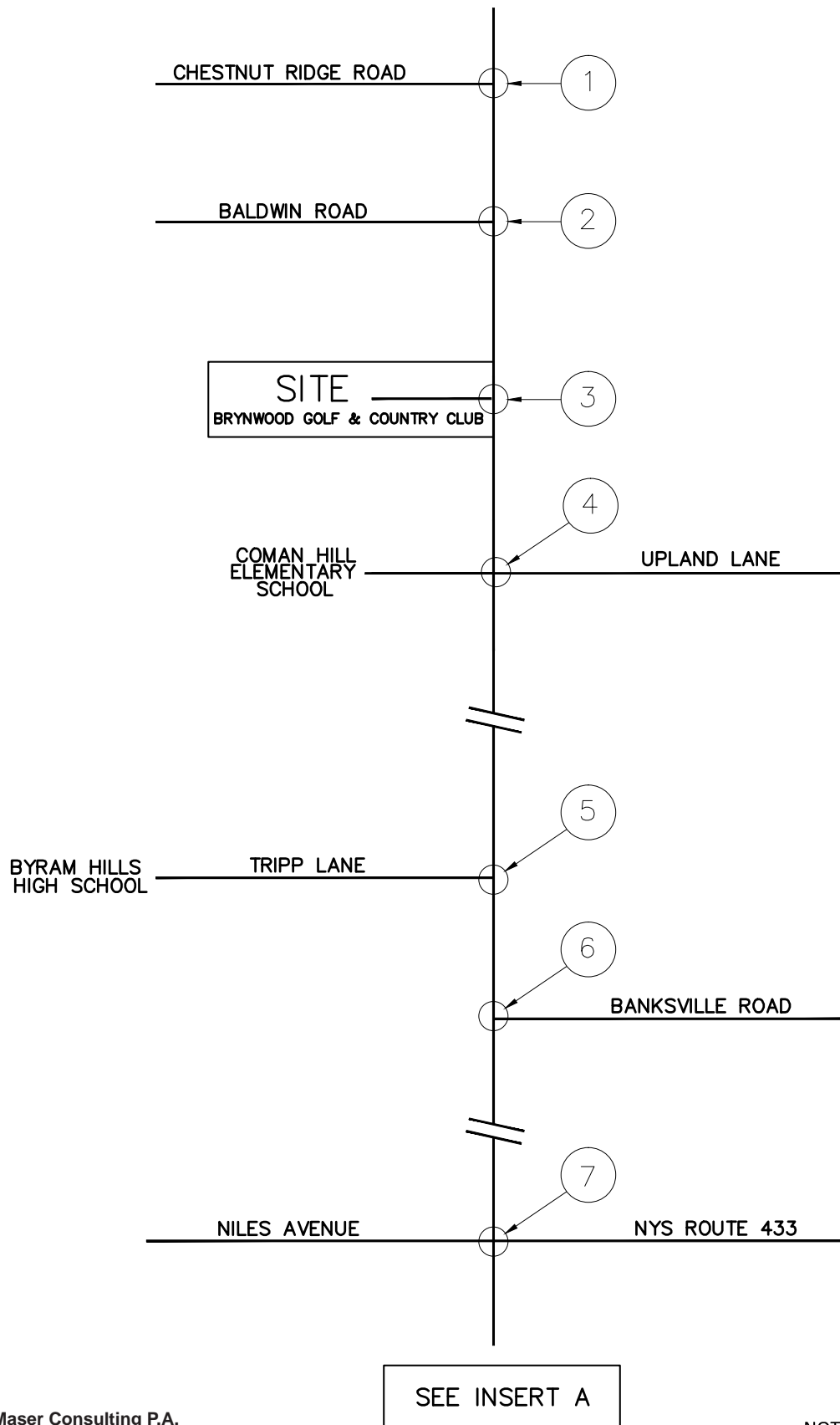
The Project would be accessed solely from Bedford Road (NYS Route 22). A new exit from the Club parking area, limited to right-turns onto Bedford Road, is proposed to improve on-site traffic movement after Club events. Site Access and circulation is discussed in greater detail in this DEIS in Section II.B.a – Site Access and Circulation.

3. Mitigation Measures

As discussed in the Traffic Impact Study in DEIS Appendix M, there are no sight distance restrictions at the Study Area Intersections and there is more than adequate sight distance provided at the Site access. A secondary access (right turn exit only) is being proposed from the existing Club parking lot. This will result in improved circulation and will serve as an emergency access. As indicated in the Traffic Impact Study, the Project will not significantly affect the area roadways. Similar Levels of Service and delays will be experienced under the future No-Build Condition and future Build Condition. As a result no roadway improvements are recommended as a result of the Project.

During construction, flagmen will be located at the construction entrances to provide safe access to the site.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

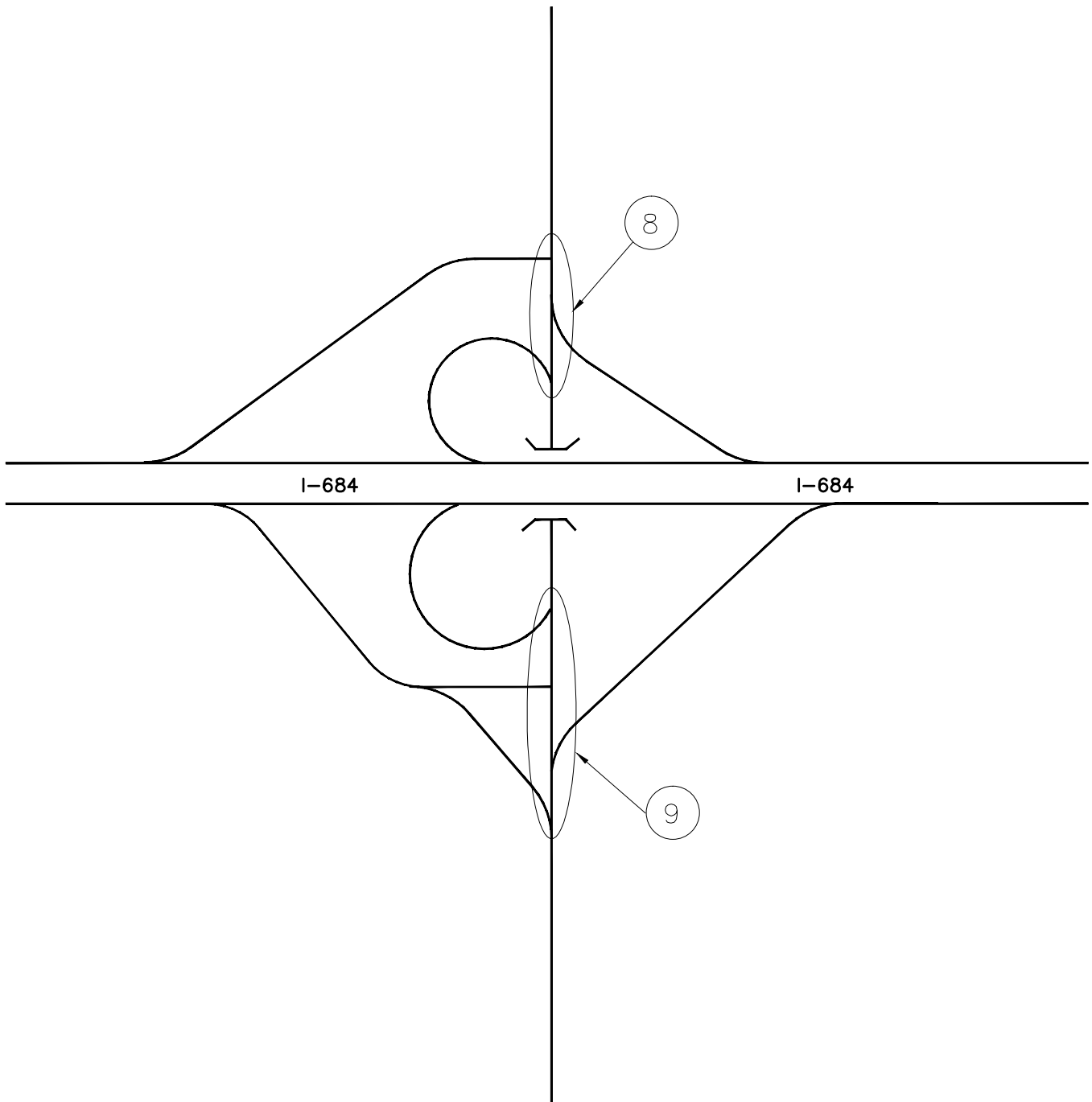
BRYNWOOD
North Castle, New York

**Site Location
and Study Area Intersections**

Exhibit
III.M-1

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

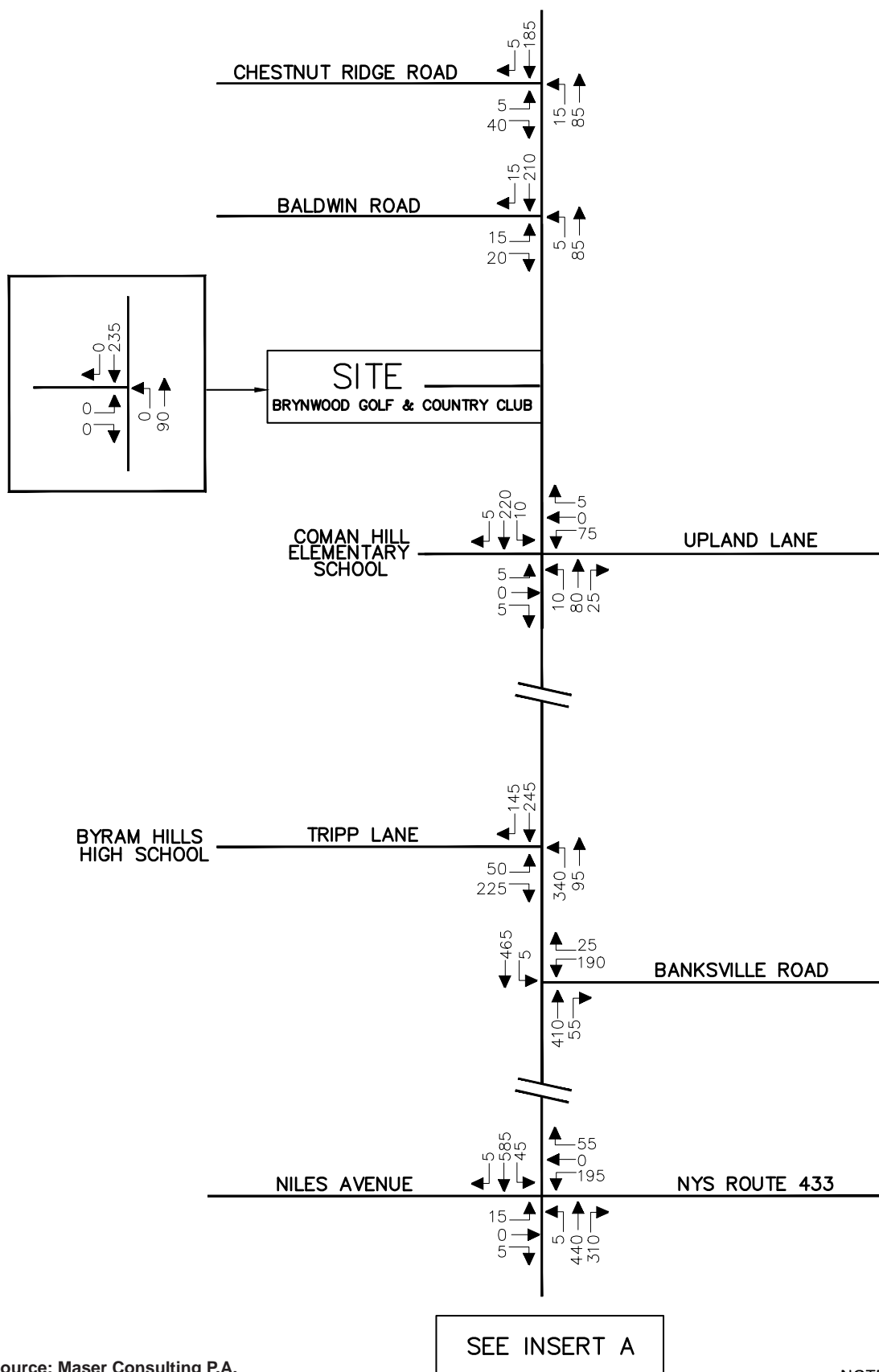
BRYNWOOD
North Castle, New York

Site Location
and Study Area Intersections
(Insert A)

Exhibit
III.M-1A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

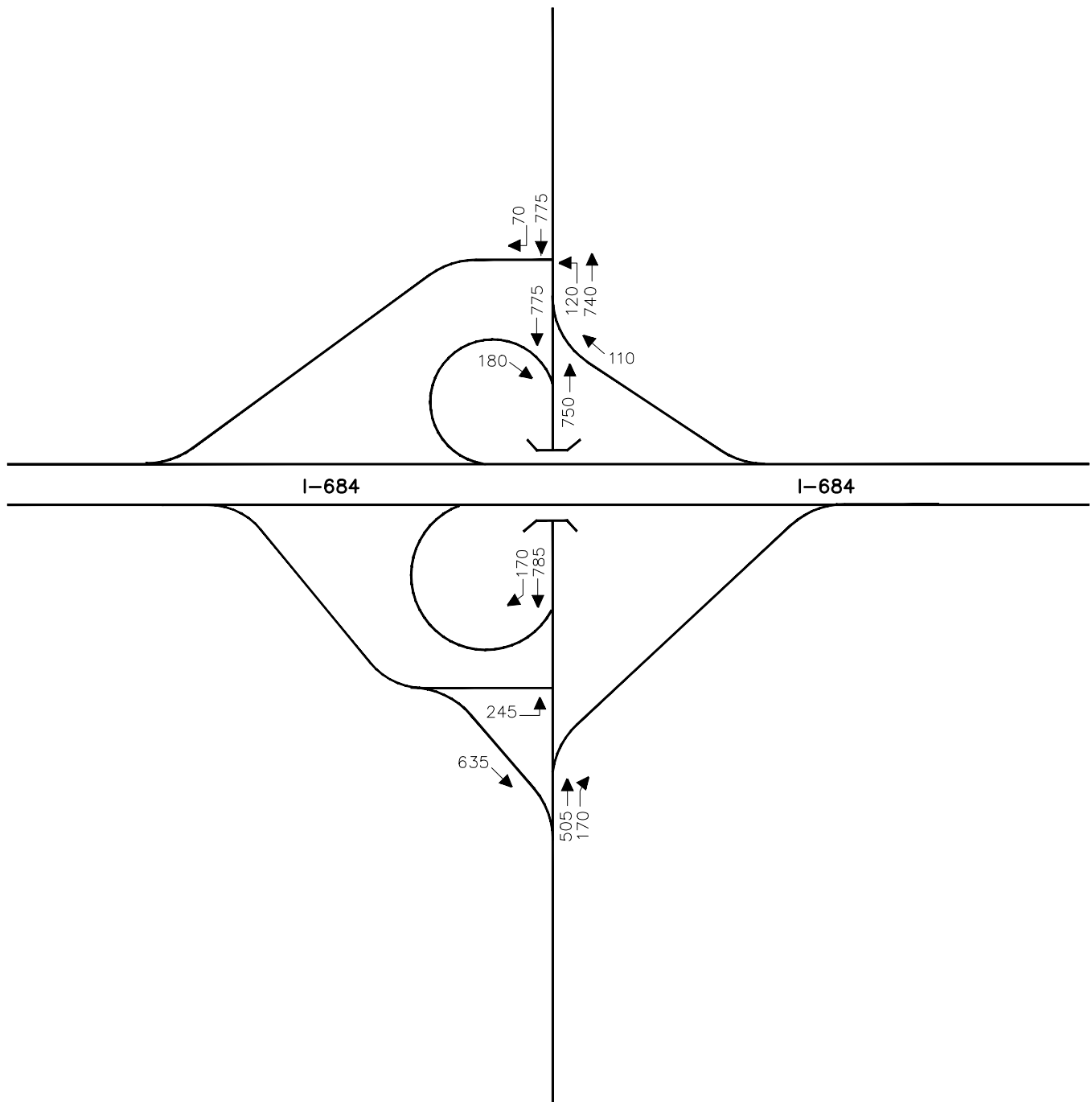
BRYNWOOD
North Castle, New York

Year 2013 Existing Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM)

Exhibit
III.M-2

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

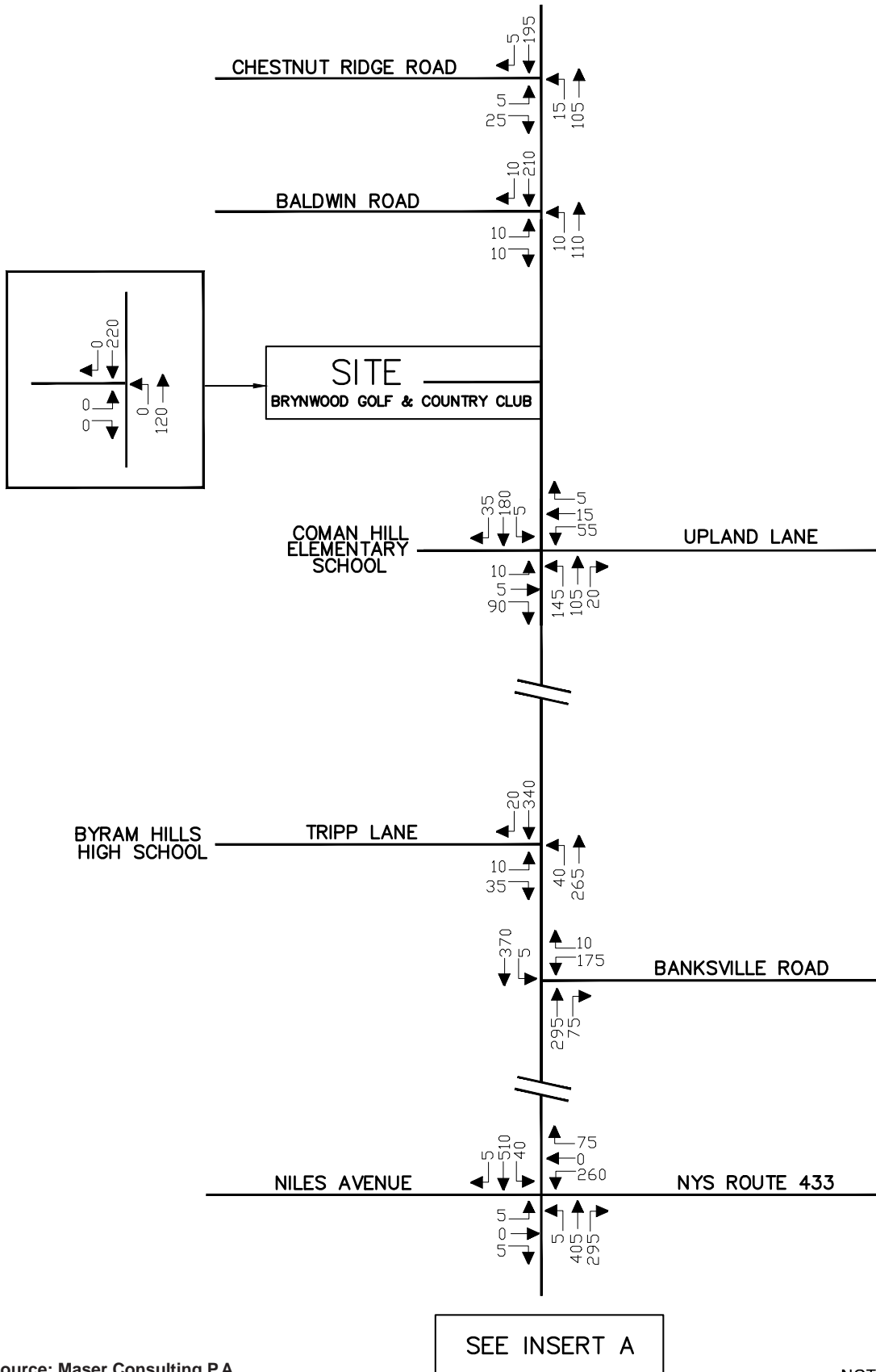
BRYNWOOD
North Castle, New York

Year 2013 Existing Traffic Volumes
Weelday Peak AM Hour
(7:00 AM-8:00 AM) (Insert A)

Exhibit
III.M-2A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

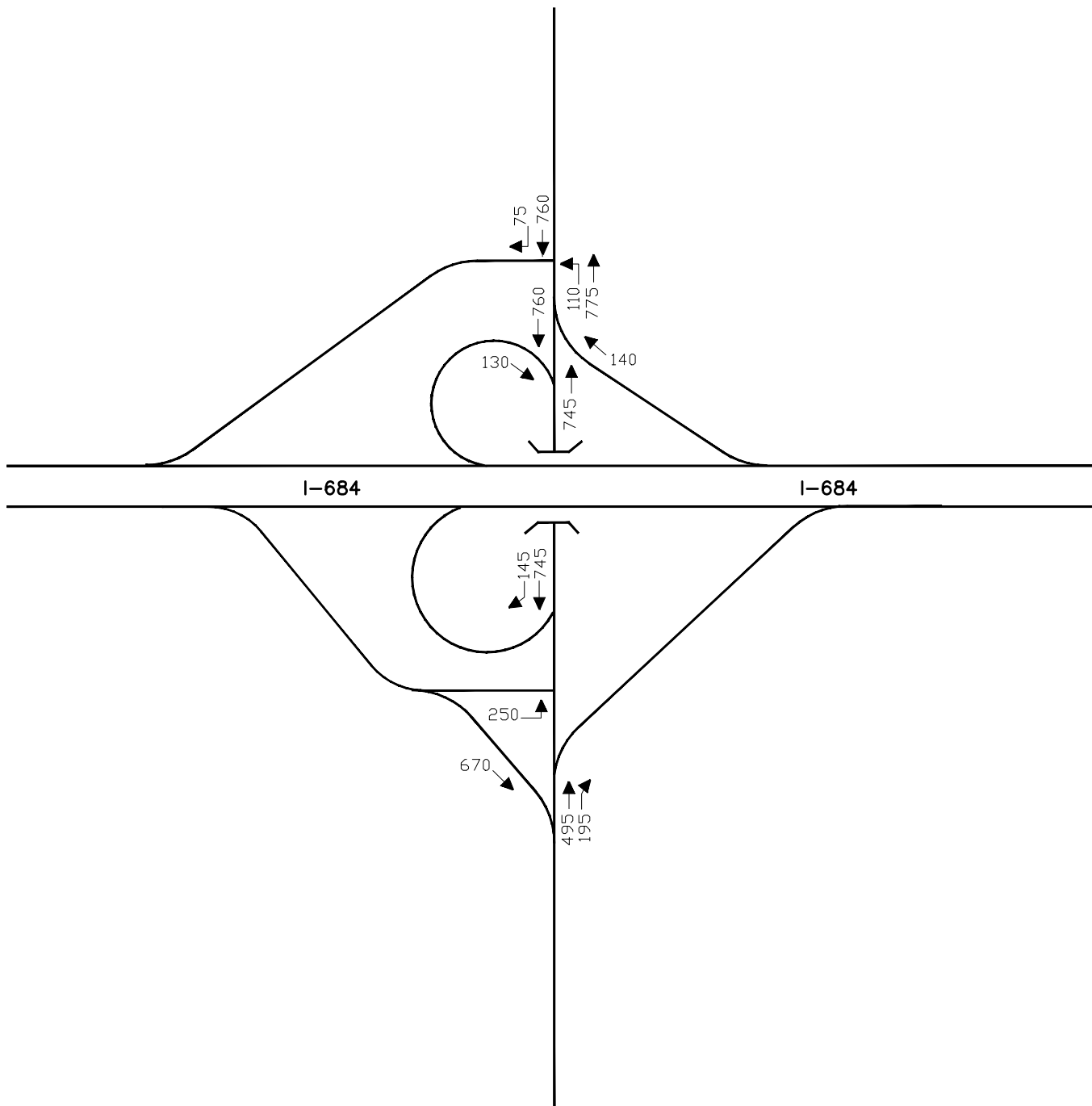
BRYNWOOD
North Castle, New York

Year 2013 Existing Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM)

Exhibit
III.M-3

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

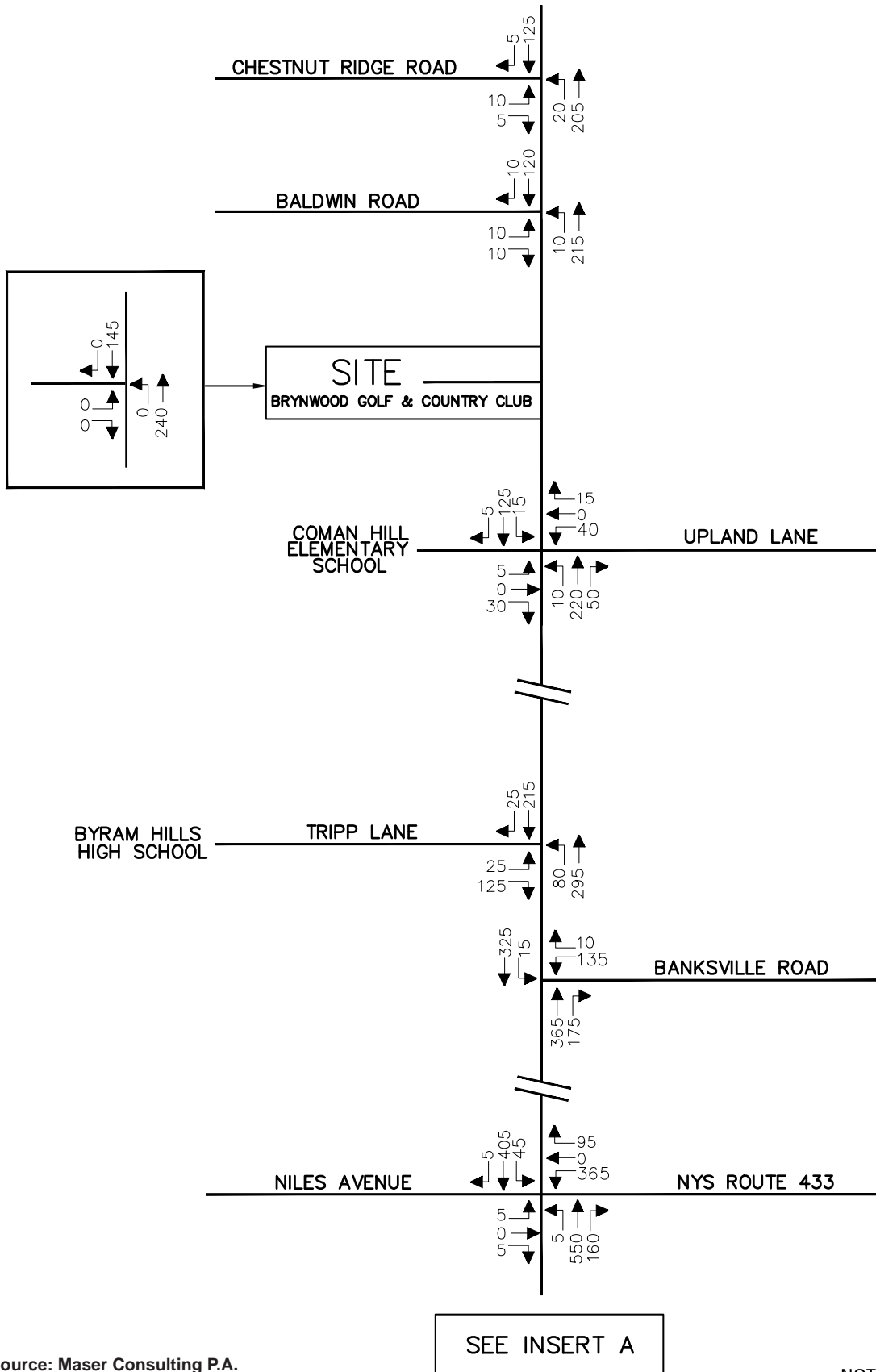
BRYNWOOD
North Castle, New York

Year 2013 Existing Traffic Volumes
Weekday Peak AM Hour
8:15 AM- 9:15 AM) (Insert A)

Exhibit
III.M-3A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

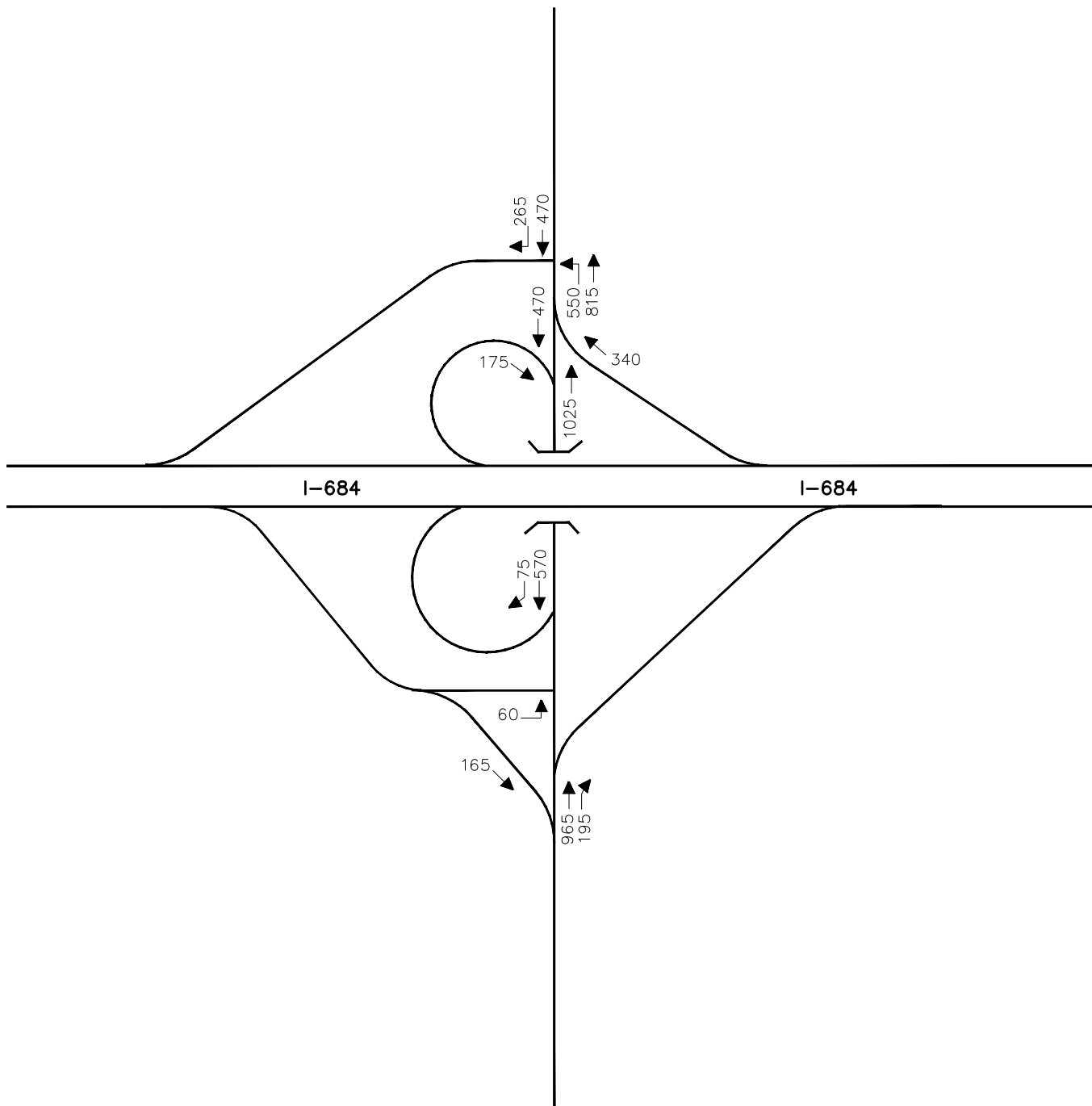
BRYNWOOD
North Castle, New York

Year 2013 Existing Traffic Volumes
Weekday Peak PM Hour
(5:00 PM-6:00 PM)

Exhibit
III.M-4

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

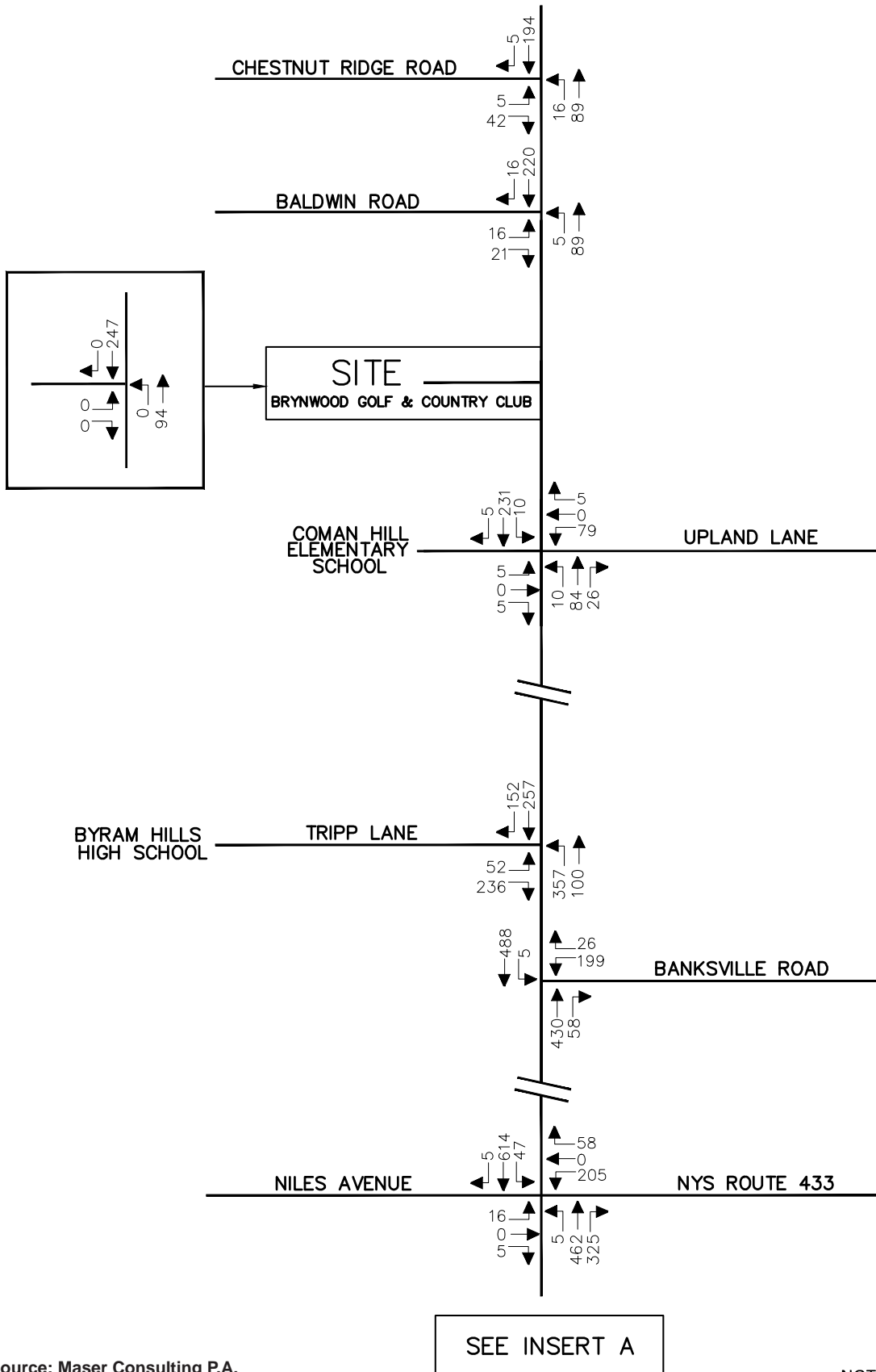
BRYNWOOD
North Castle, New York

Year 2013 Existing Traffic Volumes
Weekday Peak PM Hour
(5:00 PM-6:00 PM) (Insert A)

Exhibit
III.M-4A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

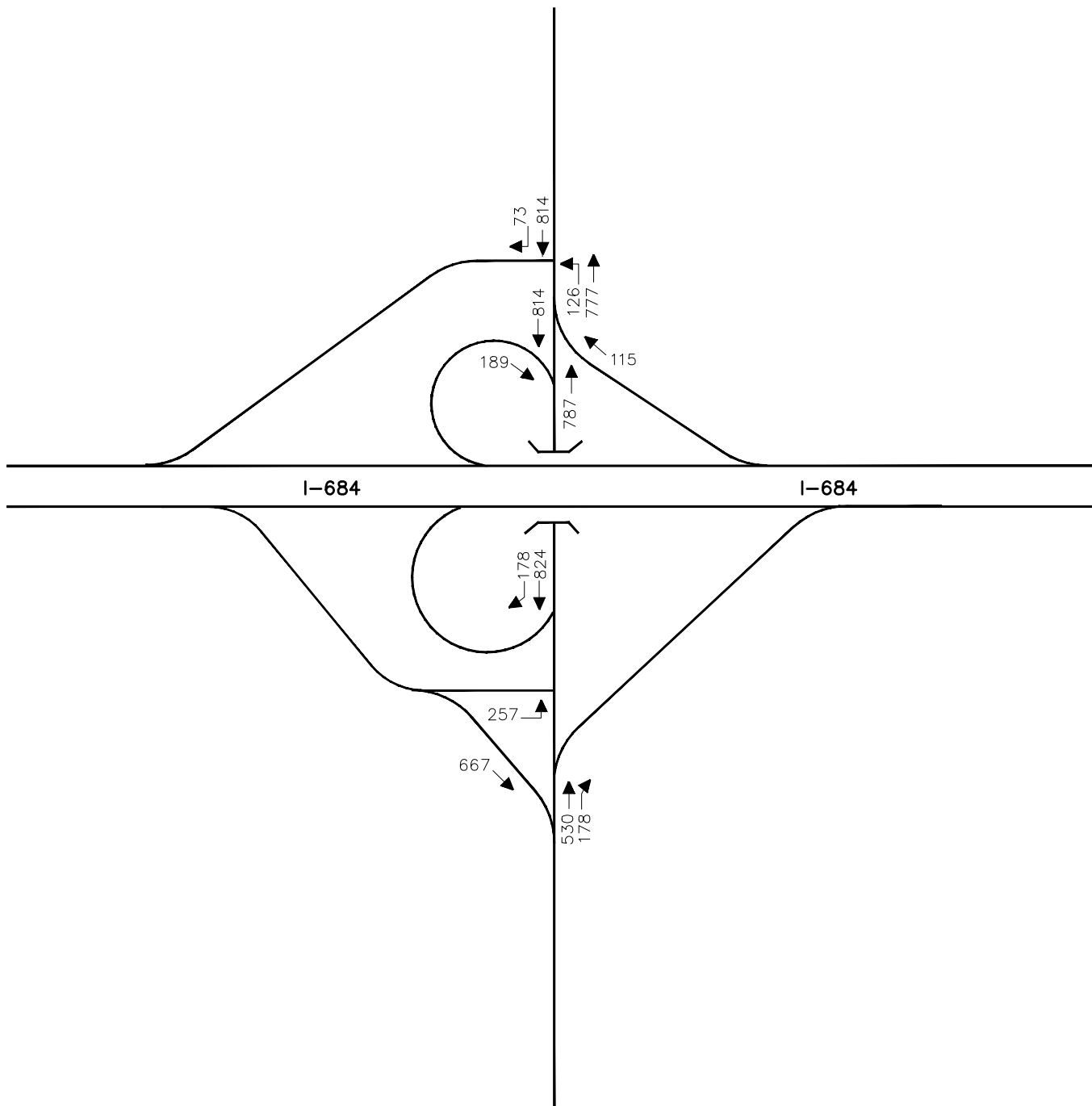
BRYNWOOD
North Castle, New York

Year 2018 Projected Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM)

Exhibit
III.M-5

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

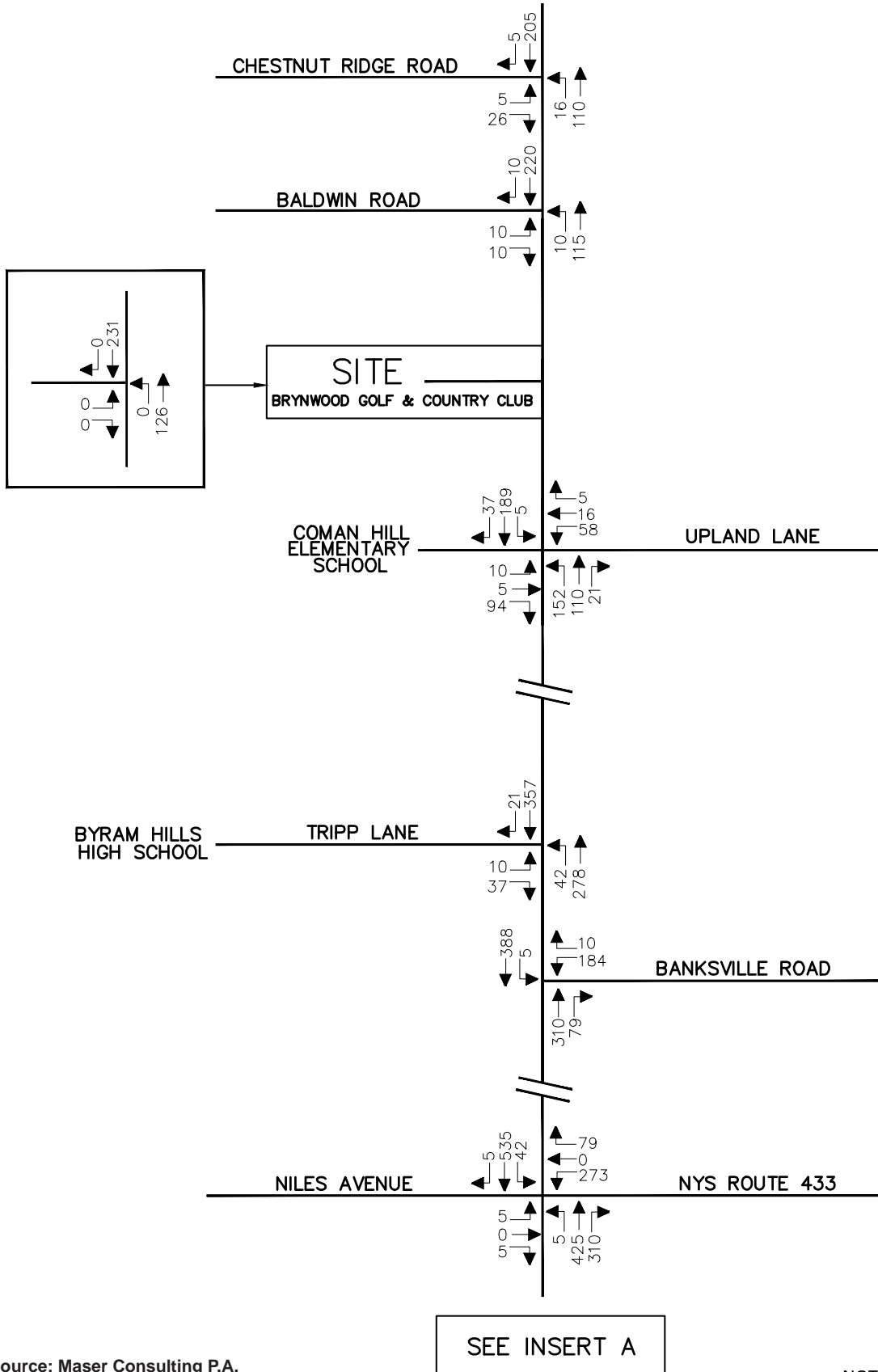
BRYNWOOD
North Castle, New York

Year 2018 Projected Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00AM) (Insert A)

Exhibit
III.M-5A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

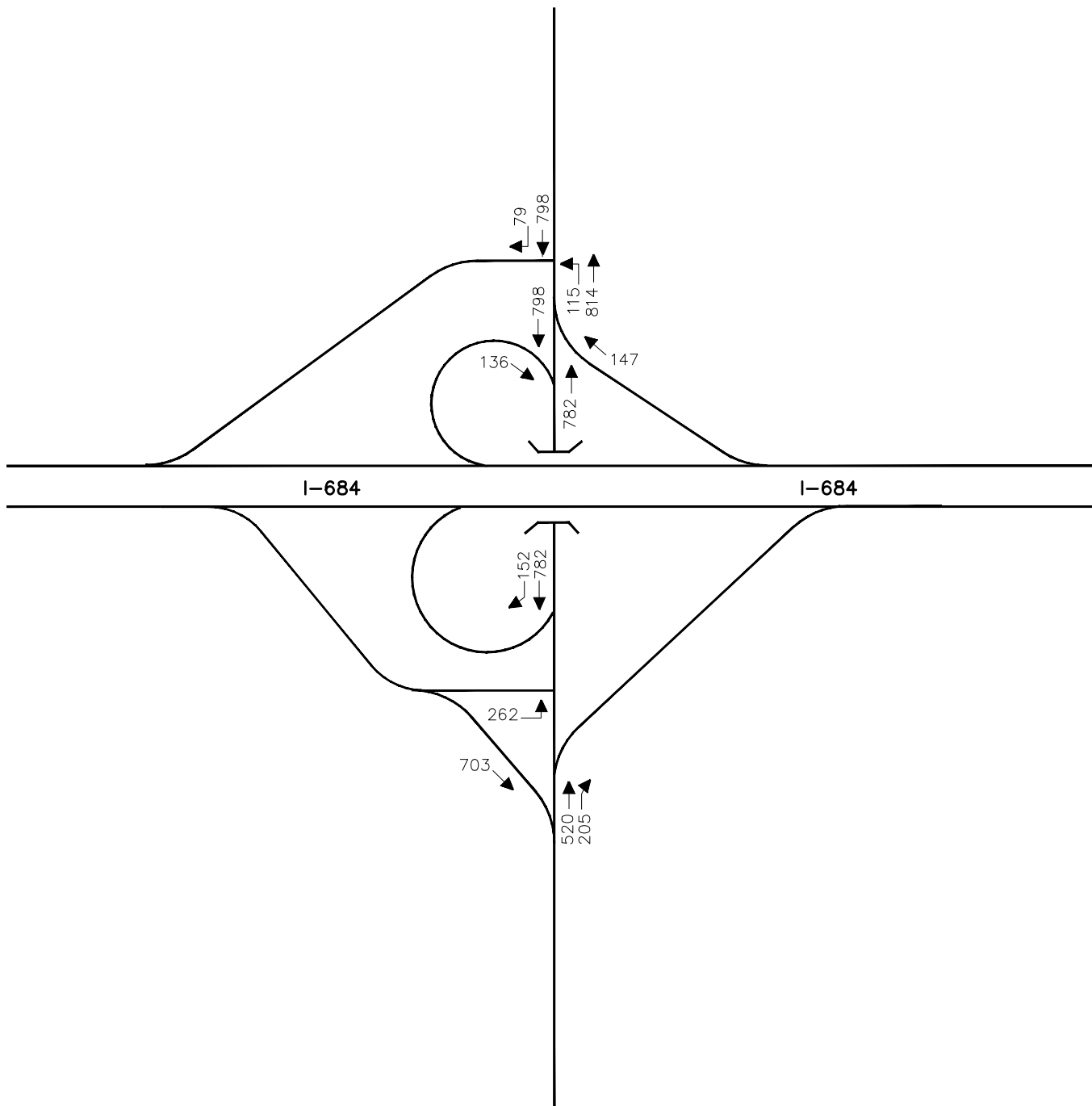
BRYNWOOD
North Castle, New York

Year 2018 Projected Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM)

Exhibit
III.M-6

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

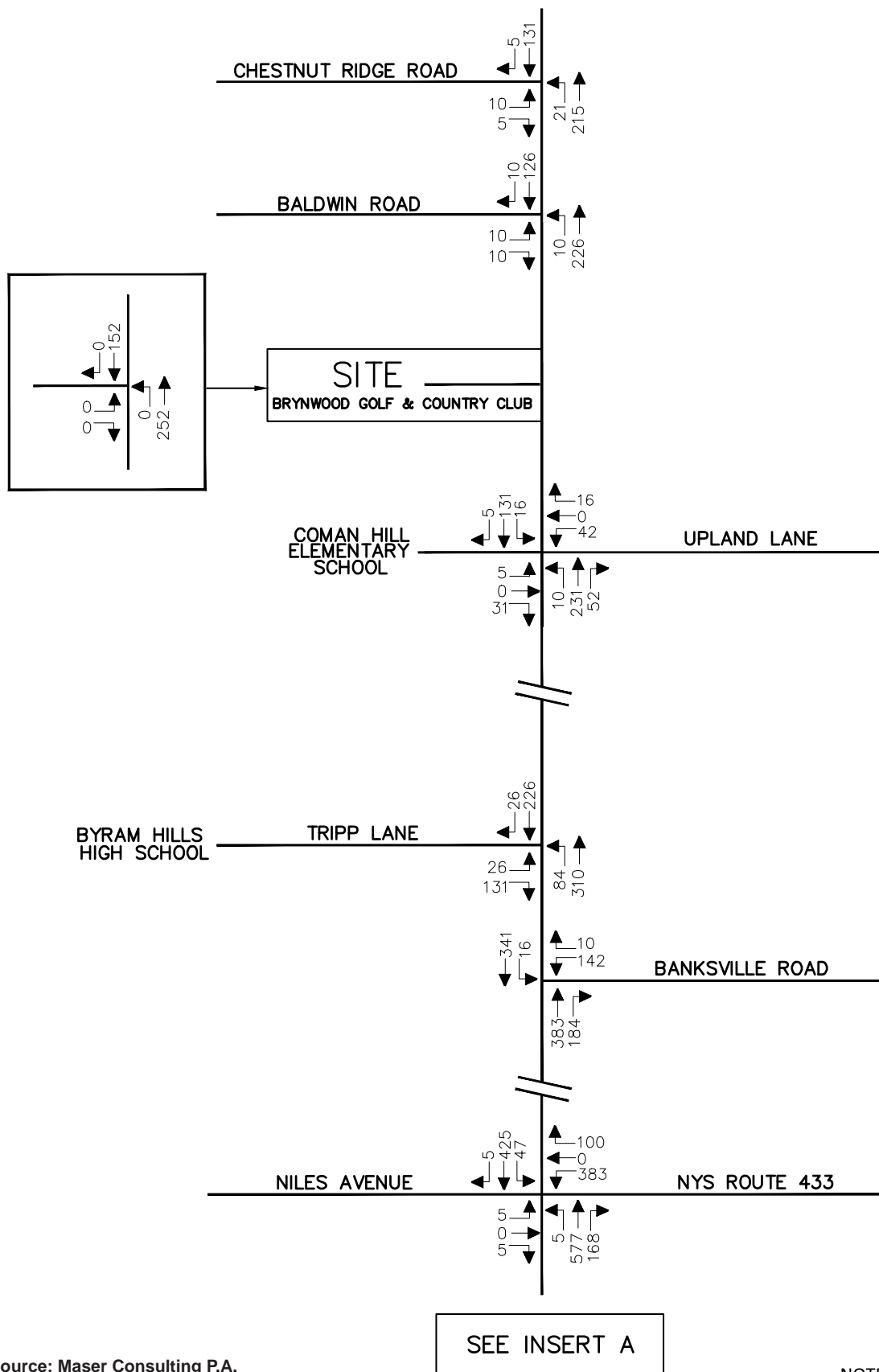
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Year 2018 Projected Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM) (Insert A)

Exhibit
III.M-6A

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

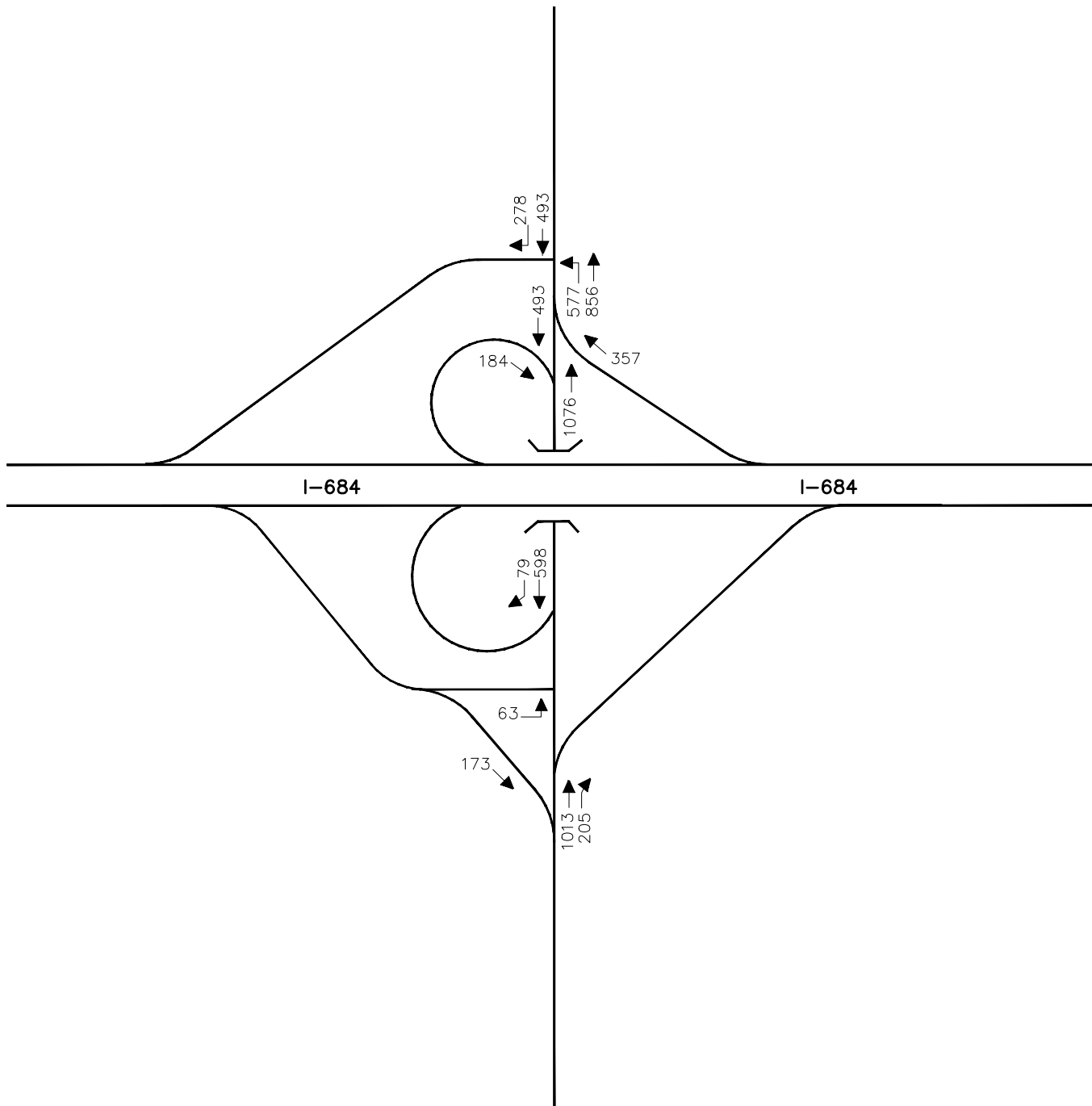
BRYNWOOD
North Castle, New York

Year 2018 Projected Traffic Volumes
Weekday Peak Highway Hour
(5:00 PM-6:00 PM)

Exhibit
III.M-7

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

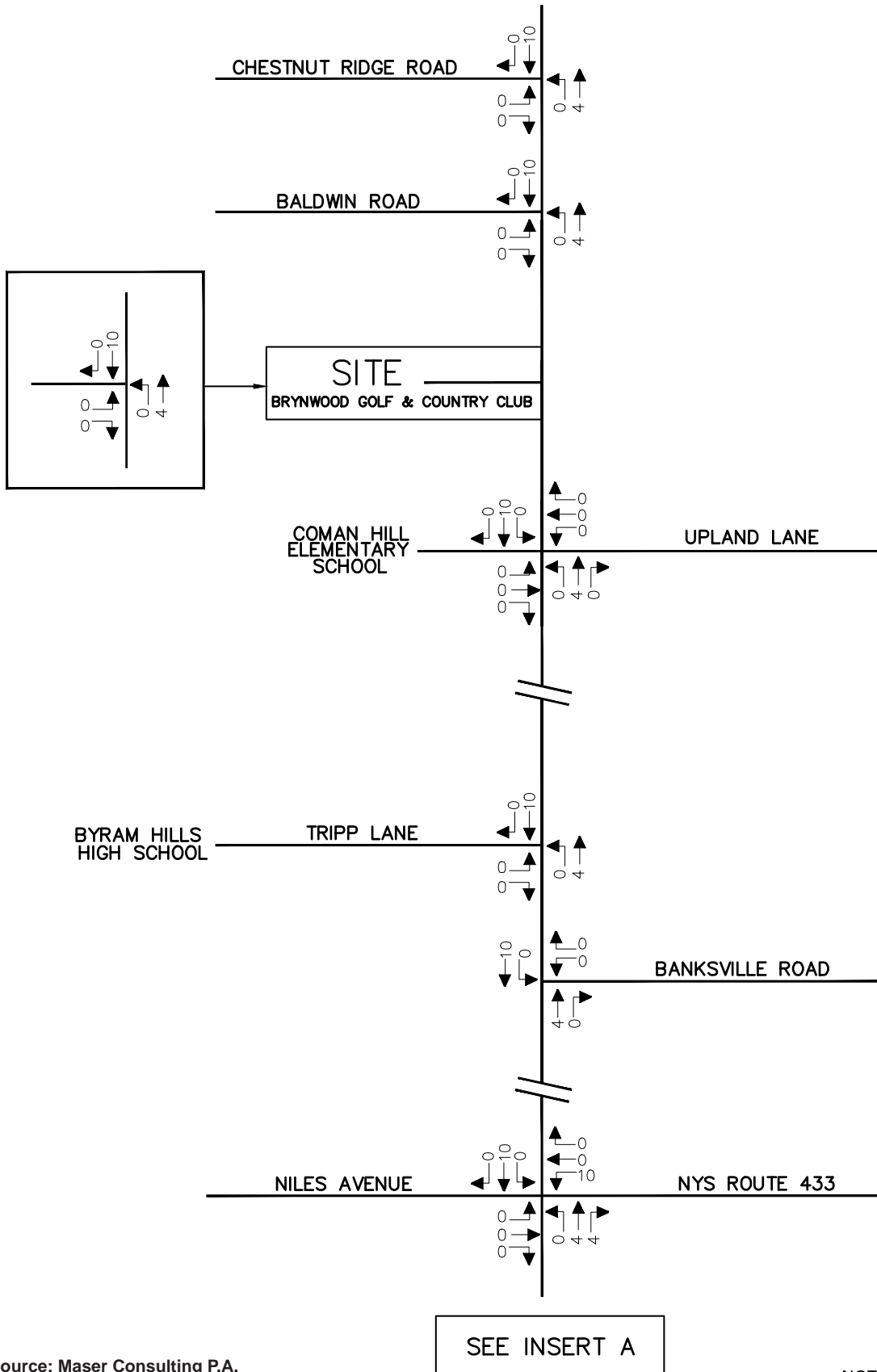
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Year 2018 Projected Traffic Volumes
Weekday Peak PM Hour
(5:00 PM-6:00 PM) (Insert A)

Exhibit
III.M-7A

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

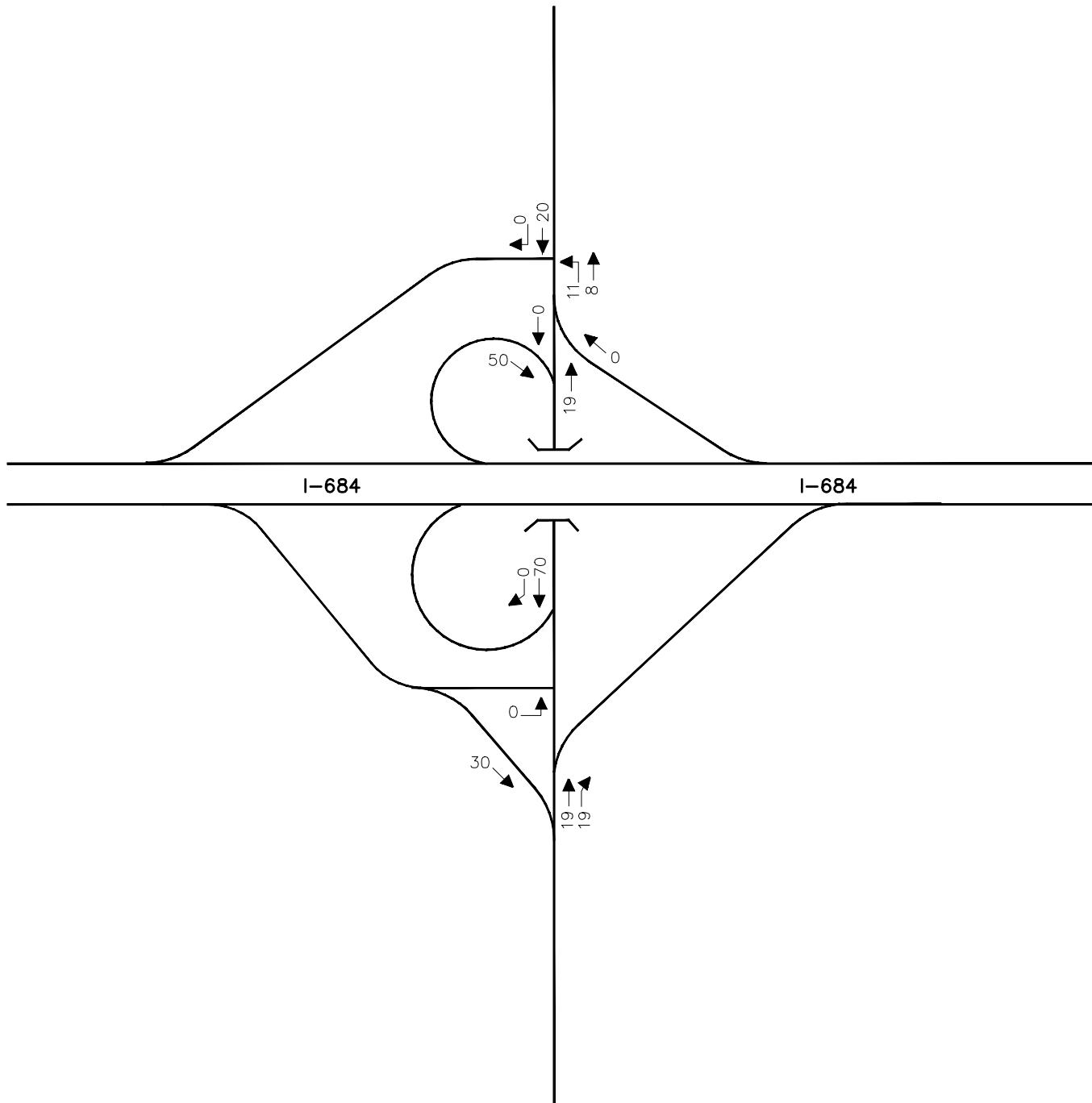
BRYNWOOD
North Castle, New York

Other Development Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM)

Exhibit
III.M-8

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

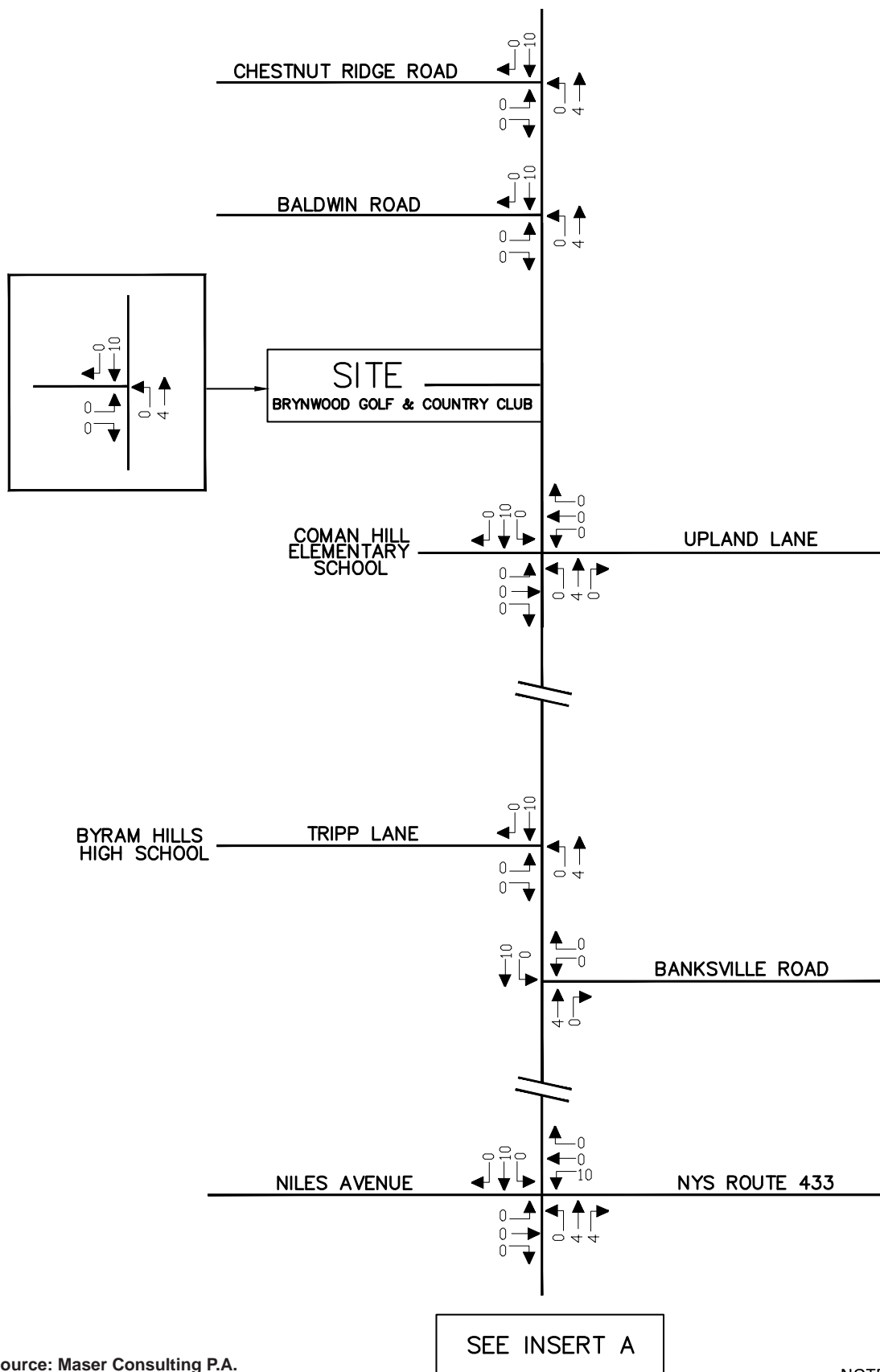
BRYNWOOD
North Castle, New York

Other Development Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM) (Insert A)

Exhibit
III.M-8A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

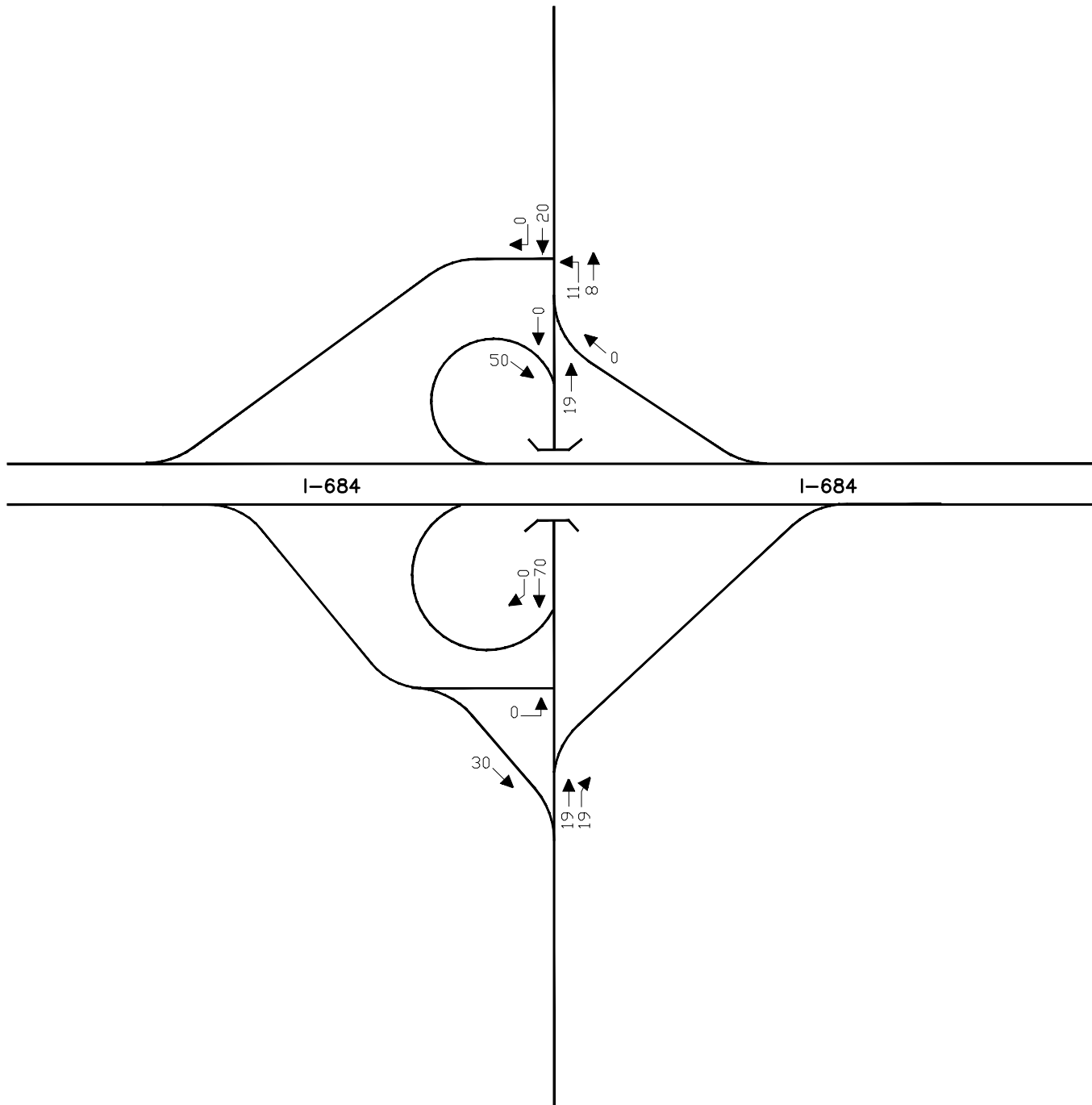
BRYNWOOD
North Castle, New York

Other Development Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM)

Exhibit
III.M-9

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

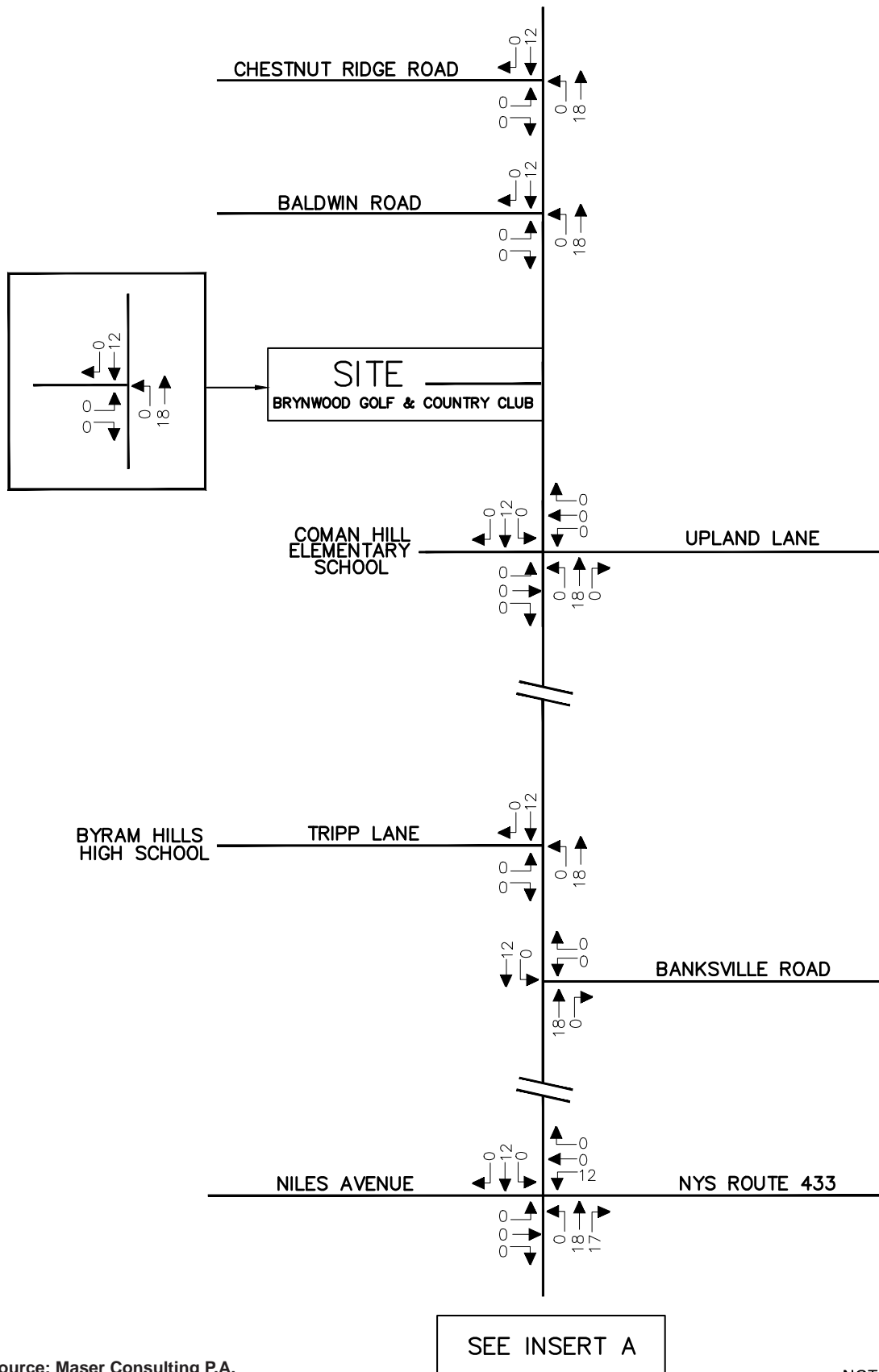
BRYNWOOD
North Castle, New York

Other Development Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM) (Insert A)

Exhibit
III.M-9A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

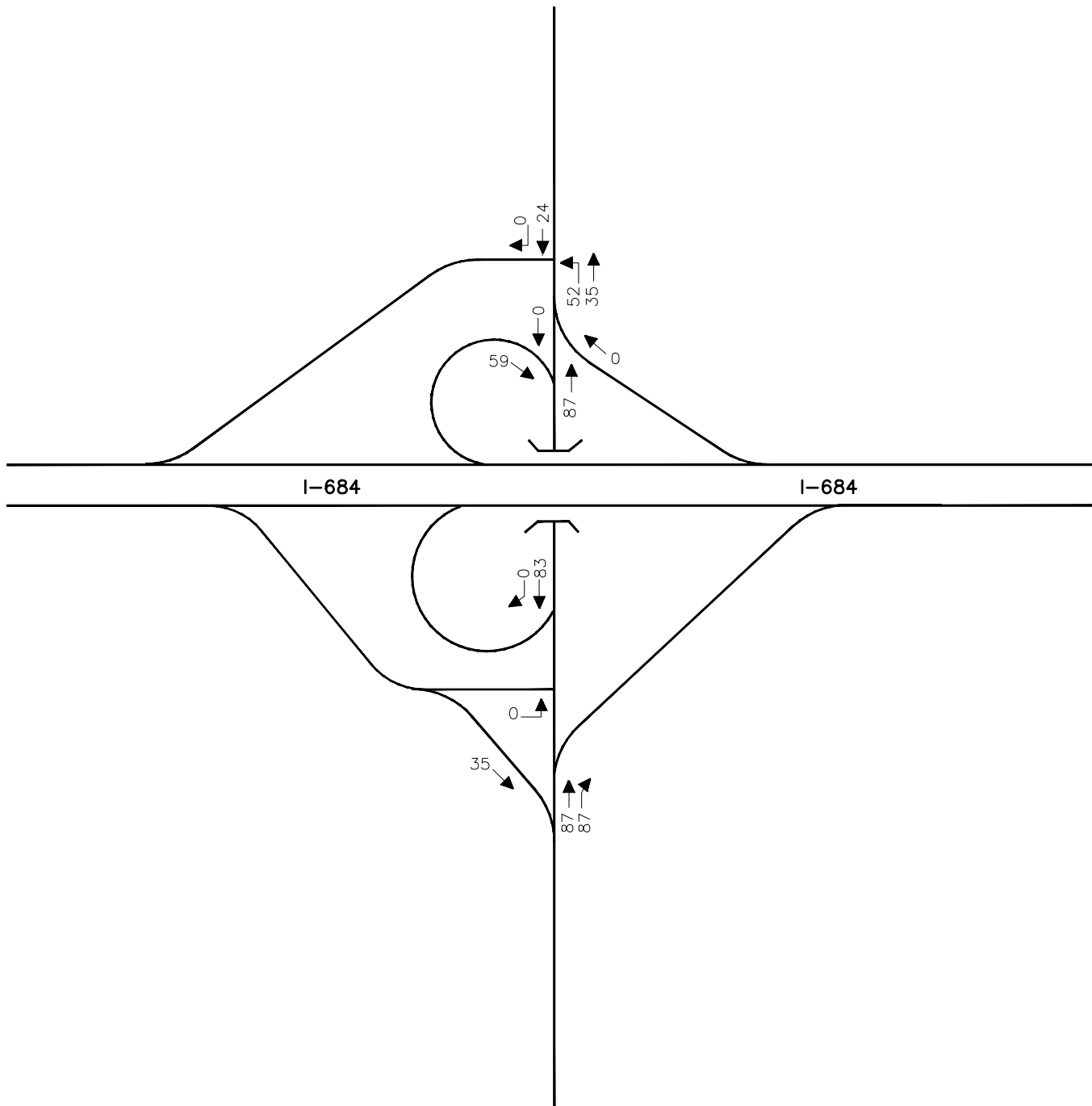
BRYNWOOD
North Castle, New York

Other Development Traffic Volumes
Weekday Peak PM Highway Hour
(5:00 PM-6:00 PM)

Exhibit
III.M-10

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

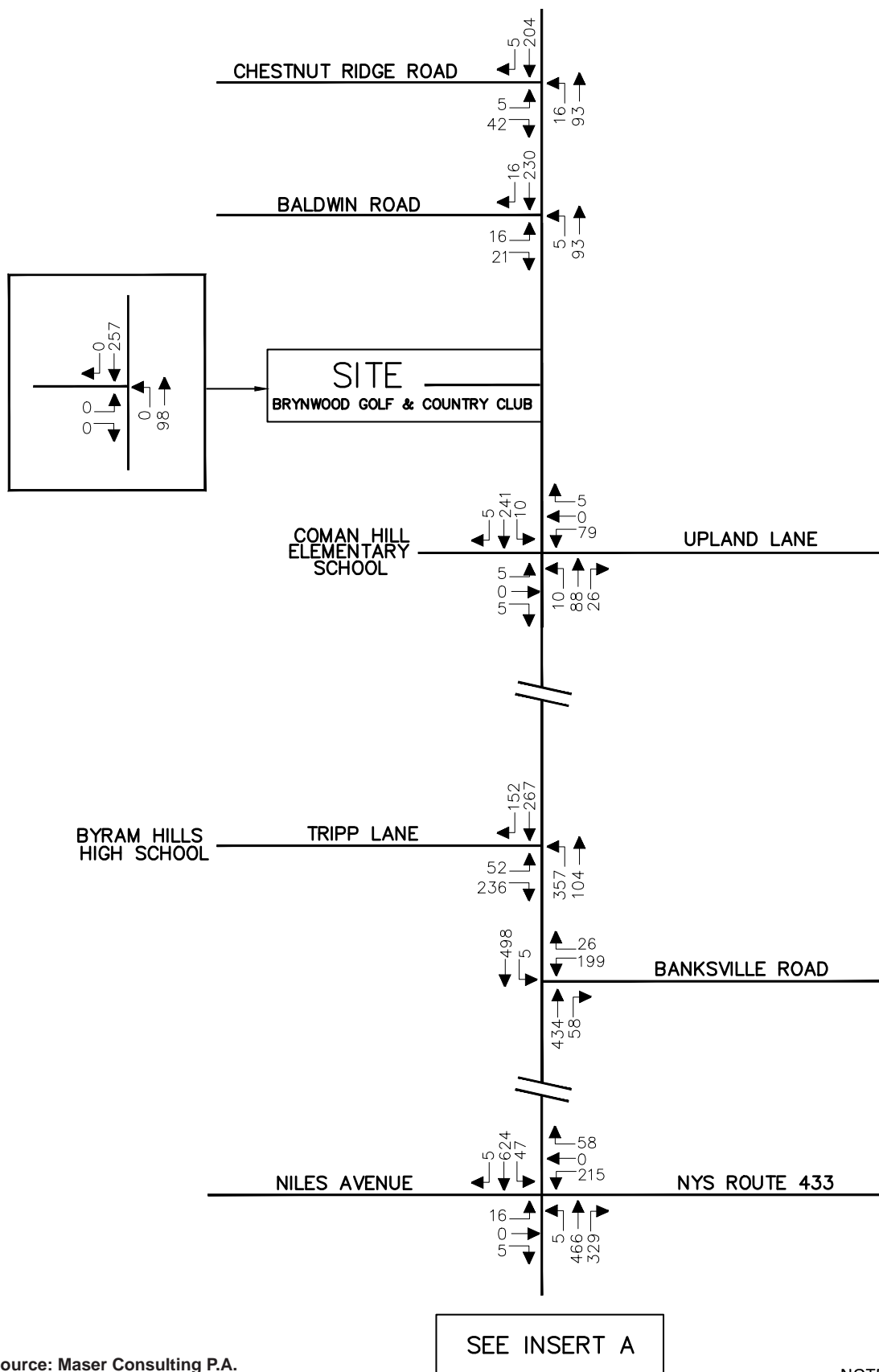
NOTE: LINE DIAGRAM NOT TO SCALE

BRYNWOOD
North Castle, New York

Other Development Traffic Volumes
Weekday Peak PM Hour
(5:00 PM-6:00 PM) (Insert A)

Exhibit
III.M-10A

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

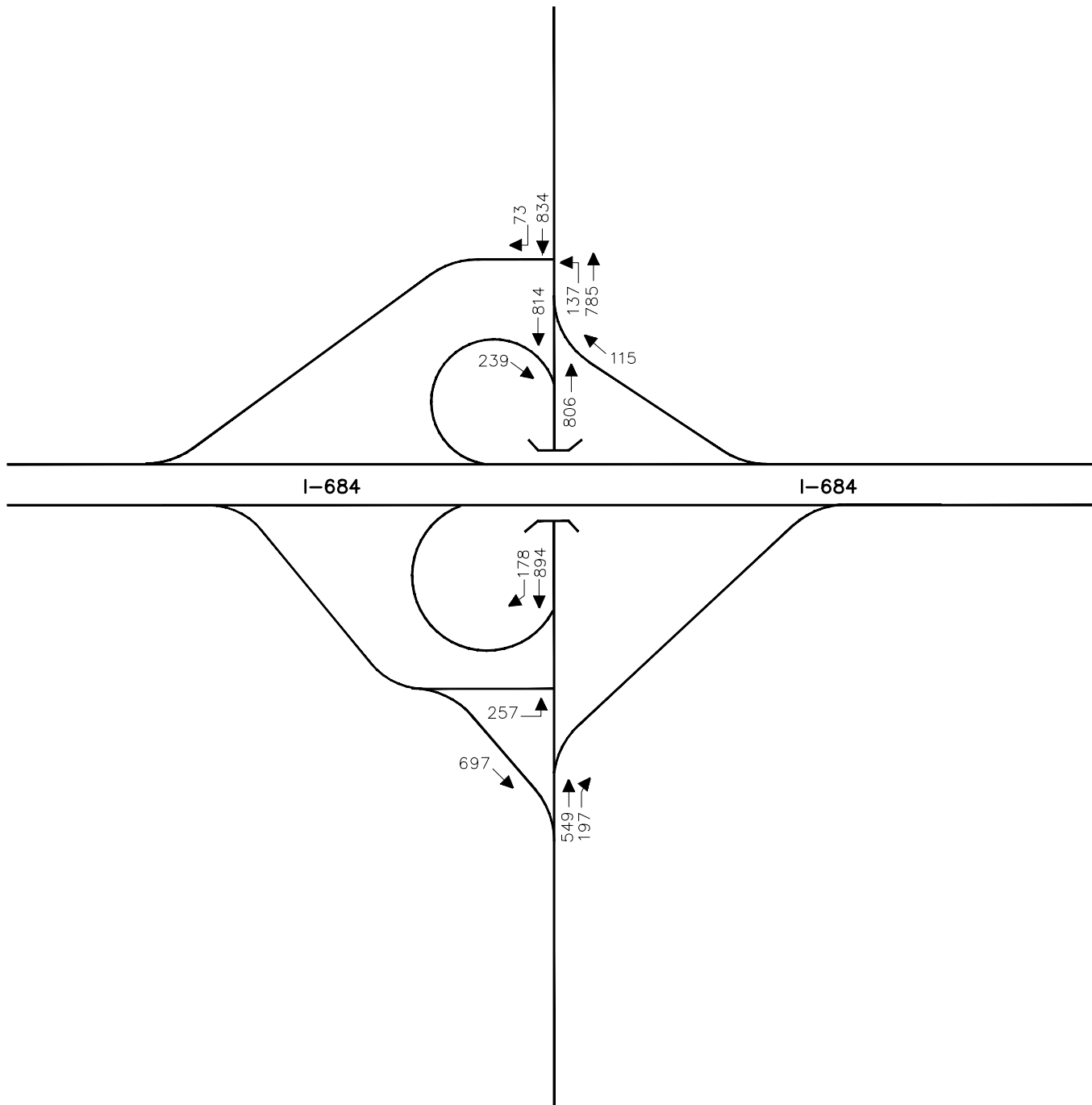
BRYNWOOD
North Castle, New York

Year 2018 No-Build Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM)

Exhibit
III.M-11

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

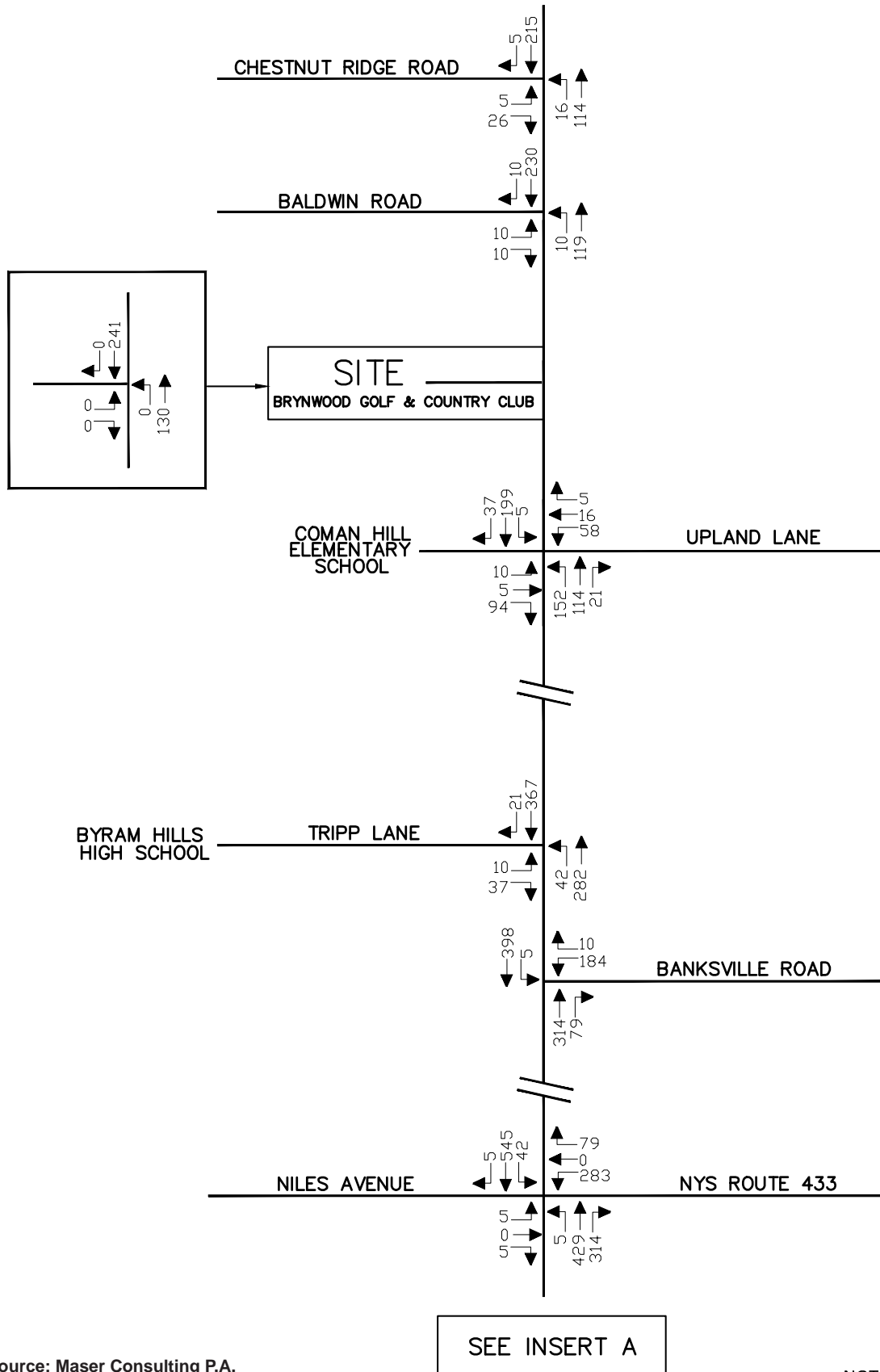
BRYNWOOD
North Castle, New York

Year 2018 No-Build Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM) (Insert A)

Exhibit
III.M-11A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

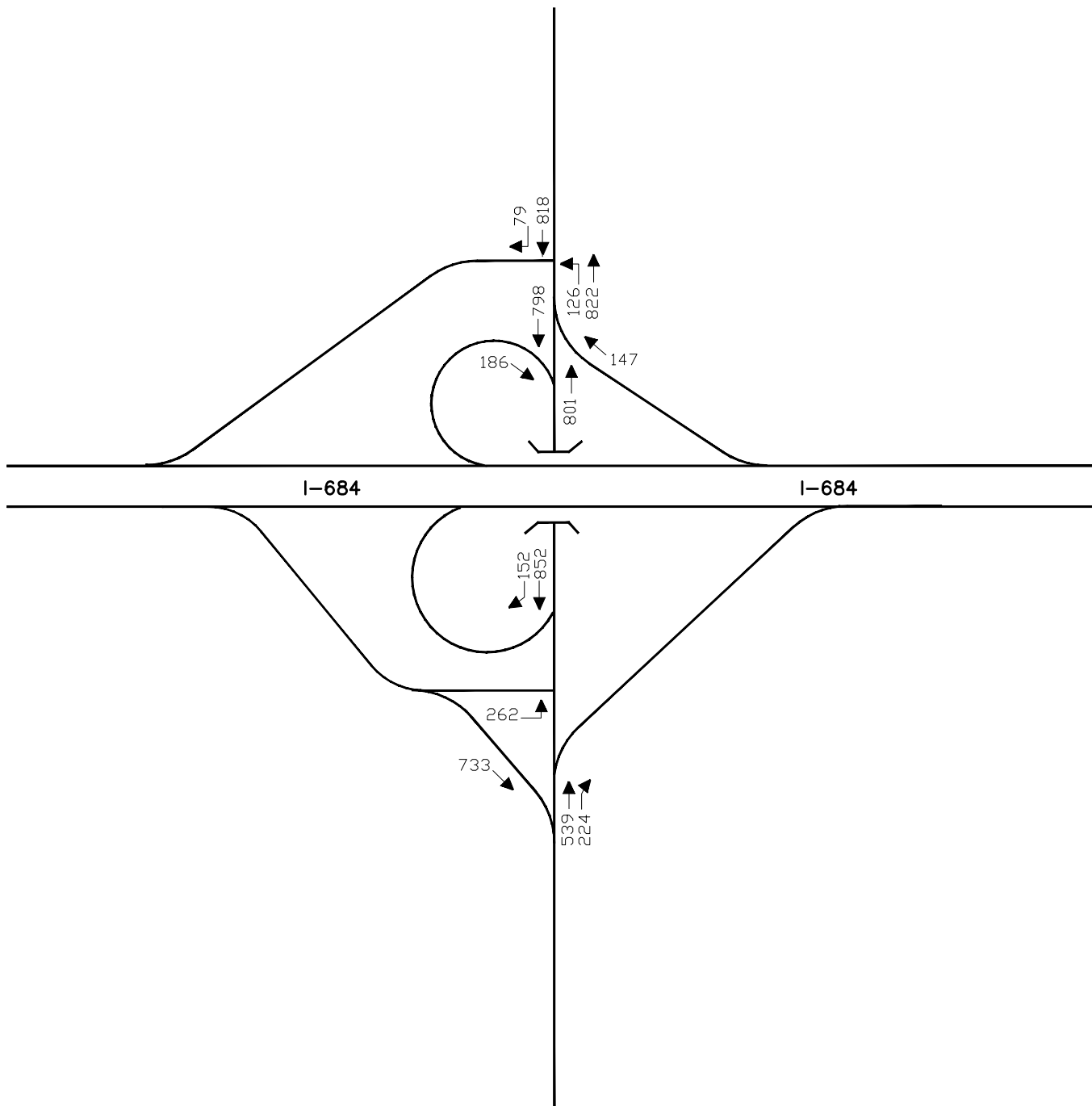
BRYNWOOD
North Castle, New York

Year 2018 No-Build Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM)

Exhibit
III.M-12

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

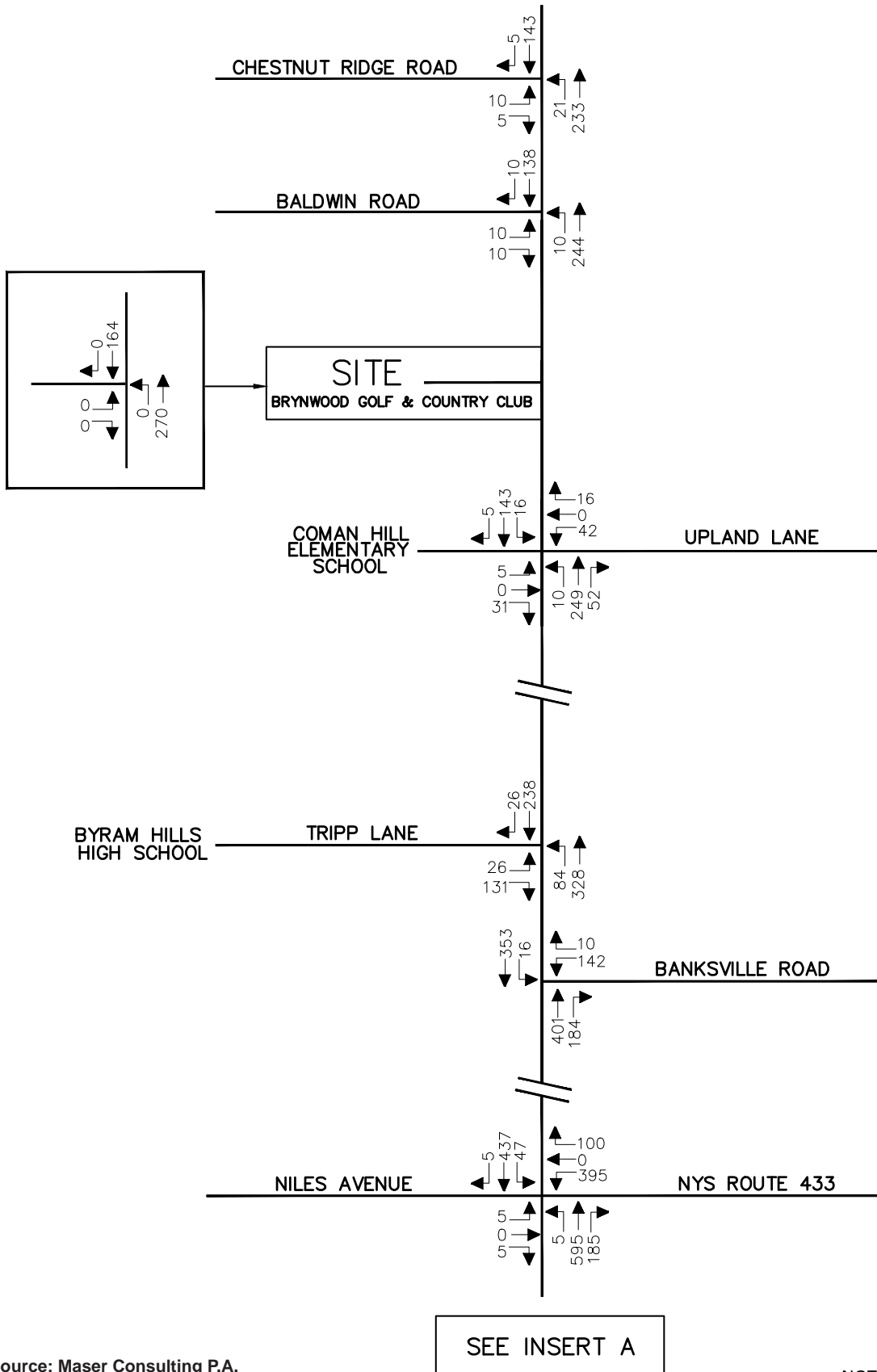
BRYNWOOD
North Castle, New York

Year 2018 No -Build Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM) (Insert A)

Exhibit
III.M-12A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

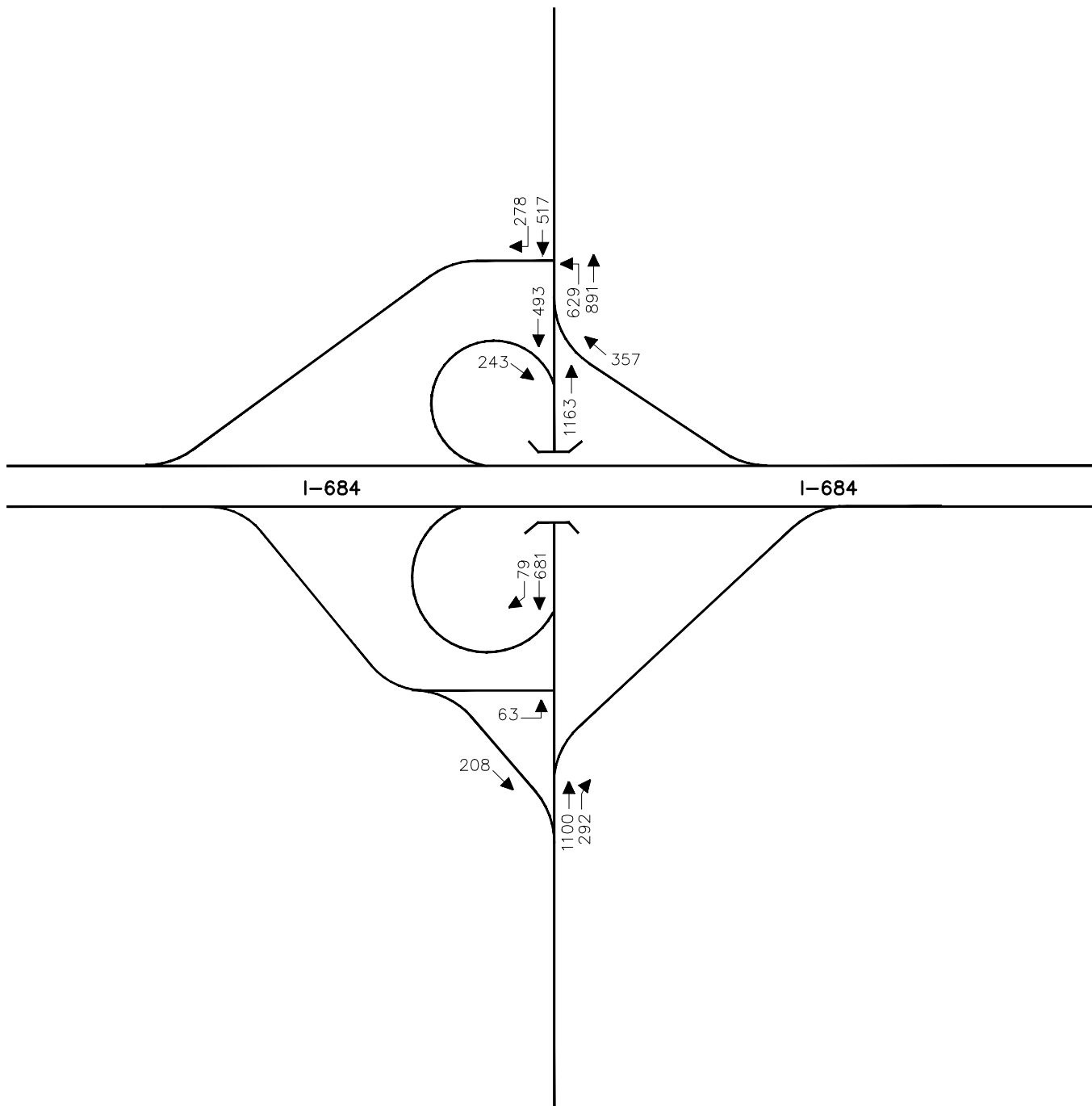
BRYNWOOD
North Castle, New York

Year 2018 No-Build Traffic Volumes
Weekday Peak PM Hour
(5:00 PM-6:00 PM)

Exhibit
III.M-13

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

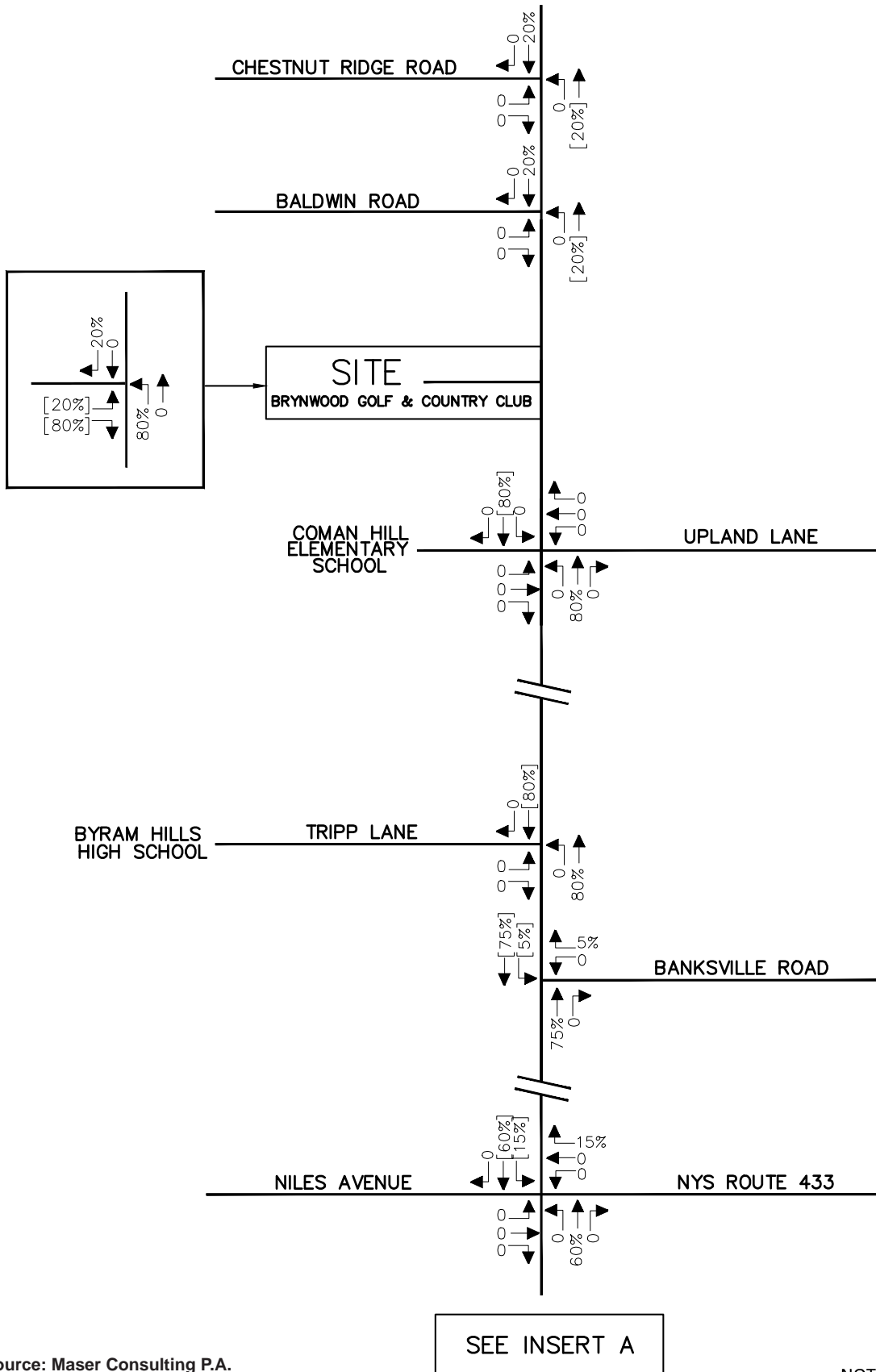
BRYNWOOD
North Castle, New York

Year 2018 No-Build Traffic Volumes
Weekday Peak PM ighway Hour
(5:00 PM-6:00 PM) (Insert A)

Exhibit
III.M-13A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

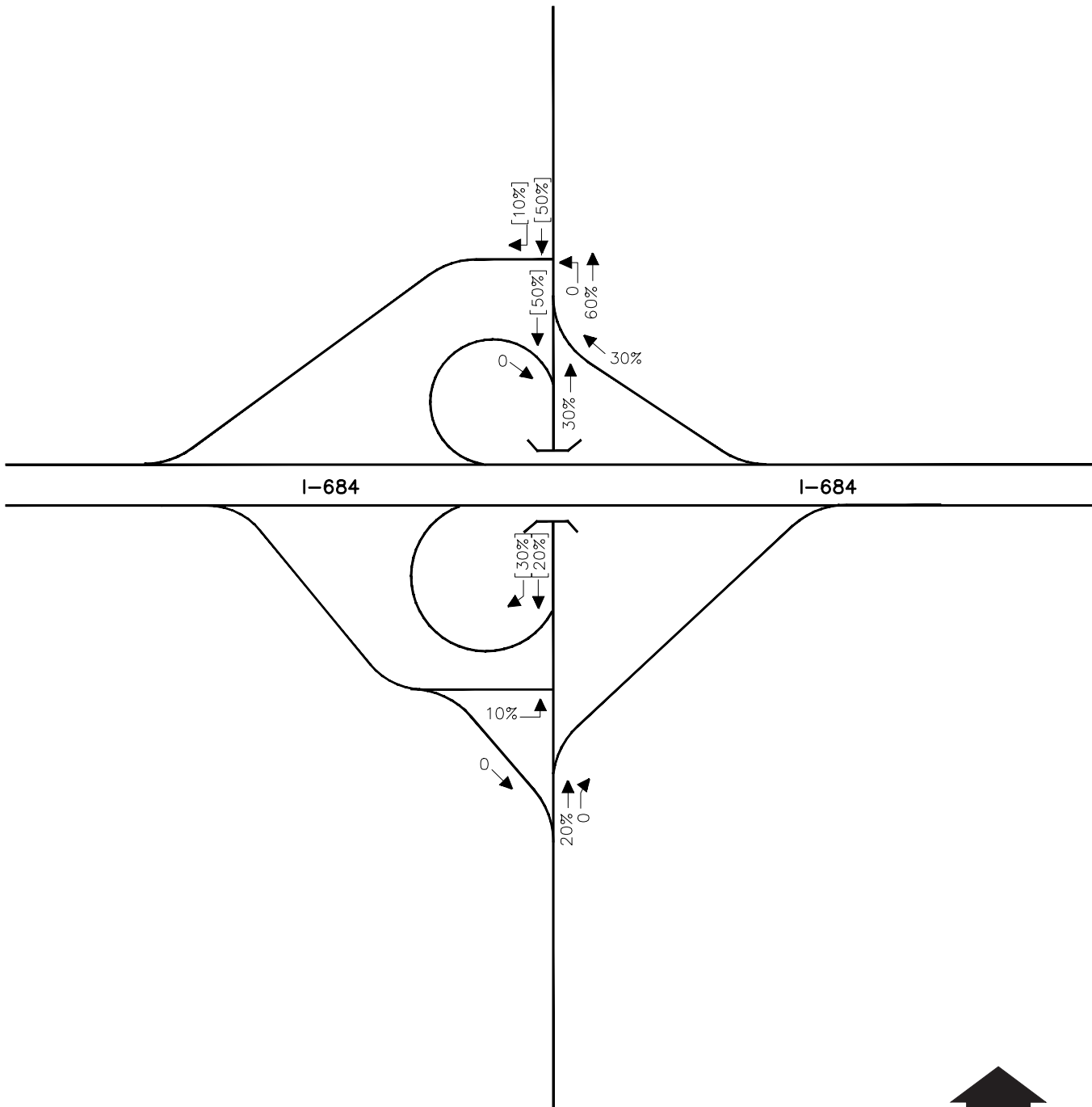
BRYNWOOD
North Castle, New York

Arrival/Departure Distribution

Exhibit
III.M-14

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)

00 - ENTERING
[00] - EXITING

Source: Maser Consulting P.A.

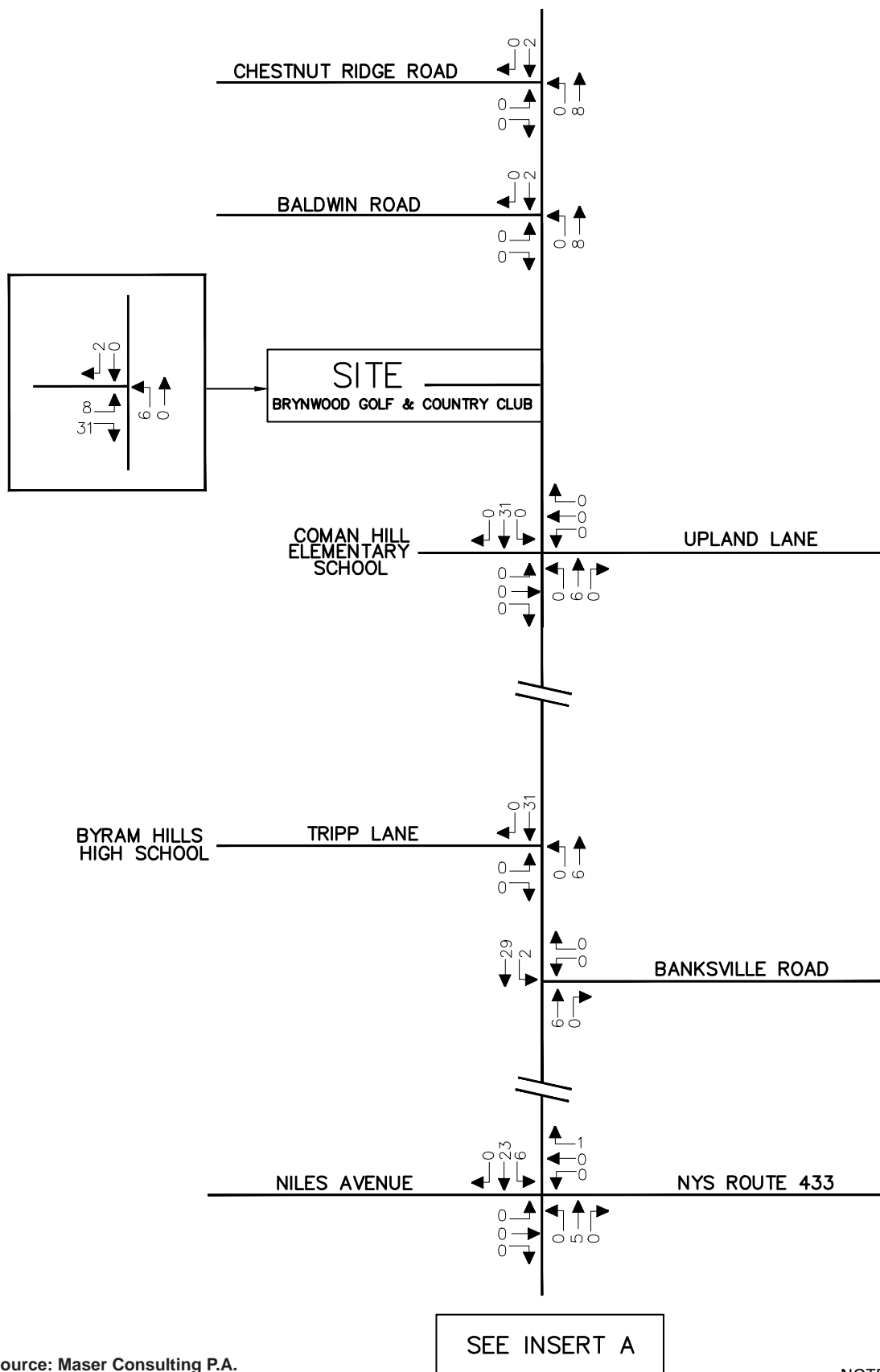
NOTE: LINE DIAGRAM NOT TO SCALE

BRYNWOOD
North Castle, New York

Arrival/Departures Distribution
(Insert A)

Exhibit
III.M-14A

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

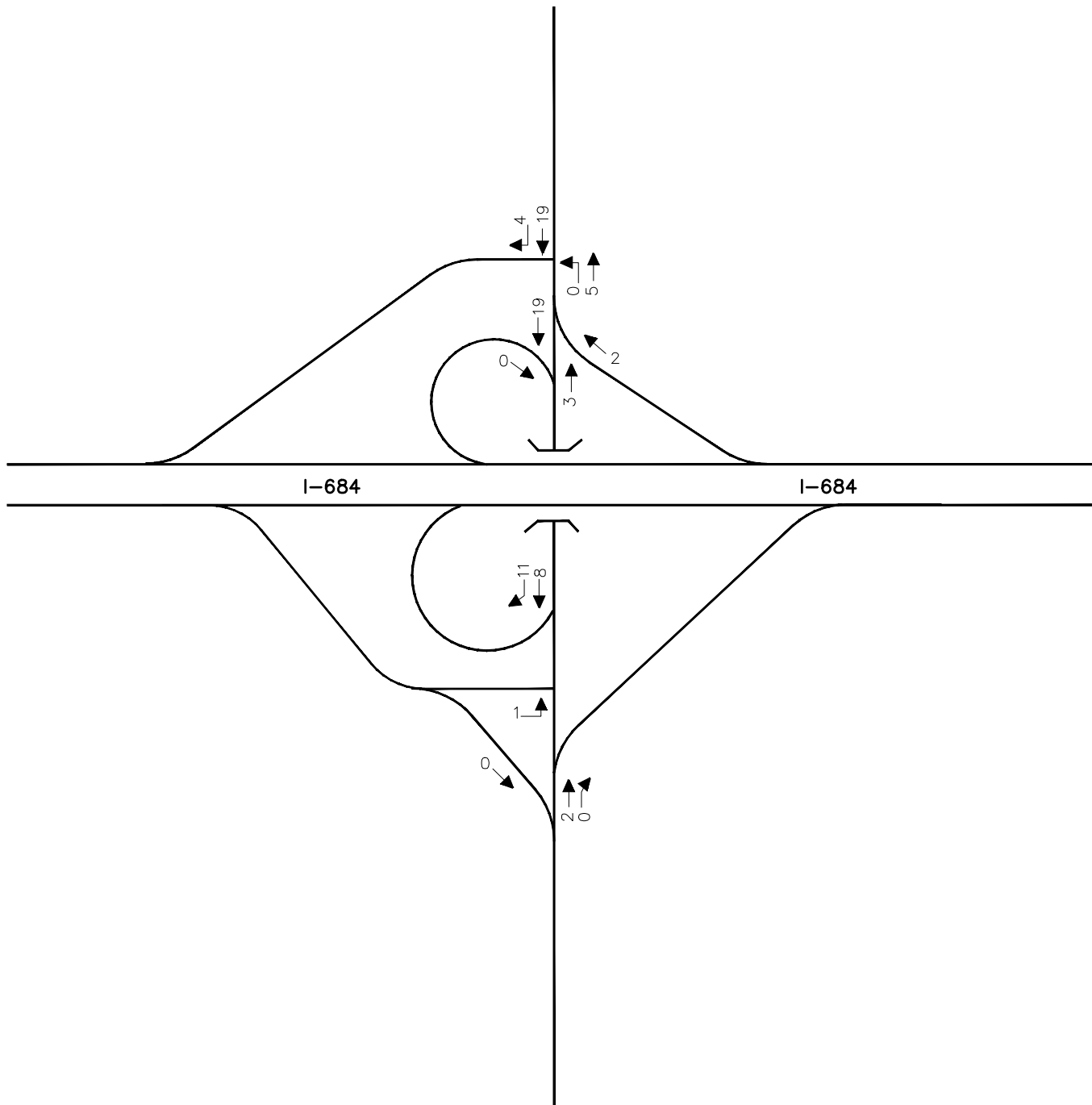
BRYNWOOD
North Castle, New York

Site Generated Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM)

Exhibit
III.M-15

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

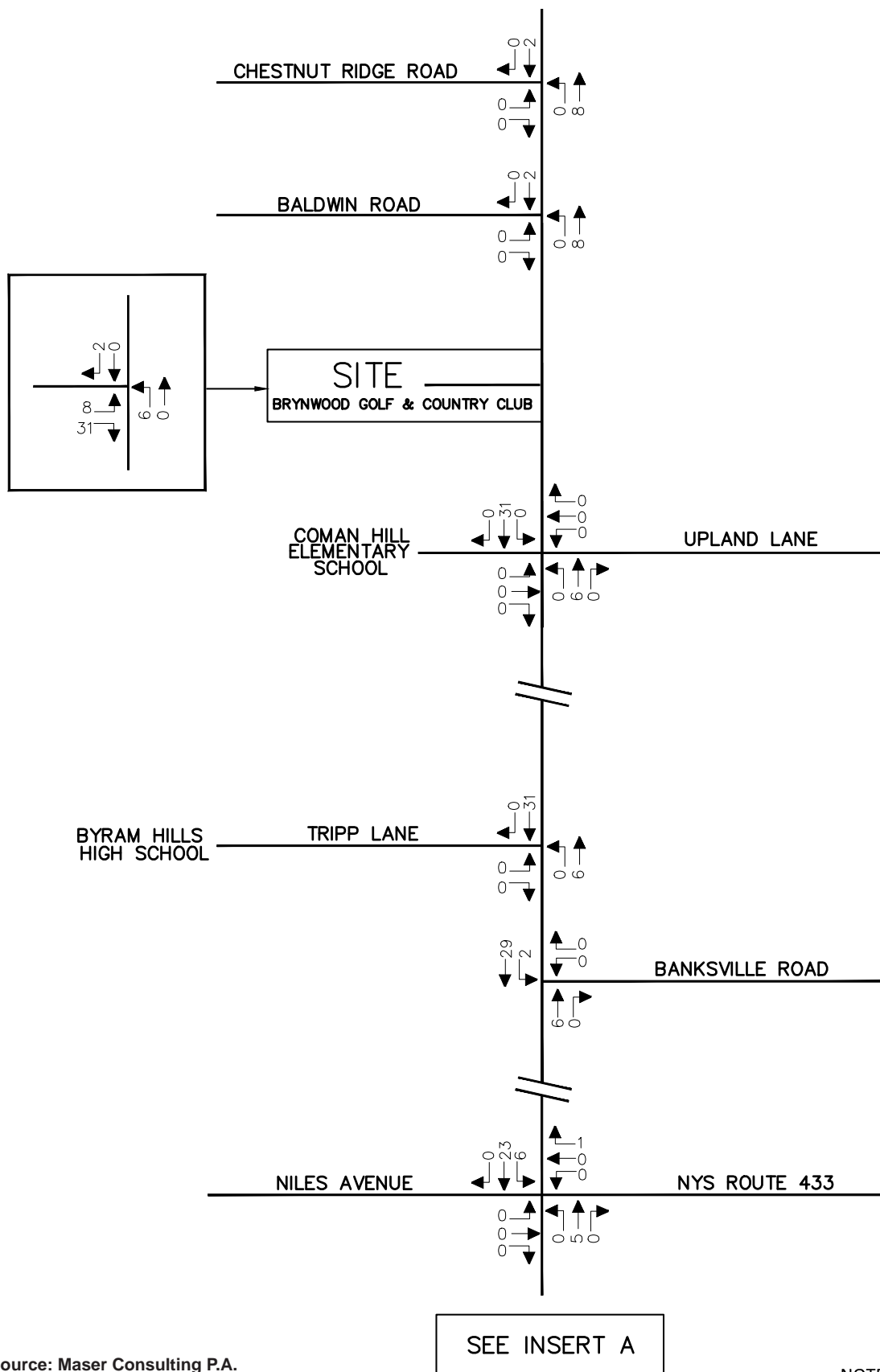
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Site Generated Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM) (Insert A)

Exhibit
III.M-15A

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

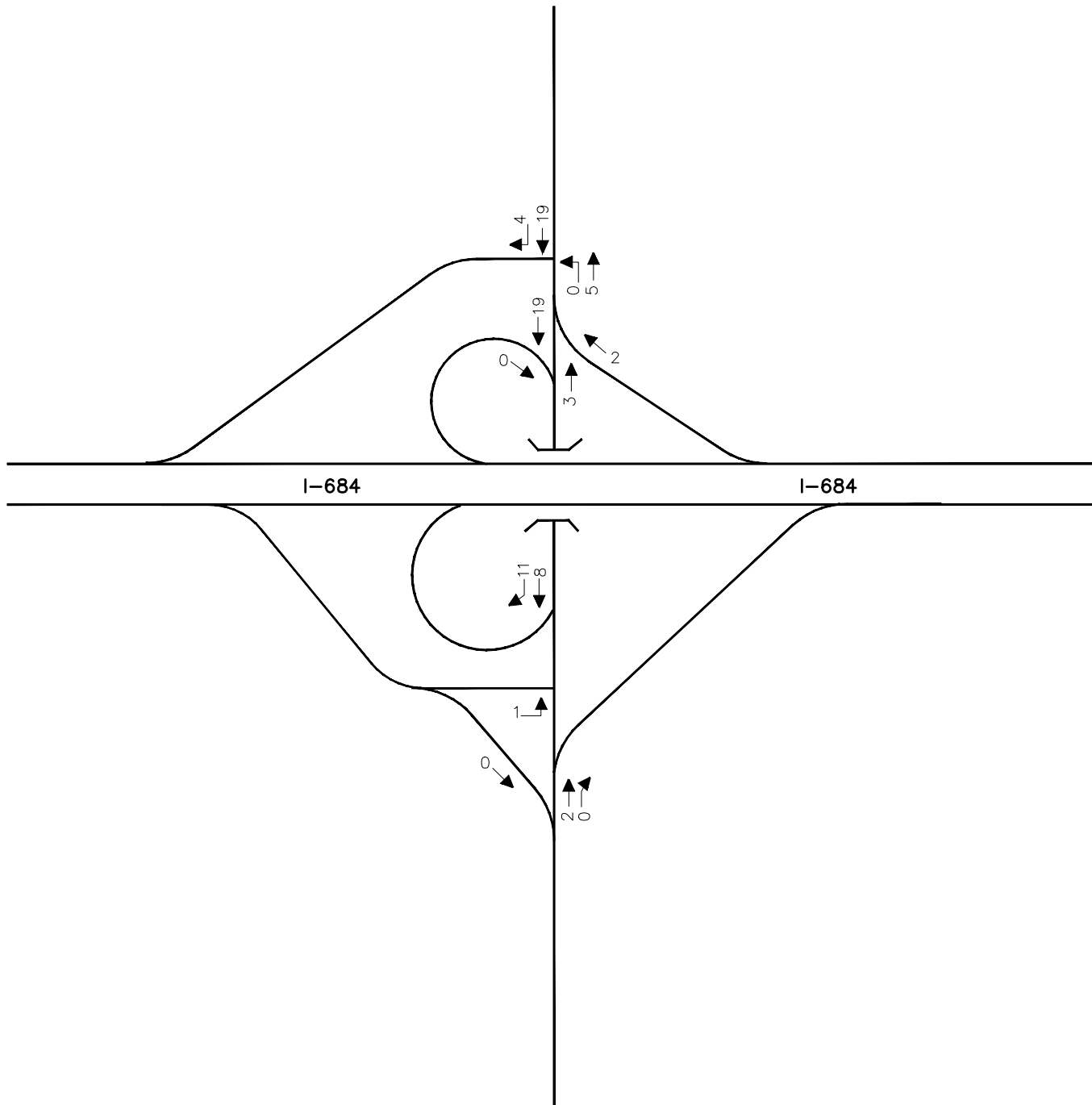
BRYNWOOD
North Castle, New York

Site Generated Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM)

Exhibit
III.M-16

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

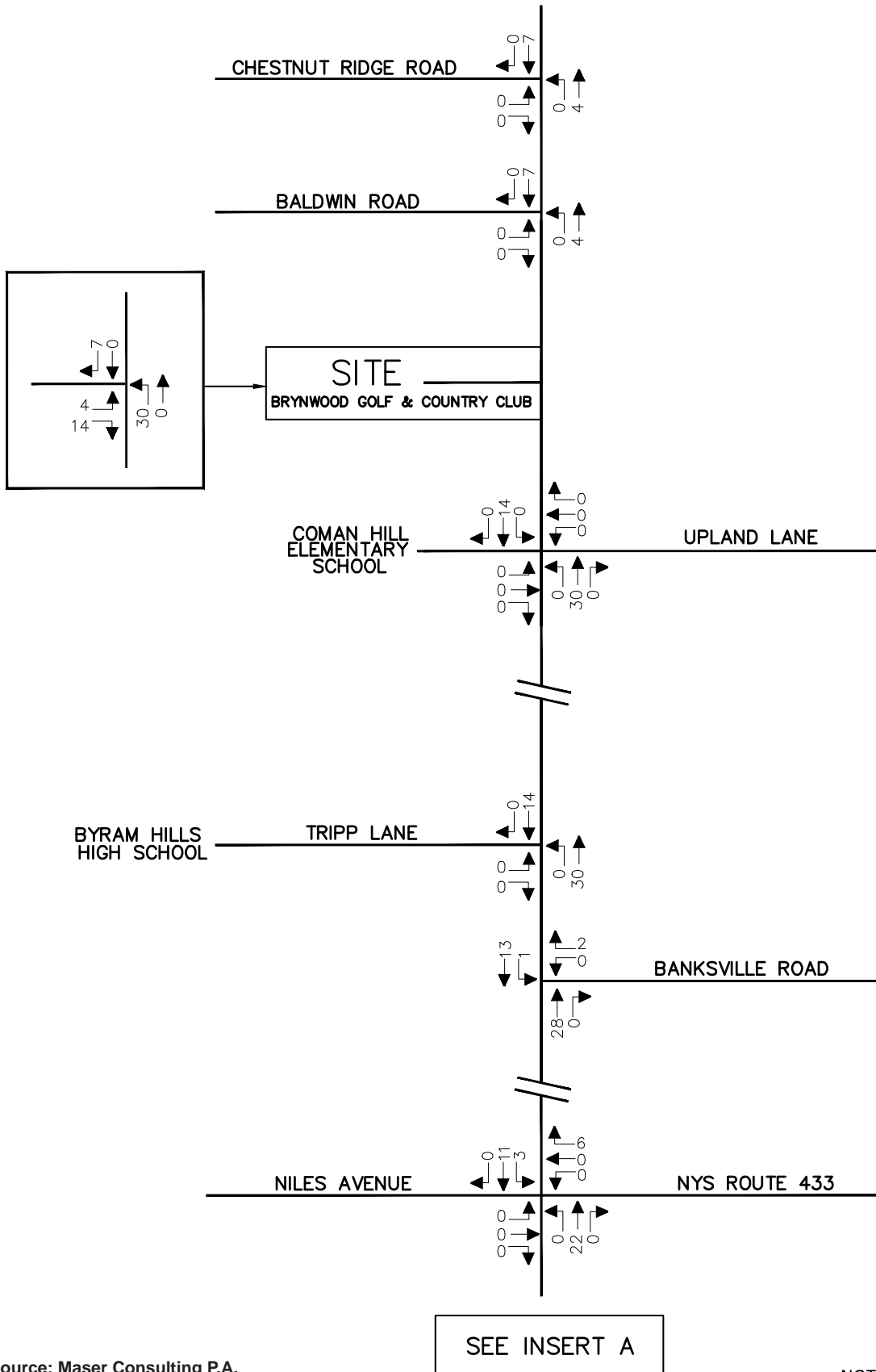
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Site Generated Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM) (Insert A)

Exhibit
III.M-16A

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

BRYNWOOD
North Castle, New York

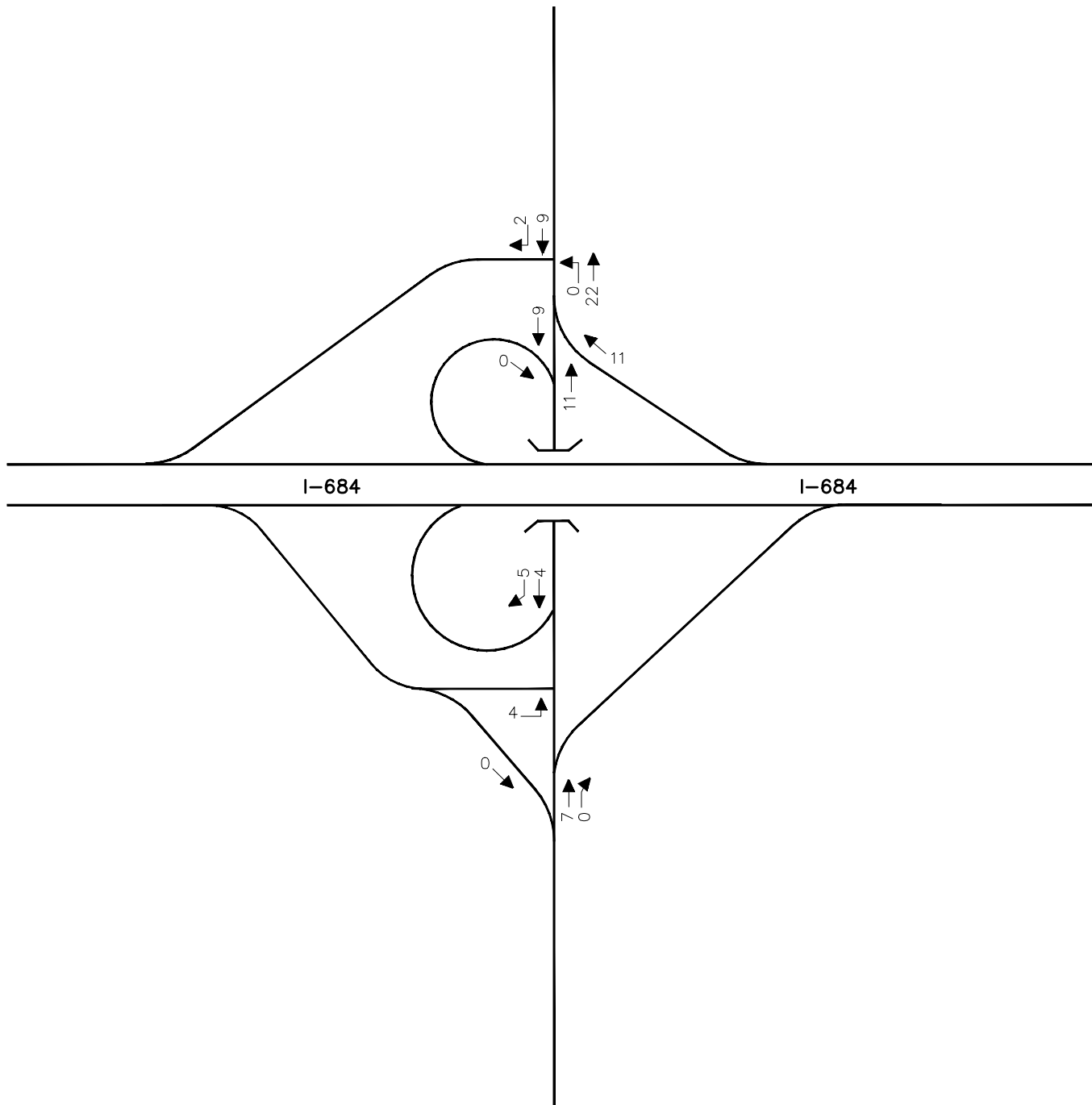
VHB Engineering, Surveying and Landscape Architecture, P.C.

Site Generated Traffic Volumes
Weekday Peak PM Hour
(5:00 PM-6:00 PM)

Exhibit
III.M-17

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

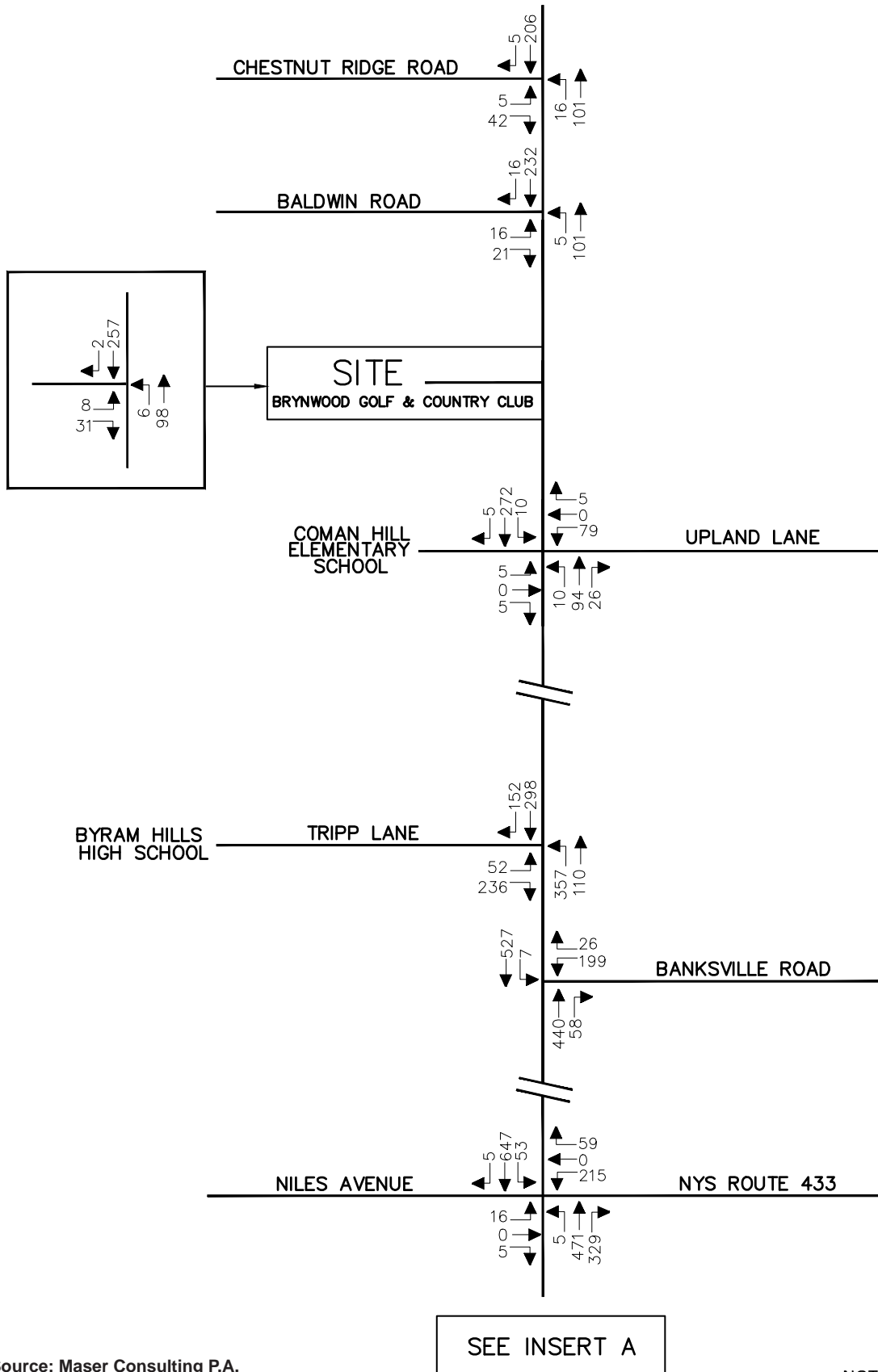
BRYNWOOD
North Castle, New York

Site Generated Traffic Volumes
Weekday Peak PM Highway Hour
(5:00 PM-6:00 PM) (Insert A)

Exhibit
III.M-17A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

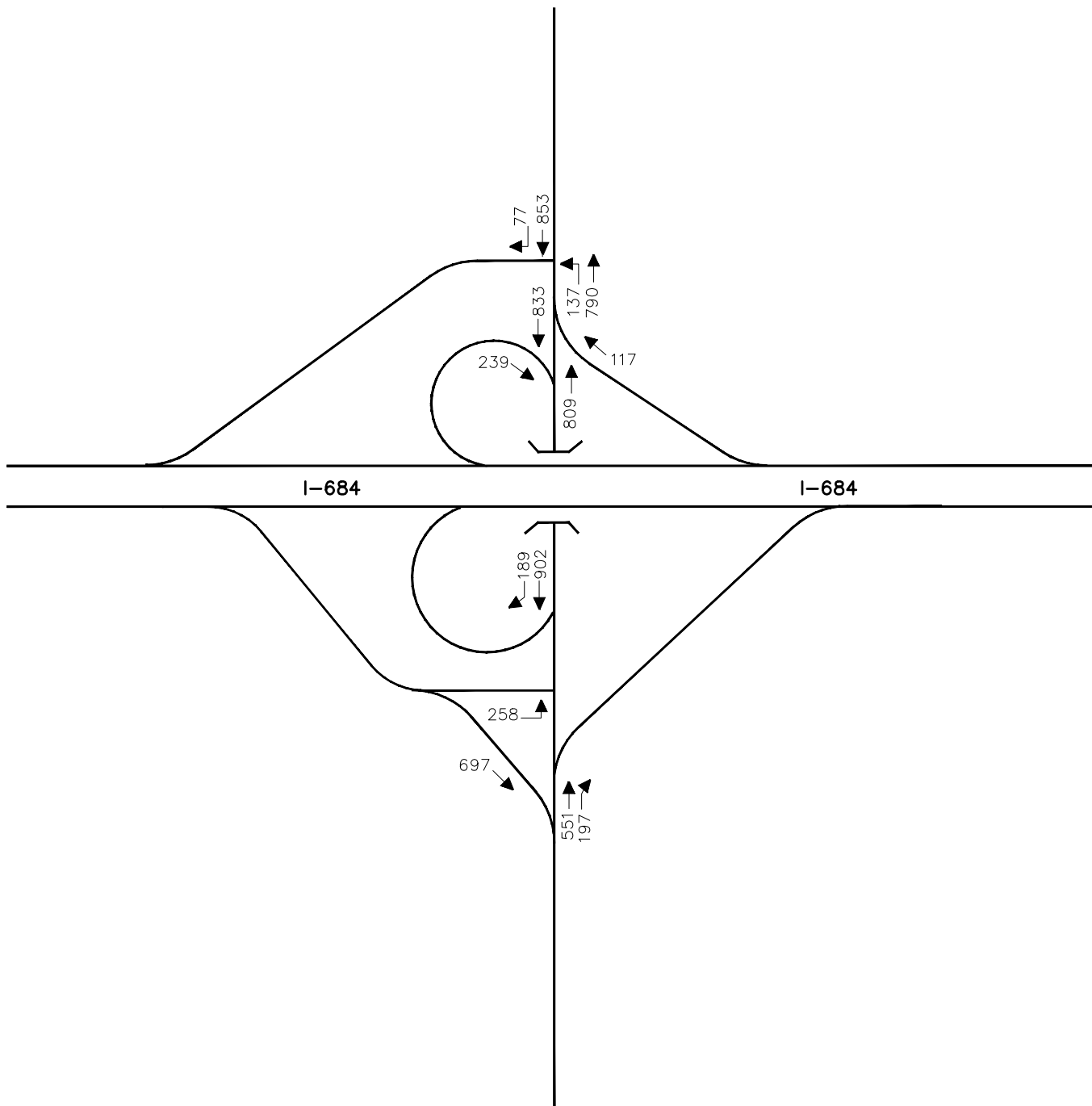
BRYNWOOD
North Castle, New York

Year 2018 Build Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM)

Exhibit
III.M-18

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

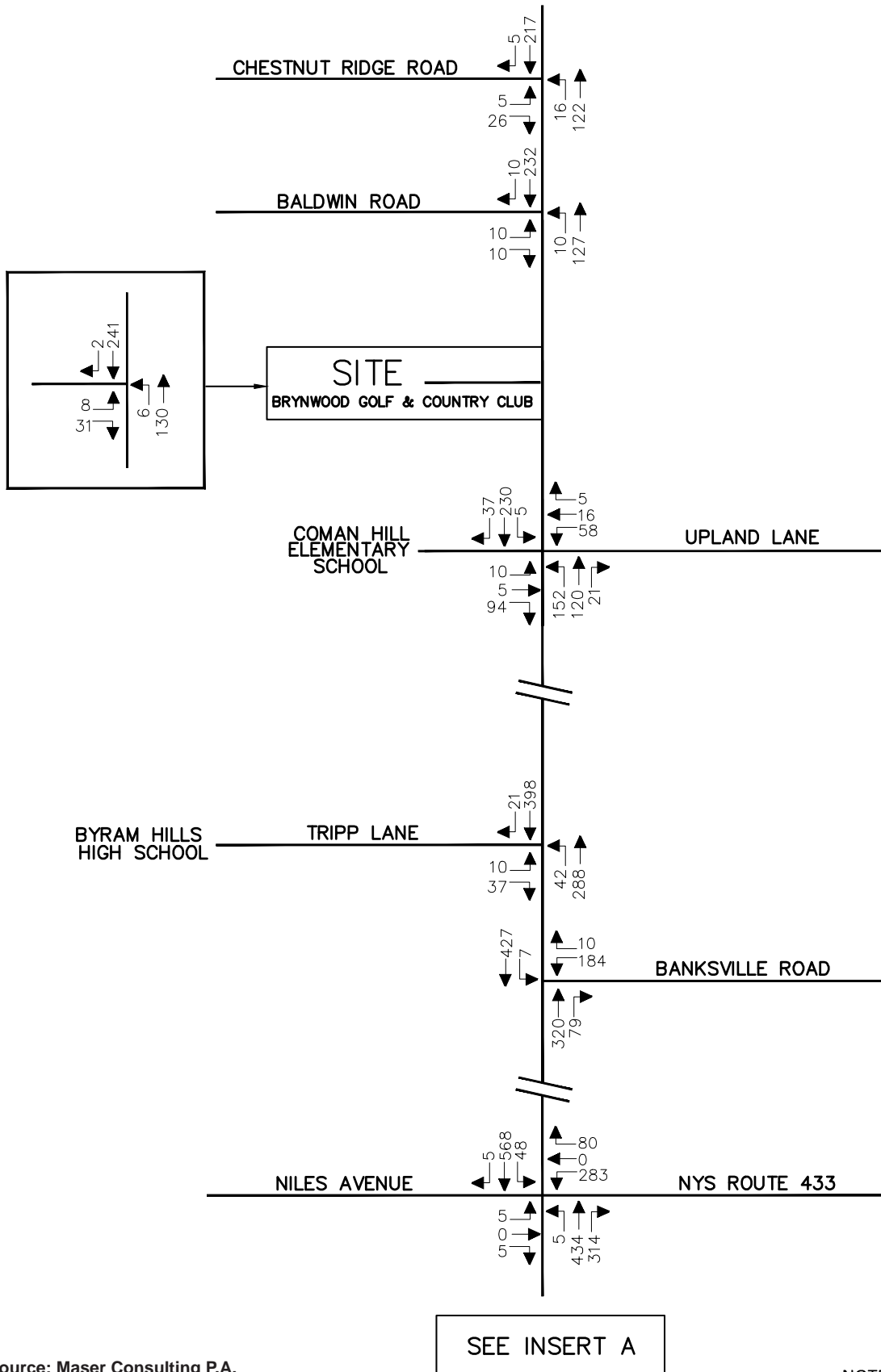
BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Year 2018 Build Traffic Volumes
Weekday Peak AM Hour
(7:00 AM-8:00 AM) (Insert A)

Exhibit
III.M-18A

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

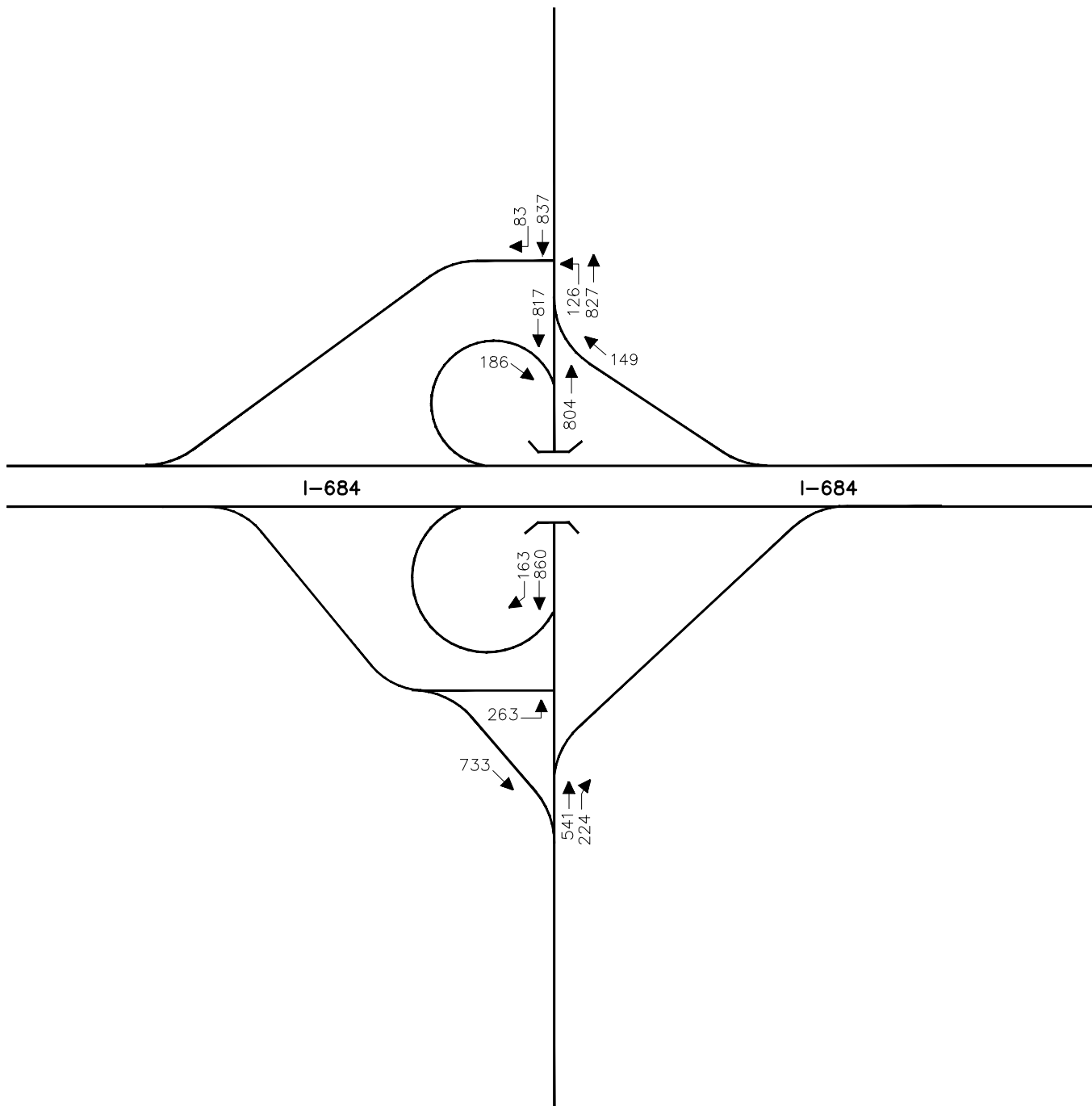
BRYNWOOD
North Castle, New York

Year 2018 Build Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM)

Exhibit
III.M-19

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

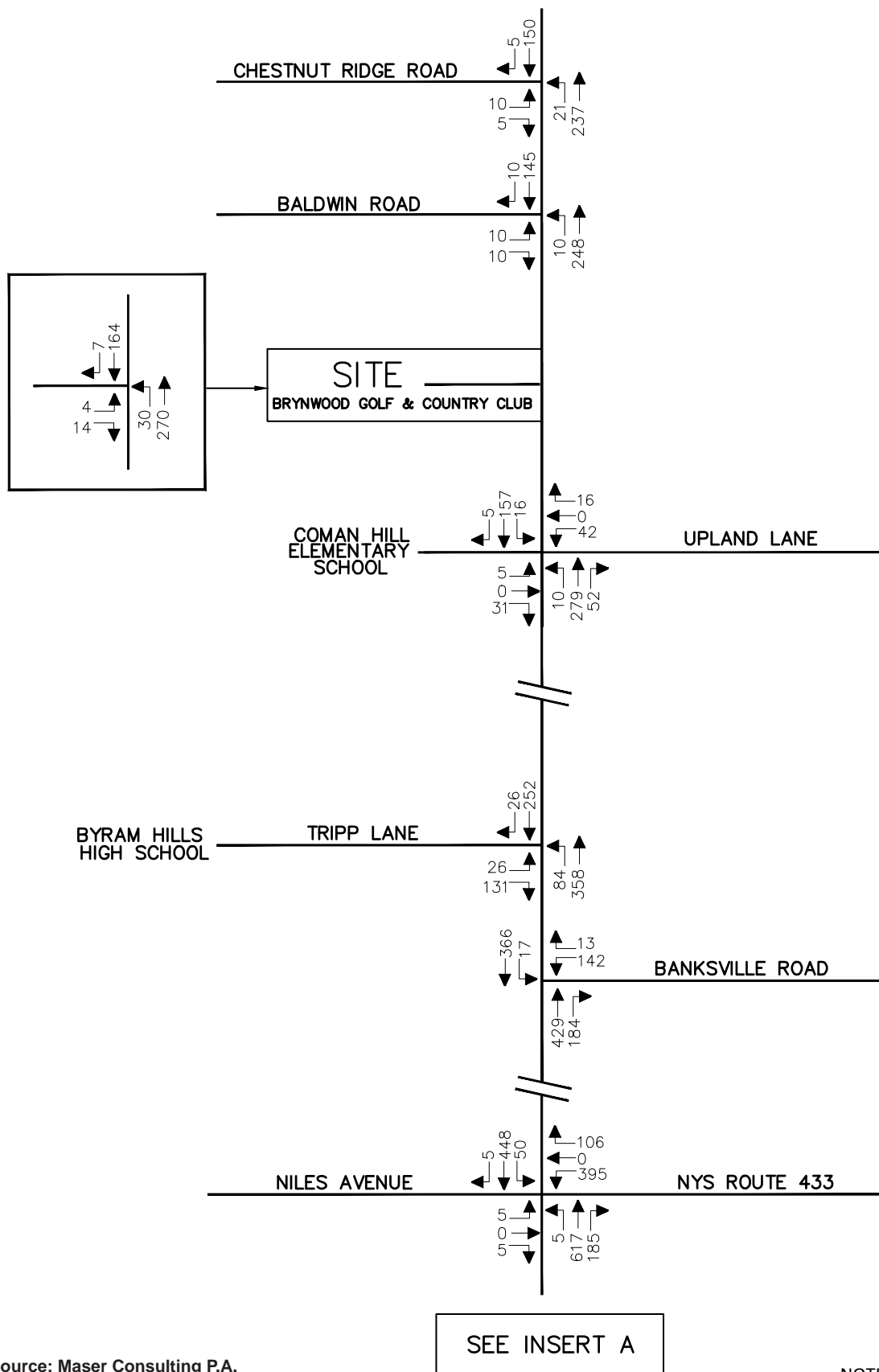
BRYNWOOD
North Castle, New York

Year 2018 Build Traffic Volumes
Weekday Peak AM Hour
(8:15 AM-9:15 AM) (Insert A)

Exhibit
III.M-19A

VHB Engineering, Surveying and Landscape Architecture, P.C.

NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

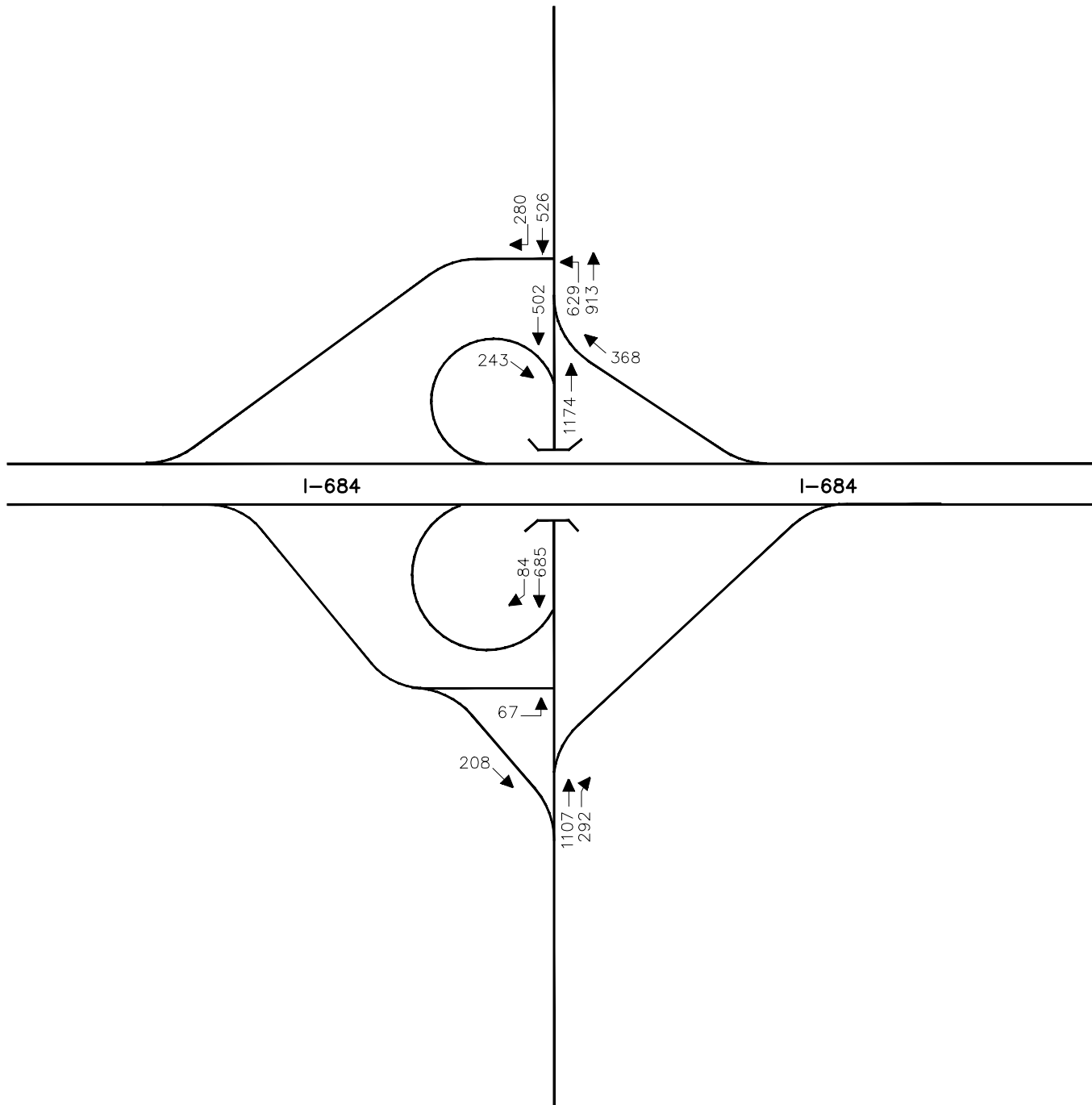
BRYNWOOD
North Castle, New York

Year 2018 Build Traffic Volumes
Weekday Peak PM Hour
(5:00 PM-6:00 PM)

Exhibit
III.M-20

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

BRYNWOOD
North Castle, New York

Year 2018 Build Traffic Volumes
Weekday Peak PM Hour
(5:00 PM-6:00 PM) (Insert A)

Exhibit
III.M-20A



NOT FOR CONSTRUCTION

NO. 1 ALTERNATIVE OF ROAD, REPRESENTING
HARD AND IMPROVED, REMAINS AS A
PROPOSED ROAD, AND IS NOT A FINAL
DESIGN. THE ROAD IS NOT TO BE
CONSTRUCTED, AND IS NOT TO BE
USED FOR CONSTRUCTION.

Base Map Source: John Meyer Consulting, PC

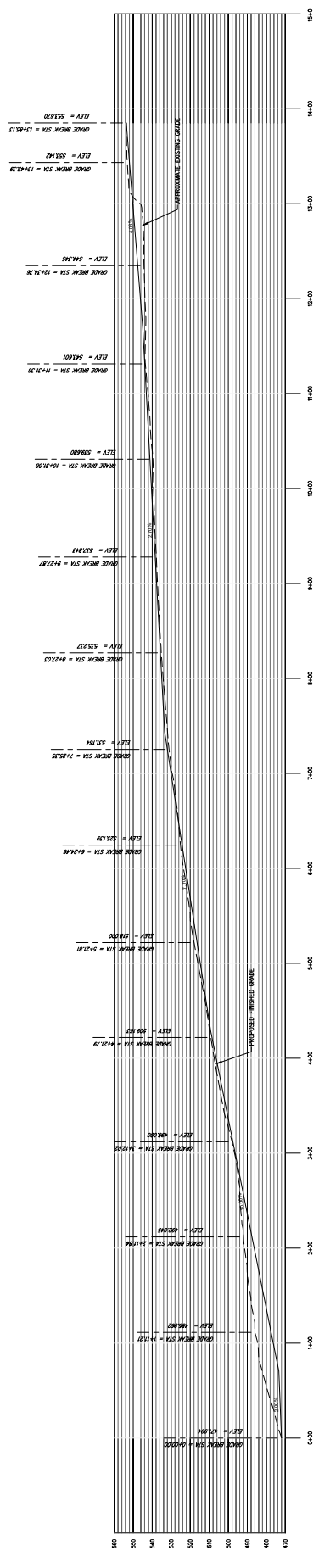
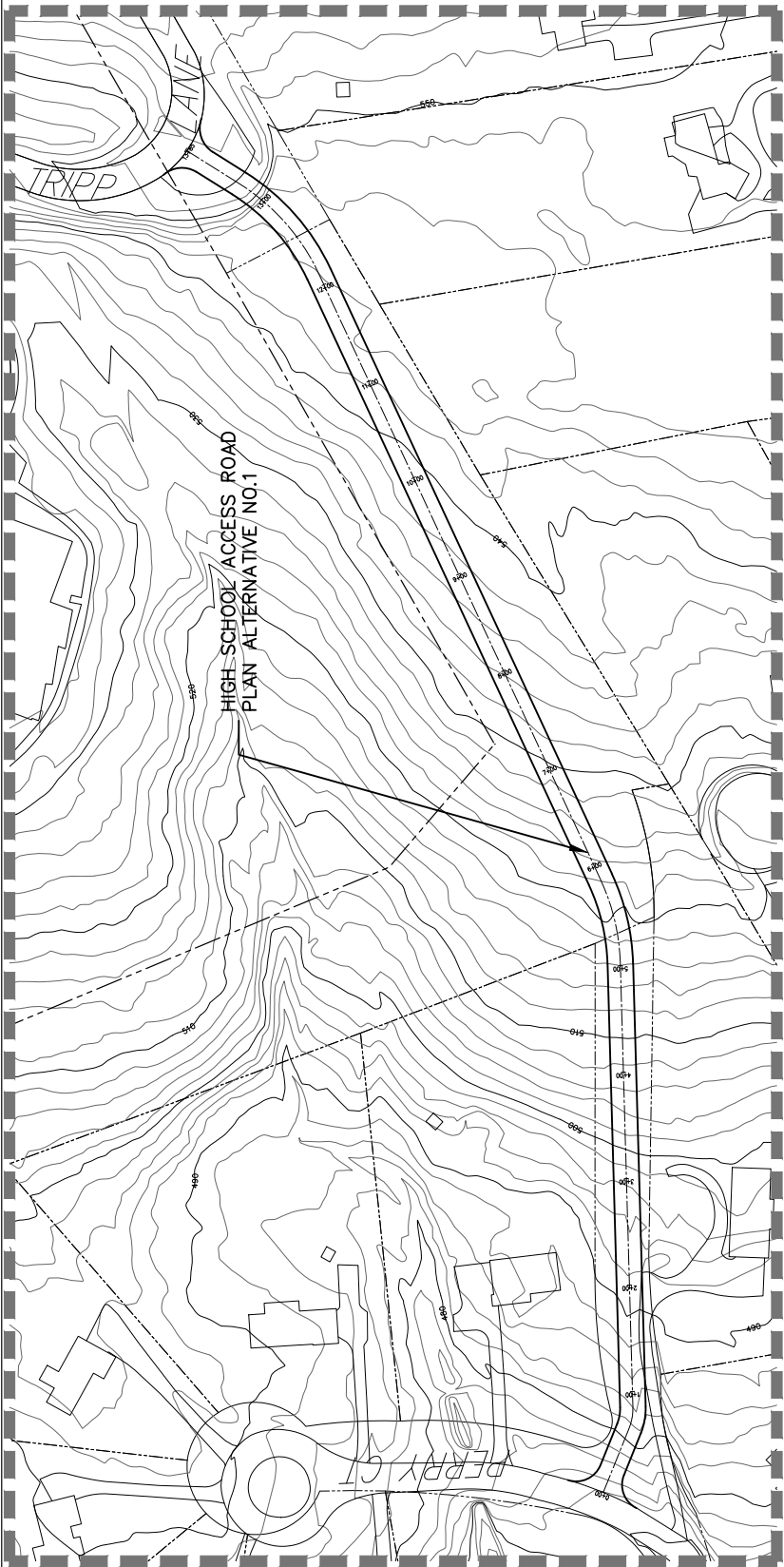
BRYNWOOD

North Castle, New York

YMB Engineering, Surveying and Landscape Architecture, PC.

High School Access Road Plan
(Key Map)

Exhibit
III.M-21



NOT FOR CONSTRUCTION

PROPOSED ROAD PROFILE
VERTICAL SCALE: 1"=5'
HORIZONTAL SCALE: 1"=40'

Base Map Source: John Meyer Consulting, PC

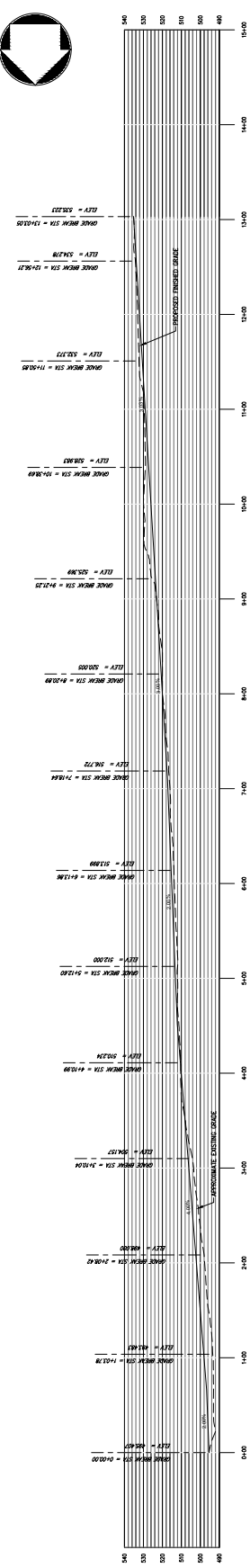
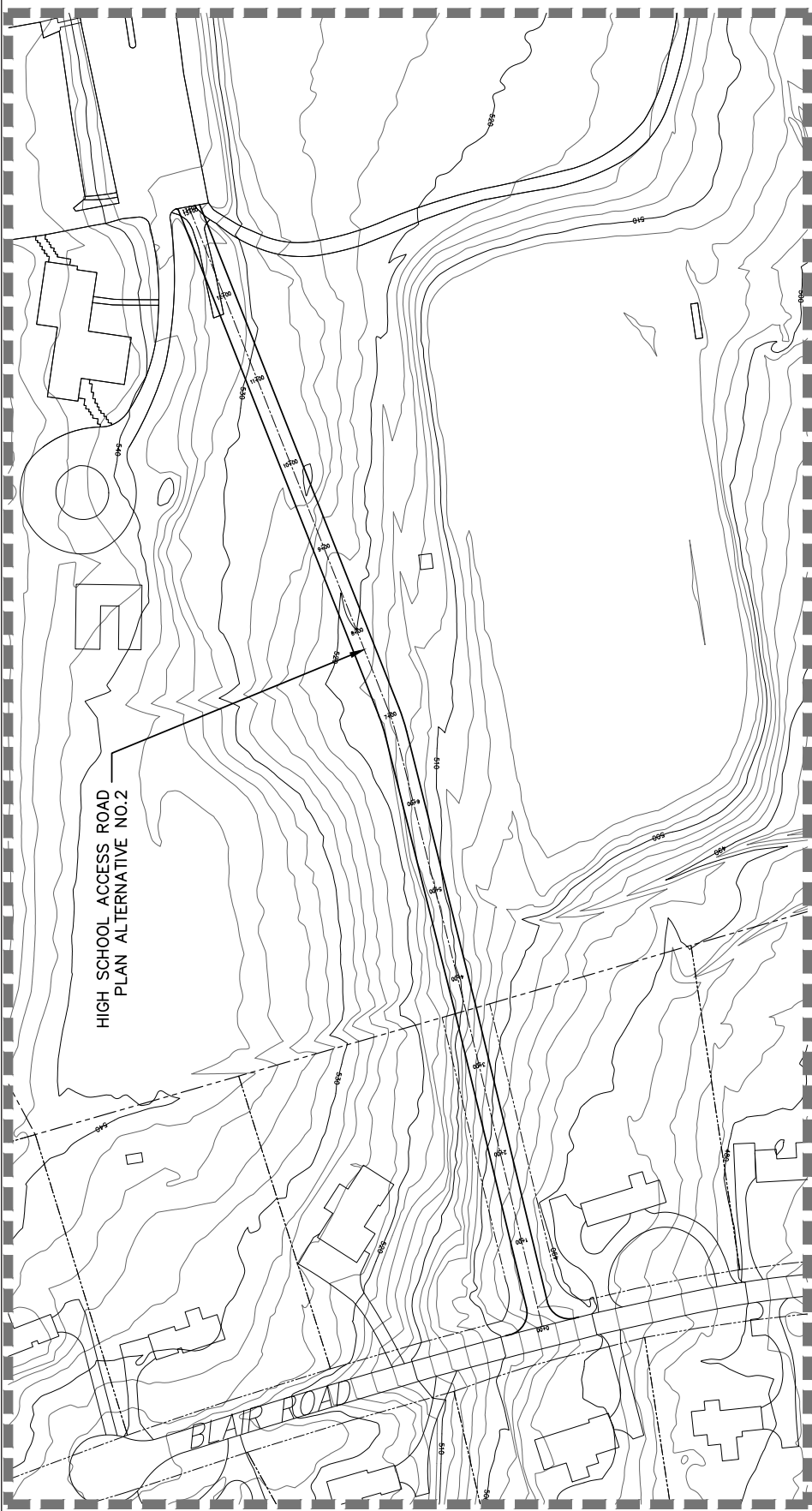
BRYNWOOD

North Castle, New York

YMB Engineering, Surveying and Landscape Architecture, PC.

High School Access Road Plan
Alternative 1

Exhibit
III.M-22



PROPOSED ROAD PROFILE
 HORIZONTAL SCALE: 1"=40'
 VERTICAL SCALE: 1"=40'

NOT FOR CONSTRUCTION

ALL ELEVATIONS ARE BASED ON THE NATIONAL DATUM. THE ELEVATION OF THE SURFACE OF THE ROAD SHALL BE THE ELEVATION OF THE SURFACE OF THE ROAD. THE ELEVATION OF THE SURFACE OF THE ROAD SHALL BE THE ELEVATION OF THE SURFACE OF THE ROAD. THE ELEVATION OF THE SURFACE OF THE ROAD SHALL BE THE ELEVATION OF THE SURFACE OF THE ROAD.

Base Map Source: John Meyer Consulting, PC

BRYNWOOD

North Castle, New York

YMB Engineering, Surveying and Landscape Architecture, PC.

High School Access Road Plan

Alternative 2

Exhibit

III.M-23

N. Socioeconomic/Fiscal Resources

1. Existing Conditions

a) Demographic Characteristics of the Town

The total population of the Town of North Castle was 11,841 in 2010, an increase of approximately 1,000 people from 2000. The median age was 42 years, up by 2.5 years from the year 2000. The median household income was estimated in 2011 at \$141,576, an increase from \$117,815 in 2000. The Westchester County median income from 2011 was \$80,725.

Table III.N-1
Town of North Castle, Population by Race

Race	# of People 2010	# of People 2000	% Difference
White	10,629	10,022	6.1%
Black or African American	185	191	-3.1%
Hispanic or Latino (of any race)	906	449	102.0%
Asian	590	430	37.2%
Other	221	76	190.8%

Source: US Census, American Fact Finder 2010 and 2000 data.

The total number of housing units in the Town was 4,135 in 2010, an increase of 11.6% from 3,706 in 2000. Approximately 87% of occupied housing units in the Town are owner-occupied; the remaining 13% are renter-occupied.

b) Existing Tax Revenues

The Applicant currently pays \$275,671 in property taxes to the Town, Byram Hills School District and County. The Byram Hills School District receives 67% of the total tax revenues or \$184,729.

The Applicant also pays sales taxes to New York State and Westchester County. For 2012, the Applicant paid \$128,575 in sales taxes. Sales taxes are collected for sales made in the pro shop for merchandise, as well as food and beverage sales, including catering. Sales taxes are distributed to New York State (4%), Westchester County (3%) and the Metropolitan Transportation Authority (0.375%). The Town of North Castle does not directly receive sales tax revenue; however the County does remit a portion of local sales tax revenue to the Town and School District.

Table III.N-2 shows the existing tax breakdown by jurisdiction.

**Table III.N-2
Existing Taxes Paid Per Jurisdiction**

Jurisdiction	Taxes Paid
Property Taxes	
Byram Hill School District	\$ 181,729.29
Westchester County	\$ 44,654.12
Town of North Castle	\$ 44,103.85
Ambulance District #2	\$ 532.80
Fire District #2	\$ 4,651.09
Property Tax Total	\$ 275,671.15
Sales Taxes	
New York State	\$ 69,735.59
Westchester County	\$ 52,301.69
MTA	\$ 6,537.71
Sales Tax Total	\$ 128,574.99

c) Existing Brynwood Golf & Country Club Employees

Brynwood Golf & Country Club has 92 full time equivalent (FTE) employees during the peak month of July. During January, when activity is reduced, the Club employs 28 full time equivalent employees. Along with the North Castle Recreation Department and Breezewood Day Camp, the Club is currently one of the largest employers of local teenagers during the summer months. During the past three seasons, the Club has employed 15-20 students each year from Byram Hills High School as caddies, restaurant servers, pool attendants and junior camp counselors.

d) Existing Economic Trends in the Golfing Industry

Like many other golf clubs in the New York area, the former Canyon Club was struggling to survive during the 2000's. In 2009 it was purchased by the Applicant and a first phase of revitalization was undertaken, with cosmetic renovations of the existing clubhouse and outdoor pool. The Applicant re-named the facility, and offered low cost memberships to generate some operating income. Bringing the Club to a level that would ensure its future financial sustainability, however, will require significant additional capital improvements to the aging facility, including the clubhouse and the pool area, tennis courts and golf course. The proposed residential golf course community is intended to provide an "anchor" source of revenue for the Club, and is

considered by the Applicant to be an essential contributor to the financial health and long term economic sustainability of the Club.

The Brynwood situation is not unusual within the general region. The Hampshire Country Club in the Village of Mamaroneck has experienced financial difficulties, and a golf course condominium community is planned for that facility. In White Plains, the now vacant, Ridgeway Country Club was recently sold to the French American School of New York. Similar financial difficulties have been experienced at the Elmwood Golf Club in Greenburgh, North Shore Country Club and Engineers Country Club on Long Island, and Shackamaxon in New Jersey. Current trends indicate the historic model of a member-owned, male centric golf club is failing. With the exception of very high-end and exclusive member-owned golf clubs, the older golf clubs are considered to be a dying breed and are being demolished and replaced by housing developments.

The Market Study, in Appendix P, provides information on the development economics of golf course communities in Westchester and around the nation. The Market Study evaluates the potential for 88 market rate condominium units on the Site, which is the number of market rate units proposed in Option B, in Section III.B., if affordable housing is located off-site. The Applicant and its team have extensive experience in the development of a wide spectrum of housing types, particularly luxury residential projects in the New York metropolitan area and South Florida. The Applicant's team, including Troon Golf, Rees Jones and Hart Howerton, has extensive golf experience.

e) Existing Golf Course Communities in the County

There are only a few residential golf course communities in the County. Saint Andrews Country Club in Greenburgh was completed in 1986. This community features a Jack Nicklaus golf course and residences designed by Robert A. M. Stern. In addition to the golf course, community features include a clubhouse, swimming pool and tennis court. St. Andrews is comprised of 87 townhomes that range from 2,500 sf to 4,800 sf in size.

Doral Greens at Arrowwood in the Village of Rye Brook was built in 1992 and includes 138 residential units, a 9-hole golf course, swimming pool and tennis court. The residential units range from 2 to 4 bedrooms (1,500 sf to 3,346 sf) with current sales prices ranging from \$612,500 to \$1.55 million. Doral Greens is located adjacent to the Doral Arrowwood Hotel and Conference Center.

Trump National opened in Briarcliff Manor in 2003 with a 65,000 sf clubhouse and golf course designed by Tom Fazio. Sixteen large, estate town homes (3,159

sf to 5,400 sf) were sold and there is approval for additional condominiums; however they have not been built.

Offering a different housing type, Purchase Estates in Harrison, New York is a high-end (\$3-7 million) single family home community, developed in the mid-90s, and situated around The Golf Club of Purchase. Home ownership at Purchase Estates does not include membership at The Country Club of Purchase.

2. Anticipated Impacts

The anticipated population of the proposed Project was estimated based on: (1) standard demographic multipliers for regional condominium projects; and, (2) information provided by the Applicant's real estate and economic consultants, reflecting the marketing plan for sale of the golf community residences to empty nester buyers. It is noted that the conclusions and opinions stated below are those of the Applicant.

a) Estimated Resident Population Based on Rutgers University Multipliers

The Project would be expected to generate approximately 204 residents. See Table III.N-3 below. This figure was determined by using multipliers from the Rutgers University, Center for Urban Policy Research report entitled "Residential Demographic Multipliers," June 2006. Because data specifically for golf course communities were not available, multipliers for condominiums not affiliated with a golf course were used in this initial demographic analysis. The 204 people would represent an increase in Town population of approximately 1.7 percent.

The population of the Project would be expected to peak during summer months. Because the units would be luxury condominiums, age-targeted to active adults, it is likely that the population would be lower during the winter when some homeowners would reside at a second home in warmer climates. It is anticipated that approximately 25% of the new residents would be "snowbirds" who spend their winters elsewhere¹. However, the following population analysis assumes that the proposed residences are primary, full time, permanent year-round residences, and does not account for likely summer peak occupancy.

¹ Estimate provided by Houlihan Lawrence.

Table III.N-3
Population Using Multipliers for a Non-Golf Course Condominium

	Units	Age								Total Pop.
		0-4	5-13	14-17	18-24	25-44	45-64	65-74	75+	
Golf Residences – 2BR Condo Flats ¹	55	3.85	6.05	1.65	4.95	38.5	32.45	10.45	4.95	102.85
Golf Residences – 3BR Condo Flats ²	6	2.04	2.10	1.50	0.78	6.00	4.32	0.60	0.66	18.0
Golf Villas - Condo 2-story duplex, 3BR ³	14	3.92	3.64	1.68	3.08	13.3	10.64	2.52	0.7	39.48
Golf Cottages – detached condos, 4BR ⁴	5	2.15	4.3	0.95	0.7	6.3	3.4	0.4	0.2	18.4
Fairway Residences – Affordable Rentals ⁵										
2 BR Rental	6	1.74	2.34	0.72	1.50	5.70	1.98	0.42	0.78	15.3
3 BR Rental	1	0.61	1.11	0.39	0.68	1.20	0.50	0.04	0.02	4.54
4 BR Rental	1	0.61	1.11	0.39	0.68	1.20	0.50	0.04	0.02	4.54
Total Pop.		14.92	20.65	7.28	12.37	72.2	53.79	14.47	7.33	203.11

¹Rutgers University Residential Demographic Multipliers (June 2006): New York, ownership units in buildings with 5+ units, costing more than \$329,500 (2 bedroom)

²³Rutgers University Residential Demographic Multipliers (June 2006): New York, ownership units in buildings with 5+ units, all values (3 bedrooms)

³Rutgers University Residential Demographic Multipliers (June 2006): New York, ownership units, single-family attached, costing more than \$269,500 (3 bedrooms)

⁴Rutgers University Residential Demographic Multipliers (June 2006): New York, single family detached, costing more than \$329,500 (4 bedrooms)

⁵Rutgers University Residential Demographic Multipliers (June 2006): New York, rental units, 2BR \$750-\$1,100/month; 3BR \$750-\$1,250/month; no data available for 4BR units, so figures shown are for 3BR units.

b) Estimated Resident Population Based on Project Marketing and Design

The condominiums of the proposed Project would be age-targeted, with units and amenities designed, priced and marketed for affluent active adults ages 55 and over, who are semi- or fully retired and avid golfers and sports enthusiasts, and would be unique in the region. The majority of the units would contain only two bedrooms and include amenities such as luxury fixtures and finishes that are more appealing to active adults without children than to younger families. The Project would not include features such as outdoor playgrounds for children.

The Market Study, in Appendix P, concludes that 87% of the prospective purchasers would be “empty nesters”, 55 year of age and older. This would



result in 70 empty nester households. Assuming 2.0 persons per household, the population of the 70 units would be 140 persons. The balance of the units (10 units) would be occupied by other families, including divorced fathers and widowed households. Assuming 2.01 persons per household, these 10 units would result a population of about 21 persons. With approximately 25 additional persons in the affordable units, the total population would be approximately 185 persons.

The standard multipliers project a total household population of approximately 2.3 persons per unit, or 204 residents, representing an increase in Town population of 1.7 percent. This compares to 185 residents, based on the expected market for the residences, representing an increase in Town population of approximately 1.75 percent.

Brynwood Golf & Country Club currently has approximately 350 members. The Club is permitted to have up to 500 members with the existing special permit, however, the optimal number of members for the Club is expected to be 300 to 350 members upon renovation of the golf course and clubhouse and addition of the golf course community.

The increase in Town population could result in impacts to the surrounding area of the Site, most particularly from traffic generated by residents and demand for additional police, fire, and emergency medical services. These potential impacts are discussed in Chapter III.M., Traffic and Transportation, and in Chapter III.L., Community Facilities and Services.

c) Age-Targeted Development

Test marketing for the Project has already begun. Specifically:

- ☐ Brynwood Golf & Country Club has an on-site vision center and members are updated about the Project by the Club management frequently. Many of the existing Club members have expressed sincere interest in the residential portion of the Project.
- ☐ The Club hosts many non-member events, which exposes potential residents to the project vis-à-vis the vision center.
- ☐ The proposed golf course community had a micro-site on the Club's website. "Brynwood Vision" showed the master plan for the Project, renderings, development team information and community information. The website is currently under construction but will become active again when there is updated information to share.

The primary target for the Project is empty nester residents of upper Westchester and lower Fairfield Counties who have raised their family in the area, still have strong roots in the community, and consider this area their home and want to remain here as they age. Now that their children are gone, the size, maintenance and expense of a single family home, including the property taxes, have become onerous and impractical. The Project would serve the need of these residents for a low-maintenance lifestyle in a community that offers first class amenities, services, and activities (golf, tennis, health club, spa, dining) and a social environment and atmosphere, all in proximity to their former community, and their adult children and grandchildren.

Secondary geographic target markets include lower Westchester, mid-Fairfield and Bergen Counties, Long Island, and Manhattan. See Market Study in Appendix P for additional information.

d) Estimated Tax Generation

In New York State, condominium units typically pay about half of the property taxes that are paid by “fee simple” town homes and single family homes having comparable market values. This is based on State law, which requires condominium residences to be assessed by the municipality as if they were rental properties, except in certain municipalities which are approved assessing units and have elected the “homestead tax option.” An “approved assessing unit” is a municipality that has completed a revaluation of all property in the municipality in accordance with applicable State regulations. The Town is not an approved assessing unit.

As required by State law, the methodology for calculating property taxes of condominiums is the income capitalization approach, which is based on an assumption of the income (rents) that the property owner would receive if the units were rentals.

There are no comparable rental apartments in the Town. The Applicant surveyed rental units in the Ritz Carlton and Trump Tower in White Plains, at which the average rent is \$6,136 per month. For purposes of this analysis, rents of \$5,600 per month for the proposed two bedroom units and \$6,500 for larger units are assumed. The market value of the proposed golf course community is then determined by applying a capitalization rate to the resulting net income (i.e., income less operation costs). The Applicant believes that the appropriate capitalization rate for this type of housing in the current market is less than 6.5%. Nevertheless, to be conservative, a 6.5% capitalization rate is assumed for the purposes of this analysis. At a 6.5% capitalization rate, the market



values for the Project residences would range from \$572,308 to \$701,538. In the Town of North Castle, total real property tax is typically 2% of market value. Applying that 2% tax rate to these values would result in \$1,084,800 in tax revenues. It is important to note that a lower capitalization rate would yield higher market value, and therefore greater tax revenues from the condominium community.

The Club would also generate taxes. Assuming a \$25,000,000 market value for the Club facility (value of renovated clubhouse and improved facilities plus land value) and a 2% tax rate, the Club would generate an additional \$500,000 in tax revenue annually, totaling \$1,493,223 for the Project. Currently, without the significant renovation and upgrades proposed by the Applicant, the Club generates \$275,000 in tax revenue.

Table III.N-4
Estimated Taxes Generated

Type	Rent	Estimated Market Value	Tax % of Value	Estimated Taxes	# of Units	Taxes Generated
2 BR	\$5,600	\$572,308	2%	\$11,446	50	\$572,300
3 and 4 BR	\$6,500	\$701,538	2%	\$14,031	30	\$420,923
Subtotal Residential						\$993,223
Clubhouse/Golf Course		\$25,000,000	2%	\$500,000		\$500,000
Total						\$1,493,223

Approximately 67 percent (\$1,000,459) of the annual estimated property taxes would go to the Byram Hills School District; approximately 15 percent (\$223,983) would go to the Town of North Castle; and the remainder (\$268,780) would go to the County and other taxing districts.

Table III.N-5
Estimated Tax by Jurisdiction

Jurisdiction	Estimated Taxes Generated
Town of North Castle (15%)	\$ 223,983
Byram Hills School District (67%)	\$ 1,000,459
County and Other Districts (18%)	\$ 268,780
Total	\$ 1,493,223



Note that the above does not include anticipated property taxes generated by the 8 affordable units, which would be minimal (e.g. approximately \$3,000 per unit as estimated by the Applicant).

The Applicant currently pays \$275,671 in property taxes. Total real property taxes would be approximately \$1,493,223, representing an increase of \$1,217,552, or over 440 percent.

The Applicant acknowledges that the Town Tax Assessor has indicated that the 6.5% capitalization rate and the assumed value of the Club might need to be adjusted, yielding an anticipated total tax that could potentially be less than the Applicant's estimate.

The Project would be constructed in phases over three years (see Section III.R., Construction). It is expected that property tax would be phased in during the construction period as each phase is completed and becomes operational. Although total tax revenue would be less during the construction period, fiscal impacts on the School District and Town would also be less than upon completion and full occupancy. The table below provides an estimate of the potential property tax generation during the three-year construction period.

Table III.N-6
Potential Property Tax Generation during 3-Year Construction Period

Component	Year 1	Year 2	Year 3
Golf/Clubhouse	\$500,000	\$500,000	\$500,000
Residential	\$350,000	\$650,000	\$993,000
Total	\$850,000	\$1,150,000	\$1,493,000

e) Hypothetical Fee Simple Scenario

The DEIS Scoping Document calls for analyses of projected taxes based on: (1) the proposed condominium residences (the proposed Project); and (2) a hypothetical scenario in which the residences, and the land under each residence, would be owned in "fee simple," in the same way that detached single family homes on separate, subdivided lots are owned. This section analyzes the fee simple townhome scenario.

The market values of the Project residences were estimated based on reasonably comparable condominiums recently built in nearby communities. Houlihan Lawrence, the Applicant's real estate consultant, surveyed the Ritz Carlton in White Plains, which has similar amenities, and Christie Place in Scarsdale, which serves a similar empty-nester market in a comparable school

district. Based on information provided by Houlihan Lawrence, recent sales activity for these comparables shows an average unit sales price of \$1.2 million (\$648 per square foot).

Assuming a market value of \$600 per square foot, the proposed condominiums would achieve market values ranging from \$1,140,000 to \$1,920,000. As previously noted, in the Town, fee simple single family detached homes and townhomes are taxed at approximately 2% of market value. Based on these values and an assumed rate of 2%, the 80 residential fee simple units would theoretically generate \$2,183,172 in property tax revenue annually. The Club would generate an additional \$500,000 in tax revenue annually, totaling \$2,683,172 for this hypothetical scenario.

Under this hypothetical scenario, approximately 67 percent \$1,797,725 of the annual estimated property taxes would go to the Byram Hills School District; approximately 15 percent \$402,476 would go to the Town of North Castle; and the remaining \$482,971 would go to the County and other taxing districts. The Applicant currently pays \$275,671 in property taxes. Under this scenario, total real property would be approximately \$2.6 million, representing an increase of 950%.

In the Applicant's opinion, fee simple ownership/taxation of the residences presents significant constraints that would prevent the Applicant from realizing its goals and objectives for the Project. First, the proposed residences have been designed to be condominiums, with approximately 80% of the units proposed to be apartment flats. This physical configuration precludes fee simple units since, as is the case with typical multi-level, multifamily buildings, there are units which do not have floor area at ground level, and therefore could not include land ownership. The units and residential buildings in which they are located would therefore have to be significantly redesigned to accommodate fee simple ownership and taxation, and the number of units would be significantly decreased as a result. A fee simple plan would have 69 townhomes. This hypothetical plan is the same as Alternative 4, which is described in detail in Chapter IV.D. of this DEIS.

Second, there are several important socio-economic factors that adversely affect the overall feasibility marketability of fee simple townhomes to the proposed targeted empty nester market:

- In terms of marketing, the proposed condominium plan includes the product type favored by empty nesters and retirees. According to Houlihan Lawrence, the Applicant's marketing consultant, the "empty

nester” buyer is more interested in flats in a simplex configuration than multi-level townhomes. The target buyer for the proposed golf course community requires a main floor master bedroom and prefers an apartment layout on a single floor, as older buyers resist multi-floor layouts with stairs.

- In contrast, the townhomes in Alternative 4 would likely have three and four bedrooms per unit and would, by default, be designed to attract young families with children, much like the housing that exists at Whippoorwill Hills, Whippoorwill Ridge and the Cider Mill. Given the attractiveness of the Byram Hills School District, the households in this fee simple scenario would be expected to generate approximately 55 school age children. This is much greater than the six or fewer school children anticipated to be generated by the proposed empty nester condominium residences.
- The proposed plan's average unit size is approximately 2,500 square feet and the primary buyers would be empty nesters downsizing from large single family homes. With the hypothetical townhome plan, the average unit size would likely be approximately 3,500 square feet on multiple levels. The 69 unit town home plan would therefore be more marketable by product type to young families. However, young families moving to North Castle have less expensive single family home options (without HOA expenses, Club initiation fees and annual Club dues), including houses with backyards. The availability of these competing options would adversely impact the overall feasibility of the hypothetical project, thus reducing the pool of potential purchasers and likely extending the sale and absorption timeframe by several years at best.
- The economic analyses in this DEIS consider competing empty nester targeted projects including Christie Place in Scarsdale and the Ritz Carlton condominiums in White Plains, both of which are taxed as condominiums. In order to attract the targeted empty nester market, taxes for the proposed residences must be comparable with those of competing projects; if taxed as fee simple homes, the proposed golf course community would have a significant competitive disadvantage and not be as appealing to the target market with regards to a desirable product type.
- The market for the townhouse units would be negatively affected by the additional costs to the homeowner of fee simple taxes, along with HOA



fees, Club initiation fees and annual Club dues. The additional taxes would narrow the pool of potential purchasers and adversely impact anticipated adsorption rates.

- Current demographic factors of the aging population as well as comprehensive market research also strongly indicate the favorable marketability of the proposed condominiums. The North Castle home buyer willing to pay higher taxes to the Byram Hills School District is typically a young family, not an empty nester couple without children in the local school system. These older couples have typically already paid 20+ years of higher single family home taxes, and would have no incentive to leave their home for a new residence having similarly high taxes. For North Castle to maintain a balanced population, including an older demographic group still willing to contribute significant taxes but not having children in the schools, viable condominium housing is needed. These condominium residential units would be a vital component of a strong local tax base. At present, the Town is disproportionately sided to a single housing type with high tax rates.
- As documented in Chapter IV of this DEIS, the proposed condominium residences would yield a greater net benefit to the Byram Hills School District than the hypothetical fee simple townhome plan. The proposed residences would generate substantially fewer school students and result in a potential tax surplus of approximately \$800,000 per year for the School District, far exceeding the surplus for 69 fee simple townhomes. When capitalized, this surplus from the proposed Project has a significant value to the School District.
- The townhomes would also have greater impacts to Town services given the assumed larger population and its demand on recreation facilities and services.
- Off-site improvements being considered as part of the 88 unit proposed Project would be financially infeasible with the 69 unit fee simple units. These potential improvements include:
 - Secondary access to Byram Hills High School
 - Provision of affordable housing
 - Improvements to Water District #2
- Given the above, the economics of the hypothetical townhome scenario would make it economically infeasible to develop and market. If units were to be taxed at fee simple rates, a \$1.25 million townhouse unit



would be taxed at \$25,000 per year, compared to approximately \$12,500 if a similar priced unit is a condominium. The increased taxes would decrease in the market value of the residence. The net result is a significant decrease in the expected return to the Applicant and a substantial increase in risk profile. In addition, town homes historically are less desirable and hence less valuable per square foot affecting the overall economic feasibility of the development.

The Applicant has informed the Town that if a fee simple ownership/taxation alternative is selected by the Lead Agency, the associated increased risks and decreased returns, coupled with the high cost of on-site infrastructure, improvements to the clubhouse and golf course, potential off-site contributions, and the significant cost of creating affordable housing, will render the overall project economically unfeasible. Under these conditions, the Applicant will pursue a single family subdivision of the entire Site, rather than a townhouse project.

f) Sales Tax

The Applicant also pays sales taxes to New York State and Westchester County for merchandise sales in the pro shop and for all food and beverage sales, including catering. It is expected that at full operation, annual sales for merchandise, food and beverage, and catering would be, conservatively, approximately \$1 million or more. This purchasing would be subject to sales tax. The total sales tax rate in North Castle is 7.375% and contains several components. The table below outlines anticipated tax generation for each component.

Table III.N-7
Anticipated Sales Tax Generation

Sales Tax Components						
	New York State	Metropolitan Transportation Authority	Westchester County	Old Local Share**	New Local Share*	Total
Annual Taxable Sales*	4%	0.375%	1.50%	1.00%	0.50%	7.375%
\$1,000,000	\$40,000	\$3,750	\$15,000	\$10,000	\$5,000	\$73,750

*Note: In order to be conservative, estimate is based off of anticipated sales during first year of full occupancy and operation. The Applicant expects that on-site sales could increase to \$2.5 million in the out years, which would increase total sales tax generation to \$184,375.

**Note: The local share does not all accrue to the local government; it is allocated between the County and all of the local governments and school districts. The local

government allocation is 50% of the old local share (i.e., .5%) and 20% of the new local share (i.e., .1%). This component is then be split proportionally among the municipalities based on population.

g) Fiscal Impact Analysis

Schools

The 2012-2013 budget for the Byram Hills School District is \$80,423,562, of which \$70,897,631 (or approximately 88%) comes from the local property tax levy. With a current enrollment of 2,615 students, total budgeted expenditures per pupil are therefore approximately \$30,754. The total budgeted cost per student funded by the Town's property tax levy is \$27,112. With declining enrollments, the costs per pupil are likely to increase over time.

The average cost per student includes fixed administrative and capital expenditures that are not affected by the introduction of new students (superintendent's salary, building maintenance and service costs, debt service, etc.). These fixed costs would not vary with the projected small changes in school enrollment. Program costs, which include items such as teacher salaries and benefits, instructional equipment and supplies, and transportation, provide a more accurate assessment of the incremental cost of educating additional students generated by new residences, although it is still conservative as such costs typically do not increase in a direct ratio to the increase in enrollment. As identified in the district budget, program costs account for approximately \$55,593,988 (or 69%) of the total budget; a cost per pupil of approximately \$21,260.

As noted above, only a portion of program costs is funded by the local property tax levy. The portion of the program costs paid by the Town's property tax is approximately \$18,734 per pupil. This figure is utilized for analyses of school district fiscal impacts.

School Costs Based on Rutgers Multipliers for Student Generation

Using industry standard multipliers, the proposed 88 units would generate approximately 19-20 public school children (see Chapter III.L., Community Facilities and Services). This would represent approximately 0.76% of the School District's enrollment. Spread across the School District's K-12 grades, this would mean an average of about 1.5 student per grade. This modest increase would be expected to be accommodated by the School District's existing capital facilities and by normal School District operations without the addition of new staff. As previously noted in Section III.L of this DEIS, it is unlikely that the



Project would result in as many as 19-20 school age children, given its pricing, product design and marketing.

Based on the estimated \$18,734 per pupil program cost paid by the Town property tax levy, the local cost to educate the anticipated 19-20 project-generated school children would be approximately \$374,680. This is substantially less than the estimated \$1,000,459 in School District taxes that would be paid by the Project, creating a significant positive fiscal impact of approximately \$625,779 annually for the School District. Note that this includes the cost to educate the students from both the affordable and market rate units based on public school children generation rates from the Rutgers CUPR multipliers.

School Costs Based on Marketing Plan and Data from Regional Comparables

If the market rate condominiums yield only 5 public school children, as expected based on multipliers from other local golf course communities (see Chapter III.L., Community Facilities and Services) and the proposed marketing plan, the local education cost for the 80 condominium units and the 8 affordable units would be approximately \$206,074 for 11 students total. This would provide a positive fiscal impact of approximately \$794,385 annually for the School District.

Emergency Services

With the increased population, the Police and Fire Departments would respond to additional service calls. Assuming an increase in the number of service calls proportionate to the increase in population (1.7%), it is likely that this minor increase would be accommodated by normal departmental operations and would not necessitate additional hiring or expenditures for capital resources. See Section III.L of this DEIS for additional information. In addition, the Club and residences would have on-site security personnel and monitoring services.

Recreation

Since the proposed condominiums would be directly affiliated with the Club, it has easy access to on-site recreation facilities and all homeowners would be required to be members of the Club. Therefore, residents would satisfy much of their recreation needs on-site. Some may take Town recreation department classes or other offerings. However, as discussed above, it is expected that few children would reside in the condominium units. Moreover, a number of the recreational programs charge user fees to help cover expenses. Residents of the 8 affordable units would, however, utilize Town recreation facilities since

they would not be members of the Club. All new residents could also be expected to enjoy Town parks, but would not represent an additional visitor population so large as to warrant increased parks expenditures given the large open space being preserved at the Project as proposed.

The Project would also be required to make a one-time recreation fee payment to the Town. Based on the current fee of \$3,000 per unit, the 80 units would provide a \$240,000 recreation fee. In addition, \$1,000 per fair and affordable unit would be paid, bringing the total to \$248,000. As a result, it is not expected that the Project would result in a net increase in recreation service costs or a diminution in services to the rest of the town.

Based on the size of the anticipated population, the Project amenities and services, and existing Town services, the Applicant contends that development of the Project would be expected to have a negligible impact on municipal service costs. In the Applicant's opinion, the anticipated property tax generation of approximately \$223,983 annually to the Town would therefore defray costs for the limited services that the Town would need to provide.

h) Estimated Employee Generation

It is estimated that the built Project would generate approximately over 100 full-time equivalent positions during the peak summer months and 50 during the quieter winter months.

Both the residential and commercial recreation components of the Project would be expected to support permanent employment. The addition of the residences would also be expected to temper the seasonal employment effect (i.e., less of an employment reduction during the off-season.) On-site employment opportunities would include administrative/management positions, golf maintenance staff, food and beverage staff, tennis/golf pros, gym staff and building maintenance and housekeeping staff.

Several of the Club's facilities would remain open during reconstruction. Nine holes of golf would be open at all times in season and the clubhouse and pool would remain open when feasible. Approximately one-third of staff would not be employed during the renovation.

i) Anticipated Economic Impacts to Local Economy

In addition to economic benefits realized from local property taxes and sales tax, there would be a number of additional direct and indirect economic benefits associated with the renovation of the clubhouse and golf course and

development of residential units on the Site. An input-output (I/O) methodology employing IMPLAN software (V.3 2011 multipliers²) initially developed by the U.S. Government and the University of Minnesota was used to determine the economic and impact of the Project on the Westchester County economy (See Appendix N.) Construction costs for the golf course, clubhouse, pool and hardscape areas and tennis facility renovations as they are currently designed are estimated by the Applicant to be approximately \$31.5 million. Assuming an average cost of \$325 per square foot (including hard and soft costs), the residential component construction would be estimated to have a construction cost of approximately \$73 million. In total, construction would require an estimated investment of approximately \$104.5 million, which would provide a significant benefit to the local, regional, and state economies. This investment, during both construction and operation, would also spur significant secondary economic benefits. As worker wages and payments to suppliers are spent and recirculated in the area economy, additional jobs, income and revenue would be created in a variety of industries, such as eating and drinking establishments, retail stores, wholesalers, and service providers. In the short-term, it is expected that a total of 900 jobs would be supported by the construction of the Project (an average of 300 annual jobs during the three-year construction period). This includes 578 total direct construction and related services jobs, as well as an additional 323 jobs in supporting industries. Once completed, operation of the Project would support a total of approximately 102 jobs.

In order to generate an estimate the overall economic activity related to Project development, the estimated construction budget phased over the projected 3-year construction period has been applied to the IMPLAN model of Westchester County. The model indicates that the overall direct construction expenditures would result in a total output of approximately \$145 million in Westchester County, including approximately \$47 million in indirect and induced economic output (production) effects³. The job impacts from construction activity would also be substantial and include temporary direct employment of 900 jobs.

In addition to the direct construction employment impacts of 578 jobs, the indirect and induced economic activity resulting from construction expenditures would be expected to support another 323 jobs (127 indirect and 196 induced)

² MIG, Inc., IMPLAN System (2011 data and software), 502 2nd Street, Suite 301, Hudson, WI 54016, www.implan.com.

³ "Indirect" spending includes purchases that businesses and organizations make from other local industries using revenue gained from the initial direct spending. "Induced" spending includes the purchases made by individuals and households within the study area as a result of the income they receive from the direct and indirect activity in the region.

across a number of industries in the local economy (e.g., real estate establishments, food and drinking places, retail stores). The overall job impacts related to construction activity would be substantial and total 900 full-time jobs during the three-year construction period. This figure includes “off-site” jobs for architects, engineers and other professionals, delivery personnel, manufacturers of building products and local service employees (e.g., retail, restaurants.)

Table III.N-8
Construction Period Economic Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	577.8	\$57,538,036	\$64,244,824	\$98,868,482
Indirect Effect	126.5	\$8,517,026	\$12,646,484	\$17,926,761
Induced Effect	196.2	\$10,967,184	\$19,311,297	\$28,664,427
Total Effect	900.5	\$77,022,246	\$96,202,605	\$145,459,671

Source: Impact Summary, Minnesota IMPLAN Group, Inc.

The model estimates that construction period direct, indirect, and induced economic activity would result in approximately \$1.5 million in sales tax revenue.

Table III.N-9
Construction Period State/Local Tax Impact

Description	Employee Compensation	Proprietor Income	Indirect Business Tax	Households	Corporations
Dividends					\$10,925
Social Ins Tax- Employee Contribution	\$71,639				
Social Ins Tax- Employer Contribution	\$126,997				
Indirect Bus Tax: Sales Tax			\$1,538,811		
Indirect Bus Tax: Property Tax			\$1,834,906		
Indirect Bus Tax: Motor Vehicle Lic			\$20,318		
Indirect Bus Tax: Severance Tax					
Indirect Bus Tax: Other Taxes			\$249,494		
Indirect Bus Tax: S/L NonTaxes			\$49,224		
Corporate Profits Tax					\$371,810
Personal Tax: Income Tax				\$3,378,005	
Personal Tax: NonTaxes (Fines- Fees				\$602,789	
Personal Tax: Motor Vehicle License				\$63,756	
Personal Tax: Property Taxes				\$52,171	
Personal Tax: Other Tax (Fish/Hunt)				\$17,223	
Total State and Local Tax	\$198,636		\$3,692,752	\$4,113,944	\$382,735

Source: Impact Summary, Minnesota IMPLAN Group, Inc.



Economic Impacts When Operational

When built and fully operational, it is estimated that the Project would have over 100 full-time equivalent positions during the peak summer months and 50 during the quieter winter months. Overall payroll once fully built-out is expected to be approximately \$2.5 million. Additional local spending would be expected among local contractors/building trades for on-going building repair/maintenance.

Commercial Activity

As with the construction spending, the spending and income associated with the Project once it is operational also recirculates through the local economy, creating additional secondary impacts. The anticipated direct and secondary economic effects from the Project at full operation are summarized in the following table. These calculations are based upon the Applicant's annual projection of on-site employment and payroll above, and Club revenues (excluding membership initiation fees) of approximately \$2.5 million once the Project is fully operational. As indicated, the annual employment impact would total approximately 102 jobs. This includes approximately 11 jobs supported by the secondary indirect and induced spending in industries such as maintenance, real estate establishments, and food service and drinking places. The total labor income from these positions would total approximately \$3.3 million annually. Total regional economic production resulting from facility operations would be approximately \$3.8 million annually.

Table III.N-10
Annual Economic Impact from Project Operation

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	91.0	\$2,639,024	\$3,021,430	\$2,157,866
Indirect Effect	2.5	\$162,435	\$290,518	\$413,291
Induced Effect	8.6	\$481,731	\$848,804	\$1,259,155
Total Effect	102.1	\$3,283,190	\$4,160,752	\$3,830,312

Source: Impact Summary, Minnesota IMPLAN Group, Inc.

Note: IMPLAN jobs include full-time, part-time and temporary positions. Conversion ratios for full-time equivalents (FTEs) are available for all IMPLAN industry sector codes. The FTE to IMPLAN employment ratio for the industry sector that includes recreation industries such as golf courses is 0.820621469. The direct effect of 91 jobs in the IMPLAN table therefore converts to 75 FTEs, which is the average between the peak and off-season estimates.

Resident Spending Power

In addition to the Club, the residences would also generate economic activity. For example, the residences would expand the local customer pool by 88



households. This would create an additional demand for neighborhood retail, restaurants and services.

As reported by the US Census, the median household income in the Town of North Castle was \$141,576 in 2011. Assuming the 80 new market-rate households would have comparable income levels, the new units would translate into a total annual income of approximately \$11.3 million. The eight affordable housing units would be limited to households with incomes at or below 60% of the County Area Median Income (“AMI”). The HUD 2013 income limits for Westchester County indicate that the 60% AMI threshold would be \$56,940 and \$63,240 for three- and four-person households, respectively. The average of this range would be approximately \$60,000. Assuming comparable income levels, the households in the eight affordable units would be expected to have a total annual income of approximately \$480,000. In total, the Project households would therefore be expected to have an annual income of \$11.8 million. Household discretionary income available for spending after accounting for deductions such as personal taxes, social security, and housing costs is available for consumer spending in the local economy. The IMPLAN model estimates that approximately 40% of estimated household income would be discretionary income available to be spent on consumer goods and services (such as food, apparel, household furnishings/equipment, personal services, healthcare, entertainment, etc.) Therefore, the Project residents would have the potential to inject an additional \$4.7 million in discretionary consumer spending into the economy. This spending potential would provide an additional source of support for local retailers and restaurants and help strengthen the Town’s economic vitality. As with the construction spending, the household spending also recirculates through the local economy creating additional secondary impacts.

The estimated household income from the Project was also applied to the IMPLAN model for Westchester County. The model indicates that at full operation, this household spending would generate approximately \$5 million in additional economic output and support an additional 33 jobs.



Table III.N-11
Annual Economic Impact from Resident Spending

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	n/a	n/a	n/a	n/a
Indirect Effect	n/a	n/a	n/a	n/a
Induced Effect	33.4	\$1,866,348	\$3,288,511	\$4,878,287
Total Effect	33.4	\$1,866,348	\$3,288,511	\$4,878,287

Source: Impact Summary, Minnesota IMPLAN Group, Inc.

Note: The model does not output direct or indirect effects since the household income is assumed to be labor income and this spending impact is, by definition, the induced effect.

j) Fiscal Impacts If the Club Were to Close and of the Conservation Easement

The Applicant has made and will continue to make significant investments in upgrading the Club. Even in a worst case scenario where the Club closes, the upgraded Club facilities and the land would have significant market value. Because the Club is currently taxed based on the market values of the land and improvements without consideration of income or loss from facility operations, the taxes generated by a closed, upgraded and renovated Club facility would be expected to be at least the same amount as currently generated. In this scenario, the tax revenue from the condominiums could decrease to reflect reduced market value resulting from the loss of the affiliated amenity. However, there is no way to know today with any reasonable degree of certainty whether the Town assessor at that time would reduce the market value of the condominiums, and if so, by what amount.

If the Club were to close, there would also be an effect on projected sales tax revenues.

Another possible scenario is that the golf course closes but the clubhouse and other amenities are operated as a private swim and tennis club. There is no way to know today with any reasonable degree of certainty what effect, if any, that would have on the market values of the Club or condominiums, or sales tax generation by the Club.

The granting of a qualified conservation easement permanently precluding future development of the golf course would potentially have federal and State income tax benefits to the Applicant that would not impact tax revenue to the Town or School District.

There is no State or local statute that requires the Town tax assessor to consider a conservation easement in the assessment and valuation of land subject thereto, or that sets out a methodology for determining whether a conservation

easement affects market value. Given this, there is no way to know today with any reasonable degree of certainty whether the Town assessor at that time would conclude that the conservation easement reduces the market value of the Club property, and if so, by what amount.

k) Economic Impacts to Local Real Estate Market

According to Houlihan Lawrence, the addition of 88 condominiums to the local real estate market would have a neutral effect, since there are no comparables in the local real estate market, i.e., there are no golf course condominium units in the immediate area. The existing condominiums at St. Andrew's in Greenburgh, Doral Greens in Rye Brook and Trump National in Briarcliff are all sold out (source: Houlihan Lawrence). In addition, the Market Study for the Project (See Appendix P) addresses this issue in its demand analysis, which estimates the number of units that the Project could capture given various factors including comparative units in the market area. Furthermore, the condominium housing on the Site will provide an alternative housing type for empty nesters, providing a local option in North Castle in contrast to other available upscale condominiums in nearby communities such as White Plains and Scarsdale.

3. Mitigation

The proposed Project would result in a net positive impact for the taxing districts, including the Byram Hills School District which would have very few, if any, students as a result of the Project. The estimated tax surplus for the School District is approximately \$1,000,000 per year. The economic benefits to the Town would also be significant in terms of tax revenues and other positive impacts to the local economy.

Therefore, it is not anticipated by the Applicant that the Project would result in any significant adverse impacts to the taxing districts and no mitigation is required.

O. Air Quality and Greenhouse Gas Emissions

1. Air Quality Existing Conditions

The purpose of the air quality study is to assess whether the proposed development of an 88-unit residential community and renovations to the existing Brynwood Golf & Country Club complies with the state and Federal air quality requirements, and whether it complies with the 1990 Clean Air Act Amendments (CAAA) following the NYSDEC, the New York State Department of Transportation (NYSDOT), and the United States Environmental Protection Agency (EPA) policies and procedures.

This includes mobile and stationary source analyses to determine the potential change in air pollution from the proposed development, as well as a local evaluation of mobile sources of carbon monoxide (CO) and particulate matter (PM_{2.5}, PM₁₀) using an intersection screening assessment, and a regional assessment of the mobile and stationary source greenhouse gas.

a) Background

The 1990 CAAA resulted in states being divided into attainment and non-attainment areas, with classifications based upon the severity of their air quality problems. Areas of the country where air pollution levels persistently exceed the National Ambient Air Quality Standards (NAAQS) may be designated as "non-attainment areas." Carbon monoxide, PM_{2.5}, PM₁₀, ozone, lead (also known as Pb), and greenhouse gases (GHG) are the project-level pollutants of concern.

Carbon monoxide, PM_{2.5}, and PM₁₀ are the primary project-level pollutants of concern in the immediate vicinity of the Site. Westchester County is a non-attainment area for PM_{2.5}, as well as a non-attainment area for the Eight-Hour Ozone, which has been designated as Moderate. This Eight-Hour Ozone area was previously a One-Hour Ozone non-attainment area, which as of June 15, 2005 is no longer subjected to the One-Hour standards. The project area is a Maintenance Area for CO, which means that this area use to be non-attainment for CO, but in 2010, the air quality levels improved to attainment. Westchester County is in "attainment" for all of the remaining criteria pollutants (PM₁₀, Lead, Oxides of Nitrogen [NO_x], and Sulfur Dioxide [SO₂]) for ambient (outdoor) air.

Air Quality Standards

The EPA has established the NAAQS for CO to protect the public health. The State of New York has adopted the same standards as those set by the EPA. The NAAQS for CO sets maximum concentrations of 35 ppm for a one-hour period and 9 ppm for an eight-hour period, each not to be exceeded more than once per year. Table III.O-2 outlines the National Ambient Air Quality Standards that are set by NAAQS.

CO is a product of incomplete combustion. Over 95 percent of CO emissions come from mobile sources. It is a colorless and odorless gas that prevents the lungs from passing oxygen to the blood stream. Brief exposure to high levels of CO can also impair vision, physical coordination, and the perception of time. This air quality analysis evaluates CO.

Particulate matter is a term referring to particles found in the air. Some particles are large enough to be seen as dust, soot, or smoke, while others are too small to be visible. The air quality analysis evaluates PM₁₀ and PM_{2.5}. Small particles can have adverse health effects because of their ability to reach the lower regions of the respiratory tract. Particulate matter comes from a variety of sources. Emissions from highway and non-road vehicles compose approximately 28 percent¹ of total PM emissions. Fuel combustion in power plants and industrial processes accounts for another five percent of PM. The largest direct source of PM is fugitive dust from paved and unpaved roads, agricultural and forestry activities, wind erosion, wildfires, and managed burning. PM is also formed indirectly in the atmosphere by the reaction of gaseous pollutants, such as NO_x.

The NYSDEC maintains an air quality monitoring program that measures ambient pollutant levels throughout the state. The monitoring program tracks air pollutants at more than 80 sites across the state, using continuous and/or manual instrumentation. This monitoring data was used to define the existing air quality levels, or background concentrations, within the Site and the study area. Background concentrations are ambient pollution levels from other stationary, mobile, and area sources.

However, not all monitoring sites measure all of the air pollutants. For example, the White Plains monitoring station, which is located closest to the Site, measures particulate matter and ozone. The nearest station to monitor carbon dioxide and nitrogen oxides is the New York Botanical Gardens. Table III.O-1

¹National Air Quality and Emissions Trends Report, Environmental Protection Agency, 1999, March 2001.

presents the last three years of air quality trend data from the closest available stations.

Table III.O-1
Ambient Air Quality Monitoring Data Trends (ppm)

Pollutant	Average Period	2009	2010	2011
Carbon Monoxide ¹	8-hour ³	1.9	1.5	1.7
	1-Hour ⁴	2.8	2.0	3.0
Nitrogen Oxides ¹	Annual ⁵	0.0218	0.0201	0.0209
	1-Hour ⁶	0.0660	0.0700	0.0607
Particulate Matter (PM_{2.5}) ²	Annual ⁷	7.2	7.4	9.0
	24-hour ⁸	22	22	25
Ozone ²	8-Hour ⁹	0.075	0.075	0.076

1 The air quality monitoring data, which is in units of $\mu\text{g}/\text{m}^3$ was obtained from the Botanical Gardens station in Region II of New York.

2 The air quality monitoring data, which is in units of $\mu\text{g}/\text{m}^3$ was obtained from the White Plains monitoring station in Region III of New York.

3 Second highest 1-hour average

4 Second highest running 8-hour average

5 Highest annual arithmetic mean

6 98th percentile of the daily maximum 1-hour average

7 Highest 3-year average of the annual mean

8 98th percentile for the last three years

9 4th highest daily maximum 8-hour value

The NYSDEC and the USEPA have established guidance that defines the air quality modeling and review criteria for analyses prepared pursuant to the CAAA. The CAAA requires that a proposed project not:

- Cause any new violation of the NAAQS;
- Increase the frequency or severity of any existing violations; or
- Delay attainment of any NAAQS.

Table III.O-2
National (Federal) and New York State Ambient Air Quality Standards

		National (Federal) Standards				State of New York Standards ¹	
		Primary Standards		Secondary Standards			
Pollutant	Average Period	Level ³	Statistic ²	Level	Statistic	Level	Statistic
Carbon Monoxide	8-hour	9 ppm	Maximum	None		9 ppm	Maximum
	1-hour	35 ppm	Maximum	None		35 ppm	Maximum
Lead ⁴	Quarterly Average	1.5 µg/m ³ -Eff until 12/31/12	Maximum	Same as Primary		None	
	Rolling 3-Mo Avg (2008 std)	1.5 µg/m ³ -Eff until 1/1/13	Maximum	Same as Primary		None	
Nitrogen Dioxide	Annual	0.053 ppm	Arithmetic Mean	Same as Primary		0.05 ppm	Arithmetic Mean
	1-Hour	0.100 ppm ⁵	3-year avg	0.053	Arithmetic Mean	None	
Total Suspended Particulates (TSP) ⁶	12-consecutive months	None		None		75 µg/m ³	Geometric Mean
	24-hours	260 µg/m ³	Maximum	150 µg/m ³	Maximum	250 µg/m ³	Maximum
Particulate Matter (PM ₁₀) ⁷	24-hour	150 µg/m ³	Maximum	Same as Primary		None	
Particulate Matter (PM _{2.5})	Annual	15 µg/m ³	Arithmetic Mean	Same as Primary		None	
	24-Hour	35 µg/m ³ ⁸	3-year avg	Same as Primary		None	
Ozone ⁹	8-Hour (2008 std)	0.075 ppm	3-year avg	Same as Primary		None ⁸	
	8-Hour (1997 std)	0.08 ppm (1997 std)	3-year avg	Same as Primary		0.08 ppm	Maximum
	1-hour	0.12 ppm	Not Applicable in NYS ¹⁰	Same as Primary		0.12 ppm	Maximum
Sulfur Dioxide	Annual	0.03 ppm	Arithmetic Mean	0.5 ppm	3-hour	0.03 ppm	Arithmetic Mean
	24-hour	0.14 ppm	Maximum			0.14 ppm	Maximum
	3-hour	None				0.50 ppm	Maximum
	1-hour	75ppb	3-year avg ¹¹	None		None	
Hydrocarbons (non-methane)	3-hour (6-9am)	None		None		0.24 ppm	Maximum

1 NYS also has standards for beryllium, fluorides, hydrogen sulfide, and settleable particulates (dustfall). Ambient monitoring for these pollutants is not currently conducted.

2 All max values are concentrations not to be exceeded more than once per calendar year. (Federal 1 hour Ozone Standard not to be exceeded more than 3 days in 3 calendar years).

- 3 Gaseous concentrations for Federal standards are corrected to a reference temperature of 25°C and to a reference pressure of 760 millimeters of mercury.
- 4 Federal standard for lead not yet officially adopted by NYS. Based upon the November 22, 2011 EPA designation for areas of New York State, which became effective on 12/31/11, the 0.15 µg/m³ standard will be effective throughout New York State on 1/1/2013 will replace the previous level of 1.5 µg/m³. The 1978 lead standard (1.5 µg/m³ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard (12/31/12 throughout New York State).
- 5 The 0.100 ppm standard is effective 1/22/2010. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average within an area must not exceed 0.100 ppm.
- 6 New York State also has 30, 60, and 90-day standards as well as geometric mean standards of 45, 55, and 65 µg/m³ in Part 257 of NYCRR. While these TSP standards have been superseded by the above PM₁₀ standards, TSP measurements may still serve as surrogates to PM₁₀ measurements in the determination of compliance status.
- 7 Federal standard for PM₁₀ not yet officially adopted by NYS, but is currently being applied to determine compliance status.
- 8 Federal standard was changed from 65 to 35 µg/m³ on December 17, 2006. Compliance with the Federal standard is determined by using the average of 98th percentile 24 hour value during the past three years, which cannot exceed 35 µg/m³.
- 9 Former NYS Standard for ozone of 0.08 PPM was not officially revised via regulatory process to coincide with the Federal standard of 0.12 PPM which is currently being applied by NYS to determine compliance status. Compliance with the Federal 8 hour standards is determined by using the average of the 4th highest daily value during the past three years - which cannot exceed 0.084 PPM or 0.075 PPM, effective May 27, 2008).
- 10 (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.
- 11 Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

b) Wastewater Treatment Plant

The existing wastewater treatment plant houses the primary clarifier and rotating biological contactor (RBC) unit in an enclosed and ventilated building. There is no odor treatment process at the existing plant.

2. Potential Impacts

a) Air Quality Determination Process

Air Quality Determination Process for Microscale (Local) Analysis

The NYSDOT has developed a screening process to determine if an intersection has the potential, based upon traffic volumes and their operation, to cause air quality problems. All of the intersections in the project area were evaluated using the screening process and it was determined that, based upon their traffic volumes, no additional air quality modeling was needed.

The procedures outlined in the NYSDOT Environmental Procedures Manual (EPM), Chapter 1.1 for the Environmental Analysis Bureau (January, 2001) were followed to determine the air quality requirements, specifically a microscale analysis, for this proposed development.² The EPM outlines the requirements of the National Environmental Policy Act (NEPA) and State Environmental Quality Review Act (SEQRA), which are the Federal and State environmental review acts,

² NYSDOT Environmental Procedures Manual Chapter 1.1 - Air Quality Project Environmental Guidelines, NYSDOT Environmental Analysis Bureau. New York, January 2001.

respectively. The following determination follows the guidelines set forth by these two acts. The determination for a required microscale analysis is based on the consideration of various criteria.

There are essentially three levels of screening: level of service (LOS) screening, capture criteria screening, and volume threshold screening, all of which were considered. A review of the traffic data was conducted and it was determined that a microscale analysis is not needed.

Air Quality Determination Process for Mesoscale (Regional) Analysis

EPM, Chapter 1.1 for the Environmental Analysis Bureau also outlines the procedures to determine the mesoscale (regional) analysis requirements. A mesoscale analysis is a calculation of the total emissions in an area over some period (typically, in kilograms or tons per day or year). The EPM indicates that projects with build alternatives that could have significant impact on emissions on a regional basis should have a mesoscale analysis performed. In non-attainment and maintenance areas, projects having alternatives (including the No-Build) with significant increases (10 percent) in Vehicle Miles Traveled (VMT) should have a mesoscale analysis performed.

Based on the traffic volumes, the regional VMT increase would be less than 3 percent between No-Build and Build conditions. The increase in VMT with the Project does not meet the NYSDOT threshold and, therefore, is not required to undergo a mesoscale air quality analysis for mobile sources.

3. Greenhouse Gas Emissions

The mobile and stationary source greenhouse gas (GHG) analysis follows the NYSDEC Policy for Assessing Energy Use and Greenhouse Gas Emission in Environmental Impact Statements in 2009 (the Policy).³

The NYSDEC recently developed and issued the NYSDEC Policy for evaluating GHG emissions. This Policy requires project proponent to quantify GHG emissions and to identify the feasible measures to minimize both mobile and stationary source GHG emissions generated by their proposed projects.

The NYSDEC Policy states “climate change will continue to adversely affect the environment and natural resources of New York State, the nation, and the world. SEQRA requires that lead agencies identify and assess adverse environmental impacts, and then mitigate or reduce such impacts to the extent they are found to be significant. The GHG

³ *Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements*, New York State Department of Environmental Conservation DEC Policy, July 15, 2009.

Policy document was prepared to provide guidance as to methods to assess and mitigate these impacts when preparing and reviewing an EIS.”

In addition, in 2008 the Westchester County presented its comprehensive Action plan calling for an aggressive reduction goal for greenhouse gas emissions by all section of the community: a 20 percent reduction by 2015 and an 80 percent reduction by 2050⁴.

GHG emissions were calculated for both mobile and stationary sources and follow the NY Policy guidance. While GHG emissions include several gases, carbon dioxide (CO₂) was selected for evaluation because it is the most significant component of project-related GHG emissions. The Project Proponent is committed to including sustainable planning and design elements that would result in reductions of GHG emissions, as well as, reduced energy use.

a) GHG Emission for Mobile Sources

The mobile source GHG mesoscale analysis estimated the future study area CO₂ emissions due to the changes in traffic data. The mobile source emissions are small when compared to the total emissions for the entire suburban area and would not be expected to affect GHG concentrations at or in the vicinity of the subject property. GHG is a regional problem that is addressed over an area that is much larger than the Site.

The mobile source analysis estimated the area-wide CO₂ emissions from vehicle traffic for a time period of one year. The change in CO₂ emissions from traffic was based on the average yearly traffic volumes, roadway lengths and vehicle emissions factors for existing and new trips for weekday and weekend conditions. The mobile source GHG analysis uses typical daily peak and off peak traffic volumes for the ozone season (summer). Vehicle speeds are developed based upon traffic volumes, observed traffic flow characteristics, and roadway capacity.

Mobile source CO₂ emissions are based upon the traffic volumes, the distance traveled and the GHG emission rates presents the CO₂ analysis results for all conditions. Under the No-Build Condition, the total annual CO₂ emissions were estimated to be 22,162.3 tons per year (tpy). This will increase by 514.4 tpy to 22,676.7 tpy under the Build Condition.

⁴ Westchester Plan for Climate Change and Sustainable Development, 2008. www.westchestergov.com/globalwarming

Table III.O-3
Mobile Source Greenhouse Gas (CO₂) Analysis Results (tpy)

Pollutant	2013 Existing Conditions	2018 No-Build Conditions	2018 Project-Related CO₂ Emissions¹	2018 Build
CO₂ Emissions	19,867.7	22,162.3	514.4	22,676.7

¹ Represents the difference in CO₂ emissions between the Build Conditions and the No-Build Conditions

b) GHG Emissions for Stationary Sources

The Applicant is proposing to implement elements that will result in decreased energy use, and therefore, reduced GHG emissions. Since the proposed development is still in the early design stage, various assumptions related to building architecture, interior fit-out, and some operational measures are assumed at this time relative to the proposed development.

Direct emissions include those emissions from the facility itself such as boilers, heaters, and internal combustion engines. Indirect emissions includes GHG emissions from the consumption of electricity, heat, or cooling from off-site sources such as electrical utility or district heating and cooling systems. The direct and indirect stationary source CO₂ emissions from the proposed development's proposed building sources are calculated using the computer-based eQUEST model⁵ based on assumptions for the proposed development's building elements, such as (but not limited to) the specific type of use for each building (residential); the configuration of the building; building architecture; interior fit-out; and HVAC equipment efficiency ratings.

The building's modeling assumptions of electric and gas loads demonstrate that the development is expected to emit approximately 10,352 tpy per year of CO₂ emissions in 2018. However, it is important to recognize that due to the conceptual nature of this analysis, there is the potential for changes in building design based upon environmental conditions, construction, and costs that may dictate changes in building features/systems through the final design process. Table III.O-5 presents a summary of stationary source GHG emissions projected for the Project.

⁵ eQUEST (the Quick Energy Simulation Tool), version 3.64 release from James J. Hirsch, DBA James J. Hirsch & Associates, Camarillo, CA.

The eQUEST model estimates the amount of energy consumed by the proposed development buildings from electricity and gas usage based on building design and systems. Then the amount of consumed energy is converted into the amount of CO₂ emitted using the standardized conversion factor. The stationary source assessment calculated CO₂ emissions for the 2018 Build Condition assuming typical construction materials and building equipment/systems.

The model includes information on building geometry, construction type, material properties, internal loads, HVAC systems, climatic data and utility rates. Modeling parameters for operating schedules, set points, lighting power densities, HVAC efficiencies, and utility rates are based upon general assumptions made in order to estimate the greenhouse gas emissions. (See the following subsection for proposed energy-efficiency measures to be incorporated into the project design). The model geometries and general system configuration are based on floor plans, elevations, and mechanical schedules.

Table III.O-4
Stationary Source CO₂ Emissions (tons per year)¹

Building Type	Number of Units	Electric Consumption (MWh)	CO ₂ Emissions : Electric (tons per yr)	Gas Consumption (MBtu)	CO ₂ Emissions: Gas (tons per yr)	Total CO ₂ (tons per yr)
Fairway Residences	5	93.8	398.4	405.4	237.1	635.5
Golf Cottages	5	93.8	398.4	405.4	237.1	635.5
Golf Residences						
2-Bedroom	58	999.9	4,249.7	4,420.8	2,585.6	6,835.3
3-Bedroom	6	103.4	439.6	457.3	267.5	707.1
Club Villa	14	223.3	949.0	1,007.6	589.3	1,538.3
Total Residential	88 Units	1,514.2	6,435.1	6,696.5	3,916.6	10,351.7

1. The results are based on the energy model information using the eQUEST model. The results are presented in Appendix O.

Proposed Stationary Source Emissions-Related Improvements

The following outlines energy-efficient measures that are being considered in the proposed Brynwood Golf & Country Club residential buildings. Where possible, these measures were included in the eQUEST modeling effort (as noted above). However, many of these will be additional energy measures, above and beyond the modeling input.

- Spray foam insulation in appropriate locations to prevent air leakage and heat loss.

- Blown fiberglass insulation in the attic areas, as required, meeting the R-38 value.
- Installation of EnergyStar compliant windows and doors.
- Installation of EnergyStar compliant appliances.
- Engineered installation of energy efficient HVAC system(s) and ventilation system(s) (exhaust fan).
- Caulking and sealing of top plates on all floors to eliminate air gaps prior to sheet rock installation to better prevent air loss.
- Use of energy efficient light bulbs.
- Implementation of infiltration tests.
- Seams of all exterior house wraps would be taped and additional sealant/tape would be used at all windows and doors.
- Exhaust fans would be provided to ensure proper exchange of all interior air.
- Spray foam would be installed around all electrical boxes.
- Programmable thermostats would be installed.
- Split zone HVAC(s) would be installed to better control usage of heat and air conditioning.
- Energy efficient hot water heaters and furnaces would be installed.

The buildings will follow all residential building requirements outlined in both the New State Building Code requirements as well those outlined in the North Castle Town Code (including the New York State Uniform Fire Prevention and Building Code: the Uniform Code and the State Energy Conservation Construction Code: The Energy Code).

The Applicant's commitment to sustainable design and emissions reduction measures through the implementation of the measures outlined above will be finalized upon the further development of the design of the buildings, to achieve energy efficient buildings. It is anticipated that reduction in energy, in part, will be accomplished by implementation of mitigation measures in the core and shell of the proposed residential buildings.

The incorporation of the energy-efficient measures into the project design, as outlined above, is expected reduce GHG emissions on the order of 10 to 20 percent as compared to the New York State building and energy code requirements. The specific improvements may be subject to design modification as needed to achieve the GHG emissions reduction based on the final building program and design.

Proposed Project's GHG Emissions

Table III.O-5 presents the increase in GHG CO₂ emissions (mobile and stationary source emissions combined), 10,866.1 tons of CO₂ per year, for the Project.

Table III.O-5
Proposed Project's Greenhouse Gas (CO₂) Emissions Results (tpy)

Type of GHG Emissions	2018 Build Condition
Mobile Source CO ₂ Emissions (Project Related)	514.4
Stationary Source CO ₂ Emissions	10,351.7
Total Project CO ₂ Emissions	10,866.1

The existing stationary source GHG emissions are expected to be minimal because the Site is currently a golf course. Therefore, the 2018 Build Condition was estimated to increase GHG emissions by 514.4 tpy for the mobile sources and by 10,351.7 tpy for the new stationary sources. The total increase of the proposed Project was estimated to be 10,866.1 tpy.

c) Wastewater Treatment Plant

The proposed wastewater treatment plant process equipment shall be housed in a climate controlled and ventilated structure, any outside tanks shall be covered, and backup power generation shall be provided. Due to the surrounding golf course and country club facilities, an odor control unit shall be included in the process building. This unit will require an air emission permit from Westchester County Department of Health.

d) Existing Sources' Impacts on Proposed Residential Areas

The air quality study evaluated the area around the Site to determine if there were any large stationary sources of air pollution in the Site vicinity. Because the proposed development will consist of residential units, an additional consideration with this type of development is the potential for air quality impacts of existing sources on the proposed residential units. An evaluation of the existing sources with potential emissions within approximately one mile of the Site was conducted to determine if there could potentially be a substantial air quality impact on the proposed residential units due to these sources.

To identify any existing sources with emission releases located within approximately one mile of the Site, NYSDEC's Air Permit Access webpage (<http://www.dec.ny.gov/chemical/32249.html>) and USEPA's Facility Registry System (FRS) webpage (http://oaspub.epa.gov/enviro/ef_home2.air) were

accessed. The NYSDEC's webpage provides copies of all State Facility and Title V operating permits issued in the state of New York. The FRS is a database that identifies facilities, sites, or places subject to environmental regulations or of environmental interest across the United States.

The review of these resources indicated that there are no large stationary sources of air pollution within one mile of the Site. The potential air quality impacts on the Site due to this type of emission sources is expected to be minimal and would not impact the health and safety of the residents and visitors to the Site. It should be noted that if a large stationary source were to be proposed in the vicinity of the Site, the NYDEC would require substantial emission controls and a detailed air quality analysis demonstrating that there would be no adverse air quality impacts on the Site.

e) Temporary Construction-Related Impacts

Air quality in the study area would not be substantially affected by project construction because of the temporary nature of site development construction and the confines of the construction area. Emissions from the operation of construction machinery (CO, NO_x, PM, SO_x, and VOC) are short-term and not expected to be significant.

Construction Vehicle Emissions.

Vehicular criteria pollutant emissions can occur as a result of traffic and/or added trip length from private vehicles that encounter roadway diversions or detours associated with the Project, as well as from emissions from the actual construction vehicles. For the construction of the proposed development, there are no anticipated road closures or diversions. Therefore, an air impact analysis for this aspect of construction (i.e. private vehicles) was not required.

Construction vehicles will also emit criteria air pollutants through their engine exhaust. The impacts from construction vehicles are expected to be minimal because the prohibition of excessive idling of construction equipment engines will be implemented.

Fugitive Dust

There is the potential for fugitive dust to be created during the construction period due to site preparation activities, including removal of vegetation and site grading. Fugitive dust emissions will be mitigated by wetting and stabilizing soils to suppress dust generation. Other dust suppression methods would include the spraying of soil stockpiles during dry periods and covering trucks carrying solid and other dry materials.

4. Mitigation Measures

Consistent with the NYSDEC GHG Policy, the proposed development evaluated the potential change in GHG emissions (both stationary and mobile sources). The Applicant is committed to incorporating energy saving measures in the proposed development design that will minimize the increase in future GHG emissions. The yearly increase in GHG emission due to the implementation of the Project is not expected to create a substantial impact on regional GHG emissions (see Appendix N for air quality appendix data).

The air quality study evaluation for the Project included an assessment of the need to conduct mobile source analyses to determine the potential change in air pollution from the Project. A review of the study area traffic volumes determined that neither a microscale or a mesoscale analysis are required. The peak traffic volumes along NYS Route 22 range from approximately 400 to 650 vph during the peak hours with only (8 entering and 39 exiting during the morning peak hour) and (38 entering and 18 exiting during the evening peak hour).

Based on the low volumes of the study area, the proposed Byrnwood Golf & Country Club development conforms to the CAAA and the SIP as the existing and future CO, PM₁₀, and PM_{2.5} concentrations impacts from vehicles traveling through the study intersections will be well below the NAAQS.

The air quality study demonstrates that the Brynwood Golf & Country Club development conforms to the CAAA and the SIP because:

- No violation of the NAAQS would be expected to be created.
- No increase in the frequency or severity of any existing violations (none of which are related to this development) would be anticipated to occur.
- No delay in attainment of any NAAQS would be expected to result due to the implementation of the proposed action.

Based upon the analysis presented herein and the conclusions summarized above, no significant adverse air quality impacts from the Project are anticipated, therefore no long term mitigation measures are required.

P. Noise

The purpose of the noise evaluation was to assess compliance of the proposed Project with the Town of North Castle, the New York State Department of Transportation (NYSDOT), and the Federal Highway Administration (FHWA) noise impact criteria. The noise study evaluates existing and future sound levels in the vicinity of the Project following the procedures and guidance provided in the NYSDEC's Policy¹ for assessing and mitigating noise impacts. The noise study evaluated noise associated with mobile and stationary sources under existing and future conditions. The existing and future sound levels were then compared to the appropriate noise impact criteria. The following sections discuss the background noise information, the noise study methodology, existing conditions, and the results. (See Appendix P, Noise Appendix.)

1. Existing Conditions

a) Noise Background

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, work, or recreation. The individual human response to noise is subject to considerable variability since there are many emotional and physical factors that contribute to the differences in reaction to noise.

Sound (noise) is described in terms of loudness, frequency, and duration. Loudness is the sound pressure level measured on a logarithmic scale in units of decibels (dB). For community noise impact assessment, sound level frequency characteristics are based upon human hearing, using an A-weighted [dB(A)] frequency filter. The A-weighted filter is used because it approximates the way humans hear sound. Table III.P-1 presents a list of common outdoor and indoor sound levels. The duration characteristics of sound account for the time-varying nature of sound sources.

¹DEP-00-1: Assessing and Mitigating Noise Impacts, New York State Department of Environmental Conservation, Revised February 2, 2001.



Table III.P-1
Common Outdoor and Indoor Sound Levels

Outdoor Sound Levels	Sound Pressure μPa^*		Sound Level dB(A)^{**}	Indoor Sound Levels
Jet Over-Flight at 300 m	6,324,555	-	110	Rock Band at 5 meters (m)
		-	105	
Gas Lawn Mower at 1 m	2,000,000	-	100	Inside New York Subway Train
		-	95	
Diesel Truck at 15 m	632,456	-	90	Food Blender at 1 m
		-	85	
Noisy Urban Area—Daytime	200,000	-	80	Garbage Disposal at 1 m
		-	75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	-	70	Vacuum Cleaner at 3 m
		-	65	Normal Speech at 1 m
Suburban Commercial Area	20,000	-	60	
		-	55	Quiet Conversation at 1 m
Quiet Urban Area—Daytime	6,325	-	50	Dishwasher Next Room
		-	45	
Quiet Urban Area—Nighttime	2,000	-	40	Empty Theater or Library
		-	35	
Quiet Suburb—Nighttime	632	-	30	Quiet Bedroom at Night
		-	25	Empty Concert Hall
Quiet Rural Area—Nighttime	200	-	20	
		-	15	Broadcast and Recording Studios
Rustling Leaves	63	-	10	
		-	5	
Reference Pressure Level	20	-	0	Threshold of Hearing

Source: *Highway Noise Fundamentals*. Federal Highway Administration, September 1980.

* μPa – MicroPascals, which describe pressure. The pressure level is what sound level monitors measure.

** dB(A) – A-weighted decibels, which describe pressure logarithmically with respect to 20 μPa (the reference pressure level).

Sound level data can be presented in statistical terms to help describe the noise environment. A near infinite variation in sound levels (various intensities and temporal patterns) can be combined into the same value. The equivalent sound level, or L_{eq} , was used as the monitoring and modeled sound level descriptors. The L_{eq} averages the background sound levels with short-term transient sound levels and provides a uniform method for comparing sound levels that vary over time. L_{max} (the secondary noise descriptor that has been evaluated in this study) refers to the maximum instantaneous sound level of an event.



The following general relationships exist between noise levels and human perception:

- A one or two dB(A) increase is not perceptible to the average person.
- A three-dB(A) increase is a doubling of acoustic energy, but is just barely perceptible to the human ear.
- A 10-dB(A) increase is a tenfold increase in acoustic energy, but is perceived as a doubling in loudness to the average person.

b) Noise Impact Criteria

Excessive noise can interfere with normal activities such as sleep, work, or recreation. The Town of North Castle, NYSDOT, and FHWA have developed policies and guidance in evaluating noise impacts.

Town of North Castle Noise Code

The subject property is located within the Town of North Castle, which has adopted a noise control ordinance.² The Town Code provides guidance on evaluating noise levels from different sources. The following are acts that would pertain to the proposed development.

Section 137-11 of the Town Code pertains to air conditioning and air handling devices:

No person shall operate or permit to be operated an air-conditioning or air-handling device that exceeds the maximum sound-level limitations provided in this section. In areas zoned residential, single-family or multiple-dwelling units, continuous sound in air which has crossed the property line shall not exceed 55 dB(A) at any point.

Section 137-17 provides sound level limits permitted at residential zoned districts.

- A. During the hours of 8:00 a.m. to 6:00 p.m., noise levels within any residential zoned district shall not exceed 65 dB(A).

²Chapter 137, Code of the Town of North Castle New York, adopted 9-26-1985.

- B. During the hours of 6:00 p.m. to 8:00 p.m., noise levels within any residential zoned district shall not exceed 55 dB(A).

Section 137-19 provides sound level limits associated with construction activities.

- A. No person shall conduct or permit to be conducted construction activities in a manner so as to produce a sound level exceeding 70 dB(A) in a residential zoned district during the hours of 8:00 a.m. to 6:00 p.m. or sundown, whichever is later, when measured at a distance of 400 feet from the construction site. During the hours of 6:00 p.m. or sundown, whichever is later, to 8:00 p.m., noise levels shall not exceed the maximum noise levels set forth in Section 137-17.

FHWA and NYSDOT Impact Criteria

Traffic noise can adversely affect human activities, such as communication. The FHWA has established Noise Abatement Criteria (NAC) to help protect the public health and welfare from excessive vehicular traffic noise. Recognizing that different areas are sensitive to noise in different ways, the NAC varies according to land use. The NAC are described in Table III.P-2.



Table III.P-2 – Noise Abatement Criteria (NAC)
One-Hour, A-Weighted Sound Levels in Decibels, dB(A)

Activity Category	L _{eq} (h)*	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purposes.
B**	67 (Exterior)	Residential
C**	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Exterior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E**	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in Categories A-D or F.
F	--	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	Undeveloped lands that are not permitted.

Source: 23 CFR Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*.

* Leq (h) is an energy averaged, one hour, A-weighted noise level in decibels (dB(A)). The Leq(h) Activity Criteria values are for impact determination only, and are not design standards for noise abatement measures.

** Includes undeveloped lands permitted for this Activity Category.

The NYSDOT has developed noise impact criteria that establish noise thresholds deemed to result in adverse impacts for transportation (motor vehicles) and non-highway projects (building mechanical equipment). It has also established technical procedures for evaluating sound levels and potential impacts from proposed projects. The NYSDOT guidelines, presented in Table III.P-3, set forth appropriate sound levels based upon the land use of the Project.



Table III.P-3
New York State Department of Transportation
Noise Impact Criteria

Activity Category	Noise Impact Criteria
Overall Sound Level	Approach within one decibel of NAC.
Transportation Projects	Project increases of six (6) or more decibels
Non-highway Projects	Project increases of three (3) or more decibels

Source: New York State Department of Transportation, Environmental Procedure Manual, Chapter 3.1 August 1998.

NYSDOT endorses the FHWA's procedures and considers adverse noise impacts to occur when existing or future sound levels approach [within one dB(A)] or exceed the NAC, or when future sound levels exceed the highest existing sound levels by six dB(A) or more. For non-highway projects (building mechanical equipment), adverse noise impacts are considered to occur when the future sound levels exceed the existing sound levels by three dB(A) or more. These guidance criteria are the recommended maximum levels for identifying locations that may be affected by noise and are more stringent than FHWA criteria, which considers future sound level increases of 10 dB(A) as a noise impact.

c) Noise Study Methodology

The noise study evaluates sound levels from mobile sources (vehicle traffic) and stationary sources (building mechanical equipment) associated with the Project. The mobile source noise analysis followed NYSDOT/FHWA procedures and evaluated maximum daytime sound levels due to project-related traffic (dominant project-related daytime noise sources). The stationary source noise analysis calculated sound levels associated with the mechanical equipment (dominant project-related nighttime noise sources) applying the properties of sound propagation over terrain and distance. The results of these analyses were compared to the appropriate noise impact criteria.

The area in the vicinity of the subject property was evaluated and potential sensitive locations were identified as receptors, including the residential areas. These receptor locations are presented in Exhibit III.P-1. The nearest residential uses to the west of the subject property is located on Byran Lake Road, across I-684. The noise associated with I-684 would be the dominant noise source for the residential uses along Byran Lake Road and would mask the noise from the Project.

The FHWA Traffic Noise Model (TNM)³ was used to model noise generated by vehicle traffic based on traffic volume and speeds under both existing and future build conditions. The mobile source sound levels and their changes as compared to the existing conditions were compared to NYSDOT noise criteria to determine whether noise impacts existed and/or were created by the Project.

The stationary source sound levels from the potential mechanical equipment were calculated based upon the manufactures reference sound levels projected to the receptor locations using the properties of acoustical propagation over distance. The mechanical equipment was selected based upon the building use. The stationary source build sound levels and their changes from existing conditions were compared to the Town of North Castle's noise criteria to determine whether noise impacts existed or were created. If noise impacts were determined, noise mitigation measures were evaluated for areas with noise impacts.

In addition, sound levels associated with the activities occurring during construction were calculated for a distance of 400 feet from the construction site. FHWA's Roadway Construction Noise Model (RCNM) was used to calculate sound levels associated with the construction equipment. These sound levels were compared to the Town Code.

d) Existing Site and Area Conditions

The Project is located in a developed area. The existing noise environment includes sound levels from vehicular traffic on Route 22, I-684, and other local roadways. The FHWA's TNM model was used to calculate the existing sound levels in the Project's area based upon the existing traffic volumes, speeds, and lane geometry. Peak hour traffic volumes for both Existing and Build Conditions were obtained from the traffic study conducted for the Project. Nighttime sound levels were determined based on an adjustment factor obtained from measured sound levels from a site with similar characteristics.

The sound levels, L_{eq} ranged from 47 dB(A) to 58 dB(A) during the daytime period. The nighttime L_{eq} sound levels ranged from 42 dB(A) to 53 dB(A). These sound levels are below Town and NYSDOT noise impact criteria, and are typical for an area located near roadways. Table III.P-4 presents the existing sound levels.

³Traffic Noise Model 2.5 (TNM), Federal Highway Administration, February 2004

Table III.P-4
Average Existing Noise Monitoring (Baseline) Sound Levels, dB(A)

Receptor Location	Town Daytime Impact Criteria	Town Nighttime Impact Criteria	NYSDOT Impact Criteria	Daytime Sound Level	Nighttime Sound Level
R1 - EMBASSY CT 1	65	55	66	53	48
R2 - EMBASST CT 2	65	55	66	53	48
R3 - ILANA CT 3	65	55	66	56	51
R4 - EMBASSY CT 4	65	55	66	58	52
R5 - EMBASSY CT 5	65	55	66	53	48
R6 - EMBASSY CT 6	65	55	66	53	48
R7 - EVERGREEN ROW 7	65	55	66	54	49
R8 - EVERGREEN ROW 8	65	55	66	49	44
R9 - NORTH LN 9	65	55	66	58	53
R10 - EVERGREEN ROW 10	65	55	66	58	53
R11 - EVERGREEN ROW 11	65	55	66	55	49
R12 - EVERGREEN ROW 12	65	55	66	54	48
R13 - EVERGREEN ROW 13	65	55	66	53	48
R14 - EVERGREEN ROW 14	65	55	66	54	49
R15 - EVERGREEN ROW 15	65	55	66	54	49
R16 - EVERGREEN ROW 16	65	55	66	48	42
R17 - EVERGREEN ROW 17	65	55	66	48	43
R18 - EVERGREEN ROW 18	65	55	66	47	42
R19 - EVERGREEN ROW 19	65	55	66	48	42
R20 - EVERGREEN ROW 20	65	55	66	48	43
R21 - EVERGREEN ROW 21	65	55	66	49	43
R22 - EVERGREEN ROW 22	65	55	66	49	44
R23 - EVERGREEN ROW 23	65	55	66	50	44

2. Potential Impacts

a) Project Sound Levels

A noise impact analysis was prepared to evaluate the projected sound levels and compare the results with the appropriate Town, State, and Federal noise impact criteria. The noise analysis evaluated the mobile and stationary source sound levels to determine the potential change in sound levels at the receptor locations in the vicinity of the proposed development. The mobile source noise analysis evaluated the maximum daytime sound levels. The stationary noise analysis evaluated the maximum nighttime sound levels.

Mobile Source Noise

Traffic noise sources were evaluated using the NYSDOT and FHWA noise assessment procedures. These procedures require the use of FHWA's TNM to evaluate vehicle traffic. The TNM model allows the user to calculate traffic sound levels at receptor locations by inputting peak hour traffic volumes, vehicle mix, vehicle speeds, buildings, and roadway and receptor geometry. The TNM model calculated sound levels emitted from various vehicles types, along different types of roadway conditions, and through changing terrain, using the properties of sound propagation. The TNM model calculated existing and future build sound levels for nearby sensitive receptor locations in the study area. The future build sound levels included cumulative impacts from traffic growth over time and increases in traffic from the proposed development and significant other projects in the study area. The following table summarizes the results of the peak hour daytime noise analysis for both Existing and Build Conditions.

Table III.P-5
Mobil Source Daytime Sound Levels, dB(A)

Receptor Location	Town Daytime Noise Criteria	NYSDOT Residential Criteria	NYSDOT Allowable Increase	Existing Daytime Condition	Build Daytime Condition	Change in Sound Level
R1 - EMBASSY CT 1	65	66	+6	53	53	+0
R2 - EMBASSY CT 2	65	66	+6	53	53	+0
R3 - ILANA CT 3	65	66	+6	56	56	+0
R4 - EMBASSY CT 4	65	66	+6	58	59	+1
R5 - EMBASSY CT 5	65	66	+6	53	54	+1
R6 - EMBASSY CT 6	65	66	+6	53	53	+0
R7 - EVERGREEN ROW 7	65	66	+6	54	55	+1
R8 - EVERGREEN ROW 8	65	66	+6	49	50	+1
R9 - NORTH LN 9	65	66	+6	58	59	+1
R10 - EVERGREEN ROW 10	65	66	+6	58	59	+1
R11 - EVERGREEN ROW 11	65	66	+6	55	56	+1
R12 - EVERGREEN ROW 12	65	66	+6	53	54	+1
R13 - EVERGREEN ROW 13	65	66	+6	53	54	+1
R14 - EVERGREEN ROW 14	65	66	+6	54	55	+1
R15 - EVERGREEN ROW 15	65	66	+6	54	55	+1
R16 - EVERGREEN ROW 16	65	66	+6	47	48	+1
R17 - EVERGREEN ROW 17	65	66	+6	47	48	+1
R18 - EVERGREEN ROW 18	65	66	+6	47	48	+1
R19 - EVERGREEN ROW 19	65	66	+6	47	48	+1
R20 - EVERGREEN ROW 20	65	66	+6	48	48	+0
R21 - EVERGREEN ROW 21	65	66	+6	48	49	+1
R22 - EVERGREEN ROW 22	65	66	+6	49	50	+1
R23 - EVERGREEN ROW 23	65	66	+6	49	50	+1

The maximum sound levels from mobile sources were assumed to occur during the daytime period. Under the Existing Conditions, the maximum sound levels at the receptor locations during weekday daytime ranged from 47 dB(A) to 58 dB(A). The receptor locations with the highest sound levels are located near the roadways, such as Route 22. Vehicular traffic is the primary source of noise for these receptor locations. These sound levels are typical for a suburban area located near major roadways. Under Build Conditions, the receptor locations will experience sound levels ranging from 48 dB(A) to 59 dB(A), which is below the Town and NYSDOT impact criteria. The maximum sound level increases, associated with vehicular traffic growth, is one dB(A), which is below NYSDOT's criteria of six dB(A) for transportation projects. As mentioned previously, sound level increases of less than three dB(A) are not perceptible to the human ear.



Stationary Source Noise

The noise analysis included an evaluation of the stationary sources of noise, which includes mechanical equipment located at each building of the Project. Due to the design process being in its early stages, assumptions of typical mechanical equipment were used in the noise analysis. Typical manufacturers' technical reference data were obtained for the mechanical equipment noise sources. The mechanical equipment was sized for each building. The noise analysis also assumed mitigation measures that included the purchase of state-of-the-art equipment and the constructing screen walls or parapet around the mechanical equipment.

The dominant noise source from the proposed development during the nighttime period was assumed to be the mechanical equipment. The Existing Condition ambient sound levels ranged from 42 dB(A) to 53 dB(A) during the nighttime. Sound levels associated with the proposed development's mechanical equipment ranged from 40 dB(A) to 48 dB(A). The Build Condition (existing plus mechanical equipment) sound levels ranged from 44 dB(A) to 54 dB(A) during the nighttime period. The results indicate that there will be a maximum increase of up to three dB(A) under the Build Condition. These results also demonstrate that the project-generated stationary source sound levels are all below both the Town of North Castle's noise threshold for air handling devices and overall nighttime sound levels, which is 55 dB(A). These results also meet the NYSDOT non-highway criteria of a three dB(A) increase. As mentioned previously, sound level increases of less than three dB(A) are not perceptible to the human ear. Table III.P-6 summarizes the maximum sound level results associated with the proposed development's mechanical equipment for the nighttime period.



Table III.P-6
Stationary Source Nighttime Sound Levels dB(A)

Receptor Location	Town Nighttime/ Equipment Criteria	NYSDOT Allowable Increase	Existing Nighttime Condition	Mechanical Equipment	Build Condition	Change in Sound Level
R1 - EMBASSY CT 1	55	+3	47.5	46.5	50.0	2.5
R2 - EMBASST CT 2	55	+3	47.8	44.4	49.4	1.6
R3 - ILANA CT 3	55	+3	50.5	41.7	51.0	0.5
R4 - EMBASSY CT 4	55	+3	52.4	44.7	53.1	0.7
R5 - EMBASSY CT 5	55	+3	48.0	42.8	49.1	1.1
R6 - EMBASSY CT 6	55	+3	47.6	42.6	48.8	1.2
R7 - EVERGREEN ROW 7	55	+3	49.0	42.8	49.9	0.9
R8 - EVERGREEN ROW 8	55	+3	44.0	41.5	46.0	2.0
R9 - NORTH LN 9	55	+3	52.9	46.6	53.8	0.9
R10 - EVERGREEN ROW 10	55	+3	52.6	48.1	53.9	1.3
R11 - EVERGREEN ROW 11	55	+3	49.4	46.6	51.2	1.8
R12 - EVERGREEN ROW 12	55	+3	48.2	45.6	50.1	1.9
R13 - EVERGREEN ROW 13	55	+3	48.1	44.5	49.7	1.6
R14 - EVERGREEN ROW 14	55	+3	48.9	44.0	50.1	1.2
R15 - EVERGREEN ROW 15	55	+3	48.9	43.3	49.9	1.0
R16 - EVERGREEN ROW 16	55	+3	42.3	39.8	44.2	1.9
R17 - EVERGREEN ROW 17	55	+3	42.5	40.6	44.7	2.2
R18 - EVERGREEN ROW 18	55	+3	42.1	41.0	44.6	2.5
R19 - EVERGREEN ROW 19	55	+3	42.3	41.5	44.9	2.6
R20 - EVERGREEN ROW 20	55	+3	42.6	42.2	45.4	2.8
R21 - EVERGREEN ROW 21	55	+3	43.3	43.0	46.2	2.9
R22 - EVERGREEN ROW 22	55	+3	44.1	44.0	47.1	3.0
R23 - EVERGREEN ROW 23	55	+3	44.3	43.5	46.9	2.6

Construction Noise

Construction activities may result in temporarily increases of nearby sound levels due to the intermittent use of heavy machinery during the construction of the Project. The proposed development is expected to generate typical sound levels from construction activities, including foundation construction, truck movements, heavy equipment operations, and general construction activities. Heavy machinery, such as front end loaders, graders, bulldozers, and backhoes, would be used intermittently throughout the Project's construction.

As required by the DEC Policy DEP-00-1, various phases of construction should be evaluated to assure that no noise impacts occur. The Town of North Castle's noise ordinance was used as guidance for construction-related noise evaluation.



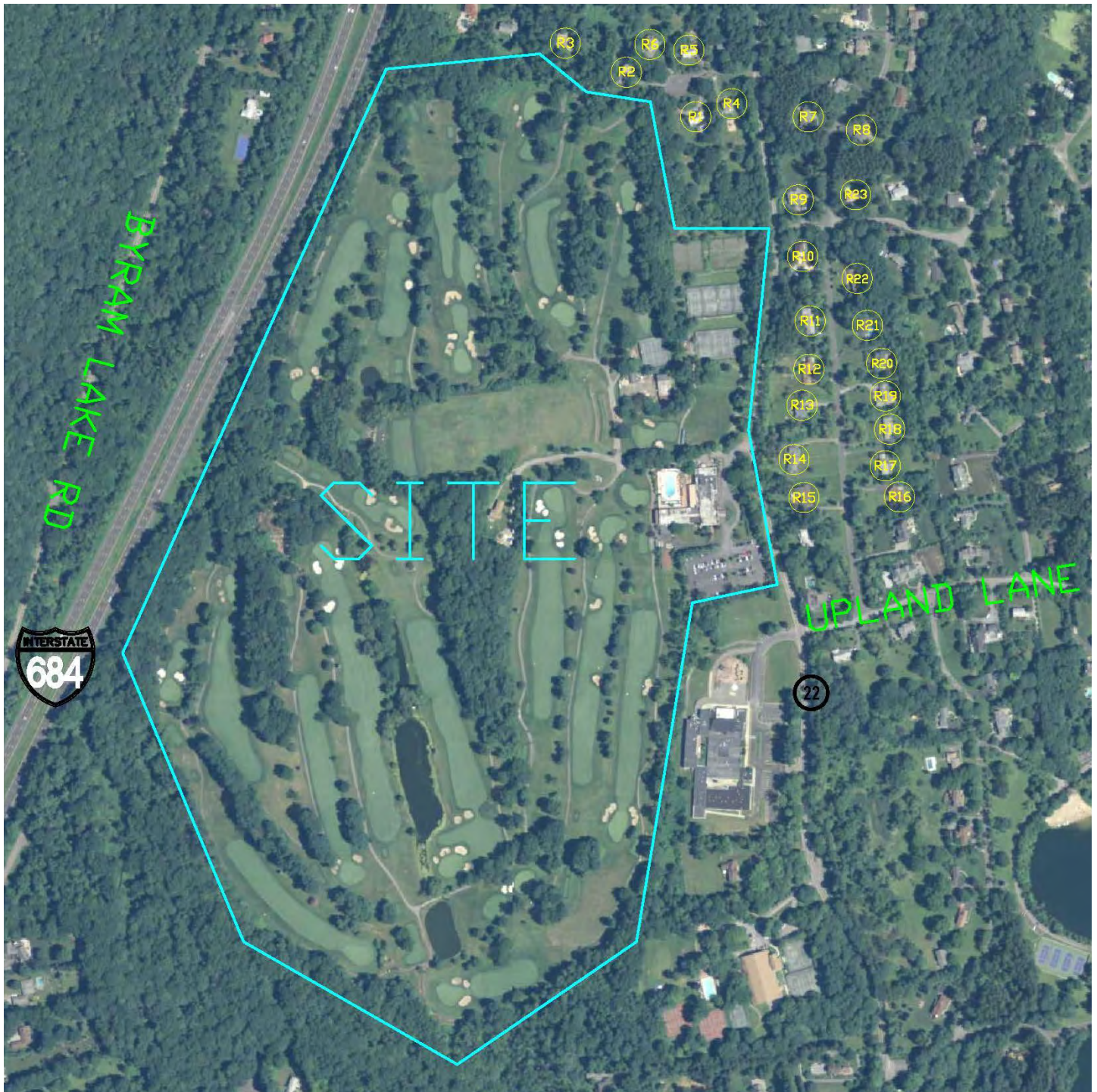
Sound level associated with the activities during the construction phase was calculated using FHWA's Roadway Construction Noise Model (RCNM) at a distance of 400 feet from the centroid of the construction site. The calculated sound level at 400 feet was 69 dB(A), which is below the Town's Code permitted sound level of 70 dB(A) during the hours of 8:00 a.m. to 6:00 p.m.

3. Mitigation Measures

No significant adverse noise impacts have been identified. However, the following measures, as suggested in the DEC Policy DEP-00-1, are being incorporated into the development to minimize noise:

- Construction equipment would be required to have installed and properly operating the original noise muffler systems.
- Construction activities would be performed at the times permitted by the Town of North Castle, in accordance with the noise ordinance.
- Loading and service activities for the proposed development will be located such that the buildings will screen the loading activities from the surrounding neighborhood.





Source: VHB

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Receptor Locations

Exhibit
III.P-1

Q. Hazardous Materials

1. Existing Conditions

A Phase I Environmental Site Assessment (ESA) of the entire Site was prepared by Ecosystems Strategies, Inc. (ESI) in May 2008 in accordance with established procedures and with the guidance of regulatory agencies and American Society of Testing and Materials (ASTM) Practice E1527-05. The Phase I ESA identifies recognized environmental conditions (RECs) and/or other significant environmental liabilities resulting from or associated with the storage, use, transport, or disposal of hazardous or regulated materials on the property. The findings and outcome of the Phase I ESA are summarized in this section. The full report including methodology, regulatory criteria, site photographs and mapping is provided in Appendix L.

The Phase I ESA revealed no evidence of recognized environmental conditions (RECs) at the Site, except for potential subsurface impacts from the former presence of a 1,000-gallon on-site gasoline underground storage tank (UST) adjacent to the maintenance building, and a former 550-gallon gasoline UST adjacent to the golf cart storage barn. The USTs were removed prior to 1998 in accordance with Federal regulation (40 CFR Part 280). No specific information is available, but due to legal requirements, site remediation was likely necessary.

From February to April 2010, the Club underwent a non-structural renovation that led to cosmetic changes to the clubhouse interior, including all new furniture, fixtures and equipment. Due to the cosmetic nature of the renovation, no asbestos or lead testing was completed during the renovation. The renovations also included an update to the pool area behind the clubhouse. No changes to the pool chemical storage facility took place.

As of January 2013, all hazardous materials facilities on the Site met regulatory requirements, following an inspection by the Westchester County Department of Health and assisted by the consulting firm Performer Compliance.

Specific issues referenced in the Phase I EA include the following:

- *Asbestos-Containing Materials and Lead-Based Paint.* The Phase I ESA found that asbestos-containing materials could potentially be present, particularly in vinyl floor tiles and dropped acoustic ceiling tiles. Other building construction materials not readily observable during the site inspection (e.g., mastics) could also potentially contain asbestos. No further investigation was recommended with respect to testing for asbestos. As for

lead testing, all painted surfaces in the areas inspected were in good condition at the time of the site visit in 2008, suggesting that no health risks are currently present from lead-based paint dust or chips. The Golf Course Superintendent reports that lead-based paint was not detected during the 2010 renovation¹.

- *Chemical Storage.* All chemicals, including pesticides, pool chemicals, sewage treatment chemicals and surfactants are in locked sheds or otherwise contained storage areas in the clubhouse, golf equipment repair areas and near the sewage treatment plant. No leakage was observed. Soils and groundwater were not sampled, but the Phase I ESA identifies the historic uses pesticides on the golf course as potentially impacting soils and/or groundwater.

As of 2013, the Club has begun sampling stream outfalls at points of entry and exit. Sampling will become a part of standard operating procedures, as part of the 2012 Audubon certification of the Site². (Groundwater is not sampled; however, on-site irrigation ponds are sampled once a year.) See Appendix I for 2013 surface water monitoring data to date.

Protocols and standard operating procedures have been put in place whereby soil testing is being performed twice a year through an outside laboratory and a contamination audit of surface flow and irrigation water is performed monthly. Stormwater runoff is also tested monthly for possible contaminants. As part of a proactive program to ensure no contamination occurs, best management practices are used to limit the number of pesticide applications made as well as reduce the application rates of all active ingredients of the pesticides used. Pesticides to be used on this golf course have been shown to have a low risk of both surface and ground water contamination.

A comprehensive list of fertilizers, pesticides, herbicides and fungicides along with water quality protection methods used on-site is provided in the ITPMP in Appendix E.

The Phase I ESA also identified the following conditions:

- *Debris.* Approximately 20-30 cubic yards of debris consisting of wood, metal, and household trash was previously located on the central portion of the

¹ Conversation with Andrew Thompson, Golf Course Superintendent, January 23, 2013.

² Conversation with Andrew Thompson, Golf Course Superintendent, January 23, 2013.

Site near the sewage treatment plant, behind green 3 and tee 4. Since 2008, this debris pile has been converted to a storage area for grass clippings and other plant-based waste. The only waste that has been disposed of on the Site has been green waste: grass clippings, branches and brush, leaves, etc. The pile is mulched in place and recycled for use on the Site. No metal or household trash is kept in the pile as of January 2013. The on-site metal debris and household waste was removed in accordance with applicable regulations.

- *Petroleum Storage Tanks.* Four underground and above-ground storage tanks were removed from the Site in 1996. Currently there are five above-ground storage tanks located on the Site, according to a current Petroleum Bulk Storage Registration Form (See Figure Q-1 in Appendix L). These tanks appeared to be in sound condition and no evidence of a release or an impending threat of a release was observed during the site inspection. All petroleum storage tanks are periodically inspected and managed in accordance with applicable state and local regulations. Specifically, the petroleum tanks and heating oil tank are inspected daily by the Golf Course Superintendent for visual leaks and non-visual signs (odors). Following minor improvements in 2012, all facilities are up to code. There is a Spill Prevention and Containment Protocol in place, as per NYSDEC, which is implemented by the golf course superintendent.
- *Small Petroleum and Chemical Storage Containers.* Small quantities of petroleum products and chemicals are stored on the Site, including at the golf cart barn, for fueling of carts. Releases from these containers could potentially impact the Site. As of the 2012 inspection by the Westchester County Department of Health, all petroleum and chemical products were properly stored within adequate secondary containment areas and appropriate absorbent materials were maintained in all areas where releases could potentially occur.

The Phase I ESA does not recommend any further investigation for the mitigation of historic uses and “closed” spill events. However, future excavations will require an awareness of potentially regulated subsurface debris from historic uses and special handling of soils potentially contaminated with petroleum products, especially near former underground storage tank (UST) sites. The sites are shown in Figure III.Q-1, ESA Site Features.

According to Troon Golf, who is managing Brynwood, all existing bulk petroleum storage tanks are up to code and secured. Going forward it will remain standard operating procedure to perform routine maintenance to ensure that these

existing, as well as future, bulk petroleum storage facilities remain up to code. Current gasoline, diesel and heating oil tanks include the following:

- 1500 Gallons – Agronomy Gasoline
- 500 Gallons – Agronomy Diesel
- 500 Gallons – Golf Operations Gasoline
- 275 Gallons – Waste Treatment Plant Diesel (generator)
- 2000 Gallons – Heating oil Tank at Clubhouse
- 1500 Gallons – Clubhouse Generator Diesel (generator)
- 1000 Gallons – Irrigation Pumphouse (diesel generator)

2. Potential Impacts

All current and former hazardous materials locations will be removed or replaced as part of construction of the Project. Any demolition debris found to contain hazardous materials will be disposed of by a licensed disposal contractor.

- **Asbestos-Containing Materials and Lead-Based Paint** may be encountered during construction and renovation of the club house and maintenance building, and will be abated in accordance with applicable laws and regulatory protocols, prior to commencement of construction. Impacts from asbestos removal without proper mitigation are primarily related to the potential health impacts from inhalation of airborne asbestos fibers, which could lead to respiratory disease. Ingestion or inhalation of lead-based paint particles could lead to disorders because lead interferes with a variety of body processes.
- **Chemical Storage.** The maintenance building will be moved from its current location, along with all chemical storage tanks. The new maintenance area will be in the vicinity of the wastewater treatment plant (see Maintenance Area, Exhibit II-14G). The new chemical storage facility will be a stand alone, pre-fabricated building with air ventilation and circulation systems capable of preventing hazardous gaseous buildup, and will be climate controlled. The chemical storage building will be secured by lock and will be under 24-hour surveillance by a closed circuit video security system.

The chemical storage facility will follow all NYSDEC requirements for construction materials including an impermeable bottom and false bottom containment to hold a minimum 25% volume of stored materials. A change in the volume of chemicals used on-site is not

expected, except for potentially fewer fertilizers and pesticides, as prescribed in the ITPMP.

Impacts might result to stormwater runoff if chemicals were not properly stored, as well as if they were not applied in the proper amounts using the proper protocols. Impacts to receiving waterbodies would result, including impacts to water quality and to the health of aquatic vegetation and wildlife.

- **Debris.** The green waste debris pile will be removed from its current location and relocated to another on-site location. The volume of green waste is expected to remain approximately the same. The debris pile does not contain hazardous materials. The land on which it is located will be tested as part of the construction process, and if any hazardous materials are found, they will be remediated in accordance with applicable law. An uncontrolled debris pile over time would decompose and could potentially create adverse conditions to surface water runoff, groundwater, and/or soil.
- **Petroleum Storage Tanks.** The Project includes the removal or replacement of all existing petroleum storage tanks. The potential impact with these relocations involves the potential spill of petroleum. An uncontained oil spill could cause contamination of the surrounding soil and/or groundwater, and a potentially adverse effect on the health of any plants or animals that come into contact with the spill. Any oil carried overland by stormwater runoff might be transported into nearby streams and/or waterbodies, and therefore potentially impact the health of aquatic vegetation and animals.

Bulk petroleum storage would be maintained at current levels throughout the construction phase of the Project. On-site gasoline and diesel fuel will not be available for use by outside contractors.

3. Mitigation Measures

Although impacts due to hazardous materials are not anticipated, mitigation measures are listed below. Implementation of these measures will be carried out by the Applicant through Brynwood management, golf course superintendent, following the ITPMP and the operations manual described below (see Appendix E for more detail).

The golf course superintendent will have the responsibility of implementing the ITPMP and reporting on all phases of the project, from renovation to yearly maintenance. Implementation will involve developing an operational manual that utilizes the information found in this report. Following renovation of the golf course, the operational ITPMP will be provided to the Town each year showing additions, changes and deletions to the previous years' plan in a summary section. By February of each year the applicant will provide the Town with report of the previous years' activities that will include: materials used, irrigation protocol, IPM Program including results from pest scouting and all pest control applications.

The applicant may upon review of the history of the site suggest changes to the ITPMP, which may include adoption of new technologies, materials and deletions of materials to be used. Any new pesticide to be considered for use will go through a risk assessment using the currently acceptable method. Within a time frame of three months, the Town must notify the applicant of their decision on approving modifications to the ITPMP.

1. *Best management practices to be utilized during the construction and operation of the Project:*

a) Asbestos-Containing Materials and Lead-Based Paint. As part of the Project, any suspect material encountered during renovation or demolition activities will be tested for asbestos and lead. If asbestos is found, it will be abated prior to commencement of construction, and all maintenance, renovation, or demolition activities will be conducted in accordance with applicable state, county and local regulations.

b) Chemical Storage. The demolition of the existing storage building and use and maintenance of the new chemical storage building will comply with the NYSDEC regulations and Westchester County Fertilizer Restriction Law . If spills occur, they will be managed and abated in accordance with all applicable laws and protocols. All fill stations for chemicals and gasoline will be bermed and with self contained collection pit to prevent contamination. Rinsing of application devices and vehicles all would occur within this controlled area (See Exhibit II-14G, Maintenance Area). In addition, in general, many chemicals, particularly the pool chemicals, are ordered, delivered and applied, often not needing to be stored on site. All chemicals being delivered to the site will enter through the main entrance and deliveries will be monitored by the golf course superintendent, as they have



been in on-going golf operations over many years.

c) Petroleum Storage Tanks. All existing petroleum storage tanks will be removed, remediated and either relocated or replaced in accordance with applicable regulations. Spill Prevention and Containment Protocol (SPCC) using an EPA template, and as per Westchester County and the NYSDEC, is currently in place at the Site. The existing SPCC is contained within Appendix Q). Per regulations, the SPCC will have to be reviewed and adjusted post renovation due to major changes in infrastructure.

d) Maintenance Area. The newly designed maintenance area will provide a new area for golf course operations, designed to mitigate many potential impacts to the site. As indicated on the Maintenance Area exhibit (II-14G), this area will contain the wash pad/fuel/dumpster area, as well as a chemical storage building and chemical loading area. The chemical storage building and loading area would be adjacent to the wash pad. The lower level of the maintenance building would serve as the equipment storage and equipment maintenance area and the upper level would contain offices, restrooms/showers, and an employee meeting/lunchroom area.

All equipment wash bays will have a trench drain with a sedimentation area to drop out any grass clippings or other debris, as well as a sand/oil separator. All bays will flow through a naturalized grass and vegetative filtration swale and be discharged into the existing pond. Grading will be done to direct drainage of the entire maintenance area so it can be collected and discharged through a naturalized grass and vegetative filtration swale and eventually be discharged into the existing pond.

e) Green Waste Debris pile. The site of this existing pile of lawn clippings will be tested as part of the construction process, and if any hazardous materials are found, they will be remediated in accordance with applicable law.

f) An ITPMP is currently being implemented to minimize environmental impacts to ecological features. A new, more comprehensive ITPMP will be implemented (See also Chapter II, Description of Proposed Action, and ITPMP in Appendix E).

2. Long Term Operation Measures:

(a) Replacement over time of gasoline fueled golf carts by electric carts, thereby eliminating a source of emissions, odors and potential gasoline spills.

(b) Pesticides will be stored in the chemical storage building. Fertilizers, which are temporarily stored only for use in a current season, will be stored in a covered storage area.

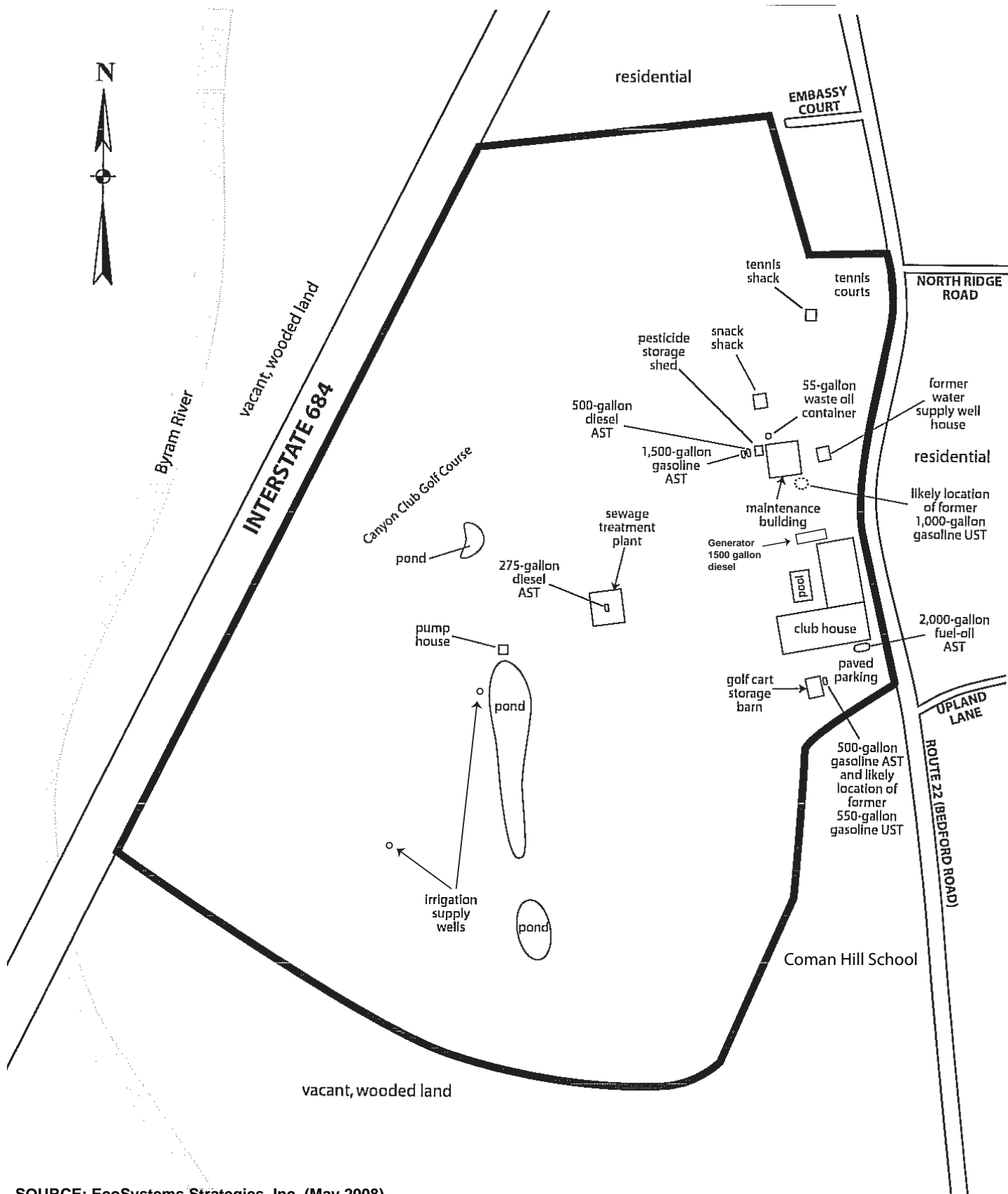
(c) The new, more comprehensive ITPMP will be implemented, as described elsewhere in this DEIS and in Appendix E. The ITPMP, as well as the RLMP (Residential Lawn Management Plan) outlines a program of fertilizer, pest control options and other maintenance practices which rely heavily on environmentally friendly practices. This includes the use of natural organic fertilizers that suppress diseases, and biological control material as the first line of defense against pests, as well as careful use of fertilizers and water for irrigation.

(d) The new maintenance area will include many upgrades to protect from the potential impacts of chemical spills, impacts from fertilizer or pesticide storage, as described above.

(e) Water and Soil monitoring: soil testing is being performed twice a year through an outside laboratory and a contamination audit of surface flow and irrigation water is performed monthly. Stormwater runoff is also tested monthly for possible contaminants.

(f) As described in Chapter II, Description of the Proposed Action, Brynwood is currently seeking certification from Audubon International, which includes maintaining many environmentally sensitive management and operations measures to form an environmental plan of action which can be implemented to help improve wildlife habitat and wetland management, reduce chemical use and create and safer protocols for needed chemical use, become more efficient with water usage, manage the quality of not only the water systems on the Site but surrounding water systems as well as groundwater.





SOURCE: EcoSystems Strategies, Inc. (May 2008)

BRYNWOOD
North Castle, New York

ESA Site Features

Exhibit
III.Q-1

R. Construction

1. Existing Conditions

The majority of construction activity on the Site will occur in already disturbed areas, including the existing tennis courts along Route 22 where most of the residential units will be located. The only building construction adjacent to the Coman Hills School is the proposed construction of the Fairway Residences building at the western edge of the Site's existing parking lot. This proposed building is approximately 450 feet from the school building. There are homes within 500 feet of the Site to the east (Windmill Farms neighborhood) and north of the Site (Embassy Court and Ilana Court). The Site borders I-684 to the west, however, no impacts to I-684 are anticipated due to any construction or demolition activities.

2. Potential Impacts

a) Proposed Construction Phasing

The construction phasing plan, as shown on Exhibit II-20, Phasing Plan, would involve three phases of construction, anticipated to occur over a build-out period of three years. Phase 1 would include reconstruction of the back nine golf holes plus (minus the green for the 15th hole), building demolition, new clubhouse construction, and tennis courts, and construction of the Fairway Residences and residential buildings C1-C5, L1, L5 and V1, along with the proposed access driveway and related infrastructure. The proposed maintenance area (see Exhibit II-14G) will be constructed during Phase I which includes the new wastewater treatment plant and water tank and treatment system. The supply wells would be brought into service in this phase. A total of 40.5 acres of disturbance are associated with this phase.

Phase 2 would include reconstruction of the front nine golf holes plus the green for the 15th hole, and construction of the residential buildings L2, L6, and V2-V5. A total of 30.4 acres of disturbance are associated with this phase. Phase 3 would include construction of residential buildings L7, V6 and V7. A total of 3.0 acres of disturbance are associated with this phase.

To minimize the disturbance at any one time, it is anticipated that demolition of existing improvements on the site would occur within each construction phase as needed to permit construction to occur. In addition, landscaping would be put in place following the completion of each phase. Note that the phasing plan depicts entire golf course holes within their particular phase, whether or



not an area is proposed for disturbance. Thus, the phasing plan includes areas not to be disturbed for illustrative purposes.

It is anticipated that except as may be permitted by the NYSDEC, disturbance will be limited to 5 acres at any one time. This further breakdown of each phase into sub-phases is to be provided during site plan approval as the plans are finalized.

b) Construction Management

A detailed construction management plan will be developed as part of site plan approval. The plan will specify staging areas, temporary construction worker parking areas, lighting and security measures. The approximate number of workers on-site is anticipated to be between 30 to 50 workers at any one time. Workers would utilize existing parking areas on the Site, which would provide sufficient parking for construction workers, Club employees and members.

Construction and demolition activities would occur during the hours of 7:30 am to 7:00 pm Monday through Friday and 8:00 am to 5:00 pm on Saturdays, as per Section 137-19 of the Town Code. On-site parking for construction workers will be confined to gravel surface areas dedicated for parking within the staging areas. Some construction worker parking could occur in the existing lot to the south of the club house.

Construction equipment required to complete the site work for the Project is described below. The use of specific equipment depends on the construction phase of the project. As shown on Exhibits III.R-1A and III.R-1B, Primary Construction Routes, the expected off-site delivery route for various construction materials and equipment deliveries is I-684 to Route 22 to the Site.

Initially to accomplish the clearing and grubbing of the portion of the property to be redeveloped, tree-clearing equipment, chippers, and bucket trucks would be used. This would be followed by construction of the staging area for the particular phase under construction. This would include the gravel parking surface for parking for construction workers.

Next, excavation would commence which requires the following excavation equipment: excavators, front end loaders, dozers, compaction equipment, and 10-wheel dump trucks. The compactor would utilize a low bed trailer to transport the equipment to and from the site as required.

The majority of the equipment would remain on-site for the entire three phases of construction, thus minimizing moving of equipment to and from the site.

Specialty equipment would be required during certain phases of construction, including concrete work, asphalt paving, etc. During the foundation/floor construction, concrete trucks and possibly dump trucks would be required on-site. During construction of the roadway, driveways and residential parking, 10-wheel dump trucks and/or trailers would deliver stone subbase to the site to be spread by dozers and/or graders. This work would be done in phases.

The paving operation would also be conducted in phases and require an asphalt spreader, asphalt rollers, a water truck, and 10-wheel dump trucks along with trailers. The paving operation, being weather dependent, would normally be limited to the April-November timeframe, but could change according to the weather.

Staging areas will be located in various locations on the site depending upon the phase of work. The staging areas are identified on the Overall Erosion and Sediment Control Plan (see Exhibit III.F-4), with the Phase I Clubhouse/Residential staging area situated on the southeasterly portion of the existing Clubhouse parking lot. A Phase 1, 2, and 3 staging area for the residential construction is situated on the northeasterly portion of the property, near Route 22. There are two golf course staging areas, with one situated south of the maintenance area that is to be used for the southerly golf course renovation, and the other to the west of the northernmost proposed residence to be used for the northerly golf course renovation. The staging area for the maintenance area is situated to the northeast of that area.

It is anticipated that except as may be permitted by the NYSDEC, disturbance will be limited to 5 acres at any one time. This further breakdown of each phase into sub-phases is to be provided during site plan approval as the plans are finalized.

With regard to site security to protect the public, construction fencing will be erected around all construction and demolition areas prior to construction. A complete site safety program will be provided prior to the start of construction to advise Brynwood employees of site safety and security measures. Measures such as traffic control and covered pedestrian walkways will be provided during construction as required. Lighting would be provided to assure the safety of the workers and the public.

For each phase of construction and demolition, security fencing would be installed at construction entrances as needed. Construction fencing would also be installed at the limits of disturbance as required to prevent unauthorized entry to construction areas, prevent access to areas that could be hazardous to



the public, to allow for use of the previously developed phases, and to protect existing facilities and adjacent properties from damage from construction operations.

c) Erosion Control and Temporary Stormwater Management

An Erosion and Sediment Control Management Program will be established for the proposed development, beginning at the start of construction and continuing throughout its course, as outlined in the "New York State Standards and Specifications for Erosion and Sediment Control," dated August 2005.

Temporary pollution prevention measures used to control litter and construction debris on site:

- Temporary Riser and Anti-Vortex Device
- Baled Filter
- Baled Fence and Checks
- Baled Erosion Fence
- Water Bars
- Silt Fence
- Silt Sack
- Stone Check Dam
- Excavated Drop Inlet Protection
- Curb Drop Inlet Protection
- Stone & Block Drop Inlet Protection

Inlet protection provided for all storm drains and inlets with the use of curb gutter inlet protection structures and stone & block drop inlet protection, which keep silt, sediment and construction litter and debris out of the on-site stormwater drainage system.

Sequence of Construction

As is detailed in the Stormwater Pollution Prevention Plan (SWPPP) (Appendix F), construction will be sequenced in such a manner that any area which is disturbed will first be protected with erosion and sediment controls as indicated on the plan. Particular requirements are given as follows:

- A. Stake limit of disturbance boundary with orange construction fence. Install stabilized construction entrances. Clear the area to be developed.
- B. Install all silt fences.
- C. Grub the area to be constructed.
- D. Provide stone check dams at regular intervals in the diversion swales.
- E. Construct temporary sediment basins/traps.

- F. Remove and stockpile topsoil. Install silt fencing around the temporary topsoil stockpile location for erosion control purposes.
- G. Proceed with rough grading of the area under active construction.
- H. Initial stormwater infiltration basin excavation should be carried to within 2 feet of the final elevation of the basin floor. Final excavation to the finished grade should be deferred until all disturbed areas have been stabilized.
- I. Install the storm drainage system consisting of catch basins, manholes and underground storm pipes along with the erosion and sediment control devices associated with the storm drainage system (i.e. inlet protection, stone check dams, etc., as shown on the plans).
- J. Install utilities (sanitary sewer, water, gas, electric, telephone, etc.), as required.
- K. Install green infrastructure practices including rain garden and biofilter.
- L. Begin road construction including subbase and base pavement sections.
- M. Finish grading, redistribute topsoil and establish vegetation and/or landscaping.
- N. Complete final grading for the stormwater infiltration basin.
- O. Clean pavements and storm drain system of all accumulated sediment in conjunction with the removal of all temporary sediment and erosion control devices.
- P. Complete building construction.

Temporary Control Measures

These measures are part of the Stormwater Pollution Prevention Plan (SWPPP) prepared for the entire Site (see Appendix F). Temporary control measures and facilities will include silt fences, interceptor swales, stabilized construction entrances, temporary seeding, mulching, sediment traps and a sediment basin.

Throughout the construction of the proposed development, temporary control facilities will be implemented to control on-site erosion and sediment transfer. Interceptor swales, if required, will be used to direct stormwater runoff to temporary sediment traps/basins for settlement. The sediment traps/basins will remove sediment from the stormwater runoff produced during construction.

Descriptions of the temporary erosion and sediment controls that will be used during the development of the Site including silt fence, stabilized construction entrances, seeding, mulching and inlet protection are as follows:

1. Silt Fence is constructed using a geotextile fabric. The fence will be either 18 inches or 30 inches high. The height of the fence can be increased in the event of placing these devices on uncompacted fills or extremely loose

undisturbed soils. The fences will not be placed in areas which receive concentrated flows such as ditches, swales and channels nor will the filter fabric material be placed across the entrance to pipes, culverts, spillway structures, sediment traps or basins.

2. Stabilized Construction Entrances consists of one to four inch stone underlain with geotextile. The entrances will be a minimum of 50 feet in length by 12 feet in width by 6 inches in depth.
3. Seeding will be used to create a vegetative surface to stabilize disturbed earth until at least 70% of the disturbed area has a perennial vegetative cover. This amount is required to adequately function as a sediment and erosion control facility. Grass lining will also be used to line temporary channels and the surrounding disturbed areas.
4. Mulching is used as an anchor for seeding and disturbed areas to reduce soil loss due to storm events. These areas will be mulched with straw at a rate of 3 tons per acre such that the mulch forms a continuous blanket. Mulch must be placed after seeding or within 48 hours after seeding is completed.
5. Inlet Protection will be provided for all stormwater basins and inlets with the use of curb & gutter inlet protection and stone & block inlet protection structures, which will keep silt, sediment and construction debris out of the storm system. Existing structures within existing paved areas will be protected using "Silt Sacks" inside the structures.
6. Erosion Control Matting will be utilized on slopes and within swales, where applicable, to provide stabilization in advance of vegetation being established. Such matting will be biodegradable to facilitate long term growth of vegetation in swales, on slopes and within stormwater management facilities.
7. Temporary Swale is to be used to prevent runoff from entering disturbed areas by intercepting sediment laden water and diverting it to a sediment trapping device.
8. Temporary Sediment Traps will be used to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties, and rights-of-way below the sediment trap from sedimentation.
9. Temporary Sediment Basins are to be used to intercept sediment-laden runoff and reduce the amount of sediment leaving the disturbed area in order to protect drainage ways, properties, and rights-of-way below the



sediment basin.

Although not considered to be temporary control measures according to the NYSDEC publication "New York State Standards and Specifications for Erosion and Sediment Control", soil stockpiles and sediment drying areas will be utilized. To prevent erosion, the soil stockpiles are to be surrounded by silt fencing, as are the sediment drying areas.

The contractor shall be responsible for maintaining the temporary erosion and sediment control measures throughout construction. This maintenance will include, but not be limited to, the following tasks:

- (1) For dust control purposes, moisten all exposed graded areas with water at least twice a day in those areas where soil is exposed and cannot be planted with a temporary cover due to construction operations or the season (December through March).
- (2) Inspection of erosion and sediment control measures shall be performed at the end of each construction day and immediately following each rainfall event. All required repairs shall be immediately executed by the contractor.
- (3) Sediment deposits shall be removed when they reach approximately ~~1/2~~ the height of the silt fence. All such sediment shall be properly disposed of in fill areas on the site, as directed by the Owner's Field Representative. Fill shall be protected following disposal with mulch, temporary and/or permanent vegetation and be completely circumscribed on the downhill side by silt fence.
- (4) Rake all exposed areas parallel to the slope during earthwork operations.
- (5) Following final grading, the disturbed area shall be stabilized with a permanent surface treatment (i.e. turf grass, pavement or sidewalk). During rough grading, areas which are not to be disturbed for fourteen or more days shall be stabilized with the temporary seed mixture, as defined on the plans. Seed all piles of dirt in exposed soil areas that will not receive a permanent surface treatment.

The sediment and erosion control methods described above will provide mitigation for the proposed disturbance to steep slopes. These measures are part of the Stormwater Pollution Prevention Plan (SWPPP) prepared for the entire site in accordance with the requirements of the NYSDEC SPDES General Permit for Stormwater Discharges Associated with Construction Activity (Permit

No. GP-0-10-001) and Chapter 173 “Stormwater Management” of the Town of North Castle Zoning Code. The SWPPP is provided in Appendix F.

d) Infrastructure Phasing

(1) Water supply will be provided by the on-site wells, which will be in service before the first Certificate of Occupancy of the residential homes. The development will include new water lines to provide water service to the proposed residences and proposed recreational facilities. The infrastructure will be installed at the beginning of each of the three construction phases following clearing and grubbing and be installed with the construction of the proposed driveways. The same above scenario would apply for the on-site water infrastructure should it be determined that a connection to the Town of North Castle Water District #2 public water supply system is necessary. Any required upgrades to the public water supply system infrastructure would likewise be accomplished concurrently, before the first Certificate of Occupancy of the homes.

(2) Regarding sanitary sewerage, the existing wastewater treatment plant is to remain in operation and serve initial development flows until its permitted capacity is reached. A new wastewater treatment plant is proposed and is to be constructed in a timeframe such that sufficient treatment capacity is available as homes are completed and occupied. The development will include new sanitary sewer pipes and manholes to provide sanitary sewer service to the proposed residences and proposed recreational facilities. The infrastructure will be installed at the beginning of each of the three construction phases following clearing and grubbing and be installed with the construction of the proposed driveways.

e) Impacts on Site and Surrounding Area

Construction Vehicles

Construction traffic will utilize Route 22 and Interstate 684 to service the Site (See Exhibits III.R-1A and 1B, Primary Construction Routes). Tables III.R-1 and III.R-2 provide summaries of truck traffic by construction phase for infrastructure development (Table III.R-1) and building construction (Table III.R-2).

Table III.R-1
General Construction Truck Traffic for Infrastructure Development
Summary of Phases I, II and III

	Phase I (2015)	Phase II (2016)	Phase III (2017)	Totals
Lowbed	12	10	8	30
Concrete Truck	14	6	8	28
Material Delivery	165	53	24	242
Trailer Load	114	24	20	158
Dumpsters	40	0	0	40
10 Wheel Dump Truck	170	30	6	206
Miscellaneous	2	4	4	10

Table III.R-2
General Construction Truck Traffic for Building Demolition and Construction
Summary of Phases I, II and III

	Phase I (2015)	Phase II (2016)	Phase III (2017)	Totals
Lowbed	14	6	4	24
Concrete Truck	236	11	34	281
Material delivery	193	72	38	303
Trailer load	160	76	27	263
Dumpsters	60	41	14	115

See Chapter III.O. Air Quality and Greenhouse Gas Emissions and Appendix N for additional detail regarding air quality, which is summarized below.

Air quality in the site vicinity would not be substantially affected by project construction because of the temporary nature of site development construction and the confines of the construction area. The construction activity proposed near the Coman Hills School is limited, with most of the development planned for other portions of the Site. Residential areas are located to the north and east of the Site and may experience temporary impacts. However, emissions from the operation of construction machinery (CO, NO_x, PM, SO_x, and VOC) are short-term and not expected to be significant.

Vehicular criteria pollutant emissions can occur as a result of traffic and/or added trip length from private vehicles that encounter roadway diversions or detours associated with the project, as well as from emissions from the actual construction vehicles. For the construction of the proposed development, there are no anticipated road closures or diversions. Therefore, an air impact analysis for this aspect of construction (i.e. private vehicles) was not required.

Construction vehicles will also emit criteria air pollutants through their engine

exhaust. The impacts from construction vehicles are expected to be minimal because the prohibition of excessive idling of construction equipment engines will be implemented.

Fugitive Dust

There is the potential for fugitive dust to be created during the construction period due to site preparation activities, including removal of vegetation and site grading. Dust emissions will be controlled by wetting and stabilizing soils and covering materials in trucks.

Noise

See Chapter III.P. Noise, and Appendix O, for additional information regarding potential noise impacts, which is summarized below.

Construction activities may result in temporarily increases of nearby sound levels due to the intermittent use of heavy machinery during the construction of the proposed project. The proposed development is expected to generate typical sound levels from construction activities, including foundation construction, truck movements, heavy equipment operations, and general construction activities. Heavy machinery, such as front end loaders, graders, bulldozers, and backhoes, would be used intermittently throughout the proposed project's construction.

Given the distance to the Coman Hills School and the limited construction activity in that portion of the site, construction impacts are not anticipated to be significant. Construction and demolition activities to the north and east of the Site will take place within 50 feet of the property line, therefore, there may be short-term noise impacts to the homes to the north and east of the Site.

The Town of North Castle's noise ordinance (Town Code Chapter 137) was used as guidance for construction-related noise evaluation. Sound level associated with the activities during the construction phase was calculated using FHWA's Roadway Construction Noise Model (RCNM) at a distance of 400 feet from the centroid of the construction site. The calculated sound level at 400 feet was 67 dB(A), which is below the Town's Code permitted sound level of 70 dB(A) during the hours of 8:00 am to 6:00 pm.

Rock Removal

See Chapter III.F- Soils and Geology for more detail on rock removal, which is summarized below.

To excavate rock, the upper 1'0" to 5'0" of rock may be "rippable" by using large construction equipment. The use of hydraulic hammers will be required in order to achieve deeper excavations. Zones of weathered rock may exist deeper than 5'0" but conditions are expected to be highly variable. Based on test boring, rock blasting is not anticipated. Exhibit III.F-3 depicts the areas of potential rock removal. Note that there are no areas where rock removal is needed in the vicinity of the Coman Hills School, however, there are areas of potential rock removal near the north and east portions of the Site which border residential areas.

Should rock crushing be utilized on the Site to process excavated rock into an aggregate which may be used on the Site during the course of construction, a permit to "Construct and Operate Portable Rock Crushing and Power Screening Equipment" will be sought from the Westchester County Department of Health (WCDOH).

Any rock crushing activity would occur during the hours of 7:30 am to 7:00 pm Monday through Friday and 8:00 am to 5:00 pm on Saturdays, as per Section 137-19 of the Town Code. Additionally as per Section 137-19 of the Town Code, during the hours of 8:00 a.m. to 6:00 p.m. or sundown, whichever is later, noise levels from the construction site as a whole will not exceed 70 dB(A)s when measured at a distance of 400 feet from the construction site; during the hours of 6:00 p.m. or sundown, whichever is later, to 8:00 a.m., noise levels will not exceed 55 dB(A)s.

Although blasting is not anticipated, blasting protocol will be followed in the event that it is necessary. Blasting is regulated locally by the provisions of Chapter 71 "Blasting and Explosives" of the Town of North Castle Code. A blasting permit is required, with application to be made to the Building Inspector.

3. Mitigation

It is anticipated that a Construction Management (CM) company will be retained by Brynwood to oversee the construction of the project. The CM will typically be responsible for contract bidding and administration, full time coordination between general contracting firms, quality control inspections, and job safety protocol. This helps assure the construction is completed in an efficient, safe, and timely manner. Construction management is to encompass all phases of construction, including site work, demolition of existing improvements during each of the three phases of construction discussed above, building construction



and chemical storage, relocation, and replacement in accordance with all applicable regulatory codes.

Construction management activities would also be designed to address traffic, air quality and noise issues. During construction, flagmen will be located at the construction entrance on Route 22 to provide safe access to the site.

Fugitive dust emissions will be mitigated by wetting and stabilizing soils to suppress dust generation. Other dust suppression methods would include the spraying of soil stockpiles during dry periods and covering trucks carrying solid and other dry materials.

No significant adverse noise impacts have been identified. However, the following measures are being incorporated into the development to minimize noise:

- Construction equipment would be required to have installed and properly operating the original noise muffler systems.
- Construction activities would be performed at the times permitted by the Town of North Castle, in accordance with the noise ordinance, Chapter 137 (as described in DEIS section III.P Noise).

If blasting is necessary, the Applicant will follow the provisions of Chapter 71 "Blasting and Explosives" of the Town of North Castle Code. Although blasting is not anticipated, following is a summary of blasting protocol in the event that it is necessary (see Chapter III.F. Geology and Soils for additional detail). A blasting permit is required, with application to be made to the Building Inspector.

No person is to conduct blasting operations within the Town of North Castle after the hour of 5:00 p.m. and before 8:00 a.m. nor at any time on Sunday or holidays, except in the case of emergency or necessity, and then only with permission of the Building Inspector.

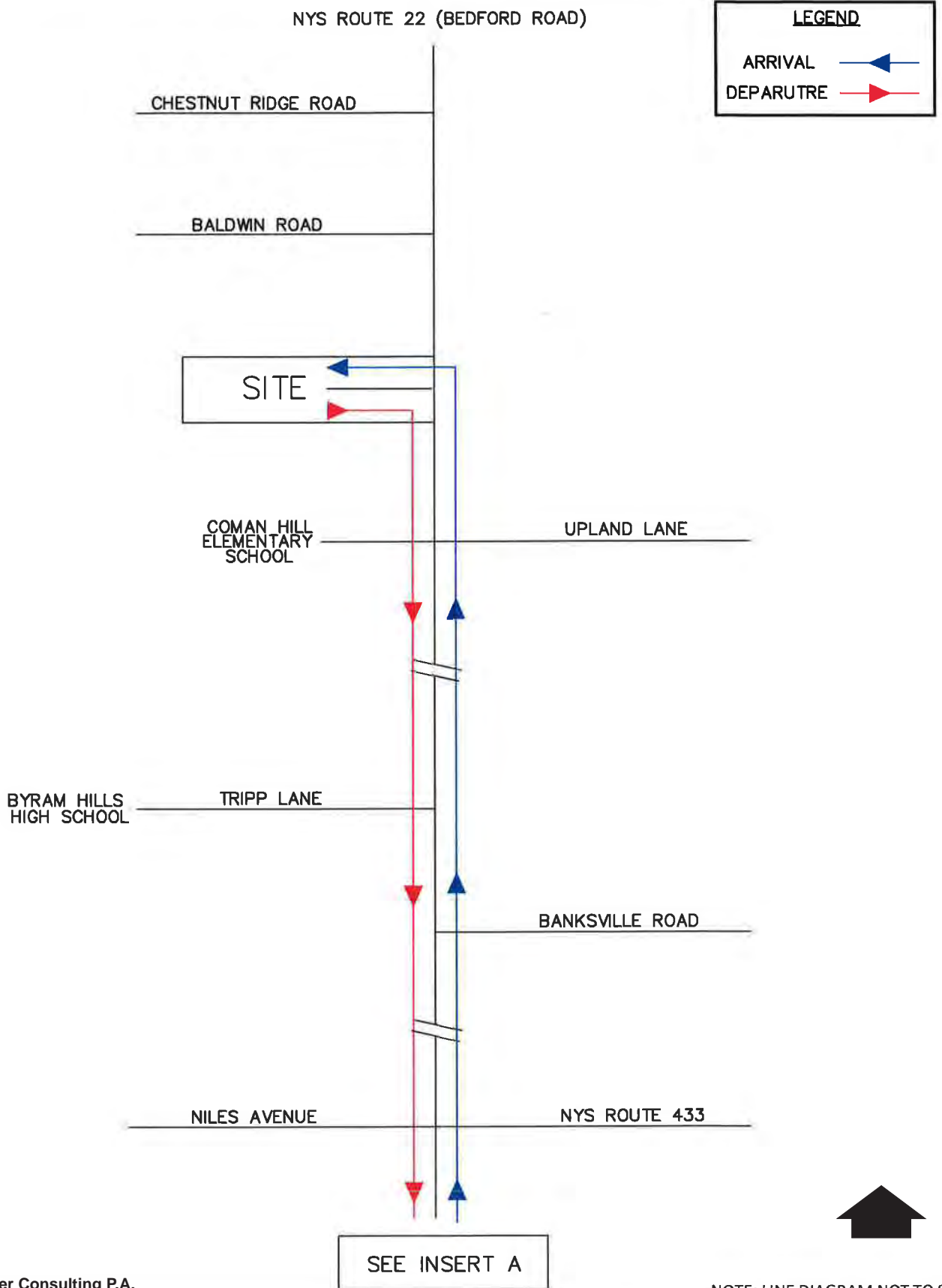
With regard to the actual conduct of blasting operations, Chapter 71 of the Town Code requires the following:

- 1) No person is to use, in a blasting operation, a quantity of explosives greater than necessary to properly start the rock or other substances nor use such an amount as will endanger persons or property;
- 2) All blasts within 500 feet of any roadway, public area, occupied private area or structure, before firing, is to be covered with matting or other

suitable protection of sufficient size, weight and strength to prevent the escape of broken rock or other material in a manner liable to cause injury or damage to persons or property. All blasts not within 500 feet of any roadway or structure are to have a suitable screen so as not to cause injury or damage to persons or property;

- 3) No person is to fire or explode or direct or cause to be fired or exploded any blast in or near any highway or public place in the Town of North Castle unless competent persons carrying a red flag and whistle have been placed at a reasonable distance on all sides of the blast to give proper warning thereof at least 3 minutes in advance of firing;
- 4) Handling of explosives including storage, amount, record keeping and route of travel through the Town to the Site are to be in accordance with the requirements as specified in the Code.





Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

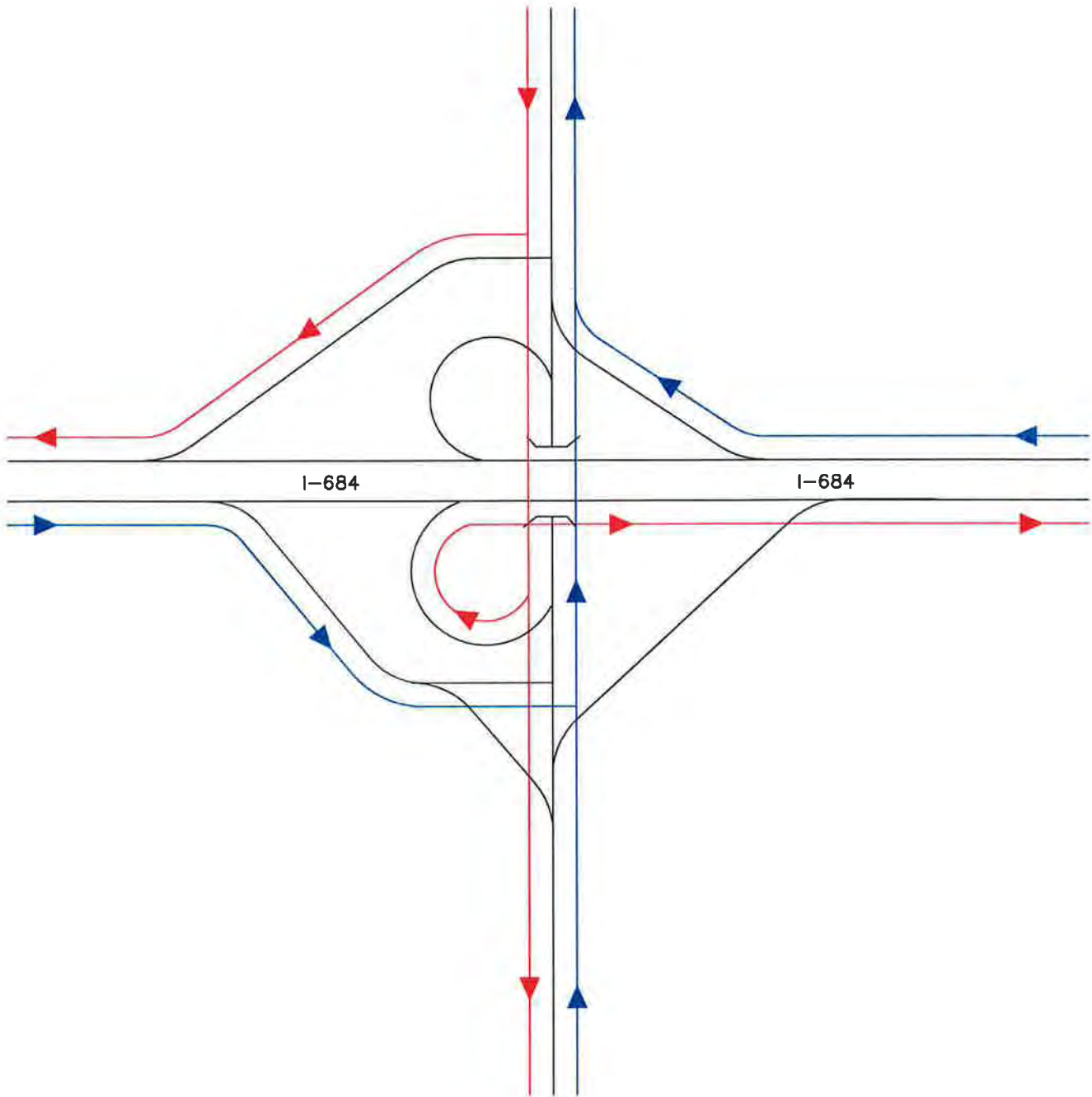
BRYNWOOD
North Castle, New York

Primary Truck Routes

Exhibit
III.R-1A

INSERT A

NYS ROUTE 22 (BEDFORD ROAD)



NYS ROUTE 22 (BEDFORD ROAD)



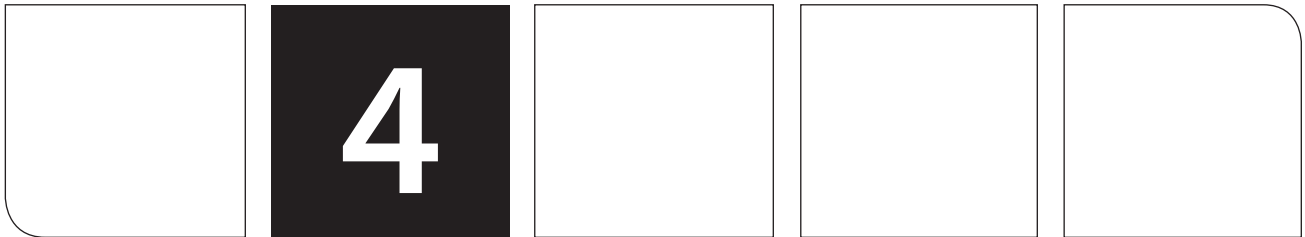
Source: Maser Consulting P.A.

NOTE: LINE DIAGRAM NOT TO SCALE

BRYNWOOD
North Castle, New York

Primary Truck Routes
(Insert A)

Exhibit
III.R-1B



Alternatives

IV. Alternatives

The Scoping Document requires the evaluation of a range of alternatives to the Proposed Action, including the “No Action Alternative”. *Table IV-5, Comparative Table of Project Alternatives* at the end of this chapter presents in matrix form a comparison of the potential impacts of the alternatives. It is noted that the conclusions and opinions stated below are those of the Applicant. Following are the alternatives evaluated in this chapter:

- Alternative 1: No Action
- Alternative 2: Existing R2-A Zoning – Conventional Subdivision of the Site
- Alternative 3: Existing R2-A Zoning – Conservation Subdivision of the Site (two plans; one plan with 1 acre lots, and one with 0.5 acre lots)
- Alternative 4: Cluster Subdivision (fee simple town homes) within the same approximately 14 acre area of the Site in which the proposed golf course community would be developed
- Alternative 5: Reduced density golf course community (49, 60 and 75 units)

A. Alternative 1: No Action

The No Action Alternative, which assumes no new development and no amendments to the Town Zoning Ordinance, is required by SEQRA to be described in the DEIS. For SEQRA purposes, this No Action Alternative assumes that the Brynwood Golf & Country Club would remain in its current condition.

The No Action Alternative does not address the needs, goals and objectives of the Applicant and is therefore not a feasible alternative. Under the existing model of ownership and management prescribed in the Zoning Ordinance, and given the current seasonal nature of the Club, the Club does not generate sufficient revenue to fund currently needed capital improvements, or operate as a year-round country club. With this alternative, there would be no physical changes to the Site: no grading or alteration of topography; no loss of existing vegetation; and no construction activities. The Site would generate no additional traffic or additional population; there would be no visual impact; and there would be no effects on community services. There would be no need for additional water supply and the existing on-site wastewater treatment plant (WWTP) would continue its current operation.

However, while this alternative would eliminate any potential adverse impacts of the Proposed Action, it would not yield any of the beneficial effects of the Project, such as the preservation of privately owned open space, increased Town and School District

taxes and the provision of a type of age-targeted residences not currently available in the Town, as well as new fair and affordable housing units. There would be no off-site improvements or mitigation, since there would be no impacts to mitigate.

B. Alternative 2: Existing R2-A Zoning – Conventional Subdivision

The Project Site is in the R2-A District. A principal permitted use of the R2-A District is single-family homes with a minimum lot size of 2 acres. This alternative assumes the Club would be closed, and the Site would be conventionally subdivided into 49 conforming single family home lots, as shown in Exhibit IV-1.

Access to the subdivision would be provided through a single entry road off Bedford Road that would lead to a loop road providing access for 44 private driveways. A single cul-de-sac off the loop road would provide access for 5 private driveways. The homes would be served by the existing WWTP, which would be on its own lot, and individual wells on each lot.

With this alternative plan, the Town would lose a significant open space, as well as a private recreation resource.

Impacts by major category are summarized below.

1. Land Use and Zoning

Unlike the Proposed Action plan, this alternative would not require zoning amendments. The 49 single family homes would be compatible with surrounding predominately residential and institutional land uses. However, unlike the Proposed Action and other alternatives, this alternative would not result in any common open space area, with the entire Site utilized for lots and roadways (except for the lot with the WWTP).

2. Affordable Housing

This alternative would not include affordable housing, either Middle Income Units, which the Town requires for multifamily housing developments, or fair and affordable housing that would satisfy requirements of the Westchester County housing settlement.

3. Visual and Community Character

The conventional subdivision would change the character of the Bedford Road frontage of the Site with the addition of the backyards of five residential lots along the roadway. It would differ from the Proposed Action plan which has four residential buildings along Bedford Road. The Proposed Action plan includes an extensive landscaping program along Bedford Road and the re-design of the exterior of the clubhouse, neither of which would be realized with the conventional subdivision alternative. The Town Board has



advised the Applicant that any new development on the Site must be adequately setback and screened from all streets and adjacent uses.

4. Natural Features

The conventional subdivision would utilize the entire Site for development, with no preserved open space. This plan would disturb approximately 24 acres of the Site, including roads, houses and driveways across the entire Site. This plan would require 0.05 acres of wetland fill, for a road crossing. Additional vegetation removal and steep slopes impacts would occur, but their extent would depend on the proposed development of each lot. Conventional subdivision of the Site would introduce more fragmentation; reducing existing wildlife habitat amounts and types; and introducing more impervious surfaces in areas that are now golf course.

5. Stormwater Management

This alternative is estimated to result in approximately 15 acres of impervious area, including 9,500 linear feet of new public roadway. A Storm Water Pollution Prevention Plan (SWPPP) would be developed as required by the Town and the NYSDEC to ensure stormwater quality and quantity impacts are mitigated to the maximum extent practicable.

6. Water and Sewer

Individual water wells would be provided for each house lot. The water demands for the 49 lots would be 26,950 gallons per day (gpd) and the sewage effluent would be 26,950 gpd. Compared to the Proposed Action, the water requirements would be less for this alternative because the Proposed Action includes water demand for more residential units, the clubhouse and golf course. The sewerage requirements would also be less than the Proposed Action because of the sewerage from the additional residential units and the clubhouse.

7. Socio Economic Factors

Site population with this alternative, based on 49 single-family 5-bedroom homes, would be approximately 208 persons (4.23 persons x 49 units), of which 51 (1.03 x 49 units) would be school aged children¹. Assuming a market value of \$1,500,000 for a 5-bedroom single family home, as estimated by Houlihan Lawrence, and assuming real property taxes equal to 2% of market value, each home would pay about \$30,000 in property taxes. In total, the 49 units would generate \$1,470,000 in tax revenue annually. Of this total, approximately 67 percent (\$984,900) would go to Byram Hills School District; approximately 15 percent (\$219,933) would go to the Town of North

¹ Using the local school district survey results.



Castle; and, the remainder would go to the County and other taxing districts. The \$984,900 in School District taxes equates to approximately \$19,312 per student, less than the Proposed Action plan and Alternatives 4 and 5.

8. Community Facilities

A 49 lot subdivision would have greater impacts on Town recreation facilities, police and fire services, and on the Byram Hills School District than the Proposed Action plan and the other alternatives, given the subdivision's anticipated population and design. It is anticipated that the 49 homes would result in a population of over 200 persons, including 51 school age children. This population would utilize Town recreation facilities to a greater extent than would the mostly empty nester population in households where golf, tennis and swimming facilities are provided on-site.

Since the 9,500 linear feet of roadway in the conventional subdivision plan would be designed to Town standards, it is assumed that the roads would be offered for dedication and accepted by the Town as public roads. Unlike the Proposed Action plan and most of the other alternatives, this would result in additional Town costs for road maintenance, snow plowing and solid waste collection.

The homes would not be sprinklered, as opposed to the multifamily residences in other alternatives. Without the Club, there could be less need for police services, notwithstanding on-site security that the Proposed Action plan would provide.

With this alternative (and Alternative 3), North Castle would lose a community facility that has and would continue to provide opportunities for youth employment, community recreation (e.g., High School Girls golf team), local events, and emergency shelter during storms and power outages.

Rutgers CUPR, the source of the school child multipliers utilized in the analyses of the proposed Project, does not publish multipliers for public school children generated by single-family rental homes. To be conservative, the Applicant assumes that if the homes in this alternative were rentals, the number of public school children generated would be the same as generated by for-sale residences.

9. Traffic

The peak hour traffic from a conventional subdivision would result in 37 AM and 49 PM trips on Bedford Road. Of these trips, the morning traffic would include many parents commuting to work and dropping children off at school (and additional high school students driving themselves to school) affecting traffic conditions on Bedford Road in the critical morning peak hour. Traffic generated by the Proposed Action is projected to be approximately 10 more trips in the AM peak hour and 6 more trips in the PM peak



hour. However, traffic actually generated by the proposed residences would likely be less, because the Project is designed for empty nester households, many of whom would not be commuting during peak hours as they would be retired/semi-retired and would have fewer school age children than households in a 49 lot subdivision.

C. Alternative 3: Existing R-2A Zoning – One Acre and Half-Acre Minimum Lot Area Conservation Subdivisions

As noted above, the Project Site is in the R2-A District, which permits as-of-right single-family homes on minimum 2-acre lots. Clustered single family detached homes - known under the Town Zoning Ordinance as “conservation subdivisions” - are permitted in the R2-A District as a means to preserve open space. Under Section 213-25D(3) of the Town Zoning Ordinance, if a conventional, conforming subdivision of a site would yield 50 lots or less, the minimum lot area for a conservation subdivision is one (1) acre or ½ the minimum lot area for the district in which the site is located, whichever is less, unless the Planning Board determines a larger minimum to be appropriate. If a conventional conforming subdivision of a site would yield more than 50 lots (and on smaller parcels, if the Town Board authorizes), then there is no minimum lot area. Thus, in Alternative 3, the 49 homes which result from a conventional subdivision (as demonstrated by Alternative 2) would be clustered as-of-right on minimum one-acre lots. Since the minimum net lot area for the as-of-right conservation subdivision is one acre, as opposed to two acre minimum net lot area prescribed by the R2-A District, the bulk regulations of the R1-A District apply, except for minimum contiguous building area, which is in the discretion of the Planning Board, and is assumed for this alternative plan to be the same as in the R1-A District. The bulk requirements of the R1-A District and the R2-A District are as follows:

**Table IV-1
Bulk Requirements of the R1-A and R2-A Districts**

Bulk Zoning Criteria	R1-A District	R2-A Conventional
Minimum Contiguous Building Area	17,000 sf	22,000 sf
Minimum Lot Frontage	125 ft	150 ft
Minimum Lot Width	125 ft	150 ft
Minimum Lot Depth	150 ft	150 ft
Minimum Net Lot Area	1 acre	2 acres

Net lot area as defined by the Town of North Castle Zoning Ordinance is gross lot area minus 75% of the area of any wetlands, water bodies and watercourses but excluding any “adjacent areas,” all as defined in Chapter 208, Wetlands and Drainage of the Town Code, and the area of any “steep slopes,” as defined in the Zoning Ordinance, except that in the case of one-family lots, the deduction for steep slopes shall be 50%.

Based on the foregoing dimensional bulk zoning criteria and lot area deductions required due to wetlands and steep slopes located on the Site, the minimum lot areas of the conservation subdivision design for the Site vary between 1.0 acre and 3.10 acres, compared to minimum lot areas between 2.0 acres and 5.49 acres in a conventional subdivision. (See Exhibit IV-2A).

A second plan showing smaller lots and a greater amount of open space is also presented for comparison purposes. This alternative has the same 49 lots, but reduces the lot size to about 0.5 acres. With this plan, all 49 lots are located in the eastern portion of the Site close to Bedford Road. Under Section 213-25.D(3) of the Zoning Ordinance, half-acre lots would be permitted only if specifically authorized by resolution of the Town Board. (See Exhibit IV-2B).

Exhibit IV-2A illustrates the conservation subdivision plan with 49 one acre lots. It uses the same roadway configuration as the conventional subdivision plan due to limitations on the maximum permitted lengths of dead-end streets and results in 59.5 acres of land preserved as open space. Exhibit IV-2B shows the conservation subdivision with 49 half-acre lots and 3,725 lf of public roadway. This plan has 124.7 acres of open space. The open space area would be permanently preserved through the use of covenants, deed restrictions, easements and/or other agreements as appropriate, and as required by the Zoning Ordinance. None of the single family lot alternatives preserve the clubhouse or golf course.

The estimated population would be 208 persons, same as Alternative 2, the conventional subdivision plan. The estimated taxes generated would be \$1,225,000, less than the \$1,470,000 estimated for the conventional subdivision because the smaller one-acre lots would yield a lower market value per home, estimated at \$1,250,000, rather than \$1,500,000 for the conventional plan. With half-acre lots, the home prices would probably be about \$1,000,000², reducing the taxes to \$20,000 per home.

1. Land Use and Zoning

This alternative would not require amendments to the Zoning Ordinance, since clustering is permitted under both State law and existing provisions of the Zoning Ordinance. The Town Board would have to authorize the reduction of minimum lot area to 0.5 acre.

Unlike the conventional subdivision plan, the one acre lot conservation subdivision plan would result in the preservation of approximately 38% of the Site as open space. Although significant, this open space is far less than the 141.6 acres (90.6%) of open

² Source: Houlihan Lawrence

space in the Proposed Action plan and in Alternatives 4 and 5, and would not include a recreation resource (golf course).

The length of dead-end streets in the half-acre lot plan conforms with the maximum permitted length in the R1/2-A District (in which the minimum lot area is 0.5 acre) . To help maximize the amount of open space this plan assumes that the minimum contiguous buildable area requirement would not be applied by the Planning Board, and that “net lot area” requirements would not be applied. The half-acre minimum gross lot area plan conforms with all other bulk criteria of the R1/2-A Zoning District and results in 31.6 acres of development area and 124.7 acres preserved as open space (80% of the Site). The open space area would be permanently preserved through the use of covenants, deed restrictions, easements and/or other agreements as appropriate, as required by the Zoning Ordinance. Although significant, this open space is still less than the 141.6 acres (90.6% of the Site) of open space in the Proposed Action plan and in Alternatives 4 and 5, and would not include a recreation resource (golf course).

2. Affordable Housing

This alternative would not include affordable housing, either Middle Income Units required for multifamily development, or “fair and affordable housing” that would meet the requirements of the Westchester County housing settlement.

3. Visual and Community Character

Similar to the conventional subdivision plan, the one acre lot conservation subdivision alternative shown on Exhibit IV-2A would change the character of the Bedford Road frontage, bringing 6 house sites to this area, compared to a greater number than the five units proposed along Bedford Road in the conventional subdivision plan (Alternative 2). The Proposed Action plan calls for four residential structures along Bedford Road concentrated in the northern portion of the Site. The Proposed Action plan also includes extensive landscaping along Bedford Road and re-design of the clubhouse, both of which would not be realized with the conservation subdivision plan. For the half-acre lot conservation alternative shown on Exhibit IV-2B, there are eight homes along Bedford Road. The plan has three road connections and one driveway directly to Bedford Road, for a total of four curb cuts. The Town Board has advised the Applicant that any new development on the Site under any plan, including these alternatives, must be adequately setback and screened from all streets and adjacent uses.

4. Natural Features

The developed area in the one acre lot conservation subdivision plan shown on Exhibit IV-2A would be 93.5 acres for roads and building lots. For the half-acre plan shown on Exhibit IV-2B, there would be 31.6 acres of road and building lots. This is less than the



conventional subdivision plan alternative, but far greater than the Proposed Action plan and Alternatives 4 and 5, under which new residences would be located only on the ±14 acre North Parcel of the Site. The one-acre conservation subdivision plan would disturb about 0.05 acres of wetland for the subdivision road. Additional steep slope impacts, wetland adjacent area impacts and vegetation removal would depend on the individual design of each lot. The half-acre lot plan leaves all steeply sloped land and wetlands in the rear portion of the Site as open space.

5. Stormwater Management

These alternatives would also result in approximately 6.8 to 15 acres of impervious surfaces, and 9,500 to 3,725 lf of new public roadway, for plans IV-2A and IV-2B, respectively. However, because the homes in a conservation subdivision are clustered closely together on smaller lots, stormwater runoff from the developed portions of the site will be greater. A Storm Water Pollution Prevention Plan (SWPPP) would be developed as required by the Town and the NYSDEC, to ensure stormwater quantity and quality impacts are mitigated as required by the Town and the NYSDEC.

The water demands for these alternatives and the projected sewerage generated would be about the same as the 49 lot conventional subdivision plan alternative. As with Alternative 2, water demand and generated sewerage would be less for this alternative than for the Proposed Action, which includes additional residential units and the clubhouse and golf course.

6. Water and Sewer

With both of the conservation subdivision layouts, the existing wastewater treatment plant would be utilized for sanitary sewage and central water supply (either from on-site wells or extension of Water District No. 2) would be used. Projected water demand and sanitary sewage generation would be the same as the conventional plan.

7. Socio Economic Factors

Site population with these alternative plans would be the same as the conventional subdivision plan, based on 49 single-family 5 bedroom homes. This would be approximately 208 persons (4.23 persons x 49 units), of which 51 (1.03 x 49 units) would be school aged children (whether the units are owned or rented). Assuming a market value of \$1,250,000 per 5-bedroom single family home on one-acre lots, as estimated by Houlihan Lawrence, and assuming real property taxes equal to 2% of market value, each home would pay about \$25,000 in property taxes. In total, the 49 units would generate \$1,225,000 in tax revenue annually. Of this total, approximately 67 percent \$820,750 would go to Byram Hills School District; approximately 15 percent \$183,750 would go to the Town of North Castle; and, the remainder would go to the County and other taxing



districts. The \$820,750 in School District taxes equates to approximately \$16,093 per student, far less than the Proposed Action plan and Alternatives 4 and 5.

For the plan with half-acre lots, the tax revenue would be \$980,000 per year. The School District would receive 67%, or \$656,600, approximately \$12,875 per student. See Table IV-6 for comparison to other alternatives and the Proposed Action.

8. Community Facilities

Potential impacts to community facilities would be essentially the same as the conventional subdivision plan alternative. There would be slightly less public road than the conventional plan, but other impacts would generally be the same. (See Table IV-6 at the end of this chapter).

9. Traffic

Anticipated traffic would be the same as the conventional subdivision alternative: 37 AM peak hour trips and 49 PM peak hour trips.

D. Alternative 4: Cluster Subdivision: Attached Townhomes in the Proposed Action Development Area

This alternative is a 69 unit “clustered” townhome development in the same areas in which the proposed residences would be located (the North Parcel), as shown on Exhibit IV-3. As required by the Scoping Document, in this alternative, it is assumed that the townhomes would be fee simple ownership units and not condominiums, which means that each townhome would be on a separate lot which includes the land on which the townhome is located. A homeowners association would be formed to own and maintain any common infrastructure and facilities. As with the Proposed Action, residents would be required to be members of Brynwood Golf & Country Club.

The townhomes would have approximately 50% three bedroom units and 50% four bedroom units and would be marketed broadly to young professional families and empty nesters. The reduced density would dictate larger units in order for the project to be economically feasible. The multi-story, fee simple townhomes in this alternative would not appeal to the empty nester market as stairs are undesirable and the advantage of significantly lower condominium real property taxes is eliminated. The townhomes would therefore be designed for families. In the Applicant’s opinion, in order to market townhomes having high, fee simple property taxes, offering prices would have to be lower than comparable condominium units. Reduced prices and fewer units would negatively impact project feasibility. For purposes of this alternative, it is assumed that the proposed improvements to the Club would still be pursued, albeit at a much reduced level than the Proposed Action.



Since the townhomes would have more bedrooms per unit and be larger than the proposed condominiums, they would be more attractive to families with children. As a result, the development area would include its own amenities for children, including a small playground area. The estimated population would be 241 persons, with approximately 43 school aged children.

1. Land Use

Like Alternatives 2, 3 and 5, and the Proposed Action, this use is compatible with the surrounding residential and institutional land use pattern.

As with Alternative 5 and the Proposed Action, the density of this alternative plan would not be permitted under existing regulations of the R-2A District and the conservation subdivision regulations in Section 213-25 of the Town Zoning Ordinance. Amendments to the Town Zoning Ordinance would therefore be required. As with the Proposed Action, the R-2A District would be amended to permit a “golf course community” as a special permit use, at the 69 unit density. The same amendments to “membership club” regulations requested as part of the Proposed Action would also be proposed for this alternative.

2. Affordable Housing

This alternative would include the provision of seven Middle Income Units and/or fair and affordable units. For purposes of comparison to the Proposed Action, it is assumed that the seven Middle Income Units would be developed on-site.

3. Visual and Community Character

The effects of this alternative on Bedford Road are similar to the Proposed Action Plan, and the reduced density Alternative 5. The extensive landscaping program and the redesign of the façade for the clubhouse would not be undertaken, given the marketing and financial implications associated with this alternative, including the higher costs for residents in terms of taxes, along with homeowner’s association fees and Club membership fees. The Town Board has advised the Applicant that any new development on the Site must be adequately setback and screened from all streets and adjacent uses.

4. Natural Features

This alternative would result in approximately 141 acres of open space, the same as the Proposed Action and the 60 and 75-unit plans in Alternative 5; the 49-unit plan reduced density plan would have approximately 2 acres more of open space (143 acres).



5. Stormwater Management

This alternative has 19.5 acres of impervious area, which is 2 acres more than the impervious area in the Proposed Action and the 75 and 60-unit reduced density plans. Like all the development alternatives, this alternative would include a Storm Water Pollution Plan (SWPPP) that would address stormwater quantity and quality issues.

6. Water and Sewer

With its 3 and 4 bedroom designs, and its greater population per dwelling unit, the 69 unit townhome alternative would result in a population of approximately 230 persons. This would result in additional water demands and sewerage effluent, which are based on the number of bedrooms in the development. The following table compares this alternative with the Proposed Action and the reduced density Alternative 5.

Table IV-2
Alternative 4 Water and Sewer Comparison

	Units	Bedrooms	Water Demand (gpd)	Sewerage (gpd)
Cluster Townhome Development	69	241	30,150	30,150
Proposed Action	88	211	29,775	29,775
Reduced Density Alternative Plan 75 units	75	188	26,075	26,075
Reduced Density Alternative Plan 60 units	60	153	21,175	21,175
Reduced Density Alternative Plan 49 units	49	126	17,375	17,375

7. Socioeconomic Factors

The 69 unit townhouse development with 3 and 4 bedroom units (7 Middle Income Units and 62 market rate condominiums) would result in 241 persons and 43 school age children, which is greater than all the alternatives with condominium residences and the Proposed Action, which is anticipated to generate 19-20 school age children, based upon Rutgers University multipliers and 10 students based on local experience. If this alternative was all rental units instead of condominiums, the number of school children would be the same (Rutgers CUPR multipliers are not published for rental townhouse units, therefore, multipliers for owned units are used).

Property taxes for this alternative would be greater than all of the alternatives studied. Of the \$1,240,000 in annual taxes from the 62 condominium units, 67%, or \$830,800, would go to the Byram Hills School District, which is approximately \$19,320 for each of the 43 school age children. This is based on an average market value of \$1,000,000 per unit (Source: Houlihan Lawrence). Additional discussion of this fee simple taxation model is provided in Chapter III.N.2.e.



The Applicant has informed the Town that if a fee simple ownership/taxation alternative is selected by the Lead Agency, the increased risks and decreased returns, coupled with the high cost of on-site infrastructure, improvements to the clubhouse and golf course, potential off-site contributions, and the significant cost of creating affordable housing, will dictate that the Applicant pursue a single family subdivision of the entire Site, rather than pursue a townhouse project.

8. Community Facilities

The additional site population and school-age children from this alternative would have a greater effect on Town recreation facilities and services than the Proposed Action and the reduced density alternative. The 43 school age children is significantly greater than the maximum of 20 students in the Proposed Action plan.

9. Traffic

Traffic generation from the 69 unit townhome development would be similar to the traffic generated from the 88 unit Proposed Action and the 49 home subdivision plans (Alternatives 2 and 3), as indicated below.

**Table IV-3
Alternative 4 Traffic Comparison**

	AM Peak	PM Peak
Townhomes (69 Units)	37	43
Proposed Action (88 Units)	47	55
Reduced Density (75 Units)	40	47
Reduced Density (60 Units)	32	37
Reduced Density (49 Units)	26	30
Conventional/Conservation Subdivision (49 Lots)	37	49

A difference in impacts would be realized during the AM peak hour when parents and high school students drive to school during the morning rush. The townhome alternative and the 49 lot subdivisions would have 43 and 51 school age children respectively, much greater than anticipated the Proposed Action and the reduced density alternative.

E. Alternative 5: Reduced Density (49, 60 and 75 Units)

Alternative 5 is a golf course community at a lower density than the Proposed Action. For this alternative, it is assumed that there would be 49, 60 or 75 units, inclusive of the 10% "fair and affordable housing" requirement (i.e., 5, 6, and 8 units respectively). See Exhibits IV-4A, IV-4B and IV-4C. As with the Proposed Action, the condominium units would be age-targeted luxury residences. The affordable units would have the same

bedroom distribution as the market rate units. The table below summarizes the unit type and bedroom mix for each reduced density alternative.

Table IV-4
Reduced Density Alternative Unit Type and Bedroom Mix

Unit Type	49 Unit Plan	60 Unit Plan	75 Unit Plan
Golf Residences – 2BR Condo Flats	23	28	41
Golf Residences – 3BR Condo Flats			6
Golf Villas – 3BR Duplex	14	18	14
Golf Cottages – 4BR Detached	5	5	5
Fairway Residences – 3BR Condo Flats	2	3	2
Fairway Residences – Affordable Flats			
2 BR	3	4	5
3 BR	1	1	1
4 BR	1	1	1
Total	49	60	75

Taxes generated would be less than those estimated for the Proposed Action plan; this would particularly affect the Byram Hills School District which receives 67% of the revenues. Peak hour traffic generation would also be less than the Proposed Action plan. Although site disturbance for the 75 and 60 unit alternatives would be similar to the Proposed Action plan, 49 units could be accommodated in fewer buildings with slightly less site disturbance resulting.

The reduced density alternative is not financially feasible for the Applicant. Moreover, loss of a significant number of proposed units would require a less ambitious landscaping program along Bedford Road, and renovation of the clubhouse.

1. Land Use and Zoning

This alternative would generally require the same zoning amendments as the Proposed Action, except the permitted density (in “density units”) could be less.

Like the Proposed Action, the reduced density plans would be compatible with surrounding predominately residential and institutional land uses. Unlike the Proposed Action, the reduced density plans would not result in the extensive improvements to the Club which are part of the Proposed Action.

2. Affordable Housing

As noted above, the reduced density plans would include the provision of five, six, or eight fair and affordable units, respectively for the 49-, 60-, and 75-unit plan. The Proposed Action includes the provision of eight affordable units.

3. Visual and Community Character

The reduced density plans would have four residential buildings along Bedford Road, the same number as in the Proposed Action plan. The Town Board has advised the Applicant that any new development on the Site must be adequately setback and screened from all streets and adjacent uses. The feasibility of a 100-foot landscaped setback between proposed units and Bedford Road was investigated for each of these alternative layouts, as illustrated on the exhibits. On the 49-unit plan, a 100-foot buffer was maintained along the entire frontage of Route 22/Bedford Road (see Exhibit IV-4A). This buffer could maintain existing healthy trees, and could be supplemented with new plantings as well.

A 100-foot setback line from Bedford Road is also shown on the 60-unit and 75-unit layouts. However, on these two plans, some portions of the residential structures are within the 100-foot area, as well as some roads and parking. In both of these plans, as well as with the Proposed Action, pushing units back away from Bedford Road to the west would create more impact into the steep slopes, causing the need for more clearing, and potentially requiring retaining walls. Because the Applicant can – and would under any plan – enhance the frontage along Bedford Road with stone walls, additional plantings, and preservation of healthy mature trees, the Applicant believes maintaining less than a 100 foot setback would not present any significant, adverse visual impacts, and that any potential visual benefit is outweighed by these factors.

4. Natural Features

The 49 unit reduced density plan would result in approximately 143 acres of open space, which is similar to the Proposed Action plan. In the reduced density plans, the site disturbance would range between approximately 71.9 to 73.9 acres, similar or the same as the Proposed Action plan. Impacts on steep slopes, wetlands and wooded areas among these alternatives would also be similar.

5. Stormwater Management

The reduced density plans would have slightly less impervious surface area than the Proposed Action plan and Alternative 4. A Storm Water Pollution Plan (SWPPP) would be prepared to address stormwater quantity and quality issues.

6. Water and Sewer

The water demand and sewage effluent, measured in gallons per day, would be reduced from the Proposed Action, given the fewer number of condominium units in this alternative. The wastewater treatment plant and the proposed well system will become

more costly on a per unit basis under this alternative, affecting the financial feasibility of the reduced density alternatives.

7. Socio Economic Factors

The projected population, school age children and estimated taxes for the reduced density alternative, compared to the Proposed Action, is shown in the table below.

**Table IV-5
Comparison of Reduced Density Alternative and Proposed Action: Taxes**

	Units	Population ¹	School Age Children ¹	Total Taxes ²	School Taxes
Proposed Action	88	204	20	\$1,493,223	\$1,000,459
Reduced Density-75 Units	75	181	19	\$1,290,224	\$864,450
Reduced Density-60 Units	60	151	17	\$1,033,392	\$692,373
Reduced Density-49 Units	49	124	15	\$851,205	\$570,307

¹ Based on Rutgers CUPR multipliers, for multiplier categories, refer to Table III.L-2. Multipliers for the reduced density alternatives are the same as those of the Proposed Action, although with a different bedroom mix.

² Based on tax revenues per market rate and affordable units as set forth in Chapter III.N, Socioeconomic/Fiscal Resources.

8. Community Facilities

The minimal impacts on Town and School District facilities projected for the Proposed Action would essentially be the same for the reduced density alternative. The major difference would be the lesser amounts of tax revenue generated, a particularly important issue for both the Town and School District given current fiscal conditions. The number of potential school age children is higher in the reduced density alternative because the reduced density plans would contain more 3- and 4-bedroom units than the Proposed Action. If this alternative was all rental units instead of condominiums, the number of public school children generated would be greater (18/21/25 for the 49-unit/60-unit/75-unit plans, respectively³).

³ Based on Rutgers CUPR multipliers, for multiplier categories, refer to Table III.L-2. Multipliers for the reduced density alternatives are the same as those of the Proposed Action, although with a different bedroom mix.

9. Traffic

Although there would be fewer vehicular trips generated with fewer condominium units, the reduction would not significantly affect traffic conditions on Bedford Road. Peak hour traffic is indicated below.

Table IV-6
Comparison of Reduced Density Alternative and Proposed Action: Traffic

	AM Peak	PM Peak
Current Traffic Volume	0	0
Proposed Action (88 Units)	47	55
Reduced Density (75 Units)	40	47
Reduced Density (60 Units)	32	37
Reduced Density (49 Units)	26	30



Table IV-7
Comparative Table of Project Alternatives

	Proposed Action	Alt. 1: No Action	Alt. 2: Existing R-2A Zoning – Conventional Subdivision	Alt. 3: Existing R-2A Zoning – Conservation Subdivision -A (one-acre lots)	Alt. 3: Existing R-2A Zoning – Conservation Subdivision-B (half-acre lots)	Alt. 4: Cluster Subdivision/ Townhouse Alternative	Alt. 5: Reduced Density Alternative
# Residential Units	88	0	49	49	49	69	49 / 60 / 75
Open Space	141.6 acres	0 ¹	0	59.5 acres	124.7 acres	141.6	143 / 141 / 141 acres
Length of Public Road	0	0	9,500 lf	9,500 lf	3,725 lf	0	0
Impervious Area	17.5 ac. (6.6 ac. <i>new</i> impervious)	10.9 acres	15 acres	15 acres	6.8 acres	19.5 acres	17.0/17.3/17.5 acres
Trees Removed	879	0 acres	9.5 acres ³	5.0 acres ³	3.5 acres ³	964	968 / 982 / 994
Steep Slope Impacts	2.75 acres	0 acres	1.43 acres	1.16 acres	0.25 acres	2.77 acres	2.5 / 2.67 / 2.75 acres
Wetland Impacts	add 1.25 acres of new wetland enhancements	0 acres	0.05 acre wetland fill	0.05 acre wetland fill	0 acres	add 1.25 acres of new wetland enhancements	add 1.25 acres of new wetland enhancements
Wetland Buffer Impacts	4.34 acres	0 acres	0.33 acre	0.33 acre	0 acres	4.34 acres	4.34 acres
Trip Generation (Peak)	47 AM / 55 PM	0 AM / 0 PM	37 AM / 49 PM	37 AM / 49 PM	37 AM / 49 PM	37 AM / 43 PM	26 AM / 30 PM 32 AM / 37 PM 40 AM / 47 PM
Additional Water Demand	29,775 gpd	0 gpd	26,950 gpd	26,950 gpd	26,950 gpd	30,150 gpd	17,375 / 21,175 / 26,075 gpd
Additional Wastewater Generation	29,775 gpd	0 gpd	26,950 gpd	26,950 gpd	26,950 gpd	30,150 gpd	17,375 / 21,175 / 26,075 gpd
Annual Tax Generation	\$1,493,223	\$275,671	\$1,470,000	\$1,225,000	\$980,000	\$1,240,000	\$851,205/ \$1,033,392/ \$1,290,224
Total Population	185-204	0	207	207	207	240	124 / 151 / 181
School Children -Rutgers & Local Experience	10-20	0	51	51	51	43	15 / 17 / 19
School Children - Rental Scenario ²	27	0	51	51	51	43	18 / 21 / 25
Visual Impacts	4 new residential buildings along Bedford Road, with extensive landscaping	No change from existing	5 new homes along Bedford Road	6 new homes along Bedford Road	8 new homes along Bedford Road	Townhomes along Bedford Road	4 new residential buildings along Bedford Road

¹ The Site would be subject to future development.

² Based on Rutgers CUPR multipliers. ³ Based on estimates using wooded areas on site.



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Existing R-2A Zoning: Conventional Subdivision

Exhibit
IV-1



Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Existing R-2A Zoning: Conservation Subdivision

Exhibit
IV-2A

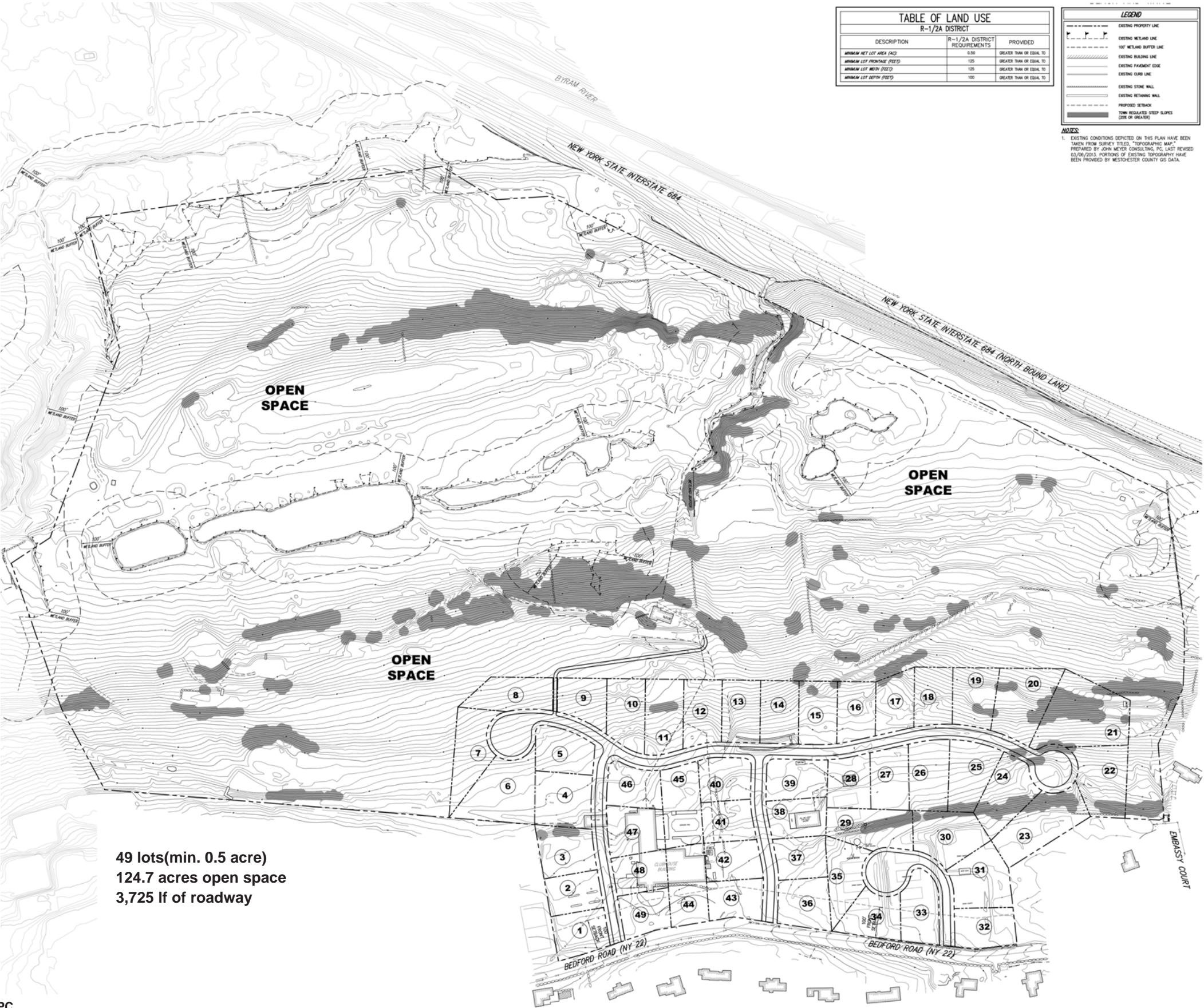


TABLE OF LAND USE R-1/2A DISTRICT		
DESCRIPTION	R-1/2A DISTRICT REQUIREMENTS	PROVIDED
MINIMUM NET LOT AREA (ACS)	0.50	GREATER THAN OR EQUAL TO
MINIMUM LOT FRONTAGE (FEET)	125	GREATER THAN OR EQUAL TO
MINIMUM LOT WIDTH (FEET)	125	GREATER THAN OR EQUAL TO
MINIMUM LOT DEPTH (FEET)	100	GREATER THAN OR EQUAL TO

LEGEND	
	EXISTING PROPERTY LINE
	EXISTING WETLAND LINE
	100' WETLAND BUFFER LINE
	EXISTING BACKING LINE
	EXISTING PAVEMENT EDGE
	EXISTING CURB LINE
	EXISTING STONE WALL
	EXISTING RETAINING WALL
	PROPOSED SETBACK
	TOWN REGULATED STEEP SLOPES (20% OR GREATER)

NOTES:
1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY TITLED, "TOPOGRAPHIC MAP" PREPARED BY JOHN MEYER CONSULTING, P.C. LAST REVISED 03/06/2013. PORTIONS OF EXISTING TOPOGRAPHY HAVE BEEN PROVIDED BY WESTCHESTER COUNTY GIS DATA.

LOT AREA SUMMARY TABLE	
LOT #	LOT AREA (AC) (1)
1	0.55
2	0.50
3	0.63
4	0.74
5	0.59
6	1.01
7	0.72
8	0.63
9	0.51
10	0.63
11	0.69
12	0.60
13	0.58
14	0.59
15	0.59
16	0.55
17	0.53
18	0.54
19	0.61
20	0.92
21	1.30
22	0.80
23	0.97
24	0.74
25	0.69
26	0.68
27	0.57
28	0.54
29	0.79
30	0.78
31	0.77
32	0.58
33	0.62
34	0.58
35	0.61
36	0.51
37	0.51
38	0.54
39	0.59
40	0.54
41	0.50
42	0.52
43	0.52
44	0.73
45	0.75
46	0.53
47	0.64
48	0.50
49	0.50
OPEN SPACE	124.66

LOT SUMMARY TABLE NOTES:
1. LOT AREA AS DEFINED BY THE TOWN OF NORTH CASTLE ZONING CODE: THE TOTAL HORIZONTAL AREA INCLUDED WITHIN LOT BOUNDARIES.

49 lots(min. 0.5 acre)
124.7 acres open space
3,725 lf of roadway

Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Conservation Subdivision Plan
(min. 0.5 Acre lot)

Exhibit
IV-2B



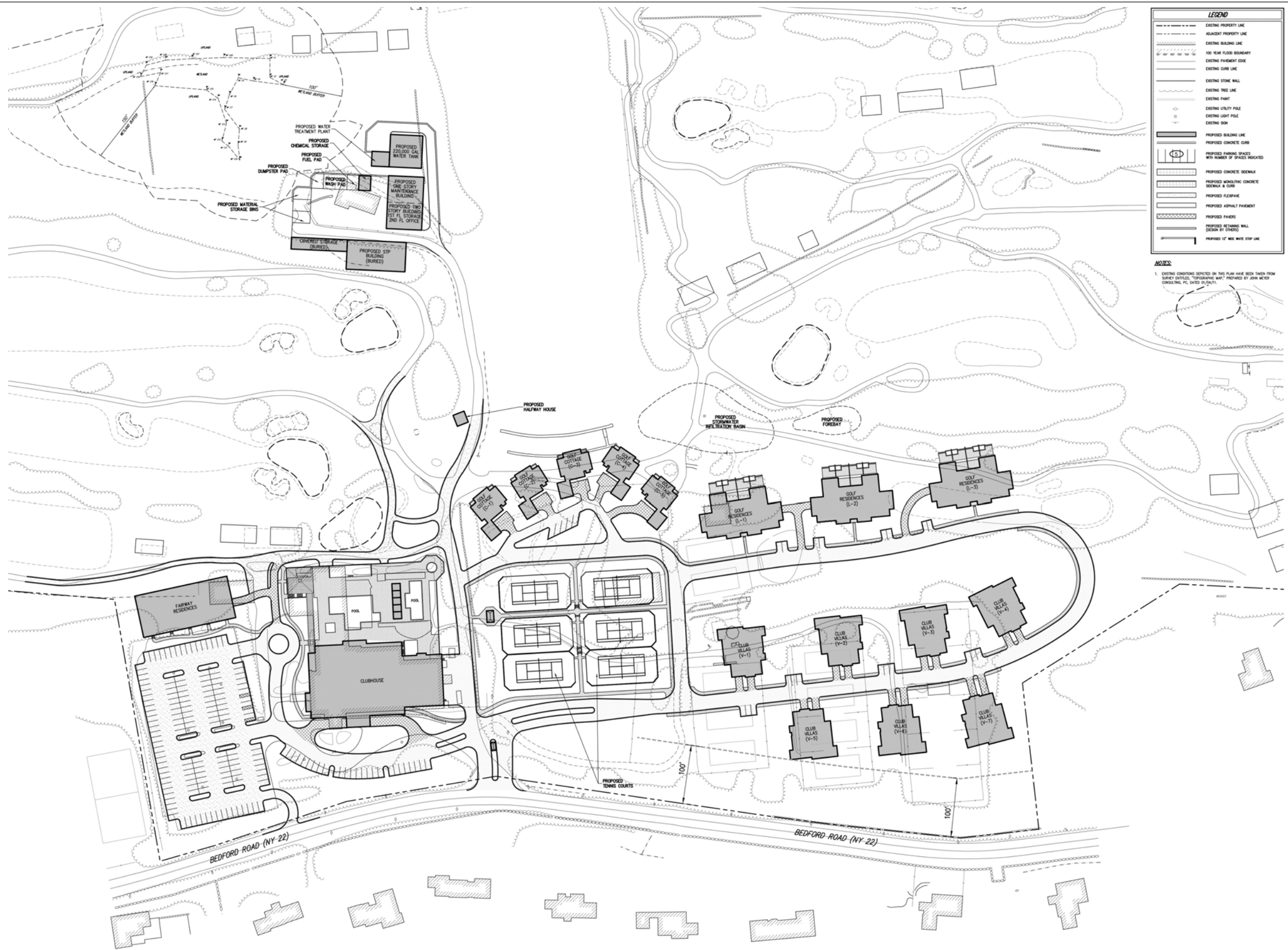
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

**Cluster Subdivision/
69 Attached Townhomes**

**Exhibit
IV-3**



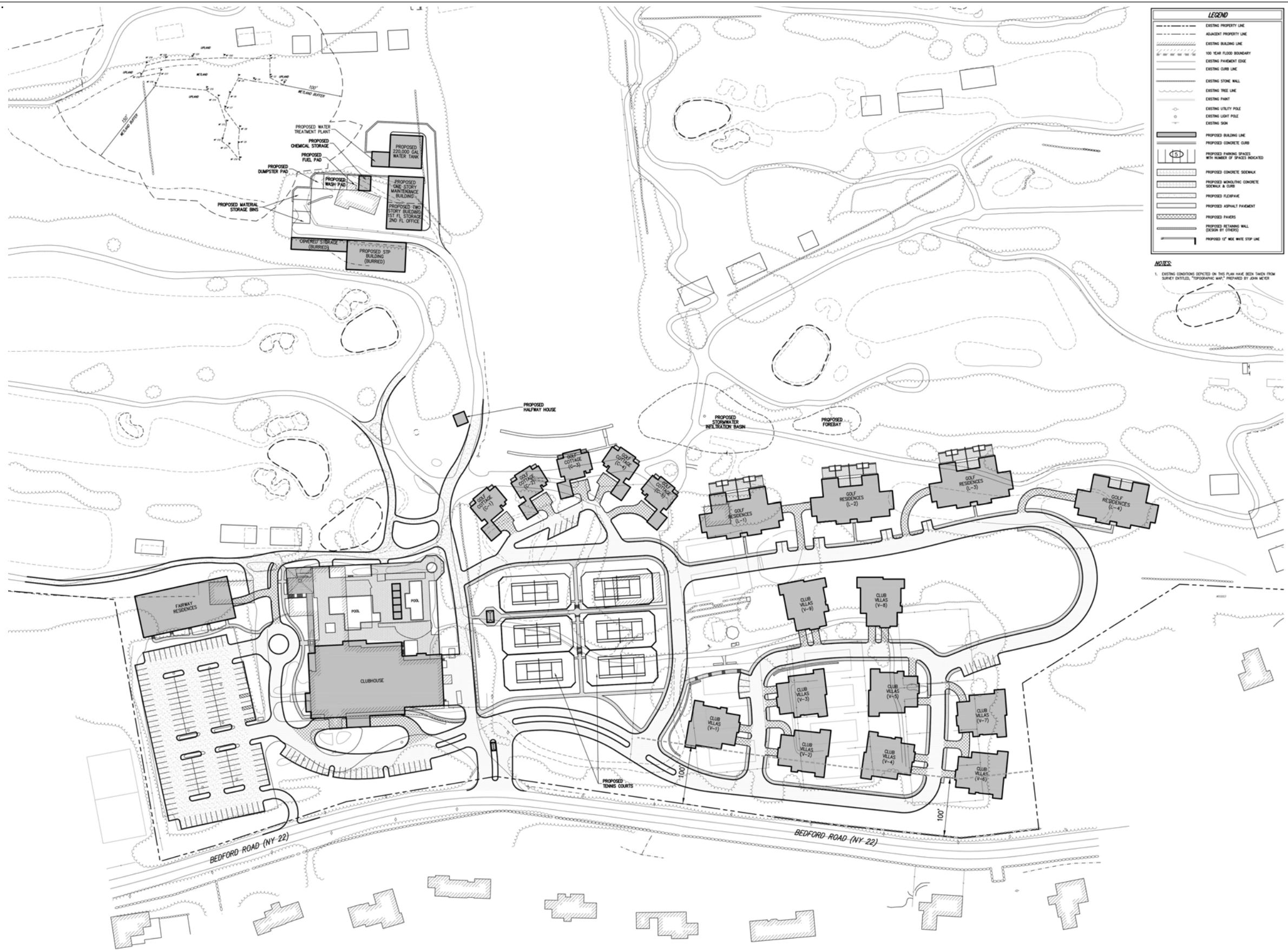
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Reduced Density Alternative
49 Units

Exhibit
IV-4A



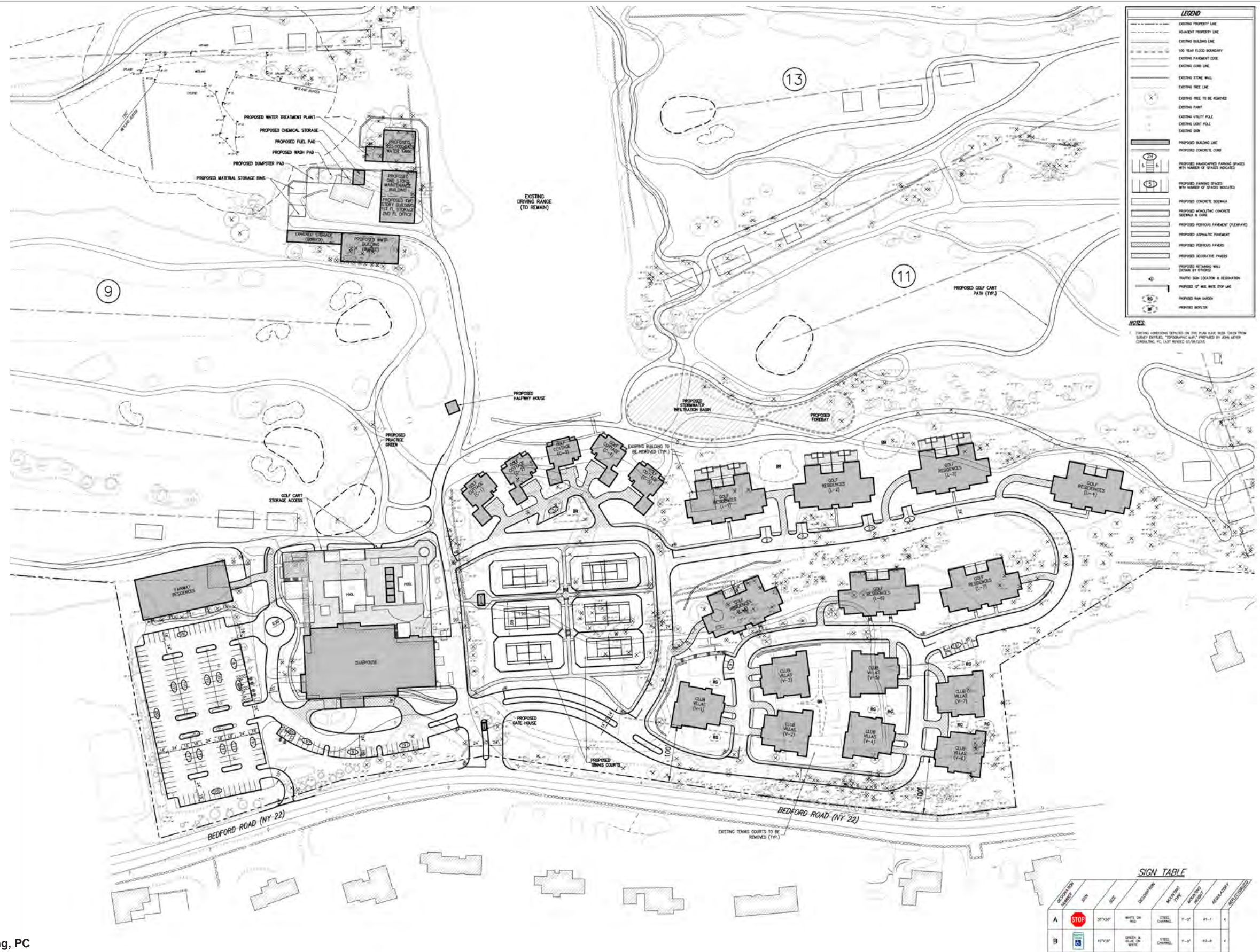
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, PC.

Reduced Density Alternative
60 Units

Exhibit
IV-4B



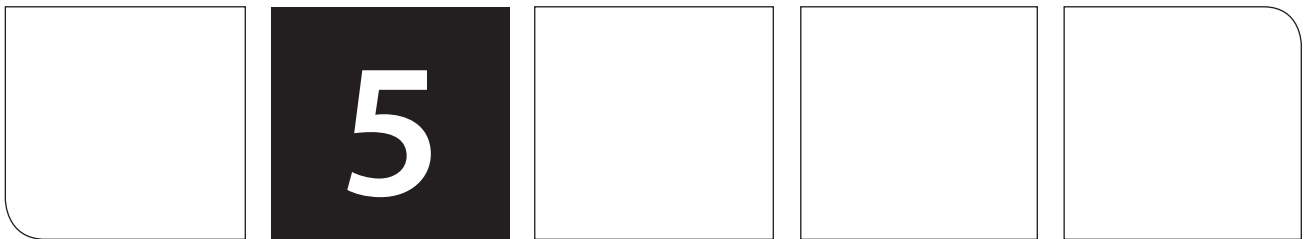
Source: John Meyer Consulting, PC

BRYNWOOD
North Castle, New York

VHB Engineering, Surveying and Landscape Architecture, P.C.

Reduced Density Alternative
75 Units

Exhibit
IV-4C



Adverse Impacts that Cannot be Avoided
if the Proposed Action is Implemented

V. ADVERSE IMPACTS THAT CANNOT BE AVOIDED IF THE PROPOSED ACTION IS IMPLEMENTED

With the implementation of the Proposed Action, there are certain adverse environmental effects that cannot be avoided. These are listed throughout the DEIS, within the subject chapters, and summarized below. The Project will have certain long term and short term impacts, as would any development on the Project Site. However, all potential significant adverse impacts resulting from construction of the Project will be avoided or mitigated to the maximum extent practicable.

Adverse effects that cannot be avoided include both short-term and long-term impacts, as listed below:

A. Short Term Impacts

Short term impacts are generally related to construction activities occurring on-site that cannot be avoided. Unavoidable adverse impacts occurring in the short term include: traffic generation from construction workers and deliveries, noise impacts from construction equipment and traffic, air quality impacts from construction activities and equipment, and potential erosion. The Applicant will employ best management practices during construction, which will mitigate any adverse impacts, as described elsewhere in this document.

Construction activities on-site would occur during daylight hours. Traffic volumes on local roadways would increase as a result of construction, but construction workers generally arrive and depart before for weekday peak hours via Bedford Road/Route 22 and I-684. Although air quality would be temporarily affected by exhaust and emissions from construction equipment and fugitive dust, mitigation measures would be utilized to reduce impacts. Erosion and sediment control measures would be employed on-site to mitigate potential impacts from erosion as a result of construction activities.

B. Long Term Impacts

Potential long term impacts that would result from the operation of the Project would be mitigated to the maximum extent practicable. Therefore, the long-term impacts listed below are unavoidable, but not necessarily significant. Long term impacts resulting from operation of the Project would include:

- *Tree Removal and Soil Disturbance:* Approximately 73.9 acres of the 156-acre site will be disturbed for the Project, although primarily in previously disturbed areas. This includes the removal of approximately 992 trees (over 8" dbh).

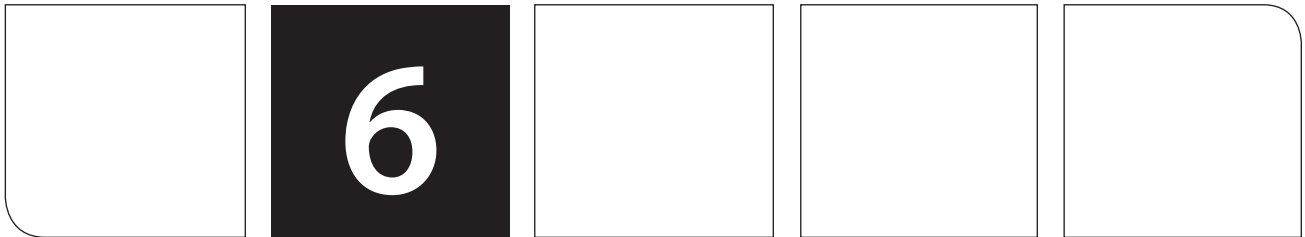


- *Increase in impervious surfaces:* The golf course community will be built over existing tennis courts and the Clubhouse will be renovated at its current location. However, the Project will increase impervious surface by approximately 6.6 acres with the addition of buildings and new private driveways. (No significant changes to impervious surfaces are proposed on the existing golf course).
- *Traffic:* The Project would generate approximately 47 Peak AM Hour trips and 55 Peak PM Hour trips. Although traffic mitigation is not required, alternative access routes to the Byram Hills High School are described in the DEIS. The Applicant will consider participation in the funding of one of these alternatives as part of the Proposed Action plan.
- *Community Services:* Based on data derived from other golf course condominiums, the Applicant determined that the proposed condominiums would generate approximately 160 new residents, approximately 5 of which would be public school-age children. In addition, the eight affordable units would generate a population of approximately 25 persons and 5 to 6 public school age children. The increase in population of approximately 185 people would impact community services and facilities incrementally. However, it is anticipated that the property tax generated by the Project to the Byram Hills School District and other taxing jurisdictions would serve to mitigate any adverse impacts.
- *Utilities:* The Project would result in increased demand for utility services, including: potable water, sanitary sewer, electricity and fossil fuels. While demand would be increased for such services, it is not anticipated that the Project would result in significant adverse impacts to utilities since capacity and infrastructure either exist or will be upgraded to accommodate the Project. The goal of the current on-site well drilling program is to develop an on-site water supply to meet the Project's potable water demand requirements. If the results of the test well drilling program demonstrate that the development of an on-site public water-supply source is not feasible, the Applicant would pursue connection with the existing Water District #2 to supply potable water.
- *Visual Change as Viewed from Surrounding Roads:* With the construction of the golf course community, the affected portion of the Site will change in character from purely recreational (its current condition of nine tennis courts) to residential as viewed from Bedford Road. The façade of the existing Clubhouse will also change and significant landscaping will be provided along the Bedford Road frontage, including reconstruction of the stone walls. The views to the Project are not considered a negative impact, but will be different than the existing condition, and are unavoidable with construction of the Project.



- *Wetlands:* The Project will impact approximately 4.34 acres of wetland buffers. The wetland mitigation plan includes the dredging of two ponds and restoration/creation of 1.25 acres of wetlands. All wetlands on-site will be improved through the removal of non-native invasives and the replacement with native trees, shrubs and herbaceous plant material. Vegetated buffer strips will be added adjacent to wetland and surface water resources where appropriate.
- *Steep Slopes:* A total of 2.75 acres of town-regulated steep (25%+) slopes are proposed to be disturbed on the 156.3 acre Site. The Site design preserves to the extent practicable the steep slopes of the property.





Others Required Analyses

VI. Other Required Analyses

A. Irreversible and Irretrievable Commitment of Resources

With the implementation of the Proposed Action, certain natural resources will be committed, and therefore consumed, converted or made unavailable for future use. These resources include:

- Consumption of gasoline, oil and electricity to be used in the operation and maintenance of construction equipment. In addition, additional site generated automobile traffic will result in the consumption of fossil fuels.
- During the operational period of the Project, residents and employees will require the use of water, electricity and natural gas and/or oil.
- Commitment of resources such as building materials (wood, brick, stone, concrete, paint, topsoil) is also a necessary component of the Project. The construction period is proposed to be phased over a 3 year period, so resources will be used gradually over that time.
- Construction and operational activities will also require a commitment of labor. The commitment of construction laborers will be temporary, while a permanent commitment of labor will be required for property maintenance and operations of the Club. The commitment of labor, temporary and permanent, is considered to be a beneficial impact that results from the Project.

B. Impacts on the Use and Conservation of Energy

The Proposed Action will use energy resources including electricity, heating oil, and fossil fuels. Anticipated levels of consumption, as well as strategies to reduce energy consumption are described in Chapter III.O, Air Quality and Greenhouse Gases. The proposed Project will address issues of energy use and sustainability on a number of different levels. The sourcing of construction materials, management of the construction process, selection of materials and building systems to be installed, and long term maintenance of the buildings will all contribute to the energy efficiency of the Project. Although the Project is not proposed to be certified to any specific LEED standard, many energy efficient factors and components of the Project meet LEED objectives, and will all help to reduce energy use in the long term and short term.

The proposed residences will be designed to meet or exceed the New York State Energy Conservation Construction Code which requires the use of energy efficient products in

all new and renovated construction. The exterior walls and roofs of the structures will have thermal insulation so as to reduce heat loss in the winter and heat gain in the summer. The windows used will be double paned, insulating glass for winter heating and low emissivity for summer cooling.

When carefully selected and implemented, even modest design measures can result in significant conservation of natural resources. The Project will incorporate the following measures:

- Land planning and design techniques that preserve the natural environment and minimize disturbance of the land utilizing a compact development footprint
- Reduction of soil erosion and runoff through implementation of best storm water management practices
- Water conservation indoors and outdoors
- Energy efficiency in heating and cooling systems, appliances, and lighting, with high albedo roof materials that reduce heat island effect
- Selection of Energy Star products and materials based on reuse, durability and the amount of energy used to create the material
- Selection of environmentally preferable products for building shell and finishes
- Waste reduction, reuse and recycling during construction and throughout the life of the Project including efficient fixtures, appliances and irrigation systems
- Access to open space
- Landscape design to utilize native plants and prohibit invasives, provide shade or hardscape and reduce heat island effects
- Provide bicycle storage and parking for fuel-efficient vehicles
- Provide information to future homeowners to encourage education and awareness
- Continue to pursue Audubon International Certification



C. Growth Inducing Aspects of Proposed Action

The preceding chapters of this DEIS describe the direct impacts anticipated to be generated by the Project. This section addresses the potential for the Project to directly or indirectly induce growth in the Town of North Castle.

Growth inducement is based on a number of factors, including the size of the proposed development and the type of uses included.

As discussed in Chapter III.N, Socioeconomic/Fiscal Resources, the proposed Project would add approximately 185 new residents to the area. Within the Town of North Castle, this represents a population of less than 2 percent.

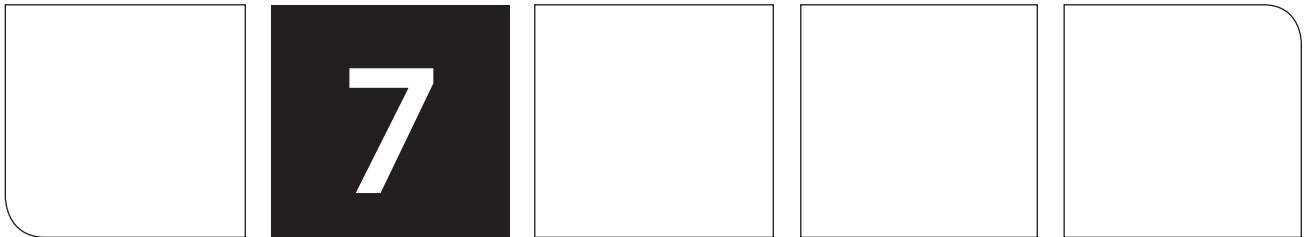
According to the socioeconomic analysis, the project residents would have the potential to inject an additional \$4.7 million in discretionary consumer spending into the economy. This spending potential would provide an additional source of support for local retailers and restaurants and help strengthen the Town's economic vitality. As with the construction spending, the household spending also recirculates through the local economy creating additional secondary impacts. At full operation, this household spending would generate approximately \$5 million in additional economic output and support an additional 33 jobs.

However, while the addition of 185 new town residents would expand the market for local businesses, providing them with potentially increased sales, the demand of the residents for goods and services is not expected to stimulate additional development within the Town.

The golf course community would not induce similar development because the proposed zoning amendments would not permit a "golf course community" to be developed at any other site in Town, and because it is expected that the proposed age-targeted, luxury, residences would satisfy the local market demand for this type of housing development.

Likewise, secondary and cumulative impacts to land use, community facilities, traffic, water and wastewater needs are not anticipated given the likely off-site development in the Site's vicinity.





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