

DRAFT ENVIRONMENTAL IMPACT STATEMENT

COLONY PRESERVE

Planned Development District
CZ #2008-025-CZ

**Hamlet of Shirley, Town of Brookhaven
Suffolk County, New York**



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June 2011

DRAFT ENVIRONMENTAL IMPACT STATEMENT
for the
COLONY PRESERVE

Planned Development District (PDD) Application

Hamlet of Shirley, Town of Brookhaven
Suffolk County, New York

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- A-2 Positive Declaration, Town Board, December 23, 2008
- A-3 Final Scope for the Draft Environmental Impact Statement, Town Board, April 14, 2009
- A-4 Letter Confirming Wetland Reconfiguration & Expansion, Town Division of Environmental Protection, August 18, 2010
- A-5 Air Resources-Related Documentation
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B Photographs of Site and Vicinity

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D Traffic Impact Study, Nelson & Pope, LLP, revised June 2011

E Conformance to Town PDD Zoning Requirements

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- F-2 NYSDEC Breeding Bird Survey
- F-3 Projection of Wildlife Ecological Response (POWER) Model Results
- F-4 NYS Natural Heritage Program Correspondence

G Correspondence

H Phase I Archaeological Investigation, Tracker Archaeology Services, Inc., February 2009

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PDD Conceptual Plan, Nelson & Pope, LLP, April 19, 2011

Yield Map, Nelson & Pope, LLP (revised 1/18/11)

Existing Conditions/Alternative 1 Map, Nelson & Pope, LLP, Feb. 2007

PDD Phasing Plan, Nelson & Pope, LLP, June 2011

Preliminary Map - Overall, N&P, LLP (revised 10/12/10), [Alternative 2]

SUMMARY



SUMMARY

Introduction

This document is a Draft Environmental Impact Statement (DEIS) for a rezone application on a 205.64-acre parcel located on County Route (CR) 46 (William Floyd Parkway) in Shirley, to establish a Planned Development District (PDD) and associated public benefits. A PDD, as defined by Town Code Section 85-338 is *“a floating zone specifically designed ... to allow the unified and coordinated development of parcels of land, including the transfer of density from the core area of the Central Pine Barrens, ... the granting of zoning incentives to achieve special public benefits, and other flexible design features, all intended to help achieve the implementation of the legislative intent, purposes and goals of this article...”* The special public benefits for the proposed project include, but are not limited to, tax revenue benefits that create a substantial tax surplus to the William Floyd Union Free School District (UFSD), increased freshwater wetlands area, and an approximately 98-acre dedication of land to the Town for public/community use.

The guiding principle of this proposed PDD is to design a high quality mixed use development including two residential uses on the property, while providing the community with special benefits that could not be realized absent the use of the overarching PDD concept. The attached plan is in large part the result of Town and community input to achieve this goal, as conducted by the project sponsor and their consultants over the past twenty-five months.

Description of the Proposed Project

The proposed project includes a change of zone to PDD and the subsequent removal of all golf course-related facilities, followed by construction of 150 two-bedroom age-restricted Planned Retirement Community (PRC) residences and 75 detached single-family homes (three-bedrooms) on clustered lots. The public benefits derived from approval of the PDD include significant tax revenue for the William Floyd UFSD; which would experience a substantial yearly deficit if the “as-of-right” single-family homes were constructed as permitted under current zoning), a net additional 1.59 acres of wetlands, and dedication of nearly half of the property to the Town of Brookhaven for whatever recreational use the Town determines.

The applicant proposes a well-planned development that will create an attractive and desirable environment for its residents and will enhance the community at large. Quality-of-life will be a focus of the development and will be evident in its architectural design, landscaping, water and wetland features, and overall attractive appearance.

Potential Impacts and Mitigation

Topographic and Soil Resources Impacts

- In order to provide for land surfaces having adequate grades for road configuration and homesites, it is anticipated that grading/filling operations will occur throughout much (about 60 acres) of the western half of the property; the easterly 98± acres would not be disturbed, but the southwestern wetland will be reconfigured and expanded by 1.59 acres, and small portions of the man-made stream will be removed. The two other wetland areas and the remaining natural buffer strips (along the

northern, southern and eastern boundaries of the site abutting residential neighbors) would not be disturbed.

- The site is comprised of Riverhead-Plymouth-Carver association soils, whose characteristics would not pose constraints on development of the type proposed. The specific constraints associated with the soil types on the property are predominantly minor; the presence of steep slopes and a sandy surface layer will be addressed by implementation of a comprehensive Grading and Drainage Plan and use of topsoil for landscaping, respectively, and no significant impacts are anticipated from erosion.

Topographic and Soil Resources Mitigation

- Neither soils nor topography appear to pose constraints on the current use of the subject property; it is not expected that such constraints would occur with the proposed project.
- There are no significant natural topographic features on the site. The minor areas of steep slopes that are present are the result of the prior golf course development, so no impacts to any natural topographic features are expected.
- Developed areas will be permanently stabilized and slopes are not anticipated to exceed 1:3.
- Dust raised during grading operations will be minimized and controlled by the use of water sprays, truck cleaning stations at the construction exit, and implementation of any dust suppression systems specified by the appropriate Town agencies.
- Truck routes to and from the site will be limited to CR 46, thereby minimizing noise, dust and potential safety impacts to residential communities and schools adjacent to the site.
- Erosion control measures such as staked hay bales, silt fences, groundcovers (vegetative or artificial), drainage diversions, minimizing the area of soil exposed to erosive elements at one time, and minimizing the time span that soil is exposed to erosive elements, will be utilized to minimize loss of soil during construction, particularly in locations where erosion and sedimentation could adversely impact adjoining properties and streets as well as the existing and proposed wetlands. Applicable Town of Brookhaven standards and construction practices specified by the appropriate Town agencies will be followed.
- Conformance with NYSDEC requirements for the SPDES GP 0-10-001 permit, including preparation of an SWPPP, will ensure that the potential for erosion impacts during construction will be minimized.

Potential Water Resources and Plans Impacts

- The increase in impervious acreage (15.50 acres to 18.04 acres) will cause an increase in the volume of stormwater runoff generated on-site. However, and as required by the Town, all runoff generated on the site will continue to be retained on-site and recharged to the groundwater supply in the project's drainage systems. The drainage systems (one serving each of the two residential components) will be designed to handle runoff generated within the site, and will be designed to accommodate up to 8 inches of storage, as permitted by the Town where good quality leaching soils are present, such as on the subject site. In consideration of the use of appropriate drainage facilities and the level of drainage engineering review provided by the Town, no impacts to surface water or drainage characteristics are anticipated.
- The potential for impacts to water resources during the construction period will be minimized by implementing the mitigation measures required in the SWPPP, to be prepared by the applicant and reviewed and approved by the NYSDEC for the project's GP 0-10-001 SPDES permit.
- Though the project site is not located within tidal or freshwater wetlands, nor is it situated within a floodplain, the proposed development, along with many other properties throughout New York State and around the world will be undoubtedly be affected by rising sea levels in the long-term. However, impacts resulting from sea level rise and corresponding mitigation measures are not confined to the

project site; rather, these would occur on a global scale. As such, impacts and mitigation associated with such global issues are beyond the scope of the proposed project.

- *208 Study* - The project will conform to the Structural and Non-Structural Recommendations of the 208 Study. The study recommends that community treatment systems be used in Groundwater Management Zone VI, where the overall wastewater generation totals 300 gpd/approved unit or less (or for this site, a total of 46,500 gpd). As the proposed project would generate a total of 46,500 gpd of sanitary wastewater, septic systems would be allowed. In addition, the project will control all runoff in on-site drainage systems, as required by the SCDHS, and use of fertilizers will be minimized and will conform to acreage requirements of the Town. In consideration of the above, the proposed project conforms to the applicable recommendations of the 208 Study, and no adverse impacts are anticipated.
- *Nationwide Urban Runoff Program (NURP) Study* - Based upon information presented in the NURP Study, the increased recharge volume is not anticipated to contain significant concentrations of pollutants. The project will use recommended recharge techniques involving a recharge basin, recharge ponds, catch basins and leaching pools. The NURP Study found that any organic chemicals that may be present in stormwater generally volatilize on surfaces, and inorganic chemicals and bacteriological indicators are removed as recharge infiltrates through soil. As noted, the average depth to groundwater is approximately 23 feet in the development area, providing a sufficient unsaturated zone for leaching and attenuation of entrained pollutants. Based on project design, the proposed development is in conformance with the applicable recommendations of the NURP Study in regard to the proposed stormwater recharge systems. The proposed development of the site is not expected to have a significant impact to groundwater resources underlying the subject property and surrounding area as related to the recharge of stormwater runoff.
- *Narrow Bay Floodplain Protection and Hazard Mitigation Plan* - The site is not located within any significant Flood Hazard Zone, so none of the recommendations associated with relocation or incorporation into the Suffolk County Parks System apply. In addition, the subject site was not recommended to be sold to an adjacent owner or to be held by the County. Based on the results of the Narrow Bay Plan, it is anticipated that severe storms would not pose significant adverse flooding impacts on the proposed project. Nevertheless, the Narrow Bay Plan generally recommends that future development apply appropriate constraints on construction and septic system design. Moreover, new construction must conform to strict National Flood Insurance Program and other environmental protection regulations, which will ensure that future development is built to withstand wind, wave and flooding access associated with major storms. The project will be professionally designed to ensure that its sanitary and drainage systems function properly.

Water Resources and Plans Mitigation

- The project consists of two types of residences, which generally have low probabilities of generating hazardous substances. As a result, no significant chemical use or discharge is anticipated.
- The volume of water recharged on the site will be increased by the proposed project; this value is anticipated to increase by 15.22% from its existing value of 108.41 MGY, to 124.91 MGY following construction. In addition, the project's recharge volume will be significantly greater than the amount of water pumped from the ground to service it. This recharge increase will mitigate potential impacts on the amount and level of groundwater in the area.
- To protect the quality of groundwater, fertilizer use will be minimized by limiting the amount of fertilizer-dependent landscaping to 14.64% of the site (30.11 acres). Landscape maintenance for the entire community will be conducted under the jurisdiction of the condominium associations, and will include a community-wide landscape maintenance contract. Fertilizer use will thus be controlled through initial applications to turf and landscape plantings, as well as through the landscape grounds maintenance agreement.

Potential Ecological Resources Impacts

- There are no natural surface water bodies on the subject site, and no such water bodies are found in the immediate vicinity that could be impacted by the project. However, the three existing man made freshwater wetland areas, totaling approximately 10.40 acres, are considered by the Town to be regulated freshwater wetlands. As such, the planned reconfiguration and expansion by 1.59 acres) of the southwesterly pond and removal of a portion of the stream (0.28 acres) will require approval of a Town Wetland permit. This is a net 12.5% increase in freshwater wetlands on-site. As such, no adverse impacts with regards to the man-made freshwater wetlands are anticipated.
- Bellport Bay is located at a significant distance from the subject site (approximately 1.6 miles), and is separated from the site by significant amounts of developed surfaces that are tributary to intervening drainage systems. It should also be considered is that there is significant intervening development between the subject property and Bellport Bay, most of which utilize conventional cesspool sanitary systems that are less efficient at removing nitrogen from sanitary wastes. The total nitrogen load generated from these properties is significant and well beyond that which will be generated by the proposed project. As a result, the total nitrogen load contributed by Colony Preserve in comparison will be miniscule and an insignificant addition to the existing nitrogen concentration and quantity presently discharged to Bellport Bay.
- The impacts to the ecological resources of a project site are generally a direct result of clearing of natural vegetation, increase in human activity and associated wildlife stressors, and the resulting loss and fragmentation of wildlife habitat. The majority of the site (63.08%) is currently landscaped with turf vegetation and extensive swaths of wooded edge totaling approximately 41.63 acres (20.24%) occur throughout the property. Much of the turf will be converted to successional field within the northern and eastern portions of the site, which are proposed to be dedicated for open space dedication area.
- The overall ecological character of the subject site is anticipated to be improved as a result of the preservation of the contiguous open space area. Currently, the natural areas on site (pitch pine oak forest, successional old field) are fragmented and arranged in narrow patches throughout the site. This arrangement of these natural habitats increases the edge effects (i.e., the increase in species diversity near the edge of a habitat for these habitats, thusly increasing the ability of invasive species to thrive and decreasing the quantitative area that actually contains the native species that comprise the habitat. The proposed project seeks to dedicate a large, contiguous block of open space on the subject site, which will be allowed to revegetate to natural conditions. This will allow for an eventual reduction in habitat edges, which will provide a larger area that actually contains species that define the habitat type. Larger areas of contiguous habitat type that are not impacted by invasive species are considered to provide a higher ecological value to fauna that would utilize the site. As such, the retention of this area for open space will provide an eventual ecological benefit to the site.

Ecological Resources Mitigation

- The proposed project will dedicate 98± acres of land to the Town for public open space and recreational purposes.
- The amount of wetlands will be increased by 1.31 acres (12.5%).
- The loss of wooded edge habitat on the property will be mitigated by preservation of 98± acres of natural area within the proposed open space and dedication areas, including areas of existing wooded edge and the natural conversion of formerly-maintained golf course turf and unvegetated sand traps, to successional field.
- Native plant species that provide food and shelter to wildlife will be utilized in some of the landscaped areas within the development area.
- No known invasive plant species will be utilized, including those species specifically those species listed in Resolution 614-2007 enacted by the Suffolk County Legislature.

Potential Air Resources Impacts

- Utilizing the Environmental Procedures Manual (EPM) and the TIS prepared for the prior proposed project, a detailed screening analysis was prepared for that prior proposal (450 senior residences and commercial spaces). The results of that analysis indicated that no significant adverse impacts to air resources were expected. As the proposed project is for half the number of residences and no commercial space, its trip generation characteristics will be significantly reduced in comparison. As a result, it is expected that the proposed project will, like the prior proposal, not result in any significant adverse air resource impacts.

Air Resources Mitigation

- Based on the results of the EPM screening methodology prepared for the prior proposed project, no significant air quality analysis were indicated. As the proposed project would significantly reduce trip generation as compared to that prior application, it is expected that, in a similar manner, no significant air resource impacts would occur. Therefore, no mitigation specific to air resources is necessary or proposed for the proposed project.

Potential Land Use, Zoning and Plans Impacts

- The Colony Preserve PDD would change the land use classification of the subject site from (vacant) recreational to senior residential, single-family residential and open space for community use. The primary land use effect of the proposal will be to locate these uses on a single property in a coordinated manner. These three land uses are already represented in the vicinity, so that no new land use types would be introduced into the area. The acreages and yields of the senior residential and single-family residential components would not saturate the community with these land use types, in consideration of the amounts of these uses that already exist in the area. The senior residential use is not out of character with the other residential types already in the vicinity. Besides the other senior site (The Knolls East), the area is dominated by medium-density residential development which, though built as detached homes on individual lots where the proposed PRC component is for detached structures having six units each, is not significantly dissimilar to the types of senior units proposed. The overall density of residential land in the area is 3.81 units/acre. For comparison, the residential density of the proposed project is 1.09 units/acre and involves senior units which, as recognized by the Town, produce less overall impact than single-family units. A senior community was recognized as an acceptable use for the site in the 1995 Mastics Tri-Hamlet Study. That is, the project's residential component is proposed at a substantially lower density than that of the surrounding community
- It is not expected that there would be a significant adverse impact on the land use pattern of the vicinity, particularly as the nature of a PDD is specifically to mix appropriate uses on a single property, to provide for the full range of uses necessary for a community to thrive, and to attract and encourage growth in the surrounding community. In fact, the overall PDD concept is designed to be consistent with current planning efforts to increase land use compatibility and benefit. The PDD is designed to provide an environment that features a community sense of place and recreational site. The coordination of senior residence types, the incorporation of a public recreational use area and proximity to a neighborhood commercial center is viewed as a beneficial land use mix. The Town and community envision such a use, and the project is designed to achieve these goals. While there will be a change in the land use classification of the subject site from its current golf course use, the change represented by the proposed site design is sensitive to the community's needs and goals, and reflects the specific type of development outlined by the community, if development is to occur on the subject site. It should also be noted that a nearby property at the intersection of Mastic Road and Mastic Beach Road, was rezoned to PRC, which would allow for the same land use type as that of the project's senior residential component.

- The proposed action is for a change of zone from A-1 to PDD; the A-1 zone would permit a 155-lot single-family subdivision on 40,000 SF lots. The proposed PDD represents an opportunity to develop a housing community incorporating attractive design features, coordinated traditional architectural design, and significant public benefits in lieu of development of an as-of-right single-family subdivision.
- From a zoning perspective, the proposed PDD has been designed with public input and by planners that have experience in creating sustainable mixed-use communities. This DEIS also includes examination of alternatives to the PDD. Ultimately, the land use and approval process coupled with the DEIS process will consider design and use factors and adequacy of special public benefits to arrive at a balanced plan that achieves goals of land use and zoning compatibility while meeting community needs.
- *Brookhaven Open Space Study (1985)* - The proposed project would support the recommendation of the Open Space Study for the Shirley-Mastic Area with respect to the provision of neighborhood parks, by providing a substantial 98±-acre dedication of land to the Town for this express purpose, and increasing the acreage of freshwater wetlands on-site.
- *The Mastics Tri-Hamlet Comprehensive Plan (1995)* - It is noted that the site was developed in the late 1990's with a golf course, as was recommended in this plan. However, this use has not proven to be economically viable. The current application is to establish a PDD (based on senior residential, single-family residential, and recreational uses) as was also recommended in the hamlet study. Therefore, the proposed project conforms to the recommendations of this study and so no adverse impacts are expected.
- *Draft Town Comprehensive Land Use Plan Update (1996)* - The Colony Preserve PDD conforms to the Plan Update recommendation of "Planned Development" for the subject site. The proposed PDD would provide lands for public open space and two types of residential uses; it will generate significant public benefits to the school district and community. The PDD design specifically includes aesthetic buffering, and retains much of the naturally-vegetated perimeter buffers.

Land Use, Zoning and Plans Mitigation

- The project would conform to the Town Open Space Study, by providing a substantial land dedication (98± acres) for a Town recreational/open space amenity.
- The project conforms to the recommendation of the Mastics Tri-Hamlet Hamlet Comprehensive Plan.
- The project would help mitigate the unfulfilled need for a variety of housing options for the growing senior population in the Town, which is a goal of the Town Comprehensive Plan Update.
- The proposed action would mitigate potential land use pattern conflicts with that of the vicinity, by conforming with and enhancing the uses immediately surrounding the site and the community at large.
- This proposed project would mitigate land use impacts by providing significant public benefit through the dedication of property to the Town for public recreational purposes.

Potential Transportation Resources Impacts

- The proposed residential development will generate 118 trips (35 entering and 83 exiting) during the weekday AM peak hour, 142 trips (88 entering and 54 exiting) during the weekday PM peak hour and 137 trips (77 entering and 60 exiting) during the Saturday midday peak hour.
- *Lawrence Road/Flintlock Drive at William Floyd Parkway*
During the No Build Condition, the signalized intersection of Lawrence Road/Flint Lock Drive at William Floyd Parkway will operate at LOS C during the weekday AM and Saturday midday peak hours and at LOS D during the weekday PM peak hour. After the completion of the project the intersection will continue to operate at No Build LOS conditions during all the analyzed peak periods.

Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

- *Roberts Road at William Floyd Parkway*
During the No Build Condition, the signalized intersection of Roberts Road at William Floyd Parkway will operate at LOS B during the weekday AM, PM and Saturday midday peak hours. After the completion of the project, the intersection will continue to operate at No Build LOS conditions during the analyzed peak periods. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.
- *Beacon Street/Adobe Drive at William Floyd Parkway*
During the No Build Condition, the signalized intersection of Beacon Street/Adobe Drive at William Floyd Parkway will operate at LOS C during the weekday AM, PM and Saturday midday peak periods. After the completion of the project, the intersection will continue to operate at No Build LOS conditions during the analyzed peak periods. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.
- *Coraci Boulevard/Site Access at William Floyd Parkway*
During the No Build Condition, the signalized intersection of Coraci Boulevard/Site Access at William Floyd Parkway will operate at LOS B during the AM and Saturday midday peak hours and at LOS C during the PM peak hour. After the completion of the project even without removing the traffic currently accessing the existing golf course, the intersection will continue to operate at No Build LOS conditions during the analyzed peak periods. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.
- *Robinwood Drive at William Floyd Parkway*
During the No Build Condition, the signalized intersection of Robinwood Drive at William Floyd Parkway will operate at LOS C during the weekday AM, PM and Saturday midday peak hours. After the completion of the project, the intersection will continue to operate at No Build LOS conditions during the analyzed peak periods. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.
- Based on the results of the Traffic Impact Study report, it is the professional opinion of Nelson & Pope that the construction of the proposed residential development will not result in an adverse traffic impact on the adjacent street system.

Transportation Resources Mitigation

- The TIS prepared for the proposed project concludes: *“After the completion of the project all of the five signalized intersections studied will not experience changes in LOS from the No Build Conditions. Therefore, the impacts created at this intersection are minimal and hence no mitigation measures are proposed.”*

Potential Community Facilities and Services Impacts

- The proposed project will significantly increase taxes generated by the site, resulting in a substantial rise in tax revenues distributed to each taxing jurisdiction. At full build-out, the proposed project is projected to generate \$1,239,590 in annual taxes. This represents a net increase of over \$905,000 per year – over three (3) times the revenues generated under existing site conditions.
- An analysis of new housing occupancy estimates allows for the determination of the population that would likely reside within the proposed development. It is expected that the proposed project will generate 44 school-aged children. For analysis purposes, it is assumed that all 44 school-aged children generated from the proposed project will attend public schools within the William Floyd UFSD (It is noted that according to the 2009 American Community Survey [via the U.S. Census Bureau], three (3) percent of enrolled school-aged children residing within the William Floyd UFSD boundaries attend private schools).

- The 44 new students will result in additional costs to the William Floyd UFSD. According to the New York State School Report Card, Fiscal Accountability Supplement for the William Floyd UFSD, expenditures averaged \$9,523 per general education student and \$32,011 per special education student during the 2008-09 academic year. Given these assumptions, the students will result in additional costs to the William Floyd UFSD amounting to \$553,940 per academic year. It is estimated that the school district will receive \$833,532 per year in taxes, resulting in a net revenue to the school district of approximately \$279,592 per year.
- In general, the proposed project will incrementally increase the potential need for the protective services of the SCPD for the subject site. However, based on the size, experience level and staffing of its facilities, this increase in the potential need for services is not anticipated to be to a level which would cause a significant impact on the ability of the SCPD to provide such services. It is expected that the project will result in an increase to \$119,136 in annual tax revenue for the SCPD, which is expected to offset the costs to provide the increase in police services.
- It is anticipated that, as the Mastic Beach Fire Department relies on volunteers for staffing, the department may be concerned that the project's senior residents would not volunteer in sufficient numbers to meet its staffing requirements. It should be noted that neither the applicant nor the Town would have any control over this matter, and that a decision to join the department would be up to each resident. The project will incorporate a number of measures that would mitigate the potential for the need of fire protective services, including smoke and fire alarms, and conformance to the NYS Fire Safety Code. In addition, residents of the community will include active seniors aged 55 years and above. Some of these residents may include existing community residents who are already involved with fire department activities, and others may be seniors that are partly or fully retired that may seek to support the community by participating in volunteer fire department activities. Members of younger, working families often have limited availability and/or jobs outside the area and may not be able to serve the local department. As a result, volunteers draw from all age cohorts and are likely to include members aged 55 years and above, some of which may originate from senior communities.
- It is anticipated that the 447 residents and the clubhouse building would generate a total of 1,287 lbs/day of solid waste.
- Based on SCDHS design flow factors, sanitary wastewater generation from the proposed action is estimated at 57,750 gpd. According to SCSC Article 6, septic systems are allowed for such a sanitary wastewater rate. As these systems will be designed, built and operated in conformance with applicable SCDPW, SCDHS and NYSDEC requirements, it is anticipated that there would be no significant adverse impacts to groundwater quality.
- The proposed project will increase the overall consumption of water on the subject site to an estimated 58,820 gpd. While this is a significant amount of water, it is not anticipated to result in a significant adverse impact on the SCWA or its ability to provide service to the site or to its other consumers in the vicinity, because the supply system has the capacity to accommodate this volume, and the SCWA has been chartered to supply all consumers within its service area.
- National Grid was contacted to determine if it would be able to provide electrical and natural gas service to the project site. Correspondence has indicated that such services will be provided to the proposed project in accordance with filed tariff and rate schedules in effect at the time service is required.

Community Facilities and Services Mitigation

- The significant increase in tax revenues generated would mitigate the impacts of the increased costs to the pertinent community services to provide services.
- The William Floyd UFSD would receive a projected annual net revenue of approximately \$280,000, which would be available for district uses.

- Provision of multiple vehicle access points would mitigate the potential adverse impact on police and fire protective services access if one entrance were blocked during an emergency. Installation of smoke and fire detectors, hydrants, and conformance to the NYS Building and Fire Safety Codes would mitigate potential health and safety impacts from fire.
- Impacts to energy suppliers would be mitigated by use of energy efficient design and construction; buildings will be constructed consistent with NYS Building Code requirements and Town “Energy Star” guidelines.

Potential Community Character Impacts

- The proposed project would retain the existing naturally-vegetated buffer along the site’s boundaries that presently blocks views into the site. The residential portions of the project would be developed with two-story structures whose heights would be at most approximately 30 feet. These structures would generally be placed well within the interior portions of the western parts of the site, and would be designed in an architectural style that would complement the area. These design features would increase the rural aesthetic as well as enhance the privacy for residents. This design principal, in conjunction with the retention of the naturally-vegetated buffer, provide the primary means by which potential visual impacts would be minimized for observers on the adjacent roadways.
- The NYSDOT standards for noise mitigation contained in the EPM use a threshold level of 67 dBA for areas of ground level exterior use (including residential patios, decks, etc.) and 72 dBA for other developed lands such as commercial uses to determine whether noise mitigation is necessary. The NYSDOT utilizes these guidelines for issuance of highway permits for new projects as well as for evaluating their own highway projects. The Noise Abatement Criteria (NAC) utilized by the NYSDOT provides a threshold of noise for which potential mitigation must be studied (i.e. to determine if noise attenuation is feasible and/or appropriate). The NAC contained in the EPM is a threshold level of 66 dBA for areas of ground level frequent exterior use to determine whether noise attenuation is appropriate. These data indicate that noise from CR 46 in the area of the project’s residences is far below the standard guidelines for residential use and accordingly, no attenuation would be required by the NYSDOT.

Community Character Mitigation

- In consideration of the site layout and building design features pertinent to the character of the site and community (i.e., the land use of the site and in the vicinity, the prevailing land use pattern, and the visual appearance of the site and properties in the area), mitigation is primarily related to the retention of the existing naturally-vegetated buffer, design of the project and future, more detailed landscape and architectural design and review.
- Use of dark-sky compliant lighting fixtures minimizes the potential for adverse impacts to the visibility of the nighttime sky for site residents, as well as impacts to the neighboring residential properties. In addition, the retention of buffering vegetation along the site’s perimeter, in combination with the relatively low pole heights used, would minimize the potential for fugitive lighting to escape the site to impact the residential neighbors.

Potential Cultural Resources Impacts

- A professionally-prepared Phase I survey indicates that there are no cultural resources on or adjacent to the subject site, and the study recommended that no further analysis be performed. Therefore, as no such resources are present, there would be no impacts to cultural resources associated with the proposed project.

Cultural Resources Mitigation

- As no cultural resources are present on or adjacent to the subject site, no impacts to such resources would occur, and therefore no mitigation is necessary or proposed.

Cumulative Impacts

- Cumulative impacts analyze the impacts of other projects in the area whose impacts, in conjunction with those of the proposed project, may result in impacts that are greater than the individual impacts from each project. However, based on information obtained from the Town Planning Division for consideration in the TIS, there are no other major projects in the area.

Public Benefits and Impacts

The proposed project:

- Will provide for a substantial public open space, at no cost to the public.
- Eliminates the golf course use, and thereby use of turf maintenance chemicals.
- Minimizes adverse visual impact to the William Floyd Parkway corridor.
- Conforms to and enhances the uses surrounding the site and in the community.
- Includes architectural design, site improvements and landscaping features that are sensitive to local environmental concerns.
- Meets the Town Comprehensive Plan goal of providing quality market-rate senior housing.
- Addresses Town and community objectives on mixed uses, attractive architecture; efficient traffic flow and convenient vehicle access.
- Provides housing opportunities for active adults near recreational and historic sites.
- Provides (initial) preference in sales to residents of William Floyd UFSD and Town.
- Enables active seniors to remain on Long Island and in proximity to their families.
- Generates significant increase in property taxes for distribution to taxing bodies.
- Increases taxes to Town and other entities without significant increase in need for services.
- Minimizes increase in students, to minimize impacts of enrollments & expenditures.
- Generates construction jobs, to boost a regional industry presently in deep recession.
- Enhancing the area's economic stability by providing significant private investment.
- Provides social and cultural gains to the community, from future residents.
- Provides significant economic gains to local businesses from increased customer bases and improved property values.
- Minimizes potential impacts to local intersections and roadways, by separating project traffic from traffic associated with the dedicated areas.
- Increases overall freshwater wetland acreage on the site.

Alternatives Considered

- Alternative 1: No Action - assumes that the site remains in its current use and condition.
- Alternative 2: Approved 155-Lot Subdivision- this scenario assumes that the site is developed according to the yield and layout as shown in the Yield Map.

Permits and Approvals Required

Board/Agency	Type of Permit/Approval
Town Board	PDD Rezone & PDD Master Plan approvals
Town Planning Board	PDD Subdivision & Site Plan approvals
Town Building Dept.	Demolition & Building permits
Town DEP	Wetland and Waterways permits
SCDHS	SCSC, Article 4 (Water Supply System)
SCDHS	SCSC, Article 6 (Sanitary System)
SCDPW/SCSA*	STP Review & Approval
SCPC **	239m review
SCWA	Water Supply Connection
SCDPW***	Roadwork Access Authorization
NYSDEC	SPDES GP 0-10-001 Permit (if necessary)

- * Suffolk County Sewer Agency
- *** Suffolk County Planning Commission
- *** Suffolk County Department of Public Works

SECTION 1.0

DESCRIPTION OF THE PROPOSED PROJECT

1.0 DESCRIPTION OF THE PROPOSED PROJECT

1.1 Introduction

This document is a Draft Environmental Impact Statement (DEIS) for a rezone application on a 205.64-acre parcel located on County Route (CR) 46 (William Floyd Parkway) in Shirley, to establish a Planned Development District (PDD) and associated public benefits. A PDD, as defined by Town Code Section 85-338 is *“a floating zone specifically designed ... to allow the unified and coordinated development of parcels of land, including the transfer of density from the core area of the Central Pine Barrens, ... the granting of zoning incentives to achieve special public benefits, and other flexible design features, all intended to help achieve the implementation of the legislative intent, purposes and goals of this article...”* The special public benefits for the proposed project include, but are not limited to, tax revenue benefits that create a substantial tax surplus to the William Floyd Union Free School District (UFSD), increased freshwater wetlands area, and an approximately 98-acre dedication of land to the Town for public/community use.

A **PDD Conceptual Plan** for the project, prepared by Nelson & Pope, LLP, is provided in a pouch at the end of this document. This plan is designed to include the desired mix of residential uses with a substantial dedication for open space. Flexibility in zoning is essential to achieve the design and combination of uses associated with this project, in order to achieve the specific benefits important to the community, as reflected in the proposed PDD, consistent with the Town Board’s legislative intent for the PDD. The applicant is Shirley Links Development, LLC (an affiliated development company of the Holiday Organization, Inc.), and the project is known as **“Colony Preserve”**. Shirley Links Development, LLC is the owner of the subject property. An amended petition for the zone change was submitted to the Brookhaven Town Board on June 2, 2011, and the project conforms to the requirements for such a district as presented in Chapter 85, Article XXXIIA of the Brookhaven Town Zoning Code.

The site is developed but vacant. Specifically, The Links at Shirley golf course was developed on the site in 1999, but closed in late 2010 and has not reopened. The site includes an 18-hole Championship course, an 18-hole Par-3 course, a driving range and Putter’s Restaurant (116 seats, and was utilized for catered events), all of which are now closed.

The proposed project includes removal of all golf course-related facilities, followed by construction of 150 two-bedroom age-restricted Planned Retirement Community (PRC) residences and 75 detached single-family homes (three-bedrooms) on clustered lots. The public benefits derived from approval of the PDD include significant tax revenue for the William Floyd UFSD; which would experience a substantial yearly deficit if the “as-of-right” single-family homes were constructed as permitted under current zoning), a net additional 1.59 acres of wetlands, and dedication of nearly half of the property to the Town of Brookhaven for whatever recreational use the Town determines.

The guiding principle of this proposed PDD is to design a high quality mixed use development including two residential uses on the property, while providing the community with special benefits that could not be realized absent the use of the overarching PDD concept. The attached plan is in large part the result of Town and community input to achieve this goal, as conducted by the project sponsor and their consultants over the past twenty-five months.

The plan illustrates a redevelopment project that incorporates a mix of residential uses increased wetlands acreage and dedication of about 98 acres of land to the Town for community use. The features of the PDD were determined by the needs of this community. **Section 1.4.1** contains a detailed discussion of the uses and yields of the proposed PDD, as required by the Town, and **Section 1.2.3** contains a description of benefits of the PDD. It should be noted that this proposal does not exceed the equivalent yield that the site could achieve if it were developed “as-of-right” (see **Section 1.4.1**). The Colony Preserve PDD includes the following desirable characteristics:

- It has been designed in close cooperation with Town agencies and local civic groups, and reflects the expressed public goals for the site and community.
- The project has generated a significant level of public interest and support.
- This proposal meets the Town of Brookhaven Comprehensive Plan goal of providing housing options for the growing senior population in the Town.
- The Colony Preserve PDD conforms with and would enhance the uses immediately surrounding the site and the community at large.
- It provides superior site design features to redevelop portions of the site and establish a quality residential community.
- The project will retain two of the three man-made golf course water hazards, which are Town-designated wetlands, in an undisturbed condition. The third wetland, in the southwestern portion of the site, will be reconfigured and expanded in area by 1.59 acres. This has been given Town approval. In addition, a 0.28-acre portion of the existing man-made stream that connects the other two wetlands will be removed; the net area of wetlands on the property will be increased to 11.71 acres.
- The proposed project would locate one of these wetlands in each of the two residential components, and place the other (the largest wetland) within the Town dedication area.
- The proposed project will keep all residential lot lines at least 120 feet from these water bodies. Any disturbance within 150 feet of the wetlands would require a Category A Town Wetland permit under Chapter 81 of the Town Code; the applicant will obtain any necessary permits in connection with the site plan.
- The project will generate fewer school-age children than would have occurred if the site were redeveloped at its existing zoning, thereby reducing potential adverse impacts associated with increased enrollment.
- The proposed project, unlike the as-of-right, approved 155-lot subdivision (see **Section 1.2.1**), would result in a net tax benefit to the William Floyd UFSD, in that it would generate more school tax revenue than would be expended by the district to serve the new students it generates.
- The project provides significant public benefit through the dedication of property to the Town (about 98 acres) for recreational purposes.
- The proposal would incorporate traditional architectural design, extensive site improvements and landscaping features.
- This PDD would provide significant tax revenue to the Town of Brookhaven and other local taxing agencies without significant need for additional services.

The proposed project has been designed to minimize impacts to the former golf course water hazards (now-Town-designated freshwater wetlands). It is acknowledged that removal of about 0.28 acres of the man-made stream that connects two of these former water hazards will be necessary (which represents 2.69% of the existing wetlands on the site), which entails disturbing 5.45 acres within the associated 100-foot wetland setback area. However, the reconfigured and expanded wetland will increase overall wetland acreage by a net 1.31 acres, to 11.71 acres.

The project includes a number of benefits specifically requested by the community. **Table 1-1** provides a summary of these special public benefits, as determined through meetings with community members and the charrettes. These special public benefits are also discussed in more detail in **Section 1.4.1**.

Table 1-1
SUMMARY OF SPECIAL PUBLIC BENEFITS

Benefit	Recipient(s) of Benefit
School tax surplus for proposed PDD at capital rate of 4% (does not include the benefit from avoidance of a deficit that would occur with construction of an as-of-right subdivision).	William Floyd UFSD, students and taxpayers
Dedication of 98± acres of land to the Town of Brookhaven, for community benefit and use.	Area residents and taxpayers in community
A net increase of 1.31 acres of freshwater wetlands.	Area residents and taxpayers in community

The applicant has also offered a monetary contribution to the Town to assist with improvements on the dedicated land, provided the pending application is approved within one year.

Part 617, Title 6 of the New York Code of Rules and Regulations (6NYCRR Part 617) regulates the review of environmental consequences of an action as promulgated under the New York State (NYS) Environmental Quality Review Act (SEQRA). The Brookhaven Town Board is the Lead Agency for the project, as the application that triggered the SEQRA process is under the jurisdiction of that Board. A change of zone application, in the form of the required PDD Pre-Application, for the prior proposed project was submitted to the Town Board on March 25, 2008. The required PDD Pre-Application meeting was conducted on May 9, 2008 (see **Appendix A-1**). This meeting was conducted to determine Town concerns and to delineate future applicant actions and submissions. The Town Board determined that that proposal was a Type I Action pursuant to Chapter 80 of the Brookhaven Town Zoning Code. The Brookhaven Town Board assumed lead agency status on that PDD application and issued a Positive Declaration on December 23, 2008, requiring the preparation of a DEIS (see **Appendix A-2**). A Draft Scope was submitted to the Town in January 2009, and was the basis on which a public scoping meeting was conducted on February 17, 2009. That Draft Scope was then revised based on the oral comments from the meeting and written public and agency comments received through March 3, 2009. **Appendix A-3** contains the Final Scope document for that proposal. It was adopted by the Town Board on April 14, 2009 in conformance with the SEQRA Scoping Guidelines in Part 617.8, and details the materials to be presented and analyzed in the DEIS. As indicated above, the proposed project is now a 225-unit PDD. As a result, the Town Board, as

lead agency under SEQRA, has determined that the prior DEIS should be revised to reflect the current proposal. Future stages of this review include: lead agency review and acceptance of this DEIS with respect to contents and adequacy; a public hearing on the DEIS; preparation of a Final EIS (FEIS), which responds to agency and public comments received during the DEIS review period; preparation and acceptance of the Findings Statement by the Lead Agency, and the Town Board decision on the application, after their review of the FEIS and in consideration of the contents of the Findings Statement.

1.2 Project Background, Objectives and Benefits

1.2.1 Background of PDD Application

Town of Brookhaven Planning Division and Board of Zoning Appeals records indicate that a Special Permit was approved for the Links at Shirley golf course in 1998. The subject property was vacant and wooded prior to the development of that facility, which occurred in 1999.

According to the site's commercial owner/operator, by the late 2000's, the golf course operation lost \$750,000 to \$800,000 annually and so was no longer commercially viable. As a result, the owner sought a buyer for the property. In 2010, the Shirley Capital Company, LLC, as contract vendee, explored redevelopment under the site's existing A-1 zoning. However, after receiving considerable input from the community (including the local school board, the area civic association and other concerned groups, the chamber of commerce, various elected officials and Town planners), the applicant determined to seek an improved form of land use involving a mixed-use development under the PDD concept described above. Such a scenario would eliminate adverse school impacts resulting from as-of-right development and would provide public benefits in a way that meets the specific needs of this community.

After preparation of a DEIS (submitted on May 6, 2009), the applicant determined that support for this proposal from Town and community entities had eroded. In response, the applicant prepared and submitted a new application for the site, for a 155-lot subdivision (note that the prior PDD application was not withdrawn) in October 2010. That application underwent SEQRA review by the Town Planning Board, and received Preliminary Subdivision approval on May 9, 2011. This subdivision proposal is described in this document as Alternative 2, and its potential impacts are analyzed in **Section 5.2**.

However, Town and community concerns over this subdivision proposal have led to a renewed interest in pursuit of a PDD for the site. As a result, the proposed project was developed in coordination with the Town and community, for a reduced-scale residential concept incorporating a subdivision development (though at a lower yield than 155 lots), plus a senior housing component. As a result, the (current) proposed project significantly reduces the overall intensity of land use on the site while protecting groundwater resources and community character, increases local public open space, addresses senior housing needs, increases property tax generation on the site, and minimizes traffic generation (and associated traffic impacts). No commercial use is desired or proposed. Finally, overall, site yield would conform to the limit

imposed by Suffolk County Sanitary Code (SCSC) Article 6 for use of septic systems, so that, unlike the prior proposed project, no sewage treatment plant (STP) would be necessary.

Based upon the applicant's more than 57 years of experience and in their professional opinion, the basic concept and rationale of the proposed plan (stated above) will produce a development that will:

1. provide for a well-designed, environmentally compatible, aesthetically attractive residential community designed for active adults;
2. minimize impacts to the site's and area's resources, which includes groundwater quality;
3. positively address local school district concerns;
4. conform to the recommendations of the applicable land use plans; and
5. achieve the legislative intent, purposes and goals of the PDD zone.

1.2.2 As-of-Right Development

The **Yield Map** (in a pouch at the rear) indicates that 155 lots could be developed on the site. This number was determined based on the site's A-1 zoning (in which lots must be a minimum of 40,000 square feet (SF) in size), and excluding the areas within 100 feet of the Town-designated wetlands (the existing golf course water hazards and stream). The Town Division of Environmental Protection (DEP) considers these features to be regulated wetlands, and so development within 150 feet of their boundaries is expected to require a Town Wetlands permit.

This map was prepared in conformance with Town Code Chapter 81 (Wetlands and Waterways) and Chapter 85 (Zoning), including the overall dimensional requirements for wetlands and all requirements of the Town's Subdivision Regulations.

This yield was utilized to prepare a conforming subdivision plan, which was submitted to the Town as a Site Plan application. That plan, titled **Preliminary Map – Overall** (*in a pouch at the rear*), was reviewed by the Town and received Preliminary Subdivision Approval on May 9, 2011. This plan is described in detail in **Section 5.2**, and its potential impacts are analyzed as Alternative 2. Because of the presence and configuration of the site's wetlands, vehicle access via the adjacent residential street system would be necessary. Specifically, Wilson Avenue, Diana Drive and Flower Road would be accessed to the east and south, onto Mastic Road and Chanel Drive East. The westerly access, onto CR 46, would not utilize the same alignment as presently exists opposite Coraci Boulevard, but would be relocated northward.

The site's existing drainage system uses the wetlands for recharge; this system would be retained and enlarged in capacity by the installation of two new recharge basins and reconfiguring and expanding one of the ponds. The new drainage system would be engineered so as to maintain a sufficient amount of stormwater influent to the existing wetlands to maintain water in these bodies and support their wetland functions.

1.2.3 Public and Town Objectives and Benefits

In general, the objectives of the public and Town are to provide for private development that:

- would address one or more needs in the area, particularly those needs that have been recognized by members of the community,
- is considered desirable and appropriate for the community (from the perspectives of both the Town and the community),
- is at a density and layout appropriate for the site and the surrounding community,
- minimizes the potential for adverse environmental impacts, and
- addresses other needs and/or concerns of the community.

The Town enacted its PDD ordinance to give applicants the ability to meet these general development needs, by establishing a zoning district wherein a degree of flexibility in site design, would enable developers to provide desired and/or appropriate amenities and utilize innovative design modalities. The Town's Comprehensive Land Use Plan identifies the site for "Planned Development", indicating conformance with this plan. The Town's goal is to encourage and enable an applicant to satisfy these objectives, by making their objectives the applicant's objectives as well.

The public benefits of the proposed project are abundant and are based upon significant input from the community and are presented in detail in this document. The proposed Colony Preserve PDD meets the stated needs of the community, provides a beneficial and desirable land use on the property and meets Town goals for quality senior housing. The following is a list of project benefits that support this unique application, and **Section 1.4.1** lists and discusses those additional, special public benefits that can be quantified and thereby justify, on a monetary basis, the proposed PDD. The proposed PDD does not exceed the equivalent as-of-right yield of the site, and so is not required to provide special public benefits to compensate for any cost of Pine Barrens Credits (PBCs).

The proposed project:

1. Will provide for a substantial public open space, at no cost to the public.
2. Eliminates the golf course use, and thereby use of turf maintenance chemicals.
3. Minimizes adverse visual impact to the William Floyd Parkway corridor.
4. Conforms to and enhances the uses surrounding the site and in the community.
5. Includes architectural design, site improvements and landscaping features that are sensitive to local environmental concerns.
6. Meets the Town Comprehensive Plan goal of providing quality market-rate senior housing.
7. Addresses Town and community objectives on mixed uses, attractive architecture; efficient traffic flow and convenient vehicle access.
8. Provides housing opportunities for active adults near recreational and historic sites.
9. Provides (initial) preference in sales to residents of William Floyd UFSD and Town.
10. Enables active seniors to remain on Long Island and in proximity to their families.
11. Generates significant increase in property taxes for distribution to taxing bodies.
12. Increases taxes to Town and other entities without significant increase in need for services.
13. Minimizes increase in students, to minimize impacts of enrollments & expenditures.

14. Generates construction jobs, to boost a regional industry presently in deep recession.
15. Enhancing the area's economic stability by providing significant private investment.
16. Provides social and cultural gains to the community, from future residents.
17. Provides significant economic gains to local businesses from increased customer bases and improved property values.
18. Minimizes potential impacts to local intersections and roadways, by separating project traffic from traffic associated with the dedicated areas.
19. Increases overall freshwater wetland acreage on the site.

The senior (PRC component) residences will all be age-restricted, meaning that occupancy will be limited to householders aged 55 years or above. Finally, for a period of time at the onset of sales, preference in sales of the residences will be made for current residents of the William Floyd UFSD and Brookhaven Town. The length of this preferential period will be determined in association with the Town during future stages of project review.

The public benefits of the proposed project are based upon significant input from the community. The Colony Preserve PDD is anticipated to meet the needs of the community while providing a desirable land use on the property and meet Town goals for senior housing.

In conclusion, it is expected that the proposed project as envisioned will provide a suitable land use in the context of the surrounding community while providing public benefits.

1.2.4 Applicant Objectives

The applicant's objective is motivated in part by the desire to produce a profitable economic return on the land investment, which would result from a high-quality PDD development. The applicant is seeking to provide residential uses and benefits (e.g., single-family and senior units and a substantial land dedication to the Town) that will conform to the goals and intent of the PDD concept as implemented by the Town of Brookhaven, and would complement the surrounding land uses while providing an economic return to the Town through increased tax revenues, and have a relatively minimal impact on the environment.

The applicant has not determined the specific features and amenities of the residences, so only a range of selling prices can be made at this stage of the review process. Therefore, for calculation purposes, the applicant estimates that the PRC units would be sold in the range \$265,000 to \$290,000, and the single-family homes would be in the range \$325,000 to \$350,000 each.

During the public scoping process, a concern was expressed that, if the residences do not sell to senior households, the applicant would change the project to permit rental or "low-income" housing. Such a circumstance would not occur, as the applicant does not participate in these portions of the housing market, and such a change in the allowed household types would not yield a profit sufficient to offset the costs to develop and construct the Colony Preserve PDD. In addition, the project is a mix of unit types, including single-family and senior units, and is at a significantly reduced as compared to the previous 450-unit PDD. Finally, any changes in the project would require a new Town and SEQRA review.

1.3 Project Location and Current Site Conditions

1.3.1 Project Location

The property is 205.64 acres in size and is currently occupied by the Links at Shirley golf course. It is located on the east side of CR 46 (the William Floyd Parkway), approximately 2 miles south of Montauk Highway (CR 80) opposite Coraci Boulevard in Shirley; the address of the site is 333 William Floyd Parkway (see **Figure 1-1**; *all figures are provided in a section immediately following the main text of this document*). The site is more specifically described as Suffolk County Tax Map Numbers: District 022; Section 976.70; Block 1; Lot 1.3.

The proposed entry to the Colony Preserve is at the existing golf course four-way intersection with the CR 46 and Coraci Boulevard. The land use and zoning on the west side of the parkway is commercial and J-Business-4, respectively, and provides for office and business uses. The overall site has approximately 2,200 feet of frontage along the eastern side of CR 46. The site is located within/served by the following special planning and service districts:

- Mastic Beach Fire Department
- Suffolk County Water Authority (SCWA)
- Suffolk County Police Department (SCPD), 7th Precinct
- William Floyd UFSD
- Groundwater Management Zone VI
- A-Residence-1 Zoning District
- Town Wetland Overlay District
- Flood Hazard Zone X (outside 500-year floodplain)

The site is not located within the Central Pine Barrens Zone or a Special Groundwater Protection Area (SGPA).

1.3.2 Existing Site Zoning and Conditions

An aerial photograph illustrating the existing site conditions in the spring of 2004 is provided as **Figure 1-2**. Photographs depicting the current condition of the site are included in **Appendix B**, and the **Existing Conditions/Alternative 1 Map** (*in a pouch at the rear*) is provided.

The subject parcel is zoned A-Residence-1, which presumes a subdivision of detached single-family homes based on a Yield Map with lots of at least 40,000 SF in size. The applicant prepared a **Yield Map** for the site in accordance with A-1 zone and Wetland Overlay District requirements of the Town Code (Chapter 85, Article XXVIIB). This effort was made to demonstrate the number of lots that the property would yield subject to all of the dimensional requirements of this zone. It should be noted that the three man-made water hazards and stream constructed in 1999 for the golf course are now Town-designated wetlands, and so their acreages were not included in the developable acreage of the site. This map indicates that the site could yield 155 lots, which would be served by individual septic systems and a recharge basin.

All of the surrounding properties are zoned A-Residence-1 except for the commercial area on the west side of CR 46, which is zoned J-Business-4, and areas along Mastic Road which are zoned J-Business-2. Additional information on zoning and land use is provided in **Section 3.1.1**.

Town of Brookhaven Planning Division and Board of Zoning Appeals records indicate that a Special Permit was approved for the golf course in 1998. The subject property was vacant and wooded prior to the development of the Links at Shirley, which occurred in 1999.

Overall land use in the immediate area is predominantly single-family residential. High-density residential development is located immediately north, south and east of the subject property, and to the west across CR 46. The Knolls East PRC development is located nearby, to the east. A small shopping area is located opposite the subject property, on the west side of CR 46. Other retail/commercial establishments are located to the north along the east and west sides of CR 46, and to the southeast along Mastic Road. Finally, the William Paca Middle and Tangier Smith Elementary schools and their associated recreational ballfields adjoin the subject property to the northeast.

CR 46 generally runs in a north-south direction in the vicinity, and is a multiple lane divided roadway along the parcel's western frontage. Vehicle access to the subject property is available off CR 46 at a signal-controlled intersection at Coraci Boulevard.

In January 2007, the site's former owner, Floyd Park Associates, LLC, received a Phase I Environmental Site Assessment (ESA) prepared by Nelson, Pope & Voorhis, LLC (NP&V) for the subject site, in order to determine the presence of any potential environmental or public health concerns on the site that could impact the negotiations with the applicant in establishing contract vendee status. The following is taken from the Summary of that document.

This report is intended to identify Recognized Environmental Conditions (as defined in Standard Practice for Environmental Site Assessment; [American Society for Testing and materials] ASTM E 1527-05 and United States Environmental Protection Agency (USEPA) Standards and Practices for All Appropriate Inquiries) on the subject property based on four components of a Phase I ESA: records review, site reconnaissance, interviews and evaluation and reporting.

An extensive government records search found no potential sources of environmental degradation on the subject property. Several Federal, State and County documented regulated sites were noted in the vicinity of the subject property. Specifically, 50 active and closed spill incidents are located within one-half mile of the subject property.

In conclusion, this assessment has revealed evidence of the following recognized environmental conditions in connection with the subject property, subject to the methodology and limitations of this report.

1. The on-site sanitary system associated with the clubhouse kitchen should be sampled for the presence of volatile and semi-volatile organic compounds and metals due to the potential use of grease cutting detergents/solvents.

2. The on-site sanitary system associated with the maintenance building should be sampled for the presence of volatile and semi-volatile organic compounds and metals due to the presence of engine repair work completed at on-site.
3. The open grate stormwater leaching pools located around the maintenance building, adjacent to the fertilizer storage barn and the equipment washing pad should be sampled for the presence of volatile and semi-volatile organic compounds, pesticides, herbicides and metals.
4. The discharge point of the trench drain should be identified and sampled. The sample collected should be analyzed for the presence of volatile and semi-volatile organic compounds, pesticides, herbicides and metals.
5. The soil in the vicinity of the discharge pipes located in the waste bunker on the south side of the maintenance area should be sampled for the presence of volatile and semi-volatile organic compounds, pesticides, herbicides and metals.
6. Due to the use of the property as a golf course and the proposed use of the property as a residential subdivision, the soils should be sampled for the presence of pesticides and metals in accordance with SCDHS protocols set forth in the Soil Management Procedures for Municipalities.
7. If more than five 55-gallon drums or 250 gallons of liquid are stored on-site, a drum storage permit should be obtained from the Suffolk County Department of Health Services (SCDHS).

In response to the seven recommendations in the ESA I, the former owner had NP&V prepare a Phase II ESA in February 2007, in order to determine what, if any, impact on-site activities have had upon the environmental quality of the subject property. The ESA II was designed and performed to address the potential impacts associated with items #1-5 of the ESA I (see above). Items 6 & 7 were not addressed. The following is taken from the Summary and Conclusion section of the ESA II.

This investigation was completed to address issues raised in a prior Phase I ESA prepared by Nelson, Pope & Voorhis, LLC. A sampling and analysis program was designed to determine if the on-site stormwater leaching pools, sanitary systems and waste bunker soils had been impacted by the uses of the subject property. The sampling and analysis plan consisted of soil/sediment quality testing using analytical test methods consistent with expected parameters and agency soil cleanup objectives. The following presents an evaluation of the results of this investigation.

Three (3) stormwater leaching pools, the drywell located in the cart washing pad, the two (2) on-site sanitary systems associated with the maintenance building and main clubhouse and the discharge point of two (2) pipes entering the waste bunker located on the south side of the maintenance building were sampled using a stainless steel hand auger and analyzed for the presence of volatile and semi-volatile organic compounds and metals. In addition, the waste bunker samples were analyzed for the presence of pesticides and herbicides. The analytical results revealed that several of the analyzed constituents exhibited slightly elevated concentrations. None of the elevated concentrations exceeded the SCDHS guidance values set forth in SOP [Standard Operating Procedure] 9-95, except of toluene. It should be noted that [two samples] exhibited elevated concentrations of toluene that were just below the guidance values. Although no clean up is required, these pools should be monitored to ensure the concentrations do not exceed the SCDHS guidance value of 3,000 ppb. As a result of this sampling event, it is recommended that the SCDHS be contacted and provided a copy of this report and the stormwater leaching pool should be remediated under the auspices of SCDHS personnel.

The soil samples collected from the waste bunker were obtained at the discharge point of the two (2) pipes entering the bunker from the maintenance area. These samples were sent to a certified laboratory for analysis to determine if elevated concentrations of volatile or semi-volatile organic compounds, metals, pesticides or herbicides were present. The laboratory results revealed no elevated concentrations of volatile organic compounds, pesticides or herbicides were identified in either sample. Both samples exhibited elevated concentrations of semi-volatile organic compounds and metals. Only the sample collected from the pipe entering on the east side of bunker exhibited elevated concentrations of semi-volatile organic compounds that exceeded the NYSDEC [NYS Department of Environmental Conservation] guidance values set forth in TAGM [Technical and Administrative Guidance Manual] 4046. These concentrations did not exceed draft guidance values in Part 375. As a result, NYSDEC can be contacted for a determination, or the system can be remediated as described herein. The discharge area of the pipe would be further investigated to determine the lateral and vertical extent of the area which requires remedial activities. Once the area is defined, the soil containing elevated concentrations of semi-volatile organic compounds should be removed and properly disposed of.

Finally, in September 2007, the owner prepared a Pesticide Report for the site, in order to determine if certain pesticide-related compounds were present in the soils of the subject property, as recommended in item #6 in the ESA I. The following is taken from the Summary and Conclusion section of that report.

A sampling and analysis program (SAP) was designed to determine the concentrations of pesticides and metals in the soil in accordance with guidance offered by SCDHS and NYSDOH [NYS Department of Health]. The SAP consisted of collection of discrete soil samples at depths of 0-3 and 3-6 inches on the property. Laboratory analysis of the soil samples was performed using analytical test methods consistent with expected parameters and SCDHS/NYSDOH guidance. The following presents an evaluation of the results of this investigation.

A total of twelve soil samples from six locations were collected from low points throughout the property. Specifically, soil samples were collected from depths of 0-3 and 3-6 inches at each of the six locations. All twelve samples collected were analyzed for the presence of pesticides and metals due to the past and present use of the property as a golf course. These twelve samples revealed that there were no elevated concentrations of any analyzed constituents in any of the samples.

In summary, representative soils on the subject property were sampled and analyzed for the presence of pesticides and metals. Based on the laboratory results, no elevated concentrations were identified. Therefore, no further soil sampling is recommended.

In total, the three above-discussed analyses support a conclusion that no significant adverse impacts have occurred as a result of past site activities, and that the site would be amenable to the proposed redevelopment for a PDD.

1.4 Project Design & Layout

The following section describes the proposed project, establishes the requested yields and justifies the requested increase in yield for the PDD. **Table 1-2** summarizes the acreages of the

project’s various components, and **Table 1-3** presents the coverages for the site in its existing and proposed conditions, as well as characteristics for both conditions. Also presented are the corresponding values if the site were redeveloped per its existing zoning, at 155 lots.

**Table 1-2
ACREAGES OF PROJECT COMPONENTS**

Jurisdiction	Acreage	% of Site
Internal Road ROW	8.73 acres	4.24%
PRC Component:	42.80 acres	20.81%
<i>Impervious & Landscaped</i>	<i>20.53 acres</i>	<i>9.98%</i>
<i>Open Space</i>	<i>22.27 acres</i>	<i>10.83%</i>
Single-Family Component:	56.28 acres	27.37%
<i>Recharge Basins</i>	<i>3.86 acres</i>	<i>1.88%</i>
<i>Open Space</i>	<i>29.61 acres</i>	<i>14.40%</i>
<i>Single-Family Lots</i>	<i>22.81 acres</i>	<i>11.09%</i>
Dedicated Open Space	97.83 acres	47.58%
Totals	205.64 acres	100.00%

1.4.1 Project Yield

Town Zoning Code Section 85-340A requires a detailed comparison and analysis of impacts to justify Town Board approval of a zone change to PDD, or an analysis of the proposed special public benefits inherent to the proposed PDD that would justify such an approval. The applicant has chosen to provide both methods to establish the propriety of this application for this location; this will be discussed further in this section.

The 205.64-acre site is currently zoned A-Residence-1 which, according to the applicant’s **Yield Map**, could provide 155 lots. The proposed project would change this zoning to PDD, and would develop a mix of residential unit types served by septic systems, with a significant dedication of land for public benefit. The residential components would occupy the western half of the site, and would include a total of 225 residences, of which 150 will be designated for seniors aged 55 years and above; and 75 units would be single-family, open market units. Finally, the eastern 97.83-acres of the property would be dedicated to the Town of Brookhaven for recreational or open space use.

The proposed Colony Preserve PDD will consist of two building types utilizing a cohesive architectural design theme. The PRC component will be provided with a recreational area featuring a 5,000 SF clubhouse building, outdoor swimming pool/patio, bocci courts and a putting green. A total of 40 parking spaces would be provided for this area, which exceeds of the minimum required by the Town for this use.

Table 1-3
SITE AND PROJECT CHARACTERISTICS*
Proposed Project, Existing Conditions/Alt. 1, and Development per Existing Zoning/Alt. 2

Parameter	Proposed Project	Existing Conditions/Alt. 1	Development per Existing Zoning/Alt. 2
Zoning	PDD	A-Residence-1	A-Residence-1
Use(s)	Senior Residential, Subdivision Residential & Public Land	Vacant (former Recreational)	Residential & Public Land
Yields	150 senior units, 75 single-family lots & 97.83-acre open space dedication	Golf Courses & clubhouse (closed)	155 3-bdrm homes, & 39.22-acre open space dedication
Age-Restricted Units	150	0	0
Sanitary Treatment	Septic	Septic	Septic
Coverages (acres):	---	---	---
Impervious	18.04	15.50	25.11
Landscaped	30.11 ⁽¹⁾	129.72 ⁽²⁾	50.51 ⁽¹⁾
Water Surface ⁽³⁾	11.71	10.40	11.99
Bare Soil ⁽⁴⁾	0	5.42	0
Successional Field	106.82	2.97	80.09 ⁽⁵⁾
Pitch Pine-Oak Forest ⁽⁶⁾	35.10	41.63	28.70
Recharge Basins	3.86	0	9.24
Water Resources:	---	---	---
Water Use/Sanitary Flow (gpd) ⁽⁷⁾	46,500	0	46,500
Irrigation, annualized (gpd)	12,320	0	20,666
Total Water Use (gpd)	58,820	0	67,166
Recharge Volume (MGY)	124.91 ⁽⁸⁾	108.41 ⁽⁹⁾	130.07 ⁽¹⁰⁾
Recharge Nitrogen Conc. (mg/l)	2.75 ⁽⁸⁾	0.15 ⁽⁹⁾	2.83 ⁽¹⁰⁾
Trip Generation (vph):	---	---	---
Weekday AM Peak Hr.	118	0	119
Weekday PM Peak Hr.	142	0	156
Saturday Midday Peak Hr.	137	0	148
Miscellaneous:	---	---	---
Residents (capita) ⁽¹¹⁾	447	0	457
School-Age Children (capita) ⁽¹²⁾	44	0	90
Total Taxes (\$/yr) ⁽¹³⁾	\$1,239,590	\$333,713	\$1,373,221
School Taxes (\$/yr) ⁽¹³⁾	\$833,532	\$224,156	\$923,389
School Costs (\$/yr)	\$553,940	0	\$1.057 million
School Tax Impact (\$/yr)	+\$279,592	+\$224,156	-\$203,537
Solid Waste (lbs/day) ⁽¹⁴⁾	1,287	0	1,600

* gpd-gallons per day; MGY-million gallons per day; vph-vehicles per hour.

- (1) Assuming maintained.
- (2) Assumed not maintained.
- (3) Town wetlands.
- (4) Includes golf course sand traps.
- (5) Includes 78.93 acres to revegetate to natural conditions.

- (6) As fringe along site boundaries and between fairways.
- (7) Assuming SCDHS design flow of 150 gpd/senior unit, 300 gpd/detached residence & 0.30 gpd/SF for clubhouse.
- (8) See **Appendix C-4**.
- (9) See **Appendix C-2**.
- (10) See **Appendix C-5**.
- (11) Assuming 1.50 capita/senior unit, and 2.95 capita/detached residence (**US Census**).
- (12) Assuming 0.58 school-age children/detached residence (**BOCES/Burchell, modified Rutgers Study**).
- (13) Assuming 2010-11 Town tax rates.
- (14) Assuming 2 lbs/day/capita for senior units, 3.50 lbs/day/capita for detached units & 12 lbs/1,000 SF/day for clubhouse.

The **PDD Conceptual Plan** is considered to be a feasible plan, and provides the Town Planning Division and Town Board with sufficient detail regarding the proposed development to allow review of the concept in association with a change of zone petition.

Density Equivalence Analysis

As required by the Town Zoning Code, creation of a PDD must include special public benefits to justify the portion of its yield that is in excess of the yield that would be realized if the site were developed in accordance with its existing zoning. As established earlier, the 205.64-acre property could provide for 155 residential lots under its current A-1 zoning. This “base yield” specifically does not include the acreage of the wetlands.

In order to provide for a fair comparison of base and proposed yields, it is first necessary to translate one or both to a common basis. A basis that has been approved in previous PDD applications in the Town of Brookhaven is to translate the yields into PBC equivalents. The cost associated with the associated number of PBCs can then be compared to the relative costs of any other public benefits incorporated into the PDD plan that the applicant provides. As quantified in the next section, the Colony Preserve PDD proposes significant tangible quantifiable public benefits that will benefit the community and provide improved quality of life features for the residents of the area. The following analysis compares the density of the proposed PDD and the yield under the current zoning of the property to determine the number of PBCs that would be appropriate if no special public benefits were offered.

The as-of-right yield and the proposed project’s yield are calculated (expressed in units of PBCs) and compared. If the number of PBCs for the proposed project is greater than the corresponding value for as-of-right development, this indicates that the proposed project is seeking more development than the site can inherently provide, and so this excess represents the number of PBCs that require compensating public benefits on the part of the proposed project. If the number of PBCs for the proposed project were less than that of as-of-right development, this shows that the proposed project is seeking less development than it “rightfully” has, and no compensating public benefits would be required. The following details this calculation (also see **Table 1-4**):

- It is the Town’s determination that the property’s as-of-right yield is 155 single-family dwellings = **155 PBCs**
- The property’s yield under the proposed project is calculated as follows:

- 75 single-family homes = **75 PBCs**
- 150 age-restricted units ÷ 3 age-restricted units equivalent to 1 single-family unit¹ = 50 equivalent single-family units, equivalent to **50 PBCs**; therefore
- 50 PBCs (PRC component) + 75 PBCs (single-family component) = **125 PBCs** (overall proposed PDD)

Therefore, the property’s equivalent yield for the proposed PDD project is 30 PBCs less than its equivalent yield under existing zoning, and no compensating PBCs are necessary.

**Table 1-4
DENSITY EQUIVALENCE ANALYSIS SUMMARY**

Parameter	Site Information
Size of site	205.64 acres
Existing zoning	A-Residence-1
Yield based on existing zoning	155 residential lots (individual septic systems)
PBC equivalent (yield)	155 PBCs ⁽¹⁾
Proposed zoning	PDD
Yields based on proposed PDD	150 age-restricted residences ⁽²⁾ and 75 single-family units
PBC equivalent (PDD)	125 PBCs
Excess or Deficit in density, based on PBCs	+30 PBCs ⁽³⁾
Benefits required (+) or in excess (-) ⁽⁴⁾	-\$3.3 million ⁽⁵⁾

- (1) For single-family lots, assume 1 lot is equivalent to 1 PBC.
- (2) For age-restricted units, assume 1 single-family unit is equivalent to 3 age-restricted units, or 0.33 PBCs.
- (3) Positive value indicates that the PDD represents less yield than yield based on existing zoning.
- (4) Assuming \$100,000/PBC.
- (5) Negative value indicates that the PDD provides value in excess of that required to match cost of PBCs.

Based on this analysis, the proposed PDD represents a level of development that is 30 PBCs less than that of as-of-right development. That is, the proposed project represents less yield (based on PBCs) than that of conforming development, so that no PBCs need be purchased, or special public benefits need be provided. Nevertheless, the proposed project will provide public benefits; the project’s features (see below) provide a substantial monetary value of additional benefits that would result from this project. The following section will discuss the value of the benefits derived from the PDD proposed for the subject site.

Quantification of Special Public Benefits

The applicant proposes to provide some of the public benefits requested by the community at various public meetings. As noted above, these benefits are not required to offset any increase in the site’s residential density (based upon the PBC density equivalence analysis, no excess in density is proposed). Nevertheless, public benefits are proposed in several forms, a quantitative evaluation of the benefit package is provided in **Table 1-5** for the proposed PDD. The full suite of benefits, both quantitative and qualitative, is listed in **Section 1.2.3**.

¹ Per Town Zoning Code, Section 85-451E(3).

Based upon this analysis, the value of the public benefits achieved through this PDD is approximately \$20.88 million. Therefore, when considering the existing yield of the site, there is a quantitative basis to support the project, in combination with its special public benefits. The intent of a PDD is clearly to provide a more suitable development proposal than the as-of-right subdivision, which gives back to the community by providing special public benefits that meet the identified individual needs of the surrounding community and in this case provides benefits that were identified by the community.

**Table 1-5
QUANTIFICATION OF SPECIAL PUBLIC BENEFITS**

Special Public Benefit ⁽¹⁾	Unit Cost/Factor	Quantity	Economic Benefit
Surplus in school taxes at 4% Capital Rate over 10 years	\$833,532	4%	\$10,407,773
Dedication of land to Town, for community benefit	\$107,000	97.83 acres	\$10,467,810
Total			\$20,875,583
“Required” Benefits (based upon PBC equivalency analysis)			n/a
Additional Benefits (over the PBC Equivalency Cost for density over yield)			\$20,875,583

1. It is noted that the job creation benefit has not been quantified as part of this analysis.
2. Does not account for the differential between the deficit that would occur if the property were redeveloped with single-family homes and the benefit associated with the proposed PDD.
3. Based upon minimum cost of property, provided by applicant.

Taxes

Relative increases in tax revenue are an indirect economic benefit that will result from the construction of the proposed PDD in lieu of the “as-of-right” single-family residential development. These increases are long-term benefits that accrue annually to the various taxing jurisdictions.

Based on preliminary analyses, it is expected that the Colony Preserve PDD will generate significantly greater tax revenues for all of the taxing jurisdictions (especially for the William Floyd UFSD, which represents 67.2% of the total 2010-11 taxes) than for its existing golf course use, while maintaining a level of demand for services similar to that of other forms of mixed-use development, so that no unusual level of public services need is expected. In addition, for some of those services that are not presently used (such as road maintenance), there would be no increase in maintenance demands, as these services would not be used by the project. For example, the project’s homeowner associations will contract for solid waste handling and maintain the site’s internal roadways and open space areas, so that the Town will have no increased maintenance responsibilities such as for waste removal/disposal, snow removal, street sweeping and drainage system maintenance. The costs for these “private” maintenance activities will be borne by the community’s residents and will be paid as part of their common fees. Therefore, that portion of the increased taxes allocated to the Town Highway and Park Departments may be utilized for other maintenance and improvements Town-wide.

While the continued use of this site under its current use (golf course) and zoning (A-1) would maintain the existing non-impact in enrollment on the William Floyd UFSD, the **Yield Map** indicates that 155 lots could be provided if the site were developed under its A-1 zoning. Such a development would assume detached, 3-bedroom homes, and would generate an estimated 431 residents, including approximately 90 school-aged children. Analysis assumes that these homes would sell for \$300,000 each, which would result in yearly tax bills of approximately \$8,859/lot, of which approximately \$5,957/lot would be allocated to the school district. Assuming the reported cost to educate students in this district at \$9,523 (for general education students) and \$32,011 (for special education students)/student as reported by the NYS Education Department's "School District Report Cards", this would result in a yearly deficit of over \$203,000 for the William Floyd UFSD. In contrast, the PDD is projected to provide a significant school district surplus (\$833,000 annually, see below).

The total tax revenue generated by the PDD is estimated at \$1.24 million/year. These tax revenues will be distributed to a variety of taxing jurisdictions. Based upon initial projections, the PDD is expected to generate approximately \$833,532/year in taxes for the William Floyd UFSD; it is expected that the proposed project will generate significantly more school taxes than necessitate costs to the district to serve the project's students. As a result, these excess monies would be available to the district to apply to any fiscal needs. Based upon preliminary calculations, this school district tax surplus alone, at a capitalization rate of 4%, provides a long-term economic benefit of approximately \$20.88 million (see **Table 1-5**).

Thus, the proposed PDD provides a significant fiscal benefit by generating more school taxes than the district expenditures for the project's school-age children. The PDD ordinance provides a means to develop the property in a way that not only does not have impacts on the area, but also provides a significant financial benefit.

In summary:

- continued use of the site for the existing golf course use is not economically viable, as established by the site's commercial owner/operator;
- the PDD will have a positive impact on the William Floyd UFSD by providing an increased tax base in excess of the increased costs to provide educational services to the students generated by the proposed project.
- the proposed PDD will benefit other taxing jurisdictions with no offsetting expense to provide full municipal services.
- while continued golf course use would continue to generate no school-age children and hence, maintain no impacts to enrollments and provide a net positive tax benefit to the William Floyd UFSD, such a use would not provide the community with the benefits it seeks, such as public open space.
- development in conformance with the existing A-1 zoning, would generate a significant number of school-age children, with consequential adverse impacts on school enrollments and finances, as the school taxes generated would not be sufficient to offset the costs to provide educational services to these students; further, the community would not receive the above-noted benefits it seeks.

Intangible Benefits

There are also benefits incurred through development of the Colony Preserve PDD that cannot be quantified with respect to their socio-economic value, but are nevertheless of value to the members of the community, including its residents, local business owners, and visitors to the area. These benefits are listed in **Section 1.2.3**.

The Colony Preserve PDD will be a community that provides many benefits for the people that will live in and work near this development. The physical enhancements proposed for the PDD and the non-physical public benefits to be derived from the project will provide enjoyment for the community and will be an accomplishment of which the community would be proud.

1.4.2 Site Layout and Structures

Site Layout

The applicant proposes a well-planned development that will create an attractive and desirable environment for its residents and will enhance the community at large. Quality-of-life will be a focus of the development and will be evident in its architectural design, landscaping, water and wetland features, and overall attractive appearance.

Table 1-6 provides a listing of the approximate proposed building types, based upon the **PDD Conceptual Plan**. The project involves the removal of the Links at Shirley golf course and associated on-site sanitary system and parking area, the two small sheds in the site's central and northern areas, the clubhouse and the small shed on the site's eastern border; two of the three lined drainage ponds/water hazards will be retained. The third pond, in the southwestern portion of the site, will be reconfigured and expanded in area. This has been given Town approval (see **Appendix A-4**). The two maintenance buildings in the site's western corner (along William Floyd Parkway) and any associated sanitary system would also be removed. Grading operations would follow; the large dedicated area would not be disturbed.

The eastern half of the site, 97.83 acres of land adjacent to school properties, will be dedicated to the Town of Brookhaven, for use as a public open space or for future public needs. The Town will determine how to use this acreage for public purpose.

The **PDD Conceptual Plan** is considered to be feasible, and provides the Town Planning Division and Town Board with sufficient detail regarding the proposed development to allow review of the concept in association with a change of zone application. This submission will be followed (after a public hearing) by an FEIS (which will address all substantive comments on the DEIS), then by a Findings Statement and, finally, by approval or denial of the change of zone application by the Town Board. If acted upon favorably, further review of a detailed engineered site plan by the Planning Board will follow. It is expected that the stormwater system will continue to utilize the existing ponds (one of which will be reconfigured and expanded in area) as well as two new recharge basins in stormwater management design. The system will be designed to store a sufficient capacity to ensure that all stormwater is recharged on-site and to comply with State Pollutant Discharge Elimination System (SPDES) requirements (discussed

below). Based on existing developments in the area, local geologic conditions, and adequate depth to groundwater, subsoils are expected to be of suitable quality to allow efficient recharge of stormwater, subject to further evaluation during subsequent project review.

**Table 1-6
SUMMARY OF SITE USES AND YIELDS**

PRC Component	
PRC Component ^(1, 2)	150 units
Clubhouse	5,000 SF
Acreage	42.80 acres
Domestic Use/Sanitary Flow	22,500 gpd
Residents	225 capita
School-Age Children	0
Parking (Clubhouse)	40 spaces
Single-Family Component	
Single-Family Component ⁽³⁾	75 units
Acreage	56.28 acres
Domestic Use/Sanitary Flow	22,500 gpd
Residents	222 capita
School-Age Children	44 capita
Parking (Garages)	150 spaces
Other Components	
Dedicated Open Space	97.83 acres

- (1) All units will be restricted by covenant to householders aged 55 years and above.
- (2) Anticipated selling price: \$265,000 to \$290,000.
- (3) Anticipated selling price: \$325,000 to \$350,000.

The contract vendee/petitioner, Shirley Links Development, LLC, intends to offer appropriate Declarations of Covenants and Restrictions to the Town and SCSA with regard to its land dedication. It is expected that the Town Board approval of the Change of Zone application to the "Planned Development District" zoning district will include provisions to ensure that the proposed senior housing units will be occupied by qualified households in conformance with the intended use.

Structures

The proposed Colony Preserve PDD will consist of 225 residential units (as 150 PRC units, 100% of which will be occupied by householders aged 55 years or above, and 75 detached single-family homes on clustered lots). The PRC units will be distributed into 25 two-story structures having six units each. The PRC units are assumed to have two bedrooms each. The single-family homes are expected to have three bedrooms, and would be two floors in height. The architecture of the buildings will be of a traditional design and complement the prevailing aesthetic of the area. Garages, driveways and patios are assumed.

Within the 56.28-acre single-family component, lots would occupy 22.81 acres, with 29.61 acres of common open space under the jurisdiction of a homeowners association (HOA); the remaining 3.86 acres will be occupied by two new recharge basins. For the 42.80-acre PRC

component, there would be a 5,000 SF community building with outdoor recreational features, including a pool/patio, putting green, and bocci courts, and parking for 40 vehicles, totaling 20.53 acres. The remaining 22.27 acres would be retained as common open space. This component would also have an HOA, established to own and maintain the roadways, drainage system and common open spaces.

The existing golf course clubhouse and all structures associated with the golf courses will be removed.

The PRC residences will all be condominium ownership, and a homeowner's owner's association will be formed to own and maintain this component's internal roadways, common areas, recreational area (including the 5,000 SF clubhouse building) and the drainage system.

As all of these residences will be age-restricted, no school-aged children will be generated in this component, and no school enrollment increases would occur. A multiplier of 1.5 residents/unit is assumed, for an anticipated total of 225 senior residents. For the single-family component, 2.95 residents are assumed for each, of which 0.58 school-age children are expected. For a conservative school district impact analysis, all school-age residents (ages 5-17 years) are assumed to attend public schools.

1.4.3 Open Space, Wetlands and Recreation

The applicant proposes to dedicate a total of 97.83 acres of land to the Town. This will be comprised of the entire eastern half of the site, abutting the southerly side of the school district athletic fields.

The dedication area includes a portion of the Championship golf course. This acreage will be available for reuse for public open space and/or recreational purposes, to be provided and maintained at public expense. No roadway connection between the dedication area and the proposed PDD is proposed; any vehicle access to this area would be provided via one or more of the residential tap streets that currently terminate at the site's easterly and/or southerly property line, or through the abutting school property.

An estimated 0.28-acre portion of the man-made stream will be removed for development within the residential areas. It is expected that this will require a Town Wetland Permit, as per Town Code Chapter 81. The proposed reconfiguration and expansion of one of these ponds has received confirmation that the Town will accept this design (see **Appendix A-4**).

1.4.4 Parking, Vehicle Access and Traffic Mitigation

Parking

Each of the single-family residences is assumed to be provided with an attached two-garage (150 spaces) and one parking space on each driveway (75 spaces), for an overall off-street capacity of

225 cars. In the PRC component, each units is expected to have a one-car garage (150 spaces) and one space on driveways, for a total parking capacity here of 300 spaces. The clubhouse area will also have 40 on-street head-in spaces, for a total of 565 spaces.

Parking standards for a PDD are flexible and are based on the particular uses, types and yields proposed, to be established based on a project-specific analysis (see below). The Town Code would require a minimum of 150 spaces for the single-family component and 300 spaces for the PRC component (**Table 1-7**). In addition, the clubhouse building would require at least 34 spaces, for a total required minimum of 484 spaces. Based upon the above-detailed breakdown, it is expected that the 565 parking spaces would exceed the minimum required 484 spaces by 81 spaces (16.7%), and so would provide sufficient parking for the site’s residents and visitors.

**Table 1-7
PARKING**

Use	Minimum Required Spaces (per Town Code)		Provided
PRC Component (150 units)	2 spaces/unit	300 spaces	300 spaces
Clubhouse (5,000 SF)	1 space/150 SF	34 spaces	40 spaces
Single-Family Component (75 units)	2 spaces/lot	150 spaces	225 spaces
TOTALS	---	484 spaces	565 spaces

Vehicle Access

The subject property has frontage on only one roadway: CR 46 (the William Floyd Parkway), and access to four additional roadways (all of which terminate at the site boundary): Helene Drive, Flower Road, Collingwood Road and Diana Drive. There would be two vehicle accesses into the site; the main access would continue to be off CR 46, and the second access road would be on Flower Road to the south, and would connect to the clustered-lot component roadway. The main site access will be a divided landscaped boulevard located at the existing alignment for the Links at Shirley, opposite Coraci Boulevard. A second site access will be provided onto Chanel Drive East, via a new connection to Flower Road. The main access drive will terminate at a traffic circle, from which roads to the single-family component (to the south) and the PRC component (to the north) will be installed. This latter area would be guarded by an automated swing gate system.

Any roadways or parking lots developed on the project’s 98±-acre dedicated area will not be connected to the project site’s roadways. It is expected that any vehicle traffic generated by this Town property would be directed onto the local roadway system to the east and/or south; development of this area would be conducted by the Town, for which a separate public input and environmental impact review process will be performed. In this way, the potential for adverse impacts on conditions at local intersections and on local roadways would be minimized.

The issue of a “connective street” from the William Floyd Parkway to Mastic Road through the property, was discussed at the various public presentations, for which there was little public support and was therefore excluded from the proposed design.

The project's internal roadways will remain in private ownership, to be maintained by the condominium association to be formed for this purpose. The roads in the PRC component will conform to Town standards and will be 24 feet in paved width; the roadway in the single-family component will also satisfy Town standards, and would be 34 feet in paved width, or as required through the review process.

Traffic Mitigation

A Traffic Impact Study (TIS; see **Appendix D** and **Section 3.2**) was prepared for the proposed PDD. With respect to the potential adverse traffic impacts related to the proposed project, the TIS concludes as follows:

After the completion of the project all of the five signalized intersections studied will not experience changes in LOS from the No Build Conditions. Therefore, the impacts created at this intersection are minimal and hence no mitigation measures are proposed.

It should be remembered that the TIS and the traffic-related aspects of the proposed project will be reviewed and analyzed by the Town and County, as part of the site plan review process, which would determine whether any mitigation will be necessary.

1.4.5 Clearing, Grading and Drainage System

Clearing and Grading

It is expected that, except for the two existing wetland areas, all of the existing golf course-related structures (including the associated sanitary systems) on the site will be removed. As the majority of the site had been graded for the golf course, regrading will be necessary on the central and western portions of the site. Based on the values listed in **Table 1-2**, a total of about 60 acres (within lots, the recharge basins, the PRC developed area and the internal roadway, plus small amounts of the golf courses parking areas that will be in the open spaces) are expected to be subject to clearing and grading operations, which indicates that the remaining 146± acres would be undisturbed open spaces. Two of the three existing wetlands (the golf course water hazards) will not be disturbed; the third pond will be reconfigured and expanded in area (by 1.59 acres), and a small (0.28 acres) amount of wetland in the man-made stream connecting these features would be removed. Overall wetland area on the property will be increased, from 10.40 acres at present, to 11.71 acres. This grading program is necessary as the site's undulating topography is not conducive to development of the proposed project, particularly as a portion of the units will be designated for senior occupants. As a result, the majority of the existing golf course vegetation will not be removed, but will remain to undergo natural succession.

All disturbed soil areas will be stabilized and all areas other than buildings and paved surfaces will be re-landscaped. The easternmost 97.83 acres (to be dedicated for open space/public purposes) will not be disturbed. It is expected that the existing grades of the proposed residential areas will be altered; the depths of cutting and filling are not expected to be extensive. More extensive excavations will be necessary for the reconfigured and expanded wetland and the two recharge basins. With regard to earthwork during construction, the maximum amount of any

excess material would be retained on-site for reuse as fill, to reduce the amount of truck traffic on CR 46 during construction. The reduced yield of this alternative results in a more compact arrangement of units, so that a grading program of less extent than that of the proposed project would be required.

Soil movement is needed to establish suitable grades for proposed roads and building locations, in consideration of the need for low grades required by the Americans with Disabilities Act. Grade transitions will be made using slopes not to exceed 1:3; retaining walls are not proposed.

A detailed Grading and Drainage Plan will be prepared as part of the Site Plan application, which will provide additional details of overall site grading, and will require Town Planning Division and Engineering Division reviews and Planning Board approval prior to implementation.

Drainage System

In conformance with Town requirements, all stormwater runoff generated on the site will be retained and recharged in a drainage system designed to accommodate 8 inches of stormwater. Each residential component on the site would be served by its own drainage system, each of which would be designed to accommodate the volume of runoff as required by Town standards, and would be subject to Town review and approval during the site plan process. The clustered-lot component features two recharge basins (as required by Town standards), while the PRC component would utilize subsurface leaching pools for recharge of runoff. Similar to the proposed project, it is expected that this scenario would utilize the two existing wetlands in the residential components as part of their respective drainage systems.

The existing site drainage system utilizes the three man-made golf course water hazards for storage and recharge of stormwater runoff. The proposed project includes the retention of these water bodies; the stormwater handling functions of the northern and southwestern ponds will be incorporated into the drainage systems of the PRC and single-family components (with the two new recharge basins), respectively. The eastern wetland will not be altered. The reconfigured and expanded pond and the two new recharge basins will be excavated to serve the single-family component, to increase the capacity of this component's project's drainage system. As with any potential site development, it will be necessary to analyze the feasibility for installation of sufficient drainage infrastructure for the management of stormwater generated on site. The Town will be responsible for the review and approval of the drainage system design.

Conformance with State and Town runoff and erosion control requirements is discussed in **Section 1.5.**

It will be necessary to further analyze the feasibility of installing sufficient drainage infrastructure to manage stormwater, through engineered grading and drainage plans and review of a detailed site plan by the Town Planning Board. Stormwater generated on-site will be fully accommodated on-site. The system will be designed to comply with SPDES requirements under NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP 0-10-001). Based on existing developments in the area, local geologic conditions, and adequate

depth to groundwater, subsoils are expected to be of suitable quality to allow efficient recharge of stormwater, subject to further evaluation during subsequent project review.

As noted above, conformance to Chapter 86 of the Town Code and to the requirements of NYSDEC SPDES review of stormwater control measures is necessary, to be consistent with Phase II stormwater permitting requirements for construction sites in excess of 1-acre (the SPDES GP 0-10-001 permit). Under this program, a site-specific Stormwater Pollution Prevention Plan (SWPPP) must be prepared and submitted to the Town for review and approval prior to final site plan approval.² Once the SWPPP has been prepared and approved by the Town, the applicant will need to file a Notice of Intent with the NYSDEC to obtain coverage under GP 0-10-001. Additionally, the GP 0-10-001 permit requires that inspections of the construction site be performed under the supervision of a qualified professional to ensure that erosion controls are properly maintained during the construction period.

1.4.6 Sanitary Wastewater Treatment and Water Supply Systems

Sanitary Wastewater Treatment System

Assuming the SCSC Article 6 design standard of 300 gpd of wastewater generated by a detached single-family home, the clustered-lot component would require 22,500 gpd of water. For the PRC component, a unit size of up to 1,600 SF allows, under Article 6, an assumption of 150 gpd for each unit, or 22,500 gpd of water consumption for this component. The clubhouse proposed for the PRC component would, under Article 6, require 1,500 gpd of water; total domestic (i.e., indoor) water use of the proposed project is therefore expected to be 46,500 gpd (see **Table 1-8**).

Table 1-8
DOMESTIC WATER USE & SANITARY AND DOMESTIC WASTEWATER FLOWS ⁽¹⁾

Use	Yield	Flow Factor ⁽²⁾	Sanitary Flow	Domestic Use
Single-Family homes (3-bdrms)	75 units	300 gpd/unit	22,500 gpd	22,500 gpd
PRC units (2-bdrms)	150 units	150gpd/unit	22,5000 gpd	22,5000 gpd
Clubhouse space	5,000 SF	0.30 gpd/SF	1,500 gpd	1,500 gpd
Total Flows	---	---	46,500 gpd	46,500 gpd

- (1) Maximum allowed sanitary flow for septic system in Groundwater Management Zone VI is 300 gpd/approved unit, or 46,500 gpd for site (approved yield is 155 units).
 (2) Per SCDHS design criteria for wastewater system sizing.

² The SWPPP must include: a description of the existing site conditions including topography, soils, potential receiving water bodies and stormwater runoff characteristics, a description of the proposed construction project, construction schedule, the erosion and sediment controls planned during construction activities and the details of the post construction stormwater management system design and consistency of said system with the *NYS Stormwater Design Manual*, appropriate maintenance procedures for the erosion and sediment controls and each component of the post construction drainage system, pollution prevention measures during construction activities, a post-construction hydrologic and hydraulic analysis for all structural components of the post construction stormwater management system for a 1, 10 and 100 year storm event, and comparison of existing and post construction peak stormwater discharges. The SWPPP must demonstrate that the proposed stormwater management system is sized adequately to ensure that there is no net increase in peak stormwater discharges from a property once developed.

SCSC Article 6 also addresses sewage treatment facility requirements for realty subdivisions, development and other construction projects in order to limit the loading of nitrogen in various groundwater management zones as established by the SCDHS. As promulgated under Article 6, if a yield has been approved for the site, then that yield, times 300 gpd/unit, indicates the site's allowed sanitary flow. As the yield for the subject site was determined to be 155 lots, the site's sanitary flow is 46,500 gpd (as: 155 units X 300 gpd/unit = 46,500 gpd).

As noted in **Table 1-8** above, the project is anticipated to generate a total of 46,500 gpd of sanitary wastewater. Thus, this scenario would conform to Article 6 requirements, meaning individual on-site septic systems would be allowed; no STP is necessary or proposed.

In addition to the domestic demand of 46,500 gpd, the estimated 30.11 acres of maintained (i.e., irrigated and fertilized) landscaping would require an average (over a full year) of 12,320 gpd of irrigation, for an assumed total water usage of 58,820 gpd.

SCSC Article 7 regulates and controls sources of potential water pollution, including the type of sanitary wastewater treatment (as determined by Article 6). In conformance with Article 6, the site will provide conforming septic systems with subsurface leaching pools designed to treat all wastewater generated on-site.

In consideration of the above discussion, the proposed project will conform to Article 7 requirements for control of potential water pollution.

SCSC Article 12 regulates storage and handling of toxic and hazardous materials as a means to "...maintain its [Suffolk County's] water resources as near to their natural condition of purity as reasonably possible for the safeguarding of the public health...". The residential components would not utilize any toxic or hazardous materials (other than common household cleaners), and so would conform to this regulation. In this way, the proposed PDD would conform to SCSC Article 12 requirements.

Water Supply System

The potable water consumed by the project would be supplied from SCWA Distribution Area #20 (the Margin Drive East wellfield), via the existing 12-inch service beneath CR 46 and the 6-inch main beneath Chanel Drive. The Margin Drive East wellfield occupies an approximately 5.4-acre site located adjacent to the site's southwestern corner.

Based on information provided by the SCWA, the Margin Drive East Wellfield has five pumping wells, of which four pump from the Magothy Aquifer, a deep water-bearing layer characterized by low hydraulic conductivity, wherein groundwater would be protected from surface contamination. The fifth well draws groundwater from the Upper Glacial aquifer, which overlies the Magothy aquifer. It is generally noted that elsewhere on Long Island, public water is supplied from the Magothy Aquifer.

Groundwater in the overlying, sandy Upper Glacial Aquifer is more susceptible to contamination originating from surface activities. At the present time, the land surfaces that generate recharge

that is pumped by this Upper Glacial well have not caused significant impacts, so that this well can remain in service. As the direction of flow in the Upper Glacial Aquifer in the area is toward the west-southwest, it is expected that recharge generated on the subject site would flow toward the Upper Glacial well in this wellfield. It is noted that the three existing wetlands on the site (associated with the golf course drainage system) presently recharge stormwater that also flows toward this wellfield. As no impacts to these wells have resulted from these ponds, it would not be expected that an expansion of the drainage system or sanitary recharge would result in any significant adverse impacts at this wellfield.

1.4.7 Lighting and Landscaping

Lighting

The proposed project includes illumination of the internal roadways, and exterior of the clubhouse building and parking area, along with smaller exterior lights for the recreational area and safety/security lights in common areas. Lighting will be provided consistent with the locations, pole heights and specifications of the type and power of fixtures (“luminaires”) typical for a quality residential development as well as for the commercial area. Lighting for the project will conform to the applicable requirements of Town Zoning Code Article XXXIX (Exterior Lighting Standards). The applicant will ensure that only “dark-sky” compliant luminaires will be used; this type of fixture is equipped with a shroud that directs all illumination downward. By use of such fixtures the lower pole heights used, the potential for adverse impacts to the visibility of the nighttime sky for site residents, as well as impacts to the neighboring residential properties, will be minimized.

The Lighting Plan (to be prepared as part of the Site Plan application) will show that the light cast by the fixtures that line the roadways would be directed inward and not onto adjacent properties. In addition, as dark-sky compliant luminaires will be used, light would not be cast upward, to otherwise contribute to skyglow.

Landscaping

A detailed Landscape Plan will be prepared for the site plan application, which will be submitted after approval of the PDD application. The project will conform to Town policy for fertilizer dependent vegetation, will improve site aesthetics, and increase vegetated buffering for the neighborhood, all of which will minimize the potential for significant adverse impacts.

A total of 30.11 acres of the site will be landscaped surfaces; this represents 14.64 % of the overall property, which conforms to Town requirements. As a Landscape Plan has not been prepared, this document conservatively assumes that all of this area will be “maintained” landscaping (meaning irrigated and fertilized). Landscaping is assumed to be limited to side, front and rear yards around all of the residences, and around the PRC recreation area. Fertilizers would be applied at a rate of 2.30 pounds of nitrogen per 1,000 SF, and irrigation would be 5.5 inches annually.

It is anticipated that shrub plantings would line the site access roadway, with street trees lining the internal roadways as well. Foundation plantings would be placed along the buildings and clusters of trees and shrubs would be placed in rear yards between the buildings. Turfed and landscaped areas would be created at the site entrance and in and around the PRC recreation area and building sites. Additional landscaped areas beyond buildings would be established in low maintenance low-fertilizer dependent species.

1.4.8 Conformance to Town PDD Zoning Requirements

The 22 specific goals to be achieved by use of the PDD concept are presented in the Town Zoning Code, Section 85-337.1(B). **Appendix E** contains a listing of these goals, along with brief descriptions and discussions indicating whether and how the proposed project conforms to each goal.

The discussions indicate that the proposed project satisfies each goal specified in Section 85-337.1(B).

1.5 Construction-Related Matters

Construction Process

The construction process will begin with establishment of flagged clearing limits, followed by staking of hay bales and silt fencing as necessary along the downslope part of construction areas and abutting the wetlands. Then, site clearing and grading operations can begin; construction equipment and vehicles will be parked and loaded/unloaded within the site, in order to minimize disturbance to adjacent and nearby residences. “Rumble strips” will be placed at the truck washdown station at the construction entrance, to prevent soil on truck tires from being tracked onto adjacent roadways. The construction process will be managed so that limited areas of the site will be disturbed at any one time. It is expected that CR 46 will be the only roadway used for construction access. This roadway will not be used for construction equipment and vehicle/material storage or construction worker parking, as all such parking and staging will be within the site.

In order to minimize the time span that denuded soil is exposed to erosive elements, excavations for the curbs, roads, building foundations, drainage system and recharge basins, and other utility connections will take place immediately after grading operations have been completed. Construction of the residences can then begin, concurrent with the utility connections and paving of the internal roads. Once heavy construction is complete, finish grading will occur, followed by soil preparation using topsoil and installation of the landscaping, which will be performed while the structures are completed.

Construction Operations

The construction entity contracted by the applicant will be responsible for all construction activities, site grading, and installation of the erosion and sediment controls. An Erosion Control

Plan will be submitted to the Town of Brookhaven Division of Planning for review and approval. Conceptually, a variety of temporary erosion and sediment controls will be provided to ensure soil stabilization and protection of exposed areas for the duration of construction period to the maximum extent practicable. The Erosion Control Plan to be prepared for the project will provide silt fencing to be installed where necessary along the limits of disturbance to minimize/prevent sediment from being transported within the site or onto adjacent properties. A continuous row of staked hay bales would also be installed around all grated drainage inlets to trap sediments in stormwater runoff as they are installed and a dust control and watering plan will also be instituted. The proposed locations, sizes, and lengths of each of the temporary erosion and sediment control practices planned during site construction activities, and the dimensions, material specifications, and installation details for all erosion and sediment control practices are also provided on the erosion control plan which will be prepared specific to the proposed project.

Truck routes for equipment and material deliveries will be established in coordination with the Town, and will utilize CR 46, a major non-residential roadway. These trips may cause localized inconvenience but would not increase truck traffic on adjacent roadways; in addition, this impact will be temporary and short term. A water truck will be available to wet dry soils and maintain interior transport roads in a manner that will reduce fugitive dust. Excavation associated with grading operations will occur within the western half of the site, thereby reducing potential impacts to neighbors from noise or dust. Departing trucks will cross rumble strips and use the washdown area at the site construction access prior to leaving the site, to reduce potential fugitive dust. There will be no washing or processing of excavated material on-site.

All grading and construction will take place during daytime hours, 5 days a week. The total construction area of about 60 acres in size will be developed in a logical manner (see below for a discussion of phasing), and construction will be sequenced to minimize the length of time that activity will occur near the site perimeter. The overall design of the construction process and schedule will be formulated to minimize potential impacts to the neighborhood by minimizing the time span that construction occurs, as well as by mitigating potential impacts from noise and dust during this process.

Erosion Control

Precautions will be taken to ensure sediment will not be transported off-site by stormwater runoff and as a result there is no expected impact to local water quality as a result of erosion and sedimentation control measures and permit compliance that will be implemented during construction activities. In accordance with the NYSDEC Phase II SPDES Program, coverage under GP 0-10-001 will be obtained prior to the initiation of construction activities. Prior to filing for coverage under the General Permit, the NYSDEC requires that a SWPPP be prepared for the parcel, including a detailed erosion and sediment control plan to manage stormwater generated on-site during construction activities, and for post-construction stormwater management. A SWPPP will be prepared to ensure compliance with water quality and quantity requirements pursuant to Technical Guidance and GP 0-10-001 requirements and will be submitted to the Town for review.

Construction Schedule and Phasing

A detailed construction schedule has not yet been prepared for the project; this is because it would depend upon factors (including but not limited to projected sales, building details and amenities, detailed engineering analyses and plans, financing, etc.) that cannot be foreseen at the present stage of the application process. Preliminarily, three phases of development are expected (see **PDD Phasing Plan**, *in a pouch at the rear*). The first phase would involve dedication of the site's easternmost 97.83 acres to the Town. The second phase would construct all 75 of the single-family homes and the easternmost 72 PRC units/12 PRC structures, as well as the PRC component's recreation area. Phase three would construct the remaining 78 PRC units, in 13 structures. Detailed project phasing information (including the approximate phasing of land dedications, site development and infrastructure improvements, both on and off-site, including the general order of construction and the estimated timing of each phase) and plans will be prepared for the Planning Board at a subsequent point in the subdivision/site plan approval process. As the schedule of construction would depend on the pace of sales, there may be some overlap in phases; as one phase is completed, site preparations for the next phase may be initiated.

1.6 Permits and Approvals Required

This DEIS is intended to provide the Brookhaven Town Board (as lead agency under SEQRA) and all involved agencies with the information necessary to render informed decisions on the PDD application. Once accepted, this document will be the subject of public review, a public hearing and written comments, followed by the preparation of an FEIS for any substantive comments. Upon completion of the FEIS, the Town Board will be responsible for the adoption of a Statement of Findings. A public hearing will also be held on the PDD application and associated Master Plan, possibly concurrent with the hearing on the DEIS. Following this, and in consideration of the Findings Statement, the Town Board shall approve, conditionally approve, or disapprove the proposed PDD rezone and Master Plan application. If the proposed project is approved or conditionally approved, the applicant may proceed to a Phase 2 Subdivision/Site Plan application to the Planning Board. **Table 1-9** presents a list of permits and approvals required for this project.

**Table 1-9
 PERMITS AND APPROVALS REQUIRED**

Board/Agency	Type of Permit/Approval
Town Board	PDD Rezone & PDD Master Plan approvals
Town Planning Board	PDD Subdivision & Site Plan approvals
Town Building Dept.	Demolition & Building permits
Town DEP	Wetland and Waterways permits
SCDHS	SCSC, Article 4 (Water Supply System)
SCDHS	SCSC, Article 6 (Sanitary System)
SCDPW/SCSA*	STP Review & Approval
SCPC **	239m review
SCWA	Water Supply Connection
SCDPW***	Roadwork Access Authorization
NYSDEC	SPDES GP 0-10-001 Permit (if necessary)

* Suffolk County Sewer Agency
 *** Suffolk County Planning Commission
 *** Suffolk County Department of Public Works

SECTION 2.0

NATURAL ENVIRONMENTAL RESOURCES



2.0 NATURAL ENVIRONMENTAL RESOURCES

2.1 Topographic and Soil Resources

2.1.1 Existing Conditions

Topography

The existing site contours are shown in the **Existing Conditions/Alternative 1 Map** (in pouch at the end of this document). Because the site was regraded in the late 1990's for the Links at Shirley golf course, little or none of the natural surfaces remain from the site's original condition. It is expected that the only undisturbed areas of the site are in narrow strips found between some of the fairways and along the site's northern, eastern and southern boundaries. The subject property is now characterized by rolling topography interspersed by flatter fairways, tees and greens. Also present are a number of artificial depressions occupied by sand traps and three larger areas excavated for the three man-made water hazards, which are Town-designated wetlands. The steeper slopes associated with the golf course range up to approximately 33%.

The highest elevation within the development area is 39.7 feet above sea level (asl); this point is encountered near the north-central border of the site, associated with a high spot along one of the golf course fairways (see **Table 2-1**). The lowest elevation of the site is found within the driving range in the west-central area, and is 8.3 feet asl. Therefore, relief on the overall subject site is 31.4 feet.

Table 2-1
SURFACE ELEVATIONS AND DEPTHS TO WATER TABLE

Surface Elevations	Maximum	39.7
	Minimum	8.3
	Average	24.0
Depth to Water Table	Maximum	38.7
	Minimum	7.3
	Average	23.0

Note: All elevations in feet asl.
 Water table elevation is 1 foot asl.

Soils

The Soil Survey of Suffolk County, New York (**Warner et al., 1975**) provides a complete categorization, mapping and description of soil types found in the county. Soils are classified based on profiles of the surface soils down to the parent material, which is slightly changed by leaching and/or the action of plant roots. An understanding of soil character is important in environmental planning as it aids in determining vegetation type, slope, engineering properties and land use limitations. These descriptions are general, however, and soils can vary greatly within an area, particularly soils of glacial origin. The slope identifiers named in this subsection are generalized based upon regional soil types; the more detailed subsection on topography should be consulted for analysis of slope constraints.

The subject site lies within an area characterized by Riverhead-Plymouth-Carver association soils. The soils of this association are deep, nearly level to gently sloping, well-drained and excessively-drained, moderately coarse-textured and coarse-textured soils on the southern outwash plain. Three soil types have been identified on-site; their locations and distributions are depicted in **Figure 2-1**. Specific descriptions of these soils are as follows:

Plymouth loamy sand, 0-3% slopes (PIA) - Consists of deep, excessively drained, coarse-textured soils that form a mantle of loamy sand or sand over thick layers of stratified coarse sand and gravel. These soils are mainly on outwash plains south of the Ronkonkoma moraine. The areas are generally level, but undulate in some areas. The hazard of erosion is slight.

This soil has the profile described as representative of the series. It is mainly on outwash plains south of the Ronkonkoma moraine. It is also present on flat hilltops and in drainageways on morainic deposits. The areas generally are nearly level, but they are somewhat undulating in places. Areas on outwash plains are large and uniform, and areas on the moraine are small and irregular. The hazard of erosion is slight on this soil. Many areas were formerly cleared for farming, but most of these areas are idle or are in brush or trees. In the western part of the County, most of this soil is used for housing developments and as industrial sites.

Plymouth loamy sand, 3-8% slopes (PIB) - Consists of deep, excessively drained, coarse-textured soils that formed in a mantle of loamy sand over thick layers of stratified coarse sand and gravel. This soil is on moraines and outwash plains. The erosion hazard is slight and soil tends to be droughty.

Riverhead Sandy Loam, 0-3% slopes (RdA) - Consists of deep, excessively drained, coarse - textured soils that formed in a mantle of sandy loam or fine sandy loam over thick layers of coarse sand and gravel. This soil is generally found on outwash plains, and the areas are large and uniform. Hazardous of erosion is slight.

This soil is generally on outwash plains where it has a slope characteristic of this landform and are in areas that are large and uniform. These soils consist of deep, well-drained, moderately coarse textured soils that are uniform in a mantle of sandy loam or fine sandy loam over thick layers of coarse sand and gravel. The hazard of erosion is slight on this soil. This soil is limited only by moderate droughtiness in moderately coarse textured solum.

The Soil Survey also provides information on the potential limitations to development that the soils may present. The constraints for the site's soils are summarized in **Table 2-2**. As noted in the table, the two Plymouth soils found on site have characteristics that pose a "severe" limitation on landscaping (due to slopes and a sandy surface layer).

2.1.2 Potential Impacts

Topography

In order to provide for land surfaces having adequate grades for road configuration and homesites, it is anticipated that grading/filling operations will occur throughout much (about 60 acres) of the western half of the property; the easterly 98± acres would not be disturbed, but the southwestern wetland will be reconfigured and expanded by 1.59 acres, and small portions of the

man-made stream will be removed. The two other wetland areas and the remaining natural buffer strips (along the northern, southern and eastern boundaries of the site abutting residential neighbors) would not be disturbed.

**Table 2-2
SOIL LIMITATIONS**

Parameter	Plymouth loamy sand, 0-3% slopes (PIA)	Plymouth loamy sand, 3-8% slopes (PIB)	Riverhead sandy loam, 0-3% slopes (RdA)
Engineering Properties			
Depth to seasonal high water table	>4 feet		
Profile/USDA texture	0-27 in.: Loamy sand, loamy fine sand, gravelly loamy sand, sand 27-58 in.: Sand and gravel, coarse sand, gravelly coarse sand	0-32 in.: Sandy loam and fine sandy loam 32-65 in.: Sand, loamy sand, gravelly sand, gravelly loamy sand	
Permeability	>6.3 in./hr.		0-32 in.: 2.0-6.3 in./hr. 32-65 in.: >6.3 in./hr.
Available moisture capacity	0.04-0.08 in./in. of soil		0-32 in.: 0.11-0.15 in./in. of soil 32-65 in.: 0.02-0.07 in./in. of soil
Suitability as a source of:			
Topsoil	Poor: coarse texture		Good
Fill material	Good: material below a depth of 27 inches needs binder in places		
Soil features affecting:			
Highway location	---		---
Embankment foundation	Strength generally adequate for high embankments; slight settlement		
Foundations for low buildings	Low compressibility		
Farm ponds (reservoir)	Rapid permeability		
Irrigation	Very low available moisture capacity; rapid water intake		Moderate to rapid water intake moderate available moisture capacity
Limitations of the soil for:			
Sewage disposal fields	Slight		Slight
Homesites	Slight		
Streets and parking lots	Slight	Moderate: slopes	
Lawns, landscaping and golf fairways	Severe: sandy surface layer		
Paths and trails	Moderate: sandy surface layer		
Athletic fields and intensive play areas	Moderate: sandy surface layer	Moderate: sandy surface layer, slopes	

The applicant does not propose to remove any soil material from the site. Any excess soil from grading and/or filling operations and excavations for the pond and two new recharge basins will be retained on-site and reused as fill. See also **Section 4.6** for additional description and discussion of grading program-related activities, impacts and mitigation measures.

As noted above, little or none of the site's original (i.e., prior to the golf course development) topography is still present on-site, and it is not expected that regrading for the proposed project would disturb these resources. As a result, no impacts to natural slopes are expected.

In summary, grading operations are not anticipated to result in significant adverse impacts, particularly in view of the absence of such resources and implementation of the mitigation measures identified below. The grading envisioned will be the minimum necessary to provide for the proposed development, with soils reused for fill and visual buffering. The site was almost completely regraded in the late 1990's when the Links at Shirley golf course was constructed, so no natural slopes are present. The engineered Grading and Drainage Plan to be reviewed by the Town as well as erosion control measures and stormwater pollution prevention measures will ensure that adverse impacts are minimized to the maximum extent practicable. As a result, no significant adverse impacts to natural topography are expected.

Soils

The site is comprised of Riverhead-Plymouth-Carver association soils, whose characteristics would not pose constraints on development of the type proposed. The specific constraints associated with the soil types identified in **Table 2-2** are predominantly minor; the presence of steep slopes and a sandy surface layer will be addressed by implementation of a comprehensive Grading and Drainage Plan and use of topsoil for landscaping, respectively, and no significant impacts are anticipated from erosion.

Topsoil from within the site will be stripped and stockpiled, to be re-used where possible. Supplemental topsoil will be brought to the site if necessary.

As discussed in **Section 1.5**, applicable erosion and sedimentation control guidelines will be observed during construction of the proposed project in order to minimize impacts. In accordance with the NYSDEC Phase II SPDES Program, coverage under GP 0-10-001 will be obtained prior to the initiation of construction activities. Prior to filing for coverage under the General Permit, the NYSDEC requires that a SWPPP be prepared for the parcel, including a detailed erosion and sediment control plan, to manage stormwater generated on-site during construction activities, and for post-construction stormwater management. A SWPPP will be prepared to ensure compliance with water quality and quantity requirements pursuant to Technical Guidance and GP 0-10-001 and Town of Brookhaven Chapter 86 requirements. The NOI requesting coverage under the General Permit will be reviewed by the Town prior to filing in accordance NYSDEC requirements and prior to the initiation of construction activities at the subject property.

2.1.3 Mitigation

- Neither soils nor topography appear to pose constraints on the current use of the subject property; it is not expected that such constraints would occur with the proposed project.
- There are no significant natural topographic features on the site. The minor areas of steep slopes that are present are the result of the prior golf course development, so no impacts to any natural topographic features are expected.
- Developed areas will be permanently stabilized and slopes are not anticipated to exceed 1:3.
- Dust raised during grading operations will be minimized and controlled by the use of water sprays, truck cleaning stations at the construction exit, and implementation of any dust suppression systems specified by the appropriate Town agencies.
- Truck routes to and from the site will be limited to CR 46, thereby minimizing noise, dust and potential safety impacts to residential communities and schools adjacent to the site.
- Erosion control measures such as staked hay bales, silt fences, groundcovers (vegetative or artificial), drainage diversions, minimizing the area of soil exposed to erosive elements at one time, and minimizing the time span that soil is exposed to erosive elements, will be utilized to minimize loss of soil during construction, particularly in locations where erosion and sedimentation could adversely impact adjoining properties and streets as well as the existing and proposed wetlands. Applicable Town of Brookhaven standards and construction practices specified by the appropriate Town agencies will be followed.
- Conformance with NYSDEC requirements for the SPDES GP 0-10-001 permit, including preparation of an SWPPP, will ensure that the potential for erosion impacts during construction will be minimized.

2.2 Water Resources and Plans

2.2.1 Existing Conditions

Surface Water and Drainage

The subject site is within Flood Hazard Area X as designated by the Federal Emergency Management Agency (see **Figure 2-2**), which indicates that the site is outside of the 500-year floodplain and therefore of minimal flood hazard. **Figure 2-3** shows that only the extreme southeastern corner of the site lies within an area that could be subject to a hurricane-induced storm surge, as determined by the SLOSH (Sea, Lake and Overland Surge from Hurricanes) computer model, as mapped by the National Hurricane Center. Specifically, according to the map, this area would be subject to impact from a Category 4 or 5 hurricane. It is noteworthy that the large majority of the site is outside this SLOSH zone, and the site would remain accessible to CR 46 as an evacuation route northward.

There are no Federal- or State-mapped freshwater wetlands on the subject site (see **Figures 2-4** and **2-5**). The portion of the subject site that would be developed is approximately 2,000 feet northwest of the nearest NYSDEC-designated freshwater wetlands, which are located along Riviera Road south of its terminus at Mastic Road in the vicinity of the headwaters of Pattersquash Creek. It should be noted that there is residential and commercial development and several roadways in the intervening area, and groundwater flow is toward the south-southwest,

so that there is no significant ecological or hydrological relationship between this feature and the subject site.

The Town DEP considers the three golf course water hazards to be freshwater wetlands regulated by Town of Brookhaven standards under Town Code Chapter 81. The applicant notes that these water features were excavated in the late 1990's as part of the golf course construction, so that they are not natural features. This issue is addressed in **Sections 2.3.1** and **3.1.2**.

Other water bodies in the area include Woods Hole Pond and Big Fish Creek Pond (3,900 feet to the west), Narrow Bay (1.7 miles to the south), the Forge River (2.0 miles to the east), and the Carmans River (1.1 miles to the west). However, stormwater runoff generated on the subject site would not significantly impact these bodies, in consideration of the following.

- As required by the Town, all stormwater runoff generated on the Links at Shirley golf course are presently retained on-site and recharged to groundwater; no significant amounts of surface runoff are allowed to escape the site.
- The small amount of runoff that may be able to leave the site would be generated within the naturally-vegetated buffers along the property's border; this volume would infiltrate on pervious lawn surfaces on adjacent properties, or would be trapped in the roadway drainage systems on local streets or CR 46, and would not be able to reach these ponds.
- These five water bodies are significant distances from the subject site, do not lie within its drainage shed, and are separated from the site by significant amounts of developed surfaces that are tributary to drainage systems.

Sea Level Rise

Sea level rise is a global concern, and stems from global climate change, which causes thermal expansion of the oceans, melting of glaciers, polar ice caps and ice sheets, and from land movement. It is estimated that global sea levels have risen by approximately 1.7 millimeters per year – the equivalent of 6.7 inches - over the last century. According to a recent publication of the USEPA, the US Geological Survey (USGS) and the National Oceanic and Atmospheric Administration (NOAA), the sea level rise along Mid-Atlantic coasts - including those within New York State - was substantially higher than this global average. Specifically, the rate of sea level rise in Montauk is estimated at a rate between 2.39 and 2.77 millimeters per year - on average, the equivalent of roughly 10.2 inches over the last century.¹

The Intergovernmental Panel on Climate Change (IPCC) estimates that the average sea level will rise by an additional 0.6 to 2 feet by the year 2100 (over a period of more than 90 years), with higher sea level rise projected to continue throughout the Mid-Atlantic coasts. This will result in loss of wetlands and increased flood risk, erosion, salinity of rivers, bays, tidal estuaries and groundwater, along with other land impacts throughout the world. Over the next 20 years, at the

¹ Zervas, C., 2001: *Sea Level Variations of the United States 1854-1999*, NOAA technical report NOS CO-OPS 36. NOAA National Ocean Service, Silver Spring, MD, 186 pp. As cited in U.S. Environmental Protection Agency, U.S. Geological Survey and the National Oceanic and Atmospheric Administration, *Coastal Sensitivity to Sea Level Rise: A Focus on the Mid-Atlantic Region*, January 2009.

current estimated rate of sea level rise, an increase of 5.16 centimeters (or approximately 2-1/16 inches) may be experienced.

The New York State Sea Level Rise Task Force was created in 2007 to assess impacts to New York State's coastlines from rising sea levels and recommend protective and adaptive measures. The following is taken from the Task Force's document, "Report to the Legislature", dated December 31, 2010:

EXECUTIVE SUMMARY

New York State's extensive ocean coastline has places that we know, that we remember and that have shaped us in some way. The state's coastline includes many notable locations—Montauk Point, Coney Island, Robert Moses State Park, Battery Park and the Hudson River's shores from New York City to the federal dam at Troy. More than 60 percent of New Yorkers live in homes on or near these waterfront areas. Each shoreline area is unique and part of the essence of New York. But these places will change as sea level rises, and the differences will become more obvious as the sea continues to rise to levels never experienced by humans. A result of the world's changing climate, a rising sea will alter more than just the coastline. The entire state will feel the effects as residents and a significant amount of the landscape are affected. These areas are diverse and interconnected and share New York's rich agriculture, commercial, economic and environmental history and resources.

The communities along New York State's coastline, including their structures, their residents, their environment and the surrounding natural resources, are products of decisions made over the course of many years. These decisions shaped decades of investment development and conservation. While the extent of the impacts to coastal communities from a rising sea are not fully known, even the most conservative projections make clear that there will be dramatic changes in this century. Thus, how coastal communities and our state address this collective challenge is important to today's decision makers. The responses needed to protect communities from the threat posed by sea level rise will take time, and now that the challenges are better understood, government is obligated to protect its citizens while there is time to do so effectively. New York must focus on the smart use of limited resources to address the impacts associated with sea level rise.

The Sea Level Rise Task Force

In 2007, the New York State Legislature created the Sea Level Rise Task Force and charged it with preparing a report that addresses these issues, including recommendations for an action plan to protect coastal communities and natural resources from rising sea levels. The New York State Department of Environmental Conservation leads the Task Force, which has a diverse membership that includes representatives of state and local government agencies, non-governmental organizations and affected communities. The legislature directed the Task Force to "evaluate ways of protecting New York's remaining coastal ecosystems and natural habitats, and increasing coastal community resilience in the face of sea level rise, applying the best available science as to sea level rise and its anticipated impacts." The Task Force has studied and deliberated, with public participation, the complex issues involved with sea level rise in New York State; however, a thorough analysis of the costs and benefits associated with sea level rise and potential adaptation strategies was beyond the scope of this effort. The findings and recommendations in this report are an important first step in increasing the resilience of our coastal communities but should be further analyzed to evaluate their site-specific applicability and effect on economic development, greenhouse gas mitigation efforts, the environment and other factors.

FINDINGS

1. Sea level rise and coastal flooding from storm surge are already affecting and will increasingly affect New York's entire ocean and estuarine coastline from Montauk Point to the Battery and up the Hudson River to the federal dam at Troy.
2. The likelihood that powerful storms will hit New York State's coastline is very high, as is the associated threat to human life and coastal infrastructure. This vulnerability will increase in area and magnitude over time.
3. Natural shoreline features, such as wetlands, aquatic vegetation, dunes and barrier beaches, currently provide large-scale services, such as flood protection, storm buffering, fisheries habitat recreational facilities and water filtration, at almost no cost. These services would be prohibitively expensive to replicate with human-built systems. New York is losing tidal marshes at a rapid pace and with them the natural infrastructure that protects the shore from floods, wave attack and erosion.
4. Sea level rise will cause all shoreline ecosystems to become more frequently inundated. Low-lying locations will become permanently submerged. Habitats and the species associated with them may migrate landward; this migration, however, will be impeded by the density of development on much of the state's shoreline and the widespread hardening of that shoreline.
5. Current investment and land-use planning practices by both New York State and local governments are encouraging development in areas at high risk of coastal flooding and erosion.
6. Over the long term, cumulative environmental and economic costs associated with structural protection measures, such as seawalls, dikes, and beach nourishment may be more expensive and less effective than non-structural measures, such as elevation of at-risk structures and planned relocation away from the coastal shoreline, especially in less urbanized areas. Solutions for urban areas, however, may require a mixed approach of structural and non-structural solutions.
7. As water levels rise, sea walls, dikes and similar structures along the state's coastline may limit public access to beaches as the publicly accessible intertidal zone is eliminated.
8. Existing maps of New York State's coast that identify communities, habitats and infrastructure at greatest risk of flooding and erosion are inaccurate, out of date, not detailed enough for planning and regulatory purposes and fail to incorporate historic and projected sea level rise.
9. There are low-cost high-benefit actions that can be taken now to reduce vulnerability along New York State's coastline.

RECOMMENDATIONS

1. Adopt official projections of sea level rise and ensure continued and coordinated adaptation efforts.
2. Require state agencies responsible for the management and regulation of resources, infrastructure, and populations at risk from sea level rise to factor the current and anticipated impacts into all relevant aspects of decision making.

3. Classify areas where significant risk of coastal flooding due to storms has been identified and implement risk reduction measures in those areas.
4. Identify and classify areas of future impacts from coastal flooding from projected sea level rise and storms to reduce risk in those areas.
5. Reduce vulnerability in coastal areas at risk from sea level rise and storms. Support increased reliance on non-structural measures and natural protective features to reduce impacts from coastal hazards, where applicable.
6. Develop maps and other tools required to assist local decision makers in preparing for and responding to sea level rise.
7. Amend New York State laws and change and adopt regulations and agency guidance documents to address sea level rise and prevent further loss of natural systems that reduce risk of coastal flooding.
8. Provide financial support, guidance and tools for community-based vulnerability assessments and ensure a high level of community representation and participation in official vulnerability assessments and post-storm recovery, redevelopment and adaptation-planning processes.
9. Undertake a comprehensive assessment of the public health risks associated with sea level rise, coastal hazards and climate change including compromised indoor air quality, drinking water impacts, post-traumatic stress and other mental health problems, increases in disease vectors, impaired access to health care and loss of reliable access to food and medical supplies.
10. Raise public awareness of the adverse impacts of sea level rise and climate change and of the potential adaptive strategies.
11. Develop mechanisms to fund adaptation to sea level rise and climate change.
12. Fund research, monitoring and demonstration projects to improve understanding of key vulnerabilities of critical coastal ecosystems, infrastructure and communities from sea level rise.
13. Ensure continued and coordinated adaptation to sea level rise.
14. Seek federal funding, technical assistance and changes to federal programs to make them consistent with, or accommodating to, state policies, programs and adaptation measures related to sea level rise.

Figure 2-6 presents the Task Force's map showing areas that would be at risk for flooding due to sea level rise. The subject site is not within such an area.

In addition, the US Army Corps of Engineers is in the midst of preparing a Storm Damage Prevention Plan, for the development of long-term storm damage prevention projects along Suffolk County's South Shore.

Hydrogeologic Conditions

Groundwater on Long Island is derived from precipitation, sanitary effluent, and irrigation, each of which enters the subsurface in the form of recharge. This recharge water passes through the unsaturated zone to the water table, which marks the upper surface of saturated soils that comprise the Upper Glacial aquifer. Generally, the water table underlying Long Island forms a linear mound of groundwater that crests under the central portion of the Island. The apex of this crest forms an east-west trending ridge in the water table, which acts as a groundwater divide that gradually slopes downward towards the north and south shores of Long Island. The configuration of this groundwater mound creates a hydraulic gradient, which causes groundwater to flow downslope by gravity in a direction perpendicular to contours of equal elevation (generally toward the north and south shores) as they descend from the groundwater divide. In addition to horizontal flow, water flow within the central and inland portions of the Island is characterized by a deep flow system which exhibits a generally vertical component that provides recharge to the deeper Magothy and Lloyd aquifers, before flowing to the north and south shores in these deeper aquifers. Groundwater recharge along the shorelines tends to flow horizontally in a shallow flow system through the Upper Glacial aquifer and eventually discharges from subsurface systems into streams or marine surface waters (**Krulik, 1986**).

Figure 2-7 indicates that the water table lies at an elevation of less than 10 feet asl. A more exact value may be determined by reviewing the results of two borings installed on the overall site in September 2007 (see **Yield Map**). One boring is located in the southeastern corner of the site, in a low point in a sand trap, and the other boring was installed in the site's northwestern corner adjacent to the maintenance building, in a tee-side drainage channel. The boring logs indicate that the water table lies at an elevation of approximately 1 foot asl. As listed in **Table 2-1**, the topographic elevation of the site varies between approximately 40 feet asl and 8 feet asl, for an average elevation of 24 feet asl. The above data indicates that the depth to the groundwater table beneath the subject site varies between about 39 feet and 7 feet, or an average of 23 feet.

Regionally, groundwater flows in a south-southwesterly direction. Movement of water through the deposits of each aquifer is a function of hydraulic conductivity, which is an expression of the ability of these deposits to transmit water. According to Franke and Cohen (**1972**), the horizontal and vertical hydraulic conductivity of Upper Glacial deposits is 270 feet per day (fpd) and 27 fpd, respectively. The hydraulic conductivity within the Magothy and Lloyd aquifer is significantly less than that present in the Upper Glacial aquifer with both exhibiting a horizontal conductivity ranging from 40 to 50 fpd and a vertical hydraulic conductivity ranging from 0.001 to 1.4 fpd.

As discussed in **Section 1.4.6**, under existing conditions it is expected that recharge generated from the drainage and sanitary systems on the subject site would flow south-southwestward, and may travel toward the Upper Glacial well in the Margin Drive East wellfield. However, it is noted that no significant adverse water quality impact has resulted at this SCWA facility (see below).

The subject site is not hydrologically related to the five other wetlands or surface water bodies in the area discussed above, as:

- these other water bodies (Woods Hole Pond and Big Fish Creek Pond-3,900 feet to the west, Narrow Bay-1.7 miles to the south, the Forge River-2.0 miles to the east, and the Carmans River-1.1 miles to the west) are significant distances from the project site;
- the regional direction of flow in the Upper Glacial Aquifer is toward the south-southwest (see **Figure 2-8**), so it is expected that recharge entering the site will flow through the ground and seep into the waters in Bellport Bay south of the point where the Carmans River empties into Bellport Bay; and
- these other water bodies are cross-gradient and not downgradient of the subject site, so that recharge generated on the subject site would not flow toward these other water bodies.

Water Balance

The groundwater budget for an area is expressed in the hydrologic budget equation, which states that recharge equals precipitation minus evapotranspiration plus overland runoff. This indicates that not all rain falling on the land is recharged. Loss in recharge is represented by the sum of evapotranspiration and overland runoff. The equation for this concept is expressed as follows:

$$R = P - (E + Q)$$

where: R = recharge
P = precipitation
E = evapotranspiration
Q = overland runoff

Nelson, Pope & Voorhis, LLC has utilized a microcomputer model developed for its exclusive use in predicting both the water budget of a site and the concentration of nitrogen in recharge. The model, named SONIR (Simulation Of Nitrogen In Recharge), utilizes a mass-balance concept to determine the nitrogen concentration in recharge. Critical in the determination of nitrogen concentration is a detailed analysis of the various components of the hydrologic water budget, including recharge, precipitation, evapotranspiration and overland runoff.

The SONIR model includes four sheets of computations: 1) Data Input Field; 2) Site Recharge Computations; 3) Site Nitrogen Budget; and 4) Final Computations. All information required by the model is input in Sheet 1. Sheets 2 and 3 utilize data from Sheet 1 to compute the Site Recharge and the Site Nitrogen Budget. Sheet 4 utilizes the total values from Sheets 2 and 3 to perform the final Nitrogen in Recharge computations. Sheet 4 also includes tabulations of all conversion factors utilized in the model.

It should be noted that the simulation is only as accurate as the data that is input into the model. An understanding of hydrologic principles is necessary to determine and justify much of the data inputs used for water budget parameters. Further principles of environmental science and engineering are applied in determining nitrogen sources, application and discharge rates, degradation and losses, and final recharge. Users must apply caution in arriving at assumptions in order to ensure justifiable results. There are a number of variables, values and assumptions

concerning hydrologic principles that are discussed in detail in a user's manual developed for the SONIR Model and provided in **Appendix C-1**, including an assumed 1.00-mg/l nitrogen (as nitrogen) concentration in rainfall, due to adsorbed atmospheric nitrogen. Also included are the references used to derive data and hydrologic principles.

The SONIR model was run to obtain the existing recharge budget. The run was based on current site conditions and coverages (see **Table 1-3**), which include 5.42 acres of unvegetated surfaces (sand traps), 10.40 acres of wetlands (water hazards), 15.50 acres of impervious surfaces (buildings and pavement), 129.72 acres of golf course vegetation and landscaping, and 44.60 acres of natural vegetation. The 205.64-acre site currently has a total recharge of 108.41 MGY; the results of this analysis are presented in **Appendix C-2**.

Groundwater Quality

Water quality data for the area was obtained from the 2011 SCWA Annual Water Quality Statement. The data reviewed was specifically from wells within water supply Distribution Area 20, which services the subject property, and is therefore expected to be most indicative of groundwater quality in the vicinity of the subject site. The nearest wellfield is the Margin Drive East Wellfield, which occupies a 5.4-acre site abutting the subject property's southwestern corner, along CR 46. The data for this Distribution Area is presented in **Table 2-3**, which indicates an average nitrogen concentration in groundwater of 0.51 mg/l, which is well within the NYS Drinking Water standard of 10 mg/l.

Based on the data, none of the detected compounds were found to be above their respective Maximum Contaminant Limits (MCLs). These levels are published by the State, and reflect maximum contaminant levels set by the USEPA under the Safe Drinking Water Act of 1974 (amended in 1986 and 1996).

The Suffolk County Comprehensive Water Resources Management Plan (SCCWRMP; **SCDHS, 1987-2**) provides information on water quality from 0 to 100 feet below the water table based on observation wells as well as public and private water supply and well monitoring. With respect to nitrate-nitrogen at a depth into the aquifer of between 0 and 100 feet, the Plan shows the subject site as lying within a "good" area in terms of water quality (1 to 6 mg/l of nitrogen) (**SCDHS, 1987-2; Plate 4**). Between depths of 100 and 400 feet, the area of the project has "ambient" water quality with respect to nitrates, where supply wells average less than 1 mg/l. The Plan also provides information regarding concentrations of Volatile Organic Compounds (VOC's) in groundwater. VOC's are synthetic organic compounds such as degreasers, oil additives, solvents and pesticides. They are typically introduced to groundwater through chemical manufacturing, dry cleaning, fuel spills, agricultural practices and improper disposal of both household and industrial wastes. Groundwater quality in the vicinity of the site is also "good" (less than 60% of applicable VOC guidelines) at a depth range of 0 to 100 feet (**SCDHS, 1987-2; Plate 6**). Water quality information in the area at a depth of 100 to 400 feet indicates "non-detectable" contaminant levels.

The SONIR Model results (**Appendix C-2**) indicate that 135.74 pounds (lbs.) of nitrogen discharged under existing site conditions results in a nitrate (as nitrogen) concentration in

recharge of 0.15 mg/l. As the NYS Drinking Water standard for nitrogen is 10 mg/l, the recharge generated on-site does not represent a significant adverse impact on groundwater quality.

Table 2-3
GROUNDWATER QUALITY DATA, 2011
 SCWA Distribution Area 20

Parameters	Average Value	Maximum Contaminant Limit
Inorganic Compounds		
Alkalinity, total mg/l	36.1	[n]
Aluminum, mg/l	0.03	[n]
Ammonia, free mg/l	ND	[n]
Antimony, µg/l*	ND	6
Arsenic, µg/l	nd	10
Barium, mg/l	ND	2
Boron, mg/l	ND	[n]
Bromide, mg/l	ND	[n]
Cadmium, mg/l	ND	5
Calcium, mg/l	12.5	[n]
CO ₂ , calculated mg/l	4.7	[n]
Chloride, mg/l	11.4	250
Chromium, µg/l	ND	100
Cobalt-59, µg/l	ND	[n]
Color, color units	ND	15
Copper, mg/l	0.03	AL=1.3
Dissolved solids, total mg/l	72	[n]
Flouride, mg/l	ND	2.2
Hardness, total mg/l	39.3	[n]
Iron, µg/l	220	300
Lead, µg/l	ND	AL=15
Lithium, µg/l	3.3	[n]
Magnesium, mg/l	1.95	[n]
Manganese, µg/l	21	300
Molybdenum, µg/l	ND	[n]
Nickel, µg/l	ND	100
Nitrate, mg/l	0.51	10
Perchlorate, µg/l	0.99	15
Phosphate, total mg/l	0.91	[n]
pH	7.3	[n]
pH, field pH units	7.3	[n]
Potassium, mg/l	0.89	[n]
Silicon, mg/l	5.6	[n]
Sodium, mg/l	7.8	[n]
Specific conductance, µmho/cm	136	[n]
Strontium-88, mg/l	0.04	[n]
Sulfate, mg/l	8.0	250
Temperature, field °Centigrade	13	[n]
Tin, µg/l	ND	[n]
Titanium, µg/l	ND	[n]

Total Organic Carbon (TOC), mg/l	0.42	[n]
Turbidity, NT units	ND	5
Vanadium, µg/l	ND	[n]
Zinc, µg/l	ND	5
Synthetic Organic Compounds, Pesticides and Herbicides		
Alachlor, ESA µg/l	ND	50
Aldicarb sulfone, µg/l	ND	2
Aldicarb sulfoxide, µg/l	ND	4
Carbamazepine, µg/l	ND	[n]
Dilantin (Phenytoin) , µg/l	ND	[n]
Diethyltoluamide (DEET)	ND	50
1,4-Dioxane, µg/l	ND	50
Hexazinone, µg/l	ND	50
Metolachlor, µg/l	ND	50
Metolachlor ESA, µg/l	ND	50
Metolachlor OA, µg/l	ND	50
Tetrachloroterephthalic Acid (TCPA), µg/l	ND	50
Volatile Organic Compounds		
Chlorodifluoromethane, µg/l	ND	5
Chloromethane, µg/l	ND	5
Cis-1,2-Dichloroethene, µg/l	ND	5
Dichlorodifluoromethane, µg/l	ND	5
1,1-Dichloroethane, µg/l	ND	5
1,1-Dichloroethene, µg/l	ND	5
1,2-Dichloroethane, µg/l	ND	5
1,2-Dichloropropane, µg/l	ND	5
1,4-Dichlorobenzene, ug/l	ND	5
Methyl-Tert-Butyl Ether (MTBE), µg/l	ND	10
Tetrachloroethene, µg/l	ND	5
1,1,1-Trichloroethane, µg/l	0.5	5
Trichloroethene, µg/l	ND	5
Trichlorofluoromethane, µg/l	ND	5
1,2,3-Trichloropropane, µg/l	ND	5
1,1,2-Trichlorotrifluoroethane, µg/l	ND	5
Disinfection By-Products		
Bromochloroacetic-Acid, µg/l	ND	[n]
Bromodichloroacetic-Acid, µg/l	ND	[n]
Bromodichloromethane, µg/l	ND	80**
Bromoform, µg/l	ND	80**
Chlorate, µg/l	ND	[n]
Chlorine residue, µg/l	0.8	4
Chloroform, µg/l	0.6	80**
Dibromochloromethane, µg/l	ND	80**
Haloacetic Acids, µg/l	1.4	60
N-Nitroso-dimethylamine (NDMA) , µg/l	ND	50
Trihalomethanes, total, µg/l	3.6	80

* µg/l - micrograms per liter; equivalent to parts per billion, ppb.

ND: Not detected.

[n]: No standards for parameter

AL : Action Level.

In order to supplement the SCWA and SCCWRMP data, a well was installed on-site to obtain local water quality information in the Upper Glacial aquifer. The sample results from this well are presented in **Appendix C-3**. These data show that water quality is generally good with no significant sources of VOC or semi-VOC contamination, slightly elevated nitrogen (which does not exceed the drinking water standard of 10 mg/l, and generally low metals. Water quality is characteristic of a suburban area with on-site discharge and primarily residential use in the area.

Water Resources Plans

208 Study - The Long Island Regional Planning Board, in conjunction with other agencies, prepared a management plan for Long Island groundwater resources in 1978 under a program funded by Section 208 of the 1972 Federal Water Pollution Control Act Amendments. The purpose of the 208 Study was to investigate waste disposal options and best practice for ground and surface water protection. The study delineated Hydrogeologic Zones for the formulation of management plans based on groundwater flow patterns and quality (**Koppelman, 1978**). The subject site is located in Groundwater Management Zone VI, a zone of generally shallow groundwater levels, with horizontal flow, which has impacts on surface waters.

Stormwater runoff is the vehicle by which pollutants move across land and through the soil to groundwater or surface waters. Contaminants accumulate or are disposed of on land and developed surfaces. Sources of contaminants include:

- animal wastes
- highway deicing materials
- decay products of vegetation and animal matter
- fertilizers
- pesticides
- air-borne contaminants deposited by gravity, wind or rainfall
- general urban refuse
- by-products of industry and urban development
- improper storage and disposal of toxic and hazardous material

The following 208 Study Recommendations apply to either the site or the proposed project:

Structural Recommendations

1. Due to the impact of groundwater underflow and stream flow in this area on the sensitive eastern Great South Bay, collection and treatment is required at densities of one or more dwelling units per acre.
2. Require advanced wastewater treatment with nitrogen removal for treatment plants recharging effluent to ground or surface waters.

Non-Structural Recommendations

1. Minimize population density by encouraging large lot development (one dwelling unit per two or more acres) where possible, to protect the groundwater and surface water from future pollutant loadings, and to provide additional protection for existing marsh and wetland areas.
4. Provide for routine maintenance of on-site disposal systems.
5. Reduce the use of fertilizers on turf. Promote the use of low-maintenance lawns.

Nationwide Urban Runoff Program (NURP) Study - In 1982, the Long Island Regional Planning Board prepared the Long Island Segment of the Nationwide Urban Runoff Program (the “NURP” Study). The purpose of the NURP Study was to determine:

- the source, type, quantity, and fate of pollutants in stormwater runoff in recharge basins, and
- the extent to which these pollutants are, or are not attenuated as they percolate through the unsaturated zone.

The Study determined that stormwater runoff generated on impervious surfaces such as roads, driveways, roofs and sidewalks may carry such pollutants as heavy metals, petroleum hydrocarbons, bacteria, and nitrogen. Contaminants then accumulate or are disposed of on land and developed surfaces. Sources of contaminants include those noted in the 208 Study (see list of bulleted items above).

Extensive monitoring of representative sites in the NURP Study found a significant reduction in these pollutants, indicating that they are attenuated in soil or volatilized in stormwater transport (**Koppelman, 1982**). Under the NURP Study, a number of different land use types were studied to determine the impact of stormwater recharge on groundwater. The land use included in the NURP report that is most like the proposed use would be the medium density residential development (a site in Syosset was the example analyzed). The NURP study results for this representative land use type are shown in **Table 2-4**.

Table 2-4
STORMWATER IMPACTS FROM LAND USE
NURP Study Medium-Density Residential Site (Syosset)

Parameter	Medium Density	Standard
Spec. Cond (umhos)	104	[n]
pH	5.1	6.5-8.5
Turbidity (NTU)	26.0	5
Hardness (mg/l)	16.5	[n]
Calcium (mg/l)	4.85	[n]
Magnesium (mg/l)	1.2	[n]
Sodium (mg/l)	4.25	[n]
Potassium (mg/l)	1.0	[n]
Sulfate (mg/l)	7.05	250
Fluoride (mg/l)	0.01	1.5
Chloride (mg/l)	7.3	250
Nitrogen-Total (mg/l)	0.39	10
Phosphorus (mg/l)	0.01	[n]
Cadmium (ug/l)	2.5	10
Chromium (ug/l)	1.0	50
Lead (ug/l)	6.0	50
Arsenic (ug/l)	1.0	25
Coliform (MPN)	13	[n]
Coliform, fecal	3	[n]

Source: Koppelman, 1982, p. 26-29. [n] - no standard for parameter

None of the parameters examined for the above table exceeded standards for the reported constituents, with the exception of turbidity and pH. As expected, slightly elevated levels of heavy metals were detected, due to entrainment of auto exhausts from roadways; however, these concentrations were significantly reduced through attenuation and did not exceed standards. Chloride concentrations generally increase by two orders of magnitude during the winter months. Chloride is not attenuated in soils like lead and chromium (**Koppelman, 1982**), and thus it is anticipated that the amount of chloride contributed to groundwater will be correlated with the amount of salt applied to roadways and parking areas within the stormwater drainage area. Finally, coliform and fecal streptococcal indicator bacteria are removed from stormwater as it infiltrates through the soil.

Narrow Bay Floodplain Protection and Hazard Mitigation Plan - In 1997, the Suffolk County Department of Planning prepared the Narrow Bay Floodplain Protection and Hazard Mitigation Plan hereafter, (the Narrow Bay Plan). The Narrow Bay area on the Mastic/Shirley peninsula is highly susceptible to flooding, due to low elevation and proximity to the Fire Island barrier beach. As such, the plan evaluates potential impacts and various protection and mitigation measures resulting from severe storm events affecting properties - many of which were developed prior to the enactment of environmental protection regulations - situated within the Narrow Bay area.

According to the Narrow Bay Plan, while in close proximity, the (then-vacant) subject site is not located on tidal or freshwater wetlands, nor is it situated within either the V Zone or the A Zone of the 100-year floodplain. Specifically, the subject site is outside the 500-year floodplain, and is in Flood Hazard Zone X (see **Figure 2-2**). The site is not considered an area with less than five feet of depth to groundwater, which typically results in major freshwater flooding and drainage problems. Furthermore, the site is not anticipated to be flooded by Category 1 through 4 hurricanes. As a result, the site is not deemed to be located within a relocation area, nor is it located within a Coastal Environmental Hazard Zone.

2.2.2 Potential Impacts

Surface Water and Drainage

As the site is not within the 500-year floodplain, no special flood protection measures (other than those necessary to meet Town design standards) are necessary or proposed. Similarly, only the extreme southeastern corner of the site lies within a SLOSH map-designated boundary, for flooding resulting from a Category 4 or 5 hurricane. However, this area is a part of the proposed 98±-acre open space dedication to the Town. This area is being donated for community purposes and, as a result, use of this area would not be expected during such a storm event. Consequently, no impact is expected with respect to floodplain conditions.

As stated in **Section 2.2.1**, there are no Federal- or State-mapped natural surface water bodies or wetlands on or tributary to the subject property. However, based on Town Code Chapter 85, Article XXVIII, the Town considers the three existing man-made golf course water hazards to be regulated freshwater wetlands. The proposed project includes the reconfiguration and

expansion of one of these ponds, and the removal of a portion of the man-made stream within this wetland area. However, this loss of 0.28 acres of stream surface will be more than offset by the 1.59-acre increase in pond wetland area, for an overall 12.50% increase in overall wetlands on-site. As a result, the project represents a net benefit in regard to wetlands and surface water resources.

With regard to surface water quality, it is recognized that the calculated nitrogen concentration of 2.75 mg/l (resulting from the discharge of 2,862.48 lbs. of nitrogen) which is anticipated from future site discharges (discussed in further detail later in this section) exceeds the Town's ecological water quality standard for nitrogen of 2.5 mg/l as established under the Pine Barrens Plan, Section 5.3.3.1.3 (Nitrate-nitrogen Guideline). However, it should be noted that the subject site is not within the Pine Barrens, and is not proximate to natural wetlands or water bodies. It is also significant that the concentration of nitrogen in recharge is less for the proposed project than for the as-of-right zoning. Also, the nearest surface water to the subject site (Bellport Bay) is at a distance of 1.6 miles in a downgradient direction. Recharge from the site will transform as it travels from the site, such that concentration of nitrogen will be decreased with distance downgradient from the site. This occurs as a result of physical, chemical and biological factors that occur in groundwater. These factors include mechanical dispersion (the separation or "spreading" of contaminant concentrations as groundwater migrates), molecular diffusion (this is a contributor to the effect of dispersion as a result of concentration gradients), advection (the chemical movement via groundwater flow resulting from hydraulic gradient), and adsorption (when contaminants attach themselves to soil particles) (**Bear, 1972; Freeze and Cherry, 1979**). As noted, all of the surface water bodies in the area of the subject property are at significant distances from the subject site. When evaluating the hydrologic relationship of the site to the Carmans River, the site does not lie within its drainageshed, and is separated from the nearest surface waters by significant areas of developed land. Existing development within the watershed area including the subject site is based on densities achieved under Article 6 of the SCSC since 1980 (which would result in higher nitrogen concentrations in groundwater than the proposed project), and prior to that would have achieved even higher densities (based on Town zoning and land use patterns at that time) and resulting nitrogen load. This is evident in the groundwater sample results for nitrogen at the subject site, which show elevated concentrations, comparable to the predicted discharge concentration of nitrogen in recharge. The proposed project will employ a type of sanitary waste treatment system that will be subject to the review and approval of the SCDHS. As a result, significantly elevated discharges of nitrogen concentrations will not occur, and therefore no significant impact is expected to occur. In addition, the three ponds (formerly the golf course water hazards) on the subject property are man-made features lined with an impervious membrane barrier and therefore do not maintain any hydrogeological connection to the underlying water table or between the surface water features on or in the vicinity of the subject site. For these reasons, the predicted nitrogen in recharge concentration of 2.75 mg/l (for the proposed project), is not expected to have a significant adverse impact on groundwater, surface water, the Carmans River or Bellport Bay.

The increase in impervious acreage (15.50 acres to 18.04 acres) will cause an increase in the volume of stormwater runoff generated on-site. However, and as required by the Town, all runoff generated on the site will continue to be retained on-site and recharged to the groundwater

supply in the project's drainage systems. The drainage systems (one serving each of the two residential components) will be designed to handle runoff generated within the site, and will be designed to accommodate up to 8 inches of storage, as permitted by the Town where good quality leaching soils are present, such as on the subject site (see **Section 2.1.1**). In consideration of the use of appropriate drainage facilities and the level of drainage engineering review provided by the Town, no impacts to surface water or drainage characteristics are anticipated.

The potential for impacts to water resources during the construction period will be minimized by implementing the mitigation measures required in the SWPPP, to be prepared by the applicant and reviewed and approved by the NYSDEC for the project's GP 0-10-001 SPDES permit.

Sea Level Rise

The site is in an area that is suitable for development with respect to wetlands, surface water and floodplains, and consequently is not expected to experience significant impacts from sea level rise.

As evidenced by the Narrow Bay Plan, the site is not located within or near (the nearest wetlands are approximately 2,000 feet to the southeast) tidal or freshwater wetlands, nor is it situated within either the V Zone or the A Zone of the 100-year floodplain. As such, no direct impacts would be experienced on-site from sea level rise. The potential for adverse impacts on hydrogeologic conditions from sea level rise are discussed below.

Furthermore, at the current estimated rate of sea level rise, (2.39 to 2.77 millimeter/year), an increase of 5.16 centimeters (2-1/16 inches) may be experienced over the next 20 years. Given the site's position with respect to surface water features, no impact is expected in this intermediate term.

Though the project site is not located within tidal or freshwater wetlands according to the Plan, nor is it situated within a floodplain, the proposed development, along with many other properties throughout New York State and around the world will be undoubtedly be affected by rising sea levels in the long-term. However, impacts resulting from sea level rise and corresponding mitigation measures are not confined to the project site; rather, these would occur on a global scale. As such, impacts and mitigation associated with such global issues are beyond the scope of the proposed project.

Hydrogeologic Conditions

All stormwater runoff generated on the residential and commercial areas will be retained and recharged in drainage systems designed to accommodate 8 inches of stormwater. The existing wetlands serve both golf and drainage system recharge functions; these features will be retained, the southwestern pond will be reconfigured and expanded, and two new, recharge basins will be excavated to increase the capacity of the single-family component's drainage system. In addition, recharge will also occur through the disposal of sanitary wastewater discharged from the septic systems. Article 6 of the SCSC allows up to 300 gpd/acre of sanitary flow in Zone VI when using conventional on-site wastewater systems. As discussed in **Section 1.4.6**, it is anticipated that the proposed project will generate approximately 46,500 gpd of sanitary effluent,

which conforms to the maximum allowed by the SCDHS for on-site septic systems. As regulated under Article 6, since the design flow does not exceed the allowable flow, the proposed project will utilize individual septic systems.

A total of 124.91 MGY are anticipated to be recharged annually on the site (see **Appendix C-4**). However, based upon information presented in the NURP Study (see **Section 2.2.1**), this recharge is not anticipated to contain significant concentrations of pollutants. The project will use recommended recharge techniques involving catch basins, subsurface leaching pools and use of water features for stormwater detention and recharge. The NURP Study found that any organic chemicals that may be present in stormwater generally volatilize on surfaces, and inorganic chemicals and bacteriological indicators are removed as recharge infiltrates through soil. As noted, the depth to groundwater averages approximately 23 feet in the area of the proposed development, providing a substantial unsaturated zone for leaching and attenuation. Therefore, the proposed project is in conformance with the applicable recommendations of the NURP Study in regard to the proposed stormwater recharge system.

Development of the subject property will also result in the increase of impermeable surface area across the site. This will ultimately produce an increase in groundwater recharge due to the reduction of evapotranspiration. The increase in impermeable surface area across the site and sewage disposal will ultimately result in an increase in groundwater recharge at the site and is further discussed below.

As stormwater generated on the subject site and recharged through the existing drainage system (including the man-made wetlands), is not hydrologically linked to the off-site wetlands or surface water bodies in the area, and no change in this regard is anticipated for the proposed project, no impacts to off-site wetlands or water bodies are expected.

With respect to the potential for site-generated recharge (from septic system effluent and/or the drainage systems) to adversely impact water quality at the Margin Drive East wellfield, it is noted that no impacts to these wells has resulted from these sources for the existing golf course operation. In addition, and in consideration of the fact that the sanitary system design and operation would be regulated by the SCDHS and SCDPW, it is not expected that either source of recharge would significantly impact the quality of groundwater in the vicinity of this wellfield.

Because of the site's proximity to Bellport Bay and low-lying land surface (a minimum of 8.3 feet to the water table; see **Table 2-1**), concerns were expressed that sea level rise could cause significant adverse impacts on the operations of the project's septic and/or the drainage systems. Such impacts would be felt on the surface (from the incremental increase in coastal areas that could be flooded during large storms or hurricanes), as well as from subsurface water (from an increased water table elevation). Such flooding has been known to create back-ups of both septic and drainage systems.

However, it is not anticipated that either the proposed septic systems or the project's drainage systems would be at an increased risk of impact from inundation and/or water table rise associated with increased sea levels, for the following reasons:

- the site is not situated within the 100-year floodplain;
- the site is not located in an area of less than five feet of depth to groundwater;
- the septic and drainage systems would be established in areas distant from potential flooding, which is the site's southeastern corner;
- the project's grading program will be designed to locate these facilities at elevations safely above levels of potential,
- agencies require a vertical separation between the bottom of leaching pools and groundwater of at least 2 to 3 feet;
- intermediate (20+ years) term potential sea level rise of 2-1/16 inches would not be significant given the factors noted herein; and;
- the design, location construction and operation of these systems would be subject to the review and approval of appropriate Town and County agencies.

As further guidance becomes available, the use of the site will be subject to regulations and policies in effect at the time that approvals and development occur.

Water Balance

Utilizing the same mass balance model described in **Section 2.2.1**, the volume of water recharged by the proposed project, and its associated nitrogen concentration were computed. Based on the SONIR model results, the total volume of water recharged on-site will increase by 15.22%. It is anticipated that the project will recharge approximately 124.91 MGY, which is an increase of 16.50 MGY over the existing on site recharge of 108.41 MGY.

It is not anticipated that this increase in recharge volume will adversely impact hydrologic conditions beneath the site, since the increase is not large enough to permanently raise the water table elevation in the area of development, the water table is an unconfined aquifer (i.e., it is at atmospheric pressure and is therefore free to flow laterally to areas of lower elevations), and aquifer permeability is high, as mentioned in **Section 2.2.1**. As a result, no significant mounding of the water table from this increased recharge volume is expected, so no change in the direction of groundwater flow would result. In addition, the separation between the water table and ground surface would not be sufficient to impair operation of recharge or sanitary systems.

Groundwater Quality

Based on the SONIR model results presented in **Appendix C-4**, it is anticipated that the quantity and concentration of nitrates (as nitrogen) generated on-site will be increased by the proposed project, due to the increased volume of nitrogen-bearing sanitary recharge. This anticipated value is calculated at 2.75 mg/l or 2,862.48 lbs, representing a 2.60 mg/l or 2,726.74 lbs increase from the existing level of 0.15 mg/l (135.74 lbs). This concentration is less than the NYSDEC drinking water standard of 10 mg/l, and is less than the target range of predicted nitrogen for this Groundwater Management Zone based on the 208 Study and SCSC Article 6. As a result, the proposed project is not expected to result in significant adverse effects to groundwater quality with regard to nitrogen loading.

A concern was expressed that the new site residents would dispose of pharmaceuticals in the sanitary waste stream, potentially causing groundwater and water supply contamination. As indicated by the SCWA lab, the SCWA does not currently test for pharmaceuticals in

groundwater, as there are currently no standards. However, the SCWA is presently developing a methodology and instrumentation to monitor for pharmaceuticals in order to institute such a program in the near future.

However, the USGS issued a report in 2006 entitled “*Occurrence of Pharmaceuticals in Shallow Ground Water of Suffolk County, New York, 2002-2005*” which provided an assessment of the presence of pharmaceutical chemicals in groundwater resulting from wastewater treatment facility discharges to the shallow Upper Glacial aquifer. The study included the collection of 70 water samples from 61 wells that were sampled for 4 pharmaceutical compounds. Of the samples collected, only 28 revealed the presence of only one or two pharmaceuticals per sample with concentrations detected within a range of 0.001 to 0.1 µg/l. As noted in the study, these concentrations are five to seven orders of magnitude lower than a typical therapeutic dose and any toxic effects associated with such concentrations are unlikely (US Geological Survey, 2006). With regard to ecological communities, the USGS study offered no conclusions regarding the impact that pharmaceutical compounds in groundwater may have on these potential receptors. However, the USEPA has issued information regarding the impact that pharmaceutical and personal care products may have on the environment (<http://www.epa.gov/ppcp>). Review of the information revealed that studies suggest that pharmaceutical compounds may cause ecological harm but the risks are uncertain since detected concentrations are generally low. The USEPA states that more research is needed to determine the extent of potential ecological harm.

Based on a review of the information provided no significant impact (cumulative or specific) to human or ecological communities is expected due to the discharge of pharmaceutical compounds that may result from the proposed project. The project will be required to conform to applicable requirements should they be established. It is expected that the existing area residents have been and remain free to dispose of such substances in their homes, which utilize individual on-lot septic tank/leaching pool systems. Such systems provide only a “primary” (i.e., one-stage) level of treatment, which is the same as that of the proposed project. Based on the senior and non age-restricted residential uses proposed, the contracted building and grounds maintenance of the community, other potential chemical discharges on-site are not expected.

The design, installation and operation of the septic systems will be subject to review and approval of the SCDPW, ensuring that the proper level of groundwater protection is provided. In addition, the project will control all runoff in an on-site drainage system and will provide for proper sanitary system maintenance, as required by the SCDHS.

Based on the results presented above, it is anticipated that the proposed project will have no significant adverse impact on the quality of groundwater underlying the subject site and in the surrounding area. No other significant adverse groundwater impacts are expected.

Water Resources Plans

208 Study - The project will conform to the Structural and Non-Structural Recommendations of the 208 Study. The study recommends that community treatment systems be used in Groundwater Management Zone VI, where the overall wastewater generation totals 300

gpd/approved unit or less (or for this site, a total of 46,500 gpd). As the proposed project would generate a total of 46,500 gpd of sanitary wastewater, septic systems would be allowed. In addition, the project will control all runoff in on-site drainage systems, as required by the SCDHS, and use of fertilizers will be minimized and will conform to acreage requirements of the Town.

In consideration of the above, the proposed project conforms to the applicable recommendations of the 208 Study, and no adverse impacts are anticipated.

Nationwide Urban Runoff Program (NURP) Study - Based upon information presented in the NURP Study, the increased recharge volume is not anticipated to contain significant concentrations of pollutants. The project will use recommended recharge techniques involving a recharge basin, recharge ponds, catch basins and leaching pools. The NURP Study found that any organic chemicals that may be present in stormwater generally volatilize on surfaces, and inorganic chemicals and bacteriological indicators are removed as recharge infiltrates through soil. As noted, the average depth to groundwater is approximately 23 feet in the development area, providing a sufficient unsaturated zone for leaching and attenuation of entrained pollutants.

Based on project design, the proposed development is in conformance with the applicable recommendations of the NURP Study in regard to the proposed stormwater recharge systems. The proposed development of the site is not expected to have a significant impact to groundwater resources underlying the subject property and surrounding area as related to the recharge of stormwater runoff.

Narrow Bay Floodplain Protection and Hazard Mitigation Plan - As stated in **Section 2.2.1**, the site is not located within any significant Flood Hazard Zone, so none of the recommendations associated with relocation or incorporation into the Suffolk County Parks System apply. In addition, the subject site was not recommended to be sold to an adjacent owner or to be held by the County

Based on the results of the Narrow Bay Plan, it is anticipated that severe storms would not pose significant adverse flooding impacts on the proposed project.

Nevertheless, the Narrow Bay Plan generally recommends that future development apply appropriate constraints on construction and septic system design. Moreover, new construction must conform to strict National Flood Insurance Program and other environmental protection regulations, which will ensure that future development is built to withstand wind, wave and flooding access associated with major storms. The project will be professionally designed to ensure that its sanitary and drainage systems function properly.

2.2.3 Mitigation

- The project consists of two types of residences, which generally have low probabilities of generating hazardous substances.. As a result, no significant chemical use or discharge is anticipated.

- The volume of water recharged on the site will be increased by the proposed project; this value is anticipated to increase by 15.22% from its existing value of 108.41 MGY, to 124.91 MGY following construction. In addition, the project's recharge volume will be significantly greater than the amount of water pumped from the ground to service it. This recharge increase will mitigate potential impacts on the amount and level of groundwater in the area.
- To protect the quality of groundwater, fertilizer use will be minimized by limiting the amount of fertilizer-dependent landscaping to 14.64% of the site (30.11 acres). Landscape maintenance for the entire community will be conducted under the jurisdiction of the condominium associations, and will include a community-wide landscape maintenance contract. Fertilizer use will thus be controlled through initial applications to turf and landscape plantings, as well as through the landscape grounds maintenance agreement.

2.3 Ecological Resources

2.3.1 Existing Conditions

The property has been subject to field inspection and review of its ecological character during field visits by NP&V on January 22, 2007, August 19, 2008, September 8, 2008, July 22, 2009 and August 18, 2009. The property predominantly consists of fairways, tees and greens for two golf courses, along with associated buildings and roads, three man-made water hazards (now Town-designated freshwater wetland areas) and wooded areas. No endangered species have been identified in association with the subject property.

Freshwater Wetlands

The subject site's ecological resources were inspected in January 2007, August 2008, September 2008, July 2009 and August 2009 when the site was in active use. Inspections included identification of all flora and fauna utilizing the site during site visits. Qualifications of personnel performing the inspections can be found in **Appendix F-1**. The review of NYSDEC Freshwater Wetland Map (**Figure 2-4**) and National Wetlands Inventory Map (**Figure 2-5**) verified that no federal or state jurisdictional wetlands exist on or adjacent to the property. The nearest wetland system under state and federal regulation is located approximately 2,000 feet southeast of the property. It is identified as NYSDEC Wetland #M-12, a seasonally flooded/saturated palustrine forested broad-leaved deciduous feature (PFO1E), along Riviera Road south of its terminus at Mastic Road. There is no significant ecological or hydrological relationship between this feature and the subject site.

As discussed in **Section 2.2.1**, though not regulated by NYSDEC, there are three man-made golf course water hazards and a connecting stream totaling approximately 10.40 acres (5.06%) on the property, which are subject to Town Chapter 81 wetland regulations. These features were constructed in 1999-2000 during creation of the golf courses for the purpose of irrigation, stormwater retention and water hazards. The water features and stream are lined and interconnected via the property's irrigation system, and are also supplemented by public water to maintain a minimum water level. The boundaries of the man-made features on the property were determined to be at the well-defined edge of surface water, where the ponds quickly transition

into maintained turf vegetation. The limit of hydrophytic vegetation associated with the stream was determined to be approximately two feet beyond the stream bank on either side.

The man made wetland areas were inspected on January 22, 2007 and August 19, 2008. All three features have well-defined banks with shallower margins of water containing hydrophytic vegetation along their edges. All of the water features are stocked with mosquito fish (*Gambusia affinis*) courtesy of a NYSDEC stocking permit. Mosquito fish and green frogs were observed within the ponds during the August site visit, as well as within the stream. As the mosquito fish is the only fish permitted to be stocked in the ponds, it is assumed that this is the only species present in this system. As no known introductions of other fish species have occurred to the ponds, the ponds were not inspected for other fish species as they were not anticipated to be present as the pond system is a closed system, which only receives fish through stocking.

The western pond had an approximately 10- to 15-foot wide fringe of shallow water (approximately 6 to 12 inches deep) that was dominated by common reed (*Phragmites australis*). Three-square (*Scirpus americanus*) and Canada rush (*Juncus canadensis*) were also observed growing within the shallow margins along the perimeter of the pond.

Similarly, the northern pond had a fringe of aquatic vegetation, with *Phragmites* being most common, within the shallow margins along its banks. Three-square, water smartweed (*Polygonum amphibium*) and narrow-leaf cattail (*Typha angustifolia*) were also present.

The eastern pond had a lower water level with approximately a 15-foot wide strip of exposed sandy pond bottom along its edge. Patches of three-square, Canada rush, common reed, wool grass (*Scirpus cyperinus*), water smartweed, pussy willow (*Salix discolor*), black willow saplings (*Salix nigra*) and cottonwood saplings (*Populus deltoides*) were observed within this area.

Extensive areas of vegetation were observed within the stream and along its edges, including three-square, spike rush (*Eleocharis sp.*), narrow-leaf cattail, sensitive fern (*Onoclea sensibilis*), common reed, pussy willow and black willow.

Vegetation and Habitats

In addition to man-made freshwater wetland areas, approximately 129.72 acres (63.08% of the property) were maintained as landscaped golf course features, including fairways, tees and greens. Buildings and roads associated with the golf course comprise an additional 15.50 acres (7.54%). The 41.63 acres of forested habitat on-site (20.24%) occur as wooded edges that frame the fairways, tees and greens. A habitat map illustrating the existing conditions on the property is provided as **Figure 2-9**. **Table 2-5** identifies the acreage of each habitat on the subject site.

Only approximately 2.97 acres (1.44%) within the center of the property are characterized as a successional field. Successional habitats are stages in the process of secondary succession, by which an area that has been cleared or otherwise disturbed reverts back to its original vegetation mix and pattern. The first species to colonize a cleared area are generally herbaceous weeds and other plants with wide seed dispersal. These early Successional Old Field species are replaced

first by woody shrubs, then by saplings of tree species which seed-in from adjacent wooded habitat or landscaped areas.

Successional Old Field is the initial stage in the process of succession, which is the reversion of disturbed habitats to climax forest. The habitat generally supports a wide variety of weedy species that colonize readily, such as goldenrods, grasses, timothy, ragweed and asters. **Edinger et al. (2002)** defines an old field as "*a meadow dominated by forbs and grasses that occurs on sites that have been cleared or plowed, and then abandoned*". Woody species may be present, but coverage by trees and shrubs is less than 50% as defined by **Edinger et al. (2002)**.

Table 2-5
COVERAGE QUANTITIES
Existing Conditions

Coverage Type	Acres	% of Site
Impervious	15.50	7.54
Landscaped ⁽¹⁾	129.72	63.08
Water Surfaces ⁽²⁾	10.40	5.06
Bare Soil ⁽³⁾	5.42	2.63
Successional Field	2.97	1.44
Pitch Pine-Oak Forest ⁽⁴⁾	41.63	20.24%
TOTALS	205.64	100.0%

- (1) Assuming 60± acres were formerly irrigated and fertilized.
- (2) Golf course man-made water hazards and connecting stream.
- (3) Golf course sand traps.
- (4) As fringe along site boundaries and between adjacent fairways.

The successional old field on the project site is dominated by grasses (e.g. purple love grass, foxtail) and herbaceous vegetation (e.g. Queen Anne’s lace, black-eyed Susan, thistle, goldenrod, common plantain, aster). Woody shrub vegetation (e.g. bayberry) and tree saplings (e.g. scarlet oak, pitch pine) are also present within this habitat type, but occupy less than 50% of the canopy.

Pine Barrens habitats occur in dry areas where a high degree of disturbance and nutrient poor soils exist. These habitats are characterized by pitch pine, oaks and other vegetation that are tolerant of dry, acidic conditions. The habitat types found within the pine barrens of Long Island include Dwarf Pine Plains (or Barrens), Pitch Pine-Scrub Oak Barrens, Pitch Pine-Oak-Heath Woodlands, Pitch Pine-Oak Forest and various wetlands as defined by the NYSDEC **Edinger et al. (2002)**. Species composition varies little between the upland habitats, which are defined by the species composition (**Olsvig et al., 1979**). The relative abundance of each species within a community is a result of influences such as fire frequency, soil moisture, soil fertility and type, exposure to salt spray, and depth to groundwater. The forest habitats are defined by at least 60% tree cover, while the woodlands and barrens are dominated by shrubs and scrub trees and have less than 60% cover by full-sized trees **Edinger et al. (2002)**.

The majority of the property was at one time dominated by Pitch Pine-Oak Forest. However, grading operations for construction of the golf course in 1999-2000 removed much of this habitat

from the property. Presently, 41.63 acres (20.24% of the property) of Pitch Pine-Oak Forest habitat remain as forested edges along the property boundary and as windbreaks lining the fairways and greens.

As defined by **Edinger et al. (2002)**, Pitch Pine-Oak Forest is “a mixed forest that typically occurs on well drained, sandy soils of glacial outwash plains or moraines... The dominant trees are pitch pine, mixed with one or more of the following oaks: scarlet oak, white oak, red oak or black oak. The relative proportions of pines and oaks are quite variable within this community type.” **Edinger et al. (2002)** includes a range of assemblages within this habitat type, including oak dominated forest with only scattered emergent pines and nearly pure stands of pitch pine.

The forested habitat on site is dominated by pitch pine, but common canopy associates include white oak, scarlet oak, red oak, white pine, black cherry, black locust and sassafras. High bush blueberry, dwarf huckleberry and bayberry are common within the understory. However, Asiatic bittersweet, wineberry and Japanese honeysuckle are three invasive plant species that are also prevalent within the fragmented edges of this habitat type.

Although largely landscaped with only thin swaths of native woodland vegetation, the retention of woodland vegetation along the property boundary as well as throughout the site, where possible, would be a positive feature of any future development.

No rare, threatened or endangered plants were observed on site or are known to occur on the subject property. **Table 2-6** is a list of plant species found on site or expected to be on site given the habitat present. This list is not meant to be all-inclusive but was prepared as part of field inspections to provide a detailed representation of what is found on site. Care was taken to identify any species that might be unusual for the area.

Table 2-6
PLANT SPECIES LIST

Tree species

Norway maple	<i>Acer platanoides [i]</i>
tree-of-heaven	<i>Ailanthus altissima [i]</i>
* gray birch	<i>Betula populifolia</i>
eastern red cedar	<i>Juniperus virginiana</i>
* pitch pine	<i>Pinus rigida</i>
* white pine	<i>Pinus strobus</i>
* cottonwood	<i>Populus deltoides</i>
* black cherry	<i>Prunus serotina</i>
* white oak	<i>Quercus alba</i>
* scarlet oak	<i>Quercus coccinea</i>
scrub (bear) oak	<i>Quercus ilicifolia</i>
* northern red oak	<i>Quercus rubra</i>
black oak	<i>Quercus velutina</i>
* black locust	<i>Robinia pseudo-acacia [i]</i>
* sassafras	<i>Sassafras albidum</i>

* black willow

Salix nigra

Shrub and Vine species

chokeberry
* Asiatic bittersweet
sweetfern
* black huckleberry
* dwarf huckleberry
* Japanese honeysuckle
* northern bayberry
* Virginia creeper
* winged sumac
* blackberry
* wineberry
* pussy willow
common greenbrier
* poison ivy
lowbush blueberry
* highbush blueberry
early low blueberry
* grape

Aronia sp.
Celastrus orbiculatus [i] [sci]
Comptonia peregrina
Gaylussica baccata
Gaylussica dumosa
Lonicera japonica [i] [sci]
Myrica pensylvanica [p]
Parthenocissus quinquefolia
Rhus copallina
Rubus sp.
Rubus phoenicolasius [i] [sci]
Salix discolor
Smilax rotundifolia
Toxicodendron radicans
Vaccinium angustifolium
Vaccinium corymbosum
Vaccinium vacillans
Vitis sp.

Herbs and Groundcover Species

* ragweed
little bluestem
big bluestem
brome sedge
* mugwort
common milkweed
* aster
brome grass
Pennsylvania sedge
spotted wintergreen
* thistle
orchard grass
* spike rush
* purple love grass
wintergreen
* Canada rush
path rush
round-headed bush clover
hairy bush clover
trailing bush clover
* common evening primrose
* cinnamon fern
panic grass
switch grass
* common reed

Ambrosia artemisiifolia
Andropogon scoparius
Andropogon gerardii
Andropogon virginicus
Artemisia vulgaris [i] [sci]
Asclepias syrica
Aster sp.
Bromus tectorum [i]
Carex pensylvanica
Chimaphila maculata [p]
Cirsium sp.
Dactylis glomerata
Eleocharis sp.
Eragrostis pectinacea
Gaultheria procumbens [p]
Juncus canadensis
Juncus tenuis
Lespedeza capitata
Lespedeza hirta
Lespedeza procumbens
Oenothera biennis
Osmunda cinnamomea
Panicum sp.
Panicum virgatum.
Phragmites australis [i] [sci]

* common plantain	<i>Plantago major</i>
* Kentucky bluegrass	<i>Poa pratensis</i>
* water smartweed	<i>Polygonum amphibium</i>
* Japanese knotweed	<i>Polygonum cuspidatum [i] [sci]</i>
hairy cap moss	<i>Polytrichum sp.</i>
* black-eyed susan	<i>Rudbeckia hirta [i]</i>
* three-square	<i>Scirpus americanus</i>
* wool grass	<i>Scirpus cyperinus</i>
* foxtail	<i>Setaria sp.</i>
* goldenrod	<i>Solidago sp.</i>
Indian grass	<i>Sorghastrum nutans</i>
* common dandelion	<i>Taraxacum officinale</i>
* clover	<i>Trifolium sp.</i>
* narrow-leaf cattail	<i>Typha angustifolia</i>

- * Species identified on site during field visits by NP&V Staff.
- [i] NYS Early Detection Invasive Plant (Invasive Plant Council of NYS)
- [sci] Suffolk County Banned Plant (Local Law 22-2007)
- [p] NYS Exploitably Vulnerable Plant

Wildlife

The landscaped areas, pine-oak forest edges, ponds and successional old field habitat on the property should support a number of wildlife species common to suburban habitats, particularly small mammals and birds that are tolerant of human activity. The following paragraphs describe the wildlife observed or expected on-site.

Birds - Avian species which might be expected on the property include a variety of woodpeckers, wrens, titmice, nuthatches, thrushes, creepers, flycatchers, swallows, warblers, corvids, thrashers, orioles and blackbirds, doves, starling, grosbeaks, finches, towhees and sparrows. During the warmer months, a variety of warblers may also migrate into the area. Catbirds and blue jays were observed in the upland portions of the property, while a blue heron and Canada geese were observed utilizing the man-made ponds on the property.

Data from the 2000-2005 Breeding Bird Survey for the census block that contains the site was obtained from the NYSDEC (**NYSDEC, 2007; Appendix F-2**). This study surveyed the entire State by 25 km² census blocks over a five-year period (2000 to 2005) to determine the bird species that breed within the State. Most of the species listed by the survey are likely to be found on-site, with the exception of species common to habitats not found on-site. Of the threatened and special concern species listed as being identified within the Breeding Bird Survey Blocks, only the Whip-poor-will and Cooper's Hawk are anticipated to utilize the site. Descriptions of each threatened and special concern species identified within the Breeding Bird Survey Blocks and their habitat requirements are provided below.

The Cooper's Hawk (*Accipiter cooperii*) utilizes forested areas, particularly near edges and rivers (**Birdweb, 2008**). This species prefers mature hardwood forests, but will utilize conifers if no hardwoods are available (**Birdweb, 2008**). As the site contains Pitch Pine Oak forest areas with large amounts of edges and freshwater wetland areas which include a river-like feature, it is

possible that this species would utilize the subject site. It should be noted that during the January 2007, August 2008, September 2008 and August 2009 field visits, no presence of this species was encountered.

The Seaside Sparrow (*Ammodramus maritimus*) requires salt marsh habitat (**Cornell Lab of Ornithology, undated**). As no salt marsh habitats are located on site, the species is not anticipated to utilize the subject site.

The Grasshopper Sparrow (*Ammodramus savannarum*) requires large grassland areas which have some shrubs which the species would utilize as perches (**Birdweb, 2008**). Although a small area of successional field (2.97 acres) was identified on the subject site, the habitat area is small and it is not anticipated that this species would utilize the subject site.

The American Bittern (*Botaurus lentiginosus*) require dense freshwater marshes and extensive wet meadows (**Birdweb, 2008; Nature of New England, 2007**). Although freshwater wetland areas are located on the subject site, these wetland areas are not dense or extensive. As such, this species is not anticipated to utilize the subject site.

Whip-poor-wills (*Caprimulgus vociferus*) are a nocturnal species which requires deciduous mixed forests with small amounts of underbrush (**Cornell Lab of Ornithology, undated**). As 41.63 acres of Pine-Oak forest are present on the subject site, there is potential for this species to utilize the subject site.

The Northern harrier is listed as demonstrably secure on a global scale, but is a threatened species in New York State. This species prefers large open habitats which include meadows, inland marshes, old fields, prairies and cultivated areas (**Michigan Natural Features Inventory, 2004**). As no large natural, open meadow like areas occur on site, it is not anticipated that this species would utilize the subject site.

The Osprey (*Pandion haliaetus*) is a NYS special concern species which requires rivers, estuaries, salt marshes, lakes, reservoirs and other large bodies of water which contain dead trees or narrow artificial structures which they utilize for nesting (**Birdweb, 2008**). Although wetland areas and man made ponds exist on the subject site, these bodies of water are not large enough for the habitat requirements of this species. As such, it is not anticipated that this species would utilize the subject site.

Further details regarding individual avian species are provided in **Appendix F-3**.

The site is suitable for use by raptor and owl species for hunting, and a limited number of these species may breed within the general vicinity of the property. Owls and raptors prey primarily on small mammals, which are likely to be abundant in the area. Most raptors prefer to nest in high, forested areas near open areas that are suitable for hunting, but most avoid humans. The red-tailed hawk is known to utilize pine-oak forests for nesting (**CEQ, undated**). This species is relatively tolerant of humans, may be found in suburban areas and city parks (**Bent, 1961; Andrie and Carroll, 1988**), is fairly common on Long Island and is likely to utilize the site.

Table 2-7 is a list of the bird species observed or expected on site given the habitats present; it is based upon the field investigation conducted by NP&V during January 2007, August 2008 and September 2008.

**Table 2-7
 BIRD SPECIES LIST**

Cooper's Hawk	<i>Accipiter cooperii</i> [s]
* great egret	<i>Ardea alba</i>
* great blue heron	<i>Ardea herodias</i>
cedar waxwing	<i>Bombycilla cedrorum</i>
* Canada goose	<i>Branta canadensis</i>
great horned owl	<i>Bubo virginianus</i>
* red-tailed hawk	<i>Buteo jamaicensis</i>
whip-poor-will	<i>Caprimulgus vociferous</i> [s]
northern cardinal	<i>Cardinalis cardinalis</i>
* American goldfinch	<i>Carduelis tristis</i>
house finch	<i>Carpodacus mexicanus</i>
* killdeer	<i>Charadrius vociferus</i>
yellow-billed cuckoo	<i>Coccyzus americanus</i>
northern flicker	<i>Colaptes auratus</i>
rock pigeon	<i>Columba livia</i>
Eastern wood-pewee	<i>Contopus virens</i>
* American crow	<i>Corvus brachyrhynchos</i>
* blue jay	<i>Cyanocitta cristata</i>
chestnut-sided warbler	<i>Dendroica pensylvanica</i>
yellow warbler	<i>Dendroica petechia</i>
* gray catbird	<i>Dumetella carolinensis</i>
willow flycatcher	<i>Empidonax traillii</i>
common yellowthroat	<i>Geothlypis trichas</i>
* barn swallow	<i>Hirundo rustica</i>
wood thrush	<i>Hylocichla mustelina</i>
Baltimore oriole	<i>Icterus galbula</i>
orchard oriole	<i>Icterus spurius</i>
* herring gull	<i>Larus argentatus</i>
Eastern screech owl	<i>Megascops asio</i>
red-bellied woodpecker	<i>Melanerpes carolinus</i>
song sparrow	<i>Melospiza melodia</i>
* northern mockingbird	<i>Mimus polyglottus</i>
black-and-white warbler	<i>Mniotilta varia</i>
brown-headed cowbird	<i>Molothrus ater</i>
great-crested flycatcher	<i>Myiarchus crinitus</i>
* black-capped chickadee	<i>Parus atricapillus</i>
tufted titmouse	<i>Parus bicolor</i>
house sparrow	<i>Passer domesticus</i>
rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
downy woodpecker	<i>Picoides pubescens</i>
hairy woodpecker	<i>Picoides villosus</i>
rufous-sided (eastern) towhee	<i>Pipilo erythrophthalmus</i>
* double crested cormorant	<i>Phalacrocorax auritus</i>

rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>
black-capped chickadee	<i>Poecile atricapillus</i>
common grackle	<i>Quiscalus quiscula</i>
ovenbird	<i>Seiurus aurocapilla</i>
white-breasted nuthatch	<i>Sitta carolinensis</i>
chipping sparrow	<i>Spizella passerina</i>
field sparrow	<i>Spizella pusilla</i>
* European starling	<i>Sturnus vulgaris</i>
brown thrasher	<i>Toxostoma rufum</i>
house wren	<i>Troglodytes aedon</i>
American robin	<i>Turdus migratorius</i>
eastern kingbird	<i>Tyrannus tyrannus</i>
blue-winged warbler	<i>Vermivora pinus</i>
red-eyed vireo	<i>Vireo olivaceus</i>
mourning dove	<i>Zenaida macroura</i>

Species identified on site during field visit by NP&V Staff.
[s] NYS special concern species.

Mammals - The project site should also support a number of mammal species. Small rodents and insectivores such as mice, shrews and voles are expected to be the most abundant mammals on site, but a small number of larger mammals may be present.

Of the larger mammals, the raccoon, fox and white-tailed deer may be present on-site. The raccoon is relatively common throughout Long Island and is tolerant of humans. This species may become a pest, foraging in trash cans, gardens and agricultural fields. Raccoons will occasionally cause damage by denning in attics and other structures. Fox prefer to build dens in wood areas with loose, sandy soil, and there is some potential for them to utilize the property. Deer were observed on the property during the January 2007 site visit. Additional information regarding these species and others can be found within **Appendix F-4**.

Table 2-8 is a list of the mammal species that are expected to occur in the study area because of existing conditions on site and in the surrounding area. This list is not meant to be all-inclusive but is intended to provide a list of the most common species.

Reptiles and Amphibians - The site would be expected to support a limited number of species and population of reptiles and amphibians. Many species of amphibians prefer moist woodlands and require areas of ponded water for breeding. The terrestrial areas of the subject property are very dry and therefore contain suitable habitat for a limited number of reptiles. The man-made water features on the property may provide suitable habitat for common amphibians, such as green frogs, but the fish within the permanent surface water areas highly limit the potential for any sensitive species of amphibians to utilize them for breeding.

**Table 2-8
 MAMMAL SPECIES LIST**

short-tailed shrew	<i>Blarina brevicauda</i>
Virginia Opossum	<i>Didelphis virginiana</i>
hoary bat	<i>Lasiurus cinereus</i>
house mouse	<i>Mus musculus</i>
pine vole	<i>Microtus pinetorum</i>
Keen's Bat	<i>Myotis septentrionalis</i>
* white-tailed deer	<i>Odocoileus virginianus</i>
white-footed mouse	<i>Peromyscus leucopus</i>
raccoon	<i>Procyon lotor</i>
Norway rat	<i>Rattus norvegicus</i>
eastern cottontail	<i>Sylvilagus floridanus</i>
eastern mole	<i>Scalopus aquaticus</i>
* eastern gray squirrel	<i>Sciurus carolinensis</i>
masked shrew	<i>Sorex cinereus</i>
Eastern chipmunk	<i>Tamias striatus</i>
red fox	<i>Vulpes vulpes</i>

* Species identified on site during field visits by NP&V Staff.

The red-backed salamander is the most common salamander on Long Island, and is highly terrestrial. It prefers a dry woodland habitat with plenty of leaf litter and fallen logs to forage for insects (**Bishop, 1943**), and generally lays its eggs in clumps on damp logs or moss (**Conant and Collins, 1991**). However, the amount of habitat on the site is very limited for this species.

Two toads are common on Long Island in upland habitats. The spadefoot toad occurs in woods, shrublands and fields with dry, sandy loam soils, although it breeds in temporary pools (**Behler and King, 1979**). The Fowler's toad prefers sandy areas near marshes, irrigation ditches and temporary pools. These two species may be present on site.

Several species of reptiles are found on Long Island in a variety of upland habitats, including the Eastern garter snake, Eastern hognose snake and Eastern milk snake (**Wright, 1957**). The garter snake and Eastern milk snake prefer moist soils and are most common near wetlands and in mesic woodlands (**Behler and King, 1979**), but will utilize a variety of habitats. The garter snake is tolerant of humans and may be common in suburban areas (**Conant and Collins, 1991**). The hognose snake prefers dryer soils. These snakes are all colubrid snakes, which feed on whole animals such as worms, insects or small amphibians (**Behler and King, 1979**). The larger milk snake and hognose snakes will also take small rodents and birds (**Conant and Collins, 1991**).

The only turtle species common to terrestrial habitats on Long Island is the eastern box turtle, which requires very little water (**Obst, 1988**). The species is found in a variety of habitats, but prefers moist woodlands. As a result, only patches of suitable habitat exist on the site, thus limiting the suitability of the site for this species. The species feeds on primarily on slugs, earthworms, wild strawberries and mushrooms (**Behler and King, 1979**).

Table 2-9 presents a list of amphibian and reptile species that might occur on site given the existing habitat(s). This list is not intended to be all-inclusive but provides a detailed representation of what is or is likely to be found on-site. In addition, further information regarding these species can be found in **Appendix F-3**.

**Table 2-9
 AMPHIBIAN AND REPTILE SPECIES LIST**

<i>Amphibians</i>	
Fowler's toad	<i>Bufo woodhousei fowleri</i>
spring peeper	<i>Hyla crucifer</i>
common gray treefrog	<i>Hyla versicolor</i>
red-backed salamander	<i>Plethodon cinereus</i>
* green frog	<i>Rana clamitans</i>
wood frog	<i>Rana sylvatica</i>
<i>Reptiles</i>	
Eastern hognose snake	<i>Heterodon platyrhinos [s]</i>
Eastern milk snake	<i>Lampropeltis triangulum</i>
Eastern box turtle	<i>Terrapene Carolina [s]</i>
Eastern garter snake	<i>Thamnophis sirtalis</i>
Eastern ribbon snake	<i>Thamnophis s. sauritus</i>

[s] NYSDEC special concern species

Rare and Endangered Species/Unique Habitat Potential

No rare, threatened or endangered plants or animal species or evidence of any such species were observed on site. The NY Natural Heritage Program (ECL 9-1503) was contacted to determine if there is any record of rare plants or wildlife in the vicinity. In a correspondence letter dated January 23, 2009, the Program had no records of known occurrences of rare or state-listed animals or plants in the immediate vicinity of the site. The Program did indicate the presence of a significant salt marsh community associated with the Carmans River Wetlands in the general vicinity; however, this tidal wetland community is not in close proximity to the property. **Appendix F-4** includes a copy of the correspondence sent to and from the NY Natural Heritage Program.

Extensive field studies by **Cryan (1984)** throughout the Brookhaven area did not reveal the NYS endangered Eastern tiger salamander to be present in the vicinity of the subject property. Therefore, this species is not anticipated to utilize the site or areas adjacent to the property.

Spotted wintergreen, inkberry, bayberry and trailing ground pine are "exploitably vulnerable" species that are common in Long Island natural habitats and which were observed within the pitch pine-oak forest on the property. "Exploitably vulnerable" plants are species which are not currently threatened or endangered, but which are commonly collected for flower arrangements or other uses. Under ECL 1503.3, no person may "knowingly pick, pluck, sever, damage by the application of herbicides or defoliants or carry, without the consent of the owner thereof,

protected plants" (NYSDEC, 1975). As per this section of the ECL the project sponsor (i.e. owner) would not be restricted in utilizing the site for the intended purpose. Therefore, the presence of protected plants would not restrict use of the site under the ECL.

Of the animal species that may utilize or be expected on the site, Eastern spadefoot toad, Eastern hognose snake and Eastern box turtle are listed as special concern species. Special concern species are native species that are not recognized as endangered or threatened, but for which there is documented concern about their welfare in New York State as a whole. Unlike threatened or endangered species, species of special concern receive no additional legal protection under ECL Section 11-0535. This category is intended to enhance public awareness of those species that deserve additional attention.

2.3.2 Potential Impacts

Freshwater Wetlands

There are no natural surface water bodies on the subject site, and no such water bodies are found in the immediate vicinity that could be impacted by the project. However, the three existing man made freshwater wetland areas, totaling approximately 10.40 acres, are considered by the Town to be regulated freshwater wetlands. As such, the planned reconfiguration and expansion by 1.59 acres) of the southwesterly pond and removal of a portion of the stream (0.28 acres) will require approval of a Town Wetland permit. This is a net 12.5% increase in freshwater wetlands on-site. As such, no adverse impacts with regards to the man-made freshwater wetlands are anticipated.

Bellport Bay is located at a significant distance from the subject site (approximately 1.6 miles), and is separated from the site by significant amounts of developed surfaces that are tributary to intervening drainage systems. Based on this distance and an average groundwater velocity of 2 feet/day, groundwater could potentially discharge to Bellport Bay after a travel time of more than 11 years. Any elevated levels of constituents (nitrogen being the most significant concern) would transform and decrease in concentration with distance from the site as noted in **Section 2.2.2** above. These factors indicate that subsurface flow from the subject site would not have elevated nitrogen concentrations, and would certainly attenuate any biological contaminants through travel distance in the aquifer, before potentially reaching the Bay after an approximate 11 year residence time. As a result, recharge from the subject site would not impact this coastal surface water feature. This is confirmed by Robert Waters, former Supervisor of the SCDHS Bureau of Marine Resources (**personal communication, August 21, 2009**), who indicated that no beach closings from sanitary wastewater had occurred at the Town's Shirley Beach facility. However, if subsurface flow to these surface water bodies were to occur, the natural hydrogeologic processes of diffusion, dispersion and adsorption would be expected to reduce these concentrations to insignificant levels. As a result, no impact to Bellport Bay resulting from nitrogen concentration and quantity is expected to result from the proposed project. Further, since no impact to Bellport Bay is expected to occur, no impact to Carmans River (which receives water from the Bay due to tidal flow transport) is expected as well (see **Section 2.2.2** for additional discussion).

In addition, it should also be considered is that there is significant intervening development between the subject property and Bellport Bay, most of which utilize conventional cesspool sanitary systems that are less efficient at removing nitrogen from sanitary wastes. The total nitrogen load generated from these properties is significant and well beyond that which will be generated by the proposed project. As a result, the total nitrogen load contributed by Colony Preserve in comparison will be miniscule and an insignificant addition to the existing nitrogen concentration and quantity presently discharged to Bellport Bay.

Vegetation and Habitats

The impacts to the ecological resources of a project site are generally a direct result of clearing of natural vegetation, increase in human activity and associated wildlife stressors, and the resulting loss and fragmentation of wildlife habitat. The majority of the site (63.08%) is currently landscaped with turf vegetation and extensive swaths of wooded edge totaling approximately 41.63 acres (20.24%) occur throughout the property. Much of the turf will be converted to successional field within the northern and eastern portions of the site, which are proposed to be dedicated for open space dedication area.

Within the development area, there will be an increase in impervious buildings and paved areas following removal of approximately 6.53 acres of wooded edges.

The overall ecological character of the subject site is anticipated to be improved as a result of the preservation of the contiguous open space area. Currently, the natural areas on site (pitch pine oak forest, successional old field) are fragmented and arranged in narrow patches throughout the site. This arrangement of these natural habitats increases the edge effects (i.e., the increase in species diversity near the edge of a habitat (**Harris, 1988**) for these habitats, thusly increasing the ability of invasive species to thrive and decreasing the quantitative area that actually contains the native species that comprise the habitat. The proposed project seeks to dedicate a large, contiguous block of open space on the subject site, which will be allowed to revegetate to natural conditions. This will allow for an eventual reduction in habitat edges, which will provide a larger area that actually contains species that define the habitat type. Larger areas of contiguous habitat type that are not impacted by invasive species are considered to provide a higher ecological value to fauna that would utilize the site. As such, the retention of this area for open space will provide an eventual ecological benefit to the site.

Figure 2-9 provides an illustration of the site's existing landscaped, natural and unvegetated areas. As shown in **Table 2-10**, the project would ultimately increase natural vegetation on the property from an existing 21.68% to approximately 69.02% from remaining wooded edges and converted successional field within dedicated areas. An additional 14.64% of the site will be landscaped; native and native wetland plant species will be utilized in landscaping where feasible. As a result of these substantial increases in natural vegetation, the site will provide an overall increase in natural habitat for wildlife, and have a positive local impact on wildlife populations. The change in habitat quantities is listed in **Table 2-10** below.

The proposed project is consistent with the recommendations of the Brookhaven Open Space Study (1985) and the Draft Town Comprehensive Land Use Plan Update (1996), as it would

provide a substantial 97.83-acre dedication of land to the Town for public open space. It is noted that the removal of some of the natural habitat on site may remove some of the plants identified as “exploitably vulnerable.” Exploitably vulnerable plants are defined as “...Exploitably vulnerable plants are defined as those plants which are “...likely to become threatened in the near future throughout all or a significant portion of their ranges within the state if causal factors continue unchecked.” As the exploitably vulnerable species identified are located within limited areas of the subject site, and as some of the habitat in which these species are found will be preserved, the loss of these species on portions of the property are not anticipated to have a large impact on the presence of the species within the subject site. Preservation of open spaces areas will further ensure the species identified will have the opportunity to persist.

Table 2-10
COVERAGE QUANTITIES
Existing Conditions vs. Proposed Project

Coverage Type	Existing Conditions		Proposed Project		Change (ac)
	Acres	% of Site	Acres	% of Site	
Impervious	15.50	7.54	18.04	8.77	+2.54
Landscaped	129.72	63.08	30.11 ⁽¹⁾	14.64	-99.61
Water Surfaces	10.40	5.06	11.71	5.69	+1.31
Bare Soil	5.42	2.64	0	0	-5.42
Successional Field	2.97	1.44	106.82 ⁽²⁾	51.95	+103.85
Pitch Pine-Oak Forest	41.63	20.24	35.10	17.07	-6.53
Recharge Basins	0	0	3.86	1.88	+3.86
Totals	205.64	100.00%	205.64	100.00%	0

(1) To be irrigated & fertilized.

A detailed Landscape Plan will be prepared for the site plan application, which will be submitted after approval of the PDD application. Native plant species will be incorporated where feasible. Invasive plant species, specifically those listed in Local Law 22-2007 enacted by the Suffolk County Legislature, will not be utilized. The project will conform to Town policy for fertilizer dependent vegetation, and as a result will improve site aesthetics and increase vegetated buffering for the neighborhood, to minimize the potential for significant adverse impacts.

Wildlife

In determining impacts upon the existing wildlife populations, it can be assumed that an equilibrium population size is established for each species as determined by availability of resources in the habitat. Thus, the loss of wooded edge but overall net increase of contiguous habitat resulting from the proposed project will cause a direct impact on the abundance and diversity of wildlife using the site. Although the assumption that species are at equilibrium is an oversimplification, and population sizes of many species are controlled below the carrying capacity by other factors, it is helpful in determining the net impact of habitat loss and reclamation under post-development conditions.

The property is not expected to act as a refuge for fauna, but does contain a small population of local birds and mammals, such as rodents. The proposed project will improve habitat resources for wildlife species by providing a substantial increase in the amount of contiguous successional field habitat interspersed with existing wooded edges within the proposed open space dedication area. The species currently expected on the property are tolerant of human activity, but there may be potential for less tolerant species to establish themselves within the open space areas. It is also expected that on-site wildlife (particularly avian species) will move to the preserved and undisturbed areas on the property during construction activities.

Within the proposed 97.83-acre preservation area, land will be preserved as wooded edge and converted successional field (including unvegetated sand traps) and areas will remain as surface water within the man-made water hazards. As the ponds will not be disturbed, no impacts are anticipated with regards to the mosquito fish that are stocked in the ponds. It should be noted that the ponds will not continue to be stocked with the fish species after development of the subject site. Preservation of existing natural vegetation and reclamation of existing turf by allowing it to progress into successional field is expected to allow for improved habitat for wildlife species that are somewhat tolerant and/or dependent on human activity.

In the short term, undisturbed portions of the property and lands adjacent to the subject property will experience an increase in the abundance of some wildlife populations due to displacement of individuals by the construction phase of the proposed project. Mobile species and particularly large mammals such as deer would be expected to relocate to the preserved portion of the property where large contiguous areas of open space will remain. Ultimately, it would be expected to result in a net increase in population size for most species. The effect on the density and diversity of regional populations should be minimal, but may be locally significant, as a large area of contiguous open space will be created.

Rare and Endangered Species/Unique Habitat Potential

No rare or endangered species are expected on the site given the location and habitats present. The Cooper's Hawk, whip-poor-will, Eastern spadefoot toad, Eastern hognose snake and Eastern box turtle are species potentially expected on site which are listed as special concern species. Although there is documented concern about their welfare in New York State, these species receive no additional legal protection under ECL Section 11-0535. This category is presented primarily to enhance public awareness of these species that bear additional attention (NYSDEC, Endangered Species Unit).

2.3.3 Mitigation

- The proposed project will dedicate 98± acres of land to the Town for public open space and recreational purposes.
- The amount of wetlands will be increased by 1.31 acres (12.5%).
- The loss of wooded edge habitat on the property will be mitigated by preservation of 98± acres of natural area within the proposed open space and dedication areas, including areas of existing wooded

edge and the natural conversion of formerly-maintained golf course turf and unvegetated sand traps, to successional field.

- Native plant species that provide food and shelter to wildlife will be utilized in some of the landscaped areas within the development area.
- No known invasive plant species will be utilized, including those species specifically those species listed in Resolution 614-2007 enacted by the Suffolk County Legislature.

2.4 Air Resources

This section includes descriptions of the existing meteorological and climate characteristics of the vicinity, the air quality in the area, the applicable air quality standards and regulations, as well as the current conformance to each, and provides results from a air quality screening analysis conducted per the NYS Department of Transportation (NYSDOT) Environmental Procedures Manual (EPM), which determined that a more detailed microscale analysis is not necessary for the proposed project.

2.4.1 Existing Conditions

Meteorology and Climate

This section will describe the meteorological setting for eastern Long Island, which includes the subject site, and existing air quality based on published air quality monitoring data. These conditions are important in terms of analyzing project related impacts to air resources.

Temperature - Long Island lies within the humid continental climatic region, and is characterized by four seasons with precipitation occurring throughout the year. Winter temperatures tend to be relatively severe with the average temperature during the coldest month at 32 degrees Fahrenheit (°F) or below. Summer tends to be long and hot with temperatures above 72°F. Winters on Long Island tend to be warmer than on the surrounding main lands due to the moderating effect of the Atlantic Ocean (because of its mass, the temperature of the water is very slow to change). Summers tend to be cooler, which is due to the moderating effect of sea breezes and the presence of the ocean (Navarra, 1979).

Wind - Because air pollutants are carried and dispersed by wind, local air quality is directly affected by the local wind speed and direction. The prevailing ground level winds on Long Island are from the southwest in the summer, northwest in the winter, and close to equal distribution from these two directions during the spring and fall. **Table 2-11** provides the frequency of wind from various directions on an annual basis for the years 1979 to 1988.

**Table 2-11
 WIND DIRECTION**

Wind Direction	Annual Frequency (%)	Wind Direction	Annual Frequency (%)
N	5.95	S	4.59
NNE	5.16	SSW	10.36
NE	5.01	SW	10.67
ENE	4.01	WSW	6.68
E	3.15	W	6.95
ESE	2.95	WNW	10.13
SE	2.98	NW	9.61
SSE	3.45	NNW	8.35

Wind speed and gustiness are effective indicators of Long Island meteorological conditions and are monitored at Brookhaven National Laboratory (BNL) in Upton. **Table 2-12a** provides the wind speed for this period, as well as an indication of wind gustiness/stability, based upon the percent of time wind occurred within each specified range. Wind speed monitoring conducted at BNL finds that wind speed is between 5 and 16 miles per hour (mph) 63.95% of the time, with peak wind speeds of 1-12 mph 96.47% of the time and 3-9 mph 77.26% of the time (**Nagle, 1975; Brown, 1992**). It is important to note the rare occurrences of wind speeds less than 1 mph (1.17%). **Table 2-12b** provides a record of wind stability for the period 1979-1988 as recorded at BNL. Unstable wind conditions were recorded 54.22% of the time indicating a high potential for atmospheric mixing.

**Table 2-12
 WIND SPEED AND GUSTINESS**

**Table 2-12a
 Wind Speed (1979-1988)**

Wind Speed (mph)	Frequency (%)
<1	1.17
1-3	10.20
3-5	24.44
5-7	31.86
7-9	20.96
9-12	9.01
12-16	2.12
>16	0.23

**Table 2-12b
 Gustiness (1979-1988)**

Gustiness	Frequency (in %)
Very Unstable (BNL GC: A & B ₂)	11.16
Unstable (BNL GC: B ₁)	43.06
Neutral Instability (BNL GC: C)	13.04
Stable (BNL GC: D)	32.72

Source: Robert Brown, BNL Meteorologist, Revision Date 2-21-91.

Notes: Height of wind vane changed from 355 ft. to 290 ft. in May 1981.

BNL GC is the acronym for Brookhaven National Lab Gustiness Classification (A and B₂ represent the very unstable case; B₁, the typical daytime unstable case; C, the strong wind-speed neutral stability case; and D, the nighttime stable case).

Regulatory Framework

The 1970 Clean Air Act required the USEPA to establish National Ambient Air Quality Standards (NAAQS) for six principal pollutants; carbon monoxide (CO), nitrogen dioxide, ozone, lead, particulate matter (PM), and sulfur dioxide. Under the requirements of the Clean Air Act, states are required to ensure that air quality levels do not exceed the NAAQS provided in **Table 2-13**. The Clean Air Act established two types of national air quality standards. According to the EPA, primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.²

**Table 2-13
NATIONAL AMBIENT AIR QUALITY STANDARDS***

Pollutant	Primary Standards		Secondary Standards	
	Level	Averaging Time	Level	Averaging Time
Carbon Monoxide	9 ppm	8-hour ⁽¹⁾	None	
	(10 mg/m ³)			
	35 ppm	1-hour ⁽¹⁾		
	(40 mg/m ³)			
Lead	0.15 µg/m ³ ⁽²⁾	Rolling 3-Month Average	Same as Primary	
	1.5 µg/m ³	Quarterly Average	Same as Primary	
Nitrogen Dioxide	0.053 ppm	Annual	Same as Primary	
	(100 µg/m ³)	(Arithmetic Mean)		
Particulate Matter (PM ₁₀)	150 µg/m ³	24-hour ⁽³⁾	Same as Primary	
Particulate Matter (PM _{2.5})	15.0 µg/m ³	Annual ⁽⁴⁾ (Arithmetic Mean)	Same as Primary	
	35 µg/m ³	24-hour ⁽⁵⁾	Same as Primary	
Ozone	0.075 ppm (2008 std)	8-hour ⁽⁶⁾	Same as Primary	
	0.08 ppm (1997 std)	8-hour ⁽⁷⁾	Same as Primary	
	0.12 ppm	1-hour ⁽⁸⁾	Same as Primary	
		(Applies only in limited areas- does not apply for NY)		
Sulfur Dioxide	0.03 ppm	Annual	0.5 ppm	3-hour ⁽¹⁾
		(Arithmetic Mean)	(1300 µg/m ³)	
	0.14 ppm	24-hour ⁽¹⁾		

* ppm - parts per million; mg/m³ - milligrams per cubic meter; µg/m³ - micrograms per cubic meter.

(1) Not to be exceeded more than once per year.

(2) Final rule signed October 15, 2008.

² <http://www.epa.gov/air/criteria.html>

- (3) Not to be exceeded more than once per year on average over 3 years.
- (4) To attain this standard, the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed $15.0 \mu\text{g}/\text{m}^3$.
- (5) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed $35 \mu\text{g}/\text{m}^3$ (effective December 17, 2006).
- (6) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm (effective May 27, 2008)
- (7) (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as EPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
- (8) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1 .
(b) As of June 15, 2005 EPA revoked the [1-hour ozone standard](#) in all areas except the 8-hour ozone nonattainment [Early Action Compact \(EAC\) Areas](#) (which does not include NY).

Areas that exceed the NAAQS for any of the six criteria pollutants are designated nonattainment areas. Currently, Nassau and Suffolk Counties are considered non-attainment areas for ozone and fine particulate matter ($PM_{2.5}$) and moderate maintenance attainment areas for CO. A CO maintenance area is an area where the CO levels formerly exceeded the NAAQ standard, but which currently meets the standard. Nassau and Suffolk Counties will continue to be designated as maintenance areas for CO for 20 years, and as long as the NAAQS for CO are maintained during this time period, the areas will be designated as attainment areas for CO. The USEPA requires the preparation of State Implementation Plans (SIPs), which establish strategies to reduce air pollution for nonattainment areas towards achieving NAAQS for all criteria pollutants. States are required to prepare and adopt SIPs for all nonattainment areas and periodically review and evaluate the effectiveness of the plans. NYSDEC has made recommendations to the USEPA that portions of the State be designated as nonattainment areas for ozone (under the revised 2008 NAAQS of 0.075 ppm) and fine particle ($PM_{2.5}$) and NYS is currently under a mandate to prepare a SIP to address ozone and $PM_{2.5}$.

The NYSDEC continually monitors air pollution levels at more than 80 locations around the State. The closest NYSDEC air quality monitoring stations to the project site are located in Holtsville and Riverhead where ozone levels are monitored between April and November. Additional pollutants are monitored at stations in Babylon and Eisenhower Park (Nassau County). The 2007 data for Region 1 is provided in **Appendix A-5** of this document. The data indicates generally excellent air quality in the region where monitoring is conducted. Ozone levels have varied from year to year. Ground-level ozone is considered a secondary pollutant, since it is formed through a photochemical reaction between nitrogen oxides and reactive hydrocarbons in the presence of elevated temperatures and ultraviolet light. The sources of the primary pollutants that form ozone include automobiles, trucks and buses, large combustion sources such as utilities, fuel stations, print shops, paints and cleaners, and engines (including construction and lawn equipment). Ozone level concentrations that exceed the NAAQS usually occur on hot sunny summer days with little to no wind. Implementation of more stringent emission controls and vehicle inspection requirements are strategies included in the SIP, which are expected to contribute to the reduction of ozone concentrations. The present air quality in the

vicinity of the site is expected to be excellent for the majority of the year, with the exception of a few days in summer when ozone levels are higher than normal.

2.4.2 Potential Impacts

Indirect sources of air contamination are subject to review under general SEQRA requirements. Any development that may attract mobile source activity is considered an indirect source of air contamination, as it may result in a net increase in emissions.

The EPM provides State policy for determining the level of analysis necessary for NYSDOT sponsored projects and technical information for completing air quality analyses. This air quality analysis will reference the EPM since it is the most appropriate guide presently available for projects involving indirect sources.

The EPM provides criteria for determining the appropriate level of air quality review, including screening tools to determine the need for microscale analysis utilizing CAL3QHC³. The tests determine if a project will result in exceedances of thresholds that could possibly result in a degradation of local air quality. If the screening levels are not exceeded, there is no need to perform detailed project-specific air analysis. The tests include level of service (LOS) screening, capture criteria screening and volume threshold screening.

The outcome of the consideration of three levels of criteria will establish the need for microscale air quality analysis. The three levels are as follows:

- LOS Screening
- Capture Criteria Screening
- Volume Threshold Screening

The CO Microscale Analysis Screening Program may be utilized to determine the need for further analysis. If the threshold of one screening test is exceeded, the next test is applied. If all three are exceeded, microscale analysis is necessary to evaluate the project's impact with respect to air quality.

Utilizing the EPM and the TIS prepared for the prior proposed project, a detailed screening analysis was prepared for that prior proposal (450 senior residences and commercial spaces). The results of that analysis indicated that no significant adverse impacts to air resources were expected. As the proposed project is for half the number of residences and no commercial space, its trip generation characteristics will be significantly reduced in comparison. As a result, it is expected that the proposed project will, like the prior proposal, not result in any significant adverse air resource impacts.

³ CAL3QHC is a line source air dispersion model that predicts CO and PM concentrations based on meteorological, traffic volume and intersection information.

2.4.3 Mitigation Measures

- Based on the results of the EPM screening methodology prepared for the prior proposed project, no significant air quality analysis were indicated. As the proposed project would significantly reduce trip generation as compared to that prior application, it is expected that, in a similar manner, no significant air resource impacts would occur. Therefore, no mitigation specific to air resources is necessary or proposed for the proposed project.

SECTION 3.0

HUMAN ENVIRONMENTAL RESOURCES

3.0 HUMAN ENVIRONMENTAL RESOURCES

3.1 Land Use, Zoning and Plans

3.1.1 Existing Conditions

Land Use

Current land use at the subject property and surrounding area is described based on aerial photographs and visual observations (see **Figure 3-1**). The site is classified as in Recreational use; it is currently occupied by two golf course operations, which also contain a golf clubhouse/restaurant and driving range. Golf course operations ceased in 2010; the site is now vacant. This use occupied the site in the late 1990's; prior to that time, the site had been vacant and wooded. Surrounding land uses in the vicinity of the project site are generally residential (specifically, detached single-family homes), but include commercial sites along CR 46 and Mastic Road (to the east, south and west), institutional (two public schools to the east and northeast), utility (an SCWA wellfield adjacent to the southwest) and public open space (Wertheim National Wildlife Refuge to the west). A senior residential development, known as Fairfield at Mastic, is located to the east of the site (see **Figure 3-1**).

Specific land uses abutting and in the vicinity of the property are summarized as follows:

- North:* Institutional (school) and Medium-Density Single-Family Residential adjacent; Medium-Density Single-Family Residential beyond.
- East:* Institutional (school and church), Low-Density Single-Family Residential and Commercial adjacent; Medium-Density Single-Family Residential, Senior Residential, Commercial and Vacant beyond.
- South:* Utility (SCWA Margin Drive East Wellfield) and Medium-Density Single-Family Residential adjacent; Medium-Density Single-Family Residential and Commercial beyond.
- West:* Transportation (CR 46) adjacent; Low-Density Single-Family Residential, Commercial and Public Open Space beyond.

The site is located on the eastern side of a major regional traffic artery (CR 46), which traverses a predominantly residential area developed with single-family homes on individual lots. Several small commercial properties front the western side of this roadway opposite the subject site, though the majority of properties in the area are residential in nature. Contiguous to the east of the subject site are two public school properties, along with several small commercial sites and a single church site. A small area of low-density residential land also abuts the site, though the majority of lands in this direction are developed with medium-density residential lots. It is noteworthy that "The Knolls East", a 96-unit senior residential project has recently been built on a site approximately 1,000 feet to the east, on a large triangular-shaped property at the intersection of Mastic Road/Mastic Beach Road. Based on information listed on the Suffolk County Department of Planning website, it is the only other senior residential facility in the immediate vicinity of the site (i.e., within 0.5 miles). Lands contiguous to the south and north are medium-density residential in character, and a public utility property owned by an SCWA wellfield is found at the site's southwestern corner, fronting CR 46.

Based on information presented in the Narrow Bay Plan (see **Section 2.2.1**), the residential housing in the area was primarily developed as summer home communities in the 1920's, 30's and 40's, before the current A-1 zoning now present was established. These homes were developed on lots designed in a grid pattern without consideration of current planning concepts or natural resource protection, and are based on lots 4,000 to 10,000 SF in size. This lot size is well below the minimum lot size for the A-1 zone, which is 40,000 SF. According to the Plan, the overall density of housing in the Narrow Bay Plan study area is approximately 3.81 units/acre.

Zoning

The subject site is zoned A-Residence-1, which is also the dominant zoning district in the vicinity. **Figure 3-2** depicts the zoning pattern in the area, which shows a number of small J-Business-4 (commercial) properties along CR 46 opposite the site entrance, as well as J-Business-2 (commercial) sites along Mastic Road southeast and east of the site and a substantial strip of J-Business zone along both sides of Mastic Road to the northeast.

Specific zoning categories of lands abutting the site and in the vicinity are summarized as follows:

North: A-Residence-1

East: A-1 adjacent; J-Business-2, PRC and A-1 beyond

South: A-1

West: A-1 and J-Business-4 adjacent (across CR 46); A-1 beyond

In general, the higher density residential areas were constructed under small-lot zoning districts that existed prior to surrounding areas being upzoned to A-1 and developed on larger lots.

Land Use Plans

The project site is not located within the Central Pine Barrens Zone, an SGPA, or a critical environmental area (CEA), and is therefore not subject to these plans or their associated review considerations. The following presents the various Town and community plans applicable to the site, as well as the recommendations pertinent to the project and/or project site.

Brookhaven Open Space Study (1985) - The 1985 Brookhaven Open Space Study described the natural environment of the Town, discussing those areas of most concern in the development of a Town-wide Open Space System. Acquisition of various parcels of land was studied as part of the study, and 28 specific properties were delineated and described with respect to the pertinent natural characteristics that led to the recommended acquisition and preservation. The subject site was not designated within any proposed Open Space Acquisition site.

In addition to the above-referenced acquisitions, the study recommended that the Town be divided into a series of 13 Open Space Management Zones, in which particular land use and development controls and techniques could be utilized to preserve open space characteristics. The subject site would be located in Open Space Management Zone 11/Shirley-Mastic Area. The study stated:

Shirley-Mastic Area

This area is already heavily developed. Objectives include improving groundwater quality and providing neighborhood parks.

The Mastics Tri-Hamlet Comprehensive Plan (1995) - As part of the Town's efforts to update its 1987 Comprehensive Plan, a series of hamlet studies were prepared, to be incorporated into the overall revised Town Plan (see below). One of those hamlet studies included the hamlet of Shirley. The following brief description of this hamlet plan is taken from that document.

...the community is defined in terms of land use, zoning, housing and demographic data, history, environmental factors, transportation, community facilities and parks, recreation and marine activities. Goals and perceived community problems are also stated. This was amplified by a questionnaire distributed throughout the area and reasonably responded to by almost three hundred residents. Numerous recommendations were developed that led to the final segment of this report-the Proposed Land Use Plan.

With respect to the subject site, the plan stated:

It is recommended that regardless of any proposed development of the site previously known as Bay Hollow [the Colony Preserve site], it should be developed pursuant to a Planned Development District. The use of a PDD would enable this site to be developed in a manner which would blend in and improve the surrounding development and will enable the site to be developed with more flexibility. The PDD would also allow for a mix of uses, including a public golf course that should be considered for this site. It should be noted that this study has considered several alternatives which could be considered for this site such as deck hockey/roller blade rinks, ice skating/hockey rinks, fitness center/gym, tennis center, golf driving and batting ranges, hotel/conference center/trade exposition, cultural/entertainment complex, etc. Residential uses should be limited to the yield which is consistent with the A-Residence-1 zoning. A planned retirement community would also be acceptable for this site. Because the site is surrounded by existing residential uses, any development must include extensive buffering (100 feet) on-site patrolling for security, and all necessary traffic improvements.

Draft Town Comprehensive Land Use Plan Update (1996) - The Town of Brookhaven adopted a Master Plan in 1975 to present the intended blueprint for development of the Town. This plan was based upon five objectives "...in that they represent areas where Master Plan policies can exert a significant impact on the future of the Town of Brookhaven." These objectives included:

- 1) preservation of significant and unique environmental features;
- 2) preservation of sufficient open space in its natural state to maintain the town's present high standard of environmental quality;
- 3) structuring of development patterns to enable the eventual establishment of public transportation systems;
- 4) structuring of development patterns to enable their being supplied economically and effectively with all needed public facilities and services; and
- 5) achievement of a variety of housing of an acceptable quality.

The 1975 Town Master Plan designated the subject site for development with "open space residential development". In 1987, the Town adopted a Land Use Plan, which was a major

update of the 1975 Master Plan. The intent of the Land Use Plan was to redirect the objectives of the prior plan, as a result of development since implementation of the prior plan, and to refine the mechanisms whereby these objectives were to be achieved. This plan designated the subject site for low-density residential development.

The Town of Brookhaven completed a draft revision of the Town Comprehensive Land Use Plan in 1996 (hereafter, the “Plan Update”; **Town of Brookhaven, 1996**). The Plan Update is intended as a broad blueprint upon which future land use decisions within the Town are to be based. The Plan Update relies heavily on the hamlet studies prepared for individual communities noted above and includes a land use map that reflects recommended land uses throughout the Town. This map depicts “Planned Development” use on the project site (see **Figure 3-3**).

The Plan Update discusses the existing land use and environmental resources of the Town, and sets several overall goals for planning within the Town. Goals that are particularly relevant to the project area include developing a greater sense of place in communities, developing development techniques that maintain open space, and protecting and enhancing the environmental heritage of the Town.

The Plan Update recognizes the need to provide diverse housing opportunities for seniors, particularly with regard to affordability. The need for diversity of housing types such as smaller homes, and rental homes was also recognized. Both the 1975 Town Master Plan and the Plan Update recognize it is important to provide a mix of housing, not just single-family housing. The Plan Update also recognizes problems and needs with regard to different land use categories, such as residential land use. Recommendations of the Plan Update that may be applicable include the following:

- Continued use of clustered subdivision design to create permanent open space areas.
- The Town’s new Planned Development District should be utilized to bring opportunities for both open space preservation as well as innovative and unique development which can foster a sense of place and allow for the siting of work places near employee residences.
- The Town should strongly support and promote senior housing. Diversity, affordability and flexibility in the senior housing supply need to be promoted.
- In regard to land and subdivisions adjacent to limited access roadways, clustering should be utilized to reduce sound and visual impacts coupled with other innovative techniques including landscaped berms.
- PDDs should be actively promoted and encouraged by the Town to maximize existing infrastructure while protecting the environment, create a “sense of place” within a community and link neighborhoods with community services and activity centers.
- The Town should continue to use clustering and PDDs to preserve open space.

3.1.2 Potential Impacts

Land Use

The proposed PDD will introduce a high quality mixed-use senior and single-family residential development with significant public benefits that conforms to the existing land use context. The

project incorporates attractive design elements, high quality architectural features, handicap accessibility where require and a variety of housing styles. On a unit equivalent basis, the proposed PDD does not exceed the as-of-right yield of the site (125 equivalent units vs. 155 equivalent units). Nevertheless, the project ~~wil~~will result in significant public benefits through reduction of school-age children as compared to the approved single-family subdivision. The project results in a significant increase in the tax revenue to all taxing jurisdictions. N addition, the applicant will donate about 98 acres of land to the Town of Brookhaven for public use. Finally, the applicant has offered a monetary contribution, provided that the project receives approval within 1 year.

The Colony Preserve PDD would change the land use classification of the subject site from (vacant) recreational to senior residential, single-family residential and open space for community use. The primary land use effect of the proposal will be to locate these uses on a single property in a coordinated manner. These three land uses are already represented in the vicinity, so that no new land use types would be introduced into the area. The acreages and yields of the senior residential and single-family residential components would not saturate the community with these land use types, in consideration of the amounts of these uses that already exist in the area. The senior residential use is not out of character with the other residential types already in the vicinity. Besides the other senior site (The Knolls East), the area is dominated by medium-density residential development which, though built as detached homes on individual lots where the proposed PRC component is for detached structures having six units each, is not significantly dissimilar to the types of senior units proposed. The overall density of residential land in the area is 3.81 units/acre. For comparison, the residential density of the proposed project is 1.09 units/acre and involves senior units which, as recognized by the Town, produce less overall impact than single-family units. A senior community was recognized as an acceptable use for the site in the 1995 Mastics Tri-Hamlet Study. That is, the project's residential component is proposed at a substantially lower density than that of the surrounding community

The majority of the project's acreage (99.08 acres) is proposed for senior and single-family residential use, with secondary amounts of open space (98± acres). This distribution agrees well with the prevailing pattern of uses in the vicinity, which is also primarily residential (including senior residential land).

The project would be a benefit for the existing small and scattered commercial uses in the vicinity, as the increase in site residents would tend to increase potential customer bases for these off-site businesses. As a result, it is expected that the project will complement commercial uses already sited along CR 46 and Mastic Road, minimizing the potential for adverse land use pattern impacts in this area.

In consideration of the above, it is not expected that there would be a significant adverse impact on the land use pattern of the vicinity, particularly as the nature of a PDD is specifically to mix appropriate uses on a single property, to provide for the full range of uses necessary for a community to thrive, and to attract and encourage growth in the surrounding community. In fact, the overall PDD concept is designed to be consistent with current planning efforts to increase

land use compatibility and benefit. The PDD is designed to provide an environment that features a community sense of place and recreational site. The coordination of senior residence types, the incorporation of a public recreational use area and proximity to a neighborhood commercial center is viewed as a beneficial land use mix. The Town and community envision such a use, and the project is designed to achieve these goals. While there will be a change in the land use classification of the subject site from its current golf course use, the change represented by the proposed site design is sensitive to the community's needs and goals, and reflects the specific type of development outlined by the community, if development is to occur on the subject site. It should also be noted that a nearby property at the intersection of Mastic Road and Mastic Beach Road, was rezoned to PRC, which would allow for the same land use type as that of the project's senior residential component.

In summary, the proposed project will not change the residential nature of land use in the area, nor would it add to land use types already present in the area. Therefore, no adverse impact on existing land use is anticipated from this project.

Zoning

The proposed action is for a change of zone from A-1 to PDD; the A-1 zone would permit a 155-lot single-family subdivision on 40,000 SF lots. The proposed PDD represents an opportunity to develop a housing community incorporating attractive design features, coordinated traditional architectural design, and significant public benefits in lieu of development of an as-of-right single-family subdivision.

The Town and community (see below) have viewed the site as an opportunity to establish a PDD, as documented in the land use plans discussed below, as well as in the meetings conducted with the applicant. The intent of those meetings was to verify the potential and desire to develop a high-quality mixed-use project having residential and recreational uses. The proposed project will create a PDD on a site that had been developed as a golf course, but has not proven to be economically sustainable. There are only minimal areas of natural resources remaining on the site, and a large portion of the site would be used for residential development and special public benefits. The applicant is not proposing to use the transfer of PBCs as provided for under (Article XXXIIA, Section 85-338), as it is not necessary and due to the finding that the intensity of the project is less for the PDD than the as-of-right zoning. In addition, significant public benefits will be provided by the project.

From a zoning perspective, the proposed PDD has been designed with public input and by planners that have experience in creating sustainable mixed-use communities. This DEIS also includes examination of alternatives to the PDD. Ultimately, the land use and approval process coupled with the DEIS process will consider design and use factors and adequacy of special public benefits to arrive at a balanced plan that achieves goals of land use and zoning compatibility while meeting community needs.

The Town of Brookhaven provides dimensional requirements in its Zoning Code, however, in order to allow maximum flexibility in the achievement of the legislative intent for a PDD, as described above, the Town has authority to modify dimensional standards within such a district.

Specific dimensional standards for the proposed PDD are included in the PDD Master Plan, which is part of the PDD Phase I submission, and will be determined by the Town Board at the time of the Statement of Findings and Zone Change decision. It is anticipated that the dimensional standards for the proposed PDD will include:

- Minimum lot area;
- Minimum road frontage;
- Minimum front, side and rear yards;
- Minimum setbacks;
- Maximum building height;
- Maximum building and lot coverage;
- Maximum net density;
- Maximum units per building;
- Minimum distance between buildings.
- Minimum buffer area requirements between adjacent land uses and along roadways and their adequacy shall be determined by the Planning Board.

Land Use Plans

Brookhaven Open Space Study (1985) - The proposed project would support the recommendation of the Open Space Study for the Shirley-Mastic Area with respect to the provision of neighborhood parks, by providing a substantial 98±-acre dedication of land to the Town for this express purpose, and increasing the acreage of freshwater wetlands on-site.

The Mastics Tri-Hamlet Comprehensive Plan (1995) - It is noted that the site was developed in the late 1990's with a golf course, as was recommended in this plan. However, this use has not proven to be economically viable. The current application is to establish a PDD (based on senior residential, single-family residential, and recreational uses) as was also recommended in the hamlet study. Therefore, the proposed project conforms to the recommendations of this study and so no adverse impacts are expected.

Draft Town Comprehensive Land Use Plan Update (1996) - The Colony Preserve PDD conforms to the Plan Update recommendation of "Planned Development" for the subject site. The proposed PDD would provide lands for public open space and two types of residential uses; it will generate significant public benefits to the school district and community. The PDD design specifically includes aesthetic buffering, and retains much of the naturally-vegetated perimeter buffers.

The proposed project conforms to both the spirit and other recommendations of the Plan Update, as follows:

- The project will provide high-quality senior housing in a setting that respects the existing land use context of the site and area.
- The Plan Update identifies the need for attractive housing with low maintenance and recreationally-oriented facilities for the Town's seniors, which would be achieved by the proposed PDD.

- The Colony Preserve proposes a mixed land use that is appropriate in the vicinity, as has been indicated as appropriate for this particular site through meetings with the community.
- The project will help develop a greater sense of place in the local community by use of the PDD technique, which provides for recreation and open space.
- The project's two types of residential units will be provided in the form of differing types of units, which diversity is in accordance with Plan Update recommendations and adds variety to housing patterns by adding diversification to the surrounding community.
- The proposed project will dedicate a substantial acreage of land (98± acres) to the Town for public recreational purposes.
- The project will increase the amount of wetlands on the site; an increase of 12.5% (1.31 acres) is expected.

3.1.3 Mitigation

- The project would conform to the Town Open Space Study, by providing a substantial land dedication (98± acres) for a Town recreational/open space amenity.
- The project conforms to the recommendation of the Mastics Tri-Hamlet Hamlet Comprehensive Plan.
- The project would help mitigate the unfulfilled need for a variety of housing options for the growing senior population in the Town, which is a goal of the Town Comprehensive Plan Update.
- The proposed action would mitigate potential land use pattern conflicts with that of the vicinity, by conforming with and enhancing the uses immediately surrounding the site and the community at large.
- This proposed project would mitigate land use impacts by providing significant public benefit through the dedication of property to the Town for public recreational purposes.

3.2 Transportation Resources

The description of existing transportation resources and traffic conditions presented in this subsection has been taken from the TIS prepared for the proposed project (see **Appendix D**). The following presents a brief overview of the TIS and the methodology by which traffic impacts were determined.

STUDY METHODOLOGY

- The study assesses the traffic impacts associated the proposed residential development and identifies appropriate mitigation, if necessary. In executing the scope of work, the following steps were undertaken.
- A detailed field inspection was conducted to obtain an inventory of existing roadway geometry, location/geometry of existing driveways and intersections along with signing, signal timings, phasing and cycle lengths.
- Turning movement volume counts were conducted during the weekday AM (7:00 AM to 9:00 AM), weekday PM (4:00 PM to 6:00 PM) and Saturday midday (11:00 AM to 2:00 PM) peak periods at the following study intersections.
 - William Floyd Parkway (CR 46) at Lawrence Road/Flintlock Drive
 - William Floyd Parkway (CR 46) at Roberts Road
 - William Floyd Parkway (CR 46) at Beacon Street/Adobe Drive
 - William Floyd Parkway (CR 46) at Coraci Boulevard

- William Floyd Parkway (CR 46) at Robinwood Drive
- Automatic Traffic Recorder (ATR) machines were placed on the William Floyd Parkway northbound and southbound in the vicinity of the site for a period of one week.
- Accident data for the study intersections and roadways in the vicinity of the site was obtained from the NYSDOT.
- An Estimated Time of Completion (ETC) year of 2012 (2 years) is anticipated for this project. However, as desired by the Town of Brookhaven for a project of this size a horizon year of 2017 (ETC+5) was utilized for No Build and Build conditions to determine the impacts that may be created by the construction of this project.
- The Town of Brookhaven Planning Division was contacted to obtain information on other planned projects in the nearby area that may affect the study intersections. At the time of the study, the Town of Brookhaven indicated that, there are no projects in the area that will significantly impact the operation of the roadways. Additional traffic from minor on going projects in the area should be accounted for in the 2.0% annual growth factor applied to the existing traffic volumes for the 7-year analysis period.
- An annual growth factor of 2.0% obtained from the NYSDOT LITP2000 Study was applied to the existing traffic volumes to estimate the increase in background traffic that would occur in 2017. These traffic volumes will be referred to as the No Build Volumes.
- In this traffic study, the following conditions were studied
 - 2010 Existing Conditions
 - 2017 No Build Conditions (ETC + 5 years)
 - 2017 Build Condition (ETC + 5 years)
- Estimates of traffic that would be generated by the proposed residential development was prepared utilizing trip generation data published by the Institute of Transportation Engineers (ITE) publication, *Trip Generation, Eighth Edition*. The site-generated traffic volumes for the residential development were assigned to the adjacent street system based upon the anticipated directional trip distribution forecasted by Nelson & Pope.
- The 2017 Build Condition volumes for residential development were developed by adding the site-generated traffic to the 2017 No Build condition volumes.
- Capacity analyses were performed at the study intersections identified above for the 2010 Existing Condition, 2017 No Build Condition and 2017 Build Condition for weekday AM, PM and Saturday midday peak hours.
- The results of the analyses for the 2017 No Build Conditions and the 2017 Build Conditions were compared to identify any significant impact associated specifically with the proposed project.

3.2.1 Existing Conditions

The following descriptions of existing site transportation resources, accident history and traffic conditions have been taken from the TIS.

EXISTING CONDITIONS

Roadway Conditions

The following is a list of roadways included in the study network surrounding the site. The greatest portion of the traffic generated by the proposed developments will be distributed throughout the network. The general descriptions listed here refer only to the sections of the roadways that exist near the site. Their cross-section may vary further away from the site. The Average Annual Daily Traffic (AADT) is listed for each roadway where available.

William Floyd Parkway (CR 46) is a north/south urban principal arterial under the jurisdiction of the SCDPW. William Floyd Parkway provides two northbound and two southbound travel lanes with exclusive turn lanes at key intersections south of Surrey Circle and provides three northbound and three southbound travel lanes with exclusive turn lanes at key intersections between Surrey Circle and Sunrise Highway. The section of William Floyd Parkway, in the vicinity of Coraci Boulevard has an AADT volume of approximately 18,983 vehicles per day. In the vicinity of the site, William Floyd Parkway provides a primarily straight horizontal alignment and a flat vertical alignment. The posted speed limit is 45 miles per hour. The land uses along this roadway in the vicinity of the site are predominantly commercial.

Table 3-1 summarizes the lane configurations and traffic controls at the study intersections.

**Table 3-1
INTERSECTION GEOMETRY**

Intersection	Approach	Lane Designation	Traffic Control
Lawrence Road at William Floyd Parkway (CR 46)	EB	LTR	Traffic Signal
	WB	LTR	
	NB	L-2T-R	
	SB	L-2T-R	
Roberts Road at William Floyd Parkway (CR 46)	EB	LTR	
	WB	LTR	
	NB	2T-R	
	SB	L-T-TR	
Beacon Street/ Adobe Drive at William Floyd Parkway (CR 46)	EB	LTR	
	WB	L-TR	
	NB	L-2T-R	
	SB	L-2T-R	
Coraci Boulevard/ Site Access at William Floyd Parkway (CR 46)	EB	LT-R	
	WB	L-T-R	
	NB	L-2T-R	
	SB	L-2T-R	
Robinwood Drive at William Floyd Parkway (CR 46)	EB	LTR	
	WB	LTR	
	NB	L-2T-R	
	SB	L-2T-R	

L = Left turn lane; T = through lane; R = Right turn lane

Accident History

Accident data for the sections of roadways and intersections in the vicinity of the site was obtained from the NYSDOT. The most recent data available was from April 2007 to March 2010 (3 year period). The data was reviewed and summarized in [Appendix D].

Table 2 [see Appendix D] indicates a total of 107 accidents occurred at or in the vicinity of study intersections during the analysis period none of which resulted in a fatality. The majority of accidents, 52%, involved an injury. The location with the greatest number of accidents is the intersection of William Floyd Parkway at Flintlock Drive/Lawrence Road with a total of 36 accidents, followed by

the intersection of William Floyd Parkway at Adobe Drive West/Beacon Street with a total of 24 accidents.

A review of Table 3 [see **Appendix D**] indicates that a plurality of the accidents (41%) involved rear-end accidents. Most of the rear-end accidents occurred at the intersection of William Floyd Parkway and Flintlock Drive/Lawrence Road. The high incidence of rear-end collisions may be associated with traffic congestion, driver inattentiveness and following too closely.

EXISTING CONDITION ANALYSIS

The 2010 existing peak hour traffic volumes depicted in Figures 3, 4 and 5 [see **Appendix D**] were used to determine the existing capacity and LOS of the study intersection. **Table 3-2** contains the LOS summary for the Existing Condition calculated through the HCS software described previously.

Lawrence Road/Flint Lock Drive at William Floyd Parkway

The signalized intersection of Lawrence Road at William Floyd Parkway currently operates at LOS C during the weekday AM, PM and Saturday midday peak hours.

Roberts Road at William Floyd Parkway

The signalized intersection of Roberts Road at William Floyd Parkway currently operates at LOS B during the weekday AM, PM and Saturday midday peak hours.

Beacon Street/Adobe Drive at William Floyd Parkway

The signalized intersection of Beacon Street/Adobe Drive at William Floyd Parkway currently operates at LOS C during the weekday AM, PM and Saturday midday peak hours.

Coraci Boulevard/Hamlet Preserve Golf Course Access (Site Access) at William Floyd Parkway

The signalized intersection of Coraci Boulevard/Hamlet Preserve Golf Course Access (Site Access) at William Floyd Parkway currently operates at LOS B during the weekday AM, PM and Saturday midday peak hours.

Robinwood Drive at William Floyd Parkway

The signalized intersection of Robinwood Drive at William Floyd Parkway currently operates at LOS B during the weekday AM peak and Saturday midday peak hours and at a LOS C during the weekday PM peak hour.

Table 3-2
LOS SUMMARY - Existing Conditions
Signalized Intersections

Intersection	AM Peak Hour		PM Peak Hour		Saturday Midday Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Lawrence Road/Flintlock Drive at CR 46	C	24.7	C	22.7	C	21.7
Roberts Road at CR 46	B	16.5	B	16.7	B	13.4
Beacon Street/ Adobe Drive at CR 46	C	21.6	C	22.4	C	24.1
Coraci Boulevard/ Site Access at CR 46	B	14.2	B	17.9	B	15.8
Robinwood Drive at CR 46	B	18.8	C	21.2	C	20.3

Emergency Evacuation

In October 2008, Tetra Tech EM prepared the Suffolk County Multi-Jurisdictional Multi-Hazard Mitigation Plan (hereafter, the “Multi-Hazard Plan”) for the Suffolk County Department of Fire Rescue and Emergency Services, in response to the NYS Disaster Mitigation Act of 2000. The Plan aims to “...*identify and reduce the vulnerability to natural hazards in order to protect the health, safety, quality of life, environment and economy of the communities within Suffolk County.*” The Town of Brookhaven has chosen to participate in this plan, and as such, all policies and recommendations set forth in the plan directly pertain to the proposed project.

The Plan identified several natural hazards of concern; the risk of hurricanes affecting Suffolk County ranked fourth on the list (after Nor’easters, Severe Winter Storms and Severe Storms). It is assumed that the entire County would be vulnerable to damage from such an event, and any areas of potential growth, including the proposed project site, could also be impacted by a hurricane’s effects.

The Plan does not outline a specific evacuation strategy for the subject site. In the event of a hurricane, the appropriate Suffolk County agency will provide information to the public through the media, as well as through telephone calls and sirens. If the hazard warrants evacuation, it is expected that the major north-south and east-west roadways (particularly the Long Island Expressway (LIE), Sunrise Highway and CR 46 for the project area) would be utilized. The closest emergency shelters are designated at William Paca Junior High School, William Floyd Middle School, Center Moriches High School, Bellport High School, and Eastport-South Manor Junior/Senior High School. There are numerous additional emergency shelters designated throughout the towns of Brookhaven, Islip, Smithtown, Babylon and Huntington. It is important to note that such routes and shelters may change based on the nature of the hazard and specific conditions at the time of the emergency.

The Town of Brookhaven has proposed various mitigation initiatives in support of developing and improving evacuation procedures. Applicable initiatives include: the need to update emergency communications systems and capability Town-wide; relocate identified critical evacuation routes out of flood hazard areas for the probable impacts of hurricanes; retrofit flood-prone roadways that are considered to be critical infrastructure; increase structural stability and drainage capacity of culverts spanning tidal tributaries and supporting critical evacuation and response routes; and elevate roads that are vital/critical to evacuation and local community operations.

3.2.2 Potential Impacts

NO BUILD CONDITION

The No Build Condition represents traffic conditions expected at the study intersections in the future year 2017 without the construction of the proposed project.

Traffic Growth

A 2.0% annual growth factor was obtained from the NYSDOT. The existing traffic volumes were increased by this factor for a period of 7 years to project volumes to the year 2017.

Other Planned Projects

“Other Planned Projects” is a term that refers to developments located near the project site that are currently under construction or in the planning stages. Traffic generated by these projects may significantly influence the operations of the study intersections and would not be represented in the field data collected. The Town of Brookhaven was contacted to obtain information on any planned projects in the area. At the time of the study, the Town of Brookhaven indicated that, there are no major projects in the area that will significantly impact the operation of the roadways. Traffic from minor projects in the area should be accounted for in the 2.0% annual growth factor applied to the existing traffic volumes for the 7-year analyses period. The No Build condition volumes for the weekday AM, weekday PM and Saturday midday peak hours are illustrated in Figures 6, 7 and 8 [see **Appendix D**].

Roadway Improvements

Suffolk County is on the verge of completing their CR 80 (Montauk Highway) reconstruction project. This project involves the following improvements:

- Widening Montauk Highway between Grand Avenue and Louis Street to provide two lanes in each direction with a center left turn lane.
- Reconstruct the intersection of CR 46 and CR 80 to eliminate left turning traffic from CR 80 onto CR 46. Reconstruct the traffic signal.
- Install traffic signals at the intersections of CR 80 at Aletta Avenue and CR 46 at Mastic Boulevard. Westbound CR 80 traffic previously making a left turn on CR 46 southbound will be rerouted to the new traffic signals at Aletta Avenue and Mastic Road.
- Reconstruct the intersections of CR 46 at McGraw Street and CR 80 at Upton Boulevard. Eastbound CR 80 traffic previously making a left turn on CR 46 northbound will be rerouted to Upton Boulevard and McGraw Street.
- These improvements will significantly improve the operation of the intersection of CR 46 and CR 80. Therefore this location was not investigated in this study.

PROPOSED PROJECT

Trip Generation

In order to identify the impacts the proposed development will have on the adjacent street system, it is necessary to estimate the magnitude of traffic volume to be generated during the peak hours and to estimate the directional distribution of the site traffic when entering and exiting the subject property. The trip generation estimate for the proposed development was prepared utilizing data within the Institute of Transportation Engineers’ publication, *Trip Generation, Eighth Edition*. This publication sets forth trip generation data obtained by traffic counts conducted at sites throughout the country. **Table 3-3** summarizes the trip generation estimates for the proposed residential development.

As can be seen from **Table 3-2** above, the proposed residential development will generate 118 trips (35 entering and 83 exiting) during the weekday AM peak hour, 142 trips (88 entering and 54 exiting) during the weekday PM peak hour and 137 trips (77 entering and 60 exiting) during the Saturday midday peak hour.

**Table 3-2
TRIP GENERATION**

Time Period	Distribution	Single-Family Homes (LUC 210)	PRC Units (LUC 251)	Total
Weekday AM Peak Hour	Enter	15	16	35
	Exit	47	36	83
	Total	63	55	118
Weekday PM Peak Hour	Enter	51	37	88
	Exit	30	24	54
	Total	81	61	142
Saturday Midday Peak Hour	Enter	40	37	77
	Exit	36	24	60
	Total	76	61	137

Source: Trip Generation, 8th Edition, published by ITE

TRAFFIC IMPACT ANALYSIS

As stated previously, the intersection capacity and level-of-service (LOS) analyses were based on the procedures and guidelines presented in the *HCM 2000*, published by the Transportation Research Board. The *HCS+T7F, Release 5.4* was used to analyze the study intersections and provide a LOS measurement of the intersection operations. The six classes of LOS, ranging from LOS A (excellent) to F (worst), are defined in **Appendix D. Table 3-4** summarizes the results of this analysis.

**Table 3-4
LOS SUMMARY - Proposed Project
Signalized Intersections**

Intersection	Condition	Weekday AM Peak Hour		Weekday PM Peak Hour		Saturday Midday Peak Hour	
		LOS	Delay	LOS	Delay	LOS	Delay
Lawrence Road/Flintlock Drive at CR 46	No Build	C	30.8	D	35.4	C	32.1
	Build	C	31.4	D	40.7	C	33.6
Roberts Road at CR 46	No Build	B	17.9	B	18.9	B	15.6
	Build	B	18.5	B	19.8	B	16.5
Beacon Street/ Adobe Drive at CR 46	No Build	C	23.9	C	27.2	C	30.0
	Build	C	25.6	C	27.4	C	32.5
Coraci Boulevard/ Site Access at CR 46	No Build	B	15.9	C	20.1	B	17.8
	Build	B	16.3	C	20.5	B	18.1
Robinwood Drive at CR 46	No Build	C	20.1	C	22.5	C	22.0
	Build	C	20.2	C	22.6	C	22.1

Notes: LOS = Level of Service, Delay = seconds/vehicle, V/C = Volume/Capacity Ratio

Lawrence Road/Flintlock Drive at William Floyd Parkway

During the No Build Condition, the signalized intersection of Lawrence Road/Flint Lock Drive at William Floyd Parkway will operate at LOS C during the weekday AM and Saturday midday peak hours and at LOS D during the weekday PM peak hour. After the completion of the project the intersection will continue to operate at No Build LOS conditions during all the analyzed peak periods.

Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Roberts Road at William Floyd Parkway

During the No Build Condition, the signalized intersection of Roberts Road at William Floyd Parkway will operate at LOS B during the weekday AM, PM and Saturday midday peak hours. After the completion of the project, the intersection will continue to operate at No Build LOS conditions during the analyzed peak periods. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Beacon Street/Adobe Drive at William Floyd Parkway

During the No Build Condition, the signalized intersection of Beacon Street/Adobe Drive at William Floyd Parkway will operate at LOS C during the weekday AM, PM and Saturday midday peak periods. After the completion of the project, the intersection will continue to operate at No Build LOS conditions during the analyzed peak periods. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Coraci Boulevard/Site Access at William Floyd Parkway

During the No Build Condition, the signalized intersection of Coraci Boulevard/Site Access at William Floyd Parkway will operate at LOS B during the AM and Saturday midday peak hours and at LOS C during the PM peak hour. After the completion of the project even without removing the traffic currently accessing the existing golf course, the intersection will continue to operate at No Build LOS conditions during the analyzed peak periods. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

Robinwood Drive at William Floyd Parkway

During the No Build Condition, the signalized intersection of Robinwood Drive at William Floyd Parkway will operate at LOS C during the weekday AM, PM and Saturday midday peak hours. After the completion of the project, the intersection will continue to operate at No Build LOS conditions during the analyzed peak periods. Therefore, no significant impacts are created and no mitigation measures are proposed at this intersection.

The TIS concludes:

Based on the results of the Traffic Impact Study as detailed in the body of [the TIS] report, it is the professional opinion of Nelson & Pope that the construction of the proposed residential development will not result in an adverse traffic impact on the adjacent street system.

Emergency Evacuation

The analyses presented in the Multi-Hazard Plan acknowledge that some impacts would occur in the area (including the project site) from high winds, flooding and storm surges associated with hurricanes, and indicate that evacuation of the local populace may be necessary or judicious. In such cases, the major regional roadways such as CR 46, the LIE and Sunrise Highway would be used to temporarily relocate potentially affected households to facilities in safer areas distant from low-lying and/or other exposed areas.

3.2.3 Mitigation

- The TIS prepared for the proposed project concludes: *“After the completion of the project all of the five signalized intersections studied will not experience changes in LOS from the No Build Conditions. Therefore, the impacts created at this intersection are minimal and hence no mitigation measures are proposed.”*
- Implementation by the Town of the various measures noted in **Section 3.2.2** would significantly mitigate the potential adverse effects of hurricanes on the local populace and facilities.

3.3 Community Facilities and Services

Appendix G contains correspondence with the various community service providers regarding facilities, services and conditions; information provided in the service providers’ responses is included in the following subsections.

3.3.1 Existing Conditions

Each of the community services discussed below is available to and used by the community. The level of usage for each service provider would vary for each but would, in general, depend upon the type(s) of service(s) provided and the level of public need for each service. However, each service provider was established to provide services and is funded to do so to the level demanded. Each service is funded by taxes allocated to the service provider (e.g., the William Floyd UFSD, the Mastic Beach Fire Department, the SCPD, the Town), or by fees paid by each consumer (the SCWA, the Long Island Power Authority (LIPA)/National Grid). As the area is not presently served by a public sanitary sewer system, no fees are paid for sanitary wastewater treatment/disposal.

Fiscal Considerations and Tax Revenue

Table 3-5 provides a summary of the distribution of tax revenues and total taxes paid to each taxing jurisdiction based on the 2010-11 tax bills for the subject property.

Based on the Town of Brookhaven Statement of Taxes, the current total assessed value of the site for purposes of real property tax assessment is \$100,800, which represents 0.86% of the full value of \$11,720,930. The total taxes paid on the overall land for the tax year 2010-11 was approximately \$333,713.

Educational Facilities

The subject site does not currently generate school children. The subject site is located in the William Floyd UFSD, which enrolled 9,398 students in the 2009-10 academic year. **Figure 3-4** shows the location of the schools in reference to the project site; the Tangier Smith Elementary School and William Paca Middle School are adjacent to the subject site, and six additional schools are located in the district. According to the School District, the Nathaniel Woodhull Elementary School, the William Paca Middle School, and the William Floyd High School serve

students from the area. The 2009-10 enrollments for these three (3) schools were 751, 906 and 3,220 students, respectively.

Table 3-5
PROPERTY TAXES
Existing Conditions, 2010-11 Tax Year

Taxing Jurisdiction	Current Tax Rate ⁽¹⁾ (\$/\$100 Assessed Valuation)	Current Tax Revenue (\$/year)
Total: School Tax	254.460	\$247,022
William Floyd UFSD	230.905	\$224,156
William Floyd UFSD- Library District	23.555	\$22,866
Total: County Tax	35.830	\$34,783
Suffolk County	2.827	\$2,744
Suffolk County Police	33.003	\$32,038
Total: Town Tax	19.836	\$19,256
Town General - Town Wide Fund	4.462	\$4,332
Highway - Town Wide Fund	2.589	\$2,513
Town General - Part Town Fund	1.390	\$1,349
Highway - Part Town Fund	11.395	\$11,062
Total: Other Tax	33.265	\$32,652
Blizzard Note Repayment	0.499	\$484
New York State MTA Tax	0.155	\$150
\$100M Bond Act of 2004	1.573	\$1,527
Fire District - Mastic Beach	9.639	\$9,716
Water District - Shirley	1.350	\$1,311
Lighting District	1.364	\$1,324
Ambulance District - Mastic Beach	10.597	\$10,287
Real Property Tax Law - Article 7	0.896	\$870
Real Property Tax Law	7.192	\$6,982
TOTAL: ALL TAXING JURISDICTIONS	343.391	\$333,713

(1) Based on an assessed value of \$100,800, per Town of Brookhaven Statement of Taxes, less an exemption of \$3,723 in assessed valuation..

In the 2008-09 academic year, the ratio of special education students to the total enrollment at William Floyd UFSD was approximately 12.9%, with 1,428 students enrolled in the special education program. According to the New York State School Report Card, Fiscal Accountability Supplement for the William Floyd UFSD, expenditures averaged \$9,523 per general education student and \$32,011 per special education student during the 2008-09 academic year (the most recent year such data is published).

According to the 2010-11 Statement of Taxes from the Town of Brookhaven's Receiver of Taxes, the subject site generates a total of \$224,156 per year in property tax revenue for the school district.

School Bus Operations

The William Floyd UFSD provides bus services for 100% of its students. Bus stop locations are found throughout the area of the subject site, and are generally placed at the intersections of residential streets, and include locations along Mastic Road. There are no school bus stops on CR 46. As the subject site is not residential in nature, no children are resident here, and no school buses visit the site.

Police Protection

Figure 3-5 shows the location of the public safety services in reference to the project. The subject site lies within the SCPD Seventh Precinct, Sector 713. The 7th Precinct headquarters is located on the William Floyd Parkway just south of the LIE, in Shirley. The precinct is staffed by 205 sworn members and 12 civilian members.

The project site is presently limited to normal patrol responsibilities and response to nuisance calls. Funding for police protection is received through property taxes placed on lands within Suffolk County. Based on the 2010-11 tax rates, the subject site generates approximately \$32,038 in annual property tax allocations to the SCPD.

Fire Protection

The Mastic Beach Fire Department provides fire protective services to the subject site; it is manned by 65 trained volunteers. The department's headquarters is located at 265 Neighborhood Road, near Doris Drive, approximately 1.7 road-miles south of the subject site. According to the department's website (www.masticbeachfire.com), the department is equipped with the following major pieces:

- 100 foot aerial bucket truck/pumper
- 1,250 gpm tanker/pumper
- all-wheel-drive heavy rescue truck
- 1,000 gpm foam pumper
- brush truck
- 20 foot maritime rescue boat

Funding for fire protection is received through property taxes placed on lands within that fire district. During the 2010-11 tax year, the subject property generates \$9,716 for the Mastic Beach Fire Department.

Solid Waste Removal and Disposal

As the golf courses on the site are closed, and Putter's Restaurant is not in operation, the site is assumed to presently generate no solid waste.

The Town of Brookhaven collects and manages municipal solid waste within the Town; however, it does not provide any direct waste management services to multi-unit residential projects or commercial facilities. The most common arrangement is to contract for waste removal with a local carting company. Wastes generated from such facilities are accepted at the Town's facility, for a processing fee.

The Town Department of Waste Management does not dispose of residential or commercial waste at its Horseblock Road landfill. The Town has an Inter-Municipal Agreement with the Town of Hempstead for a minimum of 200,000 tons per year (tpy) of disposal capacity at the Hempstead Resource Recovery Facility in Westbury. Municipal solid waste is managed through a transfer station and sent to the Hempstead incinerator. In return, ash from the incinerator is landfilled at the Town of Brookhaven facility. The Town is permitted to accept certain other materials for landfilling; these materials must meet the restrictions of the Long Island Landfill Law, and must have prior approval from the Town.

The Town has mandatory source-separation ordinances, as required under New York State law. It is the responsibility of the owner, operator and/or manager of any facility to separate all mandatory recyclables from its waste stream, and to find a means of recycling these source-separated materials.

Water Supply

As the golf courses on the site are closed, and Putter's Restaurant is not in operation, the site is not assumed to presently consume water. The subject site is within Distribution Area 20 of the SCWA (see **Figure 3-6**), and is served by the adjacent Margin Drive East wellfield. The SCWA indicates that there is a 12-inch water main along CR 46, to which the site is connected. The results of the most recent water quality tests (2011; see **Table 2-2**) indicate that the quality of groundwater pumped from this area averages 0.51 mg/l, which is well within the NYS Drinking Water standard of 10 mg/l.

Wastewater Treatment

As the golf courses on the site are closed, and Putter's Restaurant is not in operation, the site does not consume water and so would not generate any wastewater. The subject site is not located in a sewer district.

Energy Supply

As the site is presently not in active use, no energy resources are consumed. LIPA (through National Grid) is the local provider of electricity and natural gas in the vicinity of the site. National Grid indicates that natural gas service is available, and electrical service is also present.

3.3.2 Potential Impacts

All of the community services would continue to be available and used by the community. While the proposed project would increase the usage of these services on the subject site (see individual discussions following), the community's use of these services would be unchanged. The project will increase development on the site, and thereby increase the taxes allocated or fees paid to each service. This would have the effect of increasing the funding (and indirectly, the availability) of these services to the entire community, at no public expense.

Fiscal Considerations and Tax Revenue

Many of the Town and County's community services and facilities are supported in large part by the revenues generated through property taxes. The Town of Brookhaven and Suffolk County, as well as the William Floyd UFSD and other local taxing jurisdictions will greatly benefit from an increase in such property tax revenues.

For the purpose of this analysis is necessary to determine the assessed valuation for the proposed project. Current tax and equalization rates can then be applied to this assessed valuation in order to accurately project the impact that the proposed project will have on the local tax base. The value was determined based upon estimating selling prices of each residence utilizing sales prices of comparable residences/lots in the vicinity. Given these assumptions the total estimated market valuation is approximately \$63.75 million. This utilizes an estimated selling price of \$325,000 - \$350,000 per single-family residence, and a selling price of \$265,000 - \$290,000 per senior housing unit. After applying an equalization rate, an assessment rate per \$100 of the project's market valuation, and a 40% reduction in assessment for the 150 senior housing units (which will be constructed as attached units, and therefore assessed as condominiums), the estimated assessed valuation of the proposed development is \$360,985.

It is important to note that all analyses are based on current tax dollars, and the revenue allotted among taxing jurisdictions will vary from year to year, depending on the annual tax rates, assessed valuation and equalization rates. Further, the final assessment and levy will be determined by the sole assessor at the time of occupancy. Projections included herein are as accurate as possible using fiscal impact methodologies, for the purpose of the planning and the land use approval process.

The proposed project will significantly increase taxes generated by the site, resulting in a substantial rise in tax revenues distributed to each taxing jurisdiction (see **Table 3-6**). At full build-out, the proposed project is projected to generate \$1,239,590 in annual taxes. This represents a net increase of over \$905,000 per year – over three (3) times the revenues generated under existing site conditions.

The proposed development will levy approximately \$833,532 annually to the William Floyd UFSD, representing 67.2% of the total tax generated by the site. Likewise, the proposed development will levy \$85,030 to the Library District, comprising 6.9% of the tax levy. Suffolk County, which includes the SCPD, is projected to levy over \$129,000 annually, comprising 10.4% of the total generation. Moreover, the Town of Brookhaven is projected to receive \$71,605 in annual property tax revenues under the proposed development, representing 5.8% of the tax generation. This includes the general and highway Town wide funds, and the general and highway part Town funds. An additional \$120,082 per year, or 9.7%, will be generated by the proposed development and distributed among the Town's special taxing jurisdictions, including the Mastic Beach Fire District and the Mastic Beach Ambulance District.

Table 3-6
PROPERTY TAXES
Existing Conditions and Proposed Project, 2010-11 Tax Year

Taxing Jurisdiction	Current Tax Revenue (\$/year)	Projected Tax Revenue (\$/year)	Change in Tax Revenue (\$/year)	Percent of Total Tax Base
Total: School Tax	\$247,022	\$918,562	\$671,540	74.1%
William Floyd UFSD	\$224,156	\$833,532	\$609,377	67.2%
William Floyd UFSD- Library District	\$22,866	\$85,030	\$62,164	6.9%
Total: County Tax	\$34,783	\$129,341	\$94,558	10.4%
Suffolk County	\$2,744	\$10,205	\$7,461	0.8%
Suffolk County Police	\$32,038	\$119,136	\$87,098	9.6%
Total: Town Tax	\$19,256	\$71,605	\$52,349	5.8%
Town General - Town Wide Fund	\$4,332	\$16,107	\$11,776	1.3%
Highway - Town Wide Fund	\$2,513	\$9,346	\$6,833	0.8%
Town General - Part Town Fund	\$1,349	\$5,018	\$3,668	0.4%
Highway - Part Town Fund	\$11,062	\$41,134	\$30,072	3.3%
Total: Other Tax	\$32,652	\$120,082	\$87,430	9.7%
Blizzard Note Repayment	\$484	\$1,801	\$1,317	0.1%
New York State MTA Tax	\$150	\$560	\$409	0.0%
\$100M Bond Act of 2004	\$1,527	\$5,678	\$4,151	0.5%
Fire District - Mastic Beach	\$9,716	\$34,795	\$25,079	2.8%
Water District - Shirley	\$1,311	\$4,873	\$3,563	0.4%
Lighting District	\$1,324	\$4,924	\$3,600	0.4%
Ambulance District - Mastic Beach	\$10,287	\$38,254	\$27,966	3.1%
Real Property Tax Law - Article 7	\$870	\$3,234	\$2,365	0.3%
Real Property Tax Law	\$6,982	\$25,962	\$18,980	2.1%
TOTAL: ALL TAXING JURISDICTIONS	\$333,713	\$1,239,590	\$905,877	100.0%

Educational Facilities

The impact of any project upon the local school district in which it is located depends on the number of school-age children that will be generated, offset by increased tax revenues and the ability of the school district to provide educational services for these children. The ability of a school district to handle increased demand for educational services depends primarily upon the adequacy of long-term planning within the district, in combination with increased tax revenue generation to strengthen the tax base of the community.

An analysis of new housing occupancy estimates allows for the determination of the population that would likely reside within the proposed development. These figures were derived based on residential demographic multipliers specific to various housing types and price points in New York State, as published by the Center for Urban Policy Research at Rutgers University. The application of such multipliers to the proposed housing units are considered to be industry standard in the determination of population and school-aged children. From these multipliers, it is expected that the proposed project will generate 44 school-aged children. For analysis

purposes, it is assumed that all 44 school-aged children generated from the proposed project will attend public schools within the William Floyd UFSD (It is noted that according to the 2009 American Community Survey [via the U.S. Census Bureau], three (3) percent of enrolled school-aged children residing within the William Floyd UFSD boundaries attend private schools).¹

As previously stated, the ratio of special education students to the total enrollment at the William Floyd UFSD was approximately 12.9%. For lack of any other statistics to use as a basis for projection, it is assumed that the portion of special education students will remain constant with the development of the proposed project. When applied to the 44 school-aged children that are projected to attend public schools, it is anticipated that six (6) of the school-aged children residing at the proposed project would require enrollment within the school district’s special education program.

As seen in **Table 3-7**, the 44 new students will result in additional costs to the William Floyd UFSD. According to the New York State School Report Card, Fiscal Accountability Supplement for the William Floyd UFSD, expenditures averaged \$9,523 per general education student and \$32,011 per special education student during the 2008-09 academic year. Given these assumptions, the students will result in additional costs to the William Floyd UFSD amounting to \$553,940 per academic year. It is estimated that the school district will receive \$833,532 per year in taxes, resulting in a net revenue to the school district of approximately \$279,592 per year.

**Table 3-7
FISCAL IMPACT ON SCHOOL DISTRICT**

Parameter	General Education	Special Education	Total: All Students
Percentage of Enrollment: William Floyd UFSD	87.1%	12.9%	100.0%
Number of Additional Students	38	6	44
Expenditure per Pupil*	\$9,523	\$32,011	--
Additional Expenditures Incurred by William Floyd UFSD	\$361,874	\$192,066	\$553,940
Projected Tax Revenue Allocated to William Floyd UFSD	--	--	\$833,532
Net Revenue	--	--	\$279,592

* Per NYS School Report Card, Fiscal Accountability Supplement for the William Floyd UFSD, 2008-09 academic year.

School Bus Operations

No adverse impacts to school bus operations are anticipated as a result of the proposed project. An estimated 44 new school-age children would reside on the site, so that revisions to existing school bus routes would be expected. Since vehicles going to and from the site will access the property exclusively from CR 46, along which no school buses stop, there will be no change in

¹ According to the 2009 American Community Survey, 9,402 school-aged children residing in the William Floyd UFSD boundaries were enrolled in public schools, while 292 school-aged children were enrolled in private schools. This equates to 97.0% of all school-aged children attending public schools; the remaining 3.0% of school-aged children residing within the boundaries of the William Floyd UFSD attend private schools.

the level of safety for schoolchildren when walking to or from, waiting for, getting on or getting off school buses on CR 46. It is expected that a portion of the significant increase in school taxes will be allocated to school bus operations, with only minor increases in school bus costs.

Police Protection

In general, the proposed project will incrementally increase the potential need for the protective services of the SCPD for the subject site. However, based on the size, experience level and staffing of its facilities, this increase in the potential need for services is not anticipated to be to a level which would cause a significant impact on the ability of the SCPD to provide such services. It is expected that the project will result in an increase to \$119,136 in annual tax revenue for the SCPD, which is expected to offset the costs to provide the increase in police services.

Fire Protection

The district's response letter did not specify any areas of concern. In general, it is expected that the proposed project will incrementally increase the potential for need of the fire-protective services of the department. The type of services that may be required could include, but not be limited to, fire suppression and emergency response. However, based on the level of personnel experience and the presence of its facilities, this increase in the potential for need of these services is not anticipated to be to a level that would cause a significant impact on the ability of the Department to provide protective services.

It is anticipated that, as the Mastic Beach Fire Department relies on volunteers for staffing, the department may be concerned that the project's senior residents would not volunteer in sufficient numbers to meet its staffing requirements. It should be noted that neither the applicant nor the Town would have any control over this matter, and that a decision to join the department would be up to each resident. The project will incorporate a number of measures that would mitigate the potential for the need of fire protective services, including smoke and fire alarms, and conformance to the NYS Fire Safety Code. In addition, residents of the community will include active seniors aged 55 years and above. Some of these residents may include existing community residents who are already involved with fire department activities, and others may be seniors that are partly or fully retired that may seek to support the community by participating in volunteer fire department activities. Members of younger, working families often have limited availability and/or jobs outside the area and may not be able to serve the local department. As a result, volunteers draw from all age cohorts and are likely to include members aged 55 years and above, some of which may originate from senior communities.

It is expected that the project will result in an increase to \$34,795/year in tax revenue for the Fire District, which is expected to offset the costs to provide the increase in fire protective services related to the development.

Solid Waste Removal and Disposal

It is anticipated that the 447 residents and the clubhouse building would generate a total of 1,287 lbs/day of solid waste. Solid waste generations were based in **Table 3-8**.

Table 3-8
SOLID WASTE GENERATION
 Proposed Project

Generator	Quantity	Rate	Solid Waste Generated
Senior Residents	225 capita	2.0 lbs/capita/day	450 lbs/day
Single-Family Residents	222 capita	3.50 lbs/capita/day ⁽¹⁾	777 lbs/day
Clubhouse building	5,000 SF	12 lbs/1,000 SF/day	60 lbs/day
Total	---	---	1,287 lbs/day

(1) Per Salvato, 1982.

The Town-wide average of 25% recyclable in this waste stream would be source-separated for curbside collection and taken to the Town of Brookhaven Resource Recovery Facility to handle solid waste generated by the proposed project. Based on the residential uses proposed, this volume is not anticipated to contain significant amounts of potentially toxic or hazardous materials, other than empty household cleaner containers.

Wastewater Treatment

Based on SCDHS design flow factors, sanitary wastewater generation from the proposed action is estimated at 57,750 gpd. According to SCSC Article 6, septic systems are allowed for such a sanitary wastewater rate. As these systems will be designed, built and operated in conformance with applicable SCDPW, SCDHS and NYSDEC requirements, it is anticipated that there would be no significant adverse impacts to groundwater quality (see also **Section 2.2.2**).

Water Supply

As noted in **Section 1.4.6**, the proposed project will increase the overall consumption of water on the subject site to an estimated 58,820 gpd. While this is a significant amount of water, it is not anticipated to result in a significant adverse impact on the SCWA or its ability to provide service to the site or to its other consumers in the vicinity, because the supply system has the capacity to accommodate this volume, and the SCWA has been chartered to supply all consumers within its service area.

As noted previously, SCWA’s Margin Drive East wellfield is located immediately adjacent to the southwest corner of the property. The direction of groundwater flow underlying the subject property and surrounding area is towards the south-southwest. A review of **Figure 2-8** reveals that the wellfield is generally downgradient of the western part of the project site. However, as confirmed by the SCWA, four of the five the wells in this wellfield are screened (i.e., draw water from) the (deeper) Magothy Aquifer and only one well pumps from the (shallower) Upper Glacial Aquifer, which is the water body in which the site’s recharge flows. As discussed in **Section 1.4.6**, no impact was noted in the quality of water in this wellfield during the 10-year time period when The Links at Shirley golf course was operating. As a result, groundwater impact from sanitary and/or stormwater recharge from the project are similarly not expected to adversely impact the public water supply. In addition, the proposed project will be required to comply with the regulations and restrictions outlined in Articles 6 and 7 of the SCSC regulations, which were adopted by the Suffolk County Legislature, to mitigate potential impact of sewage discharge in Groundwater management Zone VI and other discharges (i.e. industrial,

toxic materials, stormwater, etc.) in deep recharge areas, as well as SPDES permitting of sanitary discharge in this area (except under limited exceptions; see Article 7 of the SCSC). As a result water quality impacts from septic system discharges are considered to be mitigated.

Energy Supply

National Grid was contacted to determine if it would be able to provide electrical and natural gas service to the project site. Correspondence has indicated that such services will be provided to the proposed project in accordance with filed tariff and rate schedules in effect at the time service is required.

3.3.3 Mitigation

- The significant increase in tax revenues generated would mitigate the impacts of the increased costs to the pertinent community services to provide services.
- The William Floyd UFSD would receive a projected annual net revenue of approximately \$280,000, which would be available for district uses.
- Provision of multiple vehicle access points would mitigate the potential adverse impact on police and fire protective services access if one entrance were blocked during an emergency. Installation of smoke and fire detectors, hydrants, and conformance to the NYS Building and Fire Safety Codes would mitigate potential health and safety impacts from fire.
- Impacts to energy suppliers would be mitigated by use of energy efficient design and construction; buildings will be constructed consistent with NYS Building Code requirements and Town “Energy Star” guidelines.

3.4 Community Character

3.4.1 Existing Conditions

Land Use Pattern

The area is established in medium to high-density residential neighborhoods to the north, east and south of the project site, with some small commercial properties found on CR 46 opposite the subject site and on Mastic Road at larger intersections. CR 46 is also bordered generally by the rear lot lines of residential properties.

Visual Character

The subject property is currently occupied by the Links at Shirley golf course, which includes an 18-hole championship course, an 18-hole Par-3 course, a driving range, and a clubhouse. All of these facilities are closed and vacant. Grading undertaken to establish these uses in the late 1990’s created a rolling terrain, including three substantial water hazards and numerous sand traps. A fringe of natural vegetation was retained along the site’s northern, eastern and southern boundaries, as well as substantial buffers along its western border along CR 46. As discussed below, these buffers are sufficiently deep (an estimated minimum of 50 feet) and dense to effectively screen the entire property from observers on the bordering roadways except for narrow views at the site entrance and at the ends of the tap streets to the south, off Chanel Drive

East. In addition, these buffers may be sufficient to screen the site effectively from the rear yards of the abutting residences on the north and south. Grade differences between the site and the adjacent area are not significant, so there are no potential overlooks into the site or from the site toward adjoining properties. The following discussion presents the existing visual character of the site and vicinity; the photographs in **Appendix B** are typical current views of the site and its environs, and depict community character.

Views from points along CR 46 toward the subject site are presently blocked by the substantial fringing vegetation retained along this roadway within the site (see Views 1 through 8). The only portion of the golf course that can be seen from this roadway (other than the low, unobtrusive ground sign at the entrance opposite Coraci Boulevard) are the pole-mounted light fixtures of the driving range visible over this treeline (View 4).

For observers on the two local residential roadways that parallel the site's southern and northern sides (Chanel Drive East and Appel Drive, respectively), views into the site are not available due to the presence of the residences along these roadways as well as by the vegetated buffers noted above; views into the site are only somewhat available at the ends of the streets that terminate at this property line (i.e., Helene Drive/Views 18 and 19, and Flower Road, Collingswood Road, Diana Road and President Road, Views 9 through 12 and 20) due to this same buffering.

For locations within and across the open school district athletic fields (Views 13 through 17), views toward the golf course are blocked by the tall fringing buffers as well.

Finally, Views 21 through 24 depict visual conditions at the site's main entrance, on CR 46.

Noise

As the subject site is presently vacant and unused, no activities occur on it that would generate noise; the only sources of noise on-site are associated with wind.

The following provides general information regarding noise measurements and levels, and describes the site's noise characteristics at the time when the site was operative, in the Spring of 2009.

Noise is defined as sound that is generally unwanted by a receptor. The environmental impact of noise can have various effects on human beings ranging from annoyance to hearing loss. A noise problem is said to exist when noise interferes with human activities (**Rau and Wooten, 1980**). Various noise characterization scales have been developed to describe the response of an average human ear to sound. The most common unit utilized to characterize noise levels is the A-weighted decibel (dBA), which weighs the various components of noise according to the response of the human ear. Because the human ear perceives the middle range of frequencies better than the high or low frequencies, the dBA scale assigns the middle range a much larger "loudness" value than higher and lower frequencies. The weighted scale thus provides a measure of noise that is meaningful for assessing ambient noise environments and potential noise impacts as heard by human beings.

Because noise fluctuates, it is common to calculate a logarithmic average of noise levels over a period of time to describe the “equivalent” continuous noise level (L_{eq}). For the purpose of this report, sound levels are reported in L_{eq} and range (minimum/maximum).

On average, a change of 3 dBA is required for the average person to detect a difference in the level of noise, and a change in the range of 5-6 dBA is noticeable and is considered to be an impact. **Table 3-9** relates changes in dBA to the perception of a receiver, and **Table 3-10** provides typical noise levels as compared to a base reference of 60 dBA.

**Table 3-9
PERCEIVED CHANGES IN NOISE LEVEL**

Change in dBA	Human Perception of Sound
2-3	Barely perceptible, threshold of detection
5-6	Readily noticeable
10	Doubling or halving of the loudness of sound
20	Dramatic change
40	Difference between a faintly audible sound and very loud sound

Source: Fundamentals and Abatement of Highway Traffic, Report No. PB-222-703, Federal Highway Administration, June 1973.

The decibel scale is logarithmic; therefore sound levels vary with the source and with the listener's distance from the source. Sound level decreases with distance as a result of dispersion and is predicted by the "inverse square law", which predicts a reduction of 4.5 dBA for each doubling of distance from a line source (such as a highway) and 6 dBA from a point source. This effect is due to natural dispersion only, and is not a function of the presence of barriers or other objects (**USDOT, 1973**).

The proposed development site is located on the east side of CR 46, which is the major source of background noise in the area. Other sources of noise in the area relate to activities from nearby land uses (schools, athletic fields, commercial businesses and residential areas), aircraft and natural sources, such as barking dogs and birds. In order to determine typical noise characteristics on the subject site, noise level measurements were collected in the field during a weekday morning at three locations on the subject property.

The sound level measurements were collected on April 17, 2009 beginning at 10:07 AM. The three stations were chosen to reflect locations of the proposed structures nearest CR 46, the proposed commercial center and the closest existing residence. Station locations are shown in a figure included in **Appendix A-6**.

Noise level measurements were collected using a SPER Scientific Model 8400029 Digital Sound Level Meter. The meter was calibrated both before and after every period of readings. Fifty noise readings were taken at 10-second intervals at each sampling station. Noise level data for each sampling station are included in **Appendix A-6**. **Table 3-11** summarizes these noise data:

**Table 3-10
COMMON NOISE LEVELS AND REACTIONS**

Sound Source	Noise Level (dBA)	Apparent Loudness	Typical Human Reaction
Military jet Air raid siren	130	128X as loud	Limit of amplified speech
Amplified rock music	110	32X as loud	Maximum vocal effort
Jet takeoff at 500 meters Train horn at 30 meters	100	16X as loud	
Freight train at 15 meters	95		
Heavy truck at 15 meters Busy city street Loud shout	90	8X as loud	Very annoying Hearing damage (8+ hours)
Busy traffic intersection	80	4X as loud	Annoying
Highway traffic at 15 meters Train horn at 500 meters Noisy restaurant	70	2X as loud	Telephone use difficult
Predominantly industrial areas Light car traffic at 15 meters City or commercial areas Residential areas close to industry Noisy office	60	Base reference	Intrusive
Quiet office Suburban areas with medium-density transportation	50	1/2 as loud	Speech interference
Public library	40	1/4 as loud	Quiet
Soft whisper at 5 meters	30	1/8 as loud	Very quiet
	10	1/32 as loud	Just audible
Threshold of hearing	0	1/64 as loud	

Note: The minimum difference in noise level noticeable to the human listener is 3 dBA. A 10 dBA increase in level appears to double the loudness, while a 10 dBA decrease halves the apparent loudness.

Source: (NYSDOT, 1980 and White, 1975)

**Table 3-11
AMBIENT SOUND LEVEL MEASUREMENTS**

Station	Leq	Maximum	Minimum
1	48.2	51.1	43.4
2	55.0	60.2	42.6
3	45.0	48.1	39.6

Comparison of these results with the examples listed in **Table 3-10** indicates that these L_{eq} noise levels are typical for the background noise generated in a suburban residential area.

Lighting

The Par-3 course and driving range are equipped with numerous pole-mounted exterior lights, to facilitate evening play on these facilities; the Championship course is not provided with such lighting. However, as the site is closed, the lights are not presently used. As a result, no impacts from night lighting are or have been experienced by neighboring residents or passing motorists.

3.4.2 Potential Impacts

Land Use Pattern

As discussed and analyzed in **Section 3.1.2**, the land use classification of the site would be changed by the proposed project, and the intensity of the site's land use will be increased. However, senior and single-family residential uses are already represented in the vicinity (so that no new land uses will be introduced by the project), and the land use intensity increase reflects the expressed community desire for the proposed PDD and is not significantly different than land use densities in the neighborhoods surrounding the site. The applicant had designed the project to create a comprehensive planned development that would address community needs through quality senior housing, an increase in tax revenue, reduction of school-age children from that of the prior PDD proposal, and providing land for recreation and open space for the community. In addition, the project will provide opportunities for seniors residing in the community to remain in the area near their friends and families. The proposed project will be aesthetically pleasing and will retain open space buffers, extensive landscaping, water and wetland features, and setbacks from adjacent uses. Finally, the residential portions of the project are proposed at a lesser land use densities than those already present in the surrounding neighborhoods (1.09 units/acre vs. 3.81 units/acre; see **Section 3.1.2**). The project will provide a significant public amenity at no cost to the public, in the form of a 98±-acre dedication of land to the Town. In consideration of the above, the "quality of life" of the community would not be adversely impacted.

The single-family residential components will not be "gated", it is not intended that these area be isolated from the surrounding community. The senior residential component, however, will be equipped with swing gates at its entrance; the applicant intends this gate simply as a safety and security measure for a population that has legitimate concerns in this regard. The project's senior residents will be integrated into the surrounding community through their social interactions at the other project components, as well as at other locales such as public parks, shopping areas, churches, Town offices, citizen's groups, etc. It should be noted that the Town open space dedication component will be accessible to the entire community, as well as to the senior residents on-site.

Visual Character

The proposed project would retain the existing naturally-vegetated buffer along the site's boundaries that presently blocks views into the site. The residential portions of the project would be developed with two-story structures whose heights would be at most approximately 30 feet. These structures would generally be placed well within the interior portions of the western

parts of the site, and would be designed in an architectural style that would complement the area. These design features would increase the rural aesthetic as well as enhance the privacy for residents. This design principal, in conjunction with the retention of the naturally-vegetated buffer, provide the primary means by which potential visual impacts would be minimized for observers on the adjacent roadways.

In general, the impact of the project on the visual resources of the area would be minimal, as passing motorists and observers would have only intermittent views of the landscaping and more distant residential components, and then of only the upper levels of the residences over the top of the vegetation lining the subject site. The project would enhance the built character of the area by use of landscaping, architectural designs and building materials complementary to the prevailing architecture, and the use will not be out of character with the residential use type prevalent in the area.

Noise

Based on the uses proposed, the pattern and density of adjacent uses and the absence of significant noise sources in the vicinity, no impacts on the project's residents from outside sources, or on area residents from sources on the subject site are expected. Specifically, low-density senior and single-family residential development of the sizes proposed do not include significant noise-generating activities. In addition, these uses are located within the interior of the site and would be significant distances from the nearest adjacent residences, which would further reduce the potential for noise impacts. The surrounding neighborhood does not include any sites or uses that generate significant amounts or types of noises; only the presence of CR 46 would represent a potential source of noise impact. However, the noise measurements taken on the site (see **Table 3-10**) indicate that, at the point on the site closest to this roadway (Location #2), no significant noise impacts are experienced.

The NYSDOT standards for noise mitigation contained in the EPM (**NYSDOT, August, 1998**) use a threshold level of 67 dBA for areas of ground level exterior use (including residential patios, decks, etc.) and 72 dBA for other developed lands such as commercial uses to determine whether noise mitigation is necessary. The NYSDOT utilizes these guidelines for issuance of highway permits for new projects as well as for evaluating their own highway projects. The Noise Abatement Criteria (NAC) utilized by the NYSDOT provides a threshold of noise for which potential mitigation must be studied (i.e. to determine if noise attenuation is feasible and/or appropriate). The NAC contained in the EPM is a threshold level of 66 dBA for areas of ground level frequent exterior use to determine whether noise attenuation is appropriate. These data indicate that noise from CR 46 in the area of the project's residences is far below the standard guidelines for residential use and accordingly, no attenuation would be required by the NYSDOT.

Construction noise is inevitable in the short term and will be audible for surrounding residents; however, this impact is unavoidable and will be mitigated by limiting construction during hours proscribed by the Brookhaven Town Code.

Based on the above analysis and lack of necessity to implement noise mitigation proposed, no noise related impacts are expected.

Lighting

All of the existing lighting poles as well as those portions of subsurface power lines affected by clearing and grading operations will be removed from the site during the construction period. As indicated in **Section 1.4.7**, a Lighting Plan will be prepared for the site plan application, and will detail the locations, fixture specifications and pole/mounting heights of all lighting fixtures proposed. In general, it is expected that the internal roadways and exterior of the community and residential buildings will be illuminated. Smaller exterior lights are anticipated along with safety/security lights in common areas. The project's lighting system will conform to the requirements of the Town Code Article XXXIX (Exterior Lighting Standards). The applicant will ensure that only dark-sky compliant luminaires are used; this type of fixture is equipped with a full cut-off shroud that directs all illumination downward.

3.4.3 Mitigation

- In consideration of the site layout and building design features pertinent to the character of the site and community (i.e., the land use of the site and in the vicinity, the prevailing land use pattern, and the visual appearance of the site and properties in the area), mitigation is primarily related to the retention of the existing naturally-vegetated buffer, design of the project and future, more detailed landscape and architectural design and review.
- Use of dark-sky compliant lighting fixtures minimizes the potential for adverse impacts to the visibility of the nighttime sky for site residents, as well as impacts to the neighboring residential properties. In addition, the retention of buffering vegetation along the site's perimeter, in combination with the relatively low pole heights used, would minimize the potential for fugitive lighting to escape the site to impact the residential neighbors.

3.5 Cultural Resources

3.5.1 Existing Conditions

A Phase I Archaeological Investigation is comprised of two parts, termed Phase IA (documentary study) and Phase IB (archaeological survey). The Phase IA component involves a review of agency records, site files, archives and the like, to determine the site's history and thereby the potential presence and distribution of cultural resources (from either or both the pre-historic or historic eras). Such information gleaned from this process would be useful in focusing Phase IB survey efforts. The Phase IB survey involves ground surface reconnaissance and subsurface testing to determine the presence or absence of cultural resources. **Appendix H** contains the Phase I Archaeological Investigation prepared for the subject site. The following describes the results the Phase IA study; it has been taken from that document.

PREHISTORIC POTENTIAL

A prehistoric site file search was conducted at the New York State Historic Preservation Office [SHPO]. The search included a 1-mile radius around the study area. The following sites were recorded:

NYSM Site	SHPO Site	Distance from APE* feet/meters	Site Description
5595	---	4,970/1,515 (large circle)	No information

* APE - Area of Potential Effect

An Indian foot trail was situated along, or close to, present-day Montauk Highway. It appeared to connect many of the tidal inlets. Although this path was recorded historically, it undoubtedly existed prehistorically (prior to Contact Period).

Assessing the known environmental and prehistoric data, we can summarize the following:

1. The property is approximately 3,000 feet east of a tributary to Carmans River near its mouth at Bellport Bay. The property is also about 2,500 feet north of Pattersquash Creek.
2. The project area is situated on level, well-drained soils. The bulk of the property's landscape has been since modified by the creation of a golf course.
3. One prehistoric site is recorded around the project area according to the site file search.
4. An Indian trail likely existed in the vicinity of the property.

In our opinion, the project area has a higher than average potential for the recovery of prehistoric sites, on intact ground potentially in the wooded sections. The type of site encountered could be from either Woodland or Archaic Periods.

HISTORIC POTENTIAL

Contact Period (Seventeenth Century)

At the time of European contact and settlement, the study area was probably inhabited by either the Mastic, Qualican, or Nocomack villagers, although the Poospatuck, Waspeunck, Squorums, and Musquatax were nearby. These people were probably related to the large Pochougs (Patchogue) tribe which occupied the southern portion of Brookhaven Township. As previously mentioned, an Indian foot trail appears to have been situated along present day Montauk Highway.

Eighteenth Century

During this century, Indian wigwams were still being used by the native inhabitants. Wigwams were recorded along and near the aforementioned Indian trail at Carmans River and Forge River, as well as along the southern coastline in Mastic Beach and Shirley. They were visited by Reverend Horton during the 1740's. These "wigwams" were likely villages of wigwams.

When the British took control of Long Island, the Col. William (Tangier) Smith manor house became Fort Saint George, a key military outpost for the British. For that reason, the rebel Patriots, led by Maj. Benjamin Tallmadge, raided the fort in November 1780, capturing more than 50 men and destroying the strategic stronghold.

The 1797 Town survey shows Carmans (Connecticut) River, Forge River, Judge Smiths farm, and Colonel Floyd's forge along the river, what appears to be William Floyd Parkway, and Montauk Highway. No structures are on, or adjacent to, the project area. This area appears to be barren scrub oak land at this time.

Nineteenth Century

The 1836 Colton map shows the Carman (Connecticut) and Forge Rivers, Montauk Highway and Carmans mills at the juncture of the river and Montauk Highway. All structures in this vicinity

appear along Montauk Highway. No structures are seen on, or adjacent to, the study area. The 1873 Beers map shows no structures on, or adjacent to, the property. The 1896 Hyde map shows no structures on, or adjacent to, the study area.

Twentieth Century

The 1906 Hyde map shows the study are with no buildings on or adjacent to it. The Poospatuck Indian reservation is on Mastic peninsula along Forge River.

An historic site file search was conducted at SHPO. The search included a 1-mile radius around the study area. The following sites were recorded:

NYSM Site	SHPO Site	Distance from APE feet/meters	Site Description
---	10302.000533	5,138/1566	Fort St. George
5596 & 4897	---	676/206 & 4,157/1,267 (large circles)	Mastic Neck: Unkechaug

Assessing the known environmental and historic data, we can summarize the following:

1. The property is approximately 3,000 feet east of a tributary to Carmans River near its mouth at Bellport Bay. The property is also about 2,500 feet north of Pattersquash Creek.
2. The project area is situated on level, well-drained soils. The bulk of the property’s landscape has been modified by the creation of a golf course.
3. An Indian trail likely existed in the vicinity of the property.
4. Numerous wigwams (likely villages) were in the surrounding vicinity.
5. Historic Native and European American sites were recorded nearby.
6. According to historic maps, no historic map-documented structures were on, or adjacent to, the project area.

In our opinion, the project area has a higher than average potential for the recovery of historic sites. The type of site encountered could be a Native American site.

As a result of the recommendations of the Phase IA study, a Phase IB study was performed. The following describes the results of this undertaking.

FIELD RESULTS

Field testing was limited to potentially intact soils within the scattered, small wooded areas on the largely landscaped modified golf course. This included the excavation of 658 ST’s (shovel test pits). No prehistoric artifacts or features were encountered. No historic artifacts or features were encountered.

Buildings were encountered on the golf course, nearby or adjacent to the wooded project areas. These were golf course-related buildings, likely late twentieth century, judging from appearance and also from the fact that they (and the golf course) do not show up on the 1967 USGS (United States Geological Survey) maps or the 1975 county soil survey.

The following is the Conclusions and Recommendations section of the Phase I Archaeological Investigation.

Based upon topography and drainage, distance to prehistoric sites and freshwater wetlands, the archaeological documentary study determined that the property had a higher than average potential for the recovery of prehistoric sites.

Based upon similar environmental characteristics and distance to historic MDS's, Indian trails and wigwams, the property was assessed with a higher than average potential for encountering native American historic sites.

Six hundred fifty eight ST's were excavated. No prehistoric artifacts or features were encountered. No historic artifacts were encountered. No further archaeological work is recommended.

3.5.2 Potential Impacts

As detailed above, a professionally-prepared Phase I survey indicates that there are no cultural resources on or adjacent to the subject site, and the study recommended that no further analysis be performed. Therefore, as no such resources are present, there would be no impacts to cultural resources associated with the proposed project.

3.5.3 Mitigation

- As no cultural resources are present on or adjacent to the subject site, no impacts to such resources would occur, and therefore no mitigation is necessary or proposed.

SECTION 4.0
OTHER REQUIRED SECTIONS

4.0 OTHER REQUIRED SECTIONS

4.1 Cumulative Impacts

This subsection analyzes the impacts of other projects in the area whose impacts, in conjunction with those of the proposed project, may result in impacts that are greater than the individual impacts from each project. However, based on information obtained from the Town Planning Division for consideration in the TIS, there are no other major projects in the area.

4.2 Adverse Impacts That Cannot Be Avoided

The site and project have been characterized, the potential adverse impacts to the existing site and vicinity have been assessed, and mitigation measures have been described. Some adverse impacts may still exist for which no mitigation is available. Adverse impacts have been quantified and discussed; for those adverse impacts that cannot be quantified, qualitative discussions have been provided in previous sections of this document. The adverse impacts of the proposed project will be minimized where possible, but this section acknowledges those adverse impacts that may still occur, as follows:

- Grading will permanently alter the site's topography.
- Temporary increases in the potential for fugitive dust and truck traffic and noise during the construction period.
- Increase in the concentration of nitrate/nitrogen in water recharged on-site, from 0.15 mg/l at present, to 2.75 mg/l after construction.
- Removal of 15.7% of the existing 41.63 acres of Pitch Pine-Oak Forest.
- Loss of 0.28 acres of wetland area in the man-made stream, which represents 2.69% of the existing wetlands on-site.
- Increase in vehicle trips generated on the site and on area roadways.
- Increased total anticipated water consumption on the site, 58,820 gpd (of which wastewater generation is 46,500 gpd) associated with the project.
- Increased intensity of land use on the site (over current site conditions).
- Increased potential need for emergency services of SCPD and Mastic Beach Fire Department (offset by concomitant increase in tax revenues).
- Increased demand on energy services of National Grid (to be paid for according to rate tariffs).

4.3 Growth-Inducing Aspects

Growth-inducing aspects of a proposed development are those project characteristics which would cause or promote further development in the vicinity, either due directly to the project, or indirectly as a result of a change in the population, markets or potential for development in that community. Direct impacts might include, for example, the creation of a major employment center or institutional facility, installation or extension of infrastructure improvements or the development of a large residential project, particularly if that project were designed for a specific

age group. An indirect impact would cause an increase in the potential for further development in an area, which in turn would result in direct impacts. In this sense, the Colony Preserve PDD would not cause growth in the vicinity. The proposed project is part of an on-going trend in the area for residential growth, and therefore does not represent a trigger for such growth.

It is anticipated that the Colony Preserve PDD would contribute to an increase in activity for local businesses. The project will increase the number of residents in an area where commercial and service-oriented businesses are available by relatively short auto trips. These businesses, especially those serving the needs of family-oriented customers, would tend to experience incrementally increased activity due to the increase in their customer base.

The construction of the site will create both short-term and long-term job opportunities. In the short-term, development will create an estimated 212 construction jobs (assuming a total construction cost of \$53.143 million and a 2-year construction period), and indirectly jobs may be created based on increased patronage of material suppliers. In the long-term, the proposed project will create a small number of maintenance-related permanent jobs. These jobs may be filled first from within the local labor pool. These job opportunities would not require relocation of specialized labor forces or influx of large businesses from outside the area to provide construction support. As a result, job-related growth-inducing aspects of the proposed project are not expected to be significant.

Development of the site will result in an incrementally increased usage of utilities. Electrical and natural gas services are generally available throughout Long Island (and are presently available to the subject site), and water mains are adjacent; therefore, significant expansions of these utilities are not expected. Because these facilities and services already exist and have the capacity to service the proposed project, no significant growth is expected to result. As the project will be developed at a density in conformance with the maximum allowable under Article 6 of the SCSC, on-site septic systems are allowed, so an on-site STP is not necessary or proposed. As these systems would only serve the subject site, it would not represent a growth-inducing aspect with respect to potential off-site development, as they would not be available to serve off-site growth.

The proposed project may lead to the improvement of community services in the area as stimulated by the increased taxes generated by the project. In addition, the project includes the dedication of land for a future Town recreation/open space facility. This aspect of the project constitutes a major amenity for the community. These features of the project and their effects will add to the fabric of the community and support existing programs and special districts without adding significantly to growth potential.

4.4 Irreversible and Irrecoverable Commitment of Resources

This subsection is intended to identify those natural and human resources discussed in **Sections 2.0 and 3.0** that will be consumed, converted or made unavailable for future use as a result of

this project. The proposed project will result in irreversible and irretrievable commitment of resources, as follows:

- Material used for construction on the site, including but not limited to: wood, asphalt, concrete, fiberglass, steel, aluminum, etc.
- The 0.28 acres of wetlands represented by a portion of the man-made stream to be removed.
- Energy and resources used in the operation and maintenance of this project, including fossil fuels, electricity and water.

However, the impact of this commitment of resources is not anticipated to be significant, as the magnitude of these losses is not substantial.

4.5 Effects on the Use and Conservation of Energy Resources

An increase in the consumption of energy resources would typically be expected from the intensification of land use on a site. Use of new, energy-efficient building materials (e.g., insulations, windows, weather stripping, door seals, etc.) and mechanical systems, (e.g., air conditioners, heating systems, HVAC [heating, ventilation and air conditioning] systems, water heaters, heat pumps, etc.) is anticipated, which would minimize the amount of energy resources required. Incorporation of such energy-conserving measures is not only required by New York State, but is a sensible building practice, particularly in light of the increasing cost of energy resources. It is expected that existing public utilities at the site will be more than adequate to meet the expected demand.

There will be an increase in energy use during the construction phase of the proposed project. These impacts are expected to be of short duration, and the long-term energy demand is expected to remain stable or decline. The proposed project will utilize energy efficient design standards to minimize energy consumption at the site. The buildings will be constructed in conformance with NYS and Town building codes, which require adequate insulation as well as other design standards that would minimize energy use. Water-saving plumbing fixtures can be specified for the proposed buildings in accordance with current building requirements and practice of the trade. Installation of low-flow toilets, showers, sinks and equipment would reduce unnecessary water loss, which would translate into conservation of the energy resources required to heat this water.

In summary, it is not anticipated that the project will result in significant adverse impacts on energy resources.

4.6 General Construction Impacts

Construction activities are anticipated to result in short-term transportation, noise, dust, aesthetic and (potentially) erosion impacts. The phasing description presented in **Section 1.5** represents the most information in regard to a construction schedule that can be provided at the current

stage of the application process. Construction activities will not occur outside weekday daytime hours (expected to be 7 AM to 6 PM, but would be subject to Town regulations).

It is anticipated that the majority of the western half of the site, 60± acres, will be cleared; this figure includes areas for the internal roadways, increased wetland acreage, recharge basins, buildings and landscaping. These areas will be subject to erosion during the construction phase, and would be the areas from which dust could arise, due to truck and equipment movement and winds. Erosion control measures including, but not limited to, use of groundcovers, drainage diversions, soil traps, water sprays and minimization of the time span that bare soil is exposed to erosive elements, will be taken, to minimize the potential for impacts to sensitive on- or off-site natural or developed areas.

As construction equipment loading/unloading, materials storage, and construction staging areas and construction worker parking will be located within the site, no significant or long-term construction impacts to the surrounding residences and nearby school are anticipated. Installation of a construction access/exit at the existing access on CR 46 will minimize potential adverse impacts on the neighborhood.

The use of “rumble strips” (which cause truck tires to shed any mud trapped within the tire treads) at the construction entrance will reduce soil on truck tires from being tracked onto adjacent roadways, thereby minimizing the potential for dust to be raised.

As noted in **Section 1.4.5**, an undetermined volume of surface and subsurface soil will be disturbed during grading operations. It is proposed to re-use this material on-site, as fill and in berms along CR 46 and along the eastern boundary of the residential area. This would also eliminate the need for (and impacts on the area from) truck trips to remove this material.

It is not anticipated that there will be a decrease in the existing level of safety in regard to school bus operations from construction phase truck traffic, for the following reasons: 1) school bus activities occur during morning and early afternoon hours, when only a limited number of trucks are traveling to/from the site; 2) bus drivers as well as truck drivers are trained and specially licensed to operate their vehicles in a safe manner, observing appropriate traffic laws; 3) the roadway on which the majority of construction phase traffic will travel (CR 46) is a major, four lane route, not the lightly-traveled, local roads used by the majority of school buses and pedestrians; and 4) no school bus stops are located on any roadways that construction vehicles would use, so there would be no interaction between construction vehicles and stopped school buses.

SECTION 5.0

ALTERNATIVES CONSIDERED

5.0 ALTERNATIVES CONSIDERED

SEQRA requires the consideration of alternatives to a proposed project; the roster of alternatives shall represent the range of reasonable and feasible development scenarios that would achieve the applicant's objectives and remain within the applicant's capabilities. The purpose of this analysis is to determine the merits and relative impacts of a proposed project as compared to those of other possible uses, sites and technologies that would also achieve the applicant's objectives. The discussions and analyses of the alternatives should be conducted at a level of detail sufficient to allow for this informed comparison, to be conducted by the decision-making agencies. The proposed project involves a PDD with 150 PRC units, 75 single-family homes, and 98± acres of dedicated open space. Alternative 1 is the "No Action" alternative, which is required by SEQRA and is intended to represent site conditions if it were maintained in its current status and condition. The other alternative is identified as Alternative 2, and identifies development under the existing A-1 zoning ("as-of-right development"). The alternatives examined here are consistent with the adopted scope and includes the following:

- Alternative 1: No Action - assumes that the site remains in its current use and condition.
- Alternative 2: Approved 155-Lot Subdivision- this scenario assumes that the site is developed according to the yield and layout as shown in the **Yield Map**.

Plans for Alternatives 1 and 2 are provided in pouches at the end of this document. **Sections 5.1 and 5.2** provide descriptions of each alternative, and **Table 1-3** lists their corresponding uses, yields and characteristics, along with those of the proposed project, to enable comparisons against the values of the proposed project, as well as against each other. **Table 5-1** lists the Public Benefits that would be provided by the proposed project (see **Section 1.2.3**), and indicates which of those benefits would also be provided by each alternative. Finally, **Section 5.3** provides discussions of the relative impacts of the alternatives against those of the proposed project, and **Section 5.4** provides a Summary and Conclusion to the analysis.

5.1 **Alternative 1: No Action**

If the proposed project were not implemented, the subject site would not be disturbed; the property would remain an active golf course operation and no residents would be present (see **Table 1-3**). As such, this scenario also describes the site's existing conditions, which are described and analyzed in **Sections 2.0 and 3.0**, and depicted in the **Existing Conditions/Alternative 1 Map**.

The site would retain the potential for redevelopment in accordance with its A-Residence-1 zoning. As the Town has zoned the site for residential development, it may be assumed that the Town anticipates that the site should be developed in this manner at some time, particularly in consideration of the attractiveness of this site for such a type of use.

Table 5-1
COMPARISON OF ALTERNATIVES
Public Benefits *

Benefit	Proposed Project	Alt. 1	Alt. 2
1. Will provide for a substantial public open space, at no cost to the public.	+	-	+
2. Eliminates the golf course use, and thereby use of turf maintenance chemicals.	+	-	+
3. Minimizes adverse visual impact to the William Floyd Parkway corridor.	+	+	+
4. Conforms to and enhances the uses surrounding the site and in the community.	+	+	+
5. Includes architectural design, site improvements and landscaping features that are sensitive to local environmental concerns.	+	+	+
6. Meets Town Comprehensive Plan goal of providing quality market-rate senior housing.	+	-	-
7. Addresses Town and community objectives on mixed uses, walkability; attractive architecture; efficient traffic flow and convenient vehicle access.	-	-	-
8. Provides housing opportunities for active adults near recreational and historic sites.	+	-	-
9. Provides (initial) preference in sales to residents of William Floyd UFSD and Town.	+	-	+
10. Enables active seniors to remain on Long Island and in proximity to their families.	+	-	-
11. Generates significant increase in property taxes for distribution to taxing bodies.	+	-	+
12. Increases taxes to Town and other entities without significant increase in need for services.	+	+	+
13. Minimizes increase in students, to minimize impacts of enrollments & expenditures.	-	+	-
14. Generates construction jobs, to boost a regional industry presently in deep recession.	+	-	+
15. Enhancing the area's economic stability by providing significant private investment.	+	-	+
16. Provides social and cultural gains to the community, from future residents.	+	-	+
17. Provides significant economic gains to local businesses from increased customer bases and improved property values.	+	-	+
18. Minimizes potential impacts to local intersections and roadways, by separating project traffic from traffic associated with the dedicated areas.	+	-	+
19. Increases overall freshwater wetland acreage on the site.	+	-	+

* Plus (+) sign indicates that Benefit would be provided; Minus (-) sign indicates that Benefit would not be provided.

5.2 Alternative 2: Approved 155-Lot Subdivision

This alternative duplicates the **Preliminary Map – Overall** for a 155-lot clustered subdivision that was the subject of a prior application of the sponsor of the proposed project and Preferred Alternative. This prior subdivision application was described (and its anticipated impacts analyzed) in an Expanded Environmental Assessment Form (EAF) (dated November 2010), which was reviewed and accepted by the Town. The application received Preliminary Subdivision Approval by the Town on May 9, 2011.

This alternative assumes that the site is developed as a residential cluster under A-1 zoning, assuming that the existing golf course water hazards are regulated wetlands under Chapter 81 of the Town Code. This would produce a 155-lot subdivision in a clustered-lot arrangement, based on lots averaging 16,328 SF (0.37 acres) in size. Lots would occupy 58.10 acres, with the roadways covering an additional 16.78 acres. The existing 10.40 acres of wetlands would be retained and integrated into the site layout; these features would continue to be used as part of the site's drainage system, and would also serve as aesthetic features. A net of about 1.59 additional acres of ponds and 9.24 acres in recharge basins would be created. The system would be designed to accommodate the volume of runoff required by Town standards, and would be subject to Town review and approval. As much of any excess excavated material would be re-used within the site as fill as practicable, which would reduce the amount of truck traffic on CR 46 during construction. There would be a 39.22-acre Town open space dedication in this scenario but, as no STP would be required, the residences would utilize individual septic systems. As a result, there would be no dedication for a regional STP. The remaining 70.31 acres would be left as natural or allowed to naturally revegetate; this area would remain in private ownership of the project, to be maintained by the HOA.

Due to a clustered-lot layout of this scenario that extends over more of the site, a grading program of somewhat greater extent than that of the proposed project would be required, to provide proper surfaces for construction. There would be three vehicle access point into the site: the main entrance would be onto CR 46 at the existing location opposite Coraci Boulevard; a secondary access road would connect to Chanel Drive to the south via Flower Road at Diana Drive

The cluster design provides lots smaller than the A-1 district minimum of 40,000 SF, in order to preserve and dedicate open space, provide common areas within the community, meet Town Zoning Code requirements, and still provide a desirable and visually-appealing site layout. Amenities include substantial amounts of private open space located around the perimeter of the property, between buildings, and around the ponds. It is expected that the roadways and drainage features will be maintained by an HOA.

For analysis purposes, each house is assumed to contain an attached 2-car garage, and be 2 stories in height having a 1,500 SF footprint (a total floor area of approximately 3,000 SF) and 1,500 SF of impervious driveway and patio/deck surfaces.

This alternative would satisfy Town zoning and design requirements as well as SCDHS regulations, but would not provide the features sought by the community for quality restaurant space, substantial public open space dedication, or public sanitary wastewater treatment.

5.3 Discussion of Relative Impacts of Alternatives

Zoning

While Alternatives 1 (Existing Conditions) and, 2 (Approved 155-Lot Subdivision) are based on the site's existing A-1 zoning, the proposed project assumes that the site is rezoned to PDD. Thus, Alternatives 1 and 2 would not affect the site's zoning, nor would they impact the pattern of zoning in the vicinity. At the present time, there are no adjoining sites that are zoned PDD, so the rezone scenario (proposed project) would introduce a new zoning category to the immediate vicinity of the site. However, the land uses associated with this zone would complement the pattern of land uses of the area, so that the introduction of this zoning would not be a significant impact. With respect to the PRC component, a site to the east has recently been developed as a 96-unit PRC project, so that there is a precedent in the area for senior housing. Further, PDDs are often interspersed within residential communities to provide appropriate site design flexibility and use, as well as to provide public benefits.

Review of **Table 5-1** shows that the proposed project would provide a substantially greater number of public benefits than would be realized by either of the alternatives studied. This is due to the mix of residential uses of the proposed project, as well as the accompanying public open space feature characteristic of the PDD concept. The combination of complementary uses is a central tenet of the PDD concept and necessitates a holistic site design that considers the site and the proposal's features and amenities as a whole. Such an underlying development scheme is not available in the alternatives examined, which assume a single use on the site in conformance with zoning. It is noteworthy that the proposed project would provide a substantially larger open space dedication than either of the other alternatives (see below). Beneficial economic impact to the school district is a feature of the proposed project and Alternative 1, with the other scenario causing an adverse impact on school district fiscal conditions (from increased expenditures in excess of the school taxes generated). In general, the two alternatives provide many of the same benefits of the proposed project that are associated with open space, elimination of the golf course uses (and associated water quality impacts), visual resources, land uses, and taxes). However, these scenarios cannot match the proposed project's benefits associated with not only the foregoing, but also in regard to reduction in the number of school-aged children, economics (tax revenue) and open space dedication (98± acres).

Land Use & Residential Density

Two of the three scenarios analyzed are residential in nature, which conforms to the dominant land use type of the adjacent areas, and is compatible with the schools to the east and northeast, while the vacant former recreational use of Alternative 1 does not conform to any use in the area. As noted above, a senior residential development has recently opened approximately ¼-mile to the east, establishing a precedent for senior housing in the area.

The density of residential development in the surrounding community is 3.81 units/acre (see **Section 3.1.1**). It should be noted that, except for Alternative 1 (which has no residential component at all), the other scenarios are characterized by residential densities that are lower than this value. Specifically, the proposed project has a density of 1.09 units/acre, and Alternative 2 has a density of 0.75 units/acre. Therefore, the proposed project and Alternative 2 would be developed at densities well below that of the surrounding area, and would be compatible with the neighborhood in terms of both land use type and density.

Yield

As can be seen in **Table 1-3**, the residential yields decrease from that of the proposed project (225 units) to Alternative 2 (155 residences). However, the equivalent yield for the proposed project (125 equivalent units vs. 155 equivalent units) is less for the proposed project than the as-of-right zoning. With respect to land dedications, the proposed project would provide the largest dedication of land to the Town (97.83 acres), Alternative 2 would dedicate 39.22 acres, and Alternative 1 would remain vacant and unused, and unavailable to authorized public access.

Age-Restricted Units

The proposed project will provide all 150 of its PRC residences for age-restricted households. Neither of the other scenarios would provide senior housing.

Sanitary Treatment

Neither the proposed project nor Alternative 2 would require use of an STP to treat sanitary wastewater, as their sanitary flows would not exceed the site's allowable flow under Article 6 of the SCSC. The No Action scenario (Alternative 1) would retain the existing septic systems that serve the golf courses and clubhouse, though no wastewater would be generated unless the golf course operation is re-started.

Dedicated Town Open Space

Two of the three scenarios reviewed would dedicate land to the Town for public open space use: the proposed project and Alternative 2. However, the proposed project would dedicate the larger acreage of open space to the Town (97.83 acres); Alternative 2 would provide 39.22 acres,

Impervious

Impervious surfaces are comprised of building footprint and paved surfaces such as roadways, parking areas, driveways, patios and sidewalks. As shown in **Table 1-3**, the estimated impervious coverages of the proposed project is more than that of Alternative 1/Existing Conditions, but less than that of Alternative 2. This is due to the lot layout of Alternative 2, which is distributed over more of the site's eastern portion than the proposed project, which necessitates more impervious roadways to serve these lots.

Landscaped

Among the three scenarios examined, Alternative 1 represents the greatest acreage of landscaped surfaces, as defined for this analysis. That is, landscaped surfaces are those areas of vegetation that are maintained or, in the case of Alternative 1, areas that had been maintained but no longer are irrigated or fertilized. For Alternative 1, these areas are currently being allowed to naturally

revegetate, but have not yet reached a state where these areas can be re-classified as naturally vegetated. For Alternative 1, this landscaped area represents 63.1% of the site. The proposed project and Alternative 2 assume traditional landscaped surfaces. Alternative 2 would have the next greatest landscaped area (24.6%), as its 155 lots are distributed over a greater amount of the site, which enables each lot to be larger than those of the proposed project (16,328 SF vs. 13,248 SF), and thereby leaving a larger amount of each lot to be landscaped. The proposed project would have the least amount of landscaping of the three scenarios examined, which would cover 14.64% of the overall property.

Water Surface

There are no natural water bodies on the site; the 10.40 acres of Water Surface are man-made water hazards (and a connecting man-made stream) that were excavated in the late 1990's when the Links at Shirley golf course was developed. These water bodies are lined with impermeable membranes and are a part of the site's existing drainage system. The Town Division of Environmental Protection has indicated that these water bodies are regulated as wetlands under Chapter 81 of the Town Code.

Alternative 2 would increase the amount of water surface areas; this scenario would create 1.59 acres of new surface water for aesthetic and stormwater runoff control purposes. The proposed project would also increase overall wetland acreage, but to a slightly less degree than Alternative 2. This is due to the necessary removal of an estimated 0.28 acres of man-made stream area in the proposed project. As a result, the proposal would increase wetland acreage on-site by 1.31 acres; this is a 12.50% increase. All scenarios would continue to utilize the ponds to hold and recharge stormwater runoff generated on-site.

Bare Soil

The proposed project and Alternative 2 are assumed to completely remove the Bare Soil areas (actually, the artificial golf course sand traps) of the site, and replace them with developed surfaces (i.e., buildings, roadways or landscaping) or allow natural succession to vegetate them over time (if in dedicated areas). Alternative 1 is the No Action scenario, and would retain these surfaces with the golf courses.

Natural Vegetation

This classification is comprised of Successional Field and Pitch Pine-Oak Forest, and represents areas of the site that are not part of the golf course, but may include areas between fairways and forest in perimeter buffers. As Alternative 1 represents the greatest amount of manipulated surfaces of the three scenarios reviewed, this scenario would provide the least amount of natural vegetation (44.60 acres). However, if the site were to remain in its present unused, vacant state, natural succession would, over time, result in the greatest acreage of natural vegetation (174.32 acres) as the former golf course vegetation evolves into natural vegetation. As shown in **Table 1-3**, Alternative 2 would provide a total of 108.79 acres of natural land, while the proposed project would provide 141.92 acres of this area.

Recharge Basins

Recharge basins would only be necessary for the two development scenarios, so no such features are associated with Alternative 1. As Alternative 2 would have the greatest amount of impervious surface area, the volume of stormwater runoff would be greatest for this scenario. As a result, this scenario would require the greatest amount of area for recharge basins. The proposed project would require recharge basins only for its single-family component, which has a smaller impervious area and so would have a smaller volume of runoff to address, resulting in a smaller area requirement for its recharge basins.

Domestic Water Use

Based on SCDHS design flow criteria, an age-restricted unit of up to 1,600 SF of floor space consumes less water for domestic purposes (150 gpd) than a detached home (300 gpd). Therefore, as the units of the proposed project will be up to 1,600 SF in size, this scenario would consume 46,500 gpd for domestic purposes. Alternative 2 would consume the same amount of domestic water, and Alternative 1 assumes no water use. All uses will connect to public water supplied by the SCWA. SCWA is the local water purveyor, chartered to provide potable water in accordance with their connection fees and rates.

Sanitary Flow

Similar to the discussion of Domestic Water Use above, the proposed project would generate a sanitary flow of 46,500 gpd, and Alternative 2 would generate the same sanitary flow. The Sanitary Flow of the existing Links at Shirley site (Alternative 1) is presently zero, as this site is vacant. All alternatives will conform to SCSC Article 6 requirements.

Irrigation Demand

For the proposed project and Alternative 2, estimates of maintained (i.e., irrigated and fertilized) landscaping were prepared assuming limited side and rear yard depths around residences. Irrigation of open spaces (whether dedicated or not) was not assumed. As shown in **Table 1-3**, Alternative 2 would have about 51 acres of maintained landscaping, and so would have the greatest usage of irrigation water. The proposed project would have less landscaped surfaces, and so would have correspondingly less irrigation demand. Finally, The Alternative 1 would require no water for irrigation, as no such activity is assumed in this scenario. An irrigation rate of 5.5 inches/year is assumed for all scenarios.

Total Water Use

The Total Water Use number for each scenario is simply the sum of the Domestic Water Use and Irrigation Demand for that scenario. Therefore, Alternative 2 would require the most water, followed by the proposed project. Alternative 1, which assumes no occupancy of the site, and therefore no water use or irrigation, would have no Total Water Use. As noted, public water infrastructure is available in the area.

Recharge Volume

According to the SONIR computer model results, the maximum volume of site-generated recharge is associated with Alternative 2, followed by the proposed project. These two scenarios would consume the most water, all of which would be recharged on-site. Alternative 1 (No

Action/Existing Conditions) recharges the least, as it has the least impervious surfaces and uses the least amount of water for domestic purposes, and so would have the lowest Recharge Volume.

Recharge Nitrogen Concentration

At the present time (i.e., Alternative 1), the site generates recharge having an estimated nitrogen concentration of 0.15 mg/l, resulting from a discharge of 135.74 lbs. of nitrogen. Based on the SONIR model data, the proposed project would increase this value to 2.75 mg/l, while Alternative 2 would increase this value to a slightly higher level, 2.83 mg/l. It should be noted that neither of these increases would be to a level that would contravene the NYS Drinking Water standard of 10 mg/l, and the analysis presented in **Section 2.2.2** for the proposed project supports the conclusion that significant adverse impacts to groundwater quality would not be anticipated for these scenarios.

Trip Generation

In general, weekday AM trips are generally less than those for weekday PM hours, and Saturday afternoon peaks tend to be high as well, as residents perform weekend errands and other types of trips. **Table 1-3** shows that for all three of the peak periods studied, the proposed project would generate somewhat fewer vehicle trips than Alternative 2. This is because the proposed project includes fewer than half of the detached single-family homes of Alternative 2, and its PRC component, while twice the number of single-family home of Alternative 2, has a lower per-unit trip generation rate. Alternative 1 would continue to generate no vehicle trips.

Residents

For the purpose of analysis in this document, a typical age-restricted PRC unit is expected to generate fewer occupants than a typical non age-restricted single-family home (1.50 capita/unit vs. 2.95 capita/unit). As a result, Alternative 2 generates slightly more overall residents than the proposed project; Alternative 2 has nearly twice the number of single-family units than the proposed project, and the number of PRC units in the proposed project, though greater than that of Alternative 2, generates residents at a much lower rate than Alternative 2.

As a result of these factors, **Table 1-3** show that Alternative 2 would provide slightly more Residents than the proposed project (457 capita vs. 447 capita). There are no residents in Alternative 1.

School-Age Children

Alternative 2 would generate 90 school-age children (i.e., children aged between 5 and 17 years), which represent potential schoolchildren for the William Floyd UFSD. For this scenario, all of its 155 units are assumed to generate school-age residents (0.58 capita/unit is assumed). The proposed project would generate only about half this number, 44, because its single-family component is 75 units; its PRC component would generate no school-age children. It is expected that the entity that manages each scenario (assumed to be an HOA) will closely monitor the ages of its residents, so that no school-age children will reside in the PRC units. Alternative 1 would continue to have no residents of any age.

Employees

There would be essentially no employees (except for maintenance and/or administrative positions) in either Alternatives 1 or 2, or the proposed project, as none of these scenarios include commercial space. It is acknowledged that some jobs may be indirectly generated in these cases (such as for landscaping, utility maintenance, etc.), but these would be for outside contractors and would not be exclusively located on the project site.

Total Taxes

Table 1-3 lists the expected total property taxes that would be generated by the proposed project and all alternatives. As can be seen, Alternative 2 would generate the greatest amount of taxes, followed by the proposed project. Alternative 1 would generate the lowest amount of taxes.

School Taxes

In a pattern similar to that for Total Taxes (see **Table 1-3**), the highest school taxes would be generated by Alternative 2, followed by the proposed project. Alternative 1 would continue to generate the lowest level of school taxes.

School Costs

Costs incurred by the William Floyd UFSD are associated only with those scenarios that would generate school-age children. Therefore, there would be no such cost impacts from the PRC component of the proposed project or Alternative 1, which illustrates that these scenarios would have beneficial fiscal consequences. The proposed project would generate 44 school-age children, and so it is conservatively assumed that these children would represent an enrollment increase for the William Floyd UFSD. The largest school district costs would be associated with Alternative 2, which would generate an estimated 90 students for the school district, resulting in the largest increase in district expenses.

School Tax Impact

Table 1-3 presents the differences between school taxes generated by each scenario and the school district expenditures necessitated by the school-age children generated in that scenario. This difference provides insight into whether each scenario “pays for itself” in terms of school district fiscal impacts. The table shows that Alternative 1 and the proposed project would provide a net fiscal benefit to the William Floyd UFSD. Alternative 1 would result in \$224,156 annually in school taxes with no offsetting school expenditures made necessary (as no school-age children would be generated). The proposed project would also result in significant school benefits; this scenario would generate \$833,532 in annual school district taxes, but would require only \$553,940 in annual school district expenditures. Thus, this scenario, like Alternative 1, would result in a net annual fiscal benefit to the William Floyd UFSD. Alternative 2, on the other hand, would generate less in annual school district tax revenues than the cost to the district to serve this scenario’s students.

Solid Waste

Table 1-3 shows that Alternative 2 would produce the greatest amount of solid wastes (1,600 lbs/day), followed by the proposed project (1,287 lbs/day). The difference in volumes (174 lbs/day) is primarily due to three factors: the numbers and types of residents anticipated in each

scenario and their corresponding waste generation rates. That is, the proposed project would be occupied by a mix of non age-restricted (fewer in number than the same type of resident than Alternative 2) and senior households (which generate solid wastes at less than half the rate of the type of resident in Alternative 2).

Finally, Alternative 1 would continue to generate no wastes, as it is assumed here to be vacant and unused.

5.4 Summary and Conclusions

5.4.1 Summary

The following briefly summarizes the potential impacts of each alternative relative to the site's existing conditions, which is represented herein by Alternative 1.

- Proposed Project - This scenario would remove the two existing now-closed golf courses and associated buildings, and develop two distinct residential areas on slightly more than half the site, leaving the remainder as a substantial (97.83 acres, 47.57% of the site) open space dedication to the Town. The clearing and grading program would affect an estimated 60 acres of the site, leaving the remaining 146± acres as undisturbed former golf course areas allowed to naturally revegetate. Similar to Alternative 2, two of the three existing golf course water hazards, considered regulated wetlands by the Town, would be entirely preserved; the third pond would be subject to reconfiguring and expansion, and a 0.28-acre portion of the man-made stream that connects two of the ponds would be removed. Overall, this is a net 12.50% increase in wetland acreage on-site.

This scenario would consume a significant amount of water for domestic purposes, but this volume would not adversely impact the SCWA distribution system. Similar to Alternative 2 there would be a significant increase in recharge volume compared to existing conditions, though this scenario would increase nitrate concentration in recharge to a lesser degree than would Alternative 2.

The residential yields in this scenario were determined by the maximum wastewater generation allowed for on-site septic treatment under SCSC Article 6, producing 150 age-restricted PRC units and 75 single-family homes on clustered lots. There would be an estimated 447 residents on the site in this scenario, of which 44 would be school-age children. Therefore, the proposed project would cause an enrollment increase for the William Floyd UFSD, but analysis indicates that the resulting increased school taxes would exceed the increase district expenditures for the proposed project. The overall increase in taxes generated would be substantial for the proposed project.

- Alternative 1 - SEQRA intends this alternative to provide a baseline of existing site characteristics and resource impacts, against which the corresponding values of the proposed project and all other alternatives are to be compared and contrasted. As there would be no changes in the physical conditions of the site, nor in the activities that take place here or of its demographic or fiscal characteristics, there would be no changes in the current levels of impacts to the site's environmental and human resources.

It should be noted that a level of community support for retaining this facility as an active recreational amenity was expressed during the scoping process. However, the insufficiency of use has necessitated the closure of the facility; as a result, golf course use is not viable here and the landowner cannot re-open and maintain a commercially unviable use that lost \$750,000 to \$800,000 annually. Finally, continued non-use of the site would represent a missed opportunity to provide for a significantly increased positive fiscal impact on the William Floyd UFSD.

- Alternative 2 - This alternative would involve significant clearing and regrading of the site, though this scenario would also provide for significant amounts of common open space within the developed area, and 39.22 acres would be dedicated to the Town for public open space use. The amount of potable water used would be substantial, and so the volume of recharge would be greater as well. The SONIR computer model results suggests that overall nitrogen level in the site's recharge would be increased, though not to a level that would contravene the NYS Drinking Water standard. Vehicle trip generations would be increased as well.

The analysis presented in **Table 1-3** indicates that, while this scenario would significantly increase tax revenues (particularly school taxes) generated on the site, this development would also increase enrollments, so that the increased school taxes would be more than fully offset by increased school district costs to provide education to these students. This represents a significant adverse impact relative to the proposed project and to the site's existing circumstances.

As this scenario is residential in nature, there would be a significant number of residents of all ages introduced to the area. This development would not provide all of the public benefits of the proposed project (**Table 5-1**).

Review of the comparative impact descriptions presented in **Section 5.3** and the above scenario-specific impact discussions yield a thorough analysis of the relative potential impacts and benefits of each scenario.

5.4.2 Conclusions

In comparison to the approved 155-lot subdivision for the site, which is represented by Alternative 2, the proposed project would result in the following:

- Larger open space dedication
- A smaller net increase in wetland area
- A smaller domestic water consumption
- A smaller water use for landscape irrigation
- A smaller overall water use
- Smaller peak hour trip generations
- A substantial number of senior housing units
- Fewer single-family homes
- Fewer total residents
- Fewer school-age children
- Smaller enrollment increase for the William Floyd UFSD
- A smaller increase in expenditures for the William Floyd UFSD
- A large net fiscal benefit to the William Floyd UFSD; Alternative 2 would produce a large net fiscal deficit

- Smaller increase in total taxes
- Smaller increase in school tax revenue
- Smaller increase in solid waste generation

The quantities listed in **Table 1-3**, in conjunction with the discussions above, suggest that the proposed project would offer, to a degree greater than those of Alternative 2 (the approved subdivision), a reasonable balance between the gains of site redevelopment (under a PDD design concept) against its associated impacts, as well as meeting the goals and needs of the community versus the legitimate concerns of the Town and public regarding both the natural and the human resources of the area.

This alternatives analysis indicates that the proposed project would satisfy community preferences, particularly in terms of uses, yields and resource impacts. The adverse impacts of the proposed project (e.g., increases in school enrollments and expenditures, trip generations, water use, clearing and grading and solid waste generation as compared to existing conditions) are generally not significant.

SECTION 6.0

REFERENCES

6.0 REFERENCES

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FIGURES

APPENDICES

