

Comments by division and program follow.

Fish and Wildlife

Rare Species. Our field scientists have not surveyed this project area; therefore, we are unable to provide information pertaining to the existence of State-rare or federally listed plants, animals or natural communities at this project site. In the absence of site-specific information, we offer the following comments:

Site Visit Request. Our Division scientists have not surveyed the project area. In order to provide informed comments, our Division scientists request the opportunity to conduct a survey of the property to evaluate habitat and determine the potential for species of conservation concern. Please note that our scientists have decades of experience in comprehensive rare species survey methods. They have extensive knowledge of the flora and fauna of the state and are qualified in making rare species identifications. The survey will be conducted at no expense to the landowner. Recommendations resulting from the survey would allow the applicant the opportunity to reduce potential impacts to rare species and unique habitats and to ensure that the project is environmentally sensitive.

Please contact Edna Stetzar at (302) 653-2880 ext. 101 or at Edna.Stetzar@state.de.us if the landowner will grant a site visit.

Wetlands. Wetlands perform many environmental functions, including filtering pollutants, recharging streams and aquifers, storing flood waters, and providing habitat for an array of plant and animal species. The wetlands on this parcel are mapped as Key Wildlife Habitat in the Delaware Wildlife Action Plan (DEWAP) because they are part of a larger wetland complex which supports species of concern. DEWAP is a comprehensive strategy for conserving the full array of native wildlife and habitats-common and uncommon- as vital components of the state's natural resources. This document can be viewed via the Natural Heritage and Endangered Species Program website at <http://www.dnrec.state.de.us/nhp>.

Recommendation: Efforts to increase the buffer width from 50 feet to 100 feet is recommended to provide habitat for wetland dependent species that utilize buffers during critical periods of their life cycle. Upland buffer areas along wetlands and waterways also provide wildlife with habitat for foraging, breeding and resting.

Forest Loss/Re-Plantings. Based on a study conducted by the Delaware Forest Service, between 2002 and 2009, nearly 16,000 acres of unprotected forests occurred on land approved for development. The study also found that the average size of a forested parcel is less than 10 acres, illustrating that along with forest loss is an increase in forest fragmentation. Forest fragmentation separates wildlife populations, increases road mortality, and increases "edge effects" that leave many forest dwelling species vulnerable to predation and allows the infiltration of invasive species. For migratory birds, it is extremely important to conserve large tracts of forests in the State of Delaware due to its position within the Atlantic flyway.

Larger, connected areas of forested open space are more beneficial to wildlife than small, disconnected areas. Habitat connections allow wildlife to utilize the cover provided by trees and other vegetation as they move across the landscape during daily and migratory activities. Larger areas of open space are

required by species that are sensitive to disturbance and generally cannot persist in a fragmented landscape.

Recommendations: 1) Consideration should be made for redesigning the site plan to utilize previously cleared areas for development and maintaining existing forested areas as open space. In terms of wildlife habitat value, a 50ft perimeter buffer planted with young trees is not equivalent to an intact forest of older, mature trees 2) Establishment of new vegetated areas should include connections between adjacent or existing forested areas, 3) if feasible, clearing should not occur between April 1st and July 31st to reduce impacts to birds and other wildlife that utilize forested areas for breeding, and 4) we recommend the use of Delaware native plants and have included a list of trees and shrubs appropriate for the Inland Bays area (see below). We have not surveyed the site to assess the habitat, so the list includes both upland and wetland plants that benefit wildlife. If the applicant has questions or would also like a list of herbaceous plants suitable to the site, our program botanist, Bill McAvoy, would be glad to assist. Bill can be contacted at (302) 653-2880 ext. 119 or William.McAvoy@state.de.us

Nuisance Waterfowl. The existing pond and wet ponds created for stormwater management purposes may attract resident Canada geese and mute swans that will create a nuisance for community residents. High concentrations of waterfowl in ponds create water-quality problems, leave droppings on lawn and paved areas and can become aggressive during the nesting season. Short manicured lawns around ponds provide an attractive habitat for these species.

The Division of Fish and Wildlife does not provide goose control services, and if problems arise, residents or the home-owners association will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with proper landscaping, monitoring, and other techniques, geese problems can be minimized.

Recommendation: We recommend native plantings, including tall grasses, wildflowers, shrubs, and trees at the edge and within an adequate buffer (15-30 feet in width) around the ponds (to be planted in accordance with the Sediment and Stormwater Plan approval agency requirements). When the view of the surrounding area from the pond is blocked, geese can't scan for predators and are less likely to reside and nest in the area of the pond.

At this time, we do not recommend using monofilament grids due to the potential for birds and other wildlife to become entangled if the grids are not properly installed and maintained. In addition, the ongoing maintenance (removing entangled trash, etc.) may become a burden to the homeowners association or land manager.

List of Delaware native trees and shrubs suitable for replanting in the Inland Bays Area:

SCIENTIFIC NAME	SYNONYM	COMMON NAME	LIFE FORM	DIOECIOUS	WILDLIFE VALUES
<i>Amelanchier arborea</i>		downy shadbush	Tree (deciduous)		Host plant for <i>Satyrium liparops</i> (Striped Hairstreak); fr and other songbirds
<i>Amelanchier canadensis</i>		shadbush	Shrub (deciduous)		Host plant for <i>Satyrium liparops</i> (Striped Hairstreak); fr and other songbirds
<i>Aronia arbutifolia</i>	<i>Pyrus arbutifolia</i>	red chokeberry	Shrub (deciduous)		Host plant for <i>Satyrium liparops</i> (Striped Hairstreak); fru
<i>Carya alba</i>	<i>Carya tomentosa</i>	mockernut hickory	Tree (deciduous)		Host plant for multiple <i>Catocala</i> species (Underwing M Wood Duck, Quail, Turkey, other wildlife
<i>Carya pallida</i>		sand hickory	Tree (deciduous)		Host plant for <i>Catocala ulalume</i> (Ulalume Underwing M (Tearful Underwing Moth)); nuts eaten by Wood Duck wildlife
<i>Celtis occidentalis</i>		common hackberry	Tree (deciduous)		Host plant for <i>Polygonia interrogationis</i> (Question Mar (Mourning Cloak) and <i>Asterocampa</i> spp. (Hackberry But
<i>Clethra alnifolia</i>		sweet pepperbush	Shrub (deciduous)		Provides cover for Swainson's Warbler
<i>Cornus florida</i>		flowering dogwood	Shrub (deciduous)		Host plant for <i>Celastrina argiolus</i> (Spring Azure Butterfly) fruit eaten by many species
<i>Crataegus crus-galli</i>	<i>Crataegus canbyi</i>	cockspur hawthorn	Shrub (deciduous)		Possible host plant for multiple <i>Catocala</i> species; fruit Waxing and other wildlife
<i>Crataegus uniflora</i>		dwarf hawthorn	Shrub (deciduous)		Possible host plant for multiple <i>Catocala</i> species; fruit Waxing and other wildlife
<i>Eubotrys racemosa</i>	<i>Leucothoe racemosa</i>	fetterbush	Shrub (deciduous)		
<i>Euonymus americanus</i>		American strawberry-bush	Shrub (deciduous)		
<i>Fagus grandifolia</i>		American beech	Tree (deciduous)		
<i>Gaylussacia baccata</i>		black huckleberry	Shrub (deciduous)		Host plant for <i>Callophrys augustinus</i> (Brown Elfin) and C fruits utilized by birds and mammals
<i>Gaylussacia frondosa</i>		blue huckleberry	Shrub (deciduous)		
<i>Ilex glabra</i>		ink-berry holly	Shrub (evergreen)	X	Primary food source for wintering Hermit Thrush
<i>Ilex laevigata</i>		smooth winterberry holly	Shrub (deciduous)	X	Primary food source for wintering Hermit Thrush

<i>Ilex opaca</i>		American holly	Tree (evergreen, broad-leaf)	X	Primary food source for wintering Hermit Thrush; a host for <i>henrici</i> (Henry's Elfin)
<i>Ilex verticillata</i>		winterberry holly	Shrub (deciduous)	X	Primary food source for wintering Hermit Thrush
<i>Juniperus virginiana</i> var. <i>virginiana</i>		Eastern red-cedar	Tree (evergreen, leaves needle-like)	X	Host plant for <i>Callophrys niphon</i> (Eastern Pine Elfin) and Hairstreak)
<i>Kalmia latifolia</i>		mountain laurel	Shrub (evergreen)		Provides cover for many woodland bird species
<i>Lindera benzoin</i> var. <i>benzoin</i>		spicebush	Shrub (deciduous)	X	Host plant for <i>Papilio troilus</i> (Spicebush Swallowtail)
<i>Liriodendron tulipifera</i>		tuliptree	Tree (deciduous)		A favorite host plant for <i>Pterourus glaucus</i> (Tiger Swallowtail)
<i>Magnolia virginiana</i> var. <i>virginiana</i>		Northern sweetbay magnolia	Tree (deciduous)		Host plant for <i>Pterourus glaucus</i> (Tiger Swallowtail Butterfly)
<i>Malus angustifolia</i>	<i>Pyrus angustifolia</i>	Southern crabapple	Tree (deciduous)		Food source for wildlife
<i>Malus coronaria</i>	<i>Pyrus coronaria</i>	sweet crabapple	Tree (deciduous)		Food source for wildlife
<i>Morella cerifera</i>	<i>Myrica cerifera</i> ; <i>M. pusilla</i>	Southern bayberry	Shrub (evergreen)	X	Host plant for <i>Calycopis cecrops</i> (Red-Banded Hairstreak)
<i>Morella pensylvanica</i>	<i>Myrica pensylvanica</i>	Northern bayberry	Shrub (deciduous)	X	Possible host plant for <i>Calycopis cecrops</i> (Red-Banded Hairstreak)
<i>Nyssa sylvatica</i>		blackgum	Tree (deciduous)	X	
<i>Pinus taeda</i>		loblolly pine	Tree (evergreen, needle-leaf)		Host plant for multiple <i>Zale</i> species (Noctuid Moth); older or dead standing trees provide nesting cavities for Delmarva Fox Squirrels and Owls
<i>Pinus virginiana</i>		Virginia pine	Tree (evergreen, needle-leaf)		Host plant for multiple <i>Zale</i> species (Noctuid Moth); older or dead standing trees provide nesting cavities for Delmarva Fox Squirrels and Owls
<i>Prunus serotina</i> var. <i>serotina</i>		wild black cherry	Tree (deciduous)		Host for <i>Pterourus glaucus</i> (Tiger Swallowtail), <i>Harmonia axyridis</i> (Green Chelydra), and <i>Basilarchia arthemis astyanax</i> (Red-Spotted Hairstreak); fruit
<i>Quercus alba</i>		white oak	Tree (deciduous)		Host plant for <i>Catocala vidua</i> (Widow Underwing Moth); acorns used by many wildlife species; provides roosting sites for bats
<i>Quercus coccinea</i>		scarlet oak	Tree (deciduous)		Food source for many woodland wildlife species; provides roosting sites for bats
<i>Quercus</i>		Southern	Tree		Food source for many woodland wildlife species; provides roosting sites for bats

<i>falcata</i>		red oak	(deciduous)	<i>Satyrium calanus, Calycopsis cecrops</i> (Banded and Red-Ba
<i>Quercus marilandica</i> var. <i>marilandica</i>		blackjack oak	Tree (deciduous)	Food source for many woodland wildlife species; po <i>Satyrium calanus, Calycopsis cecrops</i> (Banded and Red-Ba
<i>Quercus nigra</i>		water oak	Tree (deciduous)	Food source for many woodland wildlife species; po <i>Satyrium calanus, Calycopsis cecrops</i> (Banded and Red-Ba
<i>Quercus phellos</i>		willow oak	Tree (deciduous)	Food source for many woodland wildlife species; po <i>Satyrium calanus, Calycopsis cecrops</i> (Banded and Red-Ba
<i>Quercus stellata</i>		post oak	Tree (deciduous)	Food source for many woodland wildlife species; po <i>Satyrium calanus, Calycopsis cecrops</i> (Banded and Red-Ba
<i>Quercus velutina</i>		black oak	Tree (deciduous)	Food source for many woodland wildlife species; po <i>Satyrium calanus, Calycopsis cecrops</i> (Banded and Red-Ba
<i>Rhododendron atlanticum</i>		coast azalea	Shrub (deciduous)	
<i>Rhododendron periclymenoides</i>	<i>Rhododendron nudiflorum</i>	pink azalea	Shrub (deciduous)	
<i>Rhododendron viscosum</i>		swamp azalea	Shrub (deciduous)	
<i>Vaccinium corymbosum</i>		highbush blueberry	Shrub (deciduous)	Fruit used by many wildlife species; host plant for <i>Calliophora</i> Elfin) and <i>Celastrina argiolus</i> (Spring Azure Butterfly)
<i>Vaccinium pallidum</i>	<i>Vaccinium vacillans</i>	lowbush blueberry	Shrub (deciduous)	Fruit used by many wildlife species; host plant for <i>Calliophora</i> Elfin) and <i>Celastrina argiolus</i> (Spring Azure Butterfly)
<i>Vaccinium var. stamineum</i>	<i>Vaccinium stamineum</i>	sand blueberry	Shrub (deciduous)	Fruit used by many wildlife species; host plant for <i>Calliophora</i> Elfin) and <i>Celastrina argiolus</i> (Spring Azure Butterfly)
<i>Viburnum dentatum</i> var. <i>dentatum</i>		Southern arrow-wood	Shrub (deciduous)	Provides cover for shrub and ground nesting birds; fr mammals
<i>Viburnum dentatum</i> var. <i>lucidum</i>	<i>Viburnum recognitum</i>	Northern arrow-wood	Shrub (deciduous)	Provides cover for shrub and ground nesting birds; fr mammals
<i>Viburnum prunifolium</i>		smooth blackhaw	Shrub (deciduous)	Provides cover for shrub and ground nesting birds; fr mammals

Edna Stetzar - (302) 653-2880, Edna.Stetzar@state.de.us

Soil and Water

Sediment and Stormwater Program. A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. A pre-application meeting is required for this site. Contact the reviewing agency to schedule a pre-application meeting to discuss the sediment and erosion control and stormwater management components of the plan as soon as practicable. The site topography, soils mapping, pre- and post-development runoff, and proposed method(s) and location(s) of stormwater management should be brought to the meeting for discussion. The plan

review and approval as well as construction inspection will be coordinated through the Sussex Conservation District. Contact Jessica Watson at the Sussex Conservation District at (302) 856-2105 for details regarding submittal requirements and fees.

Drainage Program. The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project.

Sediment/Stormwater and Drainage comments provided by James Sullivan - (302) 739-9921, James.Sullivan@state.de.us

Dredging. In the summer of 1983, the State dredged Wilson Creek. The creek is located adjacent to the northern portion of the proposed campsite project area. A confined disposal facility was constructed and filled as part of the dredging project. The disposal facility is located within the proposed campsite project area. *Charles Williams - (302) 739-9921, Charles.Williams@state.de.us*

Water Resources

Soils Assessment. Based on the NRCS soil survey update Downer (DnA), Rosedale (RoA), Brockatonorton-Urban Land complex (BuA), Klej (KsA), Askecksy (AsA), Hurlock (HuA), Tranquaking & Mispillion (TP), and Broadkill (Br) were mapped in the immediate vicinity of the proposed construction (Figure 1). Downer and Rosedale are well-drained upland soil mapping units that, generally, have few limitations for development. Brockatonorton-Urban Land complex is moderately well-drained soil mapping unit that has been extensively modified by filling and grading - limitations for development are variable and dependent on the type of fill and the level of compaction to which the soils have been subjected. Klej is a somewhat poorly-drained soil mapping unit likely to contain both upland and wetland soil components (hydric). Askecksy and Hurlock are poorly-drained wetland associated (hydric) soil mapping units. Transquaking & Mispillion and Broadkill are very poorly-drained soil mapping units (hydric) associated with tidally-influenced wetlands. Klej, Askecky, Hurlock, Transquaking & Mispillion, and Broadkill are hydric soil mapping units considered unsuitable for development and should be avoided.

Approximately 25-35% of the soils mapped in the immediate vicinity of the proposed construction are hydric (Askecksy, Hurlock, Tranquaking & Mispillion, and potentially Klej); these soils considered unsuitable for development.

utilize multiple barrels at different elevations to preserve a low flow channel are usually preferred. Contact the Wetlands and Subaqueous Lands Section for further information regarding preferred designs.

The applicant should also be reminded that they must avoid construction/filling activities in those areas containing wetlands or wetland associated hydric soils as they are subject to regulatory jurisdiction under Federal 404 provisions of the Clean Water Act. A site-specific field wetlands delineation using the methodology described in the 1987 United States Army Corps of Engineers (USACE or "the Corps") manual is the acceptable basis for making a jurisdictional wetland determination for nontidal wetlands in Delaware.

The applicant is forewarned that the Corps views the use of the National Wetlands Inventory (NWI) mapping or the Statewide Wetlands Mapping Project (SWMP) mapping as an unacceptable substitute for making such delineations. To ensure compliance with said Corps regulatory requirements, it is strongly recommended that a field wetlands delineation using the above-referenced methodology be performed on this parcel before commencing any construction activities. It is further recommended that the Corps be given the opportunity to officially approve the completed delineation. In circumstances where the applicant or applicant's consultant delineates what they believe are nonjurisdictional isolated (SWANCC) wetlands, the Corps must be contacted to evaluate and assess the jurisdictional validity of such a delineation. The final jurisdictional authority for making isolated wetlands determinations rests with the Corps; they can be reached by phone at 736-9763.

Based on a review of existing buffer research by Castelle et al. (Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review*. J. Environ. Qual. 23: 878-882.), an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances, is about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all water bodies (including ditches) and wetlands.

Impervious Surfaces and Best Management Practices. Based on a review of the PLUS application, post-construction surface imperviousness was projected to reach 24 percent. However, a cursory review of said application suggests that surface imperviousness will be much higher than indicated by the applicant. It is also not clear why the applicant reported a 2% impervious cover estimate for the current land use on this parcel when the apparent current impervious cover figure is likely much higher. The applicant must consider the total impervious cover of the entire parcel, not just those areas proposed for development. The impervious figure should be recalculated to reflect these considerations.

When calculating surface imperviousness it is important to include all forms of constructed surface imperviousness, such as: all paved surfaces including rooftops, sidewalks, driveways, and roads; open-water stormwater management structures and/or ponds; and community wastewater systems (if applicable); this will ensure a realistic assessment of this project's likely post-construction environmental impacts. Therefore, surface imperviousness should be recalculated to reflect all of the above-mentioned forms of surface imperviousness in the finalized calculation for surface imperviousness. As mentioned previously, the impervious cover estimate for current land use should be recalculated as well.

Studies have shown a strong relationship between increases in impervious cover to decreases in a watershed's overall water quality. It is strongly recommended that the applicant implement best management practices (BMPs) that reduce or mitigate some of this project's most likely adverse impacts. Reducing the amount of surface imperviousness through the use of pervious paving materials ("pervious pavers") in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings are some examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.

TMDLs. Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Inland Bays Watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited water body" can assimilate and still meet water quality standards to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. Although TMDLs are required by federal law, states are charged with developing and implementing standards to support these desired use goals. This project is located in the **low nutrient** reduction area requiring a 40 percent reduction in nitrogen and phosphorus. Additionally, a 40 percent reduction in bacteria is also required.

The adopted Inland Bays Pollution Control Strategy regulation was published in the Delaware Register of Regulations on November 11, 2008 and is now an enforceable regulatory directive. A Pollution Control Strategy (PCS) is an implementation strategy that identifies the actions necessary to systematically reduce the pollutant loading to a given water body, and meet the TMDL reduction requirements specified for that water body. These regulations can be reviewed at <http://regulations.delaware.gov/documents/November2008c.pdf> and background information, guidance documents, and mapping tools can be retrieved from http://www.dnrec.state.de.us/water2000/Sections/Watershed/ws/ib_pcs.htm. The regulations address establishing a buffer zone sediment and stormwater controls for new development projects, and additional measures and standards for onsite wastewater treatment and disposal systems. Additionally, a map of water features identifies the specific primary and secondary water features that require buffers; this can be reviewed at <http://maps.dnrec.delaware.gov/inlandbayspcs93/>.

The regulations require that buffers of a specified width be established for State-regulated wetlands, tidal waters, primary and secondary water features. The width may be reduced when combined with advanced sediment and stormwater controls and upon the creation of a development-wide nutrient management plan. Buffers must be placed in common open space and be clearly demarcated, designated and recorded on final plans or plat. Buffers must be maintained in perpetuity and must have boundary signs or markers or distinctive vegetation identifying the upland edge of the buffer.

The regulations also require that permanent sediment and stormwater management plans be designed and implemented to include design criteria to further reduce nutrient contributions. Compliance with this provision can be through any of the options below.

- For properties with primary and secondary water features:
 1. Implement standard width buffers
 2. Implement reduced buffer widths in conjunction with the creation and use of a development-wide nutrient management plan (NMP), and the implementation of at least one advanced stormwater treatment control method.

- For properties without primary or secondary water features, or for those properties with primary and secondary water features that employ a reduced-width buffer (including the required NMP), select from at least one of the following advanced stormwater treatment control methods:
 1. Reduce nutrients by the TMDL percentage
 2. Reduce nutrients to irreducible concentration levels
 3. Implement three practices within a treatment train
 4. Establish 30% of the project parcels as forest in common open space (See appendix L in the PCS regulations for planting requirements).

According to information provided in the PLUS application, it is the applicant's intent to implement the reduced buffer width option with the establishment of 30% forest cover as the selected regulatory option for the advanced treatment of stormwater. Also readily apparent is the applicant's intent to remove and/or fill some of the existing forested wetlands (or lands exhibiting wetland conditions) to accommodate additional building or camping sites on this parcel. Removal or filling of present wetlands is likely to harm or alter the existing hydrology of these lands, which in turn is likely to reduce the effectiveness of the project's stormwater management plan. The applicant should provide evidence that wetlands are not present (via wetlands delineations approved by USACE and the DNREC Wetlands Section), while further providing evidence that the removal of existing forest cover will not compromise acceptable onsite treatment of stormwater.

It should also be noted that wetlands (areas exhibiting wetland conditions) containing older and larger mature woody vegetation (such as found on this parcel) have significantly more potential to remove stormwater nutrient pollutants than restored uplands containing younger and smaller woody vegetation (i.e., small tree saplings). Low-lying areas such as wetlands are also likely to offer provide greater "opportunity" for treating nutrient pollutant runoff than upland areas. Thus the Watershed Assessment Section considers the removal of mature forested wetlands to accommodate additional building or camping sites, and then mitigating or restoring the lost forested acreage with younger woody vegetation in an area of the parcel containing mostly uplands (most likely apparent scenario) – an unacceptable practice. This practice is also likely to be considered unacceptable by the Sussex County Conservation District.

If the establishment of 30% forest cover is determined to be a viable option (assuming it satisfies all environmental concerns) for providing advanced stormwater treatment, the applicant shall then prominently document (on a map) the exact location on the parcel where this forest cover restoration will occur. The restored forest cover must be located in common open space, and not scattered (forest cover must be contiguous) and/or placed in individual lots. Moreover, the calculated percentage of the restored forest cover area/acreage should be calculated on the basis of the total land area/acreage of the parcel, not just the land area/acreage proposed for the current building phase. The tree planting guidelines must follow the guidelines for tree planting in the Forestry Guidance for the Inland Bays pollution control strategy (PCS; Appendix L).

The applicant should also remember that a nutrient management plan (NMP) is also required when electing to pursue a reduced buffer width for their project. The Nutrient Management Program link can be retrieved at http://dda.delaware.gov/nutrients/nm_cert.shtml.

Additional nutrient reductions may be possible through the implementation of best management practices (BMPs) such as wider vegetated buffers along watercourses and wetlands (if applicable),

increasing passive, wooded open space, and use of pervious paving materials to reduce surface imperviousness (i.e., pervious pavers).

The project's consultants may want to contact Lyle Jones at 302-739-9939 to discuss using the Nutrient Budget Protocol. The Nutrient Budget Protocol is an assessment tool to help evaluate whether the proposed project will meet the TMDL nutrient reduction requirements. This project is located in the low nutrient reduction area. The nutrient assessment tool can be used on a voluntary basis in addition to the series calculations needed for stormwater BMPs in order to allow consultants to quickly assess the effect of various pollutant reducing practices on the proposed project site and may, therefore, allow a more informed decision on the affect of this project on the nutrient loading to the Inland Bays.

Soils, wetlands, subaqueous lands and TMDL comments provided by John Martin, Watershed Assessment Section, (302) 739-9939, John.Martin@state.de.us

Water Supply. The project information sheets state that water will be provided to the project by a Central community system via an existing public well. Our records indicate that the project is located within the public water service area granted to Long Neck Water Company under Certificate of Public Convenience and Necessity 94-CPCN-29. It is recommended that the developer contact Long Neck Water Company to determine the availability of public water. Any public water utility providing water to the site must obtain a Certificate of Public Convenience and Necessity (CPCN) from the Public Service Commission. Information on CPCNs and the application process can be obtained by contacting the Public Service Commission at 302-739-4247. Should an on-site Public/Miscellaneous Public well be needed, a minimum isolation distance of 150 feet is required between the well and any potential source of contamination, such as a septic tank and sewage disposal area. The Division of Water Resources will consider applications for the construction of on-site wells provided the wells can be constructed and located in compliance with all requirements of the Regulations Governing the Construction and Use of Wells. A well construction permit must be obtained prior to constructing any wells.

Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising. Ricardo Rios - (302) 739-9944, Ricardo.Rios@state.de.us

Water Resource Protection Areas. The DNREC Ground-Water Protection Branch (GWPB) has determined that it does not fall within any delineated wellhead protection areas or areas of excellent ground-water recharge. However, the source water protection database indicates there are two public wells on site. The Office of Drinking Water (ODW) database shows records for three public wells.

Both databases indicate that the system is inactive. The well permitting database does not indicate that these wells were properly abandoned.

GPB requests assistance in accounting for these wells. Please contact: *Anne Mundel* - (302) 739-9945, Anne.Mundel@state.de.us

Air and Waste

Air Quality. Recreational activities may unnecessarily emit, or cause to be emitted, significant amounts of air contaminants into Delaware’s air, which will negatively impact public health, safety and welfare. These negative impacts are attributable to:

- Emissions that form ozone and fine particulate matter; two pollutants relative to which Delaware currently violates federal health-based air quality standards,
- The emission of greenhouse gases which are associated with climate change, and
- The emission of air toxics.

Air emissions generated from a campsite include emissions from electricity needed to support the campers and recreational vehicles; and car, truck, and recreational vehicle activity associated with the campsites.

The air emissions represent the actual impact the electrical and mobile source aspect of the Rehoboth Shores Campsite may have and are quantified below:

Emissions Attributable to the Rehoboth Shores Campsite (Tons per Year)	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NOx)	Sulfur Dioxide (SO ₂)	Carbon Dioxide (CO ₂)
Electrical Power Generation	ND*	4.6	15.8	2,335
Mobile	16.6	21.9	ND*	ND*
Total	16.6	26.5	15.8	2,335

(*) Indicates data is not available.

Note that emissions associated with the actual construction of the project, including automobile and truck traffic from working in, or delivering products to the site, as well as site preparation, earth moving activities, road paving and other miscellaneous air emissions, are not reflected in the table above.

Recommendations:

The applicant shall comply with all applicable Delaware air quality regulations. These regulations include:

Regulation 6 -Particulate Emissions from Construction and Materials Handling	<ul style="list-style-type: none"> • Using dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads. • Using covers on trucks that transport material to and from site to prevent visible emissions.
Regulation 1113 – Open Burning	<ul style="list-style-type: none"> • Prohibiting open burns statewide during the Ozone Season from May 1-Sept. 30 each year. • Prohibiting the burning of land clearing debris. • Prohibiting the burning of trash or building materials/debris.

Regulation 1145 – Excessive Idling of Heavy Duty Vehicles	<ul style="list-style-type: none"> • Restricting idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.
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Additional measures may be taken to substantially reduce the air emissions identified above, as well as, the emissions associated with the construction phase of the project. These measures include:

- **Providing tie-ins to the nearest bike paths and links to any nearby mass transport system.** These measures can significantly reduce mobile source emissions.
- **Using retrofitted diesel engines during construction.** This includes equipment that are on-site as well as equipment used to transport materials to and from site.
- **Planting trees in vegetative buffer areas.** Trees reduce emissions by trapping dust particles and by replenishing oxygen. Trees also reduce energy emissions by cooling during the summer and by providing wind breaks in the winter.

This is a partial list, and there are additional things that can be done to reduce the impact of the project on air quality. The applicant should submit a plan to the DNREC Air Quality Management Section which address the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into the Rehoboth Shores Campsite. *Deanna Morozowich - (302) 739-9402, Deanna.Morozowich@state.de.us*

Hazardous Waste Sites. One Site Investigation & Restoration Branch (SIRB) site was found within a half mile radius of the proposed site: Longneck Mercury Study Site (DE-1388). Mercury contamination in the groundwater was of concern at this site. The contamination poses no threat to human or environmental health due to the low readings of the mercury.

Based on the previous agricultural use of the proposed project site, which may have involved the use of pesticides and herbicides, SIRB recommends that a Phase I Environmental Site Assessment be performed prior to development. **In addition, should a release or imminent threat of a release of hazardous substances be discovered during the course of development (e.g., contaminated water or soil), construction activities should be discontinued immediately and DNREC should be notified at the 24-hour emergency number (800-662-8802). SIRB should also be contacted as soon as possible at 302-395-2600 for further instructions.** *Krystal Stanley - (302) 395-2644, Krystal.Stanley@state.de.us*

Tank Management Branch. There are five (5) facilities with LUST project sites in various stages of environmental cleanup located within a quarter mile from the proposed project. ***Pot Nets, facility 5-000981, is a mobile home park associated with approximately 70 LUST projects in various stages of investigation.

Name: Tunnell Company LP (Inactive)
 Facility ID: 5-000025
 Project: S9104077

Name: Pot Nets (Various Status)

Facility ID: 5-000981

Project: ***

Name: Your Neighborhood Store (Investigation)

Facility ID: 5-000346

Project: S9204110

Name: Keane Property Mariners Cove Mobile Home Park (Inactive)

Facility ID: 5-000932

Project: S0006072

Name: Mariners Cove

Facility ID: 5-001039

Project: S0806060 (Inactive)

Project: S0904036 (Inactive)

Should any underground storage tanks or petroleum contaminated soil be discovered by any person during construction, the DNREC-TMB at (302) 395-2500 and the DNREC Emergency Response Hotline at (800) 662-8802 must be notified within 24 hours.

Should any contamination be encountered, PVC pipe materials will have to be replaced with ductile steel and nitrile rubber gaskets in the contaminated areas.

Also, please note that if any aboveground storage tanks (ASTs) less than 12,500 gallons are installed, they must be registered with the TMB. If any ASTs greater than 12,500 gallons are installed, they are also subject to installation approval by the TMB. *Elizabeth Wolff* - (302) 395-2500, Elizabeth.Wolff@state.de.us