DNREC welcomes the opportunity to comment on more conceptual plans such as these before they are engineered and set in concrete. We offer some comments and suggestions to lessen the environmental impact of this project:

- The project is subject to regulation by the Inland Bays Pollution Control Strategies;
- Upland buffers between buildings and infrastructure should be at least 100 feet in width to adequately protect water quality and provide wildlife habitat;
- Install Delaware native plants, including tall grasses, wildflowers, shrubs, and trees at the edge of and within an adequate buffer (15-30 feet in width) around stormwater ponds to discourage nuisance geese;
- As the entire property is located within a 100-year flood zone and impervious cover will be intensive, please take precautions to minimize runoff to adjoining properties;
- Some very poorly drained soils with severe limitations for development are located within the site;
- Leave the delineated wellhead protection area as open space by moving the parking to another area on the site.
- We also note that the applicant did not answer questions on the PLUS application about wetlands delineation (question 29), although DNREC maps identify wetlands on the eastern edge of the site; it is strongly recommended that a field wetlands delineation be performed on this parcel before commencing any construction activities.

Comments by program and division follow.

Fish and Wildlife

Rare Species. We have not surveyed the project area; therefore, it is unknown if State-rare, or federally listed plants, animals or natural communities occur at this project site. According to aerial photographs and State Wetlands maps, Tax Parcels 134-17.00-30.00 and 134-17.00-30.02 contain forested wetlands.

Recommendation: Forested wetlands can support an array of plant and animal species and we recommend that impacts to this area of the project parcels be avoided.

Key Wildlife Habitat. Wetlands on Tax Parcels 134-17.00-30.00 and 134-17.00-30.02 are mapped as Key Wildlife Habitat in the Delaware Wildlife Action Plan (DEWAP). 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 our program website at http://www.dnrec.state.de.us/nhp. This document also contains a list of species of greatest conservation need as well as species-habitat associations.

Recommendation: Upland buffers between buildings and infrastructure should be at least 100 feet in width to adequately protect water quality and provide wildlife habitat. Wetland dependent species require upland buffers during a portion of their life cycle and forested buffers are utilized as a travel corridor between resting, foraging and breeding habitat. This buffer area should consist of existing vegetation (not mowed lawn) or planted with Delaware native trees, shrubs, wildflowers or grasses.

Nuisance Waterfowl. 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, land managers, 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 Delaware native plants, including tall grasses, wildflowers, shrubs, and trees be planted 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 on-going maintenance (removing entangled trash, etc.) may become a burden to the homeowners association or land manager. *Edna Stetzar - (302) 653-2880, Edna.Stetzar@state.de.us*

Soil and Water

Sediment and Stormwater Program. A pre-application meeting is required for this site. A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. 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 southern portion of the project is located within the Little Bay Tax Ditch watershed; however it is not affected by Tax Ditch rights-of-way.

The northern portion of the project drains into the McCabe Tax Ditch.

The Drainage Program requests the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site stormwater. Notify downstream landowners of the change in volume of water released on them.

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

Flood Management. The entire property is located in the Zone AE Special Flood Hazard Area. There is a 1% chance of the base flood elevation being equaled or exceeded in any given year. If fill is being placed on the site, we would ask the developer to submit the necessary data to FEMA for a Conditional Letter of Map Revision. With the amount of impervious cover being placed on site we would ask that measures be taken to minimize runoff to adjoining properties. *Gregory Williams - (302) 739-9921, Gregory.Williams@state.de.us*

Water Resources

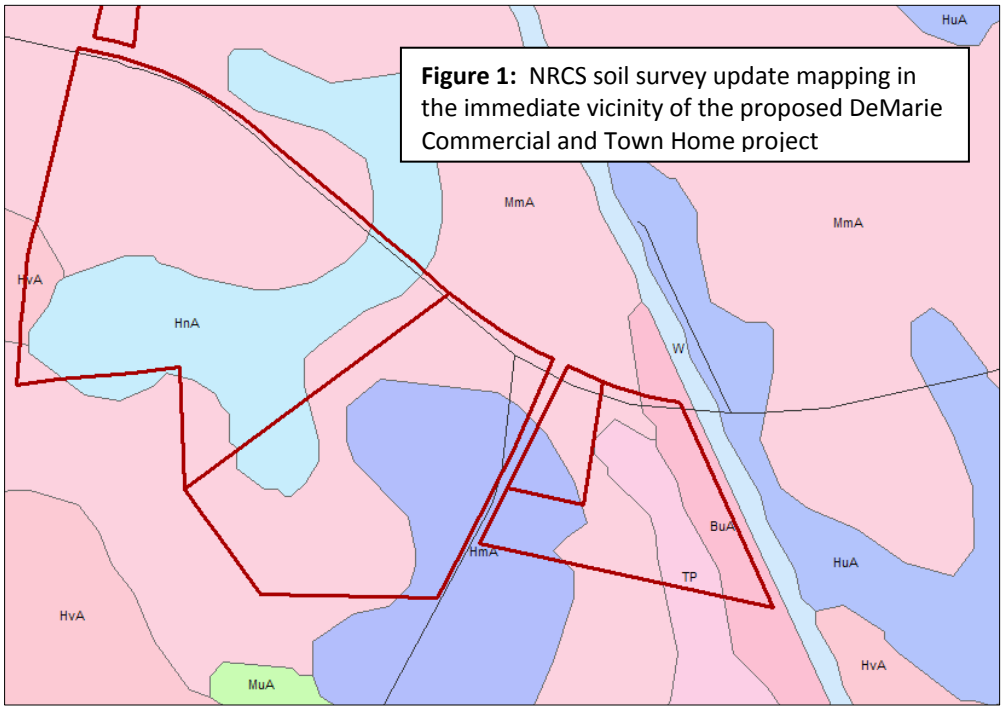


Figure 1: NRCS soil survey update mapping in the immediate vicinity of the proposed DeMarie Commercial and Town Home project

Soils Assessment. Based on the NRCS soil survey update Hammonton (HnA & HmA), Brockatonorton-Urban Land complex (BuA), Mullica (MmA), and Transquaking & Mispillion (TP) were mapped in the immediate vicinity of the proposed construction (Figure 1). Hammonton is a moderately well-drained soil of low-lying uplands upland soil that has moderate limitations for development. Brockatonorton-Urban Land complex is moderately well-drained soil that has been extensively modified by filling and

grading; therefore, has variable limitations depending the type of fill and the level of compaction to which the soils have been subjected. Mullica is a very poorly-drained wetland associated (hydric) soil that has severe limitations for development. Transquaking & Mispillion are very poorly drained wetland associated (hydric) soils associated with tidally-influence wetlands, and has severe limitations for development.

As mentioned previously, a significant portion (approximately 50-60%)of this parcel contains very poorly drained wetland associated (hydric) Mullica and Transquaking soils which have a seasonal high water table occurring at or near the soil surface (within one foot of soil surface or less). Building in such soils is likely to leave prospective residents of this and adjoining properties susceptible to future flooding problems from groundwater-driven surface water ponding, especially during extended periods of high-intensity rainfall events such as tropical storms/hurricanes or "nor'easters." This is in addition to the increased probability of flooding due to or increased surface water runoff emanating from future created or constructed forms of structural imperviousness (e.g., rooftops, roads, parking areas, sidewalks, and stormwater management structures).

Based on the Chapter 99, Section 16A of the Sussex County Code (paraphrased), lands compromised by improper drainage or flooding potential pose significant threats to the safety and general welfare of future residents and, therefore, shall not be developed. Soils mapped as Mullica and Transquaking and Mispillion fit the criterion for improper drainage or high flooding potential and, therefore, should be avoided. The Watershed Assessment Section believes permitting development on such soils would be inconsistent or counter to the above-stated regulatory guidelines in the Sussex County code.

Wetlands. Based on the Statewide Wetland Mapping Project (SWMP) maps, palustrine forested riparian wetlands (PF04/1A7) and estuarine emergent wetlands (E2EM1N) were mapped along the eastern boundary of proposed project (Figure 2). Additionally, some unmapped ditched wetlands are likely present over much of the project area.

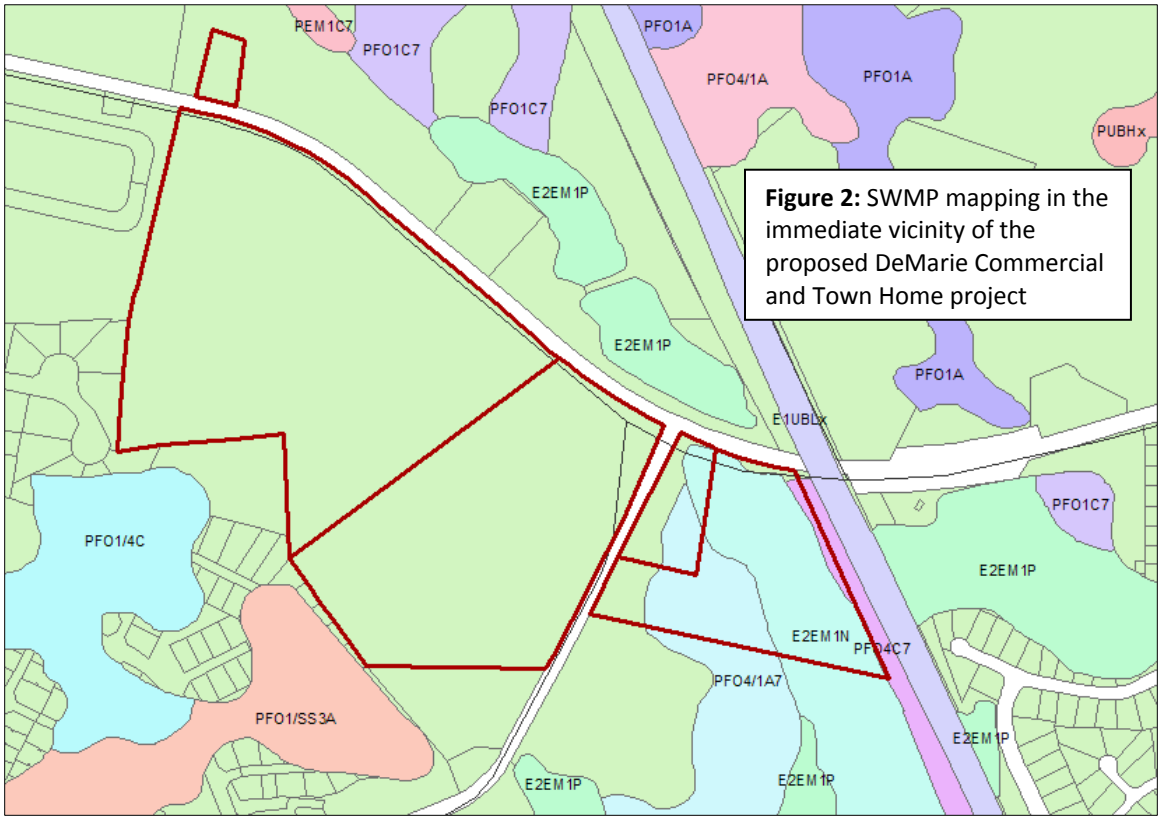


Figure 2: SWMP mapping in the immediate vicinity of the proposed DeMarie Commercial and Town Home project

The applicant is responsible for determining whether any State-regulated wetlands (regulated pursuant to 7 Del.C. Chapter 66 and the Wetlands Regulations) are present on the property. This determination can only be made by contacting the Division of Water Resources' Wetlands and Subaqueous Lands Section at 302/739-9943 and consulting the State's official wetland regulatory maps, which depict the extent of State jurisdiction. The area regulated by State law may be very different from the area under federal authority. No activity may take place in State-regulated wetlands without a permit from DNREC's Wetlands Section.

In addition, most perennial streams and ditches and many intermittent streams and ditches are regulated pursuant to the Subaqueous Lands Act (7 Del.C. Chapter 72) and the Regulations Governing the Use of Subaqueous Lands. Ponds which are connected to other waters are also regulated, while isolated ponds are not. Any work in regulated streams, ditches or ponds requires a permit from the Wetlands and Subaqueous Lands Section. An on-site jurisdictional determination is recommended in order to determine whether any regulated watercourses exist on the property. This parcel contains an extensive network of ditches that are potentially subject to regulatory jurisdiction by the State. Please contact the Wetlands and Subaqueous Lands Section at 302/739-9943 to schedule an on-site visit. Such appointments can usually be scheduled within 2 to 3 weeks.

When designing a project on a site with regulated watercourses, any extensive piping, filling or burying of streams or ditches in excess of the minimum needed for road crossings should be avoided. Where

road crossings are necessary, bridge spans which avoid significant impacts to stream banks and channels should be used wherever possible. Where placement of culverts is unavoidable, culvert designs which 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. When calculating surface imperviousness it is important to include all forms of constructed surface imperviousness: 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.

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 1, 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.

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 Nutrient Budget Protocol, which is an assessment tool to help evaluate whether the proposed project will meet TMDL nutrient reduction requirements in this 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 information provided indicates that Tidewater Utilities will provide well water to the proposed project through a public water system. Our files reflect that Tidewater Utilities does not currently hold a Certificate of Public Convenience and Necessity (CPCN) to provide public water in these areas. They also indicate that this project will be annexed into the Town of Ocean View. According to §203C, Subchapter II, Chapter 1, Title 26, Delaware Code, the municipality is required to give notice to the Public Service Commission when the annexation is complete. They will need to file an application for a CPCN with the Public Service Commission, if they have not done so already. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at 302-736-7547. Should an on-site public well be needed, it must be located at least 150 feet from the outermost boundaries of the project and 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

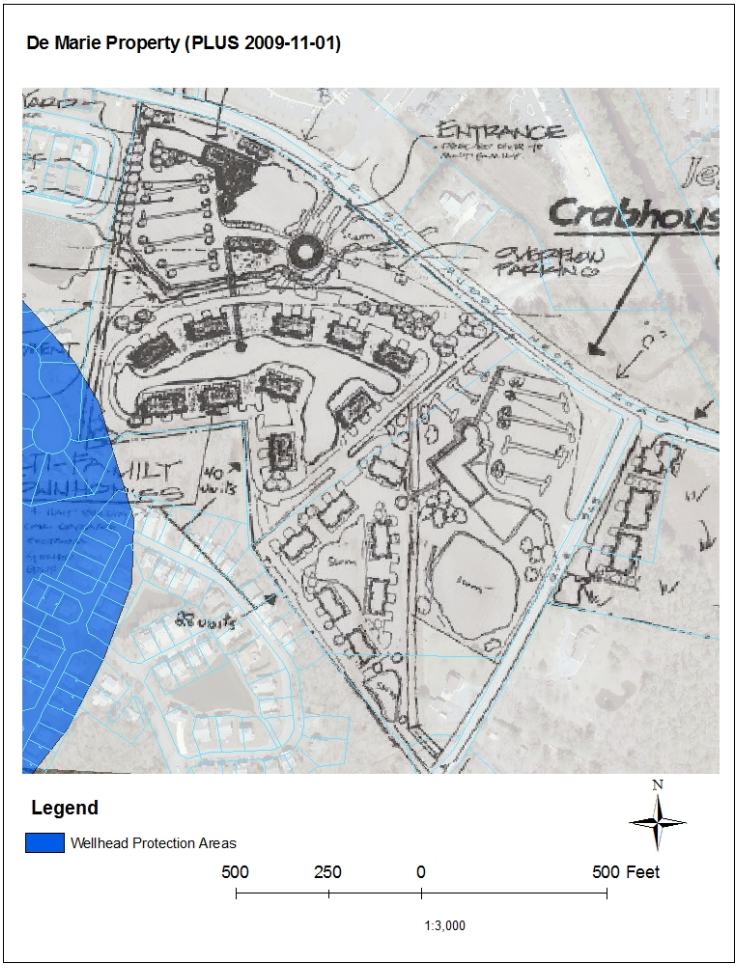
of Water Resources will consider applications for the construction of on-site wells provided the wells can be constructed and located in compliance with all requirements of the Regulations Governing the Construction and Use of Wells. A well construction permit must be obtained prior to constructing any 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 Groundwater Protection Branch (GPB) has determined that the southwestern corner of the project falls within a wellhead protection area for Tidewater Utilities Bethany Bay District in Sussex County (see attached map).

Wellhead protection areas are surface and subsurface areas surrounding a public water supply well where land use activities or impervious cover may adversely affect the quantity and quality of ground water moving toward such wells. Impervious cover prevents precipitation from infiltrating through the soil to the water table aquifer. Impervious cover refers to structures including but not limited to roads, sidewalks, parking lots, and buildings. Any impervious cover within this wellhead protection area has the potential to have a negative affect the quality and quantity of drinking water available to the County.



The Developer indicates on the concept drawing that a small parking lot with shrubbery is planned for portion of the parcel within the wellhead protection area.

- DNREC recommends leaving the wellhead protection area as open space by moving the parking to another area on the site.

In addition, because the project is located within a wellhead protection area and the wellhead is a source of public drinking water, the storage of hazardous substances or wastes should not be allowed within the area unless specific approval is obtained from the relevant state, federal, or local program. *Anne Mundel - (302) 739-9945, Anne.Mundel@state.de.us*

Air and Waste

Tank Management Branch. There is one inactive LUST project within a quarter mile of the proposed project site.

Name: Town of South Bethany Beach (Inactive)
Facility ID: 5-000180
Project: S9202046

No environmental impact is anticipated; however, 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*