

## Deep Valley Subdivision

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DNREC notes that this project is in the Inland Bays Watershed. A Pollution Control Strategy for the Inland Bays was approved on November 11, 2008, and is now an enforceable regulatory directive.

### Fish and Wildlife

**Forested Wetland Buffers.** The headwaters of the Goslee Creek System occur within the project area. Currently there is a road, two stormwater facilities and lot numbers 178-182 (there may be additional lots) within 100 feet of these wetlands. Current codes may not require 100-foot buffers, but ecologically the 50 feet being proposed is inadequate for water quality protection and for providing habitat necessary to sustain wetland dependent species that utilize these buffers for a portion of their life cycle. With the amount of impervious surface being proposed and the plan to use Goslee Creek as an outlet for stormwater, we ask the developer to consider the importance of water quality protection on-site as well as downstream.

*Recommendation:* We highly recommend that the site plan be revised to allow for the protection of these headwaters. This would entail leaving at least a 100-foot upland buffer between lots and infrastructure. This buffer zone should not be comprised of mowed grass, but of the existing vegetation or planted with Delaware native trees, shrubs, grasses or wildflowers. We have made this same recommendation for 100-foot buffers four times via PLUS (PLUS 2004-09-11, Graves Property; 2006-05-04, Graves Property; and 2007-10-09, Deep Valley Farm) and via the Sussex County Technical Advisory Committee (TAC) as #2007-37 Deep Valley Farm.

**Nuisance Geese.** 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 a reduction in the number of ponds, proper landscaping, monitoring, and other

*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. When geese are on the pond, if the view of the surrounding area is blocked, they can't scan for predators and are less likely to reside and nest in the area of the pond. The vegetation also blocks the ability to easily move between land and water.

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

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addition, the on-going maintenance (removing entangled trash, etc.) may become a burden to the homeowners association. *Edna Stetzar* - (302) 653-2880, [Edna.Stetzar@state.de.us](mailto: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. 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.

Because of the parcel's location in an impaired watershed and the amount of impervious surface, green technology BMPs and low impact development practices should be considered a priority to reduce stormwater flow and to meet water quality goals.

Consider including Brooks Cahall, of the Drainage Program, in the pre-application meeting with the Sussex Conservation District to discuss drainage, stormwater management, tax ditch maintenance, and the release of stormwater into the tax ditch. Show the location and width of tax ditch rights-of-way on the sediment and stormwater plans.

**Drainage Program.** The Drainage Program has researched the Tax Ditch rights-of-ways for parcel # 334-5.00-177.00. The information is as follows:

This parcel lies on both sides of Road 285, partially in the **Graves-Rollins** Tax Ditch. The Main has rights-of-way on both pieces of the property. From Sta 1+00 to Sta 3+60, there are 35-foot construction rights-of-way on the left side of the Main, looking upstream. These rights-of-way are measured from the top of the ditch bank, and include the ditch from the centerline to the top of the bank. There are 20-foot rights-of-way on both sides of the Main, looking upstream, from Sta 4+16 to Sta 6+10. These are measured from the centerline of the ditch. The Main also has 16.5-foot access rights-of-way around the upper end measured from top of the bank.

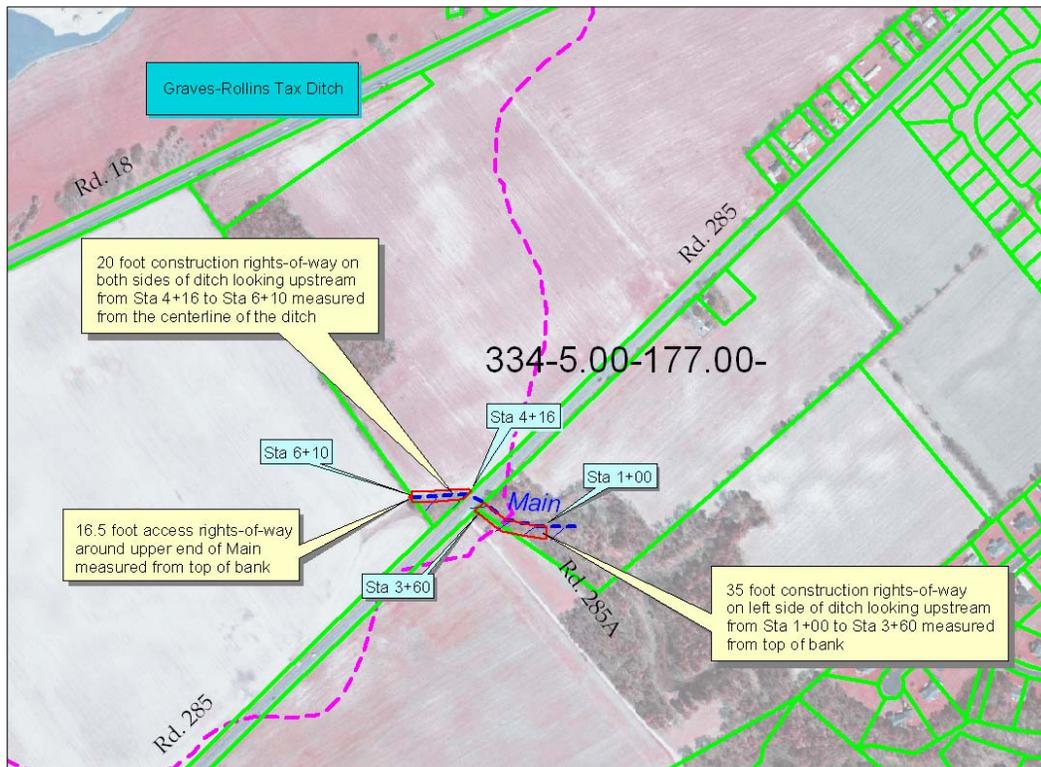
Any change to the location of the tax ditch or existing tax ditch rights-of-way will require a change to the Graves-Rollins Tax Ditch court order. The placement of permanent obstructions within tax ditch rights-of-way is prohibited. Please contact Brooks Cahall of the Drainage Program in Georgetown at (302) 855-1930 as soon as possible to discuss the tax ditch rights-of-way for this project. It is suggested to include Brooks Cahall in the pre-application meeting with the Sussex Conservation District to discuss drainage, stormwater management, tax ditch maintenance, and the release of stormwater into the tax ditch.

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The Drainage Program requests that 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 onsite storm water. The Drainage Program requests that the engineer check existing downstream ditches and pipes for function and blockages prior to the construction. Notify downstream landowners of the change in volume of water released on them.

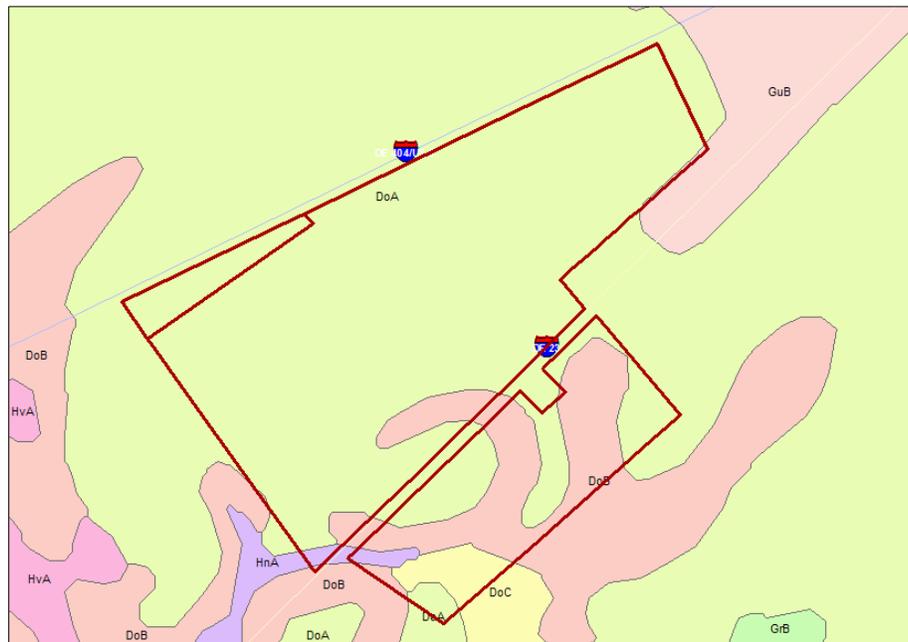


Have all drainage easements recorded on deeds and place restrictions on obstructions within the easements to ensure access for periodic maintenance or future re-construction. Future property owners may not be aware of a drainage easement on their property if the easement is only on the record plan. However, by recording the drainage easement on the deed, the second owner, and any subsequent owner of the property, will be fully aware of the drainage easement on their property.

*Sediment/stormwater and drainage comments provided by James Sullivan - (302) 739-9921, [James.Sullivan@state.de.us](mailto:James.Sullivan@state.de.us)*

## Water Resources

**Soils Assessment.** Based on the Sussex County soil survey update, Downer and Hammonton were mapped in the immediate vicinity of the proposed construction. Downer is a well-drained upland soil that, generally, has few limitations for development. Hammonton is a moderately well-drained soil of low-lying uplands that has moderate limitations for development.



**Figure 1: NRCS soil survey update mapping in the immediate vicinity of the proposed Deep Valley Farm subdivision**

**Wetlands.** Based on the Statewide Wetland Mapping Project (SWMP) maps, palustrine forested wetlands were mapped in the northwestern and southwestern portions of the parcel. Impacts to Palustrine wetlands are regulated by the U.S. Army Corps of Engineers (USACE, or “the Corps”) through Section 404 of the Clean Water Act. In addition, individual 404 permits and certain Nationwide Permits from the Corps also require 401 Water Quality Certification from the DNREC Wetland and Subaqueous Land Section and Coastal Zone Federal Consistency Certification from the DNREC Division of Soil and Water Conservation, Delaware Coastal Management Program (DCMP) Section. Each of these certifications represents a separate permitting process. Please be advised that nationwide permits have been suspended in Delaware and are pending further coordination with the Corps. Therefore, contrary to past practices,

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Coastal Zone Management approval can no longer be assumed. Individual certifications must be granted from the DCMP office for each project intending to utilize a Nationwide Permit. For more information on the Federal Consistency process, please contact the DCMP office at 302.739.9283. To find out more about permitting requirements, the applicant is encouraged to attend a Joint Permit Process Meeting.

These meetings are held monthly and are attended by federal and state resource agencies responsible for wetland permitting. Contact Denise Rawding at (302) 739-9943 to schedule a meeting.

It is recommended that vegetated buffers should be employed from the edge of the wetland complex and other water bodies on site. It is important to note that both DNREC and the Corps discourage allowing lot lines to contain wetlands and associated buffers, to minimize potential cumulative impacts resulting from unauthorized and/or illegal activities and disturbances that can be caused by homeowners.

**Impervious Surfaces and Best Management Practices.** Based on information provided by the applicant in the PLUS application form, this project's post-development surface imperviousness is estimated to reach 34 percent. However, given the scope and density of this project (i.e., as viewed from the conceptual project layout) this estimate appears to be an underestimate. Based on the TR-55 methodology for determining impervious cover, with the prevailing lot size the surface imperviousness is estimated to be higher than 40 percent. When calculating surface imperviousness, it is important to include all forms of constructed surface imperviousness (i.e., rooftops, sidewalks, stormwater management structures, and roads) in the calculation for surface imperviousness; this will ensure a realistic assessment of this project's likely post-construction environmental impacts. Surface imperviousness should be recalculated with all of the above-mentioned forms of constructed surface imperviousness included.



**Figure 2: SWMP mapping in the immediate vicinity of the proposed Deep Valley Farm subdivision.**

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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 its 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, 40 percent reduction in bacteria will also be required.

As stated above, TMDLs for nitrogen and phosphorus have been promulgated through regulation for the Inland Bays Watershed. The TMDL calls for a 40 percent reduction in nitrogen and phosphorus from baseline conditions. Additionally, a 40 percent reduction in bacteria will also be required from baseline conditions. Additional nutrient reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses (and/or wetlands), increasing passive, wooded open space that reduce surface imperviousness (i.e., pervious pavers), and the use of green-technology stormwater management technologies.

A Pollution Control Strategy (PCS) is an implementation strategy that identifies the actions necessary to systematically reduce the pollutant loading rate for a given water body, and meet the TMDL reduction requirements specified for that water body. As mentioned previously, the pollutants specifically targeted for reduction in the Inland Bays watershed are nutrients (e.g., nitrogen and phosphorus) and bacteria. A variety of site-specific BMPs will be the primary actions required by the PCS to reduce nutrient and bacterial pollutant loadings. The PCS for the Inland Bays was approved on November 11, 2008, and is now an enforceable regulatory directive.

The Department has developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

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

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**Water Allocation.** The project information sheets state water will be provided to the project by Tidewater Utilities via a public water system. Our records indicate that the project is located within the public water service area granted to Tidewater Utilities under Certificate of Public Convenience and Necessity 83-W-15.

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](mailto:Ricardo.Rios@state.de.us)*

## Parks and Recreation

To provide optimal recreational opportunities for all residents of the community, it is recommended that the clubhouse and pool be relocated to a more centralized location of the development. Placing these amenities in the center of the community will:

1. Make the clubhouse and pool easily accessible and convenient to everyone
2. Decrease the need to drive to these destinations
3. Decrease the disturbance in the wooded area

We support the incorporation of a play area within the proposed complex, but do not support the clearing of forested areas to fit it into the community. We recommend repositioning the tot lot behind the clubhouse and pool out of the wooded area possibly to the south side of the clubhouse (depicted as open space). By moving the play area to this location, you will:

1. Increase the security of the play area- At its proposed location, the play area is isolated and indiscernible. This could create apprehension of parents to allow their kids to use this area. It also increases the incidence of vandalism.
2. Decrease disturbance in the wooded area.

Relocating the clubhouse, pool, and tot lot to a centralized location within the community could reduce the need to provide multiple tot lots on the northern side of Road 285. *Kendall Sommers - (302) 739-9242, [Kendall.Sommers@state.de.us](mailto:Kendall.Sommers@state.de.us)*

## Air and Waste

**Air Quality.** Housing developments 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 housing developments include emissions from:

- Area sources like painting, lawn and garden equipment and the use of consumer products like roof coatings and roof primers.
- The generation of electricity needed to support the homes in your development, and
- Car and truck activity associated with the homes in your new development.

These three air emissions components (i.e., area, electric power generation, and mobile sources) are quantified below, based on a per household/residential unit emission factor that was developed using 2002 Delaware data. These emissions in the table represent the actual impact the Deep Valley Subdivision development may have.

Emissions Attributable to Deep Valley Subdivision (Tons per Year)

	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NOx)	Sulfur Dioxide (SO <sub>2</sub> )	Fine Particulate Matter (PM <sub>2.5</sub> )	Carbon Dioxide (CO <sub>2</sub> )
Direct Residential	5.9	0.7	0.5	0.7	24.1
Electrical Power Generation	ND*	2.4	8.2	ND*	1,208.5
Mobile	8.8	9.2	0.3	0.1	5,674.6
<b>Total</b>	14.7	12.3	9.0	0.8	6,907.2

(\*) Indicates data is not available.

Note that emissions associated with the actual construction of the subdivision, 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:

<b>Regulation 6 -</b> Particulate Emissions from Construction and Materials Handling	<ul style="list-style-type: none"><li>• <b>Using dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads.</b></li><li>• <b>Using covers on trucks that transport material to and from site to prevent visible emissions.</b></li></ul>
<b>Regulation 1113 –</b> Open Burning	<ul style="list-style-type: none"><li>• <b>Prohibiting open burns statewide during the Ozone Season from May 1-Sept. 30 each year.</b></li><li>• <b>Prohibiting the burning of land clearing debris.</b></li><li>• <b>Prohibiting the burning of trash or building materials/debris.</b></li></ul>
<b>Regulation 1145 –</b> Excessive Idling of Heavy Duty Vehicles	<ul style="list-style-type: none"><li>• <b>Restricting idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.</b></li></ul>

Additional measures may be taken to substantially reduce the air emissions identified above. These measures include:

- **Constructing only energy efficient homes.** Energy Star qualified homes are up to 30% more energy efficient than typical homes. These savings come from building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment. Every percentage of increased energy efficiency translates into a percent reduction in pollution. The Energy Star Program is excellent way to save on energy costs and reduce air pollution.
- **Offering geothermal and/or photo voltaic energy options.** These systems can significantly reduce emissions from electrical generation, and from the use of oil or gas heating equipment.
- **Providing tie-ins to the nearest bike paths and links to any nearby mass transport system.** These measures can significantly reduce mobile source emissions.
- **Funding a lawnmower exchange program.** New lawn and garden equipment emits significantly less than equipment as little as 7 years old, and may significantly reduce emissions from this new development. The builder could fund such a program for the new occupants.

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Additionally, the following measures will reduce emissions associated with the actual construction phase of the development:

- **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.
- **Using pre-painted/pre-coated flooring, cabinets, fencing, etc.** These measures can significantly reduce the emission of VOCs from typical architectural coating operations.
- **Planting trees at residential units and 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, whereby reducing air conditioning needs by up to 30 percent and saving 20 to 50 percent on fuel costs.

This is a partial list, and there are additional things that can be done to reduce the impact of the development 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 Deep Valley Subdivision development. Air Quality Management Section points of contact are Phil Wheeler and Deanna Morozowich, and they may be reached at (302) 739-9402. *Deanna Morozowich* - (302) 739-9402, [Deanna.Morozowich@state.de.us](mailto:Deanna.Morozowich@state.de.us)

**Hazardous Waste Sites.** DNREC's Site Investigation and Restoration Branch (SIRB) has reviewed the proposed project. No SIRB sites or salvage yards were found within a ½-mile radius of the proposed development. However, 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](mailto:Krystal.Stanley@state.de.us)

**Tank Management Branch.** The Delaware Department of Natural Resources and Environmental Control-Tank Management Branch (TMB) appreciates the opportunity to comment on the proposed development. There are two (2) inactive LUST sites located within a quarter mile of proposed rezoning location.

Name: Edgehill Pharmacy Warehouse (Inactive)

Facility ID: 5-000661

Project: S9512290

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Name: Bests Store Inc (Inactive)

Facility ID: 5-000710

Project: S9212279

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](mailto:Elizabeth.Wolff@state.de.us)