



**STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF STATE PLANNING COORDINATION**

May 21, 2013

Mr. Ted Williams
Landmark Science & Engineering
100 W. Commons Blvd., St.301
New Castle, DE 19720

RE: PLUS review – 2013-04-06; Wagoner's ROW

Dear Mr. Williams:

Thank you for meeting with State agency planners on April 24, 2013 to discuss the proposed plans for the Wagoner's ROW subdivision to be located at the southeast corner of the intersection of Montchannin Road and Buck Road.

According to the information received, you are seeking a rezoning of 12 acres of a 20 acre parcel through New Castle County from SE to S for the development of 12 new single family detached lots with the remaining 8.4 acres of the property being subdivided into two lots for the existing dwelling units.

Please note that changes to the plan, other than those suggested in this letter, could result in additional comments from the State. Additionally, these comments reflect only issues that are the responsibility of the agencies represented at the meeting. **The developers will also need to comply with any Federal, State and local regulations regarding this property. We also note that as New Castle County is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.**

Strategies for State Policies and Spending

This project is located in Investment Level 2 according to the *State Strategies for Policies and Spending*. Investment Level 2 reflects areas where growth is anticipated by local, county, and State plans in the near term future. State investments will support growth in these areas.

Code Requirements/Agency Permitting Requirements

State Historic Preservation Office – Contact Terrence Burns 736-7404

- There are no known historic or cultural resources such as an archaeological site or National Register-listed property on this parcel. However, on the Pomeroy and Beers Atlas of 1868 (a 19th-century historic map), it appears that there were a couple of dwellings or structures on this parcel associated with E. I. DuPont & Company, and the USGS Topographic Map of 1904 indicated that they were there as well.
- The developer did mention that there is an existing historic house on this parcel, which does not appear to be in their records. The Division of Historic and Cultural Affairs would like permission to take some photographs and document information about it, which can be very significant in preserving the history of the house. In addition, if there is going to be any development project on this parcel, it is also important that the developer be aware of the Delaware Unmarked Human Burials and Human Skeletal Remains Law, which is outlined in Chapter 54 of Title 7 of the Delaware Code.

Abandoned or unmarked family cemeteries are very common in the State of Delaware. They are usually in rural or open space areas, and sometimes near or within the boundary of an historic farm site. Even a marked cemetery can frequently have unmarked graves or burials outside of the known boundary line or limit. Disturbing unmarked graves or burials triggers the Delaware's Unmarked Human Burials and Human Skeletal Remains Law (Delaware Code Title 7, Chapter 54), and such remains or discoveries can result in substantial delays while the procedures required under this law are carried out. If there is a discovery of any unmarked graves, burials or a cemetery, it is very costly to have them archaeologically excavated and the burials moved. The Division of Historical & Cultural Affairs recommends that owners and/or developers have a qualified archaeological consultant investigate their project area, to the full extent, to see if there is any unmarked cemetery, graves, or burial sites. In the event of such a discovery, the Division of Historical & Cultural Affairs also recommends that the plans be re-drawn to leave the full extent of the cemeteries or any burials on its own parcel or in the open space area of the development, with the responsibility for its maintenance lying with the landowner association or development. If you would like to know more information that pertains to unmarked human remains or cemeteries, please check the following websites for additional information: www.history.delaware.gov/preservation/umhr.shtml and www.history.delaware.gov/preservation/cemeteries.shtml .

- Prior to any demolition or ground-disturbing activities, the developer should consider hiring an archaeological consultant to examine the parcel for potential historic or cultural resources, such as a potential archaeological site, a cemetery or unmarked human remains. In addition, the developer should also include a barrier between the existing historic house and any proposed development, in order to protect it from the various

construction activities that may adversely affect it, and sufficient landscaping to block the view of the development from the house as well.

- If there is any federal involvement with the project, in the form of licenses, permits, or funds, the federal agency, often through its client, is responsible for complying with Section 106 of the National Historic Preservation Act (36 CFR 800) and must consider their project's effects on any known or potential cultural or historic resources. Owners and developers who may plan to apply for an Army Corps of Engineers permit or for federal funding, such as HUD or USDA grants, should be aware of the National Historic Preservation Act of 1966 (as amended). Regulations promulgated for Section 106 of this Act stipulate that no ground-disturbing or demolition activities should take place before the Corps or other involved federal agency determines the area of potential effect of the project undertaking. These stipulations are in place to allow for comment from the public, the Delaware State Historic Preservation Office, and the Advisory Council for Historic Preservation about the project's effects on historic properties. Furthermore, any preconstruction activities without adherence to these stipulations may jeopardize the issuance of any permit or funds. If you need further information or additional details pertaining to the Section 106 process and the Advisory Council's role, please review the Advisory Council's website at www.achp.gov

Department of Transportation – Contact Bill Brockenbrough 760-2109

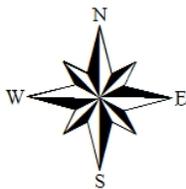
- The proposed development's subdivision plan and subdivision street construction plan must be designed in accordance with DelDOT's Standards and Regulations for Subdivision Streets and State Highway Access.
- Montchanin Road is classified as a Collector Road. Therefore, in accordance with Section 3.6.5 of the Standards and Regulations for Subdivision Streets and State Highway Access, we will require the dedication of 40 feet of right-of-way, measured from the centerline of the road.
- The proposed development would not meet DelDOT's volume-based criteria, found in Section 2.3.2 of the Standards and Regulations for Subdivision Streets and State Highway Access, for recommending that a Traffic Impact Study (TIS) be required (400 vehicle trips per day or 50 vehicle trips per hour).
- DelDOT was unable to find a dimension for the proposed curve on Grizz Lane, but it appears to be marginal and should be checked. Section 5.1.2 of the Standards and Regulations for Subdivision Streets and State Highway Access specifies a minimum horizontal radius of 150 feet for subdivision streets serving fewer than 500 trips per day.

Department of Natural Resources and Environmental Control – Contact Bahareh van Boekhold
735-3495

Wetlands

- State regulated wetlands ARE NOT located on this property based on a review of the State wetland maps. State regulated wetlands are those wetlands identified on the State's official State Regulated Wetland Maps. Additional information about State regulated wetlands is available by contacting the Wetlands and Subaqueous Lands Section at (302) 739-9943 or on line at:
<http://www.dnrec.delaware.gov/wr/Services/Pages/WetlandsAndSubaqueousLands.aspx>.
- State regulated subaqueous lands ARE possibly located on this property based on a review of aerial photographs, State Wetland Mapping Project (SWMP) maps, Soil Surveys and/or USGS topographic maps. There is a lake/pond labeled perennial on the maps. The topography suggests that it may feed into or be connected to the nearby stream at times, if so it is jurisdictional. We suggest a Subaqueous Lands Jurisdictional Determination be done to determine impact. State subaqueous lands include all tidal waters (up to the mean high water line), most non-tidal rivers, streams, lakes, ponds, bays and inlets (up to the ordinary high water line), most perennial streams and ditches and many intermittent streams and ditches. Additional information about State regulated subaqueous lands is available by contacting the Wetlands and Subaqueous Lands Section at (302) 739-9943 or on line at:
<http://www.dnrec.delaware.gov/wr/Services/Pages/WetlandsAndSubaqueousLands.aspx>.
- Waters of the U.S. regulated by the U.S. Army Corps of Engineers ARE possibly located on this property based on a review of aerial photographs, SWMP maps, Soil Surveys and/or USGS topographic maps. According to our GIS SWMP maps, there are considerable wetlands regulated by the U.S. Army Corps of Engineers. We suggest contacting them for an on-site inspection. Waters of the United States include the following: navigable waters of the United States; wetlands; tributaries to navigable waters of the United States, including adjacent wetlands and lakes and ponds; interstate waters and their tributaries, including adjacent wetlands; and all other waters of the United States not identified above, such as isolated wetlands, intermittent streams, and other waters that are not part of a tributary system to interstate waters or to navigable waters of the United States, where the use, degradation or destruction of these waters could affect interstate or foreign commerce. The extent of Federal jurisdiction over Waters of the United States is determined by the U.S. Army Corps of Engineers and is based on site specific conditions. Therefore, an on-site inspection by an environmental consultant is recommended to determine if Waters of the U.S. are located on the property and the limits of Federal jurisdictional. The U.S. Army Corps of Engineers can be contacted at (215) 656-6728 or online at <http://www.nap.usace.army.mil/cenap-op/regulatory/regulatory.htm>.

New Castle County PLUS 2013-04-06 Wagoner's ROW



0 0.0225 0.045 0.09 Miles

Reviewed By: Kitty Bronson
Source: New Castle County layers:
Parcels, DelDOT Rds, Wetland
and Swmp maps



TMDLs

- Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Brandywine River 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 State water quality standards (e.g., dissolved oxygen, nutrients, and bacteria; *State of Delaware Surface Water Quality*

Standards, as amended July 11, 2004) to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting.

TMDLs are required by federal law (Section 303(d) of the 1972 Clean Water Act), and the states are charged with developing and implementing specific land use practices that support these desired use goals. The project is located in the greater Brandywine River Basin, specifically within the Brandywine River watershed. In the Brandywine River watershed, post-development nitrogen and phosphorus loading must be capped at the pre-development or baseline loading rate (or a 0% post-construction increase in N & P in Delaware's portion of the Brandywine River Basin) to meet the required TMDL for each nutrient. Moreover, bacteria must be reduced by 29-95% (depending on location) to meet the required TMDL. The specific required nutrient and bacterial requirements and background information is in the report entitled "*Brandywine River Basin High-Flow TMDL*" by the EPA. This report can be retrieved from the following web link: http://www.epa.gov/reg3wapd/tmdl/pa_tmdl/BrandywineMeetingTMDL/index.htm.

In response to concerns about the need for reducing nonpoint source nutrient (nitrogen and phosphorus) and bacterial pollutants to levels sufficient to meet the prescribed TMDL reduction requirements in Delaware's portion of the Brandywine River Basin, a multifaceted and comprehensive process known as a Pollution Control Strategy (PCS) has been developed to enable such reductions. Specifically, a PCS is a combination of best management practices and control technologies that reduce nutrient and bacterial pollutant runoff loading in waters of a given watershed to level(s) consistent with the TMDL(s) reduction levels specified for that watershed. The PCS for the Brandywine River watershed consists of 41 recommendations from the following five areas: storm water, open space, wastewater, agriculture and education. Additional information about Brandywine River PCS is available from the following web link: <http://www.dnrec.delaware.gov/swc/wa/Pages/BrandywineBasin.aspx>.

- A nutrient management plan is required under the *Delaware Nutrient Management law (3 Del. Chapter 22)* for all persons or entities who apply nutrients to lands or areas of open space in excess of 10 acres. This project's open space may exceed this 10-acre threshold. Please contact the Delaware Nutrient Management Program at 739-4811 for further information concerning compliance requirements or view the following web link for additional information: <http://dda.delaware.gov/nutrients/index.shtml>.

Water Supply

- The project information sheets state water will be provided to the project by City of Wilmington via a public water system. Our records indicate that the project is located within the public water service area granted to City of Wilmington under Certificate of Public Convenience and Necessity 94-CPCN-09.

- 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.

Sediment and Stormwater Program

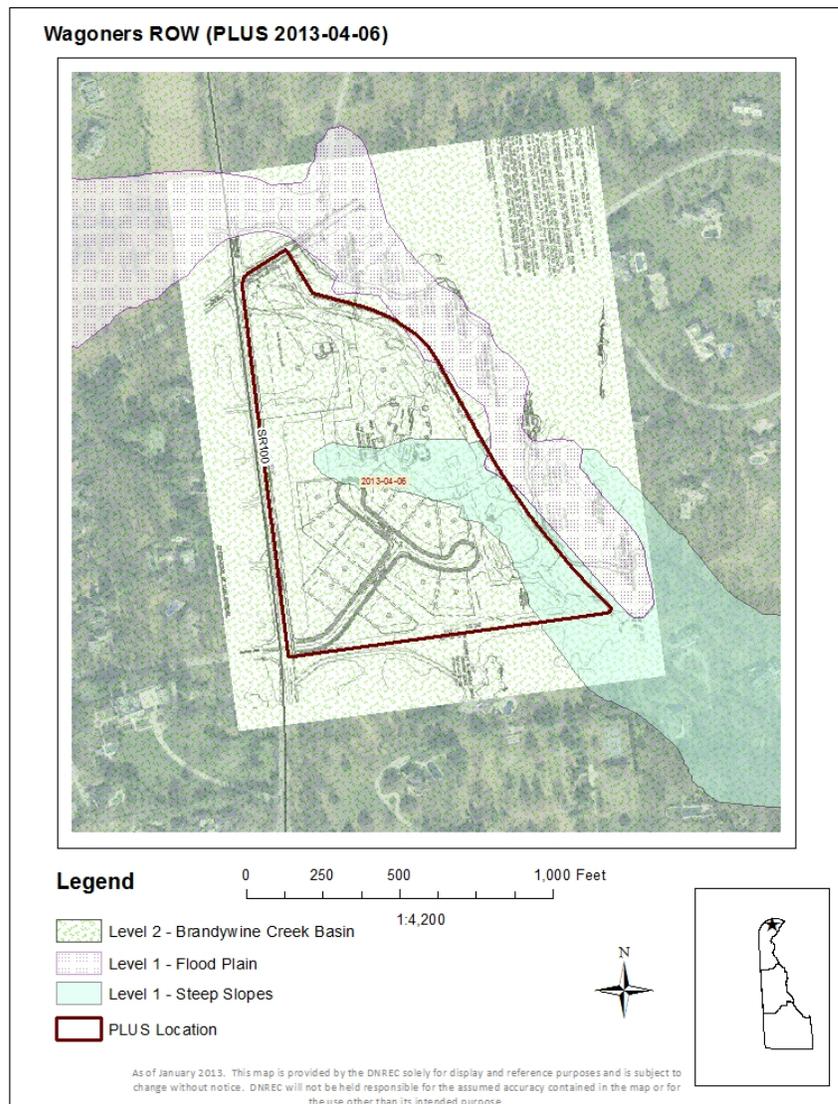
- A sediment and stormwater plan will be required for the site. Contact the reviewing agency to schedule a project application meeting to discuss the sediment and erosion control and stormwater management components of the plan as soon as possible. The site topography, soils mapping, pre- and post- development 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 New Castle County Department of Land Use Engineering Section. Contact the Department of Land Use at (302) 395-5470 for details regarding submittal requirements and fees. (Title 7, Delaware Code, Chapter 40 and Delaware Regulations, Title 7, Administrative Code, 5101)

Water Resource Protection Areas

- The DNREC Ground-Water Protection Branch (GPB) has determined that the project does not fall within any wellhead protection or excellent groundwater recharge potential areas. However, the parcel falls entirely within the Brandywine Creek Drinking Water Watershed. This area is a Level 2 source water protection area for the New Castle County (NCC). In addition, the project falls partially within areas of steep slopes and flood plains protected as Level 1 source water protection areas for NCC (see map).

Level 2 Source Water Protection Areas are the delineated watershed upstream from public drinking water supply intakes. Land Use or Land Activity within these areas has the potential to influence water quality or quantity to the public drinking water system.

Level 1 Source Water Protection Areas are defined as flood plains. Land Use or Land Activity within this area have the potential to influence water quality or quantity to the system. DNREC recommends referring to NCC Unified Development Code for regulations regarding development in these water resource protection areas.



Tank Management Branch. Please be aware:

- If a release of a Regulated Substance occurs at the proposed project site, compliance of 7 Del.C., Chapter 60, 7 Del.C., Chapter 74 and DE Admin. Code 1351, State of Delaware *Regulations Governing Underground Storage Tank Systems* (the UST Regulations) is required.
- The following confirmed leaking underground storage tank (LUST) project is located directly on the proposed project parcel:
 - Carpenter Estates, Facility: 3-001371, Project: N9305085 (Inactive)

- 3000-gallon heating fuel UST release in June 1993. Three additional USTs found during cleanup response (2,000 and 3,000-gallon USTs abandoned in place and 550-gallon gasoline left in place—current status unknown by Department). Overexcavation and free product recovery implemented to address heating fuel release and impact to Brandywine Creek. Sensitive receptor survey was performed and results indicated product did not impact areas other than those directly downslope of the LUST. Bedrock approximately 12 feet or less below ground surface; prevented major impacts to groundwater. (21) soil borings were installed downgradient of the release for sample collection. Project closed in January 1994.
- The following confirmed leaking underground storage tank (LUST) projects are located within a quarter mile from the proposed project area:
 - Wilhelmina DuPont Ross Estate UST, Facility: 3-002224, Project: N0301015 (Inactive)
 - Bolling Property, Facility: 3-002047, Project: N9912256 (Inactive)
 - Paul White Residence, Facility: 3-002504, Project: N1005044 (Inactive)
 - DuPont Barley Mill Record Mgmt, Facility: 3-000765; Project: N8810058 (Inactive)
- Per the **UST Regulations: Part E, § 1. Reporting Requirements:**
 - Any indication of a Release of a Regulated Substance that is discovered by any Person, including but not limited to environmental consultants, contractors, utility companies, financial institutions, real estate transfer companies, UST Owners or Operators, or Responsible Parties shall be reported within 24 hours to:
 - The Department’s 24-hour Release Hot Line by calling 800-662-8802; and
 - The DNREC, Tank Management Branch by calling 302-395-2500.

Air Quality

- The applicant shall comply with all applicable Delaware air quality regulations. Please note that the following regulations in Table 1 – Potential Regulatory Requirements may apply to your project:

Table 1: Potential Regulatory Requirements	
Regulation	Requirements

<p>7 DE Admin. Code 1106 - Particulate Emissions from Construction and Materials Handling</p>	<ul style="list-style-type: none"> • Use dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads. • Use covers on trucks that transport material to and from site to prevent visible emissions.
<p>7 DE Admin. Code 1113 – Open Burning</p>	<ul style="list-style-type: none"> • Prohibit open burns statewide during the Ozone Season from May 1-Sept. 30 each year. • Prohibit the burning of land clearing debris. • Prohibit the burning of trash or building materials/debris.
<p>7 DE Admin. Code 1141 – Limiting Emissions of Volatile Organic Compounds from Consumer and Commercial Products</p>	<ul style="list-style-type: none"> • Use structural/ paint coatings that are low in Volatile Organic Compounds. • Use covers on paint containers when paint containers are not in use.
<p>7 DE Admin. Code 1144 – Control of Stationary Generator Emissions</p>	<ul style="list-style-type: none"> • Ensure that emissions of nitrogen oxides (NO_x), non-methane hydrocarbons (NMHC), particulate matter (PM), sulfur dioxide (SO₂), carbon monoxide (CO), and carbon dioxide (CO₂) from emergency generators meet the emissions limits established. (See section 3.2). • Maintain recordkeeping and reporting requirements.
<p>7 DE Admin. Code 1145 – Excessive Idling of Heavy Duty Vehicles</p>	<ul style="list-style-type: none"> • Restrict idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.

For a complete listing of all Delaware applicable regulations, please look at our website: <http://www.awm.delaware.gov/AQM/Pages/AirRegulations.aspx>.

Delaware State Fire Marshall's Office – Contact Duane Fox 739-4394

At the time of formal submittal, the applicant shall provide; completed application, fee, and three sets of plans depicting the following in accordance with the Delaware State Fire Prevention Regulation:

- **Fire Protection Water Requirements:**

- Where a water distribution system is proposed for single family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required.
- Where a water distribution system is proposed for townhouse type dwellings it shall be capable of delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 800 feet spacing on centers are required.
- The infrastructure for fire protection water shall be provided, including the size of water mains.

- **Accessibility:**

- All premises which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from Montchanin Road must be constructed so fire department apparatus may negotiate it. If a “center island” is placed at an entrance into the subdivision, it shall be arranged in such a manner that it will not adversely affect quick and unimpeded travel of fire apparatus into the subdivision.
- Fire department access shall be provided in such a manner so that fire apparatus will be able to locate within 100 ft. of the front door.
- Any dead end road more than 300 feet in length shall be provided with a turn-around or cul-de-sac arranged such that fire apparatus will be able to turn around by making not more than one backing maneuver. The minimum paved radius of the cul-de-sac shall be 38 feet. The dimensions of the cul-de-sac or turn-around shall be shown on the final plans. Also, please be advised that parking is prohibited in the cul-de-sac or turn around.
- The use of speed bumps or other methods of traffic speed reduction must be in accordance with Department of Transportation requirements.
- The local Fire Chief, prior to any submission to our Agency, shall approve in writing the use of gates that limit fire department access into and out of the development or property.

- **Gas Piping and System Information:**

- Provide type of fuel proposed, and show locations of bulk containers on plan.

- **Required Notes:**

- Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
- Name of Water Supplier
- Proposed Use
- National Fire Protection Association (NFPA) Construction Type
- Maximum Height of Buildings (including number of stories)
- Provide Road Names, even for County Roads

Recommendations/Additional Information

This section includes a list of site specific suggestions that are intended to enhance the project. These suggestions have been generated by the State Agencies based on their expertise and subject area knowledge. **These suggestions do not represent State code requirements.** They are offered here in order to provide proactive ideas to help the applicant enhance the site design, and it is hoped (**but in no way required**) that the applicant will open a dialogue with the relevant agencies to discuss how these suggestions can benefit the project.

Department of Transportation – Contact Bill Brockenbrough 760-2109

- Be advised that DeIDOT will take into account the Brandywine Valley Byway Corridor Management Plan in our review of the plans for this project. While the Plan primarily addresses actions that DeIDOT will take, those actions do extend to the review of subdivision, land development and entrance plans. The Plan is available at the following link:
http://www.deldot.gov/information/community_programs_and_services/byways/brandwyne_cmp.shtml
- The proposed entrance design appears to require a construction easement, if not right-of-way from the adjoining property. Before DeIDOT will issue a Letter of No Objection, the developer’s engineer must demonstrate that the proposed entrance can be built. If an easement or right-of-way is needed from the adjoining property owner, evidence that it has been obtained must be included on the subdivision plan.
- The plan presented shows sidewalks proposed on both sides of Mozie Way and Grizz Lane but stopping short of Montchanin Road. Ordinarily, DeIDOT would require that the sidewalk be continuous out to Monchanin Road, that a crosswalk be provided across to Montchanin Drive and that a sidewalk or multi-use path be provided along Montchanin Road. However, DeIDOT will evaluate the need for and design of these features in view of the Brandywine Valley Byway Corridor Management Plan.
- While the size and trip generation of the proposed development do not warrant a pre-

submittal meeting, considering its location and the issues mentioned above, one may be appropriate. We recommend that the developer's engineer contact Mr. Joshua Schwartz of this office to discuss these matters and to meet with him as necessary. Mr. Schwartz can be reached at (302) 760-2768.

Department of Natural Resources and Environmental Control – Contact Bahareh van Boekhold
735-3495

Soils Assessment

- Based on soils survey mapping update, following soil mapping units were mapped on subject parcel (grouped on the basis of drainage class):
 - Well drained – Neshaminy (NtB, 5-8% slopes & NtC, 8-15% slopes),
 - Poorly drained (hydric) – Hatboro-Codorus complex (Hw)
- Based on the NRCS soil survey mapping, Hatboro –Codorus complex (Hw) and Neshaminy (NtC; 8-15% slopes) are the soil mapping unit most likely to have limitations for development on this site. Hatboro – Codorus complex is a poorly-drained wetland associated hydric soil mapping unit that has severe limitations for development and should be avoided. Neshaminy is a well-drained soil mapping unit that, generally, has few limitations for development. However, soils in this map unit with slopes exceeding 15% should be avoided. This is because those areas containing slopes greater than 15% are highly susceptible to soil erosion – greatly increasing the potential for sediment and sediment-associated pollutant runoff draining to adjoining wetlands and other downstream water bodies.
- Based on a review and analysis of the topographic contour mapping in the Erosion and Sediment control plan submitted to PLUS by Landmark Engineering – the topographic contours in the plan suggest that the topography is more steeply sloping in some areas of the Neshaminy map unit (NtC) than indicated by NRCS soil mapping. In fact, some areas of this map unit have slopes that exceed 20%.
- The SWMP often uses the soil survey as the basis for mapping and delineating wetlands. The presence of a hydric soil is one of three parameters that must be met in order to meet jurisdictional wetland requirements (as specified by the USACE). The other parameters are hydrophytic vegetation and hydrology. Thus, the presence of hydric soils is a correlate with wetland presence. Building on hydric soils is likely to increase the potential for on-site and off-site flooding potentials (See figures 1). Therefore, as mentioned previously, we strongly recommend avoiding development in those areas containing hydric soil mapping units such as Hatboro– Codorus complex.

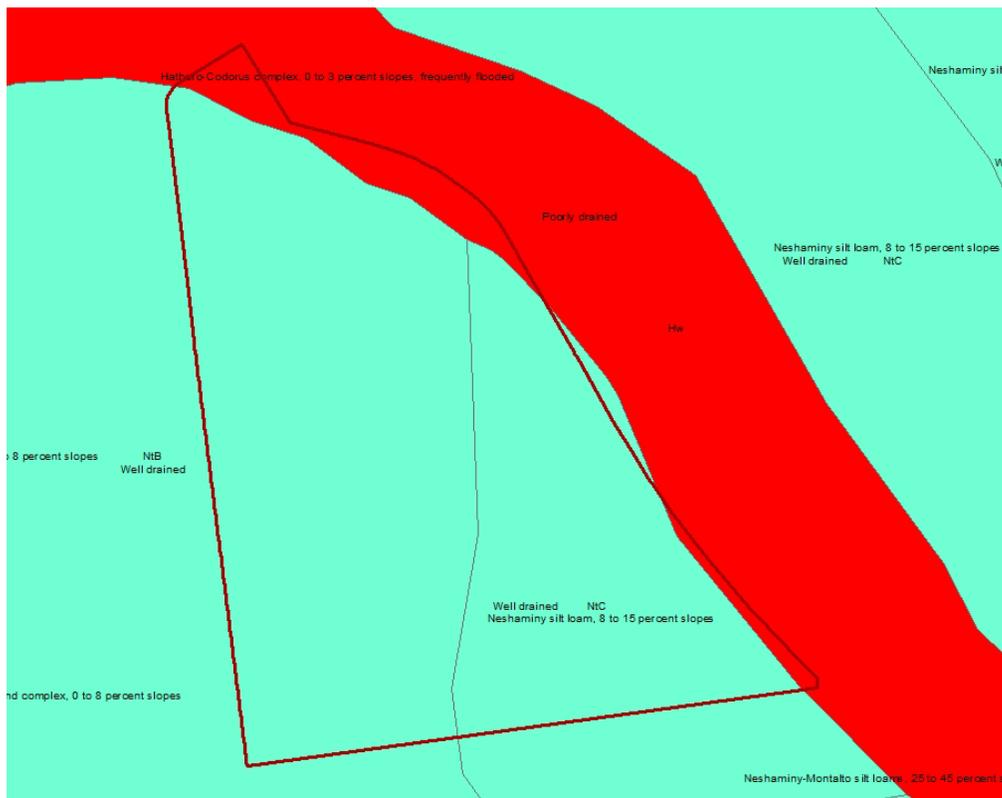


Figure 1: NRCS soil survey mapping update in the vicinity of the proposed construction.

Additional information on TMDLs and water quality

- The applicant is strongly urged to reduce nutrient and bacterial pollutants through voluntary commitment to the implementation of the following recommended BMPs:
 - United States Corps of Engineers (USACE) approved wetlands delineation is strongly recommended.
 - 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 (field delineated and approved by the USACE).
 - DNREC encourages the applicant to calculate post-construction surface imperviousness with all forms of created (or constructed) surface imperviousness

- (e.g., rooftops, driveways, parking lots, sidewalks, open-water storm water management structures, and roads) included in the calculation.
- Since this project that will likely increase the amount of impervious cover, DNREC recommend, wherever practicable, the use of pervious paving materials (instead of conventional asphalt and concrete) as a BMP(s) to reduce the impacts from all forms of created surface imperviousness.
 - DNREC recommends the use of rain gardens, and green-technology storm water management structures (in lieu of open-water management structures) as BMPs to mitigate or reduce nutrient and bacterial pollutant impacts via runoff from impervious surfaces.
 - The applicant should voluntarily assess nutrient and bacterial pollutant loading at the preliminary project design phase. To this end, the Watershed Assessment Section has developed a methodology known as the “Nutrient Load Assessment protocol.” The protocol is a tool used to assess changes in nutrient loading (e.g., nitrogen and phosphorus) that result from the conversion of individual or combined land parcels to a different land use(s), while providing applicants with quantitative information about their project’s impact(s) on baseline water quality. We strongly encourage the applicant/developer use this protocol to help them design and implement the most effective BMPs. Please contact the Watershed Assessment Section at 302-739-9939 for more information on the protocol.

Potential Impacts on Off-site Bog Turtle Habitat

DNREC scientists have not surveyed this project area; therefore, they 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 survey information, DNREC offers the following comments:

- Based on aerial imagery and on GIS data, it is unlikely that species of concern occur within the project parcel given most of the parcel is being maintained as a lawn area. However, habitat suitable to support the federally listed bog turtle (*Glyptemys muhlenbergii*) occurs within 300 feet to the west of the project area. Bog turtles typically occur in freshwater wetlands with open canopies, mucky soils, and tussock vegetation; but they can occur in more marginal habitats as well. The proposed project should not have any direct impacts to this habitat. Indirect impacts to this habitat can be avoided by implementing measures that will ensure run-off from this project does not change the hydrological regime or degrade water quality of adjacent wetlands and tributaries.

Additional information on tank management

- When contamination is encountered, PVC pipe materials should be replaced with ductile steel and nitrile rubber gaskets in the contaminated areas.
- If any aboveground storage tanks (ASTs) less than 12,500 gallons are installed, they must be registered with the TMS. If any ASTs greater than 12,500 gallons are installed, they are also subject to installation approval by the TMS.

Additional information on air quality

- DNREC encourages developers and new homes may emit, or cause to be emitted, 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 new homes include emissions from the following activities:
 - Area sources such as painting, maintenance equipment and the use of consumer products like roof coatings and roof primers.
 - The generation of electricity needed to support the new homes, and
 - All transportation activity.
- Based on the information provided, the three air emissions components (i.e., area, electric power generation, and mobile sources) for this project were quantified. Table 2- Projected Air Quality Emissions represents the actual impact the Wagoner’s ROW project may have on air quality.

Emissions Attributable to Wagoner’s ROW (Tons per Year)	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NOx)	Sulfur Dioxide (SO ₂)	Fine Particulate Matter (PM _{2.5})	Carbon Dioxide (CO ₂)
Area Source	0.4	0.0	0.0	0.0	1.5
Electric Power Generation	*	0.1	0.5	*	75.5

Mobile Source	0.5	0.6	0.0	0.0	354.7
Total Emissions	0.9	0.7	0.5	0.0	431.7

(*) Indicates data is not available.

Note that emissions associated with the actual construction of the road, 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.

- DNREC encourages sustainable growth practices that:
 - Control sprawl;
 - Preserve rural and forested areas;
 - Identify conflicting land use priorities;
 - Encourage growth on previously developed sites and denser communities while at the same time protect our diminishing land base;
 - Coordinate transportation, housing, environment, and climate protection plans with land use plans; and
 - Demonstrate that communities can achieve the qualities of privacy, community, and contact with nature without degrading the natural environment or generating unacceptable environmental costs in terms of congestion, use of natural resources, or pollution.
- Additional measures may be taken to substantially reduce the air emissions identified above. These measures include:
 - **Constructing with only energy efficient products.** Energy Star qualified products are up to 30% more energy efficient. 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 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. **For every vehicle trip that is replaced by the use of a sidewalk, a bike path or mass transit, 7 pounds of VOC and 11.5 pounds of NOx are reduced each year.**

- **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 in vegetative buffer areas.** Trees reduce energy emissions by cooling during the summer and by providing wind breaks in the winter, thereby 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. The applicant should submit a plan to the DNREC DAQ which address the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into the Wagoner's ROW project.

Delaware State Fire Marshall's Office – Contact Duane Fox 739-4394

- Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: www.statefiremarshal.delaware.gov, technical services link, plan review, applications or brochures.

Following receipt of this letter and upon filing of an application with the local jurisdiction, the applicant shall provide to the local jurisdiction and the Office of State Planning Coordination a written response to comments received as a result of the pre-application process, noting whether comments were incorporated into the project design or not and the reason therefore.

Thank you for the opportunity to review this project. If you have any questions, please contact me at 302-739-3090.

Sincerely,



Constance C. Holland, AICP
Director, Office of State Planning Coordination

CC: New Castle County