



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

November 30, 2015

Mr. Stephen Davies
Apex Engineering, Inc.
27 West Market Street
Newport, DE 19804

RE: PLUS review 2015-10-05; Roberts Property

Dear Mr. Davies:

Thank you for meeting with State agency planners on October 28, 2015 to discuss the proposed plans for the Roberts Property development. According to the information received, you are seeking review of a 32 unit subdivision on 60 acres in New Castle County.

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 3 according to the *Strategies for State Policies and Spending*. Investment Level 3 reflects areas where growth is anticipated by local, county, and state plans in the longer term future, or areas that may have environmental or other constraints to development. State investments may support future growth in these areas, but please be advised that the State has other priorities for the near future. We encourage you to design the site with respect for the environmental features which are present.

Code Requirements/Agency Permitting Requirements

Department of Transportation – Contact Bill Brockenbrough 760-2109

- Title 17 Delaware Code Section 132(c)(4) authorizes DelDOT to acquire property for highway rights-of-way. The east part of this property will be needed for right-of-way for a planned highway project, the US Route 301 Spur. Therefore DelDOT will not issue a Letter of No Objection to Recordation for this development as presently proposed.

If the applicant wishes to develop the remainder of their property now, they may revise their plan to show the needed land as being reserved for highway right-of-way, in a manner similar to what is contemplated in Section 3.2.6 of the Development Coordination Manual. If the applicant wishes to have the State purchase some or all of their property now, they may apply to do so through our Advanced Acquisition Approval Process. An outline of the process is available at http://www.deldot.gov/information/pubs_forms/brochures/pdf/adv_real_estate_acquisition.pdf. Information on the specific rights-of-way that would be needed may be obtained from our project manager for the US Route 301 Spur, Mr. Joseph Hofstee. Mr. Hofstee may be reached at (302) 760-2358 or Joseph.Hofstee@state.de.us.

- The following comments assume that the applicant does want to develop some portion of their property. They are applicable to the remainder of the property after the future highway rights-of-way are subtracted.
 - The proposed development's subdivision plan and subdivision street construction plan must be designed in accordance with DelDOT's Development Coordination Manual (formerly the Standards and Regulations for Subdivision Streets and State Highway Access), which is available at <http://www.deldot.gov/information/business/subdivisions/changes/index.shtml>.
 - The proposed development would not meet DelDOT's volume-based criteria, found in Section 2.2.2.1 of the Manual, for recommending that a Traffic Impact Study (TIS) be required (500 vehicle trips per day or 50 vehicle trips per hour).
 - Bethel Church Road is classified as a Minor Collector. Therefore, in accordance with Section 3.2.5 of the Manual, DelDOT will require the dedication of 40 feet of right-of-way, measured from the centerline of the road. In accordance with the same section, DelDOT will also require the dedication of a 15-foot wide permanent easement beyond the right-of-way.
 - The proposed development is in an Investment Level 3 area with regard to the Strategies for State Policies and Spending. Therefore, in accordance with Section 3.5.4.2.A. of the Manual, requirement of a sidewalk or Shared-Use Path in the aforementioned permanent easement along the site frontage would be at the

discretion of DelDOT's Subdivision Engineer. Given the amount of development activity occurring in the area, the requirement is a distinct possibility. The applicant's engineer may contact our plan reviewer for this area, Mr. Pao Lin, to seek a determination in this regard. Mr. Lin may be reached at (302) 760-2157.

- Section 3.5.6 of the Manual contains DelDOT's requirements regarding connectivity within a development, which include a minimum Connectivity Ratio of 1.4. This ratio is calculated as the number of street sections divided by the number of intersections. For the plan presented, we calculate a ratio of 10/8, or 1.25. Connecting the cul-de-sacs where Lots 18 and 9 would be situated would raise the ratio to 9/6, or 1.5 and may be the best remedy.
- Section 3.5.7 of the Manual contains DelDOT's requirements regarding connectivity to adjoining developments. While we require such connections where feasible, the placement of streets close to and parallel to the property line can make such connections difficult. In this case, because of a similar situation on the Fidler Property, the proposed west connection between the two would create two intersections with only a very short tangent section. This aspect of the two plans will require further review and changes to one or both plans may be needed to provide for acceptable operation of the two intersections.
- In accordance with Section 3.6 of the Manual, a noise analysis will be required to determine what, if any, mitigation would be needed to shield residents from the traffic noise that the US Route 301 Spur would generate when it is built.
- Section 5.1.5.1 of the Manual addresses permanent dead end streets and specifies that the maximum tangent length as measured from the corner radii of the intersecting street to the cul-de-sac radius for a permanent dead end street is 200 feet. By this standard, three of the four proposed cul-de-sac streets are too long.
- In accordance with Section 7.2.3.2 of the Manual, Lots 1, 9 and 10 must be accessed using the proposed subdivision streets. Access on Bethel Church Road will not be permitted. The developer's engineer should verify that Lots 1 and 10 have sufficient frontage on the subdivision street to provide adequate driveways.
- The Roberts Property is located within the regulated airspace zones of Summit Airport (EVY), which is a public-use facility. Federal Aviation Regulation (FAR) Part 77 imposes height restrictions on any structures within these zones. DelDOT requires that the applicant for this project submit a "Proposed Construction/Alteration in Airport Zones Notification Form" in accordance with Delaware Code (2 Del. C. § 602). This notification form can be submitted during the plan approval process with the local land use jurisdiction.

Additionally, DelDOT's Office of Aeronautics is willing to test hypothetical height numbers to prevent any future project complications. Please contact Josh Thomas with the Office of Aeronautics at (302) 760-4834 with any questions or concerns. A copy of the notification form can be found at this address:

http://www.deldot.gov/information/community_programs_and_services/airports/pdfs/aviation_obstruction_review_form.pdf).

Department of Natural Resources and Environmental Control – Contact Michael Tholstrup 735-3352

Wetlands

- State regulated subaqueous lands ARE likely to be located on and/or adjacent to this property based on a review of aerial photographs, SWMP maps, Soil Surveys and USGS topographic maps. Upon review of the GIS layers, a stream is located in the middle of the property. A permit will be required for any potential impacts to this area.

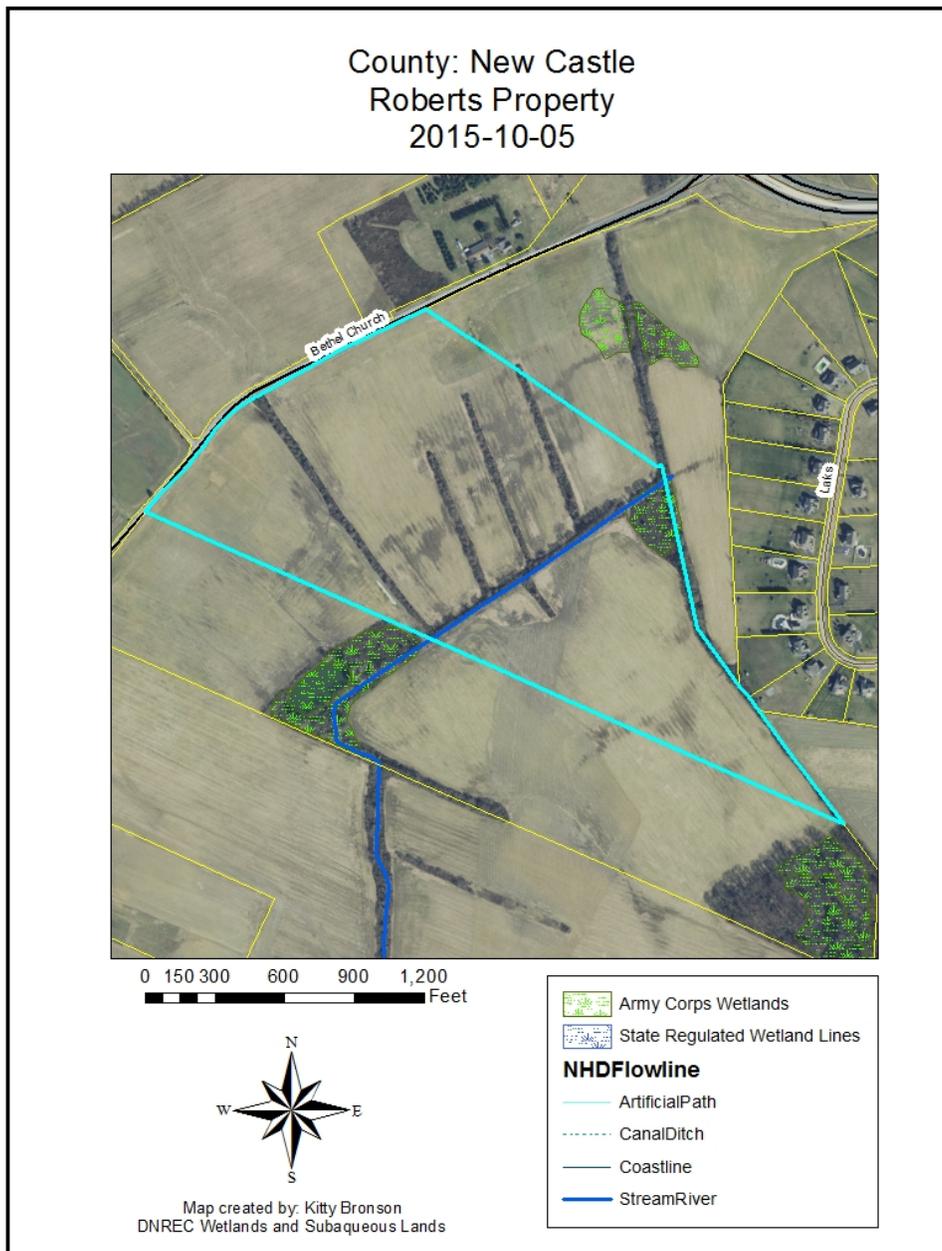
State subaqueous lands include all tidal waters (up to the mean high water line), most non-tidal rivers, streams, lakes, ponds, bays and inlets (up to the ordinary high water line), most perennial streams and ditches and many intermittent streams and ditches. An on-site inspection by a representative of the Wetlands and Subaqueous Lands Section or an environmental consultant is recommended to determine the limits of jurisdictional State subaqueous lands. Upon review of the GIS layers, unnamed streams are on this property. Additional information about State regulated subaqueous lands is available by contacting the Wetlands and Subaqueous Lands Section at (302) 739-9943 or online 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 likely to be located on this property based on a review of aerial photographs, SWMP maps, Soil Surveys and USGS topographic maps. According to our GIS SWMP maps, there are wetlands regulated by the Army Corps of Engineers on this property. 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>.

The application says that a delineation has been but that the Army Corps has not signed off on it. Permits will be required from the Army Corps of Engineers for any impact to the wetlands.



TMDLs

- The project is located in the greater Chesapeake Bay drainage area. In this watershed, the EPA and the State of Delaware have developed specific Total Maximum Daily Load (TMDL) pollutant reduction targets for nutrients (e.g., nitrogen & phosphorus), and bacteria (under the auspices of Section 303(d) of the Clean Water Act). A TMDL is the maximum level of pollution allowed for a given pollutant below which a “water quality limited waterbody” 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. However, the TMDL for nutrients and sediment in the Chesapeake Bay drainage area have been recently revised and made more stringent by the EPA. EPA now requires a 60 percent reduction in nutrients (previously was 30 and 50 percent in N & P) and sediment from baseline conditions. The TMDL also calls for a 2 percent reduction in bacteria from baseline conditions.
- The applicant should be made aware that EPA is requiring that the State of Delaware develop a Watershed Implementation Plan and 2-year progress milestones for purposes of accelerating efforts to improve and restore waters of the Chesapeake Bay. Phase I and II WIPs are currently available for review at:
http://www.wr.dnrec.delaware.gov/Information/Pages/Chesapeake_WIP.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 (302) 739-4811 for further information concerning compliance requirements, or view the following weblink for additional information: <http://dda.delaware.gov/nutrients/index.shtml>

Water Supply

- The information provided indicates that Tidewater Utilities will be used to provide water to the proposed project through a public water system. Our records indicate that the project is located within the public water service area granted to Artesian Water Company under Certificate of Public Convenience and Necessity 95-CPCN-13. DNREC recommends that the developer contact Artesian 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 CPCN's 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, and it must

also be located at least 150 feet from the outermost boundaries of the project. The DNREC 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. Should you have any questions concerning these comments, please contact Rick Rios at (302) 739-9944.

Source Water Protection

- The DNREC Water Supply Section, Groundwater Protection Branch (GPB) has determined that the project falls entirely within a water resource protection area (WRA) for New Castle County (see map).

New Castle County refers to excellent ground-water recharge potential areas as 'recharge areas'. Recharge areas are characterized as deposits of coarser grained material that have the best ability to transmit water vertically through the unsaturated zone to the water table. The NCC recharge areas were mapped using the methods described in the Delaware Geological Survey Open File Report No. 34, "Methodology for Mapping Ground-Water Recharge Areas in Delaware's Coastal Plain" (Andres, 1991), and depicted in a series of maps prepared by the Delaware Geological Survey (Butoryak and Talley, 1993).

This map category (excellent) is an indicator of how fast contaminants will move and how much water may become contaminated (Andres, 2004). Land use activities or impervious cover on areas of excellent ground-water recharge potential may adversely affect ground water in these areas.

The application shows that each residence will utilize an individual on-site wastewater treatment system. DNREC recommends that these systems be constructed using innovative/alternate technology wastewater treatment and disposal systems (I/A Systems) to protect the WRA.

In addition, because the excellent ground water recharge area can readily affect the underlying aquifer if contaminants are spilled or discharged across the area, 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.

References:

Andres, A. S., 1991, Methodology for Mapping Ground-Water Recharge Areas in Delaware's Coastal Plain: Delaware Geological Survey Open File Report No. 34, p. 18.

Andres, A. S., 2004, Ground-Water Recharge Potential Mapping in Kent and Sussex Counties, Delaware, Delaware Geological Survey Report of Investigations No. 66, p. 14.

Butoryak, K. R., and Talley, J. H., 1993, Delineation of Ground-Water Recharge Resource Protection Areas in the Coastal Plain of New Castle County, Delaware: Delaware Geological Survey Project Report for the Water Resources Agency for New Castle County, p. 26.



Sediment and Stormwater Management

- 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 Department of Land Use at (302) 395-5470 for details regarding submittal requirements and fees.

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:

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

Table 1: Potential Regulatory Requirements	
Regulation	Requirements
7 DE Admin. Code 1106 - Particulate Emissions from Construction and Materials Handling	<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.
7 DE Admin. Code 1113 – Open Burning	<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.
7 DE Admin. Code 1135 – Conformity of General Federal Actions to the State Implementation Plan	<ul style="list-style-type: none"> • Require, for any “federal action,” a conformity determination for each pollutant where the total of direct and indirect emissions would equal or exceed any of the de minimus levels (See Section 3.2.1)
7 DE Admin. Code 1141 – Limiting Emissions of Volatile Organic Compounds	<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>from Consumer and Commercial Products</p>	
<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.

Hazardous Waste Sites

- If it is determined by DNREC that there was a release of a hazardous substance on the property in question and the Department requires remediation pursuant to the Hazardous Substance Cleanup Act, the provisions of 7 Del.C., Chapter 91, Delaware Hazardous Substance Cleanup Act and the Delaware Regulations Governing Hazardous Substance Cleanup shall be followed.”
- There is one DNREC Site Investigation and Restoration section (SIRS) site within a ½ miles radius of the property in question. 4200 Summit Bridge Road (DE-1478) is located adjacent east of the project property. The Site is an active airport that tends to incorporate and government aircraft. Paint stripping and other general maintenance of aircraft occurs on site. Above and underground storage tanks were located on site also and removed in 2008. Impacted soil from the USTs was removed and the site was monitored. The site was given a Certificate of Completion of Remedy in February 2015.

Tank Management

- 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.

There are no confirmed leaking underground storage tank (LUST) projects located within a quarter mile from the proposed project area.

No environmental impacts are anticipated; however, 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 Section by calling (302) 395-2500.

State Historic Preservation Office – Contact Terrence Burns 736-7404

- There are no known archaeological sites or National Register-listed property on this parcel. However, there is a known archaeological site (N-14546, 7NC-F-168) near the northeast side of the parcel. With this in mind, the developer should be aware of the Unmarked Human Burials and Human Skeletal Remains Law, which is 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 (7 Del. C. Ch. 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 pertaining 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 might want an archaeological consultant, to examine the parcel for archaeological resources, including a cemetery or unmarked human remains.

- 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.

Delaware State Fire Marshall's Office – Contact John Rudd 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.
- 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 Bethel Church 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.

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
- 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 Natural Resources and Environmental Control – Contact Michael Tholstrup 735-3352

Soils Assessment

- Based on NRCS soils survey mapping update, the Fallsington (FgA; Figure 1) soil mapping unit is the only soil mapping unit considered unsuitable for development in this parcel. The Fallsington soil mapping unit is a poorly-drained wetland associated (hydric) soil that is considered to have severe limitations for development (unsuitable).

DNREC strongly discourages building on hydric soils because they are a functionally important source of water storage (functionally analogous to a “natural sponge”); the loss of water storage through excavation, filling, or grading of intact native hydric soils increases the probability for more frequent and destructive flooding events. The probability for flooding is further compounded by increases in surface imperviousness as building density increases over time. Moreover, destruction of hydric soils increases the amount pollutant runoff (i.e., hydric soils sequester and detoxify pollutants) which contributes to lower observed water quality in regional waterbodies and wetlands. In order to minimize these impacts we strongly recommend the applicant contact a Delaware licensed (Delaware Class D) soil scientist to make a site specific assessment (i.e., soil survey mapping) of the soils on this site. A list of licensed Class D soil scientists can be obtained at the following weblink:

<http://www.dnrec.delaware.gov/wr/Information/GWDInfo/Pages/GroundWaterDischargeLicensesandLicensees.aspx>

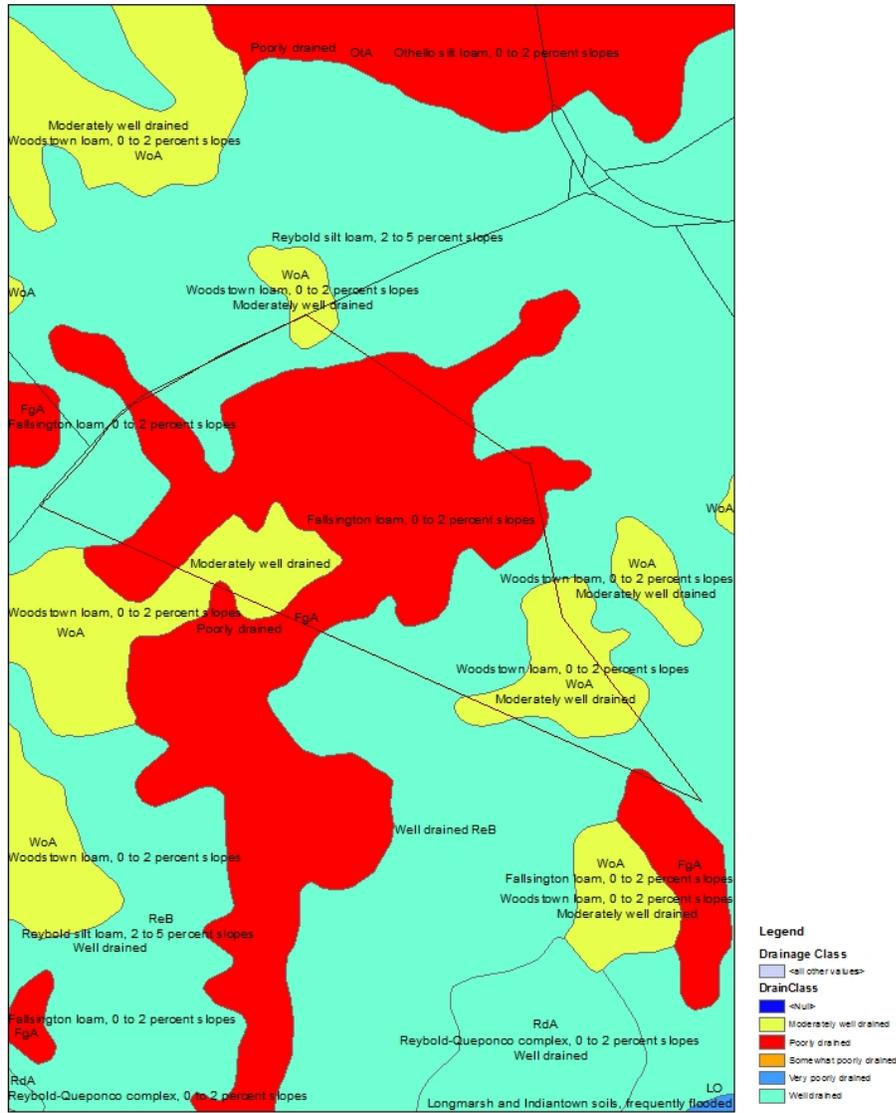


Figure 1: NRCS soil survey mapping update in the immediate vicinity of the proposed construction



Bog Turtle

- A review of our database has revealed that there may be suitable habitat for the federally listed bog turtle (*Glyptemys muhlenbergii*) within the vicinity of the proposed project area, although not directly on site. Bog turtles typically occur in freshwater wetlands with open canopies, mucky soils, and tussock vegetation. However, they can occur in more marginal habitats as well. Because the bog turtle is a federally listed species, protected under the Endangered Species Act. Efforts should be made to ensure that the project does not impact the hydrology of the wetlands near the site, as this can impact bog turtle habitat.

Additional information on TMDLs and water quality

- Compliance with the TMDL nutrient and bacterial reduction requirements specified for the Chesapeake Bay drainage watershed can be facilitated through implementation of BMPs. Therefore, we recommend the following BMPs, which would:
 - Maintain and/or preserve as much of the existing open space as possible; we further suggest additional native tree, shrub and/or native herbaceous vegetation plantings, wherever possible.
 - Have a site-specific soils evaluation conducted by a Licensed Class D soil scientist to assess and identify the hydric soils in this site prior to commencing any construction activities.
 - Conduct a United States Army Corps of Engineers (USACE) approved field wetlands delineation before commencing any development activities on this parcel(s). The USACE can be reached by phone at 736-9763. According to the PLUS application, a wetlands delineation was conducted but not approved by the USACE nor was the delineation submitted to DNREC.
 - Maintain an adequate buffer width. 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 waterbodies (including ditches) and wetlands (field delineated and approved by the USACE and Subaqueous Land section if applicable).
 - 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, ponds, and roads) included in the calculation. Omission of any of the above-stated forms of surface

imperviousness will result in an underestimate of the actual post-development surface imperviousness and the associated environmental impacts.

- Employ green-technology storm water management and a rain gardens (in lieu of open-water management structures) as BMPs to mitigate or reduce nutrient and bacterial pollutant runoff. Please contact Lara Allison at (302) 739-9939 for further information about the possibility for installing rain gardens on this parcel.
- Use pervious paving materials instead of conventional paving materials (e.g., asphalt or concrete) to help reduce the amount of water and pollutant runoff draining to adjoining streams and wetlands. Pervious pavers are especially recommended for all designated parking areas.
- 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) resulting from the conversion of individual or combined land parcels to a changed land use; thus providing applicants and governmental entities with quantitative information about the 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 John Martin or Jen Walls in the DNREC Division of Watershed Stewardship at (302) 739-9939 for more information on the protocol.

Additional information on hazardous waste sites

- DNREC strongly recommends that the land owner perform environmental due diligence of the property by performing a Phase I Environmental Site Assessment (including a title search to identify environmental covenants) in accordance to Section 9105(c) (2) of the Delaware Hazardous Substance Cleanup Act (HSCA). While this is not a requirement under HSCA, it is good business practice and failure to do so will prevent a person from being able to qualify for a potential affirmative defense under Section 9105(c) (2) of HSCA.

Additional remediation may be required if the project property or site is re-zoned by the county.

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 at (800) 662-8802. SIRS should also be contacted as soon as possible at (302) 395-2600 for further instructions.

Additional information on air quality

- The overall scope includes 60.00 acres, with 0.32 acres of forested land. The applicant states that 0.11 acres, about 30 percent, of the forested land will be cleared. According to the application, 19.55 acres of “open space,” will remain after the project is complete; this represents 30 percent property coverage. DNREC commends the applicant for proposing 30 percent open space; however, encourages the applicant to consider using some of that land to replant trees that will be removed for development.
- The existing property lacks sidewalks, shoulders, and marked bike paths along Bethel Church Road, and there is no public transportation within walking distance, as the property is outside Middletown’s intended growth zone. According to the application, sidewalks will be added as part of this project, but bike paths will not. Currently, the property is about 0.5 miles southwest of US 301 (Summit Bridge Road). DNREC encourages the applicant to consider ways in which transportation needs to and from the site may change, as US 301 is improved over the next 2-3 years. Most recent plans show that there could be a spur road connecting Bethel Church Road to residential areas east of Choptank Road.
- DNREC encourages developers and builders to consider all sustainable growth practices in their design, and we believe that the air quality impacts associated with the project should be completely considered. New homes may emit, or cause to be emitted, additional 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; Delaware currently violates federal health-based air quality standards for ozone. New Castle County, Delaware is classified as non-attainment for not meeting federal and state 8-hour ozone standards. Compared to Kent and Sussex Counties, short term 1-hour average peak ozone levels are usually highest in New Castle County, as well,
 - 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, and
 - All transportation activity.

Based on the information provided, the three air emissions components (i.e., area, electric power generation, and mobile sources) were quantified. Table 2 – Projected Air Quality Emissions represents the actual impact Roberts Property may have on air quality.

Emissions Attributable to Roberts Property (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 emissions	1.0	0.1	0.1	0.1	4.0
Power emissions	*	0.4	1.4	*	201.4
Mobile emissions	1.5	1.5	*	*	945.8
Total emissions	2.5	2.0	1.5	0.1	1,151.2

(*) Indicates data is not available.

Note that emissions associated with the actual construction of the residential community, 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 percent 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 an 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.
 - Constructing with high albedo, high solar reflectance materials. This includes roofing and hardscape. These materials help to reduce heat island impacts and, by extension, help to minimize the potential for localized ground-level ozone formation. These materials also help reduce demands on air conditioning systems and save on energy costs.
 - Providing shade for parking areas. Approaches may include architectural devices, vegetation, or solar panels. Providing shade for parking areas helps to reduce heat island impacts, and, by extension, helps to minimize the potential for localized ground-level ozone formation. Such measures can also have the additional benefit of channeling or infiltrating stormwater.
 - Providing charging stations for plug-in electric vehicles. This measure helps to reduce localized air pollution by supporting the use of non-gasoline powered vehicles. Please refer to the US Department of Energy's website for electric vehicle readiness information: http://www1.eere.energy.gov/cleancities/electric_vehicle_projects.html. Several charging stations already exist nearby in Smyrna and Newark.
 - Encouraging the use of safe multimodal transportation. This measure can significantly reduce mobile source emissions. **For every vehicle trip that is replaced by the use of a sidewalk or bike path, 7 pounds of VOC and 11.5 pounds of NOx are reduced each year.**
 - Using retrofitted diesel engines during construction. This includes equipment that is 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, particularly those between the site and nearby residential areas. Native trees reduce emissions by trapping dust particles and 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. 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 Roberts Property project. The DAQ point of contact is Deanna Morozowich, and she may be reached at (302) 739-9402 or Deanna.Morozowich@state.de.us.

Delaware State Fire Marshall's Office – Contact John Rudd 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.

Department of Public Health – Contact: Laura Saperstein 744-1011

The Delaware Division of Public Health (DPH) is pleased to be able to participate in the PLUS application process. In keeping with its mission to protect and promote the health of all people in Delaware, DPH looks for opportunities to encourage and enhance our population's health behaviors that will result in healthy people and healthy communities.

Community design can impact the health of a population. Studies show that persons in lower-income communities, the elderly, and children often suffer more from consequences of inadequate land-use and transportation. Additionally, we know physical activity has a direct correlation to many chronic diseases, including hypertension, diabetes and obesity. In 2013, 33.6% of Delawareans reported a BMI of "overweight;" and an additional 31% reported a BMI as "obese." To that end, DPH looks to make recommendations for land-use that can empower Delawareans to make good health behaviors a part of their daily lives. A recent study by Sallis, et.al., "Is your Neighborhood Designed to Support Physical Activity? A Brief Streetscape Audit Tool," identified that modifiable microscale element of the environment may affect an individual's physical activity levels. An example of a microscale environment factor might be including crosswalks, or curb cuts at crossings and intersections, and/or including streetscape characteristics like street lights, benches, sidewalk buffers, trees and overhead coverage as part of the community design.

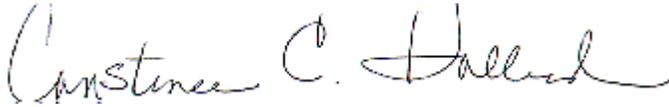
DPH offers the following recommendations for consideration to the Roberts Property plan for development:

1. DPH is pleased to see the inclusion of proposed sidewalks indicated in the PLUS application. Pedestrian infrastructure will enable residents to incorporate active transportation as well as active recreation into their daily lives.
 - a. Sidewalks are strongly associated with pleasantness and the perception of safety which directly affects consumer desirability.
 - b. Additionally, curb cuts improve this access for older adults, people with disabilities, and parents with baby strollers. By adding internal walkways and/or including marked crosswalks, the presence of these attributes could be particularly important for improving the experience of pedestrians, and according to recent research, are indicators of a broader pattern of activity-supportive design features.
2. DPH commends the Fidler/Roberts Property for including active and passive recreation as part of its proposed open space usage. Because “ Active and passive recreation” was not clearly defined in the PLUS application, DPH would further recommend that Fidler/Roberts review the recreational needs and priorities identified through Statewide Comprehensive Outdoor Recreation Plan, or SCORP, for that specific area. (<http://www.dnrec.delaware.gov/parks/information/Pages/2013Scorp.aspx>).
3. Consider including bike facilities into the land use plan, such as bike lanes, particularly across the frontage, turn lanes in/out at entrance, bike signage bike parking.
 - a. Bicycling is a low-cost and efficient means of active transportation that effectively improves the built environment by including non-motorized options to the transportation systems. Moreover, active transportation is of fundamental importance to healthy living.
4. Include lighting features such as streetlights, lit open spaces and low-level lighting for sidewalks and/or paths.
 - a. Street lighting is needed for safety during nighttime activity and increased feelings of security.
 - b. multi-use pathways and internal connections to adjacent land, proposed open spaces, or future land developments to accommodate pedestrians and bicycles

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,

A handwritten signature in cursive script that reads "Constance C. Holland". The signature is written in black ink and is positioned above the typed name and title.

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

CC: New Castle County