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March 18, 2016

Mrs. Constance C. Holland, AICP, State Planning Director
Haslet Armory
122 Martin Luther King Jr. Blvd. South
Dover, DE 19901

RE: PLUS review 2015-08-05; Dorman

Dear Mrs. Holland:

Please allow this letter to serve as our response to the PLUS review of the Dorman property (AKA Belle Terre). Answers to comments have been provided following each comment taken directly from your comment letter for ease of use. Our responses are in red and a different font for ease in review.

Thank you for meeting with State agency planners on August 26, 2015 to discuss the proposed plans for the Dorman project. According to the information received, you are seeking review of a rezoning of 126.8 acres from AR-1 to MR/RPC and a subdivision for 387 residential units along Dorman Farm Lane in Sussex 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 Sussex 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.**

Response: The developers will comply with all Federal, State and local regulations regarding the development of this property. The developer will comply with any and all regulations/restrictions set forth by Sussex County.

Strategies for State Policies and Spending

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

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Code Requirements/Agency Permitting Requirements

Department of Transportation – Contact Bill Brockenbrough 760-2109

- Per Section 2.2.2.1 of the Development Coordination Manual, Traffic Impact Studies (TIS) are warranted for developments generating more than 500 vehicle trip ends per day or 50 vehicle trip ends per hour in any hour of the day. From the PLUS application, it appears that the total daily trips are estimated at 3,015 vehicle trip ends per day. Based on that volume, this project would warrant a TIS.

  Anticipating that requirement, the applicant's engineer has requested a list of intersections that would be included in a TIS, and DelDOT supplied that list on August 12. Because of the need to obtain summer Saturday traffic counts for TIS in resort areas, they routinely supply such lists in advance of the TIS scoping meeting. However, DelDOT urges the applicant to have their engineer request that meeting as soon as they are ready to do so to avoid any misunderstanding as to what will be required.

  To obtain a scope of work for the TIS, the applicant may have their engineer contact Mr. Troy Brestel of this office. Mr. Brestel may be reached at (302) 760-2167.

Response: The PTIS is complete and the Final TIS has been submitted to DelDOT for review. We expect to have DelDOT's approval in the immediate future prior to the anticipated public hearings with Sussex County.

- The site access on Mulberry Knoll Road (Sussex Road 284) 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. A particular concern in this regard, noted by the Division of Facilities Management at the PLUS meeting, is that the access must fit with the access for Delaware State Police Troop 7, planned for an adjacent parcel on Mulberry Knoll Road.

Response: The access onto Mulberry Knoll Road will be designed in accordance with DelDOT's Development Coordination Manual and will be coordinated with the proposed Delaware State Police Troop 7.

- Section 3.2.4.2 of the Manual addresses the placement of right-of-way monuments (markers) along the roads on which a property fronts, in this case Mulberry Knoll Road. Monuments sufficient to re-establish the permanent rights-of-way after the dedication discussed below should be shown on the plan and provided in the field in accordance with this section.

Response: Appropriate survey monuments will be set along the proposed right-of-way.

- As necessary, in accordance with Section 3.2.5 and Figure 3.2.5-a of the Development Coordination Manual, DelDOT will require dedication of right-of-way along the site's frontage on Mulberry Knoll Road. By this regulation, this dedication is to provide a minimum of 30 feet of right-of-way from the road centerline on Mulberry Knoll Road. The following right-of-way dedication note is required, "**An X-foot wide right-of-way is hereby dedicated to the State of Delaware, as per this plat.**"

Response: The property does not have frontage along Mulberry Knoll Road. Access is provided via an existing 50' wide access easement. It is understood that any needed right of way and easements to accommodate the entrance off of Mulberry Knoll Road into Dorman Lane will be the developer's responsibility.

- In accordance with Section 3.2.5.1.2 of the Development Coordination Manual, DelDOT will require the establishment of a 15-foot wide permanent easement across the property frontage on Mulberry Knoll Road. The location of the easement shall be outside the limits of the ultimate right-of-way. The easement area can be used as part of the open space calculation for the site. The following note is required, "**A 15-foot wide permanent easement is hereby established to the State of Delaware, as per this plat.**"

Response: The property does not have frontage along Mulberry Knoll Road. Access is provided via an existing 50' wide access easement.

- Referring to Section 3.4.2 of the Development Coordination Manual, the Initial Stage review fee shall be assessed to this project.

Response: The appropriate fee will be submitted with the application and plans for review.

- In accordance with Section 3.4 of the Development Coordination Manual, a record plan shall be prepared prior to issuing "Letter of No Objection". The following information will be required for the "Letter of No Objection" review:

  - Initial Stage Fee Calculation Form
  - Initial Stage Review Fee
  - Gate-Keeping Checklist – Site Plan
  - Design Checklist - Record Plan
  - Sight Distance Spreadsheet
  - Owners and Engineers' name and e-mail address
  - Record Plan
  - Conceptual Entrance Plan
  - Submission of the Area-Wide Study Fee (If applicable)

Response: A record plan will be prepared per DelDOT and Sussex County standards.

- Referring to Section 3.4.1 of the Development Coordination Manual, because the proposed development would generate more than 200 vehicle trips per day, a Pre-Submittal Meeting is required before plans are submitted for review. The form needed to request this meeting is available http://www.deldot.gov/information/business/subdivisions/Meeting_Request_Form.pdf.

Response: A Pre-Submittal Meeting will be requested and attended prior to submitting plans for review. To reduce plan revisions all of the appropriate DelDOT reviewers will be requested to attend.

- Referring to Section 3.4.2.1 of the Development Coordination Manual, the following items, among other things, are required on the Record Plan:

  - A Traffic Generation Diagram. See Figure 3.4.2-a for the required format and content.
  - Depiction of all existing entrances within 450 feet of the proposed entrance.
  - Notes identifying the type of off-site improvements, agreements (signal, letter) contributions and when the off-site improvements are warranted.

Response: A record plan will be prepared per DelDOT and Sussex County standards.

- Section 3.5 of the Development Coordination Manual provides DelDOT's requirements with regard to connectivity. The requirements in Sections 3.5.1 through 3.5.3 shall be followed for all development projects having access to state roads or proposing DelDOT maintained public road for subdivisions. Private or municipal streets should follow the local land use agency's requirements for connectivity.

Response: The on-site roads will be private and will be designed in accordance with Sussex County Road Standards. The project will connect to Mulberry Knoll Road via an existing 50' wide easement known as Dorman Lane.

- Referring to Section 3.5.5 of the Development Coordination Manual, existing and proposed transit stops and associated facilities as required by the Delaware Transit Corporation (DTC) or DelDOT, in consultation with Sussex County, shall be shown on the Record Plan.

Response: As the project has no frontage on Mulberry Knoll Road, no transit stops are anticipated.

- In accordance with Section 3.8 of the Development Coordination Manual, storm water facilities, excluding filter strips and bioswales, shall be located a minimum of

20 feet from the ultimate State right-of-way along Mulberry Knoll Road.

Response: As the project has no frontage on Mulberry Knoll Road, no on-site storm water management facilities are anticipated near State right-of-way.

- Referring to Section 4.3 of the Development Coordination Manual, the Construction Stage review fee shall be assessed to this project.

Response: The appropriate fee will be submitted with the application and plans for review.

- Referring to Section 4.3 of the Development Coordination Manual, an entrance plan shall be prepared prior to issuing entrance approval. The following information will be required for Entrance Plan review:

  - Construction Stage Fee Calculation Form
  - Construction Review Fee
  - Gate-Keeping Checklist – Entrance Plan
  - Design Checklist - Entrance Plan
  - Auxiliary Lane Spreadsheet
  - Entrance Plan
  - Pipe/Angle Spreadsheet (If applicable)
  - SWM Report and Calculations (If applicable)

Response: An entrance plan will be prepared including the appropriate notes and checklists, and submitted to DelDOT for review.

- In accordance with Section 5.2.5.6 of the Development Coordination Manual, Turning Movement Diagrams shall be provided to verify vehicles can safely enter and exit the site entrance. As per Section 5.2.3 of the Manual, the entrance shall be designed for the largest vehicle using the entrance.

Response: The entrance shall be designed, subject to existing site constraints, for the largest vehicle using the entrance.

- In accordance with Section 5.2.9 of the Development Coordination Manual, the Auxiliary Lane Worksheet should be used to determine whether auxiliary lanes are warranted at the site entrance and how long those lanes should be. The worksheet can be found at http://www.deldot.gov/information/business/subdivisions/auxiliary_lane_worksheet.xls.

Response: The auxiliary lane worksheet will be utilized during entrance design.

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- In accordance with Section 5.4 of the Development Coordination Manual, sight distance triangles are required and shall be established in accordance with American Association of State Highway and Transportation Officials (AASHTO) standards. A spreadsheet has been developed to assist with this task. It can be found at http://www.deldot.gov/information/business/subdivisions/Intersection-Sight-Distance.xls.

Response: The appropriate sight triangles will be included in the entrance plans.

- Section 7.7.2 of the Manual addresses the need to provide 20-foot wide drainage easements for all storm drainage systems, open or closed, that fall outside the existing right-of-way or the drainage/utility easement. In accordance with this section, metes and bounds and total areas need to be shown for any drainage easements. The easements should be shown and noted on the record plan.

Response: Drainage easements will be provided where necessary.

Department of Natural Resources and Environmental Control – 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 on the north western edge of the property. Be sure to follow regulations concerning construction around waterways.

- 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. State regulated subaqueous lands are likely to be located on or adjacent this property based on a review of aerial photographs, SWMP maps, Soil Surveys and USGS topographic maps. 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 and Love Creek is adjacent to this property. 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.

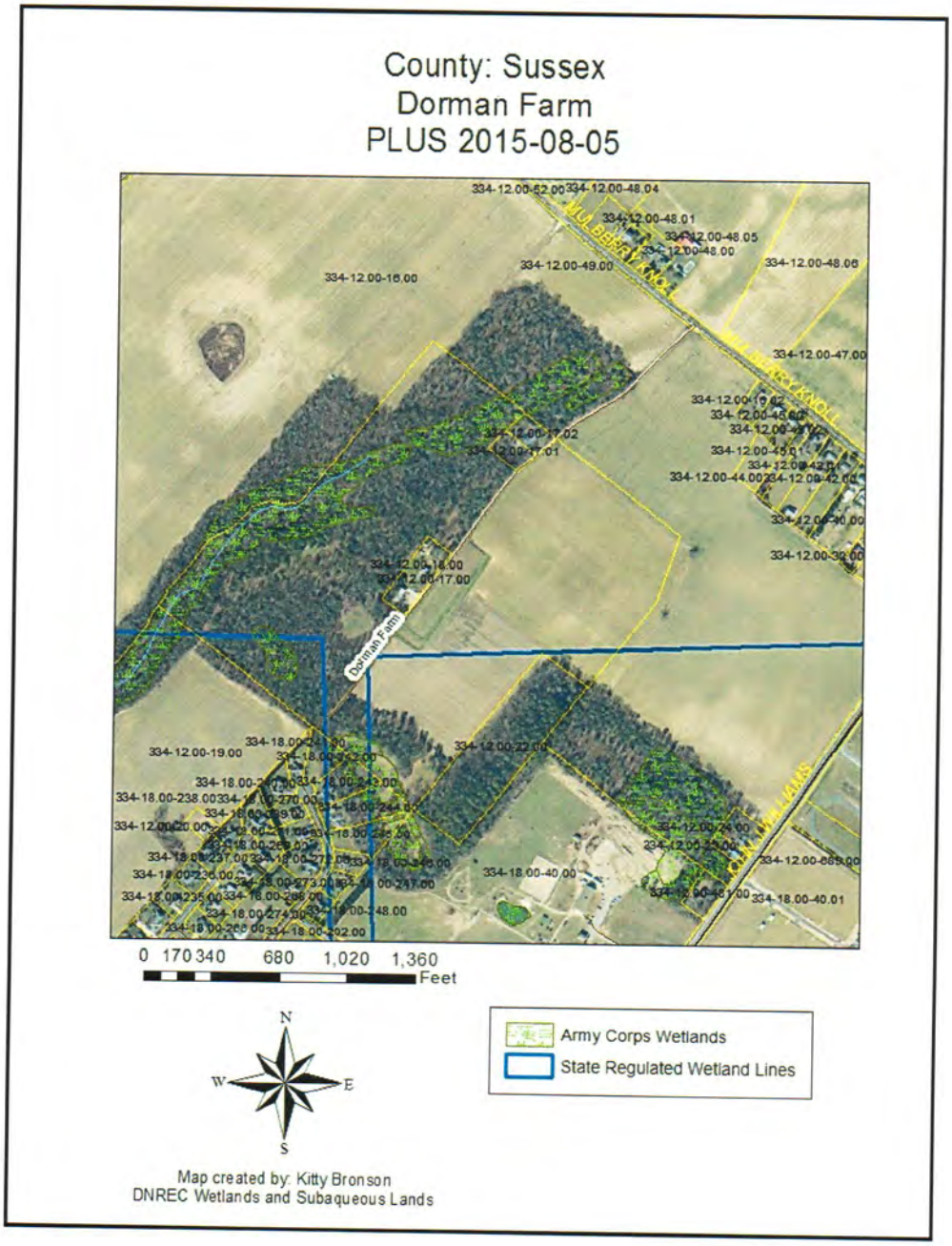
- Waters of the U.S. regulated by the U.S. Army Corps of Engineers ARE likely to be located on this property, based on a review of aerial photographs, SWMP maps, Soil

Surveys and USGS topographic maps. According to our GIS SWMP maps, there are wetlands regulated by the Army Corps of Engineers on this property. The application says that delineation has been done; wetland areas should be delineated and signed off by the Army Corps of Engineers.

- 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. Waters of theU.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. 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 Federaljurisdictional. 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.

Response: Edward M. Launay, a Professional Wetland Scientist (PWS) of Environmental Resources, Inc. (ERI) was retained to conduct a detailed delineation of both state and federally regulated waters and wetlands on the project. Project plans submitted as part of the project's approval process depict these boundaries and will include a statement from Mr. Launay certifying the accuracy of these boundaries.

Environmental Resources, Inc. also submitted a wetland delineation plan and wetland report to the U.S. Army Corps of Engineers on September 15, 2015 requesting a written Jurisdictional Determination (JD) from that agency. The request identifies all wetlands on the property, including isolated wetlands such as Hetty Fisher Pond as subject to the U.S. Army Corps of Engineers Regulatory Program. Using this information, project plans were developed to minimize or avoid wetland impacts. A JD approval letter from U.S. Army Corps of Engineers is expected shortly.



TMDLs.

- The project is located in the low nutrient reduction zone of the greater Inland Bays watershed. In this watershed, Total Maximum Daily Load (TMDL) pollutant reduction

targets have been developed by the State of Delaware (under the auspices of Section 303(d) of the 1972 Federal Clean Water Act) for nutrients (e.g., nitrogen, phosphorus), and bacteria. 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.
The TMDL for the low reduction zone of the Inland Bays watershed calls for 40 percent reduction in nitrogen and phosphorus from baseline conditions. The TMDL also calls for a 40 percent reduction (17 percent for marine waters) in bacteria from baseline conditions. Please view the following web link for further information on the regulatory requirements and technical analysis involved in the development of the specific TMDLs:
http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessmentTMDLs.aspx

- The Inland Bays Pollution Control Strategy (PCS) and the accompanying regulations were finalized by order of the DNREC Secretary on October 2008. Background information about the PCS with guidance documents and mapping tools can be retrieved from the following weblink:
http://www.dnrec.state.de.us/water2000/Sections/Watershed/ws/ib_pcs.htm

- A nutrient management plan is required under the *Delaware Nutrient Management Law* (3 Del.C., 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.

Response: The Developer recognizes and will comply with the requirements of TMDL, PCS and Delaware Nutrient Management Law.

Water Supply.

- The project information sheets state water will be provided to the project by Tidewater Utilities via a central water system. DNREC's 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.

Response: The Developer understands that Tidewater Utilities service area.

- Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the DNREC 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.

Response: It is understood that permit(s) will be required for dewatering that may be necessary as part of construction.

- 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.

Response: It is understood that if a well permit is required, that it must be prepared and signed by a licensed well driller.

Sediment and Stormwater Management.

- 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 project 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.

Response: It is understood that a storm water management and sediment & erosion control plan will be required. The Developer will schedule a project application meeting at such time as it is required.

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**

7 DE Admin. Code 1106 - Particulate Emissions from Construction and Materials Handling	• 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	• 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	• 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 from Consumer and Commercial Products	• Use structural/ paint coatings that are low in Volatile Organic Compounds. • Use covers on paint containers when paint containers are not in use.

7 DE Admin. Code 1144 – Control of Stationary Generator Emissions	• Ensure that emissions of nitrogen oxides (NO_x), non-methane hydrocarbons (NMHC), particulate matter (PM), sulfur dioxide (SO_2), carbon monoxide (CO), and carbon dioxide (CO_2) from emergency generators meet the emissions limits established. (See section 3.2). • Maintain recordkeeping and reporting requirements.
7 DE Admin. Code 1145 – Excessive Idling of Heavy Duty Vehicles	• 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.

Response: It is understood that the Developer will be responsible to comply with applicable air quality laws.

Tank Management.

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

Response: The tank management comments are noted.

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

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.

Response: The development will be design to meet the required fire protection water requirements.

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.
- 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.

Response: The development will be designed to meet the required accessibility requirements.

Gas Piping and System Information:

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

plan.

Response: The fuel type and bulk container locations, if provided, will be included in the 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"
- Proposed Use

- Square footage of each structure (Total of all Floors)
- National Fire Protection Association (NFPA) Construction Type
- Maximum Height of Buildings (including number of stories)
- Name of Water Provider
- Letter from Water Provider approving the system layout
- For the Duplexes, 2-hr separation wall details shall be shown on site plans
- Provide Road Names, even for County Roads.

Response: The required notes will be included in the construction plans.

State Historic Preservation Office – Contact Terrence Burns 736-7404

- There are no known archaeological sites or National Register-listed property on this parcel. However, if the development project proceeds on this parcel, the developer should be aware of the Unmarked Human Burials and Human Skeletal Remains Law, which is in Title 7, of Chapter 54, 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 may want to hire an archaeological consultant to examine the parcel for any potential archaeological site or archaeological resources, such as cemetery, burial site, 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.

Response: The developer is aware of Delaware's Unmarked Human Burials and Human Skeletal Remains Law and will proceed accordingly should a unknown burial site or remains be encountered during the development process.

Preplanning activities for this project involved making a detailed delineation and survey of state and federally regulated wetland and water boundaries. The project has been designed to avoid impacts to both state and federally regulated wetlands. In the event that regulated activities are proposed which require a permit from the U.S. Army Corps of Engineers or other federal agency, the developer will consult with those agencies to determine the area of potential effects for that permit known as the "permit area". As determined by the Section 106 process, the developer will then retain a qualified archeologist to perform any required site evaluations for resources potential eligible for inclusion in the National Register of Historic Places with the "permit area" of the project prior to any disturbance.

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 the suggestions can benefit the project.

Department of Transportation – Contact Bill Brockenbrough 760-2109

- DelDOT mapping of the site shows Dorman Farm Lane as existing in an easement, as opposed to a right-of-way. If that mapping is still current, DelDOT recommends that the applicant obtain a right-of-way for this road before closing on the property. They would caution against developing a residential subdivision without a right-of-way, either public or owned by the developer, for access.

Response: The Developer appreciates the comment. However, a right-of-way is not required for the development to move forward in Sussex County.

- DelDOT supports the recommendation from the Office of State Planning Coordination and Sussex County that a path be provided from the proposed development to the proposed Love Creek Elementary School if the School District is amenable to such a connection. Section 3.5.4.4 of the Manual addresses connections from subdivision streets
  to State-maintained roads but the design standards in that section could be applied to the subject path if a standard is needed.

Response: The Developer would like to provide a pedestrian interconnection to the proposed school site and will contact the school district to discuss the possibility.

- The applicant should expect a requirement that any substation and/or wastewater facilities will be required to have access from the internal subdivision street with no direct access to Mulberry Knoll Road.

Response: The comment is noted.

- Section 3.2.4.1 of the Manual addresses the placement of right-of-way monuments (markers) along subdivision streets. DelDOT recommends that monuments be furnished and placed along the proposed streets in accordance with this section.

Response: The Developer appreciates the comment. However, Sussex County has jurisdiction over the design and monumentation of the internal subdivision streets.

- Section 3.5.4.2.B of the Development Coordination Manual addresses shared-use paths and sidewalks on subdivision streets. DelDOT recommends that the developer provide sidewalks in accordance with this section along all internal streets, including one leading toward Mulberry Knoll Road and connecting to the sidewalk being constructed by the State for Delaware State Police Troop 7.

Response: The Developer appreciates the comment. However, Sussex County has jurisdiction on the design and monumentation of the internal subdivision streets.

- Please be advised that as of August 1, 2015, all new plan submittals and re-submittals, including major, minor and commercial plans, shall now be uploaded via the PDCA (Planning Development Coordination Application) with any review fee paid online via credit card or electronic check. Guidance on how to do this is available on our website at http://www.deldot.gov/information/business/subdivisions/

Response: The comment is noted.

- Be advised that the Standard General Notes have been updated and posted to the DelDOT website. Please begin using the new versions and look for the revision date of July 31, 2015. The notes can be found at http://www.deldot.gov/information/business/subdivisions/DelDOT_Development_Coordi nation_Plan_Sheet_Notes.doc

Response: The comment is noted. It is also understood that DelDOT standards change on a regular basis.

- Please check to determine whether any utilities will need to be relocated as part of this project.

Response: The comment is noted.

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

Flooding and Sea Level Rise.

- **Portions of the planned development area lie within an area that will be subject to direct and permanent inundation from sea level rise (http://de.gov/slrmap). The areas you would likely be chiefly concerned with are lots around Hetty Fisher Glade and possibly Hetty Fisher Pond. It is difficult to determine how much may be affected because it is not clear if 126.8 acres are proposed for development or a lesser number of acres.**

  Sea levels in Delaware have risen by about a foot over the past century (NOAA, 2014). This rate of sea level rise is likely to accelerate in the coming decades as a result of global climate change and local subsidence. Accelerated sea level rise will result in permanent flooding of low-lying coastal areas and increased risk of flood damage

during storms (DNREC, 2012).

DNREC maps depicting future inundation risk from sea level rise indicate that approximately 1.69 acres of this site out of 71.02 acres or 2 percent could be inundated by sea level rise of 1.5 meters. In the short-term, sea level rise on this parcel, combined with periodic coastal flooding events, may result in repetitive flood damage to roads and significant difficulties maintaining storm water, drainage and other infrastructure. In the long-term, this increased flood and inundation risk could result in costly public and private flood abatement and drainage projects and an eventual abandonment of structures.

DNREC Recommends:

- Lots within flood prone areas should be eliminated.
- Filling lots to elevate them to above base flood elevation is discouraged.
- Any structures that are built within an area mapped as both floodplain and sea level rise zone should be constructed with 18" of freeboard plus additional freeboard to accommodate future sea levels.
- Access roads should be designed to be flood resilient for the entirety of your project's design life span. This includes ensuring that the roadway functions for the 1% chance flood plus anticipated future sea level rise.

References:

NOAA (National Oceanic and Atmospheric Administration). (2014). Mean Sea Level Trend, Lewes, DE. Retrieved from http://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?stnid=8557380

DNREC Delaware Coastal Programs. (2012). Preparing for Tomorrow's High Tide: Sea Level Rise Vulnerability Assessment for the State of Delaware. Dover, DE: Department of Natural Resources and Environmental Control. Retrieved from http://de.gov/slrva

Response: The comment is noted.

Soils Assessment.

- Based on soils survey mapping update, the soil mapping units with the most limitations for development are Hurlock (HvA) and Longmarsh (LO). Hurlock and Longmarsh are poorly to very poorly-drained wetland associated (hydric) soils that have severe limitations for development.

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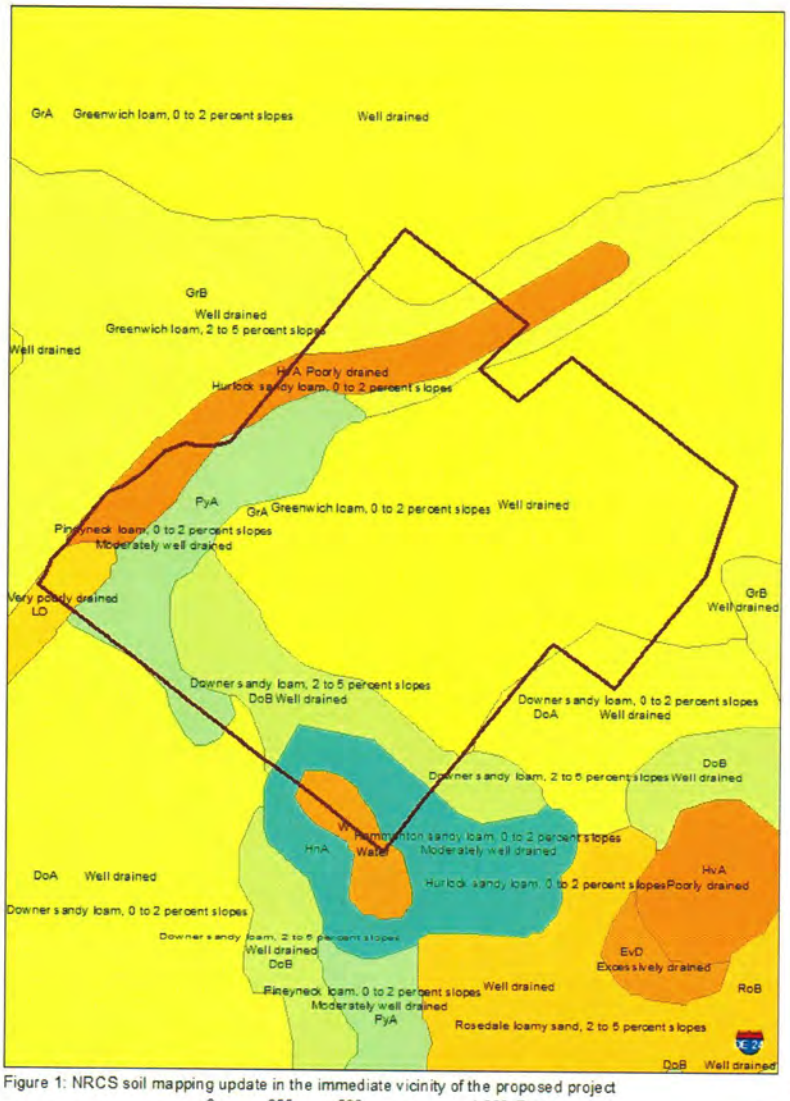

Figure 1: NRCS soil mapping update in the immediate vicinity of the proposed project

Response: The poorly drained and very poorly drained hydric soils in the Hurlock and Longmarsh series found on the property are wholly located within wetland areas delineated by Environmental Resources, Inc. Proposed lots and development have avoided wetlands and these hydric soils. Furthermore, a majority of the property is mapped with the well drained soils

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of the Downer and Greenwich series. These soils are well suited for the purpose of development and stormwater infiltration.

Habitat and Endangered Species.

- Welches Pond and Hetty Fisher Pond are coastal plain seasonal ponds that provide habitat for the largest known population of tiger salamander (state-endangered), north of their core range. Tiger salamanders are heavily dependent on the surrounding uplands, as they spend the majority of their life cycle in these habitats. This development would likely eliminate this population entirely because it destroys and fragments the uplands in which these species are dependent. Additionally, there are only four metapopulations of barking tree frog (also state-endangered) known on the entire Delmarva Peninsula, one of which would likely be eliminated as a result of this project as they are also dependent on the coastal plain seasonal ponds and surrounding habitats within and adjacent to the project area. There are other state-rare species on the site (see Table 2) that will also be affected by the disturbance to the uplands and coastal plain seasonal ponds.

- Due to the potential populations of ecologically significant species associated within Key Wildlife Habitats located within the project area, the Species Conservation and Research Program (SCRP) strongly recommends that the applicant develop a site plan that limits the disturbance to the agricultural fields on site and leaves the forest on site intact. Moreover, they strongly urge the applicant to consider permanent preservation opportunities for the forest and wetland habitat in lieu of the current site plan. The forest and wetland areas are part of the larger Love Creek Natural Area, and as such, can be dedicated as a State Nature Preserve. If the applicant is interested in learning more about various permanent preservation opportunities, and the associated tax benefits, please contact Ron Vickers, Manager of the Land Preservation Office, at (302) 739-9235.

- SCRP also requests the opportunity to conduct a survey to evaluate habitat, the potential to support additional species of concern, and to determine the current status of those species documented. The survey will be conducted at no expense to the landowner. In the event that authorizations will be needed from DNREC's Coastal Management Program and/or Wetlands and Subaqueous Lands Section, they will require complete and up to date info from the Natural Heritage and Endangered Species Program as part of their review. Therefore, allowing access to the site will increase the efficiency of the State authorization process. Please contact Kate Fleming at (302) 735-8658 or Kate.Fleming@state.de.us if a site visit is possible.

- Please see below for more detailed information regarding the rare and sensitive species and habitats on site:

Species of Concern.
A review of our database indicates the following; Table 2- state rare, federally listed or Species of Greatest Conservation Need[1] (SGCN) that occur at and/or adjacent to the project site:

[1] Species of greatest conservation need (SGCN) are indicative of the overall diversity and health of the State's wildlife resources. Some may be rare or declining, others may be vital components of certain habitats, and still others may have a significant portion of their population in Delaware. SGCN are identified in the Delaware Wildlife Action Plan (DEWAP) which is a comprehensive strategy for conserving the full array of native wildlife and habitats-common and uncommon- as vital components of the state's natural resources. Congress challenged the states to demonstrate comprehensive wildlife conservation. Delaware, along with all of the other states and provinces throughout the country are working to implement their wildlife action plans. This document can be viewed via the Division of Fish and Wildlife's website at http://www.fw.delaware.gov/dwap/Pages/default.aspx.

Scientific Name	Common Name	Taxon	State Rank	State Status	SGCN Tier
Ambystoma tigrinum tigrinum	Eastern tiger salamander	Amphibian	S1	E	Tier 1
Hyla chrysoscelis	Cope's gray treefrog	Amphibian	S2		Tier 2
Hyla gratiosa	Barking treefrog	Amphibian	S1	E	Tier 1
Phragmites australis ssp americanus	North American Reed	Plant	S2		
Dichanthelium wrightianum	Wright's Witch Grass	Plant	S2		

- **State Rank**: **S1-** extremely rare within the state (typically 5 or fewer occurrences); **S2-** very rare within the state (6 to 20 occurrences); **State Status: E** – endangered, i.e. designated by the Delaware Division of Fish and Wildlife as seriously threatened with extinction in the state;
  SGCN Tiers: Tier 1 Species of Greatest Conservation Need (SGCN) are those that

are most in need of conservation action in order to sustain or restore their populations. They are the focus of the Delaware Wildlife Action Plan (DEWAP), which is based on analyzing threats to species populations and their habitats, and on developing conservation actions to eliminate, minimize or compensate for these threats. **Tier 2** SGCN are also in need of conservation action, although not with the urgency of Tier 1 species. Their distribution across the landscape will help determine where DEWAP conservation actions will be implemented on the ground.

- **Tiger Salamander (*Ambystoma tigrinum tigrinum*)** occurs in moist, often sandy, deciduous, coniferous or mixed woodlands with adequate wetlands for breeding, such as coastal plain ponds. This species spends most of its life cycle underground and is rarely encountered except during breeding periods and when recently transformed sub-adults leave their larval pools (White and White 2002[2]). Eggs are laid in masses underwater in the winter. Larva hatch in about four weeks and then transform into sub-adults. Availability of fishless breeding pools and adequate upland forested buffers (several hundred meters) around those pools is critical for this species.
- **Cope's Gray Treefrog *(Hyla chrysoscelis)*** and B**arking Treefrog (*Hyla gratiosa*)** occur in deciduous or mixed deciduous-coniferous woodlands with wetlands for breeding, such as coastal plain ponds and vernal pools. Adequate breeding pools are critical for these species and their presence is an indication of high quality wetlands (White and White 2002). Both of these species are mostly arboreal, depending on trees near the water in which to forage on insects and other prey. They migrate between breeding and non- breeding habitat and have been found hiding under bark, in tree holes or under leaves and roots within a few hundred meters of the breeding pools. Cope's Gray Treefrogs are known to generally breed within the same site in successive years (Natureserve 2012[3]).

Response: It should be noted that Welches Pond lies 1,000 feet away from the proposed development site at its closest point. In this area, an extensive agricultural field lies between the development site and Welches Pond such that migration of tree frog species from Welches Pond to the proposed development site is unlikely. In other areas the subject site is divided from the adjacent property containing Welches Pond by a perennial stream, Hetty Fisher Glade and extensive tidal wetlands to the south associated with this waterbody. Accordingly, it is unlikely that the proposed development has any effect on wildlife species associated with Welches Pond.

Hetty Fisher Pond is an isolated coastal plain seasonal pond which is predominately composed of non-tidal forested wetlands. A portion of Hetty Fisher Pond lies on the easterly property line of the subject property at the central portion of the site. Approximately half of the ± 3.0 acre pond and additional surrounding wetlands is located on adjacent properties which includes developed lots of Briarwood Estates. Portions of the Hetty Fisher Pond are actually part of individually subdivided and developed single family lots providing little if any environmental

buffer.

As previously mentioned, the Jurisdictional Determination to be provided by the U.S. Army Corps of Engineers will identify the waters and wetlands of Hetty Fisher Pond to be subject to that agency's regulatory program. The proposed development will not impact these waters or wetlands. No additional untreated stormwater will be conveyed to Hetty Fisher Pond. Farm fields border the north side of Hetty Fisher Pond. Hetty Fisher Pond is physically separated from forest on the westerly portion of the project site by an existing unimproved access road which divides the property. Existing upland forest resources in proximity to the pond will be retained in order to provide a 60 to 140 feet forested buffer around the pond and terrestrial habitat for tree frogs and other wildlife species. None of the existing forest surrounding the pond defined by these features will be impacted by proposed development.

There are no records of any federally listed endangered or threatened species or their critical habitats listed on this site as confirmed by the U.S. Fish and Wildlife Service (USFWS) and DNREC.

We appreciate the information regarding species of concern within the State of Delaware which may occupy some portion of the property. The information provided lists three amphibian species of concern, which are the eastern tiger salamander (*Ambystoma tigrinum*), cope's grey tree frog (*Hyla chrysoscelis*), and barking tree frog (*Hyla gratiosa*). All of these species are globally secure and in more abundance in more southerly coastal plain states near the heart of their range. Hetty Fisher Pond is a feature which likely provides suitable habitat for these types of species. Otherwise, vernal pools or ponds are absent from this site. The extent of non-tidal wetland areas on the site are limited. A stream known as Hetty Fisher Glade and associated wetlands are topographically defined by distinct landscape breaks. As the Glade approaches Love Creek, wetlands are tidally influenced. These features do not provide habitat for tree frog species.

Several facts should be considered with respect to the subject property such as that the development site is predominately well drained uplands. Impacts to wetlands will be avoided almost entirely. The proposed project generally provides a minimum 50 feet upland buffer by retaining existing forest on slopes transitioning to adjacent non-tidal wetlands.

The north American reed (*Phragmites australis ssp americanus*) and Wrights witch grass (*Dichanthelium wrightianum*) are species confined to pond shorelines and adjacent wetlands. As with the tree frog species, these plant species range more widely in other states. The proposed project does not impact wetland or water areas which are suitable habitats for these two species. As stated herein, wetland buffers have been provided.

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Coastal Plain Ponds.

- The DNREC GIS database and State wetland maps indicate that there are wetlands known as Coastal Plain Ponds, or Delmarva Bays, adjacent to the project area. These wetlands provide breeding habitat for a variety of animals, including critical habitat for the species of concern listed in the table above. Coastal Plain Ponds are usually small in size, but typically support a high diversity of species and a unique assemblage of plants, many of which are considered rare.

- The existing forest or natural vegetative cover surrounding these wetlands also provide critical habitat, shade, and cover from predators. Several studies have shown that some species of salamanders spend most of their life cycle in forested buffer zones several hundred meters from wetland edges, using wetlands only during brief breeding periods. Additionally, these upland buffers are critical for protecting water quality from stormwater run-off which can contain pollutants and excess nutrients from surrounding development. Stormwater diverted into these wetlands can also alter the wet-dry cycle that is critical to breeding success and for keeping fish predators from becoming established.

- Note that this wetland type is often considered 'isolated' and not subject to regulatory protection. The lack of protection is not based on the ecological importance of this wetland type. Isolated wetlands perform many of the same environmental functions as other wetlands, including filtering pollutants, recharging streams and aquifers, storing flood waters, and providing habitat for an array of plant and animal species. Other states in the U.S. have state acts and regulations that make no distinction between isolated and non-isolated wetlands.

Response: Hetty Fisher Pond is a coastal plain pond or Delmarva Bay, half of which as previously described is located on the subject property. A delineation of the wetlands boundary was conducted by Environmental Resources, Inc. While these wetlands are isolated, the developer and the U.S. Army Corps of Engineers agree that these wetlands are regulated by that agency based upon the JD to be issued by the Corps of Engineers. Impacts to the Hetty Fisher Pond and the wetlands surrounding it have been avoided. No additional untreated stormwater will be directed into the pond by the development.

Forested upland surrounding the pond are surrounded by agricultural fields and an existing unimproved road located to its west. This forest area provides a buffer of 60 to 140 feet buffer around the wetlands associated with the pond. All the wooded area around the pond as described by these features is retained as open space.

Key Wildlife Habitat-Forest Habitat.

- The forest and wetlands on this property are mapped as Key Wildlife Habitat (KWH) in the Delaware Wildlife Action Plan (DEWAP) [1] because they support Species of Greatest Conservation Need and are part of a larger forest block. KWH can support the full array of species across the landscape. Larger, intact forest blocks around the Inland Bays where forested areas are highly fragmented, provide an important stop-over for migratory birds to refuel and find refuge. DNREC's current data suggests that this site is an important stop-over for migratory birds particularly in the fall. In addition, these forest blocks can provide nesting habitat for forest-interior dependent bird species. The site plan as designed will result in the clearing and fragmentation of this valuable forest block.

Response: The project site is a mix of agricultural lands and forest area located on well drained soils highly suitable for development. Impacts to wetlands on the property are being minimized, avoided and buffered. The developer recognizes that reductions of existing natural habitat values will inevitably result from development of the property

State Natural Heritage Site.

- Because of the presence of rare species this project lies within a State Natural Heritage Site. State Natural Heritage Sites are identified as "Designated Critical Resource
  Waters" by the United States Army Corps of Engineers (USACE), and as such are subject to the restrictions and limitations imposed through Nationwide Permit General Condition No. 22. A copy of this letter shall be included in any permit application or pre- construction notification submitted to the USACE for activities on this property.

- If you propose to use Nationwide Permit No. 3, 13, 18, 29, 39 or 42, the State of Delaware has denied 401 Water Quality Certification (WQC) and Coastal Zone Federal Consistency Concurrence (CZM) for these Nationwide Permits in Designated Critical Resource Waters. In order to use any of these six Nationwide Permits at this site you must apply for a project-specific Water Quality Certification (WQC) and Coastal Consistency Determination (CZM) from the appropriate offices at DNREC. To obtain the application materials and for all information regarding WQC, contact DNREC's Wetlands and Subaqueous Lands Section at (302) 739-9943. For information pertaining to CZM, contact DNREC's Coastal Programs at (302) 739-9283.

- If you propose to use Nationwide Permit No. 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, or 44, 49, 50, 51, and 52 this Designated Critical Resource Water designation may require you to obtain authorization through some other nationwide or general permit, or

an individual permit from the USACE. You should review the Nationwide Permit General Conditions and Regional Conditions for Delaware (see, in particular, Nationwide Permit General Condition No. 19) to determine what notification requirements or restrictions might be applicable for your activity. Please contact the USACE at (215) 656- 6728 if you have questions or require additional information regarding the Nationwide Permit Program.

Response: The developer has retained Environmental Resources, Inc. to obtain any permits from the U.S. Army Corps of Engineers which may be necessary to impact wetlands as part of this project. All required notifications and permitting procedures as outlined above will be followed.

Additional information on TMDLs and water quality.

- Compliance with the specified TMDL nutrient and bacterial reduction requirements specified for the Inland Bays watershed can be facilitated by adherence to the strategies and requirements described in the Inland Bays PCS, and the implementation of the following recommended BMPs:

  - Maintain/preserve as much of the existing forest cover in this parcel as possible. We further suggest, planting additional native tree and/or native herbaceous plantings for purposes of creating additional environmentally-friendly open space.

  - A United States Army Corps of Engineers (USACE) approved wetlands delineation. According to information submitted by the applicant in the PLUS application, wetland delineation has been conducted but not approved by the USACE.

  - 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 strongly recommends that the applicant maintain/establish an upland buffer width of at least 100 feet from all waterbodies (including ditches) and wetlands (as determined by USACE approved wetlands delineation).

  - Use 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 increases that often track post-development increases in surface imperviousness. Please contact Lara Allison at (302) 739-9939 for further information about the possibility for installing rain gardens on this parcel.

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- 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.

- Since this project will create additional surface imperviousness that will increase the probability for increased flooding and increased pollutant load runoff impacts to adjoining streams and wetlands in the greater Inland Bays watershed, we strongly encourage the use of pervious paving materials (instead of conventional asphalt and concrete) to mitigate these impacts. At a minimum, we recommend that the applicant consider the use of pervious paving materials for all 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 on baseline water quality. We strongly encourage use of this protocol to help design and implement the most effective BMPs. Please contact John Martin or Jen Walls (Division of Watershed Stewardship) at (302) 739-9939 for more information.

Response: The comment is noted.

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.

Response: The comment is noted.

Additional information on air quality.

- The existing property is zoned Agricultural Residential (AR-1). Sussex County Code states that AR-1 is intended to "prevent untimely scattering of more-dense urban uses,

which should be confined to areas planned for efficient extension of public services." However, the applicant wishes to have the land rezoned to Medium Density Residential (MR) and Residential Planned Community District (RPC). This rezoning would allow the development density to go from three-quarter acre (32,670 square foot) lots, as permitted by AR-1, to 10,000 square foot and 7,500 square foot lots for MR and RPC, respectively. Sussex County Code states that MR is intended to be reserved for land that is already or is expected to become generally urban; RPC is intended to be reserved for land that should support large scale development. The DNREC Division of Air Quality (DAQ) notes that both the intent for MR and that of RPC significantly depart from the original intent of this Agricultural Residential property.

- The proposal includes constructing 387 residential units. The overall scope includes 126.8 acres, 54.7 of which are currently forested. The developer indicates that 37.4 acres of forest will be removed; this represents a 68% removal of existing forest resources. According to the application, 41.9 acres of "open space" will be provided after landscape improvements are made. However, the applicant appears to have included uses that are impervious in nature and do not constitute open space. The EPA defines open space as any open piece of land that is undeveloped (has no buildings or other built structures) and is accessible to the public. Examples of open space include green space, public seating areas, public plazas, playgrounds, and vacant lots.

- The existing property is lacking in access to multimodal transportation, as much of the surrounding land west of John J Williams Highway is undeveloped. There are no sidewalks, bike paths, or public transportation stops around the property, and Dorman Farm Lane appears to be a gravel path at this time. The developer indicates that sidewalks will be added as part of this project, but, without a site plan, it is unclear whether these sidewalks will be limited to the project's interior.

- It should also be noted that, as the applicant has indicated intent to share an access road with the adjacent proposed Delaware State Police Troop 7 facility, the applicant is encouraged to discuss this intent with the Division of Facilities Management. The contact at the Division of Facilities Management is Mark DeVore, and he may be reached at
(302) 739-5644 or mark.devore@state.de.us.

- 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 and businesses 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.
- The emission of greenhouse gases which are associated with climate change, and
- The emission of air toxics.

- Air emissions generated from new homes and businesses 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 3 – Projected Air Quality Emissions represents the actual impact Dorman Farm Lane may have on air quality.

Table 3: Projected Air Quality Emissions for Dorman Farm Lane

Emissions Attributable to Dorman Farm Lane (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	12.0	1.3	1.1	1.4	48.6
Power emissions	*	4.7	16.5	*	2,435.8
Mobile emissions	17.7	18.5	0.5	0.2	11,437.8
Total emissions	29.7	24.5	18.1	1.6	13,922.2

(*) *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% 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 exist nearby in Millsboro, Lewes, and Rehoboth Beach.

- **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.** 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 addresses the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into the Dorman Farm Lane project. The DAQ point of contact is Rachel Yocum, and she may be reached at (302) 739-9402.

Response: The comment is noted.

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.

Response: The comment is noted.

This concludes our response. If you have any questions, please contact us at your convenience.

Sincerely,

Jason Palkewicz, PE

CC: Lawrence Lank, Sussex County

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