STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF STATE PLANNING COORDINATION

July 14, 2010

Mr. Jeff Madden
ESE Consultants, Inc.
250 Gibralter Road, Ste. 2E
Horsham, PA 19007

RE: PLUS review – 2010-06-03; Delaware National

Dear Mr. Madden:

Thank you for meeting with State agency planners on June 23, 2010 to discuss the proposed plans for the Delaware National project to be located at the intersection of Hercules Road and Lancaster Pike.

According to the information received, you are seeking site plan approval for 264 single family homes and town home units on 205 acres.

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

Strategies for State Policies and Spending

- This project is located in Investment Level 2 according to the 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. State investments will support growth in these areas. Our office supports the proposed development of this project in accordance with the relevant county codes and ordinances.

Code Requirements/Agency Permitting Requirements

State Historic Preservation Office – Contact Terrence Burns 736-7404

- There is one known historic or cultural resource on the parcel (property), on the west side of Red Clay Creek, and it was a mid or late 19th-century barn (N10937), which was part of historic agriculture complex, but the outbuildings along with the house was demolished. There is also another known historic or cultural resource nearby, it approximately east of this parcel, and it is a mid or late 19th-century (N00279) as well.

  According to the Pomeroy and Beers Atlas of 1868, which is a 19th-century historical map, it seems that there was dwelling or structure on the southeast side of this parcel associated with J. P Armstrong. In addition, the USGS (15 minute series) Topographical Map of 1904 also show and indicate that there was a dwelling or structure there, and it is a possibility that there may be potential archaeological site associated with that dwelling or structure or perhaps the mid or late 19th-century barn (N10937), which was on the parcel. With this information in mind, it is important that the developer be aware of the Delaware Unmarked Human Remains Act of 1987, outlined in Chapter 54 of Title 7 of the Delaware Code, which pertains to the discovery and disposition of such remains. The unexpected discovery of unmarked human remains during construction can result in significant delays while the process is carried out.

  Prior to any demolition or ground-disturbing activities, the developer may want to consider hiring an archaeological consultant to examine the parcel for archaeological sites, 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 projects effects on or in the reference to historic or cultural resources.

Department of Transportation – Contact Bill Brockenbrough 760-2109

The plan-specific comments that follow were originally prepared with reference to a Pre-exploratory Sketch Plan, dated March 10, 2010, rather than the Exploratory Sketch Plan, dated May 10, 2010, which accompanied the PLUS application. Where DelDOT observed differences between the two plans, they have updated their comments accordingly.

- The site access and subdivision streets must be designed in accordance with DelDOT's Standards and Regulations for Subdivision Streets and State Highway Access. This manual is available on-line at http://www.deldot.gov/information/pubs_forms/manuals/subdivisions/pdf/Subdivision_Manual_Revision_1_proposed_060110.pdf.

- Hercules Road is classified as a collector road and Lancaster Pike is classified as a minor arterial road. Therefore, according to Section 3.6.5 and Figure 3-3 of DelDOT's Standards and Regulations for Subdivision Streets and State Highway Access, both roads require an 80 foot right-of-way (40 feet from center). While the plan does not indicate what the existing right-of-way width is for either road, if the widths do not meet our requirements, dedication will be required toward the minimum right-of-way width.

- Per Section 2.3.1 of the Standards and Regulations, a traffic impact study (TIS) is warranted for the subject development. A scoping meeting was held on April 13, 2010, to establish the scope of work for the study and traffic counts have been done and reviewed. DelDOT looks forward to working with the developer's traffic engineer to determine the traffic impacts of this development and appropriate mitigation for those impacts.

- Per Section 3.5.4.2 of the Standards and Regulations, the developer should anticipate a requirement to build sidewalks or shared use paths along Lancaster Pike and Hercules Road, Penn Oak Drive, Red Clay Drive West, Norman Drive and the proposed subdivision streets. The developer should expect a requirement for a path to connect the cul-de-sacs on Road B to the sidewalk or shared use path along Lancaster Pike. The cul-de-sac shown on Road E in the pre-exploratory plan was eliminated in the exploratory plan, but we may require a path from another location on that road to the sidewalk or shared use path along Lancaster Pike.

- Sections 3.5.7.2 and 3.5.7.3 of the Standards and Regulations address linkages, respectively, to existing adjacent developments and to undeveloped or redevelopable property. DelDOT offers the following comments pursuant to those sections:

    - This development would replace an existing golf course. The cart paths associated with that course are an unusual asset in that they can easily be adapted to form network of pedestrian paths linking the various parts of the development to each other and to Little Falls Village Sections I and II. Under Suggestions, DelDOT has listed several specific adaptations that could become Requirements as the plans are developed further.

    - Between Estate Lots 6 and 7, there is a stub street right-of-way leading to the adjacent lands of Hercules, Inc. Absent a reason to the contrary, the developer should expect a requirement that a street be provided there. Section 5.1.4.2 of the Standards and Regulations addresses the design of such streets.

    - Between Executive Lots 8 and 9, there is a stub street right-of-way shown leading toward Beaver Falls Place in Little Falls Village. If right-of-way can be obtained, the developer should expect a requirement build the street connection to Beaver Falls Place. Otherwise, the stub should be provided as proposed for a future

connection. Section 5.1.4.2 of the Standards and Regulations addresses the design of such streets.

- Section 3.9 of the Standards and Regulations addresses Operational Analyses as distinct and separate from Traffic Impact Studies. The existing intersection of Norman Drive and Country Club Road is only about 200 feet from Hercules Road. As proposed on the pre-exploratory plan, Country Club Road would have become a site access. This access was not included on the exploratory plan. Preliminarily, DelDOT sees having a single, full movement access for the Carolina Homes, as shown on the exploratory plan, as problematic. DelDOT sees the layout shown on the pre-exploratory plan as preferable in that it would allow drivers seeking to turn left out of the site to do so at a signal. Balancing that is DelDOTs concern that the Hercules Road and Country Club Road intersections on Norman Drive could become congested during the evening peak hour and affect traffic on Hercules Road. If they, in the Traffic Impact Study process, find that it is necessary to revisit the connection to Norman Drive, DelDOT may require an Operational Analysis to examine how the Hercules Road and Country Club Road intersections on Norman Drive would operate.

- With the addition of Roads G and K, the intersection of Penn Oak Drive and Falls Place will need to be redesigned to maintain conformity with Section 5.1 of the Standards and Regulations. Preliminarily, it should become a standard four-way intersection with Penn Oak Drive and Road G forming the through street and Stop controls on Beaver Falls Place and Road K.

Department of Natural Resources and Environmental Control – Contact Kevin Coyle 739-9071

- **Wetlands.** According to the Statewide Wetland Mapping Project (SWMP) maps, palustrine riparian (PF01A7, PEM1A7, & PUBHh7) and riverine (R3USA) bound much of the area proposed for development (See figure 1).

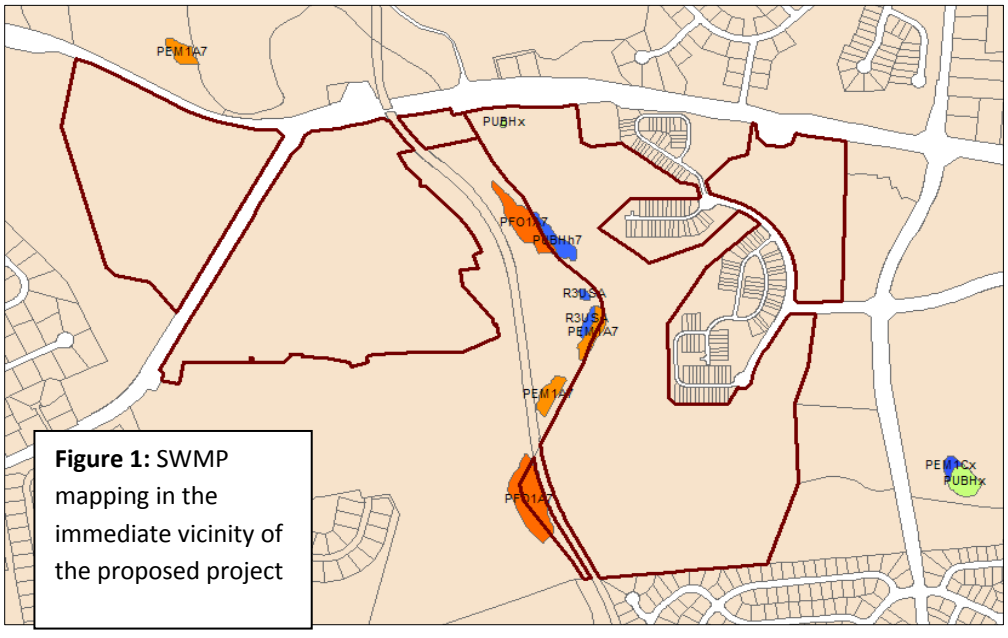

Figure 1: SWMP mapping in the immediate vicinity of the proposed project

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

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

- **TMDLs.** Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Red Clay Creek watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited water body" can assimilate and still meet State water quality standards (e.g., dissolved oxygen, nutrients, and bacteria; *State of Delaware Surface Water Quality Standards, as amended July 11, 2004*) to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting.

  TMDLs are required by federal law (Section 303(d) of the 1972 Clean Water Act), and the states are charged with developing and implementing standards to support these desired use goals. The project is located in the greater Piedmont drainage and Christina River Basin, specifically within the Red Clay Creek watershed. In the Red Clay Creek watershed, post-development nitrogen and phosphorus loading must be capped at the pre-development rate (or a 0% post-construction increase in N & P for Delaware's portion of the Christina River Basin) to meet the required TMDL for each nutrient. The TMDL requirement for bacteria varies more frequently than the TMDL requirement for bacteria with the location of the stream segment. The report entitled "*Christina River Basin High-Flow TMDL*" by the EPA details the required nutrient and bacterial reductions (table 4-6) for various stream segments. According to this report, the project is located in subbasin R08 (or stream segment) of the Red Clay Creek where the TMDL for bacteria requires an 88.5% reduction from baseline conditions. The report detailing the specific required nutrient and bacterial reductions can be retrieved from the following web link: http://www.epa.gov/reg3wapd/tmdl/pa_tmdl/ChristinaMeetingTMDL/index.htm

The recommendations from DNREC are outlined in the recommendations section below.

- **Water Supply.** The project information sheets state water will be provided to the project by Artesian Water Company via 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 85-WS-03.

- Should dewatering points be needed during any phase of construction, a dewatering well construction permit must be obtained from the Water Supply Section prior to construction of the well points. In addition, a water allocation permit will be needed if the pumping rate will exceed 50,000 gallons per day at any time during operation.

- All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising. *Ricardo Rios, (302) 739-9944, Ricardo.Rios@state.de.us*

- **Sediment and Stormwater Program.** A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. Contact the reviewing agency to schedule a 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 New Castle County Dept. of Land Use Engineering Section. Contact Dept. of Land Use at (302) 395-5470 for details regarding submittal requirements and fees (Delaware Code, Title 7, Chapter 40; Delaware Regulations, Administrative Code, Title 7, 5101). *James Sullivan, (302) 739-9921, James.Sullivan@state.de.us*

- **Federally Protected Species: 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 proposed project area. 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 of 1973(16 U.S.C. 1531-1544, 87 Stat. 884)**, its presence can affect the scope of work.

  To ensure that the project will not impact bog turtles or their habitat, Phase I surveys for bog turtle habitat should be conducted. Phase I surveys can be conducted any time of year when ice and/or snow cover is not present. If potential habitat is found, however, please note there is a **time of year restriction** during which Phase II surveys for bog

turtles ***must be*** conducted. *A Delaware approved bog turtle surveyor* ***must be*** *used to conduct the surveys.* Please contact Holly Niederriter (302-653-2880) to obtain a list of contacts to conduct Phase I and, if necessary, Phase II surveys.

If potential bog turtle habitat is found during Phase I surveys, you are **required** to either:

1. Completely avoid all direct and indirect project impacts to the wetland, in consultation with the U.S. Fish and Wildlife Service and Delaware Division of Fish and Wildlife; ***OR***

2. Have Phase II surveys conducted to determine if bog turtles are present. In accordance with Delaware's bog turtle site survey procedures, surveys must be conducted by a State-approved bog turtle surveyor between April 15 and June 15.

- **State Natural Heritage Site.** Because of the presence of rare species, all of the existing forest along Red Clay Creek (including forest that occurs in the floodplain and at the edge of the fairways) is within a State Natural Heritage Site. State Natural Heritage Sites are identified as "Designated Critical Resource Waters" by the Army Corps of Engineers (ACOE), and as such are **subject to the restrictions and limitations imposed through Nationwide Permit General Condition No. 19.** A copy of this letter shall be included in any permit application or pre-construction notification submitted to the Army Corps of Engineers 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, 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 Army Corps of Engineers. 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 Army Corps of Engineers at 215/656-6728 if you have questions or require additional information regarding the Nationwide Permit Program. *Edna Stetzar, (302) 735-8654, Edna.Stetzar@state.de.us*

- **Tank Management Branch.** 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 two LUST projects located within a quarter mile of the project site:
  - Hercules Research Center, Facility: 3-000108, Project: Five (5) Inactive Projects
  - Little Falls Center, Facility: 3-001998, Project: N9904098 (Inactive)

- Per the **UST Regulations: Part E, § 1. Reporting Requirements**:
  - "Any indication of a Release of a Regulated Substance that is discovered by any Person, including but not limited to environmental consultants, contractors, utility companies, financial institutions, real estate transfer companies, UST Owners or Operators, or Responsible Parties shall be reported within 24 hours to:
    - The Department's 24-hour Release Hot Line by calling 800-662-8802; and
    - The DNREC, Tank Management Branch by calling 302-395-2500."

- **Air Quality.** The applicant shall comply with all applicable Delaware air quality regulations. These regulations include:

  Regulation 1106 - Particulate Emissions from Construction and Materials Handling
  - Using dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads.
  - Using covers on trucks that transport material to and from site to prevent visible emissions.

  Regulation 1113 - Open Burning
  - Prohibiting open burns statewide during the Ozone Season from May 1-Sept. 30 each year.
  - Prohibiting the burning of land clearing debris, trash or building materials/debris.

  Regulation 1141 – Limiting Emissions of Volatile Organic Compounds From Consumer and Commercial Products
  - Restricting the use of certain coatings and consumer products in typical architectural applications.

  Regulation 1145 - Excessive Idling of Heavy Duty Vehicles
  - Restricting idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.

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

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

  a. **Fire Protection Water Requirements**:
     - Water distribution system capable of delivering at least 1500 gpm for 2-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 feet spacing on centers. In the area of the Single Family dwellings, hydrants spacing can be reduced to 1000 feet on centers
     - Where a water distribution system is proposed, the infrastructure for fire protection water shall be provided, including the size of water mains for fire hydrants and sprinkler systems.

  b. **Fire Protection Features:**
     - All structures over 10,000 Sq. Ft. aggregate will require automatic sprinkler protection installed.
     - Buildings greater than 10,000 sq.ft., 3-stories or more, over 35 feet, or classified as High Hazard, are required to meet fire lane marking requirements
     - Show Fire Department Connection location (Must be within 300 feet of fire hydrant), and detail as shown in the DSFPR.
     - Show Fire Lanes and Sign Detail as shown in DSFPR

  c. **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 the main thoroughfare must be constructed so fire department apparatus may negotiate it.
     - 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 plan to place trees along the drive aisles may cause an obstruction to clear access by fire apparatus and needs to be addressed.

- 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.

d. **Gas Piping and System Information:**

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

e. **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
- Alpha or Numerical Labels for each building/unit for sites with multiple buildings/units
- Square footage of each structure (Total of all Floors)
- National Fire Protection Association (NFPA) Construction Type
- Maximum Height of Buildings (including number of stories)
- Where Townhouses are proposed, 2-hr separation wall details shall be shown on site plans
- Note indicating if building is to be sprinklered
- Name of Water Provider
- Letter from Water Provider approving the system layout
- Provide Lock Box Note (as detailed in DSFPR) if Building is to be sprinklered
- Provide Road Names, even for County Roads

Department of Education – Contact John Marinucci 735-4199

- This development will be subject to the New Castle Voluntary School Assessment Statutes 9 Del. C. Chapter 26, § 2661 and 14 Del. C. § 103(c).

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.

State Historic Preservation Office – Contact Terrence Burns 736-7404

- The developer should provide some landscaping along the borders of the parcel, in order to lessen the visual effects on the surrounding properties.

Department of Transportation – Contact Bill Brockenbrough 760-2109

- DelDOT recommends that the developer's engineer contact the Subdivision Manager for northeastern New Castle County, Mr. Richard Woodhall, to schedule a pre-submittal plan review meeting. Mr. Woodhall may be reached at (302) 760-2262.

- The proposed spacing of the Road I, J and K intersections along Road G and Penn Oak Drive is undesirably close. For now DelDOT suggests moving the Road J intersection to be equidistant between the Road I and Road K intersections, but they may have further comments or requirements later. This concern should be discussed with Mr. Woodhall.

- Regarding the reuse of the golf course cart paths, mentioned above under Requirements, DelDOT offers the following suggestions:

    - There is a path leading from Tunnel #1 to the south corner of Estate Lot 13. This path should be retained and connected to Road B by extending it between Estate Lots 13 and 14.

    - There is a path branching from the path just mentioned and ending near the cul-de-sac on Road A. It should be retained and connected to the cul-de-sac.

    - Tunnel #1 should be retained if possible. DelDOT recognizes that there are potential safety issues that must be addressed. An alternative may be to add a pedestrian crossing and pedestrian signal heads to the traffic signal at the intersection of Hercules Road and Lancaster Pike.

    - There is a path that more or less parallels Hercules Road. This path should be retained and tied into Road E near Norman Drive. One end would need to be relocated around Carolina Lot 44 and either the path or the lot lines would need to be shifted to keep it out of Carolina Lots 11 through 17. With an appropriate easement, it may be possible to substitute parts of it for the shared use path along the east side of Hercules Road.

    - There is a path leading from Tunnel #1 that more or less parallels Lancaster Pike to a point east of Red Clay Creek. This path should be retained. Either the path or the lot lines would need to be shifted to keep it out of Carolina Lots 18 and 19. With an appropriate easement, it may be possible to substitute parts of it for the shared use path along the south side of Lancaster Pike. The path should be tied into the cul-de-sac at the end of Road E.

- There is a path leading from the path just mentioned to Little Falls Village II and beyond. West of Little Falls Village II, this path should be retained for a future connection to that development and a current connection to Road G. East of Little Falls Village II, this path should be retained to provide a connection to the cul-de-sac at the end of Road L. From there south, it should be removed.

- There is a path leading from the path just mentioned the south end of Penn Oak Drive. This path should be tied into the cul-de-sac at the end of Road G and the path(s) between there and the south end of Penn Oak Drive should be removed.

Department of Natural Resources and Environmental Control – Contact Kevin Coyle 739-9071

- **Additional information on wetlands.** When designing a project on a site with regulated watercourses, any extensive piping, filling or burying of streams or ditches in excess of the minimum needed for road crossings should be avoided. Where road crossings are necessary, bridge spans which avoid significant impacts to stream banks and channels should be used wherever possible. Where placement of culverts is unavoidable, culvert designs which utilize multiple barrels at different elevations to preserve a low flow channel are usually preferred. Contact the Wetlands and Subaqueous Lands Section for further information regarding preferred designs.

  The applicant should also be reminded that they must avoid construction/filling activities in those areas containing wetlands or wetland associated hydric soils as they may be subject to regulatory jurisdiction under Federal 404 provisions of the Clean Water Act. A site-specific field wetlands delineation using the methodology described in the 1987 United States Army Corps of Engineers (USACE or "the Corps") manual is the acceptable basis for making a jurisdictional wetland determination for nontidal wetlands in Delaware.

  The applicant is forewarned that the Corps views the use of the National Wetlands Inventory (NWI) mapping or the Statewide Wetlands Mapping Project (SWMP) mapping as an unacceptable substitute for making such delineations. To ensure compliance with said Corps regulatory requirements, it is strongly recommended that a field wetlands delineation using the above-referenced methodology be performed on this parcel before commencing any construction activities. It is further recommended that the Corps be given the opportunity to officially approve the completed delineation. In circumstances where the applicant or applicant's consultant delineates what they believe are nonjurisdictional isolated (SWANCC) wetlands, the Corps must be contacted to evaluate and assess the jurisdictional validity of such a delineation. The final jurisdictional authority for making isolated wetlands determinations rests with the Corps; they can be reached by phone at 736-9763.

  Based on a review of existing buffer research by Castelle et al. (Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review.* J.

Environ. Qual. 23: 878-882.), an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances, is about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all water bodies (including ditches) and wetlands.

- **Additional information on TMDLs.** A pollution control strategy (PCS) is the regulatory directive requiring the implementation of various best management practices (BMPs) that help reduce transport of nutrient and bacterial pollutant runoff from all waters draining into a "greater" common watershed; with the ultimate objective of achieving the obligatory TMDL reduction requirements for that watershed. However, the PCS for the Red Clay Creek watershed has not been formally completed to date. In absence of a finalized PCS, the applicant is strongly urged to reduce nutrient and bacterial pollutants through voluntary commitment to the implementation of the following recommended BMPs:

    - Maintenance of the recommended 100-foot buffer width from all delineated wetlands (USACOE and State approved wetland delineations) and water bodies (including Red Clay Creek). Please conduct a USACOE approved wetlands delineation.

    - Maximize the amount and/or preservation of passive wooded open space.

    - Calculate impervious cover with all forms of created surface imperviousness included in the calculation for surface imperviousness (e.g., rooftops, driveways, parking lots, sidewalks, open-water stormwater management structures, and roads). Please recalculate if this have not been done.

    - DNREC Strongly recommends the use of pervious paving materials (instead of conventional asphalt and concrete) as a BMP to reduce the impacts associated with surface imperviousness, wherever practicable.

    - DNREC strongly encourages the use of rain gardens and green-technology stormwater management structures (in lieu of open-water management structures) as BMPs.

    - Assess how your development will affect nutrient runoff through the use or implementation of the Nutrient Budget protocol. Please contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

- **State-Rare Plants.** A review of our database indicates that the following state rare plants occur within the project site:

Scientific Name	Common Name	Taxon	State Rank	State Status	Global Rank
Arisaema dracontium	green dragon	Plant	S2		G5
Cardamine angustata	slender toothwort	Plant	S2		G5
Carex squarrosa	squarrose sedge	Plant	S2		G5
Cystopteris protrusa	lowland brittle fern	Plant	S2		G5
Solidago ulmifolia var ulmifolia	elm-leaf goldenrod	Plant	S1		G5

State Rank: S1- extremely rare within the state (typically 5 or fewer occurrences); S2- very rare within the state (6 to 20 occurrences); S3-rare to uncommon in Delaware, B - Breeding; N - Nonbreeding; SX-Extirpated or presumed extirpated from the state. All historical locations and/or potential habitat have been surveyed; SH- Historically known, but not verified for an extended period (usually 15+ years); there are expectations that the species may be rediscovered; SE-Non-native in the state (introduced through human influence); not a part of the native flora or fauna., SNR-not yet ranked in Delaware, SNA-occurrences in DE of limited conservation value

State Status: E – endangered, i.e. designated by the Delaware Division of Fish and Wildlife as seriously threatened with extinction in the state;

Global Rank: G1 - imperiled globally because of extreme rarity (5 or fewer occurrences worldwide); G2 - imperiled globally because of great rarity (6 to 20 occurrences); G3 - either very rare and local throughout its range (21 to 100 occurrences) or found only locally in a restricted range; G4 - apparently secure globally but uncommon in parts of its range; G5 - secure on a global basis but may be uncommon locally; T_ - variety or subspecies rank; Q – questionable taxonomy;

The rare plants listed above occur within the forested areas of this site, primarily all of the existing forest along Red Clay Creek (including forest in the floodplain and at the edge of the fairways). If the areas where these plants occur are left undisturbed then these plants should not be impacted. It would be best if some type of mechanism (deed restriction, conservation easement, etc.) was considered so that future clearing or encroachment into the forest is less likely to occur.

- **Solid and Hazardous Waste.** The Solid and Hazardous Waste Management Branch (SHWMB) strongly recommends that the land owner perform environmental due diligence of the property by performing a Phase I Assessment 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

- There is one RCRA site found within a ½-mile radius of the proposed project: Hercules Research Center (DED001315647) is adjacent to the project area. Site specific information follows:

    - The Hercules Research Center is located about five miles west of Wilmington, Delaware. The facility occupies approximately 45 acres, the majority of which has laboratory buildings used for development and research chemistry studies for Hercules' worldwide chemical operations. The facility is surrounded to the north, west and south by Delaware National Country Club. To the east are the Red Clay Creek and a small railroad operated by the Wilmington and Western Railroad.

      EPA issued a RCRA Corrective Action permit which identified 16 Solid Waste Management Units (SWMUs) and four Areas of Concerns (AOCs) at the facility. The SWMUs and AOCs are units that require investigation to determine if corrective measures for cleanup are necessary. DNREC reissued the Corrective Action Permit on December 1, 2004, and is now the lead agency for Corrective Action at this facility

      SWMU 9A is a former drum storage area, presently used for salvaged equipment storage. This regulated unit is located within a larger area, designated as SWMU 15. Sampling showed that the area was impacted by past releases from experimental pesticide formulation in a nearby building. Soil sampling results of SWMUs 9A/15 showed soil contamination with pesticides, metals and volatile organic compounds, including chlorobenzene. Hercules excavated contaminated soil and capped the area with a low permeability asphalt cover. Groundwater samples indicated that soil contaminants did not impact the groundwater. In January 1999, DNREC issued the Closure Certification letter for SWMU 9A. Groundwater sampling is conducted annually as part of Post Closure Care Monitoring.

    - Hercules completed a Corrective Measures Study for SWMU 8 and 9C, a former dump and drum storage area. Polychlorinated biphenyls (PCBs), pesticides and metals were found in soils and some sediment. EPA required additional sediment sampling to evaluate if the Red Clay Creek has been impacted by this SWMU. Based on the results presented in the report, DDT and DDD hotspots were detected in the downstream portion of the Red Clay Creek. Results indicate that contaminants in Red Clay Creek may come from other upstream sources, and cannot be definitively linked to the Hercules site. As a final remedy, DNREC proposes to install an engineered cap on the SWMU in conjunction with institutional controls (ICs) for the SWMU 8/9C area. The IC proposed for SWMU

8/9C will consist of a deed restriction consistent with the form suggested by the Uniform Environmental Covenants Act (UECA).

- SWMU 6 was a RCRA regulated, greater-than-90-day container storage pad used for hazardous waste storage. Hercules proposed to "clean close" the container storage area and, then to reuse the area for storage of less-than-90-day hazardous waste, as well as for continued storage of non-hazardous waste. The Closure Plan was approved August 2004. Closure activities commenced in June 2005 were completed December 2005. The RCRA Closure Certification was approved May 31, 2006.

  The Agricultural Chemical Laboratory (ACL) also known as SWMU 16 was formerly an agricultural research and development center from 1953 to 1976. Hercules compiled and submitted a report presenting a summary of existing data pertaining to the ACL. Included in the report was a conceptual corrective action work plan. Analytical results of soil and sediment samples collected at the ACL facility revealed that most of the analytes were either non-detect or present at concentrations below their levels for Delaware Uniform Risk-Based Remediation Standards for Unrestricted Use. The pesticide toxaphene and a few metals have exceeded these levels. Hercules has completed the demolition of the buildings/structures, removal of underground storage tanks (UST) and their appurtenances, and collection of post-excavation samples at the ACL. Hercules proposed to conduct additional sampling in the area to delineate the extent of the metals with elevated results.

  Hercules successfully completed the Environmental Indicator for Migration of Contaminated Groundwater Under Control. Ground water monitoring at the site has shown stability and is representative of previous sampling results. The Environmental Indicator Forms, available on EPA's website present the evaluation that current human exposure to site contaminants is under control and migration of contaminated ground water is under control.

- Should a release or imminent threat of a release of hazardous substances be discovered during the course of development (e.g., contaminated water or soil), construction activities should be discontinued immediately and DNREC should be notified at the 24-hour emergency number (800-662-8802). *Douglas Zeiters, (302) 739-9403, Douglas.Zeiters@state.de.us*

- **Site Investigation and Restoration.** The Site Investigation and Restoration Branch (SIRB) strongly recommends that the land owner perform environmental due diligence of the property by performing a Phase I Assessment 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.

- There are two SIRB sites found within a ½-mile radius of the proposed project:
    - Hercules Research Center (DE-0076) is adjacent to the project area.
        - SIRB referred the Hercules Research Center to the Solid & Hazardous Waste Management Branch for RCRA corrective action.
    - Delaware National Golf Technical Assistance (DE-1323) is to the south and southwest of the project area.
        - DNREC-SIRB and New Castle County signed a Memorandum of Understanding in March 2007 that stated that DNREC-SIRB would provide technical assistance and oversight of the remedial action to ensure that the remedial action meets all technical and substantive requirements as defined under HSCA.
        - The remedial action included a hot spot removal and soil blending.

- Should a release or imminent threat of a release of hazardous substances be discovered during the course of development (e.g., contaminated water or soil), construction activities should be discontinued immediately and DNREC should be notified at the 24-hour emergency number (800-662-8802). SIRB should also be contacted as soon as possible at 302-395-2600 for further instructions. *Kathryn Durant, (302) 395-2680, Kathryn.Durant@state.de.us*

- **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 TMB. If any ASTs greater than 12,500 gallons are installed, they are also subject to installation approval by the TMB.

  Should the municipality anticipate being more restrictive than Delaware's Regulations Governing Underground Storage Tank Systems or Delaware's Regulations Governing Aboveground Storage Tanks, please be aware that the municipality shall be responsible for enforcing the more restrictive rules.

- **Additional information on air quality.** Measures may be taken to substantially reduce the air quality emissions and include:

Constructing only energy efficient buildings. Energy Star qualified buildings are up to 30% more energy efficient. These savings come from building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment. Every percentage of increased energy efficiency translates into a percent reduction in pollution.

Offering geothermal and/or photo voltaic energy options. These systems can significantly reduce emissions from electrical generation, and from the use of oil or gas heating equipment.
Providing tie-ins to the nearest bike paths and links to any nearby mass transport system. F**or every vehicle trip that is replaced by someone using a sidewalk, bike path or mass transit** can significantly reduce mobile source emissions**.**

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

    - **Using retrofitted diesel engines during construction**. This includes equipment that are on-site as well as equipment used to transport materials to and from site.

    - **Using pre-painted/pre-coated flooring, cabinets, fencing, etc**. These measures can significantly reduce the emission of VOCs from typical architectural coating operations.

    - **Planting trees at residential units and in vegetative buffer areas**. Trees reduce emissions by trapping dust particles and by replenishing oxygen. Trees also reduce energy emissions by cooling during the summer and by providing wind breaks in the winter, whereby reducing air conditioning needs by up to 30 percent and saving 20 to 50 percent on fuel costs.

  This is a partial list, and there are additional things that can be done to reduce the impact of the development on air quality. The applicant is advised to contact DNREC Air Quality Management Section for measures that may be incorporated into the Delaware National Development.

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

Department of Education – Contact John Marinucci 735-4199

- DOE requests developer work with the affected School District transportation department to establish developer supplied bus stop shelter ROW and shelter structures, either at the entrance to the development or interspersed throughout the development as determined and recommended by the that school district. Contact information: George Middleton 302-328-5382

- DOE recommends that any playgrounds be installed and maintained in accordance with ASTM Designation F-1487 and CPSC PUB. 325.

Department of Agriculture – Contact Scott Blaier 698-4529

- The Delaware Department of Agriculture Forest Service encourages the developer to use the "Right Tree for the Right Place" for any design considerations. This concept allows for the proper placement of trees to increase property values in upwards of 25% of appraised value and will reduce heating and cooling costs on average by 20 to 35 dollars per month. In addition, a landscape design that encompasses this approach will avoid future maintenance cost to the property owner and ensure a lasting forest resource. To further support this concept the Delaware Forest Service does not recommend the planting of the following species due to the high risk of mortality from insects and disease:

Callery Pear	Ash Trees
Leyland Cypress	Red Oak (except for Willow Oak)

  If you would like to learn more about the potential problems or impacts associated with these trees, please contact the Delaware Forest Service for more information at (302) 698-4500.
- Native Landscapes - The Delaware Department of Agriculture and the Delaware Forest Service encourages the developer to use native trees and shrubs to buffer the property from the adjacent land-use activities near this site. A properly designed forested buffer can create wildlife habitat corridors and improve air quality to the area by removing six to eight tons of carbon dioxide annually and will clean our rivers and creeks of storm-water run-off pollutants. To learn more about acceptable native trees and how to avoid plants considered invasive to our local landscapes, please contact the Delaware Department of Agriculture Plant Industry Section at (302) 698-4500.

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

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

Sincerely,

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