

February 8, 2007

Gerald G. Friedel, P.E.  
Michael R. Wigley, AIA  
Randy B. Duplechain, P.E.  
Charles R. Woodward, Jr., LS  
Jo Anne Williams, P.E.  
Charles A. Hauser, P.E.  
W. Zachary Crouch, P.E.

Kent County Department of Planning Services  
555 Bay Road  
Dover, DE 19901

Attn: Michael Petit De Mange, AICP  
Director of Planning

Re: PLUS Response-PLUS 2006-12-07  
Bonterra, AKA Brekenridge  
DBF# 465D024

Dear Mr. Petit De Mange:

This letter is in response to comments received from the Office of State Planning Coordination dated, January 29, 2007. We offer the following item-by-item response for your review.

**Executive Summary**

*The following section includes some site specific highlights from the agency comments found in this letter. This summary is provided for your convenience and reference. The full text of this letter represents the official state response to this project. Our office notes that the applicants are responsible for reading and responding to this letter and all comments contained within it in their entirety.*

**State Strategies/Project Location**

*This project is located in Investment Level 2 according to the Strategies for State Policies and Spending. This site is also located in the Kent County Growth Zone. 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 has no objections to the proposed development of this project in accordance with the relevant County codes and ordinances. We encourage you to design the site with respect for the environmental features which are present. It is strongly recommended that the applicant address the environmental comments from DNREC contained within this letter.*

- The developer acknowledges that the project is located in the Kent County Growth Zone and Investment Level 2. The developer will do its utmost to

design the site with respect to the present environmental features.

***Street Design and Transportation***

- *Because of its proximity to a curve in the road, a sight distance evaluation will be necessary for the site entrance. The entrance location appears to be optimal as shown, but road improvements to provide better sight distance may be needed.*
- The developer acknowledges the fact that a sight distance evaluation will be required to determine road improvements.
- *The plan should provide a 15-foot wide permanent easement across the frontage of the site for a 10' wide shared use path.*
- A paved multi-modal path will be incorporated into the site design.
- *The site design should include a stub street to the adjacent lands of Jerry Smolick (Tax Parcel SM-00-129.00-02-28.00-00001, proposed as the Riviera Glen subdivision).*
- Based on the location of the Regional Pumpstation, a stub street is not feasible in this location.
- *The site design should include an easement such that the driveway from the George F. Mende, Jr. parcel (Tax Parcel SM-00-130.00-01-45.04-00001) can be tied into the subdivision street if that parcel is ever redeveloped.*
- The developer acknowledges the fact that an easement will be required to allow adjacent landowners to tie into the subdivision in the future.
- *DeIDOT may require road improvements across the site's frontage. Local roads require 11-foot wide travel lanes and 5-foot wide shoulders at a minimum. An overlay of the existing roadway may be required.*
- The developer acknowledges the fact that DeIDOT will require improvements across the site's frontage to meet current road standards.
- *The developer will be required to enter into an agreement with DeIDOT to participate in funding the construction of a single-lane roundabout at the intersection of Midstate Road (Delaware Route 12 and Kent Road 34) and Canterbury Road.*
- The developer acknowledges the fact that DeIDOT will require an agreement to

Mr. Petit De Mange

February 8, 2007

Page 3

participate in the funding of the above referenced roundabout.

### ***Natural and Cultural Resources***

- *The developers of Braewynd, Brekenridge, Branchside (all three projects involve the same developer), and Riviera Glen are proposing a total of 512 units on 259 contiguous acres. DNREC strongly recommends that the developers consider a "master plan" for the area that would address such issues as open space, stormwater management, recreation, and natural resources on a more regional scale, as opposed to designing each subdivision as a stand-alone project. All of these projects are proposing disturbance within 100 feet of tributaries that flow into the publicly-owned Andrews Lake. Cumulatively, 28.93 acres of forest are being either converted into a 'residential woods' or fragmented by these projects.*
- The developer acknowledges the fact that DNREC recommends a mast plan and since the three subdivision mentioned above will be designed by the same developer, the developments will be intergraded based on existing conditions. The developer also met with the community in the early stages of this project to discuss a TDR development which included a concept plan. The community was in favor of the single family concept but not the TDR concept so the decision was made to submit the three separate subdivisions showing all single family lots per the AC zoning.
- *According to the Statewide Wetland Mapping Project (SWMP) mapping, palustrine riparian wetlands were mapped immediately adjacent to two headwater stream tributaries of the Pratt Branch, bordering the northern and southern boundaries of subject parcel. Wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. Vegetated buffers of no less than 100 feet should be employed from the edge of the wetland complex.*
- We revised some of the lots to maximize the buffer along the tributary. All lots meet and exceed the 25' setback requirement per Kent County Code. The developer will follow all applicable rules pertaining to the Delaware Sediment and Stormwater Regulations in the design and execution of this project to meet State and Local requirements for water quality.
- *In situations where the applicant believes that the delineated wetlands on their parcel are nonjurisdictional isolated wetlands, the Corps be contacted to make the final jurisdictional assessment.*
- A wetlands delineation has been completed by Environmental Resources, Inc.

- *PLUS materials indicate that 0.5 acres of forest will be removed for construction. Although small, the trees on site provide water quality, air quality and habitat benefits. Lot lines should be redesigned to avoid all impacts to the forested area.*
- *Per Kent County Code, 50% of the woodlands can be removed. Based on existing conditions of the site, we are preserving over 100% of the woodlands.*
- *It is recommended that the 1.15 acre open space area be minimized to include a conservation planting buffer of trees. The remaining open space acreage could be relocated to the eastern portion of the parcel behind lots 23-27 to maximize the existing wetland buffer. By eliminating this open space, in the center of the subdivision; lot sizes could possibly be increased.*
- *DNREC has never surveyed this site; therefore, it is unknown if there are state or federally listed plants, animals or natural communities at or adjacent to this project site. They do have records of a state-rare fish species, *Enneacanthus chaetodon* (blackbanded sunfish) in Andrews Lake, therefore, run-off from this development could impact water quality within the lake if an adequate (at least 100 feet) buffer is not maintained along the two tributaries that flow into the Lake. According to the site plan there is a stormwater management pond and several lots within 100 feet and DNREC highly recommends that these lots and pond be pulled out of this important buffer zone. Andrews Lake is a publicly owned pond managed by the State*
- *We revised some of the lots to maximize the buffer along the tributary. All lots meet and exceed the 25' setback requirement per Kent County Code. The developer will follow all applicable rules pertaining to the Delaware Sediment and Stormwater Regulations in the design and execution of this project to meet State and Local requirements for water quality.*

*The following are a complete list of comments received by State agencies:*

**Office of State Planning Coordination — Contact: David Edgell 739-3090**

*This project is located in Investment Level 2 according to the Strategies for State Policies and Spending. This site is also located in the Kent County Growth Zone. 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 has no objections to the proposed development of this project in accordance with the relevant County codes and ordinances. We encourage you to design the site with respect for the environmental features which are present. It is strongly recommended that the applicant address the environmental comments from DNREC contained within this letter.*

*This project is one of four adjacent properties being considered in PLUS this month (Braewynnds, Breckenridge, Branchside, and Riviera Glen). It is recommended that the applicants and the County Planning Staff work together to ensure that the developments are well integrated into one another with street and pedestrian / bicycle interconnections. Likewise, the developers should coordinate road improvements for the entire area with DeIDOT. We also encourage the consideration of preserving woodlands and riparian corridors that are common to these properties.*

- The developer would like to thank you for the contact information for the Office of State Planning Coordination.
- The developer acknowledges that the project is located in the Kent County Growth Zone and Investment Level 2. The developer will do its utmost to design the site with respect to the present environmental features.

**Division of Historical and Cultural Affairs — Contact: Alice Guerrant 739-5685**

*Nothing is known within this parcel. There are no indications on the historic maps that any house was located here. There is a historic house (K-2779) across Indian Point Rd to the east. There are areas of high potential for a prehistoric-period archaeological site here.*

- The developer would like to thank you for this historic information pertaining to the site.

*The DHCA would like the opportunity to examine the area prior to any ground-disturbing activities, to see if there are in fact any archaeological sites on the parcel and to learn something about their location, nature, and extent. They request that there be sufficient landscaping around this development to block any noise or visual intrusions on the nearby historic house.*

- The developer acknowledges DHCA's request to perform archeological testing.

**Department of Transportation — Contact: Bill Brockenbrough 760-2109**

1) *Indian Point Road is a local road. DeIDOT's policy is to require dedication of sufficient land to provide a minimum right-of-way width of 30 feet from the centerline on local roads. Therefore we will require right-of-way dedication along the frontage to provide any additional width needed from this project*

- The developer acknowledges the fact that DeIDOT will require additional right-of-way for these projects.

Mr. Petit De Mange

February 8, 2007

Page 6

- 2) *Because of its proximity to a curve in the road, a sight distance evaluation will be necessary for the site entrance. The entrance location appears to be optimal as shown, but road improvements to provide better sight distance may be needed.*
  - The developer acknowledges the fact that a sight distance evaluation will be required to determine road improvements.
- 3) *The plan should provide a 15-foot wide permanent easement across the frontage of the site for a 10' wide shared use path.*
  - A paved multi-modal path will be incorporated into the site design.
- 4) *The site design should include a stub street to the adjacent lands of Jerry Smolick (Tax Parcel SM-00-129.00-02-28.00-00001, proposed as the Riviera Glen subdivision).*
  - Based on the location of the Regional Pumpstation, a stub street is not feasible in this location.
- 5) *The site design should include an easement such that the driveway from the George F. Mende, Jr. parcel (Tax Parcel SM-00-130.00-01-45.04-00001) can be tied into the subdivision street if that parcel is ever redeveloped.*
  - The developer acknowledges the fact that an easement should be provided to allow adjacent landowners to tie into the subdivision in the future.
- 6) *DeIDOT may require road improvements across the site's frontage. Local roads require 11-foot wide travel lanes and 5-foot wide shoulders at a minimum. An overlay of the existing roadway may be required.*
  - The developer acknowledges the fact that DeIDOT will require improvements across the site's frontage to meet current road standards.
- 7) *The developer will be required to enter into an agreement with DeIDOT to participate in funding the construction of a single-lane roundabout at the intersection of Midstate Road (Delaware Route 12 and Kent Road 34) and Canterbury Road.*
  - The developer acknowledges the fact that DeIDOT will require an agreement to participate in the funding of the above referenced roundabout.
- 8) *The applicant's site engineer should contact the project manager for Kent County,*

*Mr. Brad Herb, regarding specific requirements for streets and access. Mr. Herb may be reached at (302) 266-9600.*

- The developer thanks you for Mr. Herb's contact information.

**The Department of Natural Resources and Environmental Control - Contact: Kevin Coyle 739-9071**

**General Comment**

*The developers of Braewynnds, Brekenridge, Branchside (all three projects involve the same developer), and Riviera Glen are proposing a total of 512 units on 259 contiguous acres. We strongly recommend that the developers consider a "master plan" for the area that would address such issues as open space, stormwater management, recreation, and natural resources on a more regional scale, as opposed to designing each subdivision as a stand-alone project. All of these projects are proposing disturbance within 100 feet of tributaries that flow into the publicly-owned Andrews Lake. Cumulatively, 28.93 acres of forest are being either converted into a 'residential woods' or fragmented by these projects.*

- The developer acknowledges the fact that DNREC recommends a master plan and since the three subdivision mentioned above will be designed by the same developer, the developments will be intergraded based on existing conditions. The developer also met with the community in the early stages of this project to discuss a TDR development which included a concept plan. The community was in favor of the single family concept but not the TDR concept so the decision was made to submit the three separate subdivisions showing all single family lots per the AC zoning.

**Soils**

*Based on the Kent County soil survey update Sassafras, Ingleside, Hambrook, Zekiah, and Longmarsh were mapped in the immediate vicinity of the proposed construction. Sassafras, Ingleside, and Hambrook are well-drained upland soils that, generally, have few limitations for development. However, steeply sloping (10-15%) Sassafras soils should be avoided entirely. Zekiah and Longmarsh are very poorly-drained wetland associated (hydric) soils that have severe limitations for development.*

- The developer acknowledges that the site is in the vicinity of Sassafras, Ingleside, Hambrook, Zekiah, and Longmarsh soils. The developer is also aware of the engineering characteristics of these soils and will incorporate this knowledge in the design of the site. The developer will follow all applicable rules and regulations to successfully develop this site in accordance with the Department of Natural Resources and Environmental Control.

Mr. Petit De Mange  
February 8, 2007  
Page 8

### ***Wetlands***

*According to the Statewide Wetland Mapping Project (SWMP) mapping, palustrine riparian wetlands were mapped immediately adjacent to two headwater stream tributaries of the Pratt Branch, bordering the northern and southern boundaries of subject parcel. Wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. Vegetated buffers of no less than 100 feet should be employed from the edge of the wetland complex. The developer should note that both DNREC and Army Corps of Engineers discourage allowing lot lines to contain wetlands to minimize potential cumulative impacts resulting from unauthorized and/or illegal activities and disturbances that can be caused by homeowners.*

*PLUS application materials indicate that wetlands have been delineated (presumably a tkici delineation). This delineation should be verified by the Army Corps of Engineers through the Jurisdictional Determination process. Please note that impacts to palustrine wetlands are regulated by the Army Corps of Engineers through Section 404 of the Clean Water Act. In situations where the applicant believes that the delineated wetlands on their parcel are nonjurisdictional isolated wetlands, the Corps ~ be contacted to make the final jurisdictional assessment. They can be reached by phone at 736-9763. Certain drainage ditches may also be jurisdictional either under the U.S. Army Corps of Engineers Program or through the DNREC Wetland and Subaqueous Lands program.*

*In addition, individual 404 permits and certain Nationwide Permits from the Army Corps of Engineers also require 401 Water Quality Certification from the DNREC Wetland and Subaqueous Land Section and Coastal Zone Federal Consistency Certification from the DNREC Division of Soil and Water Conservation, Delaware Coastal Programs Section. Each of these certifications represents a separate permitting process.*

*To find out more about permitting requirements, the applicant is encouraged to attend a Joint Permit Process Meeting. These meetings are held monthly and are attended by federal and state resource agencies responsible for wetland permitting. Contact Denise Rawding at (302) 739-9943 to schedule a meeting.*

*Headwater riparian wetlands are important for the protection of water quality and the maintenance/integrity of the ecological functions throughout the length of the stream, including the floodplain system and/or water bodies further downstream. Since such streams are a major avenue for nutrient-laden stormwater and sediment runoff, their protection deserves the highest priority. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant preserve the existing forested buffer(s) adjacent to the headwater wetlands and associated stream headwater stream tributaries of the Pratt Branch in their entirety. Otherwise, the Watershed Assessment section strongly recommends the applicant maintain at least a 100-foot upland buffer from all wetlands and streams. In the situation where natural buffer vegetation has been*

*removed or reduced by past development or farming activities, the developer is encouraged to restore/establish to said buffer width or greater with native herbaceous and/or woody vegetation. Based on a literature review of existing buffer research by Castelle et al. (1994), the consensus among many researchers is that a buffer width of at least 100-foot is necessary to protect water or habitat quality in streams and/or wetlands.*

- The developer has already performed a wetlands delineation on the site. The wetlands were delineated in October 2006 by Environmental Resources, Inc.
- The developer thanks you for the Corp of Engineers contact information, however no permits are required for this site.

### ***Impervious Cover***

*Based on a review of the PLUS application, post-development surface imperviousness is estimated to be about 8 percent. However, given the scope and density of this project, this estimate is clearly an underestimate. The applicant's apparent use of natural areas (wetlands or buffers) and areas of functional utility (stormwater management areas) for meeting the County's open space requirements artificially lowers the amount of this project's post-development projection of surface imperviousness, ultimately underestimating its environmental impacts. Furthermore, the applicant should also realize that all created forms of constructed surface imperviousness (i.e., rooftops, sidewalks, and roads) and their extent should be comprehensively accounted for when calculating surface imperviousness. It is strongly recommended that the applicant address all of the above-mentioned concerns in the finalized calculation for surface imperviousness.*

*Studies have shown a strong relationship between increases in impervious cover to decreases in a watershed's overall water quality. It is strongly recommended that the applicant implement best management practices (BMPs) that reduce or mitigate some of its most likely adverse impacts. Reducing the amount of surface imperviousness through the use of pervious paving materials ("pervious pavers") in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation or additional tree plantings are some examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.*

- The developer acknowledges the importance of using best management practices (BMPs) in the design of this site and will do so accordingly to prevent further declining the water and habitat quality of the watershed.

### ***TMDLs***

*Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Murderkill watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited water body" can assimilate and still meet water quality standards to the extent necessary to*

*support use goals such as, swimming, fishing, drinking water and shell fish harvesting. Although TMDLs are required by federal law, states are charged with developing and implementing standards to support these desired use goals. In the Murderkill watershed, a post-development TMDL reduction level of 50 and 30 percent will be required for nitrogen and phosphorus, respectively.*

***TMDL Compliance through the Pollution Control Strategy (PCS)***

*As stated above Total Maximum Daily loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Murderkill Watershed. The TMDL calls for a 50% reduction for nitrogen and 30% for phosphorus from baseline conditions. The Department developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Additional reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses, increasing passive, wooded open space, and the use of stormwater management treatment trains. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.*

- *The developer acknowledges the requirement of reducing nutrient runoff and thanks you for the contact information.*

***Water Resource Protection Areas***

*The Water Supply Section has determined that a significant portion of the site falls within an excellent ground-water recharge area for the Kent County (see following map and attached map). The site plans show storm water management ponds in the area of excellent recharge.*

*Excellent Ground-Water Recharge Areas are those areas mapped by the Delaware Geological Survey where the first 20 feet of subsurface soils and geologic materials are exceptionally sandy. These soils are able to transmit water very quickly from the land surface to the water table. This map category is an "indicator of how fast contaminants will move and how much water may become contaminated" (Andres, 2004, pg 1). Land use activities or impervious cover on areas of excellent groundwater recharge potential may adversely affect the quality and quantity of ground water in these areas.*

*The construction phase of storm water management ponds requires excavation, hauling, and grading. The heavy equipment used in this phase has the capacity to compact and degrade the structure of the strata that defines the area as an excellent ground water recharge area. Changes to the structural soil properties may cause significant reduction in recharge capacity. Installing storm-water management ponds in excellent ground-water recharge areas has the potential to contaminate the ground water beneath it and infiltrate into the aquifer. Source Water suggests moving the storm water management ponds to an area of the site not on the excellent ground-water recharge area.*

*The Water Supply Section recommends that the portion of the new development within the excellent ground-water recharge area not exceed 20% impervious cover (DNREC, 2005). The purpose of an impervious cover threshold is to minimize loss of recharge (and associated increases in storm water) and protect the quality and quantity of ground water and surface water supplies.*

*The proposed development would change the impervious over from 0 % to approximately 8.1 %. Developer on the PLUS application provided these numbers. Ideally, relocating any open space areas to the part of the parcel within the excellent ground-water recharge area would decrease the total impervious area. Augmenting the groundwater recharge with clean rooftop run-off systems are another alternative to maintaining the quality and quantity of water recharging the aquifer (Kauffman, 2005).*

*In addition, because the excellent ground water recharge area can so quickly affect the underlying aquifer if contaminants are spilled or discharged across the area, the storage of hazardous substances or wastes should not be allowed within the area unless specific approval is obtained from the relevant state, federal, or local program.*

- The developer acknowledges the recommendation to keep the amount of impervious cover within the excellent ground-water recharge area below 20%.

### ***Water Supply***

*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.*

- The developer acknowledges that a dewatering well construction permit must be obtained should dewatering be needed. The developer also acknowledges that a water allocation permit may be required should the site exceed the above mentioned pumping rate.
- The developer acknowledges that all well permit applications must be prepared and signed by licensed water well contractors and only licensed well drillers may construct the wells. The developer also acknowledges the recommendation to schedule these events accordingly.

*Should you have any questions concerning these comments, please contact Rick Rios at 302-739-9944.*

- The developer thanks you for the contact information.

***Sediment and Erosion Control/Stormwater Management Requirements:***

1. *Land disturbing activities in excess of 5,000 square feet are regulated under the Delaware Sediment and Stormwater Regulations. A detailed sediment and stormwater management plan must be reviewed and approved by the Kent Conservation District prior to any land disturbing activity (i.e. clearing, grubbing, filling, grading, etc.) taking place. The review fee and a completed Application for a Detailed Plan are due at the time of plan submittal to the Kent Conservation District. Construction inspection fees based on developed area and stormwater facility maintenance inspection fees based on the number of stormwater facilities are due prior to the start of construction. Please refer to the fee schedule for those amounts.*
  - The developer acknowledges the requirements and fees due to the stormwater portion of the project and will comply accordingly.
  - The developer will follow all applicable rules pertaining to the Delaware Sediment and Stormwater Regulations in the design and execution of this project.
2. *The following notes must appear on the record plan:*
  - *The Kent Conservation District reserves the right to enter private property for purposes of periodic site inspection.*
  - *The Kent Conservation District reserves the right to add, modify, or delete any erosion or sediment control measure, as it deems necessary.*
  - *A clear statement of defined maintenance responsibility for stormwater management facilities must be provided on the Record Plan.*
3. *Ease of maintenance must be considered as a site design component and a maintenance set aside area for disposal of sediments removed from the basins during the course of regular maintenance must be shown on the Record Plan for the subdivision.*
4. *All drainage ways and storm drains should be contained within drainage easements and clearly shown on the plan to be recorded by Kent County.*

Mr. Petit De Mange

February 8, 2007

Page 13

5. *A soils investigation supporting the stormwater management facility design is required to determine impacts of the seasonal high groundwater level and soils for any basin design.*

*Comments:*

1. *The designer is encouraged to consider the conservation design approach and limit the amount of tree clearing required for the development of the site including the stormwater management facilities shown in the wooded areas.*
  2. *Access to the proposed stormwater facility must be provided for periodic maintenance. This access should be at least 12 feet wide to leading to the facility and around the facility's perimeter.*
  3. *It is recommended that the stormwater management areas be incorporated into the overall landscape plan to enhance water quality and to make the stormwater facility an attractive community amenity.*
  4. *A letter of no objection to re-recording will be provided once the detailed Sediment and Stormwater Management plan has been re-approved.*
  5. *Proper drainage of developed lots and active open space should be considered in the development of the grading plan for this subdivision.*
  6. *Based on the site characteristics, a pre-application meeting is suggested to discuss stormwater management and drainage for this site.*
- *The developer concurs with the soils investigation. The developer acknowledges the importance of proper drainage and will consider it in the development of the grading plan. We acknowledge that Kent Conservation District reserves the right to enter and modify any erosion or sediment control. The developer will comply with all applicable state and local laws in regards to sediment and erosion control and stormwater management. The developer will schedule a pre-application meeting at the appropriate time.*

***Drainage***

*The Drainage Program requests that the engineer take precautions to ensure the project does not hinder any off site drainage upstream of the project or create any off site drainage problems downstream by the release of on site storm water. The Drainage Program requests that the engineer check existing downstream ditches and pipes for function and blockages prior to the construction. Notify downstream landowners of the change in volume of water released on them.*

*The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. However, the Drainage Program recognizes the need for catch basins in yards in certain cases. Therefore, catch basins placed in rear and side yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, pools, and kennels can hinder drainage patterns as well as future maintenance to the storm drains or catch basin. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access.*

*Increase the side yard setback to 15 feet on all properties with a drainage easement on the side. The increase will allow room for equipment to utilize the entire easement and maneuver free of obstructions if the drainage conveyance requires periodic maintenance or future re-construction. The side yard setback would only increase on the side with the drainage easement.*

*All catch basins in rear or side yards should have a 10-foot drainage easement around them on all sides. Place restrictions on fences, sheds, and other structures within the easement to prevent obstructions from being placed next to the catch basin. Record the easement on the deed.*

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

*This project is within the Murderkill River Watershed, a designated critical area, with a promulgated Total Maximum Daily Load (TMDL). Preserve existing riparian buffers to aid in the reduction of nutrients, sediment, and other pollutants. For the further enhancement of water quality in the Murderkill watershed, the Drainage Program encourages additional widths of vegetated buffers and other water quality measures on this project. This site will drain into Andrews Lake, which has existing water quality problems. Please explore methods to filter excess nutrients in stormwater runoff from this site before releasing stormwater into the Andrews Lake watershed.*

- We acknowledge the above mentioned comments and offer the following:  
We will take all necessary precautions to avoid any upstream and downstream drainage problems. We acknowledge the importance of maintenance on the catch basins and will consider all restrictions to be recorded on the deed. We also understand your concern on the Murder Kill Watershed and will consider your recommendation.

***Forest Preservation***

*PLUS materials indicate that 0.5 acres of forest will be removed for construction. Although small, the trees on site provide water quality, air quality and habitat benefits.*

*Lot lines should be redesigned to avoid all impacts to the forested area. The developer is strongly encouraged to preserve, and where possible, enhance forested resources on site. This includes removing lot lines and infrastructure (such as storm water management ponds) from forested areas to the extent possible and minimizing any clearing activities. Clearing portions of the forest within the parcel will reduce the habitat value by allowing invasive species such as multiflora rose, oriental bittersweet and autumn olive to occupy the forest edge. Invasive species such as these prosper in disturbed areas and pose a threat to mature trees and native shrubs. In addition, the developer should provide the community with a detailed landscape management plan that outlines how to manage open space areas, as well as controlling for invasive species. Forested areas on-site should be viewed as a community asset and managed appropriately.*

*Forested areas on-site set aside for conservation purposes should be placed into a permanent conservation easement or other binding protection. These areas should be clearly marked and delineated so that residents understand their importance and so that homeowner activities do not infringe upon these areas.*

- *Per Kent County Code, 50% of the woodlands can be removed. Based on existing conditions of the site, we are preserving over 100% of the woodlands. We will also be providing a landscape plan which will include 68 trees.*

***Open Space***

*Large isolated pockets of open space are rarely used by residents. Eliminating these pockets will be beneficial to onsite natural resources by relocating open space areas adjacent to wetland and forest resources. It is recommended that the 1.15 acre open space area be minimized to include a conservation planting buffer of trees. The remaining open space acreage could be relocated to the eastern portion of the parcel behind lots 23-27 to maximize the existing wetland buffer. By eliminating this open space, in the center of the subdivision; lot sizes could possibly be increased.*

*In areas adjacent to forests/wetlands, the developer is encouraged to consider establishment of additional forested areas or meadow-type grasses. Doing so will provide habitat for wildlife and it will create recreational opportunities for residents. Once established, these ecosystems provide increased water infiltration into groundwater, decreased run-off into surface water, air quality improvements, and require much less maintenance than traditional turf grass, an important consideration if a homeowners association will take over responsibility for maintenance of community open spaces.*

*Natural habitat implementation efforts should be targeted to open space areas adjacent to forests and wetlands. The developer is encouraged to review "Community Spaces, Natural Places: A guide to restoration, management, and maintenance of community open space". This document provides a reference of practical and successful open space management techniques that emphasize natural landscape alternatives.*

*In addition, a detailed open space management plan should be recorded on the record plan. This plan should outline how to manage each open space area, as well as invasive species. Open space containing forest and/or wetlands should be placed into a permanent conservation easement or other permanent protection mechanism. Conservation areas should also be demarked to avoid infringement by homeowners.*

- *The present design of this site has been updated to cause as little impact on the existing forested areas as possible. Installation of meadow-type grasses will be considered in the design process.*

#### ***Rare Species and Wetland Buffers***

*DNREC has never surveyed this site; therefore, it is unknown if there are state-rare or federally listed plants, animals or natural communities at or adjacent to this project site. They do have records of a state-rare fish species, *Enneacanthus chaetodon* (blackbanded sunfish) in Andrews Lake, therefore, run-off from this development could impact water quality within the lake if an adequate (at least 100 feet) buffer is not maintained along the two tributaries that flow into the Lake. According to the site plan there is a stormwater management pond and several lots within 100 feet and DNREC highly recommends that these lots and pond be pulled out of this important buffer zone. Andrews Lake is a publicly owned pond managed by the State. The State expends both staff time and funding to ensure that water quality is conducive to fish production and survival and upstream efforts to protect water quality are extremely important. Essentially whatever chemical, nutrients or other substances are used on lawns or spilled in driveways could end up in this stream system. A minimum riparian buffer of 100 feet is necessary to mitigate for these impacts. Cumulative impacts are a real concern considering the number of other developments being proposed adjacent to this site.*

- *We revised some of the lots to maximize the buffer along the tributary. All lots meet and exceed the 25' setback requirement per Kent County Code. The developer will follow all applicable rules pertaining to the Delaware Sediment and Stormwater Regulations in the design and execution of this project to meet State and Local requirements for water quality.*

#### ***Nuisance Geese***

*The applicant indicated that nuisance geese would be considered in the planning of this project but methods of control were not indicated. Wet ponds planned for the subdivision*

*may attract waterfowl like resident Canada geese and mute swans. High concentrations of waterfowl in ponds create water-quality problems, leave droppings on lawn and paved areas and can become aggressive during the nesting season. Short manicured lawns around ponds provide an attractive habitat for these species. We recommend native plantings of tall grasses, wildflowers, shrubs, and trees at the edge and within a buffer area (50 feet) around the perimeter. Waterfowl do not feel safe when they can not see the surrounding area for possible predators. These plantings should be completed as soon as possible as it is easier to deter geese when there are only a few than it is to remove them once they become plentiful. The Division of Fish and Wildlife does not provide goose control services, and if problems arise, residents or the home-owners association will have to accept the burden of dealing with these species (e.g., permit applications, costs, securing services of certified wildlife professionals). Solutions can be costly and labor intensive; however, with a reduction in the number and/or size of the ponds, proper landscaping, monitoring, and other techniques, geese problems can be minimized.*

- The developer acknowledges the potential problems the waterfowl and will utilize BMP's in the design of the stormwater management to avoid any unnecessary complications.

#### ***Solid Waste***

*Each Delaware household generates approximately 3,600 pounds of solid waste per year. On average, each new house constructed generates an additional 10,000 pounds of construction waste. Due to Delaware's present rate of growth and the impact that growth will have on the state's existing landfill capacity, the applicant is requested to be aware of the impact this project will have on the State's limited landfill resources and, to the extent possible, take steps to minimize the amount of construction waste associated with this development.*

- The developer acknowledges the above mentioned comment and will minimize as much waste as possible.

#### ***Air Quality***

*Once complete, vehicle emissions associated with this project are estimated to be 3.8 tons (7,674.5 pounds) per year of VOC (volatile organic compounds), 3.2 tons (6,353.9 pounds) per year of NOx (nitrogen oxides), 2.3 tons (4,688.1 pounds) per year of SO2 (sulfur dioxide), 0.2 ton (417.3 pounds) per year of fine particulates and 321.0 tons (641,960.3 pounds) per year of CO2 (carbon dioxide).*

*Emissions from area sources associated with this project are estimated to be 1.5 tons (3,095.5 pounds) per year of VOC (volatile organic compounds), 0.2 ton (340.6 pounds) per year of NOx (nitrogen oxides), 0.1 ton (282.6 pounds) per year of SO2 (sulfur dioxide), 0.2 ton (364.7 pounds) per year of fine particulates and 6.3 tons (12,548.3*

pounds) per year of CO<sub>2</sub> (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 0.6 tons (1,226.8 pounds) per year of NO<sub>x</sub> (nitrogen oxides), 2.1 tons (4,267.2 pounds) per year of SO<sub>2</sub> (sulfur dioxide) and 314.7 tons (629,412.0 pounds) per year of CO<sub>2</sub> (carbon dioxide).

	VOC	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>2.5</sub>	CO <sub>2</sub>
Mobile	3.8	3.2	2.3	0.2	321.0
Residential	1.5	0.2	0.1	0.2	6.3
Electrical Power		0.6	2.1		314.7
TOTAL	5.3	4.0	4.5	0.4	642.0

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 0.6 tons of nitrogen oxides per year and 2.1 tons of sulfur dioxide per year.

A significant method to mitigate this impact would be to require the builder to construct Energy Star qualified homes. Every percentage of increased energy efficiency translates into a percent reduction in pollution. Quoting from their webpage, <http://www.energystar.gov/>:

"ENERGY STAR qualified homes are independently verified to be at least 30% more energy efficient than homes built to the 1993 national Model Energy Code or 15% more efficient than state energy code, whichever is more rigorous. These savings are based on heating, cooling, and hot water energy use and are typically achieved through a combination of:

building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment."

The Energy office in DNREC is in the process of training builders in making their structures more energy efficient. The Energy Star Program is excellent way to save on energy costs and reduce air pollution. It is highly recommended this project development and other residential proposals increase the energy efficiency of their homes.

They also recommend that the home builders offer geothermal and photo voltaic energy options. Applicable vehicles should use retrofitted diesel engines during construction. The development should provide tie-ins to the nearest bike paths, links to mass transit, and fund a lawnmower exchange program for their new occupants.

- The developer acknowledges all of the above mentioned recommendations and will design the subdivision using as much energy saving processes as possible in an environmentally sound design.

**State Fire Marshal's Office — Contact: John Rudd 739-4394**

**a. 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. (One & Two- Family Dwelling)*
- > *Where a water distribution system is proposed for the site, 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:**

- > *For townhouse buildings, provide a section / detail and the UL design number of the 2-hour fire rated separation wall on the Site plan.*

**c. Accessibility**

- > *The access road to the subdivision from the main road(s) 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 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 Pipin2 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)*
- > *Note indicating if building(s) is/are 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*

*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.delawarestatefiremarshal.com](http://www.delawarestatefiremarshal.com), technical services link, plan review, applications or brochures.*

- *We acknowledge the above mentioned comments and shall comply with all State Fire regulations.*

**Department of Agriculture - Contact: Scott Blaier 698-4500**

*The Delaware Department of Agriculture has no objections to the proposed rezoning application the Strategies for State Policies and Spending encourages environmentally responsible development in areas in Investment Level 2. The Department also appreciates the developer's attempt to use Kent County's transfer of development rights (TDR) program for this development.*

*A portion of this site is located in an area designated as having "excellent" ground-water recharge potential. DNREC has mapped all ground-water recharge-potential recharge areas for the state, and an "excellent" rating designates an area as having important groundwater recharge qualities.*

*Senate Bill 119, enacted by the 141st General Assembly in June of 2001, requires the counties and municipalities with over 2,000 people to adopt as part of the update and implementation of their 2007 comprehensive land use plans, areas delineating excellent ground-water recharge potential areas. Furthermore, the counties and municipalities are required to adopt regulations by December 31, 2007 governing land uses within those*

*areas to preserve ground-water quality and quantity.*

*Maintaining pervious cover in excellent and good recharge areas is crucial for the overall environmental health of our state and extremely important to efforts which ensure a safe drinking water supply for future generations. Retention of pervious cover to ensure an adequate future water supply is also important for the future viability of agriculture in the First State. The loss of every acre of land designated as "excellent" and "good" recharge areas adversely impacts the future prospects for agriculture in Delaware. The developer should make every effort to protect and maintain valuable ground-water recharge potential areas.*

- The developer acknowledges the above mentioned comments and will comply with all state and local rules and regulations pertaining to agriculture.

#### ***Right Tree for the Right Place***

*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.*

- The landscape plan has been designed to comply with this recommendation.

#### ***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.*

- We acknowledge the above mentioned comment and our landscape plan will comply with this recommendation.

#### ***Tree Mitigation***

*The Delaware Forest Service encourages the developer to implement a tree mitigation program to replace trees at a 1:1 ratio within the site and throughout the community. This will help to meet the community's forestry goals and objectives and reduce the environmental impacts to the surrounding natural resources. To learn more, please*

*contact our offices at (302) 349-5754.*

- The developer has redesigned the lot layout as to conserve the existing forested areas as much as possible.

**Public Service Commission - Contact: Andrea Maucher 739-4247**

Any expansion of natural gas or installation of a closed propane system must fall within Pipeline Safety guidelines. Contact: Malak Michael at (302) 739-4247.

- The developer thanks you for the contact information.

**Delaware State Housing Authority — Contact Vicki Walsh 739-4263**

*This proposal is for a site plan review for 50 residential units on 30 acres located on Indian Point Road between Andrews Lake Road and Route 15 at the intersection of Pine Bluff in Kent County's growth zone. According to the State Strategies Map, the proposal is located in an Investment Level 3 area. As a general planning practice, DSHA encourages residential development in these areas where residents will have proximity to services, markets, and employment opportunities. DSHA supports the fact that this proposal targets the full range of incomes including first time homebuyers. According to the most recent real estate data collected by DSHA, the average home price in Kent County is \$225,000. However, families earning respectively 100% of Kent County's median income only qualify for mortgages of \$180,115, thus creating an affordability gap of \$44,885. The provision of units within reach of families earning at least 100% of Kent County's median income will ensure housing that is affordable to first time homebuyers.*

- The developer acknowledges the concerns of the Delaware State Housing Authority.

**Department of Education — Contact: John Marinucci 739-4658**

*This proposed development is within the Lake Forest School District boundaries. DOE offers the following comments on behalf of the Lake Forest School District.*

1. *Using the DOE standard formula, this development will generate an estimated 25 students.*
2. *DOE records indicate that the Lake Forest School Districts' elementary schools are at or beyond 100% of current capacity based on September 30, 2006 elementary enrollment.*
3. *DOE records indicate that the Lake Forest School Districts' secondary schools are very close to 100% of current capacity based on September 30, 2006 secondary enrollment.*

Mr. Petit De Mange  
February 8, 2007  
Page 23

4. *The Superintendent of Lake Forest School District has communicated to the DOE the district's lack of capacity given the number of planned and recorded residential sub divisions within district boundaries.*
  5. *This development will create additional elementary and secondary student population growth which will further compound the existing shortage of space.*
  6. *The developer is strongly encouraged to contact the Lake Forest School District Administration to address the issue of school over-crowding that this development will exacerbate.*
  7. *DOE requests developer work with the Lake Forest School District transportation department to establish developer supplied bus stop shelter ROW and shelter structures, interspersed throughout the development as determined and recommended by the local school district.*
- The developer acknowledges the concerns of the Department of Education. Kent County has passed an Ordinance to help fund school infrastructure that is an additional cost to all building permits. The proposed project will be required to pay this cost as building permits are requested.

The above comments serve as an official response from Davis, Bowen & Friedel, Inc. On behalf of our client, we thank you for your review and comments on this project. If you should have any questions or concerns please contact me at 424-1441.

Sincerely,



W. Zachary Crouch, P.E.  
Principal

WZC:dnw

M:\files\developer\

Enc.

cc: Constance C. Holland, AICP