STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF MANAGEMENT AND BUDGET
STATE PLANNING COORDINATION

June 9, 2006

Mr. John Garcia
Karins & Associates, Inc.
17 Polly Drummond Circle, Ste. 201
Newark, De 19711

RE: PLUS review – PLUS 2006-05-08; Watson Farm

Dear Mr. Garcia:

Thank you for meeting with State agency planners on May 24, 2006 to discuss the proposed plans for the Watson Farm project to be located on both sides of Duck Creek Road in Smyrna.

According to the information received, you are seeking subdivision approval for 882 homes on 280 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 Town of Smyrna is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.

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 are is designated as an "Area of Dispute" according to the *Strategies for State Policies and Spending.* At the time the current version of the Strategies was being developed, the status of this area was unsettled due to an ongoing annexation dispute between the Town, the State and New Castle County. Since that time, the dispute has been settled amicably by all parties. Our office considers the Town of Smyrna to be in compliance with the *Strategies.* We have no objections to this development proposal as it is consistent with Smyrna's certified plan.

Street Design and Transportation

- DelDOT will require a traffic impact study for this development. While they do not anticipate the results of this study having any bearing on the proposed rezonings, DelDOT would urge the Town to withhold plan approvals pending the results of the study. The developer's traffic engineer should contact Ms. Monet Lea to schedule a scoping meeting for the study. Ms. Lea may be reached at (302) 760-2167.

- DelDOT sees a potential for speeding on the proposed Street E due to its relatively straight alignment. For this reason, the developer and the Town should consider varying the alignment of the street or adding traffic calming features. While the street is proposed to have five T intersections, which could be signed as all-way stops, DelDOT notes that Stop signs are not intended as traffic calming and have been found ineffective for purposes of speed control.

- Although DelDOT did not mention it at the PLUS meeting, bicycle and pedestrian facilities will be required along the site frontage on Clark Farm Road, Duck Creek Road and Joe Goldsborough Road.

Natural and Cultural Resources

- The DHCA recommends that the existing historic house and outbuildings be preserved on a larger lot within this development. If this is not possible, they would like the opportunity to document these buildings before any demolition activities take place. In addition, they would like the opportunity to examine the prehistoric site and to look for other sites.

- Based on Statewide Wetland Mapping Project (SWMP) mapping, nontidal and/or tidally-influenced wetlands were mapped on two of the five parcels. Nontidal palustrine forested and palustrine emergent riparian wetlands were mapped along the west-central portion of parcel "A," while tidally-influenced palustrine and estuarine wetlands were mapped over much of the southern portion of parcel "E."

  Because there is strong evidence that federally regulated wetlands exist on site, a field wetland delineation, in accordance with the methodology established by the Corps of Engineers Wetlands Delineation Manual, (Technical Report Y-87-1) should be conducted.

- This project is located directly adjacent to sensitive headwater or near headwater riparian wetlands associated with Duck Creek, greatly increasing the probability of harmful impacts to surface and groundwater quality of all waters within the greater Smyrna River watershed, and reducing the probability that the State will achieve the required TMDL nutrient reductions. Headwater streams and their associated 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 downstream. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant consider preserving as much of the existing forested buffer as possible. Otherwise, a buffer width of at least 100-foot should be retained or enhanced to protect the water and habitat quality of this waterway and its wetlands.

- The DNREC Water Supply Section has determined that a significant portion of the proposed development falls within excellent ground-water recharge areas and partially within two wellhead protection areas (see following map and attached map). These two wells withdraw water from unconfined aquifers. This proposed development shows Parcels A and D as having storm-water management ponds within the excellent ground-water recharge area.

  The construction phase of this type of pond 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. Parcel B has the least acreage of excellent ground water recharge and may prove a better site for storm-water management ponds.

- Wellhead protection areas are surface and subsurface areas surrounding a public water supply well where the quantity and quality of ground water moving toward such wells may be adversely affected by land use activities. Parcel C shows a storm-water management pond within a wellhead protection area. This has the potential to degrade ground-water quality. DNREC Water Supply Section recommends that that portion of the new development within the excellent ground-water recharge area not exceed 20% impervious cover. 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.

- With regards to Tax Ditch right-of-way encroachment, the Drainage Program requests that the tax ditch rights-of-way be part of the development open space and not owned by individual landowners. Designation as open space will aid in the prevention of open decks, stairs, ramps, sheds, fences, and kennels being placed within the tax ditch right of way, preventing the maintenance of the tax ditch.

- Tax Ditch rights-of-ways should be shown on all plans as well a recorded on property deeds. The Homeowner Association will need to coordinate all maintenance within tax ditch rights-of-way with the respective Tax Ditch Organization.

- The Drainage Program does not have a clear understanding how stormwater will be directed to the stormwater management areas. With regards to future maintenance of drainage conveyances, the Drainage Program requests that the majority of the stormwater pipes on this project be located on drainage easements along the streets.

  The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. The Drainage Program requests that all storm drains and catch basins for this project be on open space or within street right-of-ways. However, the Drainage Program recognizes the need for catch basins in rear yards in certain cases. Therefore, catch basins placed in rear yards will need to be clear of obstructions and be accessible for maintenance

- A review of aerial photographs and our GIS database has revealed that there may be suitable habitat for the federally listed bog turtle (Glyptemys muhlenbergii) adjacent to the project area and project activities may impact this species.

Potential habitat is located adjacent to the proposed stormwater management pond in the lower middle of Parcel 'B'.

- According to the application the site contains nearly 30 acres of forest, most of which will be left intact. The majority of the forest in located on Parcel "E" (the parcel adjacent to Duck Creek). This forest should be permanently protected so that future clearing activities do not take place. There are several rare species just downstream that could be impacted from run-off if adequate forested buffers are not left intact. Tree clearing should not take place from April 1st to July 31st to reduce impacts to migratory birds and other wildlife that utilize forests for breeding.

- The Office of Nature Preserves appreciates the effort of the applicant to mostly remain out of the wooded area located at the southern end of the property. Recently the Open Space Council recommended to Secretary Hughes that he amend the current State Resource Area maps and identified the forested section of this site as a State Resource Area. With that in mind, the Office of Nature Preserves respectfully requests the applicant provide a buffer between the development and the forested area on Parcel E, including the removal of a cul-de-sac in the forested area.

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

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

This are is designated as an "Area of Dispute" according to the *Strategies for State Policies and Spending.* At the time the current version of the Strategies was being developed, the status of this area was unsettled due to an ongoing annexation dispute between the Town, the State and New Castle County. Since that time, the dispute has been settled amicably by all parties. There is a multi-party memorandum of understanding in place governing development in this area, and the State certified an amendment to Smyrna's plan effective March 31, 2006 which includes this area as an annexation area. In addition, the Town has completed and our office has accepted a Plan of Service for this area. Our office considers the Town of Smyrna to be in compliance with the *Strategies.* We have no objections to this development proposal as it is consistent with Smyrna's certified plan.

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

This parcel includes the Mrs. Armstrong House (N-6281; shown on Baist's Atlas of 1893) and a known prehistoric-period archaeological site (N-12021). There are other

areas of high potential for prehistoric archaeological sites as well. The parcel may include archaeological remains associated with Green Spring, a house noted on Beers Atlas of 1868.

Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the White House, usually a good distance behind or to the side of the house. The developer should be aware of Delaware's Unmarked Human Remains Act of 1987, which governs 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. The Division of Historical and Cultural Affairs would be happy to discuss these issues with the developer; the contact person for this program is Faye Stocum, 302-736-7400.

The DHCA recommends that the existing historic house and outbuildings be preserved on a larger lot within this development. If this is not possible, they would like the opportunity to document these buildings before any demolition activities take place. In addition, they would like the opportunity to examine the prehistoric site and to look for other sites, to learn something more about their location, nature, and extent prior to any ground-disturbing activities.

Department of Transportation – Contact: Bill Brockenbrough 760-2109

1) DelDOT will require a traffic impact study for this development. While they do not anticipate the results of this study having any bearing on the proposed rezonings, DelDOT would urge the Town to withhold plan approvals pending the results of the study. The developer's traffic engineer should contact Ms. Monet Lea to schedule a scoping meeting for the study. Ms. Lea may be reached at (302) 760-2167.

2) DelDOT sees a potential for speeding on the proposed Street E due to its relatively straight alignment. For this reason, the developer and the Town should consider varying the alignment of the street or adding traffic calming features. While the street is proposed to have five T intersections, which could be signed as all-way stops, DelDOT notes that Stop signs are not intended as traffic calming and have been found ineffective for purposes of speed control.

3) Although DelDOT did not mention it at the PLUS meeting, bicycle and pedestrian facilities will be required along the site frontage on Clark Farm Road, Duck Creek Road and Joe Goldsborough Road. Their Subdivision Manager for New Castle County, Mr. Pao Lin, will determine the specific type of improvements, e.g.

sidewalks or a multi-use path, as part of the entrance plan review. He may be reached at (302) 760-2157.

4) The developer's site engineer should contact Mr. Lin regarding the specific requirements for access.

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

Green Infrastructure

Portions or all of the lands associated with this proposal are within the Livable Delaware Green Infrastructure area established under Governor Minner's Executive Order #61 that represents a network of ecologically important natural resource lands of special state conservation interest.

Green infrastructure is defined as Delaware's natural life support system of parks and preserves, woodlands and wildlife areas, wetlands and waterways, productive agricultural and forest land, greenways, cultural, historic and recreational sites and other natural areas all with conservation value. Preserving Delaware's Green Infrastructure network will support and enhance biodiversity and functional ecosystems, protect native plant and animal species, improve air and water quality, prevent flooding, lessen the disruption to natural landscapes, provide opportunities for profitable farming and forestry enterprises, limit invasive species, and foster ecotourism.

Voluntary stewardship by private landowners is essential to green infrastructure conservation in Delaware, since approximately 80 percent of the State's land base is in private hands. It is in that spirit of stewardship that the Department appeals to the landowner and development team to protect sensitive resources through an appropriate site design.

Soils

According to the Kent County soil survey, Sassafras, Woodstown, Fallsington, Fallsington-Blackiston complex, Longmarsh-Indiantown complex and Hammonton-Fallsington-Longmarsh complex were mapped on subject parcel. Sassafras is a well-drained upland soil that, generally, has few limitations for development. Woodstown is a moderately well-drained soil of low-lying upland that has moderate limitations for development. Fallsington and the above-mentioned soil complexes are generally poorly to very poorly drained wetland associated (hydric) soils.

Wetlands

Based on Statewide Wetland Mapping Project (SWMP) mapping, nontidal and/or tidally-influenced wetlands were mapped on two of the five parcels. Nontidal palustrine forested and palustrine emergent riparian wetlands were mapped along the west-central portion of parcel "A," while tidally-influenced palustrine and estuarine wetlands were mapped over much of the southern portion of parcel "E."

These wetlands provide water quality benefits, attenuate flooding and provide important habitat for plants and wildlife. 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.

Because there is strong evidence that federally regulated wetlands exist on site, a field wetland delineation, in accordance with the methodology established by the Corps of Engineers Wetlands Delineation Manual, (Technical Report Y-87-1) should be conducted. Once complete, this delineation should be verified Corps of Engineers through the Jurisdictional Determination process. A State of Delaware Subaqueous Lands Jurisdictional Determination should also be conducted. Contact the DNREC Wetlands and Subaqueous Lands Section at (302) 739-9943.

If impacts are anticipated, please note that 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 must be contacted to make the final jurisdictional assessment. They can be reached by phone at 736-9763.

In addition, individual 404 permits and certain Nationwide Permits from the Army Corps of Engineers also require 401 Water Quality Certification from the Wetlands and Subaqueous Lands 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.

This project is located directly adjacent to sensitive headwater or near headwater riparian wetlands associated with Duck Creek, greatly increasing the probability of harmful impacts to surface and groundwater quality of all waters within the greater Smyrna River watershed, and reducing the probability that the State will achieve the required TMDL nutrient reductions. Headwater streams and their associated 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 downstream. In recognition of this concern, the Watershed Assessment Section strongly recommends the applicant consider preserving as much of the existing forested buffer as possible. Otherwise, a buffer width of at least 100-foot should be retained or enhanced to protect the water and habitat quality of this waterway and its wetlands.

Impervious Cover

The applicant should be informed that all forms of constructed surface imperviousness (i.e., rooftops, sidewalks and roads) should be included in the impervious surface calculation; otherwise, an inaccurate assessment of this project's actual environmental impacts will be made. Based on the scope and density of this project, surface imperviousness is likely to be significantly higher than the (25-35%) range reported by the applicant. It is strongly recommended that the applicant recalculate surface imperviousness to realistically reflect the actual amount of created post-development surface imperviousness. Moreover, this figure must be based on a unitary figure rather than a range.

Research has consistently shown that once a watershed exceeds a threshold of 10 percent imperviousness, water and habitat quality irreversibly decline. Based on analyses of 2002 aerial photography by the University of Delaware, the Smyrna River watershed, at that time, had about 9.5 percent impervious cover. Although this data is about 4 years old and likely an underestimate, it illustrates the importance of a proactive strategy to mitigate for predictable and likely cumulative environmental impacts. Since the amount of imperviousness generated by this project is likely to be significantly above the desirable watershed threshold of 10 percent in both watersheds, the applicant is strongly advised to pursue best management practices (BMPs) that mitigate or reduce some of the 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 via additional tree plantings are examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.

TMDLs

A Total Maximum Daily Load (TMDL) is the maximum level of pollution for which a water quality limited water body can assimilate without compromising use and recreational goals such as swimming, fishing, drinking water, and shell fish harvesting. Compliance with TMDL nutrient loading reduction requirements will ultimately be assessed via nutrient budget protocol, a computer-based model that quantifies post-development nutrient loading under a variety of land use scenarios in combination with a variety (or absence) of BMP types and intensities. This post-development loading rate is then compared with the pre-development loading rate as a means to assess whether the project meets the acceptable TMDL reduction levels. Although TMDLs have not yet been finalized for the Smyrna River watershed to date, the applicant should be made aware that they will be available in the near future (before December 2006), and may be applicable to this project given the large backlog of other projects pending County review. It is strongly advised, therefore, that the applicant be proactive and employ best management practices (BMPs) and Best Available Technologies (BATs) as methodological mitigative strategies to reduce the likely degradative impacts associated with this development, and help ensure that this development meets imminent TMDL nutrient reduction targets. Examples of BMPs or BATs that should be used to significantly reduce nutrient loading from this project, include: practices that prevent, mitigate or minimize created surface imperviousness; maintenance of recommended wetland buffer widths; preservation of a majority of the existing forested acreage; and use of innovative "green-technology" stormwater methodologies rather than conventional open-water stormwater management structures. DNREC suggests that the applicant periodically contact our office regarding the status of the nutrient budget protocol and obtain it as soon as possible. When it becomes available, we suggest that the applicant then verify their project's compliance with the specified TMDL loading rates by running the model themselves. The contact person for obtaining the protocol is Lyle Jones at 739-9939.

Water Resource Protection Areas

The DNREC Water Supply Section has determined that a significant portion of the proposed development falls within excellent ground-water recharge areas and partially within two wellhead protection areas (see following map and attached map). These two wells withdraw water from unconfined aquifers.

Excellent recharge areas are near-surface areas within which precipitation infiltrates the land surface to the unconfined aquifer at a more rapid rate than other areas. Kent County has approximately 14 percent of its total area classified as "excellent" recharge. This

proposed development shows Parcels A and D as having storm-water management ponds within the excellent ground-water recharge area.

The construction phase of this type of pond 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. Parcel B has the least acreage of excellent ground water recharge and may prove a better site for storm-water management ponds.

Wellhead protection areas are surface and subsurface areas surrounding a public water supply well where the quantity and quality of ground water moving toward such wells may be adversely affected by land use activities. Parcel C shows a storm-water management pond within a wellhead protection area. This has the potential to degrade ground-water quality.

The proposed development would change the total impervious cover from 1% to approximately 25-35%. These numbers are based on the total area and are not specific to the excellent recharge area or wellhead protection area. The numbers were provided by the developer on the PLUS application.

DNREC Water Supply Section recommends that that portion of the new development within the excellent ground-water recharge area not exceed 20% impervious cover. 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.

Further, some allowance for augmenting ground-water recharge should be considered if the impervious cover exceeds 20% but is less than 50% of that portion of the parcel within these areas, provided the applicant submits an environmental assessment recommending a climatic water budget and facilities to augment recharge. The environmental assessment must document that post-development recharge will be no less than predevelopment recharge when computed on an annual basis. Commonly, the applicant offsets the loss of recharge due to impervious cover by constructing recharge basins that convey relatively pure rooftop runoff for infiltration to ground water.

Kent County Ordinances support these recommendations. The Kent County Code Chapter 187 (Appendix F) requires preservation of excellent ground-water recharge areas and wellhead protection areas by conserving open spaces during land development.

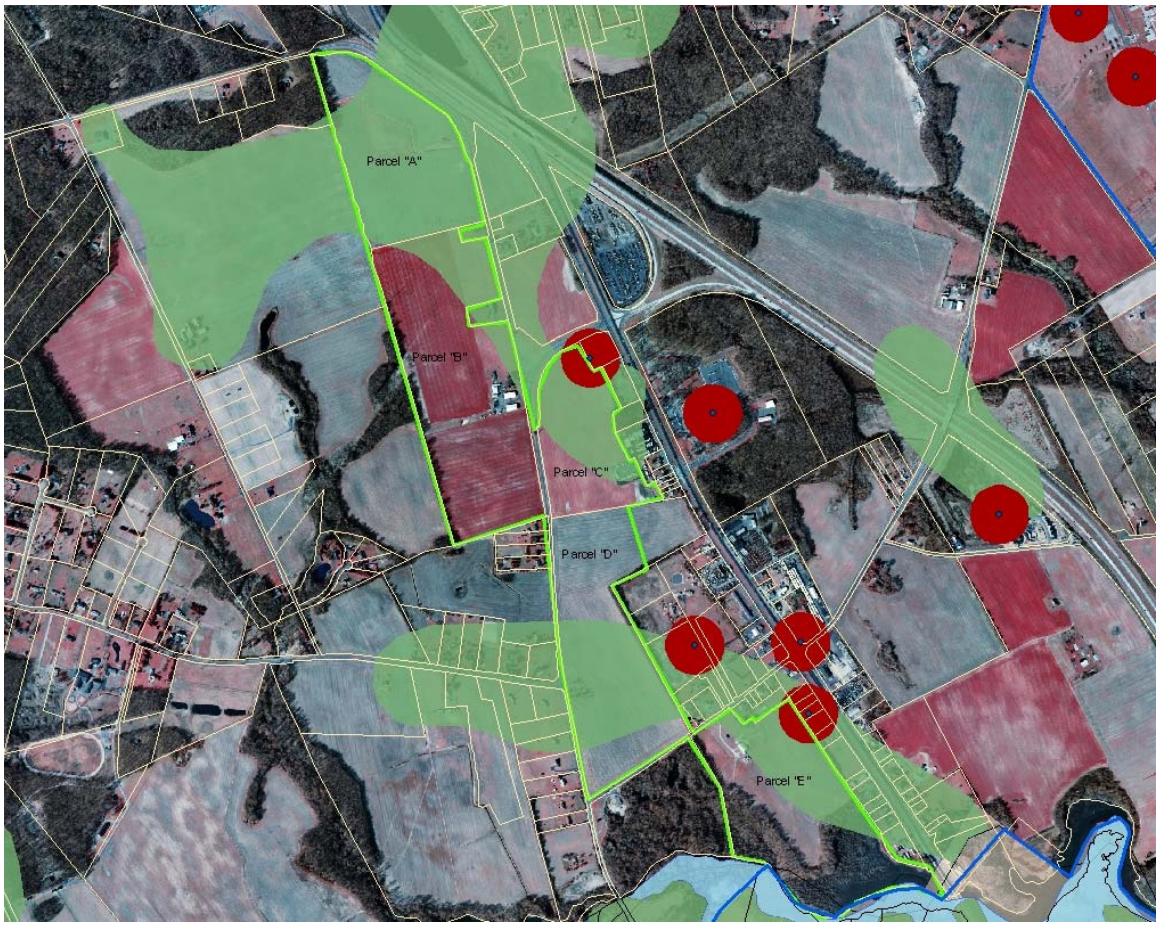
For more information refer to:

Source Water Protection Guidance Manual for the Local Governments of Delaware
http://www.wr.udel.edu/publications/SWAPP/swapp_manual_final/swapp_guidance_manual_final.pdf

and

Ground-Water Recharge Design Methodology
http://www.wr.udel.edu/publications/SWAPP/swapp_manual_final/swapp_guidance_manual_supp_1_final.pdf

Watson Farm: PLUS 2006-05-08. Map shows excellent recharge in green and wellhead protection in dark red with affected parcels outlined in bright green.



Water Supply

The information provided indicates that the Town of Smyrna will provide water to the proposed projects through a central public water system. DNREC files reflect that the Town of Smyrna does not currently hold a certificate of public convenience and necessity (CPCN) to provide public water in these areas. They may need to file an application for a CPCN with the Public Service Commission, if they have not done so already. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at 302-739-4247.

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

All well permit applications must be prepared and signed by licensed water well contractors, and only licensed well drillers may construct the wells. Please factor in the necessary time for processing the well permit applications into the construction schedule. Dewatering well permit applications typically take approximately four weeks to process, which allows the necessary time for technical review and advertising.

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

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.

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.

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. From the plans provided it's not clear of type of stormwater facilities (wet, dry, infiltration etc.) it's also not clear where the facilities are out falling to.

2. The application indicates that there may be wetlands located on the site, if so portions of the site may qualify for a quantity waiver. Quality must be addressed.

3. The project is located within the Smyrna Landing I Tax Ditch and the Massey Church Tax Ditch. All easements and tax ditch accesses must be shown on the plans.

4. 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.

5. 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.

6. 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.

7. A letter of no objection to re-recordation will be provided once the detailed Sediment and Stormwater Management plan has been re-approved.

8. Proper drainage of developed lots and active open space should be considered in the development of the grading plan for this subdivision.

9. Based on the site characteristics, a pre-application meeting is suggested to discuss stormwater management and drainage for this site.

Drainage

This project is located within the Smyrna Landing I Tax Ditch and the Massey Church Tax Ditch. The Drainage Program requests a meeting with the landowner/developer, project engineer, the Tax Ditch Managers, Kent Conservation District sediment and stormwater program staff, and Richard G. Mickowski of the New Castle Conservation District, to discuss established tax ditch rights-of-way.

With regards to Tax Ditch right-of-way encroachment, the Drainage Program requests that the tax ditch rights-of-way be part of the development open space and not owned by individual landowners. Designation as open space will aid in the prevention of open decks, stairs, ramps, sheds, fences, and kennels being placed within the tax ditch right of way, preventing the maintenance of the tax ditch.

Tax Ditch rights-of-ways should be shown on all plans as well a recorded on property deeds. The Homeowner Association will need to coordinate all maintenance within tax ditch rights-of-way with the respective Tax Ditch Organization.

The Drainage Program does not have a clear understanding how stormwater will be directed to the stormwater management areas. With regards to future maintenance of drainage conveyances, the Drainage Program requests that the majority of the stormwater pipes on this project be located on drainage easements along the streets.

The Drainage Program encourages the elevation of rear yards to direct water towards the streets where storm drains are accessible for maintenance. The Drainage Program requests that all storm drains and catch basins for this project be on open space or within street right-of-ways. However, the Drainage Program recognizes the need for catch

basins in rear yards in certain cases. Therefore, catch basins placed in rear yards will need to be clear of obstructions and be accessible for maintenance. Decks, sheds, fences, and kennels can hinder drainage patterns as well as future maintenance to the storm drain or catch basin. Deed restrictions, along with drainage easements recorded on deeds, should ensure adequate future maintenance access.

The Drainage Program requests a 15-foot side yard setback on lots where storm drains and catch basins are on private property to ensure adequate room for future maintenance of the storm drain system. The side yard setback would only increase on the side with the storm drain.

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 downstream for function and blockages prior to construction. Please notify downstream landowners if there will be a change in the volume of water released on them.

Rare Species

A review of aerial photographs and our GIS database has revealed that there may be suitable habitat for the federally listed bog turtle (Glyptemys muhlenbergii) adjacent to the project area and project activities may impact this species. Potential habitat is located adjacent to the proposed stormwater management pond in the lower middle of Parcel ‘B’.

Because the bog turtle is a federally listed species, protected under the Endangered Species Act, its presence can affect the scope of work. Phase I surveys, which confirm if bog turtle habitat is present should be conducted. Phase I surveys can be conducted any time of year when snow cover is not present. If potential habitat is found, however, please note that Phase II surveys for turtles must be conducted between April 15 and June 15. A Delaware approved bog turtle surveyor must be used to conduct Phase I and Phase II surveys. Please contact Holly Niederriter (302-653-2880) to obtain a list of contacts.

If Phase I surveys are not conducted, then presence of adjacent habitat has to be assumed. All direct and indirect impacts to the wetland should be avoided in consultation with the U.S. Fish and Wildlife Service and the Delaware Division of Fish and Wildlife. To avoid impacts the following will be required:

1) The stormwater management pond in the lower middle of Parcel "B" will need to be relocated to another area of the parcel so that this wetland and surrounding upland buffer remain undisturbed.

2) No land disturbing activities should take place in proximity to this wetland and at least a 100-foot buffer should be left intact around the perimeter of the wetland. This may entail the removal of lots within this buffer zone. This upland buffer is important, not only as possible hibernation habitat, but to protect the water quality and hydrology of the wetland.

3) Silt fencing should be installed along the wetland and 100 feet from the edge of the wetland, so that the fence is a barrier between the wetland and area of land disturbance. The silt fence should fit snugly to the ground so that turtles can't burrow under and reach the work area.

Forest Preservation

According to the application the site contains nearly 30 acres, most of which will be left intact. The majority of the forest in located on Parcel "E" (the parcel adjacent to Duck Creek). This forest should be permanently protected so that future clearing activities do not take place. There are several rare species just downstream that could be impacted from run-off if adequate forested buffers are not left intact. Tree clearing should not take place from April 1st to July 31st to reduce impacts to migratory birds and other wildlife that utilize forests for breeding.

Nuisance Waterfowl

Stormwater management ponds that remain in the site plan may attract waterfowl like resident Canada geese and mute swans that will create a nuisance for community residents. 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. However, native plantings, including tall grasses, wildflowers, shrubs, and trees at the edge and within a buffer area (at least 50 feet) around ponds, are not as attractive to geese because they do not feel safe from predators and other disturbance when their view of the area is blocked. 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 of ponds, proper landscaping, monitoring, and other techniques, geese problems can be minimized.

State Resource Areas

The Office of Nature Preserves appreciates the effort of the applicant to mostly remain out of the wooded area located at the southern end of the property. Recently the Open Space Council recommended to Secretary Hughes that he amend the current State Resource Area maps and identified the forested section of this site as a State Resource Area. State Resource Area lands include any open lands characterized by great natural scenic beauty, or whose existing openness, natural condition or present state of use, if retained, would maintain important recreational areas and wildlife habitat, and enhance the present or potential value of abutting or surrounding urban development, or would maintain or enhance the conservation of natural or scenic resources, including environmentally sensitive areas. With that in mind, the Office of Nature Preserves respectfully requests the applicant provide a buffer between the development and the forested area on Parcel E, including the removal of a cul-de-sac in the forested area.

Underground Storage Tanks

There are two inactive LUST site(s) located near the proposed project:

Smyrna Rest Stop, Facility # 1-000671, Project # K9902040
Mid Del Auto Parts, Facility # 3-00001645, Project # N9510255

No environmental impact is expected from the above inactive/active LUST site(s). However, should any underground storage tank or petroleum contaminated soil be discovered during construction, the Tank Management Branch must be notified as soon as possible. It is not anticipated that any construction specifications would need to be changed due to petroleum contamination. However, should any unanticipated contamination be encountered and PVC pipe is being utilized, it will need to be changed to ductile steel with nitrile rubber gaskets in the contaminated areas.

Site Investigation and Restoration

There were three SIRB site found within a ½-mile radius of the proposed site:

- Cater Homes (DE-1020) is located south of the proposed site. A Facility Evaluation was performed at the site. The result showed that no further action (NFA) was necessary, therefore an NFA latter was issued.

- Litton Industries (DE-0110) is located south of the proposed site. Organic contaminants were detected during a site inspection. Groundwater at the proposed site may be affected.

- Duck Creek Pond (DE-0080) is located south of the proposed site. During a Site Inspection (SI), groundwater samples were collected. The results reveal no serious threat posed by the contaminants at the site. As a result, an NFA letter was issued.

Overall, DNREC recommends public water usage at the proposed site, or if necessary, a limited groundwater assessment at the proposed site to evaluate the potential threat.

If you have any questions, please contact Babatunde Asere at 302-395-2600.

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.

Air Quality

Once complete, vehicle emissions associated with this project are estimated to be 67.5 tons (135,070.8 pounds) per year of VOC (volatile organic compounds), 55.9 tons (111,829.5 pounds) per year of NOx (nitrogen oxides), 41.3 tons (82,509.9 pounds) per year of SO2 (sulfur dioxide), 3.7 ton (7,344.8 pounds) per year of fine particulates and 5,649.3 tons (11,298,501.8 pounds) per year of CO2 (carbon dioxide).

Emissions from area sources associated with this project are estimated to be 27.2 tons (54,480.2 pounds) per year of VOC (volatile organic compounds), 3.0 ton (5,994.5 pounds) per year of NOx (nitrogen oxides), 2.5 ton (4,974.6 pounds) per year of SO2 (sulfur dioxide), 3.2 ton (6,419.4 pounds) per year of fine particulates and 110.4 tons (220,850.6 pounds) per year of CO2 (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 10.8 tons (21,592.0 pounds) per year of NOx (nitrogen oxides), 37.6 tons (75,102.7 pounds) per year of SO2 (sulfur dioxide) and 5,538.8 tons (11,077,651.2 pounds) per year of CO2 (carbon dioxide).

	VOC	NOx	SO_2	$PM_{2.5}$	CO_2
Mobile	67.5	55.9	41.3	3.7	5649.3
Residential	27.2	3.0	2.5	3.2	110.4
Electrical Power		10.8	37.6		5538.8
TOTAL	94.7	69.7	81.4	6.9	11298.5

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 10.8 tons of nitrogen oxides per year and 37.6 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. They highly recommend 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.

State Fire Marshal's Office – Contact: John Rossiter 323-5365

These comments are intended for informational use only and do not constitute any type of approval from the Delaware State Fire Marshal's Office. 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 1000 gpm for 1-hour duration, at 20-psi residual pressure is required. Fire hydrants with 800 feet spacing on centers. (Apartments and Townhouses)
   - 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:**
   - All structures over 10,000 Sq. Ft. aggregate will require automatic sprinkler protection installed.
   - Buildings greater than 10,000 sq.ft., 3-stories of more or 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
   - 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**
   - 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 Clark Farm Road and Duck Creek Road 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 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)
   - Townhouse 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

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, technical services link, plan review, applications or brochures.

Department of Agriculture - Contact: Milton Melendez 698-4500

The Delaware Department of Agriculture has no objections to the proposed development.

Portions of this site have been designated as having "excellent" recharge-potential. DNREC has mapped all ground-water recharge-potential areas. These areas have important ground-water recharge qualities, and maintaining pervious cover in them 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 is also important for the future viability of agriculture in the First State. The loss of every acre of land designated as having "excellent" recharge adversely impacts the future prospects for agriculture in Delaware. Excellent recharge-potential areas are included in New Castle County's Water Resource Protection Areas (WRPAs).WRPAs are protected by ordinance in New Castle County, and the developer should comply with all applicable requirements of the ordinance.

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.

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.

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 information provided indicates that the Town of Smyrna will provide water to the proposed projects through a central public water system. DNREC files reflect that the Town of Smyrna does not currently hold a certificate of public convenience and necessity (CPCN) to provide public water in these areas. They may need to file an application for a CPCN with the Public Service Commission, if they have not done so already. Information on CPCN requirements and applications can be obtained by contacting the Public Service Commission at 302-739-4247.

Delaware State Housing Authority – Contact Karen Horton 739-4263

This proposal is a site plan review for 882 residential units on 280 acres located on both sides of Duck Creek Road north of Duck Creek Parkway in Smyrna. DSHA supports this proposal because it includes units targeted for first time homebuyers. According to the most recent real estate data colleted by DSHA, the average home price in New Castle County is $224,000. However, families earning respectively 80% of New Caste County's median income only qualify for mortgages $183,233, thus creating an affordability gap of $40,767. The provisions of units within reach of families earning at least 80% of New Castle County's median income would help increase housing opportunities for first time homebuyers.

Department of Education – Contact: John Marinucci 739-4658

DOE offers the following comments on behalf of the Smyrna School District.

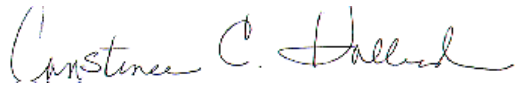
1. Using the DOE standard formula, this development will generate an estimated 441 students. In a letter dated March 20, 2006, addressed to Commissioner David R. Burris, President, Kent County Levy Court, the Superintendent of the Smyrna School District officially informed the Kent County Levy Court that it does not have capacity to accommodate the students resulting from any continued development.

2. The developer is strongly encouraged to contact the Smyrna School District Administration to discuss the issue of school over-crowding that this development will exacerbate and potential resolutions.

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

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

Sincerely,

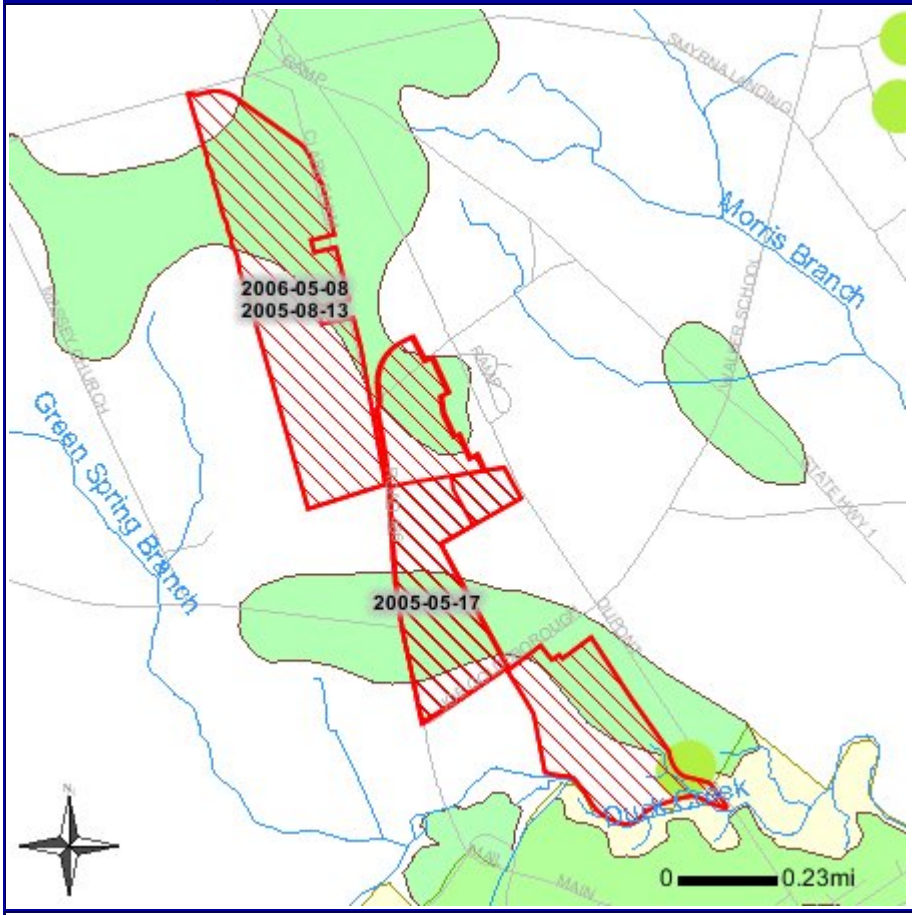


Constance C. Holland, AICP
Director

CC: Town of Smyrna
Kent County
New Castle County

Watson Farm

2006-05-08



PLUS Projects
NHDFlowLine
NCC WHPA Class A
All Roads
Excellent Recharge Areas
Towns

This map was produced by the Delaware
Department of Natural Resources and Environmental Control.