



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

June 8, 2007

Mr. Zachary Crouch
Davis, Bowen & Friedel
23 North Walnut Street
Milford, DE 19963

RE: PLUS review – PLUS 2007-05-07; Chickberry Farms

Dear Mr. Crouch:

Thank you for meeting with State agency planners on May 23, 2007 to discuss the proposed plans for the Chick Berry Farms project to be located at 14521 Laurel Road, near Laurel.

According to the information received, you are seeking site plan approval through Sussex County for 571 residential units on 381 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 Sussex County is the governing authority over this land, the developers will need to comply with any and all regulations/restrictions set forth by the County.

This proposal is located in Investment Level 4 according to the *Strategies for State Policies and Spending*, and is within the Low Density area according to the Sussex County comprehensive plan. **The comments in this letter are technical, and are not intended to suggest that the State supports this development proposal. This letter does not in any way suggest or imply that you may receive or may be entitled to permits or other approvals necessary to construct the development you indicate or any subdivision thereof on these lands.**

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

Office of State Planning Coordination – Contact: Bryan Hall 739-3090

This project represents a major land development that will result in 571 residential units in an Investment Level 4 area according to the *2004 Strategies for State Policies and Spending*. This project is also located within the Low Density area according to the Sussex County comprehensive plan. Investment Level 4 indicates where State investments will support agricultural preservation, natural resource protection, and the continuation of the rural nature of these areas. New development activities and suburban development are not supported in Investment Level 4 areas. These areas are comprised of prime agricultural lands and environmentally sensitive wetlands and wildlife habitats, which should be, and in many cases have been preserved.

From a fiscal responsibility perspective, development of this site is likewise inappropriate. The cost of providing services to development in rural areas is an inefficient and wasteful use of the State's fiscal resources. The project as proposed is likely to bring more than 1400 new residents to an area where the State has no plans to invest in infrastructure upgrades or additional services. These residents will need access to such services and infrastructure as schools, police, and transportation. To provide some examples, the State government funds 100% of road maintenance and drainage improvements for the transportation system, 100% of school transportation and paratransit services, up to 80% of school construction costs, and about 90% of the cost of police protection in the unincorporated portion of Sussex County where this development is proposed. Over the longer term, the unseen negative ramifications of this development will become even more evident as the community matures and the cost of maintaining infrastructure and providing services increases.

Because the development is inconsistent with the *Strategies for State Policies and Spending*, the State is opposed to this proposed subdivision.

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

The Division of Historical and Cultural is not in favor of this development in Level 4. There is one visual effect on/within the parcel (property), and it is a cemetery and a possibility historic-archaeological remains or sites associated with this farmyard. Small, rural, family cemeteries often are found in relation to historic farm complexes, such as the one here, usually a good distance behind or to the side of the house. The developer is 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, and the developer may want to hire an archaeological consultant to check for the possibility of a cemetery here if this development is approved. They would have to have a copy of any archaeological report done for this purpose. They will be happy to discuss these issues with the developer. If this development goes forward, the DHCA would appreciate the opportunity to document the farmstead prior to any ground disturbance or demolition activities.

Department of Transportation – Contact: Bill Brockenbrough 760-2109

Jestice Farms, LLC seeks to develop 571 single-family detached houses on a 381.232-acre assemblage of parcels (Tax Parcels 2-32-19.00-7.00, 9.00 and 16.00) east of Laurel on the north side of Delaware Route 24 and east side of Hitch Pond Road (Sussex Road 463). The land is zoned AR-1 in Sussex County and would be developed by right.

Because this development is proposed for a Level 4 Area, it is inconsistent with the *Strategies for State Policies and Spending*. As part of our commitment to support the *Strategies*, DelDOT refrains from participating in the cost of any road improvements needed to support this development and is opposed to any road improvements that will substantially increase the transportation system capacity in this area. DelDOT will only support taking the steps necessary to preserve the existing transportation infrastructure and make whatever safety and drainage related improvements are deemed appropriate and necessary. The intent is to preserve the open space, agricultural lands, natural habitats and forestlands that are typically found in Level 4 Areas while avoiding the creation of isolated development areas that cannot be served effectively or efficiently by public transportation, emergency responders, and other public services.

DelDOT strongly supports new development in and around existing towns and municipalities and in areas designated as growth zones in approved Comprehensive Plans. We encourage the use of transfer of development rights where this growth management tool is available.

If this development proposal is approved, notwithstanding inconsistencies with the relevant plans and policies, DeIDOT will provide further technical review and comments.

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

Investment Level 4 Policy Statement

This project is proposed for an Investment Level 4 area as defined by the *Strategies for State Policies and Spending* and is also located outside of a designated growth area in the relevant municipal and county certified comprehensive plans. According to the *Strategies* this project is inappropriate in this location. In Investment Level 4 areas, the State's investments and policies, from DNREC's perspective, should retain the rural landscape and preserve open spaces and farmlands. Open space investments should emphasize the protection of critical natural habitat and wildlife to support a diversity of species, and the protection of present and future water supplies. Open space investments should also provide for recreational activities, while helping to define growth areas. Additional state investments in water and wastewater systems should be limited to existing or imminent public health, safety or environmental risks only, with little provision for additional capacity to accommodate further development.

With continued development in Investment Level 4 areas, the State will have a difficult, if not impossible, time attaining water quality (e.g., TMDLs) and air quality (e.g., non-attainment areas for ozone and fine particulates) goals. Present and future investments in green infrastructure, as defined in Governor Minner's Executive Order No. 61, will be threatened. DNREC strongly supports new development in and around existing towns and municipalities and in areas designated as growth zones in certified Comprehensive Plans. They encourage the use of transfer of development rights where this growth management tool is available.

This particular development certainly compromises the integrity of the State Strategies and the preservation goals inherent in many of DNREC's programs. Of particular concern are potential impacts to two out of three layers of the Green Infrastructure map (cropland and forests), the loss/fragmentation of forest (100 out of 202 acres or 49.5%), the increase in impervious cover, and tax ditch rights-of-way. While mitigating measures such as conservation design, central wastewater systems instead of individual on-site septic systems, and other best management practices may help mitigate impacts from this project, not doing the project at all is the best avenue for avoiding negative impacts. As such, this project will receive no financial, technical or other support of any kind from DNREC. Any required permits or other authorizations for this project shall be considered in light of the project's conflict with our State growth strategies.

Soils

According to the Sussex County soil survey, Pepperbox-Rosedale complex, Pepperbox-Rockawalkin complex, Hammonton, Klej, Hurlock, Askecksy, and Longmarsh/Indiantown complex were mapped in the immediate vicinity of the proposed construction. Pepperbox-Rosedale complex is a moderately well to well-drained soil that has moderate limitations for development. Pepperbox-Rockawalkin is moderately well-drained to somewhat poorly-drained soil that has moderate to severe limitations for developments. Hammonton is a moderately well-drained soil of low-lying uplands that has moderate limitations for development. Klej is a somewhat poorly-drained transitional soil likely to have both wetland and upland soil components; such soils are likely to have moderate to severe limitations for development. Hurlock and Askecksy are poorly-drained wetland associated (hydric) soils that have severe limitations for development. Longmarsh/Indiantown complex is a very poorly-drained wetland associated (hydric) floodplain soil that has severe limitations for development. Approximately 30-35% of the mapped soils on this parcel are wetland associated (hydric) soil mapping units such as Hurlock, Askecksy, and Longmarsh-Indiantown; these soils are considered unsuitable for development and should be avoided.

As mentioned previously, a significant portion of the mapped soils on subject parcel are poorly to very poorly-drained (hydric) Askecksy, Hurlock, and Longmarsh/Indiantown soils (estimated 30-35% of the parcel's land area). Hydric soils typically have a seasonal high water table at or near the soil surface (within one-foot of soil surface or less). Building in such soils is likely to leave prospective residents of this and adjoining properties susceptible to future flooding problems from groundwater-driven surface water ponding, especially during extended periods of high-intensity rainfall events such as tropical storms/hurricanes or "nor'easters." This is in addition to increased flooding probabilities from surface water runoff emanating from future created forms of structural imperviousness (roof tops, roads, and sidewalks).

Based on the Chapter 99, Section 16A of the Sussex County Code (paraphrased), lands compromised by improper drainage or flooding potential pose significant threats to the safety and general welfare of future residents and, therefore, shall not be developed. Soils such as Askecksy, Hurlock, and Longmarsh/Indiantown fit the criterion for improper drainage or high flooding potential and should be avoided. The Watershed Assessment Section believes permitting development on such soils would violate the above-stated provision of the Sussex County Code.

Wetlands

According to the Statewide Wetland Mapping Project (SWMP) mapping, palustrine forested and palustrine scrub-shrub wetlands were mapped on subject parcel. It is also likely that some additional unmapped wetlands may be found in the forested portion of the combined parcel land area.

The applicant should be reminded that they must avoid construction/filling activities in those areas containing wetlands or wetland associated hydric soils as they are subject to regulatory jurisdiction under Federal 404 provisions of the Clean Water Act. A site-specific field wetlands delineation using the methodology described in the 1987 United States Army Corps of Engineers (USACE) manual is the basis for making a jurisdictional wetland determination for nontidal wetlands in Delaware. The USACE views the use of the National Wetlands Inventory (NWI) mapping or the Statewide Wetlands Mapping Project (SWMP) mapping as an unacceptable substitute for making such delineations. To ensure compliance with USACE regulatory requirements, it is strongly recommended that a field wetlands delineation using the above-referenced methodology be performed on this parcel before commencing any construction activities. It is further recommended that the USACE be given the opportunity to officially approve the completed delineation. In circumstances where the applicant or applicant's consultant delineates what they believe are nonjurisdictional isolated (SWANCC) wetlands, the USACE must be contacted to evaluate and assess the jurisdictional validity of such a delineation as the final jurisdictional authority for making isolated wetlands determinations ultimately rests with the USACE. The USACE can be reached by phone at 736-9763.

Based on a review of existing buffer research, an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances, is about 100-foot in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from the landward edge of all wetlands and water bodies.

Impervious Cover

Based on information provided by the applicant in the PLUS application, post-development surface imperviousness for this project was estimated by the applicant to reach 23 percent. However, given the scope and density of this project this projection may be an underestimate.

The applicant should realize that all forms of constructed surface imperviousness (i.e., rooftops, sidewalks, stormwater management structures, and roads) should be included in

the calculation for surface imperviousness; it was unclear from the submittal whether constructed surface imperviousness was comprehensively considered. Nonetheless, it is strongly recommended that the applicant include all of aforementioned forms of surface imperviousness in their finalized calculation for surface imperviousness. This will ensure a realistic assessment of this project's likely post-construction environmental impacts.

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.

ERES Waters

This project is located adjacent to receiving waters Broad Creek watershed, a subwatershed of the greater Nanticoke watershed, and designated as having waters of Exceptional Recreational or Ecological Significance (ERES). ERES waters are recognized as special assets of the State, and shall be protected and/ or restored, to the maximum extent practicable, to their natural condition. Provisions in Section 5.6 of Delaware's "Surface Water Quality Standards" (as amended July 11, 2004), specify that all designated ERES waters and receiving tributaries develop a "pollution control strategy" to reduce non-point sources of pollutants through implementation of Best Management Practices (BMPs). Moreover, provisions defined in subsection 5.6.3.5 of same section, specially authorize the Department to mandate BMPs to meet standards for controlling the addition of pollutants and reducing them to the greatest degree achievable and, where practicable, implementation of a standard requiring no discharge of pollutants.

TMDLs

Total Maximum Daily Loads (TMDLs) for nitrogen and phosphorus have been promulgated through regulation for the Broad Creek watershed. A TMDL is the maximum level of pollution allowed for a given pollutant below which a "water quality limited water body" can assimilate and still meet 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 greater Broad Creek watershed, "target-rate-nutrient reductions" of 30 and 50 percent will be

required for nitrogen and phosphorus, respectively. Additionally, “target-rate-reductions” of 2 percent will be required for bacteria.

TMDL Compliance through the PCS

As indicated above, Total Maximum Daily loads (TMDLs) for nitrogen and phosphorus have been proposed for the Broad Creek watershed. The TMDL calls for a 30 and 50 percent reduction in nitrogen and phosphorus from baseline conditions. The TMDL also calls for a 2 percent reduction in bacteria. A pollution control strategy (PCS) will be used as a regulatory framework to ensure that these nutrient reduction targets are attained. The Department has developed an assessment tool to evaluate how your proposed development may reduce nutrients to meet the TMDL requirements. Additional nutrient reductions may be possible through the implementation of Best Management Practices such as wider vegetated buffers along watercourses, increasing passive, wooded open space, connection to central sewer (if available), and the use of green-technology stormwater management treatment trains. Contact Lyle Jones at 302-739-9939 for more information on the assessment tool.

Water Supply

The project information sheets state water will be provided to the project by Tidewater Utilities via a central water system. Our records indicate that the project is located within the public water service area granted to Tidewater Utilities under Certificate of Public Convenience and Necessity 06-CPCN-25.

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

A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. Contact the reviewing agency to schedule a pre-application meeting to discuss the sediment and erosion control and stormwater management components of the plan. The site topography, soils mapping, pre- and post-development runoff, and proposed method(s) and location(s) of stormwater management should be brought to the meeting for discussion. The plan review and approval as well as construction inspection will be coordinated through the Sussex Conservation District. Contact the Sussex Conservation District at (302) 856-7219 for details regarding submittal requirements and fees.

Drainage

1. This project is within the Gordon Branch Tax Ditch and the L&W Tax Ditch; both have existing tax ditch rights-of-way. Please continue to work with the Drainage Program in Georgetown at (302) 855-1930 on tax ditch rights-of-way widths, and the release of stormwater into the tax ditch.
2. Each tax ditch has a specified watershed boundary. A watershed boundary change to the court order will be needed if the development proposes to route stormwater from one tax ditch watershed to another.
3. 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.
4. 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.
5. The Drainage Program applauds the absence of lot lines within the tax ditch rights-of way. Although proposed as open space, tax ditch rights-of-way are

utilized for the spreading of spoil from tax ditch maintenance. No permanent obstructions are to be placed within a tax ditch right-of-way.

For questions or clarifications, please contact Jim Sullivan at (302) 739-9921.

Rare Species

DNREC has not surveyed this parcel; therefore, it is unknown if state-rare or federally listed plants, animals or natural communities occur at this project site. They do have records of *Buteo lineatus* (Red-Shouldered Hawk) and *Strix varia* (Barred Owl) in the vicinity and these birds of high State conservation concern could occur within the project area as suitable habitat exists. Both of these species are dependent on forested habitat, especially habitat near wetlands.

Site Visit Request

In order to provide more informed comments and to make recommendations, the program botanist and zoologist request the opportunity to survey the forested and wetland resources which could potentially be impacted by the project. This would also allow the applicant the opportunity to reduce potential impacts to rare species and unique habitats and to ensure that the project is environmentally sensitive. In addition, a survey of the project site will give staff an opportunity to document the biodiversity of the property and add to the State database. The site visit would be at no cost to the applicant/landowner.

The scientists have many years of experience using rare species survey methods. Please contact Bill McAvoy, Robert Coxe or Kitt Heckscher at (302) 653-2880 to set up a site visit.

Forest Preservation

This project will result in forest fragmentation and an estimated loss of at least 100 acres of forest, some of which appear to be mature and/or contain wetlands. Many species, often rare species, depend on larger connected areas of forest. Forest fragmentation separates wildlife populations, increases road mortality, and increases "edge effects" that leave many forest dwelling species, particularly songbirds, vulnerable to predation. A lack of forest protection has contributed to an estimated 20,000 acres of forest converted by development just in the last decade in Delaware (Dept. of Agriculture, Forestry Service). This cumulative forest loss has led to a corresponding loss of forest-dependent species (Environmental Law Institute. 1999. Protecting Delaware's Natural Heritage: Tools for Biodiversity Conservation. ISBN#1-58576-000-5). Forest loss throughout the State is of utmost concern to our Division (which is charged with conserving and

managing the states wildlife; see www.fw.delaware.gov and the Delaware Code, Title 7). Because of an overall lack of forest protection, we have to rely on applicants and/or the entity that approves the project (i.e. counties and municipalities) to consider implementing recommendations that will aide in reducing forest loss.

Residents should also be aware that when wildlife habitat is converted by development, wildlife must either disperse into surrounding areas or attempt to coexist with new residents. Either scenario can result in human/animal conflicts, including interactions on the roadways. This land use conversion also puts greater pressure (resource competition, disease, etc.) on adjacent wildlife areas and other public lands.

Recommendations:

1. DNREC encourages the applicant to consider preservation of all or at least more of the forested area than that depicted in the site plan. This would entail omitting some lots and infrastructure that are within the forested area. Many incentive-based programs for wildlife management are available to private landowners through our agency. Please contact Shelley Tovell at (302) 653-2880 if the landowner(s) is interested in more information. There are approximately 247 lots which are mostly or entirely wooded (19-22, 65-67, 69-112, 119-127, 144-168, 171-192, 316-323, 398-455, 467-469, 492-495, 499-511, 515-528, 532-544, 545-571) and associated infrastructure which will require clearing.
2. Although preservation is preferable to clearing, if clearing occurs despite recommendations to the contrary, trees should not be cleared from April 1st to July 31st to protect birds and other wildlife that utilize forests for breeding. This recommendation
3. would only protect those species for one breeding season, because once trees are cleared, the result is an overall loss of habitat.
4. Some lots and infrastructure are too close to existing wetlands. From what can be deduced from the site plan presented (should be ground-truthed), approximately 34 lots (lot #s 79-96, 97, 123, 124, 147, 148, 178, 179, 183, 323, 435-440, 449), a stormwater management pond and roadways are well within 100ft of existing wetlands. Regardless of who has jurisdiction on these wetlands, they can represent habitat for an array of wildlife species and provide many important ecological functions. There should be at least a 100-foot buffer left intact between wetlands and the site plan features listed above. Although not currently State regulation, this request for 100-foot buffers is based on peer reviewed scientific research and is made to protect water quality. Water quality affects the survivability of aquatic organisms, and is important for the early stages of some

aquatic species and those sensitive to water quality changes. Also, upland buffers around wetland areas serve as habitat for wetland dependent species which can be dependent on these buffers during a portion of their life cycle.

Plant Rescue

Because there is forest and wetland loss and/or disturbance associated with this project, we recommend that the developer/landowner contact the Delaware Native Plant Society to initiate a plant rescue. Selected plants from the site of disturbance will be collected by Society members and transplanted to the Society's nursery. Plants will then be used in restoration projects and/or sold at the Society's annual native plant sale. This can be done at no expense or liability to the developer/landowner. Please contact Lynn Redding at (302) 736-7726 or lynn_redding@ml.com

Potential Hunting Issue

Because the project parcel is part of a larger forest block, legal hunting activities may take place on adjacent properties. Hunting within 100 yards of a dwelling is prohibited and the applicant should contact adjacent landowners to determine if this is going to be an issue. In effect, the adjacent landowner will be losing 100 yards of their property for hunting if there is not a buffer between lot lines and the adjacent property line. There is also noise associated with hunting, such as the discharge of firearms or dogs barking when pursuing game.

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.

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 43.8 tons (87,642.5 pounds) per year of VOC (volatile organic compounds), 36.3 tons (72,562.1 pounds) per year of NO_x (nitrogen oxides), 26.8 tons (53,537.6 pounds) per year of SO₂ (sulfur dioxide), 2.4 ton (4,765.8 pounds) per year of fine particulates and 3,665.6 tons (7,331,186.9 pounds) per year of CO₂ (carbon dioxide).

However, because this project is in a level 4 area, mobile emission calculations should be increased by 118 pounds for VOC emissions for each mile outside the designated growth areas per household unit; by 154 pounds for NO_x; and by 2 pounds for particulate emissions. A typical development of 100 units that is planned 10 miles outside the growth areas will have additional 59 tons per year of VOC emissions, 77 tons per year of NO_x emissions and 1 ton per year of particulate emissions versus the same development built in a growth area (level 1,2 or 3).

Emissions from area sources associated with this project are estimated to be 17.7 tons (35,350.2 pounds) per year of VOC (volatile organic compounds), 1.9 ton (3,889.6 pounds) per year of NO_x (nitrogen oxides), 1.6 ton (3,227.8 pounds) per year of SO₂ (sulfur dioxide), 2.1 ton (4,165.3 pounds) per year of fine particulates and 71.7 tons (143,301.9 pounds) per year of CO₂ (carbon dioxide).

Emissions from electrical power generation associated with this project are estimated to be 7.0 tons (14,010.3 pounds) per year of NO_x (nitrogen oxides), 24.4 tons (48,731.4 pounds) per year of SO₂ (sulfur dioxide) and 3,593.9 tons (7,187,885.0 pounds) per year of CO₂ (carbon dioxide).

	VOC	NO _x	SO ₂	PM _{2.5}	CO ₂
Mobile	43.8	36.3	26.8	2.4	3665.6
Residential	17.7	1.9	1.6	2.1	71.7

Electrical Power		7.0	24.4		3593.9
TOTAL	61.5	45.2	52.8	4.5	7331.2

For this project the electrical usage via electric power plant generation alone totaled to produce an additional 7.0 tons of nitrogen oxides per year and 24.4 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: Duane Fox 856-5298

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:**

- 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.
- Where a water distribution system is proposed for townhouse type dwellings it shall be capable of delivering at least 1000 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 800 feet spacing on centers are required.
- The infrastructure for fire protection water shall be provided, including the size of water mains.
- Near the entrance to the subdivision appears to be a structure which could be a Club House or a Community Building. It was unknown at the time of this review as to the number of stories, the gross area, the construction, the proposed use, or the potential occupant load of the building. Club House/Community Buildings tend to be classed as Places of Assemblies and depending on size, use, height, etc, additional fire protection, such as automatic sprinklers, may be required.

b. **Accessibility:**

- All premises, which the fire department may be called upon to protect in case of fire, and which are not readily accessible from public roads, shall be provided with suitable gates and access roads, and fire lanes so that all buildings on the premises are accessible to fire apparatus. This means that the access road to the subdivision from the Route 24 entrance 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.

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

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

d. **Required Notes:**

- Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
- Name of Water Supplier
- Proposed Use
- National Fire Protection Association (NFPA) Construction Type
- Townhouse 2-hr separation wall details shall be shown on site plans
- Maximum Height of Buildings (including number of stories)
- 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: Scott Blaier 698-4500

The Department is opposed to development in areas designated as Investment Level 4 under the *Strategies for State Policies and Spending*. The *Strategies* do not support isolated development of these areas. The intent of this plan is to preserve the agricultural lands, forestlands, recreational uses, and open spaces that are preferred uses in Level 4 areas. The Department of Agriculture opposes development which conflicts with the preferred land uses, making it more difficult for agriculture and forestry to succeed, and increases the cost to the public for services and facilities.

More importantly, the Department of Agriculture opposes this project because it negatively impacts those land uses that are the backbone of Delaware's resource industries - agriculture, forestry, horticulture - and the related industries they support. Often new residents of developments like this one, with little understanding or appreciation for modern

agriculture and forestry, find their own lifestyles in direct conflict with the demands of these industries. Often these conflicts result in compromised health and safety; one example being decreased highway safety with farm equipment and cars competing on rural roads. The crucial economic, environmental and open space benefits of agriculture and forestry are compromised by such development. We oppose the creation of isolated development areas that are inefficient in terms of the full range of public facilities and services funded with public dollars. Public investments in areas such as this are best directed to agricultural and forestry preservation.

Section 1. Chapter 99, Code of Sussex Section 99-6 may apply to this subdivision. The applicant should verify the applicability of this provision with Sussex County. This Section of the Code states:

G. Agricultural Use Protections.

(1) Normal agricultural uses and activities conducted in a lawful manner are preferred. In order to establish and maintain a preference and priority for such normal agricultural uses and activities and avert and negate complaints arising from normal noise, dust, manure and other odors, the use of agricultural chemicals and nighttime farm operations, land uses adjacent to land used primarily for agricultural purposes shall be subject to the following restrictions:

(a) For any new subdivision development located in whole or in part within three hundred (300) feet of the boundary of land used primarily for agricultural purposes, the owner of the development shall provide in the deed restrictions and any leases or agreements of sale for any residential lot or dwelling unit the following notice:

“This property is located in the vicinity of land used primarily for agricultural purposes on which normal agricultural uses and activities have been afforded the highest priority use status. It can be anticipated that such agricultural uses and activities may now or in the future involve noise, dust, manure and other odors, the use of agricultural chemicals and nighttime farm operations. The use and enjoyment of this property is expressly conditioned on acceptance of any annoyance or inconvenience which may result from such normal agricultural uses and activities.”

(b) For any new subdivision development located in whole or in part within fifty (50) feet of the boundary of land used primarily for agricultural

purposes no improvement requiring and occupancy approval for a residential type use shall be constructed within fifty (50) feet of the boundary of land used primarily for agricultural purposes.

This site overlaps with the State's Green Infrastructure Investment Strategy Plan. The Forest layer is present on the site. This designation identifies areas of the state that have viable and valuable forest land, as discussed in Governor Minner's Executive Order Number 61. Areas such as these should be preserved as such, and not developed for residential use.

The Department is particularly concerned about the developer handing over a large block of forest (approx. 90 acres) to a 571 member Homeowner's Association to manage. Neglect of proper forest health and maintenance raises concern for a potential forest fire among a dense concentration of homes.

The Delaware Department of Agriculture supports growth which expands and builds on existing urban areas and growth zones in approved State, county and local plans. Where additional land preservation can occur through the use of transfer of development rights, and other land use measures, we will support these efforts and work with developers to implement these measures. If this project is approved we will work with the developers to minimize impacts to the agricultural and forestry industries.

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.

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.

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.

Delaware State Housing Authority – Contact Vicki Walsh 739-4263

This proposal is for a site plan review for 571 residential units on 381 acres, located on Route 24 between Hitchpond Road and Jestice Farm Road, east of Laurel. According to the State Strategies Map, the proposal is located in an Investment Level 4 area. As a general planning practice, DSHA encourages residential development only in areas where residents will have proximity to services, markets, and employment opportunities, such as Investment Level 1 and 2 areas outlined in the State Strategies Map. Since, the proposal is located in an area targeted for agricultural and natural resource protection, and therefore inconsistent with where the State would like to see new residential development, DSHA does not support this proposal.

Department of Education – Contact: John Marinucci 735-4055

DOE recognizes that this development project is in level 4 of the State Strategies for Policies and Spending and as such, DOE does not support the approval of this project. This proposed development is within the Laurel School District. DOE offers the following comments on behalf of the Laurel School District.

1. Using the DOE standard formula, this development will generate an estimated 286 students.
2. DOE records indicate that the Laurel School Districts' *elementary schools are not at or beyond 100% of current capacity* based on September 30, 2006 elementary enrollment.
3. DOE records indicate that the Laurel School Districts' *secondary schools are not at or beyond 100% of current capacity* based on September 30, 2006 secondary enrollment.

4. While the Laurel School District secondary and elementary schools are not currently beyond capacity, *the district does NOT have adequate student capacity to accommodate the additional students likely to be generated from this development* given the number of planned and recorded residential sub divisions within district boundaries. This development, in conjunction with other planned developments will cause significant burden to the Laurel School District.
5. The DOE requests that the developer contact the Laurel School District Administration to address the issue of school over-crowding that this development has the potential to cause.
6. DOE requests developer work with the Laurel 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.

Sussex County - Contact: Richard Kautz 855-7878

Because this project is an AR-1 Cluster subdivision, the developer must include in the application a plan for the management of all open space. Also, the developer must document for the Planning and Zoning Commission how the proposed development: provides for a total environment and design which are superior to that which would be allowed under the standard lot option; preserves the natural environment and historic or archeological resources; and, will not have an adverse effect on any of the items included under Ordinance Number 1152 (County Code 99-9C). For example, the reduction of 571 lots from 20,000 sq. ft. to an average lot size of 9,924 sq. ft. allows for more than 132 acres of open space and more than 160 acres of "useable" open space are provided. While it is admirable that that much is provided, almost 50 % of the existing woodland is being removed and nearly 50% of the lots do not have direct access to open space. The result is the appearance of a dense urban environment with numerous blocks of small lots all within a very rural context. For example, the nearest elementary school is almost 4 miles distant. These issues can be addressed by including in the County application an explanation of how the developer plans to mitigate them and the issues raised by the State agencies during this review.

The State Wetlands map indicates the possibility of wetlands impacting the location of proposed subdivision lots and roads. Therefore a jurisdictional determination letter should be provided to support the proposed design for that area and that the lot layout does not contain any wetlands. This letter should be obtained prior to the request for approval of any final plan.

The Sussex County Engineer Comments:

The project proposes to develop using a private central community wastewater system. The Sussex County Engineering Office recommends that the wastewater system be operated under a long-term contract with a capable wastewater utility. The proposed project is located within the boundaries of the Western Sussex Planning Area 4. The Sussex County Engineering Department expects the planning study to be complete by August 2007. There is currently no schedule to provide service to this project. Sussex County requires design and construction of the collection and transmission system to meet Sussex County sewer standards and specifications. A review and approval of the treatment and disposal system by the Sussex County Engineering Department is also required and plan review fees may apply. Disposal fields should not be counted as open space. Wastewater disposal fields should be clearly identified on recorded plots.

If Sussex County ever provides sewer service, it is required that the treatment system be abandoned and a direct connection made to the County system at the developers and/or owners expense.

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

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

Sincerely,

A handwritten signature in cursive script that reads "Constance C. Holland".

Constance C. Holland, AICP
Director

CC: Sussex County



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

CAROLANN WICKS, P.E.
SECRETARY

May 11, 2007

Mr. Lawrence B. Lank
Director
Sussex County Planning & Zoning Commission
P.O. Box 417
Georgetown, DE 19947

Dear Mr. Lank:

The attached Traffic Impact Study (TIS) review letter for the **Chick-Berry Farms** has been completed under the responsible charge of a registered professional engineer whose firm is authorized to work in the State of Delaware. They have found the TIS to conform to DeIDOT's Rules and Regulations for Subdivision Streets and other accepted practices and procedures for such studies. DeIDOT accepts this TIS review and concurs with the recommendations. We are providing it to you in fulfillment of our joint agreement regarding the review of TIS. If you have any questions concerning this letter or the attached review letter, please contact me at (302) 760-2134.

Sincerely,

Todd J. Sammons
Project Engineer

TS:km
Enclosures
cc with enclosures:

Ms. Constance C. Holland, Office of State Planning Coordination
Mr. Dennis Hughes, Davis, Bowen & Friedel, Inc.
Mr. Andrew Parker, McCormick Taylor
DeIDOT Distribution

DelDOT Distribution

Frederick H. Schranck, Deputy Attorney General
Darrel Cole, Chief of Community Relations, Public Relations
Robert Taylor, Director, Transportation Solutions (DOTS)
Ralph A. Reeb, Director, Division of Planning
Michael H. Simmons, Assistant Director, Project Development South, DOTS
Donald D. Weber, Chief Traffic Engineer, Traffic, DOTS
Mark Luszcz, Assistant Chief Traffic Engineer, Traffic, DOTS
Thomas E. Meyer, Traffic Studies Manager, Traffic, DOTS
Assistant Director, Statewide & Regional Planning
Theodore G. Bishop, Assistant Director, Development Coordination
Joseph Wright, Assistant Director, Transportation Engineering
Jennifer Pinkerton, Deputy Principal Assistant, Pavement Management
William J. Dryden, Transportation Planner, Project Development South, DOTS
David Dooley, Service Development Planner, Delaware Transit Corporation
Lisa Collins, Service Development Planner, Delaware Transit Corporation
Marc Coté, Subdivision Engineer, Development Coordination
T. William Brockenbrough, Jr., County Coordinator, Development Coordination
John T. Fiori, Subdivision Manager, Development Coordination
Troy Brestel, Project Engineer, Development Coordination

May 11, 2007

Mr. Todd J. Sammons
Project Engineer
DelDOT Division of Planning
P.O. Box 778
Dover, DE 19903

RE: Agreement No. 1294
Traffic Impact Study Review Services
Task No. 141 – Chick-Berry Farms

Dear Mr. Sammons,

McCormick Taylor has completed its review of the Traffic Impact Study (TIS) for the development of Chick-Berry Farms prepared by Davis, Bowen & Friedel, Inc. (DBF) dated January 2007. This review was assigned as Task Number 141. DBF prepared the report in a manner generally consistent with DelDOT's *Rules and Regulations for Subdivision Streets*.

The TIS evaluates the impacts of the development of Chick-Berry Farms, proposed to be located on an approximately 381-acre assemblage of parcels in Sussex County, Delaware just east of Laurel. The proposed development would consist of 571 single-family detached houses. This development is located between Hitch Pond Road (Sussex Road 463) to the west and Jestice Farm Road (Sussex Road 449A) to the east, and north of Delaware Route 24 (Sussex Road 24 / Laurel Road). Two access points are proposed: one on Hitch Pond Road and one on Delaware Route 24. Construction is expected to be complete by 2015.

There is one DelDOT project in the vicinity of the Chick-Berry Farms Property. DelDOT has developed plans for the US Route 13, Laurel Intersections Improvements (State Contract 22-124-04). This project includes pavement and operational improvements to four intersections in Laurel, including:

- US Route 13 (Sussex Highway/Sussex Road 1) and US Route 9 (County Seat Highway/Sussex Road 28)
- US Route 13 and Delaware Avenue/Sycamore Road (Sussex Road 466)
- US Route 13 and Delaware Route 24
- US Route 13 and Trussum Pond Road (Sussex Road 462)

This project is scheduled for construction in 2007.

Based on our review, we have the following comments and recommendations:

The following intersection exhibits level of service (LOS) deficiencies without the implementation of physical roadway and/or traffic control improvements:

<i>Intersection</i>	<i>Situations for which deficiencies occur</i>
US Route 13 and Delaware Route 24	2015 PM with proposed development, 2015 Saturday with or without proposed development

Should the County choose to approve the proposed development, the following items should be incorporated into the site design and reflected on the record plan. All applicable agreements (i.e., letter agreements for off-site improvements and traffic signal agreements) should be executed prior to entrance plan approval for the proposed development.

1. The developer should enter into an agreement with DelDOT to fund an equitable portion of improvements identified for the intersection of US Route 13 and Delaware Route 24 by the DelDOT Project: US Route 13, Laurel Intersections Improvements (State Contract 22-124-04). Planned improvements at this intersection include the addition of eastbound and westbound left-turn lanes and modification of the existing lane configuration to create an exclusive left-turn lane, a through lane, and an exclusive right-turn lane on both Delaware Route 24 approaches. The developer should coordinate with DelDOT to determine the schedule and amount of the contribution.

2. The developer should enter into a traffic signal agreement with DelDOT for the intersection of US Route 13 and Delaware Route 24. The agreement will cover the signal adjustments required by the physical improvements noted in Item No. 1. The agreement should include pedestrian signals, crosswalks and interconnection at DelDOT's discretion.

3. The developer should improve Hitch Pond Road from Delaware Route 24 northward for approximately 3,600 feet (through both sharp horizontal curves) in order to meet DelDOT's local road standards. These standards include two eleven-foot lanes and two five-foot shoulders. Additionally, the developer should improve, as needed to conform to current DelDOT and AASHTO design criteria, the horizontal and vertical alignments of the two sharp curves along Hitch Pond Road; one located at the northern edge of the site frontage along Hitch Pond Road (approximately 2,750 feet north of Delaware Route 24) and the other located approximately 550 feet west of the first curve. The developer should provide a bituminous concrete overlay to the existing travel lanes, at DelDOT's discretion. DelDOT should analyze the through travel lane's pavement section and recommend an overlay thickness to the developer's engineer if necessary.

4. The developer should improve Delaware Route 24 from Hitch Pond Road to the eastern edge of the property line in order to meet DelDOT's collector road standards. These standards include two twelve-foot lanes and two eight-foot shoulders. The developer should provide a bituminous concrete overlay to the existing travel lanes, at DelDOT's

discretion. DelDOT should analyze the through travel lane's pavement section and recommend an overlay thickness to the developer's engineer if necessary.

5. At the site entrance on Hitch Pond Road, the developer should install a right-turn lane on the northbound Hitch Pond Road approach.
6. At the site entrance on Delaware Route 24, the developer should install an eastbound left-turn lane and a westbound right-turn lane on Delaware Route 24.
7. The following bicycle and pedestrian improvements should be included:
 - a. A minimum of a five-foot bicycle lane (in addition to any required auxiliary lanes) should be striped along the site frontage on Delaware Route 24 in order to facilitate safe and unimpeded bicycle travel.
 - b. Share the road signs (MUTCD R3-17) should be added along the bicycle lane in order to alert motorists to the presence of bicycle traffic. Right-turn yield to bikes sign (MUTCD R4-4) should be added at the start of any right-turn lane.
 - c. Utility covers should be moved outside of the designated bicycle lane or be flush with the pavement.
 - d. Internal sidewalks to promote walking as a viable transportation alternative should be constructed within the development.

Please note that this review generally focuses on capacity and level of service issues; additional safety and operational issues will be further addressed through DelDOT's subdivision review process.

Additional details on our review of the TIS are attached. Please contact me at (302) 738-0203 or through e-mail at sjdiehl@MTmail.biz if you have any questions concerning this review.

Sincerely,

McCormick Taylor, Inc.



Scott Diehl, P.E., PTOE
Project Manager

Enclosure

General Information

Report date: January 2007

Prepared by: Davis, Bowen & Friedel, Inc.

Prepared for: Chick-Berry Farms

Tax parcel: 232-19.00-7.00, 232-19.00-9.00, and 232-19.00-16.00

Generally consistent with DelDOT's *Rules and Regulations for Subdivision Streets*: Yes

Project Description and Background

Description: Development of 571 single-family detached houses

Location: Site is located between Hitch Pond Road (Sussex Road 463) to the west and Jestice Farm Road (Sussex Road 449A) to the east and north of Delaware Route 24 (Sussex Road 24 / Laurel Road).

Amount of land to be developed: 381 acres

Land use approval(s) needed: Subdivision approval. AR-1 Cluster zoning approval.

Proposed completion date: 2015

Proposed access locations: Two access points are proposed: one on Hitch Pond Road and one on Delaware Route 24.

Livable Delaware

(Source: Delaware Strategies for State Policies and Spending, July 2004)

Location with respect to the Strategies for State Policies and Spending Map of Delaware:

The proposed Chick-Berry Farms Development is located within Investment Level 4.

Investment Level 4

Areas located within Investment Level 4 are predominantly agricultural; contain agribusiness activities, farm complexes and small settlements that are often found at historic crossroads. These areas contain undeveloped natural areas, including forestland and recreational parks, however may have scattered single-family detached residential houses located within them.

Transportation facilities and services will be preserved by the state while they continue to manage the transportation system in a manner that will support the preservation of the natural environment. The state will limit its investments in water and wastewater systems to existing public health, safety and environmental risks and discourage accommodating further development. In addition, the state will limit continued development of areas within Investment Level 4 to those that enhance agriculture and protect water supplies, preserve critical habitat and maintain existing education and public safety services. Although residential development is not desirable in Investment Level 4, conservation design techniques (protecting large portions of existing open space and farmland while clustering development on a smaller portion of the parcel and using environmentally friendly design innovations) can be utilized in some cases to help ensure that developments are compatible with the rural character and natural resources present in the area. However, it is the state's general intent to discourage additional development in

Investment Level 4 areas that are unrelated to the areas' needs by limiting infrastructure investment.

Proposed Development's Compatibility with Livable Delaware:

The proposed Chick-Berry Farms Development is located within Investment Level 4. According to Livable Delaware, residential development is generally not desirable in Investment Level 4. As such, this development does not appear to be compatible with the 2004 update of the Livable Delaware "Strategies for State Policies and Spending."

Comprehensive Plans

Sussex County Comprehensive Plan: *(Source: 2003 Sussex County Comprehensive Plan Update)* The Sussex County Comprehensive Plan Zoning Map designates the parcels of this development as Agricultural, zoned as AR-1 (Agricultural Residential). The Future Land Use Map indicates the parcels are in a Low Density Area. The purpose of the Low Density Area is to provide for a full range of agricultural activities and to protect agricultural lands as one of the County's most valuable natural resources from the depreciating effect of objectionable, hazardous and unsightly uses. Although this area is intended primarily for agricultural use, low density residential development is permitted.

Public water and wastewater systems are generally not planned for low density areas, so it is assumed the proposed development will use on-site septic systems or private wastewater treatment systems. Density guidelines state that the minimum lot size in a Low Density Area with on-site wastewater systems is 0.75 acres, or 0.50 acres if the clustering option is used. If public wastewater systems are to be provided, the minimum lot size in a Low Density area is 20,000 square feet (approximately 0.46 acres).

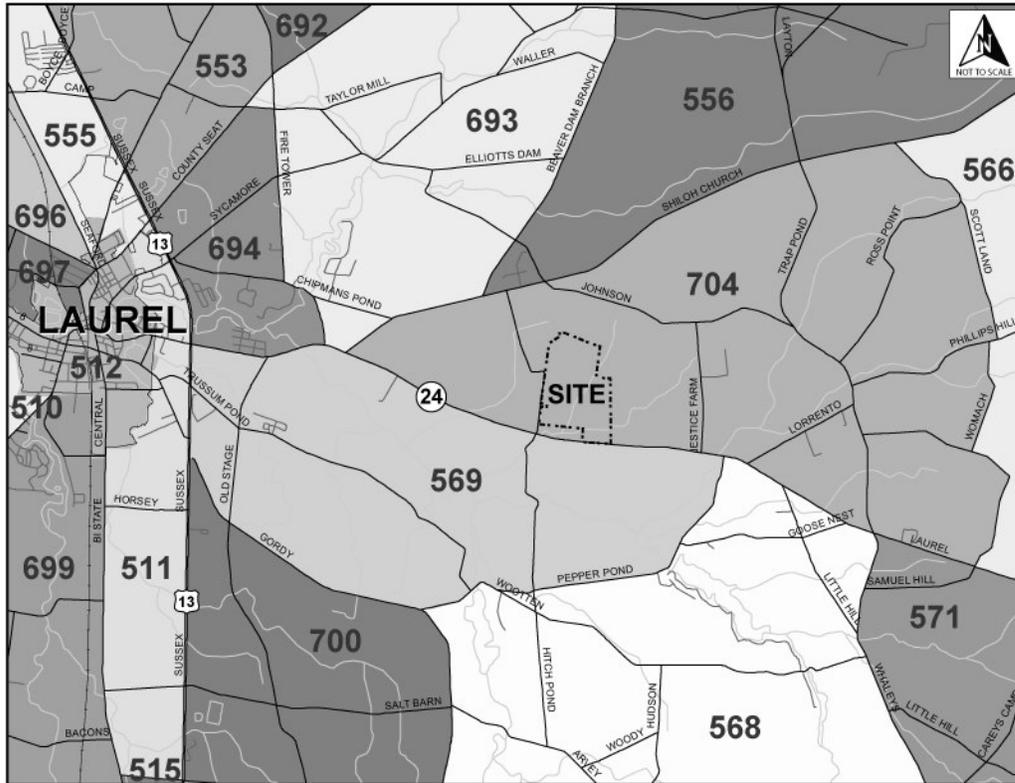
Proposed Development's Compatibility with Comprehensive Plans:

This proposed development would be developed using the cluster option under existing zoning. Because a site plan is not available at this time, the actual average proposed lot size is unknown and the proposed development's compatibility with the Sussex County Comprehensive Plan is uncertain. Using the information that is available at this time (total acreage and number of houses proposed for this development), and assuming no open space, the estimated average lot size is 0.67 acres. Based on this estimate, the average lot size of this proposed development is above the minimum allowable lot size of 0.50 acres for cluster development in a Low Density Area and is compatible with the Sussex County Comprehensive Plan.

Transportation Analysis Zone

Transportation Analysis Zones (TAZ) where development would be located:
704 (Peninsula Code TAZ)

TAZ Boundaries:



Current employment estimate for TAZ: 0 in 2005

Future employment estimate for TAZ: 1 in 2030

Current population estimate for TAZ: 573 in 2005

Future population estimate for TAZ: 937 in 2030

Current household estimate for TAZ: 224 in 2005

Future household estimate for TAZ: 387 in 2030

Relevant committed developments in the TAZ: None

Would the addition of committed developments to current estimates exceed future projections: No

Would the addition of committed developments and the proposed development to current estimates exceed future projections: Yes

Relevant Projects in the DelDOT Capital Transportation Program (2005-2010)

There is one DelDOT project in the vicinity of the Chick-Berry Farms Property. DelDOT has developed plans for the US Route 13, Laurel Intersections Improvements (State Contract 22-124-

04), which includes geometric, pavement, and/or operational improvements to four intersections along US Route 13 (Sussex Highway/Sussex Road 1) in Laurel. According to DelDOT's Project Manager, Mr. Tom Banez, this project is scheduled for construction in 2007.

Trip Generation

Trip generation for the proposed development was computed using comparable land uses and equations contained in Trip Generation, Seventh Edition, published by the Institute of Transportation Engineers (ITE). The following land uses were utilized to estimate the amount of new traffic generated for this development:

- Single-Family Detached Homes (ITE Land Use Code 210)

Table 1
CHICK-BERRY FARMS TRIP GENERATION

Land Use	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
	In	Out	Total	In	Out	Total	In	Out	Total
571 Single-Family Detached Houses	102	307	409	324	190	514	280	239	519

Overview of TIS

Intersections examined:

- 1) Hitch Pond Road & Proposed Site Entrance
- 2) Delaware Route 24 & Proposed Site Entrance
- 3) US Route 13 & Delaware Route 24
- 4) Delaware Route 24 & Jestice Farm Road
- 5) Hitch Pond Road & Shiloh Church Road (Sussex Road 74)
- 6) Delaware Route 24 & Hitch Pond Road

Conditions examined:

- 1) 2006 Existing (Case 1)
- 2) 2015 Without Chick-Berry Farms Development (Case 2)
- 3) 2015 With Chick-Berry Farms Development (Case 3)

Peak hours evaluated: Weekday AM and PM and Saturday midday

Committed developments considered:

- 1) Truitt / Dukes Property (320 single-family detached houses)

Intersection Descriptions

1) Hitch Pond Road & Proposed Site Entrance:

Type of Control: Proposed two-way stop-controlled (T-intersection)

Northbound approach: (Hitch Pond Road) one through lane and one right-turn lane

Southbound approach: (Hitch Pond Road) one shared through/left-turn lane

Westbound approach: (Proposed Site Entrance) one shared left/right-turn lane, stop-controlled

2) Delaware Route 24 & Proposed Site Entrance:

Type of Control: Proposed two-way stop-controlled (T-intersection)

Southbound approach: (Proposed Site Entrance) one shared left/right-turn lane, stop-controlled

Eastbound approach: (Delaware Route 24) one exclusive left-turn lane and one through lane

Westbound approach: (Delaware Route 24) one through lane and one right-turn lane

3) US Route 13 & Delaware Route 24:

Type of Control: signalized four-leg intersection

Northbound approach: (US Route 13) one left-turn lane, two through lanes, and one right-turn lane

Southbound approach: (US Route 13) one left-turn lane, two through lanes, and one right-turn lane

Eastbound approach: (Delaware Route 24) one shared through/left-turn lane and one channelized right-turn lane

Westbound approach: (Delaware Route 24) one shared through/left-turn lane and one channelized right-turn lane

4) Delaware Route 24 & Jestice Farm Road:

Type of Control: Two-way stop-controlled (T-intersection)

Southbound approach: (Jestice Farm Road) one shared left/right-turn lane, stop-controlled

Eastbound approach: (Delaware Route 24) one shared through/left-turn lane

Westbound approach: (Delaware Route 24) one shared through/right-turn lane

5) Hitch Pond Road & Shiloh Church Road:

Type of Control: Two-way stop-controlled (T-intersection)

Northbound approach: (Hitch Pond Road) one shared left/right-turn lane, stop-controlled

Eastbound approach: (Shiloh Church Road) one shared through/right-turn lane

Westbound approach: (Shiloh Church Road) one shared through/left-turn lane

6) Delaware Route 24 & Hitch Pond Road:

Type of Control: Two-way stop-controlled intersection

Northbound approach: (Hitch Pond Road) one shared through/left-turn/right-turn lane, stop-controlled

Southbound approach: (Hitch Pond Road) one shared through/left-turn/right-turn lane, stop-controlled

Eastbound approach: (Delaware Route 24) one shared through/left-turn/right-turn lane

Westbound approach: (Delaware Route 24) one shared through/left-turn/right-turn lane

Transit, Pedestrian, and Bicycle Facilities

Existing transit service: At this time, the Delaware Transit Corporation (DTC) only has one transit bus route near the study area, Route 212 which runs between Georgetown and Laurel. There are no stops within the study area. The closest stop is located in Laurel west of US Route 13.

Planned transit service: No changes to the existing transit service are currently planned.

Existing bicycle and pedestrian facilities: Delaware Route 24 is designated as having above average cycling conditions with moderate traffic volumes (2,000-10,000 ADT) between US Route 13 and Jestice Farm Road. Hitch Pond Road and Jestice Farm Road are rated as having above average cycling conditions with low traffic volumes (less than 2,000 ADT). Shiloh Church Road is designated as having average cycling conditions with low traffic volumes (less than 2,000 ADT). US Route 13 is designated as having above average cycling conditions with high traffic volumes (greater than 10,000 ADT). The *Kent and Sussex Counties Bicycle Touring Map* indicates no bicycle routes or trails through the study area. There are currently no sidewalks within the vicinity of the proposed development.

Planned bicycle and pedestrian facilities: DelDOT's Bicycle and Pedestrian Facilities Team indicated, in a letter from Stephen Bayer dated February 8, 2007, that the following bicycle and pedestrian facilities should be required. In the letter, Mr. Bayer commented that Livable Delaware's updated State Strategies for Spending Map indicates the site is located in an Investment Level 4 area, where the existing transportation network should preserve the natural environment. Per Livable Delaware's recommendations, residential developments such as this are not encouraged in Investment Level 4 areas. However, if the development does occur, the following requests should be incorporated into the project to facilitate bicycle and pedestrian transportation:

- a) The existing shoulders along Delaware Route 24 should be maintained.
- b) "Share The Road" signs (MUTCD W11-1 and W16-1) should be added along this segment of Delaware Route 24.
- c) Along the westbound Delaware Route 24 right-turn lane at the site entrance, an additional five-foot wide bicycle lane should be installed and a "right turn yield to bikes" sign (MUTCD R4-4) should be added.
- d) A five-foot wide shoulder should be added along Hitch Pond Road.
- e) Internal sidewalks to promote walking as a viable transportation alternative should be constructed within the development.

Previous Comments

All comments from DelDOT's Scoping Letter, Count Review and Preliminary TIS Review were addressed in the Final TIS with the exception of DelDOT's request to evaluate the facilities' conformance with applicable DelDOT, AASHTO and MUTCD standards. The TIS did review each existing facility for problems from a visual standpoint but not in reference to the above mentioned standards.

General HCS Analysis Comments

(see table footnotes on the following pages for specific comments)

- 1) The TIS calculated the existing heavy vehicle factors (HV) per lane group for signalized intersections and per movement for unsignalized intersections. For future conditions, the TIS adjusted the HV by applying 2% to the committed development and site traffic, but assumed no minimum HV. McCormick Taylor adopted the TIS HV adjustments with the addition of a minimum HV for all cases where the future volume was greater than the existing volume. Along US Route 13, McCormick Taylor assumed a minimum HV of 5% for weekday AM/PM and 2% for Saturday. Along other roads, McCormick Taylor assumed a minimum HV of 2% at all times.
- 2) For future conditions, the TIS assumed a minimum lane group peak hour factor (PHF) of 0.88 for all cases where the future volume was greater than the existing volume, except a minimum of 0.92 along US Route 13 for the summer Saturday. McCormick Taylor also assumed a minimum PHF of 0.88, except a minimum of 0.92 along US Route 13 for the summer Saturday *and* the weekday AM/PM peak hours.
- 3) The HCS analyses included in the TIS did not always reflect the lane widths observed in the field by McCormick Taylor. McCormick Taylor's HCS analyses incorporated the field-measured lane widths.
- 4) The TIS and McCormick Taylor used different cycle lengths and/or signal timing parameters when analyzing the signalized intersections in some cases.

Table 2
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Chick-Berry Farms Development
Report dated January 2007
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹ Two-Way Stop Control (T-intersection)	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid
Hitch Pond Road & Proposed Site Entrance						
2015 With Proposed Development (Case 3)						
Southbound Hitch Pond Road – Left ²	A (7.3)	A (7.5)	A (7.4)	A (7.3)	A (7.5)	A (7.4)
Westbound Site Entrance	A (9.3)	A (9.5)	A (9.2)	A (9.3)	A (9.5)	A (9.2)

¹ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analysis, those numbers are X-critical, a composite volume-to-capacity ratio.

² McCormick Taylor assumed a shared through/left-turn lane on the southbound approach while the TIS assumed a separate left-turn lane and through lane.

Table 3
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Chick-Berry Farms Development
Report dated January 2007
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ³ Two-Way Stop Control (T-intersection)	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid
Delaware Route 24 & Proposed Site Entrance						
2015 With Proposed Development (Case 3)						
Southbound Site Entrance	B (12.0)	B (13.2)	C (16.9)	B (12.0)	B (13.2)	C (16.9)
Eastbound Delaware Route 24 – Left	A (7.7)	A (8.2)	A (8.2)	A (7.7)	A (8.2)	A (8.2)

³ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analysis, those numbers are X-critical, a composite volume-to-capacity ratio.

Table 4
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Chick-Berry Farms Development
Report dated January 2007
Prepared by Davis, Bowen & Friedel, Inc.

Signalized Intersection ⁴	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid
US Route 13 & Delaware Route 24						
2006 Existing (Case 1)	C (0.74)	D (0.81)	D (0.92)	D (0.70)	D (0.73)	D (0.91)
2015 Without Proposed Development (Case 2)	D (0.84)	D (0.90)	F (1.02)	D (0.76)	D (0.86)	F (1.04)
2015 Without Proposed Development (Case 2) With Improvement Option 1 ⁵	N/A	N/A	D (0.95)	D (0.68)	D (0.79)	E (0.98)
2015 Without Proposed Development (Case 2) With Improvement Option 2 ⁶	N/A	N/A	D (0.89)	C (0.62)	D (0.74)	D (0.92)
2015 With Proposed Development (Case 3)	D (0.89)	E (0.98)	F (1.08)	D (0.84)	E (0.98)	F (1.10)
2015 With Proposed Development (Case 3) With Improvement Option 1 ⁵	D (0.75)	D (0.93)	E (1.00)	D (0.70)	D (0.89)	E (1.00)
2015 With Proposed Development (Case 3) With Improvement Option 2 ⁶	D (0.67)	D (0.87)	D (0.93)	D (0.64)	D (0.84)	D (0.93)
2015 With Proposed Development (Case 3) With DelDOT Improvements ⁷	N/A	N/A	N/A	D (0.73)	D (0.84)	D (0.94)

⁴ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analysis, those numbers are X-critical, a composite volume-to-capacity ratio.

⁵ Improvement Option 1 includes the addition of a westbound Delaware Route 24 left-turn lane to create an exclusive left-turn lane, a shared through/left-turn lane, and an exclusive right-turn lane. This lane configuration would require the signal to operate with split phasing for the Delaware Route 24 approaches.

⁶ Improvement Option 2 includes the addition of eastbound and westbound Delaware Route 24 left-turn lanes to create an exclusive left-turn lane, a shared through/left-turn lane, and an exclusive right-turn lane in each direction. This lane configuration would require the signal to operate with split phasing for the Delaware Route 24 approaches.

⁷ DelDOT Improvements include the addition of eastbound and westbound Delaware Route 24 left-turn lanes and modification of the existing lane configuration to create an exclusive left-turn lane, a through lane, and an exclusive right-turn lane on both Delaware Route 24 approaches.

Table 5
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Chick-Berry Farms Development
Report dated January 2007
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ⁸ Two-Way Stop Control (T-intersection)	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid
Delaware Route 24 & Jestice Farm Road						
2006 Existing (Case 1)						
Southbound Jestice Farm Road	B (10.1)	B (10.6)	B (10.8)	B (10.1)	B (10.6)	B (10.8)
Eastbound Delaware Route 24 – Left	A (7.8)	A (7.9)	A (7.5)	A (7.8)	A (7.9)	A (7.5)
2015 Without Proposed Development (Case 2)						
Southbound Jestice Farm Road	B (10.3)	B (11.0)	B (11.4)	B (10.3)	B (11.0)	B (11.4)
Eastbound Delaware Route 24 – Left	A (7.8)	A (8.0)	A (7.6)	A (7.8)	A (8.0)	A (7.6)
2015 With Proposed Development (Case 3)						
Southbound Jestice Farm Road	B (10.9)	B (12.0)	B (14.2)	B (10.9)	B (12.0)	B (14.2)
Eastbound Delaware Route 24 – Left	A (7.9)	A (8.2)	A (7.9)	A (7.9)	A (8.2)	A (7.9)

⁸ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analysis, those numbers are X-critical, a composite volume-to-capacity ratio.

Table 6
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Chick-Berry Farms Development
Report dated January 2007
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ⁹ Two-Way Stop Control (T-intersection)	LOS per TIS		LOS per McCormick Taylor Review	
	Weekday AM	Weekday PM	Weekday AM	Weekday PM
Hitch Pond Road & Shiloh Church Road				
2006 Existing (Case 1)				
Northbound Hitch Pond Road	B (10.3)	B (10.6)	B (10.3)	B (10.6)
Westbound Shiloh Church Road – Left	A (8.0)	A (7.5)	A (8.0)	A (7.5)
2015 Without Proposed Development (Case 2)				
Northbound Hitch Pond Road	B (10.4)	B (11.1)	B (10.5)	B (11.1)
Westbound Shiloh Church Road – Left	A (8.0)	A (7.5)	A (8.0)	A (7.5)
2015 With Proposed Development (Case 3)				
Northbound Hitch Pond Road	B (10.2)	B (10.9)	B (10.2)	B (10.9)
Westbound Shiloh Church Road – Left	A (7.7)	A (7.6)	A (7.7)	A (7.6)

⁹ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analysis, those numbers are X-critical, a composite volume-to-capacity ratio.

Table 7
PEAK HOUR LEVELS OF SERVICE (LOS)
based on Traffic Impact Study for Chick-Berry Farms Development
Report dated January 2007
Prepared by Davis, Bowen & Friedel, Inc.

Unsignalized Intersection ¹⁰ Two-Way Stop Control	LOS per TIS			LOS per McCormick Taylor Review		
	Weekday AM	Weekday PM	Saturday Mid	Weekday AM	Weekday PM	Saturday Mid
Delaware Route 24 & Hitch Pond Road						
2006 Existing (Case 1)						
Northbound Hitch Pond Road	B (11.2)	B (12.4)	B (11.8)	B (11.2)	B (12.4)	B (11.8)
Southbound Hitch Pond Road	B (10.8)	B (12.0)	B (11.7)	B (10.8)	B (12.0)	B (11.7)
Eastbound Delaware Route 24 – Left	A (7.6)	A (7.6)	A (7.5)	A (7.6)	A (7.6)	A (7.5)
Westbound Delaware Route 24 – Left	A (7.5)	A (7.5)	A (7.7)	A (7.5)	A (7.5)	A (7.7)
2015 Without Proposed Development (Case 2)						
Northbound Hitch Pond Road	B (11.2)	B (12.9)	B (12.5)	B (11.2)	B (12.9)	B (12.6)
Southbound Hitch Pond Road	B (10.7)	B (12.5)	B (12.2)	B (10.7)	B (12.5)	B (12.2)
Eastbound Delaware Route 24 – Left	A (7.6)	A (7.6)	A (7.6)	A (7.6)	A (7.7)	A (7.6)
Westbound Delaware Route 24 – Left	A (7.5)	A (7.6)	A (7.9)	A (7.5)	A (7.6)	A (7.9)
2015 With Proposed Development (Case 3)						
Northbound Hitch Pond Road	B (14.6)	C (18.8)	B (14.3)	B (14.6)	C (18.8)	B (14.4)
Southbound Hitch Pond Road	B (12.3)	B (13.7)	B (13.1)	B (12.3)	B (13.7)	B (13.1)
Eastbound Delaware Route 24 – Left	A (7.9)	A (8.0)	A (7.7)	A (7.9)	A (8.0)	A (7.7)
Westbound Delaware Route 24 – Left	A (7.7)	A (7.9)	A (8.0)	A (7.7)	A (7.9)	A (8.0)

¹⁰ For unsignalized analyses, the numbers in parentheses following levels of service are average delay per vehicle, measured in seconds. For signalized analysis, those numbers are X-critical, a composite volume-to-capacity ratio.