



**STATE OF DELAWARE
EXECUTIVE DEPARTMENT
OFFICE OF STATE PLANNING COORDINATION**

March 21, 2011

Mr. John Garcia
Karins & Associates
17 Polly Drummond Center, Ste. 201
Newark, DE 19711

RE: PLUS review – 2011-02-02 – Twin Pond Reserve

Dear Mr. Garcia:

Thank you for meeting with State agency planners on February 23, 2011 to discuss the proposed plans for the Twin Pond Reserve project to be located at 3394 Kirkwood St. Georges Road near Bear.

According to the information received, you are seeking subdivision approval through New Castle County for a 13 lot subdivision with associated site improvements.

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

Strategies for State Policies and Spending – Contact: Herb Inden 302-739-3090

This project is located in Investment Level 2 according to the Strategies for State Policies and Spending document. This site is also located in the New Castle County growth zone. Investment Level 2 reflects areas where growth is anticipated by local, county, and State plans in the near term future. State investments will support growth in these areas. Our office has no objections to the proposed rezoning and development of this project in accordance with the County codes and ordinances.

Code Requirements/Agency Permitting Requirements

Department of Transportation – Contact Bill Brockenbrough 760-2109

- The site access and subdivision streets must be designed in accordance with DelDOT's Standards and Regulations for Subdivision Streets and State Highway Access. This manual is available on-line at http://www.deldot.gov/information/pubs_forms/manuals/subdivisions/pdf/Subdivision_Manual_Revision_1_proposed_060110.pdf.
- DelDOT anticipates that New Castle County will require a “Letter of No Objection” from the Department for this project. Per Section 3.4 of the Standards and Regulations, the developer must submit **three (3) signed and sealed paper copies and one electronic (pdf) copy** of the record plan, with an Initial Stage Fee Calculation Form and the Initial Stage Fee. Please make all submissions to Mr. Joshua Schwartz, Subdivision Manager. The entrance plan will not be reviewed until after the “Letter of No Objection” has been issued.
- As specified in Section 4.1 of the Standards and Regulations, when the subdivision street construction plans are submitted for review, the developer must submit **two (2) paper copies and one electronic (pdf) copy** of the construction plans, one copy of the record plan, an Initial Stage Fee Calculation Form, a Construction Stage Fee Calculation Form, a Construction Stage Review Fee, an application for highway entrance permit and a signed and sealed commercial entrance design checklist for review and approval. Please make all submissions to Mr. Joshua Schwartz, Subdivision Manager.

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

Wetlands

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

In addition, most perennial streams and ditches and many intermittent streams and ditches are regulated pursuant to the Subaqueous Lands Act (7 Del.C. Chapter 72) and the Regulations Governing the Use of Subaqueous Lands. Ponds, which are connected to other waters, are also regulated, while isolated ponds are not. Any work in regulated streams, ditches or ponds requires a permit from the Wetlands and Subaqueous Lands Section. An on-site jurisdictional determination is recommended in order to determine

whether any regulated watercourses exist on the property. Please contact the Wetlands and Subaqueous Lands Section at 302/739-9943 to schedule an on-site visit. Such appointments can usually be scheduled within 2 to 3 weeks.

TMDLs and Nutrient Management

- The project is located in the greater Delaware River and Bay drainage area – specifically, within the C & D Canal and Red Lion Creek watersheds. In the Red Lion Creek watershed, the State of Delaware has developed specific Total Maximum Daily Load (TMDL) pollutant reduction targets for nutrients (e.g., nitrogen, phosphorus), and bacteria (under the auspices of Section 303(d) of the Federal Clean Water Act). A TMDL is the maximum level of pollution allowed for a given pollutant below which a “water quality limited water body” can assimilate and still meet State water quality standards (e.g., dissolved oxygen, nutrients, and bacteria; *State of Delaware Surface Water Quality Standards, as amended July 11, 2004*) to the extent necessary to support use goals such as, swimming, fishing, drinking water and shell fish harvesting. The TMDL for the Red Lion Creek watershed calls for a 40 percent reduction in nitrogen and phosphorus from baseline conditions. The TMDL also calls for a 38 percent reduction in bacteria from baseline conditions. Although a TMDL has not been developed for the C&D Canal watershed to date, the existing TMDL developed for the Red Lion creek will apply to the entirety of the project area.

A nutrient management plan is required under the *Delaware Nutrient Management law (3 Del. Chapter 22)* for all persons or entities who apply nutrients to lands or areas of open space in excess of 10 acres. This project’s open space may exceed this 10-acre threshold. Please contact the Delaware Nutrient Management Program at 739-4811 for further information concerning compliance requirements or view the following web link for additional information: <http://dda.delaware.gov/nutrients/index.shtml>

Water Supply

- The project information sheets state water will be provided to the project by Artesian Water Company via a public water system. Our records indicate that the project is located within the public water service area granted to Artesian Water Company under Certificate of Public Convenience and Necessity 90-CPCN-01.
- 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.

Water Resource Protection Areas

- The DNREC Ground Water Protection Branch (GPB) has determined that the southern portion falls within a delineated area of excellent ground-water recharge potential for New Castle County (see attached map). The site plan accompanying the application indicates that this area will be a paved roadway.
- The application states that there will be approximately 102 vehicle trips per day on the roadway. This land use produces petroleum hydrocarbons, other organics, metals, and other inorganic compounds (DNREC, 1999). The contaminants associated with this land use could easily infiltrate the unconfined aquifer and compromise water quality.

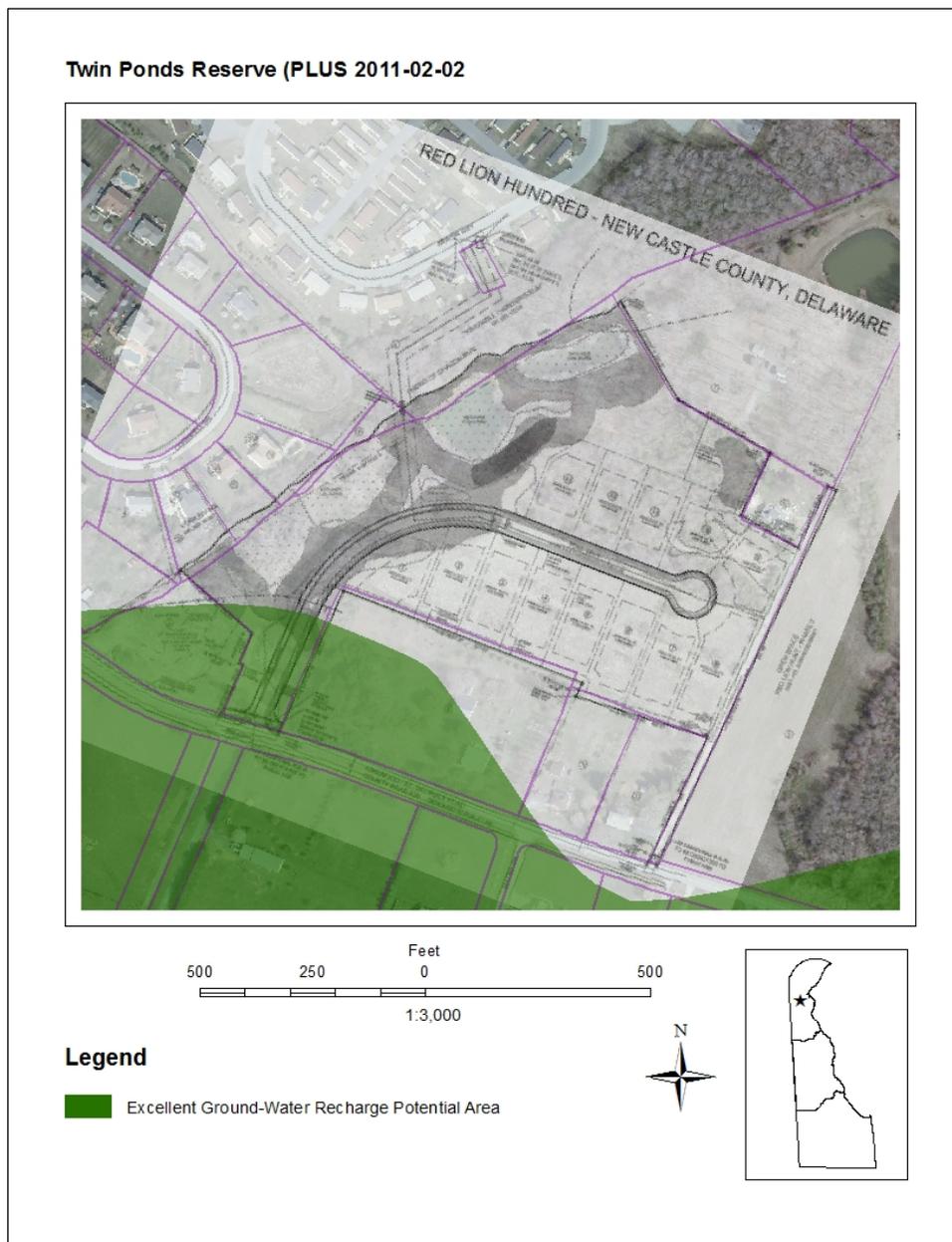
New Castle County (NCC) refers to excellent ground-water recharge potential areas as 'recharge areas'. Recharge areas are characterized as deposits of coarser grained material that have the best ability to transmit water vertically through the unsaturated zone to the water table. The NCC recharge areas were mapped using the methods described in the Delaware Geological Survey Open File Report No. 34, "Methodology for Mapping Ground-Water Recharge Areas in Delaware's Coastal Plain" (Andres, 1991), and depicted in a series of maps prepared by the Delaware Geological Survey (Butoryak and Tally, 1993).

- DNREC recommends that the runoff from the roadway be managed with BMPs to remove potential contaminants and to assure the quality and quantity of ground water in these areas.

References

Andres, A. Scott, 1991, Methodology for Mapping Ground-Water Recharge Areas in Delaware's Coastal Plain: Delaware Geological Survey Open File Report No. 34, p. 18.

Butoryak, Kathleen R. , and Talley, John H., 1993, Delineation of Ground-Water Recharge Resource Protection Areas in the Coastal Plain of New Castle County, Delaware: Delaware Geological Survey Project Report for the Water Resources Agency for New Castle County, p. 26.



Delaware Department of Natural Resources and Environmental Control, 1999,
The State of Delaware Source Water Assessment Plan: Dover, DE, p. 301.

<http://www.wr.udel.edu/swaphome/publications.html>

Sediment and Stormwater Program

- A detailed sediment and stormwater plan will be required prior to any land disturbing activity taking place on the site. Contact the reviewing agency to schedule a project application meeting to discuss the sediment and erosion control and stormwater management components of the plan as soon as practicable. The site topography, soils mapping, pre- and post-development runoff, and proposed method(s) and location(s) of

stormwater management should be brought to the meeting for discussion. The plan review and approval as well as construction inspection will be coordinated through the New Castle County Department of Land Use Engineering Section. Contact the Department of Land Use at (302) 395-5470 for details regarding submittal requirements and fees.

Hazardous Waste Sites

- If it is determined by the Department that there was a release of a hazardous substance on the property in question and the Department requires remediation pursuant to the Hazardous Substance Cleanup Act, the provisions of 7 Del.C. Chapter 91, Delaware Hazardous Substance Cleanup Act and the Delaware *Regulations Governing Hazardous Substance Cleanup* shall be followed.

Air Quality

- The applicant shall comply with all applicable Delaware air quality regulations. Please note that the following regulations in Table 1 – Potential Regulatory Requirements may apply:

Table 1: Potential Regulatory Requirements	
Regulation	Requirements
7 DE Admin. Code 1106 - Particulate Emissions from Construction and Materials Handling	<ul style="list-style-type: none"> • Use dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads. • Use covers on trucks that transport material to and from site to prevent visible emissions.
7 DE Admin. Code 1113 – Open Burning	<ul style="list-style-type: none"> • Prohibit open burns statewide during the Ozone Season from May 1-Sept. 30 each year. • Prohibit the burning of land clearing debris. • Prohibit the burning of trash or building materials/debris.
7 DE Admin. Code 1135 – Conformity of General Federal Actions to the State	<ul style="list-style-type: none"> • Require, for any “federal action,” a conformity determination for each pollutant where the total of direct and indirect emissions would equal or exceed any of the de minimus

Implementation Plan	levels (See Section 3.2.1)
<p>7 DE Admin. Code 1141 – Limiting Emissions of Volatile Organic Compounds from Consumer and Commercial Products</p>	<ul style="list-style-type: none"> • Use structural/ paint coatings that are low in Volatile Organic Compounds. • Use covers on paint containers when paint containers are not in use.
<p>7 DE Admin. Code 1144 – Control of Stationary Generator Emissions</p>	<ul style="list-style-type: none"> • Ensure that emissions of nitrogen oxides (NO_x), non-methane hydrocarbons (NMHC), particulate matter (PM), sulfur dioxide (SO₂), carbon monoxide (CO), and carbon dioxide (CO₂) from emergency generators meet the emissions limits established. (see section 3.2). • Maintain recordkeeping and reporting requirements.
<p>7 DE Admin. Code 1145 – Excessive Idling of Heavy Duty Vehicles</p>	<ul style="list-style-type: none"> • Restrict idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.

For a complete listing of all Delaware applicable regulations, please look at our website: <http://www.awm.delaware.gov/AQM/Pages/AirRegulations.aspx>.

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

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

- **Fire Protection Water Requirements:**
 - Where a water distribution system is proposed for single family dwellings it shall be capable of delivering at least 500 gpm for 1-hour duration, at 20-psi residual pressure. Fire hydrants with 1000 feet spacing on centers are required.
 - The infrastructure for fire protection water shall be provided, including the size of water mains.
- **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 Kirkwood/St.George Rd. must be constructed so fire department apparatus may negotiate it. If a “center island” is placed at an entrance into the subdivision, it shall

- be arranged in such a manner that it will not adversely affect quick and unimpeded travel of fire apparatus into the subdivision.
- 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.
 - **Gas Piping and System Information:**
 - Provide type of fuel proposed, and show locations of bulk containers on plan.
 - **Required Notes:**
 - Provide a note on the final plans submitted for review to read “ All fire lanes, fire hydrants, and fire department connections shall be marked in accordance with the Delaware State Fire Prevention Regulations”
 - Name of Water Supplier
 - Proposed Use
 - National Fire Protection Association (NFPA) Construction Type
 - Maximum Height of Buildings (including number of stories)
 - Provide Road Names, even for County Roads

Delaware Department of Education – Contact John Marinucci 735-4199

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

Recommendations/Additional Information

This section includes a list of site specific suggestions that are intended to enhance the project. These suggestions have been generated by the State Agencies based on their expertise and subject area knowledge. **These suggestions do not represent State code requirements.** They are offered here in order to provide proactive ideas to help the applicant enhance the site design, and it is hoped (**but in no way required**) that the applicant will open a dialogue with the relevant agencies to discuss how these suggestions can benefit the project.

Department of Transportation – Contact Bill Brockenbrough 760-2109

- DelDOT recommends that the applicant's adjoining 1.54-acre parcel (Tax Parcel No. 12-026.00-102) on Kirkwood-St. Georges Road be included in this plan and that the lot it represents be expanded to have frontage on Pond Drive rather than access to it by way of an easement as proposed. Functionally, if a house is built on that parcel, the residents would likely treat the land between their property line and Pond Drive as part of their yard rather than as part community open space, so it would be better to make it so.

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

Additional information on wetlands.

- It is likely that the proposed project area may contain some unmapped wetlands. The applicant should avoid construction/filling activities in those areas containing wetlands or wetland associated hydric soils as they may be subject to regulatory jurisdiction under Federal 404 provisions of the Clean Water Act. A site-specific field wetlands delineation using the methodology described in the 1987 United States Army Corps of Engineers (USACE) manual is considered the only acceptable basis for making a jurisdictional wetland determination for non-tidal wetlands in Delaware. The applicant should note that 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 said USACE regulatory requirements, it is strongly recommended that field wetlands delineation be conducted before commencing any construction activities. It is further recommended that the USACE be given the opportunity to officially approve the completed delineation. The USACE can be reached by phone at 736-9763.
 - The applicant should keep in mind that compliance with federal wetland requirements does not preclude compliance with State wetland regulatory requirements.
 - In circumstances where the applicant or applicant's consultant delineates what they believe are non-jurisdictional isolated (SWANCC) wetlands, it is strongly recommended that the USACE be contacted to assess and/or evaluate the jurisdictional validity of such a delineation.
 - Based on a review of existing buffer research by Castelle et al. (Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review*. J. Environ. Qual. 23: 878-882.), an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances, is about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all water bodies (including ditches) and wetlands.

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

Additional information on TMDLS

- A pollution control strategy (PCS) is the regulatory directive requiring the implementation of various best management practices (BMPs) that help reduce transport of nutrient and bacterial pollutant runoff from all waters draining into a “greater” common watershed, with the ultimate objective of achieving the obligatory TMDL reduction requirements for that watershed. However, the PCS for the C&D canal and Red Lion creek watersheds have not been formally completed to date. In the absence of a final PCS, the applicant is strongly urged to reduce nutrient and bacterial pollutants through the voluntary commitment to the implementation of the following recommended BMPs:
 - Please maximize open space by retaining the existing native tree cover and/or planting of additional native trees and/or native herbaceous plant cover on this parcel.
 - DNREC urges the applicant to calculate post-construction surface imperviousness with all forms of created (or constructed) surface imperviousness (e.g., rooftops, driveways, parking lots, sidewalks, open-water storm water management structures, and roads) included in the calculation. 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 via the application/use of pervious paving materials (“pervious pavers”) in lieu of asphalt or concrete in conjunction with an increase in forest cover preservation (or establishment of additional forest cover acreage) – are some examples of practical BMPs that could easily be implemented to help reduce surface imperviousness.
 - DNREC also urges the applicant to voluntarily limit paved-surface imperviousness through substitution of pervious paving materials instead of conventional paving materials (e.g., asphalt and concrete).
 - A 100-foot buffer from all delineated wetlands is strongly recommended. Additionally, we recommend the use of rain gardens, and green-technology storm water management structures (in lieu of open-water management structures) as BMPs to mitigate or reduce nutrient and bacteria pollutant runoff impacts from the constructed forms of surface imperviousness.

- DNREC encourages the applicant to voluntarily assess nutrient and bacterial pollutant loading at the preliminary project design phase. To this end, the Watershed Assessment Section has developed a methodology known as the “Nutrient Load Assessment protocol.” The protocol is a tool used to assess changes in nutrient loading (e.g., nitrogen and phosphorus) that result from the conversion of individual or combined land parcels to a different land use(s), while providing applicants with quantitative information about their project’s impact(s) on baseline water quality. We also encourage the applicant/developer use this protocol to help them design and implement the most effective BMPs. Please contact Lyle Jones at 302-739-9939 for more information on the protocol.

Natural Heritage Program

- A review of our database indicates that there are currently no records of state-rare or federally listed plants, animals or natural communities at this project site; however, there are sensitive wetlands that occur downstream. We recommend that stringent efforts should be made to minimize impacts to water quality downstream by: 1) providing upland buffers of at least 100 feet between on-site wetlands and lot lines/infrastructure, 2) avoiding sedimentary inputs into wetlands and tributaries during construction, and 3) minimizing impacts to the hydrological regimes that are supporting downstream wetlands.

Additional information on hazardous waste sites

- SIRB strongly recommends that the land owner perform environmental due diligence of the property by performing a Phase I Assessment in accordance to Section 9105(c) (2) of the Delaware Hazardous Substance Cleanup Act (HSCA). While this is not a requirement under HSCA, it is good business practice and failure to do so will prevent a person from being able to qualify for a potential affirmative defense under Section 9105(c) (2) of HSCA.
- There are no SIRB sites within a ½ mile radius of the proposed project.
- Should a release or imminent threat of a release of hazardous substances be discovered during the course of development (e.g., contaminated water or soil), construction activities should be discontinued immediately and DNREC should be notified at the 24-hour emergency number (800-662-8802). SIRB should also be contacted as soon as possible at 302-395-2600 for further instructions.

Additional information on air quality

- Air emissions generated from new homes include emissions from the following activities:
 - Area sources such as painting, maintenance equipment and the use of consumer products like roof coatings and roof primers.

- The generation of electricity needed to support your home, and
 - Car and school bus activity associated with a new home.
- The three air emissions components (i.e., area, electric power generation, and mobile sources) were quantified and the emissions in Table 2 represent the projected impacts the Twin Pond Reserve development may have on air quality.

Table 2: Projected Air Emissions					
Emissions Attributable to the Twin Pond Reserve Development (Tons per Year)	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NO _x)	Sulfur Dioxide (SO ₂)	Fine Particulate Matter (PM _{2.5})	Carbon Dioxide (CO ₂)
Direct Area Source	0.4	0.0	0.0	0.0	1.6
Electrical Power Generation	*	0.2	0.6	*	81.8
Mobile	0.6	0.6	0.0	0.0	384.2
Total	1.0	0.8	0.6	0.0	467.6

(*) Indicates data is not available.

- Note that emissions associated with the actual construction of the development, including automobile and truck traffic from working in, or delivering products to the site, as well as site preparation, earth moving activities, road paving and other miscellaneous air emissions, are not reflected in the tables above.
- Measures may be taken to substantially reduce the air emissions. These measures include:
 - **Constructing with only energy efficient products.** Energy Star qualified products are up to 30% more energy efficient. Savings come from building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment. Every percentage of increased energy efficiency translates into a percent reduction in pollution. The Energy Star Program is excellent way to save on energy costs and reduce air pollution.

- **Offering geothermal and/or photo voltaic energy options.** These systems can significantly reduce emissions from electrical generation, and from the use of oil or gas heating equipment.
- **Providing tie-ins to the nearest bike paths and links to any nearby mass transport system.** These measures can significantly reduce mobile source emissions.
- Additionally, the following mitigation measures will reduce emissions associated with the actual construction phase of the project:
 - **Using retrofitted diesel engines during construction.** This includes equipment that are on-site as well as equipment used to transport materials to and from site.
 - **Using pre-painted/pre-coated flooring, cabinets, fencing, etc.** These measures can significantly reduce the emission of VOCs from typical architectural coating operations.
 - **Planting trees at residential units and in vegetative buffer areas.** Trees reduce emissions by trapping dust particles and by replenishing oxygen. Trees also reduce energy emissions by cooling during the summer and by providing wind breaks in the winter, whereby reducing air conditioning needs by up to 30 percent and saving 20 to 50 percent on fuel costs.

This is a partial list, and there are additional things that can be done to reduce the impact of the development. The applicant should submit a plan to the DAQ which address the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into the Twin Pond Reserve development.

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

- Preliminary meetings with fire protection specialists are encouraged prior to formal submittal. Please call for appointment. Applications and brochures can be downloaded from our website: www.statefiremarshal.delaware.gov, technical services link, plan review, applications or brochures.

Delaware Department of Education – Contact John Marinucci 735-4199

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

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, Office of State Planning Coordination

CC: New Castle County