

While DNREC supports the development of affordable housing on a brownfield site located within municipal boundaries, the site itself and proposed development do pose some environmental challenges. Comments by division and program follow.

Fish and Wildlife

Wetland Protection/Habitat. The 20-foot riparian buffer being proposed is likely to be inadequate for the protection of water quality on-site as well as downstream. This project will result in more than 66% impervious surface; according to 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), buffer widths of 100 feet are needed to effectively protect water quality in most cases. In terms of wildlife use, wider upland buffers around wetlands are needed to provide habitat for wetland dependent species during a portion of their life cycle. Riparian buffers are also utilized as a travel corridor between resting, foraging and breeding habitat.

Nuisance Waterfowl. Wet ponds created for stormwater management purposes may attract 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.

The Division of Fish and Wildlife does not provide goose control services, and if problems arise, land managers, 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 proper landscaping, monitoring, and other techniques, geese problems can be minimized.

Recommendation: We recommend Delaware native plants, including tall grasses, wildflowers, shrubs, and trees be planted at the edge and within an adequate buffer (15-30 ft in width) around the ponds, to be planted in accordance with the Sediment and Stormwater Plan approval agency requirements. When the view of the surrounding area from the pond is blocked, geese can't scan for predators and are less likely to reside and nest in the area of the pond.

At this time, we do not recommend using monofilament grids due to the potential for birds and other wildlife to become entangled if the grids are not properly installed and maintained. In addition, the ongoing maintenance (removing entangled trash, etc.) may become a burden to the homeowners association or land manager. *Edna Stetzar - (302) 653-2880, Edna.Stetzar@state.de.us*

Soil and Water

Sediment and Stormwater Program. There are multiple issues with this site; therefore, a pre-application meeting with the State Sediment and Stormwater program is strongly recommended.

The wetland reconstruction is an American Recovery and Reinvestment Act 2009 project under the name Washington Park Flood Mitigation. The project will be reviewed by DNREC's Sediment and Stormwater Program. The flood mitigation project is separate from the church/retail/residential plan and should not be considered the stormwater facility for the proposed church/retail/residential project.

The sediment and stormwater plan for the brownfield redevelopment will be reviewed by DNREC's office of the 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 preliminary 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 Sediment and Stormwater Program. Contact Randall Greer at (302) 739-9921 for details regarding submittal requirements and fees. *James Sullivan - (302) 739-9921, James.Sullivan@state.de.us*

Flood Management. A large portion of this property currently is located within the Federal Emergency Management Agency (FEMA) floodplain. We recommend submitting the proposed cap and fill and wetland plan to FEMA for a Conditional Letter of Map Revision as soon as possible. We understand the large impervious surface is to cap the site. This will more than likely elevate the structures one foot above the base flood elevation that the City requires. We ask that you minimize the effect this would have on runoff to adjoining properties. Our other concern is the elevation of State Route 9/7th Street. This road is currently a few feet below the base flood elevation. We also ask that you address the issue of evacuating the 286 residential units should the road be under water. *Gregory Williams - (302) 739-9921, Gregory.Williams@state.de.us*

Water Resources

Soils Assessment. According to the New Castle County soil survey Aldino-Keyport-Mattapex complex (Am), Woodstown (Ws), and Othello (Ot and Ou) were mapped in the immediate vicinity of the proposed project. Aldino-Keyport-Mattapex complex and Woodstown are moderately well-drained soils that have moderate limitations for development. Othello is a poorly-drained wetland associated (hydric) soil that has severe limitations for development and should be avoided (Figure 1).

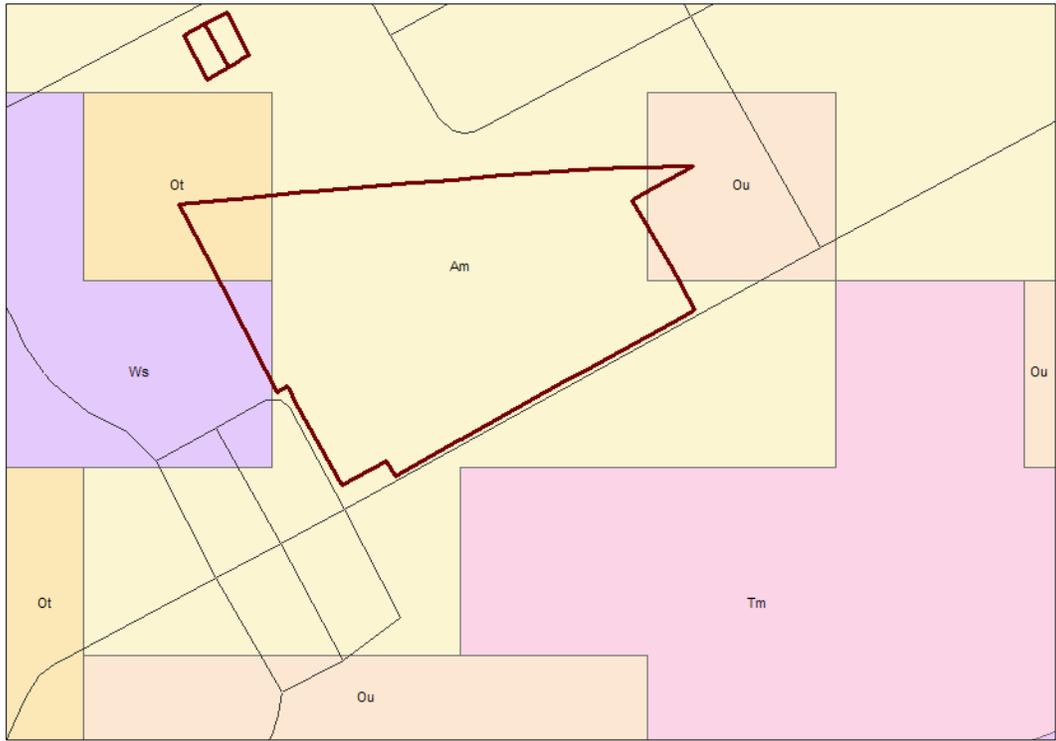


Figure 1: NRCS soil mapping in the immediate vicinity of the proposed Seeds of Greatness church

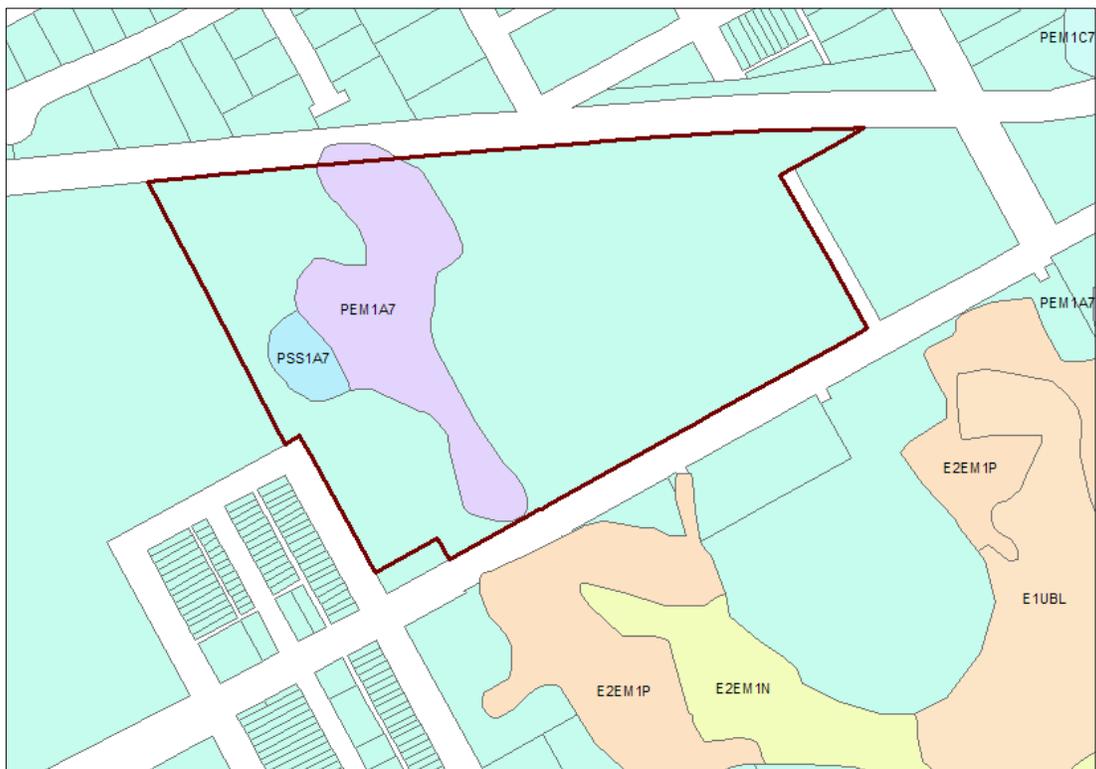


Figure 2: SWMP mapping in the immediate vicinity of the proposed Seeds of Greatness church

Wetlands. Based on Statewide Wetland Mapping Project (SWMP) maps, palustrine emergent riparian (PEM1A7) and palustrine scrub-shrub riparian (PSS1A7) wetlands were mapped over much of western portion of subject parcel (Figure 2, above).

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.

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

The applicant should also be reminded that they must avoid construction/filling activities in those areas containing wetlands or wetland associated hydric soils as they 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 or "the Corps") manual is the acceptable basis for making a jurisdictional wetland determination for nontidal wetlands in Delaware.

The applicant is forewarned that the Corps views the use of the National Wetlands Inventory (NWI) mapping or the Statewide Wetlands Mapping Project (SWMP) mapping as an unacceptable substitute for making such delineations. To ensure compliance with said Corps regulatory requirements, it is

strongly recommended that a field wetlands delineation using the above-referenced methodology be performed on this parcel before commencing any construction activities. It is further recommended that the Corps be given the opportunity to officially approve the completed delineation. In circumstances where the applicant or applicant's consultant delineates what they believe are nonjurisdictional isolated (SWANCC) wetlands, the Corps must be contacted to evaluate and assess the jurisdictional validity of such a delineation. The final jurisdictional authority for making isolated wetlands determinations rests with the Corps; they can be reached by phone at 736-9763.

Based on a review of existing buffer research by Castelle et al. (Castelle, A. J., A. W. Johnson and C. Conolly. 1994. *Wetland and Stream Buffer Requirements – A Review*. J. Environ. Qual. 23: 878-882.), an adequately-sized buffer that effectively protects wetlands and streams, in most circumstances, is about 100 feet in width. In recognition of this research and the need to protect water quality, the Watershed Assessment Section recommends that the applicant maintain/establish a minimum 100-foot upland buffer (planted in native vegetation) from all water bodies (including ditches) and wetlands.

Water Supply. The project information sheets state that water is available at the site via a public water system. Our records indicate that the project is located within the public water service area granted to NCC Water & Light Company under Certificate of Public Convenience and Necessity (CPCN) 88-WS-05. I recommend that the developer contact NCC Water & Light Company to determine the availability of public water. Any public water utility providing water to the site must obtain a CPCN from the Public Service Commission. Information on CPCNs and the application process can be obtained by contacting the Public Service Commission at 302-736-7547. Should an on-site Public well be needed, a minimum isolation distance of 150 feet is required between the well and any potential source of contamination, such as a septic tank and sewage disposal area, and it must also be located at least 150 feet from the outermost boundaries of the project. The Division of Water Resources will consider applications for the construction of on-site wells provided the wells can be constructed and located in compliance with all requirements of the Regulations Governing the Construction and Use of Wells. A well construction permit must be obtained prior to constructing any wells.

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.

Potential Contamination Sources exist in the area, and any well permit applications will undergo a detailed review that may increase turnaround time and may require site specific conditions/recommendations. In this case there are (2) Solid Waste Landfills associated with Deemer Steel and ABEX; an Underground Storage Tank associated with Auto Collision Service; and a Superfund site associated with Deemer Steel-Ninth & Washington VCP located within 1000 feet of the proposed project. *Ricardo Rios - (302) 739-9944, Ricardo.Rios@state.de.us*

Air and Waste

Air Quality. Housing developments may unnecessarily emit, or cause to be emitted, significant amounts of air contaminants into Delaware’s air, which will negatively impact public health, safety and welfare. These negative impacts are attributable to:

- Emissions that form ozone and fine particulate matter; two pollutants relative to which Delaware currently violates federal health-based air quality standards,
- The emission of greenhouse gases which are associated with climate change, and
- The emission of air toxics.

Air emissions generated from housing developments include emissions from:

- Area sources like painting, lawn and garden equipment and the use of consumer products like roof coatings and roof primers.
- The generation of electricity needed to support the homes in your development, and
- Car and truck activity associated with the homes in your new development.

These three air emissions components (i.e., area, electric power generation, and mobile sources) are quantified below, based on a per household/residential unit emission factor that was developed using 2002 Delaware data. These emissions in the table represent the actual impact the Seeds of Greatness Church development may have.

Emissions Attributable to Seeds of Greatness Church Subdivision (Tons per Year)

	Volatile Organic Compounds (VOC)	Nitrogen Oxides (NOx)	Sulfur Dioxide (SO ₂)	Fine Particulate Matter (PM _{2.5})	Carbon Dioxide (CO ₂)
Direct Residential	8.9	1.0	0.8	1.0	35.9
Electrical Power Generation	ND*	3.5	12.2	ND*	1,800.1
Mobile	13.1	13.7	0.4	0.2	8,452.7
Total	22.0	18.2	13.4	1.2	10,288.7

(*) Indicates data is not available.

Note that emissions associated with the actual construction of the subdivision, 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 table above.

Recommendations:

The applicant shall comply with all applicable Delaware air quality regulations. These regulations include:

<p>Regulation 6 - Particulate Emissions from Construction and Materials Handling</p>	<ul style="list-style-type: none"> • Using dust suppressants and measures to prevent transport of dust off-site from material stockpile, material movement and use of unpaved roads. • Using covers on trucks that transport material to and from site to prevent visible emissions.
<p>Regulation 1113 – Open Burning</p>	<ul style="list-style-type: none"> • Prohibiting open burns statewide during the Ozone Season from May 1-Sept. 30 each year. • Prohibiting the burning of land clearing debris. • Prohibiting the burning of trash or building materials/debris.
<p>Regulation 1145 – Excessive Idling of Heavy Duty Vehicles</p>	<ul style="list-style-type: none"> • Restricting idling time for trucks and buses having a gross vehicle weight of over 8,500 pounds to no more than three minutes.

Additional measures may be taken to substantially reduce the air emissions identified above. These measures include:

- **Constructing only energy efficient units.** Energy Star qualified units are up to 30% more energy efficient than typical homes. These savings come from building envelope upgrades, high performance windows, controlled air infiltration, upgraded heating and air conditioning systems, tight duct systems and upgraded water-heating equipment. Every percentage of increased energy efficiency translates into a percent reduction in pollution. The Energy Star Program is excellent way to save on energy costs and reduce air pollution.
- **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 measures will reduce emissions associated with the actual construction phase of the development:

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

- **Using pre-painted/pre-coated flooring, cabinets, fencing, etc.** These measures can significantly reduce the emission of VOCs from typical architectural coating operations.
- **Planting trees at residential units and in vegetative buffer areas.** Trees reduce emissions by trapping dust particles and by replenishing oxygen. Trees also reduce energy emissions by cooling during the summer and by providing wind breaks in the winter, whereby reducing air conditioning needs by up to 30 percent and saving 20 to 50 percent on fuel costs.

This is a partial list, and there are additional things that can be done to reduce the impact of the development on air quality. The applicant should submit a plan to the DNREC Air Quality Management Section which address the above listed measures, and that details all of the specific emission mitigation measures that will be incorporated into the Seeds of Greatness Church development. Air Quality Management Section points of contact are Phil Wheeler and Deanna Morozowich, and they may be reached at (302) 739-9402. *Deanna Morozowich - (302) 739-9402,* Deanna.Morozowich@state.de.us

Hazardous Waste Sites. Eight (8) SIRB sites were found within a ½-mile radius of the proposed development: Deemer Steel-OU1, OU2, and OU3 (DE-1243, DE-1244, and DE-1245) Deemer Steel-Ninth and Washington site (DE-1087), and Deemer Steel- New Castle Plant (DE-0045) are all located 0.20 miles north. In addition, the Dobbinsville Ball field site (DE-1150) is located 0.13 miles southwest, and the New Castle Gas Company (DE-0167) is located 0.29 miles east of the proposed project. Abex Corp Landfill (DE-0045) is located on the proposed project.

The contaminants of concern in the Deemer Steel site area came from the operations of a foundry that was previously located in the area. Some of the contaminants found were TCE, PAHs, and high levels of metals such as arsenic. The Deemer Steel sites have since been remediated by excavating the soil and capping the property. The Deemer sites were each given a Certificate of Completion of Remedy (COCR) between 2002 and 2005. Townhomes are now located on OU1-3 and the Ninth & Washington site. Deemer Steel- New Castle Plant site will be developed into townhomes at a later date. The sites are still undergoing yearly monitoring as part of the Operations and Maintenance plan.

New Castle Gas Company site produced gas through the carbonization of coal between 1857 and 1914. The contaminants of concern were zinc, PAHs and pesticides. The site is now a wetland called Gambacorta Marsh. Limited access of the site makes it a low risk to human health and the site was recommended to receive a No Further Action (NFA) designation in 1994.

Dobbinsville Ball Field is the site of a former landfill that accepted both municipal and industrial waste. Low levels of PAHs and metals were found in soil samples taken from the site, but the contaminants posed no threat to human health. The site was given a NFA in 2000.

Abex Corp Landfill was brought to the attention of SIRB in 1983. The site was used as a landfill for inert industrial solid waste. Sodium and chloride levels were high in the groundwater samples, but this was attributed to saline intrusions from the Delaware Bay and was found to pose no danger to human health. Abex Corp Landfill Site was given a NFA from the US Environmental Protection Agency and SIRB in 1986.

The proposed project site is located on and encompasses the Abex Corp Landfill site. A new Phase I Environmental Site Assessment was conducted on the entire property in July of 2008. The site is currently being addressed in the Brownfields program for redevelopment.

We understand that a Phase I Environmental Site Assessment has been performed and the proposed project property is in the Brownfields program for investigation and redevelopment. Should a release or imminent threat of a release of hazardous substances be discovered during the course of redevelopment (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. *Krystal Stanley - (302) 395-2644, Krystal.Stanley@state.de.us*

Tank Management Branch. There seven (7) inactive LUST projects located within a quarter mile from the proposed development:

Name: ABEX Corp AMSCO Division (Inactive)
Facility ID: 3-000183
Project: N8711055

Name: Potts Welding & Boiler Repair (Inactive)
Facility ID: 3-001310
Project: N9209233
Project: N9805080

Name: Gambacorta Buick Inc (Inactive)
Facility ID: 3-000045
Project: N9103040
Project: N9812209

Name: Auto Collision Service (Inactive)
Facility ID: 3-001343
Project: N9504083

Name: Deemer Steel Casting Co (Inactive)
Facility ID: 3-001557

Project: N9504086

Should any underground storage tanks or petroleum contaminated soil be discovered by any person during construction, the DNREC-TMB at (302) 395-2500 and the DNREC Emergency Response Hotline at (800) 662-8802 must be notified within 24 hours.

Should any contamination be encountered, PVC pipe materials will have to be replaced with ductile steel and nitrile rubber gaskets in the contaminated areas.

Also, please note that if any aboveground storage tanks (ASTs) less than 12,500 gallons are installed, they must be registered with the TMB. If any ASTs greater than 12,500 gallons are installed, they are also subject to installation approval by the TMB. *Elizabeth Wolff* - (302) 395-2500, Elizabeth.Wolff@state.de.us