

ARCHITECTS
ENGINEERS

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TRANSMITTAL

DATE: September 3, 2024 GMB NO: 210168A
TO: DNREC RE: Delaware Electric Cooperative
Division of Water - Sewer Extension Project
Commercial and Government Greenwood, DE
Services Section
89 Kings Hwy
Dover, DE 19901
ATTN: Mr. Kevin Bronson Via Email
Administrative Specialist III

COPIES:	DESCRIPTION: SUBMITTALS
1	Application – WPCC
1	Project Narrative
1	E-One Pump Station Design Calculations & Pump Curve
1	Buoyancy Calculations
1	Exhibit A – Maximum number of Cores Operating
1	Exhibit B – E-One Model W-Series Triplex
1	Construction Plans dated August 2024

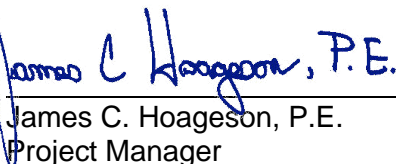
REMARKS: Enclosed for your review is the WPCC permit application with supporting documentation for the above-referenced project. The review fee and advertisement filing expense checks will be sent via UPS after verification of receipt of the application and supporting documents. Please feel free to contact me with any questions or comments.

COPIES TO: Sussex County Engineering Department
Attn: Hans Medlarz (electronic)
Attn: John Ashman (electronic)
Attn: Jordan Dickerson (electronic)

JAMES H. WILLEY, JR., P.E.
CHARLES M. O'DONNELL, III, P.E.
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CHRISTOPHER J. PFEIFER, P.E.
BENJAMIN K. HEARN, P.E.


James C. Hoageson, P.E.
Project Manager



Department of Natural Resources
and Environmental Control

89 Kings Hwy
Dover, DE 19901
dnrec.delaware.gov

Division of Water
Commercial and Government Services Section

Phone: (302) 739-9946
Fax: (302) 739-2296

INSTRUCTIONS FOR COMPLETING THE PERMIT APPLICATION FOR THE CONSTRUCTION OF WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS

The following items must accompany the application. **Please note that incomplete application packages will be returned in their entirety and not reviewed until such time as all required information is received.**

- 1. A narrative summary of the intended purpose and design of the proposed facilities.
- 2. One (1) set of final construction plans and specifications (paper copy), if applicable, signed and sealed by a Delaware-registered Professional Engineer, or a Delaware-registered Professional Land Surveyor for gravity systems only.
- 3. One (1) electronic copy of final Plans.
- 4. The final plans must be drawn to scale showing slopes, inverts, pipe types and sizes, existing and proposed ground surfaces, tops of manholes, water lines, stormwater and stream crossings, encasements shown in plan and profile, and other information if pertinent or requested.
- 5. For pump/lift stations and force mains, include all calculations and pump/performance curves.
- 6. A check made payable to the State of Delaware for eight hundred twenty-five dollars (\$825.00), the non-refundable permit review fee. This fee covers the initial review and one follow-up review of any corrections or changes made to address the Division's comments. An additional eight hundred twenty-five dollars (\$825.00) non-refundable review fee must be submitted for resubmission of the plans if changes are made to the project which trigger a complete review of the permit application.
- 7. Your permit will have a public notice requirement if your system includes force mains or pump/lift stations. Include a check made payable to the State of Delaware for three hundred dollars (\$300.00) for the reimbursement of legal notices if the system has a force main connection or a pump/lift station.
- Please submit the completed application package, as outlined above, to DE DNREC, Division of Water, Commercial and Government Services Section, 89 Kings Highway, Dover, DE 19901. Please note, a new application, including the review fee, must be submitted if the Division's comments are not addressed or if requested supplemental information is not provided within one (1) year of the comment or request date.
- The following items must be submitted prior to permit issuance:
 - 8. Verification from the appropriate county or municipal planning authority that the project has the proper zoning approval.
 - 9. A letter from the owner/operator of the wastewater facilities to which the proposed collection and conveyance facilities connect. The letter must include confirmation that the owner/operator has approved the project, that the owner/operator will take responsibility for treating and disposing of the wastewater to be conveyed and that the downstream facilities have the capacity to manage the additional flows without causing or contributing to violations of Delaware's Environmental Protection Act (7 Del. C., Chapter 60) and the regulations promulgated thereafter. This includes, but is not limited to, unauthorized discharges such as overflows at manholes and violations of the treatment system's operating permit (for example, the National Pollutant Discharge Elimination System (NPDES) permit).

- Visit us on the web at: <https://dnrec.delaware.gov/water/commercial-government/>

**APPLICATION FOR THE CONSTRUCTION OF
WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS**

Application must be complete, typewritten or clearly printed

Date Application Submitted _____

PROJECT INFORMATION			
Project Name and Location/ Address Delaware Electric Cooperative Sewer Extension 14198 Sussex Highway Greenwood, DE 19950			
Tax Parcel Number(s) 530-14.00-16.00; 530-14.00-17.00			
County <input type="checkbox"/> Kent <input type="checkbox"/> New Castle <input checked="" type="checkbox"/> Sussex		Watershed (www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment.aspx) <input checked="" type="checkbox"/> Chesapeake Bay <input type="checkbox"/> DE Bay/Estuary <input type="checkbox"/> Inland Bays/Atl Ocean <input type="checkbox"/> Piedmont	
Sewer District or Interceptor Sussex County Unified Sanitary Sewer District		Wastewater Treatment/Disposal Facility Name Seaford WWTF	
Anticipated Construction Start Date February 2025		Treatment/Disposal Facility Owner and Operating Permit Number City of Seaford WPCC 3161F/74	
Please note, construction permits expire three (3) years from the date of permit issuance.			
Are you requesting plan review and comment of <u>WPCC Construction Permit issuance</u> (circle one)			
Design Flow (gallons/day) Average 9,375		Peak 25,948	Peak Factor 2.77 (S.C. Code 110-78E)
Basis of Design 37.5 EDUs @ 250 GPD/EDU			
Description Replace existing onsite treatment and disposal system with new pump station and force main extension to a regional force main.			
OWNER/DEVELOPER			
Company Name Delaware Electric Cooperative			
Mailing Address 14198 Sussex Highway			
City Greenwood		State DE	Zip 19950
Contact Name Herb Dennis			
E-Mail Address hdennis@delaware.coop			
Telephone (302) 349-3730		Cell (302) 233-1698	Fax

ENGINEER					
Company Name George, Miles & Buhr, LLC					
Mailing Address 206 West Main Street					
City Salisbury		State MD		Zip 21801	
Contact Name James C. Hoageson, P.E.					
E-Mail Address jhoageson@gmbnet.com					
Telephone (410) 742-3115		Cell		Fax (410) 548-5790	
GRAVITY SEWER INFORMATION					
Ownership <input type="checkbox"/> Public <input checked="" type="checkbox"/> Private	Type of Sewer System <input type="checkbox"/> Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other?			If Other, list below	
Type of Pipe PVC SDR35	Length (ft) 1160	Diameter (in) 8	Joint Specification Push-On	Min. Slope (ft/ft) 0.004	Min. Velocity (ft/sec) 3.0
PVC SDR35	340	6	Push-On	0.02	4.8
Minimum Pipe Cover (ft) 4.0	Number of Manholes 10	Drop manholes provided? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Maximum Distance Between Manholes (ft) 281	
Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			If not, explain provisions to prevent cross-contamination:		
Explain any special challenges (for example, stream, highway and/or railroad crossings, directional drilling, elevated sewers, etc.) Jack and Bore crossing of Cart Branch Road, force main directional drill crossings on Adams Road (RD 583), and force main connection to the existing Sussex County force main.					
Comments					

PUMP/LIFT STATION INFORMATION				
Ownership <input checked="" type="checkbox"/> Public <input type="checkbox"/> Private		Type of Wastewater <input type="checkbox"/> Residential <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Other?		If Other, list below
Pump Station Flows (gallons/day) Design 9,375		Average 9,375	Peak 25,948	Peak Factor 2.77 (S.C. Code 110-78E)
Basis of Design 37.5 EDUs @ 250 GPD/EDU			Pump Type Triplex Submersible Grinder	
Will peak flows be accommodated if largest unit fails? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Pump calc's and pump curves attached? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Cycle Time (minutes) 6.0	Wet Well Detention Time (minutes) 3.1
Check valves provided on discharge line? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			Gate valves provided on discharge line? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If not, explain alternate procedure:				
Ventilation provided in wet well? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Passive		Dry Well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is an alarm system included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Alternate source of power? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No DEC
What other provisions for emergency operations? Emergency Bypass Connection				
Height of Influent Above Pump (suction head) (ft) 1.0		Height of Effluent Above Pump (discharge head) (ft) 5.7		Friction Loss (ft) Design Point 1 (DP1) = 42.45 Design Point 2 (DP2) = 116.04
Pump Design Point DP1=18.8 gpm@55.7' TDH DP2=18.8 gpm@117.9' TDH	Pump Operating Point OP1=23.5 gpm@77.4' TDH OP2=20.0 gpm@123.2' TDH	Static Head (ft) DP1 = 13.28 DP2 = 1.82	Total Head (ft) DP1 = 55.7 DP2 = 117.9	Required Motor Horsepower (hp) 1
FORCE MAIN INFORMATION				
Type of Pipe IPS SDR-11 HDPE		Length (ft) 3,920		Diameter (in) 2
Hazen-Williams "C" Design Factor 150	Type of Joints Solvent Weld Butt-Weld Fusion	Velocity Under Design Conditions (ft/sec) 2.1	Minimum Pipe Cover (ft) 4.0	
Air relief valves specified? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Clean-outs provided? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Maximum distance between clean-outs (ft) 1,000		
Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		If not, explain provisions to prevent cross-contamination:		
Comments Pump station to be provided is an E-One "W" Series Triplex Submersible Grinder Pump Station (6'-0" dia x 10'-6"). Pump Station, 8" inlet pipe P-1, upstream manhole SMH-1, and force main to regional force main will be maintained by Sussex County.				

PLANNING & ZONING
Jamie Whitehouse, AICP, MRTPI
Director
(302) 855-7878 T
(302) 854-5079 F



Sussex County
DELAWARE
sussexcountyde.gov

Sussex County Zoning Verification

This form is to provide the current zoning for the following parcel of land located within Sussex County. This form does not grant approval for any current or future use of the property.

Tax Parcel Number: 530-14.00-16.00

Location: 14198 Sussex Hwy, Greenwood, DE

Current Zoning: C-1(General Commercial) AR-1(Agricultural Residential)

Owner: (from assessment records):

Delaware Electric Cooperative Inc


Owner Mailing Address (from assessment records):

14198 Sussex Hwy

Greenwood, DE 19950

The zoning for this property has been confirmed from the Official Sussex County Zoning

Map by:



Sussex County Planning & Zoning Staff Member



Date



PLANNING & ZONING
Jamie Whitehouse, AICP, MRTPI
Director

(302) 855-7878 T
(302) 854-5079 F



Sussex County
DELAWARE
sussexcountyde.gov

Sussex County Zoning Verification

This form is to provide the current zoning for the following parcel of land located within Sussex County. This form does not grant approval for any current or future use of the property.

Tax Parcel Number: 530-14.00-17.00

Location: 14326 Cart Branch Rd, Greenwood, DE

Current Zoning: AR-1 (Agricultural Residential) C-1 (General Commercial)

Owner: (from assessment records):

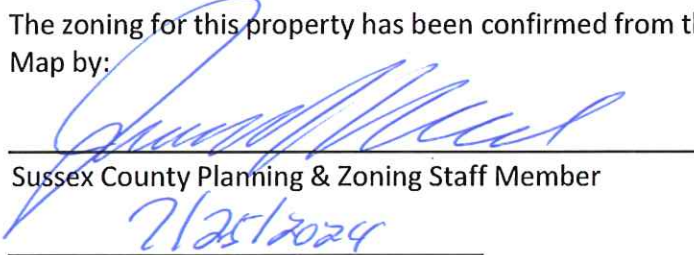
Delaware Electric Cooperative Inc

Owner Mailing Address (from assessment records):

14198 Sussex Hwy

Greenwood, DE 19950

The zoning for this property has been confirmed from the Official Sussex County Zoning Map by:


Sussex County Planning & Zoning Staff Member

Date



ENGINEERING DEPARTMENT

ADMINISTRATION	(302) 855-7718
AIRPORT & INDUSTRIAL PARK	(302) 855-7774
ENVIRONMENTAL SERVICES	(302) 855-7730
PUBLIC WORKS	(302) 855-7703
RECORDS MANAGEMENT	(302) 854-5033
UTILITY ENGINEERING	(302) 855-7717
UTILITY PERMITS	(302) 855-7719
UTILITY PLANNING	(302) 855-1299
FAX	(302) 855-7799



Sussex County

DELAWARE
sussexcountype.gov

HANS M. MEDLARZ, P.E.
COUNTY ENGINEER

JOHN J. ASHMAN
DIRECTOR OF UTILITY PLANNING

July 17, 2024

James B. Moore
George, Miles & Buhr

REF: DELAWARE ELECTRIC COOPERATIVE
SOUTH GREENWOOD AREA
SUSSEX COUNTY UNIFIED SANITARY SEWER DISTRICT
ABILITY TO SERVE

Dear Mr. Brown:

This is in response to your request concerning Sussex County's ability to provide wastewater sewer service to the Delaware Electric Cooperative project. The project is in the Sussex County Tier 1 Area for sewer service. Sussex County plans to provide sanitary sewer service to the project and is willing and able to serve once all administrative requirements have been completed. Projects desiring to proceed in advance of the County's infrastructure being installed are directed to install the required infrastructure needed to serve their project.

The wastewater will be conveyed to the Seaford Wastewater Facility where the County has an agreement to send effluent for treatment and disposal. If you should need any further information, please feel free to contact me a 302-855-7370.

Thank you.

Sincerely,

SUSSEX COUNTY ENGINEERING DEPARTMENT

John J. Ashman
Director of Utility Planning & Design Review





GEORGE, MILES & BUHR, LLC



ARCHITECTS
ENGINEERS

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**DELAWARE ELECTRIC COOPERATIVE
SANITARY SEWER EXTENSION PROJECT
SUSSEX COUNTY, DELAWARE
GMB NO. 210168A**

PROJECT NARRATIVE

The project shall consist of the construction of new private gravity sewer, pump station, and force main to serve Delaware Electric Cooperative (DEC), 14198 Sussex Highway, Greenwood, Delaware, at the intersections of Sussex Highway Route 13, Adams Road RD 583, and Cart Branch Road RD 583A, approximately one mile south of Greenwood. The new pump station and force main will pump wastewater to the Sussex County owned regional sewer force main located at Adams Road and Mile Stretch Road. The pump station and force main will be maintained by Sussex County.

Presently, DEC is authorized to operate and maintain an on-site wastewater treatment and disposal system under State Permit 359061-02, expiration date June 24, 2025. The existing system is designed to treat a maximum daily average of 5,000 gpd through a series of septic tanks and lift stations, and discharge to a pressure dosed disposal area. DEC is planning to expand their facilities and the existing disposal area has been failing, and there is no available replacement area.

The work detailed in the **Delaware Electric Cooperative Sewer Extension Project** contract drawings consists of furnishing and installing approximately 1,160 linear feet of 8” PVC gravity sewer main; 340 linear feet of 6” PVC gravity sewer laterals, 100 vertical feet of 4’ diameter sanitary sewer manhole with 12 frame and covers, 40 linear feet of 16” steel casing Jack and Bore crossing of Cart Branch Road, and one (1) E-One type watertight triplex grinder station with approximately 3,920 linear feet of 2” SDR-11 HDPE low pressure pipe (LPP) force main. All LPP shall be installed via directional drilling and/or open cut trenching. The work consists of the furnishing of all labor, materials, transportation, tools, supplies and equipment necessary for a gravity sewer and low-pressure sewer installation and surface restoration.

Approximately 3,475 linear feet of the 2” SDR-11 HDPE low pressure pipe force main along Adams Road to the connection with the regional force main will be installed under a separate contract as shown on the contract drawings. All piping will be installed via directional drilling and/or open cut trenching with a tax ditch crossing, a crossing with casing at the Norfolk and Southern Railroad (Delmarva Central Railroad) Milepost DM-73.72, two crossings with casings of Adams Road, and connection to the Sussex County regional force main. The LPP force main will also include inline flushing connections and air release valve structures.

JAMES H. WILLEY, JR., P.E.
CHARLES M. O'DONNELL, III, P.E.
A. REGGIE MARINER, JR., P.E.
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BENJAMIN K. HEARN, P.E.

GMB 210168A

RECEIPT

	September 6th, 2024		103
<i>RCVD FROM</i>	George, Miles & Buhr, LLC		\$825.00
	Eight Hundred twenty-five dollars and 00/100		<i>DOLLARS</i>
<i>FOR</i>	Plan review fee WPCC 3075/24 Delaware Electric Cooperative Sewer Extension		
<i>ACCT</i>	\$ 825.00	x	<i>CHECK #</i> 4044
<i>PAYMENT</i>	\$ 825.00		<i>CASH</i>
	\$ -		<i>OTHER</i> BY <i>Kevin Bronson</i>

DNREC, Commercial & Government Services Section, 89 Kings Hwy, Dover, DE 19901

RECEIPT

	September 6th, 2024		104
<i>RCVD FROM</i>	George, Miles & Buhr, LLC		\$300.00
	Three Hundred Dollars and 00/100		<i>DOLLARS</i>
<i>FOR</i>	WPCC Legal Notice Reimbursement 3075/24		
<i>ACCT</i>	\$ 300.00	x	<i>CHECK #</i> 4045
<i>PAYMENT</i>	\$ 300.00		<i>CASH</i>
	\$ -		<i>OTHER</i> BY <i>Kevin Bronson</i>

DNREC, Commercial & Government Services Section, 89 Kings Hwy, Dover, DE 19901