3000/24

AECOM

LETTER OF TRANSMITTAL

VIA FEDEX OVERNIGHT DELIVERY

TO: DE DNREC
Division of Water
Commercial and Government Svcs. Sec.
89 Kings Highway
Dover, DE 19901

FROM: Kevin L. Pampuch

RECEIVED
JAN 04 2024
DNREC
Division of Water

Attention: Mr. Kevin Bronson
Date: 01/03/2024

JOB No.: 60602388

RE: **New Castle County West Wing Service Area Pump Station**

The following items are being sent: ☒ Attached ☐ Under separate cover by

Shop Drawings ☐ Prints ☒ Plans ☐ Samples ☒ Specifications ☐ Copy of Letter

☒ Other

Copies	Date or Number	Description
2	01/03/2024	Permit Application for the Construction of Wastewater Collection and Conveyance Systems
2	01/03/2024	Narrative Summary
2	09/18/2023	Calculations for 700 gpm
2	November 2023	Construction Plans
2	October 2023	Construction Specifications
1	Chk. #14598068	Permit Review Fee
1	Chk. #14596865	Legal Notices Fee

Transmittals for reasons checked:

☒ For Your Approval
☒ For Your Use
☐ As Requested
☒ For Review and Comment

☐ No Exceptions Taken
☐ Make Corrections Noted
☐ Amend and Resubmit

☐ Resubmit _____ copies for approval
☐ Submit _____ copies for distribution
☐ Return_____ corrected prints

Remarks: Please note the enclosed flash drive containing the permit application form, narrative summary, calculations, and construction plans & specifications. A hard copy of the plans & specifications is also enclosed.

Copies: 1 Hard Copy
1 Electronic Copy
NCC Department of Public Works – 1 Electronic Copy

If enclosures are not as noted, kindly notify us at once.

Kevin L. Pampuch
Senior Consultant

AECOM

248 Chapman Road, Suite 101
Newark, DE 19702
302-781-5900 (phone)
302-781-5901 (fax)

NCC West Wing Service Area
Pump Station

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) 739-8369

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, if applicable, signed and sealed by a Delaware-registered Professional Engineer, or a Delaware-registered Professional Land Surveyor for gravity systems only. One (1) electronic copy of final Plans.

☒ 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. Not applicable - this is not a land development project

☒ 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). Not applicable - this is not a land development project

- Visit us on the web at: https://dnrec.alpha.delaware.gov/water/surface-water/

APPLICATION FOR THE CONSTRUCTION OF
WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS

Application must be complete, typewritten or clearly printed

Date Application Submitted 01/02/2024

PROJECT INFORMATION			
Project Name and Location/ Address New Castle County West Wing Service Area Force Main; Middletown, Delaware			
Tax Parcel Number(s) 1106100001, 1106100005, and 1106100008			
County ☐ Kent ☒ New Castle ☐ Sussex	Watershed (www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment.aspx) ☐ Chesapeake Bay ☒ DE Bay/Estuary ☐ Inland Bays/Atl Ocean ☐ Piedmont		
Sewer District or Interceptor West Wing	Wastewater Treatment/Disposal Facility Name Water Farm No. 1		
Anticipated Construction Start Date April 1, 2024	Treatment/Disposal Facility Owner and Operating Permit Number New Castle County; NPDES Permit No. DE 0050547		
Please note, construction permits expire three (3) years from the date of permit issuance.			
Are you requesting ~~plan review and comment or~~ WPCC Construction Permit issuance? (circle one)			
Design Flow (gallons/day) Average 245,500*	Peak 982,000*	Peak Factor 4.0	Basis of Design NCC Sewer Design Policy No. SS-7
Description Duplex pump station to deliver wastewater from the West Wing area of southern New Castle County, which is currently unsewered, to the East Wing sewer interceptor in Mount Pleasant. See Narrative Summary for additional information.			

OWNER/DEVELOPER		
Company Name New Castle County Department of Public Works		
Mailing Address William J. Connor Building, 187A Old Churchmans Road		
City New Castle	State Delaware	Zip 19720
Contact Name Edwin Kuipers		
E-Mail Address edwin.kuipers@newcastlede.gov		
Telephone 302-395-5700	Cell	Fax

*See Narrative Summary for additional information

ENGINEER					
Company Name: AECOM					
Mailing Address: 248 Chapman Road, Suite 101					
City: Newark		State: Delaware		Zip: 19702	
Contact Name: Kevin L. Pampuch					
E-Mail Address: kevin.pampuch@aecom.com					
Telephone:		Cell: 302-463-5527		Fax:	

GRAVITY SEWER INFORMATION					
Ownership: ☒ Public ☐ Private	Type of Sewer System: ☒ Residential ☐ Commercial ☐ Industrial ☐ Other?			If Other, list below:	
Type of Pipe	Length (ft)	Diameter (in)	Joint Specification	Min. Slope (ft/ft)	Min. Velocity (ft/sec)
PVC	Varies: see dwgs.	10	ASTM D3212	0.003	2.0
PVC	Varies: see dwgs.	12	ASTM D3212	0.003	2.0
PVC	Varies: see dwgs.	21	ASTM D3212	0.001	2.0

Minimum Pipe Cover (ft)	Number of Manholes	Drop manholes provided?	Maximum Distance Between Manholes (ft)
3.5	Four (4)	☒ Yes ☐ No	300

Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained?	If not, explain provisions to prevent cross-contamination:
☒ Yes ☐ No	

Explain any special challenges (for example, stream, highway and/or railroad crossings, directional drilling, elevated sewers, etc.)

None

Comments

None

PUMP/LIFT STATION INFORMATION

Ownership	Type of Wastewater	If Other, list below
☒ Public ☐ Private	☒ Residential ☐ Commercial ☐ Industrial ☐ Other?	

Pump Station Flows (gallons/day) Design	Average	Peak	Peak Factor
245,500*	245,500*	982,000*	4.0

Basis of Design	Pump Type
NCC Sewer Design Policy No. SS-7	Self-priming centrifugal

Will peak flows be accommodated if largest unit fails?	Pump calc's and pump curves attached?	Cycle Time (minutes)	Wet Well Detention Time (minutes)
☒ Yes ☐ No	☒ Yes ☐ No	10 (minimum)	30 (maximum)

Check valves provided on discharge line?	Gate valves provided on discharge line?
☒ Yes ☐ No	☒ Yes ☐ No

If not, explain alternate procedure:

Ventilation provided in wet well?	Dry Well?	Is an alarm system included?	Alternate source of power?
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

What other provisions for emergency operations?

Emergency bypass pump connection, standby pump, telemetry system for remote monitoring

Height of Influent Above Pump (suction head) (ft)	Height of Effluent Above Pump (discharge head) (ft)	Friction Loss (ft)
-17.17 (suction lift pumps)	50.33	11.83

Pump Design Point	Pump Operating Point	Static Head (ft)	Total Head (ft)	Required Motor Horsepower (hp)
700 gpm @ 85 ft*	700 gpm @ 85 ft*	67.5	85*	60*

FORCE MAIN INFORMATION

Type of Pipe	Length (ft)	Diameter (in)
Ductile iron and PVC	Varies: see dwgs.	14 and 18

Hazen-Williams "C" Design Factor	Type of Joints	Velocity Under Design Conditions (ft/sec)	Minimum Pipe Cover (ft)
120	Bell & spigot	2.5 minimum	3.5

Air relief valves specified?	Clean-outs provided?	Maximum distance between clean-outs (ft)
☐ Yes ☐ No N/A	☐ Yes ☐ No N/A	N/A

Minimum ten foot (10') horizontal & eighteen inch (18") vertical separation from water lines maintained?	If not, explain provisions to prevent cross-contamination:
☒ Yes ☐ No	

Comments

Onsite 14" and 18" force mains will connect to 14" and 18" force mains approved by State Permit Number WPCC 3022/23 issued September 18, 2023

*See Narrative Summary for additional information

PERMIT APPLICATION FOR THE CONSTRUCTION OF WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS

New Castle County West Wing Service Area Pump Station

NARRATIVE SUMMARY

New Castle County (NCC) Department of Public Works plans to construct a wastewater pump station to serve the West Wing portion of its Southern Service Area (i.e., south of the Chesapeake & Delaware Canal). The West Wing area is currently unsewered. The pump station is the second of two construction contracts; the first contract is for the 14-inch and 18-inch force mains which were approved by State Permit Number WPCC 3022/23 issued on September 18, 2023. This permit application is for the pump station with onsite gravity sewers and onsite force mains.

NCC proposes a wet well/dry well, duplex, suction lift type pump station with approximately 300 linear feet of 10-inch gravity sewer, 197 linear feet of 12-inch gravity sewer, approximately 104 linear feet of 21-inch gravity sewer, and approximately 100 linear feet of 14-inch and 18-inch force mains. The pump station is located outside the 100-year floodplain and will be constructed on an easement (approximately 1.0 acres) in the Carter Farm subdivision (Tax Parcels 1106100001, 1106100005, and 1106100008). The onsite force mains will connect to the offsite force mains installed under the force main construction contract.

The firm capacity of the proposed pump station will be increased incrementally from the initial 0.246 MGD (average) to the full design flow capacity of 1.4 MGD (average) as the number of service connections increases over time. The pump station is expandable from duplex to triplex configuration to accommodate the future flow. The phased approach to the pump station design capacity is shown in the table below. The table also shows which force main operates in each phase—valves in the pump station dry well allow the operator to direct the pumped flow to the desired force main. At the full design flow capacity, both force mains will be used at the same time.

Phase	Pump Configuration	Average Station Capacity (mgd)	Firm Station Capacity (gpm)	Pump Capacity (gpm)	Total Dynamic Head (feet)	Force Main
Initial	Duplex (1 duty, 1 standby)	.246	700	700	85	FM1 (14-inch)
Phase 1 Extension	Duplex (1 duty, 1 standby)	.504	1,400	1,400	110	FM1 (14-inch)
Phase 2 Extension	Triplex (2 duty, 1 standby)	1.01	2,800	1,400	120	FM2 (18-inch)
Phase 3 Extension (Full design)	Triplex (2 duty, 1 standby)	1.4	3,900	1,950	115	FM1 & FM2

The pump station is equipped with a sewage grinder ahead of the wet well to shred incoming wastewater debris and help protect the pumps against clogging.

The pump station wet well is sized for a minimum pump cycle time of 10 minutes at the full design flow— the pump control elevations will be adjusted accordingly for the initial and intermediate flow phases to provide the 10-minute minimum pump cycle time.

Provisions for operational reliability of the pump station include a standby pump in all design phases, an emergency standby generator, an emergency bypass pump connection, and a telemetry system for remote monitoring of the station.

It is understood that the WPCC permit will be valid for a period of 5 years from the date of issue. If a flow capacity increase is not within 5 years from the WPCC permit issue date, then additional applications will be needed thereafter. Additional applications will be submitted by NCC prior to the need for expanding the pump station flow capacity for Phase 1, 2 and 3 extensions.

RECEIPT

January 4, 2024 — 0

RCVD FROM: AECOM Technology Corporation — $825.00

Eight Hundred twenty-five dollars and 00/100 — DOLLARS

FOR: Plan review fee WPCC 3000/24 New Castle County West Wing

ACCT	$ 825.00	x	CHECK #	14598068
PAYMENT	$ 825.00		CASH	
	$ -		OTHER	BY Kevin Bronson

DNREC, Surface Water Discharges Section, 89 Kings Hwy, Dover, DE 19901

RECEIPT

January 4, 2024 — 1

RCVD FROM: AECOM Technology Corporation — $300.00

Three Hundred Dollars and 00/100 — DOLLARS

FOR: WPCC Legal Notice Reimbursement 3000/24

ACCT	$ 300.00	x	CHECK #	14596865
PAYMENT	$ 300.00		CASH	
	$ -		OTHER	BY Kevin Bronson

DNREC, Surface Water Discharges Section, 89 Kings Hwy, Dover, DE 19901