AGENDA
Lower Cape Fear Water & Sewer Authority
1107 New Pointe Boulevard, Suite # 17, Leland, North Carolina
9:00 a.m. – Regular Monthly Board Meeting
October 13, 2025

MEETING CALL TO ORDER: Chairman DeVane

INVOCATION

PLEDGE OF ALLEGIANCE

APPROVAL OF CONSENT AGENDA

- **C1 –** Minutes of September 8, 2025, Regular Board Meeting
- **C2** – Kings Bluff Monthly Operations and Maintenance Report
- **C3** – Bladen Bluffs Monthly Operations and Maintenance Reports
- **C4** – Line-Item Adjustment for August 31, 2025

PRESENTATION: Keith VanWyngaarden with Computer Warriors Cyber Security Update

NEW BUSINESS

- **NB1** – Resolution Honoring Glenn Walker for Dedicated Oversight of the Kings Bluff Raw Water Plant
- **NB2** – Resolution Accepting the Lower Cape Fear Water and Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2025-2026 Annual Inspections Report (Tony Boahn, P.E., McKim and Creed)
- **NB3** – Resolution Accepting the Lower Cape Fear Water and Sewer Authority Bladen Bluffs Regional Raw Water Supply Facilities FY 2025-2026 Annual Inspections Report (Tony Boahn, P.E., McKim and Creed)
- **NB4** – Resolution of Lower Cape Fear Water and Sewer Authority Board of Directors to Award Contract for Purchase of New Pump and Variable-Frequency Drive for Kings Bluff Pump Station.

ENGINEER'S COMMENTS

ATTORNEY COMMENTS

EXECUTIVE DIRECTOR REPORT

- **EDR1** – Comments on Customers' Water Usage and Raw Water Revenue for Fiscal Year to Date Ending September 30, 2025
- **EDR2** – Operating Budget Status, Ending August 31, 2025
- **EDR3** – Summary of Activities

DIRECTOR'S COMMENTS AND/OR FUTURE AGENDA ITEMS

PUBLIC COMMENT

ADJOURNMENT

The next board meeting of the Lower Cape Fear Water & Sewer Authority is scheduled for Monday, November 10th at 9:00 a.m. in the Authority's office located at 1107 New Pointe Boulevard, Suite 17, Leland, North Carolina.

Consent Agenda (CA)	**Lower Cape Fear Water & Sewer Authority**

AGENDA ITEM

To: CHAIRMAN DEVANE AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 13, 2025

Re: Consent Agenda

Reviewed and approved as to form: MATTHEW A. NICHOLS, AUTHORITY ATTORNEY

Please find enclosed the items of a routine nature for consideration and approval by the Board of Directors with one motion. However, that does not preclude a board member from selecting an item to be voted on individually, if so desired.

C1 – Minutes of September 8, 2025, Regular Board Meeting
C2 – Kings Bluff Monthly Operations and Maintenance Report
C3 – Bladen Bluffs Monthly Operations and Maintenance Report
C4 – Line-Item Adjustment for June 30, 2025

Action Requested: Motion to approve/disapprove Consent Agenda.

Lower Cape Fear Water & Sewer Authority
Regular Board Meeting Minutes
September 8th, 2025

Chairman DeVane called to order the Authority meeting scheduled on September 8th, 2025, at 9:00 a.m. and welcomed everyone present. The meeting was held at the Authority's office located at 1107 New Pointe Boulevard, Suite 17, Leland, North Carolina. Director Phillips gave the invocation.

Roll Call by Chairman DeVane:

Present: Damien Buchanan, Patrick DeVane, Jerry Groves, Harry Knight, Al Leonard, Scott Phillips, Chris Smith, Bill Sue, Phil Tripp, and Rob Zapple

Present by Virtual Attendance: Wayne Edge and Frank Williams

Absent: Charlie Rivenbark and Bill Saffo

Staff: Tim H. Holloman, Executive Director; Matthew Nichols, General Counsel; Sam Boswell, COG; Jess Powell, P.E., McKim & Creed; and Danielle Hertzog, Financial Administration Assistant

Guests Present: Kevin Morris, Cape Fear Public Utility Authority Deputy Director; David Carson, Brunswick County Kings Bluff Water Resource Supervisor; Chris Giesting, Brunswick County Water Resources Manager; David Fournier, HDR Construction Services; Anthony Colon, Pender County Utilities Director; James Proctor, Pender County Utilities Deputy Director; Jason McLeod, Senior Vice President Cape Fear Commercial; Mark Garland, Computer Warriors; Heidi Cox, NC DEQ Regional Engineering Supervisor, Division of Water Infrastructure; Russell Underwood, President of Charles R. Underwood Inc; Randy Hudson, Company Representative, Charles R. Underwood Inc.

Guests Virtual Attendance: Aaron Smith, Brunswick County Director of Fiscal Operations; Craig Wilson, Cape Fear Public Utility Authority Engineering Manager

PLEDGE OF ALLEGIANCE: Chairman DeVane led the Pledge of Allegiance.

APPROVAL OF CONSENT AGENDA

C1 – Minutes of August 11, 2025, Regular Board Meeting
C2 – Kings Bluff Monthly Operations and Maintenance Report
C3 – Bladen Bluffs Monthly Operations and Maintenance Reports
C4 – Resolution for Recognition of National Source Water Protection Week Sept. 28 – Oct. 4th, 2025

Motion: Director Zapple **MOVED**; seconded by Director Knight, approval of the Consent Agenda Items C1 and C4. Upon voting, the **MOTION CARRIED UNANIMOUSLY.**

Discussion on item C2. Director Zapple questioned what I&E is on the Kings Bluff Monthly Operations and Maintenance Report. Executive Director Holloman advised that it is the Instrumentation and Electrics contractor vendor with Brunswick County. Director Zapple also wanted to know what annual PM stands for. Executive Director Holloman advised on preventative yearly maintenance.
Discussion on item C3. Director Zapple noticed that Bladen Bluff has a wooden walkway that needs replacement and wanted to know the replacement cost and the material to be used. Executive Director Holloman advised that this project is currently being added to the CIP. Therefore, he will get material and cost analytics on the next CIP.

Motion: Director Zapple **MOVED**; seconded by Director Knight, approval of the Consent Agenda Items C2 and C3. Upon voting, the **MOTION CARRIED UNANIMOUSLY.**

PRESENTATION: Russell Underwood's presentation on Fourth Pump
A copy of the presentation will be attached to the minutes.

CLOSED SESSION

Chairman DeVane requested a motion to go into a closed session in accordance with N.C.G.S. §143-318.11(a)(5)(i) (real property). Approximately 107 Acres of Real Property located off of Clearwell Drive NE, Brunswick County, North Carolina (Brunswick County Parcel ID 0160005801):

Motion: Director Zapple **MOVED**; seconded by Director Leonard, to go into closed session in accordance with N.C.G.S. §143-318.11(a)(5)(i) (real property) Approximately 107 Acres of Real Property located off of Clearwell Drive NE, Brunswick County, North Carolina (Brunswick County Parcel ID 0160005801). Upon voting, the **MOTION CARRIED UNANIMOUSLY**.

At 9:34 a.m., the board went into closed session. At 10:05 a.m., the board returned to open session. Discussion only; no action taken.

NEW BUSINESS

NB1- Land Acquisition - Resolution Approving an Agreement for Purchase and Sale of Land for Approximately 107 Acres of Real Property located off of Clearwell Drive NE, Brunswick County, North Carolina (Brunswick County Parcel ID 0160005801)

Executive Tim Holloman advised.

Motion: Director Knight **MOVED**; seconded by Director Phillips, approval of the Land Acquisition - Resolution Approving an Agreement for Purchase and Sale of Land for Approximately 107 Acres of Real Property located off of Clearwell Drive NE, Brunswick County, North Carolina (Brunswick County Parcel ID 0160005801). Upon voting, the **MOTION CARRIED UNANIMOUSLY**.

NB2- Exempting Lower Cape Fear Water and Sewer Authority from provisions of N.C.G.S. § 143-64.31 for item NB3

Motion: Director Leonard **MOVED**; seconded by Director Knight, approval of Exempting Lower Cape Fear Water and Sewer Authority from provisions of N.C.G.S. § 143-64.31 for item NB3. Upon voting, the **MOTION CARRIED UNANIMOUSLY**.

NB3- Resolution of Lower Cape Fear Water and Sewer Authority Board of Directors Awarding Contract for Geologic Site Investigation Services to Applied Resource Management, P.C.

Motion: Director Phillips **MOVED**; seconded by Director Knight, approval of the Resolution of Lower Cape Fear Water and Sewer Authority Board of Directors Awarding Contract for Geologic Site Investigation Services to Applied Resource Management, P.C. Upon voting, the **MOTION CARRIED UNANIMOUSLY**.

ENGINEER'S COMMENTS

No comments

ATTORNEY COMMENTS

No comments

EXECUTIVE DIRECTOR REPORT

EDR1 – Comments on Customers' Water Usage and Raw Water Revenue for Fiscal Year to Date Ending August 31, 2025

Executive Director Holloman reported that during August, CFPUA and Pender County exceeded projections.

DIRECTOR'S COMMENTS AND/OR FUTURE AGENDA ITEMS

No comments.

PUBLIC COMMENT

No comments.

ADJOURNMENT

There being no further business, Chairman DeVane adjourned the meeting at 10:12 a.m.

Respectfully Submitted:

_____

Al Leonard, Secretary

Charles R. Underwood Inc.
Municipal Pump Sales & Service
2000 Boone Trail Road
Sanford, North Carolina 27330
Phone: (919) 775-2463
Fax: (919) 708-7232

September 5, 2025

Mr. Tim Holloman, Director
Lower Cape Fear Water and Sewer Authority

RE: Kings Bluff Pump Station
New Raw Water Pump #3

Dear Mr. Holloman,

We are pleased to provide this firm turnkey price to provide and install a complete new 1600hp Vertical Turbine Raw Wate pump, variable frequency drive, piping, valves and installation in the #3 slot at Kings Bluff Pump Station.

We would provide the following:

1- Duplicate 1600hp Underwood Pump vertical turbine pump.

- Galvanized flanged column pipe.
- 304 stainless steel enclosing tube.
- 416 stainless steel shaft.
- 3 stage 36" Pentair ductile iron bowl assembly 17,500 gpm at 299'
- Vortex suppressor.
- Factory performance test.
- Finite Element analysis.

1- 1600hp General Electric Motor

- 4160Volt.
- 890 RPM.
- 500% High Trust Kingsbury bearing.
- Temperature RTD's .
- Vibration sensors.
- Factory Performance Test.
- Current model-duplicate to existing units.

Charles R. Underwood Inc.
Municipal Pump Sales & Service
2000 Boone Trail Road
Sanford, North Carolina 27330
Phone: (919) 775-2463
Fax: (919) 708-7232

1- TMEIC Variable Frequency Drive

- 1600 hp
- 4160 Volt
- 4.16KV
- 133% Overload
- FLA 217 amps
- Duplicate to the existing 3-1600 HP VFD
- 1-lot of spare parts.

1- Discharge Piping.

- 24" Flange Butterfly Valve.
- 24" Duplicate Val-Matic tilting disc check valve.
- 24" Flange Piping.
- 24" Strong Flange Bolts.
- 6" Air release valve and piping.
- Pipe supports.
- Epoxy painting.
- Floor covers.

1- Pump/Motor Install

- 1- 80" x 80" x2" ground sole plates.
- Epoxy anchors.
- Housekeeping pad.
- Epoxy grout.
- Copper Motor Cooling Lines.
- Drain lines.
- Oil For Motor
- Labor and equipment to install sole plate, pad, pump, motor modifications to floor for larger discharge.
- Modifications to floor from Finite Element Analysis.
- Diver to clean old wet well and inspect for new pump install.

Charles R. Underwood Inc.
Municipal Pump Sales & Service
2000 Boone Trail Road
Sanford, North Carolina 27330
Phone: (919) 775-2463
Fax: (919) 708-7232

1- Electrical

- Engineering review of existing electrical MCC
- Infrared of existing electrical MCC to verify no issues.
- New remote monitoring station with touch screen for pump duplicate to the other three pumps by ForTech.
- Integration of drive and motor into existing LCF Scada system.
- Materials to connect drive to main power panel.
- Materials to connect drive to new motor.
- Materials for remote panel and misc. wiring.
- Labor to install drive, conduit and wiring.

1-Closeout

- Startup of all equipment, commissioning and warranty initiation.
- Perform current and finial hydraulic system curve of pumps.
- 6 Complete set of as built signed and sealed by North Carolina professional engineer.

2- Year non-prorated warranty to initiate after start up and acceptance.
   1- Contingency for tariff on GE motor included.

Total: $ 3,682,400.00 Plus Tax, Freight is included

ADDERS:

1. Potential tariff on GE Motor: $50,000.00
2. Payment & Performance Bond: $72,000.00

As always we appreciate the opportunity to work with you on this project, if you have any questions or concerns please do not hesitate to reach out to us!

Thank you.

Russell D. Underwood, PE
President

Russell Underwood

Charles R. Underwood Inc.

BRUNSWICK COUNTY PUBLIC UTILITIES

Kings Bluff Pump Station/LCFWASA

246 Private Rd. 703
Riegelwood, NORTH CAROLINA 28456

MAILING ADDRESS
P. O. BOX 249
BOLIVIA, NORTH CAROLINA 28422

TELEPHONE (910) 655-4799
FAX (910) 655-4798

TO: Tim Holloman

FROM: David Carson

DATE: 10/1/2025

SUBJECT: Monthly maintenance report for September 2025

Mr. Holloman,

The Maintenance and Operations of the King's Bluff facility (KB) for the month of September were performed as prescribed in the station SOP'S (Standard Operating Procedures) and other items are as follows.
The diesel drive booster pumps along with the standby System Computer and Data Acquisition (SCADA) generator located at the raw tank and the SCADA generator located at STEPAN / CFPUA vaults off HWY 421 were run and tested weekly and verified standby ready.

Items Highlighted in yellow were on Annual Inspection

KB personnel completed all locates issued by the Boss 811 system.
KB personnel completed L.E.D. bulb installation in gallery of pump room #4 & 5.
KB personnel blew off Johnson screens at river.
KB personnel power washed air compressors as well as floor of surrounding area.
KB personnel painted floor of air compressor area with epoxy paint then applied finish sealer coats.
KB personnel scrapped floor of oil room and then painted with epoxy paint afterwards finished with finish sealer coats.
KB personnel installed valves on pumps at Raw Water storage tank.
KB personnel installed A.R.V.'s (air release valves) on pumps at Raw Water storage tank.
KB personnel repainted piping to surge tank #3 exterior controls as per preventative maintenance schedule.
KB personnel flushed copper lines for pressure switches of Hellan Strainers in pump galleries 1,4, &5.
KB personnel coordinated with Sanford electric, Underwood pump, and Southern Industrial in the removal of old and outdates V.F.D. (Variable Frequency Drive).

KB personnel assisted TMEIC as well as I&E (Instrumentation and Electronics) with completion and testing of new V.F.D for pump #1.
KB personnel added traction strips on ramp in oil room.
KB personnel ran EMD generators as per preventative maintenance schedule.
KB personnel painted bollards in pump room #4&5 and then added reflective markers.
KB personnel continued to pump out secondary tanks on diesel storage tanks of water this is an ongoing effort to remove the water.
KB personnel with I&E replaced Thermal Coupler on Pump #1.
KB personnel continued putting emergency/hazard tape around pump station.
KB personnel replaced hose on generator #2 oil line.
KB personnel flushed surge tank #3's sight glass and then flushed line.

Contractors:

McDuffie Pest service sprayed Kings Bluff Plant.
Randy Haire facilitated installation of V.F.D. (Variable Frequency Drive).
Dari Corp removed insulation from house.
Sanford electric decommissioned/removed old V.F.D. (variable Frequency Drive) and assisted installation of new drive.
Southern Industrial removed and installed new V.F.D. (Variable Frequency Drive).
TMEIC Performed the Start-up of the new V.F.D (Variable Frequency Drive) 1.
Underwood Pump
Carolina Precision Switchgear
Gregory Poole
O'Brien Service Company added insulation on new HVAC Heating Ventilation and Air Conditioning unit
LJ's land management cut grass at Kings Bluff and Authority property

David Carson

Smithfield®

To: Tim Holloman - LCFWASA

From: James Kern – Bladen Bluffs SWTP ORC

Date: 10/7/25

Subject: September 2025 Operations

During the month of September, Bladen Bluffs SWTP operated a total of 19 days, treating 59.64 million gallons of water.

We used:

32,005 lbs. of aluminum sulfate (Alum)

9,893 lbs. of sodium hydroxide (Caustic)

1,692 lbs. of sodium hypochlorite (3,398 gallons of 6% Chlorine Bleach)

James Kern
Water Treatment Plant
Supervisor

Smithfield
Good food. Responsibly.

(910) 862-3114
(910) 862-3146
(910) 733-0016 mobile
jkern@smithfield.com

Bladen Bluffs Surface Water Treatment
Plant
17014 Highway 87 West
Tar Heel, NC 28392
www.smithfieldfoods.com

Bladen Bluffs SWTP Maintenance Report

Date: 10/7/2025

ISSUE:	PLAN OF ACTION:
All PLC need updated	Updating quote – will speak with Caleb
Vault intrusion electrical needs replaced	Parts arrived – scheduling install when SEC here for large electrical repair
Electrical Issue in Pipe Gallery	COMPLETE
Wooden walkway to river needs replacement	Planning repair/replace
Transfer pump #2 NA	Bad wire – temp fix. Scheduling for when SEC here for large electrical repair
Caustic pump #3 not working	Had pump FIXED, making plumbing repair
Additional support on GAC needs painting	Scheduled
Need to check all indicator light bulbs	COMPLETE
Look into replacing worn out safety signs	IN PROGRESS
Suspect a mud valve is leaking	Will inspect during next basin clean out
Septic pit pump NA	Replaced, still have spare
Filter #1 effluent valve NA	Part ordered – 2 month lead time
Carbon filter #3 media due for exchange	Scheduled 10/8 - 10/12

Monthly Operating Reports (MORs) Summary

(No user data entry – all values are auto-populated.)

Year: 2025 **PWS Name:** Bladen Bluffs Water System **PWSID# :** NC5009012
Month: September **Facility Name:** Bladen Bluff

Combined Filter Effluent (CFE)Turbidity

Samples exceeding 1 NTU (count):	0	Number of samples required:	102
Samples exceeding .3 NTU (count):	0	Number of samples taken:	102
Samples exceeding .3 NTU (pct):	0.0%	Highest single turbidity reading NTU:	0.124
		Monthly average turbidity NTU:	0.060

Individual Filter Effluent (IFE) Turbidity

1)	Was each filter continuously monitored for turbidity?	Yes	X	No	
2)	Was each filter's monitoring results recorded every 15 minutes?	Yes	X	No	
3)	Was there a failure of the continuous turbidity monitoring equipment?	Yes		No	X
4)	Was any individual filter turbidity level > 1.0 NTU in two consecutive measurements ?	Yes		No	X
5)	Was any individual filter turbidity level > 0.5 NTU in two consecutive measurements at the end of 4 hours of operation after the filter has been backwashed or otherwise taken offline ?	Yes		No	X
6)	Was any individual filter turbidity level > 1.0 NTU in two consecutive measurements in each 3 consecutive months ?	Yes		No	X
7)	Was any individual filter turbidity level > 2.0 NTU in two consecutive measurements in 2 consecutive months ?	Yes		No	X

Entry Point Residual Disinfectant Concentration (EPRD)

Disinfectant Used	Chlorine	Number of samples required	102
Minimum EPRD concentration	0.7700	Number of samples taken	102

Distribution Residual Disinfectant Concentration

Number of samples under 0.010 mg/L (without any detectable) excluding where HPC is ≤ 500/mL: 0

Contact Time (CT) Ratio

Lowest CT ratio reading	28.30	Number of CT ratios required	19
Number of CT ratios below 1.0	0	Number of CT ratios calculated	19

Remarks From General Info Worksheet

☑ By checking this box, the ORC certifies that the requirements of 15A NCAC 18C .1301 "General Requirements", .1302 "Tests, Forms, and Reporting", and .1303 "Facility Oversight" have been met for the month of September, 2025 and that records documenting compliance with this rule are maintained on the premises and available for inspection upon request.

NCDENR/DEH
PWSS
Version: V02.10-00

COMPLETED BY: James Kern
CERTIFICATE GRADE: A - Surface CERTIFICATE NUMBER: 120147

CONSENT AGENDA (C4)

Lower Cape Fear Water & Sewer Authority

CONSENT ITEM- Background: Line-Item adjustments are made to align revenues and expenditures more closely to actuals without exceeding or decreasing the approved or amended budget.

LINE-ITEM ADJUSTMENTS FOR 08/31/2025

Operating Fund:	Line-Item Budget Amount prior to Adjustment	Decrease	Increase	Budget Amount as of 08/31/2025
Expenses				
4501-01 Sales Tax Expense	$150,000		$100,000	$250,000
4510-01 Bladen Bluffs O&M	$3,821,385	$(100,000)		$3,721,385
Total	**$3,971,385**	**$(100,000)**	**$100,000**	**$3,971,385**

NEW BUSINESS (NB1)

Lower Cape Fear Water & Sewer Authority

AGENDA ITEM

To: CHAIRMAN DEVANE AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 13, 2025

Re: Resolution Honoring Glenn Walker for Dedicated Oversight of the Kings Bluff Raw Water Plant

Reviewed and Approved as to form: MATTHEW A. NICHOLS, AUTHORITY ATTORNEY

Background: Glenn Walker has devoted over 30 years to water resource management and operations in the Lower Cape Fear region. His career began in 1994 with New Hanover County, where he served as an Environmental Technician before being promoted to Supervisor and Operator in Responsible Charge (ORC). In 1998, he joined Brunswick County Public Utilities, serving first as Water Resources Superintendent at the 211 Water Treatment Plant and later at the Northwest Water Treatment Plant. On April 24, 2017, he was appointed Water Resources Manager, assuming oversight of the Raw Water Plant and Kings Bluff Raw Water Pump Station.

Since that time, Glenn Walker has faithfully managed these critical facilities, ensuring operational reliability, regulatory compliance, and the protection of vital water resources for Brunswick, New Hanover, and Pender Counties. His leadership has been especially evident during times of crisis, including major storm events such as Hurricane Matthew and Hurricane Florence, and during system emergencies such as the November 21, 2021, raw water main line break, where his knowledge, coordination, and dedication were essential in restoring service to the Authority's member counties. His steady leadership, institutional knowledge, and technical expertise have been instrumental in supporting the mission of the Lower Cape Fear Water and Sewer Authority to deliver dependable raw water to the region.

Action Requested: Motion to approve

RESOLUTION HONORING GLENN WALKER FOR DEDICATED OVERSIGHT OF THE KINGS BLUFF RAW WATER PLANT

WHEREAS, the Lower Cape Fear Water and Sewer Authority (the "Authority") relies upon the safe, reliable, and efficient operation of its Raw Water Plant to deliver essential raw water services to its member counties and communities; and

WHEREAS, since April 24, 2017, Glenn Walker faithfully provided oversight and management as Water Resources Manager with Brunswick County Public Utilities, at which time he also began oversight responsibilities for the Kings Bluff Raw Water Pump Station; and

WHEREAS, Glenn Walker demonstrated a long and distinguished career in water resources management, Glenn began his career as an environmental technician with New Hanover County in 1994. He joined Brunswick County Utilities as the Water Resources Superintendent at the 211 Water Plant in October of 1998. He was promoted to Water Resources Superintendent for the Northwest Water Plant in October of 1999. Mr. Walker has served in his present position as Water Resources Manager, Brunswick County Public Utilities, since April 2017; and

WHEREAS, in addition to his professional service, Glenn Walker has provided steady leadership during times of crisis, including major storm events such as Hurricane Matthew and Hurricane Florence, and during critical system emergencies such as the November 21, 2021 raw water main line break, where his knowledge, coordination, and commitment ensured the rapid restoration of vital services to the Authority's member counties; and

WHEREAS, through decades of service, Glenn Walker has consistently demonstrated exceptional leadership, technical expertise, and dedication in safeguarding the region's raw water supply; and

WHEREAS, the Authority desires to formally recognize Glenn Walker for his invaluable contributions, unwavering commitment, and years of public service that have directly benefited the communities we serve.

NOW, THEREFORE, BE IT RESOLVED that the Lower Cape Fear Water and Sewer Authority hereby extends gratitude and recognition to Glenn Walker for his dedicated oversight of the Raw Water Plant since 2017, and for his decades of distinguished service to Brunswick and New Hanover Counties.

This Resolution shall be effective upon passage.

Adopted this ____ day of October 2025.

_____

Patrick DeVane, Chairman

ATTEST:

_____

Al Leonard, Secretary

New Business (NB2)	Lower Cape Fear Water & Sewer Authority

AGENDA ITEM

To: CHAIRMAN DEVANE AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 13, 2025

Re: Resolution Accepting the *Lower Cape Fear Water & Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2025-2026 Annual Inspection Report* (Tony Boahn, P.E., McKim & Creed)

Background: The existing Standard Provisions for Water Supply Agreements with all customers and the current Bond Order require an annual inspection of all the facilities associated with the pump station by a qualified engineer to report on readiness, identify any deficiencies, and make recommended repairs and capital improvements. A copy of the report will be provided to Brunswick County Utilities as operator of the facility.

Enclosed is an excerpt of the report summarizing the inspection items.

Mr. Powell will present an overview of the report.

Resolution Accepting the *Lower Cape Fear Water & Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2025-2026 Annual Inspection Report*

Action Requested: Motion to approve/disapprove.

Resolution Accepting the Lower Cape Fear Water & Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2025-2026 Annual Inspection Report

Whereas, the Lower Cape Fear Water & Sewer Authority, (the Authority) provides within its Standard Provisions for Water Supply Agreements with all customers in Article II, Section 2.5 entitled Inspection of the System, and which reads, in part, "As required by any applicable Bond Order, the Authority shall cause a consulting engineer to inspect the System at least once every 12 months and to submit to the Authority a report identifying any operational, maintenance, or repair problems of the Water System and setting forth for the next ensuing 12-month period his recommendations as to any revisions that should be made in the methods of operation or maintenance of the water system and any repairs that must be made to maintain the water system in such period;" and

Whereas, the existing Bond Order Series 2010 Section 7.06, Consulting Engineer reads, in part, "the Authority covenants that it will, for the purpose of carrying out the duties imposed on the Consulting Engineers by this Bond Order, employ an independent engineer or engineering firm or corporation as Consulting Engineers. The Authority further covenants that it will cause the Consulting Engineers to make an inspection of the System at least once each Fiscal Year and promptly submit to the Authority Executive Director a report setting forth (a) their findings whether the properties of the System have been maintained in good repair, working order and condition and whether they have been operated efficiently and economically and (b) their recommendations respecting the proper maintenance, repair and operation of the System during the ensuing Fiscal Year"; and

Whereas, the Authority budgets on an annual basis, appropriations for the operation and maintenance of the Kings Bluff Raw Water System with Brunswick County Utilities under a long-term Operation and Maintenance Agreement; and

Whereas, in accordance with the above references and the annual operating budget for FY 2025-2026, the Authority's consulting engineer has provided the Annual Inspection Report with recommendations for repairs or normal maintenance items; and

Now Therefore Be It Resolved, that the Chairman and Board of Directors for the Authority, accepts the *Lower Cape Fear Water & Sewer Authority Kings Bluff Regional Raw Water Supply Facilities FY 2025-2026 Annual Inspection Report*.

Adopted this 13th day of October 2025

_____

Patrick DeVane, Chairman

ATTEST:

_____

Al Leonard, Secretary

Lower Cape Fear Water & Sewer Authority
Kings Bluff Regional Raw Water Supply Facilities
FY 2025-2026 Annual Inspection Report

Kings Bluff Raw Water Pump Station

Interim Raw Water Booster Pump Station

Prepared by

McKIM&CREED

243 North Front Street
Wilmington North Carolina
F-1222

Prepared for

LOWER CAPE FEAR WATER AND SEWER AUTHORITY • INCORPORATED 1970 •

September 2025

NORTH CAROLINA PROFESSIONAL SEAL 046997 ENGINEER JESSE E. POWELL

09/30/2025

LOWER CAPE FEAR WATER AND SEWER AUTHORITY
KINGS BLUFF REGIONAL RAW WATER SUPPLY SYSTEM
ANNUAL INSPECTION REPORT
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FIGURES

APPENDICES

SECTION 1 - INTRODUCTION

1.1 FACILITIES

The Lower Cape Fear Water and Sewer Authority is a regional organization with sponsoring members that are comprised of Bladen, Brunswick, Columbus, New Hanover, and Pender Counties, and the City of Wilmington. The Authority was created to aid development of a water supply system for the sponsoring member governments, which are primarily located in southeastern North Carolina (Refer to Figure 1 for a map of the Authority's current service area). The Authority's current facilities at King's Bluff consist of the following:

- Two (2) Raw Water Intake Pipes and Associated Intake Screens
- Kings Bluff Raw Water Pumping Station
- Interim Booster Pumping Station
- Raw Water Transmission Main Piping (48-inch and 54-inch)
- Raw Water Storage Reservoir
- Miscellaneous items such as SCADA, Metering Vaults, Air Release Valves, etc.
- Pump Station Standby Power (Kings Bluff Raw Water Pumping Station) consisting of Two Separately Housed Primary Diesel-Powered Generators with Automatic Transfer Switchgear.
- Two (2) oxidation catalysts installed on each primary standby generator.
- Transmission Main Pigging Facilities
- Air Surge Tank System

The Authority obtains raw water from the Cape Fear River via two (2) raw water intake pipes (48-inch and 60-inch diameter) located just above Lock & Dam No. 1 in Bladen County. Raw water is conveyed by various raw water transmission mains to several governmental and industrial users in the region. The Authority's current customers are as follows:

- Brunswick County (governmental entity)
- Cape Fear Public Utility Authority (CFPUA - governmental entity)
- Pender County (governmental entity)
- Invista (private industry)
- Praxair Incorporated (private industry)

Phase I of the Authority's facilities, completed in 1984, consists of a 45 million gallon per day (MGD) raw water pumping station and intake structure, approximately 14 miles of 48-inch transmission main, and a 3 million-gallon (MG) storage reservoir. Phase 2 extended the system

approximately 10 miles to serve the industries of Invista and Praxair along US 421 and the City of Wilmington. This phase consisted of 60-inch and 48-inch transmission lines that were placed into service in April 1992. The Phase 1 and Phase 2 facilities are shown in Figure 1.

In December 2003, the two 3.0 Megawatt (MW) standby generators were placed into full-time operational status at the Kings Bluff Pumping Station. The generators are housed in a separate building co-located with the pumping facilities at the Kings Bluff site. Major components of the standby power facilities include (2) reconditioned generators, automatic electrical switchgear, and (2) 12,000-gallon capacity fuel tanks. In 2007 the Authority completed a major rebuild of both 3.0 MW standby generators.

In 2005 it was recommended that the Authority conduct pigging of the 48-inch raw water transmission main to clean the pipe of the sedimentation and sand accumulation that was reducing the output due to increased friction in the pipeline. This project included the installation of pig launch and retrieval facilities and the completion of four (4) 'pig' runs to scour the pipe interior. The pig launch facility is located near the Kings Bluff Pumping Station, while the pig retrieval facility is located at the storage reservoir site.

In 2009 a comprehensive expansion and upgrade to the Kings Bluff Pumping Station was completed and included the following major components:

- Three (3) new 1,600 HP vertical turbine raw water pumps
- Additional wet well expansion to accommodate a total of five (5) raw water pumps
- New electrical building housing three (3) variable frequency drives
- New operations office with restrooms, shower facilities, and overnight accommodations
- SCADA and telemetry upgrades
- Valving and raw water main piping modifications for future parallel raw water main connection
- Retention of two (2) existing 1,000 HP vertical turbine raw water pumps (note that both 1,000 HP pumps have recently been permanently removed from the facility)
- Additional air surge tank

In 2010, a new 60-inch diameter parallel raw water intake pipe and three (3) intake screens were constructed at the Kings Bluff Pumping Station. The 60-inch intake was placed into service in December 2010 and was constructed parallel to the existing 48-inch intake pipe. The 60-inch intake piping and existing 48-inch intake pipe were designed and constructed such that the station can be supplied raw water from either intake pipe or both simultaneously, thus providing ultimate operational flexibility at the Kings Bluff facility. In conjunction with the intake project, a new integrated air backwash system and building was constructed adjacent to the original air backwash building. The purpose of the backwash system is to allow for periodic

cleaning of silt and debris buildup at the intake screens via a pressurized air burst through the screen assemblies.

Primary components of the parallel 60-inch intake system are as follows:

- 1,100 feet of 60-inch ductile iron intake pipe
- Three (3) *Johnson* stainless steel intake screens rated at 27.5 MGD each
- New air backwash building
- *Johnson Hydro-burst* integrated air backwash system and 2,000 Gallon air tank

Interim Booster Pump Station

In 2013 the Authority completed construction of the Interim Booster Pump Station (IBPS), which is located at the 3 MG ground tank site. The IBPS provides a capacity of 29.1 MGD, as well as increased pressures, to customers on the US Highway 421 portion of the system, which are Pender County, Invista, Praxair, and CFPUA. The IBPS consists primarily of three (3) diesel driven pumps that deliver increased flow and pressure to meet peak summer demands for Authority customers. Originally, the IBPS pumps, fuel cells, and standby generator were provided under rental agreement to the Authority with *Mersino Pumps*. However, the Authority has since purchased this equipment and the IBPS is a now permanent facility completely owned and operated by the Authority.

Primary Components of the IBPS are as follows:

- Three (3) diesel-driven pumps
- Three (3) 500-gallon capacity diesel fuel storage tanks
- One (1) 45 KW diesel generator
- 265 feet of 24-inch ductile iron pipe
- 700 feet of 48-inch ductile iron pipe
- Piping, valves, miscellaneous appurtenances
- SCADA/Telemetry controls for operation of the IBPS

Hurricane Matthew Raw Water Main Failure

On October 13, 2016, a significant failure of the LCFWSA's existing 48-inch PCCP raw water transmission main was identified by staff in the community of Riegelwood, Columbus County, NC. The failure occurred in a low topographical area that has limited drainage and is prone to flooding. Upon identification of the leak, a multi-organizational effort to repair and restore the pipeline was undertaken. The repair effort included extensive dewatering, a temporary access

road, a temporary repair band, a temporary by-pass pipe, and full replacement of the failed pipe sections with DIP.

Based on evaluation of the failed transmission pipeline, it was determined that the pipe bedding and foundation had been undermined and that the pipe had settled causing the joints to separate and leak. In review of events leading up to the pipe failure, it was determined that Hurricane Matthew had passed the area on October 8, 2016, delivering 8-inches of rain over a 24-hour period. After this event, the nearby Cape Fear River crested at approximately 28 feet on October 13th-14th, 2016 which directly coincided with the pipeline failure of October 13, 2016. It was surmised that the flooded conditions and the significant impacts attributed to Hurricane Matthew undermined the pipe bedding and foundation, causing settlement of the pipe, separation of the pipe joints, and failure of the pipeline.

Repair efforts included the following:

- Installation of approximately 1,000 linear feet of 36-inch HDPE bypass piping with two (2) wet taps on the existing 48-inch main.
- Removal of approximately 80 linear feet of 48-inch PCCP raw water main.
- Installation of approximately 80 linear feet of new 48" DIP raw water main.
- New in-line 48-inch gate valve
- New 48-inch Tee

The total project cost to repair the pipeline was $2,766,690, which was 100% reimbursed through FEMA disaster relief funds.

Pure Technologies SmartBall Inspection

As a result of the pipe failure and age of the existing 48-inch PCCP raw water main, the Authority contracted with *Pure Technologies* to perform a leak inspection of the 14-mile pipeline section from the Kings Bluff Raw Water Pump Station to the 3 MG Ground Tank. The inspection involved insertion of a "SmartBall" acoustic device in the pipeline for the length of pipe to be inspected. The "SmartBall" travels along the pipeline and utilizes acoustic methods to determine potential leaks along the pipeline. The field inspection of the pipeline was completed on May 18, 2017. Results from the inspection indicated no major leaks but did note a potential small leak near the 3 MGD Ground Tank. Based on the Pure *Technologies* report, the leak was likely the result of "bleed through" of the existing valve at the 3 MG ground tank and did not represent an actual leak from the pipe. No further action was taken upon completion of the report; however, McKim & Creed recommends that the existing valve at the 3 MG ground tank be monitored for potential leaks or other issues.

54-Inch Parallel Raw Water Main

In December of 2019, construction of a new parallel 54-inch raw water transmission main began and was placed into service in November of 2021. The project was subsequently completed in April of 2022 after installing strategic interconnections with the existing 48-inch pipeline. The new 14-mile pipeline now parallels the existing 48-inch raw water main from the Kings Bluff Raw Water Pump Station to the 3-million-gallon ground tank near the Brunswick County Northwest Water Treatment Plant. The pipe was constructed of welded steel with a cement mortar liner and exterior polyurethane coating. Cathodic protection for the new pipe was installed along the entire pipeline route. Four primary interconnections with the existing 48-inch raw water main were constructed to provide resiliency and operational flexibility for the conveyance system. With the completion of the new parallel pipeline, the Kings Bluff Raw Water Pump Station has a firm permitted capacity of 62 MGD.

Kings Bluff Raw Water Pump Station 4th Pump Design & Permitting

The Board of Directors authorized the design and permitting of a new 4th raw water pump for the Kings Bluff facility in July of 2020. The design was completed in the fall of 2020 and a permit modification was submitted to NCDEQ Public Water Supply to increase the station capacity to an anticipated 90 MGD. The modified permit was approved in February of 2021; however, the 54-inch parallel pipeline noted was not complete and operational at the time for the Authority to fully realize the increased capacity that would be available from the 4th pump; therefore, the project was put on hold until after completion of the pipeline. The Authority plans to move forward with purchase and installation of the new 4th pump in the fall of 2025, with anticipated completion in the spring of 2027.

48-Inch Raw Water Main Failure near DAK Industries Site

On November 3, 2021, a pressure spike in the raw water transmission main system resulted in a significant failure of the LCFWSA's existing 48-inch PCCP raw water transmission main. The failure was identified by Brunswick County staff in the area behind the DAK Industries site near the Cape Fear River. Upon identification of the leak, a multi-organizational effort to repair and restore the pipeline was undertaken as downstream customers (CFPUA, Pender, 421 Industries) were receiving reduced flows as a result of the failure in the pipeline.

Brunswick County utilized their emergency services contract with State Utilities to mobilize personnel and equipment to the project area and begin installation of bypass piping and repair of the damaged pipe sections (approximately 220 feet total). The repair of the section of 48" pipe was completed on January 15th, 2022, and the line was restored to service. The total cost to complete the emergency repair was $2,521,503.84.

Black Rock Rd. Raw Water Main Repair

In April of 2022 during a punch list inspection for the 54-inch raw water transmission main project, McKim & Creed staff observed water bubbling up from the ground along the 48-inch pipeline alignment near Black Rock Rd. With the new 54-inch pipeline in service, LCFWASA staff were able to isolate the section of pipeline to excavation and identify the leak. Brunswick County staff received bids to remove the two pipe segments on either side of the damaged joint and replace them with 48" ductile iron pipe the Authority had in storage. TA Loving was placed under contract to make the repairs, and this work was completed in August of 2022. The total cost of the repair was $85,474.80.

Access Walkway over Livingston Creek

In January of 2023 Intracoastal Marine completed the installation of a walkway connecting the 54" steel pipe access walkway to a new walkway spanning the aerial portion of the existing 48" PCCP pipe. This new structure will be used for future maintenance and inspections of the existing 48" PCCP pipe.

Also completed by Intracoastal Marine during the same time was a joint repair on the existing 48" PCCP elevated pipe where degradation of one of the existing joints had occurred. The contractor repaired the joint in accordance with specifications provided by the pipe manufacturer and at the direction of McKim & Creed's structural engineer. (**See Photograph II**)

54-Inch Parallel Raw Water Main – Phase 2

Phase 2 of the 54-inch raw water main project, which is a 7-mile extension of the previous project, is currently under construction at the time of this inspection. Once completed, the raw water system will have parallel raw water transmission mains between the 3 MG ground tank, to the Pender County Plant feed where an interconnection is proposed. Construction of Phase 2 began in January 2025 and with completion expected in April 2026. Phase 2 is fully funded with Federal ARPA and NC General Assembly infrastructure grant funds.

54-Inch Parallel Raw Water Main – Phase 3

The Phase 3 project is a 3-mile extension from Phase 2 and will provide a complete parallel pipeline for the full length of the Kings Bluff system. The project will extend from the existing Pender County meter vault to the CFPUA meter vault where an interconnection is proposed. Design is currently underway and easements along US 421 are being negotiated. Construction is expected to begin following the completion of the Phase 2 pipeline. Phase 3 is partially funded with NC General Assembly infrastructure grant funds. An interlocal agreement has been executed to fund the remainder of the project.

1.2 BASIS OF ANNUAL INSPECTION

A condition of the authorizing Bond Order requires an annual inspection of all facilities by a qualified Engineer who shall report on their readiness, identify any deficiencies, and make recommendations on capital improvements.

1.3 OPERATING ARRANGEMENTS

The Authority maintains limited full-time staff, consisting of an Executive Director and an Administrative Assistant, for the administration of the Authority's programs and the coordination of water supply activities in the Region. The Authority contracts for operations and maintenance of the Regional Water Supply System with Brunswick County. The Brunswick County Utilities Department provides the personnel and resources to operate and maintain the Authority's raw water facilities and administers outside maintenance contracts as needed for effective operation of the system. Thus, Brunswick County is designated the "Contract Operator" of the system.

1.4 SCOPE OF WORK

The annual inspection program is comprised of several major focus points:

- Detailed in-the-field inspection of the Kings Bluff Pumping Station, pipeline route, air relief valve assemblies, line valves, metering stations, reservoir facilities and grounds, and general appurtenances throughout, to assess general level of maintenance and to identify the need for equipment replacement, repairs, or remedial activities.
- Review of Authority's operation and maintenance records, protocols, and processes to identify the level of maintenance and potential adjustment toward improved efficiency.
- The identification of capital improvements or major repairs that merit immediate attention or further investigation and definition.

The results and findings of this annual inspection are summarized in the following sections of this report. The FY 2025 - 2026 inspection of the Authority's facilities was conducted during September 2025.

SECTION 2 - KINGS BLUFF PUMPING STATION

2.1 GENERAL STATUS

The components of the Kings Bluff Pumping Station consist of:

- A 48-inch raw water intake pipe with three 15 MGD intake screens and air backwash system with a total rated capacity of 45 MGD
- A 60-inch raw water intake pipe with three 27.5 MGD intake screens and air backwash system with a total rated capacity of 82.5 MGD
- Three 1,600 HP vertical turbine pumps with variable frequency drives
- Two 3.0 MW (medium Voltage) primary backup generators with oxidation catalysts
- Two 12,000-gallon concrete diesel fuel tanks
- Electrical building and operators control room
- SCADA and telemetry system for monitoring and control
- 24 miles of 48-inch and 60-inch raw water transmission main
- Three (3) air surge tanks
- Pig Launcher & Pig Retriever on 54" RWM
- 14 miles of 54-inch raw water transmission main
- 4- Interconnections between "48" RWM and 54" RWM
- 24" & 30" Pressure Reducing Valve Assemblies
- New Flow Meter Vault
- New Elevated Platform with ARV and piping over Livingston Creek for both 48" PCCP pipe and 54" STL pipe.

2.2 EQUIPMENT AND SYSTEM INSPECTION SUMMARY

An inspection of all major equipment was completed, and the findings are tabulated in *Appendix A*.

2.3 PUMP OPERATIONS

Power Sources

Primary power is purchased from Duke Energy Progress at Medium Voltage levels (4,160 Volts). The level of service provided enables the pumping station to be operated at its full rated capacity with two of the three 1,600 HP electrically driven pumps operating in parallel.

In the event of primary power interruption, the two 3.0 Mega Watt generators at the Kings Bluff pumping station energize automatically to provide dedicated, reliable power to the pumping station. The generators allow the raw water pumps to be started and operated in order to meet the raw water demands of the Authority's customers. Overall, the generators were inspected and found to be in good operating condition.

In addition to providing emergency power to the station, LCFWSA entered into a power curtailment agreement (Demand Response Automation – DRA) with Duke Power. Under this agreement, the Authority's emergency power system was activated when requested by Duke causing the plant load to be shed from the main utility power system. For each activation, the Authority received compensation which was then used to offset the cost of operating the pump station. The generators are equipped with catalytic converters that meet required NCDEQ Air Quality Emissions standards to maintain participation in the DRA program. LCFWSA has a separate contract with PowerSecure to monitor the performance of the catalytic converters to ensure they are operating within the Air Quality constraints.

During this year's inspection (2025), the station's generators were not started. Additionally minor items requiring correction were noted and are listed in Appendix A.

The Authority's SCADA system and main computers, upgraded in 2009 as part of the pump station expansion/upgrade, are sufficient for current operations. Staff indicated during the inspection that the Authority will be upgrading the computer system shortly.

Pumps, Electrical, and HVAC Facilities

Noted in the 2014 inspection, Pumps 2 and 3 (1,000 HP each) have been permanently removed from the old pump station section. Openings have been capped and conductor conduits have been capped flush with the slab.

During the 2016 inspection staff suspected that Pump 4 had a cooling water leak in the upper bearing chamber that could be contributing to the high temperature. It was recommended that this be inspected and addressed immediately. The Authority staff did investigate this issue and no leak was found. As a protective measure, the Authority has purchased a spare cooling coil in the event of failure of a cooling coil on the 1600 HP pumps. The coil is interchangeable with each pump.

In June 2017, Pump 4 was removed from service due to an oil leak and was then repaired by Charles Underwood Pump Company. After the pump was placed back in service, the bearing was observed to be operating at a lower temperature, similar to or slightly lower than Pumps 1 and 5. A definitive answer was not provided by the pump manufacturer as to the reduction in bearing temperature; however, it has continually operated in a normal range since this repair and appears to be in satisfactory condition.

During this year's inspection, the 1,600 HP vertical turbine pumps (installed as part of the 2009 expansion/upgrade of the Kings Bluff facility) were inspected and found to be in good condition and meet the needs of the Authority's customers (See ***Appendix F -Photograph A***). During this year's inspection, staff indicated that the Pump 4 was to be serviced this fall.

During this visit, it was noted the check valve on Pump 1 that was leaking significantly during the last inspection had been addressed and no evidence of a leak was noted. (See ***Appendix F - Photographs B***).

Also, during our last inspection, it was noted that the pump 5 check valve was making significant noise clearly suggesting that there was an issue internally with the valve. The noise was concerning enough for staff to modify the operation of the station to reduce the number of stops and starts on pump 5, thus reducing the "slamming" of the valve. It was observed during this inspection that the check valve had been serviced, and the stations operation was returned to normal with all three pumps being driven from their respective VFDs. Also noted during this inspection, there was slight bubbling noise at the top of the check valve which suggests that there could be air trapped in the top of the valve. Staff were aware of the issue, were monitoring it, and indicated they would be reaching out to Underwood for assistance (See ***Appendix F - Photographs C***).

During the previous inspection, staff indicated the lighting in the old station was scheduled to be replaced with LED lighting as the existing was outdated florescent type. As for this inspection, the lighting has been replaced and is a marked improvement. In addition, since the last inspection, the old pump station roof replacement work has been completed. (See ***Appendix F - Photographs D***).

During the last inspection, failing paint on the interior wall adjacent to the personnel door leading to the pier from the new pump station was observed. This area has been since been repainted. Additionally, a failing mortar joint located 1 block course above the base slab. Minor block spalling was also observed. as of this inspection, the area had not been addressed but was actively monitored by staff. (***See Appendix F- Photograph E***).

The 1,600 HP pumps are controlled by a separate electrical control room housing variable frequency drives and motor starters. During the 2016 inspection, it appeared that the masonry wall to wall joints located inside the new pump station electrical building had shifted producing cracked paint at the intersection of the walls. The most noticeable crack is located on the masonry wall joint located west of the westernmost roll up door. Since the 2016 inspection,

Engineer reviewed the joints and found that the issue was not structurally detrimental; however, it was recommended that staff should continue to monitor the issue. During this inspection, visual observation indicated that the size of the separation did not appear to have increased (See ***Appendix F - Photograph F***). It is recommended that the wall separation continue to be monitored.

Adjacent to the new electrical control room is an HVAC room housing the HVAC equipment. As for this inspection, no issues were observed in the room. As noted during the 2023 inspection, a new HVAC unit had been installed outside with an associated air handler inside. As for this inspection, two other condensing units have been replaced with new HVAC units as the existing ones were failing over the past year. (See ***Appendix F - Photograph G***).

In addition to the items noted above, staff indicated that the cooling water flow meters on all three main pumps had been replaced over the last year and that pump 1 VFD drive would be replaced this year.

Pump Station Metering

The raw water pump station is provided with two flow meters that measure flow leaving the station. In the past, the flow meter readings at the station have been significantly different than the sum of the customer flow meters. Historically, the summation of the customer meters has been generally within 1-2% of the station meter totals. Per our understanding, County staff has conducted field testing and determined that the customer flow meters appear to be within acceptable ranges; therefore, customer billing appears to be normal and generally accurate. It is recommended that the County and Authority continue to monitor the metering conditions for accuracy at the Kings Bluff Pump Station. No issues were reported as a result of this year's inspection. The flow meter vault was inspected and found to be in good condition ***Appendix F - Photographs H***).

2.4 EXTERNAL DIESEL FUEL TANKS

The two 3.0 Mega Watt standby generators are supplied by (2) 12,000-gallon concrete fuel tanks, which are located adjacent to the generator building. The tanks were installed with a 110% secondary containment wall to capture overflow, ruptures, or spills of diesel fuel. During previous inspections, significant efflorescence was noted to exist on the tanks, suggesting coatings failure. During this inspection, the external fuel tanks were found to have been repaired completely with a new coat of paint and new signage (See ***Appendix F – Photograph I***).

2.5 PUMP STATION BUILDINGS

The combined new and old pump station buildings were inspected and found to be in good overall condition.

During a previous inspection, cracks were found in the concrete flooring of the new pump room. These cracks were analyzed and monitored and do not appear to be detrimental to operations. During this inspection, it did not appear the cracks had grown or widened and thus it is recommended staff continue to monitor them for change.

2.6 GROUNDS

The grounds consist of a paved access drive and parking area, and the grass area surrounding the pumping station. During 2003 a new chain link security fence was installed around the complete pump station site. The new fence has an electronically controlled gate with a keypad entry system which was installed during the spring of 2003. The fence provides an enhanced level of security for the pumping station and the maintenance staff.

In recent years, sink holes have appeared behind the pump station, at the generator building transformers, and at the small generator. The Authority recently implemented repairs to a leaking storm drainpipe as well as capping an abandoned pipe that was suspected of contributing to the sink hole issues. During this inspection, sink holes or drainage issues were not observed and appear to have been corrected.

2.7 AIR SURGE TANK SYSTEM

The air surge tank system consists of three tanks and provides for surge relief and protection from water 'hammer.' During the 2019 inspection, it was noted that the anchor bolts which secure the steel air tank piers to the concrete base footings had been replaced.

During the 2024 inspection, it was noted that the paint was failing in several areas especially on the tank drain valves and tank #3 and that all exterior small diameter piping needed insulation replaced or installed. Since that inspection, tanks have been painted and all drain lines insulated (See ***Appendix F – Photograph K and J)***.

With regards to the surge tank controls, during this year's inspection, two older tank surge control systems were found to be in operation but the third was not. Staff indicated that they had no issues with the operation of the system, however they had noted that the controls would lose tank pressure over time and that the automatic fill system did not appear to keep up with the loss. As a result, staff has been manually adding air periodic to maintain the desired level (***See Appendix F – Photograph L***). It is recommended that all three control systems be serviced to address the air loss and adjust control settings to the dual pipeline and three-tank scenario.

Previously with regards to tank 3 exterior level controls, it was recommended that the control and level piping mounted to the tank be heat traced insulated. All piping is small in diameter

and thus susceptible to freezing. As of this inspection, heat tracing has not been installed (See *Appendix F – Photograph M).*

2.8 AIR BACKWASH WALKWAY STRUCTURE

The pipe corridor of the 60-inch intake pipeline is located parallel and adjacent to the existing pier. An inspection of this area indicated that vegetative cover is established, and that the area is slightly flooded (See ***Appendix F - Photograph N***). Additionally, overgrown vegetation was in the process of being cleared but the work was not yet complete, as significant growth was observed near the building (***See Appendix F – Photograph O***). Staff indicated clearing work was delayed.

During the 2018 inspection, it was observed that the pier and walkways to the air-backwash control buildings needed repair. Several deck boards and handrails were in poor shape. During the 2019 inspection, it was noted that some repairs had been made (stair and plank replacement); however, more are still required. Also noted in previous reports, several areas on the older building's wall panels are still showing signs of rot.

As for this inspection, the dock remains in poor condition (See ***Appendix F - Photograph P***). Design of a replacement pier structure and air backwash building are currently underway and anticipated to be completed in 2025. Construction is slated to begin in 2026.

2.9 GENERATOR BUILDING

The generator building was inspected, and findings are presented in ***Appendix B***. The facility was found to be in good condition. Staff noted that during the Duke Energy curtailments (and other events) excessive heat is generated inside the building even when all exhaust fans are on and the exterior roll up doors are open. Staff noted the excessive heat causes damage to the batteries adjacent to the generators.

To eliminate the battery damage issue, the staff has completed the installation of an air-start system on the generators. As noted during prior inspections, the building interior insulation surface has been damaged by the heat, making it brittle. As of this review, the insulation had been removed and spray foam insulation applied to all interior wall surfaces (See ***Appendix F – Photograph Q***). The generator radiators were observed to be in good condition.

Generator radiators were inspected during this visit and were found to be in operable condition. As noted previously, rust has advanced significantly on the underside fan shroud. It is recommended that staff continue to monitor the area for corrosion.

As noted previously, the pneumercator panel located within the generator electrical room was found to be in alarm status. Staff has already scheduled this issue to be addressed before the end of the year.

Coolant piping associated with the generators was observed during this inspection to be peeling and or missing paint in a few areas. It is recommended these areas be touched up soon before corrosion can begin (See ***Appendix F – Photograph R***).

2.10 LIGHT DUTY GENERATOR

As noted during the last inspection, staff indicated that the light duty generator was no longer in operation and will not be serviced further. A portable generator was on site to fulfill the purpose of the light duty generator. The diesel tank associated with the light duty generator will no longer be serviced and will serve as storage for the portable generator. Once all diesel is exhausted, the tank will be retired.

2.11 STAFFING

The Authority currently contracts with Brunswick County Utilities for O&M staffing for its raw water facilities and does not directly employ any O&M staff. Generally, the station is not manned 24 hours per day, and on-site operator duties are shared by multiple County employees on staggered work shifts.

2.12 RADIO ANTENNA

The antenna, fencing, and support equipment appeared to be in good working order. The antenna was struck by lightning within the past year and was serviced as a result. Due to the lightning strike, a new PLC was installed in the communication cabinet. During this work, Staff installed a new empty 2-inch conduit from the antenna to the generator building for a future fiber optic connection to the tower.

2.13 ON SITE POTABLE WELL

In 2019, staff installed a water line (1-inch service) from a Bladen County water line tap to the pump station. The existing well system was switched over to County water, mitigating the quality issue. There were no water quality issues noted in this year's inspection.

2.14 INTAKE SCREEN/AIR PIPING AND WARNING SIGNS

As for this inspection, there is a new larger sign that warns boaters of the danger of backwashing intake screens. This new sign replaces the old, damaged sign as reported in previous inspections.

With regards to the backwash system air piping/system, the following were observed:

- The main air supply line located under the access pier has a leak near the stairs. It is recommended that Staff address the main air supply leak until construction of the new air backwash walkway structure is complete.

- Air piping leaks were observed on the air piping from the new backwash air tank to the new screens (See ***Appendix F – Photograph S***). This leak is slated to be addressed during the construction of the new air backwash walkway structure.
- A control valve on the old backwash system previously noted as leaking continues to leak. This leak is slated to be addressed during the construction of the new air backwash walkway structure.

2.15 SEPTIC SYSTEM

The facility provides wastewater disposal via a small pump system with an on-site subsurface drain field. In 2019, Staff indicated the system grinder pump had been replaced recently and that the system was operating without issues. During this inspection, there was no indication of septic issues observed.

SECTION 3 - RESERVOIR & INTERIM BOOSTER STATION

3.1 GENERAL

The three-million-gallon (MG) raw water ground tank is located near Brunswick County's Northwest Water Treatment Plant and is surrounded by an earthen berm to hold any overflow which may spill out of the storage tank. There is a small control building adjacent to the tank and the entire site is enclosed within a chain link fence. The ground tank is in good condition as are most of the other components at the 3 MG ground tank site.

The tank is made of pre-stressed concrete, coated with an external paint system for protection and appearance. There are several places where visible seams on the outside wall of the tank appear to have calcification due to leaks, but no visibly wet seams were noted (See ***Appendix F - Photograph JJ***). During the previous inspections, O&M staff indicated that the *Crom Corporation* (original tank manufacturer) had been contacted to evaluate the seams and provide recommendations for repair.

Interim Booster Pump Station

The interim booster pump station (IBPS) was inspected and found to be in excellent condition, and no issues were present that required corrective action. It is recommended that O&M staff periodically test the system for functionality and develop/modify protocols as required for maintenance and operation. It is also recommended that the IBPS be exercised and tested under actual flow conditions to ensure proper operation when the IBPS is required. It should be noted that staff document and operate this station weekly to ensure it is standby ready.

Interim Booster Pump Station Freeze Damage

In January 2017, the interim booster station sustained damage as a result of freezing temperatures. The pumps are equipped with drain valves and air release valves, which froze and burst because of abnormally low temperatures during this period. Additionally, damage was sustained to electronic controllers used for pump operation, likely a result of a lightning strike. As of the date of this report, all pumps have been repaired and are operational. Brunswick County staff are in the process of conducting pump tests in conjunction with Pender County and CFPUA to verify operational viability of all components. It is our understanding that Brunswick County will also develop a Standard Operating Procedure to test the pumps periodically.

In November 2018, the Authority obtained bids to implement improvements to the facility to include a shelter-style cover, freeze protection, and additional lighting. Based on the bids received, the Authority chose to delay the improvements to a future date.

Once construction of the Phase 2 and Phase 3 parallel pipeline projects is completed, the booster pump station will no longer be required to meet peak demands.

SECTION 4 - PIPELINE

4.1 GENERAL

The Authority's original pipeline was constructed in two phases. The first phase, which was constructed in the early 1980s, was comprised of approximately 73,000 linear feet (LF) of 48-inch diameter pre-stressed concrete cylinder pipe. The raw water main was extended in the early 1990s in a subsequent phase, which included approximately 52,300 feet of 60-inch and 48-inch diameter pre-stressed concrete cylinder and ductile iron pipe. Air relief/vacuum valves are located at high points on the pipelines to allow trapped air to be vented from the pipeline and to allow the introduction of air into the pipeline in the event that 'vacuum' conditions occur. No inspections were made of the underground sections of the raw water main; however, the pipes are safely within the expected useful life of their respective materials, and no significant issues are anticipated with the raw water transmission system. The pipeline between the Kings Bluff station and the 3 MG ground tank was pigged in 2005. While not critical to current operations at this time, a future pigging project should be considered to maintain maximum transmission capacity.

The 2022 completion of the parallel 54" pipeline has added 73,000 feet of pipe to the system, paralleling the original 1980s pipeline. Phase 2 of the parallel 54" pipeline project began construction in January 2025 which will extend from the 3 MG ground tank to the Pender County meter vault. Phase 2 will add an additional 35,000 feet of parallel raw water main to the system. Funding has now been secured for the third and final phase, which is currently under design and is anticipated to begin construction once Phase 2 is complete. The project will span from the Pender County meter vault to the CFPUA vault, extending the raw water main an additional 15,000 feet.

4.2 RIGHT-OF-WAY

The pipeline right-of-way was inspected and found to be in good condition. A substantial portion of the pipeline right-of-way includes a gravel/soil access road, and farmland or adjacent railroad right-of-way and is well maintained and in good condition. The majority of the right-of-way is well maintained with adequate accessibility. The entire right-of-way width of 75' was cleared during the construction of Phase I - Parallel 54" RWM. Several wet areas are frequently inaccessible due to water levels in swampy areas and highly overgrown areas (See ***Appendix F - Photograph AA***). It is recommended that these areas be mowed/cleared when possible and inaccessible areas inspected. Garney Construction is currently working on installing water main piping for Phase 2 from the 3 MGD Ground Tank to Pender Plant and were observed to be working behind DAK Industries at the time of the inspection. During the inspection, part of the R/W corridor was blocked off and not accessible near the DAK facility due to construction activities.

In 2005, all vaults and blow offs were marked within the right-of-way with high visibility 8-foot PVC pipe markers to assist with mowing activities. However, it is noted that the orange paint has faded, and the PVC pipes show signs of deterioration (See ***Appendix F - Photograph BB***). Any deteriorated marker post should be replaced with blue marker post with LCFWSA name and number.

The raw water main is also identified in the field by markers, which are blue in color with the Kings Bluff phone number stenciled in front. It also has "Lower Cape Fear Water & Sewer Authority" identified on the front of the marker with the phone number to the main office listed. This provides a visual notification of the approximate location of the pipeline and can help avoid potential impacts from construction, etc. within the Authority's right-of-way. It is recommended that the Authority maintain pipeline markers at all roadway crossings throughout the pipeline corridor.

The recently completed Phase I - 54-inch parallel pipeline provided "blue" utility markers to denote the location of new pipeline along the right-of-way corridor. It is recommended that the remainder of the right-of-way be inspected, and marker posts replaced or added as needed ***(See Appendix F – Photograph CC)***

4.3 AIR RELIEF VALVES

The air relief valves on the raw water mains consist of a 6-inch valve to expel air and a 2-inch air valve to allow air into the pipe when drained, thus preventing a vacuum. Periodic exercising and verification of "open condition" is necessary for these valves to protect the pipeline from excess air surges, and possible rupture. Similar to blow-off valves, it is recommended that these valves be exercised at least once per year to maintain operational viability. Additionally, there are 25 new air relief valves along the 54" RWM route as shown in ***Appendix F - Photograph DD***. The photos show the existing ARV and new ARV on the 54" RWM. See ***Appendix C*** for a list of inspected air relief valves.

4.4 BLOW-OFF VALVES

The blow-off valves located on the original Phase I and II pipelines were inspected and appear to be in good condition. It is recommended the blow off valves be exercised at least once per year to ensure continued operability. Additionally, the blow-off valves should be repainted regularly, and new marker posts set on each side. See ***Appendix D*** for a comprehensive list of inspected blow-off valves on the 48" RWM. There are a total of 8 new blow-offs along the Phase I - 54" RWM route. See ***Photographs GG*** of existing blow-off and new blow-offs on 54" RWM.

4.5 METER VAULTS

Metering facilities are installed at the customer connections at Brunswick County, Praxair Inc., Invista, and CFPUA. Standby power exists at all meters and allows the Authority to collect data during major power outages and minimizes the amount of non-billed water due to loss of

commercial power. All meters were inspected and appear to be in good working condition. It is recommended that all piping be evaluated and routinely painted at each vault as required. A summary of the inspection of all meter vaults is provided in ***Appendix A***.

4.6 CHECK VALVES

The 48-inch check valve manholes were opened during this inspection. All check valves appear to be in good condition and no major problems were identified (See ***Appendix E***). It is recommended that all valves be evaluated and routinely painted at each vault as required.

4.7 EMERGENCY CONNECTION – PREVIOUS DAK INDUSTRIES SITE

During repair of the pipeline that failed following Hurricane Matthew, Brunswick County installed an emergency connection to the existing raw water main near the former Dak Industries site. The connection consists of a tap on the main line, a valve, and an above ground connection pipe. The intent of this connection is to provide a potential emergency water source, whereby water could be withdrawn from the previous Dak Industries fire pond or possibly from the nearby Cape Fear River. Based on field inspection, this emergency connection is in good condition and requires no corrective action. It is recommended that the valve be periodically operated, and the external piping painted on a yearly basis. The connection is shown in ***Appendix F – Photograph EE***. This area is mowed twice per year under the ROW maintenance contract

4.8 PIPELINE INTERCONNECTIONS AND VALVING

Construction of the new 54-inch parallel raw water main was completed in April of 2022. Garney Construction has installed approximately 74,000 linear feet of 54-inch raw water transmission main pipe. The pipeline was placed into service in November of 2022 and the 48-inch PCCP raw water main was taken out of service to install strategic interconnections along the 14-mile alignment. There are a total of four interconnections between the 54-inch pipeline and the 48-inch pipeline between the pump station and the 3 MG tank. The interconnections are located at the flowing locations:

1.) Narrow Gap Road

2.) John Reigel Road

3.) Blue Banks Road

4.) Behind BC Northwest Water Treatment Plant adjacent to the new flow meter vault.

(See Appendix F – Photograph HH)

It is recommended that Staff continue to exercise all interconnection valving on an annual basis.

4.9 GENERAL

The Authority utilizes both electronic and manual record keeping monitoring the operation of its raw water facilities. The SCADA system provides indication of and continuously records vital operational statistics for the major mechanical components located at the pumping station, raw water storage reservoir and the metering vaults. The O&M staff have the capability to generate manual as well as electronic records reflecting the pumping station's normal operations. The current level of record keeping provides the O&M staff with a means to review information for critical analysis of system performance and diagnostics for critical malfunctions.

4.10 ELECTRONIC RECORD KEEPING

The SCADA system provides the capability to expand the O&M staff's electronic record keeping. Operators can utilize the SCADA system to create custom reports to reflect pumping station operations, log difficulties, maintain long-term records, and to provide 'trending' of the station operations. Internet access allows the operator to electronically receive and send files and provides efficient communication abilities. Operational trends for flow (total and specifically for each customer) can be easily obtained via the CITEK software that is utilized at the Kings Bluff Pumping Station. Thus, the Authority has instantaneous access to all relevant data collected by the SCADA system and the CITEK programming.

SECTION 5 - SUMMARY

5.1 READINESS

The Authority's Regional Water Supply System, consisting of the Kings Bluff Pumping Station, Interim Booster Pumping Station, standby generators, pipelines, metering vaults and the 3 MG raw water storage reservoir is in good condition and sufficient state of readiness. The facilities have been well maintained and are fully capable of providing a high level of service to its customers.

SUMMARY OF RECOMMENDED ACTION ITEMS

Items identified in this report that require attention or corrective actions are summarized as follows and detailed in the enclosed appendices. Items with a **(New)** designation are items that were observed during the current year inspection and all others are items that are routine annual items or remain from the previous year inspection findings:

Kings Bluff Pump Station Facility, Raw Water Intakes & Air Backwash Systems

1. Continue to monitor bearing temperatures for all raw water pumps.
2. Continue to monitor meter accuracy at the Kings Bluff Pump Station.
3. Continue to Monitor storage containment area in pump building for leaks during rain events.
4. Clean surge tank vessels periodically
5. Verify proper operation of surge tank control systems.
6. Continue to maintain warning signage for the intake screens in the Cape Fear River and ensure that it is in readable and viewable condition.
7. Continue to monitor and replace broken deck boards and handrails on piers leading to air backwash buildings until new construction is complete.
8. **Continue to monitor air backwash main line leak**
9. Clean the old backwash building to remove debris and bugs.

Generator Building

1. Service diesel storage tank leak detection system (scheduled to be replaced this year)

3 Million Gallon Ground Reservoir & Interim Booster Pump Station

1. Calcification present on exterior tank wall. O&M staff should continue to monitor the tank walls for any new cracks or leaks.
2. Consult with CFPUA and PCU to consider coordinating an annual test of the Interim Booster PS until completion of parallel pipeline projects.

Raw Water Main Transmission System and Right of Way

1. Continue Right of Way mowing for overgrown areas along pipeline route.
2. Continue to monitor and evaluate need to paint manhole ring and covers and concrete flat-tops for manholes, valves, blow-offs where required.
3. Continue to maintain/replace as required pipe markers along right of way and NCDOT intersections.
4. Continue to exercise all valves and blow-offs annually.
5. Monitor and evaluate for repair the eroded pipe joint in the ARV manhole near Phelps Truck Sales on US-421. This erosion is the metal band used to hold the diaper on during construction.

END OF REPORT

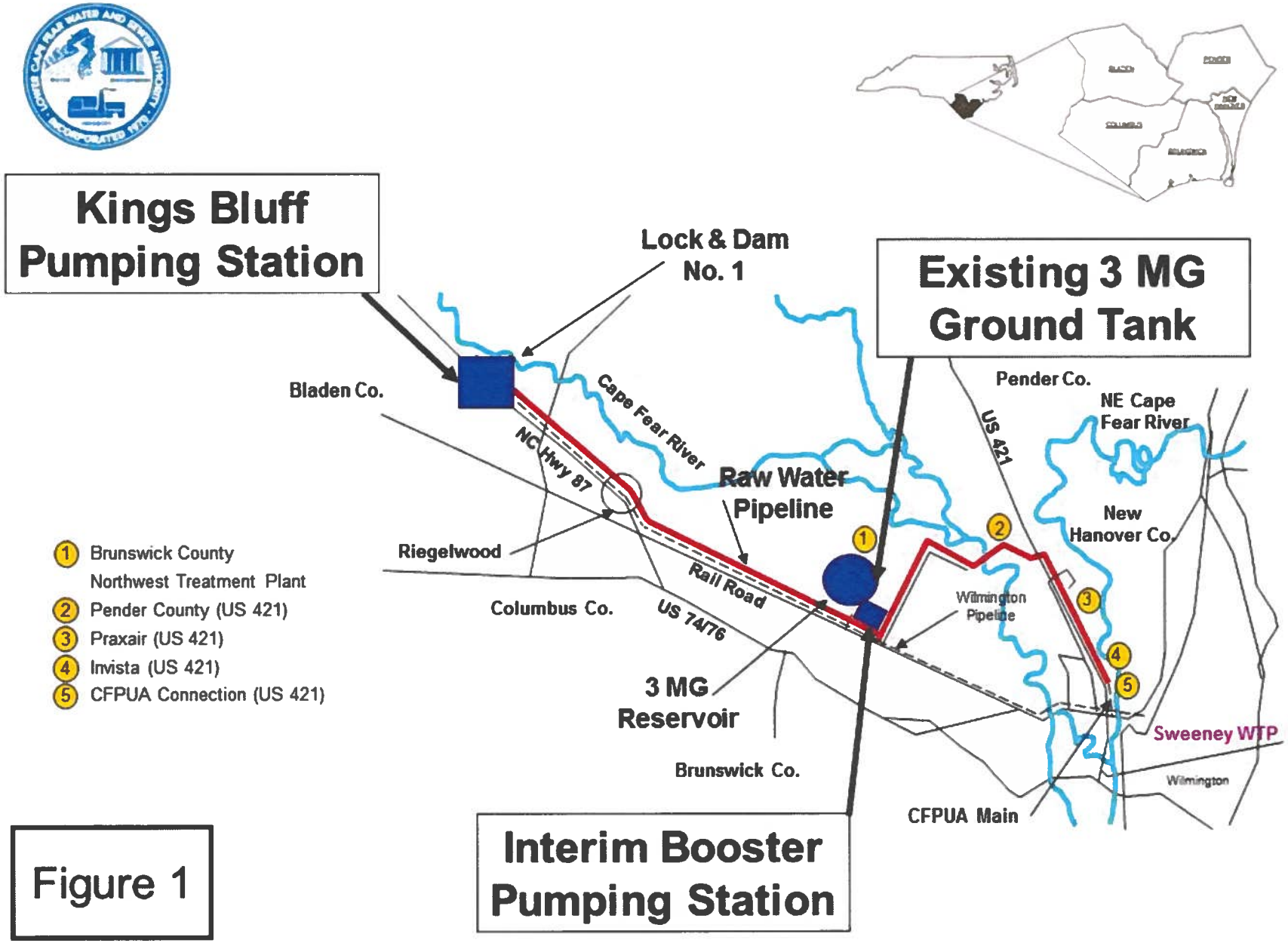

Kings Bluff Pumping Station
Lock & Dam No. 1
Existing 3 MG Ground Tank
Bladen Co.
Cape Fear River
NC Hwy 87
Raw Water Pipeline
Pender Co.
US 421
NE Cape Fear River
New Hanover Co.
Riegelwood
Rail Road
Columbus Co.
US 74/76
Wilmington Pipeline
3 MG Reservoir
Brunswick Co.
Sweeney WTP
Wilmington
CFPUA Main
Interim Booster Pumping Station
1 Brunswick County Northwest Treatment Plant
2 Pender County (US 421)
3 Praxair (US 421)
4 Invista (US 421)
5 CFPUA Connection (US 421)

Figure 1

Kings Bluff Pumping Station Annual Inspection

Lower Cape Fear Water and Sewer Authority

Appendix A – Pumping Station Facility, Ground Reservoir, Meter Vaults Annual Inspection

Equipment	Satisfactory	Needs Attention	Remarks
Grounds			
Septic Tank	X		
Pump Station	X		
Phone Line	X		
Drainage	X		
Fence	X		
Radio Tower	X		
Site	X		
Valve Hand wheel Operators	X		
Original Pumping Station			
Structure	X		
Flooring	X		
Roofing	X		
Old Control Room			
Air Conditioning - Office	X		
Lights	X		

Equipment	Satisfactory	Needs Attention	Remarks
Plumbing	X		
Water Heater	X		
Ceiling	X		
Service Sink	X		
Roof	X		
Bathroom	X		
Old Pump Room			
Lights	X		
Air Compressors #1	X		
Air Compressors #2	X		
Air Storage Tank #1	X		
Air Storage Tank #2	X		
Air Dryer	X		
Pump #1	X		
Pump #2 Slot	X		
Pump #3 Slot	X		
Surge Tank Air and Water Piping & Control System Piping		X	Evaluate operational requirements of the surge system and air leak within system.
Surge Tanks	X		

Equipment	Satisfactory	Needs Attention	Remarks
Original Pipe Gallery			
Structure	X		
Lights	X		
Piping	X		
Equipment	X		
Water Strainer	X		
Heater	X		
Fan	X		
New Control Room			
Ceiling	X		
Flooring	X		
Structure	X		
Bathrooms	X		
Storage Room	X		
Break Room	X		
Oil Storage Room	X		
New Pump Room			
Pump #4	X		
Pump #5		X	Investigate check valve noise
Structure		X	Address failing paint and failing masonry joints along East wall.
Lights	X		
Piping	X		
Flooring	X		
HVAC	X		

Equipment	Satisfactory	Needs Attention	Remarks
New Pipe Gallery			
Structure	X		
Lights	X		
Piping	X		
Water Strainer	X		
Station Flow Meters	X		Continue to monitor flow meter accuracy
New Electrical Room			
Electrical Equipment	X		
Ceiling	X		
Floors	X		
Walls	X		Continue to monitor wall separation.
Doors	X		
Overhead Doors	X		
New HVAC Room and HVAC Equipment			
Ceiling	X		
Floors	X		
Walls	X		
Doors	X		
Equipment	X		
Pier			
Structure		X	Maintain walkway to a minimum safe standard so staff can safely access the control buildings until the new structure is built.

Equipment	Satisfactory	Needs Attention	Remarks
Old Control Building	X		Rotten wall panels – Maintain building to minimum occupancy standard for safe entry and continued operation of the system until new structure is built
New Control Building	X		
Intake Pipe Site Maintenance	X		Clearing on both sides of dock started however not completed
Old Electrical			
Air Line	X		
Air Tank/Valves	X		Air valve leaking – Scheduled to be addressed with new walkway project
48-Inch Intake Screens			
Piping	X		
Air Backwash Piping	X		
Controls	X		
1,000 Gallon Air Tank	X		Address leaking control valves - Scheduled to be addressed with new walkway project
60-Inch Intake Screens			
Air Backwash Piping	X		Continue to monitor air supply line leak near pier
Controls	X		
2,000 Gallon Air Tank	X		Investigate/remedy leak(s) in air piping to screens - Scheduled to be addressed with new walkway project

Equipment	Satisfactory	Needs Attention	Remarks
Instrumentation			
SCADA	X		
3 Million Gallon Reservoir & Interim Booster Pump Station			
Ground Storage Tank	X		Calcification remain on outside of tank
Interim Booster Pump Station System Testing	X		Pumps operated every week
Grounds	X		
Control Building	X		
Tower	X		
Instrumentation	X		
Pig Launcher	X		
Meter Vaults			
Brunswick Northwest			
Meter	X		
Piping	X		
Sump Pump	X		
Grounds	X		
Praxair –(Linde)			
Meter	X		All readings are satisfactory
Piping	X		
Sump Pump	X		
Grounds	X		
Structure	X		
Invista- (Stepan)			*At Maritime North Business Park*
Meter	X		

Equipment	Satisfactory	Needs Attention	Remarks
Piping	X		
Sump Pump	X		
Grounds	X		
Structure	X		
CFPUA			
Meter	X		
Piping	X		
Sump Pump	X		
Grounds	X		
Structure	X		

Kings Bluff Pumping Station
Lower Cape Fear Water and Sewer Authority
Appendix B – Generator Building Annual Inspection

Equipment	Satisfactory	Needs Attention	Remarks
Grounds			
Fencing	X		
Driveway Entrance	X		
Building	X		
Fuel Tank Area			
Exterior Piping	X		
Containment	X		
Tank #1	X		Coating being replaced currently
Tank #2		X	Tank sensor test button inoperable. Coating being replaced currently
Tank Signage	X		
Diesel Tank Piping	X		
Generator Radiator	X		Significant rusting observed on underside-attention will be required in future
Garage Area			
Storage Area	X		
Flooring	X		
Generator Room			
Generators and Piping		X	Label all radiator piping
Air Start System	X		
Lights	X		
MCC	X		
Floors	X		
Ceiling/Roof	X		
Electrical Room	X		
Roll-Up Doors	X		
Walls			
Flooring	X		

Kings Bluff Pumping Station

Lower Cape Fear Water and Sewer Authority

Appendix C – Summary Air Relief Valve Annual Inspection

48" RWM Air Relief Valve No.	Station	Conditions/Remarks
1.	4+00	At Entrance Road to Kings Bluff Pump Station – Good Condition
2.	37+65	Black Rock Road- Good Condition – Access is through a locked gate.
3.	97+50	Waterline Way – Off N.C. Hwy 11- Good Condition
4.	175+80	Narrow Gap Road- Good Condition.
5.	228+60	Carroll Johnson Farm- Good Condition
6.	268+50	Good Condition- "Big Field"
7.	293+15	Riegel Course Road (SR 1816) – Good condition
8.	322+60	Entrance to Federal Paper /IP (off Warren Ln.)
9.	383+00	At Livingston Creek on Elevated Pipe- **(Not Accessed)**
10.	394+50	Behind Momentive Chemicals (Neil's Eddy Rd at Bethel Baptist Church) - OK.
11.	416+00	Ellis Farm Road - Good condition-
12.	426+80	In the field off 410 Ellis Farm Road. Crops in field
13.	463+73	Mills Trail – Good condition. Off Port Royal Road
14.	529+55	Off access road adjacent to 5028 Gooseneck Road- Good condition.
15.	566+00	Off Vernon Rd.- In Pasture- Did not access MH structure
16.	617+00	Off Northwest Road (SR1423) - (Peterson Land) -Good condition
17.	651+50	Between Rattlesnake Branch and Hood Creed. Could not cross Hood Creek.
18.	730+00	LCFWSA- Near 3 MG Raw Tank- Ground water present, underwater.

48" RWM Air Relief Valve No.	Station	Conditions/Remarks
19.	57+88	The Bluffs Entrance Road- Good Condition- Ground water present
20.	145+00	In landscaping along entrance road to "The Bluffs - Good condition
21.	235+86	CF River at 90-degree bend behind DAK Industries/ DuPont- **(Did not access due to active construction with Ph.2.)**
22.	248+90	DAK Industries/ DuPont at Hill- **(Did not access due to active construction with Ph 2)**
23.	295+57	DAK Industries- At Test Well # 11- **(Did not access)**
24.	369+10	Behind PCU-WTP - Entrance gained via Pender County Water Treatment Facility – Ground water present - Good condition
25.	446+97	5400 US Hwy 421 North-Billy Phelps Trucking. Steel visible at coupling at pipe joint as noted previous years. Diaper securing band shows deterioration
54" RWM Air Relief Valve No.	**Station**	**Conditions / Remarks**
1	101+75	Good Condition – Behind Generator Building
2	141+50	Good Condition – East of Macon Property-
3	200+25	Good Condition – Along Waterline Way
4	225+00	Good Condition – West side of Weyman Creek
5	279+56	Good Condition – Traynham Gate
6	321+25	Good Condition – Eastside of Double Branch
7	332+55	Good Condition – Woodburn Property
8	397+12	Good Condition – East of Reigel Course Road
9	425+81	Good Condition – Off John Reigel Road
10	468+25	Good Condition – Behind IP
11	477+50	Good Condition – Behind IP
12	488+66	Good Condition – Livingston Creek **(Did not access)**
13	500+10	Good Condition – East side of Livingston Creek

48" RWM Air Relief Valve No.	Station	Conditions/Remarks
14	526+54	Good Condition – East side of Neils Eddy Road
15	534+25	Good Condition – Ellis Farm
16	568+79	Good Condition – Off Mills Trail / Port Royal Road
17	600+30	Good Condition -East side of Grice Property
18	634+86	Good Condition – Goose Neck Road
19	658+75	Good Condition – Carroll Farm
20	722+21	Good Condition – Peterson Farm
21	750+90	Good Condition – Duke Energy Easement- **(Did not access)**
22	755+87	Good Condition – East side of Duke Easement- **(Did not access)**
23	774+50	Good Condition – West side of Hood Creek – **(Did not access)**
24	792+75	Good Condition – East side of Hood Creek
25	800+83	Good Condition – Behind NW Water Plant

Summary of Recommended Action Items:

1. All concrete vaults appear to be in good condition. Recommend repainting all existing manhole rings and vent piping. Repaint all existing air relief valves, blow-offs, check valves, butterfly valves and piping should be repainted "blue".
2. Continue to exercise Blow-Off Valves and Air Release Valves on an annual basis.
3. Signage needs to be maintained along the entire right-of-way route and at edge of NCDOT right-of-way where LCFWSA raw water transmission main crosses roadways. Recommend new marker signs for raw water main routes adjacent to all roadways and along Hwy 421 North to show waterline route and throughout pipeline corridor.
4. Any new marker post to be "blue" with LCFWSA name and phone number on post.
5. Continue bi-annual right of way mowing contract.
6. Repair concrete diaper at ARV near Phelps Truck Sales on US 421. The concrete flat-top of structure has been degraded by bush-hogging and mowers cutting ROW. Consider addition of bollards to protect structure.
7. Consider installation of bollards for protection at the ARV manhole located along the entrance to "The Bluffs" development.

Pipeline Annual Inspection

Lower Cape Fear Water and Sewer Authority

Appendix D – Summary 12" Existing Blow-Off Valves Annual Inspection

12" Blow Off Valves on 48" RWM	Station	Conditions/Remarks
1.	70+00	Blanks Farm- OK -
2.	122+00	N.C. Hwy 11 / Weyman Creek- Good condition
3.	221+00	"Big Field" - Good condition
4.	358+00	At International Paper – Good condition.
5.	439+00	Off Ellis Farm Road - Good condition
6.	487+00	Gooseneck Road- Good condition
7.	685+80	Hood Creek, Behind NWWTP - Good condition

12" Blow Off Valves on 54" RWM	Station	Conditions/Remarks
1.	175+40	Beaver Dam Creek – Good Condition
2.	228+30	Weyman Creek- Good condition
3.	323+25	Woodburn Farm - "Big Field" - Good condition
4.	506+90	Mills Creek – Good condition.
5.	543+50	Ellis Farm - Good condition
6.	588+02	Bear Branch Road- Good condition
7.	749+50	Rattlesnake Branch - Good condition
8.	789+65	Hood Creek – Good condition

Summary of Recommended Action Items:

1. Recommend operation of blow-offs on an annual basis.
2. Recommend all blow-off structures on 48" RWM to be re-painted "blue" as paint has faded and deteriorated.
3. Mowing contract shall include cutting all grass away from all structures within Right-of-Way.

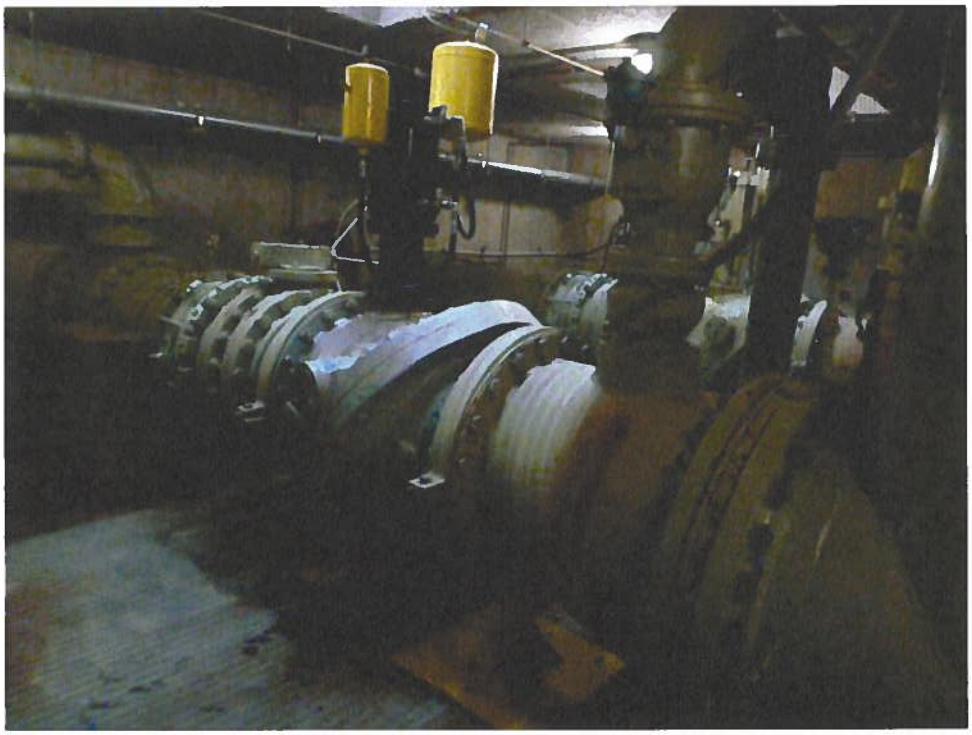
Kings Bluff Pumping Station

Lower Cape Fear Water and Sewer Authority

Appendix E – Photographs

Photograph A – Pump #4 and #5

Photograph B – Check Valve on Pump #1 No Longer Leaking



Photograph C – Serviced Check Valve on Pump 5

Photograph D –LED Lighting

Photograph F – Masonry Control Joint in Electrical Room

Photograph G – New Electrical Room HVAC Units

Photograph H –Effluent Pump Station Flow Meter

Photograph I – Generator Fuel Storage Tanks

Photograph J – Surge Tanks

Photograph K –Surge Tanks

Photograph L- Surge Tank Controls

Photograph M- Surge Tank 3 Exterior Controls

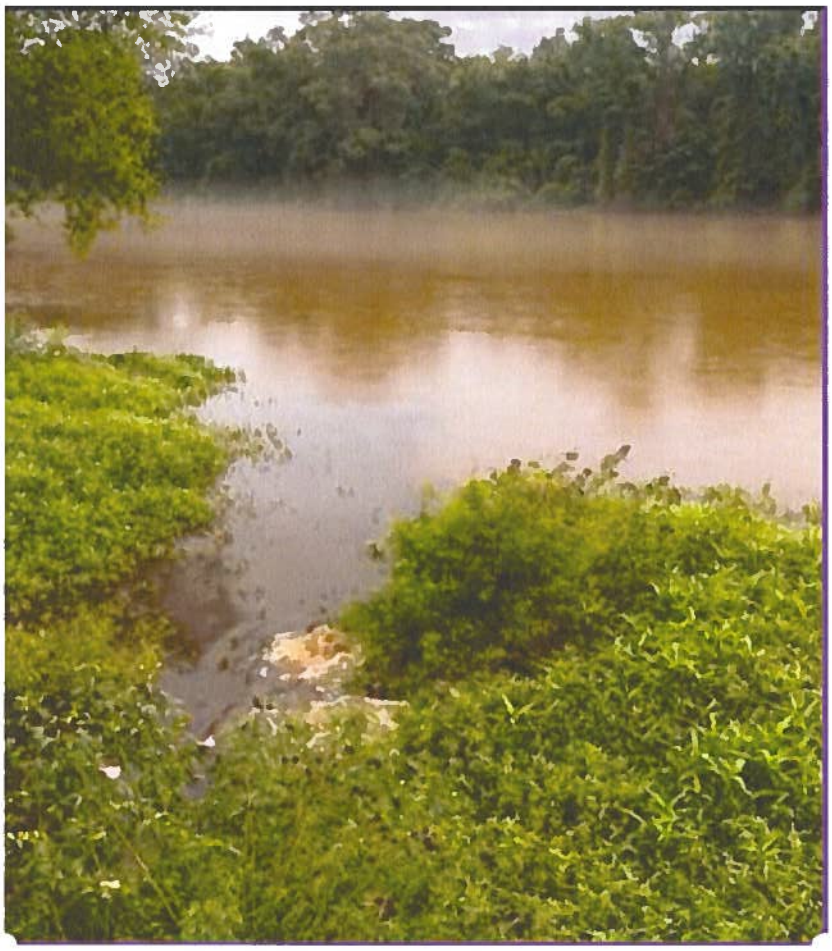
Photograph N- Pier Access

Photograph O – Vegetative Growth Surrounding Backwash Houses

Photograph P – Pier/Dock Failing Boards

Photograph Q –Generator Room Insulation

Photograph R – Generator Coolant Piping



Photograph S – Leaking Air Lines to 60 inch Intakes

Photograph AA – ARV Structure along Right-of-Way

Photograph BB – Orange Painted Structure Marker Deterioration

Photograph CC – New Blue Marker Post from 54" RWM project and New marker post at edge of Right-Of-Way.

Photograph DD – Old ARV on 48″ RWM and New ARV on 54″ RWM

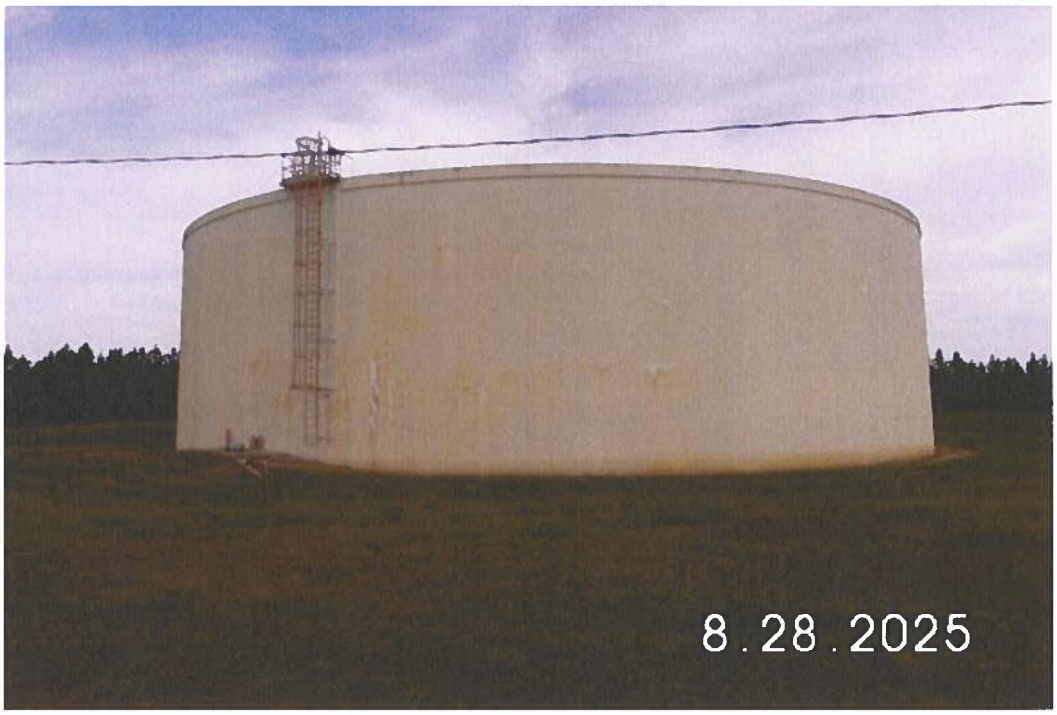
Photograph EE- Emergency Intake Pipe Adjacent to Pond behind DAK

Photograph FF- Right-of-Way at US Hwy 421 from 2019 - 48" RWM Relocation Project

Photograph GG- Old Blow-off on 48" RWM and new Blow-off on 54" RWM

Photograph HH- Interconnect off Blue Banks Loop Road

Photograph II- Walkway Access across Livingston Creek on Existing 48" PCCP pipe



Photograph JJ- 3 Million Gallon Ground Storage Tank

New Business (NB3)	Lower Cape Fear Water & Sewer Authority

AGENDA ITEM

To: CHAIRMAN DEVANE AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 13, 2025

Re: Resolution Accepting the *Lower Cape Fear Water & Sewer Authority Bladen Bluffs Regional Raw Water Supply Facilities FY 2025-2026 Annual Inspection Report* (Tony Boahn, P.E., McKim & Creed)

Background: The existing Standard Provision for Water Supply Agreements with all customers and the current Bond Order requires an annual inspection of all the facilities associated with the pump station by a qualified engineer to report on readiness, identify deficiencies, and make recommended repairs and capital improvements. A copy of the report will be provided to Smithfield Foods, the operator of the facility.

Enclosed is an excerpt of the report summarizing the inspection items.

Mr. Powell will present an overview of the report.

Resolution Accepting the *Lower Cape Fear Water & Sewer Authority Bladen Bluffs Regional Raw Water Supply Facilities FY 2025-2026 Annual Inspection Report*

Action Requested: Motion to approve/disapprove

Resolution Accepting the Lower Cape Fear Water & Sewer Authority Bladen Bluffs Regional Surface Water Treatment Facilities Annual Inspection Report for FY 2025-2026

Whereas, the existing Bond Order Series 2010, section 7.06 entitled *Consulting Engineer* reads, in part, "the Authority covenants that it will, for the purpose of carrying out the duties imposed on the Consulting Engineers by this Bond Order, employ an independent engineer or engineering firm or corporation as Consulting Engineers. The Authority further covenants that it will cause the Consulting Engineer to make an inspection of the System at least once each Fiscal Year and promptly submit to the Authority Executive Director a report setting forth (a) their findings whether the properties of the System have been maintained in good repair, working order and condition and whether they have been operated efficiently and economically and (b) their recommendations respecting the proper maintenance, repair and operation of the System during the ensuing Fiscal Year";

Whereas, the Authority budgets on an annual basis appropriations for the operation and maintenance of the Bladen Bluffs Regional Surface Water System with Smithfield Farmland Company under an Operation and Maintenance Agreement dated March 1, 2012;

Whereas, in accordance with the above references and the annual operating budget for FY 2025-2026, the Authority's consulting engineer has provided the Annual Inspection Report acknowledging the condition of the system with a focus on normal maintenance items; and

Now Therefore Be It Resolved, that the Chairman and Board of Directors for the Authority, accepts the *Lower Cape Fear Water & Sewer Authority Bladen Bluffs Regional Surface Water Treatment Facilities Annual Inspection Report for FY 2025-2026.*

This Resolution adopted this 13th day of October 2025.

_____

Patrick DeVane, Chairman

ATTEST:

_____

Al Leonard, Secretary

Lower Cape Fear Water & Sewer Authority

Bladen Bluffs Regional Surface Water Treatment Facilities

FY 2025-2026 Annual Inspection Report

Prepared by

McKIM&CREED

243 North Front Street
Wilmington North Carolina
F-1222

Prepared For
Lower Cape Fear Water and Sewer Authority

September 2025

NORTH CAROLINA PROFESSIONAL SEAL 046997 ENGINEER JESSE E. POWELL
09/30/2025

LOWER CAPE FEAR WATER AND SEWER AUTHORITY
BLADEN BLUFFS REGIONAL SURFACE WATER TREATMENT FACILITY
ANNUAL INSPECTION REPORT
TABLE OF CONTENTS

SECTION 1 - INTRODUCTION

1.1 FACILITIES

The Lower Cape Fear Water and Sewer Authority is a regional organization with sponsoring members that are comprised of Bladen, Brunswick, Columbus, New Hanover, and Pender Counties, as well as the City of Wilmington. The Authority was created to aid development of a water supply system for the sponsoring member governments, which are primarily located in southeastern North Carolina. The Authority currently owns and operates, in partnership with Smithfield Farmland Corporation, the Bladen Bluffs Regional Surface Water Treatment Facility (BBRSWTF), which sources its raw water supply from the Cape Fear River. The facility is a 6.0 million gallon per day (MGD) drinking water facility located near the Town of Tar Heel in Bladen County, opposite the Smithfield Farmland Corporation Facility on NC Highway 87. Construction was completed March 1, 2012, and the facility was placed into service on April 1, 2012. Primary components of the facility include:

- 30 MGD Raw Water Intake
- 12 MGD (Current Maximum Pumping Capacity) Raw Water Pumping Station & Raw Water Pipeline. The Raw Water Pumping Station includes two (2) - 6 MGD pumps, with a slot for a third future pump.
- Four (4) Sand Filters
- Flocculation and Settling Tanks
- Two (2) - 1.7 MG Residuals Basins
- Two (2) Standby Generators
- Four (4) Granular Activated Carbon Tanks
- Chemical Building
- Administration Building
- Two (2) - 2 MGD Clear Wells (Owned by Smithfield Farmland Corporation)

The Bladen Bluffs facility exclusively provides treated water to Smithfield Farmland Corporation, as there are no other customers served by BBRSWTF at this time.

1.2 BASIS OF ANNUAL INSPECTION & SCOPE OF WORK

A condition of the authorizing Bond Order requires the following shall be provided by an independent engineering firm:

- Inspect the project at least once each fiscal year
- Prepare a report that sets forth:

  - ✓ Whether the properties or facilities have been maintained in good repair, working order, and condition
  - ✓ Whether they have been operated efficiently and economically
- Recommendations with respect to maintenance, repair, and operation of the facility during the ensuing Fiscal Year, and an estimate of the appropriations that should be made for such purposes
- The insurance to be carried for the facility per the bond requirements
- Extensions, improvements, renewals, and replacements that should be made during the ensuing fiscal year
- Any necessary or advisable revisions to the service charges

The results and findings of this annual inspection are summarized in the following sections of this report. The FY 2025-2026 inspection of the Authority's facilities was conducted in August 2025.

1.3 OPERATING ARRANGEMENTS

The Authority maintains limited full-time staff, consisting of an Executive Director and an Administrative Assistant, for the administration of the Authority's programs and the coordination of water supply activities in the Region. The Authority contracts for operations and maintenance of BBRSWTF with Smithfield Farmland Corporation. Smithfield Farmland Corporation provides the personnel and resources to operate and maintain the Authority's water treatment facility and administers outside maintenance contracts as needed for effective operation of the system. Thus, Smithfield Farmland Corporation is designated the "Contract Operator" of the system. Currently, BBRSWTF operates on a 5-day work week (Sunday through Thursday) and the treatment process is in shut-down mode over most weekends. This schedule varies depending upon the production requirements of the Smithfield Farmland Corporation facility.

SECTION 2 - BLADEN BLUFFS SURFACE WATER TREATMENT FACILITIES – INSPECTION AND FINDINGS

A summary of the findings and recommendations, based on inspection of the Bladen Bluffs Surface Water Treatment Facility, is provided in ***Appendix A***. Detailed findings for each primary process or facility are summarized as follows.

2.1 RAW WATER PUMP STATION

A) Intake Screen

The intake screen system is submerged in the Cape Fear River (See ***Appendix B – Photograph A***). The raw water intake system is comprised of three (3) submerged screens, each with individual stainless-steel air backwash piping. Screen markers installed during previous repairs to the airlines in 2016 were removed by subsequent hurricanes. To date, markers have not been replaced. Additionally, the shoreline sign denoting the existence of the screens was damaged during Hurricanes Matthew and Florence but has since been replaced and was noted in good shape during the 2025 inspection. Also, in the Fall of 2018 Hurricane Florence impacted river air backwash piping and a significant portion of the shoreline eroded. This erosion exposed a portion of the stainless-steel backwash air piping. As a result of the erosion, LCFWSA applied for and was granted FEMA funding to restore the eroded bank. The restoration project, *Bladen Bluffs Regional Surface Water Treatment Facility Cape Fear Riverbank Restoration Project* was completed in 2020 and successfully restored the bank to its original condition. The project integrated a mixture of bioengineering techniques and rip rap to provide protection from future erosion along the riverbank. As noted in a previous inspection, erosion had re-occurred along the restored bank due to several high-water events. The bulk of the erosion had occurred on the upstream portion of the bank according to plant staff. The eroded area was repaired and replanted by a contractor. Due to the growth of vegetation along the slope, pictures of the area were difficult to attain; however, during this inspection what could be observed did not indicate any further erosion (See ***Appendix B – Photograph B***). During the 2024 inspection, it was observed that staff installed a camera near the intake warning sign, allowing them to continuously monitor the river level, even during backwashing events. During the 2025 inspection, the bank, signage, and camera were found to be in good condition.

B) Grounds

The grounds at the Raw Water Pump Station and the 400-foot-long screen access boardwalk were found to be in good condition. And although all deck and handrail boards were replaced in 2020, during this inspection, it was apparent that several boards were in bad shape. Additionally, it appeared the lateral stability of the walkway and handrail assembly is allowing significant movement. It is recommended that compromised boards (both handrail and deck) be replaced and the lateral movement be investigated and addressed. Replacement of the entire

structure may be warranted based on current condition or if the lateral movement cannot be sufficiently and safely addressed. (See *Appendix B – Photograph C and D*).

C) Wet Well and Pumps

The wet well and associated piping were reviewed during the inspection and found to be in good working order. Items that need to be addressed include the wet well level transmitter display cover which needs to be reinstalled, and the confined space entry placard needs replacement. Staff indicated work was currently underway to replace the failed main hatch alarm sensors noted during previous inspections. (See *Appendix B – Photograph E*).

D) Electrical Building

Building and electrical devices are in good condition (See *Appendix B – Photograph F*). Bug infestation prevention measures installed four years ago by staff appear to be working; however, during this inspection, the interior lights were noted to contain numerous dead bugs thus cleaning of the lights is recommended.

E) Generator/Tank and Automatic Transfer Switch

During the field inspection, staff indicated that the generator and transfer switch are being exercised on a regular basis. During this inspection, no issues were noted that would require immediate corrective action however it was noted that the interior of the generator enclosure requires cleaning (See *Appendix B – Photograph G and H*).

F) Access Road to Pump Station

Overall, the road is in excellent shape. Previously areas along the access road that were eroding during heavy rain events were addressed by raising the road elevation, preventing water from flowing over the road. It appears from this visit that the previous action has stabilized the road. It was also noted that nearest the road in various areas was being trimmed back to maintain the road (See *Appendix B – Photograph I and J*).

G) Air Backwash Compressor Skid

Staff indicated that they have had no issues with operating the system. Skid framing corrosion was noted during this visit and thus it is recommended that it be addressed. (See *Appendix B – Photograph K*).

2.2 INFLUENT FLOW METER VAULT

During the inspection, the vault was found to be in good condition, however it was still leaking. Since a previous inspection, staff have implemented a regular vault-pumping schedule using a mobile sump pump system. As was noted, during the last inspection, the fiberglass flow meter display box is deteriorating and should be scheduled for future replacement. Additionally, the

flow meter digital display was found to be without a cover leaving it vulnerable to deterioration from the sun. It is recommended the display be provided with a cover. This structure also requires a replacement confined space entry placard. (see ***Appendix B – Photographs L and M).***

2.3 FLOCCULATORS & RAPID MIX BASIN

The flocculators consist of two (2), four-part flocculation chambers with four (4) 1 horsepower mixers in each flocculator. This facility appeared to be operating properly and without issue.

The rapid mix basin equipment consists of the rapid mix structure and two (2) 10 horsepower mixers. No issues were observed for this facility during the inspection.

2.4 SEDIMENTATION BASINS

There are two (2) basins that are emptied and washed as necessary (See ***Appendix B – Photograph N***). The sludge from the basins is pumped directly into tanker trucks and is then hauled off for land application disposal utilizing a subcontractor. No issues were observed requiring corrective action for this facility during the inspection. Staff indicated that based on the level of solids observed in the basins at time of inspection, they would be emptied in the Fall, provided the conditions of the disposal fields are acceptable for application.

2.5 FILTERS

The facility is equipped with four (4) sand filters, which are currently backwashed every 96 hours. During this inspection, it appeared that all filters were in good working order. Additionally, it was noted the staff had recently installed concrete curbing around the filter backwash vents. According to staff, during previous high-rate backwashes, the backwash water had exited the vents and flooded adjacent surface areas atop the filters. These new curbs will prevent the migration of water across the decks should it occur again (See ***Appendix B – Photograph O).***

2.6 FILTER PIPE AND VALVE GALLERY

A) Concrete Structure Walls

As observed during previous inspections, several calcified non-leaking cracks were observed. This type of crack is common in heavy cast-in-place concrete construction. Most cracks did not appear damp, which may be attributed to the presence of an active dehumidifier. During the most recent inspection, a small leak was observed coming from behind the transformer located in the "additional" filter area. This crack was inactive during this inspection. (See ***Appendix B – Photographs P).***

Also, during a previous inspection, it was observed that the non-potable water system was leaking in the gallery in several locations. This leak has since been addressed. (See ***Appendix B – Photographs Q).***

Staff noted during the inspection that work was currently underway to replace the power feeders to motor operated valves in the gallery and above the gallery. As was noted on previous inspections, there were issues with water getting onto the feeder cabinets located in the filter gallery via the conduits that enter the bottom of the cabinet. This issue was addressed some time ago, however, and has since started exiting the cabinet again. The current work relocates the feeders to exit the top of the cabinets rather than bottom thus not allowing the water to come in contact with the conductors (See ***Appendix B – Photographs R and S).***

2.7 TRANSFER PUMP STATION AND VAULT

A) Pump Station

The pump station interior, exterior, and controls were inspected and found to be in good condition and operating properly. As noted on other structures during this visit, the level transmitter requires a cover, and the confined space entry placard requires replacement.

B) Pump Station Valve Vault

The vault was inspected and found to be in good working order; however, a small amount of water covered the floor. As noted on other structures during this visit, the confined space entry placard requires replacement. (See ***Appendix B – Photograph T)***.

C) Transfer Pump Station Check Valve Vault

During this inspection, the valve vault was found to be flooded and the sump pump for the vault was not energized. It is recommended that the sump pump be repaired, and the vault be dewatered and inspected for any issues. Additionally, the confined space entry placard requires replacement. **(See *Appendix B - Photograph* U).**

2.8 GRANULAR ACTIVATED CARBON VESSELS

The GAC vessels are operational, as was requested by the State. The vessels are filled with a new type of granular activated carbon recommended by Calgon. Staff indicated that vessel 3 is scheduled to have its carbon replaced this fall. Corrosion of vessel hatches noted in last year's report has been addressed. Pipe supports extending off the tankage however do require corrosion mitigation and repainting (See ***Appendix B – Photograph V and W***).

Mag-flow meters used to meter the flow through the filters appear to be in good condition and fully functional. It was noted in the 2020 inspection that the flow meter displays for the mag

meters were missing covers to prevent deterioration from the sun. Covers were in place as of this inspection.

2.9 CHEMICAL ROOM

A) Chemical Tanks, Pumps, & Electrical

The facility was inspected in its entirety, and no issues were found. During one of the prior year's inspection, staff indicated they had entered into a maintenance agreement for their chemical pumps which appears beneficial given the condition of the equipment.

B) Building & Tankage

The structure and tankage were inspected, and no issues were found. Leaking water and chlorine lines noted during the past inspection have been addressed. Corrosion of the structure columns/base plates noted previously appears to have been partially addressed. It is recommended that the column/base plate corrosion be addressed annually as the chemicals and their associated environment will cause this to be an ongoing issue requiring continual maintenance. (see ***Appendix B – Photograph X***).

Aside from these issues, the building is in good condition. The electrical room was also inspected, and found to be in good condition, with the A/C functioning properly (see ***Appendix B – Photograph Y***).

C) Chemical Carrier Water

As noted in previous inspection reports, staff changed the chemical carrier water from the Bladen County system to increase reliability and reduce costs. In the process of doing so, the staff added a backflow preventer (RPZ) which is currently mounted in the caustic chemical containment area. In the unlikely event that the caustic tanks rupture, caustic could submerge the RPZ, thus preventing the RPZ from functioning as intended. It was recommended then that Smithfield address the RPZ installation location with PWS (Public Water Supply) to verify there is no issue with its location from a regulatory standpoint. As of this review, the RPZ remains in its original location (***Appendix B – Photograph Z***).

2.10 ADMINISTRATION BUILDING

No issues were noted in the administration building at the time of the inspection.

2.11 RESIDUALS BASINS

During the inspection, the basins were observed to be in good condition (See ***Appendix B – Photograph AA)***.

During a previous inspection, staff noted a tear in the liner at an outfall connection slab. The staff had a specialist review the issue and make recommendations for correction. To date, the repair has not been made but is scheduled to be conducted in the future when the basin is out of service.

2.12 BBRSWTF EMERGENCY POWER

A) Generator

The generator was inspected and found to be in good condition. No corrective actions are required.

B) Diesel Storage Tank Leak Detection Panel

During this inspection, the diesel tank level panel display appeared to be reading correctly; however, the alarm annunciator had been taped over. Staff indicated they would investigate why it was taped over and address as necessary (See ***Appendix B – Photograph BB)***.

2.13 NPDES METER VAULT

The NPDES meter vault and associated chemical injection vault serve to control the discharge water for both pH adjustment and de-chlorination before entering the river. During this inspection, the meter vault was completely dry unlike other inspections (See ***Appendix B- Photograph CC***).

The chemical injection vault associated with the NPDES vault was observed to be flooded. It is recommended this issue be addressed with increased visits with a mobile sump pump or other (**See *Appendix B- Photograph DD***).

2.14 RECYCLE PUMP STATION/METER VAULT

As with previous inspections, the recycle system was reviewed; however, according to staff information, the system was not in use due to economic reasons. Staff indicated, at that time, they were supporting other instruments by utilizing parts associated with the recycle system that were no longer functional. No further inspection of this facility was made.

2.15 SCADA – TELEMETRY SYSTEM

Based on conversations with Staff and cursory review of the SCADA system, there are no known issues that were identified for corrective measures at the time of the inspection. Staff previously incorporated new VT Scada software which provides redundancy within their server system. In case there is an issue with one of their SCADA systems, there is now a standby system that can be utilized if required.

2.16 OPERATION OF FACILITY

Based upon observation of the facility and procedures currently employed by Staff, it is the opinion of McKim & Creed that the facility has been operated efficiently and effectively.

2.17 FISCAL YEAR APPROPRIATIONS

No major appropriations for the upcoming fiscal year are anticipated beyond the contracted operations and maintenance agreement responsibilities.

SECTION 3 - INSURANCE PROVISIONS AND SERVICE CHARGES

3.1 INSURANCE PROVISIONS

A cursory review of the Authority's fiscal year 2024/2025 insurance coverage was conducted and was noted to be similar to that of the previous year. At the time of this report, the coverage was deemed to be sufficient, and no major changes are recommended.

3.2 SERVICE CHARGES

At the time of this report, Smithfield Farmland Corporation is the only customer currently provided treated water from BBSWTF; therefore, no changes to the current service charges are applicable.

Appendix A – Summary of Inspection Items

Bladen Bluffs Surface Water Treatment Facility - Annual Inspection

Lower Cape Fear Water and Sewer Authority

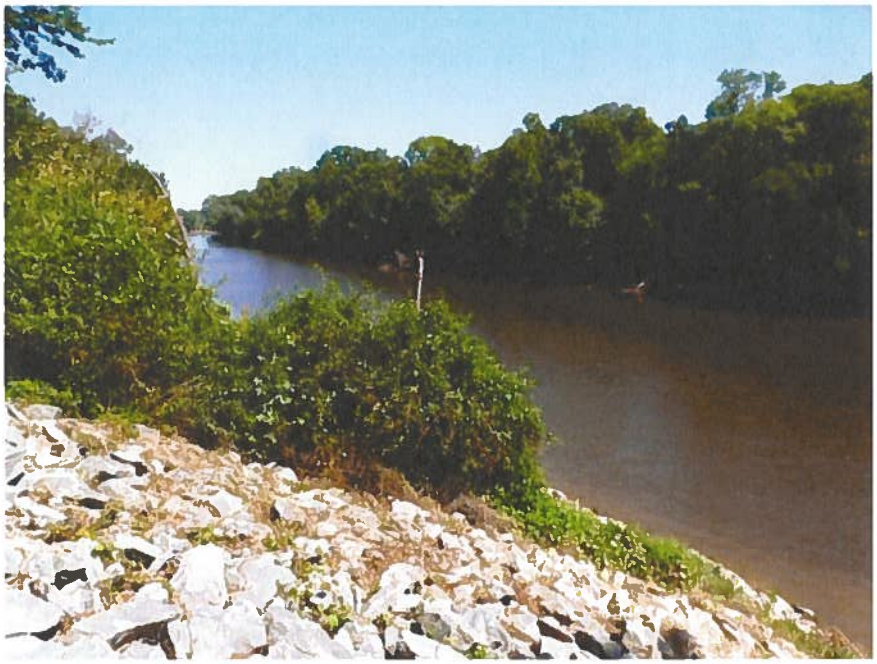
Facility	Satisfactory	Needs Attention	Remarks
Raw Water Pump Station			
Intake Screens	X		
Grounds	X		
Wet Well	X		Install cover over level instrument transmitter display. Replace confined space entry placard.
Deck		X	Replace compromised deck and handrail boards. investigate and address lateral stability of dock structure.
Electrical Building	X		Clean bugs from light fixtures.
Generator and ATS	X		Cleaning of generator enclosure recommended.
Valve Vault	X		Replace confined space entry placard.
Blowdown Compressor Equip.	X		Recommend addressing support framing corrosion.
Rapid Mix Basin			
Influent Flow Meter	X		Replace confined space entry placard. Install cover over level instrument transmitter display.
Structure	X		
Mixers	X		
Flocculators			
Flocculation Chambers	X		
Mixers	X		
Sedimentation Basins			
Basins	X		
Air Operated Sludge Pumps	X		Not Used
Filters			
Filters 1, 2 and 3	X		

Filter 4	X		Monitor wall leaks
Filter Pipe and Valve Gallery			
Structure Walls	X		Crack leakage needs to be monitored.
Structure Floors	X		
Piping	X		
Environment	X		
Transfer Pump Station & Vault			
Pump Station	X		Replace confined space entry placard.
Pump Station Valve Vault	X		Replace confined space entry placard.
Pump Station Check Valve Vault		X	Address flooded vault. Replace confined space entry placard.
Granular Activated Carbon Vessels			
Vessel Exteriors	X		Corrosion noted piping supports needs to be addressed
Chemical Room			
Chemical Tanks	X		
Piping	X		
RPZ Location	X		
Building	X		Monitor and address column/base plate corrosion
Administration Building			
Building	X		Clean blower room
Residuals Basins			
Basins	X		Make liner repair as time allows
BBRSWTF Emergency Power			
Generator and ATS	X		
Diesel Storage Tank Panel		X	Address taped horn alarm
Effluent Flow Meter Vault			
Meter Digital Display	X		
NPDES Meter Vault			
Meter Digital Displays	X		

Recycle Pump Station			
Meters and Displays	X		
Instrumentation			
SCADA & Telemetry	X		
NPDES Chemical Addition Vault			
Vault		X	Address flooded vault

Appendix B – Photographs

Photograph A – Intake Location



Photograph B – Cape Fear Riverbank Restoration Project Area

Photograph C – River Access Walkway

Photograph D – River Access Walkway Underside

Photograph E – Intake Wet Well

Photograph F – Raw Water Pump Station Electrical Room

Photograph G – Raw Water Pump Station Generator Fuel Tank

Photograph H – Raw Water Pump Station Generator ATS

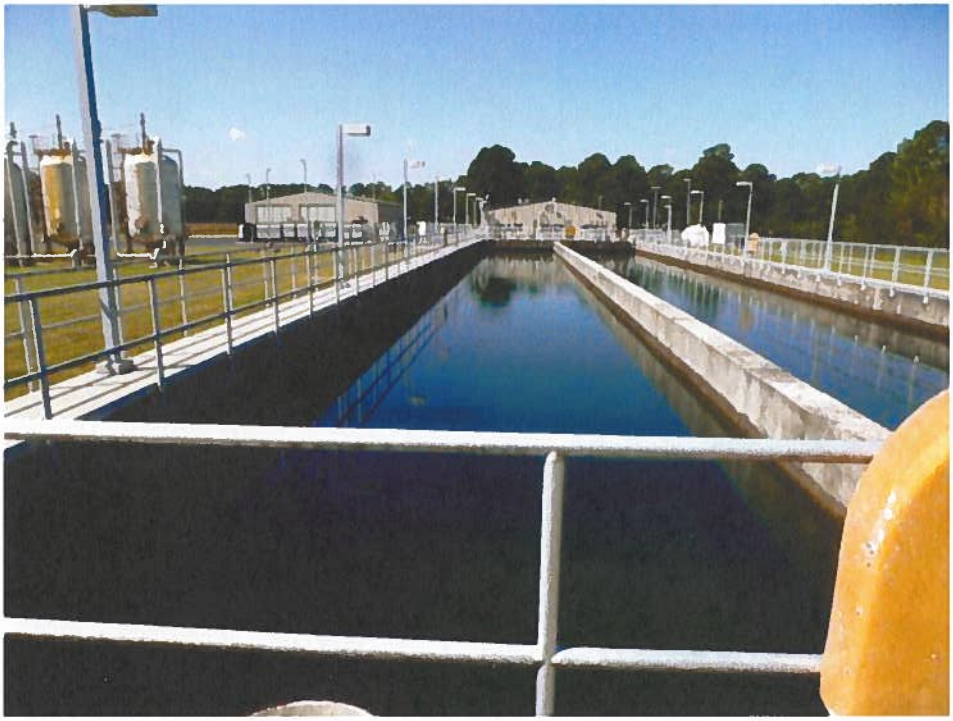
Photograph I – Raw Water Pump Station Access Road

Photograph J – Raw Water Pump Station Access Road

Photograph K -Raw Water Pump Station Backwash Compressor

Photograph L – Influent Flow Meter Vault

Photograph M – Influent Flow Meter Vault



Photograph N – Sedimentation Basins

Photograph O – Filters

Photograph P – Filter Gallery Walls

Photograph Q – Filter Gallery Walls

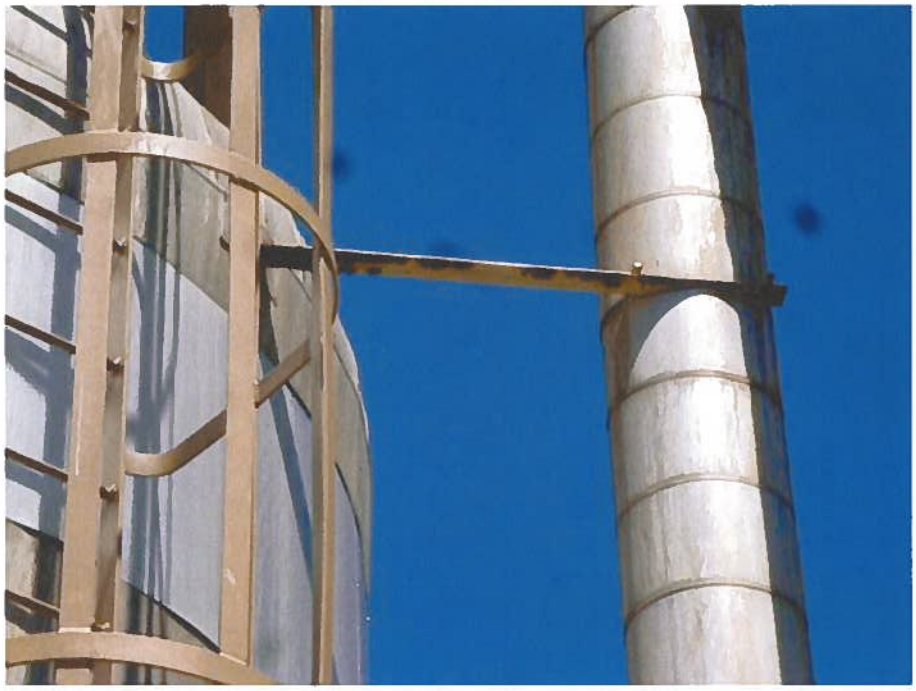
Photograph R – Filter Gallery Electrical Repairs

Photograph S – Filter Gallery Electrical Repairs

Photograph T –Transfer Pump Station Valve Vault

Photograph U –Transfer Pump Station Check Valve Vault

Photograph V- GAC Filters



Photograph W –GAC Filters Framing

Photograph X- Chemical Building

Photograph Y- Chemical Building Electrical Room

Photograph Z- Chemical Building Chemical Carrier Water RPZ

Photograph AA- Residuals Basins

Photograph BB- Facility Generator Diesel Tank Leak/Level Panel

Photograph CC- NPDES Compliance Meter Vault

Photograph DD- NPDES Compliance Chemical Injection Vault

NEW BUSINESS (NB4)

Lower Cape Fear Water & Sewer Authority

AGENDA ITEM

To: CHAIRMAN DEVANE AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 13, 2025

Re: Resolution of Lower Cape Fear Water and Sewer Authority Board of Directors to Award Contract for Purchase of New Pump and Variable-Frequency Drive for Kings Bluff Pump Station

Reviewed and Approved as to form: MATTHEW A. NICHOLS, AUTHORITY ATTORNEY

Background: The Kings Bluff Pump Station currently operates with three identical pumps and variable-frequency drives (VFDs). To maintain operational reliability and system standardization, a fourth pump and VFD are needed. The new unit will ensure equipment compatibility, streamline maintenance, and provide interchangeability of parts across all pumps. Following a justification presented by the Executive Director and approval of a sole-source exception under N.C.G.S. § 143-129(e)(6), Charles R. Underwood Inc. was identified as the sole-source provider due to standardization and compatibility requirements. The Board previously authorized use of the sole-source process in July 2023 and received pricing details at its September 8, 2025, meeting. The proposed contract for the purchase, build, delivery, and installation of the fourth pump and VFD totals $3,869,200.00 plus applicable tax.

Action Requested: Motion to approve

Lower Cape Fear Water and Sewer Authority Resolution to Award Contract for Purchase of New Pump and Variable-Frequency Drive for Kings Bluff Pump Station

WHEREAS, the Lower Cape Fear Water and Sewer Authority ("LCFWASA") serves Brunswick, Bladen, Pender, New Hanover, Columbus Counties, and the City of Wilmington with a Board of Directors representing those local governments. As the largest regional water system in Eastern North Carolina, LCFWASA's primary role is to provide raw water from the Cape Fear River to supply treatment facilities that serve 550,000 customers;

WHEREAS, LCFWASA's Kings Bluff Pump Station is in need of a fourth pump and variable-frequency drive ("VFD");

WHEREAS, the procurement and installation of a new fourth pump and VFD is an important infrastructure improvement and priority for LCFWASA and is identified as KB1 in LCFWASA's Master Planning Document approved by the Board;

WHEREAS, N.C.G.S. § 143-129(e) lists the authorized exceptions to the formal bidding procedures for the letting of public contracts;

WHEREAS, N.C.G.S. § 143-129(e)(6) allows for purchases of apparatus, supplies, materials, or equipment using a sole-source exception when: (i) performance or price competition for a product are not available; (ii) a needed product is available from only one source of supply; or (iii) standardization or compatibility is the overriding consideration;

WHEREAS, utilization of a sole-source exception pursuant to N.C.G.S. § 143-129(e)(6) and Section V.A of LCFWASA's Contract and Purchasing Policy requires governing Board approval prior to the award of the contract;

WHEREAS, the LCFWASA Executive Director, having investigated the procurement of a fourth pump and VFD, including discussions with LCFWASA's consulting engineers, has determined that standardization or compatibility of the new fourth pump and VFD with the existing three pumps is the overriding consideration and that in this instance, the apparatus or equipment is sole source and competition is precluded from this purchase for the reasons stated herein;

WHEREAS, the Executive Director provided to the Board a justification statement dated July 10, 2023, regarding why competitive procurement is precluded from the purchase of the new fourth pump and VFD, including the following reasons:

1. The station currently has three pumps, which are identical. This includes the motor, pump bowl assembly, VFD, and miscellaneous appurtenances.
2. Major components of the three pumps are interchangeable. For example, the pump bowl assembly can be moved from one pump to another and will not hinder operation or performance.
3. Purchasing an identical pump and VFD will maintain this standardization with the existing pumps as all parts would be interchangeable among all four pumps.

4. Any spare parts that are in stock (or will be purchased) will be usable on any of the four pumps. If a different pump is purchased, separate spare parts would be required for that specific pump.
5. Maintenance on the four pumps would be identical, whether performed by Brunswick County Staff or an outside vendor.
6. The interchangeability of parts (and spare parts) is critical. These are not "off the shelf" pumps; therefore, spare pumps and parts are difficult to acquire on short notice should an emergency arise.
7. The parts/equipment are not interchangeable with similar parts of another manufacturer.
8. The parts/equipment are required from this source to permit standardization.
9. The VFD should also be purchased concurrently and match the existing VFDs for the reasons noted above.

WHEREAS, by Resolution adopted July 10, 2023, the LCFWASA Board of Directors, having considered the justification to waive the competitive procurement process for the purchase of a new fourth pump and VFD, determined that standardization or compatibility of the new apparatus or equipment is the overriding consideration and precludes competitive procurement for purchase of the new fourth pump and VFD;

WHEREAS, the Resolution adopted by the Board on July 10, 2023, waived the competitive procurement process for the purchase of the new fourth pump and VFD for the Kings Bluff Pump Station pursuant to N.C.G.S. § 143-129(e)(6) and authorized Charles R. Underwood Inc., 2000 Boone Trail Rd., Sanford, NC 27330 as a sole source for the equipment/item;

WHEREAS, the Board's July 10, 2023 Resolution further directed the Executive Director to present any proposed contract for the purchase of the new fourth pump and VFD to the Board for approval prior to awarding any contract for the same;

WHEREAS, at the Board's Meeting on September 8, 2025, Russell Underwood, PE, President of Charles R. Underwood Inc., provided an update to the Board regarding the status of the proposal for the new fourth pump and VFD (also identified as "Pump No. 3"), including pricing and the process for designing, building and installing the new equipment at the Kings Bluff Pump Station;

WHEREAS, following the Board's September 8, 2025 Meeting, Charles R. Underwood Inc. provided additional information dated October 3, 2025, regarding pricing for the proposed new fourth pump and VFD; and

WHEREAS, based upon the foregoing, pursuant to N.C.G.S. § 143-129(e)(6), the LCFWASA Board of Directors wish to award the contract for the purchase, build, delivery and installation of a new fourth pump and VFD for the Kings Bluff Pump Station to Charles R. Underwood Inc. in the total amount of $3,869,200.00, plus applicable tax.

NOW, THEREFORE, BE IT RESOLVED by the Chairman and LCFWASA Board of Directors, that pursuant to N.C.G.S. § 143-129(e)(6), the Board does hereby award Charles R. Underwood Inc. the contract in the amount of $3,869,200.00, plus applicable tax, for the purchase, build, delivery and installation of a new fourth pump (Pump No. 3) and VFD for LCFWASA's Kings Bluff Pump Station.

THEREFORE, BE IT FURTHER RESOLVED that the Board of Directors designates that the Chairman and the Executive Director are duly authorized to execute a contract with Charles R. Underwood Inc. for the above-referenced matter on behalf of LCFWASA in the amount of $ $3,869,200.00, plus applicable tax, subject to review and approval of the contract as to form by LCFWASA's attorney.

A copy of this Resolution shall be recorded in the permanent minutes of this Board.

Adopted this _____ day of October, 2025

_____
Patrick DeVane, Chairman

ATTEST:

_____
Al Leonard, Secretary

Charles R. Underwood Inc.
Municipal Pump Sales & Service
2000 Boone Trail Road
Sanford, North Carolina 27330
Phone: (919) 775-2463
Fax: (919) 708-7232

October 3, 2025

Lower Cape Fear

Kings Bluff Pump Station

Dear Mr. Holloman,

We are pleased to provide you with a more detailed breakdown of our proposal for a new raw water pump #3 at the Kings Bluff Pump Station. Based upon our final September 5th, 2025, proposal enclosed is a more detailed list.

Engineering

- Design new 1600hp vertical turbine pump system for the #3 pump opening to included:
- Field hydraulic performance testing of existing pumps.
- Formulate new pump system curve.
- Vertical Turbine Pump Design
- Finite element analysis of building, pump and motor.
- Pump foundation design
- Finite element analysis remediation from FEA report
- Motor Specifications
- Motor Testing Review
- Thrust bearing design
- Variable frequency drive design review.
- Piping and check valve-review
- Piping support
- Signed and sealed drawing of final design and installation
- Engineering submittal to state of final design to tie into permit obtained prior by McKim and Creed.

$ 278,400.00

Charles R. Underwood Inc.
Municipal Pump Sales & Service
2000 Boone Trail Road
Sanford, North Carolina 27330
Phone: (919) 775-2463
Fax: (919) 708-7232

1600 HP Underwood Pump Vertical Turbine

- 1-Complete pump, motor, stand to include 3-stage ductile iron 36" bowl assembly set up for oil lube and water flush lubrication.
- 60-48-18 Ductile iron/bronze fitted materials of construction.
- Aluminum bronze sand collar.
- C954800 Ni-AL-bronze keyed impellers, statically balanced.
- Aluminum bronze bowl wear rings.
- 3 7/16" 17-4 PH H1 150 bowl shaft and 416 SS threaded jump coupling.
- C95400 bronze bearings, with C95400/416 SS adapter bearing.
- Scotch Kote 134 fusion bonded epoxy, bell entrance, bowl and discharge case interior.
- Tnemec N140 white epoxy coating, exterior two coats.
- Discharge case for oil lubrication.
- 30" Galvanized flanged column pipe. 3/8" Wall
- 416 Stainless Steel pump shaft threaded and coupled.
- 6"-304 sch 80 stainless steel enclosing tube.
- 3"-1/16 x 6 " Bronze enclosing tube bearings
- Wield in rubber supported tube retainers.
- 24" Underground discharge pipe.
- SS column pipe bolting.
- ½ " SS- suction bearing external grease line.
- Beehive style 304 stainless steel vortex suppressor.
- Fabricated galvanized motor pedestal .
- Discharge case for oil lubrication.
- 80" X 80" X 2" Blanchard ground sole plate.
- 5-gallon oil reservoir, dripper and solenoid valve.
- 1-Bronze tension assembly.
- Three-piece flanged motor coupling.

$ 1,093,055.00

Charles R. Underwood Inc.
Municipal Pump Sales & Service
2000 Boone Trail Road
Sanford, North Carolina 27330
Phone: (919) 775-2463
Fax: (919) 708-7232

1-1600hp General Electrical Motor Custom Built Motor

- 4160 Volt 3 Phase.
- Solid Shaft .
- 900 RPM.
- WP-1 Enclosure.
- Oil Lube Thrust Bearing.
- 500% Extra High Thrust Kingsbury Thrust Bearing.
- Insulated bearings.
- Sleeve Guide Bearing.
- VFD rated.
- Non reverse ratchet.
- 100-ohm stator RTD's.
- 100-ohm bearing RTD's.
- 120-volt space heater.
- Non witnessed NEMA Performance test.
- Water cooled thrust bearing.
- Heat exchanger for thrust bearing cooler.

$549,305.00

1-Variable Frequency Drive

TMEIC 1750HP MV VFD

- 4160 Volt
- 4.16KV in/ 4.16KV out.
- 133% Overload for one minute
- 3 phase
- 1750hp drive
- 400 frame.
- 756 KVAR available for PF correction
- 9700lbs
- 117" X 50" X 112" High
- Full IEE 519 complete with active converter
- Vector control.

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- Input breaker.
- Surger arrestor.
- Drive isolation transformer 4160V, 1890 KVA.
- Nema 1 Enclosure with fans and filters.
- +10/-10% allowable voltage fluctuation.
- +5/-5% frequency fluctuation.
- 120 Volt control power.
- Enhanced operator keyboard.
- Two 4-20 MA Analog isolators on drive input/ output.
- Navigator software.
- Certified Test results.
- Commissioning Tech.

$297,800.00

Piping

Discharge piping to include:

- 24" Flanged butterfly valve, gear operated.
- 24" Valmatic tilting disc check valve with top air/ oil dampener.
- 6" combination deep well air release valve with surge suppressor.
- 6" sch steel air release valve piping.
- Copper airline and regulator for check valve.
- 24" Flange piping.
- 24" Flange adapters.
- 24" Flange packs and gaskets.
- Piping supports.
- Epoxy painting-2-part 14-20 mil. N140
- Sample tap.
- 6" pressure, gauge, stainless dampened.
- 2- ¾" top and stainless ball valve.

$387,240.00

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Electrical

- Engineering review of existing electrical MCC by professional electrical engineer.
- Infrared survey of existing electrical MCC to verify no issues.
- New remote monitoring station with touch screen for remote pump operation on pump floor. Unit will be duplicate to existing units.
- Integration of drive, motor and drive into existing LCF Scada systems.
- Materials to connect drive to main power panel.
- Materials to connect drive to motor.
- Materials for remote panel and miscellaneous control wiring.
- Electrical labor and equipment to install drive, motor, remote panel, conduit and wiring.

$530,000.00

Installation

- Provide labor, equipment and supplies to install pump, motor, soleplate, piping etc.
- Install 80" X 80" X 2" ground sole plate
- Install epoxy anchor
- 7" X 7" X 12" reinforced concrete housekeeping pad.
- Drain lines
- Water cooling lines
- Synthetic oil for motors
- Installation of pump and motor.
- Installation of piping in basement-24" check-valve, butterfly valve, air release valve etc.
- Sawcut existing upper floor and repair opening to accommodate larger pump discharge.
- Modifications to both floors to accommodate modifications from FEA Report.
- Driver to clean old wet well and inspect of new pump install.
- Two-part epoxy paint all new piping.
- New floor plates to accommodate larger pump.
- Misc mechanical installation.

$590,600.00

5

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Startup/Certification/Warranty

- Provide factory start up personal for pump, motor, drive and check valve.
- Perform spectrum vibrational analysis of pump and motor.
- Test all Scada and remote monitoring.
- Provide signed and sealed as-built drawing by North Carolina registered professional engineer.
- Initiate 2-year non-prorated warranty upon successful startup and acceptance by owner.
- GE Motor contingency included.

$70,000.00

Total $3,796,400.00 plus applicable tax.

Freight included.

Adder for bond on entire job.

$72,800.00

As always we appreciate the opportunity to work with you on this project, if you have any questions or concerns please feel free to reach out to us.

Sincerely,

Russell Underwood PE

President

Charles R. Underwood Inc.

Executive Director's Report (EDR1-3)	Lower Cape Fear Water & Sewer Authority

AGENDA ITEM

To: CHAIRMAN DEVANE AND BOARD MEMBERS

From: TIM H. HOLLOMAN, EXECUTIVE DIRECTOR

Date: October 13, 2025

Re: Executive Director's Report

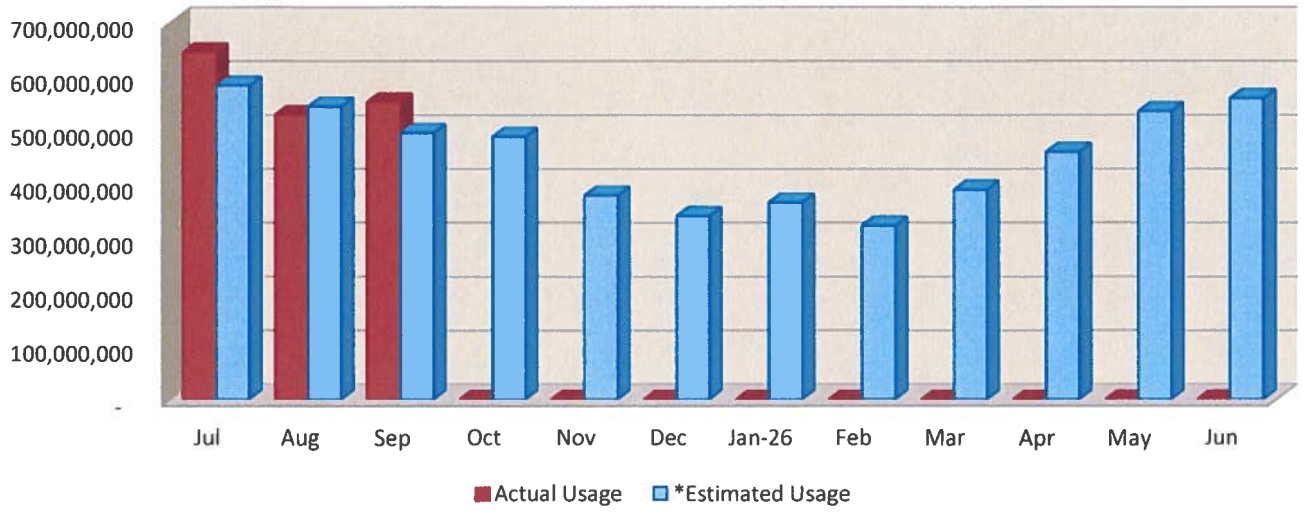
EDR1 - Comments on Customers' Water Usage and Raw Water Revenue for Fiscal Year to Date Ending September 30, 2025

EDR2 - Operating Budget Status, Ending August 31, 2025

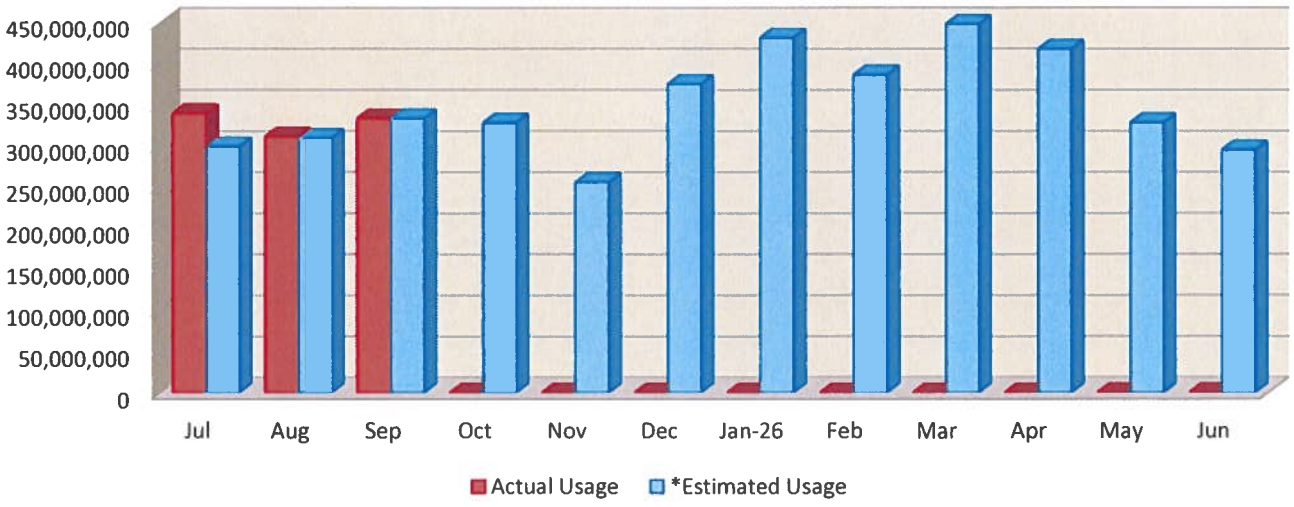
EDR3 - Summary of Activities

Action Requested: For information purposes.

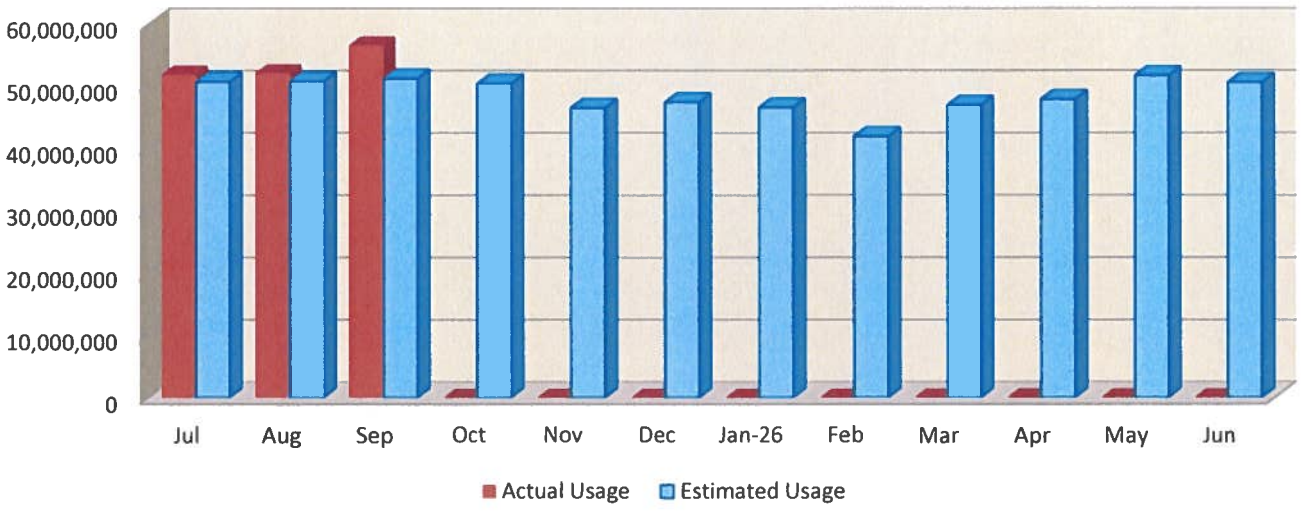
Brunswick County Water Usage FY 25-26



CFPUA Water Usage FY 25-26



Pender County Water Usage FY 25-26



LOWER CAPE FEAR WATER AND SEWER AUTHORITY
FISCAL YEAR 2025-2026 BUDGET

ACCOUNT NO.	REVENUES	FY 2025-2026 APPROVED BUDGET	FY 2025-2026 AMENDED BUDGET	July 1 - August 31, 2025 ACTUAL		FY 25-26 TOTAL COMBINED BUDGET	% of Amended Budget As of 08/31/2025
				KINGS BLUFF	BLADEN BLUFFS		
	OPERATING						
3001-01	Brunswick County	$ 2,621,733	$ 2,621,733	$ 563,174	$ -	$ 563,174	21%
3002-01	Cape Fear Public Utility Authority	$ 2,022,934	$ 2,022,934	$ 312,923	$ -	$ 312,923	15%
3003-03	Pender County	$ 289,440	$ 289,440	$ 49,875	$ -	$ 49,875	17%
3004-01	Stepan/Invista	$ 140,000	$ 140,000	$ 22,536	$ -	$ 22,536	16%
3005-01	Praxair, Inc	$ 35,200	$ 35,200	$ 5,170	$ -	$ 5,170	15%
3006-01	Bladen Bluffs Reimbursement for Plant Operation Costs	$ 5,670,086	$ 5,670,086	$ -	$ 269,402	$ 269,402	5%
3006-02	Bladen Bluffs Administrative Reimbursement	$ 133,823	$ 133,823	$ -	$ 32,265	$ 32,265	24%
3007-01	Sales Tax Refund	$ 159,988	$ 159,988	$ -	$ -	$ -	0%
	Subtotal	**$ 11,073,204**	**$ 11,073,204**	**$ 953,679**	**$ 301,667**	**$ 1,255,346**	11%
	Non-Operating						
3105-01	Interest	$ 200,000	$ 200,000	$ 47,405	$ -	$ 47,405	24%
3120-01	Other Revenue (Insurance Proceeds/Refunds/FEMA)	$ -	$ -	$ -	$ -	$ -	0%
3125-01	Federal Tax Subsidy	$ -	$ -	$ -	$ -	$ -	0%
3156-00	Rental House Income	$ -	$ -	$ -	$ -	$ -	0%
3170-01	Transfer In		$ -	$ -	$ -	$ -	0%
3900-01	Renewal and Replacement Fund Appropriated	$ -	$ -	$ -	$ -	$ -	0%
3900-02	SRF/ARPA	$ 37,762,800	$ 37,762,800	$ 4,785,638		$ 4,785,638	13%
2900-00	Fund Balance Appropriated	$ -	$ -	$ -	$ -	$ -	0%
	Subtotal	**$ 37,962,800**	**$ 37,962,800**	**$ 4,833,042**	**$ -**	**$ 4,833,042**	13%
	TOTAL REVENUES	**$ 49,036,004**	**$ 49,036,004**	**$ 5,786,721**	**$ 301,667**	**$ 6,088,389**	12%

LOWER CAPE FEAR WATER AND SEWER AUTHORITY
FISCAL YEAR 2025-2026 BUDGET

ACCOUNT NO.	EXPENDITURES	FY 2025-2026 APPROVED BUDGET	FY 2025-2026 AMENDED BUDGET	July 1 - August 31, 2025 ACTUAL		FY 25-26 TOTAL COMBINED BUDGET	% of Amended Budget As of 08/31/2025
				KINGS BLUFF	BLADEN BLUFFS		
	Administration						
4001-01	Salaries	$ 246,869	$ 246,869	$ 37,217	$ 12,343	$ 49,560	20%
4010-01	Per Diem and Mileage Board Members	$ 64,791	$ 64,791	$ 5,988	$ 3,240	$ 9,228	14%
4012-01	Vehicle Allowance	$ 5,200	$ 5,200	$ 740	$ 260	$ 1,000	19%
4019-01 &4024-01	FICA Taxes	$ 24,658	$ 24,658	$ 3,290	$ 1,233	$ 4,523	18%
4029-01	Retirement	$ 36,660	$ 36,660	$ 3,776	$ 1,833	$ 5,609	15%
4035-01	401K Plan	$ 13,912	$ 13,912	$ 1,678	$ 696	$ 2,374	17%
4036-01	Miscellaneous Payroll Processing Expenses	$ 2,900	$ 2,900	$ 560	$ -	$ 560	19%
4038-01	Group Insurance	$ 42,586	$ 42,586	$ 3,439	$ 2,129	$ 5,568	13%
4039-01	Property and Liability Insurance	$ 173,160	$ 173,160	$ 27,463	$ 8,658	$ 36,121	21%
4046-00	Professional Services General	$ 55,000	$ 55,000	$ 12,000	$ -	$ 12,000	22%
4046-01	Attorney	$ 65,000	$ 65,000	$ 3,147	$ -	$ 3,147	5%
4047-01	Auditor	$ 9,500	$ 9,500	$ 1,700	$ 2,800	$ 4,500	47%
4048-01	Engineer	$ 150,000	$ 150,000	$ 275	$ -	$ 275	0%
4049-01	Information Technology	$ 15,000	$ 15,000	$ 2,576	$ -	$ 2,576	17%
4050-01	Financial Advisor	$ 10,000	$ 10,000	$ -	$ -	$ -	0%
4055-01	Office Maintenance/Repair/Common Charge	$ 45,000	$ 45,000	$ 3,773	$ -	$ 3,773	8%
4058-01	Office Utilities	$ 4,000	$ 4,000	$ 772	$ -	$ 772	19%
4059-01	Office Expenses (telephone, Printing, Adv)	$ 15,000	$ 15,000	$ 1,756	$ -	$ 1,756	12%
4062-01	Office Equipment	$ 30,000	$ 30,000	$ 5,980	$ -	$ 5,980	20%
4064-01	Printing and Advertising	$ 15,500	$ 15,500	$ 1,126	$ -	$ 1,126	7%
4065-01	Telephone and Internet	$ 5,500	$ 5,500	$ 1,225	$ -	$ 1,225	22%
4070-01	Travel and Training	$ 36,000	$ 36,000	$ 8,551	$ -	$ 8,551	24%
4070-20	Phone Allowance	$ 520	$ 520	$ 74	$ 26	$ 100	19%
4075-01	Vehicle Expense	$ -	$ -	$ -	$ -	$ -	0%
4080-01	Miscellaneous Expense	$ 25,000	$ 25,000	$ 814	$ -	$ 814	3%
4081-01	Dues & Subscription	$ 12,000	$ 12,000	$ 4,719	$ -	$ 4,719	39%
	Subtotal	**$ 1,103,756**	**$ 1,103,756**	**$ 132,638**	**$ 33,218**	**$ 165,856**	15%

LOWER CAPE FEAR WATER AND SEWER AUTHORITY
FISCAL YEAR 2025-2026 BUDGET

ACCOUNT NO.	EXPENDITURES	FY 2025-2026 APPROVED BUDGET	FY 2025-2026 AMENDED BUDGET	July 1 - August 31, 2025 ACTUAL		FY 25-26 TOTAL COMBINED BUDGET	% of Amended Budget As of 08/31/2025
				KINGS BLUFF	BLADEN BLUFFS		
	Operating						
4501-01	Sales Tax Expense	$ 150,000	$ 250,000	$ -	$ 179,890	$ 179,890	72%
4510-01	Bladen Bluffs O & M	$ 3,821,385	$ 3,721,385	$ -	$ 126,904	$ 126,904	3%
4515-01	Bladen Bluffs Hurricane Florence	$ -	$ -	$ -	$ -	$ -	0%
4520-01	Utilities/Energy Kings Bluff	$ 778,052	$ 778,052	$ 86,737	$ -	$ 86,737	11%
4530-01	Contract O & M Kings Bluff	$ 736,811	$ 736,811	$ 157,930	$ -	$ 157,930	21%
4537-01	O&M Kings Booster Pump Bluff Pump Station	$ -	$ -	$ -	$ -	$ -	0%
4541-01	Combined Enterprise Funded Series 2010 Principal	$ -	$ -	$ -	$ -	$ -	0%
4542-01	Combined Enterprise Funded Series 2010 Interest	$ -	$ -	$ -	$ -	$ -	0%
4543-01	Combined Enterprise System Ref Series 2012 Principal	$ -	$ -	$ -	$ -	$ -	0%
4544-01	Combined Enterprise System Ref Series 2012 Interest	$ -	$ -	$ -	$ -	$ -	0%
4545-01	Bladen Buffs Debt Service Principal	$ 1,115,000	$ 1,115,000	$ -	$ -	$ -	0%
4546-01	Bladen Buffs Debt Service Interest	$ 480,000	$ 480,000	$ -	$ 65,873	$ 65,873	14%
	Operating Capital Expense	$ 10,851,000	$ 10,851,000	$ -	$ 172,880	$ 172,880	2%
4998-05	Transfer to R&R - Kings Bluff R&R Expense	$ -	$ -	$ -	$ -	$ -	0%
	Transfer to R&R - Industrial	$ -	$ -	$ -	$ -	$ -	0%
4998-06	Transfer to Enterprise Fund	$ -	$ -	$ -	$ -	$ -	0%
2041-01	421 Relocation New Hanover County Loan Principal	$ -	$ -	$ -	$ -	$ -	0%
5180-00	SRF/7 mile parallel line expenditures	$ 30,000,000	$ 30,000,000	$ 92,708	$ 5,947,073	$ 6,039,781	20%
	Subtotal	**$ 47,932,248**	**$ 47,932,248**	**$ 337,375**	**$ 6,492,620**	**$ 6,829,995**	14%
	TOTAL EXPENDITURES	**$ 49,036,004**	**$ 49,036,004**	**$ 470,013**	**$ 6,525,838**	**$ 6,995,851**	**14%**

Executive Director Highlighted Activities:

- Regular Monthly meetings with the Design Build Team and the Owner's Advisor for the parallel line project.
- Continuing work with the Legislative Delegation on the double project funding
- Certify BB Monthly Report
- Danielle continued compiling information for the Auditors.
- Replacement Copier received.
- Meet via Teams with the LCFWASA Attorney and the Brunswick County Planning staff regarding reservoir zoning.
- Completed Technology review with Computer Warriors
- Prepared and contacted Plants in preparation for the recent storm event.
- Danielle and Tim met with Truist regarding ACH and credit card migration of Accounts Payable.
- Danielle and Tim participated in the Wilmington Business Expo (Spark).
- North Carolina Rural Water Legislative Committee Meeting
- North Carolina Rural Water Director Evaluation
- Attended Source Water Protection Event at Lock and Dam #1