Qualifications Due
On March 15, 2023 @ 2:00 P.M.

Advertisement

Request for Qualifications (RFQ) To Provide Engineering Services
Chattahoochee River Pump Station & Raw Water Transmission Main

The Coweta County Water & Sewerage Authority, as "Owner", is seeking Statements of Qualifications (SOQ) from firms interested in providing Engineering Services. This RFQ is issued to identify the most qualified potential providers. Firms who are determined by the Owner to be especially qualified may be deemed eligible and may be invited to discuss and negotiate a contract for these services. All respondents to the RFQ are subject to instructions communicated in this document and additional terms and conditions listed in the Owner's RFQ. The Owner reserves the right to reject any or all statements of qualifications, and to waive technicalities and informalities at the discretion of the Owner.

The RFQ Package may be obtained at Coweta County Water & Sewerage Authority, 545 Corinth Rd, Newnan, Georgia 30263. Statements of Qualifications must be delivered to the Owner at the listed address and should be delivered in accordance with instructions in the RFQ package.

Restriction of Communication: From the issue date of this RFQ until a successful proposer is selected, proposers are not allowed to communicate for any reason with any members of the Selection Committee or the Owner's staff, except for:

a) Submission of questions as instructed in the RFQ,
b) As provided by any existing work agreement(s).

For violation of this provision, the Owner reserves the right to reject the proposal of the offending proposer.

Written questions may be directed to Mr. Rick Jones via email at rjones@cowetawater.com . Questions will be answered via written addendum only. The deadline for submitting questions is March 3, 2023. The Owner reserves the right to reject any and all statements of qualifications, as well as to waive technicalities and informalities.

Portions of this and future Work may be funded, in part, by Drinking Water SRF Loan No. DW-2022030 from the Georgia Environmental Finance Authority (GEFA). It is the policy of the Owner and GEFA that small businesses, female-owned businesses and minority businesses have a fair and equal opportunity to participate in these opportunities. Contractors and subcontractors who utilize qualified minority subcontractors may qualify for a state income tax credits for qualified payments made to minority subcontractors. See Official Code of Georgia Annotated (O.C.G.A.) Section 48-7-38.

Coweta County Water & Sewerage Authority
545 Corinth Rd.
Newnan, Georgia 30263
Phone: (770) 254-3710

Coweta County Water & Sewerage Authority

Request for Qualifications to Provide

Engineering Services

For

Chattahoochee River Pump Station & Raw Water Transmission Main
Coweta County, Georgia

Chattahoochee River Pump Station & Raw Water Transmission Main

The Coweta County Water & Sewerage Authority, ("Owner"), solicits Statements of Qualifications (SOQ) from professional firms interested in providing Engineering Services for the above-mentioned services. One or more firms that respond to this RFQ and who are determined by the Owner to be qualified, may be deemed eligible and may be invited to discuss and negotiate for these services. All respondents to this RFQ are subject to instructions communicated in this document and are cautioned to completely review the entire RFQ and follow instructions carefully. The Owner reserves the right to reject any or all statements of qualifications or proposals, and to waive technicalities and informalities at the discretion of the Owner.

Please note: The issuance of this RFQ invokes a Restriction of Communication on potential respondents, which, if violated, may result in proposal rejection (See Section 8 for details).

1. General Project Information

1.1 - Project Description

The Authority has submitted a withdrawal permit application to the Georgia Environmental Protection Division (EPD). Communications indicate a draft permit will be issued for 27.5 MGD raw water withdrawal on the Chattahoochee River. The raw water is intended to be stored in B.T. Brown Reservoir. The Authority seeks an engineering firm to design a new river intake on the Chattahoochee River south of Highway 27, and a raw water pipeline to deliver water to the B.T. Brown Reservoir.

The construction delivery method for this Project will be traditional design, bid, and construct. The Owner will employ the services of a General Contractor in addition to the Engineering Consultant.

1.2 - Project Goals

The successful Project will provide a design to withdraw water from the Chattahoochee River and pump to the B.T. Brown reservoir. A Basis of Design Report (BODR) was prepared for the draft permit submission to GA EPD and property acquisition and has been included as Attachment "A". The Authority is seeking an engineer to continue preliminary designs to final designs, then prepare construction documents consisting of drawings, technical specifications and contracting documents.

1.3 - Project Schedule

The Coweta County Water & Sewerage Authority anticipates the completion of the improvements requested herein as follows:

Notification of Award to the Selected Consultant	April 14, 2023
Notice to Proceed to Selected Consultant	April 27, 2023
EPD Approved Plans Ready to Advertise	June 3, 2024
Notice to Proceed to Construction Contractor	August 2, 2024
Construction Completion	August 5, 2026

All of the dates above are estimates and subject to change.

2. RFQ Schedule Of Events

The following Schedule of Events represents the Owner's best estimate of the schedule that will be followed. All times indicated are prevailing times in Georgia. The Owner reserves the right to adjust the schedule as necessary.

a. Public advertisement of **RFQ** for a period of 30 days	02/14/2023	----------
b. Deadline for written questions/requests for clarification (*see section 6*)	03/03/2023	5:00 PM
c. Deadline for submission of Statements of Qualifications (*see sections 5, 7*)	03/15/2023	2:00 PM
d. Evaluation and issues invitation for interview for Finalist firms	03/29/2023	----------
e. Selection Committee interviews finalist firms	04/12/2023	TBA
f. Notification to Selected Firm	04/14/2023	TBA
g. Notice to Proceed	04/27/2023	TBA

3. Engineering Consultant Requirements

The successful firm will demonstrate experience in the successful completion of projects of similar size and equipment. Important criteria in the selection for this project will include the following:

- Demonstrate the firm and project specific personnel have the technical ability to perform the required work to properly execute the scope of the project. This ability includes a detailed description of all disciplines available to the firm including in-house assets as well as sub-consultants required to provide the services.

- A description and detailed schedule of how the project will be executed.

- Resumes and experience of Project Staff proposed to perform the requested Engineering and Project Management for this project. An organizational chart showing the Project staff and the role that each is expected to perform.

- The firm should list experience with the design of at least three projects of similar scope and scale.

- Experience and knowledge of Local, Georgia Environmental Protection Division (GA EPD), and U.S. Army Corp of Engineers (USACE) 404 Permitting issuances.

- The firm's approach to developing and implementing a design and construction quality control program.

- The selected firm will be required to provide full time resident inspection on site for the duration of the construction. The inspector shall be an employee of the selected firm.

4. Instructions for Preparing Statements of Qualifications

Each Statement of Qualifications shall provide a straightforward, concise delineation of respondent's capabilities. Fancy, colored displays, and promotional materials are not desired. Emphasis must be on completeness, relevance, and clarity of content. The content of all Statements of Qualifications must be categorized and numbered as outlined below, and responsive to all requested information:

4.1 - Description and Resources of Firm

- Provide basic company information: Company name, address, name of primary contact, telephone number, email address, and company website. If the firm has multiple offices, the qualification statement shall include information about the parent company and branch office separately. Identify office from which project will be managed and this office's proximity to the project site. Provide form of ownership, including state of residency or incorporation, and number of years in business. Is the offeror a sole proprietorship, partnership, corporation, Limited Liability Corporation (LLC), joint venture, or other structure?

- Briefly describe the history and growth of your firm(s). Provide general information about the firm's personnel resources, including disciplines and numbers of employees and locations and staffing of offices.

- Provide a statement of disclosure, which will allow the Owner to evaluate possible conflicts of interest. Respondents must provide, in their own format, a statement of all potential legal or otherwise significant conflicts of interests possibly created by the respondent's being considered in the selection process or by the respondent's involvement in the project. Respondents should include information as to the nature of relationship(s) with parties in such potential conflict.

- Has the firm ever been removed from a Service Contract, had a contract terminated for default, or failed to complete a contract as assigned?

4.2 – Project Understanding and Approach

- Provide a narrative description of the project based on your understanding of all the aspects of the project. Include any issues that you believe will required special consideration.

- Provide a description and detailed schedule of how the work will be performed.

- Discuss the firm's approach to Quality Assurance and Quality Control with specific reference to implementation of QA/QC procedures on this project.

4.3 - Experience and Qualifications

- Provide professional qualifications and description of experience for principal Consulting Services personnel. Firms that respond as joint teams will be expected to clearly demonstrate their team members' shared experience, as a joint team, on prior projects of similar magnitude and complexity.

- Provide information on the firm's A/E Consulting Services experience on projects of similar type, size, function, and complexity. Describe no more than and no less than three projects completed in the last 10

years, in order of most relevant to least relevant, which demonstrate the firm's capabilities to perform the project at hand. For each project, the following information should be provided:

a. Project name, location, and dates during which services were performed.
b. Brief description of project and physical description (buildings, square footage, number of stories, site areas).
c. Services performed by your firm.
d. Owner contact information including email and telephone number.

- Describe the firm's experience and qualifications in a leadership role over multiple providers and phases of construction for similar designs. Include any oversight of projects of relevant complexity, including experience in providing leadership in projects that utilize similar building methods and applications to that of incumbent project. Include any certifications, industry ratings, and achievement recognitions, etc., to attest to the level of experience and success. Describe innovations that the firm might have introduced or employed to increase the project's adherence to technical standards.

4.4 - Statement of Suitability

- Provide any information that may serve to differentiate the firm from other firms in suitability for the project. Suitability may include, but is not limited to, the firm's fit to the project and/or needs of the Owner, any special or unique qualifications for the project, current and projected workloads, the proximity of office to project location, and any services offered by the firm that may be particularly suitable for this project.

- Provide any non-discrimination and affirmative action policies of the firm and the firm's history of inclusion in sourcing for projects.

5. Submittal of Statements of Qualifications

Five bound Statements of Qualifications must be delivered to the Owner at the listed address and should be delivered in accordance with instructions in the RFQ package prior to the submittal deadline.

- Provide one original, signed in wet ink, with 4 copies stamped "COPY."
- Include 1 published copy saved to a memory stick.
- Bind submittals in 1 or 1-1/2-inch, 3-ring binders with dividers separating the Sections, as needed.
- Publish pages on standard 8 ½ x 11-inch paper; number each page.
- Include a table of contents with corresponding tabs to identify Sections.
- Limit SOQs to 30 pages or less using minimum 11-point font.
- Up to two 11" x 17" folded pages may be used for the schedule referenced in Section 3.
- 11 x 17-inch pages shall count as 1 page each.
- Resumes, exhibits, affidavits, or other enclosure information called for may be included in an appendix and will not count toward the page limit.

SOQs must be received by the Owner by the deadline in the Schedule of Events at the Customer Service Counter at the following address:

Mr. Rick Jones, COO
Coweta County Water & Sewerage Authority
545 Corinth Rd.
Newnan, GA 30263

6. Selection Process

A Selection Committee, consisting of representatives of the Owner, will identify a selection of finalist firms through a QBS process. The Selection Committee will receive and evaluate SOQs submitted in response to this RFQ using the following criteria:

6.1 - Criteria for evaluation of Statements of Qualifications

25% Description and Resources of Firm – Stability of the firm, including the firm's corporate history, growth, resources, form of ownership, financial information, and other evidence of stability.

30% Project Understanding and Approach – Does the firms Statement of Qualifications demonstrate a firm understanding of the proposed project? Is the approach to the overall design and construction of the project consistent with the needs of the Authority?

25% Experience and Qualifications - Including the demonstrated ability of firm in effective Consulting Services of facilities comparable in complexity, size, and function meet the Engineering Consultant Requirements as outlined. This includes relevant experience and qualifications of the principal Consulting Services lead staff and level of experience in a leadership role over multiple providers and phases of construction for this type of project.

This item to also consider the Firm's apparent suitability to provide services for Project, including the firm's apparent fit to the project type and/or needs of the Owner, any special or unique qualifications for the Project, current and projected workloads, proximity of office or lead staff to Project location, and services offered by the firm. The firm's non-discrimination policies, any affirmative action policies and past efforts for W/MBE inclusion will be a part of this evaluation, as well as the firm's record and methodology of addressing public safety and environmental concerns.

20% Statement of Suitability – Does the firm's current workload and staffing allow for the firm to meet the schedule for the proposed project?

6.2 - Finalist Notification

Up to three (3) finalist firms will be selected to interview. The names of the firms selected as finalists will be posted on the Georgia Procurement Registry. The firms selected as finalists will receive written notification from the Owner which will address the necessary elements of the remainder of the selection process. These elements include, but may not be limited to, the following:

6.3 - Interview

Each finalist firm shall be informed of the place and time for the interview session. The time allotted to each firm will not exceed 60 minutes to include: 5 minutes for setup, 25 minutes for proposer presentation, 25 minutes for Committee questions, and 5 minutes for knockdown. Although the Owner will have a screen and projector available in the interview room, presenter must be prepared with own projector and laptop for quick setup within the allotted 5 minutes as a backup. The remainder of the presentation may involve flip charts or boards along with oral presentation. Additional interview instructions and guidelines will be provided in the Notice to Finalists, as well as the criteria which will be used to evaluate the interview.

6.4 - Consultant Selection

Upon completion of the evaluation and interview process by the Selection Committee, the firms will be ranked using criteria described herein in descending order of recommendation. Negotiations may then be initiated with the highest-ranking firm to finalize the terms and conditions of the contract, including the fees to be paid. In the event a satisfactory fee agreement cannot be reached with the highest-ranking firm, the Owner will formally terminate the negotiations in writing and enter negotiations in turn with the second highest ranking firm, and so on, until a mutual agreement is established and the Owner awards a contract. The actual Form of Contract shall be developed later between the Owner and Consultant, after selection.

7. Submittal of Questions and Requests for Clarification

Questions about any aspect of the RFQ, or the project, must be submitted in writing (email is preferable) to: Mr. Rick Jones, Chief Operating Officer: rjones@cowetawater.com . The deadlines for submission of questions relating to the RFQ are the times and dates shown in the RFQ Schedule of Events. Proposers are cautioned to review and adhere to the Restriction of Communication for this Project.

8. Additional Terms and Conditions

8.1 - Restriction of Communication

From the issue date of this (RFQ) solicitation until a successful proposer is selected and the selection is announced, proposers are not allowed to communicate about this solicitation or this Project for any reason with any members of the Selection Committee, the Owner, except for submission of questions as instructed in the RFQ, or during the proposer's conference (if applicable), or as provided by any existing work agreement(s). For violation of this provision, the Owner reserves the right to reject the proposal of the offending proposer.

8. 2 - Submittal Costs and Confidentiality

All expenses for preparing and submitting responses are the sole cost of the party submitting the response. The Owner is not obligated to any party to reimburse such expenses. All submittals upon receipt become the property of the Owner. Labeling information provided in submittals "proprietary" or "confidential", or any other designation of restricted use will not protect the information from public view.

Subject to the provisions of the Georgia Open Records Act, the details of the proposal documents will remain confidential until final award.

8.3 - Award Conditions

This request is not an offer to contract or a solicitation of bids. This request and any statement of qualifications or proposal submitted in response, regardless of whether the proposal is determined to be the best proposal, is not binding upon the Owner and does not obligate the Owner to procure or contract for any services. Neither the Owner nor any party submitting a response will be bound unless and until a written contract mutually accepted by both parties is negotiated as to its terms and conditions and is signed by the Owner and a party containing such terms and conditions as are negotiated between those parties. The Owner reserves the right to waive non-compliance with any requirements of this Request for Proposal and to reject any or all proposals submitted in responses. Upon receipt and review of responses, the Owner will determine the party(s) and proposal that in the sole judgment of the Owner is in the best interest of the Owner (if any is so determined), with respect to

the evaluation criteria stated herein. The Owner then intends to conduct negotiations with such party(s) to determine if a mutually acceptable contract may be reached.

8.4 - Statement of Agreement

With submission of a statement of qualifications or proposal, the Proposer agrees that the firm has carefully examined the solicitation, and the Proposer agrees that it is the Proposer's responsibility to request clarification on any issues in any section of the solicitation with which the Proposer disagrees or needs clarified. The Proposer also understands that failure to mention these items in the proposal will be interpreted to mean that the Proposer is in full agreement with the terms, conditions, specifications, and requirements therein. With submission of a proposal, the Proposer hereby certifies: (a) that this proposal is genuine and is not made in the interest or on behalf of any undisclosed person, firm, or corporation; (b) that Proposer has not directly or indirectly included or solicited any other Proposer to put in a false or insincere proposal; (c) that Proposer has not solicited or induced any person, firm, or corporation to refrain from sending a proposal.

CHATTAHOOCHEE RIVER INTAKE FACILITY, PUMP STATION AND RAW WATER PIPELINE

BASIS OF DESIGN REPORT

Prepared by:

200 Galleria Drive, SE
Suite 520
Atlanta, GA 30339

September 2022

Garver Project No.: 22W38085

Engineer's Certification

I hereby certify that this Basis of Design Report for the Chattahoochee River Intake Pump Station was prepared by Garver under my direct supervision for Coweta County Water & Sewerage Authority.

Andy Pruitt, PE
State of Georigia PE License 048205

GEORGIA REGISTERED NO. 048205 PROFESSIONAL ENGINEER JOHN ANDREW PRUITT

9-23-22

Georgia State License Number:
PEF007804
Exp. 6/30/2024

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1.0 Introduction & Project Background

1.1 Project Scope & Need

To provide resiliency to the region and support future projected water demands, the Coweta County Water and Sewer Authority (CCWSA) is moving forward with the design of a new river intake system. This system will route raw water from the Chattahoochee River to the B.T. Brown Reservoir, where it can be treated and distributed through the B.T. Brown Water Treatment Plant. The river intake system includes a river-side intake screen structure, a collection wet well, a pump station, and a 9.6-mile-long raw water transmission main.

CCWSA submitted a Municipal Surface Water Withdrawal Permit to the Georgia Environmental Protection Division (EPD) in May 2022. This Basis of Design Report is intended to support the permit by identifying key design criteria for the construction of a new river intake system, as well as documenting our process for initial equipment and structure design.

1.2 River Withdrawal Location Identification

Originating from the southern Appalachian Mountains, and flowing south along the southwest Georgia state border, the Chattahoochee River represents one of the largest raw water sources in the state. The Chattahoochee River runs 434 miles across the state of Georgia before joining the Apalachicola River and discharging to the Gulf of Mexico.

The target intake section of the river in Coweta County has well-documented river flow data, with daily river levels published on the United States Geological Survey (USGS) website[1]. Historical gage heights from 1990 through 2022 were used to inform the design and were supported by FEMA (Federal Emergency Management Agency) floodplain maps for the region[2].

The 7Q10 is a hydrological design flow based on the lowest 7-day average flow that occurs on average, every 10 years. 7Q10 flowrates for the Coweta Intake were provided by the Georgia Department of Natural Resources and delineated by month of the year. According to this design flow, the 7Q10 ranges from a minimum of 948 cfs in November to a maximum flowrate of 1312 cfs in April.

Based on the results of a previous study performed by AECOM, a river intake location near the Highway 16 W bridge and Riverside Park was selected. Within this intake region, we identified two potential withdrawal locations owned by Georgia Power, shown in Figure 1-1. The first option withdraws from the river along the west side of Highway 16 W, while the second option withdraws from the east side. Following discussions with Georgia Power, the western parcel was selected as the preferred intake location. The site layout and building design will be informed by the topography around the intake location.

[1] USGS 02338000 Stream Data | Chattahoochee River near Whitesburg, GA
https://waterdata.usgs.gov/nwis/inventory/?site_no=02338000&agency_cd=USGS

[2] FEMA Flood Insurance Rate Map | Flood Map Service Center
https://msc.fema.gov/portal/search?AddressQuery=-84.9013025821908,%2033.47592936647495

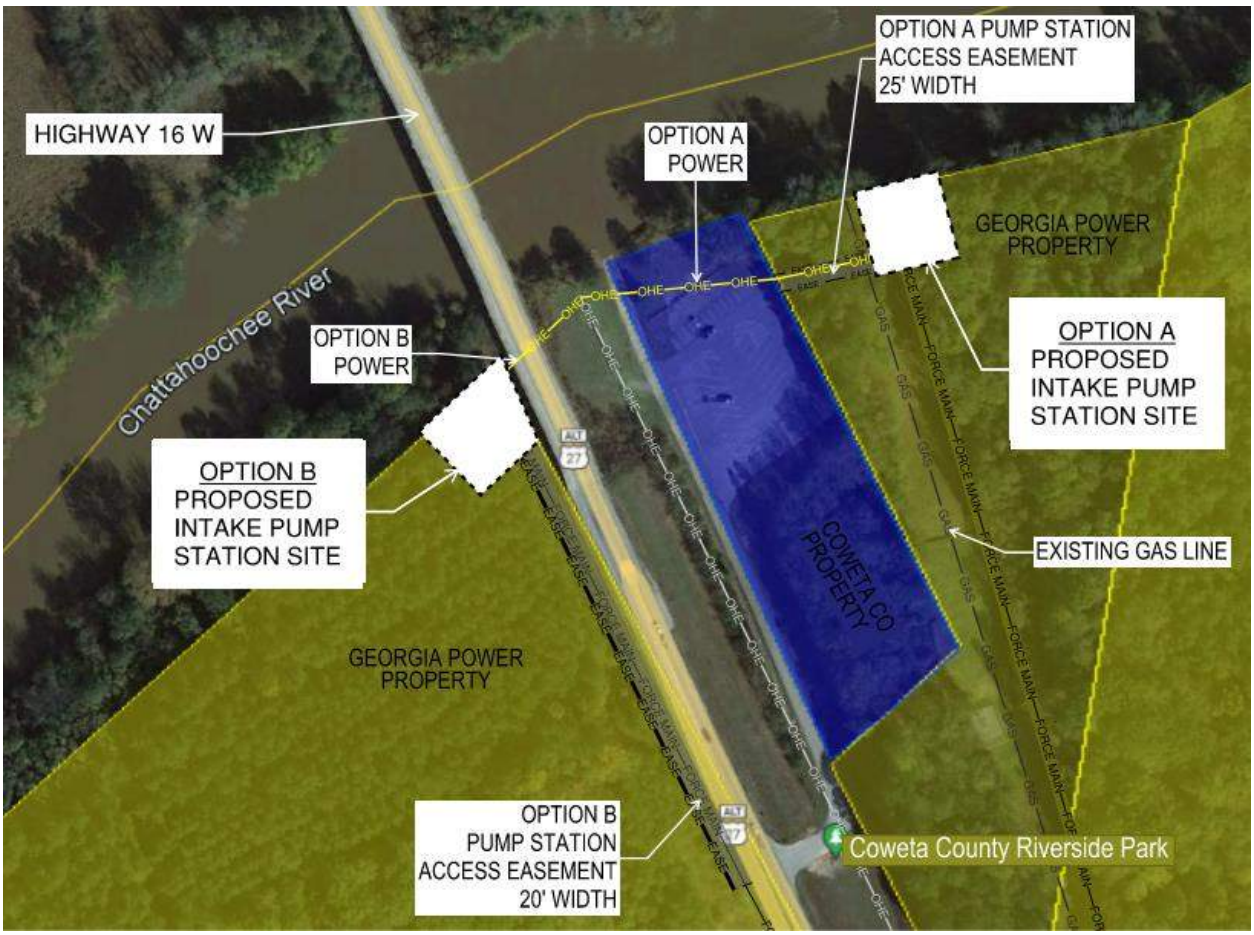


Figure 1-1 Potential Intake Locations from the Chattahoochee River

Two intake locations were considered along the Chattahoochee River. Option B was selected as the preferred location with Georgia Power, the property owner.

1.3 Location and Preliminary Layout

The site layout consists of three primary structures: the passive intake screens, the wet well/pump building, and the electrical building. The intake structure will be constructed along the edge of the Chattahoochee River, protecting the intake screens and directing water to the pump station. Based on the intake location selection described in the previous section, the structure will be built within the parcel of land west of Highway 16 W (Option B).

The passive intake screens direct water via gravity lines to the wet well and pump building. Because of the flat topography along the riverbank, the gravity lines will run 550 feet to a neighboring hill to keep the pump building out of the floodplain. The pump and electrical building floor and equipment will be elevated to 715 ft, three feet above the 100-year floodplain, with the structure partially cutting into the hillside. A profile view of this configuration is represented in Figure 1-2.

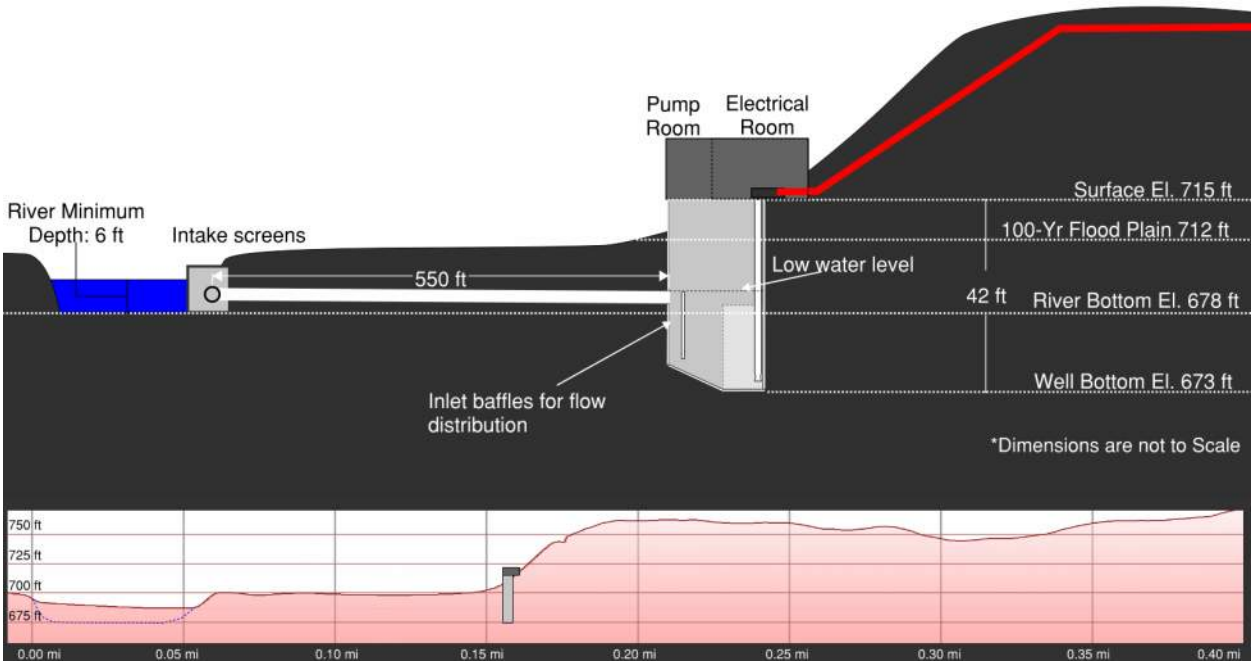


Figure 1-2 Representative Profile of Pump Station Configuration

The topography around the intake site is relatively flat before an abrupt rise in grade along the hillside. To minimize excavation volumes while also staying out of the floodplain, the pump station will be constructed within the hillside just above the floodplain.

An access driveway will be built along the edge of the highway, near a naturally flat region between the hillside and riverbank. The driveway will connect with a concrete pad around the pump station, providing access to the side of electrical room and to the unloading area in the pump building. A temporary construction road within the floodplain provides access to the intake structure and construction staging area. The site layout is shown in Figure 1-3.

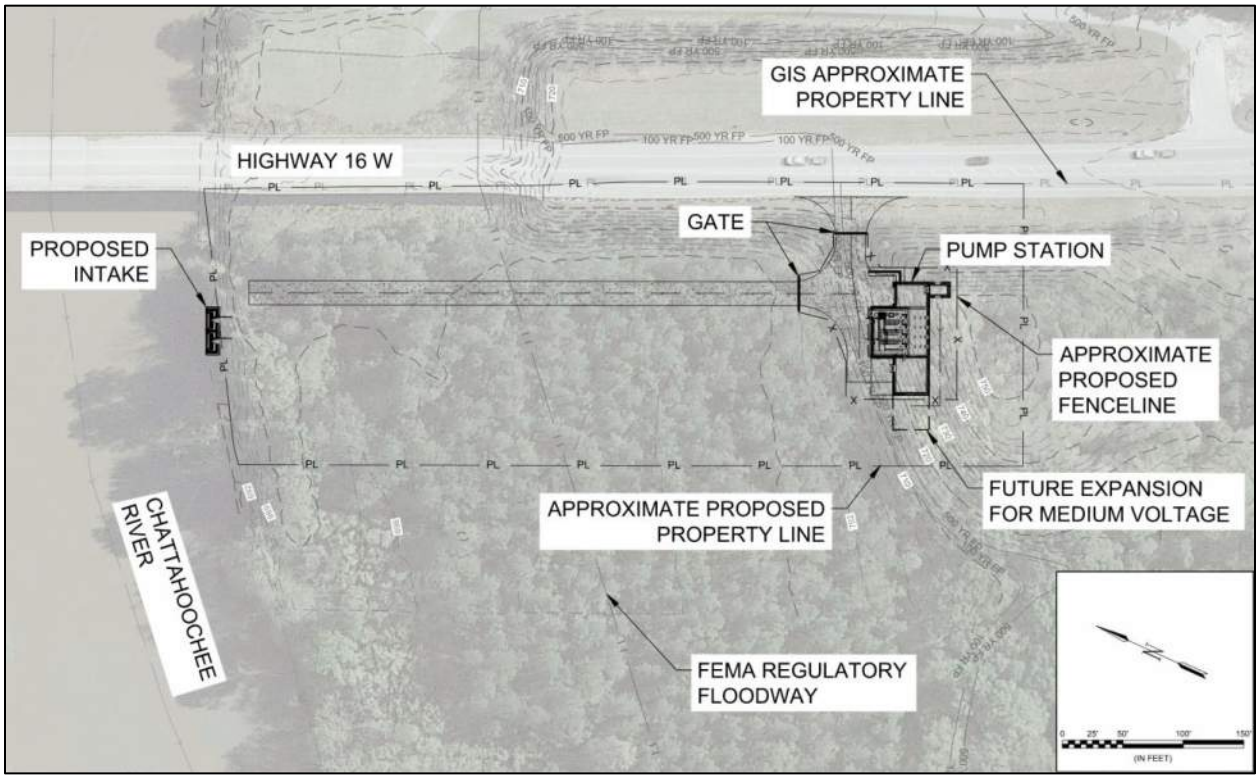


Figure 1-3 General Site Layout of Intake Structure and Pump Station

The pump station will be accessible via a driveway along the western side of the highway. Temporary driveways provide access to the intake screens and construction staging area within the floodplain, while the pump station and unloading areas remain outside of the floodplain.

1.4 Permitting Process

Because of the unique placement of the intake structure along a major river and within the floodplain, several permits must be submitted to support the project. The major permits and requirements include:

- Georgia Environmental Protection Department
  - Municipal Surface Water Withdrawal Permit
- US Army Corps of Engineers
  - 404 permitting - Nationwide permit is anticipated; coordinated with pipeline permitting
- Coweta County Floodplain Management
  - Study must show “No-Rise” condition
- Georgia Department of Transportation
  - Driveway access to Highway 16 W
- Georgia Power
  - Land acquisition for river intake site

The Municipal Surface Water Withdrawal Permit was submitted in May 2022. Beyond the permits listed for the US Army Corps of Engineers, additional shoreline stabilization will likely be required around the

intake structure. Provided that the Coweta County Floodplain Management permit can demonstrate a "No-Rise" condition, no additional conditional letter of map revision (CLOMR/LOMR) process with FEMA is expected. Drawings for the upstream bridge along Highway 16 W will also need to be coordinated to support equipment supply and construction activities.

Because of the impact to downstream river users, CCWSA will be required to cease pumping with the river flow is below a limiting threshold, measured as 1,500 to 1,600 cfs at Whitesburg. This will limit the amount of water that may be withdrawn at a given time, particularly when the river level is low.

2.0 Design Criteria

2.1 General

The river intake structure consists of an intake screen system, a pump station and associated equipment and structures. The intake screens will be located along the river edge and contain a cleaning system to prevent sediment buildup and fouling. The intake screens will direct water from the river to the wet well. From the wet well, pumps will transport the water along a raw water transmission main to the B.T. Brown Reservoir.

The river intake and pump station should be designed to meet the water demands for B.T. Brown Water Treatment Plant and the surrounding water district. The district planning flow rates show an initial design of 14 MGD, with a future scale-out to 21 MGD. The pump station initial design will be sized at 21 MGD with the opportunity to upgrade the pumps and equipment to match growth as necessary. This multi-phase approach helps to reduce the initial cost and improves the efficiency of the design by not oversizing equipment.

Based on the 7Q10 values for the Coweta Intake from the Chattahoochee River, the Georgia Environmental Protection Division (EPD) found that a pumping capacity of 24.5 MGD was sufficient to meet a safe yield of 26.5 MGD for the region. Considering that the station will be required to cease pumping at low river flows, an increased instantaneous pumping rate of 27 MGD was determined to meet the 26.5 MGD safe yield. In the future, CCWSA may wish to increase their safe yield further. To support this growth, the buildings and intake structure will be sized to support equipment up to 30 MGD. An additional upgrade to medium-voltage electrical equipment may be required.

Table 2-1 summarizes the design flowrates for an initial and future build.

Table 2-1 Raw Water Supply and Conveyance Design Flow Rates

Phase (Year)	Initial (2022)	Future (2050)
Design Flow Rate	21 MGD	30 MGD
Static Head to B.T. Brown Reservoir	El. 687 Chattahoochee River Bottom to El. 890 B.T. Brown Reservoir High Point 203 ft (To be confirmed)	

In addition to the previous design criteria, the following assumptions were made for the Basis of Design:

- Offsite power provided to the site by others. Next phase of design will coordinate with power service providers to develop strategy for power service for pumps.
- No standby generator is included. Because the Chattahoochee River Pump Station supplies water to B.T. Brown Reservoir, the reservoir will provide storage adequate for any power outage.

2.2 Intake Screens

2.2.1 Design Criteria

The intake screen system should be capable of operating within a river environment and be protected from floating debris and recreational activities within the river. Furthermore, the configuration should be designed to prevent debris and large aquatic life from entering the pumping system and causing damage. To meet these goals, it is recommended that the screens be installed in a protected concrete vault, outside of the main river profile. It is anticipated that the intake structure will require a temporary coffer dam for construction. The intake screen system design criteria are summarized in Table 2-2.

Table 2-2 Intake Screen System Design Criteria

Property	Requirement
Minimum Number of Screen Systems	2
Max Screen Velocity	0.5 ft/s
Screen Material	Copper-Nickel Alloy for Zebra Mussel Mitigation
Screen Cleaning	Airburst
Minimum water depth over screen	18”
Bar Screen Opening Size	4”

2.2.2 Intake Structure Design

The intake screens require a minimum submergence of 1.5 feet to reduce flow problems and are recommended to be raised above the riverbed to reduce sediment intake and build-up. The depth of the riverbed changes over time, but is estimated to be near 678 feet elevation, based on the Federal Emergency Management Agency (FEMA) flood insurance rate map (FIRM). This depth should be confirmed with river profile measurement.

The United States Geological Survey (USGS) has maintained over 30 years of daily stream data for the Chattahoochee River, including the water level of the river as measured above the river gage[1]. Based on the frequency analysis shown in Figure 2-1, the most typical observed river level is between 3 and 7 feet above the datum, or 684 to 689 ft elevation. The screens should be positioned in the center of the river during the lowest expected flow, or 681 feet.

The vault may be designed with a removable steel bar screen on the river-facing wall, and concrete walls separating each screen. The bar screens can be substituted with stop logs or bulkheads to isolate each individual chamber to allow for draining and access when new installation or maintenance activities are needed. To reduce the structure size and cost, we recommend sizing the bar screens and stop logs to account for 97% of the maximum observed river levels, or 694 feet. A profile of the intake structure with marked elevations is shown in Figure 2-2. This design may be revised in later design to improve water flow through the chambers for silt removal.

Two to three screens will be necessary to support the 30 MGD design water flow. To reduce the pipe size and provide redundancy, we recommend routing an individual pipe from each intake screen to the wet well. An example layout is shown in Figure 2-3.

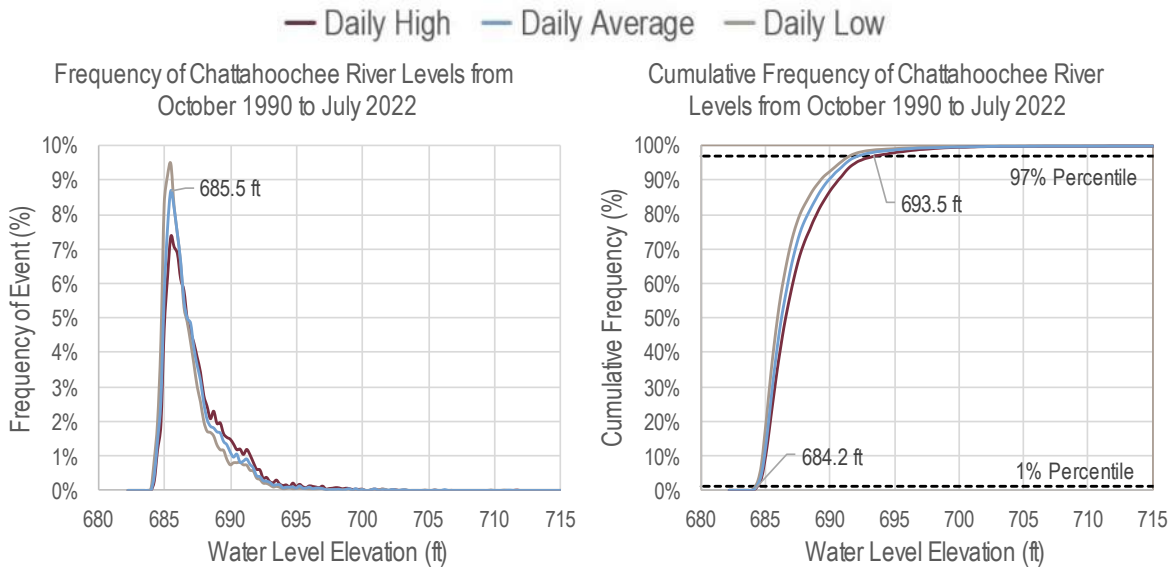


Figure 2-1 Historical Chattahoochee River Levels – USGS October 1990 to July 2022

The daily water level ranges between 684 and 694 ft, with less than 1% of observed river levels below this range, and 3% above this range. This range will be used to inform the intake structure design. The most common river level is 685.5 ft, or approximately 1.3 feet above the minimum observed.

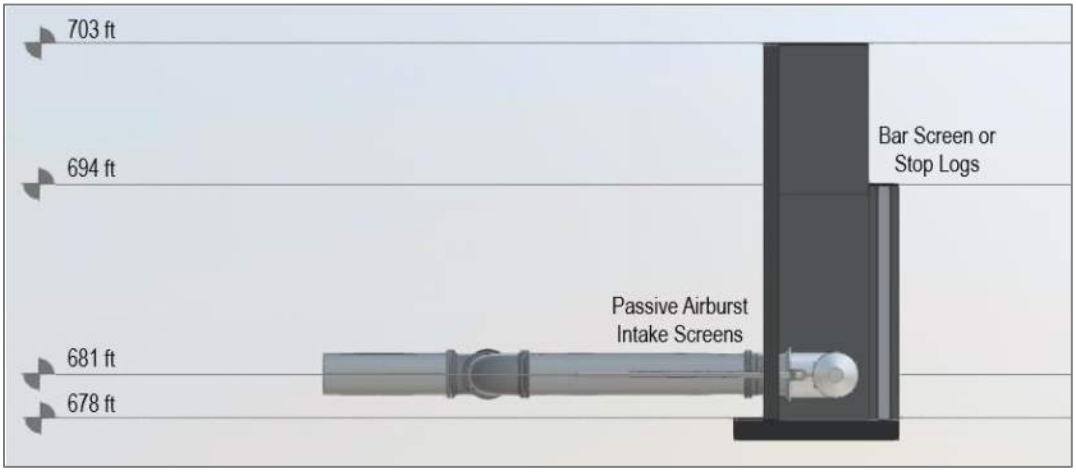


Figure 2-2 Intake Structure Profile View

The intake screens are positioned above the river bottom and are equipped with an airburst system to reduce silt build-up and blockage. The structure is protected by removable bar screens or stop logs for maintenance.

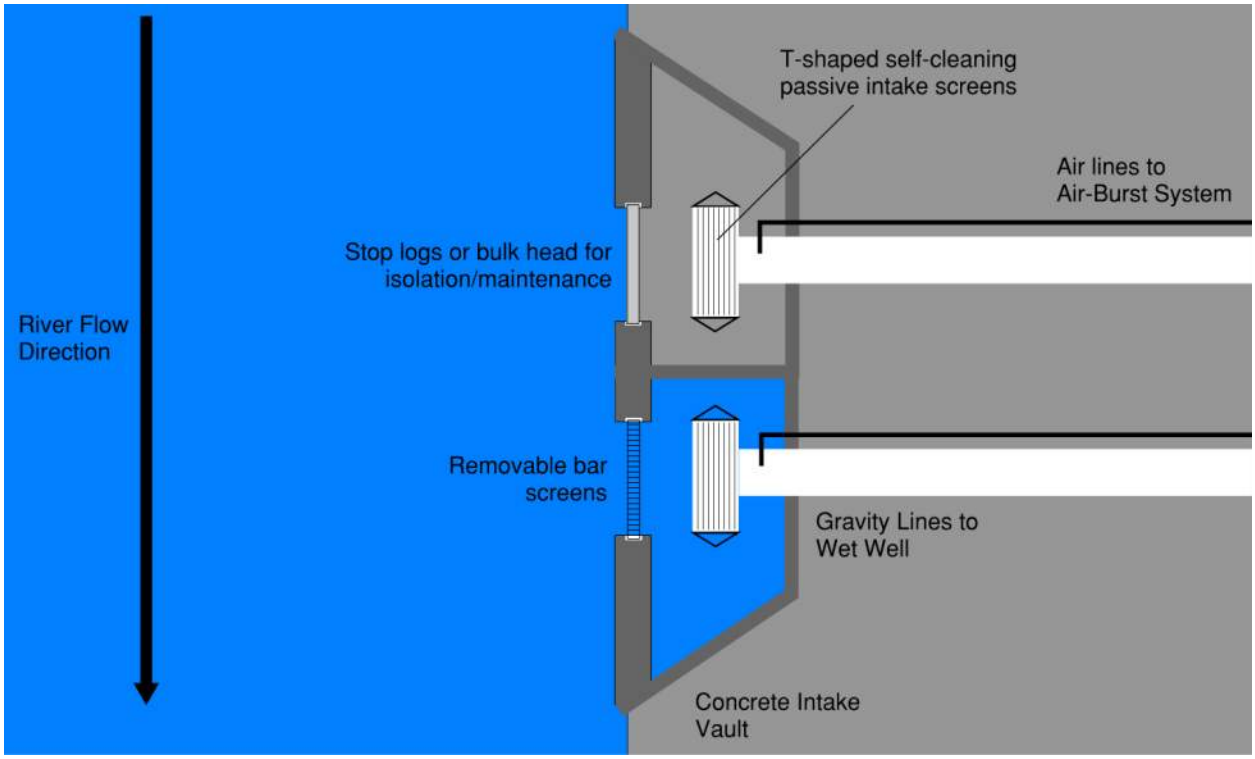


Figure 2-3 Plan View of Protective Concrete Intake Screen Vault

Two passive intake screens provide water from the Chattahoochee River to the pump station. A concrete vault with removable bar screens protects the intake screens from river debris and public access. An air-burst system helps to keep the screens clean, while stop logs allow for isolation/maintenance.

2.2.3 Air Burst Control System

The air burst system consists of an air compressor, a large air receiver, approximately 550 feet of 3" air piping, and air-actuated control valves and controller to send the bursts of air through the screens. The tank and valves will be located within the pump building, on the concrete pad above the wet well. The tank is sized large enough to maintain pressure to clean the intake screens 550 feet away.

The air burst control system will be supplied by the screen manufacturer. The control system will initiate an air burst by opening a pneumatic actuated valve and releasing the air stored in a receiver tank through the screen. The air compressor will start and stop using pressure switches and refill the receiver tank for the next air burst.

Air burst for screen cleaning will be initiated on either an elapsed time basis or based on the differential head across the screen. The river level will be measured with a submersible pressure transducer. Differential level will be calculated using difference in river level and wet well level. Stilling pipes may be used to reduce measurement error in the river level.

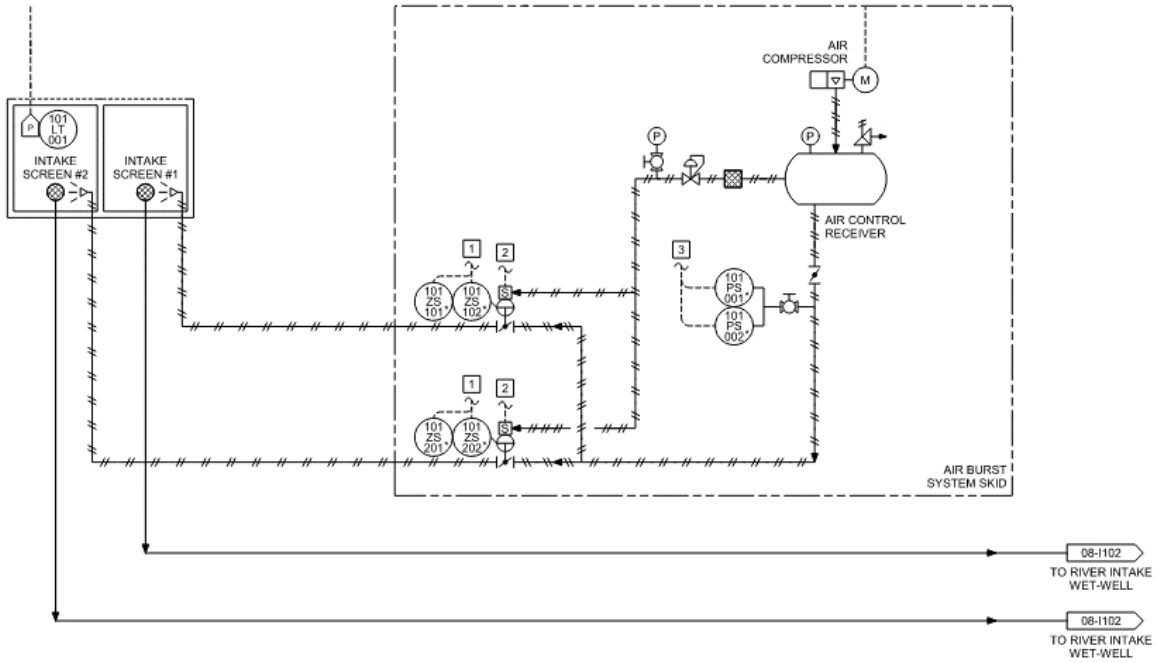


Figure 2-4 Excerpt of Airburst System Process and Instrumentation

The intake screens are equipped with an airburst system for self-cleaning. A pneumatic actuated valve controls the release of pressurized air from a receiver tank through the screen, based on elapsed time or differential head across the screen. The air compressor refills the receiver tank between air bursts.

2.3 Pump Station

2.3.1 General Design

Raw water is directed from the intake screens to the pump station for conveyance to the B.T. Brown Reservoir. The pump station consists of a wet well, pumps, and valves and piping, and supporting electrical equipment. The station design has a phased design construction approach, based on the flow design criteria. The initial construction is designed to handle 21 MGD of water, with an ultimate firm capacity of 30 MGD. Table 2-3 summarizes some of the key differences between the initial and full build-out.

Table 2-3 Pump Station Flow Design Criteria

Property	Initial Construction	Full Build-Out
Water Flowrate	21 MGD	30 MGD
Individual Pump Size	4 x 5.25 MGD	4 x 7.5 MGD
Design Head	310 ft	386 ft
Pump Motor Size	450 hp	700 hp
Valve Headers Size	14”	20”
Pipeline Header Size	36”	36”

2.3.2 Wet Well Design

The pump station wet well configuration is designed per Hydraulic Institute (HI) 9.8 for Pump Intake Design and be sized for the full build out flow. The well dimensions are sized to be greater than the minimum calculated values from HI, with the individual pump bays grouted to maintain an optimal spacing of 2.5 pump bell diameters around each pump intake.

Modifications from the standard HI design were made to allow for conduit-fed inlets, and a rectangle-shaped well for simpler construction. Inlet baffles were included to help evenly disperse the inlet flow to each of the four bays, but this may require additional modeling or review in future design. Other directional flow control devices could include multi-tiered baffling, or directional inlet vanes.

A layout rendering of the wet well design is shown in Figure 2-5**.**

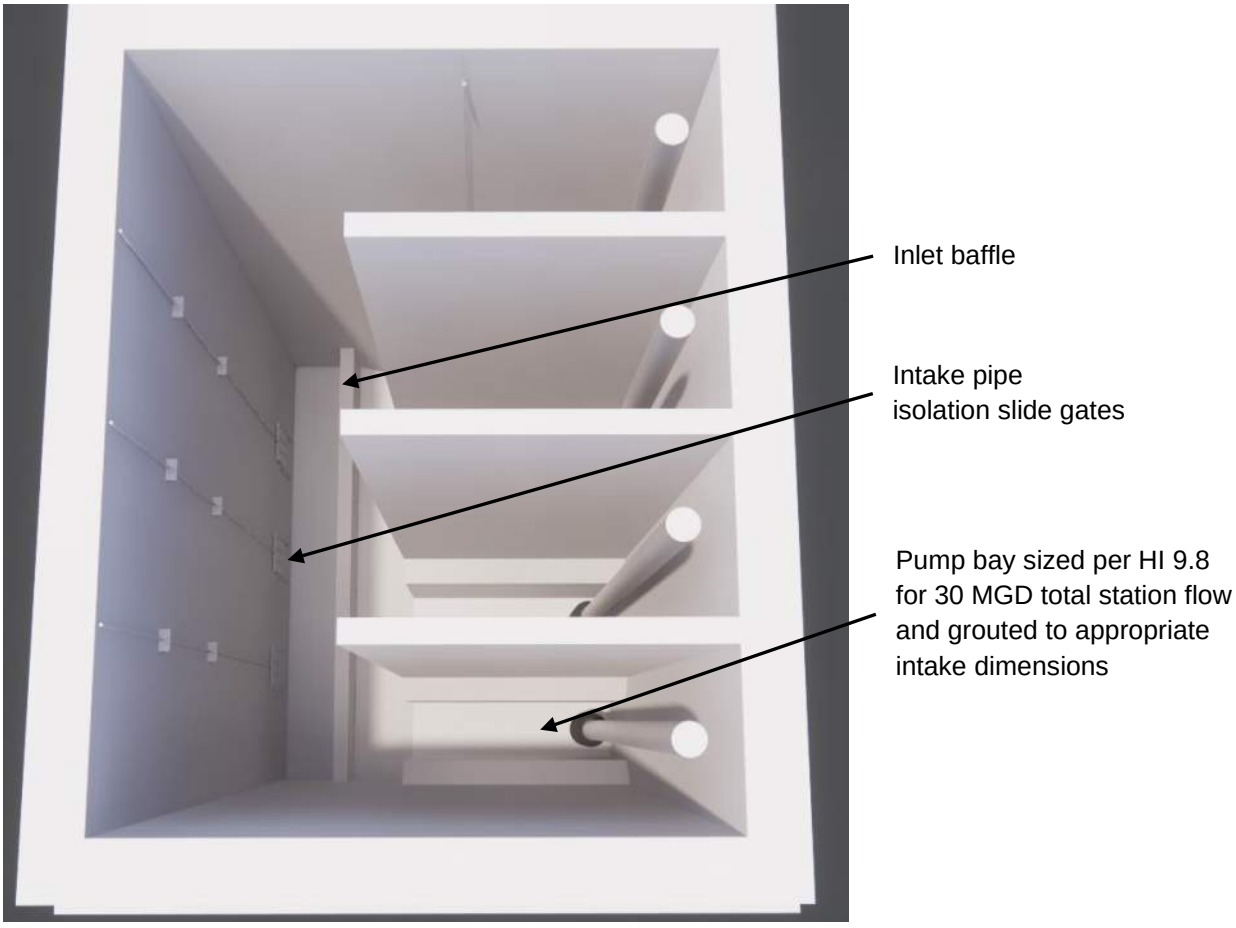


Figure 2-5 3D Layout of Pump Station Wet Well

The wet well is designed in a rectangular form factor for simple construction, with intake slide gates for isolation, and an inlet baffle for flow distribution. Grouting is included in each pump bay to optimize the flow conditions around the pump intake.

2.3.3 Pump Removal

The pumps will be removed with a 5-ton traveling bridge crane within the pump station. The pumps will be removed in segments, conveyed to the loadout area for shipping or on-site maintenance. A rendering of the traveling bridge crane system is shown in Figure 2-6. If required for servicing, cat walks will be installed around each pump motor for maintenance access.

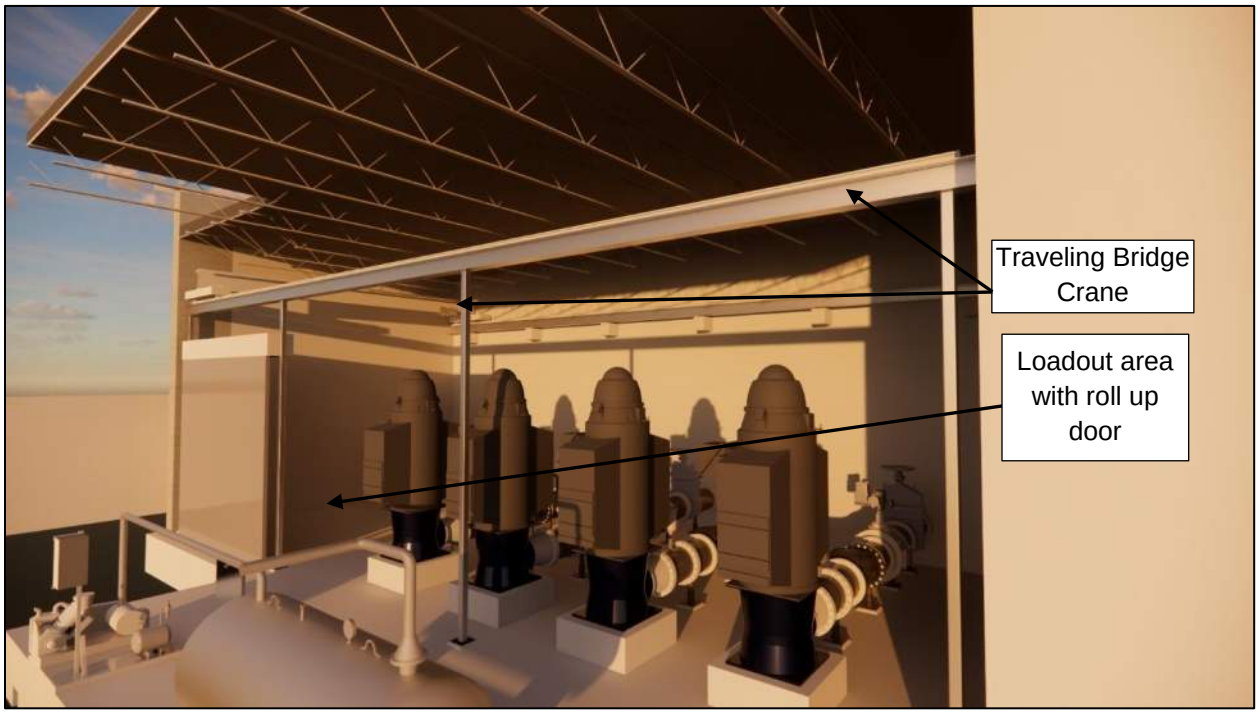


Figure 2-6 Traveling Bridge Crane for Pump Removal

The pump building is designed with an indoor loadout area for unloading heavy pieces of equipment. A traveling bridge crane extends across the room to assist in installing or removing pumps, valves, and piping.

2.3.4 Pump Selection

Two pump types were considered for the pump station: vertical turbines and submersible centrifugal pumps. Submersible centrifugal pumps are generally less efficient than vertical turbines and can be more susceptible to failure due to overloading or voltage surges. Submersible pumps also have limited selection options for the pipeline due to maximum head limitations. Discussing the two pump types with CCWSA staff, submersible pumps were not preferred.

Vertical turbines were selected as the preferred pumps and will be used as the basis of design. Table 2-4 summarizes the pump design criteria for the two buildouts. We selected two pumps based on these criteria, optimizing for efficiency and operation within the system envelope. These pumps and motors will be required to undergo job testing prior to operation.

Table 2-4 Pump Design Criteria

Property	Requirement
Initial Build Design Point	4 pumps with total capacity 21 MGD @ 310 ft
Full Buildout Design Point	4 pumps with total capacity 30 MGD @ 386 ft

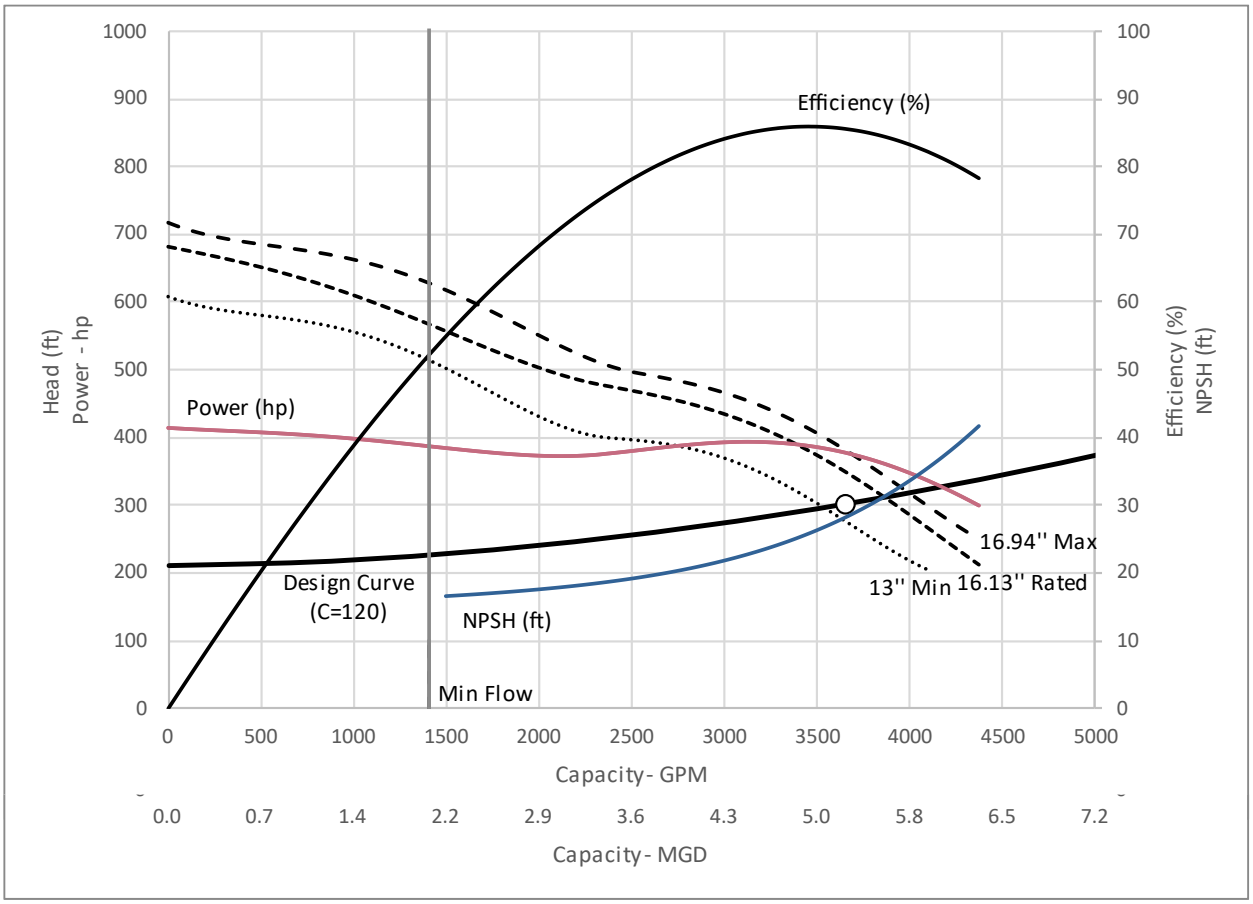


Figure 2-7 Pump Curve for 21 MGD Build – 5.25 MGD at 310 ft Head

At the design flowrate of 5.25 MGD (3646 GPM), an impeller sized between 13" and 16.13" would provide the most efficient operation up to 85.8%. The shaft power of the pump and NPSH range between 300 to 400 hp and 16 to 42 ft across the pump envelope, respectively. A maximum of 510 to 610 ft of head can be provided at a minimum turndown flow of 1410 GPM (2 MGD) based on impeller size.

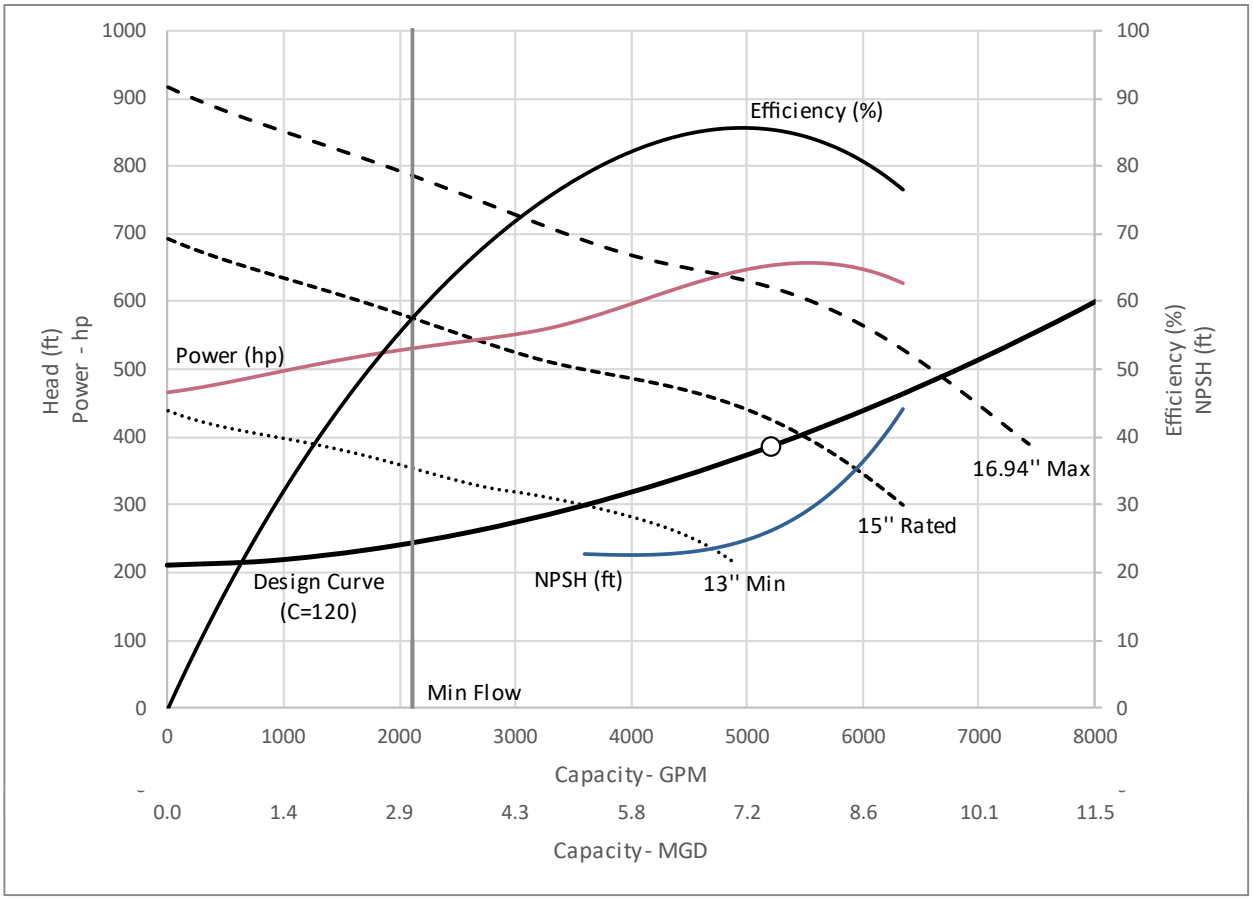


Figure 2-8 Pump Curve for 30 MGD Build – 7.5 MGD at 386 ft Head

At the design flowrate of 7.5 MGD (5208 GPM), an impeller sized between 13" and 15" would provide the most efficient operation up to 85.7%. The shaft power of the pump and NPSH range between 470 to 660 hp and 23 to 44 ft across the pump envelope, respectively. A maximum of 350 to 790 ft of head can be provided at a minimum turndown flow of 2119 GPM (3.1 MGD) based on impeller size.

2.3.5 Vertical Turbine Pump Design Criteria

The vertical turbine pumps will have the follow features:

- Anti-vortex inlet screens
- Non-reverse ratcheting motors
- Fabricated steel discharge heads
- Enclosed line shafts, with potable water lubrication
- Split mechanical seals, with potable water seal flush
- Bowls and impeller materials will meet NSF 372
- Coatings and other pump materials in contact with water will be NSF 61

Potable water lubrication and seal water is available at Dyer Road approximately 1 mile south of the site, as shown in Figure 2-9. A new water line extension will be included in the design and will be installed alongside the new raw water transmission main.

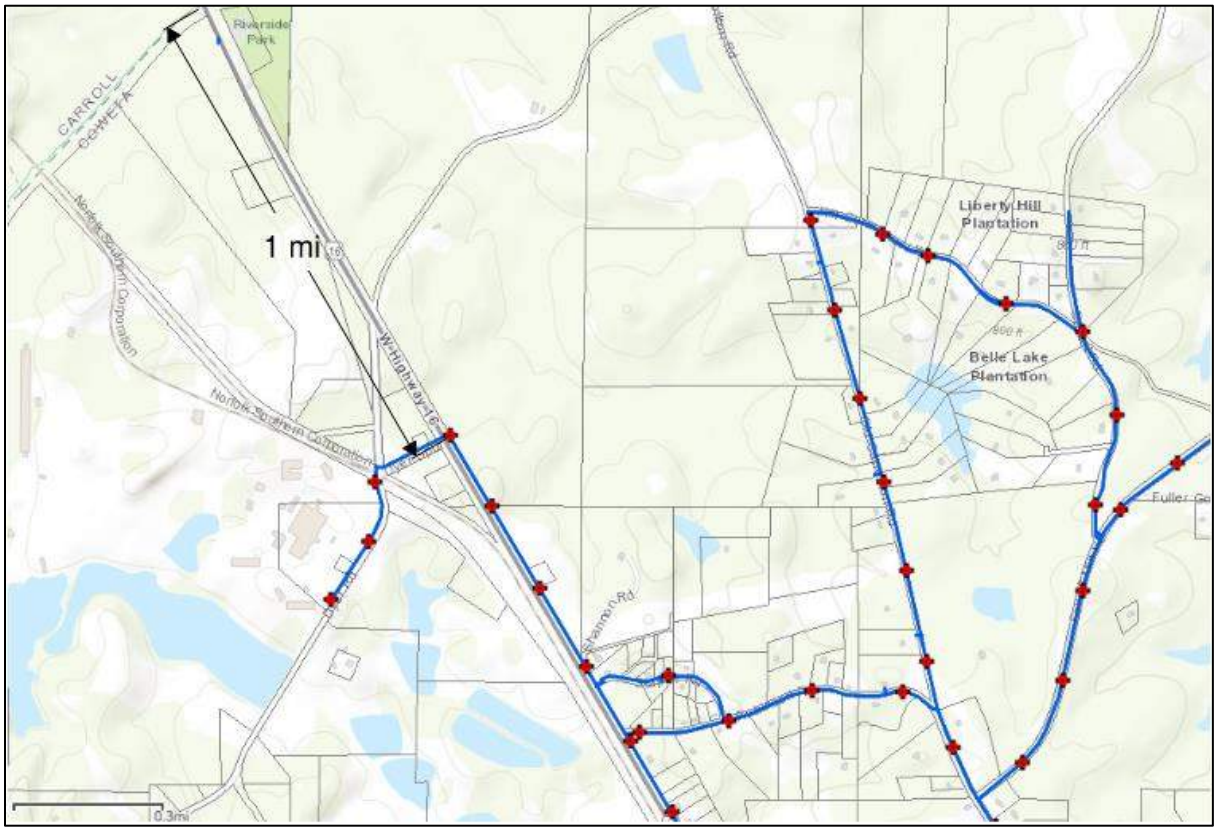


Figure 2-9 Coweta Water Authority Map of Potable Water System Near Site

The Chattahoochee River is approximately 1 mile north of the nearest potable water main. An extension will be constructed to provide seal water for the pumps.

2.3.6 Pump Station SCADA and Communications

2.3.6.1 Pump Station Instrumentation and Communications

The station will include the following instruments:

- Pressure transducer on header
- High pressure switch on header
- Pressure gauge on header
- Electromagnetic flow meter on header
- Wet well low-level switch
- Wet well level measurement - ultrasonic with stilling well to avoid wall interference or radar
- Water quality analyzer (e.g. Turbidity, TOC, Temperature, pH and ORP, Hydrocarbons)
    - Measurement parameters to be determined during final design

Each pump will have the following instruments:

- Motor temperature switch
- Pump vibration switch
- Pressure gauge
- Check valve position switch
- Seal Water Flow Switches and Solenoids

The design basis for communication with the pump station is fiber communication to be routed alongside the raw water transmission main back to B.T. Brown WTP. Spare electrical and control conduits will be included or sized to allow additional cables to be pulled through in future design. Additional radio options are also available.

2.3.6.2 Power Criteria and Pump Control

The pumps have been selected for the initial buildout to stay within a standard 460V motor size to avoid installing medium voltage electrical gear. At the full buildout, the motors may to be too large to stay within the low voltage motor sizes, and the electrical gear may need to be replaced with medium voltage gear. This determination should be evaluated at the time of the expansion based on actual and projected demands at the time of the upgrade. Flow or head conditions may change and the build out pumps may still fall in low-voltage range.

The pump station primary control will be a flow setpoint. The operator will set the desired pumping rate, and the pump control system will bring on the required number of pumps and vary the speed of the pumps to meet the desired flow rate.

The pumps have been selected to all be the same size. With variable head conditions at varying flow rate, pump safety interlocks should be included in the control logic to protect the pumps from operating outside their allowable operating regions. The pump controls will be interlocked with the wet well level to shutdown pumps on low level. The pumps will also be interlocked to shut down in the case that the B.T. Brown Reservoir is full. The ball valves on the discharge of the pumps will be electrically driven for additional control and isolation.

See Figure 2-10 for a representative pump control schematic.

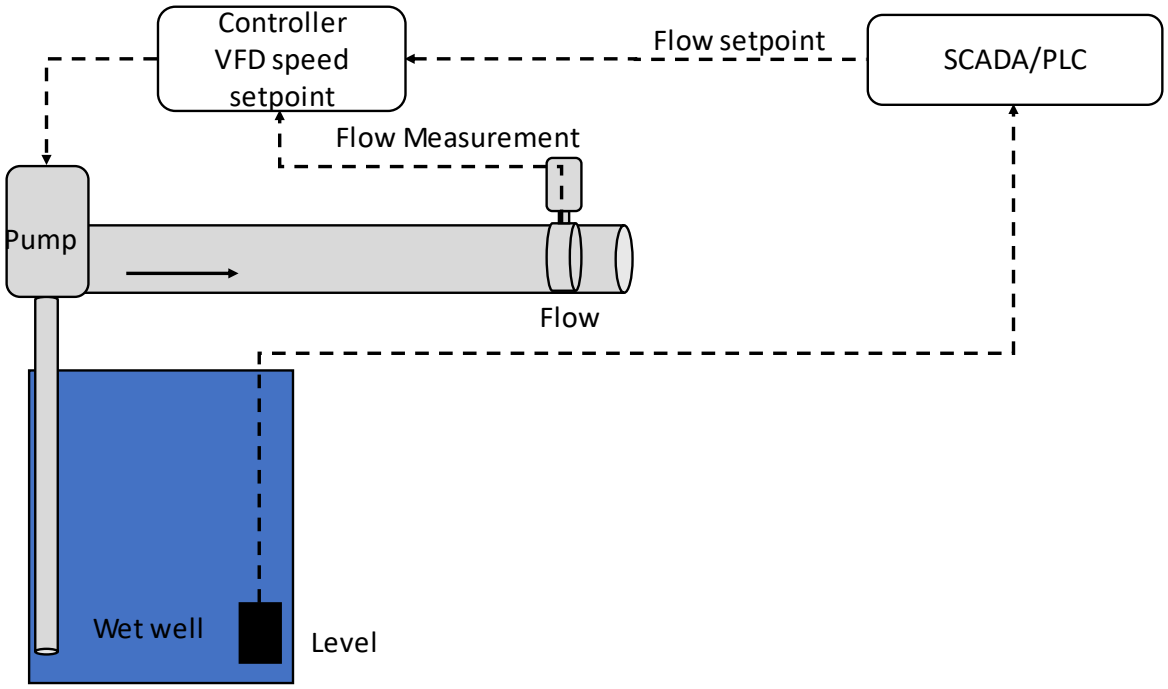


Figure 2-10 Pump Control Schematic

The pump station will be controlled with a flow setpoint to modulate how many pumps are running and the pump speeds. A level indicator will provide SCADA alerts to the PLC.

Detailed process and instrumentation diagrams can be found in Appendix C – 10% Design Drawing Set

2.3.7 Station Piping & Surge Control

The station piping will be fabricated flanged ductile iron pipe and fittings meeting AWWA C110 and C115 standards, with a pressure rating of 250 psi. All valves shall have a 250-psi working pressure rating. Each pump discharge will have the following valves:

- Well service air release valve sized to exhaust the equivalent air flow within the selected pump intake can
- Check valve or pump control valve with check feature: the check valve type will be determined in final design in coordination with surge analysis
- Pump control valve as required for surge mitigation
- Isolation gate valve

The valve header is sized to keep flow velocities between 5 to 8 ft/s. For the 21 MGD installation, the headers are sized at 14”, with an associated velocity of 7.6 ft/s from each 5.25 MGD pump. For the 30 MGD installation, the headers are sized at 20”, with an associated velocity of 5.3 ft/s for each 7.5 MGD pump.

Surge mitigation should be implemented to avoid excessive surge pressures at the pump and to mitigate vacuum condition at high points in the pipeline. A detailed surge analysis should be performed during detailed design as the pipeline design progresses. Surge mitigation strategies should consider the following:

- Air vacuum relief along the pipeline
- Compressed air bladder surge tank at the pump station
- Pump control valve and check valve selection to mitigate valve slam and surge from sudden pump stops and starts

2.4 Civil Design Criteria

2.4.1 Access

The construction traffic route will generally be assumed to access the site from I-85 using highways. To access the site from the northwest, the route will leave I-85 using highways 14, 70, 5, and then 16. To access the site from the southeast, the route will leave I-85 using highways 34 and 16. Signage will be included along the highway in both directions to direct towards the site.

Access to the site will be directly from Highway 16 W and is anticipated to be a gravel surface. The proposed road will be a 20-foot minimum width with minimum 35-foot radii and laid out for WB-62 semi-trailers. The new driveway will require coordination and permitting with Georgia Department of Transportation as stated in Section 1.4. This access road will be designed with sufficient space to maneuver appropriate vehicles needed to haul pumps, motors, and other equipment from the site. The access road will allow for trucks to complete a three-point turn and back into the overhead door bay to access the internal traveling bridge crane area and then leave the site.

Intake access will be via an approximately 500-foot corridor paralleling the highway. A permanent roadway is not currently anticipated, but it is expected that the construction road installed by the Contractor will remain and be maintained for access. Space to completely turn around large vehicles will be allowed to the northwest of the pump station site. An overview of the site plan is shown in Figure 2-5.

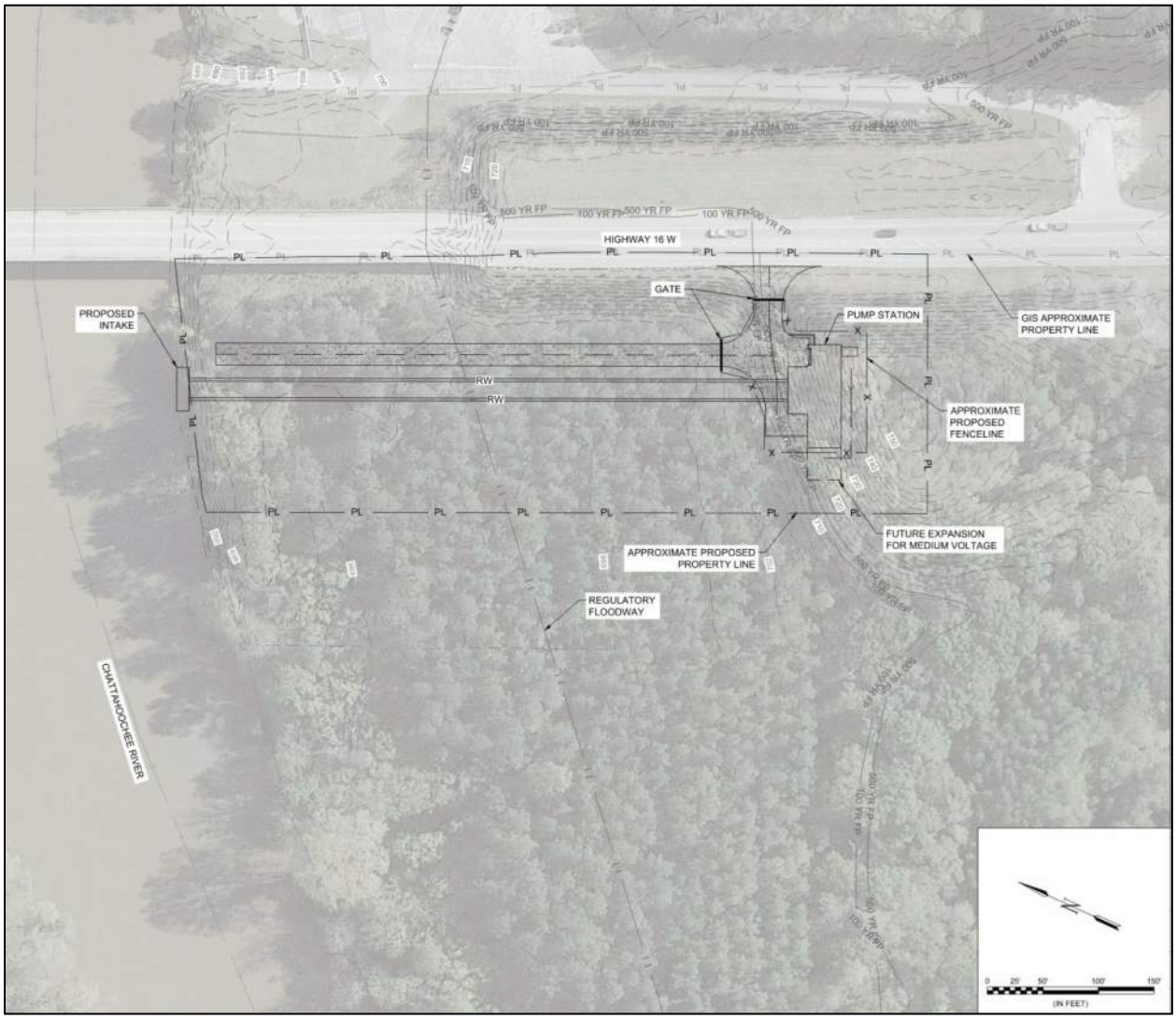


Figure 2-11 Site Plan Overview

The intake structure will be accessible during construction through a gravel road designed for WB-62 semi-trailers. Gates will control access to the pump station from the highway and intake structure.

2.4.2 Grading and Paving

To keep the facility out of the floodplain, as discussed in Section 2.4.1, the pump station will be located away from the intake structure. The existing topography of the site becomes steep along the highway embankment and just as the existing grade rises above the flood elevation to the south. Access along Highway 16 is necessary for maintenance of the new facilities and the proposed location for the pump station was selected because this point offers the flattest point to connect to the road.

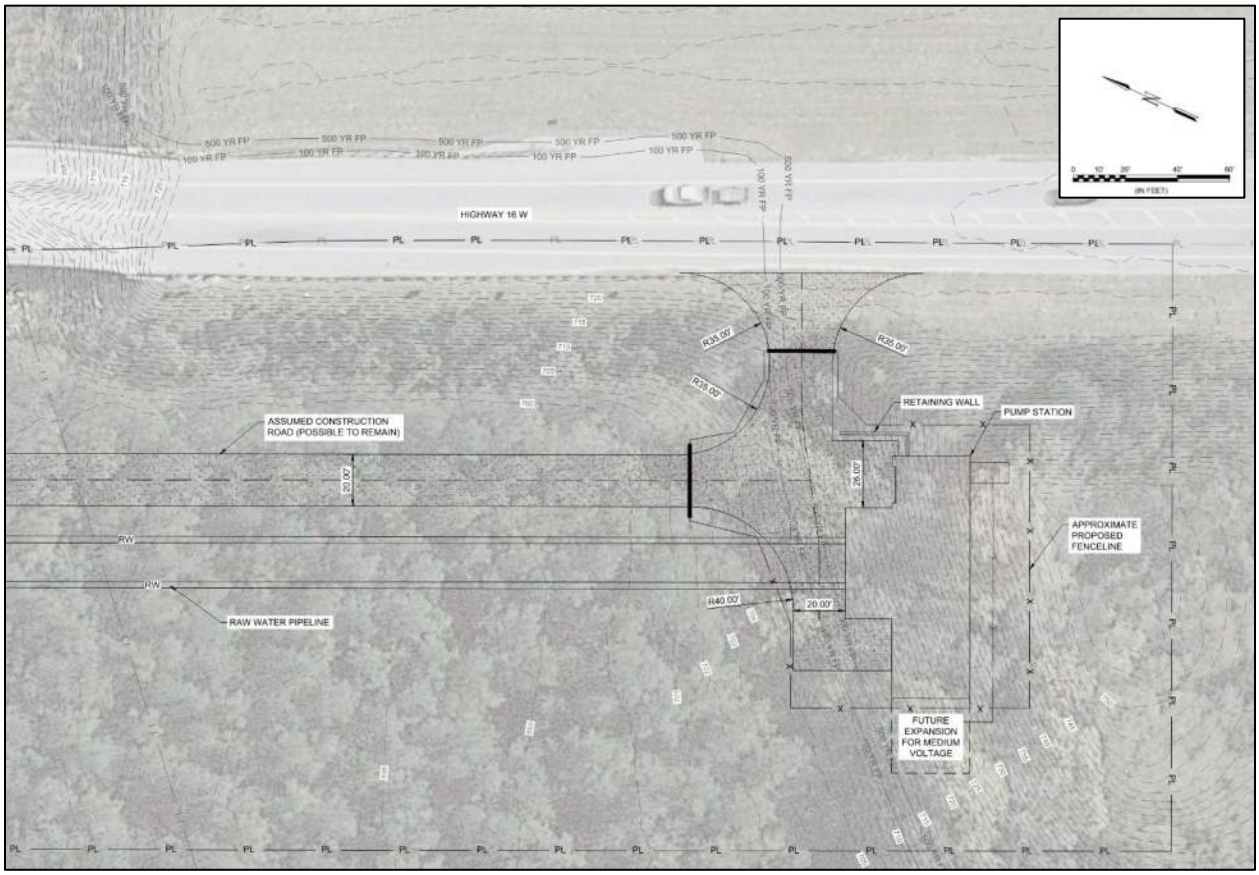


Figure 2-12 Enlarged Pump Station Site Plan

The pump station will cut into a hill to fall outside of the indicated 100-yr and 500-yr floodplains. If the station needs to upgrade to medium voltage, the electrical building may be expanded to the south.

The placement of the pump station outside the floodplain forces it into a relatively steep hill at this location, so the pump station walls will serve as partial retaining walls and the building will be recessed into the hillside to minimize excavation as much as possible. An additional retaining wall will be necessary as shown in Figure 2-12 above to tie the excavated slope to existing grade. Maximum slopes of 3H:1V will be used on site, with 4H:1V preferred where possible. The finished grading will maintain positive slope away from the structures for drainage. A drainage culvert is anticipated at least across the driveway access to Highway 16.

As discussed in Section 2.4.1, a gravel roadway is anticipated to be placed around the pump station structure to allow access and maintenance of the facility. The final road section will be based on recommendations from the geotechnical engineer, but the section will be a minimum of six inches of aggregate base course underlain with suitable subgrade and a geotextile as necessary. The road will be designed anticipating light maintenance traffic with the occasional heavy-loaded vehicle with equipment.

2.4.3 Floodplain Considerations

Based upon the latest version of the published FEMA data, the approximate 100-yr flood elevation is 712 feet. The floodplain, as well as the regulatory floodway encompasses the necessary location of the intake structure. To keep the pump station and electrical room accessible and functional during flood events, the structure will be located outside the regulatory floodplain, approximately 550 feet from the intake. For additional safety, the floor elevation of the pump station and all equipment will be located at the 715-foot elevation or above, which is also above the 500-yr floodplain. The published FEMA map is shown below in Figure 2-13.

Fill will be required to be placed in parts of the floodplain near the pump station to account for the grade change, which will require a no-rise certification and additional permitting through Coweta County. Based on preliminary conversations with the County, it is not anticipated this process would need to go through FEMA, provided a no-rise in the flood elevation is shown.

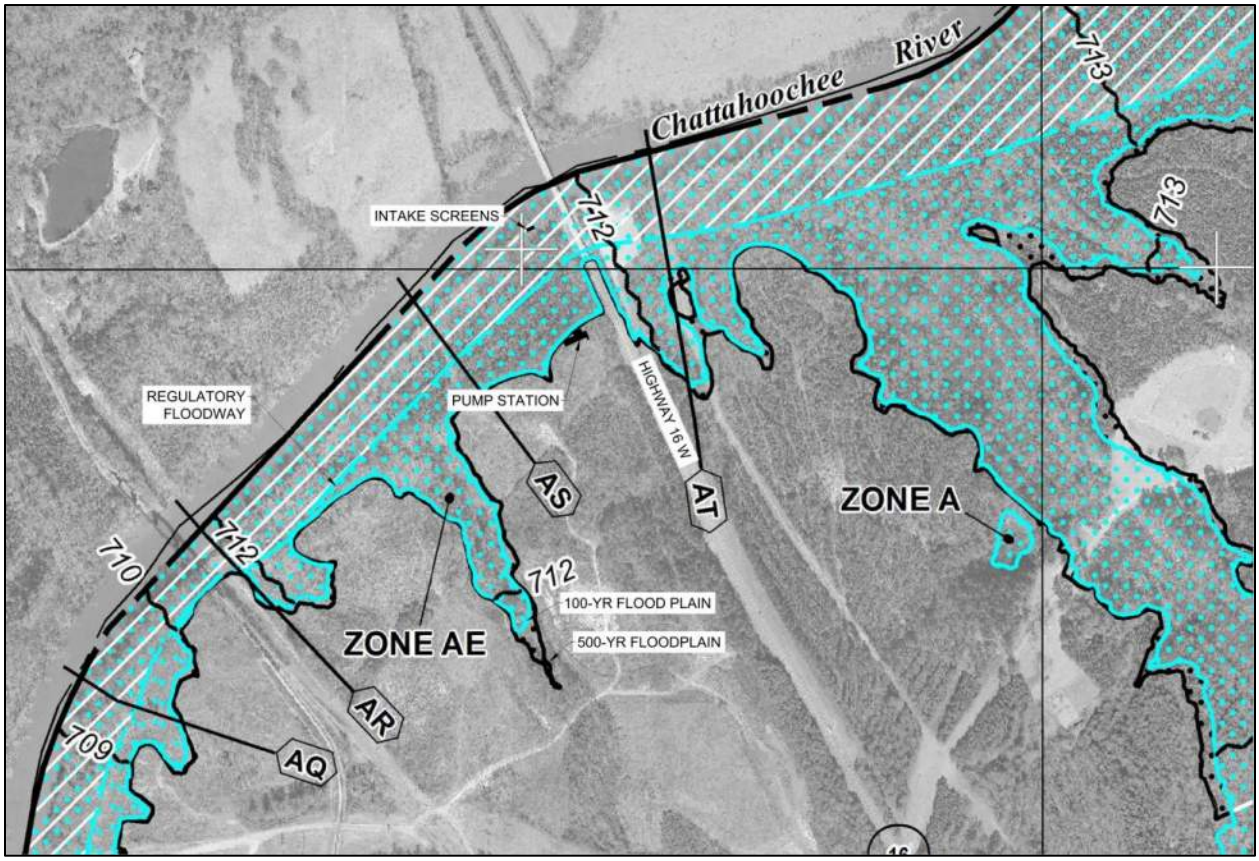


Figure 2-13 FEMA Floodplain Map

The intake location for the screens falls between the AS and AT cross sections. The pump station will be located outside of the indicated 100-yr and 500-yr floodplains.

2.4.4 Site Security

The new pump station site will have security fencing installed as shown in the site plan in Figure 2-12. The security fencing is expected to be 6-foot-tall chain link, topped by three strand barbed wire. Two gates are anticipated at the site, one off the highway and one directly in front of the maintenance bay, toward the intake structure. The highway gate will be offset enough to allow standard vehicles to completely pull off the highway to open and close the gate. The second gate will be used to access the intake, as well as be opened when necessary to allow large vehicles access to turn around. Methods for secured access and level of security shall be coordinated with the County.

3.0 Electrical System Concepts

3.1 Conductors and Raceway

Low voltage power conductors (600V and less) will be copper, 600V rated, type THWN-2 for above grade locations and type XHHW-2 for below grade locations in conduit. Conductors used for motors operating with variable frequency drives (VFDs) will be shielded and intended for use in VFD applications. Low voltage signal cables will be shielded twisted pair with 20AWG tinned copper conductors for analog signals. Discrete input and output signals operating at 120VAC or 24VDC will utilize THWN-2 conductors.

Below grade conduit will be PVC schedule 40 in concrete encased duct bank with galvanized elbows. Below grade boxes will be utilized to provide access to below grade duct banks and provide pulling points for conductors. All below grade boxes will be pre-cast polymer concrete with traffic rated lids where deliberate or intermittent traffic is expected.

Above grade exposed conduit systems for indoor applications will be galvanized or aluminum, while above grade exposed conduit systems for outdoor applications will be PVC coated steel conduit. PVC coated steel conduit will be used for all transitions from below grade conduit system to an exposed conduit system. Conduit in chemical areas will be PVC coated for chemical corrosion resistance. Connections to motors and other vibrating equipment will be made with liquid-tight flexible metal conduit.

3.2 Site Lighting and Security

Illumination levels will be designed to meet the minimum levels established in the 10th edition of the Illuminating Engineering Society (IES) Lighting Handbook for the applicable spaces. Lighting will be designed for maximum efficiency in order to meet allowable energy density requirements as set forth by ASHRAE 90.1. Interior lighting will primarily utilize surface mounted, wet location rated LED fixtures as applicable. Emergency egress lighting will be provided using battery backup fixtures and exit signs. Architectural LED fixtures located near building entry and exit points will provide lighting around doorways. Pole-mounted LED light fixtures will be installed around outdoor equipment to provide area lighting as necessary for maintenance, security, and access around the site. All pole mounted outdoor lighting will be connected to a central lighting control system, with exterior building mounted lights being controlled locally at each building using a photocell and switch. Exterior fixtures will be cutoff type to reduce light pollution.

3.3 Grounding and Lightning Protection

The ground system will include a bare copper conductor ring around new structures with multiple ground rods using exothermic welds below grade and connected to building steel. Based on building functionality and building construction types, a lightning protection system will be installed in accordance with NFPA 780 and connected to this ground ring system. A green equipment grounding conductor will be installed in each feeder and branch circuit conduit. The overall grounding system will provide a low impedance circuit for proper operation of overcurrent protective devices.

3.4 Motors

Electric motors will primarily consist of squirrel-cage, alternating-current induction type motors. All motors will be NEMA Premium Efficiency rated with copper windings and a minimum of Class F insulation. Motors to be operated with a variable frequency drive will be NEMA MG1 Part 31 rated to withstand voltage spikes up to 1600V. Motors will have a minimum service factor of 1.15. Motors will include winding thermostats for thermal protection. Motors larger than 50HP installed outdoors or in non-conditioned indoor areas will include 120V space heaters. Shaft grounding rings will be provided for motors larger than 50HP operating on variable frequency drives to mitigate VFD-induced bearing damage.

3.5 Power Distribution Equipment

Several types of power distribution equipment will be utilized to distribute power to loads. It is expected that low voltage switchboards, motor control centers, panelboards, transformers, and disconnect switches will all be utilized. Power distribution equipment located indoors in air-conditioned environments will utilize NEMA 1 construction. Equipment located in wet locations indoors or outdoors will utilize NEMA 4X stainless steel construction to prevent corrosion and equipment deterioration. Power distribution equipment will be required to be provided from a single manufacturer for ease of maintenance and reduced spare parts inventory.

3.6 Variable Frequency Drives

Variable frequency drives (VFDs) will be utilized for speed modulation of pump and blower motors for enhanced process control. VFDs will be equipped with harmonic mitigation features to prevent harmonic interference with other electronic equipment. VFDs larger than 50HP will utilize 18-pulse configuration to mitigate harmonic concerns. Load filters will be utilized as needed depending on conductor lengths between the VFD and the motor. Excessive conductor length applications will utilize dv/dt filters to mitigate reflected wave phenomenon that could cause operational issues and equipment damage. VFDs will be located in dedicated conditioned electrical rooms. VFDs will be required to be provided from a single manufacturer for ease of maintenance and reduced spare parts inventory.

3.7 Overcurrent Protection

Circuit breakers and fuses will be utilized to protect conductors and electrical equipment from overcurrent conditions that could cause equipment damage. These devices will be rated for the maximum available fault current to ensure operation during all conditions. Circuit breakers 200A and larger will be equipped with electronic trip units with adjustable long-time, short-time, and instantaneous settings (LSI) to provide coordination flexibility for the system. Circuit breakers smaller than 200A will be thermal magnetic devices. Ground fault protection will be provided for all service entrance overcurrent devices and downstream devices as needed.

3.8 Surge Protection

Surge Protection Devices (SPDs) will be provided at new facilities to provide protection from power system surges. Level 1 and Level 2 devices will be provided at service entrance panels and large distribution panels. Level 3 devices will be provided at local power panels and control panels.

Surge protection will be provided for analog signal cables through the use of surge protection terminal blocks at PLC inputs and outputs. Signal surge protection devices will also be located at each instrument to protect sensitive instrumentation equipment from surges that can occur on analog signal lines.

3.9 Power Metering

Digital power meters will be provided at new main distribution panels to track real-time power conditions, assess power quality and reliability, and track historical usage trends. Tracking energy consumption through the use of connected power meters will provide the plant with the information needed to make process decisions that can maximize energy efficiency and minimize electrical consumption costs.

3.10 Power System Studies

A power system study should be performed for new electrical equipment. The study will consist of a short circuit evaluation, protective device coordination study, equipment evaluation, and arc flash hazard analysis complying with the requirements of NFPA 70E. Each electrical panel requiring maintenance or servicing will receive an arc flash label indicating the associated arc flash and shock hazard. Personnel responsible for maintenance of electrical equipment will be trained to interpret the arc flash labels and utilize the proper personal protective equipment (PPE) to protect from arc flash and shock hazards.

3.11 Electrical Codes and Standards

The following codes and standards will be utilized in the design of the electrical systems:

- National Electrical Code (NFPA 70) published by the National Fire Protection Association.
- Standard for Electrical Safety in the Workplace (NFPA 70E) published by the National Fire Protection Association.
- Life Safety Code (NFPA 101) published by the National Fire Protection Association.
- Standard for the Installation of Lightning Protection Systems: NFPA 780.
- Standard for Electrical Safety in the Workplace: NFPA 70E.
- Any applicable local amendments to the above referenced codes and standards.

4.0 Pipeline Criteria

4.1 Discharge Locations

During the kickoff meeting with CCWSA, multiple discharge locations were discussed including BT. Brown Reservoir, Vulcan mine, and a new WTP at location to be determined. B.T. Brown reservoir is the preferred location discharge and if future discharge locations for Chattahoochee water are needed, a pump station at B.T. Brown would be added to convey the flow to the desired location.

4.2 Route Criteria

The route of the raw water pipeline was evaluated in depth in the Route Study Technical Memorandum (Appendix A). The criteria that were used in the evaluation included environmental impacts, permitting requirements, ground elevation profiles, and cost. Of these criteria, the topography along the profile of the pipeline has the largest impact on the required pump horsepower. Additional high points along the pipeline may require higher horsepower pumps at the river intake pump station.

4.3 Pipeline Sizing

Pipeline sizing criteria include minimum and maximum pipe velocities, head loss, and cost. A larger diameter pipeline will have lower velocities and head loss but will be more expensive. Pipe diameters evaluated for the purposes of this report were 30”, 36”, and 42”. A 30” pipe was determined to be too small based on the maximum water velocity of 9.54 ft/s and resulting head loss. Pipe diameters of 36” and 42” are feasible options based on the hydraulic evaluation. A 36” pipe was determined to be optimal based on the low velocities and extra cost of a 42” pipe. The Route Study Technical Memorandum includes further evaluation of the size of the raw water pipeline. See Appendix A.

5.0 Alternatives Evaluations

5.1 Intake Alternatives

The intake structure consists of two intake screens which direct water from the river to the pump station wet well. The design put forward in Section 2.2.2 recommends using two separate pipes for added redundancy, but there is a potential cost savings to combining the headers into a single larger pipe but with a loss of redundancy.

Figure 5-1 shows two alternative designs for routing water. The single pipeline alternative joins the intake screens at a splitter box, while the multi-pipeline alternative runs two parallel lines to the wet well without combining.

Routing two separate lines would require the excavation and burying of two parallel 30” pipes, along with two 30” sliding gates at the wet well for isolation. Two 10-ft tall trench boxes can be stacked to install the pipes and significantly reduce excavation costs. Two separate trenches of 5’ width would be necessary to install both pipes.

A single-pipe alternative requires a larger pipe with an equivalent or greater cross-sectional area of two 30” pipes. The equivalent diameter of this pipe would be 42.4”, which is not a standard pipe size. The closest available pipe diameter is 48”. A trench of 8’ wide would be necessary to bury the intake line; two trench boxes can also be stacked to achieve the target depth. To allow isolation of each screen for maintenance, two sliding gates would be required at a splitter box in the intake structure, and one additional sliding gate at the wet well for isolation. A summary of the design parameters is shown in Table 5-1.

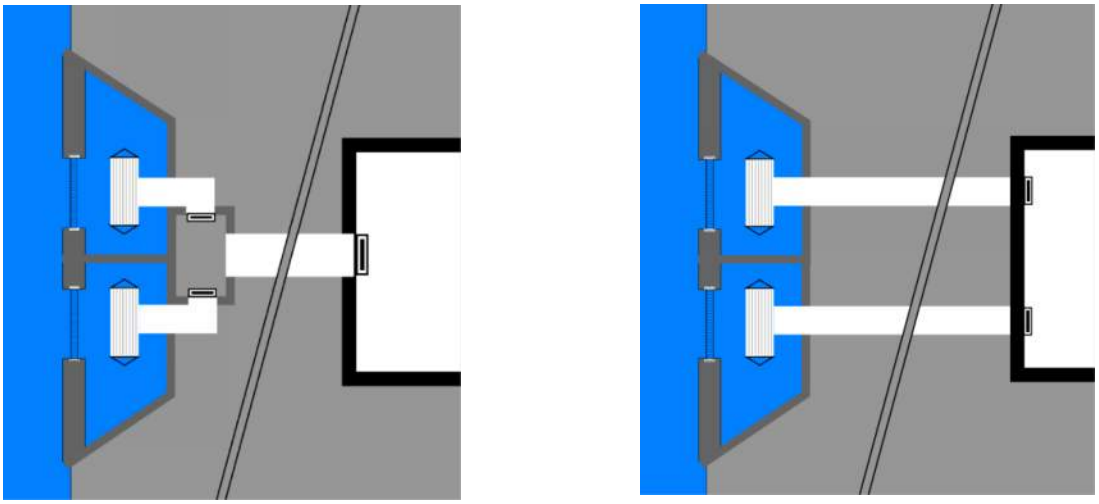


Figure 5-1 Alternative Intake Screen Pipeline Layouts

There are two potential alternatives for routing water from the intake structure to the wet well. The single pipeline alternative uses a splitter box with two smaller sliding gates, while the multi-pipeline alternative uses individual gates at the wet well.

Table 5-1 Intake Pipeline Alternative Design Parameters

Parameter	Multiple Pipes	Single Pipe
Piping		
Number of Pipes	2	1
Diameter of Pipe	30”	48”
Length of Pipe	550’	550’
Excavation (Trench Boxes)		
Excavation Width (Includes 0.5D Spacing)	5’	8’
Excavation Depth (At Wet Well)	22’	22’
Number of Trenches	2	1
Sliding Gates		
Number of Sliding Gates at Intake Structure	0	2
Number of Sliding Gates at Wet Well	2	1

Using the assumptions in Table 5-1, and up-to-date budgetary estimates for the costs of pipes, gates, and excavation, we calculated the total cost of each alternative. The cost is greatly influenced by the pipe material selection, so we repeated the analysis for reinforced concrete pipe (RCP), fiberglass reinforced pipe (FRP), and ductile iron pipe (DIP). The compared costs for each alternative and material are shown in Figure 5-2.

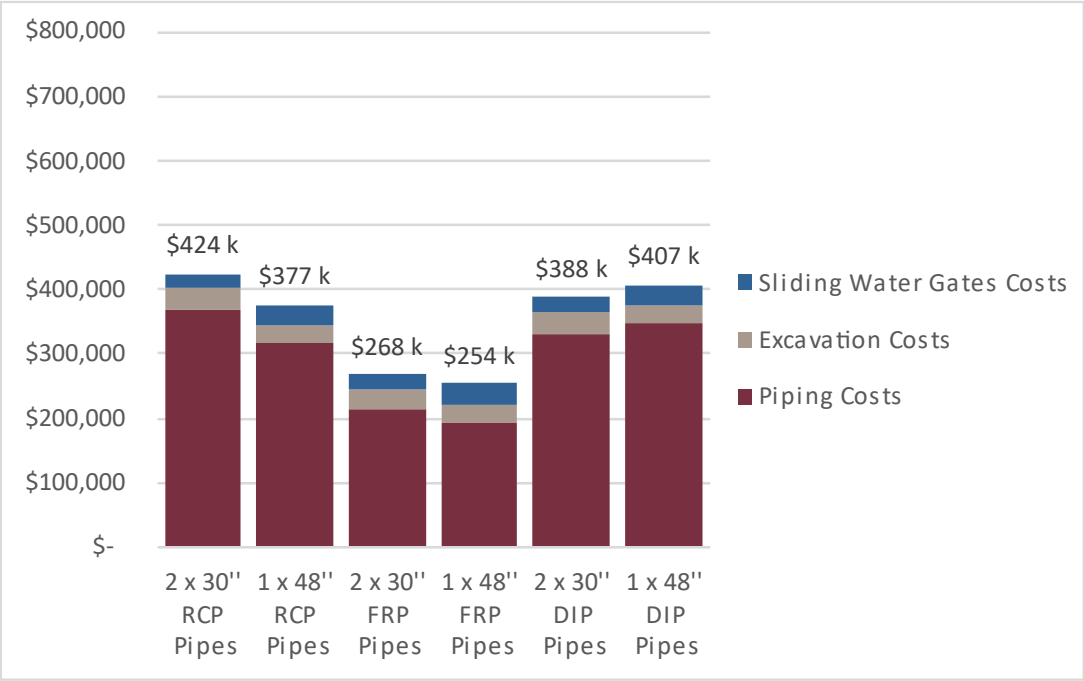


Figure 5-2 Alternative Cost Comparison for Intake Screens to Wet Well Piping

The cost of running two 30” lines is only moderately more expensive ($14 to $47 k) than a single line for RCP and FRP pipe, with the most significant factor being piping and excavation costs. In the case of DIP, it is more economical to install two pipes, with a cost savings of $19 k

Based on the results shown in Figure 5-2, we recommend that two parallel lines are installed. The cost savings in the case of RCP or FRP are relatively minor and are outweighed by the benefits of having a redundant line in the case of pipe failure or scheduling routine maintenance activities. In the case of DIP, installing two pipes is the more economical choice. DIP is the preferred pipe material, but final pipe selection will be during final design.

6.0 Cost Estimates

6.1 Scope of Improvements

The scope of improvements for the Chattahoochee River Intake Pump Station includes the following project elements, shown in Table 6-1.

Table 6-1 Project Elements

Project Element
Site Civil
Intake Screen Structure and Screen System
Pump Station

6.2 Opinion of Probable Construction Cost

6.2.1 Construction Cost Estimate Criteria

The level of accuracy in cost estimating varies depending on the level of detail defining the project scope. The estimate herein is classified by AACE 18R-97 as a Class 4 estimate with an expected accuracy of -30% to +50%. For the purpose of this report, the OPCC has been developed based on the facility and equipment layouts, process diagrams, and similar information compiled as part of the basis of design. Table 6-2 summarizes the main assumptions adopted for the development of the OPCC.

Table 6-2 Preliminary Design OPCC Estimate Assumptions

Consideration	Assumption
Contractor mobilization	3%
Contractor overhead and profit	18%
Unidentified item allowance for final design	5%
Design progression contingency	30%

6.2.2 OPCC Development Guidelines

The preliminary design OPCC has been prepared based upon the following guidelines:

- The subtotal of each area includes costs assigned to contractor mobilization, contractor overhead and profit, and adopted estimating contingency for unidentified work.
- Excavation and backfill costs required for each facility area are assigned to that area.
- Electrical and instrumentation costs are assigned directly to each facility area's overall costs.

The development of the adopted unit prices incorporated costing knowledge obtained from a number of resources that include:

- Actual cost estimates and proposals provided by equipment manufacturers and suppliers
- Previous cost estimates prepared by the design team
- Contractor bid tabulations from recent project deliveries
- Cost estimating guides provided by nationally recognized cost estimating organizations.

6.2.3 Construction Cost Estimate Findings

The September 2022 OPCC for the proposed improvements presents the estimated construction costs based on the present level of design development. Contingencies have been applied to the identified costs to account for unidentified work elements associated with the present level of design completion. The overall OPCC for the improvements under the scope of this project is presented in Table 6-3. The cost estimate breakdown summaries are given in Appendix B.

Table 6-3 Overall OPCC for Chattahoochee River Intake Pump Station

	Construction Element	Estimated Cost
Lump Sum Work	Site Civil	$1,069,000
	Intake Structure	$1,085,000
	Raw Water Pump Station	$16,252,000
	Sub-Total Estimated Lump Sum Work	**$18,406,000**
Cash Allowances for Products and Services	Work Change Directives	$553,000
	Independent Testing Cash Allowance	$185,000
	Sub-Total Estimated Cash Allowances	**$738,000**
Escalation	**2 Years Escalation to Midpoint of Construction**	**$3,018,000**
Total Construction Cost		**$22,162,000**

7.0 Summary and Recommendations

The recommended basis of design recommends a new Raw Water Pump Station and Intake on the Chattahoochee River that will have an initial capacity of 21 MGD and a buildout capacity of 30 MGD. It will include the following features:

- New intake screen structure sized for 30 MGD, the screen structure will include:
  - at least 2 passive intake screens and 2 connecting pipelines to the pump station wet well
  - an air burst system for cleaning the screen
  - screens will be constructed from alloys to prevent zebra mussel accumulation.
  - a method of isolation
  - a design that protects screens from large floating debris
- A new wet pit vertical turbine pump station, with initial capacity of 21 MGD and expandable to 30 MGD with pump replacement. The pump station will include the following features:
  - 4 vertical turbine pumps within an HI standard wet well design sized for up to 30 MGD.
  - Enclosed line shaft pumps with potable water lubrication system to prevent sediment and debris in the raw water from prematurely wearing bearings and seals.
  - Necessary instruments and controls for automatic flow-based control.
  - The building will house a traveling bridge crane for pump removal and maintenance, the airburst system, the pumps, and valves, and have a conditioned electrical room
  - The pumps are sized to stay within the low voltage horsepower range
  - The 30 MGD pumps may require medium voltage depending on head requirements in later stages of design
  - The station will be constructed outside of the floodplain with a finished floor elevation three feet above the floodplain
  - Adequate access and security of the site will be provided
  -

The recommended project construction costs are estimated to cost $22 million.

Appendix A

Route Study for the Raw Water Pipeline

Raw Water Pipeline Route Study

Coweta County Water and Sewerage Authority

September 2022

Prepared by:

Josh Evans

Table of Contents

List of Appendices

1.0 Executive Summary

This Route Study summarizes our findings for the Chattahoochee Raw Water pipeline alignment investigations. We investigated three raw water pipeline alignments to supply a new source water for the B.T. Brown Reservoir. The alignments can be described as follows:

- Alternative 1 – Parallels the Georgia Power right-of-way
- Alternative 2 – Parallels the Atlanta Gas Light right-of-way, County road right-of-way, and the pumpback station easement
- Alternative 3 – Follows GDOT right-of-way and County road rights-of-ways

The following items accompany our investigation and contribute to the overall assessment of each alternative:

- A hydraulic analysis to calculate required pipe diameter.
- An approximate profile of the route to estimate operational requirements
- A route analysis to investigate existing easement constraints, potential utility conflicts, anticipated permitting, and coordination with other entities, and potential concerns.
- An environmental evaluation of the project extents to determine potential impacts and additional study requirements.
- An opinion of probable construction cost (OPCC) estimated for each alternative based on pipe length, joint restraint, laying conditions and required appurtenances.

Alternative 1 was chosen based on the criteria presented in the evaluation. From that, a 36-inch pipe was determined to be optimal for the design flow rates. Alternative 1 probable construction cost is estimated at $44,282,205.

2.0 Introduction

The Coweta County Water and Sewerage Authority (CCWSA) analyzed current water supply sources, recent droughts, and forecasted future needs through the year 2065 in their April 2017 Forecast of Water Needs Report (Metropolitan North Georgia Water Planning District 2017). Based on the forecast, CCWSA should increase its long-term water supply from 10 million gallons per day (MGD) to 20 MGD annual average daily (AAD) to meet future demand. In April 2020, CCWSA requested an amendment to the Water Resource Management Plan adopted by the Metropolitan North Georgia Water Planning District (District) in 2017 to include this additional need.

This proposed Long-Term Water Supply includes a proposed pump station that will withdraw raw water on the Chattahoochee River and transport the raw water to the BT Brown Reservoir where the filter plant will supply drinking water to CCWSA customers. This proposed pump station will pump the raw water 9.5 miles along a route to the 300-plus-acre B.T. Brown Reservoir, an impoundment on Alexander Creek, thus increasing the reservoir's safe yield.

CCWSA directed Garver to evaluate the engineering and costs for a raw water pipeline from the proposed pump station to the B.T. Brown Reservoir. In this report, Garver presents three alternative routes with an accompanying evaluation for each. Later, we compare the alternatives and determine a preferred alternative for review with CCWSA.

2.1 Information Collection

Aerial photography, GIS data, and field reconnaissance was collected on the existing utilities and their associated structures. Garver contacted the impacted utilities including natural gas, water, electric, petroleum, and cable to better understand their systems' locations along the potential corridors.

3.0 Future Flows

3.1 Model Development

A hydraulic model of the pipeline was developed and evaluated using Bentley's WaterGEMS hydraulic modeling software. Hazen-Williams roughness coefficients of 120 and 140 were used throughout the hydraulic evaluation. The preferred alignment developed in ArcGIS Pro was imported into the model, and topographic data from the United States Geological Survey was used to develop a vertical profile. Flows of 21 MGD and 30 MGD were used for the initial phase and future buildout phase, respectively. Pipe velocities for 30-inch, 36-inch, and 42-inch mains are presented in Table 3-1.

Table 3-1: Pipe Velocities

	Pipe Velocity (ft/s)	
Pipe Size (in)	21 MGD	30 MGD
30	6.58	9.54
36	4.61	6.60
42	3.37	4.79

30-inch pipe diameter was determined to be too small based on the velocity of 9.5 ft/s and the associated head loss and impacts to pump size requirements at the design flow rate of 30 MGD. Based on the hydraulic model, pipe diameters of 36-inch and 42-inch are feasible options, but a 42-inch pipe is oversized, which may result in deposition of solids along the raw water line due to the relatively low velocities, particularly for initial flows. A 36-inch pipe was determined to be optimal for the design flow rates.

4.0 Environmental Evaluation

As part of the preliminary design, Garver performed a high-level environmental assessment of the alignments. This was intended to determine which alignment was least impactful from an environmental permitting perspective.

4.1 Floodplain

Portions of the study location are located in the 100-year floodplain (FEMA Firm Map 13077C0130D and 13077C0135D, dated February 6, 2013). These are shown in Figure 4-1. There are non-floodplain areas located along State Route 16, then along the Georgia Power easement from SR 16 to Sewell Mill Rd, and between Walt Carmichael Rd to Brimer Rd. FEMA floodplain requirements will be necessary for this project.

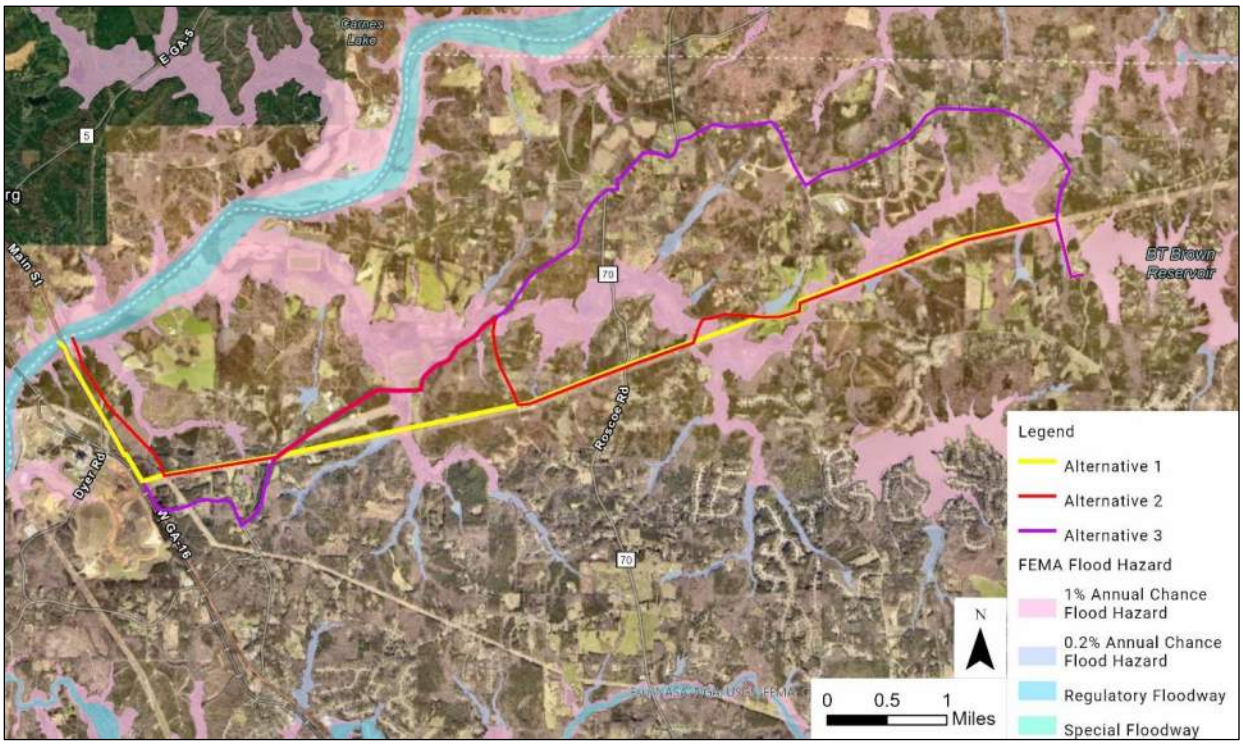


Figure 4-1: Floodplains

4.2 Waters of the U.S (WOUS).

According to the U.S. Fish and Wildlife Services' (USFWS) National Wetland Inventory (NWI), there are two emergent wetlands at the north end of the project, one east of Jim Star Rd and the other west of Lake Ridge Rd. There is one forested / shrub wetland located south of the Panther Creek airport. There are 14 streams located within the study area according to NWI data. The WOUS effected by the alignments are shown in Figure 4-2. A Preliminary Jurisdictional Determination is recommended for this project to confirm any NWI findings and to determine potential impacts to WOUS.

If the impacts to WOUS do no result in a loss greater than 1/2-acre, the project is automatically covered by the U.S. Army Corps of Engineers (USACE) Nationwide Permit 58 – Utility Line Activities. If the impacts are greater than 1/10-acre, a Pre-Construction Notification (PCN) is required from the USACE

and potentially mitigation will be required. If impacts are over a half-acre, the project will require an Individual Permit and will require mitigation.

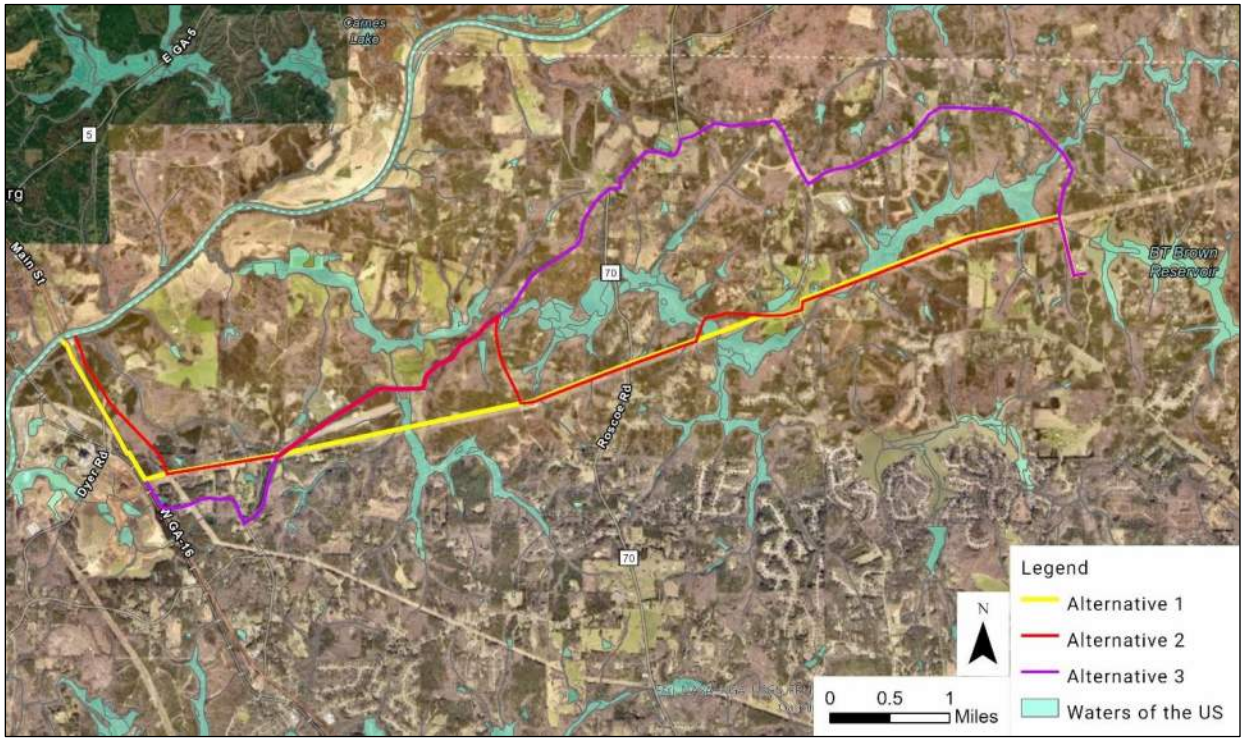


Figure 4-2: Waters of the US

4.3 Hazardous Materials

Based on aerial imagery and a field walk, the Georgia Power plant Yates will be along the proposed pipeline alignments 1 and 2. This property was potentially used to store hazardous materials in the past. Although it appears that impacts from hazardous materials would be minimal, an order of a hazardous materials record database to determine any hazardous material locations should be completed.

4.4 Threatened and Endangered Species

Georgia Fish and Wildlife reports there are several local threatened and endangered species with that potentially have habitat within the study area. Due to the construction being a temporary impact within the easement, it is not likely there would be significant impact. A habitat assessment field visit is recommended to support this during the design process. It is also recommended that Information for Planning and Consultation (IPaC) be requested from the U.S. Fish and Wildlife Services to ensure that there is no critical habitat for federally listed species in the study area.

5.0 Permitting and Coordination

The proposed raw water pipeline will require coordination and permit application with GDOT, Atlanta Gas Light, Kinder Morgan, Georgia Power, USACE, and EPD. The following subsections describe the preliminary understanding of the permit application requirements with these entities.

5.1 Georgia Department of Transportation (GDOT)

The proposed raw water pipeline alignment 1 and 2 will be crossing SR 16. It is anticipated that SR 16 will be crossed via trenchless methods to avoid excavation in the ROW. A utility encroachment permit application and a set of plans will need to be provided utilizing Georgia Utilities Permitting System (GUPS) to GDOT's district utilities engineer for the area.

5.2 Atlanta Gas Light and Kinder Morgan

The proposed raw water pipeline will cross the Atlanta Gas Light (AGL) high pressure natural gas pipeline four times and the Kinder Morgan petroleum pipeline once. The petroleum line crossing is located west of Rex Hyde Rd. The proposed raw water pipeline will be closely coordinated with these existing utilities if encroaching on their easement or when crossing the lines. Figure 5-1 shows the approximate locations of the existing gas and petroleum lines in relation to the proposed raw water pipeline.

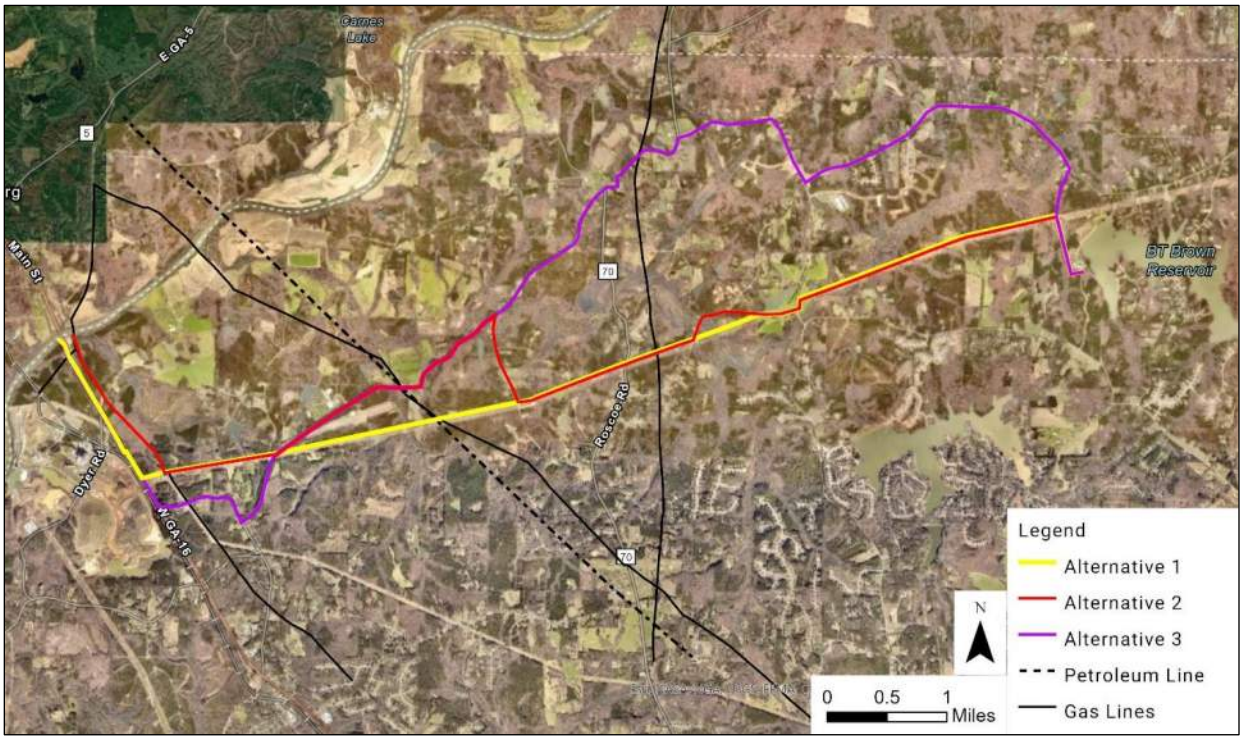


Figure 5-1: Utility Locations

5.3 United States Army Corps of Engineers

The proposed raw water pipeline will cross 14 identified stream crossings and three identified wetlands. Further analysis should be performed in the design process to determine the total impacts to jurisdictional areas, but it is anticipated that the impacts can be minimized to avoid a major permitting effort. If more than 1/10-acres of WOUS is impacted, a PCN will be required. Once the PCN is submitted, the USACE would review the project impacts to approve or request more information to complete the PCN. This review process can take up to 45 days.

5.4 Georgia Power

The proposed raw water pipeline will cross under the Georgia Power overhead power lines. To encroach on these easements, a Request for Easement permit will be made to Georgia Power Company by email. A site visit with the final plans must be scheduled with the Right of Way services division to meet and discuss their guidelines prior to any final decisions. This application process could take up to 3 months.

6.0 Alternatives Analysis

Garver provided CCWSA with three alternative alignments from the proposed pump station location at the Chattahoochee River to the B.T. Brown Reservoir during a route study workshop in July 2022. FrightGarver presented all three alternative alignments shown in Figure 6-1 and recommends Alternative 1 as the preferred route to CCWSA.

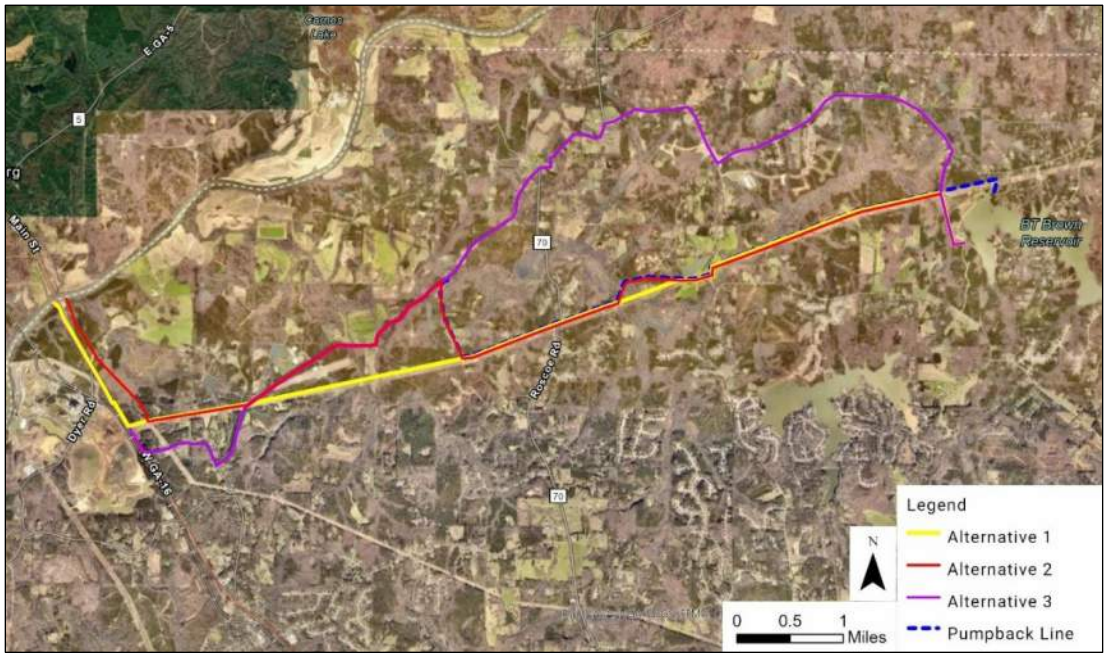


Figure 6-1: Alternative Alignments

6.1 Alternative 1 - Following the Georgia Power Right-Of-Way

6.1.1 Overview

Figure 6-2: Alternative 1 Alignment

Alternative 1, shown in Figure 6-2, aligns the new 36-inch raw water pipeline parallel the west side of SR 16 in the ROW until it reaches the Georgia Power high voltage transmission easements. The pipeline would run along the north side of the Georgia Power transmission easement in a new 20-foot easement to be acquired from the individual property owners. The pipeline would run parallel along the north side of the Georgia Power easement until it crosses over Duncan Rd. At Duncan Rd the pipeline would then follow the Duncan Rd ROW along the south side until it dead ends into Jim Starr Rd. At this point the pipeline would cross under Jim Starr Rd and run along the east side of the ROW until it again reached the north side of the Georgia Power transmission easement. The pipeline would then continue along the north side of the Georgia Power transmission easement in a new 20-foot easement to be acquired from the individual property owners until it reached the B.T. Brown reservoir. At this point, it would run perpendicular across the transmission power line to connect the existing Lamar Smith Drive raw water line with the option of going into the B.T. Brown Reservoir or directly to the water treatment plant.

6.1.2 Alignment Profile

The profile for Alternative 1, shown in Figure 6-3, requires up to 44 air release valves and 31 blow-off valves due to elevation changes.

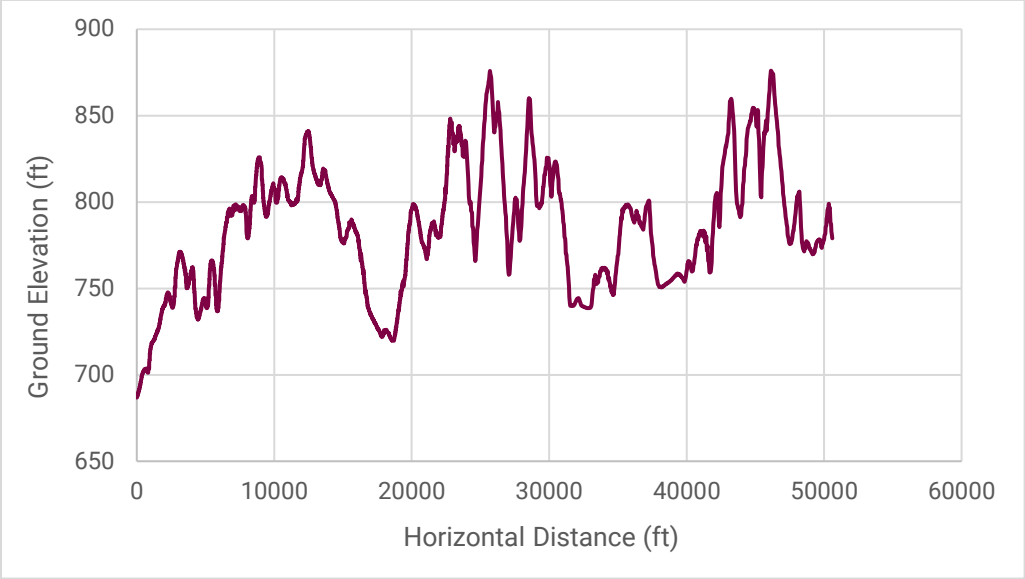


Figure 6-3: Alternative 1 Profile

6.1.3 Alignment Analysis

Advantages of the alignment:

- Shortest length for the total alignment
- Lowest cost of piping overall due to the length
- Least number of easements required
- Fewest number of bends in the alignment to reduce head loss, thus the cost to operate is lower
- Less fittings, thus less restrained joint pipe
- Limited traffic impacts
- Least number of valves

Disadvantages of the alignment:

- GDOT approval will be required along SR 16
- Future access will be difficult due to limited access and fencing along the Georgia Power easement
- Construction easement required at Georgia Power incursion

6.2 Alternative 2 – Following the AGL line and Pumpback Station line

6.2.1 Overview

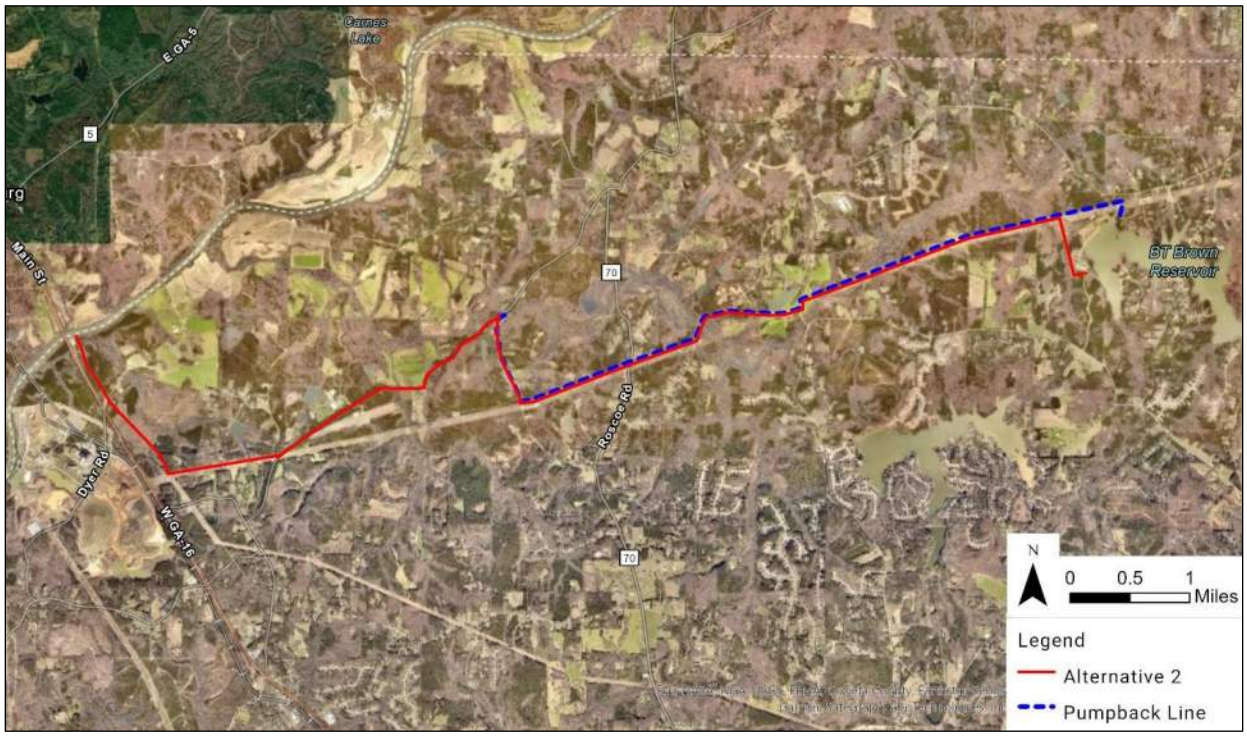


Figure 6-4: Alternative 2 Alignment

Alternative 2, shown in Figure 6-4, purposes running the new raw water pipeline parallel to the Atlanta Gas Light pipeline along the west side, in a new 20-foot easement to be acquired from the individual property owners, until it reaches the Georgia Power high voltage transmission easements. The pipeline would run along the north side of the Georgia Power transmission easement in a new 20-foot easement to be acquired from the individual property owners until it reaches Sewell Mill Rd. The pipeline would then follow Sewell Mill Rd along the south ROW until it reaches Walt Carmichael Rd. The pipeline would then follow the same alignment as the 18-inch pumpback station pipeline, along the west side of Walt Carmichael Rd ROW. When this road crosses the Georgia Power transmission easement, the raw water pipeline would again run parallel along the north side of this easement. When the pipeline reaches Brimer Rd, it would continue to follow the 18-inch pumpback pipe along the west side ROW of Brimer Rd. At Duncan Rd, the pipeline would then follow the Duncan Rd ROW along the south side until it dead ends into Jim Starr Rd. At this point, the pipeline would cross under Jim Starr Rd and run along the east side of the ROW until it again reached the north side of the Georgia Power transmission easement. The pipeline would then run along the north side of the Georgia Power transmission easement in a new 20-foot easement to be acquired from the individual property owners until it reaches the B.T. Brown reservoir. At this point, it will run perpendicular across the transmission power line to connect to the existing Lamar

Smith Drive raw water line with the option of going into the B.T. Brown Reservoir or directly to the water treatment plant.

6.2.2 Alignment Profile

The profile for Alternative 2, shown in Figure 6-5, requires up to 42 air release valves and 38 blow-off valves due to elevation changes.

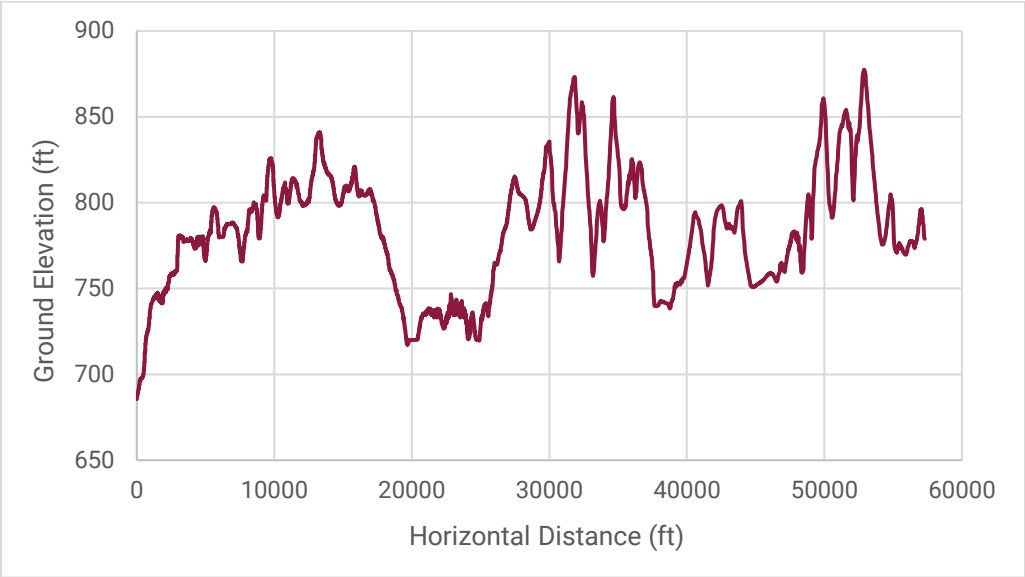


Figure 6-5: Alternative 2 Profile

6.2.3 Alignment Analysis

Advantages of the alignment:

- No coordination with GDOT
- Existing 10-foot easement available
- Previous success with the property easement purchased along the pumpback pipe alignment

Disadvantages of the alignment:

- Most valves needed
- Cathodic protection required by proximity to the AGL high pressure gas pipeline
- Future access will be difficult due to limited access and fencing along the Georgia Power easement
- Construction easement required at Georgia Power incursion

6.3 Alternative 3 – Following the Right-of-Way

6.3.1 Overview

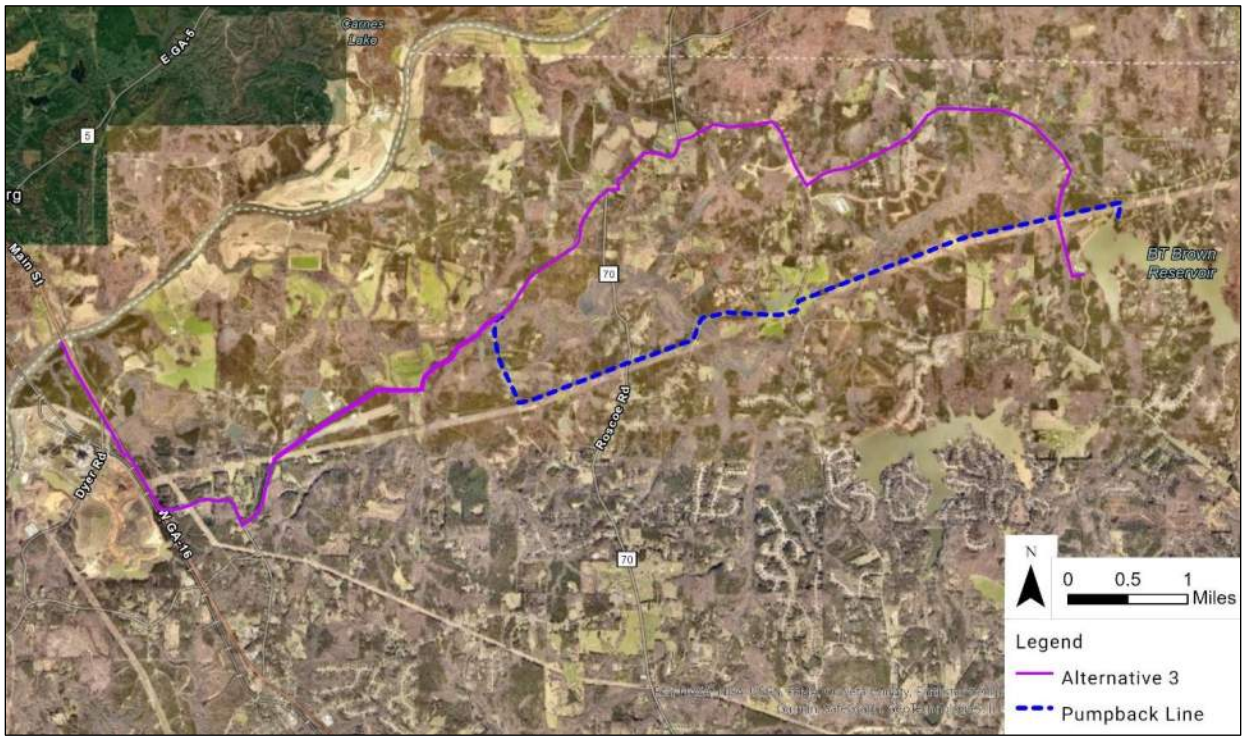


Figure 6-6: Alternative 3 Alignment

Alternative 3 only follows State and County ROWs. The 36-inch raw water pipeline would parallel the west side SR 16 in the ROW until it reaches Robinson Rd. The pipeline would then follow Robinson Rd, Old Carrolton Hwy, Sewell Mill Rd, Roscoe Rd, Jim Starr Rd and Tommy Lee Cook Rd ROWs until it reaches the B.T. Brown Reservoir. At this point, it would run perpendicular across the transmission power line to connect the existing Lamar Smith Drive raw water line with the option of going into the B.T. Brown Reservoir or directly to the water treatment plant.

6.3.2 Alignment Profile

The profile for Alternative 3, shown in Figure 6-7, requires up to 45 air release valves and 33 blow-off valves due to elevation changes.

Figure 6-7: Alternative 3 Profile

6.3.3 Alignment Analysis

Advantages of the alignment:

- Access for future maintenance is accessible via GDOT or county roads
- It would reduce necessary easement width using ROW

Disadvantages of the alignment:

- Longest length for the total alignment
- Highest cost overall due to the length
- Travel for residents will be temporarily impacted
- Slower construction along the county road; longer construction time
- Most bends in the alignment to increase head loss, thus a higher cost to operate
- Greatest number of fittings requiring more restrained joints
- Potentially higher horsepower pumps need due to the length

7.0 Recommendation

As detailed in this route study, three alternative alignments were evaluated for the proposed raw water pipeline route. These three alignments are summarized below:

- Alternative 1: Install a new 36-inch pipeline that parallels GA Route 16 and the Georgia Power transmission easement.

- Alternative 2: Install a new 36-inch pipeline that parallels the Atlanta Gas Light pipeline and the existing 18-inch pumpback station pipeline.
- Alternative 3: Install a new 36-inch pipeline that in the ROW of GA Route 16 and county roads.

In Table 7-1, there is a direct comparison between the three alternative alignments. The length, cost estimate, and number of easements were gathered for each alignment. From the table, it can be determine that Alternative 1 is the shortest alignment in total length and this results in the lowest cost estimate for a 36-inch pipeline. Alternative 1 also has the fewest number of to be acquired easements needed due to it largely staying away from the more densely-populated residential areas. From this information and Garver's previous preferred alternative recommendation in the route study workshop, CCWSA determined that Alternative 1 preferred route for this project.

Table 7-1: Alternative Alignment Comparisons

	Length (ft)	30-inch Cost Estimate*	36-inch Cost Estimate*	42-inch Cost Estimate*	Number of Easements
Alternative 1	51,600	$24,750,000	$29,700,000	$34,650,000	55
Alternative 2	56,600	$27,150,000	$32,600,000	$38,050,000	59
Alternative 3	66,300	$31,850,000	$38,200,000	$44,550,000	117
*Cost estimate developed with a $16.00/inch per linear foot factor *Easement cost is not included in cost estimate					

7.1 Alternative 1 - Following the Georgia Power transmission easement

With CCWSA selecting Alternative 1 as the route to move forward with, Garver then developed other design components for this route, including hydraulics, air relief valves, and blow-off valves.

7.1.1 Hydraulic evaluation

The hydraulic profile of the raw water line shown in Figure 7-1 presents the hydraulic grade line for the different design flow rates based on head loss through a 36-inch pipe with an assumed roughness coefficient (C) of 120. Additional high points throughout the line or changes in pipe size would impact the hydraulic profile.

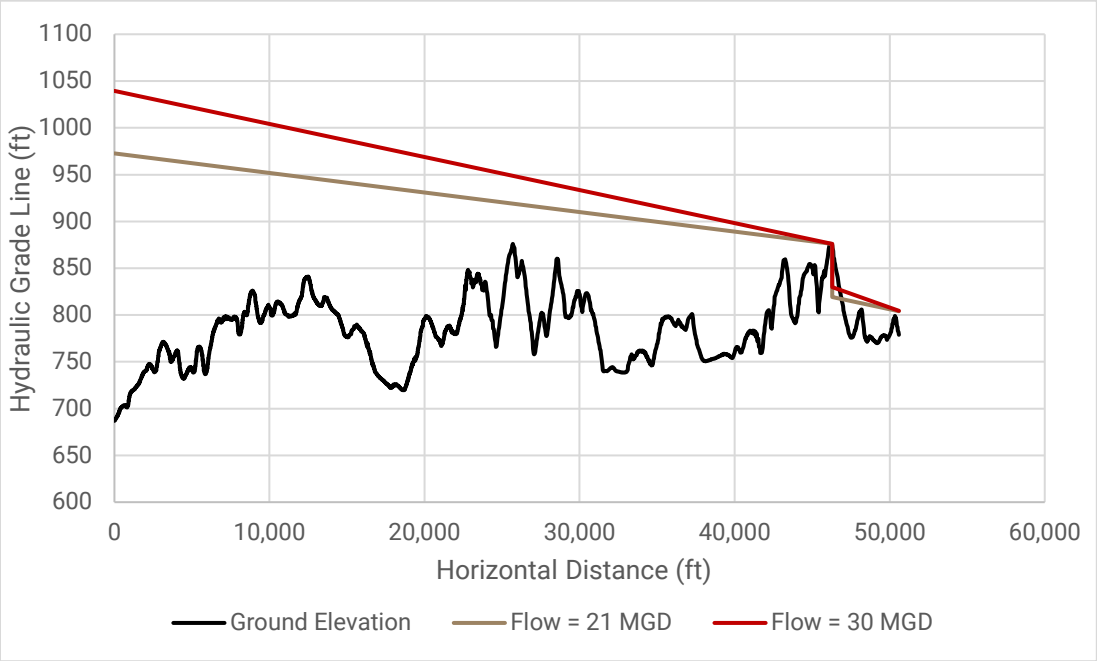


Figure 7-1: 36-inch Raw Water Main Hydraulic Profile (C = 120)

7.1.2 Maximum Pressure

Maximum estimated pressures for 30-inch, 36-inch, and 42-inch mains are presented in Table 7-2. These pressures were determined based on hydraulic profiles developed with a Hazen-Williams roughness coefficient of 120, which is a typical value for the long-term condition of raw water lines.

Table 7-2: Maximum Pressures (C=120)

	Maximum Pressure (psi)	
Pipe Size (in)	21 MGD	30 MGD
30	175	268
36	122	151
42	99	116

7.1.3 Pipe Profile

In Figure 7-2, the pipe profile for Alternative 1 is shown with the minimum of 5-foot of cover above the pipe in relation to the ground elevation. With this pipe elevation, it would create a need for 44 air release valves and 31 blow-off valves.

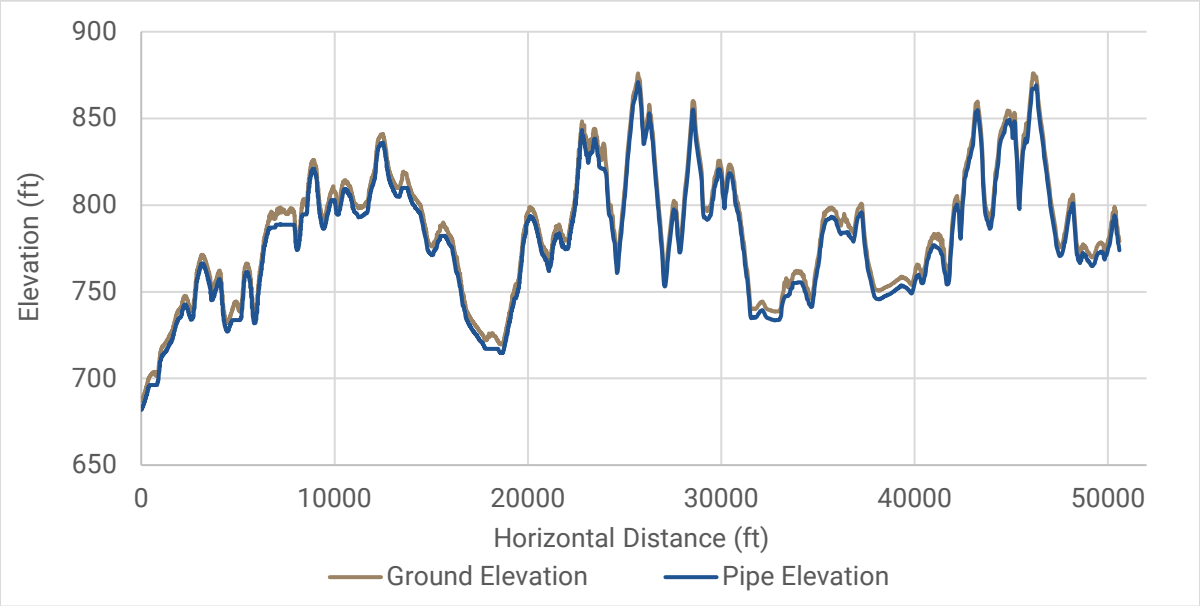


Figure 7-2: Pipe Profile for Alternative 1

7.1.3.1 Air Release Valve

Air release valves are installed at the at local high points in a pipeline where air naturally collects. The greater the number of high points that are in a pipeline, the more air release valves will be needed to vent the accumulated air into the atmosphere and maintain hydraulic capacity of the system. Garver was able to develop an alternate vertical profile using a maximum cover of 14.5-feet, shown in Table 7-3. By doing this, it allows the pipeline to reduce the number of high points along the system. This change allows Garver the design capability of removing 9 air release valves. The number of air release valves needed for this system would be 35 if the maximum depth of 14.5 feet is designed.

Table 7-3: Air Release Valves and Blow-off Valves

	Standard 5-foot Cover	Maximum 14.5-foot Cover
Air Release Valves Required	44	35
Blow-off Valves Required	31	24

7.1.3.2 Blow-Off Valves

Blow-off valves are installed in the lowest local points of a pipeline to be used to flush the pipeline during testing, maintenance, and repairs. These blow-off valves help to remove debris and sediment that collect in the system. In Table 7-3, Garver reduced the number of low points within the pipeline by allowing up to

14.5-feet of cover. This reduces the number of required blow-off valves from 31 to 24, which results in lower capital and O&M costs.

7.1.4 Existing Easements

The route for Alternative 1 would include the option of utilizing the existing 10-foot easement that CCWSA already owns for the 18-inch pumpback station line. This easement could be utilized along the Georgia Power transmission easement from Walt Carmichael Rd to Brimer Rd and then from Duncan Rd to B.T. Brown Reservoir. The easement would need to be expanded to 20-foot in total to allow for both the existing 18-inch pipe and the proposed 36-inch raw water pipeline.

7.1.5 OPCC

Coweta County Water Sewerage Authority

ENGINEER'S ESTIMATE OF PROBABLE COST -SCHEDULE 1

ITEM NO.	DESCRIPTION	UNIT	ESTIMATED QUANTITY	Engineer's Estimate of Probable Cost UNIT PRICE	AMOUNT
1	Furnish & Install 36-in. Pipe	LF	51,854	$576.00	$29,867,904
2	8"Blow Off Valve	EA	31	$3,383.00	$104,873
3	4" Air Release Valve	EA	35	$2,516.00	$88,060
4	36" Butterfly Valve	EA	7	$24,767.00	$173,369
5	Manhole	EA	66	$8,000.00	$528,000
6	36" Trenchless Crossing in 48" Casing	LF	595	$1,199.00	$713,405
7	Trenching, Backfilling, and Compaction	LF	51,259	$5.00	$256,295
8	SWPPP	LF	51,854	$5.00	$259,270
9	Mobilization/Demobilization	LS	1	$450,000.00	$450,000
10	Miscellaneous	LS	5%		$1,622,059
11	Contingency on Construction Subtotals	LS	30%		$10,218,970
12	Escalation of Cost to Midpoint Construction (3 years at 5%)	LS	5%		$6,979,983

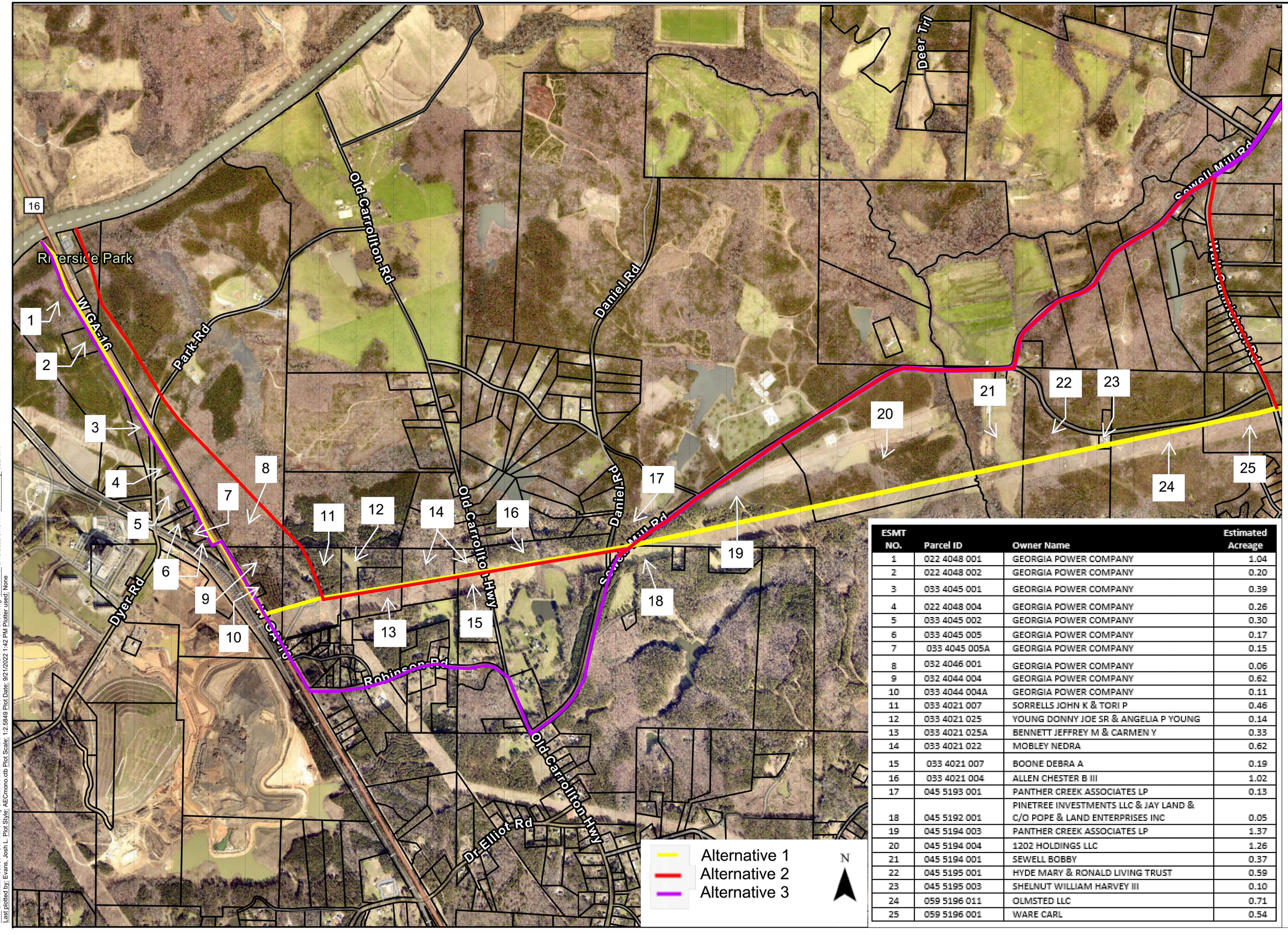
Total Engineer's Estimate - Schedule 1 $44,282,205

Total Engineer's Estimate with Escalation - Schedule 1 $51,262,188

Schedule 1 doesn't include the cost for easement acquisitions and temporary construction easements.

APPENDIX A

Alternative 1 Route Alignment and Parcel Information



ESMT NO.	Parcel ID	Owner Name	Estimated Acreage
1	022 4048 001	GEORGIA POWER COMPANY	1.04
2	022 4048 002	GEORGIA POWER COMPANY	0.20
3	033 4045 001	GEORGIA POWER COMPANY	0.39
4	022 4048 004	GEORGIA POWER COMPANY	0.26
5	033 4045 002	GEORGIA POWER COMPANY	0.30
6	033 4045 005	GEORGIA POWER COMPANY	0.17
7	033 4045 005A	GEORGIA POWER COMPANY	0.15
8	032 4046 001	GEORGIA POWER COMPANY	0.06
9	032 4044 004	GEORGIA POWER COMPANY	0.62
10	033 4044 004A	GEORGIA POWER COMPANY	0.11
11	033 4021 007	SORRELLS JOHN K & TORI P	0.46
12	033 4021 025	YOUNG DONNY JOE SR & ANGELIA P YOUNG	0.14
13	033 4021 025A	BENNETT JEFFREY M & CARMEN Y	0.33
14	033 4021 022	MOBLEY NEDRA	0.62
15	033 4021 007	BOONE DEBRA A	0.19
16	033 4021 004	ALLEN CHESTER B III	1.02
17	045 5193 001	PANTHER CREEK ASSOCIATES LP	0.13
18	045 5192 001	PINETREE INVESTMENTS LLC & JAY LAND & C/O POPE & LAND ENTERPRISES INC	0.05
19	045 5194 003	PANTHER CREEK ASSOCIATES LP	1.37
20	045 5194 004	1202 HOLDINGS LLC	1.26
21	045 5194 001	SEWELL BOBBY	0.37
22	045 5195 001	HYDE MARY & RONALD LIVING TRUST	0.59
23	045 5195 003	SHELNUT WILLIAM HARVEY III	0.10
24	059 5196 011	OLMSTED LLC	0.71
25	059 5196 001	WARE CARL	0.54

GARVER

REGISTRATION NO.
PEF007804

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REV.	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY:
DRAWN BY:
CHECKED BY:

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER

SHEET NUMBER

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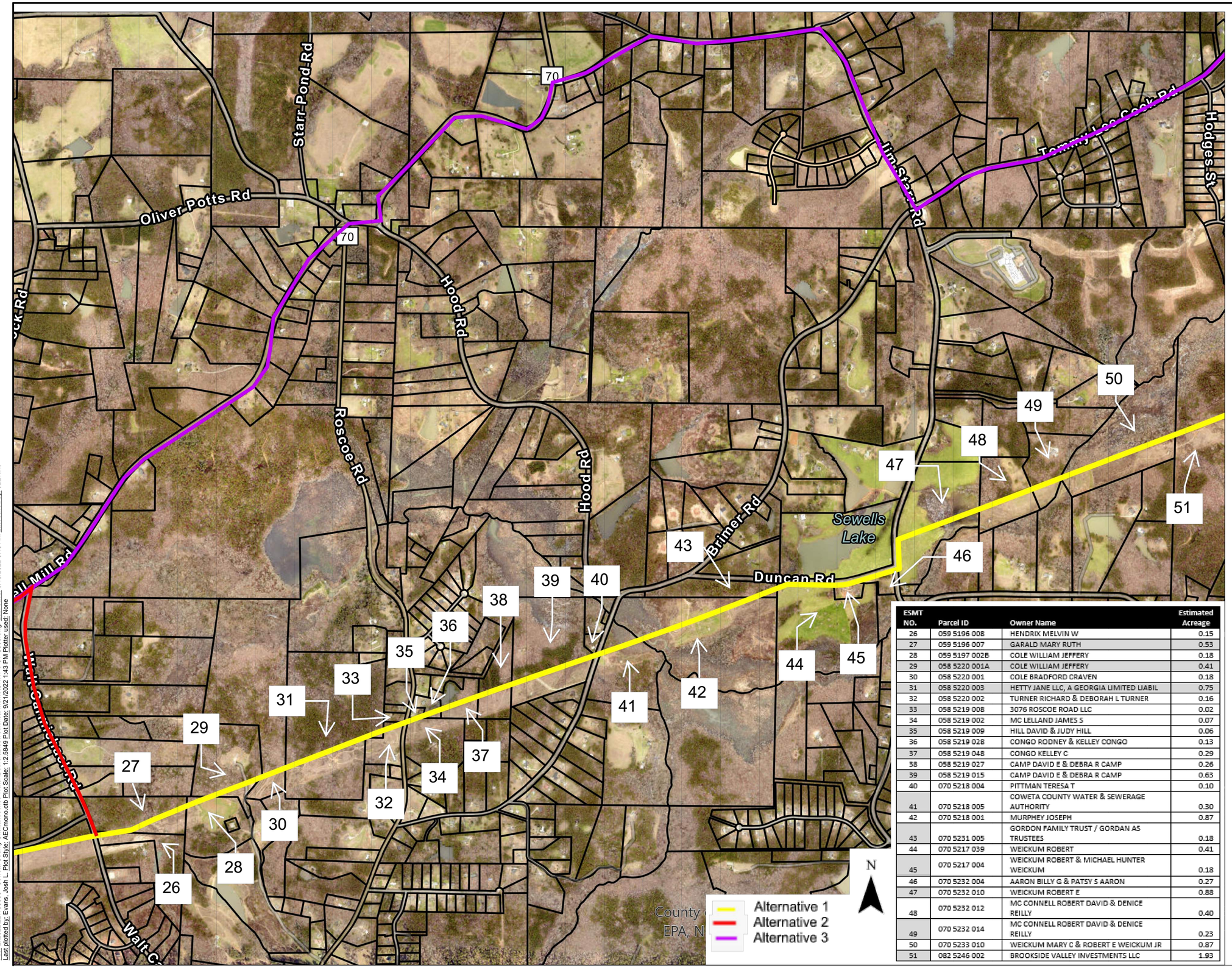
Last plotted by: Evans, Josh L. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 9/21/2022 1:42 PM Plotter used: None



ESMT NO.	Parcel ID	Owner Name	Estimated Acreage
26	059 5196 008	HENDRIX MELVIN W	0.15
27	059 5196 007	GARALD MARY RUTH	0.53
28	059 5197 002B	COLE WILLIAM JEFFERY	0.18
29	058 5220 001A	COLE WILLIAM JEFFERY	0.41
30	058 5220 001	COLE BRADFORD CRAVEN	0.18
31	058 5220 003	HETTY JANE LLC, A GEORGIA LIMITED LIABIL	0.75
32	058 5220 002	TURNER RICHARD & DEBORAH L TURNER	0.16
33	058 5219 008	3076 ROSCOE ROAD LLC	0.02
34	058 5219 002	MC LELLAND JAMES S	0.07
35	058 5219 009	HILL DAVID & JUDY HILL	0.06
36	058 5219 028	CONGO RODNEY & KELLEY CONGO	0.13
37	058 5219 048	CONGO KELLEY C	0.29
38	058 5219 027	CAMP DAVID E & DEBRA R CAMP	0.26
39	058 5219 015	CAMP DAVID E & DEBRA R CAMP	0.63
40	070 5218 004	PITTMAN TERESA T	0.10
41	070 5218 005	COWETA COUNTY WATER & SEWERAGE AUTHORITY	0.30
42	070 5218 001	MURPHEY JOSEPH	0.87
43	070 5231 005	GORDON FAMILY TRUST / GORDAN AS TRUSTEES	0.18
44	070 5217 039	WEICKUM ROBERT	0.41
45	070 5217 004	WEICKUM ROBERT & MICHAEL HUNTER WEICKUM	0.18
46	070 5232 004	AARON BILLY G & PATSY S AARON	0.27
47	070 5232 010	WEICKUM ROBERT E	0.88
48	070 5232 012	MC CONNELL ROBERT DAVID & DENICE REILLY	0.40
49	070 5232 014	MC CONNELL ROBERT DAVID & DENICE REILLY	0.23
50	070 5233 010	WEICKUM MARY C & ROBERT E WEICKUM JR	0.87
51	082 5246 002	BROOKSIDE VALLEY INVESTMENTS LLC	1.93

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REV.	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY:
DRAWN BY:
CHECKED BY:

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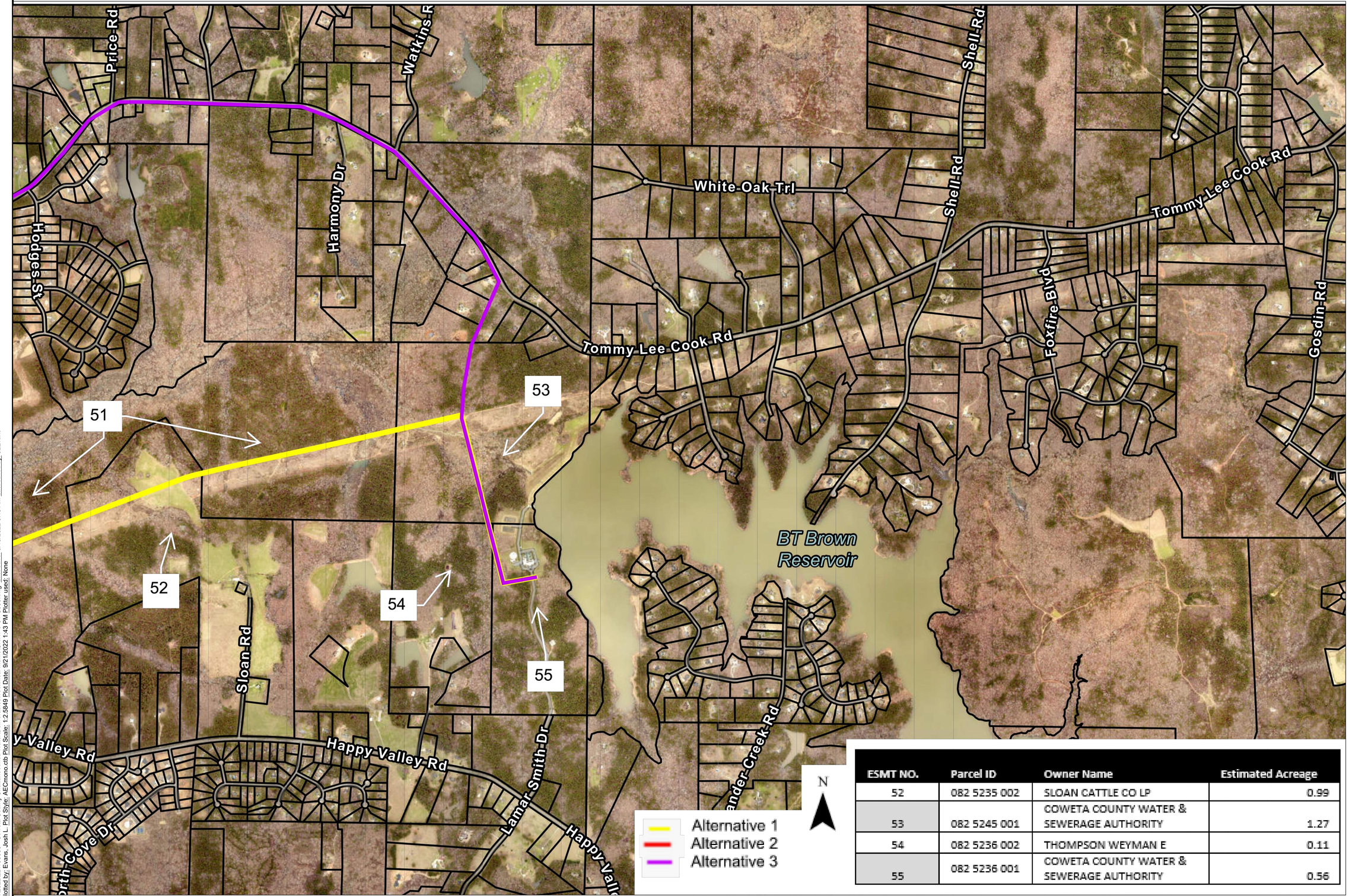
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER



ESMT NO.	Parcel ID	Owner Name	Estimated Acreage
52	082 5235 002	SLOAN CATTLE CO LP	0.99
53	082 5245 001	COWETA COUNTY WATER & SEWERAGE AUTHORITY	1.27
54	082 5236 002	THOMPSON WEYMAN E	0.11
55	082 5236 001	COWETA COUNTY WATER & SEWERAGE AUTHORITY	0.56

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITYY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY:
DRAWN BY:
CHECKED BY:

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER

SHEET NUMBER

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Last plotted by: Evans, Josh L. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 9/21/2022 1:43 PM Plotter used: None

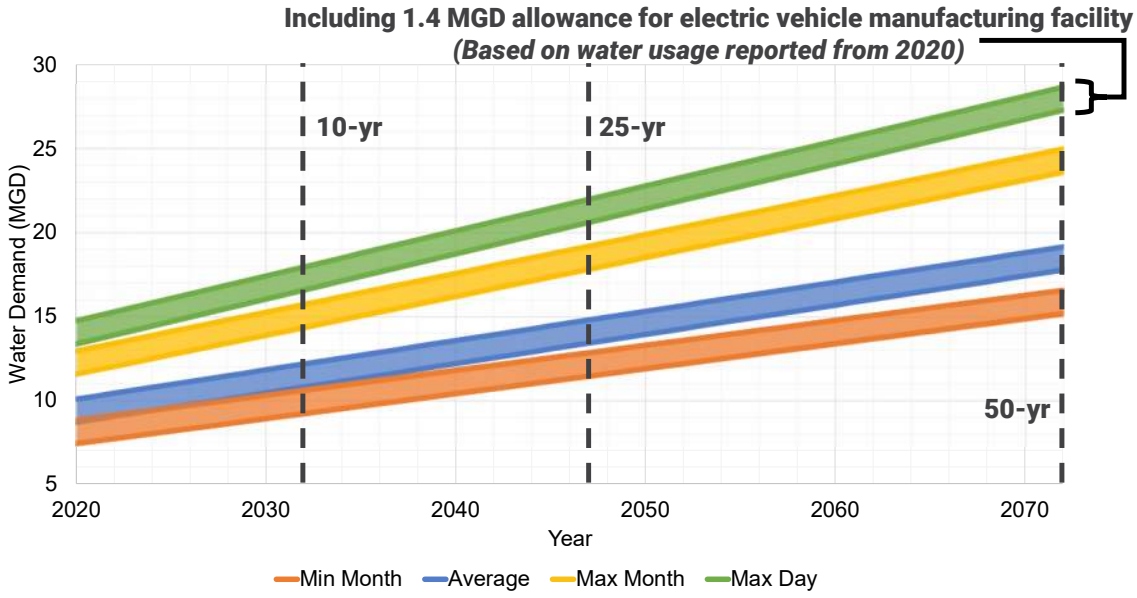
APPENDIX B

Route Study Workshop – July 14, 2022

Raw Water Pipeline Route Study

July 14th, 2022

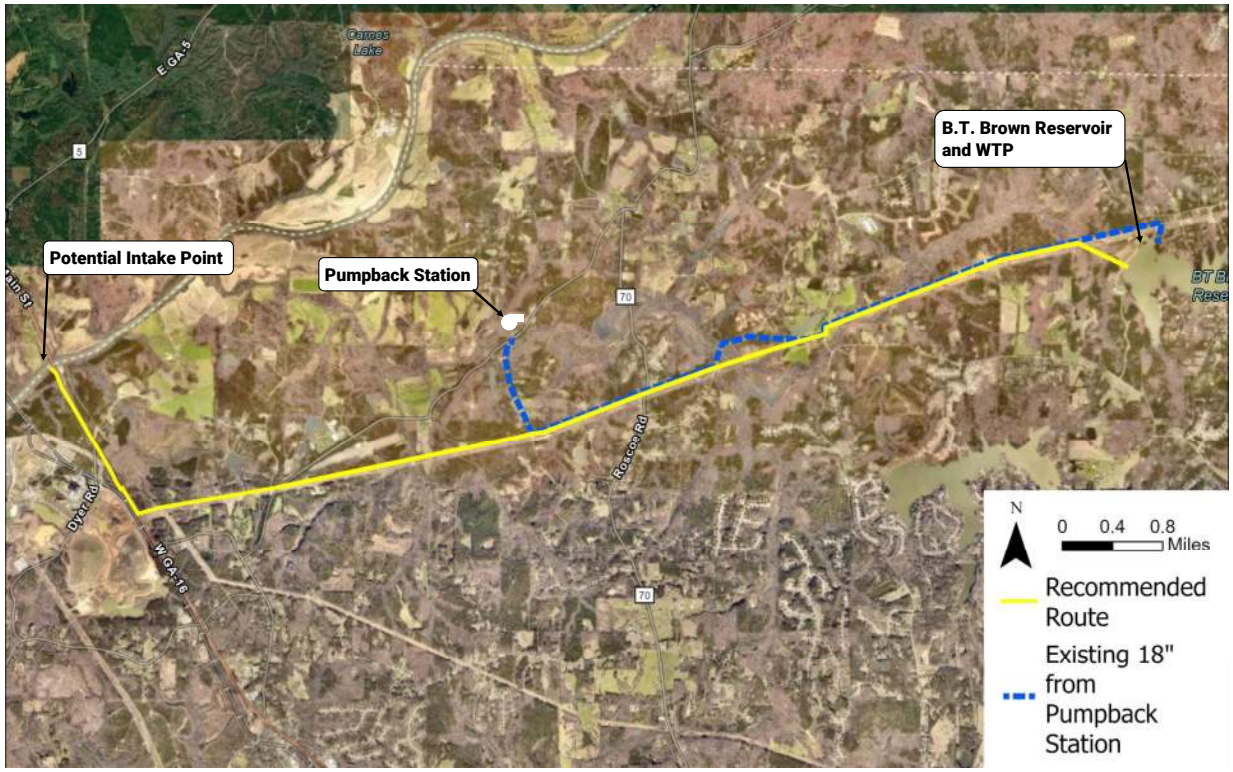
Water Demand Summary



Demand Condition	10-yr (2032)	25-yr (2047)	50-yr (2072)
Min Month	10.6	12.8	16.6
Average	12.2	14.8	19.2
Max Month	15.7	19.2	25.0
Max Day	18.0	22.0	28.7

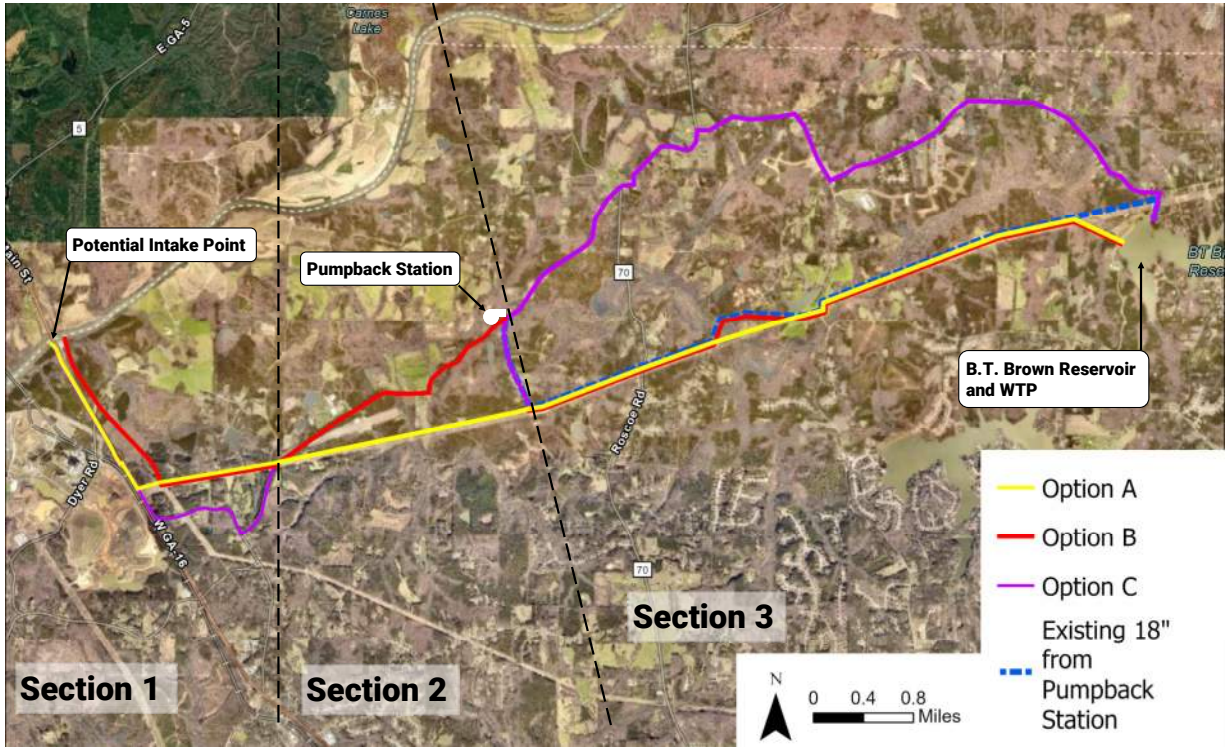
System Overview

- 18” raw water line from pumpback station to B.T. Brown Reservoir
- Recommended route from potential Chattahoochee River intake to B.T. Brown Reservoir



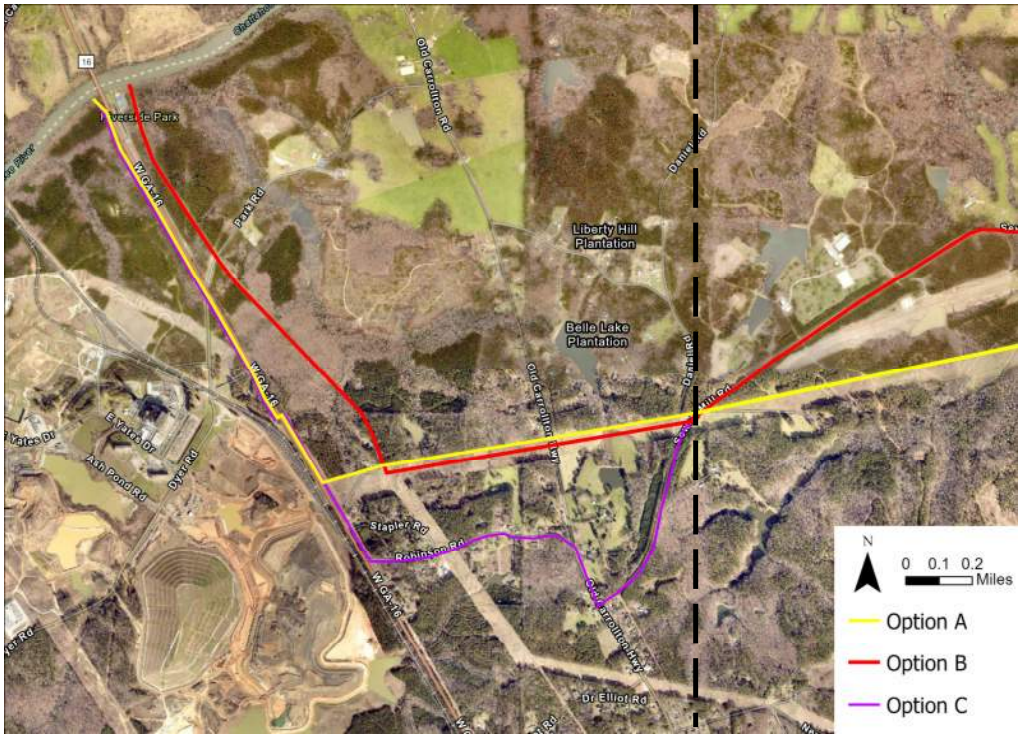
Route Options

- 3 sections with 3 options each
- Option A is Garver's recommended route
  - Correspondence with Georgia Power on Section 1
  - Shortest, most direct route



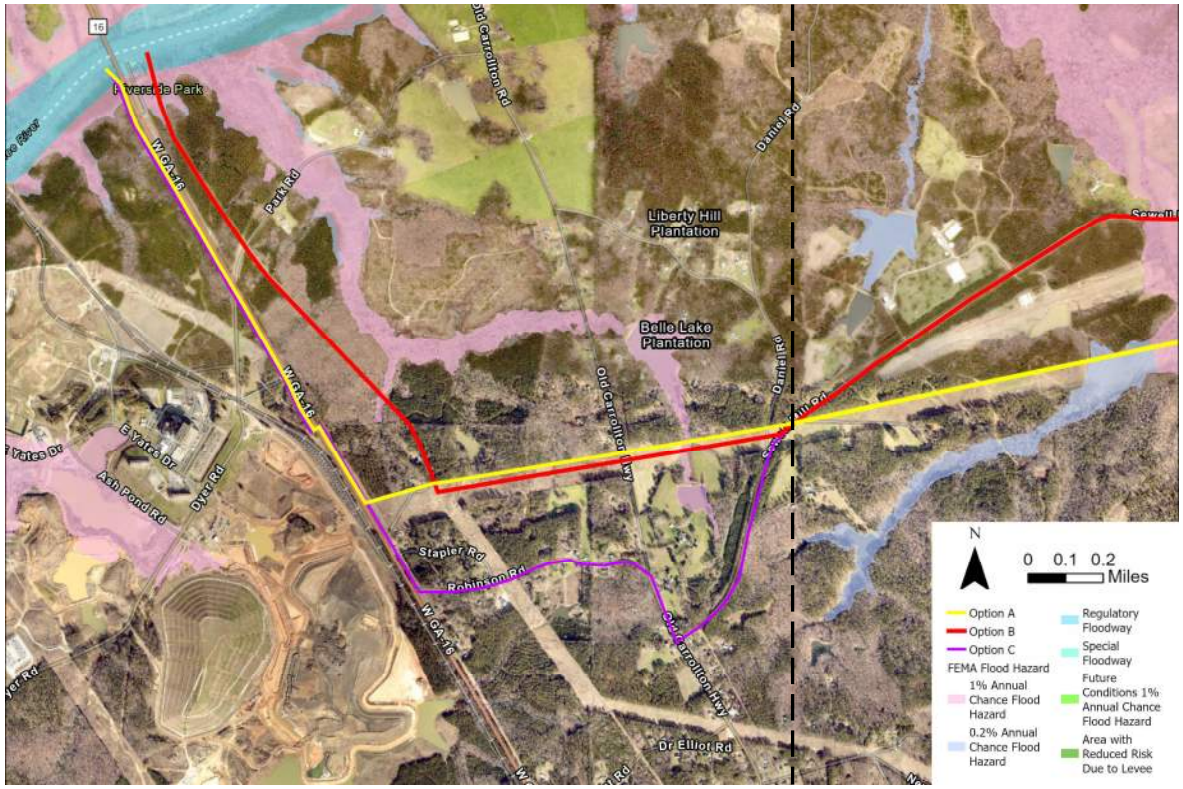
Section 1

- Option A follows Georgia Power right-of-way
- Option B follows gas line right-of-way
- Option C follows road right-of-way



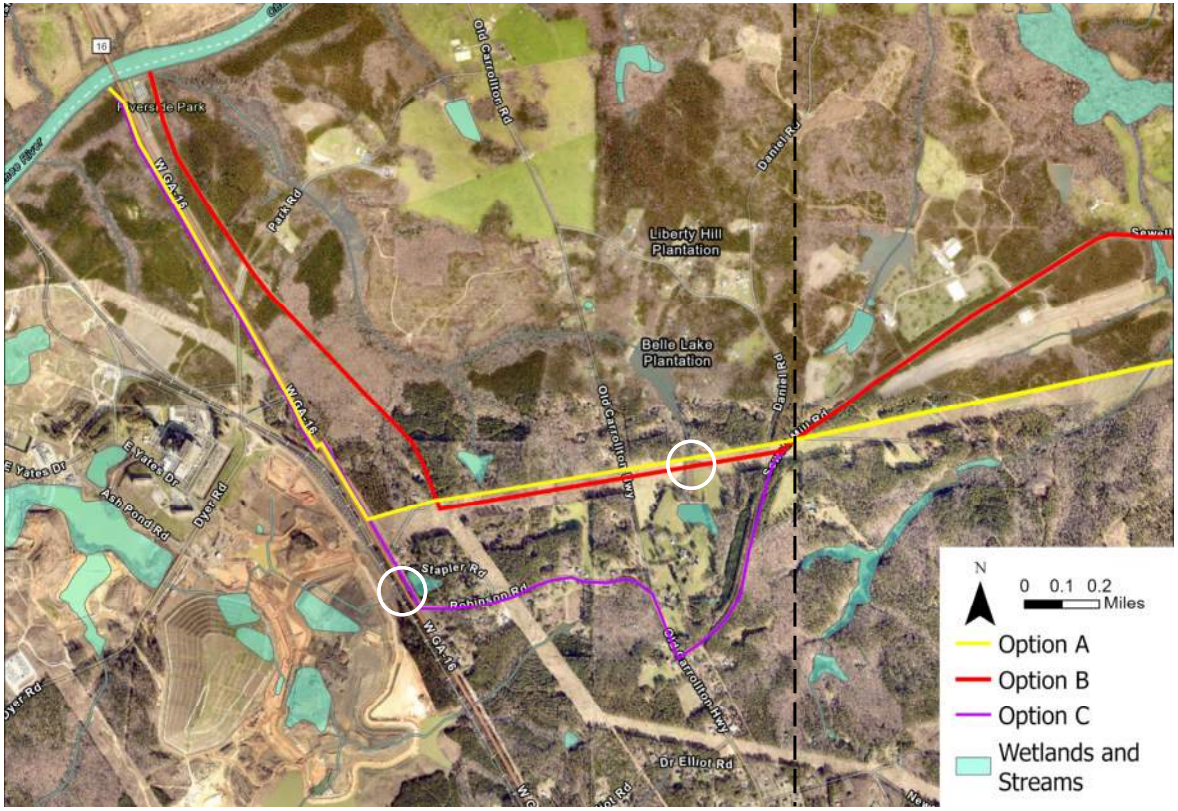
Section 1 Floodplains

- Minimal floodplain in all three options

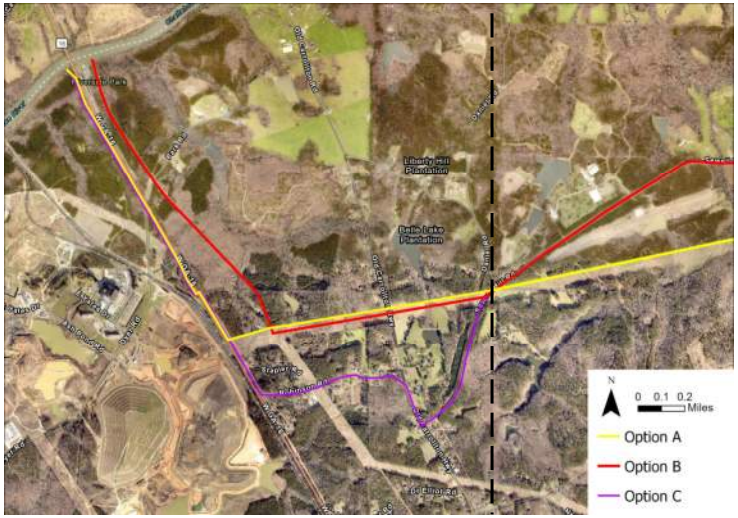


Section 1 Wetlands and Streams

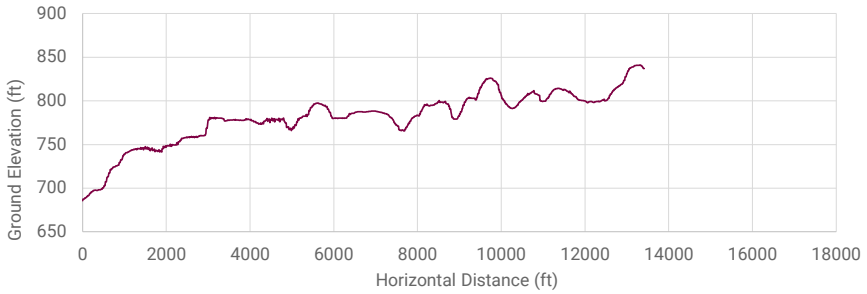
	Stream Crossings	Wetland Crossings
Option A	1	0
Option B	1	0
Option C	1	0



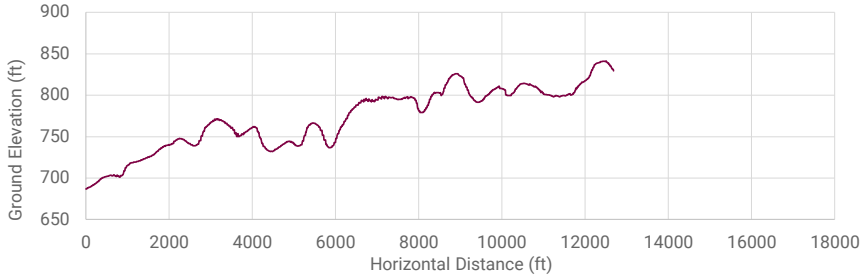
Section 1 Profiles



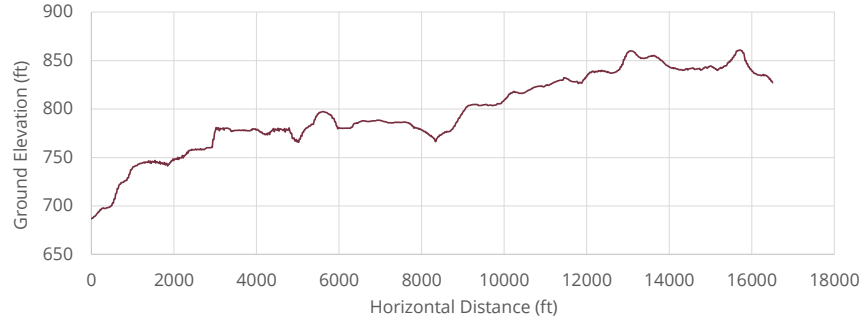
Option A



Option B



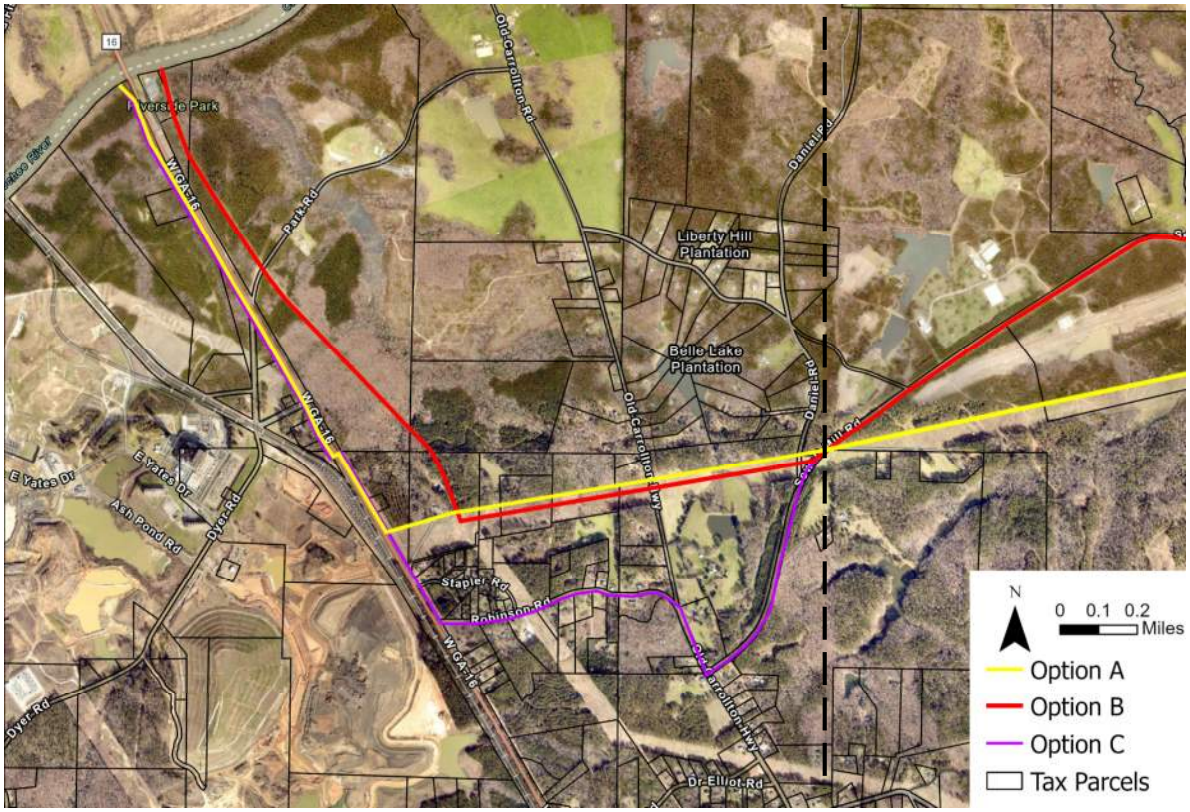
Option C



Section 1 Cost and Easements

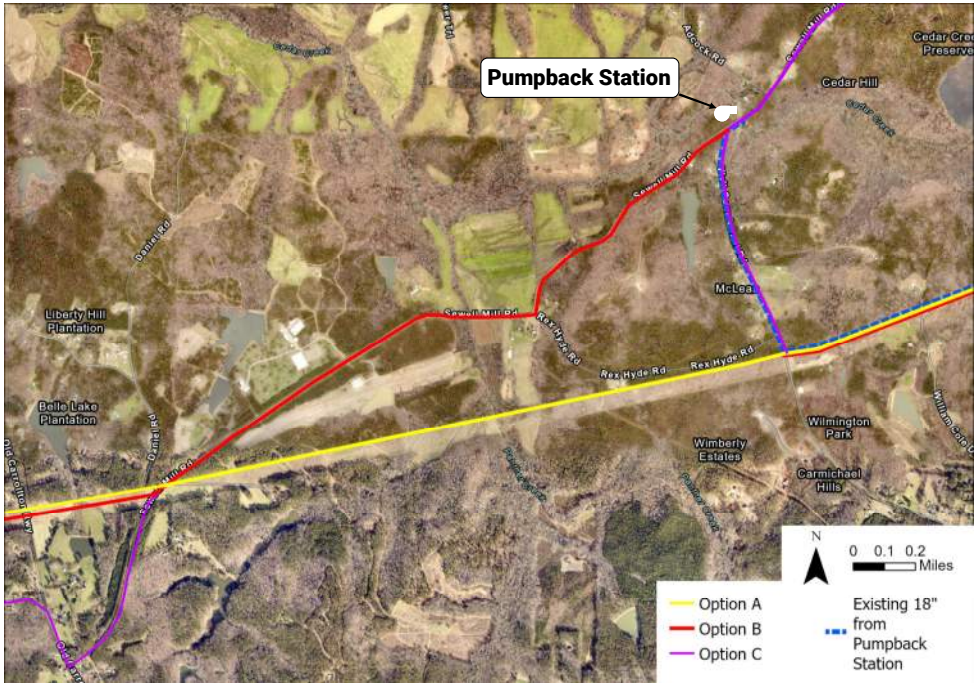
	Length (ft)	30" Cost Estimate*	36" Cost Estimate*	42" Cost Estimate*	Number of Easements
Option A	13,416	$6,439,680	$7,727,616	$9,015,552	9
Option B	12,683	$6,087,840	$7,305,408	$8,522,976	11
Option C	16,508	$7,923,840	$9,508,608	$11,093,376	22

*Cost estimate developed with a $16.00/inch per linear foot factor
*Easement cost is not included in cost estimate



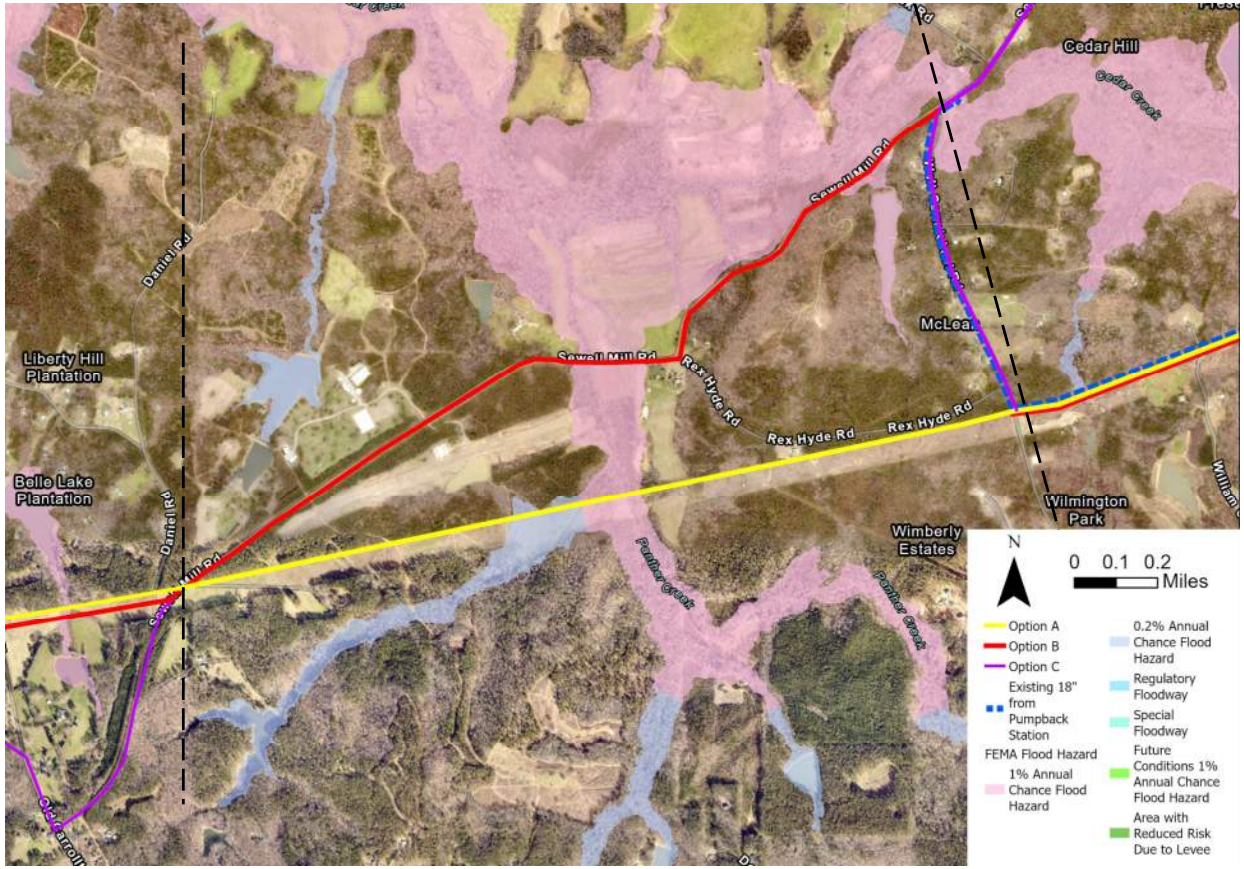
Section 2

- Option A follows Georgia Power right-of-way
- Option B follows Sewell Mill Road
  - Option B' parallels the existing 18" from the pumpback station along Walt Carmichael Road



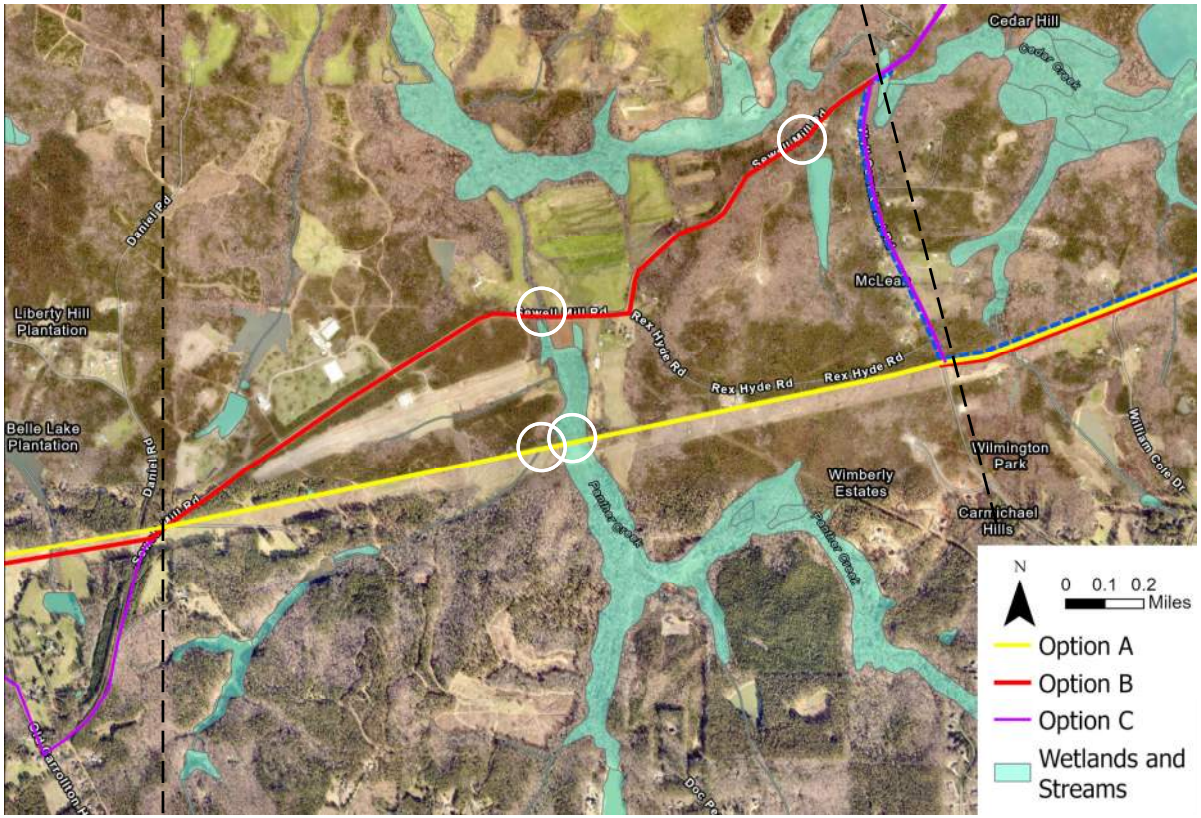
Section 2 Floodplains

- Option B crosses more 100-year floodplain

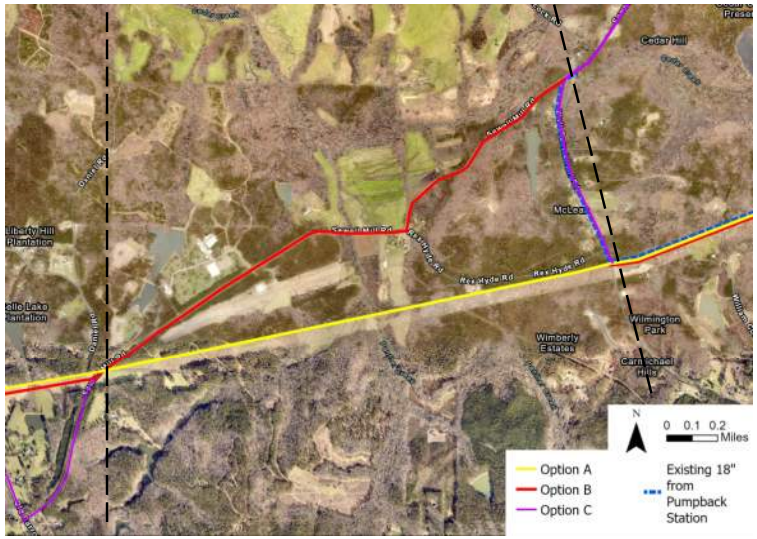


Section 2 Wetlands and Streams

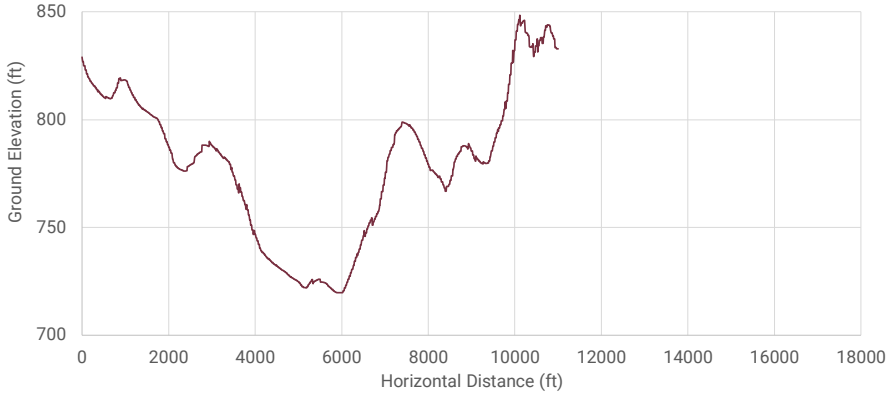
	Stream Crossings	Wetland Crossings
Option A	2	1
Option B	2	1
Option B'	0	0



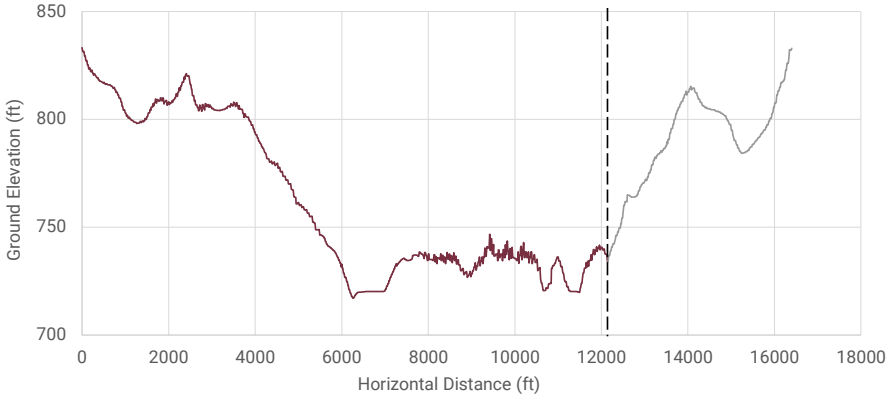
Section 2 Profiles



Option A



Option B

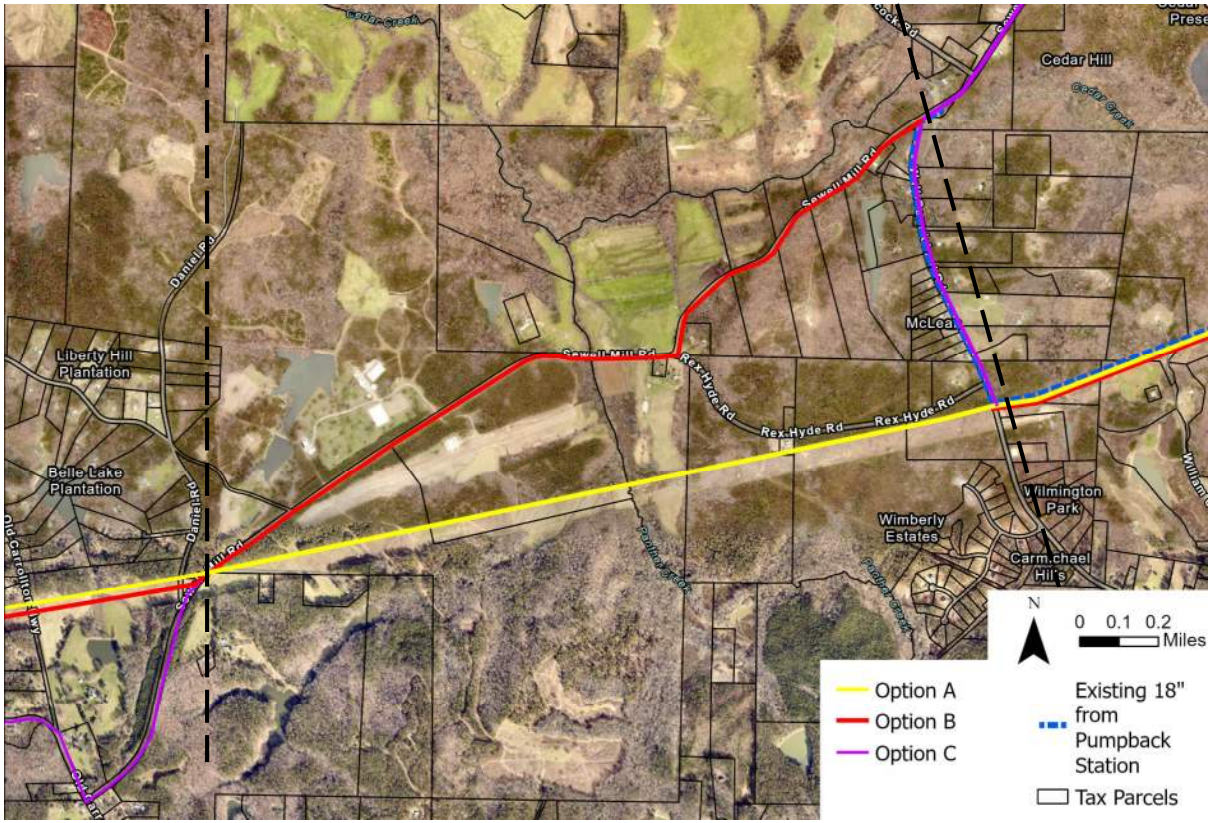


Option B'

Section 2 Cost and Easements

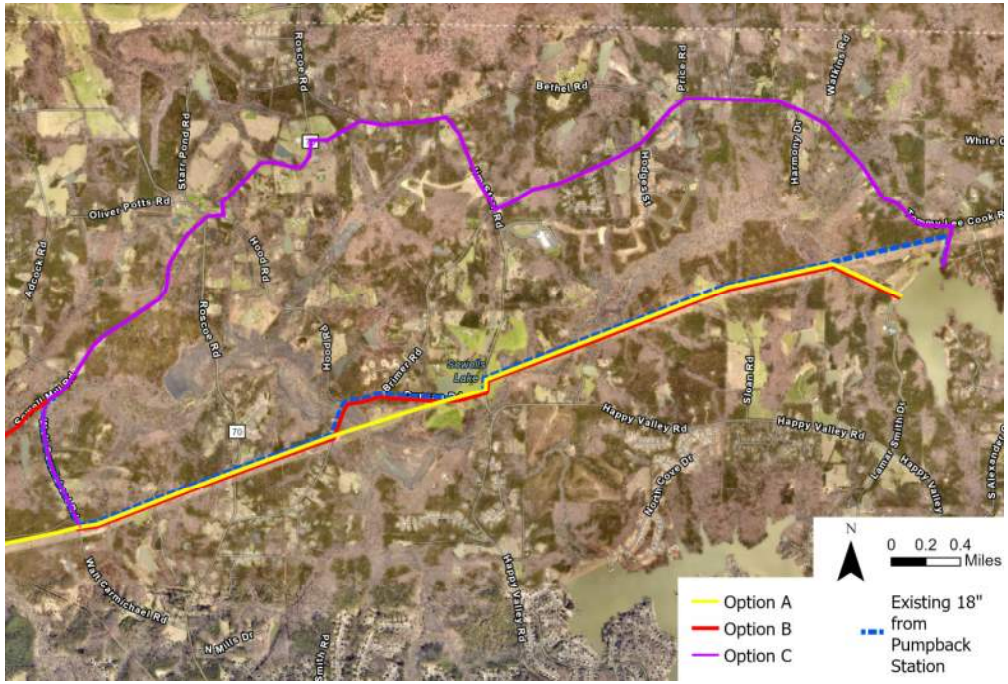
	Length (ft)	30" Cost Estimate*	36" Cost Estimate*	42" Cost Estimate*	Number of Easements
Option A	11,178	$5,365,440	$6,438,528	$7,511,616	7
Option B	12,146	$5,830,080	$6,996,096	$8,162,112	11
Option B'	4,248	$2,039,040	$2,446,848	$2,854,656	17

*Cost estimate developed with a $16.00/inch per linear foot factor
*Easement cost is not included in cost estimate



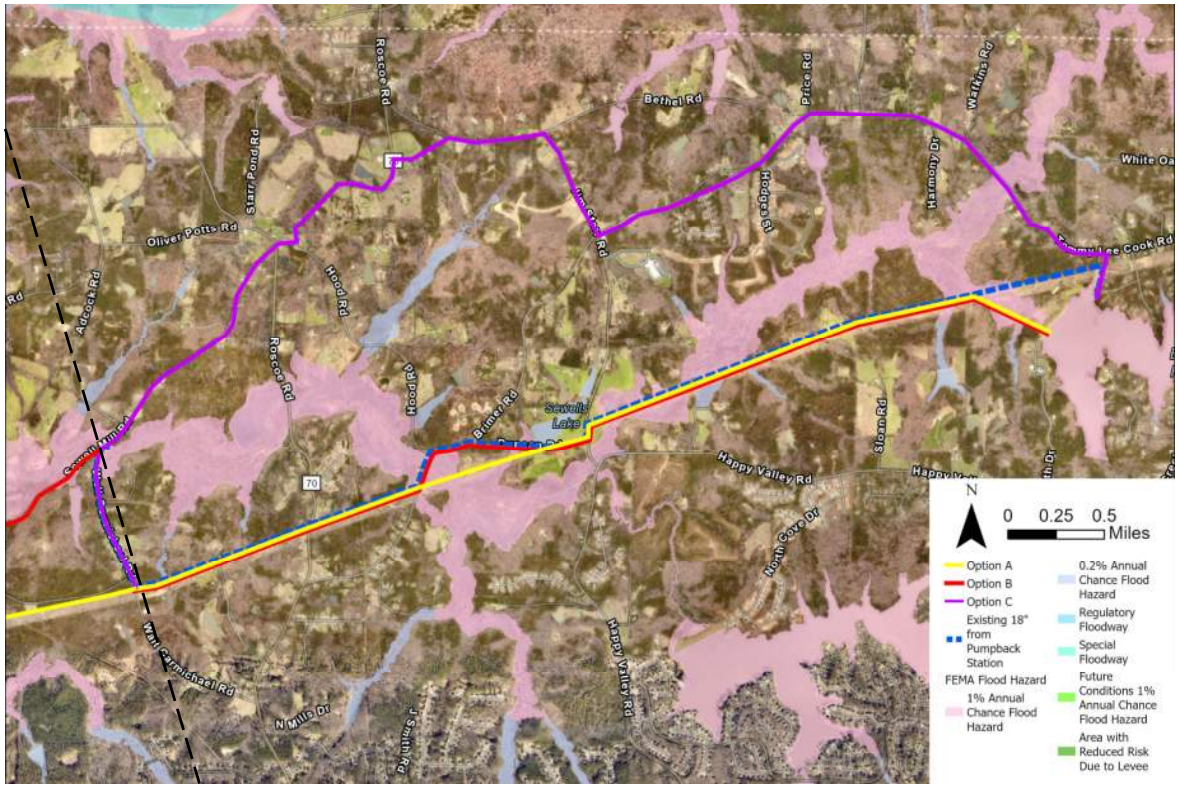
Section 3

- Option A follows Georgia Power right-of-way
- Option B parallels the existing 18” raw water line
- Option C follows road right-of-way



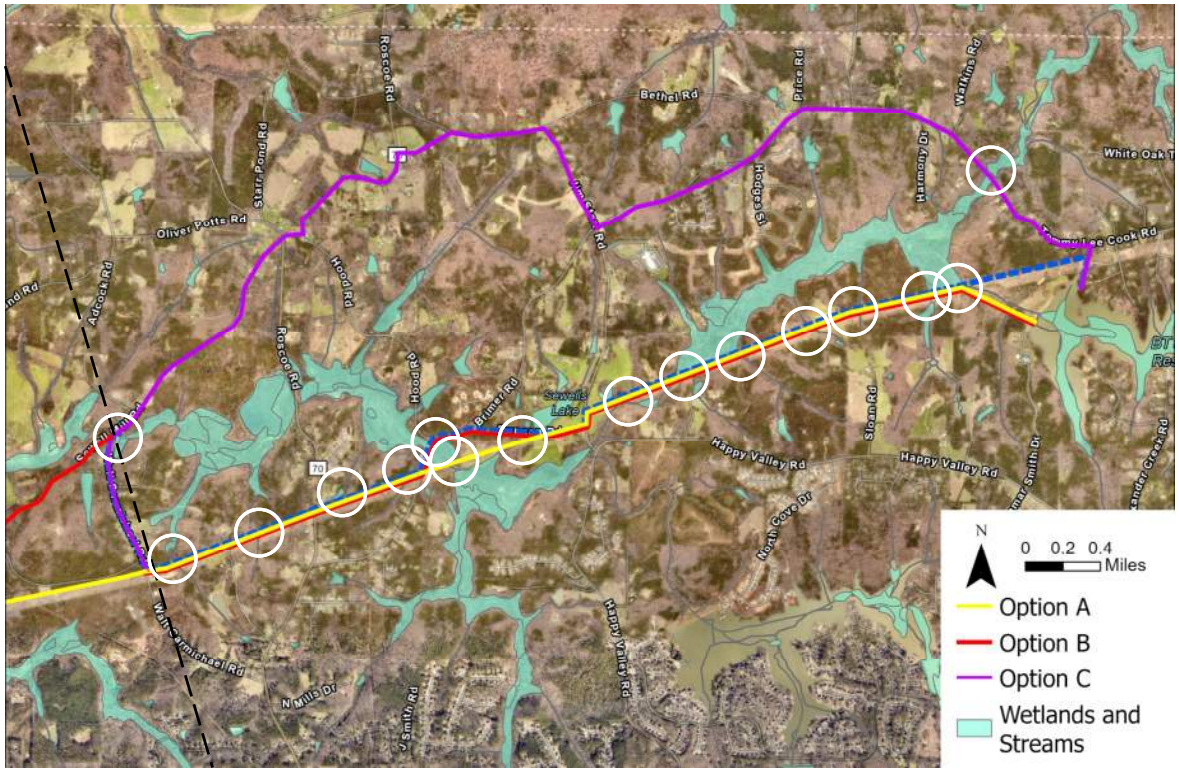
Section 3 Floodplains

- Options A and B cross more 100-year floodplain

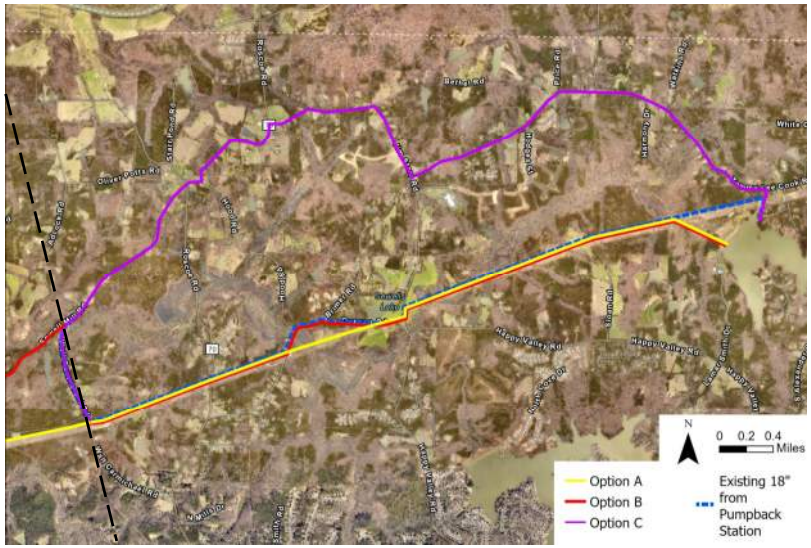


Section 3 Wetlands and Streams

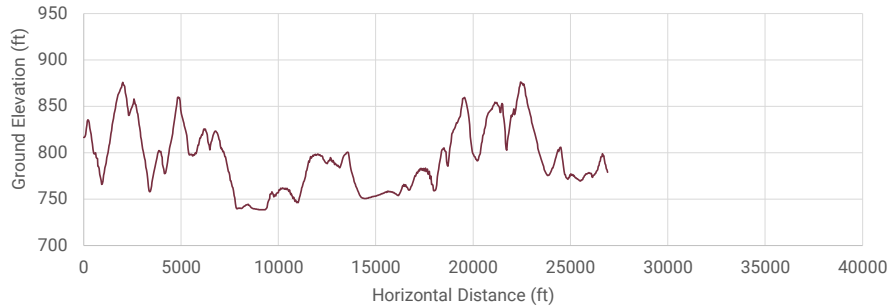
	Stream Crossings	Wetland Crossings
Option A	11	2
Option B	11	3
Option C	2	2



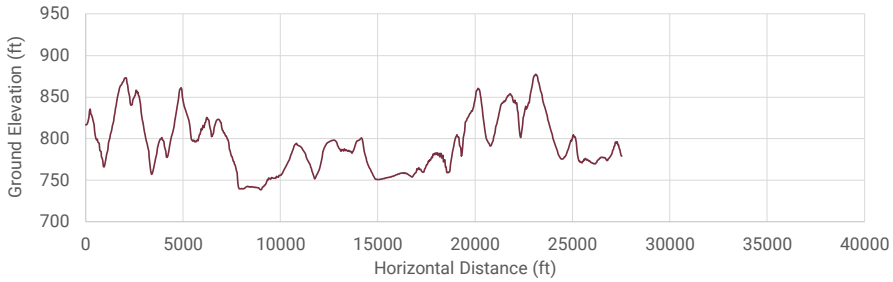
Section 3 Profiles



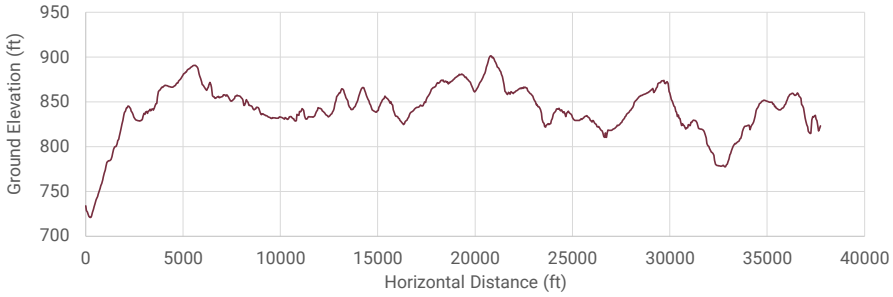
Option A



Option B



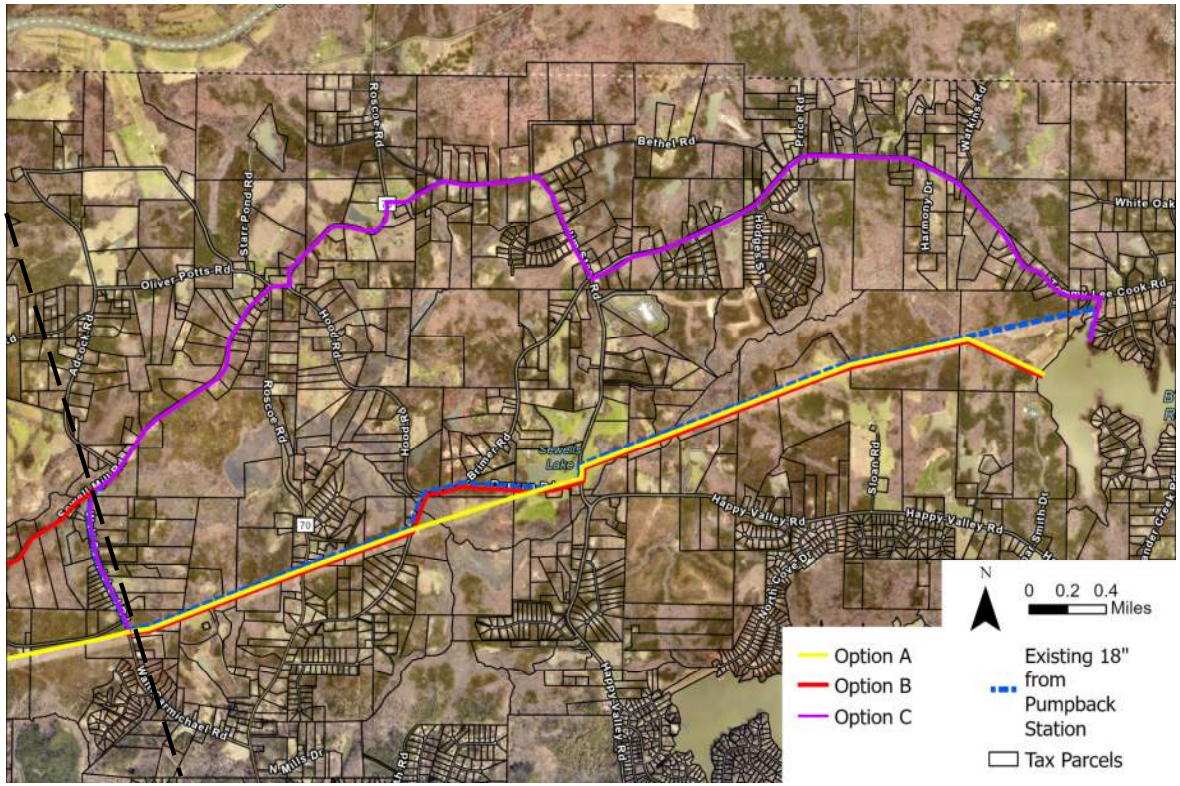
Option C



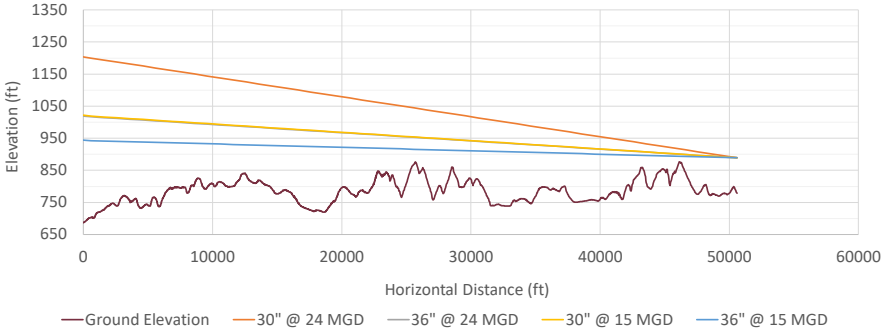
Section 3 Cost and Easements

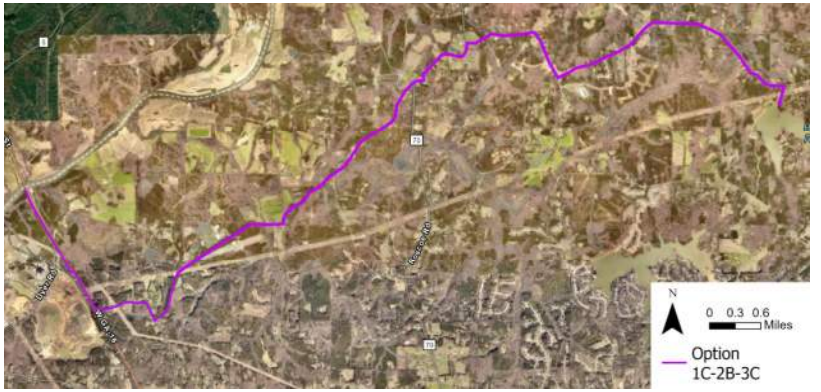
	Length (ft)	30" Cost Estimate*	36" Cost Estimate*	42" Cost Estimate*	Number of Easements
Option A	26,908	$12,915,840	$15,499,008	$18,082,176	23
Option B	27,525	$13,212,000	$15,854,400	$18,496,800	20
Option C	37,655	$18,074,400	$21,689,280	$25,304,160	84

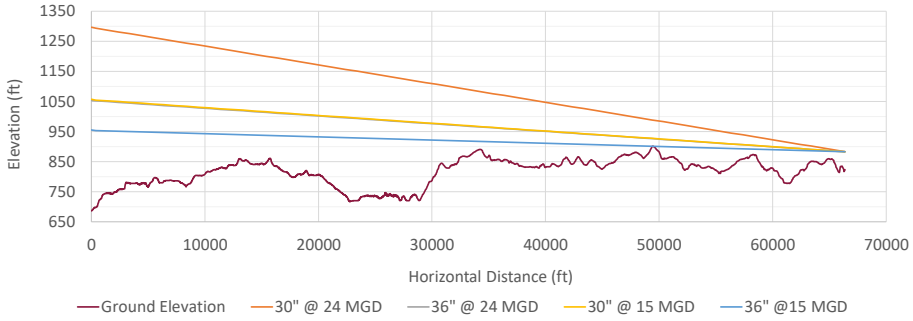
*Cost estimate developed with a $16.00/inch per linear foot factor
*Easement cost is not included in cost estimate



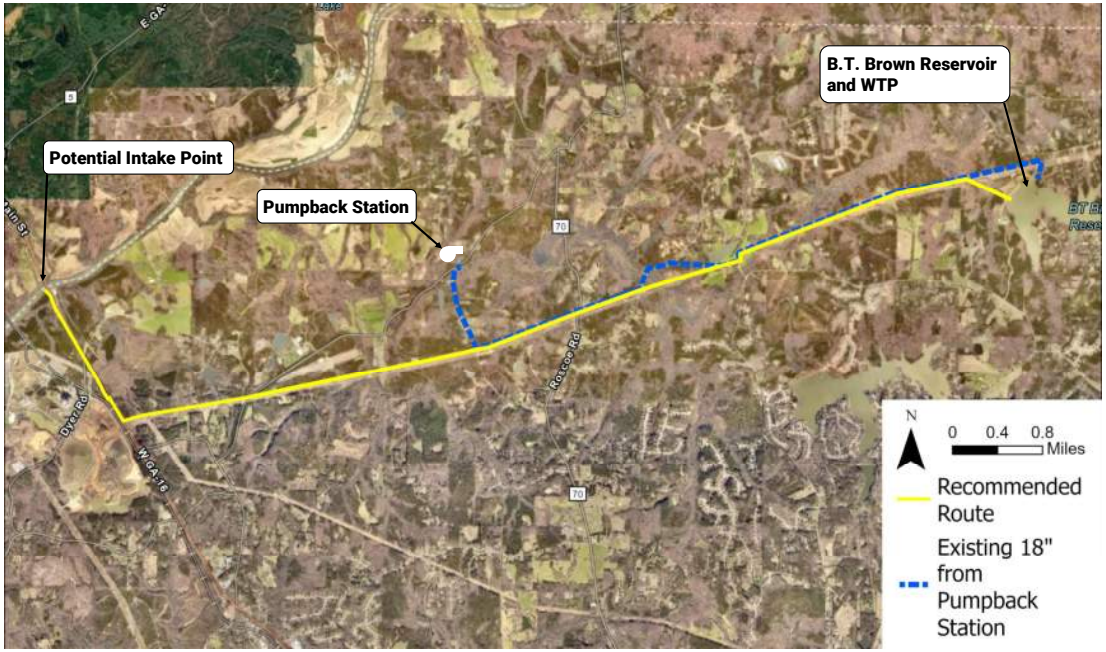
Route Hydraulic Profiles







Summary and Recommendations



Recommended Route Summary

Length (ft)	30" Cost Estimate*	36" Cost Estimate*	42" Cost Estimate*	Number of Easements	Stream Crossings	Wetland Crossings
51,502	$24,720,960	$29,665,152	$34,609,344	39	3	14

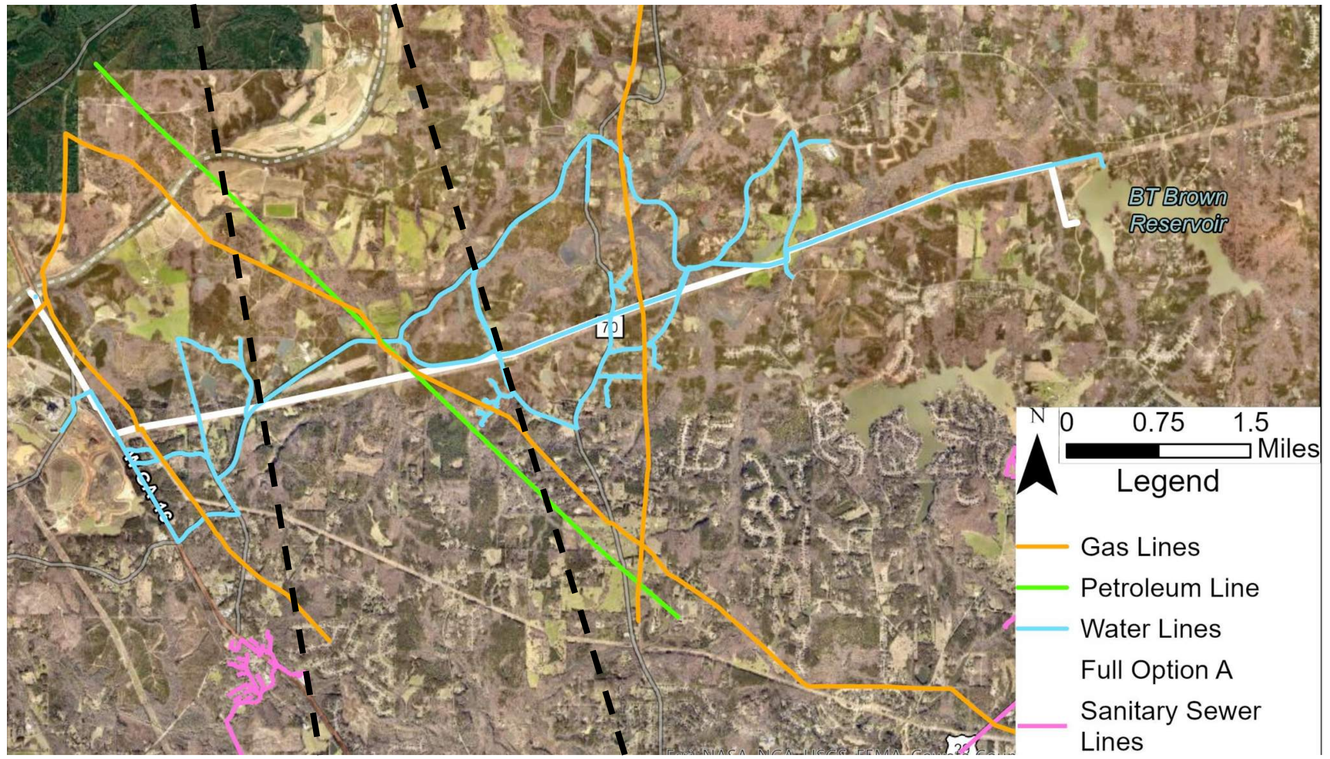
*Cost estimate developed with a $16.00/inch per linear foot factor
*Easement cost is not included in cost estimate

APPENDIX C

Route Study Update – August 16, 2022

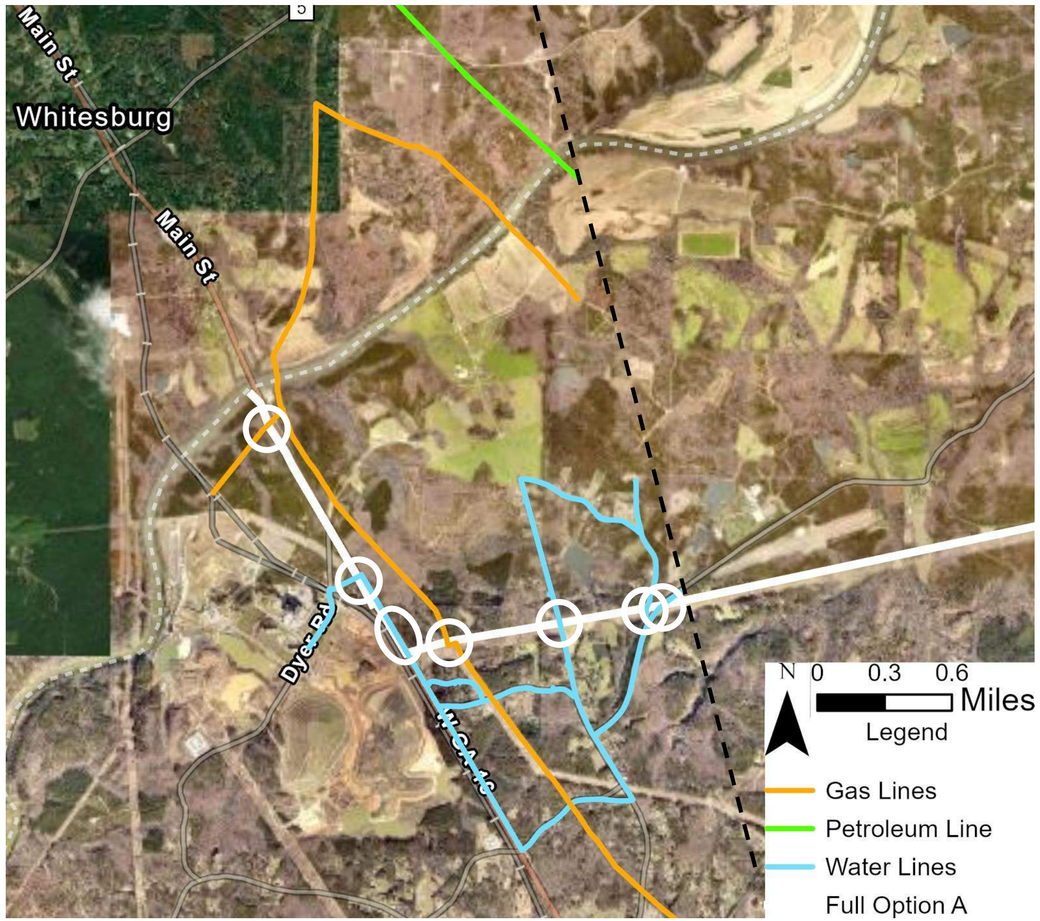
Utility Conflicts

- Gas Lines
- Water Lines
- Petroleum Line (Kinder Morgan)
- Fiber, Cable and DSL Internet



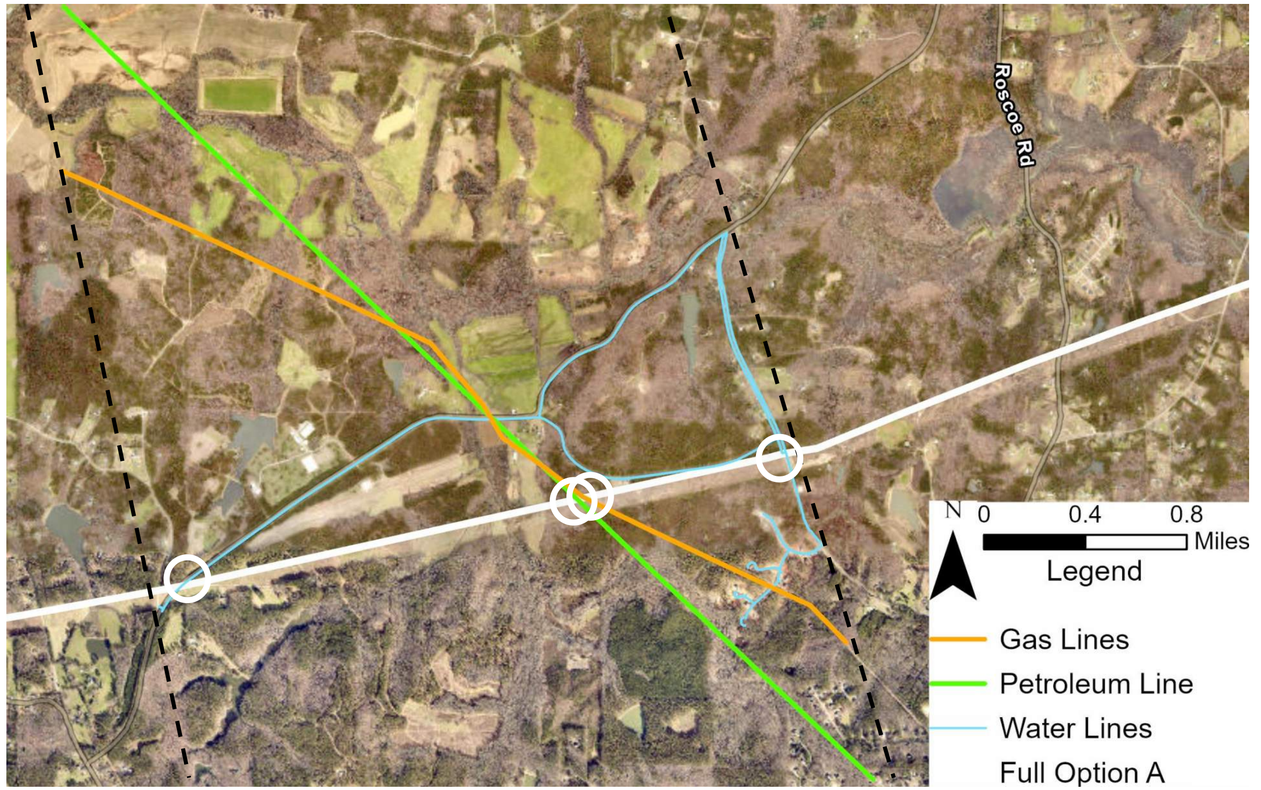
Section 1

- 4 Water Line Crossings
- Runs parallel to the water line along Route 16
- 2 Gas Line Crossings



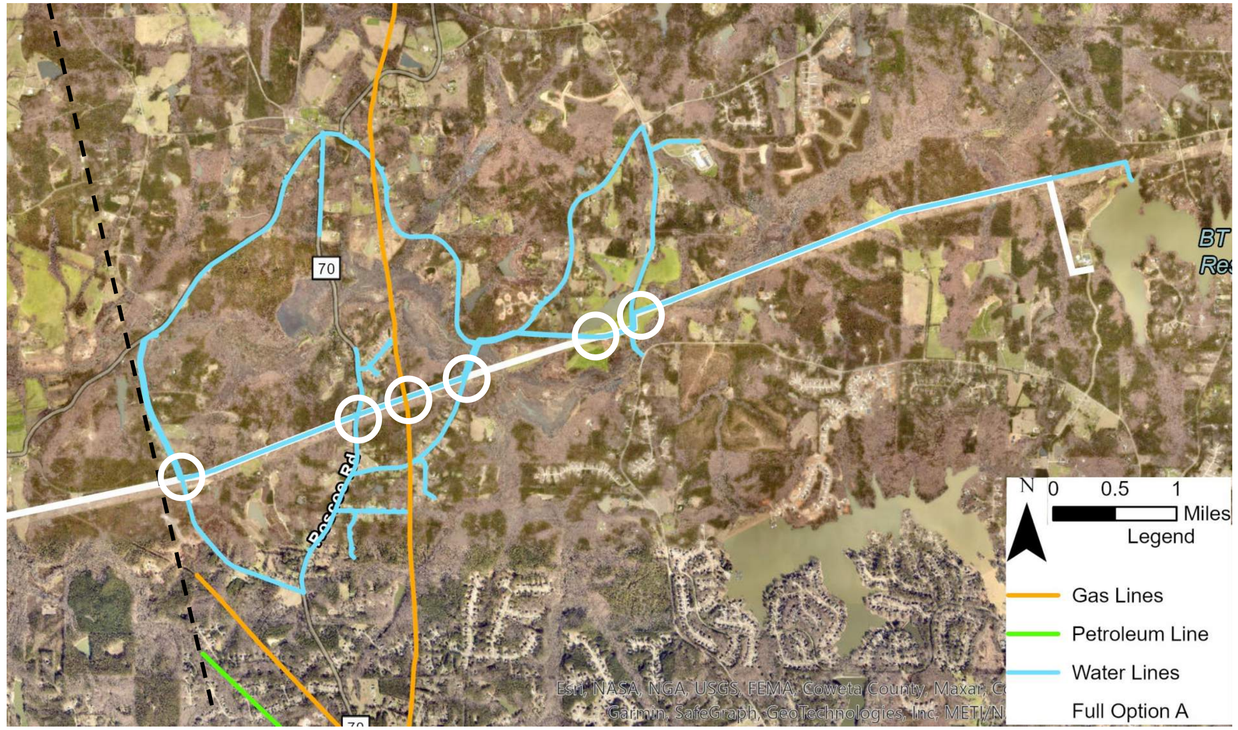
Section 2

- 2 Water Line crossings
  - Runs parallel to the water line
- 1 Gas Line crossing
- 1 Petroleum Line Crossing



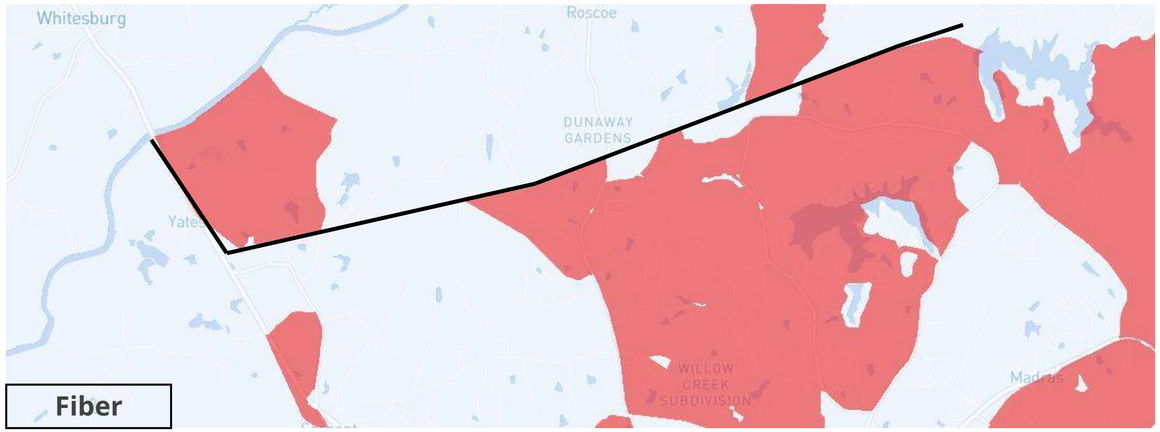
Section 3

- 5 Water Line Crossings
  - Runs parallel to the water line for most of the section
- 1 Gas Line Crossing



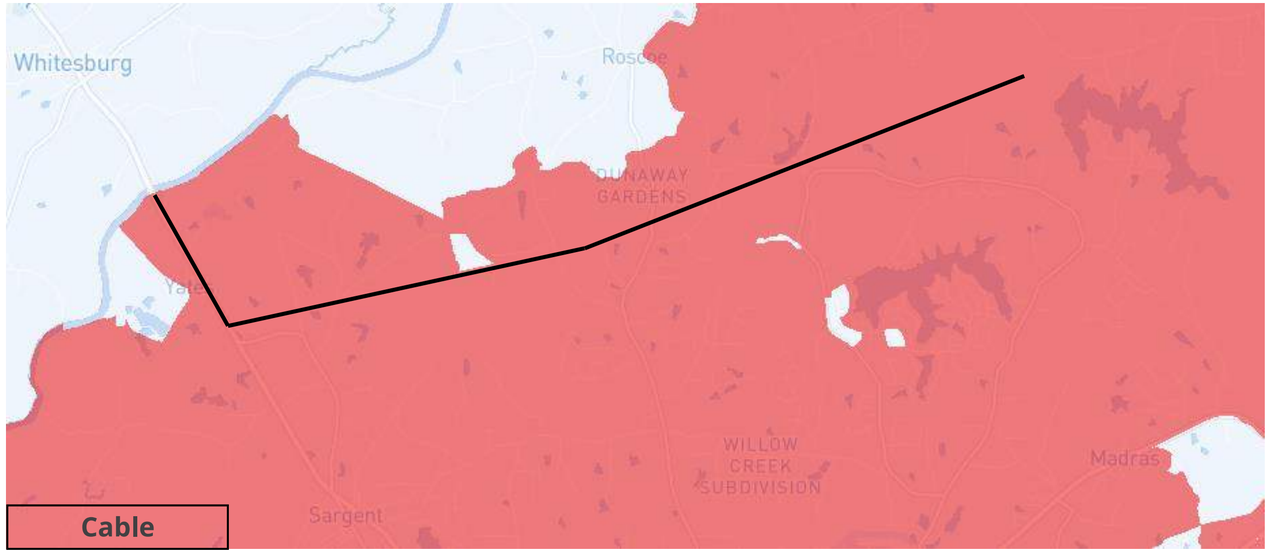
AT&T Coverage

IPBB Internet

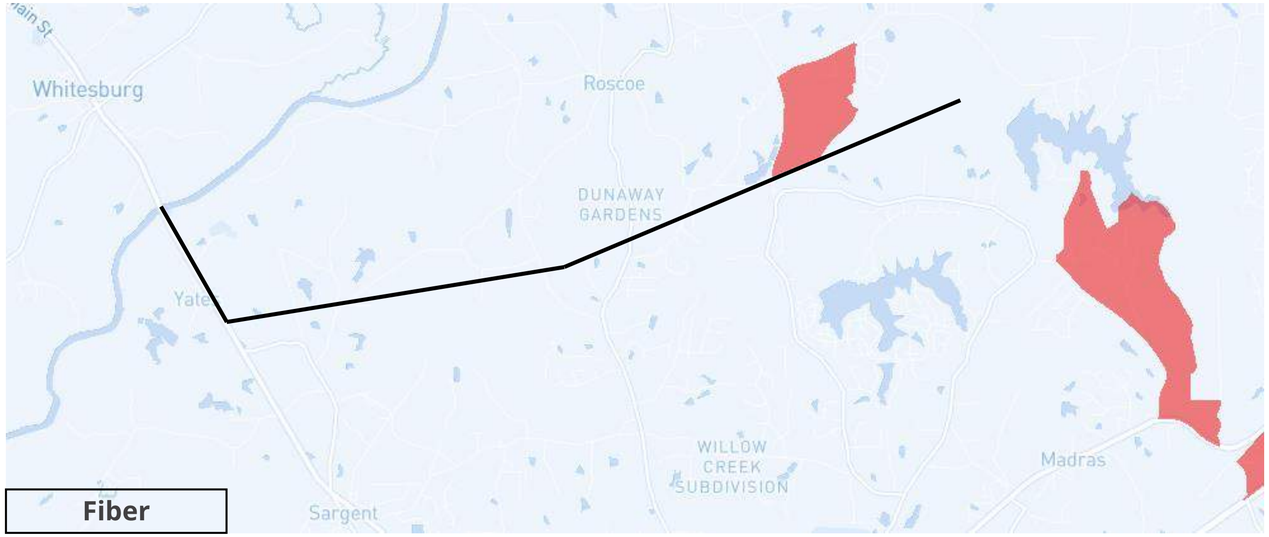


Fiber

Spectrum Coverage

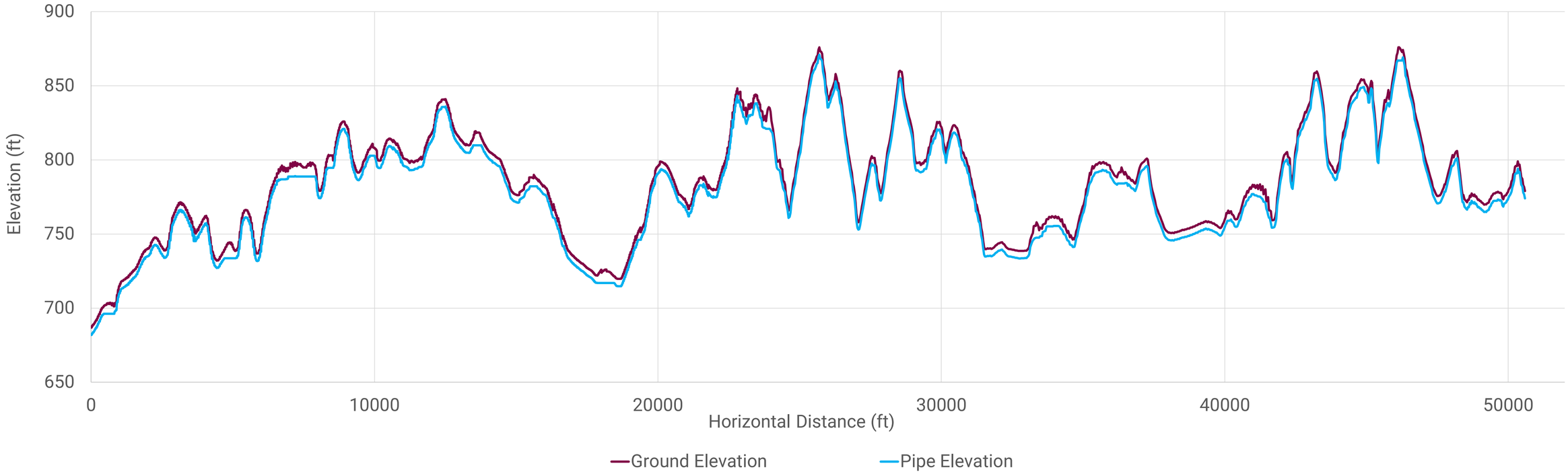


WOW! Coverage



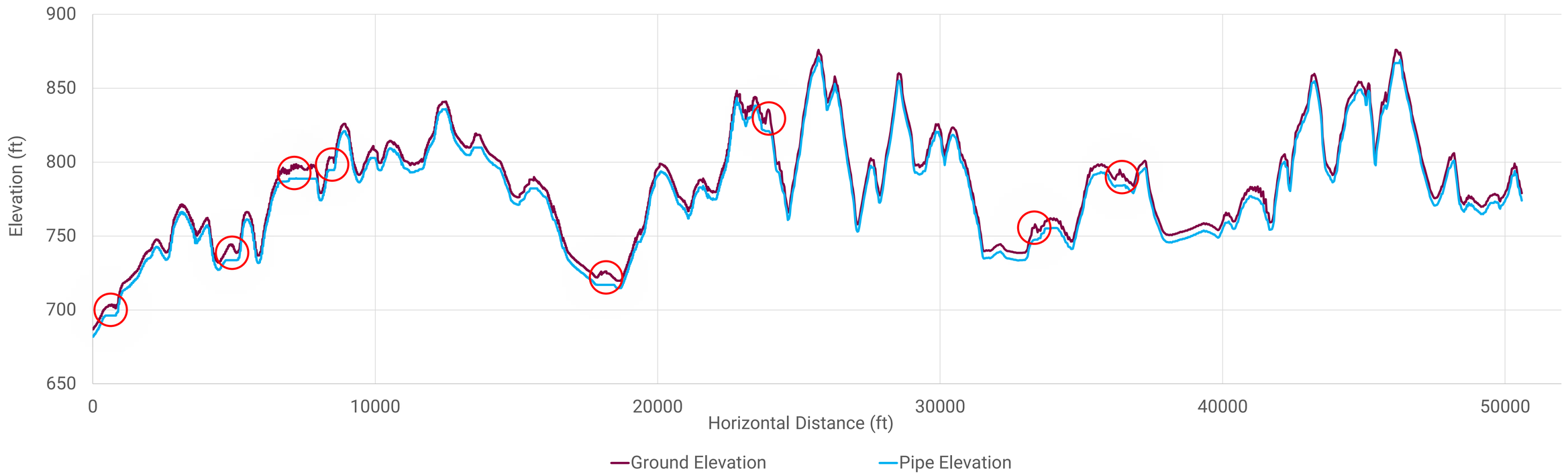
Pipe Profile

Depth of Cover	
Minimum (feet)	Maximum (feet)
5.0	14.5



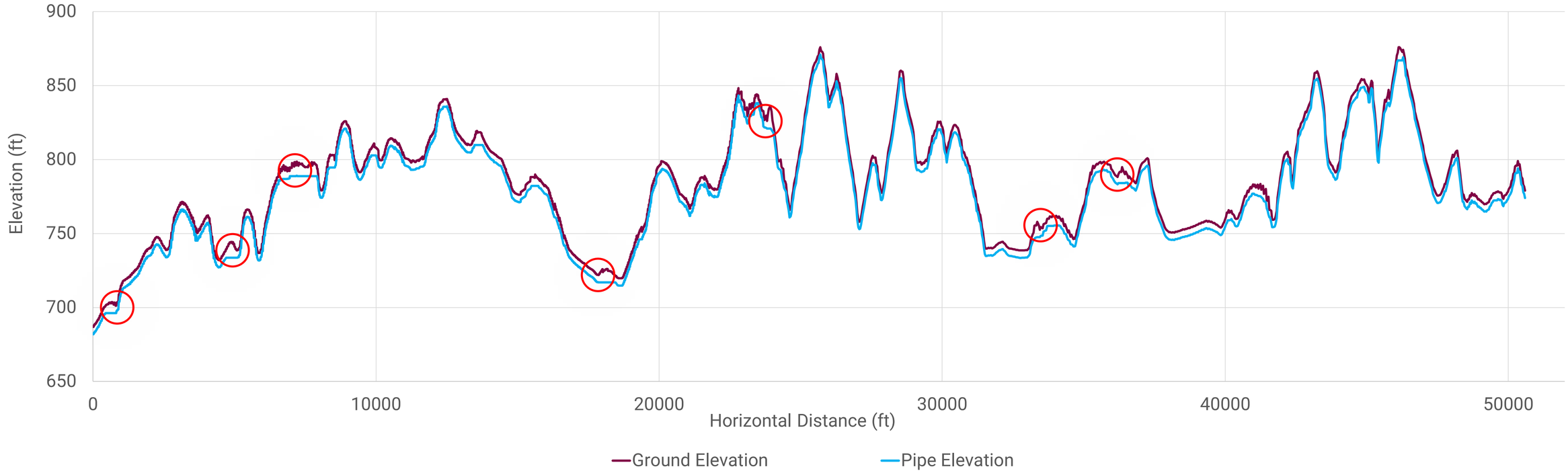
Air Release Valves Minimized

Air Release Valves Required	
Standard 5’ Cover	With Engineering Design
44	35

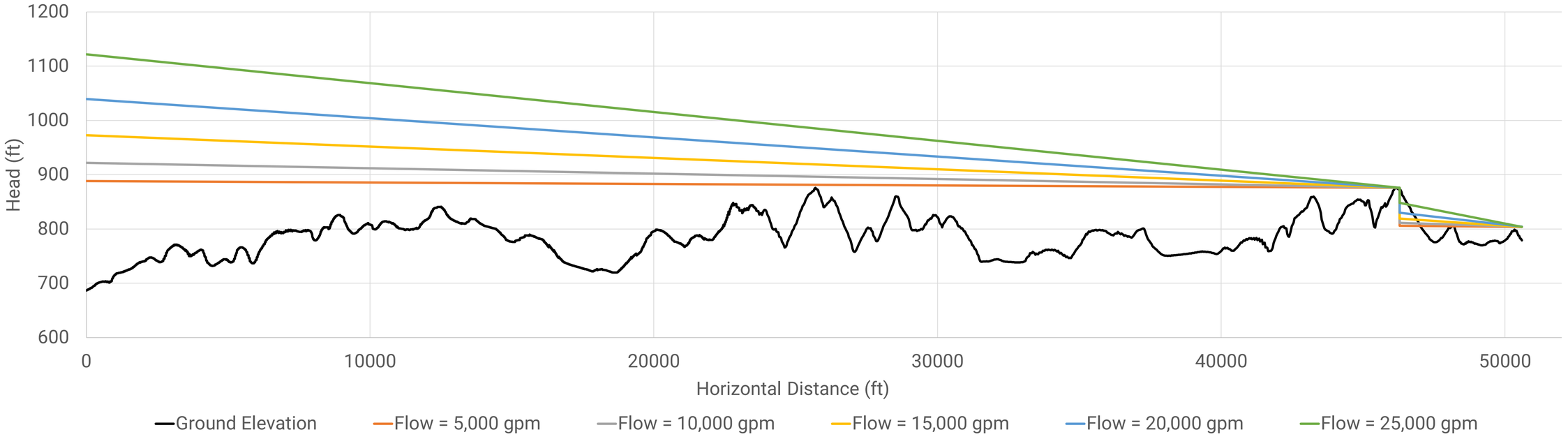


Blow Off Valves Minimized

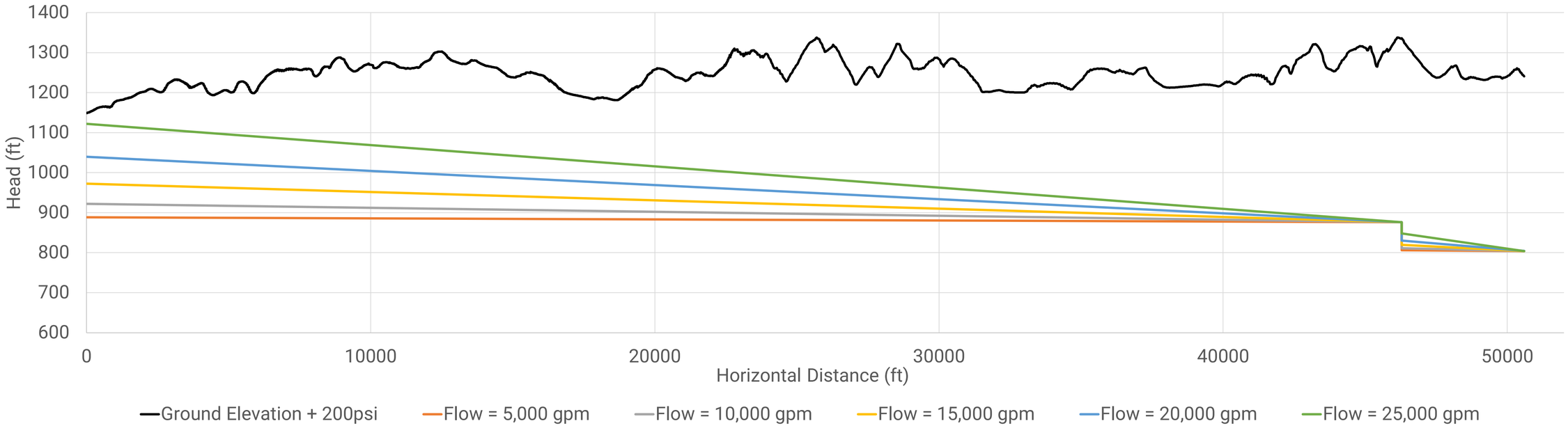
Blow Off Valves Required	
Standard 5’ Cover	With Engineering Design
31	24



36” Pipe Hydraulic Profiles



Maximum Pressure < 200 PSI



Next Steps

- Site walk of proposed route
  - Wednesday, August 16th

- Route study technical memo
  - Monday, September 12th

Appendix B

Opinion of Probable Construction Cost Itemized Breakdown

Chattahoochee Raw Water Pump Station

Coweta County Water and Sewerage Authority

22W38085

1. Lump Sum Work (Facilities or Areas)	$ Total
05 Pump Station and Intake	$18,406,000
Subtotal Estimated Lump Sum Work	$18,406,000

2. Line Items	$ Total
Subtotal for Line Items	$0

3. Cash Allowances for Products & Services		$ Total
Work Change Directives	3%	$553,000
Independent Testing Cash Allowance	1%	$185,000
Subtotal for Cash Allowance Items		$738,000

4. Project Escalation				$ Total
Escalation of Cost to Midpoint Construction	3	Years @	5.%	$3,018,000

5. Deductive Alternates				$ Total
Subtotal Estimated Deductive Alternatives				$0
Escalation of Cost to Midpoint Construction	3	Years @	5.%	$0

Complete Project	$19,144,000
Complete Project with Escalation	$22,162,000

Chattahoochee Raw Water Pump Station
Coweta County Water and Sewerage Authority
22W38085

Facility Number: 5
Facility Description: Pump Station and Intake

Description	Qty	Unit	Unit Cost	Labor	Total Cost
Division 1 - General Requirements					
Dewatering	1	LS	$ 50,000.00	$ 15,000.00	$ 65,000
Coffer Dam	1	LS	$ 50,000.00	$ 15,000.00	$ 65,000
Miscellaneous	5%				$ 6,500
		Subtotal Division 1			**$ 136,500**
Division 3 - Concrete					
Pump Station - Wet Well					
Base Slab	238	CY	$ 800.00	$ 240.00	$ 248,012
Wall	720	CY	$ 1,600.00	$ 480.00	$ 1,497,363
Pump Bay Dividing Walls	71	CY	$ 1,600.00	$ 480.00	$ 147,542
Elevated Slab	81	CY	$ 2,400.00	$ 720.00	$ 253,600
Pump Station - Pump Building					
Base Slab	113	CY	$ 800.00	$ 240.00	$ 117,789
Wall	19	CY	$ 1,600.00	$ 480.00	$ 39,985
					$ -
Pump Station - Electrical Building					
Base Slab	72	CY	$ 800.00	$ 240.00	$ 75,260
Wall	84	CY	$ 1,600.00	$ 480.00	$ 173,783
Intake Structure					$ -
Base Slab	21	CY	$ 800.00	$ 240.00	$ 22,017
Wall	80	CY	$ 1,600.00	$ 480.00	$ 165,640
Miscellaneous	5%				$ 137,050
		Subtotal Division 3			**$ 2,878,041**
Division 4 - Masonry					
CMU	4406	SF	$ 35.00	$ 10.50	$ 200,488
Brick Veneer	4406	SF	$ 40.00	$ 12.00	$ 229,129
Miscellaneous	5%				$ 21,481
		Subtotal Division 4			**$ 451,097**
Division 5 - Metals					
Grating (Intake Bar Screens)	403	SF	$ 50.00	$ 15.00	$ 26,183
Roof Joists	765	LF	$ 400.00	$ 120.00	$ 397,800
Miscellaneous	5%				$ 21,199
		Subtotal Division 5			**$ 445,182**
Division 6 - Wood & Plastics					
Miscellaneous	5%				$ -
		Subtotal Division 6			**$ -**
Division 7 - Thermal/Moisture Protection					
Membrane Roofing	3570	SF	$ 8.00	$ 2.40	$ 37,124
Insulation	3570	SF	$ 2.00	$ 0.60	$ 9,281
Miscellaneous	5%				$ 2,320
		Subtotal Division 7			**$ 48,726**
Division 8 - Openings					
Double Door	3	EA	$ 800.00	$ 240.00	$ 3,120
Single Door	1	EA	$ 500.00	$ 150.00	$ 650
14' x 14' Rollup Door	1	EA	$ 2,200.00	$ 660.00	$ 2,860
Aluminum hatch	1	EA	$ 3,000.00	$ 900.00	$ 3,900
Miscellaneous	5%				$ 527
		Subtotal Division 8			**$ 11,057**
Division 9 - Finishes					

Building Finishes	4406	SF	$	2.00			$	8,812
Pipe Coating	2%	of Pipe Cost			$	4,616.32	$	28,577
Miscellaneous	5%						$	1,869
		Subtotal Division 9					**$**	**39,258**
Division 10 - Specialties								
Building Allowance	3570	SF	$	200.00			$	713,928
Miscellaneous	5%						$	35,696
		Subtotal Division 10					**$**	**749,624**
Division 22 - Plumbing								
Building Plumbing Allowance	1	LS	$	30,000.00			$	30,000
Pump Seal Water Connection (8" PVC)	2500	LF	$	100.00	$	30.00	$	325,000
Miscellaneous	5%						$	17,750
		Subtotal Division 22					**$**	**372,750**
Division 23 - HVAC								
Building HVAC Allowance	1	LS	$	150,000.00			$	150,000
Miscellaneous	5%						$	7,500
		Subtotal Division 23					**$**	**157,500**
Division 26 - Electrical								
400 HP VFD	4	EA	$	100,000.00	$	30,000.00	$	520,000
Main 2500A Switchboard	1	EA	$	250,000.00	$	75,000.00	$	325,000
Motor Control Center	1	EA	$	20,000.00	$	6,000.00	$	26,000
Building Electrical (Lights, Recepts, Grounding, Etc.)	2500	SF	$	10.00	$	10.00	$	50,000
Pump 1 Conduit & Wire	50	LF	$	170.00	$	102.00	$	13,600
Pump 2 Conduit & Wire	50	LF	$	170.00	$	102.00	$	13,600
Pump 3 Conduit & Wire	50	LF	$	170.00	$	102.00	$	13,600
Pump 4 Conduit & Wire	50	LF	$	170.00	$	102.00	$	13,600
Misc. Conduit and Wire	1	LS	$	15,000.00	$	15,000.00	$	30,000
Service Conduit & Wire	75	LF	$	510.00	$	306.00	$	61,200
							$	-
Control Panel	1	EA	$	75,000.00	$	22,500.00	$	97,500
SCADA Integration	1	LS			$	100,000.00	$	100,000
Georgia Power Utility Service Allowance	1	LS	$	300,000.00			$	300,000
Miscellaneous	5%						$	78,205
		Subtotal Division 26					**$**	**1,642,305**
Division 31 - Earthwork								
Excavation	20000	CY	$	20.00	$	6.00	$	520,000
Shoring	6000	SF	$	80.00	$	24.00	$	624,000
Backfill	17500	CY	$	30.00	$	9.00	$	682,500
Granular Fill	1000	CY	$	60.00	$	18.00	$	78,000
Miscellaneous	5%						$	95,225
		Subtotal Division 31					**$**	**1,999,725**
Division 32 - Exterior Improvements								
Gravel Drive	15323	SF	$	1.80	$	0.54	$	35,856
Fencing	503	LF	$	15.00	$	4.50	$	9,802
25.5' Fence Gates	2	EA	$	1,500.00	$	450.00	$	3,900
Miscellaneous	5%						$	2,478
		Subtotal Division 32					**$**	**52,036**
Division 40 - Process Integration								
Yard Piping								
36" DIP Connection to Transmission Main	34	LF	$	379.64	$	113.89	$	16,928
30" Intake Pipe (DIP)	550	LF	$	290.00	$	87.00	$	207,350
Station Piping								
14" Pipe (DIP)	45	LF	$	1,215.00	$	364.50	$	70,888
14" Check Valve	4	EA	$	4,000.00	$	1,200.00	$	20,800
14" Pump Control Valve	4	EA	$	7,000.00	$	2,100.00	$	36,400
14" Gate Valve	4	EA	$	3,000.00	$	900.00	$	15,600
36" X 20" Tee	4	EA	$	10,000.00	$	3,000.00	$	52,000

14" x 20" Reducer	4	EA	$	3,500.00	$	1,050.00	$ 18,200
Air Release Valve	4	EA	$	325.00	$	97.50	$ 1,690
Air Pipe	4	EA	$	150.00	$	45.00	$ 780
Intake Stop Logs	1	EA	$	93,000.00	$	9,300.00	$ 102,300
30" x 30" x 35" Slide Gates	2	EA	$	11,000.00	$	3,300.00	$ 28,600
Miscellaneous	5%						$ 28,577
		Subtotal Division 40					**$ 600,113**
Division 43 - Process Gas & Liquid Handling							
VT Pumps	4	EA	$	300,000.00	$	90,000.00	$ 1,560,000
							$ -
							$ -
							$ -
Miscellaneous	5%						$ 78,000
		Subtotal Division 43					**$ 1,638,000**
Division 46 - Water and Wastewater Equipment							
Intake Screens	2	EA	$	101,000.00	$	30,300.00	$ 262,600
Air Burst System	1	EA	$	105,000.00	$	31,500.00	$ 136,500
Field Service	1	EA	$	-	$	6,000.00	$ 6,000
							$ -
Miscellaneous	5%						$ 20,255
		Subtotal Division 46					**$ 425,355**
Subtotal This Facility							**$ 11,648,000**
Contingency						**30%**	**$ 3,495,000**
Mobilization						**3%**	**$ 455,000**
Contractor's Overhead and Profit						**18%**	**$ 2,808,000**
Total Estimated Facility Costs							**$ 18,406,000**

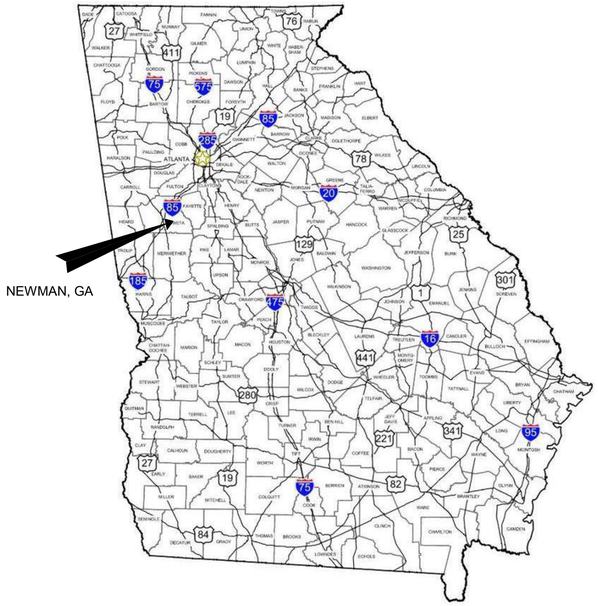
Appendix C

10% Design Drawing Set

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

COWETA COUNTY WATER & SEWERAGE AUTHORITY

10% DESIGN - NOT FOR CONSTRUCTION



AREA MAP
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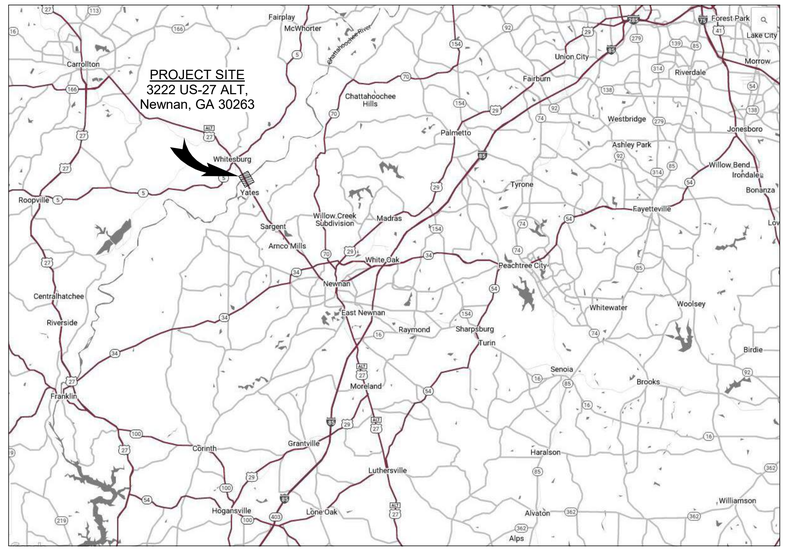

VICINITY MAP
NO SCALE

GARVER PROJECT NO. 22W38085

SEPTEMBER 2022

GARVER

200 Galleria Drive SE; Suite 520,
Atlanta GA 30339
Phone: 678-264-8904

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

COVER SHEET

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G001

SHEET NUMBER **01**

Revit File: BIM 360://22W38095 - Coweta County Water MP/Coweta_General.rvt
Plot Date: 9/12/2022 2:59:21 PM

01 - GENERAL		
SHEET NO.	DWG. NO.	DESCRIPTION
01	01-G001	COVER SHEET
02	01-G002	INDEX OF DRAWINGS
03	01-G003	GENERAL CONVENTIONS AND ABBREVIATIONS
04	01-G004	CIVIL NOTES AND LEGEND 1
05	01-G005	CIVIL NOTES AND LEGEND 2
06	01-G006	PROCESS & INSTRUMENTATION DIAGRAM NOTES, LEGENDS, AND ABBREVIATIONS
07	01-G007	STRUCTURAL NOTES, LEGENDS, AND ABBREVIATIONS
08	01-G009	PROCESS MECHANICAL NOTES, LEGENDS, AND ABBREVIATIONS
09	01-G010	BUILDING MECHANICAL NOTES, LEGENDS, AND ABBREVIATIONS
10	01-G011	ELECTRICAL NOTES, LEGENDS, AND ABBREVIATIONS

05 - SITE CIVIL		
SHEET NO.	DWG. NO.	DESCRIPTION
11	05-C100	EXISTING SITE PLAN - OVERVIEW
12	05-C101	PROPOSED SITE PLAN - OVERVIEW
13	05-C300	PROPOSED SITE PLAN - ENLARGED

08 - PROCESS AND INSTRUMENTATION DIAGRAMS		
SHEET NO.	DWG. NO.	DESCRIPTION
14	08-I101	INTAKE SCREENS P&ID
15	08-I102	PUMP STATION P&ID

10 - CHATTAHOOCHEE RAW WATER PUMP STATION		
SHEET NO.	DWG. NO.	DESCRIPTION
16	10-S101	INTAKE PUMP STATION OVERALL PLAN
17	10-S201	INTAKE PUMP STATION BUILDING ELEVATIONS 1
18	10-S202	INTAKE PUMP STATION BUILDING ELEVATIONS 2
19	10-P101	INTAKE PUMP STATION OVERALL PLAN - 30 MGD
20	10-P102	INTAKE PUMP STATION OVERALL PLAN - 21 MGD
21	10-P103	WETWELL PLAN
22	10-P104	INTAKE PUMP STATION PUMP ROOM PLAN
23	10-P105	INTAKE PUMP STATION SURGE TANK PLAN
24	10-P106	INTAKE SCREENING PLAN
25	10-P301	INTAKE PUMP STATION SECTIONS 1
26	10-P302	INTAKE PUMP STATION SECTIONS 2
27	10-P304	INTAKE SCREENING SECTIONS AND DETAILS 1
28	10-P305	INTAKE SCREENING SECTIONS AND DETAILS 2
29	10-P901	INTAKE PUMP STATION ISOMETRIC 1
30	10-P902	INTAKE PUMP STATION ISOMETRIC 2
31	10-P903	INTAKE SCREENING ISOMETRIC
32	10-E501	ONELINE DIAGRAM - 21 MGD

DRAWING NUMBER EXAMPLE	DRAWING NUMBER LEGEND				
70-M201 FACILITY AREA CODE PREDOMINATE VIEW OR ELEMENT DISCIPLINE	G – GENERAL C – CIVIL I – INSTRUMENTATION & CONTROL X – DEMOLITION F – FIRE & LIFE SAFETY	A – ARCHITECTURAL S – STRUCTURAL P – PROCESS MECHANICAL M – BUILDING MECHANICAL E – ELECTRICAL T – TELECOMMUNICATIONS	CIVIL DISCIPLINE 100 – SITE PLANS 200 – GRADING & PAVING 300 – PIPING & PROFILES	OTHER DISCIPLINES 100 – PLAN VIEWS 200 – ELEVATIONS 300 – SECTIONS	ALL DISCIPLINES 400 – LARGE SCALE VIEWS 500 – DETAILS 600 – DIAGRAM OR SCHED 900 – ISOMETRICS

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INDEX OF DRAWINGS

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

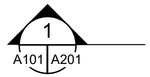
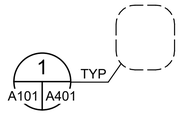
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
01-G002

SHEET NUMBER **02**

Revit File: BIM 360://22W38095 - Coweta County Water MP/Coweta_General.rvt
Plot Date: 9/12/2022 2:58:44 PM

GENERAL CONVENTIONS

SYMBOL	DESCRIPTION
	TITLE DENOTES A PLAN VIEW LAYOUT (THIS EXAMPLE IS PLAN VIEW No. 1 ON SHEET A101)
	TITLE DENOTES AN ELEVATION, SECTION, OR DETAIL VIEW LAYOUT (THIS EXAMPLE IS DETAIL 1 ON SHEET A201 WHICH HAS A BACK REFERENCE ON SHEET A101)
	CALLOUT DENOTES A CUT SECTION TYPICAL REFERENCE (THIS EXAMPLE OCCURS ON SHEET A101 REFERENCING SECTION No. 1 ON SHEET A201)
	CALLOUT DENOTES AN ELEVATION REFERENCE (THIS EXAMPLE OCCURS ON SHEET A101 REFERENCING ELEVATION No. 1 ON SHEET A201)
	CALLOUT DENOTES AN ENLARGED AREA TYPICAL REFERENCE (THIS EXAMPLE OCCURS ON SHEET A101 REFERENCING DETAIL No. 1 ON SHEET A401)
	CALLOUT DENOTES A STANDARD DETAIL REFERENCE
	CALLOUT DENOTES A KEYED NOTE REFERENCE
	CLOUDED REGION INDICATES A REVISED AREA
	SYMBOL INDICATES A ROOM / AREA DESIGNATION WITH ROOM NUMBER AND SQUARE FOOTAGE
	SYMBOL INDICATES A STRUCTURAL GRIDLINE OR DATUM
	SYMBOL INDICATES A DATUM IN A SECTION OR ELEVATION

ABBREVIATIONS

ABBREV	DESCRIPTION
ABV	ABOVE
AFF	ABOV FINISH FLOOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AUX	AUXILIARY
AWWA	AMERICAN WATER WORKS ASSOCIATION
BKR	BREAKER
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CL	CENTERLINE
CMU	CONCRETE MASONRY UNIT
COGEN	COMBINED HEAT AND POWER GENERATION
COL	COLUMN
CONT	CONTINUOUS
DIA	DIAMETER
EA	EXHAUST AIR, EXPANSION ANCHOR, EACH
EL, ELEV	ELEVATION
ELEC	ELECTRICAL
ENCL	ENCLOSURE
FA	FIRE ALARM
FFE	FINISHED FLOOR ELEVATION
FL	FLOW LINE
FLR	FLOOR
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET, FOOT
GA	GAUGE, GAGE
GALV	GALVANIZED
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRND	GROUND
H, HT	HEIGHT
HOA	HAND-OFF-AUTOMATIC
HORIZ	HORIZONTAL
HP	HORSEPOWER, HEAT PUMP
HYD	HYDRANT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
kVA	KILOVOLT-AMPERES
kW	KILOWATTS
LBS, #	POUNDS
LF	LINEAR FEET
MAX	MAXIMUM
N/A	NOT AVAILABLE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED
OH	OVERHEAD
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
PD	PROCESS DRAIN
PIV	POST INDICATOR VALVE
PNL	PANEL
PRV	PRESSURE RELIEVE VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH

ABBREVIATIONS

ABBREV	DESCRIPTION
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
RE:	REFERENCE, REFER
REINF	REINFORCEMENT
REQD	REQUIRED
RM	ROOM
SEC	SECTION
SF	SQUAURE FEET
SHT	SHEET
SPEC	SPECIFICATIONS
SQ	SQUARE
STA	STATION
STD	STANDARD
SURF	SURFACE
SUSP	SUSPEND, SUSPENDED
T&B	TOP AND BOTTOM
THRU	THROUGH
TYP	TYPICAL
U/F	UNDER FLOOR
U/G	UNDER GROUND
U/S	UNDER SLAB
UL	UNDERWRITERS LABORATORIES, INC.
UNO	UNLESS NOTED OTHERWISE
V	VOLT, VALVE
VA	VOLT-AMPERE
VERT	VERTICAL
W	WATT, WIRE, WIDTH, WINDOW, WATER
W/	WITH
W/O	WITHOUT
WS	WATERSTOP
WT	WATERTIGHT, WEIGHT
XMFR	TRANSFORMER

REGISTRATION NO.
PEF007804

10% DESIGN - NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

GENERAL CONVENTIONS AND ABBREVIATIONS

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G003

SHEET NUMBER **03**

Revit File: BIM 360://22W38095 - Coweta County Water MP/Coweta_General.rvt
Plot Date: 9/12/2022 2:58:44 PM

GENERAL CIVIL NOTES

1. SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR SAFETY, MEANS, OR METHODS OF THE CONTRACTOR.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL APPROPRIATE AGENCIES BEFORE WORK COMMENCES TO VERIFY THE TYPE, LOCATION, PROTECTION REQUIREMENTS, DEPTH OF ALL EXISTING UTILITIES, DRAINAGE FACILITIES, AND OTHER OBSTRUCTIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REPAIRING AND/OR REPLACING ANY SUCH ITEMS DAMAGED DURING CONSTRUCTION.
3. CAUTION: UNDERGROUND UTILITIES SHOWN ARE TAKEN FROM EXISTING RECORDS AND ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL CONTACT ALL UTILITY OWNERS AND CONFIRM LOCATIONS OF UTILITIES AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL ACCURATELY LOCATE AND UNCOVER ALL EXISTING UTILITIES BEFORE BEGINNING CONSTRUCTION. ANY DAMAGE RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. WHERE CROSSING OF EXISTING UTILITIES OCCUR, PROVIDE 12" MINIMUM CLEARANCE EXCEPT WATER MAINS SHALL BE 24". CROSS UNDER ALL WATER MAINS WHERE NOT POSSIBLE TO PROVIDE 18" CLEARANCE.
4. SEWER AND WATER SERVICE SHALL BE MAINTAINED DURING ENTIRE CONSTRUCTION PERIOD OR TEMPORARY FACILITIES PROVIDED.
5. CONTRACTOR IS RESPONSIBLE FOR ALL DEWATERING ACTIVITIES AND ASSOCIATED PERMITS REQUIRED FOR ALL EXCAVATIONS REQUIRED TO COMPLETE THE PROJECT.
6. APPROXIMATE LOCATIONS OF OVERHEAD POWER LINES MAY OR MAY NOT BE SHOWN ON PLANS. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR VERIFYING ALL LOCATIONS IN THE FIELD AND PLAN WORK IN THESE AREAS ACCORDINGLY.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE DRAINAGE AND COMPLIANCE WITH ALL GOVERNMENTAL STORM WATER REGULATIONS AND PERMITS (SWPPP) AS REQUIRED. CONTRACTOR SHALL OBTAIN NOI FROM APPROPRIATE STATE BODY PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY PERMITS REQUIRED FOR WORK WITHIN STREAMS.
8. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE TRAFFIC CONTROL AND SIGNAGE FOR THE DURATION OF PROJECT AS REQUIRED BY THE NATIONAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES - PART VI, AND/OR ALL OTHER APPLICABLE GUIDELINES OF GDOT, COUNTY, CITY OR ANY OTHER AUTHORITIES HAVING JURISDICTION OVER THE PROJECT AREAS. ALL ROAD CLOSURE MUST BE APPROVED BY THE CITY OF NEWMAN TRAFFIC ENGINEER PRIOR TO ANY PUBLIC ROAD CLOSURES.
9. CONTRACTOR SHALL MAINTAIN TRAFFIC FLOW TO RESIDENCES AND BUSINESSES WITH MINIMUM DISRUPTION OF ACCESS.
10. ALL STREETS AND DRIVEWAYS SHALL BE OPEN CUT UNLESS NOTED OTHERWISE.
11. ALL EXCAVATION OR BACKFILL OUTSIDE TRAFFIC WAYS SHALL BE COMPACTED TO MIN 95% STANDARD PROCTOR DENSITY TO PREVENT SETTLEMENT.

PAVING AND GRADING NOTES

1. ALL PAVING MATERIALS AND CONSTRUCTION SHALL MEET THE GDOT STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED.
2. ANY PAVEMENT DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION AT THE CONTRACTORS EXPENSE.
3. ANY DISTURBED AREAS NOT SPECIFICALLY DESIGNATED TO BE GRADED SHALL BE RESTORED TO EQUAL OR BETTER CONDITION AND SHALL BE GRADED TO DRAIN AS APPROVED BY THE ENGINEER.
4. FINAL PAVEMENT SURFACES SHALL NOT BE PLACED UNTIL ALL MAJOR CONSTRUCTION ACTIVES HAVE CONCLUDED.
5. ANY CHANGES TO FINAL GRADE ELEVATIONS AS SHOWN ON THE PLANS SHALL BE APPROVED BY THE ENGINEER.
6. ALL ASPHALT AND CONCRETE PAVING REMOVED AND REPLACED SHALL BE NEAT SAW CUT.
7. ALL OPEN CUT TRAFFIC WAYS (ROADS, PARKING LOTS, DRIVES, ETC.) AND ALL AREAS LYING WITHIN PRISM OF TRAFFIC WAYS, SHALL HAVE CRUSHED STONE BACKFILL COMPACTED WITH VIBRATORY COMPACTOR MAXIMUM 6" LIFTS AND COMPACTED TO MINIMUM 100%-98% MODIFIED PROCTOR DENSITY TO PREVENT SETTLEMENT FOR ITS ENTIRE TRENCH HEIGHT AND WIDTH. COMPACTED "PUG-MIX" SHALL BE USED AND MAINTAINED IN TOP 12" OF TRENCH HEIGHT AS REQUIRED TO PREVENT AGGREGATE LOSS DUE TO TRAFFIC.

YARD PIPING NOTES

1. MINIMUM COVER OVER PIPING SHALL BE 3'-0", MEASURED FROM FINISHED GRADE.
2. PROVIDE MINIMUM PIPE COVER, AS SPECIFIED. IN GENERAL LAY PIPE TO UNIFORM GRADES BETWEEN THE ELEVATIONS SHOWN, UNLESS OTHERWISE APPROVED. IN SOME CASES, EXISTING CONDITIONS PROHIBIT UNIFORM GRADES BETWEEN THE ELEVATIONS SHOWN, AND FIELD ADJUSTMENTS TO UNIFORM GRADES ARE REQUIRED AS APPROVED BY ENGINEER.
3. SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE AS SPECIFIED FOR ADJACENT STRAIGHT RUN OF PIPE.
4. ALL JOINTS SHALL BE WATERTIGHT.
5. THRUST AT FITTINGS SHALL BE RESISTED BY RESTRAINED JOINTS AS SPECIFIED AND AS REQUIRED TO RESIST THRUST, UNLESS OTHERWISE APPROVED BY ENGINEER. SEE THRUST RESTRAINT DETAILS (D40 / 2339-012).
6. CONTRACTOR SHALL LOCATE AND UNCOVER ALL CONNECTIONS TO EXISTING LINES, AND ANY POSSIBLE CONFLICTS WITH PROPOSED FACILITIES AND VERIFY LOCATION, ELEVATION, PIPE MATERIAL, AND PIPE O.D. PRIOR TO ANY CONSTRUCTION.
7. CONTRACTOR SHALL MAINTAIN AND PROTECT ALL EXISTING BURIED PIPING AND UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGED UNDERGROUND FACILITIES.
8. ALL SMALL DIAMETER PIPING SHALL BE INSTALLED AS SHOWN ON DRAWINGS WITH ALL FITTINGS AND VALVES AS REQUIRED TO PROVIDE A FUNCTIONAL PIPELINE AS SPECIFIED.
9. ALL BURIED VALVES SHALL BE INSTALLED WITH VALVE BOX AS SPECIFIED.
10. ALL PIPELINE SHUTDOWNS SHALL BE COORDINATED WITH THE OPERATORS. A WRITTEN WORK PLAN SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER AND CITY 24 HOURS PRIOR TO ANY SHUTDOWNS.
11. ROCK SHALL BE UNDERCUT A MINIMUM OF 4" AND PIPE BEDDED IN STONE. NO SEPARATE PAY ITEM EXISTS FOR ROCK EXCAVATION. ALL EXCAVATION SHALL BE CONSIDERED TO BE UN-CLASSIFIED EXCAVATION AND SUBSIDIARY TO OTHER BID ITEMS.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF THE EXISTING PIPE, EXISTING MANHOLES, AND ANY EXCESS MATERIALS RESULTING FROM THE WORK.
13. WHERE BYPASS PUMPING IS REQUIRED DURING THE PROJECT, PUMPING SHALL BE HELD TO A MINIMUM. ROUND-THE-CLOCK BYPASS PUMPING IS NOT ALLOWED. AT END OF EACH DAYLIGHT CONSTRUCTION PERIOD, EXISTING WATER WILL BE TEMPORARILY ROUTED TO NEW OR EXISTING PIPES WITH FITTINGS, PIPE, HOSE, OR OTHER APPURTENANCES AS REQUIRED AND DITCH LINES SHALL BE BACKFILLED TO EXISTING GRADE. COST OF THIS WORK SHALL BE INCLUDED IN PIPE INSTALLATION UNLESS LISTED AS A SEPARATE BID ITEM.
14. CONTRACTOR SHALL PREVENT STORM WATER AND DEBRIS FROM ENTERING PIPES AND MANHOLES AT ALL TIMES. ALL PIPES AND MANHOLES SHALL BE SECURELY PLUGGED AT THE END OF EACH DAY.

ABBREVIATIONS

ABBREV	DESCRIPTION
ABDN	ABANDON
AC	ACRE
AFF	ABOVE FINISHED FLOOR
ALUM	ALUMINUM SULFATE
APPROX	APPROXIMATE
ASPH	ASPHALT
ASSY	ASSEMBLY
BC	BACK OF CURB
BLDG	BUILDING
BLK	BLOCK
BM	BENCHMARK
B, BOT	BOTTOM
BOP	BEGINNING OF PAVEMENT
BVCS	BEGINNING OF VERTICAL CURVE STATION
C	CONDUIT
CI	CAST IRON
CIP	CAST IRON PIPE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE, CLASS
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
CP	CONTROL POINT
CPB	CHEMICAL PULL BOX
CSL	CHEMICAL SAMPLE LINE, CHLORINE SOLUTION
DA	DRAINAGE AREA
DI	DUCTILE IRON
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
EA	EACH
EFF	EFFLUENT
EL, ELEV	ELEVATION
ELEC	ELECTRICAL
EPB	ELECTRICAL PULLBOX
EOP	END/EDGE OF PAVEMENT
ESMT	EASEMENT
EVCS	END OF VERTICAL CURVE STATION
EQ	EQUAL
EW	EACH WAY
EX	EXISTING
EXP	EXPANSION
FCJ	FLOOR CONSTRUCTION JOINT
FES	FLARED END SECTION
FFE	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FG, FIN GR	FINISH GRADE
FL	FLOWLINE
FLG	FLANGED
FRP	FIBERGLASS REINFORCED PIPE
FT	FEET, FOOT
FTG	FOOTING
G	GUTTER
GL	GAS LINE
GR	GRADE
GV	GATE VALVE
HDWL	HEADWALL
HMA	HOT MIX ASPHALT
HORIZ	HORIZONTAL
HWY	HIGHWAY
ID	INSIDE DIAMETER
IN	INCHES
INF	INFLUENT
INV	INVERT
JT	JOINT
LEN	LENGTH
LF	LINEAR FEET
LG	LONG
LIN	LINEAL, LINEAR
LOC	LOCATION
LT	LEFT
MANUF	MANUFACTURER
MAX	MAXIMUM
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
N	NORTH
NE	NORTHEAST
NG	NATURAL GAS
NW	NORTHWEST
NIC	NOT IN CONTRACT
NO,#	NUMBER
NTS	NOT TO SCALE
NWSL	NORMAL WATER SURFACE LEVEL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OVF	OVERFLOW
PC	POINT OF CURVE
PD	PROCESS DRAIN
PDMH	PROCESS DRAIN MANHOLE
PE	PLAIN END
PI	POINT OF INTERSECTION
PL, PLS	PLATE, PLACES
PO	PUSH ON
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PT	POINT OF TANGENT, POINT
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
R, RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
REINF	REINFORCEMENT
REQD	REQUIRED
RJ	RESTRAINED JOINT
ROW, R/W	RIGHT-OF-WAY
RP	RADIUS POINT
RS	RESILIENT SEAT
RT	RIGHT
S	SOUTH, SLUDGE
SCH	SCHEDULE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SE	SOUTHEAST
SECT	SECTION
SF	SQUARE FEET, SILT FENCE
SHT	SHEET
SL	SAMPLE LINE
SPC	STANDARD PROCTOR DENSITY
SPEC	SPECIFICATIONS
SQ	SQUARE
SS	SANITARY SEWER
SSL	SANITARY SEWER SERVICE LINE
SSMH	SANITARY SEWER MANHOLE
STA	STATION
STD	STANDARD
SW	SIDEWALK, SOUTHWEST
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TC	TIME CLOCK, TOP OF CURB
TEMP	TEMPORARY, TEMPERED
THK	THICKNESS
TS	TOP OF SIDEWALK
TS&V	TAPPING SLEEVE AND VALVE
TW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	VOLT, VALVE
VC	VERTICAL CURVE
VERT	VERTICAL
VPI	VERTICAL POINT OF INTERSECTION
VT	VENTILATOR
W	WIDTH, WATER
W/	WITH
W/O	WITHOUT
WL	WATER LINE
WSL	WATER SERVICE LINE
WS	WATERSTOP
WTM	WATER TRANSMISSION MAIN
WWF	WELDED WIRE FABRIC
BY	BY

GARVER

REGISTRATION NO.
PEF007804

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REV.	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITYY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

CIVIL NOTES AND LEGEND 1

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: CDG
DRAWN BY: AGD
CHECKED BY: JPS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G004

SHEET NUMBER 04

File: L:\2022\22W38085 - Coweta County Chattahoochee Water\Drawings\CRWPS-01-G004-G005-GN.dwg Last Save: 9/12/2022 4:48 PM Last saved by: BDPurnell
Last plotted by: Purnell, Brianna D. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 9/12/2022 4:51 PM Plotter used: None

LINETYPES

LINETYPE	DESCRIPTION
C	COMMUNICATION
CATV	CABLE TV
	EASEMENT LINE
X	FENCE
F	FIRE LINE
FP	FLOODPLAIN
I I	FLOODWAY
	FLOWLINE
FM	FORCE MAIN
G	GAS LINE
	GUARDRAIL/MASONRY FENCE
	HANDRAIL
NG	NATURAL GAS
OHE	OVERHEAD ELECTRIC
E	OVERHEAD ELECTRICAL TRANSMISSION
PD	PROCESS DRAIN
PL	PROPERTY LINE
R/W	RIGHT-OF-WAY
SS	SANITARY SEWER
SSL	SEWER SERVICE LINE
SD	STORM DRAIN
SF	SILT FENCE
TOB	TOP OF BANK
TOS	TOE OF SLOPE
	TREE LINE
UGTV	UNDERGROUND CABLE TV
UGE	UNDERGROUND ELECTRIC
UGT	UNDERGROUND TELEPHONE
UGT(FO)	OVERHEAD FIBER OPTIC TELEPHONE
	WATER EDGE
W	WATER LINE
WSL	WATER SERVICE LINE
W1	POTABLE WATER
W2	NON-POTABLE WATER
(A)	INDICATES ABANDONED LINE
12"	12" INDICATES SIZE OF LINE
	EXISTING ELECTRICAL DUCT BANK
	EXISTING PIPE TO BE ABANDONED
	EXISTING PIPE TO BE DEMOLISHED
1300	EXISTING CONTOURS
1300	PROPOSED CONTOURS
	PROPOSED ELECTRICAL DUCT BANK

CIVIL LEGEND

SYMBOL	DESCRIPTION
	AREA INLET
	BENCH MARK/GEOTECHNICAL BORE
	BOLLARD
	CATCH BASIN/JUNCTION BOX
CO	CLEANOUT
	CONCRETE HEADWALL
	CURB INLET SEDMIENT FILTER
	DOUBLE COMBINATION INLET
EB	ELECTRIC BOX/PULLBOX
EDM	ELECTRIC DUCT MARKER
EHH	ELECTRIC HANDHOLE
EMH	ELECTRIC MANHOLE
EM	ELECTRIC METER
	EXTENDED THROAT CURB INLET
FOC	FIBER OPTIC BOX
FOC	FIBER OPTIC CABLE RISER/PEDESTAL
FOMH	FIBER OPTIC MANHOLE
	FIRE HYDRANT
	FLAGPOLE
	FLARED END SECTION (FES)
GM	GAS METER
	GAS REGULATOR
	GRATED INLET
	GUY WIRE ANCHOR
ICV	IRRIGATION CONTROL VALVE
LIFT STA	LIFT STATION
	LIGHT POLE
MH	MANHOLE
	MAILBOX
MW	MONITORING WELL
PD	PROCESS DRAIN MANHOLE
	PROPERTY PIN
PULL BOX	PULL BOX
PUMP STATION	PUMP STATION
RAILROAD SWITCH BOX	RAILROAD SWITCH BOX
	RIP RAP
R/W	RIGHT-OF-WAY MARKER
	ROCK DITCH CHECK
SS	SANITARY SEWER MANHOLE
	SATELLITE DISH

CIVIL LEGEND (CONT'D)

SYMBOL	DESCRIPTION
SEPTIC TANK	SEPTIC TANK
	SIGN
	SLOPE DIRECTION INDICATOR
	SPRINKLER HEAD
	STANDARD CURB INLET
SD	STORM DRAIN MANHOLE
	SUMP INLET SEDIMENT FILTER
	SURVEY CONTROL POINT
TELE	TELEPHONE JUNCTION BOX
TELE MH	TELEPHONE MANHOLE
	TELEPHONE PEDESTAL
CABLE	TELEVISION PEDESTAL
TRAFFIC CONTROL BOX	TRAFFIC CONTROL BOX
TRANSFORMER	TRANSFORMER
	UTILITY POLE
	VALVE
VC	VALVE COVER
	VENT
WM	WATER METER
WELL	WELL
	WINDSOCK
	YARD HYDRANT/SPIGOT
	SHRUB/BUSH
0'-6" DIA	TREE
0'-6" DIA	EVERGREEN TREE
	DEMOLISH
	PROPOSED HEAVY DUTY ASPHALT
	EXISTING ASPHALT
	PROPOSED ASPHALT/ PAVEMENT REPAIR
	EXISTING CONCRETE
	PROPOSED CONCRETE
	PROPOSED HEAVY DUTY CONCRETE
	GRAVEL ROAD OR DRIVE
	SIDEWALK
	STAGING AREA

GENERAL IDENTIFICATION

LABEL	DESCRIPTION
1 / 01-C500	DETAIL NUMBER / DRAWING NUMBER
D33 / 3923-003	DIVISION NUMBER / DETAIL NUMBER
1 / 05-C301	PROFILE NUMBER 1 / DRAWING NUMBER
C01 / 05-C301	CHEMICAL LINE PROFILE NUMBER 1 / DRAWING NUMBER
E01 / 05-E201	ELECTRICAL DUCT BANK PROFILE NUMBER 1 / DRAWING NUMBER
G01 / 05-C301	GAS LINE PROFILE NUMBER 1 / DRAWING NUMBER
P01 / 05-C301	PROCESS LINE PROFILE NUMBER 1 / DRAWING NUMBER
R01 / 05-C201	ROAD PROFILE NUMBER 1 / DRAWING NUMBER
S01 / 05-C201	STORM DRAIN PROFILE NUMBER 1 / DRAWING NUMBER
U01 / 05-C301	UTILITY PROFILE NUMBER 1 / DRAWING NUMBER

1-01
- APPURTENANCE SEQUENCE NUMBER
- PROFILE NUMBER 1

CPB-C01-01
- PULLBOX SEQUENCE NUMBER
- CHEMICAL LINE PROFILE NUMBER 1
- CHEMICAL PULLBOX

P01-01
- APPURTENANCE SEQUENCE NUMBER
- PROCESS LINE PROFILE NUMBER 1

S01-01
- APPURTENANCE SEQUENCE NUMBER
- STORM DRAIN LINE PROFILE NUMBER 1

SDMH-S01-01
- STRUCTURE SEQUENCE NUMBER
- STORM DRAIN LINE PROFILE NUMBER 1
- STORM DRAIN MANHOLE STRUCTURE

SSMH-U01-01
- STRUCTURE SEQUENCE NUMBER
- UTILITY PROFILE NUMBER 1
- SANITARY SEWER MANHOLE STRUCTURE

U01-01
- APPURTENANCE SEQUENCE NUMBER
- UTILITY LINE PROFILE NUMBER 1

GENERAL CONVENTIONS

SYMBOL	DESCRIPTION
1 / 05-C501	CALLOUT DENOTES A CIVIL DETAIL REFERENCE (THIS EXAMPLE IS DETAIL 1 ON DRAWING NUMBER 05-C501)
D33 / 3923-003	CALLOUT DENOTES A STANDARD DETAIL REFERENCE
1	CALLOUT DENOTES A KEYED NOTE REFERENCE
FG - 1300.00	SPOT ELEVATION
CAUTION! EXIST. XXX	CAUTION CALLOUT
1	CLOUDED REGION INDICATES A REVISED AREA
1 / 05-C501 TITLE SCALE: NONE	TITLE DENOTES A CIVIL DETAIL (THIS EXAMPLE IS DETAIL 1 ON DRAWING NUMBER 05-C501)
1 / 05-C305 | 05-C310 TITLE SCALE: NONE	TITLE DENOTES A CIVIL PROFILE AND PLAN VIEW LAYOUT (THIS EXAMPLE IS PROFILE NUMBER 1 ON DRAWING NUMBER 05-C310 WHICH HAS A BACK REFERENCE TO THE PLAN VIEW LAYOUT ON DRAWING NUMBER 05-C305)
1 / 05-C205 | 05-C210	CALLOUT DENOTES A CUT SECTION TYPICAL REFERENCE (THIS EXAMPLE OCCURS ON DRAWING NUMBER 05-C205 REFERENCING SECTION NUMBER 1 ON DRAWING NUMBER 05-C210)
N	SYMBOL INDICATES NORTH DIRECTION
0 10' 20' 40' 60' (IN FEET)	SYMBOL INDICATES A GRAPHICAL BAR SCALE

APPURTENANCE SYMBOLS

PROFILE	DESCRIPTION
	AIR RELEASE VALVE
	BALL VALVE
	BLOW-OFF VALVE
	BUTTERFLY VALVE
	CLEANOUT
	FIRE HYDRANT ASSEMBLY
	GATE VALVE
	PLUG VALVE

CIVIL LEGEND NOTES

1. GRAY SCALED LINE TYPES AND SYMBOLS INDICATE EXISTING ITEMS. BOLD SCALED LINE TYPES AND SYMBOLS INDICATE PROPOSED ITEMS.
2. ADDITIONAL PROCESS LINES MAY BE DENOTED BY A LINE TYPE WITH THE FLOW STREAM IDENTIFIER.
3. SEE PROCESS MECHANICAL NOTES AND LEGEND SHEET FOR PLAN PIPE FITTING AND VALVE SYMBOLS.
4. LINES OF 12 INCH DIAMETER OR GREATER ARE SHOWN AT NOMINAL DIAMETER. LINES LESS THAN 12 INCH DIAMETER ARE SHOWN AS A SINGLE LINE.

REGISTRATION NO. PEF007804

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COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

CIVIL NOTES AND LEGEND 2

JOB NO.: 22W38085
DATE: SEPT. 2022
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DRAWN BY: AGD
CHECKED BY: JPS

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DRAWING NUMBER 01-G005

SHEET NUMBER 05

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Last plotted by: Purnell, Brianna D. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 9/12/2022 4:51 PM Plotter used: None

EQUIPMENT

SYMBOL	DESCRIPTION
M	ELECTRIC MOTOR
V	VARIABLE SPEED DRIVE
RV SS	REDUCED VOLTAGE SOFT STARTER
FV NR	FULL VOLTAGE NON-REVERSING STARTER
FV R	FULL VOLTAGE REVERSING STARTER
CAS	SUBMERSIBLE PUMP CONTROL AND STATUS MODULE
OIT	OPERATOR INTERFACE TERMINAL
GDT	GRAPHIC DISPLAY TERMINAL (VFD)
G	ELECTRIC GENERATOR
	HYDRAULIC MOTOR
	AIR MOTOR
	SHAFT
	COUPLING
	DYNAMIC PUMP
	SCREW PUMP OR CONVEYOR
	DYNAMIC COMPRESSOR
	POSITIVE DISPLACEMENT PUMP
	POSITIVE DISPLACEMENT COMPRESSOR
	EDUCTOR/EJECTOR
	HEATER, GENERAL
	HEATER W/FAN (INDUCED DRAFT)
	HEATER W/FAN (FORCED DRAFT)
	HEAT EXCHANGER, GENERAL
	HYDRAULIC CYLINDER
	AIR CYLINDER
	MIXER

SIGNAL CONDITIONERS

SYMBOL	DESCRIPTION
A/D	ANALOG TO DIGITAL
D/A	DIGITAL TO ANALOG
I/P	CURRENT TO PRESSURE
P/I	PRESSURE TO CURRENT
F/I	FREQUENCY TO CURRENT
I/I	CURRENT BOOST/ REPEATER
Σ	SUM
Δ	DIFFERENCE
√	SQUARE ROOT
f(x)	CHARACTERIZATION
∫	INTEGRATION

MEANING OF FUNCTIONAL INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER FLAME		USER CHOICE	USER CHOICE	USER CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO(FRACTION)			
G	GAUGING(DIMENSIONAL)		GLASS		
H	HAND(MANUALLY INITIATED)				HIGH
I	CURRENT(ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME-SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT(PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER CHOICE		USER CHOICE	USER CHOICE	USER CHOICE
O	USER CHOICE		ORIFICE(RESTRICTION)		
P	PRESSURE OR VACUUM		POINT(TEST POINT)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNC.	MULTIFUNCTION
V	VIBRATION OR MECHANICAL ANALYSIS			VALVE, DAMPER, OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

ACCESSORIES AND APPURTENANCES

SYMBOL	DESCRIPTION
	UNION
	PLUG
	BLIND FLANGE
	HOSE CONNECTION
	SPRAY NOZZLE/DIFFUSER
	DRAIN
	FLEXIBLE CONNECTION, GENERAL
	FLEXIBLE HOSE
	QUICK CONNECTOR
1"	THREADED TAP
	FILTER
	`Y' TYPE STRAINER
	STRAINER
	EXPANSION JOINT
FCO	FLOOR CLEANOUT
P	GAUGE P = PRESSURE V = VACUUM T = TEMPERATURE dP = PRESSURE DIFFERENTIAL
	SILENCER

VALVES

SYMBOL	DESCRIPTION
	CHECK VALVE
	GATE VALVE
	BUTTERFLY VALVE
	BALL CHECK
	BALL VALVE
	PLUG VALVE
	NEEDLE VALVE
	ROTARY VALVE
	KNIFE GATE VALVE
	MUD VALVE
	PINCH VALVE
	THREE-WAY VALVE
	FOUR-WAY VALVE
	GLOBE VALVE
	CHARACTERIZED OR VEE-BALL VALVE
	STOP CHECK VALVE
	DIAPHRAGM VALVE (SELF CONTAINED)
	AIR RELIEF
	PRESSURE CONTROL
	PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	STOP GATE
	SLIDE GATE
	HOSE VALVE (HV-X) OR (V-X) X = NO. IN SPECS
S	SAMPLE
	TELESCOPING VALVE

VALVE OPERATORS

SYMBOL	DESCRIPTION
	HAND OPERATOR
	HAND OPERATOR (LONG)
	CHAIN OPERATOR
F	FLOAT OPERATOR
	AIR DIAPHRAGM OPERATOR
	POSITIONER
S	SOLENOID OPERATOR
	CYLINDER OPERATOR
	PRESSURE BALANCED DIAPHRAGM OPERATOR
M	MOTOR OPERATOR
D	DIGITAL OPERATOR
E/H	ELECTRO-HYDRAULIC OPERATOR
	FAIL ARROWS INDICATE OPEN PORTS
	LIMIT SWITCH
M	MOTOR OPERATOR WITH INTEGRAL CONTROL DEVICES

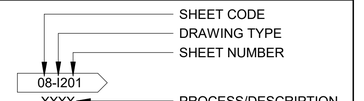
INSTRUMENT PRIMARY ELEMENTS

SYMBOL	DESCRIPTION
	THREADED TAP
	THERMOWELL
	WEIR
	SIGHT FLOW INDICATOR
	ROTAMETER
	FLOW ORIFICE
	FLOW ORIFICE IN QUICK CHANGE FITTING
	SINGLE PORT PITOT
	AVERAGING PITOT STATION
	VENTURI TUBE
	FLUME
	POSITIVE DISPLACEMENT FLOWMETER
MASS	MASS FLOWMETER
	SONIC FLOWMETER
M	MAGNETIC FLOWMETER
M	INSERTION MAGNETIC FLOWMETER
	pH ELECTRODE ASSEMBLY
P	SUBMISSIVE PRESSURE SENSOR
	ULTRASONIC LEVEL TRANSMITTER
R	RADAR LEVEL TRANSMITTER
	CONDUCTIVITY LEVEL PROBE
	FLOAT SWITCH
	TURBINE ELEMENT
	VORTEX SENSOR
	TARGET ELEMENT
	WATER HAMMER ARRESTER

GENERAL IDENTIFICATION

SYMBOL	DESCRIPTION
20LP1	EQUIPMENT TAG

SHEET INTERFACE



NON-SHEET INTERFACE

EQUIPMENT LINE TYPES

LINE	DESCRIPTION
	PROPOSED OR NEW EQUIPMENT
	EXISTING EQUIPMENT

PIPING LINE TYPES

LINE	DESCRIPTION
	PROCESS LINE - PRIMARY
	PROCESS LINE - SECONDARY
	PROCESS LINE - EXISTING
	PACKAGE BOUNDARY
	AREA/BUILDING BOUNDARY
	SHOWN ELSEWHERE
	AIR

PIPING, MISCELLANEOUS

SYMBOL	DESCRIPTION
	SLOPE ARROW, ARROW DIRECTION DOWN
	OUTSIDE GRADE LEVEL
ST	LINE HEAT TRACED AND INSULATED ST = STEAM TRACED ET = ELECTRIC TRACED

DIGITAL SYSTEM INTERFACES

SYMBOL	DESCRIPTION
	ANALOG INPUT
	ANALOG OUTPUT
	DISCRETE INPUT
	DISCRETE OUTPUT

INSTRUMENTS OR FUNCTIONS

SYMBOL	DESCRIPTION
	HMI SCREEN DISPLAY ELEMENT
	PANEL MOUNTED DEVICE
	FIELD DEVICE

AUX INSTRUMENTS OR FUNCTIONS

SYMBOL	DESCRIPTION
	TEST POINT, TERMINAL BLOCK WITH SLIDING LINK AND MINI-BANANA SOCKETS
P	PURGE OR FLUSHING DEVICE
I	INTERLOCK LOGIC WITH REFERENCE
	ANNULAR SEAL
	DIAPHRAGM SEAL
R	RESET FOR LATCH TYPE OPERATOR
+ - PS	LOOP POWER SUPPLY

INSTRUMENT LINE TYPES

LINE	DESCRIPTION
	PROCESS CONNECTION
	UNDEFINED SIGNAL
	PNEUMATIC SIGNAL
	ELECTRIC SIGNAL
	HYDRAULIC SIGNAL
	CAPILLARY OR FILLED TUBE
	ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)
	ELECTROMAGNETIC OR SONIC SIGNAL (UNGUIDED)
	INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
	MECHANICAL LINK

EQUIPMENT AND INSTRUMENTATION TAGGING

AABCCCDEX

CODE	DESCRIPTION	RANGE	COMMENT
AA	FACILITY NUMBER	01 - 99	FACILITY LOCATION OR EQUIPMENT
B	UNIT PROCESS NUMBER	1 - 9	OPTIONAL IDENTIFIER USED TO DIFFERENTIATE MULTIPLE UNIT PROCESSES WITHIN A SINGLE FACILITY
CCC	EQUIPMENT ABBREVIATION / INSTRUMENT IDENTIFICATION	A - ZZZ	ONE TO THREE LETER ABBREVIATION
D	TRAIN OR BRANCH NUMBER	0 - 9	0 USED FOR EQUIPMENT COMMON TO AN ENTIRE UNIT PROCESS 1-9 USED FOR EACH TRAIN/BRANCH WITHIN UNIT PROCESS
EE	SEQUENTIAL NUMBER IDENTIFIER	01 - 99	OPTIONAL IDENTIFIER IF NEEDED WHEN MULTIPLE EQUIPMENT WITHIN SAME TRAIN/BRANCH
X	ALPHABETIC IDENTIFIER	A - Z	OPTIONAL IDENTIFIER WHEN NEEDED FOR FURTHER DIFFERENTIATION

INSTRUMENT POWER SUPPLY

120 PSIG IA - POWER SUPPLY, TYPE AND LEVEL SHOWN, ABBREVIATIONS AS FOLLOWS:
AS - AIR SUPPLY
IA - INSTRUMENT AIR
PA - PLANT AIR
ES - ELECTRIC SUPPLY
GS - GAS SUPPLY

REGISTRATION NO.
PEF007804

10% DESIGN - NOT FOR CONSTRUCTION

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JOHN A. PRUITT, P.E., # 048205 ON SEPT. 2022 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMITTING PURPOSES.

REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

PROCESS & INSTRUMENTATION DIAGRAM NOTES, LEGENDS, AND ABBREVIATIONS

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G006

SHEET NUMBER **06**

Revit File: BIM 360://22W38095 - Coweta County Water MP/Coweta_General.rvt
Plot Date: 9/12/2022 2:58:46 PM

GENERAL NOTES:

1. GENERAL NOTES AND STANDARD DETAILS SHALL NOT REPLACE OR OVER RULE ANY STRUCTURE SPECIFIC NOTE, DETAIL, OR SPECIFICATION. STRUCTURE SPECIFIC NOTES AND DETAILS SHALL GOVERN OVER GENERAL NOTES AND STANDARD DETAILS.

2. BUILDING RISK CATEGORY---------- III

3. DESIGN LIVE LOADS - 2009 IBC
   - ROOF WITHOUT REDUCTION---------- 25 PSF
   - FLOORS:
   - CORRIDORS---------- 100 PSF
   - ASSEMBLY AREAS---------- 100 PSF
   - BALCONIES---------- 100 PSF
   - RESTROOMS---------- 80 PSF
   - OFFICES---------- 50 PSF
   - STAIRS---------- 100 PSF
   - MOVABLE FILE ROOMS---------- 150 PSF
   - INDUSTRIAL AREAS---------- 250 PSF
   - EQUIPMENT ROOMS---------- 250 PSF
   - AREAS WITH UNRESTRICTED VEHICULAR ACCESS------- AASHTO HS20

4. WIND LOAD PARAMETERS - ASCE 7-10
   - BASIC WIND SPEED---------- 90 MPH
   - IMPORTANCE FACTORE, I---------- 1.15
   - EXPOSURE CATEGORY---------- C
   - GCPI +/- 0.18 (ENCLOSED BUILDINGS)

5. SEISMIC DESIGN PARAMETERS ---------- IBC 2009
   - IMPORTANCE FACTOR, I---------- 1.25
   - SITE CLASS---------- D
   - SEISMIC SPECTRAL ACCELERATIONS
   - S_S ---------- 0.165g
   - S_1 ---------- 0.073g
   - SEISMIC DESIGN CATEGORY---------- B
   - DESIGN SPECTRAL ACCELERATIONS
   - S_{DS} ---------- 0.176g
   - S_{D1} ---------- 0.117g
   - RESPONSE MODIFICATION FACTOR, R---------- SEE INDIVIDUAL PLANS
   - BASIC SEISMIC FORCE RESISTING SYSTEM---------- SEE INDIVIDUAL PLANS
   - SEISMIC RESPONSE COEFFICIENT, Cs---------- SEE INDIVIDUAL PLANS
   - ANALYSIS PROCEDURE---------- EQUIVALENT LATERAL FORCE

6. SNOW LOADS PARAMETERS ---------- ASCE 7-05
   - GROUND SNOW LOAD, P_G ---------- 10 PSF
   - IMPORTANCE FACTOR, I ---------- 1.10
   - EXPOSURE FACTOR, C_e ---------- 0.90
   - THERMAL FACTOR, C_T ---------- 1.0
   - SLOPED ROOF SNOW LOAD, P_S ---------- XX

7. THE STRUCTURE SHOULD NOT BE CONSIDERED TO BE STABLE DURING CONSTRUCTION UNTIL ALL ELEMENTS ARE IN PLACE AND CONNECTED. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING ALL TEMPORARY CONSTRUCTION BRACING, AS REQUIRED.

8. CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL TAKE THE ALL NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION, NEW AND EXISTING, AT ALL STAGES.

9. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO ANY PERTINENT WORK. ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE NOTED ON THE SHOP DRAWINGS.

10. COORDINATE WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, STRUCTURAL, AND ELECTRICAL DRAWINGS, AND VERIFY THE LOCATIONS AND SIZES OF THE CHASES, OPENING, INSERTS, SLEEVES, FINISHES, CONDUITS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS.

11. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE DRAWINGS AND EXISTING CONDITIONS TO DETERMINE WHERE OPENINGS ARE REQUIRED IN WALLS AND SLABS.

12. STANDARD DETAILS APPLY UNLESS INDICATED OTHERWISE ON SPECIFIC STRUCTURE DRAWINGS.

GENERAL CONCRETE NOTES:

1. STRUCTURAL CONCRETE FOR BUILDING MEMBERS SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH OF 4,500 PSI UNO.

2. CONCRETE FOR SLABS SUBJECTED TO VEHICULAR WHEEL LOADS SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH OF 4,500 PSI.

3. HOLD SLUMP TO 3 TO 4 INCHES IN ALL FLOOR SLABS.

4. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4".

5. NON-PRESTRESSED CONCRETE REINFORCEMENT SHALL CONFORM TO ASTM A615 GRADE 60.

6. REINFORCEMENT LAP SPLICES SHALL CONFORM TO ACI 318 & ACI 350.

7. CONCRETE COVER OVER REINFORCEMENT SHALL CONFORM TO THE MINIMUM REQUIRED BY ACI 318 & ACI 350, UNO.

8. REINFORCEMENT DETAILING AND PLACEMENT SHALL CONFORM TO ACI 318 AND ACI 315.

9. NO REINFORCING BAR SHALL BE WELDED OR FIELD BENT IN ANY MANNER, UNLESS SPECIFICALLY SHOWN OR NOTED ON THE DRAWINGS.

10. PROVIDE FULL EMBEDMENT FOR ALL DOWELS. IF NOT OTHERWISE SPECIFIED, DOWEL SIZE AND SPACING SHALL BE THE SAME AS MAIN REINFORCING.

11. MECHANICAL EQUIPMENT PADS ON FLOOR SLABS SHALL BE 6" THICK AND REINFORCED WITH #4 @ 12" EW, UNO.

12. WATERSTOP PIPE SLEEVES REQUIRED ON ALL WATERTIGHT WALLS AND FLOORS.

13. TREMIES REQUIRED ON ALL POURS DEEPER THAN 5 FEET.

14. ALL WATERSTOPS TO BE 6" PVC FLAT RIBBED OR 9" PVC CENTER BULB AND PLACED AT ALL WATERTIGHT POURS, UNO. REFER TO DETAILS D03/3000-102A & B FOR WATERSTOP DETAILS.

15. ALL WATERTIGHT "HYDRAULIC" CONCRETE STRUCTURES SHALL PASS A 72 HOUR LEAKAGE TEST PRIOR TO BACKFILLING AROUND STRUCTURE.

16. WHEN WATERSTOP IS PLACED HORIZONTALLY IN SLABS, THE CONTRACTOR SHALL TEMPORARILY TIE UP OR CLAMP UP THE WATERSTOP UNTIL THE CONCRETE IS PLACED TO SLIGHTLY ABOVE THE DEPTH OF THE WATERSTOP.

17. VERTICAL WATERSTOP SHALL BE FULLY EMBEDDED IN SLAB POUR AND WELDED TO ALL ADJACENT WATERSTOP.

18. PROVIDE A MINIMUM OF SEVEN (7) DAYS BETWEEN ADJACENT POURS. CONCRETE SHALL MEET OR EXCEED DESIGN COMPRESSIVE STRENGTH PRIOR TO PLACING ADJACENT POURS.

19. CONTRACTOR SHALL SUBMIT TO ENGINEER FOR APPROVAL A SCHEDULE AND SEQUENCE OF CONCRETE PLACEMENT. SEQUENCE SHALL INCLUDE PERMITTING CURE TIME BETWEEN PLACEMENTS AT ADJACENT PROPOSED PLACEMENTS.

20. WALKWAYS AND SIDEWALKS SHALL BE POURED WITH SLIGHT SLOPE AND NO LOW SPOTS SO THEY WILL DRAIN FREE. ALL SLOPES SHALL COMPLY WITH ADA REQUIREMENTS.

21. ALL CONSTRUCTION JOINTS SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE INCORPORATED INTO THE STRUCTURE. ADDITIONAL CONSTRUCTION JOINTS TO FACILITATE CONSTRUCTION SHALL BE LOCATED AND DETAILED ON THE SHOP DRAWINGS FOR REVIEW. UNLESS INDICATED OTHERWISE, ALL CONSTRUCTION JOINTS TO BE KEYED. HORIZONTAL CONSTRUCTION JOINTS SHALL NOT BE PERMITTED IN WALLS AND BEAMS, UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.

22. SUBSTITUTION OF EXPANSION OR DRILLED AND GROUTED-IN ANCHORS FOR EMBEDDED ANCHORS SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER.

23. USE MANUFACTURER'S CERTIFIED DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT ANCHORAGE AND DETAILS. VERIFY EQUIPMENT SIZE AND WEIGHTS WITH ENGINEER PRIOR TO CONSTRUCTION OF ANY AND ALL EQUIPMENT PADS.

GENERAL CONCRETE MASONRY NOTES:

1. HOLLOW CMU UNITS SHALL CONFORM TO ASTM C90 TYPE 1 OF THE NOMINAL THICKNESS SHOWN ON THE DRAWINGS. ALL CMU SHALL BE 2 CELL BLOCK AND HAVE A SPECIFIED MINIMUM COMPRESSIVE STRENGTH OF 1900 PSI ON NET AREA AT 28 DAYS.

2. MORTAR FOR CMU SHALL CONFORM TO ASTM C270, TYPE S UNO.

3. GROUT FOR CMU GROUTED CELLS, LINTELS, COLUMNS, PILASTERS, BOND BEAMS AND BLOCKS WITH EMBEDDED ANCHORS SHALL BE 3,000 PSI PEA GRAVEL CONCRETE UNO.

4. CMU REINFORCING BARS SHALL CONFORM TO ASTM A 615 GRADE 60. HORIZONTAL JOINT REINFORCEMENT SHALL BE COLD DRAWN WIRE WITH A MINIMUM OF 9 GAUGE LONGITUDINAL WIRE SIZE, UNO, WITH THE TYPE AND SPACING AS SHOWN ON THE DRAWINGS OR SPECIFIED.

5. VERTICAL CELLS TO BE FILLED SHALL HAVE VERTICAL ALIGNMENT SUFFICIENT TO MAINTAIN A CLEAR UNOBSTRUCTED CONTINUOUS VERTICAL CELL NOT LESS THAN 2" X 3" IN PLAN DIMENSIONS.

6. FOUNDATION DOWELS SHALL EXTEND INTO THE FOUNDATION CONCRETE A MINIMUM OF THE DEVELOPMENT LENGTH FOR BAR SIZE USED. LAPS OR SPLICES OF REINFORCING STEEL IN MASONRY SHALL BE AS INDICATED BELOW. THERE SHALL BE A FOUNDATION DOWEL FOR EACH VERTICAL WALL REINFORCEMENT.

7. NORMAL VERTICAL WALL REINFORCING SHALL EXTEND CONTINUOUSLY FROM THE FOUNDATION TO EMBED AT LEAST 6" INTO THE TOP OF WALL BOND BEAM. AN ADDITIONAL ONE #4 HOOKED DOWEL SHALL BE INSTALLED IN THE TOP OF ALL MASONRY WALLS AT EACH VERTICAL WALL CELL CONTAINING VERTICAL REINFORCING. THE DOWELS SHALL PROJECT 24" INTO THE WALL AND HOOK 6" INTO THE WALL TOP BOND BEAM.

8. CONTROL JOINTS SHALL BE OF THE TYPE AND AT THE LOCATIONS SHOWN ON THE DRAWINGS.

9. CONTROL JOINTS SHALL BE AS DETAILED ON D04/2200-306. PROVIDE CONTROL JOINTS IN ALL MASONRY WALLS UNO. CONTROL JOINT SPACING SHALL BE AS RECOMMENDED BY THE NATIONAL CONCRETE MASONRY ASSOCIATION WITH A MAXIMUM SPACING OF 25'. SUBMIT JOINT LAYOUT PLAN FOR REVIEW PRIOR TO MASONRY WALL CONSTRUCTION.

10. CORNER BLOCKS SHALL BE INTERWOVEN BETWEEN TWO WALLS.

11. EVERY PIER OR WALL SECTION WHOSE WIDTH IS 3'-0" OR LESS WILL HAVE HORIZONTAL SHEAR STEEL IN THE FORM OF TIES. REF D04/2200-007.

12. PROVIDE (2) ADDITIONAL #5 BARS ALONG SIDES, TOP AND BOTTOM OF ALL CMU WALL OPENINGS. EXTEND REINFORCING 24" BEYOND OPENING, UNO.

13. VERTICAL WALL REINFORCING SHALL BE AS FOLLOWS: GROUT CELLS CONTAINING REINFORCEMENT, SOLID FULL HEIGHT UNO.

14. UNO, LAP SPLICE #5'S 3'-0"; #4'S 2'-0".

STRUCTURAL STEEL NOTES:

1. UNLESS OTHERWISE SPECIFIED, HOT-ROLLED STEEL BUILDING MEMBERS USING W-SHAPES SHALL BE ASTM A992; M-, S-, AND C- SHAPES ASTM A36; SQUARE, RECTANGULAR & ROUND HSS SHAPES ASTM A500 GRADE B; ANGLES AND MISCELLANEOUS STIFFENER PLATES ASTM A36.

2. ALL SHEAR CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE STANDARD AISC WELDED OR AISC BOLTED CONNECTIONS AND SHALL HAVE SUFFICIENT CAPACITY TO SUPPORT THE END REACTION EQUAL TO ONE - HALF THE TOTAL UNIFORM CAPACITY SHOWN IN THE ALLOWABLE UNIFORM LOAD TABLES OF THE AISC STEEL CONSTRUCTION MANUAL - CURRENT EDITION.

3. WELDING SHALL CONFORM WITH AWS D1.1 STRUCTURAL WELDING CODE.

4. ALL BOLTS FOR BEAM CONNECTIONS SHALL BE ASTM A325 WITH A MINIMUM DIAMETER OF 1/2" UNO. ALL BOLTED CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS UNLESS NOTED AS SLIP CRITICAL. WASHERS SHALL BE INSTALLED UNDER NUTS OF FASTENERS WHEN REQUIRED BY THE SPECIFICATION FOR STRUCTURAL JOINTS.

5. ALL ANCHOR RODS SHALL BE ASTM F1554, GRADE 36 UNO.

FOUNDATION NOTES:

1. FLOOR SLAB CONSTRUCTION JOINTS (C.J.) SHALL BE PLACED AS SHOWN ON FOUNDATION PLANS AND SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO CONCRETE PLACEMENT.

2. FLOOR SLAB ISOLATION JOINTS SHALL BE 30# FELT UNO.

3. CONCRETE FLOOR AND SLAB ON GRADE MAY BE PLACED IN LANES. SPACING OF JOINTS SHALL BE AS SHOWN ON THE FOUNDATION PLAN. WHEN LANE PLACEMENT IS USED, CONSTRUCTION JOINTS SHALL BE USED FOR THE JOINTS BETWEEN LANES. SAW CUT CRACK CONTROL JOINTS SHALL BE PROVIDED ACROSS EACH LANE AT SPACING SHOWN ON PLANS.

4. ALL CONCRETE CORNERS SHALL BE CHAMFERED 3/4" ON THE EXTERIOR EXPOSED CORNER.

5. COMPACTED GRANULAR FILL OR BASE COURSE ROCK AS INDICATED AND SPECIFIED.

6. ALL PRESSURE PIPING BENEATH SLABS SHALL BE CONCRETE ENCASED.

7. VAPOR BARRIER REQUIRED BENEATH ALL INTERIOR BUILDING SLABS.

ABBREVIATIONS

ABBREV	DESCRIPTION
AL	ALUMINUM
ARCH	ARCHITECT, ARCHITECTURAL
BG	BACK GOUGE
BM	BEAM
CCJ	CRACK CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
COL	COLUMN
EF	EACH FACE
EJ	EXPANSION JOINT
ES	EVENLY SPACED, EACH SIDE
EW	EACH WAY
EXST	EXISTING
EXT	EXTERIOR
FD	FLOOR DRAIN
FND	FOUNDATION
FS	FOOTING STEP, FAR SIDE
IJ	ISOLATION JOINT
INT	INTERIOR
KIP	1,000 POUNDS
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LSL	LONG SLOT
MECH	MECHANICAL
NS	NEAR SIDE
OH	OPPOSITE HAND
OVS	OVERSIZED

ABBREVIATIONS

ABBREV	DESCRIPTION
PCF	POUNDS PER CUBIC FOOT
PFJ	PRE-FORMED JOINT
PJP	PARTIAL JOINT PENETRATION
PLF	POUNDS PER LINEAR FOOT
SIM	SIMILAR
SSL	SHORT SLOT
STL	STEEL
T&B	TOP AND BOTTOM
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
VCJ	VERTICAL CONSTRUCTION JOINT

LEGEND:

℄	CENTERLINE	%	PERCENT	⟿	WATERSTOP
°	DEGREES	ℙ	PLATE	⟋	DIRECTION OF DECK SPAN
𝔽	FLANGE	±	PLUS / MINUS		
ℊ	GRIDLINE				

REGISTRATION NO.
PEF007804

10% DESIGN - NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

STRUCTURAL NOTES, LEGENDS, AND ABBREVIATIONS

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G007

SHEET NUMBER **07**

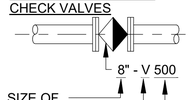
Revit File: BIM 360://22W38095 - Coweta County Water MP/Coweta_General.rvt
Plot Date: 9/12/2022 2:58:46 PM

VALVE SYMBOLS

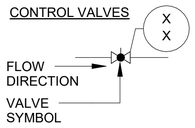
- GATE
- KNIFE GATE
- BUTTERFLY
- GLOBE
- BALL
- VEE-BALL
- PLUG OR COCK
- NEEDLE
- DIAPHRAGM
- PINCH
- SWING CHECK
- BALL CHECK
- ROTARY
- HOSE VALVE (HV-X) OR (V-X) X = NO. IN SPECS
- SAMPLE
- MUD
- PRESSURE RELIEF
- AIR RELEASE
- VACUUM RELIEF
- PRESSURE CONTROL
- TELESCOPING
- SLIDE GATE
- STOP GATE
- THREE-WAY / FOUR-WAY VALVE

VALVE DESIGNATIONS

MANUAL VALVES AND CHECK VALVES



CONTROL VALVES



BUBBLE WITH FUNCTION AND THE TAG NUMBER DESIGNATION (SEE I&C LEGEND FOR TAGGING INSTRUMENT IDENTIFICATION)

ACTUATOR SYMBOLS

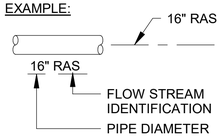
- PNEUMATIC DIAPHRAGM SPRING-OPPOSED, SINGLE OR DOUBLE ACTING
- PNEUMATIC CYLINDER SINGLE OR DOUBLE ACTING ACTUATED BY ONE INPUT
- (M) ELECTRIC MOTOR
- (H) HYDRAULIC
- MANUAL
- [S] SOLENOID

MISCELLANEOUS PIPING SYMBOLS

- STRAINER
- SIGHT GLASS
- FLEXIBLE (ELASTOMER) PIPE CONNECTION
- GAUGE WITH COCK
- THERMOMETER
- ROTAMETER
- PIG LAUNCHER
- PIG CATCHER
- BACKFLOW PREVENTER
- REDUCER
- FLEXIBLE HOSE
- FLEXIBLE CONNECTOR
- PS 26-1-2 TYPICAL INSTRUMENT SYMBOL (SEE I&C LEGEND)

PIPING DESIGNATION

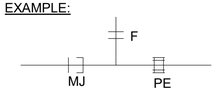
EXAMPLE:



PIPE FITTING AND END PATTERNS

B	BELL
F	FLANGE
GE	GROOVED END
MJ	MECHANICAL JOINT
PE	PLAIN END
S	SPIGOT
SOC	SOCKET
THD	THREADED

EXAMPLE:



SPECIAL INSTALLATION NOTE:

INSTALLATION DETAILS FOR DIVISION 26 ELECTRICAL ARE NOT SHOWN ON MECHANICAL DRAWINGS FOR CLARITY. REFER TO DIVISION 26 INSTRUMENT SPECIFICATIONS, INSTRUMENT LIST, AND DESIGN DETAILS. COORDINATE MATERIAL AND INSTALLATION REQUIREMENTS.

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT
		FLANGED JOINT
		MECHANICAL JOINT
		BELL & SPIGOT JOINT (LEADED)
		HUB & SPIGOT JOINT (RUBBER GASKET)
		BALL JOINT
		ADAPTER SIDE GROOVED END ADAPTER FLANGE
		FLANGED COUPLING ADAPTER
		FLANGED COUPLING ADAPTER WITH THRUST TIES
		FLEXIBLE COUPLING
		FLEXIBLE COUPLING WITH THRUST TIES
		STEEL BELLOWS EXP. JOINT
		ELASTOMER BELLOWS EXP. JOINT

DOUBLE LINE	SINGLE LINE	
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		REDUCING BUSHING
		UNION
		CAP
		ANCHOR
		ELBOW, 90 DEGREE
		CROSS
		TEE
		ELBOW, 45 DEGREE
		LATERAL

NOTES:

1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS; FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.
3. EXISTING PIPE AND EQUIPMENT IS SHOWN WITH A DASHED LINE AND/OR SCREENED AND IS NOTED AS EXISTING. NEW PIPING AND EQUIPMENT IS SHOWN WITH A HEAVY LINE.

GENERAL PIPING NOTES:

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED.
4. ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES OR PENETRATION SEALS SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE PLANS, WHEREVER APPLICABLE. NOT ALL OF THE VARIOUS PIPING COMPONENTS ARE NECESSARILY USED IN THE PROJECT.
7. NUMBER AND LOCATION OF UNIONS SHOWN ON PLANS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
8. WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.

GATE SYMBOLS

ELEVATION VIEW	PLAN VIEW	
		SLUICE
		BUTTERFLY
		FLAP
		SHEAR
		FABRICATED SLIDE
		STOP LOG

ABBREVIATIONS

ABBREV	DESCRIPTION
AWWA	AMERICAN WATER WORKS ASSOCIATION
CPVC	CHLORINATED POLYVINYL CHLORIDE
DX	DIRECT EXPANSION
ECC	ECCENTRIC
EQUIP	EQUIPMENT
FLEX	FLEXIBLE
FOB	FLAT ON BOTTOM
FPM	FEET PER MINUTE
GAL	GALLON
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
N.O.	NORMALLY OPEN
NC	NORMALLY CLOSED
OS&Y	OUTSIDE STEM AND YOKE
RPM	REVOLUTIONS PER MINUTE
SP	STATIC PRESSURE
VAC	VACUUM
VTR	VENT THROUGH ROOF
WC	WATER COLUMN
WPD	WATER PRESSURE DROP

FLOW STREAM IDENTIFICATION

ABBREV	DESCRIPTION
AHP	AIR, HIGH PRESSURE
ALP	AIR, LOW PRESSURE
BS	BLENDED SLUDGE
NG	NATURAL GAS
RW	RAW WATER
VENT	VENT

FLOW STREAM IDENTIFICATION

ABBREV	DESCRIPTION

REGISTRATION NO. PEF007804

10% DESIGN - NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

PROCESS MECHANICAL NOTES, LEGENDS, AND ABBREVIATIONS

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
01-G009

SHEET NUMBER **08**

Revit File: BIM 360://22W38095 - Coweta County Water MP/Coweta_General.rvt
Plot Date: 9/12/2022 2:58:47 PM

HVAC SYMBOLS:

- SUPPLY AIR DIFFUSER ARROWS INDICATE PATTERN. NO PATTERN INDICATES 4-WAY.
- RETURN AIR GRILL
- SUPPLY AIR SLOT
- RETURN AIR SLOT
- 12"ø — ROUND DUCTWORK, DIAMETER IN INCHES
- 20x12 — RECTANGULAR DUCTWORK, SIZE IN INCHES, FIRST NUMBER IS SIDE SHOWN, NET FREE AREA
- SUPPLY OR OUTSIDE AIR DUCT
- RETURN OR EXHAUST AIR DUCT
- D-1 / 500 — DIFFUSER/GRILL LABEL - TYPE DESIGNATION - AIRFLOW (CFM)
- RECTANGULAR DUCT BRANCH TAKEOFF WITH 45° BRANCH INLET
- ROUND DUCT BRANCH TAKEOFF WITH CONICAL INLET
- TURNING VANES
- POINT OF CONNECTION - NEW TO EXISTING
- M — MOTORIZED DAMPER
- MANUEL BALANCING DAMPER
- FIRE DAMPER
- T — THERMOSTAT
- H — HUMIDISTAT
- F — FIRESTAT
- T — TEMPERATURE SENSOR
- H — HUMIDITY SENSOR
- T — DUCT MOUNTED TEMPERATURE SENSOR
- H — DUCT MOUNTED HUMIDITY SENSOR
- F D — DUCT MOUNTED SMOKE DETECTOR
- SP — STATIC PRESSURE SENSOR
- 1 — KEYED NOTE REFERENCE

VALVE SYMBOLS:

- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GATE VALVE
- GLOBE VALVE
- ANGLE GLOBE VALVE
- KNIFE VALVE
- NEEDLE VALVE
- PLUG VALVE
- PINCH VALVE
- PRESSURE CONTROL
- VACUUM RELIEF
- VEEBALL VALVE
- DIAPHRAGM VALVE
- THREE-WAY / FOUR-WAY VALVE
- M — MOTORIZED VALVE
- S — SOLENOID VALVE

PIPING SYMBOLS:

- CHS — CHILLED WATER SUPPLY
- CHR — CHILLED WATER RETURN
- HWS — HEATING HOT WATER SUPPLY
- HWR — HEATING HOT WATER RETURN
- LPS — LOW PRESSURE STEAM (15 PSI)
- PC — PUMPED CONDENSATE RETURN
- CR — CONDENSATE RETURN
- CD — CONDENSATE DRAIN
- D — DRAIN
- AHP — COMPRESSED AIR
- MU — MAKE-UP WATER
- RHG — REFRIGERANT HOT GAS LINE
- RS — REFRIGERANT SUCTION LINE
- RL — REFRIGERANT LIQUID LINE
- AAA — EXISTING PIPE, "AAA" DENOTES TYPE
- AAA — EXISTING PIPE TO BE REMOVED, "AAA" DENOTES TYPE
- ELBOW UP
- ELBOW DOWN
- TEE OUTLET UP
- TEE OUTLET DOWN
- VALVE IN DROP
- VALVE IN CENTER DROP
- VALVE IN RISE
- DIRECTION OF FLOW
- UNION
- STRAINER WITH BLOWDOWN VALVE
- CONCENTRIC REDUCER
- PIPE FLANGE
- THERMOMETER WELL
- FLEXIBLE CONNECTION

HVAC NOTES:

1. PROVIDE ACCESS DOORS TO ALL FIRE DAMPERS, SMOKE DAMPERS, EQUIPMENT, COILS, ETC. WHERE NOT DIRECTLY ACCESSIBLE THOROUGH AIR DEVICES OR REMOVABLE CEILING GRID. MINIMUM SIZE SHALL BE 18" X 10" UNLESS NOTED OTHERWISE.
2. ALL EQUIPMENT AND MATERIAL SHALL BE SUITABLE FOR ELEVATED TEMPERATURES INDICATED.
3. SEE STRUCTURAL PLANS FOR EXACT DIMENSIONS AND DETAILS OF THE BUILDING.
4. ALL HVAC WORK TO BE PER SMACNA AND ALL APPLICABLE CODES.
5. ALL DUCTS SHALL BE MOUNTED HIGH AS POSSIBLE AGAINST BOTTOM OF BEAMS EXCEPT AS REQUIRED TO AVOID CONFLICTS WITH INTERSECTING DUCTS. DIAGONALLY OFFSET DUCTS IMMEDIATELY BEFORE AND AFTER PASSING UNDER INTERSECTING DUCTS OR LARGE STRUCTURAL MEMBERS TO MAINTAIN DUCT TIGHT TO STRUCTURE.
6. PROVIDE TURNING VANES AT ALL ELBOWS GREATER THAN 45°. TURNING VANES SHALL BE SINGLE THICKNESS.
7. EXPOSED DUCTWORK, ETC. SHALL BE FURNISHED FREE OF VISUAL DEFECTS, SUITABLE FOR PAINTING AND SHALL BE PAINTED AS REQUIRED BY ARCHITECTURAL SPECIFICATIONS.
8. ALL RECTANGULAR SUPPLY AND RETURN DUCTS SHALL BE INTERNALLY LINED WITH 1" INSULATION. SEE SPECIFICATIONS FOR DETAILED INSULATION REQUIREMENTS.
9. DUCT SIZES SHOWN ON PLANS INDICATE NET FREE AREA.
10. DURING CONSTRUCTION, AFTER START-UP OF HVAC SYSTEMS, CONTRACTOR MUST MAINTAIN AND/OR REPLACE ON A REGULAR SCHEDULE ALL FILTERS IN THE HVAC SYSTEM. ONE (1) WEEK BEFORE THE FACILITY IS OCCUPIED, THE CONTRACTOR MUST REPLACE ALL AIR FILTERS WITH NEW FILTERS. DO NOT OPERATE HVAC SYSTEMS WITHOUT FILTERS IN PLACE.
11. BALANCE AIR SYSTEM TO PROVIDE INDICATED AIR FLOWS. SEE SPECIFICATIONS FOR OTHER TEST AND BALANCE REQUIREMENTS. SUBMIT TO ENGINEER FINAL BALANCE OF AIR AND WATER SYSTEMS (FLOW AND TEMPERATURE) FOR REVIEW.
12. THE CONTRACTOR SHALL COORDINATE AND VERIFY THE FOLLOWING WITH DIVISIONS 23 AND 26 PRIOR TO BID:

    DISCONNECTS:
    WHERE NOT FURNISHED WITH EQUIPMENT:
    FURNISHED UNDER DIVISION 26, INSTALLED UNDER DIVISION 26. WHERE FURNISHED WITH EQUIPMENT:
    FURNISHED UNDER DIVISION 23, INSTALLED UNDER DIVISION 26.

GENERAL MECHANICAL NOTES:

1. REFER TO SPECIFICATIONS AND PROJECT MANUAL FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. REFER TO ALL PROJECT DRAWINGS FOR DETAILS OF CONSTRUCTION AND INSTALLATION REQUIREMENTS.
3. REFER TO GENERAL CONDITIONS AND SUPPLEMENTARY GENERAL CONDITIONS FOR THE CONTRACT. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR FULL COORDINATION OF PROJECT INCLUDING THE EQUIPMENT AND INSTALLATION OF THE MECHANICAL WORK.
4. CONTRACTOR SHALL BECOME, PRIOR TO BID, THOROUGHLY FAMILIAR WITH THE REQUIREMENTS OF THESE NOTES AS WELL AS OTHER REQUIREMENTS SHOWN ON THE CONTRACT DOCUMENTS.
5. ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRICAL RELATIONSHIPS OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, SEQUENCE, DEVICE, OPTION, FITTING, OR COMPONENT.
6. INFORMATION AND COMPONENTS SHOWN ON RISER DIAGRAMS OR DETAILS, BUT NOT SHOWN ON PLANS, AND VICE VERSA, SHALL BE PROVIDED AS IF EXPRESSLY REQUIRED BY BOTH.
7. CONTRACTOR SHALL NOT SCALE DRAWINGS. DRAWINGS SPECIFIC TO THIS DISCIPLINE DO NOT LIMIT THE RESPONSIBILITY OF WORK REQUIRED BY THE CONTRACT DOCUMENTS.
8. UNLESS NOTED OTHERWISE, THE INDICATION AND/OR DESCRIPTION OF ANY ITEM, IN THE DRAWINGS OR SPECIFICATIONS CARRIES WITH IT THE INSTRUCTION TO FURNISH AND INSTALL THE ITEM.
9. EXACT LOCATIONS OF ALL EQUIPMENT, THERMOSTATS, SWITCHES, DUCTS, DIFFUSERS, ETC. SHALL BE COORDINATED WITH OTHER TRADES. CEILING MOUNTED LIGHTING AND ELECTRICAL REQUIREMENTS TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL REQUIREMENTS.
10. SEE STRUCTURAL DRAWINGS FOR BUILDING DETAILS AND DIMENSIONS. COORDINATE PLACEMENT OF ALL THERMOSTATS, ROOF MOUNTED EQUIPMENT, ETC. WITH STRUCTURAL TRADES.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF OTHER TRADES. REFER TO STRUCTURAL, ELECTRICAL, AND OTHER DRAWINGS FOR COMPLETE INFORMATION PRIOR TO BID.
12. NO OTHER TRADES, I.E., ELECTRICAL, CEILING, PLUMBING, ETC., SHALL BE SUSPENDED, HUNG, OR SUPPORTED FROM DUCTWORK OR PIPING.
13. REPLACE ALL FEATURES REMOVED OR DAMAGED DURING THE COURSE OF THE WORK.
14. ALL WORK MUST COMPLY WITH THE REQUIREMENTS OF LOCAL CODES AND ORDINANCES. WHERE INSPECTIONS ARE REQUIRED BY AUTHORITIES HAVING JURISDICTION, WORK MUST NOT BE CONCEALED UNTIL INSPECTIONS AND TESTING ARE COMPLETED AND ACCEPTED.
15. HOUSEKEEPING PADS: EXCEPT WHERE STRUCTURAL EQUIPMENT SUPPORT PADS ARE CALLED FOR ON THE PLANS, PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL GROUND AND/OR FLOOR MOUNTED EQUIPMENT. UNLESS OTHERWISE INDICATED, PADS MUST BE MINIMUM OF 4 INCHES THICK WITH CHAMFERED EDGES. WHERE PADS ARE INSTALLED ON CONCRETE FLOORS, DOWEL RODS PENETRATING INTO BOTH THE PAD AND THE FLOOR (MINIMUM 4 RODS PER PAD) MUST BE USED TO ANCHOR PADS IN POSITION.
16. ALL WIRING INSTALLED FOR CONTROLS, POWER, INTERLOCKS, ETC. WHICH ARE TO BE INSTALLED IN OCCUPIED SPACES OR IN RETURN AIR PLENUMS MUST BE PLENUM RATED OR INSTALLED IN CONDUIT UNLESS OTHERWISE INDICATED. ALL SUCH INSTALLATIONS MUST MEET NFPA AND NEC REQUIREMENTS AND LOCAL CODES.
17. SEAL ALL ROOF AND WALL PENETRATIONS. FLASH AND COUNTER-FLASH ALL ROOF PENETRATIONS. MINIMUM ACCEPTABLE HEIGHT OF FLASHING IS EIGHT (8) INCHES ABOVE ROOF.
18. MAINTAIN A MINIMUM OF 15'-0" BETWEEN ALL FRESH AIR INTAKES AND PLUMBING VENTS EXHAUST FAN DISCHARGE, FLUES, ETC. COORDINATE WITH ALL OTHER CONTRACTORS ON SITE.
19. COORDINATE FINAL PLACEMENT OF ALL THERMOSTATS WITH WALL MOUNTED DEVICES AND OWNER'S REPRESENTATIVE. MOUNT THERMOSTATS AT 48" A.F.F. ANY THERMOSTAT THAT IS REQUIRED TO BE MOUNTED ON AN EXTERIOR WALL MUST BE MOUNTED ON AN INSULATED BASE.
20. MECHANICAL CONTRACTOR SHALL SUPPLY SMOKE DETECTOR IN RETURN DUCT OF AIR HANDLERS OVER 2000 CFM AND FOR UNITS WHICH SERVE AREAS OF EGRESS FOR INSTALLATION BY ELECTRICAL CONTRACTOR. DETECTORS SHALL BE DUCT MOUNTED, PHOTOELECTRIC TYPE COMPATIBLE WITH EXISTING FIRE ALARM SYSTEM WITH INTEGRAL RELAY FOR SHUTDOWN OF UNIT UPON ACTIVATION OF DETECTOR.
21. EXTERIOR DUCTWORK EXPOSED TO WEATHER: CROWN TOP SURFACE FOR WATER RUNOFF AND COMPLETELY SEAL ALL JOINTS WITH UV RESISTANT WEATHERPROOF SEALANT.

ABBREVIATIONS

ABBREV	DESCRIPTION
A/C	AIR CONDITIONER, AIR CONDITIONING
ABV	ABOVE
ACC	AIR COOLED CHILLER
AMP	AMPERES
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING & REFRIGERATION INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION & AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AWWA	AMERICAN WATER WORKS ASSOCIATION
BD	BACKDRAFT DAMPER
BFW	BOILER FEED WATER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BTU	BRITISH THERMAL UNIT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CIRC	CIRCULATING
CLG	CEILING
COL	COLUMN
CPVC	CHLORINATED POLYVINYL CHLORIDE
CU	COPPER
CW	COLD WATER
DB	DRY BULB
dB	DECIBEL
DDC	DIRECT DIGITAL CONTROL(S)
DISC	DISCONNECT
DX	DIRECT EXPANSION
EAT	ENTERING AIR TEMPATURE
ECC	ECCENTRIC
EDB	ENTERING DRY BULB
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
FLA	FULL LOAD AMPERES
FLEX	FLEXIBLE
FOB	FLAT ON BOTTOM
FPM	FEET PER MINUTE
GAL	GALLON
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRND	GROUND
H, HT	HEIGHT
HD	HEAD, HUB DRAIN
HSTAT	HUMIDISTAT
HTG	HEATING
HTR	HEATER
HW	HOT WATER
Hz	HERTZ
IN WC	INCHES OF WATER COLUMN
kWH	KILOWATT-HOUR
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
LDB	LEAVING DRY BULB
LP	LOW PRESSURE
LRA	LOCKED ROTOR AMPERES
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MBTU, MBH	1000 BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER

ABBREVIATIONS

ABBREV	DESCRIPTION
MD	MOTORIZED DAMPER
MOCP	MAXIMUM OVER CURRENT PROTECTION
N.O.	NORMALLY OPEN
NC	NOISE CRITERIA, NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
OS&Y	OUSIDE STEM AND YOKE
PH, Ø	PHASE
RA	RETURN AIR
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RECIRC	RECIRCULATE
RH	RELATIVE HUMIDITY
RHG	REFRIGEREANT LIQUID
RLA	RUNNING LOAD AMPERES
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
SA	SUPPLY AIR
SD	SMOKE DAMPER, STORM DRAIN
SEC	SECTION
SP	STATIC PRESSURE
ST	SOUND TRAP, STEAM TRAP
SURF	SURFACE
SUSP	SUSPEND, SUSPENDED
THRU	THROUGH
TOD	TOP OF DUCT
TP	TOTAL PRESSURE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
U/F	UNDER FLOOR
U/S	UNDER SLAB
UL	UNDERWRITERS LABORATORIES, INC.
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VTR	VENT THROUGH ROOF
WB	WET BULB
WC	WATER COLUMN
WPD	WATER PRESSURE DROP
WT	WATERTIGHT, WEIGHT
°C	DEGREES CELSUIS
°F	DEGREES FAHRENHEIT

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

BUILDING MECHANICAL NOTES, LEGENDS, AND ABBREVIATIONS

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G010

SHEET NUMBER **09**

Revit File: BIM 360://22W38095 - Coweta County Water MP/Coweta_General.rvt
Plot Date: 9/12/2022 2:58:48 PM

GENERAL NOTES:

1. THESE NOTATIONS ARE INTENDED TO BE GENERAL IN NATURE. THEY MAY OR MAY NOT APPLY TO SOME OR ALL OF THE PLAN SHEETS AND SPECIFICATIONS.
2. ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
3. CONDUIT RUNS INDICATED ON THE PLAN SHEETS ARE INTENDED TO BE SCHEMATIC ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD ROUTING ALL CONDUIT RUNS AND SHALL COORDINATE ANY DEVIATION FROM ROUTING AS INDICATED HEREIN WITH THE ENGINEER. ALL CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO PREVENT CONFLICTS WITH EQUIPMENT. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS OR STRUCTURAL CONDITIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD ROUTING ALL CONDUITS NOT INDICATED ON THE PLAN SHEETS. THIS INCLUDES CIRCUITS FOR LIGHTING, RECEPTACLES AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
5. ALL CONDUITS SHALL BE ROUTED AND SUPPORTED IN SUCH A MANNER AS TO NOT COMPROMISE THE STRUCTURAL INTEGRITY OF WALLS, FLOORS, CEILINGS, AND ROOFS. WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE ADDITIONAL STRUCTURAL SUPPORTING MEMBERS FOR THE INSTALLATION AND SHALL COORDINATE SUCH MEMBERS WITH ENGINEER.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF CONDUIT ENTRANCES FOR ALL EQUIPMENT WITH SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.
7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INTERIOR OF EXTERIOR WALLS OR IN OTHER LOCATIONS CONSIDERED DAMP OR WET SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" MINIMUM AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
8. PULLBOXES, IF SHOWN ON THE PLANS, ARE SCHEMATIC IN NATURE. THE CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE REQUIRED TO MAKE A WORKABLE INSTALLATION.
9. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS.
10. ALL CONDUIT RUNS PASSING THROUGH EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS. FOR LOCATIONS OF EXPANSION JOINTS, REFER TO THE STRUCTURAL DRAWINGS.
11. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. IF EQUIPMENT SUPPLIED BY THE MANUFACTURER HAS A LARGER LOAD THAN THE VALUE SHOWN OR INDICATED, THE CABLE, CONDUIT AND ELECTRICAL EQUIPMENT MAY BE ENLARGED AS REQUIRED TO ACCOMMODATE THE HIGHER LOADING. HOWEVER, THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
12. ALL MOTOR STARTER CONTROL POWER TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT-AMPERE CAPACITY FOR OPERATING ALL LOCAL AND REMOTE ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR IN ADDITION TO THE STARTER COIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL LOADING REQUIREMENTS FOR CONTROL POWER TRANSFORMERS.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR ALL EQUIPMENT INSTALLED.
14. MOTOR CONTROL CENTERS AND ALL FREE STANDING PANELS SHALL BE SET ON CONCRETE HOUSEKEEPING PADS WITH LEVELING CHANNELS EMBEDDED IN THE PAD.
15. IN GENERAL, SEPARATE POWER, CONTROL AND INSTRUMENTATION WIRING. PROVIDE SEPARATE CONDUIT, PULL AND JUNCTION BOXES. PROVIDE SUITABLE CABLE BARRIER WITHIN PULL OR JUNCTION BOXES WHERE SEPARATION OF WIRING IS NOT SHOWN ON THE DRAWINGS.
16. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, DOORS OR OTHER SIMILAR ITEMS, NO CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO CONFLICT WITH PROPER OPERATION OF SUCH EQUIPMENT.
17. CONTRACTOR SHALL FURNISH AND INSTALL ITEMS AS NECESSARY FOR COMPLETE AND FUNCTIONAL SYSTEMS INCLUDING THE CHEMICAL FEED SYSTEMS, MECHANICAL SYSTEMS, AND PLANT INSTRUMENTATION SYSTEM/DISTRIBUTED CONTROL SYSTEM. THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND OTHER SECTIONS OF THE PLANS FOR ITEMS AS MAY BE REQUIRED AND SHALL PROVIDE CONDUIT, WIRING AND TERMINATIONS FOR ALL ITEMS AS REQUIRED.
18. CONTRACTOR SHALL REFER TO OTHER PLAN SHEETS FOR LOCATIONS OF FIREWALLS. ALL CONDUIT PENETRATIONS IN THESE WALLS SHALL BE ACCOMPLISHED IN SUCH A MANNER AS TO NOT REDUCE THE RATING OF THE FIREWALL THROUGH THE USE OF BOXES, SEALANTS AND OTHER ACCESSORIES AS MAY BE REQUIRED.
19. CONTRACTOR SHALL REFER TO MECHANICAL PLAN SHEETS AND SPECIFICATIONS FOR ITEMS RELATED TO THE MECHANICAL SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL ITEMS AS NECESSARY FOR COMPLETE AND OPERABLE MECHANICAL HEREIN INCLUDING, BUT NOT LIMITED TO; CONTROL POWER TRANSFORMERS, STARTERS, THERMOSTATS, CONTROL STATIONS, AND OTHER ELECTRICAL ITEMS AS RELATED TO THE INSTALLATION OF THE MECHANICAL SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DISCONNECTS FOR ALL MECHANICAL MOTORS UNLESS THE EQUIPMENT IS FURNISHED WITH AN INTEGRAL DISCONNECT FROM THE MANUFACTURER. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL CONDUIT, WIRING AND TERMINATIONS FOR ALL COMPONENTS AS MAY BE NECESSARY FOR THE MECHANICAL SYSTEMS.
20. ALL RECEPTACLES IN OUTDOOR AND ANTICIPATED WET AREAS SHALL BE GROUND FAULT CIRCUIT INTERRPUTER RECEPTACLES WITH WEATHERPROOF COVERS.
21. EQUIPMENT LOCKOUTS SHALL BE IN STRICT ACCORDANCE WITH OWNER'S REQUIREMENTS.
22. ALL CONDUITS SHALL HAVE A GROUNDING CONDUCTOR, SIZED PER NEC.
23. ALL LIGHTING FIXTURES INSTALLED IN INSULATED LOCATIONS SHALL BE RATED FOR SUCH INSTALLATION REGARDLESS OF THE FIXTURE SCHEDULE DESIGNATION.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF NEW SERVICE INSTALLATIONS WITH OWNER, ENGINEER AND SERVICE UTILITY. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS AS REQUIRED BY SERVICE UTILITY FOR NEW SERVICE CONNECTIONS.
25. UNLESS NOTED OTHERWISE, ALL CONTROL PANELS SHALL BE FABRICATED SUCH THAT ALL OPERATORS AND INDICATING DEVICES INDICATED ON THE SCHEMATICS BE LOCATED ON THE FRONT DOOR OR COVER OF THE PANEL. OPERATING AND INDICATING DEVICES SHALL BE VISIBLE AND OPERABLE WITHOUT HAVING TO OPEN THE CONTROL PANEL.
26. DUCT BANKS INDICATED ARE FOR REFERENCE ONLY; THE CONTRACTOR SHALL REVIEW PLAN SHEETS RELATED TO INDIVIDUAL STRUCTURES AND VERIFY CONDUITS THAT MAY BE REQUIRED. THE CONTRACTOR SHALL VERIFY NUMBER OF CONDUITS AS INDICATED IN THE DUCT BANK PRIOR TO INSTALLATION WITH THE ENGINEER. PROVIDE A SPARE CONDUIT, EQUAL IN SIZE TO THE LARGEST CONDUIT IN USE, FOR EACH SET OF FOUR USED CONDUITS IN EACH DUCT BANK.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING HEAT TRACING FOR ALL EXPOSED WATER LINES TO BE INSTALLED UNDER THIS PROJECT. THE CONTRACTOR SHALL REVIEW OTHER SECTIONS OF THE PLANS AND SPECS AND PROVIDE SUITABLE HEAT TRACING COMPONENTS AS MAY BE REQUIRED, WHETHER INDICATED ON THE ELECTRICAL PLAN SHEETS OR NOT.

EQUIPMENT LINE TYPES

- PROPOSED OR NEW EQUIPMENT
- EXISTING EQUIPMENT
- EQUIPMENT PACKAGE
- GROUND RING OR UNDERGROUND

GENERAL NOTES:

1. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET BUT NOT BE UTILIZED ON THE PROJECT.
2. LIGHTING LEGEND SHOWS EXAMPLE IDENTIFIERS, REFER TO LIGHT FIXTURE SCHEDULE FOR SPECIFIC REQUIREMENTS.

LIGHTING, POWER & SYSTEM LEGEND

- A — 1x4 FLUORESCENT LIGHT FIXTURE
- D — FLUORESCENT LIGHT FIXTURE WITH EMERGENCY LIGHT (EL) BATTERY PACK, 1400 LUMENS MINIMUM FOR 2 LAMPS
- S — SWITCH, SINGLE POLE
- S^2 — SWITCH, DOUBLE POLE
- S^3 — SWITCH, THREE WAY
- S^4 — SWITCH, FOUR WAY
- S^D — SWITCH, DIMMER
- OR — NON-FUSED DISCONNECT SWITCH, SIZE AS NOTED
- OR — COMBINATION DISCONNECT AND MOTOR STARTER, SIZE AS NOTED, FUSED TYPE SHOWN
- F OR — FUSED DISCONNECT SWITCH, SIZE AS NOTED
- H H1 — HANDHOLE, IDENTIFIER SHOWN, REFER TO HANDHOLE SCHEDULE FOR SIZE
- GROUND
- 20 AMP DUPLEX RECEPTACLE, MTD. 20" AFF TO BOTTOM, WITH #12 GROUND WIRE, "GFCI" INDICATES GROUND FAULT CIRCUIT INTERRUPTER, "WP" INDICATES WEATHERPROOF WHILE-IN-USE ENCLOSURE AND COVER, BOX INDICATES FLOOR OUTLET WITH RECESSED CAST JUNCTION BOX
- ELECTRICAL PANEL OR EQUIPMENT CABINET, SURFACE MOUNTED, 5'-6" TO TOP OF ENCLOSURE
- ELECTRICAL PANEL OR EQUIPMENT CABINET, RECESSED MOUNTED, 5'-6" TO TOP OF ENCLOSURE
- # — HOME RUN TO PANEL IN DEDICATED CONDUIT, RECEPTACLES AND EQUIPMENT SHALL HAVE DEDICATED GREEN GROUND WIRE. NUMBER OF ARROWS INDICATES NUMBER OF PHASE CONDUCTORS, LETTER(S) INDICATE NAME OF PANEL, NUMBER(S) INDICATE CIRCUIT NUMBERS
- DATA AND TELEPHONE DUAL OUTLET
- D1 — DUCT BANK, IDENTIFIER SHOWN, REFER TO DUCT BANK SCHEDULE FOR SIZE AND CONFIGURATION
- G, 100 kW — GENERATOR, RATINGS AS SHOWN
- GROUND ROD AND TEST WELL
- OR OR — 3/4" x 10' COPPER CLAD GROUND ROD
- * — TRANSFORMER, RATINGS AS SHOWN
- 20A — FUSE, CURRENT LIMITING, AMPERE RATING AS SHOWN OR REQUIRED, "BFI" INDICATES "BLOWN FUSE INDICATOR" TYPE
- M, 20 HP — ELECTRIC MOTOR, HORSEPOWER AS SHOWN
- 1 — MOTOR STARTER, SIZE AS SHOWN OR REQUIRED, FVNR UNLESS NOTED
- 20A/3P — CIRCUIT BREAKER, TRIP RATING SHOWN, 3-POLE UNLESS NOTED OTHERWISE
- CAPACITOR, kVAR AS SHOWN
- AIRTERMINAL

ABBREVIATIONS

ABBREV	DESCRIPTION
A, AMP	AMPERES
ABC	ABOVE COUNTER
ACS	ACCESS CONTROL SYSTEM
ACU	AIR CONDITIONING UNIT
AFG	ABOVE FINISHED GRADE
AIC	AIMPS INTERRUPTING CAPACITY
AM	AMP-METER
ANN	ANNUNCIATOR
AP	AERIAL PRIMARY
AS	AERIAL SECONDARY
ATS	AUTOMATIC TRANSFER SWITCH
BFI	BLOWN FUSE INDICATOR
BI	BYPASS ISOLATION
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CGRS	PVC COATED GALVANIZED RIGID STEEL
COM	COMMON
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRI	COLOR RENDERING INDEX
CS	CORD SET
CU	COEFFICIENT OF UTILIZATION
dB	DECIBEL
DDC	DIRECT DIGITAL CONTROL(S)
DEB	DIRECT EARTH BURIED
DISC	DISCONNECT
EC	EMPTY, EMEDDED CONDUIT
EF	EXHAUST FAN
EG	EQUIPMENT GROUND
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ETM	ELAPSED TIME METER
FACP	FIRE ALARM CONTROL PANEL
FC	FAN COIL
FDS	FUSED DISCONNECT SWITCH
FLA	FULL LOAD AMPERES
FOC	FIBER OPTIC CABLE
FS	FLOAT SWITCH
FVNR	FULL VOLTAGE NON-REVERSING STARTER
FVR	FULL VOLTAGE REVERSING STARTER
GDT	GRAPHIC DISPLAY TERMINAL
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HID	HIGH INTENSITY DISCHARGE
HR	HOUR
Hz	HERTZ
IDS	INTRUSION DETECTION SYSTEM
IG	ISOLATED GROUND
ISP	INDIVIDUALLY SHIELDED PAIR
JB	JUNCTION BOX
kVAR	KILOVOLT-AMPERE, REACTIVE
kWh	KILOWATT-HOUR
LA	LIGHTNING ARRESTER
LLF	LIGHT LOSS FACTOR
LO	LUGS ONLY
LOR	LOCAL-OFF-REMOTE
LRA	LOCKED ROTOR AMPERES

ABBREVIATIONS

ABBREV	DESCRIPTION
LV	LOW VOLTAGE
MBTU, MBH	1000 BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVER CURRENT PROTECTION
MS	MOTOR STARTER
MTD	MOUNTED
N.O.	NORMALLY OPEN
NCTO	NORMALLY CLOSED TIMED OPEN
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NEUT	NEUTRAL
NFDS	NON-FUSED DISCONNECT SWITHC
NL	NIGHT LIGHT
NOTC	NORMALLY OPEN TIMED CLOSED
OHP	OVERHEAD PRIMARY
OHS	OVERHEAD SECONDARY
OL	OVERLOAD
PB	PUSH BUTTON
PEC	PHOTO ELECTRIC CELL
PF	POWER FACTOR
PFCC	POWER FACTOR CORRECTION CAPACITOR
PH, Ø	PHASE
PL	PILOT LIGHT
PMR	PHASE MONITOR RELAY
PTT	PUSH-TO-TEST
RECPT	RECEPTACLE
RLA	RUNNING LOAD AMPERES
RVAT	REDUCED VOLTAGE AUTO-TRANSFERMER STARTER
RVSS	REDUCED VOLTAGE SOFT STARTER
S	SECOND
SA	SURGE ARRESTER
SDBC	SOFT DRAWN BARE COPPER
SE	SERVICE ENTERANCE
SN	SOLID NEUTRAL
SSOL	SOLID STATE OVERLOAD RELAY
STP	SHIELDED TWISTED PAIR
SW	SWITCH
TC	TIME CLOCK
TD	TIME DELAY
TDD	TIME DELAY ON DE-ENERGIZATION
TDE	TIME DELAY ON ENERGIZATION
TEL	TELEPHONE
THD	TOTAL HARMONIC DISTORTION
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UGP	UNDERGROUND PRIMARY
UGS	UNDERGROUND SECONDARY
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES, INC.
UTP	UNSHIELDED TWISTED PAIR
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT-METER
WH	WEATHER HEAD
WM	WATT METER
WP	WEATHERPROOF

CONTROL SCHEMATIC LEGEND

- WIRING WITHIN PANEL
- WIRING TO FIELD DEVICE
- PUSHBUTTON SWITCH, NORMALLY OPEN
- PUSHBUTTON SWITCH, NORMALLY CLOSED
- SELECTOR SWITCH, NUMBER OF POSITIONS AND CONTACTS AS SHOWN
- RELAY CONTACT, NORMALLY OPEN
- RELAY CONTACT, NORMALLY CLOSED
- ELECTRICAL CONNECTION
- SOLENOID
- TIME DELAY CONTACT, CLOSE ON ENERGIZATION
- TIME DELAY CONTACT, OPEN ON ENERGIZATION
- TIME DELAY CONTACT, OPEN ON DE-ENERGIZATION
- TIME DELAY CONTACT, CLOSE ON DE-ENERGIZATION
- LEVEL SWITCH
- ETM — ELAPSED TIME METER
- TERMINAL BLOCK
- GROUND CONNECTION TO ENCLOSURE GROUND BAR
- PRESSURE SWITCH
- LIMIT SWITCH CONTACT, NORMALLY OPEN
- LIMIT SWITCH CONTACT, NORMALLY CLOSED
- LIMIT SWITCH CONTACT, HELD OPEN
- LIMIT SWITCH CONTACT, HELD CLOSED
- RELAY COIL, "TR" INDICATES "TIMING RELAY"
- PILOT LIGHT; "A" INDICATES "AMBER LENS" "G" INDICATES "GREEN LENS" "R" INDICATES "RED LENS"

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

ELECTRICAL NOTES, LEGENDS, AND ABBREVIATIONS

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
01-G011

SHEET NUMBER **10**

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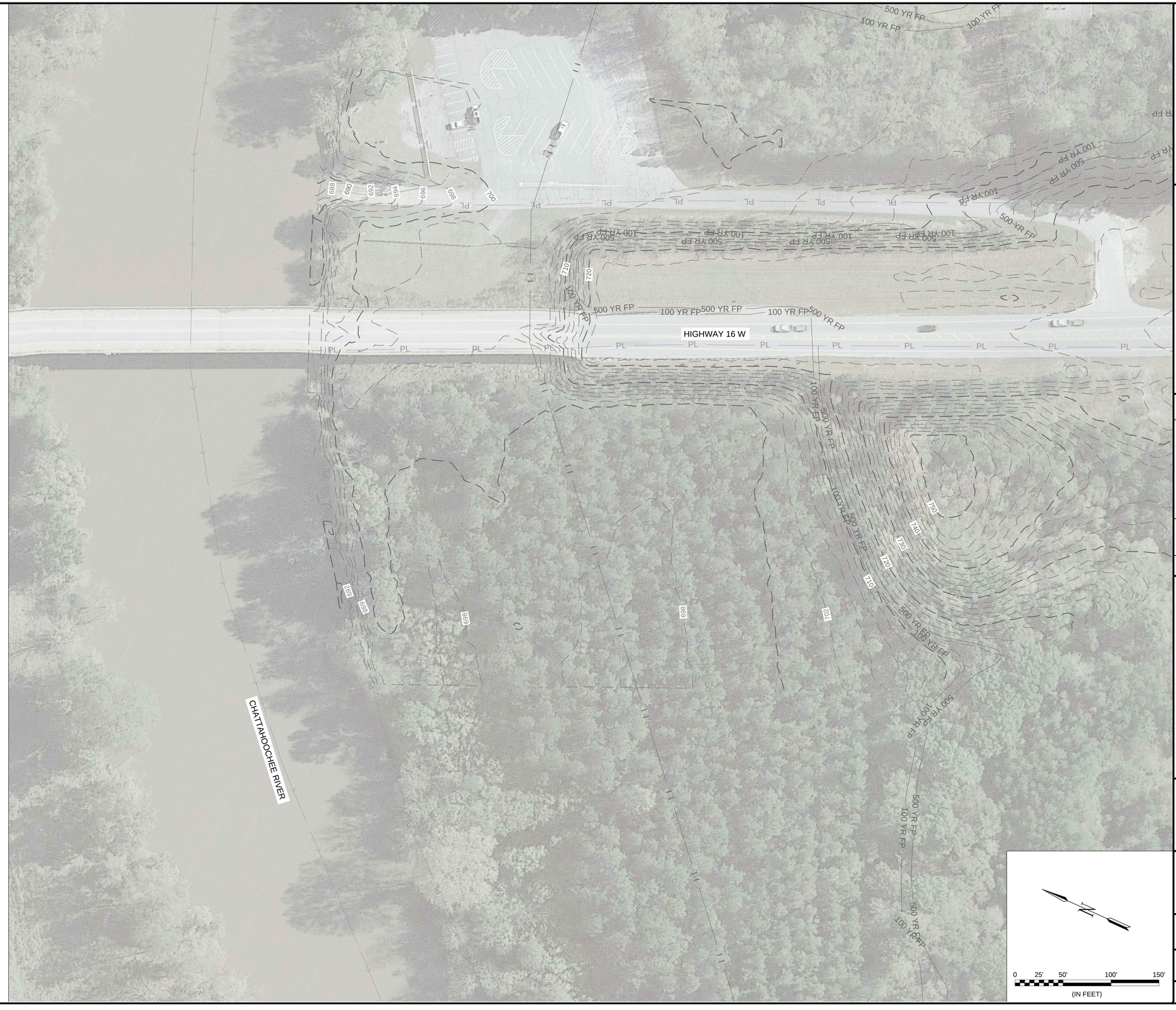

GARVER

R R

REGISTRATION NO.
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REV.	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITYY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

EXISTING SITE PLAN - OVERVIEW

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: CDG
DRAWN BY: AGD
CHECKED BY: JPS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
05-C101

SHEET NUMBER 11

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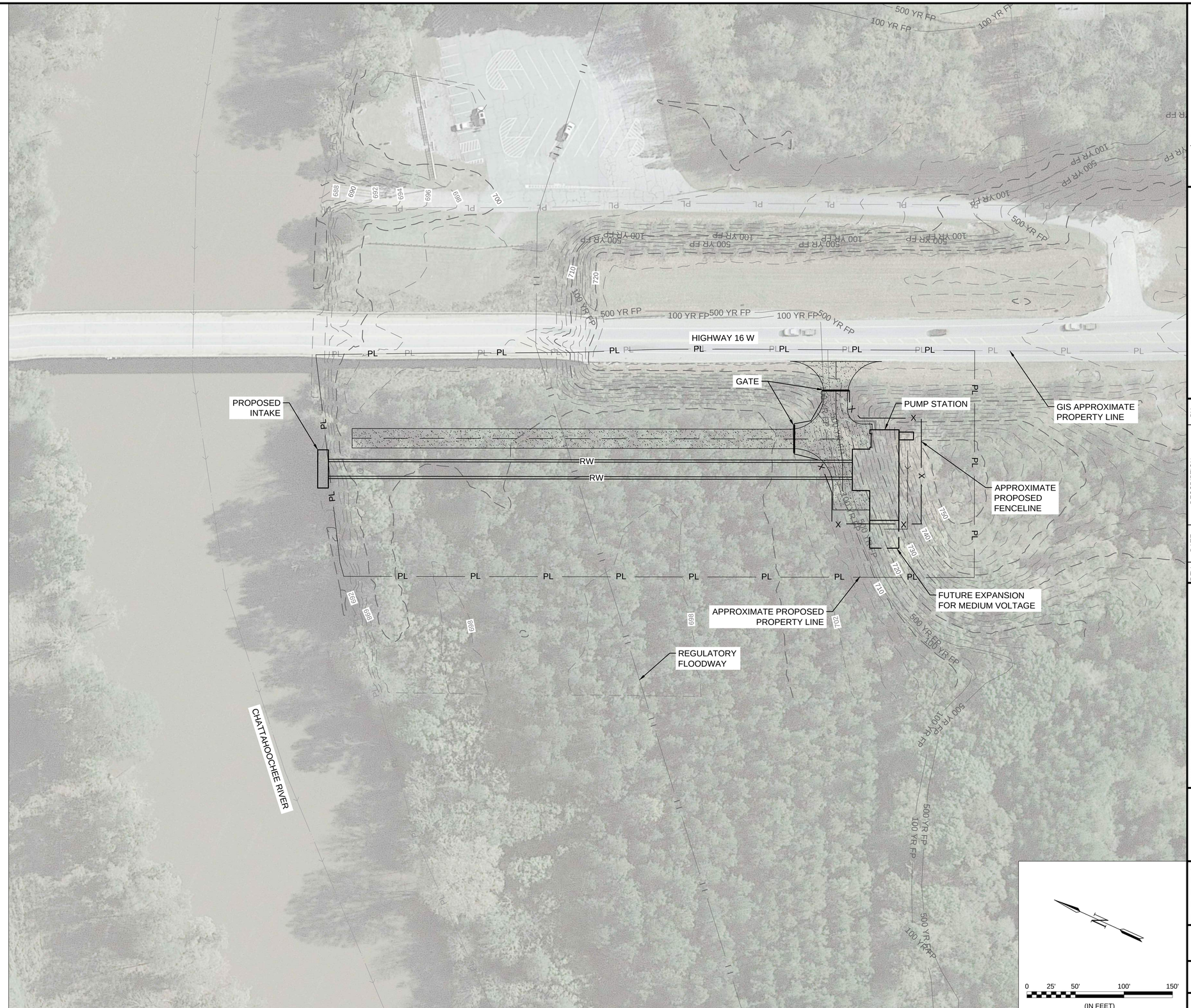
Last plotted by: Purnell, Brianna D Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 9/12/2022 4:52 PM Plotter used: None



0 25' 50' 100' 150'
(IN FEET)

GARVER

REGISTRATION NO.
PEF007804

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REV.	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITYY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

PROPOSED SITE PLAN - OVERVIEW

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: CDG
DRAWN BY: AGD
CHECKED BY: JPS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
05-C102

SHEET NUMBER 12

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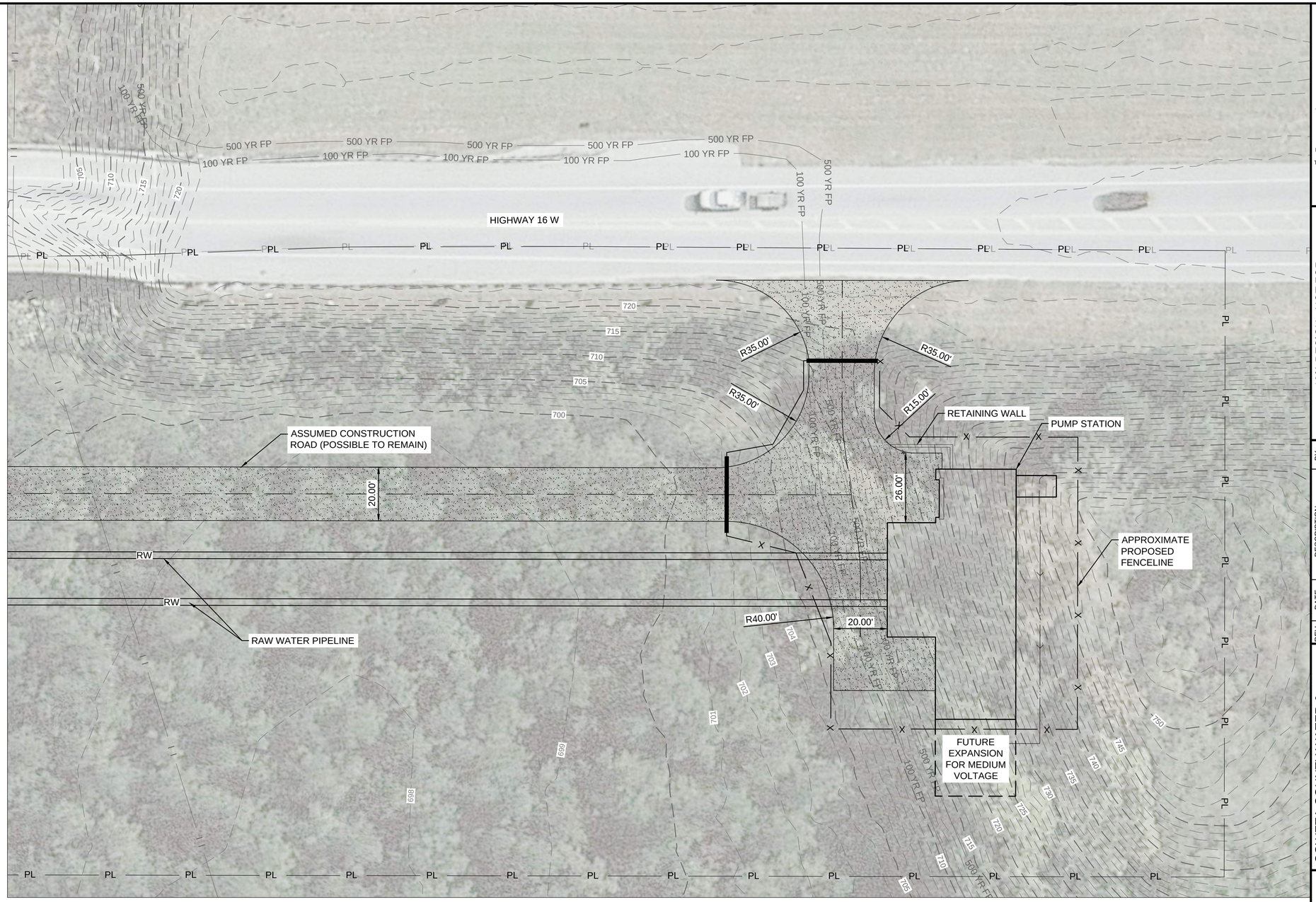
Last plotted by: Purnell, Brianna D. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 9/12/2022 4:53 PM Plotter used: None



0 10' 20' 40' 60'
(IN FEET)

GARVER

REGISTRATION NO.
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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

PROPOSED SITE PLAN - ENLARGED

JOB NO.: 22W38085
DATE: SEPT. 2022
DESIGNED BY: CDG
DRAWN BY: AGD
CHECKED BY: JPS

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
05-C103

SHEET NUMBER 13

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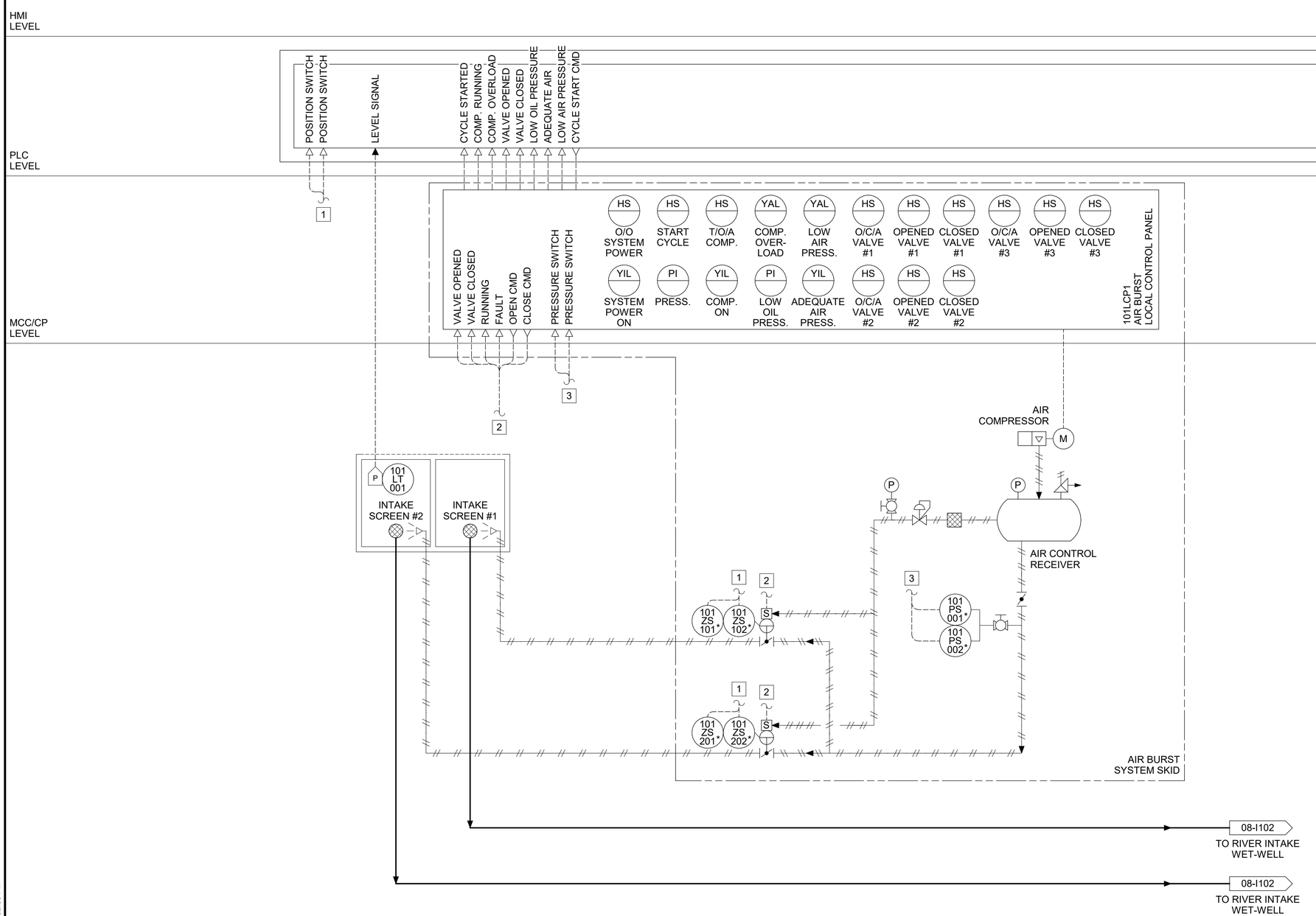
Last plotted by: Purnell, Brianna D. Plot Style: AECmono.ctb Plot Scale: 1:2.5849 Plot Date: 9/12/2022 4:53 PM Plotter used: None

NOTES:

1. SIGNAL LINES TO EQUIPMENT INTENDED ONLY TO INDICATE A REQUIRED ELECTRICAL CONNECTION. REFER TO PLAN SHEETS, CONTROL SCHEMATICS, AND I/O LISTS FOR ADDITIONAL INFORMATION ABOUT NUMBER AND TYPES OF SIGNAL WIRING.
2. EQUIPMENT WITH SYMBOL " * " APPENDED TO IT IS MANUFACTURER SUPPLIED AS PART OF EQUIPMENT PACKAGE.



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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE SCREENS
P&ID

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: JCW
DRAWN BY: WBW
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

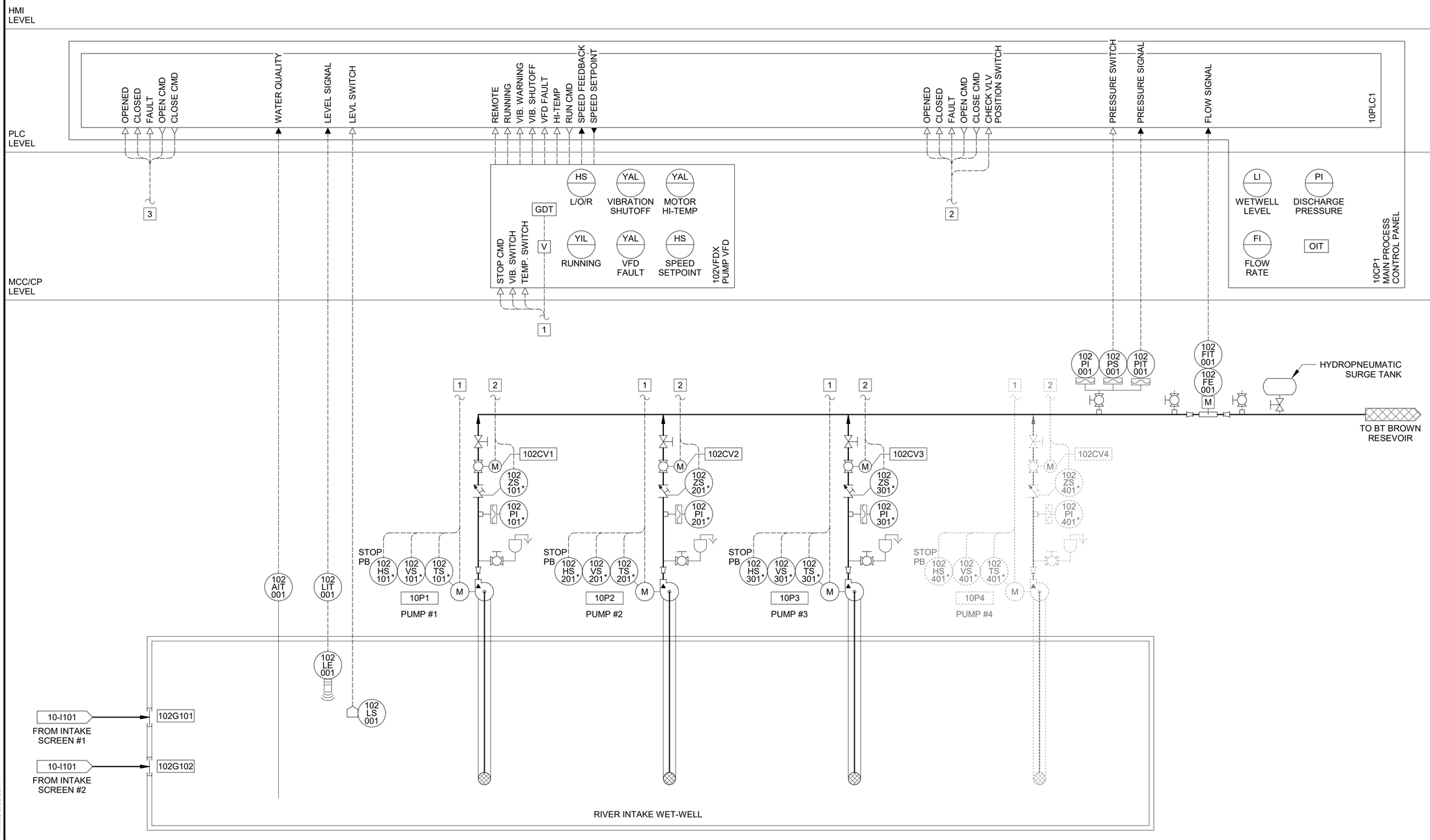
DRAWING NUMBER
08-I101

SHEET NUMBER **14**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_Electrical.rvt
Plot Date: 9/12/2022 2:52:39 PM

NOTES:

1. SIGNAL LINES TO EQUIPMENT INTENDED ONLY TO INDICATE A REQUIRED ELECTRICAL CONNECTION. REFER TO PLAN SHEETS, CONTROL SCHEMATICS, AND I/O LISTS FOR ADDITIONAL INFORMATION ABOUT NUMBER AND TYPES OF SIGNAL WIRING.
2. EQUIPMENT WITH SYMBOL " * " APPENDED TO IT IS MANUFACTURER SUPPLIED AS PART OF EQUIPMENT PACKAGE.



REGISTRATION NO.
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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

PUMP STATION P&ID

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: JCW
DRAWN BY: WBW
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
08-I102

SHEET NUMBER **15**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_Electrical.rvt
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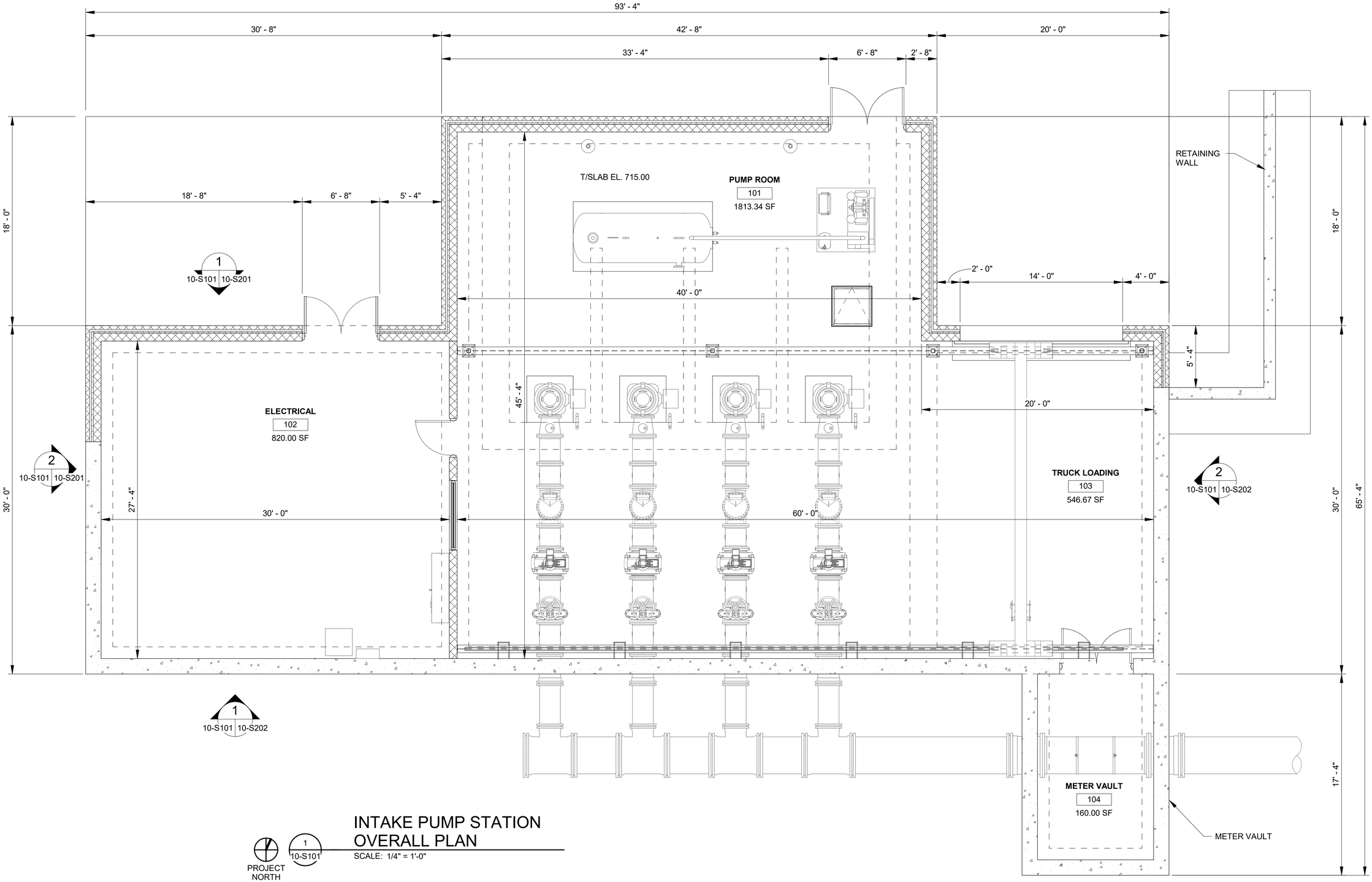

PROJECT NORTH

1 / 10-S101

INTAKE PUMP STATION OVERALL PLAN

SCALE: 1/4" = 1'-0"

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:53:19 PM

REGISTRATION NO.
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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

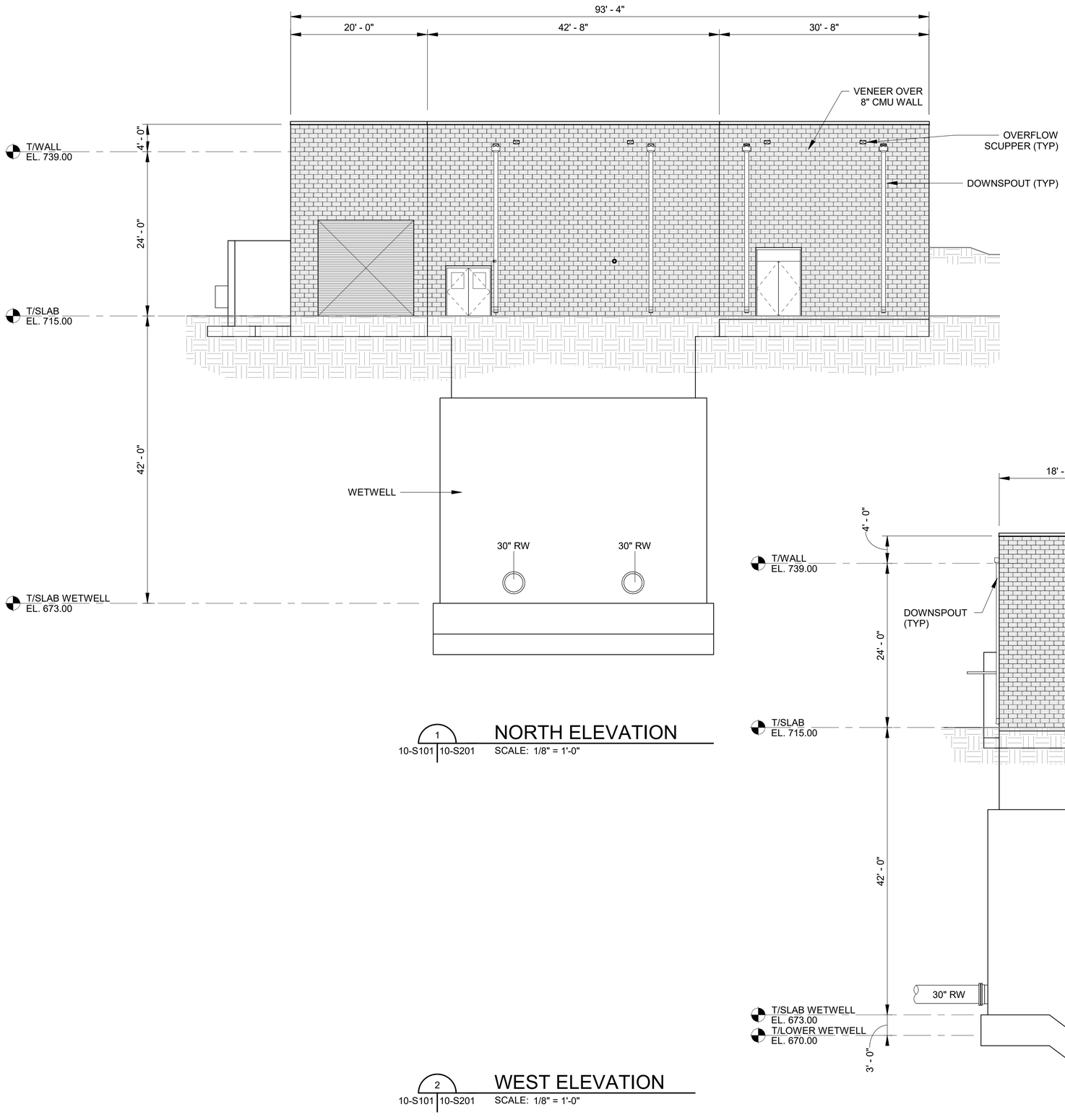
INTAKE PUMP STATION OVERALL PLAN

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: SJC
DRAWN BY: EGB
CHECKED BY: KAM

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

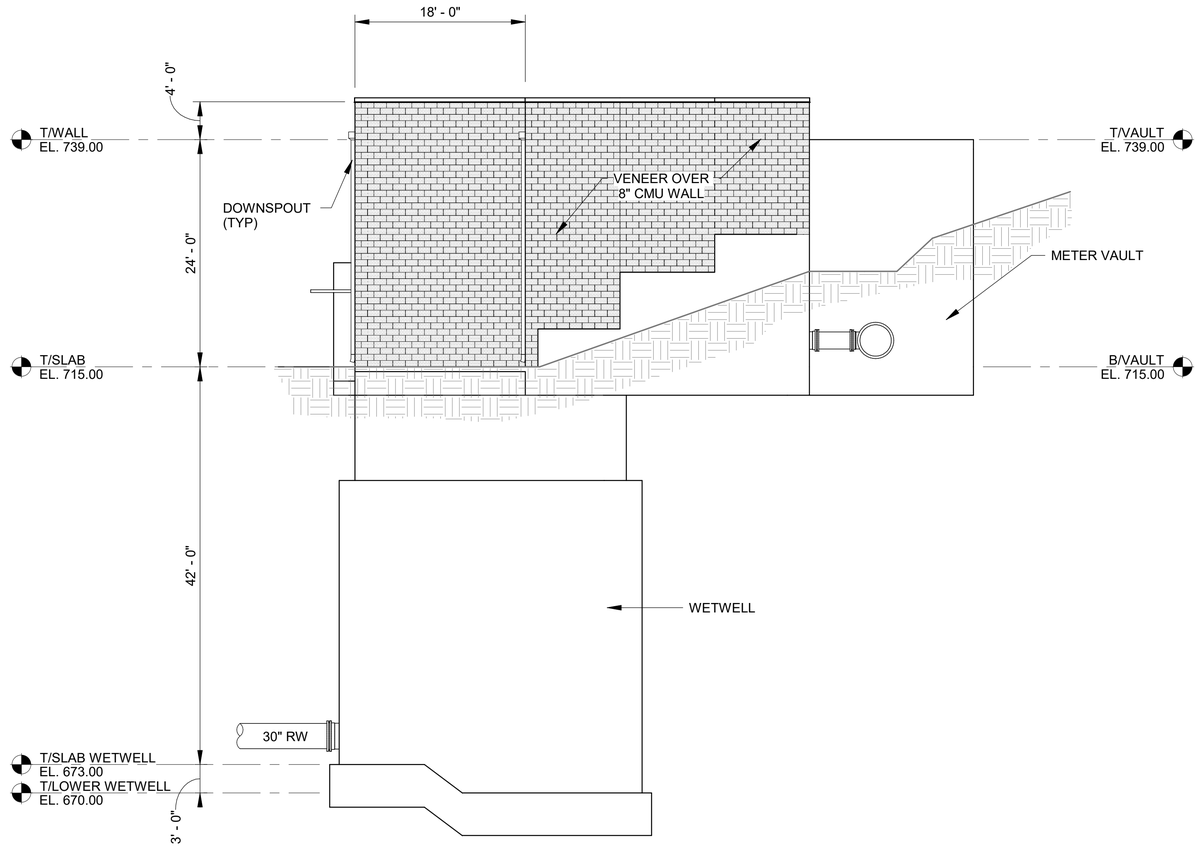
DRAWING NUMBER
10-S101

SHEET NUMBER **16**



1 10-S101 | 10-S201 **NORTH ELEVATION**

SCALE: 1/8" = 1'-0"



2 10-S101 | 10-S201 **WEST ELEVATION**

SCALE: 1/8" = 1'-0"

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE PUMP STATION BUILDING ELEVATIONS 1

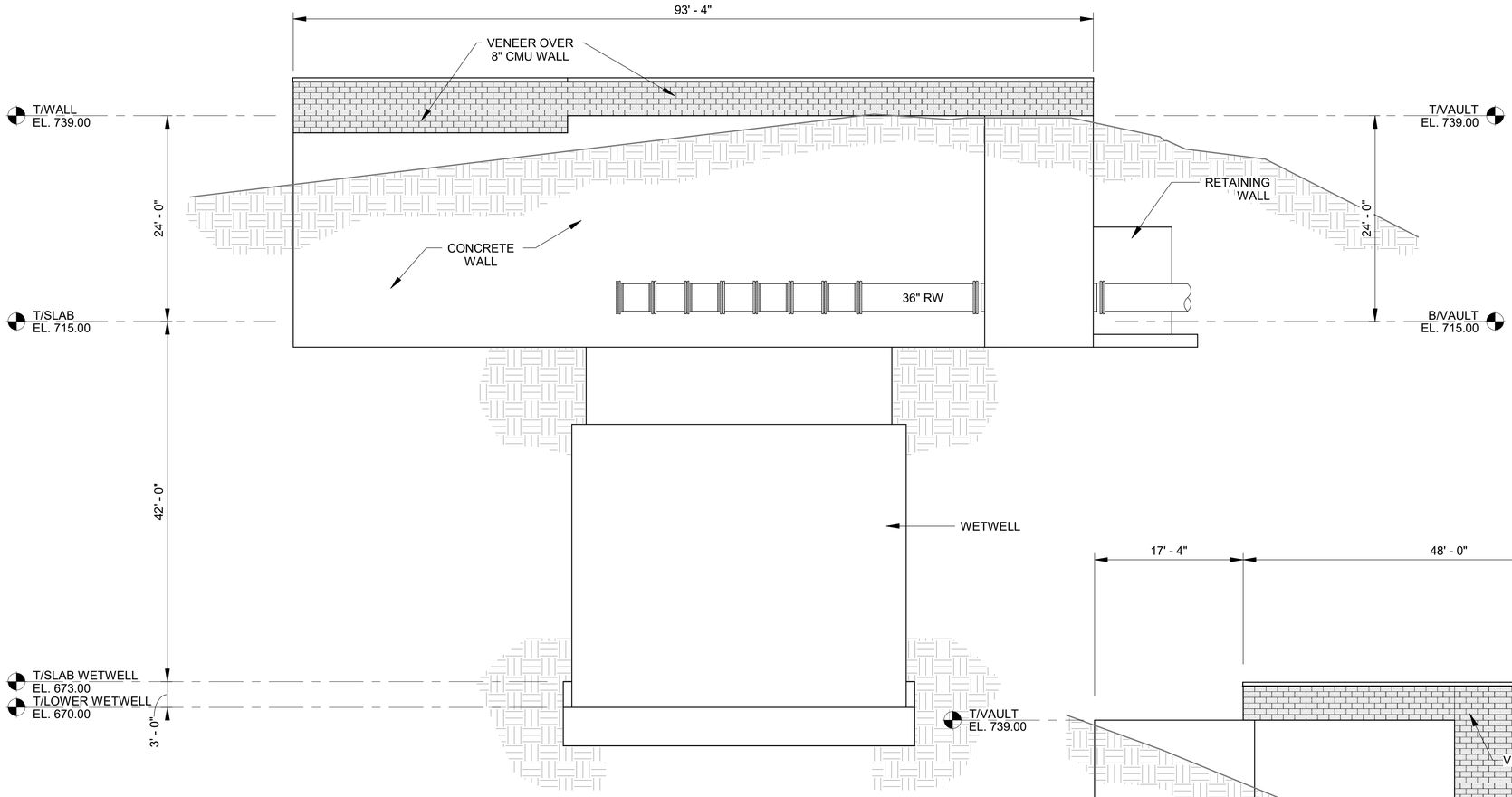
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: SJC
DRAWN BY: EGB
CHECKED BY: KAM

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-S201

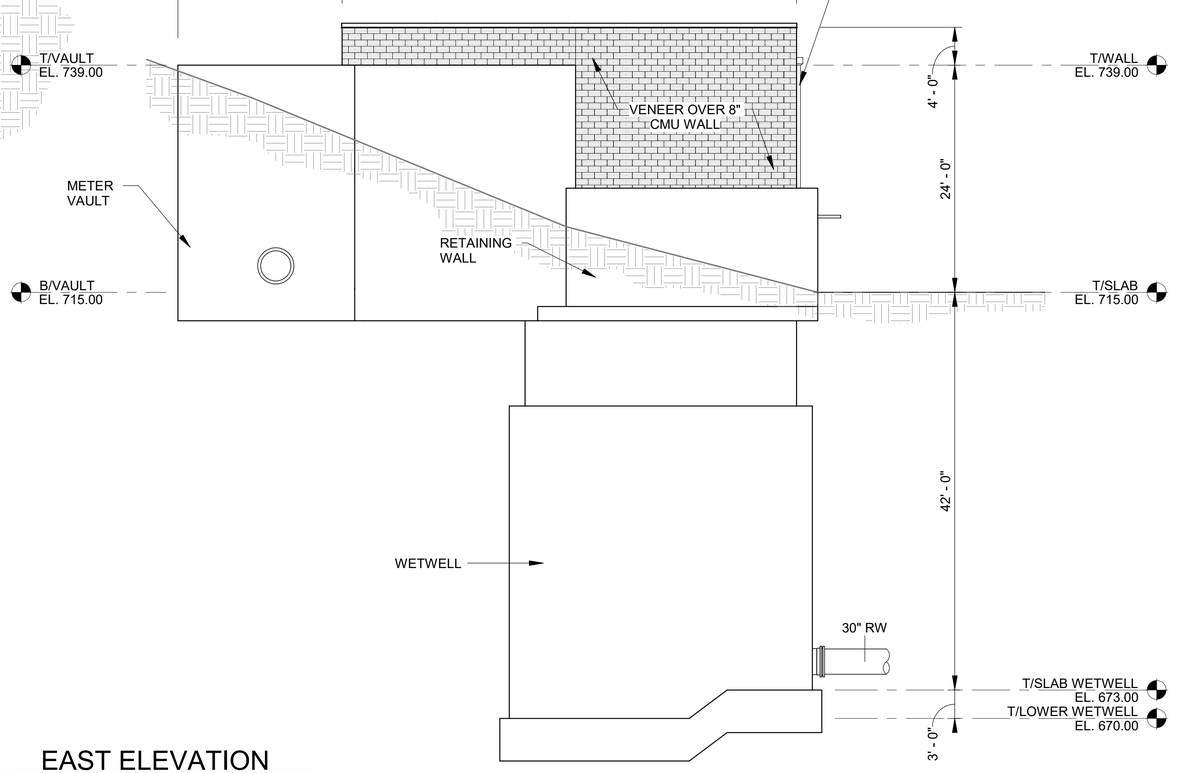
SHEET NUMBER **17**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:53:20 PM



1 10-S101 | 10-S202 **SOUTH ELEVATION**

SCALE: 1/8" = 1'-0"



2 10-S101 | 10-S202 **EAST ELEVATION**

SCALE: 1/8" = 1'-0"

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:53:21 PM

GARVER

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

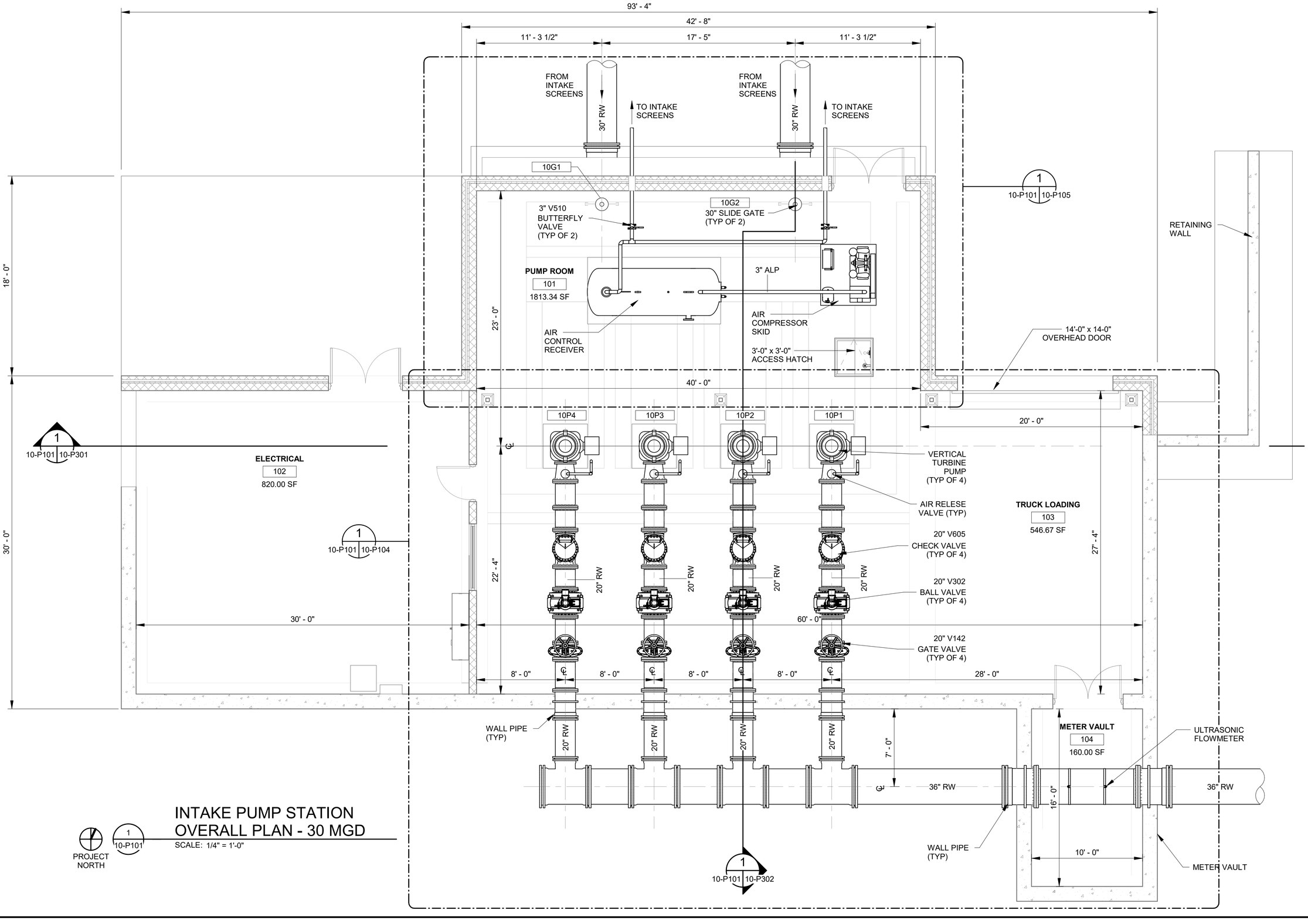
INTAKE PUMP STATION BUILDING ELEVATIONS 2

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: SJC
DRAWN BY: EGB
CHECKED BY: KAM

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-S202

SHEET NUMBER **18**



INTAKE PUMP STATION OVERALL PLAN - 30 MGD

SCALE: 1/4" = 1'-0"

PROJECT NORTH

1 / 10-P101

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:52:31 PM

REGISTRATION NO.
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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

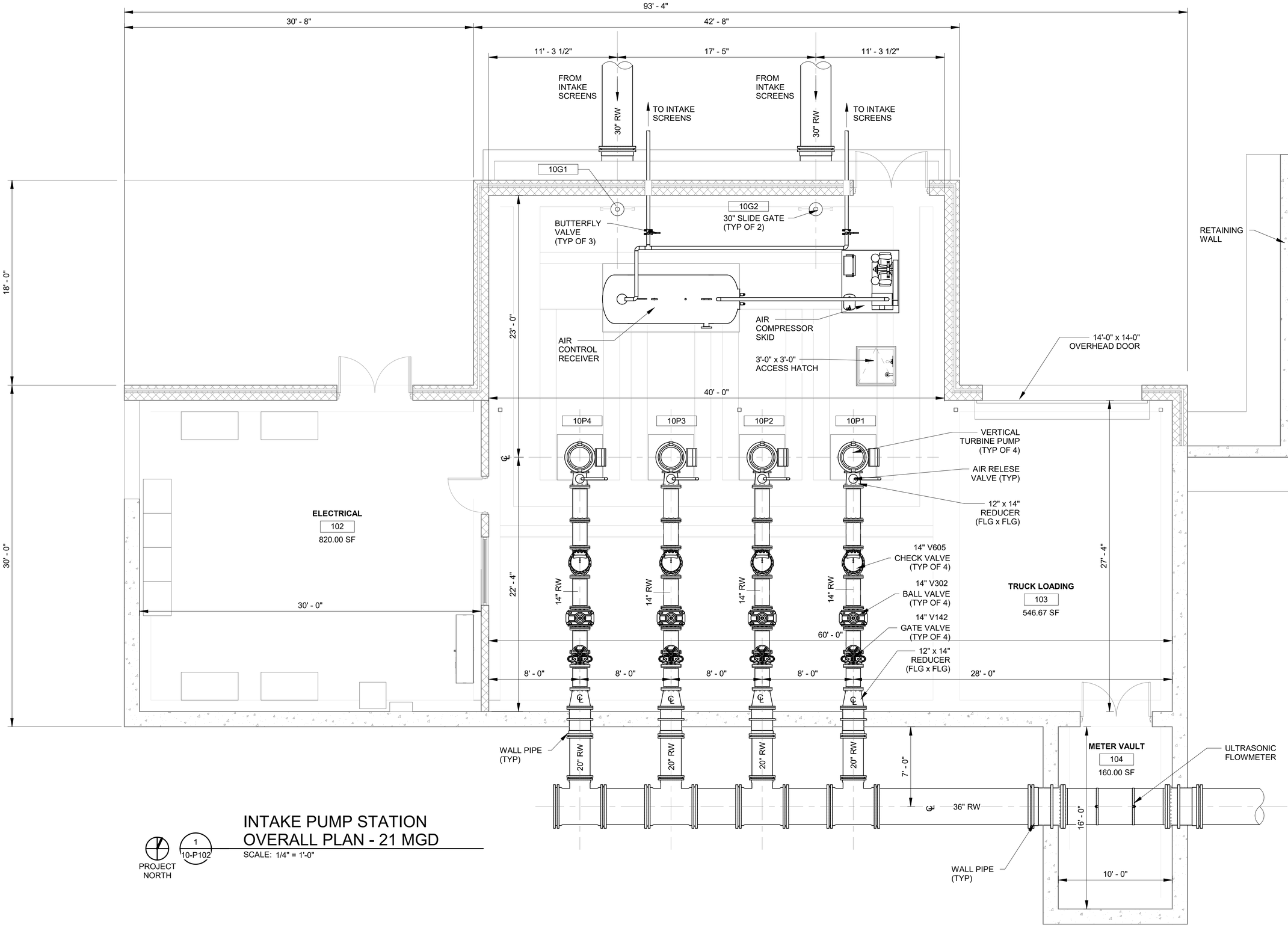
INTAKE PUMP STATION OVERALL PLAN - 30 MGD

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
10-P101

SHEET NUMBER **19**



PROJECT NORTH

1 / 10-P102

INTAKE PUMP STATION OVERALL PLAN - 21 MGD

SCALE: 1/4" = 1'-0"

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE PUMP STATION OVERALL PLAN - 21 MGD

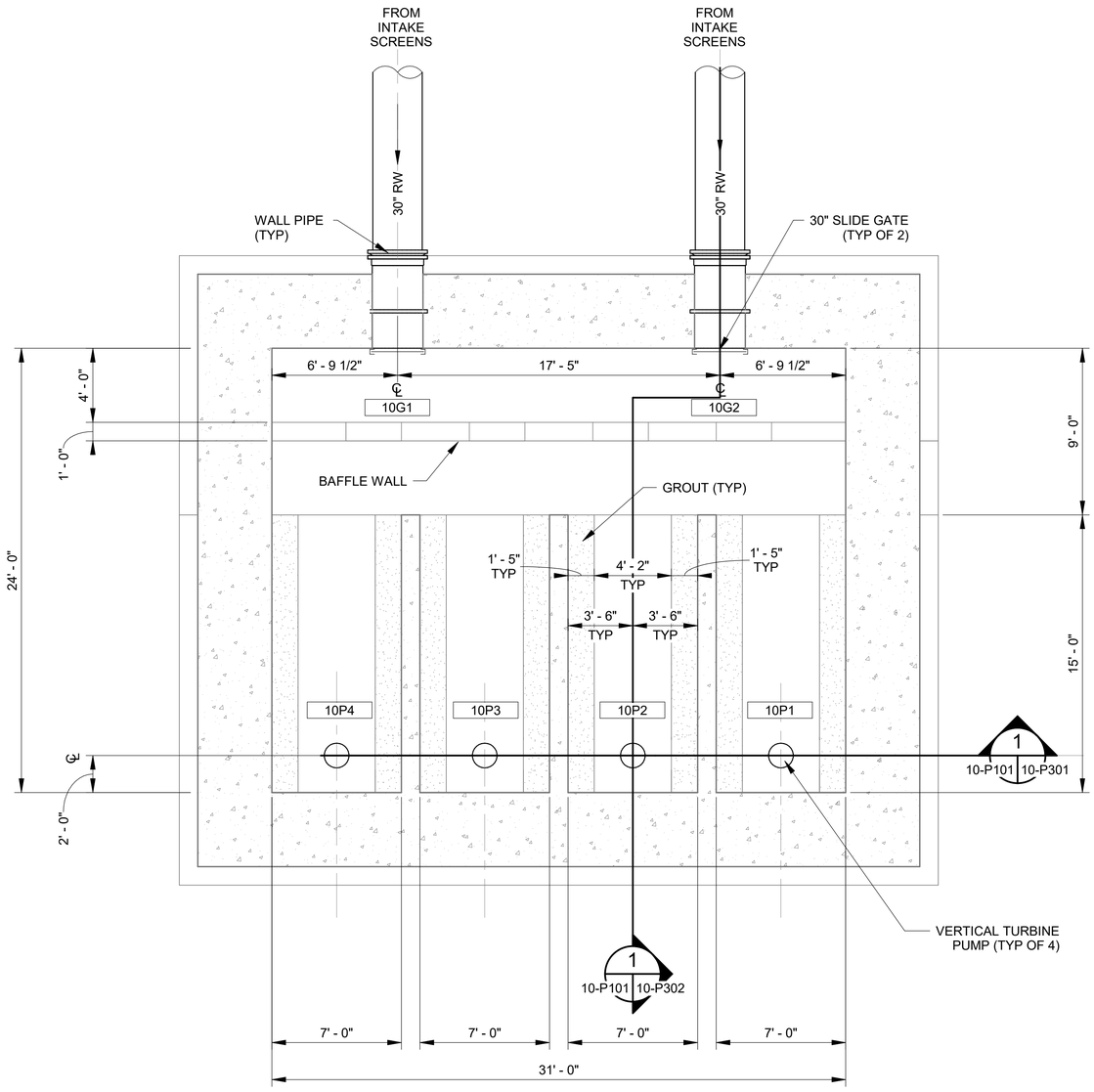
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-P102

SHEET NUMBER **20**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:52:35 PM



PROJECT NORTH

1 / 10-P103 WETWELL PLAN

SCALE: 1/4" = 1'-0"

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

WETWELL PLAN

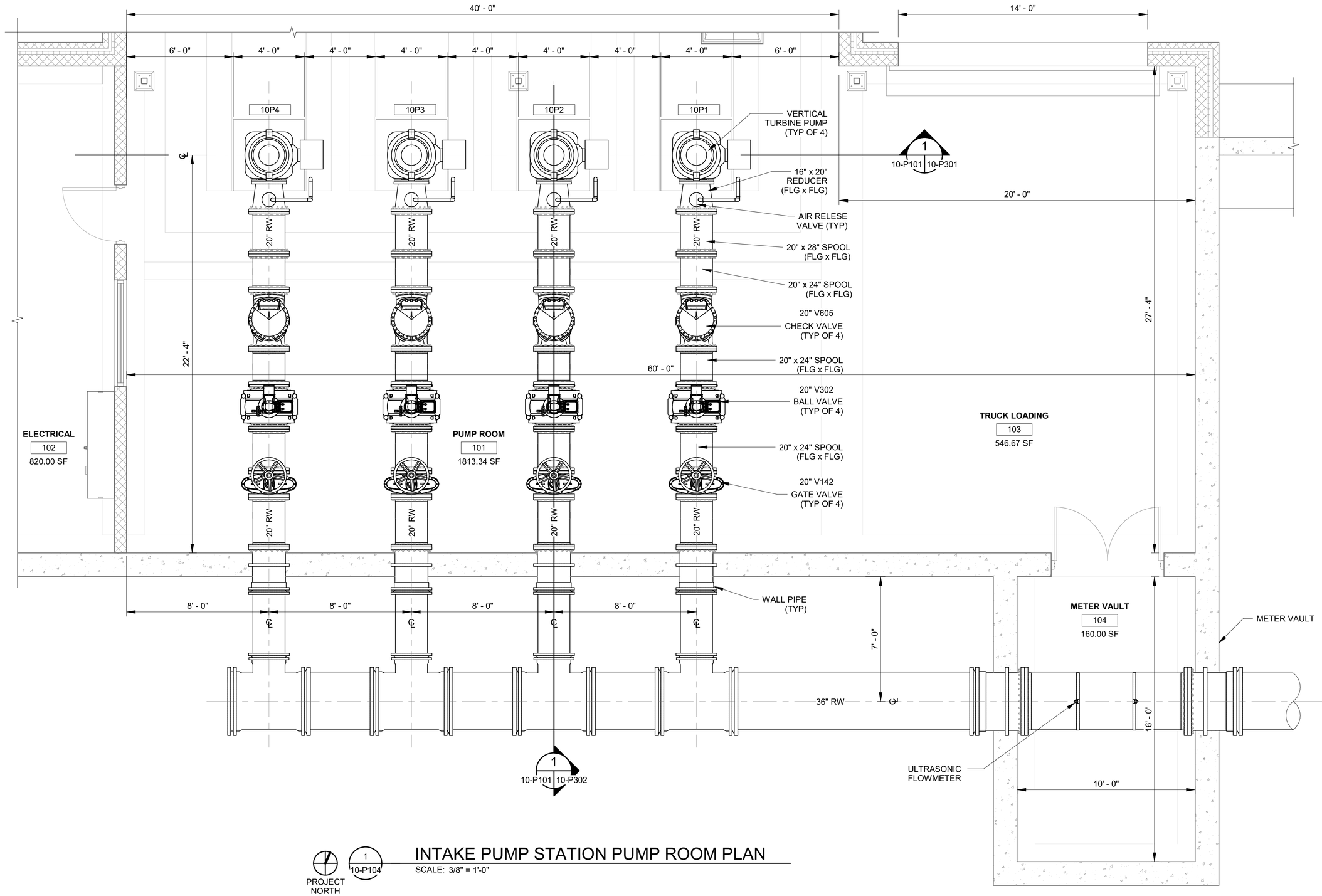
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-P103

SHEET NUMBER **21**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:52:35 PM



PROJECT NORTH

1 / 10-P104

INTAKE PUMP STATION PUMP ROOM PLAN

SCALE: 3/8" = 1'-0"

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:52:39 PM

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

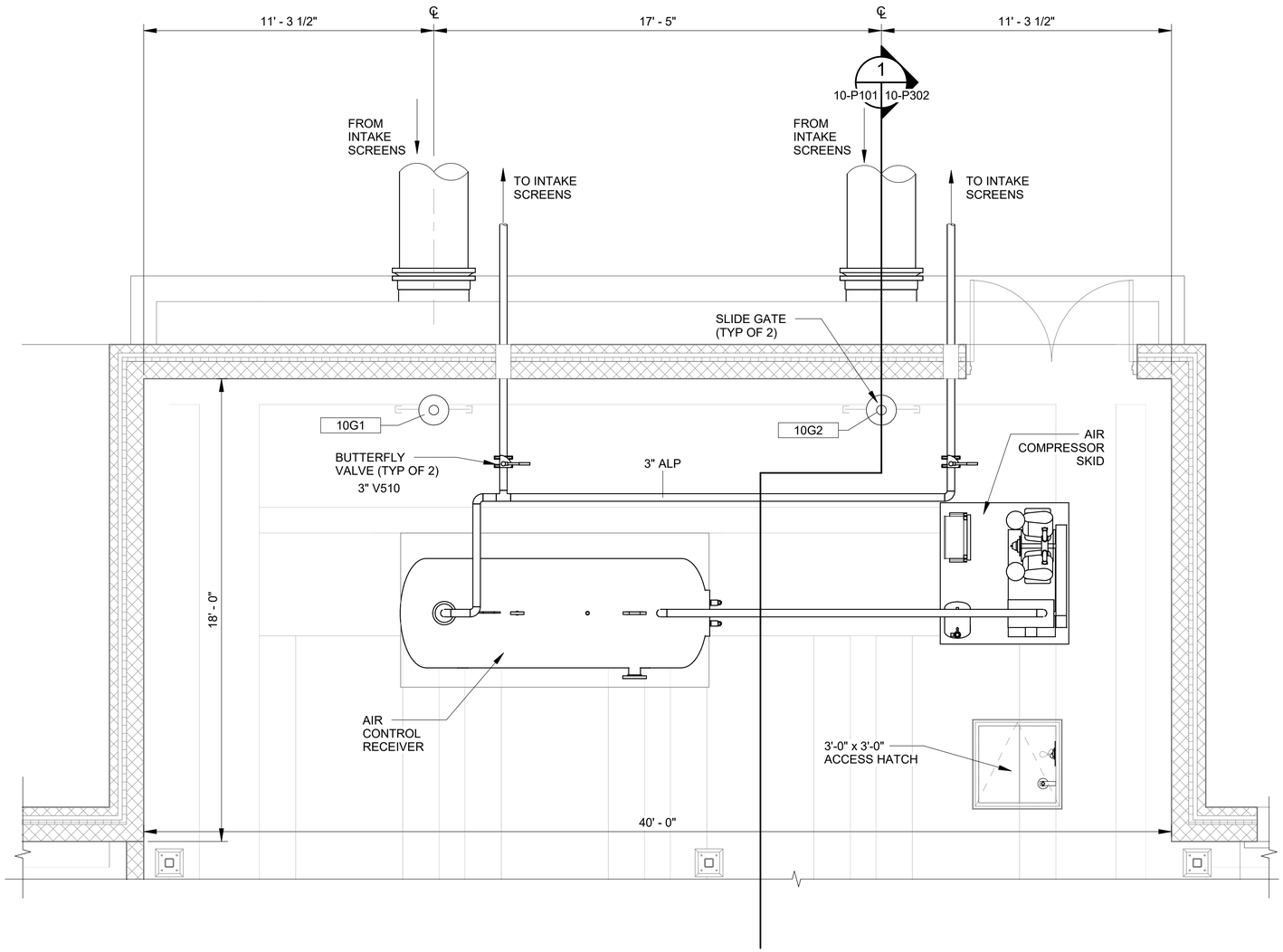
INTAKE PUMP STATION PUMP ROOM PLAN

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-P104

SHEET NUMBER **22**



PROJECT NORTH

1
10-P105

INTAKE PUMP STATION SURGE TANK PLAN

SCALE: 3/8" = 1'-0"

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE PUMP STATION SURGE TANK PLAN

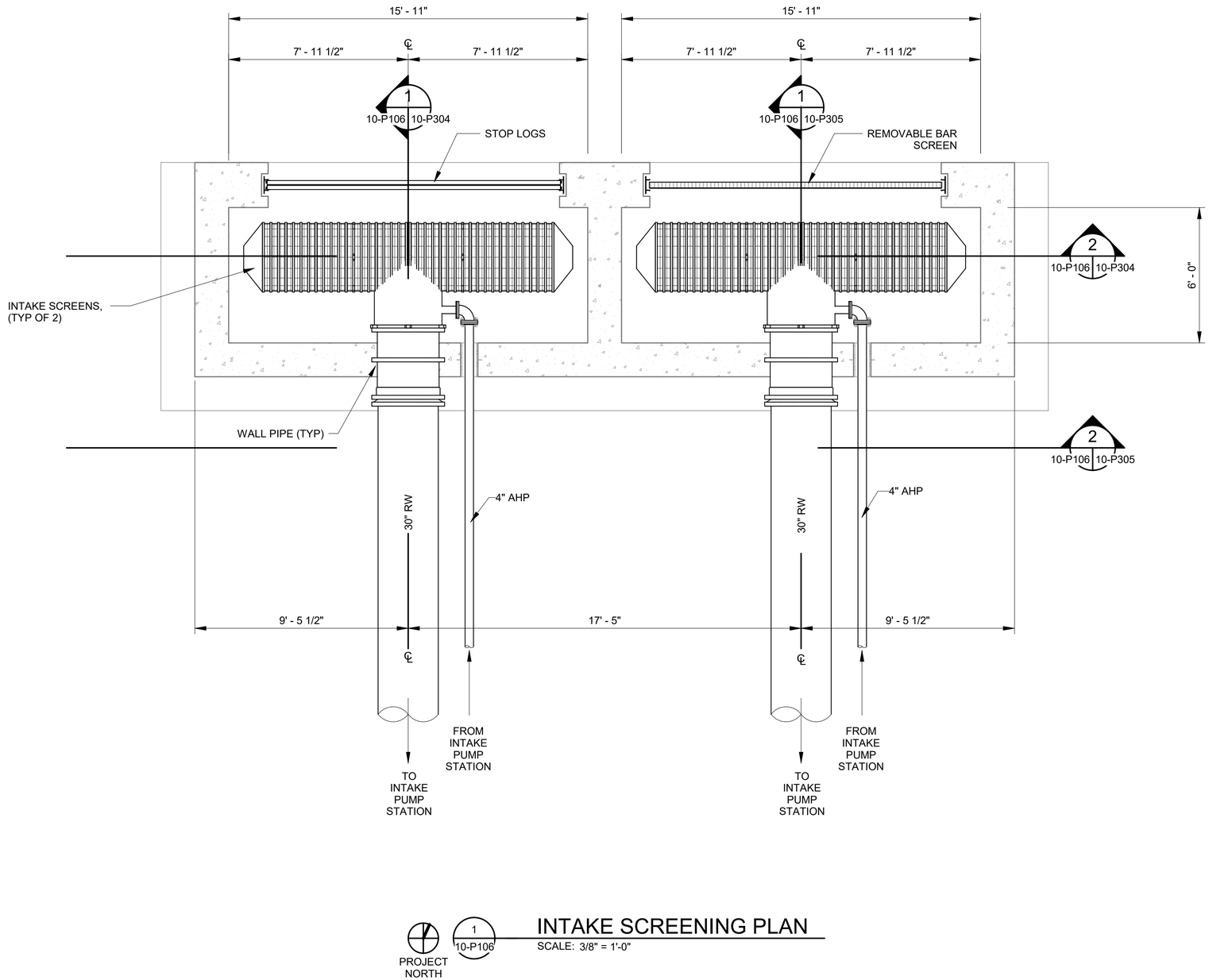
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-P105

SHEET NUMBER **23**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaVTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:52:39 PM



PROJECT NORTH

1
10-P106

INTAKE SCREENING PLAN

SCALE: 3/8" = 1'-0"

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_Intake Screens.rvt
Plot Date: 9/12/2022 3:03:04 PM

GARVER

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

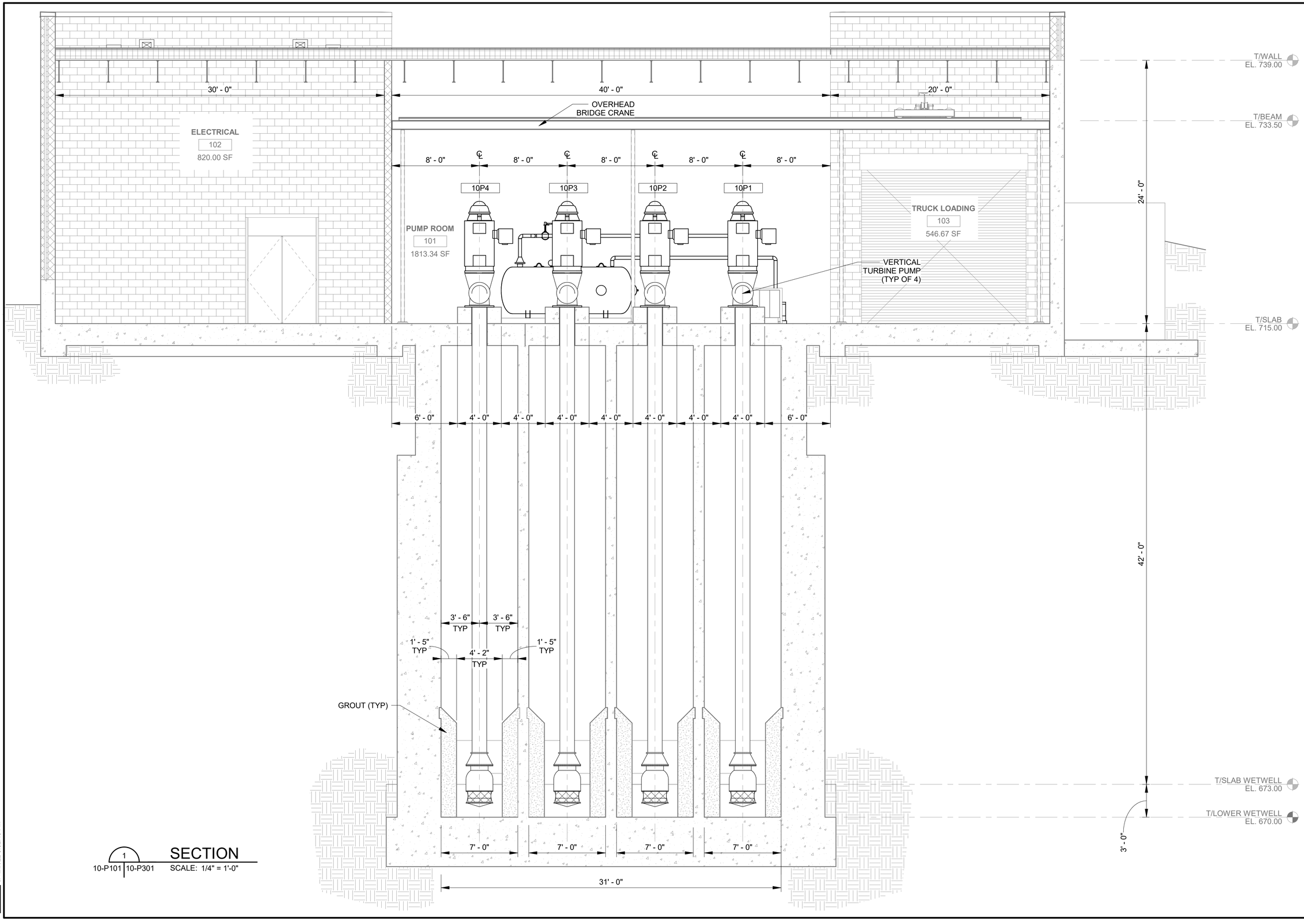
INTAKE SCREENING PLAN

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: JAS
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-P106

SHEET NUMBER **24**



1
10-P101 | 10-P301

SECTION

SCALE: 1/4" = 1'-0"

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:52:40 PM

GARVER

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

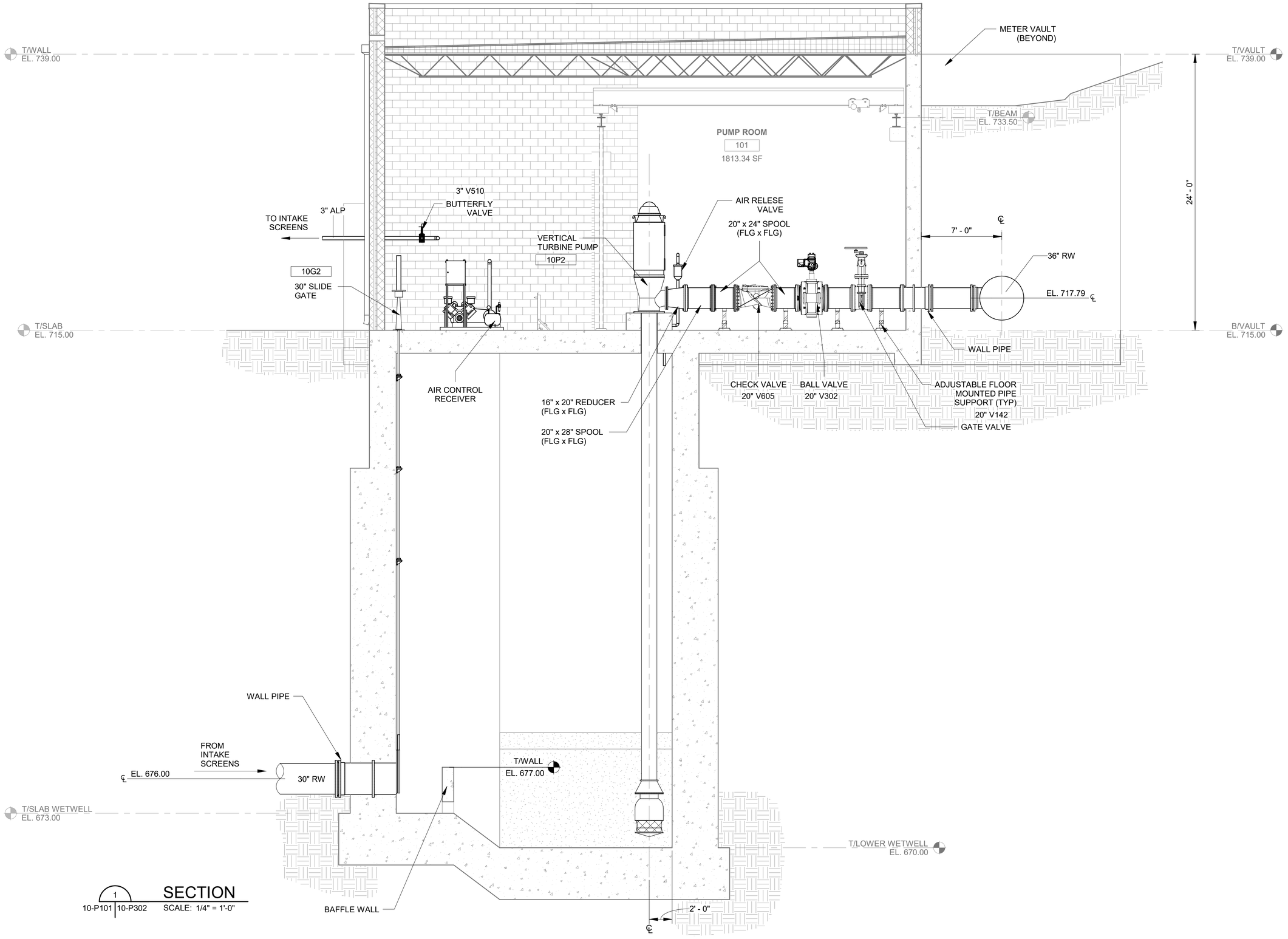
INTAKE PUMP
STATION SECTIONS 1

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-P301

SHEET NUMBER **25**



1 SECTION
10-P101 | 10-P302 SCALE: 1/4" = 1'-0"

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE PUMP
STATION SECTIONS 2

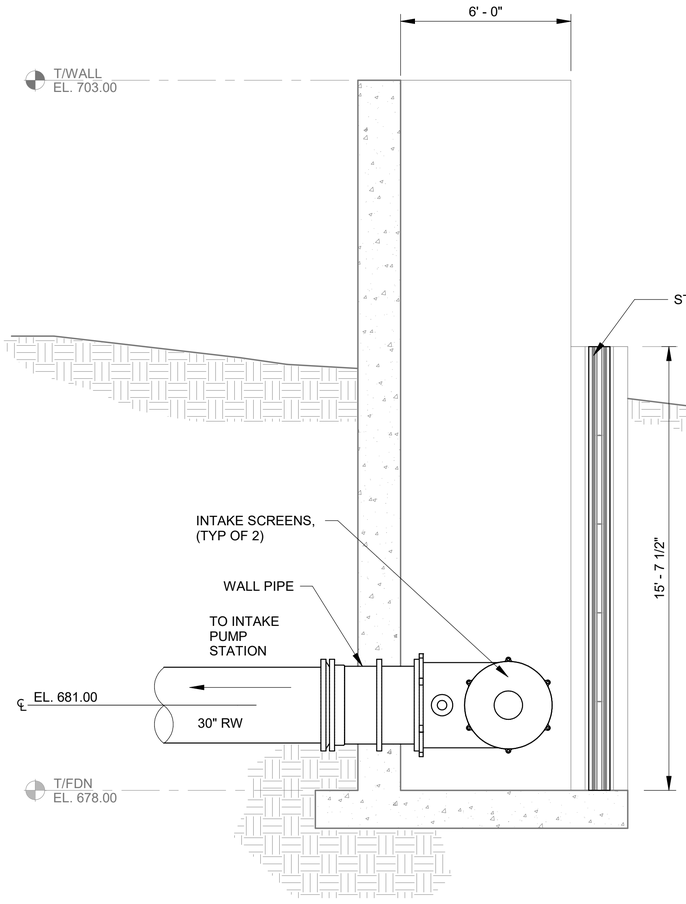
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

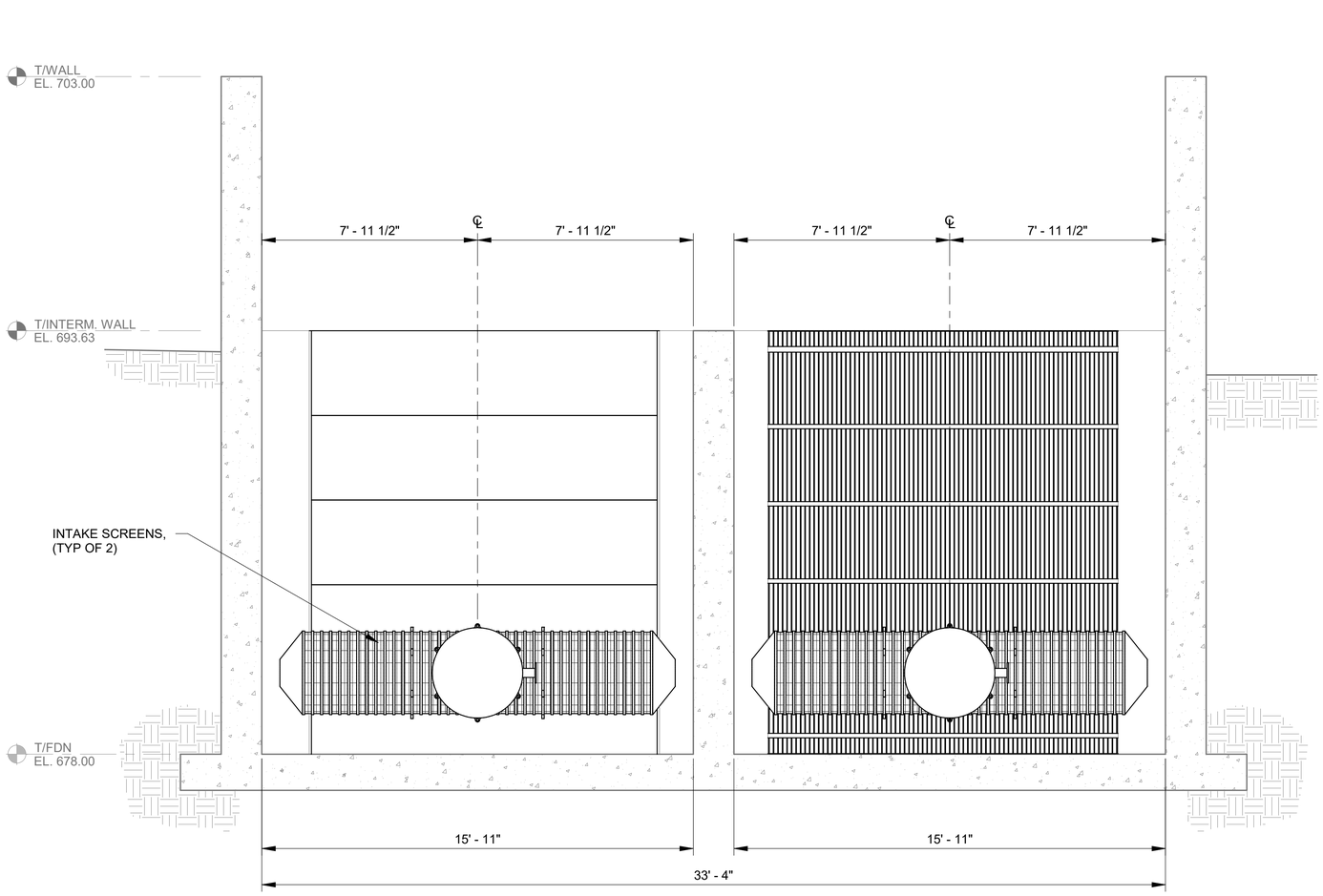
DRAWING NUMBER
10-P302

SHEET NUMBER **26**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:52:43 PM



1 SECTION
10-P106 | 10-P304 SCALE: 3/8" = 1'-0"



2 SECTION
10-P106 | 10-P304 SCALE: 3/8" = 1'-0"

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE SCREENING SECTIONS AND DETAILS 1

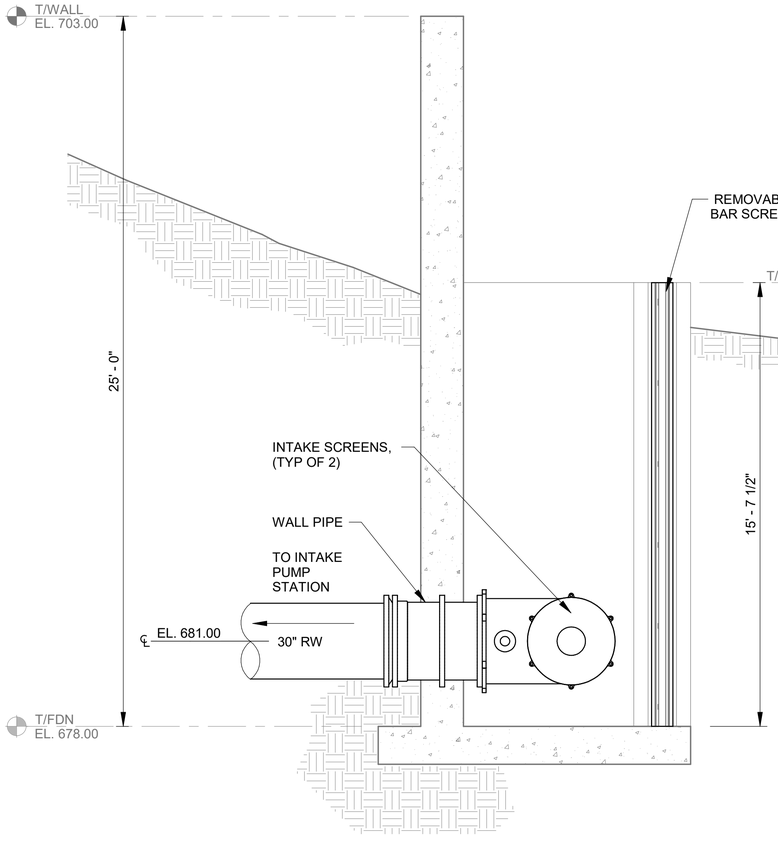
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: JAS
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

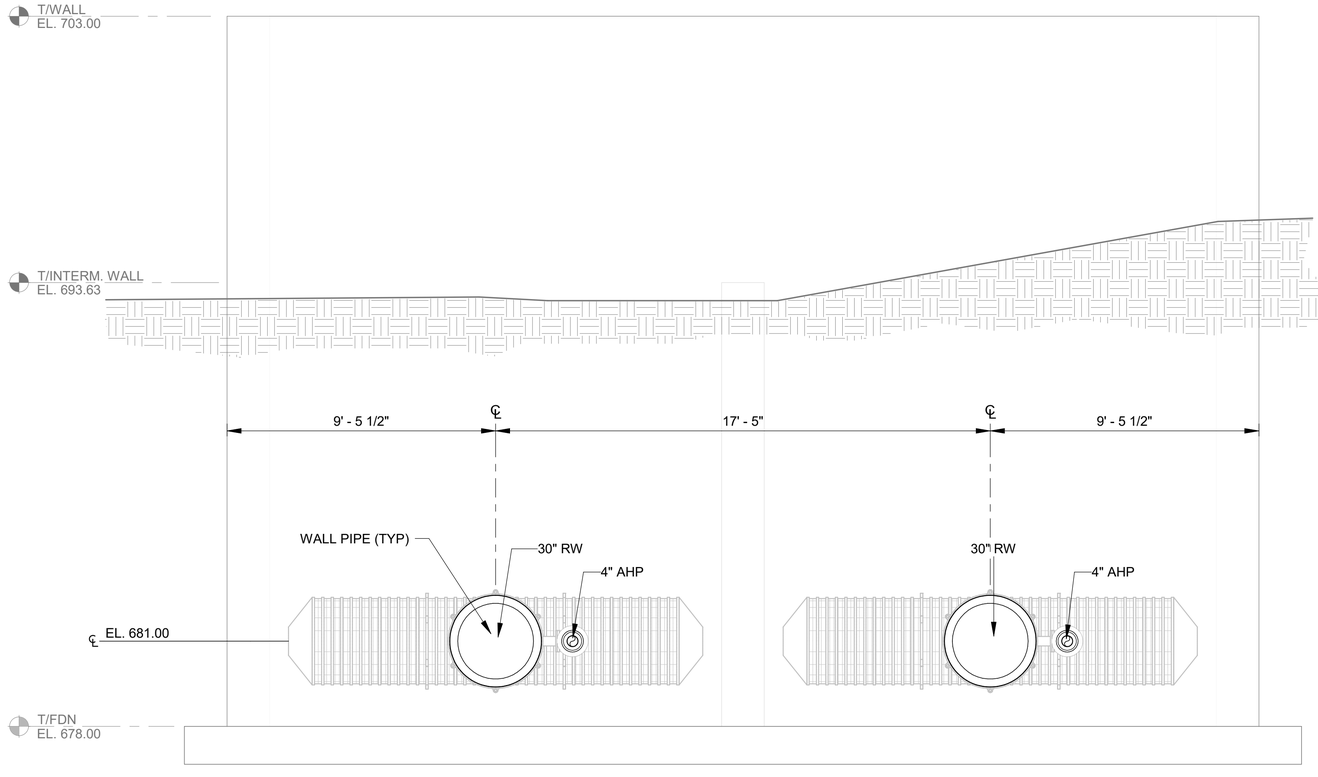
DRAWING NUMBER
10-P304

SHEET NUMBER **27**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_Intake Screens.rvt
Plot Date: 9/12/2022 3:03:04 PM



1 SECTION
10-P106 | 10-P305 SCALE: 3/8" = 1'-0"



2 SECTION
10-P106 | 10-P305 SCALE: 3/8" = 1'-0"

REGISTRATION NO.
PEF007804

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE SCREENING SECTIONS AND DETAILS 2

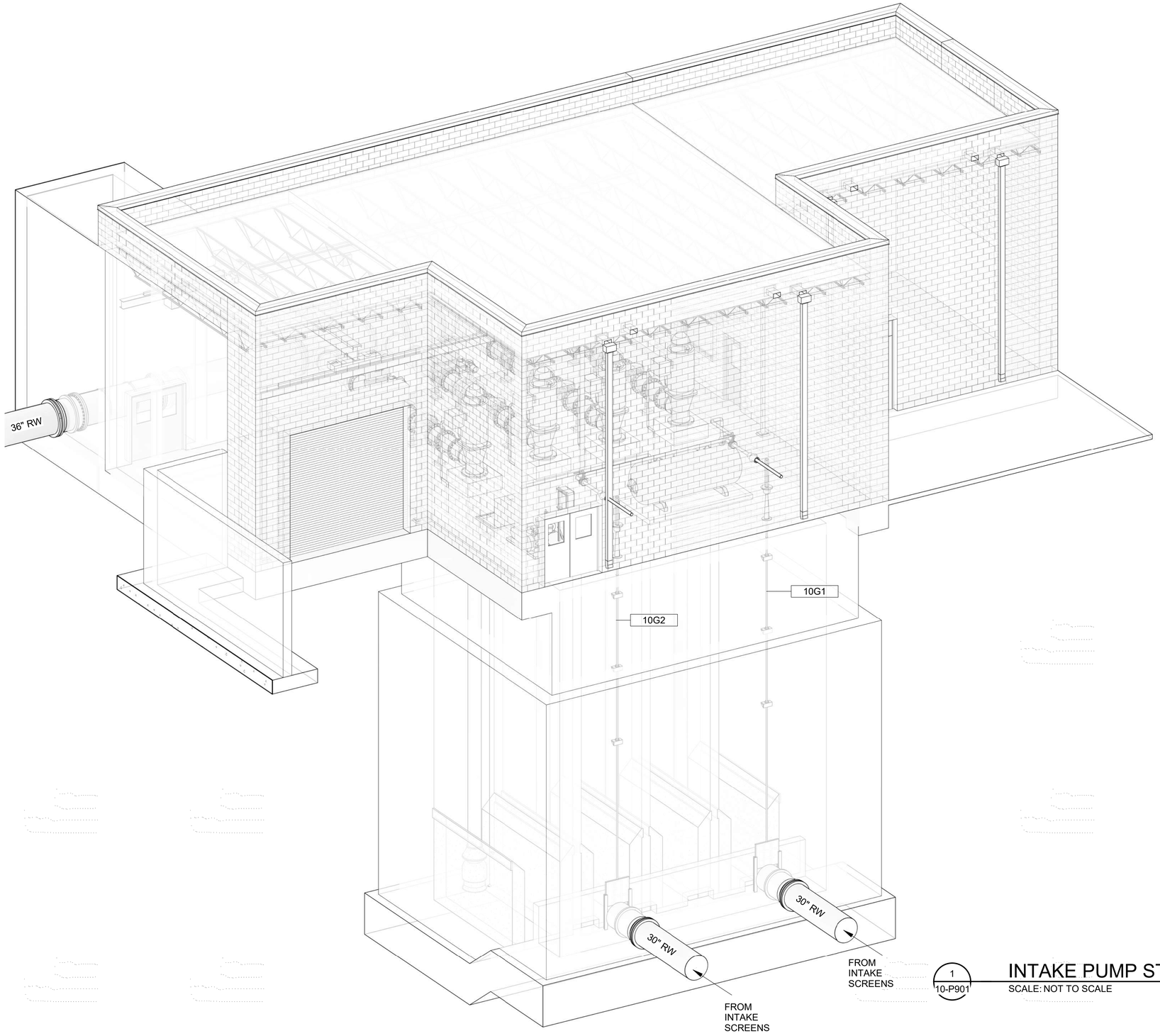
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
10-P305

SHEET NUMBER **28**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_Intake Screens.rvt
Plot Date: 9/12/2022 3:03:05 PM



1 / 10-P901 **INTAKE PUMP STATION ISOMETRIC**

SCALE: NOT TO SCALE

REGISTRATION NO.
PEF007804

10% DESIGN - NOT FOR CONSTRUCTION

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REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE PUMP STATION ISOMETRIC 1

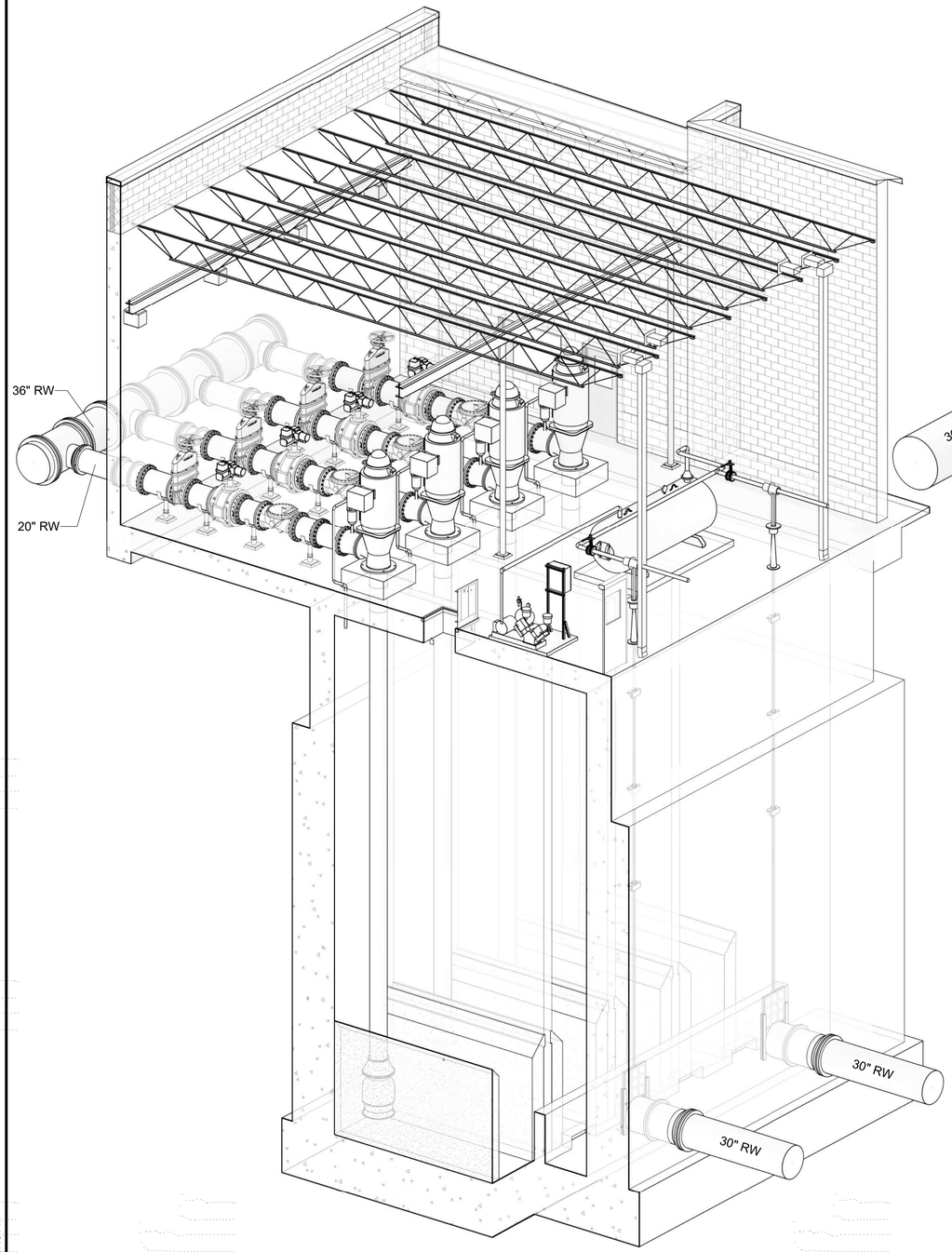
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-P901

SHEET NUMBER **29**

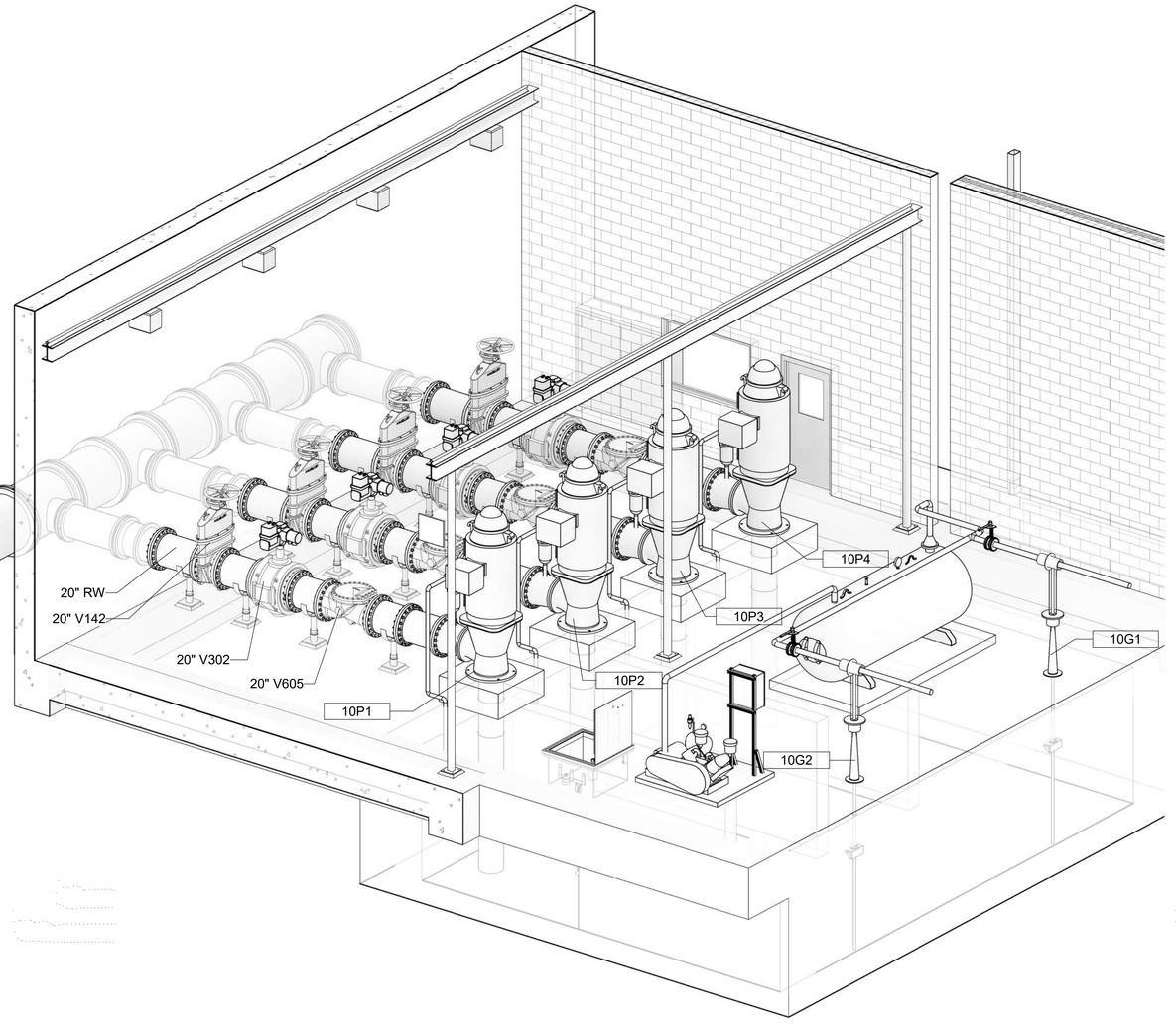
Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:52:59 PM



1 10-P902

INTAKE PUMP STATION ISOMETRIC

SCALE: NOT TO SCALE



2 10-P902

INTAKE PUMP STATION ISOMETRIC

SCALE: NOT TO SCALE

REGISTRATION NO.
PEF007804

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COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE PUMP STATION ISOMETRIC 2

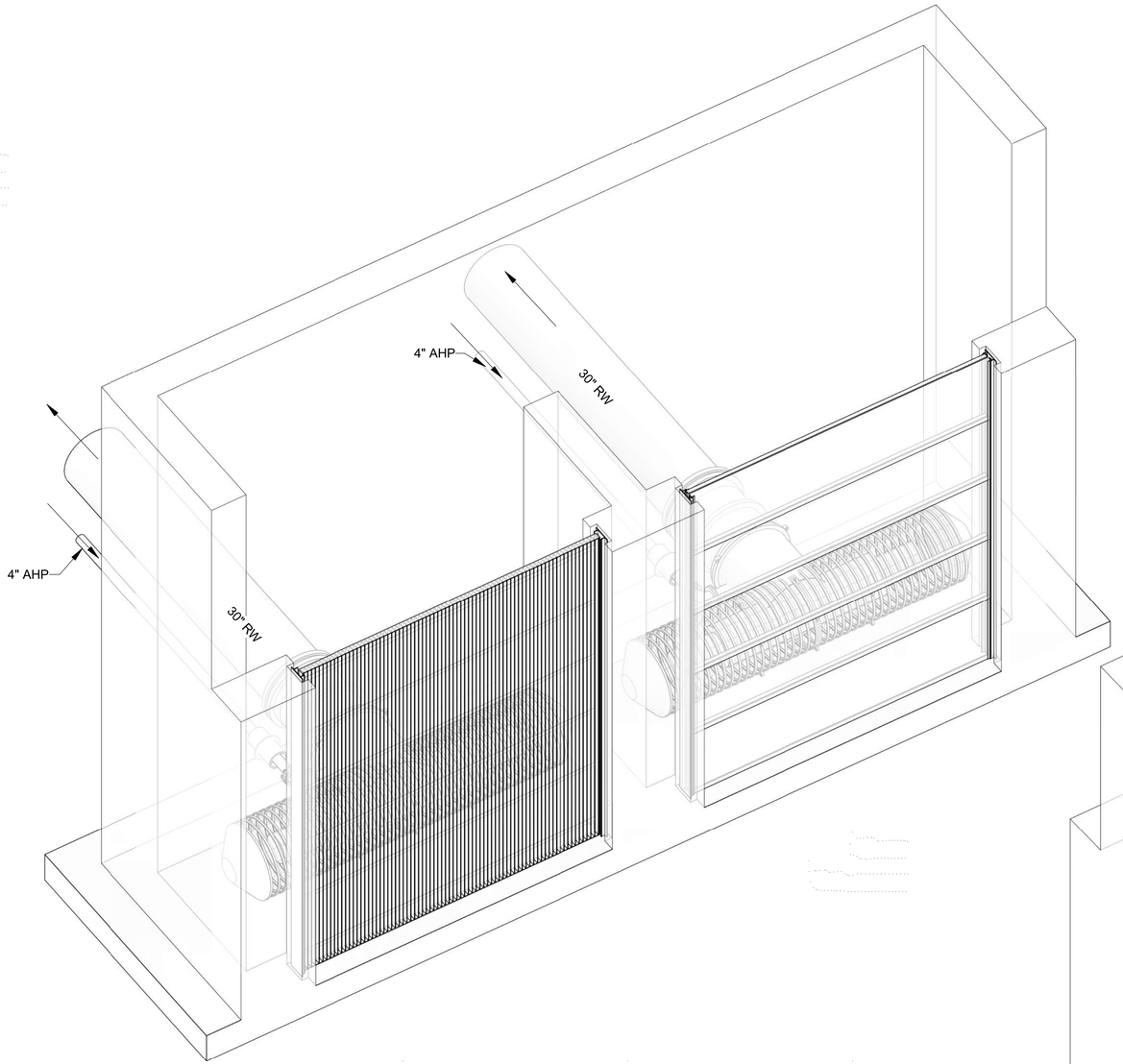
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: EGB
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

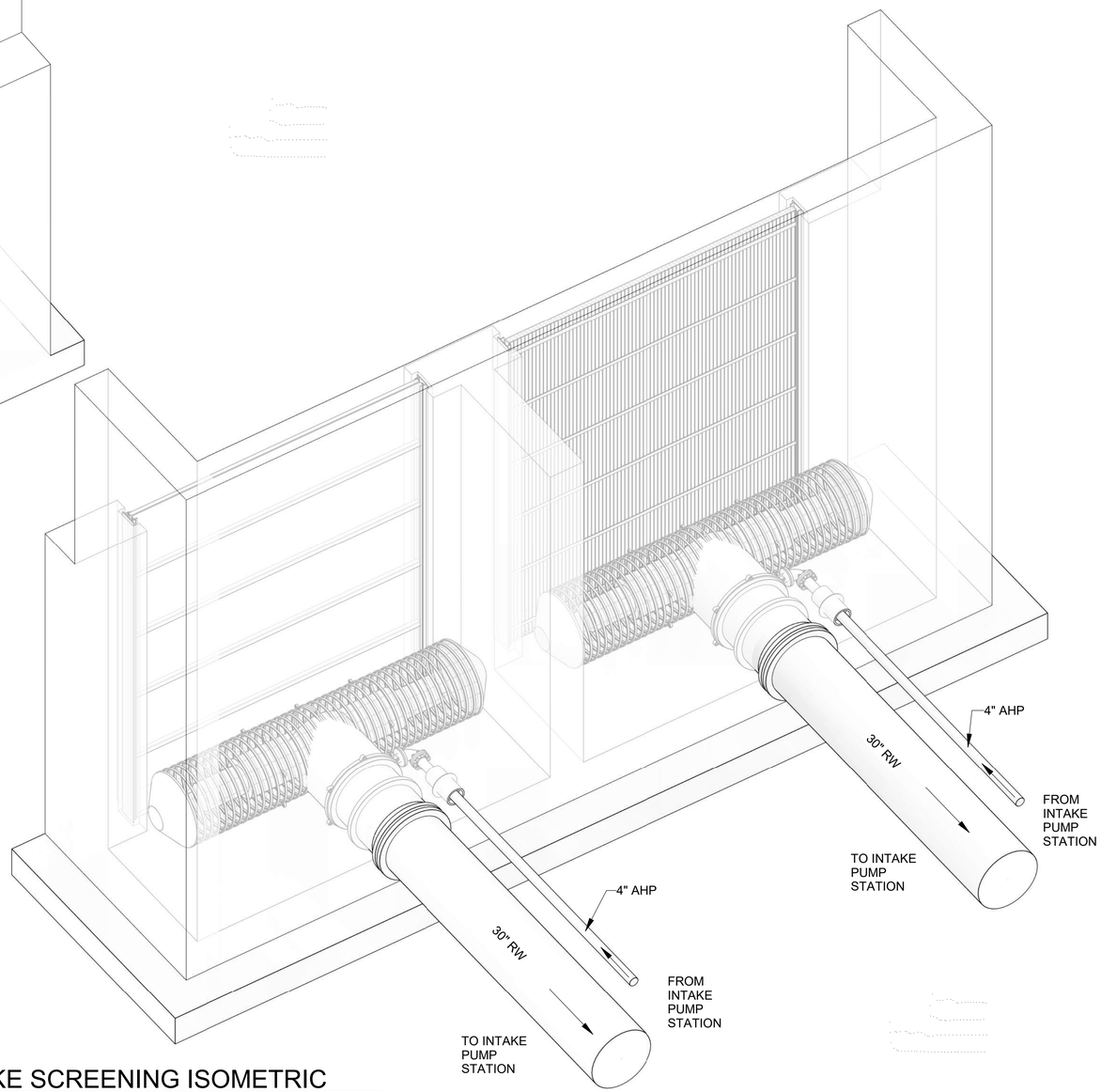
DRAWING NUMBER
10-P902

SHEET NUMBER **30**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_INTAKE AND WETWELL.rvt
Plot Date: 9/12/2022 3:53:16 PM



1 10-P903 INTAKE SCREENING ISOMETRIC
SCALE: NOT TO SCALE



2 10-P903 INTAKE SCREENING ISOMETRIC
SCALE: NOT TO SCALE

REGISTRATION NO.
PEF007804

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COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY
CHATTAHOOCHEE RIVER
INTAKE, PUMP STATION
AND RAW WATER PIPELINE

INTAKE SCREENING ISOMETRIC

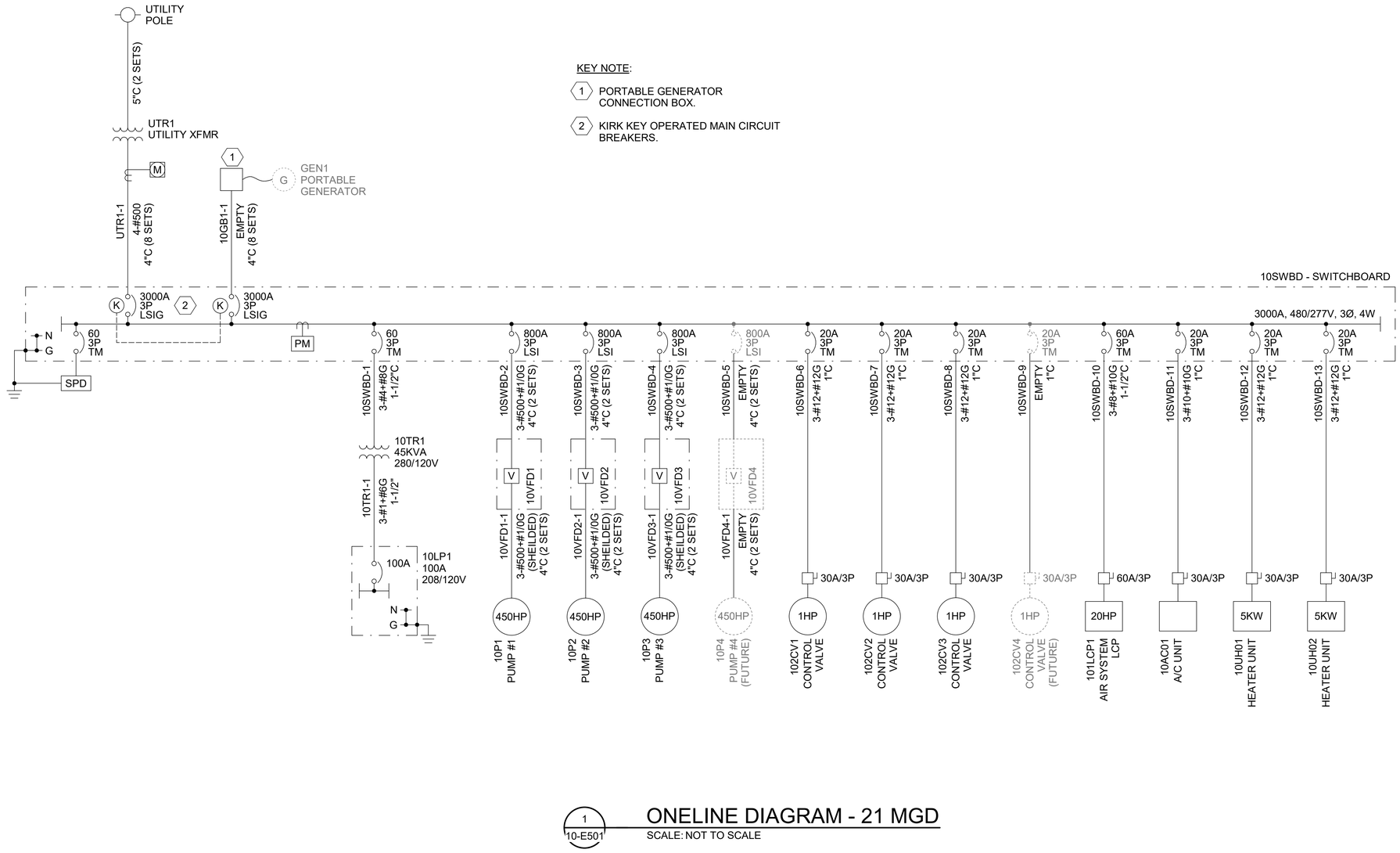
JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: GWK
DRAWN BY: JAS
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-P903

SHEET NUMBER **31**

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_Intake Screens.rvt
Plot Date: 9/12/2022 3:03:07 PM



1 / 10-E501 ONELINE DIAGRAM - 21 MGD

SCALE: NOT TO SCALE

Revit File: BIM 360://22W38095 - Coweta County Water MP/CowetaWTP_Electrical.rvt
Plot Date: 9/12/2022 2:52:40 PM

GARVER

REGISTRATION NO.
PEF007804

10% DESIGN - NOT FOR CONSTRUCTION

THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF INTERIM REVIEW UNDER THE AUTHORITY OF: JOHN A. PRUITT, P.E., # 048205 ON SEPT. 2022 IT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, OR PERMITTING PURPOSES.

REV	DATE	DESCRIPTION	BY

COWETA COUNTY WATER & SEWERAGE AUTHORITY
NEWNAN, GA

COWETA COUNTY CHATTAHOOCHEE RIVER INTAKE, PUMP STATION AND RAW WATER PIPELINE

ONELINE DIAGRAM - 21 MGD

JOB NO.: 22W38095
DATE: SEPT. 2022
DESIGNED BY: JCW
DRAWN BY: WBW
CHECKED BY: JAP

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
10-E501

SHEET NUMBER **32**