PEACHTREE CITY
Water and Sewerage Authority

PEACHTREE CITY WATER AND SEWERAGE AUTHORITY

Request for Proposals (RFP)
for
Design-Build Services for Wastewater Treatment Facility Improvements

RFP No. 2024-100

Issued on: January 12, 2024

Deadline for Submission of Proposals: March 14, 2024

Return Submittal To:

Larry McNeil
Deputy General Manager
Peachtree City Water and Sewerage Authority
1127 Hwy 74 South
Peachtree City, GA 30269

Send Questions and Clarifications in Writing To:
Davis Ozier, P.E.
Program Manager
Integrated Science and Engineering
dozier@intse.com
Submit questions by March 1, 2024

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Attachments

1. Introduction

Peachtree City Water and Sewerage Authority (PCWASA, Owner) is seeking proposals for Design-Build services to perform upgrades to its two wastewater treatment facilities, including installation of two new ultraviolet disinfection systems, a new tertiary filtration system, and headworks barscreen improvements. This RFP is intended to obtain the most beneficial Design-Build proposal for PCWASA to achieve their project objectives. Proposals shall contain all information that is required by this RFP, including the format and content guidelines established in **Section 4**. Failure to submit information in accordance with these requirements may be cause for disqualification. Proposals will be reviewed and evaluated in accordance with the criteria described in **Section 5.1** by a selection committee chosen by PCWASA. Following completion of the evaluation process, PCWASA will select a Proposer to enter into negotiations for award of contract.

This project is to be designed and constructed using the Firm Fixed Price Design-Build delivery method. The project scope includes engineering and design services, procurement, and construction services. The project scope is described herein and further in Attachment A.

1.1. Background

The City of Peachtree City is a suburban area in Fayette County, Georgia. Peachtree City is a planned community with residential, commercial, and industrial zonings. The City population is approximately 38,000. PCWASA was created by an act of Georgia Legislature as a public, nonprofit organization. It took ownership of the wastewater collection and treatment system within the city in 1997, and is responsible for the maintenance and operation of approximately 200 miles of gravity sewer and force main, 38 pump stations, and two treatment facilities. The two treatment facilities are Rockaway Water Pollution Control Plant (WPCP) and Line Creek Water Reclamation Facility (sometimes referred to as Larry B. Turner WRF).

Rockaway WPCP has a treatment capacity of 6 MGD following an expansion in 2003, when much of the existing equipment was installed. The plant is a Sequencing Batch Reactor (SBR) facility with cloth disc filtration and UV disinfection. Record drawings and other pertinent information on the existing facility is provided in Attachment C. Line Creek WRF has a treatment capacity of 2 MGD, utilizing a carousel treatment system followed by secondary clarifiers, filtration, and disinfection. Line Creek received new tertiary treatment, including cloth disc filters and UV disinfection in 2004. PCWASA accepts a considerable volume of septage at Line Creek through a dedicated septage receiving station. This project is intended to replace aged equipment and improve operation and maintenance inefficiencies at each of the treatment facilities.

1.2. Definitions and Abbreviations

The definitions of the capitalized terms used in this RFP, along with various abbreviations are presented below:

ARPA – American Rescue Plan Act

Contractor – Design-Builder

Contract Documents – See Design-Build Contract

DB – Design Builder, The proposed entity that will enter into the Firm Fixed Price, Design Build Contract with the Owner and will be the single point of accountability to the Owner for delivery of the services and the Project.

DBIA – Design Build Institute of America

Design-Build Contract – The Design-Build Contract Documents, including the agreement and all attachments, presented as Attachment B.

EPD – Georgia Environmental Protection Division

Final Completion – Final Completion will be the date that all punch list items are completed, all unused construction materials, temporary facilities, and construction equipment are removed from the site, and the site is cleaned and restored to final conditions.

Key Personnel – The individuals, employed by the Design-Builder or other firms included on the Project Team, who would fill certain key roles in delivery of the project and related services by the Design-Builder, including the following positions: Design-Build Project Manager, Design Manager, Construction Manager, Start Up/Commissioning Manager, etc.

MGD – Million Gallons per Day

O&M – Operations and Maintenance

Owner – Peachtree City Water and Sewerage Authority

PCWASA – Peachtree City Water and Sewerage Authority, the Owner for the Project

Program Manager – Integrated Science & Engineering, Inc.

Project – Design-Build Services for Wastewater Treatment Facility Improvements

Project Team – The Design-Builder, Key Personnel, and any additional firms (such as subcontractors and sub-consultants) included in the Proposal

Proposer – The entity responding to this RFP by submitting the Proposal

RFP – Request for Proposals

Substantial Completion – Substantial Completion is the date on which the work, or an agreed upon portion of the work, is sufficiently complete in accordance with the Contract Documents so

that the Owner can occupy and use the Project site for its intended purposes. For the Project to be deemed substantially complete, the following Scope of Work items must be complete:

- Start-up
- Testing
- Training

WPCP – Water Pollution Control Plant

WRF – Water Reuse Facility

2. Project Overview

2.1. Project Objectives and Preferences

This project is intended to achieve the following objectives:

- Replacement of aged and less efficient UV disinfection systems at both the Rockaway WPCP and Line Creek WRF
- Provide improvements to the headworks bar screen at Line Creek WRF, to include, at minimum, installation of a second mechanical screen for parallel operation with the existing mechanical screen, which should be either rebuilt or replaced
- Install a second tertiary filtration system at Rockaway WPCP to improve operation and redundancy, along with a flow splitting device with bypass capabilities
- Complete the work within the approved budget of $3 million.

PCWASA has pre-selected the desired equipment for the installations and has included proposals received during equipment solicitations in Attachment C. Coordination with the approved suppliers and vendors is encouraged during preparation of Proposals and value engineering options are welcomed. Design-build services are sought to complete the final design and installation of the equipment in order to achieve project objectives listed herein. The DB should have experience in constructability review, value engineering, conceptual cost estimating, and construction of similar improvements.

2.2. Project Funding and Schedule

The Owner will be funding the project with grant funds awarded through the American Rescue Plan Act (ARPA) and administered by the Georgia Governor's Office of Planning and Budget. Awarded funds total $3 million. The federal funding requires adherence to the Federal Uniform Guidance rules in 2 CFR Part 200. Proposers should become familiar with all rules and regulations applicable to the execution and performance of the contract subject to ARPA. Proposers should note that Davis Bacon Act does not apply to this Project, since the total project cost is less than $10 million. A State Environmental Review Process (SERP) is required for all ARPA funded projects; however, previous engineering efforts have included completion of the SERP, and a Categorical Exclusion (CE) has been issued by the EPD for the project.

PCWASA anticipates to issue the Notice to Proceed (NTP) for the Design-Build Contract in the first quarter of 2024. Substantial Completion is desired within 18 months after issuance of the NTP. In order to meet ARPA funding guidelines, the project must be complete by December 31, 2026.

2.3. Roles and Responsibilities

2.3.1. Responsibilities of PCWASA

PCWASA, through its assigned program manager and assistants, will administer the services and work closely with the DB in order to fulfill its responsibilities in a timely manner. These responsibilities include the following:

- Outlining project requirements

- Furnishing existing drawings, utility locates, plans, specifications, shop drawings, data, and other information available for existing site conditions that will assist the DB in the project
- Furnishing vendor names and proposal packages for the selected UV, filtration, and headworks equipment to be used.
- Reviewing work products and submissions in a timely manner
- Paying for land disturbance permit fees
- Paying any charges associated with providing or modifying permanent utility services to the project
- Operating the treatment facilities during construction in a manner that is conducive to the construction activities to the greatest extent practical
- Providing reasonable assistance in obtaining permits necessary to implement the project
- Providing space at each treatment facility for staging work and materials
- Funding the project and rendering timely compensation

2.3.2. Responsibilities of Design-Builder

The DB shall cooperate with the Owner and provide in a timely manner the services necessary to complete the project scope specified in this RFP. Major responsibilities of the design-builder shall include, but not be limited to, the following:

- Provide timely estimating, permitting, design, and construction services
- Provide project scheduling, including a total project schedule
- Provide monthly invoices, updates to the project schedule, and inform the Owner of any changes in schedule or costs.
- Prepare design and construction documents as necessary for Owner and EPD review and completion of the Project
- Obtain all construction permits, inspections, and code compliances applicable to the Project, including paying permit fees not provided by Owner
- Execute the final design scope in accordance with the Contract Documents
- Prosecute the contract requirements in accordance with ARPA funding requirements, including the Federal Uniform Guidance rules in 2 CFR Part 200
- Keep the Owner's premises free from waste and material accumulation caused by the work
- Maintain safe, clean, and workable conditions for the DB team and PCWASA staff and representatives
- Protect all existing structures, equipment, drives, and landscaping to remain
- Locate, excavate, and protect all buried utilities and facilities within the confines of the Project
- Provide all necessary professional services to acquire the technical and scientific data necessary for completing the project design (i.e. survey, geotechnical investigation, etc.)
- Respond to any Owner or Owner's Representative requests for information
- Provide all equipment and material required for completion of the project, including acquisition of all appurtenances not included in the provided equipment proposals' scope of supply
- Provide construction management services, including but not limited to the following:

  - Provide all bonds and insurance required by the Contract Documents
  - Possess required licensing and ensure all subcontractors are properly licensed to complete the Project
  - Manage subcontractors
  - Track shop drawings and O&M manuals
  - Track permit compliance
  - Complete regular inspections for quality assurance and site safety
  - Prepare record drawings
  - Manage project close-out
  - Manage equipment warranties
- Provision of O&M manual amendments, start-up services, and operator training
- Coordinate with Owner's staff for all necessary disruptions to normal plant operation
- Provide all temporary facilities necessary to implement the approved design while maintaining NPDES permit compliance
- Management and transmittal of all construction management documents, including, but not limited to: payment requests, test results, shop drawings, change requests, record drawings, miscellaneous submittals, and construction photos
- Project close-out, including, but not limited to: completion of construction, completion of all punchlist items, start-up and functional testing, and project document transfer

3. Procurement Process

3.1. Communications and Owner Contact

PCWASA has retained Integrated Science and Engineering (ISE) to serve as its Program Manager for this project. The sole point of contact for this RFP is Davis Ozier, P.E. All communications shall be directed to Davis Ozier via email at dozier@intse.com or phone 678-552-2106. Other contacts from the Program Manager may be designated to address specific inquiries. Please note that verbal communications are not binding. Any requests for interpretations of this RFP shall be writing.

Clarifications or modifications to this RFP will be made by written addendum and will be distributed to registered Proposers and posted on PCWASA's website, Work With Us – Peachtree City Water & Sewerage Authority (pcwasa.org). Each Proposer will be responsible for acquiring all addenda prior to submittal of Proposals. Addenda must be acknowledged on the Cost Proposal Form attached to this RFP.

No contact with any PCWASA employee or Board Member regarding this solicitation is allowed during proposal preparation, the evaluation process, or prior to award. Violation of this provision may result in disqualification of the Proposer and the proposal shall be dropped from the evaluation.

3.2. Procurement Schedule

The anticipated procurement schedule is shown below. Dates are subject to change.

RFP Issued	January 12, 2024
Pre-Proposal Meeting	January 25, 2024
Final Day for RFI's	March 1, 2024
Final Day for Addendums	March 4, 2024
Proposals Due	March 14, 2024 at 5 p.m. local time
Award	April 17, 2024
Complete Construction	18 months after award (October 2025)

PCWASA reserves the right to accept or reject any or all Proposals, to re-solicit for Proposals, to temporarily or permanently abandon the procurement in part or in whole, to waive any informalities, and delete any item or requirement from this RFP when deemed by PCWASA to be most advantageous to itself and in the best interest of its customers.

3.3. Pre-Proposal Meeting

PCWASA will hold an optional pre-proposal meeting and site tour for those planning to submit a proposal. The meeting will be held in the board room at the PCWASA office at 1127 Ga 74, Peachtree City, GA 30269, at 2 p.m. on January 25, 2024. A project overview will be presented with site visits to follow. Site visits will be held at Rockaway WPCP at 1127 Ga 74, Peachtree City, GA 30269 and Line Creek WRF at 100 Aviation Way, Peachtree City, GA 30269. All Proposers are encouraged to attend. Verbal questions and clarifications may be addressed during

the meeting; however, Proposers should also submit all questions and clarifications in writing, as outlined herein.

4. Proposal Submission Process

4.1. Submittal Deadline

Submit three (3) bound copies of the Proposal to the Owner by the "Proposals Due" time and date listed in the Procurement Schedule. Any Proposal submitted after this time and date will be considered unresponsive and will not be considered. Include one identical digital copy of the Proposal on a USB flash drive. Proposals should be submitted bound in a 3 ring binder, with clearly marked tabs. All forms, affidavits, or letters should be signed by an authorized officer of the firm submitting each Proposal.

4.2. Submission Format

Proposals must be twenty (20) pages or less, excluding the transmittal letter, table of contents, front and back covers, title pages, section dividers, resumes, bonds, and appendices. The required sections are outlined in Section 4.3. Submittals must be on 8.5 x 11 inch paper with a minimum font size of 11-point. 11 x 17 inch sheets will be allowed for supporting figures if necessary.

4.3. Submission Content

The Proposal should include, at minimum, the following information in the order listed. It is the Proposer's responsibility to provide all information that it deems relevant with their Proposal.

Transmittal Letter
Part 1 - Executive Summary
Part 2 – Design-Builder Profile
Part 3 – Qualifications and Experience
Part 4 – Project Approach and Schedule
Part 5 – Contract Documents Markup
Part 6 – Firm Fixed Price Proposal, Insurance, and Bond

4.3.1. Transmittal Letter

All Proposals should be submitted with a transmittal letter. The transmittal letter should be no more than 2 pages (not included in page count) and include a complete and concise description of the Design-Build team's capabilities to satisfy the requirements outlined in this RFP. The letter should contain a statement acknowledging receipt of all addenda and a statement that the Proposal shall remain in effect and not be withdrawn for ninety (90) days after the Proposal due date. The transmittal letter must include the name, title, address, phone number, and email address for the Proposer's contact and identify the Proposer's signatory to any Contract Documents. The letter should be signed by a representative of the Proposer authorized to commit the Proposer to the obligations contained in the Proposal.

4.3.2. Part 1 - Executive Summary

The Executive Summary must include a concise overview of key elements of the Proposal, but should not include additional information that is not contained elsewhere in the Proposal. The summary should briefly describe (in 3 pages or less) the Proposer's offering and approach.

4.3.3. Part 2 – Design-Builder Profile

Provide a detailed and complete description of the company proposed as the Design-Builder. The Design-Builder may be a single entity or a joint venture. This section may also be used to describe key personnel and other firms included on the Project Team, such as subconsultants and subcontractors. The Design-Builder profile should include, at minimum, the following information:

a. General – Provide general information about the Design-Builder, such as offered services, office locations that will manage this project, number of employees (professional and non-professional), years in business, and evidence of required licensure.
b. Legal Structure – Identify the legal structure of the DB (limited liability company, general partnership, joint venture, limited partnership, or other). Also identify the owners of the DB (shareholders, members, partners, etc.).
c. Project Office Location – Identify where the DB intends to manage the project, including performing design work and managing construction.
d. Project Team – Identify any other firms included on the Project Team and describe the scope of each team member's services and responsibilities during design and construction phases. Include an organizational chart depicting the reporting relationships and responsibilities of the Project Team and describe the DB's approach to management of the Project Team.
    - Identify all Key Personnel and describe their specific responsibilities during design and construction phases of the Project. At minimum, Key Personnel shall include Project Manager, Design Manager, and Construction Manager.
    - Provide resumes for all Key Personnel in Appendix A. Resumes should be limited to two (2) pages per individual and include:
        - Academic and professional qualifications
        - Professional registration and licensure
        - Experience as it relates to this Project
    - Provide proof of required licensure by each Project Team member in the Appendix B. Engineer must include in responsible charge an engineer licensed in the State of Georgia. Contractor shall hold a General Contractor License and Utility Contractors License in the State of Georgia.

4.3.4. Part 3 - Qualifications and Experience

The Proposal must describe the performance history and experience of the Project Team on similar projects and provide information concerning safety. The DB should demonstrate at least ten (10) years of experience in Design-Build, or other collaborative project delivery methodology, and experience in wastewater treatment infrastructure projects for municipal or public agencies. Experience may be from the DB, Project Team firms, or from Key Personnel. Descriptions must demonstrate the successful completion of at least three (3) design-build

projects (or other alternate delivery including Progressive Design-Build or CMAR) similar in size and scope within the past ten (10) years.

The Proposer must submit descriptions of at least three (3) reference projects in Appendix D to demonstrate relevant experience. Each project description shall include the following information:

a. Name of Owner and contact information
b. Role of Proposer
c. Contract value, GMP, or final construction cost
d. Change Order value (if any)
e. Procurement method
f. Year started and year completed, including planned project schedule and reason for changes (if any)
g. Description of the project demonstrating relevance to this Project
h. Percentage of firm's self-performance
i. Firms and Key Personnel that participated in the project and are included in this Proposal, along with a clear description of the project role and responsibility of each

4.3.5. Part 4 - Project Approach and Schedule

Provide a Project-specific description of how the firm proposes to approach this Project and complete the work described in the Scope of Work. Demonstration of understanding and approach should include:

a. Staffing and planned self-performance as measured in dollars
b. Determination of the sequence and duration of required activities
c. Identifying and resolving potential project obstacles
d. Estimating costs and implementing control procedures for design and construction services
e. Compliance with State and Federal procurement requirements, including O.C.G.A. 36-91-21 and 2 CFR Part 200
f. Ensuring health and safety of Project Team
g. Assuring quality throughout the Project
h. Providing project management, administration, and cost control
i. Managing changes to the Project
j. Co-existing with Owner and maintaining plant operation throughout construction
k. Sufficient technical information (preliminary design drawings, summaries, and/or additional documents as needed) for PCWASA to review and understand the proposed approach for equipment replacement and improvements
l. Identification of any permits or approvals, listed in this RFP or not, that the DB believes may be required to complete this Project, and the plan for obtaining such permits or approvals.
m. Startup, testing, and commissioning

Along with the description of the project approach, provide a proposed time schedule that includes the completion of key tasks, such as 90% design, acquisition of applicable permits and approvals, and construction completion. Describe the methods used to assure that the time schedule will be met.

4.3.6. Part 5 – Contract Documents Markup

Provide a summary of any proposed changes to the Contract Documents provided in Attachment B. Proposed changes may include, but not be limited to, insurance and bonding requirements, Agreement, and General Conditions. With each proposed change, Proposers should include the following:

- The document and section number
- Proposed alternate language
- An explanation for the requested change
- Any impacts the requested change may have on any terms of the Contract Documents.

If no changes are proposed, then state so.

The Owner's goal in requesting proposed changes is to identify provisions in the Contract Documents that may unnecessarily increase the cost of the Project or complicate the performance of the work. The Owner may discuss any proposed changes during the review process, and may accept any changes via addendum to this RFP. The Owner reserves the right to reject any and all proposed changes and/or to negotiate provisions with the selected Proposer.

4.3.7. Required Documents/Appendices

The following list of required documents must be completed and returned with each Proposal in the designated appendices. The table outlines where each form can be found in this RFP and where each document should be included in the submitted Proposal. These documents and forms do not count towards the page limit.

Required Document	Found in Attachment	Include as Appendix
Resumes		A
Required Licenses (Contractor's, Business, Utility Contractor's)		B
Supporting Technical Information (including preliminary design drawings)		C
Project References		D
Certificates of Insurance	B - Exhibit A	E
Design-Builder and Subcontractor's (as applicable) Affidavit of Security and Immigration Compliance	D-1	F
Non-Collusion Affidavit	D-2	F
Cost Proposal Form	D-3	Separate Sealed
Proposal Bond	D-4	Separate Sealed w/ Cost Proposal Form

Note: Failure to complete and submit these mandatory forms and documents with the Proposal will result in the Proposal being deemed non-responsive. Subcontractor forms should be completed if a subcontractor will be utilized to fulfill the requirements of this contract.

Insurance: Certificates of insurance should be provided demonstrating existing coverage for, at minimum, professional liability (E&O), commercial general liability, commercial automobile liability, workers' compensation, employer's liability, and any associated umbrella coverage. The proposed insurance requirements are presented in Exhibit A of the proposed Design-Build Agreement included with Attachment B.

Cost Proposal Form and Bond: Provide the Proposer's firm fixed price proposal on the attached Cost Proposal Form in a separately sealed envelope clearly marked on the outside "Cost Proposal for Design Build Services for Wastewater Treatment Facility Improvements". The remainder of the Proposal should not include any discussion of the proposed firm fixed price proposal to complete the Project in order to allow independent evaluations of qualifications and fees. The sealed envelope may be submitted with the bound submittal package. A 10% bid bond shall be submitted with the Cost Proposal Form. Surety companies executing any bonds for this Project must be listed on the Treasury Department's most current Circular 570.

The Cost Proposal Form will identify the Proposer's firm fixed price for completing the Project, including engineering and design services, permitting, procurement, construction, start up, and O&M manuals.

5. Proposal Evaluation and Selection

5.1. Evaluation

The selection committee, comprised of members of the Owner's team, will evaluate and rank the responsive Proposals by applying the weighted evaluation criteria outlined below.

Evaluation Criteria	Value
Total Firm Fixed Price	40
Project Team Qualifications and Experience	20
Project Approach	30
Project Schedule	10
Total	100

5.1.1. Total Firm Fixed Price (40 Points)

The lowest cost Proposal will receive all 40 points allocated for "Cost Proposal". Subsequent proposers will be assigned points according to the following formula:

$$\frac{Lowest\ Cost\ Proposal}{Other\ Cost\ Proposal}\ x\ 40 = Cost\ Points\ Awarded$$

5.1.2. Project Team Qualifications and Experience (20 Points)

A maximum of 20 points will be awarded based on the Project Team's qualifications and experience in similar projects. Consideration will be given to the Key Personnel proposed for the Project and their availability to perform the work. The Project Team's experience with the Design-Build project delivery method and federal funding will also be considered by the selection committee.

5.1.3. Project Approach (30 Points)

The selection committee will compare the proposed project approach with the Owner's project objectives. Consideration will be given to the technical approach and design integration with existing infrastructure and systems, as well as the proposed plan for managing and performing all services to complete the Project, including quality management, risk management, cost control, and communication with the Owner and Program Manager. Proposed Contract Document modifications will also be evaluated. Up to 30 points will be awarded to each Proposal.

5.1.4. Project Schedule (10 Points)

The Proposer's understanding of the project timeline through its anticipated schedule for completing design, permitting, construction, and start-up of the Project will be considered by the selection committee and up to 10 points will be awarded to each Proposal.

5.2. Selection

Following the evaluation process, the Proposal determined to be the most beneficial to PCWASA, considering the evaluation criteria above, will be selected for contract award or offered the opportunity to negotiate the final terms of a Design-Build Contract for this Project. If such negotiations are unsuccessful, the Owner may select the next highest ranked Proposer for negotiations and contract award. PCWASA may determine to conduct interviews with the selected Proposer and will schedule oral presentations during the evaluation period. PCWASA reserves the right to accept or reject any or all Proposals and to waive any informalities.

6. Conditions for Proposers and Contract Administration

6.1. Owner Authority

The Owner, PCWASA, is a public organization in the State of Georgia and the procurement process for this project is authorized under O.C.G.A. 36-34-5 and O.C.G.A. Title 36 Chapter 91.

6.2. Georgia State Law

Proposers shall abide by current state laws while preparing their proposals and pursuing a Contract for the proposed Project.

6.3. Collusion Among Respondents

By submitting a proposal, each Proposer certifies that they, nor any of its partners, representatives, or parties in interest, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Proposer, firm or person to submit a collusive or sham proposal in connection with the Contract for which the Proposal has been submitted.

6.4. Drug Free Workplace

Owner policy requires that all its facilities and labor force be drug-free, including contracted labor. The Proposer acknowledges this requirement, as outlined in Exhibit D of the proposed Agreement, and agrees to adhere to such policy.

6.5. Indemnify and Hold Harmless

To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless the Owner and its representatives from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to:

a. Personal injury, death or property damage resulting from any work performed pursuant to this contract
b. Any and all penalties and damages incurred by reason of contractor's failure to comply with any applicable laws, ordinances, or regulations.

6.6. Proprietary Information

All documents submitted as part of the Proposal will be deemed confidential during the evaluation process. Proposals will only be available for review by members of the evaluation team or its designated agents. There shall be no disclosure of any Proposer's information prior to contract award. Following award of contract, or cancellation of this RFP, all applicable information will be considered a public record that will be disclosed upon request pursuant to the Georgia Open Records Act, O.C.G.A. 50-18-70.

The Owner reserves the right to retain all Proposals submitted and use any ideas or concepts contained therein, regardless of whether or not that Proposal is accepted. Submission of a Proposal indicates acceptance by the Proposer of the terms and conditions contained in this RFP.

6.7. Rights of the Owner

In connection with this procurement process, the Owner reserves all rights available to it under applicable law to:

a. Cancel, withdraw, postpone, or extend this RFP, in whole or in part, at any time prior to the execution of the Contract, without incurring any obligations or liabilities.
b. Modify the procurement schedule and provide notice via addendum.
c. Waive deficiencies, informalities, and irregularities in a Proposal and accept and review any non-conforming Proposal.
d. Waive or permit corrections to data submitted with any Proposal until Owner issues written declaration that a particular stage of its review of Proposals has been completed and closed.
e. Hold meetings and interviews and conduct discussions and correspondence with one or more Proposers to obtain a greater understanding of any information contained in a Proposal.
f. Seek or obtain, from any source, data or information that may improve the understanding and evaluation of a Proposal or verify information contained in a Proposal.
g. Reject any Proposal containing exceptions, additions, qualifications, or conditions not called for in the RFP or otherwise not acceptable to the Owner.
h. Request additional information from a Proposer during Proposal evaluation.

6.8. Program Manager

PCWASA has designated a Program Manager to coordinate this project on behalf of PCWASA. The successful Proposer will perform all work required in the Contract under the direction of and subject to the approval of the Program Manager. All issues, including payment issues, shall be submitted to the Program Manager for resolution.

6.9. Changes in Objectives

The Owner may make material changes to the project objectives, including additions, deletions, or other revisions within the general scope of RFP requirements. No changes or adjustments shall be made without a written amendment to this RFP.

6.10. Addenda

In the event that revisions to the RFP or procurement process become necessary or desirable, the Owner may issue written addenda. Any addenda will be posted on the Owner's website: https://pcwasa.org/work-with-us/#procurement. It is the Proposer's responsibility to obtain all addenda prior to submitting its Proposal. Receipt of any amendments to this RFP should be acknowledged by notating receipt on the Cost Proposal Form provided in Attachment D.

6.11. Exceptions

Any Proposer that takes exception to any part of this RFP shall indicate such exceptions in Part 5 of their submitted Proposal. Failure to indicate any such exception will be interpreted as the Proposer's intent to fully comply with the requirements of this RFP.

6.12. Nonconforming Terms and Conditions

Any proposal that includes terms and conditions that do not conform to the terms and conditions of this RFP will be considered non-responsive and may be rejected by the Owner. The Owner may permit the Proposer to withdraw or modify any non-conforming terms and conditions from its Proposal prior to completion of Proposal evaluation.

6.13. Cost of RFP Preparation and Submission

Each Proposer shall be responsible for any and all costs incurred during the preparation and submittal of their Proposal. There is no expressed or implied obligation of the Owner to reimburse any Proposer for expenses incurred during this procurement process.

6.14. Default

In the event of default by the Contractor, or for any other reason deemed appropriate by the Owner, the Owner may, by providing 30 days written notice, cancel this contract and make award to another Proposer. The Owner reserves the right to recover the excess cost by deduction from an unpaid balance or by invoicing the defaulting contractor for any price differences.

6.15. Liquidated Damages

Liquidated damages in the amount of $250 per calendar day will be assessed the DB for failure to reach Substantial Completion of the work according to the agreed project schedule.

6.16. Insurance

See the insurance requirements in the attached Insurance Exhibit included with the proposed Agreement.

7. Attachments

The following attachments are included as part of this RFP.

Attachment A - Scope of Work
Attachment B - Proposed Contract Documents
Attachment C - Background Documents
a. Line Creek WRF Record Drawings
b. Rockaway WPCP Record Drawings
c. Equipment Proposal Packages
Attachment D - Required Submission Forms
D-1: Security and Immigration Compliance Affidavit
D-2: Non-Collusion Affidavit
D-3: Cost Proposal Form
D-4: Proposal Bond

Attachment A – Scope of Work

January 12, 2024
RFP No. 2024-100

ATTACHMENT A – SCOPE OF WORK

Project Background

Rockaway WPCP - Tertiary Filter System

Rockaway WPCP is a Sequencing Batch Reactor (SBR) plant, discharging from the SBR basins to the existing disc filter, which consists of two chambers holding 12 pile cloth media filter discs each. While the filter system is properly sized to accommodate average daily flows, occasional slugs of flow discharged from the SBR basins overload the filters. Additionally, without a proper means to divert potential overflows during peak flow conditions, the filter poses an environmental risk. PCWASA desires an additional tertiary filter unit, matching the capacity of the existing filters, to improve redundancy, as well as a splitter box structure to equally distribute flows to the two filter units and provide a means for safely diverting overflow around the filters.

Both Facilities - Ultraviolet (UV) Disinfection System

The existing UV disinfection system at each facility is reaching the end of its useful lifespan and has become cost prohibitive to service. PCWASA desires a more cost-effective and efficient replacement for the UV system at both Rockaway and Line Creek.

Line Creek – Headworks Bar Screen

The Line Creek headworks consists of a single mechanical perforated plate screen with a manual bar screen for bypass. Due to the large quantities of septage received at the plant and the sticky, fibrous solids that are contained in this septage, the existing single screen frequently becomes overloaded, causing influent to back up into the influent flow measurement channel. This influences the accuracy of the influent flow recordings. Even when not overloaded, the sticky makeup of solids is not readily washed or brushed from the screen before passing to the downstream side of the screen, allowing the fibrous materials to enter the plant. A new bar screen being installed at the septage receiving station is expected to reduce the amount of nuisance solids experienced at the headworks; however, PCWASA desires to improve redundancy with a second mechanical screen installed to operate parallel to the existing mechanical screen. Additionally, the existing mechanical screen, has experienced heavy use, and PCWASA desires to rebuild or replace the screen to ensure reliable performance.

Design-Builder's Scope of Services

The DB shall provide the services described below necessary to produce the desired facility improvements.

<u>General</u>

1. Prepare and maintain a project schedule including design, permitting, and construction phase milestone activities. Include milestone dates for receipt and approval of design documents, receipt of regulatory approvals, processing of shop drawings, delivery schedule of materials and equipment, construction, substantial completion, startup, and final completion.

2. Manage project design including coordination and control of the Project Team and all disciplines of work to meet project objectives.
3. Provide planning, permitting, subsurface investigation, geotechnical, costing, survey, design, civil, mechanical, structural, electrical, and instrumentation services as needed to complete the Project.
4. Prepare a brief Design Development Report (DDR) for review and approval by EPD.
5. Design the work to be completed within the approved budget.
6. Draft plans and specifications at 90% design for Owner review and modify as needed to incorporate comments from PCWASA into the final plans and specifications.
7. Submit plans and specifications to EPD for technical review. Address EPD comments (if any) as necessary to gain approval.
8. Develop and obtain approval of an Erosion, Sedimentation, and Pollution Control Plan and Land Disturbance Permit from the Local Issuing Authority, Peachtree City.
9. Provide recommendations on design documents with respect to constructability, sequence of construction, maintenance, construction duration, materials of construction, procurement, and other factors that may influence project costs, performance, or quality.
10. Provide value engineering recommendations to Owner and Project Team.
11. Work with manufacturers and manufacturers' representatives for Owner preselected equipment in preparing the design, refining their scope of supply, negotiating quotes (if necessary), and preparing for issuance of Purchase Orders.
12. Review shop drawings and material submittals.
13. Construct all facilities in accordance with the approved construction plans, specifications, and manufacturer's instructions.
14. Provide and operate all temporary facilities necessary to maintain permit compliance throughout the Project.
15. Achieve substantial completion.
16. Develop, with Owner, a punch-list of remaining work items or deficiencies and address to achieve final completion.
17. Schedule and facilitate startup and commissioning of installed equipment. Schedule to allow attendance by Owner and Program Manager.
18. Demonstrate correct operation of all equipment and systems.
19. Gain manufacturer's sign-off or certification, as applicable.
20. Prepare record drawings based upon field run survey by a Professional Land Surveyor and red-line mark-ups provided by the DB.

Construction and equipment procurement may progress parallel to EPD review of construction plans and specifications following approval from Owner, provided the DB accepts full responsibility for correction of any specific items rejected by EPD. Compliance with all permit and regulatory requirements associated with the construction, startup, and testing of the improvements added by this project is the sole responsibility of the DB.

Rockaway WPCP Improvements

Tertiary Filter System. Provide a new concrete filter structure with two filter chambers similar to the existing structure. Furnish and install the complete filter system preselected by PCWASA, with all components necessary for a functional tertiary filter. Install a splitter box structure

capable of equally distributing flows to the existing and new tertiary filters, diverting flow from a certain filter, and safely bypassing excess flows around the filters to prevent overflow. The filter and other associated structures shall be capable of passing an average flow of 4 MGD and a maximum daily flow of 10 MGD.

Ultraviolet Disinfection System. Furnish and install a new ultraviolet (UV) disinfection system to replace the existing UV disinfection equipment. The UV equipment has been preselected by PCWASA. Utilize existing infrastructure as practical. The new UV system shall provide 100% redundancy at an average flow of 4 MGD.

Line Creek WRF Improvements

Headworks Improvements. Furnish and install a new mechanical screen at the headworks. The existing mechanical screen may be rebuilt and reused, or replaced altogether with the preselected equipment. Furnish and install with the screen(s), a washer/compactor to convey all screened solids to one side of the headworks, where it will discharge to a dumpster. Existing infrastructure should be used as practical. Provide site work as necessary for placement and service of a 4-yard dumpster (provided by others). The headworks shall be capable of accommodating average flows of 2 MGD and peak flows of 5 MGD through a single screen. The headworks should maintain the ability to divert flow from either of the two screens for maintenance.

Ultraviolet Disinfection System. Furnish and install a new ultraviolet (UV) disinfection system to replace the existing UV disinfection equipment. The UV equipment has been preselected by PCWASA. Utilize existing infrastructure as practical. The new UV system shall provide 100% redundancy at average flow of 2 MGD.

Deliverables

Design Development Report. Prepare a brief Design Development Report (DDR) in accordance with EPD requirements for the wastewater treatment improvements at each facility. Submit the DDR to EPD for review and approval. Deliver digital copies of the approved DDR to the Owner. Existing DDR's can be supplied to the DB for reference.

Construction Plans and Specifications. Prepare design drawings and specifications for the facility improvements at both Rockaway WPCP and Line Creek WRF. Provide Owner with copy of plans and specifications at 90% design for review and concurrence. Plans and specifications shall conform to EPD requirements for plan review. Submit documents for EPD technical review and approval prior to initiating construction, and complete any modifications requested by EPD for technical approval. Deliver three (3) hard copies and a digital copy (pdf format) of all approved plans and specifications to the Owner.

Construction Documentation. Provide documents such as shop drawings, record drawings, change orders, equipment data sheets, certifications, and test reports necessary to confirm compliance with the approved plans and specifications. Provide cost documentation required for Owner reporting, including payment applications on the approved schedule of values. Submit the engineer's certification upon completion of construction.

Operation and Maintenance Manual. Provide a copy of manufacturers' written O&M instructions for equipment furnished and installed in this Project. Prepare and provide written

amendments that may be appended to the current O&M manual for each facility, describing new O&M procedures for the modified processes.

Warranty Documentation. Deliver manufacturers' warranty documents for equipment furnished and installed in the facility improvements. Warranties shall be effective from the date of startup and manufacturer approval, not the date of equipment delivery.

END OF SECTION

Attachment B – Proposed Contract Documents

January 12, 2024
RFP No. 2024-100

AGREEMENT BETWEEN OWNER AND DESIGN-BUILDER – LUMP SUM

TABLE OF CONTENTS

This **AGREEMENT** is made as of the _____ day of _____ in the year of 20_____, by and between the following parties, for services in connection with the Project identified below.

OWNER:

Peachtree City Water and Sewerage Authority
1127 GA-74, Peachtree City, GA 30269

DESIGN-BUILDER:

(Name and address)

PROJECT:

Design-Build Services for Wastewater Treatment Facility Improvements
1127 GA-74, Peachtree City, GA 30269

And

100 Aviation Way, Peachtree City, GA 30269

In consideration of the mutual covenants and obligations contained herein, Owner and Design-Builder agree as set forth herein.

Article 1

Scope of Work

1.1 Design-Builder shall perform all design and construction services, and provide all material, equipment, tools and labor, necessary to complete the Work described in and reasonably inferable from the Contract Documents.

Article 2

Contract Documents

2.1 The Contract Documents are comprised of the following:

2.1.1 All written modifications, amendments, minor changes and Change Orders to this Agreement issued in accordance with DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition) ("General Conditions of Contract");

2.1.2 The Basis of Design Documents, including the Owner's RFP and Project Criteria, Design-Builder's Proposal, including the Cost Proposal and all submission forms, and the Deviation List, if any, contained in the Design-Builder's Proposal, which shall specifically identify any and all deviations from Owner's Project Criteria;

2.1.3 This Agreement, including all exhibits and attachments, executed by Owner and Design-Builder prior to the Effective Date, as follows:

- Exhibit A - Insurance Exhibit
- Exhibit B - Payment Bond
- Exhibit C - Performance Bond
- Exhibit D - Drug Free Workplace Certification

2.1.4 The General Conditions of Contract; and

2.1.5 Construction Documents prepared and approved in accordance with Section 2.4 of the General Conditions of Contract.

2.1.6 The following documents which may be executed on or after the Effective Date of the Agreement and are not attached hereto:

- Exhibit E - Notice to Proceed
- Exhibit F - Certificate of Substantial Completion
- Exhibit G - Affidavit of Payments of Debts and Claims
- Exhibit H - Affidavit of Release of Liens
- Exhibit I - Consent of Surety to Final Payment

Article 3

Interpretation and Intent

3.1 Design-Builder and Owner, prior to execution of the Agreement, shall carefully review all the Contract Documents, including the various documents comprising the Basis of Design Documents, for any

conflicts or ambiguities. Design-Builder and Owner will discuss and resolve any identified conflicts or ambiguities prior to execution of the Agreement.

3.2 The Contract Documents are intended to permit the parties to complete the Work and all obligations required by the Contract Documents within the Contract Time(s) for the Contract Price. The Contract Documents are intended to be complementary and interpreted in harmony so as to avoid conflict, with words and phrases interpreted in a manner consistent with construction and design industry standards. In the event inconsistencies, conflicts, or ambiguities between or among the Contract Documents are discovered after execution of the Agreement, Design-Builder and Owner shall attempt to resolve any ambiguity, conflict or inconsistency informally, recognizing that the Contract Documents shall take precedence in the order in which they are listed in Section 2.1 hereof. Conflicts existing within Section 2.1.2 shall be resolved by giving precedence first to the Deviation List, if any, then the Owner's Project Criteria, and then the Design-Builder's Proposal.

3.3 Terms, words and phrases used in the Contract Documents, including this Agreement, shall have the meanings given them in the General Conditions of Contract.

3.4 If Owner's Project Criteria contain design specifications: (a) Design-Builder shall be entitled to reasonably rely on the accuracy of the information represented in such design specifications and their compatibility with other information set forth in Owner's Project Criteria, including any performance specifications; and (b) Design-Builder shall be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by such inaccurate design specification.

3.5 The Contract Documents form the entire agreement between Owner and Design-Builder and by incorporation herein are as fully binding on the parties as if repeated herein. No oral representations or other agreements have been made by the parties except as specifically stated in the Contract Documents.

Article 4

Ownership of Work Product

4.1 Work Product. All drawings, specifications and other documents and electronic data, including such documents identified in the General Conditions of Contract, furnished by Design-Builder to Owner under this Agreement ("Work Product") are deemed to be instruments of service and Design-Builder shall retain the ownership and property interests therein, including but not limited to any intellectual property rights, copyrights and/or patents, subject to the provisions set forth in Sections 4.2 through 4.5 below.

4.2 Owner's Limited License Upon Project Completion and Payment in Full to Design-Builder. Upon Owner's payment in full for all Work performed under the Contract Documents, Design-Builder transfers all ownership and property interests, including but not limited to any intellectual property rights, copyrights and/or patents, in that portion of the Work Product that consists of architectural, engineering and other design elements and specifications that are unique to the Project. The parties shall specifically designate those portions of the Work Product for which ownership in the Work Product shall be transferred. Such grant and transfer are conditioned on Owner's express understanding that its alteration of the Work Product without the involvement of Design-Builder is at Owner's sole risk and without liability or legal exposure to Design-Builder or anyone working by or through Design-Builder, including Design Consultants of any tier (collectively the "Indemnified Parties"), and on the Owner's obligation to provide the indemnity set forth in Section 4.5 below.

4.3 Owner's Limited License upon Owner's Termination for Convenience or Design-Builder's Election to Terminate. If Owner terminates this Agreement for its convenience as set forth in Article 8

hereof, or if Design-Builder elects to terminate this Agreement in accordance with Section 11.4 of the General Conditions of Contract, Design-Builder shall, upon Owner's payment in full of the amounts due Design-Builder under the Contract Documents, grant Owner a limited license to use the Work Product to complete the Project and subsequently occupy the Project, and Owner shall thereafter have the same rights as set forth in Section 4.2 above, conditioned on the following:

4.3.1 Use of the Work Product is at Owner's sole risk without liability or legal exposure to any Indemnified Party and on the Owner's obligation to provide the indemnity set forth in Section 4.5 below; and

4.3.2 Owner agrees to pay Design-Builder the additional sum of _____ Dollars ($ _____) as compensation for the right to use the Work Product to complete the Project and subsequently use the work Product in accordance with Section 4.2 if Owner resumes the Project through its employees, agents, or third parties.

4.4 Owner's Limited License upon Design-Builder's Default. If this Agreement is terminated due to Design-Builder's default pursuant to Section 11.2 of the General Conditions of Contract, then Design-Builder grants Owner a limited license to use the Work Product to complete the Project and subsequently occupy the Project, and Owner shall thereafter have the same rights and obligations as set forth in Section 4.2 above. Notwithstanding the preceding sentence, if it is ultimately determined that Design-Builder was not in default, Owner shall be deemed to have terminated the Agreement for convenience, and Design-Builder shall be entitled to the rights and remedies set forth in Section 4.3 above.

4.5 Owner's Indemnification for Use of Work Product. If Owner is required to indemnify any Indemnified Parties based on the use or alteration of the Work Product under any of the circumstances identified in this Article 4, Owner shall defend, indemnify and hold harmless such Indemnified Parties from and against any and all claims, damages, liabilities, losses and expenses, including attorneys' fees, arising out of or resulting from the use or alteration of the Work Product.

Article 5

Contract Time

5.1 Date of Commencement. The Work shall commence within five (5) days of Design-Builder's receipt of Owner's Notice to Proceed ("Date of Commencement") unless the parties mutually agree otherwise in writing.

5.2 Substantial Completion and Final Completion.

5.2.1 Substantial Completion of the entire Work shall be achieved no later than three-hundred-sixty (360) calendar days after the Date of Commencement ("Scheduled Substantial Completion Date").

5.2.2 Interim milestones and/or Substantial Completion of identified portions of the Work ("Scheduled Interim Milestone Dates") shall be achieved as follows:

5.2.2.1 Phase One Design Services – Design-Builder shall complete its Phase One Design Services and submit design documents for Owner review no later than 90 days from Notice to Proceed.

5.2.3 Final Completion of the Work or identified portions of the Work shall be achieved as expeditiously as reasonably practicable. Final Completion is the date when all Work is complete

pursuant to the definition of Final Completion set forth in Section 1.2.8 of the General Conditions of Contract.

5.2.4 All of the dates set forth in this Article 5 (collectively the "Contract Time(s)") shall be subject to adjustment in accordance with the General Conditions of Contract.

5.3 Time is of the Essence. Owner and Design-Builder mutually agree that time is of the essence with respect to the dates and times set forth in the Contract Documents.

5.4 Liquidated Damages. Design-Builder understands that if Final Completion is not achieved within thirty (30) days of the Substantial Completion Date, Owner will suffer damages which are difficult to determine and accurately specify. Design-Builder agrees that if Final Completion is not achieved within thirty (30) days of Substantial Completion, Design-Builder shall pay to Owner two-hundred-fifty Dollars ($250), as liquidated damages for each calendar day that Final Completion is delayed beyond the above-referenced number of days.

5.5 Any liquidated damages assessed pursuant to this Agreement shall be in lieu of all liability for any and all extra costs, losses, expenses, claims, penalties and any other damages, whether special or consequential, and of whatsoever nature incurred by Owner which are occasioned by any delay in achieving the Contract Time(s).

5.6 Reserved

5.7 Reserved

5.8 Owner's Review Time. The parties have established the following maximum and minimum amount of time for the Owner to review Design Submissions and the Project Schedule or any updates thereto unless the parties agree in writing otherwise.

5.8.1 The Owner shall have a minimum of thirty (30) days of receipt by the Owner to review all Design Submissions, the Project Schedule, and any updates thereto.

5.8.2 The Owner shall review and (if applicable) provide a response to Design-Builder on all Design Submissions, the Project Schedule, and any updates thereto within forty-five (45) days of receipt by the Owner.

Article 6

Contract Price

6.1 Contract Price. Owner shall pay Design-Builder in accordance with Article 6 of the General Conditions of Contract the sum of _____ Dollars ($ _____) ("Contract Price"), subject to adjustments made in accordance with the General Conditions of Contract. Unless otherwise provided in the Contract Documents, the Contract Price is deemed to include all sales, use, consumer and other taxes mandated by applicable Legal Requirements.

6.2 Markups for Changes. If the Contract Price requires an adjustment due to changes in the Work, and the cost of such changes is determined under Sections 9.4.1.3 or 9.4.1.4 of the General Conditions of Contract, the following markups shall be allowed on such changes:

6.2.1 For additive Change Orders, including additive Change Orders arising from both additive and deductive items, it is agreed that Design-Builder shall receive a Fee of _____

_____percent (_____%) of the additional costs incurred for that Change Order, plus any other markups set forth at Exhibit _____ hereto.

6.2.2 For deductive Change Orders, including deductive Change Orders arising from both additive and deductive items, the deductive amounts shall include an amount equal to the sum of: (a) _____percent (_____%) applied to the direct costs of the net reduction (which amount will account for a reduction associated with Design-Builder's Fee); plus (b) any other markups set forth at Exhibit _____ hereto applied to the direct costs of the net reduction.

6.3 Allowance Items and Allowance Values.

6.3.1 Any and all Allowance Items, as well as their corresponding Allowance Values, are set forth in an Exhibit hereto.

6.3.2 Design-Builder and Owner have worked together to review the Allowance Items and Allowance Values based on design information then available to determine that the Allowance Values constitute reasonable estimates for the Allowance Items. Design-Builder and Owner will continue working closely together during the preparation of the design to develop Construction Documents consistent with the Allowance Values. Nothing herein is intended in any way to constitute a guarantee by Design-Builder that the Allowance Item in question can be performed for the Allowance Value.

6.3.3 No work shall be performed on any Allowance Item without Design-Builder first obtaining in writing advanced authorization to proceed from Owner. Owner agrees that if Design-Builder is not provided written authorization to proceed on an Allowance Item by the date set forth in the Project schedule, due to no fault of Design-Builder, Design-Builder may be entitled to an adjustment of the Contract Time(s) and Contract Price.

6.3.4 The Allowance Value for an Allowance Item includes the direct cost of labor, materials, equipment, transportation, taxes and insurance associated with the applicable Allowance Item. All other costs, including design fees, Design-Builder's overall project management and general conditions costs, overhead and fee, are deemed to be included in the original Contract Price, and are not subject to adjustment, regardless of the actual amount of the Allowance Item.

6.3.5 Whenever the actual costs for an Allowance Item is more than or less than the stated Allowance Value, the Contract Price shall be adjusted accordingly by Change Order, subject to Section 6.3.4. The amount of the Change Order shall reflect the difference between actual costs incurred by Design-Builder for the particular Allowance Item and the Allowance Value.

6.4 Performance Incentives. - Reserved

Article 7

Procedure for Payment

7.1 Progress Payments.

7.1.1 Design-Builder shall submit to Owner on the twenty-fifth (25th) day of each month, beginning with the first month after the Date of Commencement, Design-Builder's Application for Payment in accordance with Article 6 of the General Conditions of Contract.

7.1.2 Owner shall make payment within ten (10) days after Owner's receipt of each properly submitted and accurate Application for Payment in accordance with Article 6 of the General

Conditions of Contract, but in each case less the total of payments previously made, and less amounts properly withheld under Section 6.3 of the General Conditions of Contract.

7.2 Retainage on Progress Payments.

7.2.1 Owner will retain ten percent (10%) of each Application for Payment provided, however, that when fifty percent (50%) of the Work has been satisfactorily completed by Design-Builder and Design-Builder is otherwise in compliance with its contractual obligations, Owner will not retain any additional retention amounts from Design-Builder's subsequent Applications for Payment. Owner will also reasonably consider reducing retainage for Work completed early in the Project.

7.2.2 Within fifteen (15) days after Substantial Completion of the entire Work or, if applicable, any portion of the Work, pursuant to Section 6.6 of the General Conditions of Contract, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to (a) the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion and (b) all other amounts Owner is entitled to withhold pursuant to Section 6.3 of the General Conditions of Contract.

7.3 Final Payment. Design-Builder shall submit its Final Application for Payment to Owner in accordance with Section 6.7 of the General Conditions of Contract. Owner shall make payment on Design-Builder's properly submitted and accurate Final Application for Payment within thirty (30) days after Owner's receipt of the Final Application for Payment, provided that Design-Builder has satisfied the requirements for final payment set forth in Section 6.7.2 of the General Conditions of Contract.

7.4 Interest. Payments due and unpaid by Owner to Design-Builder, whether progress payments or final payment, shall bear interest commencing five (5) days after payment is due at the rate of one percent (1%) per month until paid, in accordance with Georgia Code 13-11-7.

7.5 Record Keeping and Finance Controls. With respect to changes in the Work performed on a cost basis by Design-Builder pursuant to the Contract Documents, Design-Builder shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management, using accounting and control systems in accordance with generally accepted accounting principles and as may be provided in the Contract Documents. During the performance of the Work and for a period of three (3) years after Final Payment, Owner and Owner's accountants shall be afforded access to, and the right to audit from time-to-time, upon reasonable notice, Design-Builder's records, books, correspondence, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to changes in the Work performed on a cost basis in accordance with the Contract Documents, all of which Design-Builder shall preserve for a period of three (3) years after Final Payment. Such inspection shall take place at Design-Builder's offices during normal business hours unless another location and time is agreed to by the parties. Any multipliers or markups agreed to by the Owner and Design-Builder as part of this Agreement are only subject to audit to confirm that such multiplier or markup has been charged in accordance with this Agreement, with the composition of such multiplier or markup not being subject to audit.

Article 8

Termination for Convenience

8.1 If Design-Builder is terminated for convenience pursuant to Section 11.6 of the General Conditions, and the parties have agreed to a payment to Design-Builder in the case of such termination for convenience, Owner shall pay Design-Builder for the following in addition to the amount set forth in Section 11.6.1 of the General Conditions:

8.1.1 The fair and reasonable sums for overhead and profit on the sum of items set forth in Section 11.6.1 of the General Conditions.

8.2 If Owner elects to terminate the Work for convenience as provided in Section 11.6 of the General Conditions, the compensation set forth in that section and in Section 8.1.1 above shall be Design-Builder's sole and exclusive remedy for such termination. Design-Builder acknowledges and agrees that in the event of such termination, it shall not be entitled to recover additional compensation or damages beyond the compensation allotted in Section 8.1.1 of this Agreement and Section 11.6.1 of the General Conditions, including, but not limited to, overhead and profit on Work not executed, damage to reputation, costs of lost opportunities, and lost or anticipated profits on other projects or opportunities.

8.3 The total amount to be paid to Design-Builder, exclusive of costs described in section 11.6.1.2 of the General Conditions, shall not exceed the Contract Price.

[The following Article 9 should be used only if the Owner and Design-Builder agree to establish their respective representatives at the time the Agreement is executed rather than during the performance of the Project.]

Article 9

Representatives of the Parties

9.1 Owner's Representatives.

9.1.1 Owner designates the individual listed below as its Senior Representative ("Owner's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 10.2.3 of the General Conditions of Contract:

Name, Title: Larry McNeil, Deputy General Manager

Address: 1127 Hwy 74 South, Peachtree City, Georgia 30269 Phone: 770-487-7993

9.1.2 Owner designates the Firm listed below as its Owner's Representative, which individual has the authority and responsibility set forth in Section 3.4 of the General Conditions of Contract:

Name: Integrated Science & Engineering, Inc.

Address: 1039 Sullivan Rd., Newnan, Georgia 30265 Phone: 678-552-2106

9.2 Design-Builder's Representatives.

9.2.1 Design-Builder designates the individual listed below as its Senior Representative ("Design-Builder's Senior Representative"), which individual has the authority and responsibility for avoiding and resolving disputes under Section 10.2.3 of the General Conditions of Contract:

Name, Title: _____

Address: _____ Phone: _____

9.2.2 Design-Builder designates the individual listed below as its Design-Builder's Representative, which individual has the authority and responsibility set forth in Section 2.1.1 of the General Conditions of Contract:

Name, Title: _____

Address: _____ Phone: _____

Article 10

Bonds and Insurance

10.1 Insurance. Design-Builder and Owner shall procure the insurance coverages set forth in the Insurance Exhibit attached hereto and in accordance with Article 5 of the General Conditions of Contract.

10.2 Bonds and Other Performance Security. Design-Builder shall provide the following performance bond and labor and material payment bond or other performance security on the forms attached in the Bond Exhibits:

Performance Bond.

☒ Required ☐ Not Required

Payment Bond.

☒ Required ☐ Not Required

Other Performance Security.

☐ Required ☒ Not Required

Article 11

Other Provisions

11.1 Other provisions, if any, are as follows:

11.1.2 Immunity; No Personal Liability. Nothing contained in the Contract Documents shall be construed to be a waiver of the Owner's sovereign immunity or any individual's qualified good faith or official immunities. Nothing herein shall be construed as creating any individual or personal liability on the part of any of Owner's elected or appointed officials, officers, boards, commissions, employees, representatives, consultants, servants, agents, attorneys, or volunteers.

11.1.3 Indemnity. The parties specifically agree that all indemnification obligations set forth in the Contract Documents (including General Conditions) are to be construed consistently with the requirements of Georgia law, including O.C.G.A. §13-8-2, and that should any indemnification obligation set forth in the Contract Documents be found inconsistent with Georgia law, the obligation should be reformed to achieve consistency with the law rather than being stricken entirely.

11.1.4 Title VI in accordance with Title VI of the Civil Rights Act of 1964, as amended, 42 U.S.C. §2000d, section 303 of the Age Discrimination Act of 1975, as amended, 42 U.S.C. § 6102, section 202 of the Americans with Disabilities Act of 1990, 42 U.S.C. § 12132, and all other provisions of Federal law, the Design-Builder agrees that, during performance of the Contract Documents, Design-Builder, for itself, its assignees and successors in interest, will not discriminate against any employee or applicant for employment, any subcontractor, or any supplier because of race, color, creed, national origin, gender, sex, age or disability. In addition, Design-Builder agrees to comply with all applicable implementing regulations and shall include the provisions of this paragraph in every subcontract for services contemplated under the Contract Documents.

In executing this Agreement, Owner and Design-Builder each individually represents that it has the necessary financial resources to fulfill its obligations under this Agreement, and each has the necessary corporate approvals to execute this Agreement, and perform the services described herein.

OWNER:	**DESIGN-BUILDER:**
_____	_____
(Name of Owner)	*(Name of Design-Builder)*
_____	_____
(Signature)	*(Signature)*
_____	_____
(Printed Name)	*(Printed Name)*
_____	_____
(Title)	*(Title)*
Date: _____	Date: _____

EXHIBIT A – INSURANCE REQUIREMENTS

ARTICLE 1 – LICENSED SURETIES AND INSURERS

1.01 All insurance required by the Contract Documents to be purchased and maintained by Owner or Design-Builder shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Insurance providers shall have an A.M. Best rating of A or A- and a financial size category of VI or better. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Agreement or General Conditions.

ARTICLE 2 – CERTIFICATES OF INSURANCE

2.01 Design-Builder shall deliver to Owner, with copies to each additional insured and loss payee identified herein, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Design-Builder is required to purchase and maintain.

2.02 Owner shall deliver to Design-Builder, with copies to each additional insured and loss payee identified herein, certificates of insurance (and other evidence of insurance requested by Design-Builder or any other additional insured) which Owner is required to purchase and maintain.

2.03 Failure of Owner to demand such certificates or other evidence of Design-Builder's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Design-Builder's obligation to maintain such insurance.

2.04 Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Design-Builder.

2.05 The insurance and insurance limits required herein shall not be deemed as a limitation on Design-Builder's liability under the indemnities granted to Owner in the Contract Documents.

2.06 The identity of the additional insureds that are to be included on Design-Builder's insurance policies are:

1. Peachtree City Water and Sewerage Authority, including all elected and appointed officials, all employees and volunteers, all boards, commissions, and/or authorities and their board members, employees, and volunteers.
2. Project Manager - Integrated Science & Engineering, Inc.

ARTICLE 3 – DESIGN-BUILDER'S INSURANCE

3.01 Design-Builder shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Design-Builder's performance of the Work and Design-Builder's other obligations under the Contract Documents, whether it is to be performed by Design-

Builder, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

A. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
B. claims for damages because of bodily injury, occupational sickness or disease, or death of Design-Builder's employees;
C. claims for damages because of bodily injury, sickness or disease, or death of any person other than Design-Builder's employees;
D. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
    1. by any person as a result of an offense directly or indirectly related to the employment of such person by Design-Builder, or
    2. by any other person for any other reason;
E. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
F. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

3.02 The policies of insurance required by this Article 3 shall:

A. with respect to insurance required by Paragraphs 3.01.C through 3.01.F inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Project Manager, and any other individuals or entities identified herein, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
B. include at least the specific coverages and be written for not less than the limits of liability provided herein or required by Laws or Regulations, whichever is greater;
C. include contractual liability insurance covering Design-Builder's indemnity obligations under General Conditions Article 2 and 7;
D. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Design-Builder and to each other additional insured identified herein to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Design-Builder pursuant to Article 2 will so provide);
E. remain in effect at least until final payment and at all times thereafter when Design-Builder may be correcting, removing, or replacing defective Work in accordance with General Conditions Article 6; and
F. include completed operations coverage:
    1. Such insurance shall remain in effect for two years after final payment.
    2. Design-Builder shall furnish Owner and each other additional insured identified herein, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

3.03 The limits of liability for the insurance required by Article 3 shall provide coverage for not

less than the following amounts or greater where required by Laws and Regulations:

A. Workers' Compensation, and related coverages under Paragraphs 3.01.A and 3.01.B:
   1. State: Statutory
   2. Applicable Federal (i.e., Longshoreman's): Statutory
   3. Employer's Liability:
      1) Each Accident: $500,000
      2) Disease Employee Limit: $500,000
      3) Each Employee: $500,000

B. Design-Builder's General Liability under Paragraphs 3.01.C through 3.01.E which shall include Commercial General Liability, Contractual Liability, and Products/Complete Operations Liability, Owners and Design-Builders Protective Liability, and Personal Injury Liability Insurance covering all operations required to complete the work, including coverage for damage caused by explosion, collapse or structural injury, and damage to underground utilities with the following minimum limits of liability:

Contract Amount	Insurance Liability
$1,000,000.00 or less	$1,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.
Over $1,000,000.00	$5,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability – each occurrence.

The Products/Completed Operations Liability Insurance shall be provided for a period of at least one year after completion of the work.

The Contractual Liability Insurance Coverage insuring the performance of the contractual obligations assumed by the Design-Builder by acceptance of this Contract, including specifically, but without limitation thereto, the above- mentioned agreement, included herein

C. Automobile Liability under Paragraph 3.01.F:

Comprehensive Automobile Liability Insurance with the following minimum limits of liability:

Contract Amount	Insurance Liability
$5,000,000.00 or less	$1,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.
Over $5,000,000.00	$3,000,000.00 Combined Single Limit Bodily Injury and Property Damage Liability- each occurrence.

This insurance is to apply to all owned, non-owned, and hired automobiles and other vehicles used by the Design-Builder in the performance of the

work.

D. Design-Builder's General Liability under Paragraphs 3.01.C through 3.01.E which shall include Excess or Umbrella Liability (Occurrence Form):

General per contract:

1. Aggregate: $ 3,000,000.00
2. Each Occurrence: $ 3,000,000.00

E. Professional Liability: Professional Liability with a minimum limit of $10,000,000 per claim and $10,000,000 aggregate covering claims arising out of the performance of professional engineering, architecture, or other professional services under the Contract and caused by errors, omissions, or acts for which Design-Builder is liable. Such insurance shall be maintained in force by Design-Builder for a minimum extended reporting period of; (a) five (5) years after final completion and Owner's acceptance of the Project, or (b) for such longer period as may be required by the Contract Documents. Design-Builder shall require the same limits from any design professional or engineer engaged by Design-Builder on the Project.

ARTICLE 4 – PROPERTY INSURANCE

4.01 Design-Builder shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof. This insurance shall:

A. Include the interests of Owner, Design-Builder, Subcontractors, Program Manager, and any other individuals or entities identified herein, and the officers, directors, partners, employees, agents and other consultants and subcontractors of any of them each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured listed in Paragraph 2.06;

B. Be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss and damage to the Work, temporary buildings, falsework, and materials and equipment in transit and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, and such other perils or causes of loss as may be specifically required by the Agreement or General Conditions;

C. Include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

D. Cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Program Manager;

E. Allow for partial utilization of the Work by Owner;

F. Include testing and startup; and

G. Be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Design-Builder, and Program Manager with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

4.02 Design-Builder shall be responsible for any deductible or self-insured retention.

4.03 The policy will not cover Design-Builder's or its subcontractor's or supplier's equipment,

tools or other property that is not consumed during construction or does not become a part of the Project. Design-Builder shall bear the expense of any additional policy to cover these items.

4.04 The policies of insurance required to be purchased and maintained by Design-Builder in accordance with this Article 4 shall comply with the requirements of Paragraph 4.06.

4.05 Design-Builder shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Agreement or General Conditions or Laws and Regulations which will include the interests of Owner, Design-Builder, Program Manager, Subcontractors and any other individuals or entities identified herein.

4.06 All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Article 4 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Design-Builder and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Article 5.

4.07 Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Article 4 to protect the interests of Design-Builder, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified herein. The risk of loss within such identified deductible amount will be borne by Design-Builder, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense. If deductibles are included in any of the insurance policies described above, Design-Builder will be responsible for costs not paid because of these deductibles.

4.08 If Owner requests in writing that other special insurance such as "soft cost" for the protection of the Owner, it will be included in the property insurance policies provided under Article 4. Design-Builder shall, if possible, include such insurance, and the cost thereof will be charged to Owner by appropriate Change Order or Written Amendment. Prior to commencement of the Work at the Site, Design-Builder shall in writing advise Owner whether or not such other insurance has been procured by Design-Builder. The Design-Builder may add "soft cost" coverage for the benefit of the Design-Builder at the Design-Builder's expense. If the Design-Builder adds such coverage, the Design-Builder shall advise the Owner.

ARTICLE 5 – WAIVER OF RIGHTS

5.01 Owner and Design-Builder intend that all policies purchased in accordance with Article 4 will protect Owner, Design-Builder, Subcontractors, and Project Manager, and all other individuals or entities identified herein as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Design-Builder waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all

losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Project Manager, and all other individuals or entities identified herein as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Design-Builder as trustee or otherwise payable under any policy so issued.

5.02 With respect to all insurance required from Design-Builder by the Contract Documents, Design-Builder waives any and all rights of subrogation against Owner, Project Manager and each additional named insured. Furthermore, all such insurance, and any insurance required by law, shall be maintained in full force and effect by Design-Builder until full and final completion of the Work and until payment therefore by Owner. Nothing contained in the within and foregoing insurance provisions shall in any way limit or release Design-Builder from any of its duties, obligations or liabilities arising under or relating to the Contract Documents.

5.03 Any insurance policy maintained by Design-Builder covering any loss, damage or consequential loss referred to in Paragraph 5.02 shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Owner, Subcontractors, or Project Manager, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

ARTICLE 6 – RECEIPT AND APPLICATION OF INSURANCE PROCEEDS

6.01 Any insured loss under the policies of insurance required by Article 4 will be adjusted with Design-Builder and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 6.02. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

6.02 Design-Builder as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Design-Builder's exercise of this power. If such objection be made, Design-Builder as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Design-Builder as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Design-Builder as fiduciary shall give bond for the proper performance of such duties.

ARTICLE 7 – ACCEPTANCE OF BONDS AND INSURANCE; OPTION TO REPLACE

7.01 If either Owner or Design-Builder has any objection to the coverage afforded by or other

provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with this Exhibit on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 5.1.3 of the General Conditions. Owner and Design-Builder shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

7.02 Partial Utilization, Acknowledgment of Property Insurer

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Article 4 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

EXHIBIT B - PAYMENT BOND

DESIGN-BUILDER *(name and address)*: SURETY *(name and address of principal place of business)*:

OWNER: Peachtree City Water and Sewerage Authority
1127 Hwy 74 South
Peachtree City, GA 30269

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount:
Description: Design-Build Services for Wastewater Treatment Facility Improvements - Installation of a new UV disinfection system at the Owner's two wastewater treatment facilities, Rockaway WPCP and Line Creek WRF; design and construction of a new secondary filtration system at Rockaway WPCP; and installation of a new headworks bar screen at Line Creek WRF.

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Design-Builder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

DESIGN-BUILDER AS PRINCIPAL

_____ *(seal)*
Design-Builder's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By: _____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

1. The Design-Builder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Design-Builder promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Design-Builder shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Design-Builder and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Design-Builder and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond shall arise after the following:

    5.1 Claimants who do not have a direct contract with the Design-Builder,

        5.1.1 have furnished a written notice of non-payment to the Design-Builder, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

        5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).

    5.2 Claimants who are employed by or have a direct contract with the Design-Builder have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Design-Builder, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

    7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis

for challenging any amounts that are disputed; and

7.2 Pay or arrange for payment of any undisputed amounts.

7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Design-Builder may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Design-Builder under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Design-Builder furnishing and the Owner accepting this Bond, they agree that all funds earned by the Design-Builder in the performance of the Construction Contract are dedicated to satisfy obligations of the Design-Builder and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Design-Builder that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Design-Builder shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed

incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Design-Builder and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. **Definitions**

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Design-Builder or with a subcontractor of the Design-Builder to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Design-Builder and the Design-Builder's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Design-Builder identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default**: Failure of the Owner, which has not been remedied or waived, to pay the Design-Builder as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction

Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Design-Builder.

17. If this Bond is issued for an agreement between a Design-Builder and subcontractor, the term Design-Builder in this Bond shall be deemed to be SubContractor and the term Owner shall be deemed to be Design-Builder.

18. Modifications to this Bond are as follows:

<Design-Builder/surety to list if any>

END OF SECTION

EXHIBIT C - PERFORMANCE BOND

DESIGN-BUILDER *(name and address)*: SURETY *(name and address of principal place of business)*:

OWNER: Peachtree City Water and Sewerage Authority
1127 Hwy 74 South
Peachtree City, GA 30269

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount:
Description: Design-Build Services for Wastewater Treatment Facility Improvements - Installation of a new UV disinfection system at the Owner's two wastewater treatment facilities, Rockaway WPCP and Line Creek WRF; design and construction of a new secondary filtration system at Rockaway WPCP; and installation of a new headworks bar screen at Line Creek WRF.

BOND

Bond Number:
Date *(not earlier than the Effective Date of the Agreement of the Construction Contract)*:
Amount:
Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Design-Builder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

DESIGN-BUILDER AS PRINCIPAL

_____ *(seal)*
Design-Builder's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ *(seal)*
Surety's Name and Corporate Seal

By: _____
Signature *(attach power of attorney)*

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

1. The Design-Builder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Design-Builder performs the Construction Contract, the Surety and the Design-Builder shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

    3.1 The Owner first provides notice to the Design-Builder and the Surety that the Owner is considering declaring a Design-Builder Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Design-Builder, and Surety to discuss the Design-Builder's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Design-Builder, and the Surety agree, the Design-Builder shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Design-Builder Default;

    3.2 The Owner declares a Design-Builder Default, terminates the Construction Contract and notifies the Surety; and

    3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a Design-Builder selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

    5.1 Arrange for the Design-Builder, with the consent of the Owner, to perform and complete the Construction Contract;

    5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent Design-Builders;

    5.3 Obtain bids or negotiated proposals from qualified Design-Builders acceptable to the Owner for a contract for performance and completion of the Construction

Contract, arrange for a contract to be prepared for execution by the Owner and a Design-Builder selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Design-Builder Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new Design-Builder, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Design-Builder under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Design-Builder for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Design-Builder's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Design-Builder.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Design-Builder that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Design-Builder Default or within two years after the Design-Builder ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Design-Builder shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

    14.1 Balance of the Contract Price: The total amount payable by the Owner to the Design-Builder under the Construction Contract after all proper adjustments have been made including allowance for the Design-Builder for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Design-Builder is entitled, reduced by all valid and proper payments made to or on behalf of the Design-Builder under the Construction Contract.

    14.2 Construction Contract: The agreement between the Owner and Design-Builder identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

    14.3 Design-Builder Default: Failure of the Design-Builder, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

    14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Design-Builder as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

    14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Design-Builder.

15. If this Bond is issued for an agreement between a Design-Builder and subcontractor, the term Design-Builder in this Bond shall be deemed to be SubContractor and the term Owner shall be deemed to be Design-Builder.

16. Modifications to this Bond are as follows:

<Design-Builder/surety to list, if any>

END OF SECTION

EXHIBIT D - DRUG-FREE WORKPLACE CERTIFICATION

The undersigned vendor hereby certifies that it will provide a drug-free workplace program by:

1. Publishing a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the vendor's workplace, and specifying the actions that will be taken against employees for violations of such prohibition;
2. Establishing a continuing drug-free awareness program to inform its employees about:
   A. The dangers of drug abuse in the work place;
   B. The vendor's policy of maintaining a drug-free workplace;
   C. Any available drug counseling, rehabilitation, and employee assistance programs; and
   D. The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;
3. Giving all employees engaged in performance of the contract a copy of the statement required by subparagraph (1):
4. Notifying all employees, in writing, of the statement required by subparagraph (1), that as a condition of employment on a covered contract, the employee shall:
   A. Abide by the terms of the statement; and
   B. Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than five (5) calendar days after such conviction;
5. Notifying Owner in writing within ten (10) calendar days after receiving notice under subdivision (4)(A) above, from an employee or otherwise receiving actual notice of such conviction. The notice shall include name and the position title of the employee;
6. Within thirty (30) calendar days after receiving notice under subparagraph (4) of a conviction, taking one or more of the following actions with respect to an employee who is convicted of a drug abuse violation occurring in the workplace:
   A. Taking appropriate personnel action against such employee, up to and including termination; and/or
   B. Requiring such employee to satisfactorily participate in and complete a drug abuse assistance or rehabilitation program approved for such purposes by a federal, state, or local health, law enforcement, or other appropriate agency; and
7. Making a good faith effort to maintain a drug-free workplace program through implementation of subparagraphs (1) through (6)

As the person authorized to sign this statement, I certify that this firm fully complies with the above requirements.

Signature:_____ Date:_____

Print Name:_____

Company:_____

END OF SECTION

EXHIBIT E - NOTICE TO PROCEED

Project: Design-Build Services for Wastewater Treatment Facility Improvements

Owner: Peachtree City Water and Sewerage Authority	Owner's Contract No.:
Design-Builder:	
Design-Builder's Address:	

You are notified that the Contract Times under the above Contract will commence to run on _____. On or before that date, you are to start performing your obligations under the Contract Documents. No field work to proceed prior to this date. In accordance with Article 5 of the Agreement, the date of Substantial Completion is _____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before you may start any Work at the Site, Paragraph 5.1.3 of the General Conditions provides that you and Owner must each deliver to the other (with copies to Program Manager and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Peachtree City Water and Sewerage Authority
Owner

Given by:
Authorized Signature

Title

Date

Copy to Program Manager

END OF SECTION

EXHIBIT F - CERTIFICATE OF SUBSTANTIAL COMPLETION

Project: Design-Build Services for Wastewater Treatment Facility Improvements

Owner: Peachtree City Water and Sewerage Authority	Owner's Contract No.:

This [tentative] [definitive] Certificate of Substantial Completion applies to:

☐ All Work under the Contract Documents: ☐ The following specified portions of the Work:

_____

_____

_____

_____

_____
Date of Substantial Completion

The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Design-Builder, and Program Manager, and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby declared and is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

A [tentative] [definitive] list of items to be completed or corrected is attached hereto. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Design-Builder to complete all Work in accordance with the Contract Documents.

The responsibilities between Owner and Design-Builder for security, operation, safety, maintenance, heat, utilities, insurance and warranties shall be as provided in the Contract Documents except as amended as follows:

☐ Amended Responsibilities ☐ Not Amended

Owner's Amended Responsibilities:

_____

_____

_____

Design-Builder's Amended Responsibilities:

The following documents are attached to and made part of this Certificate:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents nor is it a release of Design-Builder's obligation to complete the Work in accordance with the Contract Documents.

Executed by Program Manager	Date
Accepted by Design-Builder	Date
Accepted by Owner	Date

END OF SECTION

EXHIBIT G - AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS

TO OWNER:

Peachtree City Water and Sewerage Authority

PROJECT:

Design-Build Services for Wastewater Treatment Facility Improvements

CONTRACT DATED:

STATE OF: Georgia

COUNTY OF: Fayette

The undersigned hereby certifies that, except as listed below, payment has been made in full and all obligations have otherwise been satisfied for all material and equipment furnished, for all work, labor and services performed, and for all known indebtedness and claims against the Design-Builder for damages arising in any manner in connection with the performance of the Contract referenced above for which the Owner's property might in any way be held responsible or encumbered.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Consent of Surety to Final Payment.
2. Design-Builder's Affidavit of Release of Liens.

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

DESIGN-BUILDER: *(name and address)*

By: _____
(Signature of authorized representative)

_____
(Printed name and title)

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

END OF SECTION

EXHIBIT H - AFFIDAVIT OF PAYMENT RELEASE OF LIENS

TO OWNER:

Peachtree City Water and Sewerage Authority

PROJECT: CONTRACT DATED:

Design-Build Services for Wastewater Treatment Facility Improvements

STATE OF: Georgia

COUNTY OF: Fayette

The undersigned hereby certifies that to the best of the undersigned's knowledge, information and belief, except as listed below, the Releases or Waivers of Lien attached hereto include the Design-Builder, all Subcontractors, all suppliers of materials and equipment, and all performers of Work, labor or services who have or may have liens or encumbrances or the right to assert liens or encumbrances against any property of the Owner arising in any manner out of the performance of the Contract referenced above.

EXCEPTIONS:

SUPPORTING DOCUMENTS ATTACHED HERETO:

1. Design-Builder's Release or Waiver of Liens, conditional upon receipt of final payment.
2. Separate Releases or Waivers of Liens form Subcontractors and equipment suppliers, to the extent required by the Owner, accompanied by a list thereof.

DESIGN-BUILDER: *(name and address)*

By: _____
(Signature of authorized representative)

_____
(Printed name and title)

The above personally appeared before me, the undersigned notary public, and provided satisfactory evidence of identification to be the person who signed this document in my presence and swore or affirmed to me that the contents of this document are truthful and accurate to the best of his/her knowledge and belief.

Date:

Notary Public:

My Commission expires:

END OF SECTION

EXHIBIT I - CONSENT OF SURETY TO FINAL PAYMENT

TO OWNER:

Peachtree City Water and Sewerage Authority

PROJECT: CONTRACT DATED:

Design-Build Services for Wastewater Treatment Facility Improvements

In accordance with the provisions of the Contract between the Owner and the Design-Builder as indicated above, the

(insert name and address of Surety)

, SURETY,

on bond of

(insert name and address of Design-Builder)

, DESIGN-BUILDER,

herby approves of the final payment to the Design-Builder, and agrees that final payment to the Design-Builder shall not relieve the Surety of any of its obligations to

(insert name and address of Owner)

, OWNER,

as set forth in said Surety's bond.

IN WITNESS WHEREOF, the Surety has hereunto set its hand on this date:

(insert in writing the moth followed by the numeric date and year)

_____

(Surety)

_____

(Signature of authorized representative)

Attest:

(Seal):

_____

(Printed name and title)

END OF SECTION

GENERAL CONDITIONS OF CONTRACT BETWEEN OWNER AND DESIGN-BUILDER

TABLE OF CONTENTS

Article 1

General

1.1 Mutual Obligations.

1.1.1 *Owner and Design-Builder* commit at all times to cooperate fully with each other and proceed on the basis of trust and good faith, to permit each party to realize the benefits afforded under the Contract Documents.

1.2 Basic Definitions.

1.2.1 *Agreement* refers to the executed contract between Owner and Design-Builder under either DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum* (2022 Edition); DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price* (2022 Edition); DBIA Document No. 544, *Standard Form of Progressive Design-Build Agreement* (2022 Edition); or DBIA Document No. 545, *Standard Form of Progressive Design-Build Agreement for Water and Wastewater Projects* (2022 Edition).

1.2.2 *Basis of Design Documents* are as follows: For DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price*, the Basis of Design Documents are those documents specifically listed in, as applicable, the GMP Exhibit or GMP Proposal as being the "Basis of Design Documents." For DBIA Document No. 525, *Standard Form of Agreement Between Owner and Design-Builder – Lump Sum*, for DBIA Document No. 544, *Standard Form of Progressive Design-Build Agreement*, the Basis of Design Documents are Owner's Project Criteria, Design-Builder's Proposal, and the Deviation List, if any. For DBIA Document No. 545, *Standard Form of Progressive Design-Build Agreement for Water and Wastewater Projects,* the Basis of Design Documents are Owner's Project Criteria, Design-Builder's Proposal and the Deviation List, if any.

1.2.3 *Construction Documents* are the documents, consisting of Drawings and Specifications, to be prepared or assembled by Design-Builder consistent with the Basis of Design Documents unless a deviation from the Basis of Design Documents is specifically set forth in a Change Order executed by both Owner and Design-Builder, as part of the design review process contemplated by Section 2.4 of these General Conditions of Contract.

1.2.4 *Day* or *Days* shall mean calendar days unless otherwise specifically noted in the Contract Documents.

1.2.5 *Design-Build Team* is comprised of Design-Builder, Design Consultant, and key Subcontractors identified by Design-Builder.

1.2.6 *Design Consultant* is a qualified, licensed design professional who is not an employee of Design-Builder, but is retained by Design-Builder, or employed or retained by anyone under contract with Design-Builder, to furnish design services required under the Contract Documents. A Design Sub-Consultant is a qualified, licensed design professional who is not an employee of Design Consultant but is retained by Design Consultant or employed or retained by anyone under contract to Design Consultant, to furnish design services required under the Contract Documents.

1.2.7 *Design Submission* means any and all documents, shop drawings, electronic information, including computer programs and computer generated materials, data, plans, drawings, sketches, illustrations, specifications, descriptions, models, and other information developed, prepared, furnished, delivered or required to be delivered by, or for, Design-Builder.

1.2.8 *Final Completion* is the date on which all Work is complete in accordance with the Contract

Documents, including but not limited to, any items identified in the punch list prepared under Section 6.6.1 and the submission of all documents set forth in Section 6.7.2.

1.2.9 *Force Majeure Events* are those events that are beyond the control of both Design-Builder and Owner, including the events of war, floods, labor disputes, earthquakes, epidemics, adverse weather conditions not reasonably anticipated, and other acts of God.

1.2.10 *General Conditions of Contract* refer to this DBIA Document No. 535, *Standard Form of General Conditions of Contract Between Owner and Design-Builder* (2022 Edition).

1.2.11 *GMP Exhibit* means that exhibit attached to DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price*, which exhibit will have been agreed upon by Owner and Design-Builder prior to the execution of the Agreement.

1.2.12 *GMP Proposal* or *Proposal* means that proposal developed by Design-Builder in accordance with Section 6.6 of DBIA Document No. 530, *Standard Form of Agreement Between Owner and Design-Builder, Cost Plus Fee With an Option for a Guaranteed Maximum* Price or with Section 2.3 of DBIA Document No. 544, *Progressive Design-Build Agreement,* or DBIA Document No. 545, *Progressive Design-Build Agreement for Water and Wastewater Projects.*

1.2.13 *Hazardous Conditions* are any materials, wastes, substances and chemicals deemed to be hazardous under applicable Legal Requirements, or the handling, storage, remediation, or disposal of which are regulated by applicable Legal Requirements.

1.2.14 *Legal Requirements* are all applicable federal, state and local laws, codes, ordinances, rules, regulations, orders and decrees of any government or quasi-government entity having jurisdiction over the Project or Site, the practices involved in the Project or Site, or any Work.

1.2.15 *Owner's Project Criteria* are developed by or for Owner to describe Owner's program requirements and objectives for the Project, including use, space, price, time, site and expandability requirements, as well as submittal requirements and other requirements governing Design-Builder's performance of the Work. Owner's Project Criteria may include conceptual documents, design criteria, design performance specifications, design specifications, and LEED® or other sustainable design criteria and other Project-specific technical materials and requirements.

1.2.16 *Site* is the land or premises on which the Project is located.

1.2.17 *Subcontractor* is any person or entity retained by Design-Builder as an independent contractor to perform a portion of the Work and shall include materialmen and suppliers.

1.2.18 *Sub-Subcontractor* is any person or entity retained by a Subcontractor as an independent contractor to perform any portion of a Subcontractor's Work and shall include materialmen and suppliers.

1.2.19 *Substantial Completion* or *Substantially Complete* means the date on which the Work, or an agreed upon portion of the Work, is sufficiently complete in accordance with the Contract Documents so that Owner can occupy and use the Project or a portion thereof for its intended purposes.

1.2.20 *Work* is comprised of all Design-Builder's design, construction and other services required by the Contract Documents, including procuring and furnishing all materials, equipment, services and labor reasonably inferable from the Contract Documents.

Article 2

Design-Builder's Services and Responsibilities

2.1 General Services.

2.1.1 Design-Builder's Representative shall be reasonably available to Owner and shall have the necessary expertise and experience required to supervise the Work. Design-Builder's Representative shall communicate regularly with Owner and shall be vested with the authority to act on behalf of Design-Builder. Design-Builder's Representative may be replaced only with the mutual agreement of Owner and Design-Builder.

2.1.2 Unless the parties agree on a different time period for submission of a status report, Design-Builder shall provide Owner with a monthly status report detailing the progress of the Work, including (i) whether the Work is proceeding according to schedule; (ii) whether discrepancies, conflicts, or ambiguities exist in the Contract Documents that require resolution; (iii) whether health and safety issues exist in connection with the Work; (iv) status of the contingency account to the extent provided for in the *Standard Form of Agreement Between Owner and Design-Builder – Cost Plus Fee With an Option for a Guaranteed Maximum Price*; and (v) other items that require resolution so as not to jeopardize Design-Builder's ability to complete the Work for the Contract Price and within the Contract Time(s). Status reports shall be submitted with Design-Builder's draft Payment Applications as a pre-requisite to payment.

2.1.3 Unless a schedule for the execution of the Work has been attached to the Agreement as an exhibit at the time the Agreement is executed, Design-Builder shall prepare and submit, at least three (3) days prior to the meeting contemplated by Section 2.1.4 hereof, a schedule for the execution of the Work for Owner's review and response. The schedule shall indicate the dates for the start and completion of the various stages of Work, including the dates when Owner information and approvals are required to enable Design-Builder to achieve the Contract Time(s). The schedule shall be revised as required by conditions and progress of the Work, but such revisions shall not relieve Design-Builder of its obligations to complete the Work within the Contract Time(s), as such dates may be adjusted in accordance with the Contract Documents. Owner's review of, and response to, the schedule shall not be construed as relieving Design-Builder of its complete and exclusive control over the means, methods, sequences and techniques for executing the Work.

2.1.4 The parties will meet within seven (7) days after execution of the Agreement to discuss issues affecting the administration of the Work and to implement the necessary procedures, including those relating to submittals and payment, to facilitate the ability of the parties to perform their obligations under the Contract Documents.

2.2 Design Professional Services.

2.2.1 Design-Builder shall, consistent with applicable state licensing laws, provide through qualified, licensed design professionals employed by Design-Builder, or procured from qualified, independent licensed Design Consultants, the necessary design services, including architectural, engineering and other design professional services, for the preparation of the required drawings, specifications and other design submittals to permit Design-Builder to complete the Work consistent with the Contract Documents. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Design Consultant.

2.2.2 Design-Builder shall employ only Design Consultants and/or Design Subconsultants who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Prior to the date that Design Consultants and/or Design Subconsultants perform Work on the Project, Design-Builder shall identify in writing to Owner all Design Consultants and Design Subconsultants. To the extent that Design-Builder has not selected a Design Consultant or Design Subconsultant prior to performing the Work, Design-Builder shall provide Owner in writing a list of any

subsequently added Design Consultants and/or Design Subconsultants and their scope of Work prior to their performing Work on the Project. Owner may reasonably object to Design-Builder's selection of any Design Consultant or Design Subconsultant, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Owner's decision impacts Design-Builder's cost and/or time of performance. Design-Builder shall not substitute a listed Design Consultant or Subconsultant without obtaining Owner's prior written consent; such consent shall not be unreasonably withheld. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Design Consultant or Design Subconsultant, including but not limited to any third-party beneficiary rights.

2.3 Standard of Care for Design Professional Services.

2.3.1 The standard of care for all design professional services performed to execute the Work shall be the care and skill ordinarily used by members of the applicable profession practicing under similar conditions at the same time and locality of the Project.

2.4 Design Development Services.

2.4.1 Design-Builder and Owner shall, consistent with any applicable provision of the Contract Documents, agree upon any interim Design Submissions that Owner may wish to review, which interim Design Submissions may include design criteria, drawings, diagrams and specifications setting forth the Project requirements.

2.4.1.1 Design Submissions shall be consistent with the Owner's Project Criteria as well as the Basis of Design Documents, as the Basis of Design Documents may have been changed or supplemented through the design process set forth in this Section 2.4.1. By submitting Design Submissions, Design-Builder represents to the Owner that the Work depicted and otherwise shown, contained, or reflected in Design Submissions may be constructed in compliance with the then current Contract Price and Contract Time. Notwithstanding the above, Design-Builder may propose Design Submissions that may alter the Basis of Design Documents, the Contract Price and/or Contract Time; however, Design-Builder must provide notice thereof in accordance with Article 10 of the General Conditions and obtain a Change Order before such proposed Design Submissions are incorporated into the Construction Documents.

2.4.1.2 On or about the time of the Design Submissions, Design-Builder and Owner shall meet and confer about the Design Submissions, with Design-Builder identifying during such meetings, among other things, the evolution of the design and any changes to the Basis of Design Documents, or, if applicable, previously submitted Design Submissions. Changes to the Basis of Design Documents, including those that are deemed minor changes under Section 9.3.1, shall be processed in accordance with Article 9. Minutes of the meetings, including a full listing of all changes, will be maintained by Design-Builder and provided to all attendees for review. Following the design review meeting, Owner shall review and approve the interim Design Submissions and meeting minutes in a time that is consistent with the turnaround times set forth in Design-Builder's schedule.

2.4.1.3 Owner shall review and respond to Design Submissions, providing any comments and/or concerns about the Design Submissions. Owner shall provide all comments on the Design Submissions within the time provided by the Contract Documents. Design-Builder shall revise the Design Submissions (and any other deliverables) in response to Owner's comments and incorporate said responses into the next submission of Design Submissions.

2.4.1.4 If incorporation of Owner's comments results in a design that is inconsistent with or otherwise gives rise to a change in Owner's Project Criteria, the Basis of Design Documents, the Contract Price and/or the Contract Time, Design-Builder shall provide

notice thereof in accordance with Articles 9 and 10 of the General Conditions. Changes to the Basis of Design Documents, the Contract Price and/or the Contract Time, including those that are deemed minor changes, shall be processed in accordance with Article 9 of the General Conditions.

2.4.2 Design-Builder shall submit to Owner Construction Documents setting forth in detail drawings and specifications describing the requirements for construction of the Work. The Construction Documents shall be consistent with the latest set of interim Design Submissions, as such submissions may have been modified in a design review meeting and recorded in the meeting minutes. The parties shall have a design review meeting to discuss, and Owner shall review and approve, the Construction Documents in accordance with the procedures set forth in Section 2.4.1 above. Design-Builder shall proceed with construction in accordance with the approved Construction Documents and shall submit one set of approved Construction Documents to Owner prior to commencement of construction.

2.4.3 Owner's review and approval of interim Design Submissions, meeting minutes, and the Construction Documents is for the purpose of mutually establishing a conformed set of Contract Documents compatible with the requirements of the Work. Neither Owner's review nor approval of any interim Design Submissions, meeting minutes, and Construction Documents shall be deemed to transfer any design liability from Design-Builder to Owner. Design-Builder shall provide Owner with sufficient time in the Project Schedule to review and approve the Design Submissions.

2.4.4 To the extent not prohibited by the Contract Documents or Legal Requirements, Design-Builder may prepare interim Design Submissions and Construction Documents for a portion of the Work to permit construction to proceed on that portion of the Work prior to completion of the Construction Documents for the entire Work.

2.5 Legal Requirements.

2.5.1 Design-Builder shall perform the Work in accordance with all Legal Requirements and shall provide all notices applicable to the Work as required by the Legal Requirements.

2.5.2 The Contract Price and/or Contract Time(s) shall be adjusted to compensate Design-Builder for the effects of any changes in the Legal Requirements enacted after the date of the Agreement affecting the performance of the Work, or if a Guaranteed Maximum Price is established after the date of the Agreement, the date the parties agree upon the Guaranteed Maximum Price. Such effects may include, without limitation, revisions Design-Builder is required to make to the Construction Documents because of changes in Legal Requirements.

2.6 Government Approvals and Permits.

2.6.1 Design-Builder shall be primarily responsible for identifying, and preparing suitable application materials for all necessary permits, approvals, and licenses required for the prosecution of the Work by any government or quasi-government entity having jurisdiction over the Project. The Owner will cooperate and assist with the permitting process and will sign and submit applications when requested by the Design-Builder. Provided that Design-Builder's application materials comply with applicable legal requirements and if Design-Builder reasonably addresses any objections raised by permitting authorities, the Owner assumes the risk of permit denial by the applicable permitting authorities. Design-Builder will be responsible for the cost of its business license and related fees pertaining to business qualifications. Owner shall be responsible for paying any project-specific (e.g., environmental approval) application fees, government charges, and inspection fees, and shall waive its charges and fees pertaining to the project.

2.7 Design-Builder's Construction Phase Services.

2.7.1 Unless otherwise provided in the Contract Documents to be the responsibility of Owner or

a separate contractor, Design-Builder shall provide through itself or Subcontractors the necessary supervision, labor, inspection, testing, start-up, material, equipment, machinery, temporary utilities and other temporary facilities to permit Design-Builder to complete construction of the Project consistent with the Contract Documents.

2.7.2 Design-Builder shall perform all construction activities efficiently and with the requisite expertise, skill and competence to satisfy the requirements of the Contract Documents. Design-Builder shall at all times exercise complete and exclusive control over the means, methods, sequences and techniques of construction.

2.7.3 Design-Builder shall employ only Subcontractors who are duly licensed and qualified to perform the Work consistent with the Contract Documents. Prior to the date that Subcontractors perform Work on the Project, Design-Builder shall identify in writing to Owner all Subcontractors. To the extent that Design-Builder has not selected a Subcontractor prior to performing the Work, Design-Builder shall provide Owner in writing a list of any subsequently added Subcontractors prior to their performing Work on the Project. Owner may reasonably object to Design-Builder's selection of any Subcontractor, provided that the Contract Price and/or Contract Time(s) shall be adjusted to the extent that Owner's decision impacts Design-Builder's cost and/or time of performance. Design-Builder may not substitute listed Subcontractors without Owner's prior written consent; such consent shall not be unreasonably withheld.

2.7.4 Design-Builder assumes responsibility to Owner for the proper performance of the Work of Subcontractors and any acts and omissions in connection with such performance. Nothing in the Contract Documents is intended or deemed to create any legal or contractual relationship between Owner and any Subcontractor or Sub-Subcontractor, including but not limited to any third-party beneficiary rights.

2.7.5 Design-Builder shall coordinate the activities of all Subcontractors. If Owner performs other work on the Project or at the Site with separate contractors under Owner's control, Design-Builder agrees to reasonably cooperate and coordinate its activities with those of such separate contractors so that the Project can be completed in an orderly and coordinated manner without unreasonable disruption.

2.7.6 Design-Builder shall keep the Site reasonably free from debris, trash and construction wastes to permit Design-Builder to perform its construction services efficiently, safely and without interfering with the use of adjacent land areas. Upon Substantial Completion of the Work, or a portion of the Work, Design-Builder shall remove all debris, trash, construction wastes, materials, equipment, machinery and tools arising from the Work or applicable portions thereof to permit Owner to occupy the Project or a portion of the Project for its intended use.

2.8 Design-Builder's Responsibility for Project Safety.

2.8.1 Design-Builder recognizes the importance of performing the Work in a safe manner so as to prevent damage, injury or loss to (i) all individuals at the Site, whether working or visiting; (ii) the Work, including materials and equipment incorporated into the Work or stored on-Site or off-Site; and (iii) all other property at the Site or adjacent thereto. Design-Builder assumes responsibility for implementing and monitoring all safety precautions and programs related to the performance of the Work. Design-Builder shall, prior to commencing construction, designate a Safety Representative with the necessary qualifications and experience to supervise the implementation and monitoring of all safety precautions and programs related to the Work. Unless otherwise required by the Contract Documents, Design-Builder's Safety Representative shall be an individual stationed at the Site who may have responsibilities on the Project in addition to safety. The Safety Representative shall make routine daily inspections of the Site and shall hold weekly safety meetings with Design-Builder's personnel, Subcontractors and others as applicable.

2.8.2 Design-Builder and Subcontractors shall comply with all Legal Requirements relating to

safety, as well as any Owner-specific safety requirements set forth in the Contract Documents, provided that such Owner-specific requirements do not violate any applicable Legal Requirement. Design-Builder will immediately report in writing any safety-related injury, loss, damage or accident arising from the Work to Owner's Representative and, to the extent mandated by Legal Requirements, to all government or quasi-government authorities having jurisdiction over safety-related matters involving the Project or the Work.

2.8.3 Design-Builder's responsibility for safety under this Section 2.8 is not intended in any way to relieve Subcontractors and Sub-Subcontractors of their own contractual and legal obligations and responsibility for (i) complying with all Legal Requirements, including those related to health and safety matters; and (ii) taking all necessary measures to implement and monitor all safety precautions and programs to guard against injuries, losses, damages or accidents resulting from their performance of the Work.

2.9 Design-Builder's Warranty.

2.9.1 Design-Builder warrants to Owner that the construction, including all materials and equipment furnished as part of the construction, shall be new unless otherwise specified in the Contract Documents, of good quality, in conformance with the Contract Documents and free of defects in materials and workmanship. If the parties have opted in Section ___ of the Agreement to establish a limited time frame for the warranty set forth in this Section, the warranty in this section shall be limited to the time frame set forth in Section ____ of the Agreement. Design-Builder's warranty obligation excludes defects caused by abuse, alterations, or failure to maintain the Work in a commercially reasonable manner. Nothing in this warranty is intended to limit any manufacturer's warranty which provides Owner with greater warranty rights than set forth in this Section 2.9 or the Contract Documents. Design-Builder will provide Owner with all manufacturers' warranties upon Substantial Completion.

2.10 Correction of Defective Work.

2.10.1 Design-Builder agrees to correct any Work that is found to not be in conformance with the Contract Documents, including that part of the Work subject to Section 2.9 hereof, within a period of one year from the date of Substantial Completion of the Work or any portion of the Work, or within such longer period to the extent required by any specific warranty included in the Contract Documents.

2.10.2 Design-Builder shall, within seven (7) days of receipt of written notice from Owner that the Work is not in conformance with the Contract Documents, take meaningful steps to commence correction of such nonconforming Work, including the correction, removal or replacement of the nonconforming Work and any damage caused to other parts of the Work affected by the nonconforming Work. If Design-Builder fails to commence the necessary steps within such seven (7) day period, Owner, in addition to any other remedies provided under the Contract Documents, may provide Design-Builder with written notice that Owner will commence correction of such nonconforming Work with its own forces. If Owner does perform such corrective Work, Design-Builder shall be responsible for all reasonable costs incurred by Owner in performing such correction. If the nonconforming Work creates an emergency requiring an immediate response, the seven (7) day period identified herein shall be deemed inapplicable.

2.10.3 The one-year period referenced in Section 2.10.1 above applies only to Design-Builder's obligation to correct nonconforming Work and is not intended to constitute a period of limitations for any other rights or remedies Owner may have regarding Design-Builder's other obligations under the Contract Documents.

Article 3

Owner's Services and Responsibilities

3.1 Duty to Cooperate.

3.1.1 Owner shall, throughout the performance of the Work, cooperate with Design-Builder and perform its responsibilities, obligations and services in a timely manner to facilitate Design-Builder's timely and efficient performance of the Work and so as not to delay or interfere with Design-Builder's performance of its obligations under the Contract Documents.

3.1.2 Owner shall provide timely reviews and approvals of interim Design Submissions and Construction Documents consistent with the turnaround times set forth in Design-Builder's schedule.

3.1.3 Owner shall give Design-Builder timely notice of any Work that Owner notices to be defective or not in compliance with the Contract Documents.

3.2 Furnishing of Services and Information.

3.2.1 Unless expressly stated to the contrary in the Contract Documents, Owner shall provide, at its own cost and expense, for Design-Builder's information and use the following, all of which Design-Builder is entitled to rely upon in performing the Work:

3.2.1.1 Surveys describing the property, boundaries, topography and reference points for use during construction, including existing service and utility lines;

3.2.1.2 Geotechnical studies describing subsurface conditions, and other surveys describing other latent or concealed physical conditions at the Site;

3.2.1.3 Temporary and permanent easements, zoning and other requirements and encumbrances affecting land use, or necessary to permit the proper design and construction of the Project and enable Design-Builder to perform the Work;

3.2.1.4 A legal description of the Site;

3.2.1.5 To the extent available, record drawings of any existing structures at the Site; and

3.2.1.6 To the extent available, environmental studies, reports and impact statements describing the environmental conditions, including Hazardous Conditions, in existence at the Site.

3.2.2 Owner is responsible for securing and executing all necessary agreements with adjacent land or property owners that are necessary to enable Design-Builder to perform the Work. Owner is further responsible for all costs, including attorneys' fees, incurred in securing these necessary agreements.

3.3 Financial Information.

3.3.1 At Design-Builder's written request, Owner shall promptly furnish reasonable evidence satisfactory to Design-Builder that Owner has adequate funds available and committed to fulfill all of Owner's contractual obligations under the Contract Documents. If Owner fails to furnish such financial information in a timely manner, Design-Builder may stop Work under Section 11.3 hereof or exercise any other right permitted under the Contract Documents.

3.3.2 Design-Builder shall cooperate with the reasonable requirements of Owner's lenders or

other financial sources. Notwithstanding the preceding sentence, after execution of the Agreement Design-Builder shall have no obligation to execute for Owner or Owner's lenders or other financial sources any documents or agreements that require Design-Builder to assume obligations or responsibilities greater than those existing obligations Design-Builder has under the Contract Documents.

3.4 Owner's Representative.

3.4.1 Owner's Representative shall be responsible for providing Owner-supplied information and approvals in a timely manner to permit Design-Builder to fulfill its obligations under the Contract Documents. Owner's Representative shall also provide Design-Builder with prompt notice if it observes any failure on the part of Design-Builder to fulfill its contractual obligations, including any errors, omissions or defects in the performance of the Work. Owner's Representative shall communicate regularly with Design-Builder and shall be vested with the authority to act on behalf of Owner.

3.5 Government Approvals and Permits.

3.5.1 See Section 2.6.1.

3.6 Owner's Separate Contractors.

3.6.1 Owner is responsible for all work performed on the Project or at the Site by separate contractors under Owner's control. Owner shall contractually require its separate contractors to cooperate with and coordinate their activities so as not to interfere with Design-Builder in order to enable Design-Builder to timely complete the Work consistent with the Contract Documents.

Article 4

Hazardous Conditions and Differing Site Conditions

4.1 Hazardous Conditions.

4.1.1 Unless otherwise expressly provided in the Contract Documents to be part of the Work, Design-Builder is not responsible for any Hazardous Conditions encountered at the Site. Upon encountering any Hazardous Conditions, Design-Builder will stop Work immediately in the affected area and duly notify Owner and, if required by Legal Requirements, all government or quasi-government entities with jurisdiction over the Project or Site.

4.1.2 Upon receiving notice of the presence of suspected Hazardous Conditions, Owner shall take the necessary measures required to ensure that the Hazardous Conditions are remediated or rendered harmless. Such necessary measures shall include Owner retaining qualified independent experts to (i) ascertain whether Hazardous Conditions have actually been encountered, and, if they have been encountered, (ii) prescribe the remedial measures that Owner must take either to remove the Hazardous Conditions or render the Hazardous Conditions harmless.

4.1.3 Design-Builder shall be obligated to resume Work at the affected area of the Project only after Owner's expert provides it with written certification that (i) the Hazardous Conditions have been removed or rendered harmless; and (ii) all necessary approvals have been obtained from all government and quasi-government entities having jurisdiction over the Project or Site.

4.1.4 Design-Builder will be entitled, in accordance with these General Conditions of Contract, to an adjustment in its Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance have been adversely impacted by the presence of Hazardous

Conditions.

4.1.5 To the fullest extent permitted by law, Owner shall indemnify, defend and hold harmless Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them, and their officers, directors, employees and agents, from and against any and all claims, losses, damages, liabilities and expenses, including reasonable attorneys' fees and expenses, arising out of or resulting from the presence, removal or remediation of Hazardous Conditions at the Site.

4.1.6 Notwithstanding the preceding provisions of this Section 4.1, Owner is not responsible for Hazardous Conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable. To the fullest extent permitted by law, Design-Builder shall indemnify, defend and hold harmless Owner and Owner's officers, directors, employees and agents from and against all claims, losses, damages, liabilities and expenses, including attorneys' fees and expenses, arising out of or resulting from those Hazardous Conditions introduced to the Site by Design-Builder, Subcontractors or anyone for whose acts they may be liable.

4.2 Differing Site Conditions.

4.2.1 Concealed or latent physical conditions or subsurface conditions at the Site that (i) materially differ from the conditions indicated in the Contract Documents or (ii) are of an unusual nature, differing materially from the conditions ordinarily encountered and generally recognized as inherent in the Work, are collectively referred to herein as "Differing Site Conditions." If Design-Builder encounters a Differing Site Condition, Design-Builder will be entitled to an adjustment in the Contract Price and/or Contract Time(s) to the extent Design-Builder's cost and/or time of performance are adversely impacted by the Differing Site Condition.

4.2.2 Upon encountering a Differing Site Condition, Design-Builder shall provide prompt written notice to Owner of such condition, which notice shall not be later than fourteen (14) days after such condition has been encountered. Design-Builder shall, to the extent reasonably possible, provide such notice before the Differing Site Condition has been substantially disturbed or altered.

Article 5

Insurance and Bonds

5.1 Design-Builder's Insurance Requirements.

5.1.1 Design-Builder is responsible for procuring and maintaining the insurance for the coverage amounts all as set forth in the Insurance Exhibit to the Agreement. Coverage shall be secured from insurance companies authorized to do business in the state in which the Project is located, and with a minimum rating set forth in the Agreement.

5.1.2 Design-Builder's insurance shall specifically delete any design-build or similar exclusions that could compromise coverages because of the design-build delivery of the Project.

5.1.3 Prior to commencing any construction services hereunder, Design-Builder shall provide Owner with certificates evidencing that (i) all insurance obligations required by the Contract Documents are in full force and in effect and will remain in effect for the duration required by the Contract Documents; and (ii) no insurance coverage will be canceled, renewal refused, or materially changed unless at least thirty (30) days' prior written notice is given to Owner. If any of the foregoing insurance coverages are required to remain in force after final payment is reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the Final Application for Payment. If any information concerning reduction of coverage is not

furnished by the insurer, it shall be furnished by Design-Builder with reasonable promptness according to Design-Builder's information and belief.

5.1.4 Owner and Owner's Representative shall be named s an additional insured under any liability insurance policy other than professional errors and omissions liability.

5.2 Owner's Liability Insurance.

5.2.1 Owner, in its discretion, may procure and maintain from insurance companies authorized to do business in the state in which the Project is located such liability insurance as set forth in the Insurance Exhibit to the Agreement to protect Owner from claims which may arise from the performance of Owner's obligations under the Contract Documents or Owner's conduct during the course of the Project.

5.3 Owner's Property Insurance.

Reserved

5.4 Bonds and Other Performance Security.

5.4.1 If Owner requires Design-Builder to obtain performance and labor and material payment bonds, or other forms of performance security, the amount, form and other conditions of such security shall be as set forth in the Agreement.

5.4.2 All bonds furnished by Design-Builder shall be in a form satisfactory to Owner. The surety shall be a company qualified and registered to conduct business in the state in which the Project is located.

Article 6

Payment

6.1 Schedule of Values.

6.1.1 Unless required by Owner upon execution of this Agreement, within ten (10) days of execution of the Agreement, Design-Builder shall submit for Owner's review and approval a schedule of values for all of the Work. The Schedule of Values will (i) subdivide the Work into its respective parts; (ii) include values for all items comprising the Work; and (iii) serve as the basis for monthly progress payments made to Design-Builder throughout the Work.

6.1.2 Owner will timely review and approve the schedule of values so as not to delay the submission of Design-Builder's first application for payment. Owner and Design-Builder shall timely resolve any differences so as not to delay Design-Builder's submission of its first application for payment.

6.2 Monthly Progress Payments.

6.2.1 On or before the date established in the Agreement, Design-Builder shall submit for Owner's review and approval its Application for Payment requesting payment for all Work performed as of the date of the Application for Payment. The Application for Payment shall be accompanied by all supporting documentation required by the Contract Documents and/or established at the meeting required by Section 2.1.4 hereof.

6.2.2 The Application for Payment may request payment for equipment and materials not yet

incorporated into the Project, provided that (i) Owner is satisfied that the equipment and materials are suitably stored at either the Site or another acceptable location; (ii) the equipment and materials are protected by suitable insurance; and (iii) upon payment, Owner will receive the equipment and materials free and clear of all liens and encumbrances.

6.2.3 All discounts offered by Subcontractors, Sub-Subcontractors, and suppliers to Design-Builder for early payment shall accrue one hundred percent to Design-Builder to the extent Design-Builder advances payment. Unless Owner advances payment to Design-Builder specifically to receive the discount, Design-Builder may include in its Application for Payment the full undiscounted cost of the item for which payment is sought.

6.2.4 The Application for Payment shall constitute Design-Builder's representation that the Work described therein has been performed consistent with the Contract Documents, has progressed to the point indicated in the Application for Payment, and that title to all Work will pass to Owner free and clear of all claims, liens, encumbrances, and security interests upon the incorporation of the Work into the Project, or upon Design-Builder's receipt of payment, whichever occurs earlier.

6.3 Withholding of Payments.

6.3.1 On or before the date established in the Agreement, Owner shall pay Design-Builder all amounts properly due. If Owner determines that Design-Builder is not entitled to all or part of an Application for Payment as a result of Design-Builder's failure to meet its obligations hereunder, it will notify Design-Builder in writing at least five (5) days prior to the date payment is due. The notice shall indicate the specific amounts Owner intends to withhold, the reasons and contractual basis for the withholding, and the specific measures Design-Builder must take to rectify Owner's concerns. Design-Builder and Owner will attempt to resolve Owner's concerns prior to the date payment is due. If the parties cannot resolve such concerns, Design-Builder may pursue its rights under the Contract Documents, including those under Article 10 hereof.

6.3.2 Notwithstanding anything to the contrary in the Contract Documents, Owner shall pay Design-Builder all undisputed amounts in an Application for Payment within the times required by the Agreement.

6.4 Right to Stop Work and Interest.

6.4.1 If Owner fails to pay timely Design-Builder any undisputed amount that becomes due, Design-Builder, in addition to all other remedies provided in the Contract Documents, may stop Work pursuant to Section 11.3 hereof. All payments due and unpaid shall bear interest at the rate set forth in the Agreement.

6.5 Design-Builder's Payment Obligations.

6.5.1 Design-Builder will pay Design Consultants and Subcontractors, in accordance with its contractual obligations to such parties, all the amounts Design-Builder has received from Owner on account of their work. Design-Builder will impose similar requirements on Design Consultants and Subcontractors to pay those parties with whom they have contracted. Design-Builder will indemnify and defend Owner against any claims for payment and mechanic's liens as set forth in Section 7.3 hereof.

6.6 Substantial Completion.

6.6.1 Design-Builder shall notify Owner when it believes the Work, or to the extent permitted in the Contract Documents, a portion of the Work, is Substantially Complete. Within five (5) days of Owner's receipt of Design-Builder's notice, Owner and Design-Builder will jointly inspect such Work to verify that it is Substantially Complete in accordance with the requirements of the Contract Documents. If such Work is Substantially Complete, Owner shall prepare and issue a Certificate of

Substantial Completion that will set forth (i) the date of Substantial Completion of the Work or portion thereof; (ii) the remaining items of Work that have to be completed before final payment; (iii) provisions (to the extent not already provided in the Contract Documents) establishing Owner's and Design-Builder's responsibility for the Project's security, maintenance, utilities and insurance pending final payment; and (iv) an acknowledgment that warranties commence to run on the date of Substantial Completion, except as may otherwise be noted in the Certificate of Substantial Completion.

6.6.2 Upon Substantial Completion of the entire Work or, if applicable, any portion of the Work, Owner shall release to Design-Builder all retained amounts relating, as applicable, to the entire Work or completed portion of the Work, less an amount equal to the reasonable value of all remaining or incomplete items of Work as noted in the Certificate of Substantial Completion.

6.6.3 Owner, at its option, may use a portion of the Work which has been determined to be Substantially Complete, provided, however, that (i) a Certificate of Substantial Completion has been issued for the portion of Work addressing the items set forth in Section 6.6.1 above; (ii) Design-Builder and Owner have obtained the consent of their sureties and insurers, and to the extent applicable, the appropriate government authorities having jurisdiction over the Project; and (iii) Owner and Design-Builder agree that Owner's use or occupancy will not interfere with Design-Builder's completion of the remaining Work.

6.7 Final Payment.

6.7.1 After receipt of a Final Application for Payment from Design-Builder, Owner shall make final payment by the time required in the Agreement, provided that Design-Builder has achieved Final Completion.

6.7.2 At the time of submission of its Final Application for Payment, Design-Builder shall provide the following information:

6.7.2.1 An affidavit that there are no claims, obligations or liens outstanding or unsatisfied for labor, services, material, equipment, taxes or other items performed, furnished or incurred for or in connection with the Work which will in any way affect Owner's interests;

6.7.2.2 A general release executed by Design-Builder waiving, upon receipt of final payment by Design-Builder, all claims, except those claims previously made in writing to Owner and remaining unsettled at the time of final payment;

6.7.2.3 Consent of Design-Builder's surety, if any, to final payment;

6.7.2.4 All operating manuals, warranties and other deliverables required by the Contract Documents; and

6.7.2.5 Certificates of insurance confirming that required coverages will remain in effect consistent with the requirements of the Contract Documents.

6.7.3 Upon making final payment, Owner waives all claims against Design-Builder except claims relating to (i) Design-Builder's failure to satisfy its payment obligations, if such failure affects Owner's interests; (ii) Design-Builder's failure to complete the Work consistent with the Contract Documents, including defects appearing after Substantial Completion; and (iii) the terms of any special warranties required by the Contract Documents.

6.7.4 Deficiencies in the Work discovered after Substantial Completion, whether or not such deficiencies would have been included on the punch list if discovered earlier, shall be deemed warranty Work. Such deficiencies shall be corrected by Design-Builder under Sections 2.9 and 2.10 herein and shall not be a reason to withhold final payment from Design-Builder, provided,

however, that Owner shall be entitled to withhold from the Final Payment the reasonable value of completion of such deficient work until such work is completed.

Article 7

Indemnification

7.1 Patent and Copyright Infringement.

7.1.1 Design-Builder shall defend any action or proceeding brought against Owner based on any claim that the Work, or any part thereof, or the operation or use of the Work or any part thereof, constitutes infringement of any United States patent or copyright, now or hereafter issued. Owner shall give prompt written notice to Design-Builder of any such action or proceeding and will reasonably provide authority, information and assistance in the defense of same. Design-Builder shall indemnify and hold harmless Owner from and against all damages and costs, including but not limited to attorneys' fees and expenses awarded against Owner or Design-Builder in any such action or proceeding. Design-Builder agrees to keep Owner informed of all developments in the defense of such actions.

7.1.2 If Owner is enjoined from the operation or use of the Work, or any part thereof, as the result of any patent or copyright suit, claim, or proceeding, Design-Builder shall at its sole expense take reasonable steps to procure the right to operate or use the Work. If Design-Builder cannot so procure such right within a reasonable time, Design-Builder shall promptly, at Design-Builder's option and at Design-Builder's expense, (i) modify the Work so as to avoid infringement of any such patent or copyright; or (ii) replace said Work with Work that does not infringe or violate any such patent or copyright.

7.1.3 Sections 7.1.1 and 7.1.2 above shall not be applicable to any suit, claim or proceeding based on infringement or violation of a patent or copyright (i) relating solely to a particular process or product of a particular manufacturer specified by Owner and not offered or recommended by Design-Builder to Owner; or (ii) arising from modifications to the Work by Owner or its agents after acceptance of the Work. If the suit, claim or proceeding is based upon events set forth in the preceding sentence, Owner shall defend, indemnify and hold harmless Design-Builder to the same extent Design-Builder is obligated to defend, indemnify and hold harmless Owner in Section 7.1.1 above.

7.1.4 The obligations set forth in this Section 7.1 shall constitute the sole agreement between the parties relating to liability for infringement of violation of any patent or copyright.

7.2 Tax Claim Indemnification.

7.2.1 If, in accordance with Owner's direction, an exemption for all or part of the Work is claimed for taxes, Owner shall indemnify, defend and hold harmless Design-Builder from and against any liability, penalty, interest, fine, tax assessment, attorneys' fees or other expenses or costs incurred by Design-Builder as a result of any action taken by Design-Builder in accordance with Owner's directive. Owner shall furnish Design-Builder with any applicable tax exemption certificates necessary to obtain such exemption, upon which Design-Builder may rely.

7.3 Payment Claim Indemnification.

7.3.1 Provided that Owner is not in breach of its contractual obligation to make payments to Design-Builder for the Work, Design-Builder shall indemnify, defend and hold harmless Owner from any claims or mechanic's liens brought against Owner or against the Project as a result of the failure of Design-Builder, or those for whose acts it is responsible, to pay for any services, materials,

labor, equipment, taxes or other items or obligations furnished or incurred for or in connection with the Work. Within three (3) days of receiving written notice from Owner that such a claim or mechanic's lien has been filed, Design-Builder shall commence to take the steps necessary to discharge said claim or lien, including, if necessary, the furnishing of a mechanic's lien bond. If Design-Builder fails to do so, Owner will have the right to discharge the claim or lien and hold Design-Builder liable for costs and expenses incurred, including attorneys' fees.

7.4 Design-Builder's General Indemnification.

7.4.1 Except as set forth in Section 7.4.2 below, Design-Builder, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Owner, its officers, directors, and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness or death and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

7.4.2 For indemnity obligations that arise from professional errors and omissions, Design-Builder, to the fullest extent permitted by law, shall indemnify Owner, its officers, directors, and employees from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for non-party bodily injury, sickness, or death and non-party property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable.

7.4.3 If an employee of Design-Builder, Design Consultants, Subcontractors, anyone employed directly or indirectly by any of them or anyone for whose acts any of them may be liable has a claim against Owner, its officers, directors, employees, or agents, Design-Builder's indemnity obligations set forth in Sections 7.4.1 and 7.4.2 above shall not be limited by any limitation on the amount of damages, compensation or benefits payable by or for Design-Builder, Design Consultants, Subcontractors, or other entity under any employee benefit acts, including workers' compensation or disability acts.

7.5 Owner's General Indemnification.

7.5.1 Owner, to the fullest extent permitted by law, shall indemnify, hold harmless and defend Design-Builder and any of Design-Builder's officers, directors, and employees, from and against claims, losses, damages, liabilities, including attorneys' fees and expenses, for bodily injury, sickness or death, and property damage or destruction (other than to the Work itself) but only to the extent resulting from the negligent acts or omissions of Owner, Owner's separate contractors or anyone for whose acts any of them may be liable.

7.6 Limited Recourse.

7.6.1 None of the obligations set forth in this Agreement (on behalf of any party) constitute personal obligations of any natural persons who are the officers, shareholders, members, partners, employees, or agents of any party unless the natural person is expressly identified as a contracting party. All Parties to this Agreement shall not seek recourse against any natural person described herein. This provision, however, shall not protect such natural persons from liability for willful misconduct, illegal acts or intentional violation of any duty of corporate loyalty.

Article 8

Time

8.1 Obligation to Achieve the Contract Times.

8.1.1 Design-Builder agrees that it will commence performance of the Work and achieve the Contract Time(s) in accordance with Article 5 of the Agreement.

8.2 Delays to the Work.

8.2.1 If Design-Builder is delayed on the critical path in the performance of the Work due to acts, omissions, conditions, events, or circumstances beyond its control and due to no fault of its own or those for whom Design-Builder is responsible, the Contract Time(s) for performance shall be reasonably extended by Change Order. By way of example, events that will entitle Design-Builder to an extension of the Contract Time(s) include acts or omissions of Owner or anyone under Owner's control (including separate contractors), changes in the Work, Differing Site Conditions, Hazardous Conditions, and Force Majeure Events.

8.2.2 In addition to Design-Builder's right to a time extension for those events set forth in Section 8.2.1 above, Design-Builder shall also be entitled to an appropriate adjustment of the Contract Price provided, however, that the Contract Price shall not be adjusted for Force Majeure Events unless otherwise provided in the Agreement.

Article 9

Changes to the Contract Price and Time

9.1 Change Orders.

9.1.1 A Change Order is a written instrument issued after execution of the Agreement signed by Owner and Design-Builder, stating their agreement upon all of the following:

9.1.1.1 The scope of the change in the Work;

9.1.1.2 The amount of the adjustment to the Contract Price; and

9.1.1.3 The extent of the adjustment to the Contract Time(s).

9.1.2 All changes in the Work authorized by applicable Change Order shall be performed under the applicable conditions of the Contract Documents. Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for such changes.

9.1.3 If Owner requests a proposal for a change in the Work from Design-Builder and subsequently elects not to proceed with the change, a Change Order shall be issued to reimburse Design-Builder for reasonable costs incurred for estimating services, design services and services involved in the preparation of proposed revisions to the Contract Documents.

9.2 Work Change Directives.

9.2.1 A Work Change Directive is a written order prepared and signed by Owner directing a change in the Work prior to agreement on an adjustment in the Contract Price and/or the Contract Time(s).

9.2.2 Owner and Design-Builder shall negotiate in good faith and as expeditiously as possible the appropriate adjustments for the Work Change Directive. Upon reaching an agreement, the parties shall prepare and execute an appropriate Change Order reflecting the terms of the agreement.

9.3 Minor Changes in the Work.

9.3.1 Minor changes in the Work do not involve an adjustment in the Contract Price and/or Contract Time(s) and do not materially and adversely affect the Work, including the design, quality, performance and workmanship required by the Contract Documents. Design-Builder may make minor changes in the Work consistent with the intent of the Contract Documents, provided, however, that Design-Builder shall promptly inform Owner, in writing, of any such changes and record such changes on the documents maintained by Design-Builder.

9.4 Contract Price Adjustments.

9.4.1 The increase or decrease in Contract Price resulting from a change in the Work shall be determined by one or more of the following methods:

9.4.1.1 Unit prices set forth in the Agreement or as subsequently agreed to between the parties;

9.4.1.2 A mutually accepted lump sum, properly itemized and supported by sufficient substantiating data to permit evaluation by Owner;

9.4.1.3 Costs, fees and any other markups set forth in the Agreement; or

9.4.1.4 If an increase or decrease cannot be agreed to as set forth in items 9.4.1.1 through 9.4.1.3 above and Owner issues a Work Change Directive, the cost of the change of the Work shall be determined by the reasonable expense and savings in the performance of the Work resulting from the change, including a reasonable overhead and profit, as may be set forth in the Agreement.

9.4.2 If unit prices are set forth in the Contract Documents or are subsequently agreed to by the parties, but application of such unit prices will cause substantial inequity to Owner or Design-Builder because of differences in the character or quantity of such unit items as originally contemplated, such unit prices shall be equitably adjusted.

9.4.3 If Owner and Design-Builder disagree upon whether Design-Builder is entitled to be paid for any services required by Owner, or if there are any other disagreements over the scope of Work or proposed changes to the Work, Owner and Design-Builder shall resolve the disagreement pursuant to Article 10 hereof. As part of the negotiation process, Design-Builder shall furnish Owner with a good faith estimate of the costs to perform the disputed services in accordance with Owner's interpretations. If the parties are unable to agree and Owner expects Design-Builder to perform the services in accordance with Owner's interpretations, Design-Builder shall proceed to perform the disputed services, conditioned upon Owner issuing a written order to Design-Builder (i) directing Design-Builder to proceed; and (ii) specifying Owner's interpretation of the services that are to be performed. If this occurs, Design-Builder shall be entitled to submit in its Applications for Payment an amount equal to fifty percent (50%) of its reasonable estimated direct cost to perform the services, and Owner agrees to pay such amounts, with the express understanding that (i) such payment by Owner does not prejudice Owner's right to argue that it has no responsibility to pay for such services; and (ii) receipt of such payment by Design-Builder does not prejudice Design-Builder's right to seek full payment of the disputed services if Owner's order is deemed to be a change to the Work.

9.5 Emergencies.

9.5.1 In any emergency affecting the safety of persons and/or property, Design-Builder shall act, at its discretion, to prevent threatened damage, injury or loss. Any change in the Contract Price and/or Contract Time(s) on account of emergency work shall be determined as provided in this Article 9.

Article 10

Contract Adjustments and Disputes

10.1 Requests for Contract Adjustments and Relief.

10.1.1 If either Design-Builder or Owner believes that it is entitled to relief against the other for any event arising out of or related to the Work or Project, such party shall provide written notice to the other party of the basis for its claim for relief. Such notice shall, if possible, be made prior to incurring any cost or expense and in accordance with any specific notice requirements contained in applicable sections of these General Conditions of Contract. In the absence of any specific notice requirement, written notice shall be given within a reasonable time, not to exceed twenty-one (21) days, after the occurrence giving rise to the claim for relief or after the claiming party reasonably should have recognized the event or condition giving rise to the request, whichever is later. The claimant shall provide more complete information with respect to the claim within fourteen (14) days of the initial notice. The more complete information shall include sufficient information to advise the other party of the circumstances giving rise to the claim for relief, the specific contractual adjustment or relief requested and the basis of such request.

10.2 Dispute Avoidance and Resolution.

10.2.1 The parties are fully committed to working with each other throughout the Project and agree to communicate regularly with each other at all times so as to avoid or minimize disputes or disagreements. If disputes or disagreements do arise, Design-Builder and Owner each commit to resolving such disputes or disagreements in an amicable, professional and expeditious manner so as to avoid unnecessary losses, delays and disruptions to the Work.

10.2.2 Design-Builder and Owner will first attempt to resolve disputes or disagreements at the field level through discussions between Design-Builder's Representative and Owner's Representative which shall conclude within fourteen (14) days of the written notice provided for in Section 10.1.1 unless Owner and Design-Builder mutually agree otherwise.

10.2.3 If a dispute or disagreement cannot be resolved through Design-Builder's Representative and Owner's Representative, Design-Builder's Senior Representative and Owner's Senior Representative, upon the request of either party, shall meet as soon as conveniently possible, but in no case later than thirty (30) days after such a request is made, to attempt to resolve such dispute or disagreement. Five (5) days prior to any meetings between the Senior Representatives, the parties will exchange relevant information that will assist the parties in resolving their dispute or disagreement.

10.2.4 If after meeting the Senior Representatives determine that the dispute or disagreement cannot be resolved on terms satisfactory to both parties, the parties shall submit within thirty (30) days of the conclusion of the meeting of Senior Representatives the dispute or disagreement to non-binding mediation. The mediation shall be conducted by a mutually agreeable impartial mediator, or if the parties cannot so agree, a mediator designated by the American Arbitration Association ("AAA") pursuant to its Construction Industry Mediation Rules. The mediation will be governed by and conducted pursuant to a mediation agreement negotiated by the parties or, if the

parties cannot so agree, by procedures established by the mediator. Unless otherwise mutually agreed by Owner and Design-Builder and consistent with the mediator's schedule, the mediation shall commence within ninety (90) days of the submission of the dispute to mediation. Representatives of the parties with authority to resolve the dispute shall be present at any mediation.

10.3 Arbitration.

10.3.1 Any claims, disputes or controversies between the parties arising out of or relating to the Agreement, or the breach thereof, which have not been resolved in accordance with the procedures set forth in Section 10.2 above, shall be decided by arbitration in accordance with the Construction Industry Arbitration Rules of the AAA then in effect, unless the parties mutually agree otherwise.

10.3.2 The award of the arbitrator(s) shall be final and binding upon the parties without the right of appeal to the courts. Judgment may be entered upon it in accordance with applicable law by any court having jurisdiction thereof.

10.3.3 Design-Builder and Owner expressly agree that any arbitration pursuant to this Section 10.3 may be joined or consolidated with any arbitration involving any other person or entity (i) necessary to resolve the claim, dispute or controversy; or (ii) substantially involved in or affected by such claim, dispute or controversy. Both Design-Builder and Owner will include appropriate provisions in all contracts they execute with other parties in connection with the Project to require such joinder or consolidation.

10.3.4 The prevailing party in any arbitration, or any other final, binding dispute proceeding upon which the parties may agree, shall be entitled to recover from the other party reasonable attorneys' fees and expenses incurred by the prevailing party. The prevailing party, if any, shall be determined by the applicable binding dispute tribunal.

10.4 Duty to Continue Performance.

10.4.1 Unless provided to the contrary in the Contract Documents, Design-Builder shall continue to perform the Work and Owner shall continue to satisfy its payment obligations for undisputed amounts to Design-Builder as well as any further amounts pursuant to Section 9.4.3, pending the final resolution of any dispute or disagreement between Design-Builder and Owner.

10.5 CONSEQUENTIAL DAMAGES.

10.5.1 NOTWITHSTANDING ANYTHING HEREIN TO THE CONTRARY (EXCEPT AS SET FORTH IN SECTION 10.5.2 BELOW), NEITHER DESIGN-BUILDER NOR OWNER SHALL BE LIABLE TO THE OTHER FOR ANY CONSEQUENTIAL LOSSES OR DAMAGES, WHETHER ARISING IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, INCLUDING BUT NOT LIMITED TO LOSSES OF USE, PROFITS, BUSINESS, REPUTATION OR FINANCING.

10.5.2 The consequential damages limitation set forth in Section 10.5.1 above is not intended to affect the payment of liquidated damages or lost early completion bonus, if any, set forth in Article 5 of the Agreement, which both parties recognize has been established, in part, to reimburse Owner or reward Design-Builder for some damages that might otherwise be deemed to be consequential.

Article 11

Stop Work and Termination

11.1 Owner's Right to Stop Work.

11.1.1 Owner may, without cause and for its convenience, order Design-Builder in writing to stop and suspend the Work. Such suspension shall not exceed sixty (60) consecutive days or aggregate more than ninety (90) days during the duration of the Project.

11.1.2 Design-Builder is entitled to seek an adjustment of the Contract Price and/or Contract Time(s) if its cost or time to perform the Work has been adversely impacted by any suspension of stoppage of the Work by Owner.

11.2 Owner's Right to Perform and Terminate for Cause.

11.2.1 If Design-Builder persistently fails to (i) provide a sufficient number of skilled workers, (ii) supply the materials required by the Contract Documents, (iii) comply with applicable Legal Requirements, (iv) timely pay, without cause, Design Consultants or Subcontractors, (v) prosecute the Work with promptness and diligence to ensure that the Work is completed by the Contract Time(s), as such times may be adjusted, or (vi) perform material obligations under the Contract Documents, then Owner, in addition to any other rights and remedies provided in the Contract Documents or by law, shall have the rights set forth in Sections 11.2.2 and 11.2.3 below.

11.2.2 Upon the occurrence of an event set forth in Section 11.2.1 above, Owner may provide written notice to Design-Builder that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Design-Builder's receipt of such notice. If Design-Builder fails to cure, or reasonably commence to cure, such problem, then Owner may give a second written notice to Design-Builder of its intent to terminate within an additional seven (7) day period. If Design-Builder, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Owner may declare the Agreement terminated for default by providing written notice to Design-Builder of such declaration.

11.2.3 Upon declaring the Agreement terminated pursuant to Section 11.2.2 above, Owner may enter upon the premises and take possession, for the purpose of completing the Work, of all materials, equipment, scaffolds, tools, appliances and other items thereon, which have been purchased or provided for the performance of the Work, all of which Design-Builder hereby transfers, assigns and sets over to Owner for such purpose, and to employ any person or persons to complete the Work and provide all of the required labor, services, materials, equipment and other items. In the event of such termination, Design-Builder shall not be entitled to receive any further payments under the Contract Documents until the Work shall be finally completed in accordance with the Contract Documents. At such time, if the unpaid balance of the Contract Price exceeds the cost and expense incurred by Owner in completing the Work, such excess shall be paid by Owner to Design-Builder. Notwithstanding the preceding sentence, if the Agreement establishes a Guaranteed Maximum Price, Design-Builder will only be entitled to be paid for Work performed prior to its default. If Owner's cost and expense of completing the Work exceeds the unpaid balance of the Contract Price, then Design-Builder shall be obligated to pay the difference to Owner. Such costs and expense shall include not only the cost of completing the Work, but also losses, damages, costs and expense, including attorneys' fees and expenses, incurred by Owner in connection with the reprocurement and defense of claims arising from Design-Builder's default, subject to the waiver of consequential damages set forth in Section 10.5 hereof.

11.2.4 If Owner improperly terminates the Agreement for cause, the termination for cause will be

converted to a termination for convenience in accordance with the provisions of Section 11.6 hereof.

11.3 Design-Builder's Right to Stop Work.

11.3.1 Design-Builder may, in addition to any other rights afforded under the Contract Documents or at law, stop the Work for the following reasons:

11.3.1.1 Owner's failure to provide financial assurances as required under Section 3.3 hereof; or

11.3.1.2 Owner's failure to pay amounts properly due under Design-Builder's Application for Payment.

11.3.2 Should any of the events set forth in Section 11.3.1 above occur, Design-Builder has the right to provide Owner with written notice that Design-Builder will stop the Work unless said event is cured within seven (7) days from Owner's receipt of Design-Builder's notice. Design-Builder shall not stop work unless it provides such written notice and Owner has failed to cure the reason for default within the seven (7) day cure period. If Owner does not cure the problem within such seven (7) day period, Design-Builder may stop the Work. In such case, Design-Builder shall be entitled to make a claim for adjustment to the Contract Price and Contract Time(s) to the extent it has been adversely impacted by such stoppage.

11.4 Design-Builder's Right to Terminate for Cause.

11.4.1 Design-Builder, in addition to any other rights and remedies provided in the Contract Documents or by law, may terminate the Agreement for cause for the following reasons:

11.4.1.1 The Work has been stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, because of court order, any government authority having jurisdiction over the Work, or orders by Owner under Section 11.1.1 hereof, provided that such stoppages are not due to the acts or omissions of Design-Builder or anyone for whose acts Design-Builder may be responsible.

11.4.1.2 Owner's failure to provide Design-Builder with any information, permits or approvals that are Owner's responsibility under the Contract Documents which result in the Work being stopped for sixty (60) consecutive days, or more than ninety (90) days during the duration of the Project, even though Owner has not ordered Design-Builder in writing to stop and suspend the Work pursuant to Section 11.1.1 hereof.

11.4.1.3 Owner's failure to cure the problems set forth in Section 11.3.1 above after Design-Builder has stopped the Work.

11.4.2 Upon the occurrence of an event set forth in Section 11.4.1 above, Design-Builder may provide written notice to Owner that it intends to terminate the Agreement unless the problem cited is cured, or commenced to be cured, within seven (7) days of Owner's receipt of such notice. If Owner fails to cure, or reasonably commence to cure, such problem, then Design-Builder may give a second written notice to Owner of its intent to terminate within an additional seven (7) day period. If Owner, within such second seven (7) day period, fails to cure, or reasonably commence to cure, such problem, then Design-Builder may declare the Agreement terminated for default by providing written notice to Owner of such declaration. In such case, Design-Builder shall be entitled to recover in the same manner as if Owner had terminated the Agreement for its convenience under Article 8 of the Agreement.

11.5 Bankruptcy of Owner or Design-Builder.

11.5.1 If either Owner or Design-Builder institutes or has instituted against it a case under the United States Bankruptcy Code (such party being referred to as the "Bankrupt Party"), such event may impair or frustrate the Bankrupt Party's ability to perform its obligations under the Contract Documents. Accordingly, should such event occur:

11.5.1.1 The Bankrupt Party, its trustee or other successor, shall furnish, upon request of the non-Bankrupt Party, adequate assurance of the ability of the Bankrupt Party to perform all future material obligations under the Contract Documents, which assurances shall be provided within ten (10) days after receiving notice of the request; and

11.5.1.2 The Bankrupt Party shall file an appropriate action within the bankruptcy court to seek assumption or rejection of the Agreement within sixty (60) days of the institution of the bankruptcy filing and shall diligently prosecute such action.

If the Bankrupt Party fails to comply with its foregoing obligations, the non-Bankrupt Party shall be entitled to request the bankruptcy court to reject the Agreement, declare the Agreement terminated and pursue any other recourse available to the non-Bankrupt Party under this Article 11.

11.5.2 The rights and remedies under Section 11.5.1 above shall not be deemed to limit the ability of the non-Bankrupt Party to seek any other rights and remedies provided by the Contract Documents or by law, including its ability to seek relief from any automatic stays under the United States Bankruptcy Code or the right of Design-Builder to stop Work under any applicable provision of these General Conditions of Contract.

11.6 Termination for Convenience.

11.6.1 Upon ten (10) days' written notice to Design-Builder, Owner may, for its convenience and without cause, elect to terminate this Agreement. In such event, Owner shall pay Design-Builder for the following:

11.6.1.1 All Work executed and for proven loss, cost or expense in connection with the Work;

11.6.1.2 The reasonable costs and expenses attributable to such termination, including demobilization costs and amounts due in settlement of terminated contracts with Subcontractors and Design Consultants; and

11.6.1.3 The amount set forth in Article 8 of the Agreement.

11.6.2 If Owner terminates this Agreement pursuant to Section 11.6.1 above and proceeds to design and construct the Project through its employees, agents or third parties, Owner's rights to use the Work Product shall be as set forth in Section 4.3 of the Agreement. Such rights may not be transferred or assigned to others without Design-Builder's express written consent and such third parties' agreement to the terms of Article 4 of the Agreement.

Article 12

Electronic Data

12.1 Electronic Data.

12.1.1 The parties recognize that Contract Documents, including drawings, specifications and three-dimensional modeling (such as Building Information Models) and other Work Product may be

transmitted among Owner, Design-Builder and others in electronic media as an alternative to paper hard copies (collectively "Electronic Data").

12.2 Transmission of Electronic Data.

12.2.1 Owner and Design-Builder shall agree upon the software and the format for the transmission of Electronic Data. Each party shall be responsible for securing the legal rights to access the agreed-upon format, including, if necessary, obtaining appropriately licensed copies of the applicable software or electronic program to display, interpret and/or generate the Electronic Data.

12.2.2 Neither party makes any representations or warranties to the other with respect to the functionality of the software or computer program associated with the electronic transmission of Work Product. Unless specifically set forth in the Agreement, ownership of the Electronic Data does not include ownership of the software or computer program with which it is associated, transmitted, generated or interpreted.

12.2.3 By transmitting Work Product in electronic form, the transmitting party does not transfer or assign its rights in the Work Product. The rights in the Electronic Data shall be as set forth in Article 4 of the Agreement. Under no circumstances shall the transfer of ownership of Electronic Data be deemed to be a sale by the transmitting party of tangible goods.

12.3 Electronic Data Protocol.

12.3.1 The parties acknowledge that Electronic Data may be altered or corrupted, intentionally or otherwise, due to occurrences beyond their reasonable control or knowledge, including but not limited to compatibility issues with user software, manipulation by the recipient, errors in transcription or transmission, machine error, environmental factors, and operator error. Consequently, the parties understand that there is some level of increased risk in the use of Electronic Data for the communication of design and construction information and, in consideration of this, agree, and shall require their independent contractors, Subcontractors and Design Consultants to agree, to the following protocols, terms and conditions set forth in this Section 12.3.

12.3.2 Electronic Data will be transmitted in the format agreed upon in Section 12.2.1 above, including file conventions and document properties, unless prior arrangements are made in advance in writing.

12.3.3 The Electronic Data represents the information at a particular point in time and is subject to change. Therefore, the parties shall agree upon protocols for notification by the author to the recipient of any changes which may thereafter be made to the Electronic Data, which protocol shall also address the duty, if any, to update such information, data or other information contained in the electronic media if such information changes prior to Final Completion of the Project.

12.3.4 The transmitting party specifically disclaims all warranties, expressed or implied, including, but not limited to, implied warranties of merchantability and fitness for a particular purpose, with respect to the media transmitting the Electronic Data. However, transmission of the Electronic Data via electronic means shall not invalidate or negate any duties pursuant to the applicable standard of care with respect to the creation of the Electronic Data, unless such data is materially changed or altered after it is transmitted to the receiving party, and the transmitting party did not participate in such change or alteration.

Article 13

Miscellaneous

13.1 Confidential Information.

13.1.1 Confidential Information is defined as information which is determined by the transmitting party to be of a confidential or proprietary nature and: (i) the transmitting party identifies as either confidential or proprietary; (ii) the transmitting party takes steps to maintain the confidential or proprietary nature of the information; and (iii) the document is not otherwise available in or considered to be in the public domain. The receiving party agrees to maintain the confidentiality of the Confidential Information and agrees to use the Confidential Information solely in connection with the Project.

13.2 Assignment.

13.2.1 Neither Design-Builder nor Owner shall, without the written consent of the other assign, transfer or sublet any portion or part of the Work or the obligations required by the Contract Documents.

13.3 Successorship.

13.3.1 Design-Builder and Owner intend that the provisions of the Contract Documents are binding upon the parties, their employees, agents, heirs, successors and assigns.

13.4 Governing Law.

13.4.1 The Agreement and all Contract Documents shall be governed by the laws of the location of the Project, without giving effect to its conflict of law principles.

13.5 Severability.

13.5.1 If any provision or any part of a provision of the Contract Documents shall be finally determined to be superseded, invalid, illegal, or otherwise unenforceable pursuant to any applicable Legal Requirements, such determination shall not impair or otherwise affect the validity, legality, or enforceability of the remaining provision or parts of the provision of the Contract Documents, which shall remain in full force and effect as if the unenforceable provision or part were deleted.

13.6 No Waiver.

13.6.1 The failure of either Design-Builder or Owner to insist, in any one or more instances, on the performance of any of the obligations required by the other under the Contract Documents shall not be construed as a waiver or relinquishment of such obligation or right with respect to future performance.

13.7 Headings.

13.7.1 The headings used in these General Conditions of Contract, or any other Contract Document, are for ease of reference only and shall not in any way be construed to limit or alter the meaning of any provision.

13.8 Notice.

13.8.1 Whenever the Contract Documents require that notice be provided to the other party, notice will be deemed to have been validly given (i) if delivered in person to the individual intended to

receive such notice; (ii) four (4) days after being sent by registered or certified mail, postage prepaid to the address indicated in the Agreement; (iii) if transmitted by facsimile, by the time stated in a machine-generated confirmation that notice was received at the facsimile number of the intended recipient; or (iv) by electronic mail, by the time frame stated in the email-generated confirmation that notice was received by the email of the intended recipient.

13.9 Amendments.

13.9.1 The Contract Documents may not be changed, altered, or amended in any way except in writing signed by a duly authorized representative of each party.

Attachment C – Background Documents

January 12, 2024
RFP No. 2024-100

June 30, 2023

Subject: City of Peachtree City, GA
Screening Equipment RFP

Vulcan Representative: Andrew Synhorst, PE
Principle Environmental
andrew@principleenvironmental.com

Prepared by: Kyle Wilhelm
Inside Sales
kyle@vulcanindustries.com

Vulcan Industries, Inc. (Vulcan) and our local sales representative Principle Environmental, are pleased to provide you with our equipment submittal for the Screening and Screening Handling Equipment for the above referenced project. We have reviewed the documents provided in your Request for Proposal (RFP) and have a good understanding of the needs and requirements of the project.

Vulcan has been manufacturing wastewater screens and screening handling systems for over 45 years from our manufacturing facilities located in Missouri Valley, Iowa. With over 2,500 screens across the United States, Vulcan has the experience and expertise to adapt to any screening application. Vulcan is also unique to the industry in that we manufacture both the equipment and controls in our UL Listed facilities. This provides the customer with single point responsibility when it comes to screening and screening handling equipment and their associated control systems. Additionally, and most importantly, your equipment will be tested with your controls at our factory and not at the installation site. This is extremely important for the contractor when installing equipment that will operate in concert with your SCADA controls.

Vulcan understands that the Owner is considering either installing one (1) or two (2) screens as a part of this upgrade. A bar screen is considerably more reliable than the existing perforated plate screen, so two screens are not required, but this proposal includes options for either one or two screens. Vulcan is proposing two different models of multiple rake bar screens for your consideration. Both provide robust screening solutions with high capture for 25+ years of service. The Model VMR and Model VKR are discussed and compared in detail in this document. For screenings handling, it has been stated that screenings washing, and extensive compression are not needed, but rather just conveyance. Consequently, Vulcan has proposed the use of our Model TF shaftless screw conveyor, which will reliably transport the screenings to an adjacent dumpster.

Thank you in advance for your review of the following and enclosed documents. If you have any questions or concerns following your review, please don't hesitate to contact us or Principle Environmental.

Sincerely,

Kyle Wilhelm
Inside Sales
kyle@vulcanindustries.com

1. PROPOSAL CONTACT INFORMATION

Prepared by: Kyle Wilhelm
Company Name: Vulcan Industries, Inc.
Address: 212 S. Kirlin St. Missouri Valley, IA 51555
Phone Number: 712.642.2755
Website: www.vulcanindustries.com
Email Contact: kyle@vulcanindustries.com

2. COMPANY HISTORY

Vulcan Industries was founded in 1975 and incorporated in 1978. The original manufacturing facility was located in a modest building in Magnolia, Iowa. The company moved to the present location in Missouri Valley, Iowa in 1986. The office and manufacturing facilities in Missouri Valley were expanded in 1995 to provide an additional 15,000 square feet of manufacturing space and 3,500 square feet of additional office space. Our current office space now consists of 6,000 square feet and our manufacturing facility consists of 40,300 square feet. Vulcan has been manufacturing wastewater screens and screening handling systems for over 45 years.

Our dedicated team of 50 employees design and fabricate equipment and controls to help in transforming clean safe water from over 900 cities in the United States who operate Vulcan equipment. It is our promise to go above and beyond for our customers. Whether it is fabricating exceptional screening equipment or aiding in the installation, start-up, and training associated with our equipment – Vulcan has been around a long time, and isn't going anywhere.

3. VULCAN STAFF – ENGINEERING, MECHANICAL, AND FABRICATION

Vulcan's engineering department has the knowledge and experience to assist with product integration into new or existing treatment plants and is driven to provide dependable, cost effective solutions. We understand no two treatment plants are created equally and work with each customer to most effectively implement our fully customizable product line into their facility. From engineering analysis and product selection to equipment drawings and specifications we are prepared to be your design partner. Our team works hand in hand with consulting engineers, contractors and plant personnel from initial design through installation and start-up. We also understand the treatment process and the demands on treatment equipment can change over time. Our experienced staff is always available to assist with post start-up equipment optimization to ensure that our customers are getting the best value from their investment.

Vulcan's engineering department is dedicated to provide modern and effective solutions for each customer's design challenges. Our mechanical design team strives to provide seamless integration of our products into each installation. The entire Vulcan product line is fully customizable to provide a virtually limitless number of design possibilities. Our knowledgeable staff has the insight and ability to provide real solutions for the most demanding installations. From equipment customization and layout drawings to specifications and support documentation we will provide accurate detailed information specific to each project. Vulcan's in-house specialists and trusted design partners can also assist with structural, seismic and economic analysis if needed. Our engineering department consists of ten (10) individuals with a combined total of 134 years of employment experience at Vulcan. Vulcan's service staff consists of four (4) employees with a combined total of 40 years of employment experience at Vulcan.

Vulcan Industries' one-stop sales, design and fabrication facility offers the best of on-time delivery and quality control. Since we design and fabricate at a single location, we have the capability to offer custom

fabrication and changes of design in a near seamless effort. Vulcan employs AWS certified welders, experienced machinists and detail-oriented fabricators. The majority of our fabrication professionals have been Vulcan employees for over 20 years. This means your project will be fabricated by a dedicated team of highly experienced craftsmen who know how to do the job right the first time. Shop capabilities include custom stainless steel cutting, forming, machining, welding and coating. Our stainless steel only shop ensures no cross-contamination from carbon steel, meaning we deliver the highest quality finished products. Our in-house Quality Control Department inspects every detail daily, from beginning to end so you receive the quality you expect. Vulcan's fabrication staff has over 450 years of combined experience at Vulcan Industries.

4. PROPOSED EQUIPMENT – VMR MULTI-RAKE BAR SCREEN OR VKR KNUCKLE-RAKE BAR SCREEN

Through 45 years of experience in the screening industry, Vulcan has successfully implemented over 2,000 screens across the US and Internationally. Over 1,500 of these installations are the Vulcan Mensch Severe Duty Climber Screen. The Mensch is still our staple product offering, however, given the channel width, depth, and flow rate, the other mechanical bar screens in our line would offer a more cost-effective alternative. Thus, Vulcan proposes one of two types of multiple rake type mechanical bar screens for Peachtree City; the VMR or VKR. Vulcan has perfected the multiple rake screen; both a traditional chain and rake multi-rake and a link style multi-rake.

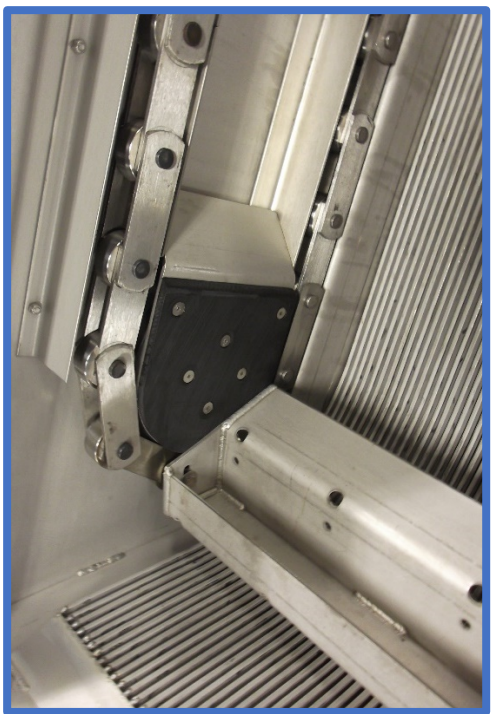
The ***Vulcan VMR Multi-Rake Bar Screen*** is a rugged, substantially framed screen designed to provide low maintenance, heavy-duty screening service for 25+ years. The VMR is provided in only stainless steel (304 or 316) designed with 1/4" thick by 28" deep rigid side frames, the most robust side frames in the industry for this type of screen. Fully integrated single piece frames and drive mechanisms from the channel invert to the top of the screen above the operating floor level are provided, making for simple flawless installations and start-up. Screen frames are the single most important factor in the life of a screen. If the frame cannot handle the loads causing flexing or structural distortion, everything else, including the drive system, will eventually fail.

Vulcan's VMR Multi-Rake Bar Screen rakes have substantial carrying capacity of 0.25 cu ft per feet of rake width and the ability to handle loadings of 100 pounds per foot of rake width. The screenings are contained on the rakes by a "bucket" design. Each rake has side and back plates that form the screenings bucket. This capacity of the rake heads allow the screen to operate at a slower speed while still achieving the same screenings removal capacity as a competitors screen running at a faster speed. This slower speed results in decreased wear and tear on rotating parts. The rake system is designed so that the rake heads will not "ride over" materials captured on the bar rack similar to link-style or catenary screens. The VMR standard stainless steel chains are mounted on the sides of the rake bucket and are protected by the flow in chain guides mounted within the side frames.

The ***Vulcan VKR Link Style Multi-Rake Bar Screen*** is a link-driven screen with no maintenance parts located below the water surface designed to provide low maintenance screening service for 25+ years. The VKR is provided in only stainless steel (304 or 316) designed with 1/4" thick rigid side frames, the most robust side frames in the industry for this type of screen. Fully integrated single piece frames and drive mechanisms from the channel invert to the top of the screen above the operating floor level are provided, making for simple flawless installations and start-up. The VKR takes the rigidity and robustness of the VMR and eliminates the engagement device in the bottom, thus also removing any need for maintenance within the channel. As well, the VKR offers the advantage of each rake head being able to disengage from the bar rack to remove large debris or to avoid jamming.

Below is a chart comparing the VMR and VKR and as well a document has been placed in the Appendix which more thoroughly explains each of these items.

	VMR – Vulcan Multi-Rake	VKR – Vulcan Knuckle Rake	Further Dialogue
Engagement **(see picture comparison following chart)**	Positive Engagement using lower static guide	Non-Positive Engagement relying on gravity	The VMR has a lower turnaround that ensures rake heads fully engage in the bar rack. The VKR relies on the weight of the links and rake heads to remain engaged.
Frame	1/4" thick stainless steel that is 28" deep (upstream to downstream side of frame)	1/4" thick stainless steel that is 8" deep	The frame of the VMR is much more substantial because the frame is competing against the motor when material is being dislodged. The frame ensures longevity in rotating parts such as bearings and gear boxes.
Motor	2.0 HP	0.5 HP	The horsepower of the motor on the VMR is responsible for dislodging and removing debris. The horsepower on the VKR is only responsible for lifting the links and rake heads.
Maintenance Below Water	Static guide requires visual inspection 10 years into operation	No long-term mechanical maintenance within the channel.	Although the VKR does not have a lower turnaround requiring long-term maintenance, the lack of positive engagement can lead to bar rack blinding requiring cleaning of the bar rack in the channel.
Chain Drive	Chains are recessed within the walls of the machine.	Dual link chain drive within flow path.	The links of the VKR omit the need for a lower turnaround, but because they are in the flow path, they are susceptible to ragging.



5. EQUIPMENT SCOPE OF SUPPLY

Vulcan Industries is proposing to supply either Model VMR-36 Multi-Rake Bar Screens or Model VKR-36 Knuckle Multi-Rake Bar Screens for screening equipment and one (1) Model TF-185 screw conveyor as described in this document.

Screening Option 1 –Vulcan Model VMR-36 Multi-Rake Bar Screen:

- ✓ Type 304 stainless steel construction.
- ✓ 1/4-inch clear bar spacing. Screening hydraulics provided in a later section for reference.
- ✓ Bar rack bars: 5/16-inch thick by 3/16-inch thick by 1 9/16-inch deep trapezoidal profiled bars.
- ✓ Lower extended curved bar rack bars, which allows each rake head to fully engage the bottom most portion of the bar rack prior to reaching the inclined section of the bar rack and to allow grit to more readily pass through and reduce any build-up in front of the bar rack.
- ✓ 1/4-inch thick side frames by 28-inch minimum depth (upstream to downstream).
- ✓ Full frame design (side frames extending to bottom of channel).
- ✓ 75-degree screen setting angle. Available angles include anything between 60 and 85-degrees.
- ✓ Lower static guide rail engagement system (no lower sprockets) to provide positive engagement of the rake teeth into the bar rack. Sprockets also available if desired.
- ✓ 304 stainless steel roller type drive chains.
- ✓ Rake heads with replaceable 1/2-inch thick rake teeth. Each rake head designed with a carrying capacity of 0.25 cu. ft./ft. of rake head width. Note the discussion related to teeth thickness and width of teeth in previous section.
- ✓ Enclosed discharge chute.
- ✓ 3’-0” screen discharge height above top of channel to screw conveyor.
- ✓ Pivoting internal wiper mechanism with replaceable UHMW wiper blade. NO wash water or brushes required.
- ✓ Removeable stainless steel covers, upstream side of screen from top of channel to top of bar screen frame.
- ✓ Explosion-proof 2.0 HP motor with electrical supply of 230/460 Volt, 3-Phase, 60 Cycle.
- ✓ One (1) NEMA 7 local control station with HAND-OFF-AUTO and FORWARD-OFF-REVERSE selector switches and E-STOP pushbutton. Local control station to be factory mounted on the bar screen side frame.
- ✓ One (1) NEMA 4X, 304 stainless steel main control panel (for non-rated area). Components to include, but not limited to, Allen-Bradley PowerFlex 40 variable frequency drive (VFD), Allen-Bradley Micro programmable logic controller (PLC), RedLion OIT, Milltronics HydroRanger 200 ultrasonic differential level controller, circuit breaker and all necessary relays, pilot lights, switches and internal wiring. Controls for the screw conveyor to be included in the same panel.
- ✓ Control sequence: During normal operation, the rakes shall operate at a speed of 10 ft./min. During a high differential level condition, the rakes shall operate at a high speed of 20 ft./min.
- ✓ Anchor bolts.

- ✓ Spare parts:
    - One (1) UHMW wiper blade
- ✓ Approximate screen weight: 4,250 lbs. ***(heaviest and most robust in the industry)***
- ✓ Freight to jobsite.
- ✓ Factory start-up services; 1-trip consisting of two (2), eight (8) hour days to inspect and certify the installation prior to start up and to instruct the Owner's personnel in proper operation and maintenance and of the equipment.
- ✓ Standard 1-year warranty.

Installation photos of VMR screens with full covers for reference

Turlock, CA – VMR-42

Flagstaff, AZ – Wildcat Hills WWTP – VMR-40

Screening Option 2 – Vulcan Model VKR-36 Knuckle Rake Bar Screen:

- ✓ Type 304 stainless steel construction.
- ✓ 1/4-inch clear bar spacing. Screening hydraulics provided in a later section for reference.
- ✓ Bar rack bars: 1/4" x 3/8" x 3/4" trapezoidal profile bars extending to top of the lower channel.
- ✓ 1/4-inch thick, stainless steel side frames by 8-inch minimum depth (upstream to downstream).
- ✓ Full frame design (side frames extending to the bottom of channel).
- ✓ 75-degree screen setting angle. Available angles include anything between 60 and 75-degrees. The screen is limited to 75 degrees because engagement of the rake heads is dependent upon the force of gravity.
- ✓ Chain links: Type CF8M cast stainless steel with 316 stainless steel link pins, snap rings and washers.
- ✓ 3'-0" screen discharge height above the top of the channel to screw conveyor.
- ✓ Type 304 stainless steel covers, upstream side of screen above the operating floor level.
- ✓ Explosion-proof 0.5 HP motor with electrical supply of 230/460 Volt, 3-Phase, 60 Cycle.

- ✓ One (1) NEMA 7, local control station with HAND-OFF-AUTO selector switch and E-STOP pushbutton. Local control station to mount to the bar screen side frame.
- ✓ One (1) NEMA 4X, 304 stainless steel main control panel (for non-rated area). Components to include, but not limited to, adjustable repeat cycle timer, Allen-Bradley PowerFlex 525 variable frequency drive, Allen-Bradley Micro programmable logic controller, Red Lion OIT, Milltronics HydroRanger 200 ultrasonic differential level controller and all other necessary control components. Controls for the screw conveyor to be included in the same panel.
- ✓ Control sequence: Programmable timer with ultrasonic differential level override system for control of screen operation. Low speed operation shall be 1.5 ft/min and high speed shall be 6.0 ft/min.
- ✓ Total spare parts:
    - One (1) drive clevis pin
    - Ten (10) snap/retaining rings
    - Four (4) link clevis pins
    - One (1) snap ring tool
    - One (1) wiper blade
    - One (1) 3-oz. tube Never-Seez
- ✓ Freight to jobsite.
- ✓ Approx. bar screen weight: 2,600 lbs.
- ✓ Factory start-up services; 1-trip consisting of two (2), eight (8) hour days to inspect and certify the installation prior to start up and to instruct the Owner's personnel in proper operation and maintenance and of the equipment.
- ✓ Standard 1-year warranty.

Installation photos of VKR Knuckle Rake Bar Screens for reference

East Greenwich, RI, VKR-24

Port Royal Island, SC, VKR-48

One (1) Vulcan Model TF-185 Shaftless Screw Conveyor

- ✓ Type 304 stainless steel construction.
- ✓ Enclosed inlet hopper to receive screenings from either one or two screens.
- ✓ 10-gauge thick, U-shaped trough with a nominal length of either 6'-0" (one screen) or 10'-0" (two screens).
- ✓ 1/4-inch thick UHMW trough liners.
- ✓ Alloy steel shaftless screw with a 7-inch nominal outside diameter.
- ✓ Removeable trough covers
- ✓ Support legs.
- ✓ 1.0 HP TEFC motor with electrical supply of 230/460 Volt, 3-Phase, 60 Cycle, and bevel gear double reduction type gear reducer.
- ✓ One (1) NEMA 4X, stainless steel local control station with HAND-OFF-AUTO, FORWARD-OFF-REVERSE selector switches and E-STOP safety cable. The emergency stop cables shall run the length of the unit and shall be mounted in eyebolts attached to the screw conveyor.
- ✓ Control components for the screw conveyor to be included in the main control panel for the bar screen (see above).
- ✓ Control sequence: A cycle counter generated by the bar screen shall initiate the screw conveyor to run.
- ✓ Screenings handling capacity: 47.3 cu. ft./hr.
- ✓ Anchor bolts.
- ✓ Spare parts:
- ✓ One (1) set of trough liners
- ✓ Freight to jobsite.
- ✓ Factory start-up services; 1-trip consisting of two (2) eight (8) hour days total to inspect and certify the installation prior to start up and to instruct the Owner's personnel in operation and maintenance of the equipment. Start-up service for the screw conveyor shall be combined with the service for the bar screen.
- ✓ Approx. weight: 450 lbs.
- ✓ 1-year warranty to commence after operational start-up.

---

6. BASE BID PRICING – Screen Quantity: One (1)

A. *Alternate 1 – VMR Multi-Rake Bar Screen*

Screening & Screenings Handling Equipment – BASE BID		
Item	**Equipment Summary**	**Price**
1	**One (1)** VMR-36 Multi-Rake Bar Screen and One (1) TF-185 Shaftless Screw Conveyor (6-ft long)	$145,642.00

B. *Alternate 2 – VKR Knuckle-Rake Bar Screen*

Screening & Screenings Handling Equipment – BASE BID		
Item	**Equipment Summary**	**Price**
1	**One (1)** VKR-36 Knuckle-Rake Bar Screen and One (1) TF-185 Shaftless Screw Conveyor (6-ft long)	$135,803.00

7. ALTERNATE BID PRICING – Screen Quantity: Two (2)

A. *Alternate 3 – (2) VMR Multi-Rake Bar Screens*

Screening & Screenings Handling Equipment – ALTERNATE BID		
Item	**Equipment Summary**	**Price**
1	**Two (2)** VMR-36 Multi-Rake Bar Screens and One (1) TF-185 Shaftless Screw Conveyor (10-ft long)	$253,611.00

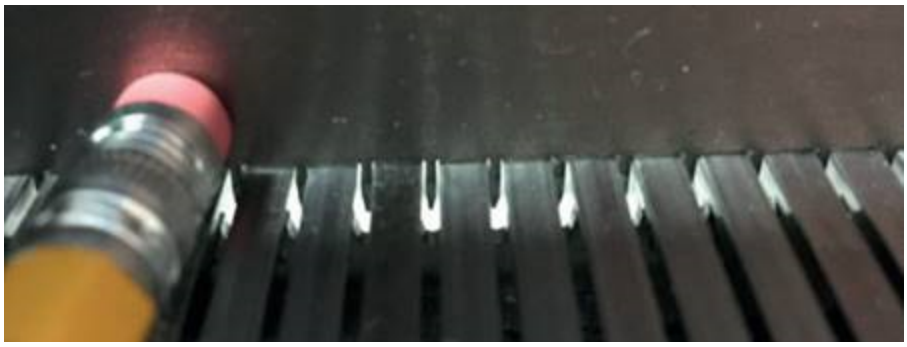
B. *Alternate 4 – (2) VKR Knuckle-Rake Bar Screens*

Screening & Screenings Handling Equipment – ALTERNATE BID		
Item	**Equipment Summary**	**Price**
1	**Two (2)** VKR-36 Knuckle-Rake Bar Screens and One (1) TF-185 Shaftless Screw Conveyor (10-ft long)	$231,133.00

Note: This proposal does not include offloading of equipment, installation, modifications to the existing channel, field wiring and conduit between controls, ancillary devices and equipment, or anything else not identified in this proposal.

8. BAR SPACING DISCUSSION

Vulcan understands that there are bar screen manufacturers who promote bar spacings less than 1/4-inch; however, we strongly believe that these screens will lead to increased operations and maintenance costs, while removing minimally additional material. The largest issue with a mechanical bar screen having a spacing less than ¼-inch is ensuring there is sufficient thickness of stainless steel in each rake tooth to prevent bending and breaking. In Vulcan's experience with nearly 2,000 screens, 1/4-inch spacing allows for enough rigidity in the teeth to resist breaking up to the point where the VFD stops the machine to prevent damage. Less than 1/4-inch and the VFD does not acknowledge a jam fast enough to prevent bending. Further to that point, below is a picture from a screen with finer spacing showing the rake teeth penetrating 3 mm bars. These rake teeth will undoubtedly have issues the first time they encounter a jam.

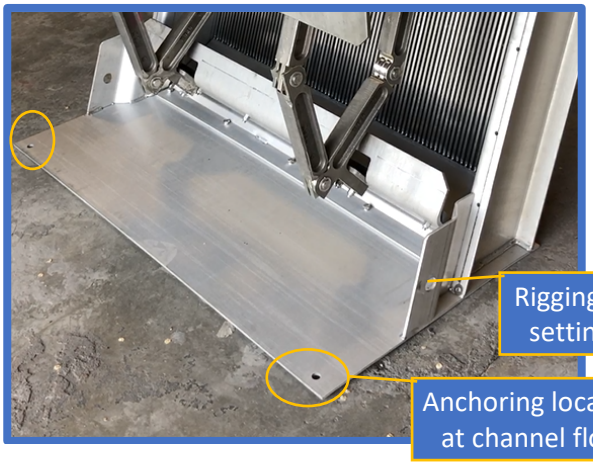


Lastly and most importantly, the hydraulic calculations in the Appendix prove that a single bar screen with 1/4-inch spacing can pass the peak flow of 5.0 MGD. This cannot be said for a screen with finer spacing.

9. EQUIPMENT INSTALLATION AND OPERATIONS CONSIDERATIONS

Vulcan prides ourselves on building equipment and control panels which are most easily installed in the field. The following bulleted list outlines many of the considerations we have put into our design that make the installation as simple as possible.

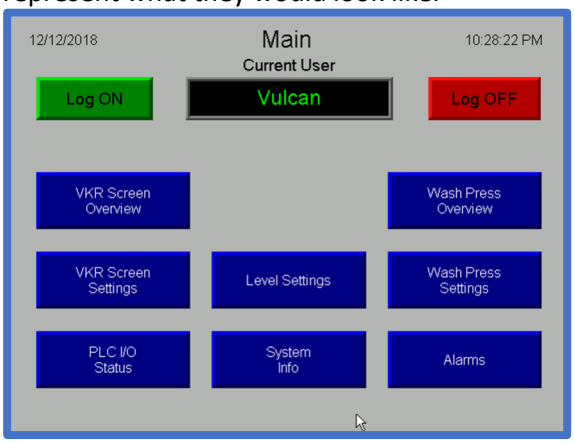
- It is intended that the screen would be supplied in one piece that is approximately 17-feet long, however, should a splice in the frame be necessary due to weight or to simplify installation, Vulcan can provide this at no cost.
- The VKR screen is typically installed with concrete anchors at the floor of the channel (pivoting screen is the exception) and at the operating floor. Thus, simplifying installation.

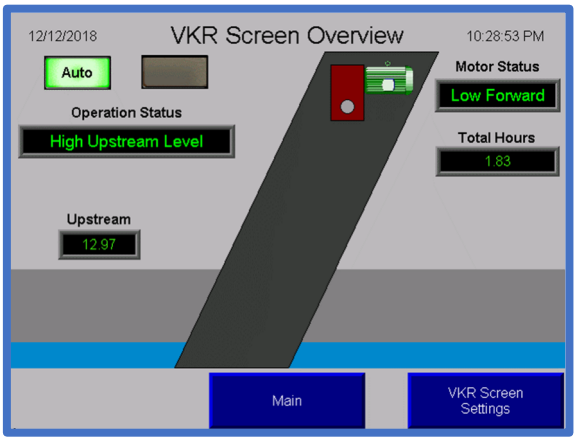


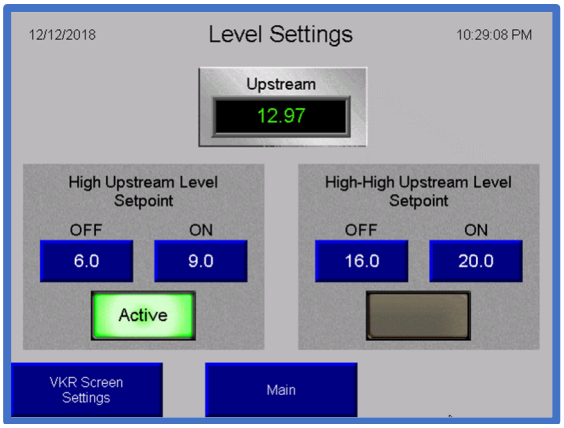
- As previously stated, Vulcan has a UL listed panel building shop at our facility in Missouri Valley. Due to this, we take great pride in constructing panels that facilitate quick and easy field installations. The panels are run tested with the equipment prior to shipment ensuring field modifications are not required.

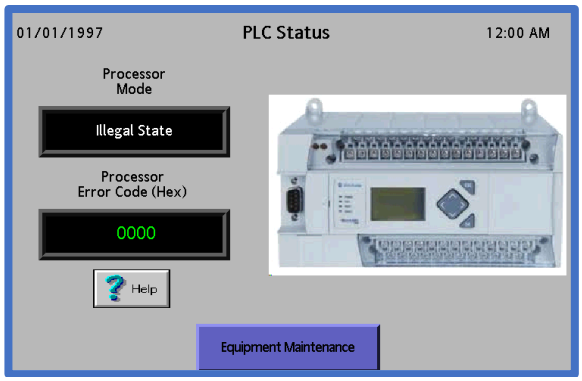
- When it comes to operation, the settings for screen and screw conveyor operation are easily modified from the NEMA 4X main control panel that will be located in the non-classified area. On the front of the panel, a touchscreen will allow operators to view settings, trends, alarms,

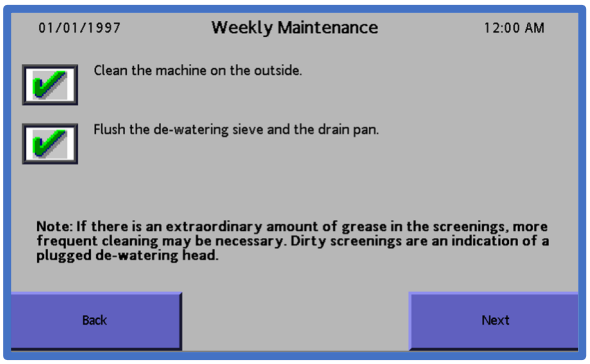
and maintenance logs. The following are a few examples of the screenshots that closely represent what they would look like.











10. RESPONSES TO RFP QUESTIONS NOT ADDRESSED ELSEWEHRE IN PROPOSAL

C. Production Facility Location

Vulcan is unique to the industry in that we manufacture both the equipment and the control panels and controls equipment from our headquarters in Missouri Valley, IA. This will provide the operators a single point of contact for anything related to our equipment. Regarding suppliers of our electrical hardware, we rely on Allen Bradley in most cases, unless otherwise specified. The sample O&M provided in the Appendix details each component of the equipment. These are the particular components used on that specific job and can vary as specified or required based on customer preference.

D. Availability of Parts

All repair parts are provided from our manufacturing facilities and are sent to facilities via delivery truck or air freight as required. Vulcan has over 2,500 equipment installations in the U.S. and have been supplying parts for over 45 years.

Vulcan can provide and produce any part they have provided on any equipment we have ever manufactured – a product and company you can count on.

An unmatched advantage of Vulcan is that when a customer calls to order a part, the President of the company takes the order. There is no one at Vulcan more well suited to assist with determining what parts are needed than the guy who has been there 30 years.

E. Availability of Service Technicians

Vulcan has three (3) full time service representatives and one (1) service manager. Each service representative has been trained in the proper equipment start-up and operating procedures as required by the field service employee manual as approved and signed by the President of Vulcan Industries. All field service from Vulcan comes out of Missouri Valley, IA, unless contracted with a local contractor.

Each service representative is thoroughly familiar with Vulcan equipment construction, operation and troubleshooting. They regularly provide equipment installation inspection and certification, equipment start-up and equipment training services. It is important to note that Vulcan does not contract with any outside service groups; instead all service is completed directly from the Factory.

Vulcan's office staff are the true experts on the equipment and are always available by phone. Over-the-phone troubleshooting is always available and provided on our equipment, whether it be within warranty or 25 years old.

F. Installation List

Included in the Appendix is a full installation list for both of the technologies proposed.

G. Schedule

Equipment Submittals: completed in 10 weeks following receipt of PO.
Equipment Delivery: shipped 40-42 weeks following receipt of approved submittal.

APPENDIX

Vulcan Equipment Product Brochures

Model VMR
Multi-Rake Screen

Product Information Guide

Find more product information at:

vulcanindustries.com

Vulcan
THE PROVEN SCREEN CHOICE

Model VMR Multi-Rake Screen

Chain Take-Up Mechanism

Wiper Mechanism

Internal to screen frame with no brushes or water required.

Stainless Steel Side Frame

Full Frame (as shown), and Spliced Frame (for installation in existing buildings) are available. Standard side frames are formed from 1/4" thick stainless steel plate with four engineered bends for rigidity creating a side frame width of 28" - the strongest frames in the industry.

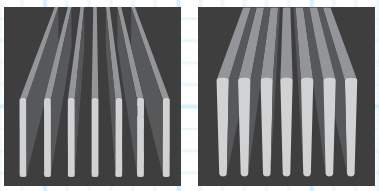
Dead Plate

Rake Heads

Multiple, large-capacity rake heads with deep tooth penetration and positive engagement of the bar rack.

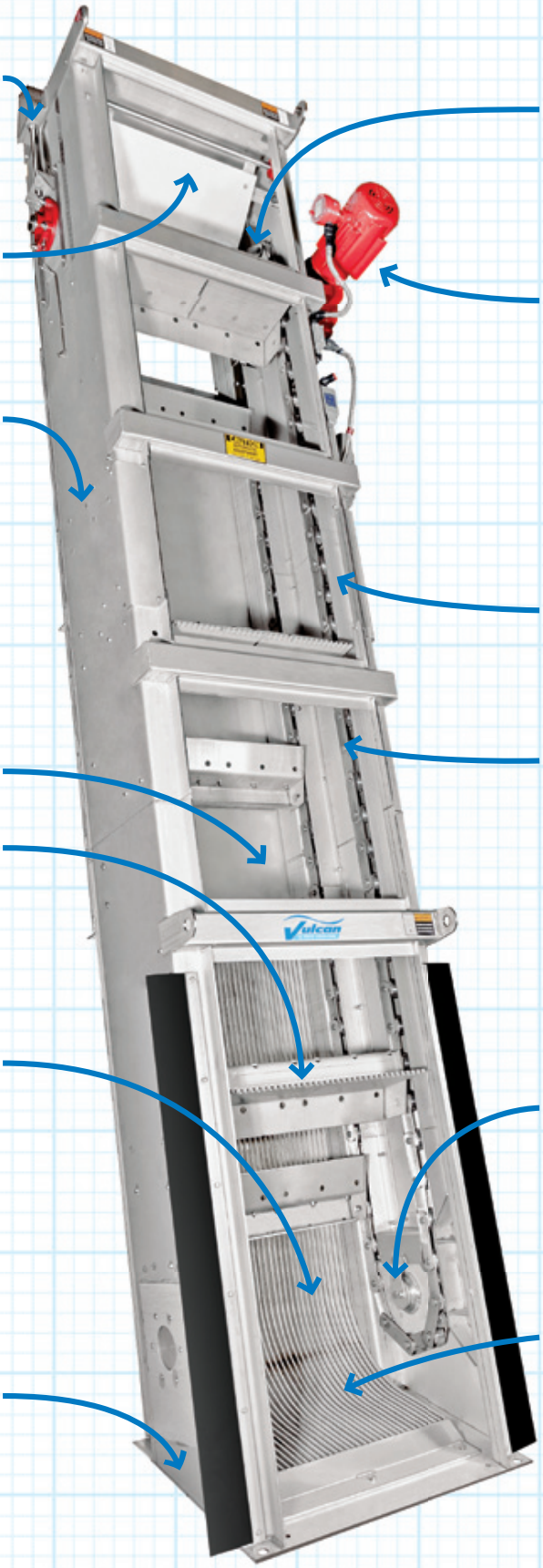
Choice of Rectangular or Trapezoidal Bar Rack

Bar spacing from 1/4" to 3"+



Sized For Your Project

Channel widths from 18 inches to 8 feet, and depths to over 50 feet.



Upper Stainles Steel Drive Sprockets

Drive Options

TEFC and explosion-proof motors available with variable frequency drive (VFD) for soft start and flexible operating speed control.

Stainless Steel Chain Guides

Drive Chains

Heavy-duty stainless steel roller chains.

Lower Engagement System

With choice of guide rail bearings or sprockets.

Lower Curved Bar Rack Bars

Engineered for Capacity, Known for Reliability

Since 1978, Vulcan has been a leader in manufacturing quality wastewater equipment. The **VMR Multi-Rake Screen** continues this tradition of excellence, incorporating many of the same features found in our Mensch Severe Duty™ Bar Screen. Coupling these tried and true features with Vulcan's own UL approved fully automatic and multiple speed controls produces quick and efficient screenings removal.

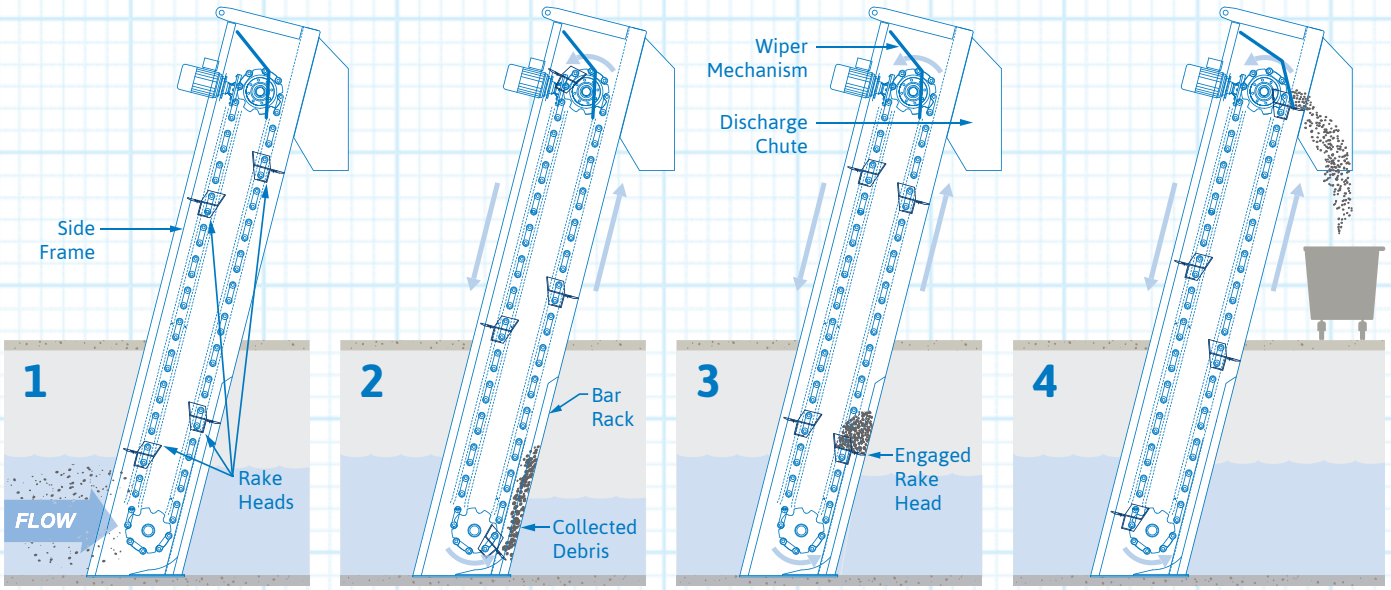
Designed for use in high screenings volume applications, the VMR Multi-Rake Screen can efficiently remove large amounts of screenings with continuous operation. The versatility of the VMR Multi-Rake Screen makes it ideal for special applications of extreme channel depth and severe screen blinding. Heavy duty components used in the VMR Multi-Rake Screen ensure a long and productive service life even under the most severe conditions.

The VMR Multi-Rake screen is an automatic, self-cleaning mechanical bar screen designed for tough primary and secondary screening applications.

The VMR Multi-Rake Screen can be customized for new construction as well as existing channels.

Electrical Controls

Each control panel we provide is designed and manufactured by highly skilled technicians in our own electrical facility to meet the specifications for the particular project. Our panels are UL Listed and can meet UL 508A or UL 698A standards. Prior to shipment, each panel is fully assembled and tested with the equipment. Panels can be installed as free standing, wall mounted or screen mounted. Control system design can include a variety of relay or programmable logic devices to interact with today's SCADA and HMI systems. Our standard control package includes timers with ultrasonic differential level control for starting and stopping the screen. Variable Frequency Drives (VFD) provide soft motor starts and a wide range of operating speeds to accommodate each particular application. Motor current is monitored to prevent damage to the screen drive system if something were to lodge into the bar rack. A reversing feature allows back cleaning of the bar rack to dislodge the object and then reverses again to continue screening.



Sequence of Operations

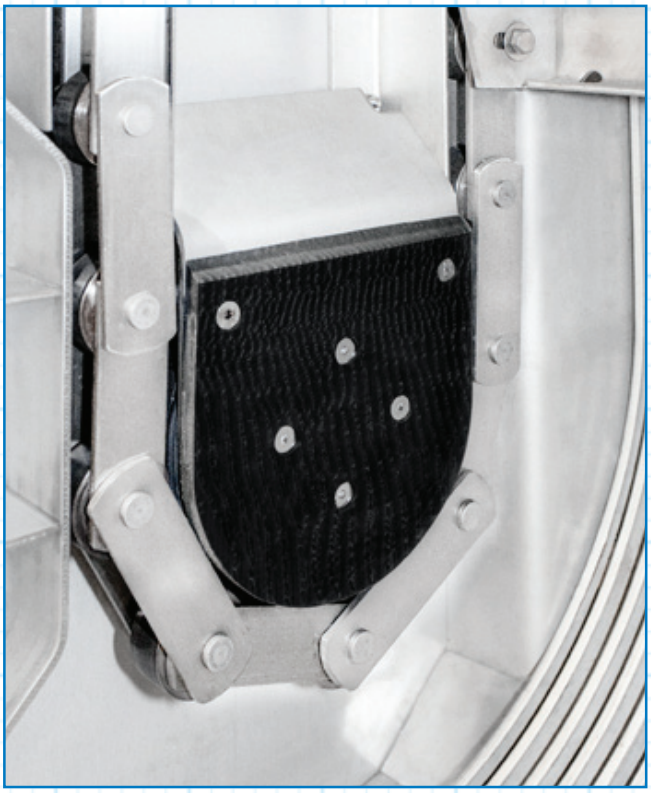
1 The bar rack begins to collect screenings while the bar screen is in the idle position.

2 As screenings collect and the bar rack blinds, the upstream water level rises which initiates a cleaning cycle.

3 One of the multiple rakes engages the bar rack, clearing up the debris and transporting it up the dead plate toward the discharge point.

4 When the rake reaches the discharge point, a wiper assembly cleans the rake and directs the screenings to a receiving device (i.e. conveyor, screenings press, dumpster).

Model VMR Multi-Rake Screen



▲ Option 1

Heavy-duty stainless steel chain and lower guide rail engagement system

▲ Option 2

Heavy-duty stainless steel chain and lower sprocket engagement system

▲ Lower Curved Bar Rack

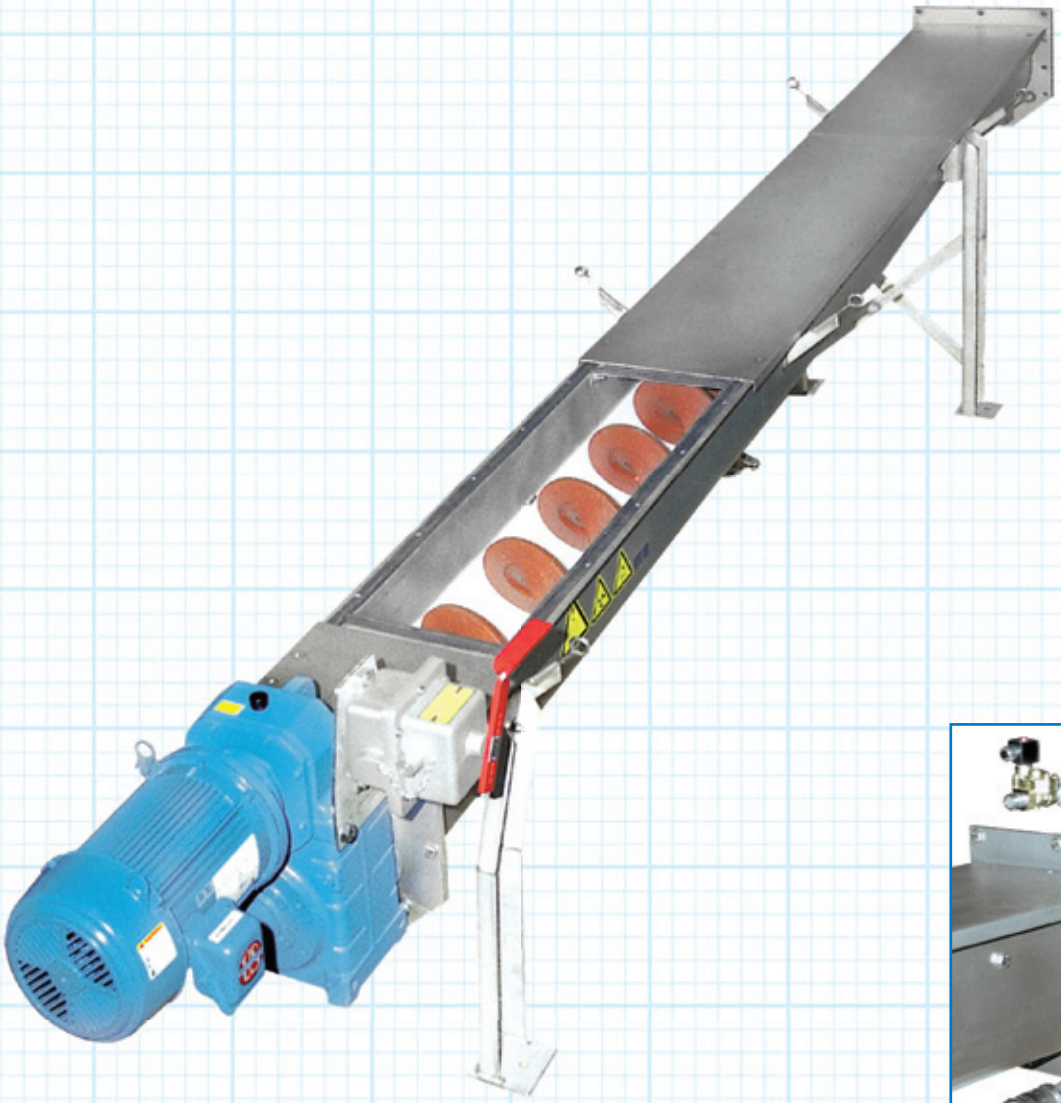
Find more product information at:
vulcanindustries.com

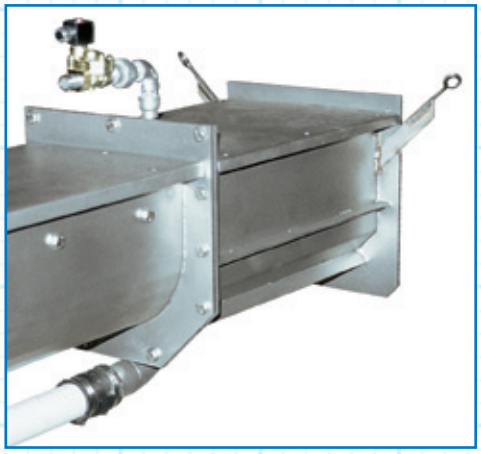
212 S. Kirlin Street
Missouri Valley, Iowa 51555 USA
712-642-2755 Fax 712-642-4256

Vulcan
THE PROVEN SCREEN CHOICE

Model TF
Shaftless Screw Conveyor

Product Information Guide





Optional Compaction Head

Find more product information at:

vulcanindustries.com

Vulcan
THE PROVEN SCREEN CHOICE

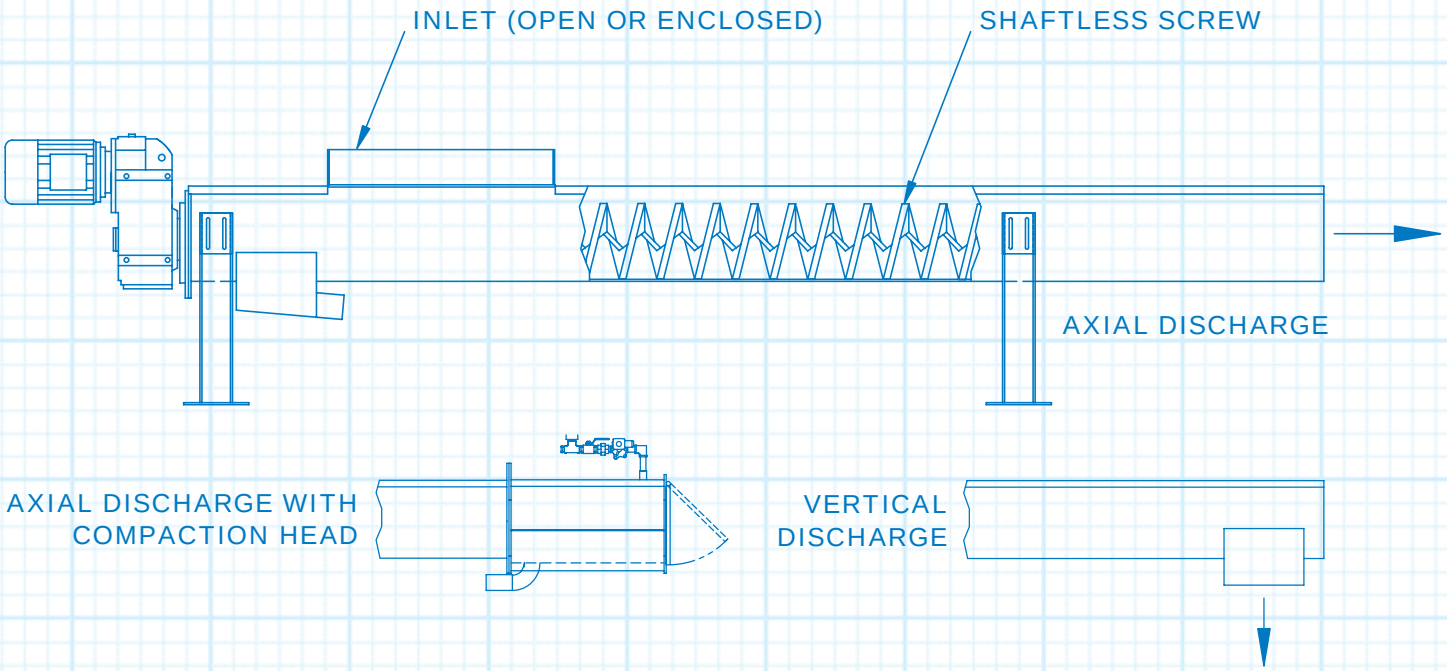
Model TF Shaftless Screw Conveyor

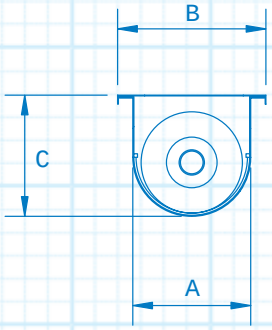
The **Model TF Shaftless Screw Conveyor** is utilized for the transport of screenings, grit or sludge in municipal and industrial wastewater treatment applications.

Construction

The conveyor body can be constructed of 304 or 316 stainless steel. The shaftless screw is available in high-strength alloy steel or stainless steel. The screw conveyor utilizes a fully enclosed U-trough with removable covers. The conveyor body is modular and custom-built for each application. Multiple inlet hoppers can be provided to allow solids from multiple sources to be accepted. UHMW polyethylene liners are mounted in the bottom of the U-trough and fully support the shaftless screw along its length.

For screenings applications, a compaction head can be provided on the discharge end of the conveyor to dewater and reduce the overall volume of screenings. A water flushing system is provided as an integral part of the compaction head to ensure that it remains clear of debris.





Model	A	B	C	Nominal Spiral Diameter	Capacity
TF-185	9"	12 ½"	9"	7"	66 ft³/hr
TF-240	11 ¼"	14 ½"	11 ½"	10"	144 ft³/hr
TF-280	12 ¼"	16 ¼"	13"	11"	228 ft³/hr
TF-390	17 ⅛"	20 ½"	17 ¾"	16"	616 ft³/hr
TF-475	20 ⅞"	24 ½"	21 ¼"	19"	1114 ft³/hr
TF-530	22 ⅞"	26 ¼"	23 ¾"	21"	1548 ft³/hr

Horizontal conveying capacities at 25% trough loading.
Maximum speed of 25 RPM.

Find more product information at:
vulcanindustries.com

212 S. Kirlin Street
Missouri Valley, Iowa 51555 USA
712-642-2755 Fax 712-642-4256

Vulcan
THE PROVEN SCREEN CHOICE

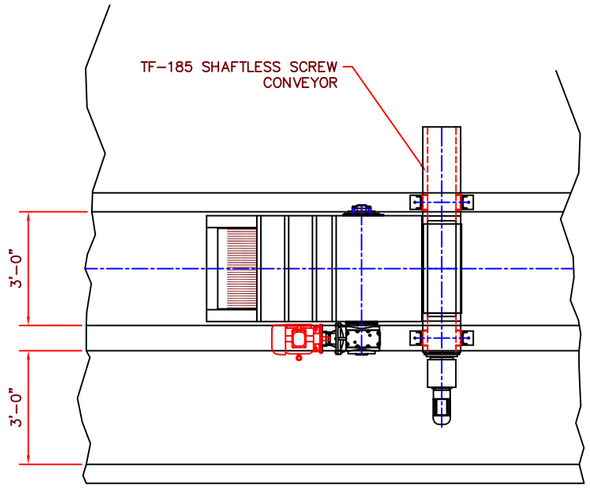
APPENDIX

Base Bid – Equipment General Arrangement Drawing

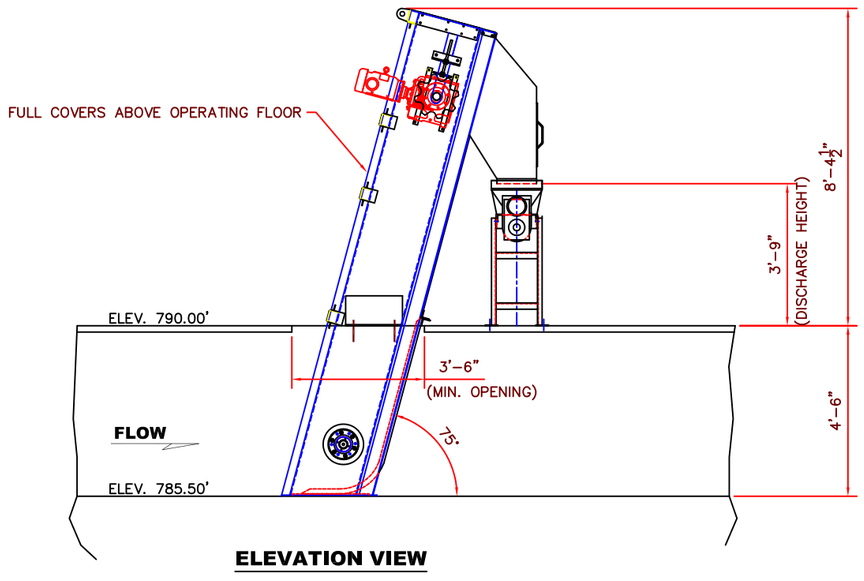
212 SOUTH KIRLIN STREET
MISSOURI VALLEY, IA. 51555
712-642-2755
www.vulcanIndustrles.com

SCALE: 1/4"=1'-0"	PRODUCT: VMR-36 MULTI-RAKE BAR SCREEN GENERAL ARRANGEMENT	DRAWN BY: KMW
DATE: 6/28/2023		REVISED BY:
CUST:		REVISED:
ENG:		
PROJECT: PEACHTREE, GA. LINE CREEK WRF		DRAWING NO: VI-VMR-L1

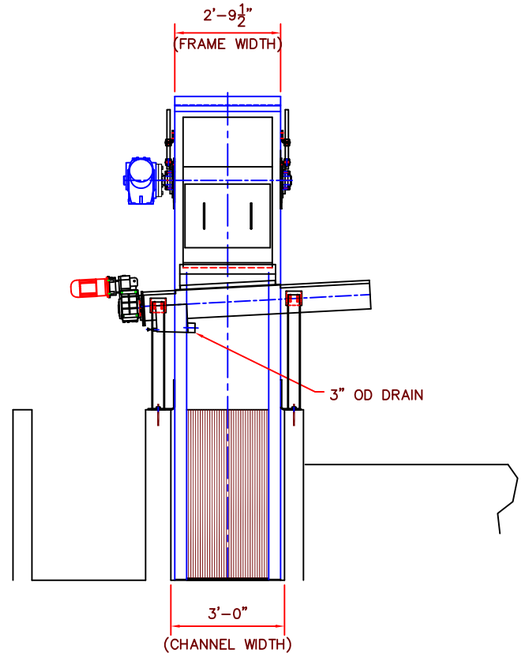
PRELIMINARY



PLAN VIEW



ELEVATION VIEW



DOWNSTREAM VIEW

APPENDIX

Vulcan
THE PROVEN SCREEN CHOICE

Hydraulic Calculations

Vulcan VMR - Multi-Rake Bar Screen Evaluation

Model VMR Multi-Rake Screen

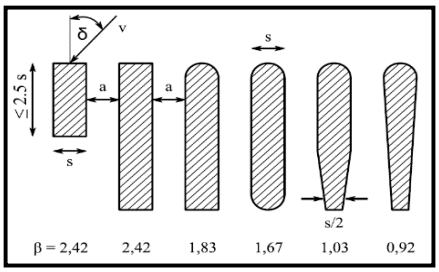
Vulcan THE PROVEN SCREEN CHOICE

Project Location: Peachtree City, GA
Project Engineering Firm: ISE
Vulcan Representative: Principle - Andrew

*Cells highlighted in **BLUE** are to be filled out by the user*

Flow Conditions		
Peak Hour Flow Per Screen	**5**	MGD
Channel Characteristics		
Width	**3**	ft
Depth	**4.5**	ft
Downstream Water Level	**2**	ft
Bar Rack Characteristics		
Screen Frame Type	**Insert Type Frame**	
Desired Bar Spacing	**1/4**	inch
(1/4, 3/8, 1/2, 3/4, & 1" Options)		
Resulting Bar Size (leading edge)	0.3125	inch
Resulting Free Space Between Bars	0.96	ft
Resulting Effective Channel Width	2.17	ft
Clean Screen Condition Evaluation (Bernoulli's Equation)		
Clean Screen Condition	**0%**	blinded
Downstream Channel Velocity	1.29	ft/sec
Velocity Through Bars	4.02	ft/sec
WEF MOP No. 8 suggests 2 to 4 ft/s at clean screen		
Headloss	0.32	ft
Upstream Water Level	2.32	ft
Upstream Channel Velocity	1.11	ft/sec
Channel Freeboard	2.18	ft
Min. Recommended Channel Depth	3.82	ft
Cell highlighted red if minimum recommended is less than Channel Characteristics		
Blinded Condition Evaluation (Bernoulli's Equation)		
Alternative 1: Blinded Percent	**20%**	blinded
Headloss	0.52	ft
Upstream Water Level	2.52	ft
Channel Freeboard	1.98	ft
Min. Recommended Channel Depth	4.02	ft
Cell highlighted red if minimum recommended is less than Channel Characteristics		
Alternative 2: Blinded Percent	**25%**	blinded
Headloss	0.60	ft
Upstream Water Level	2.60	ft
Channel Freeboard	1.90	ft
Min. Recommended Channel Depth	4.10	ft
Cell highlighted red if minimum recommended is less than Channel Characteristics		

**Note that hydraulics calculations made above are based on Bernoulli's Principle and are considered to be conservative. Less conservative approaches include Kirschmer's Method and can be completed upon request



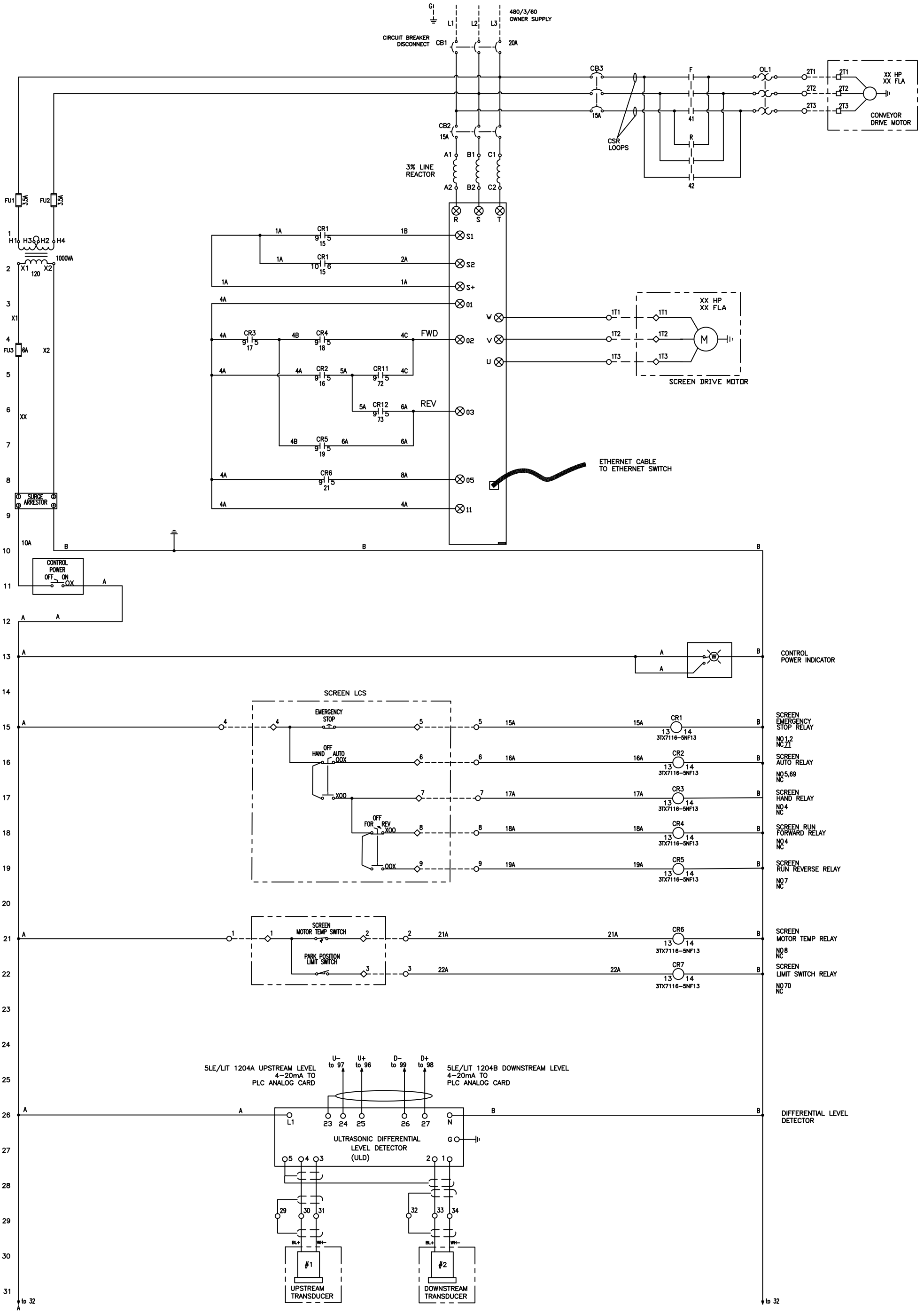
Kirschmer's Constants	
Screen Angle	**75**
Bar Shape Factor	**0.92**

Kirschmer's Comparison	
1.29	ft/sec
3.88	ft/sec
0.06	ft
2.06	ft
1.25	ft/sec
2.44	ft
3.56	ft
Blinded Conditions (Kirschmer)	
20%	blinded
0.08	ft
2.08	ft
2.42	ft
3.58	ft
25%	blinded
0.09	ft
2.09	ft
2.41	ft
3.59	ft

Kirschmer's hydraulic calculations provide more realistic results of what should be expected for bar screen hydraulics, however, there is little conservativism in this approach.

APPENDIX

Vulcan VMR and TF Electrical Details



VULCAN INDUSTRIES IS NOT RESPONSIBLE FOR CONDUIT AND WIRING BETWEEN THE CONTROL PANEL AND THE EQUIPMENT.

CAUTION!

THIS CONTROL PANEL IS DESIGNED TO BE MOUNTED IN A NON–EXPLOSIVE ENVIRONMENT. INSTALL PROPER CONDUIT RUNS AND SEALING FITTINGS BETWEEN EXPLOSIVE AND NON–EXPLOSIVE ENVIRONMENTS PER NATIONAL ELECTRIC CODES.

1. CONTROL PANEL NEMA 4X.
2. LOCAL STATIONS NEMA 7.
3. CONTROL PANEL UL LISTED.
4. PVC COATED ALUMINUM CONDUIT

CONTROL WIRING
FIELD WIRING
CONTROL PANEL TERMINAL
SCREEN LCS
CONVEYOR LCS

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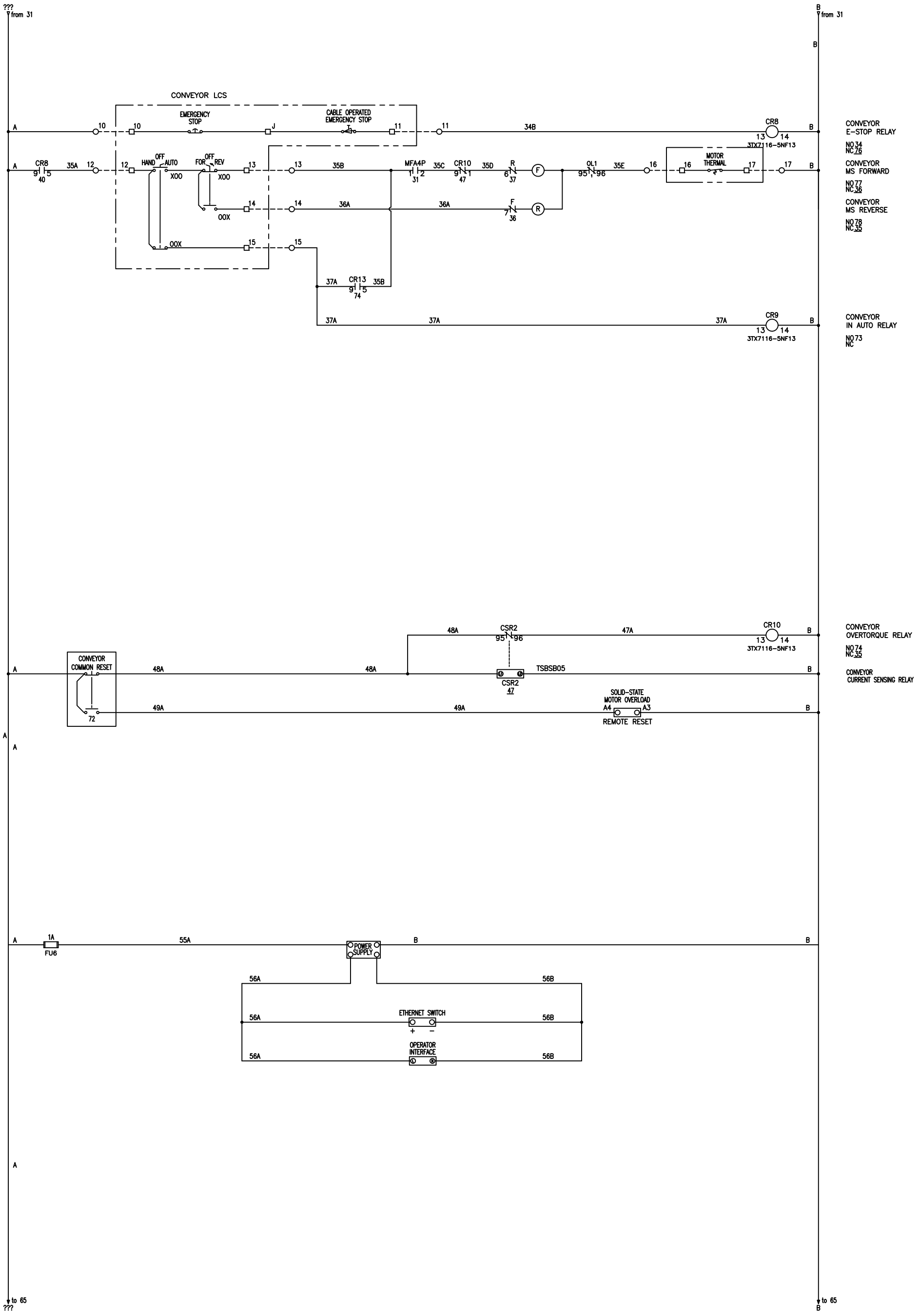
MISSOURI VALLEY, IA. 51555
712-642-2755
www.vulcanindustries.com

SCALE: NONE			DRAWN BY: SES
DATE: 2/14/19	SHEET NUMBER: 1 OF 4		REVIEWED BY: SES
TITLE: ELECTRICAL SCHEMATIC			PROJECT NUMBER: XXXX
PROJECT: VMR & TF REFERENCE ONLY			DRAWING NUMBER: ED-REF ONLY



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1. CONTROL PANEL NEMA 4X.
2. LOCAL STATIONS NEMA 7.
3. CONTROL PANEL UL LISTED.
4. PVC COATED ALUMINUM CONDUIT

CONTROL WIRING
FIELD WIRING
CONTROL PANEL TERMINAL
SCREEN LCS
CONVEYOR LCS

DENOTES EXTERNALLY MOUNTED

DENOTES DOOR MOUNTED

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MISSOURI VALLEY, IA. 51555
712-642-2755
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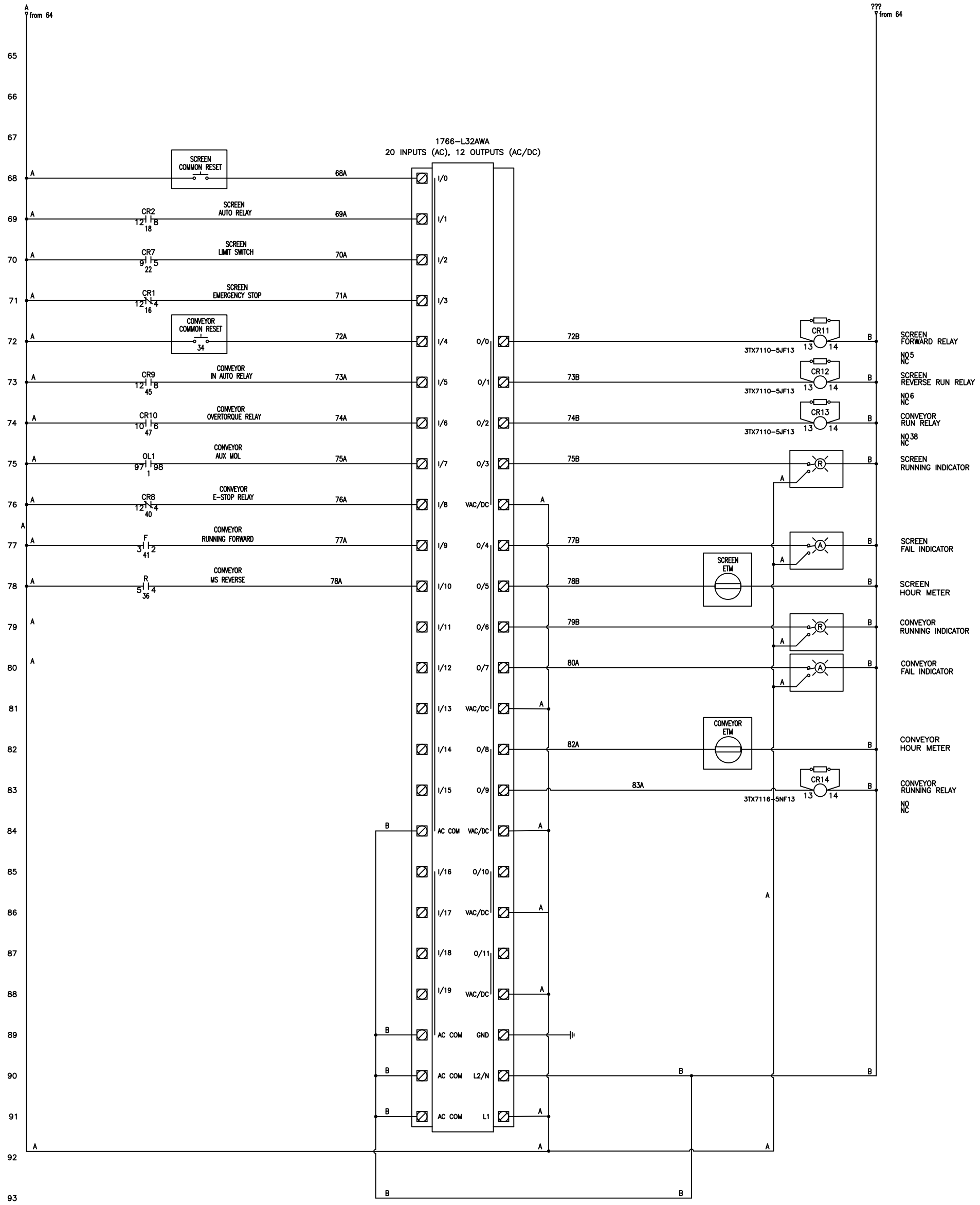
SCALE: NONE			DRAWN BY: SES
DATE: 2/14/19	SHEET NUMBER: 2 OF 4		REVIEWED BY: SES
TITLE: ELECTICAL SCHEMATIC			PROJECT NUMBER: XXXX
PROJECT: VMR & TF REFERENCE ONLY			DRAWING NUMBER: ED-REF ONLY



DENOTES EXTERNALLY MOUNTED

DENOTES DOOR MOUNTED

VULCAN INDUSTRIES IS NOT RESPONSIBLE FOR CONDUIT AND WIRING BETWEEN THE CONTROL PANEL AND THE EQUIPMENT.

CAUTION!

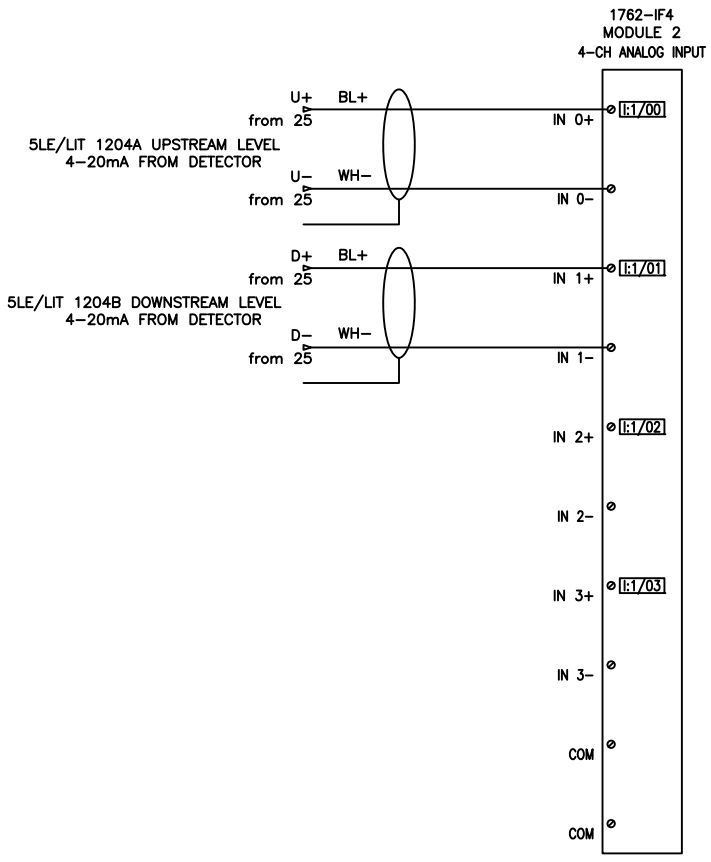
THIS CONTROL PANEL IS DESIGNED TO BE MOUNTED IN A NON-EXPLOSIVE ENVIRONMENT. INSTALL PROPER CONDUIT RUNS AND SEALING FITTINGS BETWEEN EXPLOSIVE AND NON-EXPLOSIVE ENVIRONMENTS PER NATIONAL ELECTRIC CODES.

1. CONTROL PANEL NEMA 4X.
2. LOCAL STATIONS NEMA 7.
3. CONTROL PANEL UL LISTED.
4. PVC COATED ALUMINUM CONDUIT

CONTROL WIRING
FIELD WIRING
CONTROL PANEL TERMINAL
SCREEN LCS
CONVEYOR LCS

Vulcan THE POWER SCREEN CHOICE
212 SOUTH KIRLIN STREET
MISSOURI VALLEY, IA. 51555
712-642-2755
www.vulcanindustries.com

SCALE: NONE			DRAWN BY: SES
DATE: 2/14/19	SHEET NUMBER: 3 OF 4		REVIEWED BY: SES
TITLE: ELECTICAL SCHEMATIC			PROJECT NUMBER: XXXX
PROJECT: VMR & TF REFERENCE ONLY			DRAWING NUMBER: ED-REF ONLY



94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123

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1. CONTROL PANEL NEMA 4X.
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——— CONTROL WIRING
- - - - - - - - - FIELD WIRING
○ CONTROL PANEL TERMINAL
◇ SCREEN LCS
□ CONVEYOR LCS

212 SOUTH KIRLIN STREET
MISSOURI VALLEY, IA. 51555
712-642-2755
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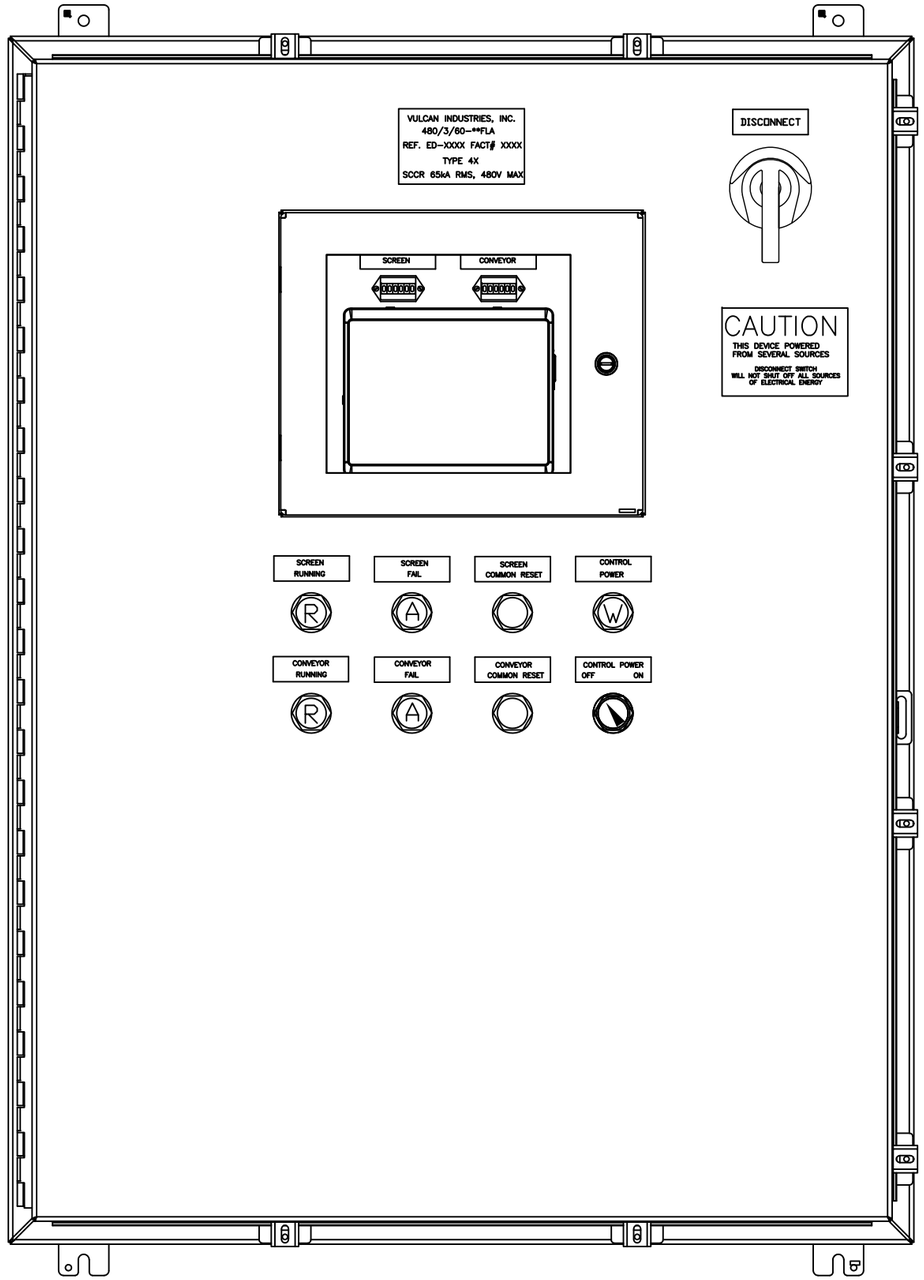
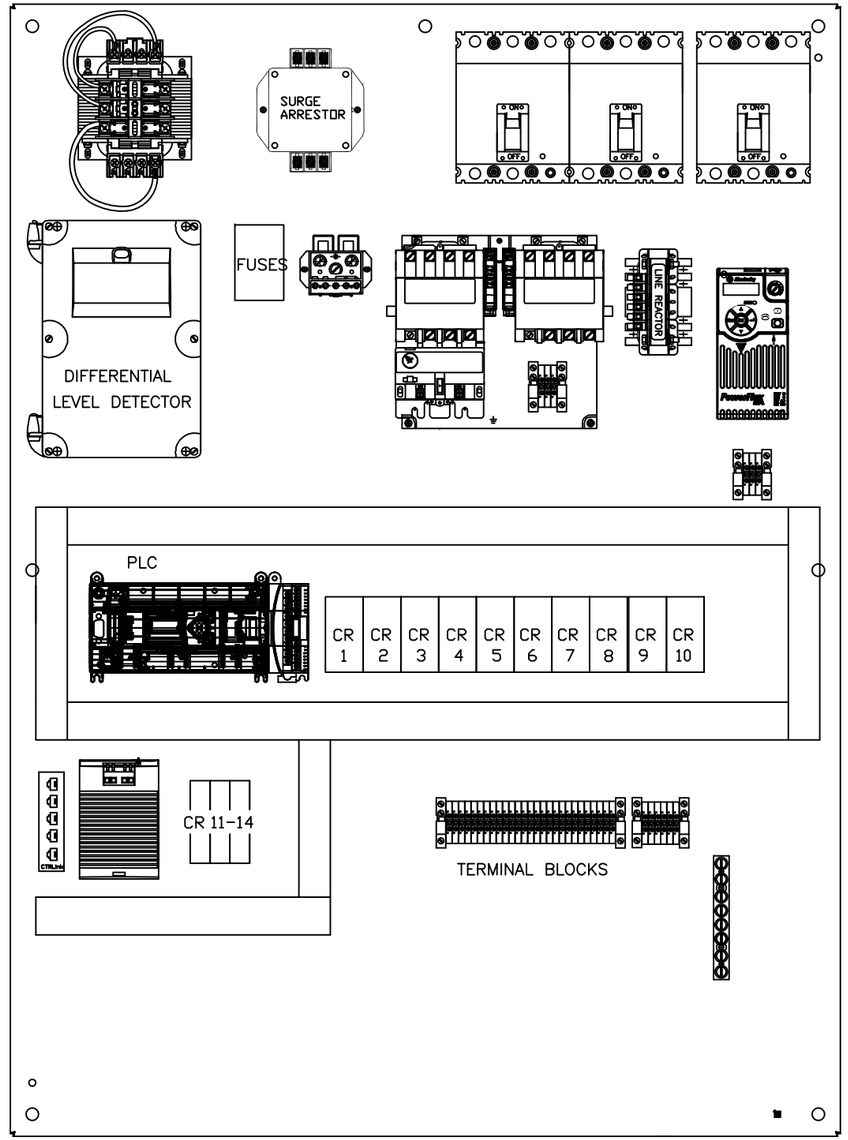
SCALE: NONE			DRAWN BY: SES
DATE: 2/14/19	SHEET NUMBER: 3 OF 4		REVIEWED BY: SES
TITLE: ELECTICAL SCHEMATIC			PROJECT NUMBER: XXXX
PROJECT: VMR & TF REFERENCE ONLY			DRAWING NUMBER: ED-REF ONLY





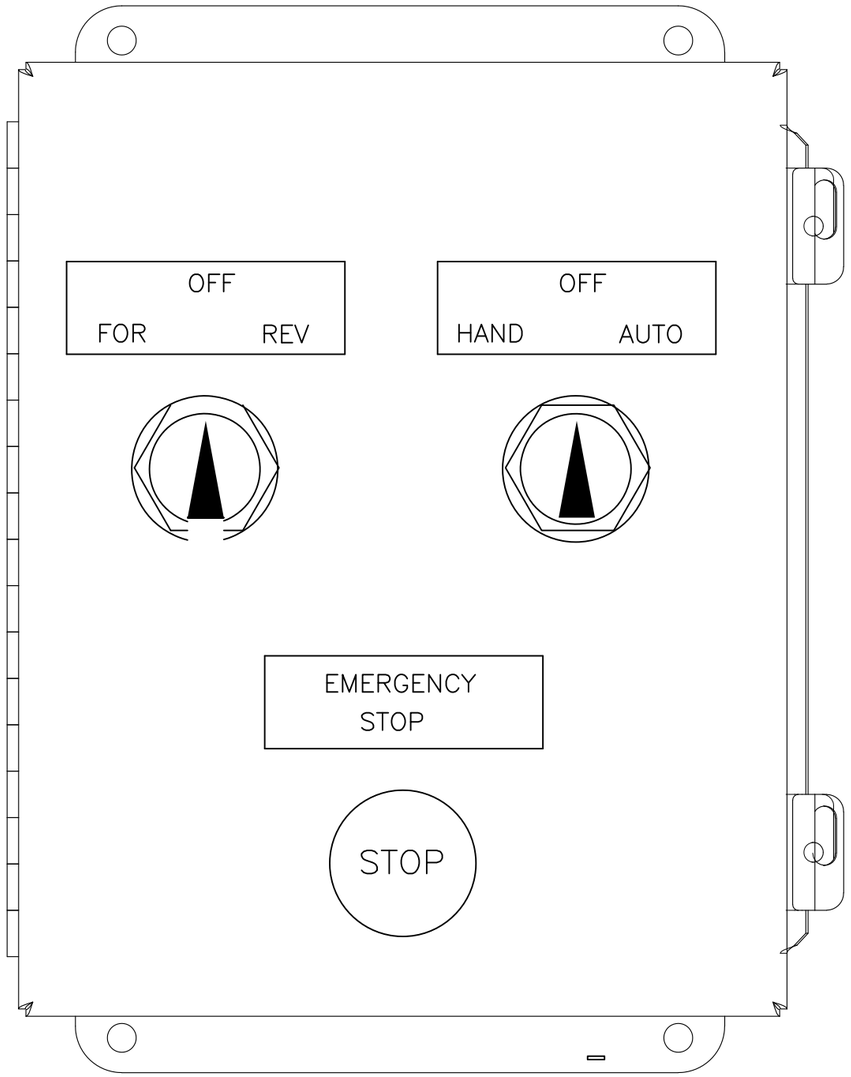
ENCLOSURE HOFFMAN A48H3608SSLP

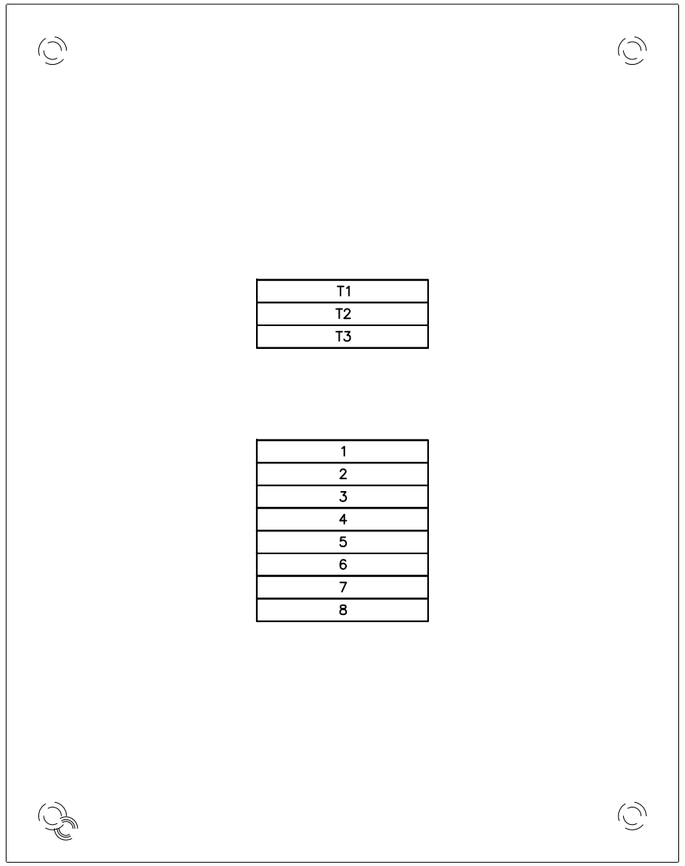
NEMA TYPE 4X 304 SS
PILOT DEVICES NEMA TYPE 4X

NO CONDUIT ENTRANCES
PROVIDED IN THE ENCLOSURE

Vulcan
THE PROVEN SCREEN CHOICE
212 SOUTH KIRLIN STREET
MISSOURI VALLEY, IA. 51555
712-642-2755
www.vulcanindustries.com

SCALE: NONE		DRAWN BY: SES
DATE: 2/14/19	SHEET NUMBER: 1 OF 1	REVIEWED BY: SES
TITLE: PANEL LAYOUT		PROJECT NUMBER: XXXX
PROJECT: VMR & TF REFERENCE ONLY		DRAWING NUMBER: ED-REF ONLY

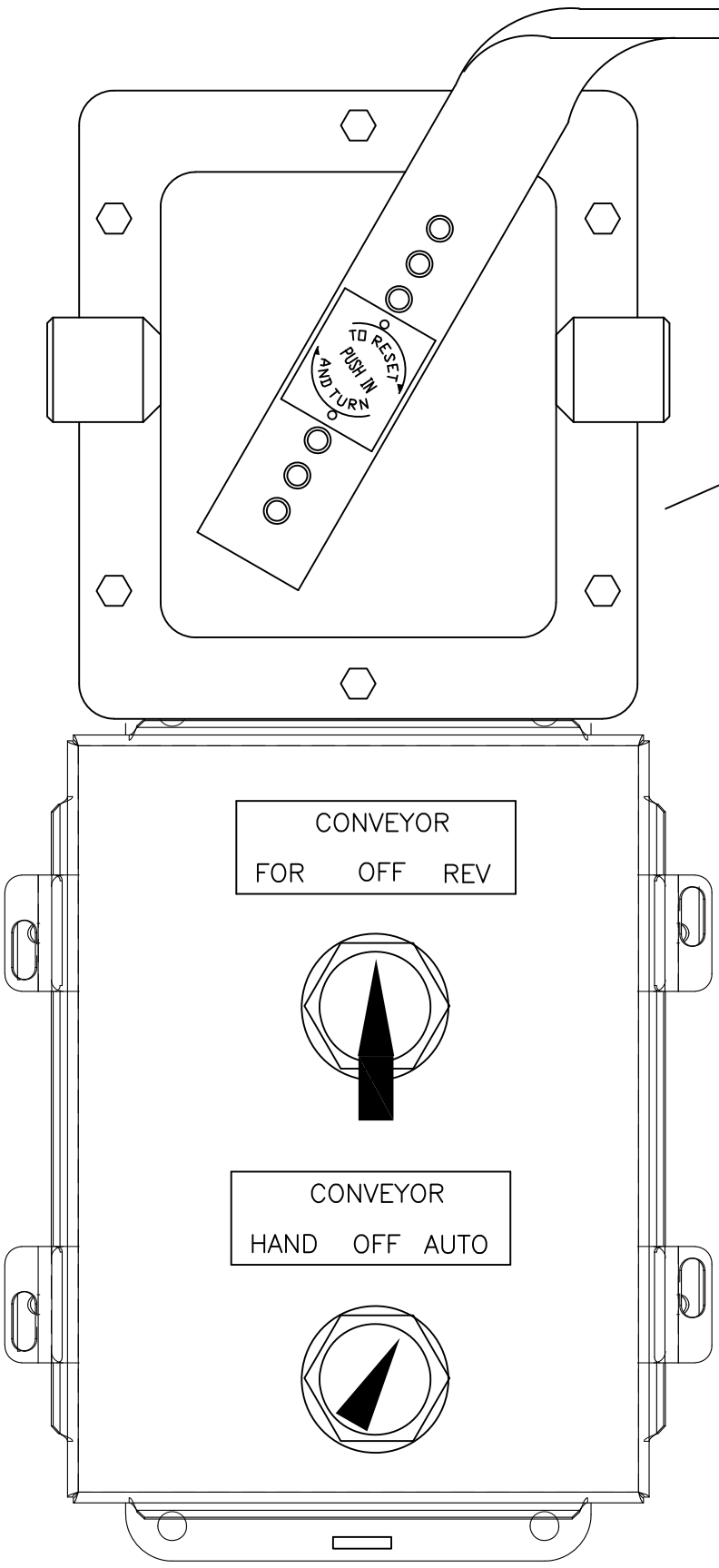




NEMA 4X 304SS ENCLOSURE
MOUNTED TO VMR SCREEN
ALL SCREEN MOUNTED ELECTRICAL
COMPONENTS FACTORY WIRED TO TERMINAL
BLOCKS IN THIS ENCLOSURE

212 SOUTH KIRLIN STREET
MISSOURI VALLEY, IA. 51555
712-642-2755
www.vulcanindustries.com

SCALE: NONE		DRAWN BY: SES
DATE: 6/15/18	SHEET NUMBER: 1 OF 1	REVIEWED BY: SES
TITLE: LOCAL CONTROL/J-BOX		PROJECT NUMBER: REF ONLY
PROJECT: TYPICAL VMR		DRAWING NUMBER: ED-REF-F



CABLE–OPERATED
EMERGENCY STOP SWITCH

ENCLOSURE NEMA 4X 316SS

NO CONDUIT ENTRANCES
PROVIDED IN THE ENCLOSURE

212 SOUTH KIRLIN STREET
MISSOURI VALLEY, IA. 51555
712-642-2755
www.vulcanindustries.com

SCALE: NONE		DRAWN BY: SES
DATE: 11/12/2020	SHEET NUMBER: 1 OF 1	REVIEWED BY: SES
TITLE: TF JUNCTION BOX/LOCAL/E-STOP		PROJECT NUMBER: REF ONLY
PROJECT: FOR REFERENCE CONTROL SCHEMATIC		DRAWING NUMBER: ED-REF

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

June 29, 2023

Correspondence ID#: AAL-46572
Integrated Science and Engineering
Attn: Lauren Worley
1039 Sullivan Rd Suite 200
Newnan, Georgia 30265

Project: PEACHTREE CITY ROCKAWAY WWTP
RE: AASI Project ID# 106271E
AASI Proposal# 171823

Enclosed please find our proposal package for the AquaDisk® Cloth Media Filter equipment, freight and supervision services for the above referenced project.

Aqua-Aerobic Systems, Inc. is offering the proposed equipment based upon Aqua-Aerobic Systems' Design #171823 (copy included), subject to approval by the Owner or the Consulting Engineer. Please take a moment to review our proposal notes and drawings for Aqua-Aerobic Systems' equipment terminations and items not included in Aqua-Aerobic Systems' scope of supply which are to be provided by the Buyer or Buyer's Installation Contractor.

The equipment as outlined in this proposal is identical to the equipment onsite. Routine maintenance of parts will be the same; leading to ease of operation long-term. The spare parts provided are mostly interchangeable between both sets of filters, providing additional flexibility.

We appreciate the opportunity to submit our proposal for this project and look forward to discussing it with you in detail. Please feel free to contact me (phone: 815-639-4525; email: HDeBruler@aqua-aerobic.com), or our sales representative firm (listed below) if you have any questions regarding our proposal.

Sincerely,

Harry DeBruler

Harry DeBruler
Project Application Engineer

6306 N. Alpine Rd. Loves Park, IL 61111-7655 p 815.654.2501 f 815.654.2508 www.aqua-aerobic.com

CC: Templeton & Associates / ph#: 470-345-4012 / fx#: N/A
Jordan Longoria / jordan@templeton-associates.com

Aqua-Aerobic Systems, Inc.
Paul Nelson / PNelson@aqua-aerobic.com

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Peachtree City Water and Sewage Authority

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June 29, 2023

AASI Cover Letter # ***AAL-46572***

6306 N. Alpine Rd. Loves Park, IL 61111-7655 p 815.654.2501 f 815.654.2508 www.aqua-aerobic.com

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Proposal#: 171823

TO: **Integrated Science and Engineering**
1039 Sullivan Rd Suite 200
Newnan
Georgia 30265
USA

ATN: **Lauren Worley**

CC: **Templeton & Associates / ph#: 470-345-4012 / fx#: N/A**
Jordan Longoria

Aqua-Aerobic Systems - Regional Manager / ph#: 815/639-4554 / fx#: 815/654-2508
Paul Nelson

PROJECT: PEACHTREE CITY ROCKAWAY WWTP

BID DATE: June 30, 2023
PROPOSAL DATE: June 29, 2023

The following Notes apply to Aqua-Aerobic Systems' proposal:

- We are pleased to quote, for acceptance within 30 days of the proposal date, prices and terms on equipment listed below.
- Equipment will be furnished by Aqua-Aerobic Systems, Inc. with unloading of goods, civil work, and installation by the Buyer.

Cloth Media Filters

AquaDisk Tanks/Basins

2 AquaDisk Model # ADFC-54x12E-PC Concrete Filter Basin Accessories consisting of:

- Concrete basins (by others).
- Overall footprint will be dependent on influent, effluent, and overflow chamber configurations.
- 304 stainless steel gearmotor mounting bracket(s).
- 304 stainless steel centertube support beam wall brackets.
- 304 stainless steel backwash manifold wall brackets.
- 304 stainless steel anchors.
- Painted steel backwash pump stand.
- 304 stainless steel effluent seal plate weldment(s).

2 Influent Flow Assembly(ies) consisting of:

- 304 stainless steel level weir / flow separation baffle(s).
- Stainless steel anchor(s).

AquaDisk Centertube Assemblies

2 Centertube Assembly(ies) consisting of:

- 304 stainless steel centertube weldment(s).
- U.H.M.W. polyethylene multi-segment driven sprocket(s).
- Lower quad wheel carrier assembly(ies).
- Single wheel rider assembly(ies).
- Centertube end support bearing kit(s).
- Viton V-ring effluent port\centertube seal(s).
- Disk segment 304 stainless steel support rods.
- Media sealing gaskets.
- Pile cloth media and non-corrosive support frame assemblies.

2 Cloth set(s) will have the following feature:

- Cloth will be chlorine resistant.

AquaDisk Drive Assemblies

2 Drive System Assembly(ies) consisting of:

- AGMA class I gearbox(es) with three phase 3/4 HP drive motor(s).
- Stationary drive bracket weldment(s).
- Acetal drive chain(s) with 304 stainless steel link pins.
- Warning label(s).
- Chain guard weldment(s).
- Nylon drive sprocket(s).

AquaDisk Backwash/Sludge Assemblies

2 Backwash Pump Installation(s) consisting of:

- Gorman Rupp model 12B20-B, 3HP, premium efficient, 3 phase externally mounted centrifugal backwash/waste pump(s).
- Bronze throttling gate valve(s).
- 3" threaded brass ball valve(s).

2 Backwash Support Assembly(ies) consisting of:

- 304 stainless steel backwash support weldment(s).

2 External Piping Accessory Kit(s) consisting of:

- 0 to 30 inches mercury vacuum gauge(s).
- 0 to 15 psi pressure gauge(s).
- Vacuum transmitter(s).

2 Backwash System Assembly(ies) consisting of:

- 304 stainless steel backwash nozzles.
- PVC sludge collection manifold(s).
- Nylon combination nipple(s).
- Stainless steel backwash nozzle springs.
- 1 1/2" flexible hose.
- 2" flexible hose.
- Stainless steel hose clamps.
- 304 stainless steel backwash collection manifold(s).

AquaDisk Instrumentation

2 Pressure Transducer Assembly(ies) consisting of:

- Pressure transducer(s).
- 304 stainless steel probe mounting bracket(s).
- Float switch(es).

AquaDisk Valves

2 Set(s) of Backwash Valve(s) consisting of:

- 2" full port, two piece, ASTM A351 Grade CF8M stainless steel body ball valve(s), flanged end connections with single phase electric actuator(s). Valve / actuator combination shall be TCI / RCI (RCI, a division of Rotork).

2 Sludge Valve(s) consisting of:

- 2" full port, two piece, ASTM A351 Grade CF8M stainless steel body ball valve(s), flanged end connections with single phase electric actuator(s). Valve / actuator combination shall be TCI / RCI (RCI, a division of Rotork).

AquaDisk Misc/Spare Parts

1 Lot of Recommended Spare Parts consisting of:

- Pile cloth media and non-corrosive support frame assemblies.
- Viton V-ring effluent port\centertube seal(s).
- 2" full port, two piece, ASTM A351 Grade CF8M stainless steel body ball valve(s), flanged end connections with single phase electric actuator(s). Valve / actuator combination shall be TCI / RCI (RCI, a division of Rotork).

- Analog input module(s).
- At least 1 of each fuse(s), control relay(s), and indicating light replacement bulb(s).

AquaDisk Controls w/Starters

2 Control Panel(s) consisting of:

- 316 stainless steel NEMA 4X enclosure(s).
- HMI Suncover
- Circuit breaker with handle.
- 2 KVA Transformer(s).
- Fuses and fuse blocks.
- Single phase circuit breaker(s).
- Line filter(s).
- GFI convenience outlet(s).
- Control relay(s).
- Selector switch(es).
- Indicating pilot light(s).
- MicroLogix 1400 PLC(s).
- Ethernet switch(es).
- Power supply(ies).
- PanelView Plus 7 7" color touch screen display(s).
- Motor starter(s).
- Terminal blocks.
- UL label(s).

AquaDisk Engineering

1 Set(s) Documentation for the AquaDisk will be provided as described:

- Engineer's Approval Data (English language) in electronic format.

1 Set(s) Documentation for the AquaDisk will be provided as described:

- Operation & Maintenance Manuals (English language) in electronic format.

AquaDisk Supervision/Freight Domestic

1 Supervision Services and Freight Package(s) for the AquaDisk will be provided as follows:

- 4 Day(s) On Site for INSTALLATION SUPERVISION
- 1 Trip(s) for INSTALLATION SUPERVISION
- 4 Day(s) On Site for MECHANICAL SUPERVISION
- 1 Trip(s) for MECHANICAL SUPERVISION
- FREIGHT TO JOBSITE

The Following General Notes apply to Aqua-Aerobic Systems' Proposal:

- SCHEDULE: We expect submittals to be completed and in transit to you within 8-10* weeks after receipt of order with acceptable terms and conditions and guarantee of payment. We expect receipt of approved engineer's submittal with release for manufacture within 4-8 weeks of our transmittal of submittal data. We expect shipment of equipment (transit time excluded) to be approximately 16-22* weeks from our receipt of approved engineer's submittal data and release for manufacture. Schedules may be adjusted at time of order placement, depending upon existing order backlog. *Weeks quoted are actual working weeks.
- We expect shipment of control panels (transit time excluded) to be approximately 30-36 weeks* from our receipt of approved engineer's submittal data and release for manufacture. The extended delivery on control panels is based on unprecedented supply chain delays associated with the COVID-19 pandemic. Schedules will be updated as new information becomes available.
- Schedule changes due to supply chain disruption may impact the above quoted times. Aqua-Aerobic Systems will advise if/when any such disruption applies.
- Aqua-Aerobic Systems will be closed for the Christmas Holidays beginning approximately December 24, through approximately January 2nd.
- PRICE ESCALATION INDEX: Aqua-Aerobic Systems, Inc. reserves the right to re-evaluate the pricing quoted prior to order acceptance if; 1) a purchase order is received after the validity date stated in this proposal or, 2) the lead times stated in this proposal are exceeded. Any pricing adjustments required shall be based on a published

materials cost index specific to the materials proposed.
- TARIFF PRICE ESCALATION NOTE: The proposed goods may be affected by the recent U.S. Government proposed tariffs on imported steel and aluminum. Because of this, Aqua-Aerobic reserves the right to re-evaluate the pricing quoted prior to order acceptance if; 1) a purchase order is received past the validity date stated in the proposal or, 2) the total of the quoted lead times stated in this proposal are exceeded. Any pricing adjustments required due to tariff impacts will be based on published material cost indices specific to the affected materials.
- CONTROLS NON-DISCLOSURE / CONFIDENTIALITY AGREEMENT: If applicable, Aqua-Aerobic Systems will provide information relating to software documentation to control the treatment system supplied using Aqua-Aerobic Systems' proprietary and/or trade secret information subject to execution of an Aqua-Aerobic "Controls Non-Disclosure / Confidentiality Agreement".
- INTEGRAL DOCUMENTS: The following documents are an integral part of Aqua-Aerobic Systems' proposal:
1. All documents listed on Aqua-Aerobics' proposal/bid package "Table of Contents" document dated 06/29/23.
- Additional supervision services can be provided for an additional charge of $1750/day plus travel and living expenses.
- Travel by U.S. personnel is subject to U.S. Department of State travel restrictions and/or travel warnings. At the discretion of Aqua-Aerobic, field service for areas deemed to be high risk may be provided by Aqua-Aerobic Systems' local representative, subcontractor(s), or via web based training of the General Contractor.

The Following Mechanical and/or Electrical Notes apply to Aqua-Aerobic Systems' Proposal:

- Valve and line sizes are to be verified by the engineer based on actual line losses.
- Pumps and valves ship loose, unless otherwise specified.
- Filter flow hydraulics and plant's capability to handle the intermittent backwash flow is to be confirmed by the purchaser/purchaser's consulting engineer.
- Three phase motors will be 460 volt.
- Single phase motors will be 120 volt.

The Following Scope Exclusion Notes apply to Aqua-Aerobic Systems' Proposal:

- Materials and Services not specifically described/itemized in this proposal are not included in the quoted total price, and are to be supplied by the installing contractor/purchaser.
- Freeze protection may be required for outdoor installation in cold weather climates. All such protection, including but not limited to, heat tracing and insulation of pumps and piping, as well as protection against internal tank freezing, shall be provided and installed by the installing contractor.

SCOPE BY PURCHASER/CONTRACTOR:
*Note this is not intended as a complete listing and is provided as a courtesy.
- Unloading and storage.
- Provisions for equipment access.
- Concrete, handrail and all civil works.
- All piping, spool pieces, supports, gaskets and hardware beyond Aqua-Aerobic's equipment terminations.
- Interconnecting piping, wiring and installation.
- All flanges and/or unions in the piping to service the equipment.
- Unless specifically stated above, weir(s) for each filter.
- Electrical conduit, hardware, supports, attachment of cables, wiring, j-boxes and local disconnects (if any) between motors, electrical valves, instruments and the control panel.
- Installation/field wiring of the control panel(s) that ship loose.
- Electrical wiring and supply power.

The Following Commercial Notes apply to Aqua-Aerobic Systems' Proposal:

- PROCESS GUARANTEE: A company backed process performance guarantee in accordance with the terms stated on Aqua-Aerobic Systems' process guarantee will be provided.
- F.O.B. JOBSITE; TITLE AND RISK OF LOSS: All prices and all shipments of goods are F.O.B. Jobsite City Location. It is the responsibility of the Buyer to unload shipments and utilizing the packing list and bill of lading provided with the shipment notate shortages/damages upon receipt of the shipments and notify Aqua-Aerobic in writing within 7 days of the shortages/damages to facilitate filing of a freight claim. Delivery of the goods sold hereunder by the carrier shall be deemed delivery to Buyer, and upon such delivery, title to such goods and risk of loss or damage shall be upon Buyer.
- TAXES: State taxes are included in the price. At time of shipment/invoicing if Aqua-Aerobic is required by the taxing authority to collect or to pay a differing tax rate, the Buyer will be billed for the amount Aqua-Aerobic is required to pay.

- PAYMENT TERMS: Subject to credit approval and guarantee of payment, we request the following progress payments due Net 45 days from invoice issued for the designated event:

25% of total purchase price at order execution.
25% of total purchase price at our receipt of approved engineer's submittal data.
40% of total purchase price at shipment of goods.
10 % of total purchase price at Owner Acceptance following Start-up.

If the project is bonded, please let us know and we can include other payment options.
-SCOPE OF SUPPLY NOTE: Aqua-Aerobic Systems' scope of supply and pricing is as described in this proposal including the listed Integral Documents, terms and conditions of sale, and is based upon AASI Design #171823. Please refer to the proposal notes for equipment terminations and items not included in the proposal which are to be provided by the Buyer. Engineer's submittal data will be prepared using these proposed goods and services, and the submittal approved by the Consulting Engineer will become an integral part of the scope of supply under the contract resulting from this offer. Any additions or deletions to the scope of supply will be presented as change orders.
- TRADEMARKS: Aqua-Jet® Surface Mechanical Aerator, Aqua-Jet II® Contained Flow Aerator, AquaDDM® Direct-drive Mixer, TurboStar® Directional Mixer, ThermoFlo® Surface Spray Cooler, Endura® Series Limited Maintenance Product, OxyMix® Pure Oxygen Mixer, OxyStar® Aspirating Aerator, Fold-a-Float® Directional Mixer, SAF-T Float® Safe Accessible Float Technology, Aqua MixAir® Aeration System, AquaCAM-D® Combination Aerator/Mixer/Decanter, AquaSBR® Sequencing Batch Reactor, Aqua MSBR® Modified Sequencing Batch Reactor, AquaPASS® Phased Activated Sludge System, Aqua BioMax® Dual Treatment System, AquaEnsure® Ballast Decanter, Aqua EnduraTube® Fine-bubble Tube Diffuser, Aqua EnduraDisc® Fine-bubble Disk Diffuser, Aqua CB-24® Coarse-bubble Diffuser, AquaDisk® Cloth Media Filter, AquaDiamond® Cloth Media Filter, AquaDrum® Cloth Media Filter, Aqua MiniDisk® Cloth Media Filter, Aqua MegaDisk® Cloth MEdia Filter, AquaPrime® Cloth Media Filter, AquaStorm® Cloth Media Filter, OptiComb® Backwash System, OptiFiber®CLoth Filtration Media, OptiFiber PES-13® Cloth Filtration Media, OptiFiber PA2-13® Cloth Filtration Media, OptiFiber PES-14® Cloth Filtration Media, OptiFiber PF-14® Cloth Filtration Media, OptiFiber UFS-9® Cloth Filtration Media, Trust the Tag® OptiFiber® Service Mark, AquaABF® Automatic Backwash Filter, Aqua-Aerobic® MBR Membrane Bioreactor System, Aqua MultiBore® Membranes, Aqua Multibore® C-Series Ceramic Membranes, Aqua Multibore® P-Series Polymeric Membranes, Aqua ElectrOzone® Ozone Generation System, Aqua ElectrOzone® M-Series Modular Ozone Generation System, IntelliPro® Monitoring and Control System, AquaPRS™ PFAS Removal System, AquaPR-206™ PFAS Removal System, Aqua-Aerobic®, and the Aqua-Aerobic Corporate logo artwork are registered trademarks or pending trademarks of Aqua-Aerobic Systems, Inc. Nereda®, AquaNereda® Aerobic Granular Sludge Technology, and the AquaNereda Product logo artwork are a registered trademark of Royal HaskoningDHV. All other products and services mentioned are trademarks of their respective owners.

GOODS QUOTED ABOVE WILL BE SOLD SUBJECT ONLY TO THE TERMS AND CONDITIONS OF SALE SET FORTH HEREIN. ANY DIFFERENT OR ADDITIONAL TERMS ARE HEREBY OBJECTED TO.

Total Price: **$567,500**

TERMS AND CONDITIONS OF AQUA-AEROBIC SYSTEMS, INC. (A Metawater Company)

This offer and all of the goods and sales of Aqua-Aerobic Systems, Inc. are subject only to the following terms and conditions. The acceptance of any order resulting from this proposal is based on the express condition that the Buyer agrees to all the terms and conditions herein contained. Any terms and conditions in any order, which are in addition to or inconsistent with the following, shall not be binding upon Aqua-Aerobic Systems, Inc. This proposal and any contract resulting therefrom, shall be governed by and construed in accordance with the laws of the State of Illinois, without regard to conflicts of laws principles.

PAYMENT

Unless specifically stated otherwise, quoted terms are Net 30 Days from shipping date. Past-due charges are 1.5% per month and will apply only on any past-due balance. Aqua-Aerobic Systems, Inc. does not allow retainage of any invoice amount, unless authorized in writing by an authorized representative of our Loves Park, Illinois office.

DURATION OF QUOTATION

This proposal of Aqua-Aerobic Systems, Inc. shall in no event be effective more than 30 days from date thereof, unless specifically stated otherwise, and is subject to change at any time prior to acceptance.

SHIPMENT

Shipping dates are not a guarantee of a particular day of shipment and are approximate, being based upon present production information, and are subject to change per the production schedules existing at time of receipt of purchase order. Aqua-Aerobic Systems, Inc. shall not be responsible for any delay in shipment for causes beyond its control including, but not limited to, war, riots, strikes, labor trouble causing interruption of work, fires, other casualties, transportation delays, modification of order, any act of governmental authorities or acts of God. Quoted shipment dates in this proposal are approximate dates goods will be shipped and, unless agreed to in writing by Aqua-Aerobic Systems, Inc., Buyer may not postpone or delay the dates of shipment of goods from our plant or from our supplier's plants beyond the dates set forth in this proposal.

TITLE AND RISK OF LOSS

All prices and all shipments of goods are F.O.B. Aqua-Aerobic Systems, Inc.'s plant at Loves Park, Illinois unless specifically stated otherwise. Delivery of the goods sold hereunder to the carrier shall be deemed delivery to the Buyer, and upon such delivery, title to such goods and risk of loss or damage shall be upon Buyer.

TAXES

Prices quoted do not include any taxes, customs duties, or import fees. Buyer shall pay any and all use, sales, privilege or other tax or customs duties or import fees levied by any governmental authority with respect to the sale or transportation of any goods covered hereby. If Aqua-Aerobic Systems, Inc. is required by any taxing authority to collect or to pay any such tax, duty or fee, the Buyer shall be separately billed at such time for the amounts Aqua-Aerobic Systems, Inc. is required to pay.

INSURANCE

Unless the goods are sold on a CIF basis, the Buyer shall provide marine insurance for all risks, including war and general coverage.

SECURITY

If at any time the financial responsibility of the Buyer becomes unsatisfactory to Aqua-Aerobic Systems, Inc., or Aqua-Aerobic Systems, Inc. otherwise deems itself insecure as to receipt of full payment of the purchase price from Buyer hereunder, Aqua-Aerobic Systems, Inc. reserves the right to require payment in advance or security or guarantee satisfactory to Aqua-Aerobic Systems, Inc. of payment in full of the purchase price.

LIMITATION OF ACTION

No action shall be brought against Aqua-Aerobic Systems, Inc. for any breach of its contract of sale more than two years after the accrual of the cause of action thereof, and, in no event, unless the Buyer shall first have given written notice to Aqua-Aerobic Systems, Inc., of any claim of breach of contract within 30 days after the discovery thereof.

CANCELLATION CLAUSE

No acceptance of this proposal, by purchase order or otherwise, may be modified except by written consent of Aqua-Aerobic Systems, Inc. nor may it be cancelled except by prior payment to Aqua-Aerobic Systems, Inc. the following sums as liquidated damages therefore: 1) If cancellation is prior to commencement of production and prior to the assumption of any obligations by Aqua-Aerobic Systems, Inc. for any materials or component parts, a sum equal to 15% of the total purchase price; 2) If cancellation is after the commencement of production or after the assumption of any obligations by Aqua-Aerobic Systems, Inc. for any materials or component parts, a sum equal to the total of the direct, out-of-pocket expenses incurred to the date of cancellation for labor, machine time, materials and any charges made to us by suppliers for cancellation, plus 30% of the total purchase price. All charges and expenses shall be as determined by Aqua-Aerobic Systems, Inc. In the event any items are used by Aqua-Aerobic Systems, Inc. to fill a subsequent order, then upon receipt of payment for such order, Aqua-Aerobic Systems, Inc. shall pay the Buyer a sum equal to the direct out-of-pocket expenses previously charged and received from Buyer.

PROPRIETARY INFORMATION

This proposal, including all descriptive data, drawings, material, information and know-how disclosed by Aqua-Aerobic Systems, Inc. to Buyer in relation hereto is confidential information intended solely for the confidential use of Buyer, shall remain the property of Aqua-Aerobic Systems, Inc. and shall not be disclosed or otherwise used to the disadvantage or detriment of Aqua-Aerobic Systems, Inc. in any manner.

TERMS AND CONDITIONS OF AQUA-AEROBIC SYSTEMS, INC. (A Metawater Company)

QUALIFIED ACCEPTANCE AND INDEMNITY

In the event the acceptance of this proposal by Buyer either is contingent upon or subject to the approval by any third party such as, but not limited to, a consulting engineer, with respect to goods, parts, materials, descriptive data, drawings, calculations, or any other matter, then upon such approval by any third party, Aqua-Aerobic Systems, Inc. shall have no liability to Buyer or to any third party so long as the goods sold and delivered by Aqua-Aerobic Systems, Inc. conform to this proposal. In the event any such third party requires modifications in the proposal prior to the approval thereof, Aqua-Aerobic Systems, Inc. may at its sole option and without liability to any party elect to cancel this proposal or return the purchase order to Buyer. In the event Aqua-Aerobic Systems, Inc. elects to modify this proposal to conform to the requirements for approval by any third party, Aqua-Aerobic Systems, Inc. in such event shall have no liability to Buyer or to any third party so long as the goods sold and delivered by Aqua-Aerobic Systems, Inc. conform to this proposal as modified.

Buyer agrees to indemnify and save harmless Aqua-Aerobic Systems, Inc. from and against all costs and expenses and liability of any kind whatsoever arising out of or in connection with claims by third parties so long as the goods sold hereunder conform to the requirements of this proposal as approved by any third party.

WARRANTY; LIMITATION OF LIABILITY; AND DISCLAIMER

In return for purchase and full payment for Aqua-Aerobic Systems, Inc. goods, we warrant new goods provided by us to be free from defects in materials and workmanship under normal conditions and use for a period of one year from the date the goods are put into service, or eighteen months from date of shipment (whichever first occurs). If the goods include an "Endura Series" motor, the complete Endura Series unit shall be warranted by Aqua-Aerobic to be free from defects in materials and workmanship under normal conditions and use for three years from the date the product is put into service or 42 months from the date of shipment (whichever occurs first).

OUR OBLIGATION UNDER THIS WARRANTY IS EXPRESSLY AND EXCLUSIVELY LIMITED to replacing or repairing (at our factory at Loves Park, Illinois) any part or parts returned to our factory with transportation charges prepaid, and which our examination shall show to have been defective. Prior to return of any goods or its parts to our factory, Buyer shall notify Aqua-Aerobic Systems, Inc. of claimed defect, and Aqua-Aerobic Systems, Inc. shall have the privilege of examining the goods at Buyer's place of business at or where the goods have otherwise been placed in service. In the event this examination discloses no defect, Buyer shall have no authority to return the goods or parts to our factory for the further examination or repair. All goods or parts shall be returned to Buyer, F.O.B. Loves Park, Illinois. This warranty shall not apply to any goods or part which has been repaired or altered outside our factory, or applied, operated or installed contrary to our instruction, or subjected to misuse, chemical attack/degradation, negligence or accident. This warranty and any warranty and guaranty of process or performance shall no longer be applicable or valid if any product, including any software program, supplied by Aqua-Aerobic Systems, Inc., is modified or altered without the written approval of Aqua-Aerobic Systems, Inc. Our warranty on accessories and component parts not manufactured by us is expressly limited to that of the manufacturer thereof.

THE FOREGOING WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AND OF ALL OTHER LIABILITIES AND OBLIGATIONS ON OUR PART, INCLUDING ANY LIABILITY FOR NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE; AND ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS EXPRESSLY DISCLAIMED; AND WE EXPRESSLY DENY THE RIGHT OF ANY OTHER PERSON TO INCUR OR ASSUME FOR US ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ANY GOODS PROVIDED BY US. THERE ARE NO WARRANTIES OR GUARANTEES OF PERFORMANCE UNLESS SPECIFICALLY STATED OTHERWISE.

UNDER NO CIRCUMSTANCES, INCLUDING ANY CLAIM OF NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, SHALL AQUA-AEROBIC SYSTEMS, INC. BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, COSTS OF CONNECTING, DISCONNECTING, OR ANY LOSS OR DAMAGE RESULTING FROM A DEFECT IN THE GOODS. LIMIT OF LIABILITY: AQUA-AEROBIC SYSTEMS, INC.'S TOTAL LIABILITY UNDER THE ABOVE WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF ANY DEFECTIVE PART. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE, AND OUR LIABILITY WITH RESPECT TO ANY CONTRACT OR SALE, OR ANYTHING DONE IN CONNECTION THEREWITH, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, OR OTHERWISE, SHALL NOT, IN ANY CASE, EXCEED THE PRICE OF THE GOODS UPON WHICH SUCH LIABILITY IS BASED.

Final acceptance of this proposal must be given to Aqua-Aerobic Systems, Inc. at their office in Loves Park, Illinois. Please acknowledge acceptance by signing the proposal and returning it to Aqua-Aerobic Systems, Inc.

Accepted by:

Company: _____

By: _____ **Date:** _____

Offer Respectfully Submitted,

Harry DeBruler

Harry DeBruler, Project Application Engineer
Aqua-Aerobic Systems, Inc.

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Lump Sum Price

Please see Aqua-Aerobic Systems' Proposal #171823, page 5 for pricing.

6306 N. Alpine Rd. Loves Park, IL 61111-7655 **p** 815.654.2501 **f** 815.654.2508 **www.aqua-aerobic.com**

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Scope of Supply

Please see Aqua-Aerobic Systems' Proposal #171823, pages 1-5 for scope of supply and corresponding informational notes.

6306 N. Alpine Rd. Loves Park, IL 61111-7655 **p** 815.654.2501 **f** 815.654.2508 **www.aqua-aerobic.com**

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Estimated Lead Times

Please see Aqua-Aerobic Systems' Proposal #171823, page 3 for the lead times we expect for this project.

6306 N. Alpine Rd. Loves Park, IL 61111-7655 **p** 815.654.2501 **f** 815.654.2508 **www.aqua-aerobic.com**

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Recommended Spare Parts

Please see Aqua-Aerobic Systems' Proposal #171823, pages 2-3 for the list of recommended spare parts.

6306 N. Alpine Rd. Loves Park, IL 61111-7655 **p** 815.654.2501 **f** 815.654.2508 **www.aqua-aerobic.com**

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

Process Design Report

PEACHTREE CITY ROCKAWAY WWTP

Design# 171823
Option: Bid Design

AquaDisk®

Cloth Media Filter

June 29, 2023
Designed By: Harry DeBruler

6306 N. Alpine Rd Loves Park, IL 61111
(815) 654-2501 www.aqua-aerobic.com

Process/Site

- The average and maximum design flow and loading conditions, shown within the report, are based on maximum month average an maximum day conditions, respectively.

Filtration

- The cloth media filter recommendation and anticipated effluent quality are based upon influent water quality conditions as shown unde "Design Parameters" of this Process Design Report.

- The filter influent should be free of algae and other solids that are not filterable through a nominal 10 micron pore size media. Provision to treat algae and condition the solids to be filterable are the responsibility of others.

- The cloth media filter will only remove BOD5 that is associated with the TSS removed by the filter

Equipment

- Scope of supply includes freight, installation supervision and start-up services

- Equipment selection is based upon the use of Aqua-Aerobic Systems' standard materials of construction and electrical components suitable for non-classified electrical environments.

- Aqua-Aerobic Systems, Inc. is familiar with various “Buy American” Acts (i.e. AIS, ARRA, Federal FAR 52.225, EXIM Bank, USAid, P Steel Products Act, etc.). As the project develops Aqua-Aerobic Systems can work with you to ensure full compliance of our goods with various Buy American provisions if they are applicable/required for the project. When applicable, please provide us with the specifics of the project’s “Buy American” provisions.

- If the cloth media filter will be offline for extended periods of time, protection from sunlight is required

AquaDisk® Tertiary Filtration - Design Summary

Design#: 171823

Project: PEACHTREE CITY ROCKAWAY WWTP

Option: Bid Design

Designed by Harry DeBruler on Thursday, June 29, 2023

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

DESIGN INFLUENT CONDITIONS

Pre-Filter Treatment: SBR

Avg. Design Flow	= 4.00 MGD	= 2777.78 gpm	= 15141.65 m³/day
Max Design Flow	= 10.00 MGD	= 6944.44 gpm	= 37854.12 m³/day

DESIGN PARAMETERS	Influent	mg/l	Effluent Required	<= mg/l	Effluent Anticipated	<= mg/l
Avg. Total Suspended Solids:	TSSa	15	TSSa	20	TSSa	5
Max. Total Suspended Solids:	TSSm	30	--	--	--	--
Bio/Chem Oxygen Demand:	BOD5	10	BOD5	5	BOD5	5
Copper (Cu)	Cu	--	Cu	0.013	Cu	0.013*

AquaDisk FILTER RECOMMENDATION

Qty Of Filter Units Recommended	= 4 (2 New, 2 Existing)
Number Of Disks Per Unit	= 24
Total Number Of Disks Recommended	= 48
Total Filter Area Provided	= 2582.4 ft² = (239.92 m²)
Filter Model Recommended	= AquaDisk Concrete Model 54E: 12 Disk Unit
Filter Media Cloth Type	= OptiFiber PES-13®

AquaDisk FILTER CALCULATIONS

Filter Type:

Vertically Mounted Cloth Media Disks featuring automatically operated vacuum backwash.

Average Flow Conditions:

Average Hydraulic Loading = Avg. Design Flow (gpm) / Recommended Filter Area (ft²)
= 2777.8 / 2582.4 ft²
= 1.08 gpm/ft² (2.63 m/hr) at Avg. Flow

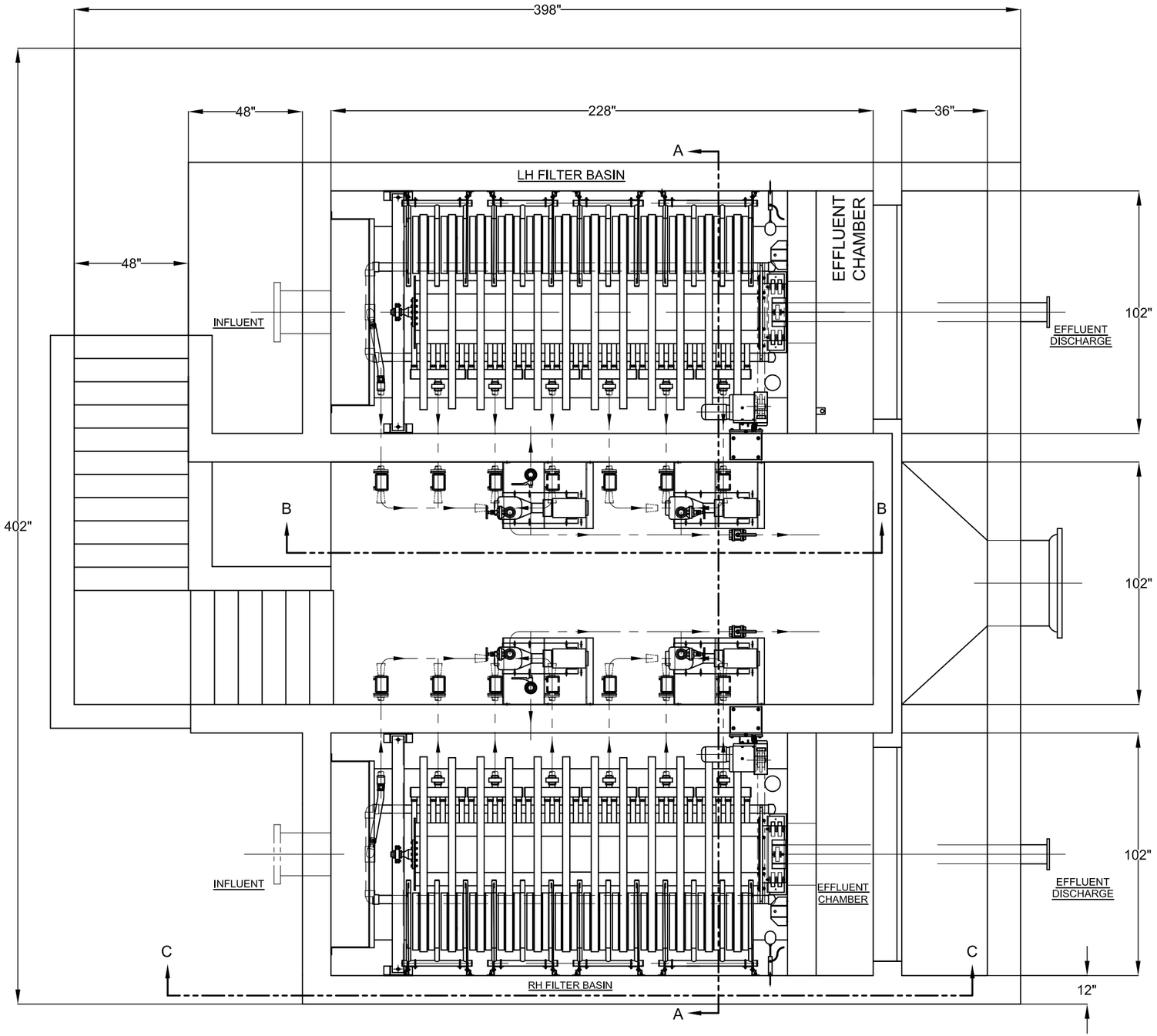
Maximum Flow Conditions:

Maximum Hydraulic Loading = Max. Design Flow (gpm) / Recommended Filter Area (ft²)
= 6944.4 / 2582.4 ft²
= 2.69 gpm/ft² (13.15 m/hr) at Max. Flow

Solids Loading:

Solids Loading Rate = (lbs TSS/day at max flow and max TSS loading) / Recommended Filter Area (ft²)
= 2502 lbs/day / 2582.4 ft²
= 0.97 lbs. TSS /day/ft² (9.73 kg. TSS/day/m²)

*The cloth media filter will only remove Copper (Cu) that is associated with the TSS removed by the filter. Therefore, it is assumed that th secondary biological process will reduce the soluble fraction of the Cu to a concentration sufficiently less than the effluent Cu requirement so as to allow the effluent Cu requirement to be met.



ITEM WEIGHTS
EFFLUENT SEAL PLATE = 217 LBS.
CENTERTUBE = 1073 LBS.
INFLUENT WEIR WELDMENT = 367 LBS.
DRIVE MOTOR ASSEMBLY = 310 LBS.
DISK SEGMENT ASSEMBLY = 24 LBS.
PUMP WITH MOTOR MOUNTED ON BASE = 200 LBS.
WALL MOUNT PUMP BASE = 234 LBS.

1. DRAWING FOR REFERENCE ONLY.
   ALL WALLS ARE SHOWN AT 1'.
   ALL DIMENSIONS TO BE VERIFIED BY CUSTOMER.

2. AQUA-AEROBIC SYSTEMS PROVIDES PUMPS AND VALVES LOOSE FOR INSTALLATION BY THE INSTALLING CONTRACTOR. ALL INTERCONNECTING PIPING, WIRING, AND WALL SPOOL PIPES ARE PROVIDED BY THE INSTALLING CONTRACTOR.

3. IF FREEZING IS A CONCERN, AQUA-AEROBIC SYSTEMS RECOMMENDS THE FILTERS BE PLACED IN A HEATED BUILDING. IF A BUILDING IS NOT PROVIDED, ANY NECESSARY PROTECTION, INCLUDING BUT NOT LIMITED TO, HEAT TRACING AND INSULATION OF PUMPS AND PIPING, AS WELL AS PROTECTION AGAINST INTERNAL TANK FREEZING, SHALL BE PROVIDED BY THE INSTALLING CONTRACTOR.

4. THE GRAPHIC ELEMENTS OF THIS COMPUTER GENERATED DRAWING ARE DRAWN FULL SIZE. THE DIMENSIONS ARE ASSOCIATIVE. IF THE SIZE OF THE GRAPHIC ELEMENTS IS CHANGED THE DIMENSIONS WILL NOT BE CORRECT.

5. TBD THE INFLUENT AND EFFLUENT CHANNELS TO BE SIZED BY THE INSTALLING CONTRACTOR BASED ON THE PLANT FLOW.

6. AN INFLUENT VALVE IS REQUIRED FOR ISOLATION / MAINTENANCE OF EACH FILTER UNIT. INFLUENT VALVES SHALL BE PROVIDED BY OTHERS AND INSTALLED BY OTHERS.

7. WALL SPOOL PIPING SHALL BE STAINLESS STEEL. PROVIDED BY OTHERS AND INSTALLED BY OTHERS.

NOT FOR CONSTRUCTION

REV.	ERN / ECO	DATE	BY	REVISION DESCRIPTION

JOB NAME: PEACHTREE CITY ROCKAWAY WWTP
JOB LOCATION: GA

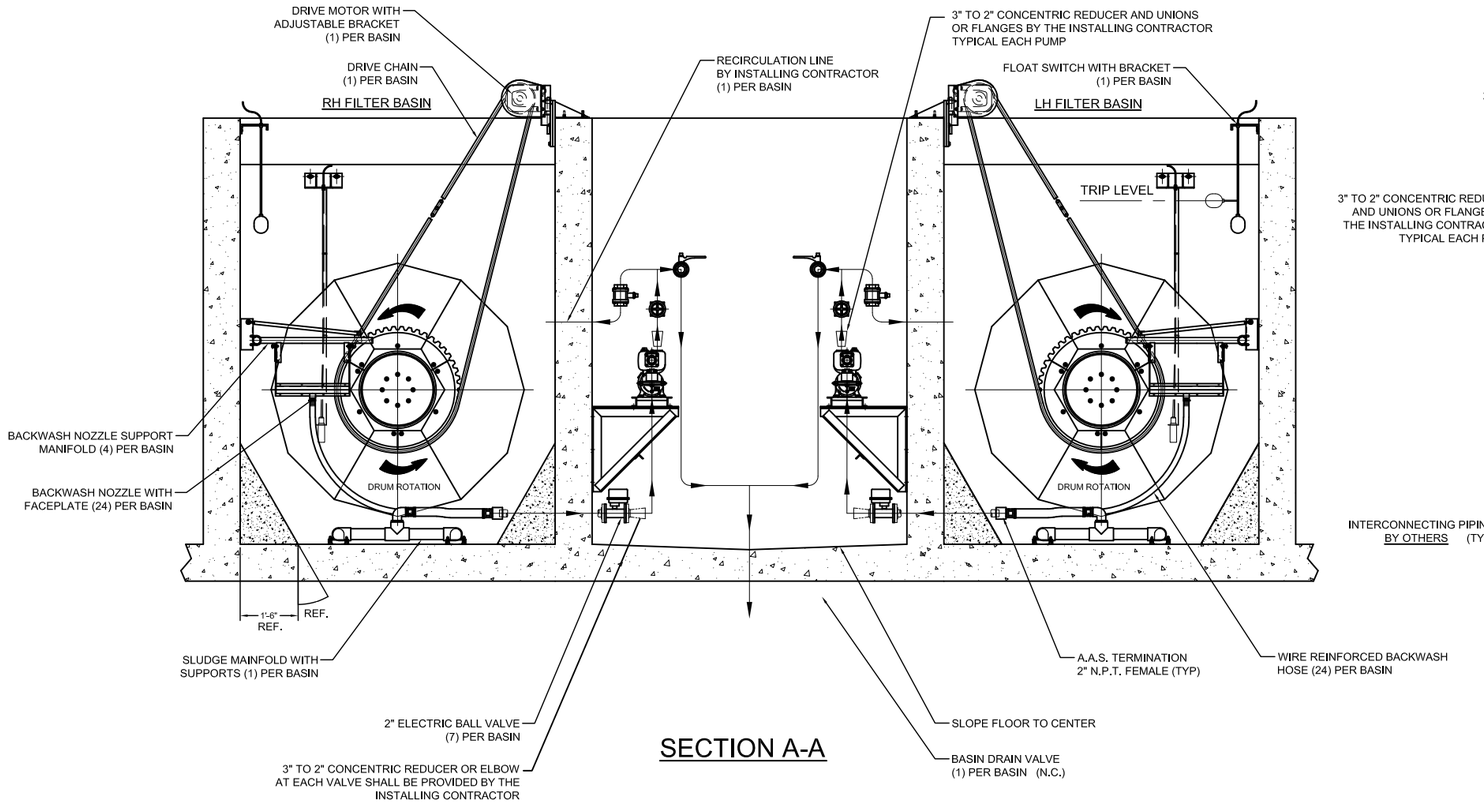
AQUA-AEROBIC SYSTEMS, INC.
A Matrawater Company

DO NOT SCALE DRAWING

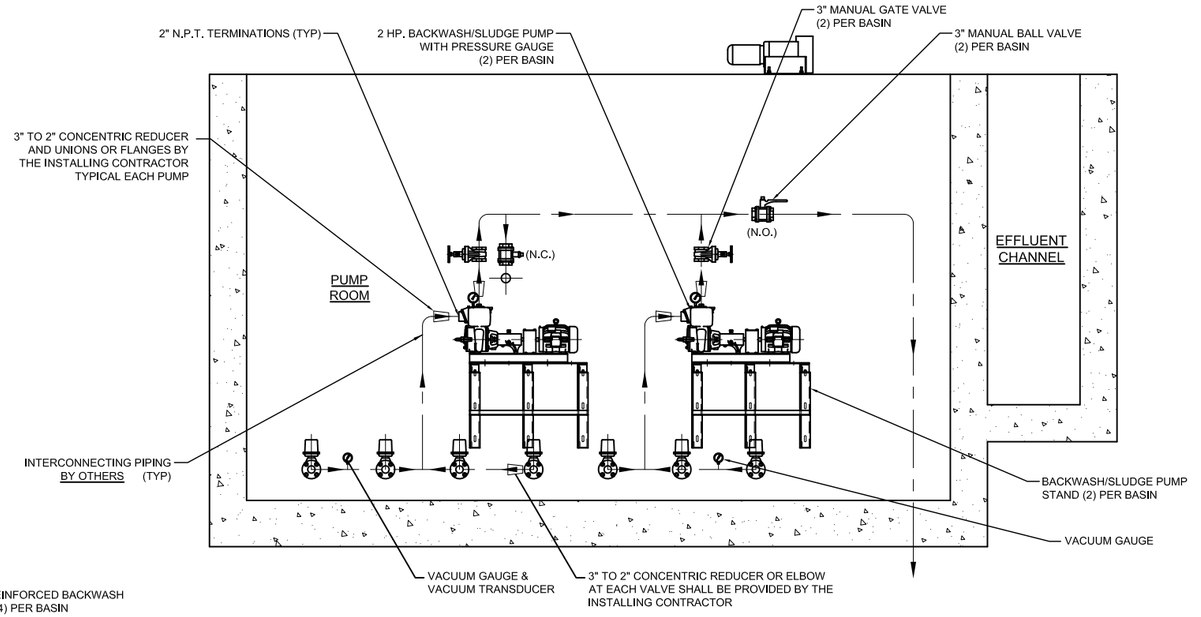
UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
FRACTIONAL DIMENSIONS +/- 1/16
ALL TWO PLACE DECIMALS +/- 0.010
ALL THREE PLACE DECIMALS +/- 0.005
ALL ANGLES +/- 1/2°
ANSI

MATERIAL:
SIMILAR TO:
TYPE:
DRAWN BY: ZJD
DATE: 2023-06-20
WEIGHT:
SHEET: OF

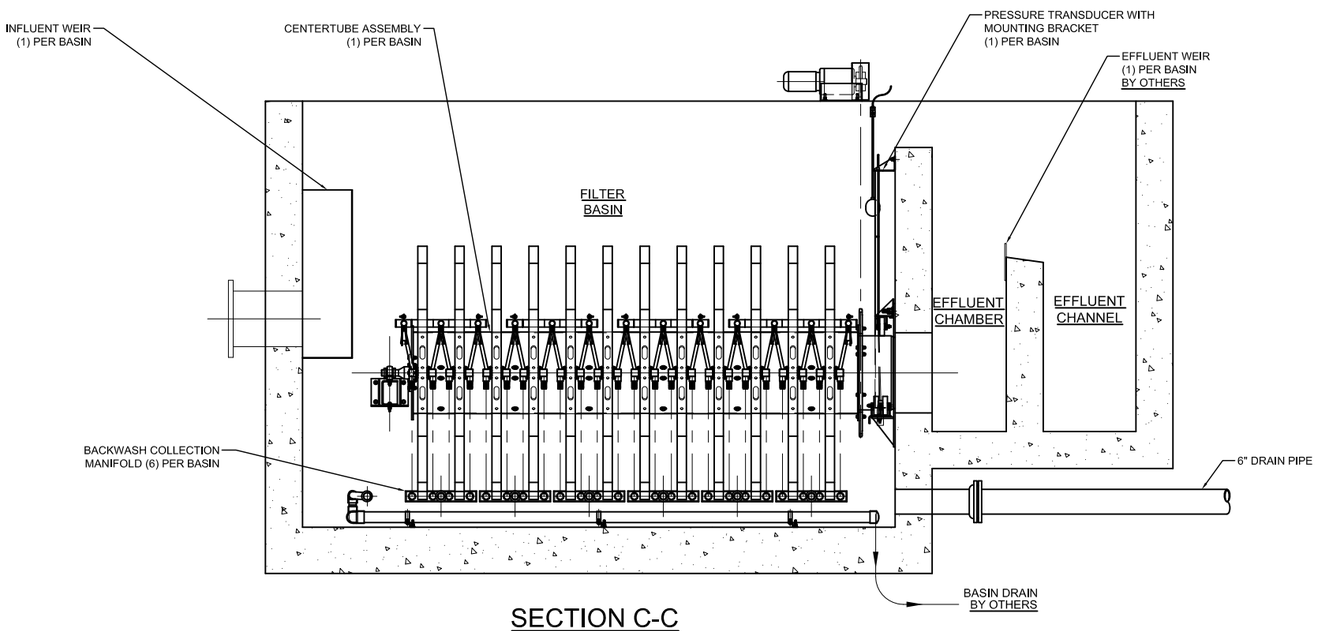
DRAWING NAME: AQUADISK LAYOUT
DRAWING NUMBER: 8106271E6000
SCALE:
SIZE: D



SECTION A-A



SECTION B-B



SECTION C-C

1. ALL PIPING AND FITTINGS SHALL BE PROVIDED BY OTHERS ACTUAL PIPING LAYOUT AND PUMP LOCATION TO BE DETERMINED BY OTHERS WHEN THREADED OR WELDED PIPE IS USED IN LIEU OF FLANGED PIPE, UNIONS SHALL BE USED AT EACH PUMP AND VALVE CONNECTION TO FACILITATE SERVICE.

2. 2 H.P. BACKWASH / WASTE PUMP CONNECTIONS ARE 2" N.P.T. BACKWASH / WASTE PIPING IS 3" DIAMETER. 3" TO 2" CONCENTRIC REDUCER FITTINGS SHALL BE PROVIDED AND INSTALLED BY OTHERS AT EACH PUMP PORT.

3. THE BACKWASH / WASTE PUMP CAPABILITIES ARE AS FOLLOWS:

   - HORSEPOWER: 2 HP
   - FLOW: 130 GPM
   - TOTAL DYNAMIC HEAD: 23.2 FT
   - ALLOWABLE DISCHARGE HEAD, AFTER FILTER LOSSES: 12 FT

   FOR INSTALLATIONS THAT REQUIRE MORE DISCHARGE HEAD, ALTERNATIVE PUMPS ARE AVAILABLE. PLEASE CONSULT ENGINEERING TO VERIFY THE SUITABILITY OF THE DISCHARGE PIPING OR FOR SPECIAL PUMP REQUIREMENTS.

NOT FOR CONSTRUCTION

JOB NAME: PEACHTREE CITY ROCKAWAY WWTP
JOB LOCATION: GA

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

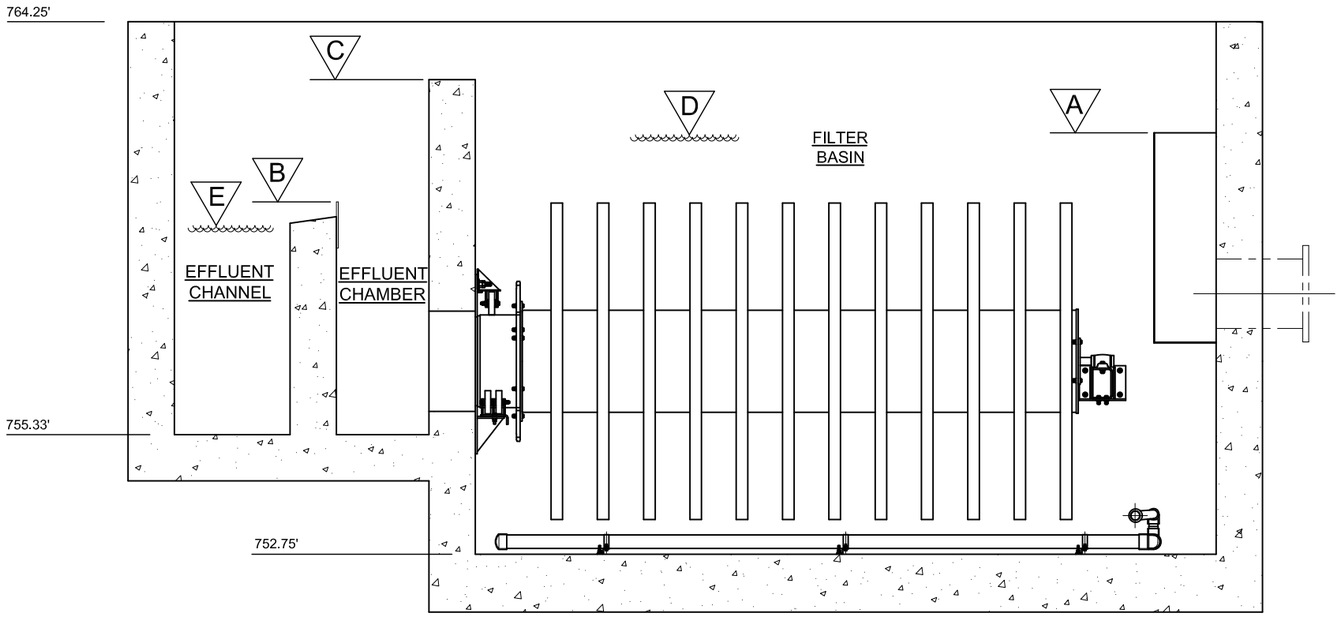
DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
FRACTIONAL DIMENSIONS +/- 1/16
ALL TWO PLACE DECIMALS +/- 0.010
ALL THREE PLACE DECIMALS +/- 0.005
ALL ANGLES +/- 1/2°
ANSI

REV	ERN / ECO	DATE	BY	REVISION DESCRIPTION

MATERIAL:
SIMILAR TO:
TYPE:
DRAWN BY: ZJD
DATE: 2023-06-20
WEIGHT:
SHEET: OF

DRAWING NAME: FILTER DETAILS
DRAWING NUMBER: 8106271E6001
SCALE:
SIZE: D



FLOW CONDITION	AVG. DESIGN	MAX. DESIGN
REDUNDANCY CRITERIA	-	-
QTY FILTERS ONLINE	2	2
PLANT FLOW (MGD)	4.00	10.00
FLOW / FILTER (MGD)	2.00	5.00
FLUX RATE (GPM/FT²)	2.15	5.38

LOCATION		WEIR LG (FT)	WEIR EL (FT)	NAPPE EL (FT)	NAPPE EL (FT)
A	INFLUENT	6.5	9.10 / 761.85	9.38 / 762.13	9.61 / 762.36
B	EFFLUENT	7.50	7.67 / 760.42	7.91 / 760.66	8.12 / 760.87
C	OVERFLOW	8.50	10.25 / 763.00	10.48 / 763.23	10.67 / 763.42
D	BACKWASH INITIATE EL	-	9.06 / 761.81	-	-
E	MAX. DOWNSTREAM EL	-	7.17 / 759.92	-	-

NOT FOR CONSTRUCTION

JOB NAME: PEACHTREE CITY ROCKAWAY WWTP
JOB LOCATION: GA

AQUA-AEROBIC SYSTEMS, INC.
A Metawater Company

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
FRACTIONAL DIMENSIONS +/- 1/16
ALL TWO PLACE DECIMALS +/- 0.010
ALL THREE PLACE DECIMALS +/- 0.005
ALL ANGLES +/- 1/2°
ANSI

MATERIAL:
SIMILAR TO:
TYPE:
DRAWN BY: ZJD
DATE: 2023-06-20
WEIGHT:
SHEET: OF

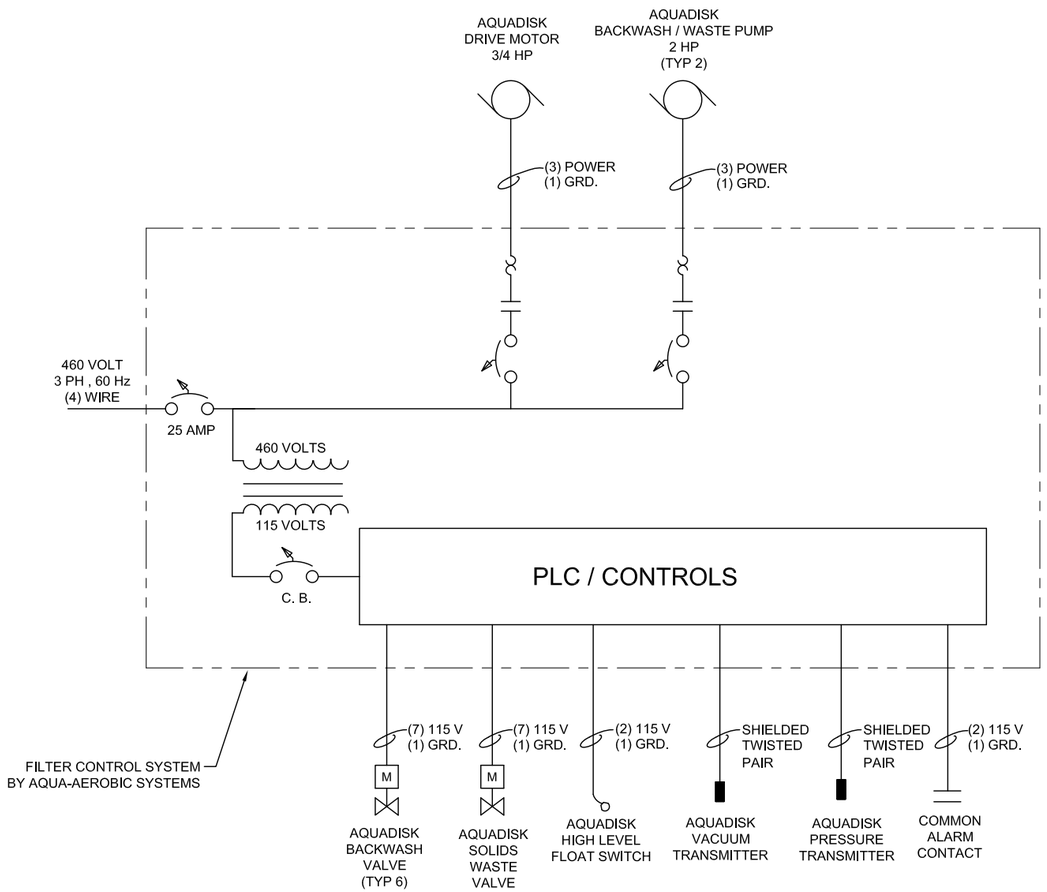
REV	ERN / ECO	DATE	BY	REVISION DESCRIPTION

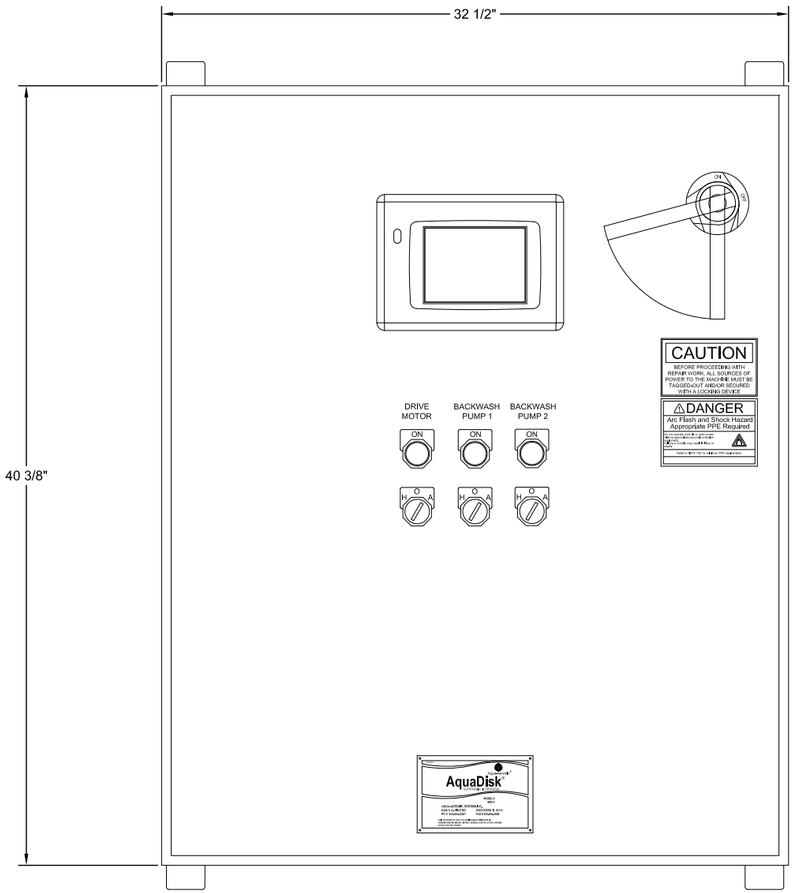
DRAWING NAME: HYDRAULICS PROFILE
DRAWING NUMBER: 8106271E6002
SCALE:
SIZE: D

SYMBOL KEY

	MOTOR		CIRCUIT BREAKER		ELECTRICAL DISCONNECT	VFD	VARIABLE FREQUENCY DRIVE		TRANSDUCER		STARTER CONTACTOR
M	MOTOR OPERATED VALVE		TRANSFORMER		MOTOR OVERLOAD	P	PNEUMATIC OPERATED VALVE		FUSE		FLOAT SWITCH

NOTE: SOME SYMBOLS MAY NOT BE APPLICABLE





1 CONTROL PANEL
ENCLOSURE NEMA 4X WALL MOUNTED TYPE FIBERGLASS
FACTORY ASSEMBLED AND SHIPPED LOOSE. INSTALLED BY OTHERS.
MUST BE LOCATED WITHIN 50 FEET OF THE PRESSURE TRANSMITTER.
FACING NORTH TO LIMIT THE H.M.I. EXPOSURE TO DIRECT SUNLIGHT.
FLOOR MOUNTING IS AVAILABLE WITH STEEL OR STAINLESS STEEL ENCLOSURES.

2 STANDARD CONTROL PANEL SIZE
40" HEIGHT X 32" WIDE X 12" DEEP

3 (1) CONTROL PANEL PER FILTER

NOT FOR CONSTRUCTION

JOB NAME: PEACHTREE CITY ROCKAWAY WWTP
JOB LOCATION: GA

REV	ERN / ECO	DATE	BY	REVISION DESCRIPTION

AQUA-AEROBIC SYSTEMS, INC.
A Matzwender Company

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED
ALL DIMENSIONS ARE IN INCHES
FRACTIONAL DIMENSIONS +/- 1/16
ALL TWO PLACE DECIMALS +/- 0.010
ALL THREE PLACE DECIMALS +/- 0.005
ALL ANGLES +/- 1/2°
ANSI

MATERIAL:
SIMILAR TO:
TYPE:
DRAWN BY: ZJD
DATE: 2023-06-20
WEIGHT:
SHEET: OF

DRAWING NAME: ONE-LINE DIAGRAM
DRAWING NUMBER: 8106271E6003
SCALE:
SIZE: D

AQUA-AEROBIC SYSTEMS, INC.
SPECIFICATION FOR AQUADISK® TERTIARY CONCRETE FILTER
PILE CLOTH
For
Job Name
6/28/23 / Design #171823

AQUADISK TERTIARY FILTER

There shall be two (2) Model ADFC-54x12E AquaDisk filter(s) as manufactured by Aqua-Aerobic Systems, Inc., of Loves Park, Illinois. Contractor shall furnish all labor, materials, equipment and incidentals required for installation of the AquaDisk as shown on the drawings and as specified herein. Through the wall spool piping and all external piping shall be provided by the installing contractor. Effluent weir assembly shall be provided by the installing contractor.

Each unit will include:
Basin Mounting Brackets and Hardware
Drive Assembly
Centertube Assembly with Cloth Media Disks
Backwash System
Backwash/Waste Pump Assembly
Valves
Influent Weir
Pressure Transducer Assembly
Float Switch
Vacuum Transmitter
Electrical Controls with Internal Components

All motors, pumps, and bearings shall be designed for continuous duty and long operating life in a high humidity atmosphere. All motors and pumps shall be 460 volt, 60 hertz, 3 phase.

SPECIFICATION PRECEDENCE

The specifications for equipment and controls under this section supersede specifications for equipment and controls specified elsewhere in the contract documents and drawings. Purchased components such as gear reducers, pumps, motors, valves, and actuators shall be provided with standard recommended manufacturers paint, unless otherwise specified within this section.

SERVICE

The equipment manufacturer shall furnish the services of a factory trained representative for a maximum of three (3) trips and elevon (11) eight hour days at the jobsite to inspect the installing contractor's equipment installation, supervise the initial operation of the equipment, instruct the plant operating personnel in proper operation and maintenance, and provide process assistance.

If additional service is required due to the mechanisms not being fully operational, at the time of service requested by the contractor, the additional service days will be at the contractor's expense.

The selected manufacturer shall have a free troubleshooting help line available 24 hours a day, 365 days per year for the life of the plant.

WARRANTY

The Manufacturer shall provide a written warranty against defects in materials and workmanship. Manufacturer shall warrant the goods provided by the Manufacturer to be free from defects in materials and workmanship under normal conditions and use for a period of one (1) year from the date the goods are put into service, or eighteen (18) months from shipment of equipment, whichever first shall occur. This warranty shall not apply to any goods or parts which have been altered, applied, operated or installed contrary to the Manufacturer's instructions or subject to misuse, chemical attack/degradation, negligence or accident.

MANUFACTURING QUALIFICATIONS
The filter supplier shall have experience in the design and manufacture of cloth media filters for a minimum of ten (10) years and shall be able to demonstrate a minimum of fifty (50) installations within the United States in municipal wastewater applications with cloth media.

SUBMITTAL REQUIREMENTS
Drawings
Cut sheets
Media area calculations
Hydraulic loading rate calculations
Solids loading rate calculations
Hydraulic profile through the filter showing the following:

- Influent weir length
- Influent weir elevation
- Influent weir nappe at design and peak flow
- Effluent weir length
- Effluent weir elevation
- Effluent weir nappe at design and peak flow

Elongation and breaking strength test report from ISO certified textile laboratory
Solids loading rate calculations
Title 22 Conditional Approval letter

PERFORMANCE AND DESIGN PARAMETERS
The AquaDisk filters shall be capable of filtering effluent from an SBR process. Design shall be for:

4 MGD Average Daily Flow
10 MGD Maximum Daily Flow

Filter influent total suspended solids (TSS) concentration shall be 20 mg/l daily average and 30 mg/l maximum at average daily flow rate.

Filter effluent total suspended solids concentration shall not be greater than 15 mg/l based on a monthly average.

Filter influent BOD5 concentration shall be 10 mg/l daily average.

Filter effluent BOD5 shall not be greater than 5 mg/l based on a monthly average.

Filter effluent Copper (Cu) shall not be greater than 0.013 mg/L based on a monthly average.

With the growing concern of microplastic pollution, manufacturer shall provide certified third party testing or peer reviewed journal article demonstrating the ability of the filtration technology to remove greater than 90% of microplastics.

FILTER DISK BASIN
Each filter shall be installed in a concrete basin.

BASIN MOUNTING BRACKETS AND HARDWARE
Each filter basin shall be fitted with 304 stainless steel mounting brackets to accommodate attachment of the filter components to inside of the basin. All mounting brackets shall be attached to the inside of basin wall with stainless steel anchors and hardware. Through the wall spool piping and all filter external piping shall be provided by the Installing Contractor.

DRIVE ASSEMBLY

Each filter shall include an adjustable drive assembly with a gearbox, nylon drive sprocket, acetal drive chain with 304 stainless steel link pins, and a 304 stainless steel chain guard. The gearbox shall be parallel in-line helical type, AGMA Class 1 with a 3/4 HP drive motor rated for 460 volt, 3 phase, 60 Hz. Gear reducer shall be Nord or approved equal. Drive motor shall be Nord, Weg, Baldor, or approved equal.

To reduce energy demand, the drive assembly shall rotate the disks only during backwash. Systems requiring constantly rotating disks during filtration will not be acceptable. Belt drive systems or systems with multiple drive units per filter will not be acceptable.

If motors and gearboxes require routine maintenance, and are not accessible from the outside tank side walls, the equipment manufacturer shall provide an internal access platform between the tank side walls and motors and gearboxes.

CENTERTUBE ASSEMBLY

Each centertube assembly shall include a minimum 1/4" thick 304 stainless steel centertube weldment, driven sprocket, wheel assemblies, 304 stainless steel disk segment rods, and frame and cloth assemblies. Each centertube assembly shall also include a Viton v-ring effluent port seal which provides superior chlorine resistance. Materials other than Viton are not acceptable for seal materials. Systems with swivel joints requiring routine lubrication are not acceptable. The driven sprocket shall be multi segment made of UHMW polyethylene. All fasteners shall be stainless steel.

CLOTH FRAME

Each cloth disk assembly shall be comprised of six (6) individual segments, each consisting of a cloth media sock supported by an injection molded glass filled polypropylene frame with corrosion resistant assembly hardware. The cloth / frame assembly must be installed in direct contact with the centertube without adaptors. Cloth/frame assemblies shall be constructed such that each segment is easily removable from the centertube, without special tools, to allow for removal and replacement of the cloth at the point of installation. Systems requiring special tools and/or the return of media segments to the factory for replacement will not be considered. Disks shall be spaced a minimum of 8 inches from center to center and have a minimum 5 inches of open space between adjacent disks.

FILTER MEDIA

Each cloth disk assembly shall have a minimum of 53.8 square feet of effective submerged filtration area. Each disk shall be divided into no more than six (6) segments and shall be easily removable for service. If the wet weight of the filter disk segment is greater than 50 pounds, a lifting mechanism shall be provided.

Each basin shall include twelve cloth disk assemblies.

Each filter unit shall have a total of**:** 645.6 square feet of minimum effective submerged filtration area.

Cloths shall be of fiber pile construction having a nominal filtration rating of 10 microns. Granular media and screens having structured identical openings shall not be allowed. The pile cloth shall be free chlorine resistant cloth.

Cloth filter media must have obtained conditional acceptance under California Title 22 regulations. The approval letter associated with this acceptance must be included with submittals.

The cloth media shall have an active filter depth of 3 to 5 mm to provide additional collisions between solids particles and the media within the media depth, resulting in capture of solids across a broader particle range. The cloth depth shall also provide storage of captured solids, reducing backwash volumes while maintaining an operational headloss. Woven mesh or microscreen type media with no filtration depth are not acceptable.

Individual pile fibers shall be held in place by a support backing integral to the media. To facilitate proper flow of backwash water through the cloth, the medium's back side shall be of open construction consisting of 10% open area at least 50 times larger than the nominal filtration media in any direction. Media that uses sewn in support structures, which have the potential to prevent free flow through the media, shall not be allowed.

Cloth strength is critical to ensure long term performance of the media. Cloth media breaking strength and elongation shall be tested in accordance with ASTM Standard D5035 2R-E method by an ISO certified laboratory specializing in textile testing. Breaking strength shall be in excess of 200 lbf (890 N) in the warp and the weft direction. Elongation shall be less than 10% at 60 lbf (270 N) in the warp and the weft direction. Test reports shall be provided with submittals to demonstrate compliance with this requirement.

To avoid excessive media movement, deformation and folding during backwash, the maximum distance between cloth restraints must not exceed 36 inches.

FILTER HYDRAULICS

During filtration, the filter unit shall operate in a static condition with no moving parts. The filter system shall provide for the collection of filtered solids on the outside of the cloth media surface to allow for the direct contact of cleaning systems. Filtered effluent shall be used for backwashing. The filter flow path shall be from the outside of the cloth frame to the inside. Systems with flow paths from the inside to the outside of the cloth frame that collect filtered solids and plastic debris on the interior surfaces of the cloth frame will not be acceptable.

Only media area below the effluent weir elevation will be considered in the filtration area calculation since this is the only area that is submerged and available for filtration 100% of the time.

Submittal information shall include calculations that verify the effective filtration surface area. Media surface fused directly to support structure such that water cannot pass through the media shall not be included in these calculations

The operator shall be able to bring a drained filter on line by simply opening the influent isolation device. If the filter design is such that it must be filled with water before the influent isolation device is opened to prevent damage to the filter media, an automated process that sequentially brings the filter back on line with a single switch shall be provided to prevent accidental media damage. The automated process shall activate a minimum 6" diameter motorized valve to fill the filter with effluent or other clean water source in not more than five minutes, verify that the filter is full, and open the motorized influent isolation device.

Because of the frequency of the backwash and misting associated with spray systems, designs that utilize high pressure spray or a moving vacuum head as the sole means of solids removal will not be acceptable.

BACKWASH AND SOLIDS REMOVAL SYSTEM

The backwash function shall incorporate a pump that draws filter effluent through the cloth as the media rotates past the fixed backwash shoe, thereby removing accumulated solids from the cloth surface. Each disk shall be cleaned by a minimum of two backwash shoes, one on each side. The backwash shoes shall remain in a fixed position. Springs shall be used to maintain the proper tensioning of the backwash shoe against the media surface.

The backwash shoe shall be in direct contact with the cloth to ensure effective media cleaning. Systems utilizing media cleaning mechanisms that do not contact the filter media will not be acceptable.
Neither the cloth / support assemblies nor the backwash shoes shall include any gridwork overlays or other interferences that would prevent direct contact of the backwash shoes with the cloth fibers.

The backwash system shall include 304 stainless steel backwash shoe supports with UHMW backwash shoes, 316 stainless steel springs reinforced PVC flexible hose with stainless steel hose clamps, 304 stainless steel backwash manifolds, and PVC sludge collection manifold.

BACKWASH/WASTE PUMP ASSEMBLY

Each backwash/waste pump assembly shall include one backwash/waste pump(s), valves and gauges external to the basin. System utilizing internal backwash pumps shall not be permitted. In the external piping shall be backwash and solids waste valves, 3" recirculation ball valve(s), 3" manually operated flow control gate valve) for each pump, vacuum gauge(s), and pressure gauge(s).

The backwash/waste pump(s) shall be shipped loose for field installation by the installing contractor. Backwash piping between the filter basin and pump(s) as well as piping following the pump(s) shall be supplied by the installing contractor. Installing contractor shall supply unions or flanges for service, and interconnecting wiring.

The backwash/waste pump(s) shall be a Gorman Rupp model 12B20-B, externally mounted centrifugal pump. Pump shall be provided with a 3 HP, 460 volt, 3 phase, 60 Hz motor and operate at 1750 RPM. Pump shall be rated for 130 gpm at 23.2 ft TDH with 12.2 ft allowable discharge head after losses in internal filter piping have been accounted for. Motor shall be Baldor, Teco, Weg or approved equal. Backwashing shall be initiated by tank water level, timer, or manually through the operator interface. Operator shall have the ability to specify backwash time interval elapses through the operator interface. The backwash water shall be pressurized by the filter's backwash/waste pump for discharging from the filter system. Systems utilizing non-pressurized backwash flow will not be accepted. Backwash pumps using a belt drive shall not be acceptable due to routine tensioning and other maintenance requirements.

Each pump shall be provided with a painted steel support stand with wedge anchors.

Pump manually operated 3" threaded gate valve shall be class 125 bronze with screw in bonnet, non-rising stem, and solid wedge. Valve shall conform to MSS SP-80 and shall be Nibco or approved equal.

The 3 inch threaded ball valves shall be a two-piece, full port, with a brass body. Valves and shall be Nibco or approved equal.

The vacuum gauge(s) shall have a minimum 2.5" dial with all stainless steel welded construction, 0-30" Hg vacuum range, liquid filled, ¼" NPT process connection, 316 stainless steel bourdon tube and tip material, and bronze socket material, Ashcroft or approved equal.

The pressure gauge(s) shall have a 2.5" dial with a black painted steel case, 0-15 psi, heat resistant polycarbonate window, ¼" NPT process connection, "C" shaped bronze bourdon tube, and brass socket material, Ashcroft or approved equal.

Filtering shall not be interrupted during normal backwashing and solids waste discharge.

VALVES

Each filter shall include six 2" backwash valve(s). Valve(s) shall be 2 piece, flanged end, ASTM A351 Grade CF8M stainless steel body, 316 stainless steel ball and stem, fullport, with a 115 volt, single phase, 60 Hz, open / close service electric actuator. Valve / actuator combination shall be TCI / RCI (RCI, a division of Rotork), Nibco, or equal. Valve actuator shall include a compartment heater and limit switch feedback to the microprocessor in both the open and closed positions.

Because of fouling that can be caused by stringy material, non full port valves such as butterfly valves or plastic valves shall not be acceptable.

Each filter shall include one 2" solids waste valve. Valve shall be 2 piece, flanged end, ASTM A351 Grade CF8M stainless steel body, 316 stainless steel ball and stem, fullport, with a 115 volt, single phase, 60 Hz, open / close service electric actuator. Valve / actuator combination shall be TCI / RCI (RCI, a

division of Rotork), Nibco, or equal. Valve actuator shall include a compartment heater and limit switch feedback to the microprocessor in both the open and closed positions.

Each filter shall include a solids waste removal system consisting of perforated manifold, mounted on the floor of the filter basin. The manifold shall be designed to siphon settled solids for waste discharge through the backwash/waste pump. The operation of the solids waste removal system shall be automatic with user adjustable intervals and duration through the operator interface. Filters that are designed without a solids waste removal system will not be acceptable.

INDIVIDUAL FILTER ISOLATION

Each filter shall include isolation upstream provided by the installing contractor.

INFLUENT WEIR BOX

Each filter shall include a 304 stainless steel influent weir box. The weir box shall be mounted to the filter basin interior using 304 stainless steel wedge anchors and hardware. The basin wall must be smooth and plumb to facilitate a quality installation. Filter systems without influent weir box will not be accepted.

PRESSURE TRANSDUCER

A submersible pressure transducer shall be supplied for each filter basin. The pressure transducer shall have stainless steel wetted parts and provide a 4-20 mA signal over a range of 0 psi to 5 psi. Units shall monitor the water level in the filter basin. Pressure transducer shall be provided with a mounting bracket and stainless steel anchors. A bellows providing vented gage atmospheric reference shall be supplied for contractor installation in junction box. The installing contractor shall provide junction box, bellows mounting and interconnecting wiring. Transducers shall be Keller Levelgage series or approved equal.

FLOAT SWITCH

A float switch shall be furnished to indicate emerging overflow level. The float switch shall be Anchor Scientific Model GSI 40NONC-STO or approved equal. The float shall contain a non-mercury switch, chemical resistant polypropylene casing and a PVC #18 AWG three conductor cable. Switch rating shall be minimum 4.5 amps non-inductive at 120 VAC.

VACUUM TRANSMITTER

The vacuum transmitter shall have stainless steel wetted parts and provide a 4-20 mA signal over a range of -30 to 0 inHg. Transmitter shall be an IFM Effector PX series or approved equal.

CONTROL SYSTEM

The automatic and manual controls for operation of the Aqua Disk® Filter system shall be furnished fully assembled, wired and pre-programmed in a UL 508A Certified Industrial Control Panel. Controls shall be provided to control or monitor equipment as described in the contract drawings. The control program shall be written in-house by the filter manufacturer. The control system shall include the following control components and practices:

CONTROL PANEL WIRING AND ASSEMBLY

All control enclosures shall be custom assembled and wired in an Underwriters Laboratories (UL) certified cabinet shop using quality materials and labor. Short circuit rating of control enclosure shall be 5 kA RMS symmetrical @ 480VAC maximum.

All control panel single conductor wire shall be 16 AWG multi-strand machine tool wire (MTW) minimum, with PVC insulation.

Wire colors are as follows:

208 VAC or higher	-	Black
120 VAC control power	-	Red
Neutral	-	White
Ground	-	Green with Yellow Stripe

Power from remote source	-	Orange
Neutral from remote source	-	White with Orange Stripe
24 VDC (+)	-	Blue
24 VDC (-)	-	White with Blue Stripe
Intrinsically Safe	-	Light Blue

All wires shall be clearly marked with an identification number consistent with the wiring schematic drawing. Wire markers shall be a thermal transfer printable type. The material shall be a self-laminating vinyl. Labels shall be Brady THT-9-427-10 or approved equal.

Wiring inside the control panel shall be run in PVC wiring duct rated for continuous temperatures up to 122° F (50°C). Devices mounted in the enclosure door shall have wires run in spiral wrap to avoid pinch points when opening and closing the door.

Control components mounted internal and external to the enclosure shall be mounted with stainless steel hardware and clearly labeled with a plastic identification nametag. The tag shall be white with black lettering.

CONTROL PANEL QUALITY ASSURANCE

All Control panels shall be UL certified. Testing by manufacturer's electrical engineering prior to releasing for shipment shall be completed. Testing shall consist of the following:

Point to point testing of all wiring prior to application of power
Intended supply voltage shall be applied to the enclosure
All components shall be tested for proper operation and calibration
The PLC and operator interface program shall be loaded and functionally checked
All components shall be checked to confirm proper mounting specifications have been followed
Enclosure shall be inspected for defects and repaired if necessary
All labeling of wires and devices are correct, properly installed and clean

The manufacturer shall finalize the factory checkout by completing a control panel checklist to document all testing completed above.

Upon the successful completion of the control testing of the enclosure assembly, all applicable documentation (i.e. finalized drawing set, signed control checklist cover page, device data sheets, etc.) shall be placed in the drawing pocket of the enclosure.

CONTROL ENCLOSURE

The automatic controls shall be provided in a UL listed, NEMA Type 4X 316 stainless steel (12 gauge) floor mount enclosure that provides insulation and protection for electrical controls and components from highly corrosive environments indoors and outdoors. Enclosure shall include a seamless foam-in-place gasket to assure watertight and dust-tight seal. An internal 3-point latch and 316SS padlocking POWERGLIDE® handle shall be provided. Enclosures shall be unpainted, with a smooth #4 brushed finish. Enclosure shall include a painted white mild steel (12 gauge) sub-panel mounted with collar studs. Enclosure shall be manufactured by Hoffman or approved equal.

The control enclosure shall be mounted remotely.

CORROSION INHIBITOR

Each control enclosure assembly shall be provided with corrosion inhibitors to protect interior electrical components from damage caused by high humidity. The corrosion inhibitors shall be installed prior to shipment to provide protection during shipment and storage of the enclosure.
The corrosion inhibitor shall be Hoffman AHCI5E or approved equal.

MAIN DISCONNECT CIRCUIT BREAKER

A UL listed, automatic molded case 3-pole disconnect breaker shall be provided in the control enclosure(s). The primary function of the disconnect switch shall be to provide a means to manually open a circuit and automatically open a circuit under overload or short circuit conditions. The disconnect breaker shall have a door mounted operating mechanism with trip indication. Power distribution connectors shall be mounted integrally to the circuit breaker for multiple load connections. Integral connectors shall be provided. The disconnect circuit breaker shall be a Square D/HDL, JDL, LDL, MDL, PDL or approved equal.

MOTOR STARTER

A full voltage non-reversing Integrated Motor Starter-Controller shall be provided for motor applications up to 15 kW. Each starter shall provide control, protection and monitoring functions for the motor. The starter shall be IEC rated and shall have certifications according to UL and CSA standards and shall bear the CE marking. The starter shall have a maximum rated operational voltage of 690V and provide a 42kA @ 480 VAC rated breaking capacity on short circuit. The starter shall have a mechanical durability of 15 million operations. The starter shall provide short circuit trip, thermal overload trip with selectable tripping class, under current trip and phase imbalance trip.

A full voltage non-reversing IEC Style motor starter shall be provided for motor applications over 15 kW. Each starter shall consist of a circuit breaker, contactor and overload relay. The starter shall be IEC rated and shall have certifications according to UL and CSA standards and shall bear the CE marking. The starter shall have a maximum rated operational voltage of 690V and provide a minimum 18 kA @ 480VAC and 25 kA @ 240 VAC interrupt rating on short circuit when used in combination with a PowerPact circuit breaker. The starter shall have a mechanical durability of 15 million operations. The solid state overload relay shall have class 10 tripping characteristics with trip current adjustment, phase loss and unbalance protection.

TRANSFORMER

A step-down multi-tap transformer shall be supplied when there is a necessity to reduce incoming 3-phase power to 120 VAC single-phase. The transformer power wire connections (incoming and outgoing) shall be protected with a finger-safe cover to protect against accidental contact. Primary and secondary fuse protection shall be provided. Transformer shall be UL listed and of continuous wound construction with vacuum impregnated with non-hygroscopic thermosetting varnish. Transformer shall be Square D 9070T or approved equal.

TRANSFORMER PRIMARY AND SECONDARY FUSE

Properly rated fuses and fuse blocks shall be provided for primary and secondary protection of the transformer. Each fuse shall be equipped with a thermoplastic cover to protect against accidental contact. Clip style fuse block shall be rated up to 600 VAC and 100 amps, dual element, time delay fuses shall be rated up to 600 VAC. Fuse blocks and fuses shall be UL listed. Fuses shall be Littelfuse Class CC or approved equal. Fuse blocks and fuse covers shall be manufactured by Marathon or approved equal.

CIRCUIT BREAKER

All single phase branch or supplementary circuits shall be protected with a single-pole, C-Curve rated circuit breaker. Circuit breakers shall be rated for 240 VAC maximum, 50/60 Hz and UL 489 listed. Supplementary and branch protection circuit breakers shall be Merlin Gerin Multi 9 or approved equal.

FUSE

Properly rated fuses and fuse holders shall be provided for protection of individual control devices (discrete and analog signals) mounted outside of the enclosure. Each fuse shall be housed in a hinged type fuse block to protect against contact with the fuse. Fuses shall be rated up to 250 VAC and be Littelfuse or approved equal. Fuse holders for discrete devices shall be rated to 600 VAC and 30 Amps. Fuse holders for analog devices shall be rated to 300 VAC and 15 Amps. Fuse holders shall be Allen Bradley 1492 or approved equal.

OPERATOR DEVICE

Operator devices (pushbuttons and selector switches) shall be mounted through the control enclosure door for manual operation of the filter. Transformer type pilot lights and illuminated pushbuttons shall be provided for indication of an operation status. Lights shall be a 6 VAC incandescent type lamp. Color coding shall be applied as required and is as follows:

Amber – Alarm active, caution
Green – Valve open, motor running
Red – Valve closed
White - Information

All operator devices shall be UL Listed, 30.5mm style, NEMA Type 4X rated, oil and water tight with finger safe guards located on the contact blocks to prevent accidental contact with wire connections. Operator device function shall be identified with an engraved white Gravoply nameplate with black letters. Operator devices shall be Square D 9001 or approved equal.

HIGH FREQUENCY NOISE FILTER

A UL listed active tracking filter shall be provided to protect the PLC and HMI power feeds from high-frequency noise and low-energy transients. It shall be designed for a single phase input voltage of 120VAC operating at 50/60 Hz. The unit shall provide surge capacity of 25,000 amps and provide transient protection in all modes (Line to neutral, line to ground and neutral to ground). The noise filter shall be a SolaHD STFV or approved equal.

GROUND FAULT DUPLEX RECEPTACLE

A UL listed ground fault circuit interrupter (GFCI) duplex receptacle shall be provided within the panel for instrument (e.g. programming terminal, modem, etc.) use only. The receptacle shall be protected with a 5 Amp circuit breaker. The receptacle shall carry a 20A / 120VAC rating. The electro-mechanical circuit interrupter shall be double-pole and trip free (GFCI protection and shall not be overridden by holding reset button). Built-in transient suppression shall protect GFCI's internal circuitry from voltage transients. Receptacle shall be Hubbell DRUBGFI20 or approved equal.

24 VOLT DC POWER SUPPLY

A UL listed, industrial grade, compact power supply shall be supplied to provide 24 VDC power to such rated components. The power supply shall be DIN rail mounted and functional with input voltage of 100 to 240 VAC (single-phase) incoming control power. The power supply shall have a green LED which shall be illuminated when output voltage is "OK". The power supply shall be an Allen Bradley 1606 or approved equal.

CONTROL RELAY

UL listed control relays for general control purposes shall be supplied with a pilot light to indicate when the coil is in an energized state. The relay socket shall be panel or DIN rail mounted inside the enclosure. The relays shall provide the following ratings: 120VAC coil, 10A contact rating (thermal), 250 VAC insulation rating and 5 million mechanical life cycles. Relays shall be Allen Bradley 700-HK, Square D, or approved equal.

TERMINAL BLOCK

Standard feed-through screw terminal blocks, DIN rail mounted, shall be supplied for all point to point wiring connections. All terminals shall be numbered per the wiring schematic with printed markers. Terminals shall carry a 600V AC/DC voltage rating. Terminal blocks shall be Allen-Bradley 1492-J4 (35A max) and 1492-J16 (85A max) or approved equal.

PROGRAMMABLE LOGIC CONTROLLER

Automatic operation of the Filter shall be controlled through an Allen Bradley MicroLogix 1400 programmable logic controller (PLC) mounted inside the main control panel. The PLC components shall consist of a base unit, expansion I/O modules, and memory module. All input and output points supplied (including unused) shall be wired to terminal blocks. The PLC user memory shall consist of a minimum of

20K words of program and data. All PLC hardware shall be UL listed and operate at an ambient temperature of -4° to 140° F (-20° to 60° C).

BASE UNIT

The base unit shall house embedded inputs, outputs, power supply, and communication (Ethernet, RS-232, RS-485) ports. The base unit shall also provide the interface to expansion I/O when required by an application.

The power supply input range shall be 100 to 240V AC at 47 to 63 Hz with a maximum power consumption of 100 VA.

The embedded discrete inputs shall be rated for 120V AC and the discrete (relay) outputs shall be rated for 265V AC/125V DC. Embedded analog I/O shall be voltage (±10 V) inputs and outputs. Each I/O point shall have LED status indication.

The base unit shall have one (1) RS-232-C serial port, one (1) RS-485 serial port, and one (1) RJ-45 port which supports 10/100 Mbps EtherNet/IP. These ports shall be capable of local and remote programming, troubleshooting, and data manipulation.

The PLC base unit shall be an Allen Bradley 1766-L32AWAA or approved equal.

DIGITAL EXPANSION INPUT MODULE

The expansion digital input module shall have an operating voltage of 79 to 132V AC at 47 to 63 Hz. The module shall have an LED status indication of each point. The digital expansion input module shall be an Allen Bradley 1762-IA8 or approved equal.

MEMORY MODULE

The controller shall be shipped with a memory module for user program and data backup. The memory module shall be an Allen Bradley 1766-MM1 or approved equal.

ETHERNET SWITCH

An unmanaged Ethernet switch shall be provided inside the control enclosure to provide connectivity between the PLC, operator interface and plant networking. The switch shall support both 10 and 100 Mbit/s operation. The switch shall have five (5) 10/100Base-T ports with RJ-45 sockets and shall support auto-crossing, auto-negotiation and auto-polarity. Maximum distance between devices shall be 100m.

The unit shall be DIN rail mounted and require 24VDC power. Diagnostic LEDs for power and connection status shall be included. The Ethernet switch shall be UL listed and manufactured by Allen-Bradley Stratix 2000 1783-US5T, or approved equal.

HUMAN MACHINE INTERFACE OVERVIEW

The control system shall be equipped with a UL listed operator interface that provides control display screens. These screens shall be used by the operator to monitor and control filter status, setpoint and alarm information.

The Interface shall allow the Operator access to adjust the following operating parameters:

- Backwash interval, Backwash duration, Sludge waste interval, Sludge waste duration, Number of backwashes between sludge wasting

The operator interface shall provide information to assist the Operator in assessing the status of the filter system. The interface screen shall display, at minimum, the following parameters:

- Water level in the filter, Time since last Backwash, Time since last Sludge withdrawal, Elapsed time on the Drive Motor, Elapsed time on the Backwash Pump(s), Total backwash time and cycles, Total sludge withdrawal time and cycles.

Proposal Prepared for:

INTEGRATED Science & Engineering

DE NORA CAPITAL CONTROLS® C^{3}500D UV SYSTEM - DNWT PROPOSAL

Project Name: Rockaway WPCP, GA
Proposal Number: P-138083 / Q-00030356
Date: May 30, 2023

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DE NORA

EXECUTIVE SUMMARY

Proposal # Q-00030356
Revision: 0

Rockaway WRF, GA UV - C3500D UV Disinfection System

De Nora UV Technologies, LLC proposes to supply our C3500D Ultraviolet Disinfection System to treat effluent at the above site. This system will include 60 UV lamps to treat the peak flow of 10 MGD. The system will be configured into 1 channels, 2 banks per channel, 6 racks per bank each with 5 lamps.

The main advantages of the C3500D system are as follows:

- The C3500D uses the highest power low pressure horizontal lamps available. The UV lamp emits 204 Watts W of UV light at 254 nm. This means our system will have fewer lamps, resulting in less maintenance.
- The $C^3$500D system includes automatic, in-place cleaning as a key feature. This reduces the need for operators to remove lamp racks and manually clean them, significantly reducing maintenance. The De Nora automatic cleaner is mechanical only – no chemicals are required.
- The patented mixing devices dramatically improve the hydraulic and germicidal efficiency of the UV reactor providing unparalleled performance.

De Nora is a world leader in water technologies solutions. We are also one of the world's foremost providers of ultraviolet light (UV) disinfection and oxidation technologies for water. From the initial introduction of our UV advanced oxidation systems to the continued development of drinking water and wastewater disinfection technologies, we've been delivering proven UV water treatment solutions for more than 25 years. Combined we have over 500 installations in operation or under construction.

This proposal includes system sizing and a bill of materials. If you need any further information, please feel free to contact Nancy Hatley at +1 215.353.2298.

PROJECT APPROACH

Rockaway WRF, GA UV - C3500D UV Disinfection System

For the Rockaway WPCP project, the proposed 60 lamp C3500D UV system can fit into the existing Trojan's channel footprint with no modification in channel length, chanel width, or channel depth. The higher powered UV lamps enable us to offer a UV system with nearly half as many lamps as the existing Trojan UV system which translates to improved operating and maintenance costs over the life of the UV system.

A fixed serpentine level control weir is provided to maintain an effluent depth of 30" downstream the last bank of lamps. The level controller will require the channel to transition to a 96" channel width to accommodate a 2" head over the weir at the design flow. The benefit of a fixed weir provides no operator control, no leak for a properly sealed weir, low headloss, and can handle flow from zero to the maximum daily flow. If this fixed weir poses a challenge please consult our Applications Proposal group and we will be happy to evaluate an alternate solution.

A portable davit crane with a higher weight capacity for the C3500D lamp rack is included to replace the existing unit. The davit crane will assist with the manual removal of an individual lamp rack from the UV channel for servicing and maintenance.

A summary of De Nora's scope of supply includes (lot) channel equipment, (1) SCC, (2) PDCs, (lot) recommended spare parts, (1) online UVT analyzer, (1) davit crane with bases, (lot) standard auxiliary equipment, (lot) standard field services for startup/training, documentation and freight estimate.

Included in this RFP package and attached are the following items:

1. Standard C3500D specification document
2. De Nora's service capability
3. C3500D reference list
4. Life Cycle Cost estimate
5. Instrument Datasheet
6. Drawings

DE NORA

PROJECT SPECIFICATIONS

Proposal # Q-00030356
Revision: 0

Rockaway WRF, GA UV - C3500D UV Disinfection System

1. Design Conditions

Maximum Daily Flow	10.0	MGD
Average Monthly Flow	4.0	MGD
Current Average Daily Flow	1.7	MGD
Minimum UV Transmittance	60 %	
Total Suspended Solids	20 mg/L	
Fecal Coliform Permit Limit	23 CFU/100mL, based on 30-day geometric mean	
Target UV Dose, validated	30 mJ/cm2	

2. $C^3$500D Specifications

Lamp UV Radiation at 254 nm	204 Watts
Lamp Life	16,000 Hours
Lamp Life Factor	0.90
Quartz Transmission Factor	0.92
Quartz Fouling Factor	0.95
MS2 RED	32.2 mJ/cm2 validated

3. System Configuration

Number of Channels	1
Number of Banks/Channel	2
Number of Racks/Bank	6
Number of Lamps/Rack	5
Total Number of Lamps	60
Number of UV Sensors	2
Number of Power Distribution Centers	2
Number of System Control Centers	1
Number of Weirs	1

4. Hydraulic Considerations

Peak Velocity in Channel	24.75 inches/s
Headloss per UV Bank	1.68 inches
Headloss across Level Control Device	6 inches
Total Headloss across UV System	9.35 inches
Retention Time	4.27 seconds

5. Electrical Requirements

Input Voltage	480/277, 3Ph, 4-wire	
Peak Loading per PDC	23.5 FLA	
Power Consumption per PDC	18 kW	(all lamps at 100% power)
Total System Power Consumption	35.9 kW	(all lamps at 100% power)

6. Approximate Channel Dimensions

Length	425 inches
Width	36 inches
Width at Level Control Weir	96 inches
Channel Height	54 inches
Channel Height at Level Control Weir	46 inches
Effluent Depth in Channel	30 inches, nominal

BILL OF MATERIALS

Proposal # Q-00030356
Revision: 0

Rockaway WRF, GA UV - C3500D UV Disinfection System

Item No.	*Qty.*		*Model Number C3500D1206051WP*
1.	1	Channel Equipment	
		Qty. 1	Level Control Weir
		Qty. 8	Bank Support Brackets
		Qty. 4	Lamp Rack Support Brackets
		Qty. 2	UV Sensors with Mounting Bracket and Scrapers
		Qty. 2	Level Sensor with Mounting Bracket (Capacitance Probe)
2.	12	Lamp Rack Assemblies	
		Qty. 5	Low Pressure High Intensity Amalgam Lamps
		Qty. 5	Quartz Sleeves
		Qty. 2	Cable Assemblies
		Qty. 1	Cleaning System Motor
		Qty. Lot	Cleaning System Mechanism and Accessories
		Qty. 5	Scrapers
3.	2	Power Distribution Centers	
		Qty. 30	Electronic Ballasts
		Qty. 1	Main Breaker
		Qty. 6	Earth Leakage Circuit Breakers
		Qty. Lot	Control & Monitoring Equipment with Operator Station
4.	1	System Control Center	
		Qty. 1	Main Breaker
		Qty. Lot	Allen Bradley CompactLogix L30ER PLC Equipment and Accessories
		Qty. 1	Allen Bradley PanelView 700 Plus Operator Interface
5.	Lot	Spare Parts	
		Qty. 1	UV Face Shield
		Qty. 3	Electronic Ballasts
		Qty. 6	UV Lamps
		Qty. 6	Quartz Sleeves
		Qty. 6	Lamp End Seals
		Qty. 6	Scraper Assemblies
6.	Lot	Accessories	
		Qty. 1	Rack Lifting Crane c/w Bases
		Qty. 1	Mercury Spill Kit
		Qty. 1	Service Trolley
		Qty. 1	Rack Lifting Sling
		Qty. 1	RealTech S2100 Online UVT Analyzer
7.	Lot	Equipment Documentation	
8.	Lot	Start-up and Commissioning Services	
9.		One (1) Year Warranty Period	

Terms and Conditions

Payment Terms:	10% at order acceptance
	10% at engineering submittals
	70% at delivery to site (or as dictated by agreed INCO terms)
	10% commissioning / startup upon completion, *not to exceed 60 days from delivery*
D.A.P.:	Jobsite
Delivery:	14 to 18 weeks after receipt of approved shop drawings
Offer Valid:	90 days from bid opening date
Taxes:	Not included

Firm Price (USD): $347,000

DNWT Standard Terms & Conditions

The General Terms and Conditions of Sale set forth at http://www.denora.com/products.html shall exclusively govern the transactions described or contemplated in this quotation/proposal and any other sales or related transaction between the parties herein, and such Terms are expressly incorporated by reference herein and to any related agreements between the parties. Any additional or different terms or conditions which may appear in any communication from , including, without limitation, in any printed form provided, are hereby expressly objected to and rejected in full and shall not be effective or binding in any capacity unless expressly accepted in an authorized writing by De Nora Water Technologies, LLC, regardless of, and fully notwithstanding, De Nora Water Technologies, LLC's supply of any goods and services or the execution of any document or acceptance by any person other than an officer or authorized agent of De Nora Water Technologies, LLC

In the event that this Proposal is executed by duly authorized representative and/or signatory then all terms and conditions of this Proposal, including but not limited to all matters pertaining to pricing and specification, commercial terms as included herein or incorporated by reference are deemed to be accepted. If purchaser issues a purchase order containing any other terms and conditions, such terms shall be of no effect unless expressly agreed to in writing by a duly authorized representative of De Nora Water Technologies, LLC.

Notwithstanding any other provision of these Terms or the Seller's Documentation, unless otherwise expressly stated in the Seller's Documentation, if, at any time during the course of Seller's performance of the sale of the Products or Services, there is an unforeseen and material increase in the price of raw materials, materials, labor, or other costs of Seller associated with the Products or Services, Seller shall have the right to reasonably adjust the prices set forth in the Seller's Documentation upon written notice to the Purchaser setting forth the amount of such price adjustment and reasonably setting forth the cost changes associated therewith.

ATTACHMENT:
DNWT C3500D UV EQUIPMENT
SPECIFICATION FOR
ROCKAWAY WPCP

ULTRAVIOLET DISINFECTION EQUIPMENT

PART 1 GENERAL

1.1 Intent of Section

This section addresses the supply, delivery, supervision of installation and commissioning of the ultraviolet (UV) disinfection equipment as described herein.

1.2 References

Environmental Protection Agency (EPA)

EPA/625/1-86/021	Design Manual, Municipal Wastewater Disinfection
NWRI	National Water Research Institute
IEEE 519-1992	Institute of Electrical and Electronics Engineers Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

1.3 System Description

Furnish all equipment, material, labor and appurtenances required for the complete installation and operation of the open channel UV disinfection system, as specified in this section. The system shall utilize low pressure high intensity lamp technology and high frequency electronic ballasts.

1.4 Related Sections

A. Section _____ - Concrete Pad

B. Section _____ - Anchor bolts and Expansion Anchors

C. Section _____ - Electrical Requirements

1.5 Quality Assurance

A. Only manufacturers of ultraviolet disinfection equipment who have been engaged in the business for at least five (5) years shall be allowed to bid.

B. Only UV manufacturers who have had their system validated via a bioassay test by a third party shall be allowed to bid.

C. The UV manufacturer shall offer state-of-the-art UV technology. The UV system shall include, but not be limited to, low pressure high intensity lamps, high frequency electronic ballasts capable of variable output, automatic cleaning system and status indication of each lamp.

D. A statement by the equipment manufacturer listing any deviations or exceptions taken to these specifications. Include specification reference and proposed alternative with reason stated for exception.

E. At least five (5) days prior to bid opening, the Engineer shall issue an addendum listing acceptable UV disinfection manufacturers. The Engineer shall evaluate each system on the basis of technical and performance capabilities and lowest life cycle cost which takes into account capital, energy and maintenance costs. The following shall be used in assessing life cycle costs:

1. Lamp price. Maximum expected life shall not exceed 16,000 hours. Maximum lamp life factor of 0.9 shall be used.
2. Ballast life and price.
3. Quartz sleeve life and price. Maximum quartz sleeve fouling factor of 0.95 shall be used.
4. Scraper life and price.
5. Power Costs. The power costs shall be $0.10 per kWh. Power costs will be assessed based on total system power.
6. The plant's average flow rate shall be used for calculating the operating costs.

1.6 Submittals

A. Submit six (6) copies of the following shop drawings.

B. Layout, overall dimensions, required clearances and a general description of the equipment, including the location of electrical equipment, control panels and other auxiliary equipment.

C. Details of attaching equipment, services, auxiliary equipment, accessories, *etc*.

D. Complete data on materials to be used for fabrication for those parts in and out of the effluent.

E. Electrical control schematics, wiring diagrams, panel layout and a general description including a list of materials.

F. Operating characteristics of all electrical and control equipment: operating voltage and amperage tolerances and any ancillary electrical services that are required.

G. List of what components and materials shall be shipped preassembled and a parts list for the other components and materials. Weights and physical dimensions shall be indicated for each part, assembly and/or package to be shipped.

H. Provide Operation and Maintenance data for incorporation in the O & M manuals as specified. Include a complete description of the operation of the UV system together with the general arrangement and detailed drawings of the UV system: wiring diagrams for the power and control system. A parts catalog with a complete list of replacement parts with section drawings illustrating the connections and identifying numbers.

I. Third-party bioassay validation report and calculations used to determine the MS2 Reduction Equivalent Dose (RED). The bioassay shall have been performed in accordance with the NWRI Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse (May 2003). Any equations used in sizing the UV system shall have been generated by the third-party that performed the validation testing. Calculations should verify the guaranteed log reduction of the target organism at end of lamp life, maximum flow, maximum influent concentration and minimum UV Transmittance.

1.7 Delivery and Storage

A. Ship equipment pre-assembled to the degree that is practicable.

B. Provide storage instructions indicating specific requirements to ensure there is no damage to or deterioration of components.

1.8 Coordination

A. The Contractor shall coordinate the equipment delivery schedule with the construction schedule.

1.9 Acceptable Products

A. The UV disinfection equipment shall be the ***C³500™D,*** as manufactured by De Nora Water Technologies LLC or approved equal.

PART 2 PRODUCTS

2.1 Description

A. The UV disinfection system shall reduce the concentration of viable microorganisms in the treatment plant effluent by irradiation with UV light at a wavelength of 254 nm. Less than 23 Fecal Coliform colonies per 100 mL, based on 30-day geometric mean, shall be the target that must consistently be achieved.

B. Equipment supplied with the UV system shall include UV lamp racks, supports for the lamp racks, automatic level controller, UV intensity sensors, power distribution centers, system control center, spare parts and other equipment as required for the complete installation and operation of the system.

2.2 Basic Design Conditions

A. The UV disinfection system shall be used to disinfect wastewater that has undergone tertiary treatment.

B. The system shall be designed for the following water quality and flow conditions.

1.	Maximum Daily Flow per Channel (MGD)	10
2.	Average Monthly Flow (MGD)	4
3.	Current Average Daily Flow (MGD)	1.7
4.	Minimum UV transmission at 254 nm (%)	60
5.	Maximum Total Suspended Solids (mg/L)	20
6.	Temperature (ºF) / (ºC)	34 - 95 / 1-35
7.	Effluent Fecal Coliform colonies per 100 mL,	

based on 30-day geometric mean	23

C. The system shall be suitable for installation into an open channel with the following dimensions:

1.	Length (inches)	425
2.	Width (inches)	36
3.	Depth (inches)	54
4.	Effluent Depth (inches)	30, nominal

D. The following system configuration shall represent the minimum number of lamps to be supplied. If it is the opinion of the manufacturer that a greater number of lamps are required to satisfy the disinfection requirements of this project then the manufacturer shall base its bid on the higher number of lamps and provide detailed information supporting that offering.

1.	Number of channels:	1
2.	Number of banks per channel:	2
3.	Number of racks per bank:	6
4.	Number of lamps per rack:	5
5.	Total number of UV lamps:	60
6.	Number of UV intensity sensors:	2
7.	Number of Power Distribution Centers (PDC's):	2
8.	Number of PLC Based System Control Centers (SCC's):	1

E. The system shall be capable of uninterrupted operation during the removal of UV lamp racks for routine maintenance or for the replacement of parts.

F. The UV density available in the UV bank shall not be less than 4.5 W/L (total nominal UV power at 254 nm divided by effective volume of the water filled bank) at the end of lamp life.

G. The system shall be capable of delivering a minimum MS2 RED of 30 mJ/cm^2, after 16,000 hours of lamp operation, at the peak flow rate with 60 % UV transmission of the effluent at 254 nm and adjusting for quartz sleeve fouling.

H. The calculated average intensity within the UV bank shall not be less than 12.14 mW/cm^2 at a UV transmission of 60 % with new lamps and with clean sleeves, as determined by the TULIP subroutine of UVDIS, Version 3.1.

I. The theoretical retention time shall not be less than 4.27 seconds at the peak flow rate.

J. The actual retention time of the effluent within the system determined by hydraulic analysis shall not be less than 0.9 times the theoretical retention time (almost complete use of the reactor volume).

K. The flow through the system shall be turbulent with a Reynolds number greater than 4,000 at average flow.

L. The headloss for each bank shall be less than 1.68 inch at peak flow condition with no lamps exposed to air.

2.3 Materials

A. All metal components in contact with the effluent and UV light shall be Type 316 stainless steel. Manufacturers that use aluminum on any UV equipment installed in the channel shall not be considered for this project.

B. All other stainless steel shall be Type 304.

C. All wiring exposed to UV light shall be Teflon coated.

D. All material exposed to UV light shall be stainless steel, quartz, Teflon or other UV resistant material.

E. The equipment shall be designed to comply with NEMA 4X (IP65) ratings.

2.4 UV Lamps

A. The UV system shall utilize low pressure high intensity amalgam lamps of the pre-heat start design.

B. Each lamp shall produce UV light with at least 90% of its emission between the wavelengths of 230 to 300 nm.

C. The lamp shall be rated for an average UV output of 205 W at 253.7 nm after 100 hour burn in. The average UV output of any proposed lamp cannot exceed 38% of the lamp input power.

D. The lamp shall be rated to produce no ozone.

E. The lamp arc length shall be 57 inches (1447 mm).

F. The UV lamp type shall be GA64T10L.

G. The lamps shall have a four pin electrical connector at one end only.

2.5 Quartz Sleeves

A. The quartz sleeves shall be fabricated of Type 214 clear fused quartz circular tubing containing at least 99.9% silicon dioxide.

B. The sleeve wall thickness shall be at least 1.50 mm (nominal).

C. The quartz sleeve material shall be rated for 92% UV transmission and shall not be subject to solarization over its lifespan.

D. The quartz sleeves shall be fabricated with one end closed so that only the open end requires sealing.

2.6 Lamp End Seals

A. The open end of the quartz sleeve shall be sealed by means of a Type 316 stainless steel nut which threads onto a coupling and compresses a sleeve O-ring.

B. The sleeve coupling nut shall have a knurled surface to allow a positive hand grip for tightening. The nut shall not require any tools for removal.

C. The quartz sleeve shall be held in place by means of an O-ring and compression washer.

D. The UV lamp rack shall be designed to isolate the individual lamps and to prevent moisture from coming in contact with the electrical connections of other lamps in the event of a seal failure or a quartz sleeve fracture.

2.7 Lamp Array Configuration

A. The lamp array configuration shall be uniform with all lamps parallel to each other and to the flow.

B. The lamps shall be evenly spaced in horizontal and vertical directions with equal center line spacing in both directions.

C. Vertical lamp configurations shall not be acceptable due to higher headloss.

2.8 UV Lamp Racks

A. Each UV lamp rack shall consist of five (5) UV lamps mounted on a Type 316/304 stainless steel frame.

B. The ends of the quartz sleeve shall not extend beyond the frame of the UV lamp rack, so that the frame will help protect the lamp/sleeve assembly from breakage.

C. The UV lamp rack shall be connected to receptacles on the Power Distribution Center (PDC) by means of one or two multi-conductor cable(s) with modular repairable connector(s). The cable connector and all of its components shall be field repairable. The connector shall be of a "Snap-On" design having no threads that may bind or be subject to cross threading. The connector shall also allow for visual confirmation that the connection is locked in place. Pins shall be made from a copper alloy with hard silver plating. The connector shall be coated with a corrosion resistant finish and all levers, bolts and screws shall be made of stainless steel. The connector shall meet IP65 (UL574) requirements for direct water spray when mated.

D. At the point of exit from the UV lamp rack, the multi-conductor cable(s) shall pass through a water resistant strain relief.

E. The UV lamp racks shall be designed so that when they are in place, in the UV banks with the grating removed, they shall support a live load of 300 lbs (136.4 kg) without damage. The tops of the racks shall present a surface on which workers can stand to access the racks in the UV bank.

F. The UV lamp rack shall incorporate a protective shield to prevent UV light from radiating above the lamp bank during normal operation.

G. The UV lamp rack shall be designed to comply with NEMA 4X (IP65) ratings.

2.9 Bank Support Brackets

A. Lamp racks shall be suspended on Type 304 stainless steel support brackets. The support brackets shall be designed to support the weight of the lamp racks plus the weight of two operators standing on top of the lamp racks. The lamp racks shall not rest on the bottom of the channel but shall be suspended above it. The support brackets shall be held in place by brackets anchored to the channel walls.

2.10 Level Control Weir

A. The level control weir shall be located at the discharge end of the channel.

B. The weir shall maintain a minimum channel water level and shall be sized to maintain a maximum height of 2.0 inches (50.8 mm) of effluent over the top lamp at peak flow conditions with no short circuiting of the lamp array.

C. The level control weir shall be constructed of Type 304 stainless steel and shall be provided with wall mount brackets.

2.11 UV Intensity Sensor

A. A submersible UV sensor shall continuously sense the UV intensity produced in the bank of UV lamps. The sensor shall measure only the germicidal portion of the light emitted by the UV lamps. The sensor shall be factory calibrated.

B. Intensity of the bank of UV lamps shall be indicated in mW/cm^2.

C. The sensor shall provide a 4 - 20 mA analog output signal for local indication of the UV intensity in the UV bank.

2.12 Power Distribution Center (PDC)

A. A PDC shall be provided for every bank of lamps. The PDC supplies power to the lamp racks and contains power distribution, electronic ballasts, control and monitoring equipment. The PDC is fabricated from Type 304 stainless steel. The PDC shall be designed to comply with NEMA 4X (IP65) ratings.

B. Each PDC shall include its own main breaker. This will allow maintenance personnel to perform any service work per local safety regulations.

C. The PDC shall be equipped with the necessary components to allow each bank of lamps to be controlled in either the Remote (Automatic) or Local (Manual) mode. Each PDC shall have a Control Card and Operator Station used to control and monitor the bank of lamps.

D. Each PDC shall operate as an independent unit. In UV systems that include multiple banks, the operation of each PDC shall not be affected by the operation of other PDC's.

E. The electrical supply to each PDC shall be 480/277VAC, 3 Phase, 4 Wire plus GND, 60Hz. The power consumption shall be a maximum of 18 kW per bank.

2.13 Ballasts

A. Electronic ballasts shall be of the pre-heat start type. The electronic ballast system will provide a minimum power factor of 98%.

B. The ballast input voltage shall be single phase 277 VAC, 60 Hz.

C. The lamp current crest factor shall not exceed 1.45.

D. Each ballast shall drive one low pressure high output amalgam lamp for increased redundancy.

E. The ballast shall be capable of providing variable output to the lamp. The variable output shall be a continuous function and not a step function.

F. Each ballast shall provide a lamp failure alarm signal for the lamp they drive.

G. The ballast shall be a modular, plug-in device allowing for easy replacement in the field by operators without the need for special equipment.

2.14 Control and Instrumentation

A. General

1. The UV Control and Monitoring System integrated into each PDC shall include provisions for local indication of the following system parameters:
   a. Individual lamp status
   b. Communications status
   c. Bank UV intensity (mW/cm^2)
   d. Bank ON/OFF status
   e. Bank elapsed time (h)
   f. Cleaning motor status
   g. Bank lamp current (%)
   h. Time before next cleaning cycle (h)

2. The UV Control and Monitoring System shall provide an alarm mode that allows the operator to view up to 20 of the most recent alarms that are still active or have yet to be acknowledged. The alarms displayed shall be common alarms for each UV lamp rack as well as system alarms. Minor and major alarms are defined below.
   a. Minor Alarms
      1. Individual lamp failure
      2. Cleaning motor overload

3. Bank UV intensity low alarm
4. High cabinet temperature alarm

b. Major Alarms
1. Bank UV intensity low-low alarm
2. Adjacent Lamp Failure
3. Multiple Lamp Failure
4. Circuit breaker/GFI trip alarm
5. Effluent low level
6. Loss of UV intensity signal in Remote mode

3. The control system shall provide elapsed time indication for individual banks with a non-resettable timer and shall be displayed when prompted.

4. Lamp on/off cycling is protected by introducing delays to compensate for brief flow fluctuations and to keep energized banks in service for a defined period of time.

5. For a two banks system in Remote mode and with dose pacing enabled, the output of the lead bank is adjusted such that the Received Dose follows the Applied Dose. If the Received Dose cannot attain the Applied Dose then the lag bank is energized and after the warm-up period the Bank Output Current of both banks is adjusted such that the Received Dose follows the Applied Dose. The reverse is also true; if the Received Dose is greater than the Applied Dose then the lag bank is de-energized after a 30 minute delay.

6. In Remote mode the lead bank is always energized. The UV Control and Monitoring System shall energize the lag bank under the following conditions:
1. if the Received Dose cannot attain the Applied Dose in dose pacing mode,
2. a major alarm condition is detected in the lead bank,
3. the operator manually rotates the lead bank.
The lag bank delay off timer is set to 30 minutes to prevent unnecessary on/off cycling based on changing process conditions.

7. A form C (normally open (NO) or closed (NC)) dry contact rated for 5A (NO)/3A (NC) at 125 VAC shall be provided as follows:
a. Minor common alarm condition
b. Major common alarm condition
c. Bank ‘A’ status
d. Bank ‘B’ status, if configured

B. System Control Center - PLC Based Controls

1. Operator interface shall be via a color touch-screen device.

2. Minor alarms shall be provided to indicate to plant operators that maintenance attention is required. Alarms shall include:
1. Individual lamp failure shall indicate which lamps are out of service (locally only).
2. Cleaning motor overload.
3. Low UV intensity alarm. This alarm setpoint shall be field adjustable.
4. High cabinet temperature alarm.

3. Major alarms shall be provided to indicate an extreme alarm condition in which the disinfection performance may be jeopardized. Alarms shall include:
   1. Low-low UV intensity alarm. This alarm setpoint shall be field adjustable.
   2. Adjacent Lamp Failure.
   3. Multiple Lamp Failure.
   4. Circuit breaker/GFI trip alarm.
   5. Effluent low level.
   6. Loss of UV intensity signal in Remote mode.
   7. Loss of flow signal in Remote mode.

4. The 100 most recent alarms shall be recorded in an alarm history register and displayed when prompted.

5. It shall be possible to set the status of individual banks to either Manual, Off or Automatic mode from the System Control Center.

6. The System Control Center shall cycle the banks for equal wear and off time to minimize bank cycling.

7. Elapsed time of each bank shall be displayed when prompted.

8. The System Control Center shall be a separate NEMA 4X (IP65) rated enclosure located within 500 feet (152 m) of the channel. The suggested location is in the Control or MCC building.

9. The communication protocol connecting the SCC and PDC's shall be RS-485. The PLC in the SCC shall be an Allen Bradley CompactLogix™ L30ER processor and associated I/O modules. Interfacing to the plant-wide network shall be achieved via Ethernet or any other common protocol using a protocol converter. Interfacing to an external system shall be achieved by hard wired I/O points.

10. A normally open (NO) dry contact rated for 2 amps shall be provided for the following:
    a. Minor common alarm condition
    b. Major common alarm condition
    c. Bank status (one for each UV bank supplied)
    d. PLC power failure

C. The UV Control System shall execute the following:

1. Select alternate bank if a selected bank is out of service, has a major alarm or is scheduled for maintenance.

2. Optimize lamp life by alternating banks as directed by the System Control Center.

3. Protect lamps from cycling on/off by introducing delays to compensate for brief flow fluctuations and to keep energized banks in service for a user defined period of time (20 minutes minimum).

4. The dose pacing control scheme is enabled from the Operator Interface when the minimum number of PDC's are in Remote mode. Dose is calculated on a per bank basis and is totaled for the system. The total dose received by the effluent is called the Received

Dose. This value is the Process Variable (PV) and the PID compares the PV to the Applied Dose (Setpoint) and adjusts the Ballast Output Current accordingly so that the Received Dose follows the Applied Dose. The algorithm will energize and de-energize banks as necessary to ensure the Received Dose follows the Applied Dose thereby maximizing lamp life and minimizing power consumption.

5. In the event of a failure or interruption of operation of the UV Control and Monitoring System, each PDC shall continue to operate in local mode and provide the designed disinfection performance.

2.15 Cleaning System

A. Mechanical cleaning system with an automatically controlled and manually initiated cleaning cycle. UV systems that do not have automatic cleaning shall not be accepted.

B. The cleaning mechanism (scraper) shall be driven by an electric motor. UV systems that incorporate hydraulic or pneumatic cleaning systems shall not be accepted due to increased components and complexity. UV systems utilizing chemicals shall also not be accepted.

C. The cleaning system shall be fully operational without requiring the lamp rack to be placed out of service.

D. The cleaning cycle intervals shall be field adjustable from once every hour to once every 999 hours.

2.16 Safety Equipment

A. The UV system manufacturer shall provide one (1) suitable face shield which will block UV light with wavelengths between 200 and 400 nm from low pressure mercury lamps.

2.17 Spare Parts and Accessories

A. The following spare parts shall be furnished;

1.	Six (6) - UV Lamps	(10% of the total supplied in the system)
2.	Six (6) - Quartz Sleeves	(10% of the total supplied in the system)
3.	Six (6) - End Seals	(10% of the total supplied in the system)
4.	Three (3) - Electronic Ballast	(10% of the total supplied in the system)
5.	Six (6) – Scraper Assembly	(10% of the total supplied in the system)
6.	One (1) - Service Trolley	(One)
7.	One (1) – Davit Crane with Bases	(One)

PART 3 EXECUTION

3.1 Equipment Installation

A. The ultraviolet disinfection system shall be installed in accordance with the manufacturer's drawings, written instructions and recommendations. The manufacturer shall provide adequate services as required for proper installation.

B. The manufacturer shall issue a certificate to the Engineer indicating that the system has been properly installed after an inspection and testing of the system.

3.2 Manufacturer's Representative

A. The manufacturer shall provide the services of a qualified field representative to perform field services including commissioning and instruction of the Owner's personnel in the operation and maintenance of equipment furnished. A total of two (2) trips with up to six (6) day of onsite services shall be provided.

3.3 Field Training

A. The manufacturer shall provide the services of a qualified representative to train operation and maintenance personnel. Training shall be provided for a total of one person day after commissioning of the system. Field training shall cover all of the items contained in the operation and maintenance manual.

End of Section

ATTACHMENT:
MANUFACTURING FACILITY
SPARE PARTS & TECHNICAL
SUPPORT

Manufacturing Facility, Spare Parts & Technical Support

De Nora Water Technologies, LLC – located in Coraopolis, PA, just five minutes from the Pittsburgh International airport – manufactures three Ultraviolet distinct technology systems that are used for:

- Drinking water disinfection,
- Municipal wastewater disinfection, and
- Ballast water treatment.

De Nora Water Technologies, LLC is ISO 9001:2015 accredited. The certification of compliance with ISO 9001:2015 recognizes that the policies, practices, and procedures of our UVT Division ensure consistent quality in the products and services we provide to our customers. The certification applies to the management system for the design, development, manufacture, delivery, installation, warranty support, and aftermarket parts and service for ultraviolet (UV) water treatment systems. De Nora's quality assurance manufacturing program has also fully met the requirements of NASA, the U.S. DOD and the U.S. DOE.

All consumable spare parts are stocked at our manufacturing facility in Coraopolis, PA. Spare parts are available over night in an emergency and within 1-2 weeks for general orders.

Each wastewater project is assigned a field service engineer who works on the project in the factory for initial testing and again in the field for startup and future maintenance. Technical support is available 24/7 through our support line and our service department prides themselves on always answering their phones and returning calls in a timely manner because they recognize the importance of being available to support our system.

ATTACHMENT: TECHNICAL DATASHEETS

1 - LEVEL SENSOR CAPACITANCE PROBE

2- REALTECH S2100 ONLINE UVT ANALYZER

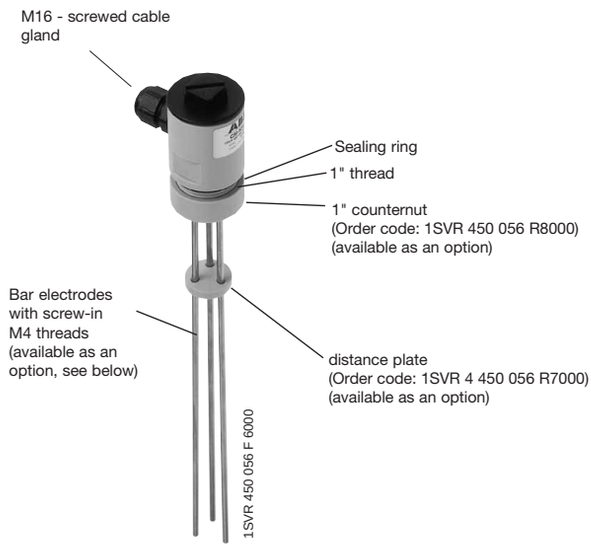
3 - DE NORA UV INTENSITY SENSOR

Liquid level relay

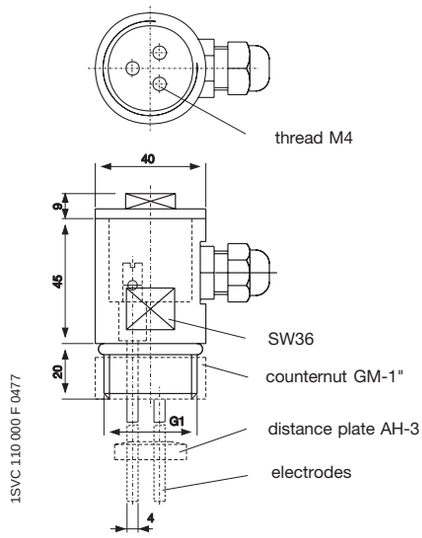
Accessories, ordering details, dimensional drawings

Compact support KH-3, for 3 bar electrodes

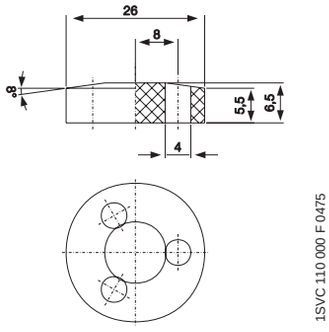
- Ideally suited for use with liquid level relays CM-ENS and CM-ENN
- Wire connection by screw terminals
- Pull relief by M16 screwed cable glands
- Temperature range up to 90°C
- Food Service Equip. (PPH)
- Screw-in electrodes (M4 thread)
- Distance plate (AH-3) and counternut (GM-1) optionally as an accessory



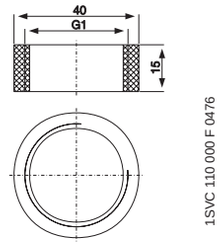
Compact support KH-3



Distance plate AH-3



Counternut GM-1



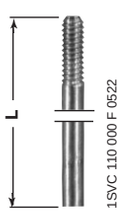
Technical data - Compact support

Type of mounting:	thread G 1"
Mounting position:	any
Housing material:	PPH
Sealing ring:	NBR 70
Temperature range:	max. 90°C
Pressure:	max. 10 bar (60°C)

(dimensons in mm)

Type		Order code	Pack. unit piece	Price 1 piece	Weight 1 piece kg/lb
CM-KH-3	Compact support for 3 bar electrodes	**1SVR 450 056 R 6000**	1		0.060/0.132
CM-AH-3	Distance plate for 3 bar electrodes	**1SVR 450 056 R 7000**	1		0.060/0.132
CM-GM-1	Counternut for 1" thread	**1SVR 450 056 R 8000**	1		0.060/0.132

Screw-in bar electrodes for compact support KH-3



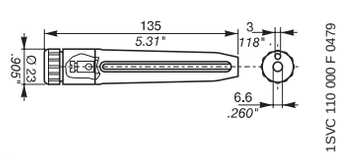
Thread M4

Material: stainless steel 304, high grade steel 14301

Length mm	Order code	Pack. unit piece	Price 1 piece	Weight 1 piece kg/lb
300	**1SVR 450 056 R 0000**	1		0.080/0.176
600	**1SVR 450 056 R 0100**	1		0.080/0.176
1000	**1SVR 450 056 R 0200**	1		0.080/0.176

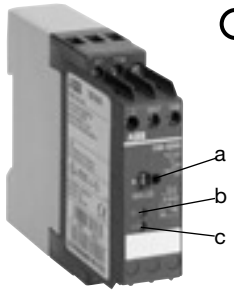
Suspension electrode

Steel electrode
(X 12 CR Mo S 17) with sleeve
(Lupulen 6011 L)
suitable up to max. 60°C



Typ	Order code	Pack. unit piece	Price 1 piece	Weight 1 piece kg/lb
	1SVR 402 902 R 0000	1		0.080/0.176

Liquid Level Controls
CM-ENS
Dual Level With SPDT Output



a "Sens." - sensitivity adjustment
b R: yellow LED - relay status
c U: green LED - supply voltage

- Monitoring and control of conductive liquid levels
- Monitoring and control of mixture ratios (conductivity of liquids)
- Adjustable response sensitivity 5…100 kΩ
- 4 supply voltage versions 24…415 V AC
- 1 SPDT contact
- 2 LEDs for status indication

Approvals: c UL us LISTED

Accessories

Compact Support CM-KH-3

1" Counter nut CM-GM-1

Distance Plate CM-AH-3

Bar Electrodes (select length)

Panel Mounting Adapter

22.5 mm
P/N: 1SVR 430 029 R 0100

Transparent Cover

22.5 mm
P/N:
1SVR 430 005 R 0100

Marker Insert

P/N:
1SVR 366 017 R 0100

See accessory pages for specifications.

Description

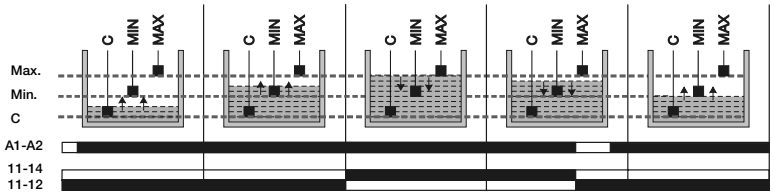
The CM-ENS monitors levels of conductive liquids and is used for liquid level control in pumping systems for filling or draining tanks.

It is also suitable for monitoring the conductivity of liquids. The measuring prinicple is based on the resistance change sensed by single-pole electrodes. The supply voltage is applied to the terminals A1 and A2, the output relay is de-energized. The probes are connected to C, MAX, MIN.

The output relay energizes if the liquid exceeds the maximum level (C and MAX wet) and de-energizes if the liquid level is below the minimum level (MAX and MIN dry).

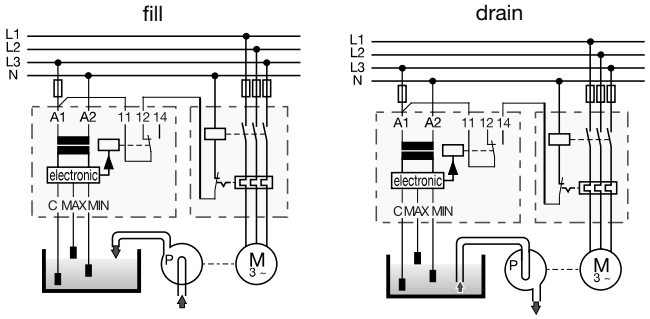
The measuring circuit includes a response delay of approximately 250 ms at maximum sensitivity. Different levels in one tank can be controlled by up to 5 CM-ENS without interfering with each other.

Function

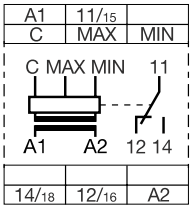


When using a metal tank the electrode C is not required. In this case the cable can be connected directly to the metal surface of the tank.

Application Examples



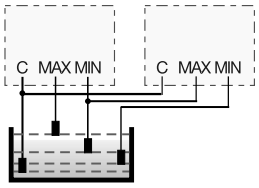
Connection



A1-A2 Supply voltage
C Ground reference electrode
MAX Maximum level
MIN Minimum level
11(15)-12(16)/14(18)
Output contacts -

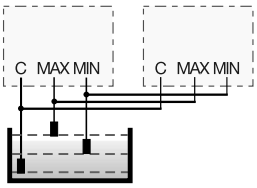
Cascading

The electrode inputs can be interconnected as required.



Redundancy

Redundant liquid level monitoring or control can be implemented by connecting the electrodes to two units.



Ordering Table

Supply Voltage	Part Number
24 V AC	**1SVR 430 851 R 9100**
110…130 V AC	**1SVR 430 851 R 0100**
220…240 V AC	**1SVR 430 851 R 1100**
380…415 V AC	**1SVR 430 851 R 2100**
220…240 V AC[1)]	**1SVR 430 851 R 1300**

[1)] Version with safety isolation acc. to VDE 0160, 1 n/o, 1 n/c

ENS02B01 12.5.04

Liquid Level Controls
CM-ENS
Dual Level With SPDT Output

Technical Data

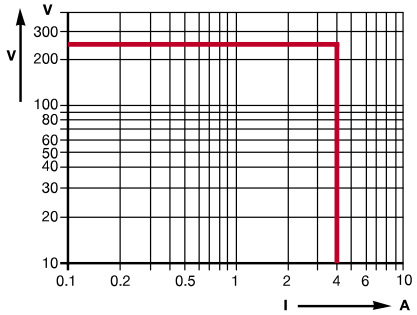
Input		
Supply voltage - power consumption	A1-A2	24 V AC - 1.5 VA
	A1-A2	110...130 V AC - 1.5 VA
	A1-A2	220...240 V AC - 1.5 VA
	A1-A2	380...415 V AC - 1.5 VA
Tolerance of supply voltage		-15 % ... +10 %
Supply voltage frequency		50…60 Hz
Duty cycle		100 %
Measuring Circuit		
Electrode inputs	C	Ground-referring electrode (Common)
	MAX	Maximum level
	MIN	Minimum level
Response sensitivity		5...100 kΩ
Electrode voltage max.		30 V AC
Electrode current max.		1 mA
Electrode supply line	Cable capacity max.	10 nF
	Cable length max.	100 m
Delay on make delay		Approx. 250 ms
Display of Operational Status		
Supply voltage		LED green
Ouput relay energized		LED yellow
Output	11-12/14	Relay, 1 SPDT contact
Rated operating voltage		250 V AC
Rated operating current	AC 12 (resistive)	4 A (230 V)
	AC 15 (inductive)	3 A (230 V)
	DC 12 (resistive)	4 A (24 V)
	DC 13 (inductive)	2 A (24 V)
Maximum mechanical life		30 x 10^6 operations
Maximum electrical life (acc. to AC 12/230V/4A)		3 x 10^5 operations
Short-circuit proof, maximum fuse rating		10 A / fast acting
General Data		
Rated impulse withstand voltage Vimp		4 kV
Operating temperature		-20° C ... +60° C
Storage temperature		-40° C ... +85° C
Mounting position		Any
Mounting to DIN rail (EN 50022)		Snap-on mounting/screw mounting with an adapter
Cable size stranded with wire end ferrule		2 x 14 AWG (2 x 2.5 mm²)
Weight		Approx. 0.33 lb (150 g)

Suitable for
spring water
acids, bases
drinking water
liquid fertilizers
sea water
milk, beer, coffee
sewage
non-concentrated alcohol

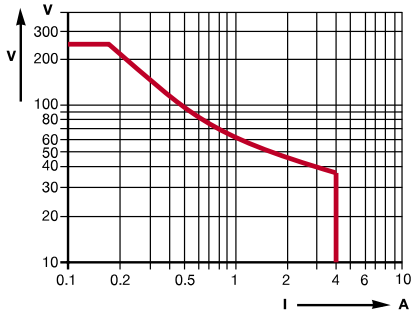
Not suitable for
chemically pure water
ethylene glycol
fuel
concentrated alcohol
oils
paraffin
explosive areas (liquid gas)
lacquers

Load Limit Curves

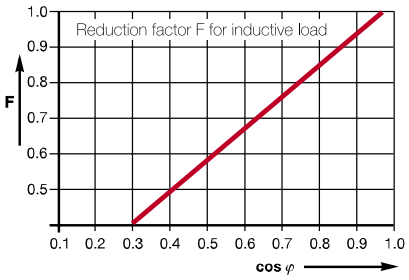
AC Load (Resistive)



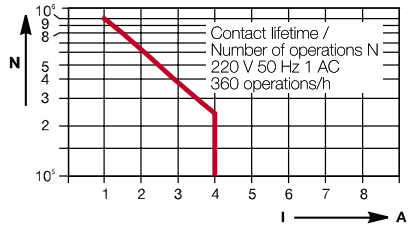
DC Load (Resistive)



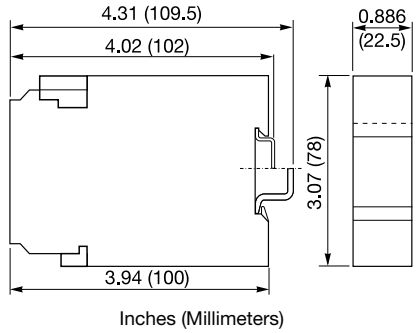
Reduction Factor for Inductive AC Load



Contact Lifetime



Mechanical View



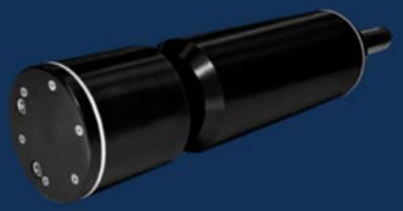
Inches (Millimeters)

9

ENS02B01 12.5.04

UV254 PROBE SENSOR

S SERIES



FEATURES & BENEFITS

- Accurate, reliable and affordable
- Real-time UVT or UVA organics monitoring
- Long-life UV LED light source
- Innovative custom calibration limits maintenance
- Robust submersible probe for in-situ measurement
- Simple to install and easy to operate

MUNICIPAL DRINKING WATER
MUNICIPAL WASTEWATER
INDUSTRIAL PROCESS WATER
INDUSTRIAL WASTEWATER

WATER QUALITY
MONITORING
SOLUTIONS

OVERVIEW

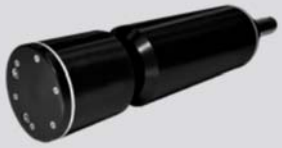
Real Tech's UV254 probe sensor provides rapid real-time measurement of organic matter in water or wastewater. Continuous organic monitoring can bring significant value to many applications including UV disinfection.

The effectiveness of a UV disinfection system is determined by the UV dose that the system is able to deliver to the water. The UV dose is dependent primarily on the combined effects of the UV light intensity, the exposure time of the system and the UV transmittance (UVT) of the water. Therefore, precise and reliable UVT monitoring is required for optimal performance and efficiency. Real Tech's S series probe is cost effective and accurate, making it a practical choice for many UV disinfection applications.

MEASUREMENT PRINCIPLE

The S series sensor utilizes light at 254 nm wavelength as most organic compounds (specifically aromatic organics) absorb light at this wavelength. Benefiting from a long-life UV LED lamp, accurate and stable measurements are obtained with minimal maintenance or operator intervention. Measurement can be expressed as UVT or UV254.

REALTECH INC.



UV254 PROBE

S SERIES

SPECIFICATIONS

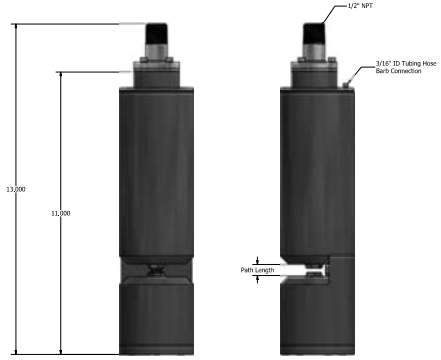
CHARACTERISTIC	TECHNICAL DATA			
MODEL	**S2010**	**S2020**	**S2040**	**S2100**
Path Length	1 mm	2 mm	4 mm	10 mm
Parameters	UVT or UV254			
Range	Depends on model selected. Refer to range chart on next page.			
Accuracy	± 0.5% FS			
Units	% or cm^{-1}			
Sampling Time	10 seconds			
Calibration	Zero to DI water or custom calibration to existing process sample.			
Cleaning	Real Air Clean automatic pressurized air cleaning system			
Self-Diagnostics	Detection and diagnosis of internal system fault			
Alarms	Continuous detection of leaks, lamp output, humidity, temperature and electrical fault			
Humidity Control	Humidity sensor with desiccant pack			
Wavelength	254 nm			
Light Source	LED			
Electrical/Comm.	From controller			
Storage Temp.	-20 to 60°C (-4 to 140°F)			
Operating Temp.	0 to 45°C (32 to 113°F)			
Weight	5 lb			
Dimensions	11" H x 2.875" Diameter			
Warranty	2-year limited warranty (Extended care packages available)			

* Technical Specifications are subject to change without notice.

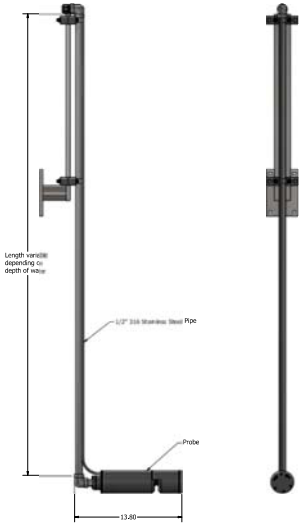
DIMENSIONS

S series sensors are submersible probe instruments installed directly in-situ using a mounting kit attached to a tank wall or railing.

DIMENSIONS FOR S PROBE



MOUNTING FOR S PROBE



MODELS & RANGE

The S series models include UV254 probe sensor, 35 feet of communication cable and 35 feet of air tubing . Controller, mounting kit and cleaning system sold separately.

MODEL	PATH LENGTH	UV254 (cm^{-1})	UVT (%)
S2010	1 mm	0 - 20	0 - 100
S2020	2 mm	0 - 10	0 - 100
S2040	4 mm	0 - 5	0 - 100
S2100	10 mm	0 - 2	1 - 100

* Stated ranges approximate, dependent on industry, site and application - contact Real Tech to confirm model selection

ACCESSORIES

PRODUCT #	NAME	DESCRIPTION
S-169000	Real Controller	Wall mounted controller with 4-line x 20-character back lit LCD display for sensors
S-188101	Air Clean System I	Air cleaning valve module requires on-site air (no compressor)
S-188102	Air Clean System II	Low power automatic CO_2 air cleaning system
S-188103	Air Clean System III	Automatic compressed air cleaning system including compressor
S-189031	LED Probe Mounting Kit I	Provides secure mounting attachment to a tank wall or open channel wall for S series sensor. No pole included
S-189032	LED Probe Mounting Kit II	Provides secure mounting attachment to a tank wall or open channel wall for S series sensor. 5ft pole included
S-189033	LED Probe Mounting Kit III	Provides secure mounting attachment to a tank wall or open channel wall for S series sensor. 10ft pole included

Real Tech Inc.
1150 Champlain Court,
Whitby, Ontario L1N 6K9 Canada
TF: 1.877.779.2888 T: 1.905.665.6888
info@realtechwater.com

REALTECH INC.

UV INTENSITY SENSOR

Part Number W000050

Description

The UV intensity sensor is a two-wire transmitter that measures the UV intensity between 230 and 370 nm within an array of germicidal lamps submerged in wastewater. The sensor has a 360° viewing angle that monitors the UV intensity of adjacent lamps as well as surrounding lamps. The UV intensity sensor serves as an indicator of effluent quality, quartz sleeve fouling and lamp aging.

Electrical Specifications

INPUT

1. V_{in} = 24 VDC, +/- 10%
2. I_{in} < 25 mA @ V_{in} = 24 VDC

OUTPUT

1. Analog Signal: 4 to 20 mA
2. Maximum Load (Ω): $R_{LOAD} = (V_{in} – 8.5) / 0.02$
3. Accuracy and repeatability: +/- 5%

SYSTEM INTERFACE

The UV intensity sensor signal is wired to the Control Card mounted in the Power Distribution Center. The Control Card converts the analog signal (mA) to a UV intensity signal in mW/cm^2. The calibrated UV intensity sensor has a range from 0 to 25 mW/cm^2. The UV intensity value is displayed locally at the Operator Station and remotely at the PLC Operator Interface, if provided.

ENVIRONMENTAL

1. Water Temperature: Operating: 0 to 60 °C
2. Storage Temperature: -20 to 85 °C
3. The UV sensor enclosure is designed to comply with NEMA 6P (IP67) ratings and is submersible to a maximum of ten (10) feet of water.

MECHANICAL

1. Enclosure dimension are 1.18 inches (30 mm) tubing and 7.75 inches (197 mm) long.
2. Enclosure material is 316 SS and quartz.
3. Cable length is approximately 16.5 feet (5 m) long. Cable protection material is Teflon®.
4. Weight of the complete UV Sensor with cable assembly is approximately 3 pounds (1.36 kg).

CONNECTOR DETAILS

A NEMA 4X bulkhead connection on the face of the Power Distribution Center is utilized to connect the UV intensity sensor cable to an internal cable that is wired to the Control Card.

The UV intensity sensor passes through a mounting socket located on one of the lamp rack legs between the top two lamps on the side opposite the motor box.

The UV intensity sensor quartz tube is cleaned with the same mechanical cleaning device as are the lamp sleeves. The cleaning frequency is the same as the Lamp Rack cleaning frequency since the cleaning device is attached to the same cleaning mechanism.

CALIBRATION

The UV intensity sensor is factory calibrated to 3.1.B of the German Institute for Standardization (DIN) EN10204.

ATTACHMENT: DRAWINGS

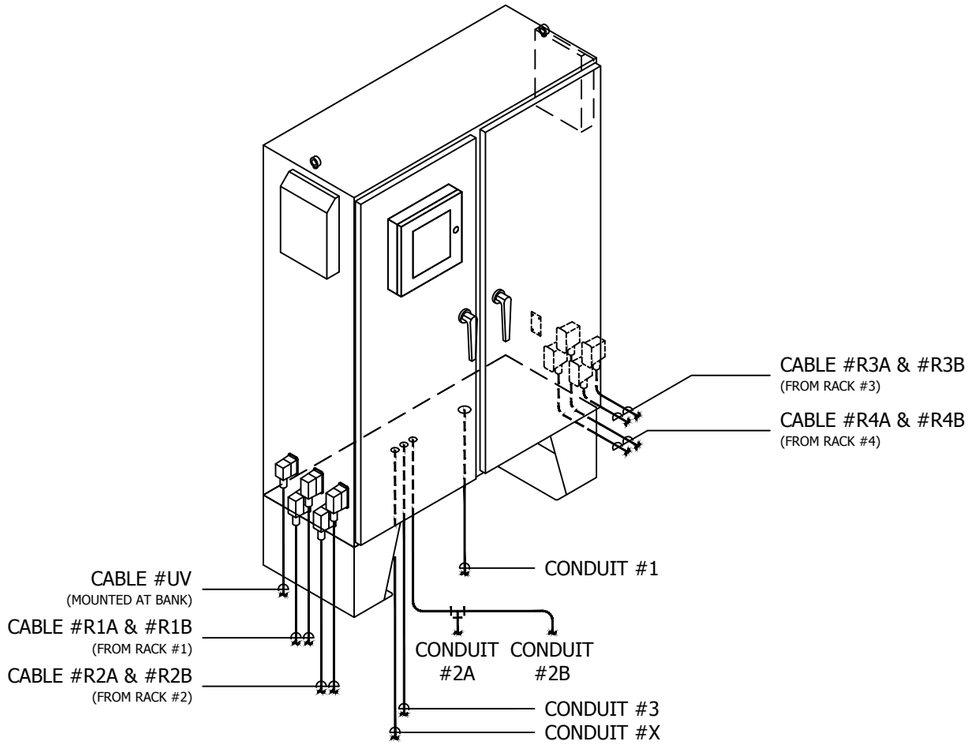
1 - EXTERNAL WIRING DIAGRAM

2- PDC (FOR ROCKAWAY)

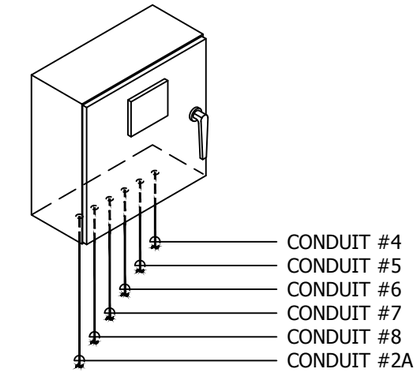
3 - SCC

4 - LAMP RACK GENERAL ARRANGEMENT

5 - SAMPLE LAYOUT DRAWING



C³500D PDC
(POWER DISTRIBUTION CENTER)

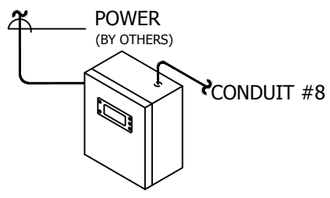


C³500D SCC
(SYSTEM CONTROL CENTER)

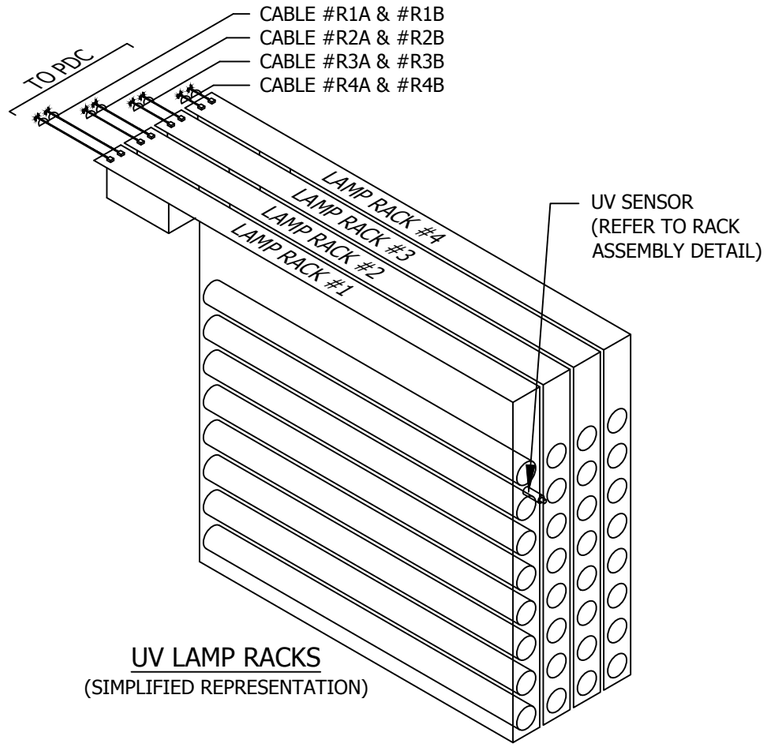
SAMPLE ONLY OF TYPICAL ELECTRICAL WIRING

NOTES:

1. ALL EXTERNAL WIRING PROVIDED & INSTALLED BY OTHERS, UNLESS OTHERWISE NOTED. ALL CONDUCTORS ARE COPPER.
2. ALL WIRING INSTALLED ACCORDING TO NEC, LOCAL CODES, & ANY AUTHORITY HAVING JURISDICTION.
3. CONDUIT RUNS REQUIRE 10% SPARE WIRES.
4. FOR MINIMUM WORKING SPACE CLEARANCE ABOUT POWER DISTRIBUTION CENTER (PDC), SEE NEC ARTICLE 110.26 & 110.34.
5. WIRE SIZES INDICATED ARE FOR 75° C AND ARE MINIMUM REQUIREMENTS ONLY. NO CONSIDERATION IS GIVEN TO DERATING AS IT PERTAINS TO CONDUIT FILL, AMBIENT TEMPERATURE, NUMBER OF BENDS, OR LENGTH OF RUN. CONTRACTOR SHALL DETERMINE THESE FACTORS AS PER FIELD CONDITIONS & MAKE NECESSARY ADJUSTMENTS.
6. MAXIMUM SEPARATION DISTANCE BETWEEN THE PDC & ITS LAMP RACK ASSEMBLIES IS 33 FEET [10 METER].



UVT ANALYZER



UV LAMP RACKS
(SIMPLIFIED REPRESENTATION)

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	3/28/18

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	3/28/18
DESIGNER	DLY	3/28/18
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

DE NORA

CLIENT

TITLE
WASTE WATER C³500D
ELECTRICAL
EXTERNAL WIRING DIAGRAM

DWG. Size	SHEET No.	SCALE
B	1 OF 4	NONE

DWG. No. W900146 REV. A

CONDUIT	FROM / TO	WIRE FUNCTION	WIRE NUMBERS	WIRE SIZE & QTY
CONDUIT #1	MAIN AC SUPPLY FROM CUSTOMER TO MAIN BREAKER LOCATED IN PDC	480/277V, 3ϕ, 60Hz, 4-WIRE + GND 33.8 FULL LOAD AMPS PHASE A 33.8 AMPS PHASE B 16.9 AMPS PHASE C 18.8 AMPS	F1, F2, F3, N GND	4-1/C #8 AWG (THWN) & 1-1/C #10 AWG GND (THWN)
CONDUIT #2A	FROM SCC TO PDC #1	PLC-NET OR/WHT SCC WHT/OR BLU/WHT SHLD	PLCNET+ PLCNET- COM SHLD	1 EA 2-TW/PR#24AWG SHLD (BELDEN #9842)
CONDUIT #2B	FROM PDC TO NEXT PDC	PLC-NET OR/WHT WHT/OR BLU/WHT SHLD LEVEL SENSOR R2 (N0) R2 (C0M)	315-1 316-1 317-1 SHLD 114-1 115-1	1 EA 2-TW/PR#24AWG SHLD (BELDEN #9842) 2-1/C #16AWG
CONDUIT #3	FROM ULTRASONIC LEVEL SENSOR TO PDC	LEVEL SIGNAL R1 (NO) R1 (COM) R2 (NO) R2 (COM) POWER	114-1 115-1 116-1 117-1 FU303, N, GND	6-1/C #16AWG & GND (SUPPLIED & PRE-FABRICATED BY CCC)
CONDUIT #4	FROM CUSTOMER SOURCE TO SCC	120VAC, 1ϕ, 60Hz, 2-WIRE + GND 12 FULL LOAD AMPS	L1, N, G	2-1/C #14AWG & GND (THWN)
CONDUIT #5	FROM SCC TO CUSTOMER	MINOR ALARM MAJOR ALARM BANK "1A" STATUS BANK "1B" STATUS POWER FAILURE	128-1, 129-1 130-1, 131-1 132-1, 133-1 134-1, 135-1 127-1, 127-2	10-1/C #14AWG
CONDUIT #6	FROM SCC TO CUSTOMER SCADA SYSTEM	ETHERNET COMMUNICATION LINK		4-PR #24AWG (0.21mm²) CAT 5e UTP CABLE (BELDEN #1583A)
CONDUIT #7	FROM FLOW METER TO SCC	4-20mA FLOW SIGNAL ISOLATED ANALOG SIGNAL	FIT1100+, FIT1100-	1 EA 1-TW/PR #18AWG SHLD (BELDEN #9341)
CONDUIT #X	FROM UVT ANALYZER TO UV PLC PANEL	4-20mA UVT ANALYZER SIGNAL ISOLATED ANALOG SIGNAL (POWER BY OTHERS) (IF RECEPTACLE REQUIRED - SUPPLIED & INSTALLED BY OTHERS)	AIT1100+, AIT1100-	1 EA 1-TW/PR #18AWG SHLD (BELDEN #9341)

CABLE	FROM / TO	WIRE FUNCTION	WIRE NUMBERS	WIRE SIZE & QTY
CABLE #RnA	FROM LAMP RACKS TO PDC	LAMP POWER (LAMPS 1 - 4) MOTOR POWER, COMM (RAC-NET) GROUND		4 EA 4-TW/PR#16AWG, 2-1/C #20AWG, 1-PR #22AWG, 1-1/C #8AWG (SPECIALTY CABLE) (SUPPLIED & PRE-FABRICATED BY CCC)
CABLE #RnB	FROM LAMP RACKS TO PDC	LAMP POWER (LAMPS 5-8)		4 EA 4-TW/PR#16AWG (SPECIALTY CABLE) (SUPPLIED & PRE-FABRICATED BY CCC)
CABLE #UV	FROM UV SENSOR TO PDC	4-20mA UV INTENSITY SIGNAL		1 EA 4-TW/PR#16AWG (SPECIALTY CABLE) (SUPPLIED & PRE-FABRICATED BY CCC)

NOTES:

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2. ALL WIRING INSTALLED ACCORDING TO NEC, LOCAL CODES, & ANY AUTHORITY HAVING JURISDICTION.
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REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	3/28/18

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	3/28/18
DESIGNER	DLY	3/28/18
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

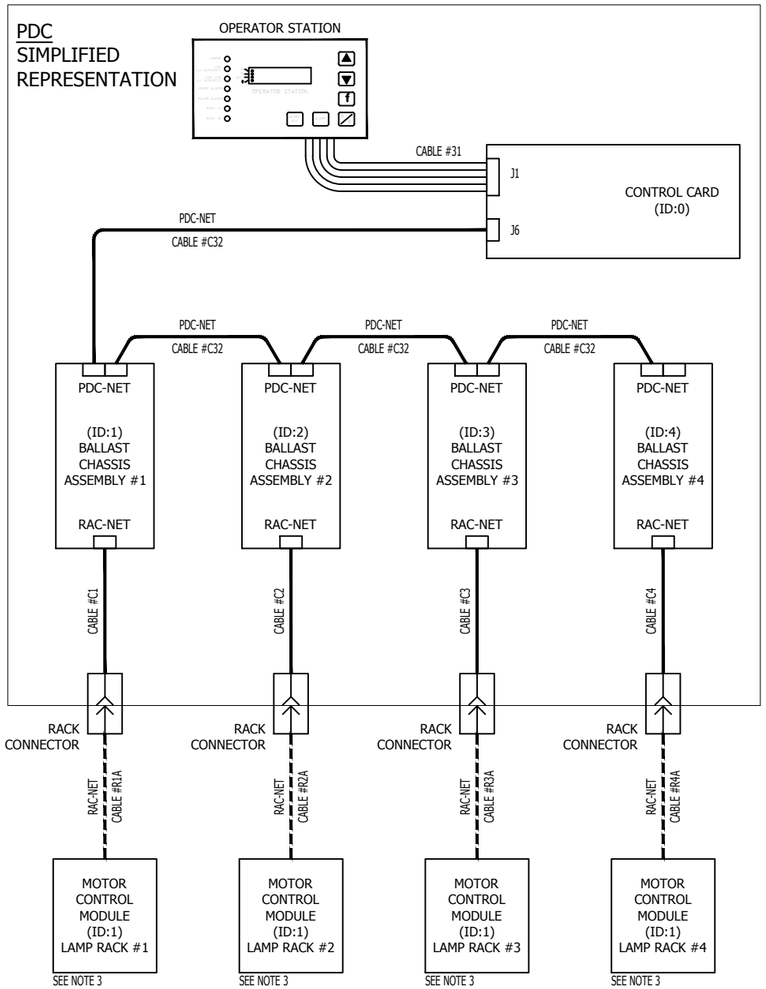
DE NORA

CLIENT

TITLE
WASTE WATER C³500D
ELECTRICAL
EXTERNAL WIRING DIAGRAM

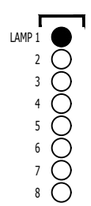
DWG. Size	SHEET No.	SCALE
B	2 OF 4	NONE

DWG. No. W900146 REV. A



LAMP ARRAY CONFIGURATION

MOTOR BOX END VIEW



DETAIL C

PDC ARCHITECTURE

NOTES:

1. ID'S IN THE PDC REFER TO THE PDC-NET ADDRESSES SET IN THE BALLAST CONTROL MODULES. A BALLAST CONTROL MODULE IS INSTALLED IN EACH BALLAST CHASSIS ASSEMBLY.
2. THE ID #'S LISTED FOR EACH LAMP RACK ASSEMBLY REFERS TO THE RAC-NET ADDRESSES SET IN THE MOTOR CONTROL MODULE.
3. ENSURE THAT THE MOTOR CONTROL MODULE IS SET FOR 230VAC OPERATION; (SET DIP SWITCHES SW1-1 & SW1-2 TO "OFF").

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	3/28/18

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	3/28/18
DESIGNER	DLY	3/28/18
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

DE NORA

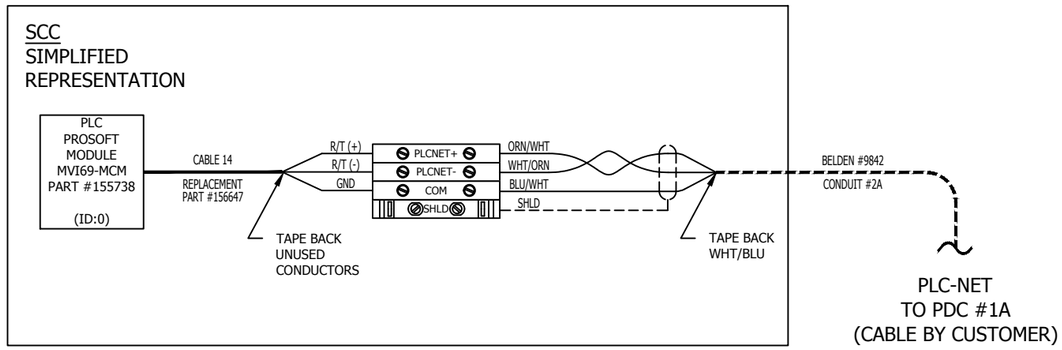
CLIENT

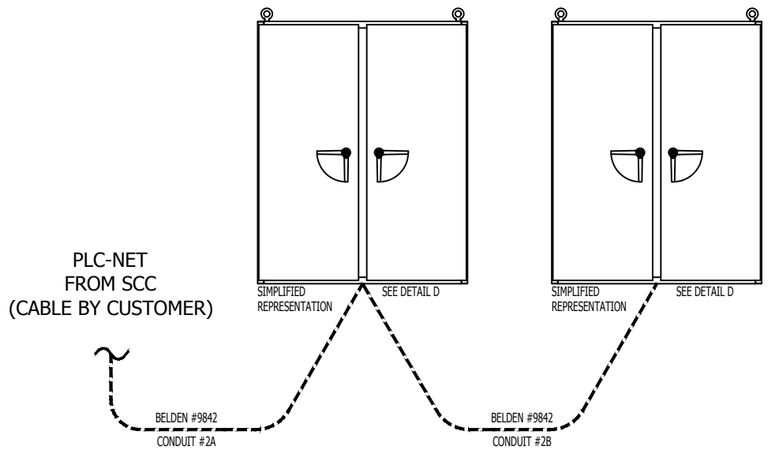
TITLE

WASTE WATER C³500D
ELECTRICAL
EXTERNAL WIRING DIAGRAM

DWG. Size	SHEET No.	SCALE
B	3 OF 4	NONE

DWG. No. W900146 REV. A

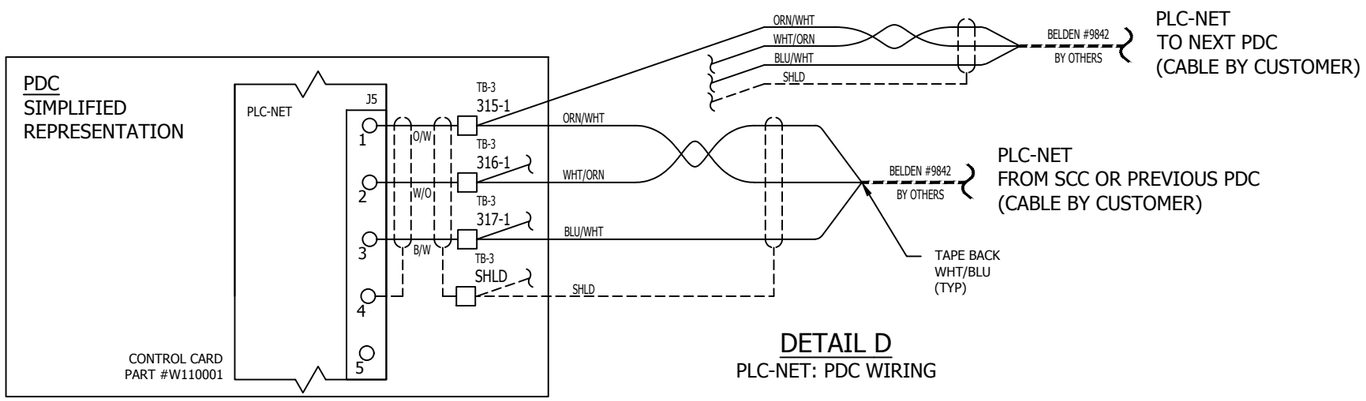




PDC #1A
(ID: 1)

PDC #1B
(ID: 2)

SEE NOTE 1



DETAIL D
PLC-NET: PDC WIRING

NOTES:

1. PLC-NET MUST BE TERMINATED AT THE LAST DROP, (LAST PDC). ON THE PDC CONTROL CARD, ENABLE DIP SWITCH, SW4, AS FOLLOWS: SW4-1 "ON" & SW4-2 "ON".

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	3/28/18

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	3/28/18
DESIGNER	DLY	3/28/18
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

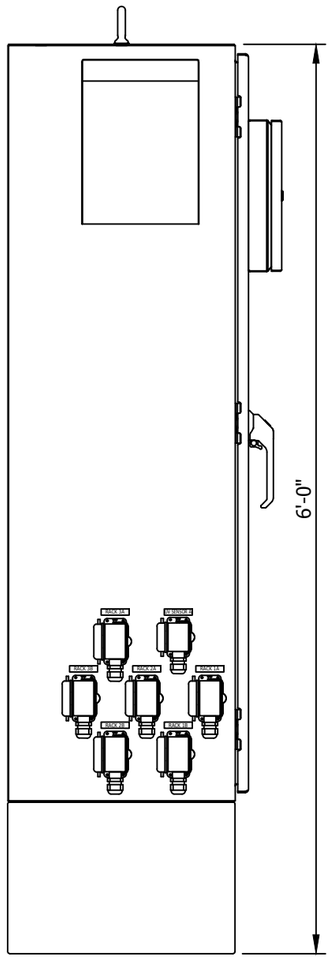
DE NORA

CLIENT

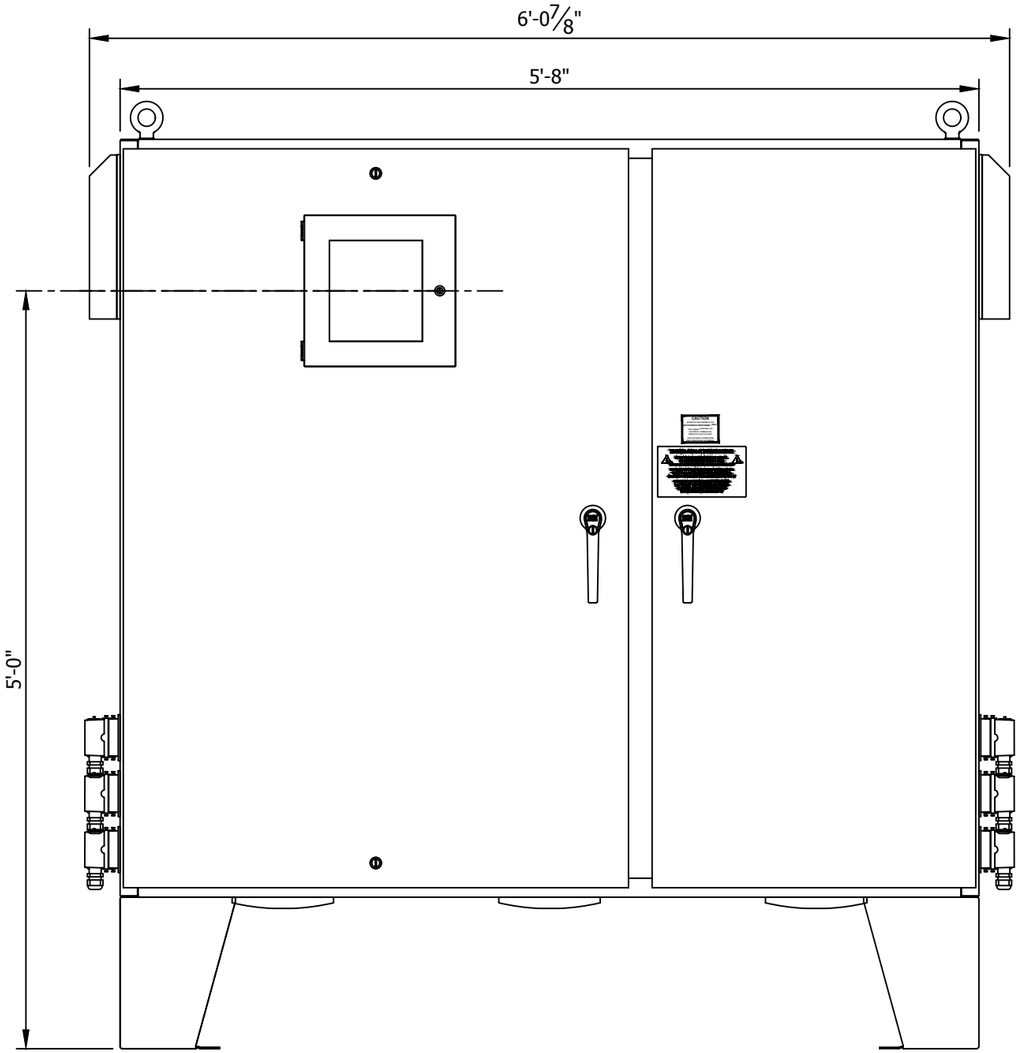
TITLE
WASTE WATER C³500D
ELECTRICAL
EXTERNAL WIRING DIAGRAM

DWG. Size	SHEET No.	SCALE
B	4 OF 4	NONE

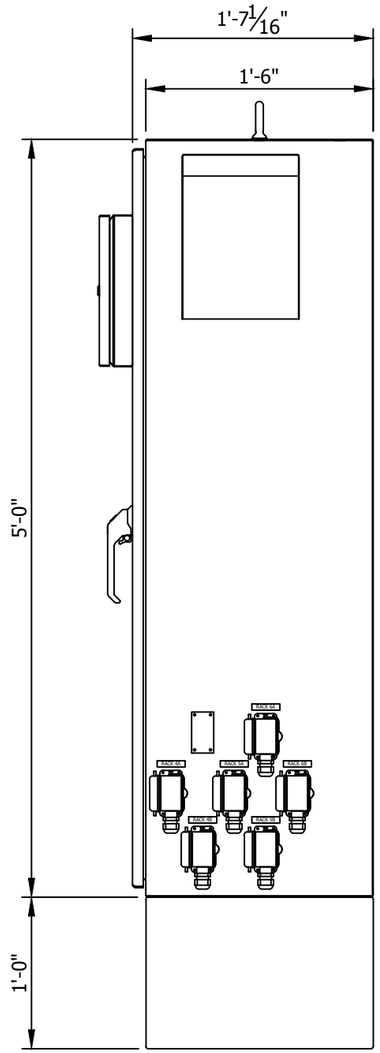
DWG. No. W900146 REV. A



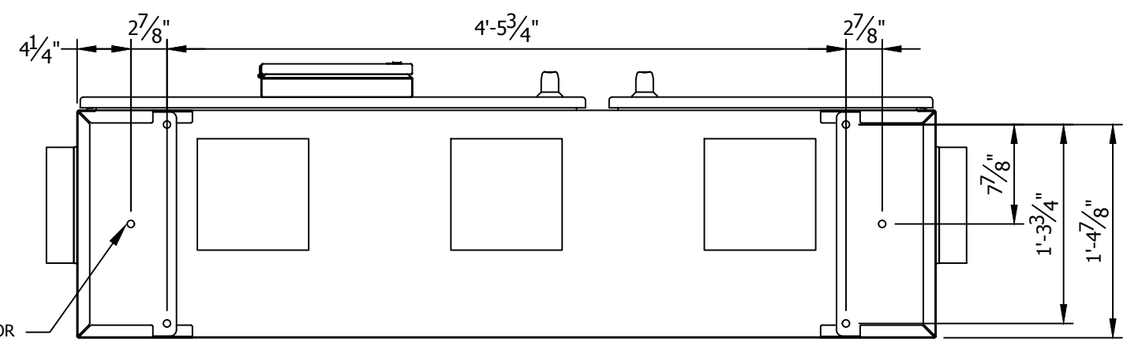
PDC
LEFT SIDE VIEW



PDC
FRONT VIEW



PDC
RIGHT SIDE VIEW



PDC
BOTTOM VIEW

NOTES:

1. MATERIAL: 12GA, 304SS.
2. FINISH: #4 BRUSH.
3. CHASSIS HAS BEEN DESIGNED TO COMPLY WITH NEMA 4X CONSTRUCTION REQUIREMENTS.

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	12/12/17

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

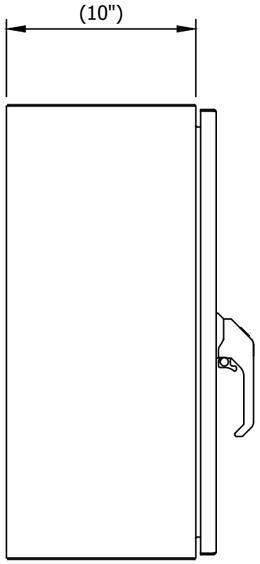
	NAME	DATE
DRAFTER	DLY	12/12/17
DESIGNER	DLY	12/12/17
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

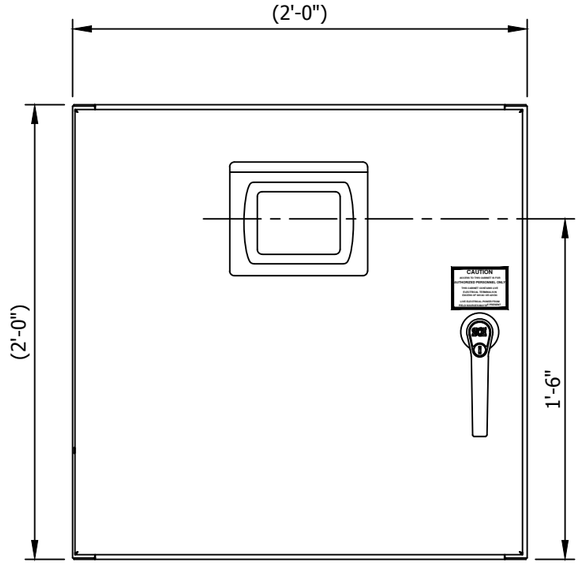
CLIENT

TITLE
WASTE WATER C³500D
POWER DISTRIBUTION CENTER
CHASSIS GENERAL ARRANGEMENT

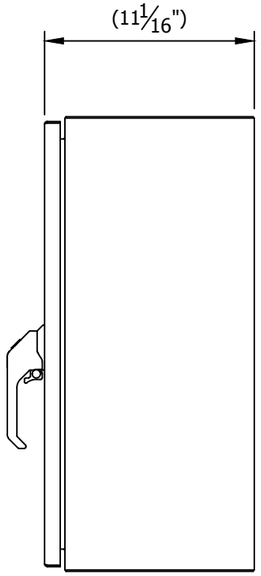
DWG. Size	B	SHEET No.	1 OF 1	SCALE	1 : 12
DWG. No.	W600185			REV.	A



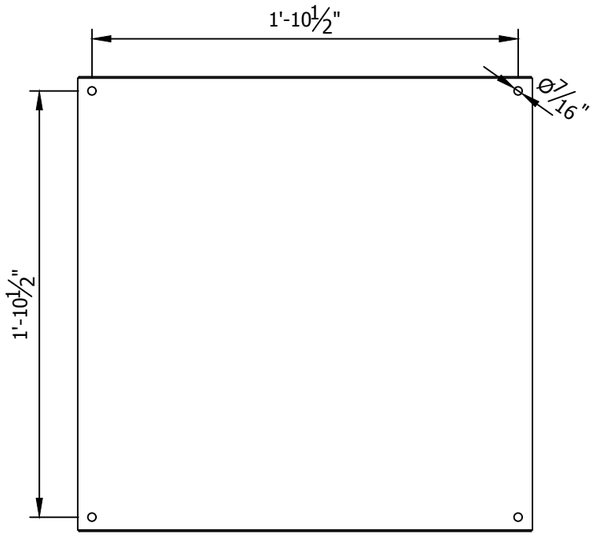
SCC
LEFT SIDE VIEW



SCC
FRONT VIEW



SCC
RIGHT SIDE VIEW



SCC
REAR VIEW

NOTES:

1. MATERIAL: 14GA, 304SS.
2. FINISH: #4 BRUSH.
3. NEMA 4X.

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	11/15/17

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	11/15/17
DESIGNER	DLY	11/15/17
CHECKER		
APPROVAL		

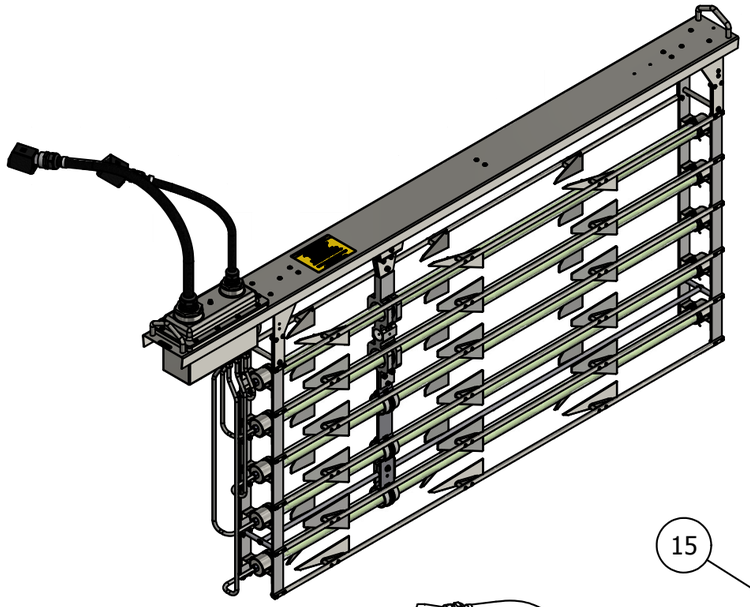
PROJECT No. PROPOSAL

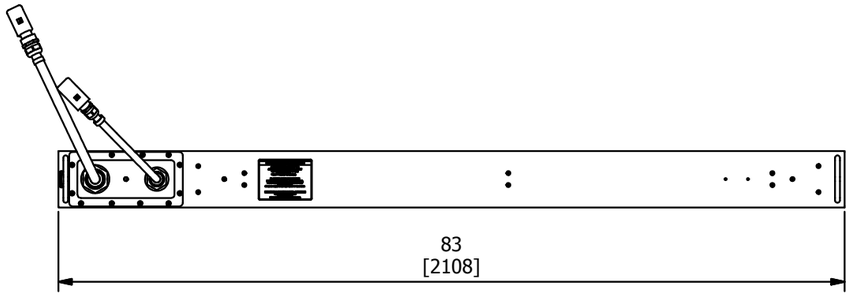
CLIENT

TITLE
WASTE WATER C³500D
SYSTEM CONTROL CENTER
CHASSIS GENERAL ARRANGEMENT

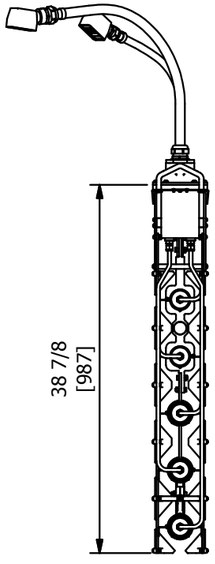
DWG. Size	SHEET No.	SCALE
B	1 OF 1	1 : 8

DWG. No. W600189 REV. A

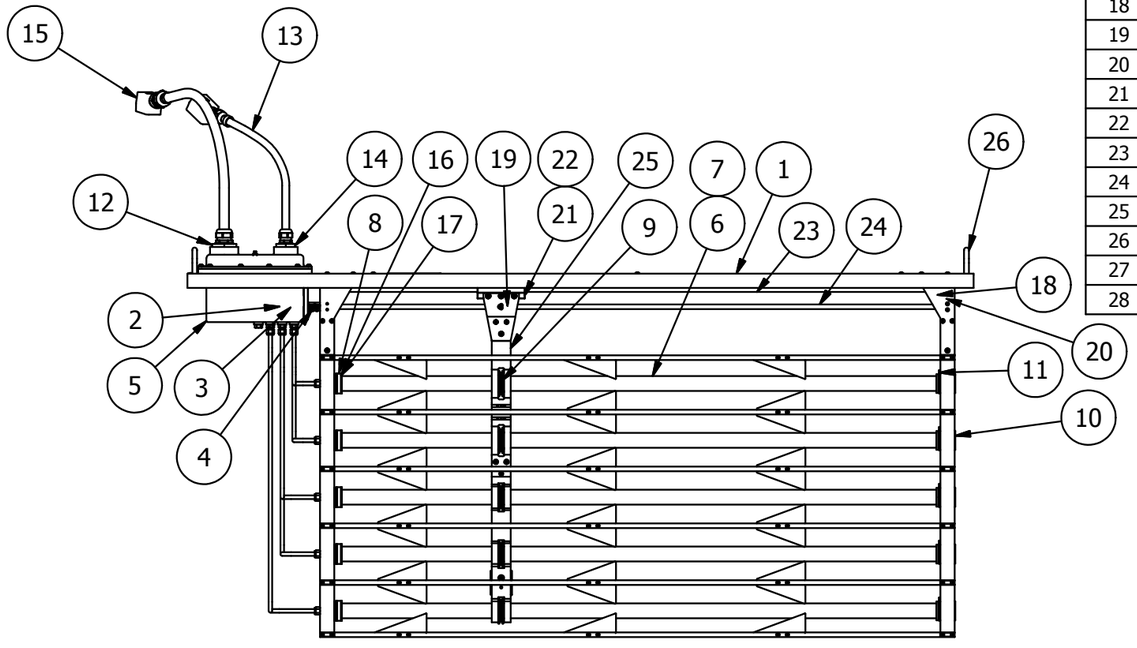




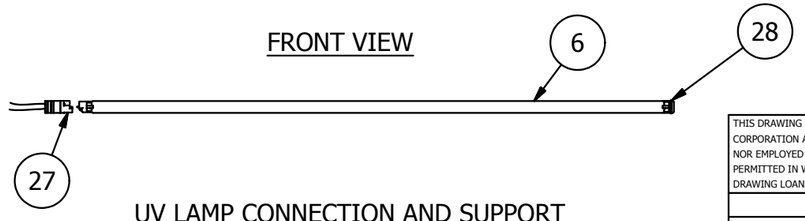
PLAN VIEW



MOTOR END VIEW



FRONT VIEW



UV LAMP CONNECTION AND SUPPORT

NOTES:
1. ALL METAL COMPONENTS SUBMERGED IN EFFLUENT ARE 316 STAINLESS STEEL AND 304 OR 316 STAINLESS STEEL ABOVE THE EFFLUENT.
2. ALL COMPONENTS THAT ARE EXPOSED TO UV LIGHT ARE TEFLON, DELRIN, 304 OR 316 STAINLESS STEEL.
3. WEIGHT: 176 LB (80 KG) APPROXIMATELY
4. RACK SUPPLY CABLE ASSEMBLIES (ITEMS 13 AND 15) LENGTH AS PER PROJECT REQUIREMENT (N01 = 1 FT, N40 = 40 FT)

ITEM	PART NO.	QTY	DESCRIPTION
1	W300248	1	TOP SHIELD
2	350365	1	MOTOR, 220 VAC, 15W
3	350364	1	GEAR BOX
4	350381	1	SHAFT COUPLING
5	W110003	1	MOTOR CONTROL MODULE
6	W300110	5	UV LAMP, C3500
7	W300246	5	QUARTZ SLEEVE, 37 x 40 mm
8	W300098	5	SLEEVE COUPLING NUT
9	W000030	5	SCRAPER ASSEMBLY, 40 mm OD, SLEEVE
10	W300067	5	SLEEVE END SUPPORT BUSHING
11	W300069	5	SLEEVE END CLIP
12	350798	1	O-RING 2-229, BUNA-N
13	W110099NXX	1	RACK SUPPLY "B" CABLE ASSEMBLY
14	350797	1	O-RING 2-220, BUNA-N
15	W110098NXX	1	RACK SUPPLY "A" CABLE ASSEMBLY
16	350425	5	SLEEVE O-RING
17	W300099	5	SLEEVE COMPRESSION WASHER
18	350380	2	PROXIMITY SENSOR C/W CABLE
19	W300038	1	LEAD SCREW NUT
20	350382	1	SPHERICAL BUSHING
21	W300031	1	GUIDE BUSHING HOUSING
22	350379	2	GUIDE BUSHING LINER
23	W300075	1	GUIDE SHAFT
24	W300076	1	LEAD SCREW
25	W300212	1	SCRAPER DRIVING ASSEMBLY
26	W300244	2	HANDLE
27	W110089N04	5	LAMP SUPPLY CABLE ASSEMBLY
28	W300085	5	LAMP BASE SPACER

REV	DESCRIPTION	CHG	APP	DATE
3	ECO1218: UPDATED DWG BOM, NOTES	MAS	SE	8/28/2017
2	ECO0967: REV PART NUMBER, ITEM 7	JLF	SE	06/09/2015
1	ECO0837, 0893: UPDATED BOM	JLF	SE	09/26/2014

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± .010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± .005
DECIMAL (1 PLACE)	± .015	DECIMAL (4 PLACES)	± .0005

	NAME	DATE
DRAFTER	D. WANG	7/29/2009
DESIGNER	D. WANG	7/29/2009
CHECKER		
APPROVAL		

PROJECT No. STANDARD

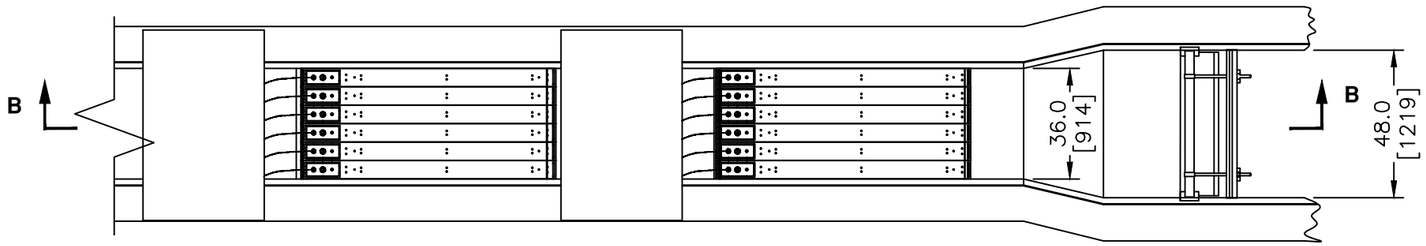
CLIENT: STANDARD

TITLE: C3500D UV DISINFECTION SYSTEM
LAMP RACK WITH CLEANING, 5 LAMP
ASSEMBLY DETAIL

DWG. Size	SHEET No.	SCALE
B	1 OF 1	NTS

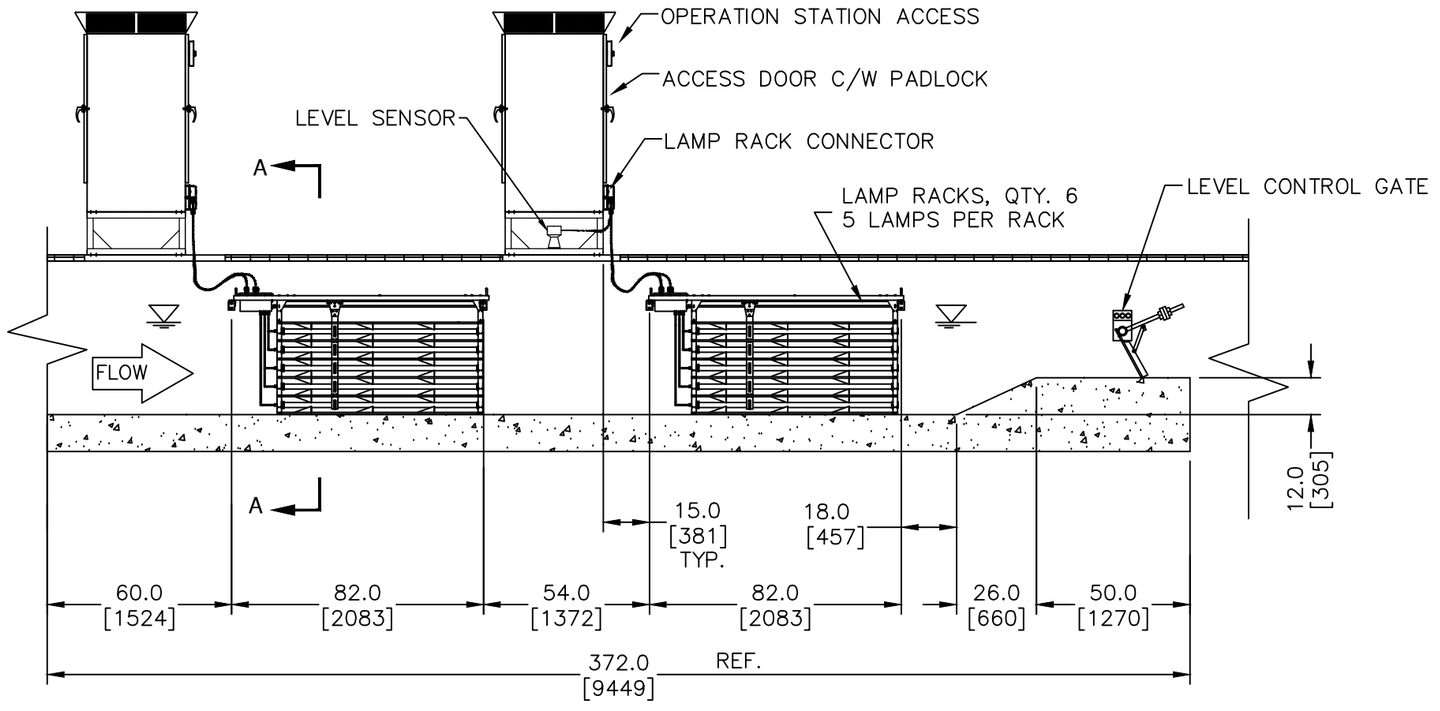
DWG. No. W900075 REV. 3

INCHES
mm

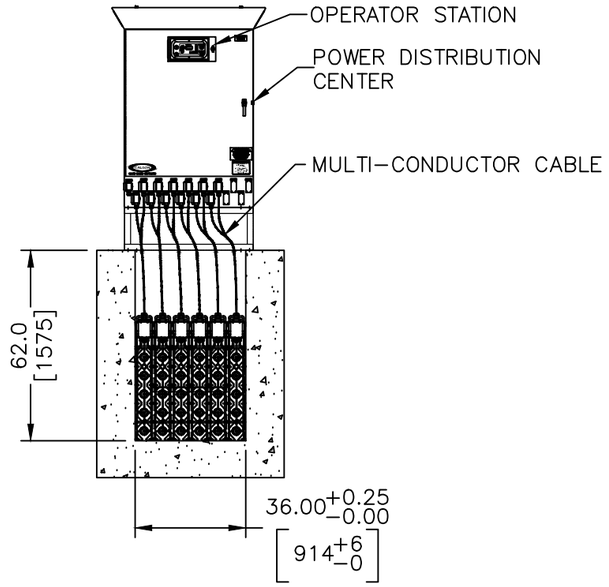


PLAN VIEW

(GRATING REMOVED FOR CLARITY)



VIEW B - B



VIEW A - A

SAMPLE LAYOUT FOR REFERENCE ONLY
(LEVEL GATE NO LONGER OFFERED)
PROPOSED FIXED WEIR

NOTES:

1. THE CONCRETE SURFACE MUST BE LEVEL THROUGHOUT THE CHANNEL LENGTH.
2. ALL COMPONENTS OF THE SYSTEM ARE SUPPLIED BY CALGON CARBON CORP. AND INSTALLED BY OTHERS.
3. ALL HARDWARE REQUIRED TO CONNECT THE UV SYSTEM TO THE PROCESS FLOW ARE TO BE SUPPLIED BY OTHERS.
4. LAMP RACK WEIGHT: 73 KG/160 LB.

PRELIMINARY - NOT FOR CONSTRUCTION

REV	DESCRIPTION	APP	DATE
C			
B			
A	ISSUED FOR PROPOSAL	REM	04/15/2011

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	±0°30'	DECIMAL (2 PLACES)	±.009
FRACTIONAL	±1/32"	DECIMAL (3 PLACES)	±.003
DECIMAL (1 PLACE)	±.015	DECIMAL (4 PLACES)	±.0005

	NAME	DATE
DRAFTER	REM	03/15/2011
DESIGNER		
CHECKER		
APPROVAL		
PROJECT No.	QW–1103–22	

DE NORA

CLIENT

TITLE

SYSTEM OVERVIEW
C^3 500D
UV DISINFECTION SYSTEM

DWG. Size	SHEET No.	SCALE
B	1 OF 1	1:30

DWG. No. QW110322 REV. A

The interface shall display the alarm history. The alarm history shall include the time and date of the most recent 25 alarms along with the description of the alarm.

The interface shall also display current alarms, including the date, time and a description of the alarm.

As a diagnostic aid to the Operator, the interface shall display the time between backwashes for the most recent 40 backwashes.

HUMAN MACHINE INTERFACE

The operator interface shall be a NEMA Type 12, 13, 4X rated, 6.5" diagonal, color touchscreen display with Ethernet and serial communications. The interface shall be a liquid crystal display (LCD). The display type shall be color active matrix thin-film transistor (TFT) with 640 x 480 pixel resolution. The rated operating temperature shall be 32° to 131° F (0° to 55° C). The operator interface shall be an Allen Bradley PanelView Plus 7 Performance 7".

HUMAN MACHINE INTERFACE SUN SHIELD

A sun shield constructed of 304 stainless steel shall be mounted over the operator interface to provide protection and visibility of operator screens in outdoor applications.

Proposal Prepared for:

INTEGRATED Science & Engineering

DE NORA CAPITAL CONTROLS® C^{3}500D UV SYSTEM - DNWT PROPOSAL

Project Name: Line Creek WRF, GA
Proposal Number: P-138084 / Q-00030357
Date: May 30, 2023

Contacts:

Nancy Hatley
Regional Sales Manager, SE, Disinfection & Filtration
Mobile: +1 (215) 353-2298
Email: Nancy.Hatley@denora.com

Andrew Synhorst, PE
Principle Environmental, Inc.
1770 The Exchange SE, Atlanta, GA, 30339
Mobile: +1 585 490 4692
Email: andrew@principleenvironmental.com

DE NORA

EXECUTIVE SUMMARY

Proposal # Q-00030357
Revision: 0

Line Creek WRF, GA UV - C3500D UV Disinfection System

De Nora UV Technologies, LLC proposes to supply our C3500D Ultraviolet Disinfection System to treat effluent at the above site. This system will include 28 UV lamps to treat the peak flow of 5 MGD. The system will be configured into 1 channels, 2 banks per channel, 2 racks per bank each with 7 lamps.

The main advantages of the C3500D system are as follows:

- The C3500D uses the highest power low pressure horizontal lamps available. The UV lamp emits 204 Watts W of UV light at 254 nm. This means our system will have fewer lamps, resulting in less maintenance.
- The $C^3$500D system includes automatic, in-place cleaning as a key feature. This reduces the need for operators to remove lamp racks and manually clean them, significantly reducing maintenance. The De Nora automatic cleaner is mechanical only – no chemicals are required.
- The patented mixing devices dramatically improve the hydraulic and germicidal efficiency of the UV reactor providing unparalleled performance.

De Nora is a world leader in water technologies solutions. We are also one of the world's foremost providers of ultraviolet light (UV) disinfection and oxidation technologies for water. From the initial introduction of our UV advanced oxidation systems to the continued development of drinking water and wastewater disinfection technologies, we've been delivering proven UV water treatment solutions for more than 25 years. Combined we have over 500 installations in operation or under construction.

This proposal includes system sizing and a bill of materials. If you need any further information, please feel free to contact Nancy Hatley at +1 215.353.2298.

PROJECT APPROACH

Line Creek WRF, GA UV - C3500D UV Disinfection System

For the Line Creek WRF project, the proposed 28 lamp C3500D UV system can fit into the existing Trojan's channel footprint. The C3500D UV system will fit in the existing channel depth and length with no modification . We have included two channel reduction baffles, one at each UV bank of lamps, to reduce the channel width to accommodate the number of C3500D lamp racks (modules). The higher powered UV lamps enable us to offer a UV system with nearly half as many lamps as the existing Trojan UV system which translates to improved operating and maintenance costs over the life of the UV system.

A fixed serpentine level control weir is provided to maintain an effluent depth of 42" downstream the last bank of lamps. The level controller will require the channel to transition to a 60" channel width to accommodate a 2" head over the weir at the design flow. The benefit of a fixed weir provides no operator control, no leak for a properly sealed weir, low headloss, and can handle flow from zero to the maximum daily flow. If this fixed weir poses a challenge please consult our Applications Proposal group and we will be happy to evaluate an alternate solution.

A portable davit crane with a higher weight capacity for the C3500D lamp rack is included to replace the existing unit. The davit crane will assist with the manual removal of an individual lamp rack from the UV channel for servicing and maintenance.

A summary of De Nora's scope of supply includes (lot) channel equipment, (1) SCC, (2) PDCs, (lot) recommended spare parts, (1) online UVT analyzer, (1) davit crane with bases, (lot) standard auxiliary equipment, (lot) standard field services for startup/training, documentation and freight estimate.

Included in this RFP package and attached are the following items:

1. Standard C3500D specification document
2. De Nora's service capability
3. C3500D reference list
4. Life Cycle Cost estimate
5. Instrument Datasheet
6. Drawings

PROJECT SPECIFICATIONS

Proposal # Q-00030357
Revision: 0

Line Creek WRF, GA UV - C3500D UV Disinfection System

1. Design Conditions

Maximum Daily Flow	5.0	MGD
Average Monthly Flow	2.0	MGD
Current Average Daily Flow	1.3	MGD
Minimum UV Transmittance	60 %	
Total Suspended Solids	20 mg/L	
Fecal Coliform Permit Limit	23 CFU/100mL, based on 30-day geometric mean	
Target UV Dose, validated	30 mJ/cm2	

2. $C^3$500D Specifications

Lamp UV Radiation at 254 nm	204 Watts
Lamp Life	16,000 Hours
Lamp Life Factor	0.90
Quartz Transmission Factor	0.92
Quartz Fouling Factor	0.95
MS2 RED	30.7 mJ/cm2 validated

3. System Configuration

Number of Channels	1
Number of Banks/Channel	2
Number of Racks/Bank	2
Number of Lamps/Rack	7
Total Number of Lamps	28
Number of UV Sensors	2
Number of Power Distribution Centers	2
Number of System Control Centers	1
Number of Weirs	1

4. Hydraulic Considerations

Peak Velocity in Channel	26.52 inches/s
Headloss per UV Bank	1.89 inches
Headloss across Level Control Device	6 inches
Total Headloss across UV System	9.78 inches
Retention Time	3.98 seconds

5. Electrical Requirements

Input Voltage	480/277, 3Ph, 4-wire	
Peak Loading per PDC	14.8 FLA	
Power Consumption per PDC	8.6 kW	(all lamps at 100% power)
Total System Power Consumption	17.2 kW	(all lamps at 100% power)

6. Approximate Channel Dimensions

Length	427 inches
Width	18 inches
Width with Reduction Baffles	12 inches
Width at Level Control Weir	60 inches
Channel Height	66 inches
Channel Height at Level Control Weir	44 inches
Effluent Depth in Channel	42 inches, nominal

BILL OF MATERIALS

Proposal # Q-00030357
Revision: 0

Line Creek WRF, GA UV - C3500D UV Disinfection System

Item No.	*Qty.*		*Model Number C3500D1202071WP*
1.	1	Channel Equipment	
		Qty. 1	Level Control Weir
		Qty. 8	Bank Support Brackets
		Qty. 4	Lamp Rack Support Brackets
		Qty. 2	UV Sensors with Mounting Bracket and Scrapers
		Qty. 2	Level Sensor with Mounting Bracket (Capacitance Probe)
		Qty. 2	Channel Reduction Baffles
2.	4	Lamp Rack Assemblies	
		Qty. 7	Low Pressure High Intensity Amalgam Lamps
		Qty. 7	Quartz Sleeves
		Qty. 2	Cable Assemblies
		Qty. 1	Cleaning System Motor
		Qty. Lot	Cleaning System Mechanism and Accessories
		Qty. 7	Scrapers
3.	2	Power Distribution Centers	
		Qty. 14	Electronic Ballasts
		Qty. 1	Main Breaker
		Qty. 2	Earth Leakage Circuit Breakers
		Qty. Lot	Control & Monitoring Equipment with Operator Station
4.	1	System Control Center	
		Qty. 1	Main Breaker
		Qty. Lot	Allen Bradley CompactLogix L30ER PLC Equipment and Accessories
		Qty. 1	Allen Bradley PanelView 700 Plus Operator Interface
5.	Lot	Spare Parts	
		Qty. 1	UV Face Shield
		Qty. 1	Electronic Ballasts
		Qty. 3	UV Lamps
		Qty. 3	Quartz Sleeves
		Qty. 3	Lamp End Seals
		Qty. 3	Scraper Assemblies
6.	Lot	Accessories	
		Qty. 1	Rack Lifting Crane c/w Bases
		Qty. 1	Mercury Spill Kit
		Qty. 1	Service Trolley
		Qty. 1	Rack Lifting Sling
		Qty. 1	RealTech S2100 Online UVT Analyzer
7.	Lot	Equipment Documentation	
8.	Lot	Start-up and Commissioning Services	
9.		One (1) Year Warranty Period	

Terms and Conditions

Payment Terms:	10% at order acceptance
	10% at engineering submittals
	70% at delivery to site (or as dictated by agreed INCO terms)
	10% commissioning / startup upon completion, *not to exceed 60 days from delivery*
D.A.P.:	Jobsite
Delivery:	14 to 18 weeks after receipt of approved shop drawings
Offer Valid:	90 days from bid opening date
Taxes:	Not included

Firm Price (USD): $227,000

DNWT Standard Terms & Conditions

The General Terms and Conditions of Sale set forth at http://www.denora.com/products.html shall exclusively govern the transactions described or contemplated in this quotation/proposal and any other sales or related transaction between the parties herein, and such Terms are expressly incorporated by reference herein and to any related agreements between the parties. Any additional or different terms or conditions which may appear in any communication from , including, without limitation, in any printed form provided, are hereby expressly objected to and rejected in full and shall not be effective or binding in any capacity unless expressly accepted in an authorized writing by De Nora Water Technologies, LLC, regardless of, and fully notwithstanding, De Nora Water Technologies, LLC's supply of any goods and services or the execution of any document or acceptance by any person other than an officer or authorized agent of De Nora Water Technologies, LLC

In the event that this Proposal is executed by duly authorized representative and/or signatory then all terms and conditions of this Proposal, including but not limited to all matters pertaining to pricing and specification, commercial terms as included herein or incorporated by reference are deemed to be accepted. If purchaser issues a purchase order containing any other terms and conditions, such terms shall be of no effect unless expressly agreed to in writing by a duly authorized representative of De Nora Water Technologies, LLC.

Notwithstanding any other provision of these Terms or the Seller's Documentation, unless otherwise expressly stated in the Seller's Documentation, if, at any time during the course of Seller's performance of the sale of the Products or Services, there is an unforeseen and material increase in the price of raw materials, materials, labor, or other costs of Seller associated with the Products or Services, Seller shall have the right to reasonably adjust the prices set forth in the Seller's Documentation upon written notice to the Purchaser setting forth the amount of such price adjustment and reasonably setting forth the cost changes associated therewith.

ATTACHMENT:
DNWT C3500D UV EQUIPMENT
SPECIFICATION FOR LINE
CREEK WRF

ULTRAVIOLET DISINFECTION EQUIPMENT

PART 1 GENERAL

1.1 Intent of Section

This section addresses the supply, delivery, supervision of installation and commissioning of the ultraviolet (UV) disinfection equipment as described herein.

1.2 References

Environmental Protection Agency (EPA)

EPA/625/1-86/021	Design Manual, Municipal Wastewater Disinfection
NWRI	National Water Research Institute
IEEE 519-1992	Institute of Electrical and Electronics Engineers Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

1.3 System Description

Furnish all equipment, material, labor and appurtenances required for the complete installation and operation of the open channel UV disinfection system, as specified in this section. The system shall utilize low pressure high intensity lamp technology and high frequency electronic ballasts.

1.4 Related Sections

A. Section _____ - Concrete Pad

B. Section _____ - Anchor bolts and Expansion Anchors

C. Section _____ - Electrical Requirements

1.5 Quality Assurance

A. Only manufacturers of ultraviolet disinfection equipment who have been engaged in the business for at least five (5) years shall be allowed to bid.

B. Only UV manufacturers who have had their system validated via a bioassay test by a third party shall be allowed to bid.

C. The UV manufacturer shall offer state-of-the-art UV technology. The UV system shall include, but not be limited to, low pressure high intensity lamps, high frequency electronic ballasts capable of variable output, automatic cleaning system and status indication of each lamp.

D. A statement by the equipment manufacturer listing any deviations or exceptions taken to these specifications. Include specification reference and proposed alternative with reason stated for exception.

E. At least five (5) days prior to bid opening, the Engineer shall issue an addendum listing acceptable UV disinfection manufacturers. The Engineer shall evaluate each system on the basis of technical and performance capabilities and lowest life cycle cost which takes into account capital, energy and maintenance costs. The following shall be used in assessing life cycle costs:

1. Lamp price. Maximum expected life shall not exceed 16,000 hours. Maximum lamp life factor of 0.9 shall be used.
2. Ballast life and price.
3. Quartz sleeve life and price. Maximum quartz sleeve fouling factor of 0.95 shall be used.
4. Scraper life and price.
5. Power Costs. The power costs shall be $0.10 per kWh. Power costs will be assessed based on total system power.
6. The plant's average flow rate shall be used for calculating the operating costs.

1.6 Submittals

A. Submit six (6) copies of the following shop drawings.

B. Layout, overall dimensions, required clearances and a general description of the equipment, including the location of electrical equipment, control panels and other auxiliary equipment.

C. Details of attaching equipment, services, auxiliary equipment, accessories, *etc*.

D. Complete data on materials to be used for fabrication for those parts in and out of the effluent.

E. Electrical control schematics, wiring diagrams, panel layout and a general description including a list of materials.

F. Operating characteristics of all electrical and control equipment: operating voltage and amperage tolerances and any ancillary electrical services that are required.

G. List of what components and materials shall be shipped preassembled and a parts list for the other components and materials. Weights and physical dimensions shall be indicated for each part, assembly and/or package to be shipped.

H. Provide Operation and Maintenance data for incorporation in the O & M manuals as specified. Include a complete description of the operation of the UV system together with the general arrangement and detailed drawings of the UV system: wiring diagrams for the power and control system. A parts catalog with a complete list of replacement parts with section drawings illustrating the connections and identifying numbers.

I. Third-party bioassay validation report and calculations used to determine the MS2 Reduction Equivalent Dose (RED). The bioassay shall have been performed in accordance with the NWRI Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse (May 2003). Any equations used in sizing the UV system shall have been generated by the third-party that performed the validation testing. Calculations should verify the guaranteed log reduction of the target organism at end of lamp life, maximum flow, maximum influent concentration and minimum UV Transmittance.

1.7 Delivery and Storage

A. Ship equipment pre-assembled to the degree that is practicable.

B. Provide storage instructions indicating specific requirements to ensure there is no damage to or deterioration of components.

1.8 Coordination

A. The Contractor shall coordinate the equipment delivery schedule with the construction schedule.

1.9 Acceptable Products

A. The UV disinfection equipment shall be the ***C³500™D,*** as manufactured by De Nora Water Technologies LLC or approved equal.

PART 2 PRODUCTS

2.1 Description

A. The UV disinfection system shall reduce the concentration of viable microorganisms in the treatment plant effluent by irradiation with UV light at a wavelength of 254 nm. Less than 23 Fecal Coliform colonies per 100 mL, based on a maximum grab sample, shall be the target that must consistently be achieved.

B. Equipment supplied with the UV system shall include UV lamp racks, supports for the lamp racks, automatic level controller, UV intensity sensors, power distribution centers, system control center, spare parts and other equipment as required for the complete installation and operation of the system.

2.2 Basic Design Conditions

A. The UV disinfection system shall be used to disinfect wastewater that has undergone tertiary treatment.

B. The system shall be designed for the following water quality and flow conditions.

1.	Maximum Daily Flow per Channel (MGD)	5
2.	Average Monthly Flow (MGD)	2
3.	Current Average Daily Flow (MGD)	1.3
4.	Minimum UV transmission at 254 nm (%)	60
5.	Maximum Total Suspended Solids (mg/L)	20
6.	Temperature (ºF) / (ºC)	34 - 95 / 1-35
7.	Effluent Fecal Coliform colonies per 100 mL,	

based on maximum daily grab samples	23

C. The system shall be suitable for installation into an open channel with the following dimensions:

1.	Length (inches)	427
2.	Width (inches)	18 (12 with reduction baffles)
3.	Depth (inches)	66
4.	Effluent Depth (inches)	42, nominal

D. The following system configuration shall represent the minimum number of lamps to be supplied. If it is the opinion of the manufacturer that a greater number of lamps are required to satisfy the disinfection requirements of this project then the manufacturer shall base its bid on the higher number of lamps and provide detailed information supporting that offering.

1.	Number of channels:	1
2.	Number of banks per channel:	2
3.	Number of racks per bank:	2
4.	Number of lamps per rack:	7
5.	Total number of UV lamps:	28
6.	Number of UV intensity sensors:	2
7.	Number of Power Distribution Centers (PDC's):	2
8.	Number of PLC Based System Control Centers (SCC's):	1

E. The system shall be capable of uninterrupted operation during the removal of UV lamp racks for routine maintenance or for the replacement of parts.

F. The UV density available in the UV bank shall not be less than 4.5 W/L (total nominal UV power at 254 nm divided by effective volume of the water filled bank) at the end of lamp life.

G. The system shall be capable of delivering a minimum MS2 RED of 30 mJ/cm^2, after 16,000 hours of lamp operation, at the peak flow rate with 60 % UV transmission of the effluent at 254 nm and adjusting for quartz sleeve fouling.

H. The calculated average intensity within the UV bank shall not be less than 12.14 mW/cm^2 at a UV transmission of 60 % with new lamps and with clean sleeves, as determined by the TULIP subroutine of UVDIS, Version 3.1.

I. The theoretical retention time shall not be less than 3.98 seconds at the peak flow rate.

J. The actual retention time of the effluent within the system determined by hydraulic analysis shall not be less than 0.9 times the theoretical retention time (almost complete use of the reactor volume).

K. The flow through the system shall be turbulent with a Reynolds number greater than 4,000 at average flow.

L. The headloss for each bank shall be less than 1.89 inch at peak flow condition with no lamps exposed to air.

2.3 Materials

A. All metal components in contact with the effluent and UV light shall be Type 316 stainless steel. Manufacturers that use aluminum on any UV equipment installed in the channel shall not be considered for this project.

B. All other stainless steel shall be Type 304.

C. All wiring exposed to UV light shall be Teflon coated.

D. All material exposed to UV light shall be stainless steel, quartz, Teflon or other UV resistant material.

E. The equipment shall be designed to comply with NEMA 4X (IP65) ratings.

2.4 UV Lamps

A. The UV system shall utilize low pressure high intensity amalgam lamps of the pre-heat start design.

B. Each lamp shall produce UV light with at least 90% of its emission between the wavelengths of 230 to 300 nm.

C. The lamp shall be rated for an average UV output of 205 W at 253.7 nm after 100 hour burn in. The average UV output of any proposed lamp cannot exceed 38% of the lamp input power.

D. The lamp shall be rated to produce no ozone.

E. The lamp arc length shall be 57 inches (1447 mm).

F. The UV lamp type shall be GA64T10L.

G. The lamps shall have a four pin electrical connector at one end only.

2.5 Quartz Sleeves

A. The quartz sleeves shall be fabricated of Type 214 clear fused quartz circular tubing containing at least 99.9% silicon dioxide.

B. The sleeve wall thickness shall be at least 1.50 mm (nominal).

C. The quartz sleeve material shall be rated for 92% UV transmission and shall not be subject to solarization over its lifespan.

D. The quartz sleeves shall be fabricated with one end closed so that only the open end requires sealing.

2.6 Lamp End Seals

A. The open end of the quartz sleeve shall be sealed by means of a Type 316 stainless steel nut which threads onto a coupling and compresses a sleeve O-ring.

B. The sleeve coupling nut shall have a knurled surface to allow a positive hand grip for tightening. The nut shall not require any tools for removal.

C. The quartz sleeve shall be held in place by means of an O-ring and compression washer.

D. The UV lamp rack shall be designed to isolate the individual lamps and to prevent moisture from coming in contact with the electrical connections of other lamps in the event of a seal failure or a quartz sleeve fracture.

2.7 Lamp Array Configuration

A. The lamp array configuration shall be uniform with all lamps parallel to each other and to the flow.

B. The lamps shall be evenly spaced in horizontal and vertical directions with equal center line spacing in both directions.

C. Vertical lamp configurations shall not be acceptable due to higher headloss.

2.8 UV Lamp Racks

A. Each UV lamp rack shall consist of seven (7) UV lamps mounted on a Type 316/304 stainless steel frame.

B. The ends of the quartz sleeve shall not extend beyond the frame of the UV lamp rack, so that the frame will help protect the lamp/sleeve assembly from breakage.

C. The UV lamp rack shall be connected to receptacles on the Power Distribution Center (PDC) by means of one or two multi-conductor cable(s) with modular repairable connector(s). The cable connector and all of its components shall be field repairable. The connector shall be of a "Snap-On" design having no threads that may bind or be subject to cross threading. The connector shall also allow for visual confirmation that the connection is locked in place. Pins shall be made from a copper alloy with hard silver plating. The connector shall be coated with a corrosion resistant finish and all levers, bolts and screws shall be made of stainless steel. The connector shall meet IP65 (UL574) requirements for direct water spray when mated.

D. At the point of exit from the UV lamp rack, the multi-conductor cable(s) shall pass through a water resistant strain relief.

E. The UV lamp racks shall be designed so that when they are in place, in the UV banks with the grating removed, they shall support a live load of 300 lbs (136.4 kg) without damage. The tops of the racks shall present a surface on which workers can stand to access the racks in the UV bank.

F. The UV lamp rack shall incorporate a protective shield to prevent UV light from radiating above the lamp bank during normal operation.

G. The UV lamp rack shall be designed to comply with NEMA 4X (IP65) ratings.

2.9 Bank Support Brackets

A. Lamp racks shall be suspended on Type 304 stainless steel support brackets. The support brackets shall be designed to support the weight of the lamp racks plus the weight of two operators standing on top of the lamp racks. The lamp racks shall not rest on the bottom of the channel but shall be suspended above it. The support brackets shall be held in place by brackets anchored to the channel walls.

2.10 Level Control Weir

A. The level control weir shall be located at the discharge end of the channel.

B. The weir shall maintain a minimum channel water level and shall be sized to maintain a maximum height of 2.0 inches (50.8 mm) of effluent over the top lamp at peak flow conditions with no short circuiting of the lamp array.

C. The level control weir shall be constructed of Type 304 stainless steel and shall be provided with wall mount brackets.

2.11 UV Intensity Sensor

A. A submersible UV sensor shall continuously sense the UV intensity produced in the bank of UV lamps. The sensor shall measure only the germicidal portion of the light emitted by the UV lamps. The sensor shall be factory calibrated.

B. Intensity of the bank of UV lamps shall be indicated in mW/cm^2.

C. The sensor shall provide a 4 - 20 mA analog output signal for local indication of the UV intensity in the UV bank.

2.12 Power Distribution Center (PDC)

A. A PDC shall be provided for every bank of lamps. The PDC supplies power to the lamp racks and contains power distribution, electronic ballasts, control and monitoring equipment. The PDC is fabricated from Type 304 stainless steel. The PDC shall be designed to comply with NEMA 4X (IP65) ratings.

B. Each PDC shall include its own main breaker. This will allow maintenance personnel to perform any service work per local safety regulations.

C. The PDC shall be equipped with the necessary components to allow each bank of lamps to be controlled in either the Remote (Automatic) or Local (Manual) mode. Each PDC shall have a Control Card and Operator Station used to control and monitor the bank of lamps.

D. Each PDC shall operate as an independent unit. In UV systems that include multiple banks, the operation of each PDC shall not be affected by the operation of other PDC's.

E. The electrical supply to each PDC shall be 480/277VAC, 3 Phase, 4 Wire plus GND, 60Hz. The power consumption shall be a maximum of 8.6 kW per bank.

2.13 Ballasts

A. Electronic ballasts shall be of the pre-heat start type. The electronic ballast system will provide a minimum power factor of 98%.

B. The ballast input voltage shall be single phase 277 VAC, 60 Hz.

C. The lamp current crest factor shall not exceed 1.45.

D. Each ballast shall drive one low pressure high output amalgam lamp for increased redundancy.

E. The ballast shall be capable of providing variable output to the lamp. The variable output shall be a continuous function and not a step function.

F. Each ballast shall provide a lamp failure alarm signal for the lamp they drive.

G. The ballast shall be a modular, plug-in device allowing for easy replacement in the field by operators without the need for special equipment.

2.14 Control and Instrumentation

A. General

1. The UV Control and Monitoring System integrated into each PDC shall include provisions for local indication of the following system parameters:
   a. Individual lamp status
   b. Communications status
   c. Bank UV intensity (mW/cm^2)
   d. Bank ON/OFF status
   e. Bank elapsed time (h)
   f. Cleaning motor status
   g. Bank lamp current (%)
   h. Time before next cleaning cycle (h)

2. The UV Control and Monitoring System shall provide an alarm mode that allows the operator to view up to 20 of the most recent alarms that are still active or have yet to be acknowledged. The alarms displayed shall be common alarms for each UV lamp rack as well as system alarms. Minor and major alarms are defined below.
   a. Minor Alarms
      1. Individual lamp failure
      2. Cleaning motor overload

3. Bank UV intensity low alarm
4. High cabinet temperature alarm

b. Major Alarms
1. Bank UV intensity low-low alarm
2. Adjacent Lamp Failure
3. Multiple Lamp Failure
4. Circuit breaker/GFI trip alarm
5. Effluent low level
6. Loss of UV intensity signal in Remote mode

3. The control system shall provide elapsed time indication for individual banks with a non-resettable timer and shall be displayed when prompted.

4. Lamp on/off cycling is protected by introducing delays to compensate for brief flow fluctuations and to keep energized banks in service for a defined period of time.

5. For a two bank system in Remote mode and with dose pacing enabled, the output of the lead bank is adjusted such that the Received Dose follows the Applied Dose. If the Received Dose cannot attain the Applied Dose then the lag bank is energized and after the warm-up period the Bank Output Current of both banks is adjusted such that the Received Dose follows the Applied Dose. The reverse is also true; if the Received Dose is greater than the Applied Dose then the lag bank is de-energized after a 30 minute delay.

6. In Remote mode the lead bank is always energized. The UV Control and Monitoring System shall energize the lag bank under the following conditions:
1. if the Received Dose cannot attain the Applied Dose in dose pacing mode,
2. a major alarm condition is detected in the lead bank,
3. the operator manually rotates the lead bank.
The lag bank delay off timer is set to 30 minutes to prevent unnecessary on/off cycling based on changing process conditions.

7. A form C (normally open (NO) or closed (NC)) dry contact rated for 5A (NO)/3A (NC) at 125 VAC shall be provided as follows:
a. Minor common alarm condition
b. Major common alarm condition
c. Bank ‘A’ status
d. Bank ‘B’ status, if configured

B. System Control Center - PLC Based Controls

1. Operator interface shall be via a color touch-screen device.

2. Minor alarms shall be provided to indicate to plant operators that maintenance attention is required. Alarms shall include:
1. Individual lamp failure shall indicate which lamps are out of service (locally only).
2. Cleaning motor overload.
3. Low UV intensity alarm. This alarm setpoint shall be field adjustable.
4. High cabinet temperature alarm.

3. Major alarms shall be provided to indicate an extreme alarm condition in which the disinfection performance may be jeopardized. Alarms shall include:
   1. Low-low UV intensity alarm. This alarm setpoint shall be field adjustable.
   2. Adjacent Lamp Failure.
   3. Multiple Lamp Failure.
   4. Circuit breaker/GFI trip alarm.
   5. Effluent low level.
   6. Loss of UV intensity signal in Remote mode.
   7. Loss of flow signal in Remote mode.

4. The 100 most recent alarms shall be recorded in an alarm history register and displayed when prompted.

5. It shall be possible to set the status of individual banks to either Manual, Off or Automatic mode from the System Control Center.

6. The System Control Center shall cycle the banks for equal wear and off time to minimize bank cycling.

7. Elapsed time of each bank shall be displayed when prompted.

8. The System Control Center shall be a separate NEMA 4X (IP65) rated enclosure located within 500 feet (152 m) of the channel. The suggested location is in the Control or MCC building.

9. The communication protocol connecting the SCC and PDC's shall be RS-485. The PLC in the SCC shall be an Allen Bradley CompactLogix™ L30ER processor and associated I/O modules. Interfacing to the plant-wide network shall be achieved via Ethernet or any other common protocol using a protocol converter. Interfacing to an external system shall be achieved by hard wired I/O points.

10. A normally open (NO) dry contact rated for 2 amps shall be provided for the following:
    a. Minor common alarm condition
    b. Major common alarm condition
    c. Bank status (one for each UV bank supplied)
    d. PLC power failure

C. The UV Control System shall execute the following:

1. Select alternate bank if a selected bank is out of service, has a major alarm or is scheduled for maintenance.

2. Optimize lamp life by alternating banks as directed by the System Control Center.

3. Protect lamps from cycling on/off by introducing delays to compensate for brief flow fluctuations and to keep energized banks in service for a user defined period of time (20 minutes minimum).

4. The dose pacing control scheme is enabled from the Operator Interface when the minimum number of PDC's are in Remote mode. Dose is calculated on a per bank basis and is totaled for the system. The total dose received by the effluent is called the Received

Dose. This value is the Process Variable (PV) and the PID compares the PV to the Applied Dose (Setpoint) and adjusts the Ballast Output Current accordingly so that the Received Dose follows the Applied Dose. The algorithm will energize and de-energize banks as necessary to ensure the Received Dose follows the Applied Dose thereby maximizing lamp life and minimizing power consumption.

5. In the event of a failure or interruption of operation of the UV Control and Monitoring System, each PDC shall continue to operate in local mode and provide the designed disinfection performance.

2.15 Cleaning System

A. Mechanical cleaning system with an automatically controlled and manually initiated cleaning cycle. UV systems that do not have automatic cleaning shall not be accepted.

B. The cleaning mechanism (scraper) shall be driven by an electric motor. UV systems that incorporate hydraulic or pneumatic cleaning systems shall not be accepted due to increased components and complexity. UV systems utilizing chemicals shall also not be accepted.

C. The cleaning system shall be fully operational without requiring the lamp rack to be placed out of service.

D. The cleaning cycle intervals shall be field adjustable from once every hour to once every 999 hours.

2.16 Safety Equipment

A. The UV system manufacturer shall provide one (1) suitable face shield which will block UV light with wavelengths between 200 and 400 nm from low pressure mercury lamps.

2.17 Spare Parts and Accessories

A. The following spare parts shall be furnished;

1.	Three (3) - UV Lamps	(10% of the total supplied in the system)
2.	Three (3) - Quartz Sleeves	(10% of the total supplied in the system)
3.	Three (3) - End Seals	(10% of the total supplied in the system)
4.	One (1) - Electronic Ballast	(10% of the total supplied in the system)
5.	Three (3) – Scraper Assembly	(10% of the total supplied in the system)
6.	One (1) - Service Trolley	(One)
7.	One (1) – Davit Crane with Bases	(One)

PART 3 EXECUTION

3.1 Equipment Installation

A. The ultraviolet disinfection system shall be installed in accordance with the manufacturer's drawings, written instructions and recommendations. The manufacturer shall provide adequate services as required for proper installation.

B. The manufacturer shall issue a certificate to the Engineer indicating that the system has been properly installed after an inspection and testing of the system.

3.2 Manufacturer's Representative

A. The manufacturer shall provide the services of a qualified field representative to perform field services including commissioning and instruction of the Owner's personnel in the operation and maintenance of equipment furnished. A total of two (2) trips with up to six (6) day of onsite services shall be provided.

3.3 Field Training

A. The manufacturer shall provide the services of a qualified representative to train operation and maintenance personnel. Training shall be provided for a total of one person day after commissioning of the system. Field training shall cover all of the items contained in the operation and maintenance manual.

End of Section

ATTACHMENT:
MANUFACTURING FACILITY
SPARE PARTS & TECHNICAL
SUPPORT

Manufacturing Facility, Spare Parts & Technical Support

De Nora Water Technologies, LLC – located in Coraopolis, PA, just five minutes from the Pittsburgh International airport – manufactures three Ultraviolet distinct technology systems that are used for:

- Drinking water disinfection,
- Municipal wastewater disinfection, and
- Ballast water treatment.

De Nora Water Technologies, LLC is ISO 9001:2015 accredited. The certification of compliance with ISO 9001:2015 recognizes that the policies, practices, and procedures of our UVT Division ensure consistent quality in the products and services we provide to our customers. The certification applies to the management system for the design, development, manufacture, delivery, installation, warranty support, and aftermarket parts and service for ultraviolet (UV) water treatment systems. De Nora's quality assurance manufacturing program has also fully met the requirements of NASA, the U.S. DOD and the U.S. DOE.

All consumable spare parts are stocked at our manufacturing facility in Coraopolis, PA. Spare parts are available over night in an emergency and within 1-2 weeks for general orders.

Each wastewater project is assigned a field service engineer who works on the project in the factory for initial testing and again in the field for startup and future maintenance. Technical support is available 24/7 through our support line and our service department prides themselves on always answering their phones and returning calls in a timely manner because they recognize the importance of being available to support our system.

ATTACHMENT: TECHNICAL DATASHEETS

1 - LEVEL SENSOR CAPACITANCE PROBE

2- REALTECH S2100 ONLINE UVT ANALYZER

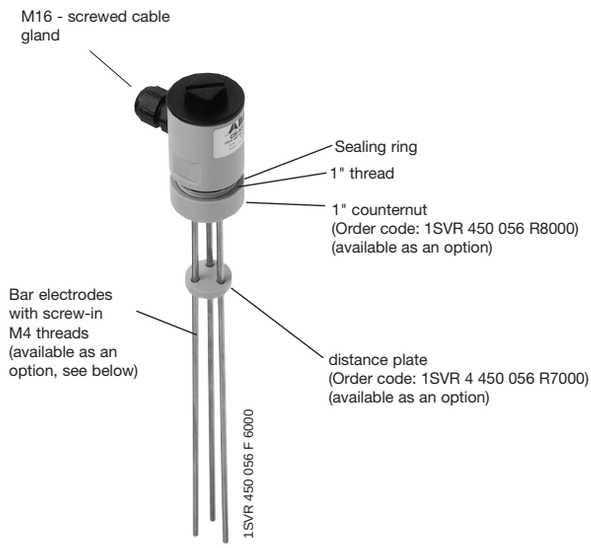
3 - DE NORA UV INTENSITY SENSOR

Liquid level relay

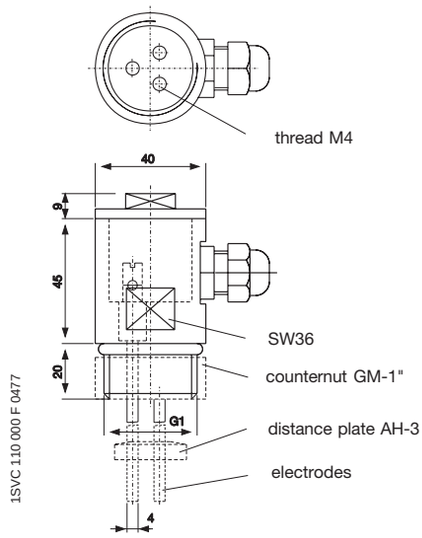
Accessories, ordering details, dimensional drawings

Compact support KH-3, for 3 bar electrodes

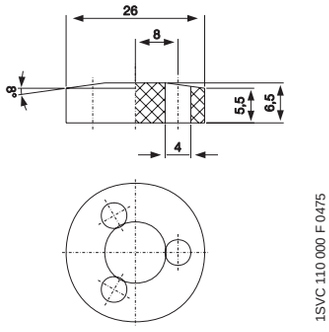
- Ideally suited for use with liquid level relays CM-ENS and CM-ENN
- Wire connection by screw terminals
- Pull relief by M16 screwed cable glands
- Temperature range up to 90°C
- Food Service Equip. (PPH)
- Screw-in electrodes (M4 thread)
- Distance plate (AH-3) and counternut (GM-1) optionally as an accessory



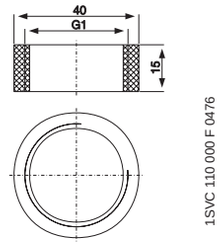
Compact support KH-3



Distance plate AH-3



Counternut GM-1



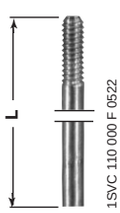
Technical data - Compact support

Type of mounting:	thread G 1"
Mounting position:	any
Housing material:	PPH
Sealing ring:	NBR 70
Temperature range:	max. 90°C
Pressure:	max. 10 bar (60°C)

(dimensons in mm)

Type		Order code	Pack. unit piece	Price 1 piece	Weight 1 piece kg/lb
CM-KH-3	Compact support for 3 bar electrodes	**1SVR 450 056 R 6000**	1		0.060/0.132
CM-AH-3	Distance plate for 3 bar electrodes	**1SVR 450 056 R 7000**	1		0.060/0.132
CM-GM-1	Counternut for 1" thread	**1SVR 450 056 R 8000**	1		0.060/0.132

Screw-in bar electrodes for compact support KH-3



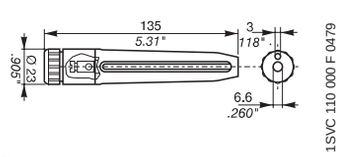
Thread M4

Material: stainless steel 304, high grade steel 14301

Length mm	Order code	Pack. unit piece	Price 1 piece	Weight 1 piece kg/lb
300	**1SVR 450 056 R 0000**	1		0.080/0.176
600	**1SVR 450 056 R 0100**	1		0.080/0.176
1000	**1SVR 450 056 R 0200**	1		0.080/0.176

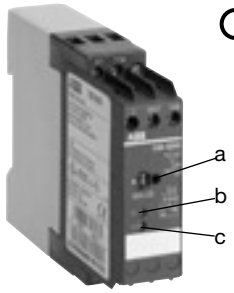
Suspension electrode

Steel electrode
(X 12 CR Mo S 17) with sleeve
(Lupulen 6011 L)
suitable up to max. 60°C



Typ	Order code	Pack. unit piece	Price 1 piece	Weight 1 piece kg/lb
	1SVR 402 902 R 0000	1		0.080/0.176

Liquid Level Controls
CM-ENS
Dual Level With SPDT Output



a "Sens." - sensitivity adjustment
b R: yellow LED - relay status
c U: green LED - supply voltage

- Monitoring and control of conductive liquid levels
- Monitoring and control of mixture ratios (conductivity of liquids)
- Adjustable response sensitivity 5…100 kΩ
- 4 supply voltage versions 24…415 V AC
- 1 SPDT contact
- 2 LEDs for status indication

Approvals: c UL us LISTED

Accessories

Compact Support CM-KH-3

1" Counter nut CM-GM-1

Distance Plate CM-AH-3

Bar Electrodes (select length)

Panel Mounting Adapter

22.5 mm
P/N: 1SVR 430 029 R 0100

Transparent Cover

22.5 mm
P/N:
1SVR 430 005 R 0100

Marker Insert

P/N:
1SVR 366 017 R 0100

See accessory pages for specifications.

Description

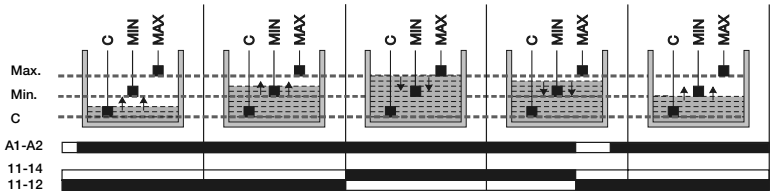
The CM-ENS monitors levels of conductive liquids and is used for liquid level control in pumping systems for filling or draining tanks.

It is also suitable for monitoring the conductivity of liquids. The measuring prinicple is based on the resistance change sensed by single-pole electrodes. The supply voltage is applied to the terminals A1 and A2, the output relay is de-energized. The probes are connected to C, MAX, MIN.

The output relay energizes if the liquid exceeds the maximum level (C and MAX wet) and de-energizes if the liquid level is below the minimum level (MAX and MIN dry).

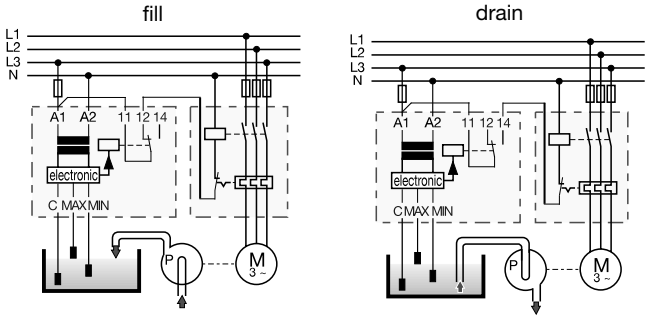
The measuring circuit includes a response delay of approximately 250 ms at maximum sensitivity. Different levels in one tank can be controlled by up to 5 CM-ENS without interfering with each other.

Function

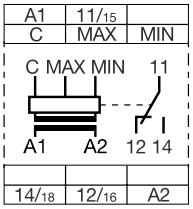


When using a metal tank the electrode C is not required. In this case the cable can be connected directly to the metal surface of the tank.

Application Examples



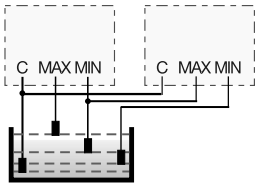
Connection



A1-A2 Supply voltage
C Ground reference electrode
MAX Maximum level
MIN Minimum level
11(15)-12(16)/14(18)
Output contacts -

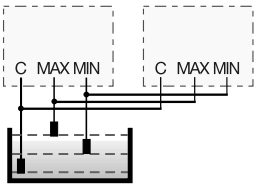
Cascading

The electrode inputs can be interconnected as required.



Redundancy

Redundant liquid level monitoring or control can be implemented by connecting the electrodes to two units.



Ordering Table

Supply Voltage	Part Number
24 V AC	**1SVR 430 851 R 9100**
110…130 V AC	**1SVR 430 851 R 0100**
220…240 V AC	**1SVR 430 851 R 1100**
380…415 V AC	**1SVR 430 851 R 2100**
220…240 V AC[1)]	**1SVR 430 851 R 1300**

[1)] Version with safety isolation acc. to VDE 0160, 1 n/o, 1 n/c

ENS02B01 12.5.04

Liquid Level Controls
CM-ENS
Dual Level With SPDT Output

Technical Data

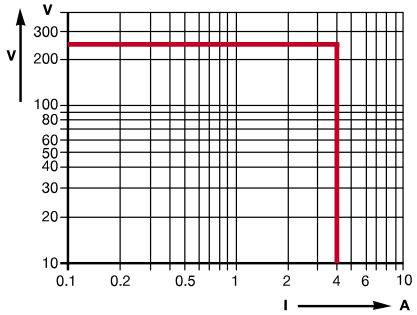
Input		
Supply voltage - power consumption	A1-A2	24 V AC - 1.5 VA
	A1-A2	110...130 V AC - 1.5 VA
	A1-A2	220...240 V AC - 1.5 VA
	A1-A2	380...415 V AC - 1.5 VA
Tolerance of supply voltage		-15 % ... +10 %
Supply voltage frequency		50…60 Hz
Duty cycle		100 %
Measuring Circuit		
Electrode inputs	C	Ground-referring electrode (Common)
	MAX	Maximum level
	MIN	Minimum level
Response sensitivity		5...100 kΩ
Electrode voltage max.		30 V AC
Electrode current max.		1 mA
Electrode supply line	Cable capacity max.	10 nF
	Cable length max.	100 m
Delay on make delay		Approx. 250 ms
Display of Operational Status		
Supply voltage		LED green
Ouput relay energized		LED yellow
Output	11-12/14	Relay, 1 SPDT contact
Rated operating voltage		250 V AC
Rated operating current	AC 12 (resistive)	4 A (230 V)
	AC 15 (inductive)	3 A (230 V)
	DC 12 (resistive)	4 A (24 V)
	DC 13 (inductive)	2 A (24 V)
Maximum mechanical life		30 x 10^6 operations
Maximum electrical life (acc. to AC 12/230V/4A)		3 x 10^5 operations
Short-circuit proof, maximum fuse rating		10 A / fast acting
General Data		
Rated impulse withstand voltage Vimp		4 kV
Operating temperature		-20° C ... +60° C
Storage temperature		-40° C ... +85° C
Mounting position		Any
Mounting to DIN rail (EN 50022)		Snap-on mounting/screw mounting with an adapter
Cable size stranded with wire end ferrule		2 x 14 AWG (2 x 2.5 mm²)
Weight		Approx. 0.33 lb (150 g)

Suitable for
spring water
acids, bases
drinking water
liquid fertilizers
sea water
milk, beer, coffee
sewage
non-concentrated alcohol

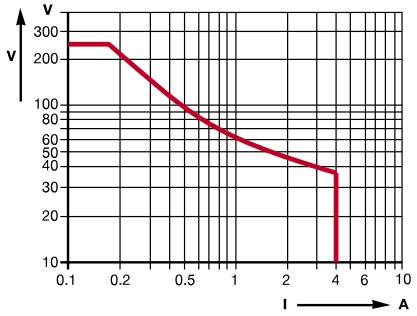
Not suitable for
chemically pure water
ethylene glycol
fuel
concentrated alcohol
oils
paraffin
explosive areas (liquid gas)
lacquers

Load Limit Curves

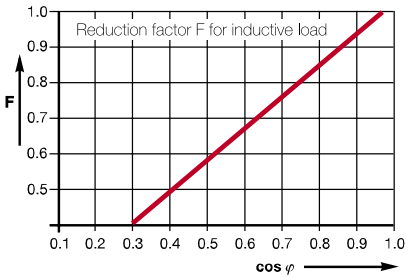
AC Load (Resistive)



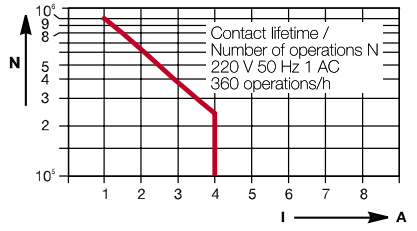
DC Load (Resistive)



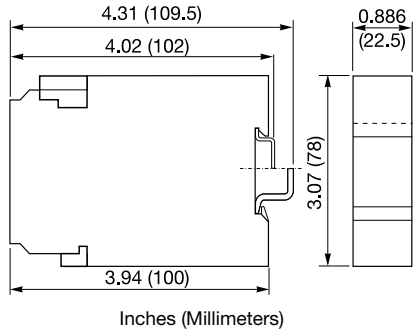
Reduction Factor for Inductive AC Load



Contact Lifetime



Mechanical View



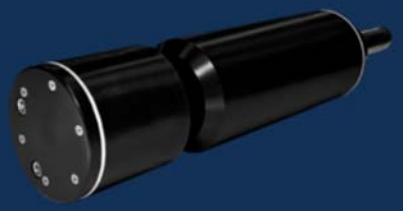
Inches (Millimeters)

9

ENS02B01 12.5.04

UV254 PROBE SENSOR

S SERIES



FEATURES & BENEFITS

- Accurate, reliable and affordable
- Real-time UVT or UVA organics monitoring
- Long-life UV LED light source
- Innovative custom calibration limits maintenance
- Robust submersible probe for in-situ measurement
- Simple to install and easy to operate

MUNICIPAL DRINKING WATER
MUNICIPAL WASTEWATER
INDUSTRIAL PROCESS WATER
INDUSTRIAL WASTEWATER

WATER QUALITY
MONITORING
SOLUTIONS

OVERVIEW

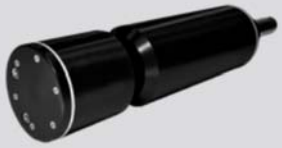
Real Tech's UV254 probe sensor provides rapid real-time measurement of organic matter in water or wastewater. Continuous organic monitoring can bring significant value to many applications including UV disinfection.

The effectiveness of a UV disinfection system is determined by the UV dose that the system is able to deliver to the water. The UV dose is dependent primarily on the combined effects of the UV light intensity, the exposure time of the system and the UV transmittance (UVT) of the water. Therefore, precise and reliable UVT monitoring is required for optimal performance and efficiency. Real Tech's S series probe is cost effective and accurate, making it a practical choice for many UV disinfection applications.

MEASUREMENT PRINCIPLE

The S series sensor utilizes light at 254 nm wavelength as most organic compounds (specifically aromatic organics) absorb light at this wavelength. Benefiting from a long-life UV LED lamp, accurate and stable measurements are obtained with minimal maintenance or operator intervention. Measurement can be expressed as UVT or UV254.

REALTECH INC.



UV254 PROBE

S SERIES

SPECIFICATIONS

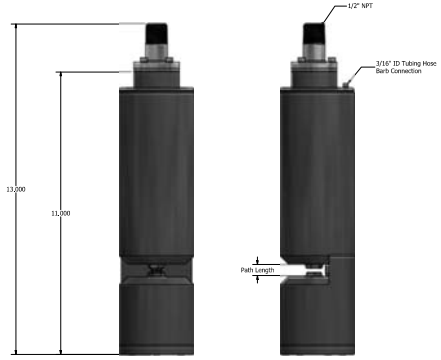
CHARACTERISTIC	TECHNICAL DATA			
MODEL	**S2010**	**S2020**	**S2040**	**S2100**
Path Length	1 mm	2 mm	4 mm	10 mm
Parameters	UVT or UV254			
Range	Depends on model selected. Refer to range chart on next page.			
Accuracy	± 0.5% FS			
Units	% or cm^{-1}			
Sampling Time	10 seconds			
Calibration	Zero to DI water or custom calibration to existing process sample.			
Cleaning	Real Air Clean automatic pressurized air cleaning system			
Self-Diagnostics	Detection and diagnosis of internal system fault			
Alarms	Continuous detection of leaks, lamp output, humidity, temperature and electrical fault			
Humidity Control	Humidity sensor with desiccant pack			
Wavelength	254 nm			
Light Source	LED			
Electrical/Comm.	From controller			
Storage Temp.	-20 to 60°C (-4 to 140°F)			
Operating Temp.	0 to 45°C (32 to 113°F)			
Weight	5 lb			
Dimensions	11" H x 2.875" Diameter			
Warranty	2-year limited warranty (Extended care packages available)			

* Technical Specifications are subject to change without notice.

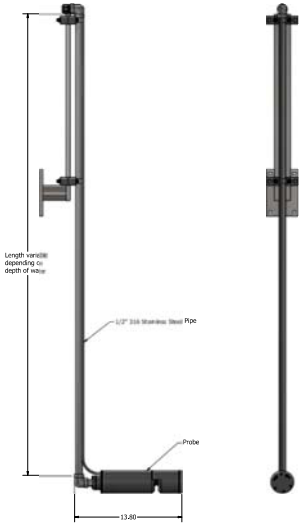
DIMENSIONS

S series sensors are submersible probe instruments installed directly in-situ using a mounting kit attached to a tank wall or railing.

DIMENSIONS FOR S PROBE



MOUNTING FOR S PROBE



MODELS & RANGE

The S series models include UV254 probe sensor, 35 feet of communication cable and 35 feet of air tubing . Controller, mounting kit and cleaning system sold separately.

MODEL	PATH LENGTH	UV254 (cm^{-1})	UVT (%)
S2010	1 mm	0 - 20	0 - 100
S2020	2 mm	0 - 10	0 - 100
S2040	4 mm	0 - 5	0 - 100
S2100	10 mm	0 - 2	1 - 100

* Stated ranges approximate, dependent on industry, site and application - contact Real Tech to confirm model selection

ACCESSORIES

PRODUCT #	NAME	DESCRIPTION
S-169000	Real Controller	Wall mounted controller with 4-line x 20-character back lit LCD display for sensors
S-188101	Air Clean System I	Air cleaning valve module requires on-site air (no compressor)
S-188102	Air Clean System II	Low power automatic CO_2 air cleaning system
S-188103	Air Clean System III	Automatic compressed air cleaning system including compressor
S-189031	LED Probe Mounting Kit I	Provides secure mounting attachment to a tank wall or open channel wall for S series sensor. No pole included
S-189032	LED Probe Mounting Kit II	Provides secure mounting attachment to a tank wall or open channel wall for S series sensor. 5ft pole included
S-189033	LED Probe Mounting Kit III	Provides secure mounting attachment to a tank wall or open channel wall for S series sensor. 10ft pole included

Real Tech Inc.
1150 Champlain Court,
Whitby, Ontario L1N 6K9 Canada
TF: 1.877.779.2888 T: 1.905.665.6888
info@realtechwater.com

REALTECH INC.

UV INTENSITY SENSOR

Part Number W000050

Description

The UV intensity sensor is a two-wire transmitter that measures the UV intensity between 230 and 370 nm within an array of germicidal lamps submerged in wastewater. The sensor has a 360° viewing angle that monitors the UV intensity of adjacent lamps as well as surrounding lamps. The UV intensity sensor serves as an indicator of effluent quality, quartz sleeve fouling and lamp aging.

Electrical Specifications

INPUT

1. V_{in} = 24 VDC, +/- 10%
2. I_{in} < 25 mA @ V_{in} = 24 VDC

OUTPUT

1. Analog Signal: 4 to 20 mA
2. Maximum Load (Ω): $R_{LOAD} = (V_{in} – 8.5) / 0.02$
3. Accuracy and repeatability: +/- 5%

SYSTEM INTERFACE

The UV intensity sensor signal is wired to the Control Card mounted in the Power Distribution Center. The Control Card converts the analog signal (mA) to a UV intensity signal in mW/cm^2. The calibrated UV intensity sensor has a range from 0 to 25 mW/cm^2. The UV intensity value is displayed locally at the Operator Station and remotely at the PLC Operator Interface, if provided.

ENVIRONMENTAL

1. Water Temperature: Operating: 0 to 60 °C
2. Storage Temperature: -20 to 85 °C
3. The UV sensor enclosure is designed to comply with NEMA 6P (IP67) ratings and is submersible to a maximum of ten (10) feet of water.

MECHANICAL

1. Enclosure dimension are 1.18 inches (30 mm) tubing and 7.75 inches (197 mm) long.
2. Enclosure material is 316 SS and quartz.
3. Cable length is approximately 16.5 feet (5 m) long. Cable protection material is Teflon®.
4. Weight of the complete UV Sensor with cable assembly is approximately 3 pounds (1.36 kg).

CONNECTOR DETAILS

A NEMA 4X bulkhead connection on the face of the Power Distribution Center is utilized to connect the UV intensity sensor cable to an internal cable that is wired to the Control Card.

The UV intensity sensor passes through a mounting socket located on one of the lamp rack legs between the top two lamps on the side opposite the motor box.

The UV intensity sensor quartz tube is cleaned with the same mechanical cleaning device as are the lamp sleeves. The cleaning frequency is the same as the Lamp Rack cleaning frequency since the cleaning device is attached to the same cleaning mechanism.

CALIBRATION

The UV intensity sensor is factory calibrated to 3.1.B of the German Institute for Standardization (DIN) EN10204.

ATTACHMENT: DRAWINGS

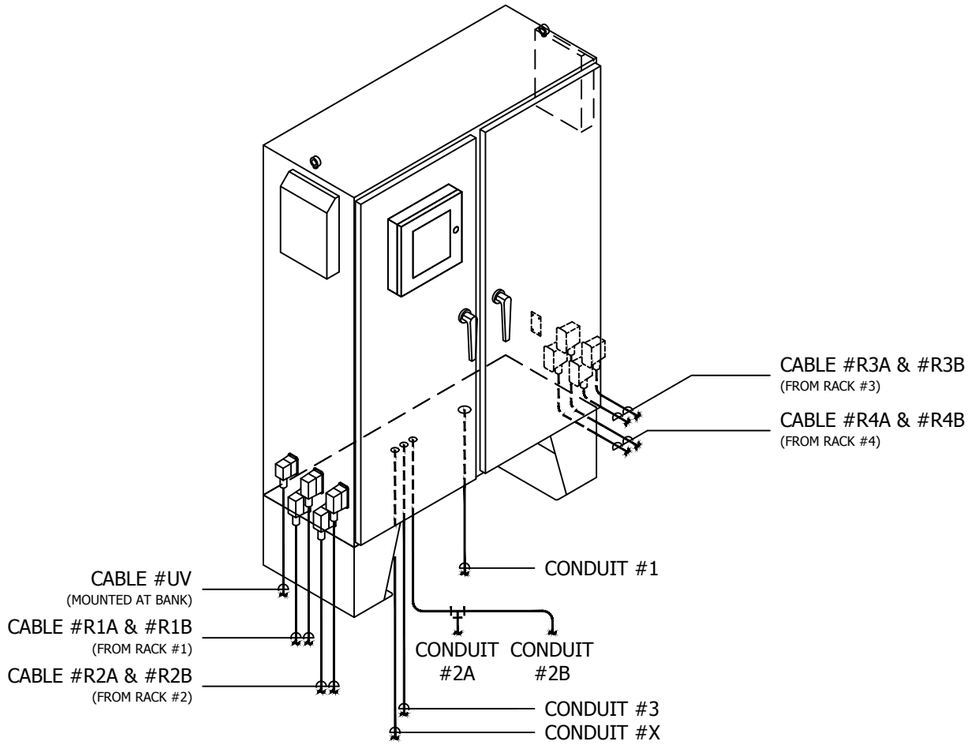
1 - EXTERNAL WIRING DIAGRAM

2- PDC (FOR LINE CREEK)

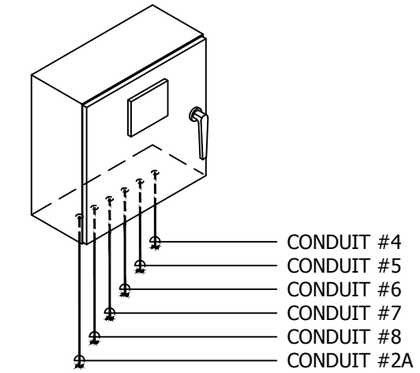
3 - SCC

4 - LAMP RACK GENERAL ARRANGEMENT

5 - LINE CREEK LAYOUT DRAWING



C³500D PDC
(POWER DISTRIBUTION CENTER)

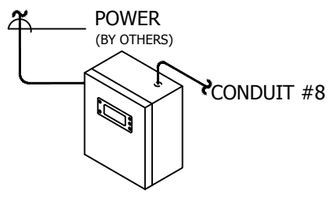


C³500D SCC
(SYSTEM CONTROL CENTER)

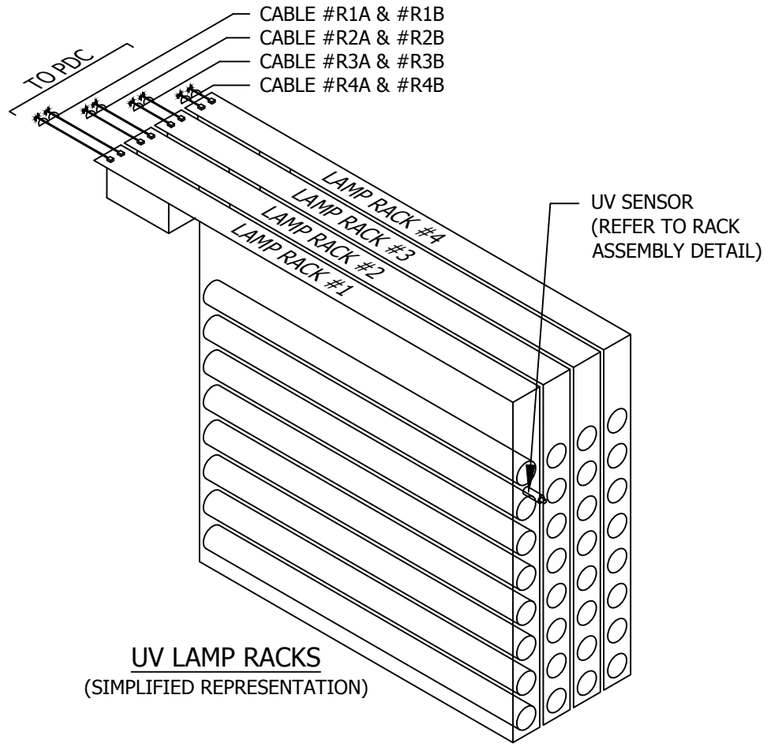
SAMPLE ONLY OF TYPICAL ELECTRICAL WIRING

NOTES:

1. ALL EXTERNAL WIRING PROVIDED & INSTALLED BY OTHERS, UNLESS OTHERWISE NOTED. ALL CONDUCTORS ARE COPPER.
2. ALL WIRING INSTALLED ACCORDING TO NEC, LOCAL CODES, & ANY AUTHORITY HAVING JURISDICTION.
3. CONDUIT RUNS REQUIRE 10% SPARE WIRES.
4. FOR MINIMUM WORKING SPACE CLEARANCE ABOUT POWER DISTRIBUTION CENTER (PDC), SEE NEC ARTICLE 110.26 & 110.34.
5. WIRE SIZES INDICATED ARE FOR 75° C AND ARE MINIMUM REQUIREMENTS ONLY. NO CONSIDERATION IS GIVEN TO DERATING AS IT PERTAINS TO CONDUIT FILL, AMBIENT TEMPERATURE, NUMBER OF BENDS, OR LENGTH OF RUN. CONTRACTOR SHALL DETERMINE THESE FACTORS AS PER FIELD CONDITIONS & MAKE NECESSARY ADJUSTMENTS.
6. MAXIMUM SEPARATION DISTANCE BETWEEN THE PDC & ITS LAMP RACK ASSEMBLIES IS 33 FEET [10 METER].



UVT ANALYZER



UV LAMP RACKS
(SIMPLIFIED REPRESENTATION)

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	3/28/18

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	3/28/18
DESIGNER	DLY	3/28/18
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

DE NORA

CLIENT

TITLE
WASTE WATER C³500D
ELECTRICAL
EXTERNAL WIRING DIAGRAM

DWG. Size	SHEET No.	SCALE
B	1 OF 4	NONE

DWG. No. W900146 REV. A

CONDUIT	FROM / TO	WIRE FUNCTION	WIRE NUMBERS	WIRE SIZE & QTY
CONDUIT #1	MAIN AC SUPPLY FROM CUSTOMER TO MAIN BREAKER LOCATED IN PDC	480/277V, 3ϕ, 60Hz, 4-WIRE + GND 33.8 FULL LOAD AMPS PHASE A 33.8 AMPS PHASE B 16.9 AMPS PHASE C 18.8 AMPS	F1, F2, F3, N GND	4-1/C #8 AWG (THWN) & 1-1/C #10 AWG GND (THWN)
CONDUIT #2A	FROM SCC TO PDC #1	PLC-NET OR/WHT SCC WHT/OR BLU/WHT SHLD	PLCNET+ PLCNET- COM SHLD	1 EA 2-TW/PR#24AWG SHLD (BELDEN #9842)
CONDUIT #2B	FROM PDC TO NEXT PDC	PLC-NET OR/WHT WHT/OR BLU/WHT SHLD LEVEL SENSOR R2 (N0) R2 (C0M)	315-1 316-1 317-1 SHLD 114-1 115-1	1 EA 2-TW/PR#24AWG SHLD (BELDEN #9842) 2-1/C #16AWG
CONDUIT #3	FROM ULTRASONIC LEVEL SENSOR TO PDC	LEVEL SIGNAL R1 (NO) R1 (COM) R2 (NO) R2 (COM) POWER	114-1 115-1 116-1 117-1 FU303, N, GND	6-1/C #16AWG & GND (SUPPLIED & PRE-FABRICATED BY CCC)
CONDUIT #4	FROM CUSTOMER SOURCE TO SCC	120VAC, 1ϕ, 60Hz, 2-WIRE + GND 12 FULL LOAD AMPS	L1, N, G	2-1/C #14AWG & GND (THWN)
CONDUIT #5	FROM SCC TO CUSTOMER	MINOR ALARM MAJOR ALARM BANK "1A" STATUS BANK "1B" STATUS POWER FAILURE	128-1, 129-1 130-1, 131-1 132-1, 133-1 134-1, 135-1 127-1, 127-2	10-1/C #14AWG
CONDUIT #6	FROM SCC TO CUSTOMER SCADA SYSTEM	ETHERNET COMMUNICATION LINK		4-PR #24AWG (0.21mm²) CAT 5e UTP CABLE (BELDEN #1583A)
CONDUIT #7	FROM FLOW METER TO SCC	4-20mA FLOW SIGNAL ISOLATED ANALOG SIGNAL	FIT1100+, FIT1100-	1 EA 1-TW/PR #18AWG SHLD (BELDEN #9341)
CONDUIT #X	FROM UVT ANALYZER TO UV PLC PANEL	4-20mA UVT ANALYZER SIGNAL ISOLATED ANALOG SIGNAL (POWER BY OTHERS) (IF RECEPTACLE REQUIRED - SUPPLIED & INSTALLED BY OTHERS)	AIT1100+, AIT1100-	1 EA 1-TW/PR #18AWG SHLD (BELDEN #9341)

CABLE	FROM / TO	WIRE FUNCTION	WIRE NUMBERS	WIRE SIZE & QTY
CABLE #RnA	FROM LAMP RACKS TO PDC	LAMP POWER (LAMPS 1 - 4) MOTOR POWER, COMM (RAC-NET) GROUND		4 EA 4-TW/PR#16AWG, 2-1/C #20AWG, 1-PR #22AWG, 1-1/C #8AWG (SPECIALTY CABLE) (SUPPLIED & PRE-FABRICATED BY CCC)
CABLE #RnB	FROM LAMP RACKS TO PDC	LAMP POWER (LAMPS 5-8)		4 EA 4-TW/PR#16AWG (SPECIALTY CABLE) (SUPPLIED & PRE-FABRICATED BY CCC)
CABLE #UV	FROM UV SENSOR TO PDC	4-20mA UV INTENSITY SIGNAL		1 EA 4-TW/PR#16AWG (SPECIALTY CABLE) (SUPPLIED & PRE-FABRICATED BY CCC)

NOTES:

1. ALL EXTERNAL WIRING PROVIDED & INSTALLED BY OTHERS, UNLESS OTHERWISE NOTED. ALL CONDUCTORS ARE COPPER.
2. ALL WIRING INSTALLED ACCORDING TO NEC, LOCAL CODES, & ANY AUTHORITY HAVING JURISDICTION.
3. CONDUIT RUNS REQUIRE 10% SPARE WIRES.
4. FOR MINIMUM WORKING SPACE CLEARANCE ABOUT POWER DISTRIBUTION CENTER (PDC), SEE NEC ARTICLE 110.26 & 110.34.
5. WIRE SIZES INDICATED ARE FOR 75° C AND ARE MINIMUM REQUIREMENTS ONLY. NO CONSIDERATION IS GIVEN TO DERATING AS IT PERTAINS TO CONDUIT FILL, AMBIENT TEMPERATURE, NUMBER OF BENDS, OR LENGTH OF RUN. CONTRACTOR SHALL DETERMINE THESE FACTORS AS PER FIELD CONDITIONS & MAKE NECESSARY ADJUSTMENTS.
6. MAXIMUM SEPARATION DISTANCE BETWEEN THE PDC & ITS LAMP RACK ASSEMBLIES IS 33 FEET [10 METER].

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	3/28/18

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	3/28/18
DESIGNER	DLY	3/28/18
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

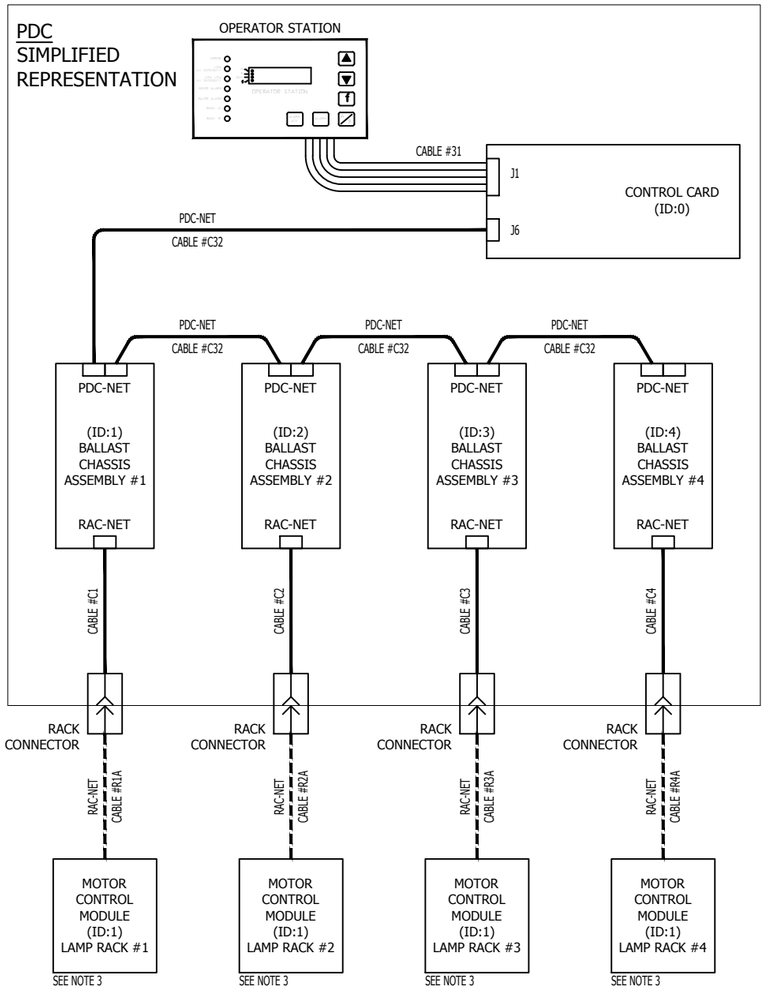
DE NORA

CLIENT

TITLE
WASTE WATER C³500D
ELECTRICAL
EXTERNAL WIRING DIAGRAM

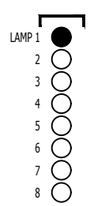
DWG. Size	SHEET No.	SCALE
B	2 OF 4	NONE

DWG. No. W900146 REV. A



LAMP ARRAY CONFIGURATION

MOTOR BOX END VIEW



DETAIL C

PDC ARCHITECTURE

NOTES:

1. ID'S IN THE PDC REFER TO THE PDC-NET ADDRESSES SET IN THE BALLAST CONTROL MODULES. A BALLAST CONTROL MODULE IS INSTALLED IN EACH BALLAST CHASSIS ASSEMBLY.
2. THE ID #'S LISTED FOR EACH LAMP RACK ASSEMBLY REFERS TO THE RAC-NET ADDRESSES SET IN THE MOTOR CONTROL MODULE.
3. ENSURE THAT THE MOTOR CONTROL MODULE IS SET FOR 230VAC OPERATION; (SET DIP SWITCHES SW1-1 & SW1-2 TO "OFF").

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	3/28/18

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	3/28/18
DESIGNER	DLY	3/28/18
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

DE NORA

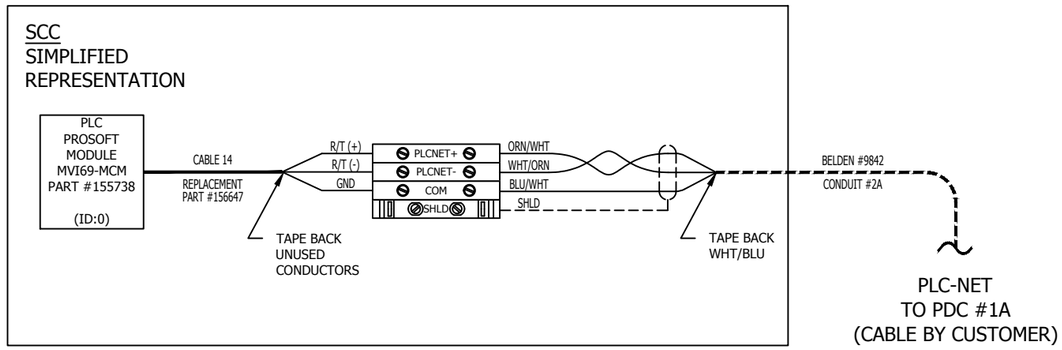
CLIENT

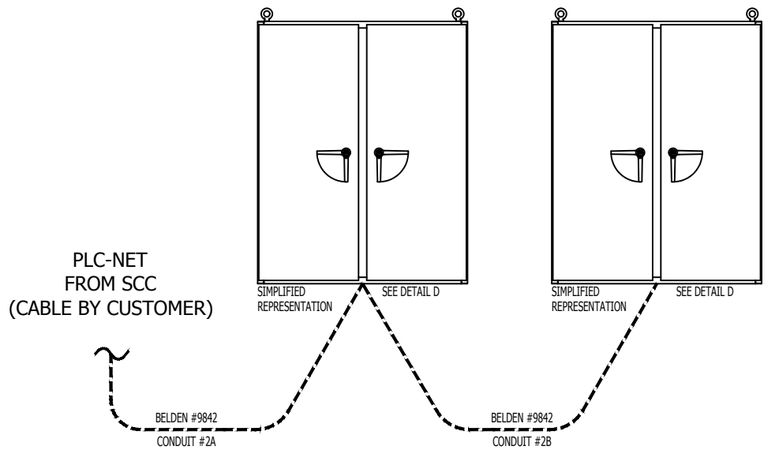
TITLE

WASTE WATER C³500D
ELECTRICAL
EXTERNAL WIRING DIAGRAM

DWG. Size	SHEET No.	SCALE
B	3 OF 4	NONE

DWG. No. W900146 REV. A

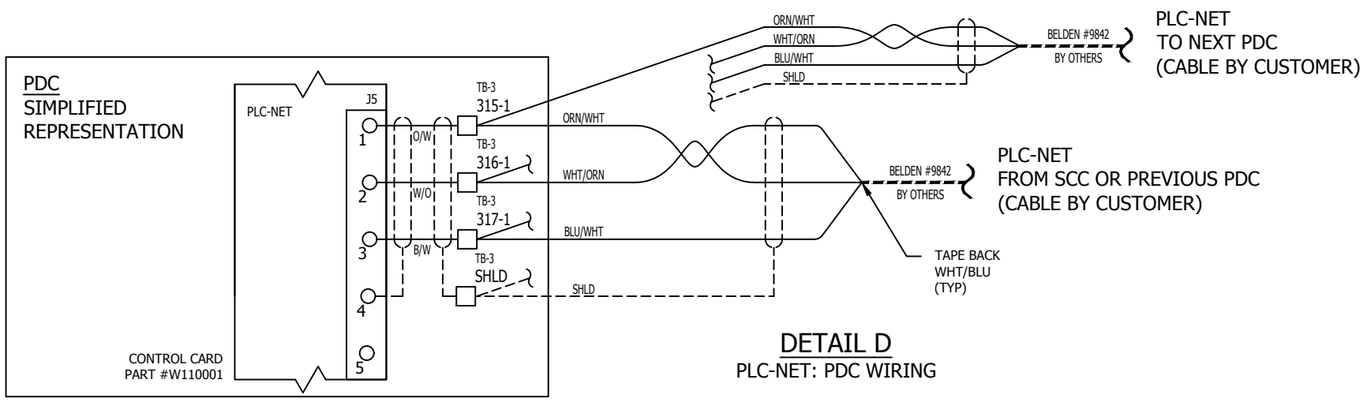




PDC #1A
(ID: 1)

PDC #1B
(ID: 2)

SEE NOTE 1



DETAIL D
PLC-NET: PDC WIRING

NOTES:

1. PLC-NET MUST BE TERMINATED AT THE LAST DROP, (LAST PDC). ON THE PDC CONTROL CARD, ENABLE DIP SWITCH, SW4, AS FOLLOWS: SW4-1 "ON" & SW4-2 "ON".

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	3/28/18

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	3/28/18
DESIGNER	DLY	3/28/18
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

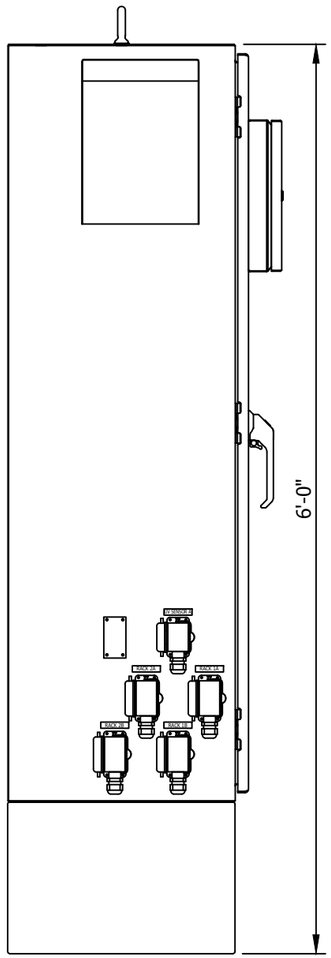
DE NORA

CLIENT

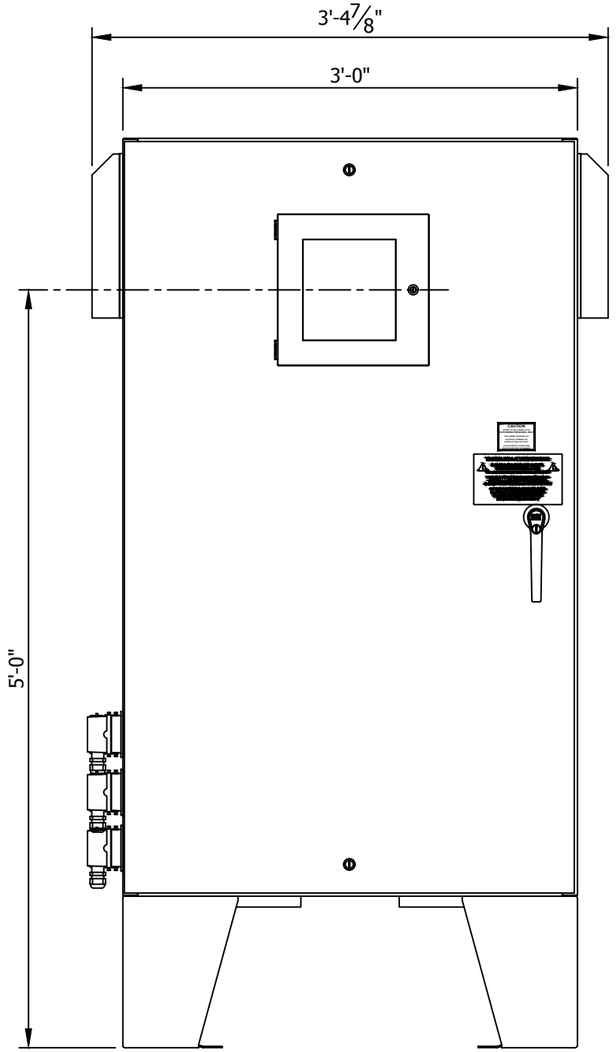
TITLE
WASTE WATER C³500D
ELECTRICAL
EXTERNAL WIRING DIAGRAM

DWG. Size	SHEET No.	SCALE
B	4 OF 4	NONE

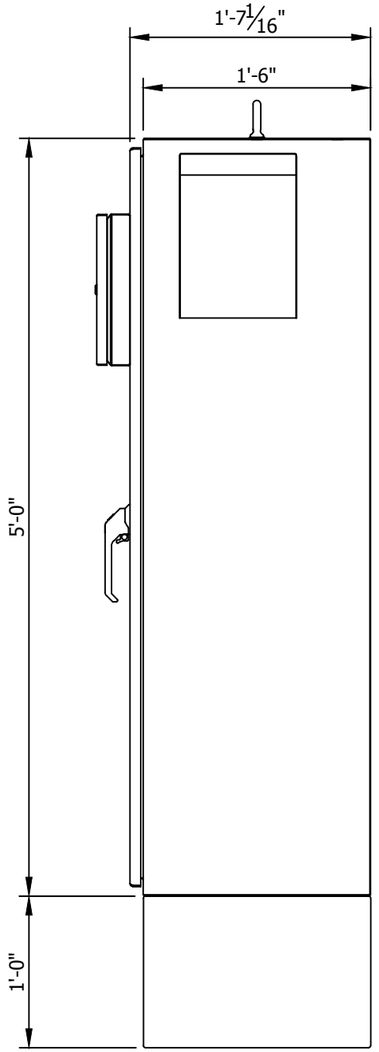
DWG. No. W900146 REV. A



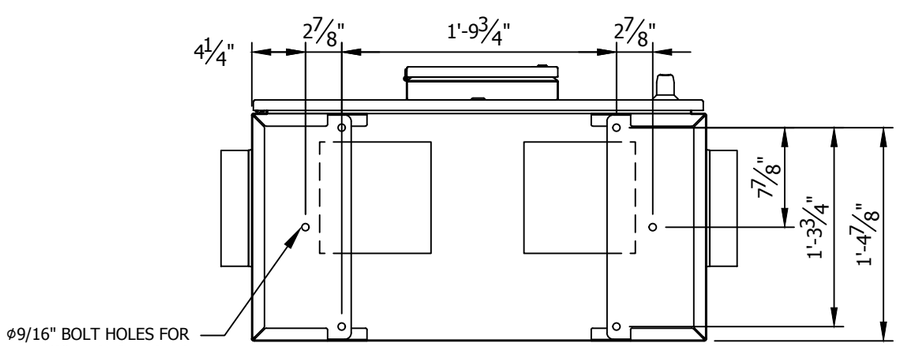
PDC
LEFT SIDE VIEW



PDC
FRONT VIEW



PDC
RIGHT SIDE VIEW



PDC
BOTTOM VIEW

NOTES:

1. MATERIAL: 12GA, 304SS.
2. FINISH: #4 BRUSH.
3. CHASSIS HAS BEEN DESIGNED TO COMPLY WITH NEMA 4X CONSTRUCTION REQUIREMENTS.

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	12/12/17

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

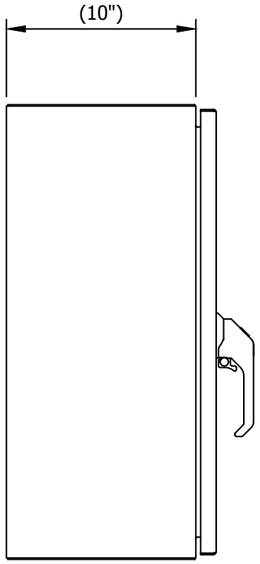
	NAME	DATE
DRAFTER	DLY	12/12/17
DESIGNER	DLY	12/12/17
CHECKER		
APPROVAL		

PROJECT No. PROPOSAL

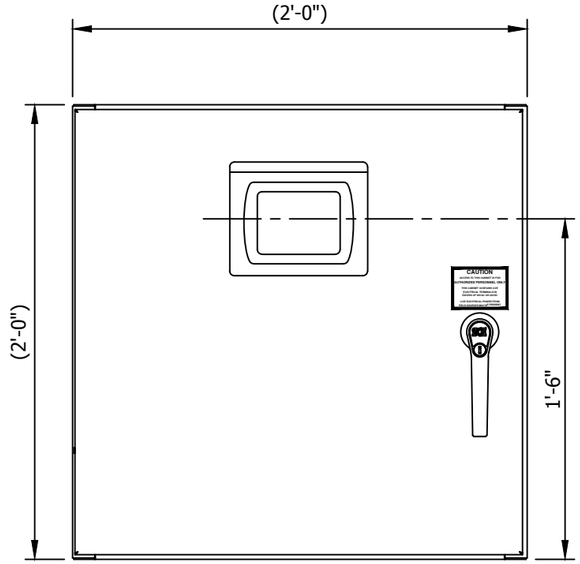
CLIENT

TITLE
WASTE WATER C³500D
POWER DISTRIBUTION CENTER
CHASSIS GENERAL ARRANGEMENT

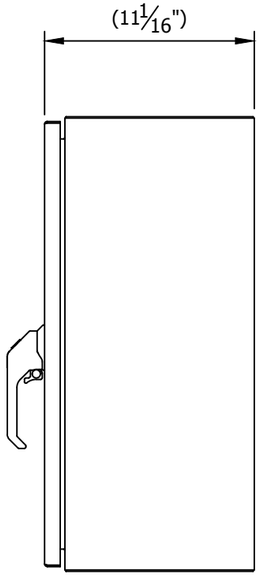
DWG. Size	B	SHEET No.	1 OF 1	SCALE	1 : 12
DWG. No.	W600183			REV.	A



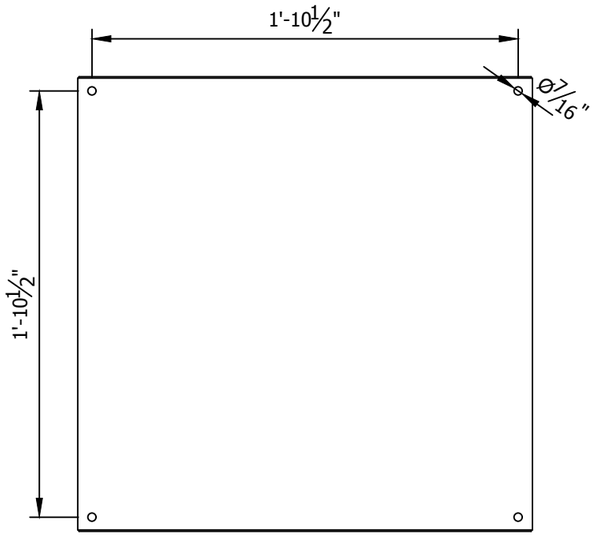
SCC
LEFT SIDE VIEW



SCC
FRONT VIEW



SCC
RIGHT SIDE VIEW



SCC
REAR VIEW

NOTES:

1. MATERIAL: 14GA, 304SS.
2. FINISH: #4 BRUSH.
3. NEMA 4X.

REV	DESCRIPTION	CHG	APP	DATE
D				
C				
B				
A	ISSUED FOR PROPOSAL	DLY	---	11/15/17

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± ±.010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± ±.005
DECIMAL (1 PLACE)	± .15	DECIMAL (4 PLACES)	± ±.0005

PRELIMINARY
NOT FOR
CONSTRUCTION

	NAME	DATE
DRAFTER	DLY	11/15/17
DESIGNER	DLY	11/15/17
CHECKER		
APPROVAL		

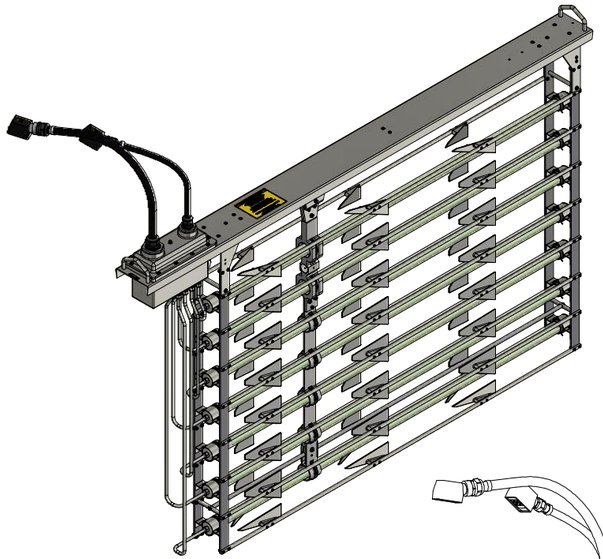
PROJECT No. PROPOSAL

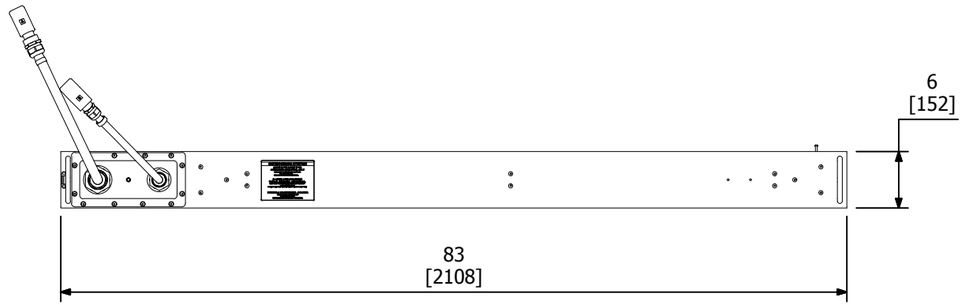
CLIENT

TITLE
WASTE WATER C³500D
SYSTEM CONTROL CENTER
CHASSIS GENERAL ARRANGEMENT

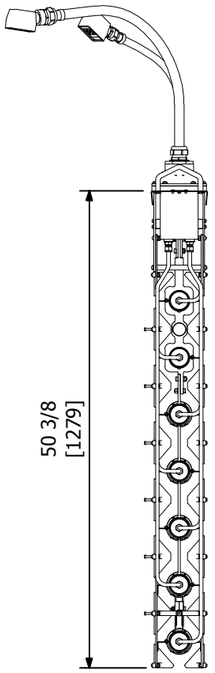
DWG. Size	SHEET No.	SCALE
B	1 OF 1	1 : 8

DWG. No. W600189 REV. A

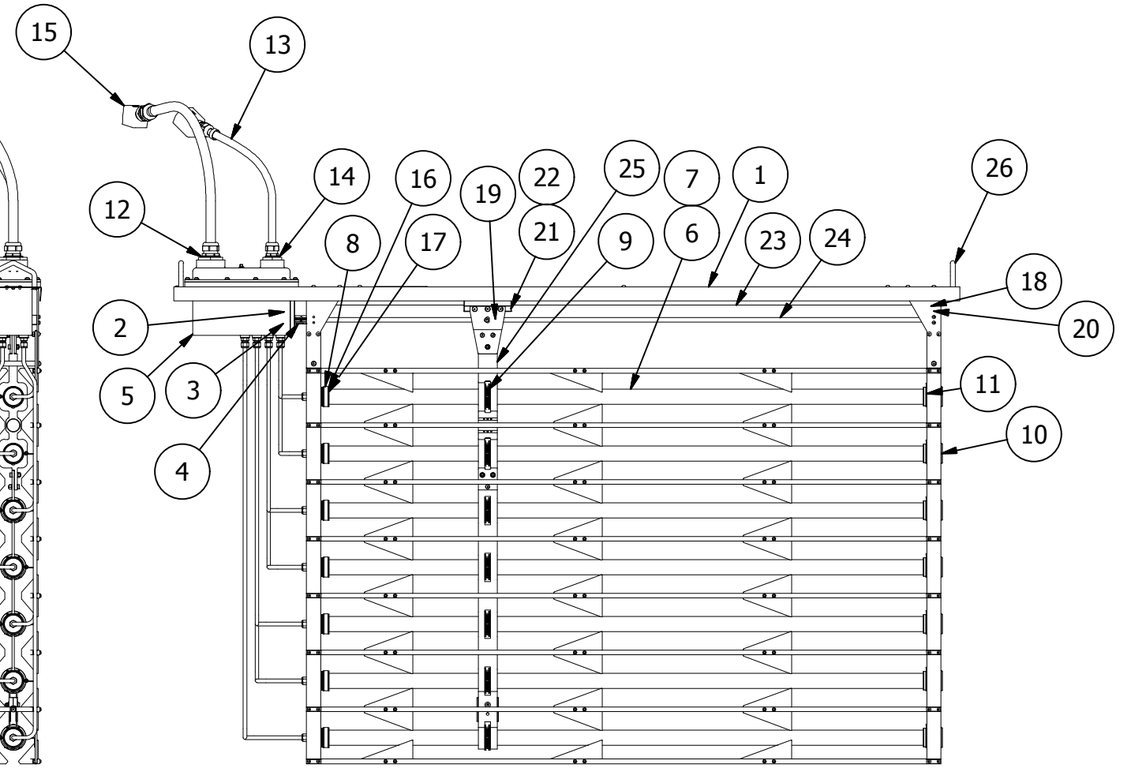




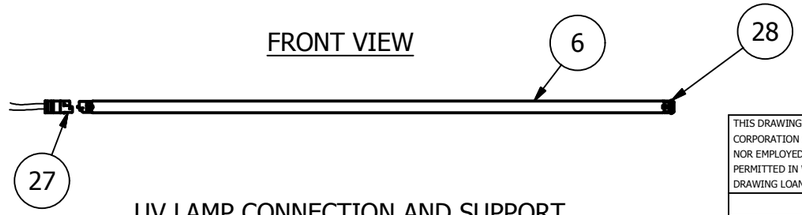
PLAN VIEW



MOTOR END VIEW



FRONT VIEW



UV LAMP CONNECTION AND SUPPORT

NOTES:
1. ALL METAL COMPONENTS SUBMERGED IN EFFLUENT ARE 316 STAINLESS STEEL AND 304 OR 316 STAINLESS STEEL ABOVE THE EFFLUENT.
2. ALL COMPONENTS THAT ARE EXPOSED TO UV LIGHT ARE TEFLON, DELRIN, 304 OR 316 STAINLESS STEEL.
3. WEIGHT: 214 LB (97 KG) APPROXIMATELY
4. RACK SUPPLY CABLE ASSEMBLIES (ITEMS 13 AND 15) LENGTH AS PER PROJECT REQUIREMENT (N01 = 1 FT, N40 = 40 FT)

ITEM	PART NO.	QTY	DESCRIPTION
1	W300248	1	TOP SHIELD
2	350365	1	MOTOR, 220 VAC, 15W
3	350364	1	GEAR BOX
4	350381	1	SHAFT COUPLING
5	W110003	1	MOTOR CONTROL MODULE
6	W300110	7	UV LAMP, C3500
7	W300246	7	QUARTZ SLEEVE, 37 x 40 mm
8	W300098	7	SLEEVE COUPLING NUT
9	W000030	7	SCRAPER ASSEMBLY, 40 mm OD, SLEEVE
10	W300067	7	SLEEVE END SUPPORT BUSHING
11	W300069	7	SLEEVE END CLIP
12	350798	1	O-RING 2-229, BUNA-N
13	W110099NXX	1	RACK SUPPLY "B" CABLE ASSEMBLY
14	350797	1	O-RING 2-220, BUNA-N
15	W110098NXX	1	RACK SUPPLY "A" CABLE ASSEMBLY
16	350425	7	SLEEVE O-RING
17	W300099	7	SLEEVE COMPRESSION WASHER
18	350380	2	PROXIMITY SENSOR C/W CABLE
19	W300038	1	LEAD SCREW NUT
20	350382	1	SPHERICAL BUSHING
21	W300031	1	GUIDE BUSHING HOUSING
22	350379	2	GUIDE BUSHING LINER
23	W300075	1	GUIDE SHAFT
24	W300076	1	LEAD SCREW
25	W300207	1	SCRAPER DRIVING ASSEMBLY
26	W300244	2	HANDLE
27	W110089N04	7	LAMP SUPPLY CABLE ASSEMBLY
28	W300085	7	LAMP BASE SPACER

REV	DESCRIPTION	CHG	APP	DATE
3	ECO1218: UPDATED DWG BOM, NOTES	MAS	SE	8/28/2017
2	ECO0967: REV PART NUMBER, ITEM 7	JLF	SE	06/09/2015
1	ECO0837, 0893: UPDATED BOM	JLF	SE	09/26/2014

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	± 0°30'	DECIMAL (2 PLACES)	± .010
FRACTIONAL	± 1/16"	DECIMAL (3 PLACES)	± .005
DECIMAL (1 PLACE)	± .015	DECIMAL (4 PLACES)	± .0005

	NAME	DATE
DRAFTER	D. WANG	7/28/2009
DESIGNER	D. WANG	7/28/2009
CHECKER		
APPROVAL		
PROJECT No.	STANDARD	

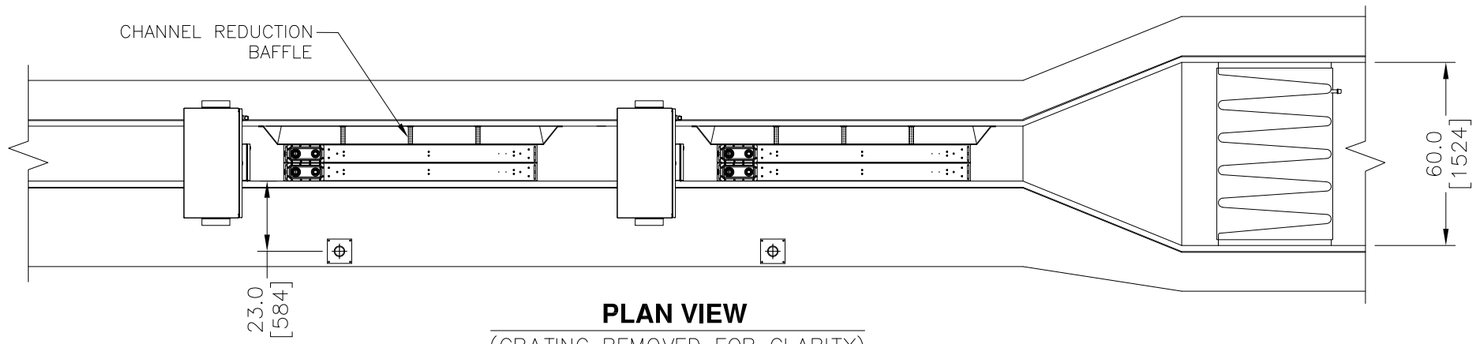
CLIENT: STANDARD

TITLE: C3500D UV DISINFECTION SYSTEM
LAMP RACK WITH CLEANING, 7 LAMP
ASSEMBLY DETAIL

DWG. Size	SHEET No.	SCALE
B	1 OF 1	NTS

DWG. No. W900077 REV. 3

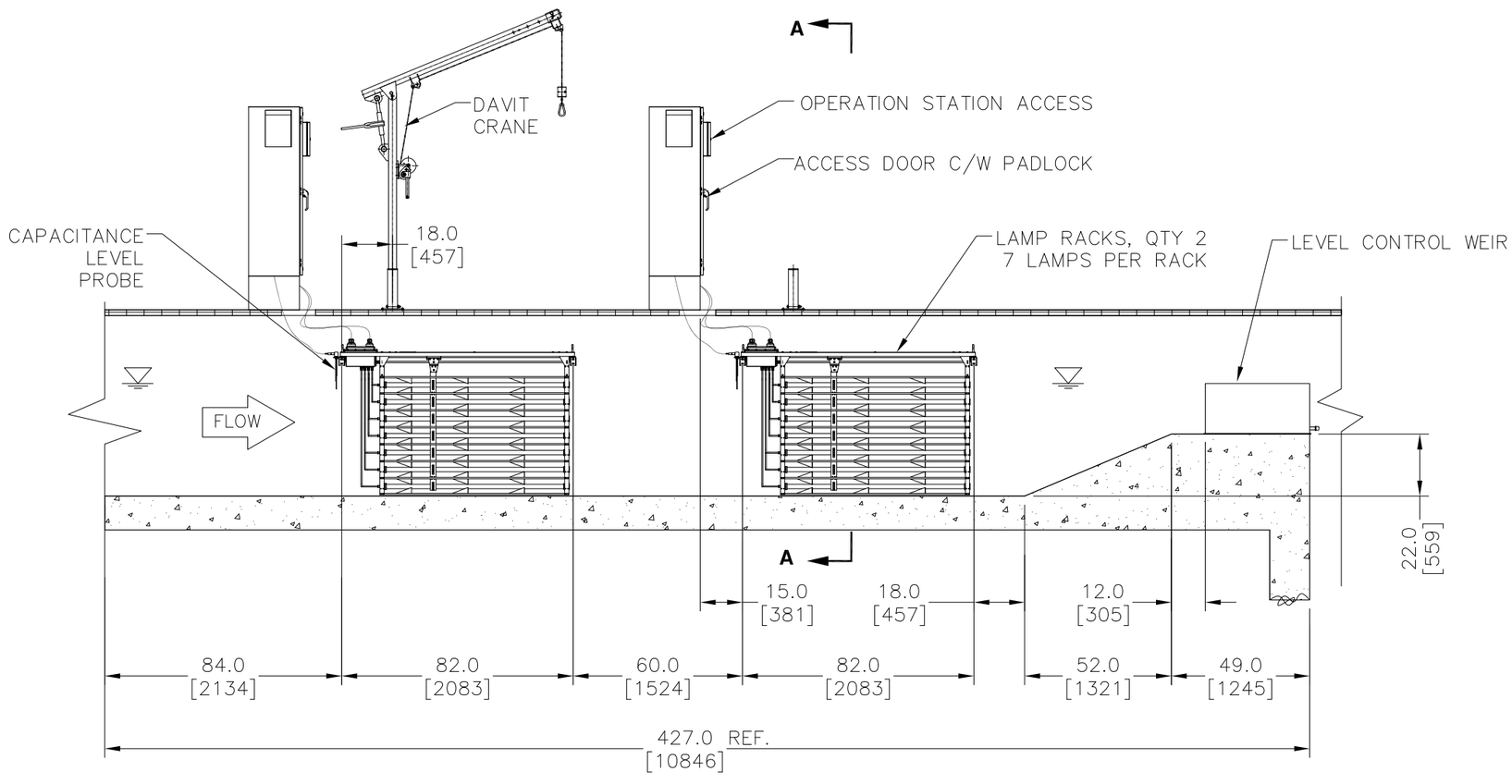
INCHES
mm



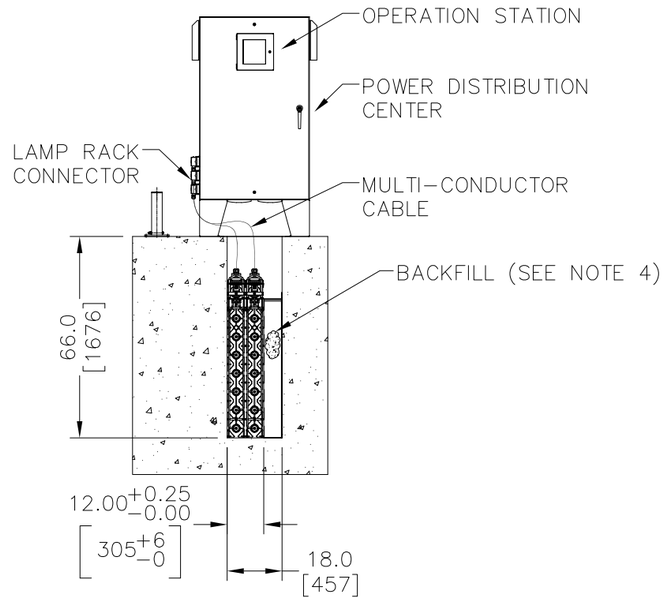
PLAN VIEW
(GRATING REMOVED FOR CLARITY)

NOTES:

1. THE CONCRETE SURFACE MUST BE LEVEL THROUGHOUT THE CHANNEL LENGTH.
2. ALL COMPONENTS OF THE SYSTEM ARE SUPPLIED BY DE NORA WATER TECHNOLOGIES AND INSTALLED BY OTHERS.
3. ALL HARDWARE REQUIRED TO CONNECT THE UV SYSTEM TO THE PROCESS FLOW ARE TO BE SUPPLIED BY OTHERS.
4. BACKFILL CHANNEL REDUCTION BAFFLE WITH APPROPRIATE MATERIAL.
5. LAMP RACK WEIGHT: 214 LB/97 KG.



FRONT VIEW



VIEW A - A

REV	DESCRIPTION	CHG	APP	DATE
A	ISSUED FOR PROPOSAL	JLF	–	5/31/2023

REVISIONS

TOLERANCES (unless otherwise specified)

ANGULAR	±0°30'	DECIMAL (2 PLACES)	±.010
FRACTIONAL	±1/16"	DECIMAL (3 PLACES)	±.005
DECIMAL (1 PLACE)	±.015	DECIMAL (4 PLACES)	±.0005

	NAME	DATE
DRAFTER	JLF	5/31/2023
DESIGNER	JLF	5/31/2023
CHECKER		
APPROVAL		
PROJECT No.	Q-00030357	

DE NORA WATER TECHNOLOGIES, LLC

CLIENT

TITLE
C3500D UV DISINFECTION SYSTEM
SYSTEM OVERVIEW

DWG. Size	SHEET No.	SCALE
B	1 OF 1	NONE

DWG. No.	PART No.	REV.
Q00030357	N/A	A

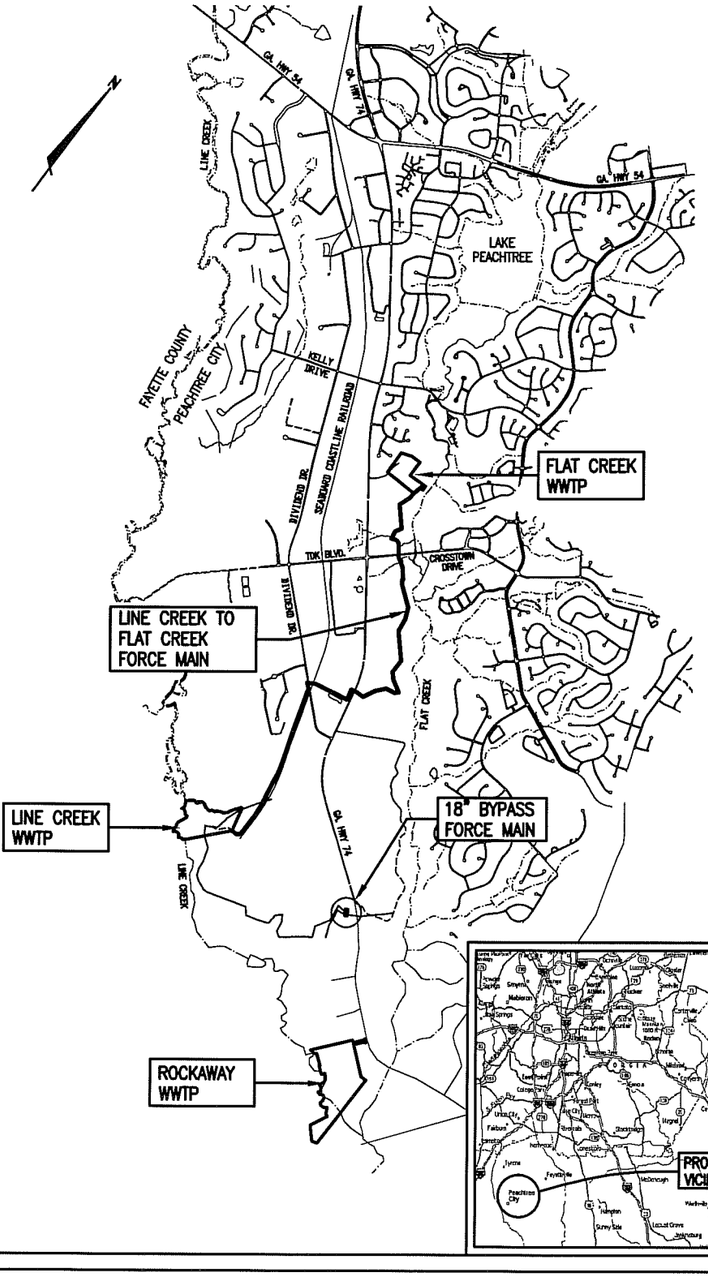
PRELIMINARY – NOT FOR CONSTRUCTION

PEACHTREE CITY, GEORGIA

ROCKAWAY
WASTEWATER TREATMENT PLANT
EXPANSION AND URBAN REUSE

FOR:
PEACHTREE CITY
WATER AND SEWERAGE AUTHORITY

PEACHTREE CITY
WATER AND SEWERAGE AUTHORITY
313 HIGHWAY 74 SOUTH
PEACHTREE CITY, GA 30269



LOCATION/VICINITY MAP
N.T.S.

FOR BID
MAY 15, 2002
CONFORMED DOCUMENTS
AUGUST 7, 2002

RECORD SET
GA063098-100-G-1.0

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

PROJECT MANAGER: A. WAYNE WELCH, P.E. DATE
GEORGIA LICENSE NO. 27297

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH
GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI
GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

NO.	DATE	REVISION DESCRIPTION	BY / CKD

SECTION 100 – GENERAL	
100-G-1.0	COVER SHEET
100-G-2.0	DRAWING INDEX
100-G-3.0	CIVIL AND MECHANICAL LEGENDS AND ABBREVIATIONS
100-G-4.0	ELECTRICAL LEGEND AND ABBREVIATIONS
100-G-5.0	PROCESS AND INSTRUMENTATION DIAGRAM LEGEND
100-D-1.0	EROSION CONTROL DETAILS (1 OF 5)
100-D-2.0	EROSION CONTROL DETAILS (2 OF 5)
100-D-3.0	EROSION CONTROL DETAILS (3 OF 5)
100-D-4.0	EROSION CONTROL DETAILS (4 OF 5)
100-D-5.0	EROSION CONTROL DETAILS (5 OF 5)
100-D-6.0	STANDARD CIVIL DETAILS (1 OF 2)
100-D-7.0	STANDARD CIVIL DETAILS (2 OF 2)
100-D-8.0	STANDARD STRUCTURAL NOTES
100-D-9.0	STANDARD STRUCTURAL DETAILS (1 OF 6)
100-D-10.0	STANDARD STRUCTURAL DETAILS (2 OF 6)
100-D-11.0	STANDARD STRUCTURAL DETAILS (3 OF 6)
100-D-12.0	STANDARD STRUCTURAL DETAILS (4 OF 6)
100-D-13.0	STANDARD STRUCTURAL DETAILS (5 OF 6)
100-D-14.0	STANDARD STRUCTURAL DETAILS (6 OF 6)
100-D-15.0	STANDARD MECHANICAL DETAILS
100-D-16.0	STANDARD ELECTRICAL DETAILS (1 OF 2)
100-D-17.0	STANDARD ELECTRICAL DETAILS (2 OF 2)

ROCKAWAY WWTP

SECTION 200 – GENERAL	
200-G-1.0	HYDRAULIC PROFILE
200-C-1.0	SITE LAYOUT PLAN
200-C-2.0	GRADING PLAN (AREA 1)
200-C-3.0	GRADING PLAN (AREA 2)
200-C-4.0	GRADING PLAN (AREA 3)
200-C-5.0	GRADING PLAN (AREA 4)
200-C-6.0	YARD PIPING PLAN (AREA 1)
200-C-7.0	YARD PIPING PLAN (AREA 2)
200-C-8.0	YARD PIPING PLAN (AREA 3)
200-C-9.0	YARD PIPING PLAN (AREA 4)
200-C-10.0	EROSION CONTROL PLAN

SECTION 210 – INFLUENT PUMP STATION	
210-S-1.0	STRUCTURAL PLANS
210-S-2.0	STRUCTURAL TOP PLAN
210-S-3.0	STRUCTURAL SECTIONS AND DETAILS (1 OF 2)
210-S-4.0	STRUCTURAL SECTIONS AND DETAILS (2 OF 2)
210-M-1.0	MECHANICAL PLANS
210-M-2.0	MECHANICAL SECTIONS AND DETAILS

SECTION 212 – BAR SCREEN	
212-S-1.0	STRUCTURAL PLAN
212-S-2.0	STRUCTURAL SECTIONS AND DETAILS
212-M-1.0	MECHANICAL PLAN
212-M-2.0	MECHANICAL SECTIONS AND DETAILS

SECTION 213 – SBR SPLITTER BOX MODIFICATIONS	
213-S-1.0	STRUCTURAL PLAN AND SECTIONS
213-M-1.0	MECHANICAL PLAN, SECTIONS AND DETAILS

SECTION 214 – SBR	
214-S-1.0	STRUCTURAL BOTTOM PLAN
214-S-2.0	STRUCTURAL TOP PLAN
214-S-3.0	STRUCTURAL SECTIONS AND DETAILS (1 OF 3)
214-S-4.0	STRUCTURAL SECTIONS AND DETAILS (2 OF 3)
214-S-5.0	STRUCTURAL SECTIONS AND DETAILS (3 OF 3)
214-M-1.0	MECHANICAL BOTTOM PLAN
214-M-2.0	MECHANICAL TOP PLAN
214-M-3.0	MECHANICAL SECTIONS (1 OF 2)
214-M-4.0	MECHANICAL SECTIONS (2 OF 2)
214-M-5.0	MECHANICAL DETAILS (1 OF 2)
214-M-6.0	MECHANICAL DETAILS (2 OF 2)
214-MS-1.0	EXISTING SBR PLAN
214-MS-2.0	EXISTING SBR SECTIONS AND DETAILS

SECTION 216 – DISK FILTER	
216-S-1.0	STRUCTURAL BOTTOM PLAN
216-S-2.0	STRUCTURAL INTERMEDIATE PLAN
216-S-3.0	STRUCTURAL TOP PLAN
216-S-4.0	STRUCTURAL SECTIONS AND DETAILS (1 OF 2)
216-S-5.0	STRUCTURAL SECTIONS AND DETAILS (2 OF 2)
216-M-1.0	MECHANICAL PLAN
216-M-2.0	MECHANICAL SECTIONS AND DETAILS (1 OF 2)
216-M-3.0	MECHANICAL SECTIONS AND DETAILS (2 OF 2)

SECTION 218 – BACKWASH PUMP STATION	
218-MS-1.0	PLANS, SECTIONS, AND DETAILS

SECTION 222 – UV DISINFECTION SYSTEM	
222-S-1.0	STRUCTURAL PLAN AND SECTIONS
222-M-1.0	MECHANICAL PLAN
222-M-2.0	MECHANICAL SECTIONS AND DETAILS (1 OF 2)
222-M-3.0	MECHANICAL SECTIONS AND DETAILS (2 OF 2)

SECTION 224 – ELECTRICAL BUILDING	
224-MS-1.0	PLAN AND ELEVATIONS

SECTION 226 – EFFLUENT PARSHALL FLUME	
226-S-1.0	STRUCTURAL PLAN AND SECTIONS
226-M-1.0	MECHANICAL PLAN AND SECTIONS

SECTION 230 – BLOWER BUILDING EXPANSION	
230-S-1.0	STRUCTURAL PLAN AND SECTION
230-M-1.0	MECHANICAL PLAN
230-M-2.0	MECHANICAL SECTIONS AND DETAILS

SECTION 232 – SOLIDS HANDLING BUILDING	
232-S-1.0	STRUCTURAL PLANS
232-S-2.0	STRUCTURAL SECTIONS AND DETAILS
232-S-3.0	ELEVATIONS
232-M-1.0	MECHANICAL PLAN, SECTIONS, AND DETAILS
232-M-2.0	MECHANICAL SECTIONS AND DETAILS

SECTION 234 – SEPTAGE RECEIVING STATION	
234-MS-1.0	PLAN, SECTIONS AND DETAILS

SECTION 240 – ELECTRICAL	
240-E-1.0	ELECTRICAL SITE PLAN (AREA 1)
240-E-2.0	ELECTRICAL SITE PLAN (AREA 2)
240-E-3.0	ELECTRICAL SITE PLAN (AREA 3)
240-E-4.0	ELECTRICAL SITE PLAN (AREA 4)
240-E-5.0	SINGLE LINE DIAGRAM (1 OF 2)
240-E-6.0	SINGLE LINE DIAGRAM (2 OF 2)
240-E-7.0	PARTIAL ONE-LINE DIAGRAM AND SWITCHBOARD LAYOUT
240-E-8.0	SCHEMATIC DIAGRAMS
240-E-9.0	INFLUENT PUMP STATION ELECTRICAL PLAN
240-E-10.0	BACKWASH PUMP STATION AND BAR SCREEN ELECTRICAL PLANS
240-E-11.0	SBR ELECTRICAL PLAN AND CONTROL ROOM LAYOUT
240-E-12.0	DISK FILTER ELECTRICAL PLAN AND SECTION
240-E-13.0	UV DISINFECTION SYSTEM ELECTRICAL PLAN
240-E-14.0	ELECTRICAL BUILDING POWER AND LIGHTING PLANS
240-E-15.0	EFFLUENT PARSHALL FLUME AND SEPTAGE RECEIVING STATION ELECTRICAL PLANS
240-E-16.0	BLOWER BUILDING EXPANSION POWER PLAN
240-E-17.0	BLOWER BUILDING EXPANSION LIGHTING AND RECEPTACLE PLAN
240-E-18.0	SOLIDS HANDLING BUILDING POWER PLAN
240-E-19.0	SOLIDS HANDLING BUILDING LIGHTING AND RECEPTACLE PLAN
240-E-20.0	LUMINAIRE SCHEDULE AND GENERAL NOTES
240-E-21.0	PANEL SCHEDULES

SECTION 250 – P&I DIAGRAM	
250-I-1.0	INFLUENT PUMPING AND BAR SCREENS
250-I-2.0	SEQUENCING BATCH REACTOR (SBR)
250-I-3.0	FILTRATION/DISINFECTION/EFFLUENT METERING
250-I-4.0	BLOWERS
250-I-5.0	SOLIDS HANDLING
250-I-6.0	SCADA SYSTEM BLOCK DIAGRAM

LINE CREEK WWTP

SECTION 300 – GENERAL	
300-G-1.0	HYDRAULIC PROFILE
300-C-1.0	SITE LAYOUT PLAN
300-C-2.0	GRADING PLAN (AREA 1)
300-C-3.0	GRADING PLAN (AREA 2)
300-C-4.0	GRADING PLAN (AREA 3)
300-C-5.0	GRADING PLAN (AREA 4)
300-C-6.0	YARD PIPING PLAN (AREA 1)
300-C-7.0	YARD PIPING PLAN (AREA 2)
300-C-8.0	YARD PIPING PLAN (AREA 3)
300-C-9.0	YARD PIPING PLAN (AREA 4)
300-C-10.0	EROSION CONTROL PLAN

SECTION 310 – INFLUENT SPLITTER BOX MODIFICATIONS	
310-M-1.0	MECHANICAL PLAN, SECTIONS, AND DETAILS

SECTION 312 – GRIT CHAMBER MODIFICATIONS	
312-M-1.0	MECHANICAL PLANS AND SECTIONS

SECTION 314 – DISK FILTER	
314-S-1.0	STRUCTURAL PLANS
314-S-2.0	STRUCTURAL SECTIONS AND DETAILS
314-M-1.0	MECHANICAL PLAN
314-M-2.0	MECHANICAL SECTIONS AND DETAILS (1 OF 2)
314-M-3.0	MECHANICAL SECTIONS AND DETAILS (2 OF 2)

SECTION 316 – BACKWASH PUMP STATION	
316-MS-1.0	PLAN AND SECTIONS

SECTION 320 – JUNCTION BOX	
320-MS-1.0	PLAN AND SECTIONS

SECTION 324 – ELECTRICAL BUILDING	
324-MS-1.0	PLAN AND ELEVATIONS

SECTION 328 – EFFLUENT STRUCTURE	
328-S-1.0	UV DISINFECTION SYSTEM AND EFFLUENT PARSHALL FLUME STRUCTURAL PLAN
328-S-2.0	EFFLUENT SPLITTER BOX AND EFFLUENT PUMP STATION STRUCTURAL BOTTOM PLAN
328-S-3.0	EFFLUENT SPLITTER BOX AND EFFLUENT PUMP STATION STRUCTURAL TOP PLAN
328-S-4.0	EFFLUENT STRUCTURE STRUCTURAL SECTIONS AND DETAILS (1 OF 3)
328-S-5.0	EFFLUENT STRUCTURE STRUCTURAL SECTIONS AND DETAILS (2 OF 3)
328-S-6.0	EFFLUENT STRUCTURE STRUCTURAL SECTIONS AND DETAILS (3 OF 3)
328-M-1.0	UV DISINFECTION SYSTEM AND EFFLUENT PARSHALL FLUME MECHANICAL PLAN
328-M-2.0	EFFLUENT SPLITTER BOX AND EFFLUENT PUMP STATION MECHANICAL BOTTOM PLAN
328-M-3.0	EFFLUENT SPLITTER BOX AND EFFLUENT PUMP STATION MECHANICAL TOP PLAN
328-M-4.0	EFFLUENT STRUCTURE MECHANICAL SECTIONS AND DETAILS (1 OF 3)
328-M-5.0	EFFLUENT STRUCTURE MECHANICAL SECTIONS AND DETAILS (2 OF 3)
328-M-6.0	EFFLUENT STRUCTURE MECHANICAL SECTIONS AND DETAILS (3 OF 3)
328-M-7.0	EFFLUENT METERING BOXES MECHANICAL PLANS AND SECTIONS

SECTION 330 – PLANTERRA GOLF COURSE LAKE STRUCTURES	
330-MS-1.0	PLANS AND SECTIONS

SECTION 334 – CLARIFIER MODIFICATIONS	
334-MS-1.0	SECTIONS AND DETAILS

SECTION 336 – SLUDGE HOLDING TANK	
336-S-1.0	STRUCTURAL PLAN
336-S-2.0	STRUCTURAL SECTIONS AND DETAILS
336-M-1.0	MECHANICAL PLAN
336-M-2.0	MECHANICAL SECTIONS AND DETAILS

SECTION 338 – REUSE/REJECT STORAGE POND	
338-C-1.0	GRADING PLAN
338-C-2.0	EROSION CONTROL PLAN
338-MS-1.0	REJECT STORAGE POND EFFLUENT STRUCTURE PLAN AND SECTIONS
338-MS-2.0	INLET AND OUTLET STRUCTURES PLANS, SECTIONS, AND DETAILS

SECTION 340 – ELECTRICAL	
340-E-1.0	ELECTRICAL SITE PLAN (AREA 1)
340-E-2.0	ELECTRICAL SITE PLAN (AREA 2)
340-E-3.0	ELECTRICAL SITE PLAN (AREA 3)
340-E-4.0	ELECTRICAL SITE PLAN (AREA 4)
340-E-5.0	SINGLE LINE DIAGRAM (1 OF 2)
340-E-6.0	SINGLE LINE DIAGRAM (2 OF 2)
340-E-7.0	SCHEMATIC DIAGRAMS AND GENERAL NOTES
340-E-8.0	GRIT CHAMBER AND BACKWASH PUMP STATION ELECTRICAL PLANS
340-E-9.0	DISK FILTER ELECTRICAL PLAN AND SECTION
340-E-10.0	FLAT CREEK METER VAULT AND SLUDGE HOLDING TANK ELECTRICAL PLANS
340-E-11.0	UV DISINFECTION SYSTEM AND EFFLUENT PARSHALL FLUME ELECTRICAL PLAN
340-E-12.0	EFFLUENT PUMP STATION AND GOLF COURSE METER VAULT ELECTRICAL PLANS
340-E-13.0	ELECTRICAL BUILDING POWER AND LIGHTING PLANS
340-E-14.0	PLANTERRA GOLF COURSE ELECTRICAL PLANS
340-E-15.0	LUMINAIRE AND PANEL SCHEDULES

SECTION 350 – P&I DIAGRAM	
350-I-1.0	HEADWORKS/DIGESTER
350-I-2.0	FILTRATION/DISINFECTION/EFFLUENT METERING
350-I-3.0	EFFLUENT PUMPING

FLAT CREEK WWTP

SECTION 400 – GENERAL	
400-C-1.0	DECOMMISSIONING AND EROSION CONTROL PLAN

SECTION 410 – INFLUENT PUMP STATION NO.14	
410-MS-1.0	PLAN AND SECTIONS

SECTION 414 – INFLUENT LINE "A"	
414-C-1.0	STA. 0+00 TO 3+50 PLAN AND PROFILE

SECTION 440 – ELECTRICAL	
440-E-1.0	DECOMMISSIONING/ELECTRICAL SITE PLAN AND DIAGRAMS
440-E-2.0	INFLUENT PUMP STATION NO.14 ELECTRICAL PLAN

RECORD SET

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NO.	DATE	REVISION DESCRIPTION	BY / CKD

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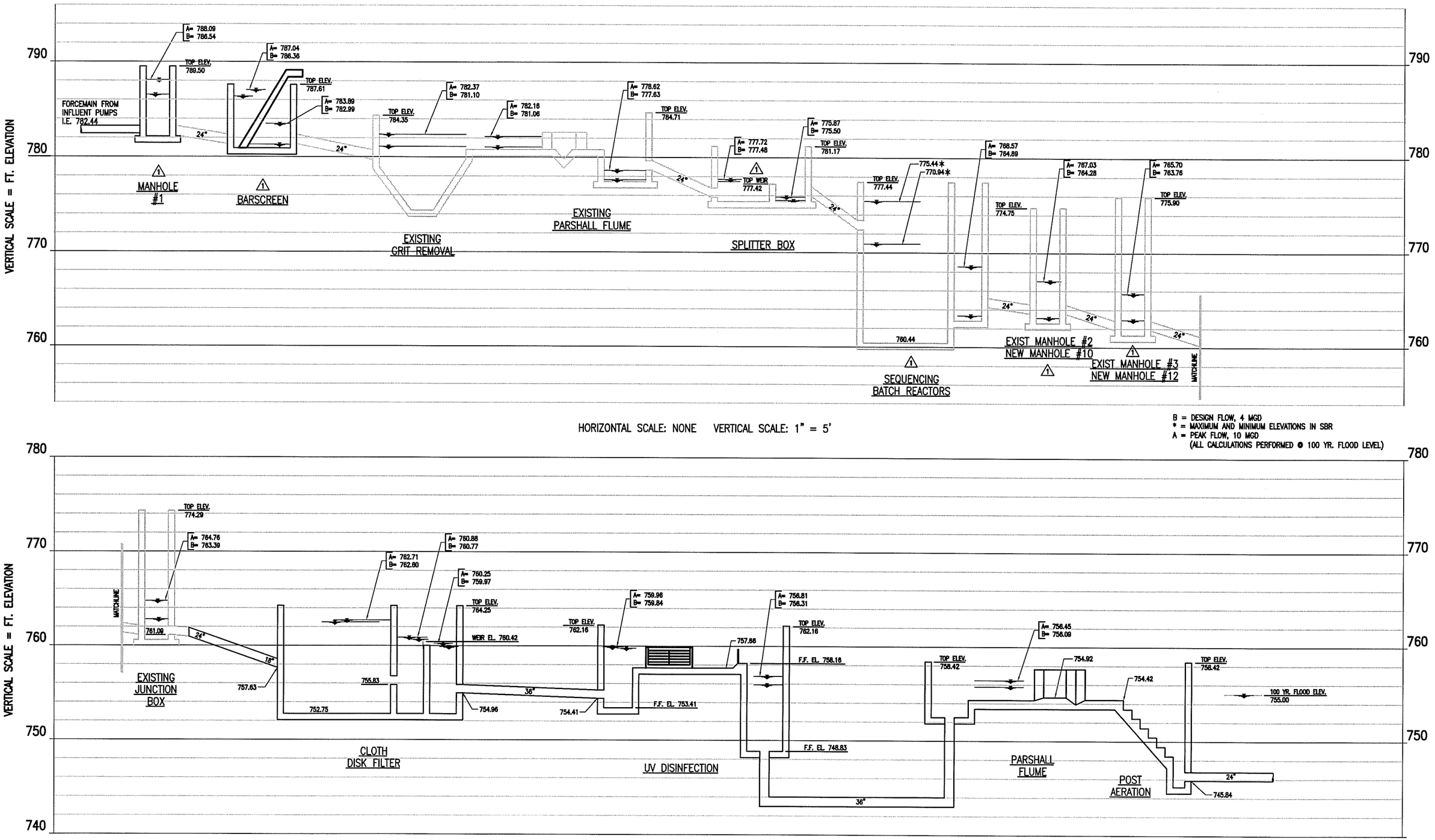
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-27-01	W. WELCH	S. HENNESSEY
DRAWING INDEX		LEAD DESIGN PROF. S. HENNESSEY	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 100-G-2.0



HORIZONTAL SCALE: NONE VERTICAL SCALE: 1" = 5'

B = DESIGN FLOW, 4 MGD
* = MAXIMUM AND MINIMUM ELEVATIONS IN SBR
A = PEAK FLOW, 10 MGD
(ALL CALCULATIONS PERFORMED @ 100 YR. FLOOD LEVEL)

HORIZONTAL SCALE: NONE VERTICAL SCALE: 1" = 5'

RECORD SET

Acad Version : R16.0a (LMS Tech)
User Name : ewhite

Date\Time : Mon, 07 Jun 2004 - 10:17am
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NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	5/24/02	ADD. NO. 1 REV. PER EPD	RW / SH

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E.WHITE	11-28-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B.FOWLER	CHECKED S. HENNESSEY

ROCKAWAY WWTP
HYDRAULIC PROFILE

PROJECT NUMBER	DRAWING NUMBER
GA063098	200-G-1.1

EXISTING CHLORINE FEED BUILDING

SEPTAGE RECEIVING STATION

CONTROL POINT #12059
N 1215147.77
E 2181316.87
EL. 764.24

EXISTING CONTROL BUILDING

CONTROL POINT #12060
N 1215476.82
E 2181573.22
EL. 780.11

EXISTING INFLUENT PUMP STATION AND PAVING (TO BE DEMOLISHED)

INFLUENT PUMP STATION

ELEC. BLDG.

EXISTING STORAGE SHED

UV DISINFECTION SYSTEM

EFFLUENT PARSHALL FLUME

TRANSFORMERS

BLOWER BUILDING EXPANSION

EXISTING BLOWER BUILDING

BACKWASH PUMP STATION

DISK FILTERS

EXIST. SBR SLUDGE HOLDING TANK NO.2

EXIST. SBR SLUDGE HOLDING TANK NO.1

EXISTING SBR NO.1

EXISTING SBR NO.2

2" SEWER

NEW BAR SCREEN

EXISTING BAR SCREEN STRUCTURE (TO BE REMOVED)

EXIST. SBR SPLITTER BOX

EXIST. GRIT CHAMBER

EXISTING PARSHALL FLUME

EXISTING CHLORINE CONTACT CHAMBER

EXISTING JUNCTION BOX

TBM ROCKAWAY WWTP
CHISLED SQUARE ON
TOP OF CONC. WALL
N 1215130.10
E 2181552.08
EL. 777.14

EXIST. SBR SLUDGE HOLDING TANK NO.4

EXIST. SBR SLUDGE HOLDING TANK NO.3

SBR NO.3

SBR NO.3

EXISTING FILTRATE PUMP STATION

100 YEAR FLOOD ELEVATION = 755.00

SOLIDS HANDLING BUILDING

EXISTING SOLIDS HANDLING BUILDING

EXISTING SLUDGE DRYING BEDS

EXISTING SLUDGE HOLDING TANK

SLUDGE HOLDING TANK

STATE ROUTE 74 (103' R/W)

0 40 80 120
SCALE IN FEET

ROCKAWAY WWTP SITE LAYOUT PLAN
SCALE: 1"=40'

RECORD SET

Date\Time : Tue, 15 Jun 2004 - 3:42pm
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Acad Version : R16.0s (LMS Tech)
User Name : ekmills

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
3	6/7/03	RECORD DRAWING MARKUP	BO
2	3/7/03	ADDED CONTROL POINTS	ELW / WW
1	6/17/02	ADDENDUM NO. 3	WSH / WW

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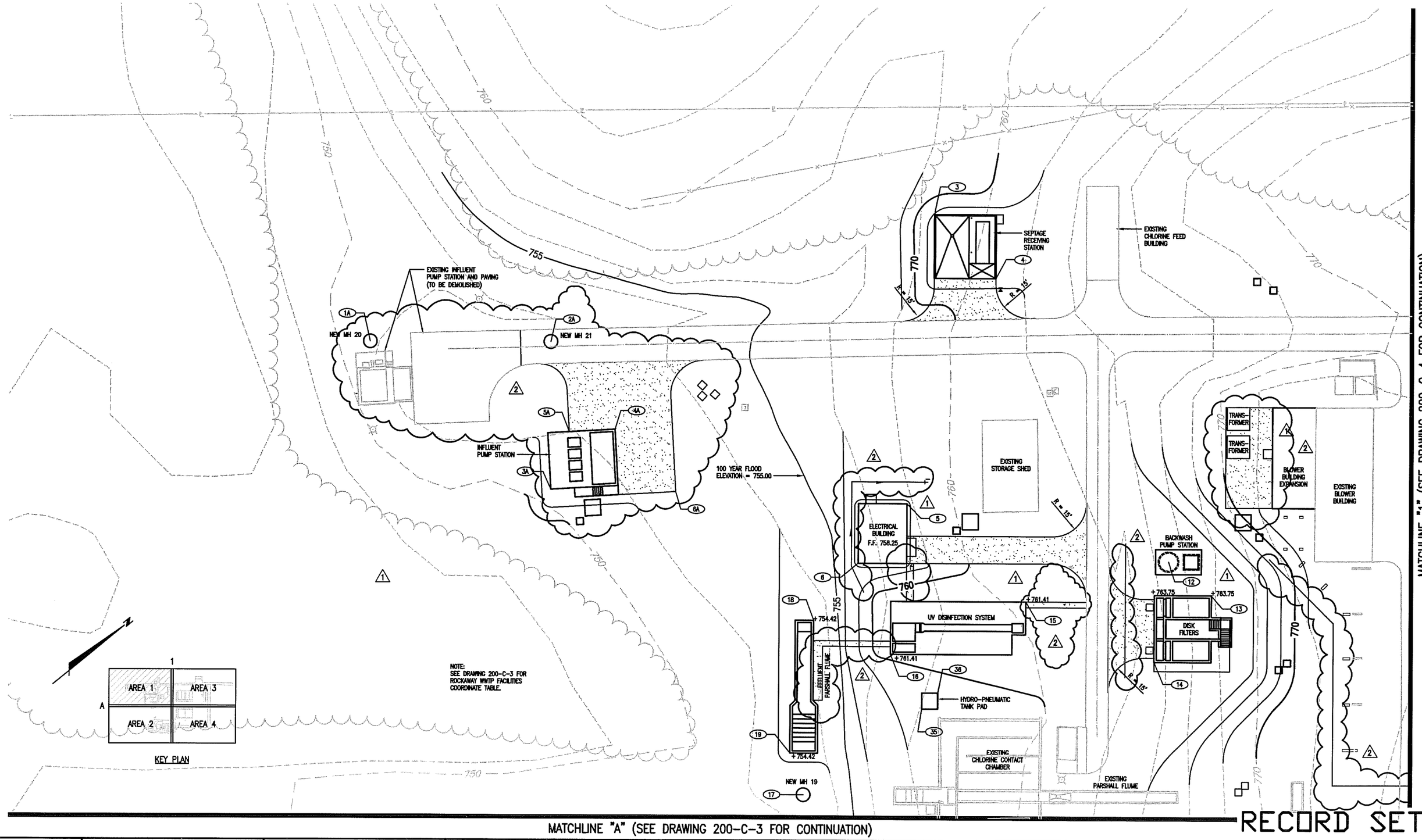
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

ROCKAWAY WWTP SITE LAYOUT PLAN

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-11-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B. FOWLER	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 200-C-1.3



RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : ehhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/14/04	RECORD DRAWING MARKUP	ELW / WW
1	6/17/02	ADDENDUM NO. 3	WSH / WW

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
R. WILSON	12-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		B. FOWLER	S. HENNESSEY

ROCKAWAY WWTP GRADING PLAN (AREA 1)

PROJECT NUMBER	DRAWING NUMBER
GA063098	200-C-2.2

MATCHLINE "A" (SEE DRAWING 200-C-2 FOR CONTINUATION)

MATCHLINE "1" (SEE DRAWING 200-C-5 FOR CONTINUATION)

ROCKAWAY WWTP FACILITIES COORDINATE TABLE

NO.	NORTH	EAST	BUILDING/STRUCTURE/ITEM	LOCATION
1	NOT USED			
2	NOT USED			
3	1215103.6861	2181227.8995	SEPTAGE RECEIVING STATION	OUTSIDE FACE OF CURB @ CORNER
4	1215106.3368	2181266.4721	SEPTAGE RECEIVING STATION	OUTSIDE FACE OF CURB @ CORNER
5	1215013.9243	2181318.5812	ELECTRICAL BUILDING	CORNER OF CONC. SLAB
6	1214980.5488	2181325.0549	ELECTRICAL BUILDING	CORNER OF CONC. SLAB
7	NOT USED			
8	NOT USED			
9	NOT USED			
10	NOT USED			
11	NOT USED			
12	1215086.3955	2181410.9582	BACKWASH PUMP STATION	CENTER OF WETWELL
13	1215091.6503	2181434.4292	DISK FILTERS	OUTSIDE FACE OF STRUCTURE @ CORNER
14	1215053.5876	2181441.2496	DISK FILTERS	OUTSIDE FACE OF STRUCTURE @ CORNER
15	1215026.6426	2181384.8128	UV DISINFECTION SYSTEM	CORNER OF CONC. SLAB
16	1214966.2955	2181365.2255	UV DISINFECTION SYSTEM	OUTSIDE FACE OF STRUCTURE @ CORNER
17	1214897.5244	2181388.6884	NEW MANHOLE 19	CENTER OF MANHOLE
18	1214949.5300	2181332.1356	EFFLUENT PARSHALL FLUME	OUTSIDE FACE OF STRUCTURE @ CORNER
19	1214904.5626	2181370.8677	EFFLUENT PARSHALL FLUME	OUTSIDE FACE OF STRUCTURE @ CORNER
20	1214847.4795	2181676.3070	SLUDGE HOLDING TANK	CENTER OF TANK
21	1214938.3019	2181604.5889	NEW MANHOLE 17	CENTER OF MANHOLE
22	NOT USED			
23	1214929.0296	2181507.2034	NEW MANHOLE 18	CENTER OF MANHOLE
24	1215102.8623	2181759.9679	NEW MANHOLE 10	CENTER OF MANHOLE
25	1215019.9764	2181691.4962	NEW MANHOLE 11	CENTER OF MANHOLE
26	1215037.6969	2181686.6787	NEW MANHOLE 12	CENTER OF MANHOLE
27	1215443.8047	2181606.6639	NEW MANHOLE 1	CENTER OF MANHOLE
28	1215118.3914	2181604.1751	SBR	OUTSIDE FACE OF STRUCTURE @ CORNER
29	1215173.0728	2181785.5414	SBR	OUTSIDE FACE OF STRUCTURE @ CORNER
30	1215387.3243	2181642.9855	BAR SCREEN	OUTSIDE FACE OF STRUCTURE @ CORNER
31	1215376.9664	2181675.3357	BAR SCREEN	OUTSIDE FACE OF STRUCTURE @ CORNER
32	NOT USED			
33	NOT USED			
34	1215253.5352	2181960.8080	ROAD CENTERLINE	INTERSECTION OF NEW ASPHALT ROADS
35	1214961.8036	2181392.6449	HYDRO-PNEUMATIC TANK PAD	CORNER OF CONC. SLAB
36	1214971.6585	2181391.7084	HYDRO-PNEUMATIC TANK PAD	CORNER OF CONC. SLAB
1A	1214876.8881	2181113.9914	NEW MANHOLE 20	CENTER OF MANHOLE
2A	1214938.1671	2181164.8483	NEW MANHOLE 21	CENTER OF MANHOLE
3A	1214897.1874	2181214.7083	INFLUENT PUMP STATION	OUTSIDE FACE OF STRUCTURE @ CORNER
4A	1214935.4305	2181212.1877	INFLUENT PUMP STATION	OUTSIDE FACE OF STRUCTURE @ CORNER
5A	1214919.3099	2181200.3503	ASPHALT PAVING	CORNER OF NEW ASPHALT
6A	1214938.6143	2181250.0908	ASPHALT PAVING	CORNER OF NEW ASPHALT

EXISTING CHLORINE CONTACT CHAMBER

NEW MH 18

EXISTING FILTRATE PUMP STATION

NEW MH 17

100 YEAR FLOOD ELEVATION = 755.00

SOLIDS HANDLING BUILDING

EXISTING SOLIDS HANDLING BUILDING

EXISTING SLUDGE DRYING BEDS

SLUDGE HOLDING TANK

EXISTING SLUDGE HOLDING TANK

750

755

760

770

R = 20'

KEY PLAN

AREA 1 | AREA 3 | AREA 2 | AREA 4

1 NOTE :

CONTRACTOR TO SLOPE EXISTING AND NEW ASPHALT TO PROVIDE SUFFICIENT DRAINAGE FROM SOLIDS HANDLING AREA.

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User Name : alwhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/14/04	RECORD DRAWING MARKUP	ELW / WW
1	6/17/02	ADDENDUM NO. 3	WSH / WW

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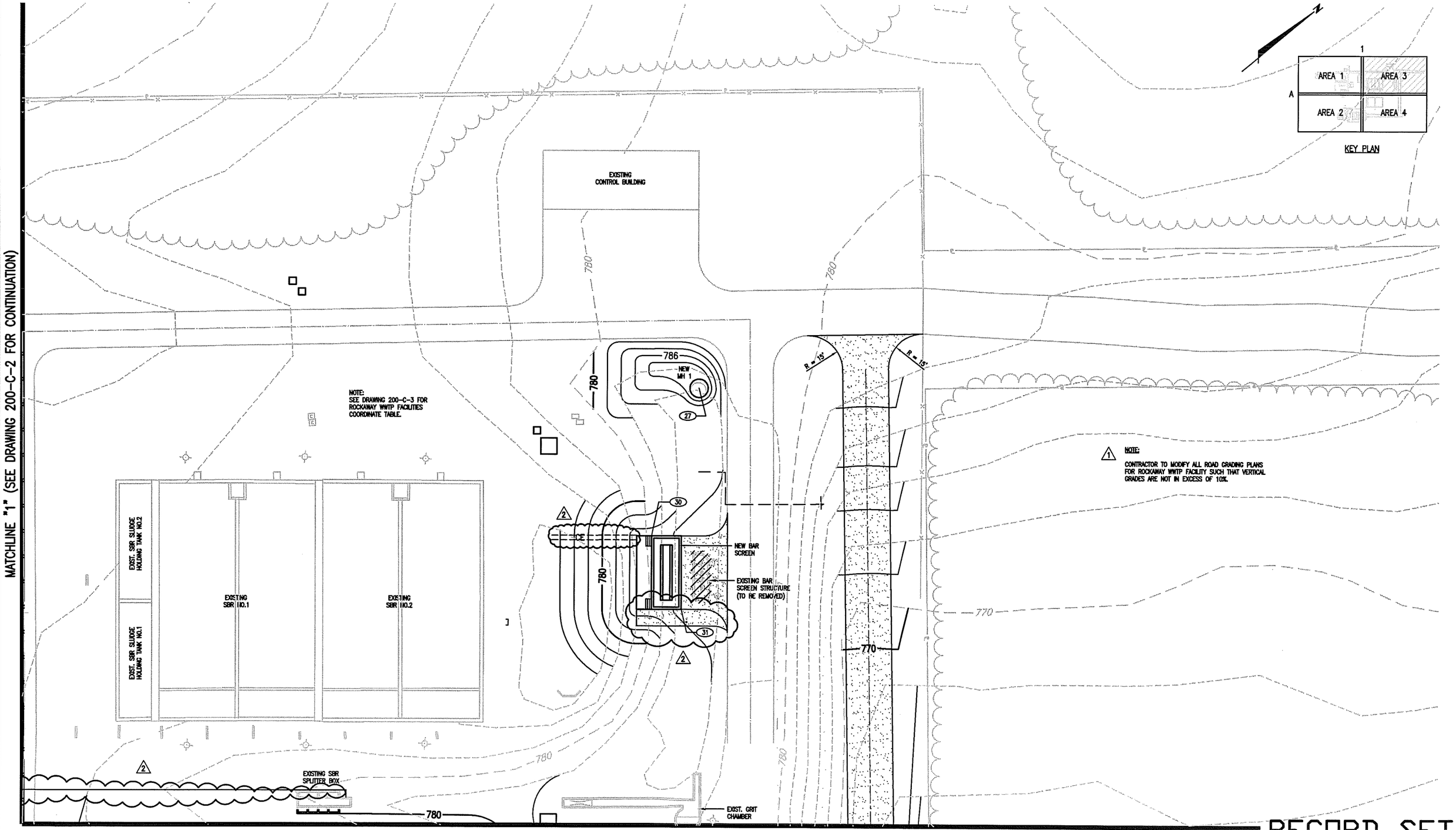
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
R. WILSON	12-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B. FOWLER	CHECKED S. HENNESSEY

ROCKAWAY WWTP GRADING PLAN (AREA 2)

PROJECT NUMBER	DRAWING NUMBER
GA063098	200-C-3.2

MATCHLINE "1" (SEE DRAWING 200-C-2 FOR CONTINUATION)



MATCHLINE "A" (SEE DRAWING 200-C-5 FOR CONTINUATION)

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Acad Version : R16.0s (LMS Tech)
User Name : swhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/14/04	RECORD DRAWING MARKUP	BO
1	7-25-02	ADDENDUM NO. 2	JL / WW

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
R. WILSON	12-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B. FOWLER	CHECKED S. HENNESSEY

ROCKAWAY WWTP GRADING PLAN (AREA 3)

PROJECT NUMBER	DRAWING NUMBER
GA063098	200-C-4.2

MATCHLINE "A" (SEE DRAWING 200-C-4 FOR CONTINUATION)

MATCHLINE "1" (SEE DRAWING 200-C-3 FOR CONTINUATION)

+776.25 +776.69 +776.25

SBR SLUDGE HOLDING TANK NO.4

SBR SLUDGE HOLDING TANK NO.3

SBR NO.3

SBR NO.4

EXIST. GRIT CHAMBER

NEW MH 12 +776.69

NEW MH 11

NEW MH 10

+776.69

+776.3±

770

R = 15'

R = 20'

R = 15'

NOTE:
SEE DRAWING 200-C-3 FOR ROCKAWAY WWTP FACILITIES COORDINATE TABLE.

KEY PLAN

AREA 1 | AREA 3
AREA 2 | AREA 4

RECORD SET

0 20 40 60
SCALE IN FEET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	6/14/04	RECORD DRAWING MARKUP	BO

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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2849 Paces Ferry Road, Suite 400
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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

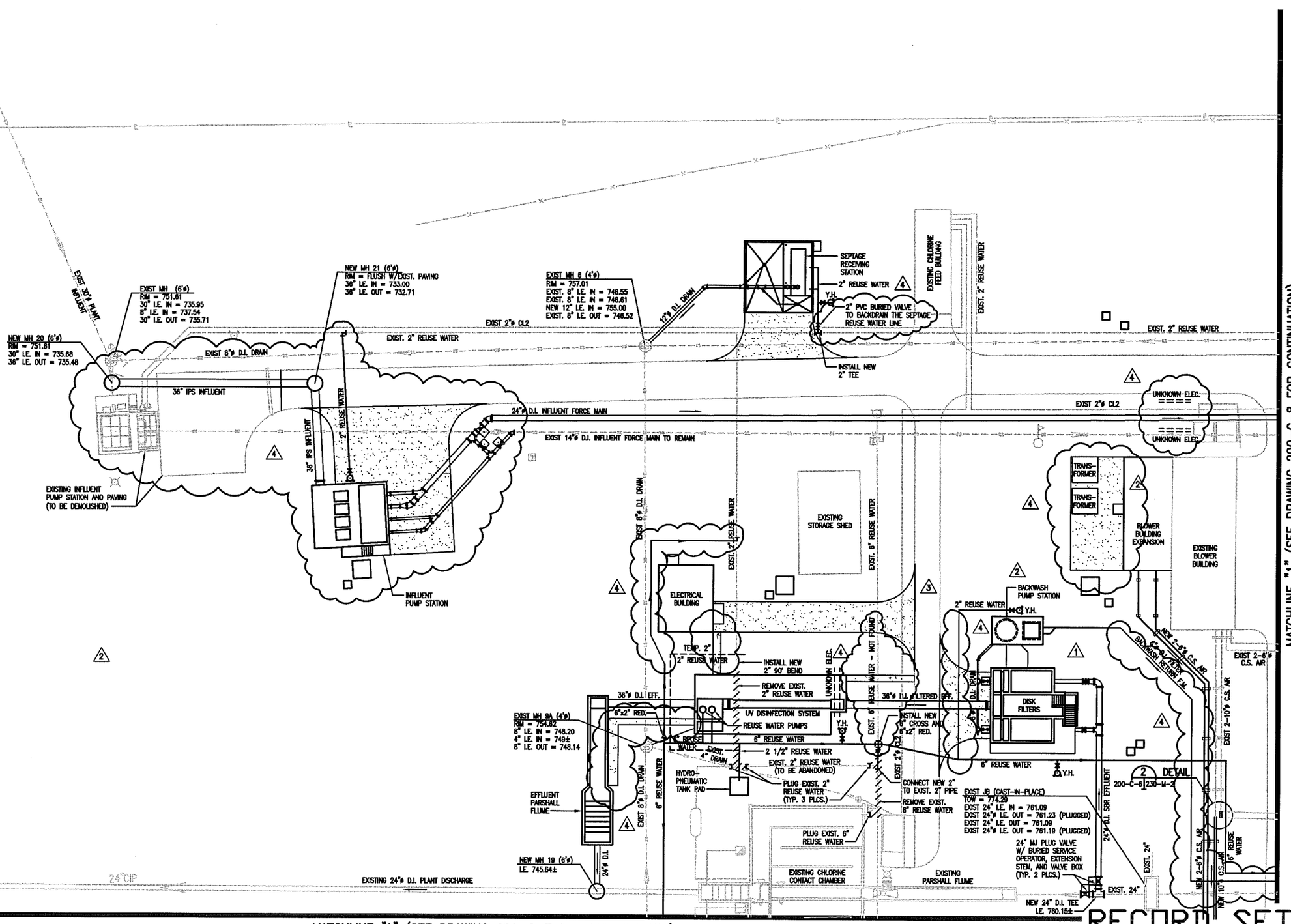
ROCKAWAY WWTP GRADING PLAN (AREA 4)

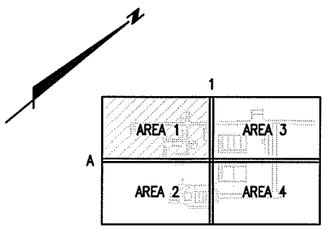
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
R. WILSON	12-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B. FOWLER	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 200-C-5.1

Acad Version : R16.0a (LMS Tech)
User Name : alwhite
Path \ Name : G:\WWA\53098\DWG\WWTP Record Drawings\Final Record Drawings\P2rcgrd4.dwg
Date \ Time : Tue, 15 Jun 2004 - 3:44pm

NOTES:

1. BURIED VALVES SHALL HAVE BURIED SERVICE OPERATOR, EXTENSION STEM, AND VALVE BOX. MECHANICAL JOINTS ON BURIED VALVES SHALL BE FITTED WITH MEGA-LUG TYPE RESTRAINT GLANDS.
2. LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION.
3. UNLESS OTHERWISE NOTED, ALL BURIED PIPING SHALL HAVE TYPE 4 BEDDING.
4. WHEN A CONFLICT OCCURS BETWEEN A POTABLE/REUSE WATER LINE AND A PROCESS LINE, THE POTABLE/REUSE WATER LINE SHALL BE RASIED OR LOWERED AS REQUIRED.





KEY PLAN

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : swhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
4	6/7/03	RECORD DRAWING MARKUP	BO /
3	7/29/02	ADDENDUM NO. 4	JL / WW
2	6/17/02	ADDENDUM NO. 3	WSH / WW
1	8/8/02	ADDENDUM NO. 1	WSH / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
R. WILSON	12-13-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B. FOWLER	CHECKED S. HENNESSEY

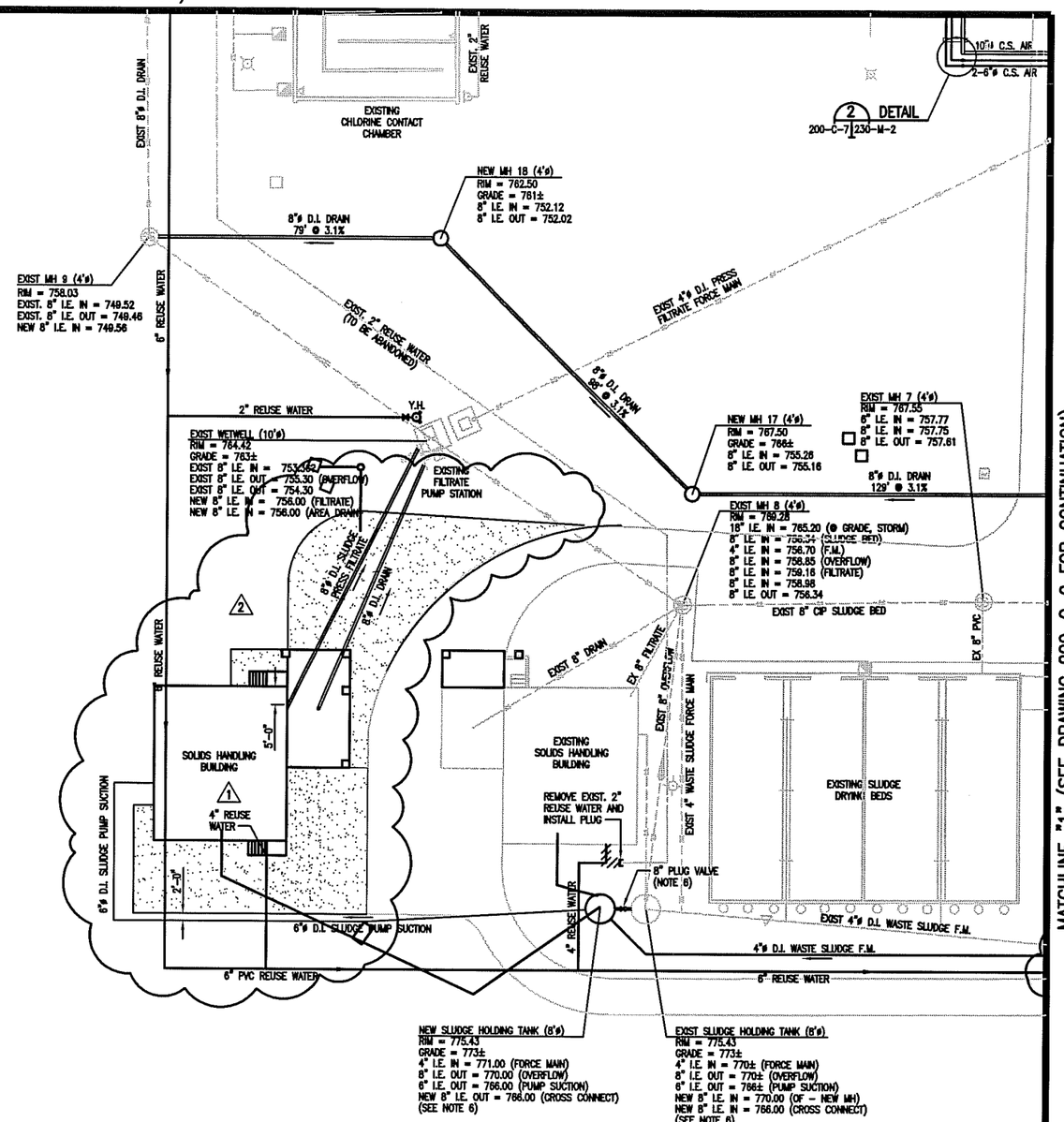
ROCKAWAY WWTP
YARD PIPING PLAN
(AREA 1)

PROJECT NUMBER	DRAWING NUMBER
GA063098	200-C-6.4

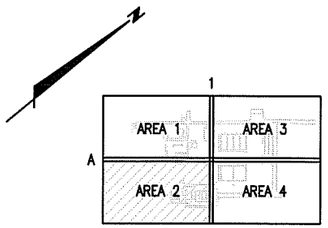
MATCHLINE "A" (SEE DRAWING 200-C-6 FOR CONTINUATION)

NOTES:

1. BURIED VALVES SHALL HAVE BURIED SERVICE OPERATOR, EXTENSION STEM, AND VALVE BOX. MECHANICAL JOINTS ON BURIED VALVES SHALL BE FITTED WITH MEGA-LUG TYPE RESTRAINT GLANDS.
2. LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION.
3. UNLESS OTHERWISE NOTED, ALL BURIED PIPING SHALL HAVE TYPE 4 BEDDING.
4. WHEN A CONFLICT OCCURS BETWEEN A POTABLE/REUSE WATER LINE AND A PROCESS LINE, THE POTABLE/REUSE WATER LINE SHALL BE RAISED OR LOWERED AS REQUIRED.
5. CONTRACTOR SHALL FIELD VERIFY ALL INVERT ELEVATIONS IN THE EXISTING RECEIVING MANHOLE AND MATCH THOSE ELEVATIONS IN THE NEW SLUDGE WELL.
6. CONTRACTOR SHALL INSTALL 8" PLUG VALVE ON 8" D.I. CROSS CONNECTION



MATCHLINE "1" (SEE DRAWING 200-C-9 FOR CONTINUATION)



KEY PLAN

RECORD SET

Acad Version : R16.0s (LMS Tech)
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Date\Time : Tue, 15 Jun 2004 - 2:06pm
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IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

SCALE IN FEET: 0 20 40 60

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/7/03	RECORD DRAWING MARKUP	BO /
1	7-25-02	ADDENDUM NO. 3	JL / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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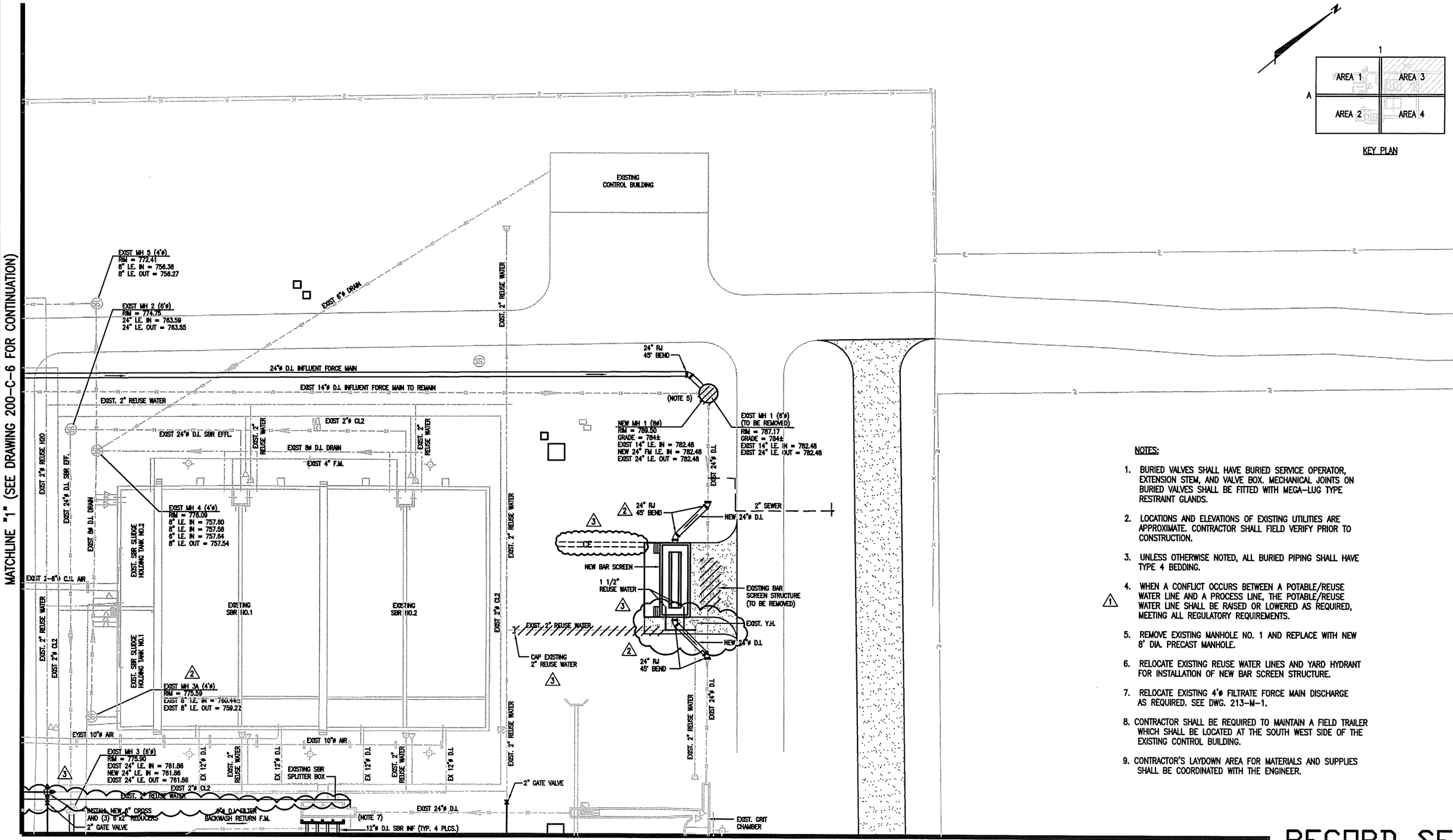
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
R. WILSON	12-13-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		B. FOWLER	S. HENNESSEY

ROCKAWAY WWTP
YARD PIPING PLAN
(AREA 2)

PROJECT NUMBER	DRAWING NUMBER
GA063098	200-C-7.2



KEY PLAN

NOTES:

1. BURIED VALVES SHALL HAVE BURIED SERVICE OPERATOR, EXTENSION STEM, AND VALVE BOX. MECHANICAL JOINTS ON BURIED VALVES SHALL BE FITTED WITH MEGA-LUG TYPE RESTRAINT GLANDS.
2. LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION.
3. UNLESS OTHERWISE NOTED, ALL BURIED PIPING SHALL HAVE TYPE 4 BEDDING.
4. WHEN A CONFLICT OCCURS BETWEEN A POTABLE/REUSE WATER LINE AND A PROCESS LINE, THE POTABLE/REUSE WATER LINE SHALL BE RAISED OR LOWERED AS REQUIRED, MEETING ALL REGULATORY REQUIREMENTS.
5. REMOVE EXISTING MANHOLE NO. 1 AND REPLACE WITH NEW 8' DIA. PRECAST MANHOLE.
6. RELOCATE EXISTING REUSE WATER LINES AND YARD HYDRANT FOR INSTALLATION OF NEW BAR SCREEN STRUCTURE.
7. RELOCATE EXISTING 4'ø FILTRATE FORCE MAIN DISCHARGE AS REQUIRED. SEE DWG. 213-M-1.
8. CONTRACTOR SHALL BE REQUIRED TO MAINTAIN A FIELD TRAILER WHICH SHALL BE LOCATED AT THE SOUTH WEST SIDE OF THE EXISTING CONTROL BUILDING.
9. CONTRACTOR'S LAYDOWN AREA FOR MATERIALS AND SUPPLIES SHALL BE COORDINATED WITH THE ENGINEER.

1 REVISION PER ADDENDUM NO. 2

RECORD SET

Data\Time : Tue, 15 Jan 2004 - 2:38pm
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Acad Version : R16.0s (LMS Tech)
User Name : awhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
3	6-14-04	RECORD DRAWING MARKUP	BO / WW
2	7-29-02	ADDENDUM NO. 4	JL / WW
1	7-25-02	ADDENDUM NO. 2	JL / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

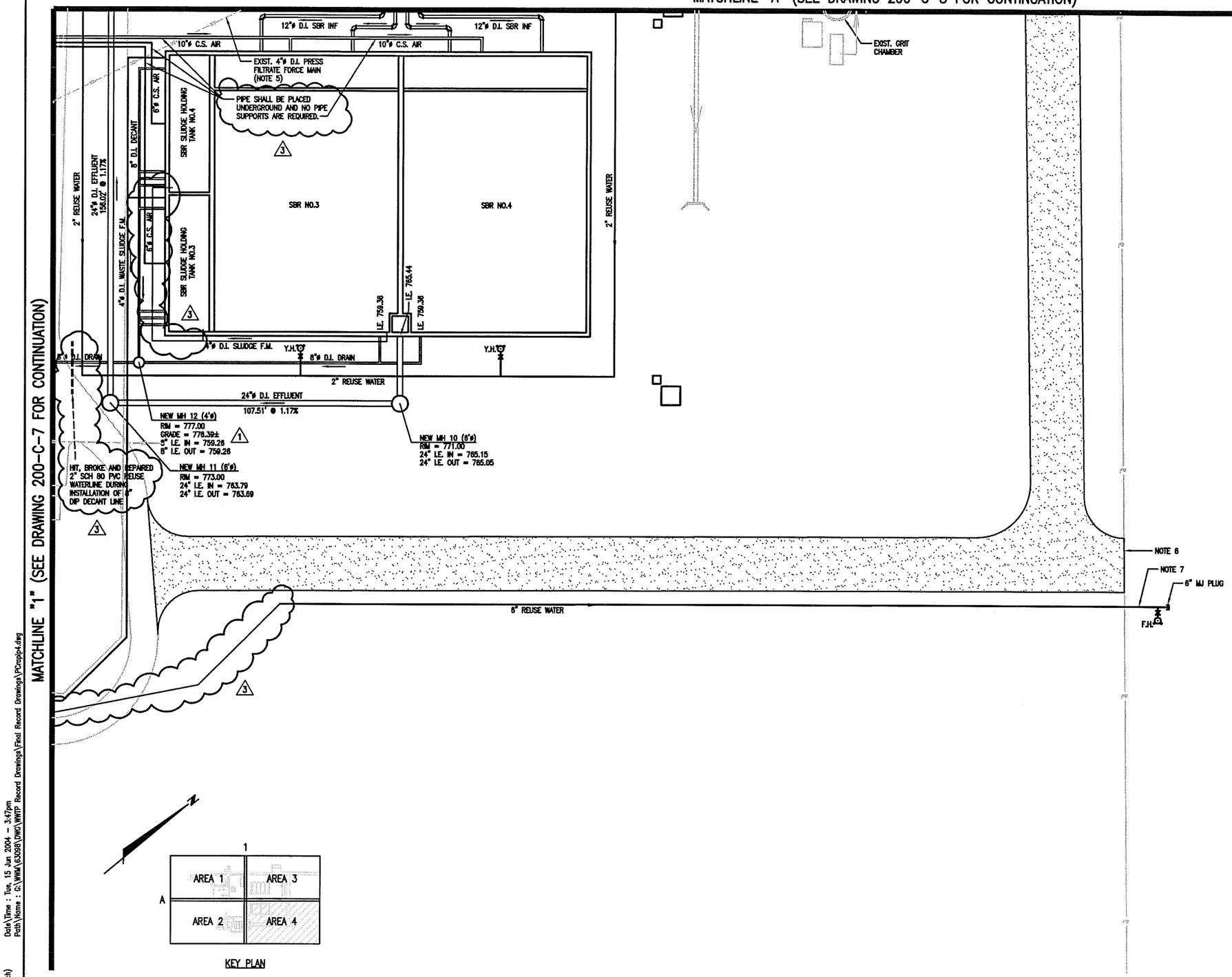
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
R. WILSON	12-13-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B. FOWLER	CHECKED S. HENNESSEY

ROCKAWAY WWTP
YARD PIPING PLAN
(AREA 3)

PROJECT NUMBER	DRAWING NUMBER
GA063098	200-C-8.2

MATCHLINE "A" (SEE DRAWING 200-C-8 FOR CONTINUATION)

MATCHLINE "1" (SEE DRAWING 200-C-7 FOR CONTINUATION)



NOTES:

1. BURIED VALVES SHALL HAVE BURIED SERVICE OPERATOR, EXTENSION STEM, AND VALVE BOX. MECHANICAL JOINTS ON BURIED VALVES SHALL BE FITTED WITH MEGA-LUG TYPE RESTRAINT GLANDS.
2. LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION.
3. UNLESS OTHERWISE NOTED, ALL BURIED PIPING SHALL HAVE TYPE 4 BEDDING.
4. WHEN A CONFLICT OCCURS BETWEEN A POTABLE/REUSE WATER LINE AND A PROCESS LINE, THE POTABLE/REUSE WATER LINE SHALL BE RAISED OR LOWERED AS REQUIRED.
5. RELOCATE EXISTING 4"ø FILTRATE FORCE MAIN AS REQUIRED TO ACCOMMODATE NEW WORK
6. CONTRACTOR SHALL TIE NEW PLANT ROAD INTO EXISTING OFFICE BUILDING ROAD.
7. CONTRACTOR SHALL LOCATE THE FIRE HYDRANT PER THE OWNERS REQUEST

KEY PLAN

RECORD SET

Acad Version : R16.0s (LMS Tech)
User Name : awfella
Date\Time : Tue, 15 Jun 2004 - 3:47pm
Path\Name : G:\WWW\63098\DWG\WWTP Record Drawings\Final Record Drawings\PCrapip4.dwg

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
3	6/7/03	RECORD DRAWING MARKUP	BO
2	7-29-02	ADDENDUM NO. 2	JL / WW
1	7-23-02	ADDENDUM NO. 1	JL / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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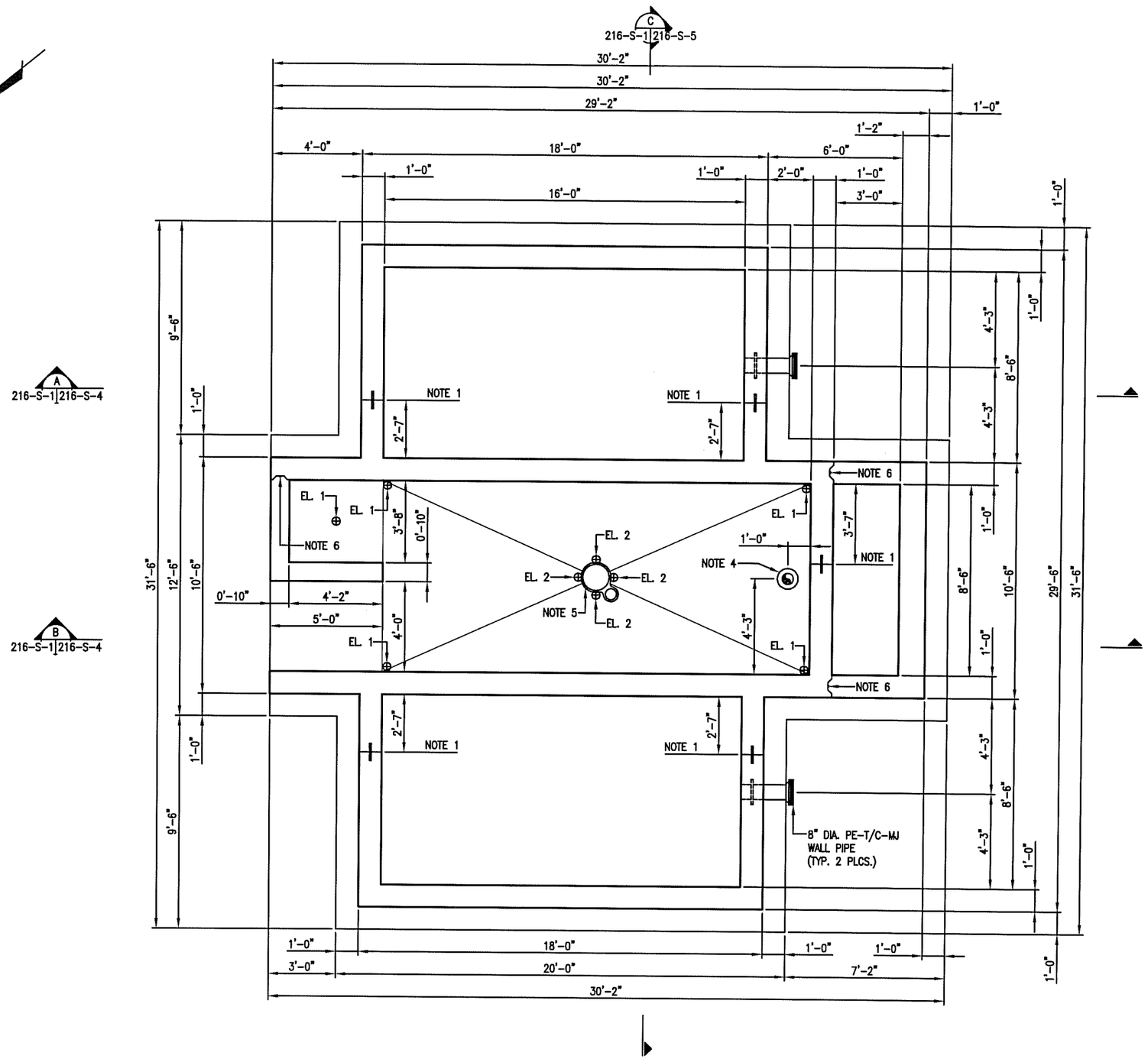
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

ROCKAWAY WWTP
YARD PIPING PLAN
(AREA 4)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
R. WILSON	12-13-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B. FOWLER	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 200-C-9.3



NOTES:

1. VERTICAL CONSTRUCTION JOINT WITH PVC WATERSTOP.
2. THIS NOTE NOT USED.
3. EL. 1 = 752.75
   EL. 2 = 752.66
4. 6" DIAMETER FLG-T/C-RJ WALL PIPE.
5. JOSAM 38424 NON-CLOG FLOOR DRAIN. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
6. VERTICAL CONSTRUCTION JOINT WITH HYDROPHILIC WATERSTOP AND KEYWAY.

DISK FILTER STRUCTURAL BOTTOM PLAN @ EL. 754.00

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

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD

GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI

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2849 Paces Ferry Road, Suite 400
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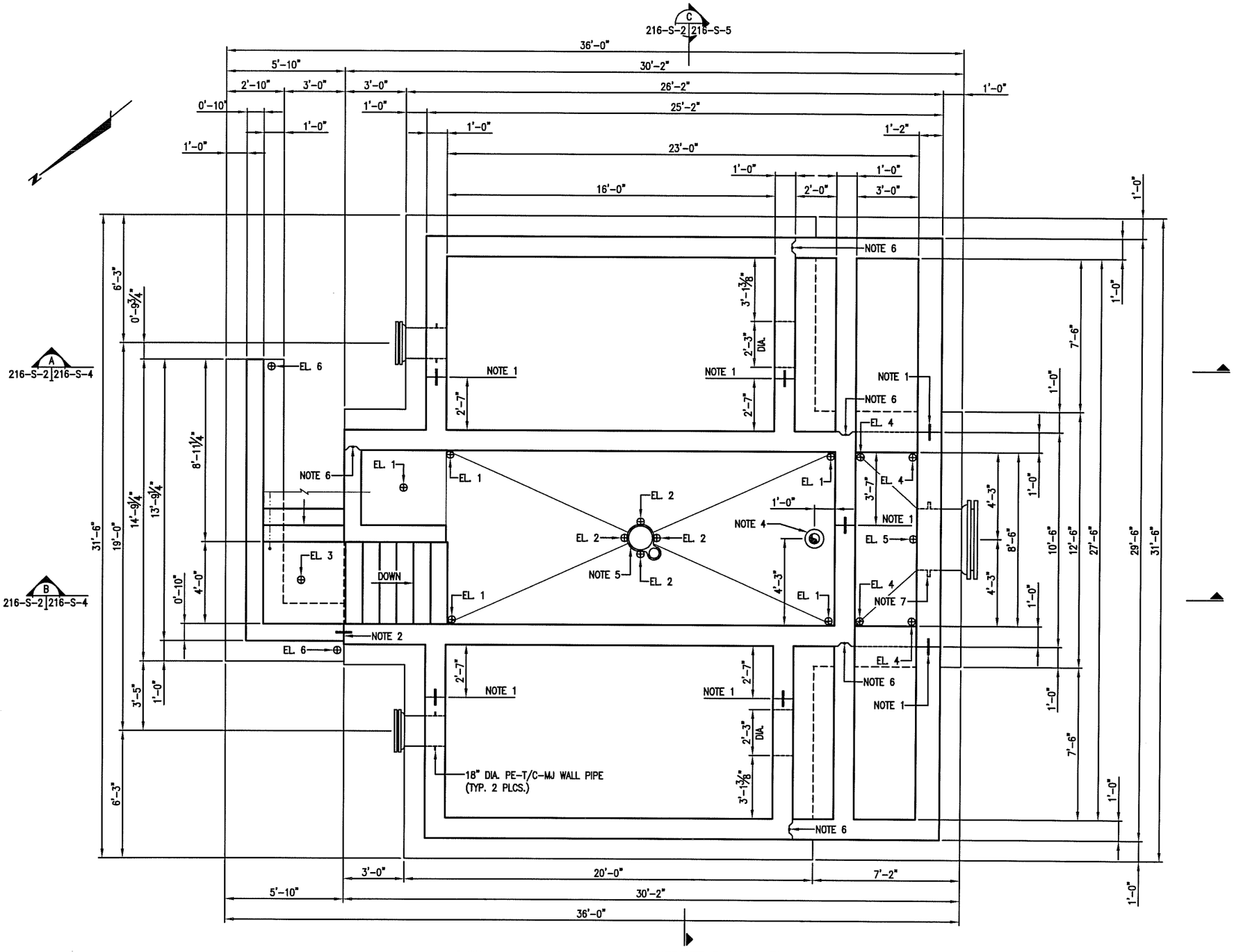
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
C. DIXON	11-23-01	W. WELCH	S. HENNESSEY

ROCKAWAY WWTP
DISK FILTER
STRUCTURAL
BOTTOM PLAN

LEAD DESIGN PROF.	CHECKED
C. DIXON	D. KUEI
PROJECT NUMBER	DRAWING NUMBER
GA063098	216-S-1.0



DISK FILTER STRUCTURAL INTERMEDIATE PLAN @ EL. 759.50
SCALE: 3/8"=1'-0"

NOTES:

1. VERTICAL CONSTRUCTION JOINT WITH PVC WATERSTOP.
2. VERTICAL EXPANSION JOINT WITH PVC WATERSTOP.
3. EL. 1 = 752.75
   EL. 2 = 752.66
   EL. 3 = 757.13
   EL. 4 = 755.28
   EL. 5 = 754.96
   EL. 6 = 755.88
4. 6" DIAMETER FLG-T/C-RJ WALL PIPE.
5. JOSAM 38424 NON-CLOG FLOOR DRAIN. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
6. VERTICAL CONSTRUCTION JOINT WITH HYDROPHILIC WATERSTOP AND KEYWAY.
7. 36" DIAMETER PE-T/C-MJ WALL PIPE.

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY CKD

GEORGIA REGISTERED No. 19088 PROFESSIONAL ENGINEER DENNIS H. KUEI

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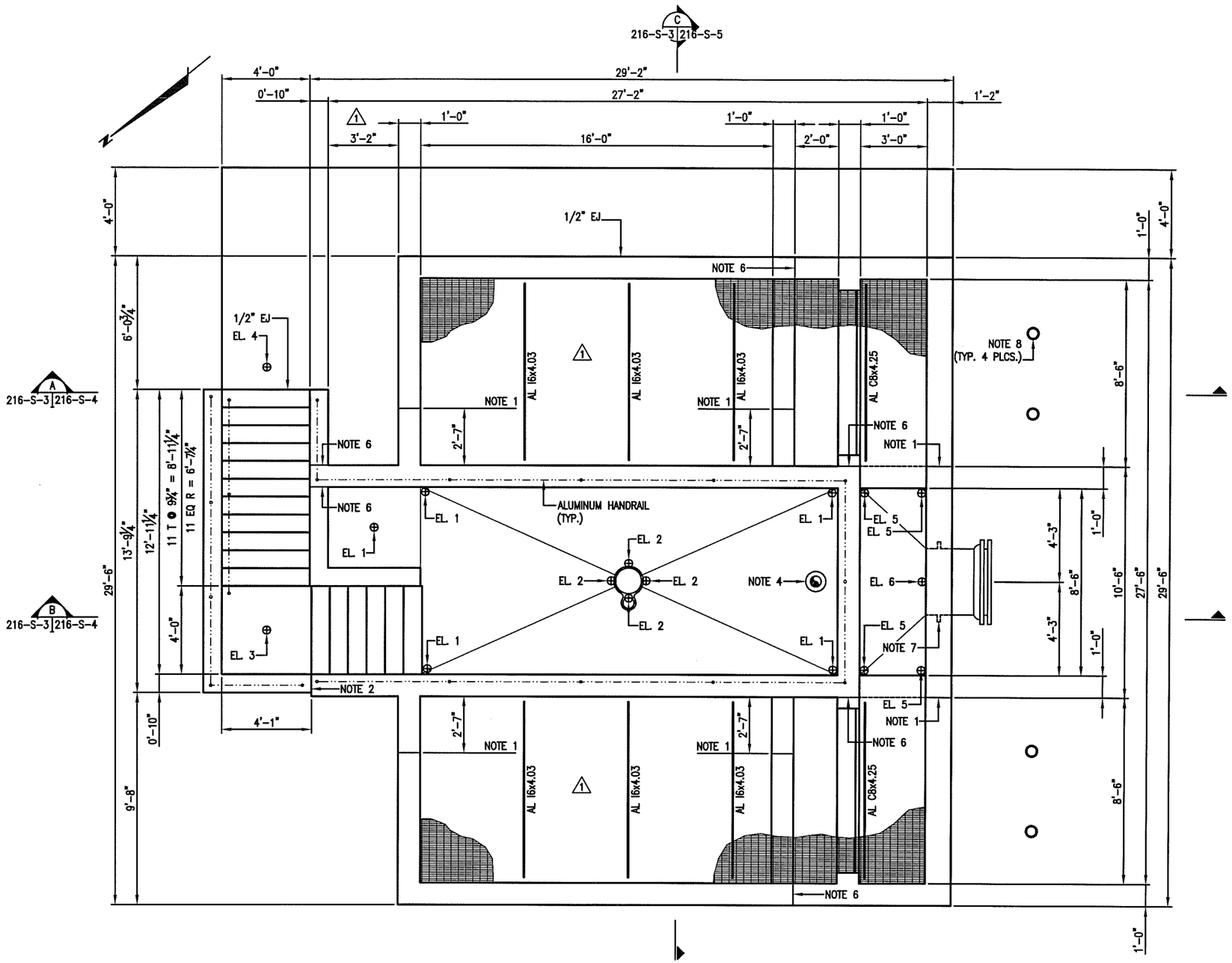
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
C. DIXON	11-23-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		C. DIXON	D. KUEI

ROCKAWAY WWTP
DISK FILTER
STRUCTURAL
INTERMEDIATE PLAN

PROJECT NUMBER	DRAWING NUMBER
GA063098	216-S-2.0



NOTES:

1. LOCATION OF VERTICAL CONSTRUCTION JOINT WITH PVC WATERSTOP. TERMINATE WATERSTOP 3" BELOW TOP OF WALL.
2. LOCATION OF VERTICAL EXPANSION JOINT WITH PVC WATERSTOP. TERMINATE WATERSTOP 3" BELOW TOP OF WALL.
3. EL. 1 = 752.75
   EL. 2 = 752.66
   EL. 3 = 757.13
   EL. 4 = 763.75
   EL. 5 = 755.28
   EL. 6 = 754.96
4. 6" DIAMETER FLG-T/C-RJ WALL PIPE.
5. JOSAM 38424 NON-CLOG FLOOR DRAIN. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
6. LOCATION OF VERTICAL CONSTRUCTION JOINT WITH HYDROPHILIC WATERSTOP. TERMINATE WATERSTOP 3" BELOW TOP OF WALL.
7. 36" DIAMETER PE-T/C-MJ WALL PIPE.
8. 6" DIAMETER PIPE BOLLARD. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
9. ALL ALUMINUM GRATING SHALL BE REMOVEABLE.

DISK FILTER STRUCTURAL TOP PLAN @ EL. 765.00

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

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY
1	6/17/02	ADDENDUM NO. 3	WSH / WW

GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI

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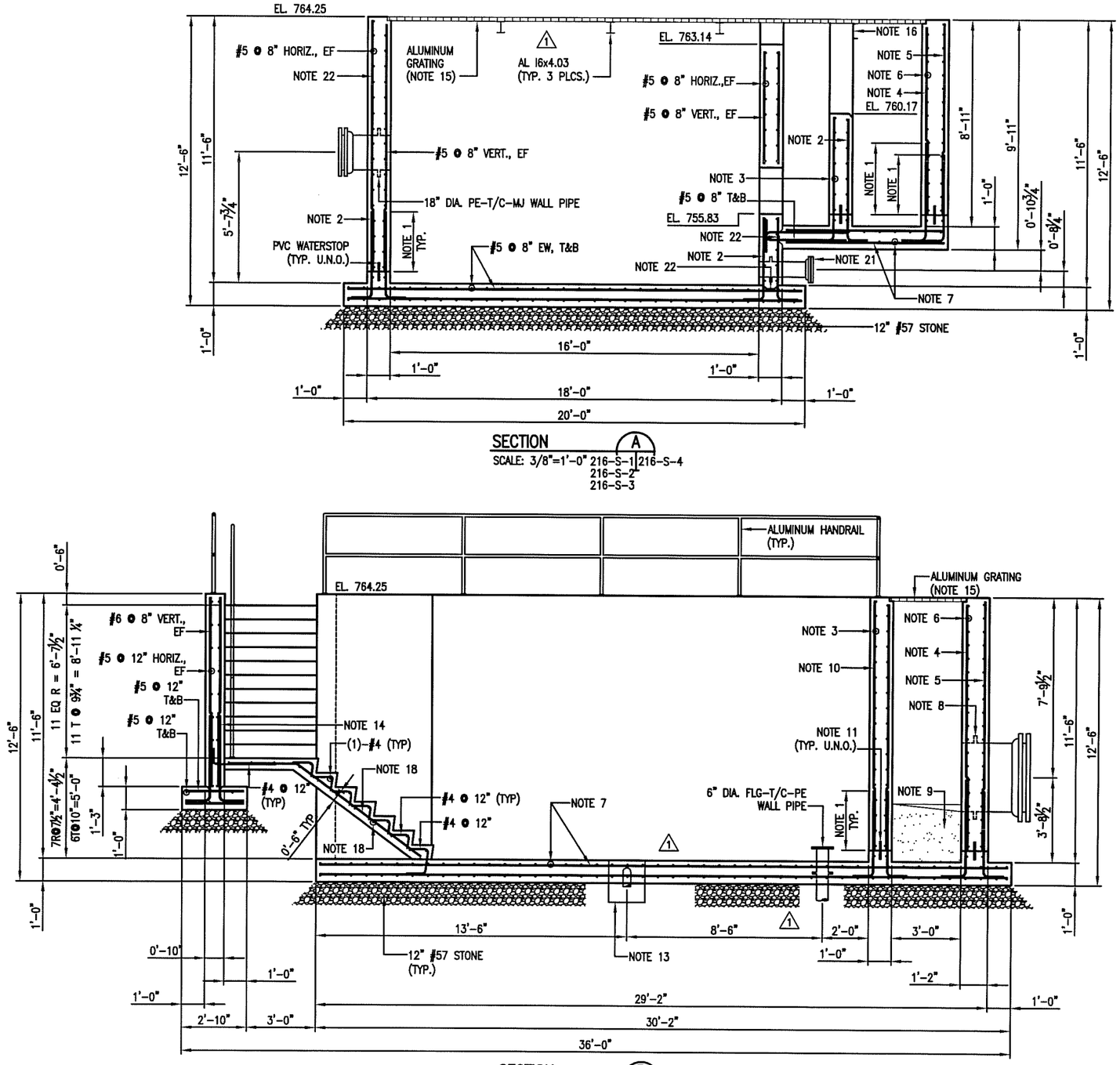
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
C. DIXON	11-23-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		C. DIXON	D. KUEI

ROCKAWAY WWTP
DISK FILTER
STRUCTURAL
TOP PLAN

PROJECT NUMBER: GA063098

DRAWING NUMBER: 216-S-3.1



SECTION A
SCALE: 3/8"=1'-0" 216-S-1 | 216-S-4
216-S-2
216-S-3

SECTION B
SCALE: 3/8"=1'-0" 216-S-1 | 216-S-4
216-S-2
216-S-3

NOTES:

1. CLASS B SPLICE. SEE STANDARD DETAILS FOR SPLICE LENGTHS.
2. #5 DOWELS @ 8", EACH FACE.
3. #5 @ 8" HORIZONTALS, EACH FACE.
4. #6 @ 6" VERTICALS, WITH MATCHING DOWELS, INSIDE FACE.
5. #5 @ 7" VERTICALS, WITH MATCHING DOWELS, OUTSIDE FACE.
6. #5 @ 7" HORIZONTALS, EACH FACE.
7. #5 @ 8" EACH WAY, TOP AND BOTTOM.
8. 36" DIAMETER PE-T/C-MJ WALL PIPE.
9. SAND-CEMENT GROUT.
10. #5 @ 8" VERTICALS, WITH MATCHING DOWELS, EACH FACE.
11. PVC WATERSTOP.
12. NOT USED
13. JOSAM 38424 NON-CLOG FLOOR DRAIN.
14. #6 DOWELS @ 8", EACH FACE.
15. ALL ALUMINUM GRATING SHALL BE REMOVEABLE.
16. ALUMINUM C8x4.25.
17. NOT USED
18. #4 @ 12" BOTTOM.
19. PROVIDE HYDROPHILIC WATERSTOP AROUND STAIR PERIMETER TO MAKE WATERTIGHT.
20. TRANSVERSE STAIR REINFORCING SHALL BE DOWELED INTO WALLS ON BOTH SIDES.
21. 8" DIAMETER PE-T/C-MJ WALL PIPE.
22. HYDROPHILIC WATERSTOP.

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY	CKD
1	6/17/02	ADDENDUM NO. 3	WSH	WW

GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI

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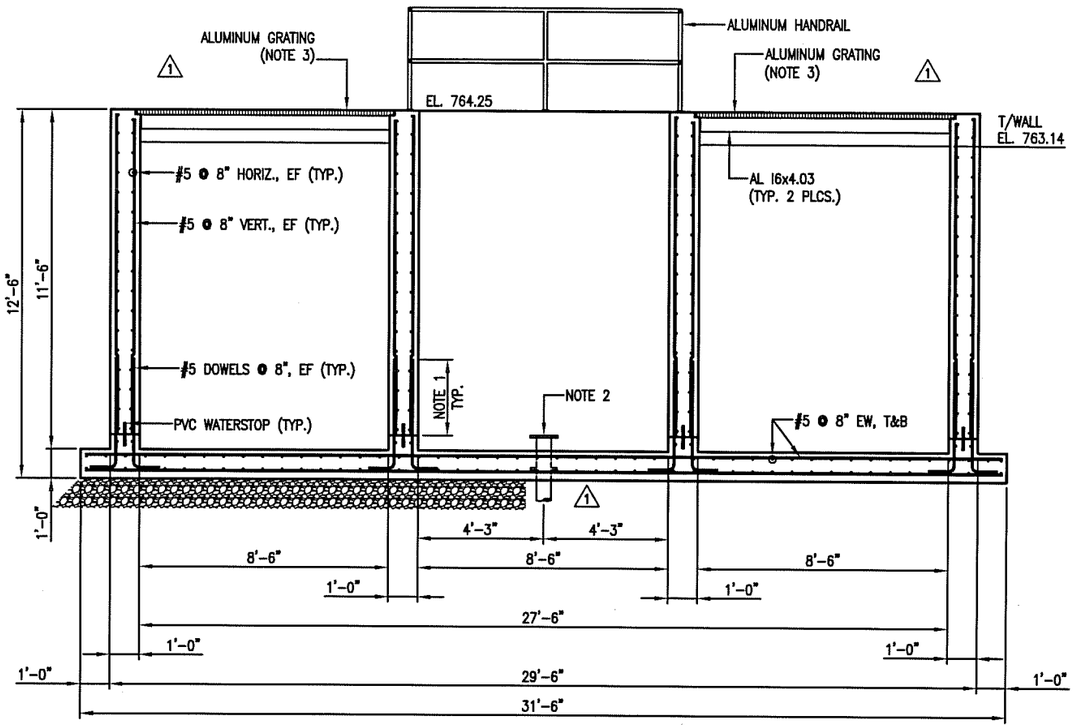
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
C. DIXON	11-23-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		C. DIXON	D. KUEI

ROCKAWAY WWTP
DISK FILTER
STRUCTURAL SECTIONS
AND DETAILS (1 OF 2)

PROJECT NUMBER	DRAWING NUMBER
GA063098	216-S-4.1



SECTION C

SCALE: 3/8"=1'-0" 216-S-1 | 216-S-5
216-S-2
216-S-3

NOTES:

1. CLASS B SPLICE. SEE STANDARD DETAILS FOR SPLICE LENGTHS.
2. 6" DIAMETER FLG-T/C-PE WALL PIPE.
3. ALL ALUMINUM GRATING SHALL BE REMOVEABLE.

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY
1	6/17/02	ADDENDUM NO. 3	WSH / WW

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

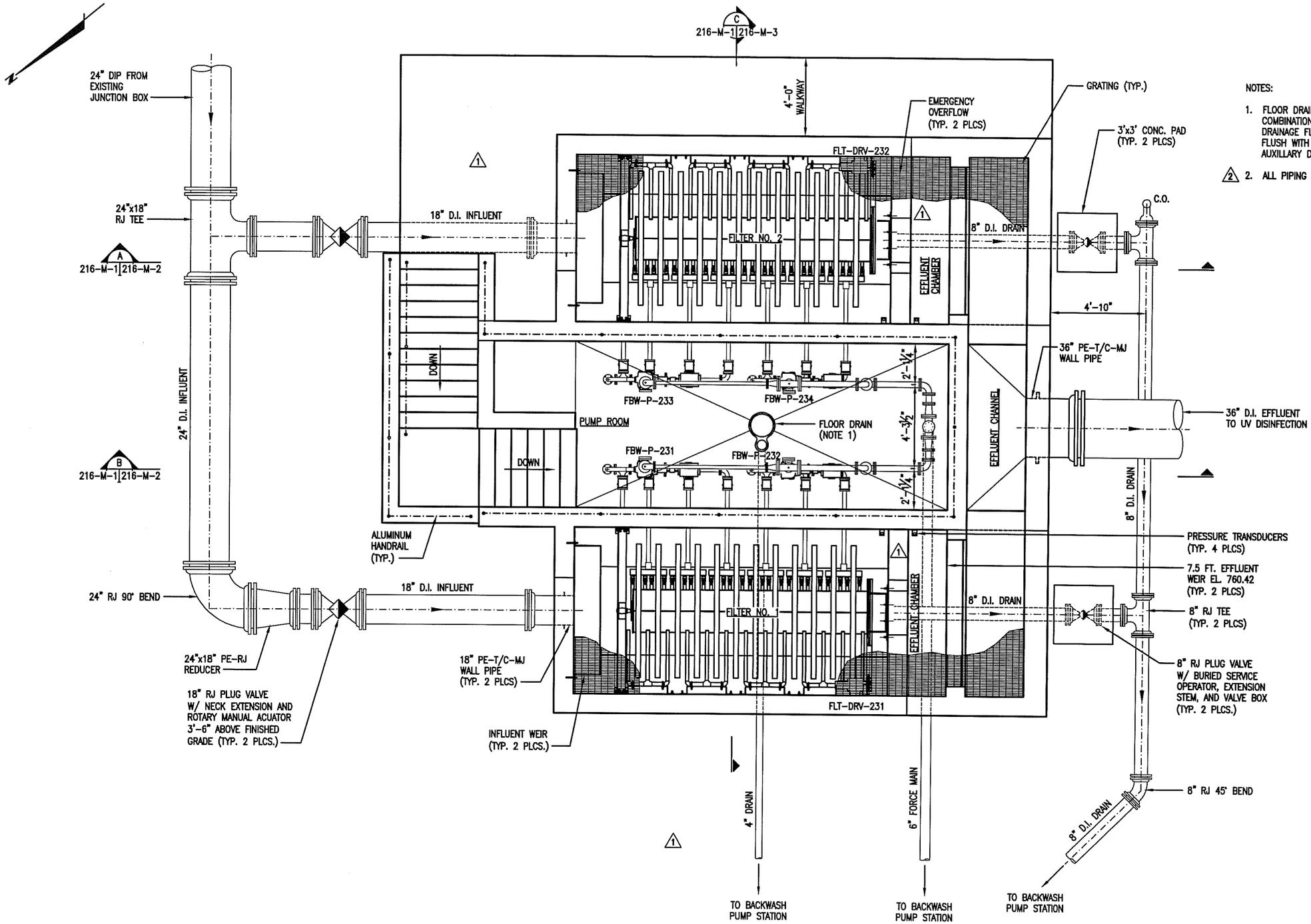
ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
C. DIXON	11-23-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. C. DIXON	CHECKED D. KUEI

ROCKAWAY WWTP
DISK FILTER
STRUCTURAL SECTIONS
AND DETAILS (2 OF 2)

PROJECT NUMBER GA063098

DRAWING NUMBER 216-S-5.1



NOTES:

1. FLOOR DRAIN SHALL BE JOSAM 38424-60 SERIES CAST COATED CAST IRON COMBINATION FLOOR DRAIN AND INTEGRAL DEEP SEAL TRAP WITH DOUBLE DRAINAGE FLANGE, WEEPHOLES, SIDE OUTLET HUB CONNECTION, ROUND TOP, FLUSH WITH FLOOR CLEANOUT AND REMOVEABLE SEDIMENT BUCKET WITH AUXILLARY DRAINAGE RIM, AND BACKWATER VALVE, OR EQUIVALENT.

2. ALL PIPING IN PUMP ROOM SHALL BE HEAT TRACED AND INSULATED.

DISK FILTER MECHANICAL PLAN

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

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	7-29-02	ADDENDUM NO. 4	JL / WW
1	6/17/02	ADDENDUM NO. 3	WSH / WW

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

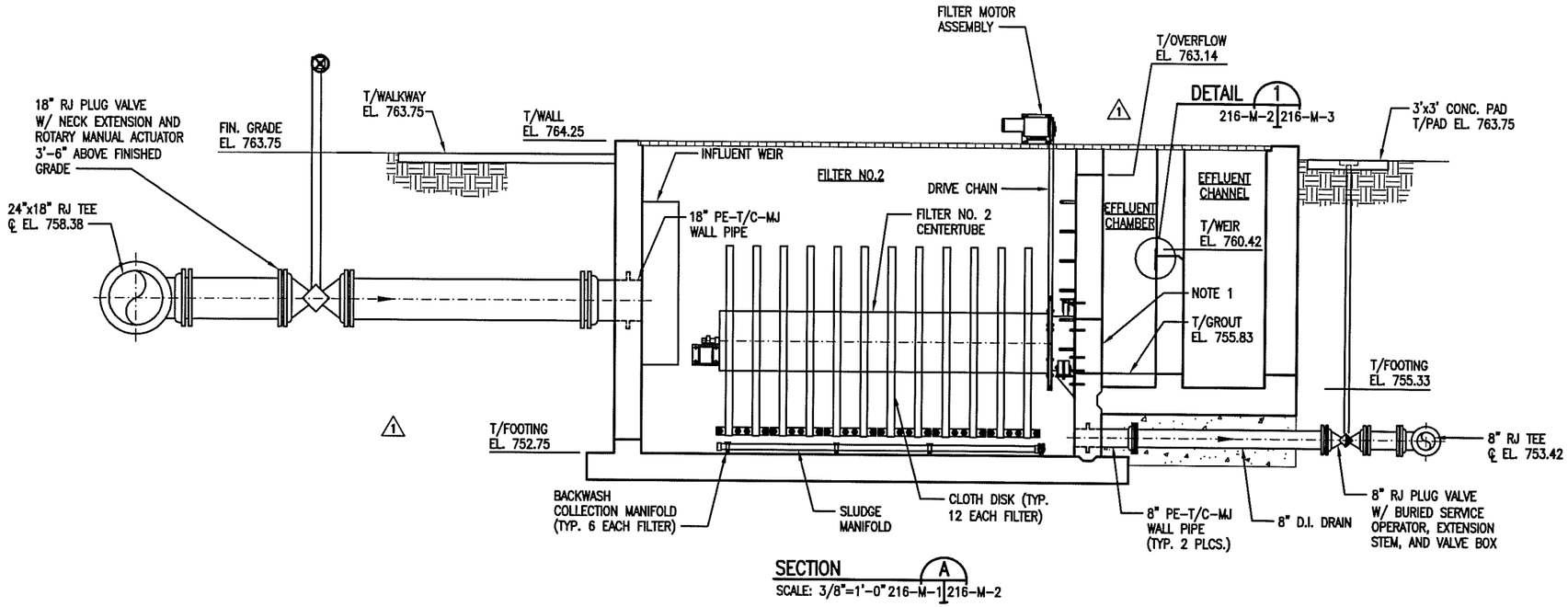
ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3789
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

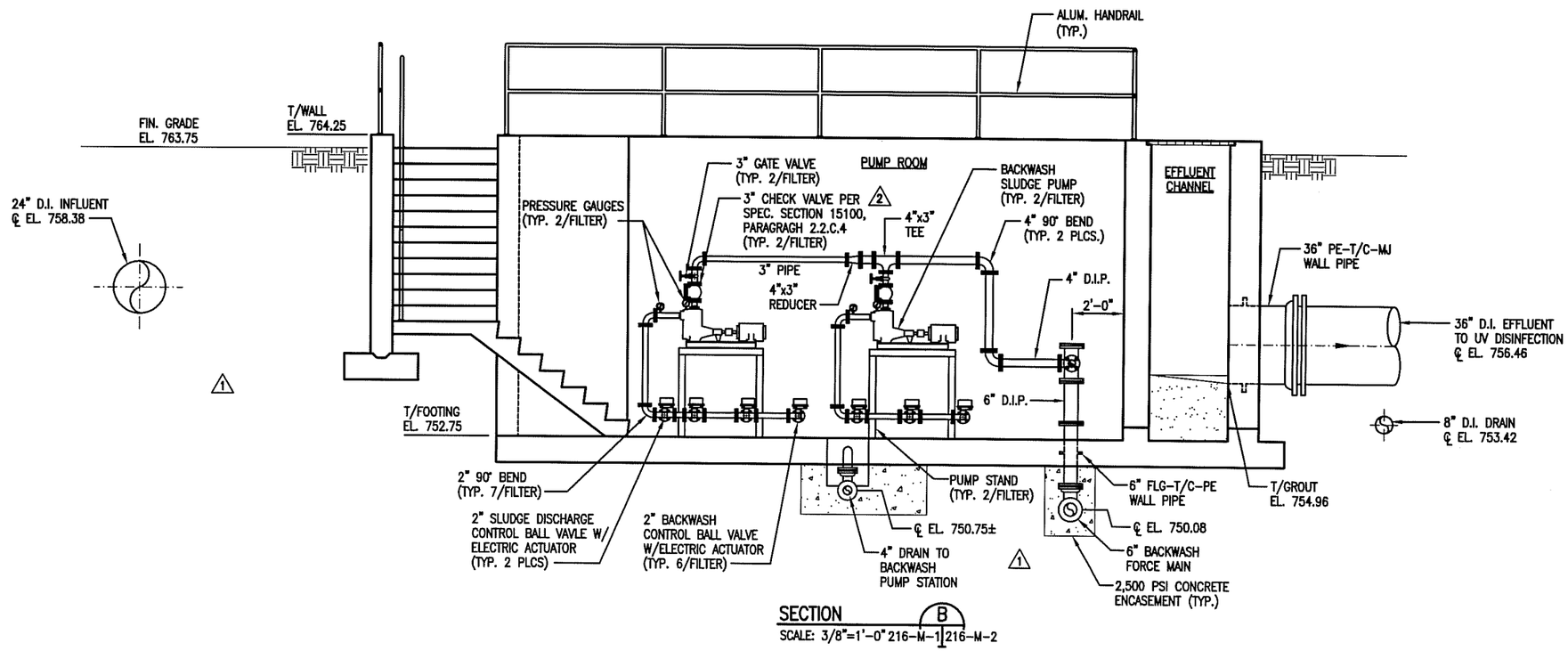
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADMARCO	11-23-01	W. WELCH	S. HENNESSEY

ROCKAWAY WWTP
DISK FILTER
MECHANICAL
PLAN

LEAD DESIGN PROF.	CHECKED
R. TRIVINO	S. HENNESSEY
PROJECT NUMBER	DRAWING NUMBER
GA063098	216-M-1.2



SECTION A
SCALE: 3/8"=1'-0" 216-M-1 | 216-M-2



SECTION B
SCALE: 3/8"=1'-0" 216-M-1 | 216-M-2

NOTES:

1. CONTRACTOR SHALL COORDINATE THE EXACT DIMENSIONS OF THE WALL OPENINGS FOR THE FILTER EFFLUENT WITH THE FILTER EQUIPMENT MANUFACTURER.

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	7-29-02	ADDENDUM NO. 4	JL / WW
1	6/17/02	ADDENDUM NO. 3	WSH / WW

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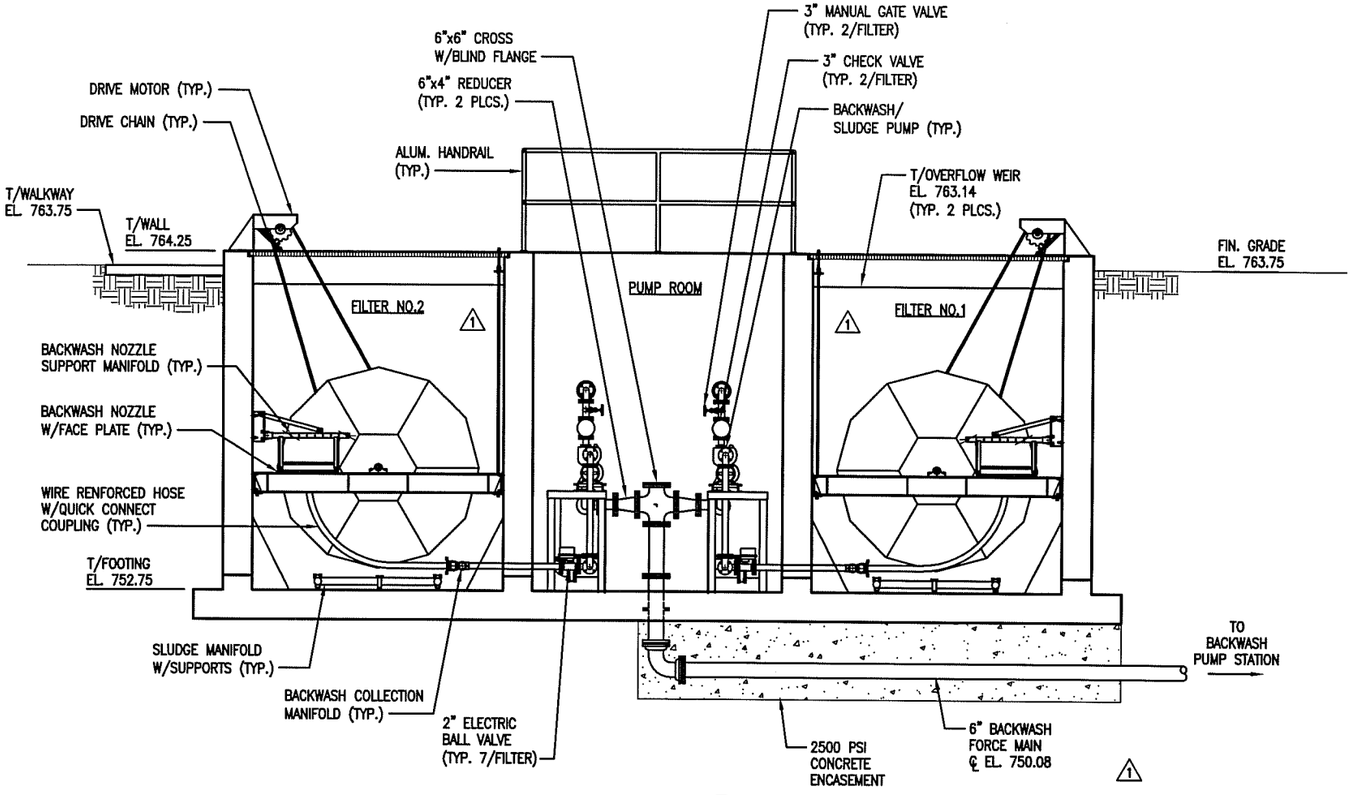
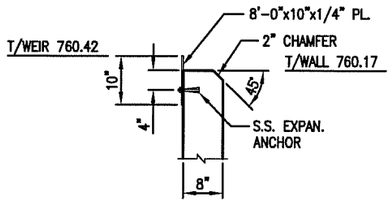
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

ROCKAWAY WWTP
DISK FILTER
MECHANICAL SECTIONS AND DETAILS (1 OF 2)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	11-23-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 216-M-2.2



SECTION C
SCALE: 3/8"=1'-0" 216-M-1 | 216-M-3



DETAIL 1
SCALE:3/4"=1'-0" 216-M-2 | 216-M-3

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY
1	6/17/02	ADDENDUM NO. 3	WSH/WW

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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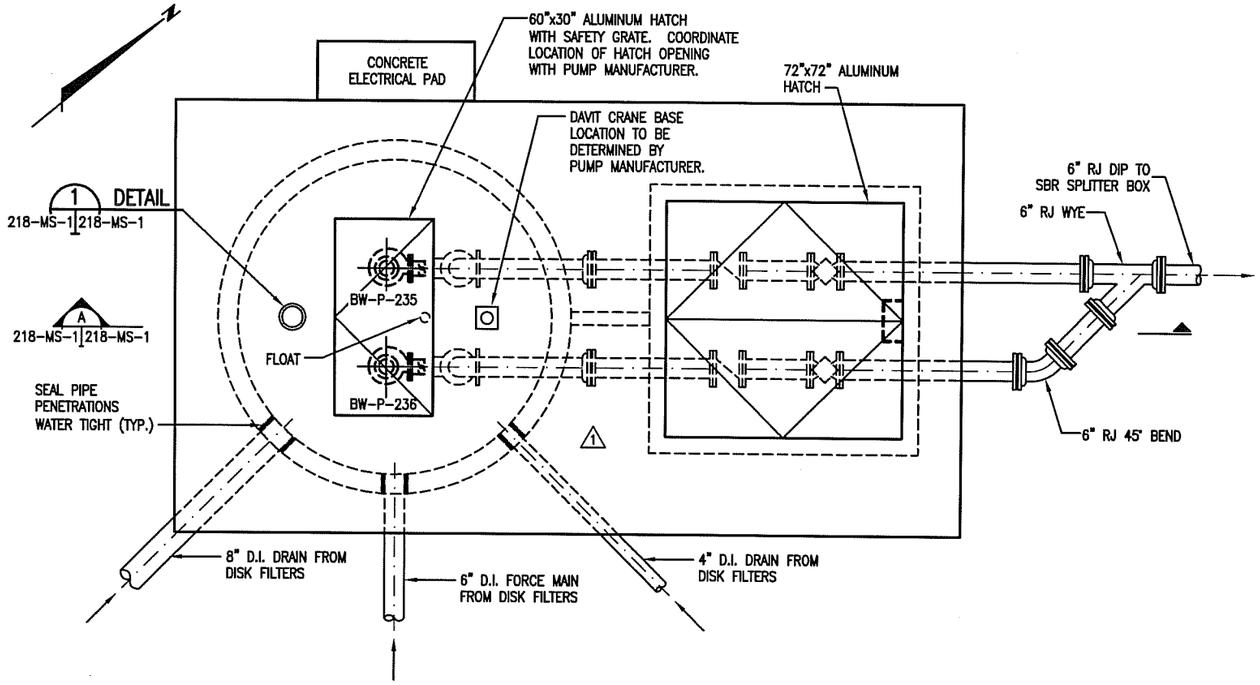
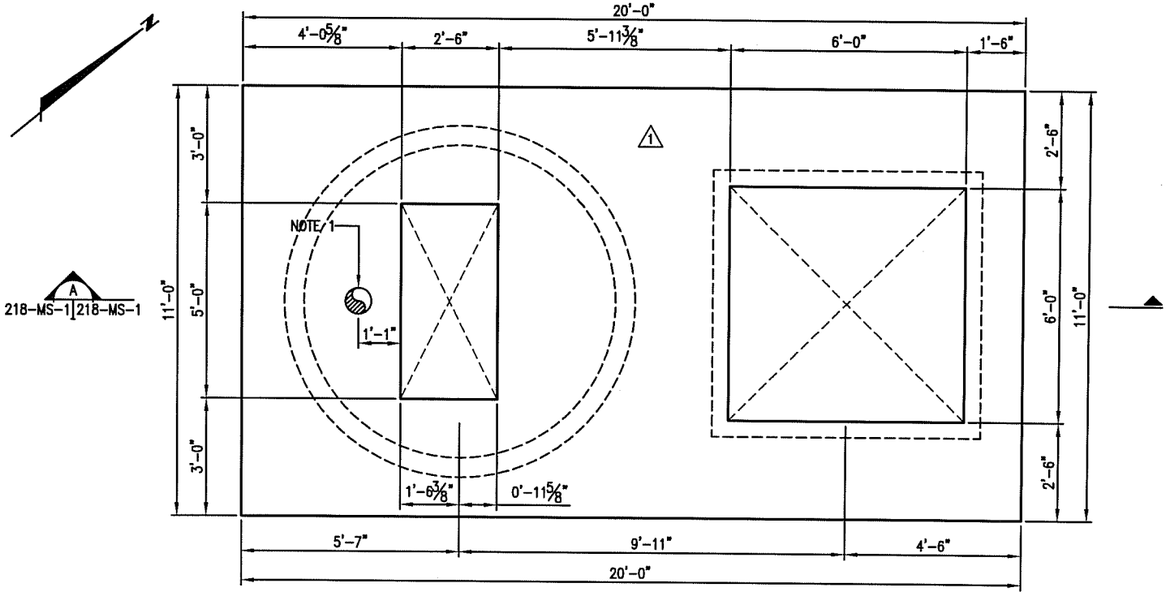
ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

ROCKAWAY WWTP
DISK FILTER
MECHANICAL SECTIONS
AND DETAILS (2 OF 2)

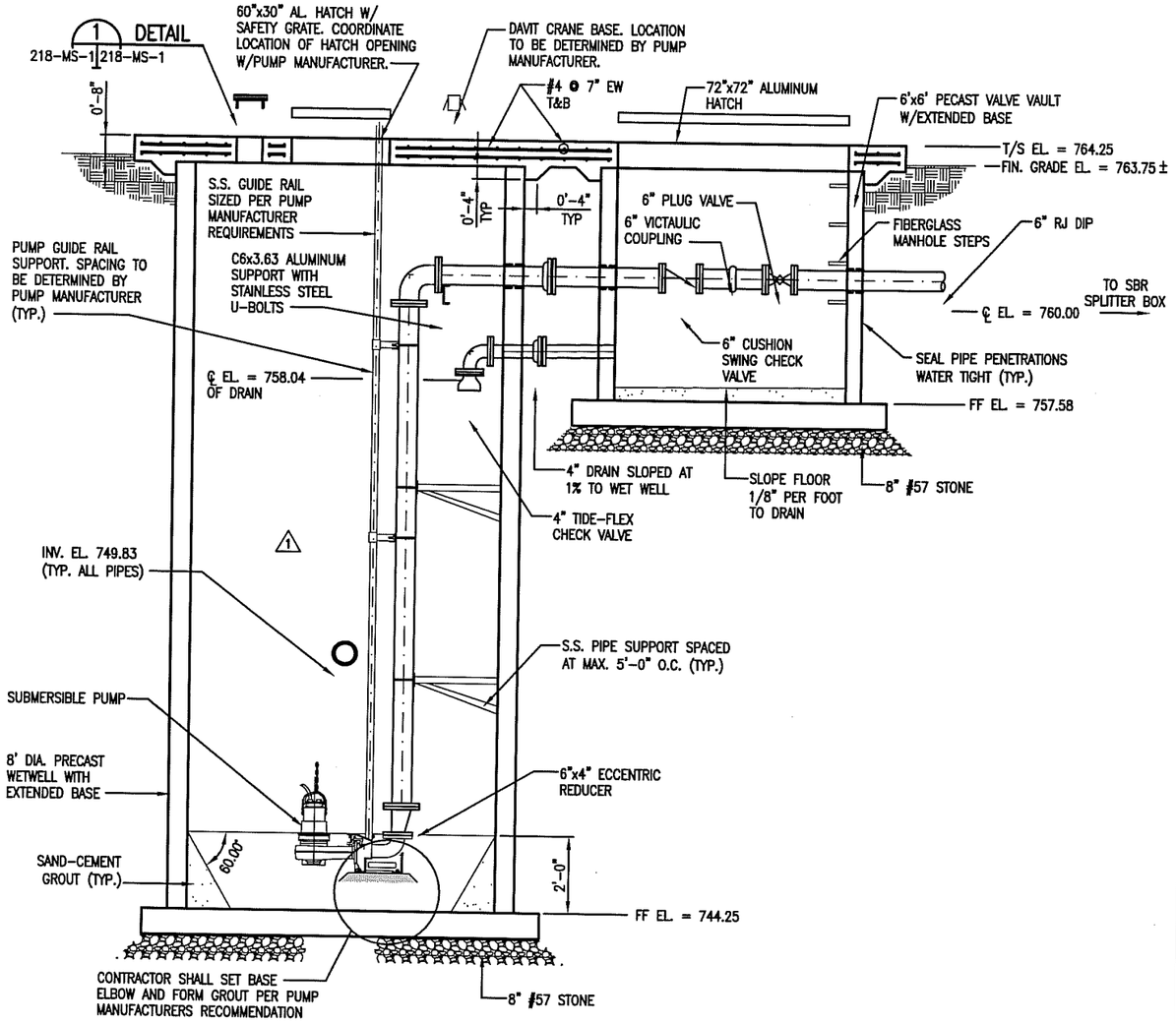
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	11-23-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 216-M-3.1



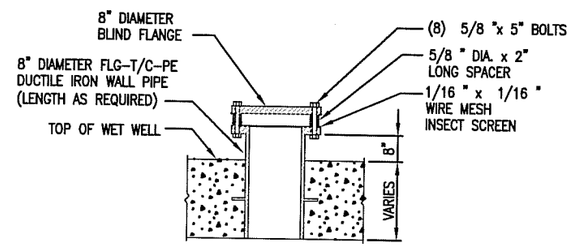
BACKWASH PUMP STATION MECHANICAL PLAN
SCALE: 1/2" = 1'-0"



BACKWASH PUMP STATION STRUCTURAL PLAN
SCALE: 1/2" = 1'-0"



SECTION
SCALE 1/2"=1'-0" A 218-MS-1 | 218-MS-1



DETAIL 1
SCALE= NTS 218-MS-1 | 218-MS-1

PUMP CONTROL POINTS	
HIGH LEVEL ALARM	749.75
PUMP ON	749.25
PUMP OFF	745.75
LOW LEVEL ALARM	745.50

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY	CKD
1	6/17/02	ADDENDUM NO. 3	WSH	WW

GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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Tel: 770/431-8666 Fax: 770/435-2666

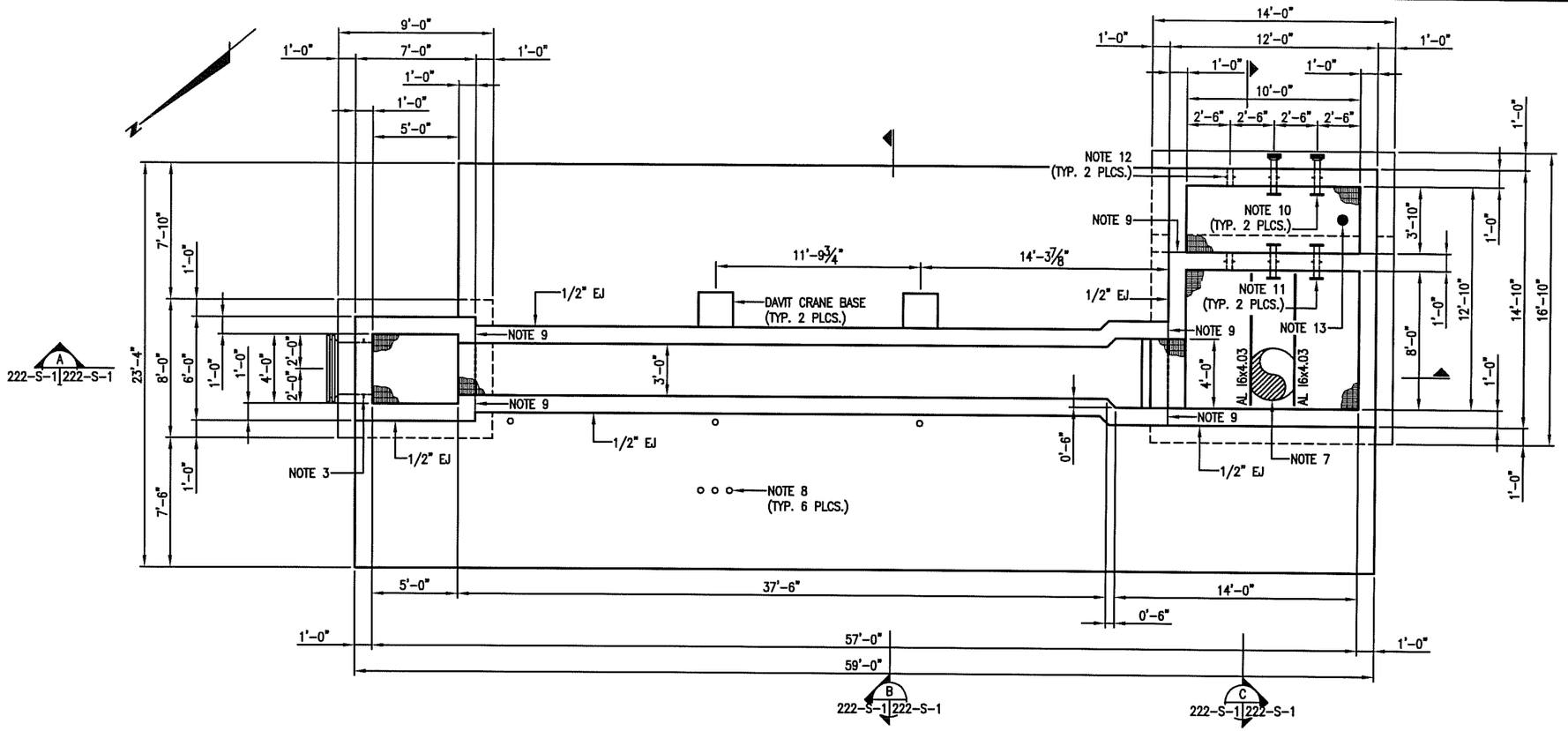
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO/C. DIXON	11-23-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. B. FOWLER/C. DIXON	CHECKED S. HENNESSEY/D. KUEI

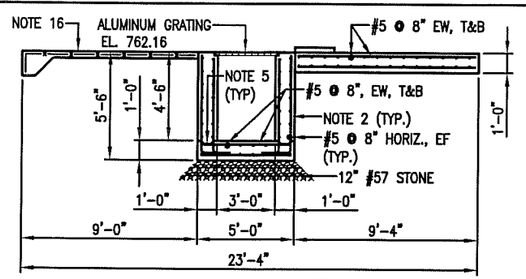
ROCKAWAY WWTP
BACKWASH PUMP STATION
PLANS, SECTIONS AND DETAILS

PROJECT NUMBER GA063098

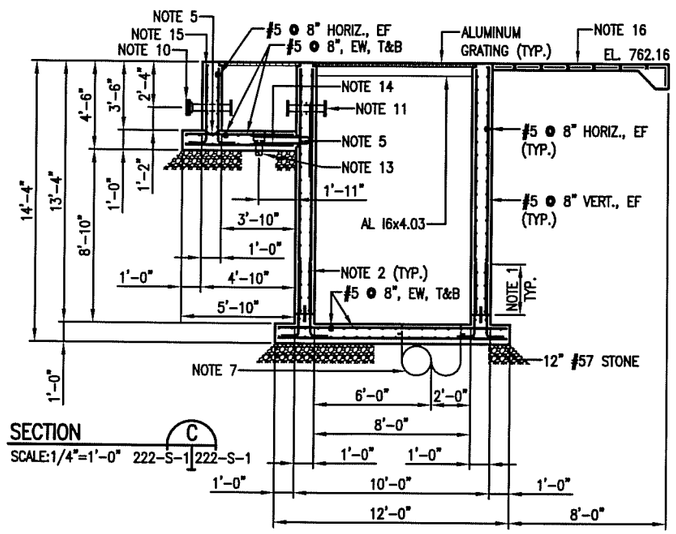
DRAWING NUMBER 218-MS-1.1



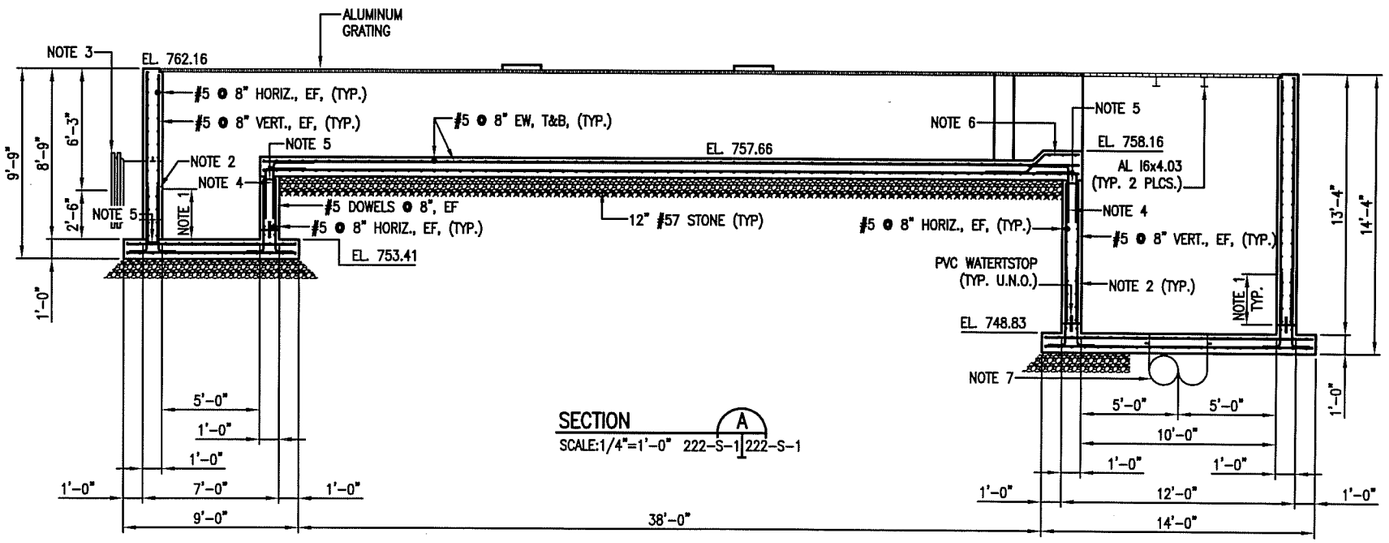
UV DISINFECTION SYSTEM STRUCTURAL PLAN
SCALE: 1/4" = 1'-0"



SECTION B
SCALE:1/4"=1'-0" 222-S-1 222-S-1



SECTION C
SCALE:1/4"=1'-0" 222-S-1 222-S-1



SECTION A
SCALE:1/4"=1'-0" 222-S-1 222-S-1

NOTES:

1. CLASS B SPLICE. SEE STANDARD DETAILS FOR SPLICE LENGTHS.
2. #5 DOWELS @ 8", EACH FACE.
3. 36" DIAMETER MJ-T/C-PE WALL PIPE.
4. #5 @ 8", EACH FACE.
5. HYDROPHILIC WATERSTOP.
6. #5 @ 8".
7. 36" DIAMETER PE-T/C-PE WALL PIPE.
8. 4" DIAMETER PIPE PENETRATION FOR HYDRAULIC LINES. COORDINATE EXACT LOCATIONS WITH MECHANICAL PLANS AND EQUIPMENT MANUFACTURERS.
9. LOCATION OF VERTICAL CONSTRUCTION JOINT WITH PVC WATERSTOP. TERMINATE WATERSTOP 3" BELOW TOP OF WALL.
10. 4" DIAMETER FLG-T/C-RJ WALL PIPE.
11. 4" DIAMETER FLG-T/C-FLG WALL PIPE.
12. 4" DIAMETER WALL SLEEVE.
13. 4" DIAMETER DRAIN. SEE MECHANICAL DRAWINGS FOR MORE INFORMATION.
14. #5 @ 8", TOP AND BOTTOM.

NOTES (CONT.):

15. ALL ALUMINUM GRATING SHALL BE REMOVEABLE.
16. 4" CONCRETE SLAB REINFORCED WITH 6x6-W2.9xW2.9 WELDED WIRE MESH.

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : awhite

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NO.	DATE	REVISION DESCRIPTION	BY CKD

GEORGIA REGISTERED No. 19088 PROFESSIONAL ENGINEER DENNIS H. KUEI

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2849 Paces Ferry Road, Suite 400
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ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

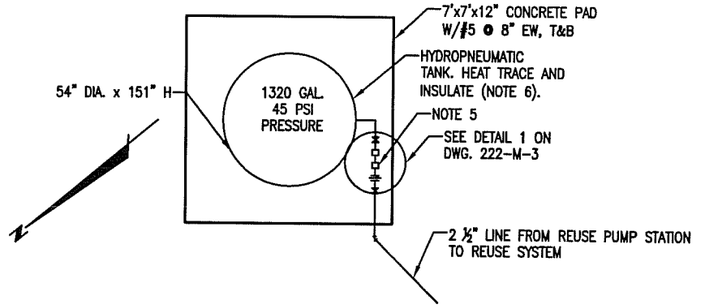
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
C. DIXON	11-07-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		C. DIXON	D. KUEI

ROCKAWAY WWTP
UV DISINFECTION SYSTEM
STRUCTURAL
PLAN AND SECTIONS

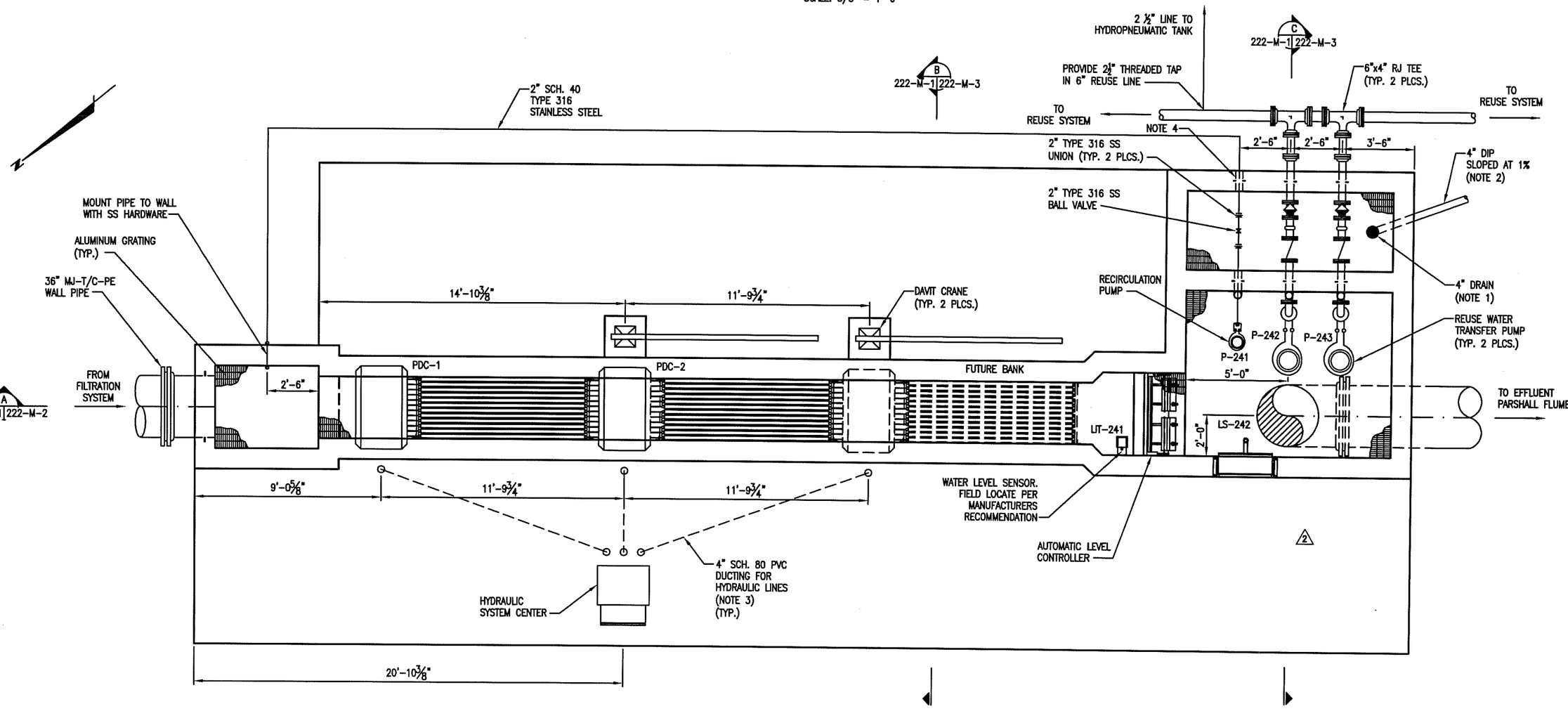
PROJECT NUMBER	DRAWING NUMBER
GA063098	222-S-1.0

NOTES:

1. FLOOR DRAIN SHALL BE JOSAM 30004-A SERIES COATED CAST IRON FLOOR DRAIN,TWO-PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEJLOC INVERTIBLE NON-PUNCTURING FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET AND ADJUSTABLE SATIN NIKALOY ROUND SUPER-FLO TRAINER, OR EQUAL.
2. FIELD ROUTE 4" DRAIN TO SANITARY SEWER MANHOLE.
3. 4" HYDRAULIC DUCTING SHALL HAVE LONG RADIUS SWEEPING ELBOWS. CONDUIT SHALL EXTEND 6" ABOVE FINISHED FLOOR AND SHALL BE SEALED WEATHER TIGHT AFTER HYDRAULIC LINES ARE INSTALLED.
4. PROVIDE 4" WALL SLEEVE AND LINK-SEAL FOR 2" PUMP DISCHARGE LINE (TYP. 2 PLCS.).
5. PRESSURE SWITCHES.
   HIGH LEVEL PRESSURE = 45 PSI
   LOW LEVEL PRESSURE = 35 PSI
6. PROVIDE A TANK HEATING PAD SYSTEM FOR FREEZE PROTECTION COMPLETE WITH A NEMA 4X THERMOSTAT, A LIGHTED POWER CONNECTION KIT, ALL INSTALLATION ACCESSORIES REQUIRED, AND "ELECTRIC HEAT TRACING" WARNING STICKERS. THE TANK HEATING PAD SHALL BE RAYCHEM RHS WITH 500-WATT POWER OUTPUT AND 120 VOLTS AC NOMINAL VOLTAGE OR APPROVED EQUAL.



HYDROPNEUMATIC TANK MECHANICAL PLAN
SCALE: 3/8" = 1'-0"



UV DISINFECTION SYSTEM MECHANICAL PLAN
SCALE: 3/8" = 1'-0"

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	7-25-02	ADDENDUM NO. 3	JL / WW
1	7-25-02	ADDENDUM NO. 2	JL / WW

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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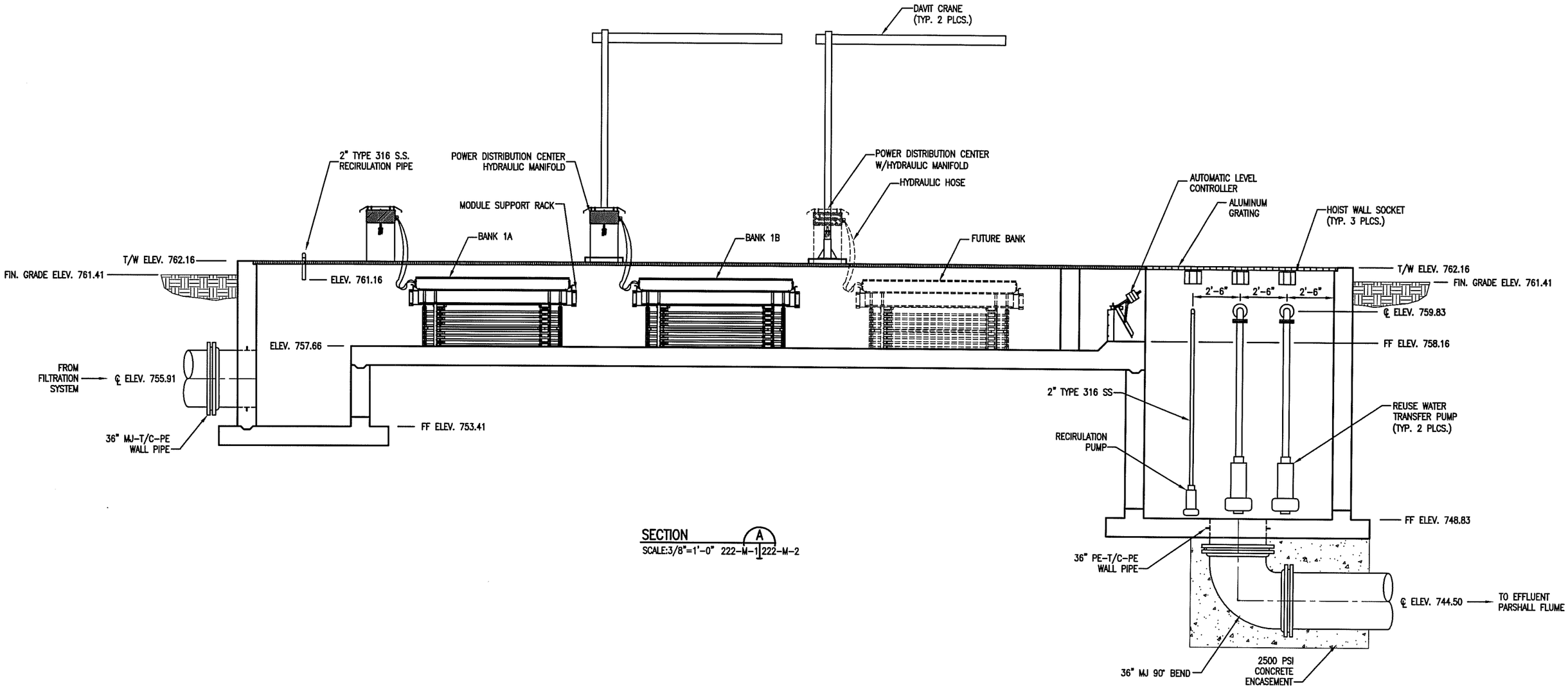
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	11-07-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY

ROCKAWAY WWTP
UV DISINFECTION SYSTEM
MECHANICAL
PLAN

PROJECT NUMBER	DRAWING NUMBER
GA063098	222-M-1.1



SECTION A
SCALE:3/8"=1'-0" 222-M-1 | 222-M-2

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : elehite

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NO.	DATE	REVISION DESCRIPTION	BY / CKD

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

ARCADIS G&M
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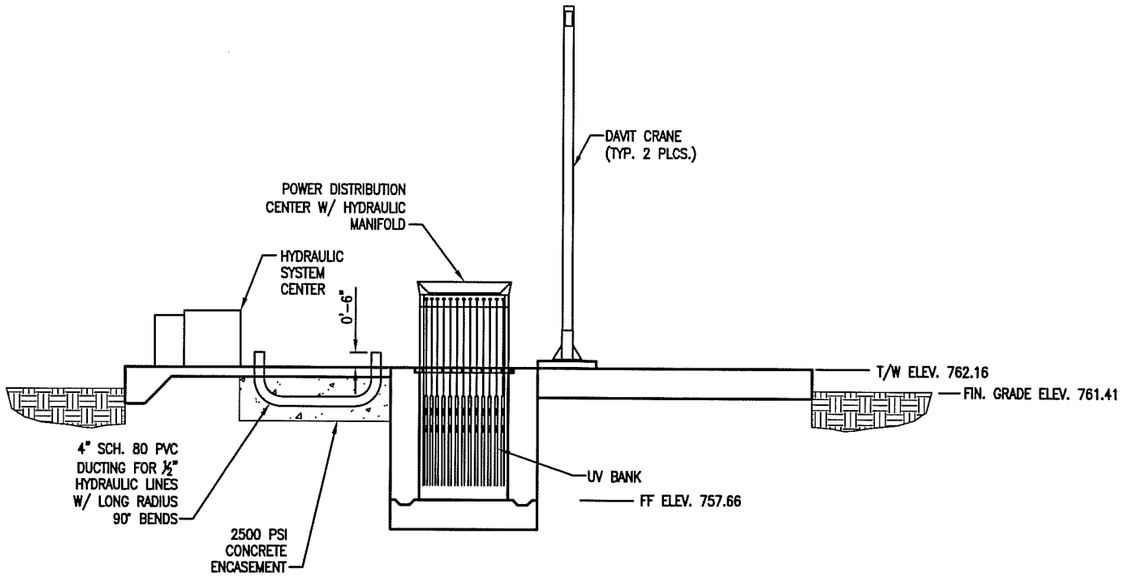
ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

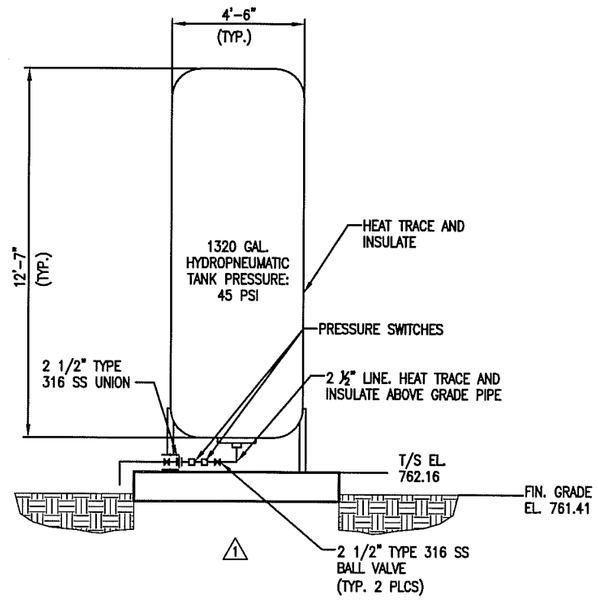
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	11-07-01	W. WELSH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		R. TRIVINO	S. HENNESSEY

ROCK AWAY WWTP
UV DISINFECTION SYSTEM
MECHANICAL SECTIONS
AND DETAILS (1 OF 2)

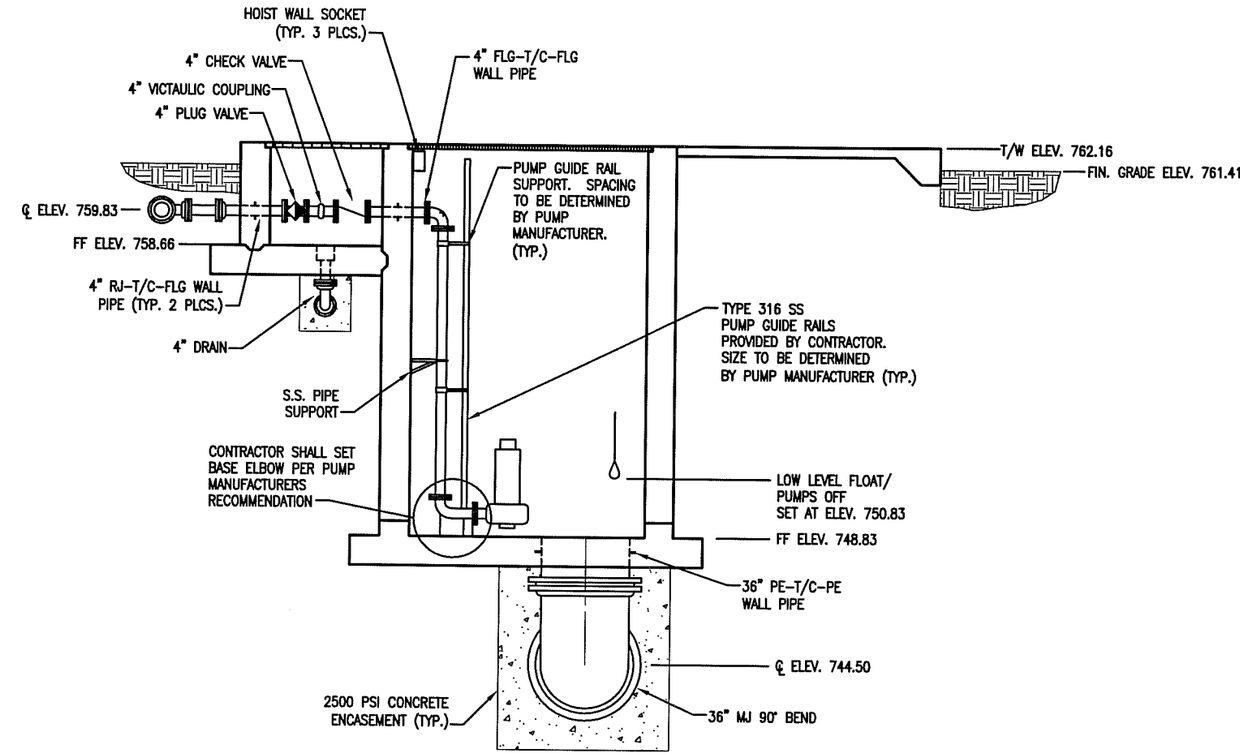
PROJECT NUMBER	DRAWING NUMBER
GA063098	222-M-2.0



SECTION B
SCALE:3/8"=1'-0" 222-M-1 222-M-3



DETAIL 1
SCALE:3/8"=1'-0" 222-M-1 222-M-3



SECTION C
SCALE:3/8"=1'-0" 222-M-1 222-M-3

RECORD SET

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IF THIS BAR IS NOT 1"
INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY
1	7-29-02	ADDENDUM NO. 4	JL / WW / CKD

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	11-07-01	W. WELSH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 222-M-3.1

ROCKAWAY WWTP
UV DISINFECTION SYSTEM
MECHANICAL SECTIONS
AND DETAILS (2 OF 2)

⚠1 DUCTBANK SECTIONS:

SEE DRAWING 100-D-17 FOR TYPICAL DUCTBANK DETAILS
SEE DRAWING 240-E-2 FOR CIRCUIT CALLOUTS

LV CKTS: 21 P5A, 21 P5B, 21 P7, 21 P6A, 21 P6B, 21 P8, 21 P21, 21 P22, E
SIGNAL CKTS: 21 C1/2, E

SECTION A — NTS — 240-E-1 | 240-E-1

LV CKTS: 21 P8, 21 P22, 21 P6A, 21 P6B
SIGNAL CKTS: 21 C2, E

SECTION E1 — NTS — 240-E-1 | 240-E-1

LV CKTS: 22 P1, 22 P2, 22 P3, 22 P4, 22 P5, E
SIGNAL CKTS: 22 C1, 22 S1, 22 C2, 22 S2

SECTION I — NTS — 240-E-1 | 240-E-1

LV CKTS: 22 C5, 22 P13

SECTION J — NTS — 240-E-1 | 240-E-1

HV, HV — UTILITY PRIMARY CONDUCTORS DIRECTLY BURIED
COORDINATE WITH ELECTRIC UTILITY

SECTION HV — NTS — 240-E-1 | 240-E-1

LV CKTS: 21 P19, 21 P18
SIGNAL CKTS: 21 C3/4, 21 S1, E, E

SECTION B1 — NTS — 240-E-1 | 240-E-1

LV CKTS: 21 P8, 21 P22
SIGNAL CKTS: 21 C2

SECTION F — NTS — 240-E-1 | 240-E-1

LV CKTS: 21 P19
SIGNAL CKTS: 21 C3, E

SECTION B2 — NTS — 240-E-1 | 240-E-1

LV CKTS: 21 P5A, 21 P5B
SIGNAL CKTS: E, E

SECTION C1 — NTS — 240-E-1 | 240-E-1

LV CKTS: 21 P5A, 21 P5B, E, 22 P6, 22 P7, 22 P8, 22 P9, 22 P10, E
SIGNAL CKTS: 22 C3, 22 GS3, 22 S4, E, 22 C4, 22 S5

SECTION C2 — NTS — 240-E-1 | 240-E-1

LV CKTS: 21 P7, 21 P21
SIGNAL CKTS: 21 C1

SECTION D — NTS — 240-E-1 | 240-E-1

SIGNAL CKTS: 22 GS3, 22 S4, 22 C3, 22 C4, 22 S5, E
LV CKTS: 22 P6, 22 P7, 22 P8, 22 P9, 22 P10, E

SECTION G — NTS — 240-E-1 | 240-E-1

LV CKTS: 22 S6, E
SIGNAL CKTS: 22 P12, E

SECTION H — NTS — 240-E-1 | 240-E-1

KEY PLAN: AREA 1, AREA 3, AREA 2, AREA 4

EXIST. INFLUENT PUMP STATION
DISCONNECT AND REMOVE EXISTING LIGHT POLE
INFLUENT PUMP STATION
MH-LV8
HH-SIG8
100 YEAR FLOOD ELEVATION = 755.00
SEPTAGE RECEIVING STATION
H11
EXISTING CHLORINE FEED BUILDING
AREA LIGHT FIXTURE (SEE DWG 240-E-20) DP-201, CKT #1
B2 240-E-1 | 240-E-1
B3 240-E-1 | 240-E-3
HH-LV2
HH-SIG2
B1 240-E-1 | 240-E-1
HV 240-E-1 | 240-E-1
EXISTING UTILITY XFMR
NEW 1½" CONDUIT
UTILITY XFMR B
UTILITY XFMR A
A 240-E-1 | 240-E-1
BLOWER BUILDING EXPANSION
UTILITY TO EXTEND EXISTING PRIMARY CIRCUITS
EXISTING BLOWER BUILDING
C2 240-E-1 | 240-E-1
EXISTING STORAGE SHED
C1 240-E-1 | 240-E-1
MH-LV4
MH-LV1
HH-SIG1
ELECTRICAL BUILDING
HH-SIG4
D 240-E-1 | 240-E-1
BACKWASH PUMP STATION
E1 240-E-1 | 240-E-1
G 240-E-1 | 240-E-1
H11
H 240-E-1 | 240-E-1
UV DISINFECTION SYSTEM
AREA LIGHT FIXTURE (DP-201, CKT #2)
DISK FILTERS
HH-SIG5
HH-LV5
J 240-E-1 | 240-E-1
H11-2
HYDROPNEUMATIC TANK
FEED FOR BUILDING
AREA LIGHT FIXTURE (DP-201, CKT #3)
H11
E2 240-E-1 | 240-E-2
F 240-E-1 | 240-E-1
EFFLUENT PARSHALL FLUME
EXISTING HYDROPNEUMATIC TANK
AREA LIGHT FIXTURE (FOR UV & EFFL. FLUME) DP-202, CKT #4
EXISTING CHLORINE CONTACT CHAMBER
EXISTING PARSHALL FLUME
24"CIP
750
755
760
765
770

MATCHLINE "1" (SEE DRAWING 240-E-3 FOR CONTINUATION)

MATCHLINE "A" (SEE DRAWING 240-E-2 FOR CONTINUATION)

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : dwhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6-24-04	RECORD DRAWING MARKUP	MZ / WW
1	7-23-02	ADDENDUM NO. 1	JL / WW

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	12-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA

ROCKAWAY WWTP
ELECTRICAL SITE PLAN
(AREA 1)

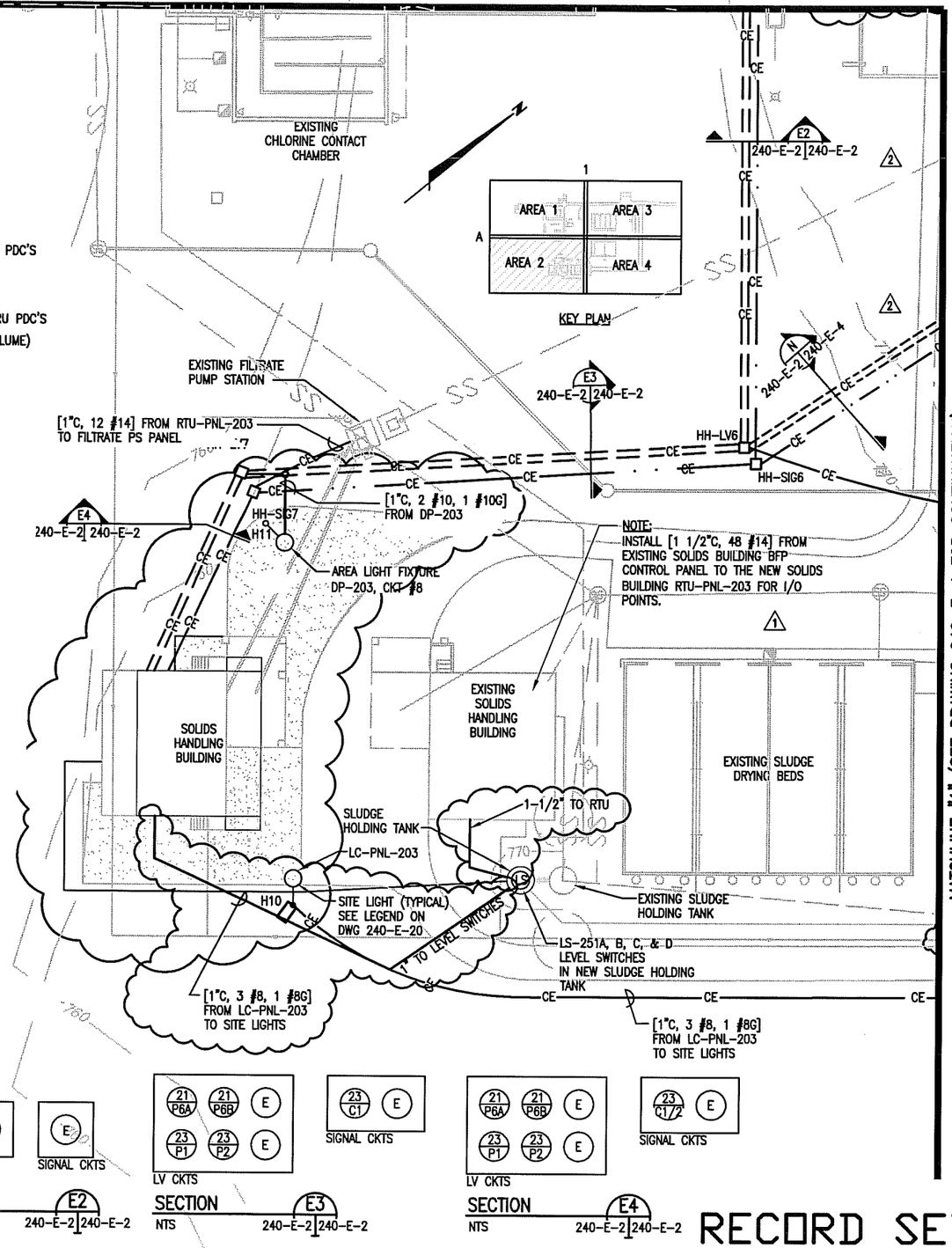
PROJECT NUMBER	DRAWING NUMBER
GA063098	240-E-1.2

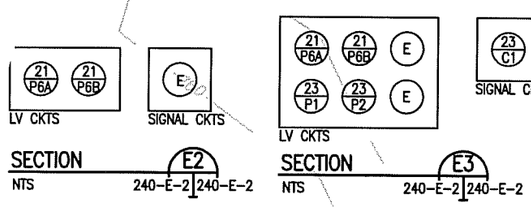
MATCHLINE "A" (SEE DRAWING 240-E-1 FOR CONTINUATION)

CIRCUIT CALLOUTS:

- 21 / P5A — [4"C, 4-500kcmil, 1-1/0G] FROM SWBD-201 TO UV ELEC BLDG MCC-202
- 21 / P5B — [4"C, 4-500kcmil, 1-1/0G] FROM SWBD-201 TO UV ELEC BLDG MCC-202
- 21 / P6A — [4"C, 3-250kcmil, 1 #4G] FROM SWBD-201 TO D/W BLDG MCC-203
- 21 / P6B — [4"C, 3-250kcmil, 1 #4G] FROM SWBD-201 TO D/W BLDG MCC-203
- 21 / P7 — [2"C,3 #8, 1 #8G] FROM BLWR BLDG MCC-201 TO B/W PS CP-235
- 21 / P8 — [2"C] [3 #8, 1 #8G] FROM BLWR BLDG MCC-201 TO FILTER #1 CP-231
  [3 #8, 1 #8G] FROM BLWR BLDG MCC-201 TO FILTER #2 CP-232
- 21 / P18 — [2"C] [3 #6, 1 #8G] FROM BLWR BLDG MCC-201 TO CNTRL BLDG SBR SYS STARTER PNL
- 21 / P19 — [2"C] [3 #10, 1 #10G] FROM BLWR BLDG MCC-201 TO SEPTAGE RECEIVING STATION CP-281
  [2 #10, 1 #10G] FROM BLWR BLDG DP-201 TO SEPTAGE STATION AREA LIGHTING
- 21 / P21 — [2"C] [2 #10, 1 #10G] FROM BLWR BLDG DP-201 TO B/W PS AREA LIGHTING
- 21 / P22 — [2"C] [2 #10, 1 #10G] FROM BLWR BLDG DP-201 TO FILTERS AREA LIGHTING
  [2 #8, 1 #8G] FROM BLWR BLDG DP-201 TO FILTERS AREA HEAT TRACING (3)
- 22 / P1 — [2"C, 3 #1, 1 #6G] FROM VFD-201 TO 22-TJB-PC1 (FOR INF-P-201)
- 22 / P2 — [2"C, 3 #1, 1 #6G] FROM VFD-202 TO 22-TJB-PC1 (FOR INF-P-202)
- 22 / P3 — [2"C, 3-3/0, 1 #4G] FROM VFD-203 TO 22-TJB-PC1 (FOR INF-P-203)
- 22 / P4 — [2"C, 3-3/0, 1 #4G] FROM VFD-204 TO 22-TJB-PC1 (FOR INF-P-204)
- 22 / P5 — [2"C] [2 #10, 1 #10G] FROM ELEC BLDG DP-202 TO INF. PS CONTROL PNL CP-201
  [2 #10, 1 #10G] FROM ELEC BLDG DP-202 TO INF. PS AREA LIGHTS
- 22 / P6 — [1"C, 4 #6, 1 #8G] FROM PP-UV TO PDC-241
- 22 / P7 — [1"C, 4 #6, 1 #8G] FROM PP-UV TO PDC-242
- 22 / P8 — [1"C, EMPTY] FROM PP-UV TO FUTURE PDC
- 22 / P9 — [2"C] [2 #8, 1 #8G] FROM ELEC BLDG DP-202 TO UV HYDRAULIC SYS, HSC
  [2 #12, 1 #12G] FROM ELEC BLDG DP-202 TO UV TRANSMISSION SAMPLER, UVT
  [2 #12, 1 #12G] FROM ELEC BLDG DP-202 TO UV WATER LEVEL TRANSMITTER, LIT-241
- 22 / P10 — [2"C] [3 #10 PWR, 1 #10G] FROM ELEC BLDG MCC-202 TO UV RECIRCP. PUMP PNL P-241
  [3 #2, 1 #8G] FROM ELEC BLDG MCC-202 TO REUSE PUMP PNL CP-242
- 22 / P11 — UNUSED
- 22 / P12 — [2"C] [2 #10, 1 #10G] FROM ELEC BLDG DP-202 TO FIT-261
  [2 #10, 1 #10G] FROM ELEC BLDG DP-202 TO PARSHALL FLUME AREA LIGHT
- 22 / P13 — [1"C] [2 #10, 1 #10G] FROM REUSE CP-242 TO HYDROPNEUMATIC TANK & PIPE HEAT TRACE
- 23 / P1 — [2"C] [3 #12 PWR, 1 #12G, 3 #14 CNTRL] FROM DW BLDG PNL CP-212 TO DIG-SLDG-P213
  [3 #12 PWR, 1 #12G, 3 #14 CNTRL] FROM DW BLDG PNL CP-212 TO DIG-SLDG-P214
- 23 / P2 — [2"C] [2 #10, 1 #10G] FROM DW BLDG DP-203 CKT #9 TO SBR AREA LIGHTING AND RECEPT
  [2 #10, 1 #10G] FROM DW BLDG DP-203 CKT #11 TO SBR AREA LIGHTING AND RECEPT

- 21 / S1 — [2"C] [2-TSP] FROM VFD-221 TO SBR CONTROL PANEL CP-211
  [2-TSP] FROM VFD-222 TO SBR CONTROL PANEL CP-211
  [2-TSP] FROM VFD-223 TO SBR CONTROL PANEL CP-211
- 22 / S1 — [2"C, 2-TSP] FROM ELEC BLDG RTU-PNL-202 TO INF. PS CONTROL PNL CP-201
- 22 / S2 — [2"C] [1-TSP] FROM VFD-201 TO INF. PS CONTROL PNL CP-201
  [1-TSP] FROM VFD-202 TO INF. PS CONTROL PNL CP-201
  [1-TSP] FROM VFD-203 TO INF. PS CONTROL PNL CP-201
  [1-TSP] FROM VFD-204 TO INF. PS CONTROL PNL CP-201
- 22 / S4 — [1"C, 2-TSP] (RS485 COMM. LINK) FROM SCC-241 TO HSC AND DAISY CHAINED THRU PDC'S
- 22 / S5 — [1"C] [2-TSP] (RS485 COMM. LINK)] FROM SCC-241 TO UVT SAMPLER
  [2-TSP] (RS485 COMM. LINK)] FROM SCC-241 TO HSC AND DAISY CHAINED THRU PDC'S
- 22 / S6 — [1"C] [1-TSP] FROM ELEC BLDG RTU-PNL-202 TO FIT-261 (AT EFFLUENT PARSHAL FLUME)
- 22 / GS3 — [1"C, 1 #12G] FROM SCC-241 TO HSC AND DAISY CHAINED THRU PDC'S
- 21 / C1 — [1"C, 10 #14] FROM BLWR BLDG RTU-PNL-202 TO B/W CONTROL PNL CP-235]
- 21 / C1/2 — [2"C] [10 #14] CONDUCTORS OF CIRCUIT 21-C1
  [10 #14], [10 #14] } CONDUCTORS OF CIRCUIT 21-C2
- 21 / C2 — [1"C] [10 #14] FROM BLWR BLDG RTU-PNL-201 TO DISK FILTER #1 PNL CP-231
  [10 #14] FROM BLWR BLDG RTU-PNL-201 TO DISK FILTER #2 PNL CP-232
- 21 / C3 — [1"C] [8 #14] FROM BLWR BLDG RTU-PNL-201 TO SEPTAGE STATION CP-281
- 21 / C4 — [2"C] [8 #14] FROM VFD-221 TO SBR CONTROL PANEL CP-211
  [8 #14] FROM VFD-222 TO SBR CONTROL PANEL CP-211
  [8 #14] FROM VFD-223 TO SBR CONTROL PANEL CP-211
- 21 / C3/4 — [2"C] [8 #14] CONDUCTORS OF CIRCUIT 21-C3
  [8 #14], [8 #14], [8 #14] } CONDUCTORS OF CIRCUIT 21-C4
- 22 / C1 — [1"C, 24 #14,] FROM ELEC BLDG RTU-PNL-202 TO INF. PS CONTROL PNL CP-201
- 22 / C2 — [1"C] [8 #14] VFD-201 TO INF. PS CONTROL PNL CP-201
  [8 #14] VFD-202 TO INF. PS CONTROL PNL CP-201
  [8 #14] VFD-203 TO INF. PS CONTROL PNL CP-201
  [8 #14] VFD-204 TO INF. PS CONTROL PNL CP-201
- 22 / C3 — [2"C, 8 #14,] FROM ELEC BLDG RTU-PNL-202 TO REUSE PUMP PANEL CP-242
- 22 / C4 — [1"C] [6 #14 CNTRL] FROM SCC-241 TO RECIRC PUMP CONTROL PANEL
- 22 / C5 — [1"C, 8 #14] FROM REUSE SYSTEM PANEL TO PSL-242 & 243 @ REUSE TANK
- 23 / C1 — [2"C] [8 #14] FROM CP-212 TO HOLDING TANK LEVEL SWITCHES LS-217A & B AND LS-218A & B
- 23 / C1/2 — [2"C] [8 #14] CONDUCTORS OF CIRCUIT 23-C1
  [12 #14] FROM RTU-PNL-203 TO EXISTING FILTRATE PS
- E — [2"C, EMPTY]
- HV — UTILITY PRIMARY CIRCUIT DIRECTLY BURRIED





MATCHLINE "1" (SEE DRAWING 240-E-4 FOR CONTINUATION)

RECORD SET

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3	7/10/02	ADDENDUM NO. 4	NL / NL
2	7/01/02	ADDENDUM NO. 3	NL / NL
1	6/14/02	ADDENDUM NO. 2	NL / NL

0 20 40 60 SCALE IN FEET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	12-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA

ROCKAWAY WWTP
ELECTRICAL SITE PLAN
(AREA 2)

PROJECT NUMBER GA063098

DRAWING NUMBER 240-E-2.3

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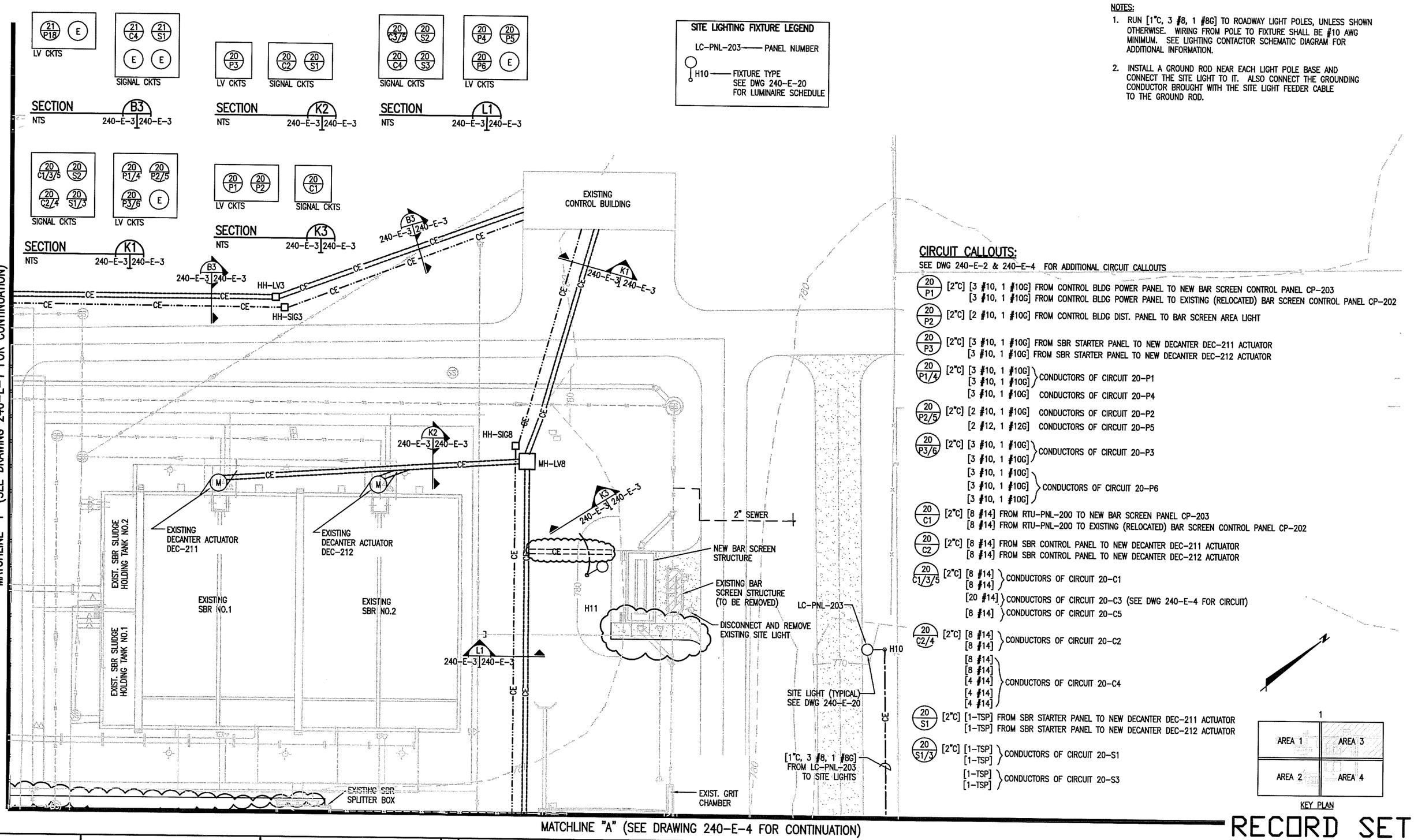
User Name : awhite



SITE LIGHTING FIXTURE LEGEND

LC-PNL-203 —— PANEL NUMBER

H10 —— FIXTURE TYPE
SEE DWG 240-E-20
FOR LUMINAIRE SCHEDULE

NOTES:

1. RUN [1"C, 3 #8, 1 #8G] TO ROADWAY LIGHT POLES, UNLESS SHOWN OTHERWISE. WIRING FROM POLE TO FIXTURE SHALL BE #10 AWG MINIMUM. SEE LIGHTING CONTACTOR SCHEMATIC DIAGRAM FOR ADDITIONAL INFORMATION.
2. INSTALL A GROUND ROD NEAR EACH LIGHT POLE BASE AND CONNECT THE SITE LIGHT TO IT. ALSO CONNECT THE GROUNDING CONDUCTOR BROUGHT WITH THE SITE LIGHT FEEDER CABLE TO THE GROUND ROD.

CIRCUIT CALLOUTS:

SEE DWG 240-E-2 & 240-E-4 FOR ADDITIONAL CIRCUIT CALLOUTS

- (20 P1) [2"C] [3 #10, 1 #10G] FROM CONTROL BLDG POWER PANEL TO NEW BAR SCREEN CONTROL PANEL CP-203
  [3 #10, 1 #10G] FROM CONTROL BLDG POWER PANEL TO EXISTING (RELOCATED) BAR SCREEN CONTROL PANEL CP-202
- (20 P2) [2"C] [2 #10, 1 #10G] FROM CONTROL BLDG DIST. PANEL TO BAR SCREEN AREA LIGHT
- (20 P3) [2"C] [3 #10, 1 #10G] FROM SBR STARTER PANEL TO NEW DECANTER DEC-211 ACTUATOR
  [3 #10, 1 #10G] FROM SBR STARTER PANEL TO NEW DECANTER DEC-212 ACTUATOR
- (20 P1/4) [2"C] [3 #10, 1 #10G], [3 #10, 1 #10G] } CONDUCTORS OF CIRCUIT 20-P1
  [3 #10, 1 #10G] CONDUCTORS OF CIRCUIT 20-P4
- (20 P2/5) [2"C] [2 #10, 1 #10G] CONDUCTORS OF CIRCUIT 20-P2
  [2 #12, 1 #12G] CONDUCTORS OF CIRCUIT 20-P5
- (20 P3/6) [2"C] [3 #10, 1 #10G], [3 #10, 1 #10G] } CONDUCTORS OF CIRCUIT 20-P3
  [3 #10, 1 #10G], [3 #10, 1 #10G], [3 #10, 1 #10G], [3 #10, 1 #10G] } CONDUCTORS OF CIRCUIT 20-P6
- (20 C1) [2"C] [8 #14] FROM RTU-PNL-200 TO NEW BAR SCREEN PANEL CP-203
  [8 #14] FROM RTU-PNL-200 TO EXISTING (RELOCATED) BAR SCREEN CONTROL PANEL CP-202
- (20 C2) [2"C] [8 #14] FROM SBR CONTROL PANEL TO NEW DECANTER DEC-211 ACTUATOR
  [8 #14] FROM SBR CONTROL PANEL TO NEW DECANTER DEC-212 ACTUATOR
- (20 C1/3/5) [2"C] [8 #14], [8 #14] } CONDUCTORS OF CIRCUIT 20-C1
  [20 #14] } CONDUCTORS OF CIRCUIT 20-C3 (SEE DWG 240-E-4 FOR CIRCUIT)
  [8 #14] } CONDUCTORS OF CIRCUIT 20-C5
- (20 C2/4) [2"C] [8 #14], [8 #14] } CONDUCTORS OF CIRCUIT 20-C2
  [8 #14], [8 #14], [4 #14], [4 #14], [4 #14] } CONDUCTORS OF CIRCUIT 20-C4
- (20 S1) [2"C] [1-TSP] FROM SBR STARTER PANEL TO NEW DECANTER DEC-211 ACTUATOR
  [1-TSP] FROM SBR STARTER PANEL TO NEW DECANTER DEC-212 ACTUATOR
- (20 S1/3) [2"C] [1-TSP], [1-TSP] } CONDUCTORS OF CIRCUIT 20-S1
  [1-TSP], [1-TSP] } CONDUCTORS OF CIRCUIT 20-S3

1
AREA 1 | AREA 3
AREA 2 | AREA 4
KEY PLAN

RECORD SET

0 20 40 60
SCALE IN FEET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY	CKD
1	6-24-04	RECORD DRAWING MARKUP	MZ	WW

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	12-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 240-E-3.1

ROCKAWAY WWTP
ELECTRICAL SITE PLAN
(AREA 3)

Acad Version : R16.0s (LMS Tech)
User Name : mzuniga
Date\Time : Wed, 30 Jun 2004 - 2:37pm
Path\Name : G:\WWA\63098\DWG\WWTP Record Drawings\Final Record Drawings\POrotest3.dwg

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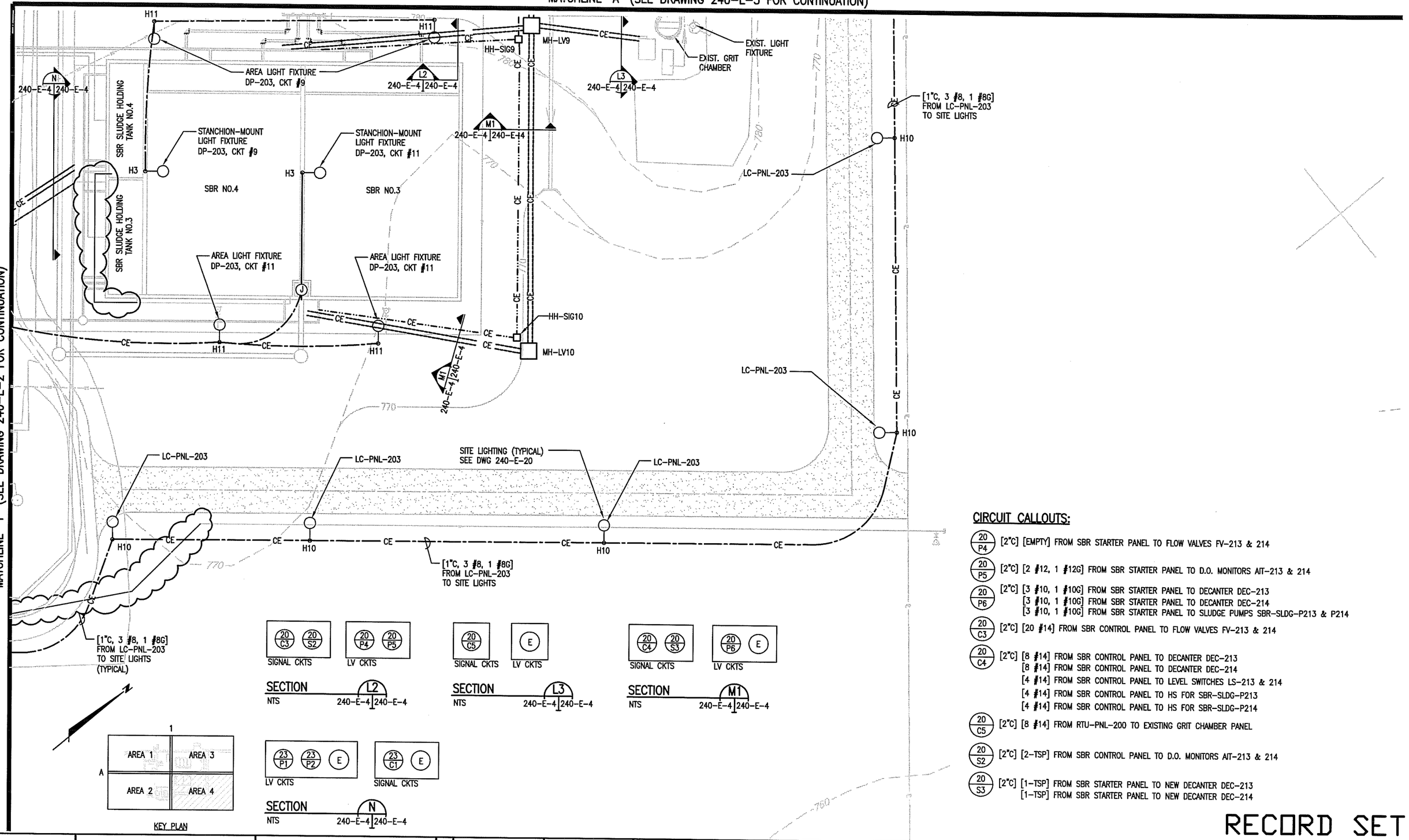
MATCHLINE "A" (SEE DRAWING 240-E-3 FOR CONTINUATION)



SIGNAL CKTS: 20 C3, 20 S2 — LV CKTS: 20 P4, 20 P5

SECTION L2 — NTS — 240-E-4 | 240-E-4

SIGNAL CKTS: 20 C5, E — LV CKTS

SECTION L3 — NTS — 240-E-4 | 240-E-4

SIGNAL CKTS: 20 C4, 20 S3 — LV CKTS: 20 P6, E

SECTION M1 — NTS — 240-E-4 | 240-E-4

LV CKTS: 23 P1, 23 P2, E — SIGNAL CKTS: 23 C1, E

SECTION N — NTS — 240-E-4 | 240-E-4

KEY PLAN

CIRCUIT CALLOUTS:

- (20 / P4) [2"C] [EMPTY] FROM SBR STARTER PANEL TO FLOW VALVES FV-213 & 214
- (20 / P5) [2"C] [2 #12, 1 #12G] FROM SBR STARTER PANEL TO D.O. MONITORS AIT-213 & 214
- (20 / P6) [2"C] [3 #10, 1 #10G] FROM SBR STARTER PANEL TO DECANTER DEC-213
  [3 #10, 1 #10G] FROM SBR STARTER PANEL TO DECANTER DEC-214
  [3 #10, 1 #10G] FROM SBR STARTER PANEL TO SLUDGE PUMPS SBR-SLDG-P213 & P214
- (20 / C3) [2"C] [20 #14] FROM SBR CONTROL PANEL TO FLOW VALVES FV-213 & 214
- (20 / C4) [2"C] [8 #14] FROM SBR CONTROL PANEL TO DECANTER DEC-213
  [8 #14] FROM SBR CONTROL PANEL TO DECANTER DEC-214
  [4 #14] FROM SBR CONTROL PANEL TO LEVEL SWITCHES LS-213 & 214
  [4 #14] FROM SBR CONTROL PANEL TO HS FOR SBR-SLDG-P213
  [4 #14] FROM SBR CONTROL PANEL TO HS FOR SBR-SLDG-P214
- (20 / C5) [2"C] [8 #14] FROM RTU-PNL-200 TO EXISTING GRIT CHAMBER PANEL
- (20 / S2) [2"C] [2-TSP] FROM SBR CONTROL PANEL TO D.O. MONITORS AIT-213 & 214
- (20 / S3) [2"C] [1-TSP] FROM SBR STARTER PANEL TO NEW DECANTER DEC-213
  [1-TSP] FROM SBR STARTER PANEL TO NEW DECANTER DEC-214

RECORD SET

0 20 40 60
SCALE IN FEET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY	CKD
1	6-24-04	RECORD DRAWING MARKUP	MZ	WW

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	12-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA

ROCKAWAY WWTP
ELECTRICAL SITE PLAN
(AREA 4)

PROJECT NUMBER: GA063098

DRAWING NUMBER: 240-E-4.1

Acad Version : R16.0s (LMS Tech) User Name : mzuniga
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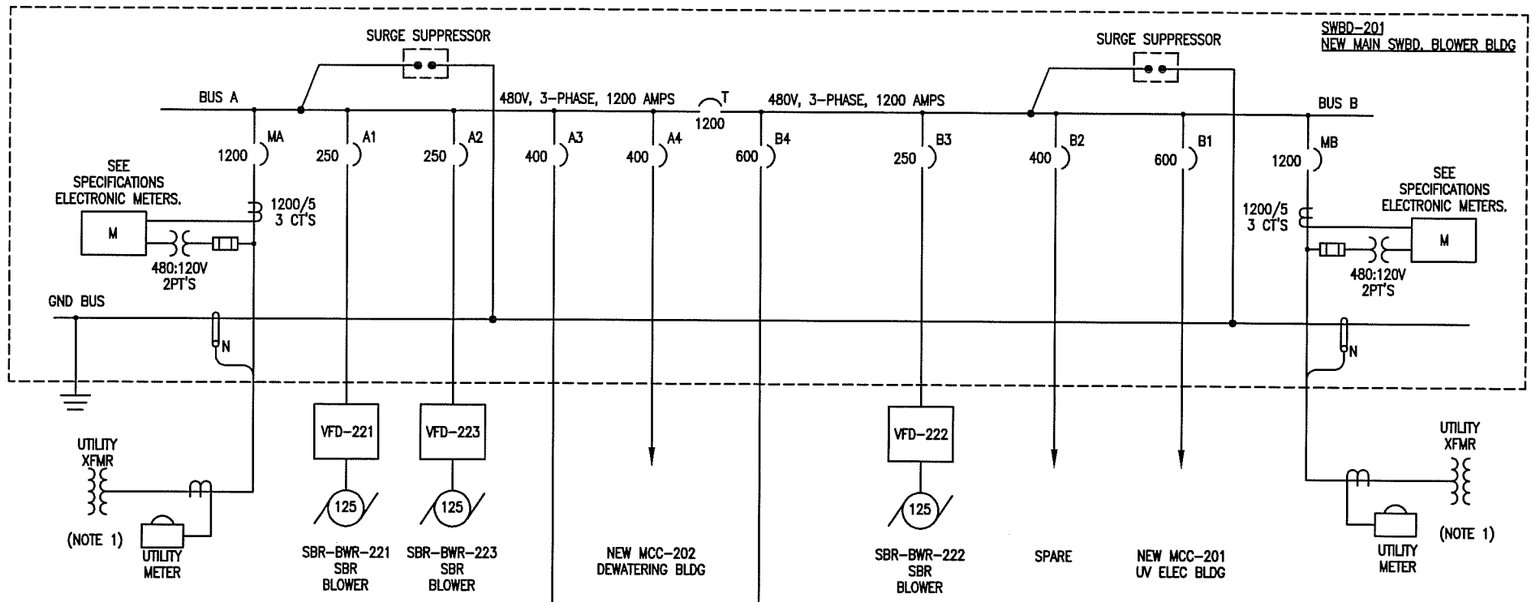
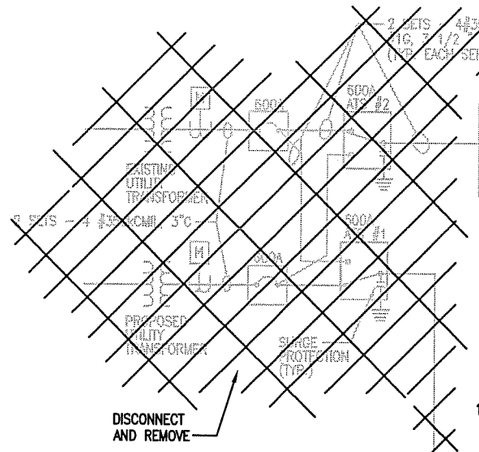
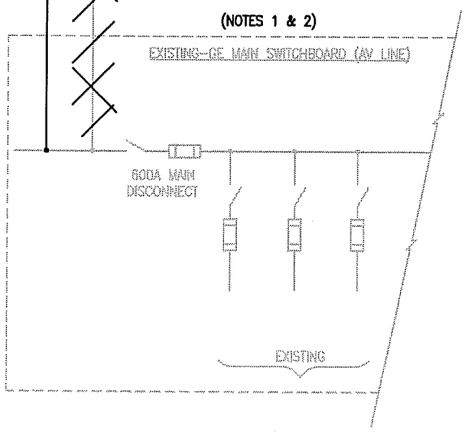
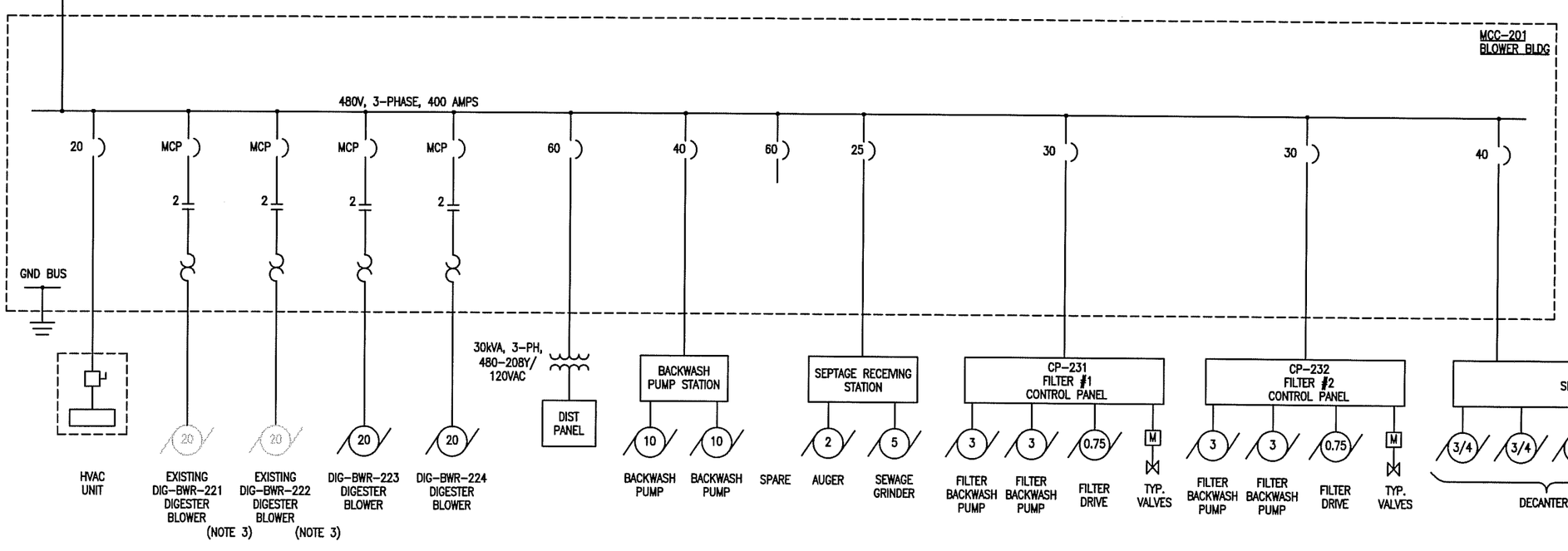




NOTES:

1. DISCONNECT AND REMOVE EXISTING SERVICE ENTRANCE CONDUCTORS FROM EXISTING UTILITY TRANSFORMERS TO THE EXISTING OUTDOOR SERVICE ENTRANCE MAIN BREAKERS. SIMILARLY REMOVE MAIN FEEDER CIRCUITS FROM EXISTING MAIN SERVICE BREAKERS TO EXISTING AUTOMATIC TRANSFER SWITCHES AND TO EXISTING GE SWITCHBOARD AND EXISTING SIEMENS ITE VACU-BREAK SWITCH/WESTINGHOUSE SERIES 2100 MCC LINE-UP.
2. INSTALL NEW CIRCUITS FROM NEW UTILITY TRANSFORMERS TO NEW MAIN SWITCHBOARD SWBD-201 AS SHOWN. RE-POWER EXISTING GE SWITCHBOARD (AV LINE) FROM NEW SWBD-201 AS SHOWN.
3. PROVIDE NEW STARTERS IN MCC-201 FOR EXISTING DIGESTER BLOWERS.





RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY CKD

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
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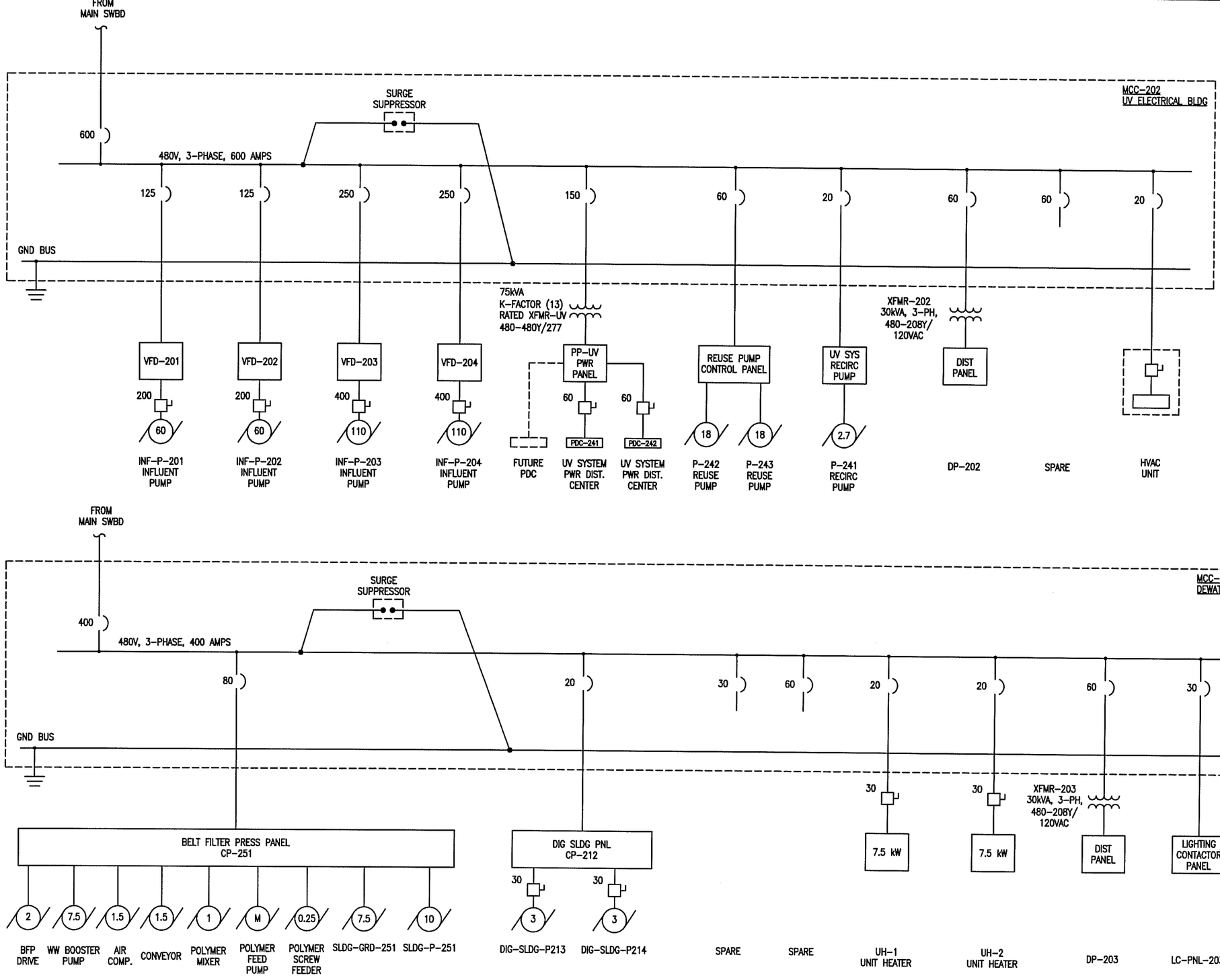
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

ROCKAWAY WWTP
SINGLE LINE DIAGRAM
(1 OF 2)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. MCMILLAN	11-26-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 240-E-5.0



RECORD SET

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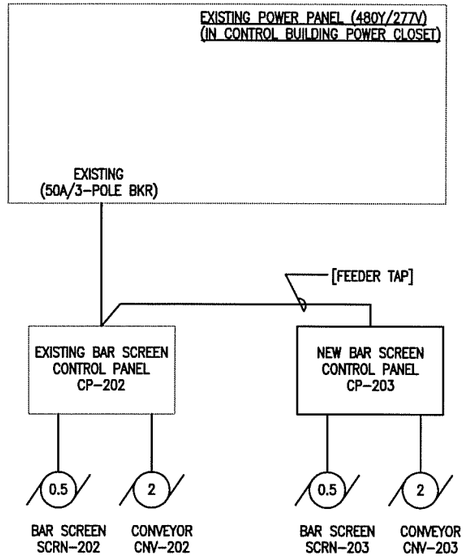
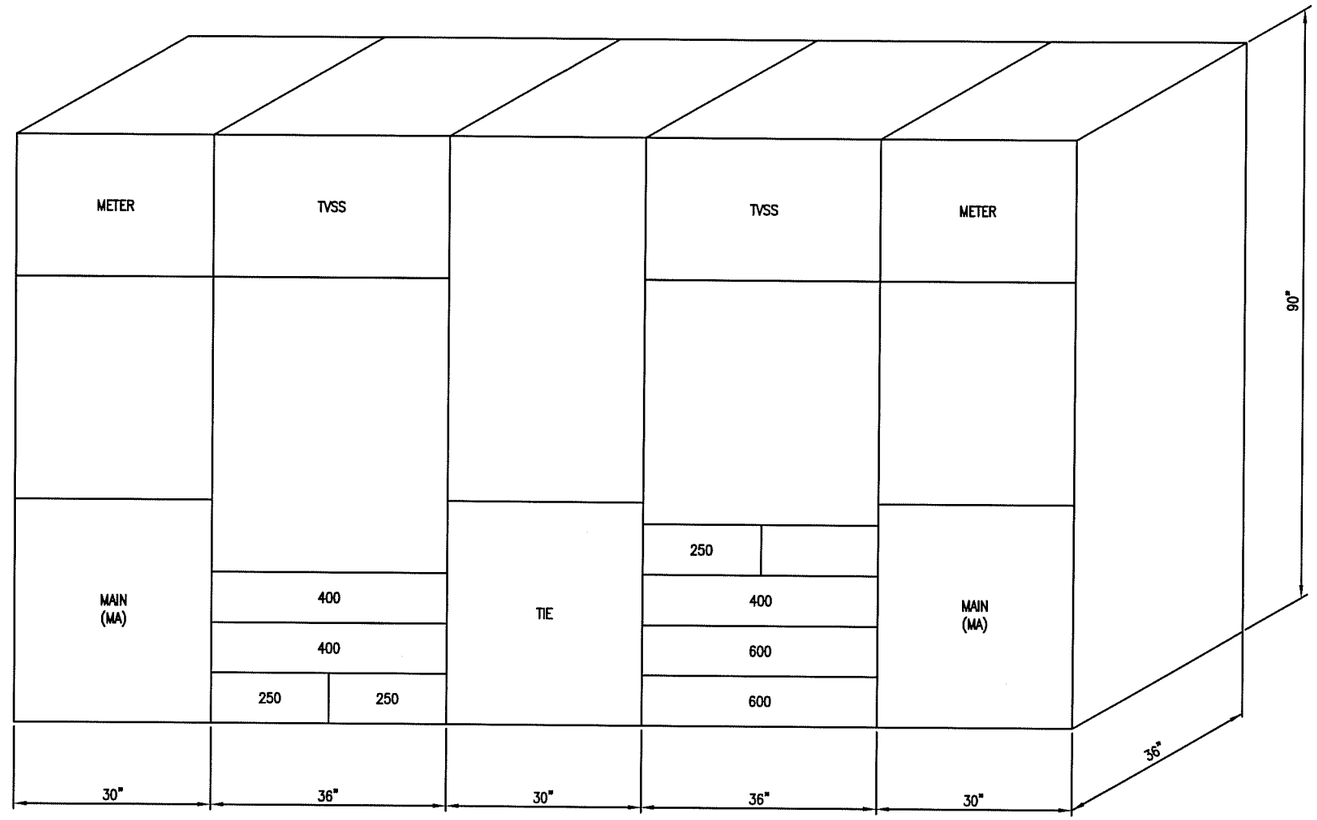
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

ROCKAWAY WWTP
SINGLE LINE DIAGRAM
(2 OF 2)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-26-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 240-E-6.0



BAR SCREEN PARTIAL ONE-LINE DIAGRAM



SWITCHBOARD LAYOUT
SCALE: 1" = 1'-0"

NOTE:

1. RELOCATE EXISTING BAR SCREEN PANEL AND INSTALL NEW CIRCUIT CONDUCTORS AS SHOWN ON THE DRAWINGS.

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY CKD

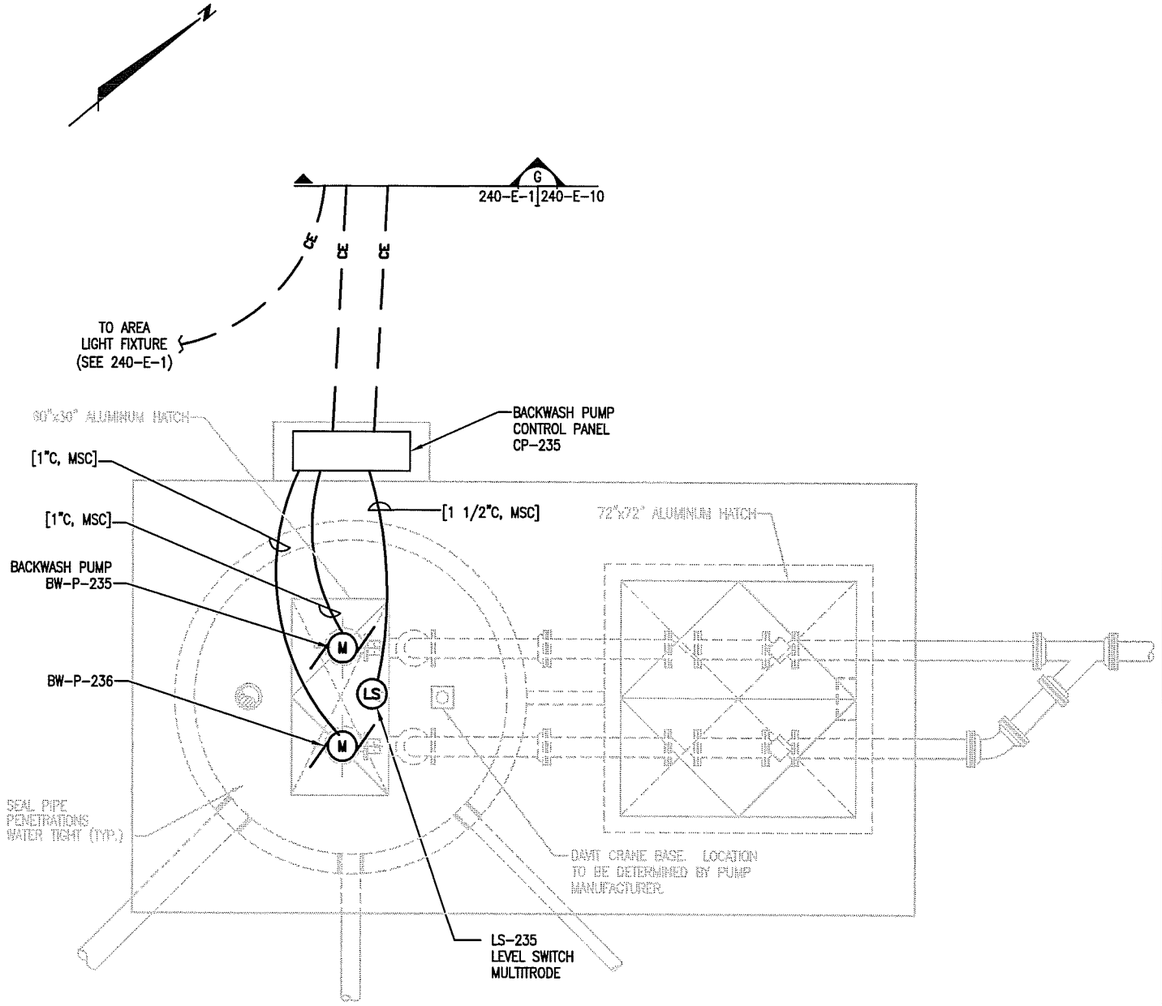
GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3789
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

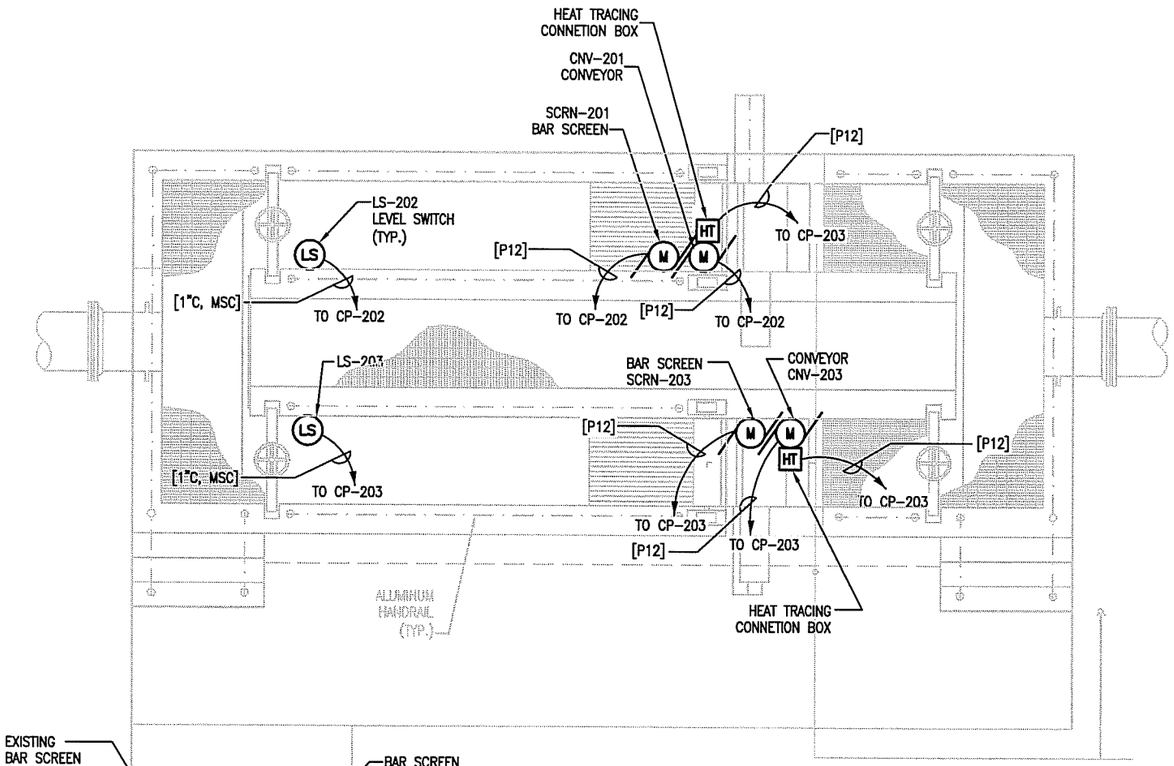
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	02-05-02	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		N. LIMA	N. LIMA
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	240-E-7.0

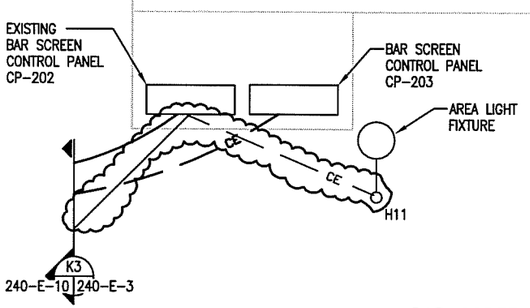
ROCKAWAY WWTP
PARTIAL ONE-LINE DIAGRAM AND SWITCHBOARD LAYOUT



BACKWASH PUMP STATION ELECTRICAL PLAN

SCALE: 1/2" = 1'-0"





BAR SCREEN ELECTRICAL PLAN

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

CIRCUIT CALLOUTS

[P12] = [¾"C, 3#12, 1#12G]

NOTE:

1. RELOCATE EXISTING BAR SCREEN CONTROL PANEL AND INSTALL NEW CONDUITS AND CONDUCTORS AS SHOWN.
2. THE SPACE WITHIN A 10 FT ENVELOPE OF THE OPEN CHANNEL OF THE BAR SCREEN STRUCTURE IS HAZARDOUS CLASS I, DIVISION 2, GROUP D PER NFPA-820. PROVIDE MATERIALS AND METHODS IN ACCORDANCE WITH THE NEC.
3. FIELD ROUTE THE HOME-RUN CIRCUITS SHOWN TO BAR SCREEN CONTROL PANELS. PROVIDE JUNCTION BOXES AS REQUIRED TO TRANSITION EXPOSED CONDUITS AT THE BAR SCREEN EQUIPMENT TO UNDERGROUND CONDUITS AT THE CONTROL PANELS. EXPOSED CONDUITS AT THE BAR SCREEN EQUIPMENT SHALL BE ROUTED IN A MANNER TO AVOID TRIPPING HAZARDS.

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : mzuniga

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NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	6-24-04	RECORD DRAWING MARKUP	MZ / WW

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
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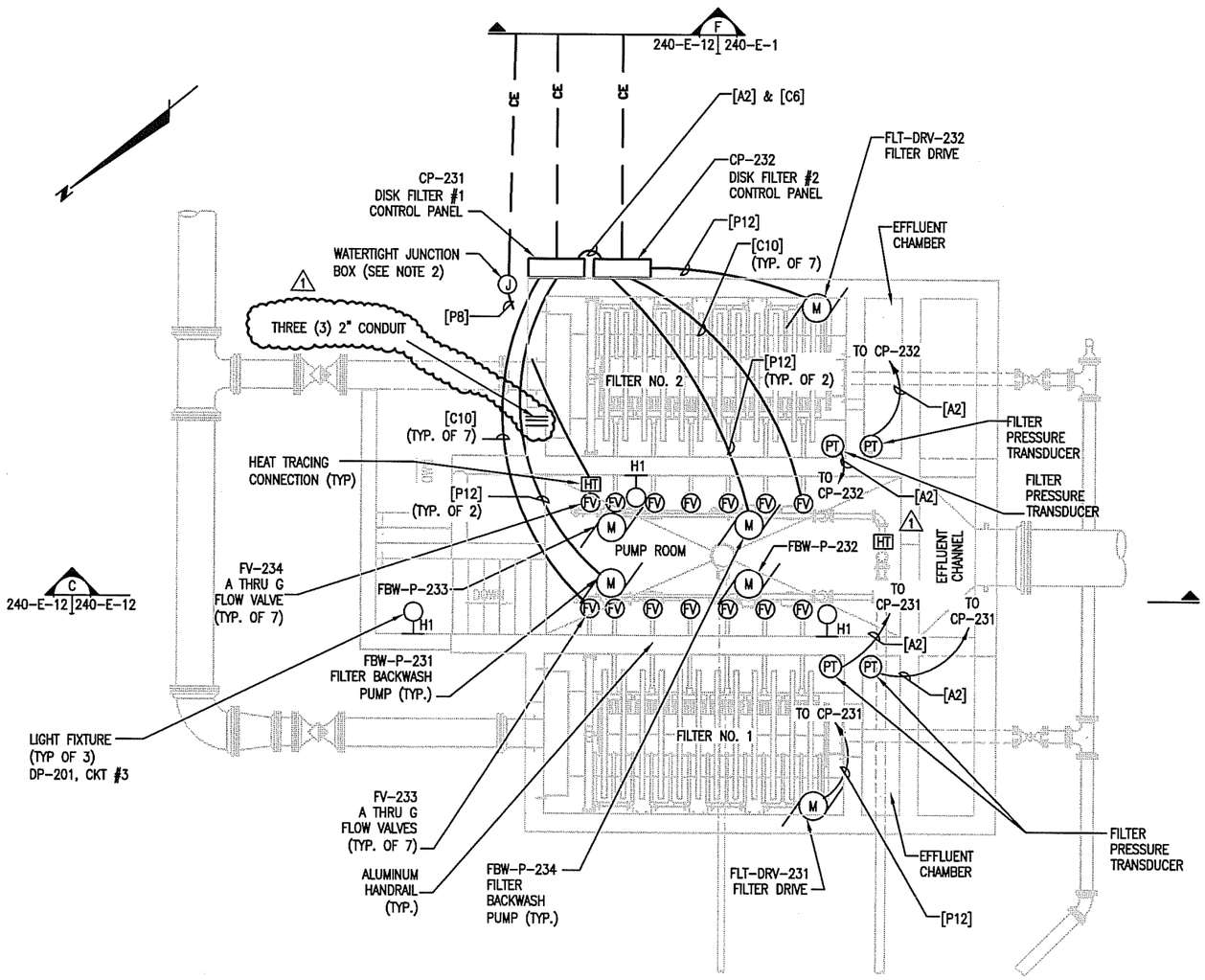
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	02-05-02	W. WELCH	S. HENNESSEY

ROCKAWAY WWTP
BACKWASH PUMP STATION
AND BAR SCREEN
ELECTRICAL PLANS

LEAD DESIGN PROF.	CHECKED
N. LIMA	N. LIMA
PROJECT NUMBER	DRAWING NUMBER
GA063098	240-E-10.1



DISK FILTER ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

NOTE:

1. EXTEND ELECTRICAL CIRCUIT FROM TYPE H11 LIGHT POLE FIXTURE TO THREE TYPE H1 WALL FIXTURES. SEE SITE PLAN DWG 240-E-1.
2. PROVIDE AN ELECTRICAL JUNCTION BOX AND UTILIZE IT TO EXTEND THE 120V AC CIRCUIT TO THE HEAT TRACING POWER CONNECTION BOX(ES) FURNISHED BY THE HEAT TRACING SYSTEM SUPPLIER AS REQUIRED. COORDINATE WITH THE SYSTEM SUPPLIER FOR EXACT LOCATION AND NUMBER OF CONNECTION BOXES. REFER TO MECHANICAL DRAWINGS FOR INFORMATION ON THE PIPING TO BE HEAT TRACED.

CIRCUIT CALLOUTS

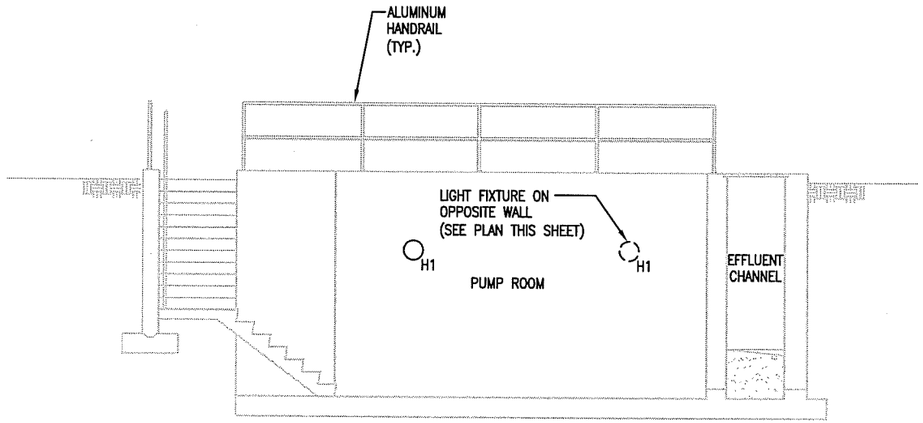
[A2] = [1"C, 2-TSP]

[C6] = [1"C, 6 #14]

[C10] = [1"C, 10 #14]

1 [P8] = [1"C, 2 #8, 1 #8G]

[P12] = [1"C, 3 #12, 1 #12G]



SECTION C
SCALE: 1/4"=1'-0" 240-E-12 | 240-E-12

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/24/04	RECORD DRAWING MARKUP	MZ / WW
1	7/10/02	ADDENDUM NO. 4	NL / NL

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	02-05-02	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA

ROCKAWAY WWTP
DISK FILTER
ELECTRICAL
PLAN AND SECTION

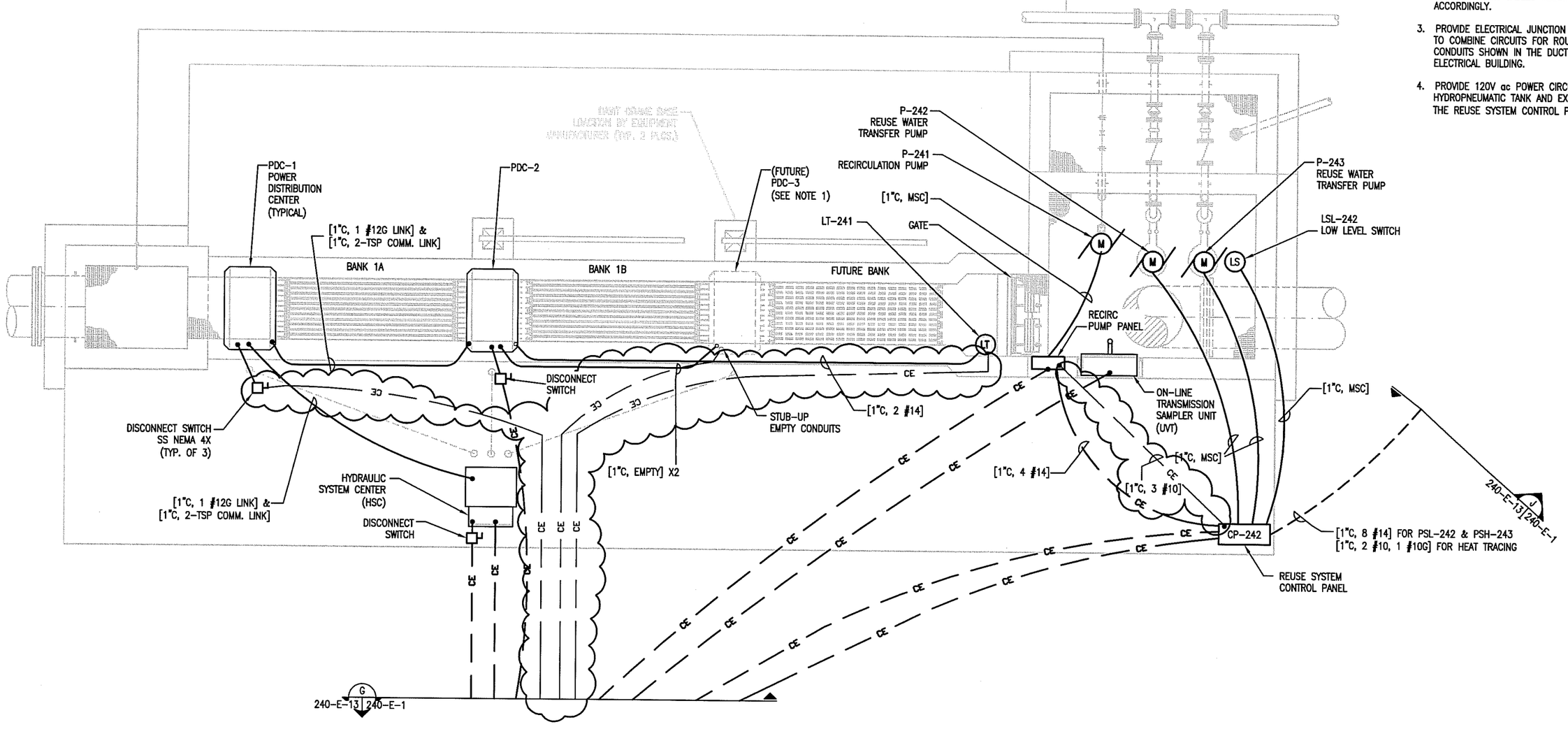
PROJECT NUMBER GA063098

DRAWING NUMBER 240-E-12.2

Acad Version : R16.0s (LMS Tech)
User Name : mzuniga
Date\Time : Wed, 30 Jun 2004 - 3:21pm
Path\Name : G:\WWA\63098\DWG\WWTP Record Drawings\Final Record Drawings\PCaadfe1.dwg

NOTES:

1. STUB-UP EMPTY CONDUIT FOR FUTURE POWER DISTRIBUTION CENTER PDC-3.
2. UV SYSTEM CIRCUITS ARE SHOWN AS A GUIDE. REFER TO UV SYSTEM SUPPLIER'S SHOP DRAWINGS FOR EXACT NUMBER AND TYPE OF CONTROL AND COMMUNICATION CABLES REQUIRED, AND PROVIDE ACCORDINGLY.
3. PROVIDE ELECTRICAL JUNCTION BOXES AS REQUIRED TO COMBINE CIRCUITS FOR ROUTING THROUGH COMMON CONDUITS SHOWN IN THE DUCTBANK TO THE UV ELECTRICAL BUILDING.
4. PROVIDE 120V ac POWER CIRCUIT FOR HEAT TRACING OF HYDROPNEUMATIC TANK AND EXPOSED REUSE PIPING FROM THE REUSE SYSTEM CONTROL PANEL (CP-242).



UV DISINFECTION SYSTEM
ELECTRICAL PLAN
SCALE: 3/8" = 1'-0"

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	6/24/04	RECORD DRAWING MARKUP	MZ / WW

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GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M of North Carolina, Inc.
[redacted] NC 27607-3368
Tel: [redacted] Fax: [redacted]

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

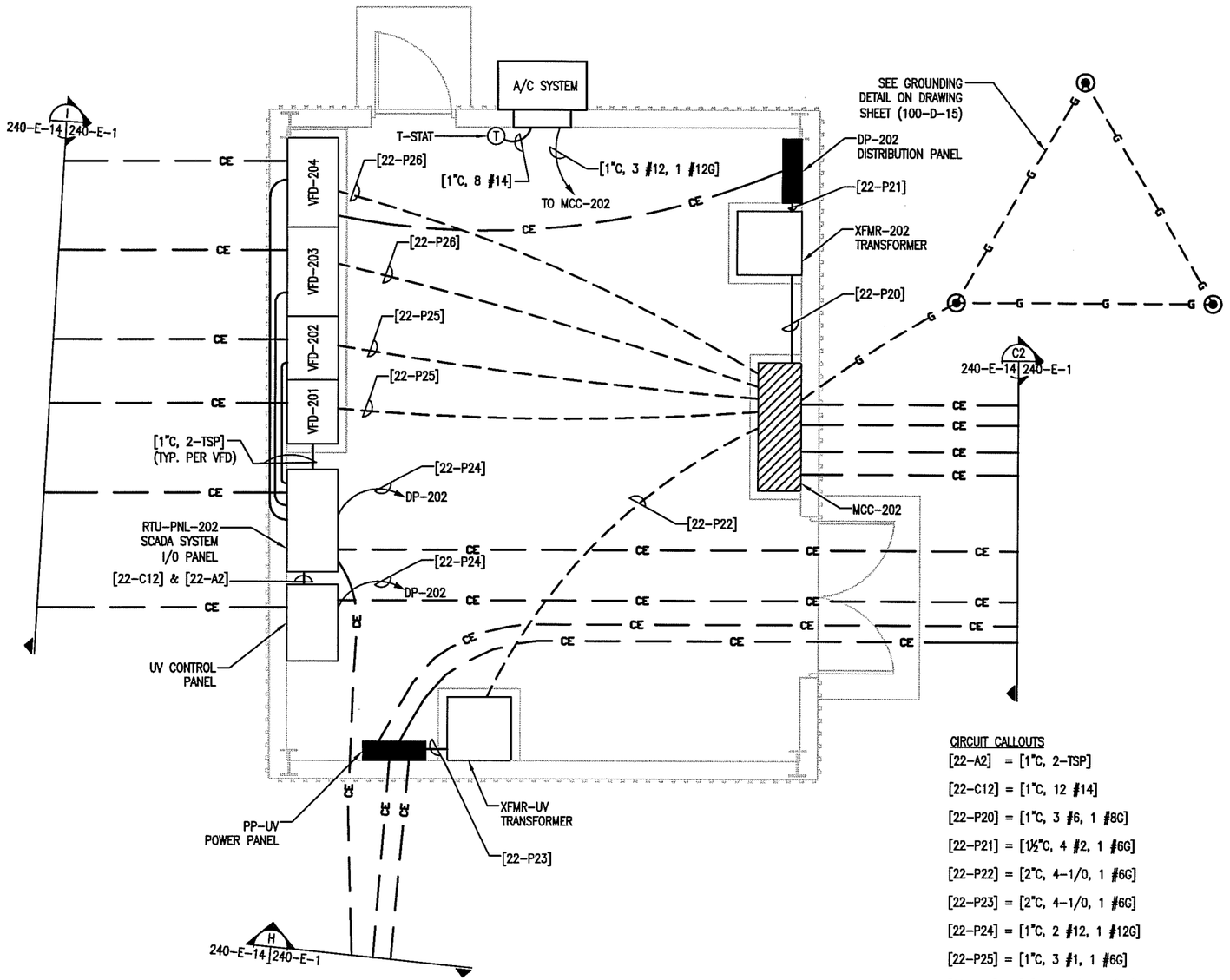
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	02-05-02	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA

ROCKAWAY WWTP
UV DISINFECTION SYSTEM
ELECTRICAL
PLAN

PROJECT NUMBER	DRAWING NUMBER
GA063098	240-E-13.1

Acad Version : R16.0s (LMS Tech)
User Name : mzungo
Date\Time : Wed, 30 Jun 2004 - 3:34pm
Path\Name : G:\WWA\GA3098\DWG\WWTP Record Drawings\Final Record Drawings\PDraw1e1.dwg

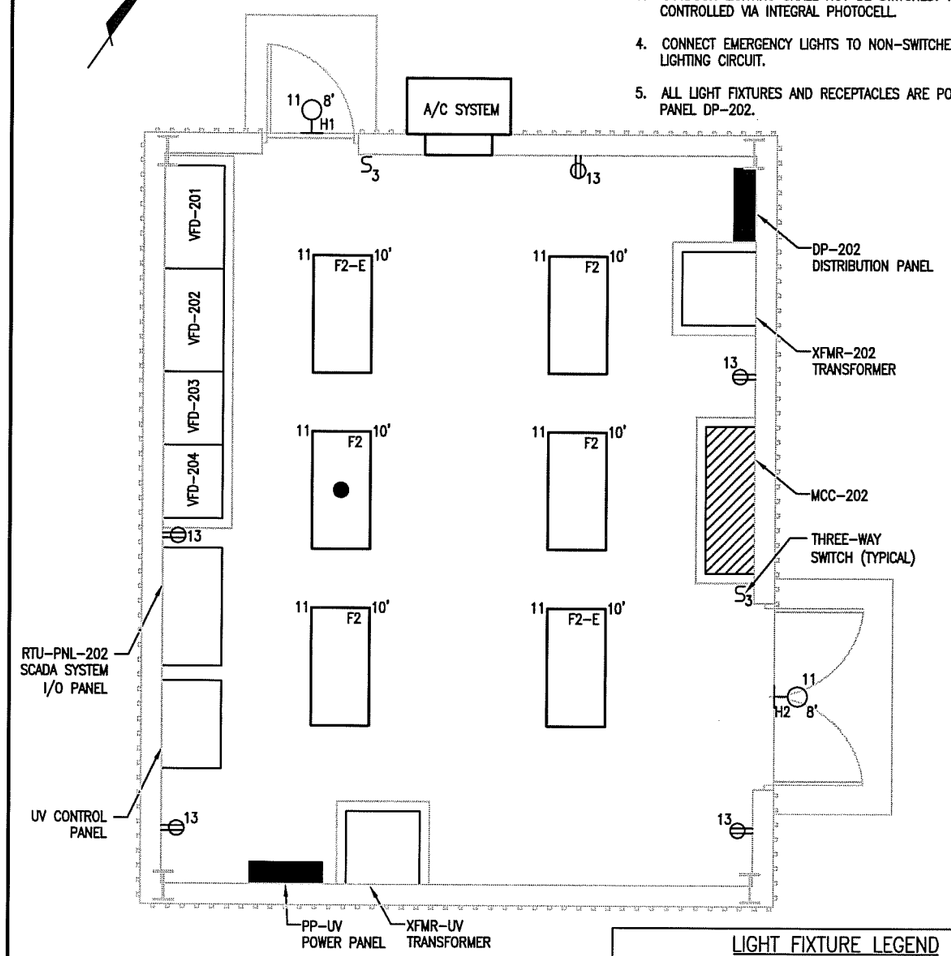
NOTE:
1. REFER TO PANEL SCHEDULES DWG 240-E-21 AND PROVIDE ALL BRANCH CIRCUITS.



ELECTRICAL BUILDING POWER PLAN
SCALE: 3/8" = 1'-0"

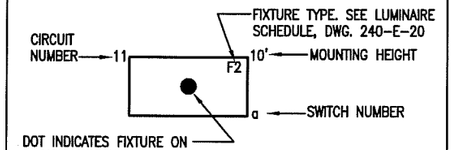
CIRCUIT CALLOUTS
[22-A2] = [1"C, 2-TSP]
[22-C12] = [1"C, 12 #14]
[22-P20] = [1"C, 3 #6, 1 #8G]
[22-P21] = [1½"C, 4 #2, 1 #6G]
[22-P22] = [2"C, 4-1/0, 1 #6G]
[22-P23] = [2"C, 4-1/0, 1 #6G]
[22-P24] = [1"C, 2 #12, 1 #12G]
[22-P25] = [1"C, 3 #1, 1 #6G]
[22-P26] = [2"C, 3-4/0, 1 #4G]

LIGHTING NOTES:
1. CONDUIT AND CABLE FOR LIGHTING AND RECEPTACLES ARE NOT SHOWN ON THE PLAN. PROVIDE CONDUITS (3/4-INCH MIN.) AND CONDUCTORS (#12 AWG) AS REQUIRED.
2. CONDUCTORS FOR LIGHTING SWITCH LEG AND CONDUCTORS BETWEEN ALL LIGHTING FIXTURES SHALL BE THE SAME SIZE AS LIGHTING FIXTURE HOMERUN CIRCUIT CONDUCTOR.
3. OUTDOOR LIGHTING SHALL NOT BE SWITCHED. THEY SHALL BE CONTROLLED VIA INTEGRAL PHOTOCELL.
4. CONNECT EMERGENCY LIGHTS TO NON-SWITCHED LEG OF LIGHTING CIRCUIT.
5. ALL LIGHT FIXTURES AND RECEPTACLES ARE POWERED FROM PANEL DP-202.



ELECTRICAL BUILDING LIGHTING PLAN
SCALE: 3/8" = 1'-0"

LIGHT FIXTURE LEGEND



NOTES:
1. FIXTURES WITH SELF CONTAINED EMERGENCY POWER PACK ARE SHOWN WITH SUFFIX E. POWER PACK WILL ENERGIZE ON POWER FAILURE.

RECORD SET

Date\Time : Tue, 06 Jul 2004 - 11:25am
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Acad Version : R16.0s (LMS Tech)
User Name : ehmills

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NO.	DATE	REVISION DESCRIPTION	BY / CKD

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	02-06-02	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		N. LIMA	N. LIMA
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	240-E-14.0

ROCKAWAY WWTP
ELECTRICAL BUILDING
POWER AND
LIGHTING PLANS

PANEL DP-201 LOCATION BLOWER BLDG. MAINS 110 ENCLOSURE NEMA TYPE 1 CABINET MTG SURFACE

VOLTS 208Y/120 , PHASE: 3 , WIRE: 4 60 HZ MIN. INTERRUPTING RATING 22kA AMPERES

LOAD SERVED	LOAD (KVA) A	B	C	BREAKER AMP	POLE	BRANCH CIRCUIT CONDUIT & WIRING	CKT	O	CKT	BRANCH CIRCUIT CONDUIT & WIRING	BREAKER POLE	AMP	LOAD (KVA) A	B	C	LOAD SERVED
SEPTAGE STATION AREA LIGHTS	1.7			20	1	1"C, 2#10, 1#10G	1	A	2	1"C, 2#10, 1#10G	1	20	1.1			B/W PS AREA LIGHTS
FILTERS AREA LIGHTS		1.5		20	1	1"C, 2#10, 1#10G	3	B	4	1"C, 2#12, 1#12G	1	20		0.9		BLOWER ELECTRICAL ROOM LIGHTS
BLOWER ELECTRICAL ROOM RECPTACLES			1.7	20	1	1"C, 2#12, 1#12G	5	C	6	1"C, 2#12, 1#12G	1	20			1.1	RTU-PNL-201
BLOWER RM EXP. LIGHTS	0			20	1	1"C, 2#12, 1#12G	7	A	8	1"C, 2#12, 1#12G	1	20	0			BLOWER RM EXP. RECEPT
EXISTING SBR I/O CABINET **		0.5		20	1	1"C, 2#12, 1#12G	9	B	10	1 1/2"C, 3#4 1#8G	2	60		5		EXISTING DECHLORINATION BUILDING
EXISTING D.O. MONITORS 1&2 **			0.5	20	1	1"C, 2#12, 1#12G	11	C	12						5	PANEL LP **
EXISTING D.O. MONITORS 3&4 **	0.5			20	1	1"C, 2#12, 1#12G	13	A	14	1"C, 2#12, 1#12G	1	20	0			EXISTING D.O. MONITORS 5&6 **
SPARE		0		20	1		15	B	16	1"C, 2#12, 1#12G	1	20		0.5		EXISTING D.O. MONITORS 7&8 **
SPARE			0	20	1		17	C	18		1	20			0	SPARE
SPARE	0			20	1		19	A	20		1	20	0			SPARE
SPARE		0		20	1		21	B	22		1	20		0		SPARE
			0				23	C	24	2#8, 1#8G	1	30			0	FILTERS AREA HEAT TRACING*** ⚠1
	0						25	A	26				0			
		0					27	B	28					0		
			0				29	C	30						0	
	0						31	A	32				0			
		0					33	B	34					0		
			0				35	C	36						0	
	0						37	A	38				0			
		0					39	B	40					0		
			0				41	C	42						0	

CONNECTED PHASE A:	0
CONNECTED PHASE B:	0
CONNECTED PHASE C:	0
TOTAL KVA	0

** INDICATES EXISTING CIRCUITS IN PANEL LC TO BE REPOWERED FROM THIS PANEL

*** PROVIDE GFI BREAKER (WITH 30MA SENSITIVITY) FOR HEAT TRACING CIRCUITS. ⚠1

PANEL DP-202 LOCATION UV ELEC. BLDG. MAINS 110 ENCLOSURE NEMA TYPE 1 CABINET MTG SURFACE

VOLTS 208Y/120 , PHASE: 3 , WIRE: 4 60 HZ MIN. INTERRUPTING RATING 22kA AMPERES

LOAD SERVED	LOAD (KVA) A	B	C	BREAKER AMP	POLE	BRANCH CIRCUIT CONDUIT & WIRING	CKT	O	CKT	BRANCH CIRCUIT CONDUIT & WIRING	BREAKER POLE	AMP	LOAD (KVA) A	B	C	LOAD SERVED
INFLUENT PUMP STATION AREA LIGHTS	0			20	1	1"C, 2#10 1#10G	1	A	2	1"C, 2#12, 1#12G	1	20	0			INFLUENT P.S. CONTROL PNL CP-201
PARSHALL MTR FLUME FIT-261		0		20	1	1"C, 2#12, 1#12G	3	B	4	1"C, 2#10, 1#10G	1	20		0		PARSHALL FLUME AREA LIGHTS
UV SYSTEM, HSC			0	30	1	1"C, 2#10 1#10G	5	C	6	1"C, 2#12, 1#12G	1	20			0	UV SYSTEM, LIT-241
UV SYSTEM, UVT SAMPLER	0			20	1	1"C, 2#12, 1#12G	7	A	8	1"C, 2#12, 1#12G	1	20	0			RTU-PNL-202
SPARE		0		20	1		9	B	10	1"C, 2#12, 1#12G	1	20		0		UV SYS CONTROL CENTER CP-241
UV ELECTRICAL BLDG. LIGHTS			0	20	1	1"C, 2#12, 1#12G	11	C	12		1	20			0	SPARE
UV ELECTRICAL BLDG. RECPTACLES	0			20	1	1"C, 2#12, 1#12G	13	A	14		1	20	0			SPARE
SPARE		0		20	1		15	B	16		1	20		0		SPARE
SPARE			0	20	1		17	C	18		1	20			0	SPARE
SPARE	0			20	1		19	A	20		1	20	0			SPARE
		0					21	B	22					0		
			0				23	C	24						0	
	0						25	A	26				0			
		0					27	B	28					0		
			0				29	C	30						0	
	0						31	A	32				0			
		0					33	B	34					0		
			0				35	C	36						0	
	0						37	A	38				0			
		0					39	B	40					0		
			0				41	C	42						0	

CONNECTED PHASE A:	0
CONNECTED PHASE B:	0
CONNECTED PHASE C:	0
TOTAL KVA	0

PANEL DP-203 LOCATION SOLIDS BLDG. MAINS 110 ENCLOSURE NEMA TYPE 1 CABINET MTG SURFACE

VOLTS 208Y/120 , PHASE: 3 , WIRE: 4 60 HZ MIN. INTERRUPTING RATING 22kA AMPERES

LOAD SERVED	LOAD (KVA) A	B	C	BREAKER AMP	POLE	BRANCH CIRCUIT CONDUIT & WIRING	CKT	O	CKT	BRANCH CIRCUIT CONDUIT & WIRING	BREAKER POLE	AMP	LOAD (KVA) A	B	C	LOAD SERVED
RTU-PNL-203	0			20	1	1"C, 2#12, 1#12G	1	A	2	1"C, 2#12, 1#12G	1	20	0			FIT-251
EF-1 (1/2 HP)		0		20	1	1"C, 2#12, 1#12G	3	B	4	1"C, 2#12, 1#12G	1	20		0		BLDG OUTDOOR LIGHTS
PROCESS ROOM LIGHTS			0	20	1	1"C, 2#12, 1#12G	5	C	6	1"C, 2#12, 1#12G	1	20			0	ELEC RM LIGHTS AND RECEPTACLES
PROCESS ROOM RECEPTACLES	0			20	1	1"C, 2#12, 1#12G	7	A	8	1"C, 2#10, 1#10G	1	20	0			SITE LIGHTING
SBR AREA LIGHTS & RECEPTACLES		0		20	1	1"C, 2#10, 1#10G	9	B	10	#	1	20		0		SPARE
SBR AREA LIGHTS & RECEPTACLES			0	20	1	1"C, 2#10, 1#10G	11	C	12		1	20			0	SPARE
SPARE	0			20	1		13	A	14		1	20	0			SPARE
SPARE		0		20	1		15	B	16		1	20		0		SPARE
SPARE			0	20	1		17	C	18		1	20			0	SPARE
	0						19	A	20				0			
		0					21	B	22					0		
			0				23	C	24						0	
	0						25	A	26				0			
		0					27	B	28					0		
			0				29	C	30						0	
	0						31	A	32				0			
		0					33	B	34					0		
			0				35	C	36						0	
	0						37	A	38				0			
		0					39	B	40					0		
			0				41	C	42						0	

CONNECTED PHASE A:	0
CONNECTED PHASE B:	0
CONNECTED PHASE C:	0
TOTAL KVA	0

PANEL PP-UV LOCATION UV ELEC. BLDG. MAINS 150 ENCLOSURE NEMA TYPE 1 CABINET MTG SURFACE

VOLTS 480Y/277 , PHASE: 3 , WIRE: 4 60 HZ MIN. INTERRUPTING RATING 42kA AMPERES

LOAD SERVED	LOAD (KVA) A	B	C	BREAKER AMP	POLE	BRANCH CIRCUIT CONDUIT & WIRING	CKT	O	CKT	BRANCH CIRCUIT CONDUIT & WIRING	BREAKER POLE	AMP	LOAD (KVA) A	B	C	LOAD SERVED
PDC-241	8.3			50	3	1"C, 4#6, 1#6G	1	A	2	1"C, 4#6, 1#6G	3	50	8.3			PDC-242
		8.3						B						8.3		
			8.3					C							8.3	
SPACE	0						7	A	8		3	50	0			SPARE
		0						B						0		
			0					C							0	
SPACE	0						13	A	14				0			SPACE
		0						B						0		
			0					C							0	
SPACE	0						19	A	20				0			SPACE
		0						B						0		
			0					C							0	
SPACE	0						25	A	26				0			SPACE
		0						B						0		
			0					C							0	

CONNECTED PHASE A:	16.6
CONNECTED PHASE B:	16.6
CONNECTED PHASE C:	16.6
TOTAL KVA	50

RECORD SET

Data\Time : Tue, 08 Jun 2004 - 10:13am
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Acad Version : R16.0s (LMS Tech)
User Name : alwhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY
⚠1	7/10/02	ADDENDUM NO. 4	NL

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

ROCKAWAY WWTP
PANEL
SCHEDULES

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	02-05-02	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 240-E-21.1

SCADA

RTU PANEL
RTU-PNL-201

PLC

RTU PANEL
RTU-PNL-202

FI

PLC

CONTROL PANELS

FILTER DRIVE ON, BACKWASH IN PROGRESS — FILTER NO.1 COMMON ALARM

FILTER DRIVE ON, BACKWASH IN PROGRESS — FILTER NO.2 COMMON ALARM

PUMP NO.1 ON, PUMP NO.2 ON — COMMON ALARM

POWER SOURCE NO.1 FAIL, POWER SOURCE NO.2 FAIL

FROM MAIN SWITCHBOARD

MAJOR ALARM — MINOR ALARM — FLOW

SYSTEM ON

PUMP ON — COMMON ALARM

DISK FILTER NO.1
CONTROL PANEL
CP-231 **

DISK FILTER NO.2
CONTROL PANEL
CP-232 **

SYSTEM INTERLOCK

BACKWASH PUMP STATION
CONTROL PANEL
CP-235 **

UV SYSTEM
CONTROL CENTER
CP-241 **

REUSE SYSTEM
CONTROL PANEL
CP-242 **

FIELD

LOW LVL (STOP RECIRC. PMP)

STOP PUMP

START PUMP

RECIRCULATION PUMP PANEL **

REUSE HYDROPNEUMATIC TANK

LOW LVL (INTERLOCK TO STOP PUMPS)

PSH 243

PSL 242

P-242 REUSE PUMP

P-243 REUSE PUMP

POWER DISTRIBUTION CENTER (TYP. 2)

LOW LEVEL SENSOR

FIT 261

PUMP PIT

FLT-DRV-231
FILTER DRIVE

FLT-DRV-232
FILTER DRIVE

FILTER NO.1

FILTER NO.2

FV 233B
BACKWASH VALVE (TYP. 6) B THRU G

FBW-P-231

FILTER BACKWASH PUMP (TYP. 4) P-231 THRU P-234

FV 234B
BACKWASH VALVE (TYP. 6) B THRU G

FV 231
INFLUENT VALVE

FV 233A
SLUDGE VALVE

FROM SBR'S

FV 234A
SLUDGE VALVE

FV 232
INFLUENT VALVE

TO INFLUENT PUMP STATION

FILTRATION SYSTEM

LS 235A-D
LEVEL SWITCHES

BACKWASH PUMP (TYP. 2)
BW-P-235

BW-P-236

BACKWASH PUMP STATION

TO SBR SPLITTER BOX 250-I-2 (I)

PDC-1 — PDC-2

FLOW

UV MODULE (BANK 1) — UV MODULE (BANK 2) — FUTURE UV MODULE

LIT 241

LS 242

P-241 RECIRCULATION PUMP

UV DISINFECTION SYSTEM

FE 261

NEW EFFLUENT PARSHALL METERING FLUME

TO OUTFALL IN LINE CREEK

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : ewhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY CKD

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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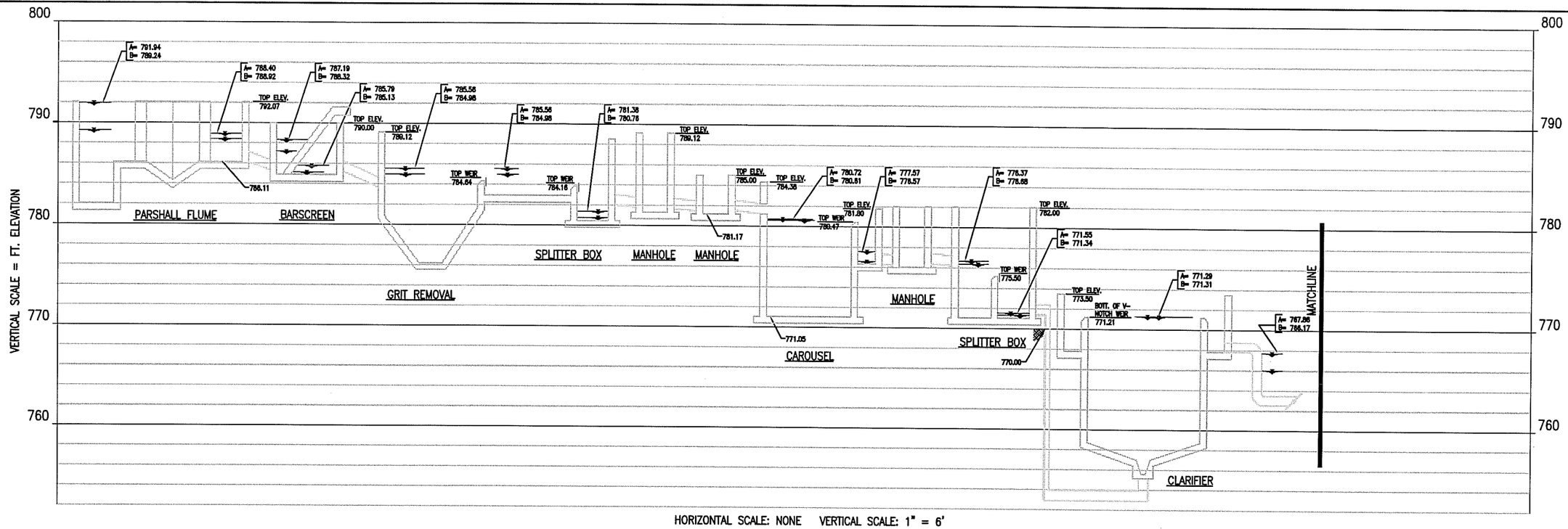
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-3-01	W. WELCH	S. HENNESSEY

ROCKAWAY WWTP
P&I DIAGRAM
FILTRATION/DISINFECTION/
EFFLUENT METERING

LEAD DESIGN PROF.	CHECKED
N. LIMA / S. HENNESSEY	N. LIMA

PROJECT NUMBER	DRAWING NUMBER
GA063098	250-I-3.0



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IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
A	06/16/01	ISSUED FOR OWNER REVIEW	HRL / MS

GEORGIA REGISTERED No. 27297 PROFESSIONAL A. WAYNE WELCH ENGINEER

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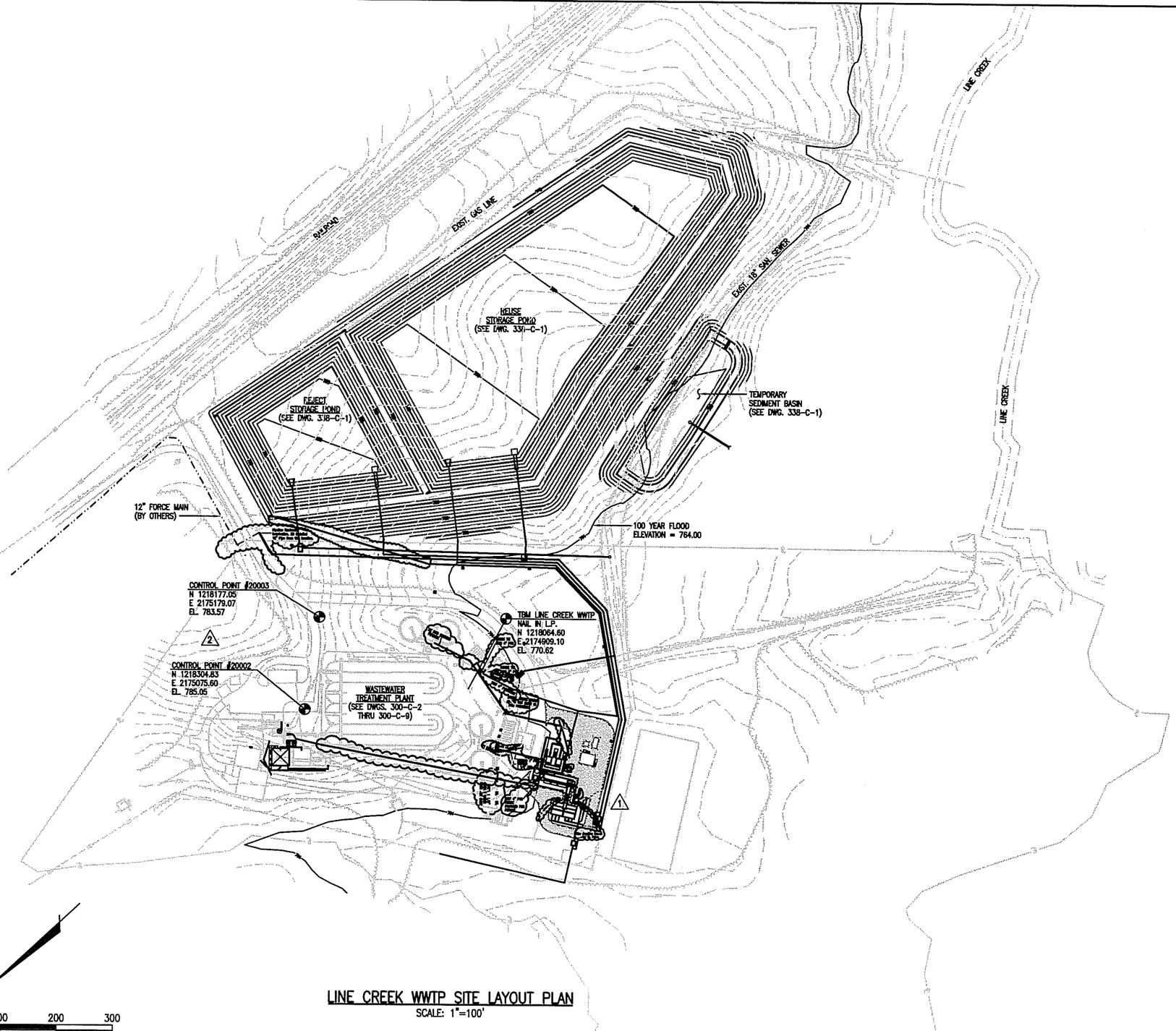
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
HYDRAULIC PROFILE

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E.WHITE	FEB 2002	W.WELCH	S.HENNESSEY
		LEAD DESIGN PROF. R.TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 300-G-1.0



LINE CREEK WWTP SITE LAYOUT PLAN

SCALE: 1"=100'

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
3	6/24/04	RECORD DRAWING MARKUP	MZ / WW
2	3/7/03	ADDED CONTROL POINTS	ELW / WW
1	6/17/02	ADDENDUM NO. 3	WSH / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL A. WAYNE WELCH ENGINEER

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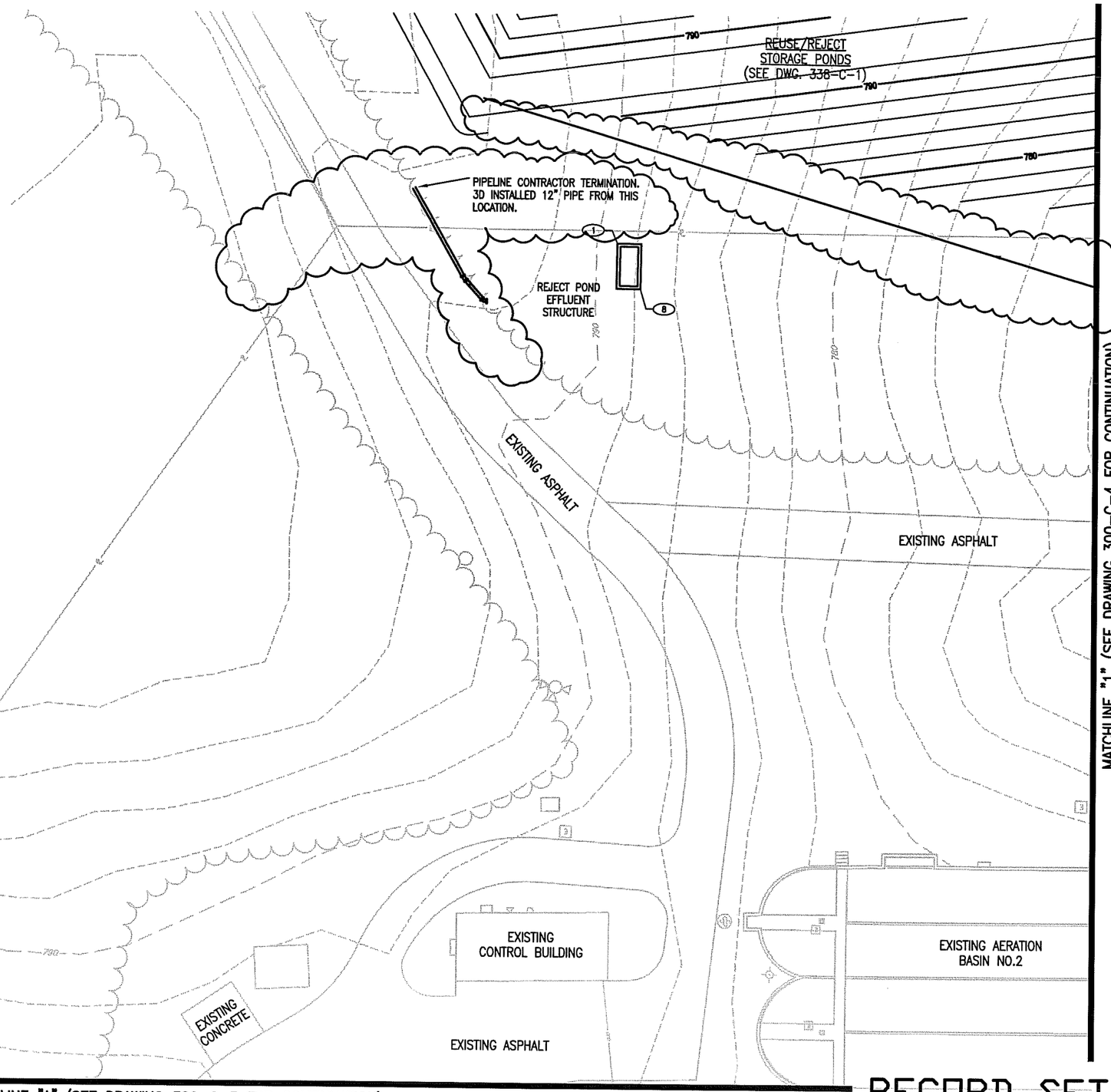
Tel: 770/431-8666 Fax: 770/435-2666

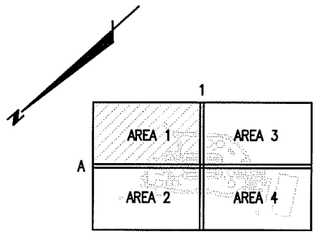
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP SITE LAYOUT PLAN

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-19-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIMNO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 300-C-1.3

LINE CREEK WWTP FACILITIES COORDINATE TABLE				
NO.	NORTH	EAST	BUILDING/STRUCTURE/ITEM	LOCATION
1	1218118.6023	2175300.0609	REJECT POND EFFLUENT STRUCTURE	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
3	1217724.9606	2174915.8225	NEW MANHOLE 1A	CENTER OF MANHOLE
4	NOT USED			
5	NOT USED			
6	NOT USED			
7	1218072.2642	2174719.9323	BACKWASH PUMP STATION	CENTER OF WETWELL
8	1218123.0583	2175283.6025	REJECT POND EFFLUENT STRUCTURE	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
9	1218392.0457	2175018.9503	SLUDGE HOLDING TANK	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
10	1218372.1121	2175047.4538	DIGESTER BLOWER PAD	CORNER OF CONC. SLAB
11	1218354.0395	2175044.5400	DIGESTER BLOWER PAD	CORNER OF CONC. SLAB
12	1218394.0509	2175063.4529	SLUDGE HOLDING TANK	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
13	1218103.3503	2174581.6878	GOLF COURSE METER VAULT	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
14	1218115.3136	2174583.0580	GOLF COURSE METER VAULT	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
15	1217844.2317	2175014.4022	DIVERSION VALVE PAD	CORNER OF CONC. SLAB
16	1217830.0941	2175014.7600	DIVERSION VALVE PAD	CORNER OF CONC. SLAB
17	1218057.3585	2174620.8886	GOLF COURSE PUMP STATION	CORNER OF CONC. SLAB
18	1218055.2737	2174612.2681	GOLF COURSE PUMP STATION	CORNER OF CONC. SLAB
19	1218078.0497	2174703.5151	UV DISINFECTION SYSTEM	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
20	1218034.1455	2174661.0286	UV DISINFECTION SYSTEM	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
21	1218104.9701	2174647.9262	EFFLUENT PUMP STATION	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
22	1218060.9528	2174626.3101	EFFLUENT PUMP STATION	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
23	1217920.7712	2174691.5197	ROAD CENTERLINE	INTERSECTION OF NEW ASPHALT ROADS
24	1218040.2124	2174685.6197	ASPHALT PAVING	CORNER OF NEW ASPHALT
25	1218065.8735	2174639.9587	ASPHALT PAVING	CORNER OF NEW ASPHALT
26	1218097.5715	2174867.1829	ROAD CENTERLINE	INTERSECTION OF NEW ASPHALT ROADS
27	1218083.0251	2174877.4063	ROAD CENTERLINE	INTERSECTION OF NEW ASPHALT ROADS
28	1218130.8869	2174643.7685	ROAD CENTERLINE	INTERSECTION OF NEW ASPHALT ROADS
29	1218083.8802	2174578.8848	ROAD CENTERLINE	INTERSECTION OF NEW ASPHALT ROADS
30	1217990.5874	2174693.6068	ELECTRICAL BUILDING	CORNER OF CONC. SLAB
31	1217993.1491	2174659.7218	ELECTRICAL BUILDING	CORNER OF CONC. SLAB
32	1219025.1742	2174705.9626	DISK FILTERS	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
33	1218063.2090	2174718.3503	DISK FILTERS	CORNER OF CONC. WALKWAY
34	NOT USED			
35	NOT USED			
36	1218006.5216	2174740.4885	MIXING BOX	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
37	1218008.2253	2174730.7367	MIXING BOX	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
38	1218053.5612	2174585.9706	FLAT CREEK OUTFALL METER VAULT	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
39	1218041.5978	2174584.6004	FLAT CREEK OUTFALL METER VAULT	OUTSIDE FACE OF STRUCTURE ⊕ CORNER
40	1218051.9912	2174653.3822	HYDRO-PNEUMATIC TANK PAD	CORNER OF CONC. SLAB
41	1218043.6357	2174651.9209	HYDRO-PNEUMATIC TANK PAD	CORNER OF CONC. SLAB





KEY PLAN

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/24/03	RECORD DRAWINGS MARKUP	MZ / WW
1	6/17/02	ADDENDUM NO. 3	WSH / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
GRADING PLAN
(AREA 1)

DRAWN	DATE
E. WHITE	12-21-01

PROJECT MANAGER	DEPARTMENT MANAGER
W. WELCH	S. HENNESSEY
LEAD DESIGN PROF.	CHECKED
R. TRIVINO	S. HENNESSEY
PROJECT NUMBER	DRAWING NUMBER
GA063098	300-C-2.2

Acad Version : R16.0a (LMS Tech)
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Data\Time : Tue, 06 Jul 2004 - 11:45am
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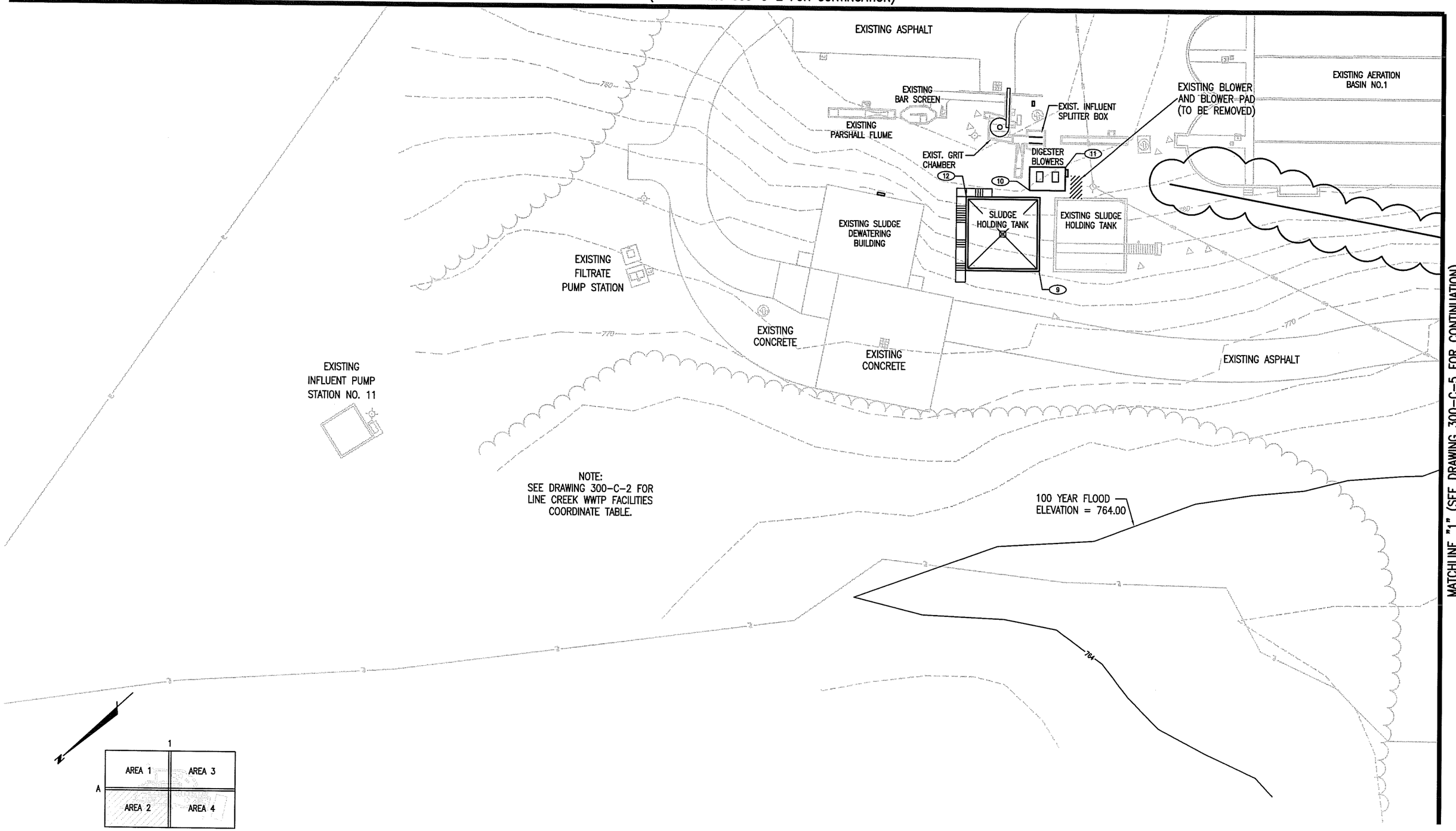
MATCHLINE "A" (SEE DRAWING 300-C-2 FOR CONTINUATION)



NOTE:
SEE DRAWING 300-C-2 FOR LINE CREEK WWTP FACILITIES COORDINATE TABLE.

MATCHLINE "1" (SEE DRAWING 300-C-5 FOR CONTINUATION)

KEY PLAN

RECORD SET

Acad Version : R16.0s (LMS Tech)
User Name : mzuniga
Date\Time : Fri, 25 Jun 2004 - 9:54am
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IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	6/24/04	RECORD DRAWING MARKUP	MZ / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-21-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY

LINE CREEK WWTP
GRADING PLAN
(AREA 2)

PROJECT NUMBER GA063098

DRAWING NUMBER 300-C-3.1

MATCHLINE "1" (SEE DRAWING 300-C-2 FOR CONTINUATION)

780

770

764

REUSE/REJECT
STORAGE PONDS
(SEE DWG. 338-C-1)

16

15

REUSE/REJECT
DIVERSION VALVES

NEW MH 1A

1

3

100 YEAR FLOOD
ELEVATION = 764.00

NOTE:
SEE DRAWING 300-C-2 FOR
LINE CREEK WWTP FACILITIES
COORDINATE TABLE.

EXISTING ASPHALT

EXISTING
CLARIFIER NO.4

EXISTING
CLARIFIER NO.3

TIE INTO EXISTING
PIPELINE

EXISTING
SPLITTER
BOX

EXIST. CHLORINE
CONTACT CHAMBER

REUSE TIE
INTO 4"
PVC

REUSE TIE
INTO 3" PVC

EXIST. 4" REUSE WATER
DOES NOT EXIST IN THIS
LOCATION.

NEW 4" PVCREUSE

PRECAST
PRV VAULT

EXISTING
POST AERATION
STRUCTURE

EXIST. REUSE WATER
DOES NOT EXIST IN
THIS LOCATION.

EXISTING AERATION
BASIN NO.2

R=15'

1

A

AREA 1 | AREA 3

AREA 2 | AREA 4

KEY PLAN

MATCHLINE "A" (SEE DRAWING 300-C-5 FOR CONTINUATION)

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : mzuniga

IF THIS BAR IS NOT 1"
INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY	CKD
1	6/24/04	RECORD DRAWING MARKUP	MZ	WW

GEORGIA
REGISTERED
No. 27297
PROFESSIONAL
ENGINEER
A. WAYNE WELCH

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Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-21-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 300-C-4.1

LINE CREEK WWTP
GRADING PLAN
(AREA 3)

MATCHLINE "A" (SEE DRAWING 300-C-4 FOR CONTINUATION)

MATCHLINE "1" (SEE DRAWING 300-C-3 FOR CONTINUATION)

EXISTING AERATION BASIN NO.1

EXISTING CLARIFIER NO.2

EXISTING CLARIFIER NO.1

EXISTING SPLITTER BOX

EXISTING ASPHALT

EXISTING INFLUENT PUMP STATION NO. 12

100 YEAR FLOOD ELEVATION = 764.00

EXIST. REUSE WATER DOES NOT EXIST IN THIS LOCATION.

EXIST. CHLORINE CONTACT CHAMBER

EXISTING CHLORINE BUILDING

EXISTING 1" PVC

EXISTING 1 1/2" PVC

BACKWASH PUMP STATION

EXIST. 1 1/2" REUSE WATER DOES NOT EXIST

NEW 4" PVC REUSE PLUGGED FOR FUTURE.

EXISTING RETURN/ WASTE SLUDGE PUMP STATION

EXISTING SLUDGE DRYING BED (TO BE REMOVED)

EXISTING ASPHALT

JUNCTION BOX

DISK FILTERS

TRANS-FORMER

GENERATOR

ELECTRICAL BUILDING

ASPHALT PAVING

UV DISINFECTION SYSTEM

EFFLUENT PARSHALL FLUME

EFFLUENT SPLITTER BOX

EFFLUENT PUMP STATION

GOLF COURSE PUMP STATION

FLAT CREEK OUTFALL METER VAULT

GOLF COURSE METER VAULT

NEW JUNCTION BOX FOR LT. POLES

EXISTING CONCRETE

EXISTING SLUDGE DRYING BED (TO REMAIN)

NOTE:
SEE DRAWING 300-C-2 FOR LINE CREEK WWTP FACILITIES COORDINATE TABLE.

KEY PLAN

AREA 1	AREA 3
AREA 2	AREA 4

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : mzuniga

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

SCALE IN FEET 0 20 40 60

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/24/04	RECORD DRAWING MARKUP	MZ / WW
1	6/17/02	ADDENDUM NO. 3	WSH / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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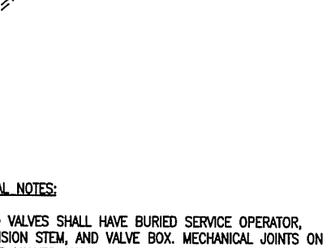
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP GRADING PLAN (AREA 4)

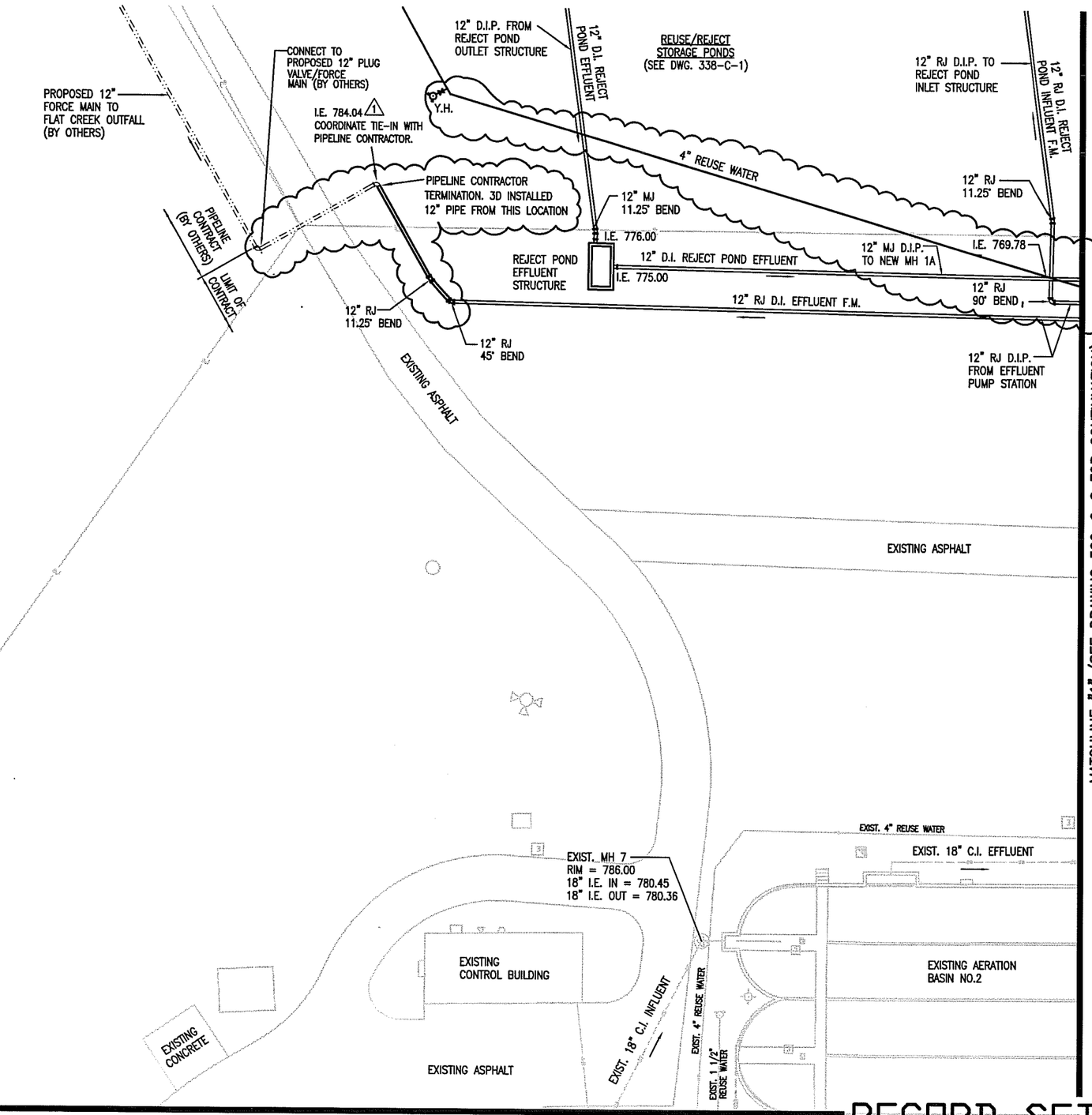
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-21-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 300-C-5.2

GENERAL NOTES:

1. BURIED VALVES SHALL HAVE BURIED SERVICE OPERATOR, EXTENSION STEM, AND VALVE BOX. MECHANICAL JOINTS ON BURIED VALVES SHALL BE FITTED WITH MEGA-LUG TYPE RESTRAINT GLANDS.
2. LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES ARE APPROXIMATE. CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION.
3. UNLESS OTHERWISE NOTED, ALL BURIED PIPING SHALL HAVE TYPE 4 BEDDING.
4. WHEN A CONFLICT OCCURS BETWEEN A POTABLE/REUSE WATER LINE AND A PROCESS LINE, THE POTABLE/REUSE WATER LINE SHALL BR RAISED OR LOWERED AS REQUIRED.
5. CONTRACTOR'S LAYDOWN AREA FOR MATERIALS AND SUPPLIES SHALL BE COORDINATED WITH THE ENGINEER.



KEY PLAN



RECORD SET

0 20 40 60
SCALE IN FEET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/24/04	RECORD DRAWING MARKUP	MZ / WW
1	7-25-02	ADDENDUM NO. 3	JL / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL A. WAYNE WELCH ENGINEER

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP YARD PIPING PLAN (AREA 1)

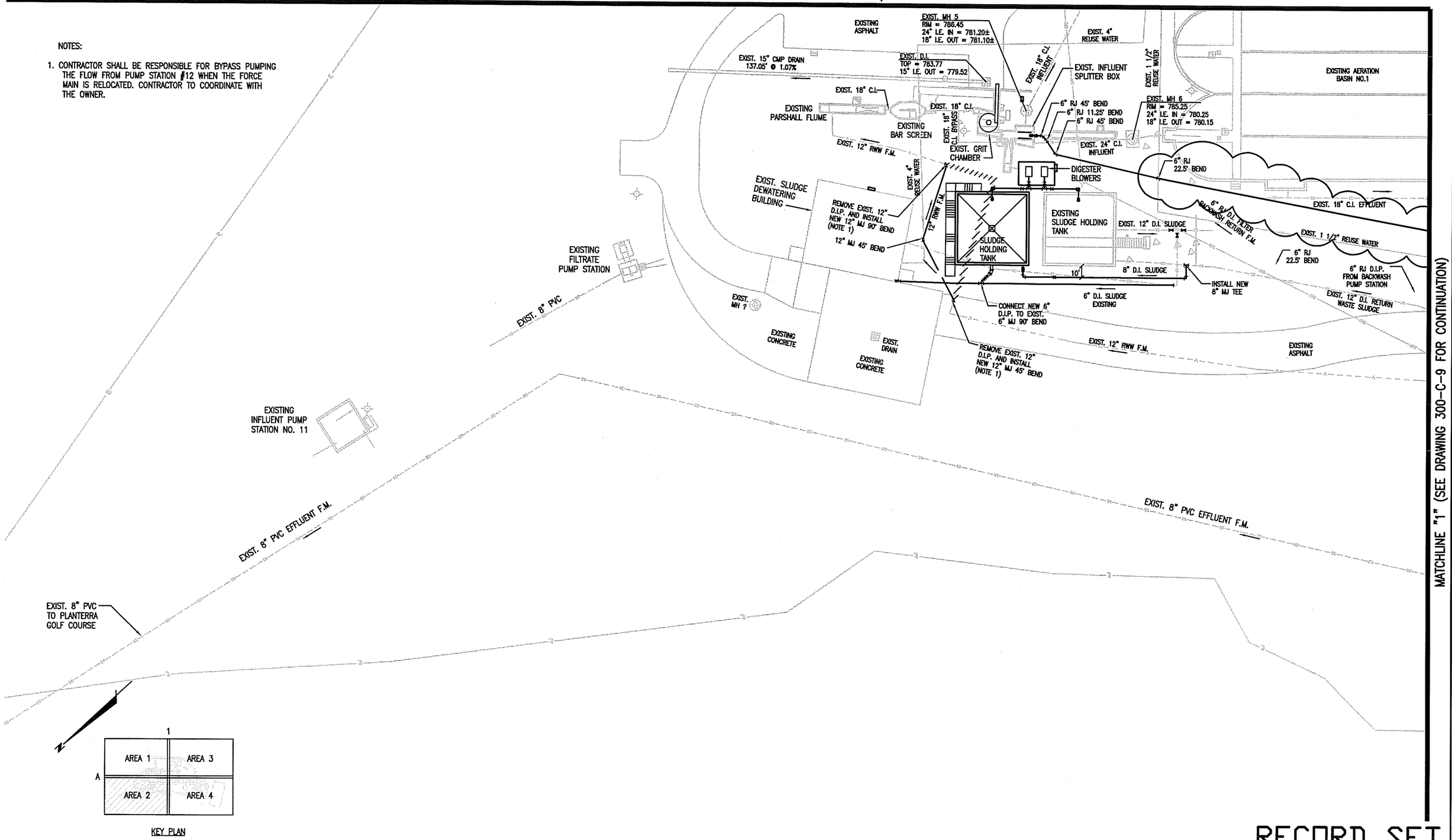
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-18-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 300-C-6.2

Acad Version : R16.0s (LMS Tech)
User Name : mzungo
Date\Time : Thu, 24 Jun 2004 - 2:10pm
Path\Name : G:\WWM\63098\DWG\WWTP Record Drawings\Final Record Drawings\PCtopip1.dwg

MATCHLINE "A" (SEE DRAWING 300-C-6 FOR CONTINUATION)

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR BYPASS PUMPING THE FLOW FROM PUMP STATION #12 WHEN THE FORCE MAIN IS RELOCATED. CONTRACTOR TO COORDINATE WITH THE OWNER.



MATCHLINE "1" (SEE DRAWING 300-C-9 FOR CONTINUATION)

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	6/24/04	RECORD DRAWINGS MARKUP	MZ / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
YARD PIPING PLAN
(AREA 2)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-18-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 300-C-7.1

Acad Version : R16.0s (LMS Tech)
User Name : mzuniga
Date\Time : Thu, 24 Jun 2004 - 2:57pm
Path\Name : G:\WWA\63098\DWG\WWTP Record Drawings\Final Record Drawings\Pltpip02.dwg

MATCHLINE "1" (SEE DRAWING 300-C-6 FOR CONTINUATION)

8" D.I.P. FROM REUSE POND OUTLET STRUCTURE

8" D.I. REUSE POND EFFLUENT

4" REUSE WATER

8" RJ 11.25° BEND

12" MJ D.I.P. FROM REJECT POND EFFLUENT STRUCTURE

12" D.I. REJECT POND EFFLUENT

12" RJ D.I. REJECT POND INFLUENT F.M.

12" RJ D.I. EFFLUENT F.M.

I.E. 764.87

7'-6 3/4"

5'-0" (TYP.)

8" RJ 90° BEND

4" REUSE WATER

8" D.I. REUSE POND EFFLUENT

REUSE/REJECT STORAGE PONDS (SEE DWG. 338-C-1)

12" RJ D.I.P. TO REUSE POND INLET STRUCTURE

12" RJ D.I. REUSE POND INFLUENT F.M.

12" RJ 11.25° BEND

12" RJ PLUG VALVE FV-371

12" RJ PLUG VALVE FV-372

I.E. 760.42

REUSE/REJECT DIVERSION VALVES

8" RJ PLUG VALVE W/ BURIED SERVICE OPERATOR, EXTENSION STEM, AND VALVE BOX

8" RJ 45° BEND

12" RJ 45° BEND

12" D.I. REJECT POND EFFLUENT

12" RJ D.I. REJECT POND INFLUENT F.M.

12" RJ D.I. EFFLUENT F.M.

4" REUSE WATER

EXIST. MH 1
RIM = 764.33
18" I.E. IN = 752.81
18" I.E. OUT = 752.61

EXIST. 18" SAN. SEWER
62.75' @ -0.15%

NEW MH 1A (4'ø)
RIM = 758.00
18" I.E. IN = 752.71±
12" I.E. IN = 755.00
18" I.E. OUT = 752.72±

12" RJ 11.25° BEND

12" RJ 22.5° BEND

8" RJ 11.25° BEND

8" RJ 22.5° BEND

5'-0"

6'-0"

EXIST. 18" SAN. SEWER
271.43' @ -0.15%

EXISTING ASPHALT

EXISTING CLARIFIER NO.4

EXIST. 1 1/2" REUSE WATER

EXISTING CLARIFIER NO.3

EXIST. 1 1/2" REUSE WATER

NEW 18" MJ TEE I.E. 766.62

TIE INTO EXISTING PIPELINE

REMOVE EXIST. 18" C.I.P. AND INSTALL NEW 18" MJ PLUG

EXIST. CHLORINE CONTACT CHAMBER

EXISTING SPLITTER BOX

EXIST. 4" REUSE WATER

EXIST. 18" C.I. EFFLUENT

EXIST. 4" REUSE WATER

REMOVE EXIST. MH 11 AND INSTALL NEW 18" MJ TEE. CONNECT NEW TEE TO EXIST. 18" C.I. CLARIFIER EFFLUENT LINES.

EXIST. MH 9
RIM = 780.65
18" I.E. IN = 775.25
18" I.E. OUT = 775.20

EXISTING AERATION BASIN NO.2

EXIST. MH 11 (TO BE REMOVED)
RIM = 774.62
18" I.E. IN = 766.75
18" I.E. OUT = 766.49

1 18" RJ 22.5° BEND

REUSE TIE INTO 4" PVC

REMOVE EXIST. 18" C.I.P. INSTALL NEW 8"x12" RJ TEE AND NEW 18" RJ PLUG VALVE W/ BURIED SERVICE OPERATOR, EXTENSION STEM, AND VALVE BOX

12" RJ 22.5° BEND

12" RJ 11.25° BEND

12" RJ PLUG VALVE W/ BURIED SERVICE OPERATOR, EXTENSION STEM, AND VALVE BOX

12" RJ D.I. REJECT F.M.

REUSE TIE INTO 3" PVC

EXIST. 18" C.I.P.

EXIST. 4" REUSE WATER DOES NOT EXIST IN THIS LOCATION.

NEW 4" PVCREUSE

EXIST. 2" REUSE WATER

18" D.I. CLARIFIERS 3 AND 4 EFFLUENT

PRV VALVE VAULT (SEE DETAIL 1, DWG. 100-D-15)

EXIST. POST AERATION STRUCTURE

EXIST. 18" C.I. PLANT DISCHARGE

EXIST. 18" VCP PLANT DISCHARGE

EXIST. MH 12 SAMPLING/MONITORING
RIM = 764.53
18" I.E. IN = 756.63
18" I.E. OUT = 756.57

INSTALL NEW 4" TEE AND 4"X1 1/2" RED.

EXIST. REUSE WATER DOES NOT EXIST IN THIS LOCATION.

4" REUSE WATER

12" RJ D.I. EFFLUENT F.M.

8" D.I. REUSE POND EFFLUENT

12" RJ TEE

12" RJ D.I. REJECT POND INFLUENT F.M.

EXIST. 18" VCP TO LINE CREEK

EXIST. 18" VCP PLANT DISCHARGE

KEY PLAN

1

A

AREA 1 | AREA 3

AREA 2 | AREA 4

MATCHLINE "A" (SEE DRAWING 300-C-9 FOR CONTINUATION)

RECORD SET

Date\Time : Fri, 25 Jun 2004 - 9:51am
Path\Name : G:\WWA\&3098\DWG\WWTP Record Drawings\Final Record Drawings\PClcpic3.dwg
Acad Version : R16.0s (LMS Tech)
User Name : mzuniga

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/24/04	RECORD DRAWING MARKUP	MZ / WW
1	7-29-02	ADDENDUM NO. 4	JL / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
YARD PIPING PLAN
(AREA 3)

DRAWN	DATE
E. WHITE	12-18-01

PROJECT MANAGER	DEPARTMENT MANAGER
W. WELCH	S. HENNESSEY
LEAD DESIGN PROF.	CHECKED
R. TRIVINO	S. HENNESSEY
PROJECT NUMBER	DRAWING NUMBER
GA063098	300-C-8.2

MATCHLINE "A" (SEE DRAWING 300-C-8 FOR CONTINUATION)

MATCHLINE "1" (SEE DRAWING 300-C-7 FOR CONTINUATION)

REMOVE EXIST. MH 10 AND INSTALL NEW 18" MJ PLUG ON EXIST. 18" C.I.P.

CONNECT NEW 18" D.I.P. TO EXIST. 18" C.I.P.

EXISTING CLARIFIER NO. 2

EXIST. 1 1/2" REUSE WATER

EXISTING AERATION BASIN NO.1

EXIST. MH 10 (TO BE REMOVED) RIM = 773.30 18" I.E. IN = 767.08 18" I.E. IN = 766.88 18" I.E. OUT = 767.02

EXIST. 18" C.I. EFFLUENT

EXISTING SPLITTER BOX

EXIST. MH 9 RIM = 782.06 (TOP BOLTED)

REMOVE EXIST. 18" C.I.P. AND INSTALL (1) NEW 18" MJ-PE 45° BEND AND (1) NEW 18" MJ 22.5° BEND

EXISTING CLARIFIER NO. 1

6" BW RETURN

6" RJ D.I.P. TO EXIST. INFLUENT SPLITTER BOX

EXIST. 1 1/2" REUSE WATER

8" RJ D.I. FILTER BACKWASH RETURN F.M.

INSTALL NEW 4" CROSS AND (3) 4"X1 1/2" REDUCERS

EXISTING ASPHALT

EXIST. 12" D.I. RETURN WASTE SLUDGE

6" RJ 22.5° BEND

EXISTING INFLUENT PUMP STATION NO. 12

EXIST. 18"

EXIST. MH 4 RIM = 763.65 18" I.E. IN = 751.55 18" I.E. OUT = 751.35

EXIST. 1 1/2" REUSE WATER DOES NOT EXIST

EXIST. MH 14 SLUDGE FLOW METER MANHOLE (SEALED)

EXISTING RETURN/ WASTE SLUDGE PUMP STATION

EXIST. C.I. SLUDGE

EXIST. 12" C.I. SLUDGE

EXIST. MH 13 SLUDGE FLOW METER MANHOLE (SEALED)

EXIST. MH 15 RIM = 764.89

EXIST. 8" PVC

EXIST. 8" PVC TO PLANTERRA GOLF COURSE

EXIST. 18" SAN. SEWER 342.75' @ 0.34%

EXIST. MH 16 RIM = 765.78

EXIST. 8" PVC EFFLUENT F.M.

CONNECT NEW 8" RJ D.I. GOLF COURSE FORCE MAIN TO EXIST. 8" PVC EFFLUENT FORCE MAIN. CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXIST. F.M. PRIOR TO CONSTRUCTION.

8" RJ D.I. GOLF COURSE F.M.

8" RJ 90° BEND

18" RJ 45° BEND

18" D.I. CLARIFIERS 3 AND 4 EFFLUENT

EXIST. CHLORINE CONTACT CHAMBER

EXIST. 2" REUSE WATER

EXISTING ASPHALT

18" RJ 90° BEND

(1) 18" MJ-PE 11.25° BEND (1) 18" MJ WYE

EXISTING CHLORINE BUILDING

18" MJ 90° BEND

18" D.I. CLARIFIERS 1 AND 2 EFFLUENT

EXISTING 1" PVC EXISTING 1 1/2" PVC.

EXIST. 12" C.I. SLUDGE

BACKWASH PUMP STATION

6" RJ 90° BEND

6" RJ 45° BEND

4" REUSE WATER

4" REUSE WATER

4" REUSE WATER

4" REUSE WATER

4" REUSE WATER

4" D.I. DRAIN

REUSE WATER PUMPS

UV DISINFECTION SYSTEM

4" REUSE WATER

EFFLUENT PARSHALL FLUME

EFFLUENT SPLITTER BOX

ASPHALT PAVING

NEW 4" PVC REUSE PLUGGED FOR FUTURE

EFFLUENT PUMP STATION

EXIST. 8" PVC

8" RJ D.I. GOLF COURSE F.M.

8" D.I. BYPASS

GOLF COURSE METER VAULT

NEW JUNCTION BOX FOR LT. POLES

FOR 8" MAG METER AND METER VAULT DETAILS, SEE DWG. 328-M-2

EXISTING CONCRETE

JUNCTION BOX

4" PLUG

TRANS-FORMER

GENERATOR

ELECTRICAL BUILDING

DISK FILTERS

ASPHALT PAVING

4" REUSE WATER

8" D.I. REUSE POND EFFLUENT

HYDRO-PNEUMATIC TANK PAD

8" RJ 45° BEND

8" RJ WYE

GOLF COURSE PUMP STATION

12" D.I. BYPASS

FLAT CREEK OUTFALL METER VAULT

12" RJ 90° BEND

EXIST. MH 2 RIM = 782.47 18" I.E. IN = 753.11 18" I.E. OUT = 753.00

8" RJ 22.5° BEND

12" RJ 22.5° BEND

5'-0"

6'-0"

EXIST. 18" SAN. SEWER 143.66' @ 0.035%

12" RJ D.I. REJECT POND INFLUENT F.M.

12" RJ D.I. EFFLUENT F.M.

EXIST. 18" SAN. SEWER 141.27' @ 0.035%

EXISTING SLUDGE DRYING BED (TO REMAIN)

EXIST. MH 3 RIM = 783.00 18" I.E. IN = 752.90 18" I.E. OUT = 752.70

8" RJ 90° BEND

1

A

AREA 1 | AREA 3

AREA 2 | AREA 4

KEY PLAN

RECORD SET

Acad Version : R16.0s (LMS Tech)
User Name : dwhite

Data\Time : Tue, 06 Jul 2004 - 11:55am
Path\Name : G:\WWA\63098\DWG\WWTP Record Drawings\Final Record Drawings\PCapp4.dwg

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60

SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
4	6/24/04	RECORD DRAWING MARKUP	MZ / WW
3	7-29-02	ADDENDUM NO. 4	JL / WW
2	6/17/02	ADDENDUM NO. 3	WSH / WW
1	5/24/02	CORRECTED DISC FILTER DRAIN LINE SIZE	RW / SH

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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2849 Paces Ferry Road, Suite 400
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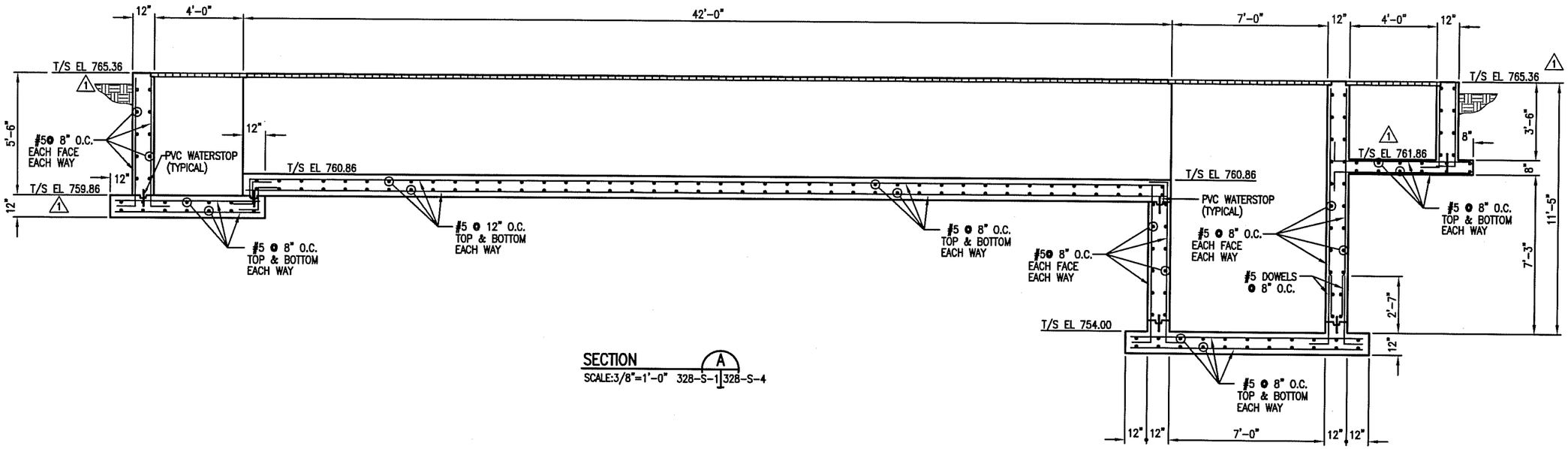
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

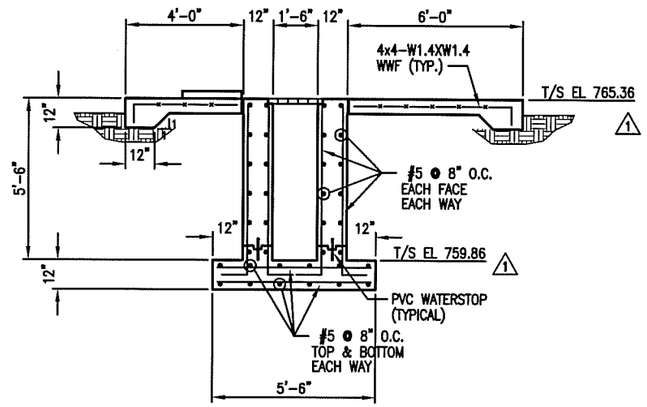
DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-18-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY

LINE CREEK WWTP
YARD PIPING PLAN
(AREA 4)

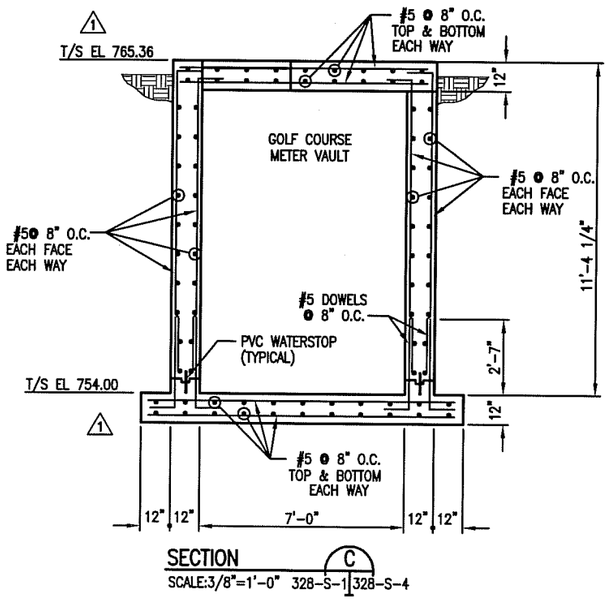
PROJECT NUMBER	DRAWING NUMBER
GA063098	300-C-9.4



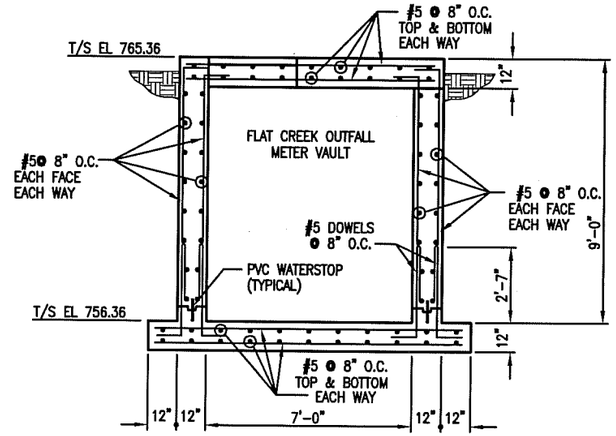
SECTION A
SCALE:3/8"=1'-0" 328-S-1 | 328-S-4



SECTION B
SCALE:3/8"=1'-0" 328-S-1 | 328-S-4



SECTION C
SCALE:3/8"=1'-0" 328-S-1 | 328-S-4



NOTE:
THE CAST-IN-PLACE CONCRETE CONSTRUCTION SHOWN ON THIS SHEET CAN BE SUBSTITUTED BY THE PRE-CAST CONCRETE CONSTRUCTION AS SHOWN ON SHEET 218-MS-1, EXCEPT THE DIMENSIONS SHALL CONFORM TO THIS SHEET.

SECTION D
SCALE:3/8"=1'-0" 328-S-2 | 328-S-4

RECORD SET

Acad Version : R16.0s (LMS Tech)
User Name : dwhite

Data\Time : Tue, 08 Jun 2004 - 1:25pm
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IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	7-10-02	ADDENDUM NO. 4	WW / WW

GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI

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2849 Paces Ferry Road, Suite 400
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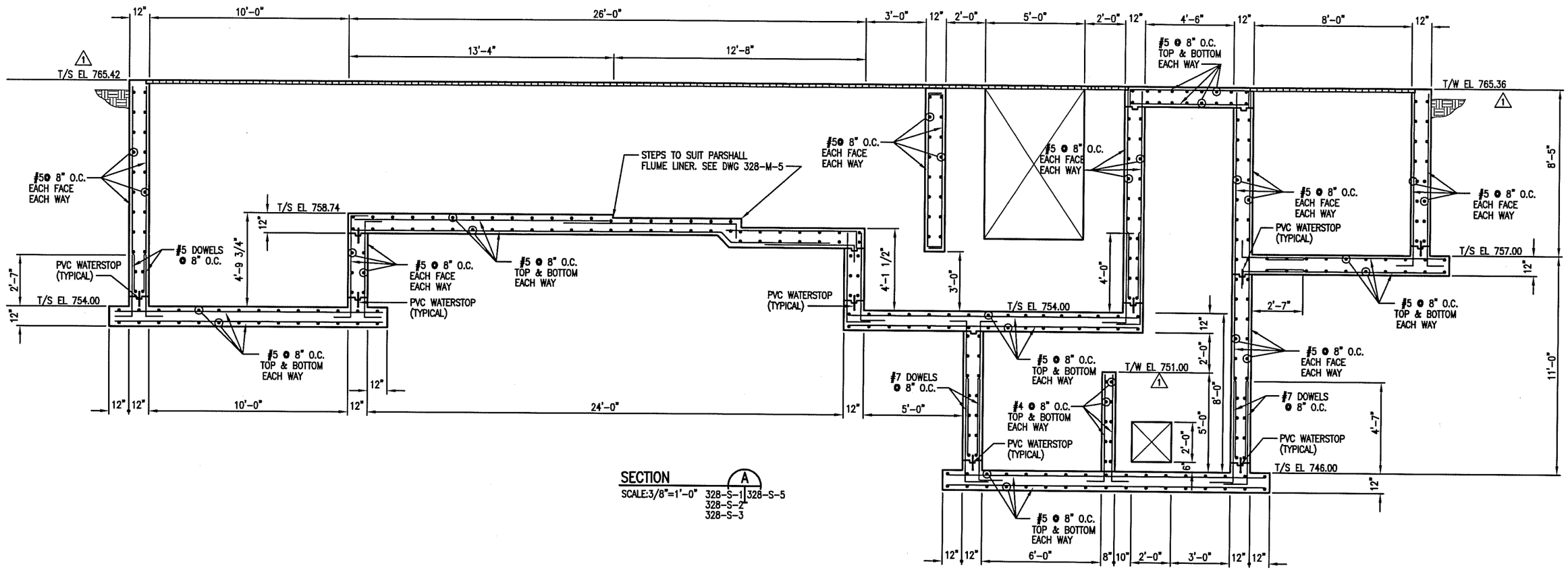
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		D. KUEI	D. KUEI
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	328-S-4.1

LINE CREEK WWTP
EFFLUENT STRUCTURE
STRUCTURAL SECTIONS
AND DETAILS (1 OF 3)



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

328-S-1 | 328-S-5
328-S-2
328-S-3

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY
1	7-10-02	ADDENDUM NO. 4	WW / WW

GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		D. KUEI	D. KUEI
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	328-S-5.1

LINE CREEK WWTP
EFFLUENT STRUCTURE
STRUCTURAL SECTIONS AND DETAILS (2 OF 3)

Acad Version : R16.0s (LMS Tech)
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Date\Time : Tue, 08 Jun 2004 - 1:28pm
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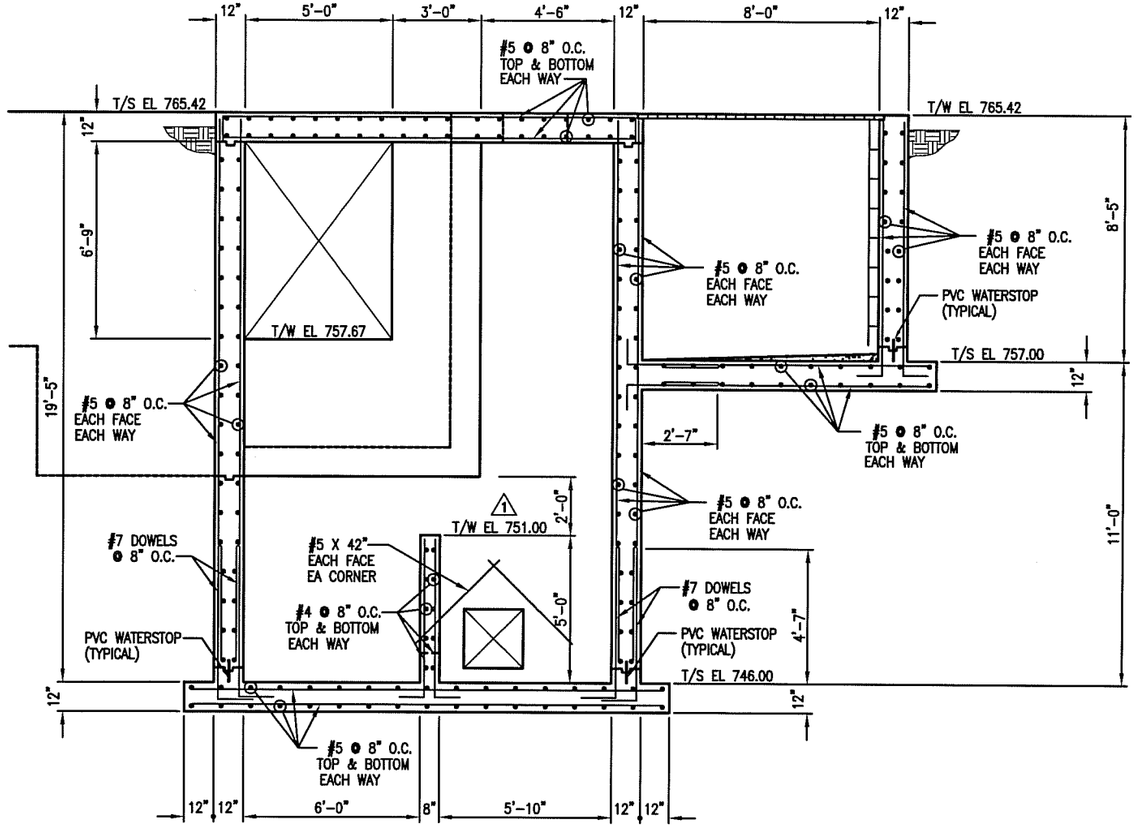
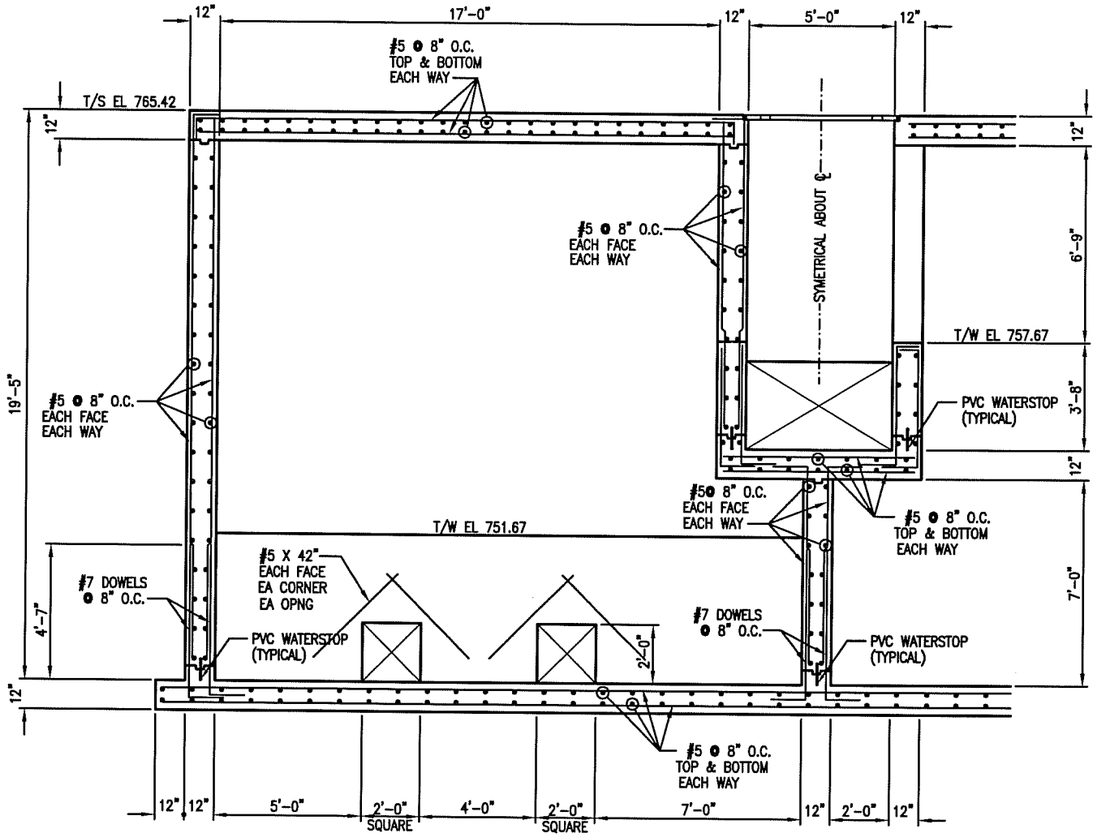


SECTION A
SCALE:3/8"=1'-0" 328-S-2 328-S-6
328-S-3



SECTION B
SCALE:3/8"=1'-0" 328-S-2 328-S-6
328-S-3

RECORD SET

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User Name : ehhite

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IF THIS BAR IS NOT 1"
INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	7-29-02	ADDENDUM NO. 4	JL / WW

GEORGIA REGISTERED No. 19086 PROFESSIONAL ENGINEER DENNIS H. KUEI

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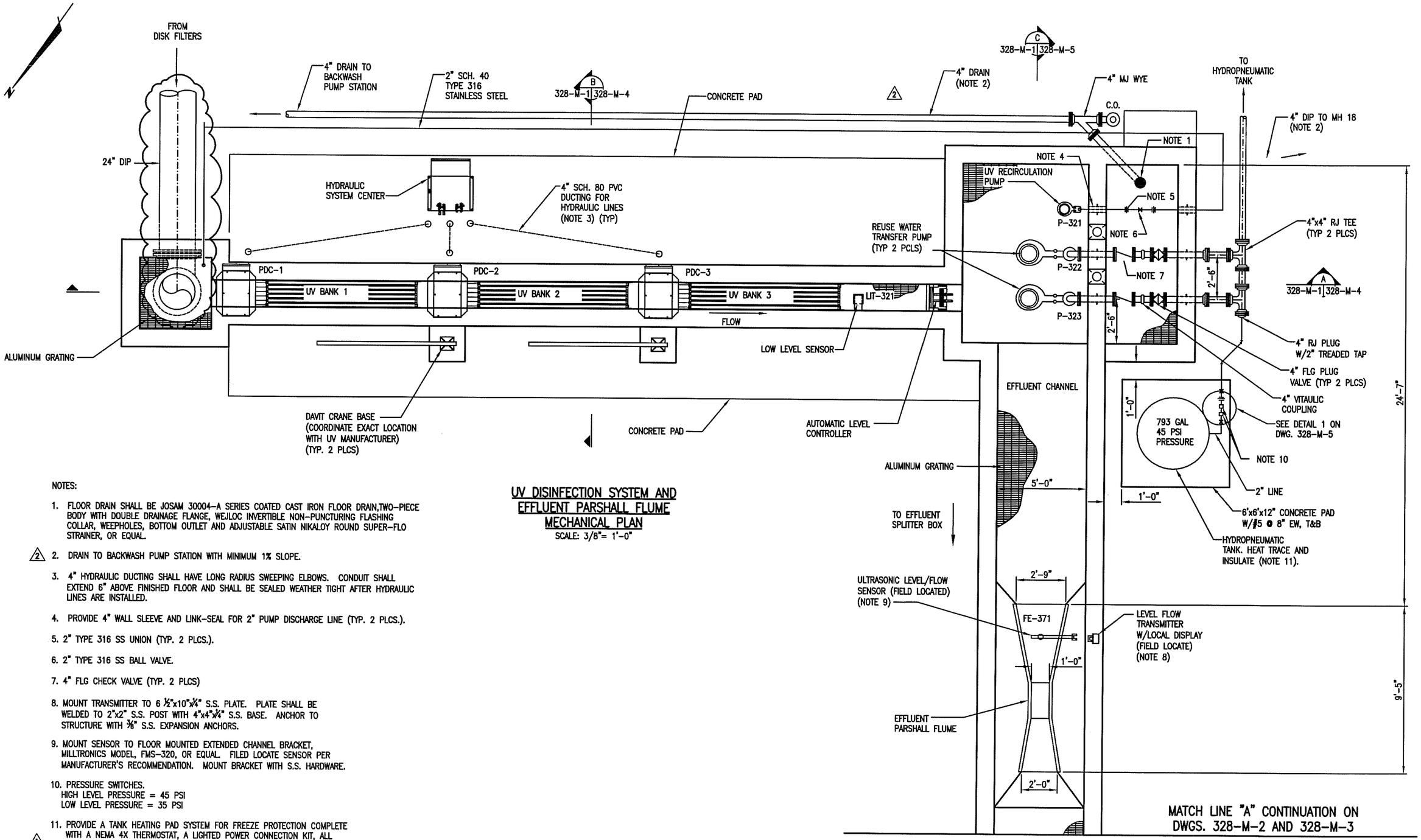
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		D. KUEI	D. KUEI
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	328-S-6.1

LINE CREEK WWTP
EFFLUENT STRUCTURE
STRUCTURAL SECTIONS
AND DETAILS (3 OF 3)



UV DISINFECTION SYSTEM AND EFFLUENT PARSHALL FLUME MECHANICAL PLAN

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

NOTES:

1. FLOOR DRAIN SHALL BE JOSAM 30004-A SERIES COATED CAST IRON FLOOR DRAIN,TWO-PIECE BODY WITH DOUBLE DRAINAGE FLANGE, WEJILOC INVERTIBLE NON-PUNCTURING FLASHING COLLAR, WEEPHOLES, BOTTOM OUTLET AND ADJUSTABLE SATIN NIKALOY ROUND SUPER-FLO STRAINER, OR EQUAL.

2. DRAIN TO BACKWASH PUMP STATION WITH MINIMUM 1% SLOPE.

3. 4" HYDRAULIC DUCTING SHALL HAVE LONG RADIUS SWEEPING ELBOWS. CONDUIT SHALL EXTEND 6" ABOVE FINISHED FLOOR AND SHALL BE SEALED WEATHER TIGHT AFTER HYDRAULIC LINES ARE INSTALLED.

4. PROVIDE 4" WALL SLEEVE AND LINK-SEAL FOR 2" PUMP DISCHARGE LINE (TYP. 2 PLCS.).

5. 2" TYPE 316 SS UNION (TYP. 2 PLCS.).

6. 2" TYPE 316 SS BALL VALVE.

7. 4" FLG CHECK VALVE (TYP. 2 PLCS)

8. MOUNT TRANSMITTER TO 6 ½"x10"x¼" S.S. PLATE. PLATE SHALL BE WELDED TO 2"x2" S.S. POST WITH 4"x4"x¼" S.S. BASE. ANCHOR TO STRUCTURE WITH ⅜" S.S. EXPANSION ANCHORS.

9. MOUNT SENSOR TO FLOOR MOUNTED EXTENDED CHANNEL BRACKET, MILLTRONICS MODEL, FMS-320, OR EQUAL. FILED LOCATE SENSOR PER MANUFACTURER'S RECOMMENDATION. MOUNT BRACKET WITH S.S. HARDWARE.

10. PRESSURE SWITCHES.
HIGH LEVEL PRESSURE = 45 PSI
LOW LEVEL PRESSURE = 35 PSI

1 11. PROVIDE A TANK HEATING PAD SYSTEM FOR FREEZE PROTECTION COMPLETE WITH A NEMA 4X THERMOSTAT, A LIGHTED POWER CONNECTION KIT, ALL INSTALLATION ACCESSORIES REQUIRED, AND "ELECTRIC HEAT TRACING" WARNING STICKERS. THE TANK HEATING PAD SHALL BE RAYCHEM RHS WITH 500-WATT POWER OUTPUT AND 120 VOLTS AC NOMINAL VOLTAGE OR APPROVED EQUAL.

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
3	6-24-04	RECORD DRAWING MARKUP	MZ / WW
2	7-25-02	ADDENDUM NO. 3	WSH / WW
1	6-17-02	ADDENDUM NO. 2	JL / WW

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3789
Tel: 770/431-8666 Fax: 770/435-2666

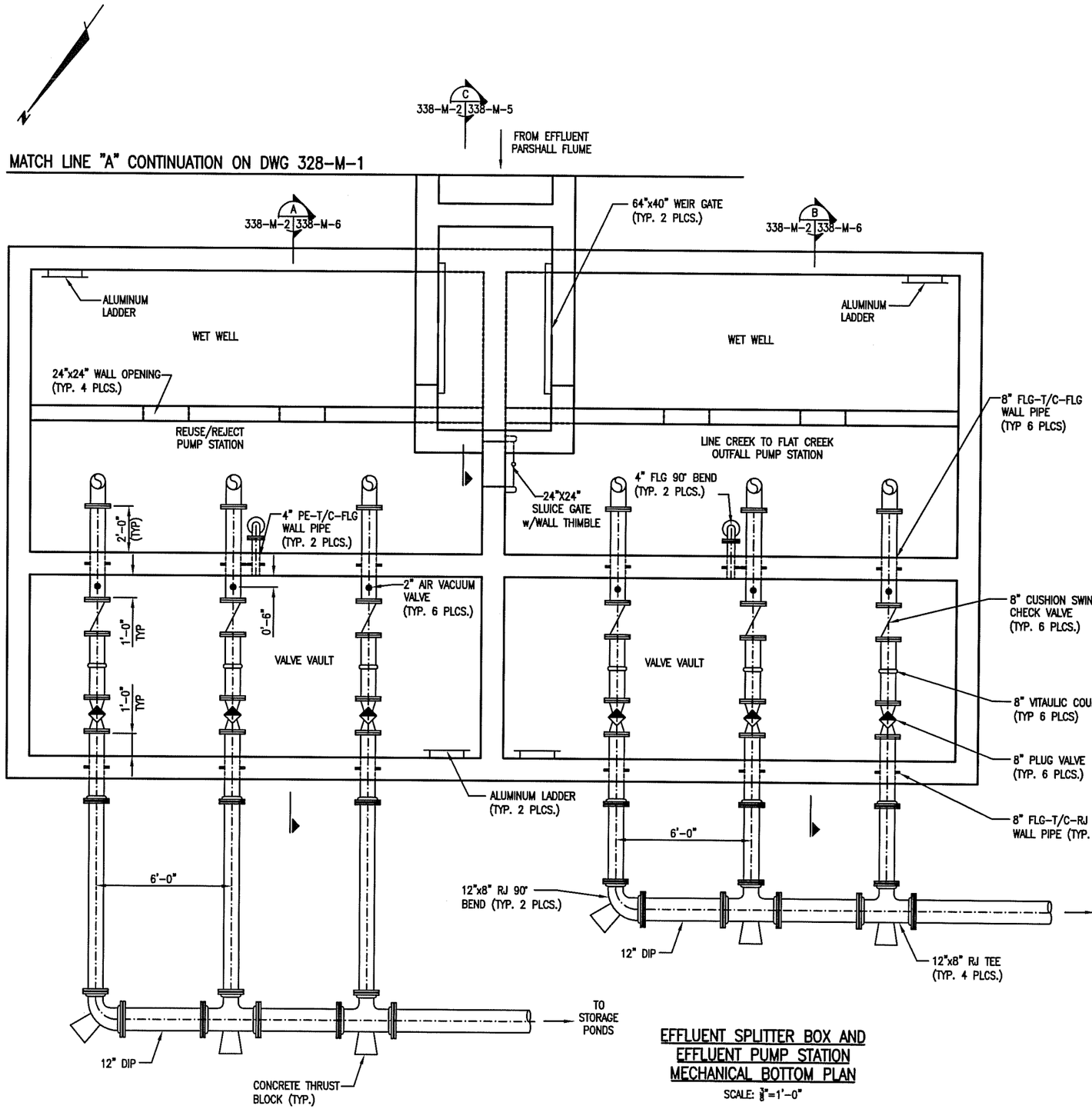
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R.TRIVINO	CHECKED S. HENNESSEY

LINE CREEK WWTP
UV DISINFECTION SYSTEM AND EFFLUENT PARSHALL FLUME MECHANICAL PLAN

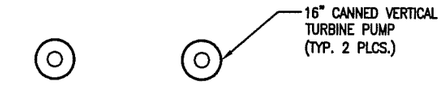
PROJECT NUMBER GA063098

DRAWING NUMBER 328-M-1.3



EFFLUENT SPLITTER BOX AND EFFLUENT PUMP STATION MECHANICAL BOTTOM PLAN

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



PLANTERRA GOLF COURSE PS MECHANICAL BOTTOM PLAN

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

RECORD SET

Acad Version : R16.0s (LMS Tech)
User Name : elwhite

Date\Time : Tue, 08 Jun 2004 - 1:42pm
Path\Name : G:\WWW\63098\DWG\WWTP Record Drawings\Final Record Drawings\PCbeffm2.dwg

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY CKD

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

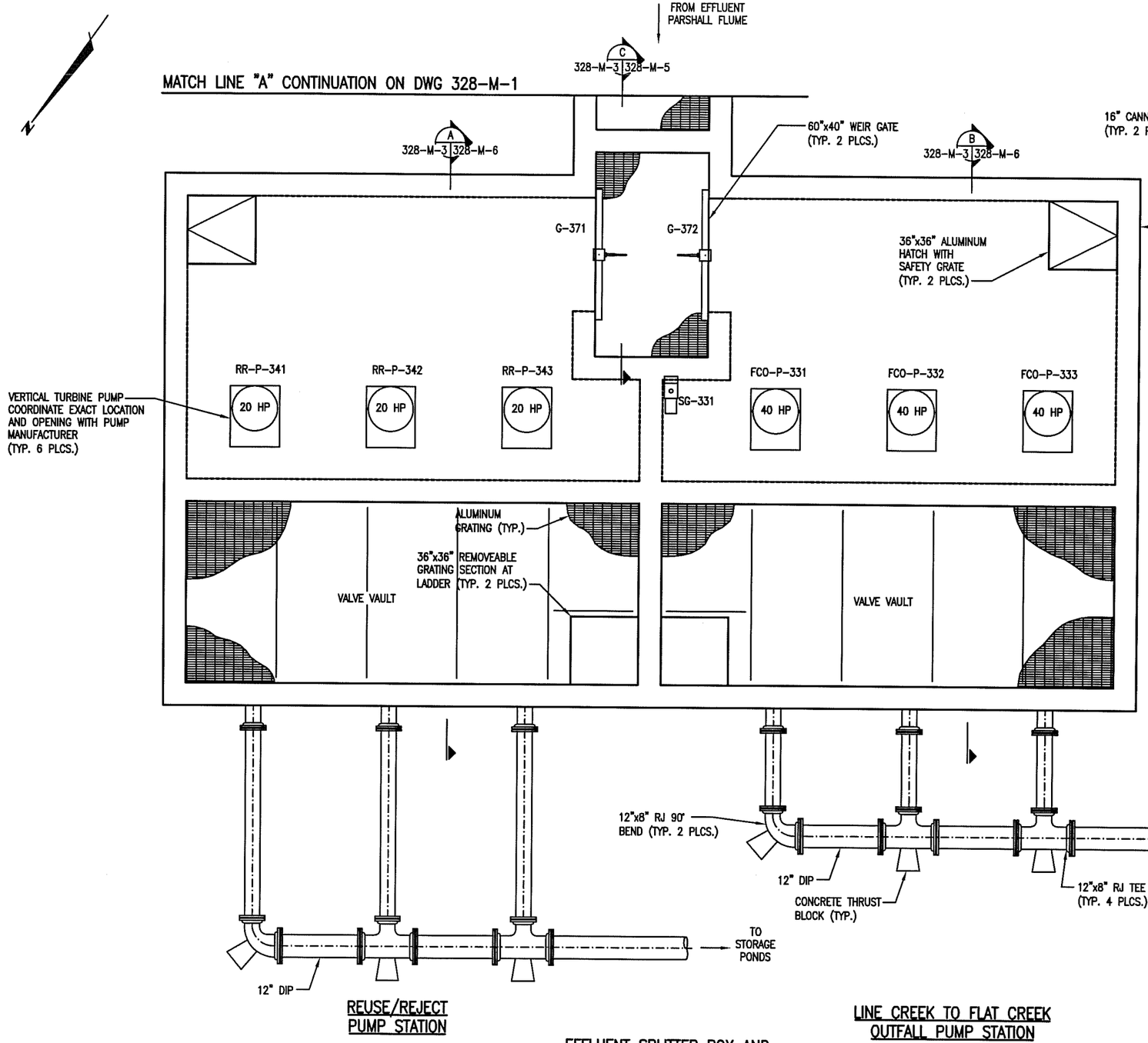
ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		R. TRIVINO	S. HENNESSEY

LINE CREEK WWTP
EFFLUENT SPLITTER BOX AND EFFLUENT PUMP STATION MECHANICAL BOTTOM PLAN

PROJECT NUMBER	DRAWING NUMBER
GA063098	328-M-2.0



REUSE/REJECT PUMP STATION

EFFLUENT SPLITTER BOX AND EFFLUENT PUMP STATION MECHANICAL TOP PLAN
SCALE: 3/8"=1'-0"

LINE CREEK TO FLAT CREEK OUTFALL PUMP STATION

PLANTERRA GOLF COURSE PS MECHANICAL TOP PLAN

RECORD SET

Acad Version : R16.0s (LMS Tech)
User Name : ehwhite
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Path\Name : G:\WWM\53098\WRC\WWTP Record Drawings\Final Record Drawings\PDs\effm3.dwg

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY CKD

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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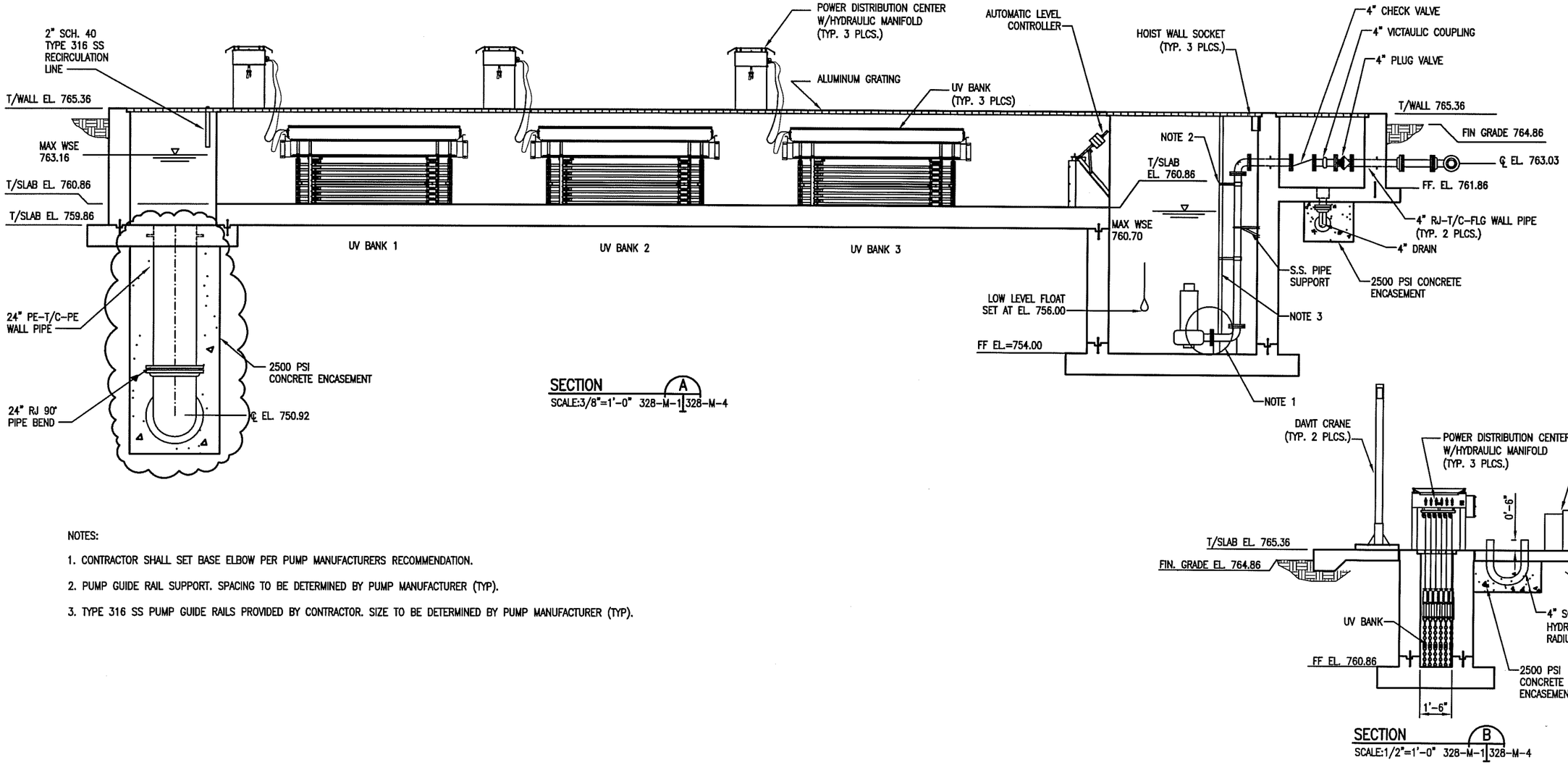
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R. TRIVINO	CHECKED S. HENNESSEY

LINE CREEK WWTP
EFFLUENT SPLITTER BOX AND EFFLUENT PUMP STATION MECHANICAL TOP PLAN

PROJECT NUMBER	DRAWING NUMBER
GA063098	328-M-3.0



SECTION A
SCALE:3/8"=1'-0" 328-M-1 | 328-M-4

SECTION B
SCALE:1/2"=1'-0" 328-M-1 | 328-M-4

NOTES:

1. CONTRACTOR SHALL SET BASE ELBOW PER PUMP MANUFACTURERS RECOMMENDATION.
2. PUMP GUIDE RAIL SUPPORT. SPACING TO BE DETERMINED BY PUMP MANUFACTURER (TYP).
3. TYPE 316 SS PUMP GUIDE RAILS PROVIDED BY CONTRACTOR. SIZE TO BE DETERMINED BY PUMP MANUFACTURER (TYP).

RECORD SET

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IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY
1	6/24/04	RECORD DRAWING MARKUP	MZ / WW

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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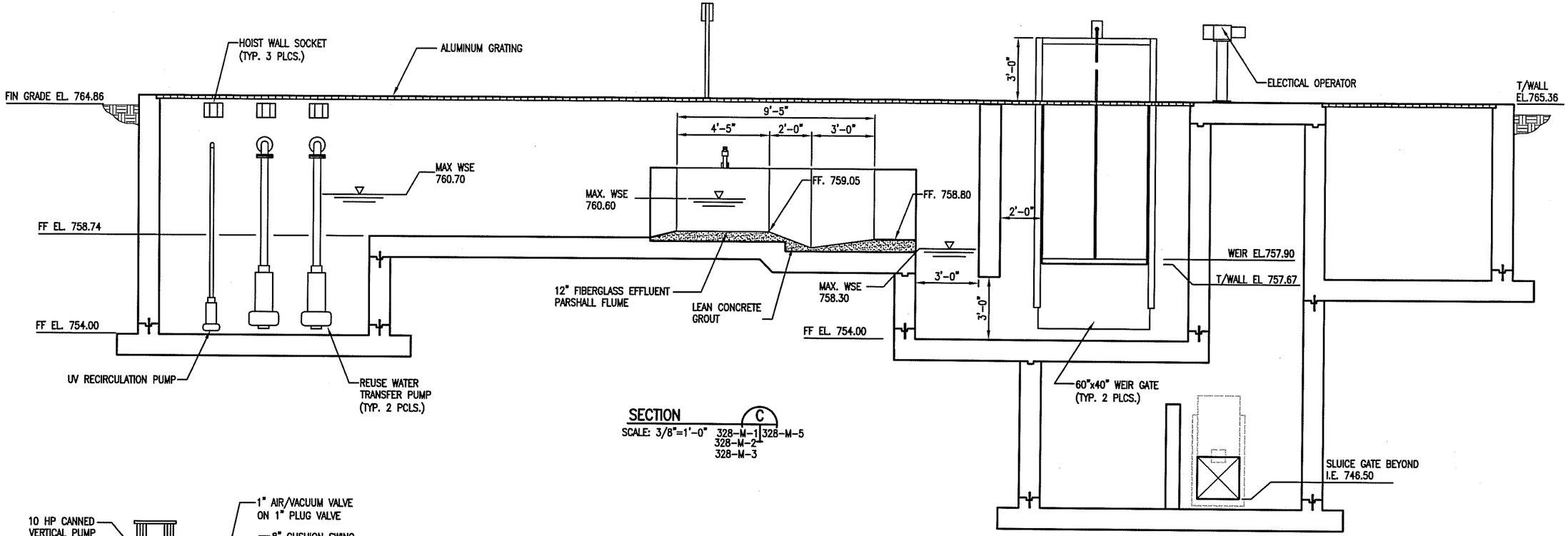
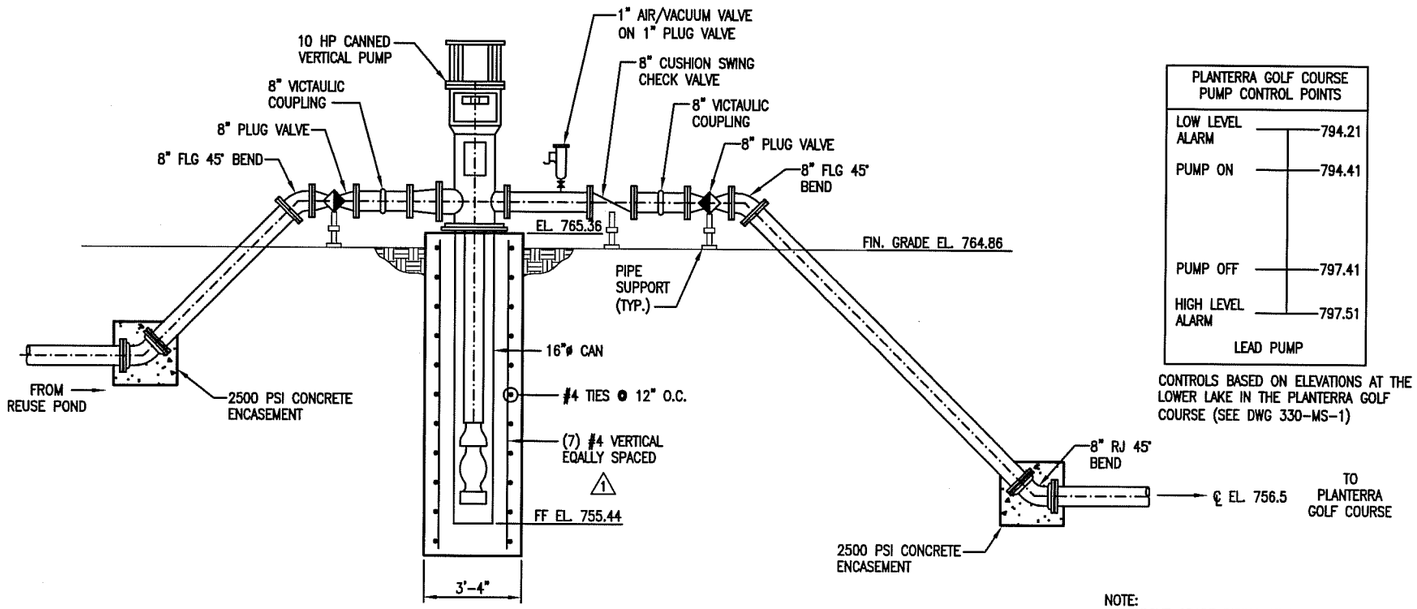
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
EFFLUENT STRUCTURE
MECHANICAL SECTIONS AND DETAILS (1 OF 3)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R.TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 328-M-4.1



SECTION C
SCALE: 3/8"=1'-0" 328-M-1 | 328-M-5
328-M-2
328-M-3

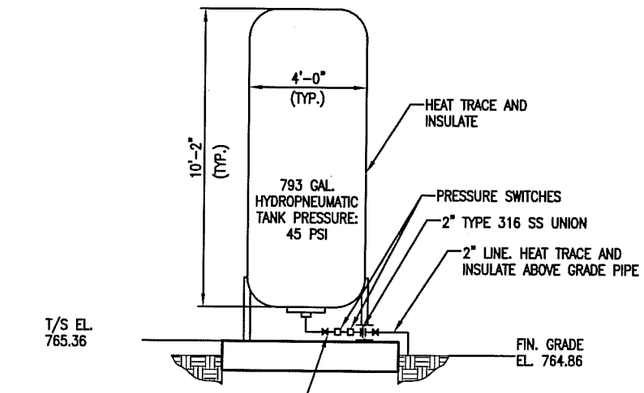


SECTION D
SCALE: 3/8"=1'-0" 328-M-2 | 328-M-5
328-M-3

PLANTERRA GOLF COURSE PUMP CONTROL POINTS	
LOW LEVEL ALARM	794.21
PUMP ON	794.41
PUMP OFF	797.41
HIGH LEVEL ALARM	797.51
LEAD PUMP	

CONTROLS BASED ON ELEVATIONS AT THE LOWER LAKE IN THE PLANTERRA GOLF COURSE (SEE DWG 330-MS-1)

2 NOTE:
ALL ABOVE GRADE PIPING AT THE PLANTERRA GOLF COURSE PUMP STATION SHALL BE HEAT TRACED AND INSULATED.



DETAIL 1
SCALE:3/8"=1'-0" 328-M-1 | 328-M-5

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	7-29-02	ADDENDUM NO. 4	JL / WW
1	6/20/02	ADDENDUM NO. 3	DK / WW

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 27297 PROFESSIONAL A. WAYNE WELCH ENGINEER

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R.TRIVINO	CHECKED S. HENNESSEY

LINE CREEK WWTP
EFFLUENT STRUCTURE
MECHANICAL SECTIONS AND DETAILS (2 OF 3)

PROJECT NUMBER	DRAWING NUMBER
GA063098	328-M-5.2

Acad Version : R16.0s (LMS Tech)
User Name : ehrlke
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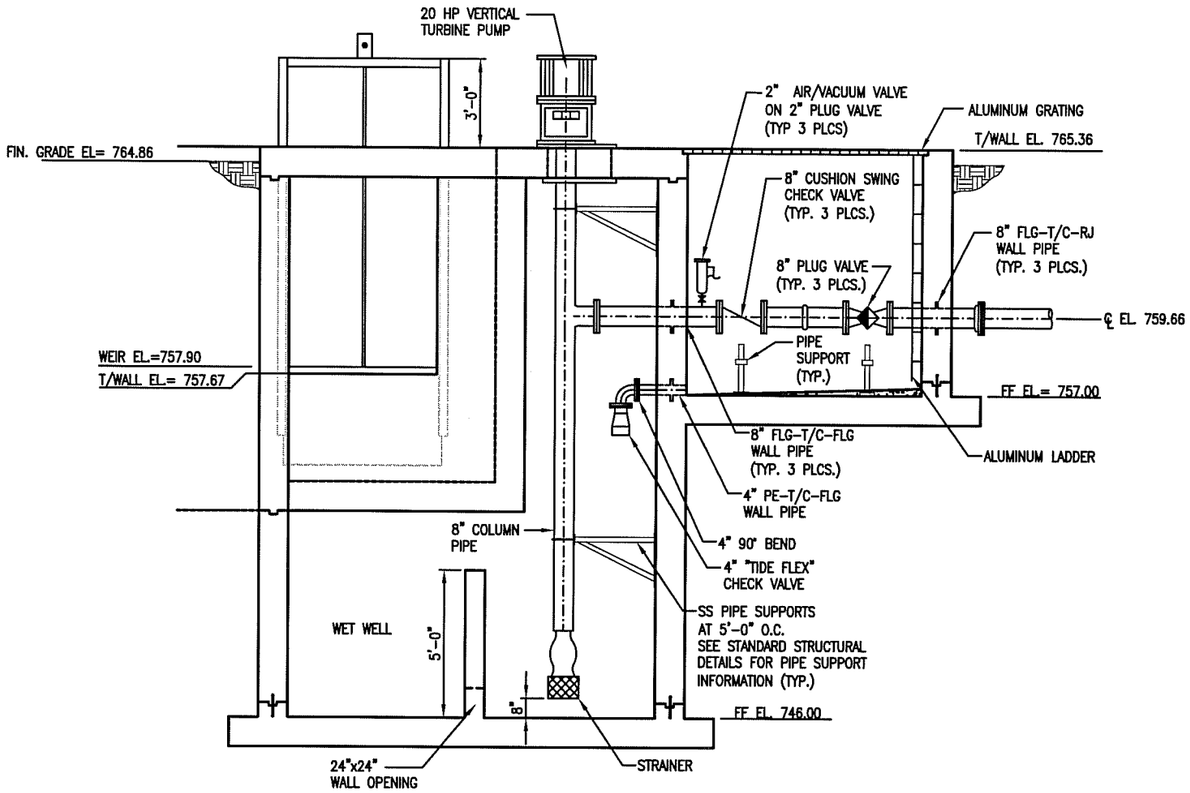
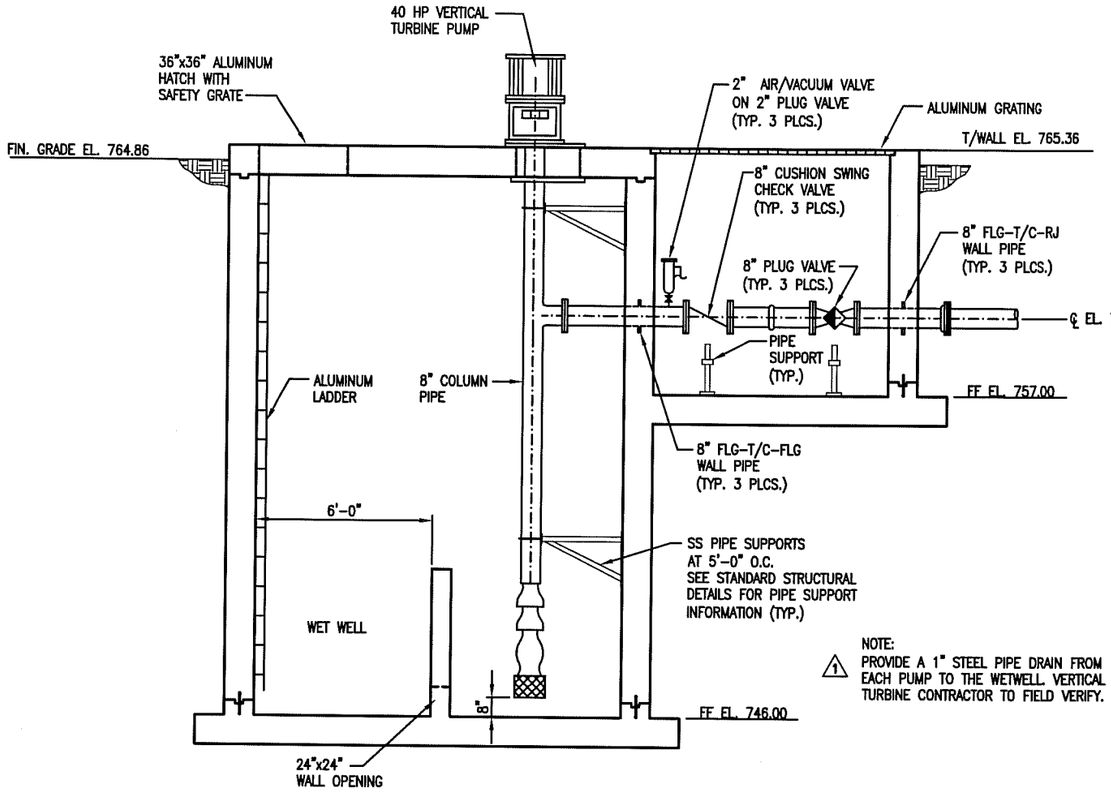


SECTION A
SCALE:3/8"=1'-0" 328-M-2 | 328-M-6
328-M-3



NOTE:
⚠1 PROVIDE A 1" STEEL PIPE DRAIN FROM EACH PUMP TO THE WETWELL. VERTICAL TURBINE CONTRACTOR TO FIELD VERIFY.

SECTION B
SCALE:3/8"=1'-0" 328-M-2 | 328-M-6
328-M-3

PRIMARY REUSE/REJECT PUMP CONTROL POINTS		
ON 753 / 752.5 OFF 750.5 / 750	ON 754 / 752.5 OFF 750.5 / 750	HLA 755.50 LLA 749.50
LEAD PUMP	LAG PUMP	ALARMS

SECONDARY REUSE/REJECT PUMP CONTROL POINTS (REJECT MODE)		
ON 754.5 / 753.5 OFF 750.5 / 750	ON 755 / 753.5 OFF 750.5 / 750	HLA 755.50 LLA 749.50
LEAD PUMP	LAG PUMP	ALARMS

FLAT CREEK OUT FALL PUMP CONTROL POINTS		
ON 753 / 752.5 OFF 750.5 / 750	ON 754 / 752.5 OFF 750.5 / 750	HLA 755.50 LLA 749.50
LEAD PUMP	LAG PUMP	ALARMS

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : ehwhite

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY
1	7-29-02	ADDENDUM NO. 3	JL / WW
			CKD

GEORGIA REGISTERED No. 27297 PROFESSIONAL ENGINEER A. WAYNE WELCH

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
EFFLUENT STRUCTURE
MECHANICAL SECTIONS AND DETAILS (3 OF 3)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. R.TRIVINO	CHECKED S. HENNESSEY
		PROJECT NUMBER GA063098	DRAWING NUMBER 328-M-6.1

CIRCUIT CALLOUTS:

FOR SITE PLAN DRAWINGS 340-E-1 THRU 340-E-4

(31/P7) [2"C] [3 #8, 1 #8G] FROM ELEC BLDG MCC-301 TO FILTER #1 CP-311
[3 #8, 1 #8G] FROM ELEC BLDG MCC-301 TO FILTER #2 CP-312

(31/P8) [2"C] [3 #8, 1 #8G] FROM ELEC BLDG MCC-301 TO BW PS CP-315

(31/P9) [1"C, 4 #10, 1 #10G] FROM ELEC BLDG PP-UV TO PDC-321

(31/P10) [1"C, 4 #10, 1 #10G] FROM ELEC BLDG PP-UV TO PDC-322

(31/P11) [1"C, 4 #10, 1 #10G] FROM ELEC BLDG PP-UV TO PDC-323

(31/P12) [2"C] [2 #8, 1 #8G] FROM ELEC BLDG DP-301 TO UV HYDRAULIC SYS HSC
[2 #12, 1 #12G] FROM ELEC BLDG DP-301 TO UV LEVEL XMTR LT-321

(31/P13) [2"C] [3 #10, 1 #10G] FROM ELEC BLDG MCC-301 TO UV RECIRC PUMP PNL P-321
[3 #2, 1 #8G] FROM ELEC BLDG MCC-301 TO REUSE PUMP PNL CP-322

(31/P14) [2"C, 3 #6, 1 #8G] FROM ELEC BLDG MCC-301 TO GC PS PANEL CP-351

(31/P15) [2"C, 3 #4, 1 #8G (FOR PWR), 2 #12, 1 #12G (FOR MTR HTR)] FROM VFD-331 TO FCO PUMP FCO-P-331

(31/P16) [2"C, 3 #4, 1 #8G (FOR PWR), 2 #12, 1 #12G (FOR MTR HTR)] FROM VFD-332 TO FCO PUMP FCO-P-332

(31/P17) [2"C, 3 #4, 1 #8G (FOR PWR), 2 #12, 1 #12G (FOR MTR HTR)] FROM VFD-333 TO FCO PUMP FCO-P-333

(31/P18) [2"C, 3 #8, 1 #8G (FOR PWR), 2 #12, 1 #12G (FOR MTR HTR)] FROM VFD-341 TO RR PUMP RR-P-341

(31/P19) [2"C, 3 #8, 1 #8G (FOR PWR), 2 #12, 1 #12G (FOR MTR HTR)] FROM VFD-342 TO RR PUMP RR-P-342

(31/P20) [2"C, 3 #8, 1 #8G (FOR PWR), 2 #12, 1 #12G (FOR MTR HTR)] FROM VFD-343 TO RR PUMP RR-P-343

(31/P21) NOT USED

(31/P22) [2"C] [2 #10, 1 #10G] FROM ELEC BLDG DP-301 TO FCO PUMP PANEL CP-331
[2 #10, 1 #10G] FROM ELEC BLDG DP-301 TO RR PUMP PANEL CP-341

(31/P25) [2"C] [3 #10, 1 #10G] FROM ELEC BLDG DP-301 TO FV-371
[3 #10, 1 #10G] FROM ELEC BLDG DP-301 TO FV-372
[2 #10, 1 #10G] FROM ELEC BLDG DP-301 CKT #18 TO REUSE VALVE AREA LIGHTING
[2 #10, 1 #10G] FROM ELEC BLDG DP-301 CKT #26 TO REUSE VALVE AREA HEAT TRACING

(31/P26) [2"C] [2 #10, 1 #10G] FROM ELEC BLDG DP-301, CKT #16 TO ROADWAY LIGHTING

(31/P27) [2"C] [2 #10, 1 #10G] FROM ELEC BLDG DP-301 TO FILTER AREA LIGHTING
[2 #12, 1 #12G] FROM ELEC BLDG DP-301 TO TURBIDITY MONITOR AIT-311
[2 #8, 1 #8G] FROM ELEC BLDG DP-301 TO FILTER AREA HEAT TRACING

(31/P28) [2"C] [2 #10, 1 #10G] FROM ELEC BLDG DP-301 TO BW PS AREA LIGHTING

(31/P27/28) [2"C] [2 #10, 1 #10G] } CONDUCTORS OF CIRCUIT 31-P27
[2 #12, 1 #12G]
[2 #10, 1 #10G] CONDUCTORS OF CIRCUIT 31-P28

(31/P29) [2"C] [2 #12, 1 #12G] FROM ELEC BLDG DP-301 TO PARSHALL FLUME MTR FIT-371

(31/P22/29/30) [2"C] [2 #10, 1 #10G] } CONDUCTORS OF CIRCUIT 31-P22
[2 #10, 1 #10G]
[2 #12, 1 #12G] CONDUCTORS OF CIRCUIT 31-P29
[2 #10, 1 #10G] FROM ELEC BLDG DP-301, CKT #17 TO GOLF COURSE MTR VAULT AREA LIGHTING

(31/P31) [2"C] [3 #10, 1 #10G] FROM ELEC BLDG MCC-301 TO SLUICE GATE SG-331 (2)

(31/P32) [2"C] [2 #8, 1 #8G] FROM ELEC BLDG DP-301 TO PLANTERRA GC PS HEAT TRACING

(31/C1) NOT USED

(31/C2) [2"C] [10 #14] FROM ELEC BLDG RTU-PNL-301 TO FILTER #1 CP-311
[10 #14] FROM ELEC BLDG RTU-PNL-301 TO FILTER #2 CP-312

(31/C3) [2"C] [10 #14] FROM ELEC BLDG RTU-PNL-301 TO BW PS CP-315

(31/C2/3/10) [2"C] [10 #14] } CONDUCTORS OF CIRCUIT 31-C2
[10 #14]
[10 #14] CONDUCTORS OF CIRCUIT 31-C3
[8 #14] CONDUCTORS OF CIRCUIT 31-C10

(31/C4) [1"C] [6 #14 (CONTROL)] FROM UV SCC-321 TO RECIRC PUMP CONTROLS

(31/C5) [2"C] [10 #14] FROM VFD-331 TO FCO PUMP PANEL CP-331
[10 #14] FROM VFD-332 TO FCO PUMP PANEL CP-331
[10 #14] FROM VFD-333 TO FCO PUMP PANEL CP-331

(31/C6) [2"C] [10 #14] FROM VFD-341 TO RR PUMP PANEL CP-341
[10 #14] FROM VFD-342 TO RR PUMP PANEL CP-341
[10 #14] FROM VFD-343 TO RR PUMP PANEL CP-341

(31/C7) [2"C] [24 #14] FROM ELEC BLDG RTU-PNL-301 TO FCO PS CP-331
[24 #14] FROM ELEC BLDG RTU-PNL-301 TO RR CP-341
[12 #14] FROM ELEC BLDG RTU-PNL-301 TO GC PS CP-351
[10 #14] FROM ELEC BLDG RTU-PNL-301 TO SLUICE GATE SG-331

(31/C8) [2"C] [10 #14] FROM OUTDOOR RTU-PNL-301 TO FV-371
[10 #14] FROM OUTDOOR RTU-PNL-301 TO FV-372

(31/C9) [2"C] [4 #14] FROM OUTDOOR RTU-PNL-303 TO REUSE STORAGE POND LEVEL SWITCHES (1)

(31/C8/9) DELETED (1)

(31/C10) [2"C] [8 #14] FROM ELEC BLDG RTU-PNL-301 TO REUSE PANEL CP-322

(31/S1) NOT USED

(31/S2) [2"C] [2-TSP] FROM ELEC BLDG RTU-PNL-301 TO FILTER #1 & #2 PANELS
[1-TSP] FROM ELEC BLDG RTU-PNL-301 TO AIT-311 (TURBIDITY)

(31/S4) [1"C, 2-TSP (RS485-COMM LINK)] FROM UV SCC-321 TO HSC AND DAISY CHAINED THRU PDC'S

(31/S6) [2"C] [2-TSP] FROM VFD-331 TO FCO PS CP-331
[2-TSP] FROM VFD-332 TO FCO PS CP-331
[2-TSP] FROM VFD-333 TO FCO PS CP-331

(31/S7) [2"C] [2-TSP] FROM VFD-341 TO RR PS CP-341
[2-TSP] FROM VFD-342 TO RR PS CP-341
[2-TSP] FROM VFD-343 TO RR PS CP-341

(31/S8) [2"C] [2-TSP] FROM ELEC BLDG RTU-PNL-301 TO FCO PS CP-331
[2-TSP] FROM ELEC BLDG RTU-PNL-301 TO RR PS CP-341

(31/S9) [2"C] [1-TSP] FROM ELEC BLDG RTU-PNL-301 TO PARSHALL FLUME MTR FIT-371

(31/S8/9) [2"C] [2-TSP] } CONDUCTORS OF CIRCUIT 31-S8
[2-TSP]
[1-TSP] CONDUCTORS OF CIRCUIT 31-S9

(31/S10) [2"C] [MSC] FROM ELECTRICAL BUILDING RTU-PNL-301 TO GOLF COURSE MTR VAULT
[MSC] FROM ELECTRICAL BUILDING RTU-PNL-301 TO FLAT CREEK OUTFALL MTR VAULT

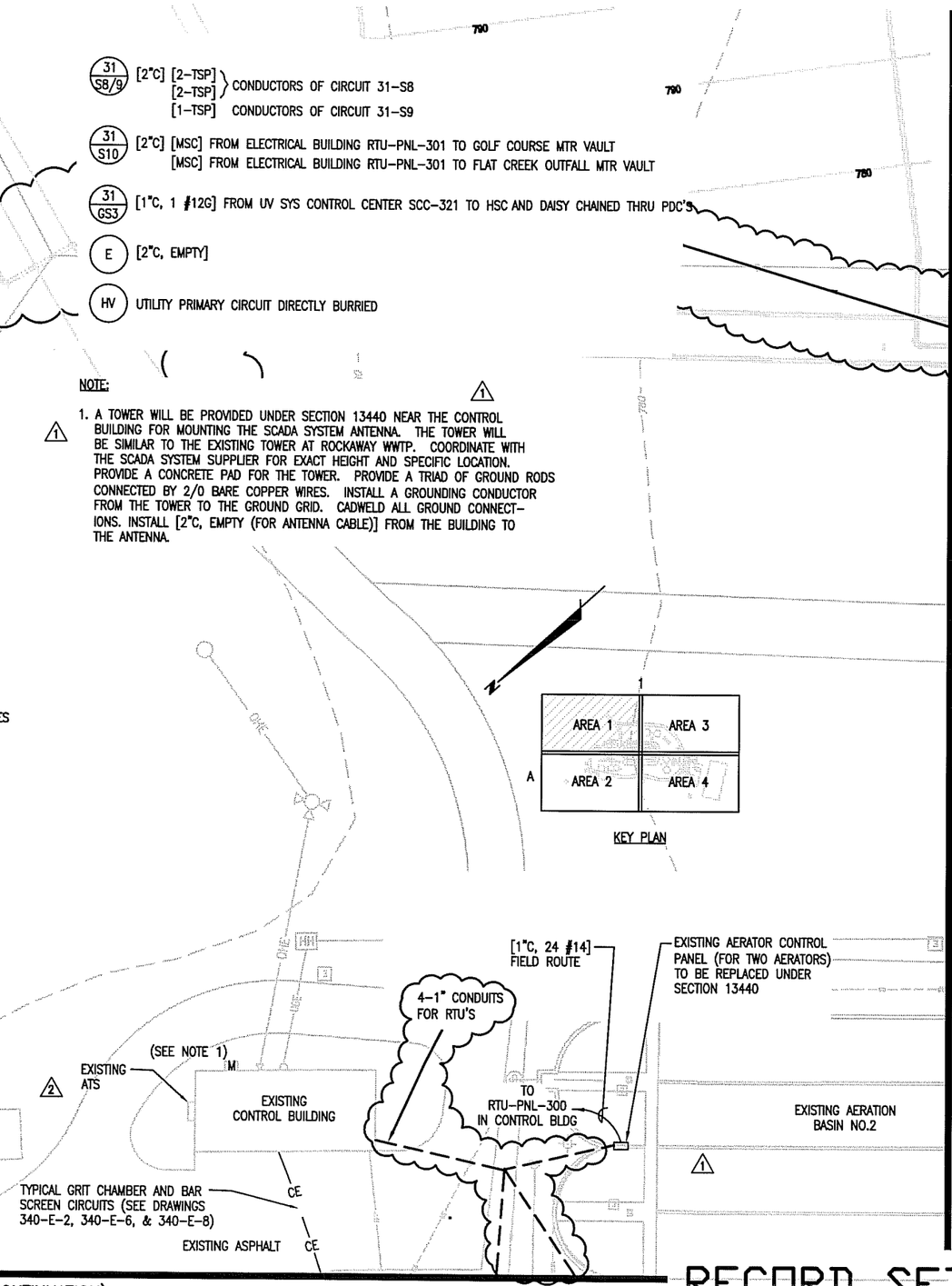
(31/GS3) [1"C, 1 #12G] FROM UV SYS CONTROL CENTER SCC-321 TO HSC AND DAISY CHAINED THRU PDC'S

(E) [2"C, EMPTY]

(HV) UTILITY PRIMARY CIRCUIT DIRECTLY BURRIED

NOTE:

1. A TOWER WILL BE PROVIDED UNDER SECTION 13440 NEAR THE CONTROL BUILDING FOR MOUNTING THE SCADA SYSTEM ANTENNA. THE TOWER WILL BE SIMILAR TO THE EXISTING TOWER AT ROCKAWAY WWTP. COORDINATE WITH THE SCADA SYSTEM SUPPLIER FOR EXACT HEIGHT AND SPECIFIC LOCATION. PROVIDE A CONCRETE PAD FOR THE TOWER. PROVIDE A TRIAD OF GROUND RODS CONNECTED BY 2/0 BARE COPPER WIRES. INSTALL A GROUNDING CONDUCTOR FROM THE TOWER TO THE GROUND GRID. CADWELD ALL GROUND CONNECTIONS. INSTALL [2"C, EMPTY (FOR ANTENNA CABLE)] FROM THE BUILDING TO THE ANTENNA.



MATCHLINE "1" (SEE DRAWING 340-E-3 FOR CONTINUATION)

MATCHLINE "A" (SEE DRAWING 340-E-2 FOR CONTINUATION)

RECORD SET

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Acad Version : R16.0s (LMS Tech)
User Name : mzuniga

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

0 20 40 60
SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
3	6/24/04	RECORD DRAWING MARKUP	MZ / WW
2	7/10/02	ADDENDUM NO. 4	NL / NL
1	6/14/02	ADDENDUM NO. 2	NL / NL

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	12-21-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 340-E-1.3

LINE CREEK WWTP
ELECTRICAL SITE PLAN
(AREA 1)

MATCHLINE "A" (SEE DRAWING 340-E-1 FOR CONTINUATION)

NOTES:

1. FIELD ROUTE HOME-RUN CIRCUITS SHOWN.
2. CONTRACTOR TO PROVIDE 120V AC POWER FOR RTU-PNL-302 FROM THE EXISTING DEWATERING BUILDING.
3. LOCATE RTU-PNL-11 AND RTU-PNL-12 NEAR PUMP STATIONS 11 AND 12 RESPECTIVELY AND PROVIDE 120V AC POWER FROM THE CONTROL PANELS.
4. INSTALL [1½"C, 32 #14] FROM RTU-PNL-302 TO EXISTING SOLIDS BUILDING BFP CONTROL PANEL FOR I/O POINTS.

⚠1

EXISTING ASPHALT
GRIT SYSTEM CONTROL PANEL CP-301
TO RTU-PNL-300 IN CONTROL BLDG
EXIST. MCC-A
TO RTU-PNL-300 IN CONTROL BLDG
TO RTU-PNL-300 IN CONTROL BLDG
EXISTING AERATOR CONTROL PANEL (FOR TWO AERATORS) TO BE REPLACED UNDER SECTION 13440
EXISTING AERATION BASIN NO.1
⚠1
2-1" CONDUIT FOR RTU AND POWER FEED
1-1" CONDUIT
[1"C, 8 #14]
[1"C, 8 #14]
[1"C, 24 #14] FIELD ROUTE
EXISTING PARSHALL FLUME
EXISTING BAR SCREEN
EXISTING BAR SCREEN PANEL
EXIST. INFLUENT SPLITTER BOX
EXIST. GRIT CHAMBER
TO RTU-PNL-302
SEE DWG. 340-E-10
FIELD LOCATE RTU-PNL-302 OUTSIDE DEWATERING BLDG.
NEW JUNCTION BOX
EXISTING SLUDGE DEWATERING BUILDING
SLUDGE HOLDING TANK
EXISTING SLUDGE HOLDING TANK
DIGESTER BLOWER CONTROL PANEL
SEE NOTE 4
EXISTING FILTRATE PUMP STATION
1-1" CONDUIT FOR RTU
TO RTU-PNL-302
[1"C, 10 #14]
EXISTING CONCRETE
EXISTING CONCRETE
EXISTING ASPHALT
EXISTING INFLUENT PUMP STATION NO. 12 ⚠1
(SEE NOTE 3)
100 YEAR FLOOD ELEVATION = 764.00
764
MATCHLINE "1" (SEE DRAWING 340-E-4 FOR CONTINUATION)

KEY PLAN

	1
A	AREA 1 / AREA 3
	AREA 2 / AREA 4

RECORD SET

0 20 40 60
SCALE IN FEET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
⚠2	6/24/04	RECORD DRAWING MARKUP	MZ / WW
⚠1	6/14/02	ADDENDUM NO. 2	NL / NL

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
ELECTRICAL SITE PLAN
(AREA 2)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	12-21-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		N. LIMA	N. LIMA
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	340-E-2.2

Acad Version : R16.0s (LMS Tech)
User Name : mzuniga
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Path\Name : G:\WWA\GA3098\DWG\WWTP Record Drawings\Final Record Drawings\PDtexsl2.dwg

MATCHLINE "1" (SEE DRAWING 340-E-1 FOR CONTINUATION)

EXTEND CONDUIT DUCTBANK TO THE NEW MANHOLE NEXT TO THE REUSE STORAGE POND AND INSTALL CIRCUIT TO JUNCTION BOX FOR THE NEW LEVEL SWITCH IN THE MANHOLE. SEE DRAWING 338-C-2 AND 338-MS-2 FOR ADDITIONAL INFORMATION ON THE MANHOLE AND LEVEL SWITCH LOCATION.

REUSE/REJECT STORAGE PONDS (SEE DWG. 338-C-1)

D5 340-E-3 | 340-E-3

FV 371

FV 372

WATERTIGHT JUNCTION BOX FOR HEAT TRACING (SEE NOTE 2)

H11

LIGHT FIXTURE DP-301, CKT #18

D6 340-E-3 | 340-E-3

D4 340-E-3 | 340-E-3

HH-LV6

HH-LV5

EXISTING GA POWER POLE (APPROX. LOCATION)

D3 340-E-3 | 340-E-3

COORDINATE WITH GA POWER TO PROVIDE UTILITY PRIMARY CIRCUIT TO SITE (SEE NOTE 3)

HH-HV2

100 YEAR FLOOD ELEVATION = 764.00

D2 340-E-3 | 340-E-3

HV 340-E-3 | 340-E-3

EXISTING ASPHALT

EXISTING CLARIFIER NO.4

EXISTING CLARIFIER NO.3

RTU-PNL-303 (SEE NOTE 1)

EXISTING CLARIFIER #3 & #4 CONTROL PANEL (TO BE REPLACED UNDER SECTION 13440)

EXISTING SPLITTER BOX

TIE INTO EXISTING PIPELINE

EXIST. CHLORINE CONTACT CHAMBER

REUSE TIE INTO 4" PVC

REUSE TIE INTO 3" PVC

EXIST. 4" REUSE WATER DOES NOT EXIST IN THIS LOCATION.

NEW 4" PVCREUSE

1-1" CONDUIT TO CLARIFIER PANEL 1 &2

EXISTING AERATION BASIN NO.2

EXISTING POST AERATION STRUCTURE

EXIST. REUSE WATER DOES NOT EXIST IN THIS LOCATION.

HH-HV1

HH-LV4

AREA 1 | AREA 3 | AREA 2 | AREA 4

KEY PLAN

NOTE:

1. PROVIDE 120V AC POWER FOR RTU-PNL-303 FROM EXISTING 120V LIGHTING PANEL LOCATED WITHIN CLARIFIER #2 CONTROL PANEL. UTILIZE EXISTING CONDUITS AS MUCH AS POSSIBLE.
2. PROVIDE AN ELECTRICAL JUNCTION BOX AND UTILIZE IT TO EXTEND THE 120V, AC CIRCUIT TO THE HEAT TRACING POWER CONNECTION BOX(ES) FURNISHED BY THE HEAT TRACING SYSTEM SUPPLIER AS REQUIRED. COORDINATE WITH THE SYSTEM SUPPLIER FOR EXACT LOCATION AND NUMBER OF CONNECTION BOXES. REFER TO MECHANICAL DRAWINGS FOR INFORMATION ON THE PIPING TO BE HEAT TRACED.
3. COORDINATE WITH THE ELECTRIC UTILITY COMPANY TO PROVIDE A NEW 480V, 3-PHASE SERVICE FOR THE FACILITY. COORDINATE WITH THE UTILITY TO COMBINE READINGS FROM THE EXISTING METER (AT THE CONTROL BUILDING) AND THE NEW METER, IN ORDER TO HAVE ONLY ONE UTILITY BILL FOR THE FACILITY.

DUCTBANK SECTIONS:

SEE DRAWING 100-D-15 FOR TYPICAL DUCTBANK DETAILS

(31 P25) (31 P26) (31 C8) 1 — LV CKTS

SECTION D1 — NTS 340-E-3/340-E-4 | 340-E-3

(31 P25) (31 C8) 1 — LV CKTS

SECTION D2 — NTS 340-E-3/340-E-4 | 340-E-3

(31 C9) 1 — LV CKTS

SECTION D3 — NTS 340-E-3 | 340-E-3

(31 P25) (31 C8) — LV CKTS

SECTION D4 — NTS 340-E-3 | 340-E-3

(31 C9) — LV CKTS

SECTION D5 — NTS 340-E-3 | 340-E-3

(HV) UTILITY PRIMARY CONDUCTORS DIRECTLY-BURRIED COORDINATE WITH ELECTRIC UTILITY

SECTION HV — NTS 340-E-3/340-E-4 | 340-E-3

(E) 1 — LV CKTS

SECTION D6 — NTS 340-E-3 | 340-E-3

MATCHLINE "A" (SEE DRAWING 340-E-4 FOR CONTINUATION)

RECORD SET

Acad Version : R16.0s (LMS Tech)
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IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

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SCALE IN FEET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
3	6/24/04	RECORD DRAWING MARKUP	MZ / WW
2	7/10/02	ADDENDUM NO. 4	NL / NL
1	6/14/02	ADDENDUM NO. 2	NL / NL

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
ELECTRICAL SITE PLAN
(AREA 3)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	12-21-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 340-E-3.3

MATCHLINE "A" (SEE DRAWING 340-E-3 FOR CONTINUATION)

MATCHLINE "1" (SEE DRAWING 340-E-2 FOR CONTINUATION)

EXISTING AERATION BASIN NO.1

EXISTING CLARIFIER NO.2

EXISTING CLARIFIERS #1 & #2 CONTROL PANEL (TO BE REPLACED UNDER SECTION 13440)

EXISTING SPLITTER BOX

[1"C, 12 #14] FIELD ROUTE TO RTU-PNL-303

EXISTING CLARIFIER NO.1

EXISTING ASPHALT

EXISTING INFLUENT PUMP STATION NO. 11 (SEE NOTE 3, DWG. 340-E-2)

100 YEAR FLOOD ELEVATION = 764.00

EXISTING RAS/WAS PS CONTROL PANEL (TO BE REPLACED UNDER SECTION 13440)

TO RTU-PNL-11

[1"C, 24 #14] FIELD ROUTE

EXISTING RETURN/ WASTE SLUDGE PUMP STATION

EXIST. CHLORINE CONTACT CHAMBER

EXISTING CHLORINE BUILDING

EXISTING ASPHALT

EXIST. REUSE WATER DOES NOT EXIST IN THIS LOCATION.

JUNCTION BOX

DP-301 CKT #16

[1"C, 2 #10, 1 #10G]

UTILITY XFMR.

GENERATOR

ELECTRICAL BUILDING

DISK FILTERS

EXISTING 1" PVC

EXISTING 1 1/2" PVC

BACKWASH PUMP STATION

AREA LIGHT FIXTURE CKT #14

[1"C, 2 #10, 1 #10G] (TYP.)

EXIST. 1 1/2" REUSE WATER DOES NOT EXIST

NEW 4" PVC REUSE PLUGGED FOR FUTURE

UV DISINFECTION SYSTEM

EFFLUENT PARSHALL FLUME

AREA LIGHT FIXTURE

EFFLUENT PUMP STATION

ASPHALT PAVING

[1"C, 2 #10, 1 #10G]

AREA LIGHT FIXTURE (TYPICAL)

[1"C, MSC]

GOLF COURSE PUMP STATION

FLAT CREEK OUTFALL METER VAULT

AREA LIGHT FIXTURE DP-301, CKT #17

GOLF COURSE METER VAULT

NEW JUNCTION BOX FOR LT. POLES

[1"C, 2 #10, 1 #10G] (TYP.)

EXISTING CONCRETE

EXISTING SLUDGE DRYING BED (TO REMAIN)

MH-LV1

MH-LV2

HH-LV3

HH-SIG1

HH-SIG2

HV 340-E-4|340-E-3

D1 340-E-4|340-E-3

D2 340-E-4|340-E-3

B1 340-E-4|340-E-4

B2 340-E-4|340-E-4

B3 340-E-4|340-E-4

B4 340-E-4|340-E-4

C1 340-E-4|340-E-4

C2 340-E-4|340-E-4

C3 340-E-4|340-E-4

C4 340-E-4|340-E-4

KEY PLAN

AREA 1	AREA 3
AREA 2	AREA 4

DUCTBANK SECTIONS:

SEE DRAWING 100-D-15 FOR TYPICAL DUCTBANK DETAILS
SEE DRAWING 340-E-1 FOR CIRCUIT CALLOUTS

NOT USED

SECTION A — NTS

SECTION C1 — NTS — 340-E-4|340-E-4

(31 C5) (31 C6) (31 S6) (31 S10) (31 C7) (31 S8/9) (31 S7) (E) — SIGNAL CKTS

(31 P15) (31 P16) (31 P17) (31 P31) (31 P18) (31 P19) (31 P20) (31 P32) (31 P14) (31 P22/29/30) (E) (E) — LV CKTS 2

(31 P9) (31 P10) (31 P11) (31 P12) (31 P13) (E) — LV CKTS

(31 GS3) (31 S4) (31 S2) (31 C4) (E) (31 C2/3/10) — SIGNAL CKTS

SECTION B1 — NTS — 340-E-4|340-E-4

(31 P29) — LV CKTS

(31 S9) (E) — SIGNAL CKTS

SECTION C2 — NTS — 340-E-4|340-E-4

(31 S2) (31 C2) — SIGNAL CKTS

(31 P7) (31 P27) — LV CKTS

SECTION B2 — NTS — 340-E-4|340-E-4

(31 C5) (31 C6) (31 S6) (31 C7) (31 S8) (31 S7) — SIGNAL CKTS

(31 P15) (31 P16) (31 P17) (31 P31) (31 P18) (31 P19) (31 P20) (31 P32) (31 P14) (31 P22) (E) (E) — LV CKTS 2

SECTION C3 — NTS — 340-E-4|340-E-4

(31 C3) — SIGNAL CKTS

(31 P8) (31 P28) — LV CKTS

SECTION B3 — NTS — 340-E-4|340-E-4

(31 P9) (31 P10) (31 P11) (31 P12) (31 P13) (E) — LV CKTS

(31 GS3) (31 S4) (31 C4) (31 C10) — SIGNAL CKTS

SECTION B4 — NTS — 340-E-4|340-E-4

(E) — LV CKTS

(31 S10) (E) — SIGNAL CKTS

SECTION C4 — NTS — 340-E-4|340-E-4

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3	6/24/04	RECORD DRAWING MARKUP	MZ / WW
2	7/10/02	ADDENDUM NO. 4	NL / NL
1	6/14/02	ADDENDUM NO. 2	NL / NL

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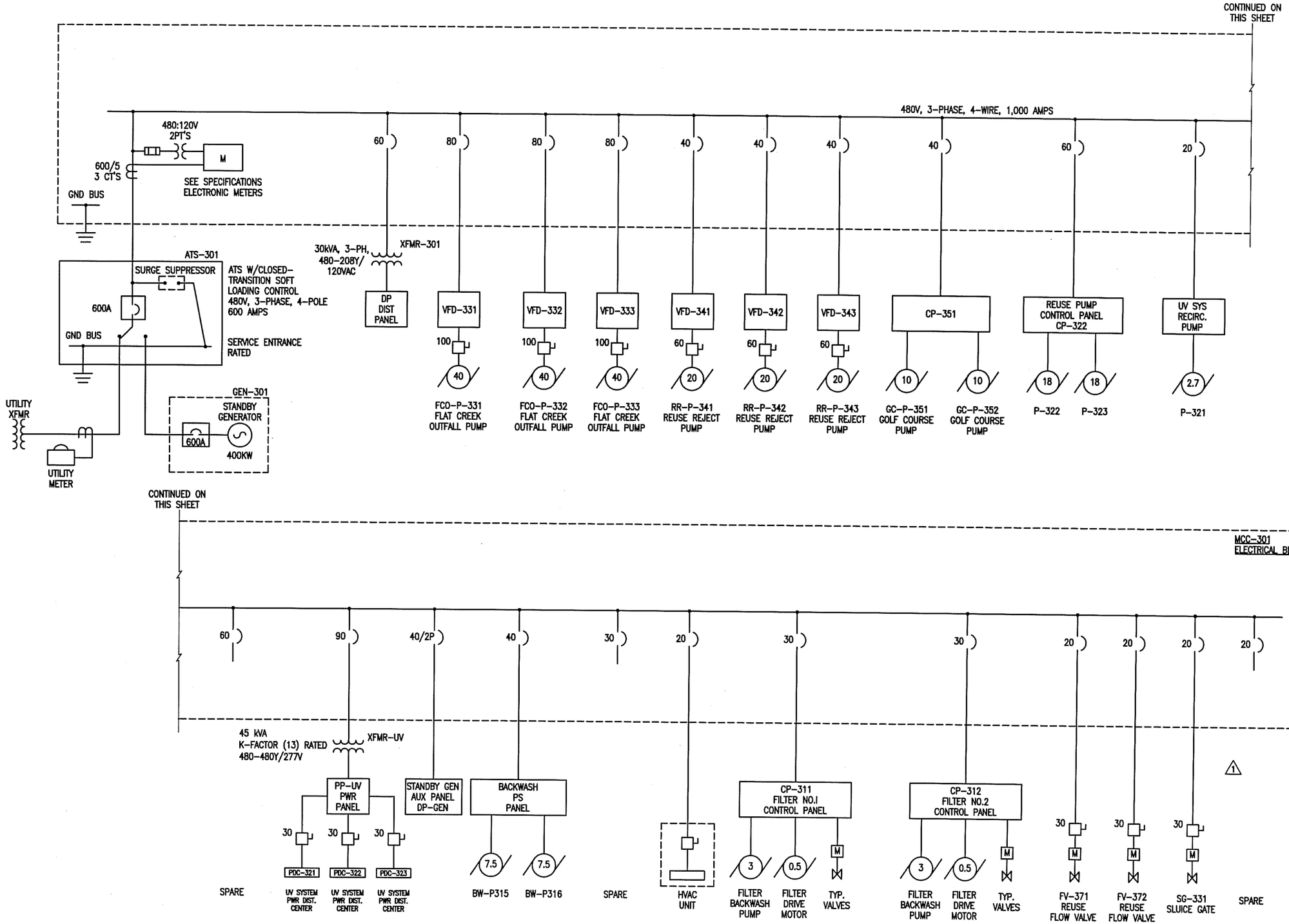
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
ELECTRICAL SITE PLAN
(AREA 4)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	12-21-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 340-E-4.3



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NO.	DATE	REVISION DESCRIPTION	BY
1	6/14/02	ADDENDUM NO. 2	NL

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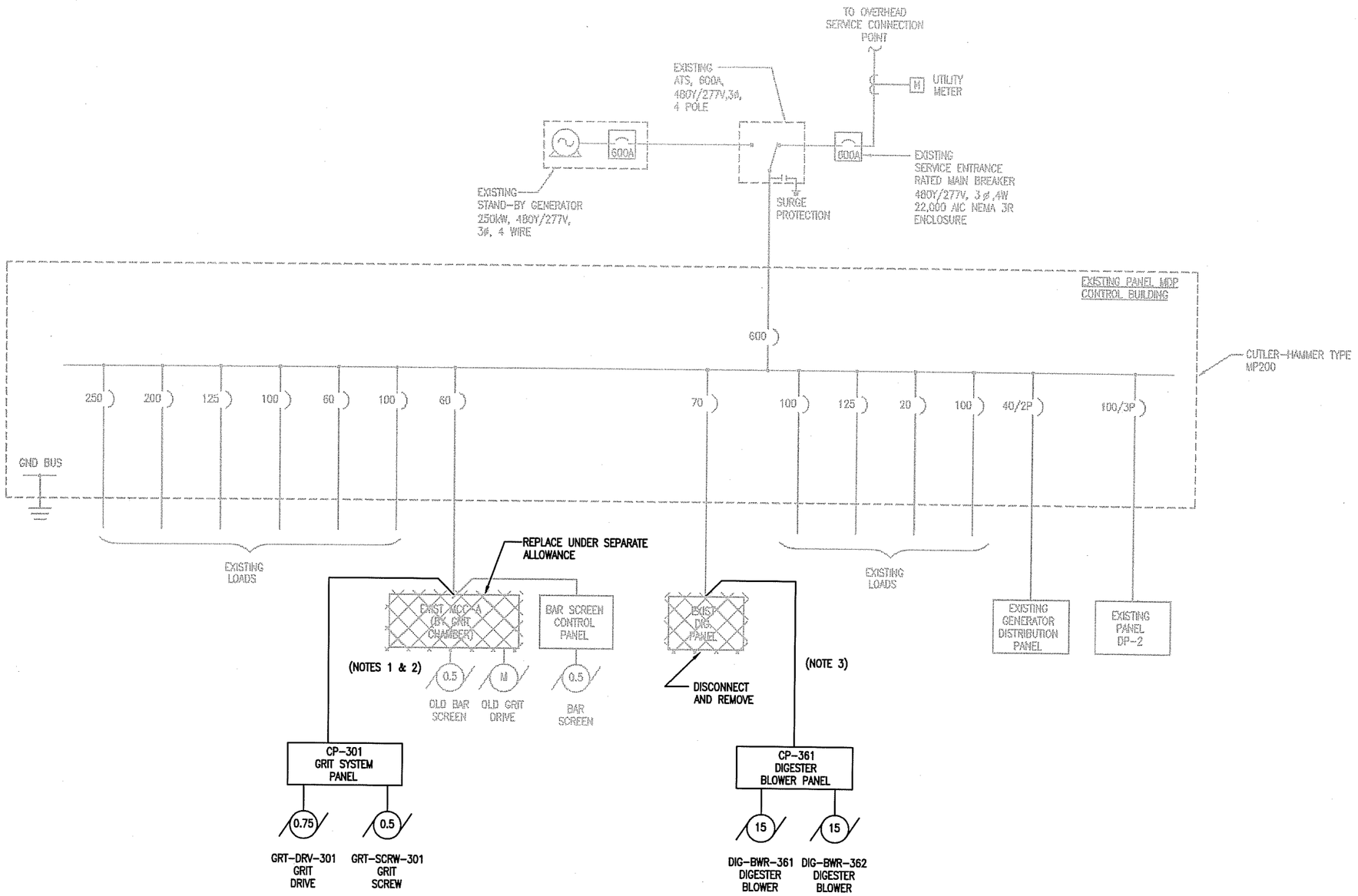
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
SINGLE LINE DIAGRAM
(1 OF 2)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	11-12-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 340-E-5.1



PARTIAL ONE-LINE DIAGRAM

SCALE: NTS

NOTES:

1. EXISTING MCC-A (NEXT TO GRIT CHAMBER) IS A PANEL WITH THREE 15-AMP CIRCUIT BREAKERS, A 6kVA TRANSFORMER, MISCELLANEOUS CONTROL COMPONENTS AND A SMALL PANELBOARD. CONTRACTOR TO REPLACE THIS PANEL UNDER A SEPARATE ALLOWANCE, AS NOTED IN SPECIFICATION 16010. THE NEW PANEL SHALL NOT INCLUDE BREAKERS FOR OLD GRIT CHAMBER OR OLD BAR SCREEN EQUIPMENT.
2. INSTALL NEW CIRCUIT TO NEW GRIT CHAMBER PANEL CP-301 FROM THE LINE SIDE OF EXISTING MCC-A. INSPECT AND REPLACE THE EXISTING CIRCUIT FROM THE MAIN MDP, IF REQUIRED.
3. DISCONNECT CIRCUIT TO EXISTING DIGESTER BLOWER PANEL AND INSTALL NEW CIRCUIT TO NEW DIGESTER BLOWER PANEL.

MODIFICATIONS TO EXISTING CONTROL BUILDING:

1. CONTRACTOR TO COORDINATE WITH THE OWNER AND LOCATE RTU-PNL-300 IN THE CONTROL BUILDING.
2. PROVIDE A PACKAGED POWER PANEL AND TRANSFORMER 480-240/120V SINGLE PHASE, 10 kVA TO SUPPLY 120V AC CIRCUITS FOR THE RTU AND ALL OTHER SCADA EQUIPMENT IN THE CONTROL BUILDING.
3. PROVIDE SIX ADDITIONAL CONVENIENCE DUPLEX RECEPTACLES IN THE LAB AND OFFICE AREAS OF THE CONTROL BUILDING FOR THE OWNER'S USE. COORDINATE EXACT LOCATION WITH THE OWNER.
4. SUBMIT A PROPOSED DESIGN OF THE ELECTRICAL MODIFICATIONS TO THE CONTROL BUILDING FOR THE ENGINEER'S APPROVAL.

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY CKD

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
SINGLE LINE DIAGRAM
(2 OF 2)

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	11-12-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 340-E-6.0

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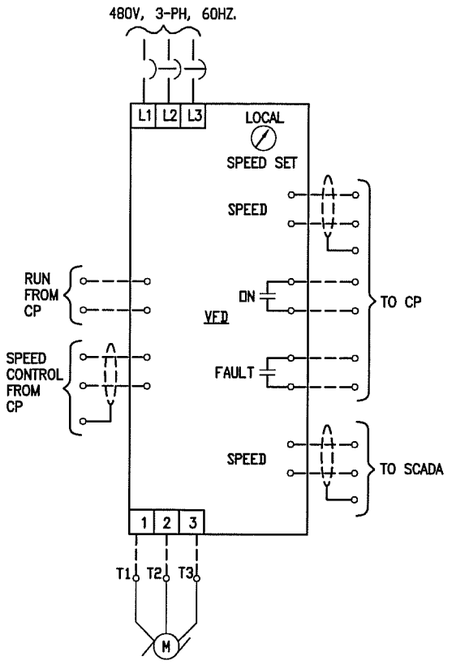
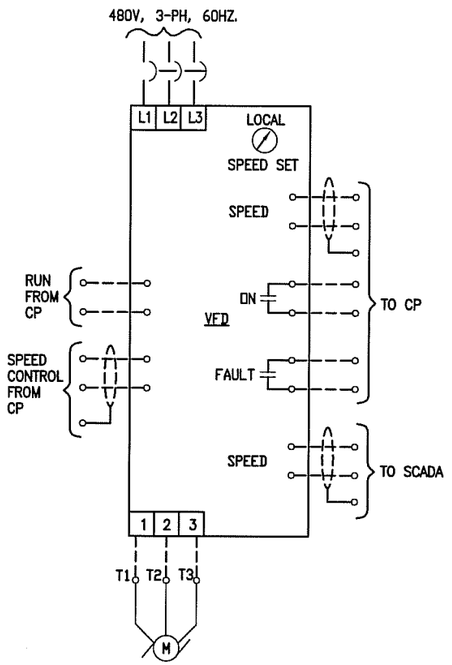


FLAT CREEK OUTFALL PUMPS
FCO-P-331, 332 & 333



REUSE/REJECT PUMPS
RR-P-341, 342 & 343

NOTES FOR FLAT CREEK OUTFALL PUMP SCHEMATIC DIAGRAM:

1. PROVIDE 120V ac POWER CIRCUIT FOR MOTOR SPACE HEATER TO PREVENT MOISTURE CONDENSATION. SWITCH THE CIRCUIT ON WHEN THE MOTOR IS OFF.

GENERAL NOTES

1. ELECTRICAL CONTRACTOR TO PROVIDE CONDUIT AND WIRING FOR HVAC CONTROL CIRCUITS AS REQUIRED. REFER TO HVAC SCHEMATIC DIAGRAMS AND APPROVED VENDOR SUBMITTALS FOR CONTROL LOGIC AND INTERLOCKING REQUIREMENTS.
2. CONDUIT AND CABLE FOR LIGHTING AND RECEPTACLES ARE NOT SHOWN ON THE PLANS. PROVIDE CONDUITS (3/4 -INCH MIN.) AND CONDUCTORS (#12 AWG MIN.) AS REQUIRED.
3. INTER-CONNECTING CIRCUITS BETWEEN VENDOR FURNISHED PACKAGE SYSTEM EQUIPMENT SUCH AS BLOWER OR SLUDGE DEWATERING SYSTEMS ARE SHOWN FOR INFORMATION. PROVIDE ALL CONDUITS AND CONDUCTORS AS REQUIRED BY THE APPROVED SHOP DRAWINGS.
4. CONDUIT INSTALLATIONS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS.
5. COORDINATE THE ELECTRICAL REQUIREMENTS OF PROCESS EQUIPMENT AND ALL EQUIPMENT FURNISHED BY OTHER TRADES PRIOR TO RUNNING ELECTRICAL CIRCUITS.
6. ALL UNDERGROUND CONDUITS SHALL BE ENCASED IN CONCRETE, UNLESS OTHERWISE NOTED.
7. PROVIDE 1-INCH EMPTY CONDUIT BETWEEN ALL INSTRUMENT SENSOR ELEMENTS AND TRANSMITTERS FOR VENDOR FURNISHED INSTRUMENT CABLES.
8. PROVIDE MOUNTING SUPPORTS FOR ALL INSTRUMENTS, CONTROL PANELS AND DEVICES THAT REQUIRE MOUNTING. SUPPORTS AND HARDWARE MATERIAL SHALL BE OF STAINLESS STEEL.
9. BOND GROUNDING CONDUCTORS TO METALLIC ENCLOSURES AT BOTH ENDS, AND TO INTERMEDIATE METALLIC ENCLOSURES (JUNCTION BOXES, ETC.). EXTEND AND CONNECT GROUNDING CONDUCTORS TO GROUND BUS IN ALL EQUIPMENT CONTAINING A GROUND BUS.
10. GROUND THE SHIELD OF ANALOG CABLES TO THE GROUND BUS AT THE POWER SUPPLY FOR THE ANALOG SIGNAL. DO NOT GROUND THE SHIELD AT MORE THAN ONE POINT.
11. PROVIDE A CONCRETE PAD FOR ALL FLOOR-MOUNTED ELECTRICAL PANELS AND ENCLOSURES. REFER TO STRUCTURAL DRAWINGS FOR EQUIPMENT PAD DETAILS.
12. PROVIDE STAINLESS STEEL, NEMA 4X JUNCTION BOXES, DISCONNECT SWITCHES AND DEVICES FOR ALL OUTDOOR OR INDOOR WET AREAS.
13. ALL ELECTRICAL RACEWAYS SHALL CONTAIN A CODE SIZED GREEN EQUIPMENT GROUNDING CONDUCTOR IN ADDITION TO CIRCUIT CONDUCTORS FOR LIGHTING AND RECPTACLES. PROVIDE A SEPARATE CONDUCTOR FOR EACH SINGLE-POLE CIRCUIT SERVED.
14. ANY RACEWAY WITH MORE THAN THREE CURRENT-CARRING CONDUCTORS SHALL BE PROPERLY DERATED PER THE NEC.
15. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL REQUIREMENTS.
16. VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY DIGGING. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

RECORD SET

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

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GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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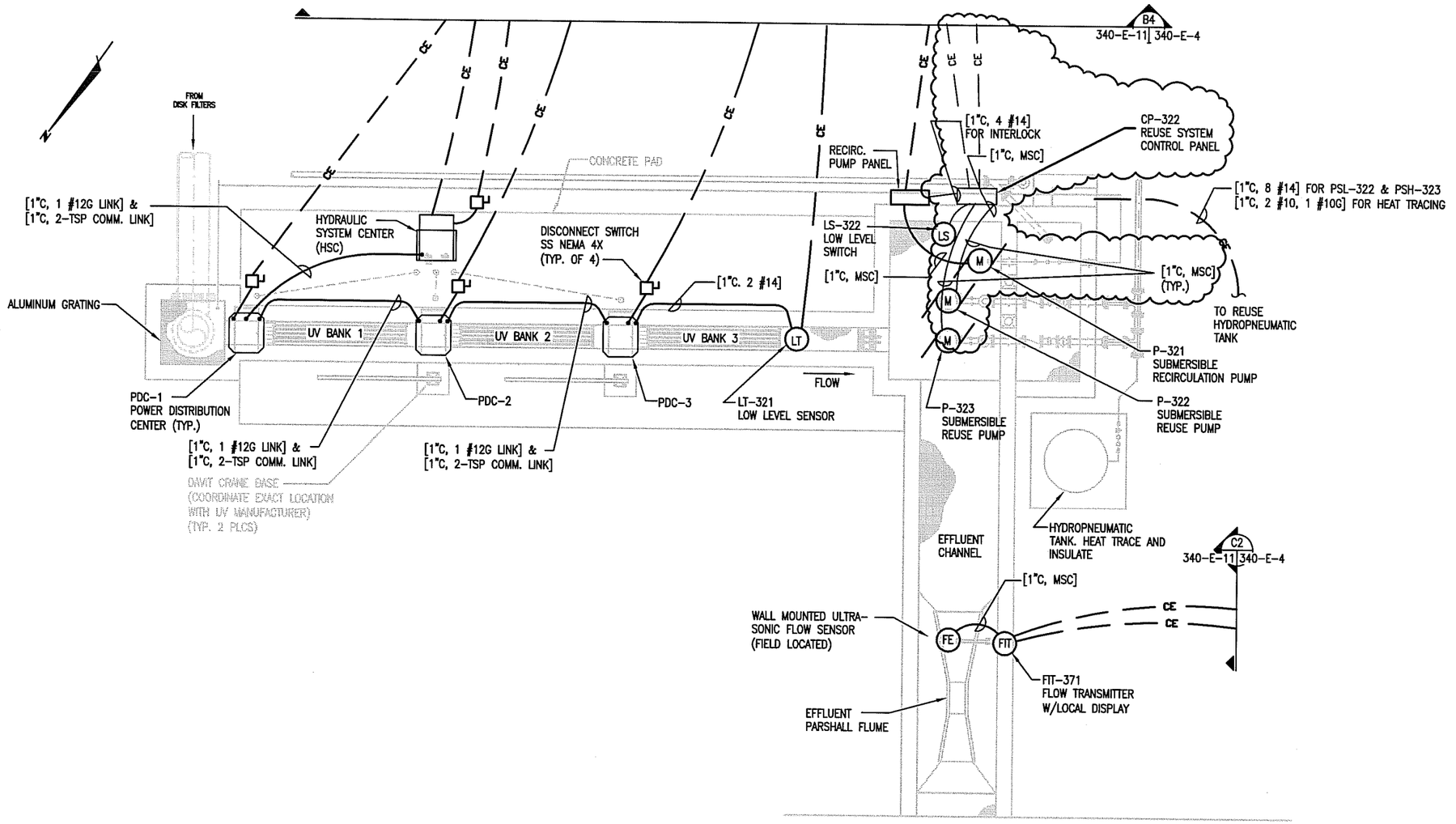
ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		N. LIMA	N. LIMA
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	340-E-7.0

LINE CREEK WWTP
SCHEMATIC DIAGRAMS AND GENERAL NOTES



UV DISINFECTION SYSTEM AND EFFLUENT PARSHALL FLUME ELECTRICAL PLAN

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

NOTES:

1. UV SYSTEM CIRCUITS ARE SHOWN AS A GUIDE. REFER TO UV SYSTEM SUPPLIER'S APPROVED SHOP DRAWINGS FOR EXACT NUMBER AND TYPE OF CONTROL AND COMMUNICATION CABLES REQUIRED, AND PROVIDE ACCORDINGLY.
2. PROVIDE ELECTRICAL JUNCTION BOXES AS REQUIRED TO COMBINE CIRCUITS FOR ROUTING THROUGH COMMON CONDUITS SHOWN IN THE DUCTBANK TO THE UV ELECTRICAL BUILDING.
3. PROVIDE 120V ac POWER CIRCUIT FOR HEAT TRACING OF HYDROPNEUMATIC TANK AND EXPOSED REUSE PIPING FROM THE REUSE SYSTEM CONTROL PANEL (CP-322).

RECORD SET

PRELIMINARY NOT FOR CONSTRUCTION

HALF SIZE DRAWING

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	6/24/04	RECORD DRAWING MARKUP	MZ / WW

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

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ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA

LINE CREEK WWTP
UV DISINFECTION SYSTEM AND EFFLUENT PARSHALL FLUME ELECTRICAL PLAN

PROJECT NUMBER GA063098

DRAWING NUMBER 340-E-11.1

Acad Version : R16.0s (LMS Tech)
User Name : mzuniga
Date\Time : Thu, 01 Jul 2004 - 3:22pm
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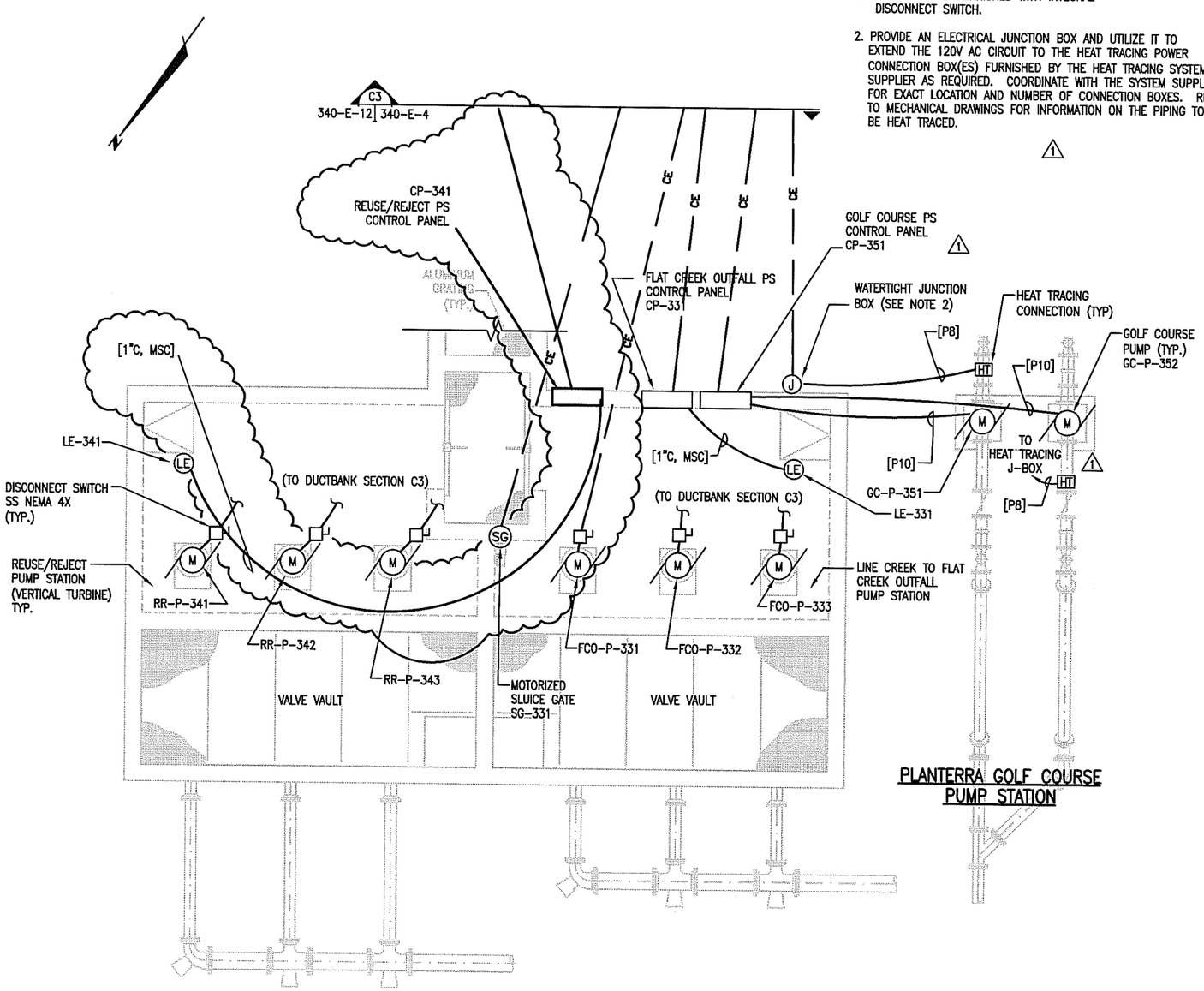
NOTES:

1. SLUICE GATE IS FURNISHED WITH INTEGRAL DISCONNECT SWITCH.
2. PROVIDE AN ELECTRICAL JUNCTION BOX AND UTILIZE IT TO EXTEND THE 120V AC CIRCUIT TO THE HEAT TRACING POWER CONNECTION BOX(ES) FURNISHED BY THE HEAT TRACING SYSTEM SUPPLIER AS REQUIRED. COORDINATE WITH THE SYSTEM SUPPLIER FOR EXACT LOCATION AND NUMBER OF CONNECTION BOXES. REFER TO MECHANICAL DRAWINGS FOR INFORMATION ON THE PIPING TO BE HEAT TRACED.



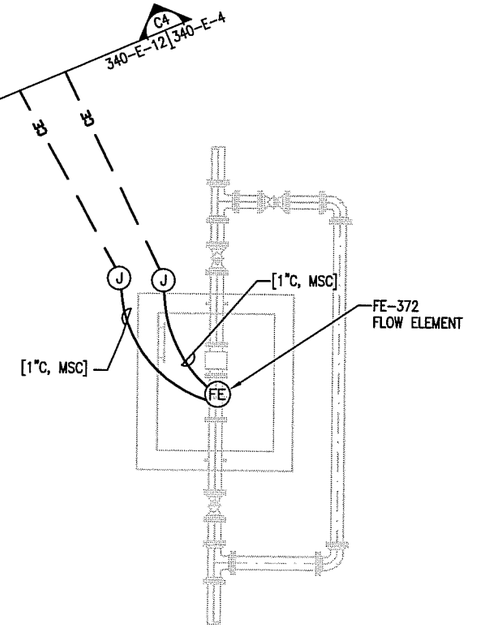
PLANTERRA GOLF COURSE
PUMP STATION

CIRCUIT CALLOUTS

[P8] = [1°C, 2 #8, 1 #8G]

[P10] = [1°C, 3 #10, 1 #10G]

EFFLUENT PUMP STATION ELECTRICAL PLAN
(REUSE/REJECT-OUTFALL-PLANTERRA GOLF COURSE PUMP STATION)
SCALE: 1/4" = 1'-0"



GOLF COURSE METER VAULT ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
2	6/24/04	RECORD DRAWING MARKUP	MZ / WW
1	7/10/02	ADDENDUM NO. 4	NL / NL

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

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ROCKAWAY WWTP EXPANSION
AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		N. LIMA	N. LIMA
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	340-E-12.2

LINE CREEK WWTP
EFFLUENT PUMP STATION AND
GOLF COURSE METER VAULT
ELECTRICAL PLANS

Acad Version : R16.0s (LMS Tech)
User Name : mzungo
Date\Time : Thu, 01 Jul 2004 - 3:31pm
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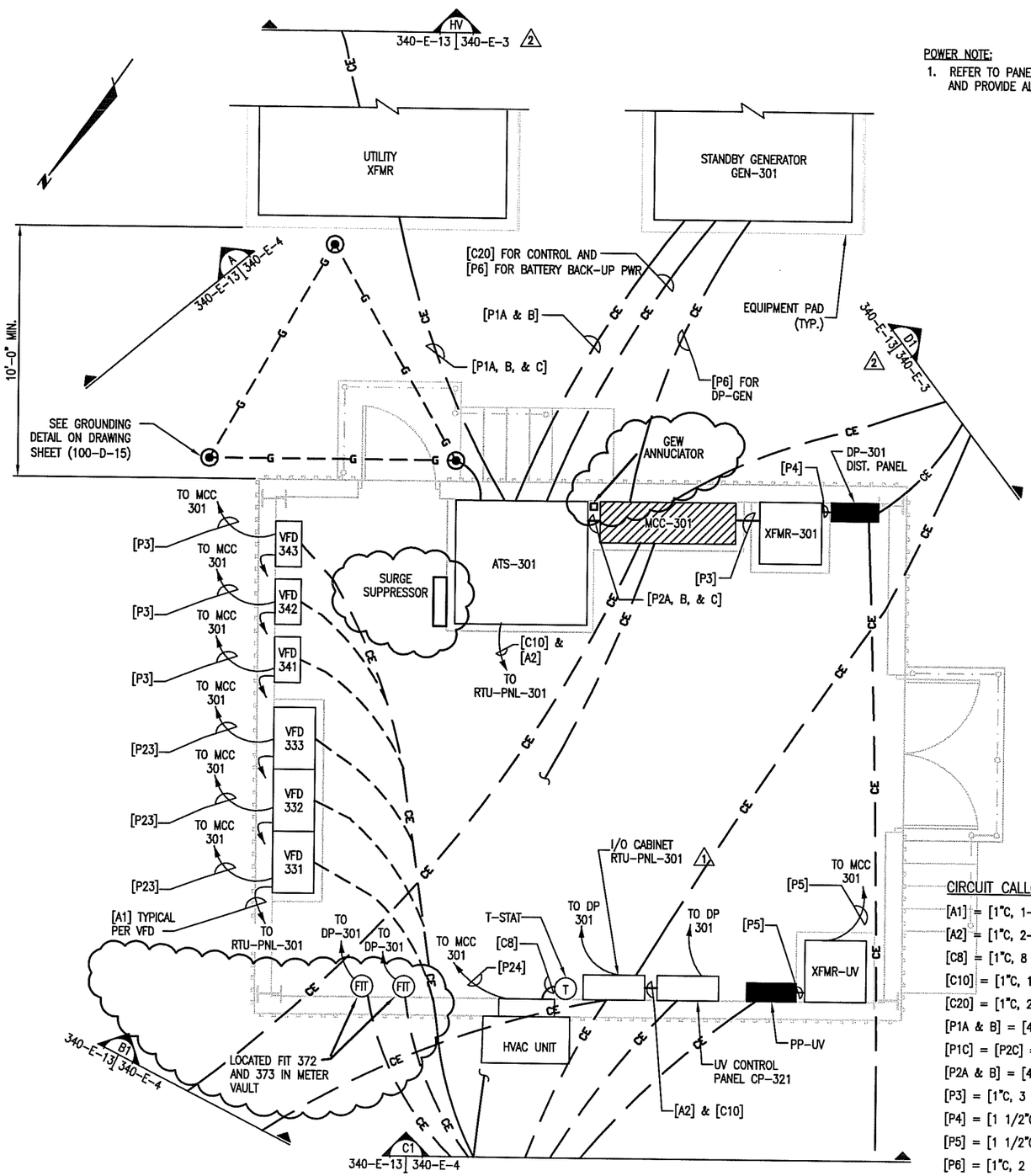


ELECTRICAL BUILDING POWER PLAN
SCALE: 3/8" = 1'-0"

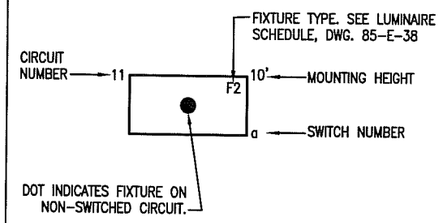
POWER NOTE:

1. REFER TO PANEL SCHEDULE DRAWING 340-E-15 AND PROVIDE ALL BRANCH CIRCUITS.

CIRCUIT CALLOUTS

[A1] = [1"C, 1-TSP]
[A2] = [1"C, 2-TSP]
[C8] = [1"C, 8 #14]
[C10] = [1"C, 10 #14]
[C20] = [1"C, 20 #14]
[P1A & B] = [4"C, 4-500 kcmil] EACH
[P1C] = [P2C] = [4"C, EMPTY]
[P2A & B] = [4"C, 4-500 kcmil, 1-1/0G] EACH
[P3] = [1"C, 3 #6, 1 #8G]
[P4] = [1 1/2"C, 4 #2, 1 #6G]
[P5] = [1 1/2"C, 4 #2, 1 #8G]
[P6] = [1"C, 2 #8, 1 #8G]
[P23] = [1"C, 3 #3, 1 #8G]
[P24] = [1"C, 3 #12, 1 #12G]

LIGHT FIXTURE LEGEND

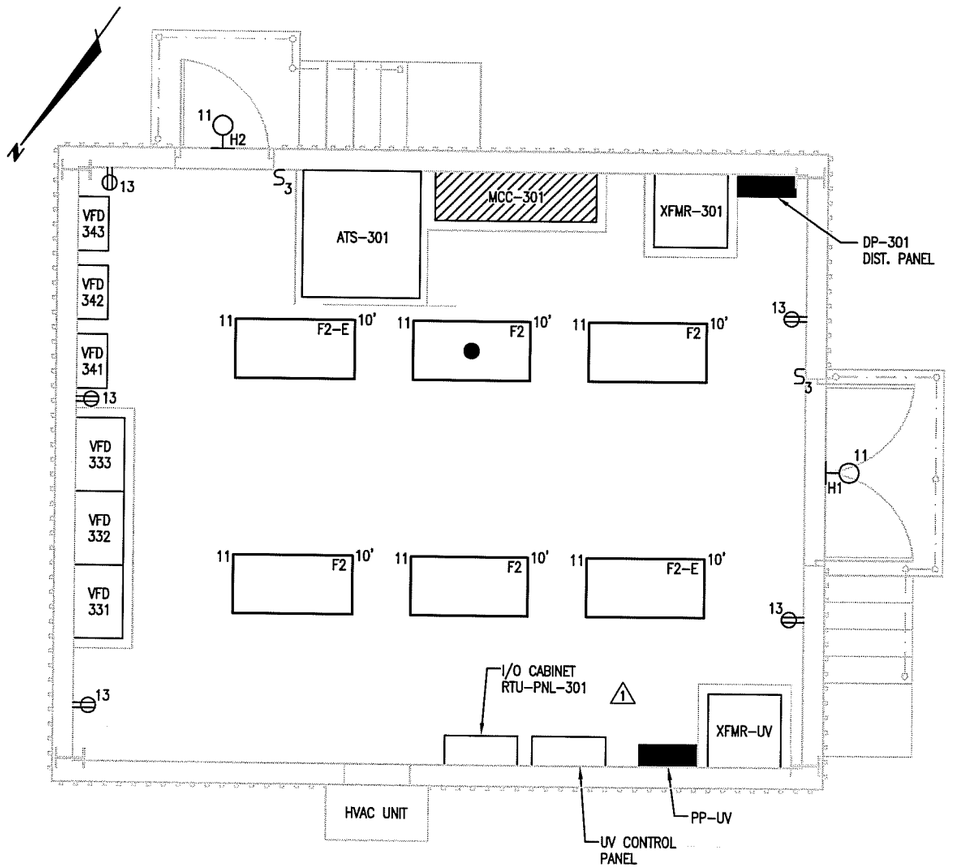


NOTES:

1. FIXTURES WITH SELF CONTAINED EMERGENCY POWER PACK ARE SHOWN WITH SUFFIX E. POWER PACK WILL ENERGIZE ON POWER FAILURE.

LIGHTING NOTES:

1. CONDUIT AND CABLE FOR LIGHTING AND RECEPTACLES ARE NOT SHOWN ON THE PLAN. PROVIDE CONDUITS (3/4-INCH MIN.) AND CONDUCTORS (#12 AWG) AS REQUIRED.
2. CONDUCTORS FOR LIGHTING SWITCH LEG AND CONDUCTORS BETWEEN ALL LIGHTING FIXTURES SHALL BE THE SAME SIZE AS LIGHTING FIXTURE HOMERUN CIRCUIT CONDUCTOR.
3. OUTDOOR LIGHTING SHALL NOT BE SWITCHED. THEY SHALL BE CONTROLLED VIA INTEGRAL PHOTOCELL.
4. CONNECT EMERGENCY LIGHTS TO NON-SWITCHED LEG OF LIGHTING CIRCUIT.
5. ALL LIGHT FIXTURES AND RECEPTACLES ARE POWERED FROM PANEL DP-301.



ELECTRICAL BUILDING LIGHTING PLAN
SCALE: 3/8" = 1'-0"

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
3	6/24/04	RECORD DRAWING MARKUP	MZ / WW
2	7-29-02	ADDENDUM NO. 3	JL / WW
1	6/14/02	ADDENDUM NO. 2	NL / NL

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
K. IADIMARCO	02-08-02	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA

LINE CREEK WWTP
ELECTRICAL BUILDING POWER AND LIGHTING PLANS

PROJECT NUMBER: GA063098
DRAWING NUMBER: 340-E-13.3

Acad Version : R16.0s (LMS Tech)
User Name : mzuniga
Date\Time : Thu, 01 Jul 2004 - 3:36pm
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LUMINAIRE SCHEDULE

SYMBOL	FIXTURE TYPE	FIXTURE MOUNTING	LAMP TYPE	LAMP WATTS	VOLTAGE	DESIGN BASIS MANUFACTURER	DESIGN BASIS CATALOG NO.	DESCRIPTION
▭	F2	RECESSED LAY-IN	FLUORESCENT (F32T8)	2-32	120	METALUX OR LITHONIA	2GS232A125120EB81 2GT232A12125120-GEB	2 LAMP RECESSED 2'x4' FLUORESCENT LAY IN TROFFER WITH 0.125" THICK VIRGIN ACRYLIC LENS. ELECTRONIC BALLAST.
⊢○	H1	WALL	HPS	70	120	HOLOPHANE	WP2A070HP12BZ-P	WALL-MOUNTED OUTDOOR WIDE SPREAD DISTRIBUTION LUMINAIRE WITH PRISMATIC BOROSILICATE REFRACTOR AND 120V AC PHOTOCONTROL.
⊢○	H2	WALL	HPS	150	120	HOLOPHANE	WL2K15AHP12BZ AND WL2KPR12	HEAVY DUTY WALL-MOUNTED OUTDOOR WIDE SPREAD DISTRIBUTION LUMINAIRE WITH PRISMATIC BOROSILICATE REFRACTOR AND 120V AC PHOTOCONTROL.
o-○	H3	STANCHION	HPS	100	MULTI-VOLTAGE (120-277)	HOLOPHANE	PTA100HPMTS541P	INDUSTRIAL GRADE PRISMATIC GLASS WITH LONG AND NARROW DISTRIBUTION. UL LISTED FOR WET LOCATIONS, 55°C WITH PHOTO CONTROL.
o-○	H11	POLE	HPS	150	120	HOLOPHANE	PD15AHP12KW1BCPDPR12 POLE AZRT20J/1/	HEAVY DUTY OUTDOOR FLOODLIGHT, UL LISTED FOR WET LOCATIONS. 45-DEGREE TILT, 20-FOOT ROUND TAPERED BRONZE POLE AND 120V AC PHOTO CONTROL.
○-○	H11-2	POLE	HPS	150	120	HOLOPHANE	PD15AHP12KW1BCPDPR12 POLE AZRT20J/2U/	HEAVY DUTY OUTDOOR FLOODLIGHT, UL LISTED FOR WET LOCATIONS. 45-DEGREE TILT, 20-FOOT ROUND TAPERED BRONZE POLE AND 120V AC PHOTO CONTROL.

REFER TO LIGHTING PLANS FOR NUMBER OF FIXTURES REQUIRED. FURNISH EMERGENCY POWER PACKS (INTEGRAL WITH FIXTURES) WHERE SHOWN WITH SUFFIX E ON LIGHTING PLANS. POWER PACK SHALL ENERGIZE ON POWER FAILURE.

NOTE:

1. SEE DRAWING 340-E-14 FOR INFORMATION ON DISTRIBUTION PANEL DP-GC AND PROVIDE THAT PANEL.

PANEL DP-301 LOCATION UV ELEC. BLDG MAINS 110 ENCLOSURE NEMA TYPE 1 CABINET MTG SURFACE

VOLTS 208Y/120, PHASE: 3, WIRE: 4 60 HZ MIN. INTERRUPTING RATING 22kA AMPERES

LOAD SERVED	LOAD (KVA) A	B	C	BREAKER AMP	POLE	BRANCH CIRCUIT CONDUIT & WIRING	CKT	O	CKT	BRANCH CIRCUIT CONDUIT & WIRING	BREAKER POLE	AMP	LOAD (KVA) A	B	C	LOAD SERVED
POLYMER SYSTEM	0			20	1	1"C, 2#12, 1#12G	1	A	2	1"C, 2#12, 1#12G	1	20	0			FCO PS CONTROL PNL CP-331
RR PS CONTROL PNL CP-341		0		20	1	1"C, 2#12, 1#12G	3	B	4	1"C, 2#12, 1#12G	1	20		0		MAGNETIC FLOW METER FIT-372
PARSHALL MTR FLUME FIT-371			0	20	1	1"C, 2#12, 1#12G	5	C	6	1"C, 2#12, 1#12G	1	20			0	UV SYSTEM CONTROL CENTER SCC, CP-321
UV SYSTEM HSC	0			30	1	1"C, 2#10, 1#10G	7	A	8	1"C, 2#12, 1#12G	1	20	0			UV SYSTEM LIT-
UV SYSTEM		0		20	1	1"C, 2#12, 1#12G	9	B	10	1"C, 2#12, 1#12G	1	20		0		RTU-PNL-301
ELEC. BLDG LIGHTS			0	20	1	1"C, 2#12, 1#12G	11	C	12	1"C, 2#12, 1#12G	1	20			0	TELEPHONE
ELEC. BLDG RECEPTACLES	0			20	1	1"C, 2#12, 1#12G	13	A	14	1"C, 2#10, 1#10G	1	20	0			B/W PS AREA LIGHTING
FILTER'S AREA LIGHTING		0		20	1	1"C, 2#10, 1#10G	15	B	16	1"C, 2#10, 1#10G	1	20		0		ROADWAY LIGHTING. GEN AREA
ROADWAY LIGHTING - GOLF COURSE MTR AREA			0	20	1	1"C, 2#10, 1#10G	17	C	18	1"C, 2#10, 1#10G	1	20			0	REUSE VALVE AREA LIGHTING
TURBIDITY MTR AIT-311	0			20	1	1"C, 2#12, 1#12G	19	A	20	1"C, 2#12, 1#12G	1	20	0			MAGNETIC FLOW METER FIT-373
SPARE		0		20	1		21	B	22		1	20		0		SPARE
SPARE			0	20	1		23	C	24		1	20			0	SPARE
SPARE	0			20	1		25	A	26	2#8, 1#8G	1	30	0			HEAT TRACING AT REUSE VALVE AREA***
HEAT TRACING AT FILTERS AREA ***		0		30	1	2#8, 1#8G	27	B	28	2#8, 1#8G	1	30		0		HEAT TRACING AT GC PS AREA ***
			0	0			29	C	30			0			0	
1	0			0			31	A	32			0	0			
		0		0			33	B	34			0		0		
			0	0			35	C				0			0	
	0			0			37	A	38			0	0			
		0		0			39	B	40			0		0		
			0	0			41	C	42			0			0	

CONNECTED PHASE A:	0.0
CONNECTED PHASE B:	0.0
CONNECTED PHASE C:	0.0
TOTAL KVA	00.0

*** PROVIDE GFCI BREAKER (WITH 30MA SENSITIVITY) FOR HEAT TRACING CIRCUITS.

1

PANEL PP-UV LOCATION UV ELEC. BLDG. MAINS 90 ENCLOSURE NEMA TYPE 1 CABINET MTG SURFACE

VOLTS 480, PHASE: 3, WIRE: 4 60 HZ MIN. INTERRUPTING RATING 42kA AMPERES

LOAD SERVED	LOAD (KVA) A	B	C	BREAKER AMP	POLE	BRANCH CIRCUIT CONDUIT & WIRING	CKT	O	CKT	BRANCH CIRCUIT CONDUIT & WIRING	BREAKER POLE	AMP	LOAD (KVA) A	B	C	LOAD SERVED
PDC-321	4.1			30	3	1"C, 4#8, 1#8G	1	A	2	1"C, 4#8, 1#8G	3	30	4.1			PDC-322
		4.1						B						4.1		
			4.1					C							4.1	
PDC-323	4.1			30	3	1"C, 4#8, 1#8G	7	A	8				0			SPACE
		4.1						B						0		
			4.1					C							0	
SPACE	0						13	A	14				0			SPACE
		0						B						0		
			0					C							0	
	0						19	A	20				0			
		0						B						0		
			0					C							0	
	0						25	A	28				0			
		0						B						0		
			0					C							0	

CONNECTED PHASE A:	12.2
CONNECTED PHASE B:	12.2
CONNECTED PHASE C:	12.2
TOTAL KVA	36.6

RECORD SET

NO.	DATE	REVISION DESCRIPTION	BY / CKD
1	7/10/02	ADDENDUM NO. 4	NL / NL

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY WATER & SEWERAGE AUTHORITY

LINE CREEK WWTP
LUMINAIRE AND PANEL SCHEDULES

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
D. McMILLAN	11-14-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF. N. LIMA	CHECKED N. LIMA
		PROJECT NUMBER GA063098	DRAWING NUMBER 340-E-15.1

Date\Time : Tue, 08 Jun 2004 - 4:10pm
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Acad Version : R16.0s (LMS Tech)
User Name : alwhite

SCADA

RTU PANEL
RTU-PNL-301

FI

PLC

CONTROL PANELS

FILTER DRIVE ON, BACKWASH IN PROGRESS

FILTER NO.1 COMMON ALARM

DISK FILTER NO.1 CONTROL PANEL CP-311 **

FILTER DRIVE ON, BACKWASH IN PROGRESS

FILTER NO.2 COMMON ALARM

DISK FILTER NO.2 CONTROL PANEL CP-312 **

SYSTEM INTERLOCK

TURBIDITY

PUMP NO.1 ON, PUMP NO.2 ON

COMMON ALARM

BACKWASH PUMP STATION CONTROL PANEL CP-315 **

MAJOR ALARM

MINOR ALARM

FLOW

SYSTEM ON

UV SYSTEM CONTROL CENTER CP-321 **

PUMP ON

COMMON ALARM

REUSE SYSTEM CONTROL PANEL CP-322 **

FIELD

AIT 311 TURBIDITY

AE 311

PUMP PIT

FLT-DRV-311
FILTER DRIVE

FLT-DRV-312
FILTER DRIVE

FILTER NO.1

FILTER NO.2

FV 313B
BACKWASH VALVE (TYP. 3) B THRU D

FBW-P-311
FILTER BACKWASH PUMP (TYP. 2) P-311 AND P-312

FV 314B
BACKWASH VALVE (TYP. 3) B THRU D

FV 311
INFLUENT VALVE

FV 313A
SLUDGE VALVE

FROM CLARIFIERS

FV 314A
SLUDGE VALVE

FV 312
INFLUENT VALVE

TO INFLUENT PUMP STATION

FILTRATION SYSTEM

LS 315A-D
LEVEL SWITCHES

BACKWASH PUMP (TYP. 2)
BW-P-315

BW-P-316

BACKWASH PUMP STATION

TO SPLITTER BOX

STOP PUMP

START PUMP

LOW LVL (STOP RECIRC. PMP)

RECIRCULATION PUMP PANEL **

REUSE HYRO-PNEUMATIC TANK

PSH 323

PSL 322

P-322
REUSE PUMP

P-323
REUSE PUMP

POWER DISTRIBUTION PDC CENTER (TYP. 3)

LOW LEVEL SENSOR

FLOW

PDC-1

PDC-2

PDC-3

UV MODULE (BANK 1)

UV MODULE (BANK 2)

UV MODULE (BANK 3)

LIT 321

LS 322

UV DISINFECTION SYSTEM

P-321
RECIRCULATION PUMP

FIT 371

FE 371

G 371

G 372

NEW EFFLUENT PARSHALL METERING FLUME

TO EFFLUENT PUMPING 350-I-3 (A)

TO EFFLUENT PUMPING 350-I-3 (B)

RECORD SET

Acad Version : R16.0s (LMS Tech)
User Name : elwhite

Date\Time : Tue, 08 Jun 2004 - 4:14pm
Path\Name : G:\WWA\63098\DWG\WWTP Record Drawings\Final Record Drawings\PCIcpi62.dwg

IF THIS BAR IS NOT 1" INDICATED SCALE IS INCORRECT

NO.	DATE	REVISION DESCRIPTION	BY	CKD

GEORGIA REGISTERED No. 24756 PROFESSIONAL ENGINEER NUBEA LIMA

ARCADIS G&M
2849 Paces Ferry Road, Suite 400
Atlanta, GA 30339-3769
Tel: 770/431-8666 Fax: 770/435-2666

ROCKAWAY WWTP EXPANSION AND URBAN REUSE
PEACHTREE CITY
WATER & SEWERAGE AUTHORITY

DRAWN	DATE	PROJECT MANAGER	DEPARTMENT MANAGER
E. WHITE	12-3-01	W. WELCH	S. HENNESSEY
		LEAD DESIGN PROF.	CHECKED
		N. LIMA / S. HENNESSEY	N. LIMA
		PROJECT NUMBER	DRAWING NUMBER
		GA063098	350-I-2.0

LINE CREEK WWTP
P&I DIAGRAM
FILTRATION/DISINFECTION/
EFFLUENT METERING

Attachment D – Required Submission Forms

FORM D-1 - SECURITY AND IMMIGRATION COMPLIANCE

Federal Work Authorization Program (§ O.C.G.A. 13-10-91)

The Owner may not enter into a contract for the physical performance of services unless the contractor registers and participates in the federal work authorization program. "Physical performance of services" is defined as the building, altering, repairing, improving, or demolishing of any public structure or building or other public improvements of any kind to public property within Georgia, including the construction, reconstruction, or maintenance of all or part of a public road; or any other performance of labor for a public employer within Georgia under a contract or other bidding process".

Although the Georgia law for private employers has a structured phase-in timeline in an attempt to ease private employers into compliance based upon their business size, only those companies registered with, authorized to use and currently using the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in § O.C.G.A. 13-10-91, shall be considered.

Before a proposal for the physical performance of services is considered by the Owner, the proposal must include a signed, notarized affidavit from the contractor attesting to the following:

(1) The affiant has registered with, is authorized to use, and uses the federal work authorization program.

(2) The user identification number and date of authorization for the affiant;

(3) The affiant will continue to use the federal work authorization program throughout the contract period;

and

(4) The affiant will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the same information as required in numbers 1-3 above.

If a contractor does not have any employees and does not intend to hire any employees, in lieu of the above affidavit the contractor may provide a copy of state-issued driver's license or identification card to the Owner for each independent contractor utilized in satisfaction of part or all of the contact with the Owner. However, a driver's license or identification card will be acceptable if it is issued by a state that verifies lawful immigration status. The Georgia Attorney General will provide a list of states that verify lawful immigration status and post this list on its website. The Owner must confirm that all of the copies of driver's licenses and identification cards presented to it come from states that verify lawful immigration status.

Systematic Alien Verification for Entitlements Program (SAVE)

Upon award, consistent with state law, Proposer shall complete the Affidavit Verifying Status for Owner Public Benefit Application.

Sample form is attached.

CONTRACTOR AFFIDAVIT UNDER O.C.G.A. § 13-10-91(b)(1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of Peachtree City Water and Sewerage Authority has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91.

Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____

Federal Work Authorization User Identification Number *Date of Authorization*

_____

Company Name / Contractor Name

_____

Name of Project

_____

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, _____, 20___ in _____ (Owner), _____ (state).

_____

Signature of Authorized Officer or Agent

_____

Printed Name and Title of Authorized Officer or Agent

Subscribed and sworn before me

on this the _____ day of _____, 20____

_____

Notary Public

My Commission Expires: _____

SUBCONTRACTOR AFFIDAVIT UNDER O.C.G.A. § 13-10-91(b) (3)

By executing this affidavit, the undersigned subcontractor verifies its compliance with § O.C.G.A. 13-10-91 , stating affirmatively that the individual, firm , or corporation which is engaged in the physical performance of services under a contract with _____(name of Contractor) on behalf of Peachtree City Water and Sewerage Authority has registered with, is authorized to use and uses federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in § O.C.G.A. 13-10-91.

Furthermore, the undersigned subcontractor will continue to use the federal work authorization program throughout the contract period and the undersigned subcontractor will contract for the physical performance of services in satisfaction of such contract only with sub-subcontractors who present an affidavit to the sub-contractor with the information required by § O.C.G.A. 13-10-91 (b).

Additionally, the undersigned subcontractor will forward notice of the receipt of an affidavit from a sub-subcontractor to the contractor within five business days of receipt. If the undersigned subcontractor receives notice of receipt of an affidavit from any sub-subcontractor that has contracted with a sub-subcontractor to forward, within five business days of receipt, a copy of such notice to the contractor. Subcontractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____ _____

Federal Work Authorization User Identification Number *Date of Authorization*

_____

Company Name / Subcontractor Name

_____

Name of Project

_____

Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, _____, 20___ in _____ (Owner), _____ (state).

_____

Signature of Authorized Officer or Agent

_____

Printed Name and Title of Authorized Officer or Agent

Subscribed and sworn before me

on this the _____ day of _____, 20____

_____

Notary Public

My Commission Expires: _____

END OF SECTION

FORM D-2 - NON-COLLUSION AFFIDAVIT

State of Georgia

County of _____

_____, being first duly sworn, deposes and says that:

(1) He is (owner, partner, officer, representative, or agent) of _____ the Proposer that has submitted the attached Proposal;

(2) He is fully informed respecting the preparation and contents of the attached Proposal and of all pertinent circumstances respecting such Proposal;

(3) Such Proposal is genuine and is not a collusive or sham Proposal;

(4) Neither the said Proposer nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Proposer, firm or person to submit a collusive or sham Proposal in connection with the FRP for which the attached Proposal has been submitted or to refrain from submitting a Proposal in connection with such FRP, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Proposer, firm or person to fix the price or prices in the attached Proposal or of any other Proposer, or to fix any overhead, profit or cost element of the Proposal price or the Proposal price of any other Proposer, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the _____ or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Proposer or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

(Signed) _____

Title _____

Subscribed and sworn before me

on this the _____ day of _____, 20____

_____

Notary Public

My Commission Expires:

_____

END OF SECTION

FORM D-3 - COST PROPOSAL FORM

PCWASA Wastewater Treatment Facility Improvements

This Proposal is submitted from:

_____

_____

_____

(Name and Address of Individual, Partnership, or Corporation)

_____

Georgia Utility Contractor No. (if applicable)

ARTICLE 1 – PROPOSER'S REPRESENTATIONS

1.01 In submitting this Proposal, the Proposer represents that:

A. Proposer has examined and carefully studied the RFP, other related and associated documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____

B. Proposer has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Proposer is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Proposer has considered the information known to Proposer; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the RFP; and the Site-related reports (if applicable) and drawings identified in the RFP, with respect to the effect of such information, observations, and documents on the design, cost, progress, and performance of the Work. The Proposer understands that any further examinations, tests, surveys, or data to be used in the design and completion of the Project will be the Proposer's responsibility and costs of any such work shall be included in the Firm Fixed Price provided below.

1. Proposer has given Owner written notice of all conflicts, errors, ambiguities, or discrepancies that Proposer has discovered in the RFP, and the written resolution thereof by Owner is acceptable to Proposer. The RFP and other provided documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Proposal is submitted.

ARTICLE 2 – COST PROPOSAL

2.01 The price quoted below is a Firm Fixed Price, valid for the duration of the contract. Prices include design, construction, labor, materials, equipment, insurance, bonding, overhead, profit, taxes, and all other direct and indirect elements of price associated with the Work described in the RFP.

Design Services	$
Construction General Conditions	$
UV Disinfection System at Line Creek WRF	$
UV Disinfection System at Rockaway WPCP	$
Tertiary Filtration System at Rockaway WPCP	$
Mechanical Screen at Line Creek WRF	$
Owner Contingency	$400,000.00
Total Firm Fixed Price	**$**

Total Firm Fixed Price (in words): _____

ARTICLE 3 – BONDS

3.01 Proposal, Payment, and Performance Bonds are required for the Work. Proposer's pricing above shall include the cost of separate Bid (10%), Payment (100%), and Performance (100%) Bonds from the following Surety for the total proposed contract value. Evidence of Bonds shall be supplied on separate forms including in the RFP.

Name: _____

Address: _____

ARTICLE 4 – SUBCONSULTANTS AND CONTRACTORS

4.01 Proposer shall provide a list of all proposed subcontractors and/or sub-consultants by name, type of work, and percentage of total work which Proposer intends to contract that is greater than 5% of total contract value.

If none, Proposer shall so state: _____

Entity Name	Type of Work	Percentage of Total Work
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

ARTICLE 5 – SUBMITTAL

9.01 By submitting this Proposal, the Proposer certifies that the price(s) contained herein are firm and have been carefully checked and are submitted as correct and final.

Name (typed or printed): _____

By: _____ Date:_____
(Individual's signature)

Title: _____

Company Name: _____

Address: _____

Phone Number: _____ Email: _____

FORM D-4 - PROPOSAL BOND

PROPOSER *(Name and Address)*:

SURETY *(Name and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:
Peachtree City Water and Sewerage Authority
1127 GA-74
Peachtree City, GA 30269

PROPOSAL
Proposal Due Date: <Proposal Date/Time>
Project: PCWASA Wastewater Treatment Facility Improvements

BOND
Bond Number:
Date *(Not earlier than Proposal due date)*:
Penal sum _____ $ _____
(Words) (Figures)

Surety and Proposer, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Proposal Bond to be duly executed by an authorized officer, agent, or representative.

PROPOSER

_____ (Seal)
Proposer's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature (Attach Power of Attorney)

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Note: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

1. Proposer and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Proposer the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Proposer's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Proposer.

2. Default of Proposer shall occur upon the failure of Proposer to deliver within the time required by the RFP (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the RFP and any performance and payment bonds required by the RFP and proposed Contract Documents.

3. This obligation shall be null and void if:
   3.1 Owner accepts Proposer's Proposal and Proposer delivers within the time required by the RFP (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the RFP and any performance and payment bonds required by the RFP and proposed Contract Documents, or
   3.2 All Proposals are rejected by Owner, or
   3.3 Owner fails to issue a Notice of Award to Proposer within the time specified in the RFP (or any extension thereof agreed to in writing by Proposer and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Proposer and within 30 calendar days after receipt by Proposer and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Proposer, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Proposal due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Proposer and Surety and in no case later than one year after Proposal due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Proposer and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

END OF SECTION