



ADDENDUM NO. 03

To: Bidders & Plan Holders

From: Craig A. Johnson, P.E.
Crist Engineers, Inc.

Date: March 5, 2021

Project: Wastewater Treatment Facility Improvements
Walnut Ridge, Arkansas

Original Bid Date: March 4, 2021

Revised Bid Date: March 11, 2021

Bid Time: 2:00 PM

Location: Walnut Ridge City Water Works
216 S.W. 4th Street
Walnut Ridge, Arkansas 72476

The BIDDER shall properly acknowledge Addendum No. 03 as required in Article 3 of Document 004100 on the Bid Form as confirmation that the BIDDER has examined the following Addenda and the related changes to the Contract Documents. Lack of proper acknowledgement on the Bid Form may deem a bid non-responsive.

The Contract Documents dated February 3, 2021, are hereby amended as follows:





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IMPORTANT REMINDERS:

The bid opening for this project has changed from the Bid Set documents.

The Bid Date per this Addendum (Addendum No. 03) is **March 11, 2021** at 2:00 PM.

Please reference Section 002113 - Instructions to Bidders, provided in the contract documents for information required for the bid submission.

BID DOCUMENTS:

1. Section 004100 – Bid Form
 - a. Delete in its entirety and replace with Bid Form, attached hereto.
2. Section 005200 – Agreement
 - a. Paragraph 6.02.A.1.: Add the following:
“c. 100-percent of cost of Owner pre-selected equipment at the payment schedule indicated in the proposal less any offset.”
 - b. Paragraph 6.02.B.: Modify as follows:
“...Owner shall pay an amount sufficient to increase total payments to Contractor to **95** ~~100~~ percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less **150** percent of Engineer’s estimate...”
3. Section 007000 – General Conditions
 - a. Paragraph 7.5.D.: Modify as follows:
“Reimbursement of Engineer’s Cost: Engineer will record Engineer’s costs in evaluating a substitute proposed or submitted by Contractor. ~~Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute.~~ Contractor shall ~~also~~ reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.”
4. Section 008000 – Supplementary Conditions
 - a. Delete in its entirety and replace with Supplementary Conditions, attached hereto.



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5. Appendix B – Presetlected Equipment and Scope of Services – Section 460753 Packaged Wastewater Treatment Equipment
 - a. Delete in its entirety and replace with Appendix B, attached hereto.

SPECIFICATIONS:

1. Section 014000 – Basic Requirements
 - a. Paragraph 1.1.B.: Modify as follows:
“Contractor shall transport and store equipment in accordance with Manufacturer’s ~~recommendations~~ **requirements.**”
 - b. Paragraph 1.1.: Add the following:
“I. Contractor shall provide an 800 GPM to 1,200 GPM pump to evacuate solids in the existing Biolac Basin to each SBR tank.”
 - c. Paragraph 1.3.: Add the following:
“C. The City of Walnut Ridge will waive all permit fees.”
2. Section 017500 – Equipment Testing and Startup
 - a. Delete in its entirety and replace with Equipment Testing and Startup, attached hereto.
3. Section 071900 – Water Repellent Coating
 - a. Delete in its entirety.
4. Specification 316613 - Rammed Aggregate Pier Foundation Systems:
 - a. Modify Part 1.1 as follows:
“1.1 Description
Work shall consist of designing, furnishing, and installing Rammed Aggregate Pier foundations to the lines and grades designated on the project foundation plan and as specified herein **for the Headworks, SBR 01, SBR 02, and SBR 03.**”
5. Section 463300 – Liquid Chemical Feed System
 - a. Paragraph 2.3.B.: Add the following:
“6. Contractor shall provide one (1) backup metering pump identical to that of the metering pumps specified above.



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DRAWINGS:

1. Demolition Contract Drawings:

- a. Delete in their entirety all demolition contract drawings listed in the table for Addendum No. 3 (via Drawing G-1), attached hereto.

2. Drawing G-2 – General Notes & Contacts:

- a. Add the following Note under General Construction Notes – Site Work: “**18. EQUIPMENT STORED ON SITE SHALL BE AT AN ELEVATION OF 263.5 FT. MSL OR HIGHER.**”

- b. Add the following Note:

“**SALES TAX INFORMATION**

1. The City of Walnut Ridge has solicited the Department of Environmental Quality for a sales tax exemption determination from the Arkansas Department of Finance and Administration for equipment being installed as a part of this project Ark Code Ann. §26-52-402(a)(3) which are further interpreted by Arkansas Gross Receipts Tax Rule GR-66. GR-66 Paragraph A states that pollution control machinery and equipment are exempt from tax if they are utilized by cities in Arkansas to prevent or reduce air or water contamination which might otherwise result from the operation of the plant and that the equipment is required by Arkansas or federal law or regulations as evidenced by written documentation from ADEQ or the U.S. EPA. As such the contractor is to include sales tax for the following equipment and appurtenances:

Item No.:	Process	Sub-Item No.	Components
1.	Sludge Removal Sludge Pumping Sludge Conveyance	1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 1.10	WAS-01 (Sludge Pump) WAS-02 (Sludge Pump) WAS-03 (Sludge Pump) Sludge Suction Piping Sludge Discharge Piping Sludge Air Release Valves Sludge Isolation Valves Sludge Check Valves Sludge Pipe and Appurtenances Sludge Electrical Support Equipment, Conduit and Wire
2.	Protective Coating Systems	2.1	Exterior Paint Systems

“



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3. Drawing P-1 – Process Diagram:

- a. Modify this drawing as shown on the Addendum No. 3 – Process Diagram, attached hereto.

4. Drawing P-2 – PAA Chemical Feed and Potable Water:

- a. Modify this drawing as shown on the Addendum No. 3 – PAA Chemical Feed and Potable Water, attached hereto.

5. Drawing C-4 – Yard Piping Plan:

- a. Modify this drawing as shown on the Addendum No. 3 – Yard Piping Plan, attached hereto.

6. Drawing C-5 – Enlarged Yard Piping I:

- a. Modify this drawing as shown on the Addendum No. 3 – Enlarged Yard Piping I, attached hereto.

7. Drawing C-11 – Piping Plan and Profile – Alignment D:

- a. Modify this drawing as shown on the Addendum No. 3 – Piping Plan and Profile – Alignment D, attached hereto.

8. Drawing C-14 – Grading and Paving Plan:

- a. Modify this drawing as shown on the Addendum No. 3 – Grading and Paving Plan, attached hereto.

9. Drawing A-201 – Building Sections:

- a. Modify this drawing as shown on the Addendum No. 3 – Building Sections, attached hereto.

10. Drawing S-8 – Headworks – Structural General Arrangement:

- a. Modify this drawing as shown on the Addendum No. 3 – Headworks – Structural General Arrangement, attached hereto.

11. Drawing S-17 – SBR Section & Details:

- a. Modify this drawing as shown on the Addendum No. 3 – SBR Section & Details, attached hereto.



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12. Drawing SZ-5 – Structural Details V:

- a. Modify this drawing as shown on the Addendum No. 3 – Structural Details V, attached hereto.

13. Drawing M-2 – SBR 01 Mechanical Plan and Sections:

- a. Modify this drawing as shown on the Addendum No. 3 – SBR 01 Mechanical Plan and Sections, attached hereto.

14. Drawing M-3 – SBR 02 and SBR 03 Mechanical Plan and Sections:

- a. Modify this drawing as shown on the Addendum No. 3 – SBR 02 and SBR 03 Mechanical Plan and Sections, attached hereto.

15. Drawing M-7 – Disinfection, Quenching, & Post Aeration Basin Improvements:

- a. Modify this drawing as shown on the Addendum No. 3 – Disinfection, Quenching, & Post Aeration Basin Improvements, attached hereto.

16. Drawing MZ-1 – Mechanical Standard Details I:

- a. Modify this drawing as shown on the Addendum No. 3 – Mechanical Standard Details I, attached hereto.

17. Drawing MZ-2 – Mechanical Standard Details II:

- a. Modify this drawing as shown on the Addendum No. 3 – Mechanical Standard Details II, attached hereto.

18. Drawing MZ-8 – Mechanical Standard Details VIII:

- a. Modify this drawing as shown on the Addendum No. 3 – Mechanical Standard Details VIII, attached hereto.

19. Drawing H-1 – Mechanical Plan, Details, and Schedules:

- a. Add the following Note to the Ceiling Exhaust Fan Detail: **“3. EXHAUST FAN TO BE STANDARD CEILING MOUNT TO PROVIDE 150 CFM AT ¼”, 120 V.”**
- b. Add the following Note to the Refrigerant Piping Detail: **“1. CONDENSATE DRAIN PIPING MATERIAL SHALL BE PVC OR COPPER.”**

20. Drawing P-1 – Plumbing Plan, Details, and Riser:

- a. Modify this drawing as shown on the Addendum No. 3 – Plumbing Plan, Details, and Riser, attached hereto.



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21. Drawing E-2 – Electrical Site Plan:

- a. Modify this drawing as shown on the Addendum No. 3 – Electrical Site Plan, attached hereto.

22. Drawing E-3 – Electrical Lighting Plan:

- a. Modify this drawing as shown on the Addendum No. 3 – Electrical Lighting Plan, attached hereto.

23. Drawing E-7 – Electrical Control Building:

- a. Modify this drawing as shown on the Addendum No. 3 – Electrical Control Building, attached hereto.

24. Drawing E-10 – Electrical One-Line Diagram:

- a. Modify this drawing as shown on the Addendum No. 3 – Electrical One-Line Diagram, attached hereto.

25. Drawing E-11 – Electrical Schedules:

- a. Modify this drawing as shown on the Addendum No. 3 – Electrical Schedules, attached hereto.

END ADDENDUM NO. 03

BID FORM
WALNUT RIDGE CITY WATER WORKS
WASTEWATER TREATMENT FACILITY IMPROVEMENTS
WALNUT RIDGE, ARKANSAS

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

**Mr. Jonathon Kopp, Manager
Walnut Ridge City Water Works
216 S.W. 4th Street
Walnut Ridge, Arkansas 72205**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

<u>Addendum No.</u>	<u>Addendum, Date</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

- E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.
- F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.
- I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.
- J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
 - 3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

- 5.01 Bidder will complete the Work in accordance with the Contract Documents for the following prices:

BID FORM CITY OF WALNUT RIDGE, ARKANSAS WALNUT RIDGE CITY WATER WORKS WASTEWATER TREATMENT FACILITY IMPROVEMENTS LUMP SUM ITEMS		
Item No.	Description	Bid Price
1.	<u>Insurance, Bonds, Mobilization, Demobilization:</u> Price shall be for mobilization of the Contractor's forces and equipment necessary to execute the Work - not to exceed 7.5% of the overall total bid amount of which not more than 70% will be paid on the first payment application with the remainder 30% on the final pay application.	\$ _____ (Lump Sum)
2.	<u>Yard Piping:</u> All work, equipment, materials and other costs related to the installation of all piping shown on the Drawings, to include all sanitary gravity and force main piping, valves, connecting adapter, thrust blocking, mechanical sleeves, potable water lines, manholes, concrete, reinforcing, relocation of back flow prevention, connection to new potable water connection, including connection and meter fees, yard valves, valve boxes, valve operators, yard hose bids, and all costs associated for complete connected working system in accordance with the Drawings and Specifications, but excluding costs that are included in other line items on this Bid Form.	\$ _____ (Lump Sum)
3.	<u>Site Grading/Earthwork:</u> All work, equipment, materials, and other costs related to the drainage improvements to be performed in conjunction with the aggregate surface and concrete pavement, including drainage pipe, trench drains, excavation, bedding, compacted backfill, geotextile fabric, aggregates, ditch construction, site grading, site restoration, erosion and sediment control, but excluding costs that are included in other line-items of this Bid Form.	\$ _____ (Lump Sum)

BID FORM CITY OF WALNUT RIDGE, ARKANSAS WALNUT RIDGE CITY WATER WORKS WASTEWATER TREATMENT FACILITY IMPROVMENTS LUMP SUM ITEMS		
Item No.	Description	Bid Price
4.	<u>O&M Building:</u> All work related to the construction of the O&M Building including chemical feed equipment, concrete footings, floor slabs, primary and secondary framing, masonry, wall and roof panels, insulation, roll-up doors, plumbing, fixtures, gutters and downspouts, ceilings, floor coverings, doors, windows, and related items but excluding work that is specifically included in other items on this Bid Form.	\$ _____ (Lump Sum)
5.	<u>Wastewater Treatment System - Installation:</u> All work, equipment, materials, and other costs related to the installation of the Wastewater Treatment System including excavation and shoring protection, dewatering, concrete material, concrete placements, reinforcement material, reinforcement placement, piping, hatches, valves, air release valves, pressure gauges, coupling adapters, drains, vents, electrical wiring, electrical conduit, mechanical piping supports, valve operators, access ladders, safety devices, disinfection system improvements, instrumentation and control systems, screening systems, and all necessary appurtenances necessary, to complete and operable and serviceable installation as shown on the Drawings and required by the Specifications herein, except that equipment and installation shown in other items in the Bid Form	\$ _____ (Lump Sum)
6.	<u>Auxiliary Generator Set:</u> All work, equipment, materials, and other costs related for the manufacturer, delivery, installation, training and start-up of an 300 kilowatt diesel driven motor electrical generator, with a 48-hour integral ground storage tank, sound attenuated enclosure and exhaust system, and all accessories for the connection and operation through a transfer switch, and for all incidentals necessary to complete a functional operating system, but excluding costs that are included in other items on this Bid Form.	\$ _____ (Lump Sum)

BID FORM CITY OF WALNUT RIDGE, ARKANSAS WALNUT RIDGE CITY WATER WORKS WASTEWATER TREATMENT FACILITY IMPROVMENTS LUMP SUM ITEMS		
Item No.	Description	Bid Price
7.	<u>Electrical:</u> Payment for Electrical shall be at the percentage lump sum of the completed work and shall include all work, equipment, materials, and other costs related to the installation of the electrical system for the complete operation of all components included in the Contract Documents including but not limited to variable frequency drives, switchgear, uninterruptable power supplies, cabling, conduits, pull boxes, motor control centers, interior lighting, exterior lighting, wiring, concrete for conduit encasement, and all appurtenances, incidentals, and miscellaneous equipment shown or specified in the Drawings and Contract Documents required for a complete and operating system, but excluding costs in other line-items of this Bid Form.	\$ _____ (Lump Sum)
8.	<u>SWPPP Preparation and Application:</u> All work to prepare, submit, and receive approval from ADEQ regarding a SWPPP for the project site. Includes conformance for all requirements including inspections, application, and maintenance of appropriate erosion control devices, measuring rainfall, close-out and removal of devices at the conclusion of construction.	\$ _____ (Lump Sum)
9.	<u>Miscellaneous Work:</u> All other work, equipment, materials, tools, labor, incidentals, and other costs to accomplish all Work within the Scope of this Contract and not otherwise included in this Bid Form; however, the Lump Sum Amount for this Bid Form line-item shall not exceed ten (10) percent of the Total Lump Sum Bid Amount.	\$ _____ (Lump Sum)

BID FORM CITY OF WALNUT RIDGE, ARKANSAS WALNUT RIDGE CITY WATER WORKS WASTEWATER TREATMENT FACILITY IMPROVMENTS LUMP SUM ITEMS		
Item No.	Description	Bid Price
10.	<u>Trench and Excavation Safety:</u> Trench or Excavation Safety Systems applicable to this Contract, per Act 291 of the 1993 Arkansas General Assembly (as amended), including shoring protection system for improvements and protection of existing facilities.	\$ _____ (Lump Sum)
11.	<u>Packaged Wastewater Treatment Equipment:</u> Manufacturer, preassembly, and supply to the project site equipment and services outlined in Appendix B for preselected equipment and services outlined in Section 460753 Packaged Wastewater Treatment Equipment	<u>\$816,969</u> (Lump Sum)
12.	<u>Spiral Fine Screen:</u> Manufacturer, preassembly, and supply to the project site equipment and services outlined in Appendix C for preselected equipment and services outlined in Section 462139 Spiral Fine Screen.	<u>\$69,500</u> (Lump Sum)
13.	<u>Entergy Electrical Service Allowance:</u> For all invoices for temporary and permanent for the operation of the existing wastewater treatment facility and the proposed wastewater treatment facility, electrical utility service pole, conduit, wire, transformer installation and all other incidental costs for provide temporary and permanent power to the facility shall be submitted to the Engineer for payment approval.	<u>\$20,000</u> (Allowance)
14.	<u>Material Testing Allowance:</u> For all invoices for laboratory testing and other costs shall be submitted to the Engineer for payment approval. All testing shall be performed by a reputable material testing firm approved by the Owner. Frequency, location, and types of testing shall be directed by the Engineer. Any payment for retests performed at the option of the Contractor due to non-compliance shall be borne by the Contractor.	<u>\$20,000</u> (Allowance)

BID FORM CITY OF WALNUT RIDGE, ARKANSAS WALNUT RIDGE CITY WATER WORKS WASTEWATER TREATMENT FACILITY IMPROVMENTS UNIT COST ITEMS					
Item No.	Description	Unit	Unit Cost	Estimated Amount	Extended Amount
15.	Undercut and removal of unsuitable organic material and backfill with select fill in accordance with detail A on Sheet CZ-2 and backfill to original grade in accordance with the Geotechnical Engineer.	CY	\$ _____	1,500	\$ _____
TOTAL BID AMOUNT LUMP SUM AND UNIT COST ITEMS			\$ _____		

- 5.02 Schedule of Major Equipment: Bidder hereby states that the TOTAL LUMP SUM BID AMOUNT as stated in the Proposal under Article 5.01 shall be the basis of award and shall include furnishing and installation of major equipment of named brand or manufacturer as specified and listed in the Schedule of Specified Major Equipment.

<u>Schedule of Specified Major Equipment</u>	
Equipment Item	Specified Manufacturer
Specification 431133 Rotary Lobe Positive Displacement Blowers	
Specification 463300 Liquid Chemical Feed System	
Specification 464141 Vertical Mounted Agitator	
Specification 465131 Flexible Membrane Tube Diffusers	

5.03 Schedule of Major Subcontractors:

<u>Schedule of Major Subcontractors</u>	
Trade	Company Name & Address

ARTICLE 6 – TIME OF COMPLETION

- 6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.
- 6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Required Bid Bond;
 - B. Evidence of authority to do business in the State of Arkansas; or a written covenant to obtain such license within the time for acceptance of Bids;
 - C. Copy of current Arkansas Contractor's License;

ARTICLE 8 – DEFINED TERMS

- 8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 – BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

By:

[Signature]

[Printed name]

(If Bidder is a corporation, a limited liability company, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest:

[Signature]

[Printed name]

Title:

Submittal Date:

Address for giving notices:

Telephone Number:

Fax Number:

Contact Name:

Contact Email:

Contact Mobile Phone Number

Supplementary Conditions

These Supplementary Conditions amend or supplement the Standard General Conditions of the Construction Contract, EJCDC® C-700 (2013 Edition). All provisions that are not so amended or supplemented remain in full force and effect.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added thereto.

ARTICLE 2 – PRELIMINARY MATTERS

ARTICLE 5 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

SC 5.06 Delete Paragraphs 5.06.A and 5.06.B in their entirety and insert the following:

- A. No reports or drawings related to Hazardous Environmental Conditions at the Site are known to Owner.
- B. Not Used.

ARTICLE 6 – BONDS AND INSURANCE

SC-6.03 Contractor's Liability Insurance

SC 6.03 Add the following new paragraph immediately after Paragraph 6.03.J:

K. The limits of liability for the insurance required by Paragraph 6.03 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations:

- 1. Workers' Compensation, and related coverages under Paragraphs 6.03.A.1 and A.2 of the General Conditions:

State:	<u>Statutory</u>
Federal, if applicable (e.g., Longshoreman's):	<u>Statutory</u>
Jones Act coverage, if applicable:	
Bodily injury by accident, each accident	\$ <u>500,000</u>
Bodily injury by disease, aggregate	\$ <u>500,000</u>

Employer's Liability:

Bodily injury, each accident	\$ <u>500,000</u>
Bodily injury by disease, each employee	\$ <u>500,000</u>
Bodily injury/disease aggregate	\$ <u>500,000</u>

For work performed in monopolistic states, stop-gap liability coverage shall be endorsed to either the worker's compensation or commercial general liability policy with a minimum limit of: \$ 500,000

Foreign voluntary worker compensation Statutory

2. Contractor's Commercial General Liability under Paragraphs 6.03.B and 6.03.C of the General Conditions:

General Aggregate \$ 2,000,000

Products - Completed Operations Aggregate \$ 1,000,000

Personal and Advertising Injury \$ 1,000,000

Each Occurrence (Bodily Injury and Property Damage) \$ 1,000,000

3. Automobile Liability under Paragraph 6.03.D. of the General Conditions:

Bodily Injury:

Each person \$ 1,000,000

Each accident \$ 1,000,000

Property Damage:

Each accident \$ 1,000,000

4. Excess or Umbrella Liability:

Per Occurrence \$ 5,000,000

General Aggregate \$ 5,000,000

5. Contractor's Pollution Liability:

Each Occurrence \$ 1,000,000

General Aggregate \$ 1,000,000

☐ If box is checked, Contractor is not required to provide Contractor's Pollution Liability insurance under this Contract

6. Additional Insureds: In addition to Owner and Engineer, include as additional insureds the following: None

7. Contractor's Professional Liability:

Each Claim	\$ 5,000,000
Annual Aggregate	\$ 5,000,000

ARTICLE 8 – OTHER WORK AT THE SITE

SC-8.02 Coordination

SC-8.02 Delete Paragraph 8.02.A in its entirety and replace with the following:

- A. Owner intends to contract with others for the performance of other work at or adjacent to the Site.**
- 1. The Owner and/or Engineer shall have authority and responsibility for coordination of the various contractors and work forces at the Site;**
 - 2. The following specific matters are to be covered by such authority and responsibility: Site fencing, site demolition as directed by the Owner.**
 - 3. The extent of such authority and responsibilities is: Providing times and locations of work by others in relation to this Contract.**

ARTICLE 10 – ENGINEER'S STATUS DURING CONSTRUCTION

SC-10.03 Project Representative

SC-10.03 Add the following new paragraphs immediately after Paragraph 10.03.A:

- B. The Resident Project Representative (RPR) will be Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions.**
- 1. General: RPR's dealings in matters pertaining to the Work in general shall be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.**
 - 2. Schedules: Review the progress schedule, schedule of Shop Drawing and Sample submittals, and Schedule of Values prepared by Contractor and consult with Engineer concerning acceptability.**
 - 3. Conferences and Meetings: Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences, and other Project-related meetings, and prepare and circulate copies of minutes thereof.**
 - 4. Liaison:**
 - a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the provisions and intent of the Contract Documents.**

- b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.
 - c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.
- 5. Interpretation of Contract Documents: Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.
- 6. Shop Drawings and Samples:
 - a. Record date of receipt of Samples and Contractor-approved Shop Drawings.
 - b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.
 - c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.
- 7. Modifications: Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, if any, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.
- 8. Review of Work and Rejection of Defective Work:
 - a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress is defective, will not produce a completed Project that conforms generally to the Contract Documents, or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
- 9. Inspections, Tests, and System Start-ups:
 - a. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.
 - b. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

10. Records:

- a. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, Subcontractors present at the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, deliveries of equipment or materials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.
- b. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.
- c. Maintain records for use in preparing Project documentation.

11. Reports:

- a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the Progress Schedule and schedule of Shop Drawing and Sample submittals.
- b. Draft and recommend to Engineer proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
- c. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, force majeure or delay events, damage to property by fire or other causes, or the discovery of any Constituent of Concern or Hazardous Environmental Condition.

12. Payment Requests: Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the Schedule of Values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. Certificates, Operation and Maintenance Manuals: During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. Completion:

- a. Participate in Engineer's visits to the Site to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of a punch list of items to be completed or corrected.
- b. Participate in Engineer's final visit to the Site to determine completion of the Work, in the company of Owner and Contractor, and prepare a

final punch list of items to be completed and deficiencies to be remedied.

- c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the notice of acceptability of the work.

C. The RPR shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of Engineer's authority as set forth in the Contract Documents.
3. Undertake any of the responsibilities of Contractor, Subcontractors, or Suppliers.
4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.
5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize Owner to occupy the Project in whole or in part.

ARTICLE 15 – PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

SC-15.03 Substantial Completion

SC 15.03.B Add the following new subparagraph to Paragraph 15.03.B:

1. If some or all of the Work has been determined not to be at a point of Substantial Completion and will require re-inspection or re-testing by Engineer, the cost of such re-inspection or re-testing, including the cost of time, travel and living expenses, shall be paid by Contractor to Owner. If Contractor does not pay, or the parties are unable to agree as to the amount owed, then Owner may impose a reasonable set-off against payments due under Article 15.

NOT VALID FOR BID USE
MUST USE BID FORM PROVIDED
WITH SPECS PURCHASED
FROM ENGINEER

APPENDIX B

Preselected Equipment and Scope of Services

Section 460753 Packaged Wastewater Treatment Equipment

Scope Clarification Letter

REF PROJECT: B11000180
Walnut Ridge, AR WWTP

DATE: 3/2/2021

TO: Craig Johnson
Crist Engineers, Inc.
205 Executive Court
Little Rock, Arkansas 72205
Telephone (501).664.1552

Dear Craig:

The following scope clarification letter outlines the equipment to be supplied by Parkson as part of the SBR system package.

The equipment to be provided is as follows:

- In Basin Fiberglass components; Flow Control Manifolds, Jet Aeration Manifolds, Pneumatic Flushouts, Decanters
- In Basin Steelwork (304 SS supports and Hardware)
- Sulzer Dry Pit Pumps; Jet Motive and Waste Sludge
- Universal PD Blowers
- Automatic Valves; Influent, Effluent and WAS Pump Suction
- Manual Pneumatic Flushout Valves
- Instrumentation; D.O probes, pressure transducers and HWL Floats
- NEMA 4X SBR Control Panel and PLC with DynaPhase Controls software
- Freight to Jobsite
- Service; 4 trips / 12 days
- Process Performance Guarantee

Items to be excluded from the Parkson scope are as follows:

- Suction Bells
- Jet Motive Pump Suction and Discharge, WAS Pump Discharge Vavles
- Wall Spools
- MCC, VFD's and motor starters
- Freeze protection.
- Seed sludge and plant seeding.
- Water and electrical for testing.
- Concrete / grout.
- Assembly / installation as outlined in Submittal and IO&M documents.
- Unloading, uncrating, equipment setting, cranes, forklifts.
- Proper or reasonable storage of equipment to prevent damage prior to installation.
- Compatibility of equipment materials of construction with known or unknown wastewater constituents.
- Interconnecting electrical including conduit, power and control wiring, junction boxes, electrical terminations in control panels, etc.

- Interconnecting piping beyond manufacturer termination points as outlined on the drawings, Submittals, and IOM documents.
- Pump or equipment hoists.
- Walkways, grating, railings, or other as required for equipment access.
- Seismic or electrical load calculations.
- Any other equipment or service not detailed in the proposal.

This document is to be used as supplemental clarification to the Parkson “SBR Scope – Walnut Ridge, AR (Final) Rev. 1” document dated 3/2/2021. If there are any discrepancies between this letter and the aforementioned scope of supply, the scope of supply shall be used as the governing document.

Sincerely,

Adam Thiedke
Applications Engineer
3/2/2021

Quotation

NUMBER: B11000180

DATE: 3/2/2021

TO: Craig Johnson
Crist Engineers, Inc.
205 Executive Court
Little Rock, Arkansas 72205
Telephone (501).664.1552

REF: Walnut Ridge, AR

Parkson Corporation is pleased to offer equipment and services as described in this quotation.

ITEM 1 EQUIPMENT

SBR Equipment

Flow Control Manifolds: Three (3) Model FCM18-2800 Manifolds shall be provided. Manifolds will be constructed of FRP with 304 stainless steel supports. Manifolds shall include adequate number and size of openings to reduce inlet velocities to <0.5 fps.

Jet Aeration Manifolds: Three (3) Model DD12/44A-18 *VariOx*[™] aeration manifolds shall be provided. Each manifold will include eighteen (18) jet aerators and will terminate with a 12" flanged connection. In-basin vertical air drop pipe is included and will terminate at the top of the tank wall, directly above the aeration header, with a 6" flanged connection (any in basin piping beyond these termination points shall be by others). Materials of construction shall be FRP utilizing vinyl ester resin.

Pneumatic Flushout: Three (3) Pneumatic Flushout Systems shall be provided. Each flushout system shall include riser pipe, discharge elbow, valve, and supports. The flushout riser pipe and valve shall be 8".

Decanters: Three (3) Model ED14-2800 *DynaCanter*[™] Floating, Effluent Decanters shall be provided. Each decanter shall include 304 stainless steel supports and in-basin discharge piping. The in-basin discharge piping of the decanter shall terminate with a 14" flange for connection to the flanged wall penetration supplied by others.

Jet Motive Liquid Pumps: Three (3) Sulzer Horizontal, Centrifugal Dry-Pit Pump shall be provided. Each pump will be selected to deliver 3,391 GPM at a total pump head of 22 ft. Each pump will be furnished complete with dynamic seals, mounting plate, discharge flange, and a 30 Hp, 460 volt, 3 ph, 60 hz, TEFC motor.

Blowers and Accessories: Four (4) Universal Blower Pac Rotary Positive Displacement Blowers (one as a standby) shall be provided. Each blower will be selected to deliver 790 SCFM at 7.9 PSIG. Each blower will be furnished complete with inlet filter, inlet silencer, discharge silencer, butterfly valve, check valve, pressure relief valve, base plate, V-belt with sheaves, and a 50 Hp, 1800 RPM, 460 volt, 3 ph, 60 hz, TEFC motor. **Sound Enclosures are not included.**

Waste Sludge Pumps: Three (3) Sulzer Horizontal, Centrifugal Dry-Pit Pump shall be provided for sludge wasting. Each pump will be selected to deliver 225 GPM at a total pump head of 15 ft. Each pump will be

furnished complete with dynamic seals, mounting plate, discharge flange, and a 5 Hp, 460 volt, 3 ph, 60 hz, TEFC motor.

Additional Equipment and Services

Valves: Valves shall be DeZurik valve and all automatic valves will have 460-volt 3 phase AUMA electric motor actuators

Function	Quantity	Size	Type	Operator
Influent	3	18"	Plug	Electric
Effluent	3	14"	Plug	Electric
Pneumatic Flushout	3	8"	Plug	Manual
WAS Pump Suction	3	6"	Plug	Electric

FRP Field Weld Material: FRP field wrap kits shall be provided to complete FRP field welds as identified on Parkson's submittal drawings. Kits shall include FRP mat and woven roving, resin, catalyst, and gel coat. Labor for completing field joints shall be by the installing contractor.

Supports: Supports for the in-basin equipment supplied by Parkson and described in this proposal are included. Supports will be constructed of 304 Stainless Steel. Field welding of supports shall be by the installing contractor.

Hardware: Anchor bolts, gaskets, and connecting hardware for mounting in-basin equipment supplied by Parkson are included. Anchor bolts and connecting hardware shall be 18-8 SS.

Note: Hardware and gaskets at Parkson/Contractor interfacing flanged connections are not included and shall be provided by the installing contractor.

D.O. Control: One (1) D.O. probe with mounting bracket and one (1) analyzer shall be provided for each SBR basin (Total 3).

SBR Control System:

- The enclosure will be a NEMA type 4X 304 stainless steel suitable for indoor /outdoor locations.
- The control strategy utilizes level transducers in the three SBR's and a PLC with our threetank DynaPhase Control program.
- Allen Bradley Compact Logix PLC, power supply and I/O modules including 10% spare I/O of each type wired to terminal blocks.
- Allen Bradley PanelView Plus 7 Standard 10" touchscreen is included as the operator interface (OIT). The PanelView Plus 7 can be configured for alarm notification via email only and includes a VNC server that can be enabled for remote connection to the OIT for viewing and control of the OIT screens. The owner will need to download TightVNC software (free download) to their remote laptop or PC for connection to the SBR OIT. **Internet service and remote PCs are not included in our scope of supply.**
- Open/closed/auto selector switches are included on the panel front and status indication is included on the OIT for the following valves. Proposal is based on motor operated valves (valve motor power is by others) with isolated open and closed limit switches for position indication.
 - 3 SBR influent valves
 - 3 SBR effluent valves
 - 3 SBR WAS valves

- Hand/off/automatic selector switches and status indication are included on the panel front for the following equipment. Starting equipment and related items for the equipment listed below will be supplied by others.
 - 4 SBR blowers (FVNR)
 - 3 SBR motive pumps (dry pit, FVNR)
 - 3 SBR waste sludge pumps (dry pit, FVNR)
 - 1 Disinfection mixer (submersible, FVNR)
 - 1 Sludge Storage Pond pump (submersible, FVNR)
 - 2 PAA Quenching/DO Basin blowers (FVNR)
- Submersible equipment will include thermal and seal fail protection circuits.
- Level transducers and high-level float switches are included for the three (3) SBRs (three each total).
- Dissolved oxygen isolated 4-20mA signals will be received from each SBR (three signals total).
- One (1) Bar Screen Alarm discrete signal will be monitored.
- One (1) Effluent Flow isolated 4-20mA signals will be received from the effluent weir level transmitter. **Effluent weir and level transmitter are not included in our scope of supply.**
- Chemical Storage Tank Scale isolated 4-20mA signals will be received from two chemical storage tanks. **Chemical storage tank scales and load cells are not included in our scope of supply.**
- SBR cycle selection, time adjustment and other setpoints as required for chemical addition are included for two (2) chemical metering pumps. Relay contacts will be provided for switching motor current by others. **Metering pumps, storage tanks and all other appurtenances are by others.**
- Monitoring of one (1) simplex pump station, pump fail and high level (two signals total).
- A secure remote access communication link is included for remote support.
- Independent from the spare I/O listed above, an additional 10% PLC I/O is built into the price of this project as contingency. The completed SBR control panel will include a minimum of 10% I/O points.

ITEM 2 SERVICES

Performance Guarantee:

Parkson's standard Process Performance Guarantee (PPG) shall apply. The PPG will be provided as part of the equipment submittal.

A Performance bond is also included and shall be provided with the equipment submittals.

Drawings and Installation, Operation, and Maintenance (IO&M) Manuals:

Approval Drawings / Submittals:	1 electronic
IO&M Manuals:	1 electronic

Start-Up Assistance:

Field service shall be provided for dry inspection, wet start up, O&M training, and follow up training. A total of four (4) trips / twelve (12) man days of service are included. Additional service can be provided at Parkson's daily field service rates. Service will be scheduled upon receipt of Buyer's written request. Contractor shall be responsible for confirming readiness of equipment for field service activities by the Supplier. Additional service days or trips which result from lack of ability to perform service on fully installed and operational equipment will be billed at Parkson's standard service rates.

Mechanical Warranty:

Mechanical Warranty is twelve (12) months from startup, not to exceed eighteen (18) months from shipment.

See Section XVI of the Standard Conditions of Sale.

PURCHASE PRICE:

Equipment and services as described above.....**\$816,969 USD**

F.O.B. Point of Manufacture, freight included. Offloading and storage by others.
Taxes excluded.

VALIDITY:

Purchase price is valid for ninety (90) calendar days from Quotation date, for shipment of Equipment within the timetable stated below.

PAYMENT TERMS:

10% on Order, 15% on Submittal issuance, 75% on Shipment. All payments are net 30 days.

TIMETABLE GUIDELINE:

Within ten (10) business days of receiving a written Purchase Order, Parkson will submit a written request for Additional Information if it is deemed necessary that such information is necessary to begin work on the project. This information may include full scale drawings, specification sections, amendments, addendums, or other pertinent documents. The Submittal phase will begin once this additional information is received. If no request for Additional Information is submitted by Parkson within the ten (10) day period, the Submittal phase will begin on the eleventh (11th) business day following receipt of the written Purchase Order. The Shipment phase is thereafter contingent upon written final approval of Submittals, at which time the Shipment phase will begin.

Submittal Phase: 6-8 weeks following Acceptance of P.O. or receipt of Additional Information as outlined above.*

Shipment Phase: 16-20 weeks following receipt of written Submittal Approval.*

*Schedules will be confirmed at time of Order.

TERMS AND CONDITIONS:

This Quotation is governed by and subject to Parkson's Standard Conditions of Sale, which are incorporated by reference and accessible at: <http://www.parkson.com/files/documents/Sales-conditions.pdf>.

CLARIFICATIONS AND EXCEPTIONS:

Jet Motive Pump Suction and Discharge Valves shall be provided by others. Pump suction valve shall be 14" and pump discharge valve shall be 12".

WAS Pump Discharge valve shall be provided by others.

SBR's are proposed with dedicated blowers, automatic air valves are not required.

Pumps are proposed with dynamic seals, external seal water is not required.

SBR Suction Bells shall be provided by others.

Decanter wall spools must be cast in place or supported with additional bracing if link seals are used.

All equipment is quoted with manufacturer's standard coatings.

Hydraulic institute recommends a minimum of 5 pipe diameters of straight pipe run on the suction side of dry pit pumps.

Automatic air release valves are required at the high point in the discharge piping of the jet motive pumps. Air release valves shall be by the Contractor.

Contractor shall provide pressure gage with ball valve and diaphragm seal on discharge piping at each jet motive pump.

Chemical feed equipment has not been included. Any requirements for addition of metal salts, carbon source, alkalinity, nutrients, or micronutrients shall be by others.

Out of basin air and liquid piping are not included. In basin air piping between air drops (if used) is by others.

Concrete must be designed to accommodate 4.5" anchor bolt embedment.

Valve power through the SBR control panel has not been included.

All welding shall be per AWS standards only (ASME standards, if required, may result in additional cost).

Local Controls Panels shall be by others.

MCC, VFD's, and motor starters are by others.

BUYER / OWNER RESPONSIBILITY:

- Freeze protection.
- Seed sludge and plant seeding.
- Water and electrical for testing.
- Concrete / grout.
- Assembly / installation as outlined in Submittal and IO&M documents.
- Unloading, uncrating, equipment setting, cranes, forklifts.
- Proper or reasonable storage of equipment to prevent damage prior to installation.

- Compatibility of equipment materials of construction with known or unknown wastewater constituents.
- Interconnecting electrical including conduit, power and control wiring, junction boxes, electrical terminations in control panels, etc.
- Interconnecting piping beyond manufacturer termination points as outlined on the drawings, Submittals, and IOM documents.
- Pump or equipment hoists.
- Walkways, grating, railings, or other as required for equipment access.
- Seismic or electrical load calculations.
- Any other equipment or service not detailed in the proposal.

Please return one signed copy of this Quotation, or Purchase Order, to Parkson Corporation at the address below.
Refer to this Quotation, date, and related correspondence.

Issued by:

Accepted by (herein call the Buyer):

Parkson Corporation
7011 Martindale Rd.
Shawnee, KS 66218

Printed Name: Adam Thiedke
Title: Applications Engineer
Date: 3/2/2021

Printed Name:
Title:
Date:

Local Rep: Wes Ivory – Haynes Equipment

Attachment: Scope Clarification Letter – Walnut Ridge, AR

Cc: Kevin Gabbert, Brad Linsey, Kevin Bunting, Jeff Fangman – Parkson

Revised 10/15/18

VariOx™ Jet Aeration System
INSTALLATION INSTRUCTIONS

Jet aeration combines many of the benefits and efficiencies of both mechanical and diffused air type systems. The jet aerator consists of an inner liquid nozzle and an outer air nozzle. It is important that nozzles must be installed level (maximum variance of ½" between all nozzles) so that each jet receives the same airflow. If the jets are not level, the higher jets will receive additional airflow. To properly install this equipment:

1. Lay out the location of the jet aeration headers/supports inside the basin and check for completeness against the Parkson Certified for Installation drawings and bill of materials. Note that two types of supports are being used to install the header: the cross support with straddling posts and simple support with just one support leg. Generally, the cross supports are used to support the horizontal aeration headers and the simple support are used to support the vertical air drop pipe along the wall. Be sure that the support saddles do not overlap or interfere with any nozzles or joint wraps. Refer to certified installation drawings for location details.
2. Locate and anchor post base plates to tank floor. Each post base plate needs to sit on a flat surface so leveling/grouting may be required if floor is uneven. Set the saddle cross support onto the posts at the approximate height and tack weld the collars to the post. This will allow for temporary support of the headers and easy adjustment of the support once final elevation is set. Make sure the headers are adequately supported at all times. Additional temporary support blocks or wedges may be required.
3. Adjust and align all piping (end to end) starting at the wall connection or pump flange. Secure the headers with the supplied top saddle and hardware. Make any necessary elevation changes at this time. DO NOT use floor as a reference point to set nozzle elevations. Generally, a datum laser can be used to ensure accuracy.
4. Set final elevation and secure wall/pump flange connections. Note that all fiberglass flanges require a flat washer to prevent damage when bolt is being tightened. Flange connections 14" dia. or above will require SAE flat washers. Do not over torque. Use recommended bolt torques shown on Certified Installation drawings. Required hardware/gaskets at the wall connection flanges are provided by the installing contractor. Both top and bottom of the pipe collars on vertical posts will require full welds, but only after a Parkson Field Service representative has approved the installation during the Dry Inspection.
5. Make all (liquid and air line) pipe joint connections using the provided fiberglass field wrap kits (for end to end connections). Be sure the correct kit is used for the appropriate connection size. Do not apply the blue gel coat until a Parkson Field Service has approved the field wraps.

6. Position the air drop pipe per Certified Installation Drawings. Lay out the simple pipe supports for the air drop and tack weld into position. For ease of adjustment, the drop pipe is fabricated long (approx. 3"). Cut the pipe end as required and connect to the header using the provided CL-200 Kit for socket connections.
7. Repeat step 6 to install the vertical flushout pipe. Be sure to use the proper field wrap kit for the connection joint to the header instead of the CL-200 Kit.
8. Secure the drop pipe supports with top saddles. Tighten the bolts per recommended torque shown on Certified Installation Drawings.
9. Check for proper alignment on all piping. Make any necessary final adjustments.

These instructions are intended as an installation guide only. The installing contractor shall assure proper and safe installation. Please call Parkson at 913-745-1201 if there are any questions concerning the installation of this equipment.

DynaCanter™ INSTALLATION INSTRUCTIONS

These instructions are to be used jointly with the Parkson “Certified for Installation Drawings” located towards the end of this O&M package.

INSTRUCTIONS:

- 1) Unpack all of the parts and check them against the bill of material for item numbers and quantity.
- 2) For ease of installation, it is recommended that the upper and lower knee braces be assembled on the ground prior to lifting it into position. Be sure the shoulder bolt at the hinged is installed facing out (castle nut on the outside) to avoid abrasive contact with the flexhose. The upper knee brace has the male portion of the joint. The lower knee brace has the female portion of the joint (do not install in reverse).
- 3) Starting with the wall piping. Loosely assemble the pipes and mitered steel fittings with the proper size gaskets, bolts, flat washers, lockwashers, and nuts. This hardware set is generally provided by the installing contractor (not by Parkson). Verify that all flanges are aligned properly. The holes should straddle the vertical centerline in all cases.
- 4) Verify that the flange holes in each end of the rubber flex hose are in line with each other. If not, loosen the worm clamps on the nipple and adjust as required.
- 5) Install the rubber flex hose to the flange of the stainless steel mitered fitting.
- 6) If required, make the field wrap connection of the decanter to the drain pipe. This is usually easier if the wrap is done on the floor. Refer to provided wrap layer sequence doc for proper wrap. Make sure that all flanges are aligned properly. Any misalignment here will cause for the decanter to tilt and hinder the decanter's operating range.
- 7) Provide a temporary support for the decanter approximately as high as the decanter rest. Refer to drawings for proper elevation.
- 8) Attach the fiberglass decanter drain pipe/flange to the flexible rubber hose with the proper fasteners. Be sure that the decanter is installed with the float on top. Use a flat washer under the bolt head against the fiberglass flange. Use a lockwasher under the nut against the hose flange.
- 9) Tighten all flange fasteners and check for proper alignment.
- 10) Install the knee brace with the saddle clamp bolts on the top and bottom of the pipes. Clamp the saddles to the stainless steel mitered fitting and the fiberglass pipe below/above the flexible hose with 1/2" x 3" long bolts. Make sure that the pivot joints are level before and after the final tightening of the saddle bolts.

- 11) Set the decanter stands under the decanter and lower the decanter on them. The stands should be centered perpendicularly under the drawtube. Approximate locations (shown on drawings) are given for the stands, but final adjustment must be made in each basin for floor and assembly tolerances. To avoid damage to the decanters, be sure that the stands are properly located/centered so they do not interfere with the SEV valves on the decanter.
- 12) Install the floor anchors. Base plates should be level. Grout or level as required.
- 13) Make any adjustments required and tighten all hardware.

PART IV BUTT & WRAP JOINT FABRICATION

Surface / End Preparation

NOTE: It is essential to good fabrication that pipe and fitting surfaces be sanded, clean, dry, and free of oil, grease, and solvent contamination.

1. Prepare both ends of the pipe, or pipe and fitting to be joined, by sanding the bonding surfaces with 36 to 60 grit abrasive. The sanded area should extend at least $\frac{1}{2}$ " beyond the widest layer of glass.



EXAMPLE: 14" Pipe Size.

The widest layer of fiber-glass is 8", therefore, sand the pipe ends to a distance of $4\frac{1}{2}$ " from each cut end.

2. Never sand the joint surfaces more than two (2) hours before making the joint.
3. Wipe the sanded area with a clean, dry, lint-free cloth, and avoid touching the surfaces with bare hands or dirty gloves. Do not use solvents.



Interior Surface Preparation

For 24" and larger piping, where accessible, use a die grinder to sand the interior surface of the pipe 3" from the joint ends. This will provide a proper bonding surface for applying the veil, mat, and resin to the pipe's interior surface.

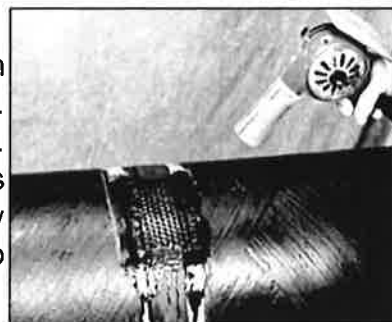
Sealing and Securing The Pipe Ends

Coat the sawed ends of the pipe and/or fittings with catalyzed resin or Weldfast CL-200 Adhesive before joining the ends. Mix Weldfast CL-200 per the instructions in the Weldfast Kit. Sealing the pipe ends protects the fiberglass reinforcement from chemical attack.



Hot Patches

Hot patches are used to prevent joint movement during the Field Weld procedure. Hot patches are small pieces of Fabmat, approximately 4" x 6", which are included in the Field Weld Kit. Two (2) patches should be used on pipe up to 20" diameter, and three (3) patches on all pipe larger than 20". Only a small amount of resin is required to apply hot patches. Mix one pint of resin with 12 ml. of catalyst. Saturate the patches with the catalyzed resin, and apply to the piping with the mat side to the pipe.



The hot patches need to harden before applying joint filler. Heat may be applied to accelerate hardening of the catalyzed resin.



Joint Filler

Weldfast CL-200 adhesive is used to fill gaps and voids caused by uneven saw cuts and differences in pipe outside diameters.

Mix according to the instructions provided in the Weldfast Kit. Apply enough catalyzed adhesive to fill all of the gaps and provide smooth transitions where the pipes join. Let the adhesive harden and re-sand the joining surfaces before applying the Field Weld resin and glass. Heat may be applied to accelerate hardening of the adhesive.

Mixing The Standard Lay-Up Resin

1. Measure the recommended amount of catalyst using the graduated measuring beaker. See the Cure Times Chart on page 36.

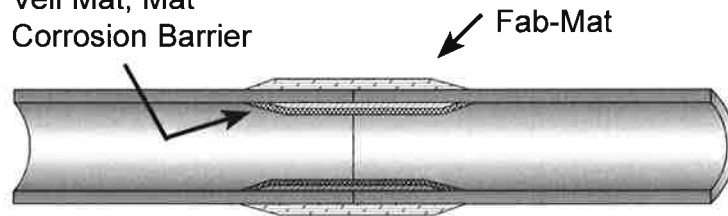
2. Pour the measured catalyst into 1 quart of vinyl ester resin and stir until completely blended. When the resin is properly blended, the color will consistent and will start to foam.

The standard mix of resin is 16 ml. of catalyst for each quart of vinyl ester resin. After the first quart of resin is mixed and a layer of fiberglass has been applied, it may be evident that the ratio of catalyst should be changed to allow more or less working time. If more working time is required, use as little as 13 ml. of catalyst to each quart of resin. This will normally double the pot life and the curing time. If a quicker cure is required, use up to 22 ml. of catalyst for each quart of resin. This will shorten the pot life and cure time.

IMPORTANT NOTE! Never use less than 13 ml. or more than 22 ml. of catalyst for each quart of resin. "Smoking" or "crazing" of a joint indicates an over-catalyzed resin. Joints made with over catalyzed resin will be structurally weak, provide poor chemical resistance, and should not be used.

Inside Corrosion Barrier (24" Diameter and Larger Piping)

Veil Mat, Mat
Corrosion Barrier



Application Diagram - (24" Diameter and Larger Piping)

Fab-Mat Layers Per Packing List

5" Veil

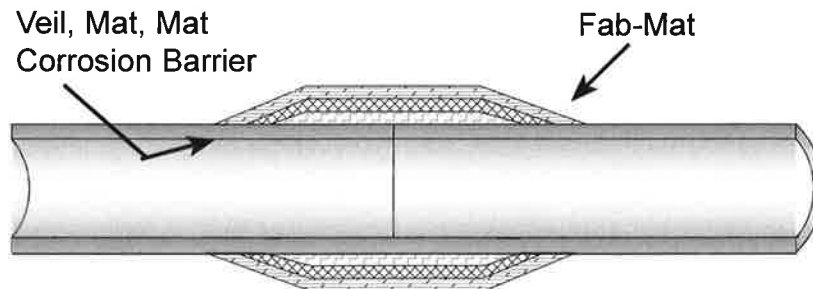
4" Mats

Inside corrosion barriers improve the structural and chemical integrity of the pipe. When possible, always make inside corrosion barriers when joining large diameter pipe, using the following procedures:

1. Wet the sanded surface of the piping interior with a light coat of catalyzed resin.



2. Arranging the materials on a flat surface or table top, pre-wet two layers of 4" wide, fiberglass mat, and one layer of veil. Be sure the veil is the top layer.
3. Apply the pre-wetted layers, centering the glass over the joint. Be sure the veil is toward the center of the pipe.



Fab-Mat Layers Per Packing List

**Application Diagram -
(Smaller Than 24"
Diameter Piping)**

5" Veil 

4" Mat 

Exterior Corrosion Barrier (Smaller Than 24" Diameter Piping)

If an inside corrosion barrier cannot be made, a corrosion barrier must be made on the exterior joining surfaces of the piping, using the following procedures:

1. Wet the sanded surface of the piping exterior with a light coat of catalyzed resin.
2. Arranging the materials on a flat surface or table top, pre-wet two layers of 4" wide fiberglass mat, and one layer of veil. Be sure the veil is the top layer.
3. Apply the pre-wetted layers, centering the glass over the joint. Be sure the veil is against the pipe.



Applying the Fiberglass Reinforcement

Apply all the fiberglass layers, as supplied in the Field Weld Kit, for the pressure rating and size of the pipe being joined. Start with the narrowest Fabmat at the pipe surface and proceed to the widest Fabmat. (See Application Diagram for the proper sequence and staging of fiberglass strips to be laid-up.)



Pre-wet with resin, a layer of fiberglass on a table or flat surface. Pick up the wetted layer of fiberglass and place it over the joint. Apply each layer of Fabmat with the mat side down. As each layer is applied, roll out the wrinkles or trapped air with the 3" paint roller.

The catalyzed resin should be continuously worked into the glass until it begins to gel (warms and begins to harden). No more than 4 layers of Fabmat should be applied before the resin is allowed to gel. After each stage has gelled and cooled, sand lightly to remove any burrs before additional layers are applied. Do not move the piping until the joint has hardened and cooled.

Mixing and Applying The Finish Coat

After all the layers of fiberglass have been applied to the joint, and the joint has gelled or semi-hardened, apply a final coat of catalyzed resin using the 3" paint roller or a brush. This finish coating is in a separate container marked "Finish Coat Resin." This resin should be catalyzed using the same procedure as for the standard lay-up resin. If less than one quart of Finish Coat Resin is required, reduce the recommended amounts of catalyst proportionately.



Application of the special Finish Coat Resin is critical to developing a chemical resistant piping surface and joint.

ADHESIVE DISPOSAL: Once the adhesive and hardener have been mixed and reacted, nothing can be extracted, and it is classified as non-hazardous material. Dispose of in a normal manner as other solid waste. Excess adhesive and hardener can be mixed, allowed to react, and disposed of as above. If extra jars of adhesive or hardener have accumulated without the other component to mix and react, contact your Regional Manager. Hardener jars, when empty are not subject to EPA regulation and can be disposed of in a normal manner. These guidelines are based on federal regulations. State and local regulations and ordinances should be reviewed.

JOINT CURE

The minimum required cure time is 24 hours at 70°F. Inadequate joint strength will result if the catalyzed resin is cured at temperatures less than 60°F. Heat cure at 200°F to 275°F will accelerate cure time and increase joint strength.

Heat cure is highly recommended for piping systems carrying fluids at temperatures above 120°F. Before pressurizing the piping system, or moving the piping, cure the joint. See the Cure Times Chart below.

Note: See pages 48-50 for hydrostatic testing and system start-up procedure.

TABLE 14. VINYL ESTER BUTT WELD KIT CURE TIMES

Temp (°F)	Part A Shelf Life (months)	Part B Shelf Life (months)	Pot Life (min.)	Gel Time (min.)	Joint Cure Time (hours)
40-49	6	12	NR	NR	NR
50-59	5	12	NR	NR	NR
60-69	3-4	12	20-40	25-45	36
70-79	3-4	12	20-40	25-45	24
80-89	2-3	9	15-35	18-38	24
90-100	1-2	4	8-15	10-18	16
200-250	-	-	-	-	2-4

Request for Field Service Visit

Parkson Project Number: _____

Project name/location: _____

Equipment Model: _____

Customer Name: _____

Name of person requesting visit: _____

Objective of visit: _____

Contact name at site: _____

Telephone number/E-mail address: _____

Jobsite address: _____

Date of requested visit: _____

Start-Up Assistance:

Field service shall be provided for dry inspection and wet start-up. Additional service can be provided at Parkson's daily field service rates. Service will be scheduled upon receipt of Buyer's written request. Contractor shall be responsible for confirming readiness of equipment for field service activities by the Supplier. Additional service days or trips which result from lack of ability to perform service on fully installed and operational equipment will be billed at Parkson's standard service rates. Service time is included as follows:

Jet Aeration Equipment	4 Trips	12 Days
------------------------	---------	---------

Field Service Technicians travel on Monday and return on Friday. Visits from Parkson personnel will be scheduled based on their availability; In order to meet requested dates, Parkson requires a minimum of 2-3 week's advance notice of visit requests for scheduling.

The following items must be completed by the Contractor prior to requesting a visit to the site by a Parkson Corporation Customer Service Representative:

1. Is the mechanical equipment completely installed per Parkson Corporation drawings? ☐ Yes ☐ No
2. Is the control panel installed and electrical wiring complete? ☐ Yes ☐ No
3. Is the piping (process, air, water, etc.) installation complete? ☐ Yes ☐ No
4. Is the concrete work complete (if applicable)? ☐ Yes ☐ No
5. Is (are) the unit(s) ready for process flow? ☐ Yes ☐ No

Please send this form to Select PM via email Select Email

Should Parkson's Field Service Technician arrive on-site and determine any of the items are incomplete, Parkson retains the option to recall the Technician and reschedule the visit or allow the Technician to remain at the site until all items are complete. A rescheduled trip and/or additional days beyond our contractual obligation will be invoiced at the current per diem of **\$1,000.00 plus travel and living expenses.**



Cancellation of a scheduled field service visit requires written notification. Cancellation notice of greater than fifteen (15) calendar days prior to the scheduled week of travel will result in no penalty fee. Cancellation notice between fifteen (15) and ten (10) calendar days prior to the scheduled week of travel results in a penalty fee of \$1,000.00. Cancellations that occur less than ten (10) calendar days prior to the scheduled week of travel will result in full reimbursement of those actual costs that are realized by Parkson as a result of the cancellation, eg., air fare, hotel, rental car and lost utilization of labor.

We are confident you will be pleased with the performance of both Parkson Corporation and our equipment. If you have any questions, please contact us directly. We thank you for your business and look forward to working with you.

Parkson EcoCycle SBR™ Equipment Installation - Dry Check List

The primary purpose of the Dry Check is to insure that all equipment has been assembled and installed properly so that no difficulties will be encountered after the basin/s have been filled. This includes in basin equipment and ancillary components furnished by Parkson under this Contract.

Any deviation from the details depicted on the project drawings should be documented in the section for Comments / Corrective Action at the end of the Checklist.

Project Name: _____ Project No. _____ Date _____

Project Location: _____ Customer: _____

Dry check Performed By: _____

Services included in Contract (trips / man days): _____

In-Basin Fixed Equipment

Yes	No	NA	
☐	☐	☐	Aerator elevations measured w/ transit and within tolerance
☐	☐	☐	Air and liquid lines level and plumb
☐	☐	☐	FRP field welds and adhesive joints installed correctly and fully cured
☐	☐	☐	Support spacing and locations per print
☐	☐	☐	Saddle liners in place and saddle hardware properly torqued
☐	☐	☐	Cross brace supports welded top and bottom to posts
☐	☐	☐	Single leg supports fully welded
☐	☐	☐	Anchor bolts installed and checked for proper torque
☐	☐	☐	Flange sets properly installed and torqued
☐	☐	☐	Hardware supplied by others confirmed as stainless steel
☐	☐	☐	Basins cleaned of debris and construction materials
☐	☐	☐	Aerators inspected for damage
☐	☐	☐	Decanters installed level and plumb
☐	☐	☐	Decanters properly located on stands
☐	☐	☐	Knee braces assembled and located properly on decanters
☐	☐	☐	Decanter flex hoses inspected for damage

Yes	No	NA	
☐	☐	☐	Decanter fill port provided
☐	☐	☐	Submerged outlet provided at effluent discharge
☐	☐	☐	Level instruments installed at proper depth
☐	☐	☐	Level instruments properly installed within stilling wells
☐	☐	☐	ETWL float at correct elevation
☐	☐	☐	Other instrument (D.O., ORP, pH) properly installed and at correct depth

Other Equipment – Pumps

			Pump type _____
☐	☐	☐	Pumps / mixers properly installed, aligned, and leveled
☐	☐	☐	Properly lubricated
☐	☐	☐	Rotation confirmed
☐	☐	☐	Electrical connections terminated and protected from moisture
☐	☐	☐	Seal water provided for mechanical seals on pumps
☐	☐	☐	Overloads installed at MCC and properly sized
☐	☐	☐	Voltage confirmed to match plant voltage
☐	☐	☐	Hoisting equipment properly installed and aligned
☐	☐	☐	Air release valves installed at high point in jet recirculation piping

Other Equipment - Blowers

			Blower type (PD, Centrifugal, Turbo) _____
☐	☐	☐	Blowers located and piped per prints
☐	☐	☐	Air piping extends above tank TOW elevation
☐	☐	☐	Blower rotation confirmed
☐	☐	☐	Greased and oil level confirmed
☐	☐	☐	Blower electrical connections terminated and protected from moisture
☐	☐	☐	Flex connectors provided between blower and plant piping

Yes	No	NA	
☐	☐	☐	PRV installed and properly adjusted
☐	☐	☐	Check valves properly installed
☐	☐	☐	Blower motor voltage confirmed to match plant voltage
☐	☐	☐	Blower overloads installed at MCC and properly sized
☐	☐	☐	Blowers level and drives aligned (coupling or V-belt)

Other Equipment - Valves

☐	☐	☐	Valves located and piped per prints
☐	☐	☐	Handwheels accessible from ground or walkways
☐	☐	☐	Valves actuate and seat properly without binding
☐	☐	☐	Limit switches properly adjusted on automatic valves
☐	☐	☐	Valve electrical connections terminated and protected from moisture

[illegible]

The dry installation check has been completed in accordance with the Contract between Parkson and Purchaser. Comments and corrective action shall be completed prior to wet start up and equipment commissioning.

Service Technician Signature _____

Owner / Contractor Representative Signature _____

Owner / Contractor Rep Printed Name / Title _____

Date of Signature _____

Equipment Data

Description _____ Manufacturer _____

Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

Description _____ Manufacturer _____

Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

Description _____ Manufacturer _____

Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

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RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

Description _____ Manufacturer _____

Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

Parkson EcoCycle™ Equipment Startup Procedure and Check List

Project Name:_____ Project No._____ Date_____

Project Location:_____ Customer:_____

Wet check Performed By:_____

Services included in Contract (trips / man days):_____

In-Basin Fixed Equipment

Yes No NA

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| ☐ | ☐ | ☐ | Decanters filled with water and properly submerged |
| ☐ | ☐ | ☐ | Decanters floating level |
| ☐ | ☐ | ☐ | Decant rate measured and confirmed |
| ☐ | ☐ | ☐ | Decanter travels freely between TWL and rest elevation |
| ☐ | ☐ | ☐ | Aeration system operated |
| ☐ | ☐ | ☐ | Aeration and mixing patterns normal |
| ☐ | ☐ | ☐ | Mooring and retrieval systems adjusted and balanced |
| ☐ | ☐ | ☐ | Pneumatic flushout operation tested (jet aeration) |
| ☐ | ☐ | ☐ | Basins cleaned of debris and construction materials |

Other Equipment – Pumps / Mixers

Pump type (dry pit or submersible) _____

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| ☐ | ☐ | ☐ | Pump properly installed, aligned, and leveled |
| ☐ | ☐ | ☐ | Pumps properly lubricated prior to start up |
| ☐ | ☐ | ☐ | Pump rotation confirmed |
| ☐ | ☐ | ☐ | Air purged from pump lines |
| ☐ | ☐ | ☐ | Pump seals/packing properly adjusted |
| ☐ | ☐ | ☐ | Pump running smoothly with no excessive vibration |

Pump gauge readings (if provided) #1 _____ #2 _____ #3 _____

#4 _____ #5 _____ #6 _____ #7 _____ #8 _____

Yes No NA

Other Equipment - Blowers

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| | | | Blower type (PD, Centrifugal, Turbo) _____ |
| ☐ | ☐ | ☐ | Blower rotation confirmed |
| ☐ | ☐ | ☐ | Greased and oil level confirmed prior to startup |
| ☐ | ☐ | ☐ | Inlet filters properly installed |
| ☐ | ☐ | ☐ | Blowers operate without excessive vibration |
| ☐ | ☐ | ☐ | PRV tested |
| ☐ | ☐ | ☐ | Check valves properly installed |
| ☐ | ☐ | ☐ | Blower V-belts properly tightened |
| ☐ | ☐ | ☐ | Sound enclosure cooling fan operational (if enclosure) |

Blower gauge readings (if provided) #1 _____ #2 _____ #3 _____
#4 _____ #5 _____ #6 _____ #7 _____ #8 _____

Other Equipment - Valves

- | | | | |
|--------------------------|--------------------------|--------------------------|---|
| ☐ | ☐ | ☐ | Valves located and piped per prints |
| ☐ | ☐ | ☐ | Handwheels accessible from ground or walkways |
| ☐ | ☐ | ☐ | Valves actuate and seat properly without binding |
| ☐ | ☐ | ☐ | Limit switches properly adjusted on automatic valves |
| ☐ | ☐ | ☐ | Local control stations operate properly (if provided) |

Other Equipment – Controls / Instrumentation

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| ☐ | ☐ | ☐ | All wire terminations completed in control panel |
| ☐ | ☐ | ☐ | Transducers and floats set at correct level. |
| ☐ | ☐ | ☐ | Instrumentation (D.O., pH, ORP) properly mounted. |
| ☐ | ☐ | ☐ | Digital inputs / outputs confirmed with field devices. |
| ☐ | ☐ | ☐ | Analog inputs / outputs confirmed with field devices. |
| ☐ | ☐ | ☐ | SBR set points configured. |

Operational Performance Testing

- | | | | |
|--------------------------|--------------------------|--------------------------|--|
| ☐ | ☐ | ☐ | Pumps sequence properly based on setpoints during aeration steps. |
| ☐ | ☐ | ☐ | Pumps sequence properly based on setpoints during flushout steps. |
| ☐ | ☐ | ☐ | Pumps sequence properly based on setpoints during wasting steps. |
| ☐ | ☐ | ☐ | Blowers respond correctly based on D.O. concentrations. |
| ☐ | ☐ | ☐ | Blower lead / lag alternation confirmed. |
| ☐ | ☐ | ☐ | Spare blower automatically initiated during blower failure. |
| ☐ | ☐ | ☐ | Control sequence confirmed with tank(s) out of service. |
| ☐ | ☐ | ☐ | All equipment responds to hardware HOA / OCA switches on panel. |
| ☐ | ☐ | ☐ | All lights on panel front functioning properly. |
| ☐ | ☐ | ☐ | Decant steps confirmed to terminate at BWL. |
| ☐ | ☐ | ☐ | Decant start / stop sequence confirmed based on ETWL float activation. |
| ☐ | ☐ | ☐ | Valve open / close limit switches made and received at panel. |
| ☐ | ☐ | ☐ | Alarm horn confirmed functional. |
| ☐ | ☐ | ☐ | HMI graphics confirmed to match equipment configurations. |
| ☐ | ☐ | ☐ | Trend charts on HMI properly configured and scaled. |
| ☐ | ☐ | ☐ | SBR set points configured for fully automatic operation. |

This image shows a full page of white paper with horizontal blue ruling lines. The lines are evenly spaced and run across the width of the page, providing a template for handwriting practice or general writing. There are no margins, text, or other markings on the page.

The wet start up check has been completed in accordance with the Contract between Parkson and Purchaser. Comments and corrective action shall be completed as noted.

Service Technician Signature _____

Owner / Contractor Representative Signature _____

Owner / Contractor Rep Printed Name / Title _____

Date of Signature _____

Equipment Data

Description _____ Manufacturer _____

Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

Description _____ Manufacturer _____

Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

Description _____ Manufacturer _____

Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

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RPM _____ Frame _____ Enclosure _____ Serial # _____

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RPM _____ Frame _____ Enclosure _____ Serial # _____

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RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

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Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

Description _____ Manufacturer _____

Model # _____ HP _____ Volts _____ Amps _____ Ph ____ Hz _____

RPM _____ Frame _____ Enclosure _____ Serial # _____

Actual Amp Readings _____

SECTION 017500

EQUIPMENT TESTING AND STARTUP

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Provide a competent field services technician of the manufacturers of all equipment furnished to supervise installation, adjustment, initial operation and testing, performance testing, final acceptance testing and startup of the equipment.
- B. Perform specified equipment field performance tests, final acceptance tests and startup services.

1.2 RELATED WORK

- A. Operation and Maintenance Data is included in Section 017823.
- B. Performance and acceptance testing and startup requirements are included in the respective sections of Divisions 22, 23, 26, 27, 33, and 34.

1.3 SUBMITTALS

- A. Submit name, address and resume of proposed field services technicians at least 30 days in advance of the need for such services.
- B. Submit, in accordance with Section 013300, detailed testing procedures for shop tests, field performance tests and final acceptance tests as specified in the various equipment sections. Submittals shall include the following:
 - 1. Test procedures shall be submitted at least 30 days in advance of the proposed test dates and shall include at least the following information:
 - a. Name of equipment to be tested, including reference to specifications section number and title
 - b. Testing schedule of proposed dates and times for testing
 - c. Summary of power, lighting, chemical, water, sludge, gas, etc, needs and identification of who will provide them
 - d. Outline specific assignment of the responsibilities of the Contractor and manufacturers' factory representatives or field service personnel
 - e. Detailed description of step-by-step testing requirements, with reference to appropriate standardized testing procedures and laboratory analyses by established technical organizations (e.g., ASTM, WPCF Standard Methods, etc)
 - f. Samples of forms to be used to collect and record test data and to present tabulated test results
 - 2. Copies of test reports upon completion of specified shop, performance and acceptance tests. Test reports shall incorporate the information provided in the test procedures submittals and modified to reflect actual conduct of the tests and the following additional information:
 - a. Copy of all test data sheets and results of lab analyses
 - b. Summary comparison of specified test and performance requirements vs actual test results

- c. Should actual test results fail to meet specified test and performance requirements, describe action to be taken prior to re-testing the equipment
- 3. Copies of the manufacturer's field service technician's report summarizing the results of his/her initial inspection, operation, adjustment and pre-tests. The report shall include detailed descriptions and tabulations of the points inspected, tests and adjustments made, quantitative results obtained, suggestions for precautions to be taken to ensure proper maintenance, and the equipment supplier's Certificate of Installation in the format specified herein.

1.4 REFERENCE STANDARDS

- A. American Water Works Association (AWWA)
 - 1. AWWA C561 – Standard for Fabricated Stainless Steel Slide Gates
- B. American Society for Testing and Materials (ASTM)
 - 1. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges and Pipe Fittings
 - 2. ASTM A249 – Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
 - 3. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
 - 4. ASTM B98 - Standard Specification for Copper-Silicon Alloy Rod, Bar and Shapes
 - 5. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs
 - 6. ASTM F594 - Standard Specification for Stainless Steel Nuts
- C. Water Pollution Control Federation (WPCF)
- D. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.5 QUALITY ASSURANCE

- A. Field service technicians shall be competent and experienced in the proper installation, adjustment, operation, testing and startup of the equipment and systems being installed.
- B. Manufacturers' sales and marketing personnel will not be accepted as field service technicians.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 PRELIMINARY REQUIREMENTS

- A. After installation of the equipment has been completed and the equipment is presumably ready for operation, before it is operated by others, the manufacturer's field service technician shall inspect, operate, test and adjust the equipment. The inspection shall include at least the following points where applicable:
 - 1. Soundness
 - 2. Compliance with all manufacturer recommendations and installation requirements.
 - 3. Operation within specified range as indicated in the specification and required of the manufacturer
 - 4. Completeness in all details, as specified and required
 - 5. Correctness of setting, alignment and relative arrangement of various parts
 - 6. Adequacy and correctness of packing, sealing and lubricants
- B. The operation, testing and adjustment shall be as required to prove that the equipment has been left in proper condition for satisfactory operation under the conditions specified.
- C. Upon completion of this work, the manufacturer's field service technician shall submit a signed report of the results of his/her inspection, operation, adjustments and tests.
- D. The manufacturers shall provide start-up procedure check lists for each piece of equipment incorporated into the work.
- E. The Engineer shall be provided the executed check list by the equipment certified manufacturer as a separate submittal in accordance with Section 013300

3.2 WITNESS REQUIREMENTS

- A. Shop tests or factory tests may be witnessed by the Owner and/or Owner's representatives, as required by the various equipment specifications.
- B. Field performance and acceptance tests shall be performed in the presence of the Owner, the Owner's designed personnel and/or Owner's representatives.

3.3 STARTUP AND ACCEPTANCE OF THE PUMP STATION AND RELATED SYSTEMS

- A. General Requirements
 - 1. Successfully execute the step-by-step procedure of startup and performance demonstration specified the manufacturer and as required herein.
 - 2. The startup and performance demonstration shall be successfully executed prior to Substantial Completion and acceptance by the Owner of the treatment plant and its related systems.
 - 3. All performance tests and inspections shall be scheduled at least 5 working days in advance or as otherwise specified with the Owner and the Engineer. All performance tests and inspections shall be conducted during the work week of Monday through Friday, unless otherwise specified.
- B. Preparation for Startup
 - 1. Upon completion of the wastewater facilities and all its related systems, all channels, tanks, and water containment structures shall be visually inspected for for leaks, cracks, and defects in accordance with Section 014000.
 - 2. All mechanical and electrical equipment shall be checked to ensure that it is in

good working order and properly connected. Preliminary run-ins of the various pumps, compressors, and other remaining equipment shall be made. All systems shall be cleaned and purged as required. All sumps, tanks, basins, chambers, pump wells and pipelines which are hydraulically checked shall be drained and returned to their original condition once the water testing is complete.

3. All instruments and controls shall be calibrated through their full range. All other adjustments required for proper operation of all instrumentation and control equipment shall be made.
4. Perform all other tasks needed for preparing and conditioning the wastewater treatment facilities for proper operation.
5. No testing or equipment operation shall take place until it has been verified by the Engineer that all specified safety equipment has been installed and is in good working order.
6. No testing or equipment operation shall take place until it has been verified by the Engineer that all lubricants, tools, maintenance equipment, spare parts and approved equipment operation and maintenance manuals have been furnished as specified.

C. Facilities Startup

1. Startup period shall not begin until all equipment has been tested as specified and are ready for operation. The Owner shall receive spare parts, safety equipment, tools and maintenance equipment, lubricants, approved operation and maintenance data and the specified operation and maintenance instruction prior to the startup with wastewater. All valve tagging shall also be complete prior to this startup.
2. Demonstrate a seven consecutive 24-hour day period of successful operation of the facility as a prerequisite of Substantial Completion and Acceptance.
3. In the event of failure to demonstrate satisfactory performance of the facility on the first or any subsequent attempt, all necessary alterations, adjustments, repairs and replacements shall be made. When the facility is again ready for operation, it shall be brought on line and a new test shall be started. This procedure shall be repeated as often as necessary until the facility has operated continuously to the satisfaction of the Owner and Engineer, for the specified duration.
4. The Owner will furnish all operating personnel (other than vendor's or subcontractor's service personnel) needed to operate equipment during the final test period; however, said personnel will perform their duties under Contractor's direct supervision. Until performance tests are completed and units and systems are accepted by the Owner as substantially complete, the Contractor shall be fully responsible for the operation and maintenance of all new facilities.
5. The Owner will provide all necessary chemicals and electricity. However, the Contractor shall provide all necessary personnel of the various construction trades, i.e., electricians, plumbers, etc, and field service personnel of the major equipment suppliers on an 8 hour per day basis at the facilities and on a 24 hour per day basis locally during the startup period. Major equipment suppliers shall include, but not be limited to, the following:
 - a. Mechanical Bar Screen, Conveyor and Compactor
 - b. Owner preselected wastewater equipment (Parkson)
 - c. Positive Displacement Blowers
 - d. Chemical feed equipment
 - e. Instrumentation equipment
 - f. Vertical agitator
 - g. Electrically operated valves

6. Do not, at any time, during startup allow the facility to be operated in a manner which subjects equipment to conditions that are more severe than the maximum allowable operating conditions for which the equipment was designed.

END OF SECTION

EQUIPMENT SUPPLIER'S CERTIFICATE OF INSTALLATION

Owner Walnut Ridge City Water Works

Project WWTF Improvements

Contract No. 1618

EQUIPMENT SPECIFICATION SECTION _____

EQUIPMENT DESCRIPTION _____

I, _____ Authorized
representative of
(Print Name)

(Print Manufacturer's Name)

hereby CERTIFY that _____
(Print Equipment Name and Model with Serial No.)

installed for the subject project has (have) been installed in a satisfactory manner, has (have) been tested and adjusted, and is (are) ready for final acceptance testing and operation on :

Date _____

Time _____

CERTIFIED BY: _____
(Signature of Manufacturer's Representative)

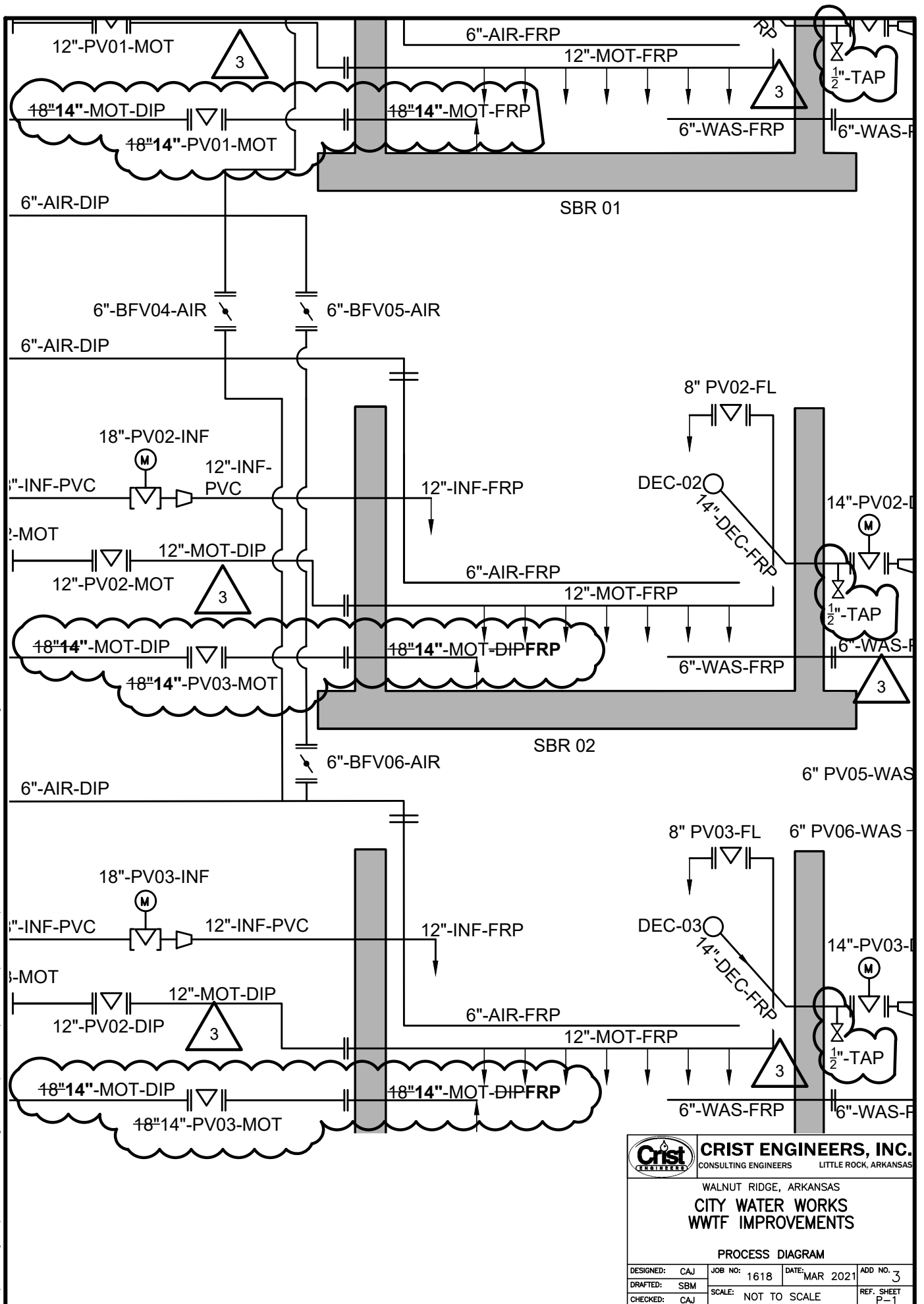
Date: _____

DEMOLITION

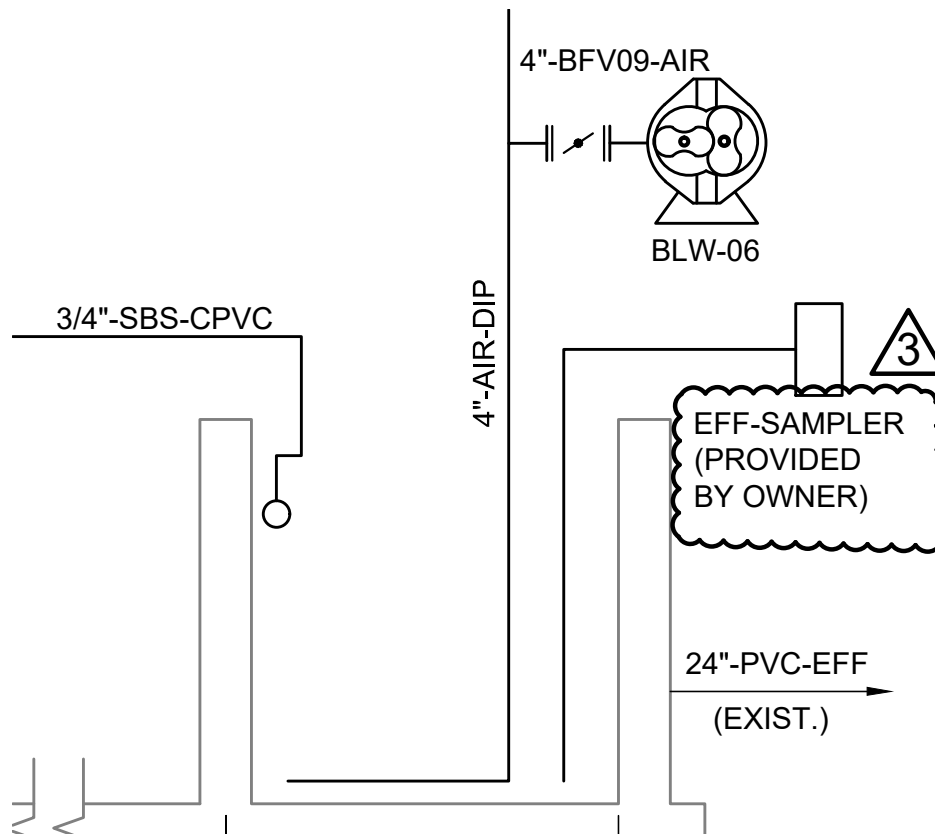
D-1	YARD PIPING DEMO SITE PLAN
D-2	BIOLAC TREATMENT SITE DEMOLITION
D-3	EXISTING O & M BUILDING DEMOLITION PLAN
D-4	BLOWERS AND GENERATOR ROOM DEMOLITION PLAN
D-5	DEMOLITION PHOTOS LOCATION AND DIRECTION KEY
DY-1	MISC. DEMOLITION PHOTOS I
DY-2	MISC. DEMOLITION PHOTOS II
DY-3	MISC. DEMOLITION PHOTOS III
DY-4	MISC. DEMOLITION PHOTOS IV
DY-5	MISC. DEMOLITION PHOTOS V
DY-6	MISC. DEMOLITION PHOTOS VI
DY-7	MISC. DEMOLITION PHOTOS VII

 CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS	
INDEX OF SHEETS	
DESIGNED: CAJ	JOB NO: 1618 DATE: MAR 2021 ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE REF. SHEET G-1
CHECKED: CAJ	

P:\2016 Projects\1618 - Walnut Ridge WWP Improvements\06 - CAD\06 - P&ID\1618 - LIQUIDS PROCESS FLOW DIAGRAM.dwg

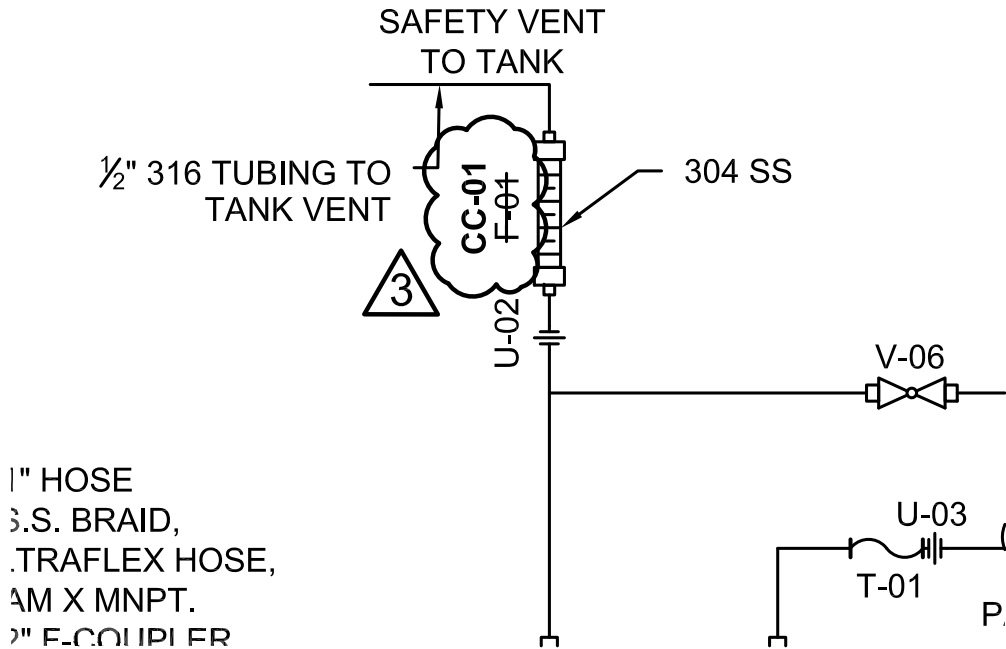


			
CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS			
WALNUT RIDGE, ARKANSAS			
CITY WATER WORKS WWTF IMPROVEMENTS			
PROCESS DIAGRAM			
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE	REF. SHEET P-1	
CHECKED: CAJ			

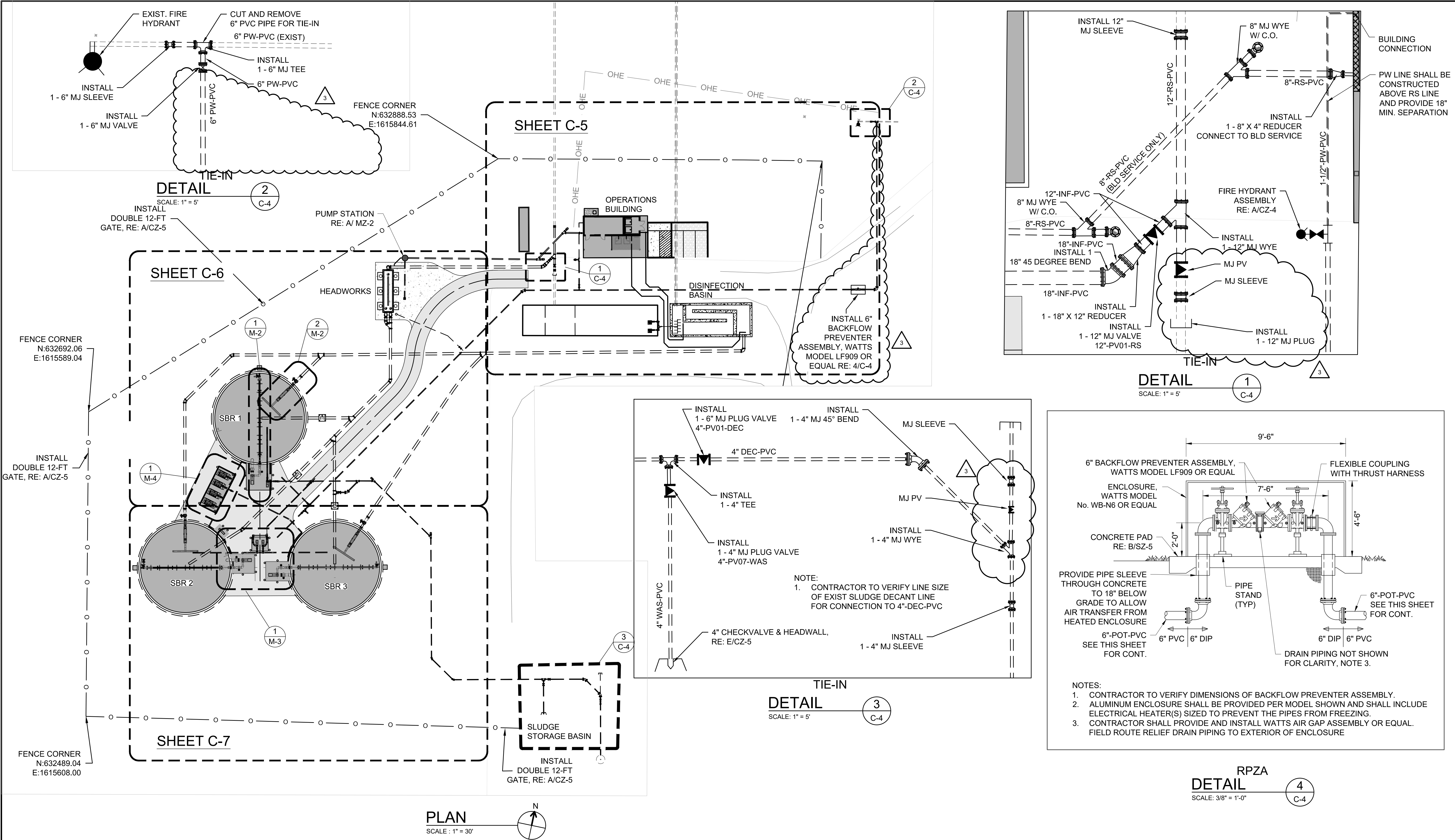


 CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS	
PROCESS DIAGRAM	
DESIGNED: CAJ	JOB NO: 1618 DATE: MAR 2021 ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE REF. SHEET P-1
CHECKED: CAJ	

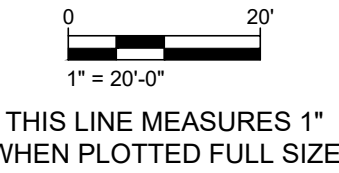
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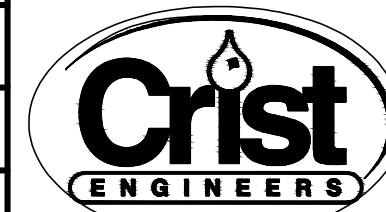
INDEX	
MARK	DISCRIPTION
CC-01	CALIBRATION COLUMN
CV-01	1" 316L S.S. CHECK VALVE (FNPT X FNPT)
CV-02	1/2" 316L S.S. CHECK VALVE (FNPT X FNPT)
F-02	ROTAMETER
G-01	GUAGE
PRV-1	1/2" 316L S.S. PRESSURE RELIEF VALVE
S-01	1/2" 316L S.S. "Y" TYPE STRAINER
S-02	1/2" 316L S.S. "Y" TYPE STRAINER
T-01	
T-02	
U-01	1/2" 316L S.S. UNION
U-02	1/2" 316L S.S. UNION
U-03	1/2" 316L S.S. UNION
U-04	1/2" 316L S.S. UNION
U-05	1/2" 316L S.S. UNION
V-01	1" 316L S.S. VENTED BALL VALVE (STF X STF)
V-02	1/2" 316L S.S. VENTED BALL VALVE (STF X FNPT) WITH 1/2" X 3/8" THREAD BY AIR QUICK CONNECT FOR BLOW DOWN CONNECTION
V-03	1" 316L S.S. VENTED BALL VALVE (FNPT X STF)
V-04	1" 316L S.S. VENTED BALL VALVE (FNPT X STF)
V-05	1" 316L S.S. VENTED BALL VALVE TRUE UNION (TYP)
V-06	1" 316L S.S. VENTED BALL VALVE TRUE UNION (TYP)
V-07	1" 316L S.S. VENTED BALL VALVE TRUE UNION (TYP)
V-08	1" 316L S.S. VENTED BALL VALVE TRUE UNION (TYP)
V-09	1" 316L S.S. VENTED BALL VALVE TRUE UNION (TYP)
V-10	1" 316L S.S. VENTED BALL VALVE TRUE UNION (TYP)
V-11	1" 316L S.S. VENTED BALL VALVE TRUE UNION (TYP)



REV. NO.	DATE	DRWN	CHKD	REMARKS
3	3/02/21	MAB	CAJ	ADDED VALVE AND SLEEVE AT THE WYE CONNECTION FOR OPERATION OPTIONS

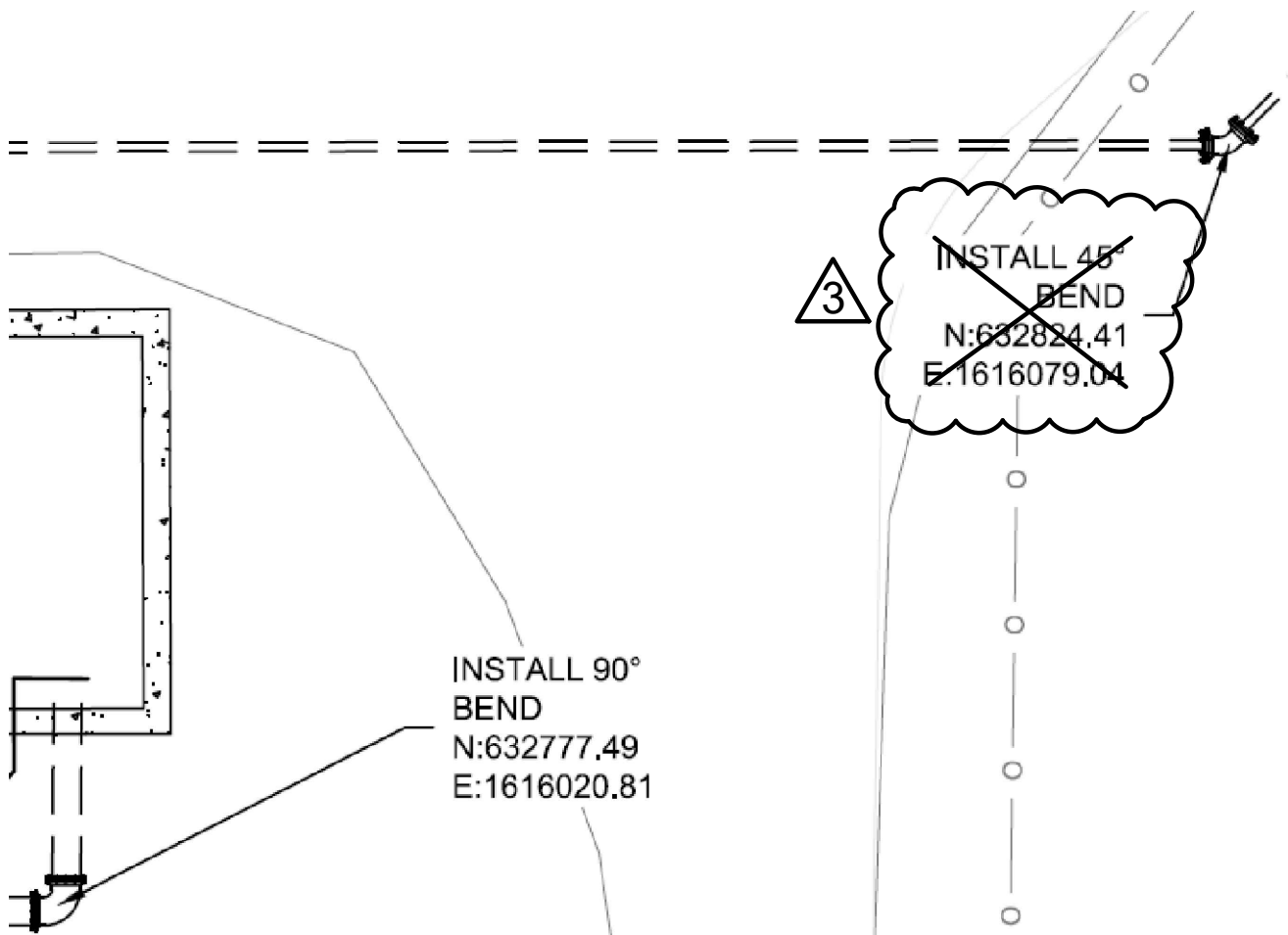


DESIGNED:	CAJ
DRAFTED:	SBM
CHECKED:	CAJ
DATE:	JAN. 2021



CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
205 EXECUTIVE COURT
LITTLE ROCK, ARKANSAS 72205
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
WWW.CRISTENGINEERS.COM

WALNUT RIDGE, ARKANSAS	JOB NO.
WASTEWATER TREATMENT FACILITY IMPROVEMENTS	1618
ADDENDUM #3	SHEET NO.
YARD PIPING PLAN	C-4



 CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS		WALNUT RIDGE, ARKANSAS	
		CITY WATER WORKS WWTf IMPROVEMENTS	
ENLARGED YARD PIPING I			
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE		REF. SHEET C-5
CHECKED: CAJ			

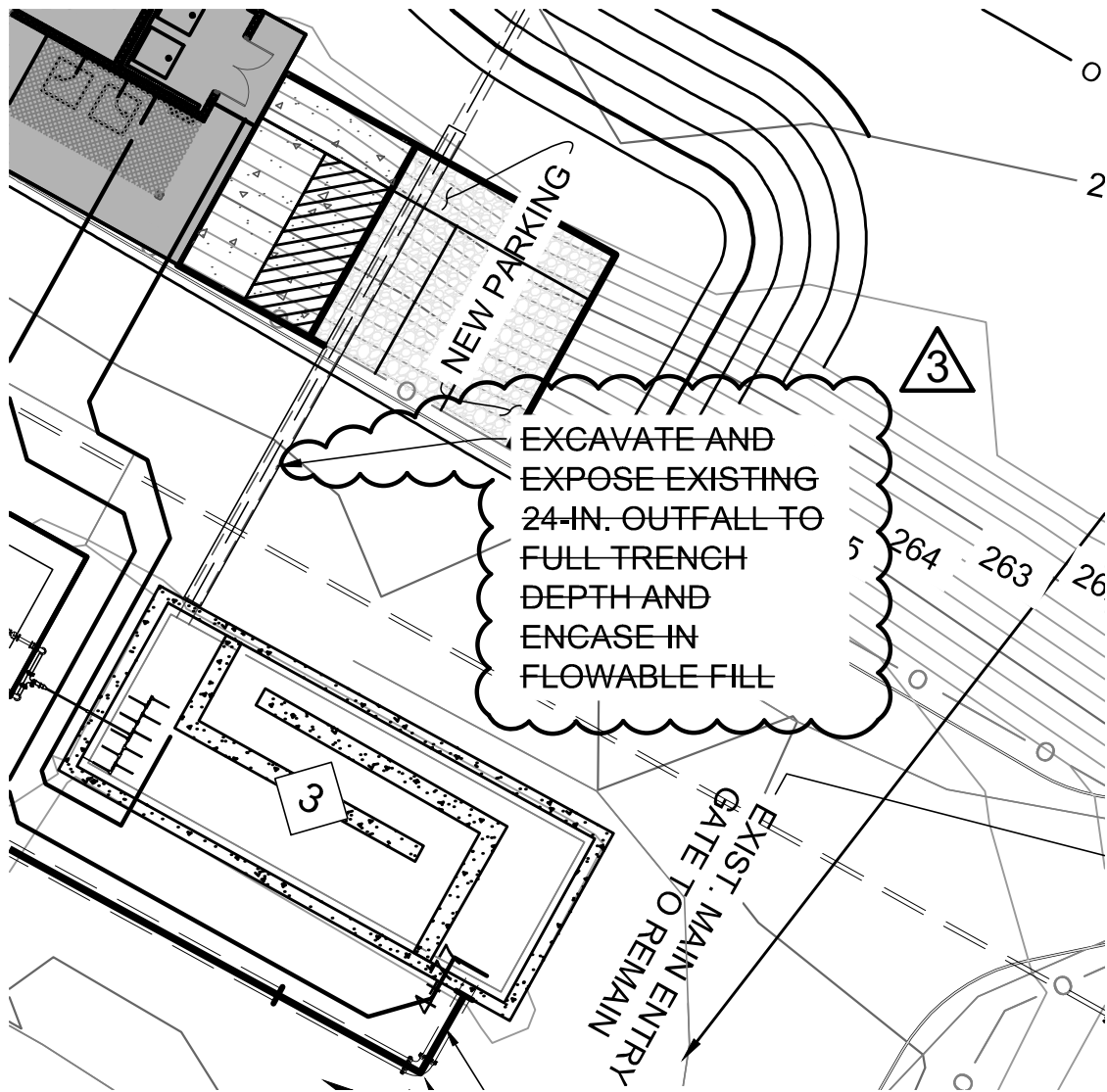
GENERAL NOTES:

1. ALL FITTINGS DUCTILE IRON UNLESS OTHERWISE NOTED.

KEY:

1. O & M BUILDING AND ELECTRICAL ROOM
2. HEADWORKS
3. DISINFECTION BASIN WITH INFLUENT MIXER AND EFFLUENT AERATION
4. NEW BLOWERS (2) WITH CANOPY
5. EXISTING DECANT PUMP AND PIPING, REUSE PUMP AND CONNECT TO NEW 6" D.I. WAS EFF. LINE.
6. SBR 01
7. PROCESS BLOWER FOUNDATION
8. CONTROL PANEL
9. GENERATOR FOUNDATION

		CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS	
		WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS ENLARGED YARD PIPING I	
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE	REF. SHEET C-5	
CHECKED: CAJ			



 CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS			
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTf IMPROVEMENTS			
PIPING PLAN AND PROFILE - ALIGNMENT D			
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE	REF. SHEET C-11	
CHECKED: CAJ			

P:\2016 Projects\1618 - Walnut Ridge WWTP Improvements\06 - CADD\02 - Civil\1618 - SITE GRADING PLAN - add 3.dwg

FOUNDATION
PERIMETER (TYP)

HEADWORKS,
SBR 01, SBR 02, & SBR 03
INSTALL RAMMED AGGREGATE PEIR
FOUNDATION SYSTEM, LOCATION
SIZE & DEPTH DETERMINED
BY PIER DESIGNER IN ACCORDANCE
WITH SECTION 316613 (TYP)
RE: ADD NO 3 / S-8 & ADD NO 3 / S-17

O&M BUILDING

PLAN

SCALE : 1" = 40'

SBR 1

SBR 2

SBR 3

FOUNDATION
PERIMETER (TYP)

PLAN

SCALE : 1" = 40'

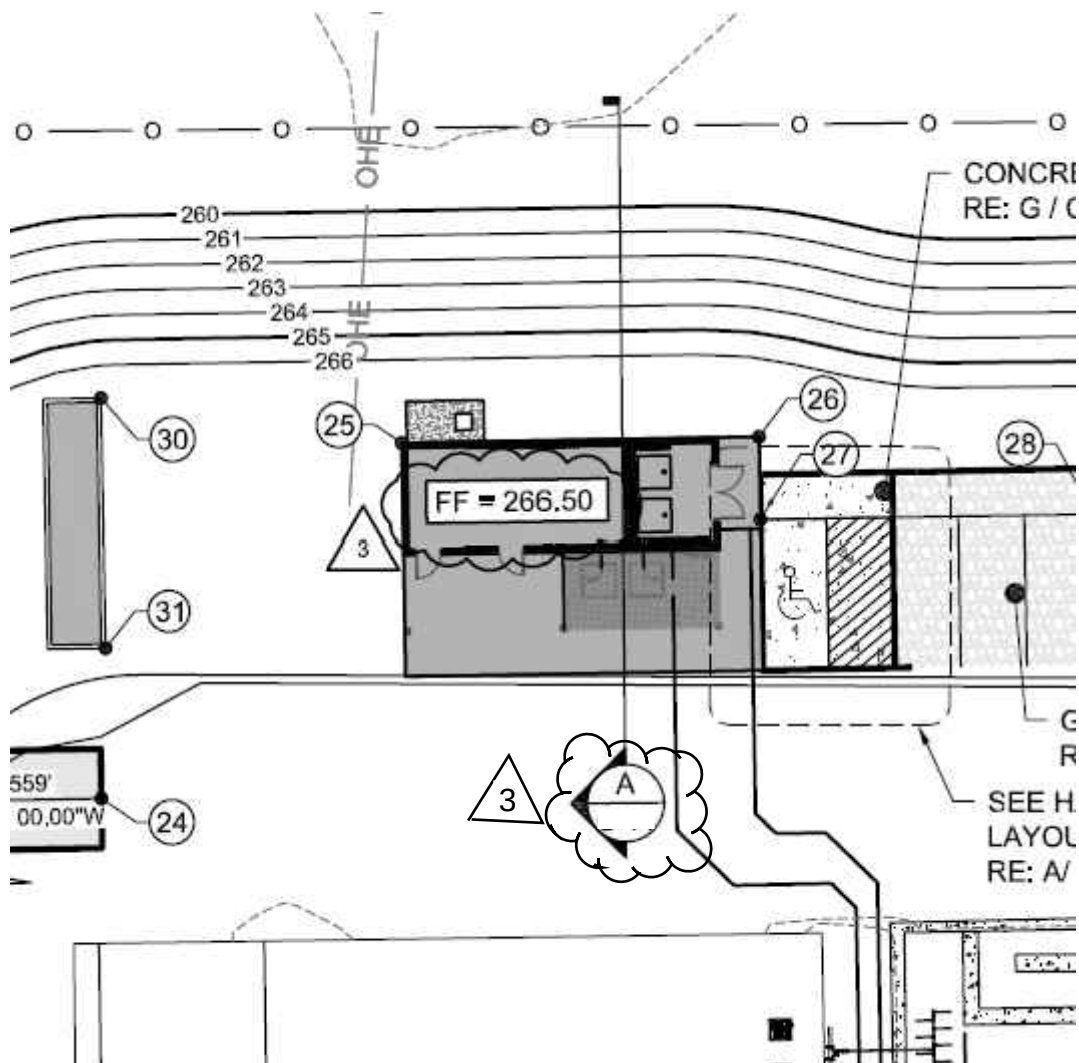


CRIST ENGINEERS, INC.
CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS

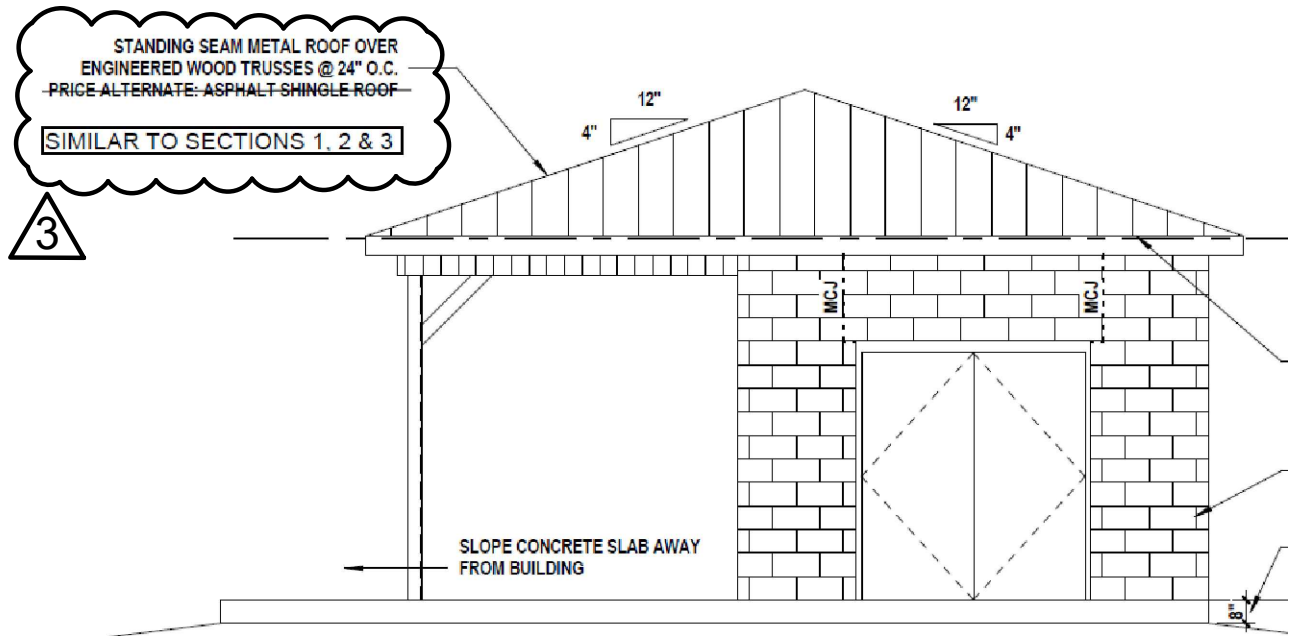
WALNUT RIDGE, ARKANSAS
**CITY WATER WORKS
WWTF IMPROVEMENTS**

GRADING & PAVING PLAN

DESIGNED: CAJ	JOB NO. 1618	DATE MAR, 2021	ADD. NO. 3
DRAFTED: SBM	SCALE:		REF SHEET
CHECKED: CAJ	NOT TO SCALE		C-14

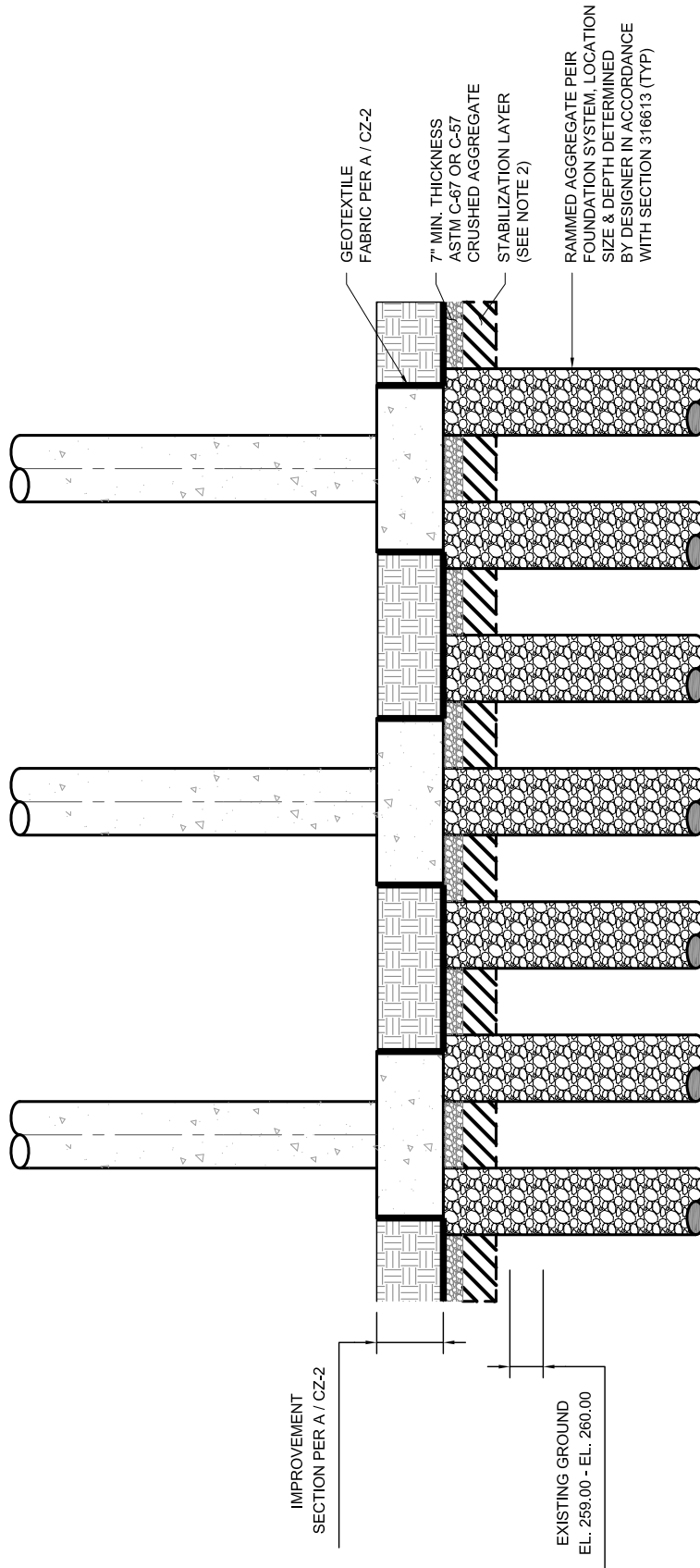


		CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS			
GRADING AND PAVING PLAN			
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE	REF. SHEET C-14	
CHECKED: CAJ			



4 EAST ELEVATION
 $\frac{1}{4}" = 1'-0"$

 CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS	
BUILDING SECTIONS	
DESIGNED: CAJ	JOB NO: 1618 DATE: MAR 2021 ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE REF. SHEET A-201
CHECKED: CAJ	



HEADWORKS
RAMMED AGGREGATE PIER FOUNDATION

DETAIL
SCALE: 3/16" = 1'-0"
A
S-8

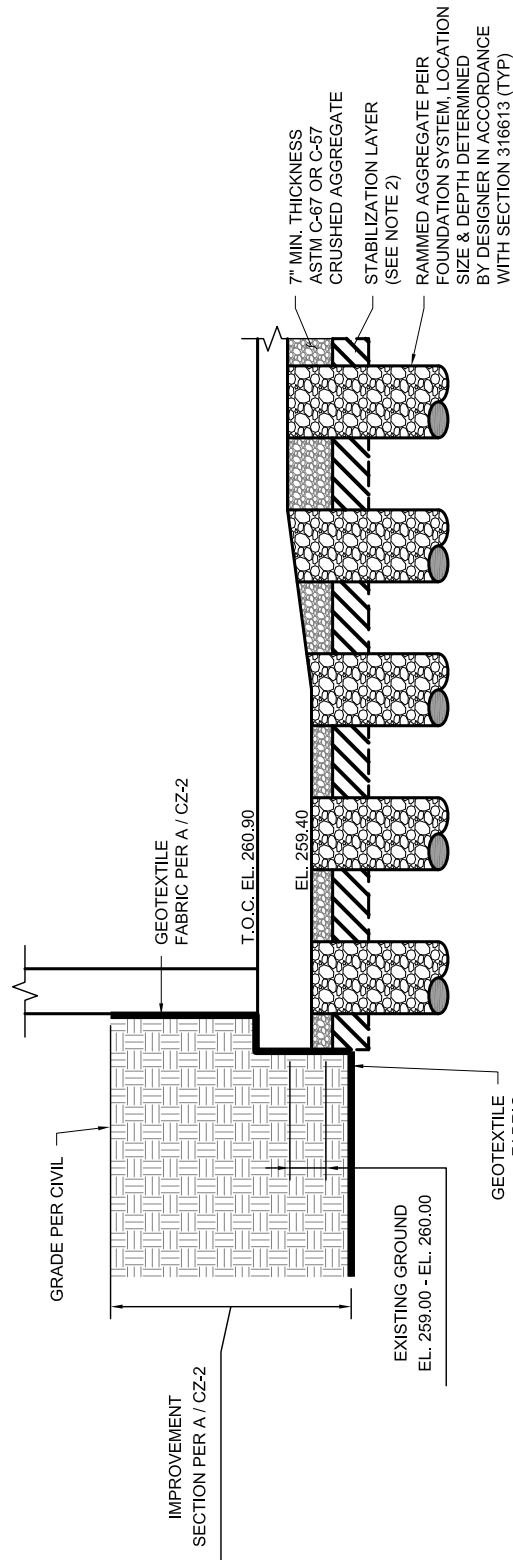
NOTES:

1. STRUCTURAL DIMS. & NOTES REMOVED FOR CLARITY.
2. CONTRACTOR SHALL COORDINATE WITH RAMMED AGGREGATE PIER FOUNDATION SYSTEM DESIGNER & CERTIFIED INSTALLER TO PROVIDE ADEQUATE STABILIZATION FOR THE INSTALLATION OF GEOPIERS IN ACCORDANCE WITH SECTION 316613.
3. REMOVAL OF UNSUITABLE ORGANICS UNDER THE STRUCTURAL SLAB SHALL BE SUBSIDIARY TO THE INSTALLATION OF THE STABILIZATION LAYER FOR THE PIER SYSTEM.

		CRIST ENGINEERS, INC.	
CONSULTING ENGINEERS		LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS			
CITY WATER WORKS			
WWTF IMPROVEMENTS			
GEO-GRID DETAIL			
DESIGNED: CAJ	JOB NO. 1618	DATE MAR. 2021	ADD. NO. 3
DRAFTED: SBM	SCALE:	REF SHEET S-8	
CHECKED: CAJ	NOT TO SCALE		

NOTES:

1. STRUCTURAL DIMS. & NOTES REMOVED FOR CLARITY.
2. CONTRACTOR SHALL COORDINATE WITH RAMMED AGGREGATE PIER FOUNDATION SYSTEM DESIGNER & CERTIFIED INSTALLER TO PROVIDE ADEQUATE STABILIZATION FOR THE INSTALLATION OF GEOPIERS IN ACCORDANCE WITH SECTION 316613.
3. REMOVAL OF UNSUITABLE ORGANICS UNDER THE STRUCTURAL SLAB SHALL BE SUBSIDIARY TO THE INSTALLATION OF THE STABILIZATION LAYER FOR THE PIER SYSTEM.



SBR 01, SBR 02, SBR 03
RAMMED AGGREGATE PIER FOUNDATION

DETAIL
SCALE: 3/16" = 1'-0"

 CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS	
GEO-GRID DETAIL	
DESIGNED: CAJ DRAFTED: SBM CHECKED: CAJ	JOB NO. 1618 DATE MAR. 2021 SCALE: NOT TO SCALE
ADD. NO. 3 REF SHEET S-17	

BLOWERS	M-4	1	**28'-8"	12'-6"	12"	6"	265.0'
WAS PUMPS	M-3	1	11'-0"	~~7'-0"~~	12"	6"	265.0'
GENERATOR	C-5, C-15	1	**30'-0"	10'-6"	12"	6"	SEE CIVIL
RPZ VALVE	C-4	1	12'-0"	8'-0"	12"	0"	265.0'

* NOTE: SLABS ARE POURED AGAINST SBR TANKS AND HAVE A CURVED EDGE WHICH REQUIRES A 1/2" EXPANSION JOINT.

** NOTE: WHERE LENGTH OR "L" IS GREATER THAN 15'-0", PROVIDE #6 BARS @ 10" LONGITUDIAL BARS.

EQUIPMENT SLABS

DETAIL

N.T.S.

B

9'-0"

3

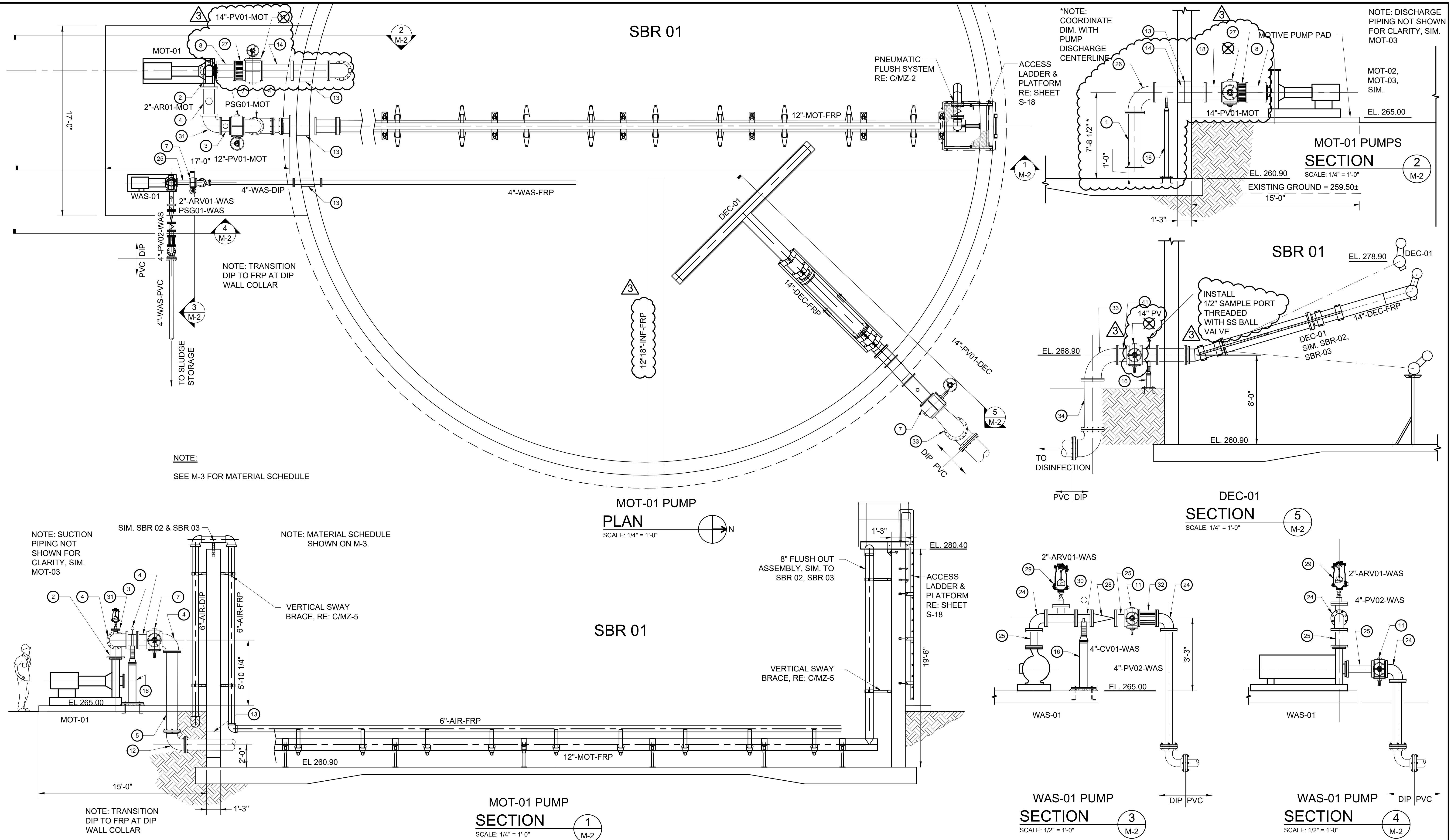


CRIST ENGINEERS, INC.
CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS

WALNUT RIDGE, ARKANSAS
**CITY WATER WORKS
WWTF IMPROVEMENTS**

STRUCTURAL DETAILS V

DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE	REF. SHEET SZ-5	
CHECKED: CAJ			



REV. NO.	DATE	DRWN	CHKD	REMARKS

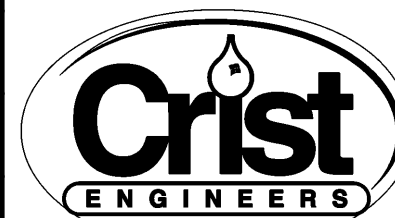


0 1"

1" = 1"

THIS LINE MEASURES 1"
WHEN PLOTTED FULL SIZE

DESIGNED:	CA
DRAFTED:	SB
CHECKED:	CA
DATE:	JAN. 2021



CRIST ENGINEERS, INC.
CONSULTING ENGINEERS

205 EXECUTIVE COURT
LITTLE ROCK, ARKANSAS 72205
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
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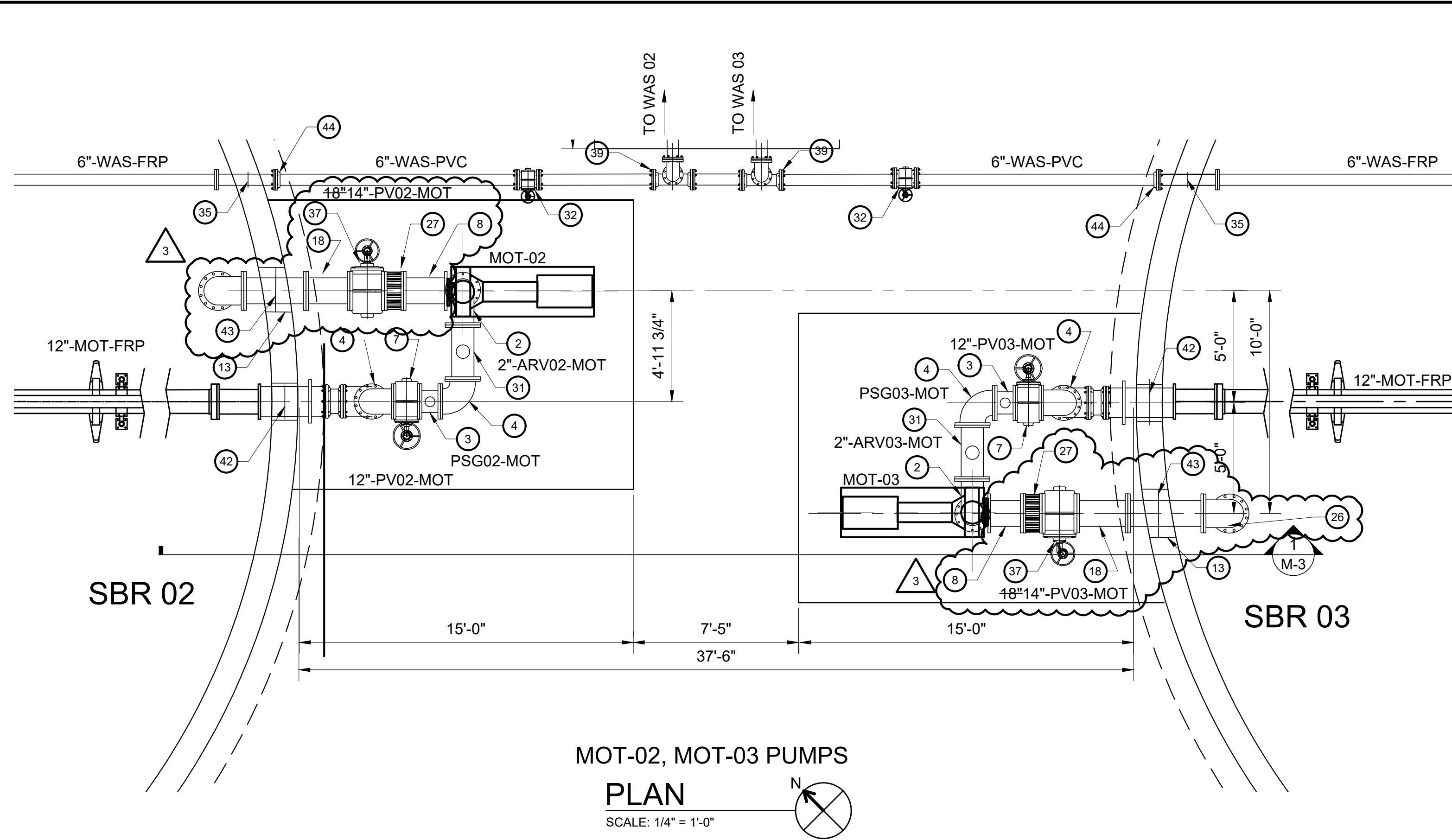
WALNUT RIDGE, ARKANSAS		J
WASTEWATER TREATMENT FACILITY IMPROVEMENTS		
ADDENDUM #3		S
SBR 01 MECHANICAL PLAN AND SECTIONS		

OB NO.

1618

SHEET NO.

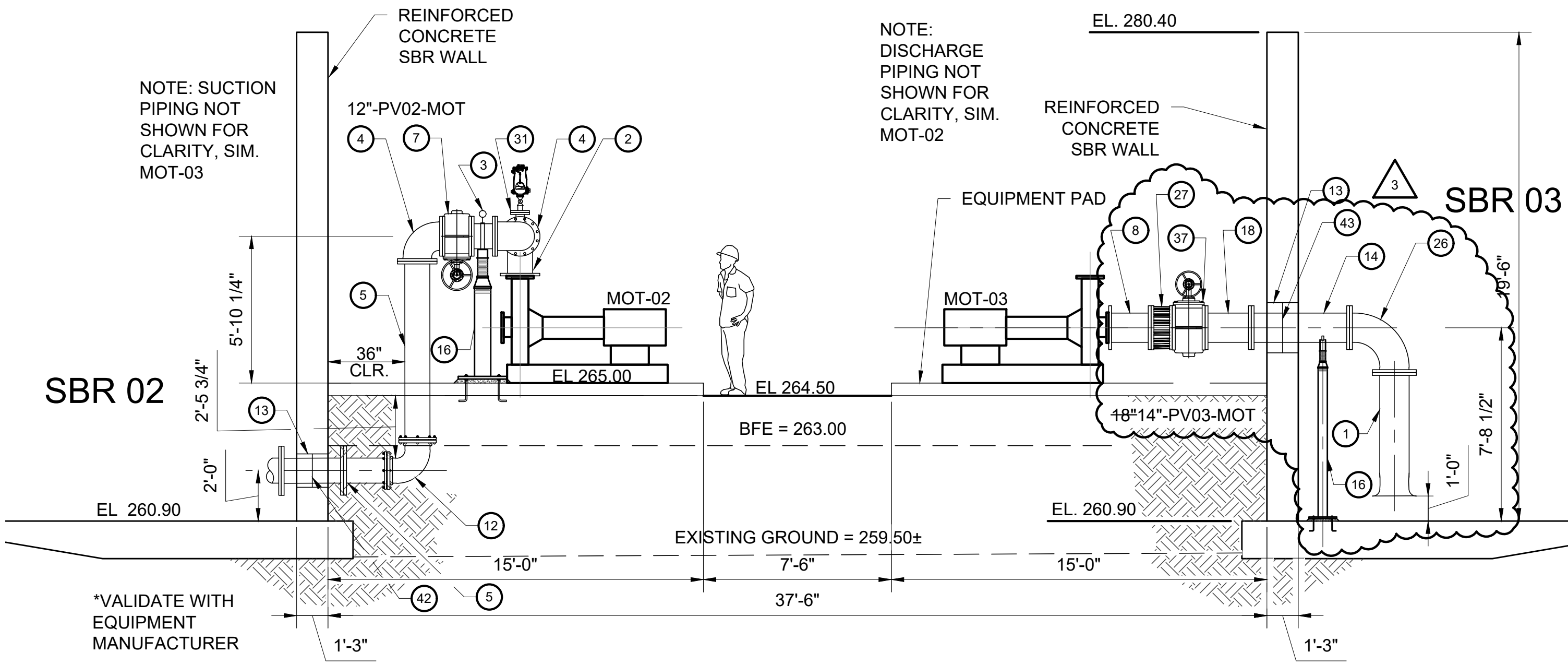
M-2



MOT-02, MOT-03 PUMPS

PLAN

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

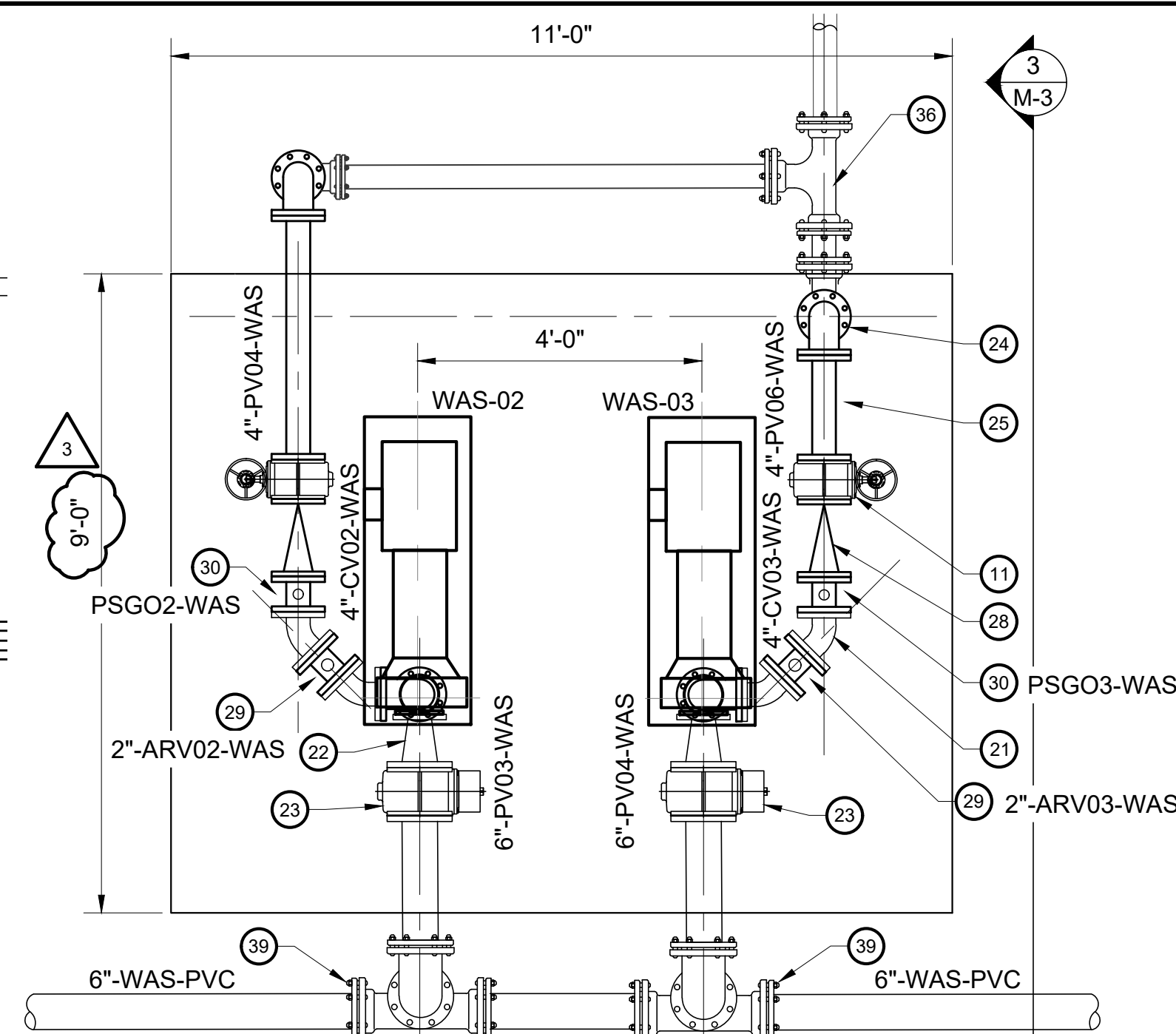


MOT-02, MOT-03 PUMPS

SECTION

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

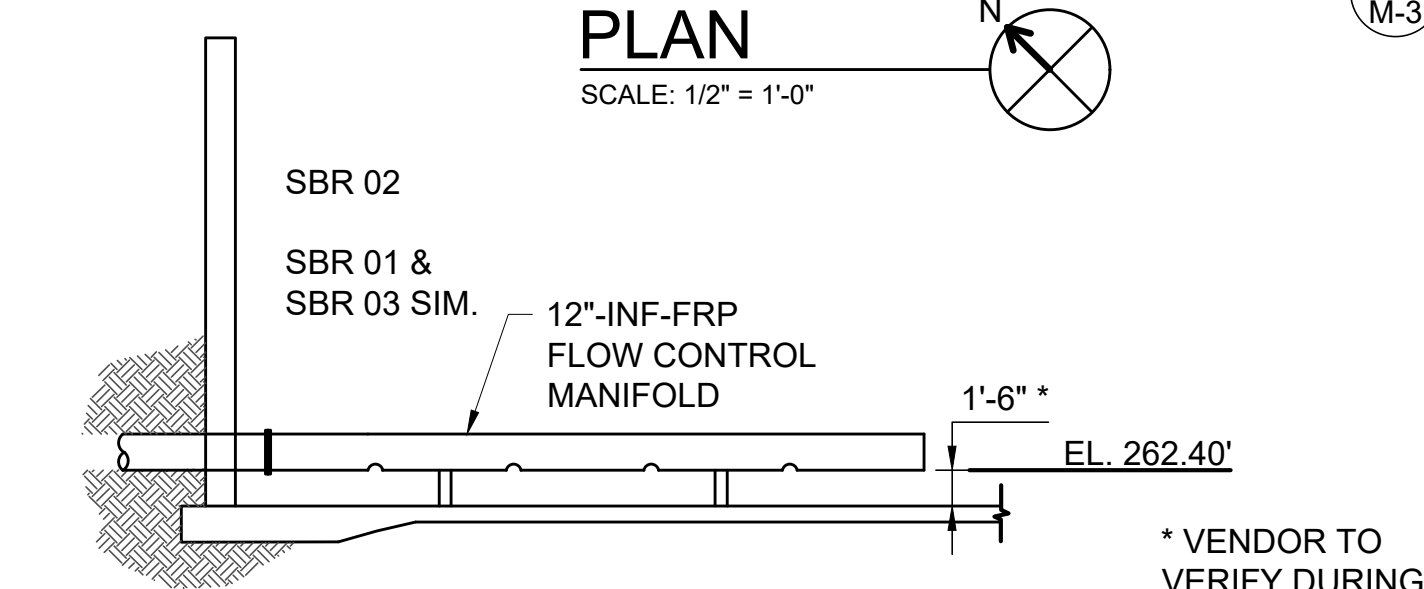
1
M-3



WAS 02, 03 PUMPS

PLAN

SCALE: 1/2" = 1'-0"

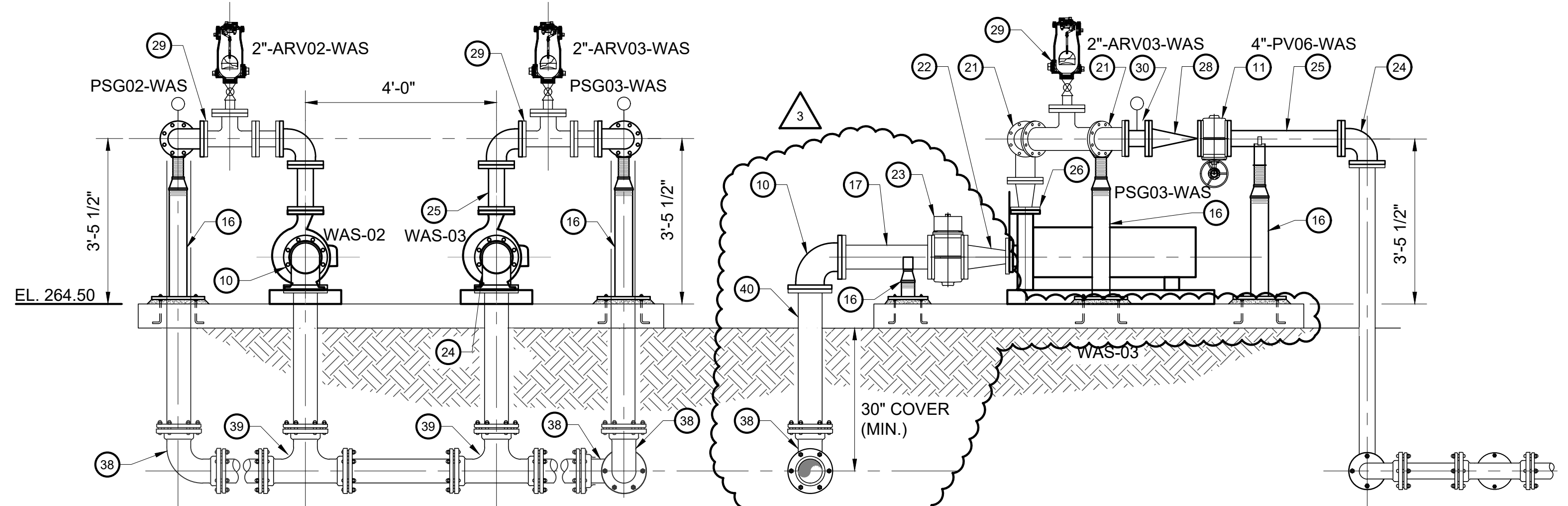


FLOW CONTROL MANIFOLD

SECTION

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

4
M-3



WAS 02, 03 PUMPS

SECTION

SCALE: 1/2" = 1'-0"

2
M-3

WAS 02, 03 PUMPS

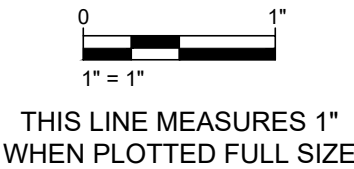
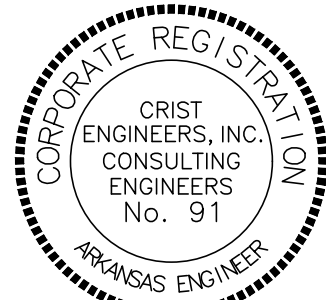
SECTION

SCALE: 1/2" = 1'-0"

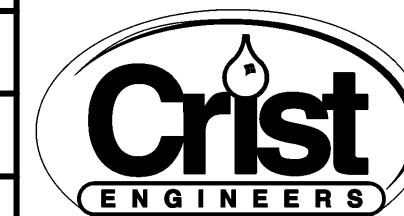
3
M-3

MATERIAL SCHEDULE	
ITEM NO.	DESCRIPTION
1	48"-14" FL X FLARE
2	12" FL 90° LONG RADIUS ELBOW
3	12" FL SPOOL WITH PRESSURE GAUGE
4	12" FL 90° ELBOW
5	12" FL X PE, SPOOL
6	12" MJ SLEEVE
7	12" PLUG VALVE
8	48" X 14" FL ECCENTRIC REDUCER 14" FL SPOOL
9	18" FL 90° ELBOW
10	6" FL 90° BEND
11	4" FL PLUG VALVE
12	12" MJ 90° ELBOW
13	LOCK OUT, RE: B/MZ-3
14	48" 14" WALL COLLAR
15	12" FLANGED SPOOL
16	PIPE SUPPORT, RE: DMZ-6
17	NOT USED 6" FL SPOOL
18	48" 14" FL SPOOL
19	12" MJ FLANGE
20	18" MJ FLANGE
21	4" FL 45° ELBOW
22	6" X 4" FL ECC. REDUCER
23	6" FL PLUG VALVE - MOTOR ACTUATED
24	4" FL 90° ELBOW
25	4" FL SPOOL
26	48"-14" FL LONG RAD. 90° BEND
27	48" 14" FL DISMANTLING JOINT
28	4" FL CHECK VALVE
29	4" FL X 4" FL TEE W/ BALL VALVE AND 2" THREADED AIR RELEASE VALVE
30	4" FL SPOOL WITH PRESSURE GAUGE
31	12" FL X 4" FL TEE W/ BALL VALVE AND 2" THREADED AIR RELEASE VALVE
32	6" MJ PLUG VALVE
33	18" x 14" FL 90° REDUCING ELBOW
34	18" FL X PE, SPOOL
35	6" WALL COLLAR
36	4" MJ TEE
37	48" 14" PLUG VALVE WITH SIDE WHEEL OPERATOR
38	6" MJ 90° BEND
39	6" MJ TEE
40	6" FL X MJ SPOOL
41	14" FL SPOOL
42	12" WALL COLLAR
43	48"-14" WALL COLLAR
44	6" BELL

REV. NO.	DATE	DRWN	CHKD	REMARKS
1	02/24/21	MAB	CAJ	ENLARGED PUMP PAD TO ACCOMMODATE ADDITIONAL PIPE SUPPORT /CHANGED #16 MATERIAL SCH.



DESIGNED: CAJ
DRAFTED: SBM
CHECKED: CAJ
DATE: JAN. 2021



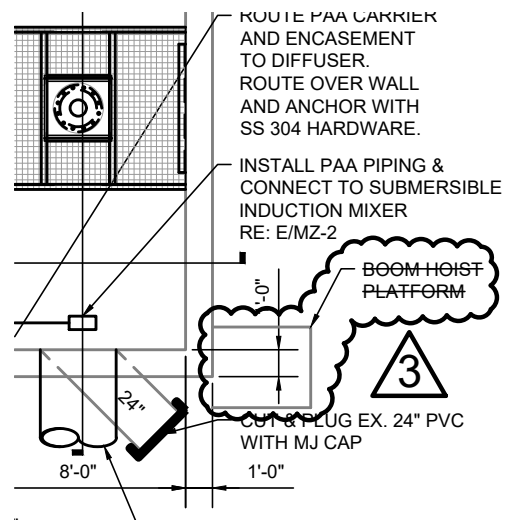
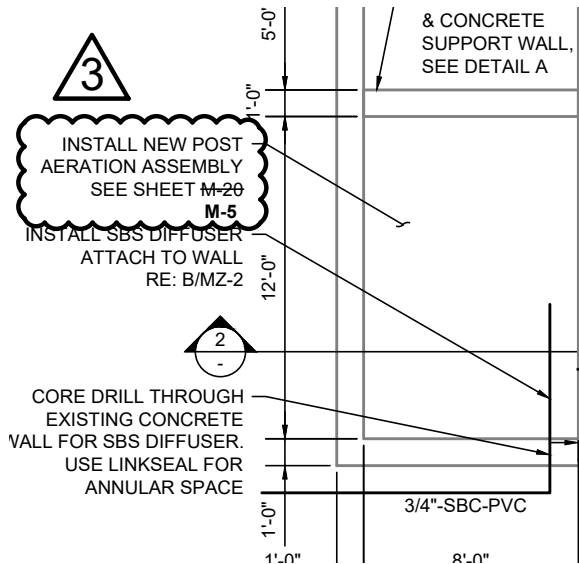
CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
205 EXECUTIVE COURT
LITTLE ROCK, ARKANSAS 72205
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
WWW.CRISTENGINEERS.COM

WALNUT RIDGE, ARKANSAS
WASTEWATER TREATMENT FACILITY IMPROVEMENTS

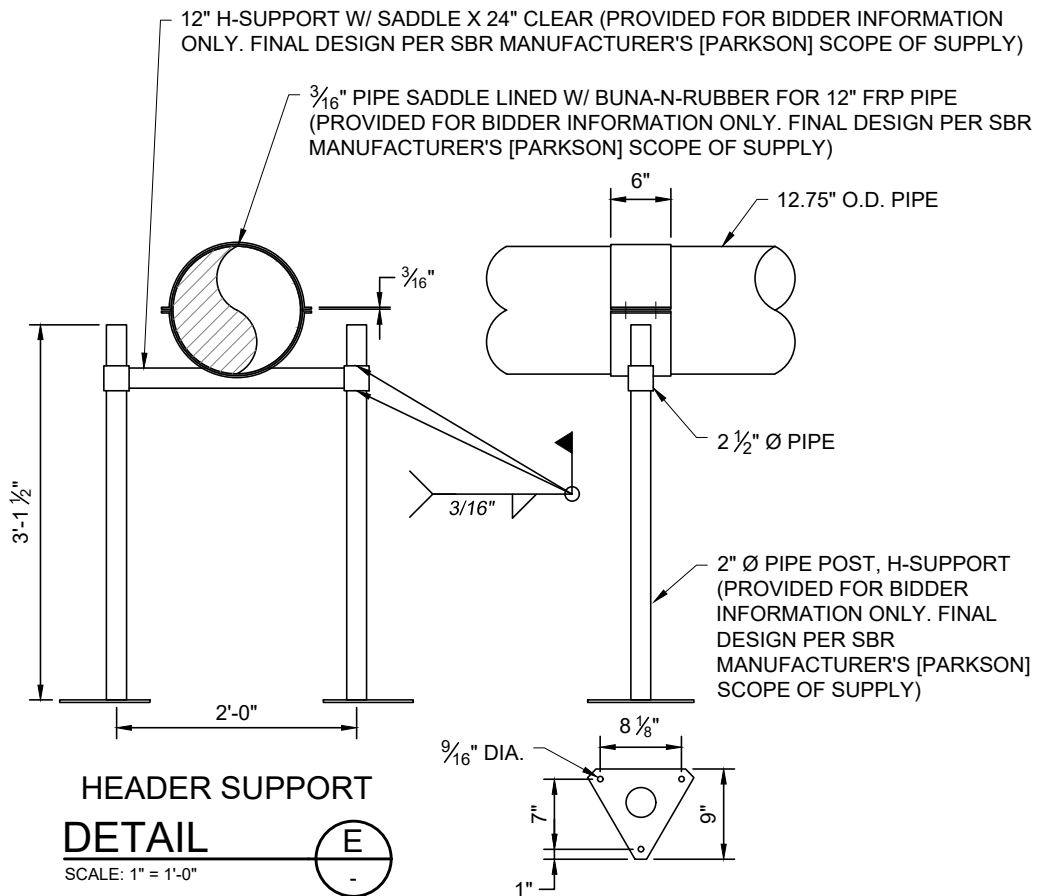
ADDENDUM #3

SBR 02 AND SBR 03 MECHANICAL PLAN AND SECTIONS

JOB NO.
1618
SHEET NO.
M-3



 CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS			
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS DISINFECTION, QUENCHING, & POST AERATION BASIN IMPROVEMENTS			
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE	REF. SHEET M-7	
CHECKED: CAJ			



NOTES:

1. PROVIDED FOR BIDDER INFORMATION ONLY. FINAL DESIGN PER SBR MANUFACTURER'S [PARKSON] SCOPE OF SUPPLY. CONTRACTOR CAN ELECT TO SUBMIT ALTERNATE PIPE SUPPORTS FOR APPROVAL AS EQUAL.

		CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS			
MECHANICAL STANDARD DETAILS I			
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE		REF. SHEET MZ-1
CHECKED: CAJ			

VERTICAL PIPE
SWAY BRACE.
(TYP.)
RE: C / MZ-5

3

HEADER SUPPORT.
PROVIDED FOR BIDDER
INFORMATION ONLY. FINAL
DESIGN PER SBR
MANUFACTURER'S
[PARKSON] SCOPE OF
SUPPLY

3

HEADER SUPPORT.
PROVIDED FOR BIDDER
INFORMATION ONLY. FINAL
DESIGN PER SBR
MANUFACTURER'S [PARKSON]
SCOPE OF SUPPLY

JET
AERATION
HEADER

SECTION

1
-

ELEVATION VIEW

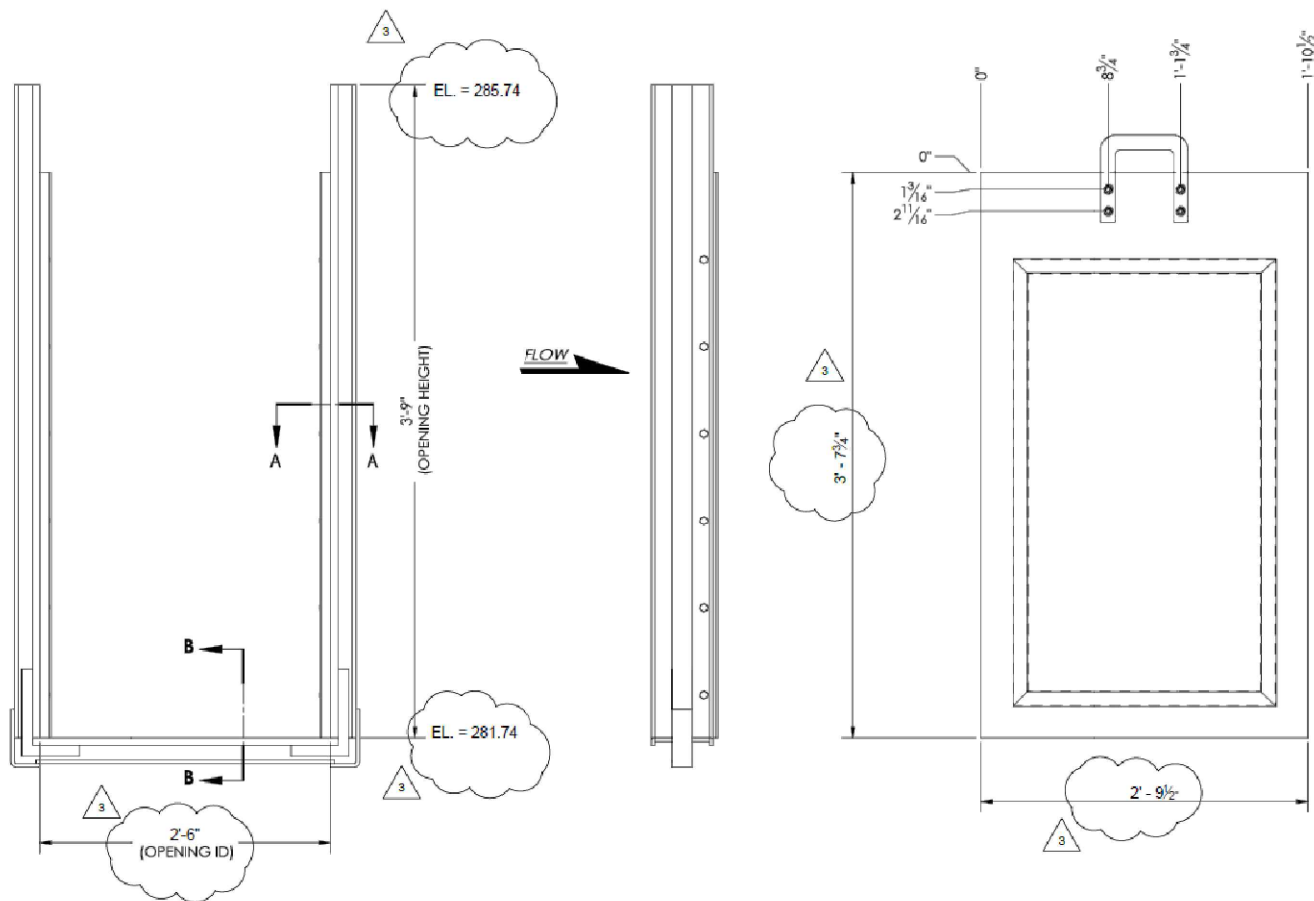
PNEUMATIC FLUSH OUT SYSTEM

DETAIL

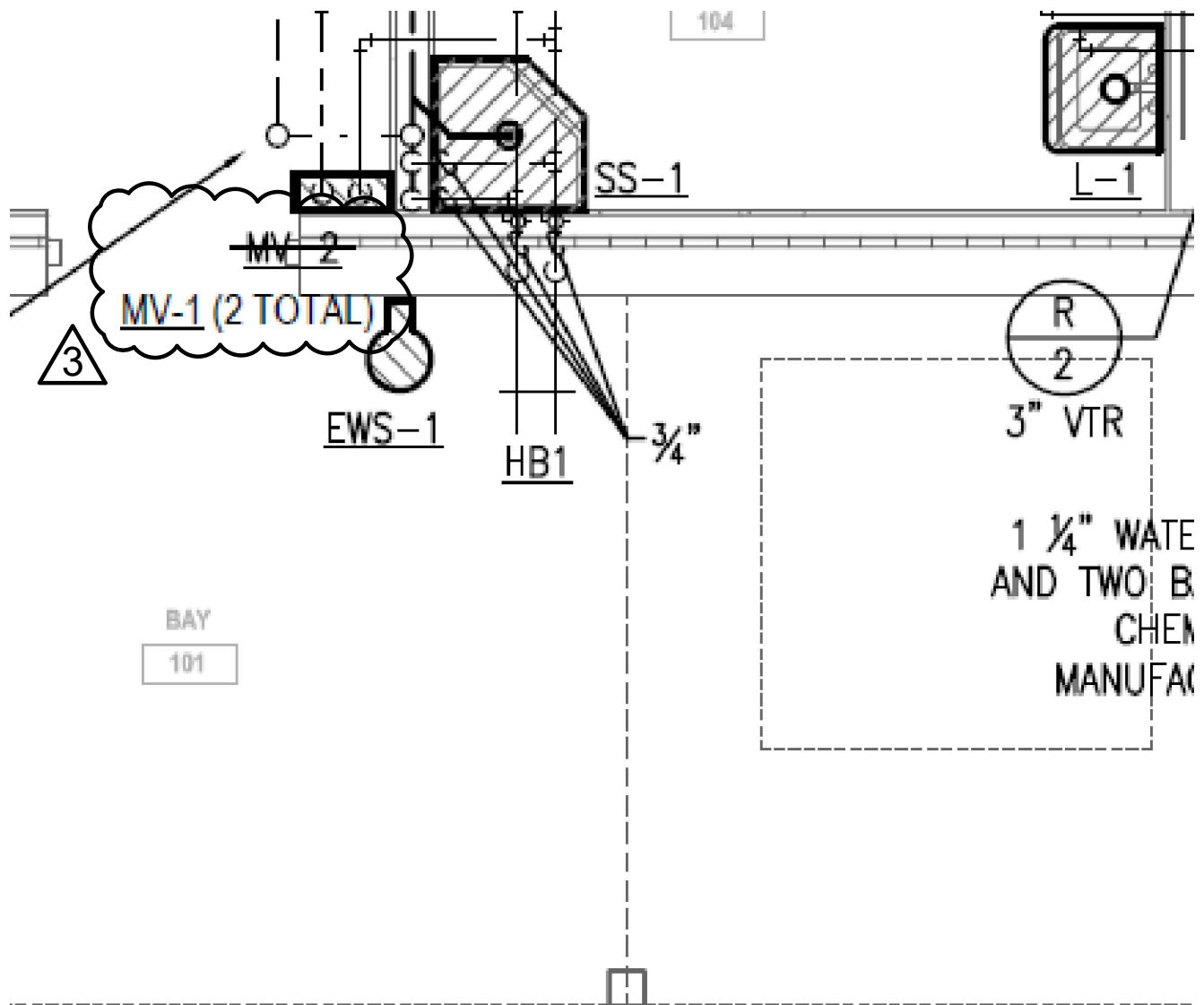
SCALE: 3/8" = 1'-0"

C
M-2

		CRIST ENGINEERS, INC.	
CONSULTING ENGINEERS		LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS			
CITY WATER WORKS WWTF IMPROVEMENTS			
MECHANICAL STANDARD DETAILS II			
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE	REF. SHEET MZ-2	
CHECKED: CAJ			



 CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS	
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS	
MECHANICAL STANDARD DETAILS VIII	
DESIGNED: CAJ	JOB NO: 1618
DRAFTED: SBM	DATE: MAR 2021
CHECKED: CAJ	SCALE: NOT TO SCALE
ADD NO. 3 REF. SHEET MZ-8	



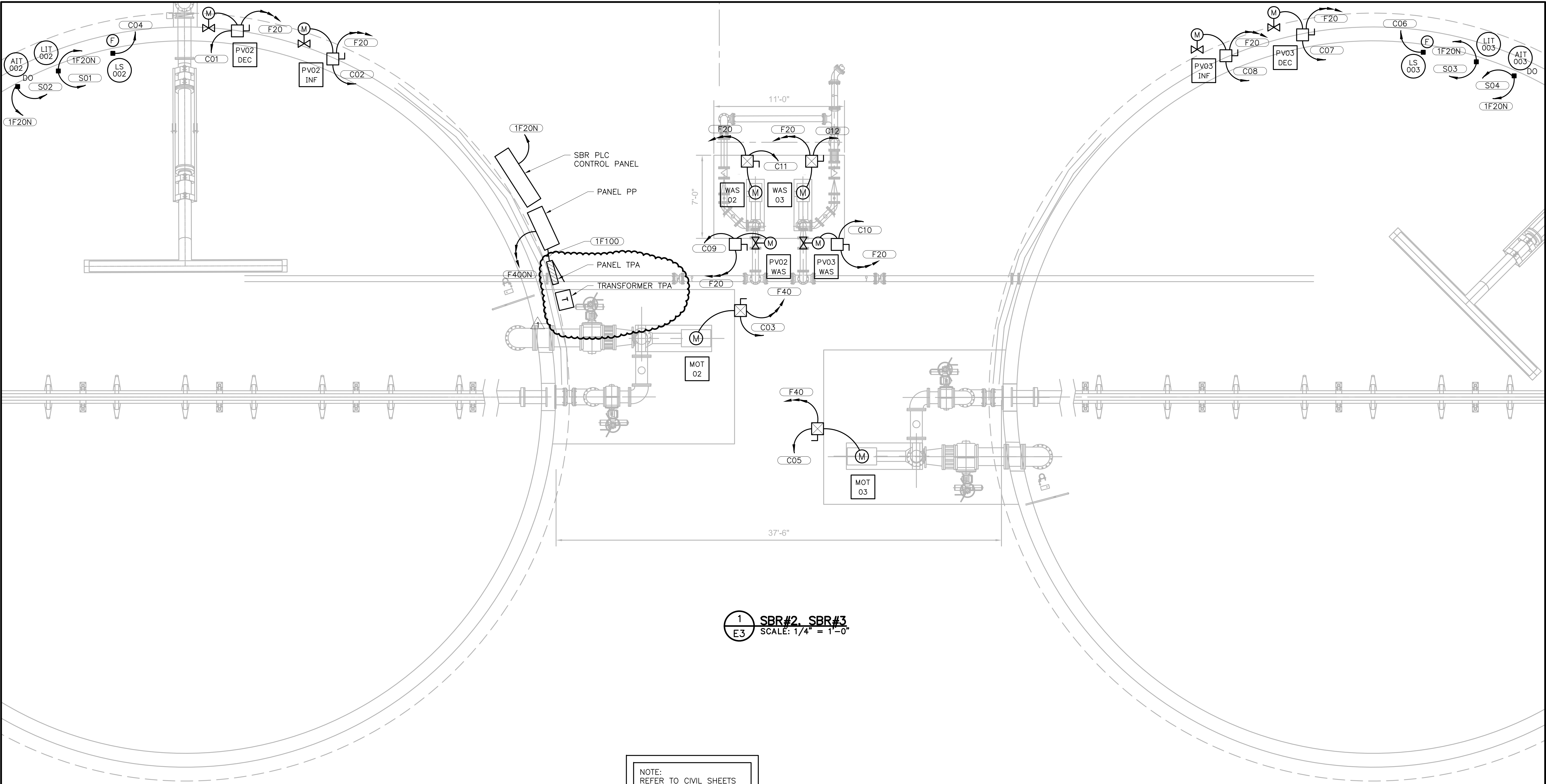
1 PLUMBING PLAN

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



	CRIST ENGINEERS, INC. CONSULTING ENGINEERS LITTLE ROCK, ARKANSAS		
WALNUT RIDGE, ARKANSAS CITY WATER WORKS WWTF IMPROVEMENTS			
PLUMBING PLAN, DETAILS, AND RISER			
DESIGNED: CAJ	JOB NO: 1618	DATE: MAR 2021	ADD NO. 3
DRAFTED: SBM	SCALE: NOT TO SCALE	REF. SHEET P-1	
CHECKED: CAJ			

P:\SHARES\PRODUCTION\PROJECTS\CRIST ENGINEERS (CRI)\CRI-013 WALNUT RIDGE WWTP\DWG\E03_LIGHTING PLAN.DWG
3/5/2021 12:20 PM



1 SBR#2, SBR#3
E3 SCALE: 1/4" = 1'-0"

NOTE:
REFER TO CIVIL SHEETS
FOR EXACT LOCATION OF
EQUIPMENT. WHERE NOT
SHOWN, COORDINATE WITH
ENGINEER.

BE
BROWN
ENGINEERS
17200 Chenal Pkwy.
Suite 300 PMB 324
Little Rock, AR 72223
Phone 501-448-0100
www.browngineers.net

1	03-04-21			ADDENDUM
REV. NO.	DATE	DRWN	CHKD	REMARKS



THIS LINE MEASURES 1"
WHEN PLOTTED FULL SIZE

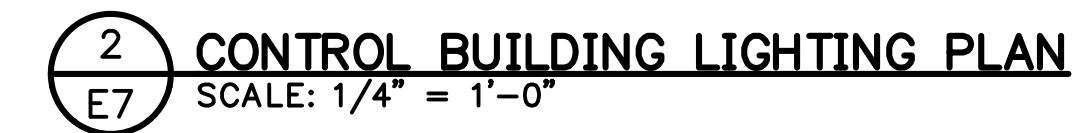
DESIGNED:	BB
DRAFTED:	CD
CHECKED:	BB
DATE:	AUG 2019



CRIST ENGINEERS, INC.
CONSULTING ENGINEERS
205 EXECUTIVE COURT
LITTLE ROCK, ARKANSAS 72205
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
WWW.CRISTENGINEERS.COM

WALNUT RIDGE, ARKANSAS
WASTEWATER FACILITY IMPROVEMENTS
BID SET
ELECTRICAL
LIGHTING PLAN

JOB NO.	CRI-013
SHEET NO.	E3

A circular professional engineer seal for the State of Arkansas. The outer ring contains the text "STATE OF ARKANSAS" at the top and "BRUCE W. BROWN" at the bottom. Inside the ring, the words "REGISTERED PROFESSIONAL ENGINEER" are arranged in a circular pattern around a central map of Arkansas. Below the map, the text "No. 10206" and "1-26-2021" are visible. A blue ink signature is written across the seal.

THIS LINE MEASURES 1"
WHEN PLOTTED FULL SIZE

DESIGNED:	BB
DRAFTED:	CD
CHECKED:	BB
DATE:	AUG 2019



205 EXECUTIVE COURT
LITTLE ROCK, ARKANSAS 72205
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
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BROWN
ENGINEERS

7200 Chenal Pkwy.
Suite 300 PMB 324
Little Rock, AR 72223
Phone 501-448-0100
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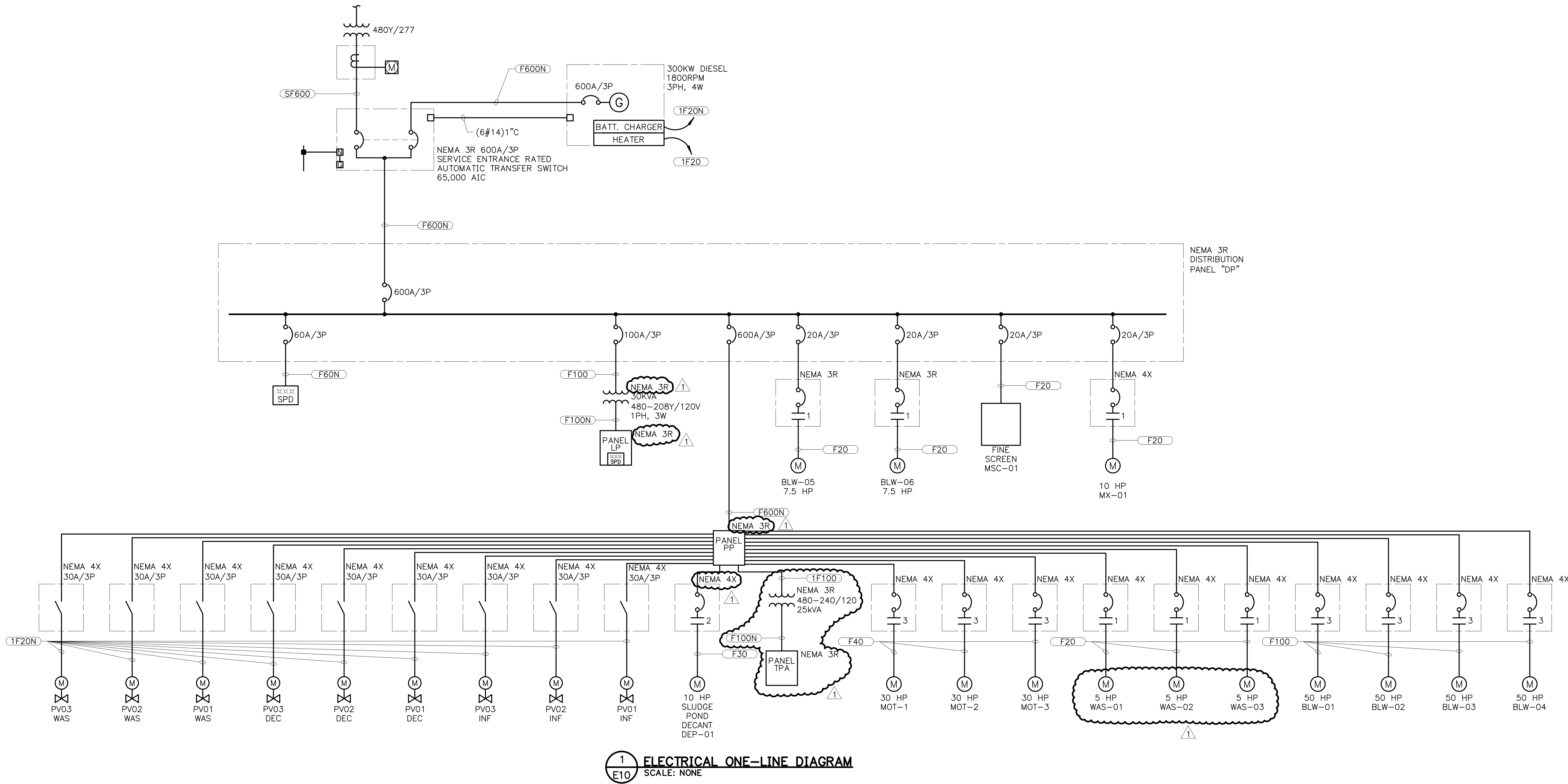
JOB NO.

CRI-013

SHEET NO.

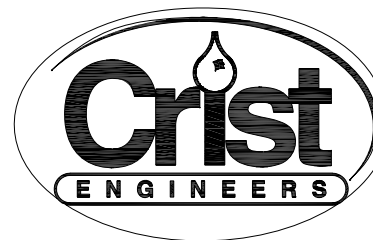
E7

P:\SHARES\PRODUCTION\PROJECTS\CRIST ENGINEERS (CRT)\CRT-013 WALNUT RIDGE WWTP\DWG\E07_CONTROL BUILDING.DWG
3/5/2021 12:20 PM



THIS LINE MEASURES 1" WHEN PLOTTED FULL SIZE

DESIGNED:	BB
DRAFTED:	CD
CHECKED:	BB
DATE:	AUG 2019



CRIST ENGINEERS, INC.
CONSULTING ENGINEERS

205 EXECUTIVE COURT
LITTLE ROCK, ARKANSAS 72205
TELEPHONE: (501) 664-1552
FAX: (501) 664-8579
WWW.CRISTENGINEERS.COM

WALNUT RIDGE, ARKANSAS

WASTEWATER FACILITY IMPROVEMENTS

BID SET

ELECTRICAL

ONE-LINE DIAGRAM



17200 Chenal Pkwy.
Suite 300 PMB 324
Little Rock, AR 72223
Phone 501-448-0100
www.browngineers.net

DB NO.	CRI-013
SHEET NO.	E10

P:\SHARES\PRODUCTION\PROJECTS\CRIST ENGINEERS (CR1)\CRI-013 WALNUT RIDGE WWTP\DWG\E11_SCHEDULES.DWG
3/5/2021 12:13 PM

POWER PANEL "DP"				600 AMP MAIN LUGS ONLY				
480 Y / 277 VOLTS, 3 PHASE 4 WIRE				65,000 AIC				
CKT.	DESCRIPTION	LOAD				OVERCURRENT		
		KVA	AMPS	HP	STARTER	TRIP	POLES	FRAME
1	SURGE PROTECTIVE DEVICE	0.000	0.00			60	3	100
2	PANEL PP	310.000	372.88			600	3	600
3	FINE SCREEN	1.500	1.80			20	3	100
4	PANEL LP	25.000	30.07			100	3	100
5	BLW-05	7.500	9.02	7.5	1		3	100
6	BLW-06	7.500	9.02	7.5	1		3	100
7	CHEM MIX	1.500	1.80	1.5	1		3	100
8		0.000	0.00					
9		0.000	0.00					
10		0.000	0.00					
11		0.000	0.00					
12		0.000	0.00					
13		0.000	0.00					
14		0.000	0.00					
15		0.000	0.00					
16		0.000	0.00					
17		0.000	0.00					
18		0.000	0.00					
19		0.000	0.00					
20		0.000	0.00					
CONNECTED LOAD		353.000	KVA					
DESIGN FACTOR		1.2500						
DESIGN LOAD		441.250	KVA					
DESIGN CURRENT		530.76	AMPS					

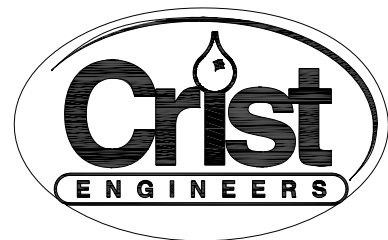
1

POWER PANEL "PP"				600 AMP MAIN LUGS ONLY				
480 Y / 277 VOLTS, 3 PHASE 4 WIRE				65,000 AIC				
CKT.	DESCRIPTION	LOAD				OVERCURRENT		
		KVA	AMPS	HP	STARTER	TRIP	POLES	FRAME
1	SURGE PROTECTIVE DEVICE	0.000	0.00			60	3	100
2	PV01-DEC	1.000	1.20			20	3	100
3	PV01-INF	1.000	1.20			20	3	100
4	MOT-1	30.000	36.09	30	3		3	100
5	MOT-2	30.000	36.09	30	3		3	100
6	PV02-DEC	1.000	1.20			20	3	100
7	PV02-INF	1.000	1.20			20	3	100
8	PV01-WAS	1.000	1.20			20	3	100
9	PV02-WAS	1.000	1.20			20	3	100
10	WAS-01	5.000	6.01	5	1		3	100
11	WAS-02	5.000	6.01	5	1		3	100
12	MOT-3	30.000	36.09	30	3		3	100
13	WAS-03	5.000	6.01	5	1		3	100
14	PV03-WAS	1.000	1.20			20	3	100
15	PV03-INF	1.000	1.20			20	3	100
16	PV03-DEC	1.000	1.20			20	3	100
17	BLW-02	50.000	60.14	50	3		3	100
18	BLW-04	50.000	60.14	50	3		3	100
19	BLW-03	50.000	60.14	50	3		3	100
20	BLW-01	50.000	60.14	50	3		3	100
21	SLUDGE DECANT PUMP	10.000	12.03	10	2		3	100
22	PANEL TPA	10.000	12.03			100	3	100
CONNECTED LOAD		334.000	KVA					
DESIGN FACTOR		1.2500						
DESIGN LOAD		417.500	KVA					
DESIGN CURRENT		502.19	AMPS					



0
1" = 1"
THIS LINE MEASURES 1"
WHEN PLOTTED FULL SIZE

DESIGNED: BB
DRAFTED: CD
CHECKED: BB
DATE: AUG 2019



CRIST ENGINEERS, INC.
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205 EXECUTIVE COURT
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WWW.CRISTENGINEERS.COM

WALNUT RIDGE, ARKANSAS
WASTEWATER FACILITY IMPROVEMENTS
BID SET
ELECTRICAL
SCHEDULES



JOB NO.
CRI-013
SHEET NO.
E11

PANELBOARD SCHEDULE												
PANEL	LP	VOLTS	208Y/120 3PH, 4W		MAIN	100A MCB		INTERRUPT RATING		10,000		
DESCRIPTION	BKR	NO.	A	B	C	A	B	C	NO.	BKR	DESCRIPTION	
SURGE PROTECTIVE DEVICE	60A/3P	1	0.000			0.250			2	20A/1P	HVAC RECEPT	
SURGE PROTECTIVE DEVICE	—	3		0.000			0.250		4	20A/1P	TOC RECEPT	
SURGE PROTECTIVE DEVICE	—	5			0.000			0.250	6	20A/1P	TOC RECEPT	
SCREEN HEAT TRACE	20A/1P	7	0.500			0.250			8	20A/1P	EYE RECEPT	
SCREEN HEAT TRACE	20A/1P	9		0.500			0.250		10	20A/1P	WIT—001	
INTERIOR LIGHTS	20A/1P	11			0.500			0.250	12	20A/1P	WIT—002	
INTERIOR LIGHTS	20A/1P	13	0.500			0.250			14	20A/1P	CHEM—001	
SPARE	20A/3P	15		0.300			0.250		16	20A/1P	CHEM—002	
SPARE	—	17			0.300			0.250	18	20A/1P	CHEM—003	
SPARE	—	19	0.300			0.500			20	20A/1P	GEN BATT	
EFF SAMPLE	20A/1P	21		0.500			1.500		22	20A/1P	GEN BLOCK	
DS—1	20A/2P	23			1.100			0.000	24	20A/2P	SPARE	
DS—1	—	25	1.100			0.000			26	—	SPARE	
EH—1	20A/2P	27		1.000			1.000		28	30A/1P	BUILDING PUMP GRINDER	
EH—1	—	29			1.000			0.200	30	20A/1P	HEADWORKS RECEPT	
EH—1	20A/2P	31	1.000			1.000			32	20A/1P	RPZ	
EH—1	—	33		1.000			0.000		34	30A/2P	SPARE	
EH—2	20A/2P	35			1.000			0.000	36	30A/1P	SPARE	
EH—2	—	37	1.000			0.000			38	20A/1P	SPARE	
WH—1	60A/2P	39		5.000			0.000		40	20A/1P	SPARE	
WH—1	—	41			5.000			0.000	42	20A/1P	RECEPTACLE	
			4.4000	8.3000	8.9000	2.2500	3.2500	0.9500	PROVIDE 84 CIRCUIT PANEL PLUS (2) 20A/2P BREAKERS FOR INDOOR DSCU'S.			
			6.6500	11.5500	9.8500	TOTAL CONNECTED KVA						
			28.0500									
			35.0625									
			97.326623									DESIGN KVA
		DESIGN AMPS	@				208					

1