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MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA

CONTRACT #6 – APPLE GROVE WASTEWATER TREATMENT PLANT
SBR EQUIPMENT (VENDOR BID)

ADDENDUM #1

JUNE 20, 2023

THRASHER PROJECT #020-01631

TO WHOM IT MAY CONCERN:

The following are clarifications and responses to questions posed by Vendors for the above reference project.

A. GENERAL

1. Bids for the construction of the Project will be received at The Thrasher Group, Inc. office located at 1000 Corporate Landing, Charleston, Kanawha County, West Virginia until Tuesday, July 11, 2023 at 2:00 PM local time. At that time the Bids received will be publicly opened and read.

B. SPECIFICATIONS

1. The timeline of substantial completion and final payment have been revised in Article 2.02.A of Agreement Between Buyer and Seller for Procurement Contract. **REPLACE** the Agreement Between Buyer and Seller for Procurement Contract in the specifications with the Agreement included in this Addendum #1.

2. Manufacturer specific language has been removed from Section 467321.01 – Sequencing Batch Reactor System Parts 2.2.A, 2.6.A.6, 2.15.A.5, 2.24.A.6, 2.5.H. and 2.9.A.

3. The material of the mooring post assembly has been changed from Schedule 40 stainless steel to Schedule 10 stainless steel in Section 467321.01 – Sequencing Batch Reactor System Part 2.5.G.

4. The list of acceptable manufacturers of pressure transducers has been revised in Section 467321.01 – Sequencing Batch Reactor System Parts 2.10.A and 2.18.A.

5. The HP requirement of the post-eq and digester pumps has been revised in Section 467321.01 – Sequencing Batch Reactor System Parts 2.24.A and 2.25.A.4.

6. The material of the steel riser pipe has been changed from galvanized steel to stainless steel in Section 467321.01 – Sequencing Batch Reactor System Part 2.25.A.4.

7. The quantity of spare parts has been revised in Section 467321.01 – Sequencing Batch Reactor System Part 3.6.A.

8. **REPLACE** Section 467321.01 – Sequencing Batch Reactor System with Section 467321.01 included in this Addendum #1.

C. DRAWINGS

1. See attached plan sheets for Contract #6 – Apple Grove Wastewater Treatment Plant SBR Equipment (Vendor Bid).

If you have any questions or comments, please feel free to contact me at your earliest convenience. As a reminder, bids will be received until 2:00 p.m. on Tuesday, July 11, 2023, at The Thrasher Group, Inc. office located at 1000 Corporate Landing, Charleston, Kanawha County, West Virginia. Good luck to everyone and thank you for your interest in the project.

Sincerely,

THE THRASHER GROUP, INC.

JONATHAN CARPENTER REGISTERED 15425 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

Jonathan Carpenter, P.E.
Project Engineer

Enclosures Agreement Between Buyer and Seller for Procurement Contract
Specification Section – 467321.01 – Sequencing Batch Reactor System
Plans for Contract #6 - Apple Grove Wastewater Treatment Plant SBR Equipment (Vendor Bid).

AGREEMENT BETWEEN BUYER AND SELLER FOR PROCUREMENT CONTRACT

This Procurement Agreement is by and between Mason County Public Service District ("Buyer") and **[formal name of entity]** ("Seller").

Terms used in this Procurement Agreement have the meanings stated in the General Conditions of the Procurement Contract and the Supplementary Conditions of the Procurement Contract.

Buyer and Seller hereby agree as follows:

ARTICLE 1—PROCUREMENT CONTRACT

1.01 *Goods and Special Services*

A. Seller shall furnish the Goods and Special Services as specified or indicated in the Procurement Contract Documents. The Goods and Special Services are generally described as follows: Contract #6 – Apple Grove Wastewater Treatment Plant SBR Equipment (Vendor Bid)

1.02 *The Project*

A. The Project, of which the Goods and Special Services are a part, is generally described as follows: Contract #6 – Apple Grove Wastewater Treatment Plant SBR Equipment (Vendor Bid)

1.03 *Engineer*

A. Buyer has retained The Thrasher Group, Inc. ("Engineer"), to prepare Procurement Contract Documents and act as Buyer's representative. Engineer assumes all duties and responsibilities and has the rights and authority assigned to Engineer in the Procurement Contract Documents in connection with Seller's furnishing of Goods and Special Services.

1.04 *Point of Destination*

A. The Point of Destination is designated as: 1000 Corporate Landing, Charleston, WV 25311.

ARTICLE 2—PROCUREMENT CONTRACT TIMES

2.01 *Time of the Essence*

A. All time limits for Milestones, including the submittal of Shop Drawings and Samples, the delivery of Goods, and the furnishing of Special Services as stated in the Procurement Contract Documents, are of the essence of the Procurement Contract.

2.02 *Schedule of Procurement Contract Times*

Contract Times: Days

A. The Work will be substantially complete within **330** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **360** days after the date when the Contract Times commence to run.

2.03 *Shop Drawings and Samples*

A. *Submittal of Shop Drawings and Samples*: Seller shall submit all Shop Drawings and Samples required by the Procurement Contract Documents to Engineer for its review and approval.

B. *Engineer's Review*: It is the intent of the parties that Engineer will conduct its review of Shop Drawings and Samples and issue its approval, or a denial accompanied by substantive comments regarding information needed to gain approval, within **10** days after Seller's submittal of such Shop Drawings and Samples, or within such longer period that is needed because of the quantity and quality of such submittals. Resubmittals will be limited whenever possible.

2.04 *Liquidated Damages*

A. Buyer and Seller recognize that time is of the essence as stated in Paragraph 2.01, and that Buyer will suffer financial and other losses if the Goods are not delivered to the Point of Destination and ready for receipt of delivery by Buyer within the time specified in Paragraph 2.02, plus any extensions thereof allowed in accordance with this Procurement Contract. The parties also recognize that the timely performance of services by others involved in the Project is materially dependent upon Seller's specific compliance with the delivery requirements of Paragraph 2.02. Further, the parties recognize the time, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the loss (whether direct, consequential, or otherwise) suffered by Buyer if complete, acceptable Goods are not delivered on time. Accordingly, instead of requiring any such proof, Buyer and Seller agree that as liquidated damages for delay (but not as a penalty) Seller shall pay Buyer $**1,000** for each day that expires after the time specified in Paragraph 2.02 for delivery of acceptable Goods.

ARTICLE 3—PROCUREMENT CONTRACT PRICE

3.01 *Procurement Contract Price and Total Price*

A. The Procurement Contract Price is comprised of the Lump Sum and Unit Price amounts set forth in the following paragraphs.

B. Buyer shall pay Seller a Lump Sum of **$[amount]** for furnishing the Goods and Special Services (other than any Unit Price Goods and Special Services) in accordance with the Procurement Contract Documents. Such Lump Sum amount accounts for the following Buyer-accepted alternates: **[identify accepted alternates, if any]**

C. The Total Price is $**[amount]**. Such Total Price is comprised of the Lump Sum amount (taking into account any accepted alternates), Unit Price Goods and Special Services amount (if any) (subject to final adjustment), and Buyer's Contingency Allowance (if any) (subject to final adjustment).

ARTICLE 4—PAYMENT PROCEDURES

4.01 *Submittal and Processing of Applications for Payment*

A. Seller shall submit Applications for Payment in accordance with Article 13 of the General Conditions and the following paragraphs. Engineer and Buyer will process such Applications for Payment in accordance with said Article 13.

4.02 *Progress Payments; Final Payment*

A. Seller may submit an Application for Payment requesting the stated percentage of Procurement Contract Price upon attainment of each of the following Payment Line Items:

Payment Line Item (Lump Sum)	Percentage of Lump Sum
1. Receipt of Approval of Shop Drawings and Samples	10
2. Completion of acceptable factory testing (if any)	5
3. Delivery of Goods to Point of Destination in accordance with the Procurement Contract Documents	70
4. Completion of Special Services in accordance with Procurement Contract Documents	10
5. Final Payment: Correction of non-conformities, provision of final Operations and Maintenance manuals, submittal of warranties and other final documentation required by the Procurement Contract Documents	5
Total Procurement Contract Price (Lump Sum)	100

B. For Unit Price Goods and Special Services, if any, or for payments owed to Seller as a result of authorizations by Buyer under the Buyer's Contingency Allowance (if any), Seller shall submit a separate Application for Payment, no more frequently than monthly, that states (1) the actual quantities of such Unit Price Goods and Special Services that have been furnished, and the applicable unit prices; and (2) the services or items performed or furnished under the Buyer's Contingency Allowance, and the amounts owed. If practical, and at Seller's option, Seller may apply for such unit price and Buyer's Contingency Allowance payments in a separate section of an Application for Payment submitted under Paragraph 4.02.A for lump sum items.

C. Buyer shall pay Seller the amount owed under an Application for Payment within 30 days after Engineer's presentation to Buyer of the Application for Payment and Engineer's recommendation.

4.03 *Interest*

A. All amounts not paid when due will bear interest as the rate of **[insert number]** percent per annum.

ARTICLE 5—ASSIGNMENT OF PROCUREMENT CONTRACT

5.01 *Assignment of Contract*

A. Buyer has the right to assign this Procurement Contract for furnishing Goods and Special Services, but only to a person or entity with sufficient apparent ability to satisfy all of Buyer's obligations under this Procurement Contract, and Seller hereby consents to such assignment. Forms documenting the assignment of the Procurement Contract, and consent of Seller's surety to the assignment, have been executed by Buyer, Seller, and Seller's surety, and are attached as exhibits to this Procurement Agreement. If so, assigned the following provisions apply:

1. The Procurement Contract is initially executed in the name of the entity identified herein as Buyer, and will be assigned by such Buyer (as assignor) to a construction contractor (Contractor/Assignee) designated by such Buyer. The assignment will occur on the effective date of the construction contract between such Buyer (Project Owner) and the

Contractor/Assignee, which is expected to occur on or about 90 days from procurement Contract Effective Date. Commencing on the date of acceptance of assignment by the Contractor/Assignee, all references in the Procurement Contract to "Buyer" shall mean the designated Contractor/Assignee.

2. The assignment of this Procurement Contract relieves the assignor from all further obligations and liabilities under this Procurement Contract. After assignment, Seller shall become a subcontractor or supplier to the Contractor/Assignee and, except as noted herein, all rights, duties, and obligations of Buyer under the Procurement Contract become the rights, duties, and obligations of the Contractor/Assignee.

3. After assignment:

    a. The Procurement Drawings and Procurement Specifications, and any modifying Addenda will become "Contract Documents" under the construction contract.

    b. If the Procurement Drawings or Procurement Specifications, as "Contract Documents" under the construction contract, are duly modified under such construction contract, then Seller and Contractor/Assignee shall enter into a corresponding Change Order under the applicable provisions of this Procurement Contract.

    c. The Procurement Drawings and Procurement Specifications may not be modified by Seller or Contractor/Assignee, singly or in tandem, except as such Procurement Drawings or Procurement Specifications, as "Contract Documents" under the construction contract, have been duly modified under such construction contract.

    d. All performance warranties, guarantees, and indemnifications required by the Procurement Contract will continue to run for the benefit of assignor (Project Owner) and, in addition, for the benefit of the Contractor/Assignee. However, if assignor (Project Owner) and Contractor/Assignee make the same warranty or guarantee claim, then Seller shall only be liable once for such claim. Other than its remedies under such warranties, guarantees, and indemnifications, assignor will not retain direct rights under this Procurement Contract, but will have rights and remedies as a party to the construction contract, whose scope of work will encompass the Procurement Drawings, Procurement Specifications, and modifying Addenda; provided, however, that any limitations on Seller's liability in this Procurement Contract will continue to bind the original Buyer (assignor) after assignment.

    e. The Contractor/Assignee shall have all the rights of the Buyer under the Performance Bond and Payment Bond.

    f. Seller shall submit all Applications for Payment directly to Contractor/Assignee.

        1) Contractor/Assignee shall review each Application for Payment promptly, determine the amount that Contractor/Assignee approves for payment, and then include the amount approved in the next application for payment submitted to Project Owner (or Engineer) under the construction contract.

        2) Contractor/Assignee shall pay Seller within 30 days of receipt of payment from the Project Owner under the construction contract.

        3) After assignment Engineer will review, approve, or deny the content of Applications for Payment under the Procurement Contract only to the extent that Contractor/Assignee, as construction contractor, has incorporated such

content into payment applications that Engineer reviews under the construction contract.

g. The Contractor/Assignee shall have all the rights of the Buyer under any pending Claim by Buyer.

h. All Claims and supporting documentation will be submitted directly by the claimant party either Buyer or Seller, to the other party, without submittal to Engineer.

1) The other party will render a response in writing within 30 days of receipt of the last submittal of claimant.

2) If the other party does not render a written response to a Claim within 30 days after receipt of the last submittal of the claimant, the other party shall be deemed to have approved the Claim in its entirety.

3) The other party's written response to a Claim, or the approval of the Claim in its entirety as a function of failure to respond within 30 days, will be final and binding upon Buyer and Seller 30 days after it is issued, unless within such 30 days of issuance either Buyer or Seller appeals the result by initiating the mediation of the Claim in accordance with the dispute resolution procedures set forth in Paragraph 12.02 of the General Conditions.

4) Any Claim by Seller that Contractor/Assignee may choose to submit, present, or forward to Project Owner must be submitted to Buyer within sufficient time for Contractor/Assignee to preserve its rights under the construction contract, notwithstanding any procedures or time limits in this Procurement Contract.

i. Seller's recovery of additional cost, time, or both cost and time for any Claim attributable to the Project Owner will be limited to the proportionate recovery by Contractor/Assignee against Project Owner for such Claim. Seller will cooperate and assist Contractor/Assignee in pursuing any Claim by Contractor/Assignee against Project Owner on behalf of Seller, including the timely preparation and delivery of supporting documentation.

j. If the pursuit of any claim by Contractor/Assignee against Project Owner on Seller's behalf requires the expenditure by Contractor/Assignee of legal or consulting fees, or results in litigation, arbitration, or any dispute resolution procedures, Seller agrees to pay for a proportionate share of attorneys' fees, consultant fees, and litigation, arbitration, and other resolution costs incurred by Contractor/Assignee in pursuing the claim on behalf of Seller, based upon the amount claimed by Seller as compared to the total value of the claim pursued by the Contractor/Assignee.

k. All rights, duties, and obligations of Engineer to Contractor/Assignee and Seller under this Procurement Contract will cease.

l. Subject to the foregoing provisions, all references in the Procurement Contract to submitting items to Engineer, or to Engineer having tasks or obligations, will be read after such an assignment as requiring submittal to Contractor/Assignee, or as Contractor/Assignee having such tasks or obligations (which Contractor/Assignee may delegate when appropriate).

m. If the Procurement Contract includes a Buyer's Contingency Allowance, upon assignment such allowance will be automatically reduced to the amount previously authorized by Buyer (Project Owner), and cease to be operational.

B. No other assignment by a party hereto of any rights under or interests in the Procurement Contract will be binding on another party hereto without the written consent of the party sought to be bound. Specifically, but without limitation, Procurement Contract payments or other money that may become due, and Procurement Contract payments or other money that are due, may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by Laws and Regulations). Unless specifically stated to the contrary in any written consent to such an assignment, such an assignment will not release or discharge the assignor from any duty or responsibility under the Procurement Contract Documents.

ARTICLE 6—PROCUREMENT CONTRACT DOCUMENTS

6.01 *List of Procurement Contract Documents*

A. The Procurement Contract Documents consist of the following:

1. This Procurement Agreement.
2. General Conditions of the Procurement Contract.
3. Supplementary Conditions of the Procurement Contract.
4. Procurement Specifications as listed in the Procurement Specifications table of contents.
5. Procurement Drawings (not attached but incorporated by reference):
    a. consisting of a cover sheet and sheets numbered **7** through 7M, inclusive, with each sheet bearing the following general title: Contract #1 – Apple Grove Wastewater Treatment Plant.
6. Addenda Numbers **[list those Addenda that are Procurement Contract Documents]**.
7. Bonds:
    a. Performance bond (together with power of attorney).
    b. Payment bond (together with power of attorney).
8. Exhibits to this Procurement Agreement (enumerated as follows):
    a. Exhibit A, Assignment of Contract, Consent to Assignment, and Acceptance of Assignment.
    b. Exhibit B, Surety's Consent to Assignment.
    c. Documentation submitted by Seller
9. The following which may be delivered or issued on or after the Effective Date of the Procurement Contract and are not attached hereto:
    a. Change Orders;

B. The documents listed in Paragraph 6.01.A are attached to this Procurement Agreement (except as expressly noted otherwise above).

C. There are no Procurement Contract Documents other than those listed above.

D. The Procurement Contract Documents may only be amended or supplemented as provided in Paragraph 11.01 of the Procurement General Conditions.

ARTICLE 7—SELLER'S REPRESENTATIONS AND CERTIFICATIONS

7.01 *Seller's Representations*

A. In order to induce Buyer to enter into this Procurement Agreement, Seller makes the following representations:

1. Seller has examined and carefully studied the Procurement Contract Documents.

2. If required by the Instructions to Bidders to visit the Point of Destination and the site where the Goods are to be installed or Special Services will be provided, or if, in Seller's judgment, any observable local or site conditions may affect the delivery, cost, progress, or furnishing of the Goods and Special Services, then Seller has visited the Point of Destination and site where the Goods are to be installed or Special Services will be provided (as applicable) and become familiar with and is satisfied as to the observable local and site conditions that may affect delivery, cost, progress, and furnishing of the Goods and Special Services.

3. Seller is familiar with and is satisfied as to all Laws and Regulations that may affect the cost, progress, and performance of Seller's obligations under the Procurement Contract.

4. Seller has carefully studied, considered, and correlated the information known to Seller with respect to the effect of such information on the cost, progress, and performance of Seller's obligations under the Procurement Contract.

5. Seller has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Seller has discovered in the Procurement Contract Documents, and the written resolution (if any) thereof by Engineer is acceptable to Seller.

6. The Procurement Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance of Seller's obligations under the Procurement Contract.

7. Seller's entry into this Procurement Contract constitutes an incontrovertible representation by Seller that without exception all prices in the Procurement Agreement are premised upon furnishing the Goods and Special Services as required by the Procurement Contract Documents.

7.02 *Seller's Certifications*

A. Seller certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Procurement Contract. For the purposes of this Paragraph 7.02:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Procurement Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Procurement Contract to the detriment of Buyer, (b) to establish bid or contract prices at artificial non-competitive levels, or (c) to deprive Buyer 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 Buyer, 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 Procurement Contract.

ARTICLE 8—CONFIDENTIALITY

8.01 *Confidential Information*

A. Confidential information is information in documents submitted by Seller that Seller clearly and prominently labels in writing to be a trade secret, proprietary, or confidential. Such documents, if any, will be maintained in a manner that endeavors to avoid disclosing confidential information to third parties, to the extent allowed by Laws and Regulations.

B. Seller shall clearly and prominently mark confidential information with the word "CONFIDENTIAL" on each page or sheet or on the cover of bound documents. Place "CONFIDENTIAL" stamps or watermarks so that they do not obscure any of the required information on the document, either in the original or in a way that would obscure any of the required information in a photocopy of the document.

8.02 *Disclosure of Confidential Information*

A. If Buyer is requested to disclose confidential information, or becomes legally compelled (by oral questions, interrogatories, requests for information or documents, subpoena, civil or criminal investigative demand, public information requests, or other requests under Laws and Regulations) to disclose confidential information, or is required by a regulatory body, governing agency, or controlling authority to disclose confidential information, or make any other disclosure that is prohibited or otherwise constrained by the Procurement Contract, Buyer will provide Seller with prompt notice so Seller may seek an appropriate protective order or other remedy. Seller will be solely responsible for submitting to the regulatory body, governing agency, or controlling authority any arguments, briefs, memoranda, motions, authorities, or other information in opposition to disclosure.

B. Buyer's obligations with respect to confidential information are nullified by the following exceptions:

1. Confidential information becomes a part of the public domain through publication or otherwise, through no fault of the Buyer;

2. Buyer can demonstrate through suitable documentation that the confidential information was already in the Buyer's possession, and not previously marked as confidential, or was otherwise publicly available prior to the Effective Date of the Procurement Contract;

3. The confidential information is subsequently and independently disclosed to the Buyer by a third party who has a lawful right to disclose such information;

4. Buyer has a good faith belief that disclosure is required or justified; or

5. Buyer is required to disclose the confidential information by court order or by applicable Laws and Regulations.

8.03 *Waiver of Immunity*

A. Notwithstanding any other provision of the Procurement Contract, it is stipulated and agreed that by accepting confidential information, Buyer has not and does not waive its legal immunity (if any) from suit or liability.

ARTICLE 9—MUTUAL WAIVER

9.01 *Mutual Waiver of Consequential Damages*

A. Buyer and Seller waive against each other, and against the other's officers, directors, members, partners, employees, agents, consultants, and subcontractors, any and all claims for or entitlement to incidental, indirect, or consequential damages arising out of, resulting from, or related to the Procurement Contract. If Buyer (Project Owner) assigns this Procurement Contract to a construction contractor (Contractor/Assignee), then the terms of this Paragraph 9.01.A will be binding upon the Contractor/Assignee with respect to Seller and assignor. The terms of this mutual waiver do not apply to or limit any claim by either Buyer or Seller against the other based on any of the following: (a) contribution or indemnification, (b) liquidated damages, (c) costs, losses, or damages attributable to personal or bodily injury, sickness, disease, or death, or to injury to or destruction of the tangible property of others, (d) intentional or reckless wrongful conduct, or (e) rights conferred by any bond provided by Seller under this Procurement Contract.

IN WITNESS WHEREOF, Buyer and Seller have signed this Procurement Agreement. Counterparts have been delivered to Buyer and Seller.

The Effective Date of the Procurement Contract is **[date to be inserted at the time of execution]**.

Buyer	Seller
Mason County Public Service District *(typed or printed name of organization)*	_____ *(typed or printed name of organization)*
By: _____ *(individual's signature)*	By: _____ *(individual's signature)*
Date: _____ *(date signed)*	Date: _____ *(date signed)*
Name: Beth Lanier *(typed or printed)*	Name: _____ *(typed or printed)*
Title: Chairperson *(typed or printed)*	Title: _____ *(typed or printed)* *(If Seller is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)*
Attest: _____ *(individual's signature)*	Attest: _____ *(individual's signature)*
Title: _____ *(typed or printed)*	Title: _____ *(typed or printed)*
Address for giving notices:	Address for giving notices:
Designated Representative:	Designated Representative:
Name: Brent Clark *(typed or printed)*	Name: _____ *(typed or printed)*
Title: General Manager *(typed or printed)*	Title: _____ *(typed or printed)*
Address:	Address:
101 Camden Avenue	
Point Pleasant, WV 25550	
Phone: (304) 675-8940	Phone:
Email: bclark.mcpsd20@gmail.com *(If Buyer is a corporation, attach evidence of authority to sign. If Buyer is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)*	Email:

EXHIBIT A—ASSIGNMENT OF PROCUREMENT CONTRACT, CONSENT TO ASSIGNMENT, AND ACCEPTANCE OF ASSIGNMENT

This assignment will be effective on the effective date of the construction contract between Buyer (as "Owner") and Contractor/Assignee (as "Contractor").

The Procurement Contract between Mason County Public Service District ("Buyer") and **[insert name of Seller]** ("Seller") for furnishing Goods and Special Services entitled Contract #6 – Apple Grove Wastewater Treatment Plant SBR Equipment (Vendor Bid) (Procurement Contract) is hereby assigned, transferred, and set over to Contractor/Assignee, as assignee, by Buyer, as assignor. Upon assignment the Contractor/Assignee shall have the duties, rights, and obligations of Buyer under the terms of the Procurement Contract, and will be responsible to Owner under the construction contract for the performance of obligations by Seller, which will become a Subcontractor or Supplier to Contractor/Assignee. Buyer, Seller, and Contractor/Assignee hereby acknowledge and agree to be bound by the terms and conditions of assignment set forth in Article 5 of the Agreement Between Buyer and Seller for Procurement Contract.

Assignment Made by Buyer

_____
(typed or printed name of organization)

By: _____ Date: _____
(individual's signature) *(date signed)*

Name: Beth Lanier Title: Chairperson
(typed or printed) *(typed or printed)*

If Buyer is a corporation, attach evidence of authority to sign. If Buyer is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of Buyer-Seller Agreement.

Assignment Acknowledged and Accepted by Seller

_____
(typed or printed name of organization)

By: _____ Date: _____
(individual's signature) *(date signed)*

Name: _____ Title: _____
(typed or printed) *(typed or printed)*

If Seller is a corporation, attach evidence of authority to sign.

Assignment Accepted by Contractor/Assignee

_____
(typed or printed name of organization)

By: _____ Date: _____
(individual's signature) *(date signed)*

Name: _____ Title: _____
(typed or printed) *(typed or printed)*

If Contractor/Assignee is a corporation, attach evidence of authority to sign.

EXHIBIT B—SURETY'S CONSENT TO ASSIGNMENT

Surety hereby acknowledges, agrees, and consents that the Procurement Contract for furnishing Goods and Special Services entitled Contract #6 – Apple Grove Wastewater Treatment Plant SBR Equipment (Vendor Bid) by and between Mason County Public Service District ("Buyer") and **[Name of Seller]** ("Seller") may be assigned, transferred, and set over to **[Name of Contractor/Assignee]** ("Contractor/Assignee"), in accordance with Article 5 and Exhibit A of the Agreement between Buyer and Seller for Procurement Contract.

Surety further agrees that, upon assignment of the Procurement Contract, the Contractor/Assignee shall have all the rights of the Buyer under the Procurement Performance Bond and Procurement Payment Bond.

Agreement to Assignment Acknowledged and Accepted by Surety

_____
(typed or printed name of organization)

By: _____ Date: _____
(individual's signature) *(date signed)*

Name: _____ Title: _____
(typed or printed) *(typed or printed)*

Attach Power of Attorney.

SECTION 467321.01 - SEQUENCING BATCH REACTOR SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

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

The SBR area electrical classification shall be rated for Class I Division II Group D. Motors within the basin shall be rated for a temperature code T2A (280 Deg.C).

1.2 BASIN STRUCTURES REQUIRED

A. SBR STRUCTURE
1. The SBR system shall be field erected in two basins as shown in the Contract #1 drawings:
   a. Basin Dimensions: 30 feet x 30 feet
   b. Side Water Depth:
      Minimum Operating Level: 11.13 feet side water depth (SWD)
      Maximum Operating Level: 17.0 feet SWD
      Top Of Wall: 19.0 feet

B. POST-EQUALIZATION BASIN STRUCTURE
1. The Post-Equalization/Holding basin shall be field erected in one basin as shown in the Contract #1 drawings:
   a. Basin Dimensions: 15.0 feet. x 30.0 feet
   b. Side Water Depth:
      Minimum Operating Level: 1.5 feet SWD
      Maximum Operating Level: 8.84 feet SWD
      Top Of Wall: 19.0 feet

C. AEROBIC DIGESTER/SLUDGE HOLDING BASIN STRUCTURE
1. The Aerobic Digester/Sludge Holding basin shall be field erected in one basin as shown in the Contract #1 drawings:
   a. Basin Dimensions: 13.5 feet. x 30.0 feet
   b. Side Water Depth:
      Minimum Operating Level: 11.9 feet SWD
      Maximum Operating Level: 17.0 feet SWD
      Top Of Wall: 19.0 feet

1.3 SBR DESIGN REQUIREMENTS

A. The manufacturer of the SBR system shall be completely responsible for the proper design of their system, including but not limited to; diffused aeration equipment, transfer pumps, mixers, decanters, and controls. All equipment shall perform as specified and the completed installation shall operate in accordance with the requirements of the plans and specifications.

A. The jobsite conditions are as follows:

1. 0.028 MGD Minimum daily flow
2. 0.237 MGD Average daily flow
3. 0.474 MGD Maximum daily flow
4. Design Loadings

	Influent	Effluent
BOD	250 mg/l	30 mg/l
TSS	250 mg/l	30 mg/l
NH3-N	-	15 mg/l
Total Nitrogen	40 mg/l	-
Phosphorus	8 mg/l	-

B. Wastewater temperature: 50°F to 68°F

C. Jobsite elevation: 566 feet MSL

D. Ambient air temperature: 30°F to 84°F

E. Alpha (maximum value allowed): 0.85

F. Beta (maximum value allowed): 0.95

G. (Food/Mass) ratio: 0.088 lb BOD5/lb MLSS - Day

H. MLSS at low water level: 4500 mg/l

I. Maximum Cycles at Max. Daily Flow: 6/Day/Basin

J. Oxygen Requirements 1.25 lbs O2/lb BOD5 applied
4.60 lbs O2/lb TKN applied

K.

Minimum Actual Oxygen Required	40.9 lbs O2/hr
Minimum Aeration Time	2 hrs/cycle at maximum daily flow
Minimum Mixing Time	2.5 hrs/cycle at maximum daily flow
Minimum Settling Time	0.75 hrs/cycle at maximum daily flow

1.4 COORDINATION

A. Section 013000: “Administrative Requirements: Requirements for Coordination.”

B. Coordinate Work of this Section with piping and equipment connections as specified in other Sections and as indicated on Drawings.

1.5 PREINSTALLATION MEETINGS

A. Section 013000: “Administrative Requirements: Requirements for Pre-Installation Meeting.”

B. Convene minimum one (1) week prior to commencing Work of this Section.

1.6 SUBMITTALS

A. Submittals shall be submitted based on the requirements in Section 013300 - Submittal Procedures. Submittals shall include the following:

1. A copy of this specification section and the referencing section and all other applicable specification sections governing the pump, drive and driver, supports and specified appurtenances. The specification copies shall be complete with addendum updates included, with each paragraph check-marked to indicate specification compliance or marked to indicate requested deviations from specification requirements. Check marks shall denote full compliance with a paragraph as a whole. If deviations from the specifications are indicated and, therefore requested by the Vendor, each deviation shall be underlined and denoted by a number in the margin to the right of the identified paragraph. The remaining portions of the paragraph not underlined will signify compliance on the part of the Vendor with the specifications. The submittal shall be accompanied by a detailed, written justification for each deviation. Failure to include a copy of the marked-up specification sections, along with justification(s) for any requested deviations to the specification requirements, with the submittal shall be sufficient cause for rejection of the entire submittal with no further consideration
2. Submit pump type and capacity.
3. Submit certified pump curves showing pump performance characteristics with pump and system operating point plotted, including NPSH curve when applicable.
4. Submit electrical characteristics and connection requirements.
5. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
6. Field Quality-Control Submittals: Indicate results of Vendor-furnished tests and inspections.
7. Manufacturer Reports: Certify that pumps have been installed according to manufacturer's instructions.
8. Qualifications Statement:
    a. Submit qualifications for manufacturer.

1.7 CLOSEOUT SUBMITTALS

A. Section 017000: “Execution and Closeout Requirements: Requirements for Submittals.”

B. Project Record Documents: Record actual locations of piping, valves and other appurtenances, connections, and invert elevations.

C. Complete system Operation and Maintenance manuals shall be available in hardcopy and electronic form. The electronic form shall be provided in .pdf format and be fully bookmarked. Manuals shall address:
1. General project information
2. Installation and start-up

3. Process design and operational control description
4. Mechanical, electrical and field instrumentation component descriptions
5. Maintenance and troubleshooting
6. Mechanical and electrical drawings

1.8 QUALITY ASSURANCE

A. Maintain one (1) copy of each standard affecting Work of this Section on Site.

1.9 PERFORMANCE GUARNATEE

A. The SBR equipment shall be functional at the minimum, average, and maximum operating conditions and shall provide results equal to or greater than specified herein.

1.10 QUALIFICATIONS

A. The SBR System shall be supplied by a company of good reputation that is regularly engaged in the manufacture and fabrication of SBR wastewater treatment systems. The manufacturer's experience shall include a minimum of ten (10) installations where equipment of similar size and design has been in operation successfully in a similar process for a minimum of five (5) years. As a minimum, the supplier shall be the manufacturer of the following components: mixers, decanters, diffusers, and controls.

B. The Seller shall be responsible for all engineering necessary to select, furnish, inspect the installing Contractor in Contract #1’s equipment installation and connections, calibrate, and place into operation the SBR System along with all other equipment and accessories as specified herein.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

B. Store materials according to manufacturer instructions.

C. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Protect piping and appurtenances by storing off ground.
3. Provide additional protection according to manufacturer instructions.

1.12 EXISTING CONDITIONS

A. Field Measurements: Verify field measurements prior to fabrication and indicate on Drawings.

PART 2 - PRODUCTS

2.1 SBR EQUIPMENT

A. MANUFACTURER

The Owner and Engineer believe the following manufacturers are capable of producing equipment and products, which will satisfy the requirements of this Section. This statement, however, shall not be construed as an endorsement of a particular manufacturer's product, nor shall it be construed that a named manufacturer's standard product will comply with the requirements of this Section. It shall be the responsibility of the "selected" equipment manufacturer to coordinate with the Contractor of Contract #1 of this project and by use of this specification and all related design drawings for any necessary adjustments, modifications or alterations to standard products to ensure that the product complies with all sections of this specification. Candidate manufacturers include Aqua Aerobics Systems, Inc., Alfa Laval, or Engineer's approved equal.

2.2 INFLUENT PLUG VALVE

A. Description: Furnish one (1) 6 inch diameter electrically operated flanged plug valve for each basin to control the influent flow.

1. Valves shall be a 125# flanged end connection, ASTM A-126 Class B cast iron body with welded in nickel seat, coated non-lubricated ductile or cast iron plug, assembled and tested with a 115 volt, single phase, 60 cycle open/close service electric actuator. The valve shall be a non-lubricated type with a port area of at least 80% of full pipe size.

2. Each valve shall include a manual override with limit switch feedback to the micro-processor in both the open and closed positions. Field wiring and junction/box disconnect shall be provided by the installing Contractor in Contract #1.

3. Provisions for valve access shall be provided by the installing Contractor in Contract #1.

4. Supply of valve vault(s) with drain for the valve(s) shall be the responsibility of the installing Contractor in Contract #1.

5. Candidate manufacturers include Milliken or DeZURIK.

2.3 DIRECT DRIVE MECHANICAL MIXER

A. Description: Furnish one (1) mechanical floating mixer and related equipment accessories as described herein for each basin. Each mixer shall consist of a motor, direct-drive impeller driven at a constant speed, an integral flotation unit, and impeller volute. The equipment shall incorporate design enhancements that provide for three (3) years without routine maintenance (greasing).

B. Motors shall be in compliance with the Energy Independence and Security Act of 2007 (EISA 2007).

C. Mixer drive motor: Each mixer shall have a zone of complete mix of 45.0 feet square at 17.0 feet water depth and a direct pumping rate of 3,560 GPM with a recirculation rate of 117,000 GPM and a basin turnover of 0.987 minutes at maximum water level. Complete mix shall be defined as maintaining biological suspension of all mixed liquor suspended solids with an MLSS of 4500 mg/l or less without the introduction of air.

1. The motor shall be rated for 3 horsepower at 1200 RPM and wired for 460 volt, 60 hertz, three-phase service. The motor shall be standard efficiency, vertical P base design, totally enclosed fan cooled TEFC, and generally rated for severe duty. The motor shall in all cases equal or exceed standard NEMA specifications. A minimum service factor of 1.15 shall be furnished.

2. The motor winding shall be nonhygroscopic, and insulation shall equal or exceed NEMA Class "F". A lip seal shall be provided below the bottom bearing to prevent moisture from penetrating around the motor shaft. A condensate drain shall be located at the lowest point in the lower-end bell housing. Unit shall have a one-piece motor shaft continuous from the top motor bearing, through the lower bearing and down to and through the propeller. The shaft shall be manufactured from 17-4 PH stainless steel.

3. Motor bearings shall be regreasable. Sealed bearings are not acceptable. Top bearing shall be shielded on the bottom side only. Bottom bearing shall be open. The top and bottom motor bearings shall be of combined radial and axial thrust type. The lower motor bearing inner brace shall be locked to the motor shaft via a special washer and locking nut arrangement. The shaft shall be threaded just below the lower bearing and shall have a keyway cut into the motor shaft. This key shall accept a tab from the inner diameter of the locking washer, and the locking nut shall have recesses to accept a tab from the outer diameter of the locking washer to prevent the nut from backing off. Snap ring type bearing retainers will not be acceptable.

4. Submerged motors, jet pumps, submerged gear motors or gearboxes shall not be acceptable.

D. Motor Mounting Base: The motor shall be securely mounted onto a solid 304 stainless steel base which is integral with the motor base extension. All submersed wetted motor mounting base components shall be constructed of 304 stainless steel.

1. The upper portion of the motor mounting base, immediately below the lower motor bearing, shall include two independent acting air seals. The two seals shall be capable of sealing off the flow of air from the suction action of the pumped flow, and prevent backflow of liquid during impeller reversal. The lower end of the motor base extension shall be provided with a rotating backflow seal that will prevent grit from being introduced into the anti-deflection insert reservoir, but shall allow liquid to contact the shaft. The backflow seal shall not require scheduled lubrication or maintenance.

E. Floatation: Each unit shall be equipped with a modular float constructed of fiber reinforced polyester skin (FRP) with a central float passage of a size to allow installation and removal of the pump impeller. The minimum diameter of the float shall be 84 inches and the minimum thickness 12-1/4 inches. The float shall be foamed full of polyurethane foam of the closed cell type, and shall be totally sealed to prevent the foam from being in contact with the external environment. The minimum reserve buoyancy shall be 1425 pounds.

F. Impeller: The impeller shall be designed to pump the liquid from near the surface and direct it down toward the vessel/basin bottom. The impeller shall be a two-blade marine type precision casting of 316 or 15/5 stainless steel and shall be specifically designed for the application intended. It shall be dynamically and hydraulically balanced. The propeller must be attached to the motor shaft with a hardened stainless steel pin and set screw. Impeller shall be capable of being reversed to cause back flow liquid movement without causing damage to the mixer chassis and without causing upflow liquid damage to the motor bearing and windings. No liquid spray or other liquid leakage upward onto the surface of the motor support surface or flotation chassis will be allowed.

G. Intake Volute Assembly: The impeller shall operate in a volute made of 304 stainless steel plate, minimum 3/16 inch thick.

H. Vibration: The entire rotating assembly including the motor rotor, shaft, shaft accessories, and impeller shall be dynamically balanced within 2.0 mils peak-to-peak horizontal displacement measured at the upper and lower motor bearing. Measurements shall be taken at a frequency equivalent to the motor RPM. Measurements shall be taken with the motor in a vertical, shaft down position with the entire power section mounted on resilient pads.

2.4 MOORING SYSTEM

A. Pivotal Mooring System: A pivotal morring system shall be supplied for each unit consisting of a mooring arm extending from the basin sidewall to the unit. The pivotal mooring system shall include 304 stainless steel adhesive anchors, mooring cable, clips, thimbles, and quick disconnects as shown on the drawings to assure a consistent location within the basin. Field attachment of the mooring assembly to the tank wall shall be the responsibility of the installing Contractor in Contract #1.

B. Dewatering Support System: Dewatering support posts and triangular frame consisting of three vertical pylons with base plates and a series of angles that attaches to the top of the dewatering support posts shall be provided. Field attachment of each support post with base plate shall be the responsibility of the installing Contractor in Contract #1.

C. Pivotal Mooring Electrical Service Cable: Each unit shall include #12-four conductor power cable wired into the motor conduit box and terminating at the basin wall. Electrical cable shall be supplied with kellems grips at the float, and basin wall terminations. Electrical cable aerial cable ties for attachment of electrical service cable to the mooring cable shall be provided. Attachment of cable and supply of junction box/disconnect at the basin wall shall be the responsibility of the installing Contractor in Contract #1.

2.5 DECANTER ASSEMBLY

A. Description: Furnish one (1) 6x4 mechanical floating decanter and related equipment accessories as described herein for each basin. Each decanter shall consist of an integral flotation unit, a stainless steel movable weir assembly, and an electric motor driven actuator to open and close the weir.

B. Performance: Each decanter shall be capable of withdrawing decant fluid from 4-6 inches beneath the liquid surface, regardless of liquid depth, down to the minimum allowable water

level specified below. The decant liquid shall be drawn through an adjustable weir opening of 2-6 inches. The weir shall be circular in shape and permit liquid to enter the decanter from the entire 360 degrees without obstruction.

1. Maximum allowable water level in the SBR basin is 17.0 feet.
2. Minimum allowable water level in the SBR basin is 11.13 feet.
3. The centerline of each decant pipe must be located 2.1 feet. below the low water level by the installing Contractor in Contract #1.
4. Each decanter shall be rated for an average flow of 878.0 GPM.

C. Weir Actuator: Weir actuator shall include a reversible electric motor operated linear actuator. The actuator shall be capable of operating with a closing force of 1500 lbs. and shall operate from a 115 volt, single phase, 60 hertz source. Adjustable limit switches shall be included to permit adjustment of the weir opening. A spring shall be included to provide for travel after the weir has closed and provide desired closure pressure. A corrosion resistant removable cover shall be included to provide protection to the actuator and motor during normal operation. The power section is painted steel. Decanter power section shall include an aluminum band clamp heater. #14 AWG ten conductor power cable shall be provided from the NEMA 7 junction box of the unit to the basin wall. Supply of junction box/disconnect at the basin wall shall be the responsibility of the installing Contractor in Contract #1.

D. Weir: The weir shall be constructed of 304 stainless steel, be circular in shape, and shall include vortex control baffles permanently affixed to the weir. The weir shall be attached to the actuator through a removable single shaft or linkage which shall also function as the torque restraint.

E. Floatation: Each unit shall be equipped with a modular float constructed of fiberglass filled with closed cell polyurethane foam having a minimum 2.0 lbs./ft3 density. Float shall be completely sealed to prevent the foam from being in contact with the external environment. Float shall have 657 lbs. reserve buoyancy to ensure stability and to provide support flotation required during decanter servicing. A urethane type seal shall be molded into the bottom of the float assembly to receive the decanter weir.

F. Decanter Discharge Hose: Each decanter shall include a discharge hose of sufficient size to permit vertical movement of the decanter and provide sufficient capacity to handle the design decant flow rate. Discharge hose shall be an EPDM tube, tire chord braided with helix wire reinforcement. A flanged end 90 degree elbow shall be provided. Proper flanged connections to the decanter and the discharge point shall be provided for trouble-free operation while permitting a means for disconnecting for service. Through-the-wall pipe, gaskets, and hardware beyond the 90 degree elbow shall be provided by the installing Contractor in Contract #1. The installing Contractor in Contract #1 shall provide a ¾” valve with hose bib connection on the decant line between the decanter and the decant valve.

G. Decanter Restrained Mooring System: Each decanter shall include a stainless steel mooring frame attached to the float. Two 4" diameter Schedule 10 stainless steel mooring post assembly with base plate shall be provided to assure consistent location of the decanter in the basin. Mooring post shall be filled with concrete by the installing Contractor in Contract #1.

1. Stainless steel dewatering support posts consisting of two 4" diameter Schedule 40 vertical pylons with base plates shall be provided. Each support with base plate shall be affixed to the basin floor with 304 stainless steel adhesive anchors.

2. Top and bottom mooring post supports constructed of stainless steel shall be provided for attachment to the basin wall by the installing Contractor in Contract #1.

H. Decant Flow Control Valve: Furnish two (2) 8" diameter electrically operated butterfly valve for each basin to control the decant rate.

1. Valves shall be a AWWA C-504 Class 150B electrically operated butterfly valve(s) with ANSI Class 125# flanged end ASTM ductile or cast iron body and disk with a 316 stainless steel edge, EPDM seat, 304 stainless steel shaft assembled and tested with a 460 volt, three phase, 60 cycle open/close service electric actuator. Each valve shall include a manual override with limit switch feedback to the microprocessor in both the open and closed positions. Field wiring and junction/box disconnect shall be provided by the installing Contractor in Contract #1. Butterfly Valves shall be Milliken or DeZurik. Actuator shall be Rotork IQT 500.0 or approved equal.

2. Provisions for valve access shall be provided by the installing Contractor in Contract #1.

3. Each valve shall include a 12 ft. valve stem extension constructed of stainless steel. Intermediate valve supports and hardware required for mounting of the extension shall be provided by the installing Contractor in Contract #1.

2.6 SBR TRANSFER PUMP

A. Description: Furnish one (1) submersible non-clog sludge pump for each basin. Each pump shall be equipped with 2.4 HP, submersible electrical motor connected for 460 volt, three phase, 60 hertz operation. Pump housing shall be painted cast iron. Pump shall include an adequate length of multi-conductor chloroprene jacketed type SPC cable suitable for submersible pump applications. The power cable shall also be sized according to NEC and ICEA standards. The pump shall be supplied with a mating cast iron discharge elbow and be capable of delivering 100 GPM at 21 TDH. Each unit shall be fitted with an adequate length of stainless steel lifting chain of adequate strength to permit raising and lowering the pump. Motors shall be in compliance with the Energy Independence and Security Act of 2007 (EISA 2007). SBR Transfer Pumps shall be Flygt, Meyer’s, or Engineer’s approved equal.

1. The 3" diameter discharge connection elbow shall be permanently installed with the discharge piping. The pump shall be automatically connected to the discharge connection elbow when lowered into place, and shall be easily removed for inspection or service. There shall be no need for personnel to enter the basin or pump well. Sealing of the pumping unit to the discharge connection elbow shall be accomplished by a simple linear downward motion of the pump.

2. A stainless steel upper guide bar bracket shall be provided with each pump. The entire weight of the pumping unit shall be guided by stainless steel guide bars and pressed tightly against the discharge connection elbow with metal-to-metal contact. No sealing of the discharge interface by means of a diaphragm, O-ring, or other devices shall be acceptable. The pump, with its appurtenances and cable, shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 ft.

3. Supply of all discharge piping, supports, gaskets, and hardware beyond the flanged connection of the pump discharge connection elbow shall be the responsibility of the installing Contractor in Contract #1.

4. Each pump shall include a “Seal Failure” and “Over Temperature” warning system.

5. Each pump shall include a manually operated discharge valve to control the design transfer flow rate.

6. Valve shall be a 3" diameter 125# flanged end connection, ASTM A-126 Class B cast iron body with welded in nickel seat, coated non-lubricated ductile or cast iron plug. The valve shall be a non-lubricated type with a port area of at least 80% of full pipe size. Plug Valve shall be Milliken, DeZurik, or Nibco.

7. Each pump shall include a 3" diameter check valve with cast iron body and bronze disk to prevent backflow. Check Valve shall be Milliken, Nibco, or DeZurik.

8. Valves shall be provided loose for installation within the discharge piping by the installing Contractor in Contract #1. Valve gaskets and hardware shall be supplied by the installing Contractor in Contract #1.

B. Pump Hoist Assembly: Furnish one stainless steel portable hoist assembly. Each hoist shall be rated for a safe load of 500 lbs., lift of 30 feet, 36" minimum reach and a 60" maximum reach. Hoist shall consist of 1/4" diameter 304 stainless steel cable, painted steel lifting hook, zinc plated winch, painted cast iron sheave, and 304 stainless steel snap hook.

1. Furnish a total of four stainless steel platform socket assemblies.

2. Each socket assembly shall include 304 stainless steel adhesive anchors for anchoring the platform socket to the basin wall.

3. Adhesive anchors of 304 stainless steel shall be provided for anchoring the pump.

2.7 RETRIEVABLE COARSE BUBBLE AIR DIFFUSER ASSEMBLIES

A. Description: The aeration system shall be a coarse bubble diffused air system and shall be a retrievable configuration as shown on the contract drawings. The aeration system shall be capable of delivering 467 SCFM per basin.

1. Furnish two retrievable air diffuser assemblies for each basin. Each assembly shall consist of diffusers, fiffuser manifold, track/beam, flexible air line, isolation valve, and lifting mechanism. A total of 8 duplex diffuser tubes shall be provided for each diffuser rack. Each diffuser shall be a non-clog diffuser and shall consist of an end connection, air reservoir, and air release ports. The diffuser shall be constructed of 316L stainless steel and shall include an integral hex nut and NPT male threads. Each diffuser assembly shall provide a uniform air distribution.

2. The diffusers shall be connected to a diffuser manifold. The entire assembly shall be located such that each diffuser centerline is 12 inches above the basin floor. The vertical

track/beam shall support the manual lifting mechanism assembly during operation and servicing.

3. A manual lifting mechanism shall be provided for each retrievable diffuser assembly. Each lifting mechanism shall consist of a hoist, polyolefin guide wheels, stainless steel sheave with bronze bushing, 304 stainless steel lifting cable, and manual winch with enamel coated cast iron case and drum. The lifting mechanism shall be of sufficient design capacity to raise the diffuser rack assembly to the servicing position. In addition, the mechanism shall be designed to allow the diffuser rack to be pivoted 360 degrees when in the service position for ease of diffuser inspection and servicing.

4. Each diffuser assembly shall include a 3 inch diameter wire reinforced EPDM flexible air line with quick disconnect and fittings and a threaded flange, elbow and ny-glass quick disconnect adapters. All air distribution piping, gaskets, and hardware beyond the threaded flange shall be supplied by the installing Contractor in Contract #1.

5. Each diffuser assembly shall include a 3 inch diameter manually operated isolation butterfly valve for connection to the main air distribution piping. Valve gaskets, hardware and connection to the main air distribution piping shall be the responsibility of installing Contractor in Contract #1.

6. Valve shall be a Wafer style butterfly valve with cast iron body, EPDM seat, aluminum bronze disk and one piece stainless steel shaft.

7. Adhesive anchors of 304 stainless steel shall be provided for anchoring the diffuser assemblies to the basin.

2.8 SBR BLOWERS

A. Description: There shall be furnished three 15 HP, 460 volt, 60 cycle, three phase rotary lobe type, positive displacement blowers with premium efficient, T.E.F.C. U.S. Electric, Class F insulation, motor. Each blower shall be capable of delivering 234 SCFM of air at a discharge gauge pressure of 7.93 psig. The blowers shall be manifolded for individual and/or combined operation. Motors shall be in compliance with the Energy Independence and Security Act of 2007 (EISA 2007). Aeration Blowers shall be Aerzen, Gardner Denver, or Engineer’s approved equal.

1. Each blower assembly shall be complete and mounted on a base weldment with four corner anti-vibration mountings, designed for direct application on a concrete slab or other solid foundation. Each assembly shall be suitable for shipment as a complete unit, factory assembled (less discharge pipe fittings) as much as possible to facilitate shipping and handling.

2. Equipment shall include a blower, electric motor, belts and sheaves, inlet filter/silencer, discharge silencer, discharge check valve, rubber inlet sleeve and discharge connection, pressure relief valve, galvanized steel acoustic hood with oil drip pan, 3" butterfly discharge isolation valve, and rubber expansion joint. A personnel protection guard shall be included over the belts and sheaves.

2.9 AIR CONTROL VALVES

A. Description: Furnish two (2) 6" diameter electrically operated butterfly valve shared for all basins to control the air flow.

1. Valves shall be a AWWA C-504 Class 150B electrically operated butterfly valve(s) with ANSI Class 125# flanged end ASTM ductile or cast iron body and disk with a 316 stainless steel edge, EPDM seat, 304 stainless steel shaft assembled and tested with a 115 volt, single phase, 60 cycle open/close service electric actuator. Valves shall be Milliken, DeZurik, ABZ valves, or Nibco. Actuators shall be per selected valve manufacturer.

2. Each valve shall include a manual override with limit switch feedback to the microprocessor in both the open and closed positions. Field wiring and junction/box disconnect shall be provided by the installing Contractor in Contract #1.

3. Provision for valve access shall be provided by the installing Contractor in Contract #1.

2.10 SBR PRESSURE TRANSDUCER

A. Description: Furnish one (1) submersible pressure transducer unit constructed of stainless steel for each basin. Transducer shall utilize a diffused silicone semiconductor sensor protected by an integral stainless steel diaphragm with seal fluid. Transducer output shall be a 4-20 mA signal. Electrical connection shall be 2-wire, loop powered through a shielded integral cable comprised of 22 AWG conductors and separate drain wire. Transducers shall be suspended on a removable mounting pipe assembly. 304 stainless steel pipe, 304 stainless supports and 304 stainless steel anchors shall be provided. Field attachment of the pipe and supports to the basin shall be the responsibility of the installing Contractor in Contract #1. A moisture excluding aneroid bellows shall be supplied loose for installation in the junction box/ disconnect. Attachment and supply of the junction box/disconnect at the basin wall shall be the responsibility of the installing Contractor in Contract #1. Transducer shall be Keller Levelrat, PMT, or Engineer’s approved equal.

1. Adhesive anchors of 304 stainless steel shall be provided for anchoring.

2.11 SBR LEVEL SENSORS

A. Description: Furnish one (1) level sensor assembly consisting of a float switch with a smooth, chemical resistant polypropylene casing, and 316 stainless steel mounting bracket for each basin. Each float switch shall be provided with a three conductor electrical cable. Electrical cable shall terminate at a junction box/disconnect located at the basin wall. Field wiring and junction box/disconnect shall be provided by the installing Contractor in Contract #1. Level Sensors shall be Anchor Scientific, Johnson Controls, or Engineer’s approved equal.

1. Adhesive anchors of 304 stainless steel shall be provided for anchoring the level sensor mounting bracket.

2.12 SBR JUNCTION BOX

A. Description: NEMA 4X 304 stainless steel junction box shall be provided. The junction box shall contain intrinsically safe relays and terminal blocks for terminating electrical controls and components. Field wiring and installation of the junction box shall be the responsibility of the electrical Contractor in Contract #1.

2.13 SBR CONTROLLER

A. Description: Furnish two (2) Multi Parameter Probe Module(s) per basin. The module shall receive the digital input from a maximum of two devices. The controller will communicate with the main PLC via 4-20 mA signals. The module will have a NEMA 4X/IP66 metal enclosure with a corrosion-resistant finish and shall be AC powered from a 100-230VAC, 60Hz power source. Each probe module shall include a sun shield.

2.14 SENSORS

A. Description: Furnish a dissolved oxygen sensor for each basin. Furnish one pH and TSS sensor for each SBR basin. Sensors shall be suspended on a removable mounting pipe assembly. Stainless steel pipe, stainless supports and stainless steel anchors shall be provided. Field attachment of the pipe and supports to the basin shall be the responsibility of the installing Contractor in Contract #1. Field wiring, conduit, and installation of cable shall be the responsibility of the installing Contractor in Contract #1. Sensors shall be Hach, Chemtrac, or Engineer’s approved equal.

2.15 POST-EQUALIZATION BASIN TRANSFER PUMPS

A. Description: Furnish three submersible non-clog transfer pumps. Each pump shall be equipped with 5.5 HP, submersible electrical motor connected for 460 volt, three phase, 60 hertz operation. Pump housing shall be painted cast iron. Pump shall include an adequate length of multi-conductor chloroprene jacketed type SPC cable suitable for submersible pump applications. The power cable shall also be sized according to NEC and ICEA standards. The pump shall be supplied with a mating cast iron discharge elbow and be capable of delivering 165 GPM at 30 TDH. Each unit shall be fitted with an adequate length of stainless steel lifting chain of adequate strength to permit raising and lowering the pump. Motors shall be in compliance with the Energy Independence and Security Act of 2007 (EISA 2007). Pumps shall be Flygt, Meyers, or Engineer’s approved equal.

1. The 4" diameter discharge connection elbow shall be permanently installed with the discharge piping. The pump shall be automatically connected to the discharge connection elbow when lowered into place, and shall be easily removed for inspection or service. There shall be no need for personnel to enter the basin or pump well. Sealing of the pumping unit to the discharge connection elbow shall be accomplished by a simple linear downward motion of the pump.

2. A stainless steel upper guide bar bracket shall be provided with each pump. The entire weight of the pumping unit shall be guided by stainless steel guide bars and pressed tightly against the discharge connection elbow with metal-to-metal contact. No sealing

of the discharge interface by means of a diaphragm, O-ring, or other devices shall be acceptable. The pump, with its appurtenances and cable, shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 ft.

3. Supply of all discharge piping, supports, gaskets, and hardware beyond the flanged connection of the pump discharge connection elbow shall be the responsibility of the installing Contractor in Contract #1.

4. Each pump shall include a manually operated discharge valve to control the design transfer flow rate.

5. Valve shall be a 4" diameter 125# flanged end connection, ASTM A-126 Class B cast iron body with welded in nickel seat, coated non-lubricated ductile or cast iron plug. The valve shall be a non-lubricated type with a port area of at least 80% of full pipe size. Plug Valve shall be Milliken, DeZurik, or Nibco.

6. Each pump shall include a 4" diameter check valve with cast iron body and bronze disk to prevent backflow. Check Valve shall be Milliken, Nibco, or DeZurik.

7. Valves shall be provided loose for installation within the discharge piping by the installing Contractor in Contract #1. Valve gaskets and hardware shall be supplied by the installing Contractor in Contract #1.

8. Adhesive anchors of 304 stainless steel shall be provided for anchoring the pump.

2.16 POST-EQ FIXED PVC COARSE BUBBLE DIFFUSER SYSTEM

A. Description: The aeration system shall be a coarse bubble diffused air system and shall be a fixed configuration as shown on the contract drawings. The aeration system shall be capable of delivering 60 SCFM per basin.

1. Furnish one (1) fixed coarse bubble diffuser system for each basin. The diffuser system shall consist of diffusers, supports, manifold, and riser pipe. Each diffuser section shall be constructed of Schedule 80 PVC. The diffuser manifold pipe internal to the basin shall be constructed of Schedule 80 PVC. Diffuser pipes shall be not less than three-inch nominal diameter. Each diffuser section shall be supplied with uniformly-spaced machined orifices located on the top of each section. Size and number of orifices shall be provided to ensure a uniform air distribution.

2. Each diffuser section and manifold pipe shall be supported at span lengths not greater than 6 feet by stainless steel supports. No unsupported end shall be longer than 2 ft. Diffuser sections shall be secured to the supports with a corrosion resistant retainer. Support brackets shall be adjustable to provide header leveling within ± 1/4 inch of a fixed elevation for each aeration basin.

3. Diffuser system shall be field assembled by the installing Contractor in Contract #1. All submerged PVC joints 8" and smaller shall be socket welded joints. Expansion joints shall be included to compensate for thermal expansion for PVC manifold runs longer than 40 feet. Pipe sizing, location and supports shall be as shown on the drawings.

Diffuser sections and internal manifold piping shall have flange connections for disassembly.

4. The 3" diameter stainless steel riser pipe shall terminate in a flanged connection at the top of the basin wall. All piping, gaskets, and hardware beyond the riser pipe's flanged connection shall be the provided by the installing Contractor in Contract #1.

5. Adhesive anchors of 304 stainless steel shall be provided for anchoring the diffuser supports.

2.17 POST-EQ BLOWERS

A. Description: There shall be furnished one 5 HP, 460 volt, 60 cycle, three phase rotary lobe type, positive displacement blowers with premium efficient, T.E.F.C. U.S. Electric, Class F insulation, motor. Each blower shall be capable of delivering 60 SCFM of air at a discharge gauge pressure of 4.4 psig. The blowers shall be manifolded for individual and/or combined operation. Motors shall be in compliance with the Energy Independence and Security Act of 2007 (EISA 2007). Blowers shall be Aerzen, Gardner Denver, or Engineer's approved equal.

1. Each blower assembly shall be complete and mounted on a base weldment with four corner anti-vibration mountings, designed for direct application on a concrete slab or other solid foundation. Each assembly shall be suitable for shipment as a complete unit, factory assembled (less discharge pipe fittings) as much as possible to facilitate shipping and handling.

2. Equipment shall include a blower, electric motor, belts and sheaves, inlet filter/silencer, discharge silencer, discharge check valve, rubber inlet sleeve and discharge connection, pressure relief valve, galvanized steel acoustic hood with oil drip pan, 3" butterfly discharge isolation valve, and rubber expansion joint. A personnel protection guard shall be included over the belts and sheaves.

2.18 POST-EQ PRESSURE TRANSDUCER

A. Description: Furnish one (1) submersible pressure transducer unit constructed of stainless steel for each basin. Transducer shall utilize a diffused silicone semiconductor sensor protected by an integral stainless steel diaphragm with seal fluid. Transducer output shall be a 4-20 mA signal. Electrical connection shall be 2-wire, loop powered through a shielded integral cable comprised of 22 AWG conductors and separate drain wire. Transducers shall be suspended on a removable assembly consisting of PVC support pipe and EPDM hose. Removable assembly shall be supported by 304 stainless steel supports and guide rail, and 304 stainless steel anchors. Field attachment of the guide rail and supports to the basin shall be the responsibility of the installing Contractor in Contract #1. A moisture excluding aneroid bellows shall be supplied loose for installation in the junction box/ disconnect. Attachment and supply of the junction box/disconnect at the basin wall shall be the responsibility of the installing Contractor in Contract #1. Pressure Transducer shall be Keller Levelrat, PMT, or Engineer's approved equal.

1. Adhesive anchors of 304 stainless steel shall be provided for anchoring.

2.19 POST-EQ LEVEL SENSOR

A. Description: Furnish one (1) level sensor assembly consisting of a float switch with a smooth, chemical resistant polypropylene casing, and 316 stainless steel mounting bracket for each basin. Each float switch shall be provided with a three conductor electrical cable. Electrical cable shall terminate at a junction box/disconnect located at the basin wall. Field wiring and junction box/disconnect shall be provided by the installing Contractor in Contract #1. Level Sensor shall be Anchor Scientific, Johnson Controls, or Engineer's approved equal.

1. Adhesive anchors of 304 stainless steel shall be provided for anchoring the level sensor mounting bracket.

2.20 POST-EQ JUNCTION BOX

A. Description: NEMA 4X 304 stainless steel junction box shall be provided. The junction box shall contain intrinsically safe relays and terminal blocks for terminating electrical controls and components. Field wiring and installation of the junction box shall be the responsibility of the electrical Contractor in Contract #1.

2.21 POST-EQ CONTROLLER

A. Description: Furnish one (1) Multi Parameter Probe Module(s) per basin. The module shall receive the digital input from a maximum of two devices. The controller will communicate with the main PLC via 4-20 mA signals. The module will have a NEMA 4X/IP66 metal enclosure with a corrosion-resistant finish and shall be AC powered from a 100-230VAC, 60Hz power source. Each probe module shall include a sun shield.

2.22 POST-EQ DISSOLVED OXYGEN SENSOR

A. Description: Furnish one (1) dissolved oxygen sensor per basin. The probe shall be a continuous-reading probe utilizing luminescent sensor technology, and shall provide electrolyte-free operation without requiring sample conditioning. Sensors shall be suspended on a removable mounting pipe assembly. 304 stainless steel pipe, 304 stainless supports and 304 stainless steel anchors shall be provided. Field attachment of the pipe and supports to the basin shall be the responsibility of the installing Contractor in Contract #1. Field wiring, conduit, and installation of cable shall be the responsibility of the installing Contractor in Contract #1. Dissolved Oxygen Sensor shall be Hach, Chemtrac, or Engineer's approved equal.

2.23 TELESCOPING VALVE

A. Description: Furnish a 3" telescoping valve with stainless steel floor stand for the digester basin. A 16" diameter cast aluminum hand wheel shall be provided for raising and lowering the valve. The telescoping valve shall be provided with a 150 lb. flange and neoprene gasket to serve as a termination. Supply of riser pipe(s) with flanged termination, hardware, and mounting brackets shall be the responsibility of the installing Contractor in Contract #1.

2.24 AEROBIC DIGESTER TRANSFER PUMPS

A. Description: Furnish two (2) submersible non-clog sludge pumps. Each pump shall be equipped with 2.9 HP, submersible electrical motor connected for 460 volt, three phase, 60 hertz operation. Pump housing shall be painted cast iron. Pump shall include an adequate length of multi-conductor chloroprene jacketed type SPC cable suitable for submersible pump applications. The power cable shall also be sized according to NEC and ICEA standards. The pump shall be supplied with a mating cast iron discharge elbow and be capable of delivering 40 GPM at 45 TDH. Each unit shall be fitted with an adequate length of 304 stainless steel lifting chain of adequate strength to permit raising and lowering the pump. Motors shall be in compliance with the Energy Independence and Security Act of 2007 (EISA 2007). Pumps shall be Flygt, Meyers, or Engineers approved equal.

1. The 3" diameter discharge connection elbow shall be permanently installed with the discharge piping. The pump shall be automatically connected to the discharge connection elbow when lowered into place, and shall be easily removed for inspection or service. There shall be no need for personnel to enter the basin or pump well. Sealing of the pumping unit to the discharge connection elbow shall be accomplished by a simple linear downward motion of the pump.

2. A 304 stainless steel upper guide bar bracket shall be provided with each pump. The entire weight of the pumping unit shall be guided by 304 stainless steel guide bars and pressed tightly against the discharge connection elbow with metal-to-metal contact. No sealing of the discharge interface by means of a diaphragm, O-ring, or other devices shall be acceptable. The pump, with its appurtenances and cable, shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 ft.

3. Supply of all discharge piping, supports, gaskets, and hardware beyond the flanged connection of the pump discharge connection elbow shall be the responsibility of the installing Contractor in Contract #1.

4. Each pump shall include a “Seal Failure” and “Over Temperature” warning system.

5. Each pump shall include a manually operated discharge valve to control the design transfer flow rate.

6. Valve shall be a 3" diameter 125# flanged end connection, ASTM A-126 Class B cast iron body with welded in nickel seat, coated non-lubricated ductile or cast iron plug. The valve shall be a non-lubricated type with a port area of at least 80% of full pipe size. Plug Valve shall be Milliken, DeZurik, or Nibco.

7. Each pump shall include a 3" diameter check valve with cast iron body and bronze disk to prevent backflow. Check Valve shall be Milliken, Nibco, or Dezurik.

8. Valves shall be provided loose for installation within the discharge piping by the installing Contractor in Contract #1. Valve gaskets and hardware shall be supplied by the installing Contractor in Contract#1.

9. Adhesive anchors of 304 stainless steel shall be provided for anchoring the pump.

2.25 AEROBIC DIGESTER FIXED PVC COARSE BUBBLE DIFFUSER SYSTEM

A. Description: The aeration system shall be a coarse bubble diffused air system and shall be a fixed configuration as shown on the contract drawings. The aeration system shall be capable of delivering 207 SCFM per basin.

1. Furnish one (1) fixed coarse bubble diffuser system for each basin. The diffuser system shall consist of diffusers, supports, manifold, and riser pipe. Each diffuser section shall be constructed of Schedule 80 PVC. The diffuser manifold pipe internal to the basin shall be constructed of Schedule 80 PVC. Diffuser pipes shall be not less than three-inch nominal diameter. Each diffuser section shall be supplied with uniformly-spaced machined orifices located on the top of each section. Size and number of orifices shall be provided to ensure a uniform air distribution.

2. Each diffuser section and manifold pipe shall be supported at span lengths not greater than 6 feet by galvanized steel supports. No unsupported end shall be longer than 2 ft. Diffuser sections shall be secured to the supports with a corrosion resistant retainer. Support brackets shall be adjustable to provide header leveling within ± 1/4 inch of a fixed elevation for each aeration basin.

3. Diffuser system shall be field assembled by the installing Contractor in Contract #1. All submerged PVC joints 8" and smaller shall be socket welded joints. Expansion joints shall be included to compensate for thermal expansion for PVC manifold runs longer than 40 feet. Pipe sizing, location and supports shall be as shown on the drawings. Diffuser sections and internal manifold piping shall have flange connections for disassembly.

4. The 3" diameter stainless steel riser pipe shall terminate in a flanged connection at the top of the basin wall. All piping, gaskets, and hardware beyond the riser pipe's flanged connection shall be the provided by the installing Contractor in Contract #1.

5. Adhesive anchors of 304 stainless steel shall be provided for anchoring the diffuser supports.

2.26 AEROBIC DIGESTER BLOWERS

A. Description: There shall be furnished two (2) 15 HP, 460 volt, 60 cycle, three phase rotary lobe type, positive displacement blowers with premium efficient, T.E.F.C. U.S. Electric, Class F insulation, motor. Each blower shall be capable of delivering 207 SCFM of air at a discharge gauge pressure of 7.93 psig. The blowers shall be manifolded for individual and/or combined operation. Motors shall be in compliance with the Energy Independence and Security Act of 2007 (EISA 2007). Blowers shall be Aerzen, Gardner Denver, or Engineer’s Approved Equal.

1. Each blower assembly shall be complete and mounted on a base weldment with four corner anti-vibration mountings, designed for direct application on a concrete slab or other solid foundation. Each assembly shall be suitable for shipment as a complete unit, factory assembled (less discharge pipe fittings) as much as possible to facilitate shipping and handling.

2. Equipment shall include a blower, electric motor, belts and sheaves, inlet filter/silencer, discharge silencer, discharge check valve, rubber inlet sleeve and discharge connection, pressure relief valve, galvanized steel acoustic hood with oil drip pan, 3" butterfly discharge isolation valve, and rubber expansion joint. A personnel protection guard shall be included over the belts and sheaves.

2.27 AEROBIC DIGESTER PRESSURE TRANSDUCER

A. Description: Furnish one (1) submersible pressure transducer unit constructed of stainless steel for each basin. Transducer shall utilize a diffused silicone semiconductor sensor protected by an integral stainless steel diaphragm with seal fluid. Transducer output shall be a 4-20 mA signal. Electrical connection shall be 2-wire, loop powered through a shielded integral cable comprised of 22 AWG conductors and separate drain wire. Transducers shall be suspended on a removable assembly consisting of PVC support pipe and EPDM hose. Removable assembly shall be supported by 304 stainless steel supports and guide rail, and 304 stainless steel anchors. Field attachment of the guide rail and supports to the basin shall be the responsibility of the installing Contractor in Contract #1. A moisture excluding aneroid bellows shall be supplied loose for installation in the junction box/ disconnect. Attachment and supply of the junction box/disconnect at the basin wall shall be the responsibility of the installing Contractor in Contract #1. Pressure Transducer

1. Adhesive anchors of 304 stainless steel shall be provided for anchoring.

2.28 AEROBIC DIGESTER LEVEL SENSOR

A. Description: Furnish one (1) level sensor assembly consisting of a float switch with a smooth, chemical resistant polypropylene casing, and 316 stainless steel mounting bracket for each basin. Each float switch shall be provided with a three conductor electrical cable. Electrical cable shall terminate at a junction box/disconnect located at the basin wall. Field wiring and junction box/disconnect shall be provided by the installing Contractor in Contract #1.

1. Adhesive anchors of 304 stainless steel shall be provided for anchoring the level sensor mounting bracket.

2.29 AEROBIC DIGESTER JUNCTION BOX

A. Description: NEMA 4X 304 stainless steel junction box shall be provided. The junction box shall contain intrinsically safe relays and terminal blocks for terminating electrical controls and components. Field wiring and installation of the junction box shall be the responsibility of the electrical Contractor in Contract #1.

2.30 AEROIC DIGESTER DISSOLVED OXYGEN SENSORS

A. Description: Furnish one (1) dissolved oxygen sensor per basin. The probe shall be a continuous-reading probe utilizing luminescent sensor technology, and shall provide electrolyte-free operation without requiring sample conditioning. Sensors shall be suspended on a removable mounting pipe assembly. 304 stainless steel pipe, 304 stainless supports and 304

stainless steel anchors shall be provided. Field attachment of the pipe and supports to the basin shall be the responsibility of the installing Contractor in Contract #1. Field wiring, conduit, and installation of cable shall be the responsibility of the installing Contractor in Contract #1. Dissolved Oxygen Sensors shall be Hach, Chemtrac, or Engineer's approved equal.

2.31 CONTROL PANEL

A. Description: The control system shall be designed to optimize the process while minimizing operator attention and to accommodate the continuous maximum daily flow without adjusting cycle structures. The control software program shall be factory tested prior to installation at the jobsite.

1. The control system shall be a timer-based system with level overrides and shall provide control, sequence, monitoring, and alarm annunciation capabilities. The operator shall be able to access the timer values and set points through the operator interface panel to allow for adjustment of cycle times and system flexibility. The control system shall be designed to automatically accommodate the plant's full range of loads and flows.

2. A complete control system shall be provided as described in the following and as shown on the contract drawings: The control system shall include a circuit breaker disconnect, control transformer, branch protection, motor starters, microprocessor control, indicator lights, HAND-OFF-AUTOMATIC selector switches.

3. The incoming service of the control system shall be 115 volt, 60 hertz, single-phase. Controls for the equipment listed below shall be provided within the SBR control panel. Elapsed time indication shall be provided through the operator interface of the SBR control panel for equipment indicated by an asterisk(*)

B. Controls included in panel:
1. SBR Equipment Description
   a. Two (2) 3 HP Mixers*
   b. Two (2) 2.4 HP Sludge Pumps*
   c. Three (3) 15 HP Blowers*
   d. Two (2) Influent Valves
   e. Two (2) Decanter Actuators
   f. Two (2) Decanter Valves
   g. Two (2) Air Control Valves
   h. Two (2) 4-20 mA D.O. signals
   i. Two (2) 4-20 mA TSS signals
   j. Two (2) 4-20 mA pH signals
   k. Two (2) 4-20 mA Pressure Transducers
   l. Two (2) Level Sensors
   m. One (1) Common Alarm
2. Aerobic Digester Equipment Description
   a. Two (2) 2.4 HP Sludge Pumps*
   b. Two (2) 15 HP Blowers*
   c. One (1) 4-20 mA D.O. signals
   d. One (1) 4-20 mA Pressure transducers
   e. One (1) Level Sensors
3. Post SBR Equipment Description

a. Three (3) 5 HP Transfer Pumps
b. One (1) 5 HP Blower*
c. One (1) 4-20 mA D.O. signal
d. One (1) 4-20 mA Pressure Transducer
e. One (1) Level Sensor

4. Ancillary Equipment Description
   a. One (1) UV Disinfection System (Monitor Only)
   b. One (1) Pump Station including two (2) pumps (Monitor Only)
   c. One (1) Influent Flow Meter (supplied by others)
   d. One (1) Effluent Flow Meter (supplied by others)

C. Control Panel Wiring and Assembly: All control enclosures shall be custom assembled and wired in an Underwriters Laboratories (UL) certified cabinet shop using quality materials and labor. Short circuit rating of control enclosure shall be 5 kA RMS symmetrical @ 480VAC maximum.

1. All control panel single conductor wire shall be 16 AWG multi-strand machine tool wire (MTW) minimum, with PVC insulation.

2. Wire colors are as follows:
   - 208 VAC or higher - Black
   - 120 VAC control power - Red
   - Neutral - White
   - Ground - Green
   - AC Power from remote source - Yellow
   - Neutral from remote source - White with Yellow Stripe
   - 24 VDC (+) - Blue
   - 24 VDC (-) - White with Blue Stripe
   - VDC (+) from remote source - Orange
   - VDC (-) from remote source - White with Orange Stripe
   - Intrinsically Safe - Light Blue

3. All wires shall be clearly marked with an identification number consistent with the wiring schematic drawing. Wire markers shall be a thermal transfer printable type. The material shall be a self-laminating vinyl. Labels shall be Brady THT-9-427-10 or approved equal.

4. Wiring inside the control panel shall be run in PVC wiring duct rated for continuous temperatures up to 122° F (50°C). Devices mounted in the enclosure door shall have wires run in spiral wrap to avoid pinch points when opening and closing the door.

5. Control components mounted internal and external to the enclosure shall be mounted with stainless steel hardware and clearly labeled with a plastic identification nametag. The tag shall be white with black lettering.

D. Control Panel Quality Assurance: All Control panels shall be UL certified. Testing by manufacturer's electrical engineering prior to releasing for shipment shall be completed. Testing shall consist of the following:

- Point to point testing of all wiring prior to application of power
- Intended supply voltage shall be applied to the enclosure
- All components shall be tested for proper operation and calibration
- The PLC and operator interface program shall be loaded and functionally checked
- All components shall be checked to confirm proper mounting specifications have been followed
- Enclosure shall be inspected for defects and repaired if necessary
- All labeling of wires and devices are correct, properly installed and clean

1. The manufacturer shall finalize the factory checkout by completing a control panel checklist to document all testing completed above.

2. Upon the successful completion of the control testing of the enclosure assembly, all applicable documentation (i.e. finalized drawing set, signed control checklist cover page, device data sheets, etc.) shall be placed in the drawing pocket of the enclosure.

5. Control Enclosure: The automatic controls shall be provided in a UL listed, NEMA Type 12 mild steel (12 gauge) floor mount enclosure that provides a degree of protection for electrical controls and components from dust, dripping water and external condensation of non-corrosive liquids. The enclosure is intended for indoor installation. Enclosure shall include gasketed overlapping doors with a 3-point latch mechanism operated by an oil tight key-lock handle. The enclosure shall have white polyester powder paint inside with ANSI 61 gray polyester powder paint outside over phosphatized surfaces. The enclosure shall include a painted white mild steel (10 gauge) sub-panel mounted with collar studs. Enclosure shall be manufactured by Hoffman, Xylem, or Engineer's approved equal.
   The control enclosure shall be mounted remotely.

6. Corrosion Inhibitor: Each control enclosure assembly shall be provided with corrosion inhibitors to protect interior electrical components from damage caused by high humidity. The corrosion inhibitors shall be installed prior to shipment to provide protection during shipment and storage of the enclosure. The corrosion inhibitor shall be Hoffman, Hammond, or Engineer's approved equal.

7. Circuit Breaker: All single phase branch or supplementary circuits shall be protected with a single-pole, C-Curve rated circuit breaker. Circuit breakers shall be rated for 240 VAC maximum, 50/60 Hz and UL 489 listed.

8. Fuse: Properly rated fuses and fuse holders shall be provided for protection of individual control devices (discrete and analog signals) mounted outside of the enclosure. Each fuse shall be housed in a hinged type fuse block to protect against contact with the fuse. Fuses shall be rated up to 250 VAC and be Littelfuse or approved equal. Fuse holders for discrete devices shall be rated to 600 VAC and 30 Amps. Fuse holders for analog devices shall be rated to 300 VAC and 15 Amps. Fuse holders shall be Allen Bradley, Rockwell Automation, or Engineer's approved equal.

9. Operator Device: Operator devices (pushbuttons and selector switches) shall be mounted through the control enclosure door for all automatic controlled equipment. Transformer

type pilot lights and illuminated pushbuttons shall be provided for indication of an operation status. Lights shall be a 6 VAC incandescent type lamp. Color coding shall be applied as required and is as follows:

- Amber – Alarm active, caution
- Green – Valve open, motor running
- Red – Valve closed
- White – Information

1. All operator devices shall be UL Listed, 30.5mm style, NEMA Type 4X rated, oil and water tight with finger safe guards located on the contact blocks to prevent accidental contact with wire connections. Operator device function shall be identified with an engraved white Gravoply nameplate with black letters. Operator devices shall be Allen-Bradley 800H, Square D 9001, or approved equal.

10. High Frequency Nose Filter: A UL listed active tracking filter shall be provided to protect the PLC and HMI power feeds from high-frequency noise and low-energy transients. It shall be designed for a single phase input voltage of 120/240VAC operating at 47 to 63 Hz. The unit shall reduce normal mode transients to plus or minus 2 volts, provide surge capacity of 45,000 amps and protect in all modes (Line to neutral, line to ground and neutral to ground). The noise filter shall be an Islatrol IC+ or approved equal.

11. Ground Fault Duplex Receptacle: A UL listed ground fault circuit interrupter (GFCI) duplex receptacle shall be provided within the panel for instrument (e.g. programming terminal, modem, etc.) use only. The receptacle shall be protected with a 5 Amp circuit breaker. The receptacle shall carry a 20A / 120VAC rating. The electro-mechanical circuit interrupter shall be double-pole and trip free (GFCI protection and shall not be overridden by holding reset button). Built-in transient suppression shall protect GFCI's internal circuitry from voltage transients. Receptacle shall be Hubbell, Leviton, or Engineer's approved equal.

12. 24 Volt DC Power Supply: A UL listed, industrial grade, compact power supply shall be supplied to provide 24 VDC power to such rated components. The power supply shall be DIN rail mounted and functional with input voltage of 100 to 240 VAC (single-phase) incoming control power. The power supply shall have a green LED which shall be illuminated when output voltage is "OK". The power supply shall be an Allen Bradley, Rockwell Automation, or engineers approved equal.

13. Control Relay: UL listed control relays for general control purposes shall be supplied with a pilot light to indicate when the coil is in an energized state. The relay socket shall be panel or DIN rail mounted inside the enclosure. The relays shall provide the following ratings: 120VAC coil, 10A contact rating (thermal), 250 VAC insulation rating and 5 million mechanical life cycles. Relays shall be Allen Bradley 700-HK, Square D, or approved equal.

14. Terminal Block: Standard feed-through screw terminal blocks, DIN rail mounted, shall be supplied for all point to point wiring connections. All terminals shall be numbered per the wiring schematic with printed markers. Terminals shall carry a 600V AC/DC voltage rating.

15. Programmable Logic Controller: Automatic operation of the SBR shall be controlled through a programmable logic controller (PLC) mounted inside the main control panel. The PLC components shall consist of a power supply, CPU, discrete input and output modules and analog input and output modules. The processor unit shall include built-in USB and two (2) Ethernet IP communication ports. All input and output points supplied (including unused) shall be wired to terminal blocks. Processor design characteristics shall include: 1.0MB user memory size, real-time clock and calendar, battery backed RAM and an operating temperature range between 32 °F and 140°F. The PLC processor shall be Allen Bradley, ABB, or Engineer's approved equal.

    1. Modular equipment shall be provided to complete the PLC system. These Allen-Bradley components include: 1769-PA4 – Power Supply, 1769-IA16 – Discrete input (16 point) modules, 1769-OW16 – Discrete output (16 point) modules and 1769-IF8 – Analog input (8 point) modules, 1769-OF4 – Analog output (4 point) modules.

16. PLC Power Supply: Input voltage range of 85-265 / 170-265 VAC, 47-63 Hz, maximum inrush current of 30 amps, backplane output current of 4 amps @ 5V or 2 amps @ 24V, internal fuse protection, ambient operating temperature of 32°F to 140°F, UL Listed.

17. Discrete Input Module: Operating voltage of 79 to 132 VAC at 47 to 63 Hz, backplane current draw at 5VDC = 115mA , off-state current 2.5mA maximum, maximum inrush current 250mA, LED status indication of each point, ambient operating temperature of 32°F to 140°F, UL Listed.

18. Discrete Output Module: Operating voltage of 5 to 265 VAC at 47 to 63 Hz / 5 to 125 VDC, backplane current draw at 5 VDC = 205mA , at 24VDC = 180mA, off-state current leakage is 1.0mA, LED status indication of each point, ambient operating temperature of 32°F to 140°F, UL Listed.

19. Analog Input Module: Backplane current draw at 5 VDC = 120mA, at 24VDC = 70mA, LED status indication of each point, ambient operating temperature of 32°F to 140°F, UL Listed.

20. Analog Output Module: Backplane current draw at 5 VDC = 120mA, at 24VDC = 170mA, LED status indication of each point, ambient operating temperature of 32°F to 140°F, UL Listed.

21. Ethernet Switch: An unmanaged Ethernet switch shall be provided inside the control enclosure to provide connectivity between the PLC, operator interface and plant networking. The switch shall support both 10 and 100 Mbit/s operation. The switch shall have five (5) 10/100Base-T ports with RJ-45 sockets and shall support auto-crossing, auto-negotiation, and auto-polarity. Maximum distance between devices shall be 100m.

22. Human Machine Interface: The operator interface shall be a NEMA Type 12, 13, 4X rated, 10.4" diagonal, color touchscreen display with Ethernet and serial communications. The interface shall be a liquid crystal display (LCD). The display type shall be color active matrix thin-film transistor (TFT) with 800 x 600 pixel resolution. The rated operating temperature shall be 32° to 131° F (0° to 55° C). The operator interface shall be an Allen Bradley PanelView Plus 7 Performance 10".

2.32 SCADA MONITORING SYSTEM

A SCADA (Supervisory Control And Data Acquisition) system shall be provided by the SBR equipment supplier as described herein and as shown on the contract drawings.

B. The SCADA functionality includes custom designed software with the following distinct features:
1. Detailed, dynamic graphics depicting regions of the facility and specific equipment within each area
2. Drill-down feature to provide detailed pop-up windows for pieces of equipment
3. Simple, intuitive navigation
4. System setpoint and preset adjustments
5. Consolidated alarm summary for all monitored areas, plus an alarm log
6. Event log which may capture operator commands as well as process/equipment functions
7. Historical data logging, providing long term storage of data to assist with plant optimization
8. Historical trending of analog and/or discrete variables. Trends also provide real time values, zoom/pan, and pause features
9. Security – both the operating system and graphical package have multiple levels of logins.
10. Picture/video screen captures – allows screen captures to be saved to a file or sent to a printer

C. The SCADA system includes remote access capabilities through either a dial-up modem or broadband access. The remote access not only facilitates support from the SCADA supplier (to address concerns or future upgrades), but also allows remote access by the operations personnel to help assess a situation when away from the site.

D. The SCADA system shall be designed, programmed and functionally tested by the SCADA manufacturer prior to shipment. All software packages shall be provided with licenses that can be transferred to the end user.

E. The SCADA system shall be provided loose for installation, interconnection, and field wiring by the installing Contractor in Contract #1. The SCADA system shall provide monitoring and control of remote functions and processes for the following wastewater applications:

a. Sludge Handling System

1. Belt Press Run

b. Chemical Feed System

1. Polymer Feed Run
2. Lime Post Treatment Run
3. Low Dilution Water Flow Alarm
4. E-Stop Operation
5. Polymer Make-Up Pump Speed Rate

c. RTU-1 SBR

RTU model M802C, wall mount, NEMA 4X

1. Digital Inputs (Standard)

DI-1	PLC Battery Low Alarm
DI-2	PLC Output Power Fault
DI-3	Any Basin Mixer Alarm
DI-4	Any Process Blower Alarm
DI-5	Any Process Pump Alarm
DI-6	Any WAS Pump Fault
DI-7	Post EQ Blower Fault
DI-8	Any Post EQ Pump Fault

2. Digital Inputs (Expansion)

DI-1	Digester Blower Fault
DI-2	Any Digest Pump Fault
DI-3	SBR Basin #1 Level High Alarm
DI-4	SBR Basin #2 Level High Alarm
DI-5	Loss of Power/Phase/Fault Alarm
DI-6	Generator Run
DI-7	Any Generator Alarm
DI-8	Spare

3. Analog Input

AI-1	SBR Basin #1 Level/Trend/Alarm
AI-2	SBR Basin #2 Level/Trend/Alarm

4. Pulse Inputs

PI-1	Spare
PI-2	Spare

5. Relay Outputs

R-1	E-Stop SBR Process
R-2	Spare
R-3	Spare

d. RTU-2 Pre-Treatment & Plant Pump Station

RTU model M802C, wall mount, NEMA 4X

1. Digital Inputs (Standard)

DI-1	Screen Run

DI-2 Screen Fault
DI-3 Washing Compactor Fault
DI-4 Grit Pump Run
DI-5 Grit Pump Fault
DI-6 Grit Drive Fault
DI-7 Grit Classifier Fault
DI-8 Channel Backup High Level Alarm Float

3. Analog Input

AI-1 Influent Channel Level/High Channel Alarm
AI-2 Influent Flow Rate
AI-3 Plant Pump Station Flow Rate
AI-4 Spare

4. Pulse Inputs

PI-1 Influent Flow Total
PI-2 Plant Pump Station Flow Total

e. RTU-3 UV

RTU model M802C, wall mount, NEMA 4X

1. Digital Inputs (Standard)

DI-1 UV Bank 1 ON
DI-2 UV Bank 2 ON
DI-3 UV System Alarm
DI-4 Cooling Pump #1 Fault
DI-5 Cooling Pump #2 Fault
DI-6 Spare
DI-7 Spare
DI-8 Spare

3. Analog Input

AI-1 Effluent Flow Rate
AI-2 Spare

4. Pulse Inputs

PI-1 Effluent Flow Total
PI-2 Spare

f. RTU-4 Influent Pump Station

RTU model M802C, wall mount, NEMA 4X

1. Digital Inputs (Standard)

DI-1 Influent Pump #1 Run
DI-2 Influent Pump #2 Run
DI-3 Thermal or Moisture Alarm, Pump #1
DI-4 Thermal or Moisture Alarm, Pump #2
DI-5 High Level Alarm Float Active
DI-6 Low Level Alarm Float Active
DI-7 Spare
DI-8 Spare

3. Analog Input

AI-1 Wet Well Level
AI-2 Spare

4. Pulse Inputs

PI-1 Spare
PI-2 Spare

1. SCADA System Hardware

a. The SCADA system provided shall meet or exceed the following hardware specifications. At the time of manufacture, components specified below shall be subject to "or equal" or "upgrade" status to provide for the most current model available.

2. Personal Computer (PC):

Dell OptiPlex 7090, with 5-Year ProSupport

Processor:	Intel Core i7-10700 (8-Core, 16MB Cache)
Memory:	32GB DDR4
Hard Drive:	512GB NVMe Class 40 Solid State Drive
Backup HD:	2.5” SATA, 1TB, 7200rpm
Video Card:	Intel Integrated
Keyboard:	Dell Wired Keyboard
Mouse:	Dell Wired Optical Mouse
Network:	Integrated NIC
Monitor:	Dell Ultrasharp 24” Monitor

3. Printer: Color inkjet printer with printer cable

4. Uninterruptable Power Supply (UPS): APC battery backup UPS, 1000VA minimum

5. PC Operating System And Productivity Software:

Operating system:	Microsoft® Windows 10 Professional
Productivity software:	Microsoft® Office Home and Business 2016
Anti-virus / Anti-spam / Firewall:	10 year subscription
Screen capture/edit software:	TechSmith® SnagIt®

6. Graphical Software:

   Rockwell Software FactoryTalk View SE Station
   Rockwell Software FactoryTalk View SE Development

7. Programming Software For PLC: Rockwell Software RSLogix 5000 (IEC-61131-3 compliant)

8. Programming Software For HMI: Rockwell Software FactoryTalk View Studio ME

   a. The PLC(s) shall communicate to a dedicated PC network interface card (NIC) which shall provide the SCADA connectivity to the plant control network.

   b. Ehternet shall be a local area network that provides communication between various devices at 10/100 MBaud. The protocol utilized for message transport between devices shall be TCP/IP. The processor connector shall conform to ISO/IEC 8802-3 STD 802.3 and utilize 10/100Base-T media. Connections shall be made directly from the processor to an industrial Ethernet switch. The SCADA computer NIC shall also be of the type 10/100Base-T and shall connect directly to an Ethernet switch. Twisted-pair 10/100Base-T cables with RJ-45 connectors shall be used to make connections between switches and devices. Twisted-pair cabling between all switches and devices shall be a maximum of 323 feet in length; and kept to a minimum whenever possible. If a distance greater than 323 feet or runs through high noise environments are required, the SCADA supplier must be contacted.

   c. Conduit and routings for the communication cable(s) shall be provided by the installing Contractor in Contract #1. Communication cable(s) shall not be installed within conduit which contains AC control or power cable(s).

   d. Additional hardwater (repeaters or switches) to accommodate longer Ethernet cable runs shall be supplied by others.

2.33 SOURCE QUALITY CONTROL

A. Section 014000: “Quality Requirements: Requirements for Testing, Inspection, and Analysis.”

B. The floating mixer(s) shall be shop inspected and tested prior to shipment. Testing shall consist of the following:
   1. Project and nameplate data verification per assembly documentation
   2. Dynamic balancing
   3. Final inspection

C. Actuated valves shall be tested to manufacturer test protocol prior to shipment. Testing shall consist of the following:
   1. Project and nameplate data verification per assembly documentation
   2. Limit switch and torque switch setup and cycle test
   3. Hydrostatic test (two pressurization cycles) for all plug and butterfly valves

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000: "Execution and Closeout Requirements: Requirements for Installation Examination."

B. Verify that field dimensions are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000: "Execution and Closeout Requirements: Requirements for Installation Preparation."

3.3 INSTALLATION

A. The installation of the equipment furnished by the manufacturer shall be the responsibility of the installing Contractor in Contract #1 in accordance with all requirements of the contract documents.

3.4 FIELD QUALITY CONTROL

A. Section 014000: "Quality Requirements: Requirements for Inspecting and Testing."

B. Inspection:

1. Inspect for damage to valve lining or coating and for other defects that may be detrimental as determined by Engineer.
2. Repair damaged valve or provide new, undamaged valve.
3. After installation, inspect for proper supports and interferences.

3.5 START-UP:

A. The equipment manufacturer shall furnish the services of a factory trained representative for a maximum of 4 trips and 14 eight-hour days at the jobsite to inspect the installing Contractor in Contract #1's equipment installation, supervise the initial operation of the equipment, instruct the plant operating personnel in proper operation and maintenance, and provide process assistance.

3.6 SPARE PARTS TO BE SUPPLIED

A. The following spare parts shall be supplied by the SBR equipment manufacturer:

1. Quantity Description
One (1) Decanter linear actuator with capacitor.

One (1)	Decanter limit switch with arm.
One (1)	Input card.
One (1)	Output card.
Fifty (50)	Membrane Kits
One (1)	Crimping Tool Oetiker #1098
Six (6)	Blower inlet filters
One (1) set	5 HP V-belts
Five (5) sets	15 HP V-belts

3.7 WARRANTY

A. Section 017000 - Execution and Closeout Requirements: Requirements for warranties.

B. All equipment provided under this Section shall be furnished with a two (2) year extended warranty on materials and workmanship from the date of Substantial Completion. The Owner will return any equipment found defective to the manufacturer for inspection and validation of the defect. Defective equipment will be repaired or replaced at manufacturer's discretion and shipped back to Owner at no charge. The maximum cumulative liability to the SBR system manufacturer shall not exceed 100% of the purchase price of the equipment.

END OF SECTION 463333

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MASON COUNTY PUBLIC SERVICE DISTRICT

ISSUED FOR BIDDING PLANS FOR THE

APPLE GROVE WASTEWATER TREATMENT PLANT

SBR EQUIPMENT (VENDOR BID)

CONTRACT NO. 6

020-01631

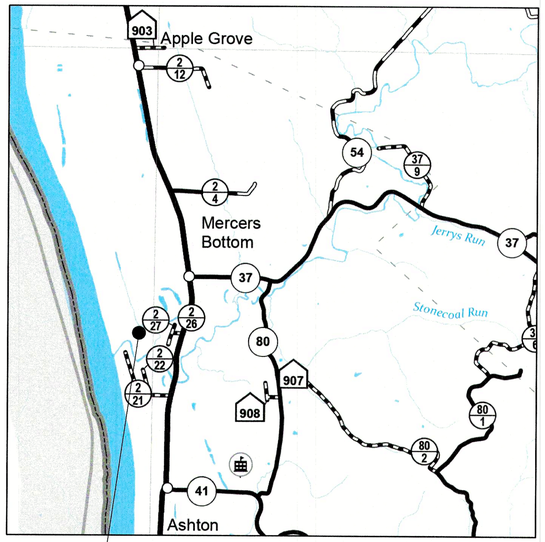
MASON COUNTY, WEST VIRGINIA

JUNE 2023

ADDENDUM NO. 1

SHEET INDEX

SHEET	DESCRIPTION
COVER	COVER SHEET
1	ENLARGED OVERALL PROPOSED SITE LAYOUT
2	SBR # 1 & 2, POST EQ AND DIGESTER - BASIN LAYOUT PLAN
3	SBR # 1 & 2, POST EQ AND DIGESTER - EQUIPMENT LAYOUT PLAN
4	SBR # 1 & 2, POST EQ AND DIGESTER - SECTIONS AND DETAILS
5	SBR # 1 VALVE VAULT - PLAN AND SECTIONS
6	SBR # 2 VALVE VAULT - PLAN AND SECTIONS
7	SBR # 1 & 2, POST EQ AND DIGESTER - MIXER AND CABLE MOORING DETAILS
8	SBR # 1 & 2, POST EQ AND DIGESTER - FLOATING DECANTER PLAN AND SECTION
9	SBR # 1 & 2, POST EQ AND DIGESTER - FINE AND COARSE BUBBLE DIFFUSER DETAILS
10	SBR # 1 & 2, POST EQ AND DIGESTER - TRANSFER PUMP AND TYPICAL BASIN SECTIONS
11	SBR # 1 & 2, POST EQ AND DIGESTER - DIGESTER VALVE VAULT PLAN AND SECTION
12	SBR # 1 & 2, POST EQ AND DIGESTER - LEVEL CONTROL AND PROBE DETAILS
13	SBR # 1 & 2, POST EQ AND DIGESTER - LEVEL CONTROL AND PROBE DETAILS
14	SBR # 1 & 2, POST EQ AND DIGESTER - BLOWER PLAN AND SECTIONS
15	SBR # 1 & 2, POST EQ AND DIGESTER - BLOWER DETAILS



CHAIRPERSON: BETH LANIER
BOARD MEMBER: MICHAEL WILLIAMS
BOARD MEMBER: WILLIAM ZUSPAN
GENERAL MANAGER: BRENT CLARK
ASS. GENERAL MANAGER: JOHN LIPKE

IJDC # 2022S-2090
USEDA # 01-79-15320
USACE # 476054

WEST VIRGINIA 811

CONTRACTOR SHALL NOTIFY THE ONE-CALL SYSTEM OF THE INTENDED EXCAVATION OR DEMOLITION NOT LESS THAN FORTY-EIGHT (48) HOURS, EXCLUDING SATURDAYS, SUNDAYS AND LEGAL FEDERAL OR STATE HOLIDAYS, NOR MORE THAN TEN (10) WORK DAYS PRIOR TO THE BEGINNING OF SUCH WORK.
CALL811.COM/811-IN-YOUR-STATE

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PHONE: (304) 675-8940 | FAX: (304) 675-5930
101 CAMDEN AVENUE
POINT PLEASANT, W.V. 25550

CONTACTS

CLIENT'S CONTACT
MASON COUNTY PSD
GENERAL MANAGER
ATTN: BRENT L. CLARK
(304) 532-2699

CHARLESTON, WV OFFICE
1000 CORPORATE LANDING
CHARLESTON, WV 25311
(304) 343-7601

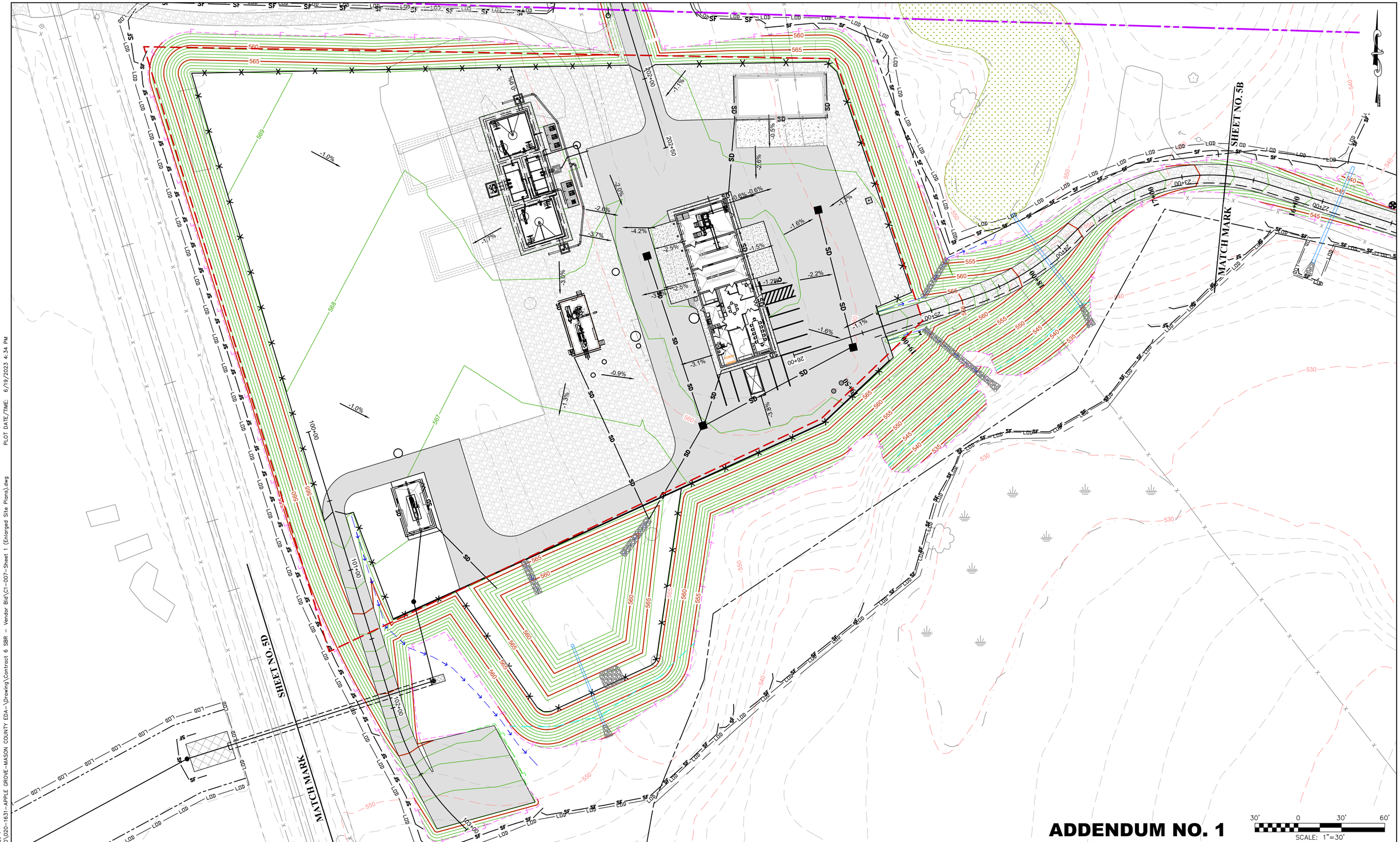
ENGINEER
THE THRASHER GROUP
PROJECT MANAGER
ATTN: JONATHAN CARPENTER
(304) 553-6429

PLAN REPRODUCTION WARNING

THESE PLANS ARE INTENDED TO BE PLOTTED ON ANSI D (22" X 34") SHEETS. FOR REDUCTIONS, REFER TO GRAPHIC SCALE. THESE PLANS HAVE BEEN CREATED FOR FULL COLOR PLOTTING. ANY SET OF THESE PLANS THAT IS NOT PLOTTED IN FULL COLOR SHALL NOT BE CONSIDERED ADEQUATE FOR CONSTRUCTION PURPOSES. **WARNING**. INFORMATION MAY BE LOST IN COPYING AND/OR GRAY SCALE PLOTTING.

JONATHAN CARPENTER, WV P.E. # 15425

☒	ISSUED FOR PERMITS	DATE: 6/20/2023	BY: JLC
☐	ISSUED FOR BID	DATE: _____	BY: _____
☐	ISSUED FOR CONSTRUCTION	DATE: _____	BY: _____



NO.	BY	DATE	DESCRIPTION
1	BSQ	JUNE 2023	ADDENDUM NO. 1 (VENDOR BID)

SCALE: AS SHOWN
DRAWN: B. QUERREY DATE: JUNE 2023
CHECKED: D. ELKINS DATE: JUNE 2023
APPROVED: J. CARPENTER DATE: JUNE 2023
SURVEY DATE:
SURVEY BY:
FIELD BOOK No.:

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PHONE (304) 343-7601 •FAX (304) 343-7604

PHASE No.
CONTRACT No. 6
PROJECT No. 020-01631

MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)

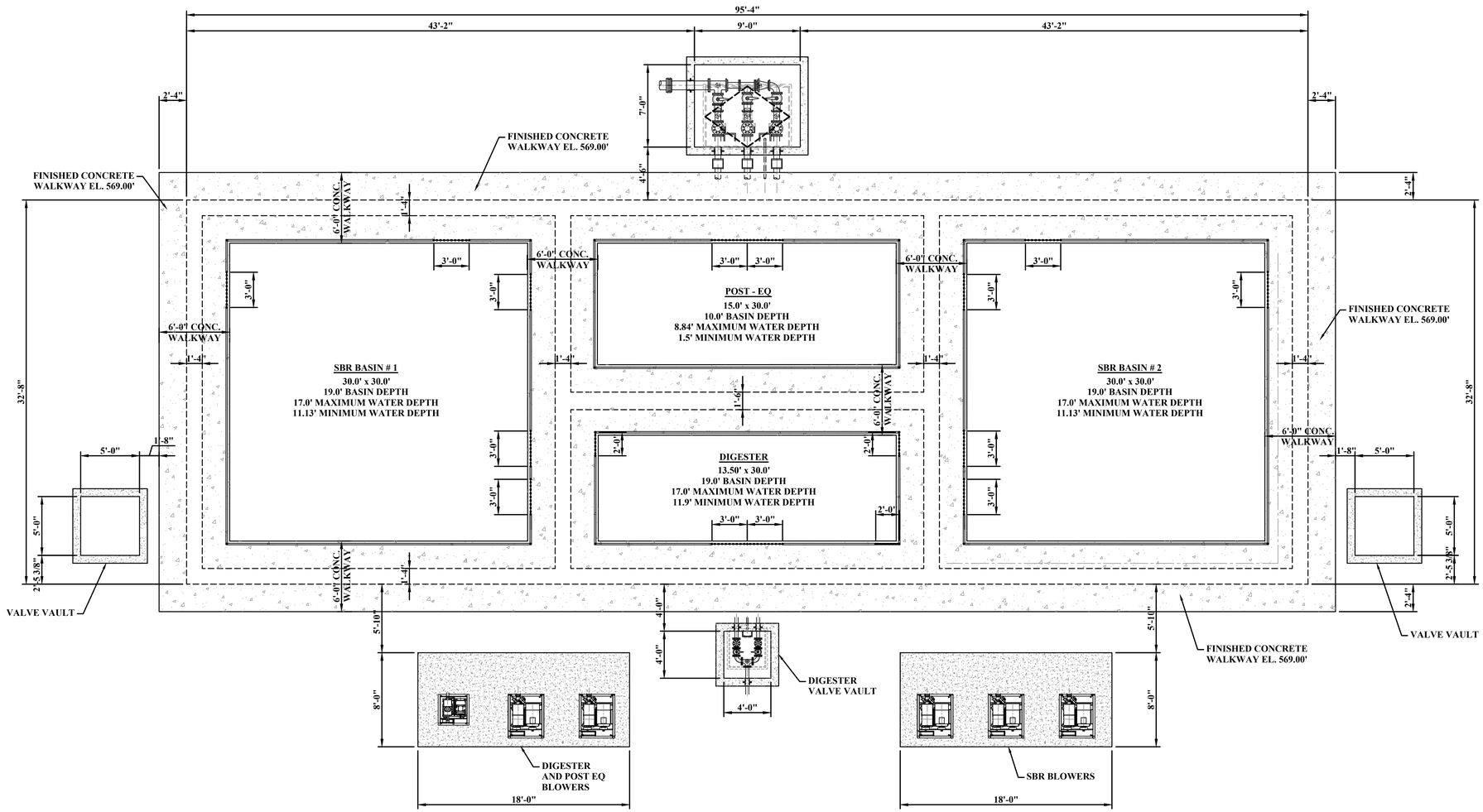
ENLARGED OVERALL PROPOSED SITE LAYOUT

SHEET No. 1

PLOT DATE/TIME: 6/19/2023 4:34 PM
LAYOUT TAB: Sheet 1
CAD FILE: R:\020\020-1631-APPLE GROVE-MASON COUNTY EDA-\Drawing\Contract 6 SBR - Vendor Bid\C1-007-Sheet 1 (Enlarged Site Plans).dwg

NOTES:

1. PRIOR TO ORDERING MATERIALS CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, SIZES, AND ACTUAL CONDITIONS. NOTIFY THE ENGINEER IMMEDIATELY SHOULD CONDITIONS DIFFER FROM SHOWN.
2. ALL ABOVE GRADE OR IN VAULT PIPING, VALVES, AND FITTINGS SHALL BE PAINTED, SEE SPECIFICATION 099010 FOR DETAILS.
3. PROVIDE OPENINGS IN HAND RAILS TO ACCESS EQUIPMENT (WIDTHS AS INDICATED). SECURE OPENINGS W/ 3/16" S.S. CHAIN W/SWIVEL AND SNAP HOOKS. FASTEN CHAIN POST W/S.S. EYE-BOLTS. PROVIDE CHAIN AT BOTH TOP AND INTERMEDIATE RAILS.
4. ALL PIPE PENETRATIONS SHALL BE MADE BY THE CONTRACTOR AND USE A LINK SEAL, SEE SHEET 6B FOR PIPE PENETRATION ELEVATIONS.
5. BASIN LEAK INSPECTION INCLUDING WATER SUPPLY, DISPOSAL OF WATER, AND PIPE PLUGS IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. INSTALL/ATTACH ALL EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS.
7. INSTALL WARNING SIGNS @ THE SBR BASIN AS WELL AS IN THE CONTROL ROOM TO KEEP SBR BASINS ABOVE LOW WATER LEVELS DURING RAIN EVENTS OR DURING TIMES OF ELEVATED GROUND WATER LEVEL.
8. ALL ITEMS LABELED AS "FUTURE" ARE FOR REFERENCE ONLY AND NOT TO BE INSTALLED/PROVIDED DURING INITIAL CONSTRUCTION.
9. IF BASINS WITH SLOPED FLOORS ARE UTILIZED, SUPPLY GROUT PADS BENEATH THE PROPOSED EQUIPMENT TO PROVIDE A LEVEL INSTALLATION ELEVATION FOR THE EQUIPMENT.



SBR PLAN VIEW

ADDENDUM NO. 1

NO.	BY	DATE	DESCRIPTION
1	BSQ	JUNE 2023	ADDENDUM NO. 1 (VENDOR BID)

SCALE: AS SHOWN	
DRAWN: B. QUERREY	DATE: JUNE 2023
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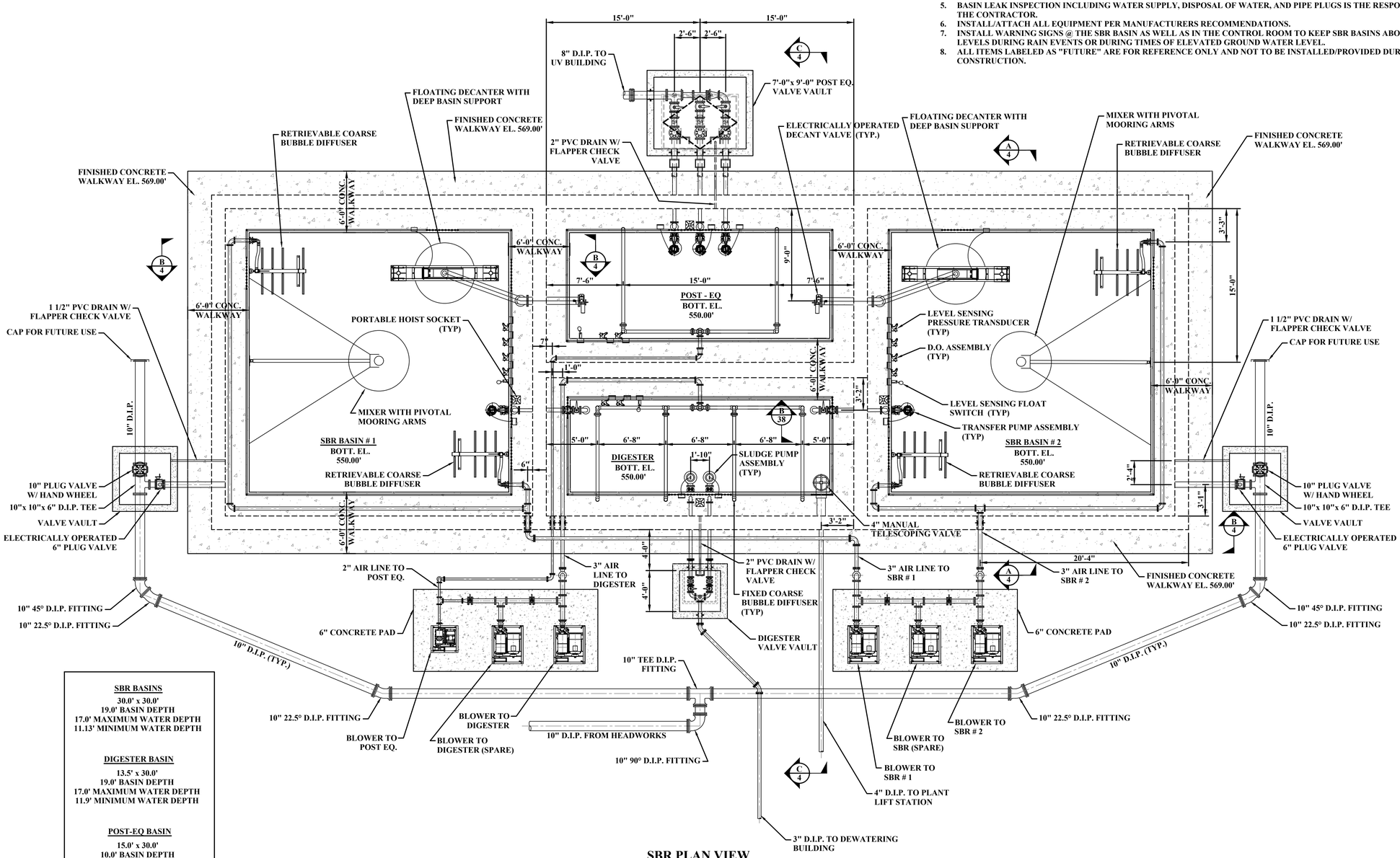
PHASE No.	
CONTRACT No.	6
PROJECT No.	020-01631

MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
BASIN LAYOUT PLAN

SHEET No. 2

NOTES:

1. PRIOR TO ORDERING MATERIALS CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, SIZES, AND ACTUAL CONDITIONS. NOTIFY THE ENGINEER IMMEDIATELY SHOULD CONDITIONS DIFFER FROM SHOWN.
2. ALL ABOVE GRADE OR IN VAULT PIPING, VALVES, AND FITTINGS SHALL BE PAINTED, SEE SPECIFICATIONS FOR DETAILS.
3. PROVIDE OPENINGS IN HAND RAILS TO ACCESS EQUIPMENT (WIDTHS AS INDICATED). SECURE OPENINGS W/ 3/16" S.S. CHAIN W/SWIVEL AND SNAP HOOKS. FASTEN CHAIN POST W/S.S. EYE-BOLTS. PROVIDE CHAIN AT BOTH TOP AND INTERMEDIATE RAILS.
4. ALL PIPE PENETRATIONS SHALL BE MADE BY THE CONTRACTOR AND USE A LINK SEAL, SEE SHEET NO. 38 FOR PIPE PENETRATION ELEVATIONS.
5. BASIN LEAK INSPECTION INCLUDING WATER SUPPLY, DISPOSAL OF WATER, AND PIPE PLUGS IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. INSTALL/ATTACH ALL EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS.
7. INSTALL WARNING SIGNS @ THE SBR BASIN AS WELL AS IN THE CONTROL ROOM TO KEEP SBR BASINS ABOVE LOW WATER LEVELS DURING RAIN EVENTS OR DURING TIMES OF ELEVATED GROUND WATER LEVEL.
8. ALL ITEMS LABELED AS "FUTURE" ARE FOR REFERENCE ONLY AND NOT TO BE INSTALLED/PROVIDED DURING INITIAL CONSTRUCTION.



SBR PLAN VIEW

SBR BASINS
30.0' x 30.0'
19.0' BASIN DEPTH
17.0' MAXIMUM WATER DEPTH
11.13' MINIMUM WATER DEPTH

DIGESTER BASIN
13.5' x 30.0'
19.0' BASIN DEPTH
17.0' MAXIMUM WATER DEPTH
11.9' MINIMUM WATER DEPTH

POST-EQ BASIN
15.0' x 30.0'
10.0' BASIN DEPTH
8.84' MAXIMUM WATER DEPTH
1.5' MINIMUM WATER DEPTH

ADDENDUM NO. 1

NO.	BY	DATE	DESCRIPTION
1	BSQ	JUNE 2023	ADDENDUM NO. 1 (VENDOR BID)

SCALE: AS SHOWN
DRAWN: B. QUERREY DATE: JUNE 2023
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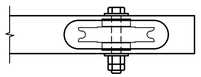
PHASE No.
CONTRACT No. 6
PROJECT No. 020-01631

MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
EQUIPMENT LAYOUT PLAN

SHEET No. 3

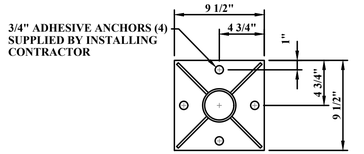
CABLE DETAIL

SCALE: NTS



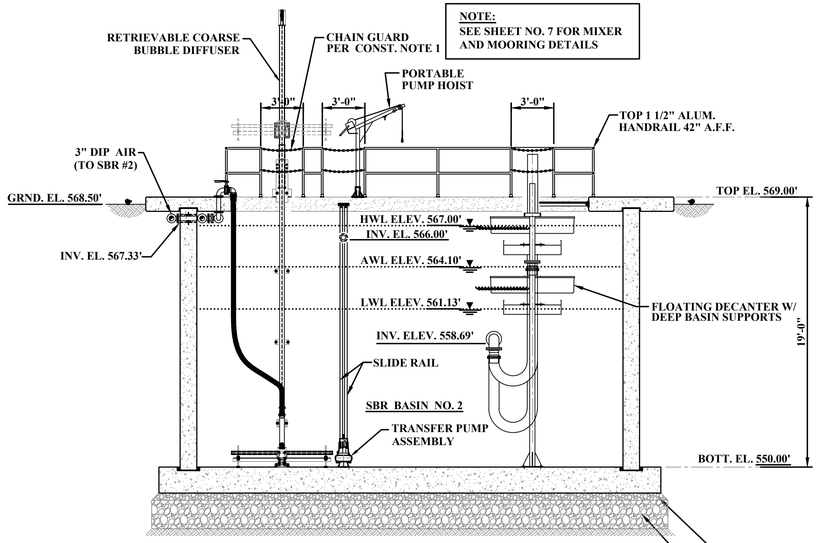
VIEW A-A

SCALE : NTS



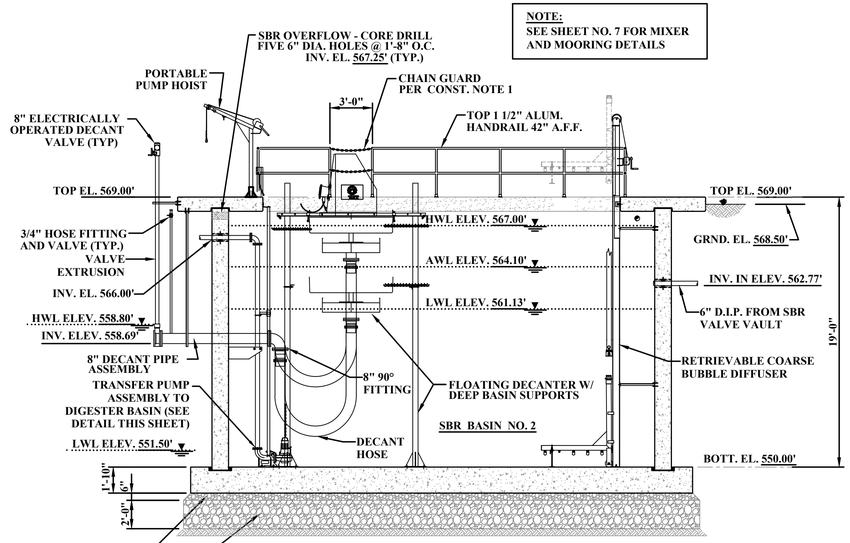
SOCKET BASE ANCHOR DETAIL

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



A/3 SBR BASIN SECTION

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



B/3 SBR BASIN SECTION

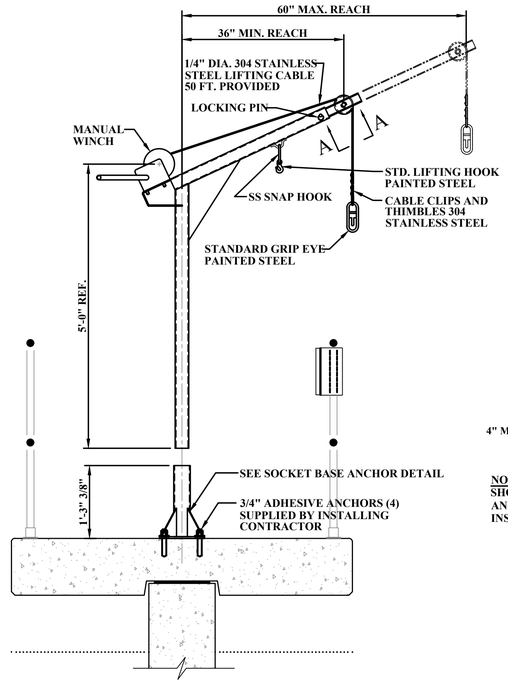
SCALE : 3/16" = 1'-0"

CONSTRUCTION NOTES:

1. PROVIDE OPENINGS IN HAND RAILS TO ACCESS EQUIPMENT (WIDTHS AS INDICATED). SECURE OPENINGS W/ 3/16" S.S. CHAIN W/SWIVEL AND SNAP HOOKS. FASTEN CHAIN POST W/S.S. EYE BOLTS. PROVIDE CHAIN AT BOTH TOP AND INTERMEDIATE RAILS.
2. ALL ITEMS LABELED AS "FUTURE" SHALL BE INSTALLED/PROVIDED DURING INITIAL CONSTRUCTION.

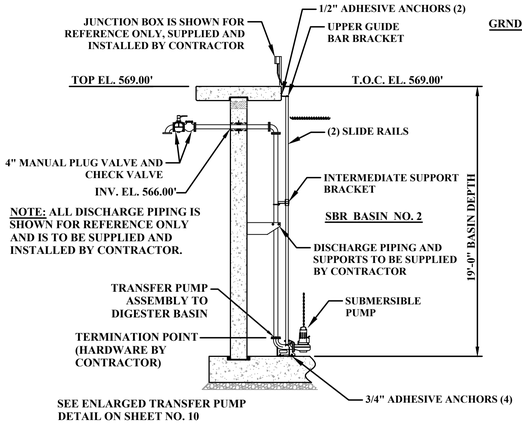
NOTE:

1. EXTERIOR GRADE ELEVATIONS ARE SHOWN AS APPROXIMATE.



PORTABLE HOIST ASSEMBLY VIEW

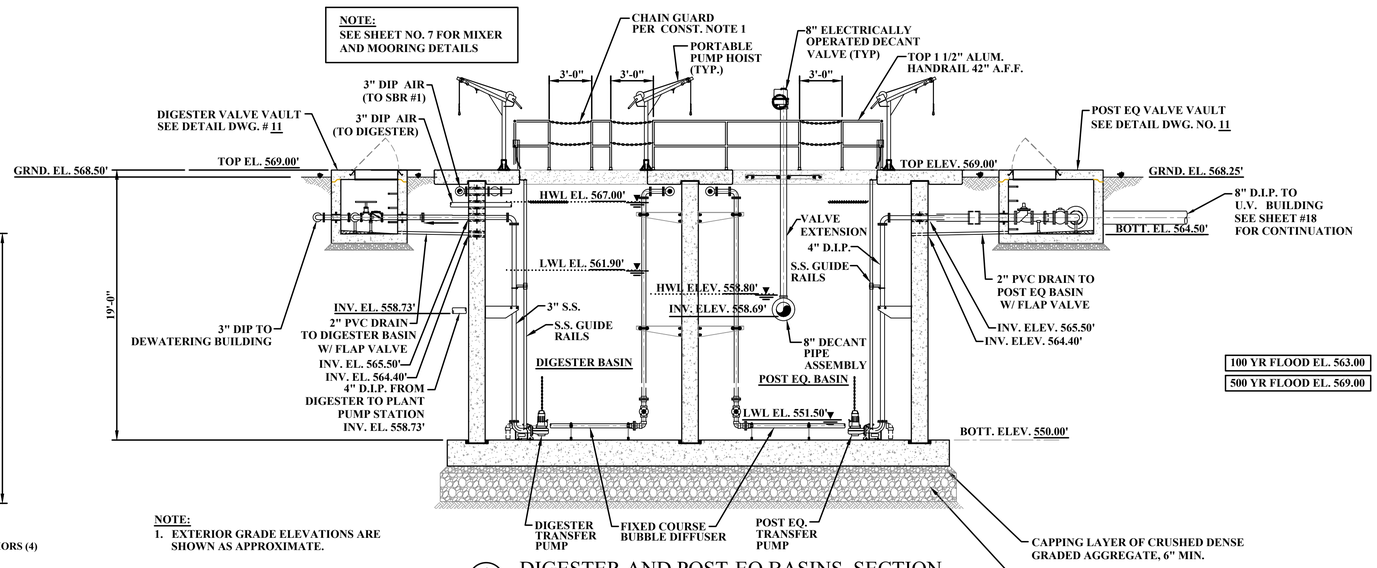
SCALE : 3/4"=1'-0"



SEE ENLARGED TRANSFER PUMP
DETAIL ON SHEET NO. 10

TRANSFER PUMP ASSEMBLY DETAILS

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



NOTE:

1. EXTERIOR GRADE ELEVATIONS ARE SHOWN AS APPROXIMATE.

C/3 DIGESTER AND POST-EQ BASINS SECTION

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

ADDENDUM NO. 1

NO.	BY	DATE	DESCRIPTION
1	BSQ	JUNE 2023	ADDENDUM NO. 1 (VENDOR BID)

SCALE: AS SHOWN	
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APPROVED: J. CARPENTER	DATE: JUNE 2023
SURVEY DATE:	
SURVEY BY:	
FIELD BOOK No.:	

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PHASE No.	
CONTRACT No.	6
PROJECT No.	020-01631

MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
SECTIONS AND DETAILS

SHEET No. 4

PLOT DATE/TIME: 6/20/2023 3:36 PM
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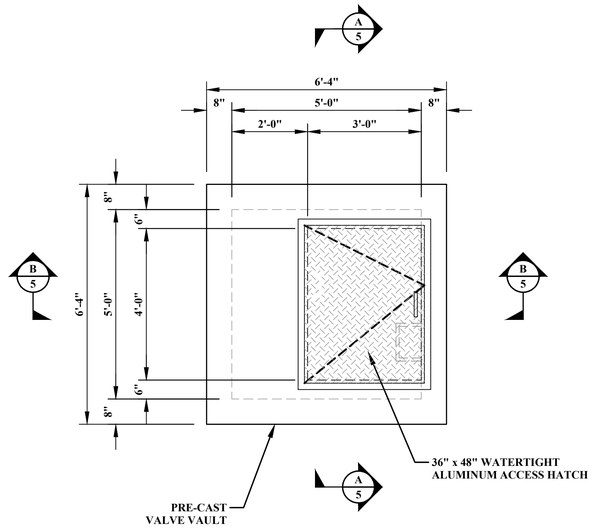

SBR # 1 VALVE VAULT

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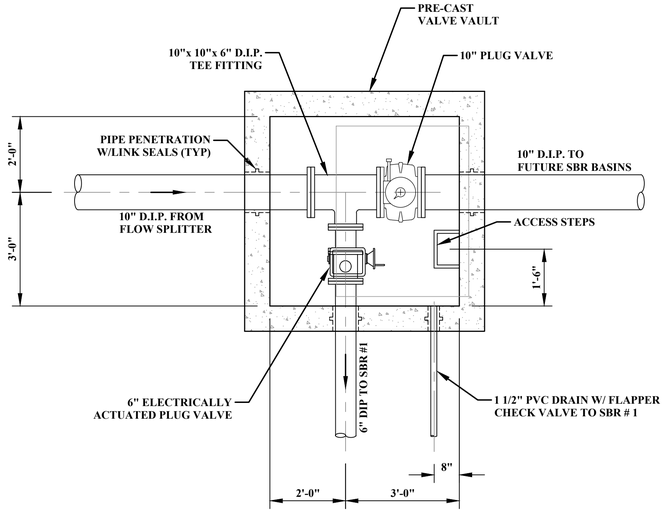
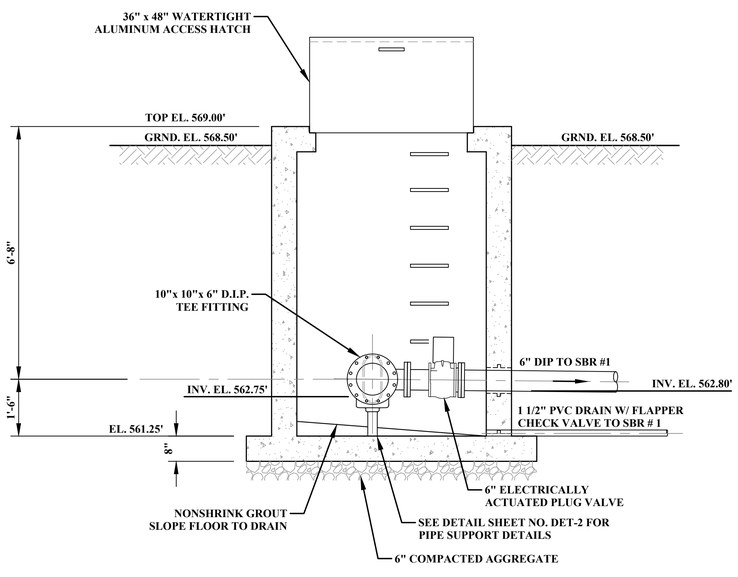


PLAN

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



A/5 **SECTION**

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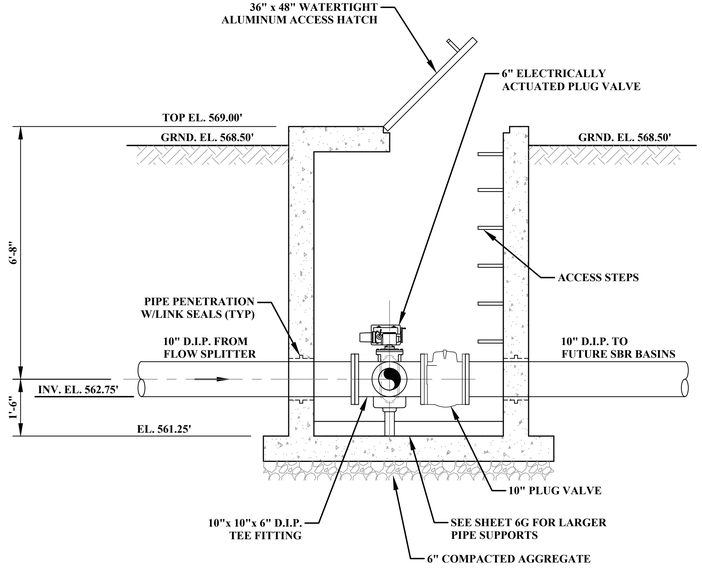

B/5 **SECTION**

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

ADDENDUM NO. 1

NO.	BY	DATE	DESCRIPTION
1	BSQ	JUNE 2023	ADDENDUM NO. 1 (VENDOR BID)

SCALE: AS SHOWN
DRAWN: B. QUERREY DATE: JUNE 2023
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SURVEY DATE:
SURVEY BY:
FIELD BOOK No.:

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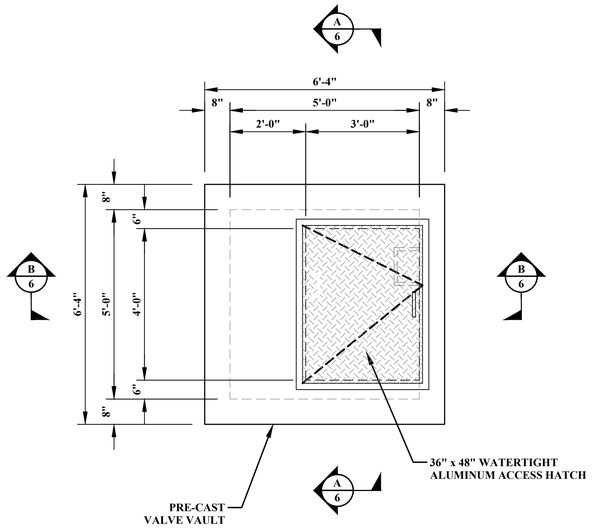
PHASE No.

CONTRACT No.
6

PROJECT No.
020-01631

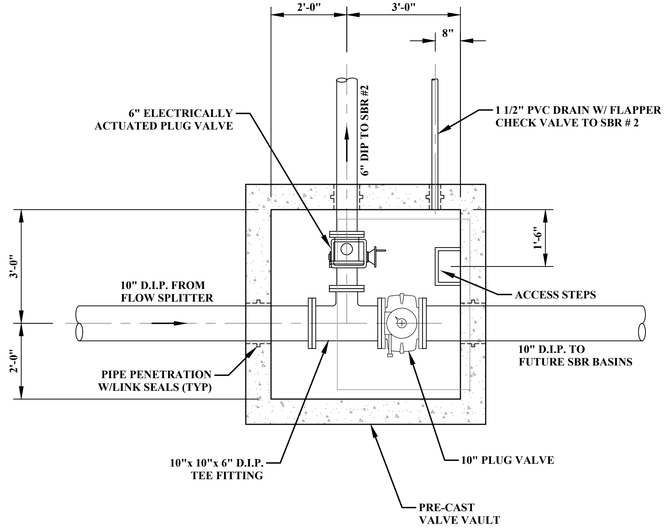
MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR #1 VALVE VAULT
PLAN AND SECTIONS

SHEET No.
5



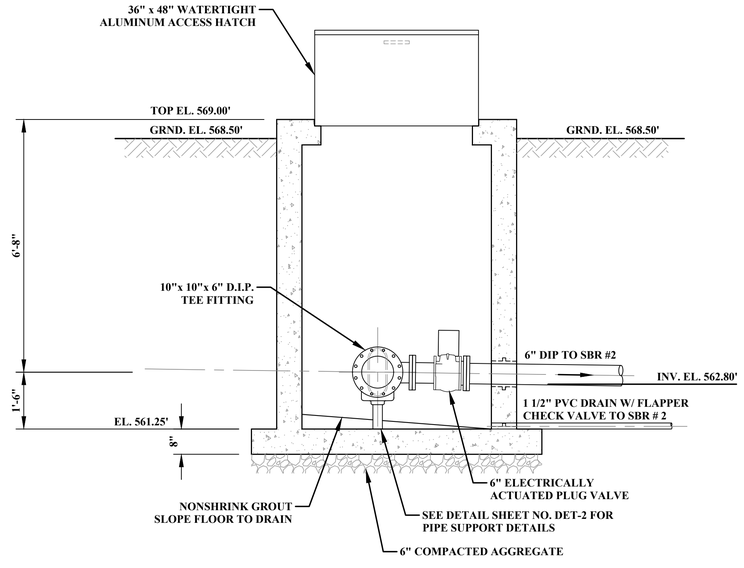
SBR # 2 VALVE VAULT

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



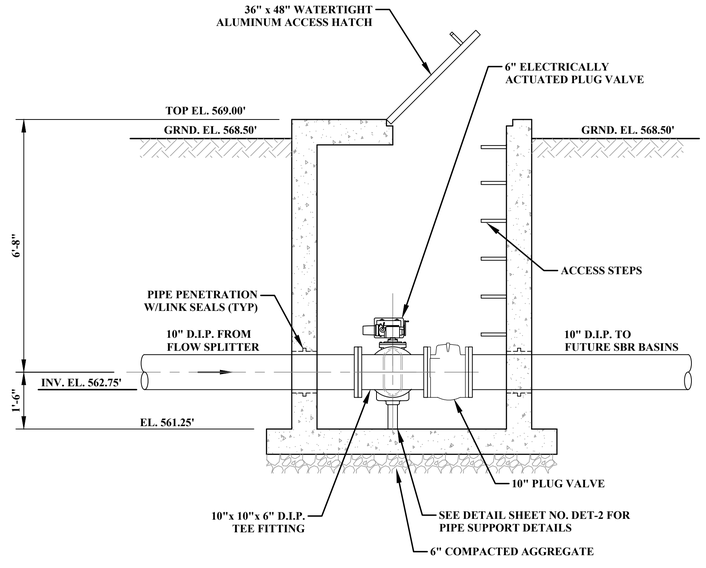
PLAN

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



A 6 **SECTION**

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



B 6 **SECTION**

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

ADDENDUM NO. 1

NO.	BY	DATE	DESCRIPTION
1	BSQ	JUNE 2023	ADDENDUM NO. 1 (VENDOR BID)

SCALE: AS SHOWN	
DRAWN: B. QUERREY	DATE: JUNE 2023
CHECKED: D. ELKINS	DATE: JUNE 2023
APPROVED: J. CARPENTER	DATE: JUNE 2023
SURVEY DATE:	
SURVEY BY:	
FIELD BOOK No.:	

THRASHER
THE THRASHER GROUP INC.
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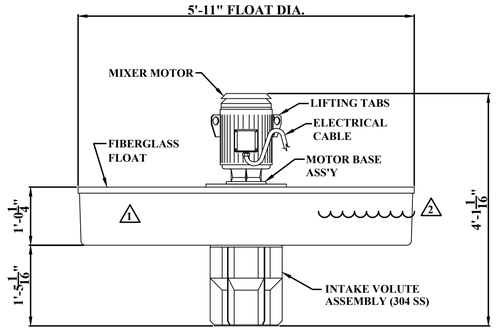
1000 CORPORATE LANDING, CHARLESTON, WV 25311
PHONE (304) 343-7601 • FAX (304) 343-7604

PHASE No.	
CONTRACT No.	6
PROJECT No.	020-01631

MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR #2 VALVE VAULT
PLAN AND SECTIONS

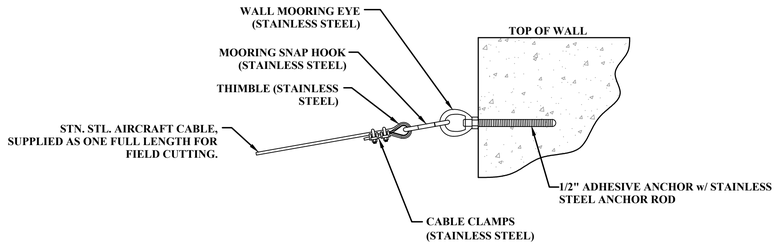
SHEET No. **6**



1 TWO COMPONENT POLYURETHANE FOAM FILLED FLOAT ASS'Y. TWO LBS.PER CUBIC FOOT DENSITY.

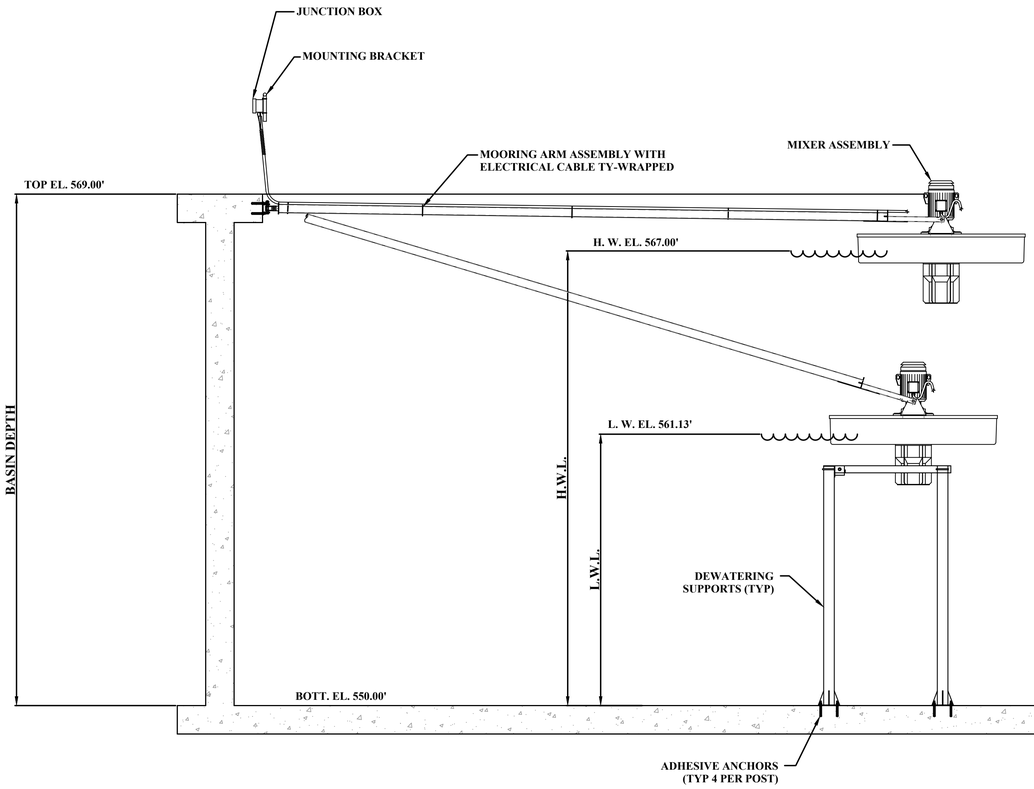
2 APPROXIMATE OPERATING WATER LEVEL 7".

MIXER DETAIL

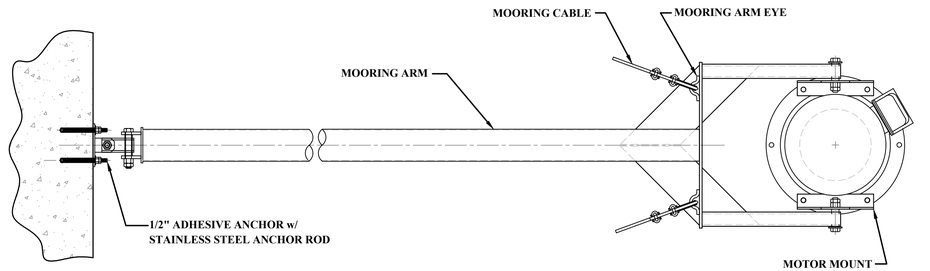


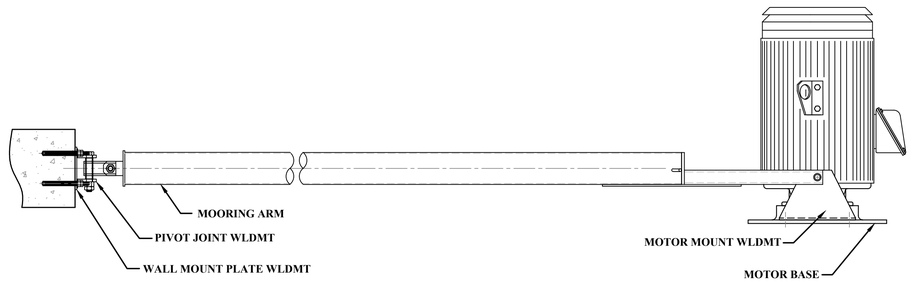
MAINTENANCE CABLE DETAIL

NOTE: POLYPROPYLENE MAINTENANCE LOOP PROVIDED TO ALLOW UNIT TO BE ACCESSED TO SIDE OF BASIN OR TO ALLOW UNIT TO REST ON BASIN FLOOR IN DEWATERED POSITION.



MIXER OPERATIONAL VIEW





TYPICAL MIXER MOORING ARM DETAILS

NOTE: TY-WRAP ELECTRICAL CABLE TO ARM
N.T.S.

ADDENDUM NO. 1

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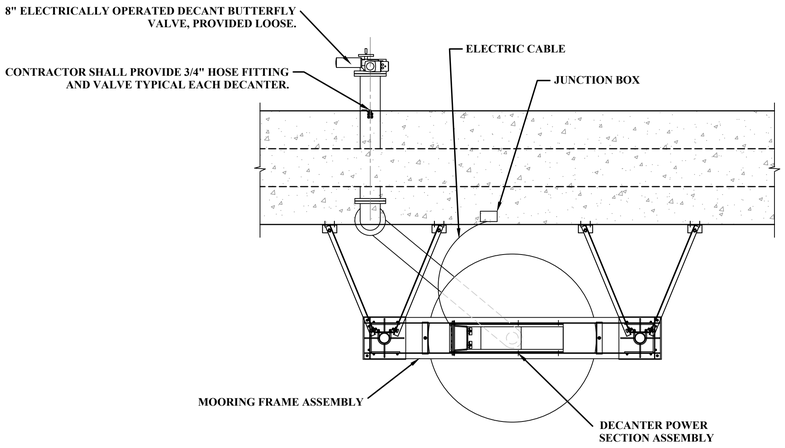
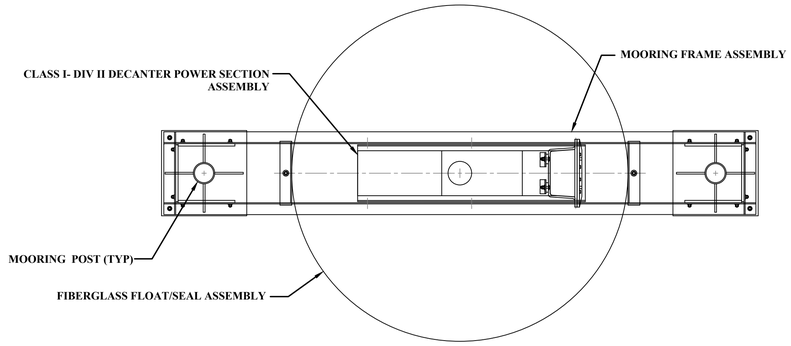
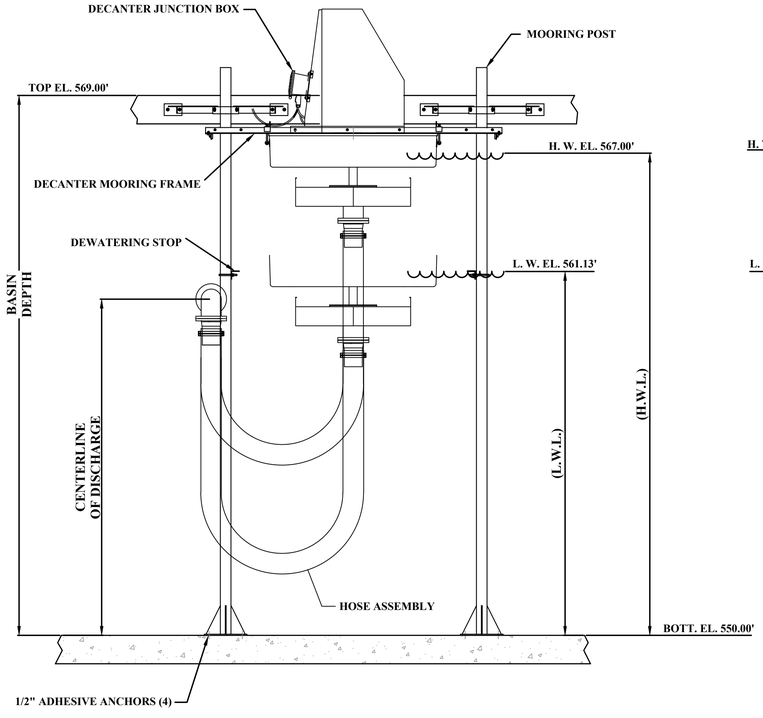
MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
MIXER AND CABLE MOORING DETAILS

SHEET No. 7

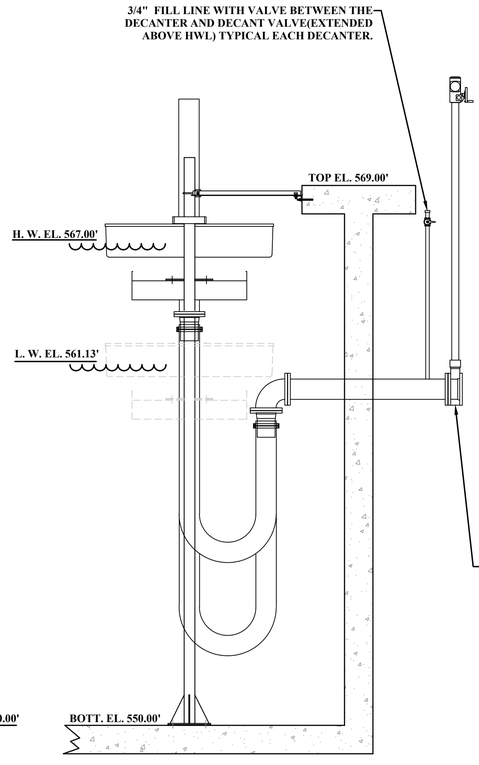




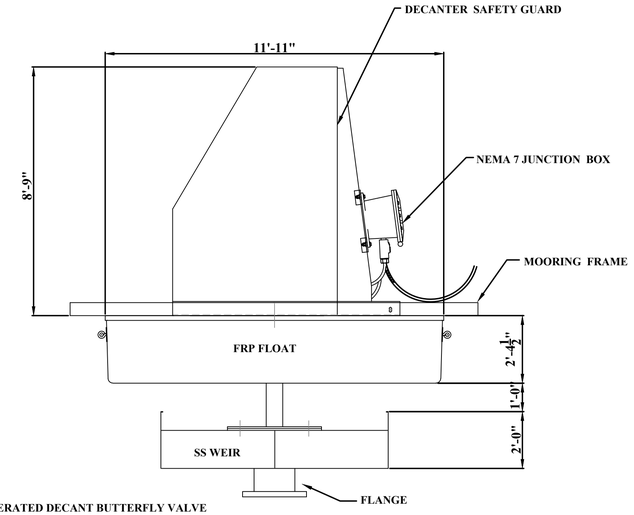
DECANTER PLAN VIEW
NOT TO SCALE



DECANTER FRONT VIEW
NOT TO SCALE



DECANTER SIDE VIEW
NOT TO SCALE



DECANTER DETAIL
NOT TO SCALE

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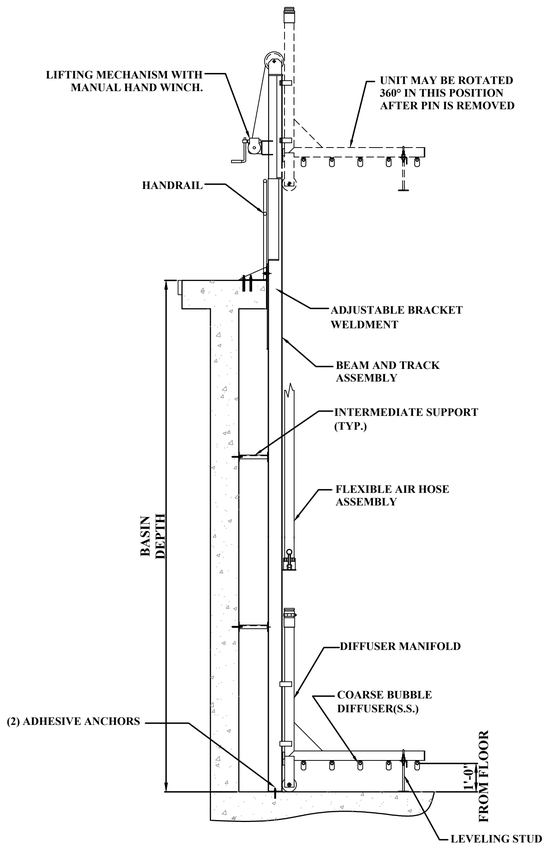
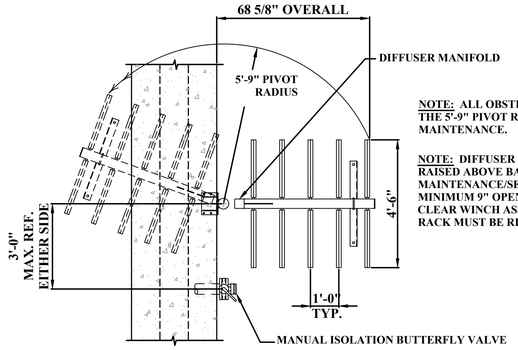
MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
FLOATING DECANTER PLAN AND SECTIONS

SHEET No. 8



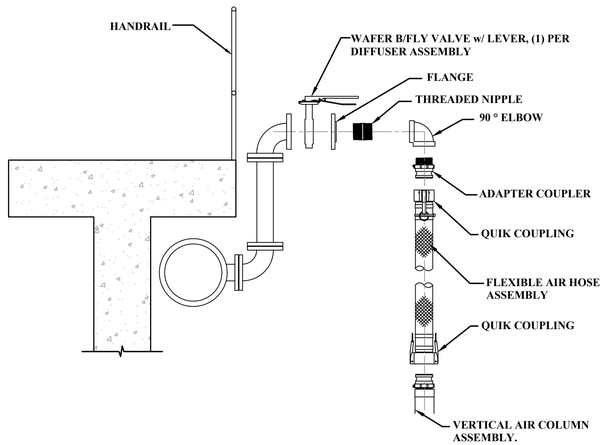
DIFFUSER OPERATIONAL VIEW
NOT TO SCALE



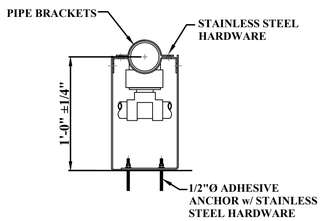
NOTE: ALL OBSTRUCTIONS MUST BE LOCATED OUTSIDE THE 5'-9" PIVOT RADIUS SHOWN TO ALLOW ROTATION FOR MAINTENANCE.

NOTE: DIFFUSER RACK SHOWN IN ELEVATED POSITION RAISED ABOVE BASIN WALL AND PIPING FOR MAINTENANCE/SERVICING. ALL HAND RAILING MUST HAVE A MINIMUM 9" OPENING ON BOTH SIDES OF DIFFUSER RACK TO CLEAR WINCH ASSEMBLY. ALL HANDRAILING BY DIFFUSER RACK MUST BE REMOVABLE FOR PIVOTING.

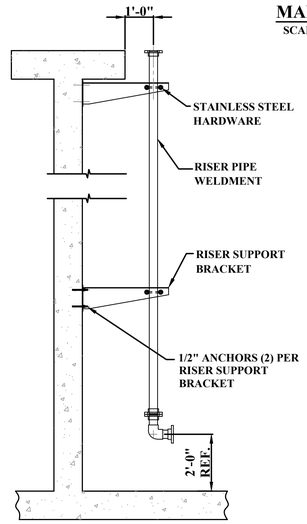
MAINTENANCE ROTATIONAL VIEW
DIFFUSER BANK SHOWN IN SERVICING POSITION AFTER BEING ELEVATED ABOVE THE BASIN WALL AND ROTATED 170 DEG. WITH THE LIFTING MECHANISM.



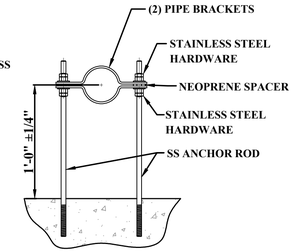
FLEXIBLE AIR LINE DETAIL
NOT TO SCALE



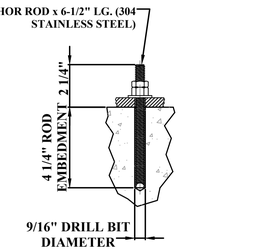
MANIFOLD BRACKET DETAIL
SCALE 1 1/2" = 1'-0"



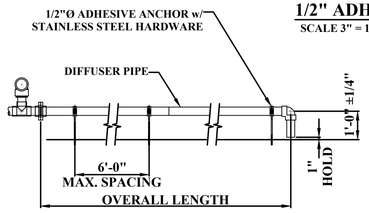
RISER PIPE DETAIL
NOT TO SCALE



DIFFUSER BRACKET DETAIL
SCALE 1 1/2" = 1'-0"



1/2" ADHESIVE ANCHOR DETAIL
SCALE 3" = 1'-0"



DIFFUSER BRACKET LAYOUT
NOT TO SCALE

NOTE: DIFFUSER ASSEMBLY MUST BE MOUNTED SUCH THAT THE DIFFUSER'S HOLES POINT STRAIGHT UP WITHIN +/- 1/4" FROM TRUE VERTICAL.

NOTE: ALL DIFFUSERS MUST BE ON THE SAME ELEVATION AND LEVEL WITHIN +/- 1/4".

NOTE: ALL PIPING AND HARDWARE BEYOND THE TERMINATION FLANGE IS BY OTHERS.

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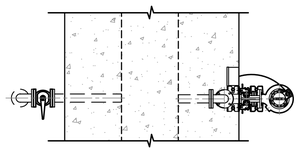
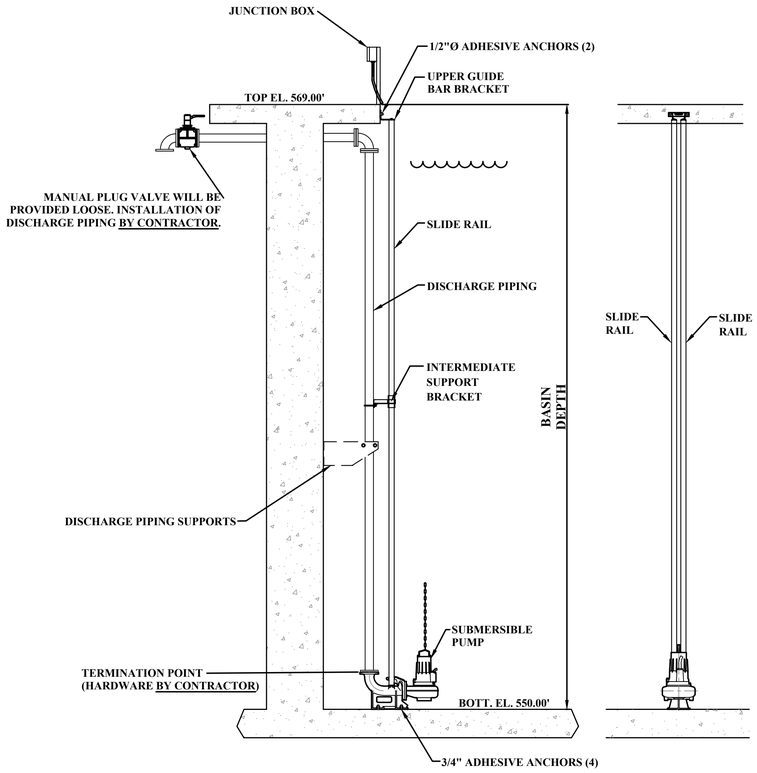
PHASE No.
CONTRACT No. 6
PROJECT No. 020-01631

MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
FINE & COARSE BUBBLE DIFFUSER DETAILS

SHEET No. 9

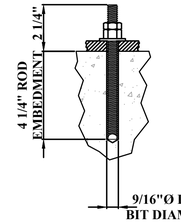
LAYOUT TAB: Sheet 9
CAD FILE: R:\020\020-1631-APPLE GROVE-MASON COUNTY EDA-\Drawing\Contract 6 SBR - Vendor Bid\C1-016-Sheet 4-15 (SBR, Pre EQ, Post EQ, Digester).dwg
PLOT DATE/TIME: 6/19/2023 3:15 PM



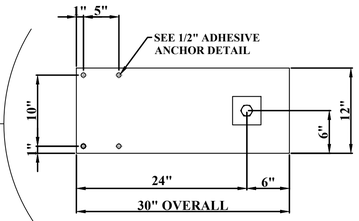


NOTE: ALL DISCHARGE PIPING IS SHOWN FOR REFERENCE ONLY AND IS TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.

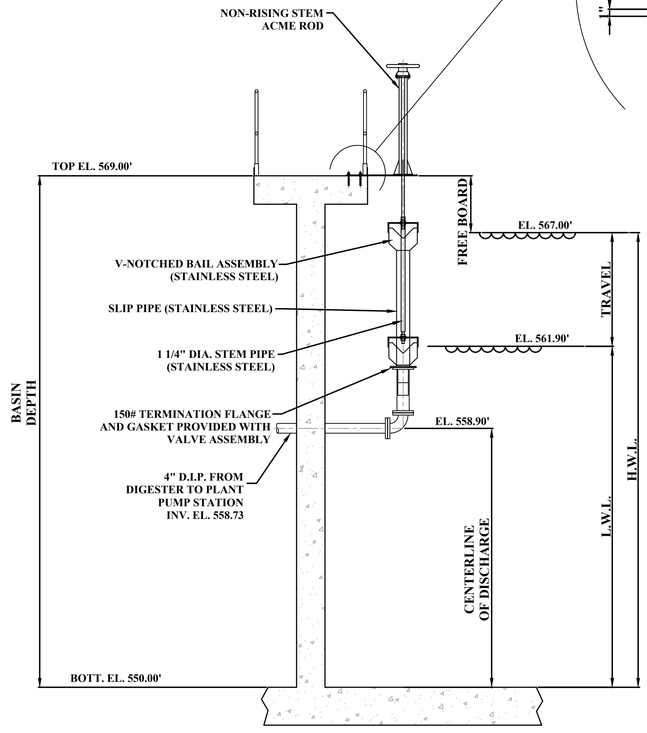
TRANSFER PUMP DETAIL
NOT TO SCALE



1/2" ADHESIVE ANCHOR DETAIL
NOT TO SCALE



BASE PLATE DETAIL
NOTE: ANCHORS MUST BE SET BACK A MINIMUM OF 3" FROM FACE OF WALL.



4" MANUAL TELESCOPING VALVE SECTION AND DETAILS
NOT TO SCALE

ADDENDUM NO. 1

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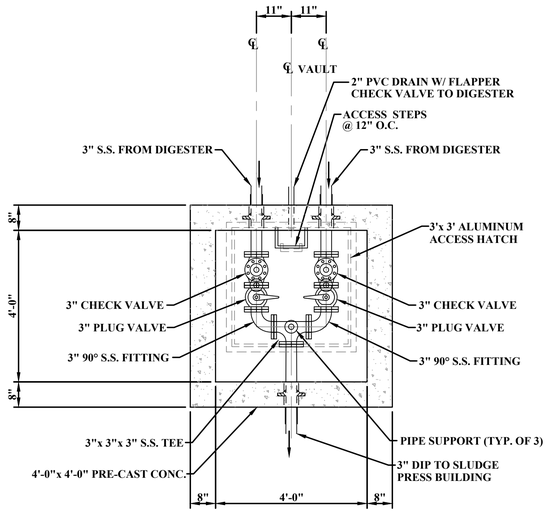
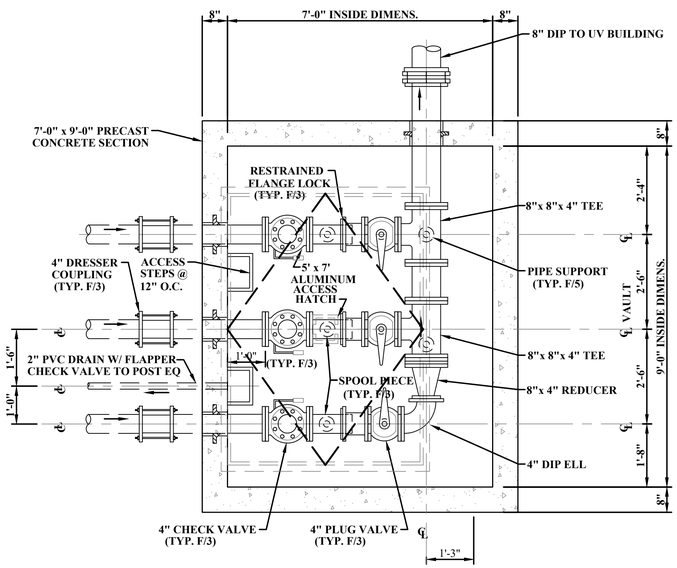
MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
TRANSFER PUMP & TYPICAL BASIN SECTIONS

SHEET No. 10

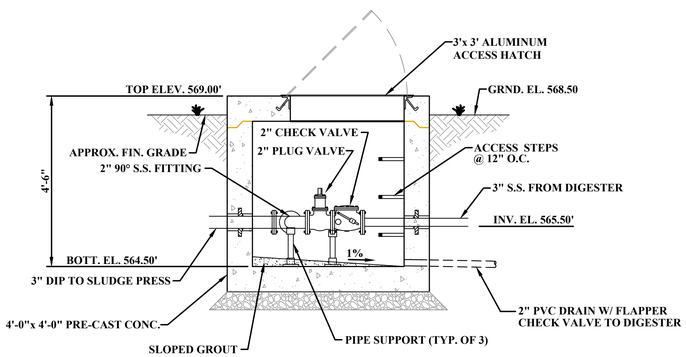
LAYOUT TAB: Sheet 10
CAD FILE: R:\020\020-1631-APPLE GROVE-MASON COUNTY EDA-\Drawing\Contract 6 SBR - Vendor Bid\C1-016-Sheet 4-15 (SBR, Pre EQ, Post EQ, Digester).dwg PLOT DATE/TIME: 6/19/2023 3:16 PM



PLAN

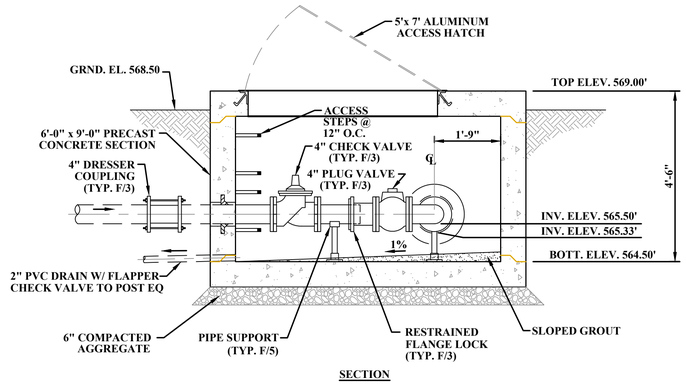


PLAN



DIGESTER VALVE VAULT

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



SECTION

POST-EQ VALVE VAULT

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

ADDENDUM NO. 1

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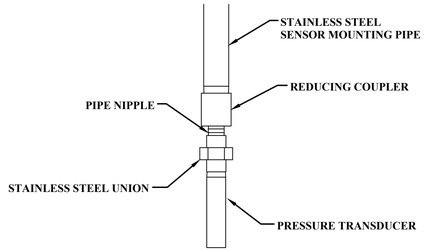
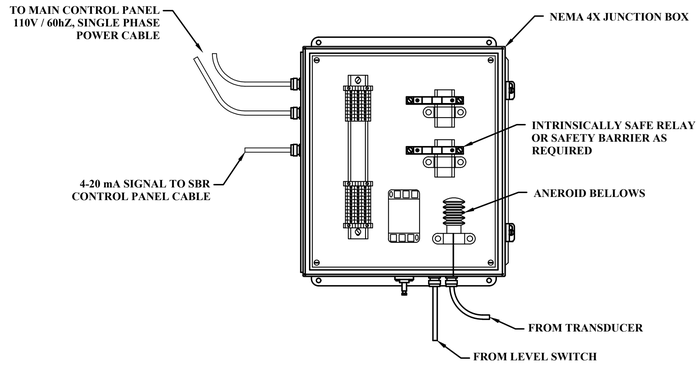
MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
DIGESTER VALVE VAULT PLAN AND SECTION

SHEET No. 11

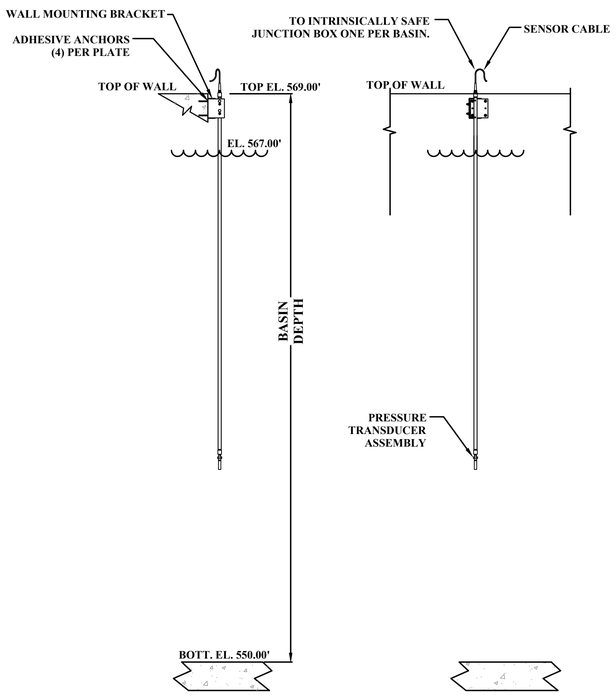


ENLARGED TRANSDUCER ASSEMBLY

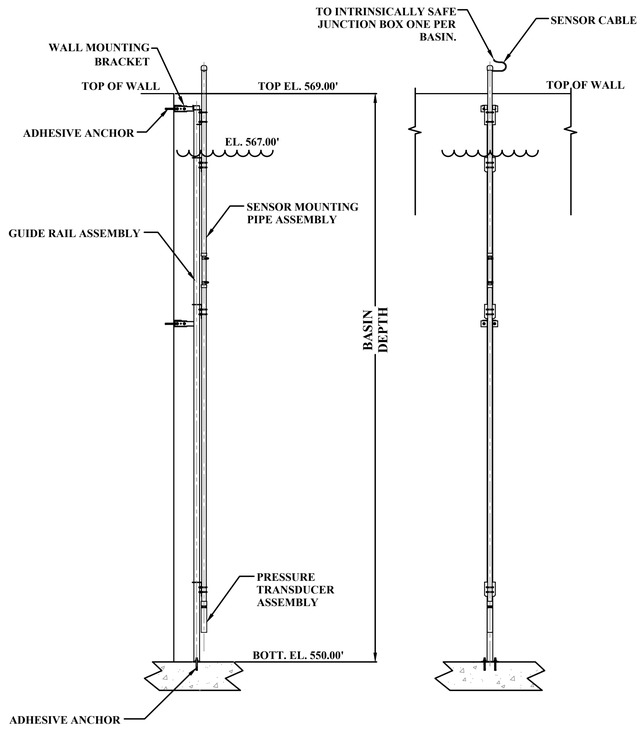


JUNCTION BOX DETAIL

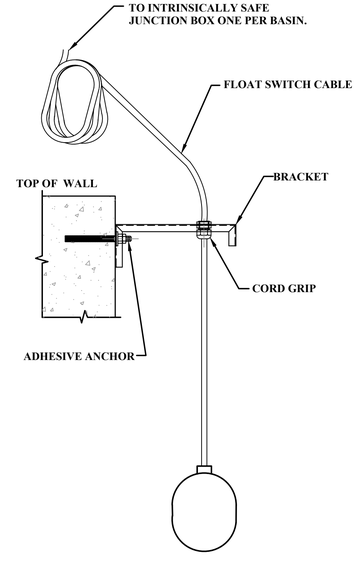
MOUNTED ABOVE
CLASSIFIED ENVELOPE



FIXED MOUNT PRESSURE TRANSDUCER DETAILS FOR SBR AND DIGESTER BASIN



RETRIEVABLE PRESSURE TRANSDUCER DETAILS FOR POST-EQ BASIN



FLOAT SWITCH DETAIL

ADDENDUM NO. 1

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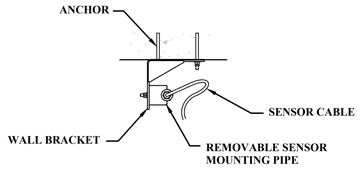
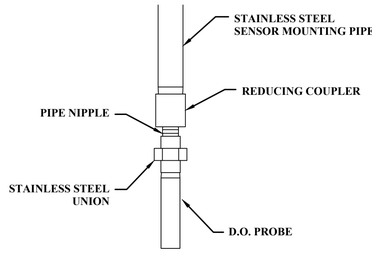
MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
LEVEL CONTROL AND PROBE DETAILS

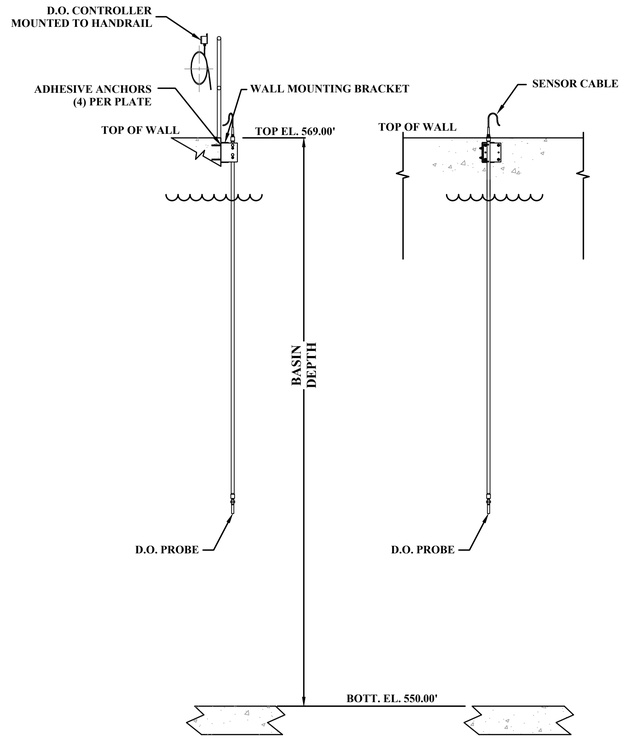
SHEET No. 12



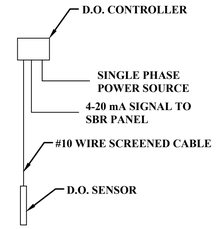
ENLARGED TOP VIEW



ENLARGED SENSOR ASSEMBLY



DISSOLVED OXYGEN PROBE DETAILS



DISSOLVED OXYGEN PROBE ELECTRICAL ONELINE

NOTE: PROCESS SENSOR IS NOT RATED FOR CLASS 1 DIVISION 1 SERVICE

ADDENDUM NO. 1

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CIVIL • ENVIRONMENTAL • CONSULTING • FIELD SERVICES
1000 CORPORATE LANDING, CHARLESTON, WV 25311
PHONE (304) 343-7601 • FAX (304) 343-7604

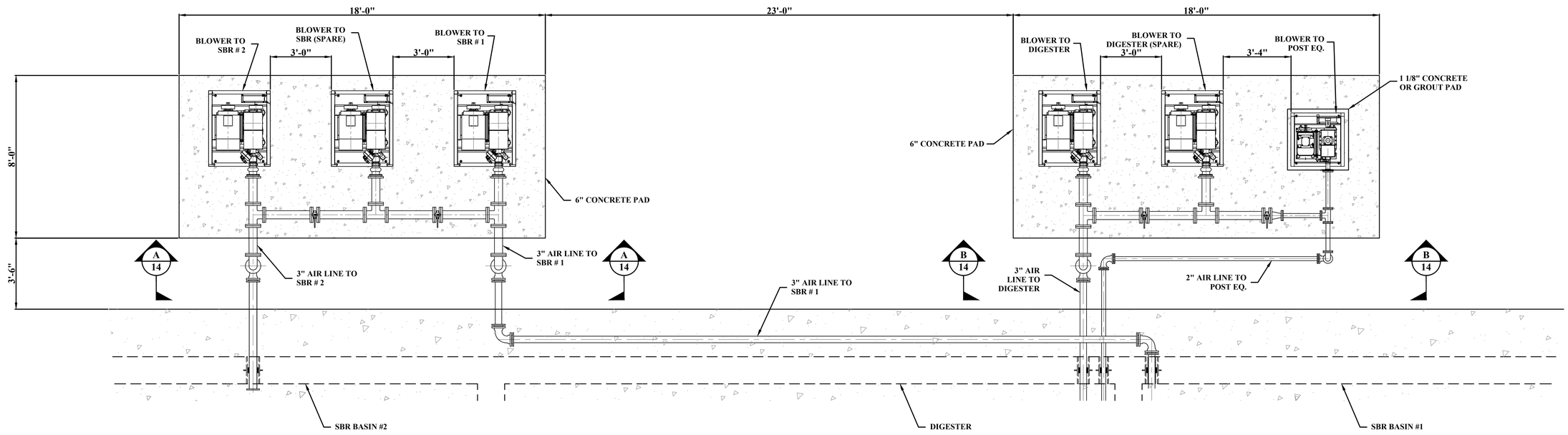
PHASE No.

CONTRACT No. 6

PROJECT No. 020-01631

MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
LEVEL CONTROL AND PROBE DETAILS

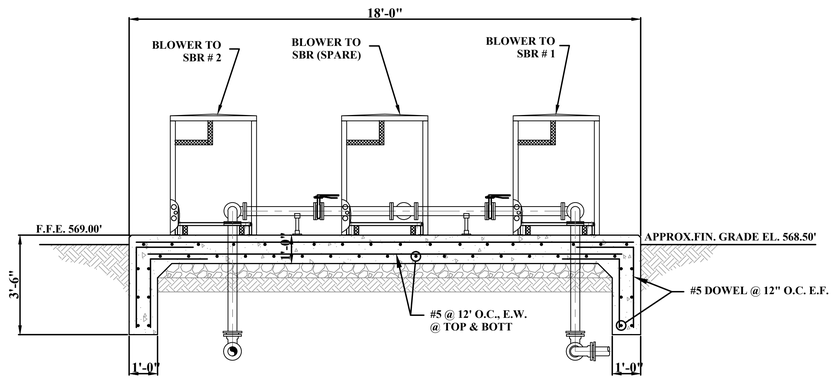
SHEET No. 13



BLOWER PLAN

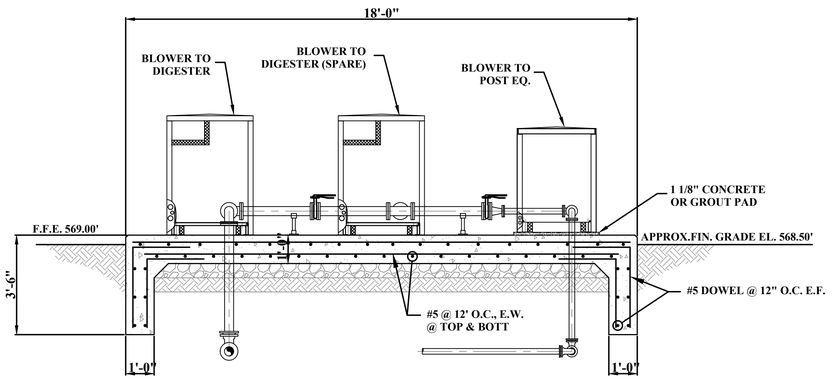
SCALE: 3/8" = 1'-0"

(NOTE: SEE SHT. NO. 15 FOR BLOWER DETAILS)



A 14 **BLOWER SECTION**

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



B 14 **BLOWER SECTION**

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

ADDENDUM NO. 1

NO.	BY	DATE	DESCRIPTION
1	BSQ	JUNE 2023	ADDENDUM NO. 1 (VENDOR BID)

SCALE: AS SHOWN
DRAWN: B. QUERREY DATE: JUNE 2023
CHECKED: D. ELKINS DATE: JUNE 2023
APPROVED: J. CARPENTER DATE: JUNE 2023
SURVEY DATE:
SURVEY BY:
FIELD BOOK No.:

THRASHER
THE THRASHER GROUP INC.
CIVIL • ENVIRONMENTAL • CONSULTING • FIELD SERVICES
1000 CORPORATE LANDING, CHARLESTON, WV 25311
PHONE (304) 343-7601 • FAX (304) 343-7604

PHASE No.

CONTRACT No. 6

PROJECT No. 020-01631

MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
BLOWER PLAN AND SECTIONS

SHEET No. 14

LAYOUT TAB: Sheet 14
CAD FILE: R:\020\020-1631-APPLE GROVE-MASON COUNTY EDA-\Drawing\Contract 6 SBR - Vendor Bid\C1-016-Sheet 4-15 (SBR, Pre EQ, Post EQ, Digester).dwg
PLOT DATE/TIME: 6/19/2023 2:57 PM

ITEM	QTY	DESCRIPTION	NOTE
100	1	BLOWER TORSO	GM3S, DN50
110	1	PRESSURE RELIEF VALVE	
200	1	SOUND ENCLOSURE	
300	1	ELECTRIC MOTOR	SHOWN WITH A 180 NEMA
310	1	MOTOR MOUNTING	MOTOR
320	1	BELT DRIVE	
400	1	BELT GUARD	
500	1	COOLING FAN	
600	1	DISCHARGE CONNECTION	2"-150# ANSI FLANGE
800	1	INSTRUMENTATION	
1100	1	UNLOADING VALVE	(OPTIONAL)

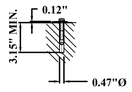
WEIGHT

BLOWER PACKAGE (LESS MOTOR)	187 kg.	411 lbs
ELECTRIC MOTOR (ITEM 300)	___	___
TOTAL (WET WEIGHT)		

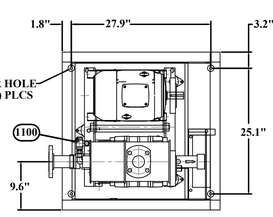
NOTES:

1. TOLERANCE ON DIMENSIONS = ±12mm [0.5"]
2. ITEM 100 (BLOWER TORSO) INCLUDES BLOWER STAGE, INLET SILENCER, BASE FRAME/DISCHARGE SILENCER, VIBRATION ISOLATORS, & CONNECTION HOUSING WITH CHECK FLAP
3. CUSTOMER PIPING TO BE INDEPENDENTLY SUPPORTED
4. LIFT PACKAGE FROM BLOWER SIDE THROUGH FORK LIFT POCKETS IN BASE OR LIFTING HOLES IN CORNER OF BASE USING SPREADER BAR
5. SEE JOB DATA SHEETS FOR PERFORMANCE DATA, PART NUMBERS, TOTAL PACKAGE WEIGHT, INSTRUMENTATION, ANY OTHER OPTIONAL EQUIPMENT & OWNERS MANUAL

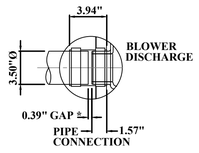
EARTH GROUND
MAT'L: 304 SS
4x SCALE



RECOMMENDED SOUND ENCLOSURE ANCHORING



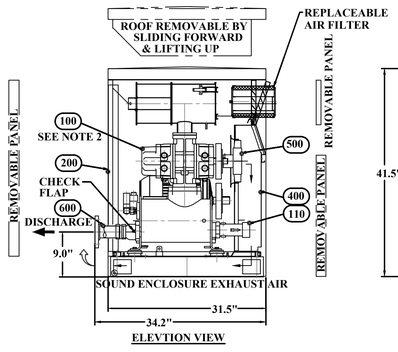
PLAN VIEW



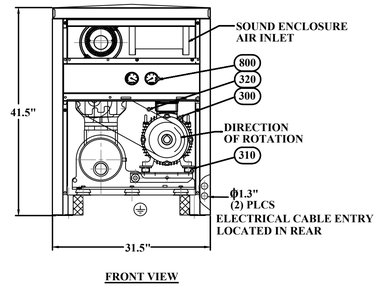
* PIPE ENGAGEMENT
IN FLEX CONNECTION LEAVES .4" GAP

VIEW "Z"

PIPING CONNECTION



ELEVTION VIEW



FRONT VIEW

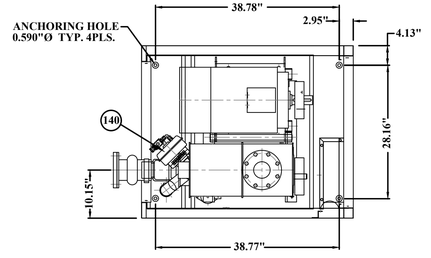
POST EQ BLOWER

ITEM	QTY.	DESCRIPTION
1	1	BLOWER
2	1	MOTOR, SHOWN WITH WEG 284T-F3 FRAME
3	1	COMBINATION BASE FRAME/SILENCER
4	1	SOUND ENCLOSURE (S.E.)
5	1	INLET FILTER/SILENCER ASSEMBLY
6	1	DISCHARGE HOUSING
10	1	INLET FILTER ELEMENT (SHOWN REMOVED)
20	-	DRIVE BELTS (SEE JOB SPECIFIC DATA)
30	1	ONE-WAY VALVE
40	1	EXPANSION JOINT - 3" 150# ANSI FLANGE
50	1	CLAMP FOR EXPANSION JOINT
90	1	SAFETY RELIEF VALVE
100	-	INSTRUMENTATION (SEE JOB SPECIFIC DATA)
140	1	UNLOADING VALVE (OPTIONAL)
150	1	S.E. COOLING FAN (MOUNTED ON BLOWER SHAFT)
170	1	MOTOR SHEAVE BUSHING
180	1	MOTOR SHEAVE
190	1	BLOWER SHEAVE BUSHING
200	1	BLOWER SHEAVE
250	4	VIBRATION ISOLATORS
260	1	SAFETY RELIEF VALVE HOSE
265	1	SAFETY RELIEF VALVE HOSE CLAMP
270	1	SAFETY RELIEF VALVE HOSE CLAMP

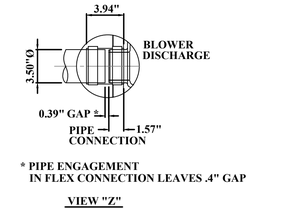
NOTES

1. TOLERANCE ON DIMENSIONS = ±12mm [0.5"]
2. WEIGHT: BLOWER PACKAGE 306 Kg. (673 lbs.)
   MOTOR
   TOTAL WEIGHT
3. REMOVABLE PANEL WEIGHT:
   PANELS DO NOT EXCEED APPROX. 9 Kg (20 Lbs)
4. CUSTOMER PIPING TO BE INDEPENDENTLY SUPPORTED
5. LIFTING OF PACKAGE: AFTER REMOVING FRONT & REAR DOORS, FROM FRONT SIDE THROUGH FORK LIFT POCKET IN BASE
6. FREE SPACE FOR MAINTENANCE WORK AT FRONT AND REAR SIDE OF UNIT APPROX. 800mm [32"]
7. FOR ADDITIONAL INFORMATION SEE:
   JOB SPECIFIC DATA PACKAGE

RECOMMENDED SOUND ENCLOSURE ANCHORING



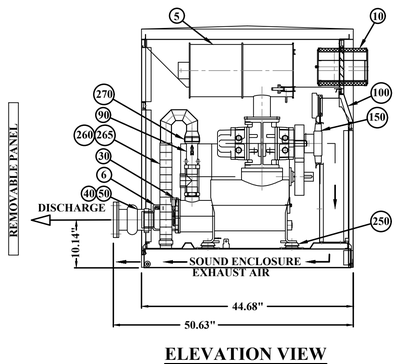
PLAN VIEW



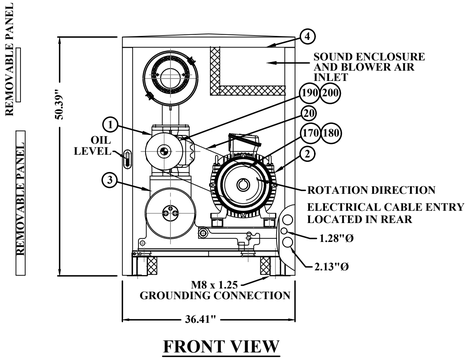
* PIPE ENGAGEMENT
IN FLEX CONNECTION LEAVES .4" GAP

VIEW "Z"

PIPING CONNECTION



ELEVATION VIEW



FRONT VIEW

DIGESTER / SBR BLOWERS NO. #1 AND #2

ADDENDUM NO. 1

NO.	BY	DATE	DESCRIPTION
1	BSQ	JUNE 2023	ADDENDUM NO. 1 (VENDOR BID)

SCALE: AS SHOWN	
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MASON COUNTY PUBLIC SERVICE DISTRICT
MASON COUNTY, WEST VIRGINIA
SBR EQUIPMENT (VENDOR BID)
SBR # 1 & 2, POST EQ & DIGESTER
BLOWER DETAILS

SHEET No. 15