

Addendum No. 2

Four Rivers Sanitation Authority

BNR Improvements - Aeration Basin Modifications

Capital Project No. 2304

IEPA Project No. L17-6576

This Addendum Number 2, dated October 23, 2024, for the above referenced project, supersedes all contrary and conflicting information in the specifications and contract documents, which are hereby supplemented or revised as follows:

I. General Information:

1. Two site visits will be held on October 25, 2024, one starting at 10:00 am and the other starting at 1:30 pm. FRSA expects the visits to be no more than 1 hour and recommends potential bidders attend one of the site visits. Meet in the Board Room, FRSA Administration Building, 3501 Kishwaukee Street, Rockford, IL 61109. Attendees will sign an attendance sheet, be provided a brief discussion, and go to visit Aeration Tanks 5 and 6, that are currently out of service and drained. The two aeration tanks will be visible from ground level, with no access down into the tanks. However, the existing 9-inch fine bubble membrane aeration diffusers, diffuser piping, pipe supports, general tank geometry, and general tank condition can be seen.

II. The following are revisions to the Specifications:

1. General note regarding the technical specifications: Where acceptable product manufacturers have been listed in Specifications, that listing is specific to ability to comply with the performance and technical requirements, and the listed manufacturers have not been verified for compliance with BABA requirements. Bidders are responsible for ensuring compliance with the BABA requirements consistent with the Section 00 00 24.
2. The following revisions shall be made to the Table of Contents in Specification Volumes I and II:
 - a. Division 40, revise the text “40 05 59.23 S01 -Slide Gate Schedule Manual Actuators” to “40 05 59.23 S01 - Stainless Steel Slide Gates Schedule”.
 - b. Division 40, add “40 05 59.33 - FRP Slide Gates.....9” following 40 05 59.23 S01 – Stainless Steel Slide Gates Schedule.
3. Replace Section 00 00 04 Bid Form or Proposal with Section 00 00 04 Bid Form or Proposal, attached to this Addendum.

4. The following revision shall be made to Schedule 01 69 00-S01 Equipment Schedule:
 - a. Add a row for “40 05 59.33 FRP Slide Gates” following the row for Section 40 05 59.23. For the added row, include an “X” within the Functional Testing and Operation and Maintenance Manuals columns.
5. The following revision shall be made to Schedule 08 71 11 Finish Hardware:
 - a. Change “Door Closer” to “Door Closer *” and add the following at the end of the schedule, “* Non-fire rated door closers shall include hold-open feature”.
6. The following revision shall be made to Section 40 05 64.23 BNR Control Valves, Operators, Flow Meters, and Appurtenances:
 - a. Paragraph 2.1.F.1., add to the end of the sentence: “or Engineer-approved equivalent.”
7. The following revisions shall be made to Section 40 05 51.16 Gate installation:
 - a. Paragraph 1.1.B., add “3. FRP Slide Gates”.
 - b. Paragraph 3.2.C., revise “C. Fabricated Stainless Steel Slide Gates” to “C. Fabricated FRP and Stainless Steel Slide Gates”.
 - c. Paragraph 3.2.C.1., revise the beginning of the first sentence from “Each fabricated stainless steel slide gate” to “Each fabricated slide gate”
 - d. Paragraph 3.4.B., revise “B. Fabricated Stainless Steel Slide Gates” to “C. Fabricated FRP and Stainless Steel Slide Gates”.
8. The following revision shall be made to Section 40 05 57 Valve and Gate Actuators:
 - a. Paragraph 2.4.H.1., remove the text “[meters and millimeters]”.
9. The following revision shall be made to Section 40 05 59.23 Stainless Steel Slide Gates:
 - a. Paragraph 2.1.A., remove the words “Stainless steel” from this item.
 - b. Paragraph 2.3.B., remove this item and replace it with the following paragraph.

“B. This listed equipment is specified as a substitute for Section 40 05 59.33 FRP Slide Gates as indicated on the Bid Form and will be considered as establishing the type, function, appearance, and quality required as defined in the General Conditions.”

10. The following revision shall be made to Schedule 40 05 59.23-S01 Stainless Steel Slide Gates Schedule:
 - a. Add the text “ This gate schedule also applies to Section 40 05 59.33 FRP Slide Gates.” to the note area beneath the schedule.
11. Add Section 40 05 59.33 FRP Slide Gates, attached to this Addendum. Section 40 05 59.33 shall be added following 40 05 59.23-S01 Stainless Steel Slide Gates Schedule in Volume 2 of 2 of the Specifications.
12. The following revision shall be made to 40 61 11-A Instrument Device Schedule:
 - a. Remove all references to “Ammonium Analyzer” and replace with “Ammonium ISE Probe” (Items 17, 38, 65, 86, 113, 134, 161, and 182).
13. The following revisions shall be made to 40 75 00 Process Analytical Instruments.
 - a. Remove item 2.2.D and replace with the following paragraph:

“D. Ammonium ISE Probes

 1. Probes shall use an Ion Selective Electrode (ISE) technology to measure the ammonium level. Probe shall be provided with a replaceable sensor cartridge that is factory calibrated and screws onto the probe. Accuracy of the probe shall be 5% of measure value + 0.2 mg/L NH₄-N. Probe shall communicate with the multi-parameter analyzer transmitter as specified in 40 75 00.
 2. The manufacturer’s automatic air cleaning compressor system and air blast component kit that provides an air blast across the sensor face shall be provided for each probe. The system and kit shall include an air compressor housed in a NEMA 4X enclosure, air hose, and all mounting appurtenances required to connect the air blast equipment to probe.
 3. The manufacturer’s pole mount assembly shall be provided to support the sensor in the aeration basin. All necessary handrail mounting brackets and hardware shall be provided for pole support and ease of sensor maintenance.
 4. The ammonium ISE probe shall be Hach A-ISE sc.”
 - b. Remove paragraph 2.2.E in its entirety.
14. The following revision shall be made to 43 25 60 Submersible Pumps.
 - a. Remove paragraph 2.4.G in its entirety.

15. The following revision shall be made to 46 41 26 Submersible Pumps.

- a. Remove paragraph 2.5.F.3 and replace with the following paragraph: “ 3. Not used.”

III. The following are revisions to the Drawings:

1. Drawing 01-I-601, Sheet 19 of 113:

- a. Remove Note 10.
- b. Revise the annotation near AE-69#2-A from “NOTE 10” to “NOTE 9”.

2. Drawing 01-I-602, Sheet 20 of 113:

- a. Remove Note 10.
- b. Revise the annotation near AE-69#2-A from “NOTE 10” to “NOTE 9”.

3. Drawing 01-I-603, Sheet 21 of 113:

- a. Remove Note 10.
- b. Revise the annotation near AE-69#2-A from “NOTE 10” to “NOTE 9”.

4. Drawing 01-I-604, Sheet 22 of 113:

- a. Remove Note 11.
- b. Revise the annotation near AE-69#2-A from “NOTE 11” to “NOTE 10”.

5. Drawing 00-E-101, Sheet 32 of 113:

- a. Delete sheet General Note 3 and replace with the following note:

“3. CONTRACTOR SHALL PROVIDE MEDIUM-DUTY PRECAST CONCRETE OPEN BOTTOM CABLE TRENCH BASE AND LID DESIGN SUFFICIENT TO SUPPORT LAWNMOWERS AND SMALL MACHINERY. TRENCH BASE AND LID SYSTEM SHALL BE AS MANUFACTURED BY TRENWA OR ENGINEER APPROVED EQUAL.”

6. Drawing 00-E-301, Sheet 33 of 113:

- a. Replace drawing 00-E-301 with drawing 00-E-301, attached to this addendum.

7. Drawing 01-E-101, Sheet 66 of 113:

- a. Revise the annotation “CUSP-69#2-A” to “AC-69#2-A”.

8. Drawing 01-E-102, Sheet 67 of 113:
 - a. Revise the annotation "CUSP-69#2-A" to "AC-69#2-A".
9. Drawing 01-E-103, Sheet 68 of 113:
 - a. Revise the annotation "CUSP-69#2-A" to "AC-69#2-A".
10. Drawing 01-E-104, Sheet 69 of 113:
 - a. Revise the annotation "CUSP-69#2-A" to "AC-69#2-A".
11. Drawing 20-E-706, Sheet 95 of 113:
 - a. Revise the reference shown connected to each Basin Multi-Parameter Analyzer from "CU-69#2-A" to "AC-69#2-A".
12. Drawing 20-E-707, Sheet 96 of 113:
 - a. Revise the reference shown connected to each Basin Multi-Parameter Analyzer from "CU-69#2-A" to "AC-69#2-A".

This information shall be taken into consideration when preparing your bid. Bidders shall acknowledge all project addenda. This addendum will be emailed to all plan holders as well as posted to FRSA's website at fourrivers.illinois.gov.

End of Addendum No. 2

Issued October 23, 2024

Four Rivers Sanitation Authority



Christopher T. Baer, PE
Director of Engineering

Bid Form or Proposal

Proposal of _____ (hereinafter called "BIDDER"), organized and existing under the laws of the State of _____ doing business as _____ (Insert "a corporation", "a partnership", or "an individual" as applicable) to the Four Rivers Sanitation Authority (hereinafter called "OWNER").

In compliance with your Advertisement for Bids, BIDDER hereby proposes to perform all WORK for the construction of BNR Improvements – Aeration Basin Modifications, Capital Project No. 2304, IEPA Project No. L17-6576 in strict accordance with the CONTRACT DOCUMENTS, within the time set forth therein, and at the prices stated below.

BIDDER hereby agrees to commence WORK under this contract on or before a date to be specified in the NOTICE TO PROCEED and to fully complete the PROJECT through substantial completion within 738 consecutive calendar days and through final completion within 799 consecutive calendar days thereafter. BIDDER further agrees to pay as liquidated damages, the sum of \$2,000.00 and \$1,000.00 for each consecutive calendar day after the time of substantial completion, and final completion, respectively. In addition, BIDDER agrees to pay as liquidated damages, the sums as indicated in the Agreement for each consecutive calendar day after the stated time of each Milestone should the WORK associated with each Milestone not be completed within the stated period.

BIDDER certifies that all iron, steel, manufactured products, and construction materials used in the project for the construction, alteration, maintenance, or repair of a publicly owned treatment works (POTW) are produced in the United States in compliance with the federal Build America, Buy America Act, Pub. L. No. 117-58 §§ 70901-52.

By submission of the bid, each bidder certifies, and in the case of a joint bid each party to the joint bid certifies, as to his or her own organization, that in connect with the bid:

- (I) By submission of the bid, each bidder certifies, and in the case of a joint bid, each party certifies as to his own organization, that in connection with the bid:
- (i) The prices in the bid have been arrived at independently, without consultation, communication, or agreement with any other bidder or with any competitor, for the purpose of restricting competition, as to any matter relating to the prices;
 - (ii) Unless otherwise required by law, the prices quoted in the bid have not knowingly been directly or indirectly disclosed to any other bidder or to any competitor prior to opening; and
 - (iii) No attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit or withhold a bid for the purpose of restricting competition.

(II) Each person signing the bid shall certify that:

- (i) He or she is the person in the bidder's organization responsible for the decision as to the prices being bid and that he or she has not participated, and will not participate, in any action contrary to (I)(i) through (I)(iii) above; or
- (ii) He or she is not the person in the bidder's organization responsible for the decision as to the prices being bid, but that he or she has been authorized to act as agent certifying that

the persons determining the prices have not participated, and will not participate, in any action contrary to (I)(i) through (I)(iii) above, and as their bidder's agent shall so certify. He or she shall also certify that he or she has not participated, and will not participate, in any action contrary to (I)(i) through (I)(iii) above.

BIDDER acknowledges receipt of the following ADDENDUM (where applicable):

BIDDER certifies that wages paid in connection with the PROJECT shall be paid at prevailing rates not less than those prevailing under the Davis-Bacon Wage Act. Bidder further certifies that the provisions contained in the following clauses will be exercised in the performance of any contract resulting from this BID and are made a part of the CONTRACT DOCUMENTS thereto by their inclusion in the BID as follows:

(1) Minimum wages

- (i) All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work performed, without regard to skill, except as provided in §5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates confirmed under paragraph (a)(1)(ii) of this section) and the Davis Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers. Sub-recipients may obtain wage determinations from the US Department of Labor's website, <http://beta.sam.gov/>.

(ii)

(A) The sub-recipient, on behalf of the USEPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The USEPA award official shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the sub-recipient agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the sub-recipient to IEPA. IEPA shall forward the report to the Administrator of the Wage and Hour Division, US Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise IEPA or will notify IEPA within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborer or mechanics to be employed in the classification or their representatives, and the sub-recipient do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), IEPA shall refer the questions, including the views of all interested parties and the recommendation of the sub-recipient, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise IEPA or will notify IEPA within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan

or program. Provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis Bacon Act have been met. The Secretary of Labor may require the contractor to set aside, in a separate account, assets for the meeting of obligations under the plan or program.

(2) Withholding.

The sub-recipient shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the sub-recipient may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(A) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the sub-recipient. Such documentation shall be available upon request of IEPA or USEPA. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the

payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Website [<https://www.dol.gov/agencies/whd/government-contracts/construction/payroll-certification>]. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the sub-recipient, for transmission to the IEPA, USEPA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractors for its own records, without weekly submission to the sub-recipient.

- (B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of persons employed under the contract and shall certify the following:
 - (1) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 20 CFR part 5, and that such information is correct and complete;
 - (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
 - (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
 - (C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.
 - (D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- (iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized

representatives of IEPA, USEPA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make sure records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees

- (i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the US Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first ninety (90) days of probationary employment as an apprentice in such apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid no less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratio and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman's hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid in the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- (ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed

pursuant to and individually registered in a program which has received prior approval, evidences by form certification by the US Department of Labor, Employment and Training Administration. The ratio of trainees to journeyman on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainees program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

- (iii) Equal Employment Opportunity. The utilization of apprentices, trainees, and journeyman under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
- (5) Compliance with Copeland Act Requirements. The contractor shall comply with the requirements of 29 CFR part 3, which is incorporated by reference in this contract.
- (6) Subcontracts. The contractor or subcontractor shall insert any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the USEPA may be appropriate instruction require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5
- (7) Contract Termination: Debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
- (8) Compliance with Davis Bacon and Related Act Requirements. All rulings and interpretations of the Davis Bacon and Related Acts contained in 29 CFR 1, 3, and 5 are herein incorporated by reference in this contract.
- (9) Disputes Concerning Labor Standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract.

Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the US Department of Labor, or the employees or their representatives.

(10) Certification of Eligibility.

- (i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis Bacon Act or 29 CFR 5.12(a)(1).
- (ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis Bacon Act or 29 CFR 5.12(a)(1).
- (iii) The penalty for making false statements is prescribed in the US Criminal Code, 18 USC 1001.

Contract Provision for Contracts in Excess of \$100,000 – clauses (1) through (4) shall be inserted in full in any contract in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act.

Contract Work Hours and Safety Standards Act

- (1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic received compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
- (2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanics, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$25 for calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.
- (3) Withholding for unpaid wages and liquidated damages. The sub-recipient, shall upon its own action or upon written request of the USEPA award official or an authorized representative of the Department of Labor, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

- (4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

The following shall be inserted in any contractor subject only to the Contract Work Hours and Safety Standards Act.

The contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the USEPA and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

Basis of BID

A. Base Bid (Type I) Materials and Equipment:

1. Bidder has included in the Bid price, the installed cost of material and equipment furnished by the circled Supplier as named in the Base Bid (Type I) Material and Equipment Schedule, which is included at the end of this Bid Form.
2. The circled Supplier has been selected from listed Supplier(s) as named in the Base Bid (Type I) Material and Equipment Schedule in accordance with the Instructions to Bidders.
3. If a voluntary substitute is offered, where allowed as indicated in the Base Bid (Type I) Material and Equipment Schedule, Bidder has included the name of the Supplier and the amount to be deducted from the Bid price for the proposed substitute in the Base Bid (Type I) Material and Equipment Schedule in accordance with the Instructions to Bidders. Bidder agrees that the procedures for submission and consideration by Engineer for determining the acceptability of substitutes will be as set forth in the General Conditions and the Supplementary Conditions.

B. Base Bid (Type II) Material and Equipment:

1. Bidder has included in the Bid price, the installed cost of material and equipment furnished by Supplier A as named in the Base Bid (Type II) Material and Equipment Schedule, which is included at the end of this Bid Form.
2. Bidder has included the Supplier's price and the installed cost of each item for Supplier A in the Base Bid (Type II) Material and Equipment Schedule in accordance with the Instructions to Bidders.
3. If a voluntary substitute is offered, Bidder has included the name of the Supplier, the Supplier's price, and the installed cost for the proposed substitute in the Base Bid (Type II) Material and Equipment Schedule in accordance with the Instructions to Bidders. Bidder agrees that the procedures for submission and consideration by Engineer for determining the acceptability of voluntary substitutes will be as set forth in the General Conditions and the Supplementary Conditions.
4. Upon request by the Owner, the Bidder agrees to submit to the Owner a Supplier's price quotation.

C. Adjustment Unit Price Work, Extended Warranties, Maintenance Service Plans:

1. Bidder has included in the Bid price, the installed cost for the quantities of work described by the Adjustment Prices herein, and at the unit price provided by the Bidder.

2. Extended warranties are ineligible for Water Pollution Control Loan Program financing. The specifications call for an extended warranty in Section 43 11 15 to be provided as part of the Contract Price. The difference in value of the manufacturer's standard warranty and the extended warranty provided as part of the Bid Total shall be provided by the Bidder.
3. Equipment maintenance service plans are ineligible for Water Pollution Control Loan Program financing. The specifications call for pricing for such plans in Section 43 11 15 to be provided. Bid price adders for such plans are to be provided where indicated herein but are NOT to be included in the Bid Total.

BID SCHEDULE

Note: BIDS shall include sales tax and all other applicable taxes and fees.

TOTAL OF BID:\$_____

Bidder is currently certified as an MBE or WBE under EPA's DBE Program? Yes _____ No _____
Respectfully submitted:

_____	By: _____
(Printed Name of Firm)	(Authorized Rep's Signature)
_____	By: _____
(Printed Street Address)	(Printed Authorized Rep's Name)
_____	By: _____
(Printed City, State, Zip)	(Printed Authorized Rep's Title)
_____	By: _____
(Area Code and Phone Number)	(Fax Number)

(Authorized Rep's Email Address)	

(Seal – if the BID is by a corporation)

Attest: _____

SUBCONTRACTOR LISTING

The following is a listing of proposed Subcontractors having a direct contract with the Contractor.

1.

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BASE BID (TYPE I) MATERIAL AND EQUIPMENT SCHEDULE			
Specification Section	Item	Supplier	Amount To Be Deducted From Bid Price
26 12 19	Pad-Mounted, Liquid-Filled, Medium-Voltage Transformers	(A) Siemens/Eaton	
		(B) Cooper Power Systems	
		(C) ABB Power T&D	
		(D) General Electric	
		(E) MGM Transformer	
		(F) Schneider Electric	
		(G) VanTran Industries	
		(H) Virginia Transformer	
		_____ (substitute)	\$
26 24 23	600 Volt Class Motor Control Centers	(A) Square D	
		(B) General Electric (ABB)	
		_____ (substitute)	\$
26 29 24	Variable Frequency Drives	(A) Danfoss	
		(B) ABB	
		_____ (substitute)	\$
40 05 57	Valve and Gate Actuators	(A) Rotork	
		(B) Auma	
		_____ (substitute)	\$
40 05 62.16	Eccentric Plug Valves	(A) DeZurik	
		(B) Milliken	
		(C) Val-Matic	
		_____ (substitute)	\$
40 05 64.22	Industrial Butterfly Valves	(A) Keystone "AR2"	
		(B) DeZurik	
		(C) Bray Series 31	
		_____ (substitute)	\$
40 05 78	Flap Gates	(A) Hydro Gate	
		(B) M&H	
		(C) Rodney Hunt	
		_____ (substitute)	\$

Bid Form or Proposal

40 64 00	Programmable Logic Controller (PLC)	(A) Emerson Automation PAC System RX3i Series	
		(B) Allen-Bradley ControlLogix Series	
		_____ (substitute)	\$
40 64 00	Operator Interface Terminals (OITs)	(A) Advanced Technology Services	
		(B) Allen-Bradley	
		_____ (substitute)	\$
40 66 11	Industrial Managed Ethernet Switches	(A) Cisco	
		(B) Hirschmann	
		(C) Moxa	
		(D) Red Lion N-Tron	
		_____ (substitute)	\$
40 71 00	Thermal Dispersion Flow Meters (part of the BNR Control Valve Package)	(A) Kurz Instrument	
		(B) Sage Metering, Inc.	
		(no substitute allowed)	
43 11 15	High Speed Gearless Turbo Blower	(A) Aerzen	
		(B) APG-Neuros	
		(C) Lone Star Blower	
		(D) Sulzer	
		(E) TNE Global	
		(no substitute allowed)	
43 25 60	Submersible Horizontal Propeller Pumps	(A) Flygt Corporation	
		(B) ABS/Sulzer	
		(C) Grundfos	
		_____ (substitute)	\$
46 41 23	Submersible Mixers	(A) Flygt Corporation	
		(B) ABS/Sulzer	
		_____ (substitute)	\$
46 51 31	Fine Pore Diffused Aeration Equipment	(A) Aquarius	
		(B) Environmental Dynamics	
		(C) Sanitaire (Xylem)	
		(D) SSI	
		_____ (substitute)	\$

BASE BID (TYPE II) MATERIAL AND EQUIPMENT SCHEDULE				
Specification Section	Item	Supplier	Supplier's Price	Installed Cost
40 05 59.33 or 40 05 59.23	FRP Slide Gates or Stainless Steel Slide Gates	(A) Plasti-Fab HDTS	\$	\$
		_____ (substitute)	\$	\$
40 05 64.23	BNR Control Valves, Operators, Flowmeters and Appurtenances	(A) Iris Diaphragm Control Valves - Egger	\$	\$
		_____ (substitute)	\$	\$
40 72 00	Pressure and Level Instruments (Pressure Gauges)	(A) Ashcroft	\$	\$
		_____ (substitute)	\$	\$
40 75 00	Process Liquid Analytical Multiparameter Transmitter and Probes	(A) Hach	\$	\$
		_____ (substitute)	\$	\$

ADJUSTMENT UNIT PRICE WORK, EXTENDED WARRANTIES, MAINTENANCE SERVICE PLANS

The following adjustment unit prices will apply in the event that the estimated quantities included in the Bid Total are different from final measure quantities. A single price shall be bid for each item.

ADJUSTMENT PRICES					
No.	Item	Unit	Unit Price	Amount	Total Price
1	Concrete Crack Repair (Section 03 01 26.66)	LF		500	
2	Concrete Surface Repair, Floor Surface Repairs, Thickness greater than 1 inch (Section 03 01 26.76)	SF		150	
3	Concrete Surface Repair, Vertical and Overhead Surface Repairs, Trowel Applied (Section 03 01 26.76)	SF		50	
4	Concrete Surface Repair, Vertical Repairs, Form and Pour, Thickness 6 inches or Less (Section 03 01 26.76)	SF		75	
5	Concrete Joint Repair (See Drawings)	LF		270	

Extended warranties are ineligible for Water Pollution Control Loan Program financing. The specifications call for an extended complete parts and labor warranty in Section 43 11 15 to be provided as part of the Contract Price. The difference in value of the manufacturer's standard warranty and the extended warranty provided as part of the Bid Total is as follows:

Extended warranty:

_____ Dollars \$ _____
 (words) (numbers)

Bid Form or Proposal

Equipment maintenance service plans are ineligible for Water Pollution Control Loan Program financing. The specifications call for pricing for such plans in Section 43 11 15 to be provided. The bid price adder, NOT included in the Bid Total, of such service plans are as follows:

5-year maintenance service plan:

_____ Dollars \$ _____
(words) (numbers)

10-year maintenance service plan:

_____ Dollars \$ _____
(words) (numbers)

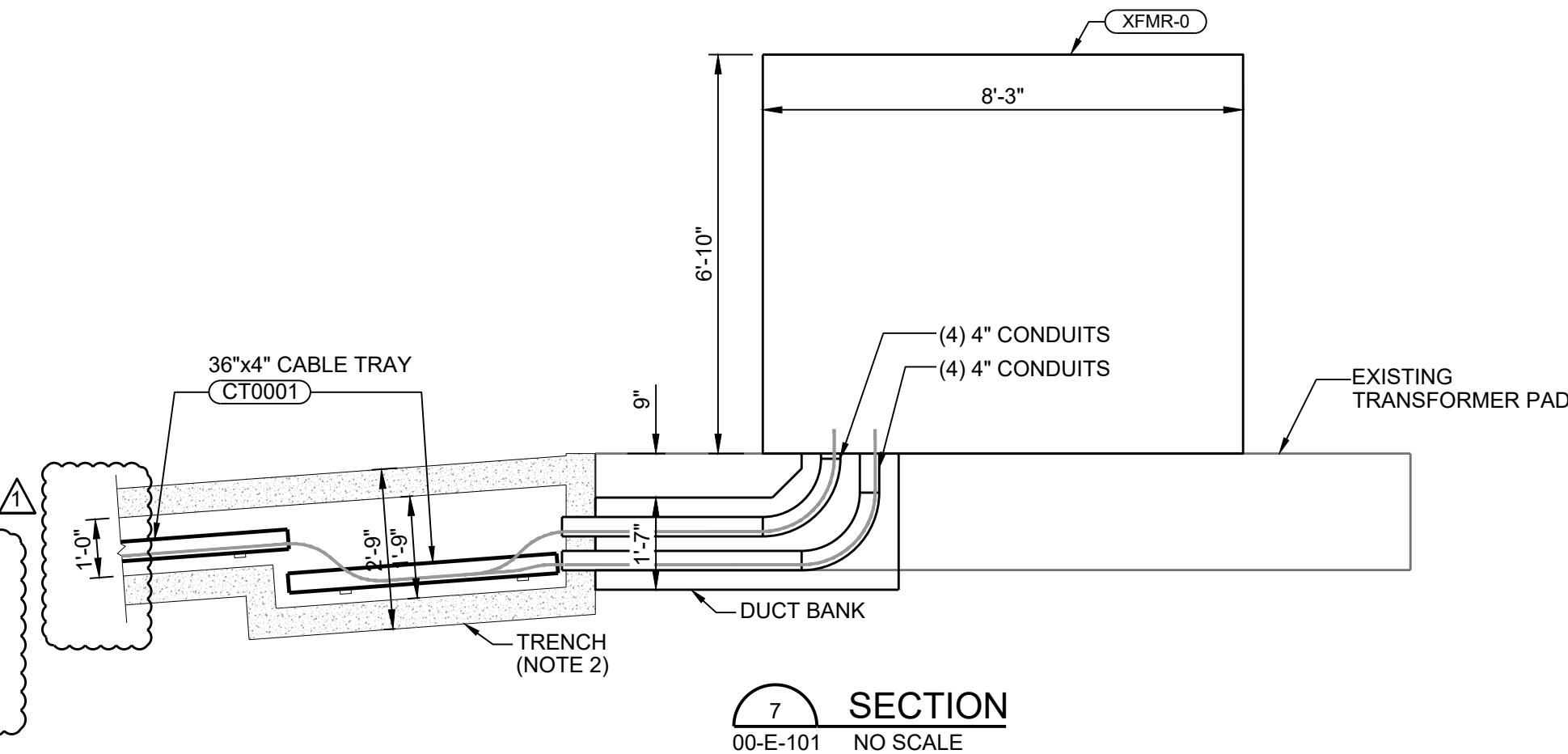
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DUCT BANK SCHEDULE			
CONDUIT NUMBER	CONDUIT SIZE	CIRCUIT NUMBER	REMARKS
1	4"	F-0	PMT-B1
2	4"	SPARE	SPARE
3	4"	F-9	PMT-B2
4	4"	SPARE	SPARE
5	2"	SPARE	SPARE
6	2"	SPARE	SPARE
10	2"	1A-1, MCC3001-14, MCC3001-15, MCCB1-8LL, 1A-7, MCC3001-7, 1A-6	FIT6971, FIT6972, FIT6973, AIT6970, AC-6972-A, AC-6972-B, AV-6973 (AERATION BASIN NO. 7), VDG-239, VDG-240, VDG-241 (AERATION BASIN NO. 7), MFP-MLRP-7, MFP-SMX-7 (AERATION BASIN NO. 7), RECEPTACLES (AERATION BASIN NO. 7 AND 8)
11	2"	MB1-23,MB1-24	"BFV-211", "BFV-212"
12	2"	MB1-23A,MB1-24A	PCS-BLWR, PCS-BLWR
13	2"	1A-2, MCC3002-32, MCC3002-33, MCCB1-8LR, 1A-5, MCC3002-25	FIT6981, FIT6982, FIT6983, AIT6980, AC-6982-A, AC-6982-B, AV-6983 (AERATION BASIN NO. 8), VDG-243, VDG-244, VDG-245 (AERATION BASIN NO. 8), MFP-MLRP-8, MFP-SMX-8 (AERATION BASIN NO. 8)
14	"2"	MCC3001-7A, VFD6975-2, VDG243-2, VDG44-2, VDG245-2, VDG243-3, VDG44-3, VDG245-3	MFP-SMX-7, MFP-MLRP-7, PLC-6700, PLC-6700, PLC-6700 (AERATION BASIN NO. 8), PLC-6700, PLC-6700, PLC-6700 (AERATION BASIN NO. 8)
15	"2"	VDG239-2, VDG40-2, VDG241-2, VDG239-3, VDG40-3, VDG241-3, FIT6971-1, FIT6972-1, FIT6973-1, AIT6970-1	PLC-6700, PLC-6700, PLC-6700 (AERATION BASIN NO. 7), PLC-6700, PLC-6700, PLC-6700 (AERATION BASIN NO. 7), PLC-6700, PLC-6700, PLC-6700 (AERATION BASIN NO. 7)
16	"2"	MB1-23B,MB1-24B	PCS-BLWR, PCS-BLWR
17	"2"	MCC3002-25A, VFD6985-2, FIT6981-1, FIT6982-1, FIT6983-1, AIT6980-1	MFP-SMX-8, MFP-MLRP-8, PLC-6700, PLC-6700, PLC-6700, PLC-6700 (AERATION BASIN NO. 8)
18	2"	SPARE	SPARE
18A	2"	VFD6975-1, VFD6985-1	MFP-MLRP-7, MFP-MLRP-8
19	"2"	SPARE	SPARE
20	2"	MB1-34	"AERATION TANKS NO.1 THRU 6 WEST FLOODLIGHTS"
21	2"	SPARE	SPARE
22	2"	MB1-35	"AERATION BASIN PORTABLE PUMP DISCONNECT", DOOR OPERATOR FVR CONTROLLER
23	4"	FO-1	AER ENCLOSURE
24	4"	MB1-1	"MAIN DISCONNECT" EXISTING POWER CENTER NO.1
25	4"	SPARE	SPARE
26	"2"	T-3	TEMPERATURE CONTROL PANEL TCP-3
27	2"	SPARE	SPARE
28	2"	MB1-15,MB1-16	"BFV-205", "BFV-206"
29	2"	MB1-17,MB1-18	"BFV-207", "BFV-208"
30	2"	MB1-19,MB1-20	"BFV-209", "BFV-210"
31	2"	MB1-15A,MB1-16A,MB1-17A,MB1-18A,MB1-19A,MB1-20A	PCS-BLWR,PCS-BLWR,PCS-BLWR,PCS-BLWR,PCS-BLWR,PCS-BLWR
32	"2"	MB1-15B,MB1-16B,MB1-17B	PCS-BLWR,PCS-BLWR,PCS-BLWR
33	"2"	MB1-18B,MB1-19B,MB1-20B	PCS-BLWR,PCS-BLWR,PCS-BLWR
34	2"	MB1-33	"AERATION TANKS NO.1 THRU 6 EAST FLOODLIGHTS"
35	"2"	IB-12,IB-14,IB-16	"FIT-6910", "FIT-6920", "FIT-6930"
36	"2"	IB-18,IB-20,IB-22	"FIT-6940", "FIT-6950", "FIT-6960"
37	2"	LB1-21, LB1-22, LB1-23	FIT-6911, AIT-6910, FIT-6912, FIT-6913, AC-6912-A, AC-6912-B, AC-6913, FIT-6921, AIT-6920, FIT-6922, FIT-6923, AC-6922-A, AC-6922-B, AC-6923, FIT-6931, AIT-6930, FIT-6932, FIT-6933, AC-6932-A, AC-6932-B, AC-6933
38	2"	LB1-24, LB1-25, LB1-26	FIT-6941, AIT-6940, FIT-6942, FIT-6943, AC-6942-A, AC-6942-B, AC-6943, FIT-6951, AIT-6950, FIT-6952, FIT-6953, AC-6952-A, AC-6952-B, AC-6953, FIT-6961, AIT-6960, FIT-6962, FIT-6963, AC-6962-A, AC-6962-B, AC-6963
39	"2"	IB-11,IB-13,IB-15	"AIT-6910", "AIT-6920", "AIT-6930"
40	"2"	IB-17,IB-19,IB-21	"AIT-6940", "AIT-6950", "AIT-6960"
41A	2"	MCCB1-7AL, MCCB1-7AR	VDG-217, VDG-221
41B	2"	MCCB1-8GL, MCCB1-8GR	VDG-225, VDG-229
42	"2"	MCCB1-7JL, MCCB1-7JR	VDG-233, VDG-237
101	4"	MCC3001-1	MCC-3001 MAIN FEED
102	4"	PULLSTRING	FUTURE MCC MAIN FEED
103	4"	MCC3002-42	MCC-3002 MAIN FEED
104	4"	PULLSTRING	FUTURE MCC MAIN FEED

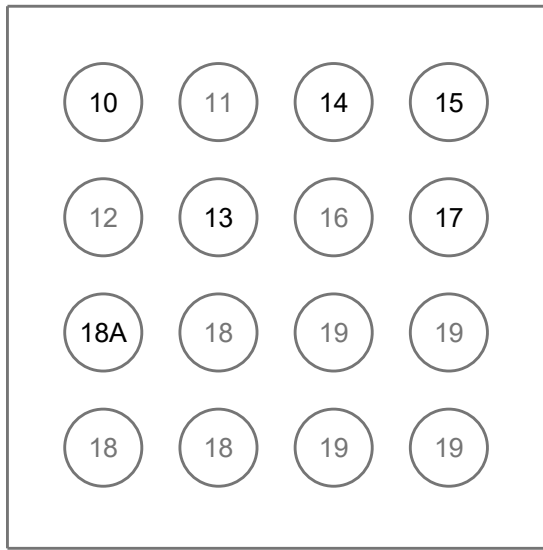
DUCT BANK SCHEDULE
 NO SCALE

GENERAL NOTES:

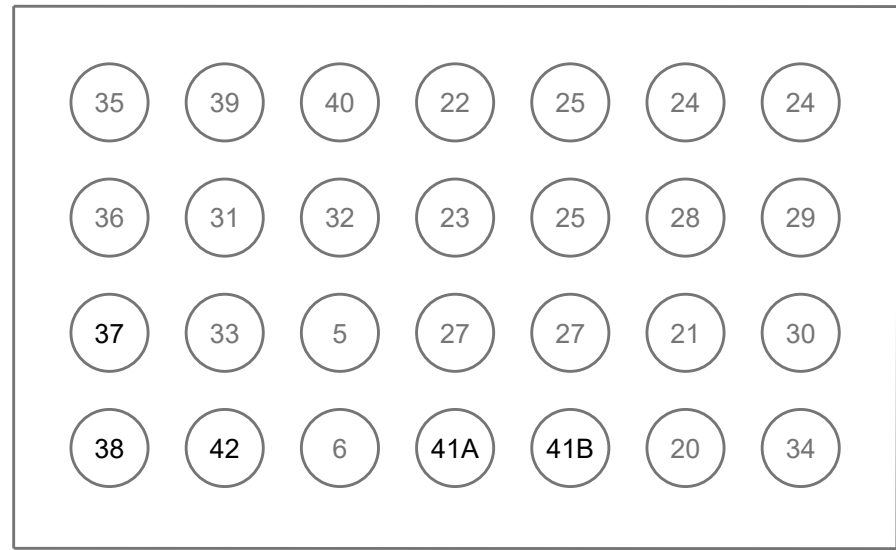
- SEE DRAWINGS 00-E-001 AND 00-E-002 FOR LEGENDS, ABBREVIATIONS AND NOTES.
- CONTRACTOR SHALL PROVIDE MEDIUM-DUTY PRECAST CONCRETE OPEN BOTTOM CABLE TRENCH BASE AND LID DESIGN SUFFICIENT TO SUPPORT LAWNMOWERS AND SMALL MACHINERY. TRENCH BASE AND LID SYSTEM SHALL BE AS MANUFACTURED BY TRENWA OR ENGINEER APPROVED EQUAL.
- CONTRACTOR TO CONTINUE CIRCUITS IN CONDUITS FROM TRAY.



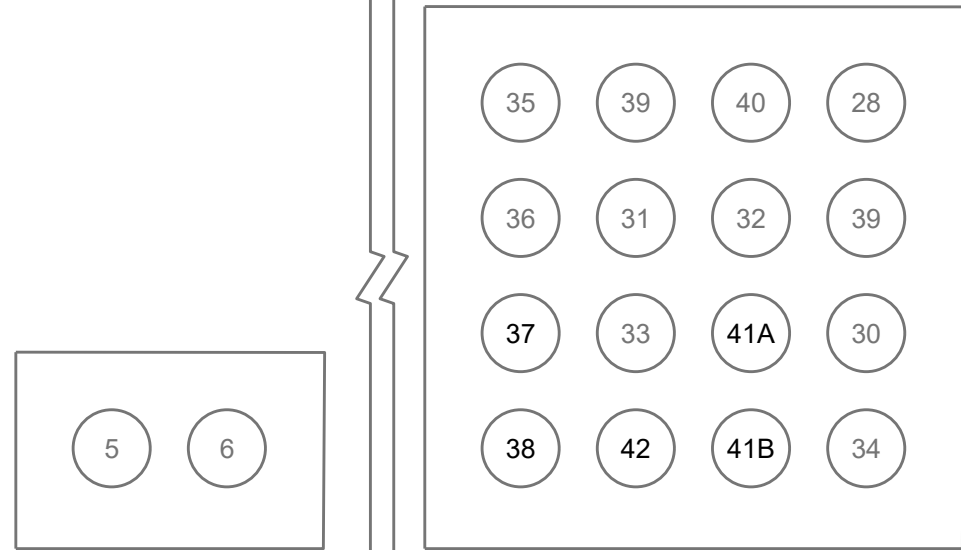
SECTION
 00-E-101 NO SCALE



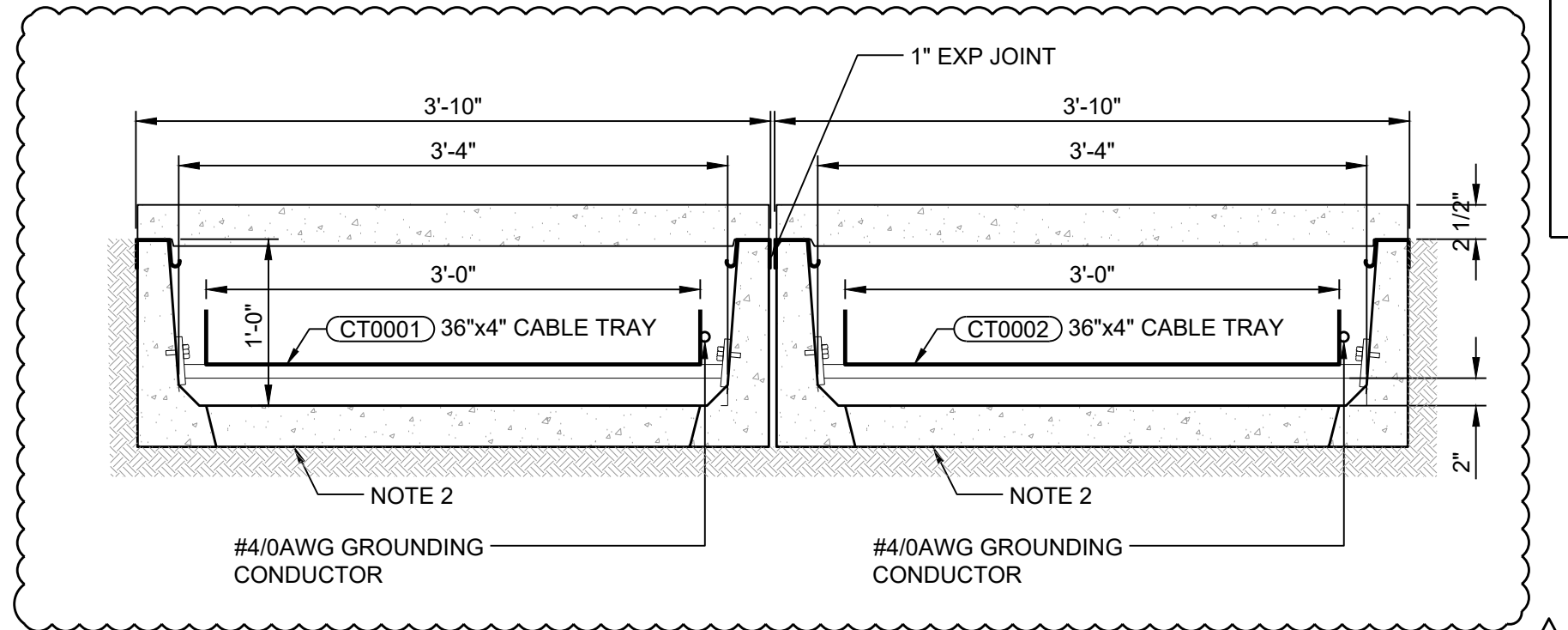
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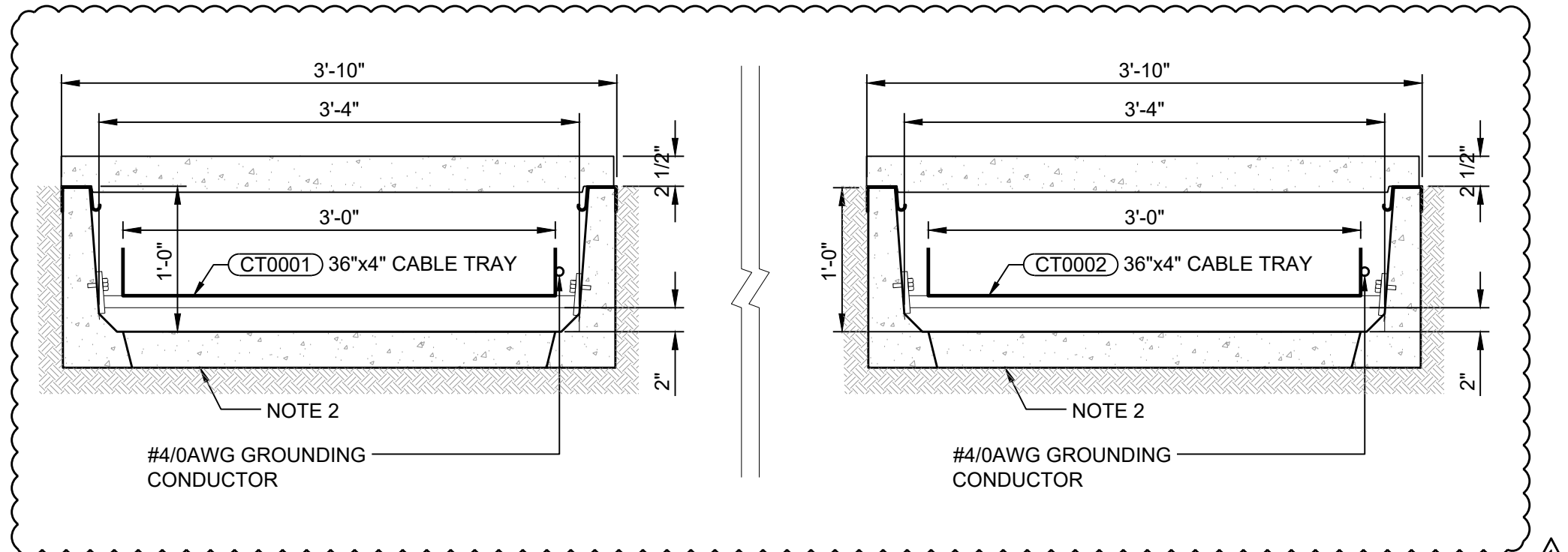
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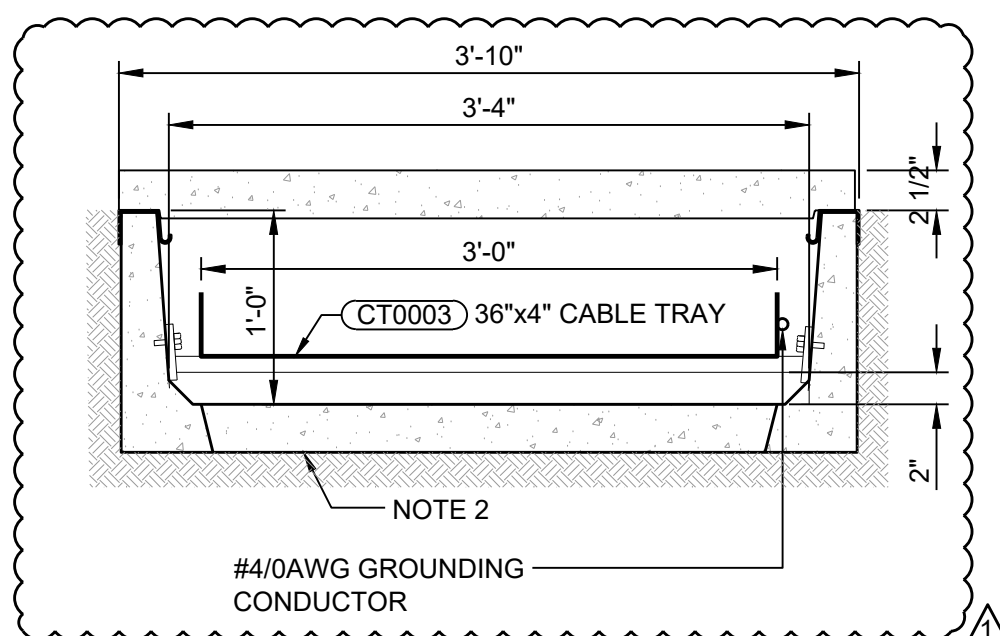
SECTION
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SECTION
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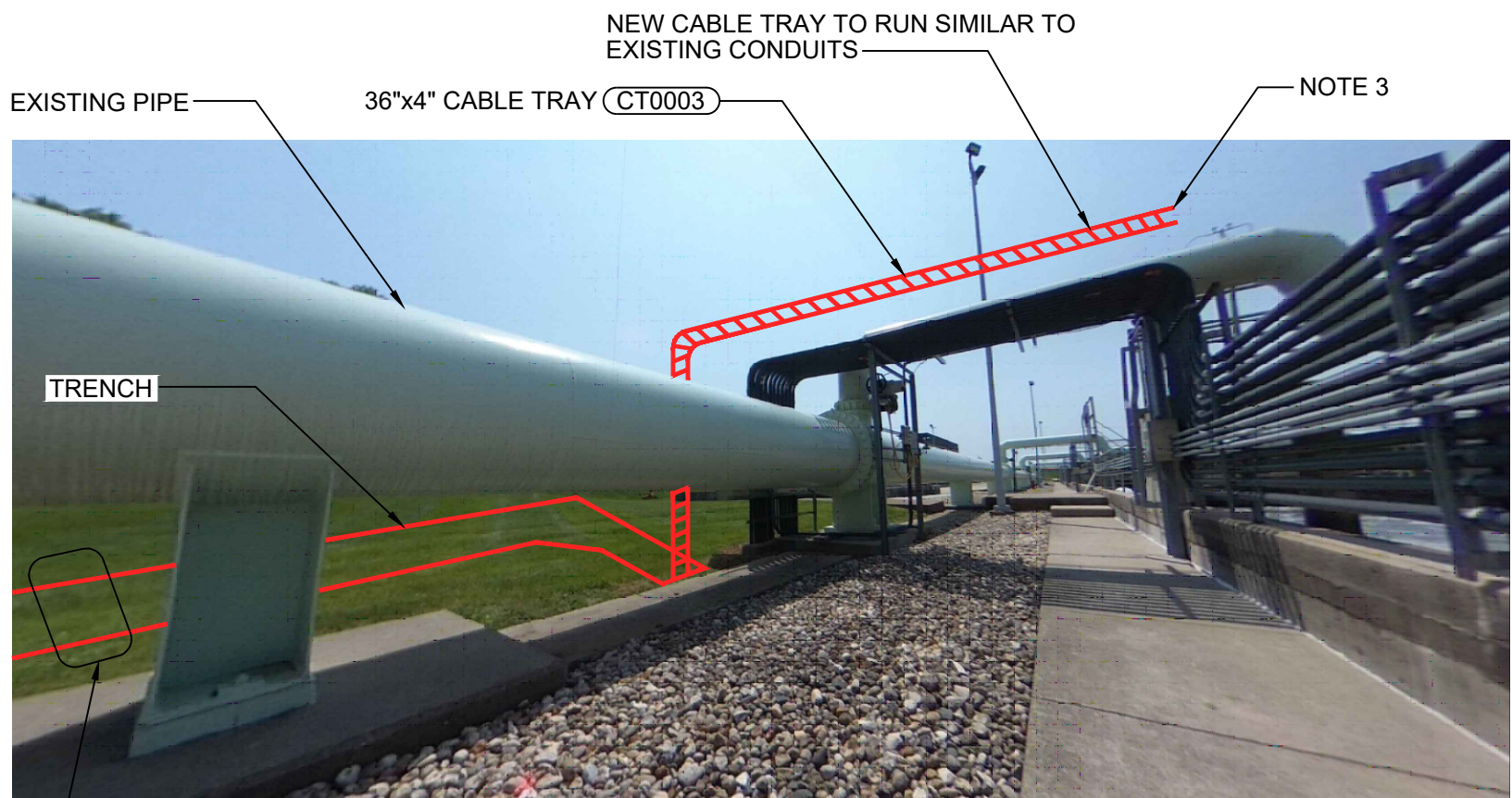


SECTION
 00-E-101 NO SCALE



DETAIL
 00-E-301 NO SCALE

FOR SECTION
 SEE "DETAIL A"



SECTION
 00-E-101 NO SCALE

THIS DRAWING WAS ORIGINALLY
 APPROVED FOR CONSTRUCTION BY
 SCOTT D STOCKHAM ON 9/5/2024 AND
 SEALED BY SCOTT D STOCKHAM A
 LICENSED PROFESSIONAL ENGINEER IN
 THE STATE OF ILLINOIS, PE NO.
 62-051986

BNR IMPROVEMENTS -
 AERATION BASIN
 MODIFICATIONS

1	10/23/24	ADDENDUM NO. 2
REVISIONS AND RECORD OF ISSUE		
DESIGNED:	EJB	
DETAILED:	KMP	
CHECKED:	SDS	
APPROVED:		
DATE:	SEPTEMBER 2024	
PROJECT NO.:	415846	

GENERAL

ELECTRICAL

DUCT BANK SCHEDULE
 AND SECTIONS

00-E-301

33
 OF
 113

SECTION 40 05 59.33 - FRP SLIDE GATES

PART 1 – GENERAL

1.1 SCOPE

- A. This section covers furnishing fiber reinforced plastic (FRP) slide gates and actuators as specified herein and as indicated in the Stainless Steel Slide Gates Schedule. Slide gates shall be furnished complete with frames, slides, seals, actuators, operating stems, and appurtenances as specified herein, as indicated in the schedules. Operators shall be in accordance with the Actuators for Process Valves and Gates section.

1.2 GENERAL

- A. Equipment furnished under this section shall be fabricated and assembled in full conformity with Drawings, Specifications, engineering data, instructions, and recommendations of the equipment manufacturer, unless exceptions are noted by Engineer.
- B. Gates and actuators shall be furnished with all necessary parts and accessories indicated on the Drawings, specified, or otherwise required for a complete, properly operating installation and shall be the latest products of a manufacturer engaged in the production of gates.
- C. General Equipment Stipulations.
 - 1. The General Equipment Stipulations shall apply to all equipment furnished under this section. If requirements in this specification differ from those in the General Equipment Stipulations, the requirements specified herein shall take precedence.
- D. Tagging
 - 1. Each item of equipment and each part shipped separately shall be tagged and identified with indelible markings for the intended service. Tag number shall be clearly marked on all shipping labels and on the outside of all containers.
- E. Governing Standard
 - 1. Except as modified or supplemented herein, all gates shall conform to the applicable requirements of ANSI/AWWA C563.
- F. Identification
 - 1. Gates shall be tagged as specified in the Equipment and Valve Identification section.
- G. Shop Testing
 - 1. All gates shall be completely assembled in the shop to ensure that all parts fit together properly.

1.3 SUBMITTALS

- A. Complete drawings, construction details, and specifications covering the gates and appurtenances shall be submitted in accordance with the section. Each drawing shall be identified with the respective gate designation.
- B. Drawings shall include separate wiring diagrams for each electrically operated gate and related electrical control component.

1.4 DELIVERY, STORAGE, AND HANDLING.

- A. Shipping shall be in accordance with the Product Delivery Requirements section. Handling and storage shall be in accordance with the Product Storage and Handling Requirements section.
- B. In addition, frames shall be provided with corner bracing, plywood sheet backing, or other means to hold the frames in proper alignment during shipment and installation. The bracing or backing shall be factory applied and will not be removed until after the frames have been installed in the structures.

PART 2 - PRODUCTS

2.1 SERVICE CONDITIONS

- A. FRP slide gates will be provided in the drainage structures outside of each aeration basin to isolate the basin drain and structure drain.

2.2 PERFORMANCE AND DESIGN REQUIREMENTS.

- A. FRP Slide gates shall be designed for the conditions and requirements indicated in the Stainless Steel Slide Gates Schedules.
- B. Design.
 - 1. Liberal factors of safety shall be used throughout the design, especially in the design of parts subject to intermittent or alternating stresses. In general, working stresses shall not exceed one-third of the yield point or one-fourth of the ultimate strength of each material.
 - 2. Gates shall be designed for the seating and unseating heads indicated in the Stainless Steel Slide Gates Schedule. Both the design head and the operating head shall be measured from the surface of the liquid to the invert of the gate. Gates shall be designed to fit into the structures indicated on the Drawings.
 - 3. Gates shall have a maximum leakage rate of 0.10 gpm/wetted foot under seating and unseating head pressures under full design head.

2.3 ACCEPTABLE MANUFACTURERS

- A. The fabricated FRP slide gates furnished under this section shall be manufactured by:
 1. Plasti-fab HDTS
 2. Engineer-approved equivalent.
- B. All manufacturers shall be experienced in the design and manufacture of specific gates and accessories for a minimum of 5 years with a minimum of five site installations of gates of similar size and use.
- C. This listed equipment is part of the Base Bid as indicated on the Bid pages and will be considered as establishing the type, function, appearance, and quality required as defined in the General Conditions.
- D. The drawings and specifications were prepared based on the named manufacturers. Contractor shall include in the Bid and shall be responsible for the cost of any changes, including engineering changes, to accommodate the other Base Bid equipment, including but not limited to structural, mechanical, and electrical work.
- E. Contractor may provide Alternative Bids for equipment from other FRP Slide Gate or Stainless Steel Slide Gate manufacturers by writing their name into the blank(s) provided on the Bid form. Contractor shall comply with all provisions regarding substitute items and shall include in the Bid and be responsible for the cost of any changes to accommodate substitute equipment including but not limited to structural, mechanical, and electrical work. Contractor shall also pay costs of engineering services for review of substitutes and for revisions of drawings and/or specifications by Engineer to accommodate substitutes.

2.4 MATERIALS.

Gate Disc	Composite FRP material completely encapsulating an internal steel reinforcing structure.
Glass:	Chop strand mat and woven roving
Resin:	Pigmented Polyester Resin
Surfacing Veil:	C-Veil
Filler:	None
Internal Steel Reinforcing:	Carbon Steel
Core Material:	Foam or recycled composite material

Guide Frame	
Head Frame:	Type 316 Stainless Steel
Guide Frame Rails:	Type 316 Stainless Steel
Operator Support Yoke:	Type 316 Stainless Steel

Stems and Gate Hardware	
Stem and Guides:	Type 316 Stainless Steel
Gate Hardware:	Type 316 Stainless Steel

Seals	
Side and Top Seals:	Hollow Bulb J Seal molded of extruded virgin neoprene

Bottom Seal:	Wedge Seal molded of extruded virgin neoprene
J-Seal Clamping Bar and Fasteners	
Clamping Bar:	Type 316 Stainless Steel
Fasteners:	Type 316 Stainless Steel
Wear Strips	
Wear Strip:	UHMW Polyethylene
Fasteners:	Type 304 Stainless Steel
Lift Nuts and Thrust Nuts:	Manganese Bronze, ASTM B-584, Alloy 865
Thrust Collar	Type 316 Stainless Steel
Handwheel	Type 316 Stainless Steel
Floor stand	Type 316 Stainless Steel
Stem Cover	Provide rising stem gates with UV resistant clear plastic, polycarbonate, or steel pipe, capped, vented, and of a length to allow full travel of gate.
Assembly Fasteners	Stainless steel, AISI Type 302, 303, or 304.
Epoxy Enamel (NSF 61 Certified Systems)	PPG-Amercoat "Amerlock 400 High-Solids Epoxy Coating", Carboline "Carboguard 891", Sherwin-Williams "Macropoxy 646NSF" or Tnemec "Series N140 Pota-Pox Plus"; immersion service.

2.5 DESIGN CRITERIA

- A. Composition of the gate laminate shall be in accordance with the recommendations shown in the Quality Assurance Report for Reinforced Thermoplastic (RTP) Corrosion Resistant Equipment prepared under the sponsorship the Society of the Plastics Industry, Inc. (SPI) and the Material Technology Institute of the Chemical Process Industries, Inc. (MTI) for "Hand Lay-up Laminates" and shall meet the specifications for Type 1, Grade 10 laminates shown in Appendix M-1 of said report.
- B. Visual inspection for defects shall be made without the aid of magnification and defects shall be classified as to type and level as shown in Table 1 of ANSI/ASTM D2563-0, approved 1977, (or any subsequent revision). Allowable surface tolerances are as follows:

DEFECTS	ALLOWABLE TOLERANCE
Cracks	None
Crazing	
Blisters	
Chips	
Pits	
Dry Spots	
Fish Eyes	

FRP Slide Gates

Burned Areas
Entrapped Air

Wrinkles and solid blisters, not to exceed 1/8" Maximum Deviation: 10% of thickness

Surface porosity (pinholes or pores in the laminate surface) None

Exposed Glass None
Exposure of cut edges

Scratches None more than 0.002" deep

Foreign Matter None

Maximum Fiber Stress Ultimate or yield, whichever applies, does not exceed 2.5 times the working stress.

Deflection Deflection across the gate width shall be limited to L/360 or 1/4", whichever is less, at the maximum operating head.

Head Pressure Gate shall be designed for a pressure indicated in the Stainless Steel Slide Gates Schedule.

Surface Conditions All gates shall be flat and level. Warpage throughout the entire gate shall not produce a crown of more than 1/16" in any direction gate shall not produce a crown of more than 1/16" in any direction.

C. Physical Properties.

1. Structural characteristics for a 1/8" glass mat laminate shall meet the following minimum physical properties.

Tensile strength	15,000 psi
Flexural Modulus	1,000,000 psi
Flexural Strength	20,000 psi
Compressive Strength	22,000 psi
Impact Strength	9.0 ft-lbs/in.
Water absorption	0.13% (in 24 hours)

2. Seals: Extruded Virgin Neoprene Seals shall have the following physical characteristics.

Specific Gravity	1.25
------------------	------

Hardness	55 - 65 Shore A Durometer
Tensile Strength	1500 psi min.
Elongation	300%
Low temperature brittleness	- 40° F.

3. Wear Strips: Physical properties of UHMW Wear strips shall be:

Tensile strength	5,600 psi
Water Absorption	0.01% (in 24 hrs)
Flexural Modulus (@73° F)	130,000 - 140,000 psi
Coefficient of Friction	0.15

2.6 CONSTRUCTION

- A. Gate Discs. Slide gate disc shall be manufactured of fiberglass reinforced polyester totally encapsulating an internal reinforcing structure.
- B. Each gate shall be molded individually to the exact dimensions specified. Seams and joints in and on the disc are not acceptable. Gates shall be manufactured of reinforced thermoset plastic. Gate disc shall have UV Stabilizing pigment in the Resin to provide long-term protection from UV. The surface shall be resin rich to a depth of .010 inches to .020 inches and reinforced with C-glass or polymeric fiber surfacing material. The surface shall be free of exposed reinforcing fibers. The composition of these layers shall be approximately 95% (by weight) resin. The remaining laminate shall be made up of copolymer composite and reinforcing fibers in a form, orientation and position to meet the mechanical requirements.
- C. Structural reinforcing shall be utilized to attain the necessary stiffness to meet deflection requirements and shall be well encapsulated with a laminate not less than 1/4" thick on each side to ensure against any permeation by water to the core areas. A Type-316 stainless steel stem mounting bracket shall fasten to the gate with through bolts. The through holes shall not pass through or in contact with the internal mild steel reinforcing. Core material must be 100% resistant to decay and attack by fungus and bacteria and be resistant to hydrocarbons.
- D. Gate disc shall have an external surface of continuous fiberglass reinforced plastic (FRP) totally encapsulating an internal-reinforcing structure without glued, or otherwise joined parts. To assure maximum service life, the copolymer composite shall be ultraviolet stabilized and seamless to protect inner structural members from corrosion.
- E. Metal discs subject to corrosion shall not be acceptable alternatives to composite FRP material.

F. Seals.

1. The gate shall be equipped with elastomeric seals to reduce leakage. Elastomeric J-seals shall be made of molded or extruded neoprene having a hardness range of 55 to 65 shore A durometer and conforming to ASTM spec. D-2000 having a maximum compression set of 25%, and low temperature brittleness to meet suffix F-17 (-40 F). Seals, including bottom seals, shall be mounted on gate covers with T-304 stainless steel cap screws and T-304 stainless steel or FRP clamping bars thus providing a means of repair, and replacement without dewatering the channel. A 1/4" thick UHMW wear strip will be fastened to the opposite side of the gate from the J-seals along both sides and shall have a coefficient of friction less than 0.15.

G. Frames and Guides.

1. Guides shall be styled for embedment, wall mounting or in-channel mounting as shown on the contract drawings and/or gate schedule. Guides shall be fabricated from Type T-316 stainless steel and shall have a slot suitable for mating with the gate disc. Guides to be bolted to the head wall shall be equipped with heavy duty mounting angle for ease of mounting to the channel wall by means of T-316 stainless steel anchor bolts. Where the guides are extended above the operating floor level to form the bench stand upon which the lift mechanism is fastened, they must be suitably strong and rigid without the use of additional stiffening members. The head rail shall be affixed so as to allow the gate to be removed from the guide without disassembly. The head rail shall have a maximum deflection of 1/4" when subjected to a horizontal force of four times the 40 lb. maximum handwheel pull. Where a wall mounted guide frame extends above a concrete wall the top anchor bolt shall be not more than 6" below the top of the wall. Gate inverts shall be at elevation indicated in schedule. Bottom seals shall be provided when gates not flush with channel bottom.

H. Closures.

1. The bottom of each gate frame shall be recessed so that the waterway is not obstructed. A compressible seal shall be securely attached to the bottom of the slide or to the frame invert. The seal shall be of sufficient length to seal the bottom corners of each slide.
2. Where indicated in the Stainless Steel Slide Gates Schedule, gates shall be provided with resilient hollow bulb J-seals attached to the frame members.
3. For shut-off service, a resilient hollow bulb J-seal shall be attached to the frame along the invert and top of the opening and up both sides to seal the slide in any positions.
4. Each J-seal shall be provided with a full-length retainer bar which shall compress the seal and prevent leakage between the seal and the frame member. The method of attachment of J-seals to frame members shall permit replacement of the seals without disassembling or removing the gate.
5. An acceptable alternative to J-seal is a UHMW polyethylene seal/seal. A UHMW polyurethane seat/seal extruded shape shall fit into a dovetail groove in the guide section and shall seal on both upstream and downstream sides of the slide. The seat/seal system shall act as both a bearing surface and as a seal, and the seal system shall be self-adjusting. The seat/seals shall be easily replaced without removing the gate from the wall. For flush

bottom application, the invert shall have a replaceable resilient neoprene seal mounted on the frame invert.

I. Operating Stems.

1. Each gate shall be equipped with a rising operating stem. The stem will have Acme threads and shall be provided with adjustable stop collars to limit upward and downward travel. Stems shall have a maximum L/R of 200. Stem guides with bronze or FRP bushings shall be used to maintain an L/R of 200.
2. Operating stems shall conform to the requirements of Section 4.3.6 of the governing standard. Contact surfaces of threads shall be rolled or machined to a 63 microinch finish, or smoother. Each stem shall be securely attached to the slide.

J. Adjustable Wedging Device.

1. Gates shall be fitted with an adjustable wedging assembly comprised of a T-304 stainless steel wedging bar and silicon bronze adjusting bolts with locking nuts. The adjusting bolts shall be non-galling for long-term easy adjustment. Gate seals shall be designed for easy adjustment in the field to achieve the specified leakage rate.

2.6 ACTUATORS.

- A. Actuators and their accessories shall be the type as indicated in the Stainless Steel Slide Gate Schedules and as specified in the Actuators for Process Valves and Gates section.

Stem covers for manual actuators shall be UV resistant clear plastic, polycarbonate, or steel pipe as indicated in the Stainless Steel Slide Gate Schedules and as specified in the Actuators for Process Valves and Gates section.

2.8 SHOP PAINTING.

- A. All surfaces of aluminum or stainless steel which will be in contact with concrete, mortar, grout, or dissimilar metals shall be given a coat of epoxy enamel or coal tar epoxy. The epoxy coating shall be NSF 61 certified for gates installed in a potable water facility.

2.9 SHOP TESTING.

- A. Gates shall be completely assembled in the shop to ensure that all parts fit together properly.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Gates shall be installed in accordance with the Gate Installation section.

3.2 SLIDE GATE SCHEDULE

- A. Refer to gate schedule that is attached to the Stainless Steel Slide Gate section.

3.3 FIELD QUALITY CONTROL

- A. Requirements for manufacturer's field quality control services shall be installed in accordance with the Gate Installation section.
- B. Installation Supervision.
 - 1. The equipment manufacturer shall furnish installation supervision services when indicated in the Equipment Schedule section.
- C. Installation Check.
 - 1. The equipment manufacturer shall provide a certificate of proper installation when indicated in the Equipment Schedule section.
- D. Functional Testing.
 - 1. The equipment manufacturer shall provide functional testing assistance when indicated in the Equipment Schedule section.
- E. Performance and Other Testing.
 - 1. The equipment manufacturer shall provide performance and other testing services when indicated in the Equipment Schedule section.

End of Section