June 24, 2021

To: All Prospective Bidders and Plan Holders

Re: Addendum No. 1, Wastewater Treatment Improvements
City of Fort Pierre, SD
BW Project No.: 20301.001

ADDENDUM NO. 1

WASTEWATER TREATEMNT IMPROVEMENTS
CITY OF FORT PIERRE, SOUTH DAKOTA

This addendum forms a part of the Contract Documents, dated April 2021 Rebid, for the project identified above and modifies, as noted, the original project. Acknowledge receipt of this addendum in the space provided on the Bid Proposal Form. Failure to do so may subject bidder to be disqualified.

This addendum consists of two (2) pages and a fifteen (15) page attachment.

CONTRACT DOCUMENTS AND SPECIFICATIONS

INSTRUCTION TO BIDDERS

Remove ARTICLE 5-PRE-BID CONFERENCE in its entirety and insert the following paragraph.

ARTICLE 5 -- PRE-BID CONFERENCE

5.01 A Pre-Bid conference will ~~not~~ be held at Ft. Pierre City Hall on **Thursday July 8, 2021 at 9 AM**. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are strongly encouraged to attend and participate in the conference. Engineer will transmit to all prospective Bidders of record such Addenda as Engineer considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

BID FORM

Remove the BID FORM in its entirety and insert the attached BID FORM (10 pages).

Changes include the following:

- Base Bid --Line item #22 inserts Sump Pit in description.
- Base Bid --Line item #24 and #25 removes epoxy coating from air headers.
- Alternate Bid Item #1 --Line item #3 and #4, revises the number of manholes to 6.

AGREEMENT

Remove paragraph 4.02 in its entirety under ARTICLE 4-CONTRACT TIMES and insert the following paragraph.

4.02 Dates for Substantial Completion and Final Payment

The **Base Bid** Work Will be substantially completed **by July 1st, 2022 and the Alternate Bid Work (all items) will be substantially complete by September 1, 2022** and ~~within 150 days after the date when the Contract Times commence to run~~ as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions **for the Base Bid Work by August 1st, 2022 and for the Alternate Bid Work (all items) by October 1, 2022.** ~~within 180 days after the date when the Contract Times commence to run~~

Remove the last line of paragraph 4.03 under ARTICLE 4-CONTRACT TIMES and insert the following sentence.

After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner $**2,000** for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

DRAWINGS

Remove and insert the following Drawings.

Drawing C102(sheet 8) and C500(sheet 37)

Drawing X100(sheet 32), X101(sheet 33), and X103 (sheet 35).

End of Addendum

Mark Baltzer, P.E.
Project Engineer

BID FORM

CITY OF FORT PIERRE
WASTEWATER TREATMENT IMPROVEMENTS

TABLE OF CONTENTS

Page

ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

City of Ft. Pierre, City Hall
8 E Second Avenue
Ft Pierre, SD 57532

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

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

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

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

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

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at performance or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation **(other than Bidder)**;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

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

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

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

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

All specified cash allowances are included in the price(s) set forth below and have been computed in accordance with Paragraph 11.02 of the General Conditions.

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

If awarded, the Contract will be awarded per the Bid Documents and for the amount of the Base Bid Price or Alternate Bid Price at the Owner's discretion. Bidder's shall complete the Total Base Bid Price, completing the Alternate Bid Price is at the Bidder's discretion.

The Owner reserves the right to add or deduct any item(s), at the cost(s) shown below, by change order after the award of the Contract.

Item No.	Item	Units	Quantity	Unit Price	Total Price
1	Mobilization	LS	1.0		
LAGOON PIPING IMPROVEMENTS & MODIFICATIONS					
2	16" PVC Gravity Piping, from Intake MH to New Cell #1, w/ Berm Cut, Collar, Compaction & Rip Rap.	LS	1.0		
3	6'-0" Dia FM Intake Manhole at New Cell #1	LS	1.0		
4	12" PVC Gravity MBBR Influent Piping From Cell #3, w/ Berm Cut, Collar & Compaction, Cleanout, & Plug Valve	LS	1.0		
5	12" PVC, MBBR Gravity Effluent Piping to Cell #3, w/ Berm Cut, Collar, Compaction, & Rip Rap	LS	1.0		
6	12" PVC Gravity Sewer, from MBBR to 4' MBBR Effluent Manhole @0.22%	LF	520		
7	4'-0" MBBR Effluent Manhole (near Cell #4)	LS	1.0		
8	10" PVC Forcemain, to New Cell #1 Intake Manhole	LF	100		
9	10" PVC Forcemain From Near Cell #4 to New Cell #1 Intake Manhole	LF	700		
10	10" Plug Valve & Box	EA	3.0		
11	Manual Air Release Assembly on 10" FM	EA	2.0		
12	4" PVC Recirculation Forcemain, From Cell #4 Effluent to New Cell #1 Intake MH	LF	1990		
13	3" PVC Forcemain, Wagon Wheel Extension to New Cell #1 Intake MH	LF	800		
14	3" & 4" Plug Valve & Box	EA	2.0		
15	12" PVC Bypass Line & Plug Valve Between New Cells #1 & #2	LS	1.0		
16	Modify Weir Opening in Existing Control/Outlet Structure of New Cell #2 w/ SS Plate	LS	1.0		
LAGOON EFFLUENT & UV DISINFECTION PIPING & IMP.--NEAR CELL #4					
17	Process Piping --Exterior & Interior UV Disinfection System, Piping, Valves, Fittings, Adapters & Connections to Existing	LS	1.0		
18	Repurpose Existing MH as Recirc MH, New Recirc Pump & Discharge Piping, SS Rail, & Electrical	LS	1.0		
19	Precast UV Disinfection Building (14'x 24'), including Foundation, Mechanical, & Electrical	LS	1.0		
20	UV Building Site Grading, Relocate & New Fencing, 16' Gate, and 12' Gravel Access Drive	LS	1.0		
	CONTINUED NEXT PAGE				

	CONTINUED FROM PREVIOUS PAGE				
Item No.	**Item**	**Units**	**Quantity**	**Unit Price**	**Total Price**
MBBR TREATMENT BASIN, BLOWER AND AERATION PIPING					
21	MBBR Concrete Influent Structure (6'x 6')& Connecting Piping, and Cover Grate and Installation of Trash Basket	LS	1.0		
22	MBBR CIP Concrete Tanks (18'-4"x 35'-4")& Connecting Piping, Sump Pit, Grate, and Site Grading, Mechanical & Electrical	LS	1.0		
23	MBBR Concrete Effluent Structure (6'x 6')& Connecting Piping, Cover Grate, & Downward Opening SS Slide Gate	LS	1.0		
24	8" DIP MBBR Air Header, CL 56 Double Wrap w/ Poly	LF	145		
25	8" DIP Lagoon Air Header, CL 56 Double Wrap w/ Poly	LF	630		
26	4" HDPE Lagoon Air Header, SDR 17	LF	670		
27	Blower Piping--Interior/Exterior DI Manifold Piping, Valves, Fittings, Adapters, & Connections in Blower Building	LS	1.0		
28	Precast Blower Building (14'x 34'), including Foundation, Site Grading, Mechanical, & Electrical	LS	1.0		
29	Site Electrical for MBBR and UV Disinfection and Blower Building along with Two (2) Transformers	LS	1.0		
30	Temporary Environmental and Erosion Control / SWPPP & NPDES Permit	LS	1.0		
Treatment Equipment Installation and Handling with RFP Equipment Cost					
31	Install UV Disinfection System and Sampler, Mag Meter, Meter Readout, & Controls in UV Building	LS	1.0		
32	Install Blowers, VFDs & Controls in Blower Bldg	LS	1.0		
33	Install MBBR System in CIP Concrete MBBR Tanks, including Aeration Piping, Media, Electric Heater, Insul. Blanket, Sieves, Check Valve & Controls for Complete System	LS	1.0		
34	Install Aerators, Valves and Flexible lines in lagoons New Cells #1 and #2	LS	1.0		
	Subtotal Construction & Equipment Install Project Price				**$ -**
35	CONTRACT PRICE ASSIGNED FROM EQUIPMENT RFP	LS	1.0	$ 1,002,000.00	$ 1,002,000.00
	TOTAL BASE BID PROJECT PRICE				
	CONTINUED NEXT PAGE (ALT BID ITEMS)				

	CONTINUED FROM PREVIOUS PAGE				
Item No.	**Item**	**Units**	**Quantity**	**Unit Price**	**Total Price**
GRAVITY OUTFALL PIPING (SHT C105 & C106) --Alternate Bid Item #1					
1	12" SDR 21 PVC Gravity Outfall Piping , (pipe material only)	LF	1100		
2	12" SDR 21 PVC Gravity Outfall Piping , Excavation, Compaction Bedding and Pipe Install	LF	1101		
3	4-Foot Dia. Standard Manhole (material only)	EA	6.0		
4	4-Foot Dia. Standard Manhole, Excavation, Compaction, and MH Install	EA	6.0		
5	12" Open Road Crossing & Gravel Repair	EA	1.0		
6	Concrete Outlet Structure	EA	1.0		
	TOTAL ALT BID #1 PROJECT PRICE				**$ -**
PIPING IMPROVEMENTS AT EXISTING CELLS #1 AND #2 (SHT C100) --ALTERNATE BID ITEM #2					
1	10" PVC Forcemain, at Existing Cells #1 and #2	LF	870		
2	8" Plug Valve and Box	EA	2.0		
3	10" Plug Valve & Box	EA	2.0		
4	Furnish Materials Only for 6'-0" Dia MH (new Pump St. Intake/Wetwell)	EA	1.0		
	TOTAL ALT BID #2 PROJECT PRICE				**$ -**
SITE IMPROVEMENTS AT LAGOON CELLS #1 #2, #3, & #4 --ALTERNATE BID ITEM #3					
1	Gravel Surface Repair and Plant Road Improvements, Including Gravel Placement, Compaction, & Grading (3" depth)	SY	1450		
2	Concrete CIP Water Markers	EA	4.0		
	TOTAL ALT BID #3 PROJECT PRICE				**$ -**

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are attached to and made a ~~condition~~ **part** of this Bid:

A. Required Bid security in the form of **a BID BOND as provided for in the Instructions to Bidders. The Bid Bond envelope must be separate from the envelope containing the Bid Form.**

B. ~~List of Proposed Subcontractors for the following work:~~ **The Bidder shall list the names of subcontractor(s) who will be on the job and will state the firm's name and principal**

location of the office of each. A change is subcontractor will not be allowed without the approval of the Owner.

WORK DESCRIPTION	SUBCONTRACTORS	LOCATION

C. ~~List of Proposed Suppliers for the following items:~~ **The Bidder shall list the manufacturers/suppliers of precast buildings and appurtenances**

DESCRIPTION	SUPPLIER	LOCATION

D. **The CONTRACTOR bidding shall list the type, sizes, pressure classes, and manufacturer of pipe material. Only one pipe material and pipe manufacturer shall be listed for each pipe size and pressure class.**

PIPE MATERIAL	**-PIPE SIZES & PRESSURE CLASSES**	**PIPE MANUFACTURER**	**LOCATION OF PLANT**

E. Evidence of authority to do business in South Dakota;

F. Contractor's Excise Tax License

G. Bidders Corporate Acknowledgement

H. (1)--DBE 6 "DBE Subcontractor Solicitation Information" and (2)--Debar 2 forms "Certification Regarding Debarment, Suspension, and Other Responsibility Matters" and (3)--AIS forms "American Iron and Steel Certification" from the SRF General Conditions, must be submitted with Bid. DBE 9 and DBE 11 forms do not need to be submitted with the Bid, but must be submitted to SDDANR within 10 calendar days of the bid opening.

ARTICLE 8 – DEFINED TERMS

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

BID SUBMITTAL

9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____
Type (General Business, Professional, Service, Limited Liability):_____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in South Dakota is ____/____/____.

A Joint Venture

Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____(SEAL)

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

_____

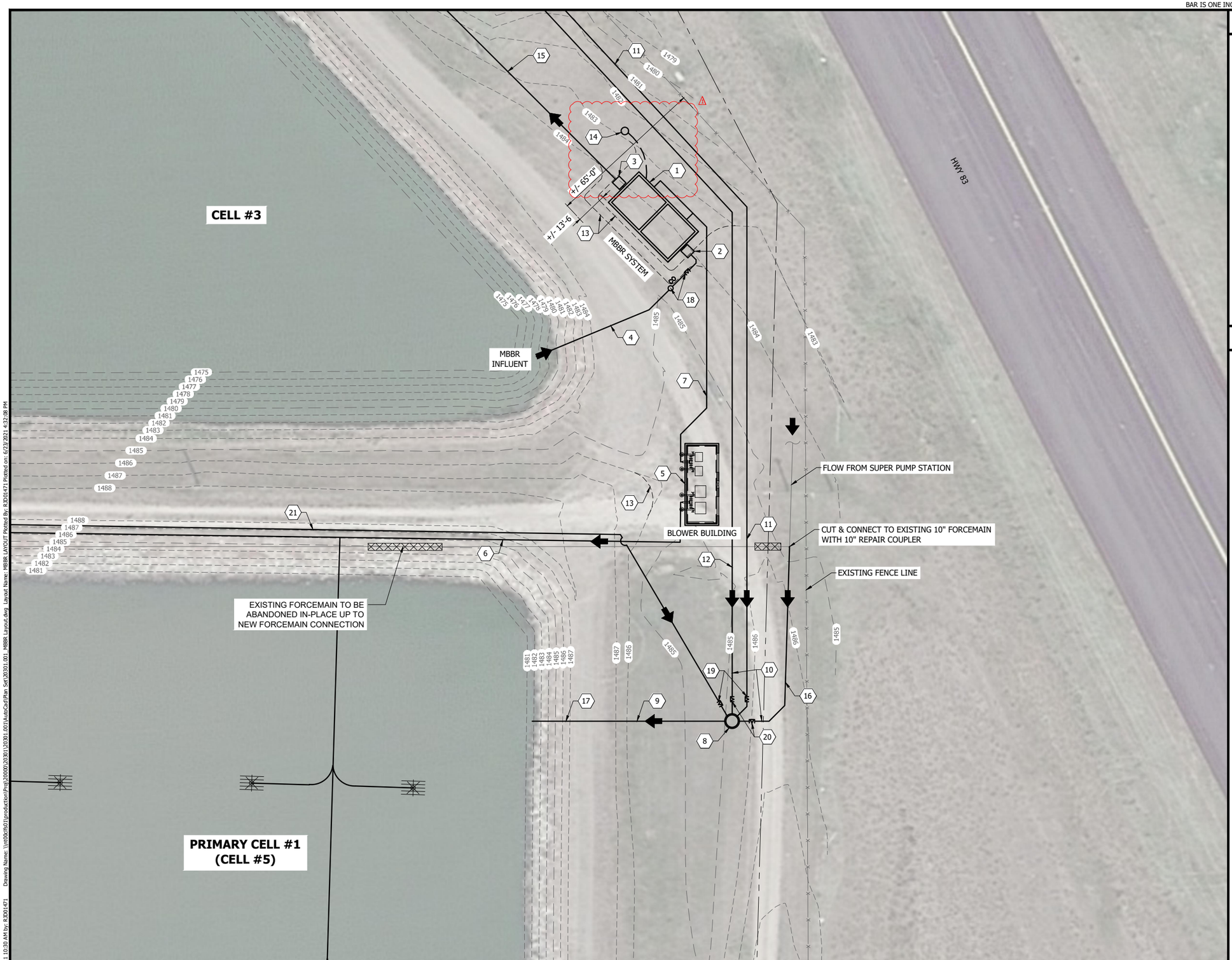
Phone No. _____ Fax No. _____

E-mail _____ _____

SUBMITTED on _____, 20____.

State Contractor License No. _____.

BAR IS ONE INCH ON OFFICIAL DRAWINGS. 0 1" IF NOT ONE INCH, ADJUST SCALE ACCORDINGLY.



INFLUENT, MBBR AND BLOWER BUILDING
SCALE: 1"=20'
0 20' 40'

GENERAL NOTES

1. MINIMUM BURY DEPTH OF ALL FORCEMAINS TO BE 6 FEET.
2. ALL FORCEMAIN AND GRAVITY SEWER TO BE PVC SDR 21 UNLESS NOTED OTHERWISE.

REFERENCE NOTES

1. CONCRETE MBBR TANKS #1 & #2, SEE REFERENCE SHEET X102 & STRUCTURAL SHEET S100.
2. MBBR INFLUENT STRUCTURE, SEE SHEET D302 FOR DETAILS
3. MBBR EFFLUENT STRUCTURE, SEE SHEET D303 FOR DETAILS
4. MBBR INFLUENT PIPING FROM CELL #3 TO MBBR TANKS, 12" PVC , 70 LF. SEE DETAIL SHEET D301
5. MBBR AND AERATOR BLOWERS AND BLOWER BUILDING, SEE SHEET D100
6. LAGOON AIR HEADER (630 LF OF 8" DIP, 670 LF OF 4" HDPE) 4' MIN BURY DEPTH
7. MBBR AIR HEADER, 145 LF OF 8" DIP, 4' MIN BURY DEPTH
8. NEW CELL #1 FM INTAKE MH (6'-0" Ø)
   TOP OF MH ELEV = 1487.00'
   FL IN (3")=1483.00' (QTY 1)
   FL IN (4")=1483.00' (QTY 1)
   FL IN (10")=1482.50' (QTY 2)
   FL OUT (16")=1481.50'
9. 16" DR 18, C905 , INFLUENT PIPING INTO CELL #1, +/- 100 LF, SEE SHEET D301
10. NEW AIR/VAC RELEASE ASSEMBLY, TAP 10" FM PRIOR TO VALVE, (QTY 2) SEE DETAIL SHEET C501
11. RECIRCULATION LINE TO FM INTAKE MH NEAR NEW CELL #1, SEE SHEET C101 FOR LINE LENGTH
12. EXTEND 10" PVC FORCEMAIN FROM NEAR CELL #4 TO NEW CELL #1 INTAKE MH, SEE SHEET C103 FOR LINE LENGTH
13. GRADE SITE TO DRAIN AND NEW ELEVATIONS SHOWN.
14. 4" DRAIN LINE (PERFORATED HDPE W/ SOCK) AROUND OUTSIDE PERIMETER AT BOTTOM OF MBBR TANKS (ELEV=1468.5') EXTEND TO SUMP PIT, SEE DETAIL ON SHEET C500
15. MBBR EFFLUENT PIPING TO NEW 4' CONC MH/ CELL #4, 12" PVC , 520 LF @ 0.22%.
16. NEW 10" PVC FORCEMAIN TO NEW CELL #1 INTAKE MH, +/- 100 LF
17. PROVIDE CELL SLOPE PENETRATION AND COMPACT EMBANKMENT, SEE DETAIL ON SHEET D301
18. 12" PLUG VALVE AND BOX AND 12" CLEANOUT
19. 3" OR 4" PLUG VALVE AND BOX (QTY 2)
20. 10" PLUG VALVE AND BOX (QTY 2)
21. NEW WAGON WHEEL 3" FM EXTENSION TO INTAKE MH, SEE SHEET C101 FOR LINE LENGTH

#	DATE	DESCRIPTION	BY
-	05-06-2021	FOR BID SET	RTK
-	06/23/2021	ADDENDUM 1	MNB

Bartlett & West
1200 SW EXECUTIVE DRIVE - TOPEKA, KS 66615.3850
PHONE 785.272.2252 - FAX 785.273.8735
www.bartlettwest.com

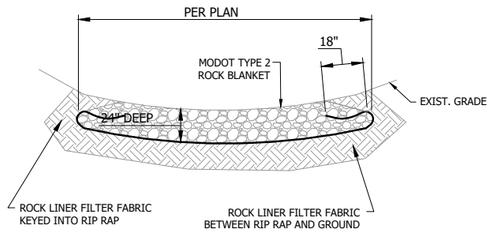
INFLUENT, MBBR AND BLOWER BUILDING OVERALL LAYOUT

FORT PIERRE WASTEWATER TREATMENT IMPROVEMENTS
FORT PIERRE, SD

REGISTERED PROFESSIONAL ENGINEER
REG. NO.
6595
MARK N. BALTZER
SOUTH DAKOTA
05-06-2021

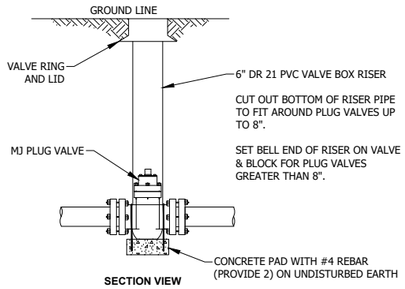
DESIGNED BY:	MNB
DRAWN BY:	RJD
APPROVED BY:	RTK
DESIGN PROJ:	20301.001
CONST PROJ:	20301.001
SCALE:	AS NOTED
DATE:	05-06-2021
DRAWING NO:	C102
SHEET NO:	8 of 43

Last edit on: 6/23/2021 10:30 AM by: RJD01471 Drawing Name: \\n00cifs01\production\Proj\20000\20301\20301.001\AutoCad\Plan Set\20301.001_MBBR Layout.dwg Layout Name: MBBR LAYOUT Plotted By: RJD01471 Plotted on: 6/23/2021 4:32:08 PM



NOTE:
1. ROCK LINER FILTER FABRIC SHALL CONSIST OF A NON-WOVEN, POLYPROPYLENE TYPE FABRIC SUCH AS AMOCO 4553 NON WOVEN GEOTEXTILE FABRIC OR APPROVED EQUAL.

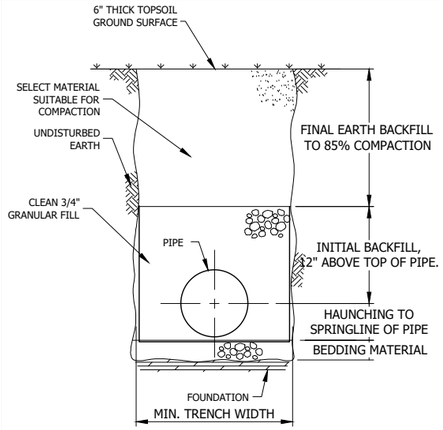
1 ROCK BLANKET
NOT TO SCALE



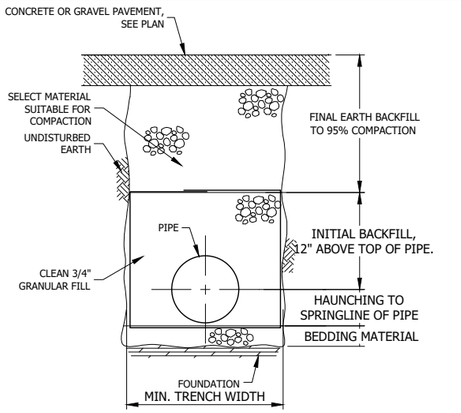
GENERAL NOTES:

1. ANCHOR COUPLING OR PVC PIPE WITH TIEBACK RODS WILL BE REQUIRED BETWEEN VALVE AND FITTINGS.
2. WRAP VALVE AND JOINTS WITH VISQUEEN.
3. VALVE AND RISER SHALL BE PLUMB AND CHECKED BY A LEVEL.
4. IF VALVE BOX IS LOCATED IN PAVEMENT, VALVE BOX SHALL BE CAST IRON TWO PIECE ADJUSTABLE SCREW TYPE VALVE BOX WITH DROP LID (5 ¼" SHAFT)

2 PLUG/GATE VALVE AND BOX
NOT TO SCALE



TYPICAL TRENCH CROSS SECTION



TYPICAL TRENCH CROSS-SECTION- PAVED SURFACE

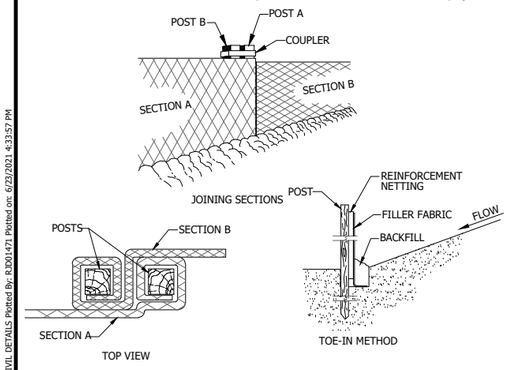
3 PIPE TRENCH DETAIL
NOT TO SCALE

TRENCH NOTES:

1. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS", LATEST EDITION; AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.
2. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100-600mm) PIPE; 6" FOR 30"-60" (750-1500mm) PIPE.
3. HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AS REQUIRED IN ASTM D2321, LATEST EDITION.
4. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:

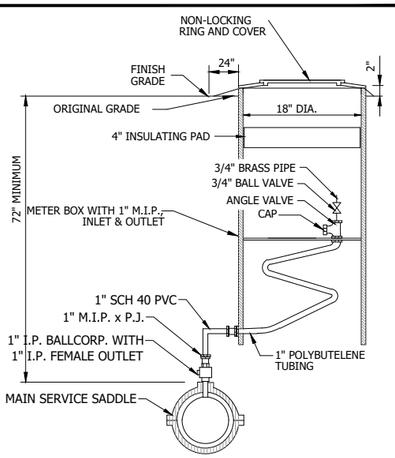
NOMINAL in (mm)	MIN. RECOMMENDED TRENCH WIDTH, in (mm)
4 (100)	21 (530)
6 (150)	23 (580)
8 (200)	25 (630)
10 (250)	28 (710)
12 (300)	31 (790)
15 (375)	34 (860)
18 (450)	39 (990)
24 (600)	48 (1220)
30 (750)	66 (1680)
36 (900)	78 (1980)

EROSION CONTROL PHASING
1. The project is to be constructed in a single phase.
2. Contractor may begin construction activities as soon as the erosion control measures are installed and approved.
3. Contractor shall build the silt fence shown on the plans and in accordance to the SWPPP and shall take care that all areas disturbed during construction drain to the fences installed.
4. All erosion control measures shall remain in place for the duration of the construction project.

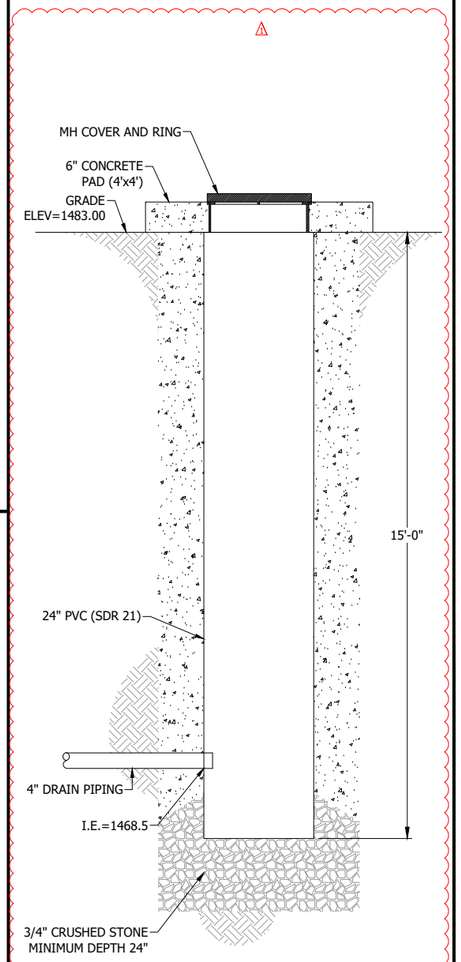


1. EXCAVATE A 6"x 6" TRENCH ALONG THE TOE OF SLOPE.
2. UNROLL ONE SECTION AT A TIME AND POSITION POSTS AGAINST THE DOWNSTREAM WALL OF THE TRENCH. REINFORCEMENT NETTING MUST BE ON DOWNSTREAM SIDE OF FLOW DIRECTION.
3. DRIVE POST INTO THE GROUND UNTIL THE REINFORCEMENT NETTING IS APPROXIMATELY 2' FROM THE TRENCH BOTTOM.
4. LAY THE TOE-IN FLAP OF THE FABRIC IN THE BOTTOM OF THE TRENCH, AND TAMP THE SOIL.
5. DOWNSTREAM END OF SILT FENCE SHALL BE TURNED INTO BACKSLOPE TO FORM ENCLOSURE.

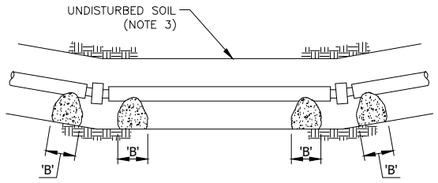
4 SILT FENCE INSTALLATION
NOT TO SCALE



5 MANUAL AIR/VAC RELEASE ASSEMBLY
NOT TO SCALE



6 SUMP PIT DETAIL
NOT TO SCALE



7 TYPICAL THRUST BLOCKING AT DEFLECTED COUPLINGS
NOT TO SCALE

NOMINAL DIA. (IN)	HORIZONTAL THRUST BLOCK SCHEDULE: MINIMUM BEARING SURFACE (SQ FT) DEAD END / TEE	BENDS 11.25°	BENDS 22.5°	BENDS 45°	BENDS 90°	VERTICAL THRUST BLOCK SCHEDULE: MINIMUM BLOCK VOLUME (CU FT) BENDS 3°	BENDS 4°	BENDS 5°	BENDS 11.25°	BENDS 22.5°	BENDS 45°
3	1.4	0.9	0.9	1.1	2.0	0	1	1	2	4	7
4	2.2	0.9	0.9	1.7	3.1	1	1	1	3	6	10
6	4.8	0.9	1.9	3.7	6.8	2	2	3	6	12	23
8	8.6	1.7	3.4	6.6	12.2	3	4	5	11	22	41
10	13.2	2.6	5.1	10.1	18.6	5	6	8	17	34	62
12	18.8	3.7	7.3	14.4	26.6	7	9	11	24	48	89
14	25.6	5.0	10.0	19.6	36.2	9	12	15	33	65	121
16	33.3	6.5	13.0	25.4	47.0	12	15	19	43	85	157
18	42.0	8.2	16.4	32.1	59.4	15	20	24	55	107	198
20	51.7	10.1	20.2	39.5	73.1	18	24	30	67	132	244
24	74.5	14.6	29.1	57.0	105.3	26	35	43	97	190	351
30	115.6	22.7	45.1	88.4	163.4	40	54	67	150	295	545
36	166.0	32.5	64.8	127.1	234.8	58	77	96	216	424	783

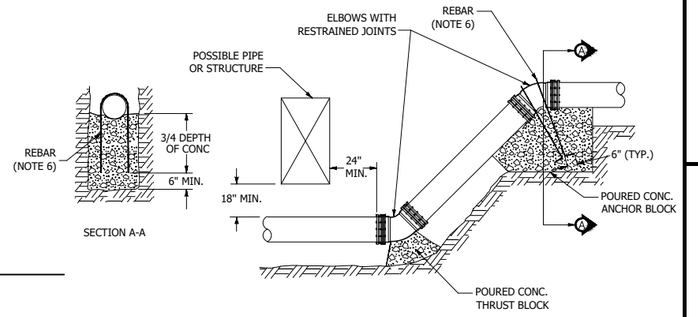
DESIGN CRITERIA:
PIPE PRESSURE (TEST) = 100 PSI
SOIL BEARING CAPACITY = 1,000 LB / SQ FT
UNIT WEIGHT OF CONCRETE = 150 LB / CU FT
SAFETY FACTOR = 1.5

THRUST BLOCK NOTES:

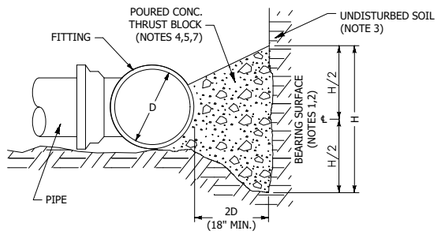
1. THRUST BLOCKS SHALL MEET THE MINIMUM AREA OR VOLUME REQUIREMENT SHOWN IN SCHEDULES. ALIGNMENT ANGLES REQUIRING MULTIPLE FITTINGS SHALL HAVE ONE BLOCK PER FITTING.
2. THRUST FORCE WAS CALCULATED USING PRESSURE AND BEARING CAPACITY ESTABISHED IN DESIGN CRITERA. CONTRACTOR SHALL SCALE MINIMUM VALUES APPROPRIATELY BASED ON TEST PRESSURES IDENTIFIED IN BID DOCUMENTS AND SITE CONDITIONS. (E.G., A 200 PSI PRESSURE REQUIRES TWICE (X2) THE BEARING SURFACE OF A 100 PSI PRESSURE; LIKEWISE ALLUVIAL SOIL REQUIRES HALF (÷2) THE BEARING SURFACE OF SOFT CLAY.) CONTRACTOR SHALL INCREASE SAFETY FACTOR IF REQUIRED BY JURISDICTIONAL CODE.
3. EXTEND THRUST BLOCKS TO UNDISTRUBED SOIL. EXCAVATION INTO TRENCH WALL MAY BE NECESSARY. WHERE NOT POSSIBLE, BEAR AGAINST FILL COMPACTED TO AT LEAST 95% STANDARD PROCTOR DENSITY.
4. BLOCK HEIGHT (H) SHALL BE CHOSEN SUCH THAT CALCULATED BLOCK WIDTH (B) VARIES BETWEEN ONE (1) AND TWO (2) TIMES THE BLOCK HEIGHT. MIN BLOCK HEIGHT SHALL NOT BE LESS THAN PIPE DIAMETER (D).
5. USE STATE DOT CLASS C CONC. ONLY FORM VERTICAL SURFACES OF POURED CONC BLOCKS NOT ON BEARING SURFACE. ENCASE ALL FITTINGS IN AWWA C105 POLYETHYLENE WRAP (8 MIL MIN). DO NOT ALLOW CONC TO DIRECTLY CONTACT JOINTS OR FITTING BOLTS.
6. COAT REBAR WITH BITUMASTIC COMPOUND (SYSTEM 10, SECTION 099000).

BEARING CAPACITIES OF UNDISTURBED MATERIAL (LB / SQ FT)	
Muck	0
Clay, Soft	1,000
Sand, Quick	1,000
Silt	1,500
Alluvial Soil	2,000
Sand, Fine & Loose	2,000
Sandy Silt	3,000
Sand, Clean & Dry & Med Comp.	4,000
Sandy Clay	6,000
Clay, Moderately Dry	6,000
Sand, Compacted Firm	8,000
Clay, Dry	9,000
Hardpan	9,000
Cemented Sand/Gravel	10,000
Brick - Poor Condition	10,000
Brick - Good Condition	30,000
Ledge Rock	50,000
Rock - Good Masonry	60,000
Granite	100,000

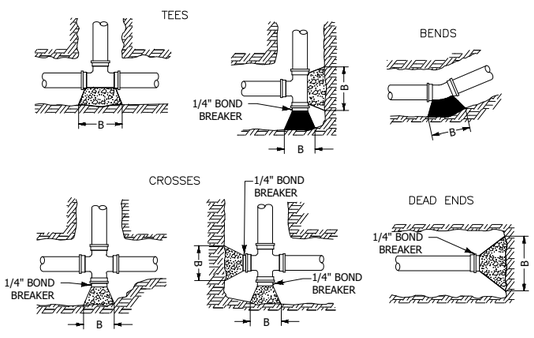
References:
DIPRA. *Thrust Restraint Design.* 2002.
DIPRA. *Handbook of Ductile Iron Pipe.* 1984.
Uni-Bell. *Handbook of PVC Pipe.* 1991.



8 TYPICAL THRUST BLOCKS FOR CHANGES IN PIPE DEPTH
NOT TO SCALE



9 TYPICAL THRUST BLOCK SECTION
NOT TO SCALE



10 TYPICAL THRUST BLOCK PLAN
NOT TO SCALE

#	DESCRIPTION	DATE	BY
-	FOR BID SET	05-06-2021	RTK
-	ADDENDUM 1	06/23/2021	MNB

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CIVIL DETAILS

FORT PIERRE WASTEWATER TREATMENT IMPROVEMENTS
FORT PIERRE, SD

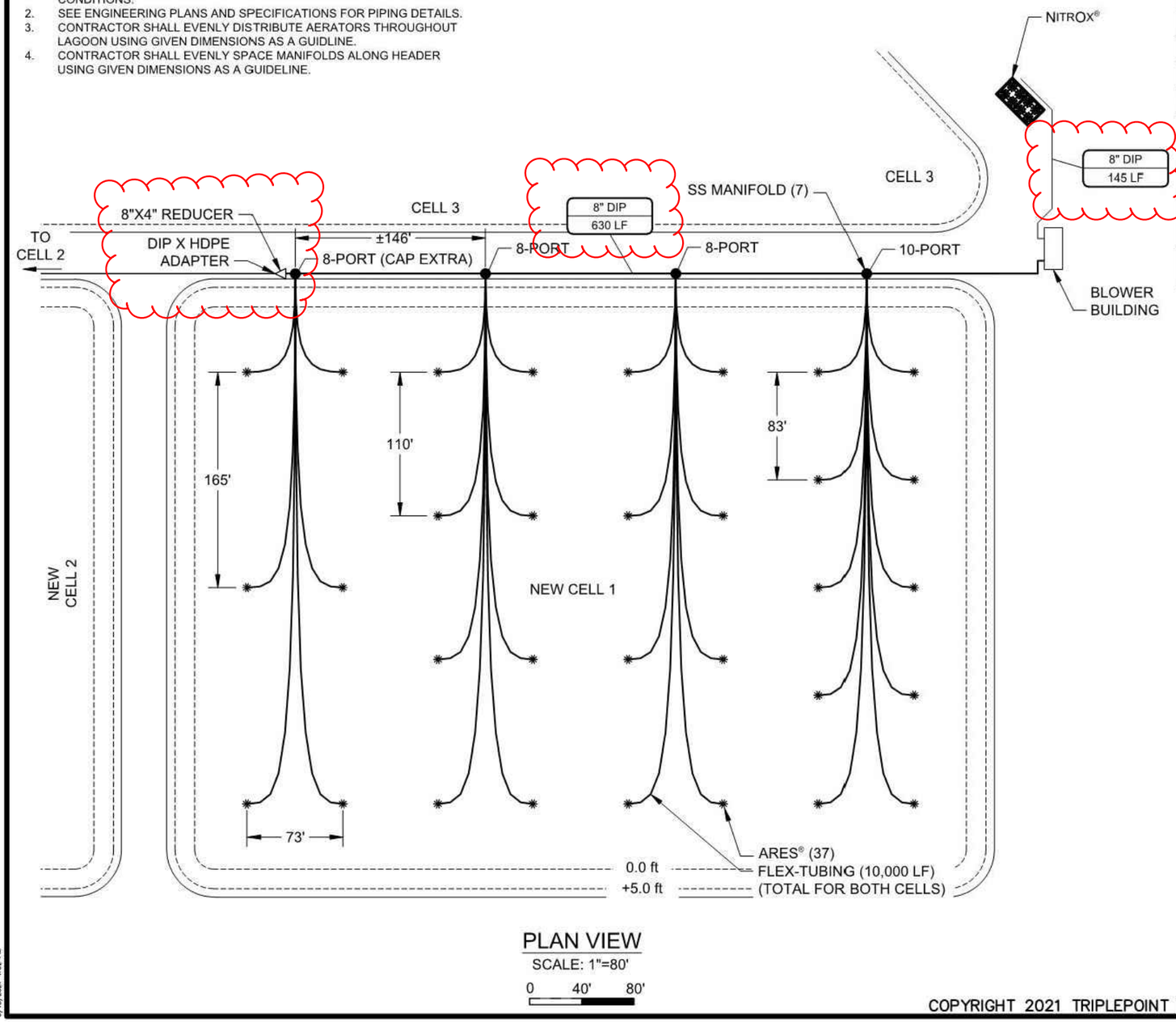
REGISTERED PROFESSIONAL ENGINEER REG. NO. 6595 MARK N. BALTZER SOUTH DAKOTA
05-06-2021

DESIGNED BY:	MNB
DRAWN BY:	RJD
APPROVED BY:	RTK
DESIGN PROJ:	20301.001
CONST PROJ:	20301.001
SCALE:	AS NOTED
DATE:	05-06-2021
DRAWING NO:	C500
SHEET NO:	37 of 43

Last edit on: 6/23/2021 10:30 AM by: RJD01471 Drawing Name: \\nt00zfs01\production\Proj\20000\20301\20301.001\AutoCad\Plan Set\20301.001_Details.dwg Layout Name: CIVIL DETAILS Plotted By: RJD01471 Plotted on: 6/23/2021 4:33:57 PM

AERATION LAYOUT
FORT PIERRE, SD

NOTES:
1. EXISTING CONDITIONS ARE TAKEN FROM AERIAL PHOTOGRAPHS, FIELD OBSERVATIONS, AND/OR PRIOR CONSTRUCTION DOCUMENTS, WHEN AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.
2. SEE ENGINEERING PLANS AND SPECIFICATIONS FOR PIPING DETAILS.
3. CONTRACTOR SHALL EVENLY DISTRIBUTE AERATORS THROUGHOUT LAGOON USING GIVEN DIMENSIONS AS A GUIDLINE.
4. CONTRACTOR SHALL EVENLY SPACE MANIFOLDS ALONG HEADER USING GIVEN DIMENSIONS AS A GUIDELINE.



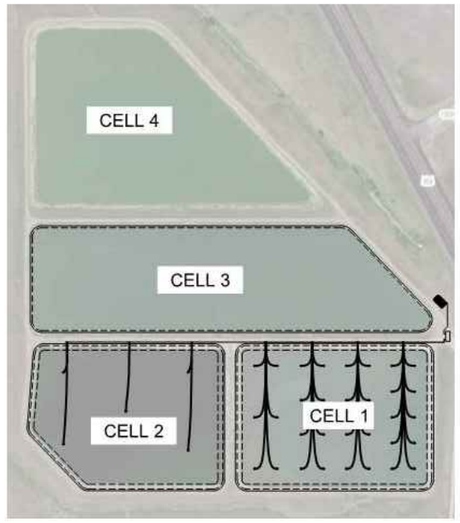
PLAN VIEW
SCALE: 1"=80'
0 40' 80'

TYPICAL SCOPE OF SUPPLY

ITEM	DESCRIPTION	TPE	BYO
1	BLOWERS	X	
2	BLOWER PADS/BUILDING		X
3	HEADER PIPING & VALVES		X
4	LATERALS AND/OR RISER STUBS		X
5	AERATOR CONTROL MANIFOLDS	X	
6	AERATOR CONTROL VALVES	X	
7	FLEXIBLE TUBING	X	
8	AERATORS	X	

TPE = TRIPLEPOINT ENVIRONMENTAL
BYO = BY OTHERS

NOTE: This scope of supply is typical. Check quotation from Triplepoint Environmental, LLC for complete scope of supply.



SITE PLAN
SCALE: NTS

TRIPLEPOINT
ENVIRONMENTAL, LLC
1010 LAKE STREET, SUITE 503, OAK PARK, IL 60301
(312) 436-4624

REVISIONS

REV	DESCRIPTION	DATE
A	UPDATED HEADER	2/18/2020
B	ADDED AIR TO CELL 6	2/19/2020
C	ADDED SITE PLAN	2/19/2020
D	ADDED GRAPHICS FOR CELL 6	2/24/2020
E	UPDATED LAYOUT FOR BID	2/25/2020
F	CERTIFIED	4/1/2020

DESIGN:
DRAFTING:

FORT PIERRE, SD
PROPOSED AERATION
IMPROVEMENTS

AERATION LAYOUT

DATE: 5/14/2019
PROJECT NO:
CAD: FT PIERRE LAYOUT
SHEET: 1 OF 2

#	DATE	DESCRIPTION	BY
-	05-06-2021	FOR BID SET	RTK
-	06/23/2021	ADDENDUM 1	MNB

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REFERENCE DRAWING
TRIPLE POINT
AERATION LAYOUT
FORT PIERRE WASTEWATER
TREATMENT IMPROVEMENTS
FORT PIERRE, SD

REFERENCE DWG

DESIGNED BY:	MNB
DRAWN BY:	RJD
APPROVED BY:	RTK
DESIGN PROJ:	20301.001
CONST PROJ:	20301.001
SCALE:	AS NOTED
DATE:	05-06-2021
DRAWING NO:	X100
SHEET NO:	32 of 43

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6/18/2021 4:32 PM

AERATION LAYOUT
FORT PIERRE, SD

NOTES:
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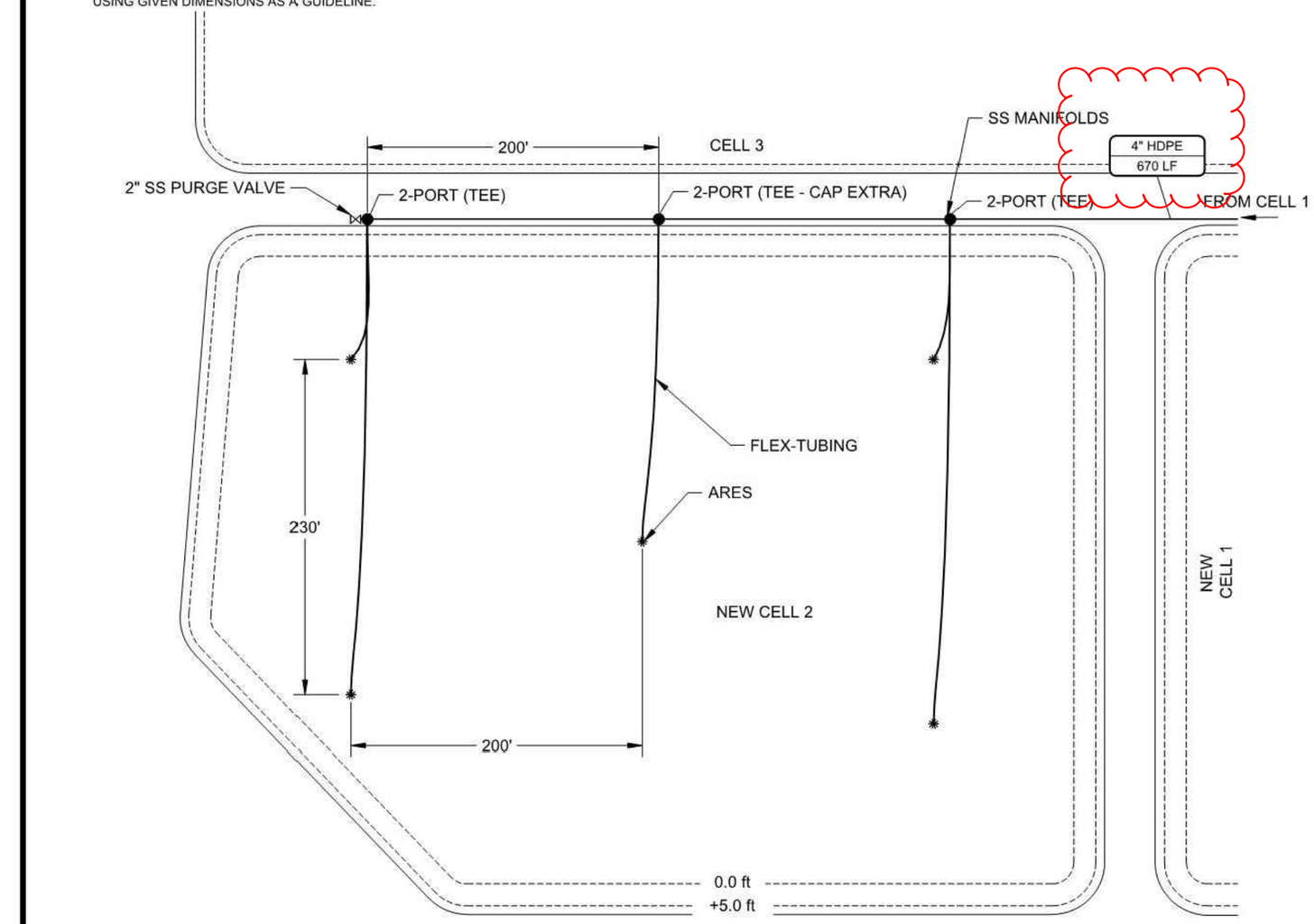
4. CONTRACTOR SHALL EVENLY SPACE MANIFOLDS ALONG HEADER USING GIVEN DIMENSIONS AS A GUIDELINE.



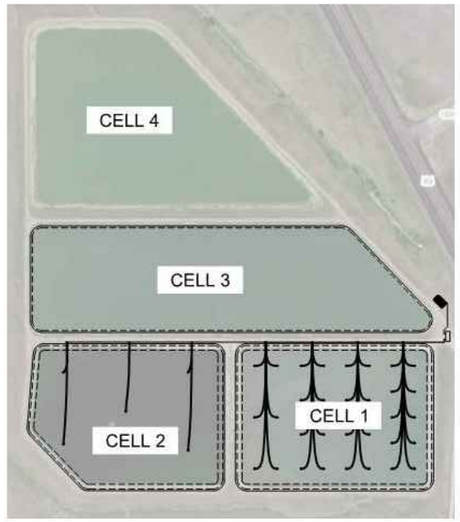
PLAN VIEW
SCALE: 1"=80'
0 40' 80'

TYPICAL SCOPE OF SUPPLY

ITEM	DESCRIPTION	TPE	BYO
1	BLOWERS	X	
2	BLOWER PADS/BUILDING		X
3	HEADER PIPING & VALVES		X
4	LATERALS AND/OR RISER STUBS		X
5	AERATOR CONTROL MANIFOLDS	X	
6	AERATOR CONTROL VALVES	X	
7	FLEXIBLE TUBING	X	
8	AERATORS	X	

TPE = TRIPLEPOINT ENVIRONMENTAL
BYO = BY OTHERS

NOTE: This scope of supply is typical. Check quotation from Triplepoint Environmental, LLC for complete scope of supply.



SITE PLAN
SCALE: NTS

TRIPLEPOINT
ENVIRONMENTAL, LLC
1010 LAKE STREET, SUITE 503, OAK PARK, IL 60301
(312) 436-4624

#	DATE	DESCRIPTION	BY
-	05-06-2021	FOR BID SET	RTK
-	06/23/2021	ADDENDUM 1	MNB

REV	DATE	DESCRIPTION
G	2/18/2021	UPDATED HEADER
F	2/19/2020	ADDED AIR TO CELL 6
E	2/19/2020	ADDED GRADING POINT
D	2/24/2020	ADDED GRADING FOR CELL 6
C	2/25/2020	UPDATED LAYOUT FOR BID
B	4/1/2020	CERTIFIED
A		DRAFTING
		DESIGN

FORT PIERRE, SD
PROPOSED AERATION IMPROVEMENTS

AERATION LAYOUT

DATE: 5/14/2019
PROJECT NO:
CAD: FT PIERRE LAYOUT
SHEET: 2 OF 2

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REFERENCE DRAWING
TRIPLE POINT
AERATION LAYOUT
FORT PIERRE WASTEWATER
TREATMENT IMPROVEMENTS
FORT PIERRE, SD

REFERENCE DWG

DESIGNED BY:	MNB
DRAWN BY:	RJD
APPROVED BY:	RTK
DESIGN PROJ:	20301.001
CONST PROJ:	20301.001
SCALE:	AS NOTED
DATE:	05-06-2021
DRAWING NO:	X101
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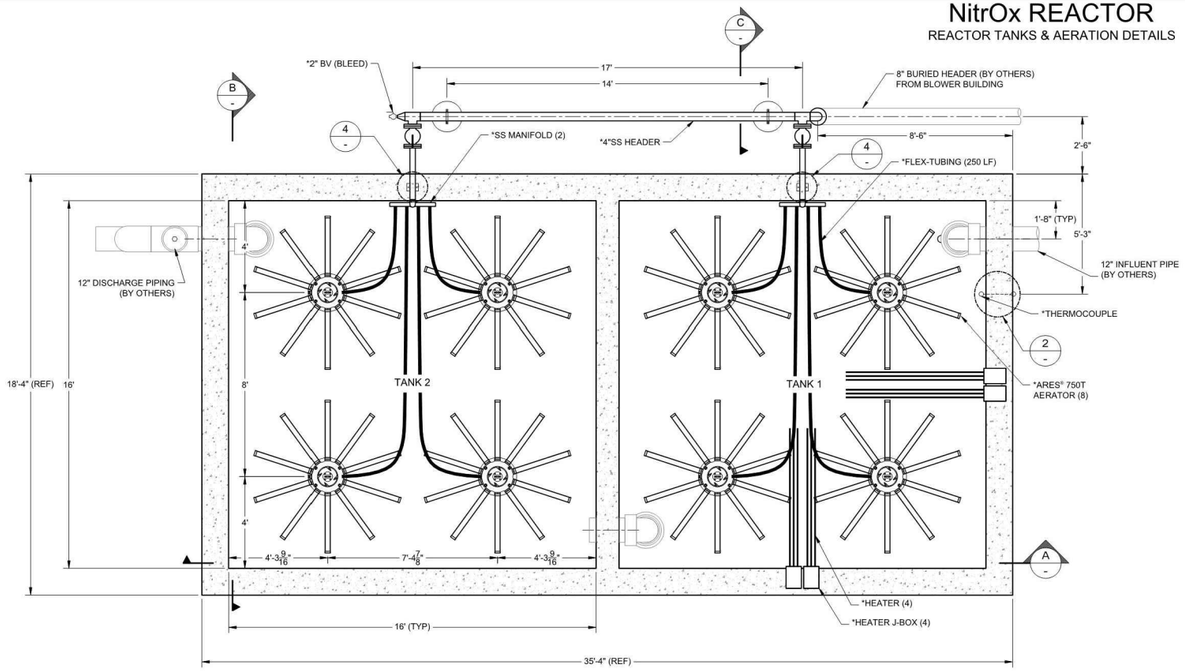
NitrOx REACTOR

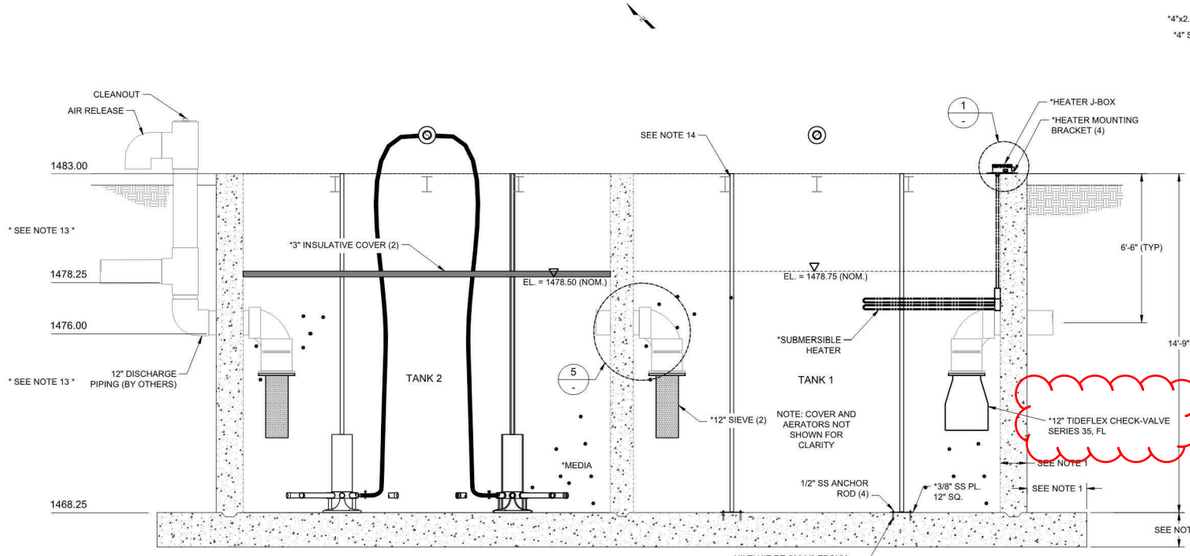
REACTOR TANKS & AERATION DETAILS



NOTES:
1. COVERS AND MEDIA NOT SHOWN.
2. NOT ALL PIPE SUPPORTS SHOWN.

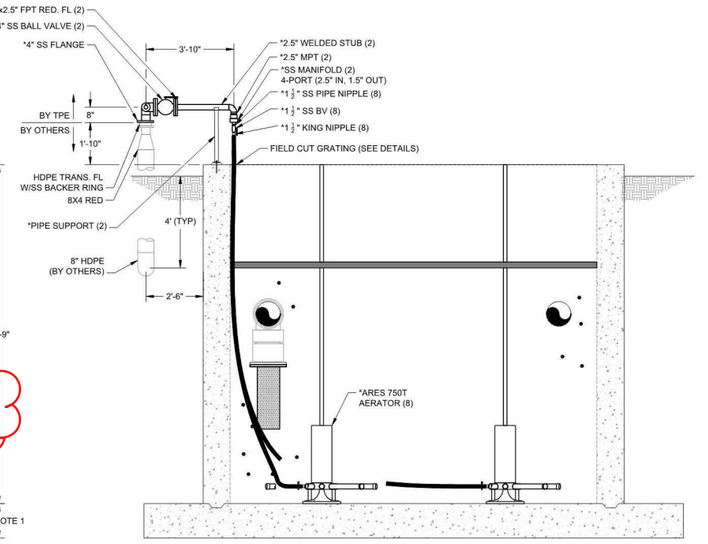
TREATMENT SYSTEM PLAN VIEW

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



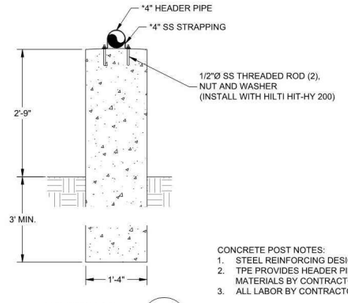
SECTION

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



SECTION

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



CONCRETE POST NOTES:
1. STEEL REINFORCING DESIGN BY OTHERS.
2. TPE PROVIDES HEADER PIPE AND STRAPPING. ALL OTHER MATERIALS BY CONTRACTOR.
3. ALL LABOR BY CONTRACTOR.

GENERAL NOTES:
1. STRUCTURAL DESIGN BY OTHERS. SEE ENGINEERING PLANS.
2. INSTALL THERMOCOUPLE AT MID-DEPTH OF TANK.
3. ALL EXPOSED WASTEWATER PIPING SHALL BE PROTECTED FROM FREEZING BY INSULATING, BURYING, AND/OR HEAT TRACING.
4. ALL TANK PENETRATIONS SHALL BE SEALED.
5. ALL WASTEWATER PIPE BY OTHERS. SEE ENGINEERING PLANS OR MATCH EXISTING MATERIALS, SIZES AND INVERTS.
6. AERATION PIPING PROVIDED BY TRIPLEPOINT IN FLANGED, BOLT-TOGETHER SECTIONS. ALL OTHER PIPING BY OTHERS.
7. ITEMS MARKED WITH AN ASTERISK (*) PROVIDED BY TRIPLEPOINT.
8. ALL INSTALLATION BY OTHERS.
9. EXISTING CONDITIONS ARE TAKEN FROM AERIAL PHOTOGRAPHS, FIELD OBSERVATIONS, AND/OR PRIOR CONSTRUCTION DOCUMENTS, WHEN AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS.
10. PLATFORMS AND RAILINGS (IF REQUIRED) NOT SHOWN IN ALL VIEWS.
11. CONTRACTOR SHALL INSTALL ADDITIONAL PIPE SUPPORTS AS REQ'D.
12. VERIFY BLOWER FIT AND GEOMETRY PRIOR TO INSTALLATION.
13. ELEVATIONS SHOWN ARE FOR REFERENCE ONLY. SEE CIVIL DRAWINGS AND HYDRAULIC PROFILE.
14. INSTALL GUIDERAILS JUST INSIDE EDGE OF SUPPORT BEAMS.

SECTION

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

triplepoint ENVIRONMENTAL
TRIPLEPOINT ENVIRONMENTAL, LLC
1010 LAKE STREET, SUITE 503, OAK PARK, IL 60301
(312) 428-4634

REVISIONS

#	DATE	DESCRIPTION	REV.
-	3/19/20	PRELIMINARY LAYOUT	A
-	4/21/20	PRELIMINARY DESIGN	B
-	9/3/20	REVISE AERATOR LAYOUT	C
-	12/23/20	UPDATED FOR BID	D
-	4/1/21	CERTIFIED	E
-	6/18/2021	TIDEFLEX BY TPE	F

DESIGN: DRAFTING: VWA

#	DATE	DESCRIPTION	BY
-	05-06-2021	FOR BID SET	RTK
-	06/23/2021	ADDENDUM 1	MNB

FORT PIERRE, SD
WASTEWATER TREATMENT SYSTEM
GENERAL ARRANGEMENT

TYPICAL INSTALLATION ARRANGEMENT

DATE: 3/19/20
PROJECT NO:
CAD: TYPICAL ARRANGEMENT
SHEET: 1 OF 2

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REFERENCE DRAWING
TRIPLE POINT
TYPICAL INSTALLATION ARRANGEMENT
FORT PIERRE WASTEWATER TREATMENT IMPROVEMENTS
FORT PIERRE, SD

REFERENCE DWG

DESIGNED BY:	MNB
DRAWN BY:	RJD
APPROVED BY:	RTK
DESIGN PROJ:	20301.001
CONST PROJ:	20301.001
SCALE:	AS NOTED
DATE:	05-06-2021
DRAWING NO:	X103
SHEET NO:	35 of 43

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