

**TOWN OF TUNNELTON MUNICIPAL SEWER WORKS
PRESTON COUNTY, WEST VIRGINIA**

**PHASE II – 0.04 MGD WASTEWATER TREATMENT PLANT AND COLLECTION
SYSTEM UPGRADES**

ADDENDUM #1

AUGUST 24th, 2022

THRASHER PROJECT #101-020-10033

TO WHOM IT MAY CONCERN:

A Pre-Bid Conference was held on Thursday, August 18th, 2022, on the above-referenced project, a copy of the sign in sheet is included in this Addendum. The following are clarifications and responses to questions posed by contractors for the above reference project.

A. GENERAL

1. 150 days have been added to the Contract Times due to extended lead times for materials and equipment. The work will be substantially complete within 300 days and ready for final payment within 330 days. The Agreement between Owner and Contractor has been revised as part of this Addendum.
2. Davis Bacon Wage Rates are NOT required as part of this project. Please see the Contract Documents to ensure all other Bid Opening Requirements are met.
3. Engineer's construction cost estimate is \$1,100,000.

B. SPECIFICATIONS

1. EJCDC C-410, Bid Form for Construction Contract has been revised as part of this Addendum.
2. Section 012000 – Price and Payment Procedures has been revised as part of this Addendum.
3. Section 407523 – pH/DO Analyzers has been added as part of this Addendum.
4. Section 407556 – Suspended Solids/Sludge Density Analyzer was included in the technical specifications in error and has been removed.

5. Section 460753 – Packaged Wastewater Treatment Equipment has been revised as part of this Addendum.
6. Blank references to Specification Sections 260503, 460513, 460553, and 262923 within the Technical Specifications are to be disregarded.

C. DRAWINGS

1. Plan Sheets 5 and 22 have been revised as part of this Addendum.

D. QUESTIONS AND RESPONSES

QUESTION

1. Is it intended to have the electrical cable supplied as part of the aerator work?

RESPONSE

Yes. See Aerator Key Note 1. on Sheet E4.

QUESTION

2. Referencing Sheet #19, what is the diameter and depth of the Wet Well? What is the required hatch size and is there a preferred method of replacement?

RESPONSE

The existing wet well has a 5' inside diameter with 6" thick walls that are to be verified by the Contractor in the field prior to placing orders for materials. Top and bottom elevations of the wet well are shown in the table on Sheet 19 to determine the wet well depth.

The existing hatch is 30" x 48" and there is no preferred method for replacement. The existing opening size is to be maintained and hatch is to meet the flood tight requirement stated in the drawings.

QUESTION

3. How many pumps are to be provided at existing pump station #2? Are the controls and floats to be replaced as well?

RESPONSE

Existing pump station #2 is a duplex station as indicated in Specifications Section 333219 – Public Utility Wastewater Pumping Stations. Two (2) pumps are to be replaced in the station and one (1) spare provided as indicated in the table on Sheet 19.

Yes. See the Plan Sheets and Specifications Section 33219 – Public Utility Wastewater Pumping Stations for control and float requirements.

QUESTION

4. How are we to bypass pump during work at Pump Station #2?

RESPONSE

The Engineer does not determine means and methods. Record Drawing Sheet Nos. 16 and 21 have been provided as part of this Addendum for reference to the location of existing manholes upstream of the station and alignment of the force main.

QUESTION

5. Sheet 22 indicated that line 24 of Area 6 is to be capped. This is shown in the middle of the roadway. Can the invert of line 24 be plugged inside the downstream manhole or can the capping indicated be performed closer to Manhole #23-3? Also, what is the depth of the sewer lines to be capped?

RESPONSE

Line 24 is to be capped to the south of South St. along the alignment. The line depth at this location is approximately eight feet. Plan Sheet 22 has been revised as part of this Addendum.

QUESTION

6. What is the peak flow that the spiral screen would need to handle?

RESPONSE

The spiral screen will experience a calculated flow of 240 gallons per minute when both pumps in existing pump station #2 are running.

QUESTION

7. Regarding Bid Item #3, the WCS Bio-Domes, is a markup for this material and equipment acceptable under this allowance?

RESPONSE

No. The Bid Item #3 Allowance is for the purchase and delivery of the equipment and materials to be supplied by WCS only. Any profit or markup should be included in Bid Item #4 – Wastewater Treatment Plant Upgrades. Specifications Section 012000 – Price and Payment Procedures has been revised, which includes the Scope of Supply from WCS, as part of this Addendum.

QUESTION

8. Is the screen manufacturer to provide controls for the In-Channel Screening Unit?

RESPONSE

Yes. See revised Specifications Section 460753 – Packaged Wastewater Treatment Equipment.

QUESTION

9. Is the screening unit an indoor or outdoor installation? If outdoors, will the screen need to be provided with an outdoor weather protection package?

RESPONSE

Outdoor installation. See revised Specifications Section 460753 – Packaged Wastewater Treatment Equipment.

QUESTION

10. Is there a specific detail required to install the mooring posts for the baffle curtains or will manufacturer specification be adequate?

RESPONSE

Mooring post details for the baffle curtains are to be submitted as a delegated design per the baffle curtain manufacturer's recommendations.

E. CLARIFICATIONS

1. The bidding process is a two (2) envelope system. Envelope No. 1 must have the following information presented on the front:

Name and address of Bidder
Phase II – 0.04 MGD WWTP and Collection System Upgrades
Town of Tunnelton Municipal Sewer Works

Envelope No. 2 labeled “Bid Proposal” shall be placed inside of Envelope #1

Envelope No. 1 will be opened first, and the Bid Opening Requirement items will be checked for compliance as outlined on the Bid Opening Checklist (BOR-1). If such documents are found to be in order, Envelope No. 2 “Bid Proposal”, will be opened and will be publicly read aloud. If the documents required to be contained in Envelope No. 1 **are not in order**, Envelope No. 2 “Bid Proposal”, **will not be opened** and the Bid will be considered non-responsive.

2. Mailed/Shipped bid packages shall be sent to the attention of Danny Braham at The Town of Tunnelton, Town Hall, 459 Gibson Street, Preston County, WV 26444. Phone number is 304-568-2992. Bidders should **not** assume guaranteed early (10:30 am) delivery is available and shall be mailed/shipped in sufficient time. It is the Bidder's responsibility to deliver the Bid on time. Sealed Bids will be received until 2:00 PM local time on September 1, 2022, at which time the Bids received will be publicly opened and read.
3. All work is to be coordinated through the Engineer and the Town to ensure no disruption to the existing utilities.

4. Engineer's Approved Equal means material, equipment, or method approved by the engineer for use in the work, as being acceptable as an equivalent in essential attributes to the material, equipment, or method specified in the Contract Documents. See Instruction to Bidders
5. Lakeside Equipment Corporation is an Approved Equal Manufacturer for the In-Channel Screening Unit under Specifications Section 460753 – Packaged Wastewater Treatment Equipment.
6. SAVECO North America, Inc. (formerly known as Enviro-Care) is an Approved Equal Manufacturer for the In-Channel Screening Unit under Specifications Section 460753 – Packaged Wastewater Treatment Equipment.
7. The downstream water level experienced by the in-channel screening unit will depend on the screen blinding. The downstream water level will be zero unless the force main is active.
8. Aeration Industries International is an Approved Equal Manufacturer for Specifications Section 464126 – Floating Mechanical Mixers.
9. One (1) spare completely assembled aspirating aerator without floats is to be supplied as part of Specifications Section 464126 – Floating Mechanical Mixers.
10. There will be NO B&O taxes on this project.
11. American Iron and Steel (AIS) requirements apply to this project.
12. The 13' x 13' Stainless Steel anti-erosion plates, referenced in Specifications Section 464126 – Floating Mechanical Mixers, are not required if the manufacturer's mixing depth guidelines or other adaptations (mounting configuration, aerator mounted anti-erosion baffle, etc.) demonstrates that the minimum depth to prevent liner damage is less than the minimum depth of the pond while providing adequate mixing. The minimum depth of the pond is approximately eight feet.
13. Sludge removal means and methods are not dictated by the Engineer. If complete dewatering and by-pass of Pond B treatment will be needed for your chosen sludge removal methods, written permission from WVDEP Enforcement will be required.
14. Water usage at the Tunnelton WWTP for sludge removal purposes will need to be metered and paid for by the Contractor according to the rates defined in the Town's water tariff.

Approximate water available at the WWTP is as follows:

45 GPM @ 100 psi to 55 GPM @ 80 psi

If you have any questions or comments, please feel free to contact me at your earliest convenience. As a reminder, bids will be received until 2:00 p.m. on Thursday, September 1, 2022, at Tunnelton Town Hall, 459 Gibson Street, Preston County, WV. Good luck to everyone and thank you for your interest in the project.

Sincerely,

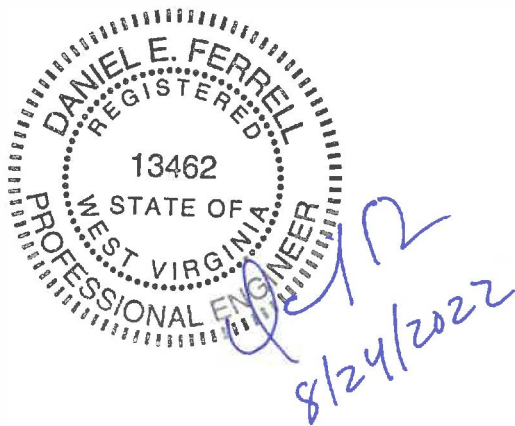
THE THRASHER GROUP, INC.



DANIEL E. FERRELL, P.E.
Project Manager

- Enclosures: Pre-Bid Sign in Sheet
 Index
 C-410 Bid Form for Construction Contract
 C-520 Agreement Between Owner and Contractor
 Specification Sections: 012000 – Price and Payment
 407523 – pH/DO Analyzers
 460753 – Packaged Wastewater Treatment Equipment

 Drawing Sheet Nos. 5 and 22
 Record Drawing Sheet Nos. 16 and 21



**TOWN OF TUNNELTON MUNICIPAL SEWER WORKS
PRESTON COUNTY, WEST VIRGINIA
FOR THE
PHASE II – 0.04 MGD WASTEWATER TREATMENT PLANT AND COLLECTION
SYSTEM UPGRADES**

- I N D E X -

BIDDING DOCUMENTS

Advertisement for Bids	C-111
Instructions to Bidders	C-200
Bid Opening Requirements	BOR
Bid Forms	C-410

CONDITIONS OF WORK

Notice of Award	C-510
Agreement	C-520
Certificate of Owner's Attorney and Agency Concurrence	GC-A
Engineer's Certification of Final Plans and Specifications	GC-B
Performance Bond	C-610
Payment Bond	C-615
Notice to Proceed	C-550
Contractor's Application for Payment	C-620
Change Order	C-941
Memorandum of Negotiation	M-1
Field Order	C-942
Work Change Directive	C-940
Certificate of Substantial Completion	C-625
General Conditions	C-700
Supplementary Conditions	C-800

RUS – WV Supplemental General Conditions

RUS

Additional Supplemental General Conditions

ASGC

TECHNICAL SPECIFICATIONS

Summary

011000

Price and Payment Procedures

012000

Substitution Procedures

012500

Contract Modification Procedures

012600

Administrative Requirements

013000

Project Management Coordination

013100

Construction Progress Schedule

013216

Submittal Procedures

013300

Quality Requirements

014000

References

014200

Temporary Facilities and Controls

015000

Product Requirements

016000

Execution and Closeout Requirements

017000

Construction Waste Management and Disposal

017419

Operation and Maintenance Data

017823

Project Record Documents

017839

Demonstration and Training

017900

Commissioning

019100

Video Recording

024010

Cast-in-Place Concrete

033000

Grouting

036000

Rough Carpentry	061000
Formed Metal Wall and Roof Panels	074113.13
Sheet Metal Flashing and Trim	076200
Painting and Coating	099000
Soils for Earthwork	310513
Excavation	312316
Trenching	312316.13
Dewatering	312319
Erosion and Sedimentation Controls	312500
Sewer and Manhole Testing	330130.13
Manhole Frames and Covers	330513.01
Utility Identification	330526
Concrete Vaults and Chambers (Precast Tanks)	330563
Public Utility Wastewater Pumping Stations	333219
Sanitary Utility Sewerage Force Mains	333400
Stainless Steel Process Pipe	400523
Common Requirements for Process Valves	400551
Plug Valves	400562
pH/DO Analyzers	407523
Rotary Lobe Blowers	431133
Removal and Disposal of Sludge	443121
Packaged Wastewater Treatment Equipment	460753
Floating Mechanical Mixers	464126

ACCOMMODATION OF UTILITIES ON HIGHWAY RIGHT OF WAY

BID FORM FOR CONSTRUCTION CONTRACT

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

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to:

*Town of Tunnelton Municipal Sewer Works
P.O. Box 396
Tunnelton, WV 26444*

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—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

A. Bid Opening Requirements

Note: Bid Opening Requirements (BOR-12) includes the American Iron and Steel Certification which needs to be filled out and signed by the Contractor. This certification also references two (2) Exhibits located in the Supplemental General Conditions (C-800) which were issued as part of RUS Bulletin 1780-35.

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

GENERAL

The Bidder shall take notice of and shall be responsible for any local or state taxes levied and applicable, and the cost for the same shall be included as part of the submitted Bid.

The total Bid cost stated includes a complete operating installation including furnishing and installation of any and all changes or additions in plans, piping, mechanical work, additional electrical work, accessories, controls, etc. necessary to accommodate alternative equipment systems or materials used in construction.

BID PROPOSAL

The Bidder agrees to perform all required Work described in the detailed Specifications and as shown on the Plans for the complete construction and placing in satisfactory operation the Phase II – 0.04 MGD Wastewater Treatment Plant and Collection System Upgrades. The Project "Sequence of Construction" has

been detailed in the Drawings and Specification Division 1, Project Summary, Section 011000. The Bidder agrees to perform all the Work proposed for the total of the following Bid prices.

3.01 *Lump Sum Bids*

- A. Bidder will complete the Work in accordance with the Contract Documents for the lump sum (stipulated) price(s), together with any Unit Prices indicated in Paragraph 3.02 and shown in the bid schedule.
- B. Lump Sum Bids may be one of the following:
 - 1. Lump Sum Price (Single Lump Sum)
 - 2. Lump Sum Price (Base Bid and Alternates)
 - 3. Lump Sum Price (Sectional Lump Sum Bids)
- C. All specified cash allowance(s) are included in the price(s) set forth in the bid schedule, and have been computed in accordance with Paragraph 13.02 of the General Conditions.
- D. All specified contingency allowances are included in the price(s) set forth in the bid schedule, and have been computed in accordance with Paragraph 13.02 of the General Conditions.

3.02 *Unit Price Bids*

- A. Bidder will perform the following Work at the indicated unit prices as shown in the Bid Schedule.
- B. Bidder acknowledges that:
 - 1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
 - 2. estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

3.03 *Total Bid Price (Lump Sum and Unit Prices)*

BID SCHEDULE

**PROPOSED
PHASE II – 0.04 MGD WASTEWATER TREATMENT PLANT AND COLLECTION SYSTEM UPGRADES
FOR THE**

**TOWN OF TUNNELTON MUNICIPAL SEWER WORKS
PRESTON COUNTY, WEST VIRGINIA**

NOTE: Bid PRICE amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern. Bids shall include sales tax and all other applicable taxes and fees.

Item #	Qty.	UNIT	DESCRIPTION	UNIT PRICE	UNIT PRICE WRITTEN IN WORDS	TOTAL PRICE
1	1	LS	Mobilization/Demobilization			
2	1	LS	Video Taping of Project Areas			
3	1	Allowance	To provide WCS equipment and materials including Bio-Domes, self-sinking airlines, shoreline distribution manifolds and boxes, and delivery to WWTP site.	\$249,572	Two hundred and forty-nine thousand five hundred seventy-two dollars and zero cents	\$249,572
4	1	LS	Wastewater Treatment Plant Upgrades: To provide all labor, equipment, materials and services to upgrade the existing wastewater treatment plant including new dual channel headworks, gravity and force main piping, manhole, all site work required, blowers with VFD, blower pavilion, air piping to shoreline distribution manifolds, all site electrical and controls. Bio-dome installation, baffle curtains, floating cover, remove and replace mechanical aerators plus one spare in Pond A, new DO/pH meter, erosion and sedimentation controls, and other items needed to provide a complete fully tested and operable system as shown in the plans and specifications.			

Item #	Qty.	UNIT	DESCRIPTION	UNIT PRICE	UNIT PRICE WRITTEN IN WORDS	TOTAL PRICE
5	1	LS	Dewatering and By-pass Pumping			
6	50	Dry Tons	Sludge Removal and Disposal			
7	1	LS	Exiting Pump Station #2 Upgrades			
8	12	EA	Remove and Replace Manhole Lid & Frame			
9	1	EA	Remove and Replace Manhole Lid & Frame and Repair Leaking Joint			
10	2	EA	Cap Existing Sewer Line			
11	1	LS	Install Spiral Screen in New Dual-channel Headworks			

TOTAL BID: _____
(Words)

(Words) (\$ _____)
(Figures)

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

DEDUCTIVE ALTERNATE #1 BID SCHEDULE

NOTICE TO BIDDER: Unit prices used in Deductive Alternates must be the same unit prices used in the Bid.

Item #	Qty.	UNIT	DESCRIPTION	UNIT PRICE	UNIT PRICE WRITTEN IN WORDS	TOTAL PRICE
11	1	LS	Install Spiral Screen in New Dual-channel Headworks			

TOTAL DEDUCTIVE ALTERNATE #1 BID: _____
(Words)

(Words) (\$ _____)
(Figures)

(Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

3.04 *Method of Award*

If at the time this contract is to be awarded, the lowest total bid submitted by a qualified, responsive, responsible Bidder does not exceed the amount of funds then estimated by the Owner, as available to finance the contract, the construction contract will be awarded. If such bids exceed such amount, the Owner may reject all bids.

The owner may award the contract on the Total Bid submitted by a qualified responsible Bidder less the amount(s) of the Deductive Alternate(s), as listed in the contract to produce the lowest bid within the funds available for financing. The application of Deductive Alternates will not change the low bidder for awarding purposes. Deductive alternates on Contract #2 will be applied first.

- A. Unit prices have been computed in accordance with paragraph 13.03.A of the General Conditions.
- B. 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.

~~Basis of Bid—Cost Plus Fee~~

3.05 ~~The Contract Price will be the Cost of the Work, determined as provided in Paragraph 13.01 of the General Conditions, together with the following fee, and subject to the Guaranteed Maximum Price.~~

3.06 ~~Contractor's Fee~~

- A. ~~Contractor's fee will be [number] percent of the Cost of the Work. No fee will be payable on the basis of costs itemized as excluded in Paragraph 13.01.C of the General Conditions.~~
 - 1. ~~The maximum amount payable by Owner as a percentage fee (Guaranteed Maximum Fee) will not exceed \$[insert cap amount], subject to increases or decreases for changes in the Work.~~
- B. ~~Contractor's fee will be determined by applying the following percentages to the various portions of the Cost of the Work as defined in Article 13 of the General Conditions. No fee will be payable on the basis of costs itemized as excluded in Paragraph 13.01.C of the General Conditions:~~

Costs	Percent
Payroll costs (See Paragraph 13.01.B.1, General Conditions)	
Materials and Installed Equipment cost (GC 13.01.B.2)	
Amounts to be paid to Subcontractors (GC 13.01.B.3)	
Amount to be paid to special consultants (GC 13.01.B.4)	
Other costs (GC 13.01.B.5)	

- 1. ~~The maximum amount payable by Owner as a percentage fee (Guaranteed Maximum Fee) will not exceed \$[insert cap amount], subject to increases or decreases for changes in the Work.~~

~~C. Contractor's fee will be the fixed sum of \$[number].~~

3.07 *Guaranteed Maximum Price*

~~A. The Guaranteed Maximum Price to Owner of the Cost of the Work including Contractor's Fee will not exceed \$[Bidder fill in GMP].~~

Deleted

~~ARTICLE 4 PRICE PLUS TIME BID~~

4.01 *Price Plus Time Contract Award (Stipulated Price Contract)*

~~A. The Bidder to which an award of the Contract will be made will be determined in part on the basis of the Total Bid Price and the total number of calendar days to substantially complete the Work, in accordance with the following:~~

	Description		Amount
A	1. Total Bid Price		\$[number]
	2. Total number of calendar days to substantially complete the Work	[number] days	
	3. Liquidated Damages Rate (from Agreement)	\$[number]/day	
B	4. Adjustment Amount (2 x 3)		\$[number]
A+B	5. Amount for Comparison of Bids		\$[number]

~~B. The purpose of the process in the table above is only to calculate the lowest price plus time (A+B) bid amount for bid comparison purposes. The price for completion of the Work (the Contract Price) is the Total Bid Price.~~

~~C. Bonds required under Paragraph 6.01 of the General Conditions will be based on the Contract Price.~~

4.02 *Price Plus Time Contract Award (Cost Plus Fee with Guaranteed Maximum Price Contract)*

~~A. The Bidder to which an award of Contract will be made will be determined in part on the basis of the Guaranteed Maximum Price and the total number of calendar days to substantially complete the Work, in accordance with the following:~~

	Description		Amount
A	1. Guaranteed Maximum Price		\$[number]
	2. Total number of calendar days to substantially complete the Work	[number] days	
	3. Liquidated Damages Rate (from Agreement)	\$[number]/day	
B	4. Adjustment Amount (2 x 3)		\$[number]
A+B	5. Amount for Comparison of Bids		\$[number]

~~B. The purpose of the process in the table above is only to calculate the lowest price plus time (A+B) bid amount for bid comparison purposes. The price for completion of the Work (the Contract Price) is based on the cost of the Work, plus a fee, subject to a guaranteed maximum price, as set forth in the Agreement.~~

~~C. Bonds required under Paragraph 6.01 of the General Conditions will be based on the Contract Price.~~

Deleted

ARTICLE 5—TIME OF COMPLETION

5.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

5.02 ~~Bidder agrees that the Work will be substantially complete on or before [Bidder inserts date], and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before [Bidder inserts date].~~

Deleted

5.03 ~~Bidder agrees that the Work will be substantially complete within [Bidder inserts number] calendar days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within [Bidder inserts number] calendar days after the date when the Contract Times commence to run.~~

Deleted

5.04 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 6—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

6.01 *Bid Acceptance Period*

A. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

6.02 *Instructions to Bidders*

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

6.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date

ARTICLE 7—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

7.01 *Bidder’s Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work, **including all American Iron and Steel requirements.**

4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. 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.
9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

7.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. 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.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

- b. 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.
- c. 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.
- d. 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.

BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____
(individual's signature)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Date: _____
(typed or printed)

Address for giving notices:

Bidder's Contact:

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Phone: _____

Email: _____

Address: _____

Bidder's Contractor License No.: (if applicable) _____

AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between **Town of Tunnelton Municipal Sewer Works** (“Owner”) and **MGD Wastewater Treatment Plant and Collection System Upgrades** (“Contractor”).

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

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: **Phase II – 0.04 MGD Wastewater Treatment Plant and Collection System Upgrades**

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: **Phase II – 0.04 MGD Wastewater Treatment Plant and Collection System Upgrades**

ARTICLE 3—ENGINEER

3.01 The Owner has retained **The Thrasher Group, Inc.** (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by **Engineer**.

ARTICLE 4—CONTRACT TIMES

4.01 *Time is of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Contract Times: Days*

A. The Work will be substantially complete within **300** days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within **330** days after the date when the Contract Times commence to run.

4.04 *Milestones*

A. ~~Parts of the Work must be substantially completed on or before the following Milestone(s):~~

~~1. Milestone 1 [event & date/days]~~

~~2. Milestone 2 [event & date/days]~~

~~3. Milestone 3 [event & date/days]~~

4.05 *Liquidated Damages*

- A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):
1. *Substantial Completion:* Contractor shall pay Owner **\$1000** plus costs incurred by Owner and Engineer as a result of the work not being completed including but not limited to RPR fees, Engineering fees and Permit fees. for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete. Cost will be based off of the rate schedule in the Engineering Service Agreement.
 2. *Completion of Remaining Work:* After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner **\$1,000** for each day that expires after such time until the Work is completed and ready for final payment.
 3. ~~*Milestones:* Contractor shall pay Owner **[\$number]** for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for achievement of Milestone 1, until Milestone 1 is achieved, or until the time specified for Substantial Completion is reached, at which time the rate indicated in Paragraph 4.05.A.1 will apply, rather than the Milestone rate.~~
 4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.
- B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.
- C. ~~*Bonus:* Contractor and Owner further recognize the Owner will realize financial and other benefits if the Work is completed prior to the time specified for Substantial Completion. Accordingly, Owner and Contractor agree that as a bonus for early completion, Owner shall pay Contractor **[\$number]** for each day prior to the time specified above for Substantial Completion (as duly adjusted pursuant to the Contract) that the Work is substantially complete. The maximum value of the bonus will be limited to **[\$number]**.~~

Deleted

4.06 *Special Damages*

- A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

- B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.
- C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

- A. For all Work other than Unit Price Work, a lump sum of **As described in Bid Form**.

All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

- B. For all Unit Price Work, an amount equal to the sum of the extended prices (established for each separately identified item of Unit Price Work by multiplying the unit price times the actual quantity of that item).

Unit Price Work					
Item No.	Description	Unit	Estimated Quantity	Unit Price	Extended Price
	As described in Bid Form			\$	\$
				\$	\$
				\$	\$
				\$	\$
				\$	\$
Total of all Extended Prices for Unit Price Work (subject to final adjustment based on actual quantities)					\$

The extended prices for Unit Price Work set forth as of the Effective Date of the Contract are based on estimated quantities. As provided in Paragraph 13.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer.

- C. Total of Lump Sum Amount and Unit Price Work (subject to final Unit Price adjustment) **As described in Bid Form**.
- D. For all Work, at the prices stated in Contractor’s Bid, attached hereto as an exhibit.

ARTICLE 6—PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

- A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

- A. Owner shall make progress payments on the basis of Contractor's Applications for Payment on or about the 30th* day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

- 1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

- a. ~~number~~90 percent of the value of the Work completed (with the balance being retainage).

- 1) ~~If 50 percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and~~

Deleted

- b. ~~number~~90 percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

- B. Upon Substantial Completion **of the entire construction to be provided under the construction Contract Documents**, Owner shall pay an amount sufficient to increase total payments to Contractor to 95 percent of the Work completed, less such amounts set off by Owner pursuant to Paragraph 15.01.E of the General Conditions, and less 100 percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the punch list of items to be completed or corrected prior to final payment.

* Unless adjusted at the Pre Construction Conference.

6.03 *Final Payment*

- A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 *Consent of Surety*

- A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

6.05 *Interest*

- A. All amounts not paid when due will bear interest at the rate of **1.5** percent per annum.

ARTICLE 7—CONTRACT DOCUMENTS

7.01 *Contents*

- A. The Contract Documents consist of all of the following:
1. This Agreement.
 2. Bonds:
 - a. Performance bond (together with power of attorney).
 - b. Payment bond (together with power of attorney).
 3. General Conditions.
 4. Supplementary Conditions.
 5. RUS – WV Supplemental General Conditions.
 6. Additional Supplemental General Conditions.
 7. Specifications as listed in the table of contents of the project manual (copy of list attached).
 8. Drawings listed on the attached sheet index.
 9. Addenda (numbers **[number]** to **[number]**, inclusive).
 10. Exhibits to this Agreement (enumerated as follows):
 - a. Contractor’s Bid (pages C-410-1 to C-410-11, inclusive).
 11. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
 - a. Notice to Proceed.
 - b. Work Change Directives.
 - c. Change Orders.
 - d. Field Orders.
 - e. Warranty Bond, if any.
- B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
- C. There are no Contract Documents other than those listed above in this Article 7.
- D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 *Contractor’s Representations*

- A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:

1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Contractor 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 Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 *Contractor's Certifications*

- A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
 1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract 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.

8.03 *Standard General Conditions*

- A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on **[indicate date on which Contract becomes effective]** (which is the Effective Date of the Contract).

Owner:

Contractor:

(typed or printed name of organization)

(typed or printed name of organization)

By: _____
(individual's signature)

By: _____
(individual's signature)

Date: _____
(date signed)

Date: _____
(date signed)

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

(If [Type of Entity] is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____
(individual's signature)

Attest: _____
(individual's signature)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address for giving notices:

Address for giving notices:

Designated Representative:

Designated Representative:

Name: _____
(typed or printed)

Name: _____
(typed or printed)

Title: _____
(typed or printed)

Title: _____
(typed or printed)

Address:

Address:

Phone: _____

Phone: _____

Email: _____

Email: _____

(If [Type of Entity] is a corporation, attach evidence of authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

License No.: _____
(where applicable)

State: _____

SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Cash allowances.
- B. Schedule of Values.
- C. Application for Payment.
- D. Measurement and Payment

1.2 CASH ALLOWANCES (If provided in the Bid Form)

- A. Costs Included in Cash Allowances: Cost of product to Contractor or Subcontractor, less applicable trade discounts; delivery to Site and applicable taxes unless stated otherwise in Allowance Schedule.
- B. Costs Not Included in Cash Allowances but Included in Contract Sum/Price: Product handling at Site including unloading, uncrating, and storage; protection of products from elements and from damage; and labor for installation and finishing unless stated otherwise in Allowance Schedule.
- C. Engineer Responsibilities:
 - 1. Consult with Contractor for consideration and selection of products suppliers and installers.
 - 2. Select products in consultation with Owner and transmit decision to Contractor.
 - 3. Prepare Change Order.
- D. Contractor Responsibilities:
 - 1. Assist Engineer in selection of products, suppliers, and installers.
 - 2. Obtain proposals from suppliers and installers and offer recommendations.
 - 3. Upon notification of selection by Engineer, execute purchase agreement with designated supplier and installer.
 - 4. Arrange for and process Shop Drawings, Product Data, and Samples. Arrange for delivery.
 - 5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- E. Differences in costs will be adjusted by Change Order.
- F. Allowance Schedule: If provided in and as per the Bid Form

- G. Differences in cost between allowance(s) and actual cost(s) will be adjusted by Change Order.

1.3 SCHEDULE OF VALUES (As required for Lump Sum Project or Bid Item Breakdown on Unit Price Project)

- A. Submit printed schedule on Progress Estimate schedule on EJCDC C-620.
- B. Submit Schedule of Values within 20 days after date established in Notice to Proceed.
- C. Format for Lump Sum Project: Use Table of Contents of this Project Manual. Identify each line item with number and title of major Specification Section.
- D. Revise schedule to list approved Change Orders with each Application for Payment.

1.4 APPLICATION FOR PAYMENT

- A. Submit six (6) executed copies of each Application for Payment on EJCDC C-620 - Contractor's Application for Payment.
- B. Submit six (6) copies of executed copies of Abnormal Weather Conditions forms regardless if any days are claimed or not and Affidavit of Payment.
- C. If required in the Contract Documents, submit six (6) American Iron and Steel Qualifying and De Minimus Materials List (if required by the Contract Documents).
- D. Payment Period: Submit at intervals stipulated in the Agreement.

1.5 MEASUREMENT AND PAYMENT

- A. General Requirements
 1. Contractor shall take measurements and compute quantities. Resident Project Representative and Engineer will verify measurements and quantities.
 2. Unit Quantities: Quantities and measurements indicated on Bid Form are for Contract purposes only. Actual quantities provided shall determine payment.
 - a. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at Contracted unit sum/prices.
 - b. When actual Work requires 25 percent or greater change in quantity than those quantities indicated, Owner or Contractor may claim a Contract Price adjustment.
 3. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.
 4. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.

B. Measurement of Quantities

1. Weigh Scales: Inspected, tested, and certified by applicable West Virginia weights and measures department within past year.
2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.
3. Metering Devices: Inspected, tested, and certified by applicable West Virginia department within past year.
4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel, or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
5. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
6. Measurement by Area: Measured by square dimension using mean length and width or radius.
7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
8. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.

C. Unit Price Schedule:

1. Bid Item 1 – Mobilization/Demobilization
 - 1) This item shall include the performance of construction preparatory operations, including the movement of equipment and personnel to and from the Project Site, establishment and decommissioning of Contractor's Field Office, storage buildings, project signs, and other facilities necessary to conduct Work under this Contract.
 - 2) Payment shall be made at the lump sum (LS) price Bid for Mobilization/Demobilization, but in no case shall the total lump sum Bid Price exceed 3 percent of the total Bid.
 - 3) Partial Payments of the lump sum Bid amount for mobilization/demobilization shall be as follows:
 - 1) The payment request for mobilization on the first estimate shall not exceed 70% of the Bid item. The balance of the lump sum Bid item shall be considered demobilization and shall be paid at Contract closeout.
 - 2) No reduction will be made, nor any increase be made, in the lump sum mobilization item amount regardless of decreased or increases in the final total Contract amount or for any other cause.
2. Bid Item 2 – Video Recording of Project Area.
 - a. The cost for this Work shall be a lump sum.
 - b. Such payment shall constitute full compensation for labor, materials, equipment, and other costs associated to provide complete documentation. Video recording shall include the entire construction area affected and any potential waste sites. Video recording is also to include the staging and storage areas.

3. Bid Item 3 – Allowance - To provide Wastewater Compliance Systems, Inc. equipment and materials including Bio-Domes, self-sinking airlines, shoreline distribution manifolds and boxes, delivery to site, 2 each Operations Manual & Shop Drawings, 2 days Manufacturer’s installation support, 1 day Manufacturer’s equipment startup/training, and 4 each Quarterly Performance and Site Reviews.
 - a. 50% of this Allowance will be paid in the initial pay application for execution of the purchase order.
 - b. The remaining amounts of this Allowance will be paid as invoiced according to the Payment Terms described in the Scope of Supply provided by Wastewater Compliance Systems, Inc. attached to this specification section.

4. Bid Item 4 – Wastewater Treatment Plant Upgrades – This bid item shall include all labor, equipment, materials and services to upgrade the existing wastewater treatment plant including new dual channel headworks, gravity and force main piping, manhole, all site work required, blowers with VFD, blower pavilion, air piping to shoreline distribution manifolds, all site electrical and controls. Bio-dome installation, baffle curtains, floating cover, remove and replace mechanical aerators plus one spare in Pond A, new DO/pH meter, erosion and sedimentation controls, and other items needed to provide a complete fully tested and operable system as shown in the plans and specifications.
 - a. All work associated with the installation of Bid Item 11 – Install Spiral Screen in New Dual Channel Headworks is to be excluded from this Bid Item.
 - b. The cost for this Work shall be a lump sum.
 - c. Measurement for this bid item shall be based on the breakdown by Contractor in the approved Schedule of Values.

5. Bid Item 5 – Dewatering and By-Pass Pumping
 - a. The cost for this Work shall be a lump sum.
 - b. Such payment shall constitute full compensation for labor, materials, equipment, and other costs associated to provide temporary by-pass pumping of sewer flow during upgrades to the existing pump station.
 - c. Costs associated with dewatering and by-passing of Pond B as necessary according to the chosen means and methods for sludge removal and disposal shall be included in this bid item.

6. Bid Item 6 – Sludge Removal and Disposal
 - a. The cost for this bid item shall be paid by Dry Ton as measured by weight of sludge disposed of at an Engineer approved disposal site.
 - b. Such payment shall constitute full compensation for labor, materials, equipment, and other costs associated to remove and dewater sludge as specified in Section 443121 as well as hauling and disposal.

7. Bid Item 7 – Existing Pump Station #2 Upgrades
 - a. The cost of this work shall be a lump sum.
 - b. Such payment shall constitute full compensation for labor, materials, equipment, and all other associated cost for the retro fitting of the existing Pump Station #2 as shown in the plans and specifications.

8. Bid Item 8 – Remove and Replace Manhole Lid & Frame
 - a. This Bid Item shall include all required labor, materials, equipment, and all other costs associated with the complete installation of new frames and lids on existing manholes.
9. Bid Item 9 – Remove and Replace Manhole Lid & Frame and Repair Leaking Joint
 - a. This Bid Item shall include all required labor, materials, equipment, and all other costs associated with the complete installation of a new frame and lid as well as repair to the leaking manhole joint on the existing manhole.
10. Bid Item 10 – Cap Existing Sewer Line
 - a. Cap existing sewer line will be paid for by the unit bid price per each.
 - b. This Bid Item shall include all required labor, materials, equipment, and all other costs associated with cutting and capping the existing sewer line including excavation, bedding, backfill, materials, fittings, tools, and supplies.
11. Bid Item 11 – Install Spiral Screen in New Dual-channel Headworks
 - a. The cost for this Work shall be a lump sum.
 - b. Such payment shall constitute full compensation for labor, materials, equipment, and other costs associated to install the spiral screen as shown in the plans and specifications.
 - c. This bid item shall include all water supply, electrical, controls, and appurtenances required to provide a complete fully tested and operable spiral screening system as well as the manufacturer’s recommended startup and training costs and Operation & Maintenance Manuals.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 012000



WCS

WASTEWATER COMPLIANCE SYSTEMS

www.wastewater-compliance-systems.com

801-999-8271

August 20, 2022

Tunnelton, West Virginia Wastewater Lagoon Upgrade

Scope of Supply

Item	Quantity	Unit	Description
1	40	each	IFFBR Bio-Domes w/ 12" Concrete Base
2	5,000	feet	0.5" ID x 1.0" OD Sinkable feed hose
3	1	each	4" Perforated Corrugated Pipe - 100'
4	5	each	Airline Distribution Box
5	4	each	10 x 1.25" Air Manifold for Airline Distribution Box
6	2	each	Operations Manual & Shop Drawings
7	2	day	Manufacturer's Installation Support
8	1	day	Manufacturer's Equipment Startup/Training
9	4	each	Quarterly Performance and Site Review
Lump Sum Grand Total			\$249,572

Price guaranteed for 120 days from the date above

Payment Terms: Initial investment of 50%, \$124,789, due upon receipt of purchase order. A 10% retainer, \$24,957.20, will be held until installation and startup are complete or 60 days from final shipment, whichever comes first. Upon shipment of product, \$2,495.79 per Bio-Dome that is delivered to Tunnelton will be invoiced. All terms net 30 days.

Shipping Shipping is included.

Contact: Michael Mann (888) 232-9111 michael@bio-domes.com

Wastewater Compliance Systems, Inc., Inc.

P.O. BOX 367, Lehi, UTAH 84043

362 Manor-Harrison City Rd., Harrison City, PA 15636

www.wastewater-compliance-systems.com

SECTION 407523 - pH/DO ANALYZERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Field/Portable pH/DO analyzers.

1.2 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Product Data: Submit manufacturer information for system materials and component equipment, including electrical characteristics and connection requirements.
- C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- D. Manufacturer Instructions: Submit detailed instructions on storage and handling procedures.
- E. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- F. Qualifications Statement:
1. Submit qualifications for manufacturer.

1.3 MAINTENANCE MATERIAL SUBMITTALS

- A. Section 017000 - Execution and Closeout Requirements: Requirements for maintenance materials.

1.4 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.
- B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

1.6 WARRANTY

- A. Section 017000 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish three-year manufacturer's warranty for pH/DO analyzers.

PART 2 - PRODUCTS

2.1 pH/DO FIELD/ PORTABLE ANALYZERS

- A. Manufacturers:
 - 1. Cole-Parmer, Hach, YSI, or Engineer Approved Equal
- B. Parameters:
 - 1. pH:
 - i. Range: -2.000 to 20.000
 - ii. Resolution: 0.1, 0.01, 0.001
 - iii. Relative Accuracy: ± 0.002
 - iv. Calibration: Custom or up to 5 points
 - 2. Dissolved Oxygen
 - i. Range: 0 to 20mg/L (0-200%)
 - ii. Resolution: 0.1 mg/L (0.1%)
 - iii. Relative Accuracy: 0.2 mg/L (0.2%)
 - 3. Temperature:
 - i. Range: 14 degrees F to 230 degrees F
 - ii. Resolution: 0.1-degree F
 - iii. Accuracy: ± 0.9 degrees F
- C. Enclosure:
 - 1. Waterproof and dustproof, IP67.
- D. Interface:
 - 1. USB and micro-USB for PC connection, phono jack for printer connection
- E. Display:
 - 1. Color graphic LCD with Backlight.
- F. Power:
 - 1. AC Adapter: Optional – Universal 100-240 VAC

2. Battery: AA

G. Accessories:

1. Analyzer to include calibration standards, sensor heads, cartridges, buffer sets, wireless SD card, and carrying case.

H. Data Logging:

1. Minimum of 500 sets with date and time stamp

PART 3 - EXECUTION

3.1 FIELD QUALITY CONTROL

A. Section 017000 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.

B. Testing: Test and calibrate analyzer to demonstrate that it meets specified accuracy requirements.

C. Equipment Acceptance:

1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.

3.2 DEMONSTRATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for demonstration and training.

END OF SECTION 407513

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SECTION 460753 - PACKAGED WASTEWATER TREATMENT EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Factory-built, welded-steel packaged wastewater treatment plant, with necessary tankage, capable of treating domestic wastewater by means of extended aeration activated sludge process.
- B. Related Requirements:
 - 1. Section 033000 - Cast-In-Place Concrete: Concrete foundation for packaged wastewater treatment plant.
 - 2. Section 431133 – Rotary Lobe Blowers: Rotary lobe blowers and drives.

1.2 DEFINITIONS

- A. BOD5: Biochemical oxygen demand; amount of dissolved oxygen needed by aerobic biological organisms to break down organic material in the course of five days.
- B. CBOD: Carbonaceous biochemical oxygen demand; the depletion of dissolved oxygen by biological organisms in which the contribution from nitrogenous bacteria has been suppressed.
- C. Coliform Bacteria: General class of bacteria used as indicators of potential contamination of drinking water.
- D. Suspended Solids (SS): Small solid particles that remain in suspension in water.
- E. Total Suspended Solids (TSS): All particles suspended in water that will not pass through a filter.
- F. Total Kjeldahl Nitrogen (TKN): The sum of organic nitrogen, ammonia (NH₃), and ammonium (NH₄⁺) in the wastewater.
- G. Volatile Suspended Solids (VSS): The portion of suspended solids (SS) that will vaporize when heated to 1,112 degrees F; primarily organic material, which indicates the biomass present in the aeration tank.

1.3 REFERENCE STANDARDS

- A. American Society of Mechanical Engineers:
 - 1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.
 - 2. ASME B16.3 - Malleable Iron Threaded Fittings: Classes 150 and 300.
- B. ASTM International:

1. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
2. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

C. American Welding Society:

1. AWS D1.1 - Structural Welding Code - Steel.

D. National Electrical Manufacturers Association:

1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

E. SSPC: The Society for Protective Coatings:

1. SSPC SP 10 - Near-White Metal Blast Cleaning.

1.4 COORDINATION

- A. Section 013000 - Administrative Requirements: Requirements for coordination.
- B. Coordinate installation and startup of Work of this Section with Engineer and Owner.

1.5 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Product Data:
 1. Submit manufacturer's product data for system materials and component equipment.
 2. Provide Test Reports on Materials utilized to make Baffle Curtains.
- C. Shop Drawings:
 1. Indicate system materials and component equipment, including detailed wiring and control diagrams.
 2. Indicate complete information concerning fabrication, installation, anchoring, fasteners, and other details.
 3. Baffle Panel layout showing size, number, positions, sequence of placing all panels, and indicating the location of all field seams or connections (often there are connections, instead of seams).
 4. Baffle Panel anchoring details.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
 1. Certify that installation is completed according to manufacturer's instructions and dome assemblies and associated appurtenances are ready for startup, testing, and operation.

2. The baffle material, sealants and other parts and accessories to fabricate and install baffle curtains in accordance with regulatory agencies having jurisdiction over wastewater treatment.
 - E. Delegated Design Submittals: Submit signed and sealed Shop Drawings with design calculations and assumptions for tanks, railings, and other structural components.
 - F. Manufacturer's Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures, anchoring, and layout.
 - G. Source Quality-Control Submittals: Indicate results of factory tests and inspections.
 - H. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
 - I. Manufacturer Reports: Indicate results of manufacturer's inspections and instructions issued.
 - J. Qualifications Statements:
 1. Submit qualifications for manufacturer, installer, and licensed professional.
 2. Submit manufacturer's approval of installer.
- 1.6 CLOSEOUT SUBMITTALS
- A. Section 017000 - Execution and Closeout Requirements: Requirements for closeout procedures.
 - B. Project Record Documents: Record actual locations and final orientation of equipment and accessories.
 - C. Operation and Maintenance Data: Submit equipment operation and maintenance manuals.
 1. Include periodic maintenance recommendations.
 2. Submit list of equipment, accessories, and tools needed to maintain and calibrate equipment.
- 1.7 MAINTENANCE MATERIAL SUBMITTALS
- A. Section 017000 - Execution and Closeout Requirements: Requirements for maintenance materials.
 - B. Spare Parts: Furnish two sets of manufacturer's recommended spare parts.
- 1.8 MANUFACTURER QUALIFICATIONS
- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.
 - B. Manufacturer of the 4-layered Bio-Film Reactor System commonly referred to as the Bio-Dome, shall be Wastewater Compliance Systems, Inc. (WCS): 1-(888)-232-9111. The Engineer knows of no equal.

- C. Manufacturer of the HDPE Baffle Curtain System shall be Lange Containment, 1-303-446-8644; Layfield USA Corporation: 1-800-796-6868; ThermaFab, Inc.: 1-866-960-5853; or Engineer's approved equal.
- D. Manufacturer of the Floating Cover shall be AWTT, Inc., 1-956-244-6523, or Engineer's approved equal.

1.9 WARRANTY

- A. Section 017000 - Execution and Closeout Requirements: Requirements for warranties.
- B. Furnish five-year manufacturer's warranty for Bio-Dome wastewater treatment equipment.
- C. Manufacturer of the Baffle Curtains shall provide, through the approved Fabricator/Installer, a written normal weathering warranty on the baffle curtain material.
 - 1. A sample warranty for the Baffle Curtain shall be provided to the Owner during the materials selection process.
 - 2. The Fabricator shall warrant the factory fabrication of all accessories against defective factory fabrication workmanship for a period of two (2) years from the final acceptance by the Owner/Final Completion.
- D. In-Channel Screening Unit: provide a warranty for a period of twelve (12) months commencing on the date of Substantial Completion. The Manufacturer shall guarantee that the equipment furnished is suitable for the purpose intended and free from defects in design, materials and workmanship. In the event that the equipment fails to perform as specified the Manufacturer shall, at his option, promptly repair, modify or replace the defective equipment.

PART 2 - PRODUCTS

2.1 SUBMERSIBLE AERATED BIO-FILM REACTOR (4-DOME)

- A. Manufacturers:
 - 1. Wastewater Compliance Systems, Inc.
 - 2. Substitutions: The Engineer is unaware of any equal to this system.
- B. Description:
 - 1. Factory-built packaged submersible aerated bio-film (Bio-Dome) reactor constructed of multiple domes concentrically stacked layers providing a minimum of 4,400 ft² of aerated surface area, utilizing a patented 70:1 surface area enhancing packing material, for fixed-film growth.
 - a. Unit Size: 73 inches in diameter and 51 inches in height (without base).
 - b. Constructed a linear low-density polyethylene (LLDPE), material with stainless steel fasteners.
 - 2. Internal Air Distribution Manifold:
 - a. Schedule 40 PVC Pipe

- 1) Mounted at base to create self-cleaning air lift pump action.
 - b. Negative buoyancy airline connected to distribution manifold.
 - c. Aeration:
 - 1) Micro-bubble diffuser tubing that is flexible and resistant to kinking and memory.
 3. Concrete base
 - a. Epoxy coated reinforcing rebar.
 - b. Height: See drawings.
 4. System components include Bio-Dome, internal air distribution manifold, concrete base, airline distribution box, shoreline air manifold, self-sinking aeration tubing, and other necessary appurtenances.
- C. Performance and Design Criteria:
 1. Influent and Effluent Design Criteria for the Polishing Pond:
 - a. Average Daily Flow Rate: 0.021 MGD.
 - b. BOD₅ Influent (Average): 250 mg/l.
 - c. BOD₅ Effluent (Maximum): 30 mg/l.
 - d. Total Suspended Solids Influent (Average): 150 mg/l.
 - e. Total Suspended Solids Effluent (Maximum): 30.0 mg/l.
 - f. Ammonia-N Influent (Average): 30.0 mg/l.
 - g. Ammonia-N Effluent (Maximum): 5.0 mg/l.
 - h. Additional Removal Required:
 - 1) BOD₅: 220.0 mg/l.
 - 2) Total Suspended Solids: 120.0 mg/l.
 - 3) Ammonia-N: 29.8 mg/l.
 2. 4-Dome Bio-Reactor Performance Criteria:
 - a. BOD Removal: 5.6 lb/day/device.
 - b. TSS Removal: 2.16 lb/day/device.
 - c. Ammonia-N Removal:
 - 1) Maximum BOD requirement of 30 mg/l.
 - 2) Maximum TSS requirement of 30 mg/l.
 - 3) Removal varies depending on water temperature:
 - a) 0.5 - 2.0° C: 0.11 lb/day/device.
 - b) 2.0 - 4.0° C: 0.15 lb/day/device.
 - c) 4.0 - 8.0° C: 0.18 lb/day/device.
 - d) 8.0° C and above: 0.33 lb/day/device.
- D. Bio-Dome Bio-Reactor Accessories
 1. Airline Distribution Box
 - a. Injection molded box of structural foam polyethylene material, with UV stabilizers
 - 1) Tapered body with a double wall at the top cover seat area.
 - b. Dimensions as shown on Plans
 - 1) Bolt Down Cover
 - c. Manufactured by Highline or Engineer-approved equal.
 2. Shoreline Air Manifold
 - a. Schedule 40 Stainless Steel material.

- 1) One (1) manifold per airline distribution box.
 - 2) 1" inlet ball valve.
 - b. 3/8" brass barb fitting with 3/4" female zinc coated quick coupler.
 - c. 3/8" brass barb fitting with 3/4" male zinc coated quick coupler.
 3. Self-Sinking Aeration Tubing
 - a. Material: Negative buoyancy PVC material
 - 1) Burst Rating: 225 PSI
 - 2) Specific Gravity per ASTM D792: 1.68
 - 3) Tensile Strength per ASTM D412: 1,120 PSI
 - 4) Ultimate elongation per ASTM D412: 280%
 - b. 3/8" Inner Dimension:
 - 1) 0.375" ID.
 - c. 1 1/16" Outer Dimension:
 - 1) 0.687" OD.
 - d. Manufactured by Kuriyama of America, or equal.
 4. Brass Barb Fitting
- E. Installation Specifications
 1. 4-Dome Bio-Reactor
 - a. Placed on the lagoon floor
 - b. Placed in site specific layout per the drawings.
 2. Connect Airline
 - a. Secure negative buoyancy airline to each unit then connect to shoreline manifold.
 3. Air Supply
 - a. Turn on air supply.
 - b. Balance air supply between all manifolds by adjusting each ball valve until air/water flow from each unit is identical.
- F. Operational Requirements
 1. 4-Dome Bio-Reactor
 - a. Air Delivery
 - 1) Air must be provided to each continuously.
 - 2) 1.0 SCFM required to each unit at a sufficient PSI to overcome hydrostatic head pressure.
 - b. Water Level
 - 1) Minimum 12" of water is required above each Bio-Dome unit at all times, unless authorized by Manufacturer.
 - c. Maintenance
 - 1) Daily: Visually check surface of lagoon for consistent air and water movement.
 - 2) Monthly: Perform an air purge of the units doubling the air volume for 5-10 minutes
 - 3) Other:
 - a) 10-year interval: Remove units from lagoon and perform a visual inspection of bubble release tube and air manifold.
 - b) 20-year interval: Remove unit from lagoon and replace bubble release tube.

2.2 BAFFLE CURTAINS

A. Manufacturers

1. Lange Containment, Denver, CO
2. Seaman Corporation, Wooster, OH
3. Layfield Group, San Diego, CA
4. ThermaFab, Inc., Gaston, SC
5. Substitutions: Equal as approved by Engineer

B. Description

1. The Design, Fabrication, and Installation of the Baffle System to improve flow characteristics in the existing Lagoon, within the polishing cell.

C. Performance Requirements

1. Baffle Material
 - a. Ultraviolet (U.V.) resistant
 - b. Resistant to chemicals or bacteria associated with contents in the lagoon.
2. Baffle System
 - a. The Baffles shall conform to the specified dimensions and shall be designed for installation in wastewater.
 - b. The baffle systems shall be suitable for expected water levels with daily fluctuations and shall have adequate strength to resist varying water depth across the baffle.
 - c. Baffles shall be anchored to the floor and side walls as shown in the shop drawings to provide a flow path within the Lagoon.

D. Quality Assurance

1. Installation and Fabrication Quality Assurance Plan
 - a. Installer shall thoroughly review and comprehend the project Contract Drawings and Specifications prior to the development of the Installation and Fabrication Quality Assurance Plan. Installer's Quality Assurance Plan shall be mutually consistent with the project specifications, and the Installer shall not substitute less stringent requirements for those specified.
2. Materials
 - a. Monitor and document the unloading, handling, and on-site storage of fabricated geomembrane panels.
 - b. Label, package, and ship test samples to independent testing laboratory for specification compliance testing.

E. Materials

1. The fabric shall be listed as being acceptable for use in wastewater. The fabric shall have a knitted polymer coated polyester fabric with a 6.5 oz. /sq. yd. minimum weight.
2. The fabric shall be of good appearance and free of all defects such as holes, tears, blisters and any other defects that may affect its serviceability.
3. The coated fabric shall not be less than 30 mils thickness with a +10 percent allowable variation. There shall be not less than 7 mils thickness of polymer coating over the base fabric.
4. The polyester fabric shall be non-wicking.

5. The coated fabric shall be UV stable (black) in order to possess maximum UV resistance when exposed to the atmosphere for extended periods of time.
 6. Seam Properties
 - a. Shear Strength: 80 lb/in
 - b. Peel Strength: 10 lb/in
- F. Fasteners and Hardware
1. All bolts, washers, nuts, and expansion anchors shall be Type 316 stainless steel, minimum 3/8- inch diameter.
 2. Suspension and Tension for the top and open ends of the curtain(s) shall be type 316 stainless steel 3/16" diameter cable with type 316 stainless steel 3/16" cable clamps and thimbles.
- G. Cleaning: Cleanup of Contractor's materials and debris within the lagoon shall be the ongoing responsibility of the Contractor throughout the course of the work. Special care shall be taken to ensure that no dirt, scrap, trash, tools, or other materials are trapped on top of or beneath the liner.

2.3 WIND RESISTANT FLOATING COVER

- A. Manufacturers:
1. Advanced Water Treatment Technologies (AWTT), Inc., Harlingen, TX.
 2. Phoenix Plastics, San Pedro, CA.
 3. Substitutions: Equal as approved by Engineer.
- B. Description
1. Ballasted hexagonal floating tiles/disks to reduce evaporation, prevent contamination and pathogen propagation from birds and wildlife, prohibit algal blooms and clogging weeds such as duckweed, reduce chemical evaporation, and control odors.
- C. Performance Requirements
1. Wind Resistance: Up to 130 MPH.
 2. Operating Temperature Range: -50° F to 176° F.
 3. Coverage: Up to 99%.
 4. Accommodate aeration equipment beneath tiles.
 5. Snow, ice and frost resistant.
 6. Projected life expectancy: 25+ years.
- D. Quality Assurance
1. Installation and Fabrication Quality Assurance Plan
 - a. Installer shall thoroughly review and comprehend the project Contract Drawings and Specifications prior to the development of the Installation and Fabrication Quality Assurance Plan. Installer's Quality Assurance Plan shall be mutually consistent with the project specifications, and the Installer shall not substitute less stringent requirements for those specified.
 2. Materials

- a. Monitor and document the unloading, handling, and on-site storage of fabricated tiles.

E. Tile Material and Properties:

1. Construction: 100% homogeneous HDPE shell (no plugs or seals).
2. Diameter: 8.66 inches (220 mm).
3. Average Total Weight (Dry): 0.366 – 0.419 lb. (166 – 190g).
4. Average Total Weight (Installed): 0.586 – 0.639 lb. (266 – 290g).
5. Melt Flow Index (374° F/4.76 lb): 0.35
6. Density: 0.955
7. Melting Point: 264° F.
8. Tensile Strength: 4,000 psi.
9. Elongation at Break: 600%.
10. Flexure Modulus: 200,000 psi.
11. Ballast Filler: drinking water.
12. Number of tiles per sq. ft.: 2.62
13. Number of tiles per square meter: 28.

2.4 IN-CHANNEL SCREENING UNIT

A. General:

1. The in-channel screen will consist of a spiral assembly, screen basket, transport tube, press zone assembly, discharge section, drive system, pivot stand, and controls. The unit shall be mounted above an effluent channel with the screen basket section resting on the bottom of the channel. The screen basket shall retain all solids particles larger than the opening size. The spiral shall transport the solids from the channel, compact and wash them prior to discharging to a separate collection vessel. The screening shall be installed in a 12' wide by 36" deep channel.

B. Manufacturers:

1. JWC Environmental (Model CLT 200).
2. Headworks.
3. SAVECO.
4. Lakeside Equipment Corporation.
5. Substitutions: Equal as approved by Engineer.

C. Materials:

1. Spiral Assembly: The spiral assembly shall consist of a spiral, drive shaft, brushed, and plug cutter blade, and will be shaftless, except in the press zone and discharge section.
2. Spiral: The spiral shall be constructed of concentric flights formed from high-strength alloy steel with a Brinell hardness of 170 and welded together to form a continuous spiral. The spiral shall be ½-inch thick by 2-1/2 inches high. The outside diameter shall be 7-1/2 inches and the inside diameter 2-1/2 inches.

3. Shaft: The drive shaft shall be welded directly to the spiral. The shaft shall be of Type 304 stainless steel and keyed to mate with the hollow drive of the gear motor. The shaft shall be 2 inches.
4. Plug Cutter Blade: At the drive end, mounted on the drive shaft, a serrated cutter blade shall be attached to aid in discharging the solids plug formation. The cutter blade shall be positioned on the lead edge of the reverse spiral that directs the solids plug away from the drive area.
5. Screen Basket Assembly: The screen basket assembly shall consist of a semi-cylindrical, perforated screen and seals between the screen basket and the channel.
 - a. Screen Basket: A custom screen shall have an 8-inch inside diameter and shall be constructed of perforated 11-gauge minimum Type 304 stainless steel plate. The screen openings shall be a maximum size of 3 mm.
 - b. Channel Skirt: The screen basket shall be fitted with neoprene flaps to provide a seal between the channel walls and the screen basket.
6. Transport Tube: A transport tube shall be constructed of 8-inch Schedule 10 stainless steel pipe. The tube shall have three (3) wear strips bolted to the inside surface to prevent the spiral from wearing on the surface of the tube. The wear strips shall be 3/8-inch thick and made of Type 304 stainless steel.
7. Press Zone Assembly: A press zone assembly shall consist of an open topped housing containing a slotted screen dewatering cylinder and a spray wash system.
 - a. Press Zone Housing: The press zone housing shall be an open topped enclosure made of 11-gauge, Type 304 stainless steel. The sides, bottom and end plates shall also be made of 1/2-inch Type 304 stainless steel. The end plates shall have circular seats for axial positioning of the press screen. The top cover shall have neoprene gaskets and shall be attached with 3/8-inch fasteners. The housing shall have a 2-inch FNPT drain port.
 - b. Press Screen: The press screen shall be a cylinder constructed from heavy-duty, Type 304 stainless steel wedgewire. The slot between the wedgewire shall be 0.020 inches, axially directed. The press cylinder shall have end flanges constructed of 1/2-inch plate.
 - c. Press Zone Spray Wash System: A shower bar shall be installed within the press housing to flush solids from the screen surfaces. The shower bar shall be constructed from 1/2-inch Schedule 40 Type 304 stainless steel pipe and shall contain 5 nozzles of various spray patterns and spray capacities. The nozzles near the inlet side will have a higher capacity. One nozzle will be positioned on the bottom of the press housing to flush residue solids. Total water flow rate shall be 4-1/2 USGPM @ 40 psi.
8. Discharge Section: The discharge section shall be made of 8-inch inside diameter, 1/8-inch thick Type 304 stainless steel, with a vertically aligned 8-inch inside diameter discharge chute/guard. An inspection/cleanout door in the top section of the tube shall be provided. The discharge section shall be machined to mate to the drive unit flange.

9. Drive System: A spiral drive system shall consist of a single-speed, dual voltage motor, direct coupled to a helical gear reducer. The electric motor shall be 1 HP, 1750 RPM, 240 Volt, 3 Phase, 60 Hz, TEFC Class 1, Division 2, Safety Factor 1.5, NEMA Design B, with Class F insulation, and 100 degrees F ambient temperature. A gear reducer shall be rated for AGMA, Class II. A drive shall mount directly onto the spiral drive shaft.
10. Pivot Stand: An in-channel screen shall have a support stand with integral pivot. The stand's structural members shall be constructed of Type 304 stainless steel with a minimum thickness of 3/16-inch. An integral pivot shall allow the rotation of the unit out of the channel for maintenance. The unit shall pivot along both the vertical and horizontal directions.
11. Control System:
 1. All controls necessary for the fully automatic operation of the screen shall be provided, including a NEMA 4X main control panel, and a NEMA 7 local control station.
 2. The electrical control system shall provide for automatic control of the screen via a high liquid level using a float switch system installed immediately upstream of the screen.
 3. Main control panel shall be suitable for outdoor, wall mounting. Enclosure shall be NEMA 4X Stainless Steel with continuous hinge and lockable door latch, and shall include the following:
 - a) Door-interlocked and fused disconnect
 - b) 600 VAC terminal block
 - c) NEMA reversing motor starter and Circuit Breaker Branch Circuit Protection for screen motor
 - d) Control power transformer with 120 VAC transient voltage surge compressor (TVSC) and fused primary and secondary
 - e) Panel heater with Thermostat
 - f) Programmable logic controller (PLC)
 - g) Operator Interface (OIU)
 - h) Hand-Off-Auto selector switches for the following
 - i. Screen drive
 - ii. Screen forward-off-reverse
 - iii. Screenings washing system (IRGA)
 - iv. Screen press zone flushing
 - i) Pilot lights for:
 - i. Control power on (white)
 - ii. Screen running (green)
 - iii. Screen high level (amber)
 - iv. Screen fault (red)
 - j) Screen reset push button (black)
 - k) Door mounted elapsed time meters for the following:
 - i. Screen drive
 - l) Digital inputs for the following:
 - i. High water level
 - ii. One spare input
 - m) Remote dry contact outputs for the following:
 - i. Screen running
 - ii. One spare output

n) Plastic Nameplates

12. Outdoor Weather Protection:

1. The screenings transport tube shall be furnished with thermal insulation made of mineral wool, with a heat tracing system for outdoor weather protection which shall enclose the screenings transport tube, compaction and dewatering zone and all spray wash piping, ball valves and solenoid valves.
2. The outdoor weather protection system shall include self-regulating heat tracing, adjustable thermostat, insulation and a stainless steel protective jacket.
3. The heat tracing system shall be suitable for operation in a Class 1 Division 2 hazardous environment, at a minimum temperature of -13 deg F (-25 deg C), and shall be powered from the main control panel.
4. Where the wash water supply and electrical wiring conduit penetrate the stainless steel cover bulkhead adapters shall be provided.
5. All components requiring service or maintenance shall be easily accessible.

13. Bagger:

1. A continuous bagging system shall be provided to abate odors and to seal dewatered screenings to prevent any direct contact. The discharge bagging system shall provide a clean, odor-free means of collecting and containing the material discharged from the screenings equipment.
2. The bagging system components shall be attached to the screenings discharge. An accordion-folded plastic cassette bag shall be fitted to the end of the bagging system and will collect any discharged material. The end of the cassette bag will be tied in a knot. When the operator decides that the cassette bag is full, the cassette bag shall be cut and the exposed ends tied in knots.
3. A stainless steel adapter flange and an ABS plastic cassette bag holder shall be utilized to mount for the screenings discharge. The adapter flange shall be fitted to the discharge chute such that it is positioned as close to horizontal as possible. The plastic holder shall be attached to the stainless steel adapter and shall hold the continuous cassette bag.
4. The adapter flange shall be stainless steel. The holder shall be of ABS plastic and shall consist of two parts, a tube and brim, which shall be held together by a stainless steel ring. The cassette bag shall be non-porous, three-ply, co-extruded polyethylene with a min thickness of 1.8 mils.

14. Surface Finishes:

a. Surface Treatment of Stainless Steel Components:

- 1) Welds shall be acid passivated with pickling paste by brushing on all welds and overlapping into heat affected zones. The paste shall remain for 1 to 2 hours prior to a water flush and neutralization with a soda ash solution.

- 2) All surface blemishes and weld tacks shall be smoothly blended and the complete surface shall be glass bead polished for a uniform finish. After polishing, the surface shall be rinsed then passivated using a citric acid solution. The solution shall be sprayed onto the screens the left for 30 minutes prior to flushing the complete surface with water.
- 3) After drying, all surfaces shall be coated with a thin film for superior corrosion resistance.

b. OEM Components:

- 1) The motor, gear reducer, and all unit-mounted electrical devices shall have the manufacturer's standard finish.

D. Field Devices

1. All field devices shall be Class 1, Division 2 minimum.
2. Solenoid Valves: A 120-volt, single-phase, 60 Hz solenoid valve, housed in a NEMA 4 enclosure.
3. Emergency Stop Local Push Button Station: A NEMA 4 emergency stop push button station shall be mounted to the support stand.

2.5 FABRICATION

A. Bio-Dome Units

1. Assemble complete package sewage-treatment units at factories to ensure fitting of units, piping, and equipment prior to shipment.

B. Baffle Curtains

1. Qualified fabricator of baffle systems must have at least 10 years' experience in the fabrication of geomembrane products and must have fabricated a minimum of 1,000,000 square feet of structurally supported baffle systems.
2. Prior to factory seaming, all roll goods shall be inspected. All factory seams shall be made by thermal fusion methods. All factory seams shall have a minimum scrim-to-scrim overlap of one and one-half inches (1-1/2") when fabricated. All seams shall be made so that thermal fusion bond extends fully along the width of the sheet so that no loose edges are present.
3. All sheets and seams shall be 100% visually inspected during fabrication. No defective seams or exposed scrim will be allowed. All exposed scrim edges shall be sealed with an approved polypropylene edge sealant or capped with a strip of unreinforced polypropylene. All indicated repairs shall be made by the geomembrane fabricator before the panels are packaged for shipment.
4. In addition to visual inspection, a 48-inch (1.2m) weld sample shall be made with each factory seam welding unit used in this work at the beginning of every work shift and every four hours of production thereafter. Sample shall be taken from a seam specifically made for quality testing and not taken from the fabricated panel itself. Test specimens shall be cut at quarter points from each 48-inch seam sample (a total of three places) and

tested for seam strength and peel adhesion. The shear seam strength shall be tested in accordance with ASTM D751 as modified in Annex A of ANSI/NSF 54. The peel adhesion shall be tested in accordance with ASTM D 4437 as modified in Annex A of ANSI/NSF 54.

- a. A log shall be maintained showing the date, time, panel number and test results. Failure of the material and/or seams to meet all the requirements of these specifications may be cause for rejection of the material and/or seams as appropriate. The Fabricator shall provide the test results to the Engineer with the delivery of the product on site.

C. In-Channel Screening Unit

1. The unit shall be factory tested and inspected prior to shipment.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.
- B. Verify layout and orientation of treatment units, accessories, and piping connections.
- C. Verify that foundation is installed with anchor bolts correctly located.

3.2 INSTALLATION

A. Bio-Dome

1. Install Bio-Dome Reactor units on polishing cell floor according to Drawings and manufacturer's installation instructions.
2. Installation Specifications for Bio-Dome Reactors
 - a. 4-Dome Bio-Reactor
 - 1) Placed on the lagoon floor
 - 2) Placed in site specific layout according to Engineer specifications
 - b. Connect Airline
 - 1) Secure negative buoyancy airline to each unit then connect to shoreline manifold.
 - c. Air Supply
 - 1) Turn on air supply.
 - 2) Balance air supply between all manifolds by adjusting each ball valves until air/water flow from each unit is identical.

B. Baffle Curtain

1. The installation contractor shall install the tank baffles in the positions shown on the project drawings.
2. The lagoon baffles shall be installed in accordance with the manufacturer's drawings, instructions and recommendations.

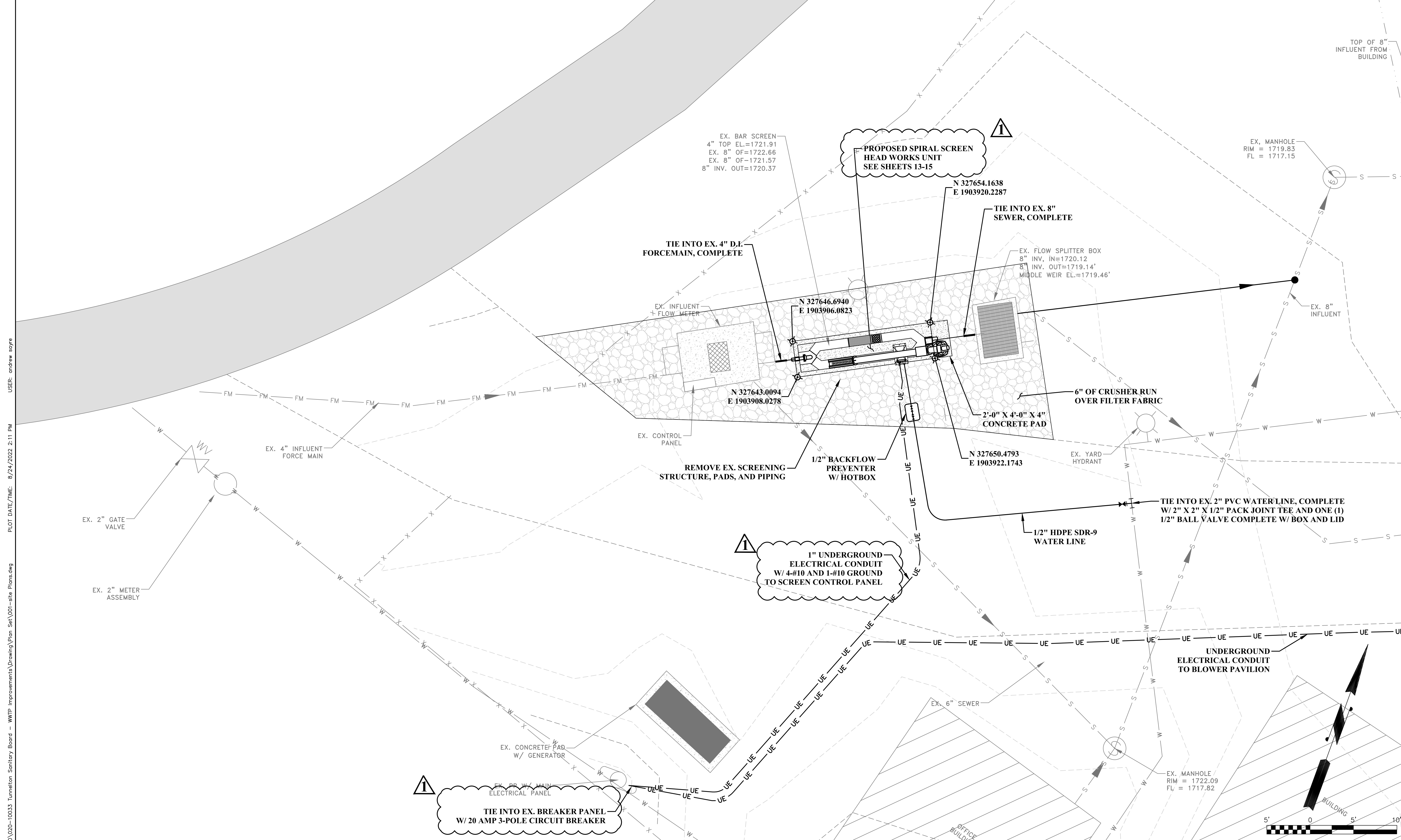
3. The contractor shall verify all baffle dimensions prior to fabrication.
 4. The manufacturer shall, upon the request of the contractor, provide the services of a qualified on-site installation technician to ensure proper installation of the baffle system.
 5. Upon the completion of the baffle wall installation, the contractor, engineer, and manufacturer's representative shall visually inspect the baffle walls for damage. For minor damage the repairs shall be made with newly manufactured material cut with rounded corners extending 4-inches in each direction from the damaged area. The entire repair shall be completely welded to the baffle wall. For major damage the entire panel shall be rejected and replaced with undamaged new material. Engineer reserves the right to reject defective materials
- C. Install blower and motor assembly, piping, and appurtenances as indicated on Drawings and according to manufacturer's instructions.
1. Install and connect piping, accessories, and power as required to ensure complete, operable air handling system.
- D. Floating Cover
1. Check the intake and outlet openings of the basin. The basin's intake and outlet openings must be smaller than the diameter of the floating tiles, to prevent them from obstructing and blocking the openings.
 2. Remove any occasionally occurring surface floating debris. The surface of the water should be free of any naturally occurring debris or viscous layers, to help protect the floating tiles become evenly distributed and in a uniform pattern on the water surface.
 3. Open the bag containing the tiles over the water surface and empty the bag; two persons are recommended for the installation.
 4. The person lifting the bags must be secured to the land to prevent falling into the basin.
 5. Release only 90% of the tiles into the basin initially. Release the remaining 10% two days later when the other tiles have had time to form. This will prevent the basin to becoming overcrowded with tiles. An exact quantity is required to ensure the correct covering pattern.
- E. In-Channel Screening Unit
1. The equipment shall be installed per the manufacturer's recommendations.
 2. All electrical connections shall be provided as specified herein and indicated on the Drawings.
- 3.3 FIELD QUALITY CONTROL
- A. Section 017000 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.
- B. Startup and Performance Testing:
1. Performance Testing of Blower Unit:
 - a. Check correct rotation of blower motor; adjust V-belt tensioning and alignment; ensure proper blower and motor lubrication.

- b. Run each blower unit under direction of manufacturer's representative for period of four continuous hours to demonstrate correct alignment, smooth operation, and freedom from vibration, noise and overheating; take motor amp readings to demonstrate motor is not overloading.
- c. Test in presence of Engineer/Engineer.
- d. Measure following using metering devices to determine conformance with performance requirements:
 - 1) Blower and motor rpm.
 - 2) Discharge air volume and pressure.
 - 3) Relief valve settings.
- e. When components fail to perform as specified or are defective, correct deficiencies and rerun performance test.
- f. Equipment modifications are subject to approval of Engineer.

C. Manufacturer Services:

- 1. Furnish services of manufacturer's representative experienced in installation of products furnished under this Specification for not less than seven days on-Site for installation, inspection, field testing, and instructing Owner's personnel in maintenance of equipment.
- 2. Demonstrate equipment startup, shutdown, routine maintenance, alarm condition responses, and emergency repair procedures to Owner's personnel.
- 3. The manufacturer shall provide two copies of the in-channel screening unit's operation and maintenance manuals to the Owner and provide one (1) day installation and training.

END OF SECTION 460753



LAYOUT TAB: 5
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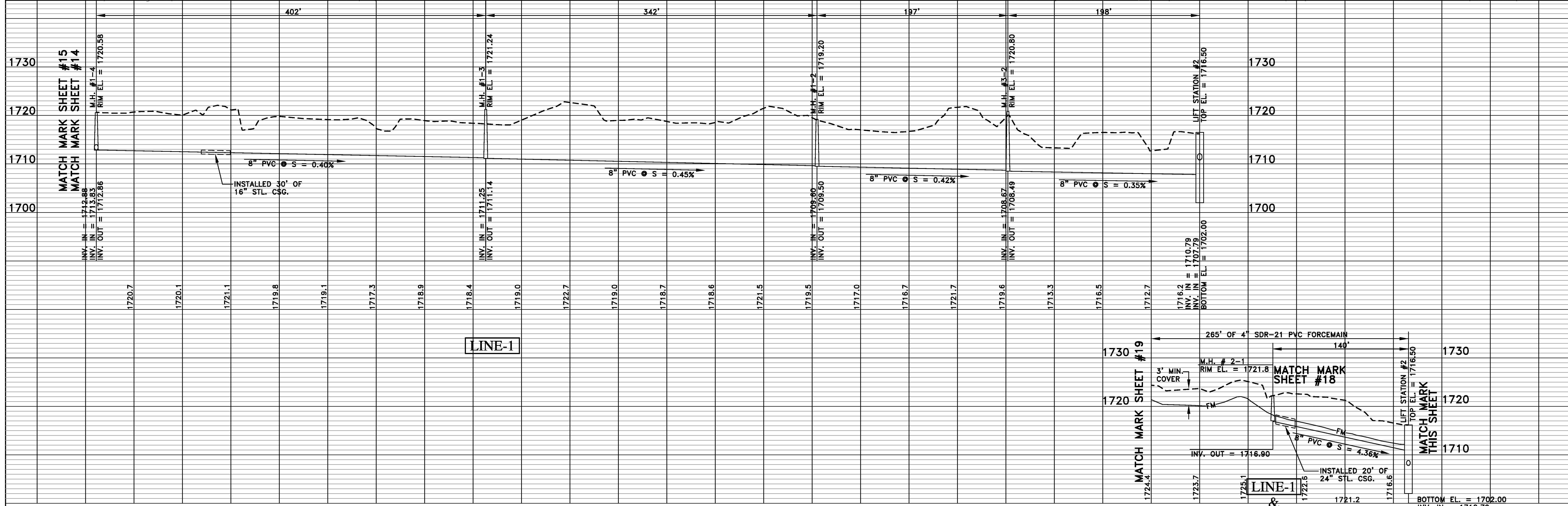
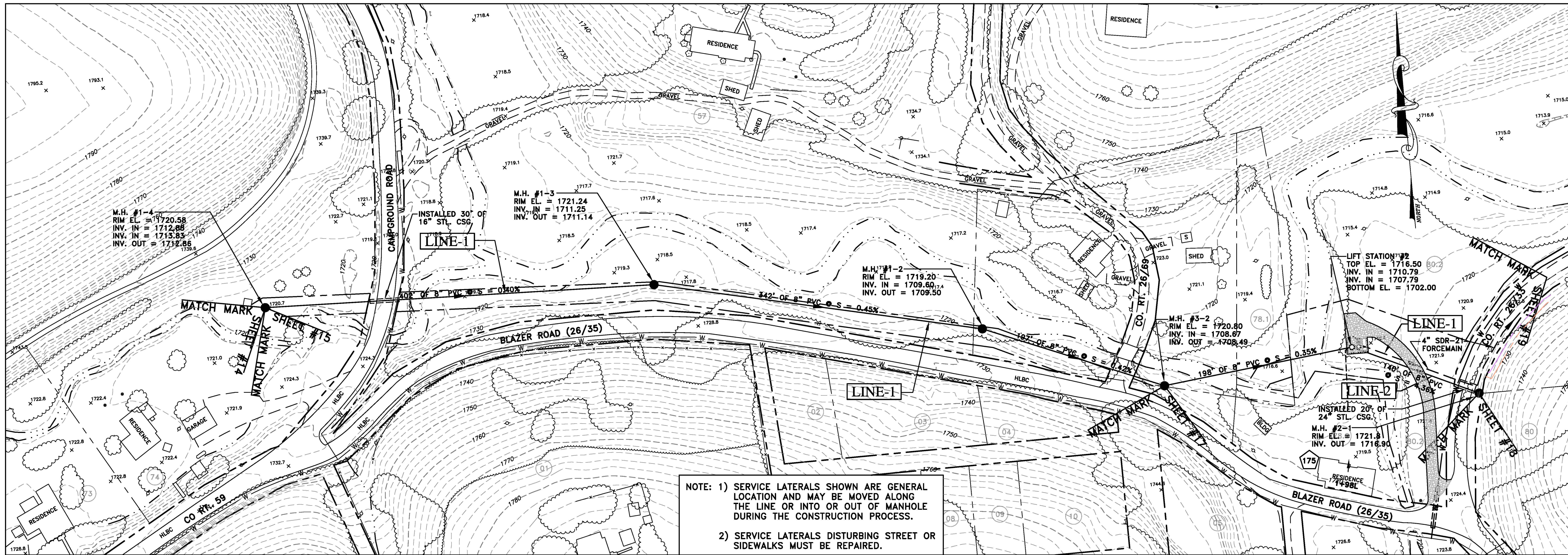
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 DRAWN: P. LANTZ DATE: 9/21
 CHECKED: DATE:
 APPROVED: DATE:
 SURVEY DATE:
 SURVEY BY:
 FIELD BOOK No.:

THRASHER
 600 WHITE OAKS BLVD. P.O. BOX 940
 BRIDGEPORT WV, 26330
 www.thrashereng.com
 PHONE (304) 624-4108
 FAX (304) 624-7831

PHASE No.
 CONTRACT No.
 PROJECT No.
020-10033

TOWN OF TUNNELTON
 MUNICIPAL SEWER WORKS
 PHASE II 0.04 MGD WWTP AND COLLECTION
 SYSTEM UPGRADES PROJECT
 HEADWORKS SITE PLAN

SHEET No.
5



REVISIONS	NO.	BY	DATE

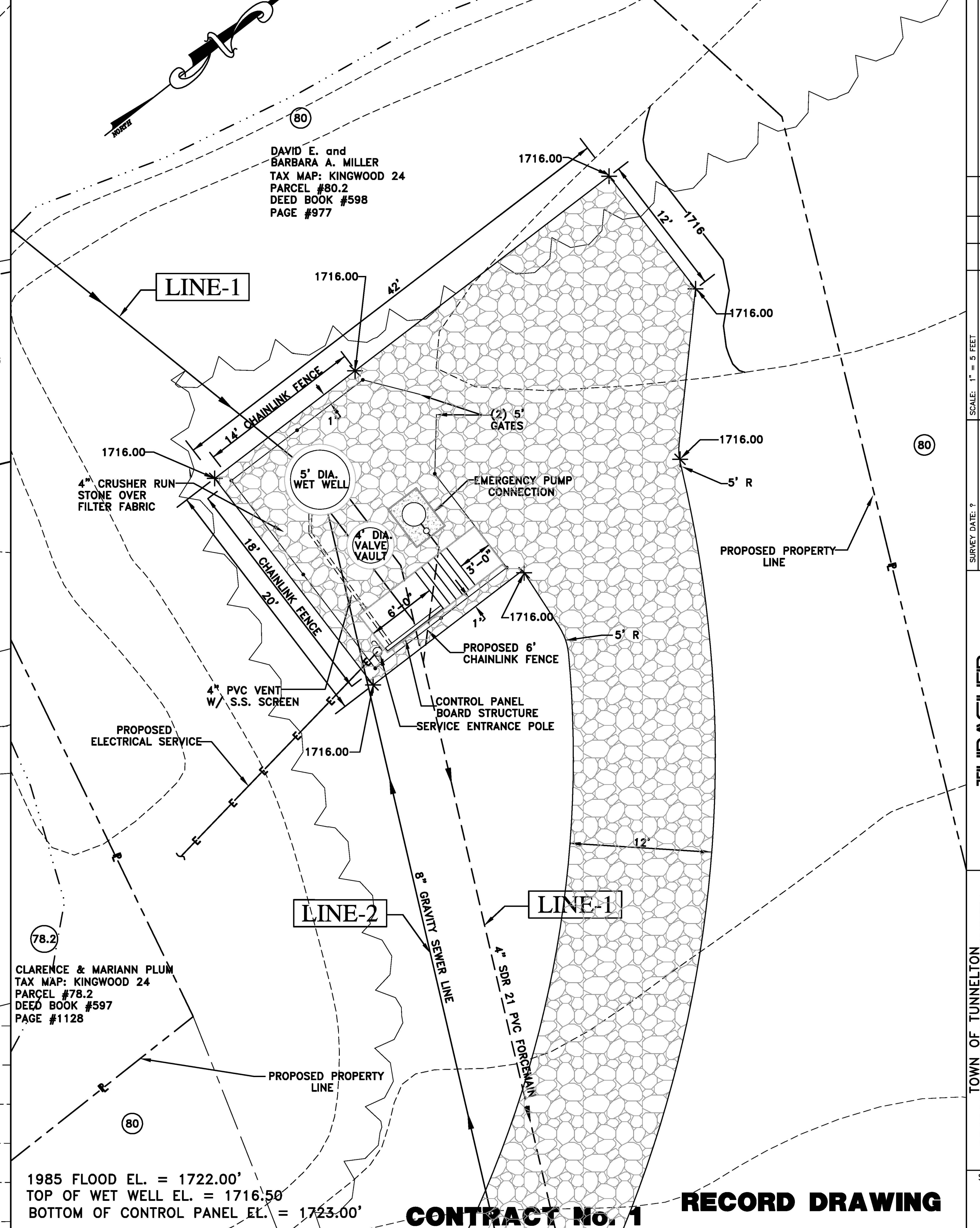
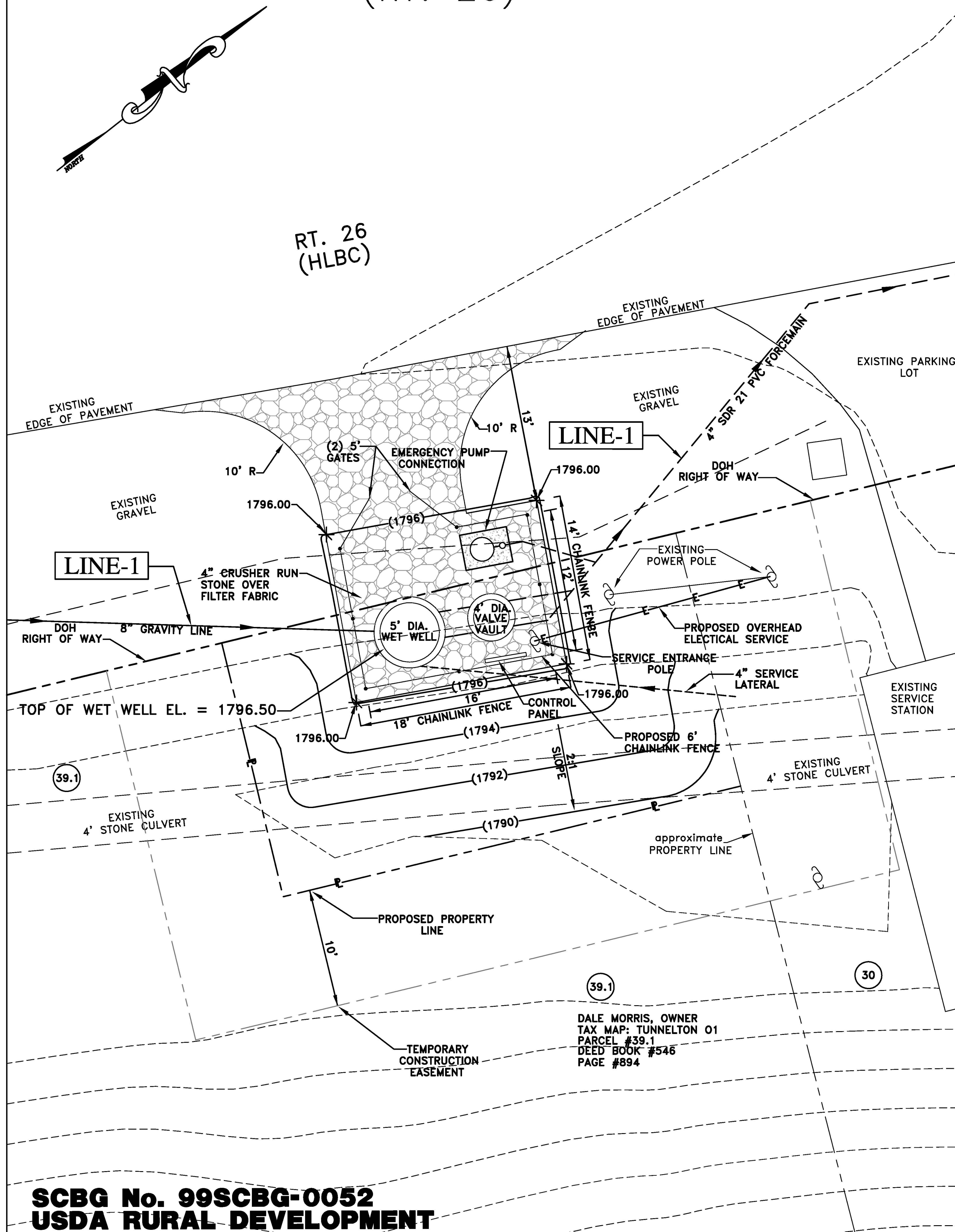
THRASHER
 CIVIL, ENVIRONMENTAL, AND CONSULTING
 30 COLUMBIA BOULEVARD - CARRISBURG, WV 26031
 PHONE (304) 624-4108 (FAX) (304) 624-7831
 E N G I N E E R I N G

TOWN OF TUNNELTON
 PROPOSED SANITARY SEWER SYSTEM
 PLAN AND PROFILE

20-074

TOWN OF TUNNELTON
 DUPLEX NON-CLOG PUMP STATION #1
 (RT. 26)

TOWN OF TUNNELTON
 DUPLEX NON-CLOG PUMP STATION #2
 (BLAZER ROAD)



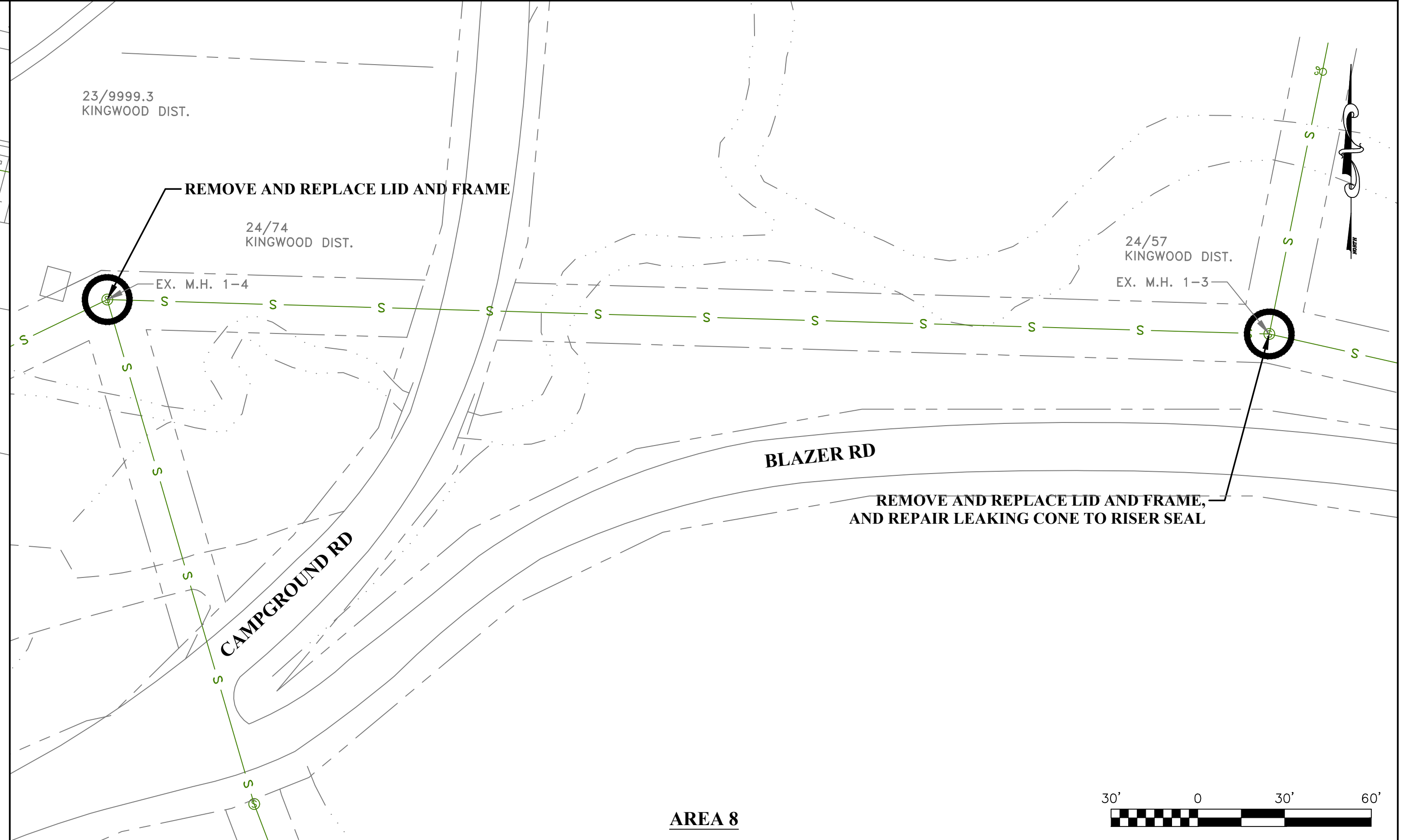
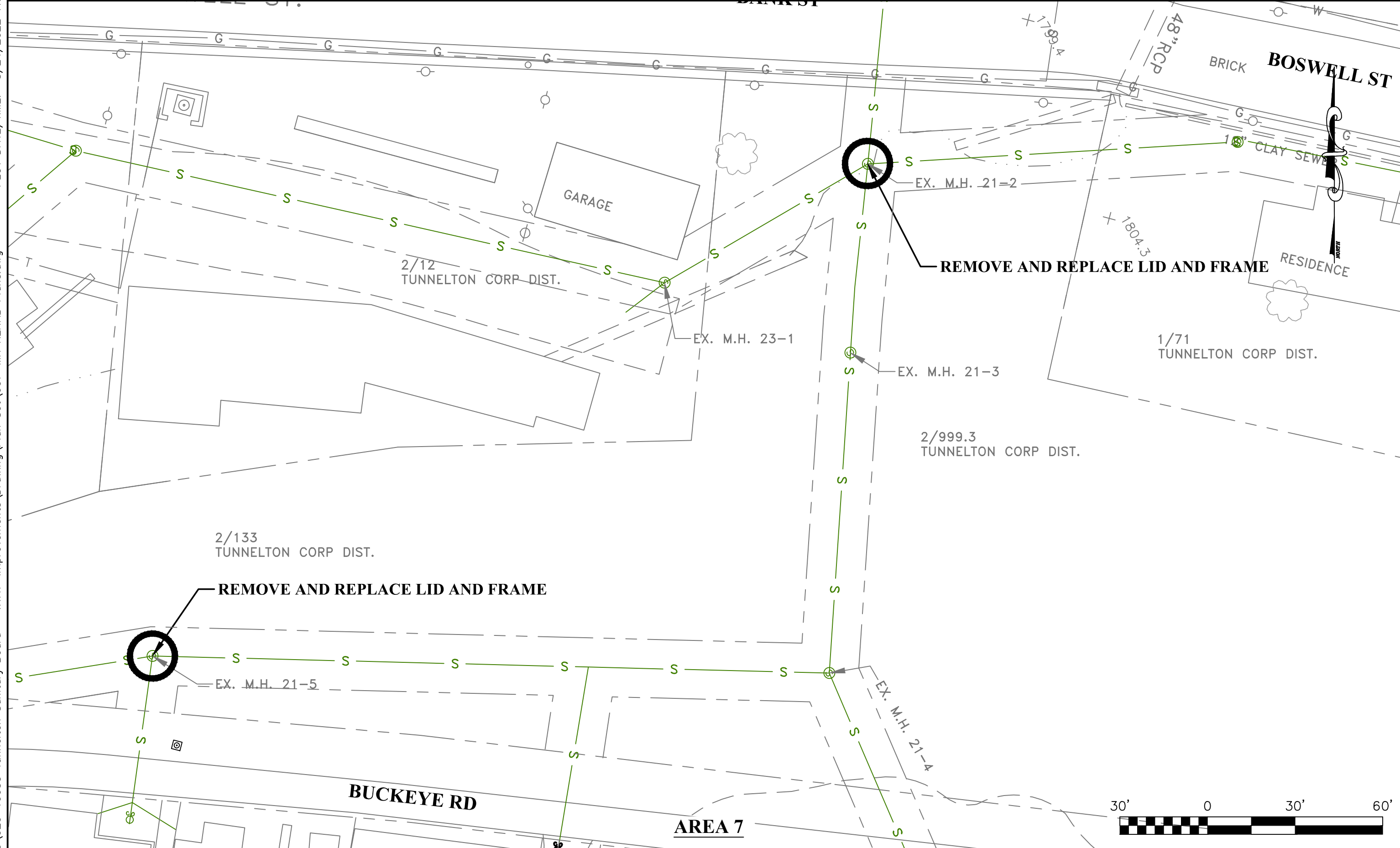
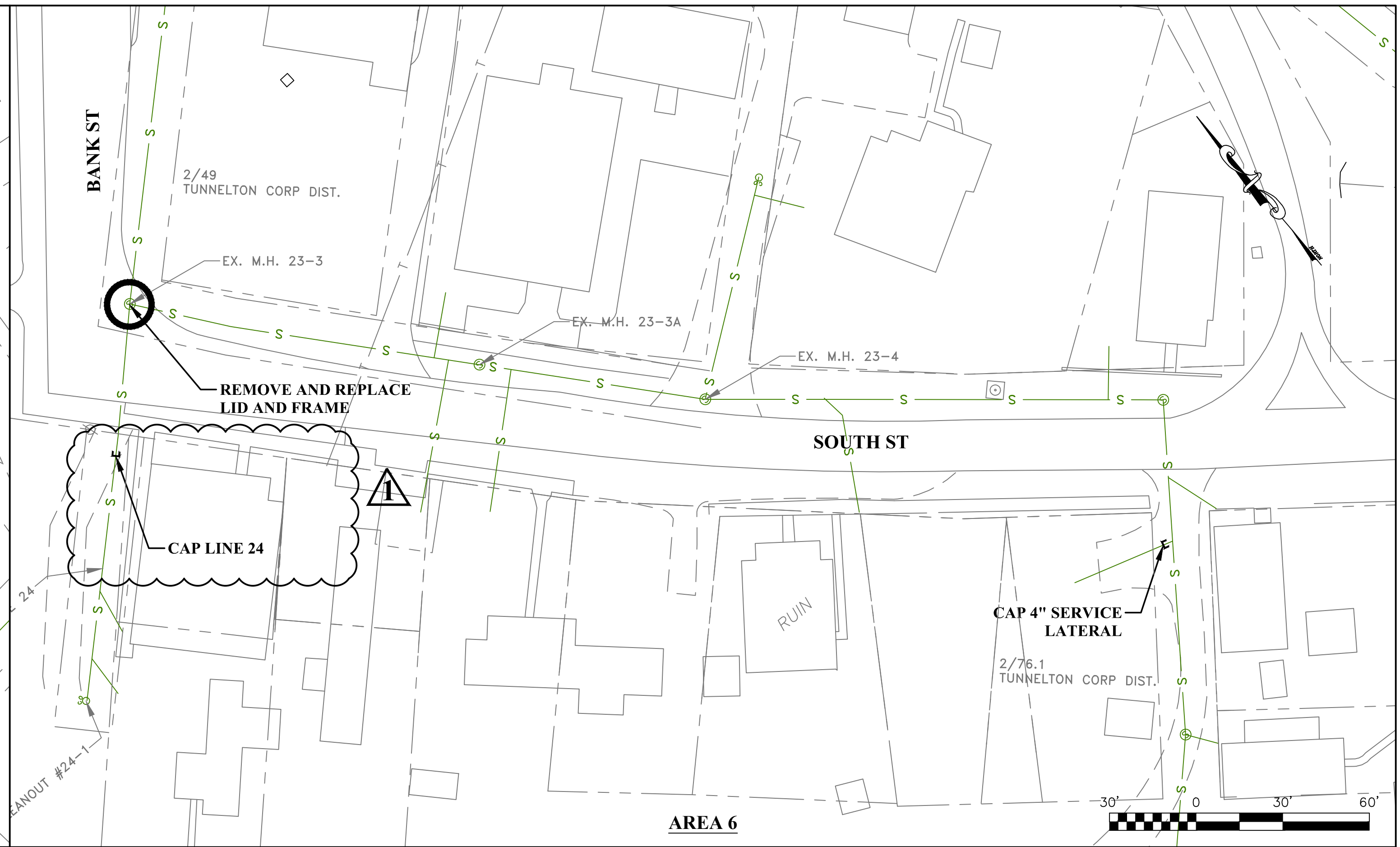
SCBG No. 99SCBG-0052
 USDA RURAL DEVELOPMENT

1985 FLOOD EL. = 1722.00'
 TOP OF WET WELL EL. = 1716.50'
 BOTTOM OF CONTROL PANEL EL. = 1723.00'

CONTRACT No. 1 RECORD DRAWING

TOWN OF TUNNELTON PROPOSED SANITARY SEWER SYSTEM DUPLEX NON-CLOG PUMP STATIONS #1 & #2 SITE PLANS	
SHEET No.	21
PHONE (304) 624-4108	(FAX) (304) 624-7831
THRASHER ENGINEERING CIVIL, ENVIRONMENTAL, AND CONSULTING 30 COLUMBIA BOULEVARD - CLARKSBURG, WV 26301	
SCALE: 1" = 5 FEET	REVISIONS
DRAWN: AASHCRAFT	DATE: 07/14/00
CHECKED: JH	DATE: 11/18/03
APPROVED: JH	DATE: 11/18/03
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FILE NO. 20-074	DESCRIPTION
SURVEY DATE: ?	NO. BY DATE
SURVEY BY: ?	NO. BY DATE
FIELD BOOK No.:	NO. BY DATE

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NO.	BY	DATE	DESCRIPTION
1	AS	8/24/22	ADDENDUM #1



SCALE:
 DRAWN: P. LANTZ DATE: 9/21
 CHECKED: DATE:
 APPROVED: DATE:
 SURVEY DATE:
 SURVEY BY:
 FIELD BOOK No.:

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PHASE No.
 CONTRACT No.
 PROJECT No.
020-10033

TOWN OF TUNNELTON
 MUNICIPAL SEWER WORKS
 PHASE II 0.04 MGD WWTP AND COLLECTION
 SYSTEM UPGRADES PROJECT
 MANHOLE REHAB PLAN VIEWS

SHEET No.
22