

MILTON MUNICIPAL UTILITY COMMISSION
CABELL COUNTY, WEST VIRGINIA

CONTRACT #2 – SANITARY SEWER REHABILITATION AND LIFT STATION
RELOCATION

ADDENDUM #2

FEBRUARY 10, 2022

THRASHER PROJECT #020-1526

TO WHOM IT MAY CONCERN:

A Pre-Bid Conference was held on Tuesday, January 25, 2022 on the above-referenced project. The following are clarifications and responses to questions posed by contractors for the above reference project.

A. GENERAL

1. **THE BID FORM HAS BEEN REVISED. YOU MUST USE THE REVISED BID FORM WHEN PREPARING YOUR BID PACKAGE FOR THIS PROJECT.**

B. SPECIFICATIONS

1. **DELETE** Specification Index in its entirety and **REPLACE** with attached Specification Index.
2. **DELETE** Section C-410 Bid Form in its entirety and **REPLACE** with attached Section C-410 Bid Form.
3. **DELETE** Section 011000 - Summary in its entirety and **REPLACE** with attached Section 011000 – Summary.
4. **DELETE** Section 012000 – Price and Payment Procedures in its entirety and **REPLACE** with attached Section 012000 – Price and Payment Procedures.
5. **ADD** the attached Section 262930 – Cellular Monitoring Telemetry.
6. **DELETE** Specification 263200 – Transfer Switches in its entirety and **REPLACE** with attached Specification 263200 – Transfer Switches.

C. DRAWINGS

1. **DELETE** Sheet 1A in its entirety and **REPLACE** with the attached Sheet 1A.
2. **DELETE** Sheet 2 in its entirety and **REPLACE** with the attached Sheet 2.
3. **DELETE** Sheet E-1 in its entirety and **REPLACE** with the attached Sheet E-1.
4. **DELETE** Sheet E-2 in its entirety and **REPLACE** with the attached Sheet E-2.

D. QUESTIONS AND RESPONSES

QUESTION

1. Can the trailer on Contract 2 Plan Sheet 2 between manhole 1-10 to 1-11 be moved so the sewer line can be installed? That line is very deep and very close to that trailer with numerous utilities in the way also

RESPONSE

The easement for the project was not acquired with any discussion of moving the trailer. Movement of the trailer or alternative methods of construction of this line can be discussed during construction.

QUESTION

2. Is an office trailer/field office required for each contract?

RESPONSE

Yes.

QUESTION

3. Are any geotechnical reports available?

RESPONSE

No.

QUESTION

4. The pre-bid meeting agenda included in Addendum #1 reference is made to an SHPO Clearance in the Permits section. It states that an archeologist will need to be on site during excavations. Where are these excavations and who will pay for the archeologist?

RESPONSE

Archeological monitoring during excavations will not be necessary on this project.

QUESTION

5. Will you please clarify the type of bedding and initial backfill that is required? The detail shows #57's and the specs state #8's.

RESPONSE

#57 stone shall be used for bedding and initial backfill.

QUESTION

6. Will the ductile iron pipe require polyethylene encasement?

RESPONSE

No.

QUESTION

7. Several of the lines are in the streets. Can we close the streets to through traffic until the lines are laid through those areas, allowing access for the residents/businesses from either end of the street?

RESPONSE

Streets can be closed as long as residences/businesses still have access. A traffic control plan will need to be approved by the City prior to any construction activities.

QUESTION

8. Can we put steel plates over the open trench excavation on the nights and weekends or will we need to backfill the trenches for the nights and weekends and then open them up again the next workday?

RESPONSE

Steel plates over the open trench excavation during the night is acceptable. Trenches will need to be backfilled or blockaded during weekends.

QUESTION

9. Specification 310513 – 2.2 – E states that granular backfill required under improved areas (streets, driveways, sidewalks, etc.) but it doesn't show on the trench details. Is this required?

RESPONSE

Each trench repair detail states the required gradation and depth of the granular backfill.

QUESTION

10. Will you add bid items for drop manhole connections?

RESPONSE

No. Drop manhole connections shall be included in the price of the manholes.

QUESTION

11. Will you add bid items for terminal gravity cleanouts?

RESPONSE

No. Terminal gravity cleanouts shall be included in the price of gravity sewer line.

QUESTION

12. What exactly gets coated in the pump stations, is it just the walls of the precast structure or more than that? If it is just the walls will a coating from the precast manufacturer be acceptable for the new stations. Please clarify what needs done at each station.

RESPONSE

The interior concrete faces of the wet well of the new pump stations shall be coated. Coating shall be applied in place once the concrete structure is installed.

QUESTION

13. Will the owner pay for any fees charged by the power company for services at the pump stations?

RESPONSE

Yes.

QUESTION

14. Is a project sign required for each contract? If not which contract(s) will need to provide the sign(s)?

RESPONSE

Yes.

QUESTION

15. Can the flow of sewage continue to the South Main Lift Station while we are installing the gravity sewer and until the new/relocated South Main Lift Station is installed and operational.

RESPONSE

Yes.

QUESTION

16. Is the cost to demo the existing South Main Lift Station to be included in the bid item for the South Main Lift Station Relocation?

RESPONSE

Yes.

QUESTION

17. There are several manholes that are being removed and replaced on the project and some of those manholes have existing lines that will need to be reconnected to the new manholes, the following questions pertain to that work:

Can you tell us the type of pipe that is coming into the manholes, gravity sewer main line, force main sewer or service lateral lines?

Can we use SDR 35 PVC pipe to replace these sections of line?

We don't have any way to know what condition the existing lines are in and therefore we may need to "chase" the pipe for some distance to find a section of pipe that is in good enough condition to connect to. How many feet of new sewer pipe should we figure into our bid to replace the existing lines? This question only applies to the "side" lines, not the main lines that we are replacing.

RESPONSE

There are various types of pipe in the existing collection system. SDR 35 PVC can be used to replace the sections of gravity lines that have less than 10 feet of cover and ductile iron pipe will need to be used for deeper gravity section. Up to 10 feet of new sewer pipe should be included in the bid for each "side" line tie-in.

QUESTION

18. Manhole 1-5 there appears to be an existing "side" line coming into the manhole from the North on Riversedge Drive. Are we reconnecting this line and if so, what size is the line and what is the elevation (does it need to be a drop)?

RESPONSE

The existing "side" line coming from the north into Manhole 1-5 is 12" PVC line and is approximately 10' deep. The connection will need to be a drop connection.

QUESTION

19. There is a note on Plan Sheet #2 at Manhole #1-9 that states cut and plug. What size and type of line are we cutting and plugging?

RESPONSE

The Cut and Plug will be on an 8" PVC line.

QUESTION

20. Manhole #2-9 appears to be a remove and replace manhole. There appears to be an existing "side" line coming into the manhole from the North on Hillview Drive. Are we reconnecting this line and if so, what size is the line and what is the elevation (does it need to be a drop)?

RESPONSE

The existing "side" line coming from the North from Hillview Drive into Manhole #2-9 is an 8" PVC line and is approximately 6' deep. The connection will not be a drop connection.

QUESTION

21. Can you clarify the control sections in regards to what will require a VFD, what will require a soft start? And what will require an across the line starter?

RESPONSE

VFDs shall be installed on all lift station pumps.

QUESTION

22. Can you verify the voltage for each station? Some say 230 volt but has a 480/120 volt control transformer and some drawings voltages font match the specs

RESPONSE

South Main Lift Station – 277/480V, 3 Phase

QUESTION

23. Can you verify the incoming power transformer configuration for each station?

RESPONSE

The incoming transformer for the lift stations are in a “Y” configuration.

E. CLARIFICATIONS

1. FM-1 on Sheet 1 shall be an 8” PVC DR-18 Forcemain.
2. Bid Item 6a – 6f and Bid Item 16b shall be 16" Ductile Iron Gravity Sewer Line.
3. The three contracts will be opened in order from Contract #1 to Contract #3 at Milton City Hall. All bids must be received by 2:00 p.m. on Thursday, February 17, 2022. After opening all bids for Contract #1, the apparent low bidder has the ability to pull their bid on the other contracts. The same procedure applies to Contract #2.

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, February 17, 2022 at Milton City Hall, 1139 Smith Street, Milton, WV 25541. Good luck to everyone and thank you for your interest in the project.

Sincerely,

THE THRASHER GROUP, INC.


COREY SMITH, PE
Project Manager



Revised per Addendum #2
February 10, 2022

**MILTON MUNICIPAL UTILITY COMMISSION
CABELL COUNTY, WEST VIRGINIA
FOR THE
CONTRACT #2 – SANITARY SEWER REHABILITATION AND LIFT STATION
RELOCATION**

- 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
Engineer's Certification of Compliance with AIS	GC-C
Performance Bond	C-610
Payment Bond	C-615
Notice to Proceed	C-550
Contractors Application for Payment	C-620
Change Order	C-941
Field Order	C-942
Work Change Directive	C-940
Certificate of Substantial Completion	C-625

Revised per Addendum #2
February 10, 2022

General Conditions	C-700
Supplementary Conditions	C-800
RUS – WV Supplemental General Conditions	RUS
Additional Supplemental General Conditions	ASGC
American Iron and Steel	AISR

TECHNICAL SPECIFICATIONS

Summary	011000
Price and Payment Procedures	012000
Substitution Procedures	012500
Contract Modification Procedures	012600
Administrative Requirements	013000
Construction Progress Schedule	013216
Submittal Procedures	013300
Quality Requirements	014000
Temporary Facilities and Controls	015000
Traffic Control	015700
Product Requirements	016000
Execution and Closeout Requirements	017000
Closeout Procedures	017700
Operation and Maintenance Data	017823
Project Record Documents	017839
Commissioning	019100

Revised per Addendum #2
February 10, 2022

Video Recording	020100
Cast-In-Place Concrete	033000
Crystalline Concrete Waterproofing	033050
Grouting	036000
Rough Carpentry	061000
Access Hatches	083500
Coating Systems Wastewater Equipment	099010
Jib Crane Hoist and Trolley	110520
Basic Electrical Materials and Methods	260500
Conductors and Cables	260523
Grounding and Bonding	260526
Raceways	260533
Wiring Devices	262726
Fuses	262813
Enclosed Switches and Circuit Breakers	262816
Cellular Monitoring Telemetry	262930
Transfer Switches	263200
LED Exterior Lighting	265619
Soils for Earthwork	310513
Aggregates for Earthwork	310516
Earth Moving	312000
Excavation	312316
Trenching	312316.13

Revised per Addendum #2
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Dewatering	312319
Erosion and Sedimentation Controls	312500
Asphalt Paving	321216
Stone Surfacing Material	321217
Concrete Paving	321313
Chain Link Fences and Gates	323113
Landscaping	329119
Sewer and Manhole Testing	330130.13
Manholes and Structures	330513
Trenchless Utility Installation	330523
Utility Identification	330526
Temporary Bypass Pumping	330600
Public Sanitary Utility Sewage Piping	333113
Sanitary Utility Sewerage Force Mains	333400
Hangers and Supports for Process Piping	400507
Ductile Iron Process Pipe	400519
Plug Valves	400562
Swing Check Valves	400565.23
South Main Lift Station	432540.01

WV WAGE RATES

ACCOMMODATION OF UTILITIES ON HIGHWAY RIGHT OF WAY

**MILTON MUNICIPAL UTILITY COMMISSION
CABELL COUNTY, WEST VIRGINIA
PROPOSED
CONTRACT #2 – SANITARY SEWER REHABILITATION AND LIFT STATION
RELOCATION
THRASHER PROJECT #020-01526**

BID FORM

ARTICLE 1 – BID RECIPIENT

- 1.01 This Bid is submitted to:
*MILTON MUNICIPAL UTILITY COMMISSION
1139 SMITH STREET
MILTON, WV 25541*
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

- 2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 90 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

- 3.01 In submitting this Bid, Bidder represents that:
- A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

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

- B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
- C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work and including all AIS requirements.

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

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;
- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - 1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - 2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – BASIS OF BID

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 Milton Municipal Utility Commission Contract #2 – Sanitary Sewer Rehabilitation and Lift Station Relocation. The Project "Sequence of Construction" has been detailed in the Drawings and Specification Division 1, Project Summary, Section 1010, Part-2 Execution. The Bidder agrees to perform all the Work proposed for the total of the following Bid prices.

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

**PROPOSED
CONTRACT #2 – SANITARY SEWER REHABILITATION AND LIFT STATION
RELOCATION
FOR THE
MILTON MUNICIPAL UTILITY COMMISSION
CABELL COUNTY, WEST VIRGINIA
THRASHER PROJECT #020-01526**

BID SCHEDULE

NOTE: Bid Unit 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.

<u>Item</u>	<u>Quantity</u>	<u>Description with Unit Price Written</u>	<u>Unit Price</u>	<u>Total Price</u>
1	1 LS	Mobilization/Demobilization		
			Dollars	
			Cents	

Item	Quantity	Description with Unit Price Written	Unit Price	Total Price
2	1 LS	Videotaping of Project Area		
			Dollars _____	
			Cents _____	
3	1 LS	Erosion and Sedimentation Control		
			Dollars _____	
			Cents _____	
4	200 LF	18" D.I. Gravity Sewer Line		
			Dollars _____	
			Cents _____	
5a	30 LF	Remove Existing Sewer and Replace with 15" PVC Gravity Sewer Line (0' - 6' Deep)		
			Dollars _____	
			Cents _____	
5b	235 LF	Remove Existing Sewer and Replace with 15" PVC Gravity Sewer Line (6' - 9' Deep)		
			Dollars _____	
			Cents _____	
5c	115 LF	Remove Existing Sewer and Replace with 15" PVC Gravity Sewer Line (9' - 12' Deep)		
			Dollars _____	
			Cents _____	
6a	325 LF	Remove Existing Sewer and Replace with 15" D.I. Gravity Sewer Line (0' - 6' Deep)		
			Dollars _____	
			Cents _____	
6b	630 LF	Remove Existing Sewer and Replace with 15" D.I. Gravity Sewer Line (6' - 9' Deep)		
			Dollars _____	
			Cents _____	
6c	620 LF	Remove Existing Sewer and Replace with 15" D.I. Gravity Sewer Line (9'-12' Deep)		
			Dollars _____	
			Cents _____	

Item	Quantity	Description with Unit Price Written	Unit Price	Total Price
6d	310 LF	Remove Existing Sewer and Replace with 15" D.I. Gravity Sewer Line (12'- 15' Deep)		
			_____ Dollars	
			_____ Cents	_____
6e	660 LF	Remove Existing Sewer and Replace with 15" D.I. Gravity Sewer Line (15'- 18' Deep)		
			_____ Dollars	
			_____ Cents	_____
6f	2,140 LF	Remove Existing Sewer and Replace with 15" D.I. Gravity Sewer Line (+18' Deep)		
			_____ Dollars	
			_____ Cents	_____
7a	195 LF	Remove Existing Sewer and Replace with 12" PVC Gravity Sewer Line (0'- 6' Deep)		
			_____ Dollars	
			_____ Cents	_____
7b	420 LF	Remove Existing Sewer and Replace with 12" PVC Gravity Sewer Line (6'- 9' Deep)		
			_____ Dollars	
			_____ Cents	_____
8a	750 LF	10" PVC Gravity Sewer Line (0'- 6' Deep)		
			_____ Dollars	
			_____ Cents	_____
8b	60 LF	10" PVC Gravity Sewer Line (6'- 9' Deep)		
			_____ Dollars	
			_____ Cents	_____
9	40 LF	8" PVC Gravity Sewer Line		
			_____ Dollars	
			_____ Cents	_____

Item	Quantity	Description with Unit Price Written	Unit Price	Total Price
10	265 LF	8" PVC DR-18 Forcemain		
			Dollars _____	
			Cents _____	
11a	190 LF	4" PVC Customer Service Lateral		
			Dollars _____	
			Cents _____	
11b	1,370 LF	4" D.I. Customer Service Lateral		
			Dollars _____	
			Cents _____	
12a	190 LF	32" Steel Casing (Bore & Jack)		
			Dollars _____	
			Cents _____	
12b	100 LF	24" Steel Casing (Bore & Jack)		
			Dollars _____	
			Cents _____	
13a	5 EA	48" Diameter Manhole Base, Cone Top, Regular Casting		
			Dollars _____	
			Cents _____	
13b	16 EA	60" Diameter Manhole Base, Cone Top, Regular Casting		
			Dollars _____	
			Cents _____	
14a	31 EA	Remove Existing Manhole and Replace with New 48" Diameter Manhole Base, Cone Top, Regular Casting		
			Dollars _____	
			Cents _____	

Item	Quantity	Description with Unit Price Written	Unit Price	Total Price
14b	12 EA	Remove Existing Manhole and Replace with New 60" Diameter Manhole Base, Cone Top, Regular Casting	_____ Dollars _____ Cents	_____
15a	55 VF	48" Diameter Manhole Riser Pipe	_____ Dollars _____ Cents	_____
15b	345 VF	60" Diameter Manhole Riser Pipe	_____ Dollars _____ Cents	_____
16a	10 EA	15"x 4" PVC Wye Connection	_____ Dollars _____ Cents	_____
16b	87 EA	15" x 4" D.I. Wye Connection	_____ Dollars _____ Cents	_____
16c	19 EA	12"x 4" PVC Wye Connection	_____ Dollars _____ Cents	_____
16d	13 EA	12"x 4" D.I. Wye Connection	_____ Dollars _____ Cents	_____
16e	2 EA	10"x 4" PVC Wye Connection	_____ Dollars _____ Cents	_____

Item	Quantity	Description with Unit Price Written	Unit Price	Total Price
17a	1,245 LF	WVDOH Type "B" Trench Repair		
			Dollars	
			Cents	
17b	330 LF	WVDOH Type "C" Trench Repair		
			Dollars	
			Cents	
18	616 LF	Asphalt Overlay		
			Dollars	
			Cents	
19a	390 LF	Asphalt Driveway Repair		
			Dollars	
			Cents	
19b	745 LF	Concrete Driveway Repair		
			Dollars	
			Cents	
19c	285 LF	Gravel Driveway Repair		
			Dollars	
			Cents	
20	34 EA	Reconnect Existing Service Lateral		
			Dollars	
			Cents	
21	1 LS	South Main Lift Station Relocation		
			Dollars	
			Cents	

Item	Quantity	Description with Unit Price Written	Unit Price	Total Price
22	4,000 LF	Reclamation of Disturbed Area		
			Dollars _____	
			Cents _____	
23	2,000 LF	WVDOH Inspection Fee Allowance		
		Three	Dollars _____	
		Thirty-Seven	Cents \$3.37	\$6,740.00

TOTAL BID: _____
 _____ (\$ _____)

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

NOTE: THE CONTRACTOR'S UNIT PRICES SHALL INCLUDE PURCHASE AND INSTALLATION, COMPLETE IN PLACE, PER BID ITEM IN ACCORDANCE WITH THE DETAILED SPECIFICATIONS.

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 Bid items will be based on actual quantities, determined as provided in the Contract Documents.

METHOD OF AWARD

If at the time this contract is to be awarded, the lowest total bid submitted by a qualified, 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.

- 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.

ARTICLE 6 – TIME OF COMPLETION

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

ARTICLE 7 – ATTACHMENTS TO THIS BID

- 7.01 The following documents are submitted with and made a condition of this Bid:
- A. Bid Opening Requirements

ARTICLE 8 – DEFINED TERMS

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

ARTICLE 9 – BID SUBMITTAL

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

By:

[Signature]

[Printed name]

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

Attest:

[Signature]

[Printed name]

Title:

Submittal Date:

Address for giving notices:

Telephone Number:

Fax Number:

Contact Name and e-mail address:

Bidder's License No.:

(where applicable)

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Milton Municipal Utility Commission
Contract #2 – Sanitary Sewer Rehabilitation and Lift Station Relocation

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work under separate contracts.
5. Access to site.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and drawing conventions.
9. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: Contract #2 – Sanitary Sewer Rehabilitation and Lift Station Relocation

1. Project Location: Cabell County, West Virginia

B. Owner: Milton Municipal Utility Commission

1. Owner's Representative: Charlie Conard

C. Engineer: The Thrasher Group, Inc.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1 LS Mobilization/Demobilization; 1 LS Videotaping of Project Area; 1 LS Erosion and Sedimentation Control; 200 LF 18" D.I. Gravity Sewer Line; 380 LF Remove Existing Sewer and Replace with 15" PVC SDR-35 Gravity Sewer Line; 4,685 LF Remove Existing Sewer and Replace with 15" D.I. Gravity Sewer Line; 615 LF Remove Existing Sewer and Replace with 12" PVC SDR-35 Gravity Sewer Line; 810 LF 10" PVC SDR-35 Gravity Sewer Line; 40 LF 8" PVC SDR-35 Gravity Sewer Line; 265 LF 8" PVC DR-18 Forcemain; 190 LF 4" PVC SDR-35

Customer Service Lateral; 1,370 LF 4” D.I. Customer Service Lateral; 190 LF 32” Steel Casing (Bore & Jack); 100 LF 24” Steel Casing (Bore & Jack); 5 EA 48” Diameter Manhole Base, Cone Top, Regular Casting; 16 EA 60” Diameter Manhole Base, Cone Top, Regular Casting; 31 EA Remove Existing Manhole and Replace with New 48” Diameter Manhole Base, Cone Top, Regular Casting; 12 EA Remove Existing Manhole and Replace with New 60” Diameter Manhole Base, Cone Top, Regular Casting; 55 VF 48” Diameter Manhole Riser Pipe; 345 VF 60” Diameter Manhole Riser Pipe; 10 EA 15”x4” PVC Wye Connection; 87 EA 15”x4” D.I. Wye Connection; 19 EA 12”x4” PVC Wye Connection; 13 EA 12”x4” D.I. Wye Connection; 2 EA 10”x4” PVC Wye Connection; 1,245 LF WVDOH Type “B” Trench Repair; 330 LF WVDOH Type “C” Trench Repair; 616 LF Asphalt Overlay; 390 LF Asphalt Driveway Repair; 745 LF Concrete Driveway Repair; 285 LF Gravel Driveway Repair; 34 EA Reconnect Existing Service Lateral; 1 LS South Main Lift Station Relocation; 4,000 LF Reclamation of Disturbed Area; \$6,740.00 WVDOH Inspection Fee Allowance.

B. Type of Contract.

1. Project will be constructed under coordinated, concurrent multiple contracts. Contracts for this Project include the following:
 - a. Contract #1 – Morris Memorial Sanitary Sewer Extension
 - b. Contract #2 – Sanitary Sewer Rehab and Lift Station Relocation
 - c. Contract #3 – Miscellaneous Sewer Improvements

1.4 WORK UNDER SEPARATE CONTRACTS

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts.
 1. Coordinate Work of this Contract with work performed under Contract #1 and Contract #3

1.5 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Driveways, Walkways and Entrances: Keep driveways parking areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

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- b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.6 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Engineer not less than two days in advance of proposed utility interruptions.
 - 2. Obtain Engineer's written permission before proceeding with utility interruptions.
- D. Environmental Protection
 - 1. Applicable Regulations
 - a. The Contractor and his subcontractors, in the performance of this Contract, shall comply with all applicable Federal, State and local laws and regulations concerning environmental pollution control and abatement as well as the specific requirements stated elsewhere in the Contract Documents.
 - b. Water Pollution
 - 1) The Contractor shall take all precautions necessary to avoid pollution of water in adjacent watercourses or water storage areas including wells.
 - 2) All earthwork, equipment movement, control of water in excavations and other operations which may create silting shall be conducted in a manner to keep water pollution to an absolute minimum.
 - 3) Water used during the contract work which has become polluted with oil, harmful or objectionable chemicals, sewage or other pollutants shall be disposed of in a manner that will not affect nearby waters and land. The Contractor shall not, under any circumstances, discharge pollutants into any watercourse.
 - c. Noise, Vibration, and Odors: Coordinate operations that may result in high level of noise and vibration, odors, or other disruption to Owner occupancy with Owner.

- 1) The Contractor shall take all precautions necessary to avoid noise and air pollution during the course of the Contract.
 - 2) Notify Engineer not less than two days in advance of proposed disruptive operations.
 - 3) Obtain Engineer's written permission before proceeding with disruptive operations.
- E. Controlled Substances: Use of tobacco products and other controlled substances within the existing building on Project site is not permitted.

1.7 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.
- D. Plans and Working Drawings
1. Approved plans will show the location, profile, typical cross section, structures except as hereinafter specified, incidental items, and a summary of all items appearing in the proposal. Any deviations which may be required by the construction will be determined by the Engineer and authorized by him in writing. The Contractor shall keep one set of approved plans available of the work at the project site at all times.
 2. Plans will show details necessary to give a comprehensive idea of the construction contemplated. Any information which may be shown on drawings regarding results obtained from test borings will be a record of conditions encountered at the place where such test borings were made, as nearly as these conditions could be interpreted by the Engineer observing the operations. The Contractor shall interpret the data in the light of

his own experience. The Contractor is not bound to accept or rely on the data shown on the drawings, but may make additional borings and investigations, including test piles, to satisfy himself concerning the lengths of piles and the conditions governing or entering into the construction of foundations.

3. The plans may show the construction depths and dimensions on which the estimate of quantities is based. These depths and dimensions, however, are subject to variations as necessary to the Engineer, and the right is expressly reserved to increase or diminish the dimensions and depths as the Engineer may determine.
4. The Contractor shall submit to the Engineer for approval additional calculation sheets, shop details, and other working drawings required for the construction of any part of the work; and prior to the approval of such plans, any work done or materials ordered shall be at the Contractor's risk.
5. Working drawings for concrete structures shall consist of detailed plans required for the successful execution of the work and which are not included in the plans furnished by the Engineer. These may include plans for drainage structures, falsework, bracing, centering and formwork, masonry layout diagrams, and diagrams for reinforced concrete structures and bent reinforcement.
6. The Contractor shall furnish the Engineer copies of the working drawings for approval and for construction purposes, and upon completion of the work the original tracings of working drawings shall be delivered to the Engineer. The drawings are to be on tracing paper, in ink or in pencil. The size of all drawings and prints shall be 22 inches by 34 inches or 24 inches by 36 inches, including margins.
7. It is expressly understood that the Engineer's approval of the Contractor's working drawings relate to the requirements for strength and general arrangement, and approval will not relieve the Contractor of responsibility for omissions, errors in dimensions, shop fits, field connections, etc., for quantity of materials, or of his responsibility under the contract for the successful completion of the work.
8. The contract price shall include the cost of furnishing all working drawings, and the Contractor will be allowed no extra compensation for such drawings.

E. Conformity with Plans and Specifications

1. All work performed, and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions, and material requirements, including tolerances, shown on the plans or indicated in the specifications.
2. Should the Engineer determine the materials or the finished product does not conform with the specifications or the plans, he will then make a determination if the work will be accepted and remain in place. In this event, the Engineer will document the basis of acceptance by contract modification which will provide for an adjusted payment. All nonconforming material or construction judged to be inadequate for the use intended shall either be reworked or removed and replaced at no expense to the Owner.

F. Errors or Omissions in Plans

1. The Contractor shall take no advantage of any apparent error or omission in the plans or specifications. In the event the Contractor discovers such an error or omission, he shall immediately notify the Engineer. The Engineer will then make such corrections and interpretations necessary for fulfilling the intent of the plans and specifications.

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1.8 CONSTRUCTION SEQUENCE OF EVENTS

1. Call Miss Utility 1-800-245-4848.
2. Pre-Construction Video of Project Area
3. Mobilization to Project Site.
4. Installation of Erosion and Sediment Control Measures.
5. Site Preparation.
6. Install Force Mains, Gravity Sewer Lines, and Manholes.
7. Remove and Replace Gravity Sewer Lines and Manholes.
8. Testing of Force Mains.
9. Complete South Main Lift Station Relocation.
10. Complete all Restoration of Disturbed Areas and Clean-Up.
11. Substantial Completion.
12. Complete Punch List Items.
13. Remove Erosion and Sediment Control Measures once Site is Stabilized
14. Final Completion and Demobilization.
15. Project Closeout

1.9 MISCELLANEOUS PROVISIONS

- A. The Contractor shall be responsible for conducting all Work in a safe manner and shall take reasonable precautions to ensure the safety and protection of workers, property and the general public.
- B. All construction shall be conducted in accordance with the latest applicable requirements for Part 1926 of the Occupational Safety and Health Act. Safety and Health Regulations for Construction, Section 107 of the Contract Work Hours and Safety Standards Act, as well as any other local, state or federal safety codes and regulations.
- C. The Contractor shall designate a trained and qualified employee who is to be responsible for ensuring that the Work is performed safely and in conformance with all applicable regulations.
- D. The Contractor shall determine the safety hazards involved in prosecuting the Work and the precautions necessary to conduct the Work safely. If the Contractor is unsure as to any special hazards which may be unique to the various processes and facilities at the treatment plant, it shall be the Contractor's responsibility to determine such information prior to beginning the Work.
- E. The Contractor shall bear all risks associated with performing the Work and shall fully indemnify and hold harmless the Owner and Engineer.
- F. The Contractor's attention to the fact that construction activities within wastewater collection systems and treatment plants shall occasionally involve work in potentially hazardous environments in which oxygen deficient, toxic or explosive conditions may exist. Additional hazards arise from the presence of pathogens in wastewater and sludge found in collection systems and wastewater treatment plants, which form the slime and scum layer that coat walking, working and other surfaces. In dealing with these hazards, the Contractor shall take

special precautions to ensure worker safety. Such precautions shall include, but are not limited to, the following, as applicable:

1. Installing temporary forced air ventilation equipment and ducts for fresh air in enclosed areas.
 2. Using pneumatic tools and equipment instead of electric-driven equipment in hazardous areas.
 3. Avoiding the use of cutting torches, field welding and grinders in hazardous areas.
 4. Cleaning and disinfecting working surfaces with hot water, high pressure washers prior to commencing work.
 5. Installing sealed wooden baffles or bulkheads to isolate working areas from hazardous atmospheres.
 6. Providing portable oxygen meters, combustible gas detectors and hydrogen sulfide detectors to continuously monitor the atmosphere in enclosed working areas.
 7. Providing safety harnesses, safety lines and recovery crews for workers in hazardous areas.
 8. Providing self-contained breathing apparatus with spare air cylinders for workers in hazardous areas.
 9. Providing dry chemical fire extinguishers and connected fire hoses in areas where a danger of fire or explosion exists.
 10. Providing adequate, oxygen-equipped, first aid facilities.
 11. Providing suitable wash-up areas and facilities for workers.
 12. Installing temporary lighting using explosion-proof fixtures in hazardous environments.
 13. Installing approved warning and hazard signs and posting safety procedures.
 14. Instructing all workers as to the hazards present, the procedures to be followed and the proper function and use of all safety and emergency equipment furnished.
- G. Prior to commencing Work on existing facilities and equipment, the Contractor shall notify the collection system and/or plant superintendent and shall ensure that the source of electrical energy to all affected equipment is shut off and locked out at the appropriate motor control center. Local switches and pushbutton stations, where provided, shall be locked in the “off” position.
- H. Prior to entering or commencing work in a hazardous area, the Contractor shall ensure all safety and emergency equipment is in place and in satisfactory operating condition.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

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Revised per Addendum #2
February 10, 2022
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SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract Documents, including General and Supplementary Conditions, Division 01, and all related Specification Sections, apply to this Section.

1.2 SECTION INCLUDES

- A. Schedule of Values.
- B. Application for Payment.
- C. Change procedures.
- D. Defect assessment.
- E. Measurement and Payment.
- F. Alternates.

1.3 SCHEDULE OF VALUES

- A. Submit printed schedule on Progress Estimate schedule on EJCDC C-620.
- B. Submit Schedule of Values in duplicate within twenty (20) days after date established in Notice to Proceed.
- C. Format: Identify each line item with number and title of major Specification Section. Contractor shall submit a balanced Schedule of Values. The total value of activities shall equal the identifiable Contract Price. The Schedule of Values shall be accompanied by a proposed cash flow for the duration of the Project. Line items shall be broken down as appropriate and listed as units. Overhead and profit shall be prorated to all the activities.

- 1. Unless otherwise specified, the Schedule of Values shall include the following percentages for each of the listed activities:
 - a. Mobilization, Bonds, Insurance, and Demobilization: no greater than 5 percent
 - b. As-Built Drawings: no less than 1 percent
 - c. Punchlist: no less than 2 percent
 - d. Final Bound O&M Manuals: no less than 1 percent
 - e. All Spare Parts Values not specifically assigned elsewhere: no less than 0.5 percent

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f. Testing: no less than 1 percent

2. Schedules whose non-equipment related cash flow exceeds 10 percent of the total Contract amount (exclusive of equipment) in any one (1) month, or 45 percent of the total Contract amount (exclusive of equipment) in any three (3) consecutive months shall be deemed unacceptable and require revision. Exceptions may be granted at the discretion of the Engineer for unusual circumstances or non-routine construction.
3. If, in the opinion of Engineer or Owner, the Schedule of Values is unbalanced, Contractor shall submit documentation substantiating the cost allocations of those activities believed to be unbalanced. No pay requests will be accepted until the Schedule of Values submittals has been marked “No Exceptions Taken” or “Make Corrections Noted” by Engineer.

- D. Include within each line item, direct proportional amount of Contractor’s overhead and profit.
- E. Revise schedule to list approved Change Orders with each Application for Payment.

1.4 APPLICATION FOR PAYMENT

- A. Submit five (5) copies of each Application for Payment on EJCDC C-620 – Contractor’s Application for Payment.
- B. Content and Format: Use Schedule of Values for listing items in Application for Payment.
- C. Submit updated construction schedule and payment schedule with each Application for Payment.
- D. Payment Period: Submit at intervals stipulated in the Agreement.
- E. Submit submittals with transmittal letter as specified in Section 013300 - Submittal Procedures.
- F. Substantiating Data: When Engineer requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
 1. Current construction photographs
 2. Partial release of Liens from major Subcontractors and vendors.
 3. Record Documents as specified in Section 017000 - Execution and Closeout Requirements, for review by Owner, which will be returned to Contractor.
 4. Affidavits attesting to off-Site stored products.
 5. Construction Progress Schedule revised and current as specified in Section 013300 - Submittal Procedures.

1.5 CHANGE PROCEDURES

- A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor’s employ or Subcontractors of changes to the Work.

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- B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.
- C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.
 - 1. Use Request for Information Form for requesting interpretations (provided by Engineer upon request).
 - 2. Engineer may respond with a direct answer on the Request for Information form, separate Engineer Response, EJCDC C-942 - Field Order, or EJCDC C-940 - Work Change Directive Form.
- D. Engineer will advise of minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time by issuing supplemental instructions on EJCDC C-942.
- E. Engineer may issue Notice of Change including a detailed description of proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with stipulation of overtime Work required and with the period of time during which the requested price will be considered valid. Contractor will prepare and submit estimate within ten (10) days.
- F. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Sum/Price and Contract Time with full documentation and a statement describing effect on the Work by separate or other Contractors.
- G. Stipulated Sum/Price Change Order: Based on Proposal Request or Work Change Directive and Contractor's maximum price quotation or Contractor's request for Change Order as approved by Engineer.
- H. Unit Price Change Order: For Contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of that which are not predetermined, execute Work under Work Directive Change. Changes in Contract Sum/Price or Contract Time will be computed as specified for Time and Material Change Order.
- I. Work Change Directive: Engineer may issue directive, on EJCDC C-940 - Work Change Directive, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.
- J. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.
- K. Maintain detailed records of Work done on time and material basis. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work.

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- L. Document each quotation for change in Project Cost or Time with sufficient data to allow evaluation of quotation.
- M. Change Order Forms: EJCDC C-941 - Change Order.
- N. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
- O. Correlation of Contractor Submittals:
 - 1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
 - 2. Promptly revise Progress Schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of Work affected by the change, and resubmit.
 - 3. Promptly enter changes in Record Documents.

1.6 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of Engineer or Owner, it is not practical to remove and replace the Work, Engineer or Owner will direct appropriate remedy or adjust payment.
- C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Owner.
- D. Defective Work will be partially repaired according to instructions of Engineer, and unit sum/price will be adjusted to new sum/price at discretion of Owner.
- E. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.
- F. Authority of Owner to assess defects and identify payment adjustments is final.
- G. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:
 - 1. Products wasted or disposed of in a manner that is not acceptable.
 - 2. Products determined as unacceptable before or after placement.
 - 3. Products not completely unloaded from transporting vehicle.
 - 4. Products placed beyond lines and levels of the required Work.
 - 5. Products remaining on hand after completion of the Work.
 - 6. Loading, hauling, and disposing of rejected products.

1.7 MEASUREMENT AND PAYMENT

- A. General Requirements

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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
 - a. 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, and other facilities necessary to conduct Work under this Contract.
 - b. This Bid Item shall also include all costs associated with installing, maintaining, and removing the Project Sign.
 - c. This Bid Item shall also include any and all costs associated with the following Specification Sections:
 - 1) Section 013000 – Administrative Requirements
 - 2) Section 013216 – Construction Progress Schedule

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- 3) Section 013300 – Submittal Procedures
 - 4) Section 015000 – Temporary Facilities and Controls
 - 5) Section 017000 – Execution and Closeout Requirements
 - 6) Section 017839 – Project Record Documents
- d. 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 5 percent of the total Bid.
- e. Partial Payments of the lump sum Bid amount for mobilization/demobilization shall be as follows:
- 1) One-fourth of the amount Bid for Mobilization/Demobilization will be released to the Contractor as the first estimate payable, not less than fifteen (15) days after the start of Work at the Project Site.
 - 2) The second one-fourth of the amount Bid for Mobilization/Demobilization shall be released with the estimate payable thirty (30) days after the first estimate.
 - 3) The third one-fourth of the amount Bid for Mobilization/Demobilization shall be released with the estimate payable thirty (30) days later than the estimate in which the second one-fourth has been paid.
 - 4) The final one-fourth of the amount Bid for Mobilization/Demobilization shall be released with the final payment.
 - 5) 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 - Videotaping of Project Area
- a. The cost of this work shall be included in a lump sum bid item. Such payment shall constitute full compensation for labor, materials, equipment and other cost associated to provide a complete documentation.
 - b. Videotaping shall include the entire construction area affected, including any Contractor secured waste site and material storage or staging areas. The measurement for this bid items shall be based on a complete video recording on a DVD of the entire project area.
3. Bid Item 3 – Erosion and Sedimentation Controls
- a. The cost for this Work shall be a lump sum.
 - b. This Bid Item shall include all costs associated with erosion and sedimentation controls including all materials and labor for installation, maintenance, and removal.
 - c. The cost of this Work shall be paid for at the lump sum Bid price for all erosion and sedimentation controls at all locations directly and/or indirectly disturbed by the Work.
4. Bid Item 4 – 18” D.I. Gravity Sewer Line
- a. This Bid Items requires an excavation greater than 18’.

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- b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the complete installation of 18" DIP gravity sewer including excavation, bedding, backfill, materials, fittings, terminal cleanouts, pipe joints, pipe, tools, supplies, testing, and incidentals. All fittings used shall be included in the linear foot price of the pipe. All pipe covered under this bid item shall have a minimum pressure rating of 46 psi in conformance with the contract drawings.
 - c. The sewers installed under this item shall be measured and paid for at the unit price Bid per linear feet of pipe of each type and size as specified on Drawings or as directed by the Engineer, and installed complete in place. The measurement under this item shall be the length of pipe and fittings as installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured from the face of manhole to face of manhole.
5. Bid Item 5 – Remove Existing Sewer and Replace with 15" PVC Gravity Sewer Line
- a. Bid Items are broken according to the depth of excavation required as shown on the Bid form and as follows: 5a – 0'-6", 5b – 6'-9", 5c – 9'-12".
 - b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the complete removal of existing sewer lines regardless of size and material and the subsequent replacement with 15" PVC gravity sewer including excavation, bedding, backfill, materials, fittings, terminal cleanouts, pipe joints, pipe, tools, supplies, testing, and incidentals. All fittings used shall be included in the linear foot price of the pipe. All pipe covered under this bid item shall have a minimum pressure rating of 46 psi in conformance with the contract drawings.
 - c. This Bid Item shall also include all costs associated with temporary bypass pumping, as required, to ensure existing sanitary service remains during construction.
 - d. The sewers installed under this item shall be measured and paid for at the unit price Bid per linear feet of pipe of each type and size as specified on Drawings or as directed by the Engineer, and installed complete in place. The measurement under this item shall be the length of pipe and fittings as installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured from the face of manhole to face of manhole.
6. Bid Item 6 – Remove Existing Sewer and Replace with 15" D.I. Gravity Sewer Line
- a. Bid Items are broken according to the depth of excavation required as shown on the Bid form and as follows: 6a – 0'-6", 6b – 6'-9", 6c – 9'-12", 6d – 12'-15", 6e – 15'-18", 6f – +18".
 - b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the complete removal of existing sewer lines regardless of size and material and the subsequent replacement with 15" Ductile Iron gravity sewer including excavation, bedding, backfill, materials, fittings, terminal cleanouts, pipe joints, pipe, tools, supplies, testing, and incidentals. All fittings used shall be included in the linear foot price of the pipe.
 - c. This Bid Item shall also include all costs associated with temporary bypass pumping, as required, to ensure existing sanitary service remains during construction.

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- d. The sewers installed under this item shall be measured and paid for at the unit price Bid per linear feet of pipe of each type and size as specified on Drawings or as directed by the Engineer, and installed complete in place. The measurement under this item shall be the length of pipe and fittings as installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured from the face of manhole to face of manhole.
7. Bid Item 7 – Remove Existing Sewer and Replace with 12” D.I. Gravity Sewer Line
 - a. Bid Items are broken according to the depth of excavation required as shown on the Bid form and as follows: 7a – 0’-6’, 7b – 6’-9’.
 - b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the complete removal of existing sewer lines regardless of size and material and the subsequent replacement with 12” Ductile Iron gravity sewer including excavation, bedding, backfill, materials, fittings, terminal cleanouts, pipe joints, pipe, tools, supplies, testing, and incidentals. All fittings used shall be included in the linear foot price of the pipe.
 - c. This Bid Item shall also include all costs associated with temporary bypass pumping, as required, to ensure existing sanitary service remains during construction.
 - d. The sewers installed under this item shall be measured and paid for at the unit price Bid per linear feet of pipe of each type and size as specified on Drawings or as directed by the Engineer, and installed complete in place. The measurement under this item shall be the length of pipe and fittings as installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured from the face of manhole to face of manhole.
 8. Bid Item 8 – 10” PVC Gravity Sewer Line
 - a. Bid Items are broken according to the depth of excavation required as shown on the Bid form and as follows: 8a – 0’-6’, 8b – 6’-9’.
 - b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the complete installation of 10” PVC gravity sewer including, but not limited to, excavation, bedding, backfill, materials, fittings, terminal cleanouts, pipe joints, pipe, tools, supplies testing, and incidentals. All fittings used shall be included in the linear foot price of the pipe. All pipe covered under this bid item shall have a minimum pressure rating of 46 psi in conformance with the contract drawings.
 - c. The sewers installed under this item shall be measured and paid for at the unit price Bid per linear feet of pipe of each type and size as specified on Drawings or as directed by the Engineer and installed complete in place. The measurement under this item shall be the length of pipe and fittings as installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured from the face of manhole to face of manhole.
 9. Bid Item 9 – 8” PVC Gravity Sewer Line
 - a. This Bid Item requires an excavation depth of 6’-9’.
 - b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the complete installation of 8” PVC gravity sewer including

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excavation, bedding, backfill, materials, fittings, terminal cleanouts, pipe joints, pipe, tools, supplies, testing, and incidentals. All fittings used shall be included in the linear foot price of the pipe. All pipe covered under this bid item shall have a minimum pressure rating of 46 psi in conformance with the contract drawings.

- c. The sewers installed under this item shall be measured and paid for at the unit price Bid per linear feet of pipe of each type and size as specified on Drawings or as directed by the Engineer, and installed complete in place. The measurement under this item shall be the length of pipe and fittings as installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured from the face of manhole to face of manhole.

10. Bid Item 10 – 8” PVC DR-18 Forcemain

- a. The force main installed under this Bid Item shall be measured and paid for by the linear foot of pipe installed complete in place. The measurement under this item shall be the length of pipe and fittings installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured centerline of tie-in to centerline of tie-in. All pipe covered under this bid item shall have a minimum pressure rating of 235 psi in conformance with the contract drawings.
- b. The quantities determined as provided above will be paid for at the unit price Bid, which shall be full compensation for excavation, bedding, and backfilling and furnishing all materials and doing all the work herein prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, supplies, testing, and incidentals necessary to complete the work.
- c. Fittings used will be paid for as part of linear foot of pipe.

11. Bid Item 11 – 4” Customer Service Lateral

- a. Bid Items are broken according to the material required as shown on the Bid form and as follows: 11a – PVC, 11b – D.I.
- b. This Bid Item shall include all required labor, materials, equipment, and all other costs associated with the complete installation and removal of existing customer service lateral regardless of size and material and the subsequent replacement with 4” customer service lateral including, but not limited to, excavation, bedding, backfill, materials, fittings, pipe, tools, supplies, testing, and incidentals. All fittings used shall be included in the linear foot price of the pipe. All pipe covered under this bid item shall have a minimum pressure rating of 46 psi in conformance with the contract drawings.
- c. This Bid Item shall also include all costs associated with temporary bypass pumping, as required, to ensure existing sanitary service remains during construction. Any and all spills, fines, and/or backups shall be the sole responsibility of the Contractor.
- d. The customer service laterals installed under this item shall be measured and paid for at the unit price Bid per linear feet of pipe as specified on Drawings or as directed by the Engineer and installed complete in place. The measurement under this item shall be the length of pipe and fittings installed in place and accepted and shall be measured in the horizontal plane along the centerline of each pipe installed, measured from the customer service wye connection to the customer service lateral cleanout.

12. Bid Item 12 – Steel Casing (Bore & Jack)

- a. Bid Items are broken out according to the size of the casing as shown on the Bid form and as follows: 12a – 32”, 12b – 24”.
- b. This Bid Item shall include all labor, material, and equipment necessary for, and incidental to, the construction of the crossing, complete in place, including, but not limited to, excavation, sheeting, bracing, backfilling, grouting, casing seal, blocking, etc.
- c. Measurement and payment under this item shall be measured and paid for at the unit price Bid per linear foot of the overall length of the casing pipe satisfactorily installed.
- d. Payment shall be for casing pipe only; carrier pipe shall be paid by the unit Bid price per foot.
- e. Compensation for unauthorized casing footage beyond that which is called for in the Drawings and Specifications will not be made.

13. Bid Item 13 – 48” Diameter Manhole Base, Cone Top, Regular Casting

- a. Bid Items are broken out according to the size of the manhole as shown on the Bid form and as follows: 13a – 48”, 13b – 60”.
- b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the complete installation of manholes, bases, cone tops, and regular castings including, but not limited to, excavation, bedding backfill, installation of pre-cast manholes, and other appurtenances.
- c. Payment for manholes shall be as follows:
 - 1) Gravel sub-base, manhole base, steps, cone top, frame, and watertight cover, up to 6-foot depth measured from invert out elevation to top of cover elevation, shall be paid at the Contract unit Bid price per each.
 - 2) Payment for internal drop connectors, as required, for manhole construction shall be included in the unit Bid price for each new manhole installed.
 - 3) Manhole Riser Pipe required for additional depth over 6 feet shall be paid for by the unit Bid price per vertical foot for Manhole Riser Pipe.

14. Bid Item 14 – Remove Existing Manhole and Replace with New Manhole Base, Cone Top, Regular Casting

- a. Bid Items are broken out according to the size of the manhole as shown on the Bid form and as follows: 14a – 48”, 14b – 60”.
- b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the complete removal and replacement of manholes including, but not limited to, excavation, bedding, installation of pre-cast concrete manhole, backfill, and other appurtenances.
- c. This Bid Item shall also include all costs associated with temporary bypass pumping, as required, to ensure existing sanitary sewer service remains during construction. Any and all spills, fines, and/or backups shall be the sole responsibility of the Contractor.
- d. Payment for manholes shall be as follows:

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- 1) Gravel, sub-base, manhole base, steps, cone top, frame, and watertight cover, up to 6-foot depth measured from invert out elevation to top of cover elevation, shall be paid at the Contract unit Bid price per each.
 - 2) Manhole riser piping required for additional depth over 6 feet shall be paid for at the unit Bid price per vertical foot for Manhole Riser Pipe.
 - 3) Payment for complete reconnection of existing sewer lines to a new manhole and internal drop connectors, as required, for manhole construction shall be included in the unit Bid price for each new manhole installed.
15. Bid Item 15 – 48” Diameter Manhole Riser Pipe
- a. Bid Items are broken out according to the size of the casing as shown on the Bid form and as follows: 15a – 48”, 15b – 60”.
 - b. Manhole riser section required for depths over 6-feet shall be paid for at the unit Bid price per vertical foot.
16. Bid Item 16 – Wye Connection
- a. Bid items are broken out according to the size and material of gravity sewer line as shown on the Bid form and as follows: 16a – 15”x4” PVC, 16b – 15”x4” D.I., 16c – 12”x4” PVC, 16d – 12”x4” D.I., 16e – 10”x4” PVC.
 - b. This Bid Item shall include all required labor, materials, equipment, and other costs associated with the complete construction of a customer service wye connection, as detailed in the Drawings.
 - c. The Wye fitting shall be of the same size and material as the main sewer line.
 - d. Payment for this Bid Item shall include the purchase and installation of all required material in order to perform the installation as shown. This Unit Bid Price shall include the location and excavation of utilities, all required piping, fittings, bedding, backfilling, etc.
17. Bid Item 17 – WVDOH Trench Repair
- a. Bid items are broken out according to the type of trench repair as shown on the Bid form and as follows: 17a – Type “B”, 17b – Type “C”.
 - b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the type of trench repair within the WV Division of Highways Right-of-Way as shown on the Drawings or as directed by the Engineer and installed complete in place. All costs associated with traffic control shall be included in the unit price. Trench repairs shall be paid for by the linear foot, without regard to width, times the Bid price. No payment shall be made for trench repair outside the limits shown on the Contract Documents.
 - c. Payment shall be based on horizontal linear footage of trench repair as determined by the Contractor and confirmed by the Engineer. The Engineer has final authority for measured quantity.
18. Bid Item 18 – Asphalt Overlay
- a. This Bid Item shall be paid for on a linear foot basis measured along the center line of the pipe or length of paved area disturbed as shown on the plans or directed by

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the Engineer. All labor and material including purchase, delivery, and installation of asphalt shall be included in the price.

- b. Width shall not be considered. The Contractor shall repair all pavement disturbed as determined by the Engineer or his representative. Pavement disturbed by the Contractor where pipe line was not installed shall be replaced at the Contractor's expense.
- c. All areas of pavement disturbed due to any of the Contractor's operations which are not along the centerline of the pipe shall also be satisfactorily repaired, at no additional cost to the Owner.
- d. Straight, perpendicular saw cuts between the existing asphalt or concrete surfaces shall be included in this work.
- e. Payment for footages that have less than the excavation width shall be prorated per linear foot.
- f. Payment for overlay shall include all required stripes and painting.

19. Bid Item 19 – Driveway Repair

- a. Bid items are broken out according to the type of driveway repair as shown on the Bid form and as follows: 19a – Asphalt, 19b – Concrete, 19c – Gravel.
- b. This Bid Item shall include all required labor, materials, equipment and all other costs associated with the type of driveway and road restoration as shown on the Drawings or as directed by Engineer. All costs required for traffic control shall be included in the unit price. Driveway repairs shall be paid for by the linear foot, without regard to width, times the Bid price. No payment shall be made for driveway repair outside the limits shown on the Contract Documents. No payment will be made for temporary paving required during construction. All driveway repair Work shall be included in this linear foot Bid Price.
- c. Payment shall be based on horizontal linear footage of driveway repair as determined by the Contractor and confirmed by the Engineer. The Engineer has final authority for measured quantity.

20. Bid Item 20 – Reconnect Existing Service Lateral

- a. This Bid Item shall include all required labor, material, equipment, and other costs associated with the complete reconnection of the customer service lateral.
- b. This Bid Item shall also include all costs associated with locating the existing customer service lateral.
- c. This Bid Item shall also include all costs associated with temporary bypass pumping, as required, to ensure existing sanitary sewer service remains during construction. Any and all spills, fines, and/or backups shall be the sole responsibility of the Contractor.
- d. This Bid Item shall also include all required labor material equipment and other costs associated with constructing and installing a customer service lateral cleanout, as detailed in the Drawings, at the location of the customer service lateral reconnection.

21. Bid Item 21 – South Main Lift Station Relocation

- a. Measurement and payment for this bid item shall be based on the approved Schedule of Values provided by Contractor.

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- b. This Bid Item shall include all costs associated with furnishing a complete, in-place, working sewage pumping station, as detailed on the drawings and in the Specifications, including, but not limited to, side grading, access road, gravel surfacing, fencing, site lighting, control panel structure, pumps, motors, drives, controls, lifting chains, anchors, level control system, piping, valves, fittings, wet well, valve vault, access hatches, electrical conduit, wiring, and decommissioning of the existing South Main Lift Station, and all other associated appurtenances.
- c. This Bid Item shall also include all costs associated with the following Specifications Sections relating to Work of this Bid Item:
 - 1) Section 432540.01 – South Main Lift Station
 - 2) Section 019100 – Commissioning

22. Bid Item 22 – Reclamation of Disturbed Area

- a. This Bid Item shall include all costs associated with furnishing and placing lime, fertilizer, seed, and mulch to all disturbed areas.
- b. This Bid Item shall be measured and paid for by the linear foot, regardless of width, times the Bid Price. No payment shall be made for Reclamation of Disturbed Area outside the limits shown in the Drawings.

23. Bid Item 23 – WVDOH Inspection Fee Allowance

- a. This Bid Item shall include all costs associated with paying the inspection fee required by the West Virginia Division of Highways for the project. The inspection fee allowance is \$6,740.00.
- b. The costs associated with this fee shall be in accordance with General Conditions Article 13. The fee is based on the per linear foot cost of sewer line installed in the WVDOH right-of-way to cover all WVDOH inspection costs. This bid item specifically excludes any work shown on the Contract Documents. All work within the Contract Documents shall be included in previous bid items.

1.8 ALTERNATES

- A. Definition: An amount proposed by Bidders and stated on the Bid Form for certain Work defined in the Bidding requirements that may be added to or deducted from the base Bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. Alternates are part of the Work only if enumerated in the Agreement.
 - 2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.
- B. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement. The Owner-Contractor Agreement may identify certain Alternates to remain an Owner option for a stipulated period of time.

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- C. Coordinate related Work and modify surrounding Work. Description for each Alternate is recognized to be abbreviated but requires that each change shall be complete for scope of Work affected.

1. Coordinate related requirements among Specification Sections as required.
2. Include as part of each Alternate, miscellaneous devices, appurtenances, and similar items incidental to or necessary for complete installation.
3. Coordinate Alternate with adjacent Work and modify or adjust as necessary to ensure integration.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012000

SECTION 262930 - CELLULAR MONITORING TELEMETRY

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section describes the requirements for furnishing a full functional lift station cellular telemetry. The contractor shall furnish, install, and place into operation a comprehensive monitoring system for the water treatment facilities as described herein. All equipment is to be completely factory assembled, wired and tested prior to shipment.
- B. The equipment provided shall be a completely integrated automatic monitoring system consisting of the required power equipment (circuit breakers, transformers etc.), automation and alarm monitoring equipment in a factory wired and tested assembly. The automatic data collection and alarm/monitoring system components shall be standard, cataloged, stocked products of the pump system supplier to assure one source responsibility, immediately available spare/replacement parts, proper system interconnections and reliable long term operation. The entire system software will be fully configurable by the owner, using a simple fill-in-the-blank configuration method. Systems that require trained programmers, or factory software setup and configuration for future software edits will not be acceptable.

1.2 TELEMETRY

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Omnisite.
 - 2. Allen Bradley.
 - 3. Square-D.
 - 4. Foxboro.
 - 5. Modicon.
 - 6. Motorola MOSCAD.
 - 7. Engineer's Approved Equal
- B. Not less than (100%) of all equipment shall be standard catalogued products of the pumping system supplier to assure one source responsibility, proper system interconnections and reliable, long term operation. The pump supplier shall provide all monitoring equipment and employ full-time engineering, service and support personnel necessary to provide and support the complete system.

1.3 SUBMITTALS

- A. The complete assembly shall be provided with job-specific wiring diagrams, parts lists, enclosure dimensional and door layout drawings and instructions.

- B. Shop Drawings shall be submitted for approval for all equipment herein specified. The Shop Drawing Submittal shall include a Document List. An Order Specification shall be included which shall describe in detail all equipment provided. Each panel shall be provided job-specific wiring diagrams, parts list, enclosure door layout and enclosure dimension drawing. The wiring diagram requirement applies to all field mounted instruments, telemetry equipment as well as all required interfacing to the power panel. Interconnection details shall be shown for all field mounted instrumentation. A description of Operation shall be provided detailing the operation of the complete system, including the telemetry, control and alarm handling.
- C. Provide Record Drawings and Instruction Manuals. These manuals shall include corrected Shop Drawings. In addition, a detailed Programming and Operations Manual for the Microprocessor-based Monitor and Data Collector Unit shall be included. The manual shall include all information as detailed for the Shop Drawing Submittals above.

1.4 PARTS

- 1) Telemetry to include for each telemetry installation:
 - 1-Weatherproof 4X 12 X 10 X 4” polycarbonate enclosure.
 - 1-Intelligent key reader station
 - 1- Operator Interface LCD display and keypad
 - 1-Surge Arrestor.
 - 1-Remote Telemetry Unit.
 - 1-Power supply, charger, backup battery and filter.
 - 1-WINGS Cellular Modem.
 - 1-15VDC power supply
 - 1-Crew on-site intelligent key
 - 1- High gain phantom antenna

PART 2 - PRODUCTS

2.1 GENERAL SPECIFICATIONS

- A. A Microprocessor-based Monitoring Unit shall be provided for monitoring of the pump stations based on alarm contact closures, and universal voltage input signals.
- B. The Microprocessor-based monitor shall be a standard, catalogued product of a water and wastewater equipment manufacturer regularly engaged in the design and manufacture of such equipment. The pump/alarm monitor shall be specifically designed for pumping automation utilizing standard hardware and software. “One of a kind” systems using custom software with a generic programmable controller, or pieces from many manufacturers that are “integrated” together will not be acceptable.
- C. The monitor shall accept (10) universal DI configurable to monitor dry contacts or any voltage range between 12VDC/VAC to 120 VAC/VDC with two(2) of these inputs convertible to act as pulse counters; (1) rain guage input, and (1) crew on-site intelligent key reader input in its base form. It shall have Wago type removable terminal blocks.

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- D. Gel Cell Battery: On-board 12VDC, 800mAH gel cell battery provides backup for up to 4 hours in the event of power loss. Battery is automatically recharged using temperature compensated floating battery charging circuit.
- E. LCD display: (16 character X 2 line) Liquid Crystal display is viewable in very bright sunlight, total darkness or very high or low temperatures. This high visibility operator display is used to configure and monitor variables and eliminates the need for programming devices such as laptop computers. Includes built-in screen saver that continuously scrolls values of all inputs and calculations for easy viewing and setpoint adjustment.

2.2 COLOR GRAPHIC SOFTWARE AND WEB-TO-WIRELESS TECHNOLOGY

- A. The system software shall provide the following features:
 - 1. Upon Alarm condition: facilitate the compilation and transmission of alarm information to commercially available alphanumeric pager systems.
 - 2. Upon Alarm condition: facilitate the compilation and transmission of alarm information to commercially available numeric pager systems.
 - 3. Upon Alarm condition: facilitate the compilation and transmission of alarm information to commercially available voice pagers.
 - 4. Upon Alarm condition: facilitate the compilation and transmission of alarm information over standard telephone lines to residential or commercial sites, or cellular phones, provide for verbalization of alarm information and allow for the secure remote acknowledgment of such alarms.
 - 5. Allows for Voice Dial-in Connection via telephone line to facilitate the Acknowledgment of active alarms.
 - 6. Allows for Voice Dial-in Connection via telephone line to facilitate the inquiry of values of digital tags.
 - 7. Both Voice Dial-in and Voice Dial-out access modes shall be protected by mandatory redundant password entry system.
 - 8. Shall allow for the configuration and maintenance of a set of "global" voice data files used in the construction of voice output messages.
 - 9. Shall allow for the creation and maintenance of a "phone book" of destinations for alarm transmissions. The quantity of eligibility entries in the phone book shall be unlimited.
 - 10. Shall have the ability to archive collected data and export this data to common Microsoft packages.
 - 11. Shall provide for the creation of "Groups" consisting of selected entries from the Phone Book. A "Group" may be considered to be a logical grouping of alarms, based upon the

type of transmission desired as a result of any alarm condition. Group configuration shall allow for:

- a) Allow for selection of recipient list for alarm transmissions along with recipient priority determination.
 - b) Allow for creation of user configurable delays prior to commencement of alarm transmissions.
 - c) Allow for user selection of "single pass" or "continuous loop" modes through recipient list until alarms are acknowledged.
 - d) Allow for user enable/disable of: data logging to disk file, automatic acknowledgment upon return to normal of alarm condition, mandatory user acknowledgment of alarms.
12. Shall provide for Digital Alarm handling and allow a textual description field and voice verbalization files for each Digital Alarm. Standard alarm acknowledgment requires personal involvement.
13. Shall allow for the creation and maintenance of "reports" or organized collections of tags. Such reports may be Voice accessed via telephone line employing a mandatory password protection system. The report feature shall make it possible to inquire and receive a verbalization of the description of the tag requested, along with the current value. This alteration process calls for the pre-configuration of the tag, making it available for inquiry and/or change.
14. Execution Software
- a) Shall be capable of displaying on screen, current alarm status and alarm history status of a minimum of 205,000 simultaneous alarm tags.
 - b) Shall allow for manual transmission of user entered alphanumeric or numeric pages by selection of destination from the phone book and message entry.
 - c) Shall be capable of maintaining a group by group activity log which may capture: Any alarms that may occur (along with user configurable time and date stamp), any return to normal transactions, any alphanumeric or numeric pages, any voice dial-outs, any voice-dial-ins (including who has accessed the system and who has acknowledged alarms).
 - d) Historical data collection of all alarm events, alarm acknowledgements, and return-to-normal events. Line and bar graphs are used to present level and control data in a user friendly format and can be exported at any time to other 3rd party software packages
 - e) No other special hardware or software is required for system operation.

2.3 INCOMING SERVICE AND LIGHTNING ARRESTOR

- A. The incoming service for the control system shall be 120 volt, 1 phase, 3 wire, 60 Hertz. A single phase lightning arrestor shall be supplied in the control system and connected to each line of the incoming side of the power input terminals. The arrestor shall protect the control system against damage as the result of transient voltage surges caused by lightning interference, switching loads and power line interference's. It shall begin shunting to ground at 500 volts maximum.
- B. All metering shall be done ahead of the main disconnect and control panel. The meter shall be supplied and installed by the Contractor in accordance with local power company requirements.
- C. The electrical service shall be provided by the utility. Electric meterbase shall be provided by the owner and installed in accordance with the requirements of the electric utility. A UL rated main disconnect switch, circuit breaker panel, conduit and wiring between the power company termination and the control panel shall be furnished and installed by the contractor. The power supply to the control panels shall be 120 volts, one phase, three wire, 60 Hertz. Each module shall include at least one Ethernet port and one serial port. Some modules will have additional ports as well as built-in radios and modems as described in their individual I/O specifications

2.4 15 VDC POWER SUPPLY

- A. AA regulated 15 VDC power supply shall be provided for the radios and other monitoring system components as required. The power supply shall include a terminal block for incoming AC. The power supply shall be powered from a 120 VAC and include tapered charge type battery charging circuitry to maximize battery life. The power supply shall be rated at minimum of 2.0A @ 15 VDC.
- B. The power supply system shall include (1) 12 Volt battery sized to allow for 4 hours continued system operation during a power outage.
- C. The power supply shall contain a fuse-protected, internal loop power supply capable of providing loop power for up to (10) external dry alarm contacts. 12.1" Industrial HMI 1024 x 768 Pixel IPS LCD.

2.5 SIGNAL TRANSIENT PROTECTION

- A. Transient protection shall be provided with all equipment to protect all instrumentation and telemetry devices either receiving or sending signals.
- B. The transient protectors shall be 4000V optical isolators which shall effectively arrest most transients encountered in an instrumentation environment.

2.6 ENCLOSURE

- A. NEMA 4X polycarbonate 12 X 10 X 4" . Includes stainless padlockable hasp(s).

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2.7 ANTENNAS

- A. The antenna for each location shall be selected based on the results of the cellular survey.
- B. All antenna shall be provided and installed by the Contractor as per recommendations from the manufacturer.
 - 1. The Systems supplier shall be responsible for installation, set-up, adjustment and tuning of the antenna to provide optimal communications for the system.
 - 2. The antenna installation shall be external to the enclosure and shall be outdoors.
 - 3. The Systems supplier shall utilize a built-in Radio Frequency signal meter during antenna installation to ensure that the antenna are installed for optimum signal reception.
- C. The Contractor shall ensure that the cellular Network system work is properly interfaced with equipment and other work not furnished by the Systems supplier.
- D. The Systems supplier shall install, make final connections to, adjust, test, and start-up the complete cellular Radio Network.

PART 3 - GENERAL EQUIPMENT REQUIREMENTS

3.1 WIRING

- A. All wiring shall be minimum 600 volt UL type MTW or AWM and have a current-carrying capacity of not less than 125% of the full load current. The conductors shall be in complete conformity with the national electric codes, state, local and NEMA electrical standards. For ease of servicing and maintenance, all wiring shall be color coded. The wire color code shall be clearly shown on the drawings, with each wire's color indicated.
- B. All control wiring shall be contained within plastic/PVC wiring duct covers. Where dimensional constraints prevent the use of wiring duct, wires shall be trained to panel components in groupings. The wire groupings shall be bundled and tied not less than every 3 inches with nylon self-locking cable ties as manufactured by Panduit or equal.
- C. Every other cable tie shall be fastened to the enclosure door or inner device panel with a cable tie mounting plate with pressure tape. Where wiring crosses hinged areas such as when trained from the inner device panel to the enclosure door, spiral wrap shall be used.
- D. The installation of the equipment described herein is provided by the electrical contractor in accordance with the electrical specification section of this project, and according to the detailed project drawings. Final equipment test, supervision and certification supplied by a trained representative.

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3.2 NAMEPLATES

- A. All major components and sub-assemblies shall be identified as to function with laminated, nameplates.

PART 4 - EXECUTION

4.1 FIELD INSTALLATION

- A. The services of a factory trained, qualified representative shall be provided to certify the completed system, make all adjustments necessary to place the system in trouble-free operation and instruct the operating personnel in the proper care and operation of the equipment

4.2 GUARANTEE

- A. All equipment shall be guaranteed against defects in material and workmanship for a period of one year from the date of Owner's final inspection and acceptance to the effect that any defective equipment shall be repaired or replaced without cost or obligation to the Owner.

END OF SECTION 265619

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Added per Addendum #2
February 10, 2022
020-01526
02/2022

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SECTION 263200 - TRANSFER SWITCHES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes nonautomatic transfer switches rated 600 V and less.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, details showing minimum clearances, conductor entry provisions, gutter space, and installed features and devices.
 - 2. Single-Line Diagram: Show connections between transfer switch, power sources, and load.

1.3 INFORMATIONAL SUBMITTALS

- A. Seismic Qualification Data: Certificates, for transfer switches, accessories, and components, from manufacturer.
- B. Source quality control reports.
- C. Field quality-control reports.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and maintenance data.

1.5 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of transfer switch or transfer switch components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Three years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NEMA ICS 1.
- C. Comply with NFPA 99.
- D. Comply with NFPA 110.
- E. Comply with UL 1008 unless requirements of these Specifications are stricter.
- F. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.
- G. Tested Fault-Current Closing and Short-Circuit Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.
 - 1. Where transfer switch includes internal fault-current protection, rating of switch and trip unit combination shall exceed indicated fault-current value at installation location.
 - 2. Short-time withstand capability for three cycles.
- H. Repetitive Accuracy of Solid-State Controls: All settings shall be plus or minus 2 percent or better over an operating temperature range of minus 20 to plus 70 deg C.
- I. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.62. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1.
- J. Electrical Operation: Accomplish by a nonfused, momentarily energized solenoid or electric-motor-operated mechanism. Switches for emergency or standby purposes shall be mechanically and electrically interlocked in both directions to prevent simultaneous connection to both power sources unless closed transition.
- K. Service-Rated Transfer Switch:
 - 1. Comply with UL 869A and UL 489.
 - 2. Provide terminals for bonding the grounding electrode conductor to the grounded service conductor.
 - 3. In systems with a neutral, the bonding connection shall be on the neutral bus.
 - 4. Provide removable link for temporary separation of the service and load grounded conductors.
 - 5. Surge Protective Device: Service rated.

Milton Municipal Utility Commission
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6. Ground-Fault Protection: Comply with UL 1008 for normal bus.
 7. Service Disconnecting Means: Externally operated, manual actuated.
- L. Neutral Switching: Where four-pole switches are indicated, provide neutral pole switched simultaneously with phase poles.
- M. Neutral Terminal: Solid and fully rated unless otherwise indicated.
- N. Oversize Neutral: Ampacity and switch rating of neutral path through units indicated for oversize neutral shall be double the nominal rating of circuit in which switch is installed.
- O. Factory Wiring: Train and bundle factory wiring and label, consistent with Shop Drawings, by color-code or by numbered or lettered wire and cable tape markers at terminations. Color-coding and wire and cable markers are specified in Section 260553 "Identification for Electrical Systems."
1. Designated Terminals: Pressure type, suitable for types and sizes of field wiring indicated.
 2. Power-Terminal Arrangement and Field-Wiring Space: Suitable for top, side, or bottom entrance of feeder conductors as indicated.
 3. Control Wiring: Equipped with lugs suitable for connection to terminal strips.
 4. Accessible via front access.
- P. Enclosures: General-purpose NEMA 250, Type 3R, complying with NEMA ICS 6 and UL 508, unless otherwise indicated.

2.2 NONAUTOMATIC TRANSFER SWITCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Kohler Co.
 2. Cummins, Power Generation.
 3. Russelectric, Inc.
 4. Caterpillar
 5. Engineer's Approved Equal
- B. Electrically Operated: Electrically actuated by push buttons designated "Normal Source" and "Alternative Source." Switch shall be capable of transferring load in either direction with either or both sources energized.
- C. Manual and Electrically Operated: Electrically actuated by push buttons designated "Normal Source" and "Alternative Source." Manual handle provides quick-make, quick-break manual-switching action. Switch shall be capable of electrically or manually transferring load in either direction with either or both sources energized. Control circuit disconnects from electrical operator during manual operation.

- D. Double-Throw Switching Arrangement: Incapable of pauses or intermediate position stops during switching sequence.
- E. Pilot Lights: Indicate source to which load is connected.
- F. Source-Available Indicating Lights: Supervise sources via transfer-switch normal- and alternative-source sensing circuits.
 - 1. Normal Power Supervision: Green light with nameplate engraved "Normal Source Available."
 - 2. Emergency Power Supervision: Red light with nameplate engraved "Alternative Source Available."
- G. Unassigned Auxiliary Contacts: Switch shall have one set of normally closed contacts for each switch position, rated 10 A at 240-V ac.
- H. Switch Characteristics: Designed for continuous-duty repetitive transfer of full-rated current between active power sources.
 - 1. Switch Action: Double throw; mechanically held in both directions.
 - 2. Contacts: Silver composition or silver alloy for load-current switching.
 - 3. Conductor Connectors: Suitable for use with conductor material and sizes.
 - 4. Material: Hard-drawn copper, 98 percent conductivity.
 - 5. Main and Neutral Lugs: Mechanical type.
 - 6. Ground Lugs and Bus-Configured Terminators: Mechanical type.
 - 7. Ground bar.
 - 8. Connectors shall be marked for conductor size and type according to UL 1008.

2.3 SOURCE QUALITY CONTROL

- A. Factory Tests: Test and inspect components, assembled switches, and associated equipment according to UL 1008. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS 1.
- B. Prepare test and inspection reports.
 - 1. For each of the tests required by UL 1008, performed on representative devices, for emergency systems. Include results of test for the following conditions:
 - a. Overvoltage.
 - b. Undervoltage.
 - c. Loss of supply voltage.
 - d. Reduction of supply voltage.
 - e. Alternative supply voltage or frequency is at minimum acceptable values.
 - f. Temperature rise.
 - g. Dielectric voltage-withstand; before and after short-circuit test.
 - h. Overload.

- i. Contact opening.
- j. Endurance.
- k. Short circuit.
- l. Short-time current capability.
- m. Receptacle withstand capability.
- n. Insulating base and supports damage.

PART 3 - EXECUTION

3.1 CONNECTIONS

- A. Wiring to Remote Components: Match type and number of cables and conductors to generator sets, motor controls, control, and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.
- B. Wiring Method: Install cables in raceways and cable trays except within electrical enclosures. Conceal raceway and cables except in unfinished spaces.
 - 1. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."
- C. Wiring within Enclosures: Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii.
- D. Ground equipment according to Section 260526 "Grounding and Bonding for Electrical Systems."
- E. Route and brace conductors according to manufacturer's written instructions. Do not obscure manufacturer's markings and labels.
- F. Final connections to equipment shall be made with liquidtight, flexible metallic conduit no more than 18 inches (457 mm) in length.

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Visual and Mechanical Inspection:
 - a. Compare equipment nameplate data with Drawings and Specifications.
 - b. Inspect physical and mechanical condition.
 - c. Inspect anchorage, alignment, grounding, and required clearances.
 - d. Verify that the unit is clean.

- e. Verify appropriate lubrication on moving current-carrying parts and on moving and sliding surfaces.
 - f. Verify that manual transfer warnings are attached and visible.
 - g. Verify tightness of all control connections.
 - h. Inspect bolted electrical connections for high resistance using one of the following methods, or both:
 - 1) Use of low-resistance ohmmeter.
 - 2) Verify tightness of accessible bolted electrical connections by calibrated torque-wrench method according to manufacturer's published data.
 - i. Perform manual transfer operation.
 - j. Verify positive mechanical interlocking between normal and alternate sources.
 - k. Perform visual and mechanical inspection of surge arresters.
 - l. Inspect control power transformers.
 - 1) Inspect for physical damage, cracked insulation, broken leads, tightness of connections, defective wiring, and overall general condition.
 - 2) Verify that primary and secondary fuse or circuit-breaker ratings match Drawings.
 - 3) Verify correct functioning of drawout disconnecting contacts, grounding contacts, and interlocks.
2. Electrical Tests:
- a. Perform insulation-resistance tests on all control wiring with respect to ground.
 - b. Perform a contact/pole-resistance test. Compare measured values with manufacturer's acceptable values.
 - c. Verify settings and operation of control devices.
 - d. Calibrate and set all relays and timers.
 - e. Verify phase rotation, phasing, and synchronized operation.
 - f. Perform automatic transfer tests.
 - g. Verify correct operation and timing of the following functions:
 - 1) Normal source voltage-sensing and frequency-sensing relays.
 - 2) Engine start sequence.
 - 3) Time delay on transfer.
 - 4) Alternative source voltage-sensing and frequency-sensing relays.
 - 5) Automatic transfer operation.
 - 6) Interlocks and limit switch function.
 - 7) Time delay and retransfer on normal power restoration.
 - 8) Engine cool-down and shutdown feature.
3. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer's specified minimum resistance.
- a. Check for electrical continuity of circuits and for short circuits.

- b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
 - c. Verify that manual transfer warnings are properly placed.
 - d. Perform manual transfer operation.
 4. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.
 - a. Verify grounding connections and locations and ratings of sensors.
- B. Coordinate tests with tests of generator and run them concurrently.
- C. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.
- D. Transfer switches will be considered defective if they do not pass tests and inspections.
- E. Remove and replace malfunctioning units and retest as specified above.
- F. Prepare test and inspection reports.
- G. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switch. Remove all access panels so joints and connections are accessible to portable scanner.
 1. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
 2. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.
 3. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.

3.3 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment.
- B. Training shall include testing ground-fault protective devices and instructions to determine when the ground-fault system shall be retested. Include instructions on where ground-fault sensors are located and how to avoid negating the ground-fault protection scheme during testing and circuit modifications.
- C. Coordinate this training with that for generator equipment.

3.4 CLEANING

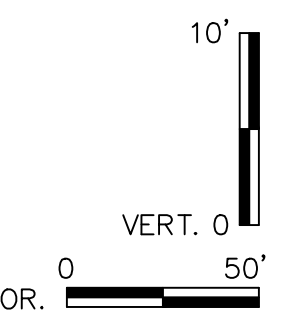
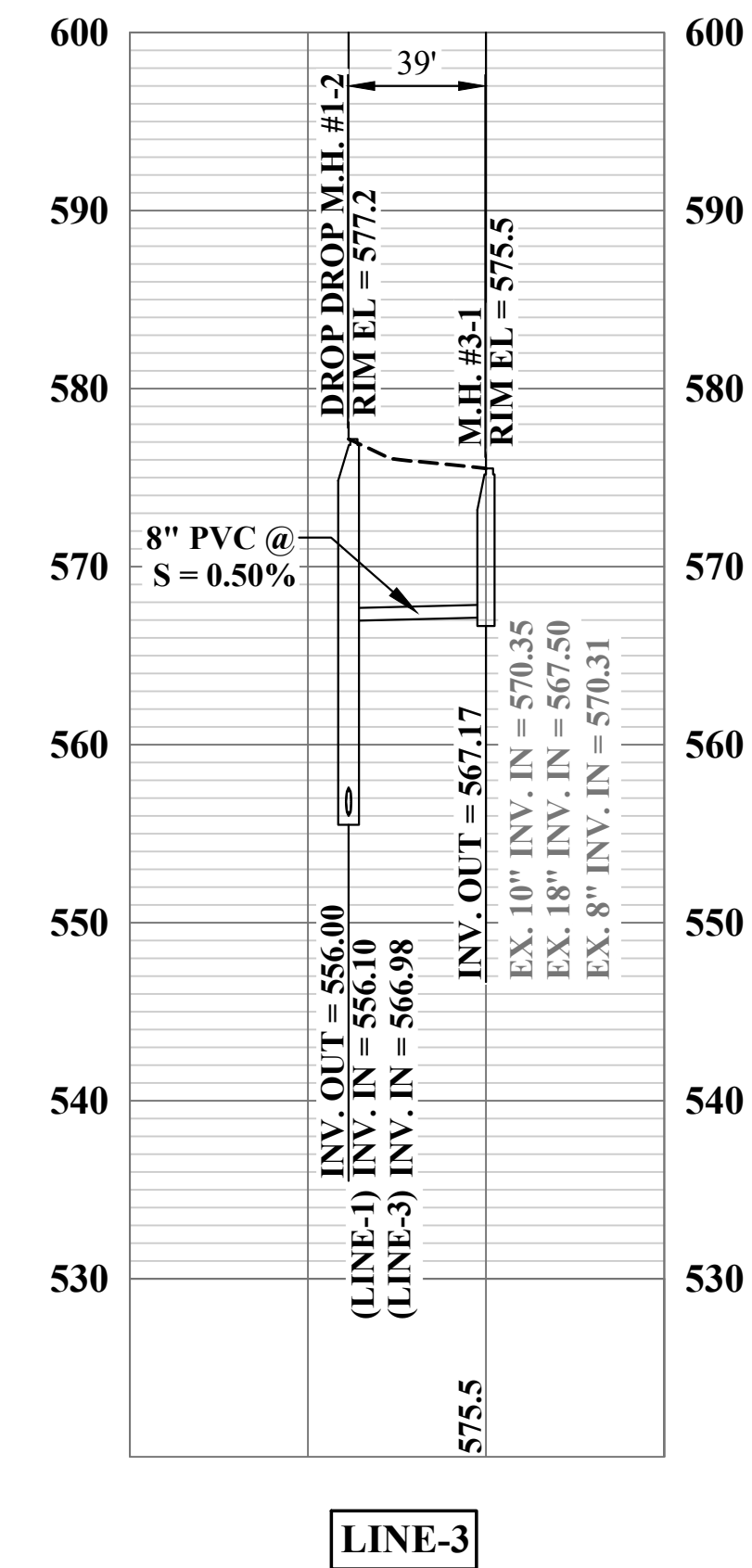
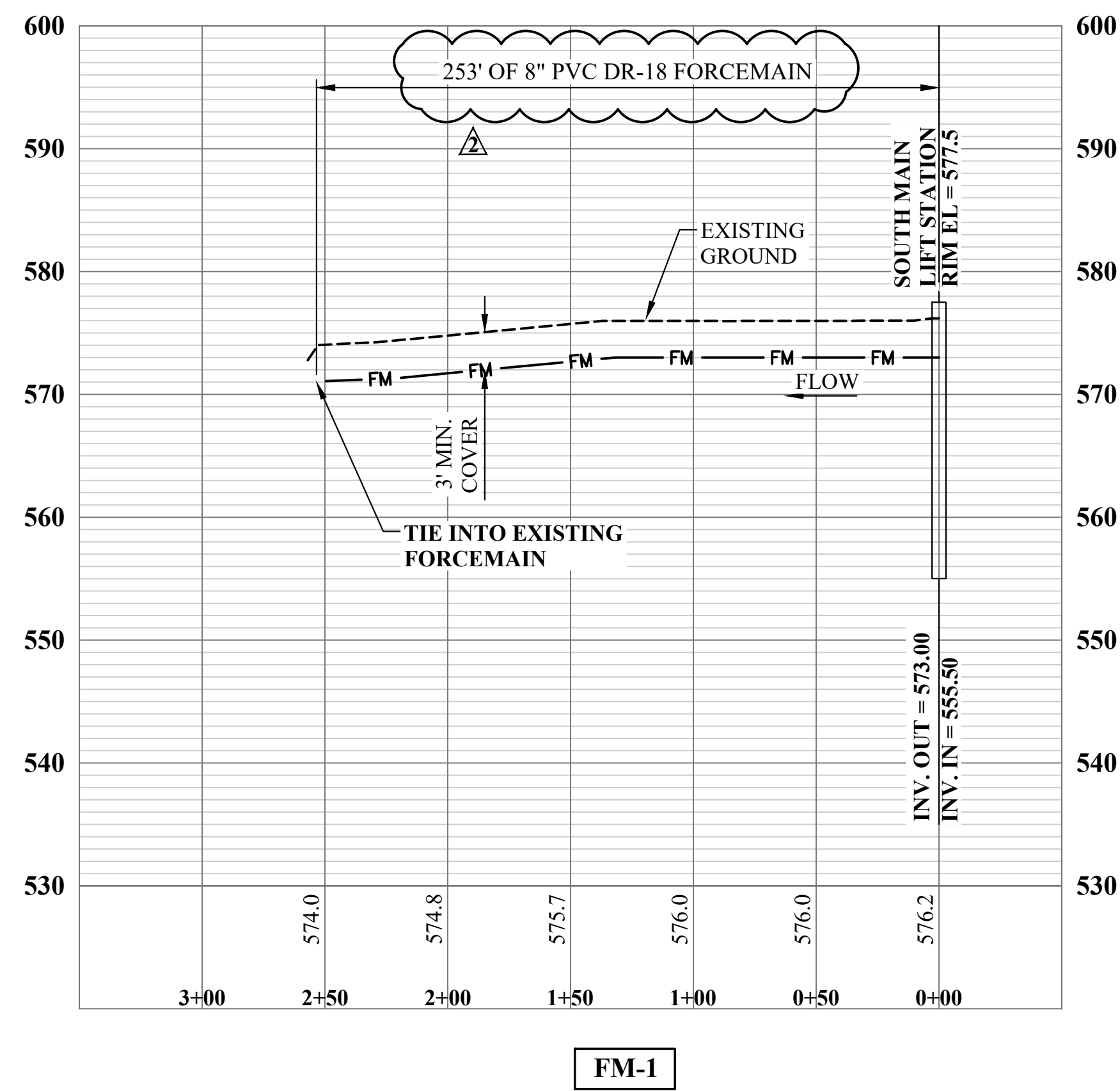
Revised per Addendum #2
February 10, 2022
020-01526
2/2022

Milton Municipal Utility Commission
Contract #2 – Sanitary Sewer Rehabilitation and Lift Station Relocation

- A. After completing equipment installation, inspect unit components. Remove paint splatters and other spots, dirt, and debris. Repair damaged finish to match original finish.
- B. Clean equipment internally, on completion of installation, according to manufacturer's written instructions.

END OF SECTION 263200

SEE SHEET #1 FOR PLAN VIEW



ADDENDUM 2

NO.	BY	DATE	DESCRIPTION
1	CAS	2/2022	ADDENDUM 2 - FORCEMAIN SIZE CHANGE

NO.	BY	DATE	DESCRIPTION

SCALE: AS SHOWN	DATE: APRIL 2021
DRAWN: K. PHILLIPS	DATE: APRIL 2021
CHECKED: J. CARPENTER	DATE: APRIL 2021
APPROVED: C. SMITH	DATE: APRIL 2021
SURVEY DATE:	
SURVEY BY:	
FIELD BOOK No.:	

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PHASE No.	
CONTRACT No.	2
PROJECT No.	020-1526

MILTON MUNICIPAL UTILITY COMMISSION
 CABELL COUNTY, WEST VIRGINIA
 SANITARY SEWER REHAB &
 LIFT STATION RELOCATION
 PLAN AND PROFILE

SHEET No.
1A

NOTE: 1) THE LOCATIONS OF SERVICE LATERALS ARE GENERAL AND MAY BE MOVED ALONG THE LINE OR INTO OR OUT OF MANHOLE DURING THE CONSTRUCTION PROCESS.
 2) STREETS AND SIDEWALKS DISTURBED BY THE INSTALLATION OF SERVICE LATERALS SHALL BE REPAIRED.

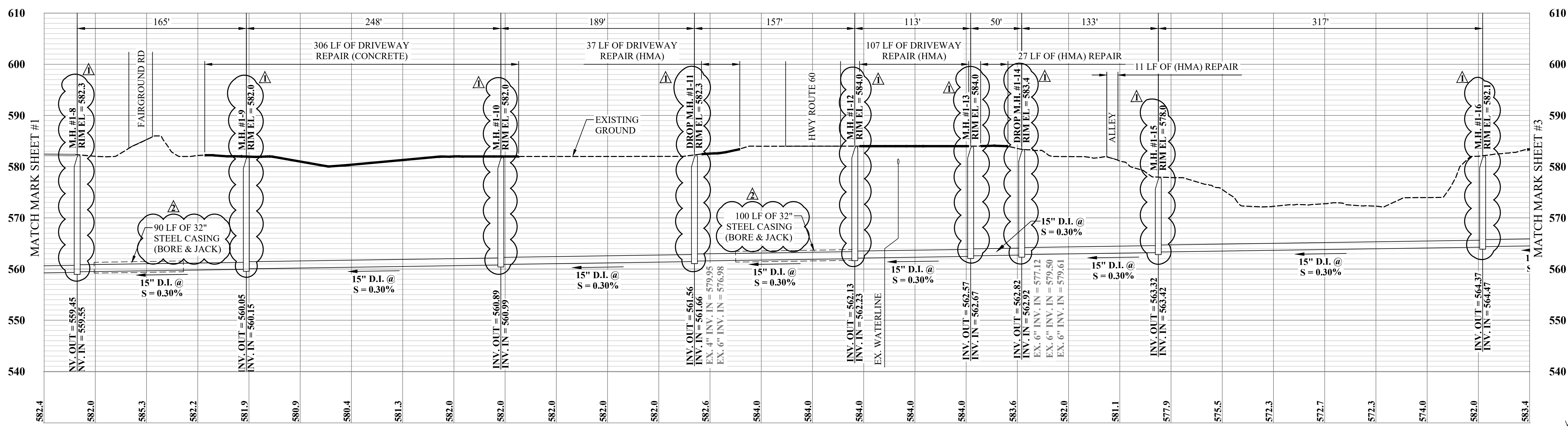
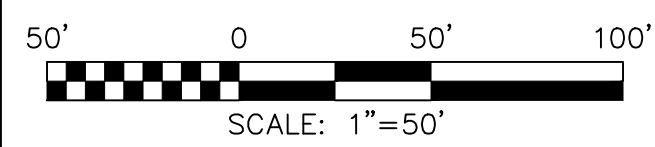
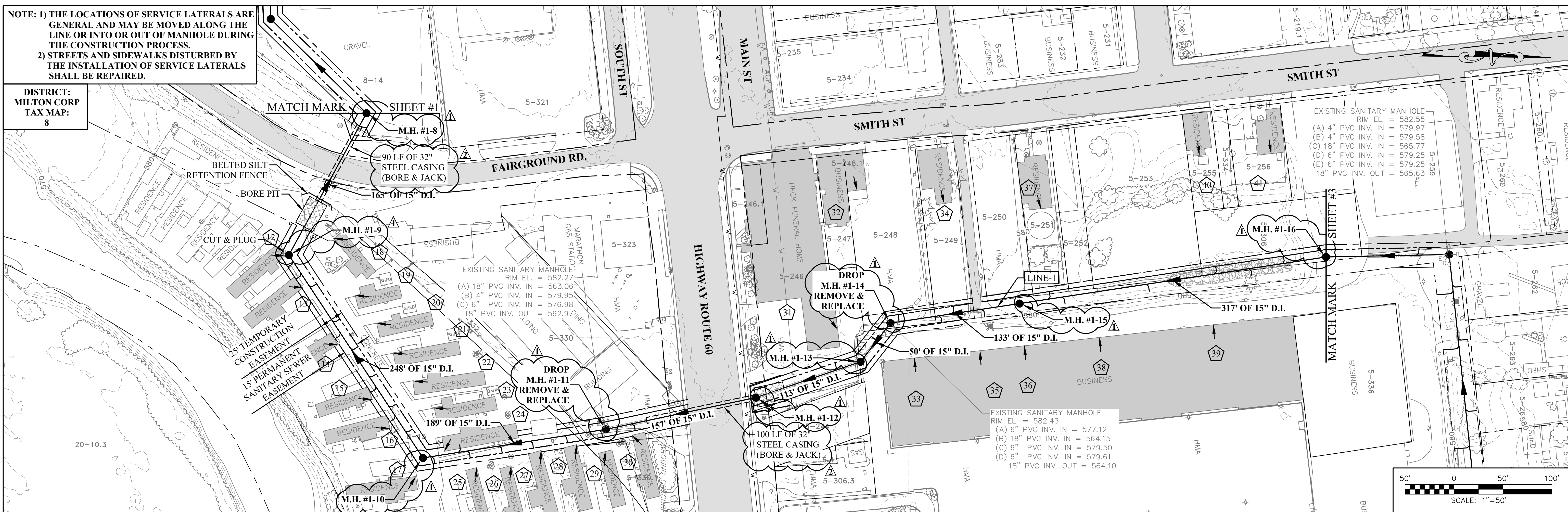
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LINE-1

ADDENDUM 2

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NO.	BY	DATE	DESCRIPTION
1	KMP	1/2022	ADDENDUM 1 - UPSIZED MANHOLES TO 60"
2	CAS	2/2022	ADDENDUM 2 - CHANGED CASING SIZE FROM 24" TO 32"

SCALE: AS SHOWN
 DRAWN: K. PHILLIPS DATE: APRIL 2021
 CHECKED: J. CARPENTER DATE: APRIL 2021
 APPROVED: C. SMITH DATE: APRIL 2021
 SURVEY DATE:
 SURVEY BY:
 FIELD BOOK No.:



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CONTRACT No.	2
PROJECT No.	020-1526

MILTON MUNICIPAL UTILITY COMMISSION
 CABELL COUNTY, WEST VIRGINIA
 SANITARY SEWER REHAB &
 LIFT STATION RELOCATION
 PLAN AND PROFILE

SHEET No.
2

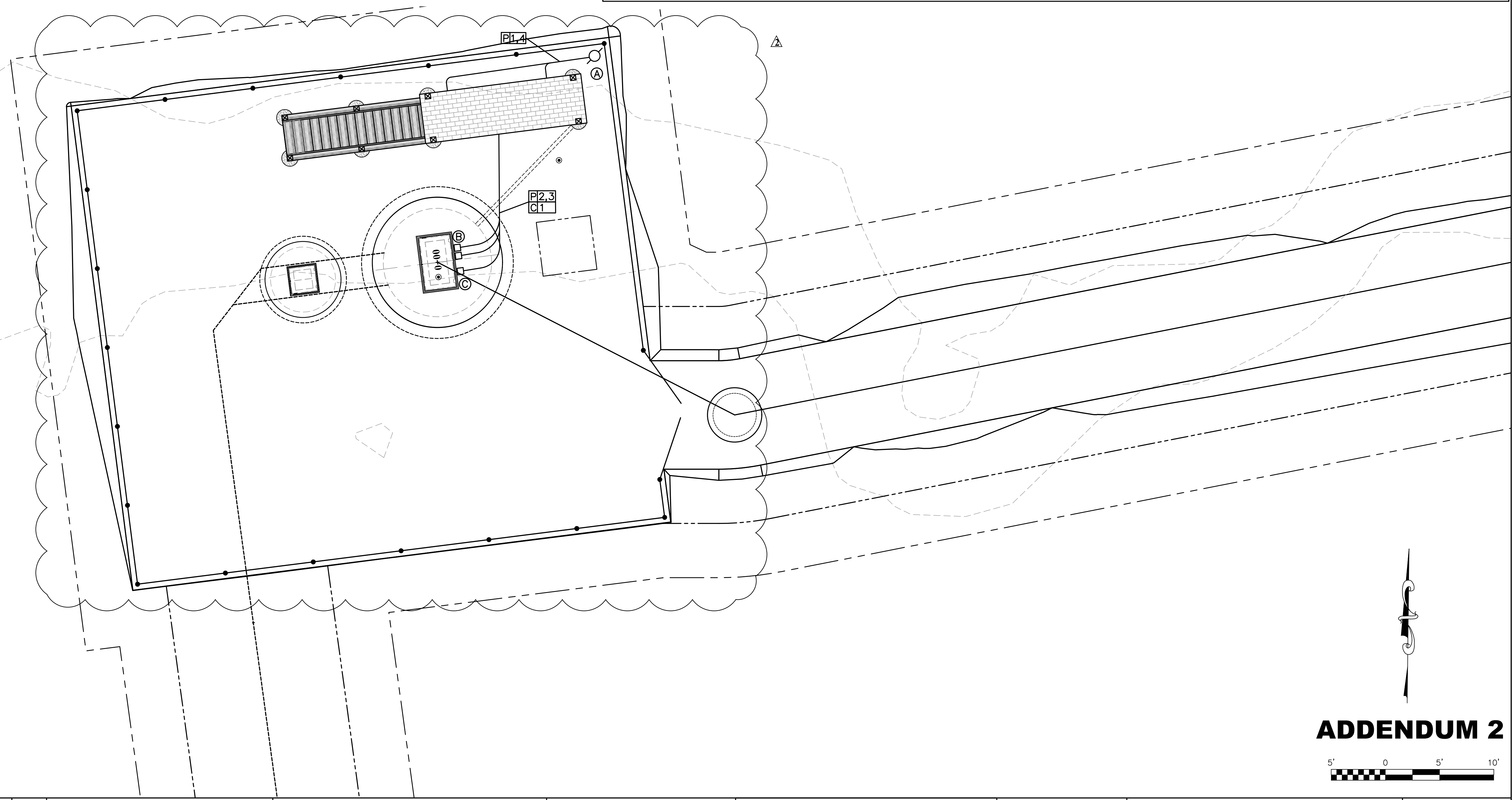
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- NOTES**
- (A) ELECTRICAL SERVICE POLE WITH LIGHT.
 - (B) LIQUID TIGHT STAINLESS STEEL JUNCTION BOX FOR PUMPS.
 - (C) LIQUID TIGHT STAINLESS STEEL JUNCTION BOX FOR FLOATS.

CONDUIT AND CONDUCTORS SCHEDULE

CONDUIT NO.	USE	SERVING	CONDUIT		CONDUCTORS SIZE/CONDUIT		FROM	CIRCUIT NO.	NOTES
			NO.	SIZE	WIRE	GROUND			
P-1	POWER	CT CABINET	1	2"	4-#2	-----	POWER CO. POLE	-----	---
P-2	POWER	PUMP NO. 1	1	1"	3-#8	1-#10	PUMP CONTROL PANEL	-----	---
P-3	POWER	PUMP NO. 2	1	1"	3-#8	1-#10	PUMP CONTROL PANEL	-----	---
P-4	POWER	POLE LIGHT	1	1"	2-#10	1-#10	SAFETY SWITCH	-----	---
C-1	CONTROL	FLOATS	1	1"	-----	-----	PUMP CONTROL PANEL	-----	1

NOTE:
1. CONDUIT WITH CONTROL CONDUCTOR PER MANUFACTURER.



ADDENDUM 2



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NO.	BY	DATE	DESCRIPTION
1	KMP	1/2022	ADDENDUM 1 - REVISED NOTE
2	CAS	2/2022	ADDENDUM 2 - UPDATED LIFT STATION AND WIRE SIZE

SCALE: AS NOTED
 DRAWN: F. DELDUQUE DATE: APRIL 2021
 CHECKED: C. SMITH DATE: APRIL 2021
 APPROVED: C. SMITH DATE: APRIL 2021
 SURVEY DATE:
 SURVEY BY:
 FIELD BOOK No.:

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PHASE No.	
CONTRACT No.	2
PROJECT No.	020-1526

MILTON MUNICIPAL UTILITY COMMISSION
CABELL COUNTY, WEST VIRGINIA
SANITARY SEWER REHAB &
LIFT STATION RELOCATION
SOUTH MAIN SITE UTILITY PLAN

SHEET No.
E-1

RISER NOTES:

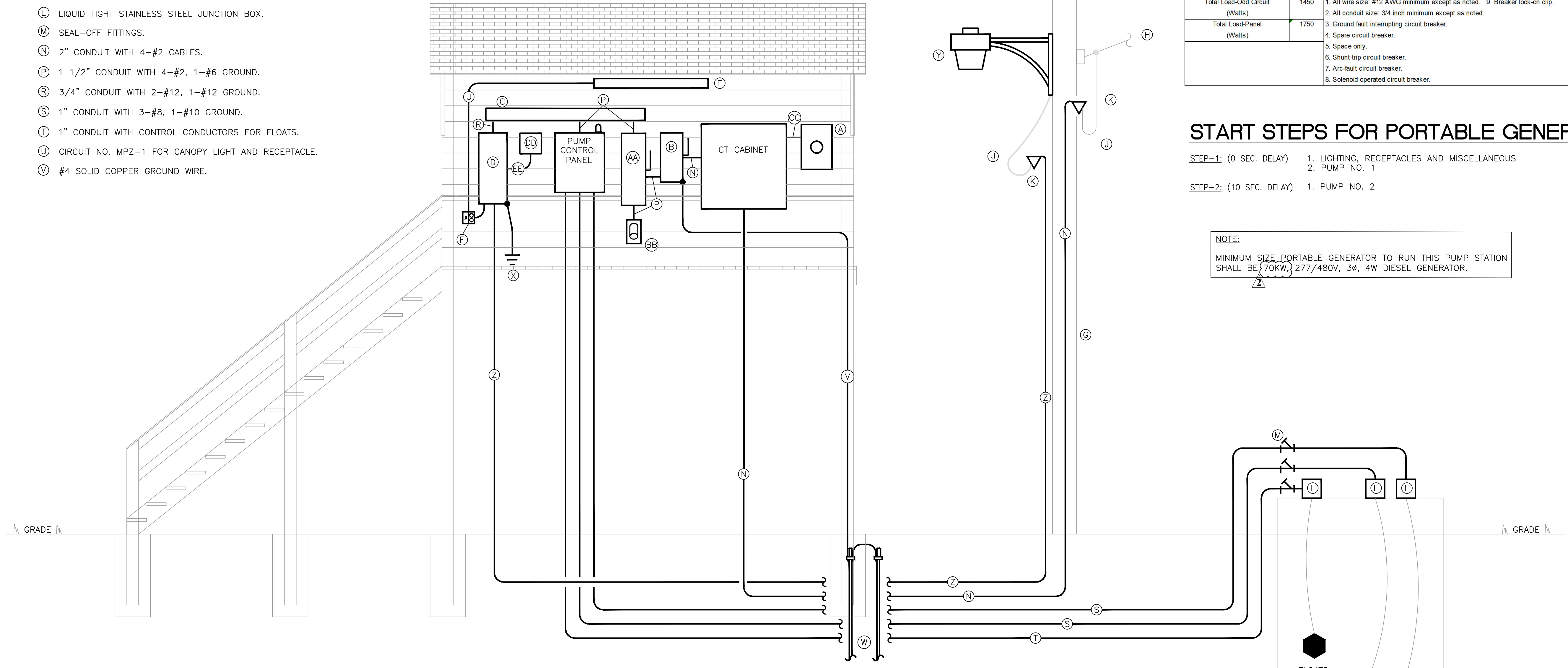
- (A) METER.
- (B) MAIN SWITCH: 3P-100A, 277/480V, 3Ø, 4W HEAVY DUTY NEMA-4X STAINLESS STEEL SERVICE RATED FUSED SAFETY SWITCH WITH 100A FUSES.
- (C) 6"x6" NEMA-4X STAINLESS STEEL WIREWAY.
- (D) MINI POWER ZONE-"MPZ".
- (E) CANOPY LIGHT: LITHONIA #FEML48 4000LM IMAFL 4' LED ENCLOSED AND GASKETED ACRYLIC LINEAL RIBBED LENS.
- (F) GFI RECEPTACLE WITH WEATHERPROOF COVER AND SINGLE POLE SWITCH WITH WEATHERPROOF COVER.
- (G) 25' TREATED POLE.
- (H) 277/480V, 3Ø, 4W OVERHEAD SERVICE BY POWER CO.
- (J) DRIP LOOP.
- (K) WEATHERPROOF HEAD.
- (L) LIQUID TIGHT STAINLESS STEEL JUNCTION BOX.
- (M) SEAL-OFF FITTINGS.
- (N) 2" CONDUIT WITH 4-#2 CABLES.
- (P) 1 1/2" CONDUIT WITH 4-#2, 1-#6 GROUND.
- (R) 3/4" CONDUIT WITH 2-#12, 1-#12 GROUND.
- (S) 1" CONDUIT WITH 3-#8, 1-#10 GROUND.
- (T) 1" CONDUIT WITH CONTROL CONDUCTORS FOR FLOATS.
- (U) CIRCUIT NO. MPZ-1 FOR CANOPY LIGHT AND RECEPTACLE.
- (V) #4 SOLID COPPER GROUND WIRE.
- (W) GROUNDING RODS WITH CLAMPS PER N.E.C.
- (X) GROUND PER N.E.C.
- (Y) POLE LIGHT: HUBBELL # DDL-140L-1 LED DUSK-TO DAWN WITH PHONE CELL.
- (Z) CIRCUIT NO. MPZ-2 FOR POLE LIGHT.
- (AA) MANUAL TRANSFER SWITCH: 3P-100A, 277/480V, 3Ø, 4W NEMA-3R STAINLESS STEEL NON-FUSED DOUBLE THROW SWITCH.
- (BB) WEATHERPROOF TWIST LOCK GENERATOR HOOK-UP RECEPTACLE. MATCH WITH OWNER GENERATOR PLUG.
- (CC) 1 1/4" CONDUIT WITH PULL STRING.
- (DD) OMNISITE OMINIBEACON TELEMETRY CONTROL BOX.
- (EE) CIRCUIT NO. MPZ-3 FOR TELEMETRY.

(Mini-Power Zone) Panel: MPZ (Stainless Steel)																	
NEMA-1		X		NEMA-3R		NEMA-4X Stainless Steel											
Location:																	
Primary						Secondary											
480 Volts, 1 Phase, 2 Wire						120/240 Volts, 1 Phase, 3 Wire											
Main Breaker: 20 Amps						Main Breaker: 30 Amps											
Mini. Interrupting Capacity: 22,000						Amps Sym: 5 KVA Transformer											
Flush Mount						X Surface Mount											
Provide if checked:																	
X Equipment Ground Bus						Isolated Ground Bus											
Sub-Feed Lugs						Gutter Taps											
Through-Feed Lugs						Through-Feed Lugs											
Serving	Load (Watts)	Cond. Size	Wire Size	C/B Trip	Cir. No.	Key Notes	A	C	Key Notes	Cir. No.	C/B Trip	Wire Size	Cond. Size	Load (Watts)	Serving		
Light and Receptacle	250	2	1	1P/20A	1				X	4	2	1P/20A	1"	10	300	Pole Light	
Telemetry	1200	3/4"	12	1P/20A	3				X	4	4	1P/20A				Spare	
Spare				1P/20A	5				X	4	6	1P/20A				Spare	
Spare				1P/20A	7				X	4	8	1P/20A				Spare	
Spare				1P/20A	9				X	4	10	1P/20A				Spare	
Total Load-Odd Circuit (Watts)												1450	1. All wire size: #12 AWG minimum except as noted. 9. Breaker lock-on clip.		300	Total Load-Even Circuit (Watts)	
Total Load-Panel (Watts)												1750	2. All conduit size: 3/4 inch minimum except as noted.		2.1	Total Connected Full Load Amps	
													3. Ground fault interrupting circuit breaker.		2.6	Total Derated Connected Full Load Amps	
													4. Spare circuit breaker.				
													5. Space only.				
													6. Shunt-trip circuit breaker.				
													7. Arc-fault circuit breaker.				
													8. Solenoid operated circuit breaker.				

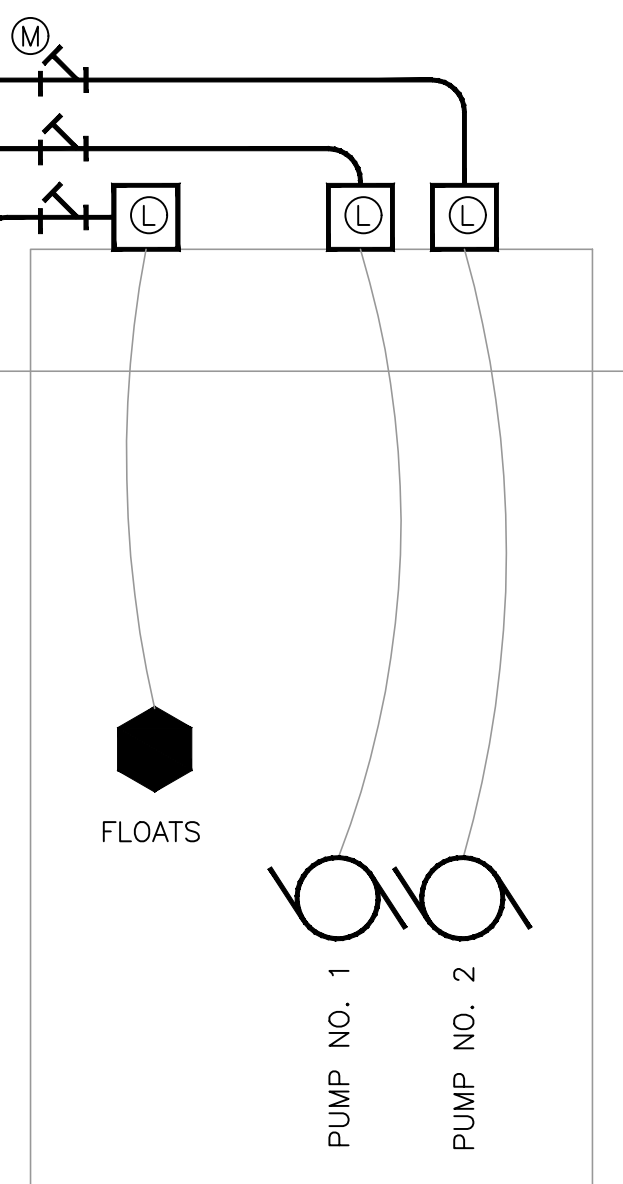
START STEPS FOR PORTABLE GENERATOR

- STEP-1: (0 SEC. DELAY) 1. LIGHTING, RECEPTACLES AND MISCELLANEOUS
2. PUMP NO. 1
- STEP-2: (10 SEC. DELAY) 1. PUMP NO. 2

NOTE:
MINIMUM SIZE PORTABLE GENERATOR TO RUN THIS PUMP STATION SHALL BE (70KW, 277/480V, 3Ø, 4W DIESEL GENERATOR.



ELECTRICAL RISER DIAGRAM FOR SOUTH MAIN LIFT STATION
SCHEMATIC



ADDENDUM 2

LAYOUT TAB: South Main
CAD FILE: R:\020\020-1526 COLLECTION REHAB-MILTON- -Chas\Drawing\Contract 2\C2--PS Sheet Electrical Diagram.dwg
PLOT DATE/TIME: 2/7/2022 10:33 AM
USER: robert.stowers

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NO.	BY	DATE	DESCRIPTION										
2	FD	2/2022	ADDENDUM 2 - GENERATOR SIZE										