ADDENDUM NO. 1
July 27, 2022

PROJECT: LTCP Projects 7 & 8: Northside Interceptor Sewer

OWNER: City of Huntington

ENGINEER: Lochmueller Group
Project No. 120-3003-02W

Acknowledgement of Receipt of Addendum No. 1

Send this page immediately to:
(No Cover Sheet Required)
Anthony Goodnight
Lochmueller Group

Email (Preferred): agoodnight@lochgroup.com

Phone No.: 260-519-2823

From: _____
(Insert Company Name)

_____
Signature

_____
Date

Note:

You must also acknowledge receipt of all addenda on the Bid Proposal Form

7223 Engle Road, Suite 105
Fort Wayne, Indiana 46804
PHONE: 260-494-3046

ADDENDUM NO. 1
July 27, 2022

PROJECT: LTCP Projects 7 & 8: Northside Interceptor Sewer

OWNER: City of Huntington

ENGINEER: Lochmueller Group
Project No. 120-3003-02W

THE FOLLOWING CHANGES, ADDITIONS AND CLARIFICATIONS ARE HEREBY MADE PART OF THE CONTRACT DOCUMENTS FOR THE ABOVE REFERENCED PROJECT AND SHALL BE TAKEN INTO ACCOUNT IN THE PREPARATION OF ALL PROPOSALS AND THE EXECUTION OF ALL WORK. WORK SHALL CONFORM TO THE REQUIREMENTS OF THE ORIGINAL CONTRACT DOCUMENTS AND ADDENDA WHEREVER THEY APPLY.

RECEIPT OF THIS ADDENDUM MUST BE ACKNOWLEDGED ON THE BID FORM

CLARIFICATIONS/RESPONSES TO CONTRACTOR QUESTIONS

CONTRACT INFORMATION AND PLANS

This addendum is being e-mailed to you, no hard copy will be mailed. It is imperative that you email the acknowledgement to Lochmueller Group, Inc. upon receipt of this document to acknowledge that it has been received. It is also important to acknowledge receipt of this Addendum on the bid form.

7223 Engle Road, Suite 105
Fort Wayne, Indiana 46804
PHONE: 260-494-3046

DATE: July 27, 2022

FROM: Lochmueller Group
7223 Engle Road, Suite 105
Fort Wayne, IN 46804

TO: Prospective Bidders

RE: **ADDENDUM No. 1** to the Bidding Documents for
Huntington, Indiana
LTCP Projects 7 & 8: Northside Interceptor Sewer
Lochmueller Group Project No. 120-3003-02W

7/27/2022
ERIN WENGER
REGISTERED
No. PE11011797
STATE OF
INDIANA
PROFESSIONAL ENGINEER

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents as noted below. Please acknowledge receipt of the Addendum in the space provided in the Bid Form. Failure to do so may subject the Bidder to disqualification.

This **Addendum No. 1** consists of sixty-seven (67) pages, including attachments.

PROJECT MANUAL:

1. Section 00 11 17 (INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT)

   REPLACE Section 4.01 with the following:

   4.01 A voluntary pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference.

2. Section 00 31 14 (BID FORM)

   REPLACE with Section 00 31 14, Rev. 1 (**Attachment A**). Note that some of the quantities have been updated.

3. Section 01 02 50 (MEASUREMENT AND PAYMENT MISCELLANEOUS)

   REPLACE with Section 01 02 50, Rev. 1 (**Attachment A**).

4. Section 01 50 00 (TEMPORARY FACILITIES AND CONTROLS)

   REPLACE with Section 01 50 00, Rev. 1 (**Attachment A**). Note that a measurement and payment section has been added.

5. Section 26 04 00 (FIBER OPTIC MEASUREMENT AND PAYMENT)

   REPLACE with Section 26 04 00, Rev. 1 (**Attachment A**).

6. Section 33 05 61 (CONCRETE MANHOLES AND INLETS)

   REPLACE part 1.2A with the following:

   A. CONCRETE MANHOLES/INLETS (VARIOUS SIZES AND TYPES)
      1. Basis of Measurement: By Each.
      2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials and equipment necessary for the manhole. Includes soil excavation, dewatering, structure, replacement of connector pipes damaged during excavation. It shall include the various lengths of pipe used to perform connections, flexible connectors, couplings, boots, compression connectors, fittings, concrete, and hydraulic cement, appurtenances, casting, lid, risers, etc., bedding and backfill material, seals, sheeting, shoring, protection of existing structures, cleanup, miscellaneous restoration as required or shown on the plans, testing, Record Drawings.

7. Section 33 14 13 – PUBLIC WATER UTILITY DISTIRBUTION PIPING

   REPLACE with Section 33 14 13, Rev. 1 (**Attachment A**).

PLAN SHEETS:

1. Sheet G2

   REPLACE with revised plan sheet G2 dated 7/27/2022 (**Attachment B)**.

2. Sheet SP11 (no revised plan sheet is being issued)

   REPLACE description for legend item D2 with the following:
   Brick Pavers on Subgrade Treatment Type II (6” of Coarse Aggregate No. 53)

3. Sheet U13

   REPLACE with revised plan sheet U13 dated 7/27/2022 (**Attachment B**).

4. Sheets SP14 and SP15 (no revised plan sheets are being issued)

   REPLACE references to C900 pipe with C905 pipe for pipe diameters greater than 12-inches.

5. Sheet E1

   REPLACE with revised plan sheet E1 dated 7/27/2022 (**Attachment B**).

6. Sheet E18

   REPLACE with revised plan sheet E18 dated 7/27/2022 (**Attachment B**).

7. Sheet E19A

   ADD new sheet E19A dated 7/27/2022 to the plan set (**Attachment B**).

8. Sheet D4 (no revised plan sheet is being issued)

   ADD the following note to the 6" Meter Pit Detail:

   Aluminum hatch shall be H30361091 as manufactured by EJ, a 30" x 36" model APS300 hatch with hinged safety grate as manufactured by USF Fabrication, or approved equal. Orient the hatch opening so that the 36" opening is parallel to the water main.

9. Sheet T9 (no revised plan sheet is being issued)

   REPLACE manhole type for STR No. 114 with 120" diameter manhole with Type 4 casting.

GENERAL NOTES AND CLARIFICATIONS

1. To receive a Microsoft Teams meeting invitation to attend the pre-bid conference remotely, contact Anthony Goodnight at agoodnight@lochgroup.com or 260-519-2823 prior to 5:00 p.m. on August 2, 2022. The meeting invitation will have directions for remote access through Teams or by phone for audio only access.
2. The quantity of CASTING, WATER VALVE, ADJUST TO GRADE shall be for existing valves on water main pipe scheduled to be left in place only.
3. Contractor shall salvage the following materials scheduled for removal and return items to the City of Huntington representatives:
   a. Existing Mission Communications and metering equipment
   b. Existing street signs (signs only, not posts)
4. The City of Huntington maintains first rights of refusal for the salvaging of all fire hydrants schedule for removal. Contractor shall coordinate with City representatives prior to removal.
5. Notes from the system integrator detailing which services are included in the SCADA allowance are included with this addendum (**Attachment C**).

ATTACHMENTS

1. Attachment A: Revised Project Manual Documents
2. Attachment B: Revised Plan Sheets
3. Attachment C: System Integrator's Notes

END OF ADDENDUM NO. 1

ATTACHMENT A: REVISED PROJECT MANUAL DOCUMENTS

SECTION 00 31 14
BID FORM FOR CONSTRUCTION CONTRACT

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

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to: **CITY OF HUNTINGTON, 300 Cherry Street, Huntington, IN 46750**

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

ARTICLE 2—ATTACHMENTS TO THIS BID

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

A. Required Bid security;

B. List of Proposed Subcontractors;

C. List of Proposed Suppliers;

D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;

E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;

F. Required Bidder Qualification Statement with supporting data; and

G. Indiana Iran Investment Certification

H. E-Verify Certification

I. Form OEE-1 Certification of Non-segregated Facilities

J. Form OEE-2 Notice to Labor Unions or Other Organizations of Workers Nondiscrimination in Employment

K. Bidders List/Good Faith Effort Worksheet

L. Indiana State Form No. 96

M. Non-Collusion Affidavit

N. Financial Statement for Bidders

O. Attachment J – Certification from Contractor Related to American Iron and Steel Clause

P. Indiana Department of Administration Contractor Pre-Qualification Certification

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

3.01 *Unit Price Bids*

A. The Base Bid shall be based on providing Large Diameter Pipe as Centrifugally Cast Fiberglass-Reinforced Polymer Mortar Pipe (CCFRPM).

B. Bidder will perform the following Work at the indicated unit prices:

Item No.	Specification	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount
1	105	CONSTRUCTION ENGINEERING	LS	1		
2	110	MOBILIZATION AND DEMOBILIZATION	LS	1		
3	201	CLEARING RIGHT OF WAY	LS	1		
4	202	CURB, CONCRETE, REMOVE	LFT	11,053		
5	202	SIDEWALK CONCRETE, REMOVE	SYD	6,914		
6	202	SIGN, REMOVE	EACH	139		
7	202	MANHOLE OR INLET, REMOVE	EACH	84		
8	202	PIPE, REMOVE, WATER	LFT	3,625		
9	202	PIPE, REMOVE, SANITARY	LFT	7,734		
10	202	FIRE HYDRANT ASSEMBLY, REMOVE	EACH	5		
11	203	EXCAVATION, COMMON	CYD	18,010		
12	205	NO. 2 STONE	TON	2,270		
13	207	SUBGRADE TREATMENT, TYPE II	SYS	6,320		
14	301	COMPACTED AGGREGATE NO. 53	CYD	7,864		
15	302	SUBBASE FOR PCCP	CYD	1,057		
16	303	COMPACTED AGGREGATE NO. 53	TON	2,750		
17	304	HMA PATCHING, TYPE B	TON	15		
18	306	MILLING, ASPHALT, 1 1/2 IN.	SYD	2,006		
19	401	QC/QA-HMA, 2, 64, SURFACE, 9.5 mm	TON	1,730		
20	401	QC/QA-HMA, 2, 64, INTERMEDIATE, 12.5 mm	TON	2,142		
21	401	QC/QA-HMA, 2, 64, BASE, 25.0 mm	TON	3,245		
22	401	JOINT ADHESIVE, SURFACE	LFT	20,011		
23	401	JOINT ADHESIVE, INTERMEDIATE	LFT	20,011		
24	401	LIQUID ASPHALT SEALANT	LFT	20,011		
25	406	ASPHALT FOR TACK COAT	TON	15		
26	502	PCCP, 10 IN.	SYD	4,227		
27	502	PCCP, 4 IN.	SYD	3,075		
28	503	D-1 CONTRACTION JOINT	LFT	2,552		
29	603	FENCE, GATE, CHAIN LINK, RESET	LFT	5		
30	603	FENCE, CHAIN LINK, RESET	LFT	110		
31	604	SIDEWALK, CONCRETE	SYD	2,748		
32	604	CURB RAMP, CONCRETE	SYD	970		
33	604	DETECTABLE WARNING SURFACES	SYD	142		

34	605	CURB, CONCRETE	LFT	837		
35	605	CURB, CONCRETE, MODIFIED	LFT	84		
36	605	CURB AND GUTTER, CONCRETE	LFT	1,034		
37	605	CURB AND GUTTER, CONCRETE, MODIFIED	LFT	1,451		
38	610	HMA FOR APPROACHES, TYPE B	TON	1,645		
39	610	PCCP FOR APPROACHES, 6 IN.	SYD	601		
40	610	PCCP FOR APPROACHES, 9 IN.	SYD	694		
41	621	MULCHED SEEDING R	SYD	16,310		
42	621	SODDING, NURSERY	SYD	7,210		
43	621	ARTICULATED CONCRETE BLOCK ON GEOTEXTILE FABRIC	SYD	54		
44	622	PLANT, DECIDUOUS TREE, SINGLE STEM, 1.25 TO 2 IN.	EACH	46		
45	622	PLANT, DECIDUOUS TREE, SINGLE STEM, OVER 2 IN. TO 2.5 IN.	EACH	41		
46	720	CASTING, ADJUST TO GRADE (MANHOLES AND INLETS)	EACH	27		
47	720	CASTING, WATER VALVE, ADJUST TO GRADE	EACH	11		
48	720	CATCH BASIN, MODIFIED	EACH	27		
49	716	PIPE INSTALLATION, TRENCHLESS, 66 IN.	LFT	166		
50	716	PIPE INSTALLATION, TRENCHLESS, 6 IN.	LFT	166		
51	801	MAINTAINING TRAFFIC	LS	1		
52	802	SIGN POST, SQUARE TYPE 1 REINFORCED ANCHOR BASE	LFT	670		
53	802	SIGN, SHEET, WITH LEGEND, 0.080 IN.	SFT	370		
54	802	SIGN, SHEET, WITH LEGEND, 0.100 IN.	SFT	235		
55	802	SIGN, SHEET, WITH LEGEND, 0.125 IN.	SFT	92		
56	808	TRANSVERSE MARKING, THERMOPLASTIC, CROSSWALK LINE, WHITE, 8 IN.	LFT	2,132		
57	808	LINE, THERMOPLASTIC, SOLID, WHITE, 4 IN.	LFT	4,331		
58	808	LINE, THERMOPLASTIC, SOLID, YELLOW, 4 IN.	LFT	1,398		
59	808	TRANSVERSE MARKING, THERMOPLASTIC, STOP LINE, WHITE, 24 IN.	LFT	393		

60	808	PAVEMENT MESSAGE MARKING, THERMOPLASTIC LANE INDICATION ARROW	EACH	5		
61	808	PAVEMENT MESSAGE MARKING, THERMOPLASTIC ONLY	EACH	3		
62	808	PAVEMENT MESSAGE MARKING, THERMOPLASTIC R X R	EACH	1		
63	01 02 50	CSO 003 REHABILITATION	LS	1		
64	01 02 50	CSO 009 REHABILITATION	LS	1		
65	01 02 50	CSO 010 REHABILITATION	LS	1		
66	01 02 50	CSO 011 REHABILITATION	LS	1		
67	01 02 50	CSO 014 REHABILITATION	LS	1		
68	01 02 50	CSO 015 REHABILITATION	LS	1		
69	01 02 50	CSO 016 REHABILITATION	LS	1		
70	01 02 50	BRICK PAVERS (REMOVE, PROTECT, RESET)	SYD	3,207		
71	01 02 50	LIMESTONE CURB (REMOVE, PROTECT, RESET)	LFT	520		
72	01 02 50	RAILROAD – TRACK MONITORING PLAN PREPARATION	LS	1		
73	01 02 50	RAILROAD – TRACK MONITORING	LS	1		
74	01 02 50	RAILROAD – FRAC PLAN	LS	1		
75	01 02 50	RAILROAD – SHORING PLAN PREPARATION	LS	1		
76	01 02 50	RAILROAD – MONITOR AND OBSERVER	ALLOWANCE	1		
77	01 02 50	DEWATERING FOR CONTAMINATED GROUNDWATER	LS	1		
78	01 02 50	6" METER PIT	EACH	1		
79	01 02 50	BRICKS IN PIPE AT WWTP, REMOVE	LS	1		
80	01 20 00	SCADA	ALLOWANCE	1		
81	01 50 00	TEMPORARY FACILITIES AND CONTROLS	MONTHS	24		
82	26 04 00	FIBER OPTIC TERMINATION AT THE WWTP ADMIN BUILDING	LS	1		
83	26 04 00	FIBER OPTIC TERMINATION FROM WWTP TO THE CABLE VAULT, “CV-9”	LS	1		
84	26 04 00	CSO 003 ELECTRICAL AND FIBER OPTIC	LS	1		
85	26 04 00	CSO 009 ELECTRICAL AND FIBER OPTIC	LS	1		
86	26 04 00	CSO 010 ELECTRICAL AND FIBER OPTIC	LS	1		

87	26 04 00	CSO 011 ELECTRICAL AND FIBER OPTIC	LS	1		
88	26 04 00	CSO 013 ELECTRICAL AND FIBER OPTIC	LS	1		
89	26 04 00	CSO 014 ELECTRICAL AND FIBER OPTIC	LS	1		
90	26 04 00	CSO 015 ELECTRICAL AND FIBER OPTIC	LS	1		
91	26 04 00	CSO 016 ELECTRICAL	LS	1		
92	31 23 18	ROCK REMOVAL	CYS	15,300		
93	31 25 00	EROSION CONTROL	LS	1		
94	33 01 20	TELEVISION INSPECTION OF PROPOSED PIPE	LFT	11,946		
95	33 01 30	CURED-IN-PLACE PIPE LINING	LFT	2,750		
96	33 01 31	MANHOLE REHABILITATION	VLF	210		
97	33 05 61	MANHOLE, C4	EACH	16		
98	33 05 61	MANHOLE, J10	EACH	3		
99	33 05 61	MANHOLE, J4	EACH	13		
100	33 05 61	MANHOLE, K4	EACH	14		
101	33 05 61	MANHOLE, L4	EACH	16		
102	33 05 61	MANHOLE, N4	EACH	14		
103	34 05 61	MANHOLE, 120" WITH TYPE 4 CASTING	EACH	1		
104	33 05 61	INLET, J10	EACH	24		
105	33 05 61	CONFLICT STRUCTURE (STR No. 138)	EACH	1		
106	33 14 13	12" LINE STOP (UNDISTRIBUTED)	EACH	2		
107	33 14 13	6" LINE STOP (UNDISTRIBUTED)	EACH	6		
108	33 14 13	4" LINE STOP (UNDISTRIBUTED)	EACH	2		
109	33 14 13	WATER MAIN, EXISTING, 4 IN. PIPE CUT & CAP	EACH	3		
110	33 14 13	WATER MAIN, EXISTING, 6 IN. PIPE CUT & CAP	EACH	15		
111	33 14 13	WATER MAIN, EXISTING, 12 IN. PIPE CUT & CAP	EACH	2		
112	33 14 13	3/4" WATER SERVICE CONNECTIONS - LONG (WITH METER)	EACH	29		
113	33 14 13	3/4" WATER SERVICE CONNECTIONS - SHORT (WITH METER)	EACH	31		
114	33 14 13	WATER SERVICE REPAIR (UNDISTRIBUTED)	EACH	10		
115	33 14 13	WATER MAIN, CONNECTION TO EXISTING	EACH	11		

116	33 14 13	WATER MAIN, DUCTILE IRON, 4 IN.	LFT	13		
117	33 14 13	WATER MAIN, DUCTILE IRON, 4 IN. 90° BEND	EACH	1		
118	33 14 13	WATER MAIN, DUCTILE IRON, 6 IN.	LFT	3,681		
119	33 14 13	WATER MAIN, DUCTILE IRON, 6 IN. X 4 IN. REDUCER	EACH	3		
120	33 14 13	WATER MAIN, DUCTILE IRON, 6 IN. 11.25° BEND	EACH	3		
121	33 14 13	WATER MAIN, DUCTILE IRON, 6 IN. 22.5° BEND	EACH	3		
122	33 14 13	WATER MAIN, DUCTILE IRON, 6 IN. 45° BEND	EACH	40		
123	33 14 13	WATER MAIN, DUCTILE IRON, 6 IN. 90° BEND	EACH	8		
124	33 14 13	WATER MAIN, DUCTILE IRON, 6 IN. X 6 IN. TEE	EACH	6		
125	33 14 13	WATER MAIN, DUCTILE IRON, 12 IN.	LFT	607		
126	33 14 13	WATER MAIN, DUCTILE IRON, 12 IN. X 6 IN. REDUCER	EACH	2		
127	33 14 13	WATER MAIN, DUCTILE IRON, 12 IN, 22.5° BEND	EACH	1		
128	33 14 13	WATER MAIN, DUCTILE IRON, 12 IN, 45° BEND	EACH	5		
129	33 14 13	WATER MAIN, DUCTILE IRON, 12 IN, 90° BEND	EACH	2		
130	33 14 13	WATER MAIN, DUCTILE IRON, 12 IN. X 6 IN. TEE	EACH	1		
131	33 14 13	WATER MAIN, DUCTILE IRON, 12 IN. X 12 IN. TEE	EACH	2		
132	33 14 19	WATER MAIN, DUCTILE IRON, GATE VALVE 6 IN.	EACH	11		
133	33 14 19	WATER MAIN, DUCTILE IRON, GATE VALVE 12 IN.	EACH	1		
134	33 14 19	WATER MAIN, TAPPING SLEEVE WITH VALVE, 4. IN	EACH	1		
135	33 14 19	WATER MAIN, TAPPING SLEEVE WITH VALVE, 8. IN	EACH	2		
136	33 14 19	WATER MAIN, TAPPING SLEEVE WITH VALVE, 12. IN	EACH	4		
137	33 14 19	WATER MAIN, TAPPING SLEEVE WITH VALVE, 6. IN	EACH	12		
138	33 14 19	HYDRANT ASSEMBLY WITH VALVE	EACH	9		
139	33 42 00	PIPE, TYPE 2, CIRCULAR, 12 IN.	LFT	1,354		
140	33 42 00	PIPE, TYPE 2, CIRCULAR, 18 IN.	LFT	200		

141	33 42 00	PIPE, TYPE 2, CIRCULAR, 24 IN.	LFT	403		
142	33 42 00	PIPE, TYPE 2, CIRCULAR, 12 IN. (C900)	LFT	336		
143	33 42 00	PIPE, TYPE 2, CIRCULAR, 18 IN. (C905)	LFT	157		
144	33 42 00	PIPE, TYPE 2, CIRCULAR, 24 IN. (C905)	LFT	357		
145	33 31 11	OUTSIDE DROP PIPE	EACH	21		
146	33 31 11	SEWER SERVICE LATERAL ADJUSTMENT (UNDISTRIBUTED)	EACH	10		
147	33 31 11	SANITARY SERVICE LATERAL CONNECTION	EACH	85		
148	33 31 11	PIPE, SANITARY SEWER, 8 IN.	LFT	1,621		
149	33 31 11	PIPE, SANITARY SEWER, 18 IN.	LFT	9		
150	33 31 11	PIPE, SANITARY SEWER, 21 IN.	LFT	9		
151	33 31 11	PIPE, SANITARY SEWER, 24 IN.	LFT	22		
152	33 31 11	PIPE, SANITARY SEWER, 30 IN.	LFT	255		
153	33 31 11	PIPE, SANITARY SEWER, 48 IN.	LFT	83		
154	33 31 11	PIPE, SANITARY SEWER, 15 IN. (C905)	LFT	15		
155	33 31 11	PIPE, SANITARY SEWER, 18 IN. (C905)	LFT	21		
156	33 31 11	PIPE, SANITARY SEWER, 30 IN. (C905)	LFT	37		
157	33 31 11	PIPE, SANITARY SEWER, CCFRPM, 66 IN.	LFT	166		
158	33 31 11	PIPE, SANITARY SEWER, 36 IN.	LFT	1,993		
159	33 31 11	PIPE, SANITARY SEWER, 42 IN.	LFT	52		
160	33 31 11	PIPE, SANITARY SEWER, 48 IN.	LFT	3,452		
161	33 31 11	PIPE, SANITARY SEWER, 66 IN.	LFT	2,119		
162	33 31 11	PIPE, SANITARY SEWER, 72 IN.	LFT	2,543		
Total of All Unit Price Bid Items for the Base Bid					$	

And in words:

C. Bidder acknowledges that:

1. Each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and

2. Estimated quantities are not guaranteed and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—MANDATORY ALTERNATE #1

4.01 **Mandatory Alternate #1**: This alternate includes the replacement of 36”-72” CCFRPM Pipe with 36”-72” High Density Profile Wall Polyethylene Pipe (HDPE)

Mandatory Alternate #1: 36”-72” High Density Profile Wall Polyethylene Pipe (HDPE)					**Bid Amount**
Total of All Unit Price Bid Items for the Base Bid (CCFRPM)					$
Deduct for Base Bid Line Items 158-162					$
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Bid Unit Price**	
158	PIPE, SAN.SEWER, HDPE, 36 IN.	LFT	1,993		$
159	PIPE, SAN.SEWER, HDPE, 42 IN.	LFT	52		$
160	PIPE, SAN.SEWER, HDPE, 48 IN.	LFT	3,452		$
161	PIPE, SAN.SEWER, HDPE, 66 IN.	LFT	2,119		$
162	PIPE, SAN.SEWER, HDPE, 72 IN.	LFT	2,543		$
Total of All Unit Price Bid Items for Alternate #1 (HDPE)					$
And in words:					

ARTICLE 5—MANDATORY ALTERNATE #2

5.01 **Mandatory Alternate #2**: This alternate includes the replacement of 36”-72” CCFRPM Pipe with 36”-72” Steel Reinforced Polyethylene Pipe (SRPE)

Mandatory Alternate #2: Steel Reinforced Polyethylene Pipe (SRPE)					**Bid Amount**
Total of All Unit Price Bid Items for the Base Bid (CCFRPM)					$
Deduct for Base Bid Line Items 158-162					$
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Bid Unit Price**	
158	PIPE, SAN.SEWER, SRPE, 36 IN.	LFT	1,993		
159	PIPE, SAN.SEWER, SRPE, 42 IN.	LFT	52		
160	PIPE, SAN.SEWER, SRPE, 48 IN.	LFT	3,452		
161	PIPE, SAN.SEWER, SRPE, 66 IN.	LFT	2,119		
162	PIPE, SAN.SEWER, SRPE, 72 IN.	LFT	2,543		
Total of All Unit Price Bid Items for Alternate #2 (SRPE)					$
And in words:					

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—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

7.01 *Bid Acceptance Period*

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

7.02 *Instructions to Bidders*

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

7.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda: **[Add rows as needed. Bidder is to complete table.]**

Addendum Number	Addendum Date

ARTICLE 8—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

8.01 *Bidder's Representations*

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

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

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

8.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
    a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
    b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
    c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
    d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits this Bid as set forth above:

Bidder:

_____

(typed or printed name of organization)

By: _____

(individual's signature)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Date: _____

(typed or printed)

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

Attest: _____

(individual's signature)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Date: _____

(typed or printed)

Address for giving notices:

_____

_____

Bidder's Contact:

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Phone: _____

Email: _____

Address:

_____

_____

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

SECTION 01 02 50
MEASUREMENT AND PAYMENT MISCELLANEOUS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. CSO 0## Rehabilitation
2. Brick Pavers (remove, protect, reset)
3. Limestone Curb (remove, protect, reset)
4. Railroad – Tack Monitoring Plan Preparation
5. Railroad – Track Monitoring
6. Railroad – Frac Plan
7. Railroad – Shoring Plan Preparation
8. Railroad – Flagger (Allowance)
9. Dewatering for Contaminated Groundwater
10. 6” Meter Pit
11. Bricks in Pipes at WWTP, Remove

1.2 UNIT PRICE – MEASUREMENT AND PAYMENT

A. CSO 0## REHABILITATION (003, 009, 010, 011, 013, 014, 015, AND 016)
1. Basis of Measurement: by Lump Sum
2. Plan Sheets – S1 through S8
3. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary to fully construct and place in service new CSO control structures. The work shall include submittal of shop drawings signed by a professional engineer certified in the State of Indiana, excavation, dewatering, by-pass pumping, bedding and backfill, removal of existing pavement as required, restoration including asphalt, concrete, sod and seeding, and installation of all the above, all per plan. This shall include pre-cast or cast-in-place structures, check valves (where indicated on plans), water main relocation, cleanup, maintenance of traffic, sheeting, shoring, protection of existing structures, replacement of connector pipes damaged during excavation, pipe fittings, weir, pipe lining for pipes connecting to the CSO structure where indicated on the plans, CSO structure lining (where indicated on plans), castings, and appurtenances as required by the plan for that specific CSO. Contractor shall be responsible to supply a full, complete, and operational replacement.

B. BRICK PAVERS (REMOVE, PROTECT, RESET)
1. Basis of Measurement: by Square Yards
2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary to fully remove and reset brick pavers according to the plans. This will include documenting patterns, removing, with care, existing bricks, palletizing, transporting, storing, cleaning and securing existing bricks for future reuse. Resetting shall include all labor, materials, and equipment necessary to provide concrete base, geotextile fabric, cutting, adhesive, tack coat layer, bedding material, joint treatment, labor and equipment, cleanup as necessary.

C. LIMESTONE CURB (REMOVE, PROTECT, RESET)
1. Basis of Measurement: by Linear Feet
2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary to fully remove and reset existing limestone curb according to the plans. This will include removing, with care, existing a sufficient number of sections of limestone curbing, palletizing, transporting, storing, and securing for future reuse. Resetting shall include all labor, materials, and equipment necessary to provide compacted base for hand placing curb sections. The cost will include all cutting, removing, placing and cleaning curb sections. The contractor shall remove enough good and full sections of curb to fulfill the block of street as indicated on the plans. No reuse of sections smaller than 24" shall be permitted.

D. RAILROAD - TRACK MONITORING PLAN PREPARATION
1. Basis of Measurement: by Lump Sum
2. Basis of Payment: For preparation of a plan for track monitoring including writing a track monitoring plan in accordance with NSCE-8 or other Norfolk Southern regulations or requirements, for submission and approval of the Norfolk Southern Railroad. The contractor will be required to provide a track monitoring plan that includes adhesive targets. The contractor shall coordinate with, answer questions, and provide all documents and information to Norfolk Southern as required.

E. RAILROAD – TRACK MONITORING
1. Basis of Measurement: by Lump Sum
2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary to fully implement a track monitoring program as approved by Norfolk Southern. The contractor is required to utilize adhesive targets as a part of their track monitoring program. The cost shall include all costs associated with the setup, ongoing operation and dismantling of said monitoring system. All costs for monitoring shall be included in this bid item.

F. RAILROAD – FRAC PLAN
1. Basis of Measurement: by Lump Sum
2. Basis of Payment: For drafting, preparation and implementing a frac out plan through Norfolk Southern. This plan shall be in accordance with NSCE-8 and any other Norfolk Southern regulations or requirements. This bid item shall include any costs to comply with the frac plan including labor, equipment, materials, analysis, testing, inspecting and management activities.

G. RAILROAD – SHORING PLAN PREPARATION
1. Basis of Measurement: by Lump Sum
2. Basis of Payment: For drafting and preparation of a shoring plan approved through Norfolk Southern. This plan shall be in accordance with NSCE-8 and any other Norfolk Southern regulations or requirements. The cost of implementation of the shoring plan recommendations shall be included in the linear foot cost of the pipe. The contractor is responsible for the cost of both the plan and implementation of the shoring.

H. RAILROAD – MONITOR AND OBSERVER (ALLOWANCE)
1. Basis of Measurement: by Dollars
2. Basis of Payment: For use by the City for costs of Norfolk Southern personnel to be present during construction activities on and within the railroad right of way. Fees for those

individuals will be paid directly from this bid item. Any remaining fees shall be returned to the City of Huntington and will be done so in the form of a change order.

I. DEWATERING FOR CONTAMINATED GROUNDWATER
   1. Basis of Measurement: by Lump Sum
   2. Basis of Payment: For drafting, preparation, and implementation of a dewatering management plan to address potential contamination of groundwater per the Phase II Environmental Site Assessment. The cost of implementation of all other dewatering shall be included in the linear foot cost of the pipe.

J. 6" METER PIT
   1. Basis of Measurement: by Each
   2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary to fully construct and place in service a new pre-cast or cast-in-place water meter pit as detailed on the plans. The work shall include submittal of shop drawings signed by a professional engineer certified in the State of Indiana, excavation, dewatering, by-pass pumping, bedding and backfill, removal of existing pavement as required, restoration including asphalt, concrete, sod and seeding, and installation of all the above, all per plan. This shall include pre-cast or cast-in-place structures, aluminum hatch, sump, grouting of the pit floor, steps, installation of the 6" meter, which will be supplied by others, sheeting, shoring, protection of existing structures, flexible boot connections, furnishing and installing gate valves within the structure, and other appurtenances as required by the plan for the meter pit.

K. BRICKS IN PIPE AT WWTP, REMOVE
   1. Basis of Measurement: by Lump Sum
   2. Basis of Payment: For all labor, equipment, and material necessary to remove the existing bricks within the existing 72" pipe within Flow junction box at the wastewater treatment plant (WWTP). The work shall include all removal, scaffolding, disposal, lifting, cleaning, bypass pumping, dewatering, sanding, grinding, grouting, repairing and general demolition of all bricks to allow free flow of wastewater to enter the WWTP.

END OF SECTION 01 02 50

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Temporary Utilities:

1. Temporary electricity.
2. Temporary lighting for construction purposes.
3. Temporary communication services.
4. Temporary water services.
5. Temporary sanitary facilities.

B. Construction Facilities:

1. Field offices and sheds.
2. Vehicular access.
3. Parking.
4. Progress cleaning and waste removal.
5. Project identification.
6. Traffic regulation.
7. Fire-prevention facilities.

C. Temporary Controls:

1. Barriers.
2. Enclosures and fencing.
3. Security.
4. Water control.
5. Dust control.
6. Erosion and sediment control.
7. Noise control.
8. Pest and rodent control.
9. Pollution control.

D. Removal of utilities, facilities, and controls.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. TEMPORARY FACILITIES AND CONTROLS

1. Basis of Measurement: By Month.
2. Basis of Payment: For furnishing, installing, and maintaining all temporary utilities, construction facilities, and controls as required by the Contract Documents for the duration of the construction work and for their removal at the completion of the project.

1.3 TEMPORARY FACILITIES PROVIDED BY CONTRACTOR

A. Temporary Provisions by the Prime Contractor:
   1. Temporary electrical service and distribution system for power and lighting.
   2. Temporary barriers, barricades and fencing.
   3. Temporary field offices.
   4. Cleaning and waste removal.
   5. Temporary access roads and approaches.
   6. Temporary water and sanitary facilities.
   7. Temporary telephone and internet service.

B. Each Contractor shall provide the following items as necessary for execution of the Work including associated costs:

   1. Construction aids.
   2. Temporary fire protection, dust control, erosion and sediment control, water control, noise control, and other necessary temporary controls.
   3. Temporary barriers, barricades, and similar devices as necessary for safety and protection of construction personnel and public.
   4. On Prime Contractor’s approval, may provide temporary field office including electrical service and temporary telephone.
   5. Temporary tree and plant protection.
   6. Electrical service required in addition to temporary service and distribution provided by Prime Contractor.
   7. Temporary provisions for protection of installed Work.

1.4 TEMPORARY ELECTRICITY

A. Provide and pay for temporary power service required from utility. Temporary power includes power for construction operations, job trailers, bypass pumping, ground water dewatering, and other construction related services. Connection to the Owner’s power will not be permitted.

B. Do not disrupt Owner's use of service.

C. Complement existing power service capacity and characteristics as required for construction operations.

D. Provide power outlets with branch wiring and distribution boxes located as required for construction operations. Provide suitable, flexible power cords as required for portable construction tools and equipment.

E. Provide feeder switch at source distribution equipment.

F. Permanent convenience receptacles may be used during construction.

1.5 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain lighting to exterior staging and storage areas after dark as necessary for security purposes.

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, lamps, and the like, for specified lighting levels.

C. Maintain lighting and provide routine repairs.

1.6 TEMPORARY COMMUNICATION SERVICES

A. Telephone Service: Provide, maintain, and pay for telephone service to be able to contact the CONTRACTOR from the time of Project mobilization and until completion of Work.

B. Internet Service: Provide, maintain, and pay for broadband Internet service to the field office at time of Project mobilization and until completion of Work.

C. Provide desktop computer to the field office with Microsoft operating system and appropriate office function software, modem, and printer.

1.7 TEMPORARY WATER SERVICE

A. Provide and pay for suitable quality water service as needed to maintain specified conditions for construction operations. Connect to existing water source. Provide separate metering and reimburse Owner for cost of water used.

B. Extend branch piping with outlets located so that water is available by hoses with threaded connections. Provide temporary pipe insulation and heat tape to prevent freezing.

1.8 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide facilities at time of Project mobilization.

B. At end of construction, return existing facilities used for construction operations to same or better condition as original condition.

1.9 FIELD OFFICES AND SHEDS

A. Designated existing spaces may be used for field offices and for storage:

B. Field Office: Weathertight, with lighting, electrical outlets, heating, cooling and ventilating equipment, and equipped with sturdy furniture including conference table, drawing rack, filing cabinets, and drawing display table.

C. Provide space for Project meetings, with table and chairs to accommodate six persons.

D. Provide separate workstation, similarly equipped and furnished, for use of Architect/Engineer Owner.

E. Locate field offices and sheds a minimum distance of 30 feet from existing and new structures.

F. Do not use permanent facilities for field offices or for storage.

G. Construction: Portable or mobile buildings, or buildings constructed with floors raised aboveground, securely fixed to foundations with steps and landings at entrance doors.

1. Construction: Structurally sound, secure, weathertight enclosures for office and storage spaces. Maintain during progress of Work; remove enclosures when no longer needed.
2. Thermal Resistance of Floors, Walls, and Ceilings: Compatible with occupancy and storage requirements.
3. Exterior Materials: Weather-resistant, finished in one color acceptable to Engineer.
4. Interior Materials in Field Offices: Sheet-type materials for walls and ceilings, prefinished or painted; resilient floors and bases.
5. Lighting for Field Offices: 50 ft-C at desktop height; exterior lighting at entrance doors.
6. Interior Materials in Storage Sheds: As required to provide specified conditions for storage of products.

H. Environmental Control:

1. Heating, Cooling, and Ventilating for Offices: Automatic equipment to maintain comfort conditions.
2. Storage Spaces: Heating and ventilating as needed to maintain products according to Contract Documents; lighting for maintenance and inspection of products.

I. Resident engineer/owner (RPR) and Owner Field Office:

Note: A dedicated field office for the resident engineer/owner (RPR) is required. Furniture shall be provided as requested by the resident engineer upon Owner's approval.

1. Sanitary Facilities: Convenient access to private lavatory facilities.
2. Drinking Fountain: Convenient access by workers.
3. Engineer and Owner Field Office Furnishings:
    a. One standard four-drawer legal letter-size metal filling cabinet with locks and two keys for each lock.
    b. Refrigerator
    c. Microwave
    d. Internet access – Broadband and/or fiber service is preferred. With a minimum of 50Mbps bandwidth speed. Router should provide secured Wi-Fi access along with wired Ethernet connections (most routers have at least (4) 1GB Ethernet ports available for use).
    e. MFP and/or Printing/Scanning/Copying All-in-one device
        1) An MFP copier and/or printer device that can print, copy and scan documents up to 11" x 17" in size (in color and B/W). This can be either laser or inkjet technology. If an All-in-one or MFP device is not available, individual devices that perform each of these functions can be provided.

f. Miscellaneous Requirements:
   1) Any ink/toner that is needed for the MFP and/or All-in-one device shall be provided as needed for replenishing stock on hand. 8 ½" x 11" and 11" x 17" sheet paper for **laser** printers shall be supplied and replenished as needed.
   2) The requirements shown herein shall be considered as minimum requirements. Equipment or software which exceeds these requirements may be furnished.
   3) All manuals necessary for operation of the system shall be provided.

4. CONTRACTOR shall clean Resident Inspector office at least bi-monthly.

J. Storage Areas and Sheds: Size to storage requirements for products of individual Sections, allowing for access and orderly provision for maintenance and inspection of products to suit requirements.

K. Preparation: Fill and grade Sites for temporary structures sloped for drainage away from buildings.

L. Installation:

1. Install field office spaces ready for occupancy 15 days after date established by Notice to Proceed Owner-Contractor Agreement.
2. Employee Residential Occupancy: Not allowed on Owner's property.

M. Maintenance and Cleaning:

1. Weekly janitorial services for field offices; periodic cleaning and maintenance for sheds and storage areas.
2. Maintain walks and parking areas free of mud, water, snow, and the like.

N. Removal: At completion of Work remove buildings, foundations, utility services, and debris. Restore areas to same or better condition as original condition.

1.10 VEHICULAR ACCESS

A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of width and load-bearing capacity to accommodate unimpeded traffic for construction purposes.

B. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage.

C. Extend and relocate vehicular access as Work progress requires and provide detours as necessary for unimpeded traffic flow.

D. Locate as indicated on Drawings approved by Owner.

E. Provide unimpeded access for emergency vehicles. Maintain 20 foot-wide driveways with turning space between and around combustible materials.

F. Provide and maintain access to fire hydrants and control valves free of obstructions.

G. Provide means of removing mud from vehicle wheels before entering streets.

1.11 PARKING

A. Construct temporary gravel surface parking areas to accommodate construction personnel.

B. Locate as indicated on Drawings and/or as required and approved by Owner.

C. If Site space is not adequate, provide additional off-Site parking.

D. Use of designated areas of existing on-Site streets and driveways used for construction traffic is permitted. Tracked vehicles are not allowed on paved areas.

E. Use of designated areas of existing parking facilities used by construction personnel is not permitted.

F. Do not allow heavy vehicles or construction equipment in parking areas.

G. Do not allow vehicle parking on existing pavement.

H. Designate one parking space for Engineers Representative, Owner and Engineer.

I. Permanent Pavements and Parking Facilities:

1. Before Substantial Completion, bases for permanent roads and parking areas may be used for construction traffic.
2. Avoid traffic loading beyond paving design capacity. Tracked vehicles are not allowed.
3. Use of permanent parking structures is not permitted.

J. Maintenance:

1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, ice, and the like.
2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original condition.

K. Removal, Repair:

1. Remove temporary materials and construction at Substantial Completion.
2. Remove underground Work and compacted materials to depth of 2 feet; fill and grade Site as indicated.
3. Repair existing facilities damaged by use, to original condition.

L. Mud from Site vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.12 CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.

B. Collect and remove waste materials, debris, and rubbish from Site weekly and dispose of off-Site.

1.13 PROJECT IDENTIFICATION

A. Project Identification Sign:

1. One painted sign of construction, design, and content shown on Drawings, location designated.
2. Content:

    a. Project number, title, logo, and name of Owner.
    b. Names and titles of authorities.
    c. Names and titles of Architect/Engineer and Consultants.
    d. Name of Prime Contractor and major Subcontractors.
3. Lettering: Series C of Standard Alphabet for Traffic Control Devices, "Manual on Uniform Traffic Control Devices for Streets and Highways," Federal Highway Administration.

B. Project Informational Signs:

1. Painted informational signs of same colors and lettering as Project identification sign or standard products; size lettering for legibility at 100-foot distance.
2. Provide sign at each field office and storage shed, and provide directional signs to direct traffic into and within Site. Relocate as Work progress requires.
3. Provide municipal traffic agency directional traffic signs to and within Site.
4. No other signs are allowed without Owner's permission except those required by law.

C. Design sign and structure to withstand 60-mph wind velocity.

D. Sign Painter: Experienced as professional sign painter for minimum of three years.

E. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.

F. Show content, layout, lettering, color, foundation, structure, sizes, and grades of members.

G. Sign Materials:

1. Structure and Framing: New wood, structurally adequate.
2. Sign Surfaces: Exterior grade plywood with medium-density overlay, minimum of 3/4 inches thick, standard large sizes to minimize joints.
3. Rough Hardware: Galvanized, aluminum, or brass.
4. Paint and Primers: Exterior quality, two coats; sign background of color as selected.
5. Lettering: Exterior quality paint, contrasting colors as selected.

H. Installation:

1. Install Project identification sign within 15 days after date established by Notice to Proceed.
2. Erect at location of high public visibility adjacent to main entrance to Site.
3. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.
4. Install sign surface plumb and level, with butt joints. Anchor securely.
5. Paint exposed surfaces of sign, supports, and framing.

I. Maintenance: Maintain clean signs and supports; repair deterioration and damage.

J. Removal: Remove signs, framing, supports, and foundations at completion of Project and restore area.

1.14 TRAFFIC REGULATION

A. Signs, Signals, and Devices:

1. Post-Mounted and Wall-Mounted Traffic Control and Informational Signs: As approved by authorities having jurisdiction.
2. Automatic Traffic Control Signals: As approved by local jurisdictions.
3. Traffic Cones, Drums, Flares, and Lights: As approved by authorities having jurisdiction.
4. Flag Person Equipment: As required by authorities having jurisdiction.

B. Flag Persons: Provide trained and equipped flag persons to regulate traffic when construction operations or traffic encroach on public traffic lanes.

C. Flares and Lights: Use flares and lights during hours of low visibility to delineate traffic lanes and to guide traffic.

D. Haul Routes:

1. Consult with authorities having jurisdiction and establish public thoroughfares to be used for haul routes and Site access.
2. Confine construction traffic to designated haul routes.
3. Provide traffic control at critical areas of haul routes to regulate traffic and to minimize interference with public traffic.

E. Traffic Signs and Signals:

1. Provide signs at approaches to Site and on Site, at crossroads, detours, parking areas, and elsewhere as needed to direct construction and affected public traffic.
2. Provide, operate, and maintain automatic traffic control signals to direct and maintain orderly flow of traffic in areas under Contractor's control and areas affected by Contractor's operations.
3. Relocate signs and signals as Work progresses, to maintain effective traffic control.

F. Removal:

1. Remove equipment and devices when no longer required.
2. Repair damage caused by installation.
3. Remove post settings to depth of 2 feet.

1.15 FIRE-PREVENTION FACILITIES

A. Designate area on Site where smoking is permitted. Provide approved ashtrays in designated smoking areas.

B. Establish fire watch for cutting, welding, and other hazardous operations capable of starting fires. Maintain fire watch before, during, and after hazardous operations until threat of fire does not exist.

C. Portable Fire Extinguishers: NFPA 10; 10-pound capacity, 4A-60B: C UL rating.
1. Provide minimum of one fire extinguisher in every construction trailer and storage shed.

1.16 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide barricades and covered walkways required by authorities having jurisdiction for public rights-of-way.

1. Barricade Construction: As indicated on Drawings.
2. Covered Walkway Construction: As indicated on Drawings.

C. Tree and Plant Protection: Preserve and protect existing trees and plants designated to remain.

1. Protect areas within drip lines from traffic, parking, storage, dumping, chemically injurious materials and liquids, ponding, and continuous running water.
2. Provide 6-foot-high barriers around drip line, with access for maintenance.
3. Replace trees and plants damaged by construction operations.

D. Protect non-owned vehicular traffic, stored materials, Site, and structures from damage.

1.17 ENCLOSURES AND FENCING

A. Provide temporary partitions to separate work areas from public areas.

1.18 WATER CONTROL

A. Grade Site to drain. Maintain excavations free of water. Provide, operate, and maintain necessary pumping equipment.

B. Protect Site from puddles or running water. Provide water barriers as required to protect Site from soil erosion.

1.19 DUST CONTROL

A. Execute Work by methods that minimize raising dust from construction operations.

B. Provide positive means to prevent airborne dust from dispersing into atmosphere.

1.20 EROSION AND SEDIMENT CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Minimize surface area of bare soil exposed at one time.

C. Provide temporary measures including berms, dikes, drains, and other devices to prevent water flow.

D. Construct fill and waste areas by selective placement to avoid erosive surface silts and clays.

E. Periodically inspect earthwork to detect evidence of erosion and sedimentation. Promptly apply corrective measures.

F. Comply with sediment and erosion control plan indicated on Drawings.

1.21 NOISE CONTROL

A. Provide methods, means, and facilities to minimize noise produced by construction operations.

1.22 POLLUTION CONTROL

A. Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.

B. Comply with pollution and environmental control requirements of authorities having jurisdiction.

1.23 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials before Final Application for Payment inspection.

B. Remove underground installations to minimum depth of 2 feet. Grade Site as indicated on Drawings.

C. Clean and repair damage caused by installation or use of temporary Work.

D. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 01 50 00

SECTION 26 04 00
FIBER OPTIC MEASURMENT AND PAYMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fiber optic termination at the WWTP Admin building
2. Fiber optic termination from WWTP to the cable vault, “CV-9”
3. CSO 003 Electrical and Fiber Optic
4. CSO 009 Electrical and Fiber Optic
5. CSO 010 Electrical and Fiber Optic
6. CSO 011 Electrical and Fiber Optic
7. CSO 013 Electrical and Fiber Optic
8. CSO 014 Electrical and Fiber Optic
9. CSO 015 Electrical and Fiber Optic
10. CSO 016 Electrical

B. Description: This work shall include associated tasks to remove the existing electrical equipment, and install new equipment, fiber optic and power wiring & conduits, cable vaults, pull boxes, panelboards, local disconnect switch, circuit breakers, and customer utility pole to accommodate the CSO structure flow information at the WWTP existing SCADA system via fiber optic connections as specified in the drawings and this specification.

C. FIBER OPTIC TERMINATION AT THE WWTP ADMIN BUILDING

1. This work shall include the removal of the existing network rack and install a new network rack provided by the owner. All the existing fiber optic termination to the new equipment rack including the new fiber cables.

2. All required SCADA updates to an existing system to incorporate all new control and monitoring signals for each CSO structure shall be by the System Integrator (SI).

3. Furnished and installation of a new fiber cable environmental distribution panel located outside of the admin building for the fiber optic as specified in the drawings.

4. Furnished and installation of fiber optic cables and conduits from the fiber cable distribution panel to the new network rack as specified in the drawings.

5. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

6. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

D. FIBER OPTIC TERMINATION FROM WWTP TO THE CABLE VAULT, “CV-9”

1. Furnished and installation of fiber cable vaults for the fiber optic cable and conduits as specified in the drawings.

2. Furnished and installation of a fiber optic cables and conduits, warning tape with trace wires, from the fiber cable distribution panel located at the WWTP to the cable vault, “CV-9”, and from cable vault, “CV-5” to a new fiber cable environmental distribution panel located outside of the park building as specified in the drawings.

3. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses. Fiber optic cables and conduits shall be installed in the same trench with the new CSO pipe where practical.

4. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

E. CSO 003 ELECTRICAL AND FIBER OPTIC

1. Furnished and installation of fiber cable vaults for the fiber optic cable and conduits as specified in the drawings.

2. Furnished and installation of fiber optic cables and conduits, wiring tape with trace wires, from the fiber cable vault, “CV-9” to the cable vault, “CV-10”, warning tape with trace wires, as specified in the drawings.

3. Furnished and installation of instrumentation cable conduit from the flow sensor to the flow indicator transmitter.

4. Furnished and installation of a new area velocity flow meter for the “CSO 003” structure and flow indicator transmitter inside the existing flow meter enclosure. Provide a new enclosure for the flow indicator transmitter if the existing enclosure is not big enough to fit.

5. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

6. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, field inspection, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

F. CSO 009 ELECTRICAL AND FIBER OPTIC

1. Furnished and installation of fiber cable vaults for the fiber optic cable and conduits as specified in the drawings.

2. Furnished and installation of fiber optic cables and conduits from the fiber cable vault, “CV-10” to the cable vault, “CV-11”, and cable vault, “CV-11” to the cable vault, “CV-11A”, and from the RTU panel to the cable vault, “CV-11A”, warning tape with trace wires as specified in the drawings.

3. Furnished and installation of fiber optic cables and conduits from the fiber cable vault, "CV-11A" to the City Building as specified in the drawings.

4. Furnished and installation of a new circuit breaker inside the existing panelboard located at the City Building as specified in the drawings.

5. Furnished and installation of power wiring and conduit from the existing panelboard located at the City Building to the RTU panel local disconnect switch, and the local disconnect switch to the RTU panel as specified in the drawings.

6. Furnished and installation of instrumentation cable conduit from the flow sensor to the RTU panel as specified in the drawings.

7. Furnished and installation of a new area velocity flow meter for the "CSO 009".

8. Furnished and installation of a new RTU panel, local disconnect switch, and equipment rack as specified in the drawings.

9. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

10. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, field inspection, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

G. CSO 010 ELECTRICAL AND FIBER OPTIC

1. Furnished and installation of fiber cable vaults for the fiber optic cable and conduits as specified in the drawings.

2. Furnished and installation of fiber optic cables and conduits from the fiber cable vault, "CV-11" to the cable vault, "CV-12", and from the RTU panel to the cable vault, "CV-12", warning tape with trace wires as specified in the drawings.

3. Furnished and installation of circuit breakers inside the existing city lighting panelboard as specified in the drawings.

4. Furnished and installation of power wiring and conduit from the existing city lighting panelboard to the RTU panel local disconnect switch, and the local disconnect switch to the RTU panel as specified in the drawings.

5. Furnished and installation of instrumentation cable conduit from the flow sensor to the RTU panel as specified in the drawings.

6. Furnished and installation of a new area velocity flow meter for the "CSO 010".

7. Furnished and installation of a new RTU panel, local disconnect switch, and equipment rack as specified in the drawings.

8. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

9. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, field inspection, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

H. CSO 011 ELECTRICAL AND FIBER OPTIC

1. Furnished and installation of fiber cable vaults for the fiber optic cable and conduits, pull box for the power wiring, and conduits as specified in the drawings.

2. Furnished and installation of fiber optic cables and conduits from the fiber cable vault, "CV-12" to the cable vault, "CV-13", and from the RTU panel to the cable vault, "CV-13", warning tape with trace wires as specified in the drawings.

3. Furnished and installation of power wiring and conduits from the existing city lighting panelboard to the power pull box as specified in the drawings.

4. Removal of the existing electrical equipment/mission RTU panel for the CSO structure as specified in the drawings.

5. Furnished and installation of power wiring and conduit from the existing city lighting panelboard to the RTU panel local disconnect switch, and the local disconnect switch to the RTU panel as specified in the drawings.

6. Furnished and installation of instrumentation cable conduit from the flow sensor to the RTU panel as specified in the drawings.

7. Furnished and installation of a new area velocity flow meter for the "CSO 011".

8. Furnished and installation of a new RTU panel, local disconnect switch, and equipment rack as specified in the drawings.

9. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

10. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, field inspection, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

I. CSO 013 ELECTRICAL AND FIBER OPTIC

1. Furnished and installation of fiber cable vaults for the fiber optic cable, and conduits, pull box for the power wiring and conduits as specified in the drawings.

2. Furnished and installation of fiber optic cables and conduits from the fiber cable vault, "CV-13" to the cable vault, "CV-14", and from the RTU panel to the cable vault, "CV-14", warning tape with trace wires as specified in the drawings.

3. Furnished and installation of power wiring and conduits from the new CSO panelboard to the power pull box as specified in the drawings.

4. Furnished and installation of power wiring and conduit from the new CSO panelboard to the RTU panel local disconnect switch, and the local disconnect switch to the RTU panel as specified in the drawings.

5. Furnished and installation of instrumentation cable conduit from the flow sensor to the RTU panel as specified in the drawings.

6. Furnished and installation of a new area velocity flow meter for the “CSO 013”.

7. Furnished and installation of a new RTU panel, local disconnect switch, and equipment rack as specified in the drawings.

8. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

9. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, field inspection, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

J. CSO 014 ELECTRICAL AND FIBER OPTIC

1. Furnished and installation of fiber cable vaults for the fiber optic cable and conduits, pull box for the power wiring, and conduits as specified in the drawings.

2. Furnished and installation of fiber optic cables and conduits from the fiber cable vault, “CV-14” to the cable vault, “CV-15”, and from the RTU panel to the cable vault, “CV-15”, warning tape with trace wires as specified in the drawings.

3. Furnished and installation of power wiring and conduits from the new CSO panelboard to the power pull box as specified in the drawings.

4. Removal of the existing electrical equipment/mission RTU panel, and the equipment rack for the CSO structure as specified in the drawings.

5. Furnished and installation of power wiring and conduit from the new CSO panelboard to the RTU panel as specified in the drawings.

6. Furnished and installation of a new customer pole with disconnect and bypass lever, meter base, service entrance rated fused disconnect switch, power wiring and conduits, pipe bollards as specified in the drawings.

7. Furnished and installation of instrumentation cable conduit from the flow sensor to the RTU panel as specified in the drawings.

8. Furnished and installation of a new area velocity flow meter for the “CSO 014”.

9. Furnished and installation of a new RTU panel, CSO panelboard, and equipment rack as specified in the drawings.

10. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

11. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, field inspection, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

K. CSO 015 ELECTRICAL AND FIBER OPTIC

1. Furnished and installation of fiber cable vaults for the fiber optic cable and conduits, pull box for the power wiring, and conduits as specified in the drawings.

2. Furnished and installation of fiber optic cables and conduits from the fiber cable vault, "CV-15" to the cable vault, "CV-16", and from the RTU panel to the cable vault, "CV-16", warning tape with trace wires as specified in the drawings.

3. Furnished and installation of power wiring and conduits from the new CSO panelboard to the power pull box as specified in the drawings.

4. Removal of the existing electrical equipment/mission RTU panel, and the equipment rack for the CSO structure as specified in the drawings.

5. Furnished and installation of power wiring and conduit from the new CSO panelboard to the RTU panel local disconnect switch and from the local disconnect switch to the RTU panel as specified in the drawings.

6. Furnished and installation of instrumentation cable conduit from the flow sensor to the RTU panel as specified in the drawings.

7. Furnished and installation of a new area velocity flow meter for the "CSO 015".

8. Furnished and installation of a new RTU panel, local disconnect switch, and equipment rack as specified in the drawings.

9. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

10. The cost of all removable items, materials, trenching, transportation, placement, penetration, fiber cables, conduits, field inspection, equipment supporting parts, field termination, repairing pavement & walkway, and all incidentals shall be included in the cost of pay item.

L. CSO 016 ELECTRICAL AND FIBER OPTIC

1. Furnishing and installation of a new area velocity flow meter and flow indicator transmitter for the CSO 016 control structure.

2. Furnishing and installation of all materials and equipment necessary to connect the proposed area velocity meter to the existing Mission Communications panel.

3. This work shall include a saw cut and repairing of existing pavement, and walkway as necessary where power, control, instrumentation cable, and fiber cable conduit crosses.

4. Furnished and installation of a new customer pole with disconnect and bypass lever, meter base, service entrance rated fused disconnect switch, power wiring and conduits as specified in the drawings.

5. Furnished and installation of CSO main lug only panelboard, and equipment rack as specified in the drawings.

6. The cost of all removable items, materials, trenching, transportation, placement, penetration, conduits, field inspection, equipment supporting parts, field termination, repairing pavement & side, and all incidentals shall be included in the cost of pay item.

7. Furnished and installation of power wiring and conduits from the new CSO main lug only panelboard to electrical equipment's as specified in the drawing.

8. Furnished and installation of instrumentation cable conduit from the flow sensor to the RTU panel as specified in the drawings.

1.2 UNIT PRICE – MEASURMENT AND PAYMENT

A. FIBER OPTIC TERMINATION AT THE WWTP ADMIN BUILDING

1. Basis of Measurement: By Lump Sum.

2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary for the proposed segment of fiber optic network. Includes, but is not limited to the removal and installation of network racks; field terminations; coordination with the SCADA system integrator; fiber optic distribution panels; saw cutting, directional drilling, removal, and repairing pavement, driveway, and sidewalk; fiber optic, power, control, and instrumentation cable wirings; conduits; trenching; testing, field inspection for the wiring and conduits routes in place prior to backfilling where applicable; and all other incidentals. SCADA system integration work will be paid for separately as an allowance.

B. FIBER OPTIC TERMINATION FROM WWTP TO THE CABLE VAULT, "CV-9"

1. Basis of Measurement: By Lump Sum.

2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary for the proposed segment of fiber optic network. Includes, but is not limited to the installation of fiber cable vaults; fiber optic, power, control, and instrumentation cable wirings and conduits; galvanized rigid steel casing; protective sleeves; warning tape and tracer wires; distribution panels; wire terminations, saw cutting, removal, and repairing pavement, driveway, and walkway; trenching and backfill, testing, field inspection for the wiring and conduits routes where applicable, and all other incidentals.

C. CSO 0## ELECTRICAL AND FIBER OPTIC (003, 009, 010, 011, 013, 014, 015, AND 016)

1. Basis of Measurement: By Lump Sum.

2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary for the proposed segment of fiber optic network. Includes, but is not limited to the installation of fiber cable vaults and power pull boxes; fiber optic, power, control,

and instrumentation cable wirings and conduits; galvanized rigid steel casing; protective sleeves; warning tape and tracer wires; wire terminations; distribution panels; area velocity flow sensors and flow indicator transmitters; new enclosures for the flow indicator transmitters where needed; field terminations; circuit breakers; disconnect switches; CSO panelboards, CSO main lug only paneboard, RTU panels; equipment racks; pipe bollards; meter bases, customer utility poles, coordination with electric company and accessories items as specified in the drawings per utility's requirements; saw cutting, removal, and repairing pavement, driveway, and sidewalk; directional drilling, trenching and backfill, testing, field inspection for the wiring and conduits routes where applicable; removal of existing equipment as necessary per the Contract Documents; and all other incidentals.

1.3 REFERENCE SPECIFICATION

1. See specifications under Divisions 25 and 26 for additional installation details.

END OF SECTION 26 04 00

SECTION 33 14 13
PUBLIC WATER UTILITY DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings for potable water line.
2. Tapping sleeves and valves.
3. Line stops.
4. Bedding and cover materials.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 01 20 00 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. WATER MAIN, DUCTILE IRON (VARIOUS SIZES)
1. Basis of Measurement: By linear foot along centerline of the pipe from fitting center to fitting center.
2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials and equipment necessary for the main. Includes soil excavation, dewatering, bedding and backfill, miscellaneous restoration as required or shown on the plans, sheeting, shoring, protection of existing structures, cleanup, testing; pipe, fittings, and appurtenances, retaining glands as required or shown on the plans, connection to site service piping, connection and tap to municipal utility water source, preconstruction photographs and Record Drawings.

C. FITTINGS (VARIOUS SIZES AND TYPES)
1. Basis of Measurement: By Each.
2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary for the installation of new ductile iron fittings as described in the project specifications. The bid price shall include, but not be limited to, all costs for all fittings, joint material, installation of fittings and accessories, bedding and backfill material, excavation and backfill, dewatering, removal and disposal of abandonment of existing water main, miscellaneous restoration, concrete thrust blocking or retaining glands as required or shown on the plans, sheeting, shoring, protection of existing structures, testing, cleanup, as-built drawings and all other operations necessary to complete the work as shown on the plans or as specified.

D. TAPPING SLEEVE AND VALVE (VARIOUS SIZES)
1. Basis of Measurement: By Each.
2. Basis of Payment: This Work shall consist of all labor, equipment, transportation and materials required to install and make active tapping sleeve and tapping valve, including, but not necessarily limited to: saw cutting and removing pavement; all excavation; permanent and temporary shoring of the excavation; groundwater control; treatment and disposal; any and all necessary hardware, bedding, cover, testing; bypass pumping; protection, replacement or repair of utilities, drainage systems, structures, and

miscellaneous property; removal and legal disposal of surplus excavated material; and clean up, all in accordance with the Contract Documents.

E. LINE STOPS (VARIOUS SIZES)
1. Basis of Measurement: By Each.
2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials, and equipment necessary to install water line stops at diameters of existing water mains to be temporarily plugged. Line stops will be at the discretion of the City and its representatives to eliminate or reduce water service outages to customers or to shut down a section of water main where there is a lack of existing valving or operational valving. The work shall include, but not be limited to, line stop material, equipment, all pavement removal, excavation, backfill, dewatering, removal and disposal of the existing water main, miscellaneous restoration, sheeting, shoring, protection of existing structures, testing, cleanup, as-built drawings and all other operations necessary to complete the work as required.

F. CONNECTION TO EXISTING WATER MAIN
1. Basis of Measurement: By Each.
2. Basis of Payment: This Work shall consist of all labor, equipment, transportation and materials required to install and make direction connections to existing water lines without the use of a hot tap, including, but not necessarily limited to: Coordination with the City of Huntington Water Department for temporary main shut down, draining a portion of the existing water main, saw cutting and removing pavement; all excavation; permanent and temporary shoring of the excavation; groundwater control; treatment and disposal; any and all necessary equipment, bedding, cover, testing; bypass pumping; protection, replacement or repair of utilities, drainage systems, structures, and miscellaneous property; removal and legal disposal of surplus excavated material; and clean up, all in accordance with the Contract Documents. The cost of the fitting or valve used to make the connection itself will be paid for separately.

G. WATER SERVICE CONNECTION WITH METER
1. Basis of Measurement: By Each.
2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials and equipment necessary for the installation of water service lateral. This work shall consist of installing water service connections between the utility owned distribution main and the existing service pipes to accommodate construction requirements. The bid price shall include, but not be limited to, all cost for repairing, relocating and/or furnishing and installing any Type K soft copper or poly copper tube size (CTS) pipe tubing, curb stops, saddle, corp stop, curb box, road box meters (reuse existing meter or provided by others), meter pit, and castings, excavation, dewatering, bedding and backfill, miscellaneous restoration as required or shown on the plans, sheeting, shoring, protection of existing structures, cleanup, that may be necessary to continue water service for private mains and/or service pipes. The CONTRACTOR shall also be responsible for preconstruction photographs, Record Drawings and maintaining a minimum cover height of 3’-0" for all service pipes within the limits of construction. Any work on mains 2-inches and smaller shall have one continuous pipe from the water main to the curb stop or meter pit. No coupling shall be allowed within the right-of-way. The CONTRACTOR shall notify the Utility 24 hours in advance of doing this work so that the Utility can inspect the work.

H. WATER SERVICE REPAIR
1. Basis of Measurement: By Each.
2. Basis of Payment: For furnishing and installing complete and in place, all labor, materials and equipment necessary for the repair of water service laterals for locations as determined by the ENGINEER.

I. CUT AND CAP (VARIOUS SIZES)
1. Basis of Measurement: By Each.
2. Basis of Payment: This Work shall consist of all labor, equipment, transportation and materials required to drain the existing water main, place a ductile iron cap and necessary mechanical fitting, including the: saw cutting and removing pavement; all excavation; permanent and temporary shoring of the excavation; groundwater control; treatment and disposal; any and all necessary hardware, bedding, cover, asphalt, testing; bypass pumping; protection, replacement or repair of utilities, drainage systems, structures, and miscellaneous property; removal and legal disposal of surplus excavated material; and clean up, all in accordance with the Contract Documents. The cost shall include the cost to fully abandon old water main in place after all connections are connected to new water main.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
2. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
3. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft3 (600 kN-m/m3).
4. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3).
5. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
6. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
7. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
6. AWWA C153 - Ductile-Iron Compact Fittings.
7. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.

8. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
9. AWWA C901 - Polyethylene (PE) Pressure Pipe and Tubing, 1/2 In. (13 mm) Through 3 In. (76 mm), for Water Service.

D. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP-60 - Connecting Flange Joints between Tapping Sleeves and Tapping Valves.

E. National Fire Protection Association:

1. NFPA 24 - Standard for the Installation of Private Fire Service Mains and Their Appurtenances.

F. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.
2. NSF 372 - Drinking Water System Components - Lead Content.

1.4 COORDINATION

A. Section 01 30 00 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with termination of water main connection at Site boundary, connection to municipal water utility service, and trenching.

1.5 SUBMITTALS

A. Section 01 33 00 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information regarding pipe materials, pipe fittings, valves, and hydrants.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

E. Preconstruction Photographs: Submit digital files of color photographs of Work areas and material storage areas, as specified in Section 01 70 00 - Execution and Closeout Requirements.

F. Qualifications Statements:

1. Submit qualifications for manufacturer and installer.

1.6 CLOSEOUT SUBMITTALS

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of piping mains, valves, connections, thrust restraints, and centerline elevations.

C. Provide GPS coordinates of centerline of watermain in a Datum that is compatible with the Municipal Water Utility. Contractor to coordinate file format and transfer.

D. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.7 QUALITY ASSURANCE

A. Valves: Mark valve body with manufacturer's name and pressure rating.

B. Materials in Contact with Potable Water: Certified according to NSF 61 and NSF 372.

C. Perform Work according to City of Huntington standards.

D. Maintain one copy of each standard affecting Work of this Section on Site.

1.8 QUALIFICATIONS

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

B. Installer: Company specializing in performing Work of this Section with minimum ten years' documented experience in installation of liner materials.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 01 60 00 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

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

C. Storage:

1. Store materials according to manufacturer instructions.
2. Block individual and stockpiled pipe lengths to prevent moving.
3. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
4. Store PE and PVC materials out of sunlight.

D. Protection:

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

1.10 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

1.11 WARRANTY

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for warranties.

B. Furnish three (3) years manufacturer's warranty for valves, fire hydrants, main and fittings.

PART 2 - PRODUCTS

2.1 WATER PIPING

A. Ductile-Iron Pipe:

1. Comply with AWWA C151.
2. Bituminous Outside Coating: Comply with AWWA C151.
3. Pipe Mortar Lining:

    a. Comply with AWWA C104.
    b. Thickness: Double.

4. Pipe Class:

    a. Comply with AWWA C151.
    b. Pressure Class 350 – Mains less than and equal to 12”
    c. Pressure Class 250 – Mains greater than and equal to 16”

5. Fittings:

    a. Material: Ductile iron; comply with AWWA C110.
    b. Compact Fittings: Comply with AWWA C153.
    c. Coating and Lining:

        1) Bituminous Coating: Comply with AWWA C110.
        2) Cement-Mortar Lining: Comply with AWWA C104; double thickness.

6. Joints:

    a. Manufacturers
        1) EBBA Iron
    b. Mechanical and Push-on Joints: Comply with AWWA C111.
    c. Flanged Joints: Comply with AWWA C115
    d. Solvent-cement couplings are not permitted

2.2 TAPPING SLEEVES AND VALVES

A. Tapping Sleeves:

1. Manufacturers:
   a. Mueller Co.
   b. U.S. Pipe Valve & Hydrant Division.
   c. Substitutions: As specified in Section 01 60 00 - Product Requirements

2. Description:

   a. Material: Ductile iron.
   b. Type: Dual compression.
   c. Outlet Flange Dimensions and Drilling: Comply with ASME B16.1, Class 125, and MSS SP-60.
   d. Opening Direction: Counterclockwise

B. Tapping Valves:

1. Manufacturers:

   a. Mueller Co.
   b. U.S. Pipe Valve & Hydrant Division.
   c. Substitutions: As specified in Section 01 60 00 - Product Requirements

2. Description:

   a. Comply with AWWA C500.
   b. Type: resilient gate with non-rising stem.
   c. Inlet Flanges: Comply with ASME B16.1, Class 125, and MSS SP-60.
   d. Mechanical Joint Outlets: Comply with AWWA C111.

C. Line Stops (various sizes):

1. Manufacturers:

   a. Hydra-Stop
   b. Approved Equal

2. Description:

   a. Comply with NSF/ANSI Standards 61 and 372
   b. Body: 304 Stainless Steel (AIS Compliant)
   c. Pressure: 250psi working pressure, 375 psi test pressure maximum

2.3 SERVICE LINES

A. Service lines shall be installed by the contractor after pressure testing and disinfecting of water main.

B. Meter pits shall be pre-fabricated, with the yoke bar and corporation stops, and shall be manufactured by T-Z products Noblesville, Indiana. All “new construction” service lines shall be installed with one continuous pipe from the water main to the corporation stop within the meter pit.

C. Acceptable materials for service lines are Type K soft copper or poly copper tube size (CTS) pipe rated 200 psi.
   1. All service lines constructed out of poly pipe shall have one electrically continuous Type THWN #10 solid tracer wire. This wire shall be installed along the pipe, fastened to the pipe at twenty (20) foot intervals and terminated in the meter pit.

D. Water Meters shall be placed at the right of way line. Avoid placement of water meters in driveways, sidewalks, paved areas, ditches, drainage swales, or BMP’s.

2.4 VALVES AND FIRE HYDRANTS

A. As specified in Section 33 14 19 - Valves and Hydrants for Water Utility Service.

2.5 POSITIVE DISPLACEMENT METERS

A. Contractor to coordinate meter replacement with City of Huntington personnel. Meters will be provided by City of Huntington.

2.6 MATERIALS

A. Bedding and Cover:
   1. Bedding: All pipe shall be laid in A1 Aggregate bedding as specified in Section 31 05 16 - Aggregates for Earthwork.
   2. Backfill: Fill Type A3 as specified in Section 31 05 16 - Aggregates for Earthwork.

2.7 ACCESSORIES

A. Thrust Restraints:
   1. As specified in Section 33 05 09 - Thrust Restraint for Utility Piping.
   2. Pipe restraints are to be installed as needed and shall conform to the Megalug Series 1100 as manufactured by EBBA Iron, Inc. These said restraints shall conform to AWWA C111 and AWWA C153, and shall have a minimum pressure rating of 350 psi. Field lock restraining gaskets are to be utilized as needed.

B. Steel Rods, Bolt, Lugs, and Brackets:

   1. Comply with ASTM A307
   2. Grade A carbon steel.

C. Cut-in-Sleeves
   1. Cut-in sleeves or couplings shall be rated at a working pressure of 350 psi. The sleeve shall be suitable for pit cast or centrifugally cast pipe, with the appropriate size gasket for pipe(s) diameter(s). These sleeves shall also be compatible with set screw style restraint devices.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that existing utility water main size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

A. Section 01 70 00 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Preconstruction Site Photos:

1. As specified in Section 01 70 00 - Execution and Closeout Requirements.
2. Take photographs along centerline of proposed pipe trench; minimum one photograph for each 50’ of pipe trench.
3. Show mailboxes, curbing, lawns, driveways, signs, culverts, and other existing Site features.
4. Include Project description, date taken, and sequential number on back of each photograph.

C. Pipe Cutting:

1. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.
2. Use only equipment specifically designed for pipe cutting; use of chisels or hand saws is not permitted.
3. Grind edges smooth with beveled end for push-on connections.

D. Remove scale and dirt on inside and outside before assembly.

E. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION

A. Bedding:

1. Excavation:

a. As specified in Section 31 23 16 – Excavation and 31 23 17 - Trenching.
b. Hand trim for accurate placement of pipe to elevations as indicated on Drawings.

2. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.

B. Piping:

1. Comply with AWWA C600.
2. Handle and assemble pipe according to manufacturer instructions and as indicated on Drawings.
3. Steel Rods, Bolts, Lugs, and Brackets: Coat buried steel before backfilling.
4. Maintain 10 feet of horizontal separation between water main and sewer according to 10-State Standard and Indiana Administrative Code.
5. Ductile-Iron Piping and Fittings: Comply with AWWA C600.
6. Flanged Joints: Do not use in underground installations except within structures.
7. Route pipe in straight line, and re-lay pipe that is out of alignment or grade.
8. High Points:
   a. Install pipe with no high points.
9. Bearing:
   a. Maintain bearing along entire length of pipe.
   b. Do not lay pipe in wet or frozen trench.
10. Prevent foreign material from entering pipe during placement.
11. Allow for expansion and contraction without stressing pipe or joints.
12. Close pipe openings with watertight plugs during Work stoppages.
13. Install access fittings to permit disinfection of water system performed under Section 33 01 10 - Disinfection of Water Utility Piping Systems.
14. Cover:
   a. Establish elevations of buried piping with not less than sixty (60) inches of cover.
   b. Measure depth of cover from final surface grade to top of pipe barrel.

C. Valves and Hydrants: As specified in Section 33 14 19 - Valves and Hydrants for Water Utility Service.

D. Tapping Sleeves and Valves: As indicated on Shop Drawings and according to manufacturer instructions.

E. Thrust Restraints: As specified in Section 33 05 09 - Thrust Restraint for Utility Piping.

F. Backfilling:

1. Backfill around sides and to top of pipe with cover fill in minimum lifts of six (6) inches, tamp in place, and compact to 95 percent of maximum density.
2. Place and compact material immediately adjacent to pipes to avoid damage to pipe and prevent pipe misalignment.
3. Maintain optimum moisture content of bedding material to attain required compaction density.
4. Where water lines are used under pavement or within 5 feet either direction, special backfill shall be used in accordance with Section 31 05 16 – AGGREGATES FOR EARTHWORK. Backfill shall be placed in no more than 6” lifts and shall be compacted to a 95% Standard Proctor per ASTM D-698.

G. Disinfection of Potable Water Piping Systems: As specified in Section 33 01 10.58 - Disinfection of Water Utility Piping Systems.

H. Installation Standards: Install Work according to City of Huntington standards.

3.4 TOLERANCES

A. Section 01 40 00 - Quality Requirements: Requirements for tolerances.

B. Install pipe to indicated elevation within tolerance of 5/8 inch.

3.5 FIELD QUALITY CONTROL

A. Section 01 40 00 - Quality Requirements: Requirements for inspecting and testing.

B. Section 01 70 00 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.

C. Testing:
1. Pressure test piping system according to AWWA C600 and following:

    a. Test Pressure: Not less than 1.5 times standard operating pressure, with a minimum test pressure of 150 psi, whichever is greater.
    b. Conduct hydrostatic test for a minimum of two (2) hours.
    c. Slowly fill section to be tested with water; expel air from piping at high points.
    d. Install corporation cocks at high points.
    e. Close air vents and corporation cocks after air is expelled.
    f. Raise pressure to specified test pressure.
    g. Observe joints, fittings, and valves under test.
    h. Remove and renew cracked pipes, joints, fittings, and valves showing visible leakage, and retest.
    i. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.
    j. Maintain pressure within plus or minus 5 psi of test pressure.
    k. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of test.
    l. Compute maximum allowable leakage using following formula:

        1) L = SD x sqrt(P)/C.
        2) L = testing allowance, gph.
        3) S = length of pipe tested, feet.
        4) D = nominal diameter of pipe, inches.
        5) P = average test pressure during hydrostatic test, psig.
        6) C = 133,200.

    m. If pipe under test contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each size.
    n. Leakage:

        1) If test of pipe indicates leakage greater than allowed, locate source of leakage, make corrections, and retest until leakage is within allowable limits.
        2) Correct visible leaks regardless of quantity of leakage.

ALLOWABLE LEAKAGE PER 1000 FT. OF PIPELINE

Avg. Test Pressure psi	Nominal Pipe Diameter - in.											
	3	4	6	8	10	12	14	16	18	20	24	30
450	0.48	0.64	0.95	1.27	1.59	1.91	2.23	2.55	2.87	3.18	3.82	4.78
400	0.45	0.60	0.90	1.20	1.50	1.80	2.10	2.40	2.70	3.00	3.60	4.50
350	0.42	0.56	0.84	1.12	1.40	1.69	1.97	2.25	2.53	2.81	3.37	4.21
300	0.39	0.52	0.78	1.04	1.30	1.56	1.82	2.08	2.34	2.60	3.12	3.90
275	0.37	0.50	0.75	1.00	1.24	1.49	1.74	1.99	2.24	2.49	2.99	3.73
250	0.36	0.47	0.71	0.95	1.19	1.42	1.66	1.90	2.14	2.37	2.85	3.56
225	0.34	0.45	0.68	0.90	1.13	1.35	1.58	1.80	2.03	2.25	2.70	3.38
200	0.32	0.43	0.64	0.85	1.06	1.28	1.48	1.70	1.91	2.12	2.55	3.19
175	0.30	0.40	0.59	0.80	0.99	1.19	1.39	1.59	1.79	1.98	2.38	2.98
150	0.28	0.37	0.55	0.74	0.92	1.10	1.29	1.47	1.66	1.84	2.21	2.76
125	0.25	0.34	0.50	0.67	0.84	1.01	1.18	1.34	1.51	1.68	2.01	2.52
100	0.23	0.30	0.45	0.60	0.75	0.90	1.05	1.20	1.35	1.50	1.80	2.25

2. Perform pressure test on piping according to City of Huntington standards.
3. Compaction Testing:

    a. Comply with ASTM D1557.
    b. Frequency of Compaction Tests: INDOT Manual for Frequency of Sampling and Testing and Basis for Use of Materials
    c. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

D. After Construction

1. The contractor shall maintain and make available to the inspector on the jobsite one complete plan set. After each portion of the work is installed, the contractor shall record all deviations from the original design shown in the drawings either by additional sketches or red ink thereon. Upon completion of the job, the Applicant or Contractor shall deliver this record set and digital set to the City of Huntington Engineering Department.
2. All water service laterals shall be measured from the nearest property pin and shall be designated on a City of Huntington Water Tap form as which that form needs to be provided to the city in conjunction with the Record Drawings.
3. For water infrastructure being turned over to the City the Owner/Representative must request, in writing, to the Board of Public Works and Safety that he/she requests the City of Huntington Water Department to accept the installed water infrastructure that was put in to the City of Huntington Water Specifications.

END OF SECTION 33 14 13

ATTACHMENT B: REVISED PLAN SHEETS

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G2 - Index Sheet & General Notes
G3 - Overall Layout - Interceptor
G4 - Overall Layout - Interceptor

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TS2 - Typical Sections - Sheet 2 of 4
TS3 - Typical Sections - Sheet 3 of 4
TS4 - Typical Sections - Sheet 4 of 4

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MT2 - Maintenance of Traffic - Sheet 2 of 4
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DP2 - Demolition Plan - Line "H"
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DP4 - Demolition Plan - Lines "RR" & "U"
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DP7 - Demolition Plan - Line "L2"
DP8 - Demolition Plan - Line "T1"
DP9 - Demolition Plan - Line "T1"
DP10 - Demolition Plan - Lines "T1" & "T2"
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DP12 - Demolition Plan - Line "D"

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SP1 - Plan & Profile Line "H"
SP2 - Plan & Profile Line "H"
SP3 - Plan & Profile Line "H"
SP4 - Plan & Profile Line "H"
SP5 - Plan & Profile Line "S"
SP6 - Plan & Profile Line "L2"
SP7 - Plan & Profile Line "L2"
SP8 - Plan & Profile Line "T1"
SP9 - Plan & Profile Line "T1"
SP10 - Plan & Profile Line "T1"
SP11 - Plan & Profile Line "T1"
SP12 - Plan & Profile Line "T1"
SP13 - Plan & Profile Line "T2"
SP14 - Plan & Profile Line "T2"
SP15 - Plan & Profile Line "T2"
SP16 - Plan & Profile Line "D"

PLAN & PROFILE - UTILITY (Set 1 of 4)
U1 - Utility Plan & Profile - Line "WWTP"
U2 - Utility Plan & Profile - Line "H"
U3 - Utility Plan & Profile - Line "H"
U4 - Utility Plan & Profile - Line "H"
U5 - Utility Plan & Profile - Line "LR"
U6 - Utility Plan & Profile - Line "LR"
U7 - Utility Plan & Profile - Line "RR"
U8 - Utility Plan & Profile - Line "U"
U9 - Utility Plan & Profile - Line "U"
U10 - Utility Plan & Profile - Line "U"
U11 - Utility Plan & Profile - Line "U"
U12 - Utility Plan & Profile - Line "S"
U13 - Utility Plan & Profile - Line "L2"
U14 - Utility Plan & Profile - Line "L2"
U15 - Utility Plan & Profile - Line "T1"
U16 - Utility Plan & Profile - Line "T1"
U17 - Utility Plan & Profile - Line "T1"
U18 - Utility Plan & Profile - Line "T1"
U19 - Utility Plan & Profile - Line "T1"
U20 - Utility Plan & Profile - Line "T2"
U21 - Utility Plan & Profile - Line "T2"
U22 - Utility Plan & Profile - Line "T2"
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U24 - Utility Plan & Profile - Interceptor Crossing Profiles
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CSO SITE PLAN (Set 1 of 4)
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S2 - CSO 009 Site Plan
S3 - CSO 010 Site Plan
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D2 - Sanitary Details - Sheet 1 of 2
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ID1 - East State and Lafontaine
ID2 - West State and Lafontaine
ID3 - Lafontaine and West Crescent
ID4 - Lafontaine and East Crescent
ID5 - Lafontaine and West Park
ID6 - Lafontaine and East Park
ID7 - North Lafontaine And Tipton
ID8 - South Lafontaine And Tipton
ID9 - North Oak And Tipton
ID10 - South Oak And Tipton
ID11 - North Poplar And Tipton
ID12 - South Poplar And Tipton
ID13 - North Cherry And Tipton
ID14 - South Cherry And Tipton
ID15 - North Jefferson And Tipton
ID16 - South Jefferson And Tipton
ID17 - North Warren And Tipton
ID18 - South Warren And Tipton
ID19 - North Guilford And Tipton
ID20 - South Guilford And Tipton
ID21 - North Byron And Tipton
ID22 - South Byron And Tipton
ID23 - Wilkerson And Tipton
ID24 - College And Tipton
ID25 - Leopold And Tipton
ID26 - Woodlawn And Tipton
ID27 - Freedom And Tipton
ID28 - Harrison And Tipton
ID29 - North Divison And Tipton
ID30 - South Division And Tipton
ID31 - North Division And Canfield
ID32 - South Division And Canfield

CURB RAMP DETAILS (Set 2 of 4)
CR1 - Lafontaine And State
CR2 - Lafontaine And State
CR3 - Lafontaine And Crescent
CR4 - Lafontaine And Crescent
CR5 - Lafontaine And Park
CR6 - Lafontaine And Park
CR7 - Tipton And Lafontaine
CR8 - Tipton And Lafontaine
CR9 - Tipton And Oak
CR10 - Tipton And Oak
CR11 - Tipton And Poplar
CR12 - Tipton And Poplar
CR13 - Tipton And Cherry
CR14 - Tipton And Cherry
CR15 - Tipton And Jefferson
CR16 - Tipton And Jefferson
CR17 - Tipton At Drive
CR18 - Tipton And Warren
CR19 - Tipton And Warren
CR20 - Tipton And Guilford
CR21 - Tipton And Guilford
CR22 - Tipton And Byron
CR23 - Tipton And Byron
CR24 - Tipton And Wilkerson
CR25 - Tipton And College
CR26 - Tipton And Leopold
CR27 - Tipton And Woodlawn
CR28 - Tipton And Freedom
CR29 - Tipton And Harrison
CR30 - Division And Tipton
CR31 - Division And Tipton
CR32 - Division And Alley
CR33 - Division And Canfield
CR34 - Division And Canfield

PAVEMENT MARKINGS (Set 2 of 4)
PM1 - Pavement Markings - Line H
PM2 - Pavement Markings - Line H
PM3 - Pavement Markings - Line S
PM4 - Pavement Markings - Line L2
PM5 - Pavement Markings - Line T1
PM6 - Pavement Markings - Line T1
PM7 - Pavement Markings - Line T1
PM8 - Pavement Markings - Line T2
PM9 - Pavement Markings - Line T2
PM10 - Pavement Markings - Line D

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SD1 - Street Sign Details - W State St
SD2 - Street Sign Details - N Lafontaine St
SD3 - Street Sign Details - Crescent Ave
SD4 - Street Sign Details - N Lafontaine St
SD5 - Street Sign Details - W Park Dr
SD6 - Street Sign Details - W Tipton St
SD7 - Street Sign Details - Oak St
SD8 - Street Sign Details - Poplar St
SD9 - Street Sign Details - Cherry St
SD10 - Street Sign Details - E Tipton St
SD11 - Street Sign Details - N Jefferson St
SD12 - Street Sign Details - Warren St
SD13 - Street Sign Details - Guilford St
SD14 - Street Sign Details - Byron St
SD15 - Street Sign Details - Wilkerson St
SD16 - Street Sign Details - College Ave
SD17 - Street Sign Details - Leopold St
SD18 - Street Sign Details - Woodlawn Ave
SD19 - Street Sign Details - Freedom St
SD20 - Street Sign Details - Harrison St
SD21 - Street Sign Details - Division St
SD22 - Street Sign Details - Canfield St

TREE PLANTING (Set 3 of 4)
TP1 - Tree Planting Detail
TP2 - Tree Planting - Line "L"
TP3 - Tree Planting - Line "T1"
TP4 - Tree Planting - Line "T1"
TP5 - Tree Planting - Line "T1"

EROSION CONTROL (Set 3 of 4)
EC1 - Erosion Control - Lines "WWTP" & "H"
EC2 - Erosion Control - Line "H"
EC3 - Erosion Control - Line "LR"
EC4 - Erosion Control - Lines "RR" & "U"
EC5 - Erosion Control - Line "U"
EC6 - Erosion Control - Lines "U" & "S"
EC7 - Erosion Control - Line "L"
EC8 - Erosion Control - Line "T1"
EC9 - Erosion Control - Line "T1"
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EC11 - Erosion Control - Line "T2"
EC12 - Erosion Control - Line "D" & CSO's
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E6 - Fiber Optic Route Plan Sheet 5 of 18
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E9 - Fiber Optic Route Plan Sheet 8 of 18
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E11 - Fiber Optic Route Plan Sheet 10 of 18 & CSO 003 Site Plan
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E17 - Fiber Optic Route Plan Sheet 16 of 18 & CSO 013 Site Plan
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E19 - Fiber Optic Route Plan Sheet 18 of 18 & CSO 015 Site Plan
E19A - CSO-016 Electrical Site Plan
E20 - Fiber Optic Network Diagram
E21 - Fiber Optic Network Diagram Cont.
E22 - Fiber Optic Network Diagram Cont.
E23 - Panelboard Schedules
E24 - Cable Vault Installation Details
E25 - General Details
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T3 - Miscellaneous Tables - Sheet 3 of 4
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T8 - Approach Table - Sheet 4 of 4
T9 - Structure Data Table - Sheet 1 of 4
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T13 - Pipe Materials - Sheet 1 of 1

CROSS SECTIONS (Set 4 of 4)
CS1 - Cross Sections Line "H"
CS2 - Cross Sections Line "H"
CS3 - Cross Sections Line "H"
CS4 - Cross Sections Line "H"
CS5 - Cross Sections Line "H"
CS6 - Cross Sections Line "H"
CS7 - Cross Sections Line "H"
CS8 - Cross Sections Line "H"
CS9 - Cross Sections Line "H"
CS10 - Cross Sections Line "H"
CS11 - Cross Sections Line "H"
CS12 - Cross Sections Line "S"
CS13 - Cross Sections Line "S"
CS14 - Cross Sections Line "S"
CS15 - Cross Sections Line "S"
CS16 - Cross Sections Line "L2"
CS17 - Cross Sections Line "L2"
CS18 - Cross Sections Line "L2"
CS19 - Cross Sections Line "L2"
CS20 - Cross Sections Line "L2"
CS21 - Cross Sections Line "L2"
CS22 - Cross Sections Line "L2"
CS23 - Cross Sections Line "L2"
CS24 - Cross Sections Line "L2"
CS25 - Cross Sections Line "L2"
CS26 - Cross Sections Line "T1"
CS27 - Cross Sections Line "T1"
CS28 - Cross Sections Line "T1"
CS29 - Cross Sections Line "T1"
CS30 - Cross Sections Line "T1"
CS31 - Cross Sections Line "T1"
CS32 - Cross Sections Line "T1"
CS33 - Cross Sections Line "T1"
CS34 - Cross Sections Line "T1"
CS35 - Cross Sections Line "T1"
CS36 - Cross Sections Line "T1"
CS37 - Cross Sections Line "T1"
CS38 - Cross Sections Line "T1"
CS39 - Cross Sections Line "T1"
CS40 - Cross Sections Line "T1"
CS41 - Cross Sections Line "T1"
CS42 - Cross Sections Line "T1"
CS43 - Cross Sections Line "T1"
CS44 - Cross Sections Line "T1"
CS45 - Cross Sections Line "T1"
CS46 - Cross Sections Line "T1"
CS47 - Cross Sections Line "T1"
CS48 - Cross Sections Line "T1"
CS49 - Cross Sections Line "T2"
CS50 - Cross Sections Line "T2"
CS51 - Cross Sections Line "T2"
CS52 - Cross Sections Line "T2"
CS53 - Cross Sections Line "T2"
CS54 - Cross Sections Line "T2"
CS55 - Cross Sections Line "T2"
CS56 - Cross Sections Line "T2"
CS57 - Cross Sections Line "T2"
CS58 - Cross Sections Line "T2"
CS59 - Cross Sections Line "T2"
CS60 - Cross Sections Line "T2"
CS61 - Cross Sections Line "T2"
CS62 - Cross Sections Line "T2"
CS63 - Cross Sections Line "T2"
CS64 - Cross Sections Line "T2"
CS65 - Cross Sections Line "T2"
CS66 - Cross Sections Line "T2"
CS67 - Cross Sections Line "T2"
CS68 - Cross Sections Line "T2"
CS69 - Cross Sections Line "D"
CS70 - Cross Sections Line "D"
CS71 - Cross Sections Line "D"
CS72 - Cross Sections Line "D"
CS73 - Cross Sections Line "D"

UTILITIES

STORMWATER DRAINAGE
City of Huntington
Adam Cuttriss, Director
Public Works and Engineering Services
(260) 356-1400 x2021

WATER & SEWER
City of Huntington
Adam Cuttriss, Director
Public Works and Engineering Services
(260) 356-1400 x2021

STREET
City of Huntington
Tim Bischoff, Superintendent
City Services
(260) 356-4720

COMMUNICATIONS
Comcast Cable
Doug Fishburn
(260) 410-3504
Metronet Fibernet, LLC
Lori Kemper
(812) 213-1050

ELECTRIC
Duke Energy
Coy Evans
(317) 965-8067

TELEPHONE
AT&T Distribution
David Smith
(765) 454-5021

GAS
Centerpoint Energy
Tom Ochoa
(765) 454-5021

OTHER
Creek Run, LLC
Luke Libby
(765) 728-8051

GENERAL NOTES - RAILROAD
1. Any excavation that encroaches on Zone 1 or Zone 2 of roadbed profile shall require a shoring plan and a track monitoring plan for protection of the railroad and will need to be reviewed during work plan and prior to construction. See Specifications for Pipeline Occupancy of Norfolk Southern Corporation Property (NSCE-8) dated 11/06/2020.
2. Frac-Out plan shall be provided to the railroad for review prior to construction.
3. All pipe jacking operations must be executed on a continuous 24-hour basis until completed per NSCE-8.
4. Track monitoring will be required for proposed installation. If settlement occurs during installation, Norfolk Southern may exercise their rights to require additional monitoring up to 30 days post construction for protection of the railroad.
6. Existing pipeline shall be removed or filled with grout within Norfolk Southern property.
7. Existing structures shall be removed to a minimum depth of 3' below the finished grade and completely filled with cement grout within Norfolk Southern property.
8. As-Built plans will be required upon completion of construction. Plans will be sent via email to NS.Permitting@RailPros.com. Coordinate with protection services if further assistance is needed.
9. Proposed grading shall be sloped so that the runoff will be carried away from railroad tracks and structures towards the river.
10. Newly graded area shall be seeded to match existing vegetation.

LEGEND

- Control Point
- Soil Boring
- A/C Unit
- Asphalt Pavement
- Bollard
- Cleanout
- Electrical Box
- Fence
- Gas Meter
- Gravel
- Light Pole
- Sidewalk
- Telephone Pedestal
- Utility Pole
- Water Meter
- Water Valve
- Yard Hydrant
- City Water
- Plant Water
- Non-Potable Water
- Fiber Optic
- Underground Telephone
- Underground Electric
- Woods Brush Line

CONTROL POINTS & BENCHMARKS

Point Number	Northing	Easting	Point Elevation	Description
100	204094.2441	788730.3002	773.32	CP 5/8" REBAR
101	202554.5772	787021.1689	760.98	CP 5/8" REBAR
102	202669.4626	787253.1348	769.90	CP 5/8" REBAR
103	202856.1875	787526.0031	770.19	CP 1/2" REBAR
104	203114.1792	787770.3898	767.78	CP 5/8" REBAR
105	203349.9020	788210.5367	762.12	CP 5/8" REBAR
106	203650.2590	788508.1192	760.98	CP 5/8" REBAR
107	203765.9572	788788.1398	755.45	CP 5/8" REBAR
108	204015.6849	789088.7687	755.86	CP 5/8" REBAR
109	204394.2773	789212.6784	763.76	CP 5/8" REBAR
110	204817.5278	789504.3614	758.46	CP 5/8" REBAR
111	205267.7993	789621.8067	756.70	CP 5/8" REBAR
112	205490.5071	789699.0167	755.06	CP 5/8" REBAR
113	205517.3167	789349.6582	767.64	CP 5/8" REBAR
1000	199309.9087	783701.8851	715.59	CP MAG NAIL
1001	199492.7157	783558.6330	719.41	CP 5/8" REBAR
1002	199641.1010	783678.4880	718.78	CP MAG W/WASHER
1003	199957.4110	784185.0080	718.86	CP MAG W/WASHER
1203	200192.0659	784622.1139	721.65	CP MAG SPIKE
1204	200420.6537	785049.6279	723.93	CP 5/8" REBAR
1205	200591.8887	785392.8922	723.41	CP 5/8" REBAR
1206	200767.0148	785760.2469	714.02	CP 5/8" REBAR
1207	201016.6710	785765.8720	729.12	CP 5/8" REBAR
1208	201213.8110	786131.1410	729.45	CP 5/8" REBAR
1209	201407.2180	786490.6700	732.38	CP 5/8" REBAR
1210	201508.2650	786682.5050	733.25	CP 1/2" REBAR
1211	201834.9775	787472.1557	733.50	CP 5/8" REBAR
1212	202202.3756	787193.5514	748.95	CP MAG SPIKE
1213	201660.5850	787108.5680	735.46	CP 1/2" REBAR
7009	201856.8550	787548.2210	734.25	BM /CHIS X TOP NW BOLT HYDRANT AT NE QUAD STATE / LAFONTAINE
7050	202012.3440	787954.3550	733.21	BM /CHIS X ON TOP WEST END OF CURB GUTTER INLET AT NE QUAD STATE / OAK
7051	202154.1720	788235.5440	735.72	BM /RR SPIKE UP 8" IN NORTH SIDE JOINT POLE
7052	202339.5650	788505.4560	738.81	BM /K14 DISK VERTICAL IN BLDG
7053	202578.7640	788819.9430	735.71	BM /PUNCH IN SOUTH SIDE MANHOLE RIM IN MIDDLE OF ROAD AT SOUTH SIDE INT
7054	202811.1510	789141.9450	736.38	BM /CHIS X IN TOP NW ANCHOR BOLT STRAIN POLE AT SE QUAD WARREN / MARKET
7055	203004.5350	789414.7610	737.51	BM /TOP OUTSIDE CORNER OF CURB AT BACK WALK INTERSECTION AT SE QUAD INT MARKET / GUILFORD
7056	203217.6010	789608.7120	739.77	BM /CHIS X TOP NE BOLT FIRE HYDRANT AT NW QUAD BYRON / MARKET
7057	203550.0600	790052.9880	741.25	BM /CHIS X TOP SOUTH ANCHOR BOLT STRAIN POLE AT NE QUAD FIRST / MARKET
101014	202288.9170	787213.7300	749.76	CP MAG
101015	202491.1300	786997.8310	759.09	CP MAG
135052	201199.1130	786094.8990	729.58	CP

REVISIONS		
DATE	REVISION	BY
07/27/22	Addendum No. 1	TNM

811 Know what's below. Call before you dig.

LOCHMUELLER GROUP
7223 Engle Road, Suite 105
Fort Wayne, Indiana 46819
PHONE: 260.494.1901

ERIN W ENGER REGISTERED No. PE11011797 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL Erin Wenger 07/01/22
Erin Wenger, P.E., CPM DATE

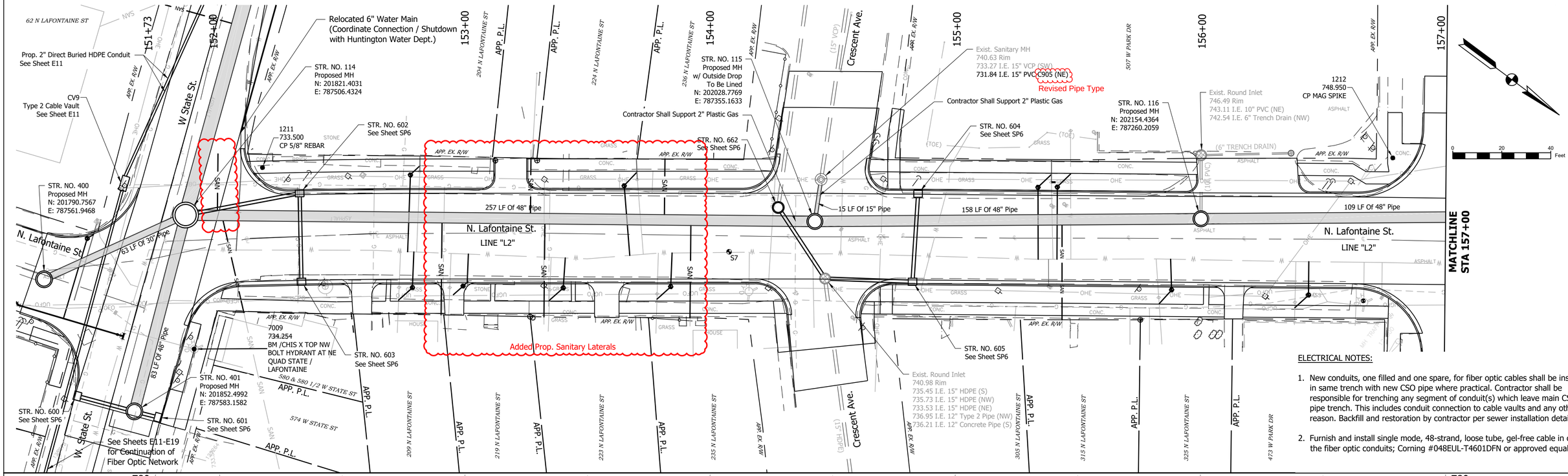
DESIGNED: DEW DRAWN: TNM
CHECKED: EW CHECKED: MJC

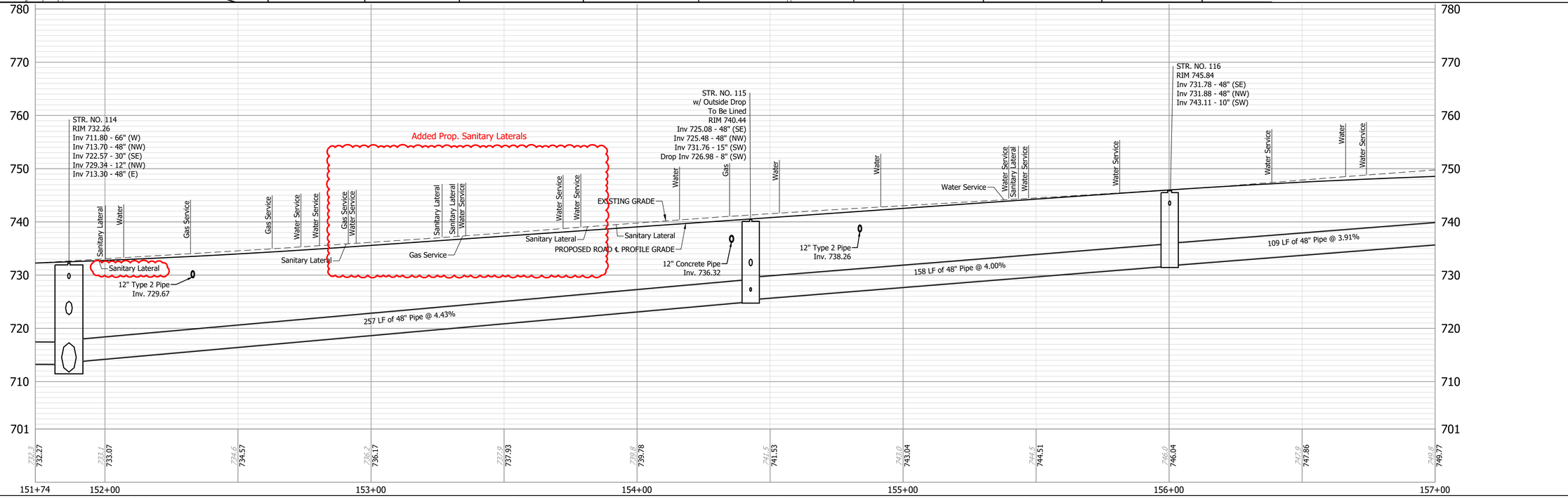
CITY OF HUNTINGTON
LTCP PROJECTS 7 & 8: NORTHSIDE INTERCEPTOR SEWER

INDEX SHEET & GENERAL NOTES

SCALE
NTS
CONSULTANT PROJECT NUMBER
120-3003-02W
SHEET
G2

Date: Jul 27, 2022, 11:29am User Name: TMink
File: X:\Production\Files\2020\120-3003\PRJ-02\CAD_Interceptor Project\Plans\Index Sheet.dwg





ELECTRICAL NOTES:

1. New conduits, one filled and one spare, for fiber optic cables shall be installed in same trench with new CSO pipe where practical. Contractor shall be responsible for trenching any segment of conduit(s) which leave main CSO pipe trench. This includes conduit connection to cable vaults and any other reason. Backfill and restoration by contractor per sewer installation details.
2. Furnish and install single mode, 48-strand, loose tube, gel-free cable in one of the fiber optic conduits; Corning #048EUL-T4601DFN or approved equal.

REVISIONS		
DATE	REVISION	BY
07/27/22	Addendum No. 1	TNM

811 Know what's below. Call before you dig.

B# Soil Boring
S# Rock Sounding
SAN Prop. Sanitary Service
W Prop. Water Service with Meter

LOCHMUELLER GROUP
7223 Engle Road, Suite 105
Fort Wayne, Indiana 46819
PHONE: 260.494.1901

ERIN WENGER REGISTERED No. PE11011797 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL Erin Wenger 07/01/22
Erin Wenger, P.E., CFM DATE

DESIGNED: DEW DRAWN: TNM
CHECKED: EW CHECKED: MJC

CITY OF HUNTINGTON
LTCP PROJECTS 7 & 8: NORTHSIDE INTERCEPTOR SEWER

UTILITY PLAN & PROFILE
LINE "L2"

SCALE
H: 1" = 20' - V: 1" = 10'
CONSULTANT PROJECT NUMBER
120-3003-02W
SHEET
U13

Date: Jul 27, 2022, 12:19pm User Name: TMink
File: X:\Production\Files\2020\120-3003\PRJ-02\CAD_Interceptor Project\Plans\Line L R&P.dwg

N

OVERALL FIBER OPTIC ROUTE PLAN

SCALE: 1"=300'-0"

0 300' 600'

GENERAL NOTES:

A. NEW FIBER OPTIC ROUTE SHALL PARALLEL NEW SEWER ROUTE WHERE POSSIBLE OR AS SPECIFIED IN THE DRAWINGS.

B. NEW CONDUITS, ONE FILLED AND ONE SPARE, FOR FIBER OPTIC CABLES SHALL BE INSTALLED IN SAME TRENCH WITH NEW CSO PIPE WHERE PRACTICAL. CONTRACTOR SHALL BE RESPONSIBLE FOR TRENCHING ANY SEGMENT OF CONDUIT(S) WHICH LEAVE MAIN CSO PIPE TRENCH. THIS INCLUDES CONDUIT CONNECTION TO CABLE VAULTS AND ANY OTHER REASON. BACKFILL AND RESTORATION BY CONTRACTOR PER SEWER INSTALLATION DETAILS. PROVIDE WIRE TRACER WITH CONDUIT.

C. FIBER OPTIC CONDUITS STARTING FROM CABLE VAULT, "CV–4" TO "CV–5" SHALL BE GALVANIZED RIGID STEEL CONDUITS.

D. ALL BELOW GRADE CONDUITS FOR POWER WIRING SHALL BE SCH. 80 PVC OR AS SPECIFIED IN THE DRAWINGS. ALL TRANSITIONS (90 DEGREE ELBOW) FROM BELOW GRADE TO ABOVE GRADE SHALL BE GALVANIZED RIGID STEEL. ALL ABOVE GRADE OUTDOOR CONDUITS SHALL BE RIGID ALUMINUM. COAT ALL RIGID ALUMINUM CONDUITS WHERE IN CONTACT WITH EARTH OR CONCRETE WITH OXIDATION RESISTANT COATING.

E. WHERE SAME TRENCH FOR SEWER CANNOT BE USED FOR DIRECT BURIAL OF FIBER OPTIC CONDUITS, CONTRACTOR SHALL BE RESPONSIBLE FOR TRENCHING. BACKFILL AND RESTORATION SHALL BE BY CONTRACTOR PER SEWER INSTALLATION DETAILS.

F. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ALL NEW CABLES, CONDUITS, AND EQUIPMENT INDICATED ON THESE PLANS.

G. ANY ADJUSTMENT TO ROUTES, POLES, RTU EQUIPMENT, AND FIBER OPTIC CABLE VAULT LOCATIONS ALONG ENTIRE ROUTE SHALL BE PART OF THE BID FOR THIS WORK.

H. SCOPE OF FIBER OPTIC CABLE AND CONDUIT SYSTEM INSTALLATIONS FOR THIS PROJECT INCLUDES BEGINNING AT AT WWTP ADMIN BUILDING SCADA PLC PANEL AND ENDING AT CABLE VAULT, "CV–16", AT CSO 015 LOCATION. SEE LTCP PROJECT #9: RTB FOR ADMIN SCADA PLC CONTROL PANEL LOCATION.

I. AT EACH DISTRIBUTION CENTER LOCATION ALL 48 FIBER OPTIC STRANDS SHALL TERMINATE WITH BUFFER TUBE FAN OUT KITS AND SC STYLE CONNECTORS CONNECTED TO CONNECTOR HOUSING PANELS INSIDE DISTRIBUTION CENTERS.

J. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL UTILITY LOCATE REQUIRED TO SUPPORT SAFE INSTALLATION OF CABLE VAULTS AT LOCATIONS INDICATED ON PLANS.

K. ALL LOCATIONS OF NEW EQUIPMENT, CONDUITS, CABLE VAULTS, ETC. ON ALL PLANS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED.

L. SAW CUT AND REPAIR EXISTING PAVEMENT, WALKWAY AS NECESSARY WHERE POWER, CONTROL, INSTRUMENTATION CABLE, AND FIBER CABLE CONDUIT CROSSES.

M. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR ANY TERMINATION TO THE WWTP ADMIN BUILDING AND THE CITY BUILDING.

N. SEE PLAN SHEET E19A FOR CSO–016 ELECTRICAL SITE PLAN. (1)

ELECTRICAL KEYED NOTES:

1. NEW PASS–THROUGH FIBER OPTIC CABLE VAULT LOCATION; TYPE 1 VAULT.
2. NEW FIBER OPTIC CABLE VAULT LOCATION WITH NEMA 4X ENVIRONMENTAL DISTRIBUTION CENTER; TYPE 2 VAULT.
3. EXISTING 1PH UTILITY POLE AND 1PH POLE MOUNTED TRANSFORMER TO REMAIN.
4. NEMA 4X STAINLESS STEEL FIBER OPTIC CABLE ENVIRONMENTAL DISTRIBUTION PANEL ON OUTSIDE OF ADMIN BUILDING. PROVIDE (2) 1–1/2" PVC CONDUITS FROM STORAGE CABINET TO ADMIN BUILDING.
5. FIBER OPTIC CABLE TO TERMINATE ON THE SECOND FLOOR OF ADMIN BUILDING NEW NETWORK EQUIPMENT RACK. SEE SHEET E2 FOR ADDITIONAL DETAILS.
6. NEW FIBER OPTIC CABLE VAULT LOCATION; TYPE 3 VAULT.
7. NEW UTILITY POLE WITH 1PH POLE MOUNTED TRANSFORMER.
8. NEW EQUIPMENT RACK.
9. EXISTING ELECTRICAL EQUIPMENT TO BE REMOVED. SEE ROUTE PLAN SHEETS FOR DETAILS.
10. EXISTING NETWORK RACK TO BE REMOVED BY THE CONTRACTOR AND RETURNED TO OWNER.
11. EXISTING CITY LIGHTING PANELBOARD.
12. NEW CSO PANELBOARD AND UTILITY SERVICE.
13. NEW NEMA 4X STAINLESS STEEL FIBER CABLE ENVIRONMENTAL DISTRIBUTION PANEL ON THE OUTSIDE OF THE PARK BUILDING. SEE SHEET E28 FOR APPROXIMATE VAULT LOCATION. CONFIRM THE FINAL INSTALLATION LOCATION OF THE DISTRIBUTION PANEL WITH OWNER.
14. EXTENSION TO THE PARK BUILDING FROM THE DISTRIBUTION PANEL BY THE OWNER.
15. EXISTING MISSION COMMUNICATION PANEL TO REMAIN.

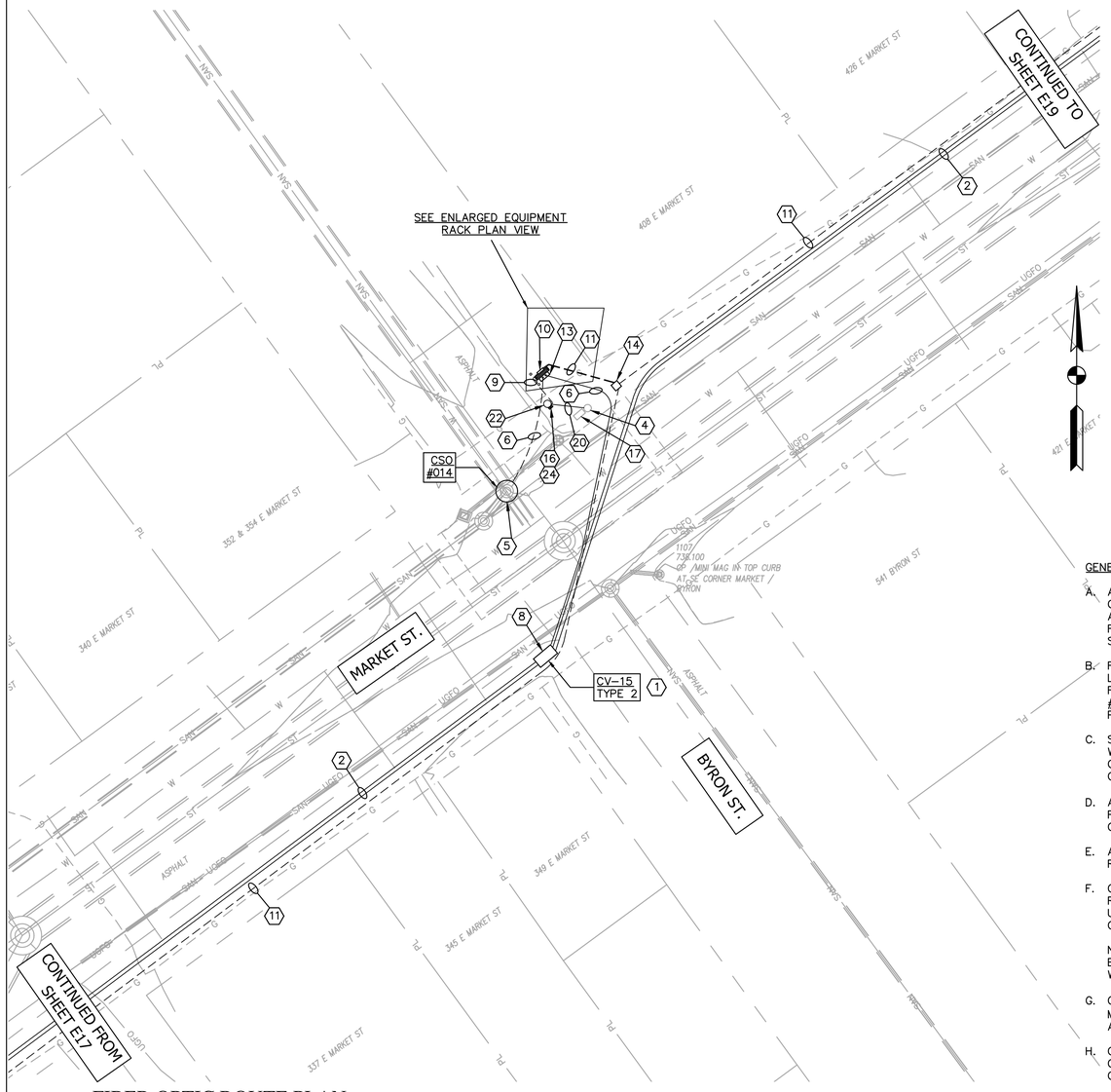
REVISIONS		
DATE	REVISION	BY
1 07/27/22	ADDENDUM #1	IA

SIMS-DURKIN ASSOCIATES ENGINEERING COMPANY
5755 WEST 74TH STREET
INDIANAPOLIS, INDIANA 46278
PHONE: 317-209-4035
FAX: 317-222-4120
WEB: WWW.SIMS-DURKIN.COM
SDA PROJECT NUMBER: 2021102

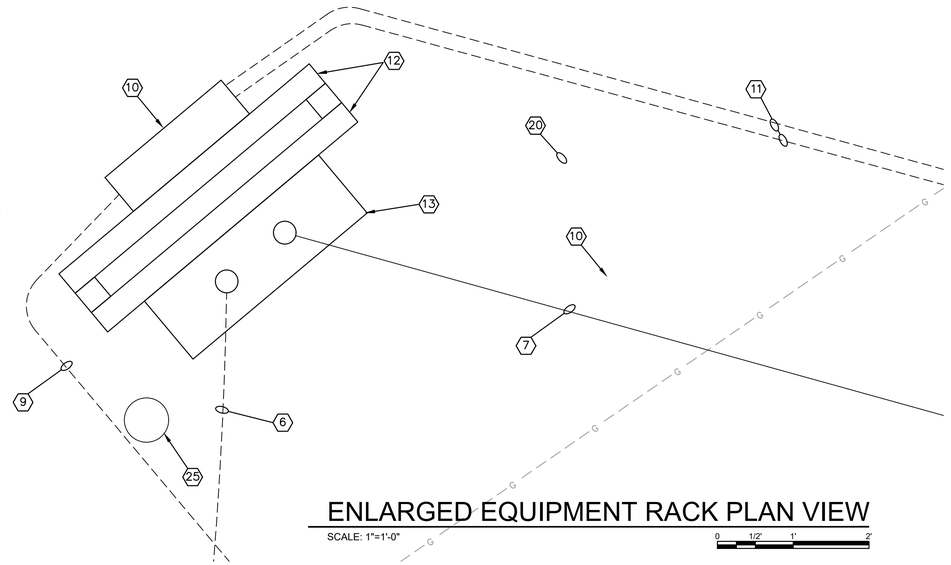
LOCHMUELLER GROUP
7223 Engle Road, Suite 105
Fort Wayne, Indiana 46819
PHONE: 260.494.1901

JOSEPH W. SIMS REGISTERED NO PE60860165 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	Joseph W Sims 07/01/2022 Joseph W. Sims DATE	CITY OF HUNTINGTON LTCP PROJECTS 7 & 8: NORTHSIDE INTERCEPTOR SEWER	SCALE: AS NOTED
DESIGNED: IA	DRAWN: TEAM	OVERALL FIBER OPTIC ROUTE PLAN	CONSULTANT PROJECT NUMBER: 120-3003-02W
CHECKED: JWS	CHECKED: JWS		SHEETS: E1



17 FIBER OPTIC ROUTE PLAN
SCALE:1"=20'



ENLARGED EQUIPMENT RACK PLAN VIEW

SCALE: 1"=1'-0"

0 1/2" 1' 2"

GENERAL ELECTRICAL NOTES:

A. ALL DIMENSIONS, EQUIPMENT, LOCATIONS, CONDUIT AND WIRING LOCATIONS. ETC. ARE APPROXIMATE. CONTRACTOR SHALL VISIT AND FIELD VERIFY ALL DIMENSIONS PRIOR TO SUBMITTING QUOTE.

B. FURNISH AND INSTALL SINGLE MODE, 48–STRAND, LOOSE TUBE, GEL–FREE CABLE IN ONE OF THE FIBER OPTIC CONDUITS. CORNING #048EUL–T4601DFN OR APPROVED EQUAL. PROVIDE WIRE TRACER WITH CONDUIT.

C. SAW CUT AND REPAIR EXISTING PAVEMENT, WALKWAY AS NECESSARY WHERE POWER, CONTROL, INSTRUMENTATION CABLE, AND FIBER CABLE CONDUIT CROSSES.

D. ALL CONDUITS TRANSITIONS (90 DEGREE ELBOW) FROM BELOW GRADE TO ABOVE GRADE SHALL BE GALVANIZED RIGID STEEL.

E. ALL OUTDOOR CONDUITS SHALL BE GALVANIZED RIGID STEEL.

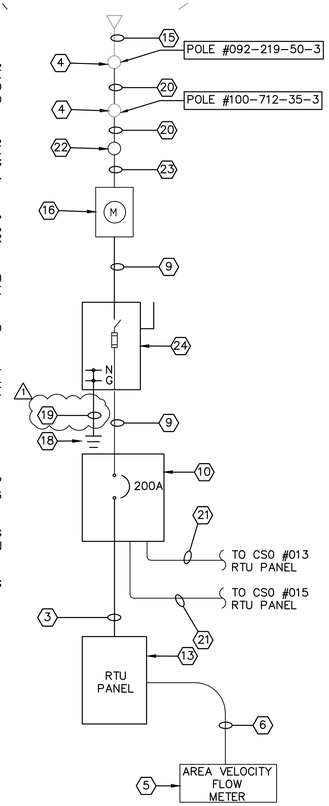
F. CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS FOR NEW SERVICE WITH LOCAL UTILITY. UTILITY FEES TO BE INCLUDED BY THE CONTRACTOR.

Name: Jodie L Armstrong
Email: Jodie.Armstrong@duke–energy.com
Work Phone: 1–800–774–0246

G. CUSTOMER SHALL APPLY FOR SERVICE (SET UP MONTHLY BILLING) BY CALLING 1–800–774–0246 AND REFER WORK ORDER NO. #42284944.

H. CITY ELECTRICAL INSPECTION DURING CONSTRUCTION AND AFTER CONSTRUCTION COMPLETION FOR THE UTILITY SERVICE.

I. ALL BELOW GRADE CONDUITS FOR POWER WIRING SHALL BE SCH. 80 PVC.



POWER ONE-LINE DIAGRAM

NOT TO SCALE

ELECTRICAL PLAN NOTES:

1. FURNISH AND INSTALL POLYMER CONCRETE CABLE VAULT. SEE SCHEDULE ON THIS SHEET. SEE SHEET E24 FOR VAULT DETAILS.
2. FURNISH AND INSTALL TWO 2" DIRECT BURIED HDPE CONDUITS, ORANGE TYPE C, SDR 13.5 WALL; ONE SHALL BE SPARE WITH NYLON PULL CORD. PROVIDE WIRE TRACER WITH CONDUIT.
3. CONTRACTOR SHALL FURNISH AND INSTALL 2–#10 CU, 1–#10 CU GND, 3/4" C.
4. EXISTING POLE BY THE UTILITY TO REMAIN.
5. CONTRACTOR SHALL FURNISH AND INSTALL AREA VELOCITY FLOW SENSOR FAR ENOUGH INSIDE PIPE TO ACQUIRE ACCURATE FLOW MEASUREMENT. EXACT INSTALLATION LOCATION NOT SHOWN ON DRAWING. INSTALL PIPE BAAND TO SECURE SENSOR TO PIPE. INSTALL PER MANUFACTURER'S RECOMMENDATION.
6. CONTRACTOR SHALL FURNISH AND INSTALL FLOW METER INSTRUMENT CABLE IN 2" HDPE CONDUIT. PROVIDE MINIMUM 75' CABLE. CONFIRM SENSOR CABLE LENGTH REQUIRED BEFORE ORDERING CABLE FROM THE MANUFACTURER.
7. CONTRACTOR SHALL FURNISH AND INSTALL SINGLE MODE, 6–STRAND, LOOSE STRAND, GEL–FREE FIBER OPTIC CABLE IN 2" HDPE CONDUIT FROM FIBER OPTIC CABLE VAULT TO RTU PANEL.
8. CONTRACTOR SHALL CONNECT 6–STRAND FIBER CABLE TO 48–STRAND TRUNK LINE USING FUSION SPLICES. COORDINATE WITH FIBER OPTIC WORK AT PLANT.
9. CONTRACTOR SHALL FURNISH AND INSTALL 2–#3/0 CU, 1–#4 CU GND, 2" C.
10. NEW 200A, 120/240V, 1PH, 3W, NEMA 4X STAINLESS STEEL PANELBOARD, "CSO–PB" WITH 200A MCB. FURNISHED AND INSTALLED BY CONTRACTOR. SEE SHEET E23 FOR PANELBOARD DETAILS.
11. NEW UNDERGROUND POWER CONDUCTORS AND CONDUITS FROM NEW CSO PANELBOARD TO PROPOSED CSO STATIONS.
12. CONTRACTOR SHALL FURNISH AND INSTALL 4"X4" SQUARE WELDED ALUMINUM EQUIPMENT RACK WITH ALUMINUM MOUNTING PLATE.
13. NEW RTU PANEL. FURNISHED AND INSTALLED BY CONTRACTOR. SEE SHEET E26 FOR DETAILS.
14. NEW IN–GROUND PULL BOXES 24"X24" TYPICAL FOR POWER. ANSI TIER 22 RATED BOX AND LID. SEE SHEET E25 FOR IN–GROUND PULL BOX DETAIL.
15. EXISTING OVERHEAD LINE BY THE UTILITY TO REMAIN.
16. NEW UTILITY METER AND METER BASE. UTILITY METER BY THE UTILITY. PROVIDE MAG APPROVED METER BASE. METER BASE FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE SHEET E25 FOR ADDITIONAL DETAILS.
17. EXISTING EQUIPMENT TO BE REMOVED AND RETURNED TO OWNER. SEE SHEET E27 FOR REFERENCE PICTURE OF EXISTING EQUIPMENT AND INSTALLATION LOCATION.
18. CONTRACTOR SHALL FURNISH AND INSTALL #6 BARE CU GROUND. CADWELD CONNECTION TO GROUND ROD.
19. CONTRACTOR SHALL FURNISH AND INSTALL 3/4" X 10' GROUND ROD.
20. NEW OVERHEAD SECONDARY CONDUCTORS BY THE UTILITY.
21. SEE SHEET E17 & E19 FOR ADDITIONAL WIRING AND CONDUIT DETAILS.
22. NEW CUSTOMER METER POLE WITH DISCONNECT AND BYPASS LEVER. FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE SHEET E25 FOR ADDITIONAL INSTALLATION DETAILS.
23. NEW SERVICE ENTRANCE CONDUCTORS BY THE UTILITY IN 2" C. CONDUIT FURNISHED AND INSTALLED BY THE CONTRACTOR.
24. NEW NEMA 4X STAINLESS STEEL ENCLOSURE, 120/240V, 2P–200A, CLASS J TYPE SERVICE ENTRANCE FUSED DISCONNECT SWITCH . FURNISHED AND INSTALLED BY CONTRACTOR. BOND NEUTRAL TO GROUND AT THIS LOCATION.
25. NEW PIPE BOLLARD. SEE SHEET E25 FOR ADDITIONAL DETAILS.

CABLE VAULT SCHEDULE

Cable Vault Number	Cable Vault Type	Nominal Dimensions	Box Design/Test Load Lb	Cover	Cover Design/Test Load Lb	Cover Logo	Bottom	Minimum Mouseholes or Knockouts	Cable Racks	Cable Rack Hooks	Pulling Eyes	Manufacturer and Model	Notes
CV15	2	36" x 72" x 72" Deep, Stackable	22,500/33,750	Two Piece	15,000/22,500	Fiber Optics	Open	(8) 1.5"	(4) 48"	(8) 7.5"	(4) 3,000Lb	Quazite Style PG	Pull Point and Patch Panel Location

CABLE VAULT SCHEDULE

NOT TO SCALE

REVISIONS		
DATE	REVISION	BY
1 07/27/22	ADDENDUM #1	IA

SIMS-DURKIN ASSOCIATES ENGINEERING COMPANY
5755 WEST 74TH STREET
INDIANAPOLIS, INDIANA 46278
PHONE: 317-209-4035
FAX: 317-222-4120
WEB: WWW.SIMS-DURKIN.COM
SDA PROJECT NUMBER: 2021102

LOCHMUELLER GROUP
7223 Engle Road, Suite 105
Fort Wayne, Indiana 46819
PHONE: 260.494.1901

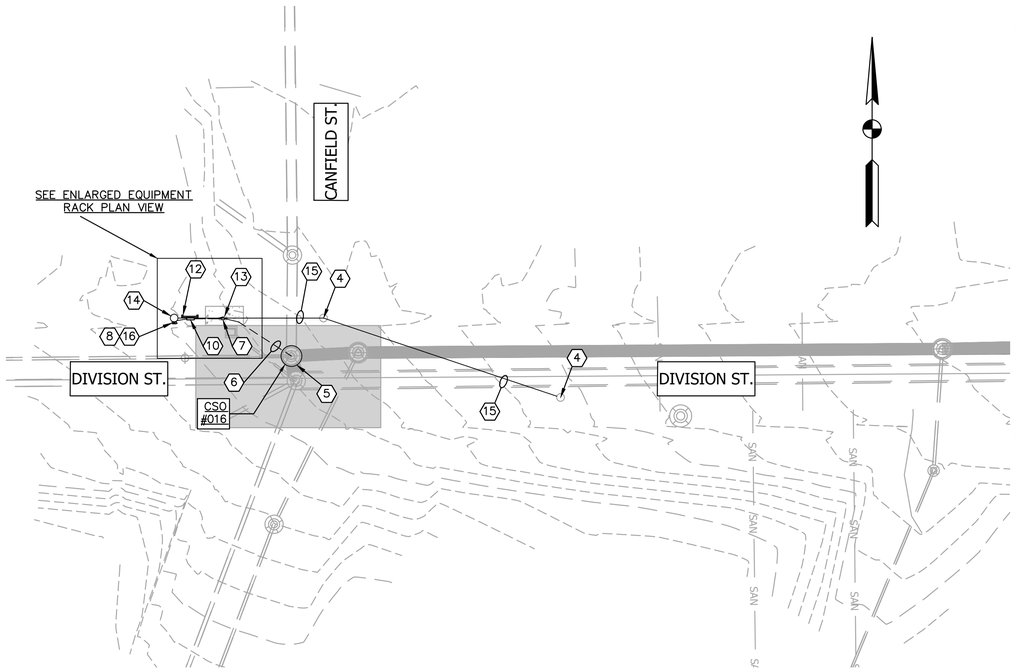
JOSEPH W. SIMS REGISTERED NO PE60860165 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL	Joseph W Sims	07/01/2022	
	Joseph W. Sims	DATE	
DESIGNED: IA		DRAWN: TEAM	
CHECKED: JWS		CHECKED: JWS	

CITY OF HUNTINGTON
LTCP PROJECTS 7 & 8: NORTHSIDE INTERCEPTOR SEWER

FIBER OPTIC ROUTE PLAN SHEET 17 OF 18 & CSO 014 SITE PLAN

SCALE
AS NOTED
CONSULTANT PROJECT NUMBER
120-3003-02W
SHEETS
E18



18A CSO-016 ELECTRICAL SITE PLAN
SCALE:1"=20'

GENERAL ELECTRICAL NOTES:

A. ALL DIMENSIONS, EQUIPMENT, LOCATIONS, CONDUIT AND WIRING LOCATIONS, ETC. ARE APPROXIMATE. CONTRACTOR SHALL VISIT AND FIELD VERIFY ALL DIMENSIONS PRIOR TO SUBMITTING QUOTE.

B. SAW CUT AND REPAIR EXISTING PAVEMENT, WALKWAY AS NECESSARY WHERE POWER, CONTROL, INSTRUMENTATION CABLE, AND FIBER CABLE CONDUIT CROSSES.

C. ALL CONDUITS TRANSITIONS (90 DEGREE ELBOW) FROM BELOW GRADE TO ABOVE GRADE SHALL BE GALVANIZED RIGID STEEL.

D. ALL OUTDOOR CONDUITS SHALL BE GALVANIZED RIGID STEEL.

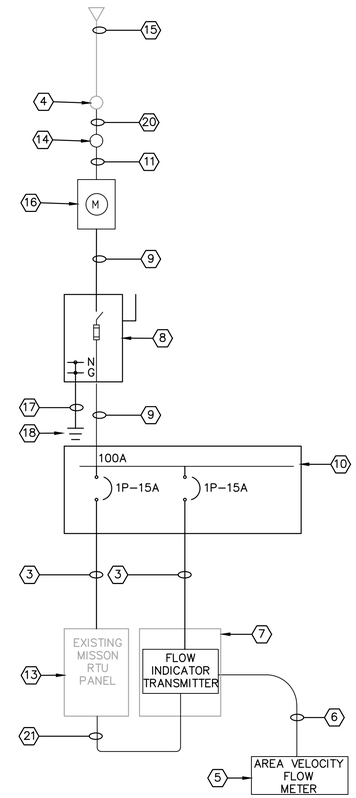
E. CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS FOR NEW SERVICE WITH LOCAL UTILITY. UTILITY FEES TO BE INCLUDED BY THE CONTRACTOR.

Name: Jodie L Armstrong
Email: Jodie.Armstrong@duke-energy.com
Work Phone: 1-800-774-0246

F. CUSTOMER SHALL APPLY FOR SERVICE (SET UP MONTHLY BILLING) BY CALLING 1-800-774-0246.

G. CITY ELECTRICAL INSPECTION DURING CONSTRUCTION AND AFTER CONSTRUCTION COMPLETION FOR THE UTILITY SERVICE.

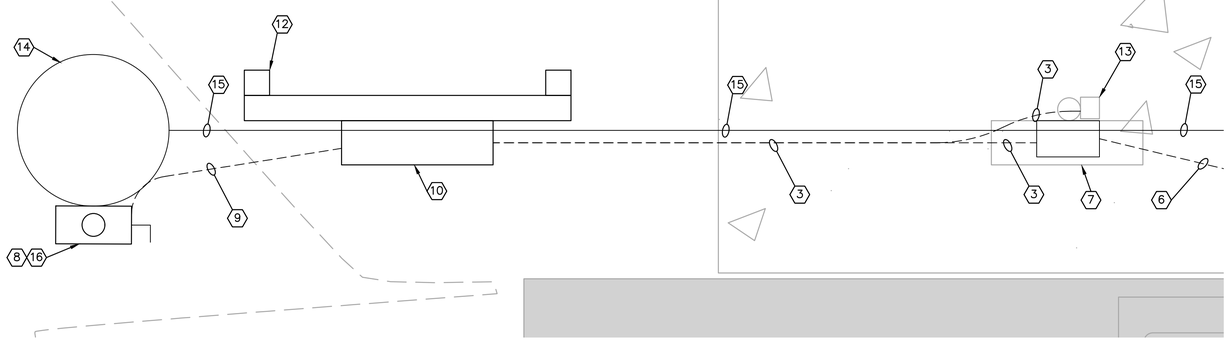
H. ALL BELOW GRADE CONDUITS FOR POWER WIRING SHALL BE SCH. 80 PVC.



POWER ONE-LINE DIAGRAM
NOT TO SCALE

ELECTRICAL PLAN NOTES:

1. FURNISH AND INSTALL POLYMER CONCRETE CABLE VAULT. SEE SCHEDULE ON THIS SHEET. SEE SHEET E24 FOR VAULT DETAILS.
2. FURNISH AND INSTALL TWO 2" DIRECT BURIED HDPE CONDUITS, ORANGE TYPE C, SDR 13.5 WALL; ONE SHALL BE SPARE WITH NYLON PULL CORD. PROVIDE WIRE TRACER WITH CONDUIT.
3. CONTRACTOR SHALL FURNISH AND INSTALL 2-#12 CU, 1-#12 CU GND, 3/4" C.
4. EXISTING POLE BY THE UTILITY TO REMAIN.
5. CONTRACTOR SHALL FURNISH AND INSTALL AREA VELOCITY FLOW SENSOR FAR ENOUGH INSIDE PIPE TO ACQUIRE ACCURATE FLOW MEASUREMENT. EXACT INSTALLATION LOCATION NOT SHOWN ON DRAWING. INSTALL PIPE BAND TO SECURE SENSOR TO PIPE. INSTALL PER MANUFACTURER'S RECOMMENDATION.
6. CONTRACTOR SHALL FURNISH AND INSTALL FLOW METER INSTRUMENT CABLE IN 2" HDPE CONDUIT. PROVIDE MINIMUM 75' CABLE. CONFIRM SENSOR CABLE LENGTH REQUIRED BEFORE ORDERING CABLE FROM THE MANUFACTURER.
7. EXISTING SOLAR PANEL ENCLOSURE TO REMAIN AND REUSE. REMOVE EXISTING PV MODULE AND EQUIPMENTS FROM THE ENCLOSURE AND INSTALL NEW FLOW INDICATOR TRANSMITTER INSIDE THE EXISTING PANEL ENCLOSURE.
8. NEW NEMA 4X STAINLESS STEEL ENCLOSURE, 120/240V, 2P-100A, CLASS J TYPE SERVICE ENTRANCE FUSED DISCONNECT SWITCH . FURNISHED AND INSTALLED BY CONTRACTOR. BOND NEUTRAL TO GROUND AT THIS LOCATION.
9. CONTRACTOR SHALL FURNISH AND INSTALL 2-#3 CU, 1-#4 CU GND, 1-1/4" C.
10. NEW 100A, 120/240V, 1PH, 3W, NEMA 4X STAINLESS STEEL MAIN LUG ONLY PANELBOARD, "CSO-ML016" WITH INTEGRAL SPD. FURNISHED AND INSTALLED BY CONTRACTOR.
11. NEW SERVICE ENTRANCE CONDUCTORS BY THE UTILITY IN 2" C. CONDUIT FURNISHED AND INSTALLED BY THE CONTRACTOR.
12. CONTRACTOR SHALL FURNISH AND INSTALL 4"X4" SQUARE WELDED ALUMINUM EQUIPMENT RACK WITH ALUMINUM MOUNTING PLATE.
13. EXISTING MISSION RTU PANEL TO REMAIN.
14. NEW CUSTOMER METER POLE WITH DISCONNECT AND BYPASS LEVER. FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE SHEET E25 FOR ADDITIONAL INSTALLATION DETAILS.
15. EXISTING OVERHEAD LINE BY THE UTILITY TO REMAIN.
16. NEW UTILITY METER AND METER BASE. UTILITY METER BY THE UTILITY. PROVIDE MAG APPROVED METER BASE. METER BASE FURNISHED AND INSTALLED BY THE CONTRACTOR. SEE SHEET E25 FOR ADDITIONAL DETAILS.
17. EXISTING EQUIPMENT TO BE REMOVED AND RETURNED TO OWNER. SEE SHEET E27 FOR REFERENCE PICTURE OF EXISTING EQUIPMENT AND INSTALLATION LOCATION.
18. CONTRACTOR SHALL FURNISH AND INSTALL #6 BARE CU GROUND. CADWELD CONNECTION TO GROUND ROD.
19. CONTRACTOR SHALL FURNISH AND INSTALL 3/4" X 10' GROUND ROD.
20. NEW OVERHEAD SECONDARY CONDUCTORS BY THE UTILITY.
21. FLOW, 4-20mA ANALOG SIGNAL, TSP-#16 CU IN 3/4" C.



ENLARGED EQUIPMENT RACK PLAN VIEW
SCALE: 1"=1'-0"
0 1/2" 1' 2"

REVISIONS		
DATE	REVISION	BY
1 07/27/22	ADDENDUM #1	IA

SIMS-DURKIN ASSOCIATES ENGINEERING COMPANY
5755 WEST 74TH STREET
INDIANAPOLIS, INDIANA 46278
PHONE: 317-209-4035
FAX: 317-222-4120
WEB: WWW.SIMS-DURKIN.COM
SDA PROJECT NUMBER: 2021102

LOCHMUELLER GROUP
7223 Engle Road, Suite 105
Fort Wayne, Indiana 46819
PHONE: 260.494.1901

JOSEPH W. SIMS REGISTERED NO PE60860165 STATE OF INDIANA PROFESSIONAL ENGINEER

RECOMMENDED FOR APPROVAL: Joseph W Sims 07/01/2022
Joseph W. Sims DATE

DESIGNED: IA DRAWN: TEAM
CHECKED: JWS CHECKED: JWS

CITY OF HUNTINGTON
LTCP PROJECTS 7 & 8: NORTHSIDE INTERCEPTOR SEWER

CSO-016 ELECTRICAL SITE PLAN 1

SCALE
AS NOTED
CONSULTANT PROJECT NUMBER
120-3003-02W
SHEETS 1
E19A

ATTACHMENT C: SYSTEM INTEGRATOR'S NOTES

SECTION 25 13 00
INSTRUMENTATION AND CONTROLS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This specification covers the technical requirements for the fabrication, installation, engineering, wiring, adjustment, testing, start-up, commissioning, and training for the instrumentation and control (I&C) systems required for the project.

B. The instrumentation and control systems shall include all work and materials necessary to perform the control functions as illustrated on the electrical drawings as specified in the Division 25 Specifications.

I will do this programming.

C. The System Integrator (SI) subcontractor shall be responsible for PLC programming at the CSO's RTU panel and Plant. The SI shall be Integrity Control and Automation, LLC.

D. All the other work shall be done by the contractor as specified in this specification.

1.2 SCOPE OF WORK

A. This project includes the construction of RTU panels for the CSO structures as specified in the drawings.

B. The SI shall be responsible for the following items:

I have the status and alarms in my quote. I also have trending. I will use the existing file sets for data storage. We may look at logging to SQL for all their trends eventually. I could add that into my quote if you would like.

1. Miscellaneous status monitoring and alarms for the RTU panel.
2. Flow analog signal shall be trended and recorded for a minimum of 30 years on a storage device compatible with SCADA trending software at the WWTP.
3. All required SCADA updates to existing system to incorporate all new control and monitoring signals for each CSO structure.
4. PLC programming at the CSO's RTU panel and plant.

C. The contractor shall be responsible for the following items:

1. RTU Control Panel.
2. New Instrumentation. See Section 25 30 00.
3. Installation and termination of wiring and conduit for the RTU panel.

D. Instrumentation & Control General Descriptions

1. The Instrumentation and Control System shall include all work necessary to monitor and control processes for each of the process elements noted above in 1.2.A, B and C, unless otherwise noted.

1.3 QUALITY ASSURANCE

A. All work and materials specified in 1.2.B and 1.2.C shall be furnished by a single contractor for each scope. The SI and the contractor shall be an experienced and reputable firm, which has been engaged in the business of providing instrumentation and control systems for water and wastewater treatment facilities for at least five years.

B. Drawings and specifications shown are intended to convey information required for a complete functioning system for the purposes specified. The Systems Integrator and the contractor shall be responsible for all details which may be necessary to properly install, adjust, and place in operation a complete and working system, including all mechanical and electrical installations, final wiring diagrams, connections, and the final layout, sizes and quantities of conduit and wiring.

C. In order to achieve standardization in appearance, operation, maintenance, and spare parts, similar equipment provided under this contract shall be the end products of a single manufacturer.

D. Codes, specifications, and standards referred to by number of titles shall form a part of this specification to the extent required by the references thereto.

1.4 PRE-CONSTRUCTION SUBMITTALS

A. Submittals shall be as specified in the General Conditions and as further described below:

B. Submit the following:

1. Project schedule, which shall represent the Contractor's and System Integrator's best projections of when activities listed below will occur. Project schedules shall be updated at the Engineer's request, when major changes in the schedule occur. The activities shall include, but not be limited to, the following:

   a. Coordination and loop review meetings
   b. Shop drawing submittals for each group of equipment
   c. Shop drawing approvals for each group of equipment
   d. Equipment manufacturing/panel fabrication
   e. Equipment delivery
   f. Equipment installation
   g. System testing and calibration
   h. Operational testing and demonstration.
   i. As-built submittals
   j. Operation and Maintenance Manual submittals
   k. Operator training
   l. Follow-up Operator training at six months after substantial completion.

All meetings listed are included in my quote. I've also included trips and time for on site activities like wiring and testing. I have added some time for shop drawings and submittals but they are for network layout and moves/changes/adds for the existing panels. I don't have time in this quote for panel fabrication or installation. Did I understand that those portions of the project will be awarded in a separate bid process? Those would encompass parts d, e, and f.

2. Manufacturer's certification of compliance with the referenced specifications and standards.
3. Certified copies of reports of factory tests specified herein and required by the referenced standards.

Shop drawings, indicating performance and physical data of the equipment specified

herein.

4. Manufacturer's installation instructions.
5. Provide mounting details for field mounted equipment.
6. Manufacturer's operation and maintenance instructions.
7. If available, USB driver, DVD and CD ROM media produced by the equipment manufacturer, which contain demonstrations of operation and maintenance procedures for the equipment specified herein.

C. Physical requirements of submittals shall be as follows:

1. Submittals shall be submitted in three-ring binders, or similar bindings.
2. Submittals shall be organized and divided into logical division by means of tagged dividers. Each type of equipment shall be given a separate division.
3. Provide index sheets for the submittals.
4. Drawings shall be 8-1/2 by 11 inches minimum. Drawings larger than 11 by 17 shall be folded and put into a three-hole plastic pocket.
5. All text material shall at minimum be typewritten. Handwritten material is not acceptable.
6. Telecopied (FAX) documents or photocopies of faxed documents shall not be included in submittals. Submittals containing telecopied documents will be rejected and returned immediately.

D. Shop drawings shall include, but not be limited to, the following:

1. Instrument index, which shall include instrument tag numbers, instrument description and instrument calibrated ranges.
2. Typewritten specification sheets, which shall include manufacturer's names and complete catalog numbers.
3. Detailed calculations as applicable, which shall include, but not be limited to, the following:

    a. Power supply sizing calculations
    b. Thermal loading (heat dissipation) calculations

4. Cut sheets and catalog information, which shall contain equipment specifications, dimensions, wiring and piping drawings, and installation and mounting details.
5. Loop drawings, which shall contain, but not be limited to, the following information:

    a. Loop numbers and instrument tag numbers
    b. Individual loop component locations
    c. Actual equipment wiring terminal designations, point to point wiring, and cable shield terminations
    d. Wire type, size and identification number
    e. Signal types (e.g., 120 Volt AC, 4-20 mA DC, pulse frequency, 3-15 psig, etc.)
    f. Contact orientations (e.g., normally open, normally closed, etc.)
    g. Equipment grounding requirements
    h. Sources of loop power, or power supply identifications
    i. Signal boosters, interposing relays and shunt resistors

        1) Reserve output capacity

6. Instrument and control panel layout drawings, which shall include, but not be limited to, the following:

    a. Bill of materials
    b. Front panel layout drawings
    c. Swing-out panel layout drawings
    d. Internal panel layout drawings
    e. Internal wiring diagrams, including wire type, size and identification number
    f. Terminal block layout drawings
    g. Nameplate lists
    h. Color schedules and samples

7. Elementary control diagrams.
8. Other descriptive information that will assist the Engineer with approval.

1.5 RECORD DRAWINGS (AS-BUILT) SUBMITTALS

A. Record drawings (as-built) submittals shall be as specified in the General Conditions, further described below:

B. The record drawings submittals shall consist of, but not be limited to, the following:

1. Submit one set to the Engineer and one set to the owner of corrected contract documents. The original contract documents shall be marked to reflect 'as-built' conditions. Corrections shall be made in red.
2. Submit one set to the Engineer and one set to the owner of corrected loop description. The original loop description shall be marked to reflect 'as-built' conditions. Corrections shall be made in red.
3. Submit one set to the Engineer and one set to the Owner printer outputs of the final configuration or programs of all programmable controller-based equipment.
4. Where applicable, submit to the Owner standard magnetic storage devices, such as CD/DVD disks, of all programmable controller-based equipment software and programs.
5. Submit original licensed copies and original documentation for all software. All software licenses shall be in Owner's name.
6. Where applicable, submit to the Owner two sets of pre-configured Read-only Memory Modules, such as EEPROMS or UVPROMS, of all programmable microprocessor-based equipment. Each memory module shall be submitted in an anti-static zippered poly-bag, which shall be clearly labeled and identified.

1.6 OPERATION AND MAINTENANCE MANUALS

I had some time for these O&M manuals but I did add some time and material cost for the binders. They are more extensive then I thought.

A. The Systems Integrator shall prepare and furnish Operation and Maintenance Manuals of the system, which shall be submitted to the Engineer prior to operator training described below. Provide four (4) bound hard copy sets and one (1) CD with complete electronic copy in pdf format.

B. The Operation and Maintenance Manuals shall include, but not be limited to, the following:

1. Approved shop drawings amended by approved change orders and as-built conditions.
2. Manufacturer supplied operating and installation manuals.

3. Detailed procedures and instructions on the operation, removal, installation, adjustment, calibration, and maintenance of each component provided under this contract.
4. As-built control panel and enclosure drawings, including termination drawings, PLC input/output (I/O) wiring diagrams, and panel bill of materials.
5. List of recommended spare parts, which shall include complete catalog numbers
6. List of local or the nearest manufacturer approved repair and service centers.

1.7 OPERATOR TRAINING

A. The System Integrator and the contractor shall provide operation and maintenance training of the Owner's personnel for each scope as specified in 1.2.B and 1.2. C. This training shall include, but not be limited to, the following:

I did have time for this training as specified.

1. The review of the Operation and Maintenance Manuals prepared and furnished by the System Integrator and the contractor for each scope as specified in 1.2.B and 1.2.C.
2. The review of 'as-built' panel layout drawings and wiring diagrams.
3. Hands-on training in the operation of each instrument and each loop.
4. Hands-on training in the maintenance, removal, and reinstallation of each instrument and each loop.
5. Hands-on training in the programming or configuration of all programmable microprocessor-based instruments. This does not include the PLC system.

B. For bidding purposes, the System Integrator and the contractor shall include a minimum training period of one day, at eight hours per day, for up to five persons.

C. The System Integrator and the contractor shall bear all expenses associated with the operator training activities, including labor, transportation and material costs.

PART 2 - PROCESS DESCRIPTION

2.1 GENERAL

A. The RTU panel PLC shall have an Ethernet port. Inside the RTU panel, there shall be a Fiber to Ethernet module. The Ethernet port from the PLC shall be terminated to the Fiber to Ethernet module, and the two shall communicate via Ethernet/IP protocol. The RTU panel shall tie with the existing SCADA system located at the WWTP admin building via fiber connection. The existing SCADA shall display all parts of the system functionality and alarming. Text only information is not acceptable. Graphically represent all functions of the system with an easy-to-use menu system. Graphics that do not represent proper operation, process functionality, ease of use, and operator interface shall be rejected.

B. The flow indicator transmitter for the flow sensor shall be installed inside the RTU panel for each CSO structure.

C. The SCADA at WWTP shall have trending for the flow of CSO structures 009, 010, 011, 013, 014, 015.

D. CSO-003 and CSO-016 shall not have any fiber connection to monitor at WWTP. See the drawings for additional details.

E. The SCADA at WWTP shall have an alarm summary screen. Following signals shall be monitored for each RTU panel:

a) General RTU power fail.
b) Intrusion/Door open status.
c) UPS fail status.

F. The SCADA at WWTP shall have pop-ups for each CSO stations, and flow meters.

G. Flow rate shall be monitoring and trend. There shall be no more than four trended signals per chart. Each trend shall have the ability to show one hour, four hours, eight hours, twelve hours or a full day per screen view. The trends shall be capable of allowing for date entry for detailed lo ok up by the operator.

H. The SCADA at WWTP shall monitor the battery life of the UPS system for each RTU panel.

2.2 PROCESS CONTROL DESCRIPTIONS

A. CSO Flow Structure

1. There shall be a total of eight (8) CSO structure for this project. See the drawing set for the structure location.

2. A new Area Velocity Flow Meter (AVFM) shall be installed within the CSO pipe for each structure. Each CSO structure shall have a flow meter to measure the flow.

3. Each CSO structure shall have a NEW RTU panel except the CSO Structure, "CSO-003". The RTU panel shall retrieve the flow information from the flow indicator transmitter and send it back to the existing SCADA station at the WWTP for monitoring along with the alarm signals noted above in 2.1.D.

PART 3 - EXECUTION

3.1 GENERAL

I have added some time to this part of the project. After reviewing this portion, the uncertainty of the panels and installation I may be working with and integrating may be more involved than I originally thought.

A. The System Integrator and the contractor shall provide all materials and work necessary for a complete and functioning I&C system and shall have full coordination responsibility of the electrical, mechanical, and structural work as specified herein and as shown on the drawings. The System Integrator shall ensure that the instrumentation and control systems work is properly interfaced with equipment and other work furnished under other divisions of the contract documents.

B. The System Integrator shall adjust, test, and start-up the complete instrumentation and control system utilizing the technical service and advice of the various equipment and instrument manufacturers.

C. The contractor shall install, make final connections to complete instrumentation and control system utilizing the technical service and advice of the various equipment and instrument manufacturers.

D. The contractor and System Integrator shall communicate with each other to complete overall instrumentation and control process for this project.

3.2 COORDINATION MEETINGS

A. Coordination and control loop review meetings shall be attended by representatives of the Contractor and the Systems Integrator, and the owner may be invited. The meetings shall be held at the Engineer's office periodically during the course of the project. The purpose of these meetings shall be to document the compatibility of the mechanical and electrical work as described in Article 3.01, paragraph A. above.

B. For bidding purposes, the Contractor and the Systems Integrator shall include cost for participation in no less than two (1) coordination and control loop review meetings. Each meeting shall require at least one half working day.

3.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Materials and equipment shall be delivered to the job site at a maximum of ten days prior to installation and not before.

B. All instruments containing electronics components shall be stored off the ground in weathertight enclosures. They shall be kept dry at all times. All plug-in equipment which can be removed from panels without the necessity of disconnecting any wire terminations shall be removed from its panel before shipping. They shall be shipped in separate shipping containers.

C. All equipment covered by this specification shall be shipped in a thoroughly clean condition, free from sand, oil, grit or grease (except when required for lubrication), weld splatter, or other foreign materials. All panel openings shall be capped.

3.4 INSTALLATION

A. General

1. Installation shall be in strict compliance with individual equipment manufacturer's instructions.
2. All gages and indicators shall be mounted in the upright position.
3. Provide sufficient space around the equipment for maintenance and removal.
4. Cover front panels, gages and indicators, during construction for protection from weld and paint splatter.
5. Unless otherwise impractical, support instruments independent of process piping.

B. Installation Hardware

1. All nuts and bolts shall be stainless steel.
2. Support channels shall be stainless steel unistrut channels with stainless steel hardware.
3. Do not mount equipment directly to masonry or concrete walls. Provide unistrut channels on wall.
4. All equipment mounting plates shall be of 0.25-inch thick minimum stainless steel.
5. All contact surfaces between dissimilar metals shall be gasketed to prevent galvanic

reaction.

C. Instrument Disconnect and Surge Protection

1. 120 volt AC power to each field-mounted instrument shall be provided with a surge protector for AC power and signal protection for 4-20mA, which shall be enclosed in a NEMA 4X box and labeled or as specified in the drawings.

a. Similar to Edco SLAC-22036

D. Weather Protection

1. Unless noted otherwise or impractical, all externally located instruments shall be installed to face north.

2. All externally located instruments, indicators, totalizers, control panels and control stations shall be mounted on a panel or mounting plate, which shall be provided with an aluminum or stainless-steel weather shield to protect the instruments from direct exposure to the sun and weather. This weather shield shall be 3" wider at each end and have a 6" overhang in front of the instrument. All edges shall be smooth and rounded.

3.5 EQUIPMENT IDENTIFICATION AND TAG NUMBERS

A. All apparatus, control equipment, and instruments, both panel and field mounted, shall be plainly identified, using the following methods:

1. Pipe-mounted instruments shall be provided with embossed stainless-steel tags, which shall be attached to the instruments by means of stainless steel wire or tie wrap.

2. Wall, plate, or panel mounted instruments shall be provided with engraved laminated plastic tags, which shall be mounted above, or below instruments. The plastic tags shall be mounted at eye level and shall be visible from a minimum distance of 20 feet. Lettering shall be black on white background.

B. Tag numbers and engraved or embossed text shall be as shown on the drawings, or as approved by the Engineer during shop drawing approval.

C. Tag numbers shall conform to the current Instrument Society of America (ISA) Standards, unless otherwise noted, which shall consist of a multi-character prefix, followed by a loop number. Tag numbers shall be as indicated on the drawings.

3.6 TESTING AND CALIBRATION

A. Contractor shall test all analog loop zeroes and spans by disconnecting wiring at each transmitter and substituting an approved 4-20madc generator.

B. System Integrator shall adjust the indicators and receiving instruments to indicate the correct value, correlated to the simulated current signal.

C. Contractor shall test all annunciator points by placing jumpers across normally open

contact inputs, or by disconnecting wiring on normally closed contact inputs.

D. System Integrator and contractor shall submit testing and calibration reports for all instruments to the Engineer.

3.7 COMMISSIONING

A. This activity shall consist of individual loop/instrument tests, overall systems test, and Operator training. Each test shall be witnessed by representatives of the Contractor, Systems Integrator, Owner, and Engineer.

1. Loop Operation Test: The objective is to demonstrate that the instrumentation and control system individual instruments are ready to be placed into permanent operation. Each loop shall be tested and demonstrated.
2. Control Function Test: The objective of this test is to demonstrate that all RTU panels, and Operator interface function are ready to place into permanent operation. All features of the WWTP SCADA HMI shall be demonstrated. The Contractor shall prepare an agenda for the commissioning and submit to Engineer as part of the shop drawing submittal package.
3. The Contractor shall conduct training as specified.
4. Substantial completion of the system shall not be approved until satisfactory completion of the above commissioning tasks.

3.8 WARRANTY

A. The Instrumentation and Control System shall be fully warranted and guaranteed from defect for a one year time period, beginning at the date of substantial completion.

These items are included in my quote.

B. During the warranty period adjust, recalibrate, repair, replace and otherwise place back into service any instrument and any item(s) that may require service, including software, at no additional cost to the Owner for any reason.

C. During the warranty service, provide unlimited on-site software and operation support, at no additional cost to the Owner for any reason.

D. Respond to a call for service within 24 hours.

E. At approximately six months completion of the warranty period, visit the plant and perform routine diagnostics and tests to determine on-going operation and performance of the I & C system within the project requirements. Make any and all repairs and adjustments necessary at no additional cost to the Owner for any reason. Conduct additional "follow-up training" to assist the Owner in operation of the plant and to address any operational concerns that may have become known after six months of operation.

END OF SECTION 25 13 00