

**MANATEE COUNTY
PUBLIC WORKS DEPARTMENT**

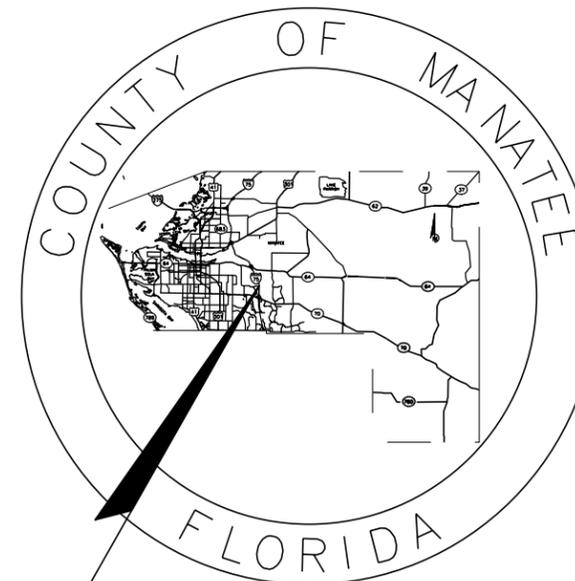
CONTRACT PLANS

**MANATEE COUNTY
PROJECT NUMBER 6045662
44TH AVENUE EAST**

PHASE 2

FROM 44TH AVENUE PLAZA EAST TO I-75

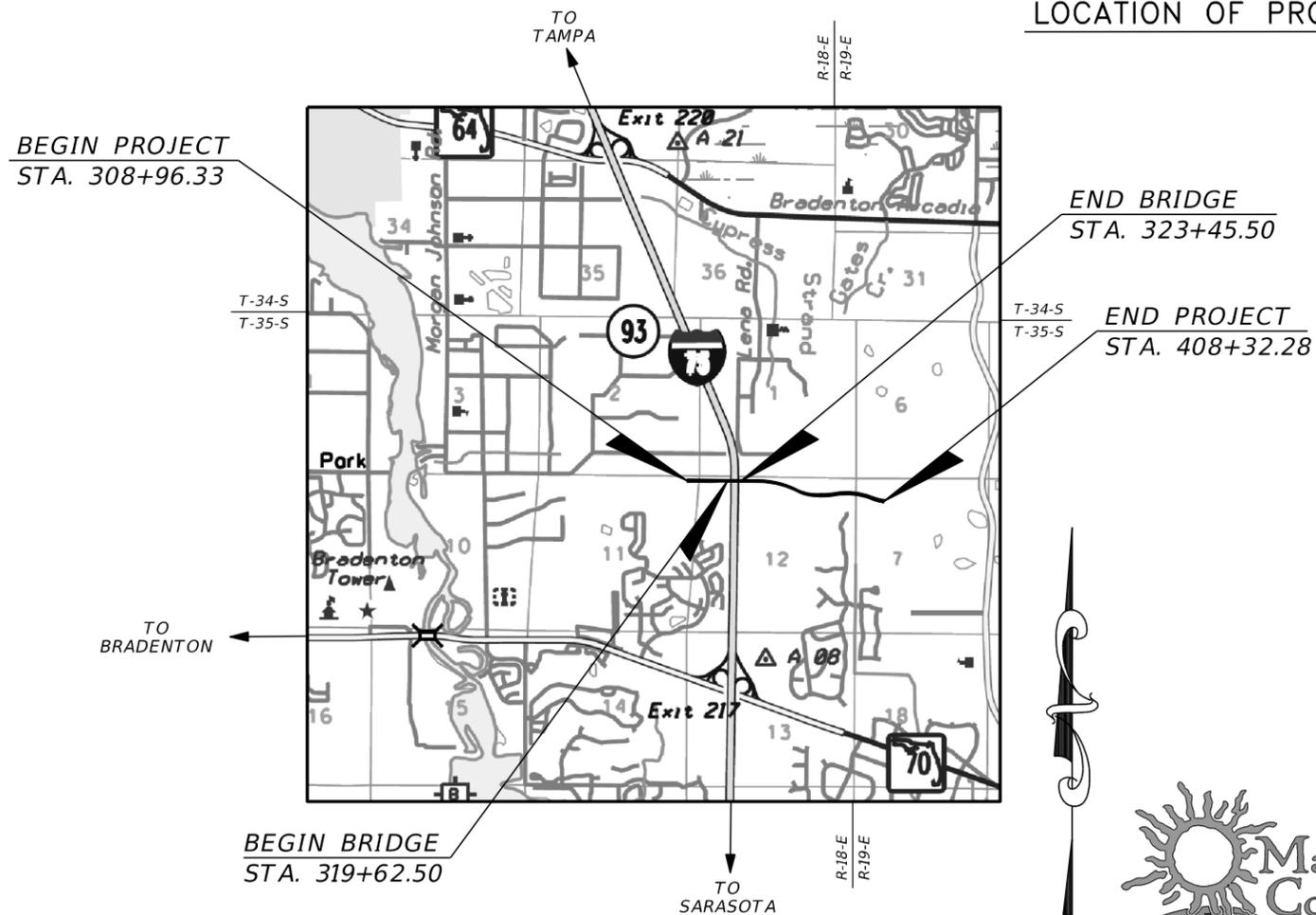
UTILITY RELOCATION PLANS



LOCATION OF PROJECT

INDEX OF UTILITY RELOCATION PLANS

SHEET NO.	SHEET DESCRIPTION
U-1	KEY SHEET
U-2	SIGNATURE SHEET
U-3	TABULATION OF QUANTITIES
U-4	GENERAL NOTES
U-5 - U-19	UTILITY RELOCATION PLANS
U-20 - U-27	UTILITY PROFILES
U-28 - U-36	UTILITY DETAILS



**90% SUBMITTAL
02/2022**

**UTILITY RELOCATION PLANS
ENGINEER OF RECORD:**

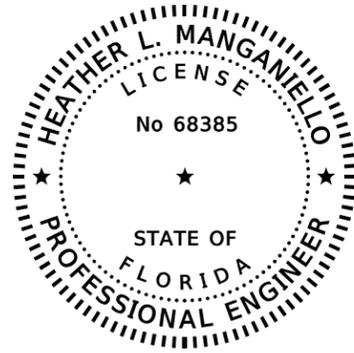
HEATHER L. MANGANIELLO
P.E. NO.: 68385
HDR ENGINEERING, INC.
2601 CATTLEMEN ROAD, SUITE 400
SARASOTA, FLORIDA 34232
VENDOR NO. 47-0680568

MANATEE CO. PROJECT MANAGER:
ERIC S. SHROYER, P.E.



FISCAL YEAR	SHEET NO.
22	1

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.



THE DOCUMENT HAS BEEN DIGITALLY SIGNED AND SEALED BY:

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED. THE SIGNATURE MUST BE VERIFIED ON THE ELECTRONIC DOCUMENTS.

HDR ENGINEERING, INC.
2601 CATTLEMEN ROAD, SUITE 400
SARASOTA, FL 34232
HEATHER L. MANGANIELLO, P.E. NO. 68385

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

UTILITY RELOCATION PLANS

SHEET NO.	SHEET DESCRIPTION
U-1	KEY SHEET
U-2	SIGNATURE SHEET
U-3	TABULATION OF QUANTITIES
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U-5 - U-19	UTILITY RELOCATION PLANS
U-20- U-27	UTILITY PROFILES
U-28 - U-36	UTILITY DETAILS

		SCALE	AS NOTED		 HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	02/2022		 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO		SIGNATURE SHEET	SHEET NO.			
		DESIGNED BY	HLM			PROJECT NO.	6045662			FL. LICENSE NO.	68385			U-2			
		DRAWN BY	TME														
		CHECKED BY	HEH														
No.	2	REVISIONS	90% Submittal	DATE	02/2022	BY	JTT										

UTILITY PLANS (WASTEWATER FORCE MAIN)														OUTSIDE OF PLANS/NOT PRESENT ON SURVEY	TOTAL QUANTITY
ITEM NO.	ITEM	UNIT	U-9	U-10	U-11	U-12	U-13	U-14	U-15	U-16	U-17	U-18	U-19		
MC-01-01	MOBILIZATION, WASTEWATER	LS													1
MC-01-02	12" DUCTILE IRON PIPE (RESTRAINED JOINT), WASTEWATER	LF									77				77
MC-01-03	36" DUCTILE IRON PIPE (RESTRAINED JOINT), WASTEWATER	LF									84				84
MC-01-04	6" POLYVINYL CHLORIDE PIPE (RESTRAINED JOINT), WASTEWATER	LF									16				1
MC-01-05	12" POLYVINYL CHLORIDE PIPE (RESTRAINED JOINT), WASTEWATER	LF				116	719	685	729	714	599	679	509		4,750
MC-01-06	20" POLYVINYL CHLORIDE PIPE (RESTRAINED JOINT), WASTEWATER	LF	246										20		266
MC-01-07	36" POLYVINYL CHLORIDE PIPE (RESTRAINED JOINT), WASTEWATER	LF				113	719	683	727	715	588	680	514		4,739
MC-01-08	REMOVE 20" DI WASTEWATER FORCE MAIN	LF	240												240
MC-01-09	6" PLUG & FILL, WASTEWATER FORCE MAIN	LF								83	382				465
MC-01-10	12" PLUG & FILL, WASTEWATER FORCE MAIN	LF				290	750		379	722	670	640	508	1041	5,000
MC-01-11	20" PLUG & FILL, WASTEWATER FORCE MAIN	LF											110		110
MC-01-12	36" PLUG & FILL, WASTEWATER FORCE MAIN	LF				290	750		379	722	670	640	510	1039	5,000
MC-01-13	36" STEEL CASING, WASTEWATER	LF	206												206
MC-01-14	12" DUCTILE IRON ELBOW (RESTRAINED JOINT), WASTEWATER	EA				4	2		4		2	2	8		22
MC-01-15	20" DUCTILE IRON ELBOW (RESTRAINED JOINT), WASTEWATER	EA	16										1		17
MC-01-16	36" DUCTILE IRON ELBOW (RESTRAINED JOINT), WASTEWATER	EA				4	2		2	4	2	2	4		20
MC-01-17	12" DUCTILE IRON UNION (RESTRAINED JOINT), WASTEWATER	EA				1							1		2
MC-01-18	20" DUCTILE IRON UNION (RESTRAINED JOINT), WASTEWATER	EA	4												4
MC-01-19	36" DUCTILE IRON UNION (RESTRAINED JOINT), WASTEWATER	EA				1							1		2
MC-01-20	6" DUCTILE IRON PLUG / CAP (RESTRAINED JOINT), WASTEWATER	EA								1	1				2
MC-01-21	12" DUCTILE IRON PLUG / CAP (RESTRAINED JOINT), WASTEWATER	EA				1	1			1	1	1	1	5	11
MC-01-22	20" DUCTILE IRON PLUG / CAP (RESTRAINED JOINT), WASTEWATER	EA											1	5	6
MC-01-23	36" DUCTILE IRON PLUG / CAP (RESTRAINED JOINT), WASTEWATER	EA				1	1			1	1	1	1		6
MC-01-24	36" X 6" DUCTILE IRON TEE (RESTRAINED JOINT), WASTEWATER	EA									1				1
MC-01-25	36" X 20" DUCTILE IRON TEE (RESTRAINED JOINT), WASTEWATER	EA											1		1
MC-01-26	20" PVC/HDPE ADAPTER UNION	EA											1		1
MC-01-27	6" GATE VALVE (RESTRAINED JOINT), WASTEWATER	LF									1				1
MC-01-28	12" GATE VALVE (RESTRAINED JOINT), WASTEWATER	EA				1			1				1		3
MC-01-29	20" GATE VALVE (RESTRAINED JOINT), WASTEWATER	EA											1		1
MC-01-30	36" GATE VALVE (RESTRAINED JOINT), WASTEWATER	EA				1			1				1		3
MC-01-31	12" LINESSTOP, WASTEWATER	EA				2									2
MC-01-32	20" LINESSTOP, WASTEWATER	EA	4												4
MC-01-33	36" LINESSTOP, WASTEWATER	EA				2	2								2
MC-01-34	EXISTING ARV W/ ENCLOSURE, ADJUST TO GRADE, WASTEWATER	EA							1						1
MC-01-35	ARV WITH ENCLOSURE, WASTEWATER	EA	2				2			2		3			9
MC-01-36	RECORD DRAWINGS, WASTEWATER	LS													1

UTILITY PLANS (RECLAIMED WATER MAIN)														OUTSIDE OF PLANS/NOT PRESENT ON SURVEY	TOTAL QUANTITY
ITEM NO.	ITEM	UNIT	U-9	U-10	U-11	U-12	U-13	U-14	U-15	U-16	U-17	U-18	U-19		
MC-02-01	MOBILIZATION, RECLAIMED WATER	LS													1
MC-02-02	30" DUCTILE IRON PIPE (RESTRAINED JOINT), RECLAIMED WATER	LF				156	148	716	675	680	803	685	685		4,548
MC-02-03	12" POLYVINYL CHLORIDE PIPE (RESTRAINED JOINT), RECLAIMED WATER	LF									11				11
MC-02-04	REMOVE 30" DI RECLAIMED WATER MAIN	LF				145									145
MC-02-05	12" PLUG & FILL, RECLAIMED WATER MAIN	LF								115	530				645
MC-02-06	30" PLUG & FILL, RECLAIMED WATER MAIN	LF					148		271	720	667	645	524	1145	4,120
MC-02-07	12" DUCTILE IRON ELBOW (RESTRAINED JOINT), RECLAIMED WATER	EA									1				1
MC-02-08	30" DUCTILE IRON ELBOW (RESTRAINED JOINT), RECLAIMED WATER	EA				8	1		3		6		6		24
MC-02-09	12" DUCTILE IRON UNION (RESTRAINED JOINT), RECLAIMED WATER	EA									1				1
MC-02-10	30" DUCTILE IRON UNION (RESTRAINED JOINT), RECLAIMED WATER	EA				2	1						1		4
MC-02-11	12" DUCTILE IRON PLUG / CAP (RESTRAINED JOINT), RECLAIMED WATER	EA								1	1				2
MC-02-12	30" DUCTILE IRON PLUG / CAP (RESTRAINED JOINT), RECLAIMED WATER	EA								1	1	1	1	5	9
MC-02-13	30" X 12" DUCTILE IRON TEE (RESTRAINED JOINT), RECLAIMED WATER	EA									1				1
MC-02-14	12" GATE VALVE (RESTRAINED JOINT), RECLAIMED WATER	EA									1				1
MC-02-15	30" GATE VALVE (RESTRAINED JOINT), RECLAIMED WATER	EA								1	1				2
MC-02-16	30" LINESSTOP, RECLAIMED WATER	EA				2	1								3
MC-02-17	ARV WITH ENCLOSURE, RECLAIMED WATER	EA				1							1		2
MC-02-18	EXISTING VALVE, ADJUST/MODIFY, RECLAIMED WATER	EA					1		1		3				5
MC-02-19	RECLAIMED WATER SERVICE REPLACEMENT/CONNECTION	EA							1		3				4
MC-02-20	RECORD DRAWINGS, RECLAIMED WATER	LS													1

UTILITY PLANS (POTABLE WATER MAIN)														OUTSIDE OF PLANS/NOT PRESENT ON SURVEY	TOTAL QUANTITY
ITEM NO.	ITEM	UNIT	U-9	U-10	U-11	U-12	U-13	U-14	U-15	U-16	U-17	U-18	U-19		
MC-03-01	MOBILIZATION, POTABLE WATER	LS													1
MC-03-02	12" DUCTILE IRON PIPE (RESTRAINED JOINT), POTABLE WATER	LF													138
MC-03-03	EXISTING VALVE, ADJUST/MODIFY, POTABLE WATER	EA									3				3
MC-03-04	EXISTING SERVICE, REMOVE/ABANDON, POTABLE WATER	EA	1									1			1
MC-03-05	12" DUCTILE IRON ELBOW (RESTRAINED JOINT), POTABLE WATER	EA									4				4
MC-03-06	12" DUCTILE IRON UNION (RESTRAINED JOINT), POTABLE WATER	EA									2				2
MC-03-07	12" DUCTILE IRON PLUG / CAP (RESTRAINED JOINT), POTABLE WATER	EA									2				2
MC-03-08	12" PLUG & FILL, RECLAIMED WATER MAIN	LF									130				130
MC-03-09	SAMPLE POINT, POTABLE WATER	EA									2				2
MC-03-10	RECORD DRAWINGS, POTABLE WATER	LS													1

SCALE AS NOTED		 HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	TABULATION OF QUANTITIES	SHEET NO.
DESIGNED BY HLM			02/2022		HEATHER MANGANIELLO		U-3
DRAWN BY TME			PROJECT NO. 6045662		FL. LICENSE NO. 68385		
2	90% Submittal	02/2022	JTT	CHECKED BY HEH			
No.	REVISIONS	DATE	BY				

44TH AVENUE EAST



← PHASE 1

EXIST. 134' FPL EASEMENT

← EXIST. R/W

PROP. RETAINING WALL

PROP. SIDEWALK

306

307

308

309

310

311

PI STA. 311+00.00

☉ CONST. 44TH AVE. EAST

S 89° 36' 08" E

PROP. RETAINING WALL

EXIST. R/W

PROP. SIDEWALK

BEGIN PROJECT
STA. 308+97.33

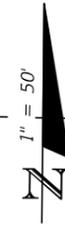
MATCHLINE STA. 312+00.00, SEE SHEET U-6

NO UTILITY WORK
THIS SHEET

		SCALE AS NOTED		 HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	UTILITY RELOCATION PLANS (I)	SHEET NO.
		DESIGNED BY HLM			02/2022		HEATHER MANGANIELLO		U-5
		DRAWN BY TME			PROJECT NO. 6045662		FL. LICENSE NO. 68385		
2	90% Submittal	02/2022	JTT	CHECKED BY HEH	3:35:01 PM	2/17/2022	PW:\		
No.	REVISIONS	DATE	BY						

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44TH AVENUE EAST



OE - - - - - OE - - - - -

EXIST. 134' FPL EASEMENT

PROP. RETAINING WALL

PROP. SIDEWALK

MATCHLINE STA. 312+00.00, SEE SHEET U-5

MATCHLINE STA. 319+00.00, SEE SHEET U-7

2 313 314 315 316 317 318 3

S 89° 23' 52" E

CL CONST. 44TH AVE. EAST

PROP. RETAINING WALL

PROP. SIDEWALK

EXIST. R/W

NO UTILITY WORK
THIS SHEET

SCALE AS NOTED		 HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	UTILITY RELOCATION PLANS (2)	SHEET NO.
DESIGNED BY HLM			02/2022		HEATHER MANGANIELLO		U-6
DRAWN BY TME			PROJECT NO.		FL. LICENSE NO.		
CHECKED BY HEH			6045662		68385		
No.	REVISIONS	DATE	BY	3:35:05 PM	2/17/2022	PW:\	

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44TH AVENUE EAST

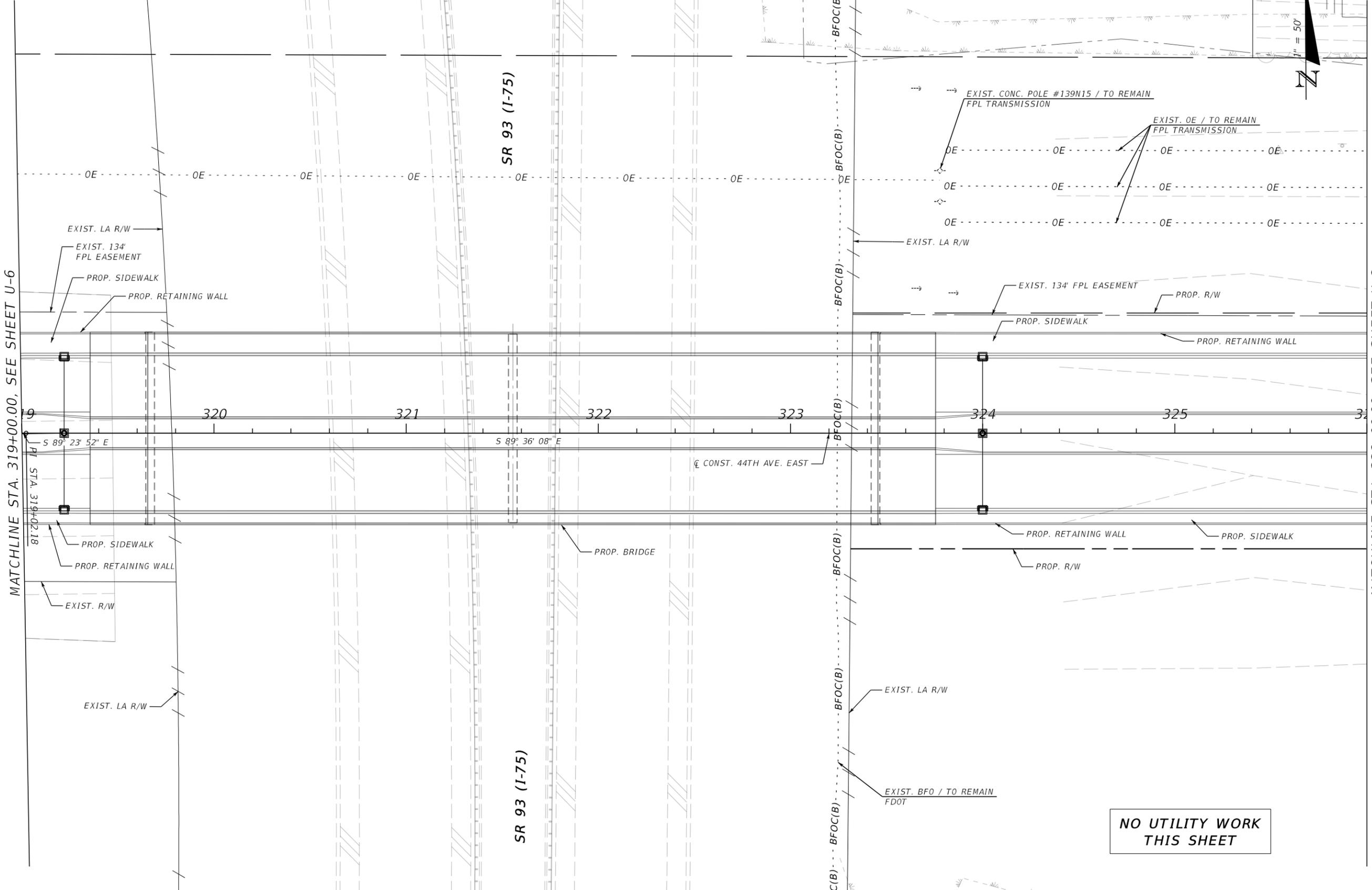
SR 93 (I-75)

SR 93 (I-75)



MATCHLINE STA. 319+00.00, SEE SHEET U-6

MATCHLINE STA. 326+00.00, SEE SHEET U-8



NO UTILITY WORK
THIS SHEET

SCALE	AS NOTED		
DESIGNED BY	HLM		
DRAWN BY	TME		
CHECKED BY	HEH		
No.	REVISIONS	DATE	BY
2	90% Submittal	02/2022	JTT



HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233

DATE
02/2022
PROJECT NO.
6045662



MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER
HEATHER MANGANIELLO
FL. LICENSE NO.
68385

UTILITY RELOCATION
PLANS (3)

SHEET NO.
U-7

3:35:09 PM

2/17/2022

PW:\

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

NOTES:

1) EXIST. 30" FM PV (ISOLATION VALVE) IS LOCATED AT END OF 41ST AVE. APPROXIMATELY 900 FT NORTH OF TIE-IN. VALVES ARE TO BE OPEN/CLOSED BY COUNTY ONLY.

2) 20" FM PV (ISOLATION VALVE) IS LOCATED SOUTH OF TECO GAS EASEMENT, APPROXIMATELY 5,200 FT SOUTH OF TIE-IN. VALVES ARE TO BE OPEN/CLOSED BY COUNTY ONLY.

3) LINE STOPS TO BE RESTRAINED AS DEAD END. LINE STOP LOCATIONS TO BE SURVEYED AND PROVIDED ON RECORD DRAWINGS.

4) 41ST AVE. E WATER MAIN LOCATED ON NORTH SIDE OF 41ST AVE. TO REMAIN, CONTRACTOR TO LOCATE SERVICE ON EXIST. 8" WATER MAIN FOR 8010 41ST AVE. E PROPERTY (NORTH SIDE OF 41ST AVE.) CLOSE VALVE ON SERVICE LINE AT METER AND THE CORPORATION STOP AT THE EXISTING WATER MAIN TAP. CONTRACTOR TO CLOSE AND CAP EXISTING CORPORATION STOP. CONTRACTOR TO REMOVE METER BOX AND SERVICE LINE UP TO CORPORATION STOP. COUNTY TO REMOVE METER. CONTRACTOR TO COORDINATE TIMING OF SERVICE REMOVAL PRIOR TO REMOVAL. WORK NOT SHOWN ON SHEET, LOCATED NORTH OF THIS AREA.

5) LINESHOPS SHOWN APPROXIMATELY 50 FEET FROM RESPECTIVE TIE-IN LOCATIONS. LOCATION OF LINESHOP MAY BE ADJUSTED TO FACILITATE LINESHOP INSTALLATION, TIE-IN AND POST RESTRAINING. EXISTING MAIN TO BE RESTRAINED TO FACILITATE LINESHOP INSTALLATION.

6) CONST. OFFSET ARV

STA. 600+12.22

N: 1136996.84, E: 509048.44

7) CONST. 20" 45° BEND (RJ)

STA. 600+02.02, 7.56' RT

N: 1136988.74, E: 509061.65

NOTES (CONTINUED):

8) CONST. 20" 45° BEND (RJ)

N: 1136993.34, E: 509066.21

9) CONST. OFFSET ARV

STA. 600+11.87, 17.75' RT

N: 1136996.47, E: 509066.86

10) CONST. 20" 45° BEND (RJ)

N: 1137095.57, E: 509065.79

11) CONST. 20" 45° BEND (RJ)

STA. 601+18.03, 6.56' RT

N: 1137100.62, E: 509060.77

12) CONST. 20" 45° BEND (RJ)

(ROTATED DOWN)

STA. 601+25.01, 6.56' RT.

N: 1137107.54, E: 509060.85

13) CONST. 20" 45° BEND (RJ)

(ROTATED UP), CONST. UNION

(TIE TO EXIST. 20" FM)

STA. 601+28.20, 6.56' RT.

N: 1137110.80, E: 509060.84

14) CONST. 20" LINESHOP

(TEMPORARY), SEE NOTE 5

N: 1137150.55

E: 509060.77

15) CONST. 20" LINESHOP

(TEMPORARY), SEE NOTE 5

N: 1137150.57

E: 509054.32

44TH AVENUE EAST

44TH AVENUE EAST

1" = 50'



MATCHLINE STA. 333+00.00, SEE SHEET U-8

MATCHLINE STA. 340+00.00, SEE SHEET U-10

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SCALE		AS NOTED		DATE		DESIGN ENGINEER		SHEET NO.	
DESIGNED BY		HLM		02/2022		HEATHER MANGANIELLO		UTILITY RELOCATION PLANS (5)	
DRAWN BY		TME		PROJECT NO.		FL. LICENSE NO.		U-9	
CHECKED BY		HEH		6045662		68385			
REVISIONS		DATE		BY		PW\			
2		02/2022		JTT					
No.									



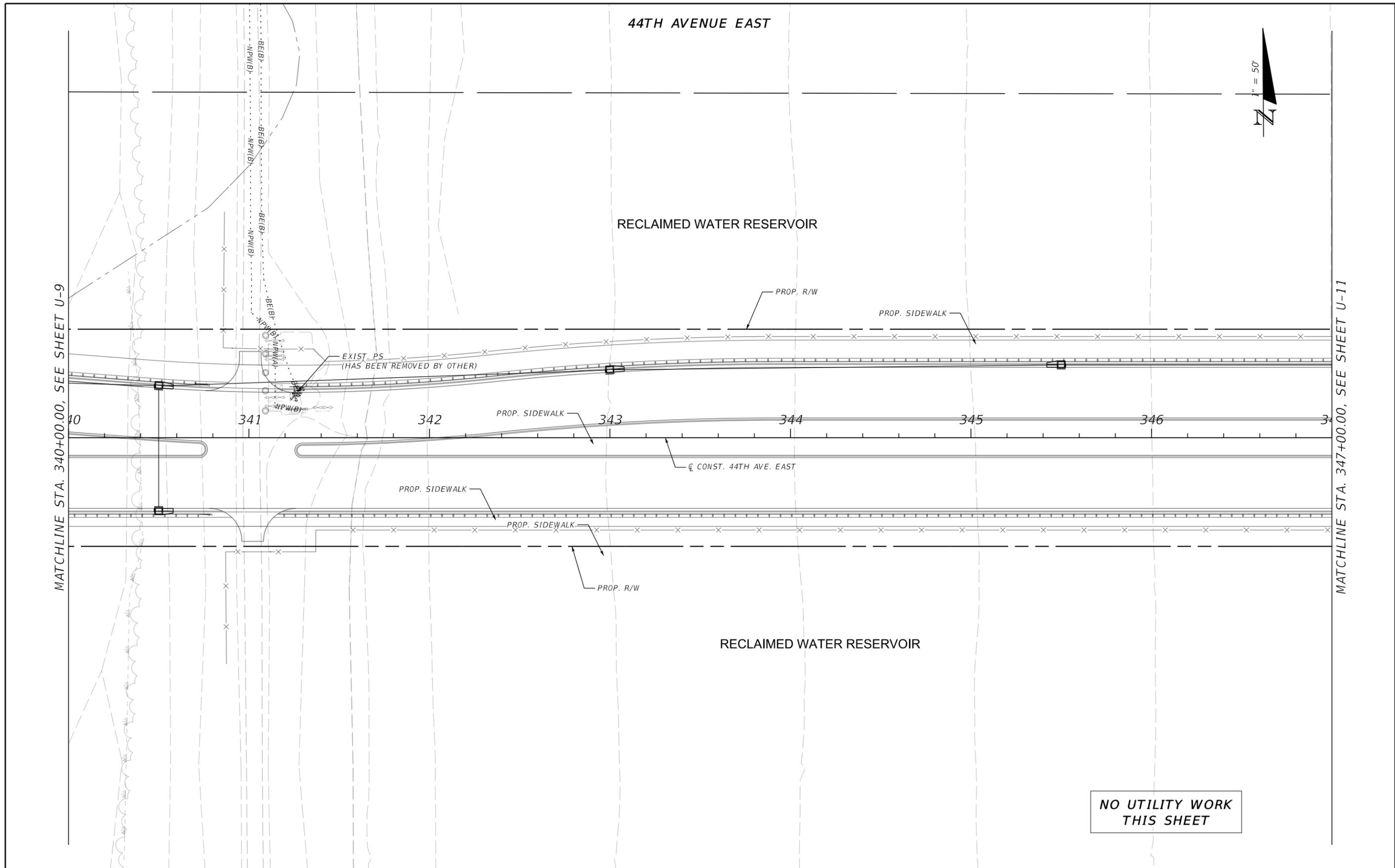
HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233



MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER
HEATHER MANGANIELLO
FL. LICENSE NO.
68385

SHEET NO.
U-9



		SCALE	AS NOTED		HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	02/2022	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY RELOCATION PLANS (6)	SHEET NO.	U-10
		DESIGNED BY	HLM			PROJECT NO.	6045662		FL. LICENSE NO.	68385			
2	90% Submittal	02/2022	JTT			DRAWN BY	TME		CHECKED BY	HEH			
No.	REVISIONS	DATE	BY					PW:\					

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3:35:21 PM

2/17/2022

PW:\

NOTES:

- 1) CONST. 36" PVC FM, BETWEEN EDGE OF SIDEALK AND R/W. MINIMUM 3FT BETWEEN EDGE OF FORCE MAIN AND R/W. (TIE INTO 36" DIP FORCE MAIN THAT RUNS NORTH-SOUTH ALONG EAST SIDE OF RESERVOIR.
- 2) CONST. 12" PVC FM, 3FT OUTSIDE FROM PROP. 36" PVC FM; 10FT FROM R/W TO CENTER OF 12" PVC FM. (TIE TO EXIST. 12" FORCE MAIN THAT RUNS NORTH-SOUTH ALONG EAST SIDE OF RESERVOIR.
- 3) LINESTOPS SHOWN APPROXIMATELY 50 FEET FROM RESPECTIVE TIE-IN LOCATIONS. LOCATION OF LINESTOP MAY BE ADJUSTED TO FACILITATE LINESTOP INSTALLATION, TIE-IN AND POST RESTRAINING. EXISTING MAIN TO BE RESTRAINED TO FACILITATE LINESTOP INSTALLATION.

44TH AVENUE EAST

CURVE DATA CL44 23
 PI STA. = 354+87.24
 Δ = 25° 01' 05" (RT)
 L = 665.58
 PC STA. = 348+21.66
 PT STA. = 361+31.61

APPROX. LOCATION OF EXIST. 30" DIP RCW MAIN (TO REMAIN) (BASED ON AS-BUILTS, FIELD VERIFY)

APPROX. LOCATION OF EXIST. 12" PVC FM (TO REMAIN) (BASED ON AS-BUILTS, FIELD VERIFY)

APPROX. LOCATION OF EXIST. 36" DIP FM (TO REMAIN) (BASED ON AS-BUILTS, FIELD VERIFY)



MATCHLINE STA. 354+00.00, SEE SHEET U-11

MATCHLINE STA. 361+00.00, SEE SHEET U-13

RECLAIMED WATER RESERVOIR

RECLAIMED WATER RESERVOIR

NOTES (CONTINUED):

- 4) CONST. 12" 45° BEND (RJ) (ROTATED UP), 12" UNION (RJ) (TIE TO EXIST. 12" FM)
 N: 1136885.57
 E: 511087.30
- 5) CONST. 36" 45° BEND (RJ) (ROTATED UP), 36" UNION (RJ) (TIE TO EXIST. 36" FM)
 N: 1136885.57
 E: 511092.92
- 6) CONST. 12" 45° BEND (RJ) (ROTATED DOWN)
 N: 1136873.27
 E: 511087.31
- 7) CONST. 36" 45° BEND (RJ) (ROTATED DOWN)
 N: 1136873.27
 E: 511092.92
- 8) CONST. 36" 22.5° BEND (RJ), STA. 80+00.00
 N: 1136868.28
 E: 511092.92

- 9) CONST. ARV (OFFSET) (30" RCW)
 STA. 699+97.28
 N: 1136876.00
 E: 511076.57
- 10) CONST. 36" 45° BEND (RJ)
 STA. 800+07.02
 N: 1136861.75, E: 511095.49
- 11) CONST. 36" GV (RJ)
 STA. 800+13.71
 N: 1136859.14
 E: 511101.66
- 12) CONST. 12" LINESTOP (TEMPORARY), SEE NOTE 3
 N: 1136923.15, E: 511087.31
- 13) CONST. 36" LINESTOP (TEMPORARY), SEE NOTE 3
 N: 1136923.15, E: 511092.89
- 14) CONST. 12" LINESTOP (TEMPORARY), SEE NOTE 3
 N: 1136694.20, E: 511087.31
- 15) CONST. 36" LINESTOP (TEMPORARY), SEE NOTE 3
 N: 1136694.20, E: 511092.89

CONST. 30" LINESTOP (TEMPORARY), SEE NOTE 3
 N: 1136923.28
 E: 511076.54

POST RESTRAIN

CONST. 30" 45° BEND (RJ) (ROTATED UP), 30" UNION (TIE TO EXIST. 30" RCW)
 STA. 699+90.00
 N: 1136883.26, E: 511077.14

CONST. 30" 45° BEND (RJ) (ROTATED DOWN)
 STA. 699+93.01
 N: 1136880.07, E: 511077.23
 SEE NOTE 9

CONST. 30" 45° BEND (RJ)
 STA. 700+00
 N: 1136873.29
 E: 511077.27

CONST. 30" 45° BEND (RJ)
 STA. 700+06.30
 N: 1136868.76
 E: 511072.89

CONST. 12" 22.5° BEND (RJ), STA. 800+02.32, 6.95' RT
 N: 1136863.57
 E: 511087.31

CONST. 12" 45° BEND (RJ)
 STA. 800+07.02, 7.32' RT
 N: 1136857.04
 E: 511089.88

CONST. 156 LF OF 30" DI RCW (RJ) (SEE U-20 FOR PROFILE)

CONST. 30" 45° BEND (RJ)
 STA. 701+26.23
 N: 1136748.85
 E: 511074.81

CONST. 30" 45° BEND (RJ)
 STA. 701+32.53
 N: 1136744.33
 E: 511079.19

CONST. 30" 45° BEND (RJ) (ROTATED DOWN)
 STA. 701+39.26
 N: 1136737.34, E: 511079.16

CONST. 30" 45° BEND (RJ) (ROTATED UP), 30" UNION (TIE TO EXIST. 30" RCW)
 STA. 701+42.65
 N: 1136732.77, E: 511079.27

CONST. 30" LINESTOP (TEMPORARY), SEE NOTE 3
 STA. 701+82.49
 N: 1136694.33, E: 511079.16

APPROX. LOCATION OF EXIST. 30" DIP RCW MAIN (TO REMAIN)

APPROX. LOCATION OF EXIST. 36" DIP FM (TO BE P&F, PROVIDE 36" CAPS (RJ) AS NEEDED TO PERFORM P&F)

APPROX. LOCATION OF EXIST. 12" PVC FM (TO BE P&F, PROVIDE 12" CAPS (RJ) AS NEEDED TO PERFORM P&F)

SCALE AS NOTED		DESIGNED BY HLM		DRAWN BY TME		CHECKED BY HEH		DATE 02/2022		PROJECT NO. 6045662		DESIGN ENGINEER HEATHER MANGANIELLO		FL. LICENSE NO. 68385		SHEET NO. U-12	
2		90% Submittal		02/2022		JTT		3:36:27 PM		2/17/2022		PW:\		MANATEE COUNTY PUBLIC WORKS		UTILITY RELOCATION PLANS (8)	

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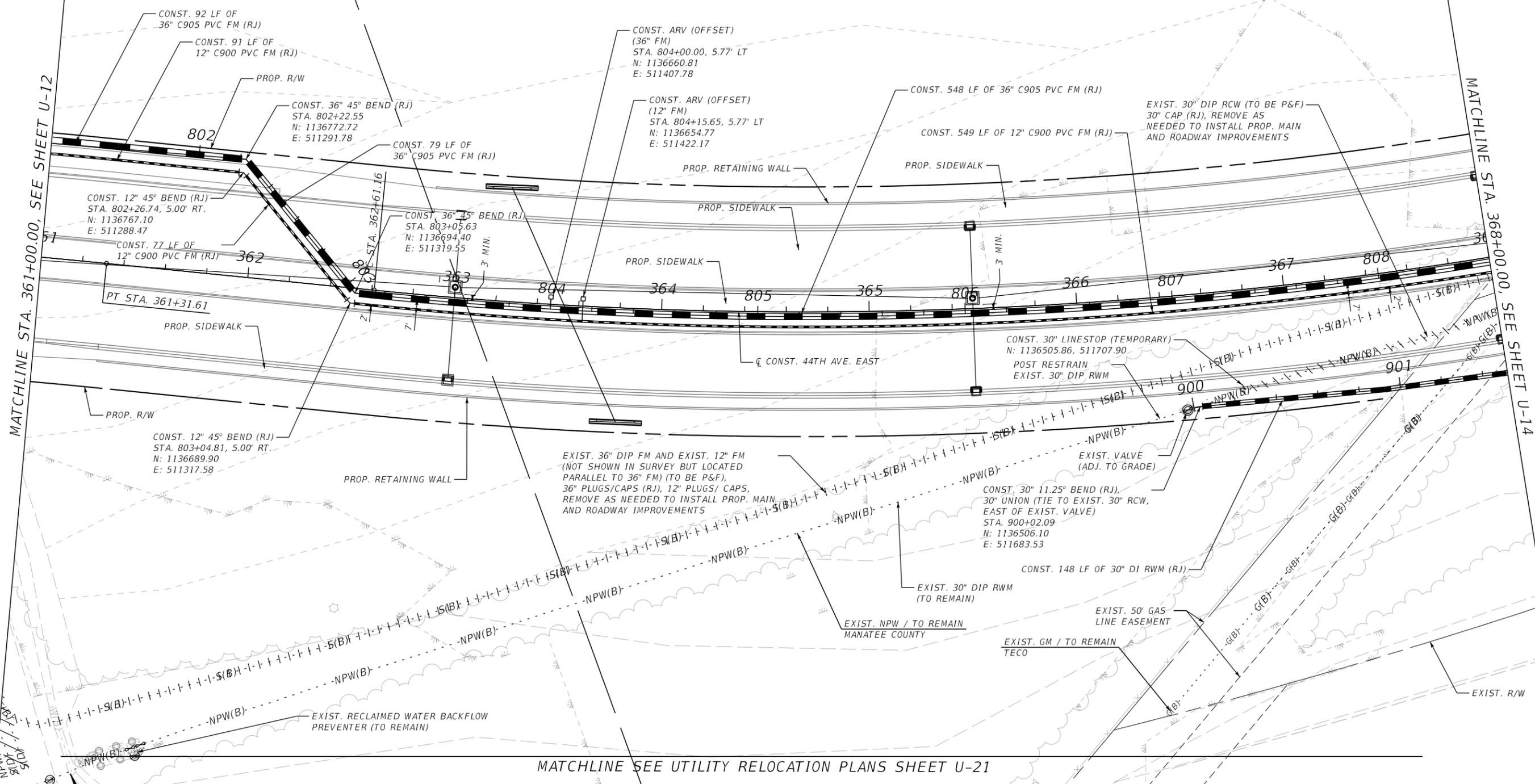
44TH AVENUE EAST



NOTES:
 1) LINSTOPS SHOWN APPROXIMATELY 50 FEET FROM RESPECTIVE TIE-IN LOCATIONS. LOCATION OF LINSTOP MAY BE ADJUSTED TO FACILITATE LINSTOP INSTALLATION, TIE-IN AND POST RESTRAINING. EXISTING MAIN TO BE RESTRAINED TO FACILITATE LINSTOP INSTALLATION.

MATCHLINE STA. 361+00.00, SEE SHEET U-12

MATCHLINE STA. 368+00.00, SEE SHEET U-14



MATCHLINE SEE UTILITY RELOCATION PLANS SHEET U-21

SCALE		AS NOTED		DATE		02/2022		DESIGN ENGINEER		HEATHER MANGANIELLO		SHEET NO.		U-13	
DESIGNED BY		HLM		PROJECT NO.		6045662		FL. LICENSE NO.		68385		PW:\			
DRAWN BY		TME		PROJECT NO.		6045662		FL. LICENSE NO.		68385		PW:\			
CHECKED BY		HEH		DATE		02/2022		DATE		02/2022		DATE		02/2022	
REVISIONS				DATE				DATE				DATE			



HDR Engineering, Inc.
 2601 Cattlemen Road
 Suite 400
 Sarasota, FL 34232-6233



MANATEE COUNTY
 PUBLIC WORKS

DESIGN ENGINEER
 HEATHER MANGANIELLO
 FL. LICENSE NO.
 68385

UTILITY RELOCATION
 PLANS (9)

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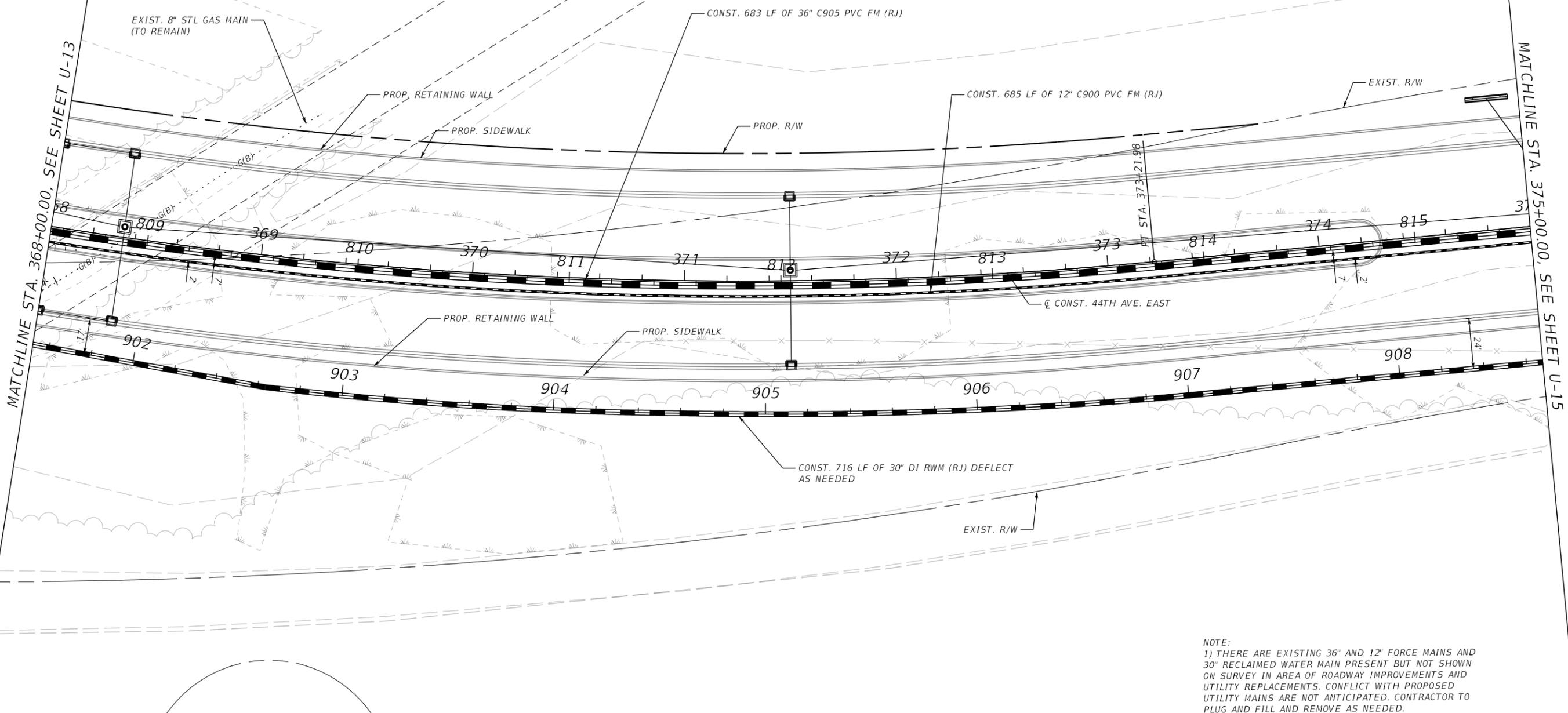
44TH AVENUE EAST



CURVE DATA CL44_26
 PI STA. = 368+03.34
 Δ = 29° 10' 45" (LT)
 D = 2° 45' 02"
 T = 54.50' (EXIST. 50' GAS)
 L = 14.10' (LINE EASEMENT)
 R = 2,083.00
 PC STA. = 362+61.16
 PT STA. = 373+21.98

MATCHLINE STA. 368+00.00, SEE SHEET U-13

MATCHLINE STA. 375+00.00, SEE SHEET U-15



NOTE:
 1) THERE ARE EXISTING 36" AND 12" FORCE MAINS AND 30" RECLAIMED WATER MAIN PRESENT BUT NOT SHOWN ON SURVEY IN AREA OF ROADWAY IMPROVEMENTS AND UTILITY REPLACEMENTS. CONFLICT WITH PROPOSED UTILITY MAINS ARE NOT ANTICIPATED. CONTRACTOR TO PLUG AND FILL AND REMOVE AS NEEDED.

MATCHLINE SEE UTILITY RELOCATION PLANS SHEET U-20

SCALE AS NOTED		DATE 02/2022		DESIGN ENGINEER HEATHER MANGANIELLO		SHEET NO. U-14
DESIGNED BY HLM		PROJECT NO. 6045662		FL. LICENSE NO. 68385		
DRAWN BY TME		3:35:29 PM		PW:\		
CHECKED BY HEH		2/17/2022		MANATEE COUNTY PUBLIC WORKS		
2 90% Submittal		02/2022		JTT		
No. REVISIONS		DATE		BY		

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44TH AVENUE EAST

CURVE DATA CL44 29
 PI STA. = 383+08.76
 Δ = 25° 00' 21" (RT)
 DTLR = 635.31
 R = 1,250.38
 PC STA. = 2,865.00
 PT STA. = 376+73.45
 PT STA. = 389+23.83

EXIST. 6" FM (TO BE P&F), 6" CAPS (RJ), REMOVE AS NEEDED TO INSTALL PROPOSED MAINS AND ROADWAY IMPROVEMENTS

CONST. 12" C900 PVC FM (RJ), BETWEEN EDGE OF SIDEWALK AND EDGE OF R/W. MINIMUM 3.0 FT FROM PROP. 36" FM AND A MINIMUM 2.0 FT FROM EXIST. 6" FM

CONST. 715 LF OF 36" C905 PVC FM (RJ), BETWEEN EDGE OF SIDEWALK AND EDGE OF R/W. MINIMUM 3.0 FT OUTSIDE/OUTSIDE FROM PROP. 12" FM

CONST. 714 LF OF 12" C900 PVC FM (RJ), BETWEEN EDGE OF SIDEWALK AND EDGE OF R/W. MINIMUM 3.0 FT FROM PROP. SIDEWALK AND 3.0 FT FROM PROP. 36" FM

CONST. 36" 45° BEND (RJ) (ROTATED UP)
 STA. 828+86.99
 N: 1136436.93
 E: 513822.86

CONST. 36" 45° BEND (RJ) (ROTATED DOWN)
 STA. 828+80.00
 N: 1136439.03
 E: 513816.19

CONST. ARV (OFFSET) (36" FM)
 STA. 828+65.17, 7.56' LT
 N: 1136450.72
 E: 513804.34

CONST. 36" 45° BEND (RJ) (ROTATED DOWN)
 STA. 829+65.21
 N: 1136413.25
 E: 513897.40

CONST. 36" 45° BEND (RJ) (ROTATED UP)
 STA. 829+58.81
 N: 1136415.16
 E: 513897.40

EXIST. 6" FM VALVE (TO BE REMOVED)

CONST. ARV (OFFSET) (12" FM)
 STA. 828+14.56, 7.56' LT
 N: 1136465.44
 E: 513755.85

EXIST. 12" RWM VALVE (TO BE REMOVED)

EXIST. 12" RWM (TO BE P&F), 12" CAPS, REMOVE AS NEEDED TO INSTALL PROPOSED MAINS AND ROADWAY IMPROVEMENTS

CONST. 30" GV (RJ)
 STA. 916+54.02
 N: 1136420.99
 E: 513323.82

EXIST. 36" DIP FM AND EXIST. 12" FM (NOT SHOWN IN SURVEY BUT LOCATED PARALLEL TO 36" FM) (TO BE P&F), 36" CAPS, 12" CAPS, REMOVE AS NEEDED TO INSTALL PROPOSED MAINS AND ROADWAY IMPROVEMENTS

EXIST. 30" RCW (TO BE P&F), 30" CAPS, REMOVE AS NEEDED TO INSTALL PROPOSED MAINS

CONST. 96 LF OF 30" DI RWM (RJ), MINIMUM 3.0 FT FROM EDGE OF EXIST. RWM AND 3.0 FT FROM R/W

CONST. 584 LF OF 30" DI RWM (RJ), MINIMUM 3.0 FT FROM R/W



MATCHLINE STA. 382+00.00, SEE SHEET U-15

MATCHLINE STA. 389+00.00, SEE SHEET U-17

		SCALE	AS NOTED			DATE	02/2022	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY RELOCATION PLANS (12)	SHEET NO.	U-16
		DESIGNED BY	HLM			PROJECT NO.	6045662		FL. LICENSE NO.	68385			
2	90% Submittal	02/2022	JTT	DRAWN BY	TME								
No.	REVISIONS	DATE	BY	CHECKED BY	HEH								



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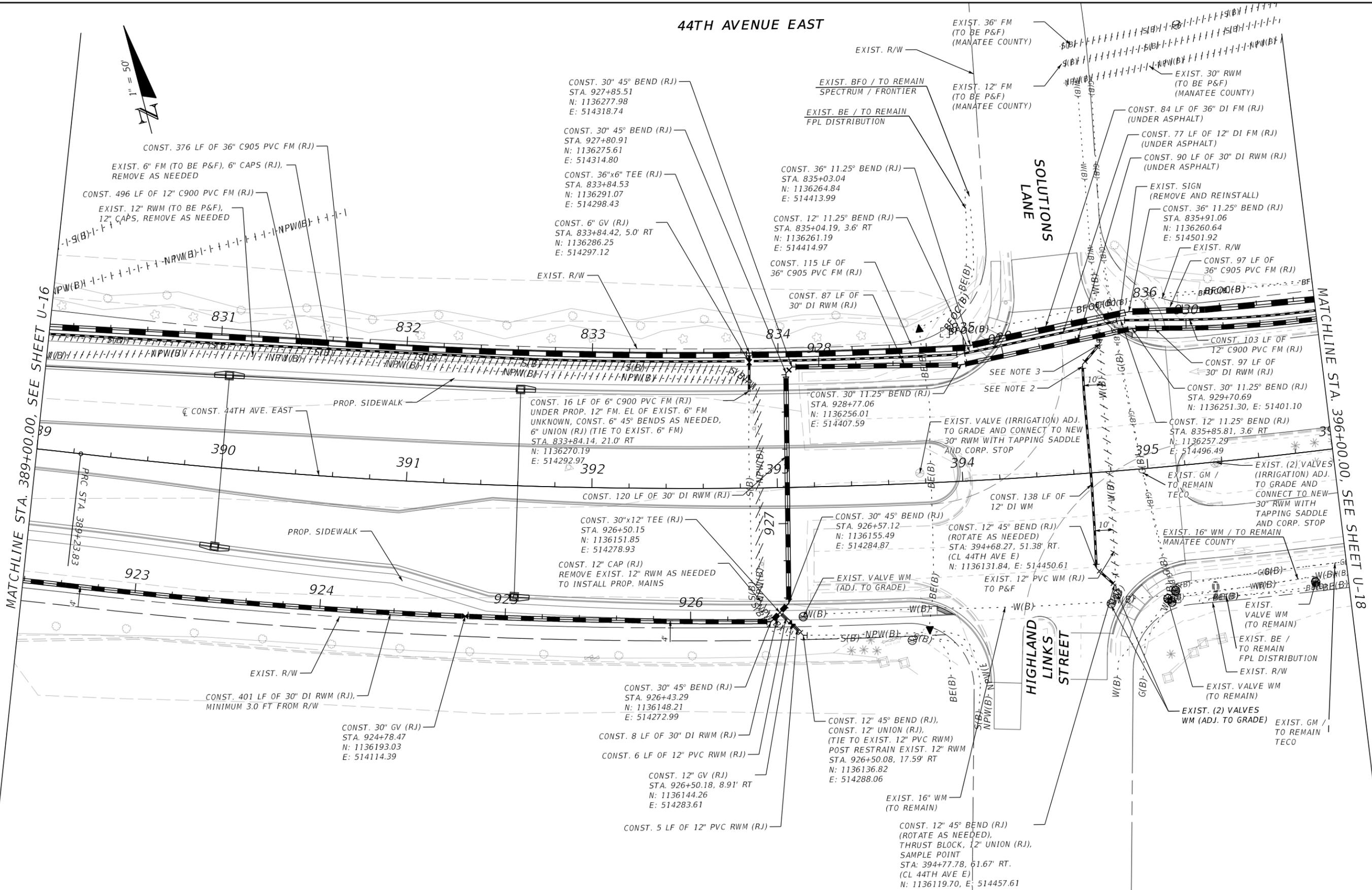
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2/17/2022

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44TH AVENUE EAST



MATCHLINE STA. 389+00.00, SEE SHEET U-16

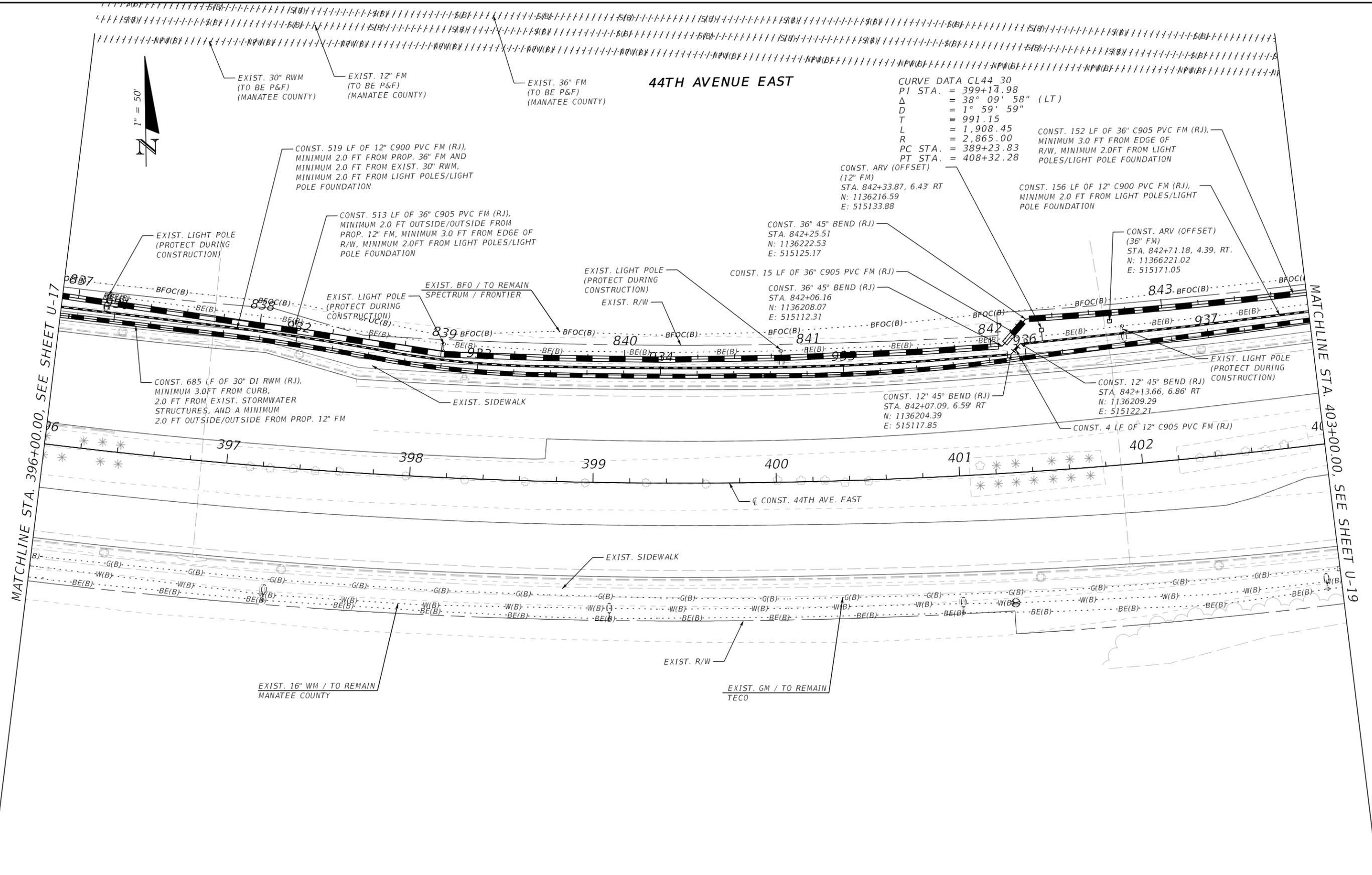
MATCHLINE STA. 396+00.00, SEE SHEET U-18

SCALE		AS NOTED			HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	02/2022	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO	SHEET NO. U-17
DESIGNED BY		HLM				PROJECT NO.	6045662		FL. LICENSE NO.	68385	
DRAWN BY		TME									
CHECKED BY		HEH									
REVISIONS		DATE	BY								
2		02/2022	JTT	90% Submittal							

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44TH AVENUE EAST

CURVE DATA CL44 30
 PI STA. = 399+14.98
 Δ = 38° 09' 58" (LT)
 D = 1° 59' 59"
 T = 991.15
 L = 1,908.45
 R = 2,865.00
 PC STA. = 389+23.83
 PT STA. = 408+32.28



MATCHLINE STA. 396+00.00, SEE SHEET U-17

MATCHLINE STA. 403+00.00, SEE SHEET U-19

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SCALE AS NOTED		 HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	UTILITY RELOCATION PLANS (14)	SHEET NO.
DESIGNED BY HLM			02/2022		HEATHER MANGANIELLO		U-18
DRAWN BY TME		2 90% Submittal 02/2022 JTT	PROJECT NO.	FL. LICENSE NO. 68385	PW:\		
CHECKED BY HEH			6045662				
No.	REVISIONS	DATE BY	3:36:14 PM	2/17/2022			

44TH AVENUE EAST

CONST. 3 LF OF 36" C905 PVC FM (RJ)

CONST. 36"x20" TEE (RJ)
STA. 848+87.47
N: 1136347.88
E: 515769.83

CONST. 12" 45° BEND (RJ),
AND 12" UNION (RJ)
(TIE TO EXIST. 12" FM)
STA. 848+83.68, 7.29' RT
N: 1136339.99
E: 515771.17

CONST. 42 LF OF
12" C900 PVC FM (RJ)

CONST. 41 LF OF
36" C905 PVC FM (RJ)

EXIST. 20" VALVE (TO BE P&F)

EXIST. 20" VALVE AND VAULT
(TO BE REMOVED)

EXIST. 36" VALVE (TO BE P&F)

EXIST. LIGHTPOLE (PROTECT DURING CONSTRUCTION)

EXIST. R/W

EXIST. 20" FM (TO REMAIN)

CONST. 12" GV (RJ)
STA. 848+39.44, 11.03' RT
N: 1136312.32
E: 515732.55

CONST. 36" GV (RJ)
STA. 848+45.14
N: 1136324.49
E: 515735.04

CONST. 12" 22.5° BEND (RJ)
STA. 848+44.38, 11.07' RT
N: 1136313.64
E: 515737.34

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 12" 22.5° BEND (RJ)
STA. 848+44.38, 11.07' RT
N: 1136313.64
E: 515737.34

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

CONST. 36" 22.5° BEND (RJ)
STA. 848+52.41
N: 1136326.50
E: 515742.04

LAKWOOD RANCH BLVD.



LAKWOOD RANCH BLVD.

MATCHLINE STA. 403+00.00, SEE SHEET U-18

END PROJECT
END MILLING & RESURFACING
STA. 408+32.28

EXIST. 36" FM (TO BE P&F) (MANATEE COUNTY)

EXIST. 12" FM (TO BE P&F) (MANATEE COUNTY)

EXIST. 30" RWM (TO BE P&F) (MANATEE COUNTY)

EXIST. 12" VALVE (TO BE P&F)

CONST. 83 LF OF 12" C900 PVC FM (RJ),
MINIMUM 2.0 FT FROM LIGHT POLES/LIGHT
POLE FOUNDATION

EXIST. LIGHTPOLE (PROTECT DURING CONSTRUCTION)

CONST. 12" 11.25° BEND (RJ)
STA. 844+60.50, 10.34' RT.
N: 1136234.95
E: 515360.41

CONST. 37 LF OF 12" C900 PVC FM (RJ)
CONST. 12" 11.25° BEND (RJ)
STA. 844+98.70, 2.98' RT.
N: 1136247.78
E: 515397.23

CONST. 295 LF OF 12" C900 PVC FM (RJ)

EXIST. BE / TO REMAIN
FPL DISTRIBUTION

EXIST. BFO / TO REMAIN
SPECTRUM / FRONTIER

844

938

845

939

846

940

847

941

848

942

849

943

850

944

851

945

852

946

CONST. 30" 11.25° BEND (RJ)
STA. 938+76.37, 5.15' LT.
N: 1136240.24
E: 515398.75

CONST. 30" 11.25° BEND (RJ)
STA. 938+49.59
N: 1136231.21
E: 515373.09

CONST. 524 LF OF 30" DI RWM (RJ),
MINIMUM 3.0 FT FROM CURB,
2.0 FT FROM EXIST. STORMWATER
STRUCTURES, 3.0 FT MIN. FROM EXIST.
30" RCP AND MINIMUM 2.0 FT
OUTSIDE/OUTSIDE FROM PROP. 12" FM

CONST. ARV (OFFSET)
(30" RWM)
STA. 938+00.00, 4.72' LT.
N: 1136228.57, E: 515323.31

EXIST. SIDEWALK

EXIST. 30" RCP

CONST. 52 LF OF 12" C900 PVC FM (RJ),

EXIST. LIGHTPOLE (PROTECT DURING CONSTRUCTION)

SEE NOTE 1

SEE NOTE 2

SEE NOTE 3

SEE NOTE 4

SEE NOTE 5

SEE NOTE 6

404

405

406

407

408

EXIST. 16" WM / TO REMAIN
MANATEE COUNTY

EXIST. SIDEWALK

EXIST. GM / TO REMAIN
TECO

EXIST. R/W

EXIST. 20" FM (TO REMAIN)

EXIST. 12" FM (TO REMAIN)

NOTES:

1) CONST. 12" 11.25° BEND (RJ)
STA. 847+92.74, 3.09' RT.
N: 1136307.65
E: 515685.30

2) CONST. 30" 11.25° BEND (RJ)
STA. 941+70.95, 47.6' LT.
N: 1136300.19
E: 515686.66

3) CONST. 30" 11.25° BEND (RJ)
STA. 941+97.27
N: 1136301.79
E: 515713.36

4) CONST. 36" 45° BEND (RJ)
(ROTATED DOWN)
STA. 848+25.40
N: 1136319.16
E: 515716.04

5) CONST. 12" 11.25° BEND (RJ)
STA. 848+31.68, 10.95' RT.
N: 1136310.30
E: 515725.03

6) CONST. 36" 45° BEND (RJ)
(ROTATED UP)
STA. 848+35.49
N: 1136321.87
E: 515725.76

7) CONST. 12" 45° BEND (RJ)
(ROTATED UP)
STA. 848+78.10, 7.21' RT
N: 1136336.62
E: 515766.72

8) CONST. 12" 45° BEND (RJ)
(ROTATED DOWN)
STA. 848+75.36, 7.29' RT
N: 1136334.87
E: 515764.61

SCALE	AS NOTED		
DESIGNED BY	HLM		
DRAWN BY	TME		
CHECKED BY	HEH		
No.	REVISIONS	DATE	BY
2	90% Submittal	02/2022	JTT



HDR Engineering, Inc.
2601 Cattleman Road
Suite 400
Sarasota, FL 34232-6233

DATE	02/2022
PROJECT NO.	6045662



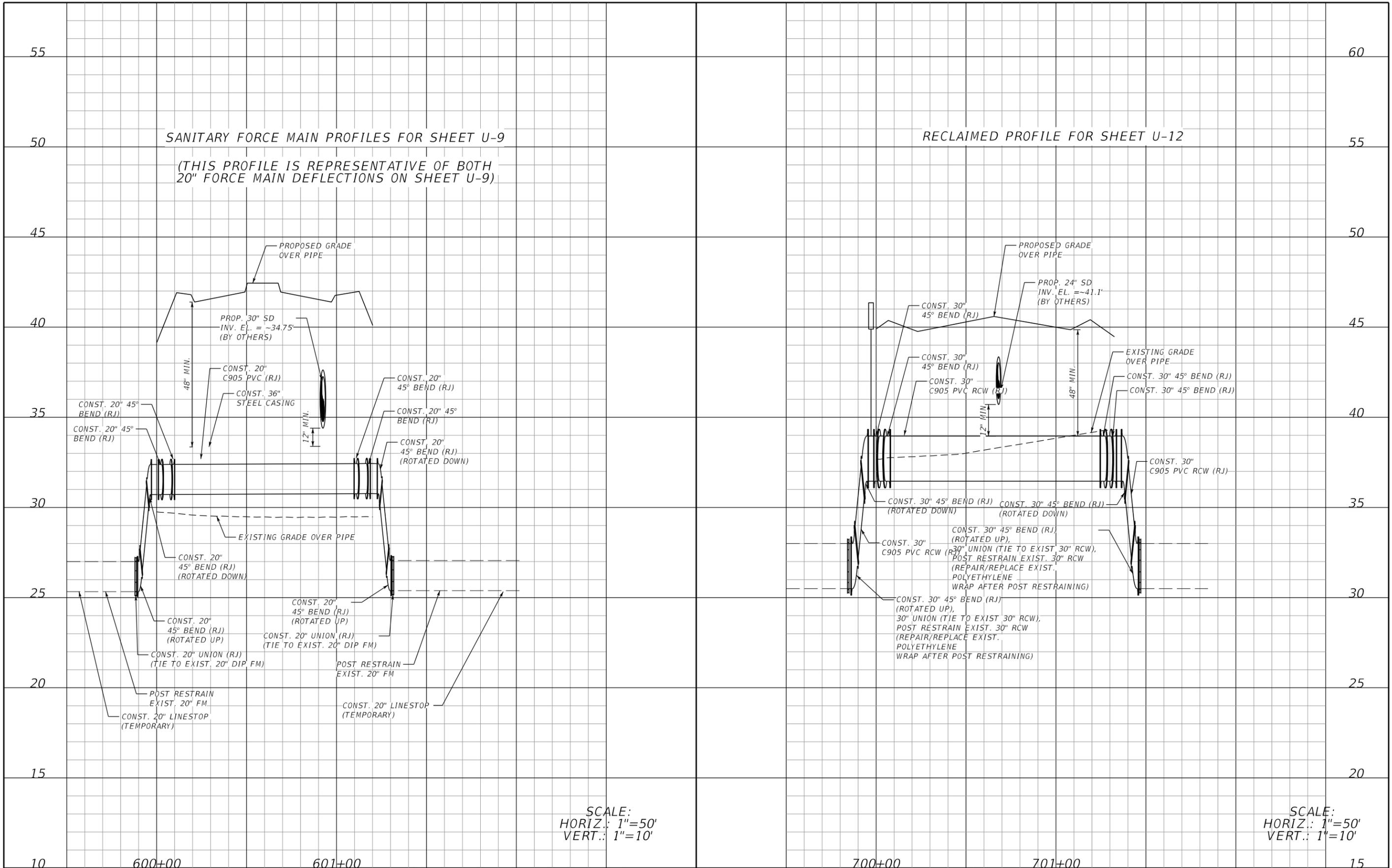
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER	HEATHER MANGANIELLO
FL. LICENSE NO.	68385

UTILITY RELOCATION
PLANS (15)

SHEET NO.	U-19
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SANITARY FORCE MAIN PROFILES FOR SHEET U-9

(THIS PROFILE IS REPRESENTATIVE OF BOTH 20" FORCE MAIN DEFLECTIONS ON SHEET U-9)

RECLAIMED PROFILE FOR SHEET U-12

SCALE:
HORIZ.: 1"=50'
VERT.: 1"=10'

SCALE:
HORIZ.: 1"=50'
VERT.: 1"=10'

4	NEW SHEET	01/2021	SCALE AS NOTED
			DESIGNED BY HLM
			DRAWN BY TME
			CHECKED BY HEH
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DATE	01/2021
PROJECT NO.	6045662



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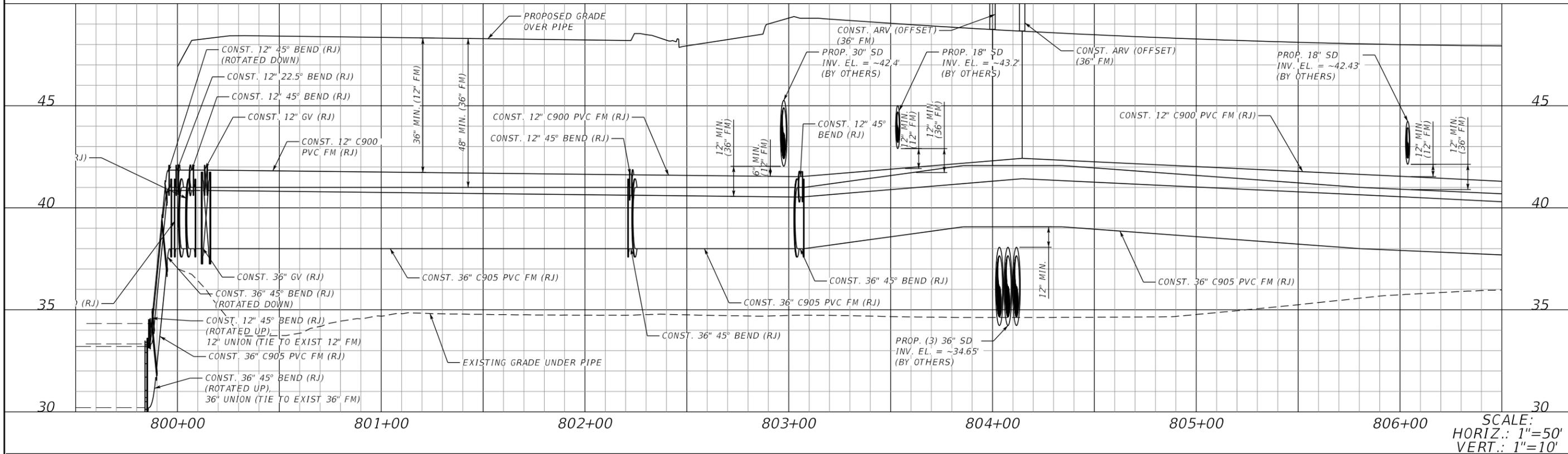
DESIGN ENGINEER	HEATHER MANGANIELLO
FL. LICENSE NO.	68385

UTILITY PROFILES (1)

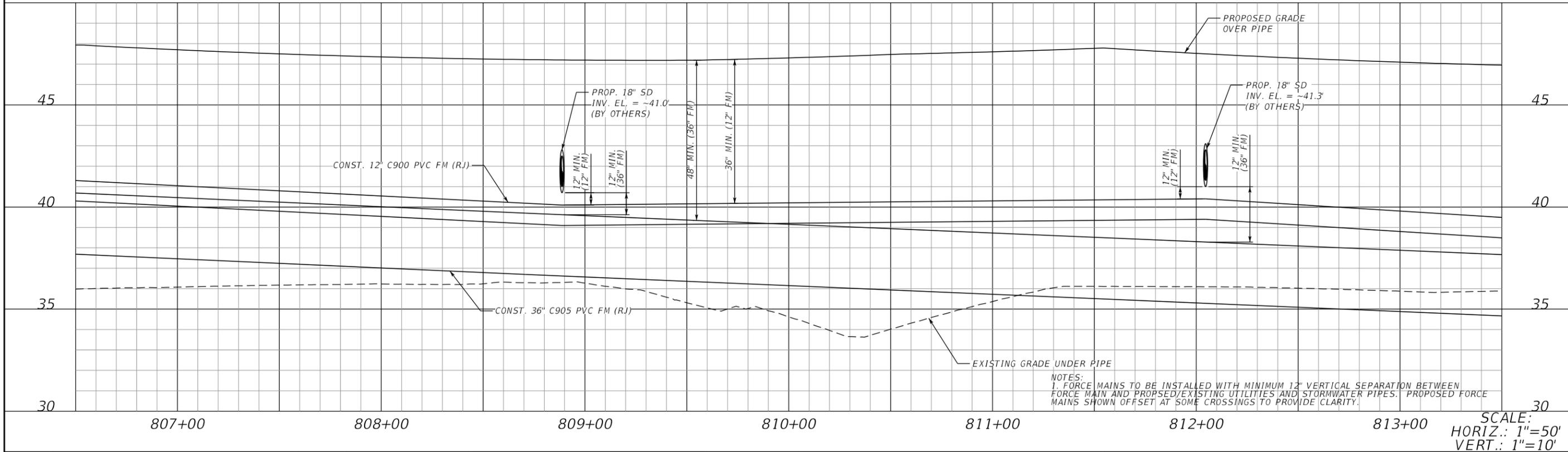
SHEET NO.	U-20
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FORCE MAIN PROFILE (1 OF 8), PLAN VIEW SEE SHEETS U-12 & U-13



FORCE MAIN PROFILE (2 OF 8), PLAN VIEW SEE SHEET U-13



5	UTILITY MODIFICATIONS	03/2021	HLM	SCALE AS NOTED
4	NEW SHEET	01/2021	HLM	DESIGNED BY HLM
				DRAWN BY TME
				CHECKED BY HEH
No.	REVISIONS	DATE	BY	

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03/2021
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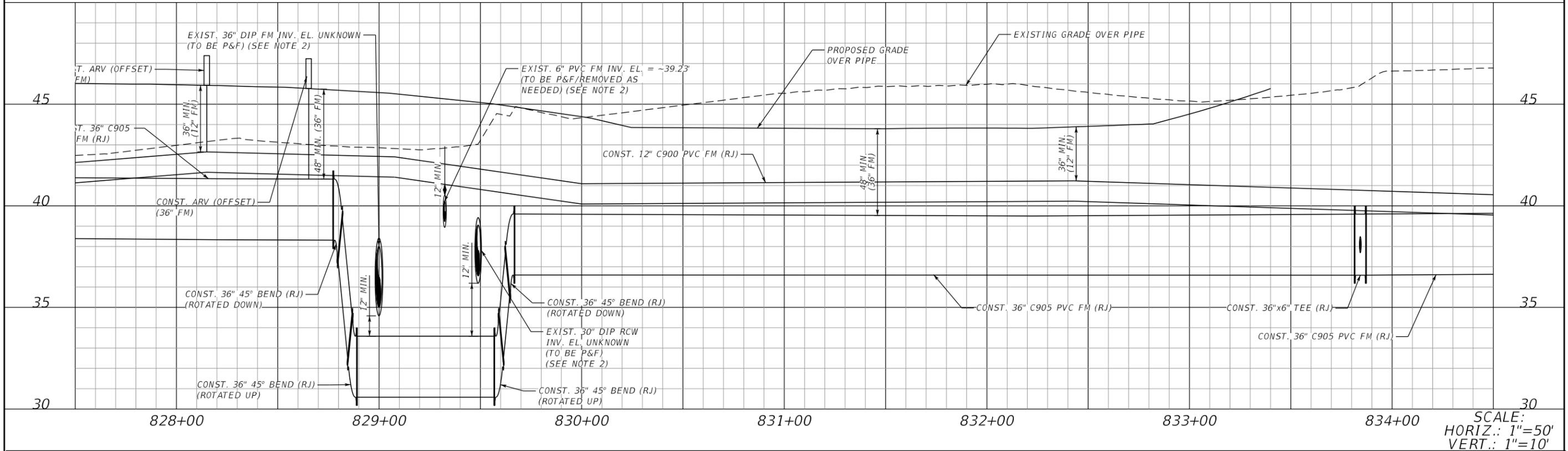
DESIGN ENGINEER
HEATHER MANGANIELLO
 FL. LICENSE NO.
68385
 PW:\

UTILITY PROFILES (2)

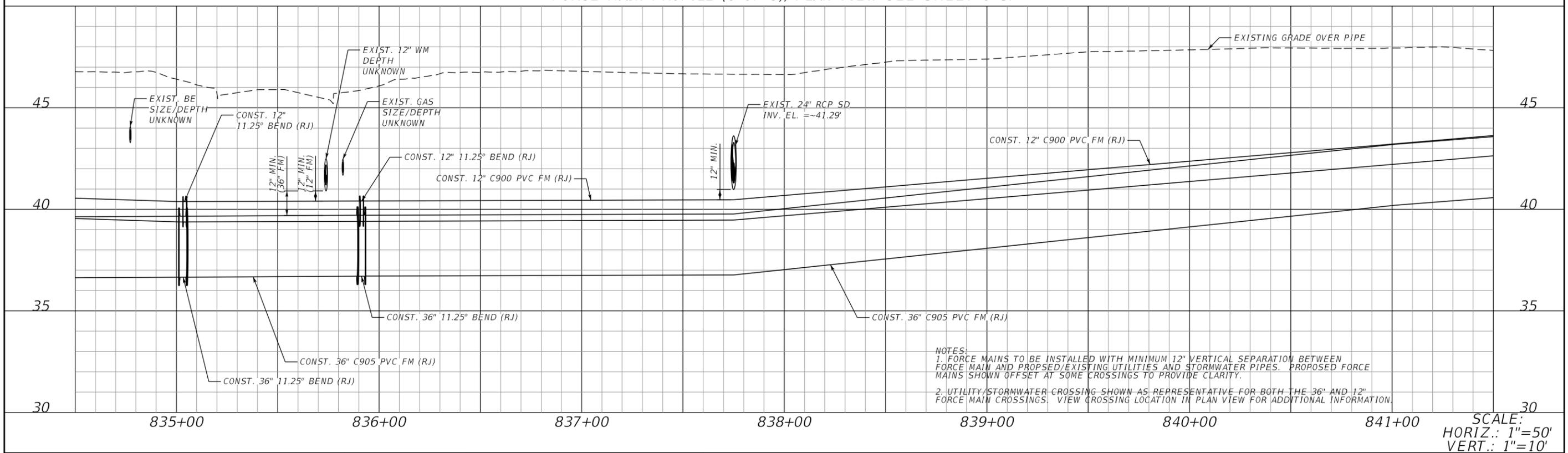
SHEET NO.
U-21

THE OFFICIAL RECORD OF THIS SHEET IS THE ELECTRONIC FILE DIGITALLY SIGNED AND SEALED UNDER RULE 61G15-23.004, F.A.C.

FORCE MAIN PROFILE (5 OF 8), PLAN VIEW SEE SHEET U-16



FORCE MAIN PROFILE (6 OF 8), PLAN VIEW SEE SHEET U-17



NOTES:
 1. FORCE MAINS TO BE INSTALLED WITH MINIMUM 12" VERTICAL SEPARATION BETWEEN FORCE MAIN AND PROPOSED/EXISTING UTILITIES AND STORMWATER PIPES. PROPOSED FORCE MAINS SHOWN OFFSET AT SOME CROSSINGS TO PROVIDE CLARITY.
 2. UTILITY/STORMWATER CROSSING SHOWN AS REPRESENTATIVE FOR BOTH THE 36" AND 12" FORCE MAIN CROSSINGS. VIEW CROSSING LOCATION IN PLAN VIEW FOR ADDITIONAL INFORMATION.

4	NEW SHEET	01/2021	SCALE AS NOTED
			DESIGNED BY HLM
			DRAWN BY TME
			CHECKED BY HEH
No.	REVISIONS	DATE	BY

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 Suite 400
 Sarasota, FL 34232-6233

DATE
01/2021
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Manatee County
 MANATEE COUNTY
 PUBLIC WORKS

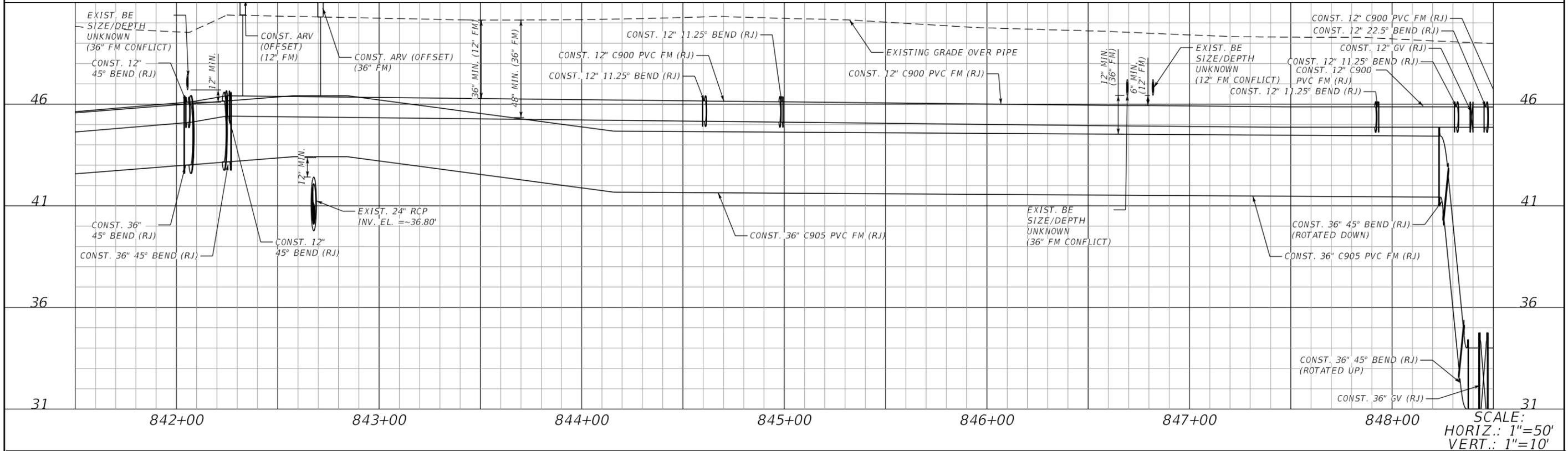
DESIGN ENGINEER
HEATHER MANGANIELLO
 FL. LICENSE NO.
68385
 PW:\

UTILITY PROFILES (4)

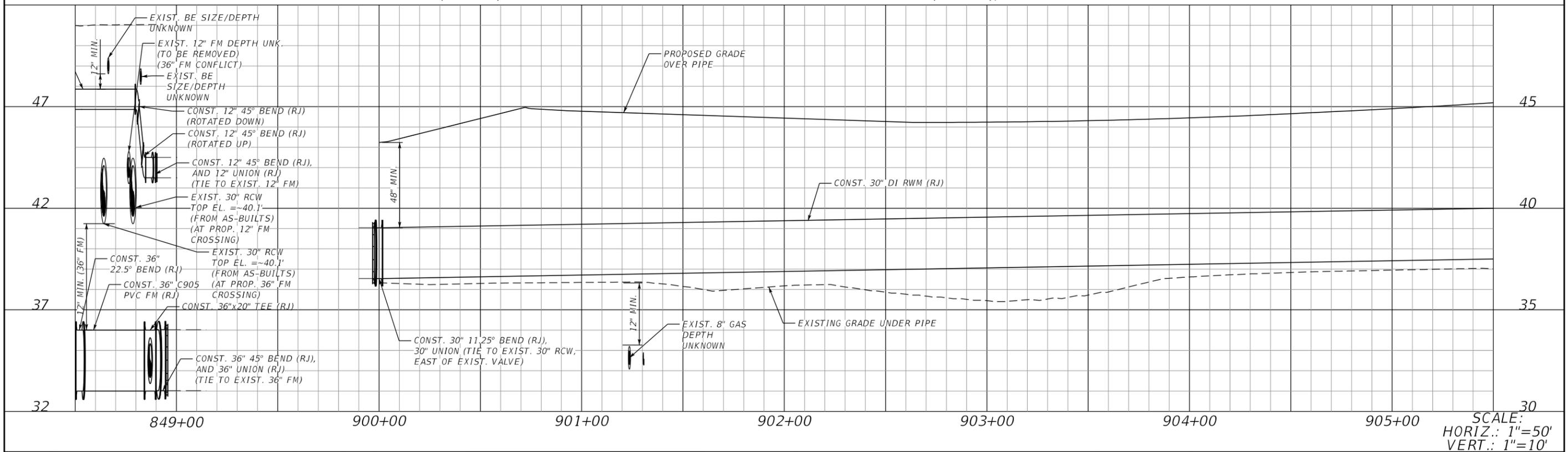
SHEET NO.
U-23

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FORCE MAIN PROFILE (7 OF 8), PLAN VIEW SEE SHEETS U-18 & U-19



FORCE MAIN PROFILE (8 OF 8) SEE SHEET U-19 & RECLAIMED WATER MAIN PROFILE (1 OF 7), PLAN VIEW SEE SHEETS U-13 & U-14



4	NEW SHEET	01/2021	SCALE AS NOTED
			DESIGNED BY HLM
			DRAWN BY TME
			CHECKED BY HEH
No.	REVISIONS	DATE	BY



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DATE 01/2021
 PROJECT NO. 6092460
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MANATEE COUNTY
 PUBLIC WORKS

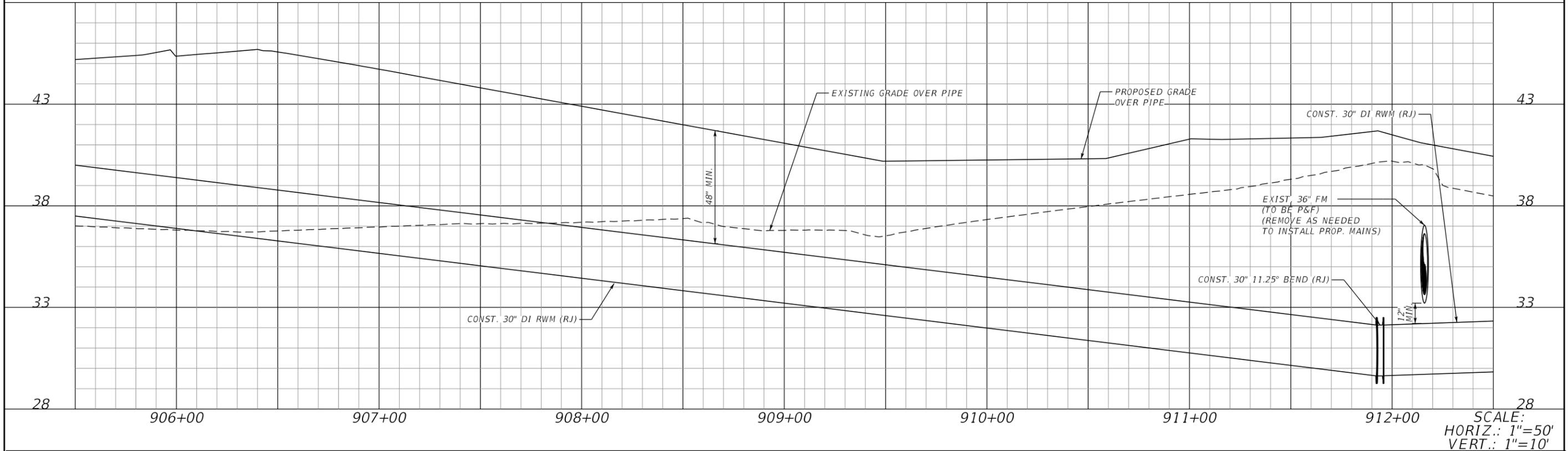
DESIGN ENGINEER
 HEATHER MANGANIELLO
 FL. LICENSE NO. 68385
 PW:\

UTILITY PROFILES (5)

SHEET NO. U-24

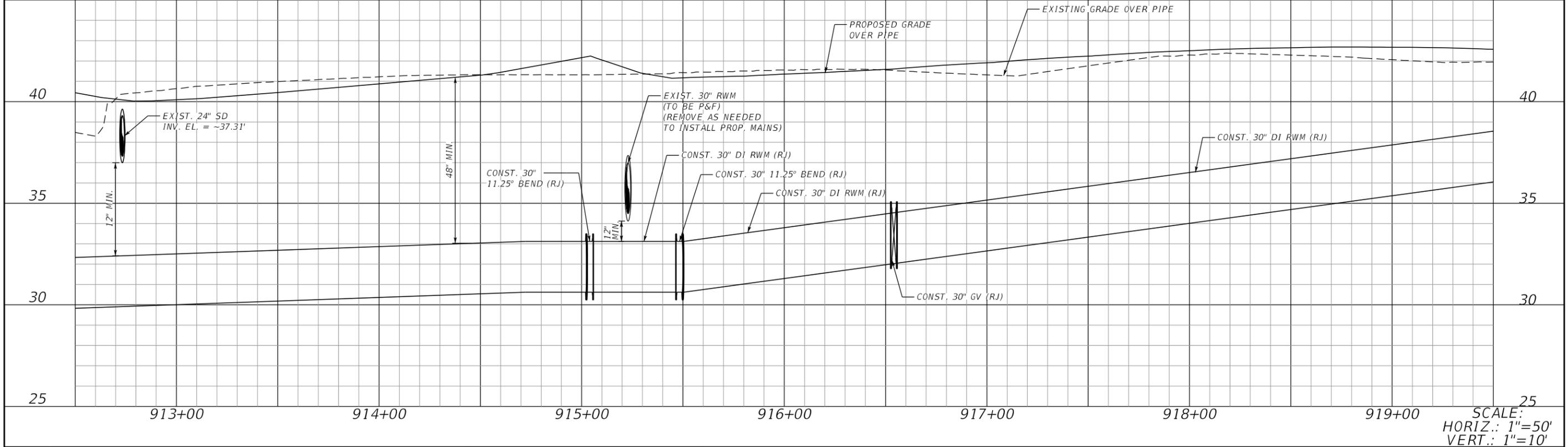
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RECLAIMED WATER MAIN PROFILE (2 OF 7), PLAN VIEW SEE SHEETS U-14 & U-15



SCALE:
HORIZ.: 1"=50'
VERT.: 1"=10'

RECLAIMED WATER MAIN PROFILE (3 OF 7), PLAN VIEW SEE SHEETS U-15 & U-16



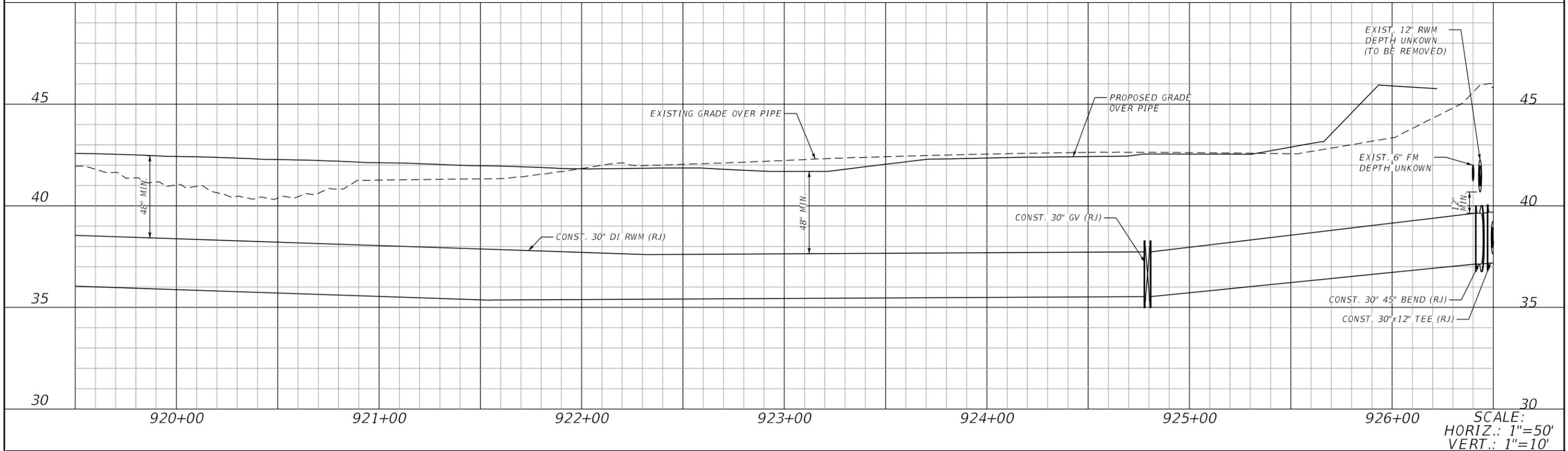
SCALE:
HORIZ.: 1"=50'
VERT.: 1"=10'

4	NEW SHEET	01/2021	SCALE AS NOTED	 HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	 MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO FL. LICENSE NO. 68385	SHEET NO.	
			DESIGNED BY		01/2021					
			DRAWN BY		PROJECT NO.					
			CHECKED BY		6092460					
No.	REVISIONS	DATE	BY		3:36:32 PM	2/17/2022	PW:\		U-25	

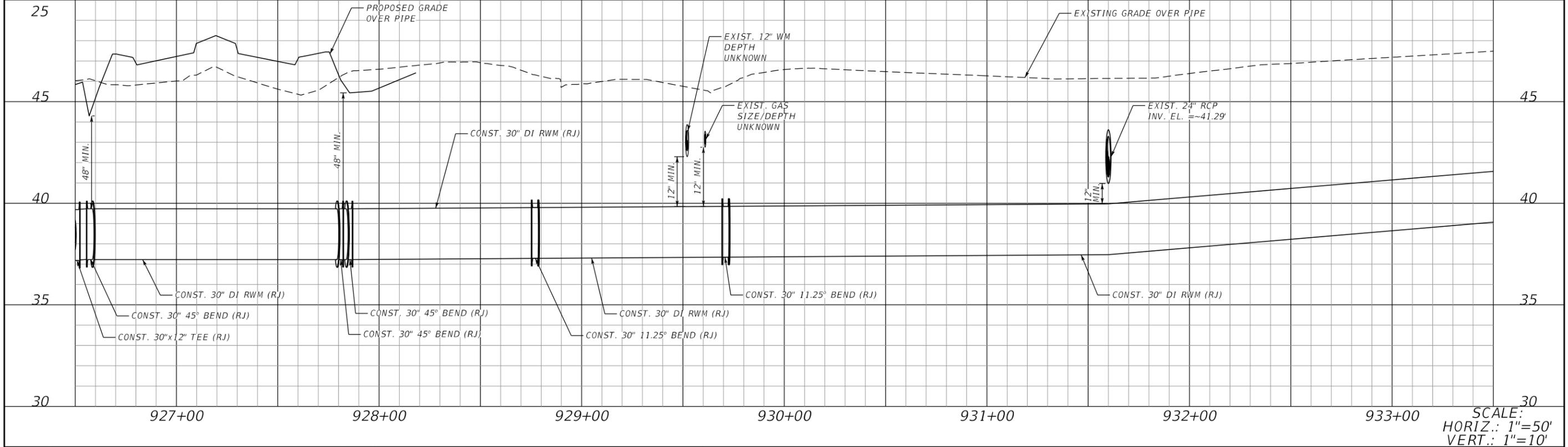
UTILITY PROFILES (6)

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RECLAIMED WATER MAIN PROFILE (4 OF 7), PLAN VIEW SEE SHEET U-16



RECLAIMED WATER MAIN PROFILE (5 OF 7), PLAN VIEW SEE SHEET U-17



4	NEW SHEET	01/2021	SCALE AS NOTED
			DESIGNED BY HLM
			DRAWN BY TME
			CHECKED BY HEH
No.	REVISIONS	DATE	BY

HDR
 HDR Engineering, Inc.
 2601 Cattlemen Road
 Suite 400
 Sarasota, FL 34232-6233

DATE
01/2021
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6092460
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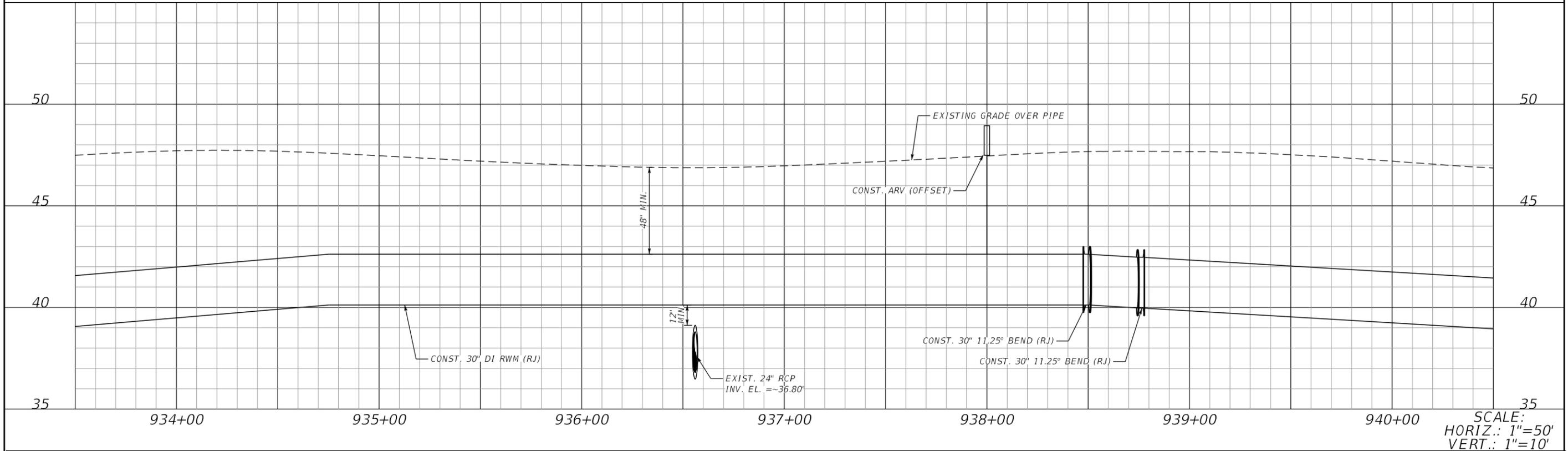
Manatee County
 MANATEE COUNTY
 PUBLIC WORKS

DESIGN ENGINEER
HEATHER MANGANIELLO
 FL. LICENSE NO.
68385
 PW:\

UTILITY PROFILES (7)
 SHEET NO.
U-26

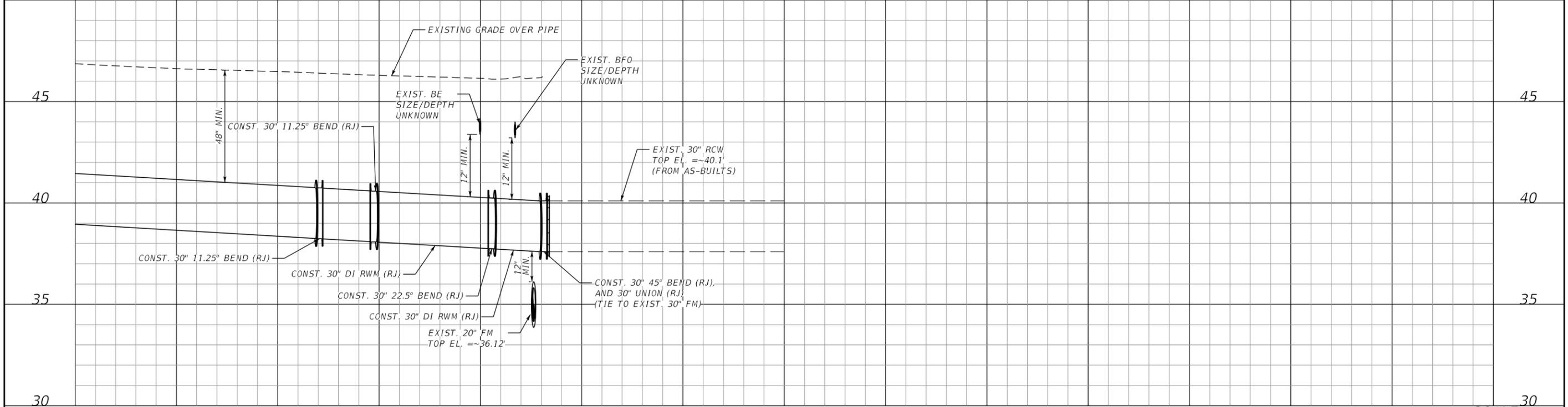
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RECLAIMED WATER MAIN PROFILE (6 OF 7), PLAN VIEW SEE SHEETS U-18 & U-19



SCALE:
HORIZ.: 1"=50'
VERT.: 1"=10'

RECLAIMED WATER MAIN PROFILE (7 OF 7), PLAN VIEW SEE SHEET U-19



SCALE:
HORIZ.: 1"=50'
VERT.: 1"=10'

4	NEW SHEET	01/2021	SCALE AS NOTED
			DESIGNED BY HLM
			DRAWN BY TME
			CHECKED BY HEH
No.	REVISIONS	DATE	BY

HDR
HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233

DATE	01/2021
PROJECT NO.	6092460

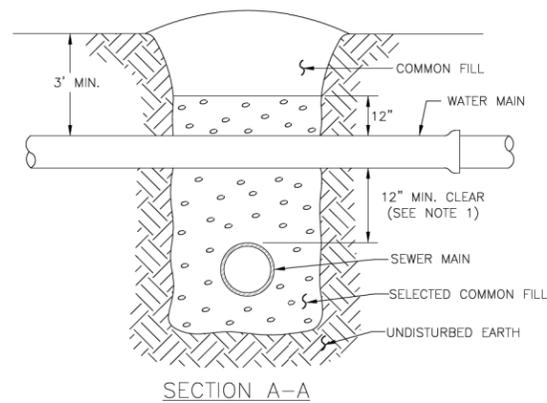
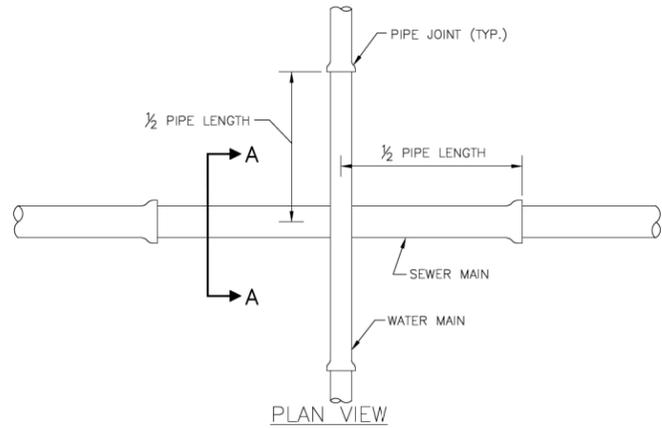
Manatee County
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER	HEATHER MANGANIELLO
FL. LICENSE NO.	68385

UTILITY PROFILES (8)

SHEET NO.	U-27
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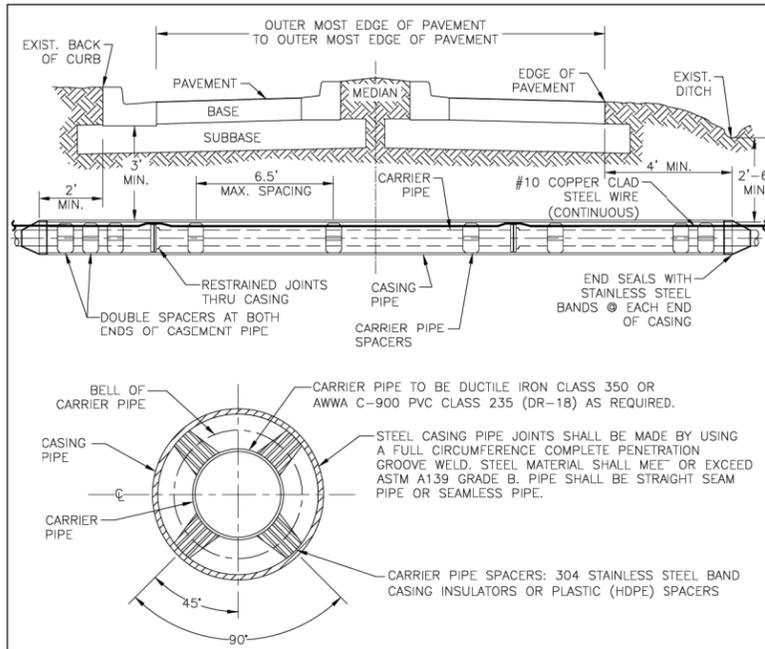
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NOTES:

- CLEARANCE MAY BE REDUCED TO 6" FOR GRAVITY SEWER WHERE WATER MAIN IS DUCTILE IRON.
- PIPE SECTIONS SHALL BE FULL-LENGTH AND SHALL BE ADJUSTED HORIZONTALLY, SO THAT THE CROSSING IS AT EACH PIPE SECTION'S MIDPOINT REGARDLESS OF THE VERTICAL CLEARANCE.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYPICAL NEW WATER & SEWER LINE CROSSING	UG-2
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



CARRIER SIZE & MINIMUM CASING SIZE								
CARRIER	4"	6"	8"	10"	12"	16"	18"	20"
CASING	12"	14"	18"	20"	24"	30"	36"	36"
CASING / WALL THICKNESS	0.188	0.188	0.250	0.250	0.344	0.406	0.406	0.406

STEEL CASING SIZES

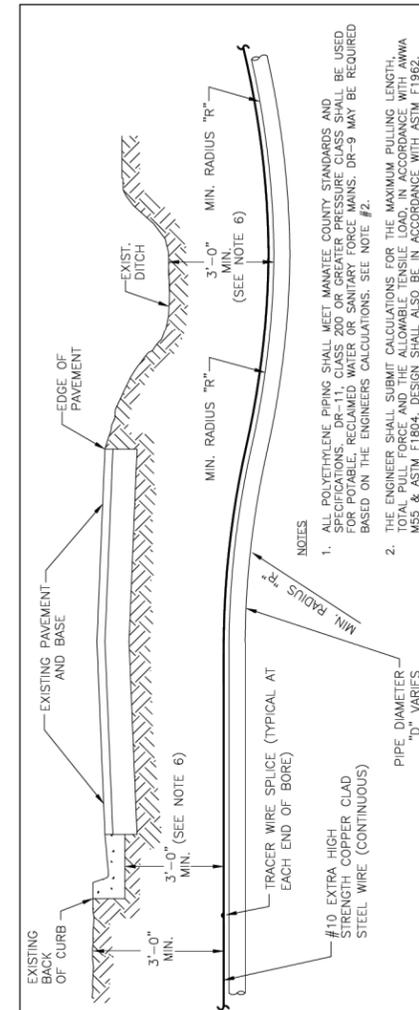
CARRIER SIZE & MINIMUM CASING SIZE								
CARRIER	4"	6"	8"	10"	12"	16"	18"	20"
CASING	8"	12"	16"	20"	24"	30"	36"	36"

PVC/HDPE CASING SIZES

NOTES:

- THE ENGINEER OF RECORD MAY SELECT A LARGER CASING DIAMETERS, INCREASE WALL THICKNESS, AND/OR INCREASE DEPTH OF BURY DUE TO EXTERNAL LOADS WITH COUNTY APPROVAL PRIOR TO PERFORMING THE WORK.
- ALL PIPES CROSSINGS OF FEDERAL OR STATE ROADS; OR RAILROADS SHALL BE INSTALLED IN A CASING PIPE.
- ALL PIPES CROSSINGS OF COUNTY LOCAL ARTERIAL AND THOROUGHFARE ROADWAYS SHALL BE IN A CASING PIPE.
- SPLIT-STEEL CASINGS MAY BE USED ON EXISTING COUNTY MAINS ONLY.
- FOR JACK & BORE SPECIFICATIONS UNDER STATE ROADS AND RAILROADS, REFER TO THE F.D.O.T. UTILITY ACCOMMODATION MANUAL, LATEST EDITION.
- HDPE CASING SHALL HAVE ALL WELD BEADS REMOVED FROM THE INSIDE SURFACE SUCH THAT THE JOINT SURFACES SHALL BE SMOOTH.
- *14-INCH DIAMETER MAINS ARE NOT TO BE INSTALLED.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		CASING CROSSING	UG-3
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



NOTES:

- ALL POLYETHYLENE PIPING SHALL MEET MANATEE COUNTY STANDARDS AND SPECIFICATIONS. DR-11, CLASS 200 OR GREATER PRESSURE CLASS SHALL BE USED FOR POTABLE, RECLAIMED WATER OR SANITARY FORCE MAINS. DR-9 MAY BE REQUIRED BASED ON THE ENGINEER'S CALCULATIONS. SEE NOTE #2.
- THE ENGINEER SHALL SUBMIT CALCULATIONS FOR THE MAXIMUM PULLING LENGTH, TOTAL PULL FORCE AND THE ALLOWABLE TENSILE LOAD, IN ACCORDANCE WITH AWWA M55 & ASTM F1804. DESIGN SHALL ALSO BE IN ACCORDANCE WITH ASTM F1962.
- A MANDREL BASED ON 80% OF THE INSIDE DIAMETER OF THE PULLED PIPE SHALL BE HAND-PULLED THROUGH THE FINAL INSTALLED PIPE WITH A COUNTY INSPECTOR PRESENT. TO CONFIRM NO FLOTTATIONS (NECKING) HAS OCCURRED.
- ONE #10 GAUGE EXTRA HIGH STRENGTH COPPER CLAD STEEL TRACER WIRE SHALL BE SPLICED TO THE PIPE FOR ALL TYPES OF PIPELINE INSTALLATIONS. TRACER WIRES SHALL HAVE A MINIMUM 45-MILS OF POLYETHYLENE INSULATION.
- TRACER WIRE TO BE COLOR CODED: BLUE FOR POTABLE WATER MAINS; PURPLE FOR RECLAIMED WATER MAINS; AND GREEN FOR SANITARY FORCE MAINS.
- PIPE DEPTHS MAY NEED TO BE DEEPER TO AVOID FRACKOUTS. PIPE ALIGNMENT SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS. THE ENGINEER SHALL BE NOTIFIED PRIOR TO ANY DEVIATIONS.
- PIPES CROSSING FEDERAL OR STATE ROADS; OR RAILROADS SHALL BE INSTALLED IN A CASING PIPE.
- FOR COUNTY LOCAL ARTERIAL OR THOROUGHFARE ROADWAYS; AND ON A CASE BY CASE BASIS, STEEL, PVC, OR HDPE CASING PIPE MAY BE ALLOWED. HDPE CASING PIPE SHALL BE INSTALLED FIRST, TESTED, AND THEN THE CARRIER PIPE MAY BE PULLED THRU THE CASING PIPE AS A SEPARATE OPERATION.
- MANATEE COUNTY DIRECTIONAL DRILL CRITERIA SHALL BE MET FOR PIPES UNDER LOCAL ARTERIALS & THOROUGHFARES.
- FDOT DIRECTIONAL DRILL CRITERIA SHALL BE MET FOR PIPES UNDER STATE, & FEDERAL ROADS.

PIPE DIAMETER "D" IN INCHES	MIN. RADIUS FOR PE PIPE IN FEET	
	FOR DR-11	FOR DR-9
2	4	5.5
3	6	8.3
4	8	11.0
6	12	16.5
8	16	22.0
10	20	27.0
12	24	33.0
16	32	44.0
18	36	49.5
20	40	55.0

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		DIRECTIONAL BORE ROADWAY CROSSING	UG-4
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

SCALE	AS NOTED		
DESIGNED BY	HLM		
DRAWN BY	TME		
CHECKED BY	HEH		
No.	REVISIONS	DATE	BY
2	90% Submittal	02/2022	JTT



HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233

DATE
02/2022
PROJECT NO.
6045662



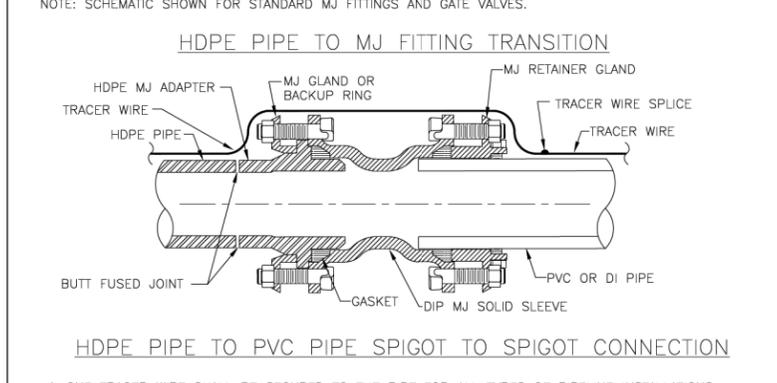
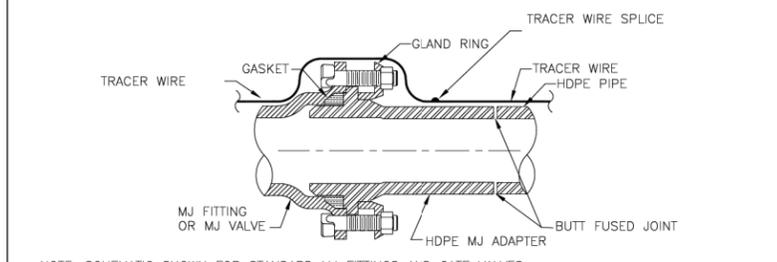
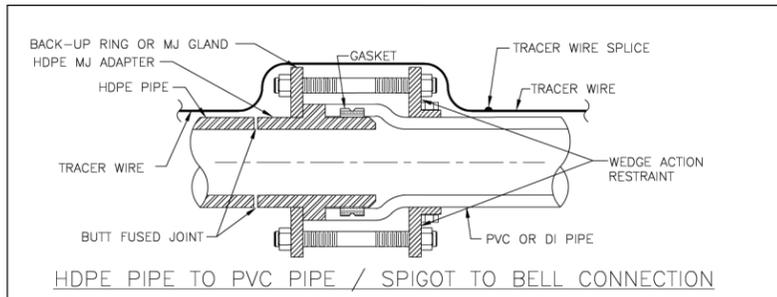
MANATEE COUNTY
PUBLIC WORKS

DESIGN ENGINEER
HEATHER MANGANIELLO
FL. LICENSE NO.
68385

UTILITY DETAILS
(1 OF 9)

SHEET NO.
U-28

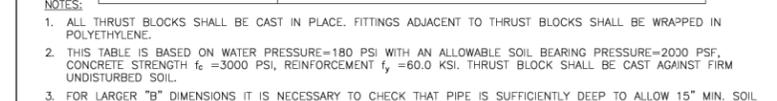
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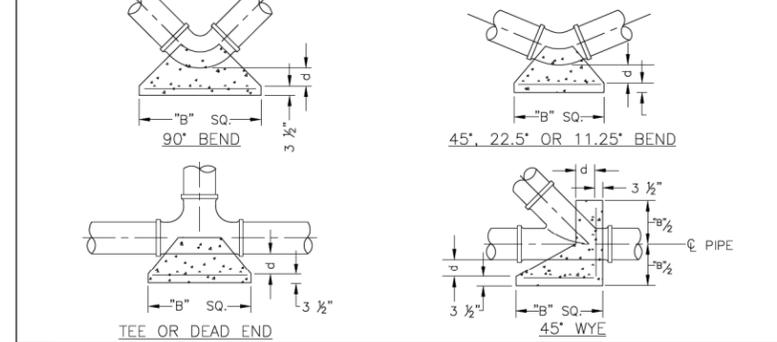
1. ONE TRACER WIRE SHALL BE SECURED TO THE PIPE FOR ALL TYPES OF PIPELINE INSTALLATIONS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		HDPE TO PVC OR DI PIPE ADAPTER	UG-6
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

PIPE SIZE (IN.)	THRUST BLOCK DIMENSIONS B ft. x d inches											
	90° BEND		45° BEND		22.5° BEND		11.25° BEND		DEAD END & TEE		45° WYE	
	B	d	B	d	B	d	B	d	B	d	B	d
4	1.5	3 1/2	1.1	3 1/2	0.8	3 1/2	0.6	3 1/2	1.3	3 1/2	1.1	3 1/2
6	2.2	5 1/4	1.6	3 3/4	1.2	3 1/2	0.8	3 1/2	1.9	4 1/2	1.6	3 3/4
8	2.9	7	2.1	5	1.5	3 1/2	1.1	3 1/2	2.4	5 3/4	2.0	4 3/4
10	3.5	8 1/2	2.6	6 1/4	1.9	4 1/2	1.3	3 1/2	3.0	7 1/4	2.5	6
12	4.2	10	3.1	7 1/2	2.2	5 1/4	1.6	3 3/4	3.5	8 1/4	3.0	7 1/4
14	4.9	11 3/4	3.6	8 3/4	2.6	6 1/4	1.8	4 1/4	4.1	9 3/4	3.4	8 1/4
16	5.5	13 1/4	4.1	9 3/4	2.9	7	2.1	5	4.7	11 1/4	3.9	9 1/4
18	6.2	15	4.6	11	3.3	8	2.3	5 1/2	5.2	12 1/2	4.4	10 1/2
20	6.9	16 1/2	5.0	12	3.6	8 3/4	2.6	6 1/4	5.8	14	4.9	11 3/4
24	8.2	19 3/4	6.0	14 1/2	4.3	10 1/4	3.1	7 1/2	6.9	16 1/2	5.8	14
30	10.1	24 1/4	7.5	18	5.3	12 3/4	3.8	9	8.5	20 1/2	7.2	17 1/4
36	12.1	29	8.9	21 1/4	6.4	15 1/4	4.5	10 3/4	10.2	24 1/2	8.6	20 3/4



- NOTES:
- ALL THRUST BLOCKS SHALL BE CAST IN PLACE. FITTINGS ADJACENT TO THRUST BLOCKS SHALL BE WRAPPED IN POLYETHYLENE.
 - THIS TABLE IS BASED ON WATER PRESSURE=180 PSI WITH AN ALLOWABLE SOIL BEARING PRESSURE=2000 PSF. CONCRETE STRENGTH f_c =3000 PSI, REINFORCEMENT f_y =60.0 KSI. THRUST BLOCK SHALL BE CAST AGAINST FIRM UNDISTURBED SOIL.
 - FOR LARGER "B" DIMENSIONS IT IS NECESSARY TO CHECK THAT PIPE IS SUFFICIENTLY DEEP TO ALLOW 15" MIN. SOIL COVER OVER TOP EDGE OF THRUST BLOCK.
 - RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS TO SAVE SPACE. HOWEVER, WHERE THRUST BLOCKS AND RESTRAINED JOINTS ARE CALLED OUT/ILLUSTRATED IN THE DETAILS, BOTH SHALL BE INSTALLED.



MANATEE COUNTY PUBLIC WORKS DEPARTMENT		CONCRETE THRUST BLOCKS	UG-7
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR C900-16 PVC PIPE (DR-18)

MAIN PIPE SIZE	HORIZ. BENDS	90°	45°	22.5°	TEES				REDUCERS				PLUGS & VALVES								
					SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH	SIZE	LENGTH									
24	90	38	18		X24	169	X20	132	X16	90	X12	38	X10	6	X20	64	X16	117	X12	158	214
20	78	32	16		X20	141	X16	101	X12	53	X10	24	X8	1	X16	65	X12	115	X10	149	184
16	66	27	13		X16	111	X12	67	X10	41	X8	12	X6	1	X12	64	X10	107	X8	111	151
12	52	22	10		X12	80	X10	56	X8	31	X6	1	X4	1	X10	58	X8	62	X6	86	118
10	44	18	9		X10	63	X8	40	X6	7	X4	1	X2	1	X8	33	X6	61	X4	81	100
8	37	15	7		X8	49	X6	18	X4	1	X2	1	X1	1	X6	35	X4	60	X2	60	83
6	29	12	6		X6	29	X4	1	X2	1	X1	1	X1	1	X4	33	X2	60	X1	60	63
4	21	8	4		X4	12	X2	1	X1	1	X1	1	X1	1	X2	12	X1	60	X1	60	45

- NOTES:
- RESTRAIN 11.25° BENDS 50% OF LENGTH FOR 22.5° BENDS.
 - ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
 - ALL ISOLATION VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
 - PIPE SIZES ARE GIVEN IN INCHES.
 - RESTRAINED PIPE LENGTHS ARE GIVEN IN FEET.
 - LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 180 PSI.
 - THE RESTRAINED LENGTHS SHOWN IN THESE TABLES ARE BASED ON SOIL CLASSIFICATION SP WITH AWWA TYPE 3 TRENCH CONDITIONS, 180 PSI TEST PRESSURE, 3 FEET OF COVER AND 1.5 FACTOR OF SAFETY. ACTUAL BURY CONDITIONS MUST BE DETERMINED BY THE ENGINEER OF RECORD AND THE RESTRAINED LENGTHS MODIFIED ACCORDINGLY.
 - RESTRAINED LENGTHS TO BE APPLIED TO PIPELINES PER DETAIL UG-10 RESTRAINED LENGTHS FOR PIPE.
 - ALL RESTRAINED JOINT HARDWARE SHALL CONFORM TO 1.11.17 OF THE PUBLIC WORKS UTILITIES STANDARDS MANUAL.
 - ALL THREE "LEGS" OF TEES SHALL BE RESTRAINED PER THE STATED LENGTH IN THE TABLE.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		RESTRAINED LENGTHS FOR PVC PIPE	UG-8
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

SCALE	AS NOTED		HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	02/2022		MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY DETAILS (2 OF 9)	SHEET NO.	U-29
DESIGNED BY	HLM			PROJECT NO.	6045662			FL. LICENSE NO.	68385			
DRAWN BY	TME			DATE	02/2022			BY	JTT			
CHECKED BY	HEH			DATE	02/2022			BY	JTT			

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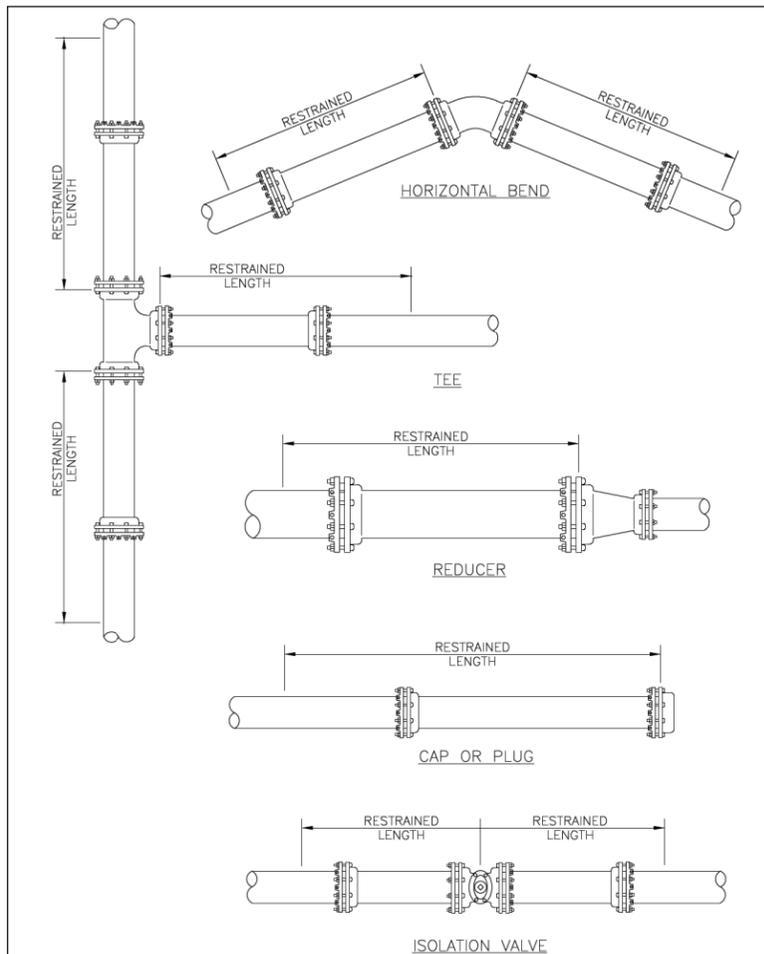
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (POLY-WRAPPED)

MAIN PIPE SIZE	HORIZ. BENDS			TEES												REDUCERS				PLUGS & VALVES
	90°	45°	22.5°	SIZE		LENGTH		SIZE		LENGTH		SIZE		LENGTH						
36	142	59	28	x36	x30	x24	x20	x16	x12	x10	x8	x6	x4	x36	x24	x20	x16	453		
30	124	51	25	x30	x24	x20	x16	x12	x10	x8	x6	x4	x30	x24	x20	x16	391			
24	106	44	21	x24	x20	x16	x12	x10	x8	x6	x4	x24	x20	x16	x12	327				
20	92	38	18	x20	x16	x12	x10	x8	x6	x4	x20	x16	x12	x10	x8	280				
16	77	32	15	x16	x12	x10	x8	x6	x4	x16	x12	x10	x8	x6	x4	231				
12	61	25	12	x12	x10	x8	x6	x4	x12	x10	x8	x6	x4	x12	x10	x8	181			
10	52	22	10	x10	x8	x6	x4	x10	x8	x6	x4	x10	x8	x6	x4	153				
8	44	18	9	x8	x6	x4	x8	x6	x4	x8	x6	x4	x8	x6	x4	128				
6	34	14	7	x6	x4	x6	x4	x6	x4	x6	x4	x6	x4	x6	x4	98				
4	24	10	5	x4	x4	x4	x4	x4	x4	x4	x4	x4	x4	x4	x4	69				

NOTE:

1. SEE UG-8, RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 9 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		RESTRAINED LENGTHS FOR DIP	UG-9
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



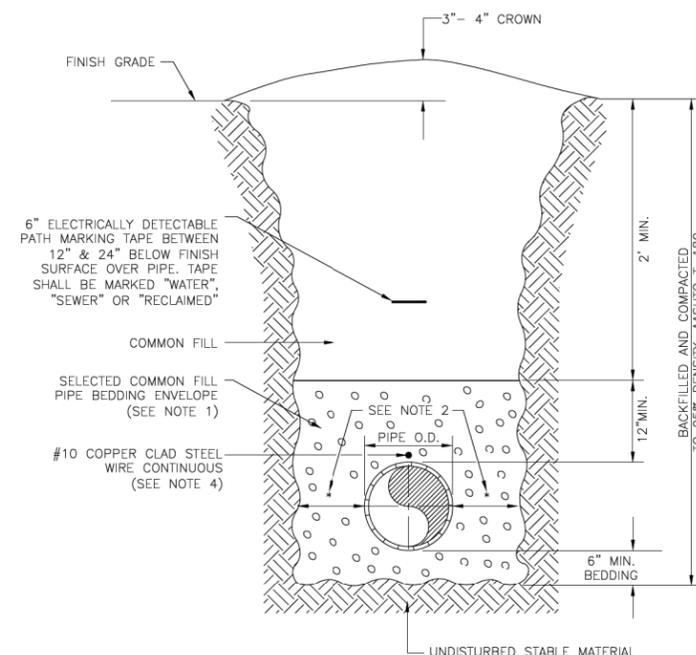
NOTE:

1. SEE DETAIL UG-8 RESTRAINED LENGTHS FOR PVC PIPE FOR NOTES 1 THROUGH 9 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR PIPE.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		RESTRAINED LENGTHS FOR PIPE	UG-10
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

NOTES:

- USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
- PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
- TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING	UG-11
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

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SCALE	AS NOTED	DATE	02/2022	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY DETAILS (3 OF 9)	SHEET NO. U-30
DESIGNED BY	HLM	PROJECT NO.	6045662	FL. LICENSE NO.	68385		
DRAWN BY	TME						
CHECKED BY	HEH						
No.	REVISIONS	DATE	BY				
2	90% Submittal	02/2022	JTT				



HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233



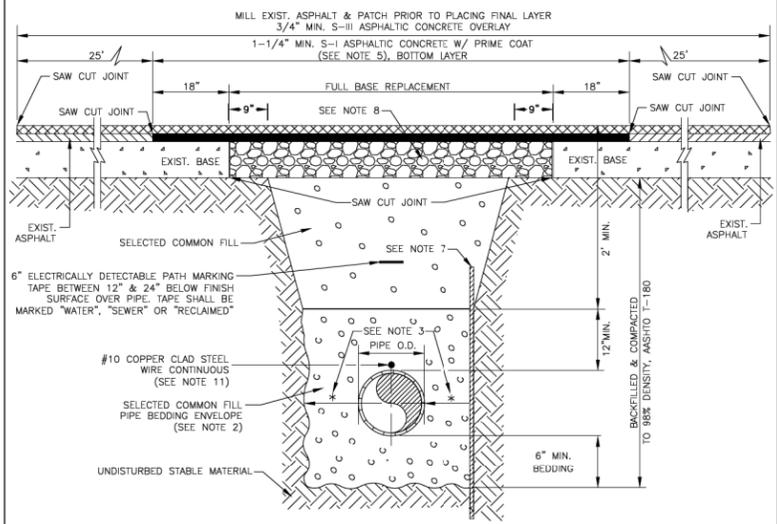
MANATEE COUNTY
PUBLIC WORKS

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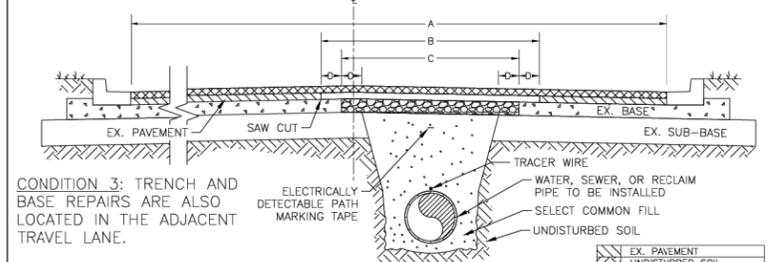
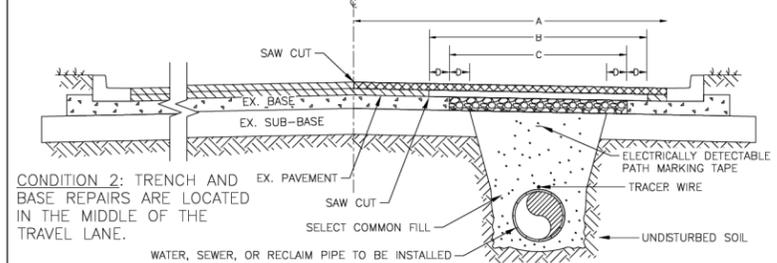
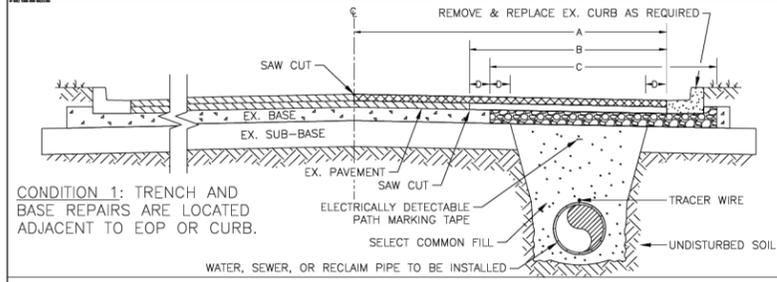
2/17/2022

PW:\

- NOTES:**
1. BITUMINOUS PAVEMENT SHALL BE REMOVED IN CLEAN STRAIGHT LINES BY SAW CUTTING. WHERE BITUMINOUS PAVEMENT ADJOINS A TRENCH, THE EDGES ADJACENT TO THE TRENCH SHALL BE TRIMMED TO A NEAT STRAIGHT LINES BEFORE RESURFACING TO ENSURE THAT ALL AREAS TO BE RESURFACED ARE ACCESSIBLE TO ROLLERS OR TAMPERS USED TO COMPACT THE SUB-GRADE OR PAVING MATERIALS.
 2. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
 3. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
 4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
 5. ASPHALTIC CONCRETE STRUCTURE COURSE WITH PRIME COAT SHALL BE THE SAME DEPTH AND TYPE AS EXISTING OR A MINIMUM OF 1-1/4 INCH S-I, WHICHEVER IS GREATER.
 6. MILL 25' BACK FROM TRENCH CROSSING SAW CUTS. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE. BUTT JOINT TO EXIST ASPHALT. FINAL OVERLAY TO MATCH EXISTING WITH NO DISCERNABLE "BUMP" AT JOINT. MILLING LIMITS THAT IMPACT INTERSECTION SHALL BE ADDRESSED ON A CASE BY CASE BASIS AND APPROVED BY MANATEE COUNTY.
 7. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
 8. NEW BASE SHALL MATCH EXISTING; OR BE CRUSHED CONCRETE, 8" MIN. THICKNESS, LBR ≥150, WHICHEVER IS GREATER.
 9. TEMPORARY PATCHES WILL BE INSTALLED TO PROVIDE A SMOOTH ALL WEATHER SURFACE AT ALL TIMES. PERMANENT REPLACEMENT TO BE MADE AS SOON AS POSSIBLE.
 10. RESTORE SIGNAGE & MARKING WITH THERMOPLASTIC PER FDOT STANDARDS, LATEST EDITION.
 11. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.
 12. NOTES 5. THRU 10. ARE MINIMUM REQUIREMENTS FOR A TRENCH IN A LOCAL ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.



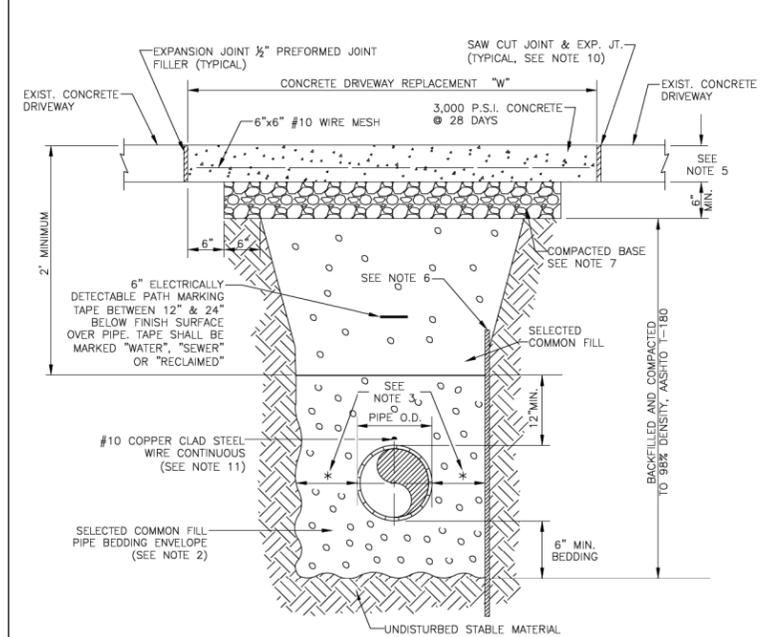
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING (CROSSING)	UG-12
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



- MANATEE COUNTY**
PUBLIC WORKS DEPARTMENT
- TRENCH WITH ASPHALT
PAVEMENT SURFACE
TYPE A-1 PIPE
BEDDING (LONGITUDINAL)
- UG-12B
- REV. BY DATE
- February 25, 2020
- DATE OF APPROVAL
- NOTES:**
1. THIS DETAIL IS BASED ON A TWO LANE ROADWAY AND SHALL BE FOLLOWED WHEN A PIPE IS INSTALLED WITHIN THE LIMITS OF A ROADWAY AND RUNS PARALLEL WITH THE EDGE OF PAVEMENT. THIS DETAIL CAN ALSO BE UTILIZED FOR RESTORATION NEEDS OF ROADWAYS WITH ADDITIONAL LANES. CONDITION 3 ONLY EXTENDS TO NEXT ADJACENT LANE ON MULTI-LANE ROADS.
 2. THE MILL AND OVERLAY SHALL BE FIELD ADJUSTED TO MEET THE NEEDS FOR PAVEMENT RESTORATION DUE TO CONSTRUCTION ACTIVITIES AND SHALL BE COORDINATED WITH THE COUNTY.
 3. SEE TRENCH WITH ASPHALT PAVEMENT TYPE A-1 PIPE BEDDING (CROSSING) DETAIL FOR NOTES 1 TO 12 THAT ARE ALSO APPLICABLE TO ASPHALT PAVEMENT RESTORATION.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING (LONGITUDINAL)	UG-12B
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

- NOTES:**
1. CONCRETE PAVEMENT SHALL BE REMOVED WITH SAWED EDGES AND CUT AT A MINIMUM DEPTH OF ONE AND ONE-HALF (1-1/2") IF A SAW CUT IN CONCRETE PAVEMENT FALLS WITHIN THREE FEET (3') OF A CONTRACTION JOINT, COLD JOINT, EXPANSION JOINT OR EDGE. THE CONCRETE SHALL BE REMOVED TO THE JOINT OR EDGE. THE EDGES OF EXISTING CONCRETE PAVEMENT ADJACENT TO TRENCHES, WHICH HAD BEEN DAMAGED SUBSEQUENT TO SAW CUTTING OF PAVEMENT, SHALL BE SAW CUT TO NEAT STRAIGHT LINES FOR THE PURPOSE OF REMOVING THE DAMAGED PAVEMENT AREAS.
 2. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
 3. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
 4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
 5. THICKNESS TO MATCH EXISTING OR BE 6" MINIMUM, WHICHEVER IS GREATER.
 6. SHEETING ORDERED LEFT IN PLACE TO BE CUT OFF 24" BELOW FINISHED GRADE OR 12" BELOW SUBGRADE.
 7. BASE SHALL BE COMPACTED 6" MINIMUM THICKNESS OF APPROVED MATERIAL.
 8. DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST ADOPTED CONSTRUCTION STANDARDS OF THE MANATEE COUNTY TRANSPORTATION DEPARTMENT.
 9. IF THE DRIVEWAY IS 12' OR WIDER, SAWCUT AN EXPANSION JOINT ALONG THE CENTER OF THE DRIVEWAY (3/16" WIDE AND 1/2" DEEP) AFTER THE CONCRETE HAS SET.
 10. IF THERE IS AN EXISTING EXPANSION JOINT WITHIN 3' OF THE PROPOSED JOINT, EXTEND DRIVEWAY REPLACEMENT TO THE EXISTING JOINT.
 11. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TRENCH WITH CONCRETE DRIVEWAY SURFACE TYPE A-1 PIPE BEDDING	UG-14
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

SCALE	AS NOTED
DESIGNED BY	HLM
DRAWN BY	TME
CHECKED BY	HEH
No.	REVISIONS
2	90% Submittal
	DATE
	BY
	JTT
	02/2022



DATE
02/2022

PROJECT NO.
6045662

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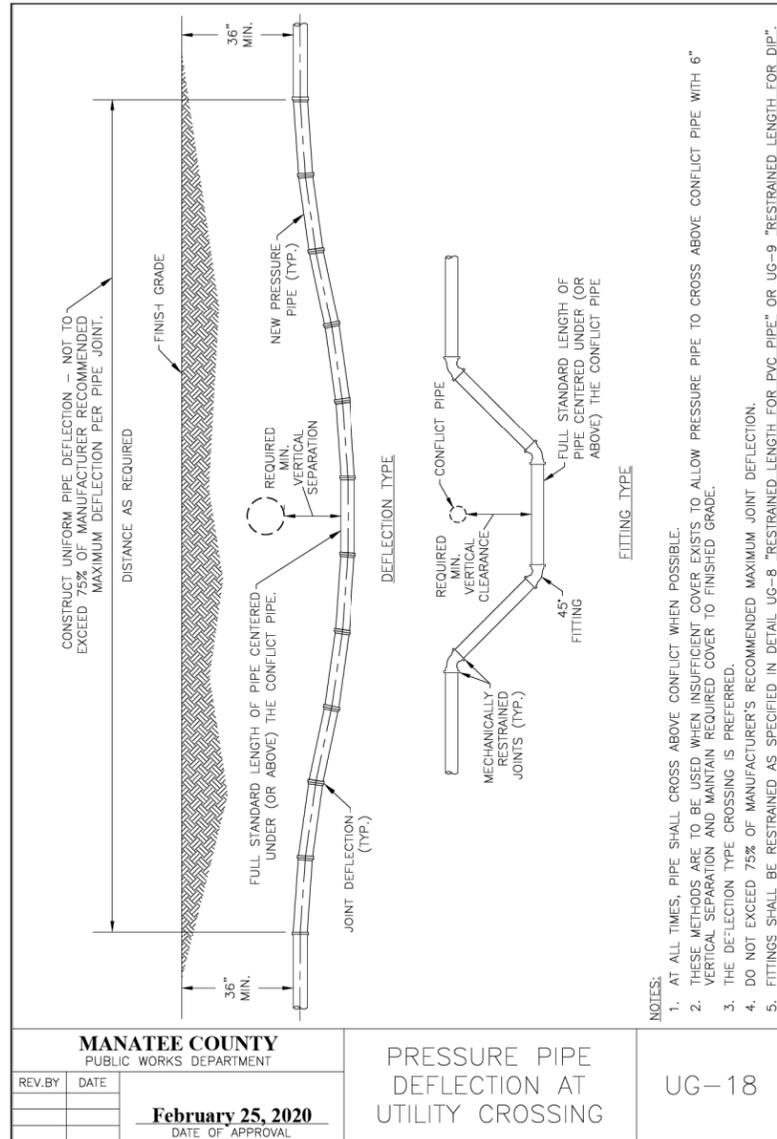
DESIGN ENGINEER
HEATHER MANGANIELLO

FL. LICENSE NO.
68385

PW:\

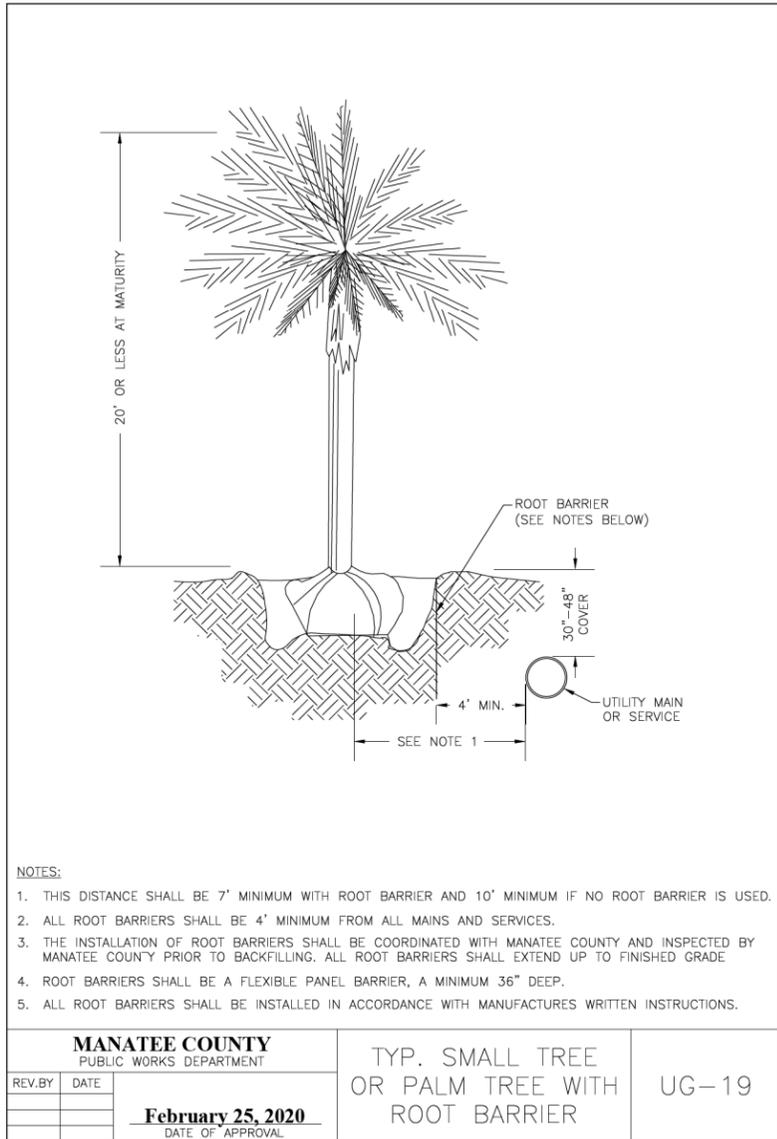
MANATEE COUNTY PUBLIC WORKS	UTILITY DETAILS (4 OF 9)	SHEET NO. U-31
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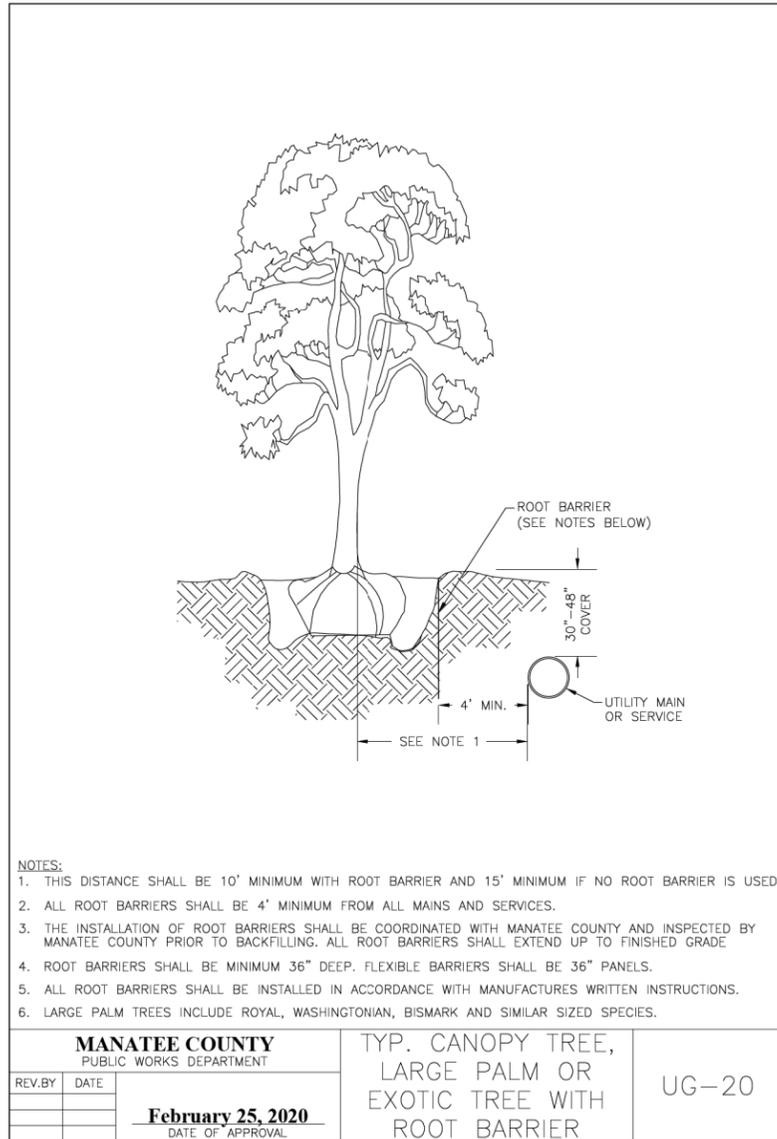
- NOTES:
1. AT ALL TIMES, PIPE SHALL CROSS ABOVE CONFLICT WHEN POSSIBLE.
 2. THESE METHODS ARE TO BE USED WHEN INSUFFICIENT COVER EXISTS TO ALLOW PRESSURE PIPE TO CROSS ABOVE CONFLICT PIPE WITH 6" VERTICAL SEPARATION AND MAINTAIN REQUIRED COVER TO FINISHED GRADE.
 3. THE DEFECTION TYPE CROSSING IS PREFERRED.
 4. DO NOT EXCEED 75% OF MANUFACTURER'S RECOMMENDED MAXIMUM JOINT DEFECTION.
 5. FITTINGS SHALL BE RESTRAINED AS SPECIFIED IN DETAIL UG-8 "RESTRAINED LENGTH FOR PVC PIPE" OR UG-9 "RESTRAINED LENGTH FOR DIP".

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		PRESSURE PIPE DEFECTION AT UTILITY CROSSING	UG-18
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



- NOTES:
1. THIS DISTANCE SHALL BE 7' MINIMUM WITH ROOT BARRIER AND 10' MINIMUM IF NO ROOT BARRIER IS USED.
 2. ALL ROOT BARRIERS SHALL BE 4' MINIMUM FROM ALL MAINS AND SERVICES.
 3. THE INSTALLATION OF ROOT BARRIERS SHALL BE COORDINATED WITH MANATEE COUNTY AND INSPECTED BY MANATEE COUNTY PRIOR TO BACKFILLING. ALL ROOT BARRIERS SHALL EXTEND UP TO FINISHED GRADE.
 4. ROOT BARRIERS SHALL BE A FLEXIBLE PANEL BARRIER, A MINIMUM 36" DEEP.
 5. ALL ROOT BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYP. SMALL TREE OR PALM TREE WITH ROOT BARRIER	UG-19
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

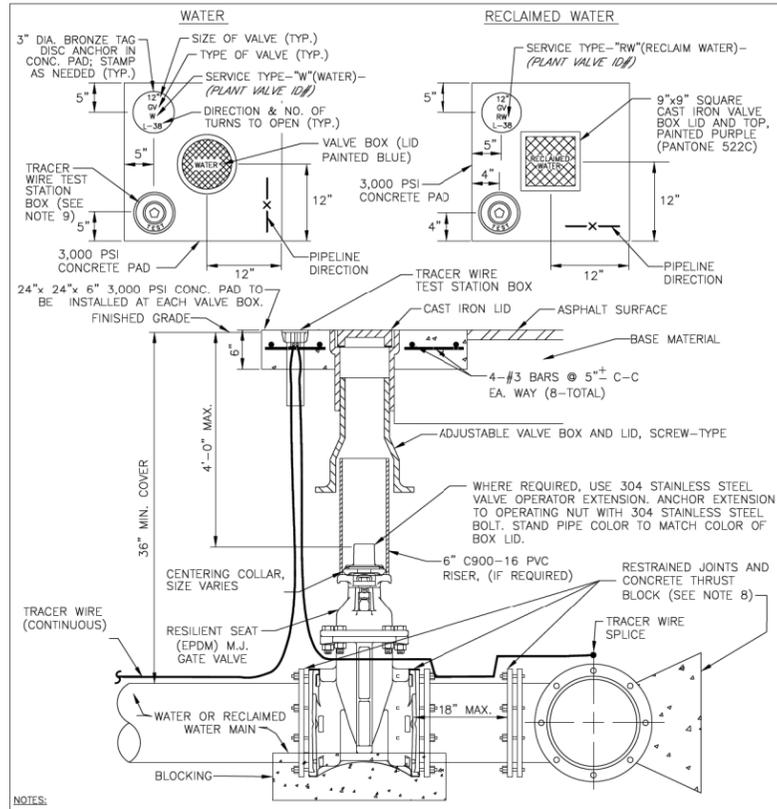


- NOTES:
1. THIS DISTANCE SHALL BE 10' MINIMUM WITH ROOT BARRIER AND 15' MINIMUM IF NO ROOT BARRIER IS USED.
 2. ALL ROOT BARRIERS SHALL BE 4' MINIMUM FROM ALL MAINS AND SERVICES.
 3. THE INSTALLATION OF ROOT BARRIERS SHALL BE COORDINATED WITH MANATEE COUNTY AND INSPECTED BY MANATEE COUNTY PRIOR TO BACKFILLING. ALL ROOT BARRIERS SHALL EXTEND UP TO FINISHED GRADE.
 4. ROOT BARRIERS SHALL BE MINIMUM 36" DEEP. FLEXIBLE BARRIERS SHALL BE 36" PANELS.
 5. ALL ROOT BARRIERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.
 6. LARGE PALM TREES INCLUDE ROYAL, WASHINGTONIAN, BISMARCK AND SIMILAR SIZED SPECIES.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYP. CANOPY TREE, LARGE PALM OR EXOTIC TREE WITH ROOT BARRIER	UG-20
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

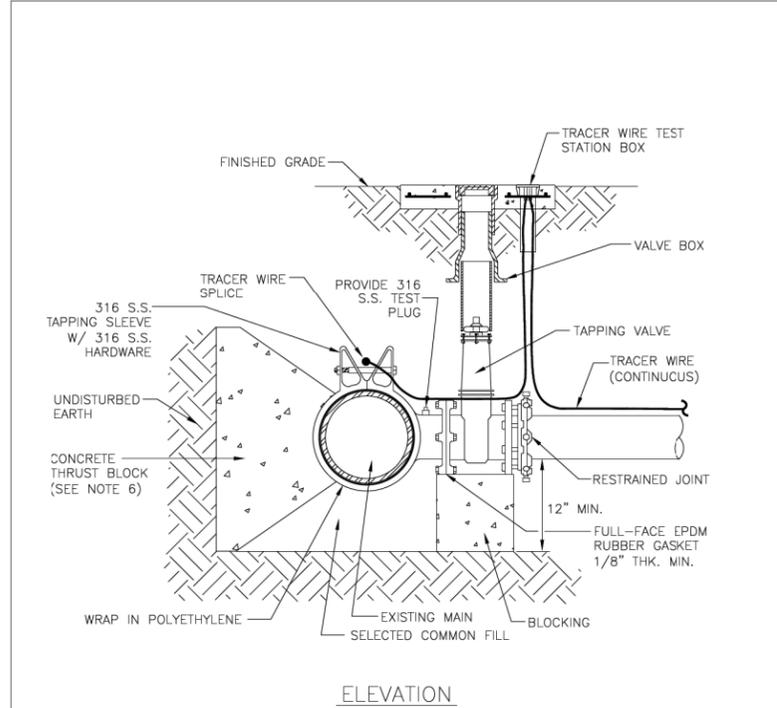
SCALE	AS NOTED		HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	02/2022		MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY DETAILS (5 OF 9)	SHEET NO.	U-32
DESIGNED BY	HLM			PROJECT NO.	6045662			FL. LICENSE NO.	68385			
DRAWN BY	TME											
CHECKED BY	HEH											
No.	REVISIONS	DATE	BY									

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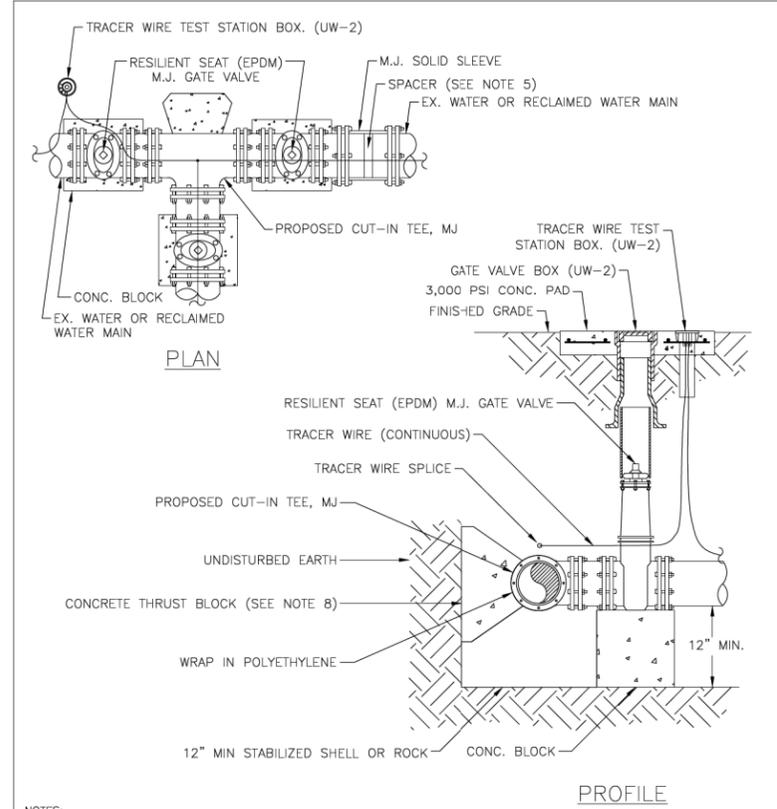
- NOTES:
- "W" or "RW" to be impressed into the newly-poured concrete curb, along with distance in feet to the valve. If no curb, install a blue disc with "W" or purple disc with "RW" using a 1/8" x 1" galvanized steel screw in the edge of pavement with the footage from the disc to the valve.
 - All existing and proposed valve boxes shall be adjusted to finished grades as determined in the field.
 - Valves shall not be placed in handicapped ramps, curbs, or gutters.
 - Precast concrete pads shall not be used.
 - All exposed edges of concrete shall be chamfered 1/2".
 - Pipeline direction to be impressed into newly poured concrete pad.
 - Tracer wire test station box is not required in valve box pad if the gate valve is located within 200 feet of a water service, blow-off, backflow preventer or fire hydrant that has a tracer wire box.
 - Where thrust block not used, restrained joints must then extend from tee full length specified for tees.
 - Use non-traffic rated boxes for normal yard service. Where valve will be in street or parking under vehicle traffic, use traffic rated boxes. Where possible, locate tracer wire testing station outside of travel lane or in median, centered in separate concrete pad similar to standard valve box pad.
 - The brass tag shall have a "PLANT VALVE ID#" when valves are installed within the county treatment plant limits. The plant valve ID# shall be shown on the construction plans and record drawings.
 - Refer to section 1.11 gate valves in the public works utility standards manual for further details.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		GATE VALVE, BOX, LID AND TAG	UW-2
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



- NOTES:
- Prior to tapping, contractor to demonstrate 60 minute hydrostatic test of the tapping sleeve and valve with no loss of 180 PSI pressure for water and reclaimed water.
 - All fittings to be wrapped with 20 mil polyethylene wrap at thrust block.
 - All taps on concrete water mains and larger than 12" are to be made by a Manatee County approved tapping company. All materials to be supplied by the contractor.
 - All taps must be of a smaller size than the main being tapped & placed no closer than 30" or a distance equal to (1) main pipe diameter plus (2) tap pipe diameters (whichever is greater) from a joint or fitting.
 - Contractor to supply a dry hole for tapping crew to work in and a back-hoe to lower tapping machine into the hole.
 - Where thrust block not used, restrained joints must then extend from tee full length specified for tees.
 - Tracer wire test station box is required at connections to existing mains.
 - See section 1.11 tapping sleeves and valves in the public works utility standards manual for further details.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TAPPING SLEEVE AND VALVE (WATER/RECLAIM)	UW-3
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

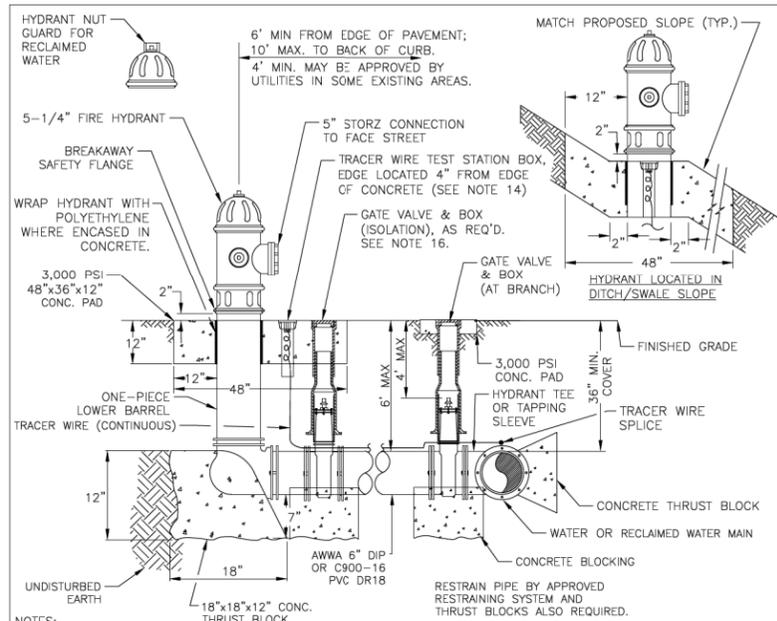


- NOTES:
- All fittings to be wrapped with 20 mil polyethylene wrap at thrust block.
 - Tracer wire test station box is required at connections to existing mains.
 - Water valves shall be installed on all sides of tees and crosses, unless inline valves on that leg within 200 feet.
 - Restrained joints must extend from tee full length specified for valves.
 - Spacer is required if a gap exists. Spacer not to exceed over 30% of sleeve width.
 - In asbestos concrete pipe (AC) applications: two couplings are required. All fittings including couplings shall be supported with concrete blocking to prevent settlement.
 - All existing restraining shall be modified and or re-instated as necessary, to meet the restraint requirement for valves.
 - Where thrust block not used, restrained joints must then extend from tee full length specified for tees.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		CUT-IN TEE	UW-4
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

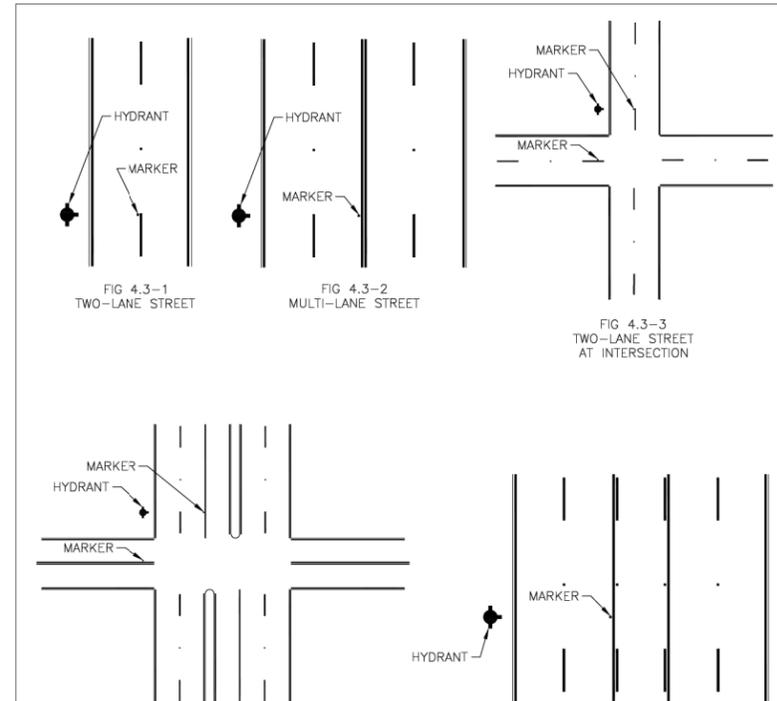
SCALE	AS NOTED		HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	02/2022	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY DETAILS (6 OF 9)	SHEET NO.	U-33
DESIGNED BY	HLM			PROJECT NO.	6045662		FL. LICENSE NO.	68385			
DRAWN BY	TME	DATE	02/2022	CHECKED BY	JTT						
2	90% Submittal	DATE	02/2022	BY	HEH						
No.	REVISIONS	DATE		BY							

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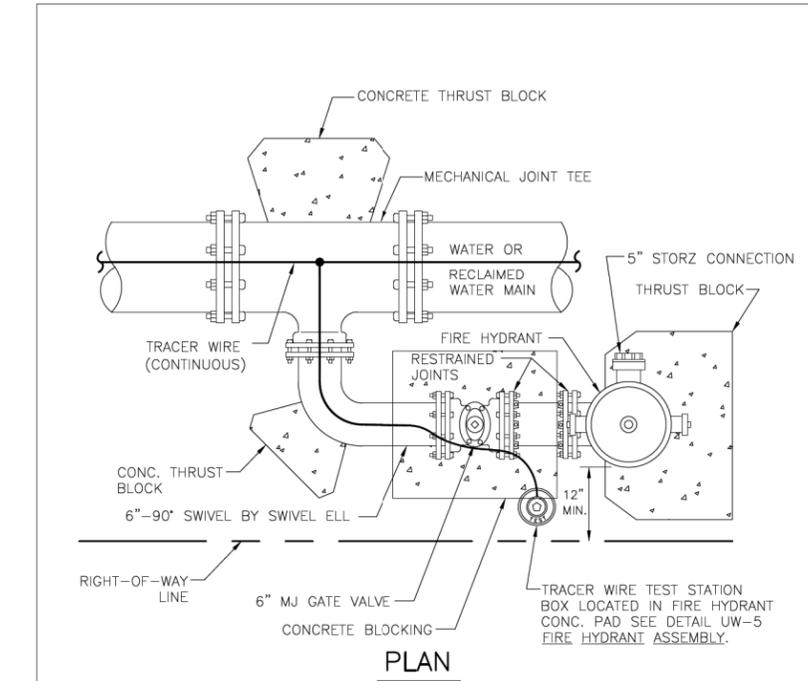
- NOTES:**
1. WEEPHOLES SHALL BE EXCLUDED FROM THE FIRE HYDRANT.
 2. FIRE HYDRANTS SHALL BE A MINIMUM OF 6' OFF EDGE OF PAVEMENT AND 10' MAX. FROM BACK OF CURB. WHERE POSSIBLE AND WHERE SIDEWALK IS TO BE INSTALLED, FIRE HYDRANT SHALL BE LOCATED BETWEEN SIDEWALK AND RIGHT-OF-WAY LINE.
 3. HYDRANT SHALL BE DUCTILE IRON CONSTRUCTION. HYDRANTS SHALL BE FUSION BONDED EPOXY COATED SAFETY YELLOW FOR WATER; PURPLE (PANTONE 522C) FOR RECLAIMED WATER; AND RED FOR PRIVATE.
 4. FIRE HYDRANTS SHALL BE PLACED SO THAT STORM WATER FLOWS AWAY FROM THE HYDRANT.
 5. FIRE HYDRANTS SHALL BE CONSTRUCTED WITH "GROUND LINE" SET TO FINISHED GRADES AS ESTABLISHED IN THE FIELD. NORMAL BURY IS 3 FEET OF COVER FOR ALL WATER LINES.
 6. FIRE HYDRANTS MAY BE CONSTRUCTED WITH "GRADELOK" OFFSET FITTING.
 7. RAISED REFLECTIVE PAVEMENT MARKER(S) (BLUE) FOR POTABLE WATER (PURPLE) FOR RECLAIMED WATER SHALL BE INSTALLED ON THE PAVEMENT DIRECTLY ACROSS FROM THE HYDRANT IN ACCORDANCE WITH THE FDOT TRAFFIC ENGINEERING MANUAL, CHAPTER 4, SECTION 4.3 OR MOST CURRENT ADDITION.
 8. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 1/2" CHAMFER.
 9. FIRE HYDRANT VALVE SHALL BE FASTENED DIRECTLY TO TEE.
 10. IN-LINE VALVES SHOULD BE LOCATED AT HYDRANT TEES.
 11. HYDRANTS SHALL BE LOCATED ON SAME SIDE OF ROAD AS WATER OR RECLAIMED MAIN.
 12. THERE MUST BE A CLEARANCE OF 7 1/2 FEET FROM FRONT AND BOTH SIDES, AND FOUR FEET TO THE REAR OF THE HYDRANT, TO ABOVE GRADE OBSTRUCTIONS INCLUDING POSTS, FENCES, TREES, ETC, PER THE FLORIDA FIRE PREVENTION CODE.
 13. SEE STANDARD DETAIL UW-2 GATE VALVE, BOX, LID AND TAG.
 14. SHOULD THE FIRE HYDRANT'S CONCRETE PAD OVERLAP A SIDEWALK, THE TRACER WIRE TEST STATION BOX SHALL NOT BE LOCATED WITHIN THE SIDEWALK.
 15. IF A HYDRANT IS LOCATED ON THE SLOPE OF A DITCH OR SWALE; THE CONCRETE PAD SHALL CONFORM TO THE FINISH GRADE/SLOPE. THE CONCRETE PAD SHALL BE LEVEL 2-INCHES BEHIND & IN FRONT OF THE HYDRANT.
 16. AT THE DISCRETION OF THE COUNTY AN ADDITIONAL ISOLATION GATE VALVE SHALL BE ADDED, WHEN A PHYSICAL BARRIER IS PRESENT, (I.E. ROADWAY, FENCE, WALL, BERM ETC), BETWEEN THE BRANCH GATE VALVE AND THE HYDRANT.
 17. SEE SECTION 1.11 HYDRANTS IN THE PUBLIC WORKS UTILITY STANDARDS MANUAL FOR FURTHER DETAILS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		FIRE HYDRANT ASSEMBLY	UW-5
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



- NOTES:**
1. TWO-WAY STREETS OR ROADS: MARKER SHOULD BE PLACED 6 INCHES FROM EDGE OF PAINTED CENTERLINE ON THE SIDE NEAREST THE FIRE HYDRANT. IF THE STREET HAS NO CENTERLINE, THE MARKER SHOULD BE PLACED 6 INCHES FROM APPROXIMATE CENTER OF THE ROADWAY ON THE SIDE NEAREST THE HYDRANT. SEE FIGURE 4.3-1, 4.3-2, AND 4.3-3.
 2. STREETS WITH LEFT TURN LANE AT INTERSECTION: MARKER SHOULD BE PLACED 6 INCHES FROM EDGE OF PAINTED WHITE CHANNELIZING LINE OF THE SIDE NEAREST THE FIRE HYDRANT. SEE FIGURE 4.3-4.
 3. STREETS WITH CONTINUOUS TWO-WAY TURN LANE: MARKER SHOULD BE PLACED 6 INCHES FROM THE EDGE OF THE PAINTED YELLOW BARRIER LINE ON THE SIDE NEAREST THE FIRE HYDRANT. SEE FIGURE 4.3-5.
 4. MARKER SHALL BE BLUE/BLUE RAISED RETROREFLECTIVE PAVEMENT MARKER.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		HYDRANT LOCATION MARKERS - BLUE (RPMs)	UW-6
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

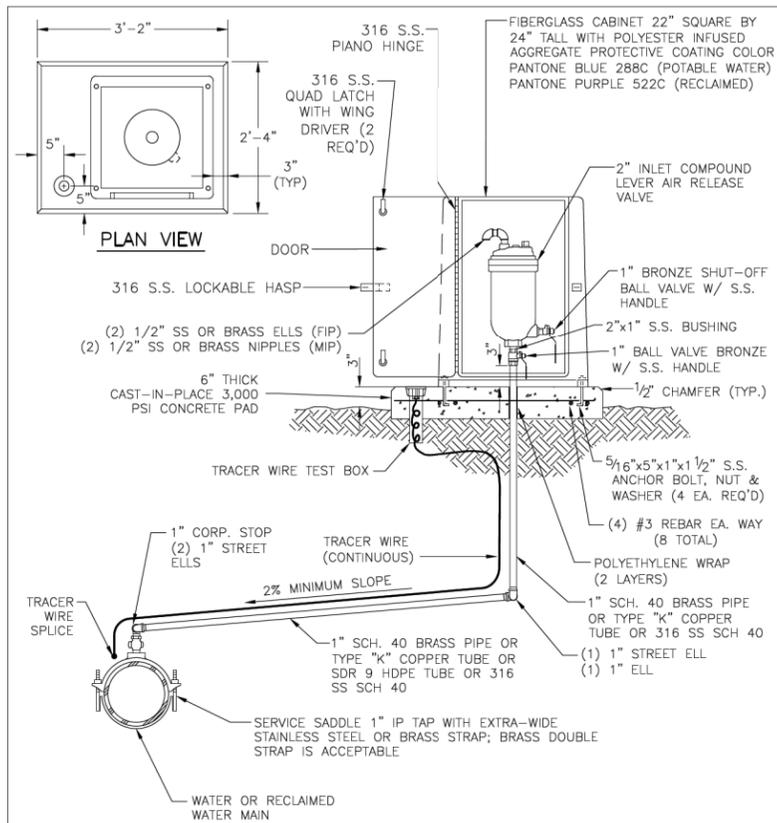


- NOTES:**
1. THIS DETAIL FOR USE ONLY WHEN THE WATER MAIN IS LOCATED TOO CLOSE TO THE RIGHT-OF-WAY LINE TO USE THE FIRE HYDRANT ASSEMBLY DETAIL.
 2. SEE STANDARD DETAIL UW-2 GATE VALVE, BOX, LID AND TAG.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		FIRE HYDRANT WITH LOCKED 90° BEND	UW-7
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

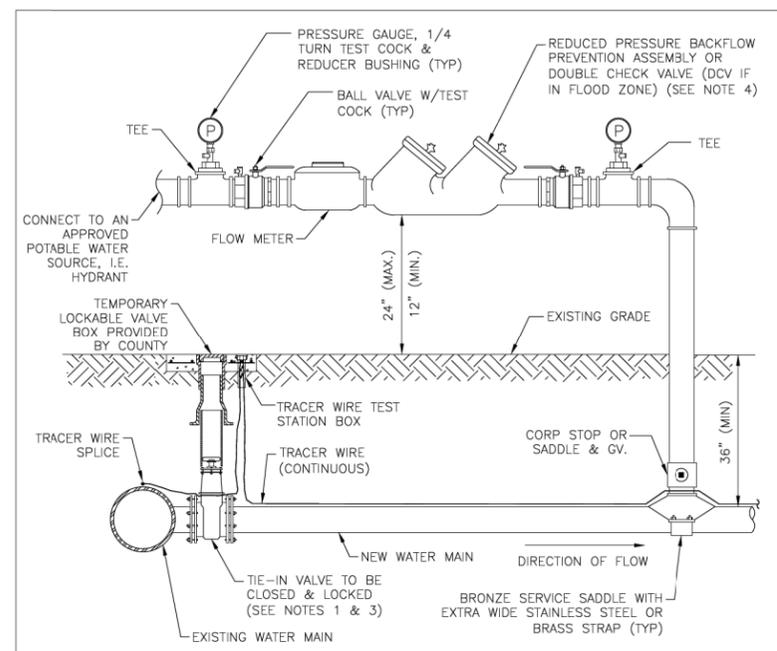
SCALE	AS NOTED		HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	02/2022	MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY DETAILS (7 OF 9)	SHEET NO.	U-34
DESIGNED BY	HLM			PROJECT NO.	6045662		FL. LICENSE NO.	68385			
DRAWN BY	TME			DATE	02/2022		BY	HEH			
CHECKED BY	HEH			REVISIONS	2		90% Submittal				

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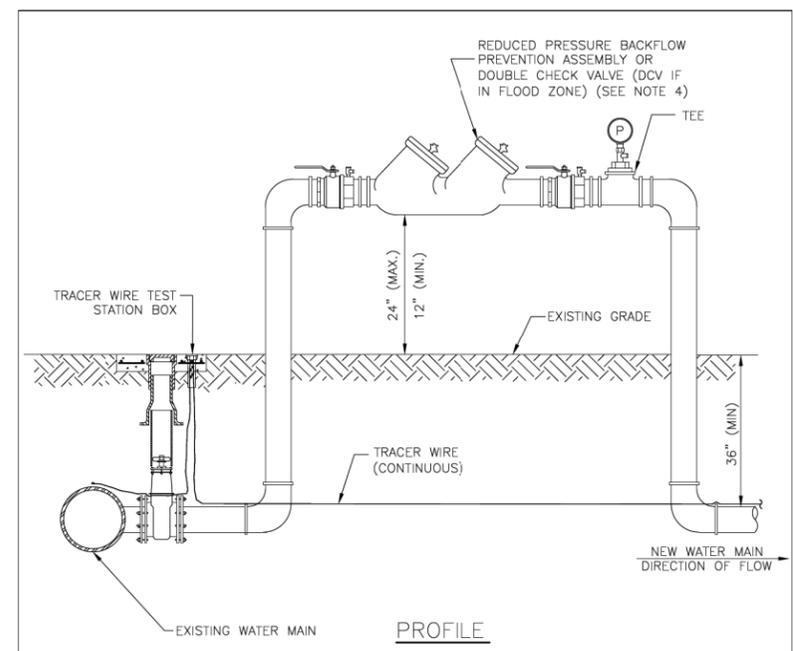
- NOTES:**
- AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS ALONG THE CONSTRUCTED MAINS, WHERE AIR COULD BE TRAPPED.
 - ARV VENT ORIFICE TO BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION FOR WATER MAIN SIZE.
 - ALL INCIDENTAL FITTINGS AND HARDWARE TO BE STAINLESS STEEL, BRASS OR COPPER.
 - ALL PIPE THREADS TO BE SEALED AIR TIGHT.
 - VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.
 - ARV SHALL BE INSTALLED MINIMUM 6 FT FROM EDGE OF PAVEMENT; 10 FT MAXIMUM FROM BACK OF CURB; 4 FT MIN. MAY BE APPROVED BY UTILITIES IN SOME EXISTING AREAS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR 12-INCH AND SMALLER WATER MAINS	UW-10
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



- NOTES:**
- FOR TIE-IN VALVE, SEE DETAIL UW-3 FOR TAPPING SLEEVE VALVE AND UW-2 FOR GATE VALVE.
 - CORPORATION STOP CONNECTIONS TO WATER MAINS SHALL BE AT A SUFFICIENT DISTANCE FROM NEW TAPPING SLEEVE & VALVE (TIE-IN VALVE). ALL CORPORATION STOP TAPS SHALL BE PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP DIAMETERS (WHICHEVER IS LARGER) FROM THE NEW TIE-IN VALVE (TAPPING VALVE & SLEEVE). SIZE-ON-SIZE TAPS ARE NOT ALLOWED. A CUT-IN TEE SHALL BE USED.
 - IF THE EXISTING WATER MAIN IS LOCATED UNDER PAVEMENT OR CLOSE TO THE ROADWAY, BOTH JUMPER CORPORATION STOPS MAY CONNECT TO THE NEW WATER MAIN LOCATED OUTSIDE OF THE PAVEMENT. AN ADDITIONAL GATE VALVE SHALL BE INSTALLED AND THE VALVE MAY BE LOCATED AT THE ROW LINE. PIPING AND APPURTENANCES BETWEEN THE EXISTING MAIN AND ISOLATION VALVE AND JUMPER SHALL BE DISINFECTED BY SPRAYING OR SWABBING.
 - BACKFLOW PREVENTION ASSEMBLY SHALL BE STRUCTURALLY SUPPORTED.
 - THE TIE-IN VALVE SHALL REMAIN CLOSED AND THE LOCKABLE VALVE BOX SHALL BE LOCKED BY MANATEE COUNTY. THE TIE-IN VALVE SHALL REMAIN CLOSED AND LOCKED UNTIL THE NEW SYSTEM HAS BEEN CLEARED FOR USE BY THE FDEP AND ALL OTHER PERTINENT AGENCIES. AFTER CLEARANCE IS OBTAINED, THE LOCKABLE VALVE BOX SHALL BE REMOVED, RETURNED TO THE COUNTY, AND REPLACED WITH A STANDARD VALVE BOX.
 - IN THE EVENT THE LOCKED TIE-IN VALVE MUST BE OPENED, THE VALVE SHALL ONLY BE OPERATED BY MANATEE COUNTY PERSONNEL.
 - SEE DETAIL UW-24 FOR ADDITIONAL JUMPER CONNECTION NOTES.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION-HYDRANT AVAILABLE	UW-23A
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



- NOTES:**
- FOR TIE-IN VALVE, SEE DETAIL UW-3 FOR TAPPING SLEEVE VALVE AND UW-2 FOR GATE VALVE.
 - CORPORATION STOP CONNECTIONS TO WATER MAINS SHALL BE AT A SUFFICIENT DISTANCE FROM NEW TAPPING SLEEVE & VALVE (TIE-IN VALVE). ALL CORPORATION STOP TAPS SHALL BE PLACED NO CLOSER THAN 30" OR A DISTANCE EQUAL TO (1) MAIN PIPE DIAMETER PLUS (2) TAP DIAMETERS (WHICHEVER IS LARGER) FROM THE NEW TIE-IN VALVE (TAPPING VALVE & SLEEVE). SIZE-ON-SIZE TAPS ARE NOT ALLOWED. A CUT-IN TEE SHALL BE USED.
 - IF THE EXISTING WATER MAIN IS LOCATED UNDER PAVEMENT OR CLOSE TO THE ROADWAY, BOTH JUMPER CORPORATION STOPS MAY CONNECT TO THE NEW WATER MAIN LOCATED OUTSIDE OF THE PAVEMENT. AN ADDITIONAL GATE VALVE SHALL BE INSTALLED AND THE VALVE MAY BE LOCATED AT THE ROW LINE. PIPING AND APPURTENANCES BETWEEN THE EXISTING MAIN AND ISOLATION VALVE AND JUMPER SHALL BE DISINFECTED BY SPRAYING OR SWABBING.
 - BACKFLOW PREVENTION ASSEMBLY SHALL BE STRUCTURALLY SUPPORTED.
 - SEE DETAIL UW-24 FOR ADDITIONAL JUMPER CONNECTION NOTES.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION - NO HYDRANT AVAILABLE	UW-23B
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

SCALE	AS NOTED	DATE	02/2022	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY DETAILS (8 OF 9)	SHEET NO. U-35
DESIGNED BY	HLM	PROJECT NO.	6045662	FL. LICENSE NO.	68385		
DRAWN BY	TME						
CHECKED BY	HEH						
No.	REVISIONS	DATE	BY				
2	90% Submittal	02/2022	JTT				



HDR Engineering, Inc.
2601 Cattlemen Road
Suite 400
Sarasota, FL 34232-6233



MANATEE COUNTY
PUBLIC WORKS

MANATEE COUNTY
PUBLIC WORKS DEPARTMENT

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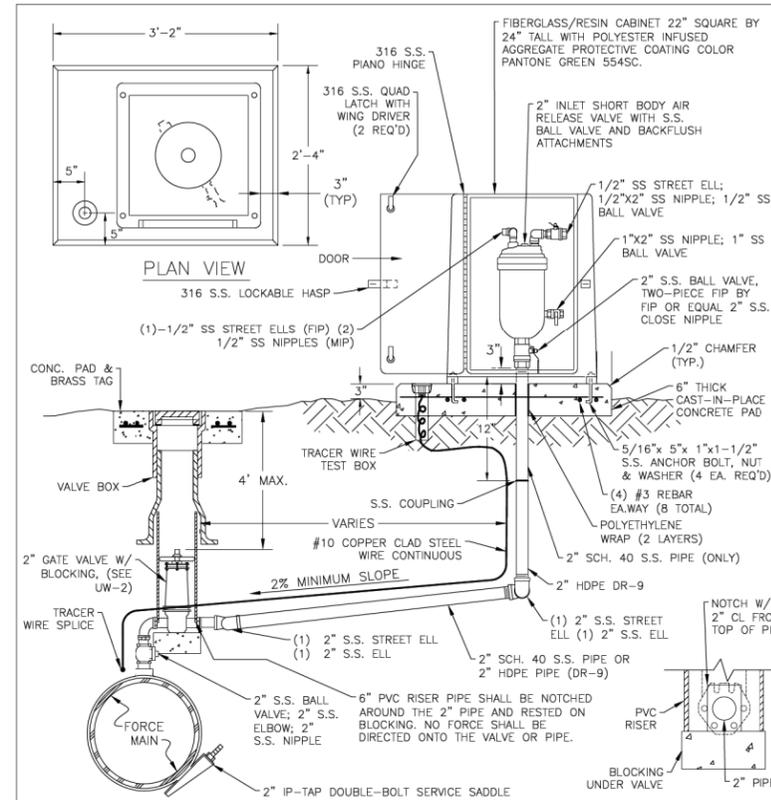
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- A 2-INCH MINIMUM TEMPORARY JUMPER CONNECTION IS REQUIRED AT ALL CONNECTIONS BETWEEN EXISTING ACTIVE POTABLE WATER MAINS AND PROPOSED NEW WATER MAIN IMPROVEMENTS WITH THE FOLLOWING EXCEPTIONS:
 - PROJECTS THAT INCLUDE A PERMANENT BACKFLOW PREVENTER AT THE RIGHT-OF-WAY WHICH IS ADJACENT TO THE EXISTING WATER MAIN;
 - PROJECTS THAT INCLUDE NEW WATER MAINS THAT ARE LESS THAN OR EQUAL TO 18 LINEAR FEET IN LENGTH; OR
 - OTHER PROPOSED CASES THAT ARE APPROVED BY MANATEE COUNTY AND THE CONSTRUCTION DRAWINGS SPECIFICALLY STATE THAT A TEMPORARY JUMPER CONNECTION IS NOT REQUIRED.
- A TEMPORARY JUMPER SHALL BE USED AND BE CONNECTED TO AN APPROVED POTABLE WATER SOURCE (E.G., EXISTING FIRE HYDRANT, EXISTING MAIN, EXISTING SERVICE TAP OR TANK TRUCK, ETC.) AS SHOWN IN THE STANDARD TEMPORARY JUMPER DETAIL UW-23A OR UW-23B.

A TEMPORARY JUMPER SHALL BE USED FOR FILLING, FLUSHING AND FOR DISINFECTION OF ANY NEW MAIN OF ANY SIZE. THE TEMPORARY JUMPER CONNECTION SHALL BE MAINTAINED UNTIL AFTER THE FILLING, FLUSHING, TESTING AND DISINFECTION OF THE NEW MAIN HAS BEEN SUCCESSFULLY COMPLETED AND CLEARANCE FOR USE FROM THE FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) HAS BEEN OBTAINED.
- THE LOCATION AND ORIENTATION OF TEMPORARY JUMPERS ASSOCIATED WITH CONNECTIONS TO EXISTING WATER MAINS THAT ARE LOCATED UNDER THE ROADWAY PAVEMENT SHALL BE APPROVED ON A CASE-BY-CASE BASIS.
- PIPE AND FITTINGS USED FOR CONNECTING THE NEW PIPE TO THE EXISTING PIPE SHALL BE DISINFECTED PRIOR TO INSTALLATION IN ACCORDANCE WITH AWWA C651, LATEST EDITION. UNLESS APPROVED OTHERWISE, THE TAPPING SLEEVE, AND EXTERIOR OF THE EXISTING MAIN TO BE TAPPED, PIPING WITHIN THE JUMPER, AND NEW PIPING SHOWN ON STANDARD TEMPORARY JUMPER DETAIL UW-23A OR UW-23B SHALL BE DISINFECTED BY SPRAYING OR SWABBING PER SECTION 4.6 OF AWWA C651.
- THE JUMPER SHALL INCLUDE A FLOW METER TO ENSURE THAT THE FLOW FROM THE SUPPLY SOURCE IS AT A CONSTANT MEASURED RATE WHILE CHLORINATING THE NEW MAIN. THE CHLORINE CONCENTRATION SHALL BE MEASURED AT REGULAR INTERVALS TO ENSURE THAT IT IS FED AT A CONSTANT RATE OF NOT LESS THAN 25 MILLIGRAMS PER LITER (MG/L) OF FREE CHLORINE.
- THE JUMPER CONNECTION SHALL ALSO BE USED TO MAINTAIN A MINIMUM PRESSURE OF 20 PSI IN THE NEW MAINS CONTINUOUSLY AFTER DISINFECTION AND UNTIL FDEP CLEARANCE LETTER IS OBTAINED.
- ALL TEMPORARY BACKFLOW PREVENTION ASSEMBLY OR "JUMPERS" UTILIZED DURING PIPELINE CONSTRUCTION MUST SHOW CERTIFICATION THAT THEY HAVE BEEN TESTED ANNUALLY AND PASSED ACCORDING TO THE FLORIDA BUILDING CODE, PLUMBING SECTION, CHAPTER 3, SECTION 312.9.1, 312.9.2, CHAPTER 6, SECTION 608, AND RESOLUTION R87-125. ANNUAL CERTIFICATION MUST BE VALID AT TIME OF INSTALLATION AND PROVIDED TO THE MANATEE COUNTY INSPECTOR UPON REQUEST.
- ALL INSTALLATION AND MAINTENANCE OF THE TEMPORARY JUMPER CONNECTION AND ASSOCIATED BACKFLOW PREVENTION ASSEMBLY, FLOW METER, FITTINGS, VALVES, ETC., SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- TEMPORARY JUMPER SIZE DEPENDS ON THE SITUATION: JUMPERS LARGER THAN 2-INCHES MAY BE USED FOR FLUSHING PURPOSES OR IF PARTIAL FIRE PROTECTION IS REQUIRED DURING INITIAL CONSTRUCTION, AS DETERMINED BY THE ENGINEER OF RECORD OR FIRE DEPARTMENT.
- PRIOR TO REMOVAL OF THE TEMPORARY JUMPER, THE NEWLY-CONSTRUCTED WATER SYSTEM SHALL HAVE RECEIVED CLEARANCE FROM THE FDEP.
- AFTER RECEIPT OF CLEARANCE FOR USE BY FDEP, MANATEE COUNTY, AND ALL OTHER PERTINENT AGENCIES, THE CONTRACTOR SHALL REMOVE THE TEMPORARY JUMPER CONNECTION AND COMPLETE THE WATER MAIN. ALL CORPORATION STOPS LEFT-IN-PLACE ARE TO BE CLOSED AND PLUGGED WITH 2-INCH BRASS.
- IF THE TEMPORARY JUMPER IS LOCATED WITHIN A STANDARD PIPE LENGTH AWAY FROM THE PROPOSED TIE-IN AND A SINGLE STANDARD LENGTH OF PIPE IS USED FOR COMPLETING THE CONNECTION, THEN THE COUNTY WILL PERFORM A VISUAL INSPECTION AND A SEPARATE HYDROSTATIC TEST MAY NOT BE REQUIRED.

IF MULTIPLE LENGTHS OF PIPES ARE USED TO COMPLETE THE CONNECTION, THEN A SEPARATE HYDROSTATIC TEST WILL BE REQUIRED. THE HYDROSTATIC TEST SHALL BE PERFORMED BETWEEN THE PROPOSED TIE-IN VALVE AND THE FIRST DOWNSTREAM VALVE FROM THE TEMPORARY JUMPER LOCATION.

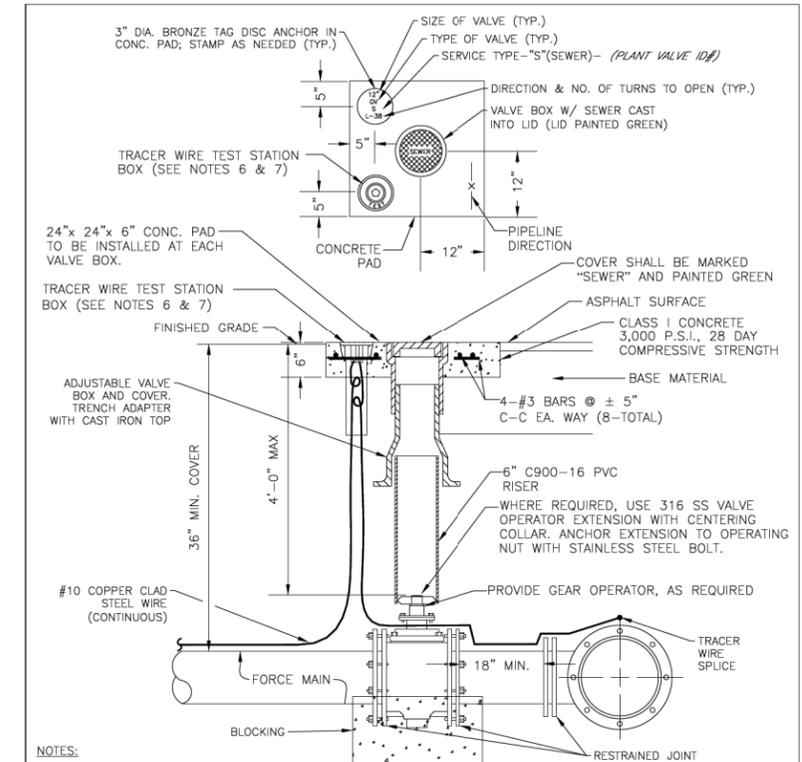
MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION NOTES	UW-24
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



NOTES:

- AIR RELEASE VALVES TO BE ABOVE-GROUND INSTALLATIONS, UNLESS IMPRACTICAL. INSTALLATIONS MAY BE BELOW-GROUND ONLY WHERE APPROVED AND SPECIFICALLY INDICATED ON THE PLAN.
- AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS, OR WHERE AIR WOULD BE ENTRAPPED, ALONG 4" AND LARGER FORCE MAINS.
- FORCE MAIN VERTICAL ALIGNMENT TO BE DESIGNED SUCH THAT THE MINIMUM NUMBER OF REQUIRED AIR RELEASE VALVES ARE INSTALLED.
- ALL INCIDENTAL FITTINGS AND HARDWARE TO BE 316 STAINLESS STEEL.
- ALL PIPE THREADS TO BE SEALED AIR TIGHT.
- VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.
- CONCRETE PAD SHALL BE TYPE I CONCRETE W/ 3,000 P.S.I., 28 DAY COMPRESSIVE STRENGTH.
- ARY SHALL BE INSTALLED MINIMUM 6 FT FROM EDGE OF PAVEMENT; 10 FT MAXIMUM FROM BACK OF CURB; 4 FT MIN. MAY BE APPROVED BY UTILITIES IN SOME EXISTING AREAS.
- SEE UW-2 GATE VALVE, BOX, LID AND TAG STANDARD DETAIL. CENTERING COLLAR IS NOT REQUIRED ON 2" GATE VALVES.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR FORCE MAINS	US-9
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		



NOTES:

- "SV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A GREEN DISC WITH "SV" AND A 1/8" x 1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
- ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
- VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS, CURBS OR GUTTERS.
- PRECAST CONCRETE PADS AND THRUST BLOCKS SHALL NOT BE USED.
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
- USE NON-TRAFFIC RATED BOXES FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR PARKING UNDER VEHICULAR TRAFFIC, USE TRAFFIC RATED BOXES. WHERE POSSIBLE, LOCATE TRACER WIRE TESTING STATION OUTSIDE OF TRAVEL LANE OR IN MEDIAN, CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.
- TRACER WIRE BOX SHALL BE LOCATED OUTSIDE THE ROADWAY ON THOROUGHFARES, LOCAL ARTERIAL AND STATE ROADWAYS.
- THE BRASS TAG SHALL HAVE A "PLANT VALVE ID#" WHEN VALVES ARE INSTALLED WITHIN THE COUNTY TREATMENT PLANT LIMITS. THE PLANT VALVE ID# SHALL BE SHOWN ON THE CONSTRUCTION PLANS AND RECORD DRAWINGS.
- REFER TO SECTION 1.11 IN THE PUBLIC WORKS UTILITY STANDARDS MANUAL FOR FURTHER DETAILS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		VALVE, BOX, COVER AND TAG	US-11
REV. BY	DATE		
	February 25, 2020		
	DATE OF APPROVAL		

SCALE	AS NOTED		HDR Engineering, Inc. 2601 Cattlemen Road Suite 400 Sarasota, FL 34232-6233	DATE	02/2022		MANATEE COUNTY PUBLIC WORKS	DESIGN ENGINEER	HEATHER MANGANIELLO	UTILITY DETAILS (9 OF 9)	SHEET NO.	U-36
DESIGNED BY	HLM			PROJECT NO.	6045662			FL. LICENSE NO.	68385			
DRAWN BY	TME			DATE	02/2022			BY	JTT			
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