



BIG CARLOS PASS UTILITY IMPROVEMENTS-16-0002

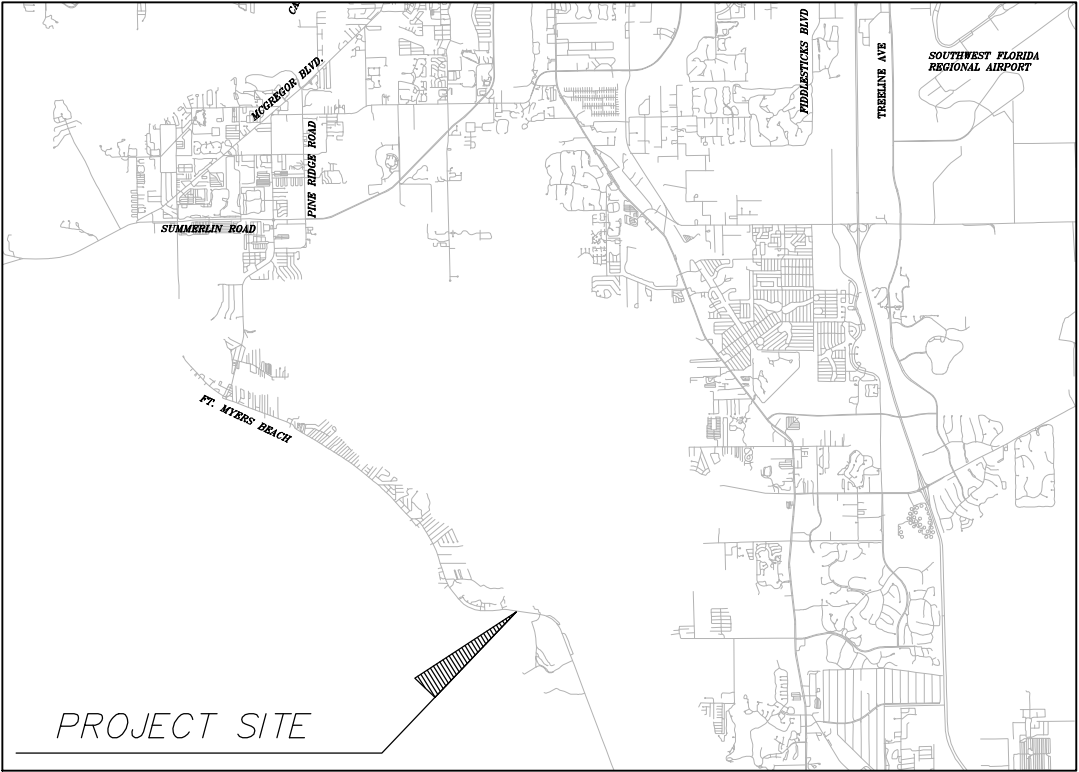
FOR
LEE COUNTY UTILITIES

LOCATED IN
SECTIONS 11 & 35, TOWNSHIP 46 SOUTH, RANGE 25 EAST
LEE COUNTY, FLORIDA

APRIL 14, 2022

FINANCIAL PROJECT ID: 445323-1-58-01

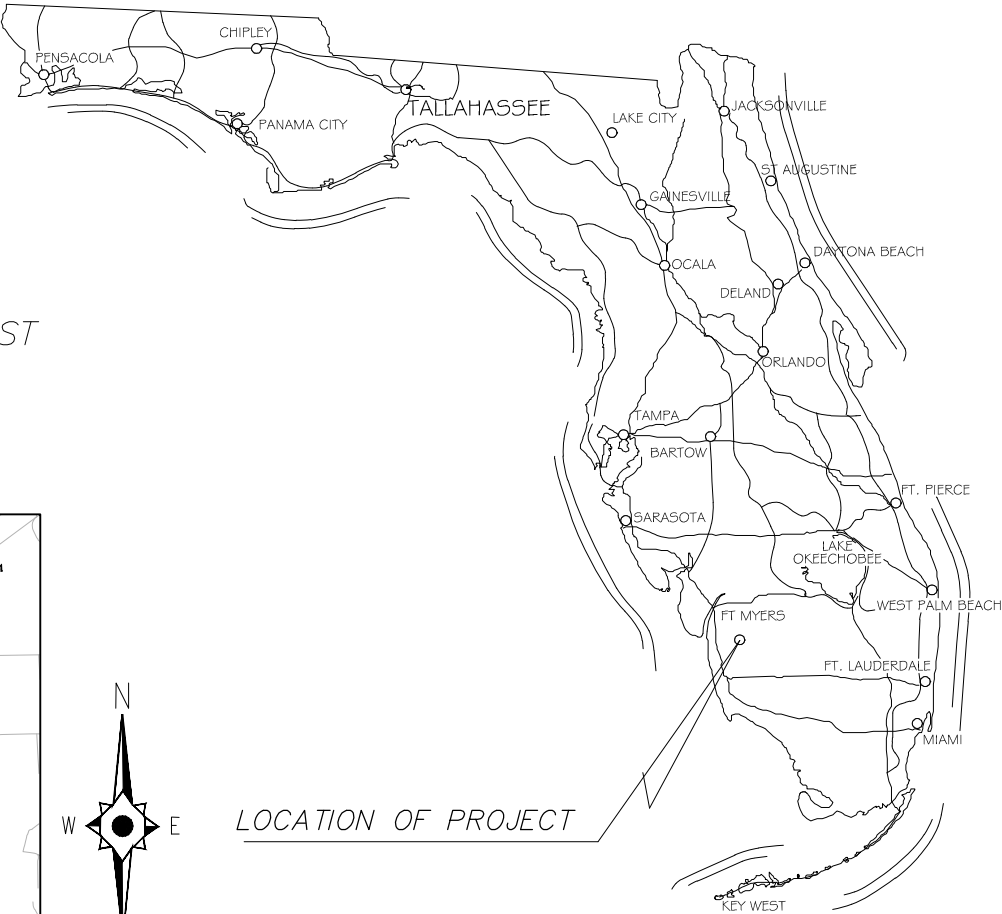
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LOCATION MAP
N.T.S.

LEE COUNTY BOARD OF COUNTY COMMISSIONERS:
DISTRICT 1: KEVIN RUANE
DISTRICT 2: CECIL L. PENDERGRASS
DISTRICT 3: RAY SANDELLI
DISTRICT 4: BRIAN HAMMAN
DISTRICT 5: FRANK MANN

For Information Regarding
This Project, Contact:
DAVID BRICE TROUTEAUD, PE



LOCATION OF PROJECT

THIS IS TO CERTIFY THAT THESE PLANS AND ASSOCIATED CONSTRUCTION PROJECTS ARE IN SUBSTANTIAL COMPLIANCE WITH THE LEE COUNTY LAND DEVELOPMENT CODE:

DATE

David Brice Troutaud, P.E.
DESIGN ENGINEER

69783
FL LIC #

DEVELOPMENT ORDER APPROVED:
PUBLIC WORKS ADMINISTRATION

DATE

PAM KEYES, P.E.
DIRECTOR OF PUBLIC WORKS

100% Construction Plans

DESIGN CONSULTANT



2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE (239) 334-0046
FAX (239) 334-3661
E.B. #642 & L.B. #642

DAVID BRICE TROUTEAUD, PE
FL License No. 69783

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REVISIONS			Lee County Utilities	Big Carlos Pass Utility Improvements-16-0002 Lee County, Florida		JOHNSON ENGINEERING, INC. 2122 JOHNSON STREET P.O. BOX 1550 FORT MYERS, FLORIDA 33902-1550 PHONE: (239) 334-0046 FAX: (239) 334-3661 E.B. #642 & L.B. #642		Cover				
								DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
								April 14, 2022	20160355-000	11-46-25	As Shown	01

LEE COUNTY UTILITIES STANDARD PLAN NOTES

1. ALL WORK SHALL CONFORM TO LATEST REVISION OF THE LCU DESIGN MANUAL WHICH IS AVAILABLE ON OUR WEB-PAGE VIA THE FOLLOWING LINK: [HTTPS://WWW.LEEGOV.COM/UTILITIES/DESIGN-MANUAL](https://www.leegov.com/utilities/design-manual)
2. ALL REGULATORY AND PERMITTING AGENCIES' REQUIREMENTS SHALL BE COMPLIED WITH AS WELL.
3. ANY QUANTITIES SHOWN ON PLANS ARE NOT VERIFIED BY LCU.
4. THE INFORMATION PROVIDED IN THESE PLANS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS THAT MAY BE ENCOUNTERED DURING THE COURSE OF WORK. ALL CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATIONS THEY MAY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSION REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED.
5. ALL CONSTRUCTION WORK PERFORMED MUST BE DONE BY A CONTRACTOR LICENSED IN THE STATE OF FLORIDA TO DO THE WORK INTENDED
6. A PRE-CONSTRUCTION MEETING IS REQUIRED BEFORE WORK MAY BEGIN. REQUIRED ATTENDEES INCLUDE BUT ARE NOT LIMITED TO; THE ENGINEER OF RECORD OR HIS DESIGNEE, THE UNDERGROUND CONTRACTOR, THE LCU PROJECT MANAGER, AND THE LCU INSPECTOR ASSIGNED TO THE PROJECT. LCU IS TO BE NOTIFIED TWO (2) WORKING DAYS PRIOR TO THE PRE-CONSTRUCTION MEETING.
7. ONE COPY OF THE LCU APPROVED/STAMPED CONSTRUCTION PLANS, ALL CONTRACT DOCUMENTS, REFERENCE DOCUMENTS AND TECHNICAL DOCUMENTS SUBMITTED MUST BE KEPT AT THE SITE AND MAINTAINED IN GOOD ORDER.
8. ALL WORK AND MATERIALS, WHICH DO NOT CONFORM TO LCU SPECIFICATIONS, ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
9. ANY WORK PERFORMED WITHOUT THE KNOWLEDGE OF LCU IS SUBJECT TO RE-EXCAVATION, REMOVAL AND REPLACEMENT OF SAME TO BE DONE AT THE CONTRACTOR'S EXPENSE.
10. LCU INSPECTION STAFF IS TO BE PRESENT FOR ALL HOT TAPS, PRESSURE TESTS, LIFT STATION START-UPS AND FOR ANY NECESSARY INSPECTION. THE CONTRACTOR IS TO PROVIDE A MINIMUM OF TWO (2) WORKING DAYS NOTICE PRIOR TO SCHEDULING ANY OF THE ABOVE WITH THE EXCEPTION OF THE LIFT STATION START-UP WHICH REQUIRES ONE-WEEK NOTICE.
11. TRAFFIC MUST BE MAINTAINED AT ALL TIMES AS PER LEE COUNTY DEPARTMENT OF TRANSPORTATION (LCDOT) AND PER FLORIDA DEPARTMENT OF TRANSPORTATION (FDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
12. THE CONTRACTOR IS TO UNCOVER ALL EXISTING LINES BEING TIED INTO AND VERIFY GRADES BEFORE BEGINNING CONSTRUCTION.
13. LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS, BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. LCU WILL NOT GUARANTEE ANY LOCATIONS AS SHOWN ON THESE PLANS OR THOSE OMITTED FROM THESE PLANS.
14. THE CONTRACTOR SHALL VERIFY ALL UTILITIES AND PROVIDE AT LEAST TWO (2) WORKING DAYS NOTICE TO THE INDIVIDUAL UTILITY COMPANIES, FDOT AND LCDOT PRIOR TO CONSTRUCTION.
15. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND TAKE ALL POSSIBLE PRECAUTIONS TO AVOID ANY DAMAGE TO ALL UNDERGROUND PIPELINES, TELEPHONE, CABLE TV, ELECTRIC LINES/CONDUITS AND STRUCTURES IN ADVANCE OF ANY CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES THAT MAY OCCUR DUE TO HIS FAILURE TO EXACTLY LOCATE AND PROTECT EXISTING UTILITIES AND STRUCTURES.
16. ANYTHING NOT SHOWN ON THESE DRAWINGS SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND SHALL NOT CONSTITUTE AN EXTRA, UNLESS APPROVED BY THE ENGINEER OF RECORD.

17. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND LCU IMMEDIATELY CONCERNING ANY CONFLICTS WITH LCU UTILITIES/STRUCTURES ARISING DURING CONSTRUCTION OF ANY FACILITIES SHOWN ON THESE DRAWINGS.
18. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES SHOWN ON THE PLANS. IF ANY DISCREPANCIES IN QUANTITIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD AND LCU.
19. THE CONTRACTOR SHALL REPLACE ALL PAVEMENT, CURBS, DRIVEWAYS, SIDEWALKS, FENCES, ETC., WITH THE SAME TYPE OF MATERIAL THAT WAS REMOVED DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL RESTORE ALL AREAS AFFECTED BY THE CONSTRUCTION TO ITS ORIGINAL CONDITION, OR BETTER.
20. WITHIN THE FDOT AND LCDOT RIGHT-OF-WAY, ALL DISTURBED AREAS SHALL RECEIVE GRASSING (SEEDING) OR SODDING MATERIALS IN ACCORDANCE WITH FDOT SPECIFICATIONS. THOSE AREAS THAT ARE CLASSIFIED AS DRAINAGE DITCHES SHALL RECEIVE FULL SOLID SOD.
21. ALL FRAMES, COVERS VALVE BOXES, METER BOXES AND MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE UPON COMPLETION OF PAVING OR RELATED CONSTRUCTION. ALL VALVE PADS SHALL BE POURED IN PLACE. NO PRE-FORMED VALVE PADS WILL BE ALLOWED.
22. APPROPRIATE TURBIDITY CONTROL DEVICES (E.G. SILT FENCES, HAY BALES) WILL BE UTILIZED DURING ALL PHASES OF INSTALLATION AND GRADING. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING THE NOTICE OF INTENT AND NOTICE OF TERMINATION TO THE EPA IN COMPLIANCE WITH LEE COUNTY'S NPDES PERMIT.
23. CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND MAINTAINING AN EFFECTIVE STORM WATER POLLUTION PREVENTION PLAN.
24. LCU REQUIRES 30" OF COVER FOR ALL UNDERGROUND PIPING EXCEPT UNDER PAVEMENT, WHERE 36" OF COVER IS REQUIRED. IF LCU REQUIRED COVER CANNOT BE MAINTAINED, THE CONTRACTOR SHALL PROVIDE OTHER METHODS OF CONSTRUCTION OR PIPE PROTECTION, WHICH SHALL FIRST BE APPROVED BY LCU AND THE ENGINEER, AT NO ADDITIONAL COST TO THE COUNTY. IF STATE AGENCIES REQUIRE ADDITIONAL COVER, MEETING THE REQUIREMENTS SHALL BE DONE AT NO ADDITIONAL COST TO THE COUNTY.
25. LCU REQUIRES THERE TO BE A MINIMUM OF TEN (10) FEET HORIZONTAL AND 18" VERTICAL SEPARATION BETWEEN POTABLE WATER & SANITARY SEWER MAINS. LCU ALSO REQUIRES MINIMUM OF TEN (10) FEET HORIZONTAL SEPARATION BETWEEN OTHER PUBLIC AND/OR PRIVATE UTILITIES, STRUCTURE(S), BUILDING(S), WALL(S), FOUNTAIN(S), FENCE(S) AND LCU INFRASTRUCTURE UNLESS SPECIFICALLY APPROVED BY LCU.
26. LCU REQUIRES THERE TO BE A MINIMUM OF FIVE (5) FEET HORIZONTAL SEPARATION BETWEEN LCU INFRASTRUCTURE AND DRAINAGE INFRASTRUCTURE, MITERED END SECTIONS, INLETS, ETC. LCU ALSO REQUIRES MINIMUM OF FIVE (5) FEET HORIZONTAL SEPARATION BETWEEN LCU INFRASTRUCTURE AND ALL NEW LIGHT POLE FOUNDATIONS.
27. THE ROOT BALL OF PALM TREES SHALL BE A MINIMUM OF FIVE (5) FEET AND THE ROOT BALL OF SHADE TREES SHALL BE A MINIMUM OF TEN (10) FEET FROM ANY EXISTING OR PROPOSED LCU OWNED AND MAINTAINED PIPE/INFRASTRUCTURE.
28. AS THE WORK PROGRESSES THE CONTRACTOR SHALL RECORD ALL CHANGES AND DEVIATIONS FROM THE LCU STAMPED/APPROVED CONSTRUCTION PLANS. IN ADDITION, HE SHALL RECORD THE EXACT LOCATION OF ALL CHANGES IN VERTICAL AND HORIZONTAL ALIGNMENT WITH COORDINATES WITH RESPECT TO THE NAVD 1988 STATE PLANE FLORIDA WEST COORDINATE SYSTEM AS WELL AS ALL REQUIREMENTS SET FORTH IN THE LCU DESIGN MANUAL. THIS INFORMATION IS TO BE FORWARDED TO THE ENGINEER OF RECORD WHO PREPARED, SIGNED AND SEALED THE APPROVED CONSTRUCTION PLANS SO THAT HE CAN PREPARE 'RECORD DRAWINGS' PER THE REQUIREMENTS SET FORTH IN THE LCU DESIGN MANUAL.
29. ALL EXPOSED DUCTILE IRON PIPE IS PREPPED AND COATED WITH THE PROTECTO 401 CERAMIC EPOXY PRODUCT SUFFICIENT MIL THICKNESS TO PROTECT THE DIP FROM THE SALTWATER ENVIRONMENT.
30. ALL PROPOSED SANITARY MANHOLES WILL BE COATED PER IET SYSTEMS SPECIFICATIONS.

DATUM NOTES:

1. ALL ELEVATIONS ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
2. HORIZONTAL DATA IS BASED ON STATE PLANE COORDINATES FOR THE WEST ZONE OF FLORIDA.

FIELD SURVEY NOTE

1. ORIGINAL TOPOGRAPHIC FIELD DATA WAS COLLECTED BY JOHNSON ENGINEERING ON 1/3/2017.
- DATE OF LAST FIELD WORK WAS 10/21/2021.

NOTICE TO ALL CONTRACTORS

IT'S THE LAW IN FLORIDA
2 BUSINESS DAYS BEFORE YOU DIG
CALL SUNSHINE 1-800-432-4770

STATE, COUNTIES & CITIES ARE "NOT"
PART OF THE ONE CALL SYSTEM
THEY MUST BE CALLED INDIVIDUALLY.

STATE OF FLORIDA DOT
ALL INTERSTATE RIGHT-OF-WAY
HIGHMAST LIGHTING
7-DAY NOTICE REQUIRED
239-656-7811
239-656-7742 FAX




ABBREVIATIONS

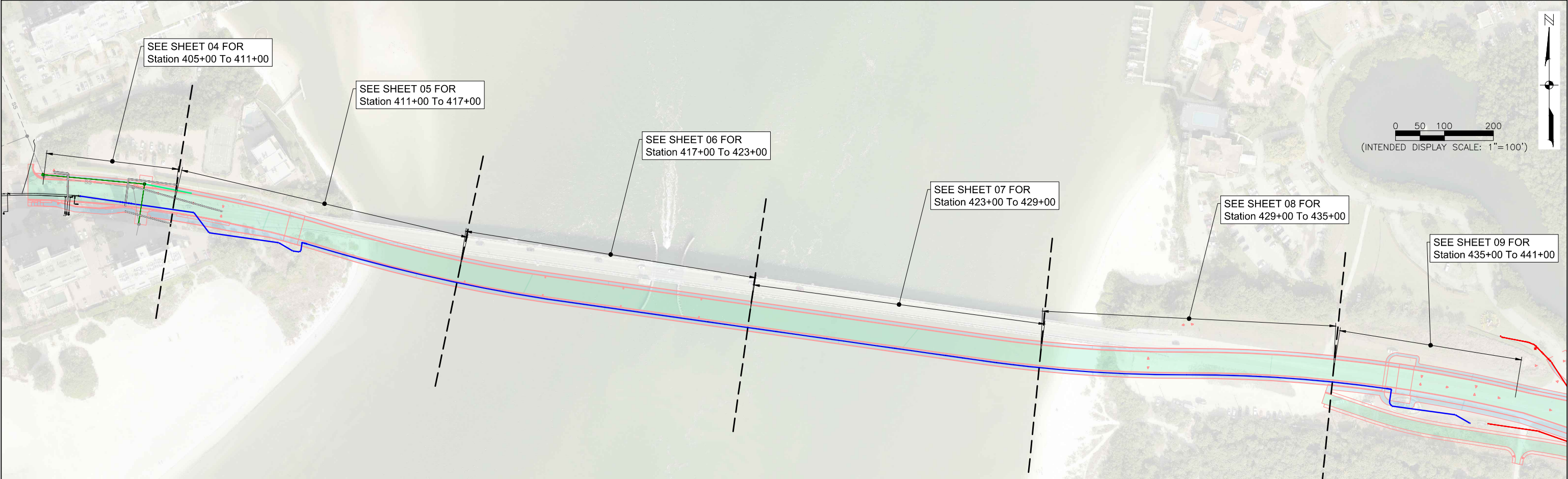
ABD	=	ABANDONED
AE	=	ACCESS EASEMENT
ALT	=	ALTERNATE
ARV	=	AIR RELEASE VALVE
ASPH	=	ASPHALT
BLDG	=	BUILDING
CATV	=	CABLE TELEVISION
CB	=	CATCH BASIN
CMP	=	CORRUGATED METAL PIPE
CO	=	CLEANOUT
DE	=	DRAINAGE EASEMENT
DIP	=	DUCTILE IRON PIPE
EOP	=	EDGE OF PAVEMENT
ERCP	=	ELLIPTICAL REINFORCED CONCRETE PIPE
EX	=	EXISTING
FE	=	FLARED END SECTION
FH	=	FIRE HYDRANT
FLG	=	FLANGED
FM	=	FORCE MAIN
FO	=	FIBER OPTIC
GV	=	GATE VALVE
HDPE	=	HIGH DENSITY POLY ETHYLENE
ICV	=	IRRIGATION CONTROL VALVE
INV	=	INVERT
IRR	=	IRRIGATION
MH	=	MANHOLE
ME	=	MITERED END SECTION
MJ	=	MECHANICAL JOINT
NIC	=	NOT INCLUDED
OC	=	ON CENTER
PAVT	=	PAVEMENT
PKWY	=	PARKWAY
PS	=	PUMP STATION
PV	=	PLUG VALVE
PVC	=	POLYVINYL CHLORIDE
RCP	=	REINFORCED CONCRETE PIPE
RD	=	ROAD
REQ	=	REQUIRED
R/W	=	RIGHT-OF-WAY
RU	=	REUSE MAIN
SAN	=	SANITARY
SD	=	STORM DRAIN
SPEC	=	SPECIFICATION
SS	=	SANITARY SEWER
ST	=	STREET
STA	=	STATION
STD	=	STANDARD
STM	=	STORM SEWER
TEL	=	TELEPHONE
TYP	=	TYPICAL
UE	=	UTILITY EASEMENT
WM	=	WATER MAIN
VLV	=	CONC. VALVE VAULT

LEGEND

EX XX" FM	=	EXISTING FORCE MAIN & PIPE SIZE
XX" FM	=	PROPOSED FORCE MAIN & PIPE SIZE
EX XX" WM	=	EXISTING POTABLE WATER MAIN & SIZE
XX" WM	=	PROPOSED WATER MAIN & PIPE SIZE
XX" SS	=	PROPOSED SANITARY SEWER MAIN & SIZE
EX XX" SS	=	EXISTING SANITARY SEWER MAIN & SIZE
XX" RCWM	=	PROPOSED RECLAIMED WATER MAIN & SIZE
EX XX" RCWM	=	EXISTING RECLAIMED WATER MAIN & SIZE
	=	PROPOSED PLUG VALVE
	=	EX PLUG VALVE
	=	EXISITNG FIRE HYDRANT
	=	PROPOSED AUTOMATIC AIR RELEASE VALVE
	=	PROPOSED REDUCER
EX. MH XX"	=	EXISTING SANITARY MANHOLE
	=	EXISTING PUMP STATION
	=	PROPOSED PLUG
SB XX"	=	SOIL BORING
	=	CATCH BASIN
	=	WOOD POWER POLE
	=	CONCRETE POWER POLE
	=	EXISTING WATER METER
	=	EXISTING CLEANOUT
	=	UNDERGROUND ELECTRIC
	=	UNDERGROUND GAS MAIN
	=	OVERHEAD POWER LINES
	=	STREET SIGN
	=	ELECTRIC SERVICE BOX
	=	GUY ANCHOR
	=	SEWER VALVE
	=	WOOD POWER POLE
	=	PROPOSED CONSTRUCTION SIGN
	=	PROPOSED SIDEWALK
	=	EXISTING SAN. SEWER AND WATER MAIN OUTSIDE OF PAVEMENT TO BE GROUTED AND ABANDONED
	=	EXISTING SAN. SEWER AND WATER MAIN UNDER PAVEMENT TO BE REMOVED
	=	PROPOSED JACK AND BORE
	=	TEMPORARY BLOW-OFF
	=	FLOW ARROW
	=	PROPOSED UTILITY ROLLDOWN
MH XX"	=	EXISTING MH TO BE REHABBED

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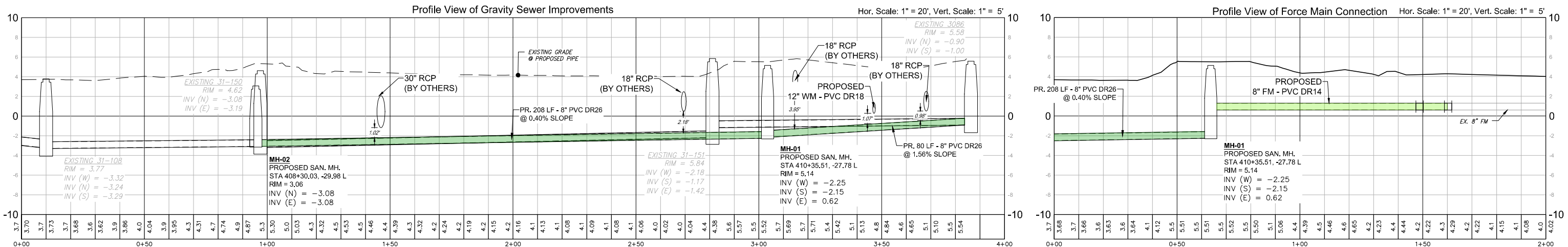
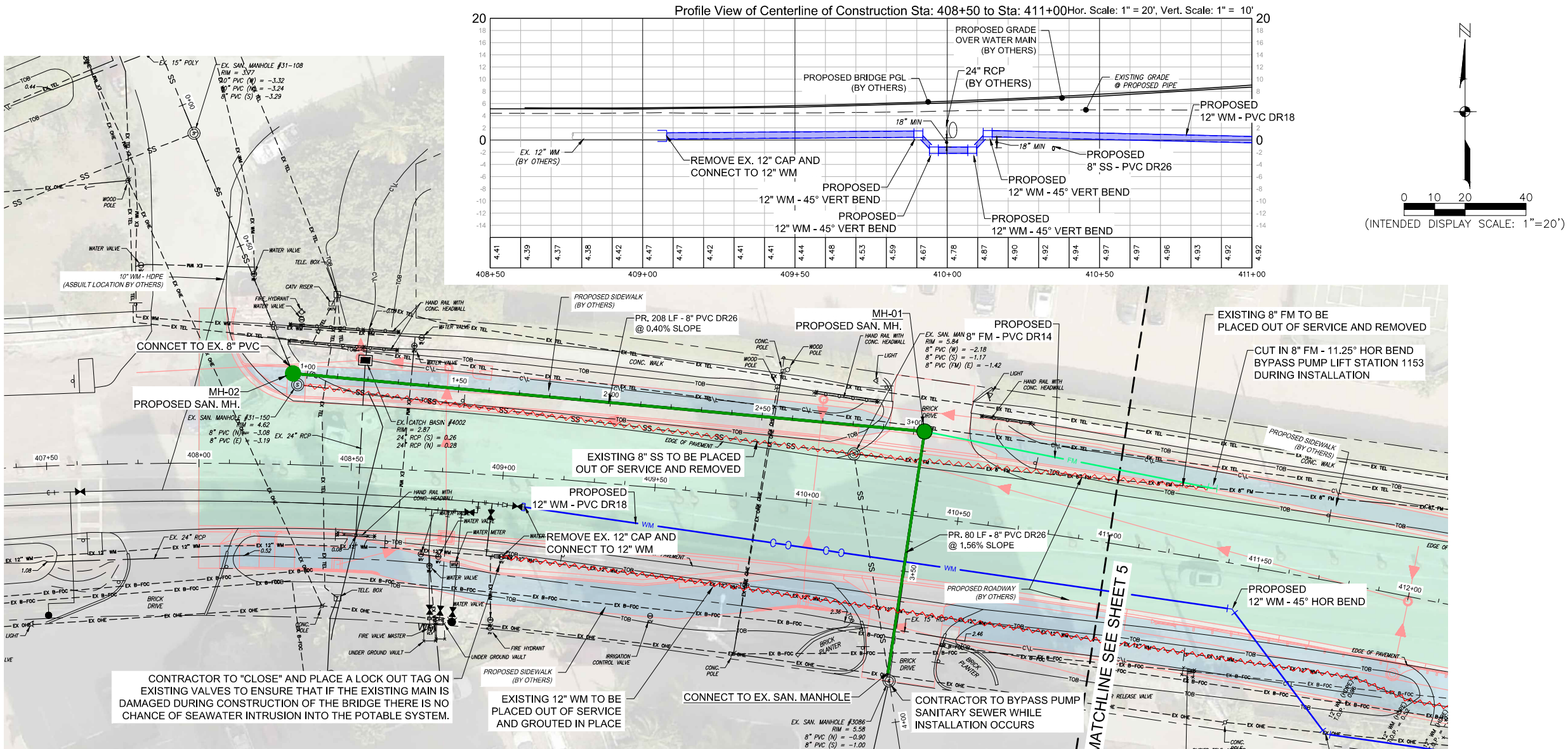
REVISIONS			Lee County Utilities	Big Carlos Pass Utility Improvements-16-0002 Lee County, Florida		JOHNSON ENGINEERING, INC. 2122 JOHNSON STREET P.O. BOX 1550 FORT MYERS, FLORIDA 33902-1550 PHONE: (239) 334-0046 FAX: (239) 334-3661 E.B. #642 & L.B. #642	DAVID BRICE TROUTEAUD, PE FL License No. 69783	Notes & Legends				
								DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
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SUMMARY OF UTILITY ADJUSTMENTS								
PAY ITEM NO.	PAY ITEM DESCRIPTION	LOCATION	SIDE	UNIT	QUANTITY		DESIGN NOTES	CONSTRUCTION REMARKS
		STATION			P	F		
LCU - 1	Mobilization (Not to Exceed 2% of Total Bid Amount)			LS	1.0			
LCU - 2	Performance and Payment Bond Premiums and Insurance (Not to exceed 3% of Total Bid Amount)			LS	1.0			
LCU - 3	Maintenance of Traffic			LS	1.0			
LCU - 4	Preconstruction Audio/Video Recording			LS	1.0			
LCU - 5	Record Drawings			LS	1.0			
LCU - 6	Furnish and Install Water Main Pipelines (12" WM - PVC C900 DR18)			LF	699.0			
LCU - 7	Furnish and Install Gate Valves (12" Gate Valve)			EA	2.0			
LCU - 8	Aerial Crossing (12" DIP Flanged, Coated, Painted)			LF	2289.0			
LCU - 9	Furnish and Install Air Release Valves			EA	1.0			
LCU - 10a	Furnish and Install Water Main Interconnections (WM Connection)			EA	2.0			
LCU - 11a	Grout and Abandon Water Main (12" Water Main)			LF	2901.0			
LCU - 12a	Relocate Force Main (8" PVC DR14)			LF	115.0			
LCU - 12b	Relocate Force Main (Connect to existing 8" FM)			EA	1.0			
LCU - 13a	Relocate Gravity Sewer (8" Gravity Sewer)			LF	288.0			
LCU - 13b	Relocate Gravity Sewer (Manholes)			EA	2.0			
LCU - 13c	Relocate Gravity Sewer (Connect to existing sanitary sewer)			EA	1.0			
LCU - 14a	Grout and Abandon Force Main (8" FM)			LF	115.0			

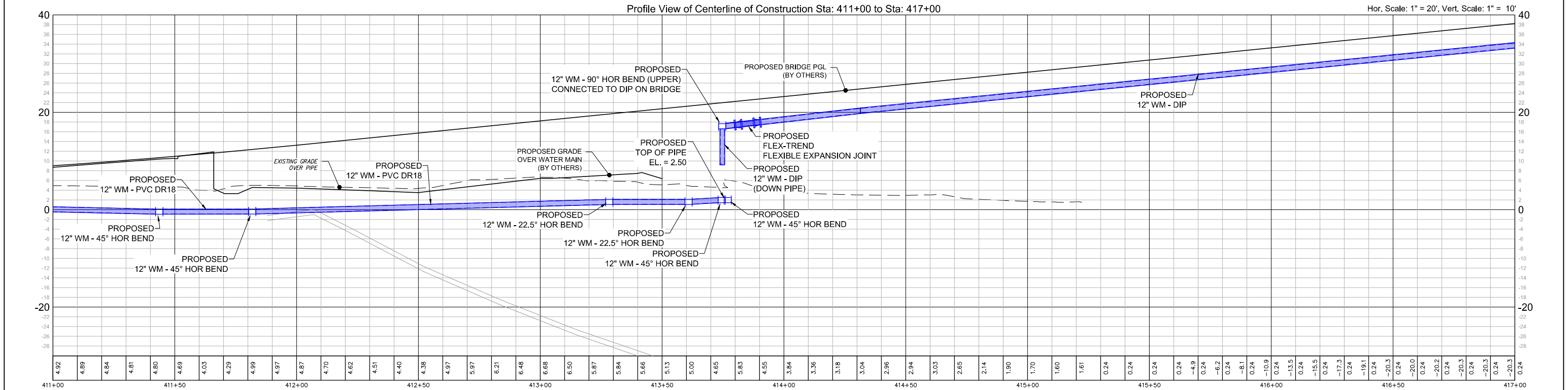
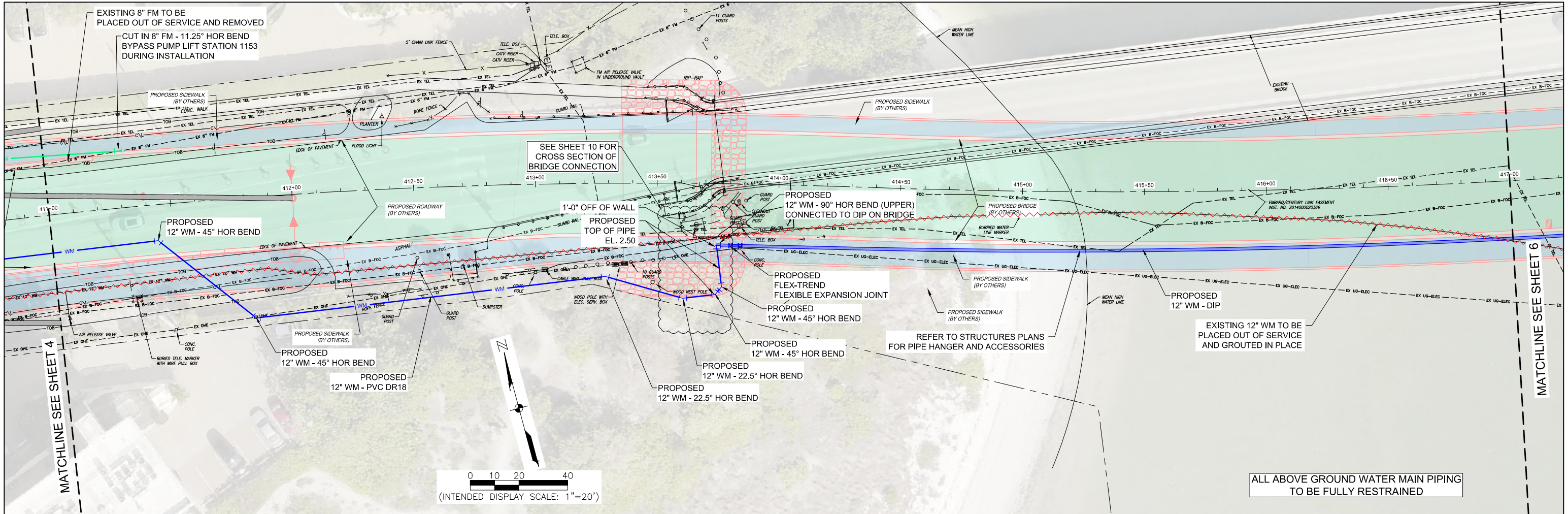
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REVISIONS			Lee County Utilities	Big Carlos Pass Utility Improvements-16-0002 Lee County, Florida	<div>JOHNSON ENGINEERING</div>	<div>JOHNSON ENGINEERING, INC. 2122 JOHNSON STREET P.O. BOX 1550 FORT MYERS, FLORIDA 33902-1550 PHONE: (239) 334-0046 FAX: (239) 334-3661 E.B. #642 & L.B. #642</div>	<div>DAVID BRICE TROTEAUD, PE FL License No. 69783</div>	Key Map & Summary of Utility Adjustments				
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REVISIONS		

Lee County Utilities

Big Carlos Pass Utility
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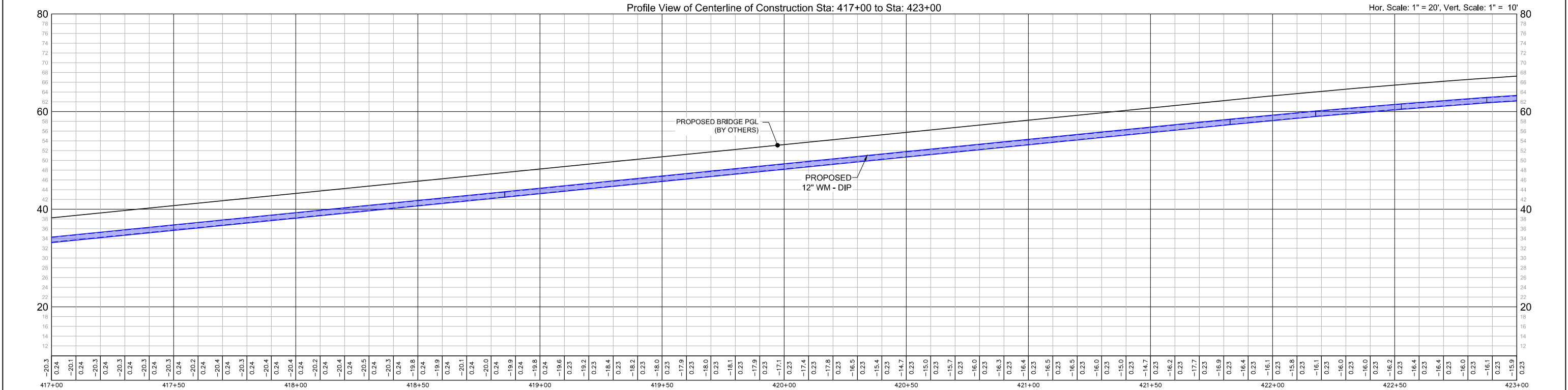
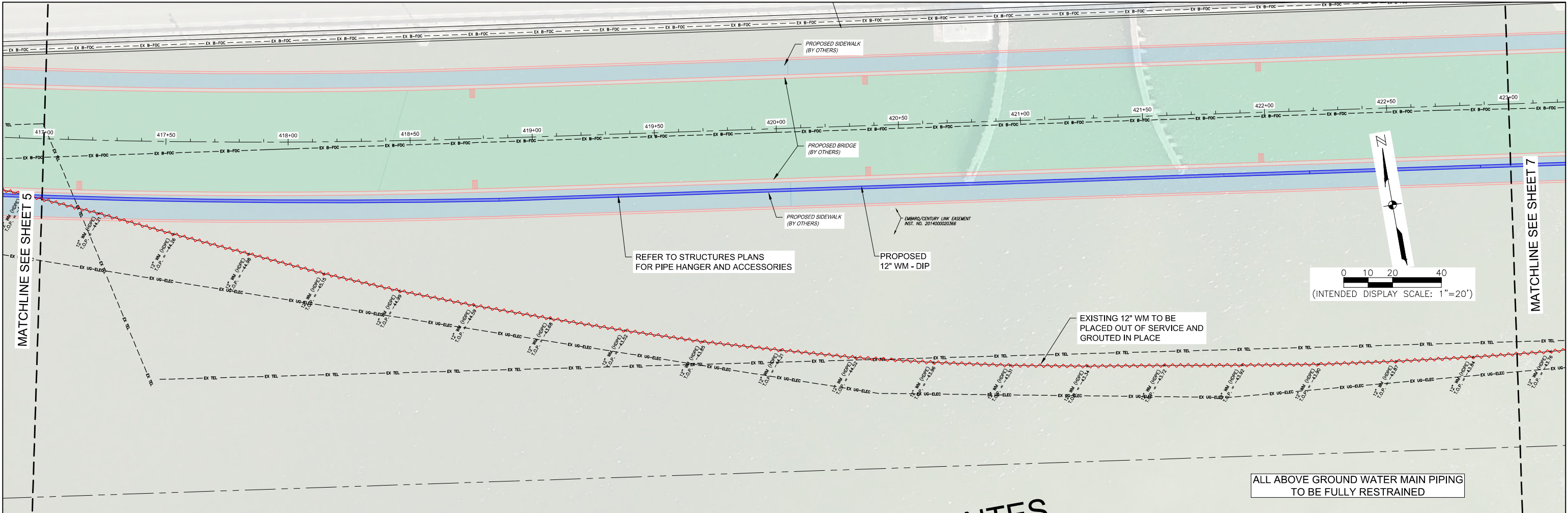
JOHNSON
ENGINEERING

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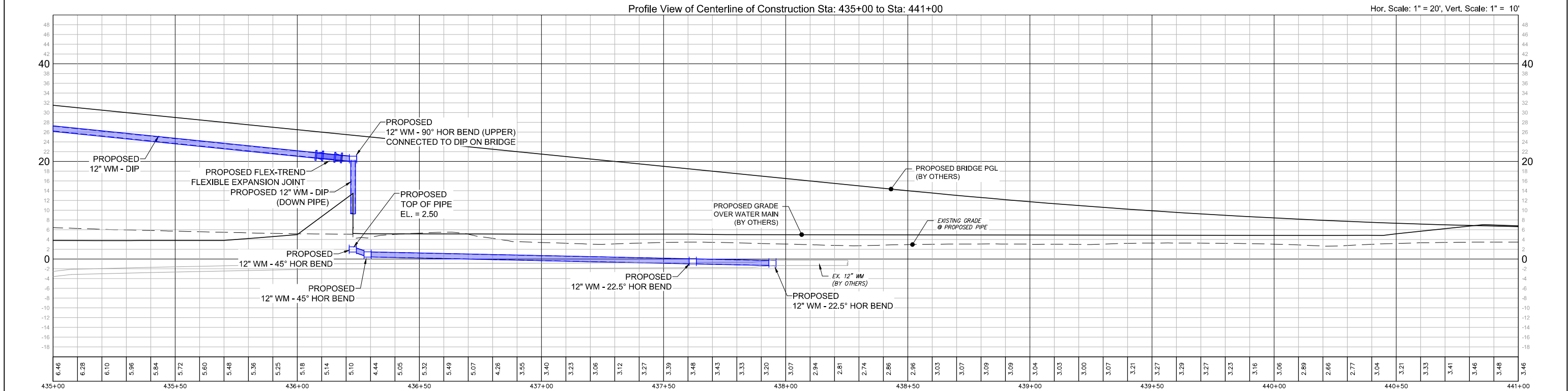
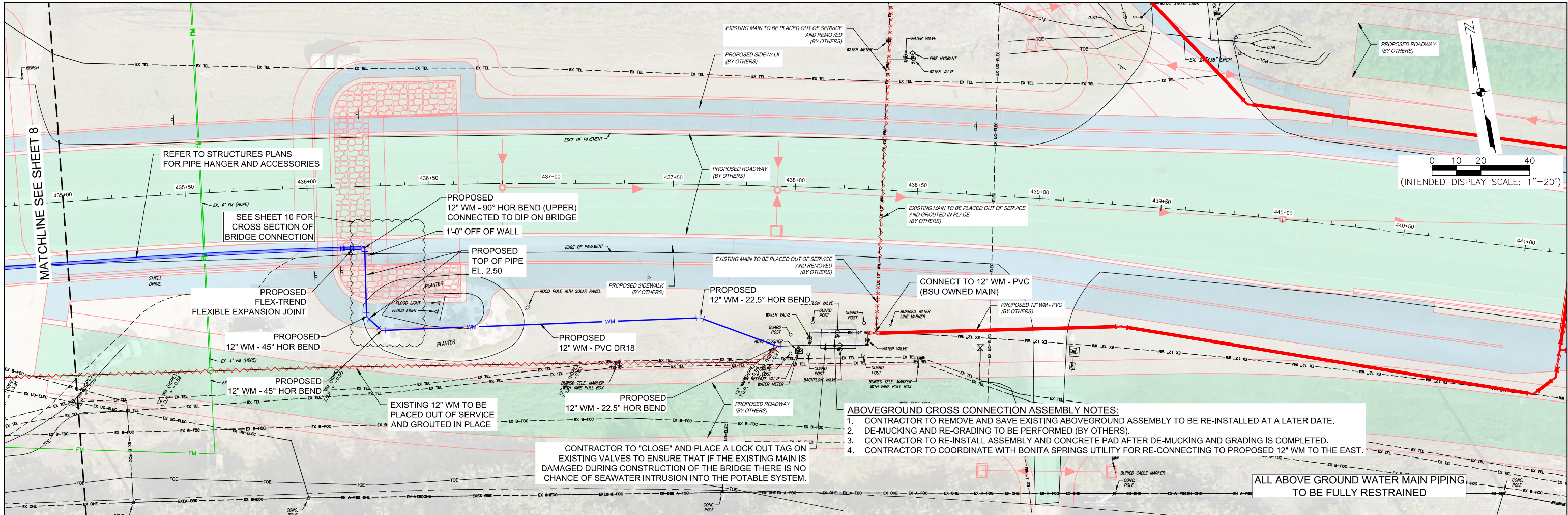
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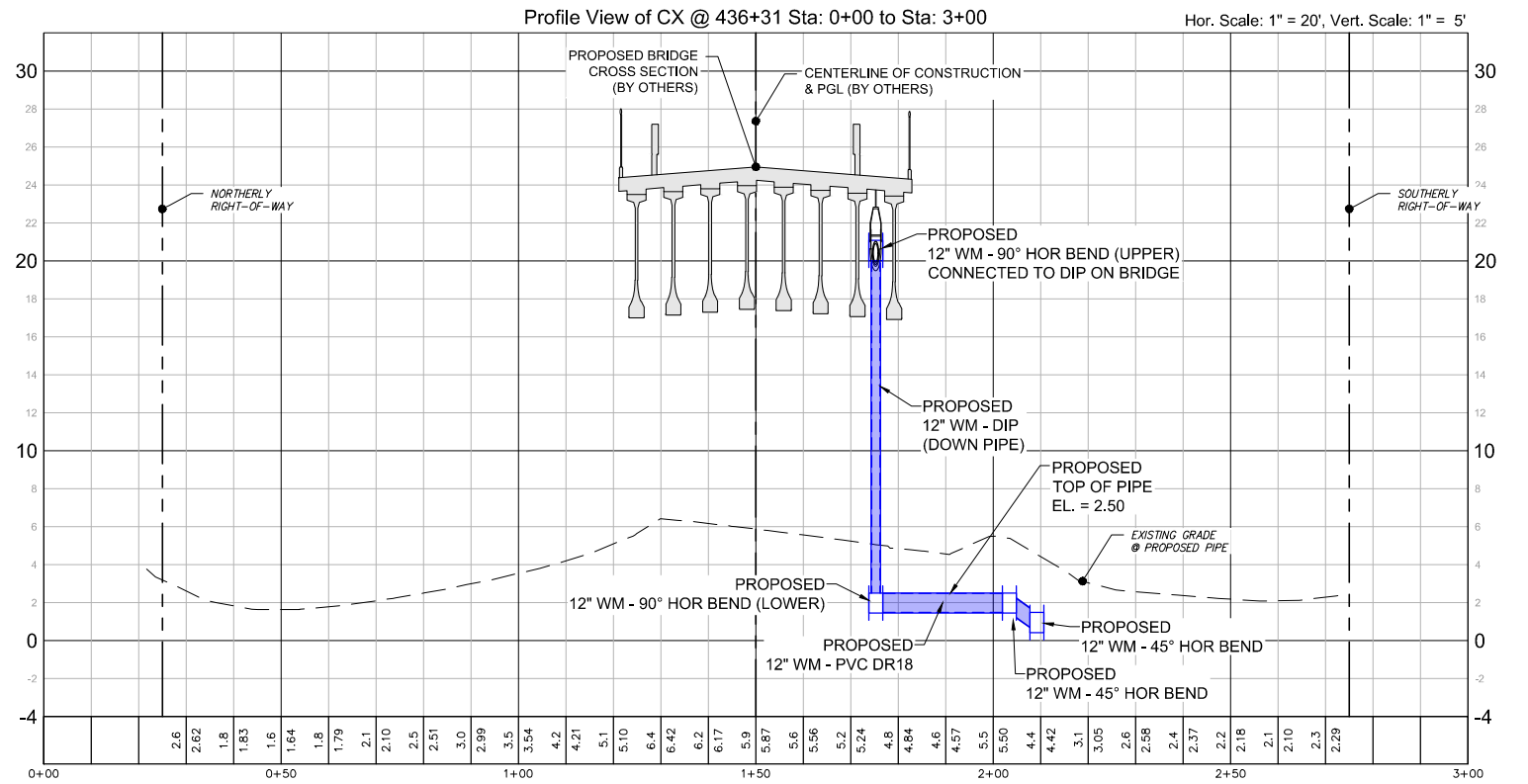
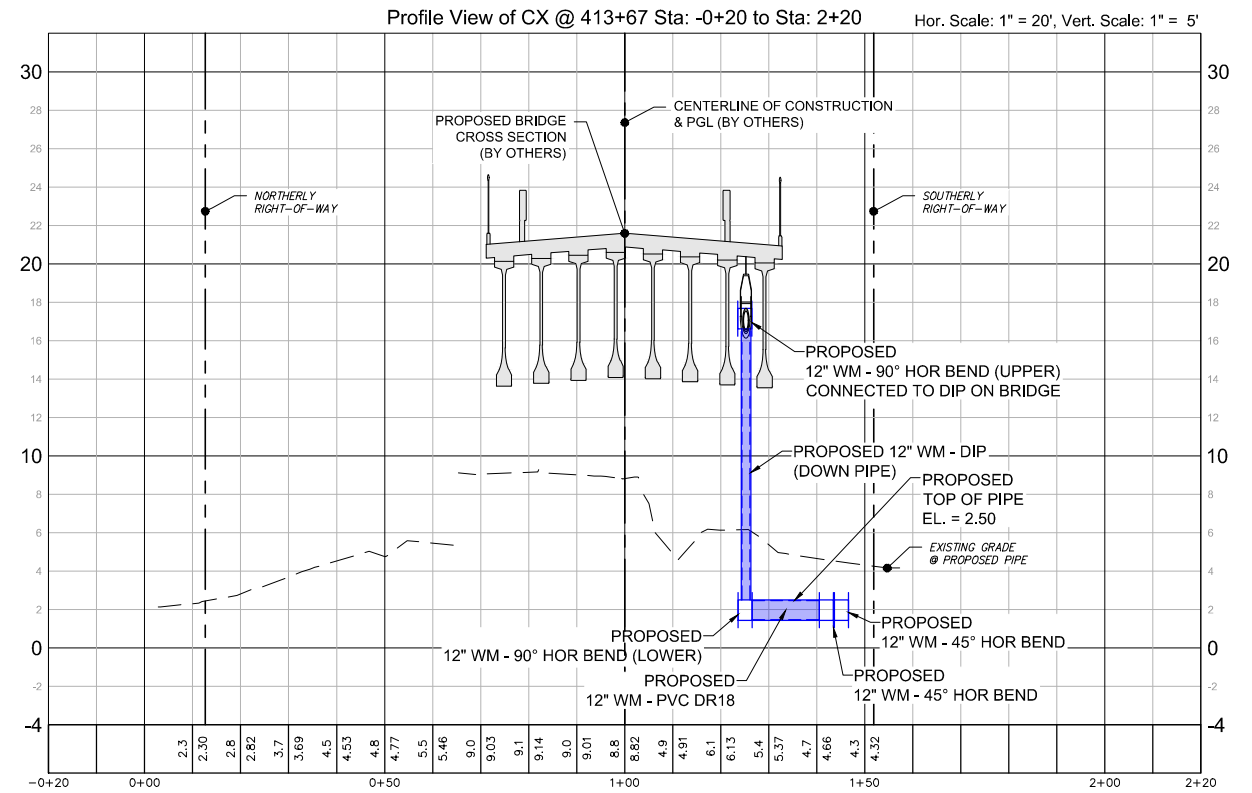
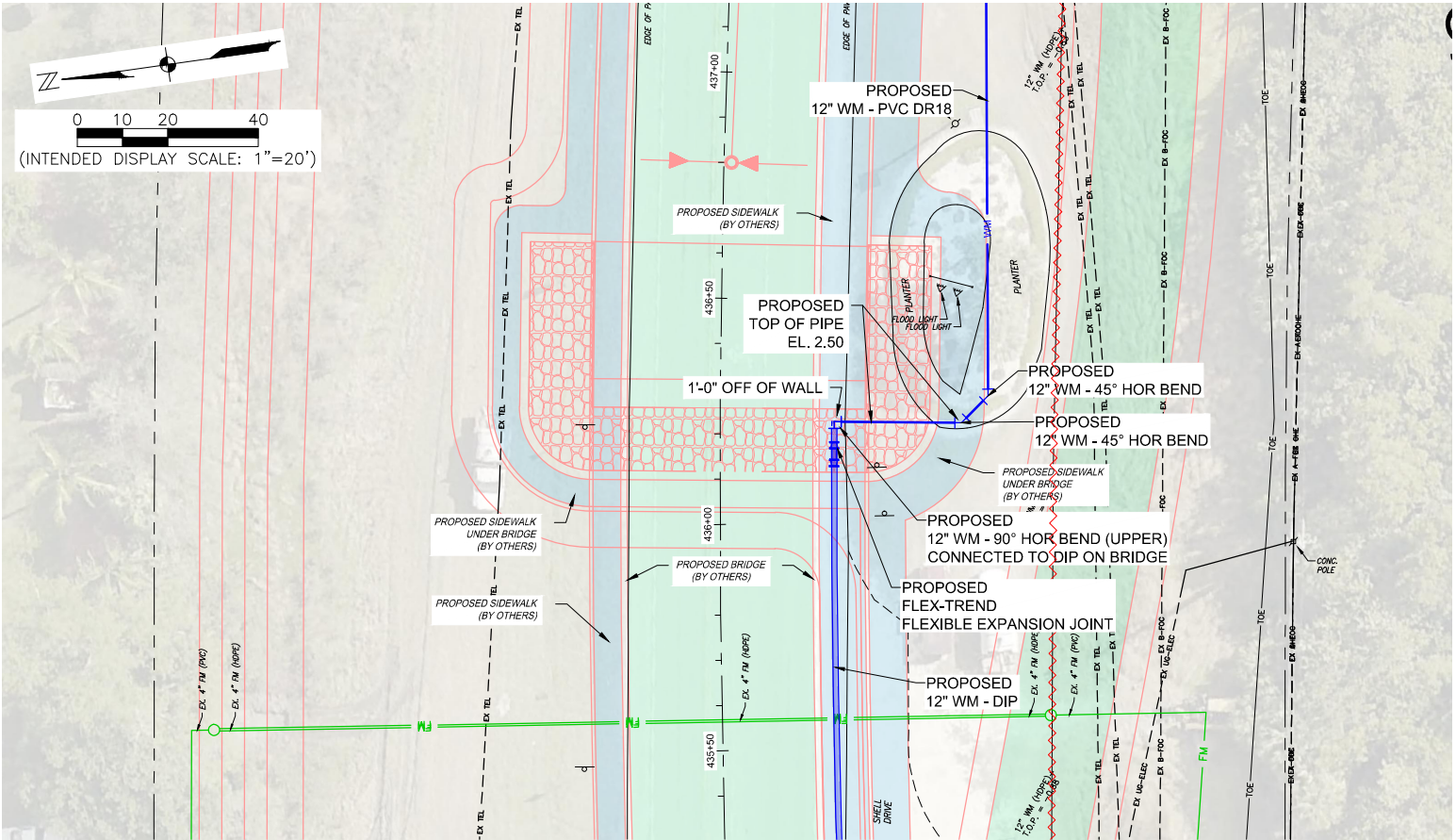
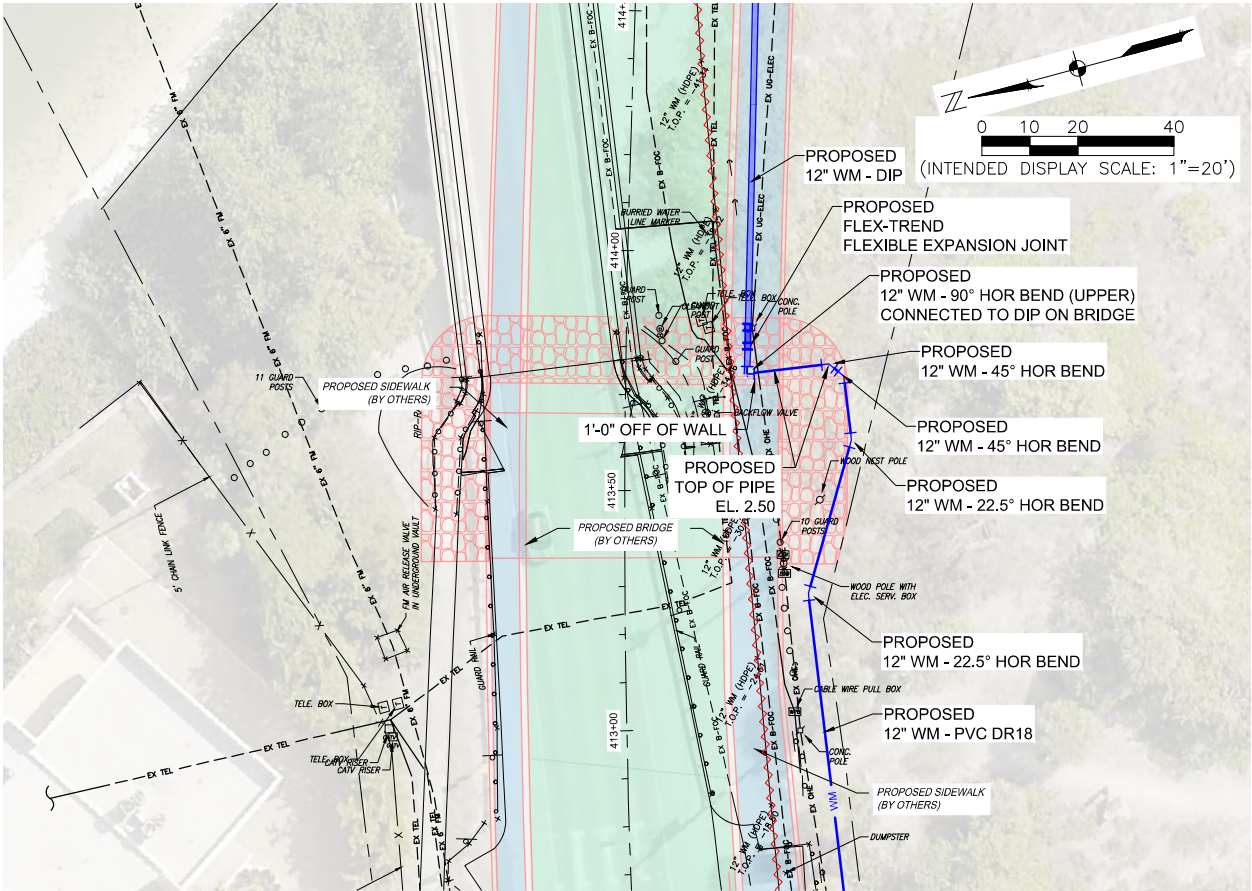
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REVISIONS		

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Lee County, Florida



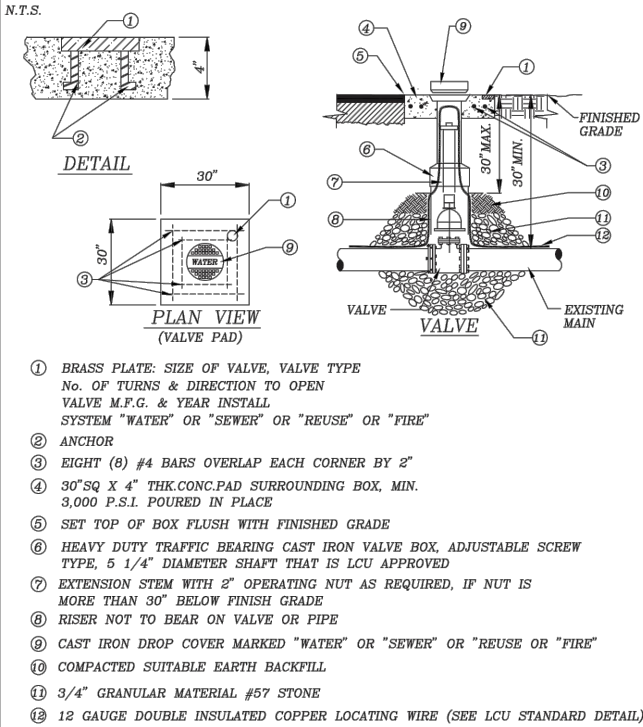
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P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046
FAX: (239) 334-3661
E.B. #642 & L.B. #642

DAVID BRICE TROUTEAUD, PE
FL License No. 69783

Cross Sections
Bridge Connections

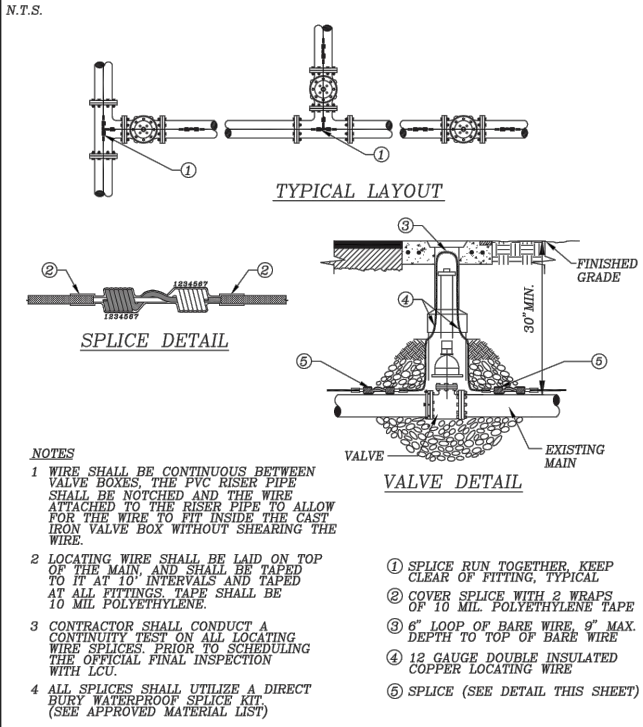
DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
April 14, 2022	20160355-000	11-46-25	As Shown	10

STANDARD DETAIL NO. 6.2
LEE COUNTY UTILITIES
VALVE INSTALLATION



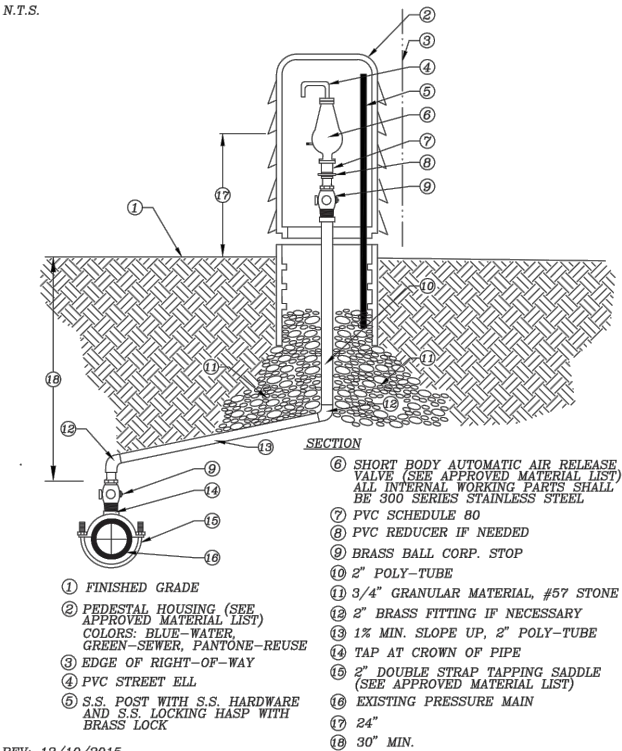
REV: 12/10/2015

STANDARD DETAIL NO. 6.3
LEE COUNTY UTILITIES
LOCATING WIRE FOR PRESSURE MAINS



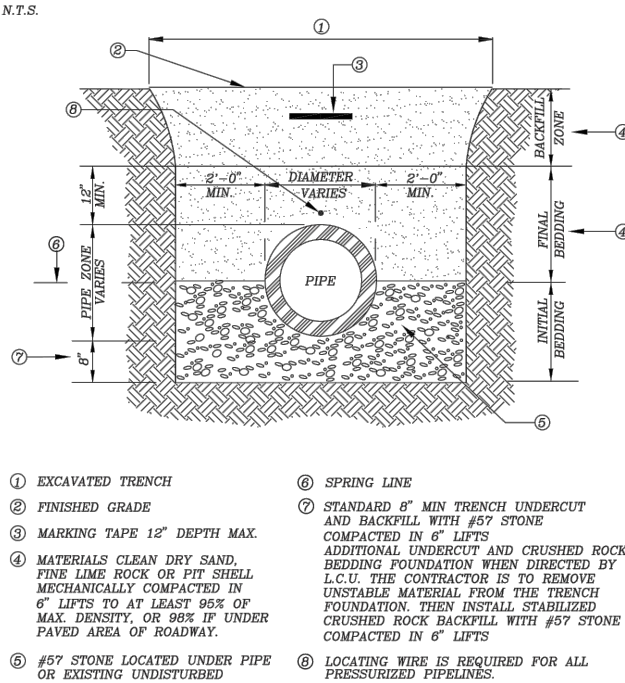
REV: 12/10/2015

STANDARD DETAIL NO. 6.4
LEE COUNTY UTILITIES
AUTOMATIC AIR RELEASE VALVE



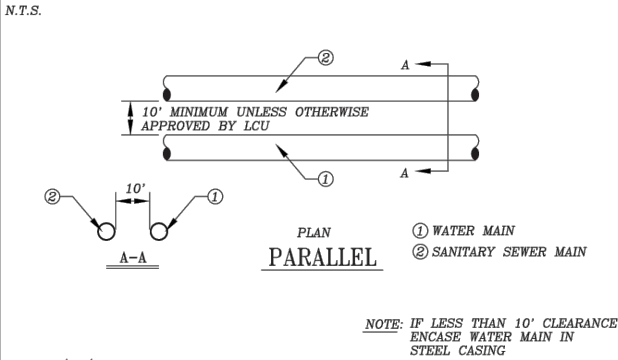
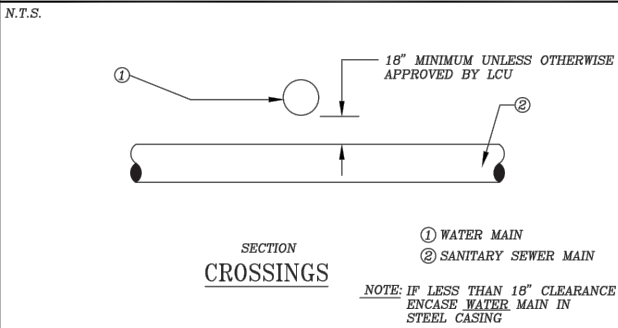
REV: 12/10/2015

STANDARD DETAIL NO. 6.5
LEE COUNTY UTILITIES
TRENCH CROSS SECTION



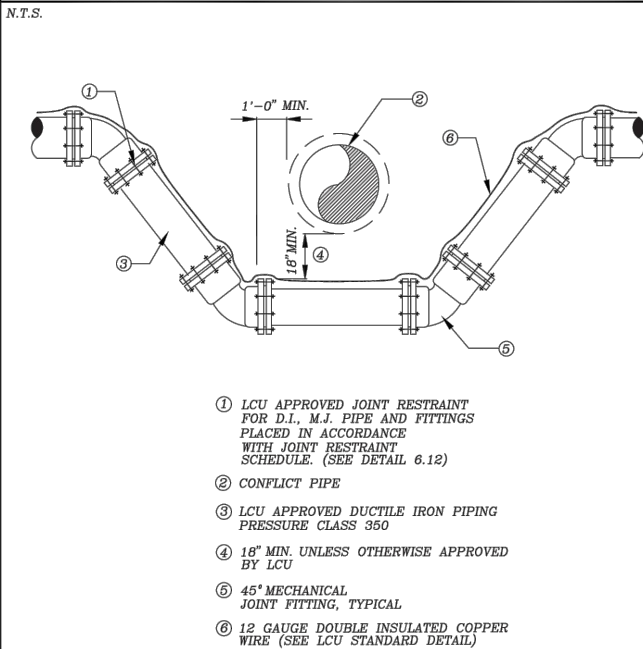
REV: 12/10/2015

STANDARD DETAIL NO. 6.8
LEE COUNTY UTILITIES
WATER AND SEWER CROSSING DETAIL



REV: 12/10/2015

STANDARD DETAIL NO. 6.10
LEE COUNTY UTILITIES
WATER PRESSURE LINE VERTICAL OFFSET W/ DUCTILE IRON MJ FITTINGS & PIPE



REV: 12/10/2015

STANDARD DETAIL NO. 6.12
LEE COUNTY UTILITIES
RESTRAINED LENGTH SCHEDULE

N.T.S.

DUCTILE IRON PIPE

PIPE SIZE (Inches)	MINIMUM RESTRAINED PIPE LENGTH (FEET)				DEAD END	HORIZONTAL TEE
	90'	45'	22-1/2'	11-1/4'		
4	17	7	4	2	29	6
6	23	10	5	2	40	17
8	29	12	6	3	53	29
10	35	14	7	4	63	38
12	41	17	8	4	74	49
16	51	21	11	5	94	68
24	69	29	14	7	131	105
30	81	34	17	8	156	129

PVC PIPE

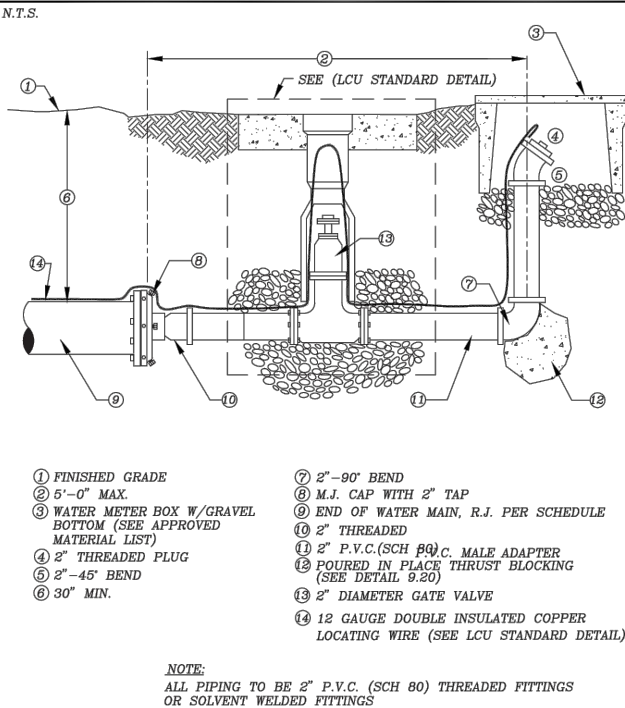
PIPE SIZE (Inches)	MINIMUM RESTRAINED PIPE LENGTH (FEET)				DEAD END	HORIZONTAL TEE
	90'	45'	22-1/2'	11-1/4'		
4	20	8	4	2	45	8
6	29	12	6	3	63	25
8	36	15	8	4	83	43
10	44	18	9	5	99	58
12	51	21	11	5	116	74
16	63	26	13	7	149	103
24	87	36	18	9	208	158
30	102	42	21	10	248	194

A COMPLETE JOINT RESTRAINING SCHEDULE FOR ALL ENCOUNTERED VERTICAL & HORIZONTAL BENDS, VERTICAL OFFSETS, TEES, AND DEAD ENDS SHALL BE THE RESPONSIBILITY OF THE DESIGN ENGINEER.

LENGTH FIGURES BASED ON FOLLOWING:
Pressure = 150 psi, FS = 1.5, trench type = 3, 30" cover on Bare pipe, Soil type = GP & SP

REV: 12/10/2015

STANDARD DETAIL NO. 6.14
LEE COUNTY UTILITIES
BLOW OFF DETAIL



REV: 12/10/2015

REVISIONS

Lee County Utilities

Big Carlos Pass Utility
Improvements-16-0002
Lee County, Florida

JOHNSON
ENGINEERING

JOHNSON ENGINEERING, INC.
2122 JOHNSON STREET
P.O. BOX 1550
FORT MYERS, FLORIDA 33902-1550
PHONE: (239) 334-0046
FAX: (239) 334-3661
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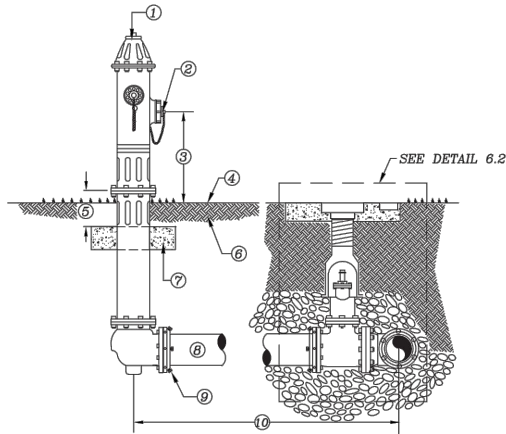
DAVID BRICE TROUTEAUD, PE
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Details
Lee County Details

DATE	PROJECT NO.	FILE NO.	SCALE	SHEET
April 14, 2022	20160355-000	11-46-25	As Shown	D-01

STANDARD DETAIL NO. 6.24
LEE COUNTY UTILITIES
FIRE HYDRANT ASSEMBLY

N.T.S.



- 1 FIRE HYDRANT: STANDARD A.W.W.A. SAFETY YELLOW (SEE APPROVED MATERIAL LIST)

2 PUMPER CONNECTION FACING AS PER FIRE DISTRICT RECOMMENDATION

3 18" MIN. - 24" MAX.

4 FINISHED GRADE

5 6" MIN. CLEARANCE
- 6 COMPACTED FILL

7 30" X 30" X 4" CONCRETE BREAK AWAY CONCRETE PAD, 3000 P.S.I.

8 PIPE TO BE D.I.P., PRESSURE CLASS 350

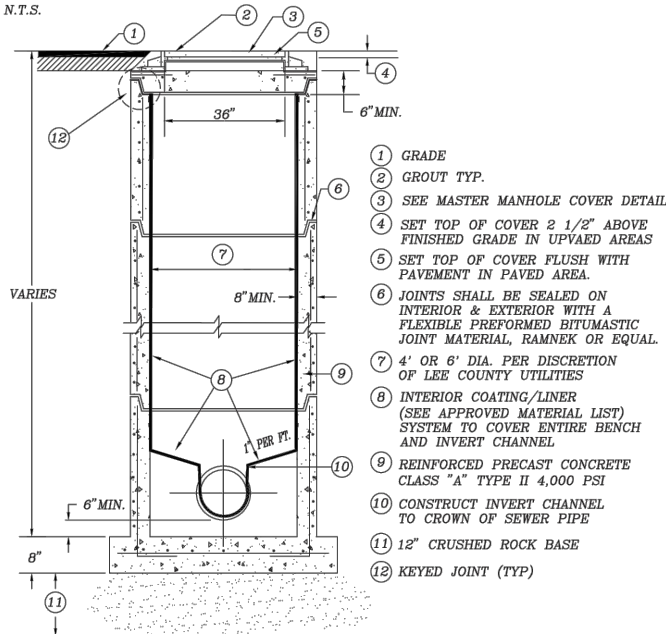
9 RESTRAINED JOINTS, FROM HYDRANT TO WATER MAIN

10 VARIABLE DISTANCE, IF GREATER THAN 100' A VALVE SHALL BE INSTALLED AT HYDRANT BASE

REV: 12/10/2015

STANDARD DETAIL NO. 6.28
LEE COUNTY UTILITIES
MASTER PRECAST CONCRETE MANHOLE

N.T.S.



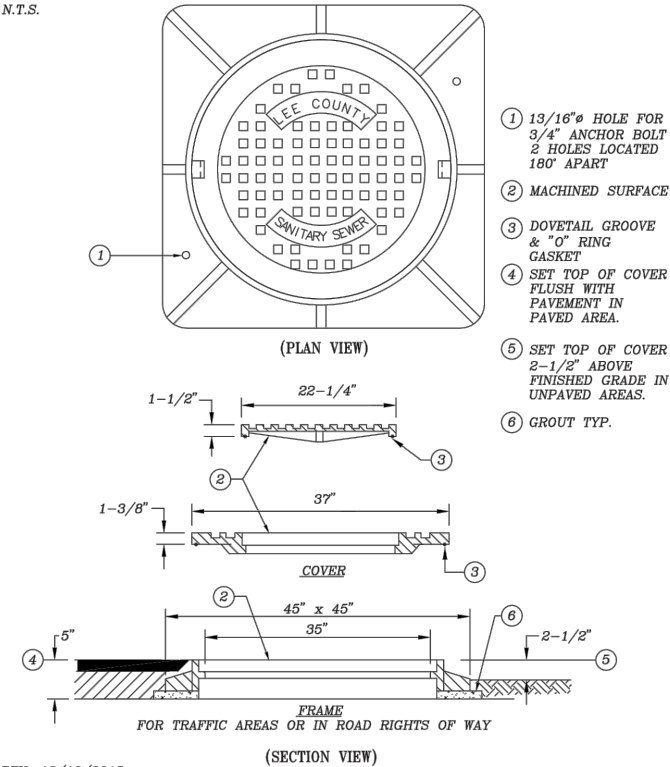
NOTES:

1. MASTER MANHOLES FOR WASTEWATER PUMPING STATIONS SHALL HAVE ONLY ONE INFLUENT AND ONE EFFLUENT PIPE, UNLESS OTHERWISE APPROVED BY LEE COUNTY UTILITIES.
2. FLEXIBLE, RESILIENT CONNECTIONS SHALL BE INSTALLED FOR ALL CONNECTIONS BETWEEN MANHOLE AND PIPES.

REV: 12/10/2015

STANDARD DETAIL NO. 6.29
LEE COUNTY UTILITIES
MASTER MANHOLE FRAME AND COVER

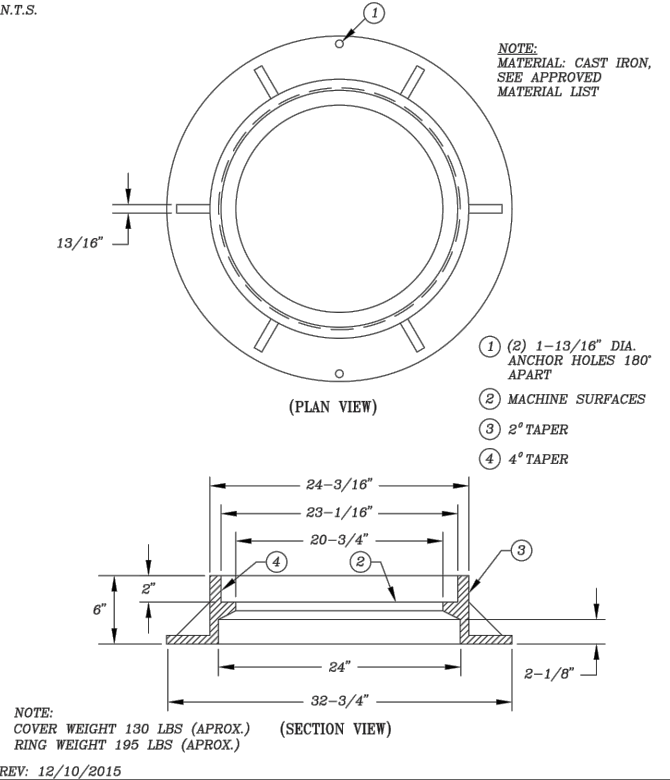
N.T.S.



REV: 12/10/2015

STANDARD DETAIL NO. 6.31
LEE COUNTY UTILITIES
MANHOLE FRAME RING

N.T.S.

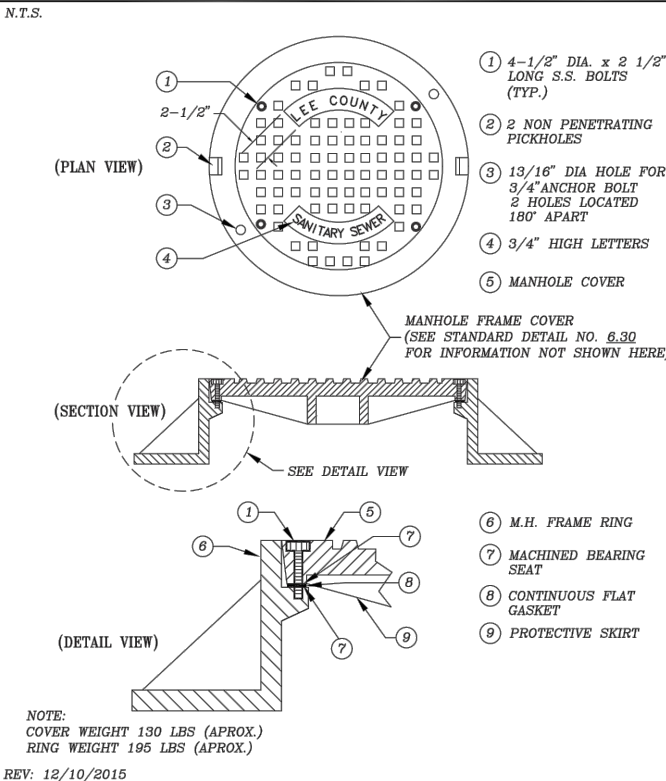


NOTE:
COVER WEIGHT 130 LBS (APROX.)
RING WEIGHT 195 LBS (APROX.)

REV: 12/10/2015

STANDARD DETAIL NO. 6.32
LEE COUNTY UTILITIES
SEALED MANHOLE FRAME COVER

N.T.S.

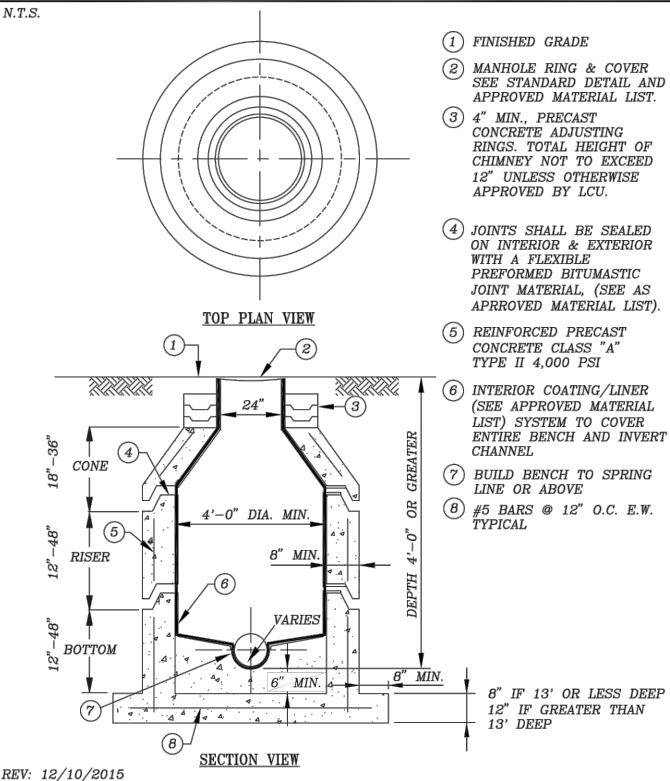


NOTE:
COVER WEIGHT 130 LBS (APROX.)
RING WEIGHT 195 LBS (APROX.)

REV: 12/10/2015

STANDARD DETAIL NO. 6.33
LEE COUNTY UTILITIES
PRECAST MANHOLE-CONCENTRIC

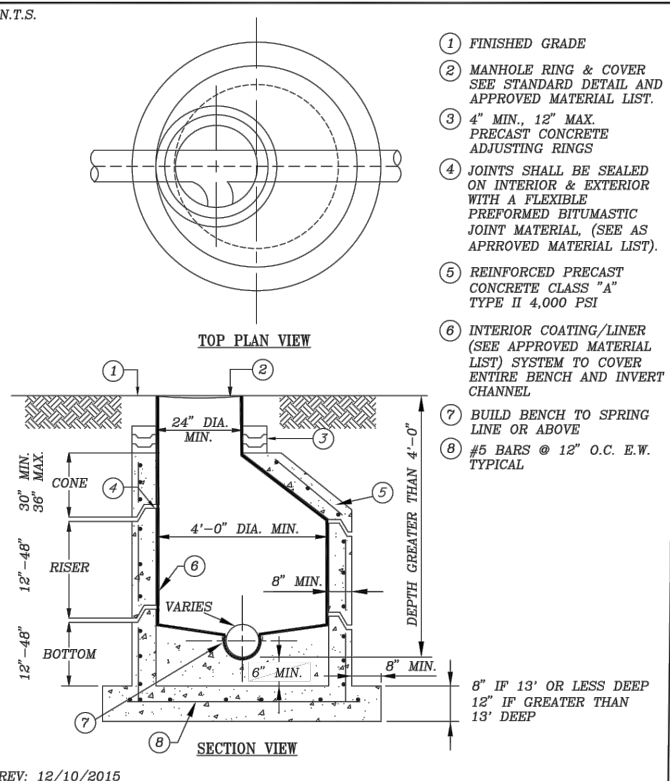
N.T.S.



REV: 12/10/2015

STANDARD DETAIL NO. 6.34
LEE COUNTY UTILITIES
PRECAST MANHOLE-ECCENTRIC

N.T.S.



REV: 12/10/2015

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REVISIONS		

Lee County Utilities

Big Carlos Pass Utility
Improvements-16-0002
Lee County, Florida

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