

2/06/19

PROJECT NO.: 14SP.20441.1

CONTRACT: C20441I

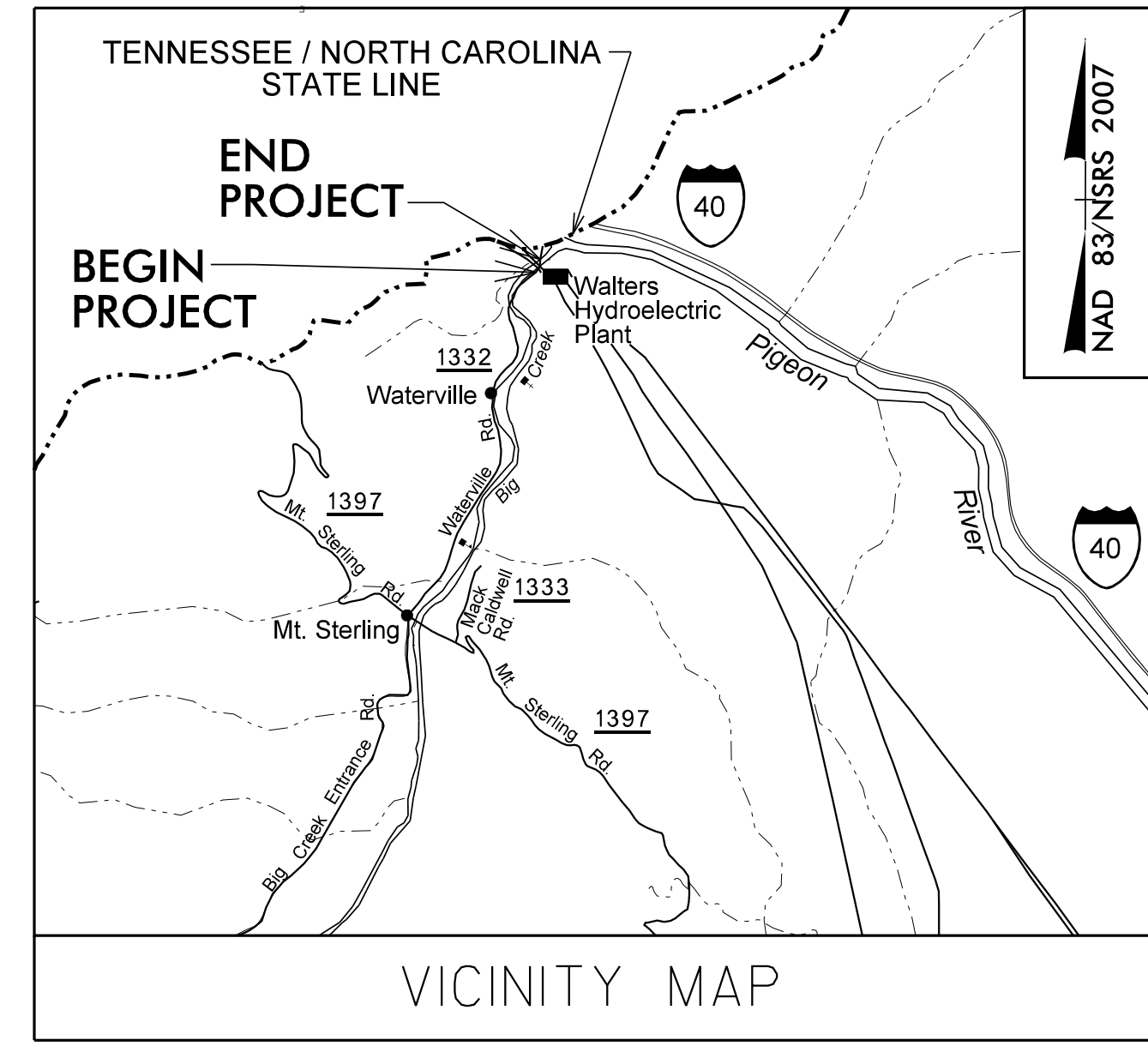
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	UC-1

UTILITY CONSTRUCTION PLANS HAYWOOD COUNTY

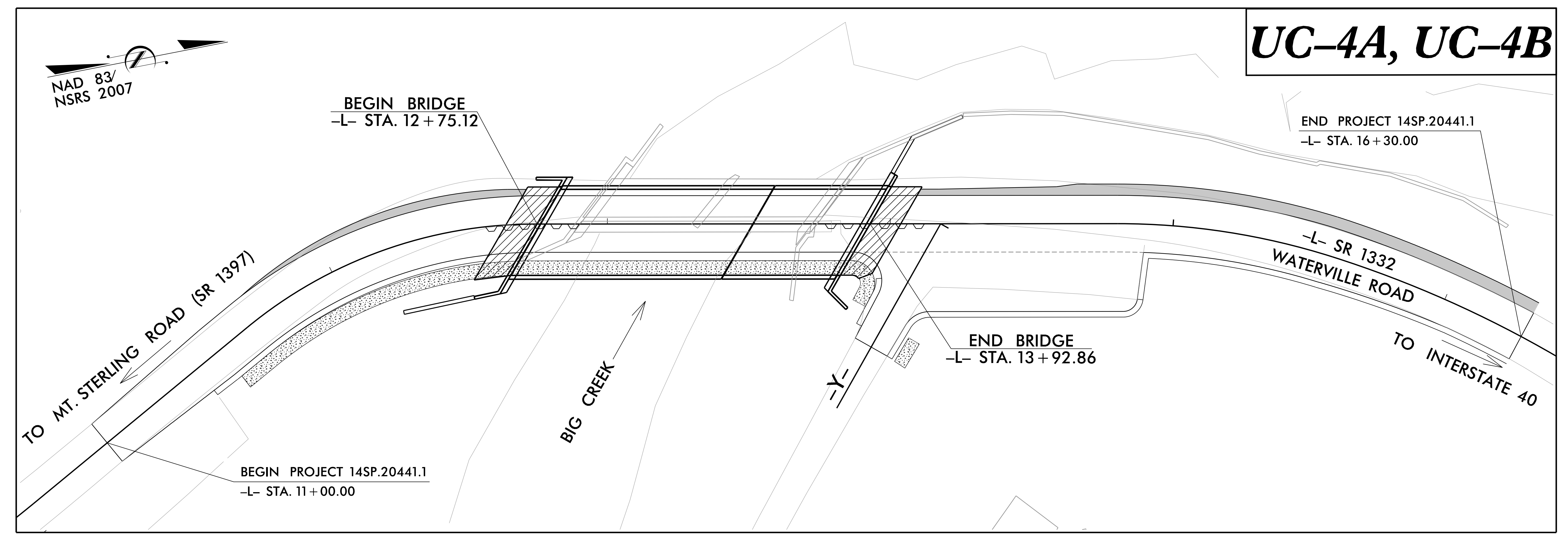
LOCATION: BRIDGE NO. 430175 OVER BIG CREEK
ON SR 1332 (WATERVILLE ROAD)

TYPE OF WORK: WATER LINE CONSTRUCTION

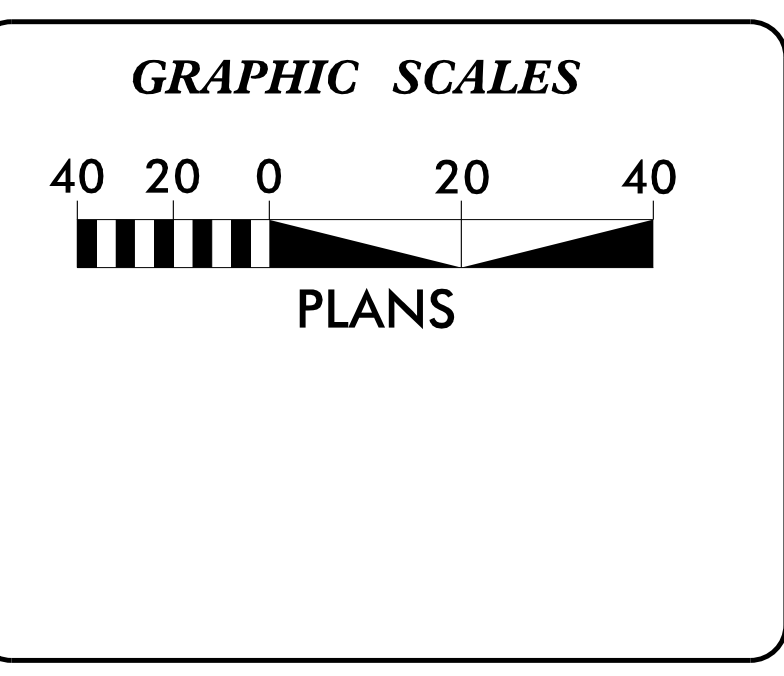


JMT. JOHNSON, MIRMIRAN, & THOMPSON, INC.
1318-F PATTON AVENUE
Asheville NC, 28806

UC-4A, UC-4B



DOCUMENT NOT CONSIDERED FINAL
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INDEX OF SHEETS

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UC-4A	TEMPORARY WATER LINE CONST.
UC-4B	PERMANENT WATER LINE CONST.

UTILITY OWNERS ON PROJECT

(1) WATER - DUKE ENERGY

PREPARED IN THE OFFICE OF:

SEAL:

Reece Schuler, P.E. UTILITY PROJECT ENGINEER
Reece Schuler, P.E. PROJECT UTILITY COORDINATOR
Daniel Foster PROJECT UTILITY DESIGNER

PREPARED FOR THE OFFICE OF:

DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION

1591 MAIL SERVICES CENTER
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Byron Sanders, P.E. WESTERN UTILITIES MANAGER
Donald Hampton REGIONAL UTILITY ENGINEER
Stephen Sealy REGIONAL UTILITY COORDINATOR

V&M PROJECT #31236-07
TRANSPORTATION\31236-07\UTILITIES\UC-4.DGN

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STRUCTURE 430175
HAYWOOD COUNTY

PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	UC-2

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	
Water Meter	
Relocate Water Meter	
Remove Water Meter	
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

EXISTING UTILITIES SYMBOLS

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records		Sanitary Sewer Cleanout	
End of Information			

*For Existing Utilities
 Utility Line Drawn from Record (Type as Shown)

Designated Utility Line (Type as Shown)


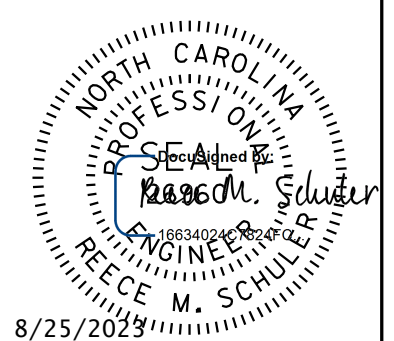
11/13/18

PROJECT NO.: 14SP.20441.1

CONTRACT: C204411

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES NOTES

	Prepared in the Office of: JOHNSON, MIRMIRAN, & THOMPSON, INC. 4700 Falls of Neuse Road, Suite 100, Raleigh NC, 27609		PROJECT REFERENCE NO.	SHEET NO.
			14SP.20441.1	UC-3
DESIGNED BY:	DRD			
DRAWN BY:	DRD			
CHECKED BY:	LAM			
APPROVED BY:	RMS			
REVISED:	9/13/18			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		8/25/2018 UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119		
		UTILITY CONSTRUCTION PLANS ONLY		
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED				

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.
2. THE EXISTING UTILITIES BELONG TO DUKE ENERGY CAROLINAS.
3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPT. OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.
5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPROTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING. CONTRACTOR SHALL PREPARE AND SUBMIT A SEQUENCE OF CONSTRUCTION ACTIVITIES AND SCHEDULE WITH MAJOR MILESTONES AND DATES FOR REVIEW AND APPROVAL BY OWNER/ENGINEER.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO THE EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO ORIGINAL CONDITION OR BETTER, AT NO ADDITIONAL COST TO THE DEPARTMENT.
7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL FIELD CONDITIONS, OR AS DIRECTED.
8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. THE 6" NON-POTABLE WATER LINE IS THE FIRE LINE THAT SERVES THE HYDRO PLANT. CONTACT MR. CHRIS MANTOOTH AT 828-486-6507 TO SCHEDULE THE NEEDED SERVICE INTERRUPTION TO MAKE THE CONNECTIONS BETWEEN THE EXISTING AND PROPOSED WATER LINES FOR BOTH THE TEMPORARY RELOCATION TO THE DOWNSTREAM SIDE OF THE BRIDGE AND THE PERMANENT PLACEMENT ON THE UPSTREAM SIDE OF THE NEW BRIDGE.
9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

10. ALL TRENCH INSTALLED WATER LINES SHALL BE RESTRAINED DUCTILE IRON PRESSURE CLASS 350 (BITUMINUS EXTERIOR COATING AND CEMENT LINED INTERIOR), EXCEPT WHERE NOTED ON THE PLANS. PIPE FITTINGS SHALL BE PRESSURE CLASS 350 DUCTILE IRON, WITH RESTRAINED MECHANICAL JOINT IN ACCORDANCE WITH AWWA C110 AND AWWA C153. PIPE FITTING COATING SHALL BE THE SAME AS THE PIPE COATINGS.
11. EXPANSION JOINTS SHELL BE MANUFACTURED OF DUCTILE IRON CONFORMING TO ANSI/AWWI C153/A21.53.
12. EXISTING 6" WATERLINE CARRIES NON-POTABLE WATER. DO NOT CROSS WITH POTABLE WATERLINES.
13. CONTRACTOR TO FIELD VERIFY PIPE MATERIALS AND SIZES PRIOR TO ORDERING NEW PIPE COUPLINGS OR REDUCERS.
14. WHERE NEW PIPE, VALVE, FITTINGS, ETC. INCLUDE THRUST BLOCKS PER STANDARD DETAIL. ALLOW CONCRETE TO PROPERLY CURE BEFORE PLACING LINE IN SERVICE.

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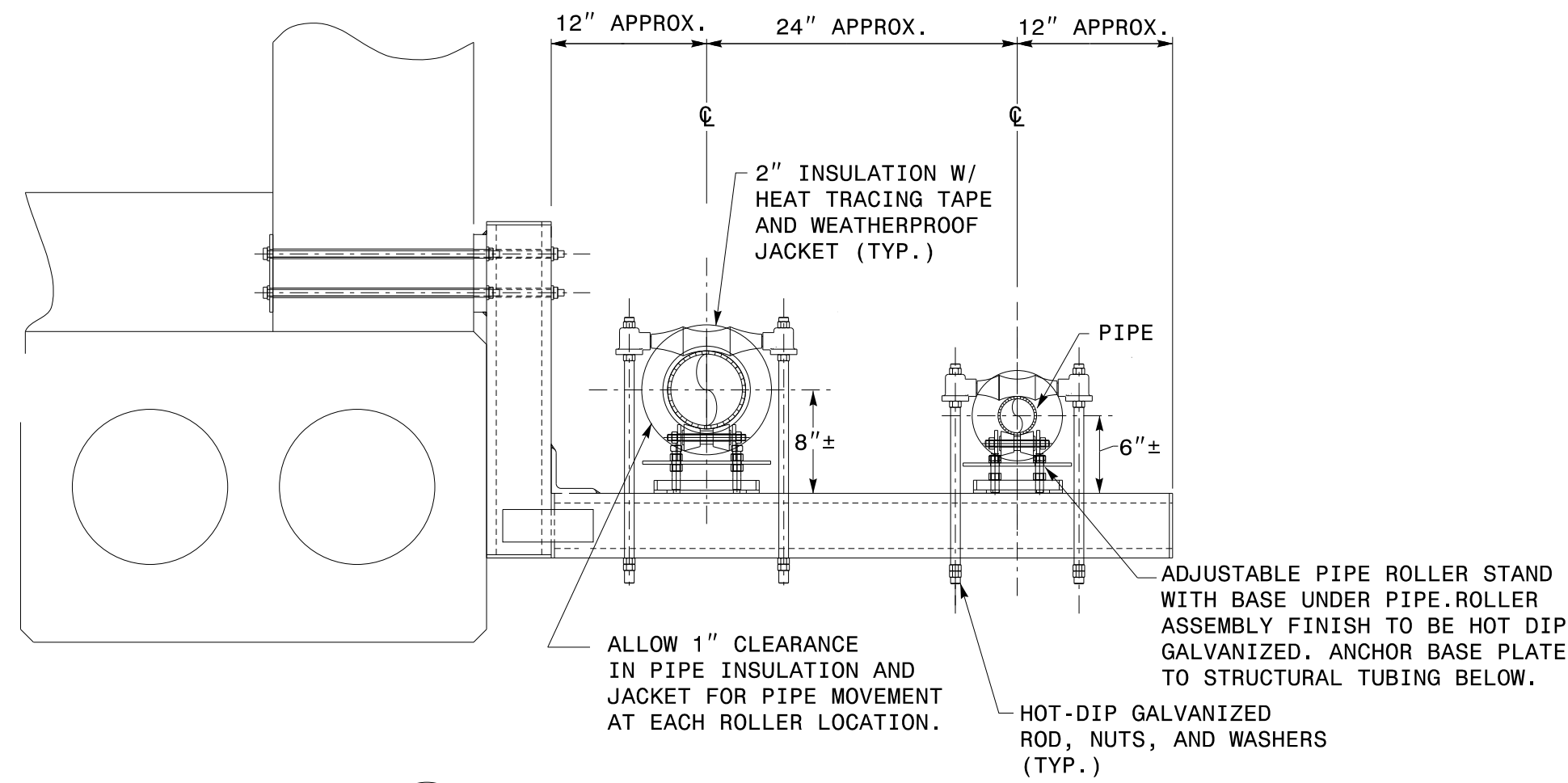
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JOHNSON, MIRMIRAN, & THOMPSON, INC.
1318-F PATTON AVENUE
Asheville NC, 28806

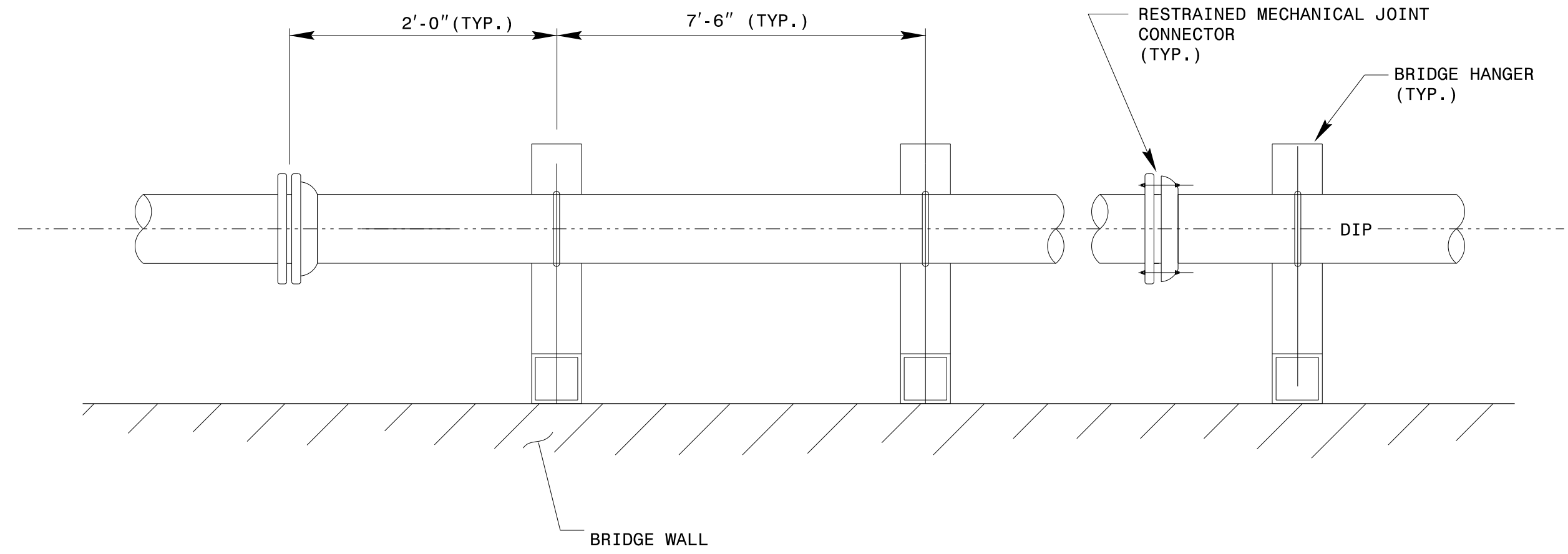
PROJECT REFERENCE NO.	SHEET NO.
14SP.20441.1	UC-3B
DESIGNED BY: DRD	
DRAWN BY: DRD	
CHECKED BY: LAM	
APPROVED BY: RMS	
REVISD: 9/13/18	8/25/2023
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919)250-4128 FAX: (919)250-4119	
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STRUCTURE 430175
HAYWOOD COUNTY

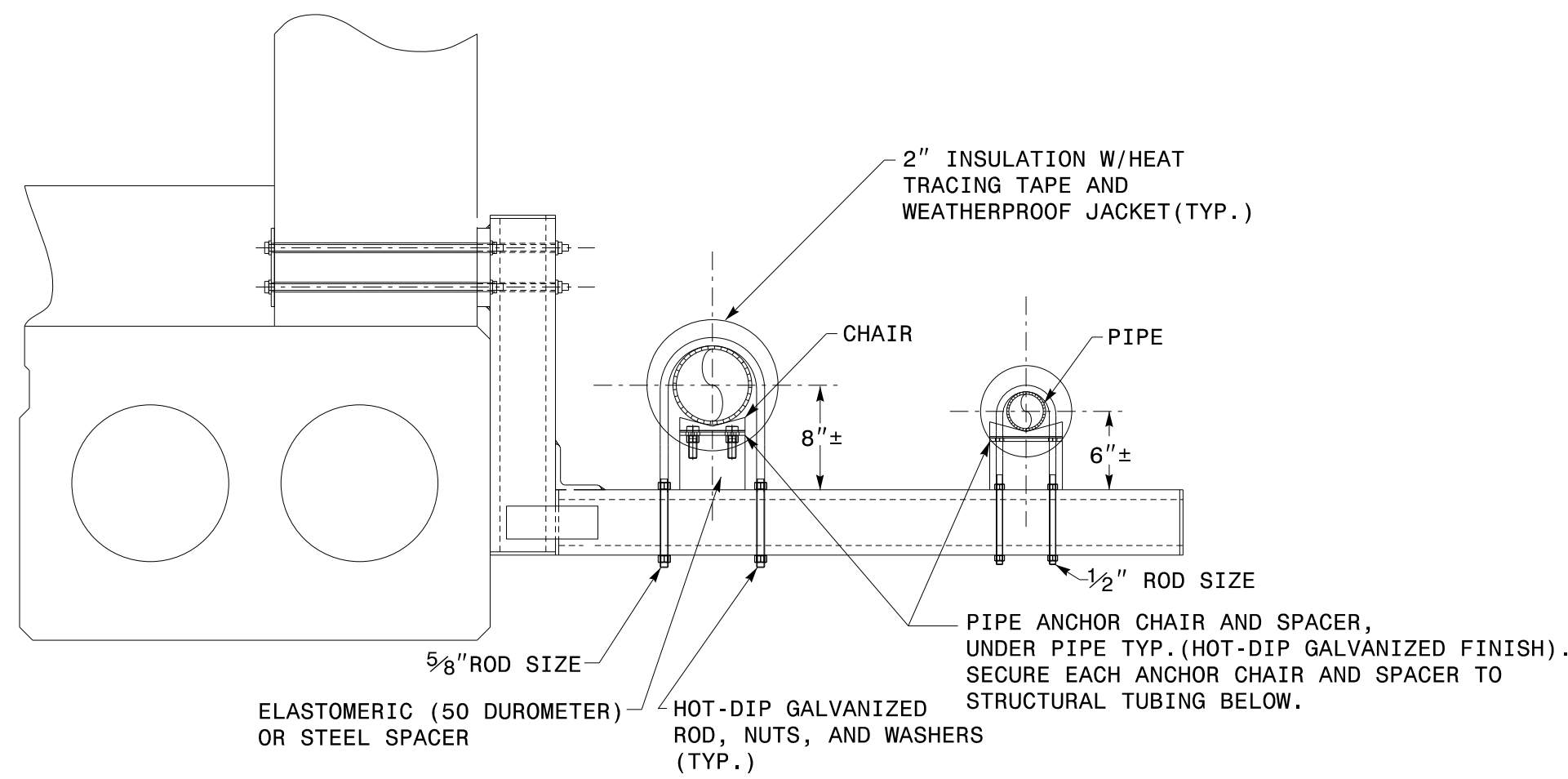


A PIPE ROLLER SUPPORT DETAIL
UC-3B NTS

REFER TO DETAIL A, SHEET UC-3C, FOR ACTUAL NUMBER AND LOCATION OF SUPPORTS SHOWN HERE

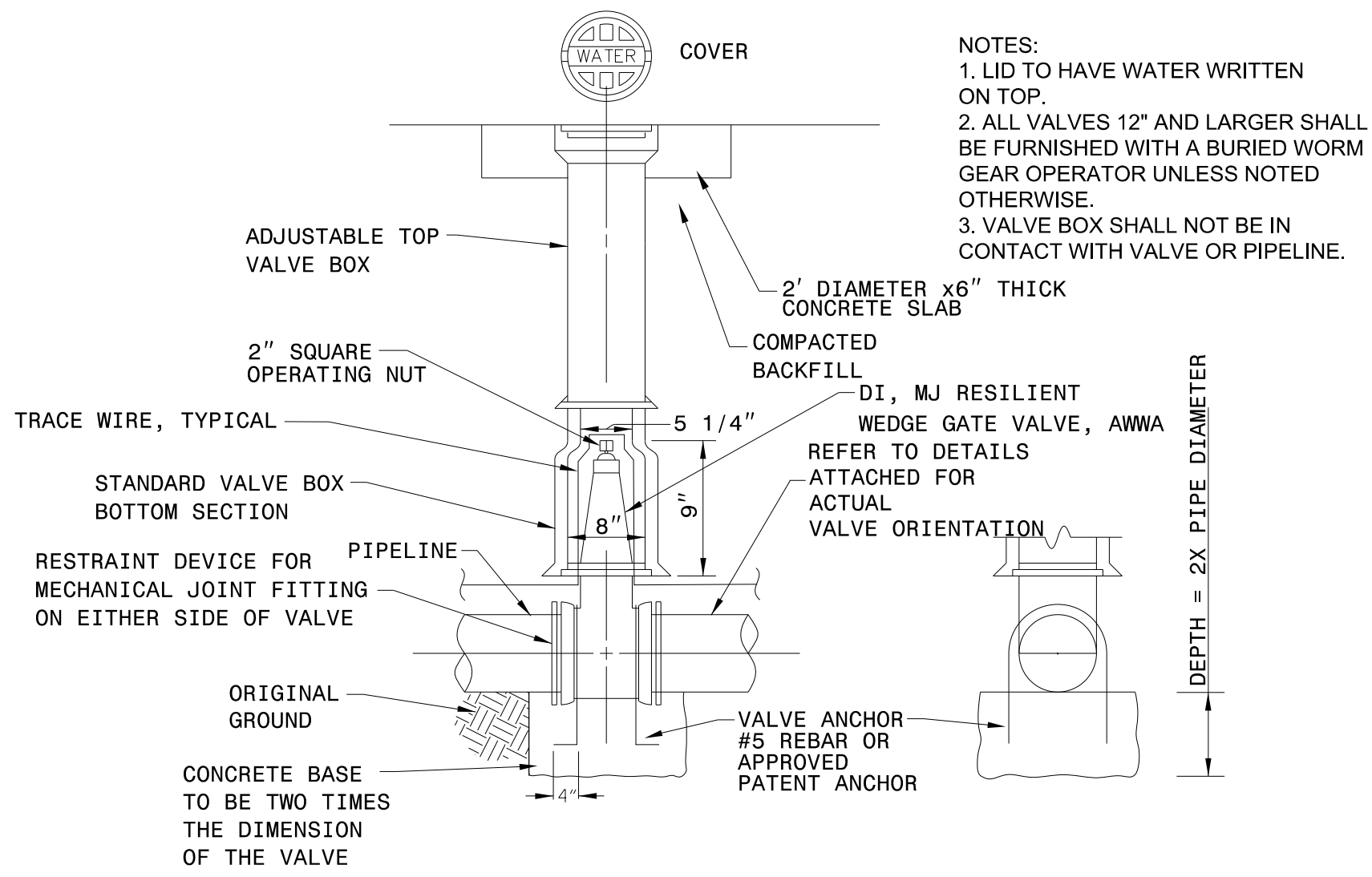


C AERIAL PIPE LAYOUT (PLAN VIEW) DETAIL TYP.
UC-3B NTS



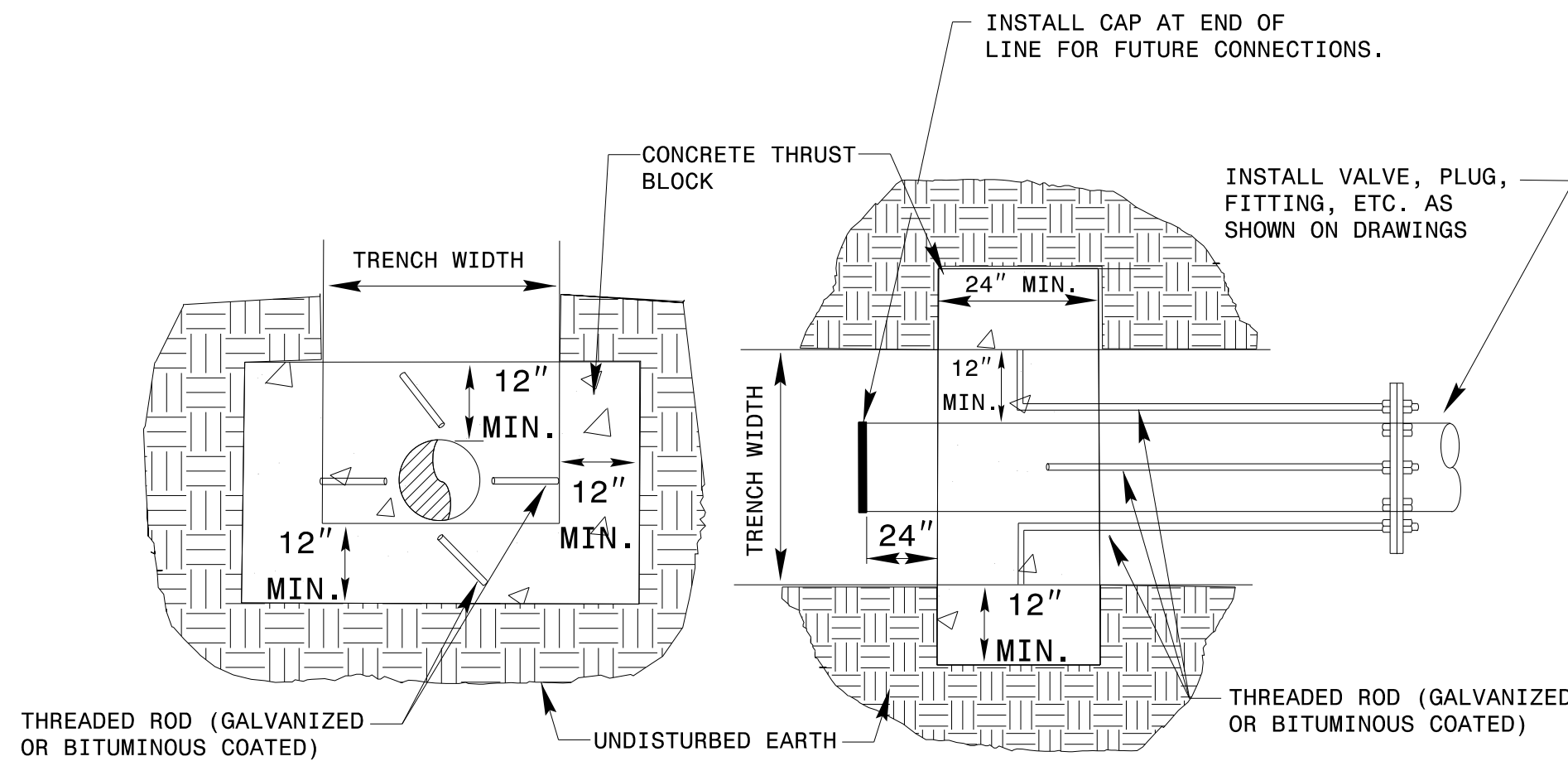
B PIPE CHAIR SUPPORT DETAIL
UC-3B NTS

REFER TO DETAIL A, SHEET UC-3C, FOR ACTUAL NUMBER AND LOCATION OF SUPPORTS SHOWN HERE



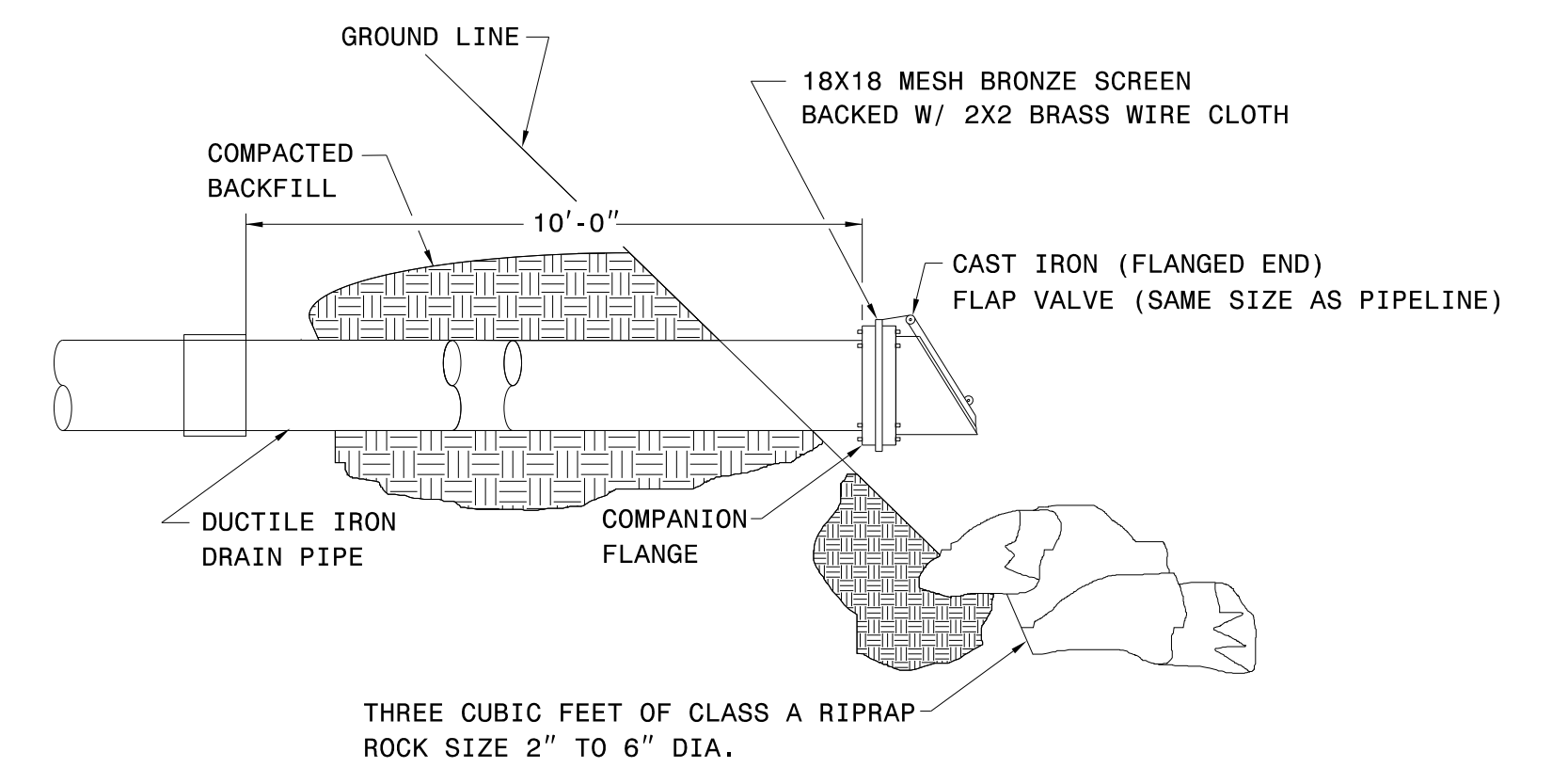
D GATE VALVE & VALVE BOX INSTALLATION DETAIL
UC-3B NTS

- NOTES:
- LID TO HAVE WATER WRITTEN ON TOP.
 - ALL VALVES 12" AND LARGER SHALL BE FURNISHED WITH A BURIED WORM GEAR OPERATOR UNLESS NOTED OTHERWISE.
 - VALVE BOX SHALL NOT BE IN CONTACT WITH VALVE OR PIPELINE.



E THRUST BLOCK (DEADMAN) DETAIL
UC-3B NTS

- NOTES:
- FITTING JOINTS SHALL NOT BE POURED IN CONCRETE OR HAVE CONCRETE SPILLED ON THE BOLTS OR NUTS. THE FITTING SHALL BE WRAPPED IN A LAYER OF POLYETHYLENE PLASTIC PRIOR TO POURING THE THRUST BLOCK.
 - ROD AND EYE BOLT DIAMETER SHALL BE A MINIMUM OF 3/4" AND SHALL MATCH THE SIZE OF THE BOLT PROVIDED WITH THE FITTING.
 - CONTRACTOR SHALL REPLACE FITTING BOLTS WITH THREADED ROD FOR 1/2 OF THE BOLTS SUPPLIED WITH EACH FITTING. RODS SHALL BE EQUALLY SPACED.



F FLAP VALVE FOR DRAIN OUTLET DETAIL
UC-3B NTS

THREE CUBIC FEET OF CLASS A RIPRAP ROCK SIZE 2" TO 6" DIA.

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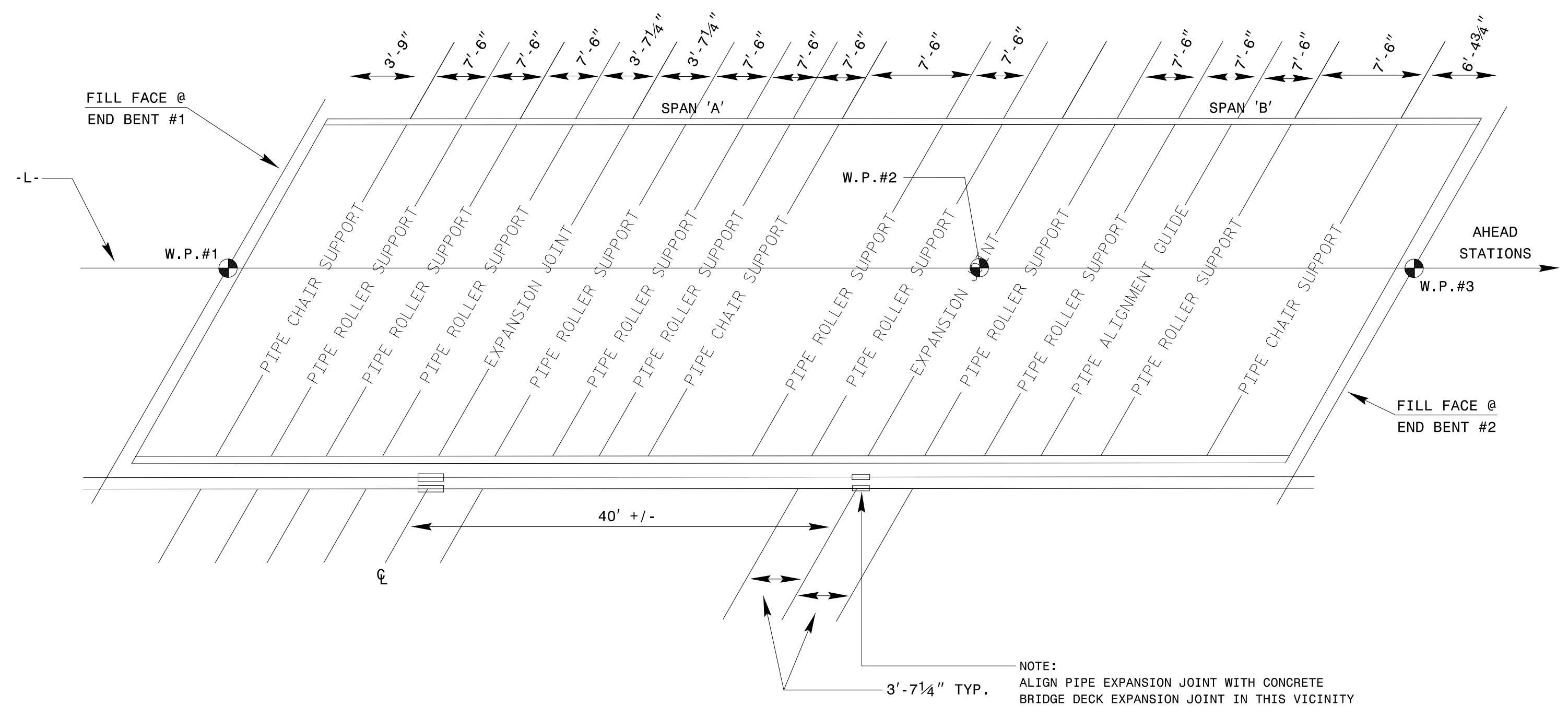
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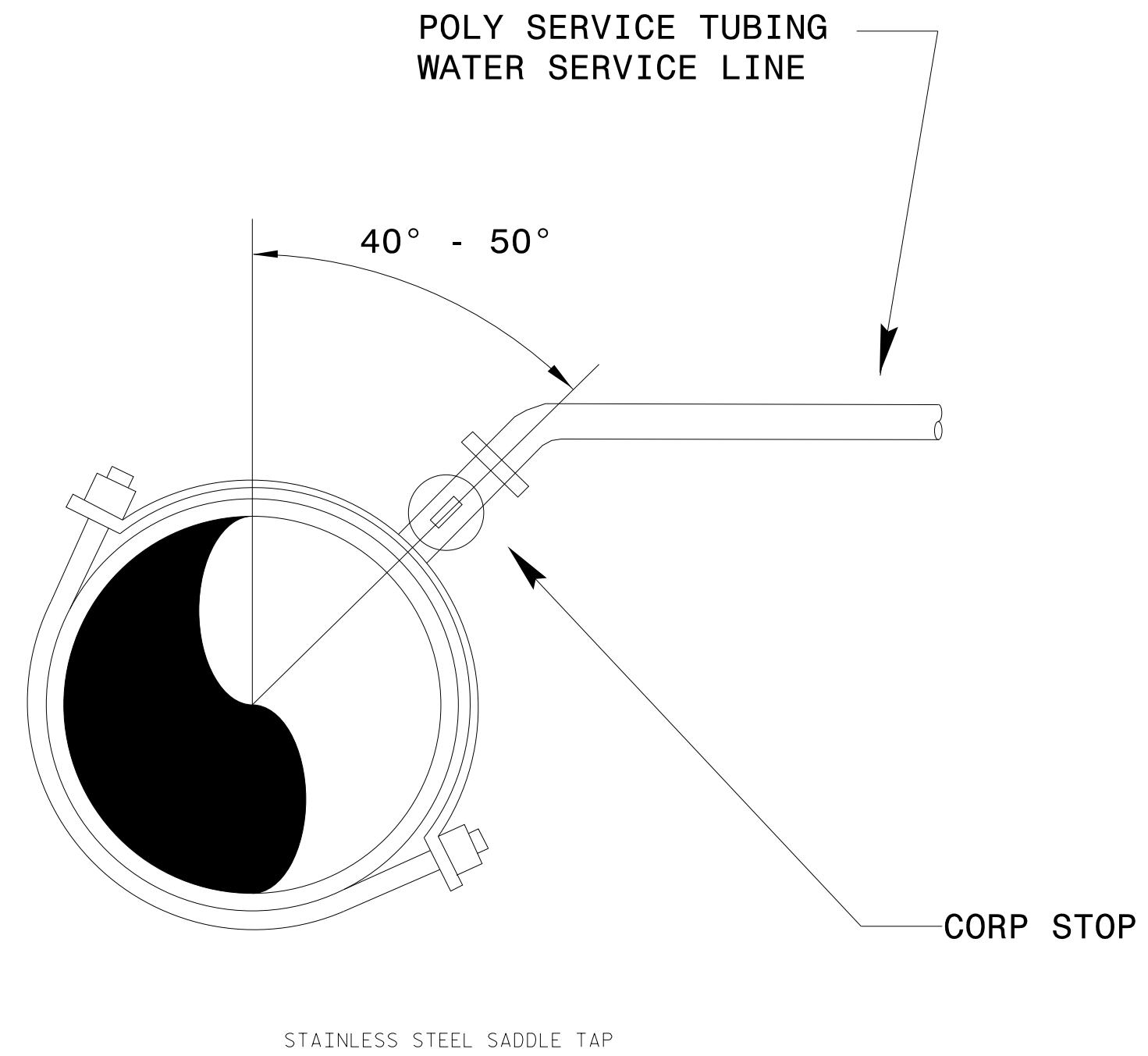
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STRUCTURE 430175
HAYWOOD COUNTY



A WATER LINE SUPPORT LAYOUT - PLAN TYPICAL
UC-3C NTS

ALIGN PIPE SUPPORT BRACKETS WITH STRUCTURAL HANGER ASSEMBLIES ON SHEET S-24.



B TYPICAL 3/4" WATER LINE SERVICE CONNECTION DETAIL
UC-3C NTS

FITTING	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
HORIZONTAL BENDS								
6 INCH DIA - 11.25 DEG	3	2	2	2	2	1	1	1
6 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2
6 INCH DIA - 45 DEG	11	9	8	7	7	6	5	5
6 INCH DIA - 90 DEG	26	22	19	17	16	14	13	12
8 INCH DIA - 11.25 DEG	3	3	2	2	2	2	2	2
8 INCH DIA - 22.5 DEG	7	6	5	5	4	4	3	3
8 INCH DIA - 45 DEG	14	12	10	9	8	8	7	7
8 INCH DIA - 90 DEG	33	29	25	23	20	19	17	16
12 INCH DIA - 11.25 DEG	5	4	4	3	3	3	2	2
12 INCH DIA - 22.5 DEG	9	8	7	6	6	5	5	5
12 INCH DIA - 45 DEG	20	17	15	13	12	11	10	10
12 INCH DIA - 90 DEG	47	41	36	33	29	27	25	23
16 INCH DIA - 11.25 DEG	6	5	5	4	4	3	3	3
16 INCH DIA - 22.5 DEG	12	11	9	8	8	7	5	6
16 INCH DIA - 45 DEG	25	22	19	17	16	14	13	12
20 INCH DIA - 11.25 DEG	7	6	6	5	5	4	4	4
20 INCH DIA - 22.5 DEG	15	13	11	10	9	9	8	7
20 INCH DIA - 45 DEG	31	27	24	21	19	18	16	15
20 INCH DIA - 90 DEG	74	65	57	52	47	43	40	37

VERTICAL BENDS - DOWN	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
6 INCH DIA - 11.25 DEG	7	6	6	5	4	4	4	3
6 INCH DIA - 22.5 DEG	15	13	11	10	9	8	8	7
6 INCH DIA - 45 DEG	31	27	23	21	19	17	16	15
8 INCH DIA - 11.25 DEG	10	8	7	6	6	5	5	5
8 INCH DIA - 22.5 DEG	19	17	15	13	12	11	10	9
8 INCH DIA - 45 DEG	40	35	30	27	25	22	21	19
12 INCH DIA - 11.25 DEG	14	12	10	9	8	8	7	7
12 INCH DIA - 22.5 DEG	28	24	21	19	17	16	14	13
12 INCH DIA - 45 DEG	57	50	44	39	35	32	30	28
16 INCH DIA - 11.25 DEG	18	15	14	12	11	10	9	9
16 INCH DIA - 22.5 DEG	36	31	27	25	22	20	19	17
16 INCH DIA - 45 DEG	74	65	57	51	46	42	39	36
20 INCH DIA - 11.25 DEG	22	19	17	15	14	12	11	11
20 INCH DIA - 22.5 DEG	44	38	34	30	27	25	23	21
20 INCH DIA - 45 DEG	91	79	70	63	57	52	48	44

VERTICAL BENDS - UP	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
6 INCH DIA - 11.25 DEG	3	2	2	2	2	1	1	1
6 INCH DIA - 22.5 DEG	5	4	4	3	3	3	3	2
6 INCH DIA - 45 DEG	11	9	8	7	7	6	5	5
8 INCH DIA - 11.25 DEG	3	3	2	2	2	2	2	2
8 INCH DIA - 22.5 DEG	7	6	5	5	4	4	3	3
8 INCH DIA - 45 DEG	14	12	10	9	8	8	7	7
12 INCH DIA - 11.25 DEG	5	4	4	3	3	3	2	2
12 INCH DIA - 22.5 DEG	9	8	7	6	6	5	5	5
12 INCH DIA - 45 DEG	20	17	15	13	12	11	10	10
16 INCH DIA - 11.25 DEG	6	5	5	4	4	3	3	3
16 INCH DIA - 22.5 DEG	12	11	9	8	8	7	5	6
16 INCH DIA - 45 DEG	25	22	19	17	16	14	13	12
20 INCH DIA - 11.25 DEG	7	6	6	5	5	4	4	4
20 INCH DIA - 22.5 DEG	15	13	11	10	9	9	8	7
20 INCH DIA - 45 DEG	31	27	24	21	19	18	16	15

DEAD ENDS/VALVES	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
6 INCH DIA	50	45	41	38	35	33	31	29
8 INCH DIA	65	59	54	50	46	43	40	38
10 INCH DIA	80	72	66	61	56	52	49	46
12 INCH DIA	94	85	78	72	66	62	58	54
16 INCH DIA	123	111	102	94	87	81	76	71
20 INCH DIA	151	137	125	115	107	100	93	88

REDUCERS	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
12 INCH X 8 INCH	50	45	41	38	35	33	31	29

TEES	REQUIRED RESTRAINED LENGTH (FT) OF BARE D.I. PIPE BY DEPTH OF COVER							
	3 FT	4 FT	5 FT	6 FT	7 FT	8 FT	9 FT	10 FT
8" RUN X 8" BRANCH : RL = 1 FT	64	58	53	48	44	41	38	36
8" RUN X 8" BRANCH : RL = 5 FT	59	52	47	42	39	35	32	30
12" RUN X 12" BRANCH : RL = 1 FT	93	84	77	70	65	60	56	53
12" RUN X 12" BRANCH : RL = 5 FT	88	79	71	65	59	54	50	47

ASSUMPTIONS:
 LAYING CONDITION = TYPE 4
 DESIGN PRESSURE = 200 PSI (TEST PRESSURE)
 SOIL DESIGNATION = COHESIVE-GRANULAR
 SAFETY FACTOR = 1.5

NOTES:
 1. RESTRAINED LENGTH IS MEASURED AS FOLLOWS:
 A. HORIZONTAL/VERTICAL BENDS: ALONG EACH SID OF BEND.
 B. HORIZONTAL/VERTICAL BENDS - OFFSET: ALONG THE OUTER SIDE OF EACH BEND.
 ALL PIPE BETWEEN THE TWO BENDS SHALL BE RESTRAINED JOINT.
 2. WHEN IT IS NOT POSSIBLE TO INSTALL THE RESTRAINED LENGTHS AS NOTED BY THIS TABLE, CONTRACTOR SHALL INSTALL THE APPROPRIATE RESTRAINED FITTINGS NOTED ON THE PLANS.

C RESTRAINED JOINT DESIGN TABLE FOR DUCTILE IRON PIPE
UC-3C NTS

PROJECT NO.: 14SP.20441.1

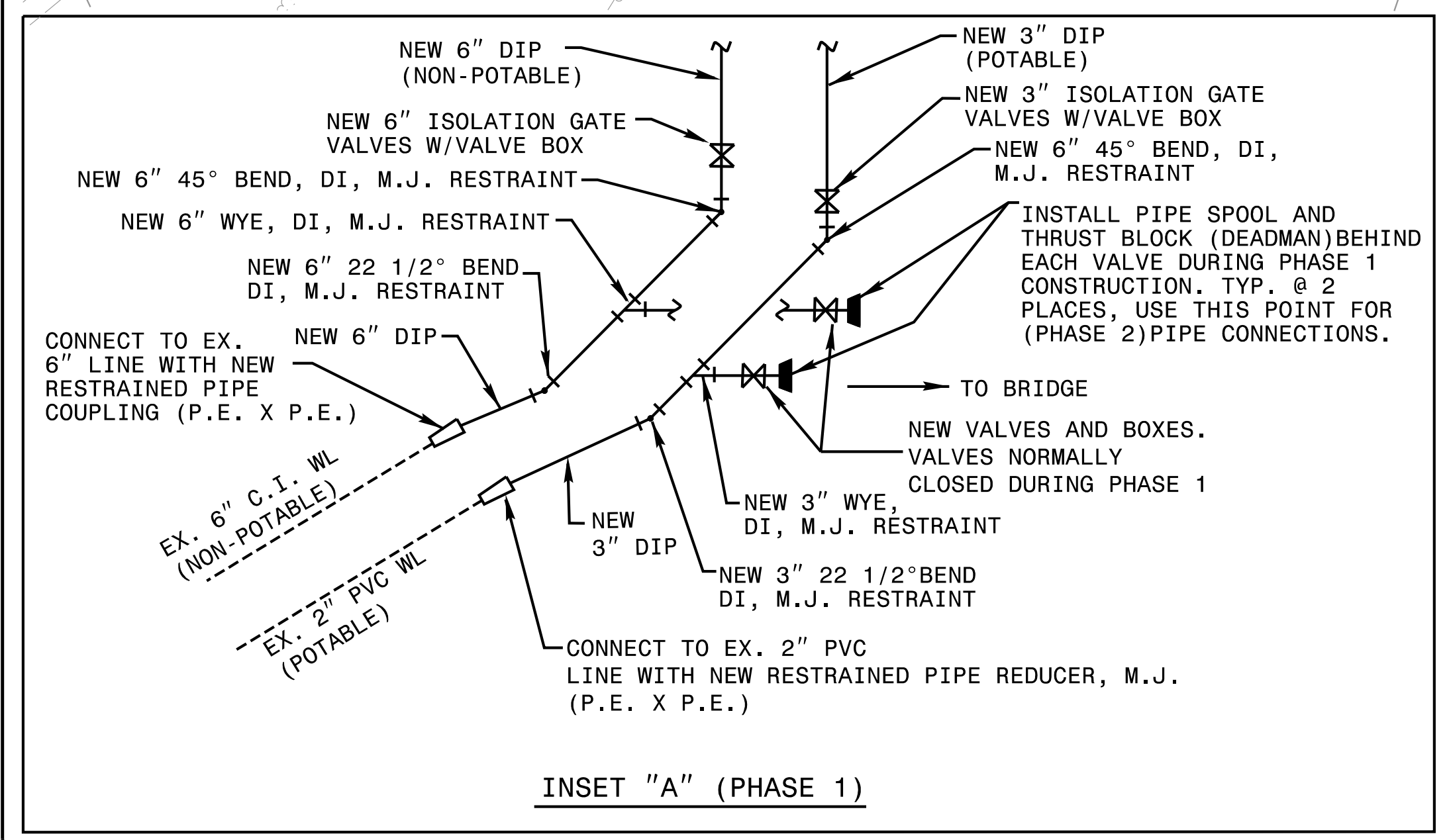
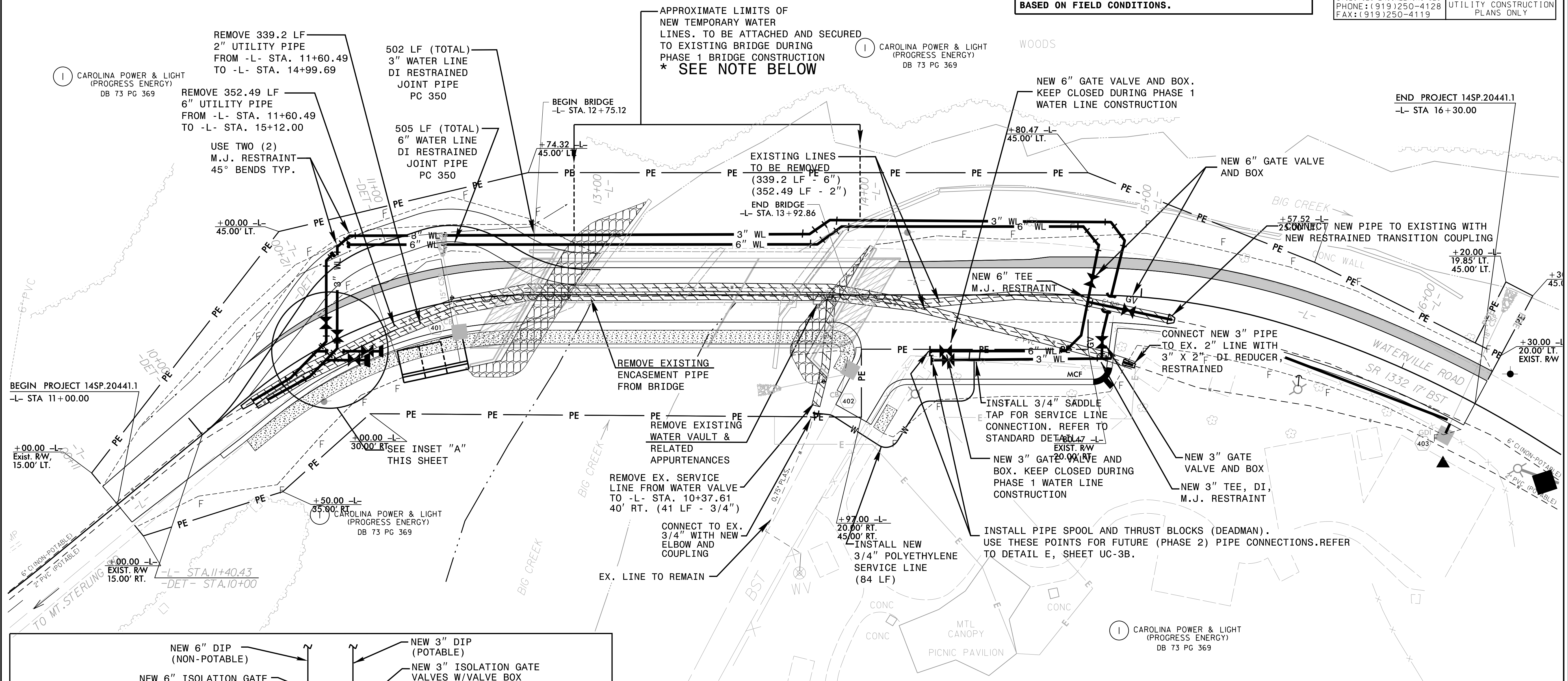
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PHASE 1 TEMPORARY WATER LINE RELOCATION

STRUCTURE 430175
HAYWOOD COUNTY

PROJECT REFERENCE NO. 14SP.20441.1	SHEET NO. UC-4A
DESIGNED BY: DRD	
DRAWN BY: DRD	
CHECKED BY: LAM	
APPROVED BY: RMS	
REVISED: 11/14/18	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 1,526 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

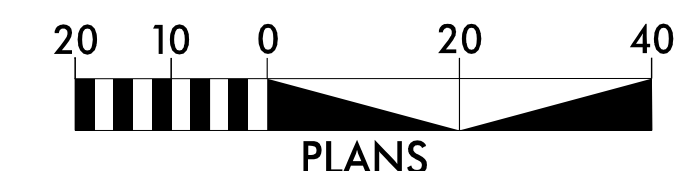


THE FOLLOWING PHASE 1 QUANTITIES ARE ASSOCIATED WITH THIS SHEET:

- | | |
|--|---------------------------------------|
| INSTALL | REMOVE |
| 6" DIP - 505 LF | 6" DIP - 339.2 LF |
| 6" GATE VALVE & BOX - 5 EA. | 2" DIP - 352.49 LF |
| 6" 45° DI BEND - 9 EA. | 3/4" SERVICE LINE - 41 LF |
| 6" 22 1/2° DI BEND - 1 EA. | REMOVE EXISTING VAULT - 1 EA. |
| 6" DI TEE - 1 EA. | REMOVE EXISTING ENCASMENT PIPE - 1 LS |
| 6" DI WYE - 1 EA. | |
| 6" TRANSITION COUPLING - 2 EA. | |
| 6" END OF LINE PLUG - 2 EA. | |
| 3" DIP - 502 LF | |
| 3" GATE VALVE & BOX - 4 EA. | |
| 3" 45° DI BEND - 7 EA. | |
| 3" 22 1/2° BEND - 2 EA. | |
| 3" DI TEE - 1 EA. | |
| 3" DI WYE - 1 EA. | |
| 3"x2" DI REDUCER - 2 EA. | |
| 3" END OF LINE PLUG - 2 EA. | |
| 3"x3/4" SADDLE TAP - 1 EA. | |
| 3/4" PE SERVICE LINE - 84 LF | |
| TEMPORARY FREEZE PROTECTION - 1 LS | |
| CONNECT TO EX. WATER LINE - 5 EA. | |
| ALL REQUIRED BRACKETING AND HARDWARE FOR ENCASMENT PIPE - 1 LS | |

NOTE:
QUANTITIES MAY CHANGE DUE TO THE CONTRACTORS METHOD OF CONSTRUCTION.

NOTE
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR TEMPORARY ATTACHMENT OF THE PROPOSED TEMPORARY 6" AND 3" WATER LINES TO THE DOWNSTREAM SIDE OF THE EXISTING BRIDGE AND THE MEANS OF CONSTRUCTING THE WATER LINES THROUGH THE EXISTING HEADWALLS. FREEZE PROTECTION FOR ALL TEMPORARY EXPOSED PIPE SHALL BE CONSIDERED BASED ON PERIOD AND DURATION OF CONSTRUCTION.



JMT JOHNSON, MIRMIRAN, & THOMPSON, INC.
1318-F PATTON AVENUE
Asheville NC, 28806

REVISIONS

PROJECT NO.: 14SP.20441.1

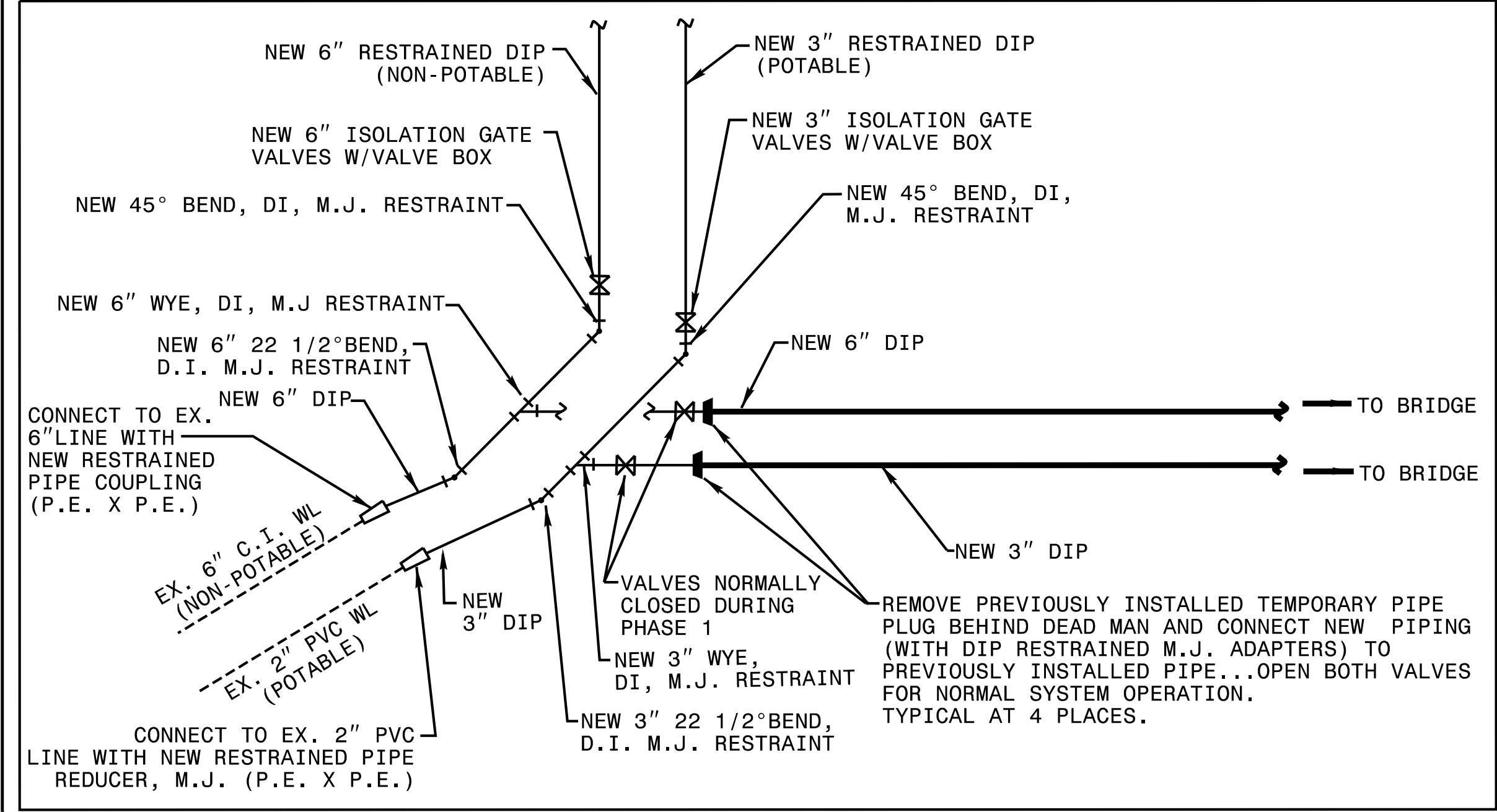
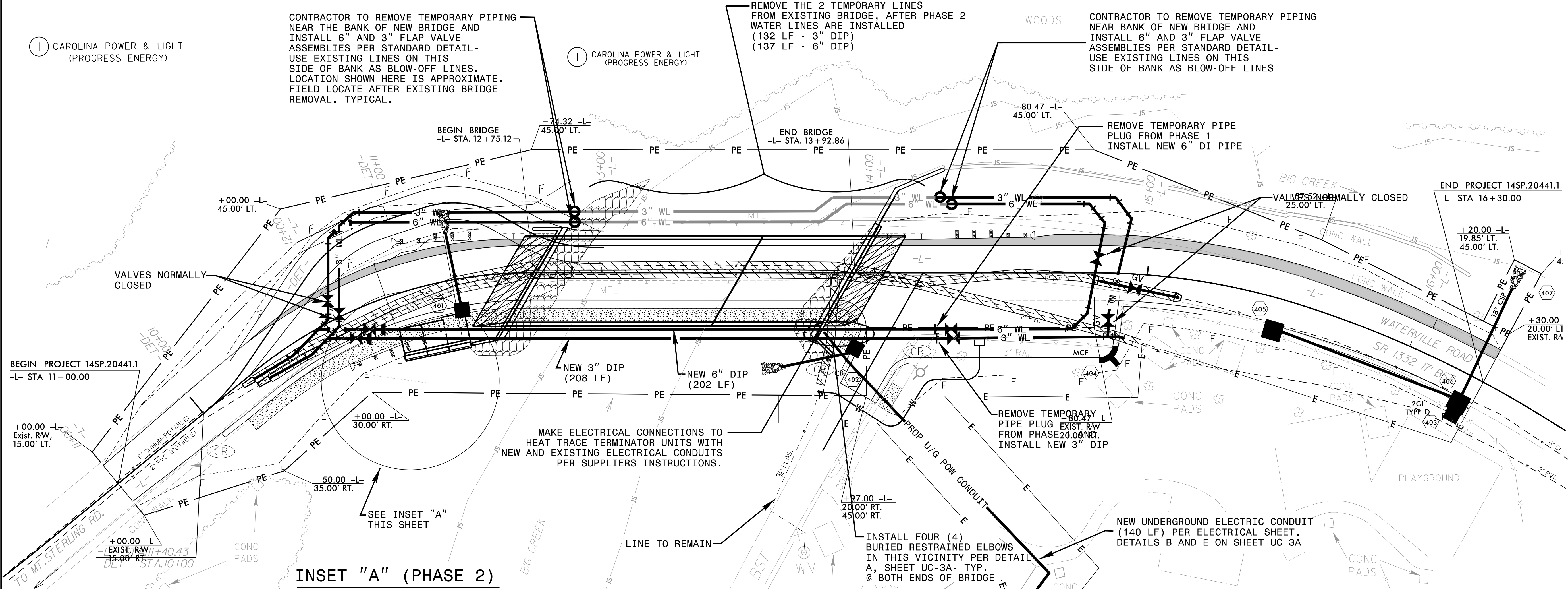
CONTRACT: C204411

PHASE 2 PERMANENT WATER LINE CONSTRUCTION

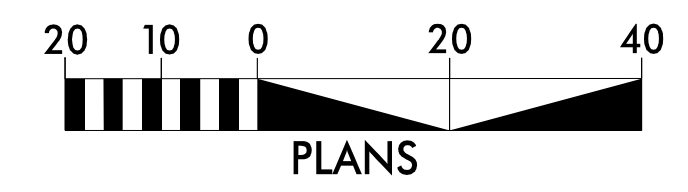
STRUCTURE 430175
HAYWOOD COUNTY

PROJECT REFERENCE NO. 14SP.20441.1	SHEET NO. UC-4B
DESIGNED BY: DRD	
DRAWN BY: DRD	
CHECKED BY: LAM	
APPROVED BY: RMS	
REVISED: 11/14/18	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 250-4128 FAX: (919) 250-4119	
UTILITY CONSTRUCTION PLANS ONLY	

THE ESTIMATED QUANTITY OF DUCTILE IRON WATER PIPE FITTINGS ON THIS PLAN SHEET IS 470 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.



- THE FOLLOWING PHASE 2 QUANTITIES ARE ASSOCIATED WITH THIS SHEET:
- | | |
|---|---|
| INSTALL | REMOVE |
| 3" RESTRAINED M.J. 45° ELBOW - 2 EA. | 6" DIP - 137 LF |
| 6" RESTRAINED M.J. 45° ELBOW - 2 EA. | 3" DIP - 132 LF |
| 6" DIP - 202 LF | REMOVE TEMPORARY ENCASEMENT AND PIPE - 1 LS |
| 6" RESTRAINED M.J. ADAPTER - 2 EA. | |
| 6" FLAP VALVE - 2 EA. | |
| 3" DIP - 208 LF | |
| 3" RESTRAINED M.J. ADAPTER - 2 EA. | |
| 3" FLAP VALVE - 2 EA. | |
| FREEZE PROTECTION - 1 LS | |
| CONNECT TO EX. WATER LINE - 4 EA. | |
| ALL REQUIRED BRACKETING AND HARDWARE FOR HANGING ENCASEMENT PIPE - 1 LS | |
| ELECTRICAL LINE CONNECTION AND APPURTENANCES - 1 LS | |
- NOTE:**
QUANTITIES MAY CHANGE DUE TO THE CONTRACTORS METHOD OF CONSTRUCTION.



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① CAROLINA POWER & LIGHT (PROGRESS ENERGY)

① CAROLINA POWER & LIGHT (PROGRESS ENERGY)

CONTRACTOR TO REMOVE TEMPORARY PIPING NEAR BANK OF NEW BRIDGE AND INSTALL 6" AND 3" FLAP VALVE ASSEMBLIES PER STANDARD DETAIL- USE EXISTING LINES ON THIS SIDE OF BANK AS BLOW-OFF LINES.

CONTRACTOR TO REMOVE TEMPORARY PIPING NEAR THE BANK OF NEW BRIDGE AND INSTALL 6" AND 3" FLAP VALVE ASSEMBLIES PER STANDARD DETAIL- USE EXISTING LINES ON THIS SIDE OF BANK AS BLOW-OFF LINES. LOCATION SHOWN HERE IS APPROXIMATE. FIELD LOCATE AFTER EXISTING BRIDGE REMOVAL. TYPICAL.

REMOVE THE 2 TEMPORARY LINES FROM EXISTING BRIDGE, AFTER PHASE 2 WATER LINES ARE INSTALLED (132 LF - 3" DIP) (137 LF - 6" DIP)

REVISIONS

TRANSPORTATION_31236-07
HAYWOOD_430175_UC-4B.DGN

2/07/19