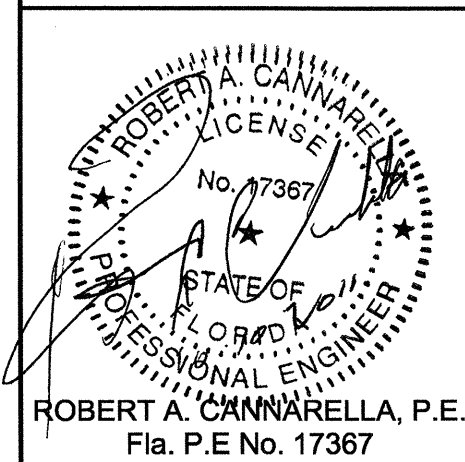


\\Manatee County Waterline\Drawings\Tlcover.dwg Plotted: 2/18/2009 0:13 pm By: bklein1 Model Plot Scale: 1"=10' Xref: Dwg's



DSGN	BJK		
DR	BJK		
CHK	RAC		
APVD	RAC	NO.	DATE

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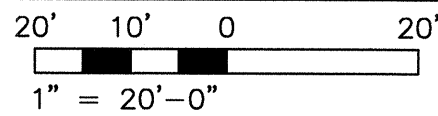
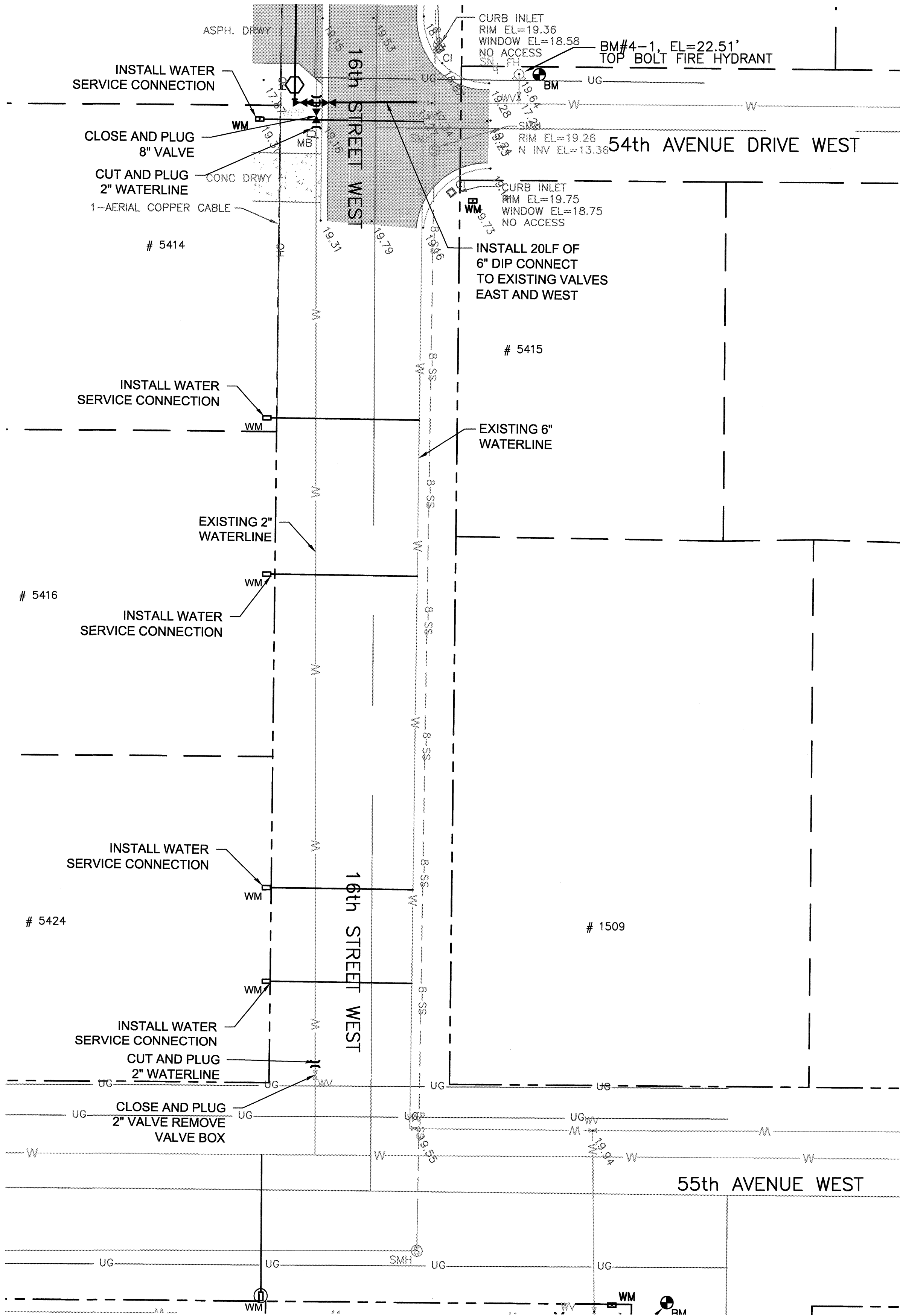
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TAMPA, FLORIDA 33607-4155
LB 0002934 AA C000656

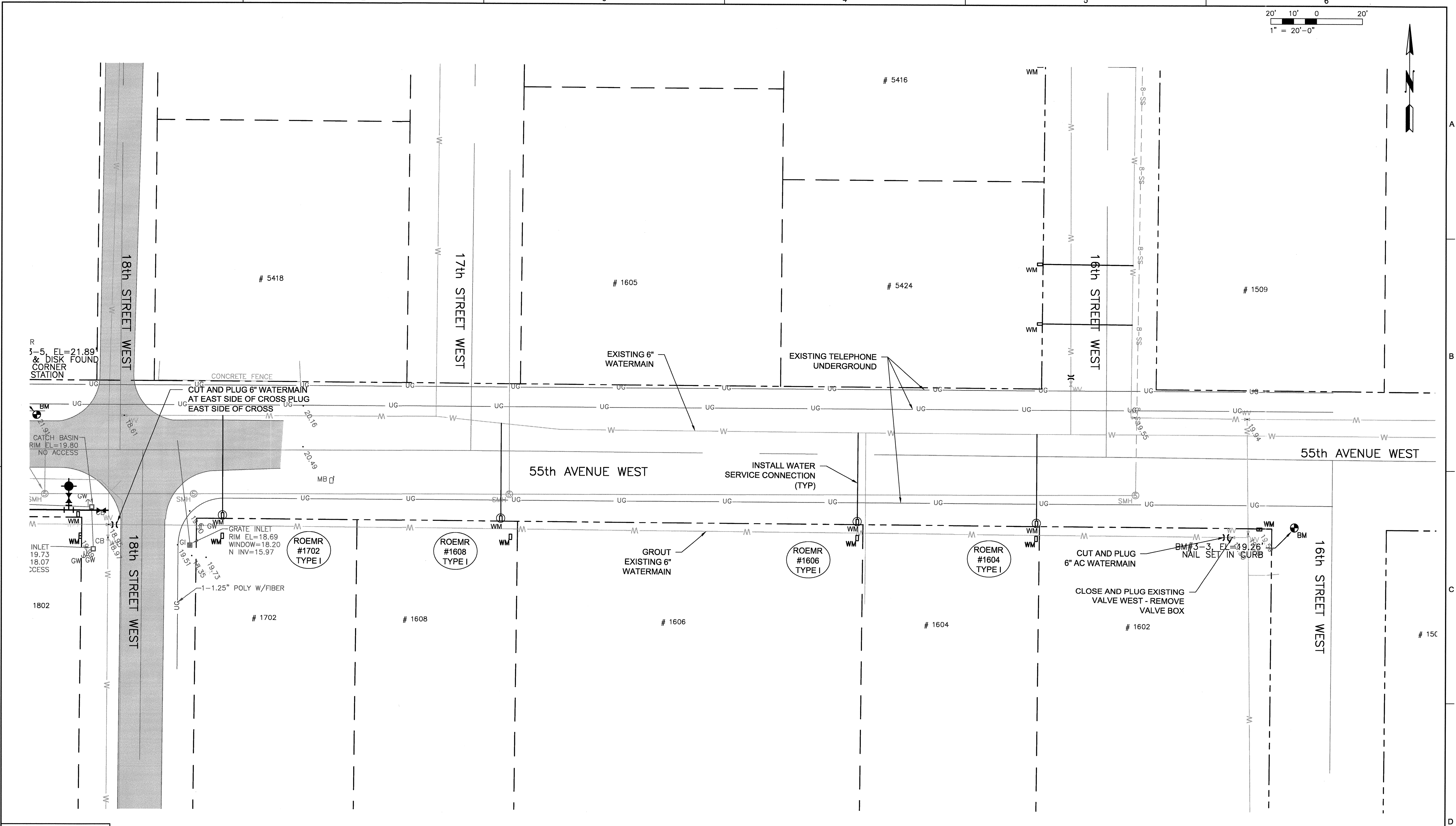
MANATEE COUNTY
SUBURBAN SYSTEM
WATER LINE REPLACEMENT PROJECT
PHASE 2
MANATEE COUNTY, FLORIDA
PROJECT No. 60747.70

PLAN SHEET WATER LINE
16th ST W FROM 54th AVE W TO 55th AVE W

SHEET	C32
DWG	C32.DWG
DATE	JULY 2011
PROJ	386879.WM



W:\Manatee County Waterline\Drawings\11cover.dwg Plotted: 2/18/2009 0:13 pm By: bklein Model Plot Scale: 1"=10' Xref: Dwg's:



Professional Engineer Seal for Robert A. Cannarella, P.E., License No. 17367, State of Florida.

DSGN	BJK				
DR	BJK				
CHK	RAC				
APVD	RAC	NO.	DATE	REVISION	BY

BID DOCUMENTS

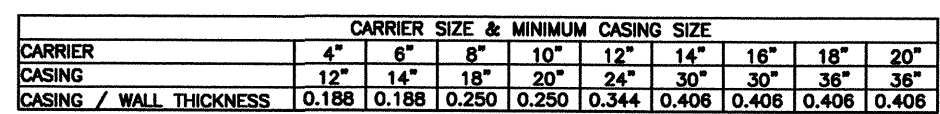
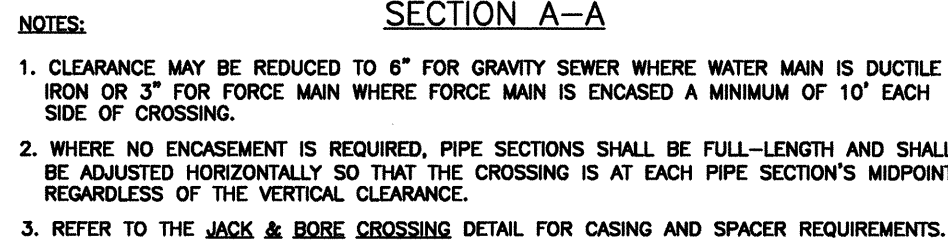
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0" = 1"
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TAMPA, FLORIDA 33607-4155
LB 0002934 AA C000656

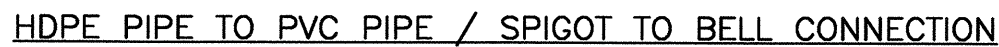
MANATEE COUNTY
SUBURBAN SYSTEM
WATER LINE REPLACEMENT PROJECT
PHASE 2
MANATEE COUNTY, FLORIDA
PROJECT No. 60747.70

PLAN SHEET WATER LINE
55TH AVE W FROM 18th ST W TO 16th ST W

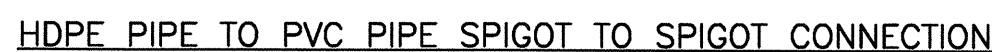
SHEET	C33
DWG	C33.DWG
DATE	JULY 2011
PROJ	386879.WM




- NOTES:**
1. THE ENGINEER OF RECORD MAY SELECT LARGER CASING DIAMETERS.
 2. FOR JACK & BORE SPECIFICATIONS UNDER STATE ROADS AND RAILROADS REFER TO THE F.D.O.T. UTILITY ACCOMMODATION MANUAL, LATEST EDITION.



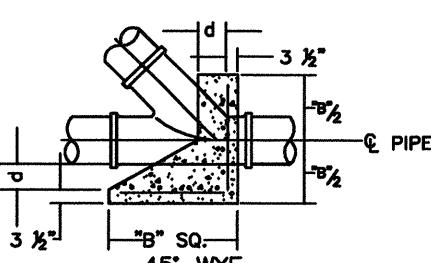
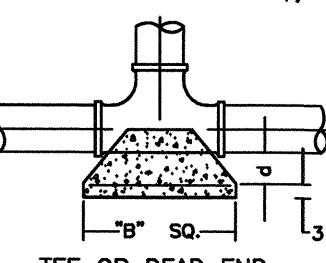
HDPE PIPE TO MJ FITTING TRANSITION



1. ONE # 10 GAUGE EXTRA HIGH STRENGTH COPPER CLAD STEEL TRACER WIRE SHALL BE PULLED AND SECURED TO THE PIPE FOR PIPELINES THAT ARE INSTALLED BY TRENCHLESS HORIZONTAL DIRECTIONAL DRILLING METHOD. IN NON-DIRECTIONAL BORE (TRENCHES AND BORE & JACK) APPLICATIONS, A # 10 GAUGE SOLID INSULATED COPPER WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRES SHALL HAVE A MINIMUM 30-MILS OF POLYETHYLENE INSULATION.

	REINFORCEMENT MAT SCHEDULE
	<p>FOR DIM. "B" BETWEEN 5.75' & 12.5' USE #4 @ 8" EACH WAY</p> <p>FOR DIM. "B" LESS THAN 5.75' USE #3 @ 8" EACH WAY</p>

1. ALL THRUST BLOCKS SHALL BE CAST IN PLACE, FITTINGS ADJACENT TO THRUST BLOCKS SHALL BE WRAPPED IN POLYETHYLENE.
2. THIS TABLE IS BASED ON WATER PRESSURE=100 PS WITH AN ALLOWABLE SOIL BEARING PRESSURE=2000 PSF, CONCRETE STRENGTH & SOIL REINFORCEMENT=4,000 PSI, 4"X10" BLOCK. THRUST BLOCK SHALL BE CAST AGAINST FIRM UNDISTURBED SOIL.
3. FOR LARGER "H" DIMENSIONS IT IS NECESSARY TO CHECK THAT JOINT IS SUFFICIENTLY DEEP TO ALLOW 15" MIN. SOIL COVER OVER TOP EDGE OF THRUST BLOCK.
4. RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKS TO SAVE SPACE. THRUST BLOCKS SHALL BE USED IN SITUATIONS WHERE THRUST BLOCKS AND RESTRAINED JOINTS ARE BOTH REQUIRED.



REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DR-18 PVC PIPE

MAIN PIPE SIZE	HORIZ. BENDS			TEES										REDUCERS				PLUGS & VALVES
				SIZE										SIZE				
	90°	45°	22.5°	LENGTH										LENGTH				
24	90	38	18	X34	X69	X132	X118	X90	X158	X10	X6	X20	X44	X117	X115	158	214	
20	78	32	16	X30	X60	X116	X101	X72	X48	X8	X6	X16	X40	X111	X110	149	184	
16	66	27	13	X26	X52	X112	X67	X51	X36	X12	X4	X12	X36	X107	X105	111	151	
12	52	22	10	X12	X24	X10	X6	X31	X6	X1	X1	X10	X36	X82	X8	96	118	
10	44	18	9	X10	X20	X8	X6	X7	X6	X3	X3	X8	X36	X61	X4	81	100	
8	37	15	7	X6	X12	X8	X6	X4	X1	X1	X1	X6	X36	X51	X60		83	
6	29	12	6	X6	X12	X8	X6	X4	X1	X1	X1	X4	X33				65	
4	21	8	4	X4	X8	X4	X4	X2	X1	X1	X1	X4	X33				43	

NOTES:

1. RESTRAIN 11.25" BENDS 50% OF LENGTH FOR 22.5" BENDS.
2. ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
3. ALL ISOLATION VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
4. PIPE SIZES ARE GIVEN IN INCHES.
5. RESTRAINED PIPE LENGTHS ARE GIVEN IN FEET.
6. LENGTHS SHOWN ARE FOR A TEST PRESSURE OF 180 PSI.
7. 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.
8. RESTRAINED LENGTHS TO BE APPLIED TO PIPELINES PER DETAIL RESTRAINED LENGTHS FOR PIPE.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TYPICAL NEW WATER & SEWER LINE CROSSING	UG-2
REV. BY	DATE		
CLB/BR	11/10		
	MAY 10, 2011		
	DATE OF APPROVAL		
			PAGE 102

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

[illegible]

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

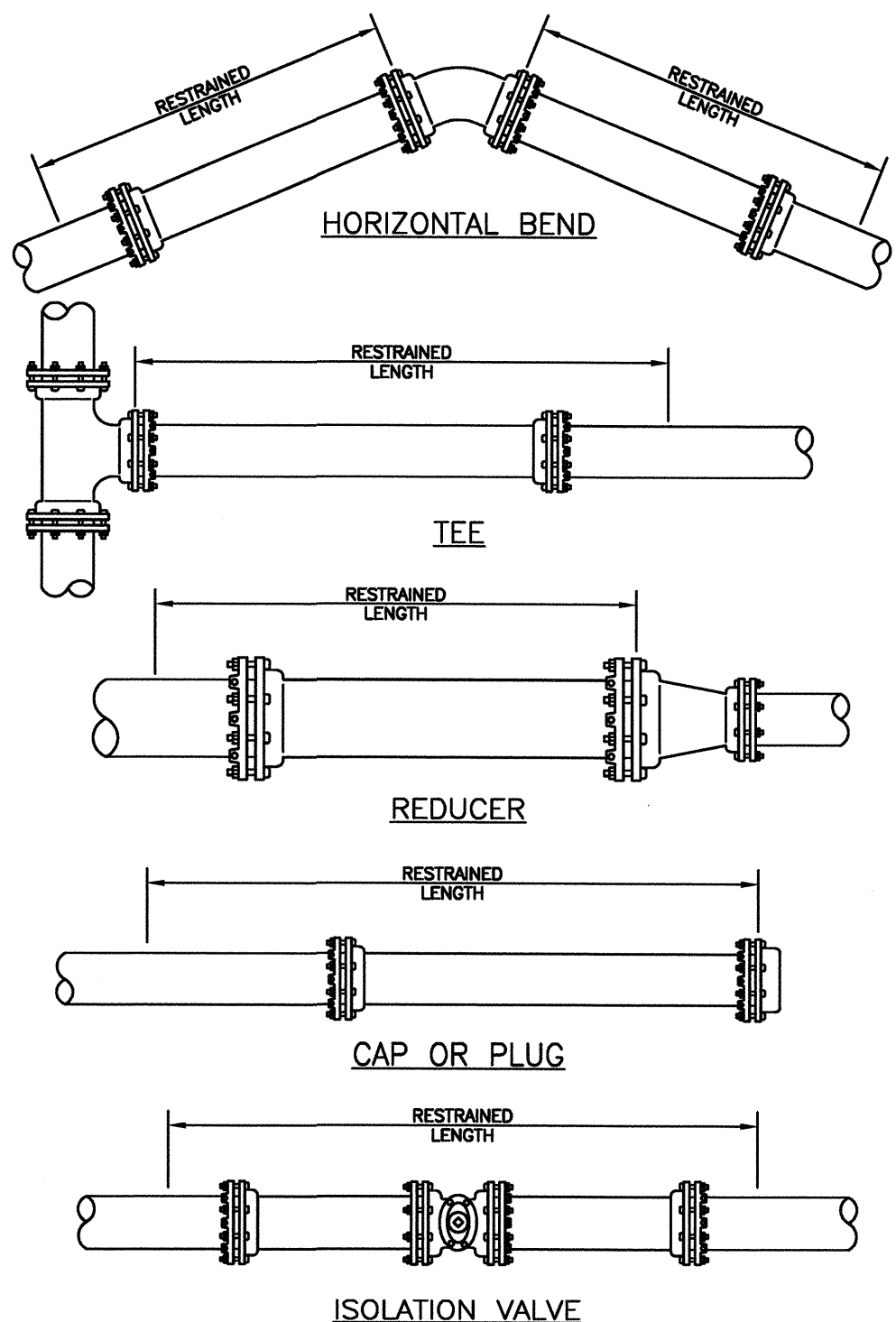
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NOTE:
SEE RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 8 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		RESTRAINED LENGTHS FOR DIP	UG-9
REV. BY	DATE		
CLB/BR	11/10		
	MAY 10, 2011 DATE OF APPROVAL		
			PAGE 109

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		JACK & BORE CROSSING	UG-3 PAGE 103
REV.BY	DATE		
CLB/BR	11/10		
MAY 10, 2011 DATE OF APPROVAL			

JACK & BORE



	MIN. RADIUS FOR	PE PIPE IN FEET
PIPE DIAMETER "D" IN INCHES	MIN. RADIUS "R" FOR DR-11	MIN. RADIUS "R" 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	27.5
12	24	33.0
16	32	44.0
18	36	49.5
20	40	55.0

REVIEW	DATE	<p>MANATEE COUNTY PUBLIC WORKS DEPARTMENT</p> <p>MAY 10, 2011</p> <p>DATE OF APPROVAL</p>
DESIGN	DATE	
DATE	DATE	

1. ALL POLYETHYLENE PIPING SHALL MEET MANATEE COUNTY STANDARDS AND SPECIFICATIONS, DR-11, CLASS 160 OR GREATER PRESSURE CLASS SHALL BE USED FOR POTABLE WATER. RECLAIMED WATER FORCE MAINS DR-6 MAY BE REQUIRED BASED ON THE ENGINEERS CALCULATIONS. SEE NOTE #2.
2. THE ENGINEER SHALL SUBMIT CALCULATIONS FOR THE MAXIMUM PULLING LENGTH, TOTAL PULL FORCE AND THE ALLOWABLE TENSILE LOAD, IN ACCORDANCE WITH AWWA RECLAIMED WATER, ASTM F1960. DESIGN SHALL ALSO BE IN ACCORDANCE WITH ASTM F1962.
3. THE PIPE STRING SHALL BE ATTACHED TO THE BACKREAMER THROUGH A "WEAK-LINK" DEVICE TO ENSURE THAT THE PULLING FORCE DOES NOT EXCEED THE STRENGTH OF THE PIPE.
4. ONE (1) GAUGE EXTRA HIGH STRENGTH COPPER CLAD STEEL TRACER WIRE SHALL BE PULLED AND SECURED TO THE PIPE FOR PIPELINES THAT ARE INSTALLED BY TRENGLESSH HORIZONTAL DIRECTIONAL DRILLING METHOD. IN TRADITIONAL TRENCHING METHODS, THE TRACER WIRE SHALL BE A COPPER INSULATED COPPER WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRES SHALL HAVE A MINIMUM 30-MILS OF POLYETHYLENE INSULATION.
5. COLOR CODED BLUE FOR POTABLE WATER MAINS.
6. COLOR CODED PURPLE (PANTONE 522 C) FOR RECLAIMED WATER MAINS.
7. COLOR CODED GREEN FOR SANITARY FORCE MAINS.
8. PIPE DEPTHS MAY NEED TO BE DEEPER TO AVOID FRACTURES. PIPEALIGNMENT SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS.
9. FDOT CRITERIA SHALL BE MET FOR PIPES UNDER STATE ROADS.

WATER LEVEL VARIES

#10 COPPER WIRE (CONTINUOUS)

SOLDER JOINT OR SPLIT BOLT CONNECTOR WITH MASTIC WRAP

*VALVE

MIN. RADIUS "R"

MIN. RADIUS "R"

PIPE DIAMETER "D" VARIES

#10 COPPER CLAD STEEL WIRE (CONTINUOUS)

MIN. RADIUS "R"

*VALVE

SOLDER JOINT OR SPLIT BOLT CONNECTOR WITH MASTIC WRAP

#10 COPPER WIRE (CONTINUOUS)

MINIMUM (SEE NOTE D)

DISTANCE VARIES

- NOTES:**

 1. FOR SANITARY FORCE MAIN USE PLUG VALVE.
 2. FOR POTABLE AND RECLAIMED WATER USE GATE VALVE OR BUTTERFLY VALVE.


PIPE DIAMETER "D"	MIN. RADIUS "R" FOR PIPE IN FEET
INCHES	
2	4
4	5
6	8
8	11.0
10	14.0
12	16
14	18
16	20.0
18	22.0
20	24.0
22	26.0
24	28.0
26	30.0
28	32
30	34.0

 3. ALL POLYETHYLENE PIPING SHALL MEET MANUATE COMPANY STANDARDS AND SPECIFICATIONS DR-11, CLASS 180 OR GREATER PRESSURE CLASS SHALL BE USED FOR POTABLE, RECLAIMED WATER OR SANITARY FORCE MAINS. DR-9 MAY BE REQUIRED BASED ON THE ENGINEERS CALCULATIONS. SEE NOTE #2.
 4. THE ENGINEER SHALL SUBMIT CALCULATIONS FOR THE MAXIMUM PULLING LENGTH, TOTAL PULL FORCE AND THE ALLOWABLE TENSILE LOAD. ACCORDANCE WITH ANRW MS&S & ASTM F1804. DESIGN SHALL ALSO BE IN ACCORDANCE WITH ASTM F1821.
 5. THE PIPE STRING SHALL BE ATTACHED TO THE BACKREACHER THROUGH A "WEAK-LINK" DEVICE TO ENSURE THAT THE PULLING FORCE DOES NOT EXCEED THE PIPE'S ALLOWABLE TENSILE LOAD RATING.
 6. ONE # 10 GAUGE EXTRA HIGH STRENGTH COPPER CLAD STEEL TRACER WIRE SHALL BE PULLED AND SECURED TO THE PIPE FOR PIPELINES THAT ARE INSTALLED BY TRENGHLESS HORIZONTAL DIRECTIONAL DRILLING. IN TRENCH METHOD, IN TRENCH LAYING APPLICATIONS, A # 10 GAUGE SOLID INSULATED COPPER WIRE SHALL BE ATTACHED TO THE PIPE. TRACER WIRES SHALL HAVE A MINIMUM 30-MILS OF POLYETHYLENE INSULATION.
 7. COLOR CODE BLUE FOR POTABLE WATER MAINS.
 8. COLOR CODE PURPLE (PANTONE 622 C) FOR RECLAIMED WATER MAINS.
 9. COLOR CODE GREEN FOR SANITARY FORCE MAINS.
 10. PIPE DEPTHS MAY NEED TO BE DEEPER TO AVOID FRACKCOUTS.

MIN. RADIUS FOR PE PIPE IN FEET		
PIPE DIAMETER "D" IN INCHES	MIN. RADIUS "R" FOR DR-11	MIN. RADIUS "R" FOR DR-9
2	4	5.5
4	8	11.0
6	12	16.5
8	16	22.0
10	20	27.5
12	24	33.0
16	32	44.0
18	36	49.5
24	48	66.0

DSGN	BJK			BID DOCUMENTS		
DR	BJK					
CHK	RAC					
APVD	RAC	NO.	DATE	REVISION	BY	APVD

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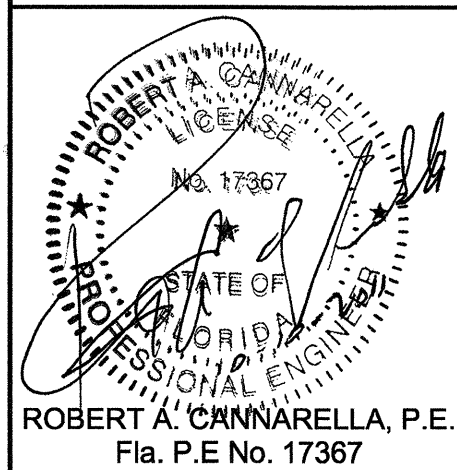
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TAMPA, FLORIDA 33607-4155
LB 0002934 AA C000656

MANATEE COUNTY
SUBURBAN SYSTEM
WATER LINE REPLACEMENT PROJECT
PHASE 2
MANATEE COUNTY, FLORIDA
PROJECT No. 60747.70

DETAILS

SHEET	D1
DWG	D1.DWG
DATE	JULY 2011
PROJ	386879.WM

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DR	BJK
CHK	RAC
APVD	RAC

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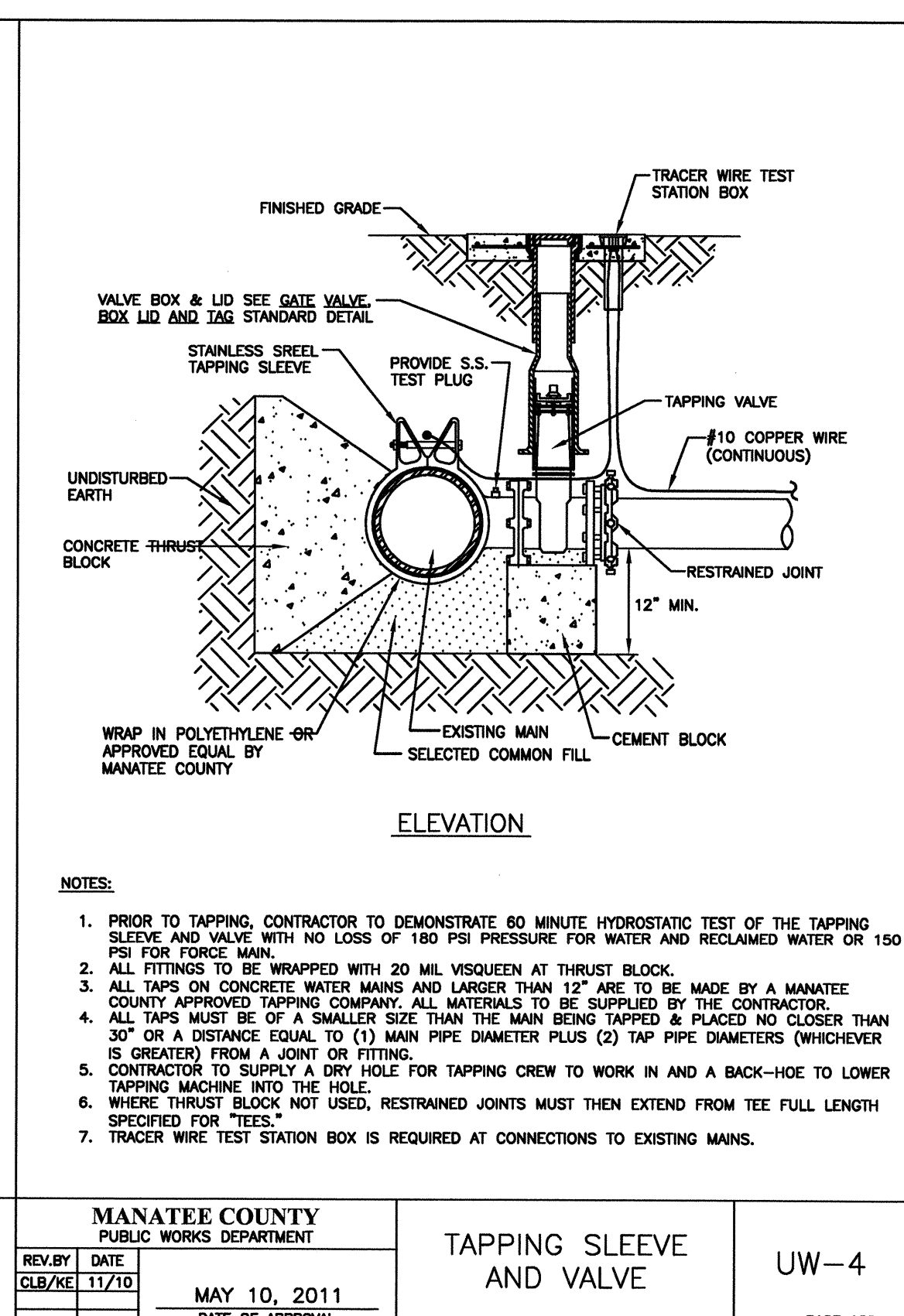
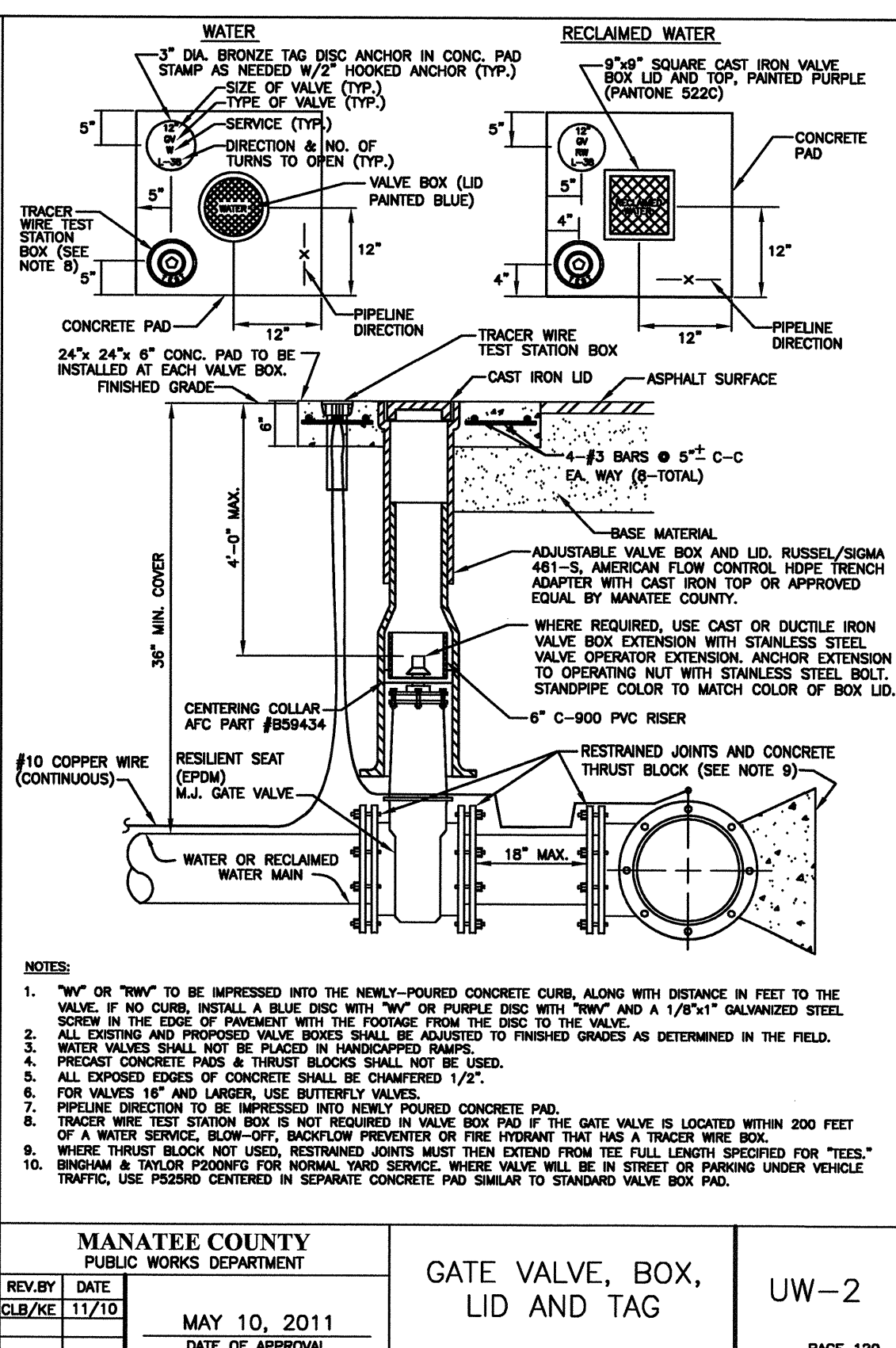
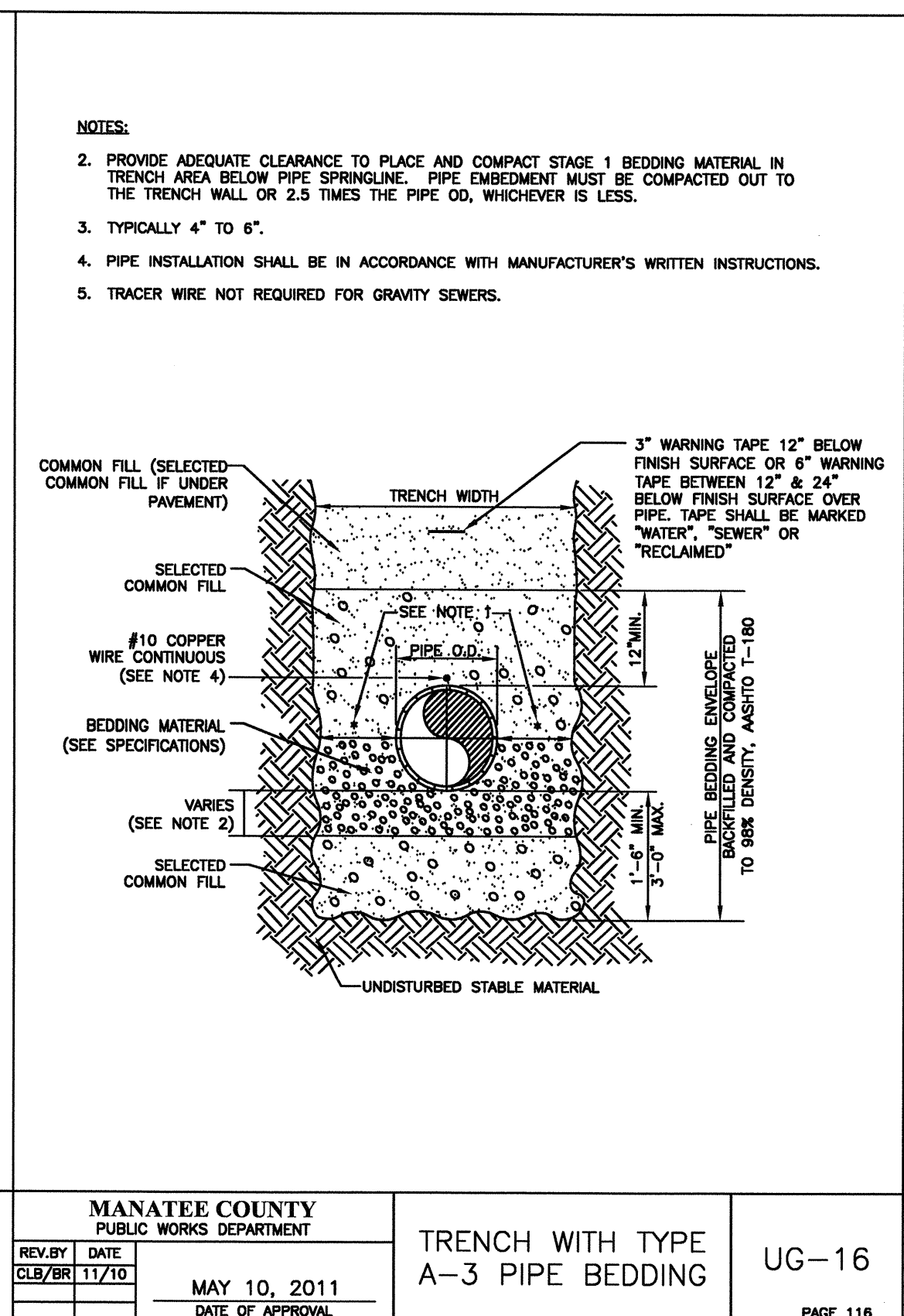
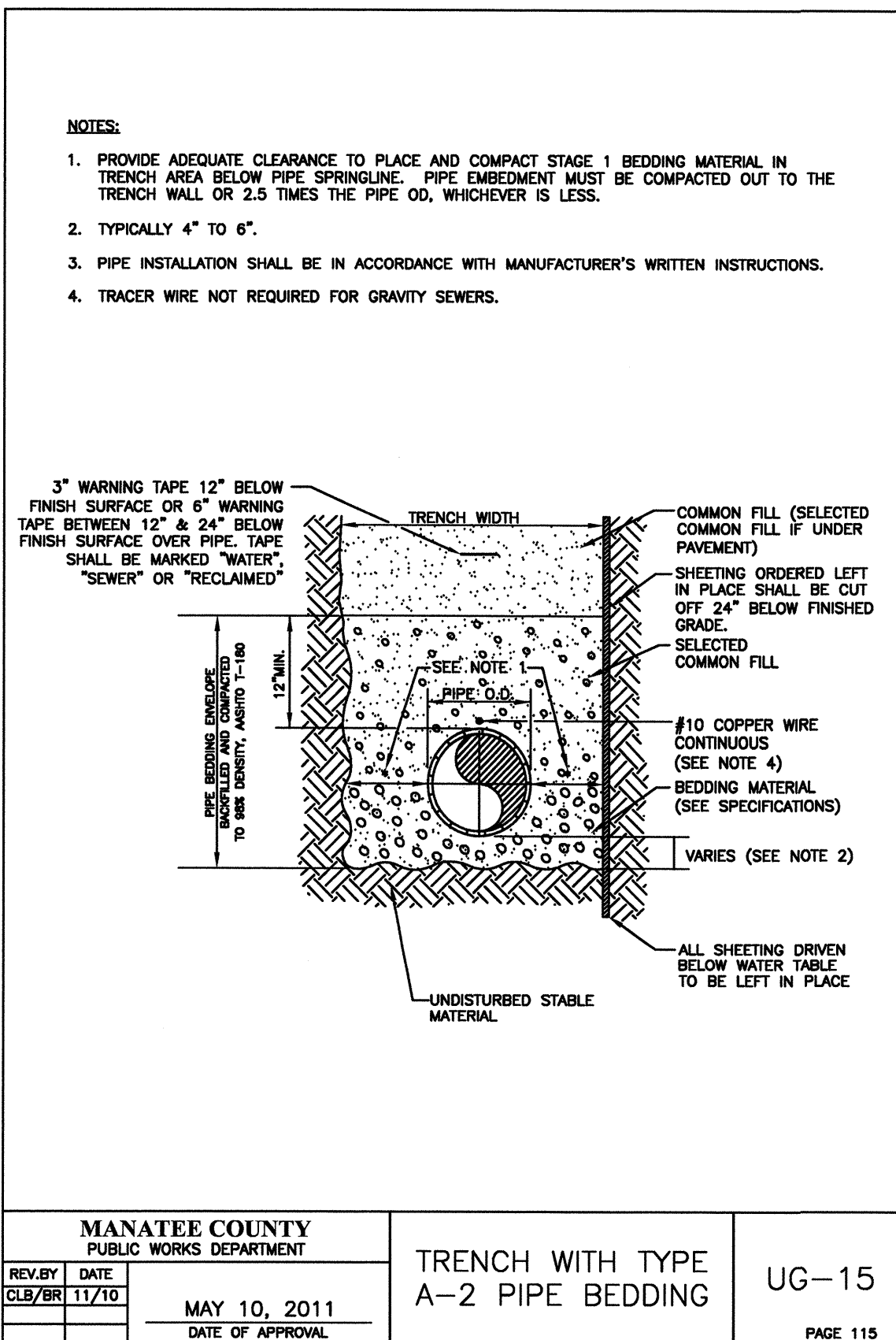
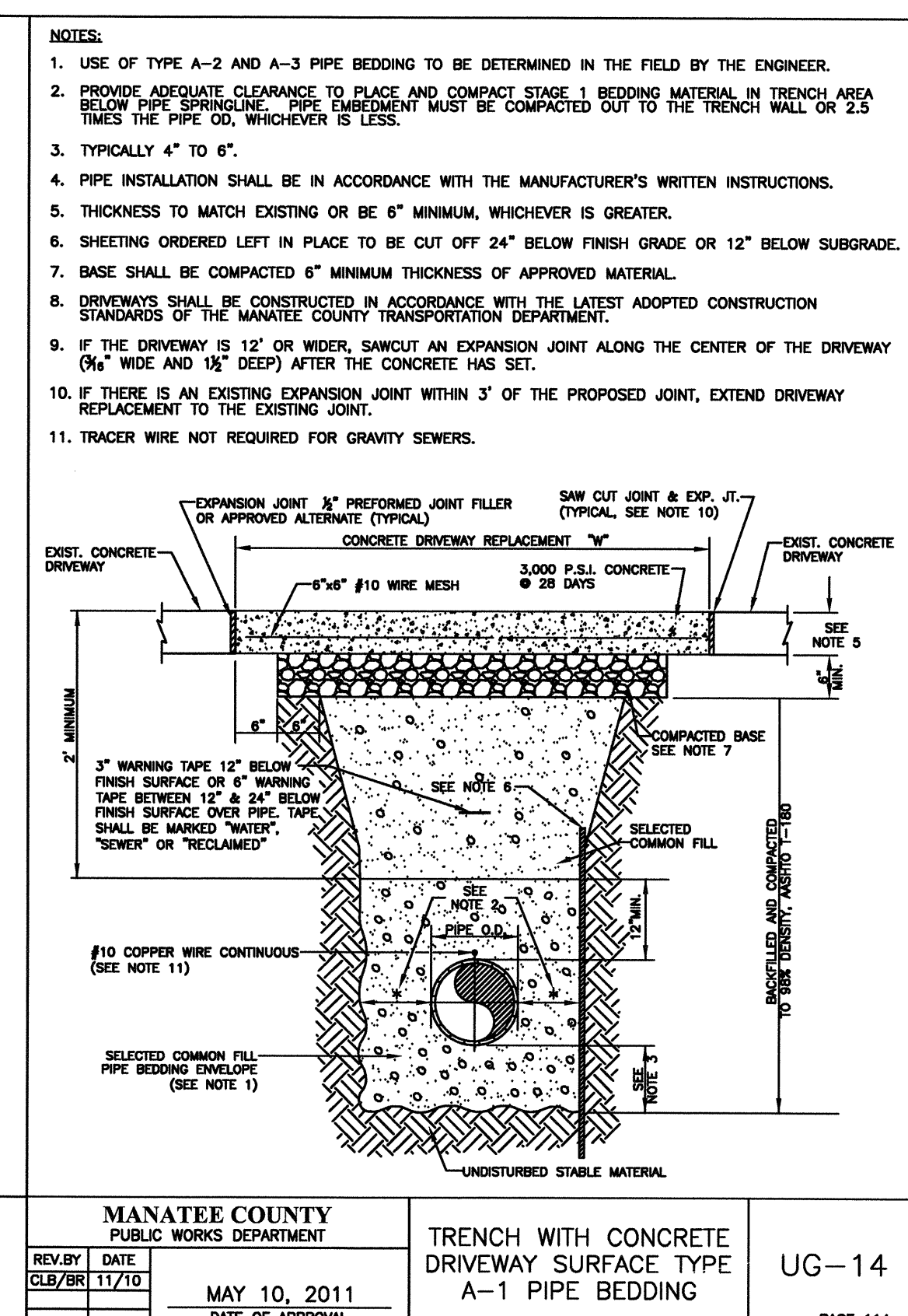
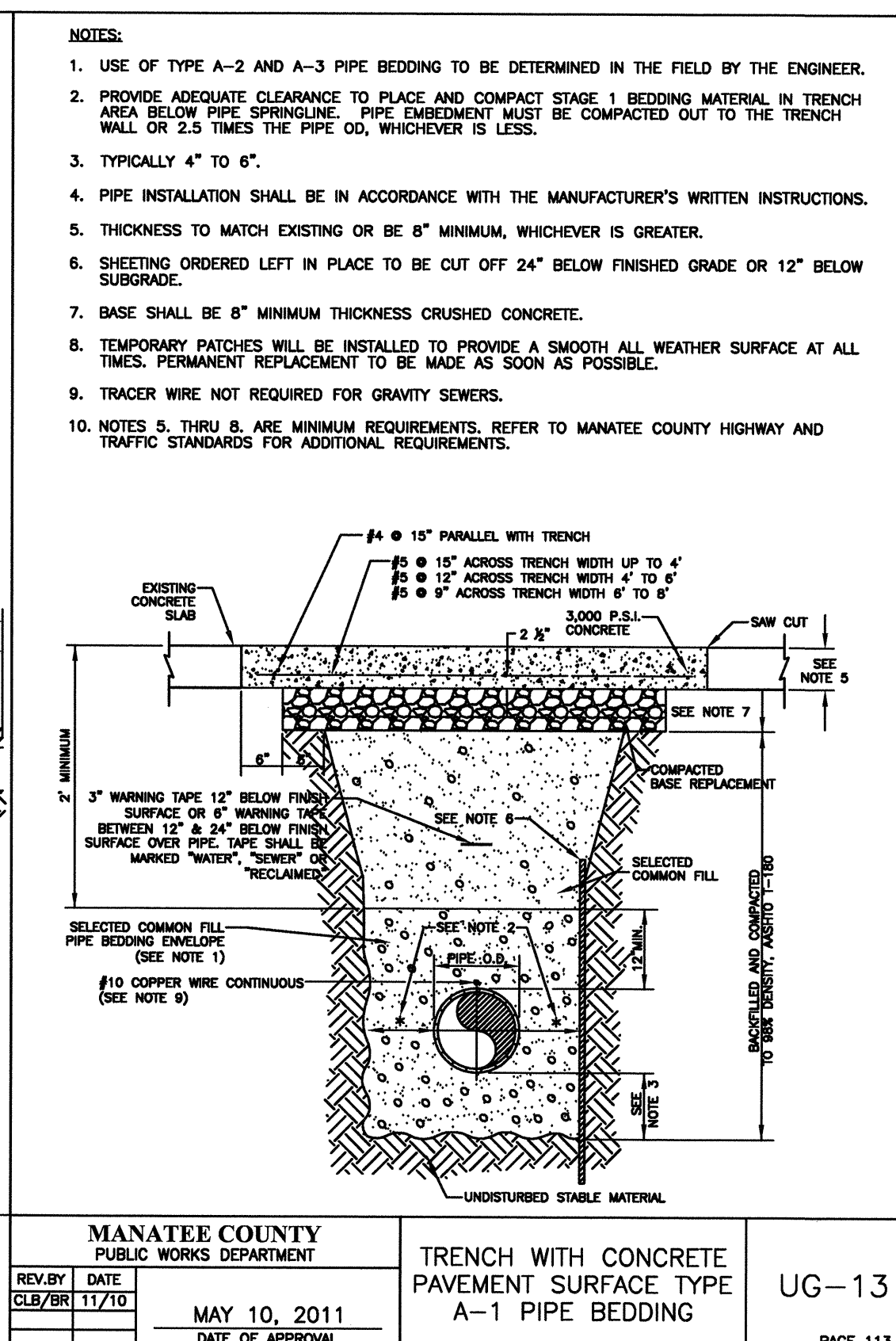
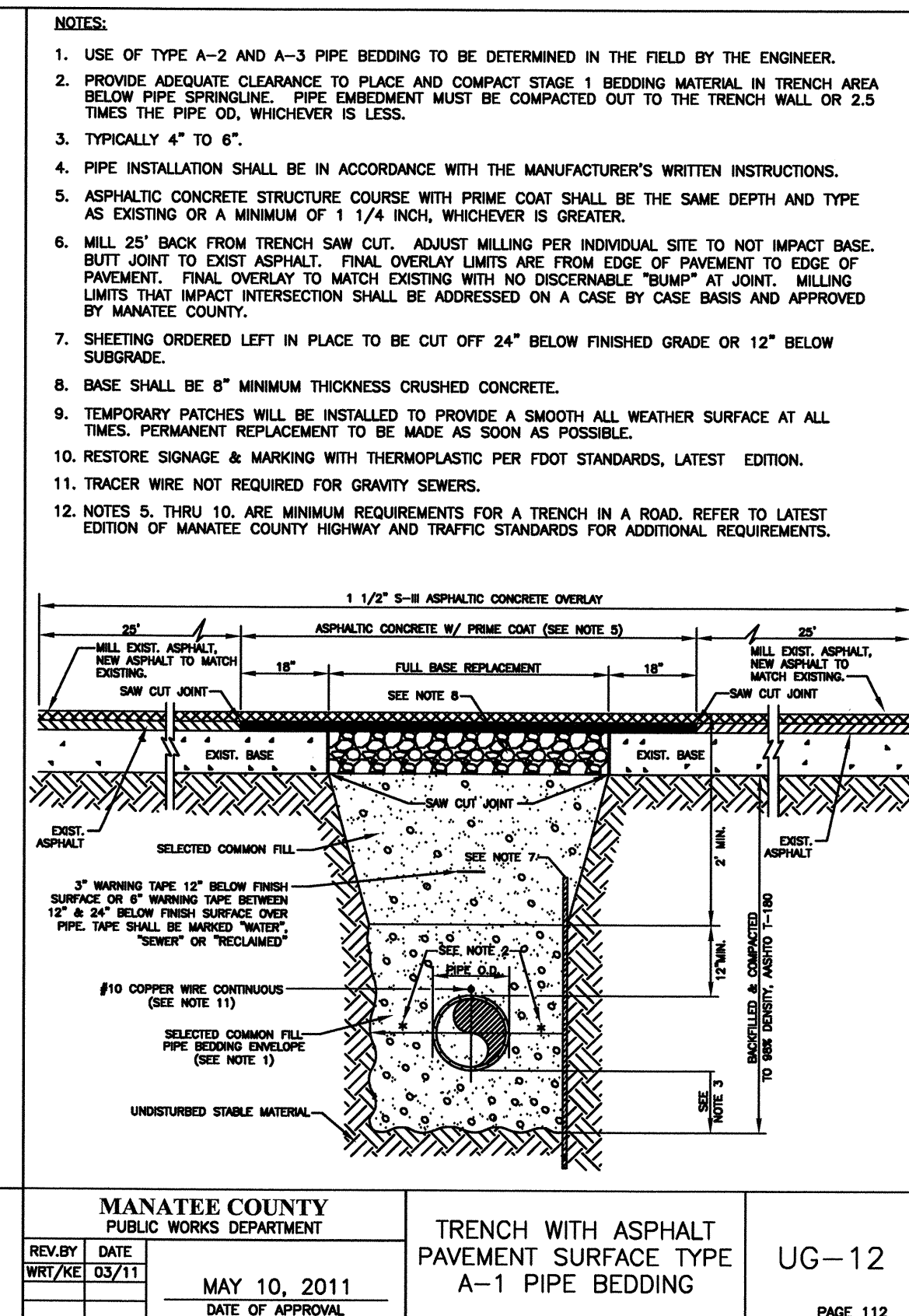
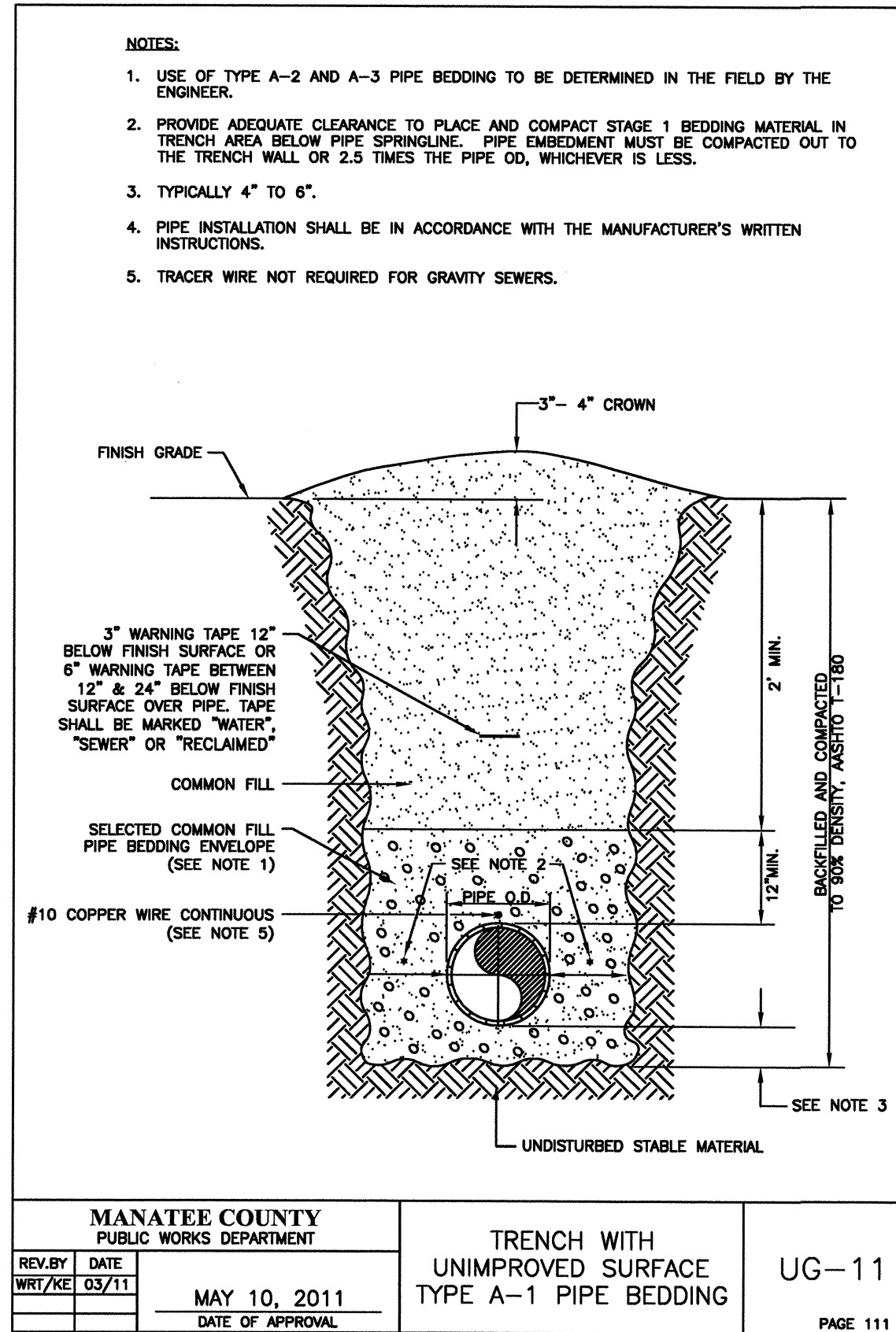
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LB 0002934 AA C000656

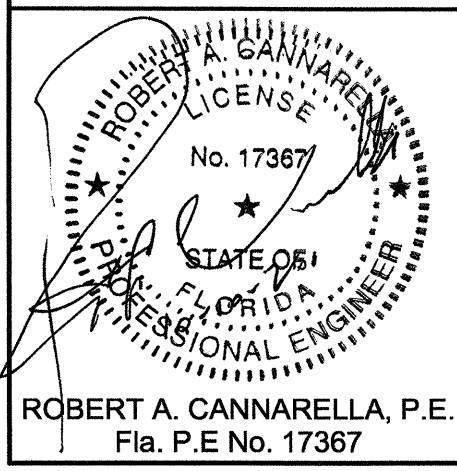
MANATEE COUNTY
SUBURBAN SYSTEM
WATER LINE REPLACEMENT PROJECT
PHASE 2
MANATEE COUNTY, FLORIDA
PROJECT No. 60747.70

DETAILS

SHEET	D2
DWG	D2.DWG
DATE	JULY 2011
PROJ	386879.WM



\\Manatee County Waterline Drawings\Ticover.dwg Plotted: 2/18/2009 0:13 pm By: bk1n1 Model Plot Scale: 1=10 Xref: Dwg's:



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DR	BJK
CHK	RAC
APVD	RAC

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MAY 10, 2011 DATE OF APPROVAL	

METER BOX ASSEMBLY FOR 5/8" X 3/4", 3/4" & 1" METERS	UW-17
PAGE 135	

MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY CLB/RE	DATE 11/10
MAY 10, 2011 DATE OF APPROVAL	

TYPICAL SERVICE CONNECTION	UW-19
PAGE 137	

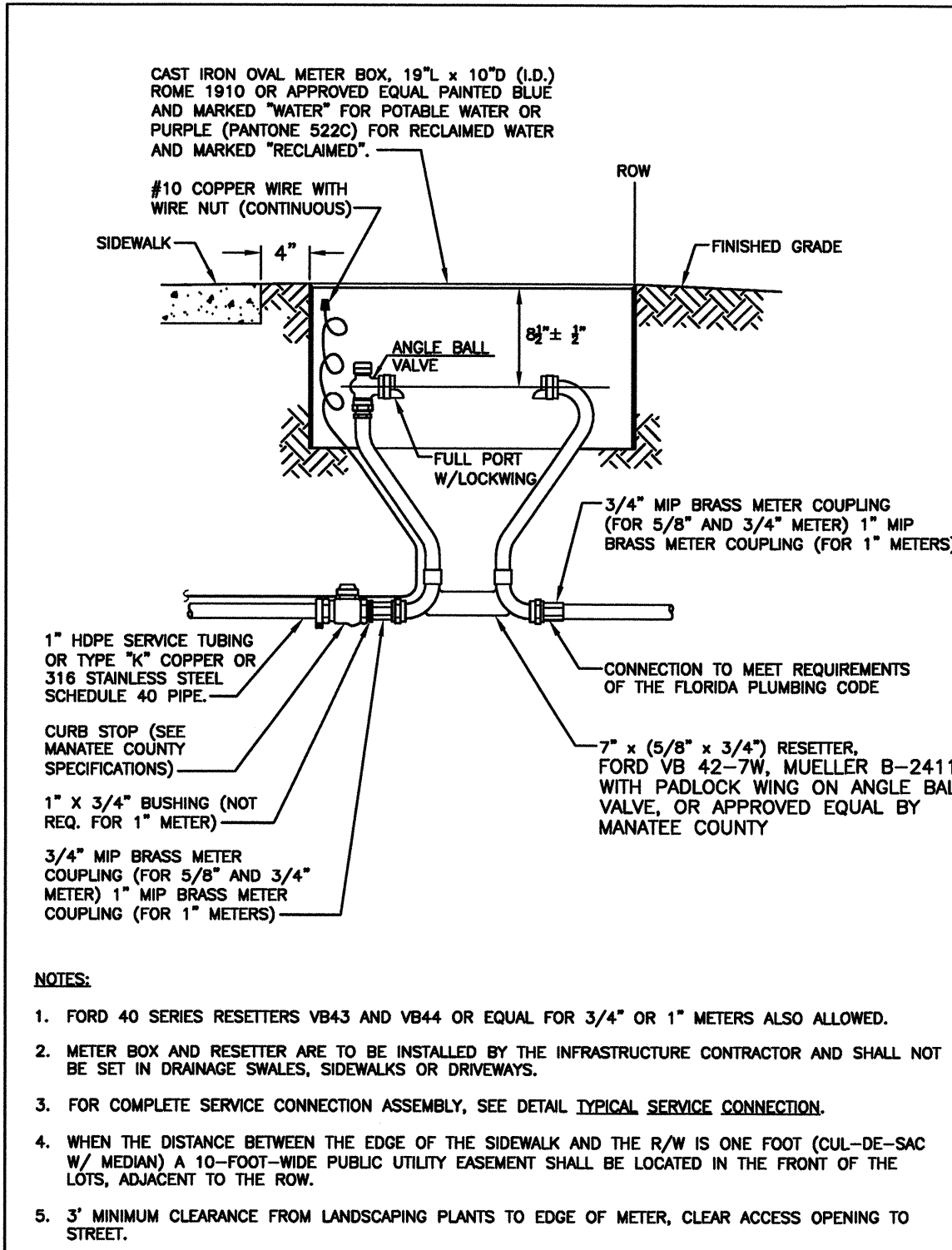
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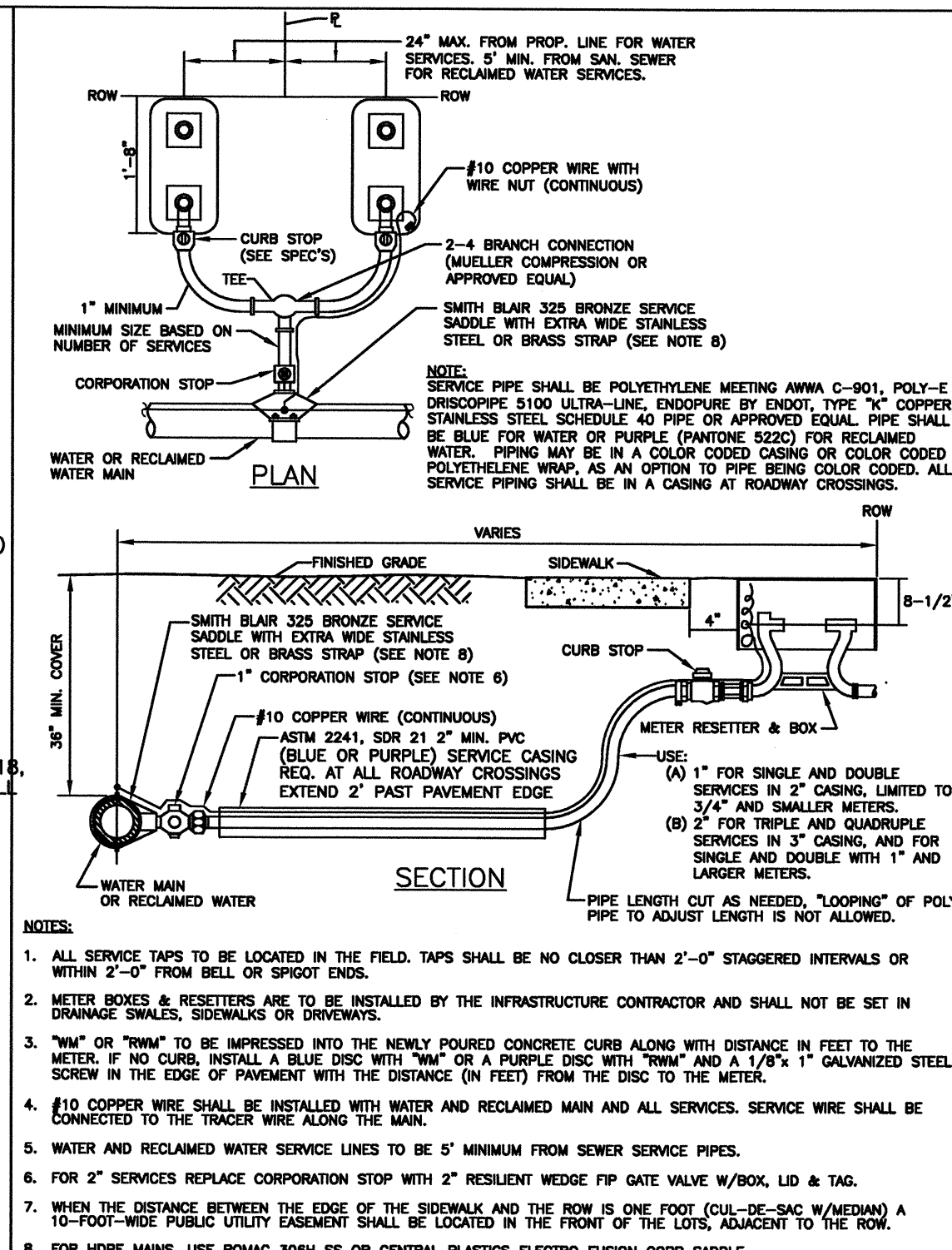
MANATEE COUNTY
SUBURBAN SYSTEM
WATER LINE REPLACEMENT PROJECT
PHASE 2
MANATEE COUNTY, FLORIDA
PROJECT No. 60747.70

DETAILS

SHEET	D3
DWG	D3.DWG
DATE	JULY 2011
PROJ	386879.WM

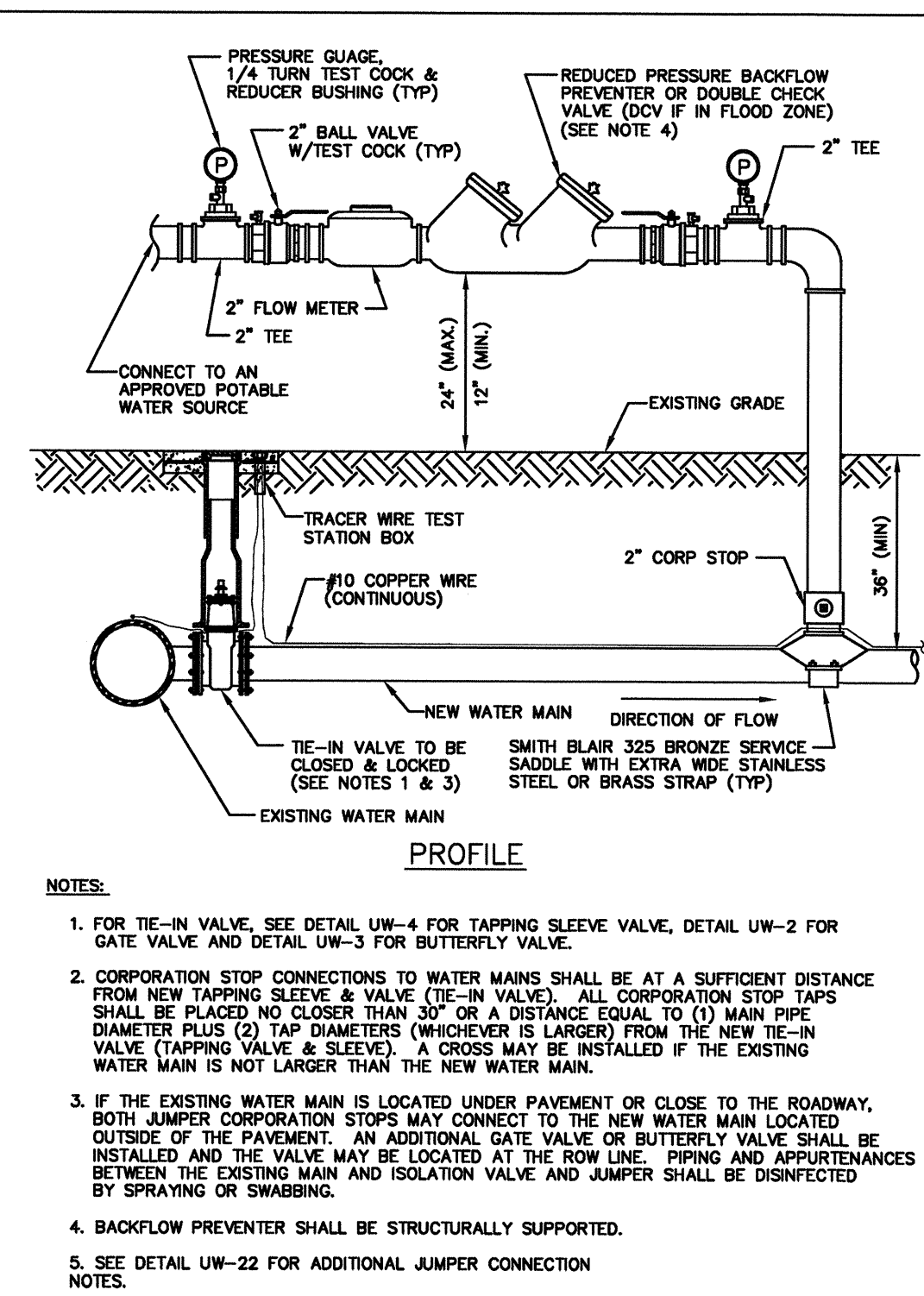


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MAY 10, 2011 DATE OF APPROVAL	



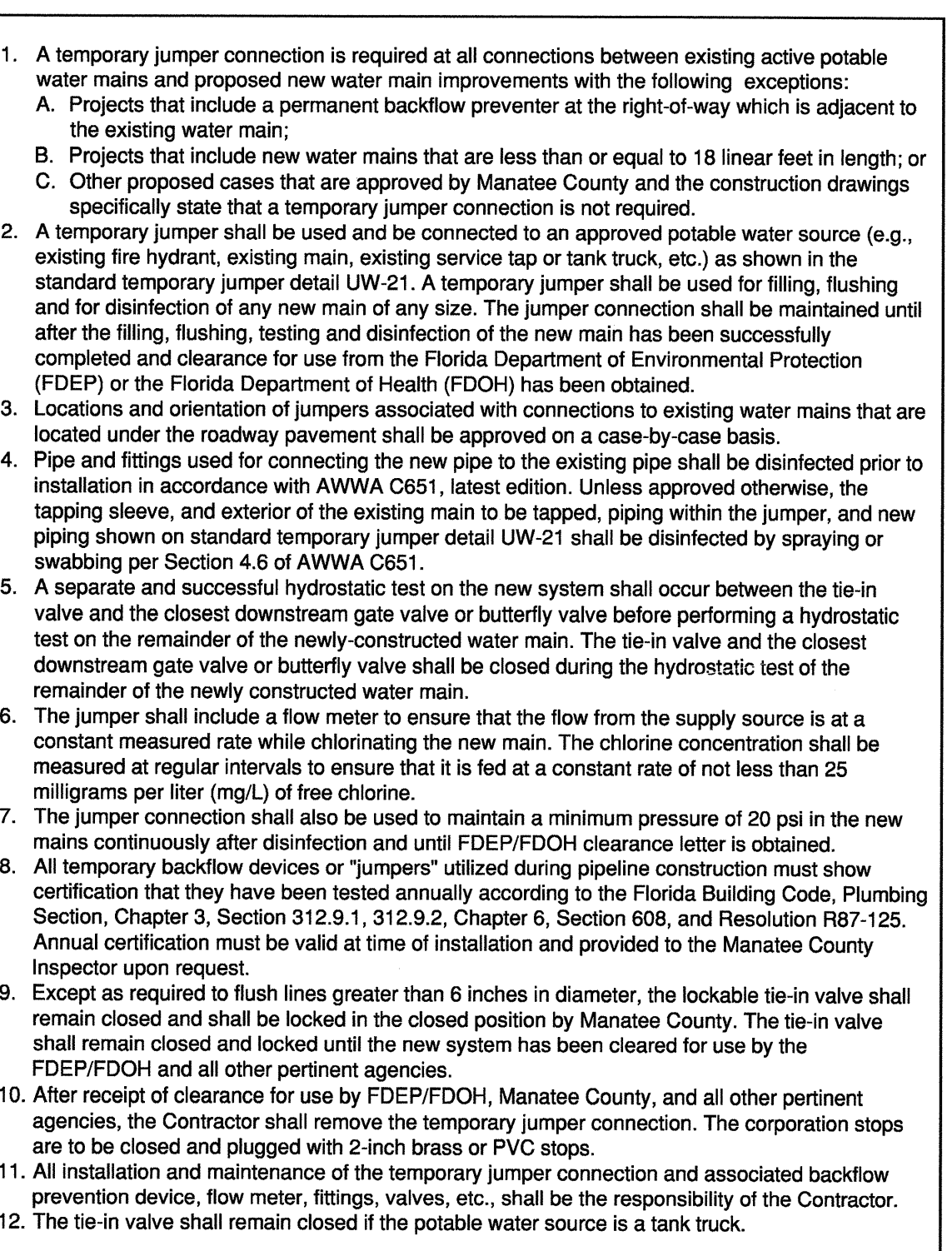
MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY CLB/RE	DATE 11/10
MAY 10, 2011 DATE OF APPROVAL	

TYPICAL SERVICE CONNECTION	UW-19
PAGE 137	



MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY W/KE	DATE 01/11
MAY 10, 2011 DATE OF APPROVAL	

TEMPORARY JUMPER CONNECTION	UW-21
PAGE 139	

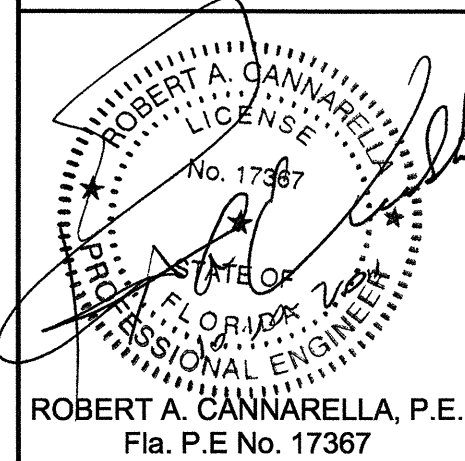
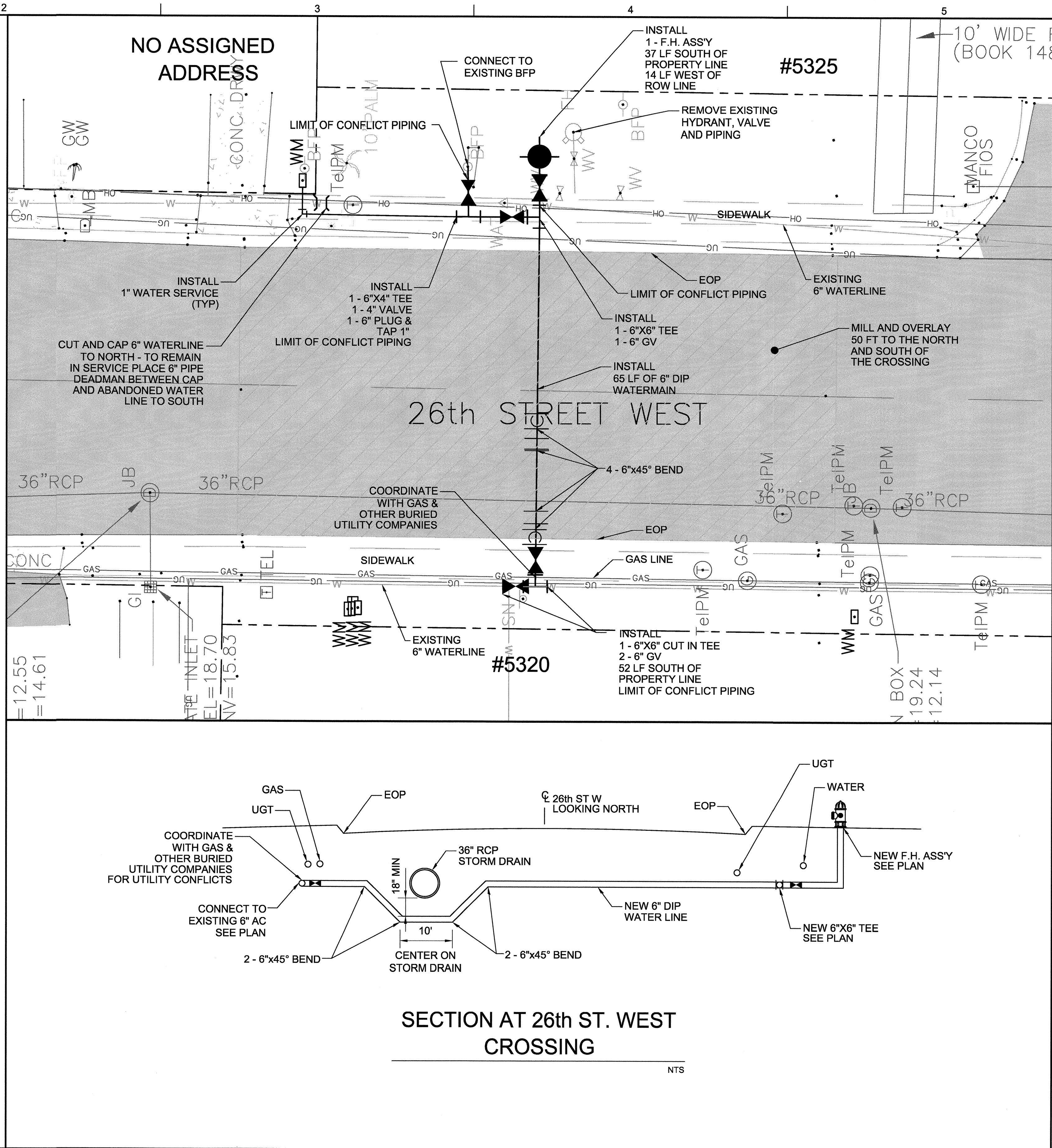


MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY JAA/EA	DATE 02/09
MAY 10, 2011 DATE OF APPROVAL	

TEMPORARY JUMPER CONNECTION NOTES	UW-22
PAGE 140	

W:\Manatee County Waterline\Drawings\Ticover.dwg Plotted 2/18/2009 00:13 pm By bklein1 Model Plot Scale: 1"=10' Xref Dwg's:

- NOTES:
1. THE FOLLOWING NOTES PROVIDE ADDED FOCUSED COMMENT PERTAINING TO THE CONSTRUCTION OF THE NEW 6 INCH WATER LINE AND CONNECTIONS IN THE VICINITY OF 5320 26TH AVE WEST.
 2. WORK PLANNING AND VERIFICATION OF THE LOCATION OF EXISTING UTILITIES IS REQUIRED FOR ALL ELEMENTS OF THIS PROJECT.
 3. SPECIAL COMMENT IS MADE REGARDING THE POSSIBLE NEED TO RELOCATE EXISTING UTILITIES AT THIS CROSSING LOCATION. THE CONTRACTOR SHALL COORDINATE CLOSELY WITH GAS AND OTHER UTILITY COMPANIES IN THE VICINITY OF THE CROSSING PRIOR TO COMMENCING WORK. AS A PART OF THE WORK PLANNING PROCESS FOR THIS AND ALL ELEMENTS OF THE PROJECT. COMPILE FIELD INFORMATION PERTAINING TO THE SPECIFIC LOCATION OF EXISTING UTILITIES THAT MAY REQUIRE RELOCATION IN ORDER TO CONSTRUCT THE WORK AND NOTIFY UTILITY COMPANIES.
 4. CONSTRUCTION OF THE NEW 6 INCH WATER LINE ACROSS 26TH STREET W WILL BE BY OPEN CUT CONSTRUCTION. SCHEDULE CONSTRUCTION TO MAINTAIN NOT LESS THAN ONE ACTIVE 12 FOOT WIDE NORTH BOUND AND ONE ACTIVE 12 FOOT WIDE SOUTH BOUND TRAFFIC LANE. WORK SHALL BE COMPLETED DURING EVENING HOURS BETWEEN 9:00 PM AND 1:00 AM ON SEQUENTIAL NIGHTS. ALL PIPELINE WORK REQUIRING LANE CLOSURE SHALL BE COMPLETED WITHIN A TOTAL OF THREE SEQUENTIAL NIGHTS.
 5. THE CONTRACTOR SHALL PREPARE, FOR REVIEW AND APPROVAL BY THE COUNTY, A TRAFFIC CONTROL PLAN, BASED UPON FDOT INDEX DRAWING REQUIREMENTS, FOR THE WORK APPROACH PLANNED FOR THIS WORK ELEMENT.
 6. THE 6 INCH PIPE, FITTINGS, VALVES AND APPURTENANCES SHOWN ARE TO BE PAID FOR AS A LUMP SUMP CONFLICT PIPING BID ITEM. THE DETAIL SHOWS THE LIMITS OF THIS CONFLICT PIPING BID ITEM. NEW CONSTRUCTION ITEMS OUTSIDE THE LIMITS OF THE CONFLICT PIPING SHOWN SHALL BE PAID FOR UNDER BID ITEMS FOR FIRE HYDRANT INSTALLATION AND LONG SIDE WATER SERVICE INSTALLATION.



DSGN	BJK		
DR	BJK		
CHK	RAC		
APVD	RAC		

BID DOCUMENTS

NO. DATE

REVISION

BY

APVD

VERIFY SCALE
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MANATEE COUNTY
SUBURBAN SYSTEM
WATER LINE REPLACEMENT PROJECT
PHASE 2
MANATEE COUNTY, FLORIDA
PROJECT No. 60747.70

CONFLICT PIPING
DETAIL A - CROSSING AT 26th ST WEST

SHEET	D4
DWG	DETAILS4.DWG
DATE	JULY 2011
PROJ	386879.WM