

CONTRACT DRAWINGS

# 44TH AVENUE EAST FROM 19TH STREET COURT EAST TO 30TH STREET EAST



## FOR MANATEE COUNTY, FLORIDA COUNTY PROJECT NUMBER: 6045660 POTABLE WATER MAIN PLANS

**RELATED STANDARDS AND SPECIFICATIONS**

DESCRIPTION

- A. FDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (2014).
- B. MANUAL OF UNIFORM MINIMUM STANDARDS FOR DESIGN, CONSTRUCTION, AND MAINTENANCE FOR STREETS AND HIGHWAYS, FLORIDA DEPARTMENT OF TRANSPORTATION, (FLORIDA GREEN BOOK), (2011).
- C. FDOT DESIGN STANDARDS FOR DESIGN, CONSTRUCTION, MAINTENANCE AND UTILITY OPERATIONS ON THE STATE HIGHWAY SYSTEM, (JANUARY 2014).
- D. AASHTO, GUIDE FOR PLANNING, DESIGN, AND OPERATION OF PEDESTRIAN FACILITIES, (2004).
- E. FHWA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, (MUTCD), (2009).
- F. CHAPTER 14-96 AND 14-97, FLORIDA ADMINISTRATIVE CODE RULE FOR FDOT CONNECTION PERMIT.
- G. SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT ENVIRONMENTAL RESOURCE PERMITTING (ERP) INFORMATION MANUAL, LATEST EDITION
- H. MANATEE COUNTY HIGHWAY, TRAFFIC AND STORM WATER STANDARDS, (2007).

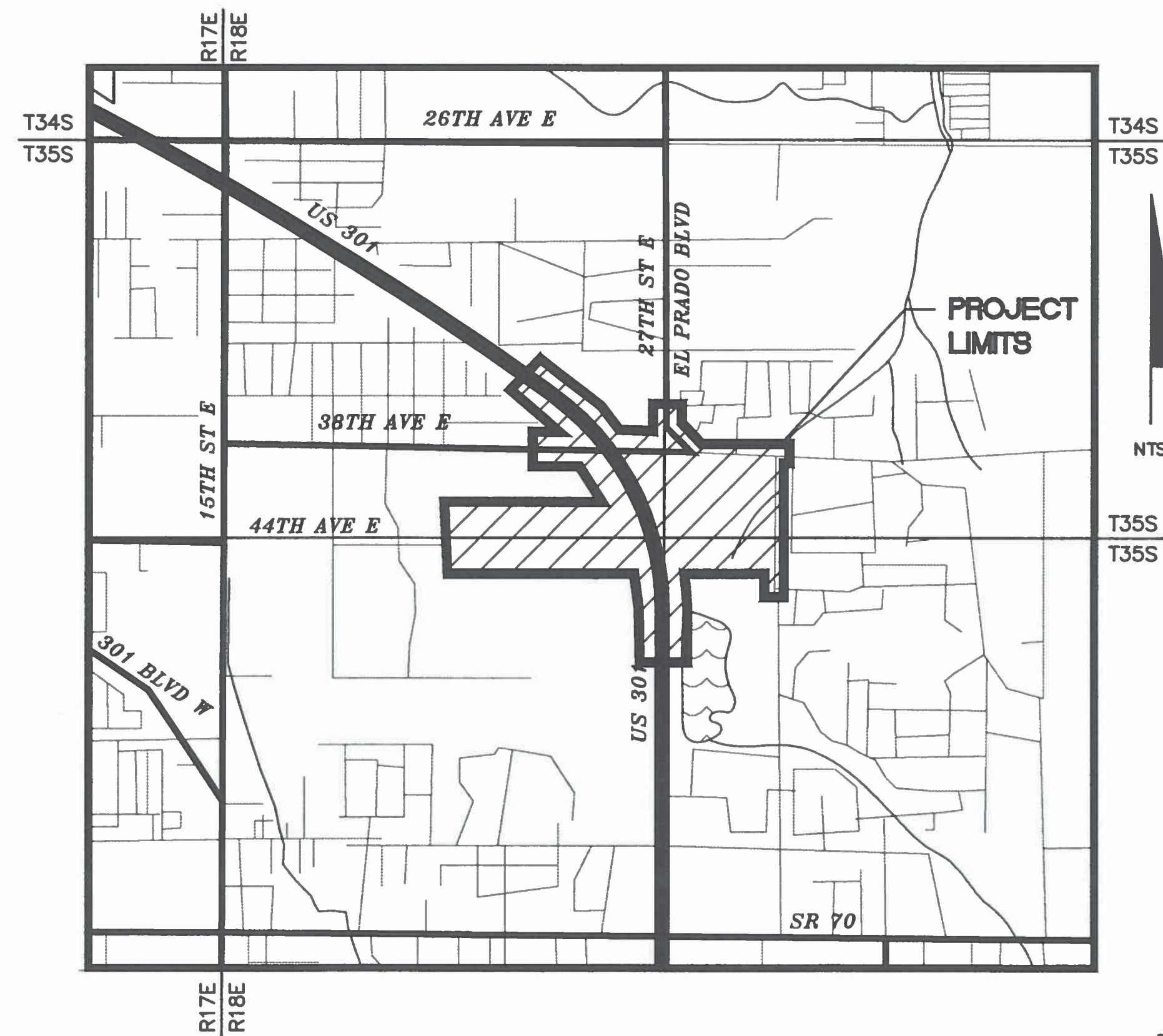
ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS MAY HAVE BEEN REDUCED IN SIZE BY REPRODUCTION. THIS MUST BE CONSIDERED WHEN OBTAINING SCALED DATA.

**UTILITY WARNING NOTE**

ABOVE GROUND AND / OR UNDERGROUND UTILITIES MAY BE IN THE AREA OF THIS PROJECT - PROCEED WITH CAUTION - THE CONTRACTOR SHALL CALL SUNSHINE STATE "ONE CALL" AT 1-800-432-4770 AND THE UTILITY OWNERS IN ADVANCE OF BEGINNING WORK, IN ACCORDANCE WITH CHAPTER 556, FLORIDA STATUTES.

SUMMARY OF REVISIONS	
DATE	DESCRIPTION

For Design Standards Modifications click on "Design Standards" at the following web site:  
<http://www.dot.state.fl.us/rddesign/>



**COMPONENTS OF CONTRACT PLANS SET**

- ROADWAY PLANS
- SIGNALIZATION PLANS
- LIGHTING PLANS
- POTABLE WATER MAIN PLANS

**INDEX OF PLANS**

SHEET NO	SHEET DESCRIPTION
C-1	COVER SHEET
W-1 - W-9	PLAN AND PROFILE
W-10	GENERAL NOTES
W-11 - W-16	DETAILS

PLANS PREPARED BY:

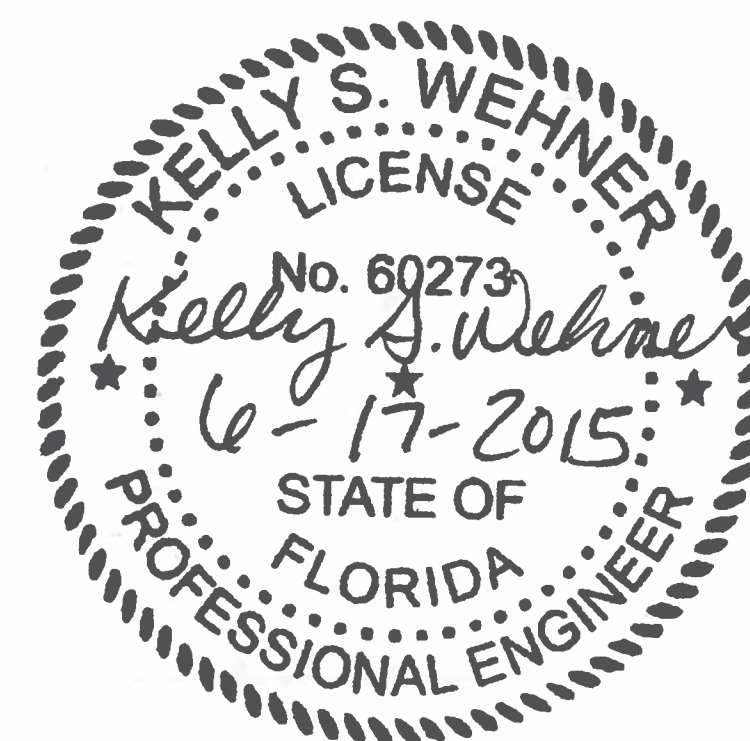


380 PARK PLACE BLVD, STE 300, CLEARWATER, FL 33769  
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ENGINEER OF RECORD

KELLY S. WEHNER, PE

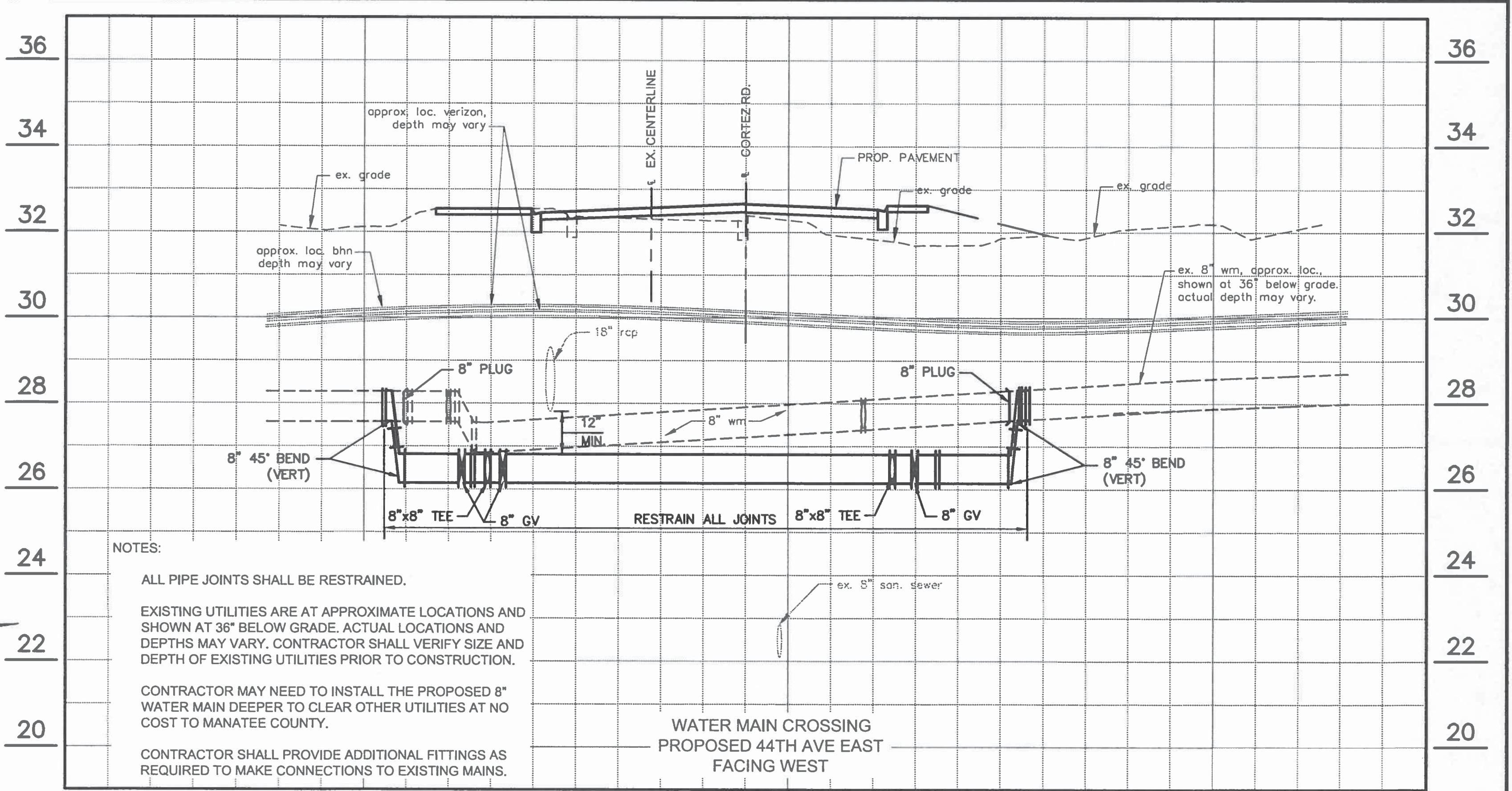
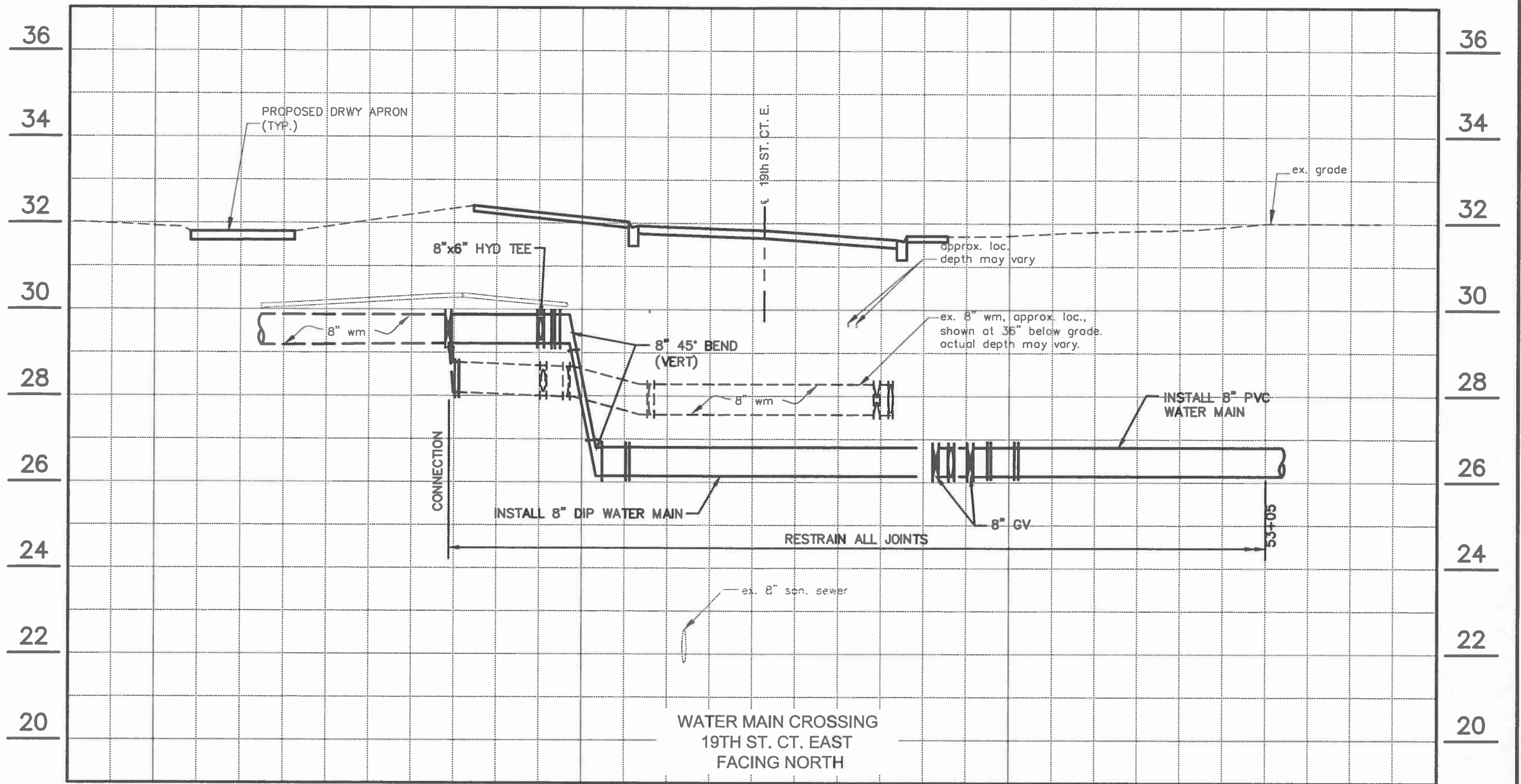
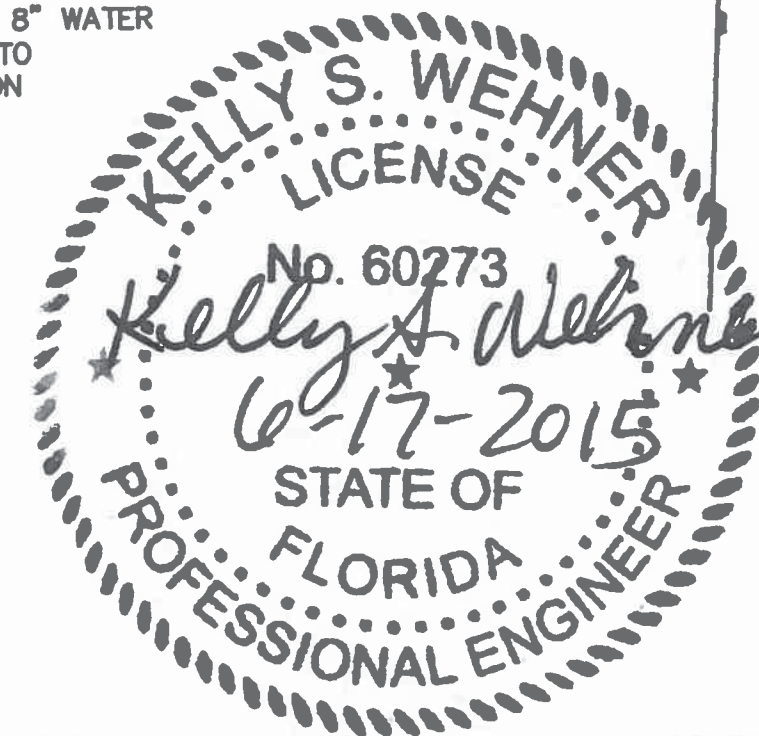
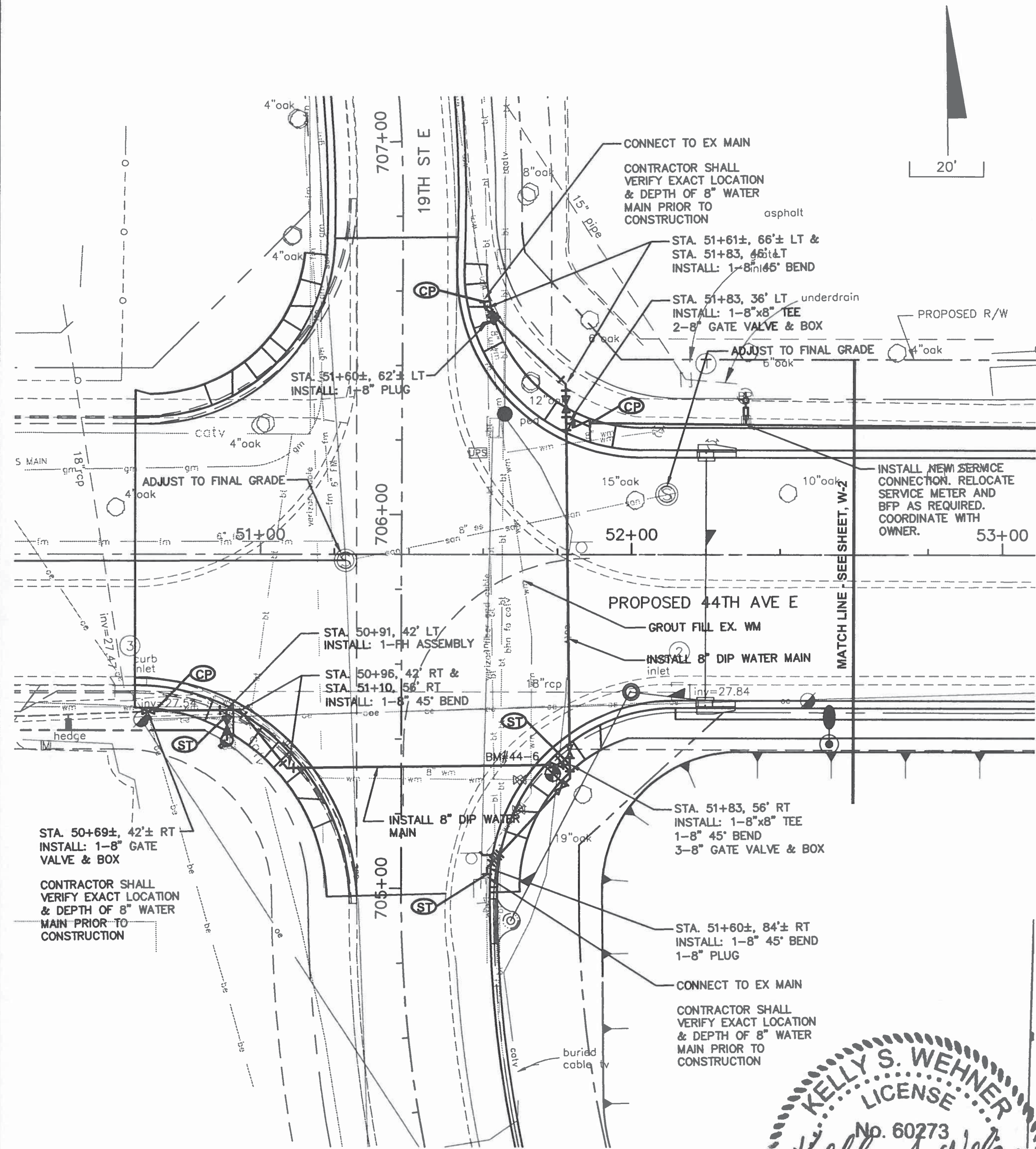
FL. LICENSE NO 60273



48 HOURS BEFORE DIGGING  
"CALL SUNSHINE"  
1-800-432-4770

DATE: JUNE 2015
SCALE: HORIZ: N/A VERT: N/A
SHEET: C-1

- LEGEND**
- CP** CHLORINE INJECTION & SAMPLE POINT
  - ST** SAMPLE TAP



- NOTES:**
- ALL PIPE JOINTS SHALL BE RESTRAINED.
  - EXISTING UTILITIES ARE AT APPROXIMATE LOCATIONS AND SHOWN AT 36\"/>

NO.	DESCRIPTION	BY	DATE

**MANATEE COUNTY**

**44TH AVENUE EAST ROADWAY EXTENSION**

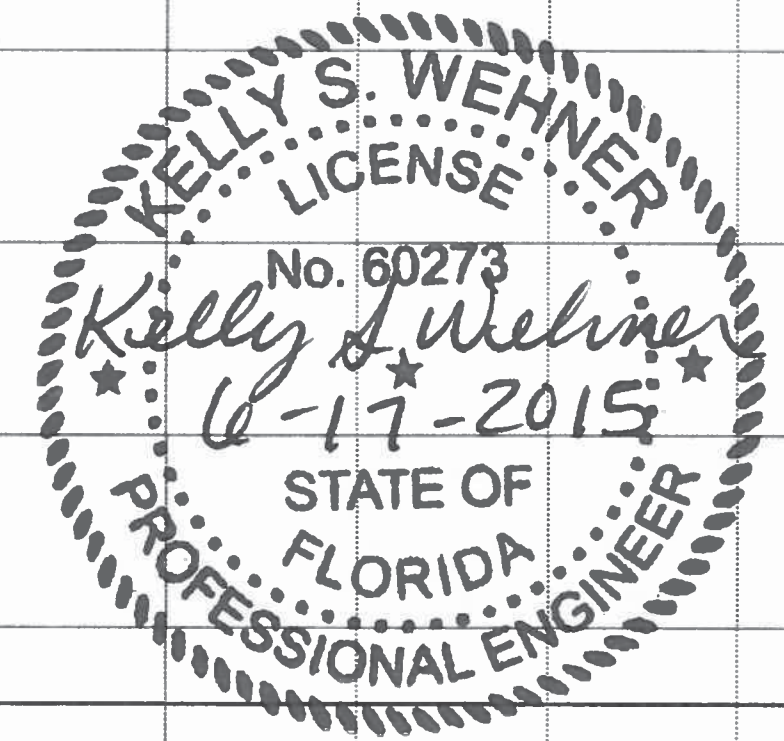
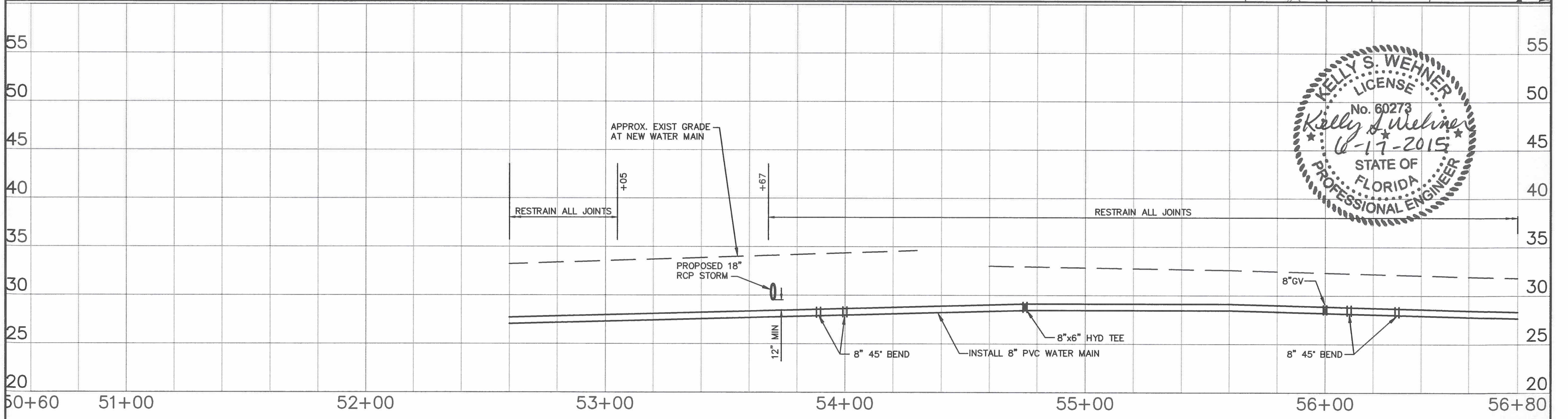
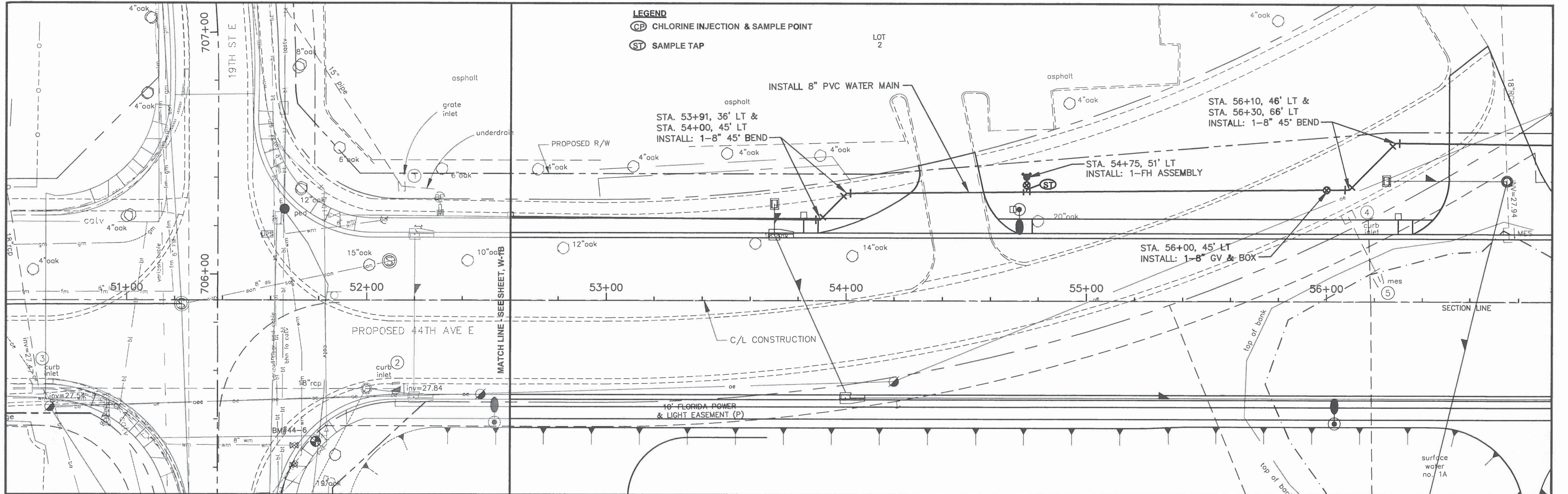
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KELLY S. WEHNER, PE DATE  
LIC. NO.: 60273

DESIGNED: DRM  
DRAWN: DES  
Q.C.: KSW  
APPROVED:

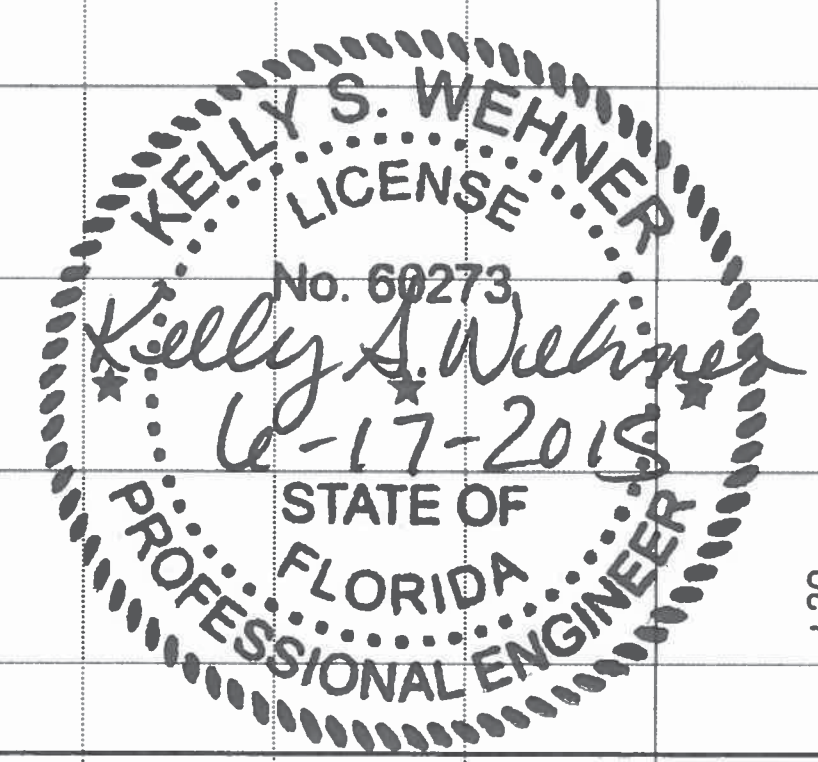
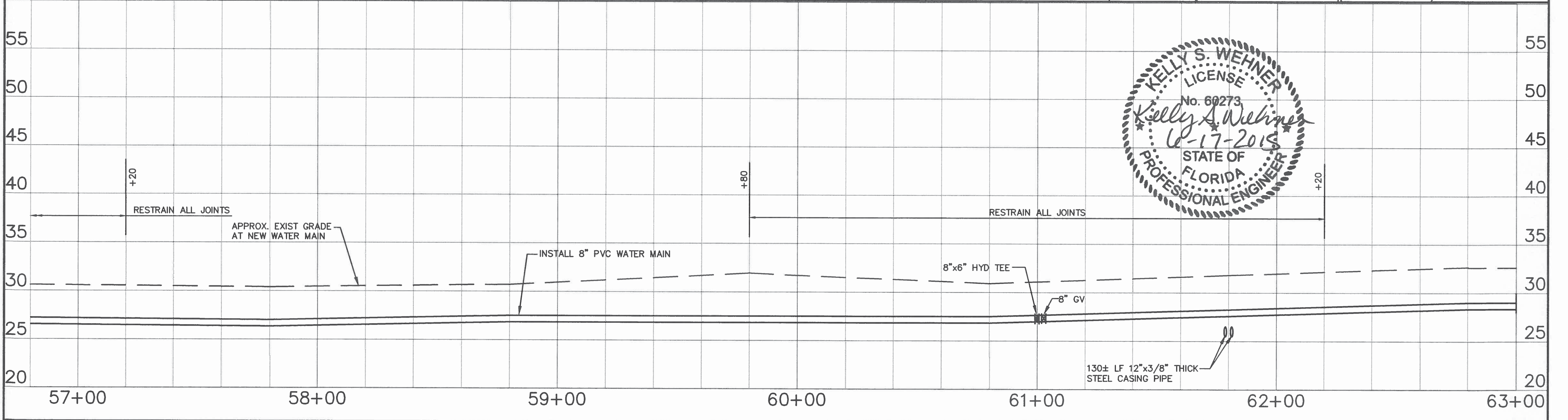
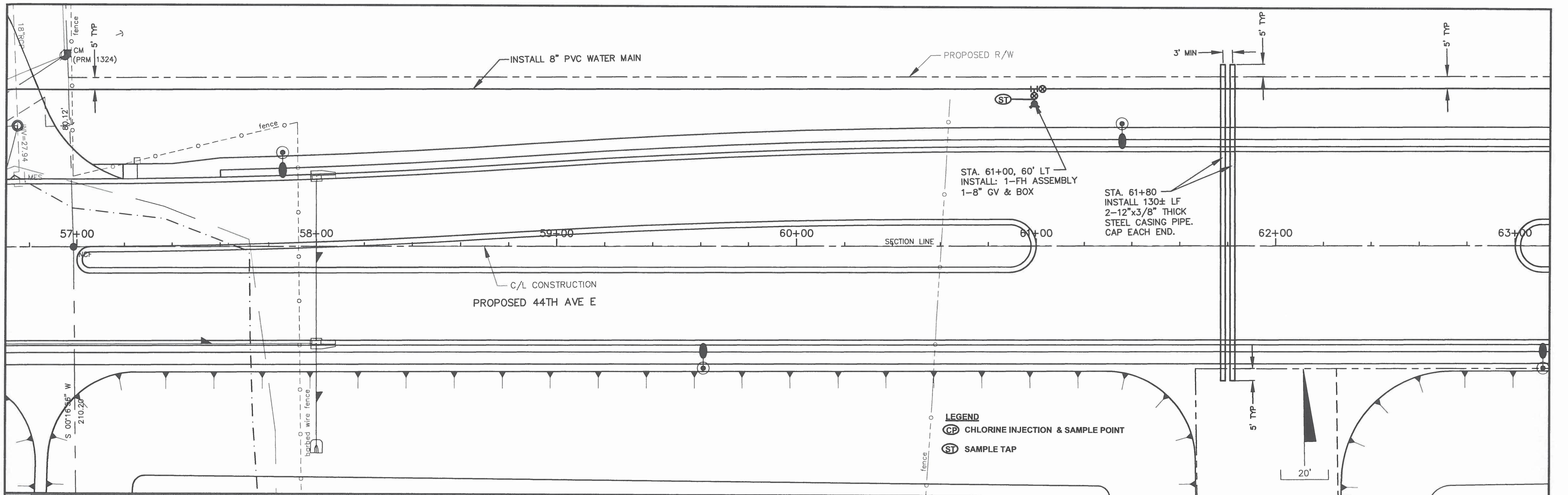
**WATER PLAN & PROFILE  
44TH AVENUE EAST**

PROJECT NO: 00193-001-18  
DATE: JUNE 2015  
SHEET NO: W-1



MANATEE COUNTY		44TH AVENUE EAST ROADWAY EXTENSION				DESIGNED: DRM DRAWN: DES Q.C.: KSW APPROVED:		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-2	
NO.	DESCRIPTION	BY	DATE	KELLY S. WEHNER, PE LIC. NO.: 60273		DATE			

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NO.	DESCRIPTION	BY	DATE

**MANATEE COUNTY**

**44TH AVENUE EAST  
ROADWAY EXTENSION**

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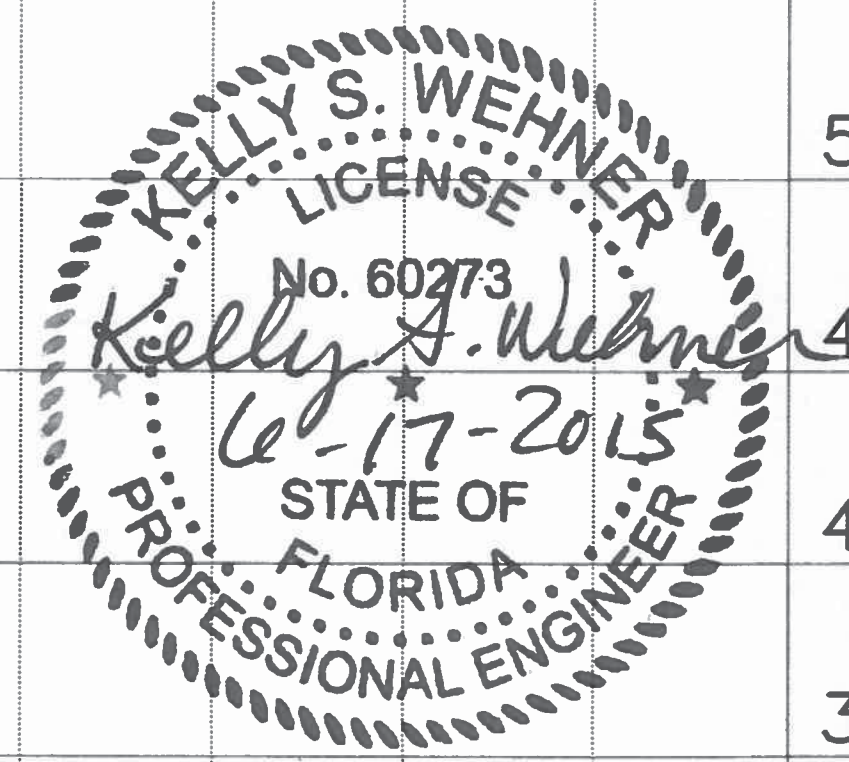
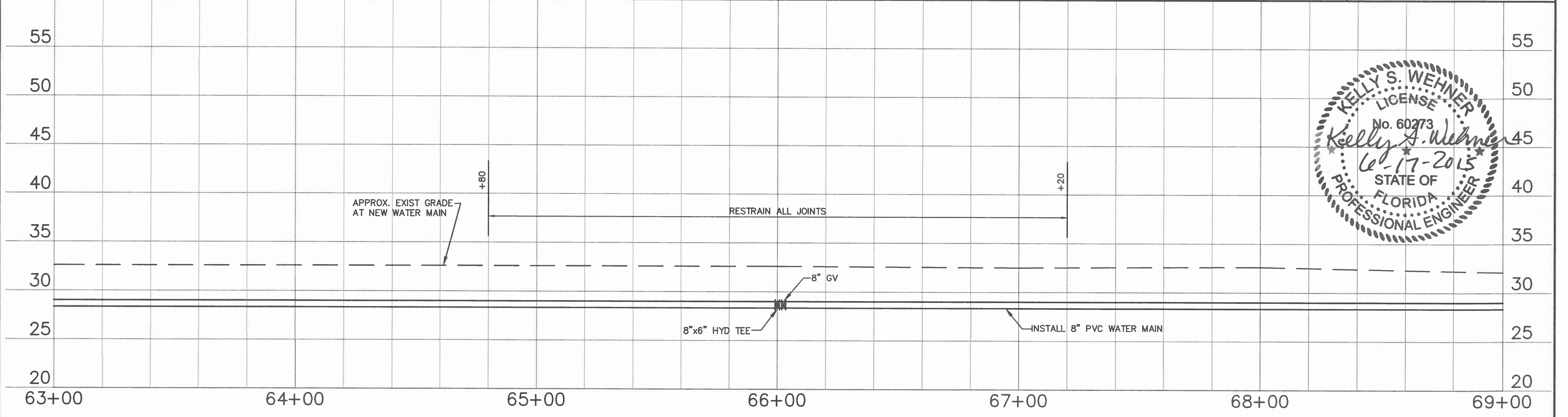
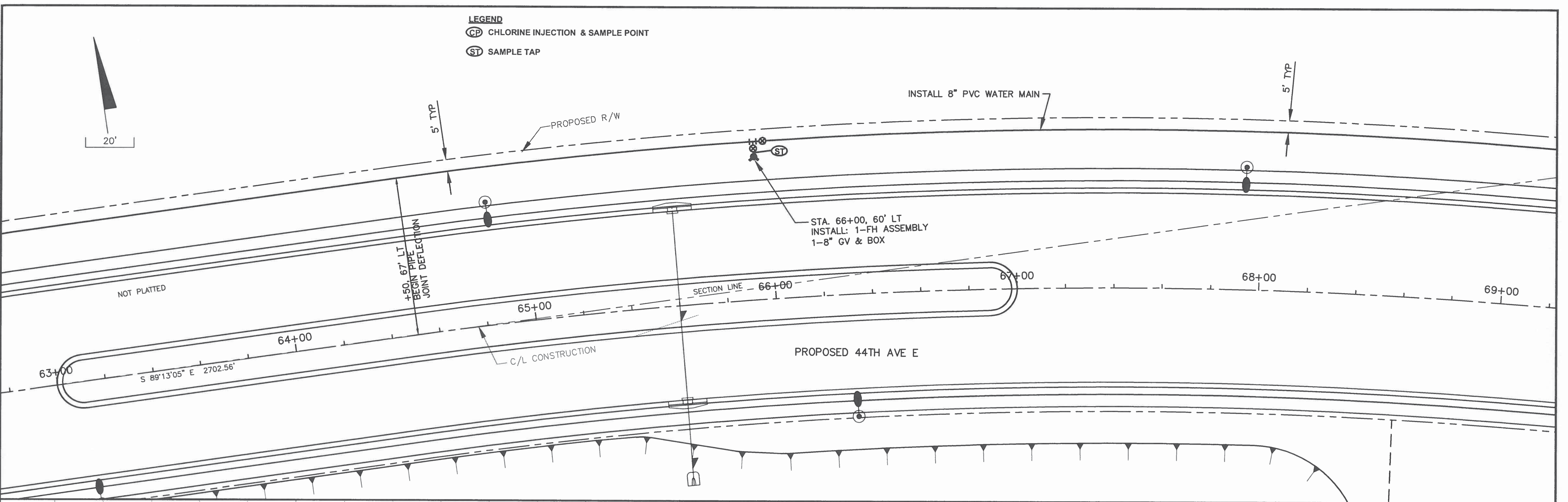
KELLY S. WEHNER, PE DATE  
LIC. NO.: 60273

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DRAWN: DES  
Q.C.: KSW  
APPROVED:

**WATER PLAN & PROFILE  
44TH AVENUE EAST**

PROJECT NO:  
00193-001-18  
DATE:  
JUNE 2015  
SHEET NO:  
W-3

**LEGEND**  
 (CP) CHLORINE INJECTION & SAMPLE POINT  
 (ST) SAMPLE TAP



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**MANATEE COUNTY**

**44TH AVENUE EAST  
ROADWAY EXTENSION**

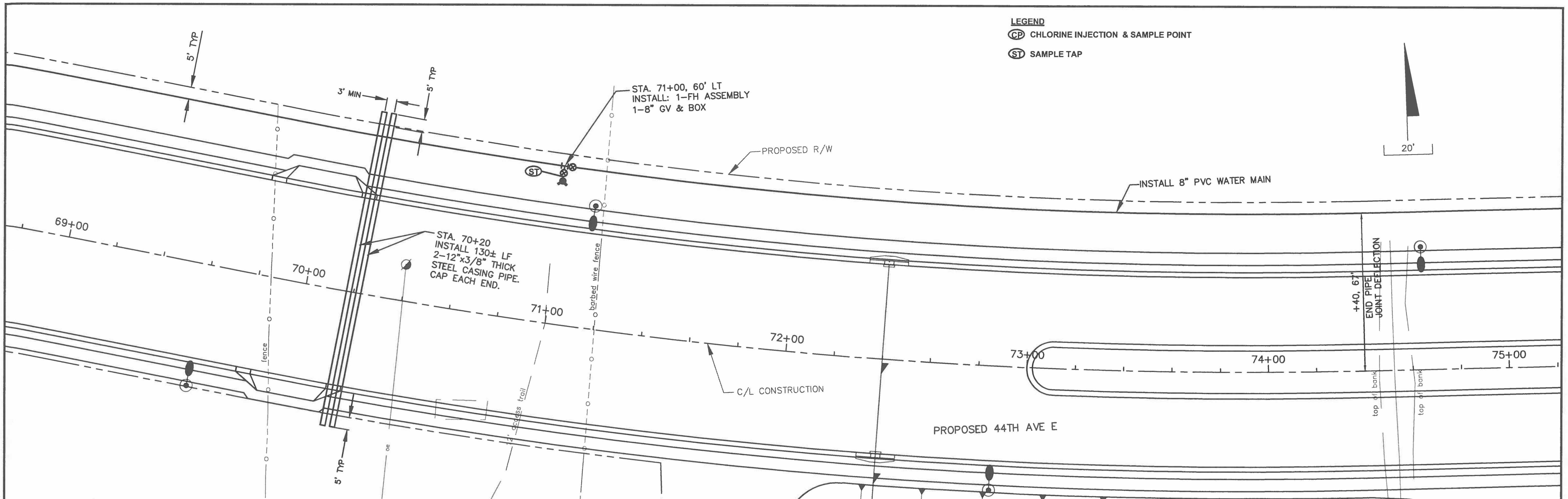
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 DRAWN: DES  
 Q.C.: KSW  
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 KELLY S. WEHNER, PE DATE: 6/17/15  
 LIC. NO.: 60273

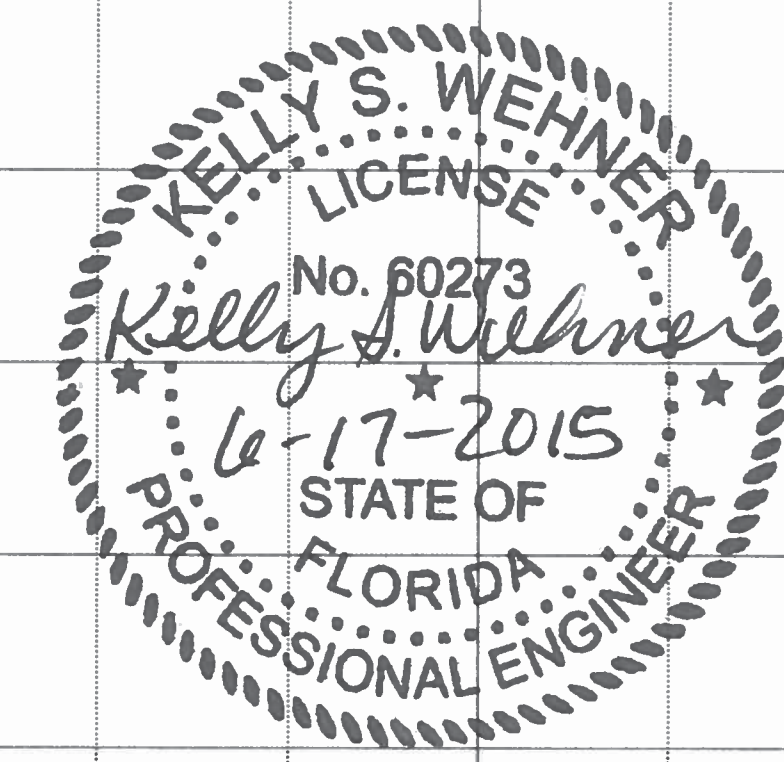
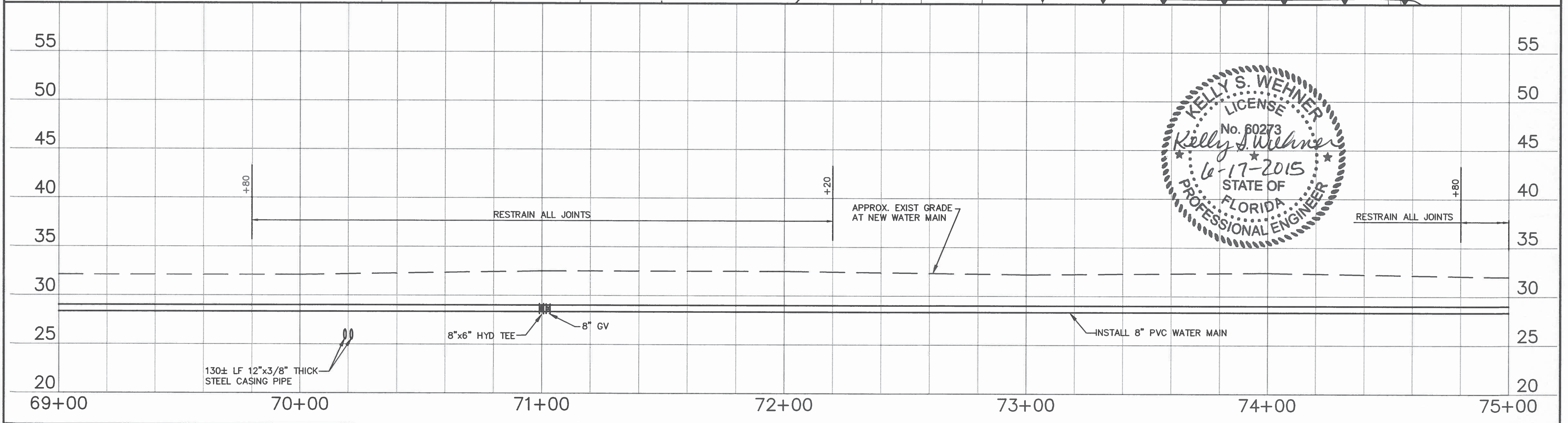
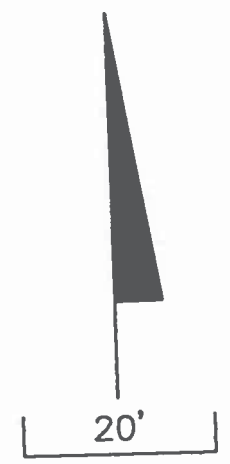
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44TH AVENUE EAST**

PROJECT NO: 00193-001-18  
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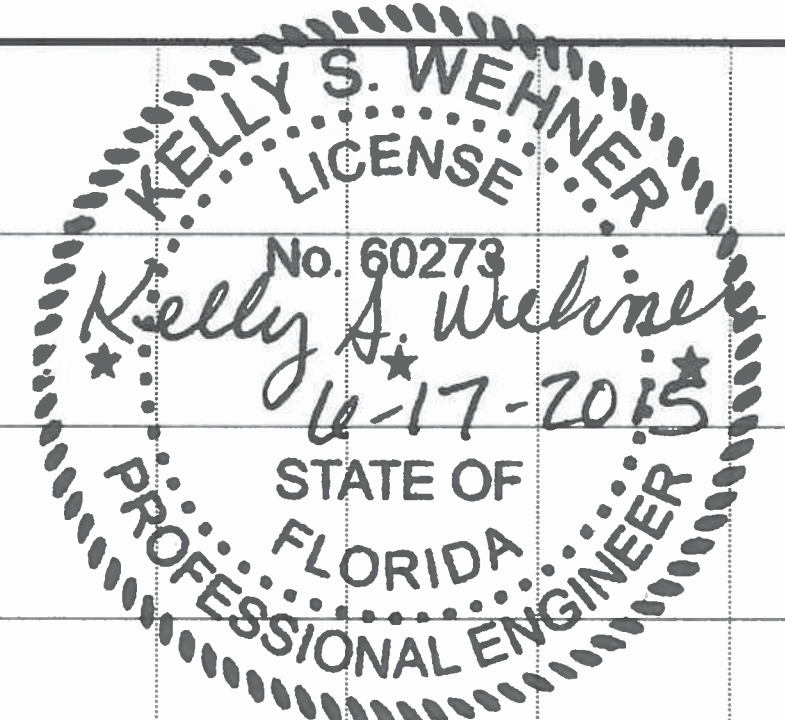
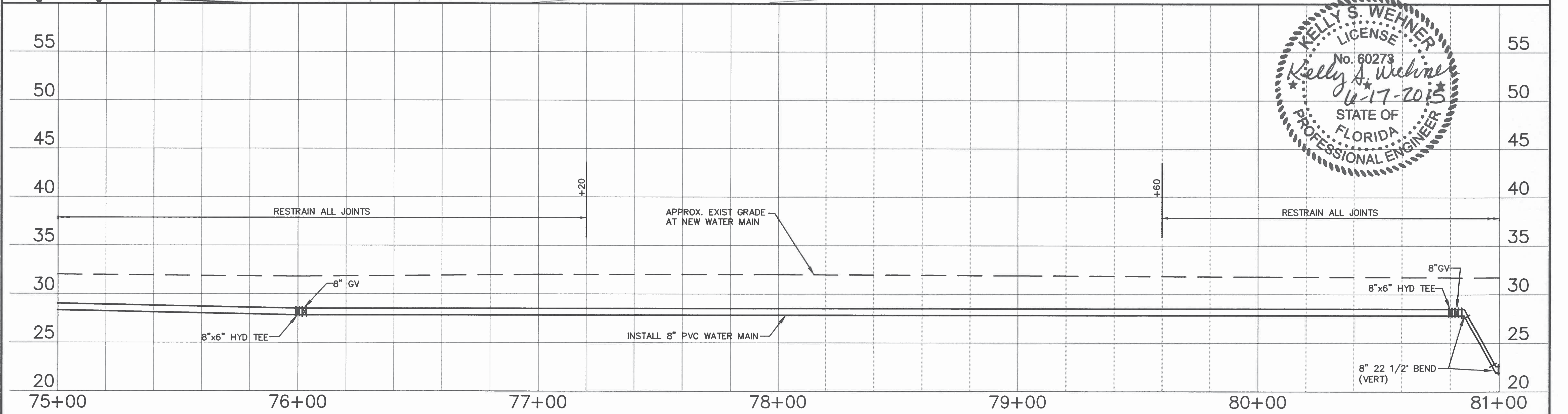
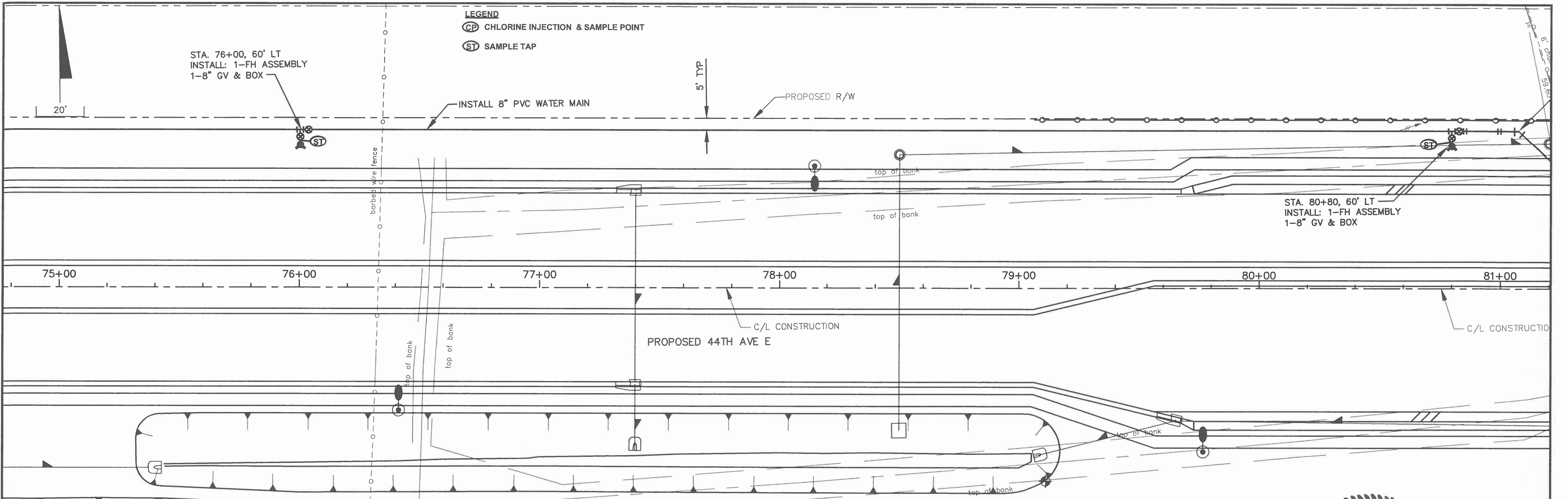


**LEGEND**  
 (CP) CHLORINE INJECTION & SAMPLE POINT  
 (ST) SAMPLE TAP



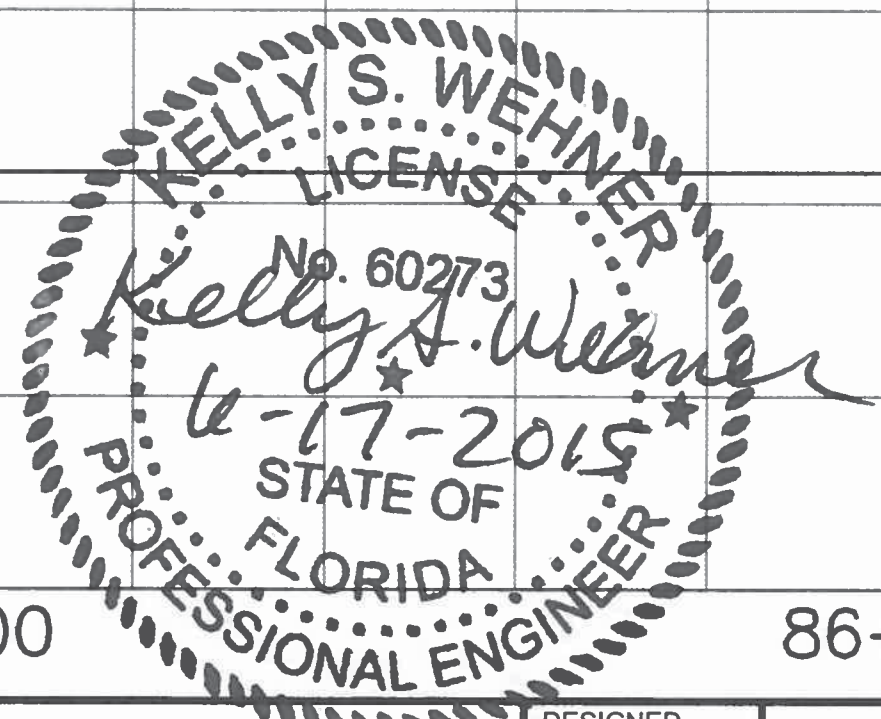
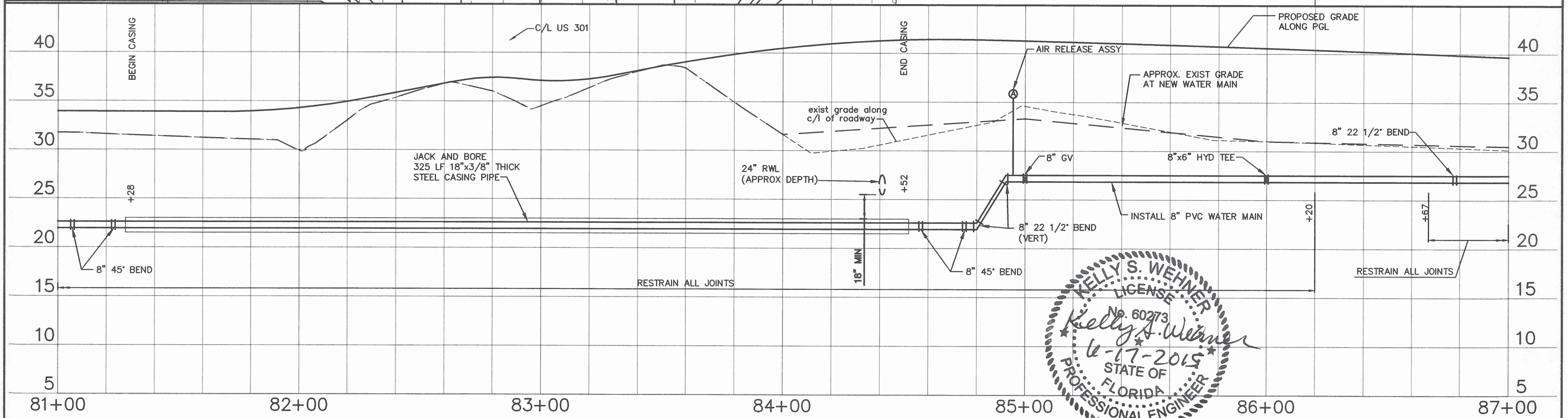
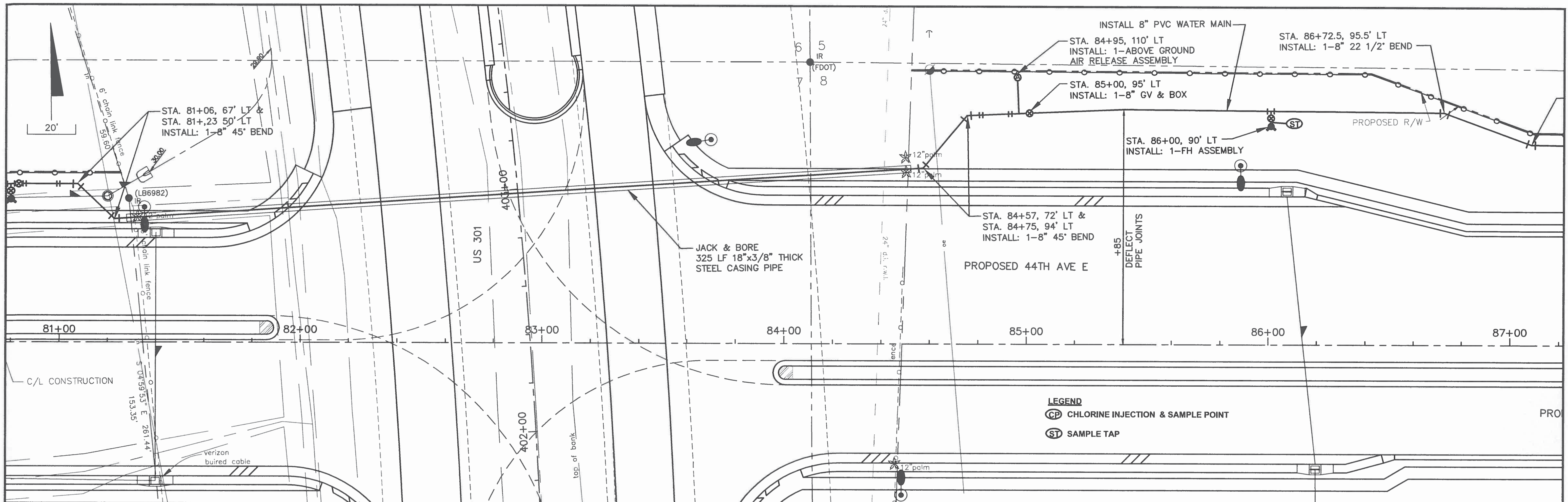
MANATEE COUNTY		44TH AVENUE EAST ROADWAY EXTENSION				DESIGNED: DRM DRAWN: DES Q.C.: KSW APPROVED:		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-5	
NO.	DESCRIPTION	BY	DATE	380 PARK PLACE BLVD, STE 300, CLEARWATER, FL 33759 TEL: (727) 531-3505 (800) 861-8314 www.cardno.com Certificate of Authorization No. 29915		KELLY S. WEHNER, PE DATE LIC. NO.: 60273			

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	<b>MANATEE COUNTY</b>	<b>44TH AVENUE EAST ROADWAY EXTENSION</b>	 <b>Cardno</b> Shaping the Future <small>380 PARK PLACE BLVD, STE 300, CLEARWATER, FL 33759          TEL: (727) 531-3505 (800) 861-8314          www.cardno.com Certificate of Authorization No. 29915</small>	DESIGNED _____ DRAWN _____ Q.C. _____ KSW APPROVED _____	<b>WATER PLAN &amp; PROFILE 44TH AVENUE EAST</b>	PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-6
NO.	DESCRIPTION	BY	DATE			

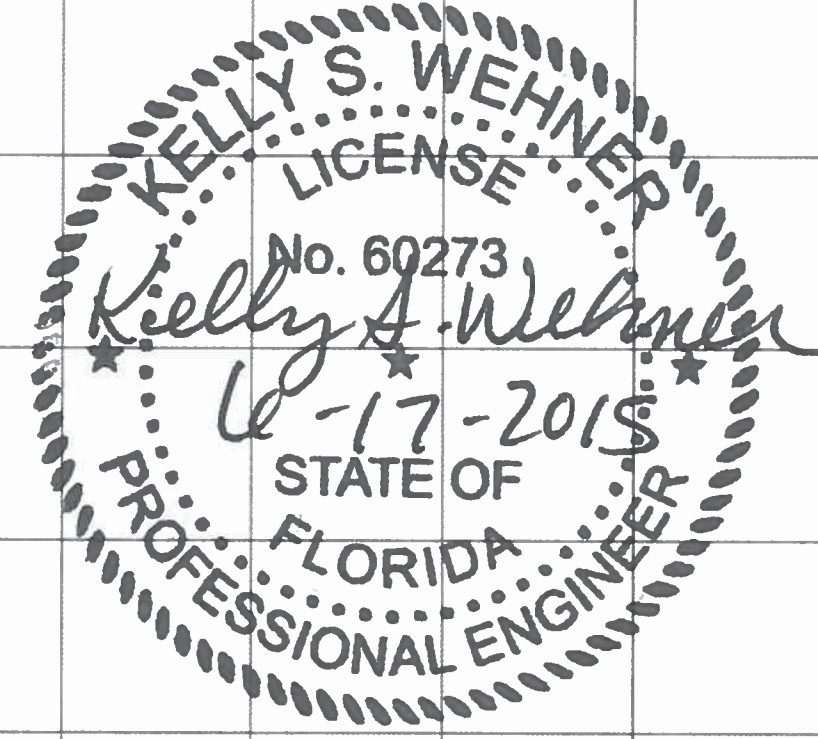
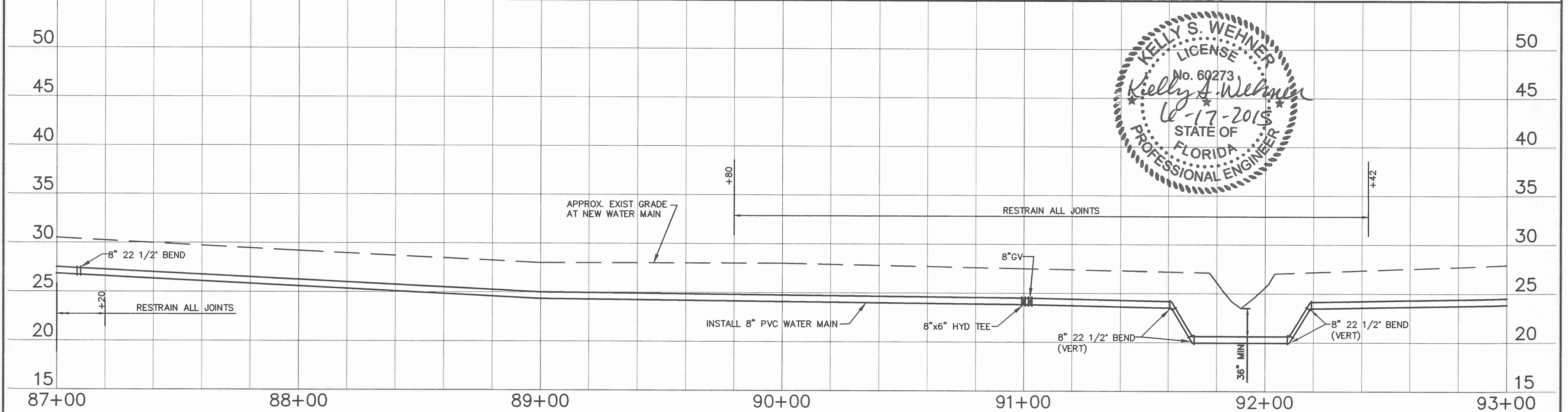
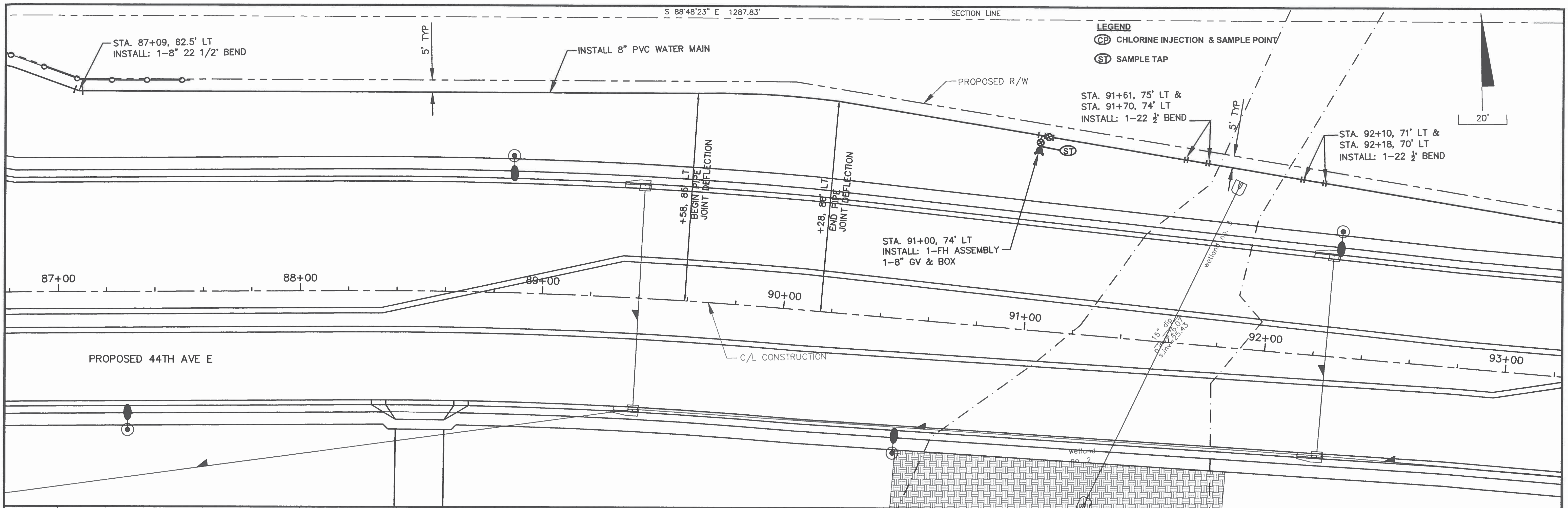
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NO.	DESCRIPTION	BY	DATE	KELLY S. WEHNER, PE LIC. NO.: 60273		DATE					

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NO.	DESCRIPTION	BY	DATE

**MANATEE COUNTY**

**44TH AVENUE EAST  
ROADWAY EXTENSION**

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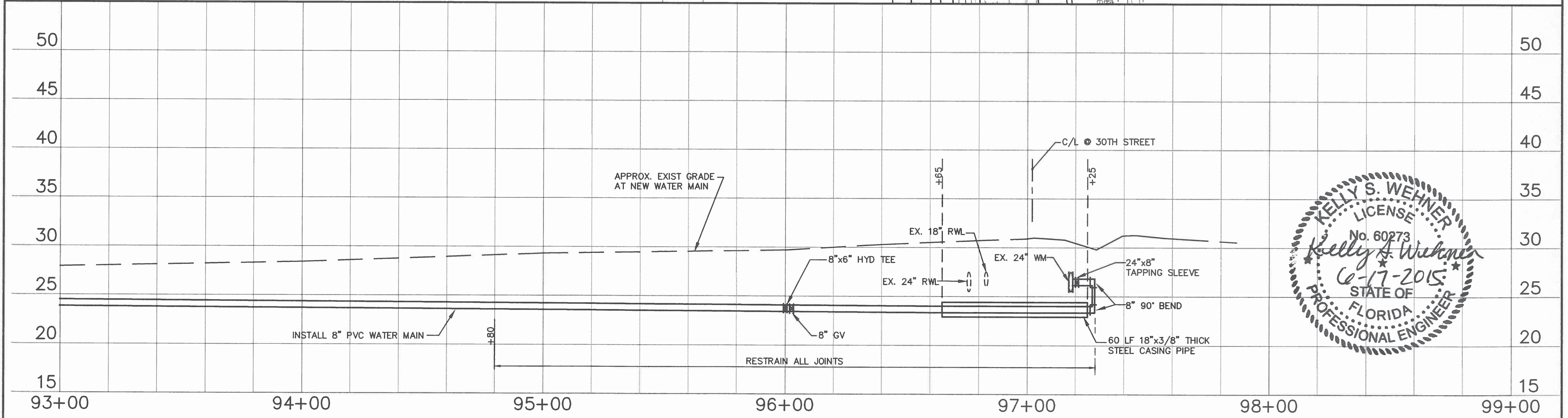
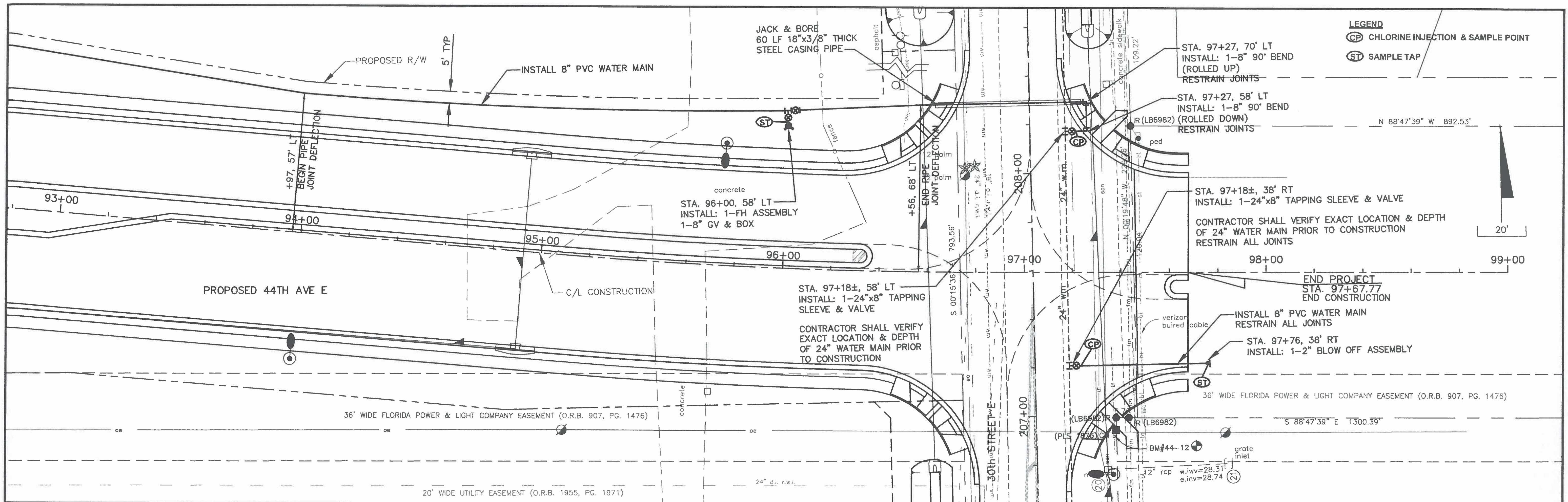
KELLY S. WEHNER, PE  
LIC. NO.: 60273

DESIGNED: DRM  
DRAWN: DES  
Q.C.: KSW  
APPROVED:

**WATER PLAN & PROFILE  
44TH AVENUE EAST**

PROJECT NO:  
00193-001-18  
DATE:  
JUNE 2015  
SHEET NO:  
W-8

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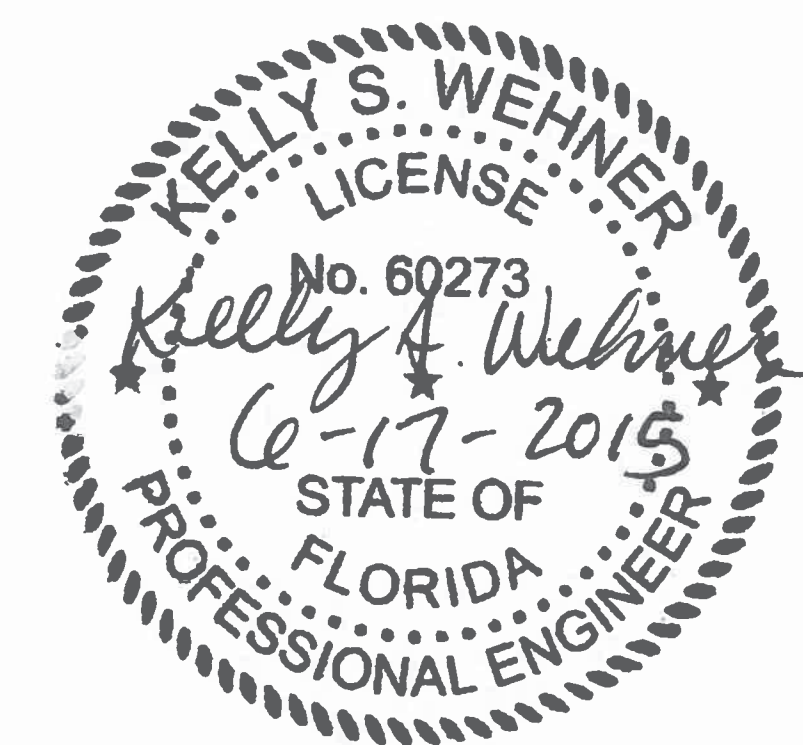


MANATEE COUNTY				44TH AVENUE EAST ROADWAY EXTENSION		 Shaping the Future 380 PARK PLACE BLVD, STE 300, CLEARWATER, FL 33759 TEL: (727) 531-3505 (800) 861-8314 www.cardno.com Certificate of Authorization No. 29915		DESIGNED: DRM DRAWN: DES Q.C.: KSW APPROVED:		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-9	
NO.	DESCRIPTION	BY	DATE			KELLY S. WEHNER, PE LIC. NO.: 60273		WATER PLAN & PROFILE 44TH AVENUE EAST			

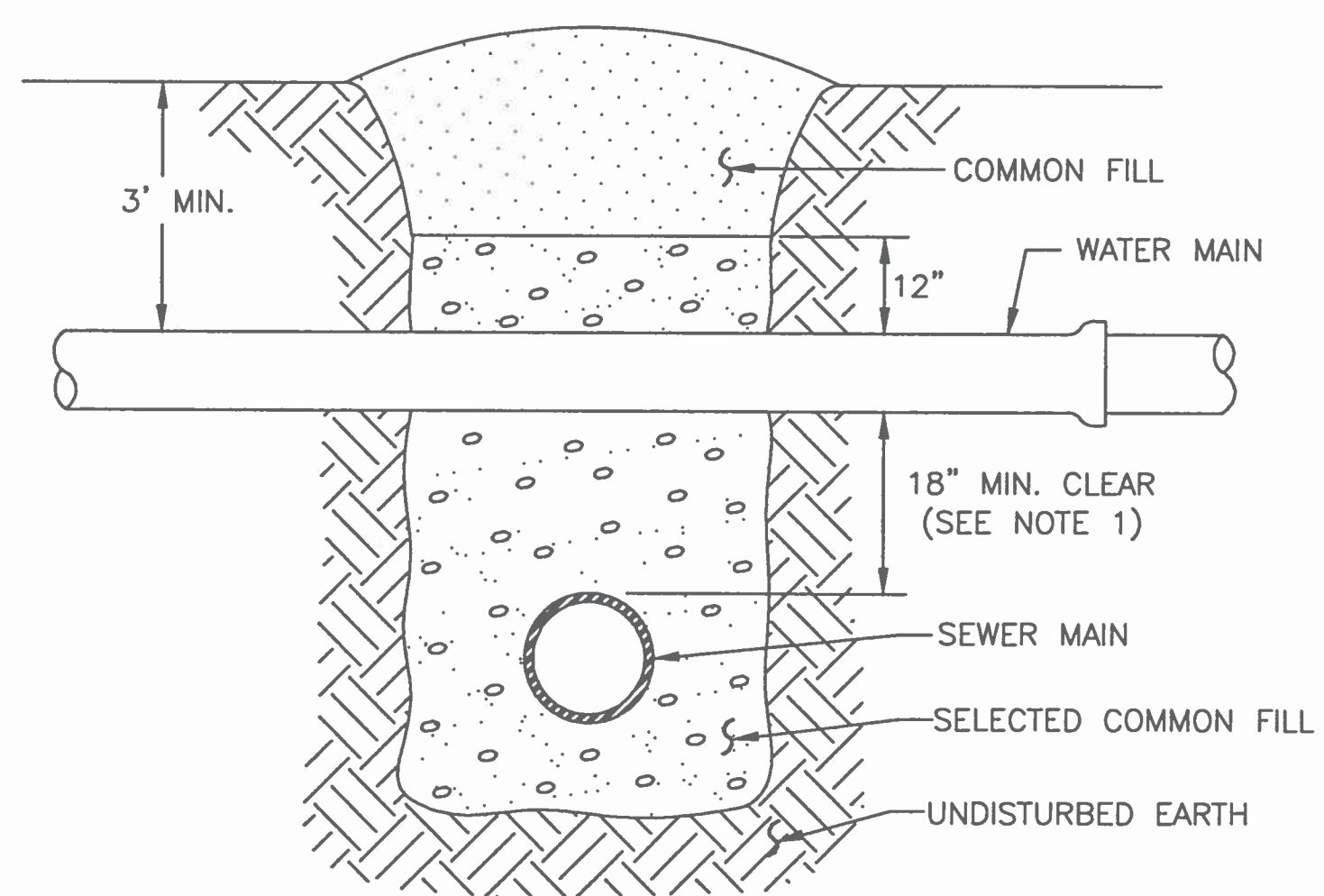
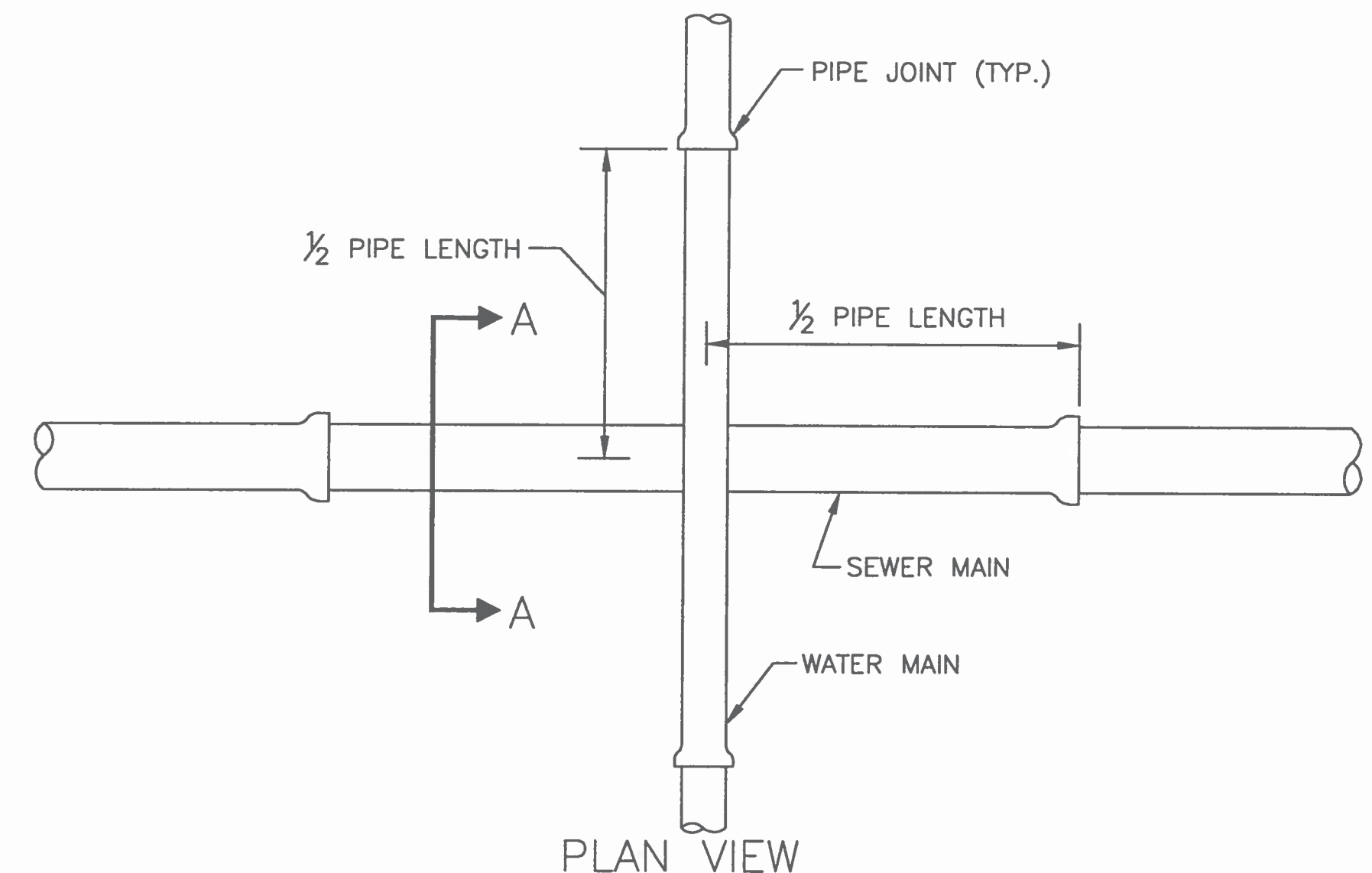
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GENERAL NOTES

1. ALL CONSTRUCTION, MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE MANATEE COUNTY PUBLIC WORKS UTILITY STANDARDS FOR GENERAL CONSTRUCTION AND WATER DISTRIBUTION SYSTEM.
2. LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES, AND OTHER FEATURES ARE SHOWN TO THE BEST INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS BUT DO NOT PURPORT TO BE ABSOLUTELY CORRECT. THERE MAY BE OTHER IMPROVEMENTS, UTILITIES, ETC. WHICH ARE WITHIN THE PROJECT AREA AND WHICH HAVE BEEN INSTALLED AND CONSTRUCTED SINCE THE PREPARATION OF THESE PLANS. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES (WHETHER OR NOT SHOWN ON THE PLANS) AFFECTING HIS WORK.
3. THE INFORMATION PROVIDED IN THESE PLANS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF THE CONDITIONS WHICH 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 CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH THEIR BIDS WILL BE BASED.
4. THE CONTRACTORS ATTENTION IS CALLED TO THE FACT THAT THERE MAY BE SOME UTILITY CONFLICTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ANY AND ALL EXISTING UTILITIES ON THE PROJECT.
5. FIELD CONDITIONS MAY NECESSITATE SLIGHT ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED UTILITIES TO AVOID OBSTACLES, AS ORDERED BY THE ENGINEER. THE CONTRACTOR SHALL USE ADDITIONAL FITTINGS, OFFSETS OR BENDS AS REQUIRED TO AVOID CONFLICTS, MAKE ADJUSTMENTS AND MAINTAIN CLEARANCES AS DIRECTED BY THE ENGINEER.
6. THE CONTRACTOR SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE VARIOUS UTILITY COMPANIES IN ORDER TO PERMIT THE LOCATION OF EXISTING UNDERGROUND UTILITIES IN ADVANCE OF CONSTRUCTION. CONTACT UTILITIES NOTIFICATION CENTER AT 1-800-432-4770.
7. CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR SURFACE WATER, DRAINAGE STRUCTURES AND DITCHES DURING ALL PHASES OF CONSTRUCTION.
8. CONTRACTOR SHALL PROVIDE WARNING SIGNALS, SIGNS, LIGHTS AND FLAGMEN AS REQUIRED BY F.D.O.T. IN THE "MANUAL ON TRAFFIC CONTROL & SAFE PRACTICES."
9. CONTRACTOR SHALL MAINTAIN AT LEAST ONE ACCESS ENTRANCE TO COMMERCIAL PROPERTIES AT ALL TIMES.
10. CONTRACTOR SHALL MAINTAIN A SET OF PLANS WITH CURRENT FIELD CHANGES MARKED THERE-ON AND SHALL DELIVER THESE PLANS TO THE ENGINEER UPON COMPLETION OF CONSTRUCTION.
11. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY WHEN CONFLICTS BETWEEN DRAWINGS AND ACTUAL CONDITIONS ARE DISCOVERED.
12. ONLY MANATEE COUNTY PERSONNEL SHALL OPERATE VALVES.
13. ALL ROAD CROSSINGS ARE OPEN CUT UNLESS OTHERWISE NOTED ON THE DRAWINGS.
14. ALL ROADWAY CONSTRUCTION WORK (WIDENING, ALIGNMENT, CURBING, DRIVES, UTILITY ADJUSTMENTS, STORMWATER COLLECTION SYSTEM, ETC.) IS NOT PART OF THE WATER UTILITY IMPROVEMENTS DEPICTED IN THESE PLANS. NEITHER SHOULD THESE PLANS BE USED FOR ROADWAY CONSTRUCTION.
15. ALL MAINS SHALL HAVE A MINIMUM COVER OF 36 INCHES BELOW FINISH GRADE UNLESS OTHERWISE NOTED.
16. TEES, CROSSES, BENDS (HORIZONTAL AND VERTICAL), PLUGS, VALVES, AND OTHER APPURTENANCES, SHALL BE RESTRAINED AS SHOWN ON THE RESTRAINED JOINT TABLE, AS A MINIMUM, UNLESS OTHERWISE SHOWN ON THE PLANS.
17. ALL PIPE FITTINGS AND APPURTENANCES USED TO PROVIDE CONNECTIONS TO THE WATER SYSTEM OR USED TO PROVIDE DEAD END FUTURE CONNECTIONS SHALL BE RESTRAINED.
18. ALL TEST POINTS AND CHLORINATION POINT PIPING SHALL BE CUT LOOSE FROM THE CORPORATION STOP AND COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR PRIOR TO FINAL ACCEPTANCE. THE CORPORATION STOP SHALL BE CAPPED AND REMAIN IN PLACE.
19. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION SHALL NOT EXCEED 80% OF THE MANUFACTURER'S RECOMMENDED DEFLECTION ANGLE.
20. SHOP DRAWINGS SHALL BE FURNISHED TO THE ENGINEER FOR APPROVAL OF ALL PIPE CONNECTIONS, TRANSITIONS AND SPECIALS PRIOR TO FABRICATION OR DELIVERY TO THE JOB SITE.
21. STATIONING FOR ALL FIRE HYDRANT ASSEMBLIES, ISOLATION VALVES, FITTINGS AND OTHER APPURTENANCES IS APPROXIMATE. THE CONTRACTOR SHALL LOCATE AIR RELEASE VALVES IN THE FIELD AT THE HIGHEST POINT BEFORE THE DOWNWARD BREAK IN THE VICINITY OF THE STATION INDICATED.
22. ALL LOCATIONS FOR FIRE HYDRANTS, ISOLATION VALVES AND AIR RELEASE VALVES SHALL BE APPROVED BY THE ENGINEER.
23. MAINTAIN 6 FEET HORIZONTAL CLEARANCE BETWEEN EXISTING OR PROPOSED WATER MAINS AND SANITARY SEWERS. WHEN MAINS ARE CLOSER THAN 6 FEET, USE DUCTILE IRON PIPE FOR BOTH MAINS WITH STAGGERED JOINTS OR CONCRETE ENCASE THE SEWER MAIN. SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 12 INCHES BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. WHERE THE 12 INCHES VERTICAL DISTANCE CANNOT BE MAINTAINED, THE SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE, USING MECHANICAL OR PUSH ON JOINTS, FOR A DISTANCE OF AT LEAST 10 FEET ON EITHER SIDE OF THE CROSSING OR ENCASED IN CONCRETE FOR A MINIMUM DISTANCE OF 10 FEET ON EITHER SIDE OF THE CROSSING. WATER MAINS CROSSING STORM SEWERS SHALL HAVE A MINIMUM SEPARATION OF 12 INCHES.
24. THE CONTRACTOR SHALL COORDINATE ALL TIE-INS WITH MANATEE COUNTY.
25. CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE ENGINEER FOR ANY DEVIATION FROM THE DRAWINGS OR TECHNICAL SPECIFICATIONS.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL OF THE COUNTY'S EXISTING FACILITIES PRIOR TO CONSTRUCTION.



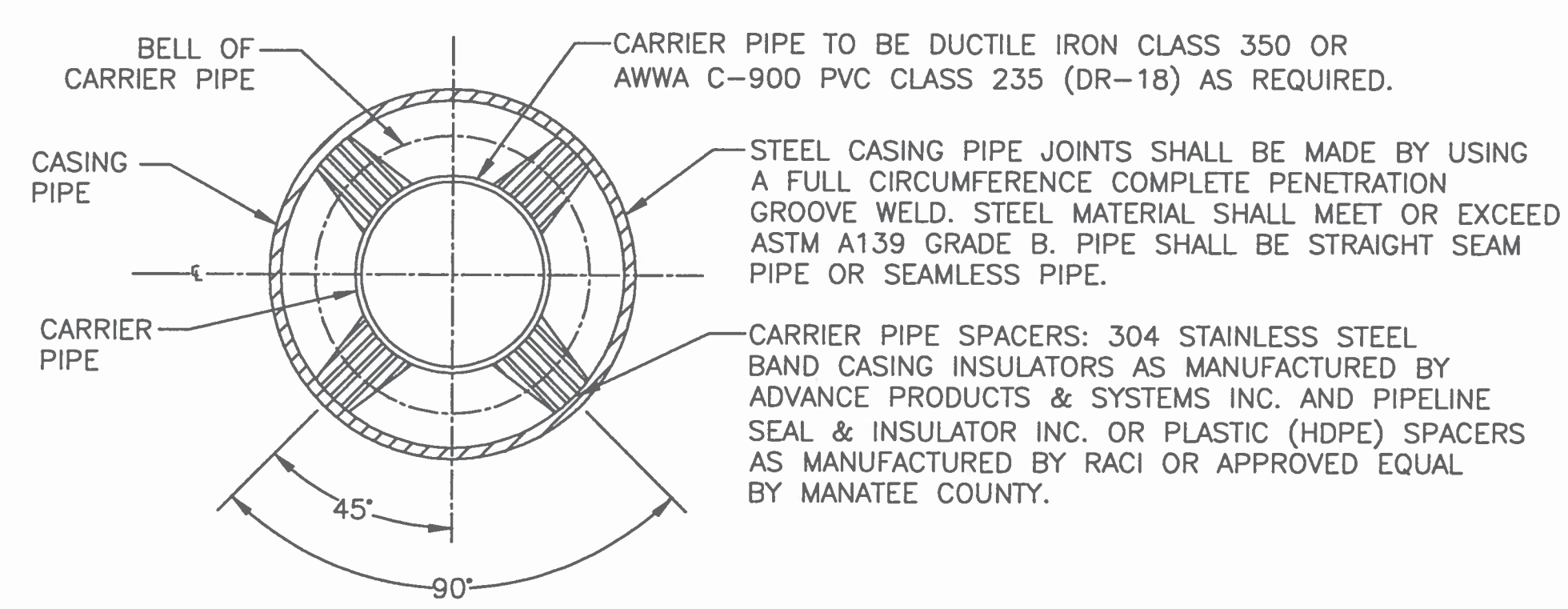
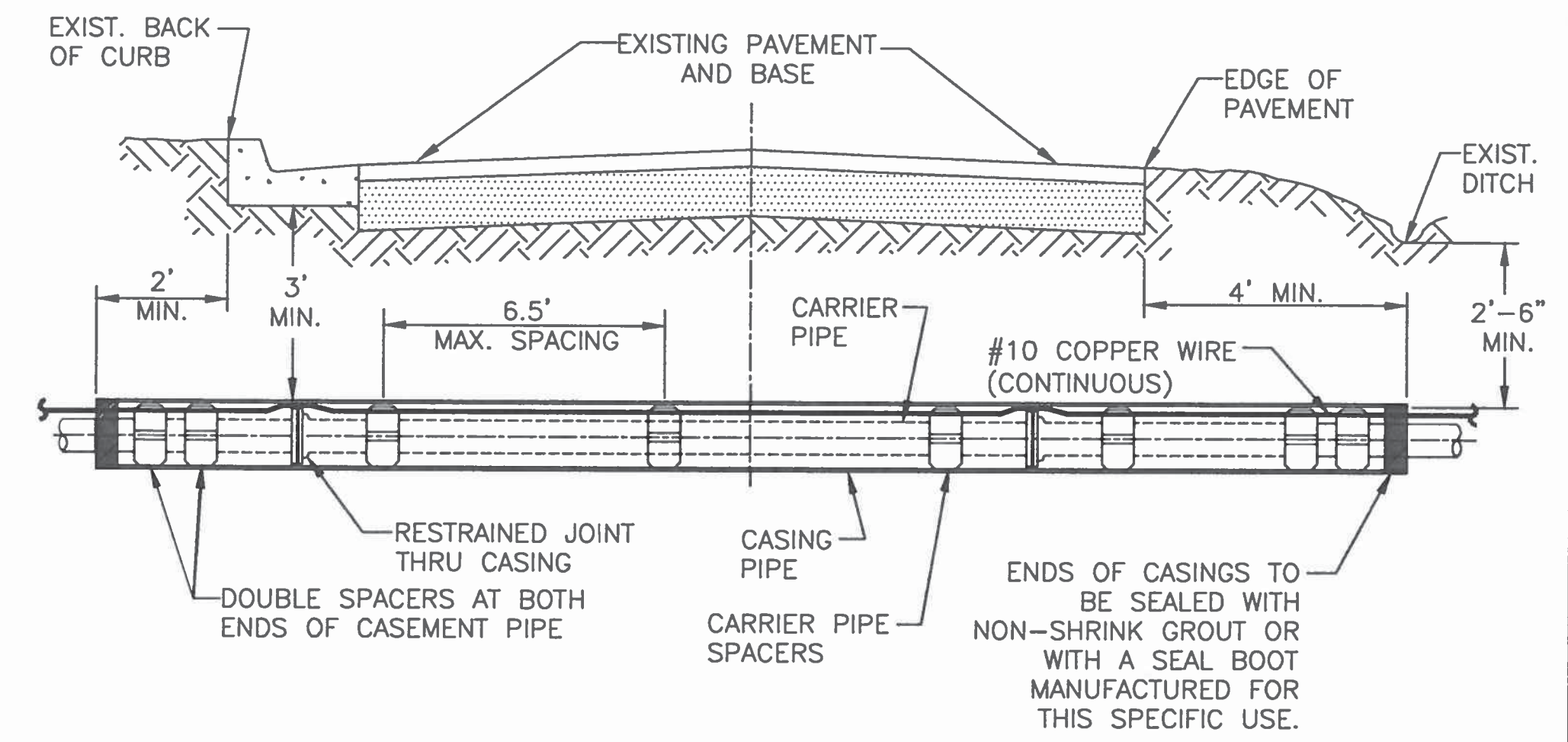
NO.	DESCRIPTION	BY	DATE	<b>MANATEE COUNTY</b>		<b>44TH AVENUE EAST ROADWAY EXTENSION</b>		 Shaping the Future 380 PARK PLACE BLVD, STE 300, CLEARWATER, FL 33759 TEL: (727) 531-3505 (800) 861-8314 www.cardno.com Certificate of Authorization No. 29915	DESIGNED _____ DRAWN _____ Q.C. _____ KSW APPROVED _____	<b>WATER GENERAL NOTES</b>		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-10



**NOTES:**

1. CLEARANCE MAY BE REDUCED TO 6" FOR GRAVITY SEWER WHERE WATER MAIN IS DUCTILE IRON OR 3" FOR FORCE MAIN WHERE FORCE MAIN IS ENCASED A MINIMUM OF 10' EACH SIDE OF CROSSING.
2. WHERE NO ENCASEMENT IS REQUIRED, 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.
3. REFER TO THE JACK & BORE CROSSING DETAIL FOR CASING AND SPACER REQUIREMENTS.

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

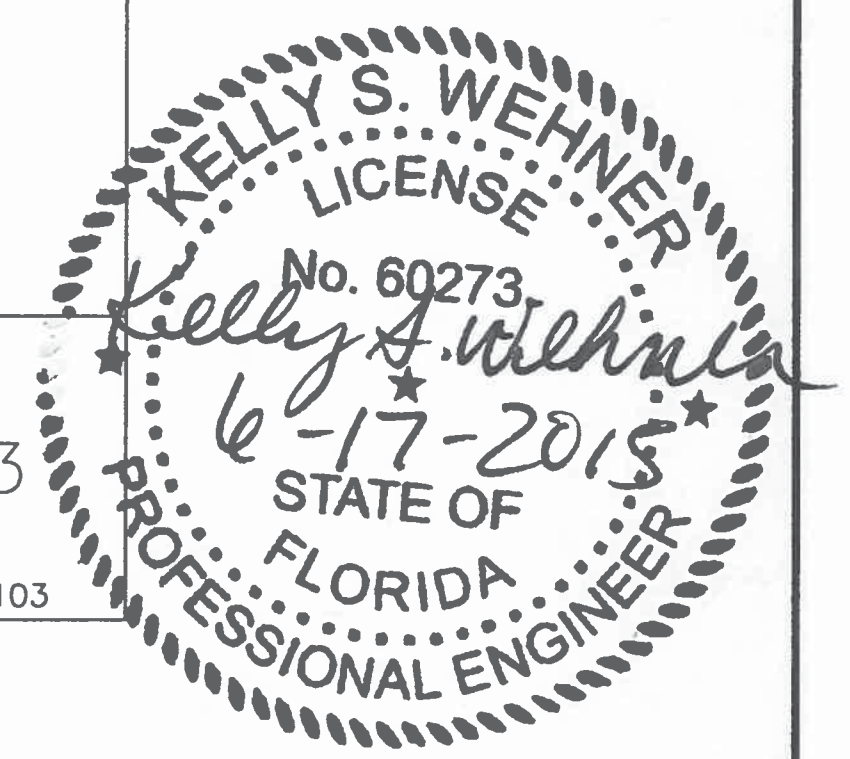


CARRIER SIZE & MINIMUM CASING SIZE									
CARRIER	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	12"	14"	18"	20"	24"	30"	30"	36"	36"
CASING / WALL THICKNESS	0.188	0.188	0.250	0.250	0.344	0.406	0.406	0.406	0.406

**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.

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



MANATEE COUNTY		44TH AVENUE EAST ROADWAY EXTENSION				DESIGNED: DRM DRAWN: DES Q.C.: KSW APPROVED:		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-11	
NO.	DESCRIPTION	BY	DATE	KELLY S. WEHNER, PE LIC. NO.: 60273		WATER DETAILS			

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

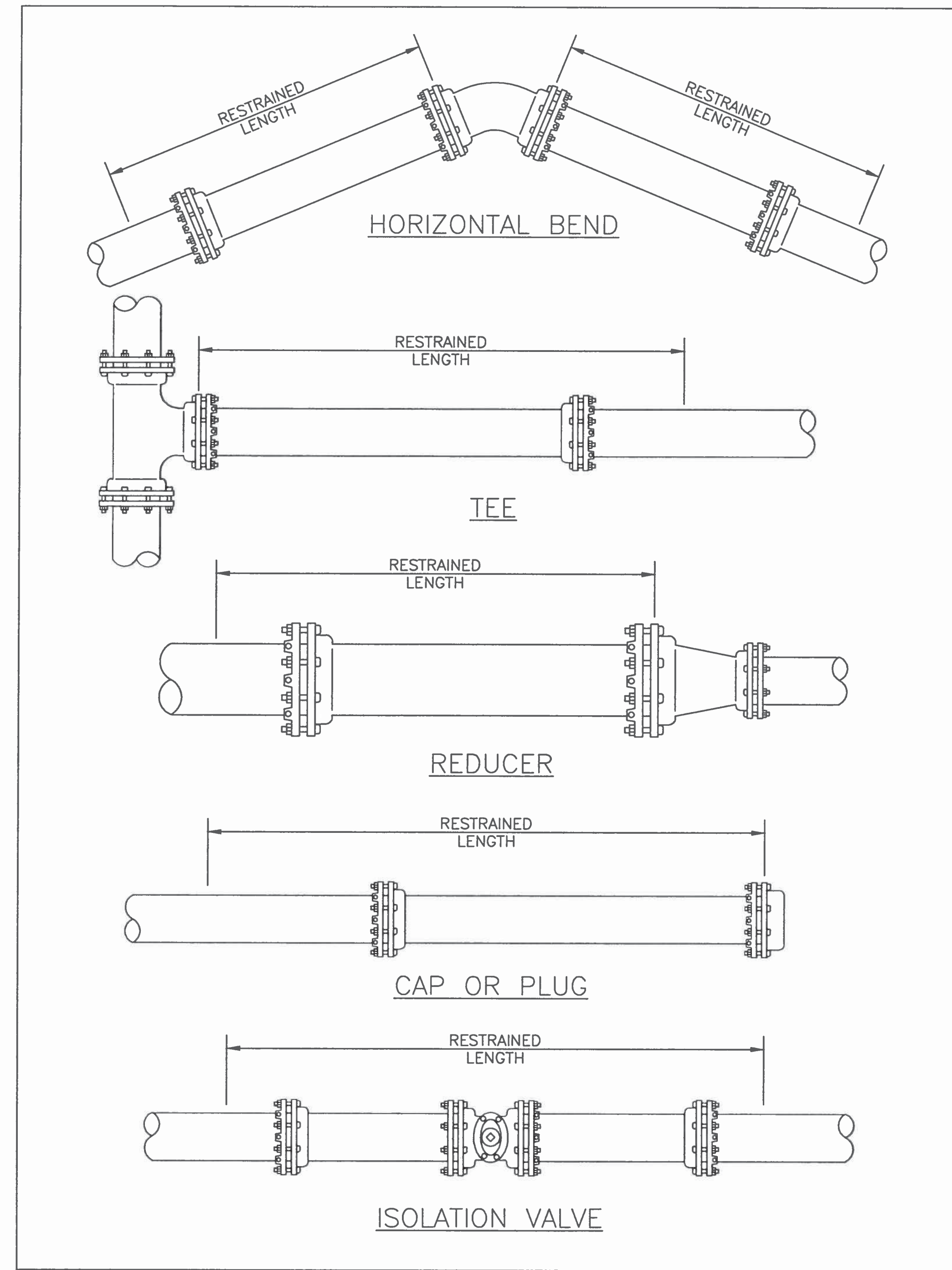
MAIN PIPE SIZE	HORIZ. BENDS			TEES						REDUCERS			PLUGS & VALVES
	90°	45°	22.5°	SIZE		LENGTH		SIZE		LENGTH			
24	90	38	18	X24	X20	X16	X12	X10	X20	X16	X12	214	
20	78	32	16	X20	X16	X12	X10	X8	X16	X12	X10	184	
16	66	27	13	X16	X12	X10	X8	X6	X12	X10	X8	151	
12	52	22	10	X12	X10	X8	X6	X4	X10	X8	X6	118	
10	44	18	9	X10	X8	X6	X4		X8	X6	X4	100	
8	37	15	7	X8	X6	X4			X6	X4		83	
6	29	12	6	X6	X4				X4			63	
4	21	8	4	X4								45	

**NOTES:**

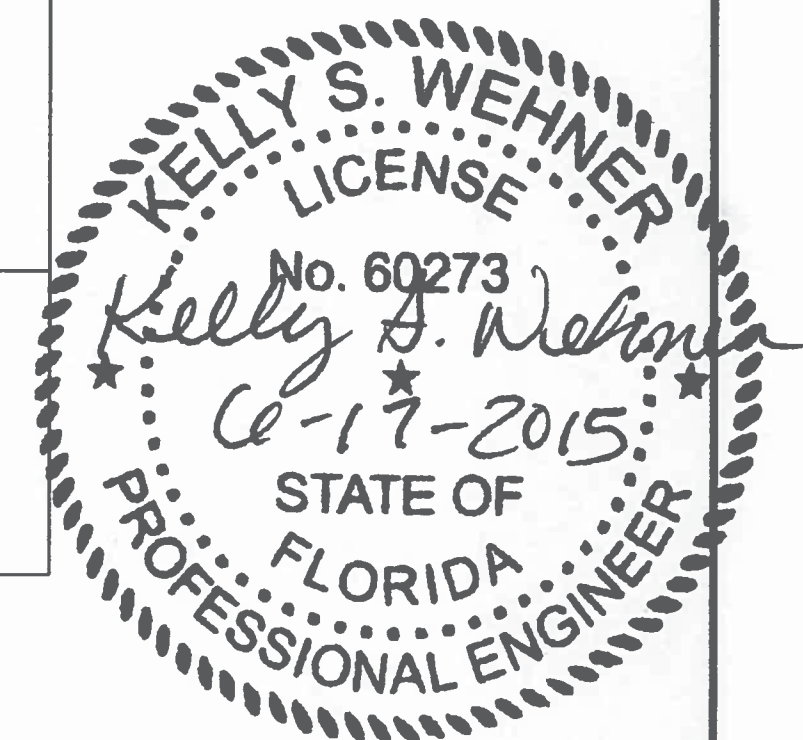
1. RESTRAIN 11.25' BENDS 50% OF LENGTH FOR 22.5° BENDS.
2. ALL VALVES AND FITTINGS SHALL BE RESTRAINED TO THE CONNECTING SECTIONS OF PIPE.
3. ALL ISOLATION VALVES MUST BE PROPERLY ANCHORED OR RESTRAINED TO RESIST A 180 PSI TEST PRESSURE IN EITHER DIRECTION.
4. PIPE SIZES ARE GIVEN IN INCHES.
5. RESTRAINED 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.

<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		RESTRAINED LENGTHS FOR PVC PIPE	UG-8
REV. BY CLB/BR	DATE 11/10		
MAY 10, 2011 DATE OF APPROVAL		PAGE 108	

\* RESTRAINED JOINT TABLE TO BE USED UNLESS OTHERWISE SHOWN ON THE PLANS



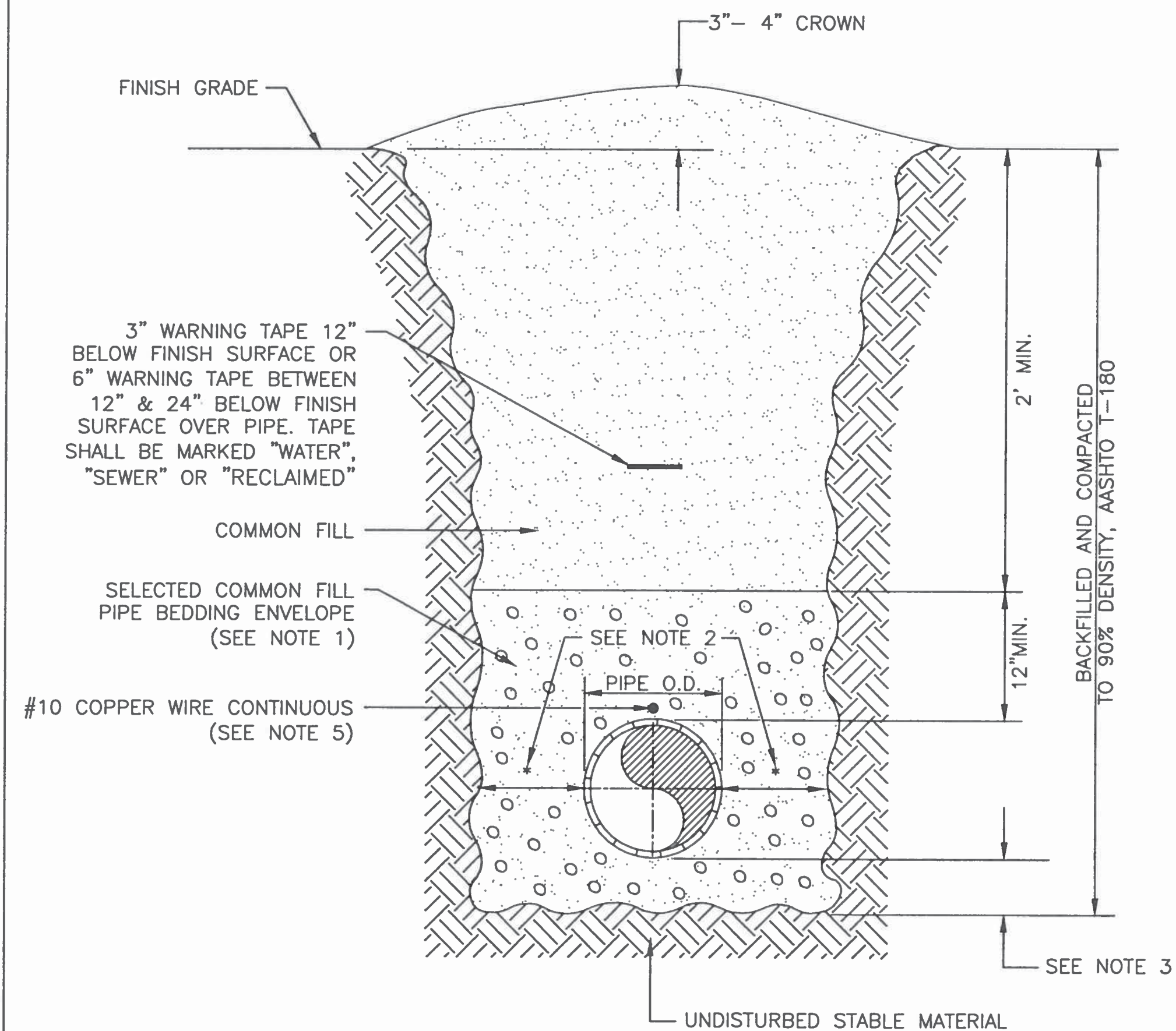
<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		RESTRAINED LENGTHS FOR PIPE	UG-10
REV. BY CLB/BR	DATE 11/10		
MAY 10, 2011 DATE OF APPROVAL		PAGE 110	



<b>MANATEE COUNTY</b>		<b>44TH AVENUE EAST ROADWAY EXTENSION</b>	<b>Cardno</b> Shaping the Future 380 PARK PLACE BLVD, STE 300, CLEARWATER, FL 33759 TEL: (727) 531-3505 (800) 861-8314 www.cardno.com Certificate of Authorization No. 29915	DESIGNED DRM DRAWN DES Q.C. KSW APPROVED	<b>WATER DETAILS</b>	PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-12
NO.	DESCRIPTION	BY	DATE	KELLY S. WEHNER, PE LIC. NO.: 60273		

**NOTES:**

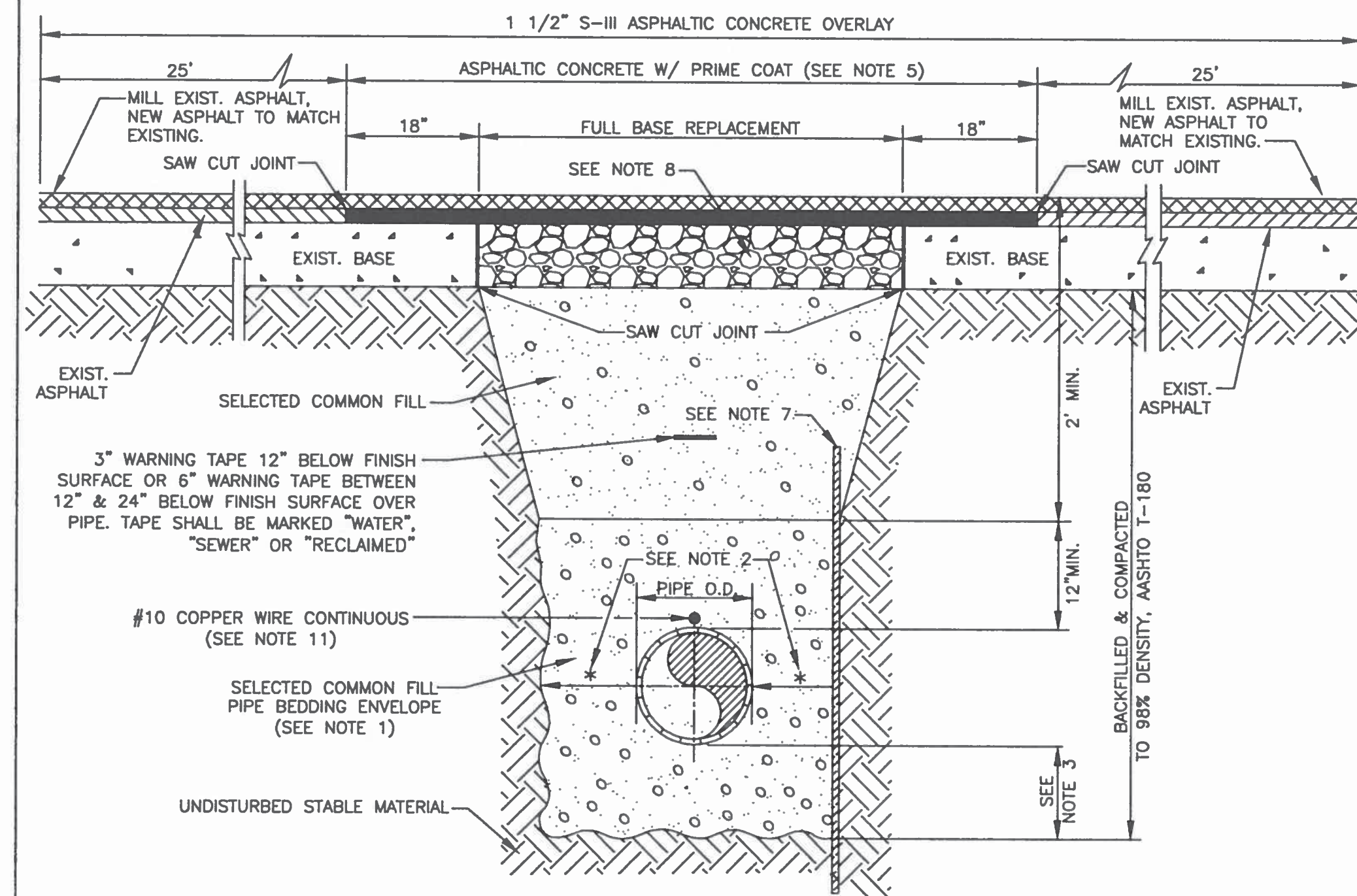
1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. PROVIDE ADEQUATE CLEARANCE TO PLACE AND COMPACT STAGE 1 BEDDING MATERIAL IN TRENCH AREA BELOW PIPE SPRINGLINE. PIPE EMBEDMENT MUST BE COMPACTED OUT TO THE TRENCH WALL OR 2.5 TIMES THE PIPE OD, WHICHEVER IS LESS.
3. TYPICALLY 4" TO 6".
4. PIPE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. TRACER WIRE NOT REQUIRED FOR GRAVITY SEWERS.



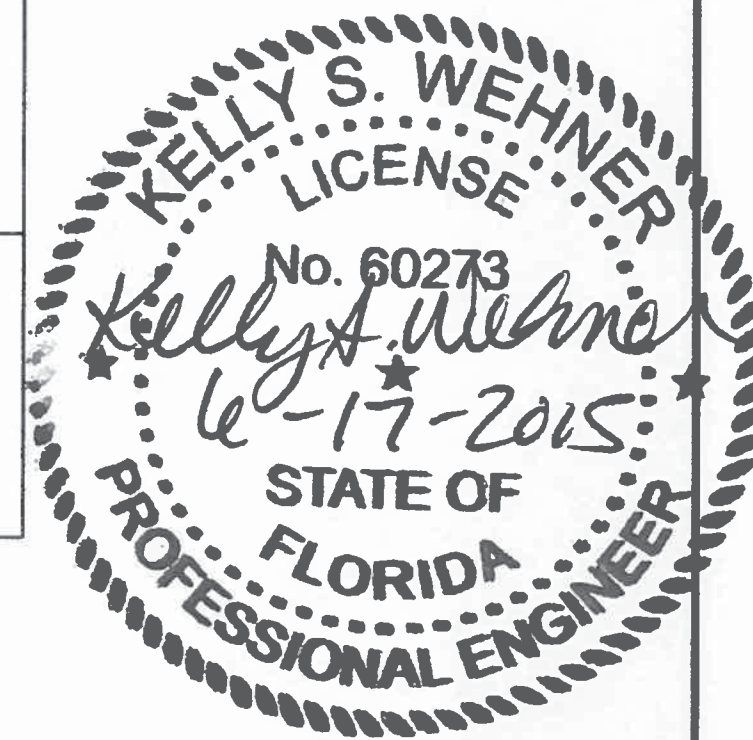
<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		TRENCH WITH UNIMPROVED SURFACE TYPE A-1 PIPE BEDDING	UG-11
REV. BY WRT/KE	DATE 03/11	MAY 10, 2011 DATE OF APPROVAL	PAGE 111

**NOTES:**

1. USE OF TYPE A-2 AND A-3 PIPE BEDDING TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. 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.
3. TYPICALLY 4" TO 6".
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, WHICHEVER IS GREATER.
6. MILL 25' BACK FROM TRENCH SAW CUT. ADJUST MILLING PER INDIVIDUAL SITE TO NOT IMPACT BASE. BUTT JOINT TO EXIST ASPHALT. FINAL OVERLAY LIMITS ARE FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT. 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. BASE SHALL BE 8" MINIMUM THICKNESS CRUSHED CONCRETE.
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 ROAD. REFER TO LATEST EDITION OF MANATEE COUNTY HIGHWAY AND TRAFFIC STANDARDS FOR ADDITIONAL REQUIREMENTS.

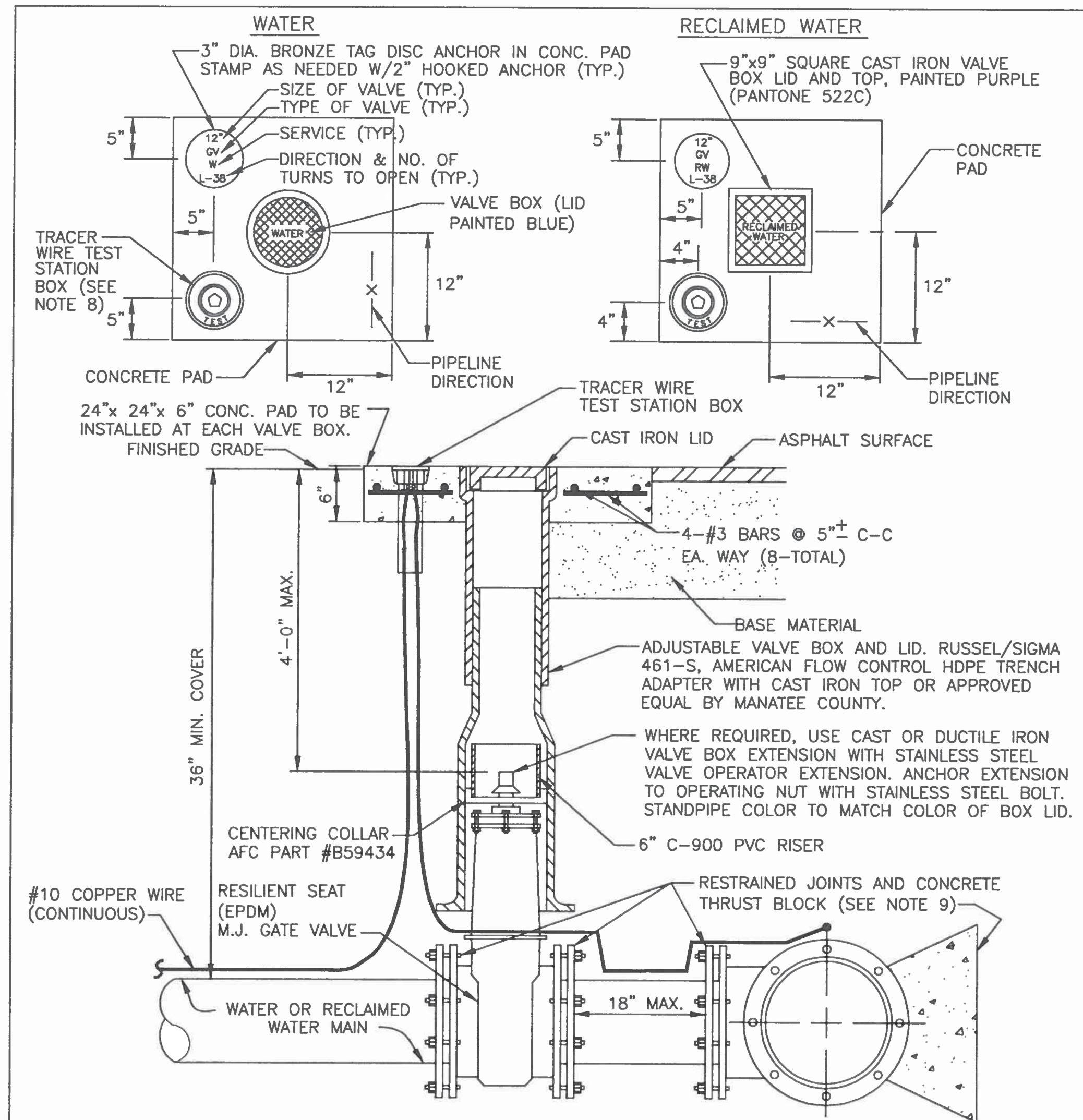


<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		TRENCH WITH ASPHALT PAVEMENT SURFACE TYPE A-1 PIPE BEDDING	UG-12
REV. BY WRT/KE	DATE 03/11	MAY 10, 2011 DATE OF APPROVAL	PAGE 112



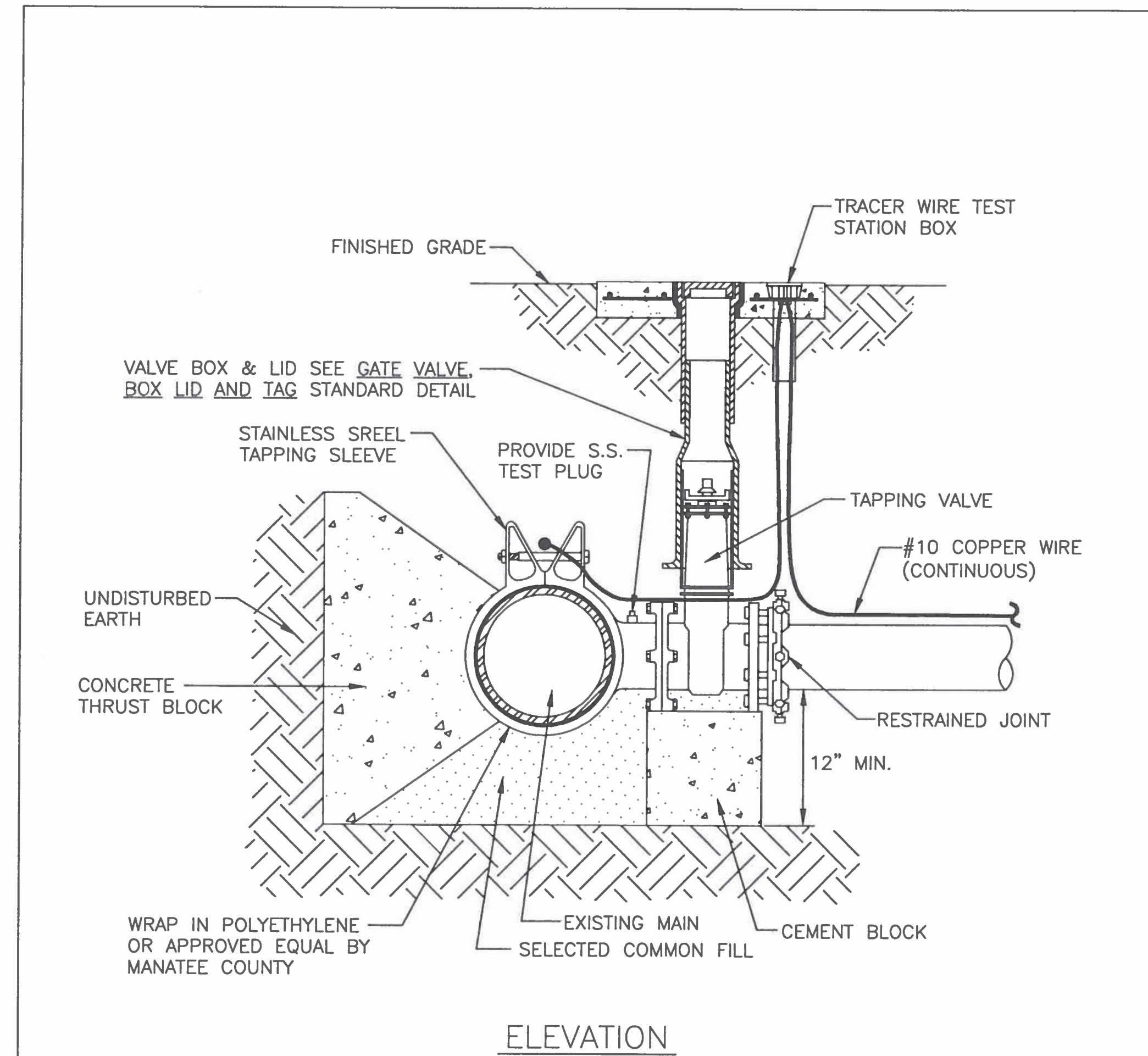
MANATEE COUNTY		44TH AVENUE EAST ROADWAY EXTENSION				DESIGNED: DRM DRAWN: DES Q.C.: KSW APPROVED:		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-13	
NO.	DESCRIPTION	BY	DATE	KELLY S. WEHNER, PE LIC. NO.: 60273		<b>WATER DETAILS</b>			

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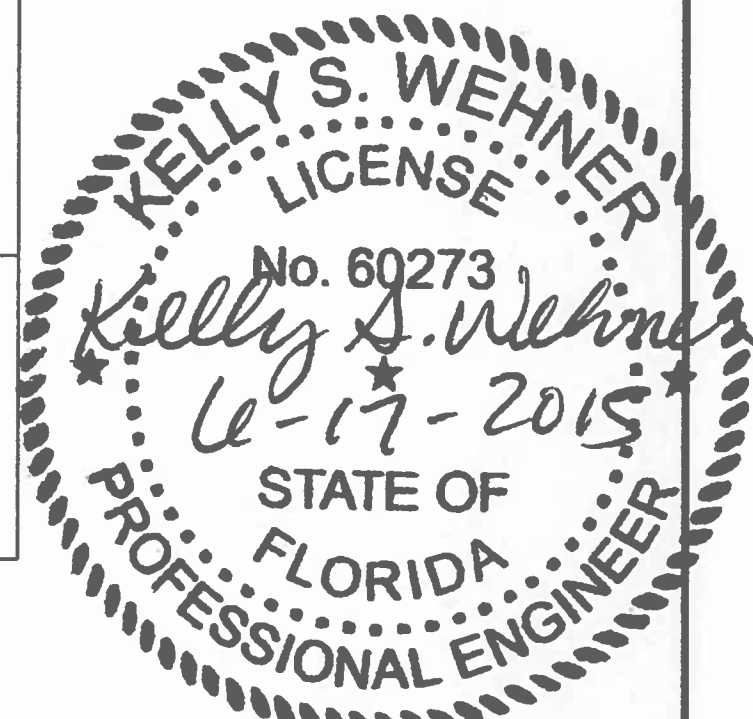
- NOTES:**
- "WV" or "RWV" TO BE IMPRESSED INTO THE NEWLY-POURED CONCRETE CURB, ALONG WITH DISTANCE IN FEET TO THE VALVE. IF NO CURB, INSTALL A BLUE DISC WITH "WV" OR PURPLE DISC WITH "RWV" AND A 1/8"x1" GALVANIZED STEEL SCREW IN THE EDGE OF PAVEMENT WITH THE FOOTAGE FROM THE DISC TO THE VALVE.
  - ALL EXISTING AND PROPOSED VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADES AS DETERMINED IN THE FIELD.
  - WATER VALVES SHALL NOT BE PLACED IN HANDICAPPED RAMPS.
  - PRECAST CONCRETE PADS & THRUST BLOCKS SHALL NOT BE USED.
  - ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1/2".
  - FOR VALVES 16" AND LARGER, USE BUTTERFLY VALVES.
  - 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."
  - BINGHAM & TAYLOR P200NFG FOR NORMAL YARD SERVICE. WHERE VALVE WILL BE IN STREET OR PARKING UNDER VEHICLE TRAFFIC, USE P525RD CENTERED IN SEPARATE CONCRETE PAD SIMILAR TO STANDARD VALVE BOX PAD.

<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		GATE VALVE, BOX, LID AND TAG	UW-2
REV. BY CLB/KE	DATE 11/10		
MAY 10, 2011			
DATE OF APPROVAL			PAGE 120

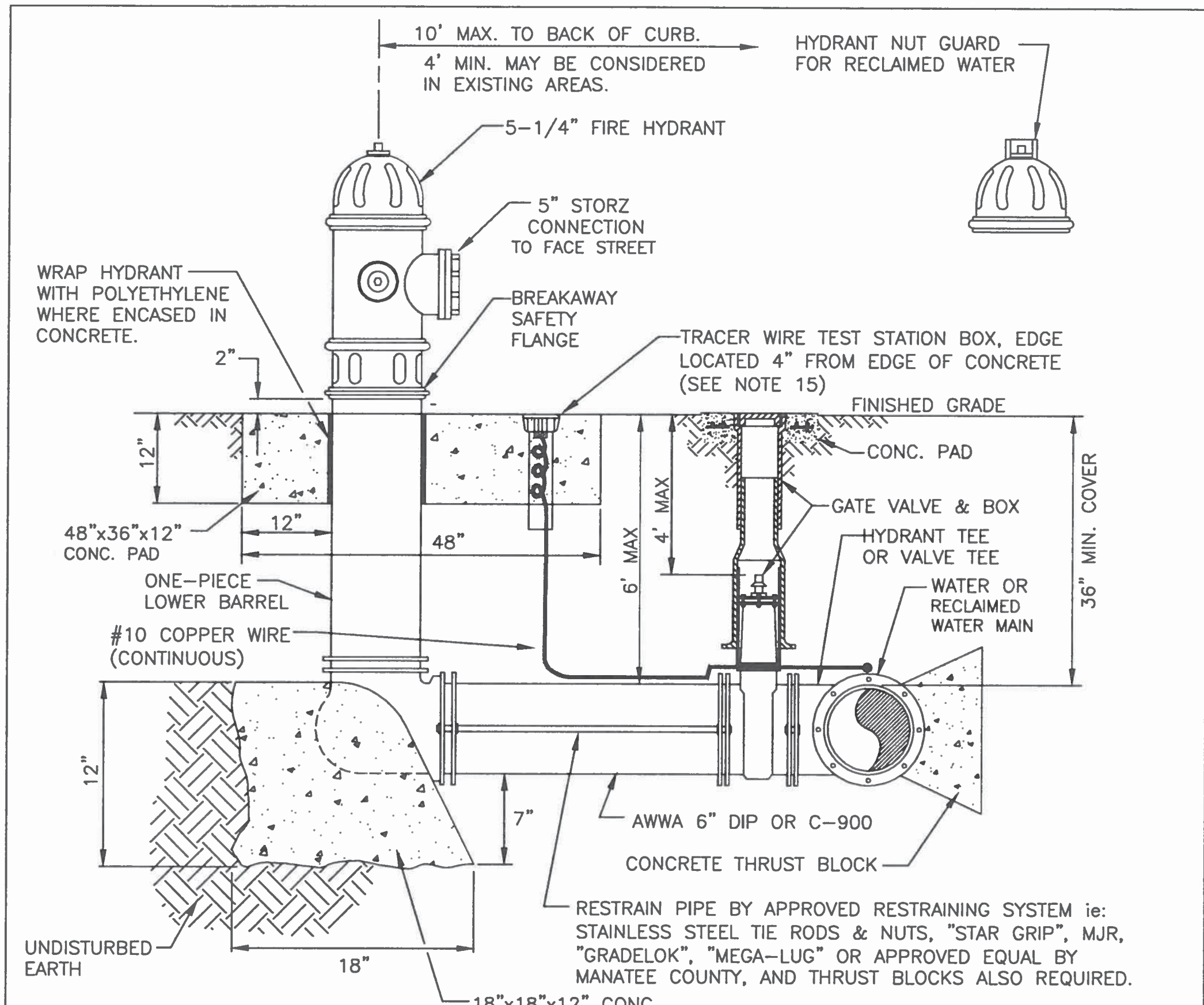


- NOTES:**
- PRIOR TO TAPPING, CONTRACTOR TO DEMONSTRATE 60 MINUTE HYDROSTATIC TEST OF THE TAPPING SLEEVE AND VALVE WITH NO LOSS OF 180 PSI PRESSURE FOR WATER AND RECLAIMED WATER OR 150 PSI FOR FORCE MAIN.
  - ALL FITTINGS TO BE WRAPPED WITH 20 MIL VISQUEEN AT THRUST BLOCK.
  - ALL TAPS ON CONCRETE WATER 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.

<b>MANATEE COUNTY</b> PUBLIC WORKS DEPARTMENT		TAPPING SLEEVE AND VALVE	UW-4
REV. BY CLB/KE	DATE 11/10		
MAY 10, 2011			
DATE OF APPROVAL			PAGE 122

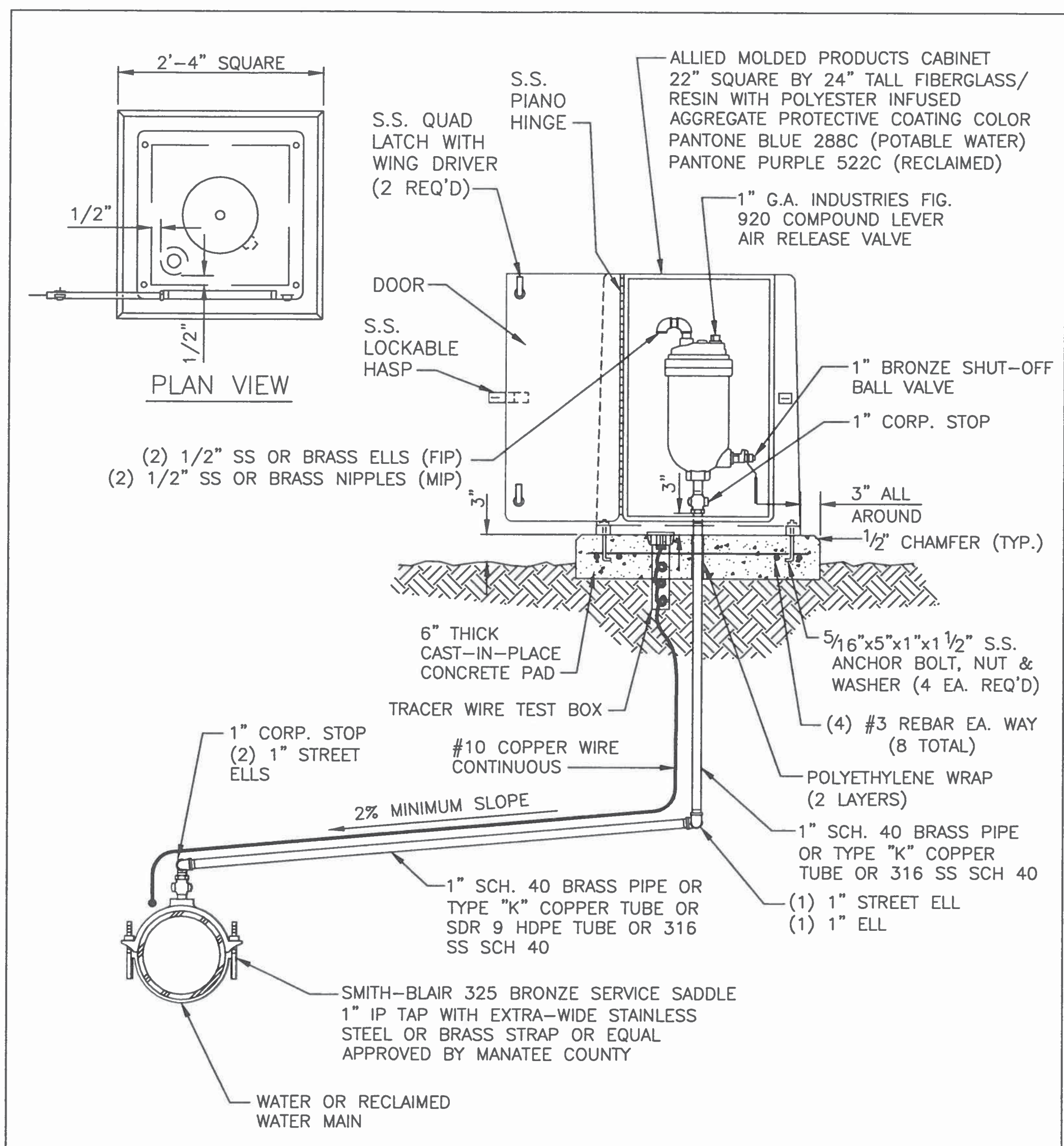


MANATEE COUNTY		44TH AVENUE EAST ROADWAY EXTENSION				DESIGNED: DRM DRAWN: DES Q.C.: KSW APPROVED:		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-14	
NO.	DESCRIPTION	BY	DATE	KELLY S. WEHNER, PE DATE LIC. NO.: 60273		APPROVED			



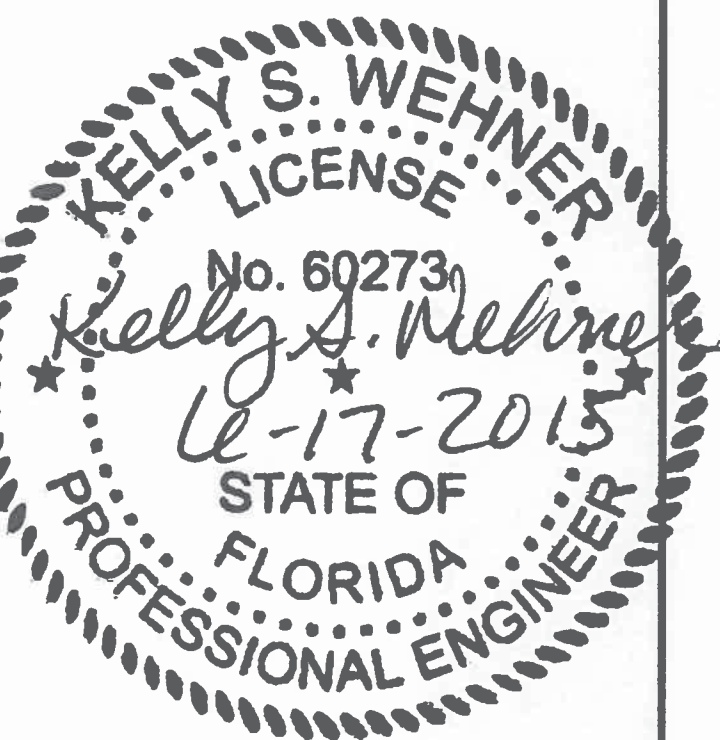
- NOTES:
1. WEEPHOLES SHALL BE EXCLUDED FROM THE FIRE HYDRANT.
  2. FIRE HYDRANTS SHALL BE A MINIMUM OF 6' OFF EDGE OF PAVEMENT AND 10' MAX. FROM BACK OF CURB. WHERE POSSIBLE AND WHERE SIDEWALK IS TO BE INSTALLED, FIRE HYDRANT SHALL BE LOCATED BETWEEN SIDEWALK AND RIGHT-OF-WAY LINE.
  3. HYDRANTS SHALL BE FUSION BONDED EPOXY COATED SAFETY YELLOW FOR WATER AND PURPLE (PANTONE 522C) FOR RECLAIMED WATER. HYDRANT SHALL BE DUCTILE IRON CONSTRUCTION.
  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 (BLUE) FOR POTABLE WATER (PURPLE) FOR RECLAIMED WATER. SHALL BE INSTALLED AT CENTERLINE OF PAVEMENT ADJACENT TO EACH HYDRANT.
  8. PRECAST CONCRETE THRUST BLOCKS & PADS SHALL NOT BE USED.
  9. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 1/2" CHAMFER.
  10. FIRE HYDRANT VALVE SHALL BE FASTENED DIRECTLY TO TEE.
  11. IN-LINE VALVES SHOULD BE LOCATED AT HYDRANT TEES.
  12. HYDRANTS SHALL BE LOCATED ON SAME SIDE OF ROAD AS WATER MAIN UNLESS OTHERWISE APPROVED.
  13. 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.
  14. SEE STANDARD DETAIL GATE VALVE, BOX, LID AND TAG.
  15. SHOULD THE FIRE HYDRANT'S CONCRETE PAD OVERLAP THE SIDEWALK, THE TRACER WIRE TEST STATION BOX SHALL NOT BE LOCATED WITHIN THE SIDEWALK.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		FIRE HYDRANT ASSEMBLY	UW-5
REV. BY CLB/KE	DATE 11/10		
MAY 10, 2011 DATE OF APPROVAL		PAGE 123	



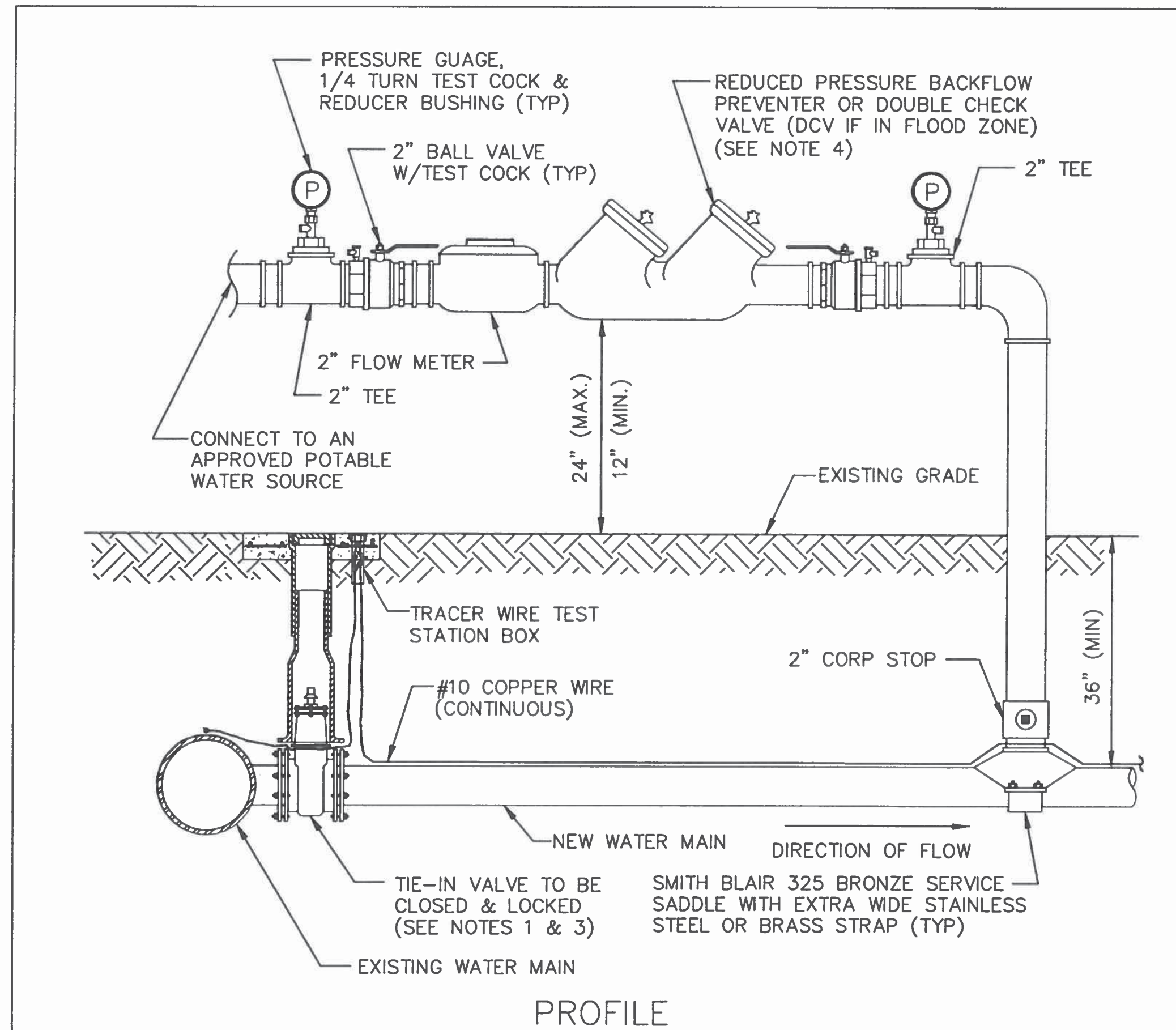
- NOTES:
1. AIR RELEASE VALVES TO BE INSTALLED AT HIGH POINTS ALONG WATER MAINS WHERE SPECIFICALLY INDICATED ON THE PLAN.
  2. ARV VENT ORIFICE TO BE SIZED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION FOR WATER MAIN SIZE.
  3. ALL INCIDENTAL FITTINGS AND HARDWARE TO BE STAINLESS STEEL, BRASS OR COPPER.
  4. ALL PIPE THREADS TO BE SEALED AIR TIGHT.
  5. VENT PIPE TO BE LAID ACCURATELY ON SLOPE, WITHOUT HIGH OR LOW POINTS.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		ABOVE-GROUND AIR RELEASE VALVE ASSY. FOR 12-INCH AND SMALLER WATER MAINS	UW-9
REV. BY CLB/KE	DATE 11/10		
MAY 10, 2011 DATE OF APPROVAL		PAGE 127	



MANATEE COUNTY		44TH AVENUE EAST ROADWAY EXTENSION				DESIGNED: DRM DRAWN: DES Q.C.: KSW APPROVED:		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-15	
NO.	DESCRIPTION	BY	DATE	KELLY S. WEHNER, PE LIC. NO.: 60273		WATER DETAILS			





PROFILE

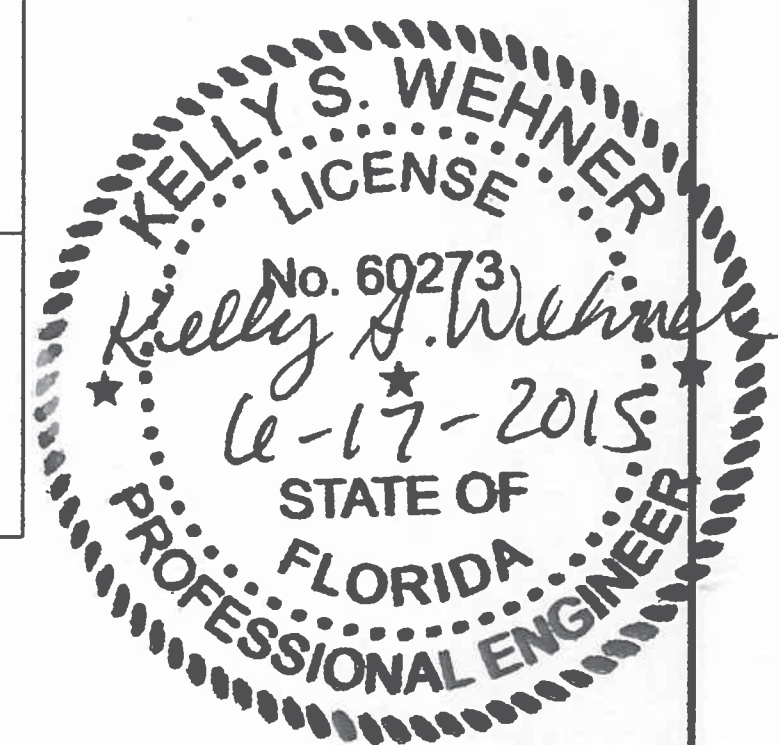
NOTES:

- FOR TIE-IN VALVE, SEE DETAIL UW-4 FOR TAPPING SLEEVE VALVE, DETAIL UW-2 FOR GATE VALVE AND DETAIL UW-3 FOR BUTTERFLY 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). A CROSS MAY BE INSTALLED IF THE EXISTING WATER MAIN IS NOT LARGER THAN THE NEW WATER MAIN.
- 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 OR BUTTERFLY 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 PREVENTER SHALL BE STRUCTURALLY SUPPORTED.
- SEE DETAIL UW-22 FOR ADDITIONAL JUMPER CONNECTION NOTES.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION	UW-21
REV. BY WT/KE	DATE 01/11		
MAY 10, 2011 DATE OF APPROVAL		PAGE 139	

- A 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-21. A temporary jumper shall be used for filling, flushing and for disinfection of any new main of any size. The 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) or the Florida Department of Health (FDOH) has been obtained.
- Locations and orientation of 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-21 shall be disinfected by spraying or swabbing per Section 4.6 of AWWA C651.
- A separate and successful hydrostatic test on the new system shall occur between the tie-in valve and the closest downstream gate valve or butterfly valve before performing a hydrostatic test on the remainder of the newly-constructed water main. The tie-in valve and the closest downstream gate valve or butterfly valve shall be closed during the hydrostatic test of the remainder of the newly constructed water main.
- 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/FDOH clearance letter is obtained.
- All temporary backflow devices or "jumpers" utilized during pipeline construction must show certification that they have been tested annually 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.
- Except as required to flush lines greater than 6 inches in diameter, the lockable tie-in valve shall remain closed and shall be locked in the closed position by Manatee County. The tie-in valve shall remain closed and locked until the new system has been cleared for use by the FDEP/FDOH and all other pertinent agencies.
- After receipt of clearance for use by FDEP/FDOH, Manatee County, and all other pertinent agencies, the Contractor shall remove the temporary jumper connection. The corporation stops are to be closed and plugged with 2-inch brass or PVC stops.
- All installation and maintenance of the temporary jumper connection and associated backflow prevention device, flow meter, fittings, valves, etc., shall be the responsibility of the Contractor.
- The tie-in valve shall remain closed if the potable water source is a tank truck.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT		TEMPORARY JUMPER CONNECTION NOTES	UW-22
REV. BY JAA/JEA	DATE 02/09		
MAY 10, 2011 DATE OF APPROVAL		PAGE 140	



MANATEE COUNTY		44TH AVENUE EAST ROADWAY EXTENSION				DESIGNED: DRM DRAWN: DES Q.C.: KSW APPROVED:		PROJECT NO: 00193-001-18 DATE: JUNE 2015 SHEET NO: W-16	
NO.	DESCRIPTION	BY	DATE	KELLY S. WEHNER, PE DATE LIC. NO.: 60273					