



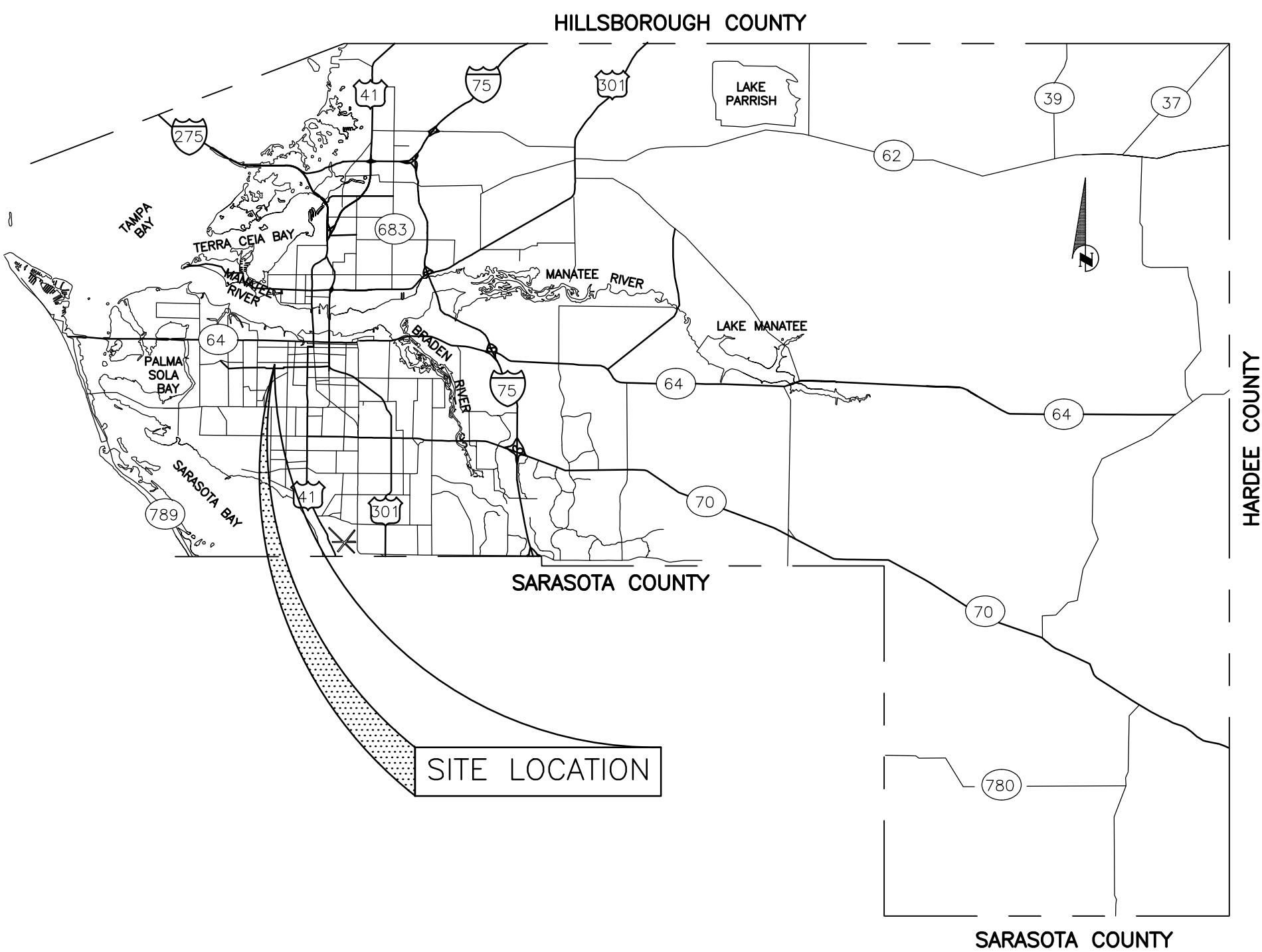
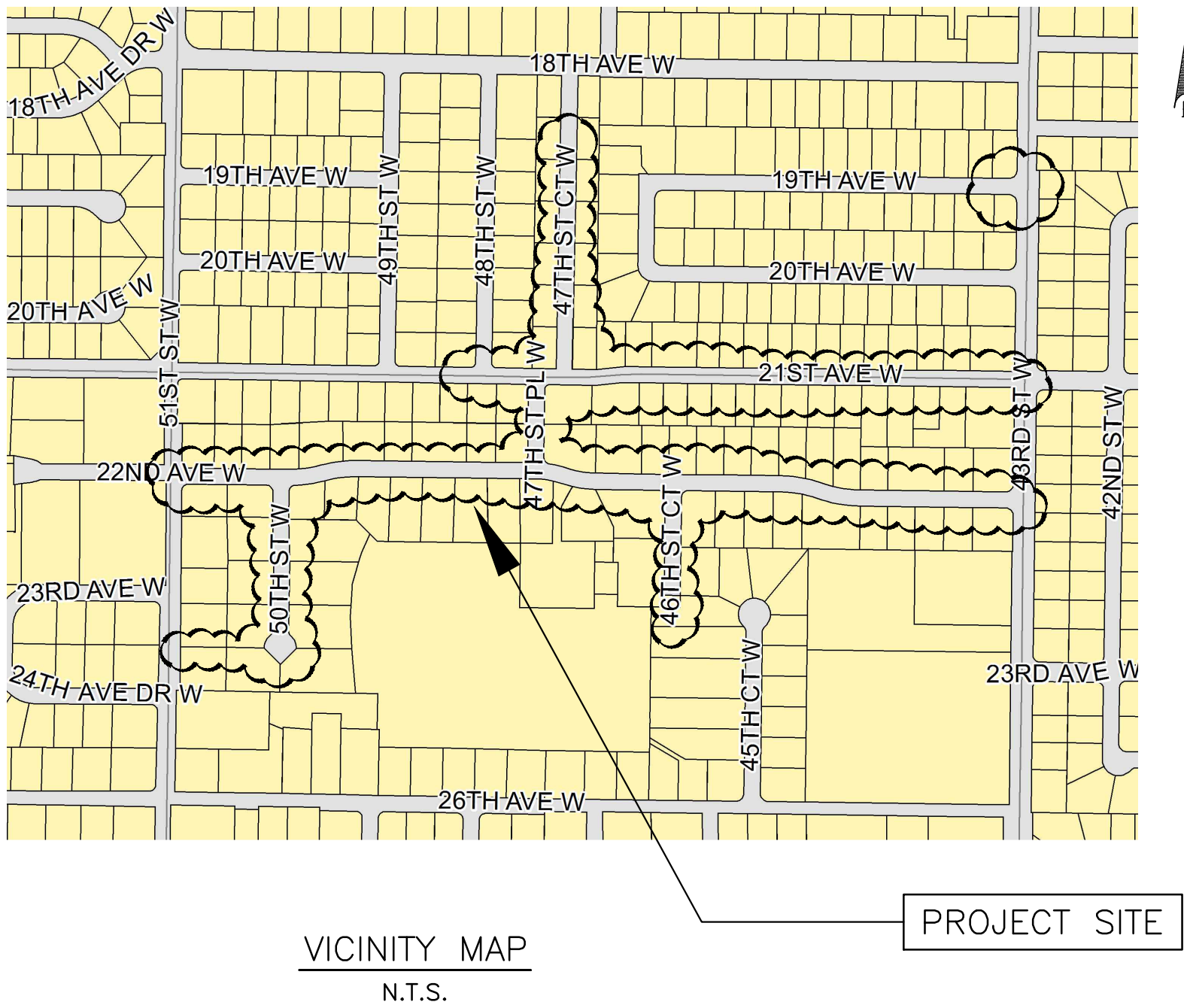
WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

404.6089170

September, 2019

BID PLANS

NO.	INDEX OF SHEETS
01	COVER
02	NOTES
03	KEY SHEET
04	22ND AVE W-100+00-106+10
05	22ND AVE W-106+10-112+30
06	22ND AVE W-112+30-118+50
07	22ND AVE W-118+50-124+70
08	22ND AVE W-124+70-128+48
09	50TH ST W-200+00-206+14
10	46TH ST CT W-400+00-404+39
11	47TH ST PL W-300+00-303+49
12	21ST AVE W-600+00-606+10
13	21ST AVE W-606+10-612+30
14	21ST AVE W-612+30-618+17
15	47TH ST CT W-700+00-705+80
16	43RD ST W-511+00-513+00
17	DETAILS
18	DETAILS
19	DETAILS
20	DETAILS
21	SURVEY CONTROL
22	EROSION CONTROL



PROJECT DESCRIPTION
UPGRADE THE EXISTING WATER MAIN WITH A LOOPED SYSTEM AND IN-LINE ISOLATION VALVES TO THE ADJACENT STREETS FOR A TOTAL OF APPROX. 5,500 LF OF 6 INCH WATER MAIN, 27 GATE VALVES, 5 FIRE HYDRANTS, AND 84 WATER SERVICE LINES.



PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East, Bradenton, FL 34208

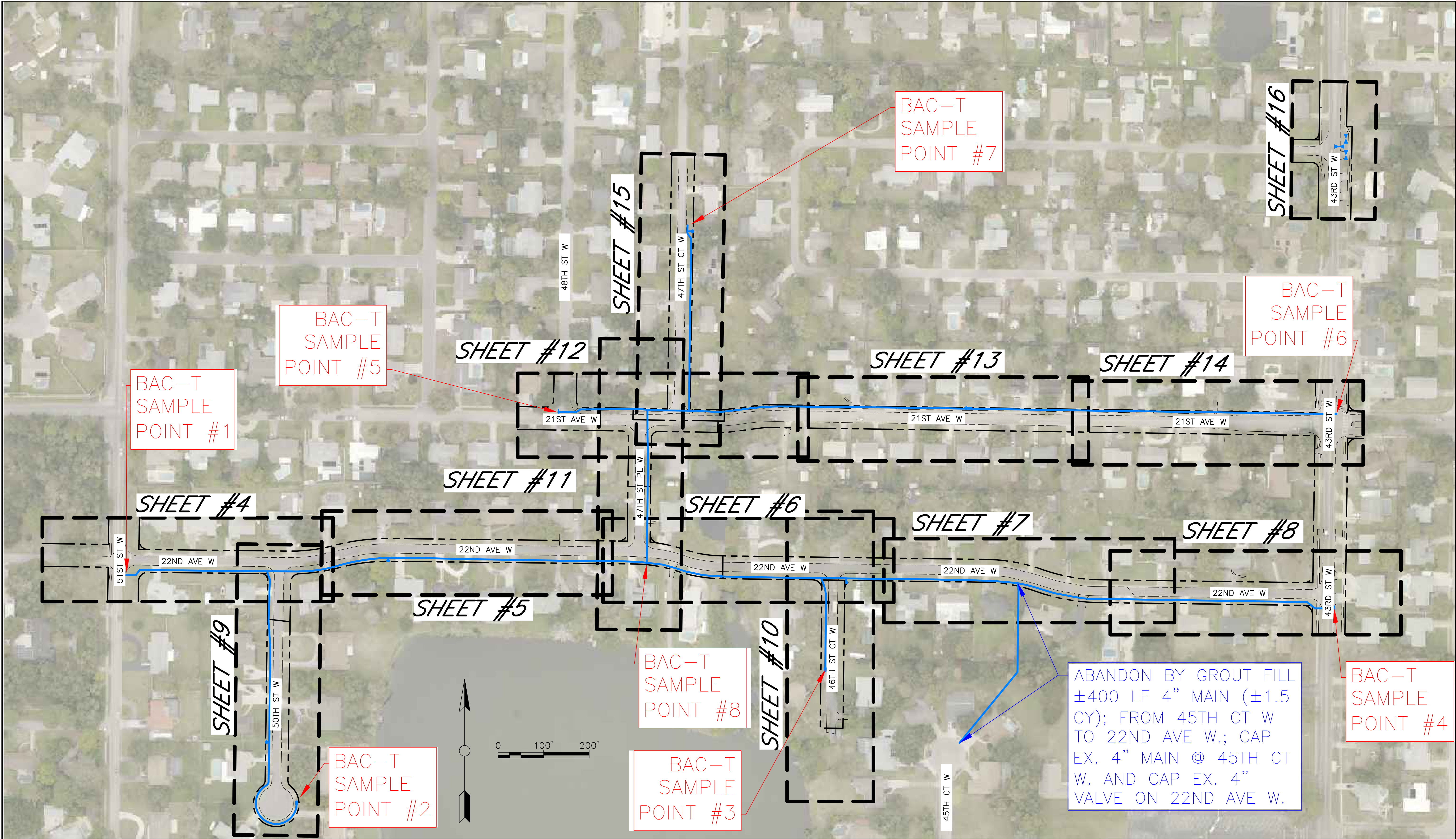
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE

COVER

NO.	REVISION DESCRIPTION	BY	DATE
1	PROJECT #		404.6089170
2	SURVEY #		0577-0032
3	SEC./TWN./RGE		33/34/17
4	SCALE		N.T.S.
5		BY	DATE
6	SURVEYED	FDC	JAN 17
7	DESIGNED	JSS	MAY 17
8	DRAWN	CAK	MAY 17
9	CHECKED	JSS	MM/YYYY

J. SHE... P.E.
FLORIDA PROFESSIONAL ENGINEER
No. 60923
STATE OF FLORIDA
9/10/19
Signature

SHEET 01 OF 22




NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES

WATER MAIN UPGRADE

KEY SHEET

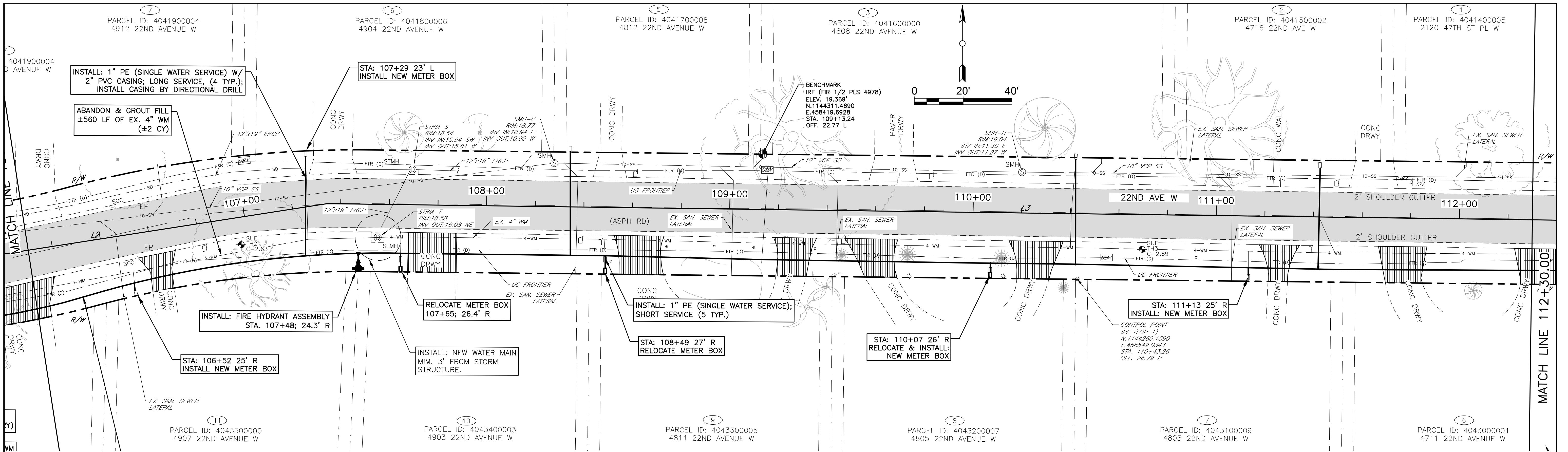


PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East, Bradenton, FL 34208

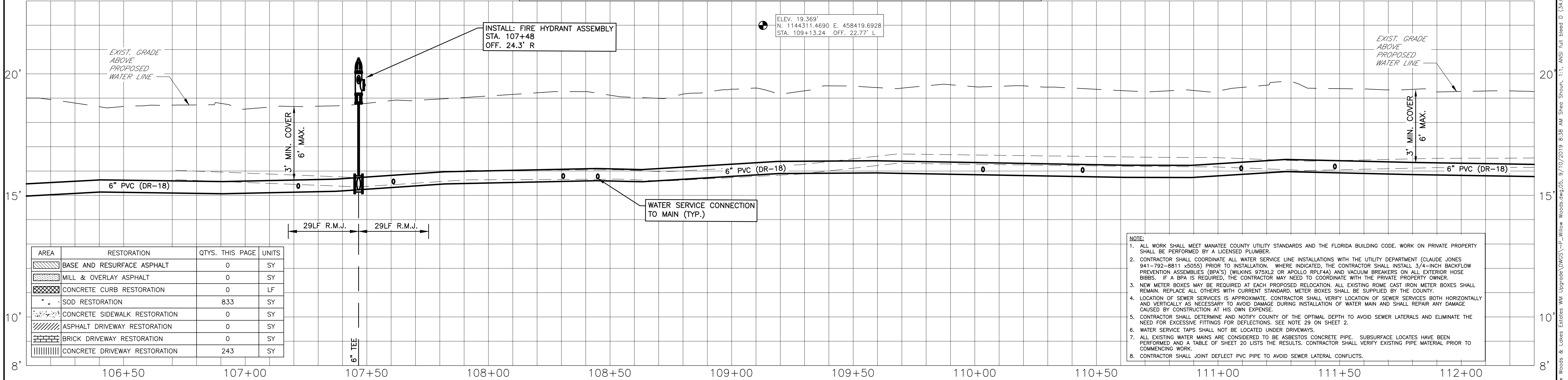
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SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
FLORIDA PROFESSIONAL ENGINEER
No. 60923
9/10/19

SHEET 03 OF 22



22ND AVE W STA: 106+10 to 112+30



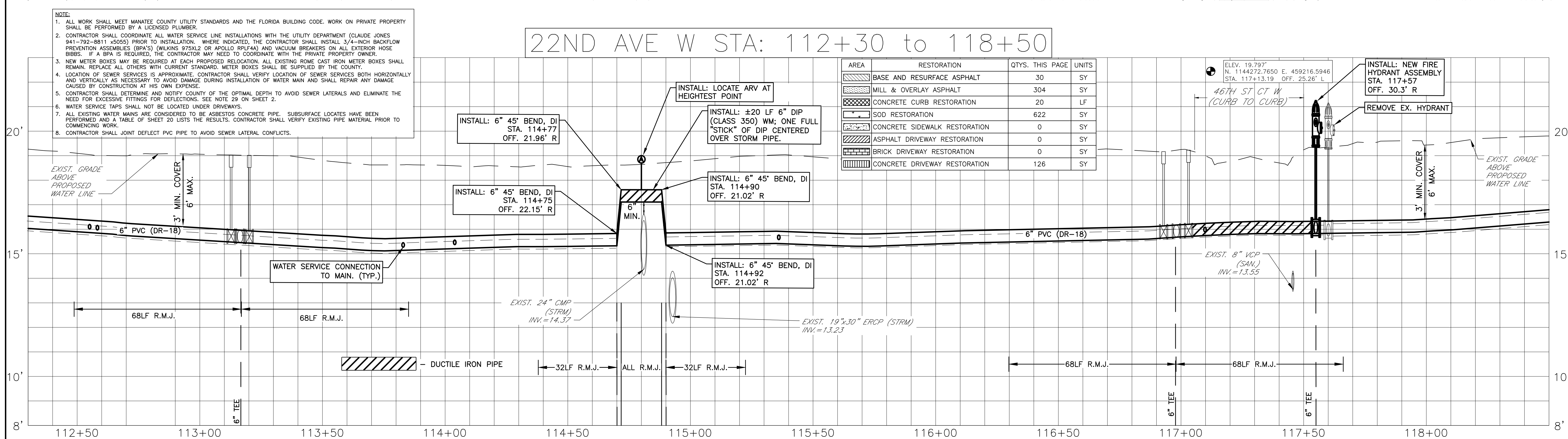
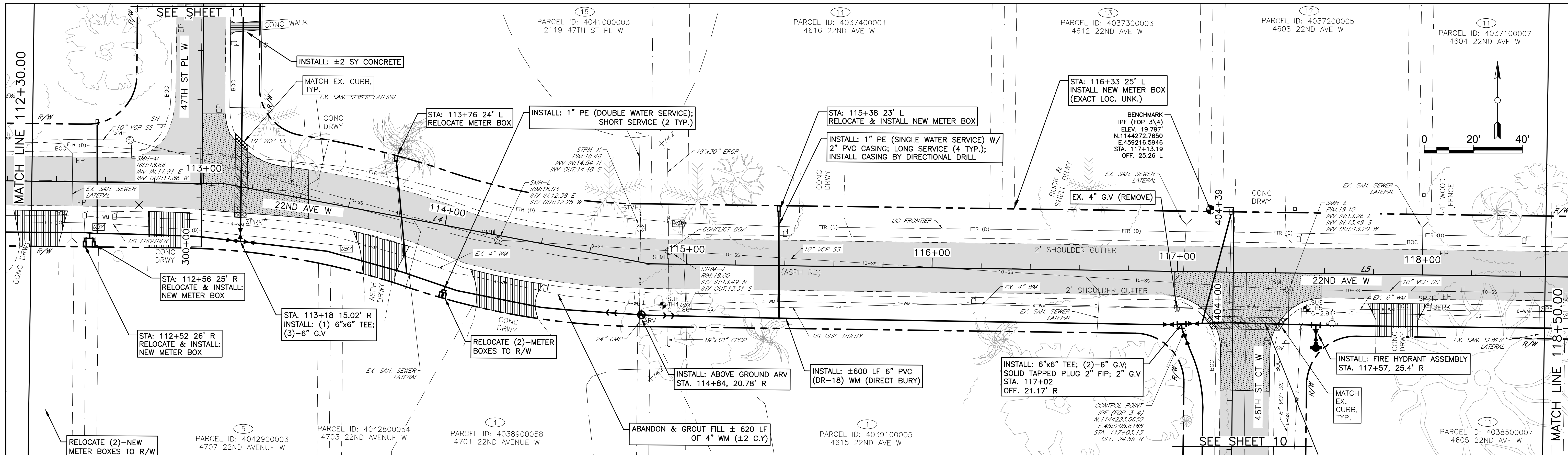
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; lot 11 revised service location	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
22ND AVE W-106+10-112+30



PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA LICENSE NO. 60923
SEC./TWN./RGE	33/34/17	DATE 9/10/19
SCALE	SEE PLAN	PROFESSIONAL ENGINEER
SURVEYED	FDC JAN 17	
DESIGNED	JSS MAY 17	
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	

SHEET 05 OF 22



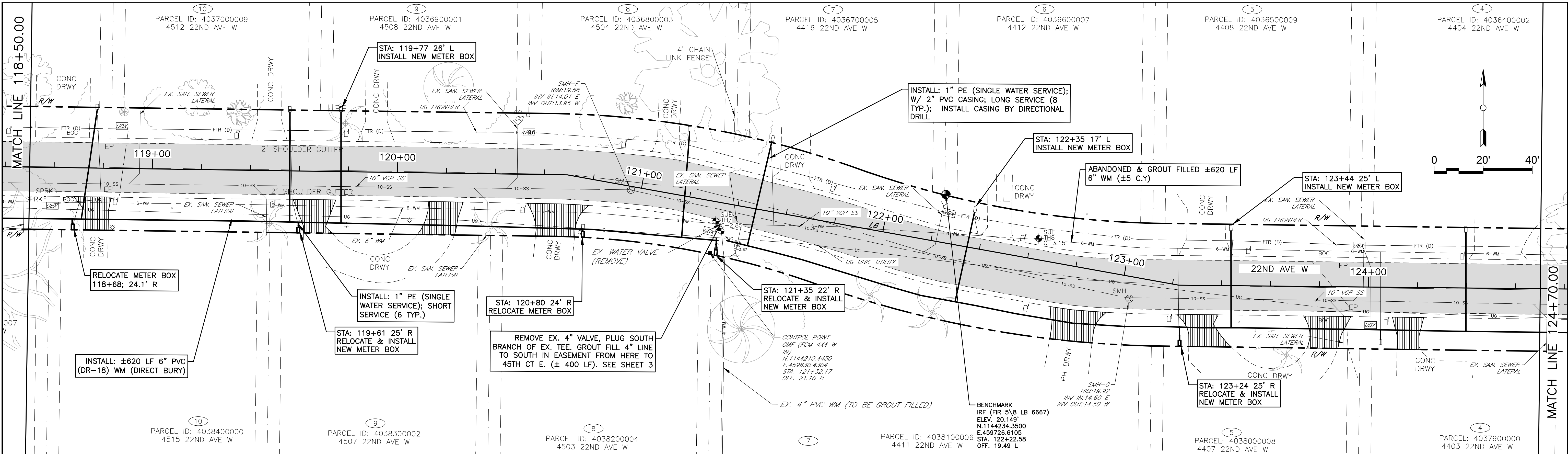
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; added DIP under 46th St Ct W; add BPA Lot 4608	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
22ND AVE W-112+30-118+50

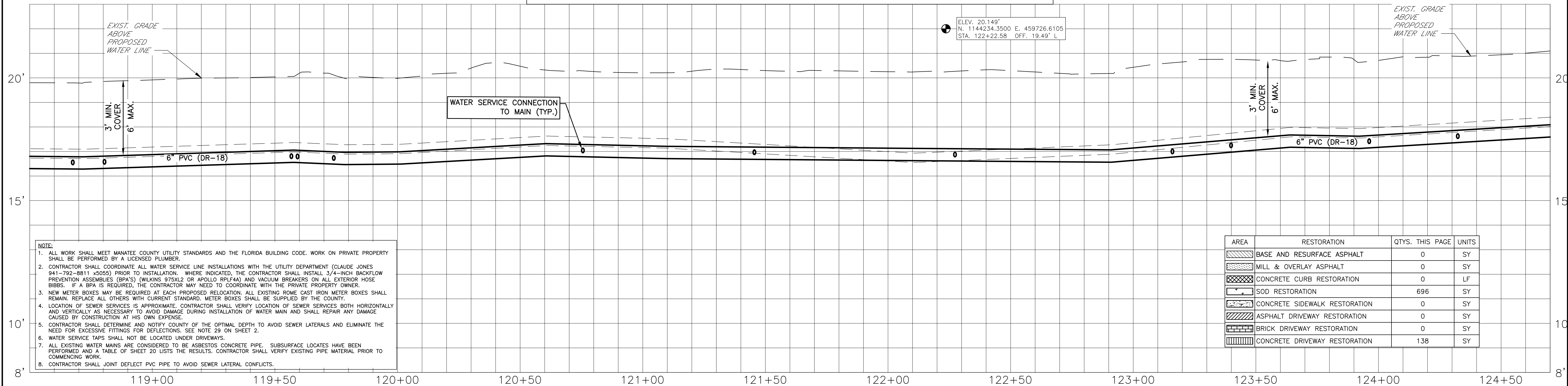


PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA LICENSE No. 99923
SEC./TWN./RGE	33/34/17	JOHN S. SHOUN
SCALE	SEE PLAN	No. 60923
SURVEYED	FDC JAN 17	STATE OF FLORIDA
DESIGNED	JSS MAY 17	PROFESSIONAL ENGINEER
DRAWN	CAK MAY 17	9/10/19
CHECKED	JSS MM/YYYY	SIGNATURE

SHEET 06 OF 22



22ND AVE W STA: 118+50 to 124+70



- NOTE:
1. ALL WORK SHALL MEET MANATEE COUNTY UTILITY STANDARDS AND THE FLORIDA BUILDING CODE. WORK ON PRIVATE PROPERTY SHALL BE PERFORMED BY A LICENSED PLUMBER.
 2. CONTRACTOR SHALL COORDINATE ALL WATER SERVICE LINE INSTALLATIONS WITH THE UTILITY DEPARTMENT (CLAUDE JONES 941-792-8811 x5055) PRIOR TO INSTALLATION. WHERE INDICATED, THE CONTRACTOR SHALL INSTALL 3/4-INCH BACKFLOW PREVENTION ASSEMBLIES (BPA'S) (WILKINS 975XL2 OR APOLLO RPL4A) AND VACUUM BREAKERS ON ALL EXTERIOR HOSE BIBBS. IF A BPA IS REQUIRED, THE CONTRACTOR MAY NEED TO COORDINATE WITH THE PRIVATE PROPERTY OWNER.
 3. NEW METER BOXES MAY BE REQUIRED AT EACH PROPOSED RELOCATION. ALL EXISTING ROME CAST IRON METER BOXES SHALL REMAIN. REPLACE ALL OTHERS WITH CURRENT STANDARD. METER BOXES SHALL BE SUPPLIED BY THE COUNTY.
 4. LOCATION OF SEWER SERVICES IS APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATION OF SEWER SERVICES BOTH HORIZONTALLY AND VERTICALLY AS NECESSARY TO AVOID DAMAGE DURING INSTALLATION OF WATER MAIN AND SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION AT HIS OWN EXPENSE.
 5. CONTRACTOR SHALL DETERMINE AND NOTIFY COUNTY OF THE OPTIMAL DEPTH TO AVOID SEWER LATERALS AND ELIMINATE THE NEED FOR EXCESSIVE FITTINGS FOR DEFLECTIONS. SEE NOTE 29 ON SHEET 2.
 6. WATER SERVICE TAPS SHALL NOT BE LOCATED UNDER DRIVEWAYS.
 7. ALL EXISTING WATER MAINS ARE CONSIDERED TO BE ASBESTOS CONCRETE PIPE. SUBSURFACE LOCATES HAVE BEEN PERFORMED AND A TABLE OF SHEET 20 LISTS THE RESULTS. CONTRACTOR SHALL VERIFY EXISTING PIPE MATERIAL PRIOR TO COMMENCING WORK.
 8. CONTRACTOR SHALL JOINT DEFLECT PVC PIPE TO AVOID SEWER LATERAL CONFLICTS.

AREA	RESTORATION	QTY. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	0	SY
	MILL & OVERLAY ASPHALT	0	SY
	CONCRETE CURB RESTORATION	0	LF
	SOD RESTORATION	696	SY
	CONCRETE SIDEWALK RESTORATION	0	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	138	SY

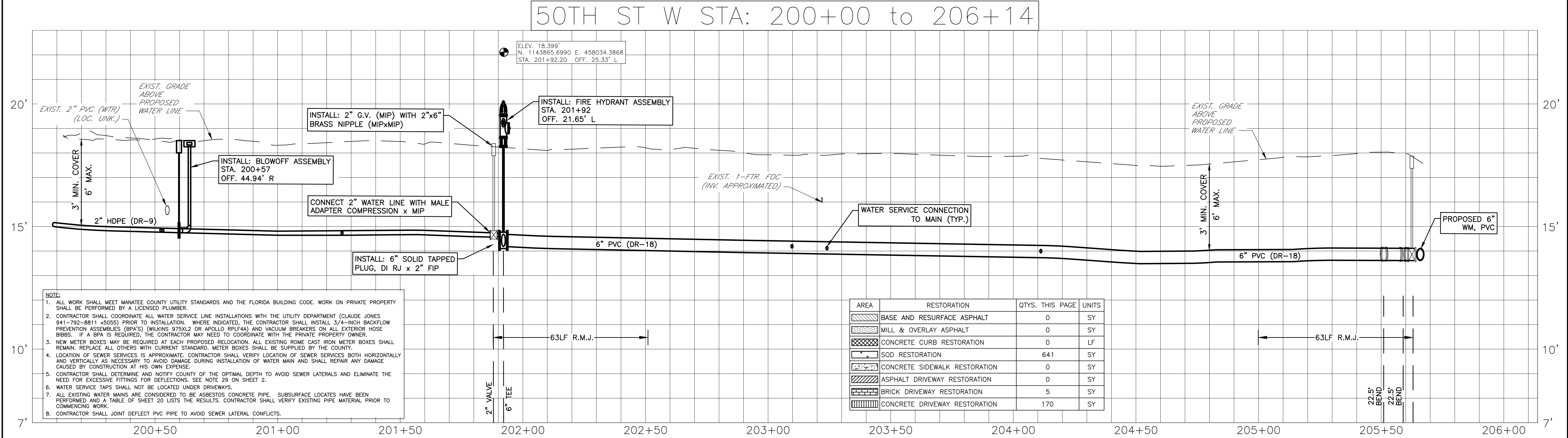
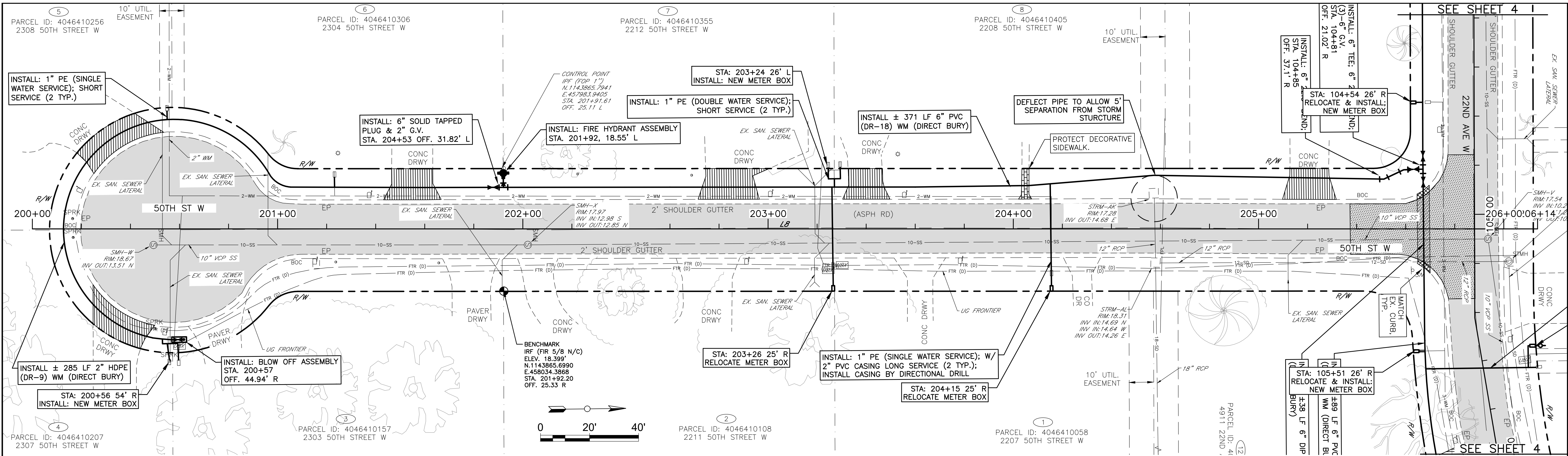
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
22ND AVE W-118+50-124+70



PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA LICENSE No. 60923
SEC./TWN./RGE	33/34/17	DATE 9/10/19
SCALE	SEE PLAN	STATE OF FLORIDA
SURVEYED	FDC JAN 17	PROFESSIONAL ENGINEER
DESIGNED	JSS MAY 17	DATE
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYYY	

SHEET 07 OF 22



NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

WILLOW WOODS & LAKES ESTATES

WATER MAIN UPGRADE

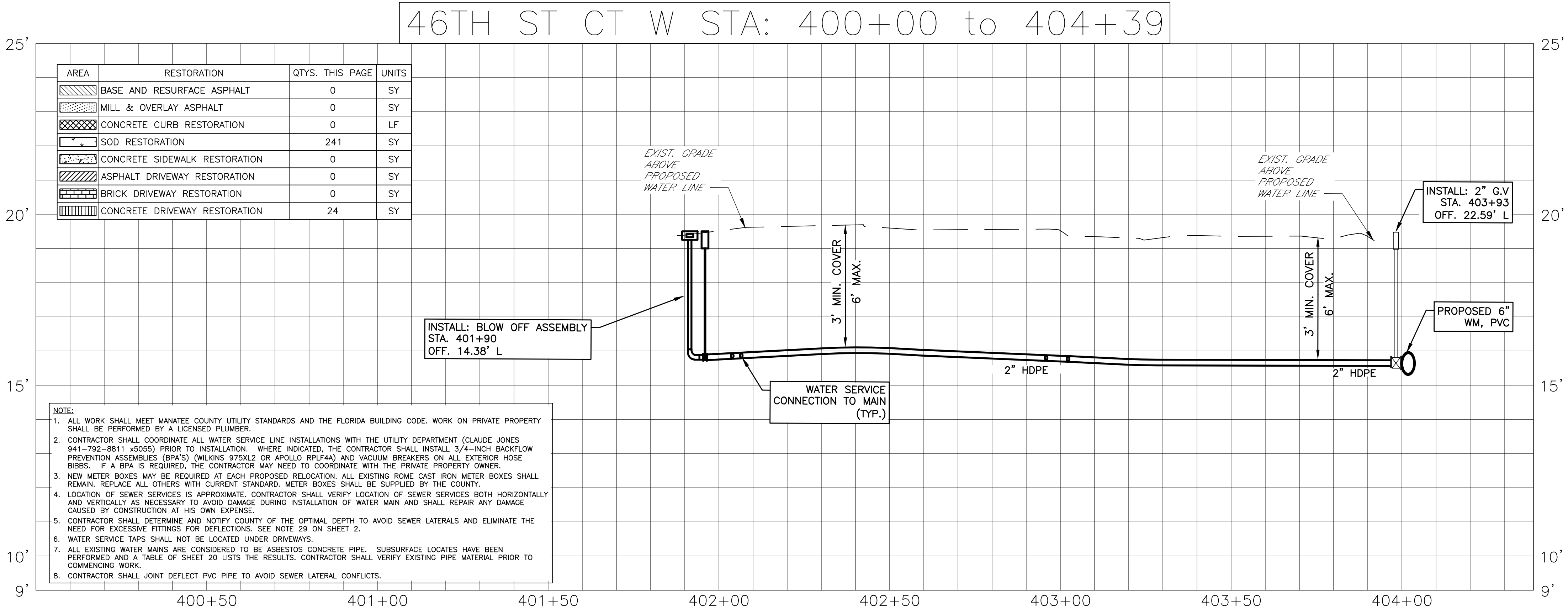
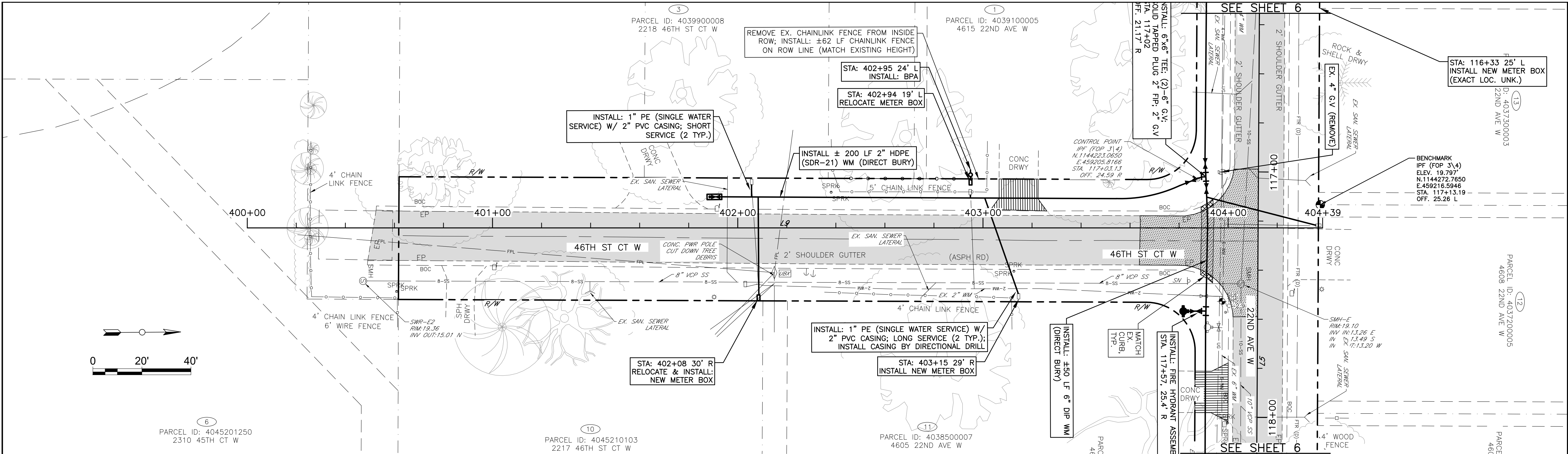
PLAN & PROFILE

50TH ST W-200+00-206+14

PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East, Bradenton, FL 34208

PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA LICENSE No. 09293
SEC./TWN./RGE	33/34/17	STATE OF FLORIDA
SCALE	SEE PLAN	PROFESSIONAL SEAL
SURVEYED	BY: FDC DATE: JAN 17	
DESIGNED	JSS MAY 17	
DRAWN	CAK MAY 17	
CHECKED	JSS MM/YYY	

SHEET 09 OF 22



AREA	RESTORATION	QTY. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	0	SY
	MILL & OVERLAY ASPHALT	0	SY
	CONCRETE CURB RESTORATION	0	LF
	SOD RESTORATION	241	SY
	CONCRETE SIDEWALK RESTORATION	0	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	24	SY

- NOTE:
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 - CONTRACTOR SHALL COORDINATE ALL WATER SERVICE LINE INSTALLATIONS WITH THE UTILITY DEPARTMENT (CLAUDE JONES 941-792-8811 x5055) PRIOR TO INSTALLATION. WHERE INDICATED, THE CONTRACTOR SHALL INSTALL 3/4-INCH BACKFLOW PREVENTION ASSEMBLIES (BPA'S) (WILKINS 975XL2 OR APOLLO RPL44A) AND VACUUM BREAKERS ON ALL EXTERIOR HOSE BIBBS. IF A BPA IS REQUIRED, THE CONTRACTOR MAY NEED TO COORDINATE WITH THE PRIVATE PROPERTY OWNER.
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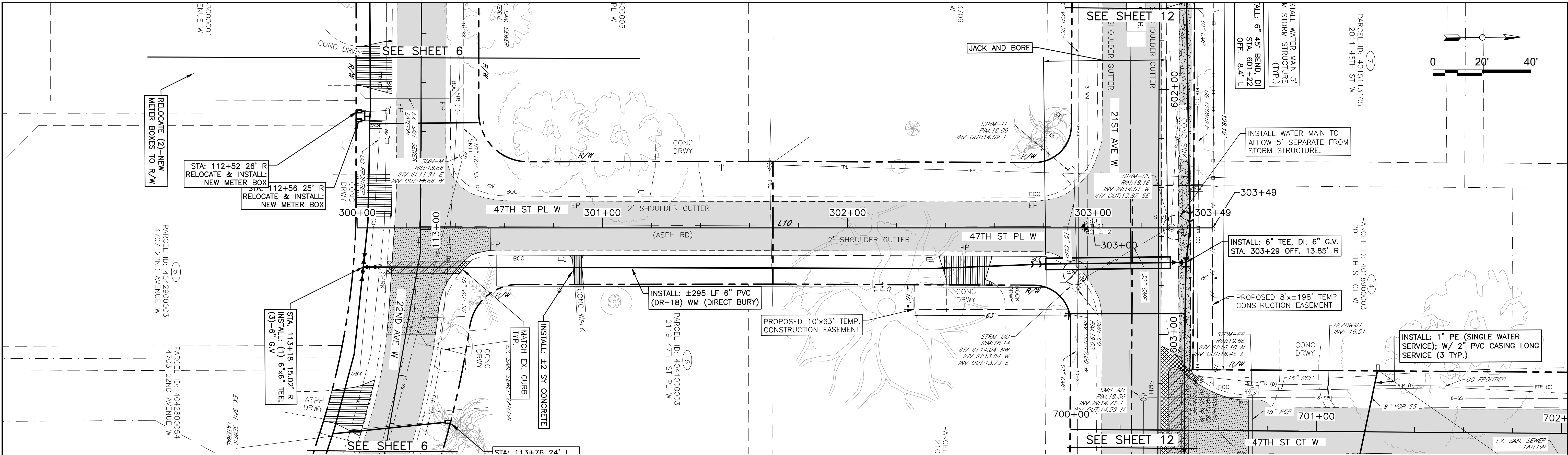
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
46TH ST CT W-400+00-404+39



PROJECT #	404.6089170	
SURVEY #	0577-0032	
SEC./TWN./RGE	33/34/17	
SCALE	SEE PLAN	
	BY	DATE
SURVEYED	FDC	JAN 17
DESIGNED	JSS	MAY 17
DRAWN	CAK	MAY 17
CHECKED	JSS	MM/YYYY

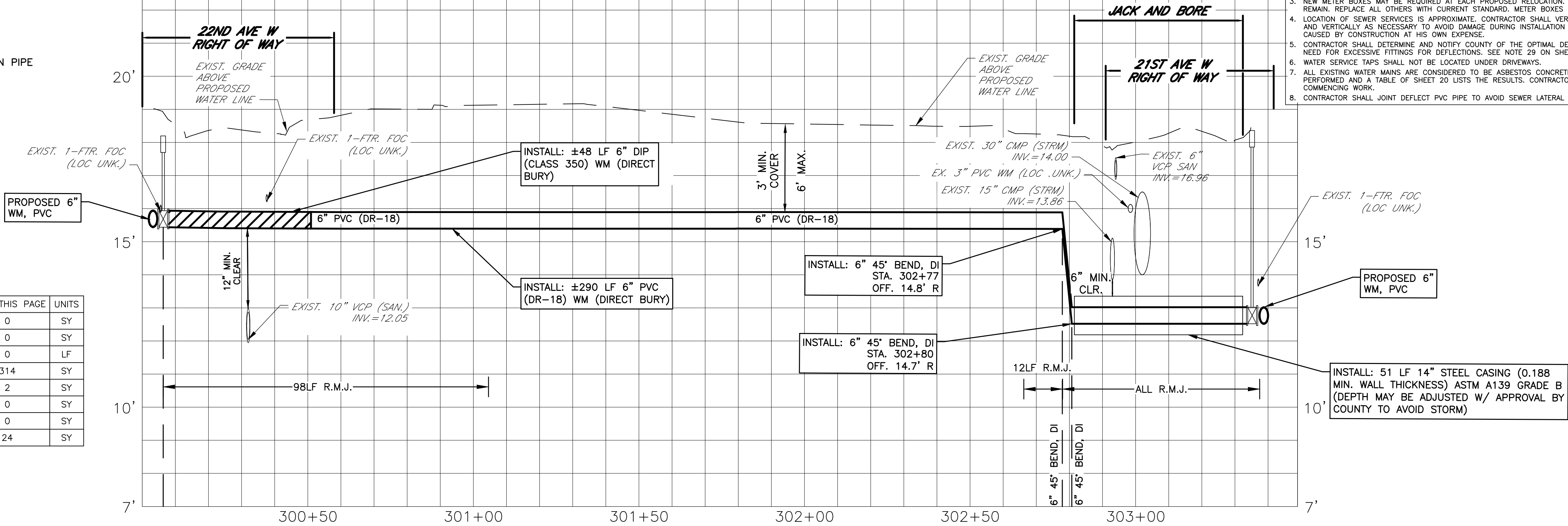
J. SHEA SHOUN, P.E.
FLORIDA PROFESSIONAL ENGINEER
No. 60923
9/10/19
SHEA SHOUN & ASSOCIATES, P.A.
SHEET 10 OF 22



47TH ST PL W STA: 300+00 to 303+49

DUCTILE IRON PIPE

AREA	RESTORATION	QTY'S. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	0	SY
	MILL & OVERLAY ASPHALT	0	SY
	CONCRETE CURB RESTORATION	0	LF
	SOD RESTORATION	314	SY
	CONCRETE SIDEWALK RESTORATION	2	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	24	SY



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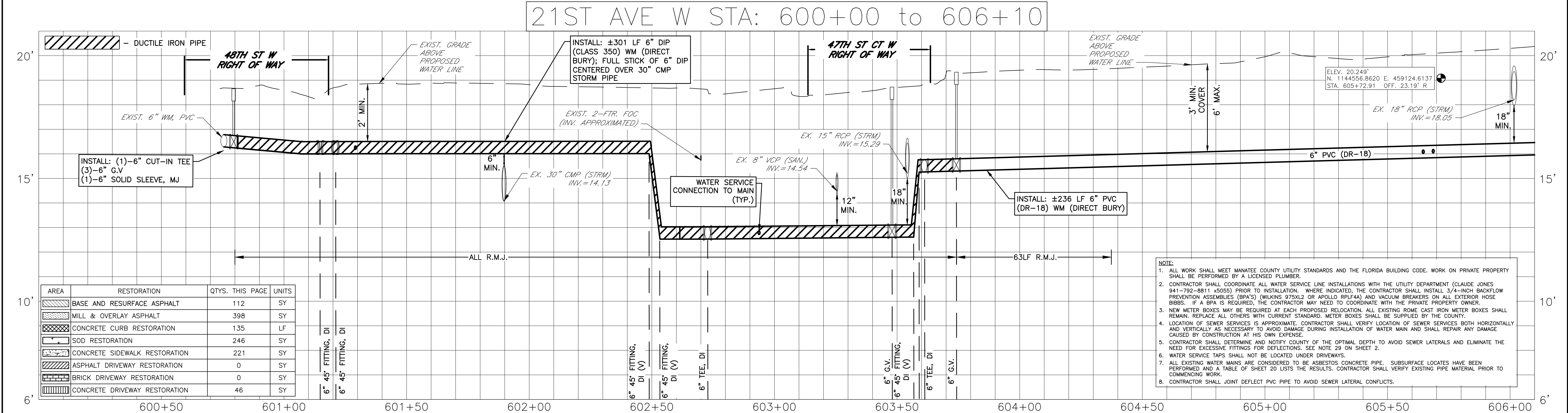
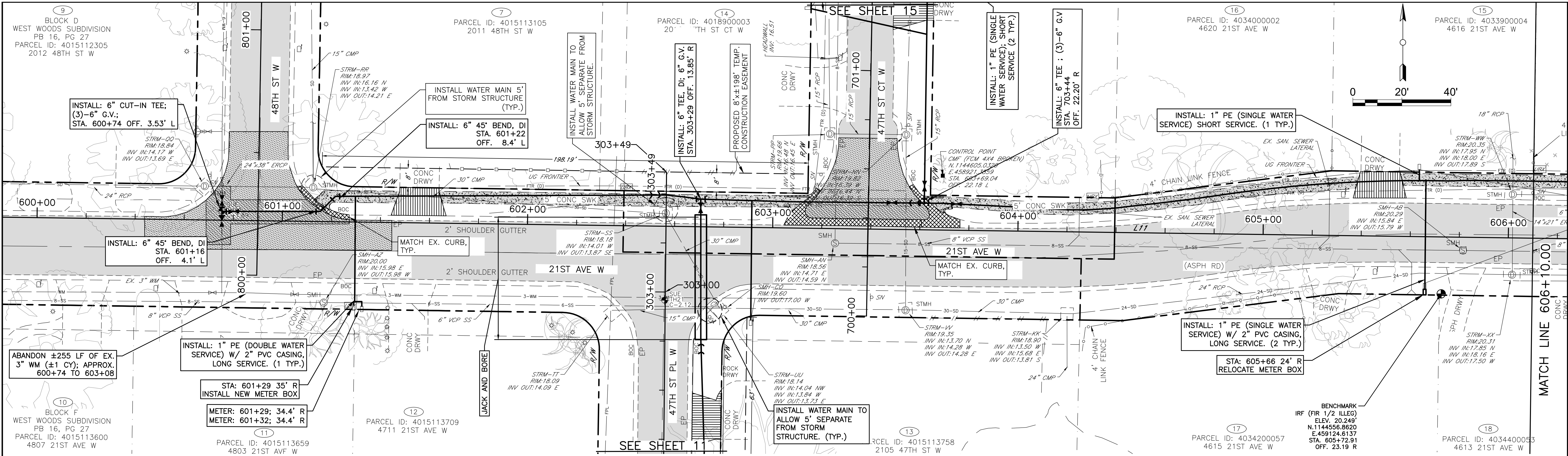
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF, added restoration table	JSS	6/19

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
47TH ST PL W-300+00-303+49




PROJECT #	404.6089170	
SURVEY #	0577-0032	
SEC./TWN./RGE	33/34/17	
SCALE	SEE PLAN	
	BY	DATE
SURVEYED	FDC	JAN 17
DESIGNED	JSS	MAY 17
DRAWN	CAK	MAY 17
CHECKED	JSS	MM/YYYY

J. SHEA SHOUN, P.E.
Professional Engineer
No. 60923
STATE OF FLORIDA
9/10/19
SHEET 11 OF 22



NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. DIP/PVC LF; update restoration table	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

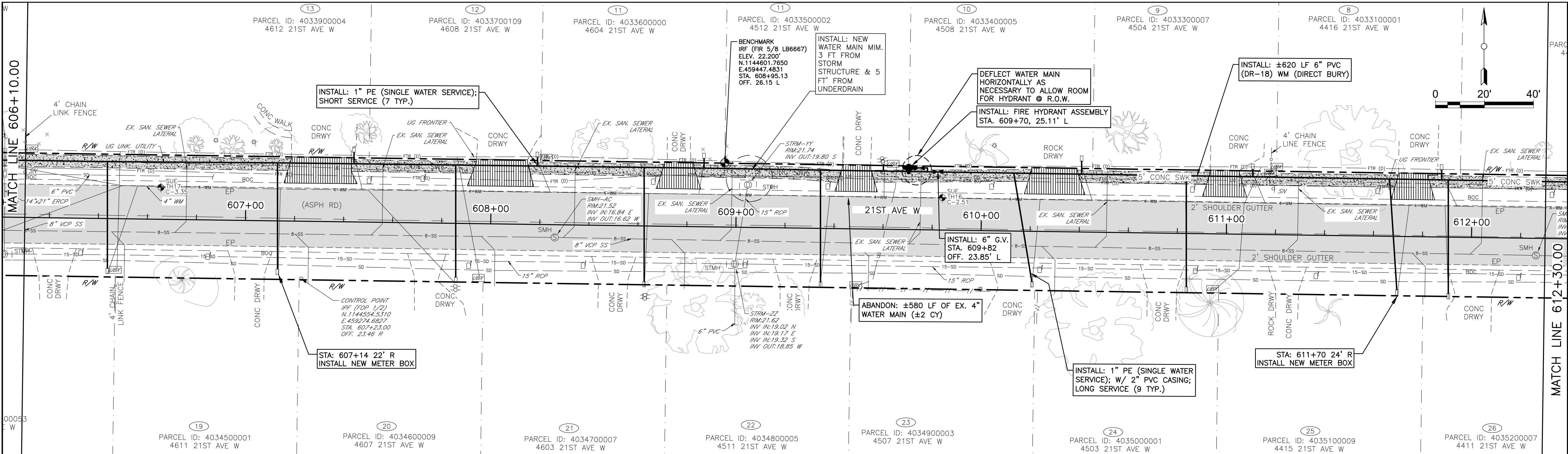
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
21ST AVE W-600+00-606+10



PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East, Bradenton, FL 34208

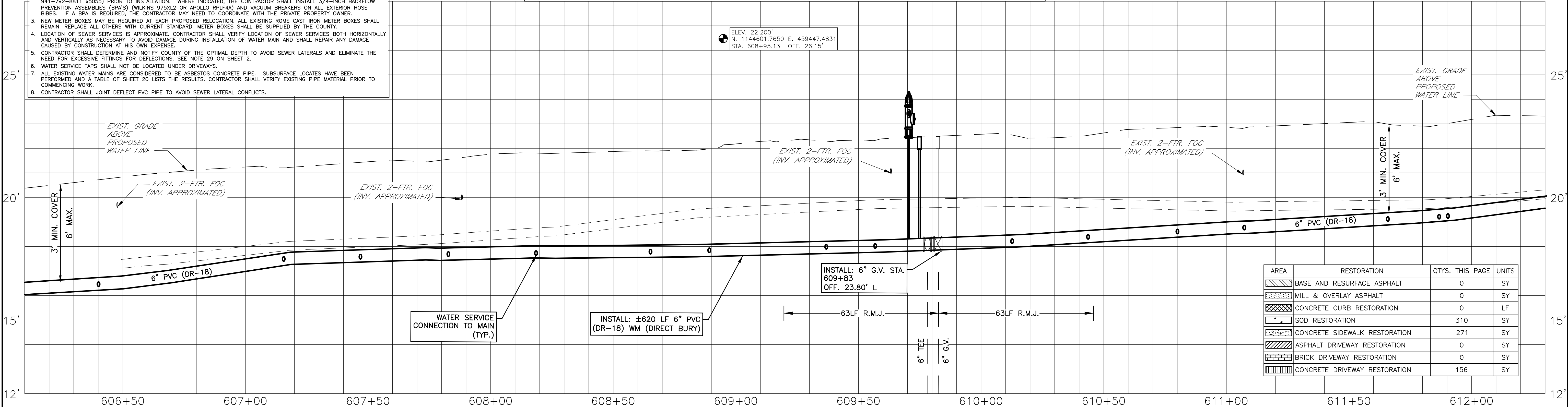
PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA PROFESSIONAL ENGINEER No. 60923 9/10/19
SEC./TWN./RGE	33/34/17	
SCALE	SEE PLAN	
SURVEYED	FDC	JAN 17
DESIGNED	JSS	MAY 17
DRAWN	CAK	MAY 17
CHECKED	JSS	MM/YYY

SHEET 12 OF 22



- NOTE:
1. ALL WORK SHALL MEET MANATEE COUNTY UTILITY STANDARDS AND THE FLORIDA BUILDING CODE. WORK ON PRIVATE PROPERTY SHALL BE PERFORMED BY A LICENSED PLUMBER.
 2. CONTRACTOR SHALL COORDINATE ALL WATER SERVICE LINE INSTALLATIONS WITH THE UTILITY DEPARTMENT (CLAUDE JONES 941-792-8811 x5055) PRIOR TO INSTALLATION. WHERE INDICATED, THE CONTRACTOR SHALL INSTALL 3/4-INCH BACKFLOW PREVENTION ASSEMBLIES (BPAs) (WILKINS 975X1/2 OR APOLLO RP1/4) AND VACUUM BREAKERS ON ALL EXTERIOR HOSE BIBBS. IF A BPA IS REQUIRED, THE CONTRACTOR MAY NEED TO COORDINATE WITH THE PRIVATE PROPERTY OWNER.
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21ST AVE W STA: 606+10 to 612+30

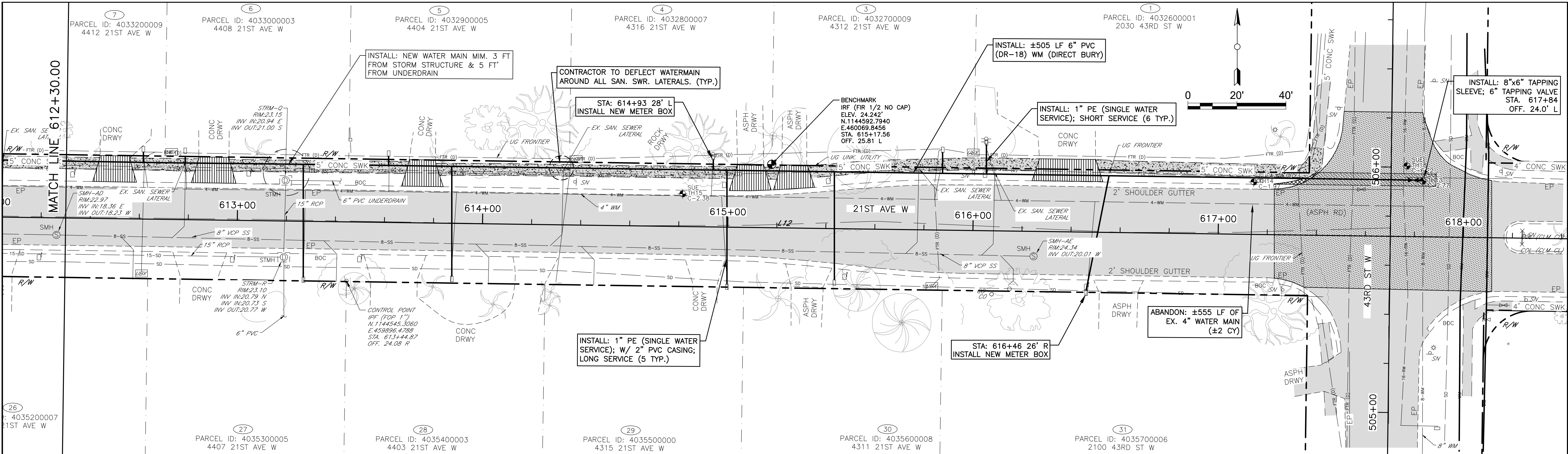


NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

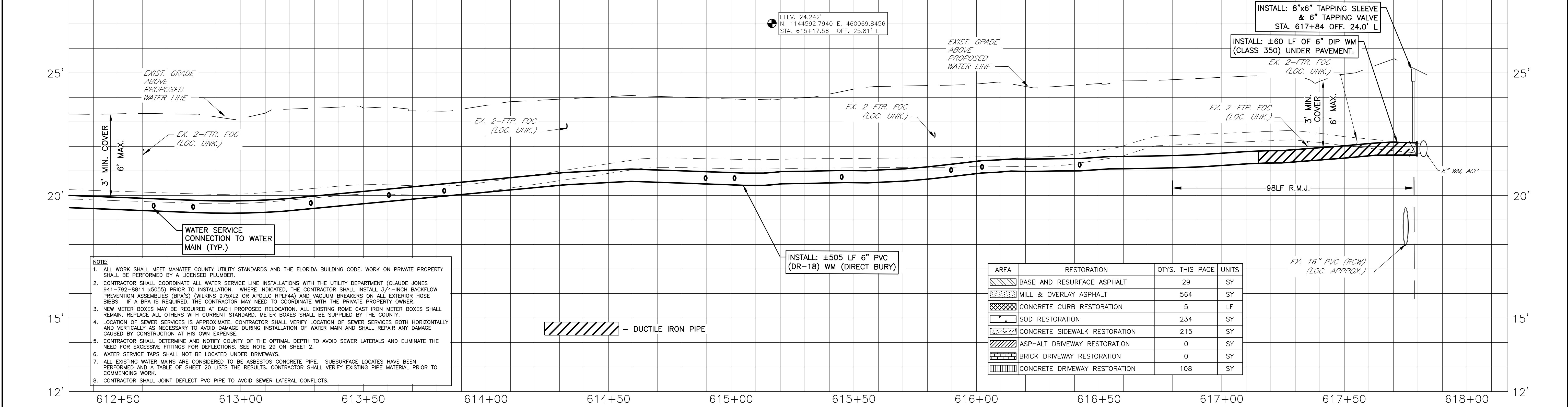
WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
21ST AVE W-606+10-612+30



PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA PROFESSIONAL ENGINEER No. 60923
SEC./TWN./RGE	33/34/17	DATE 9/10/19
SCALE	SEE PLAN	SIGNATURE
SURVEYED	FDC	DATE JAN 17
DESIGNED	JSS	DATE MAY 17
DRAWN	CAK	DATE MAY 17
CHECKED	JSS	DATE MM/YYY



21ST AVE W STA: 612+30 to 618+17



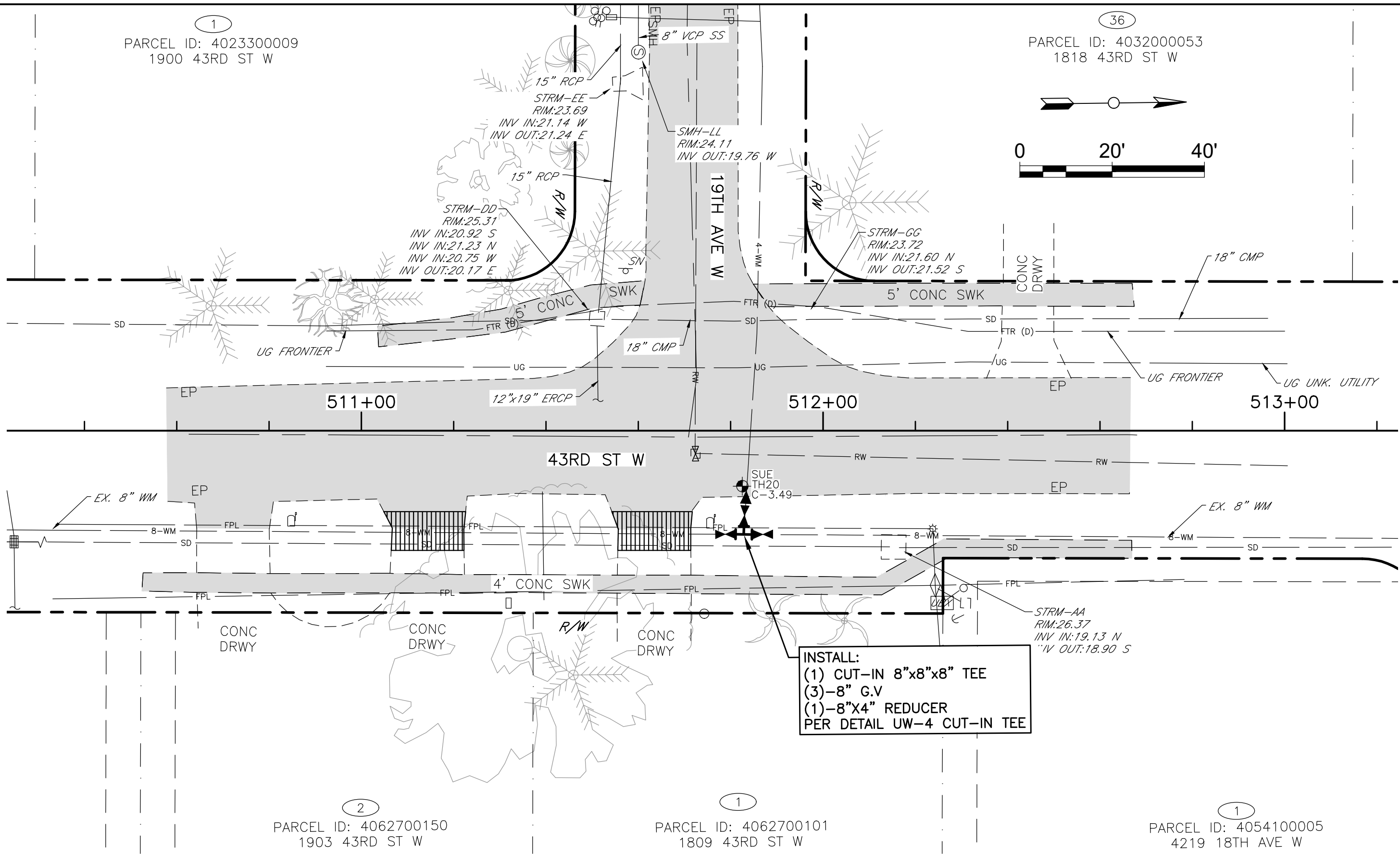
NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. PVC LF	JSS	6/19
2	revised notes 2&3 and BPA installation locations	JSS	9/19

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE
PLAN & PROFILE
21ST AVE W-612+30-618+17

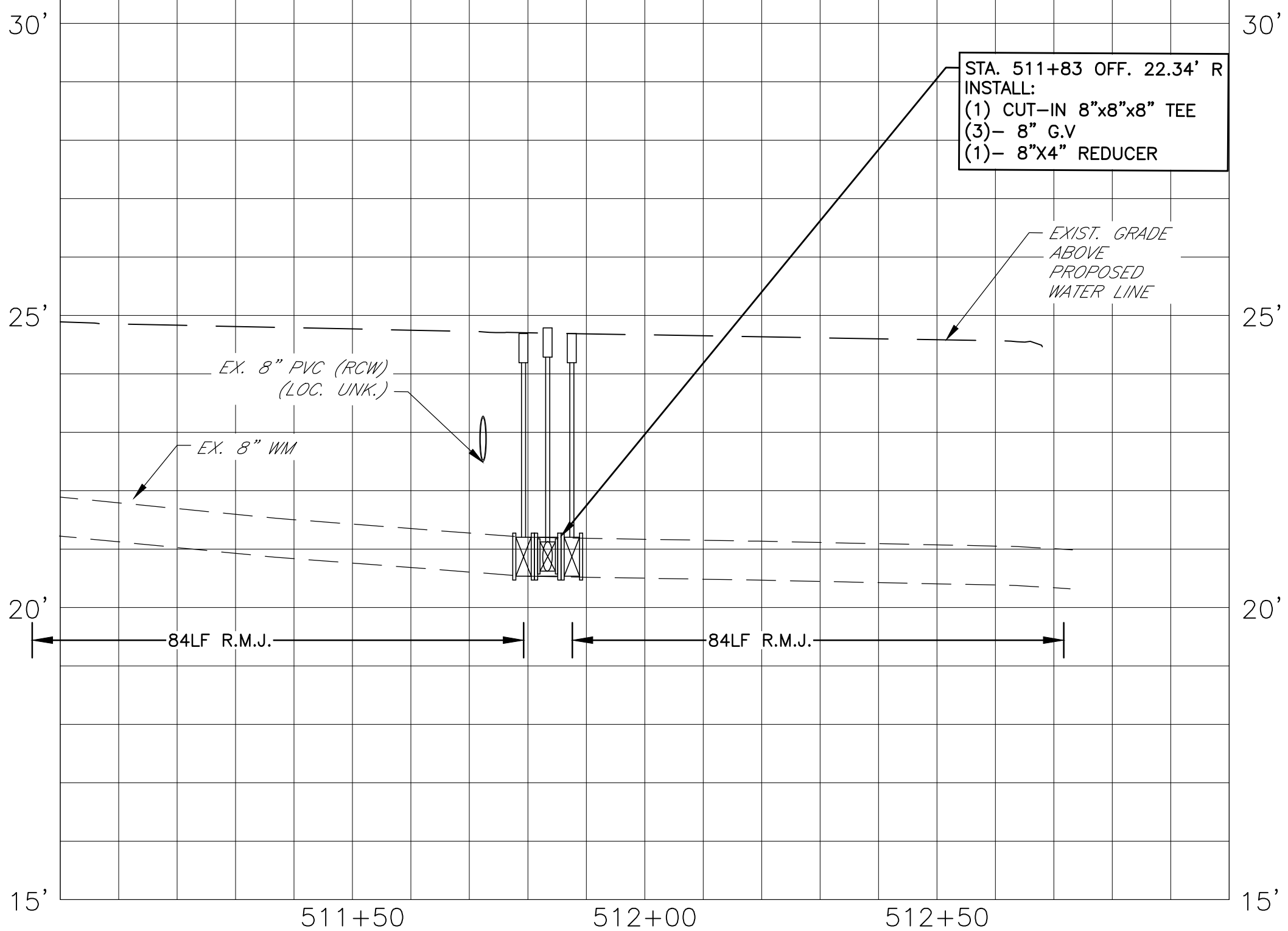

PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East, Bradenton, FL 34208

PROJECT #	404.6089170	J. SHEA SHOUN, P.E.
SURVEY #	0577-0032	FLORIDA PROFESSIONAL ENGINEER
SEC./TWN./RGE	33/34/17	No. 60923
SCALE	SEE PLAN	STATE OF FLORIDA
SURVEYED	FDC JAN 17	9/10/19
DESIGNED	JSS MAY 17	PROFESSIONAL ENGINEER
DRAWN	CAK MAY 17	Signature
CHECKED	JSS MM/YYYY	

SHEET 14 OF 22



43RD ST W STA: 511+00 to 513+00



AREA	RESTORATION	QTYS. THIS PAGE	UNITS
	BASE AND RESURFACE ASPHALT	51	SY
	MILL & OVERLAY ASPHALT	332	SY
	CONCRETE CURB RESTORATION	0	LF
	SOD RESTORATION	178	SY
	CONCRETE SIDEWALK RESTORATION	4	SY
	ASPHALT DRIVEWAY RESTORATION	0	SY
	BRICK DRIVEWAY RESTORATION	0	SY
	CONCRETE DRIVEWAY RESTORATION	30	SY

- NOTE:
- ALL WORK SHALL MEET MANATEE COUNTY UTILITY STANDARDS AND THE FLORIDA BUILDING CODE. WORK ON PRIVATE PROPERTY SHALL BE PERFORMED BY A LICENSED PLUMBER.
 - CONTRACTOR SHALL COORDINATE ALL WATER SERVICE LINE INSTALLATIONS WITH THE UTILITY DEPARTMENT (CLAUDE JONES 941-792-8811 x5055) PRIOR TO INSTALLATION. WHERE INDICATED, THE CONTRACTOR SHALL INSTALL 3/4-INCH BACKFLOW PREVENTION ASSEMBLIES (BPA'S) (WILKINS 975XL2 OR APOLLO RPL4A) AND VACUUM BREAKERS ON ALL EXTERIOR HOSE BIBBS. IF A BPA IS REQUIRED, THE CONTRACTOR MAY NEED TO COORDINATE WITH THE PRIVATE PROPERTY OWNER.
 - NEW METER BOXES MAY BE REQUIRED AT EACH PROPOSED RELOCATION. ALL EXISTING ROME CAST IRON METER BOXES SHALL REMAIN. REPLACE ALL OTHERS WITH CURRENT STANDARD. METER BOXES SHALL BE SUPPLIED BY THE COUNTY.
 - LOCATION OF SEWER SERVICES IS APPROXIMATE. CONTRACTOR SHALL VERIFY LOCATION OF SEWER SERVICES BOTH HORIZONTALLY AND VERTICALLY AS NECESSARY TO AVOID DAMAGE DURING INSTALLATION OF WATER MAIN AND SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION AT HIS OWN EXPENSE.
 - CONTRACTOR SHALL DETERMINE AND NOTIFY COUNTY OF THE OPTIMAL DEPTH TO AVOID SEWER LATERALS AND ELIMINATE THE NEED FOR EXCESSIVE FITTINGS FOR DEFLECTIONS. SEE NOTE 29 ON SHEET 2.
 - WATER SERVICE TAPS SHALL NOT BE LOCATED UNDER DRIVEWAYS.
 - ALL EXISTING WATER MAINS ARE CONSIDERED TO BE ASBESTOS CONCRETE PIPE. SUBSURFACE LOCATES HAVE BEEN PERFORMED AND A TABLE OF SHEET 20 LISTS THE RESULTS. CONTRACTOR SHALL VERIFY EXISTING PIPE MATERIAL PRIOR TO COMMENCING WORK.
 - CONTRACTOR SHALL JOINT DEFLECT PVC PIPE TO AVOID SEWER LATERAL CONFLICTS.

NO.	REVISION DESCRIPTION	BY	DATE
1	revised note 2; rev. restoration table; added conc driveway repair; modified cut-in tee callout	JSS	6/19

WILLOW WOODS & LAKES ESTATES
WATER MAIN UPGRADE

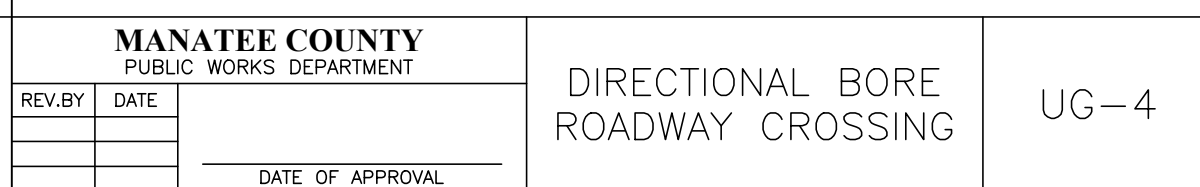
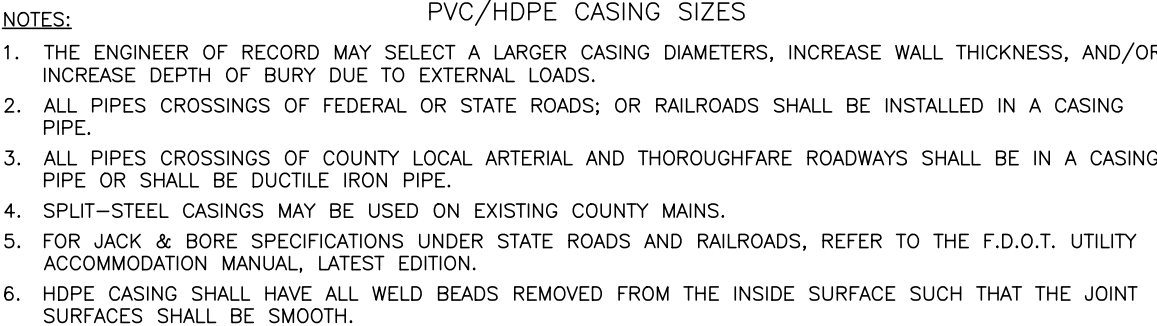
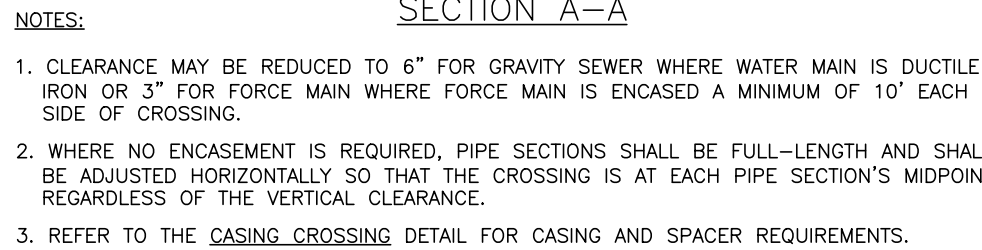
PLAN & PROFILE
43RD ST W-511+00-513+00



PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES
1022 26th Avenue East, Bradenton, FL 34208

PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
BY	DATE
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
FLORIDA LICENSE #30000003
No. 60923
STATE OF FLORIDA
PROFESSIONAL ENGINEER
SHEA SHOUN & ASSOCIATES, P.A.
SHEET 16 OF 22



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 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.
9. ALL RESTRAINED JOINT HARDWARE SHALL CONFORM TO 1.11.18.E OF THE PUBLIC WORKS UTILITIES STANDARDS MANUAL.

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

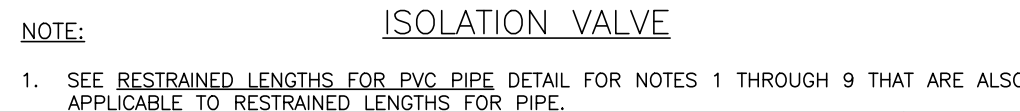
REQUIRED LENGTH OF RESTRAINED JOINT PIPE FOR DIP (NON-WRAPPED)

NOTE:

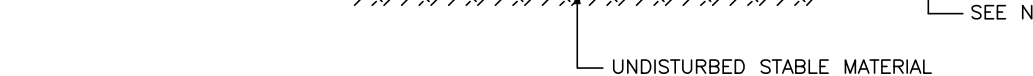
1. SEE RESTRAINED LENGTHS FOR PVC PIPE DETAIL FOR NOTES 1 THROUGH 9 THAT ARE ALSO APPLICABLE TO RESTRAINED LENGTHS FOR DIP.

RESTRAINED LENGTHS FOR DIP

CASING CROSSING

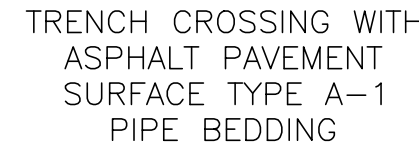


RESTRAINED LENGTHS FOR PIPE

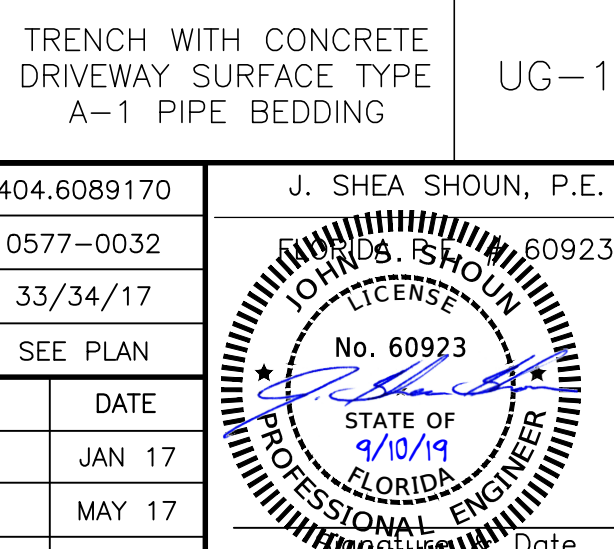
DIRECTIONAL BORE

TRENCH WITH
UNIMPROVED SURFACE
TYPE A-1 PIPE BEDDING

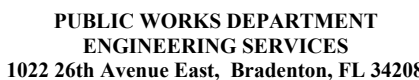
HDPE TO PVC OR


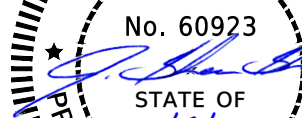


RESTRAINED LENGTHS FOR PVC PIPE

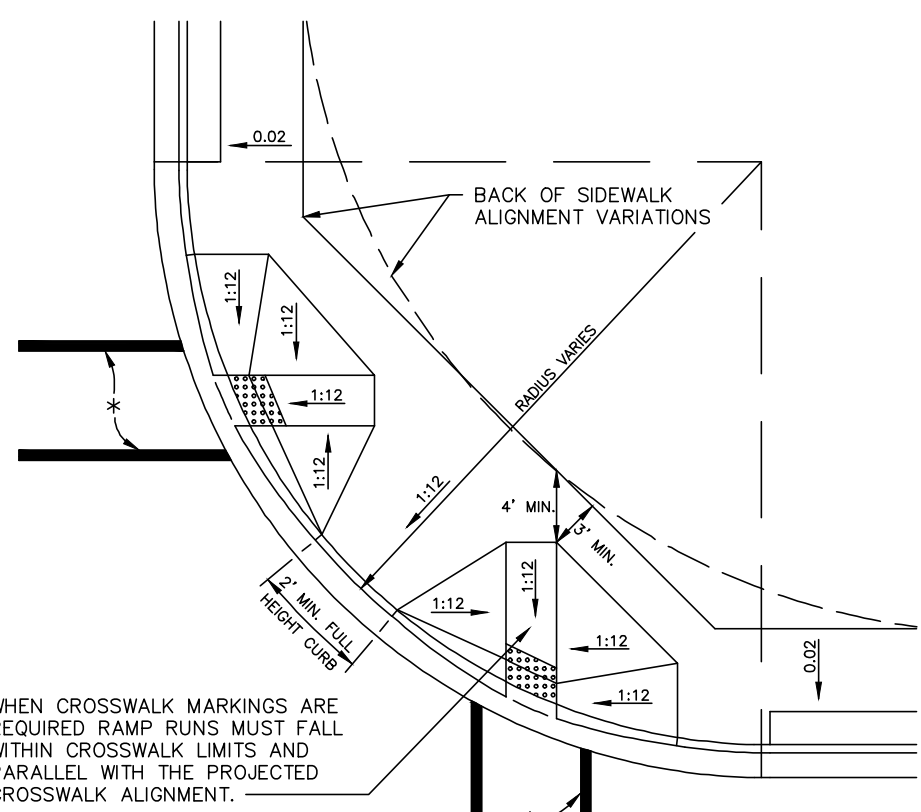
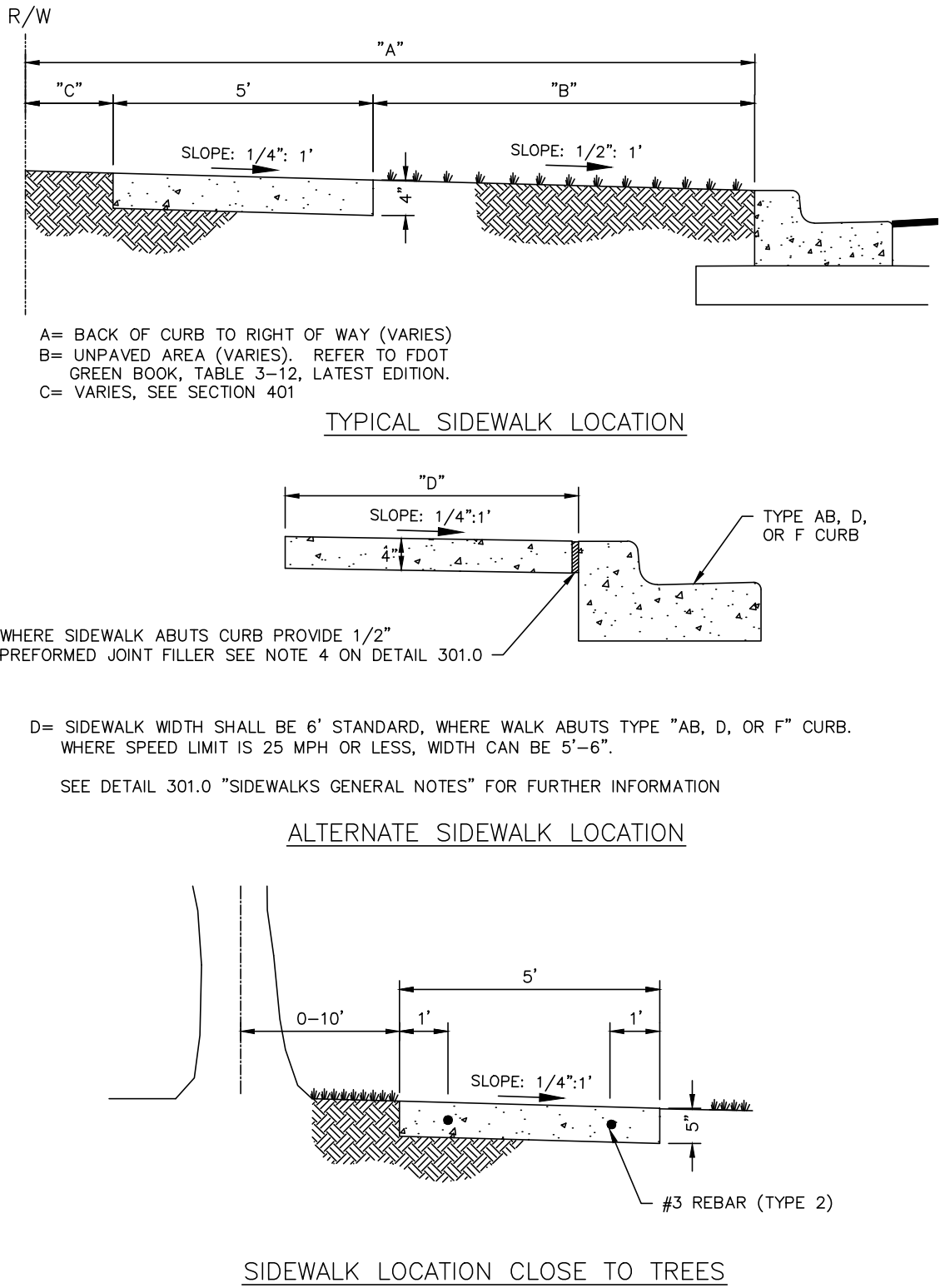


DETAILS



PROJECT #		404.6089170		J. SHEA SHOUN, P.E.	
SURVEY #		0577-0032		60923	
SEC./TWN./RGE		33/34/17			
SCALE		SEE PLAN			
	BY	DATE			
SURVEYED	FDC	JAN 17			
DESIGNED	JSS	MAY 17			
DRAWN	CAK	MAY 17			
CHECKED	JSS	MM/YYYY			
SHEET 17 OF 2					

- GENERAL NOTES
- SIDEWALK SHALL BE CONSTRUCTED A MINIMUM OF 4" THICK, USING 3000 PSI CONCRETE, WHERE SIDEWALK BISECTS A DRIVEWAY, THE MINIMUM SHALL BE 6" OF CLASS 1 CONCRETE REINFORCED WITH 6"x6" #10 WIRE MESH. SEE DETAILS 101.2 & 101.3 OF THE HIGHWAY & TRAFFIC STANDARDS MANUAL.
 - ALL SIDEWALKS SHALL BE CONSTRUCTED TO THE SPECIFICATIONS OF THE MANATEE COUNTY LAND DEVELOPMENT CODE, CHAPTER 10. A MINIMUM FIVE FOOT (5') WIDE SIDEWALK SHALL BE INSTALLED ALONG THE NORTH AND WEST SIDES OF ALL NEW LOCAL STREETS WHICH ARE CONSTRUCTED IN CONJUNCTION WITH A NEW RESIDENTIAL DEVELOPMENT. A SIDEWALK A MINIMUM OF FIVE FOOT (5') IN WIDTH SHALL BE INSTALLED ON BOTH SIDES OF ALL THOROUGHFARES. REFER TO FDOT DESIGN STANDARDS, LATEST EDITION FOR CURB CUT RAMP SPECIFICATIONS.
 - THE CONCRETE SHALL BE GIVEN A BROOM FINISH. THE SURFACE VARIATIONS SHALL NOT BE MORE THAN 1/4" UNDER A TEN FOOT (10') STRAIGHTEDGE, NOR MORE THAN 1/8" ON A FIVE FOOT (5') TRAVERSE SECTION. THE EDGE OF THE SIDEWALK SHALL BE CAREFULLY FINISHED WITH AN EDGING TOOL HAVING A RADIUS OF 1/2".
 - EXPANSION JOINT: EXPANSION JOINTS BETWEEN THE SIDEWALKS AND THE CURB OR DRIVEWAY OR AT FIXED OBJECTS AND SIDEWALK INTERSECTIONS SHALL BE 1/2" MATERIAL AND SHALL MEET THE REQUIREMENTS OF AASHTO M153 OR AASHTO M213. FOR LONG POORS, AN EXPANSION JOINT SHALL BE PLACED AT INTERVALS NOT TO EXCEED 120'.
 - CONTRACTION JOINTS:
OPEN TYPE JOINTS
OPEN TYPE CONTRACTION JOINTS SHALL BE FORMED BY STAKING A METAL BULKHEAD IN PLACE AND DEPOSITING THE CONCRETE ON BOTH SIDES. AFTER THE CONCRETE HAS SET SUFFICIENTLY TO PRESERVE THE WIDTH AND THE SHAPE OF THE JOINT, THE BULKHEAD SHALL BE REMOVED. AFTER THE SIDEWALK HAS BEEN FINISHED OVER THE JOINT, THE SLOT SHALL BE FINISHED WITH A TOOL HAVING A 1/2" RADIUS.
SAWED JOINTS
A SLOT APPROXIMATELY 3/16" WIDE AND NOT LESS THAN 1" DEEP AT 10' CENTERS SHALL BE CUT WITH A CONCRETE SAW AFTER THE CONCRETE HAS SET.
 - SIDEWALKS ALONG OTHER STREETS SHALL BE CONSTRUCTED AND DEDICATED AS REQUIRED BY THE APPROVING AUTHORITY WHEN NECESSARY TO CONTINUE AN EXISTING OR PROPOSED SIDEWALK.
 - HANDICAP RAMPS SHALL MEET FLORIDA ACCESSIBILITIES STANDARDS, AND DETAILS 302.1, 302.2 AND 302.3.
 - ALL SIDEWALKS IN RIGHT OF WAY WITHIN 10' OF AN EXISTING OR PROPOSED TREE THAT WILL EXCEED 6" IN DIAMETER AT MATURITY SHALL BE 5" THICK AND CONTAIN 2-#3 REBAR @ 20' LONG, CENTERED, AND SPACED 3' ON CENTER. PALMS ARE NOT CONSIDERED TREES.
 - DROP OFF HAZARDS SHALL BE PROTECTED PER FDOT PLAN PREPARATION MANUEL, LATEST EDITION. SLOPE SHALL NOT START CLOSER THAN 6" TO SIDEWALK.
- NOTE:
FOR COMPLETE SIDEWALK DETAILS, SEE FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304, SHEETS 1 THROUGH 7 AND INDEX 310, SHEETS 1 & 2.



- CURB CUT RAMPS ARE TO BE LOCATED AS SHOWN ON PLANS.
 - SEE DETAIL 301.0 "SIDEWALKS GENERAL NOTES" & DETAIL 302.2 "HANDICAPPED RAMP SHEET 2" FOR FURTHER REQUIREMENTS.
 - RADIUS OF CURB VARIES AS FOLLOWS:
A) 25' RAD. LOCAL STREET WITH ALLEY.
B) 25' RAD. LOCAL STREET WITH LOCAL STREET.
C) 35' RAD. LOCAL STREET WITH THOROUGHFARE OR COLLECTOR.
D) 50' RAD. THOROUGHFARE WITH THOROUGHFARE
 - CURB RADIUS SHOULD BE A MINIMUM OF 50' WHERE INDUSTRIAL AND BUS TRAFFIC (5% OR MORE) IS ANTICIPATED ON LOWER CLASSIFICATION ROADWAYS.
 - BOTH LOCATION OPTIONS FOR HANDICAPPED RAMP ARE SHOWN. ENGINEER MAY SELECT EITHER, WHICHEVER FITS THE SITUATION.
- NOTE:
FOR COMPLETE HANDICAP, PUBLIC SIDEWALK AND CURB RAMP DETAILS, SEE FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304, SHEETS 1 THROUGH 6.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY	DATE
DATE OF B.O.C.C. APPROVAL	

SIDEWALKS
GENERAL NOTES

301.0

MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY	DATE
DATE OF B.O.C.C. APPROVAL	

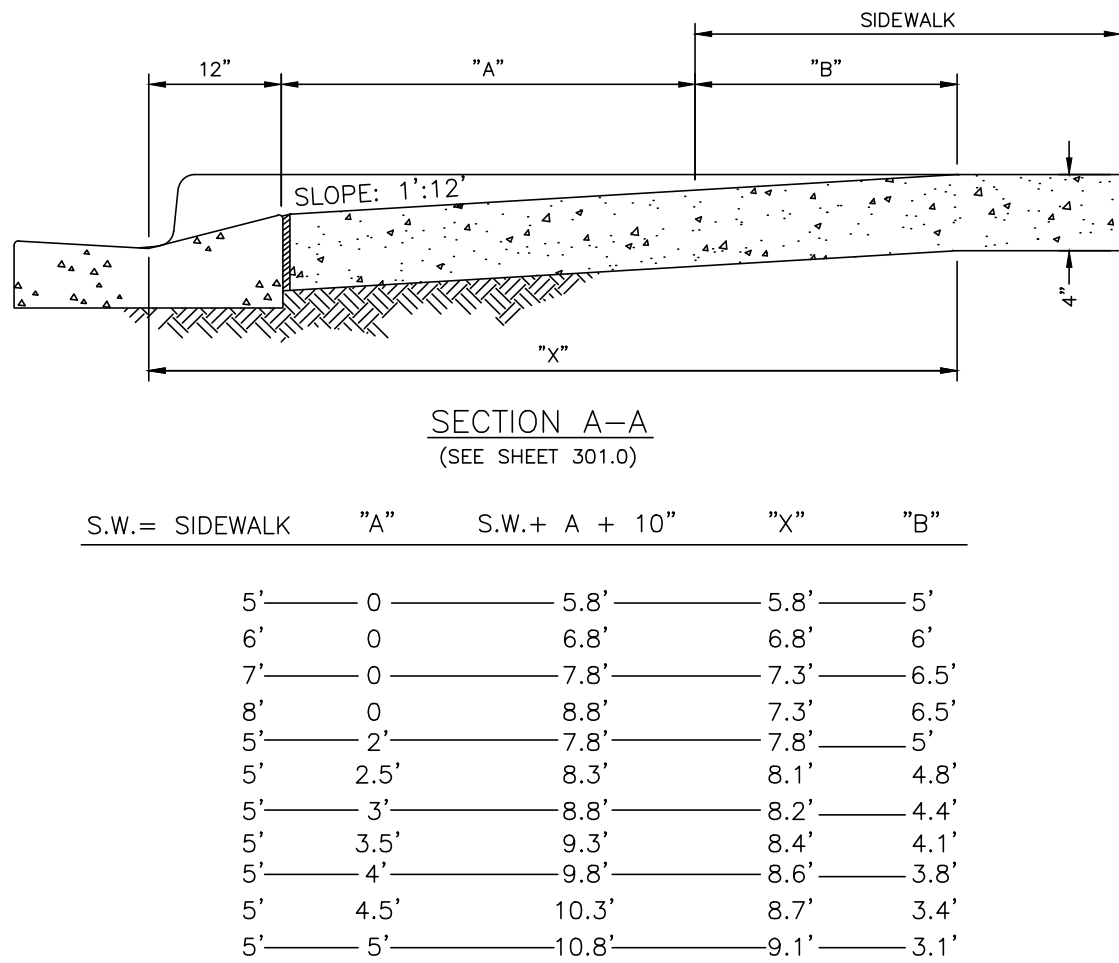
SIDEWALK
REQUIREMENTS

301.1

MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY	DATE
DATE OF B.O.C.C. APPROVAL	

HANDICAPPED
RAMP SHEET 1

302.1



NOTE:
FOR COMPLETE HANDICAP, PUBLIC SIDEWALK AND CURB RAMP DETAILS, SEE FDOT DESIGN STANDARDS, LATEST EDITION, INDEX 304, SHEETS 1 THROUGH 6.

MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY	DATE
DATE OF B.O.C.C. APPROVAL	

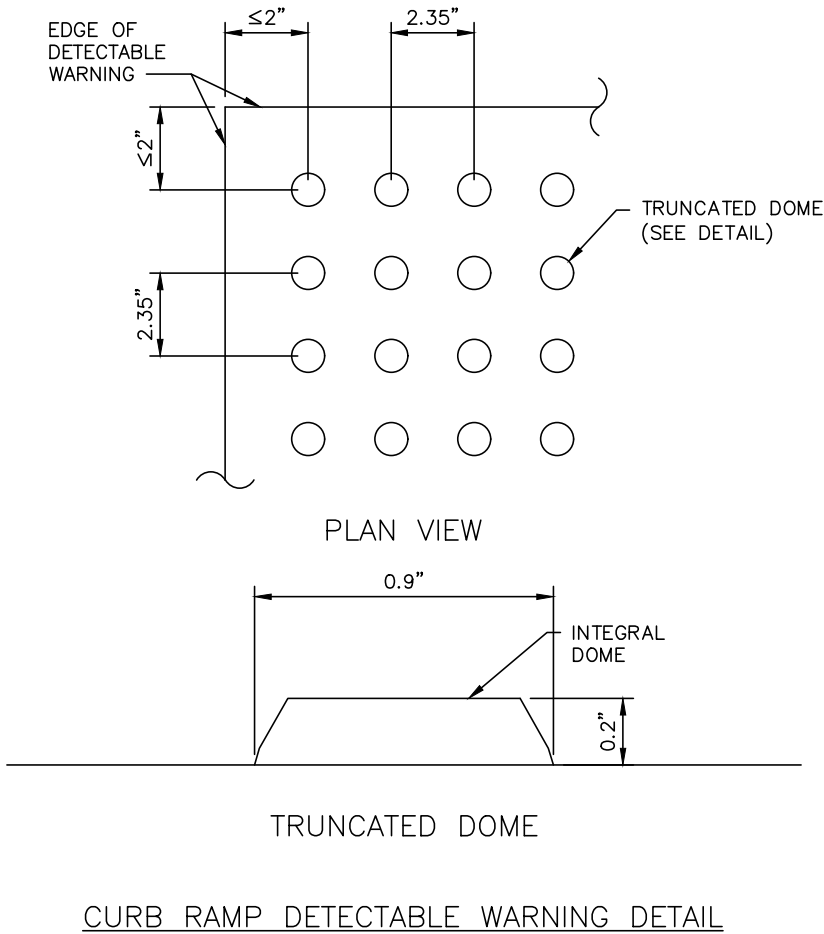
HANDICAPPED
RAMP SHEET 2

302.2

MANATEE COUNTY PUBLIC WORKS DEPARTMENT	
REV. BY	DATE
DATE OF B.O.C.C. APPROVAL	

CURB RAMP
DETECTABLE
WARNINGS

302.3

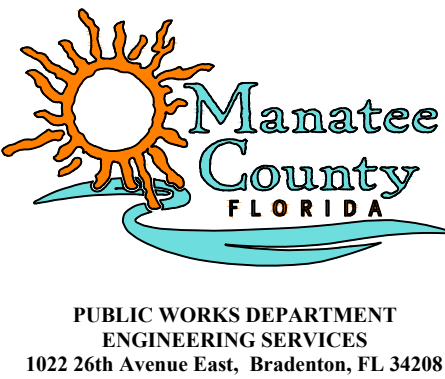


- NOTES:
- DETECTABLE WARNINGS ON WALKING SURFACES
- THE DETECTABLE WARNING SHALL EXTEND THE FULL WIDTH THE CURB RAMP AND A DEPTH OF 2'.
 - DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 INCH, A HEIGHT OF NOMINAL 0.2 INCH AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 INCH AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.
 - THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACES SHALL DIFFER FROM ADJOINING WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE CONTACT.
 - THE MATERIAL USED TO PROVIDE CONTRAST SHOULD CONTRAST BY AT LEAST 70% CONTRAST IN PERCENT IS DETERMINED BY:
CONTRAST = [(B1-B2)/B1] x 100
WHERE B1 = LIGHT REFLECTANCE VALUE (LRV) OF THE LIGHTER AREA AND B2 = LIGHT REFLECTANCE VALUE (LRV) OF THE DARKER AREA.
- NOTE THAT IN ANY APPLICATION BOTH WHITE AND BLACK ARE NEVER ABSOLUTE; THUS, B1 NEVER EQUALS 100 AND B2 IS ALWAYS GREATER THAN 0.

NO.	REVISION DESCRIPTION	BY	DATE
1	Updated all details	JSS	6/19

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

DETAILS



PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
BY	DATE
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYYY

J. SHEA SHOUN, P.E.
FLORIDA PROFESSIONAL ENGINEER
No. 60923
STATE OF FLORIDA
9/10/19
DATE
Signature

SHEET 20 OF 22

Topographic Survey

In Section 32/33, Township 34 South, Range 17 East
Manatee County, Florida

SURVEYOR’S REPORT

THIS INFORMATION WAS EXTRACTED FROM THE SURVEYOR’S REPORT TOPOGRAPHIC SURVEY PROVIDED BY FLORIDA DESIGN CONSULTANTS, INC. JOB NUMBER: 0577–0032 (EPN 736). THE ORIGINAL REPORT AND TOPOGRAPHICAL SURVEY MAY BE REQUESTED.

PROJECT DATUM

HORIZONTAL:

BEARINGS AND COORDINATES (IN U.S. SURVEY FEET) ARE BASED ON THE NATIONAL GEODETIC SURVEY (NGS), STATE PLANE COORDINATES, FLORIDA WEST ZONE, NORTH AMERICAN DATUM 1983/2011 ADJUSTMENT.

CONTROL STATIONS UTILIZED:

- A FOUND 3–1/4”ALUMINUM MANATEE COUNTY DISK STAMPED “M 082”, DESIGNATED BY NGS AS “M 082”, PID=AG9187 (NORTHING=1,143,106.22, EASTING=462,931.59);
- ALL AS PUBLISHED BY THE NATIONAL GEODETIC SURVEY WEB SITE. (<http://www.ngs.noaa.gov>)

VERTICAL:

ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM, 1988 ADJUSTMENT (NAVD 88).

CONTROL BENCHMARK UTILIZED:

- A FOUND BRADENTON DISK IN CONCRETE STAMPED “COB 1026 2010”, DESIGNATED “COB 1026”BY NGS, PID = D06910, ELEVATION = 22.93 FEET (NAVD 88).
- A FOUND BRADENTON DISK IN CONCRETE STAMPED “COB 1025 2010”, DESIGNATED “COB 1025”BY NGS, PID D06909, ELEVATION = 23.93 FEET (NAVD 88).

ALL AS PUBLISHED BY THE NATIONAL GEODETIC SURVEY WEB SITE.(<http://www.ngs.noaa.gov>)

CONVERSION FACTOR:

ADD 0.98 FEET TO CONVERT TO NATIONAL GEODETIC VERTICAL DATUM, 1929 ADJUSTMENT (NGVD 29). CONVERSION CALCULATED UTILIZING VERTCON (VERSION 2.0).

CONSTRUCTION BASELINE HORIZONTAL CONTROL TABLE

22ND AVE W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L1	542.16			S89° 23’ 00.90”E		100+00.00	1144267.32	457508.49	105+42.16	1144261.48	458050.62
L2	192.30			N81° 08’ 24.00”E		105+42.16	1144261.48	458050.62	107+34.46	1144291.10	458240.62
L3	574.40			S89° 13’ 48.19”E		107+34.46	1144291.10	458240.62	113+08.86	1144283.38	458814.97
L4	175.67			S79° 18’ 47.58”E		113+08.86	1144283.38	458814.97	114+84.53	1144250.81	458987.59
L5	584.82			S89° 10’ 22.96”E		114+84.53	1144250.81	458987.59	120+69.35	1144242.37	459572.35
L6	253.22			S79° 46’ 36.52”E		120+69.35	1144242.37	459572.35	123+22.56	1144197.42	459821.54
L7	525.40			S89° 26’ 02.73”E		123+22.56	1144197.42	459821.54	128+47.96	1144192.23	460346.92
50TH ST W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L8	613.75			N00° 46’ 31.84”E		200+00.00	1143673.86	458006.46	206+13.75	1144287.55	458014.77
46TH ST CT W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L9	438.53			N00° 28’ 41.27”E		400+00.00	1143835.18	459222.40	404+38.53	1144273.70	459226.06
47TH ST PL W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L10	348.89			N00° 35’ 46.38”E		300+00.00	1144257.63	458805.15	303+48.89	1144606.50	458808.78
21ST AVE W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L11	1099.98			S89° 12’ 39.63”E		599+00.00	1144589.32	458452.08	609+99.98	1144574.17	459551.96
L12	1046.63			S89° 12’ 17.92”E		609+99.98	1144574.17	459551.96	620+46.61	1144559.65	460598.49
47TH ST CT W (1)											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L13	626.16			N01° 03’ 09.68”E		700+00.00	1144547.84	458890.28	706+26.16	1145173.89	458901.79
43RD ST W											
Number	Length	Radius	Delta Angle	Line/Chord	Chord Length	Start Station	Start Northing	Start Easting	End Station	End Northing	End Easting
L14	390.26			N00° 43’ 39.20”E		500+00.00	1143991.76	460314.84	503+90.26	1144381.99	460319.79
L15	960.83			N00° 43’ 31.97”E		503+90.26	1144381.99	460319.79	513+51.09	1145342.74	460331.96

S.U.E. DATA

TEST HOLE DATA (OMNI COMMUNICATIONS REPORT, JOB #33-16-034)					
TEST HOLE	UTILITY	FIELD MARKING	GROUND EL (FEET)	TOP OF PIPE (FEET)	NOTES PER OMNI REPORT
TH-1	20" DIP WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 20" DIP WM C-3.42	20.13	16.71	FOUND 20" DIP WM
TH-2	2" PVC WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 2" PVC WL C-2.63	18.59	15.96	FOUND 2" PVC WM
TH-3	5" ACP WM	APROXIMATE LOCATION BASED ON OMNI SKETCH. HOME OWNER AT RESIDENCE #4803 REMOVED FIELD MARKINGS	19.43	16.74	FOUND 5" ACP MW
TH-4	4" PVC WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 4" PVC WL C-2.86	18.62	15.76	FOUND 4" PVC WM
TH-5	6" ACP WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 6" ACP WL C-2.94	19.31	16.37	FOUND 6" ACP WM
TH-6	4" PVC WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 4" PVC WM C-3.87	20.14	16.27	FOUND 4" PVC WM
TH-7	6" ACP WM	FOUND X-CUT IN CURB W/ LATH MARKED 6" ACP WL C-2.85	19.41	16.56	FOUND 6" ACP WM
TH-8	6" ACP WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 6" ACP WM C-3.15	20.44	17.29	FOUND 6" ACP WM
TH-9	1" DB FOC	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 1" DB FOC C-2.35	24.16	21.81	FOUND 1" DB FOC
TH-10	6" ACP WM	FOUND NAIL IN ASPH MARKED 6" ACP WL C-3.20	24.47	21.27	FOUND 6" ACP WM
TH-11	6" PVC WM	FOUND NAIL IN ASPH MARKED 6" PVC WM C-1.89	18.69	16.80	FOUND 6" PVC WM
TH-12	4" ACP WM	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 4" ACP WL C-3.13	21.72	18.59	FOUND 4" ACP WM
TH-13	8" ACP WM	FOUND NAIL IN ASPH MARKED 8" ACP WL C-2.77	25.25	22.48	FOUND 8" ACP WM
TH-14	6" PVC UNK	FOUND HUB AT GROUND LEVEL W/ LATH MARKED 6" PVC UNK C-1.97	24.78	22.81	6" PVC UNK POSSIBLE NPW. DUG WHERE CONFLICT WAS & FOUND 6"
TH-15	4" ACP WL	FOUND X-CUT IN CURB MARKED 4" ACP WL C-2.38	23.24	20.86	FOUND 4" ACP WL
TH-16	4" ACP WL	FOUND NAIL IN ASPH MARKED 4" ACP WL C-2.51	21.77	19.26	FOUND 4" ACP WL
TH-17	4" ACP WL	FOUND NAIL IN ASPH MARKED 4" ACP WL C-3.35	20.75	17.40	FOUND 4" ACP WL
TH-18	16" PVC RWM	FOUND NAIL IN ASPH MARKED 16" PVC NPW C-6.22	25.51	19.29	FOUND 16" PVC NPW
TH-19	16" PVC RWM	FOUND NAIL IN ASPH MARKED 16" NPW C-6.94	24.55	17.61	FOUND 16" PVC NPW
TH-20	4" ACP WL	FOUND NAIL IN ASPH MARKED 4" ACP WL C-3.49	24.48	20.99	FOUND 4" ACP WL
TH-21	3" PVC WL	FOUND NAIL IN ASPH MARKED 3" PVC WL C-2.12	18.26	16.14	FOUND 3" PVC WL

NO.	REVISION DESCRIPTION	BY	DATE

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

SURVEY CONTROL

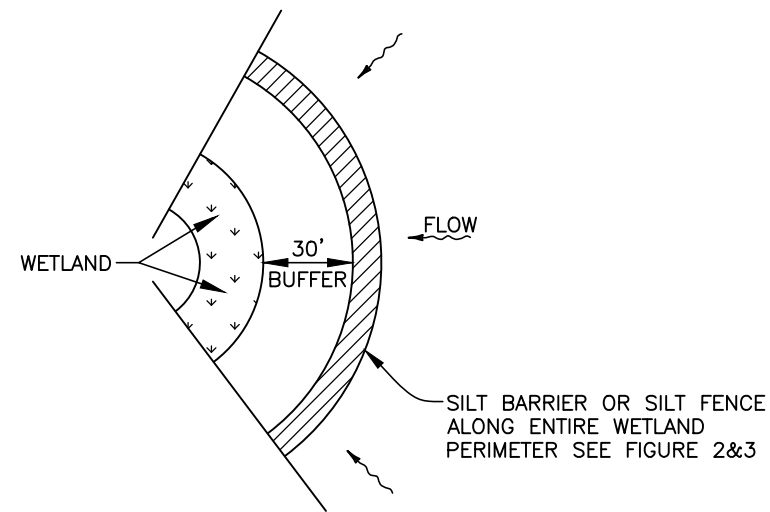


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ENGINEERING SERVICES
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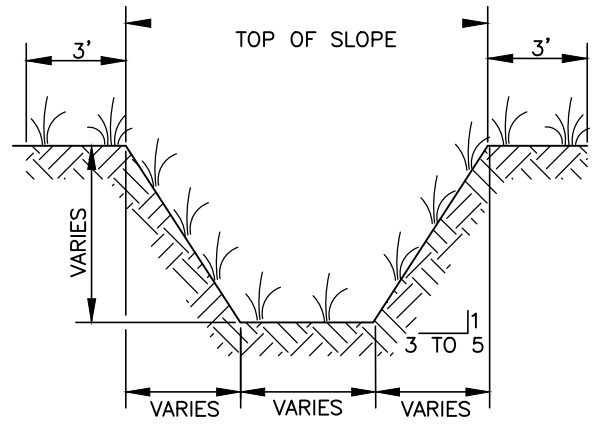
J. SHEA SHOUN, P.E.
FLO 60923
No. 60923
4/10/19
STATE OF FLORIDA
PROFESSIONAL ENGINEER
Signature

SHEET 21 OF 22

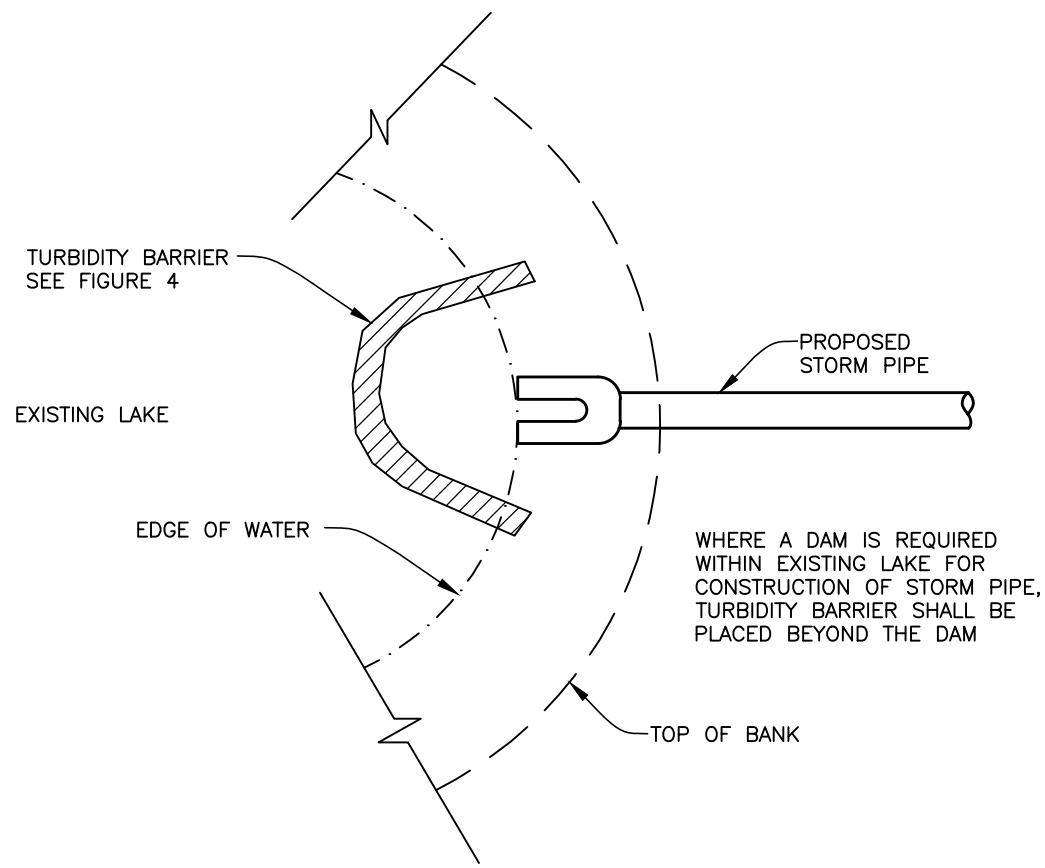


WETLAND BUFFER
FIGURE 1

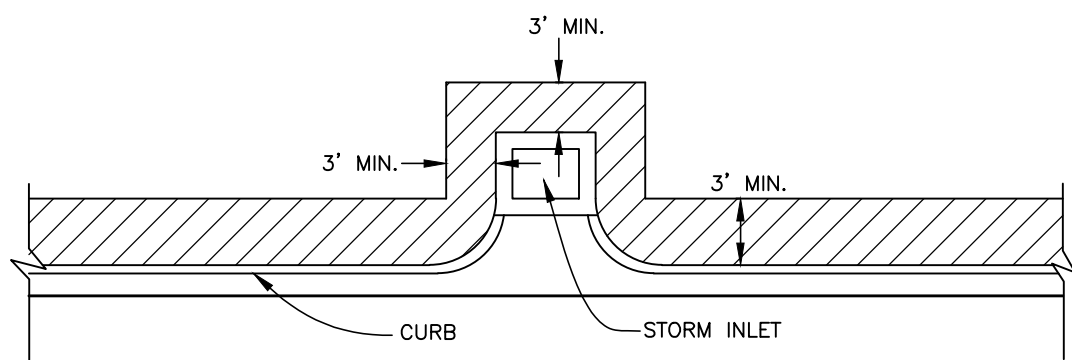
SOD TO BE PLACED 3' BEYOND



TYPICAL SWALE SECTION
FIGURE 5

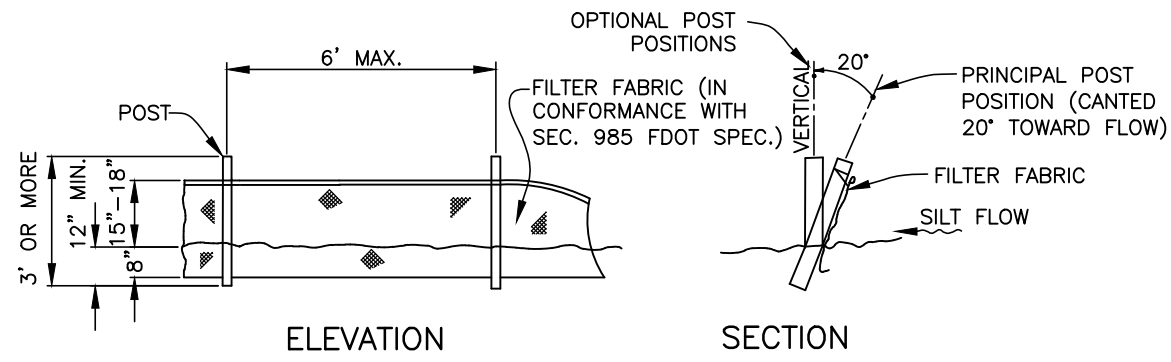


**TURBIDITY BARRIER AT CONNECTION OF
STORM PIPE TO EXISTING LAKE**
FIGURE 9



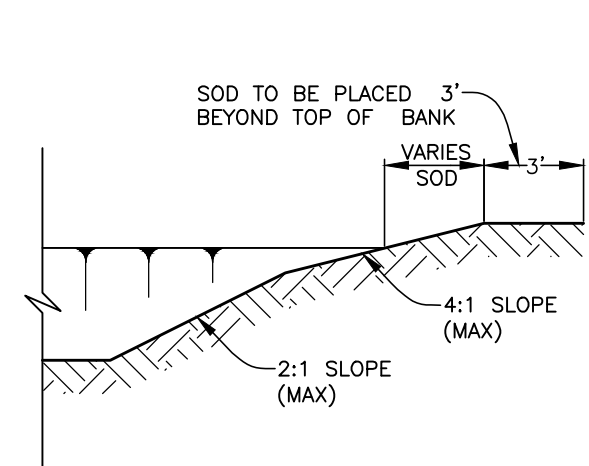
**SOD ALONG CURB
AND AROUND INLET**
FIGURE 14

NOTE:
REFERENCE THE FDOT DESIGN STANDARDS
LATEST EDITION FOR ALL TEMPORARY
EROSION CONTROL MEASURES.

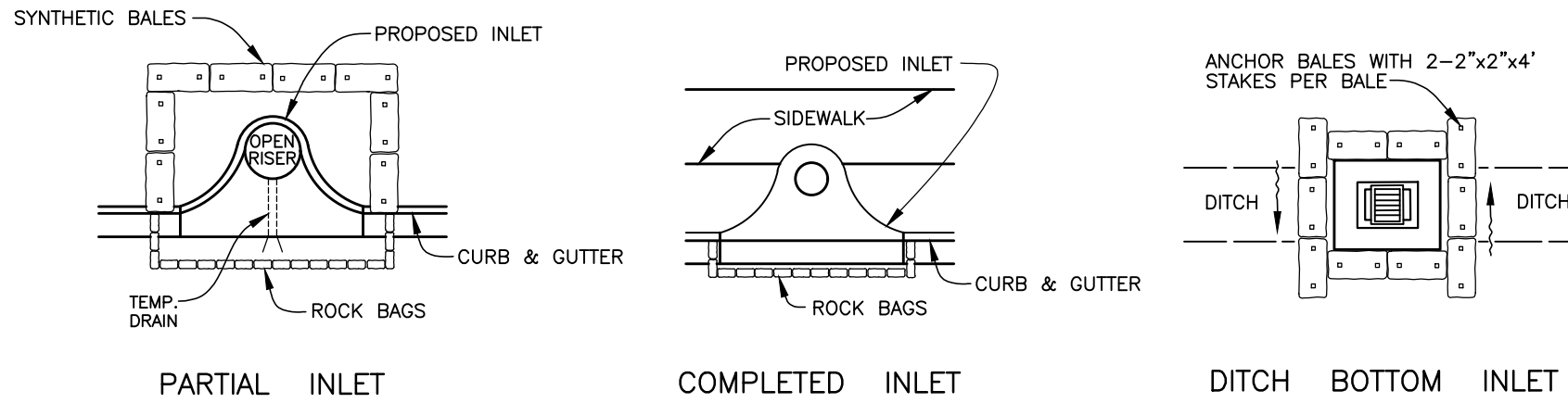


TYPICAL SILT FENCE
FIGURE 2

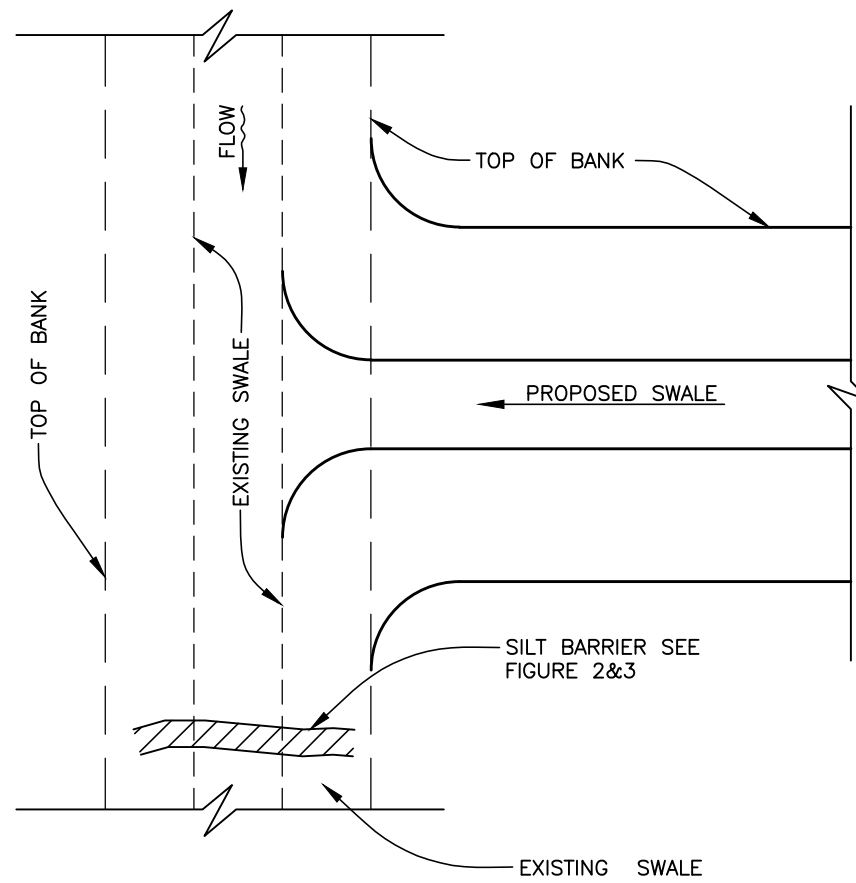
NOTE: SILT FENCE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR STAKED SILT FENCE (LF).



TYPICAL RETENTION/DETENTION POND SECTION
FIGURE 6

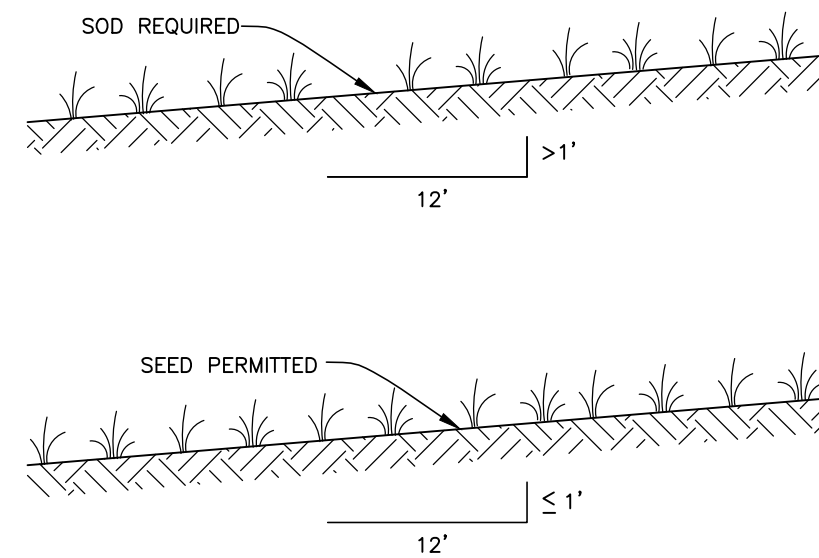


**SYNTHETIC BALE PROTECTION AROUND
INLETS OR SIMILAR STRUCTURES**
FIGURE 7

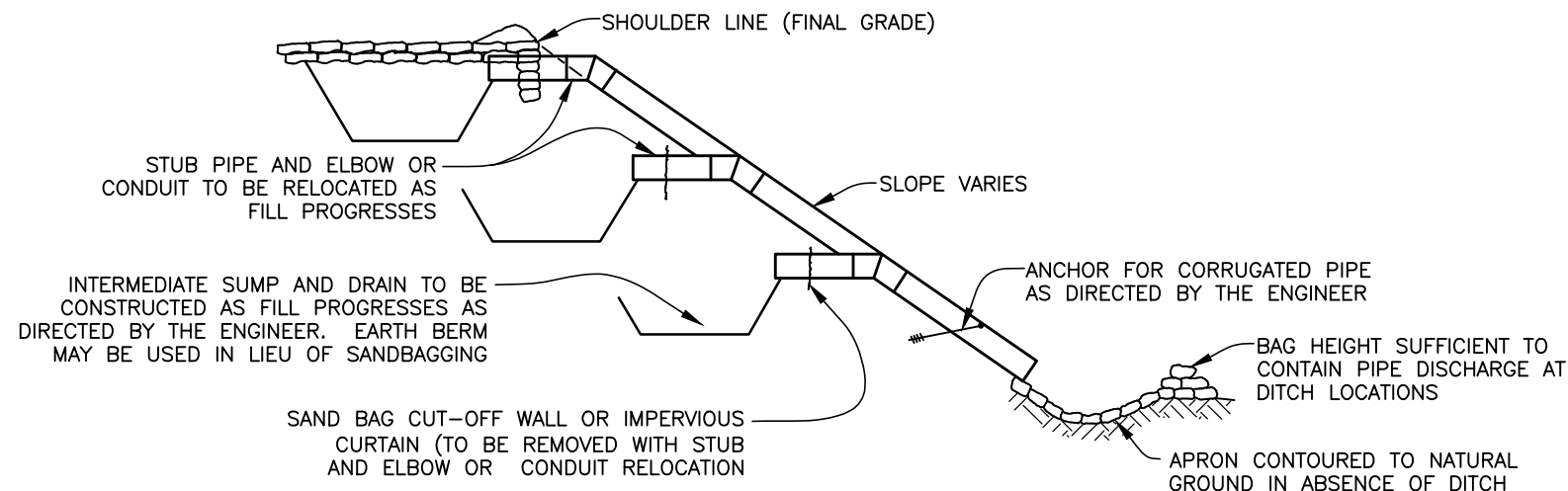


**SILT BARRIER AT CONNECTION
OF SWALE TO EXISTING SWALE**
FIGURE 11

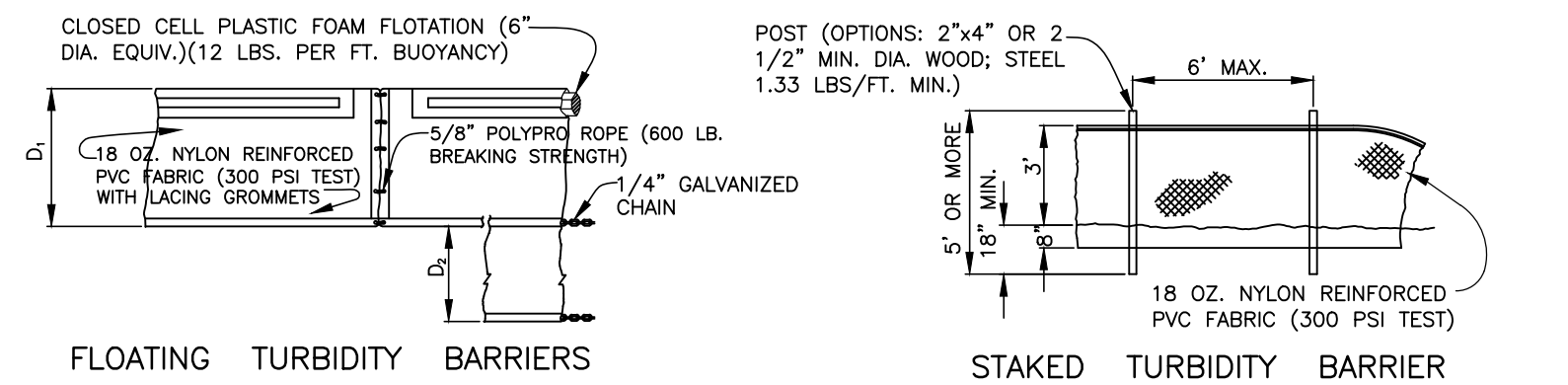
**SILT BARRIER AT CONNECTION OF
STORM PIPE TO EXISTING SWALE**
FIGURE 10



GRASS SLOPES
FIGURE 13

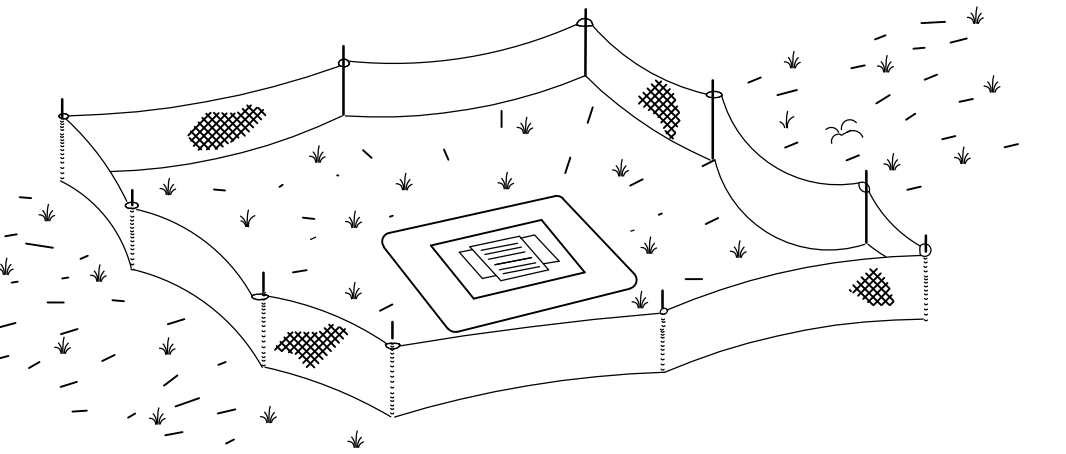


TEMPORARY SLOPE DRAIN
FIGURE 15



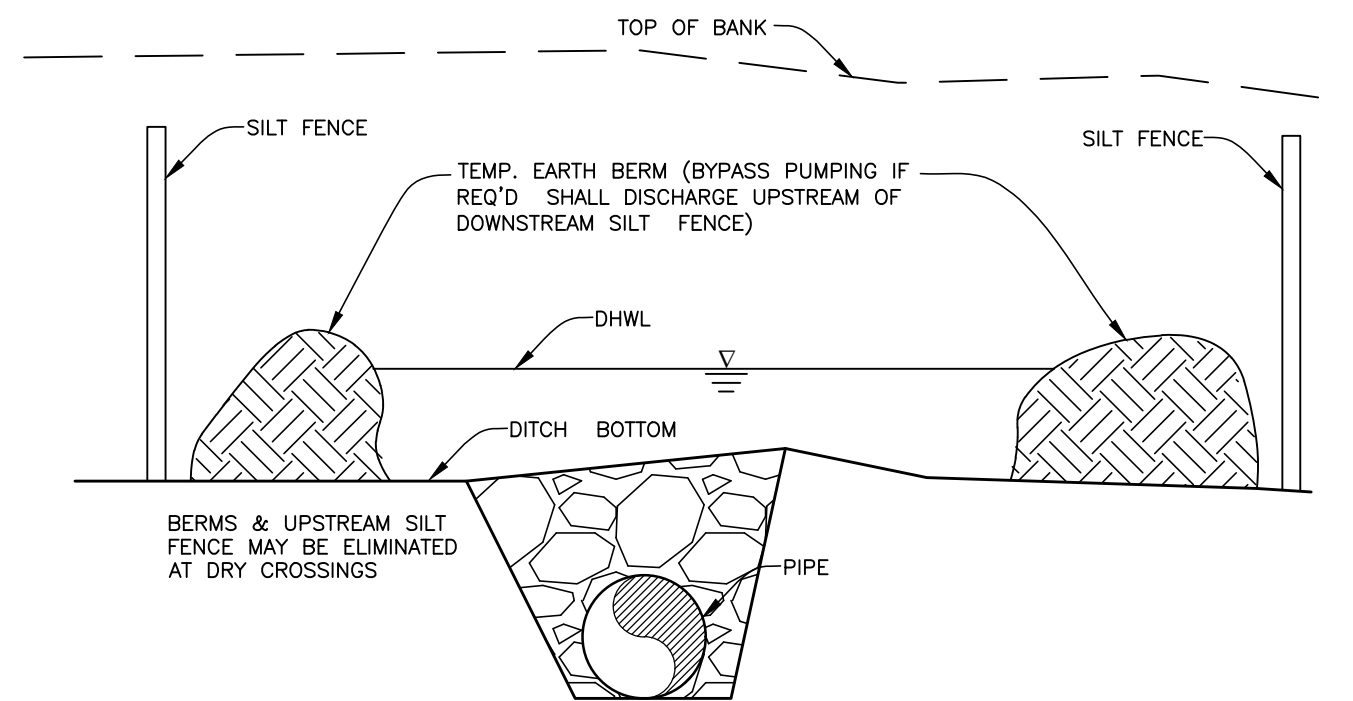
TURBIDITY BARRIERS
FIGURE 4

NOTICE: COMPONENTS OF TYPES I AND II MAY BE SIMILAR OR IDENTICAL TO PROPRIETARY DESIGNS. ANY INFRINGEMENT ON THE PROPRIETARY RIGHTS OF THE DESIGNER SHALL BE THE SOLE RESPONSIBILITY OF THE USER. SUBSTITUTIONS FOR TYPES I AND II SHALL BE AS APPROVED BY THE ENGINEER.

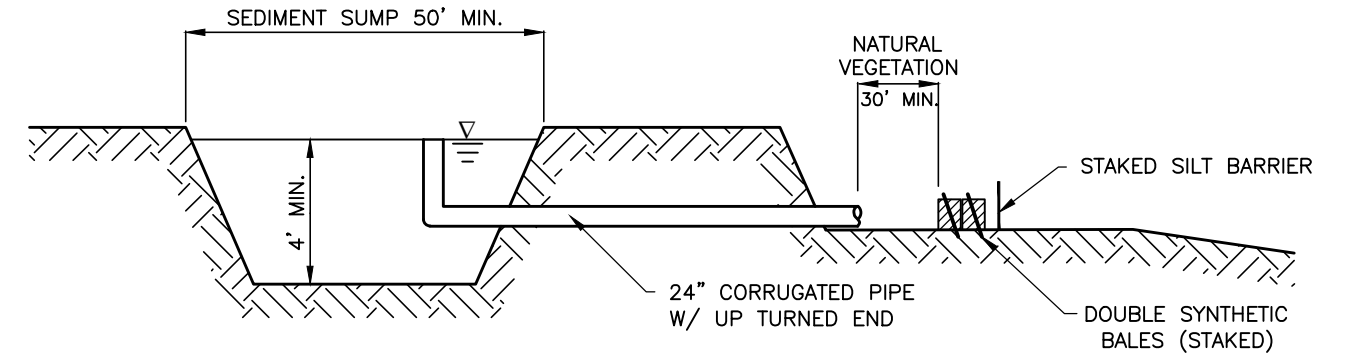


**TYPE III SILT FENCE PROTECTION
AROUND DITCH BOTTOM INLETS**

**STAKED SILT BARRIER OR SILT FENCE
PROTECTION AROUND DITCH BOTTOM INLETS**
FIGURE 8



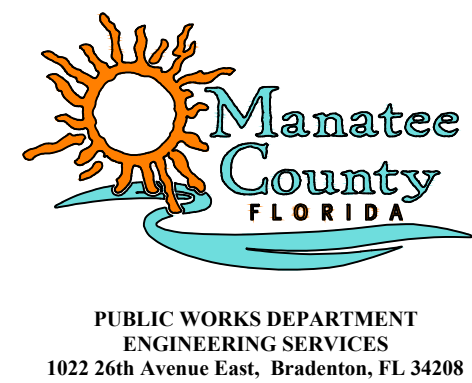
UNDERGROUND PIPE CROSSING
FIGURE 12



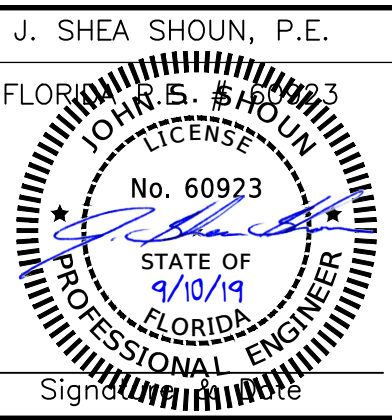
SEDIMENT SUMP SECTION
FIGURE 16

WILLOW WOODS & LAKES ESTATES WATER MAIN UPGRADE

EROSION CONTROL



PROJECT #	404.6089170
SURVEY #	0577-0032
SEC./TWN./RGE	33/34/17
SCALE	SEE PLAN
SURVEYED	FDC JAN 17
DESIGNED	JSS MAY 17
DRAWN	CAK MAY 17
CHECKED	JSS MM/YYY



SHEET 22 OF 22