US 181 SEWER EXTENSION
TCEQ PERMIT
WILSON COUNTY, TEXAS

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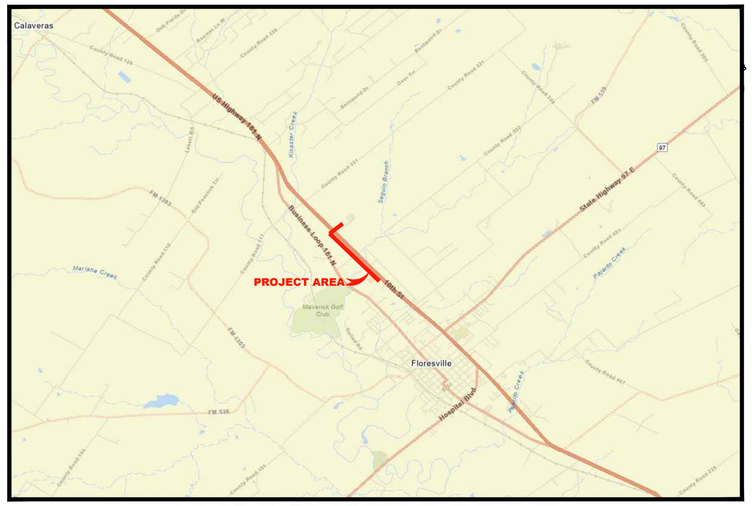


VICINITY MAP
NOT TO SCALE

LOCATION MAP

OWNER:
CITY OF FLORESVILLE
1120 D STREET
FLORESVILLE, TX 78114

CIVIL ENGINEER:
BRADY KOSUB, P.E.
M&S ENGINEERING
376 LANDA STREET
NEW BRAUNFELS, TX 78130

ELECTRICAL ENGINEER:
TREY SIMS, P.E.
M&S ENGINEERING
376 LANDA STREET
NEW BRAUNFELS, TX 78130

STRUCTURAL ENGINEER:
JEFFREY WILKS, P.E.
LONE STAR STRUCTURAL, LLC
P.O. BOX 311312
NEW BRAUNFELS, TX 78130

STATE OF TEXAS
BRADY KOSUB
105051
LICENSED
PROFESSIONAL ENGINEER

June 17, 2025

M&S ENGINEERING
ELECTRICAL | CIVIL | MEP
TXENG FIRM # F-1394 | TBPELS FIRM #10169800
WWW.MSENGR.COM | (830) 228-5446

MAIN OFFICE
P.O. BOX 970
SPRING BRANCH,
TEXAS 78070
PHONE # (830) 228-5446
FAX # (830) 885-2170

BRANCH OFFICE
376 LANDA STREET
NEW BRAUNFELS,
TEXAS 78130

SHEET
G1.0

Date: Jun 16, 2025 - 11:39am User ID: cclayton
File: S:\Active Projects_2023\17 New Braunfels Water Services\1723FLORE001 - US 181 Sewer Extension\dwg\23FLORE001-CVR-001.dwg

GENERAL NOTES:

1. WHERE SURVEY WORK HAS BEEN INCLUDED, THE HORIZONTAL DATUM USED IS NAD 83 TEXAS STATE PLANE COORDINATES, THE BENCHMARK DATUM USED IS SOUTH CENTRAL ZONE NAVD 88 DATUM. UNSURVEYED SECTIONS ARE BASED ON 2009 FEMA, 2 FT. CONTOUR DATA. CONTRACTOR MUST VERIFY TRUE ELEVATIONS PRIOR TO CONSTRUCTION.
2. ALL PROPERTY CORNERS, MONUMENTS, CONTROL POINTS, AND BENCHMARKS WITHIN THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED BY THE CONTRACTOR. ANY SURVEY MARKERS DESTROYED DURING CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR, THROUGH USE OF A PROFESSIONAL SURVEYOR REGISTERED IN THE STATE OF TEXAS, AT NO ADDITIONAL COST TO THE OWNER.
3. CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE RULES AND REGULATIONS OF OSHA, EPA, TCEQ, AND ANY OTHER FEDERAL, STATE, OR LOCAL REGULATORY AGENCIES THAT MAY APPLY.
4. IF TEMPORARY ACCESS TO PRIVATE PROPERTY IS AFFECTED, SUCH ACCESS SHALL BE RESTORED AT THE END OF EACH WORK DAY.
5. THE CONTRACTOR SHALL ENSURE THAT ALL REQUIRED PERMITS ARE IN PLACE PRIOR TO CONSTRUCTION AND THAT COPIES OF ALL PERMITS ARE RETAINED ON SITE AT ALL TIMES.
6. THE LOCATIONS OF EXISTING UTILITIES, PAVEMENT, TREES/SHRUBS, MAILBOXES AND OTHER FEATURES SHOWN WITHIN THE CONSTRUCTION DRAWINGS ARE APPROXIMATE ONLY. EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION AND ORDERING OF MATERIALS.
7. EXISTING FEATURES IMPACTED DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, IMPROVED DRIVES, CURBING, LANDSCAPING, GROUND COVER, MAILBOXES, FENCING, SIGNAGE, AND EXISTING UTILITIES AND SERVICES SHALL BE REPLACED OR REPAIRED AS NEEDED. DRIVEWAYS IMPACTED SHALL BE RECONSTRUCTED TO MATCH PRECONSTRUCTION GRADING AND MATERIAL TYPE. CONTRACTOR SHALL COORDINATE ALL IMPACTS WITH AFFECTED PROPERTY OWNERS AND CITY.
8. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DOCUMENT EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION BY MEANS OF PHOTOGRAPHS AND/OR VIDEO. ALL PHOTOGRAPHIC/VIDEO DOCUMENTATION SHALL BE SHARED WITH OWNER AND ENGINEER PRIOR TO BEGINNING ANY CONSTRUCTION WORK AT THE JOB SITE (NO SEPARATE PAY TO CONTRACTOR).
9. ALL DRAINAGE FEATURES IMPACTED DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, SWALES, CULVERTS, AND STRUCTURES, SHALL BE REPLACED OR REPAIRED AS NEEDED AND TO THEIR ORIGINAL GRADE AND LOCATION BY THE CONTRACTOR.
10. IN LOCATIONS WHERE CONSTRUCTION IS IN CLOSE PROXIMITY TO EXISTING UTILITY POLES, CONTRACTOR SHALL COORDINATE THE HOLDING OF POLES WITH THE APPROPRIATE UTILITY OWNERS IN ADVANCE OF WORK IN A GIVEN AREA TO AVOID PROJECT DELAYS. HOLDING POLES DURING CONSTRUCTION AND RELATION OF ANY EXISTING UTILITIES SHALL BE CONSIDERED INCIDENTAL TO THE OVERALL WORK, AND NO ADDITIONAL COMPENSATION TO THE CONTRACTOR SHALL BE AUTHORIZED.
11. THE OWNER SHALL BEAR ALL COSTS FOR MATERIAL TESTING (CONCRETE/ASPHALT REPLACEMENT) AND COMPACTION TESTING OF SUBGRADES AND BASE AS PART OF THE OVERALL PROJECT COSTS. TESTING RESULTS SHALL BE SUBMITTED TO THE ENGINEER AND OWNER FOR REVIEW AND FOR RECORD PURPOSES. CONTRACTOR SHALL PAY FOR ANY RETESTS.
12. THE CONTRACTOR SHALL SUBMIT RECORD DRAWINGS OF ALL NEWLY INSTALLED WATER MAINS. RECORD DRAWING INFORMATION SHALL BE SUBMITTED FOR ALL VALVES, FITTINGS, AND OTHER MAJOR APPURTENANCES AS WELL AS AT LOCATIONS FOR INSTALLED PIPELINE A MINIMUM OF EVERY 150 FEET. INFORMATION SHOULD INCLUDE TOP OF PIPE ELEVATIONS, DEPTH OF BURY, AND TWO SWING-TIES TO PERMANENT ABOVE GRADE FEATURES FOR EVERY LOCATED POINT.

UTILITY CONSTRUCTION NOTES:

1. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATION ACCURACY OF THE UNDERGROUND UTILITIES AS SHOWN WITHIN THE CONSTRUCTION DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND AVOIDING ALL EXISTING UTILITIES WITHIN THE PROJECT WORK AREAS.
2. CONTRACTOR IS RESPONSIBLE FOR VERTICAL CONTROL OF ALL PROPOSED UTILITIES, AND SHALL ADJUST EACH AS NEEDED.
3. ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. EACH MATERIAL LAYER SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER OF LOCATIONS THAT ARE REQUIRED SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE PROJECT INSPECTOR. UPON COMPLETION OF TESTING, THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE PROJECT INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY GEOTECHNICAL INFORMATION ALONG WITH THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

SAWS STANDARD GENERAL CONSTRUCTION NOTES ASSOCIATED WITH 2021 SAWS STANDARD SPECS

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE CITY OF FLORESVILLE AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING APPLICABLE:
   - A. CURRENT TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) "DESIGN CRITERIA FOR DOMESTIC WASTEWATER SYSTEM", TEXAS ADMINISTRATIVE CODE (TAC) TITLE 30 PART 1 CHAPTER 217 AND "PUBLIC DRINKING WATER", TAC TITLE 30 PART 1 CHAPTER 290.
   - B. CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE."
   - C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION."
   - D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR CONSTRUCTION."
   - E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).
2. THE CONTRACTOR SHALL OBTAIN SAWS STANDARD DETAILS FROM SAWS WEBSITE, https://apps.saws.org/business_center/specs/conststpecs/ UNLESS OTHERWISE NOTED WITHIN DESIGN PLANS.
3. THE CONTRACTOR IS TO NOTIFY AND MAKE ARRANGEMENTS WITH THE CITY OF FLORESVILLE (DURING REGULAR WORKING HOURS) AND PROVIDE NOTIFICATION PROCEDURES THE CONTRACTOR WILL NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS TWO (2) WEEKS PRIOR TO EXCAVATION. CONTACT THE CITY OF FLORESVILLE OUTSIDE OF REGULAR WORKING HOURS.
4. LOCATIONS AND DEPTHS OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AT NO COST TO THE CITY OF FLORESVILLE. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES PRIOR TO CONSTRUCTION WETHER SHOWN ON PLANS OR NOT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING, AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION AS A RESULT OF DAMAGES DONE BY THE PROJECT'S CONSTRUCTION.
6. CONTRACTOR SHALL NOT MAKE USE OF DUMPSTERS OR WASTE BINS THAT ARE INTENDED TO SERVE RESIDENTS AND/OR BUSINESSES.
7. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION AND WILSON COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT.
8. THE CONTRACTOR SHALL COMPLY WITH CITY OF FLORESVILLE OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
9. ALL WORK WITHIN THE 100-YEAR FLOODPLAIN SHALL BE DONE IN ACCORDANCE WITH FLOODPLAIN DEVELOPMENT PERMIT.
10. ANY WORK COMPLETED WITHOUT PRIOR WRITTEN AUTHORIZATION WHICH IS NOT INCLUDED IN THESE PLANS AND SPECIFICATIONS WILL NOT BE COMPENSATED BY THE CITY OF FLORESVILLE.
11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED FOR PERFORM WORK ON THE CITY OF FLORESVILLE RECOGNIZED HOLIDAYS.
12. PRE-CON SITE VIDEO: BEFORE THE START OF CONSTRUCTION. THE SITE MUST BE VIDEO RECORDED BY THE CONTRACTOR WITH ONE COPY SUBMITTED TO THE CITY OF FLORESVILLE. A PRE-SITE VIDEO WILL PROVIDE ACCURATE DOCUMENTATION OF THE EXISTING CONDITIONS (NSPI).
13. POWER POLE BRACING: CONTRACTORS SHOULD BE ADVISED THAT THERE ARE EXISTING OVERHEAD UTILITY POLES ALONG THE PROJECT CORRIDOR. CONTRACTORS SHOULD FURTHER BE ADVISED THAT IF THE DISTANCE FROM THE OUTSIDE FACE OF UTILITY TRENCH TO THE FACE OF THE UTILITY POLE IS LESS THAT 5 FEET, SAID UTILITY POLE IS SUBJECT TO BRACING, BASED ON DETERMINATION MADE BY UTILITY POLE OWNER. IT IS ADVISABLE FOR THE CONTRACTOR TO REVIEW THE CONSTRUCTION DOCUMENTS AND VISIT THE CONSTRUCTION SITE TO DETERMINE POTENTIAL IMPACTS.
14. CONSTRUCTION SEQUENCING: IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO SCHEDULE SEQUENCING FOR REMOVAL AND INSTALLATION OF EXISTING AND PROPOSED CITY OF FLORESVILLE UTILITIES IN CONJUNCTION WITH GENERAL PROJECT CONSTRUCTION. SEQUENCE OF CONSTRUCTION ACTIVITIES SHALL BE CONSIDERED IN ORDER TO MINIMIZE THE EXTENT AND DURATION OF DISTURBANCES.
15. CONTRACTOR SHALL COMPLY WITH APPLICABLE REGULATIONS INCLUDING, BUT NOT LIMITED TO, THOSE OVERSEEN BY THE U.S. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA). OSHA INFORMATION AND RELATED MATERIALS MAY BE OBTAINED AT https://www.osha.gov/ OR AT THE OSHA SAN ANTONIO OFFICE LOCATED AT FOUNTAINHEAD TOWER, SUITE 605 8200 W. INTERSTATE 10 SAN ANTONIO, TX 78230 WHICH IS ALSO REACHABLE BY PHONE AT (210) 472-5040.
16. TRENCH EXCAVATION SAFETY PROTECTION: CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREAS IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS, AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH, AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

WATER

17. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST BE COORDINATED WITH THE CITY OF FLORESVILLE INSPECTION AT LEAST TWENTY-FIVE (25) CALENDAR DAYS IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO THE CITY OF FLORESVILLE OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK.
18. ASBESTOS CEMENT (AC) PIPE, ALSO AS KNOWN AS TRANSITE PIPE WHICH IS KNOWN TO CONTAIN ASBESTOS-CONTAINING MATERIAL (ACM), MAYBE LOCATED WITHIN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT PROCEDURES AND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE WHEN REMOVAL AND/OR DISTURBANCE OF THIS PIPE OCCURS, PAYMENT FOR SUCH WORK IS TO BE MADE UNDER ITEM No. 3000, "HANDLING ASBESTOS CEMENT PIPE".

    AC PIPE REMOVED ON CONSTRUCTION PROJECTS FOR TIE-IN(S) SHOULD BE IN LENGTH OF 26 LINEAR FEET (LF). LENGTHS OF 13 LF SHOULD BE REMOVED WHERE AC PIPE IS BEING REMOVED AND CROSSING PIPES, CONDUITS, AND BOXES.
19. VALVE REMOVAL: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, THE CONTROL VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REMOVED AND REPLACED WITH A CAP/PLUG. (NSPI)

SEWER

20. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT NO SANITARY SEWER OVERFLOW (SSO) OCCURS AS A RESULT OF THEIR WORK. ALL CONTRACTOR PERSONNEL RESPONSIBLE FOR SSO PREVENTION AND CONTROL SHALL BE TRAINED ON PROPER RESPONSE. SHOULD AN SSO OCCUR, THE CONTRACTOR SHALL:
    - A. IDENTIFY THE SOURCE OF THE SSO AND NOTIFY THE CITY OF FLORESVILLE. PROVIDE THE ADDRESS OF THE SPILL AND ESTIMATED VOLUME OR FLOW.
    - B. ATTEMPT TO ELIMINATE THE SOURCE OF THE SSO.
    - C. CONTAIN SEWAGE FROM THE SSO TO THE EXTENT OF PREVENTING A POSSIBLE CONTAMINATION OF WATERWAYS.
    - D. CLEAN UP SPILL SITE (RETURN CONTAINED SEWAGE TO THE COLLECTION SYSTEM IF POSSIBLE) AND PROPERLY DISPOSE OF CONTAMINATED SOIL/MATERIALS.
    - E. CLEAN THE AFFECTED SEWER MAINS AND REMOVE ANY DEBRIS.
    - F. MEET ALL POST-SSO REQUIREMENTS AS PER THE EPA CONSENT DECREE, INCLUDING LINE CLEANING AND TELEVISING THE AFFECTED SEWER MAINS (AT CITY OF FLORESVILLE DIRECTION) WITHIN 24 HOURS.

    SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO CITY OF FLORESVILLE SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY CITY OF FLORESVILLE, INCLUDING ANY FINES FROM EPA.

    NO SEPERATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND CITY OF FLORESVILLE.
21. THE CONTRACTOR SHALL PROVIDE BYPASS PUMPING OF SEWAGE AROUND EACH SEGMENT OF PIPE TO BE REPLACED, IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION ITEM No. 865, "BYPASS PUMPING SMALL DIAMETER SANITARY SEWER MAINS" AND STANDARD SPECIFICATION ITEM No. 864, "BYPASS PUMPING LARGE DIAMETER SANITARY SEWER MAINS" AS APPLICABLE. PAYMENT FOR SUCH WORK WILL BE MADE UNDER THE APPROPRIATE BID ITEM ASSOCIATED WITH SANITARY SEWER BYPASS PUMPING IN ACCORDANCE WITH SAWS STANDARD SPECIFICATIONS 865 AND 864.
22. PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE CITY OF FLORESVILLE AT LEAST 2 WEEKS OR MORE IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST ALSO PROVIDE A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS AT NO ADDITIONAL COST TO CITY OF FLORESVILLE OR THE PROJECT AND IT IS RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
23. ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS (NSPI).
24. MANHOLE REMOVAL: WHERE THE EXISTING MANHOLES ARE TO BE REPLACED BY THE CONTRACTOR, THE EXISTING MANHOLES SHALL BE REMOVED. (NSPI)

LEGEND:

- PROP SANITARY SEWER LINE, SIZE VARIES (DR 26)
- PROP 6" PVC FORCE MAIN (DR 21)
- PROP WASTERWATER MANHOLE
- PROP AIR AND VACUUM RELEASE VALVE
- PROP BEND
- PROP SEDIMENT CONTROL FENCE
- PROP ROCK FILTER DAM
- PROP 12" BIO. EROSION CONTROL LOGS
- PROP PERM DRILL SEEDING
- EXIST LOT LINE
- EXIST EDGE OF PAVEMENT
- EXIST EASEMENT
- EXIST OVERHEAD POWER
- EXIST UNDERGROUND POWER
- EXIST WASTEWATER LINE (SIZE VARIES)
- EXIST WATER LINE (SIZE VARIES)
- APPARENT RIGHT-OF-WAY
- EXIST BARB WIRE FENCE
- EXIST WOOD FENCE
- EXIST PIPE/STEEL FENCE
- EXIST WIRE FENCE
- EXIST GUARD RAIL
- EXIST MINOR CONTOUR LINE
- EXIST MAJOR CONTOUR LINE
- EXIST GAS LINE
- EXIST UNDERGROUND TELEPHONE
- EXIST UNDERGROUND ELECTRIC
- BENCH MARK
- EXIST 1/2" IRON PIN FOUND (UNLESS NOTED)
- EXIST TXDOT MONUMENT
- CONTROL POINT
- EXIST WASTERWATER MANHOLE
- EXIST FIRE HYDRANT
- EXIST LIGHT POLE
- EXIST GATE VALVE
- EXIST POWER POLE
- EXIST GUY WIRE
- EXIST SIGN
- EXIST FIBER OPTIC MANHOLE
- EXIST ELECTRICAL METER
- EXIST TELEPHONE PEDESTAL
- EXIST ELECTRIC METER
- EXIST COMMUNICATIONS PULL BOX
- EXIST WATER METER
- EXIST MAIL BOX
- EXIST TREE
- EXIST GRAVEL
- EXIST CONCRETE
- EXIST ASPHALT

Texas 811

M&S ENGINEERING
ELECTRICAL | CIVIL | MEP
TXENG FIRM # F-1394 | TBPELS FIRM #10169800
WWW.MSENGR.COM | (830) 228-5446

STATE OF TEXAS · BRADY KC'S · 105051 · LICENSED PROFESSIONAL ENGINEER

June 17, 2025

US 181 SEWER EXTENSION

GENERAL NOTES, QUANTITIES & LEGEND

JOB:23FLORE001	
DATE:	
DRAWN: KV	PM: BK
DESIGN: CB	DM: BK
PEER:	OTHER:

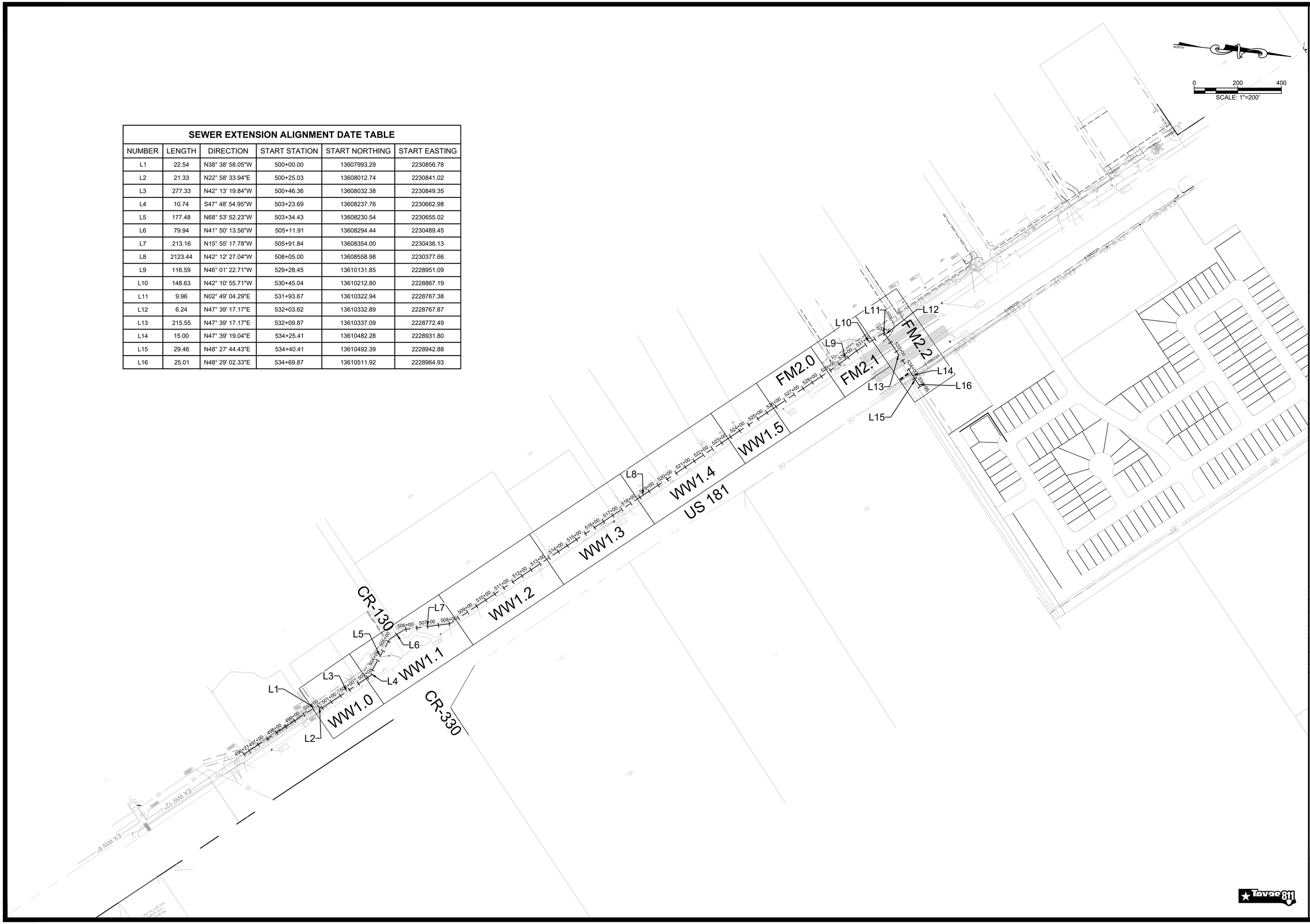
REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET: G1.1

SEWER EXTENSION ALIGNMENT DATE TABLE

NUMBER	LENGTH	DIRECTION	START STATION	START NORTHING	START EASTING
L1	22.54	N38° 38' 58.05"W	500+00.00	13607993.29	2230856.78
L2	21.33	N22° 58' 33.94"E	500+25.03	13608012.74	2230841.02
L3	277.33	N42° 13' 19.84"W	500+46.36	13608032.38	2230849.35
L4	10.74	S47° 48' 54.95"W	503+23.69	13608237.76	2230662.98
L5	177.48	N68° 53' 52.23"W	503+34.43	13608230.54	2230655.02
L6	79.94	N41° 50' 13.56"W	505+11.91	13608294.44	2230489.45
L7	213.16	N15° 55' 17.78"W	505+91.84	13608354.00	2230436.13
L8	2123.44	N42° 12' 27.04"W	508+05.00	13608558.98	2230377.66
L9	116.59	N46° 01' 22.71"W	529+28.45	13610131.85	2228951.09
L10	148.63	N42° 10' 55.71"W	530+45.04	13610212.80	2228867.19
L11	9.96	N02° 49' 04.29"E	531+93.67	13610322.94	2228767.38
L12	6.24	N47° 39' 17.17"E	532+03.62	13610332.89	2228767.87
L13	215.55	N47° 39' 17.17"E	532+09.87	13610337.09	2228772.49
L14	15.00	N47° 39' 19.04"E	534+25.41	13610482.28	2228931.80
L15	29.46	N48° 27' 44.43"E	534+40.41	13610492.39	2228942.88
L16	25.01	N48° 29' 02.33"E	534+69.87	13610511.92	2228964.93



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ELECTRICAL | CIVIL | MEP
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STATE OF TEXAS
BRADY KC5.3
105051
LICENSED
PROFESSIONAL ENGINEER

June 17, 2025

US 181 SEWER EXTENSION

KEY MAP AND ALIGNMENT DATA TABLE

JOB:23FLORE001	
DATE:	
DRAWN: KV	PM: BK
DESIGN: CB	DM: BK
PEER:	OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

G1.2

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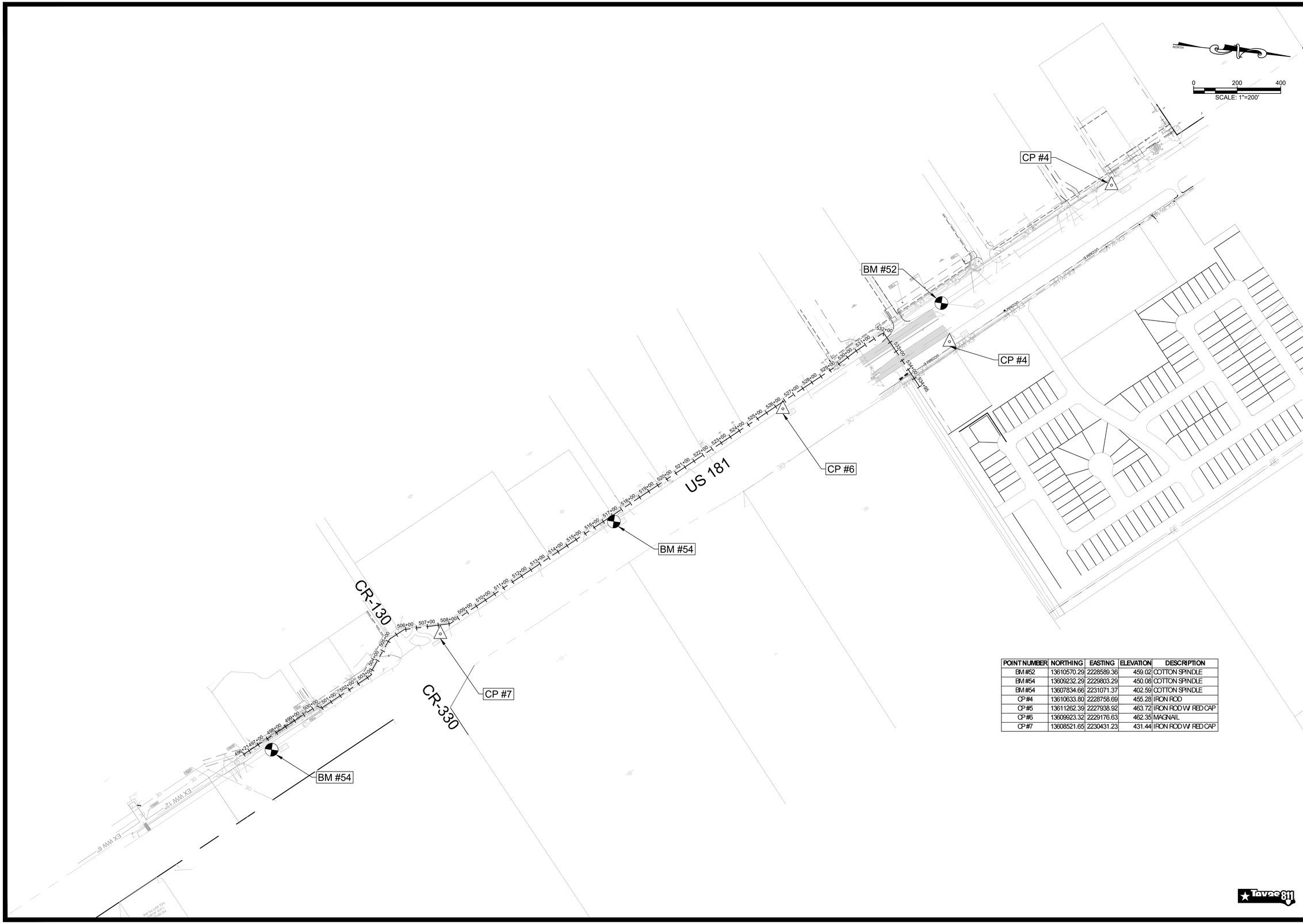

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM #52	13610570.29	2228589.36	459.02	COTTON SPINDLE
BM #54	13609232.29	2229803.29	450.08	COTTON SPINDLE
BM #54	13607834.66	2231071.37	402.59	COTTON SPINDLE
CP #4	13610633.80	2228758.69	455.28	IRON ROD
CP #5	13611262.39	2227938.92	463.72	IRON ROD W/ RED CAP
CP #6	13609923.32	2229176.63	462.35	MAGNAIL
CP #7	13608521.65	2230431.23	431.44	IRON ROD W/ RED CAP

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105051
LICENSED
PROFESSIONAL ENGINEER

June 17, 2025

US 181 SEWER EXTENSION

CONTROL POINTS

JOB:23FLORE001			
DATE:			
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

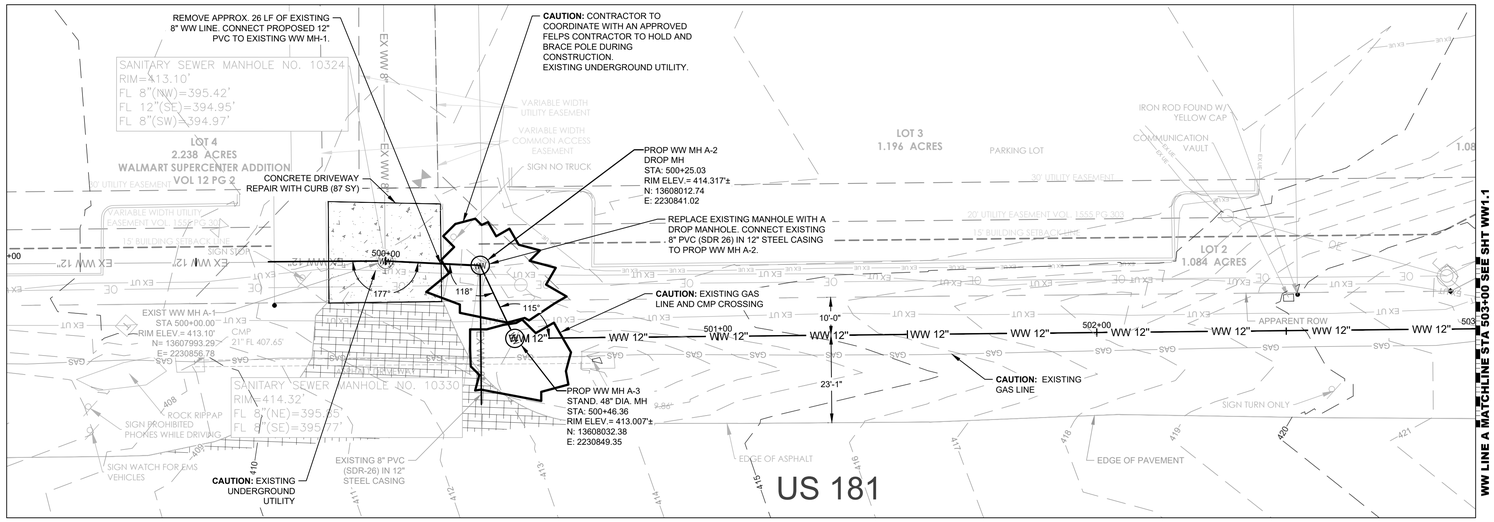
REVISIONS:

DELTA	DESCRIPTION	DATE

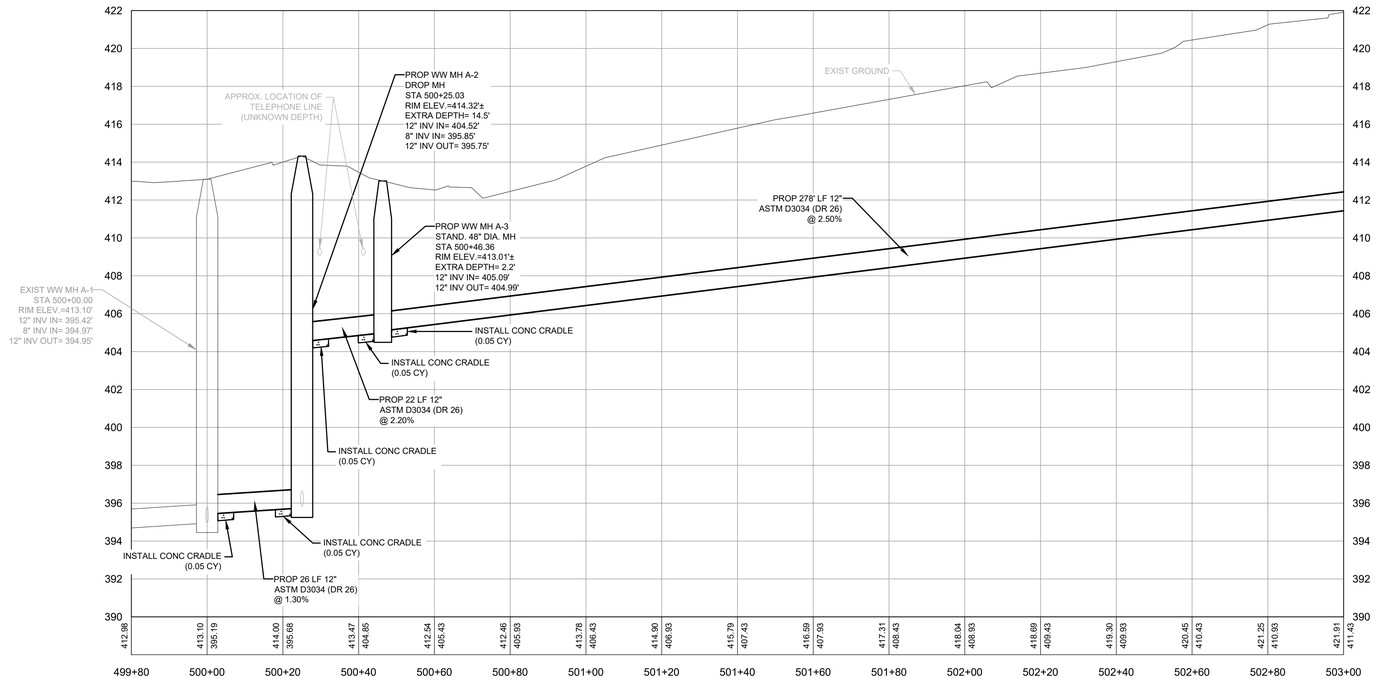
SHEET:

G1.3

Texas 811



PLAN VIEW



PROFILE VIEW

H: 1" = 20 V: 1" = 4'

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFTEY EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS, AND/OR PROCEDURES. THE CONTRACTOR'S IMPEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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June 17, 2025

US 181 SEWER EXTENSION

WASTEWATER LINE A PLAN AND PROFILE STA 500+00 TO STA 503+00

JOB:23FLORE001			
DATE:			
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

WW1.0

Texas 811

Date: Jun 16, 2025, 11:40am User ID: cstayton
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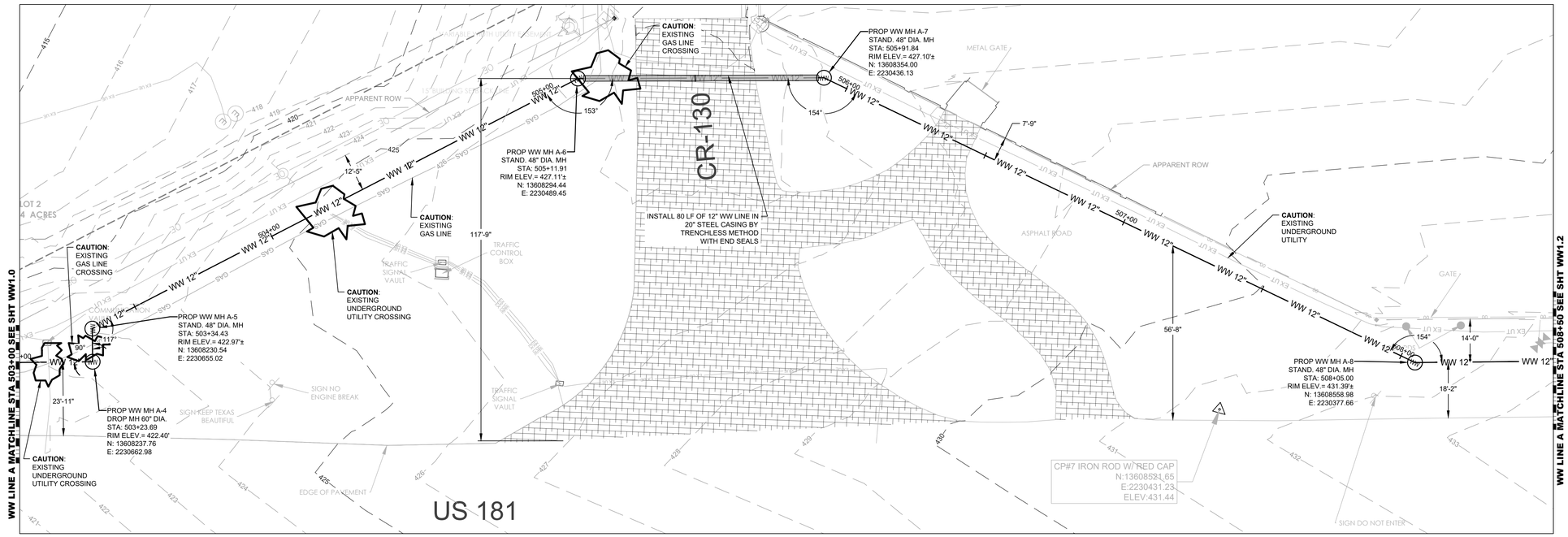
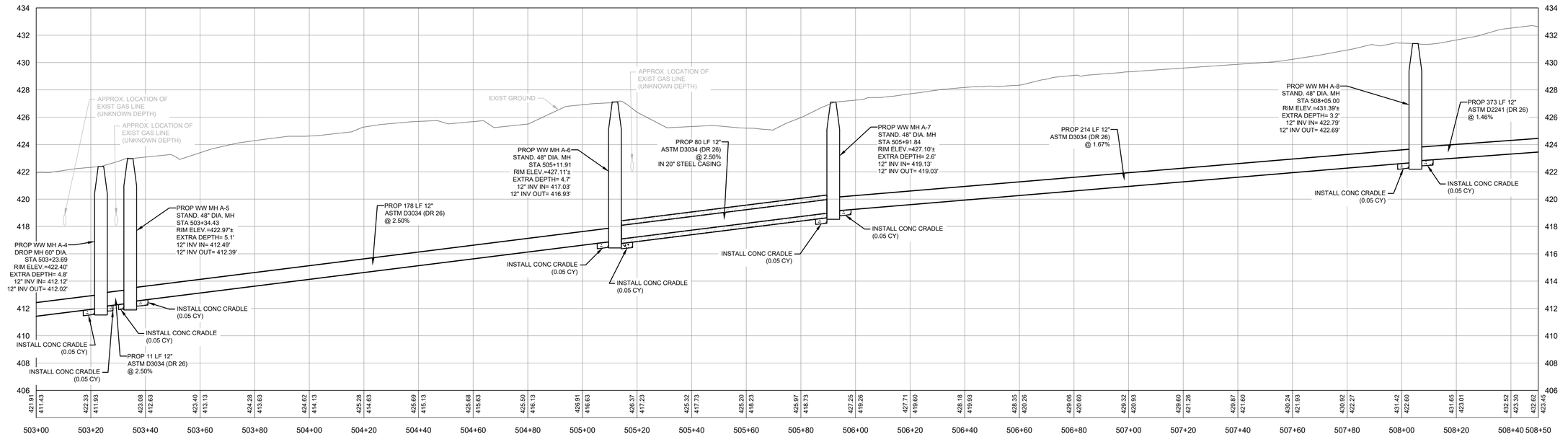
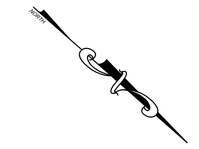


PLAN VIEW



PROFILE VIEW

H: 1" = 20 V: 1" = 4'



TRENCH EXCAVATION SAFETY PROTECTION

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PROFESSIONAL ENGINEER

June 17, 2025

US 181 SEWER EXTENSION

WASTEWATER LINE A PLAN AND PROFILE STA 503+00 TO STA 508+50

JOB:23FLORE001	
DATE:	
DRAWN: KV	PM: BK
DESIGN: CB	DM: BK
PEER:	OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

WW1.1

Texas 811

Date: Jun 16, 2025, 11:41am User ID: cclayton
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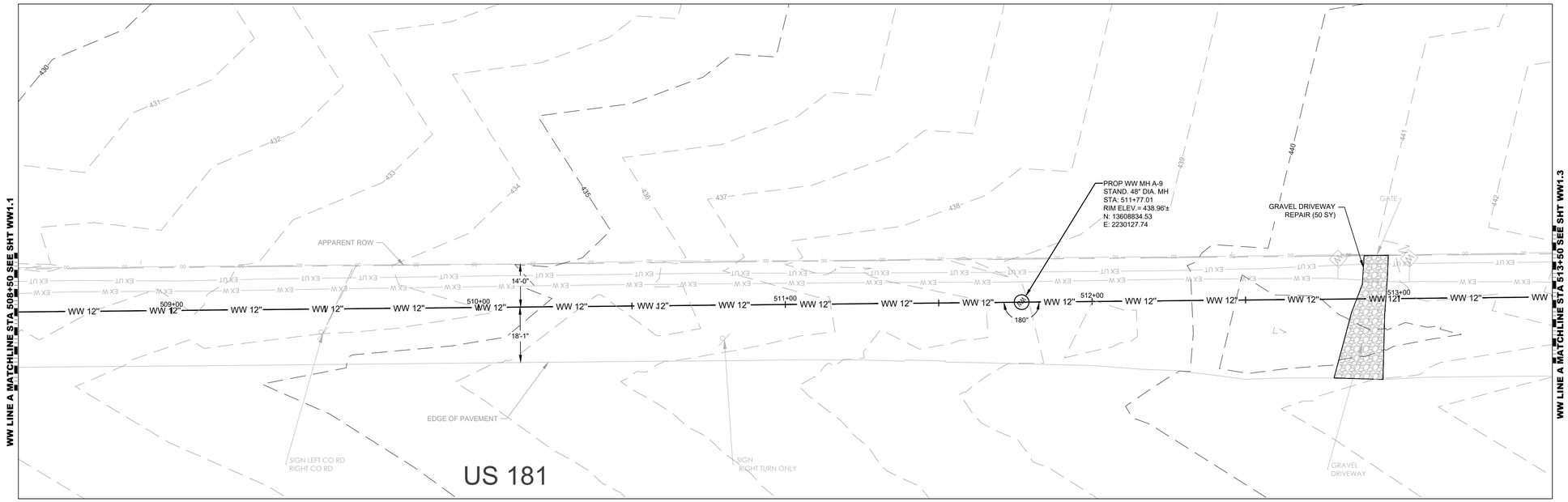
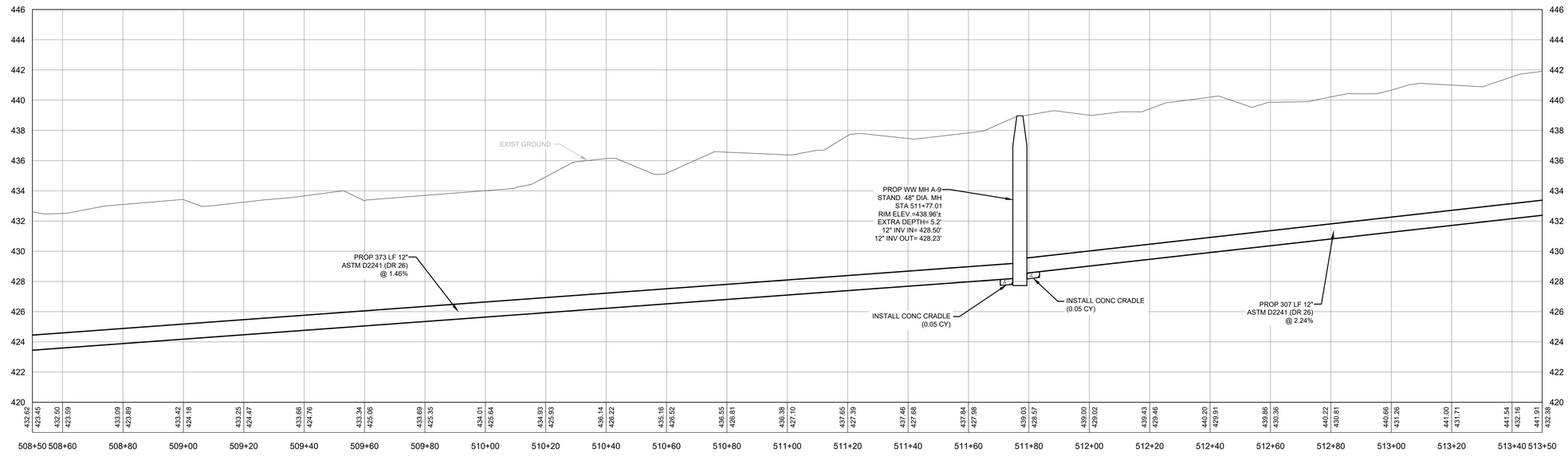


PLAN VIEW



PROFILE VIEW
H: 1" = 20 V: 1" = 4'

TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFTEY EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS, AND/OR PROCEDURES. THE CONTRACTOR'S IMPEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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June 17, 2025

US 181 SEWER EXTENSION

WASTEWATER LINE A PLAN AND PROFILE STA 508+50 TO STA 513+50

JOB:23FLORE001

DATE:

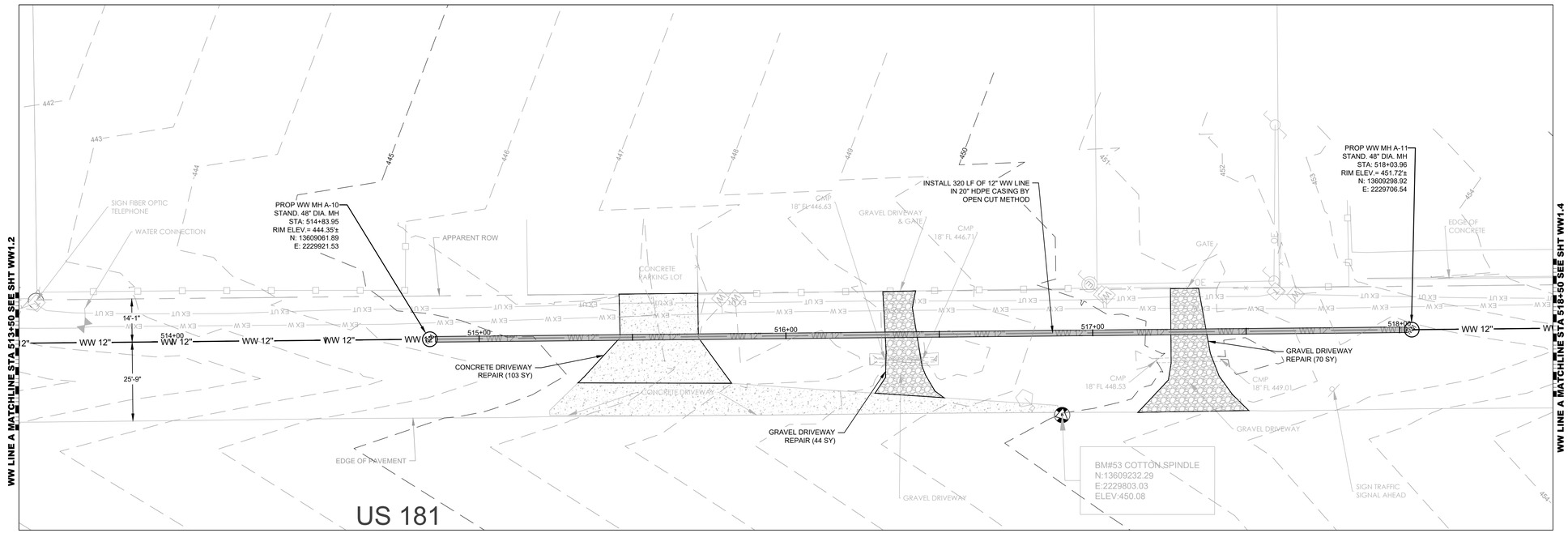
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

REVISIONS:

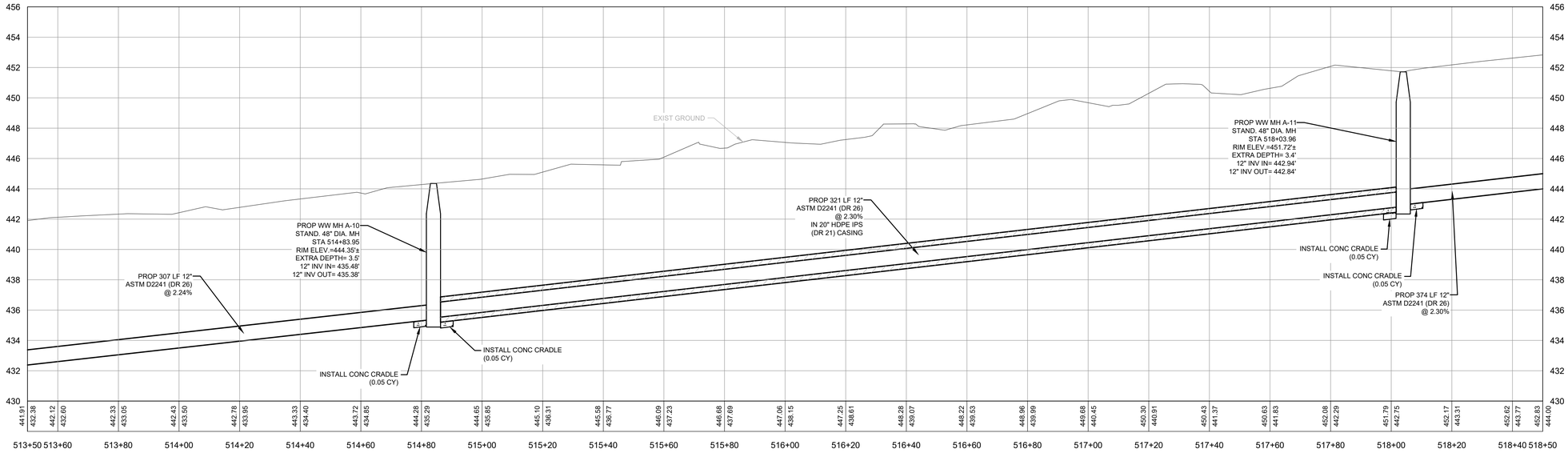
DELTA	DESCRIPTION	DATE

SHEET:

WW1.2



PLAN VIEW



PROFILE VIEW

H: 1" = 20 V: 1" = 4'

TRENCH EXCAVATION SAFETY PROTECTION

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June 17, 2025

US 181 SEWER EXTENSION

WASTEWATER LINE A PLAN AND PROFILE STA 513+50 TO STA 518+50

JOB:	23FLORE001
DATE:	
DRAWN:	KV
PM:	BK
DESIGN:	CB
DM:	BK
PEER:	
OTHER:	

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

WW1.3

Date: Jun 16, 2025, 11:39am User ID: cstayton
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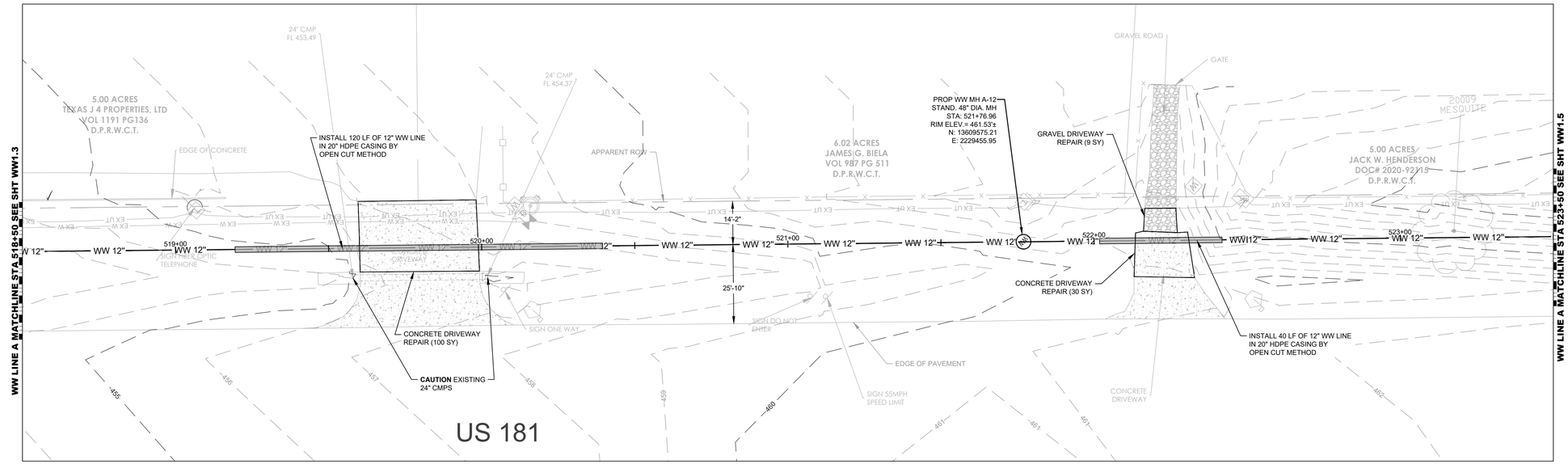
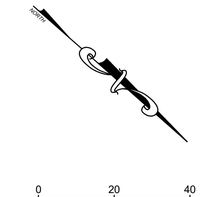


PLAN VIEW



TRENCH EXCAVATION SAFETY PROTECTION

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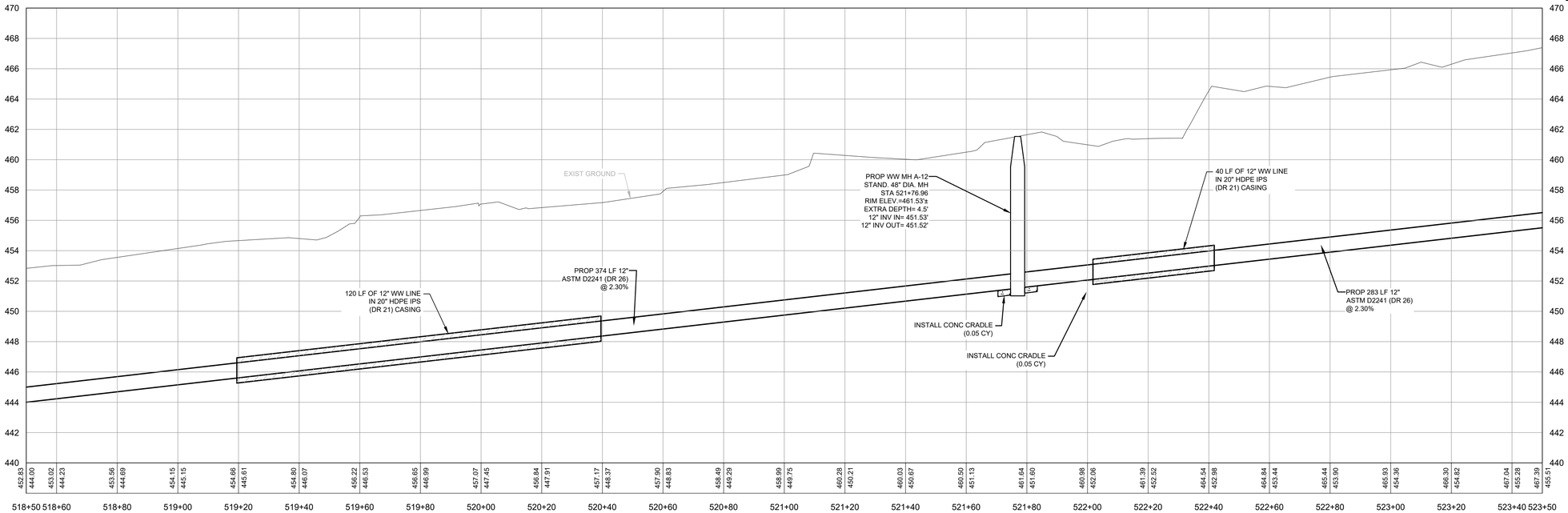

PROFILE VIEW

H: 1" = 20 V: 1" = 4'

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June 17, 2025

US 181 SEWER EXTENSION

WASTEWATER LINE A PLAN AND PROFILE STA 518+50 TO STA 523+50

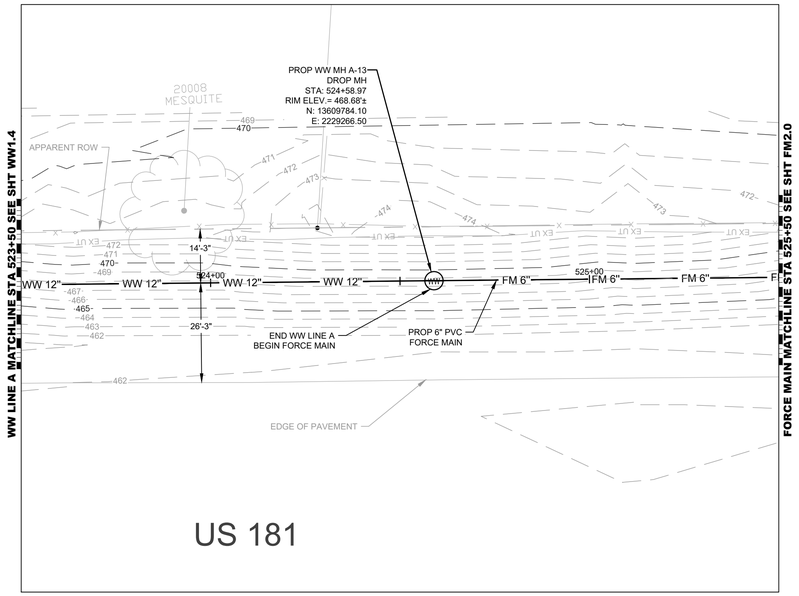
JOB:23FLORE001			
DATE:			
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

REVISIONS:

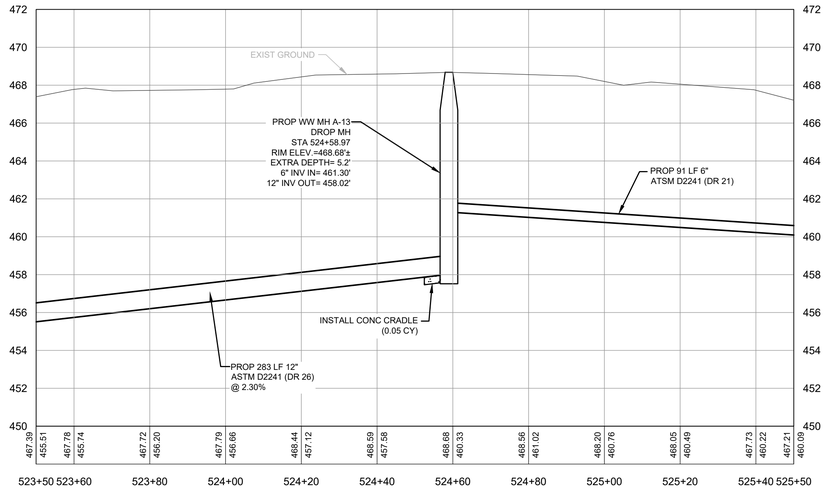
DELTA	DESCRIPTION	DATE

SHEET:

WW1.4

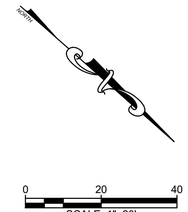


PLAN VIEW



PROFILE VIEW

H: 1" = 20 V: 1" = 4'



TRENCH EXCAVATION SAFETY PROTECTION

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June 17, 2025

US 181 SEWER EXTENSION

WASTEWATER LINE A PLAN AND PROFILE STA 523+50 TO STA 525+50

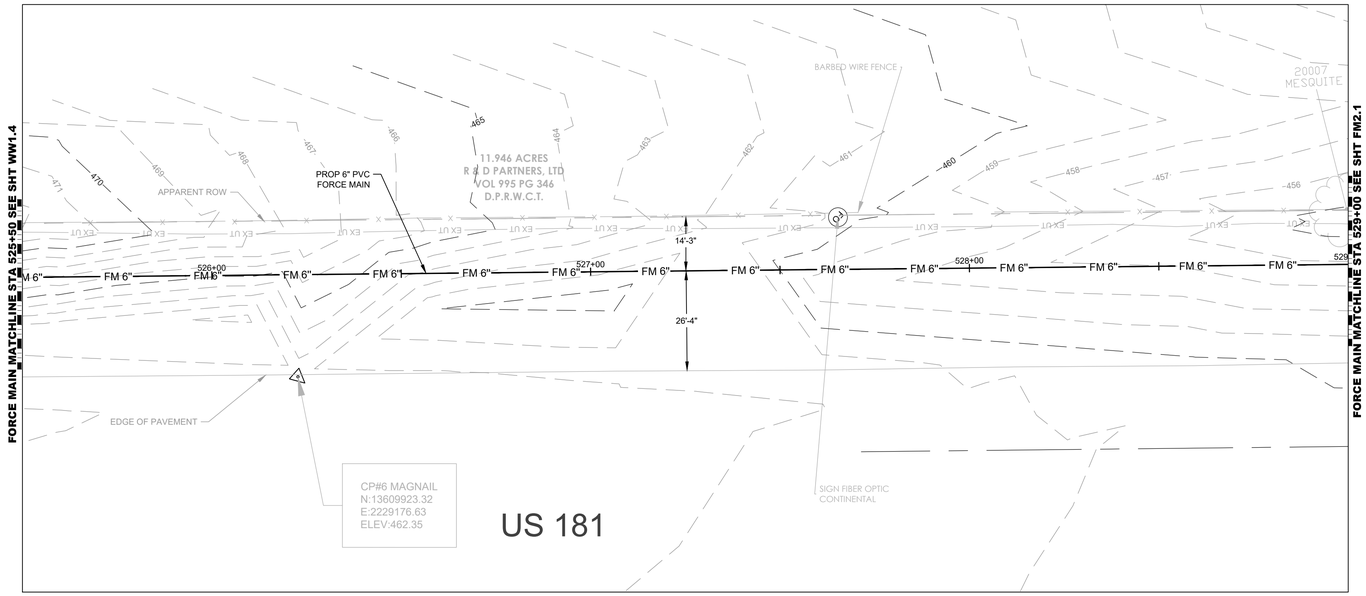
JOB:23FLORE001			
DATE:			
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

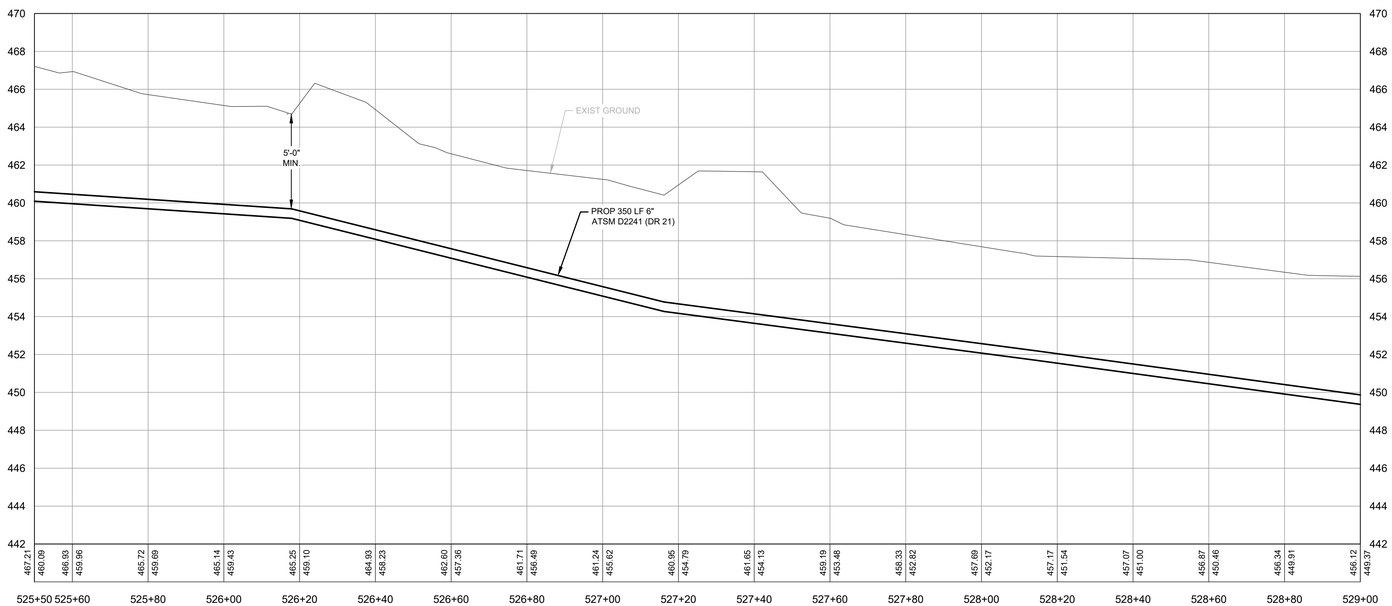
REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

WW1.5





TRENCH EXCAVATION SAFETY PROTECTION

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June 17, 2025

US 181 SEWER EXTENSION

FORCE MAIN STA 525+50 TO STA 529+00

JOB:23FLORE001

DATE:

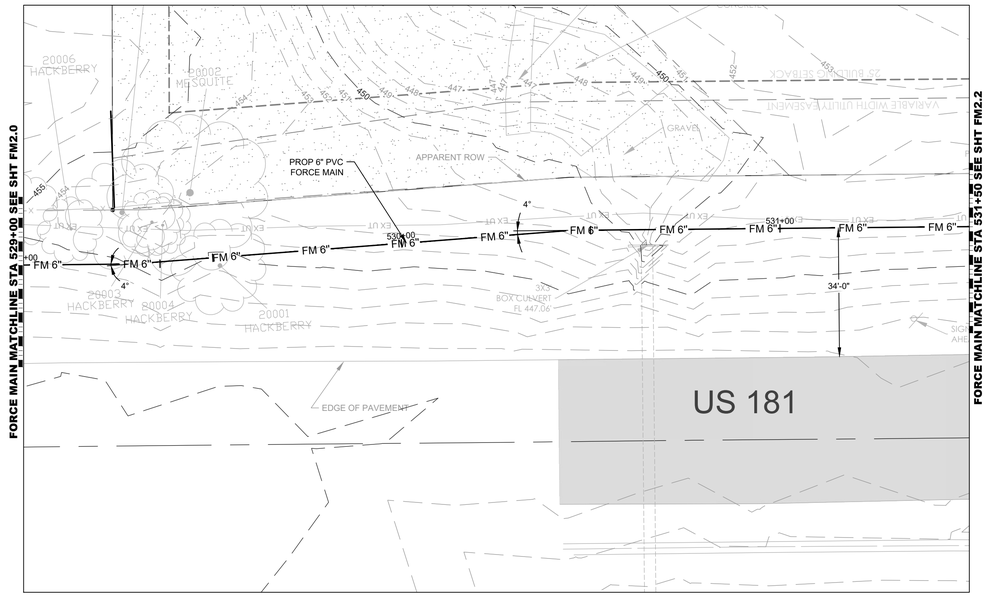
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

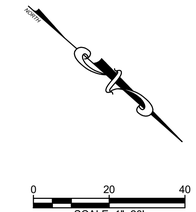
REVISIONS:

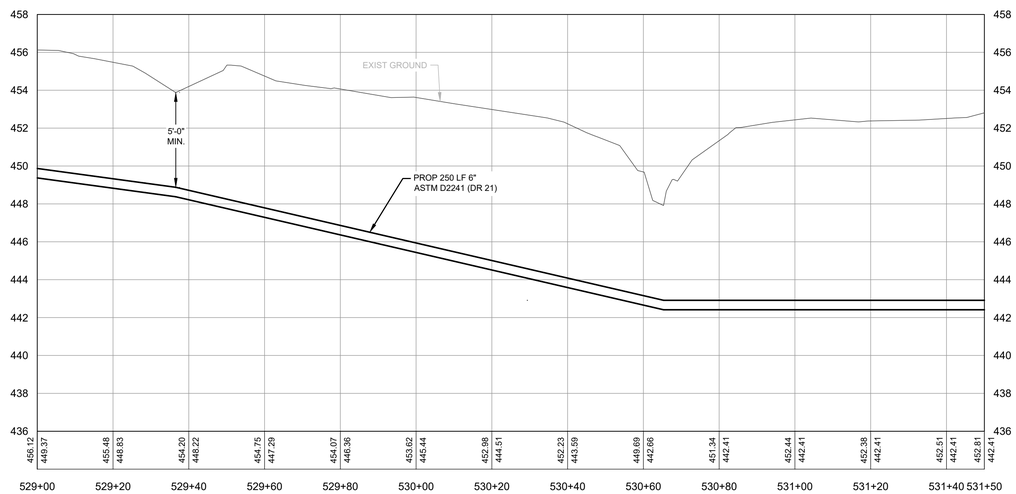
DELTA	DESCRIPTION	DATE

SHEET:

FM2.0







TRENCH EXCAVATION SAFETY PROTECTION

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PROFESSIONAL ENGINEER

June 17, 2025

US 181 SEWER EXTENSION

FORCE MAIN STA 529+00 TO STA 531+50

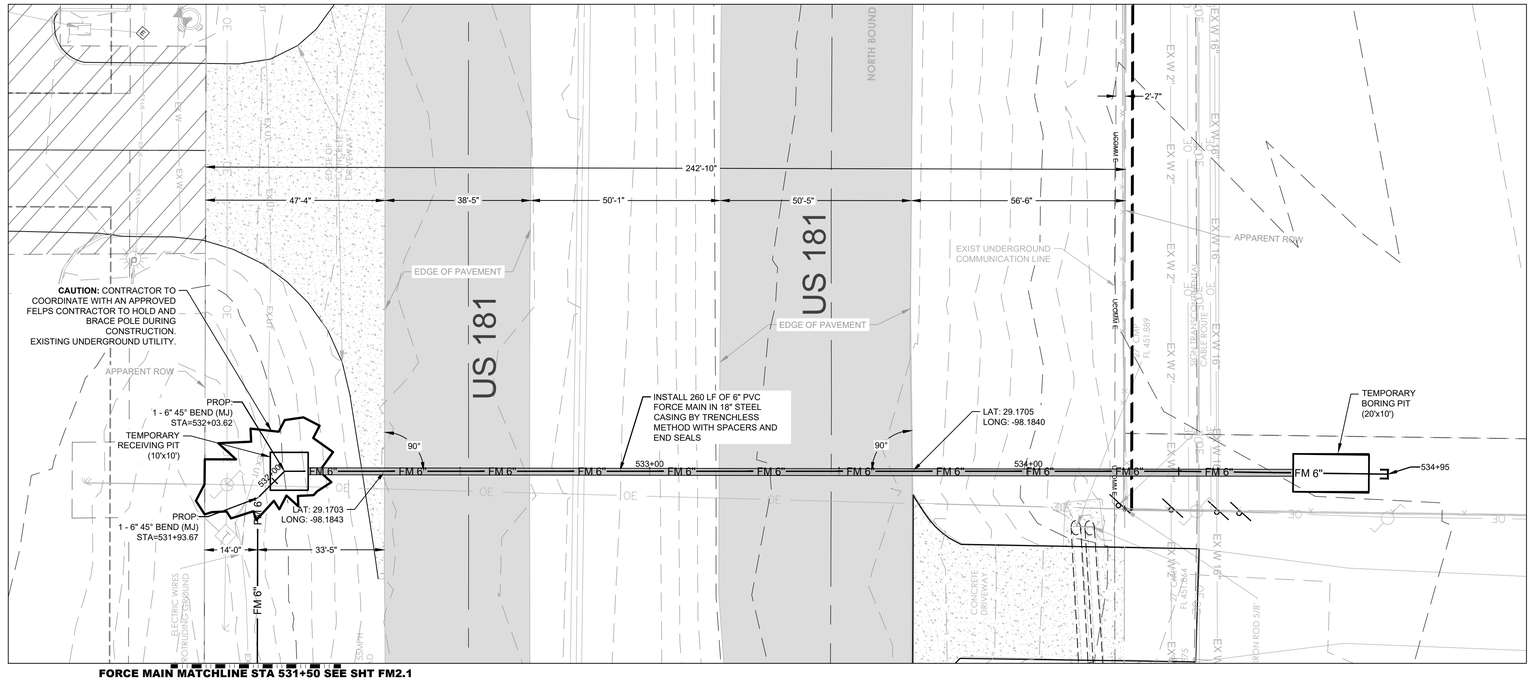
JOB:23FLORE001			
DATE:			
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

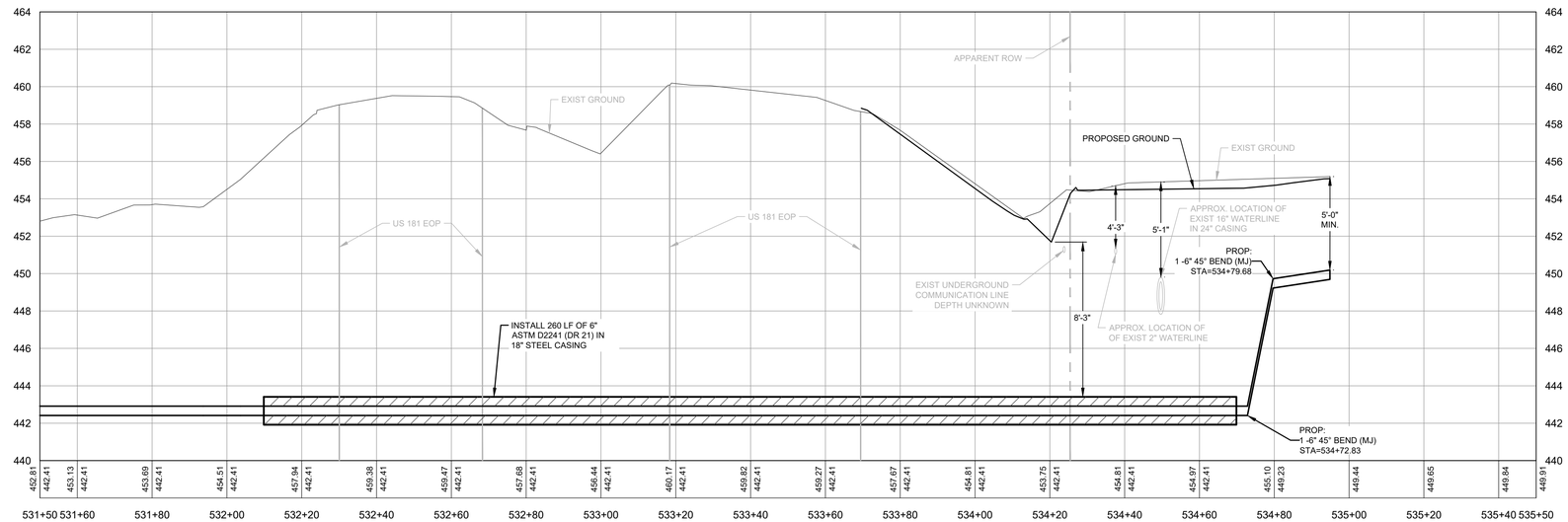
REVISIONS:

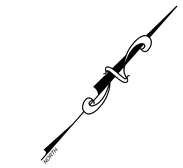
DELTA	DESCRIPTION	DATE

SHEET:

FM2.1







TRENCH EXCAVATION SAFETY PROTECTION

CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFTEY EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS, AND/OR PROCEDURES. THE CONTRACTOR'S IMPEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

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STATE OF TEXAS
BRADY KC5.3
105051
LICENSED
PROFESSIONAL ENGINEER

June 17, 2025

US 181 SEWER EXTENSION

FORCE MAIN STA 531+50 TO STA 535+50

JOB:23FLORE001

DATE:

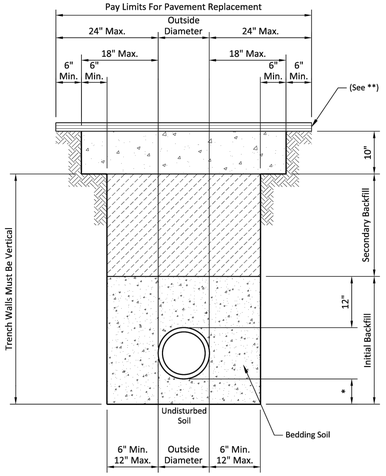
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

FM2.2



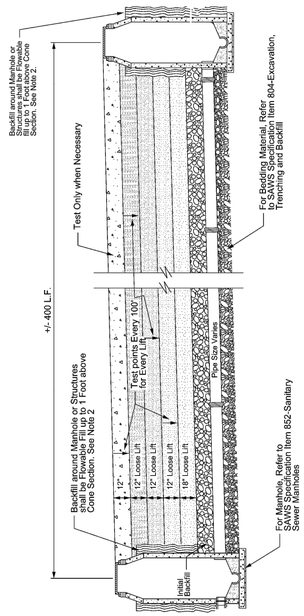
The Existing Material at the Bearing Level shall be Removed and Replaced to a Minimum Depth of 6-Inches or ½ of the Outside Diameter of the Pipe, whichever is greater, with Bedding Material.

In Areas of over Excavation, Encasement shall extend from Trench Wall. Pay Limits shall not Exceed 12" Max. as shown on Detail. Additional Encasement shall be incidental.

* Sewer Gravel 6" Min. or ½ O.D. of the Pipe, whichever is greater.
** Minimum 2" HMAC Type "D" for Trench Repair in Local/Residential Streets.
** Minimum 3" HMAC Type "C" for Trench Repair in Collector/Arterial Streets.

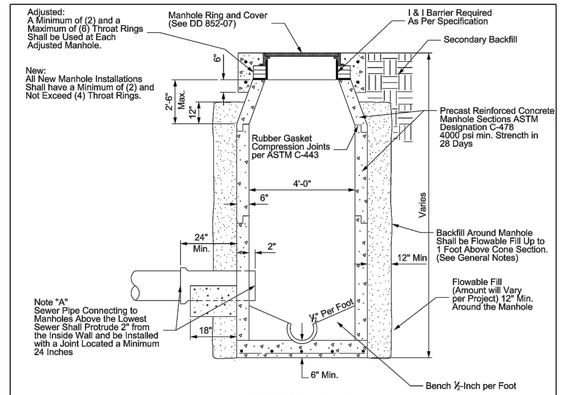
- Hot Mix Asphalt Concrete (HMAC)
- Asphalt Treated Base (A.T.B.)

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	SANITARY SEWER PIPE LAID IN TRENCH	MARCH 2008	AUG 2019
		DD-804-01	SHEET 1 OF 1

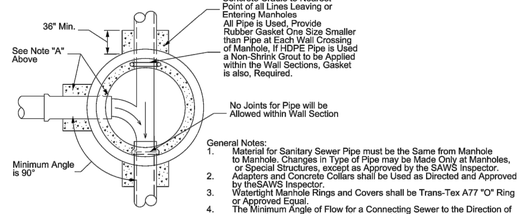


NOTES:
1. The Compaction Report will indicate the Station and the Depth of each Test Point. If the compaction test fails, all work will be subject to sections 804.3 and 804.4 of this specification.
2. Insure Compaction Probe Penetrates to same Depth as Lift.
3.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TRENCH COMPACTION DETAIL	MARCH 2018	AUG 2019
		DD 804-02	SHEET 1 OF 1



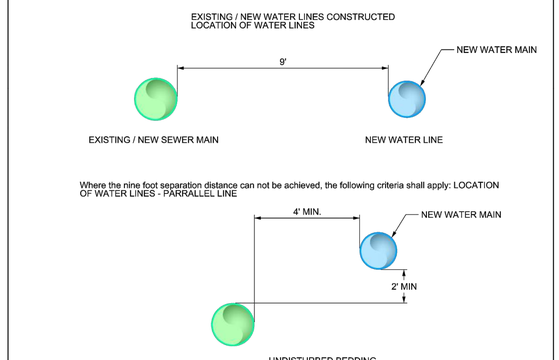
PRECAST MANHOLE



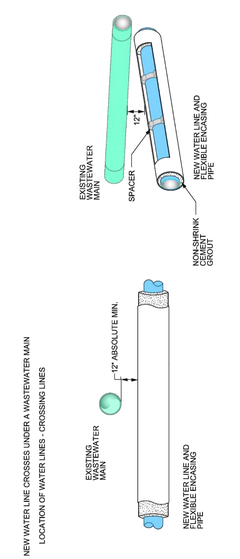
PRECAST MANHOLE

General Notes:
1. Material for Sanitary Sewer Pipe must be the Same from Manhole to Manhole. Changes in Type of Pipe may be Made Only at Manholes, or Special Structures, except as Approved by the SAWS Inspector.
2. Adapters and Concrete Collars shall be Used as Directed and Approved by theSAWS Inspector.
3. Watertight Manhole Rings and Covers shall be Trans-Tex A77 "O" Ring or Approved Equal.
4. The Minimum Angle of Flow for a Connecting Sewer to the Direction of Flow Defined by a Collection System is 90 Degrees, unless Approved by the Engineer.

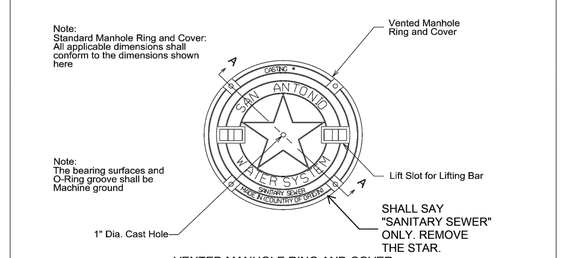
PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	STANDARD PRECAST MANHOLE	MAY 2013	AUG 2019
		DD-852-01	SHEET 1 OF 2



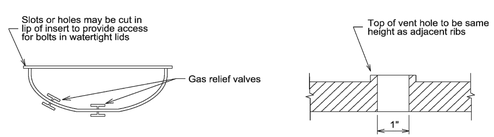
PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	WATER LINES	MARCH 2008	AUG 2019
		DD-812-01	SHEET 3 OF 9



PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	DETAIL	MAY 2013	AUG 2019
		DD-812-01	SHEET 6 OF 9



VENTED MANHOLE RING AND COVER



WATERTIGHT MANHOLE INSERT DETAIL

VENT HOLE DETAIL SECTION A-A

Manhole cover inserts shall be installed in strict accordance with the manufacturer's recommendations. The contractor shall be responsible for making the necessary field measurements for the manufacturer prior to production.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	VENTED MANHOLE RING AND COVER DETAIL	JANUARY 2005	AUG 2019
		DD-852-02	SHEET 1 OF 1

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STATE OF TEXAS
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PROFESSIONAL ENGINEER

June 17, 2025

US 181 SEWER EXTENSION

DETAILS 1

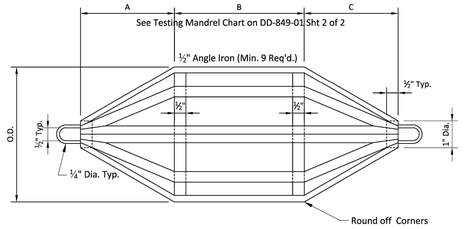
JOB:23FLORE001			
DATE:			
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

REVISIONS:

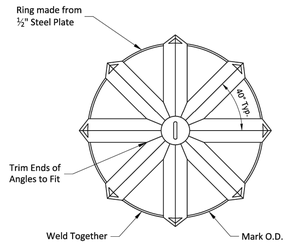
DELTA	DESCRIPTION	DATE

SHEET:

D1.0



SIDE OR TOP VIEW



END VIEW

Note:
All Mandrels must be Approved by SAWS Construction Inspection
Dept. and Stamped before Use.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL	March 2008	December 2019
		DD-849-01	SHEET 1 OF 2

SIZE	A	B*	MANDREL O.D. PVC (SDR -26)	RING O.D. PVC (SDR -26)
6"	4.0"	4.5"	5.50	4.79
8"	5.5"	6"	7.37	6.66
10"	7.0"	7.5"	9.21	8.50
12"	8.0"	9"	10.96	10.25
15"	10.0"	11"	13.42	12.71
18"	12.0"	13.5"	———	———
21"	14.0"	16"	———	———
24"	16.0"	18"	———	———
27"	18.0"	20"	———	———

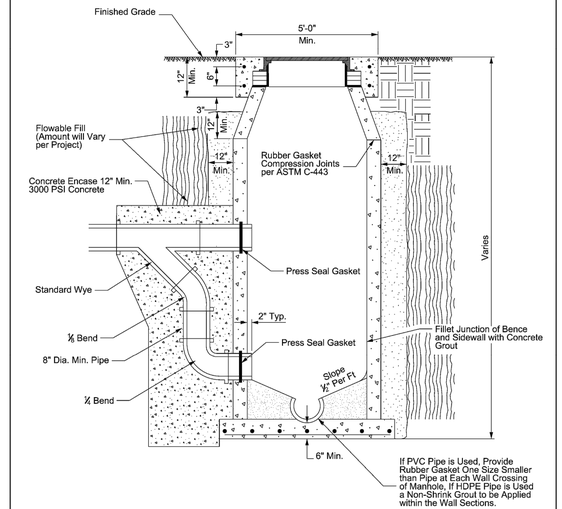
*Minimum Length

CHART

Notes:
PVC Pipes and Fittings 6" to 15" in Diameter shall Conform to ASTM D-2241
PVC Pipes and Fittings 18" to 27" in Diameter shall Conform to ASTM F-679

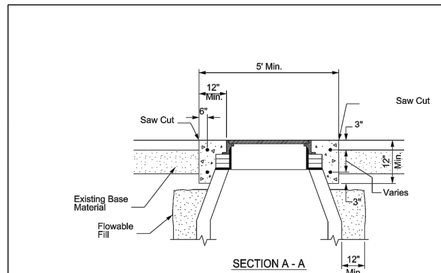
This information is provided as a reference. All deflection testing shall be done in accordance with TCEQ Capter 217.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	GO, NO GO DEFLECTION TESTING MANDREL CHART	March 2008	December 2019
		DD-849-01	SHEET 2 OF 2

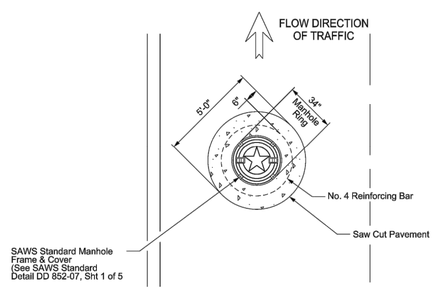


NOTE: Price for Drop Fittings and Encasement to be Included with the Price of Manhole.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	DROP MANHOLE DETAIL	MARCH 2008	AUG 2019
		DD-852-08	SHEET 1 OF 1

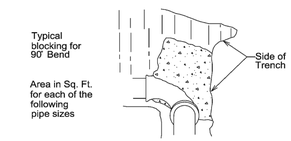


SECTION A - A



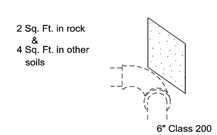
NOTE:
1. The Concrete Shall be 4000 PSI Minimum and Reinforced with No. 4 Bars as Shown.
2. The Concrete Shall Extend to Edge of Saw Cut Pavement.
3. Manhole Ring Encasement is Required on all Manholes.
4. Manhole Lid shall Open in the Direction of Traffic or Downstream in Parkway

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	MANHOLE RING ENCASEMENT DETAIL	AUGUST 2009	AUG 2019
		DD 852-03	SHEET 1 OF 2



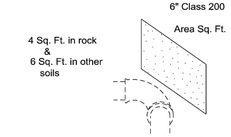
THRUST BLOCKING DESIGN

On basis of 200 psi water pressure used for tests, the blocking required for two types of soils are noted below. In one case, a soil pressure of 5000 psf is used for rock excavation and for soils other than rock a 3000 psf bearing soil pressure is used. The distribution on system is pressure of 175 psf all calculations apply to A.C. Pipe Class 200 and Ductile Iron Pipe Class 2. PVC Pipe Class 200 (SDR 13.5)



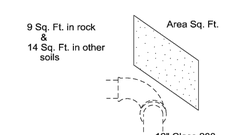
Square feet of blocking required for rock excavation

SIZE PIPE	TEES & DEAD ENDS	90° BENDS	45° BENDS	22 1/2° BENDS
6"	2	2	1	1
8"	3	4	2	1
12"	6	9	5	2
16"	11	15	8	4



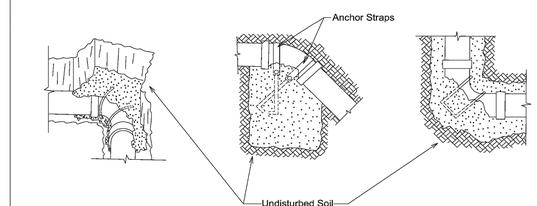
Square feet of blocking required for other than rock excavation

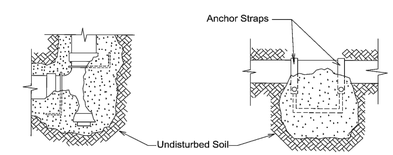
SIZE PIPE	TEES & DEAD ENDS	90° BENDS	45° BENDS	22 1/2° BENDS
6"	3	4	2	1
8"	4	6	4	2
12"	10	14	8	4
16"	18	25	14	7



Blocking area for 200 psi tests &
175 psi working pressures.

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	THRUST BLOCKING FOR HIGH PRESSURE SYSTEM	March 2008	AUG 2019
		DD-839-02	SHEET 1 OF 1





Note:
All concrete used for thrust blocking shall have a minimum concrete strength of 3,000 psi

PROPERTY OF		APPROVED	REVISED
SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL THRUST BLOCKS (SEWER ONLY)	March 2008	AUG 2019
		DD-839-03	SHEET 1 OF 1

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STATE OF TEXAS
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June 17, 2025

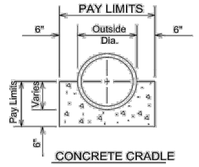
US 181 SEWER EXTENSION

DETAILS 2

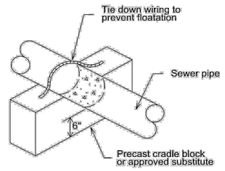
JOB:23FLORE001			
DATE:			
DRAWN: KV		PM:	BK
DESIGN: CB		DM:	BK
PEER:		OTHER:	
REVISIONS:			
DELTA	DESCRIPTION		DATE

SHEET:

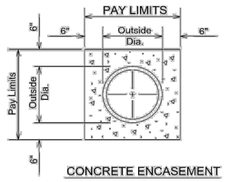
D1.1



CONCRETE CRADLE



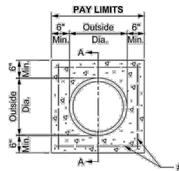
SUPPORT FOR ENCASEMENT OR CRADLE



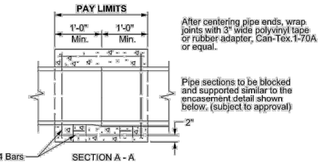
CONCRETE ENCASEMENT

Notes:
1) All concrete encasement shall be poured at a plane 6" above the pipe between excavated trench walls.
2) All sewer pipe with less than 3' of cover to subgrade shall be concrete encased.
3) All Force mains shall be provided with thrust blocks, where changes in direction occur, at Tees, Bends, Crosses, changes in size, stops, or as directed by SAWS.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL CONCRETE ENCASEMENT DETAILS	APPROVED March 2008	REVISED AUG 2019
		DD-858-01	SHEET 1 OF 1



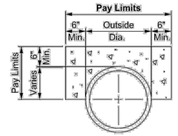
CONCRETE JOINING COLLAR



SECTION A - A

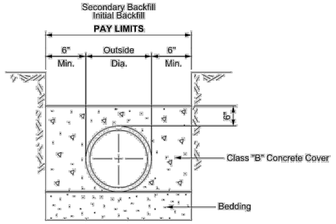
After centering pipe ends, wrap joints with 3" wide polyvinyl tape or rubber adapter, Can-Tex.1-70A or equal.

Pipe sections to be blocked and supported similar to the encasement detail shown below, (subject to approval)



TYPICAL CONCRETE SADDLE

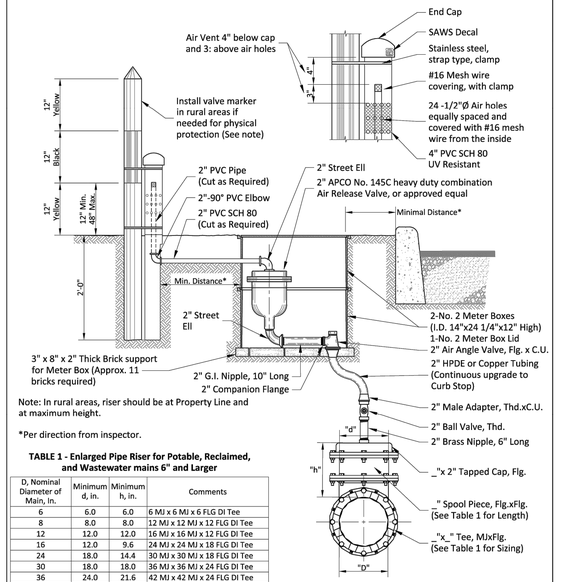
Note:
All concrete encasement shall be poured at a plane 6" above trench walls



CONCRETE COVER FOR FLEXIBLE PIPE

To Be Used Whereever Trench Width is Greater Than Two Feet (2') Plus O.D.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	TYPICAL CONCRETE DETAILS	APPROVED MARCH 2008	REVISED AUG 2019
		DD 858-02	SHEET 1 OF 1



Note: In rural areas, riser should be at Property Line and at maximum height.

*Per direction from inspector.

TABLE 1 - Enlarged Pipe Riser for Potable, Reclaimed, and Wastewater mains 6" and Larger

D, Nominal Diameter of Main, in.	Minimum d, in.	Minimum h, in.	Comments
6	6.0	6.0	6 MJ x 6 MJ x 6 FLG DI Tee
8	8.0	8.0	12 MJ x 12 MJ x 12 FLG DI Tee
12	12.0	12.0	16 MJ x 16 MJ x 12 FLG DI Tee
16	12.0	9.6	24 MJ x 24 MJ x 18 FLG DI Tee
24	18.0	14.4	30 MJ x 30 MJ x 18 FLG DI Tee
30	18.0	18.0	36 MJ x 36 MJ x 24 FLG DI Tee
36	24.0	21.6	42 MJ x 42 MJ x 24 FLG DI Tee
42	24.0	25.2	48 MJ x 48 MJ x 24 FLG DI Tee
48	24.0	28.8	Welded-on FLG Outlet
54	30.0	32.4	Welded-on FLG Outlet
60	36.0	36.0	Welded-on FLG Outlet
66	24.0	23.1	Welded-on FLG Outlet
72	24.0	25.2	Welded-on FLG Outlet

Air Collection Traps in Air Valve Piping Notes:
1. Dimensions derived from AWWA Manual 2nd Edition: Chapter 6 M51 Air Valves: Air-Release, Air/Vacuum & Combination

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	INSTALLATION OF 2" AIR RELEASE VALVE	APPROVED March 2008	REVISED August 2019
		DD-846-02	SHEET 1 OF 1

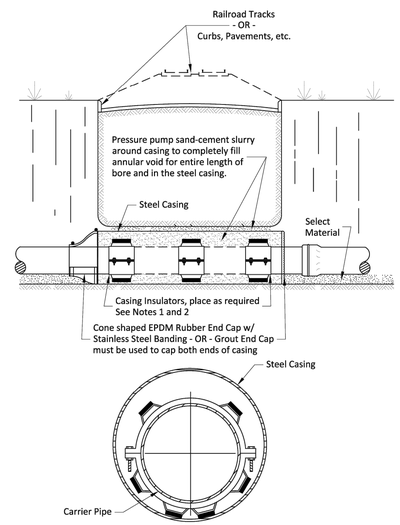
All requirements in the tables below are minimum requirements that apply unless otherwise specified in the contract documents. The engineer of record for each project is responsible for determining the appropriate requirements suitable to each instance and, if more stringent than the minimums stated herein or involving larger diameter pipe and/or casing, shall present such requirements in the contract documents.

Casing Minimum Requirements - General			
Water Main Diameter (Inches)	Nominal Steel Casing Diameter (Inches)	Steel Casing Thickness (Inches)	Steel Casing Weight (Pounds per Foot)
6	18	0.375	70.59
8	24	0.375	94.62
12	24	0.375	94.62
16	30	0.375	118.65
20	36	0.438	166.19
24	42	0.438	194.02
30	48	0.500	259.02
36	54	0.500	291.07

Casing Minimum Requirements - Under Railroad		
Nominal Steel Casing Diameter (Inches)	Steel Casing Thickness (Inches)	Steel Casing Weight (Pounds per Foot)
18	0.375	70.59
24	0.438	110.22
30	0.500	157.53
36	0.562	212.70
42	0.625	276.18
48	0.625	316.53

Railroad notes:
1. Steel casing shall have a minimum yield strength of 35,000 pounds per square inch.
2. Casing pipes larger than 48" diameter or with any portion deeper than 20' shall be submitted to chief engineer of the railroad for approval.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	INSTALLATION OF PIPE IN CASING	APPROVED March 2008	REVISED November 2019
		DD-856-01	SHEET 1 OF 1



CARRIER PIPE IN CASING

Notes:
1. Casing insulators shall be in accordance with SAWS Standard Material Specification 05-31

2. The number of runners, configuration, and spacing of casing insulators shall comply with manufacturer's stated specifications in approved submittal.

PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS	INSTALLATION OF SEWER PIPE IN CASING	APPROVED March 2008	REVISED November 2019
		DD-856-03	SHEET 1 OF 1

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BRADY KC'S J
105051
LICENSED
PROFESSIONAL ENGINEER

June 17, 2025

US 181 SEWER EXTENSION

DETAILS 3

JOB:23FLORE001
DATE:
DRAWN: KV | PM: BK
DESIGN: CB | DM: BK
PEER: | OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

D1.2

Texas 811

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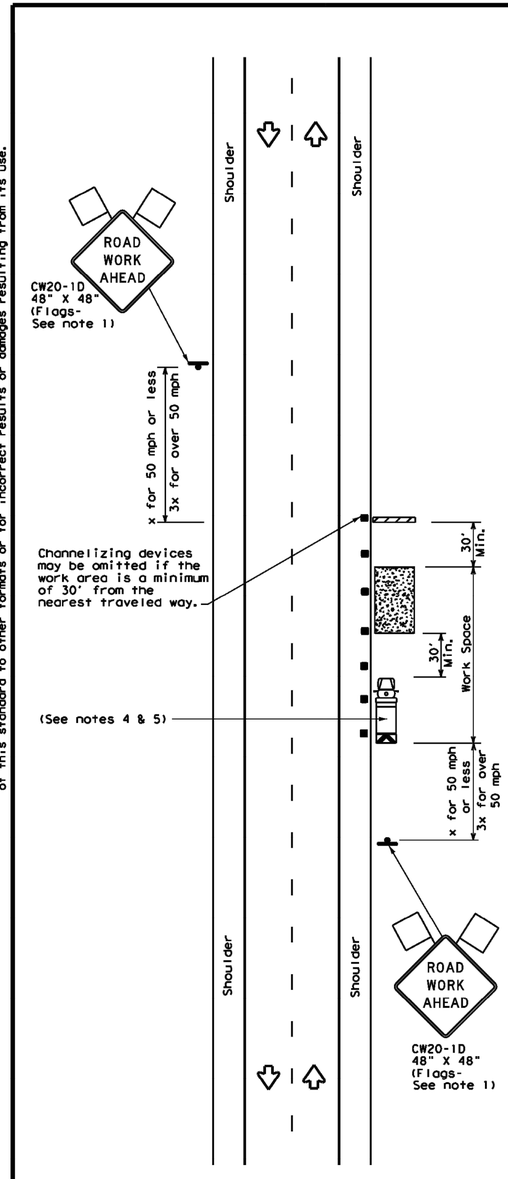
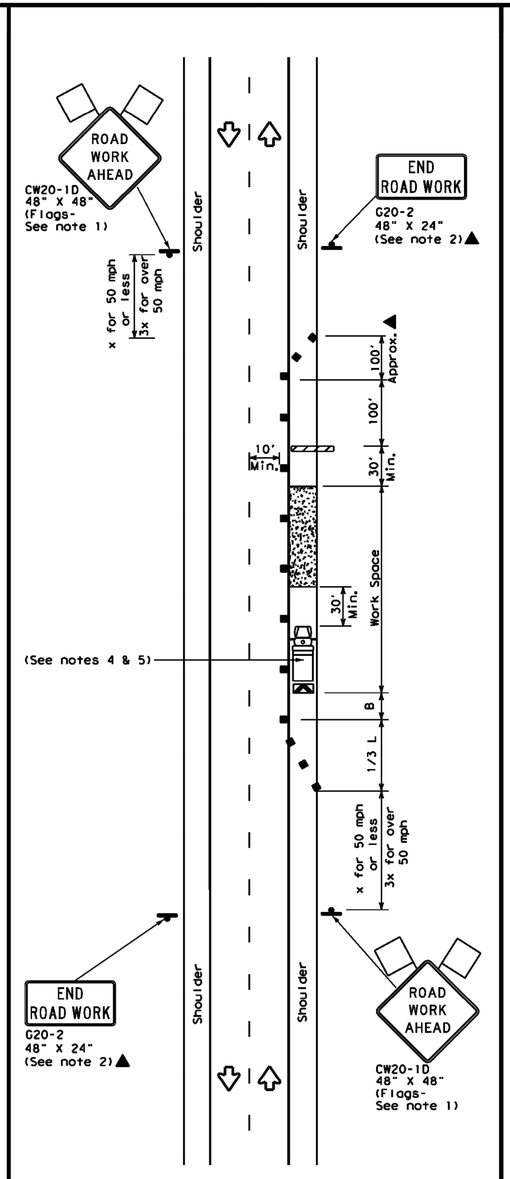


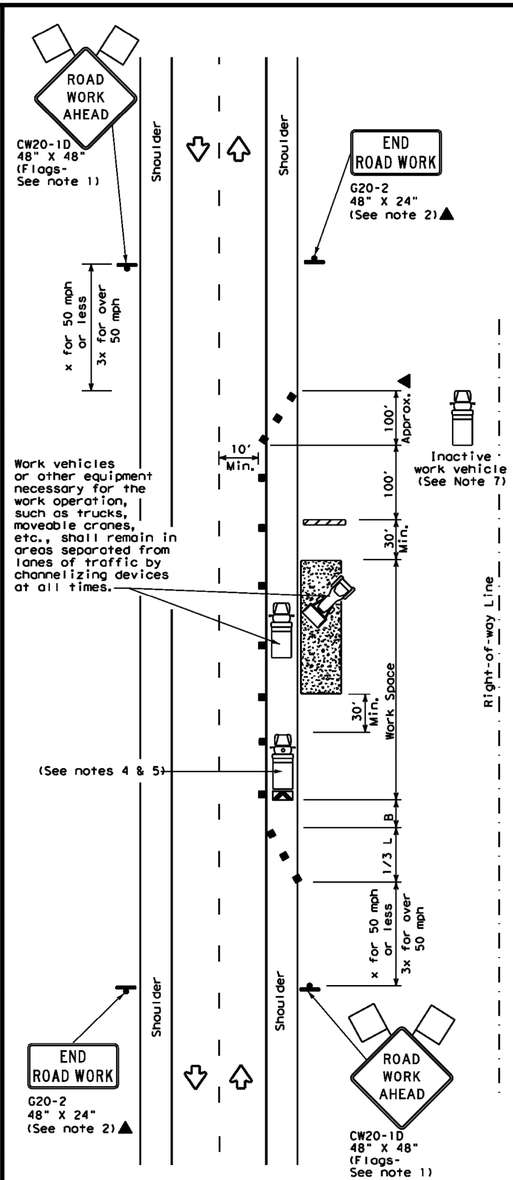
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

DATE:
FILE:

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L=WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

** Taper lengths have been rounded off.
L=Length of Taper(FT) W=Width of Offset(FT) S=Posted Speed(MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
3. Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
4. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
6. See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
7. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
8. CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation | Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	DIST	COUNTY		SHEET NO.

161

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June 17, 2025

US 181 SEWER EXTENSION

TRAFFIC CONTROL DETAILS

JOB:23FLORE001	
DATE:	
DRAWN: KV	PM: BK
DESIGN: CB	DM: BK
PEER:	OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

D1.3

Date: Jun 16, 2025, 11:42am User ID: cdalton
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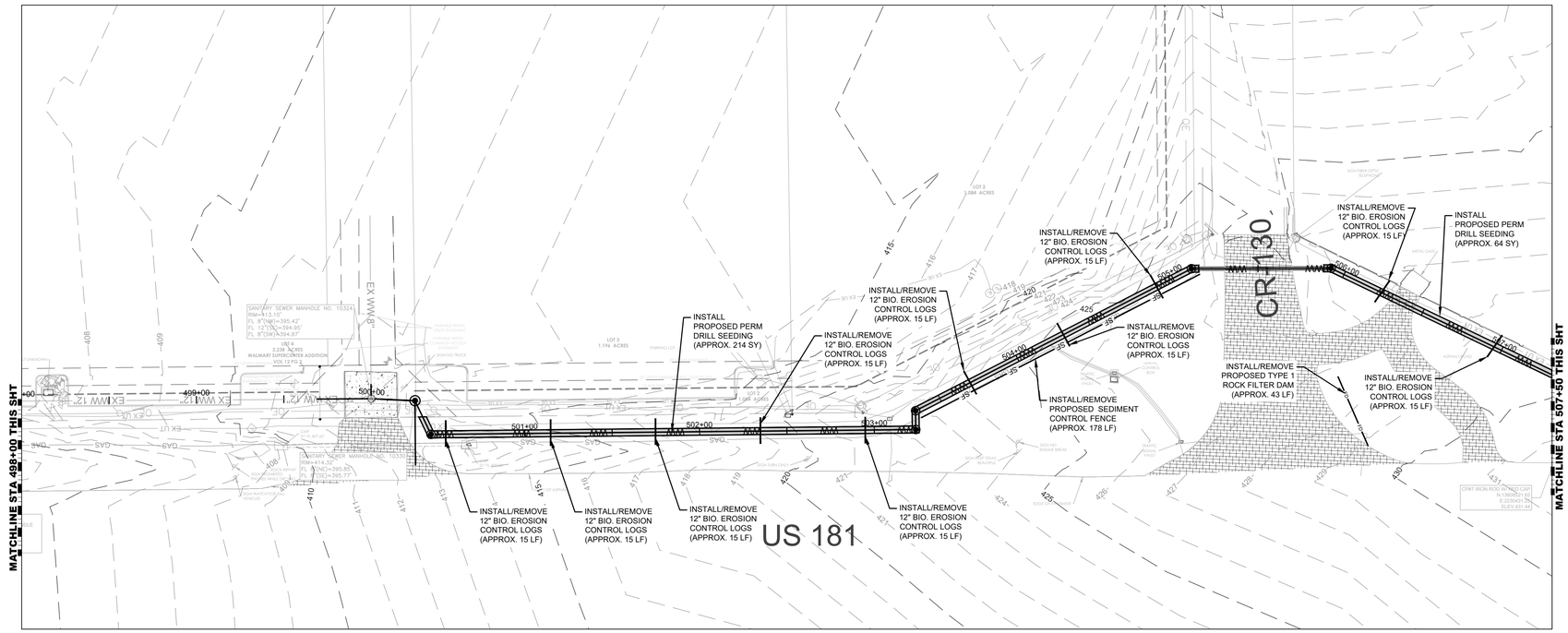

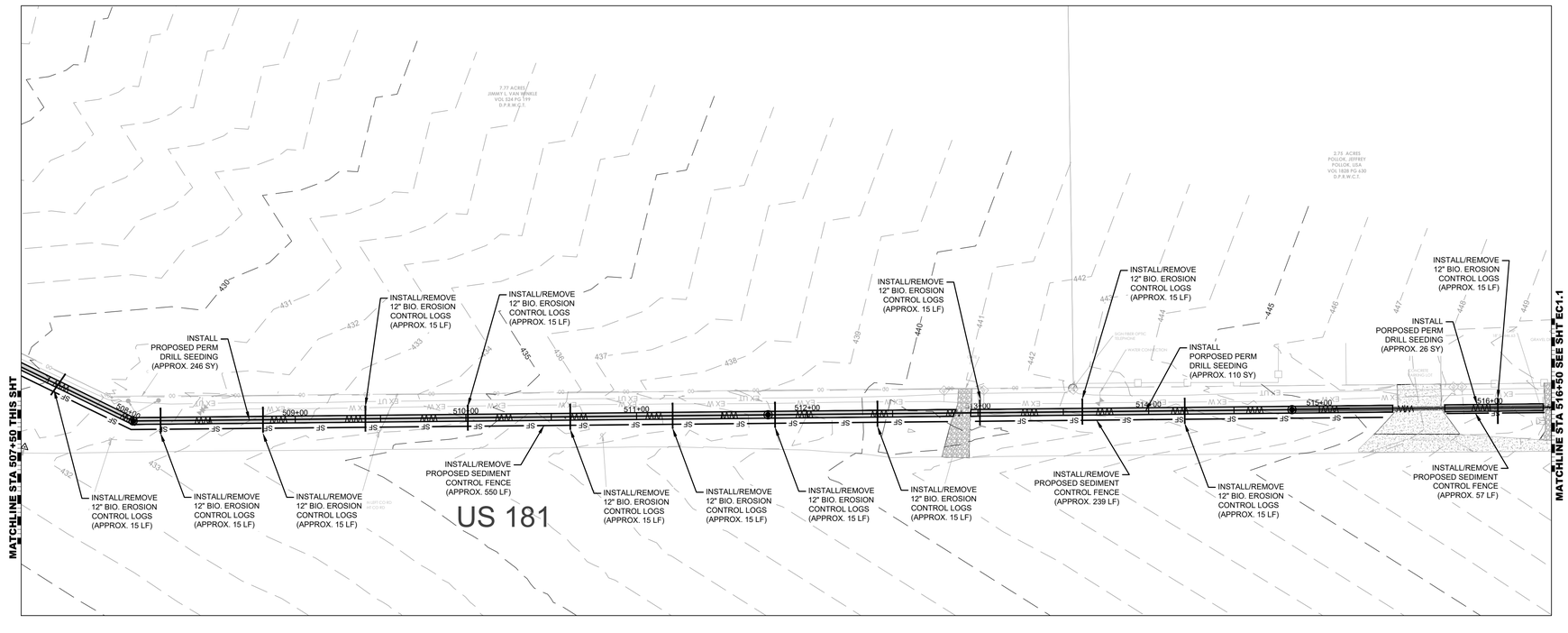

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SCALE: 1"=40'

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June 17, 2025

US 181 SEWER EXTENSION

EROSION AND SEDIMENT CONTROL PLAN - SHEET 1

JOB:23FLORE001			
DATE:			
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

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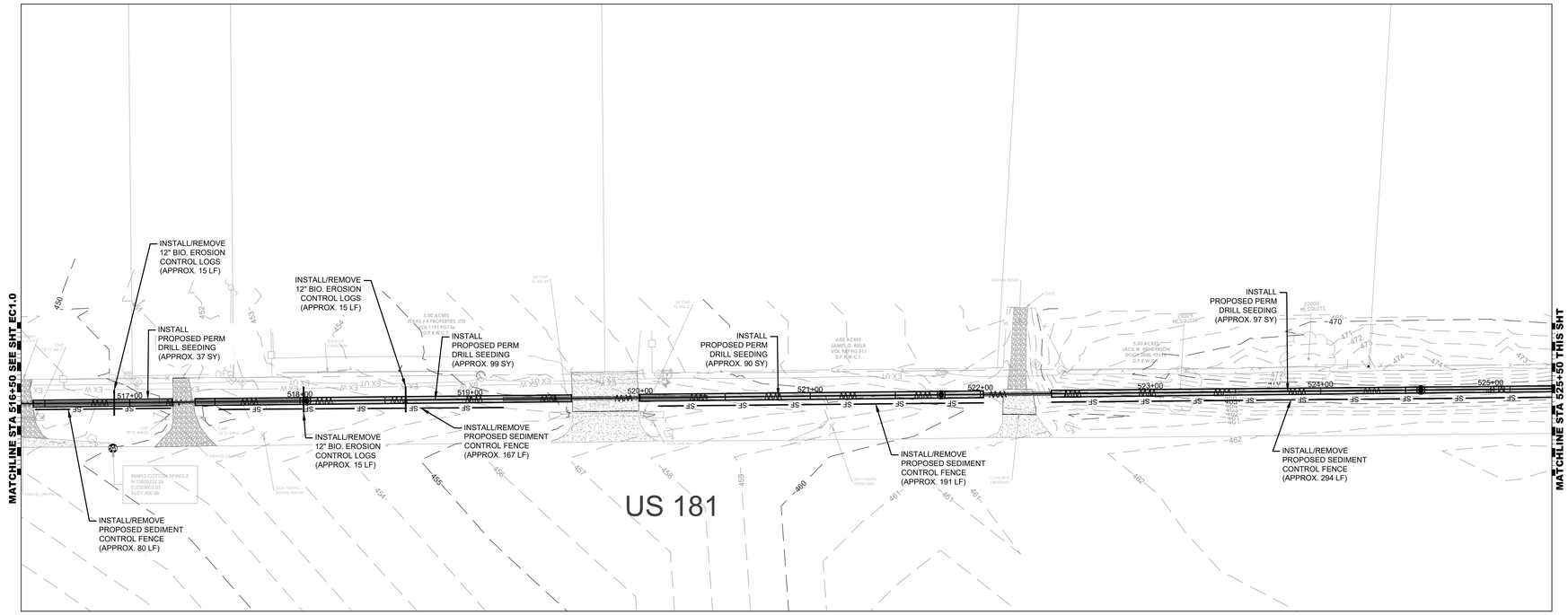
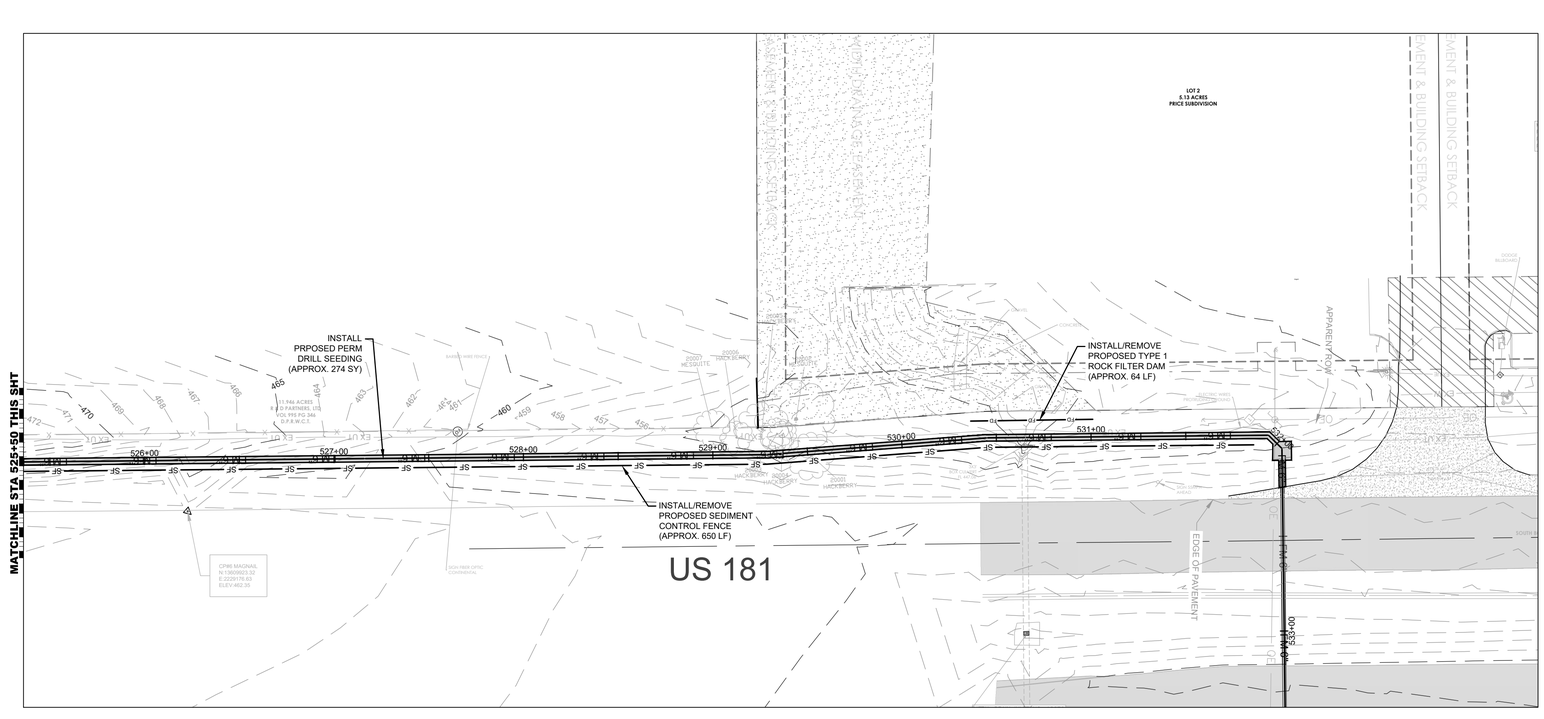
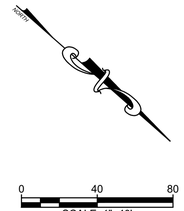
Tx One Call 811







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June 17, 2025

US 181 SEWER EXTENSION

EROSION AND SEDIMENT CONTROL PLAN - SHEET 2

JOB:23FLORE001			
DATE:			
DRAWN:	KV	PM:	BK
DESIGN:	CB	DM:	BK
PEER:		OTHER:	

REVISIONS:

DELTA	DESCRIPTION	DATE

SHEET:

EC1.1

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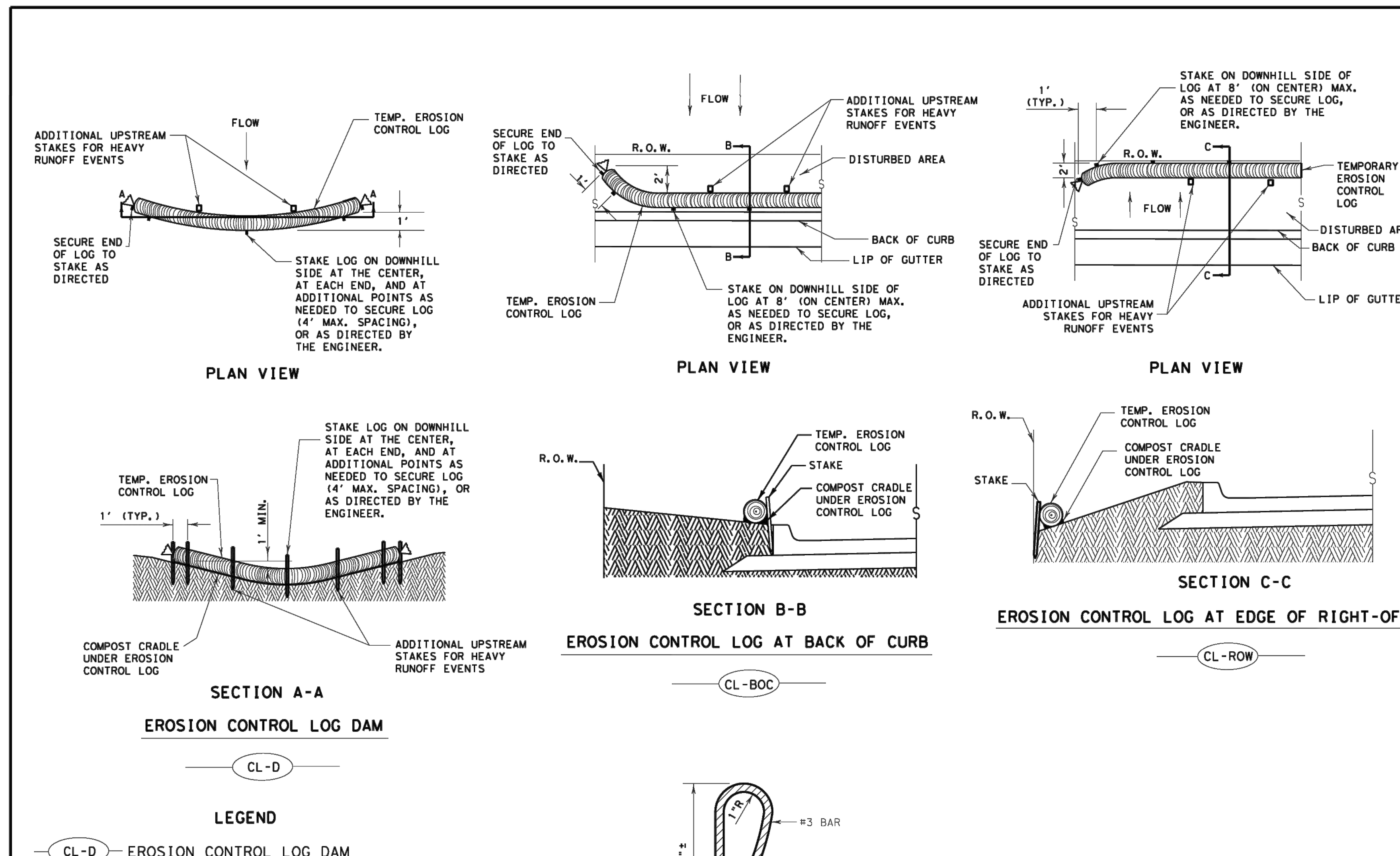


GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

LEGEND

- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

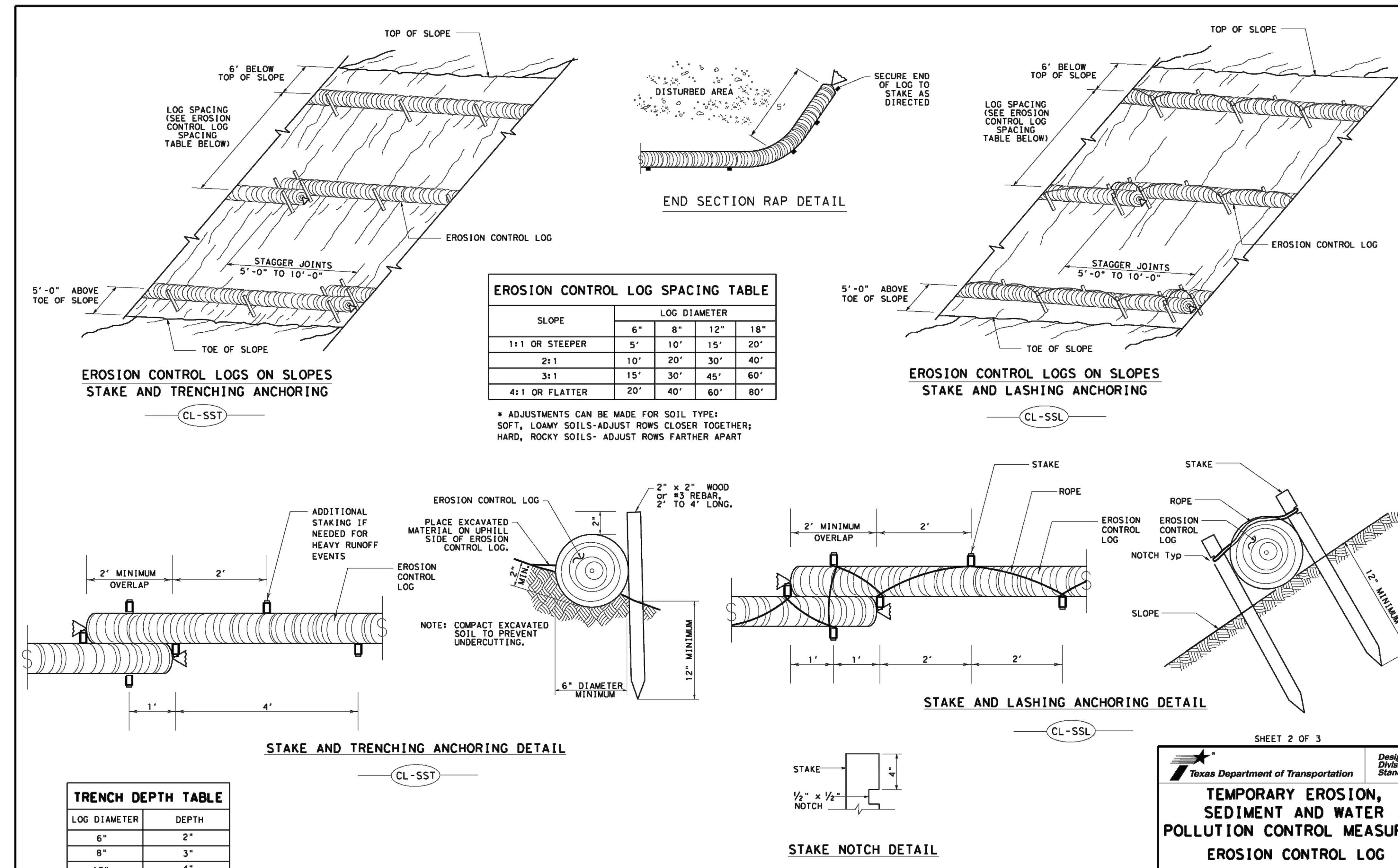
Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

SHEET 1 OF 3

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

FILE: ec916 | © TxDOT: JULY 2016



EROSION CONTROL LOG SPACING TABLE

SLOPE	LOG DIAMETER 6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART

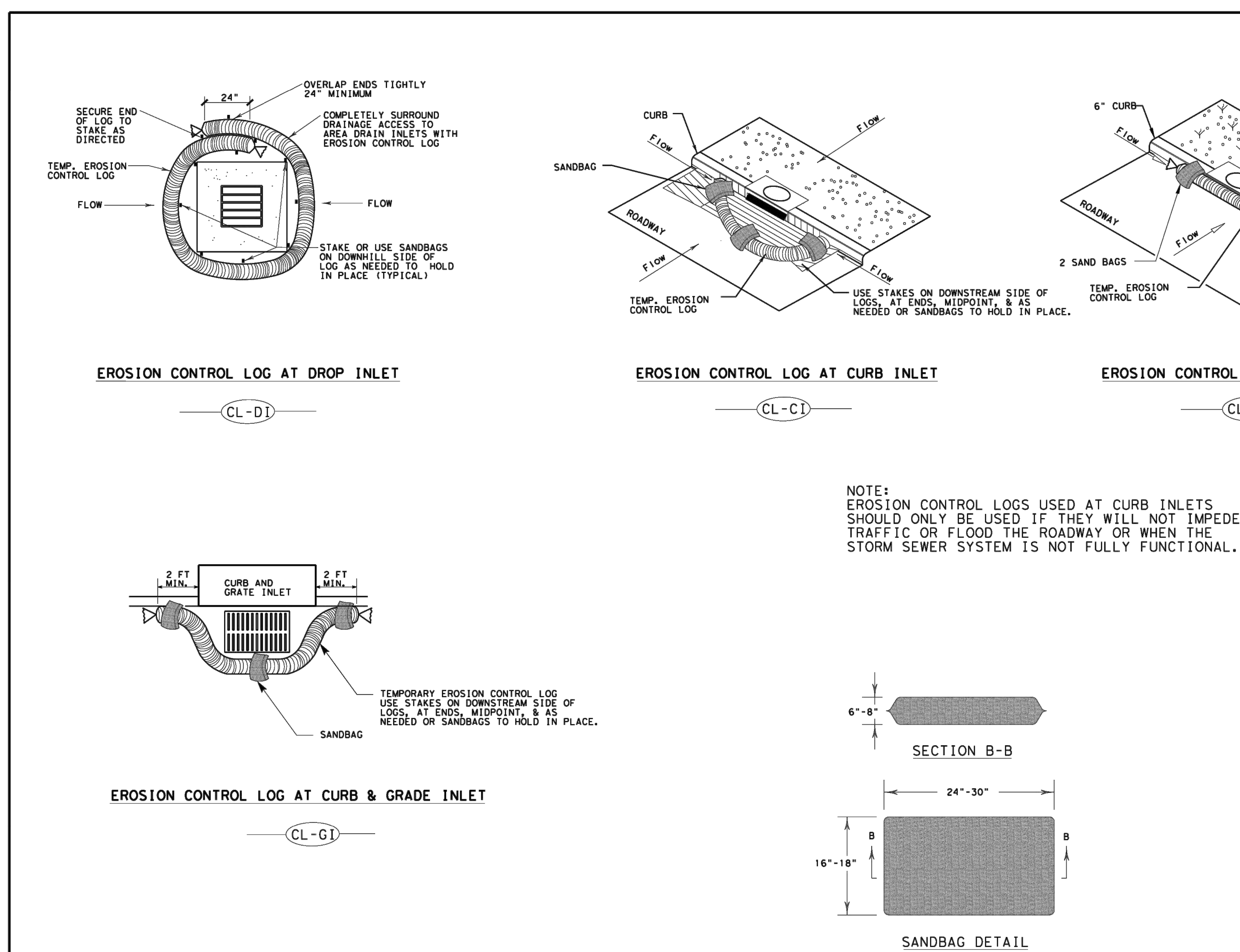
TRENCH DEPTH TABLE

LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"

SHEET 2 OF 3

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

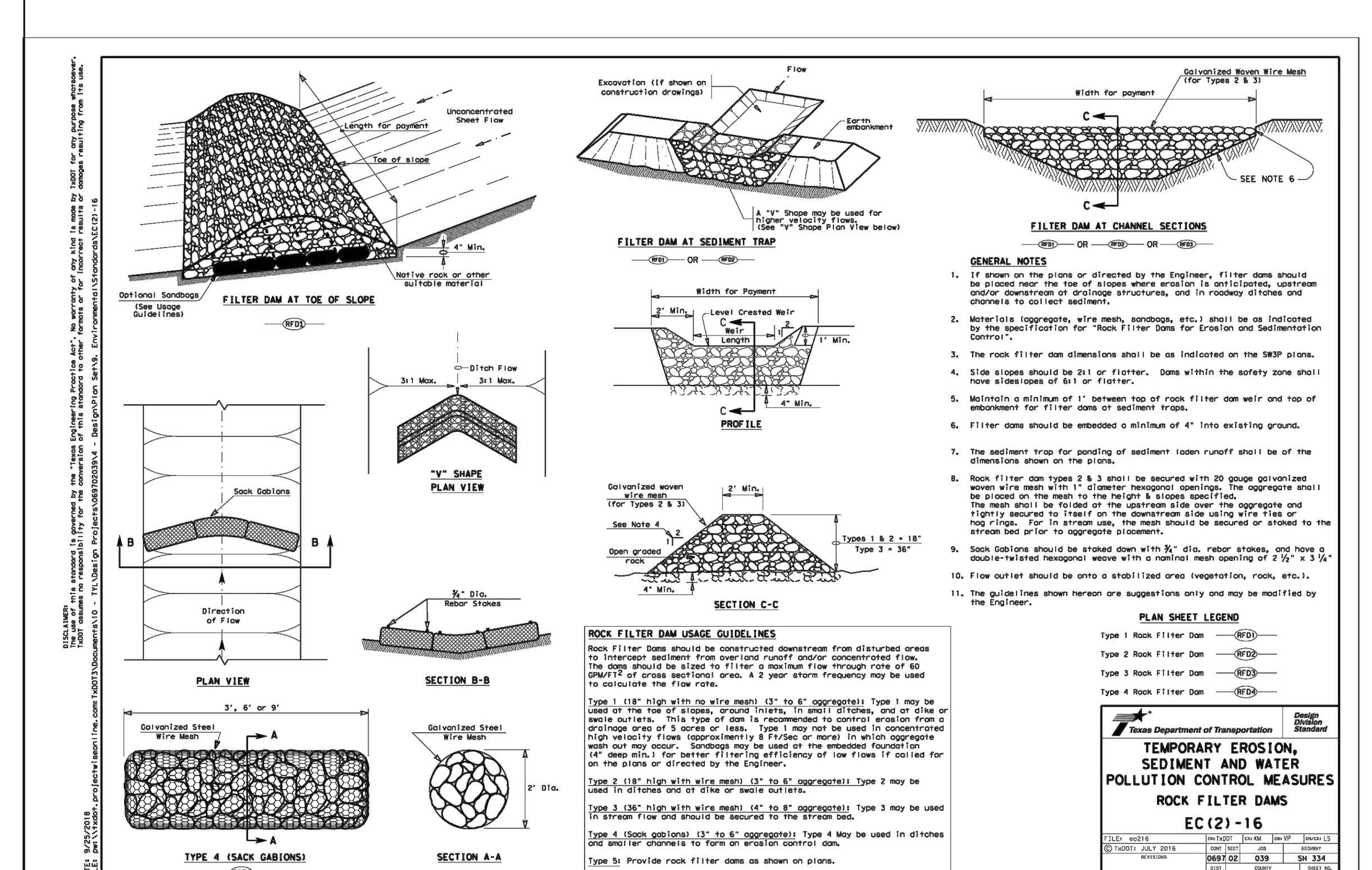


NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.

SHEET 3 OF 3

Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16



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June 17, 2025

US 181 SEWER EXTENSION

EROSION CONTROL AND SEDIMENT CONTROL DETAILS

JOB: 23FLORE001
DATE:
DRAWN: KV | PM: BK
DESIGN: CB | DM: BK
PEER: | OTHER:

REVISIONS:

DELTA	DESCRIPTION	DATE

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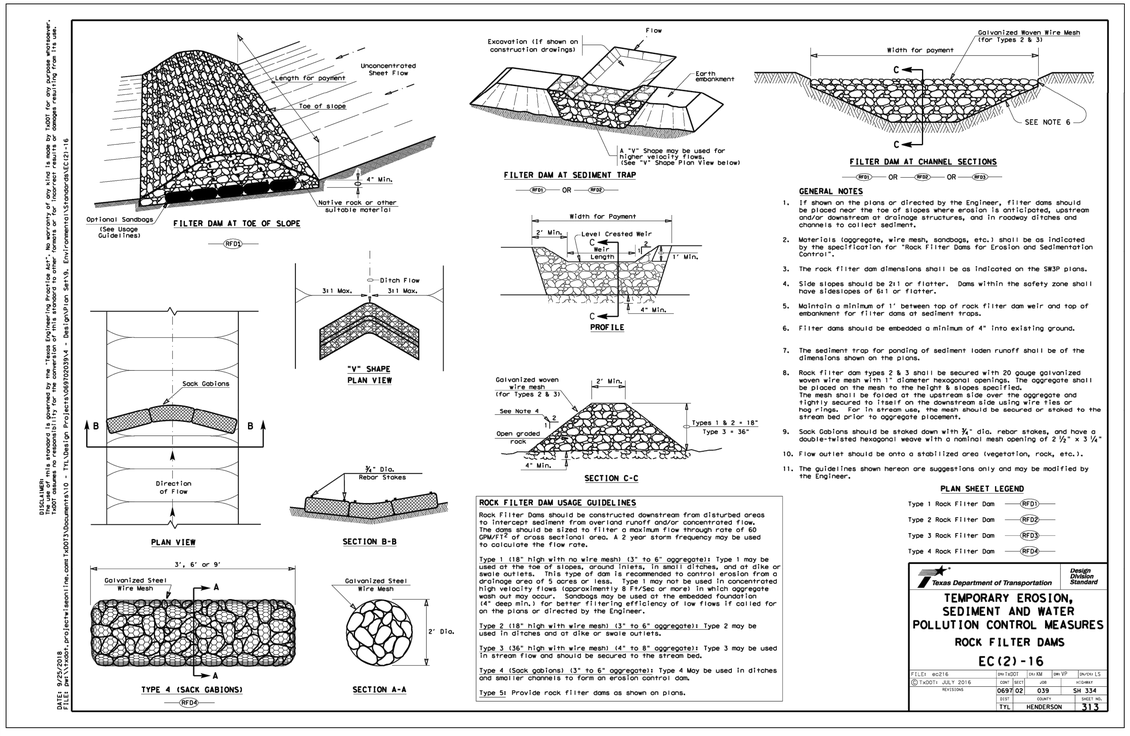

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June 17, 2025

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EROSION CONTROL AND SEDIMENT CONTROL DETAILS

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REVISIONS:			
DELTA	DESCRIPTION		DATE

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