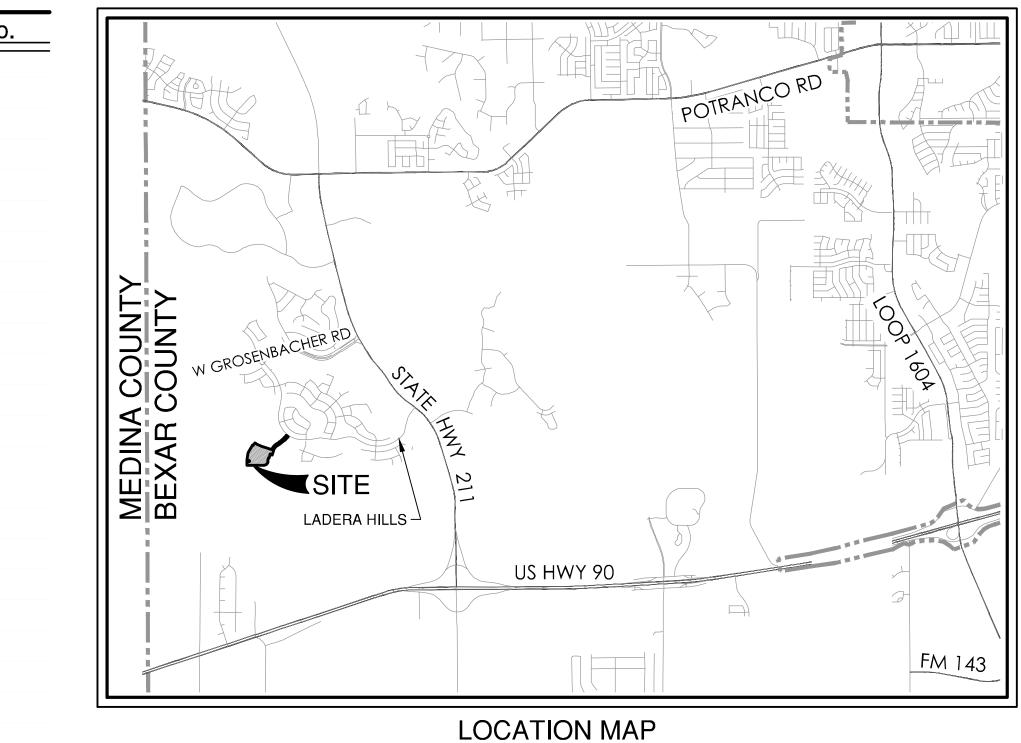
## SHEET INDEX

	SHEET INDEX						
Sheet Title	Sheet Description	Sheet No.					
COVER SHEET		C0.00					
MASTER DRAINAGE PLAN		C1.00					
DRAIN A	PLAN AND PROFILE	C1.01					
DRAIN B	PLAN AND PROFILE	C1.02					
DRAIN C	PLAN AND PROFILE	C1.03					
DRAIN D	PLAN AND PROFILE	C1.04					
DRAIN E & F	PLAN AND PROFILE	C1.05					
DRAIN G	PLAN AND PROFILE	C1.06					
DRAINAGE DETAILS	(SHEET 1 OF 2)	C1.10					
DRAINAGE DETAILS	(SHEET 2 OF 2)	C1.20					
LOTTLECOTE WAY	PLAN AND PROFILE	C2.00					
CHRISTINAS BROOK	PLAN AND PROFILE	C2.01					
MINGUS MILL	PLAN AND PROFILE	C2.02					
PEZENAS ST	PLAN AND PROFILE	C2.03					
TURBINE WHEEL	PLAN AND PROFILE	C2.04					
PRICES MILL	PLAN AND PROFILE	C2.05					
STREET DETAILS	(SHEET 1 OF 2)	C2.10					
STREET DETAILS	(SHEET 2 OF 2)	C2.20					
OVERALL SIGNAGE PLAN		C3.00					
SIGNAGE DETAILS	(SHEET 1 OF 3)	C3.10					
SIGNAGE DETAILS	(SHEET 2 OF 3)	C3.20					
SIGNAGE DETAILS	(SHEET 3 OF 3)	C3.30					

ROM MATERIAL THAT WAS STORED AND/OR TRANSWITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL AERIAL IMAGERY PROVIDED BY GOOGLE® UNLESS OTHERWISE NOTED. Imagery © 2015.CAPCOG.Digital Globe.Texas Orthoiragery Program. USDA Farm Service Ager

# MILLBROOK - UNIT 9A BEXAR COUNTY, TEXAS **CIVIL CONSTRUCTION PLANS**



Sheet Title OVERALL SAN OVERALL SAN SANITARY SEV OVERALL WAT OVERALL WAT WATER DISTR WATER DISTR **OVERALL UTIL** OVERALL UTIL **OVERALL GRA** STORMWATEF STORMWATEF

PREPARED FOR:

NOT-TO-SCALE

LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD 100 NE LOOP 410 SUITE 1155 SAN ANTONIO, TEXAS 78216 ECCA ANN CA

**JULY 2024** 



2000 NW LOOP 410 I SAN ANTONIO, TX 78213 210.375.9000 TBPE FIRM REGISTRATION #470 I TBPLS FIRM REGISTRATION #10028800



DEVELOPER'S NAME: LENN ADDRESS: 100 NE LOO CITY: SAN ANTONIO SAWS BLOCK MAP #066564,06 TOTAL LINEAR FOOTAGE NUMBER OF LOTS <u>107</u>

# SHEET INDEX

	Sheet Description	Sheet No.
NITARY SEWER PLAN	(SHEET 1 OF 2)	C4.00
NITARY SEWER PLAN	(SHEET 2 OF 2)	C4.01
EWER LINE A	PLAN AND PROFILE (STA. 27+60.57 TO 34+50.00)	C4.02
EWER LINE A	PLAN AND PROFILE (STA. 34+50.00 TO 45+50.00)	C4.03
EWER LINE A	PLAN AND PROFILE (STA. 45+50.00 TO END)	C4.04
EWER LINE B	PLAN AND PROFILE	C4.05
EWER LINE C	PLAN AND PROFILE	C4.06
EWER LINE D	PLAN AND PROFILE	C4.07
EWER LINE E	PLAN AND PROFILE	C4.08
EWER NOTES		C4.10
EWER DETAILS		C4.20
TER DISTRIBUTION PLAN	(SHEET 1 OF 2)	C5.00
TER DISTRIBUTION PLAN	(SHEET 2 OF 2)	C5.01
RIBUTION NOTES		C5.10
RIBUTION DETAILS		C5.20
ILITY PLAN	(SHEET 1 OF 2)	C6.00
ILITY PLAN	(SHEET 2 OF 2)	C6.01
ADING PLAN		C7.00
R POLLUTION PREVENTION PLAN		C8.00
R POLLUTION PREVENTION PLAN	DETAILS	C8.10

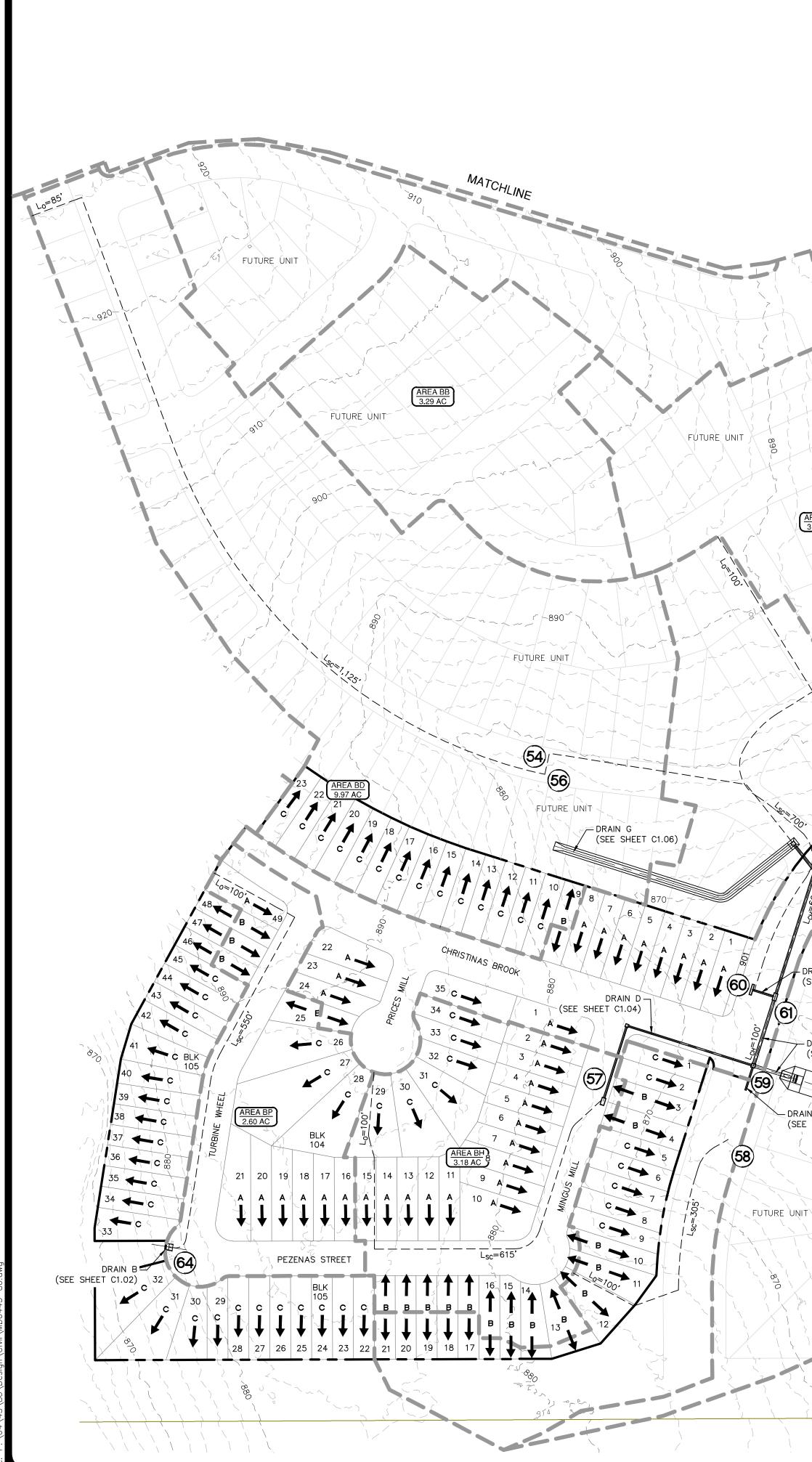
## SEWER: UPPER MEDINA RIVER SEWERSHED: DOS RIOS W.R.C.

## WATER: SAWS DSP PRESSURE ZONE 1080

IAR HOMES OF TEX	AS LAND AND	CONSTRUCT	10N, LTD
<u>P 410, SUITE 1</u>	155		
STATE:	TEXAS	ZIP:	78216
	FAX#		
6566_TOTAL EDU			
OF PIPE: <u>3,898</u>	BLF	PLAT NO	. <u>23–1180027</u> 7
SAWS	JOB NO2	4-1518	

1	DEVELOPER'S NAME: LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD
	ADDRESS: 100 NE LOOP 410 SUITE 1155
	CITY: SAN ANTONIO STATE: TEXAS ZIP: 78247
	PHONE# <u>(210) 496–2668</u> FAX#
	SAWS BLOCK MAP #066564,066566 TOTAL EDU'S 107 TOTAL ACREAGE 17.982
	TOTAL LINEAR FOOTAGE OF PIPE: <u>8"-3,506 LF, 2"-234 LF</u> PLAT NO.2 <u>3-1180027</u> 7
	NUMBER OF LOTS 107 SAWS JOB NO. 24-1021

SHEET \_\_\_\_\_C0.00



Ultimate Development/Proposed Conditions Master Drainage Plan Calculation
(Per City of San Antonio Regulations)

	Drainage Areas		th (ft)	Overland/Sheet Flow*			Shallow Concentrated Flow**				Channe			
Reference Point	Structure / Description	WATERSHED	Area (Ac)	с	Total Flowpath (ft)	L <sub>0</sub> (FT)	S <sub>O</sub> (ft/ft)	T <sub>o</sub> * (MIN)	L <sub>sc</sub> (FT)	Condition***	Slope (ft/ft)	V <sub>SC</sub> (FPS)	T <sub>sc</sub> ** (MIN)	L <sub>CH</sub> (FT)
53	LOTTLECOTE WAY CULVERT	AP+BA+BE+BF+BI	26.03	0.72	2,450	100	0.015	12	1,660	Р	0.015	2.5	11.1	690
54	FUTURE DRAIN/ STREET CAPACITY	BD	9.97	0.80	1,210	85	0.015	12	1,125	Р	0.044	4.3	4.4	-
56	FUTURE DRAIN	BB+BD	13.26	0.80	1,225	100	0.015	12	1,125	Р	0.044	4.3	4.4	-
57	9A DRAIN/STREET CAPACITY	вн	3.18	0.80	715	100	0.020	12	615	Р	0.022	3.0	3.4	
58	FUTURE DRAIN	BG	3.12	0.80	405	100	0.015	12	305	Р	0.050	4.5	1.1	-
59	9A DRAIN	BB+BC+BD+BG+BH	26.51	0.80	1,990	100	0.015	12	1,125	Р	0.044	4.3	4.4	765
60	9A DRAIN/STREET CAPACITY	BC	6.95	0.80	800	100	0.015	12	700	Р	0.046	4.4	2.7	-
61	9A DRAIN	BB +BC +BD	20.21	0.80	1,890	100	0.015	12	1,125	Ρ	0.044	4.3	4.4	665
64	9A DRAIN/ STREET CAPACITY	BP	2.60	0.80	650	100	0.017	12	550	Р	0.025	3.2	2.9	

Rational Method Time of Concentration \*Seelye Chart

\*\*As Calculated using Mannings, TR-55 Figure 3-1, or 6 ft/s ^Includes Bypass Flow from Reference Point 16 (See additional calculations)

53

**D:** For Default: v = 6 fps

FUTURE UNIT

AREA AP 3.89 AC

DRAIN A –⁄ (SEE SHEET C1.01)

FUTURE UNIT

AREA BA 3.56 AC

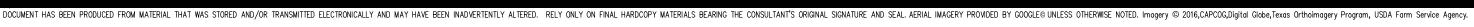
- DRAIN C (SEE SHEET C1.03)

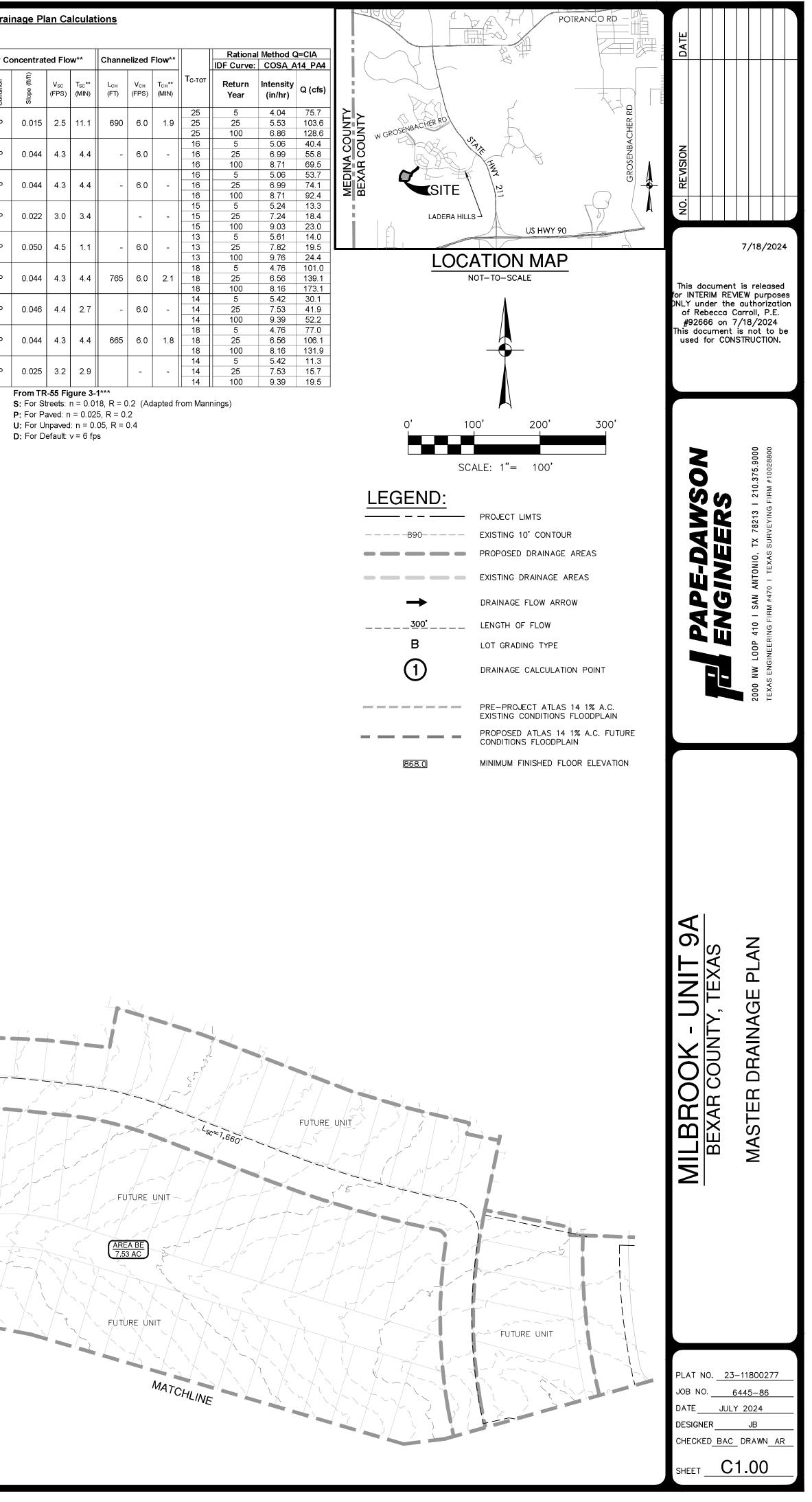
(SEE SHEET C1.05)

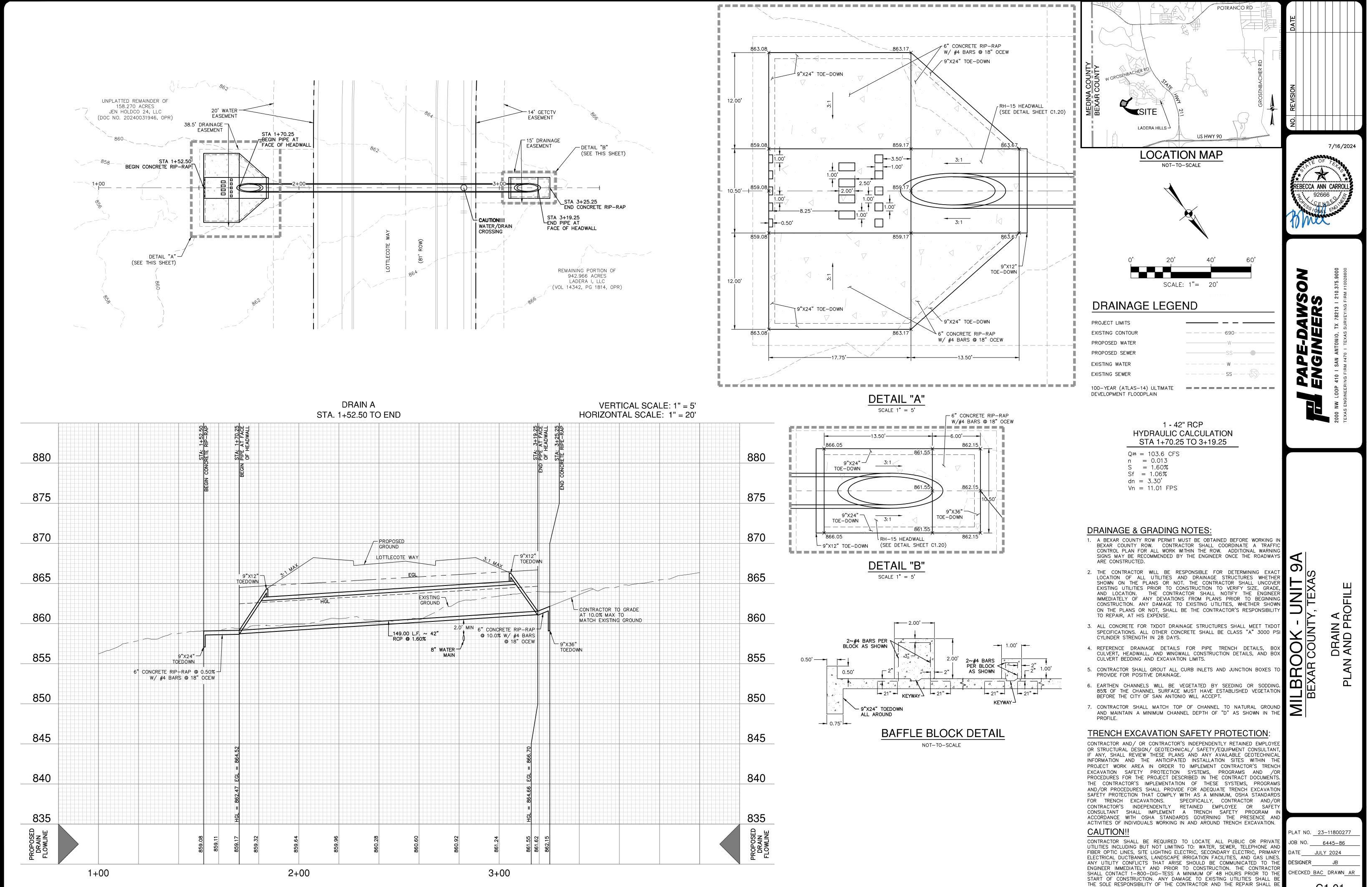
DRAIN C (SEE SHEET C1.03)

- DRAIN F (SEE SHEET C1.05)

FUTURE UNIT FUTURE UNIT AREA BI 9.24 AC AREA BF 1.81 AC

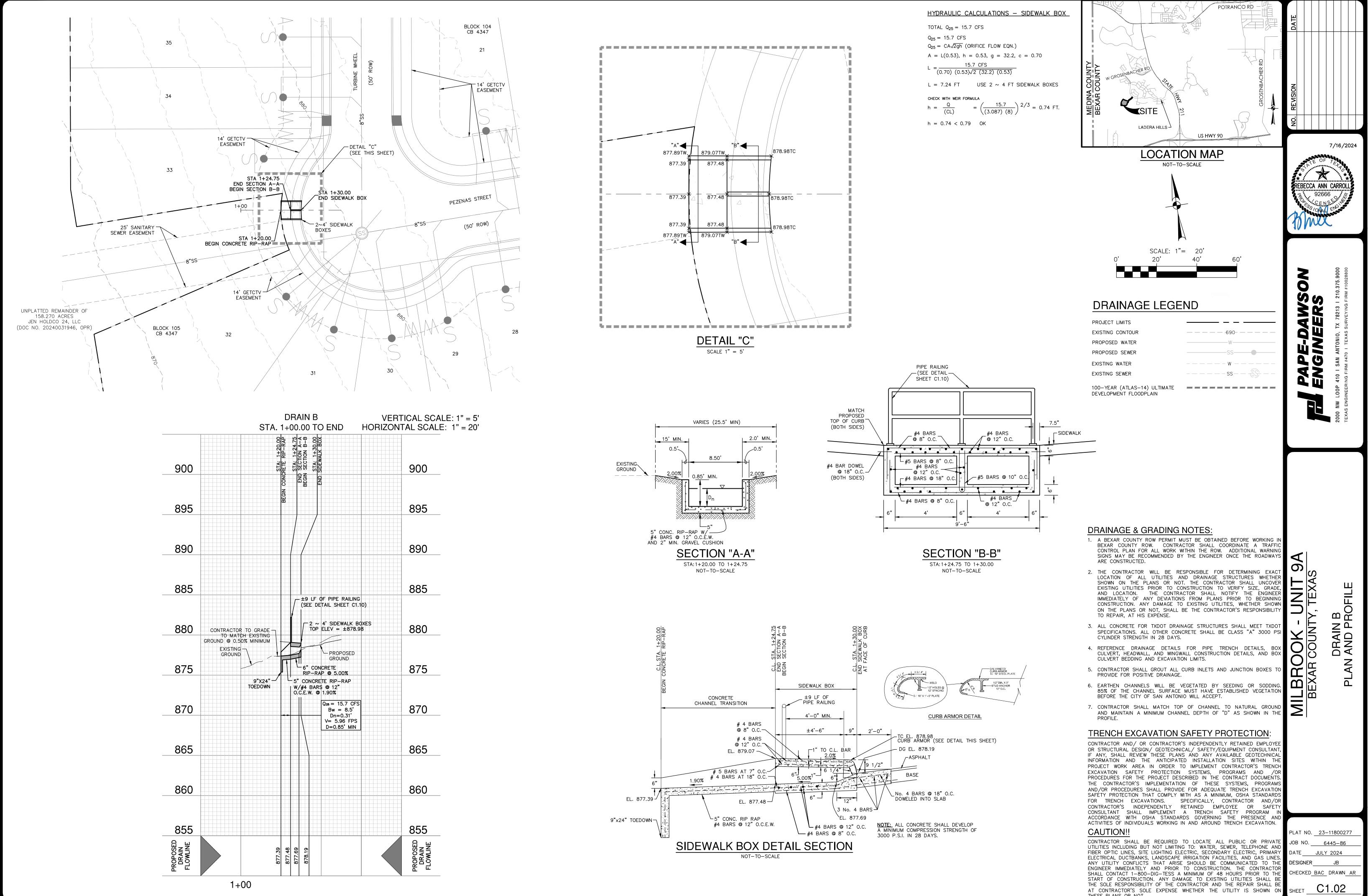






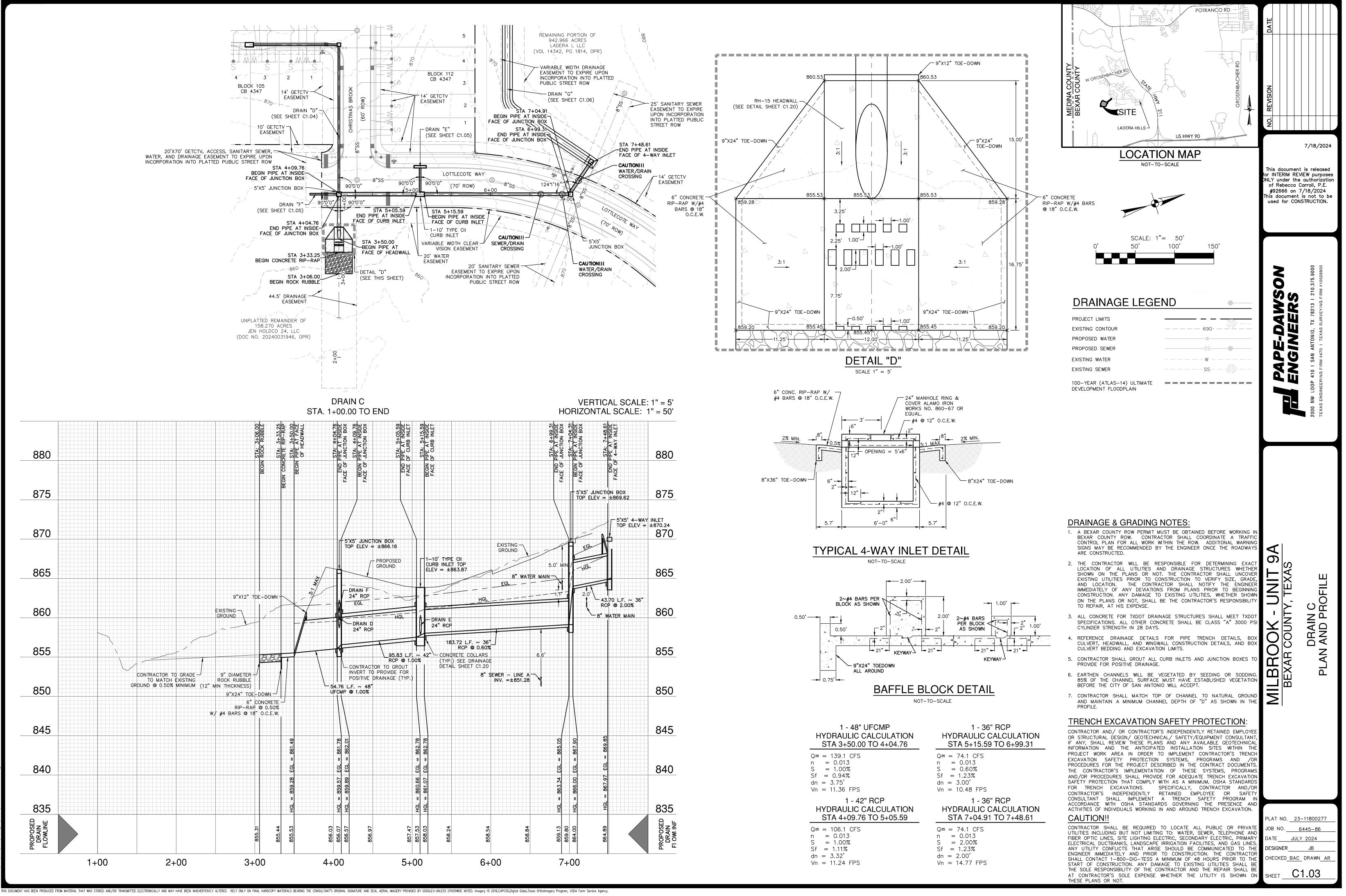
AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN OF THESE PLANS OR NOT.

SHEET C1.01

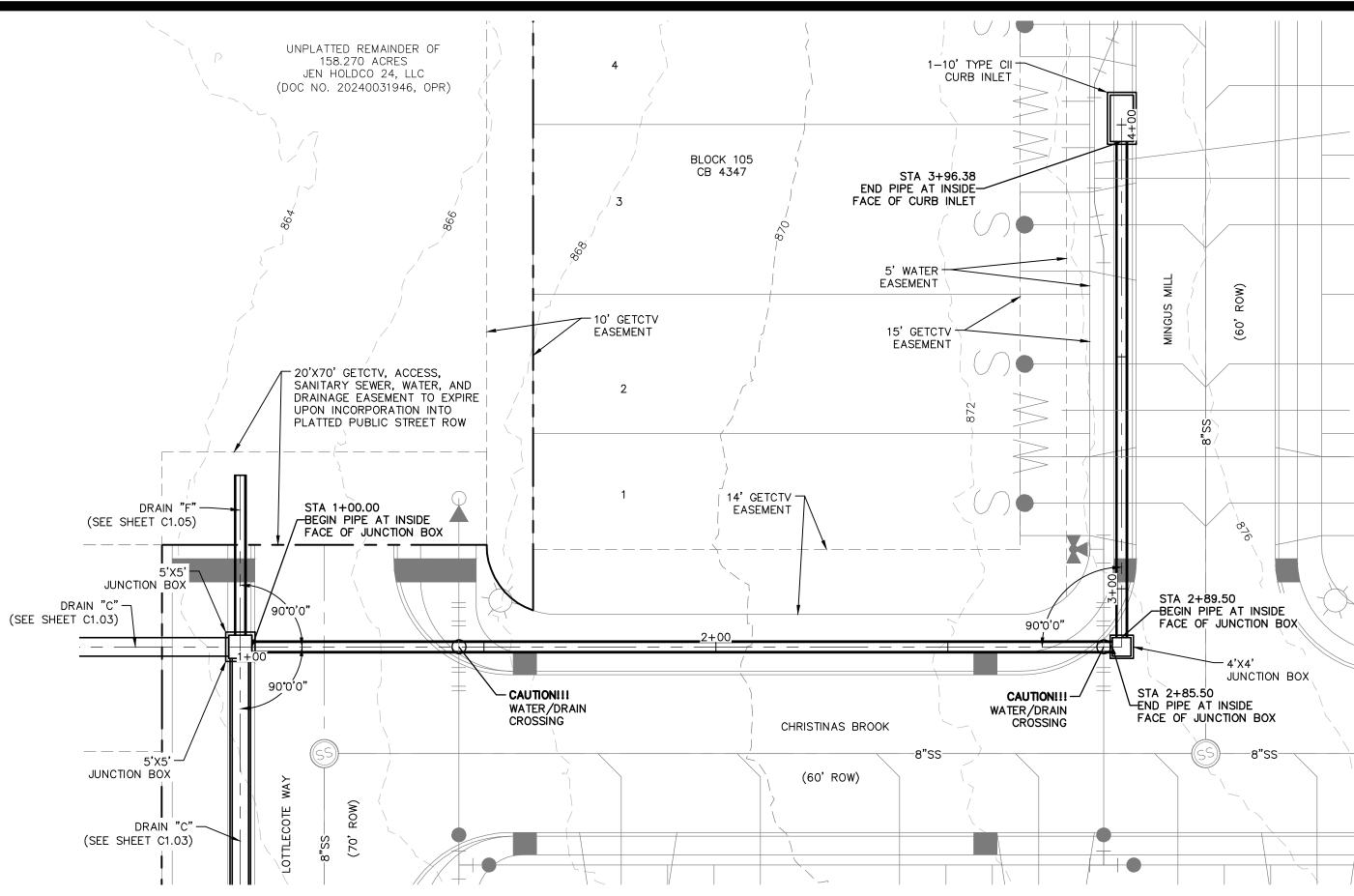


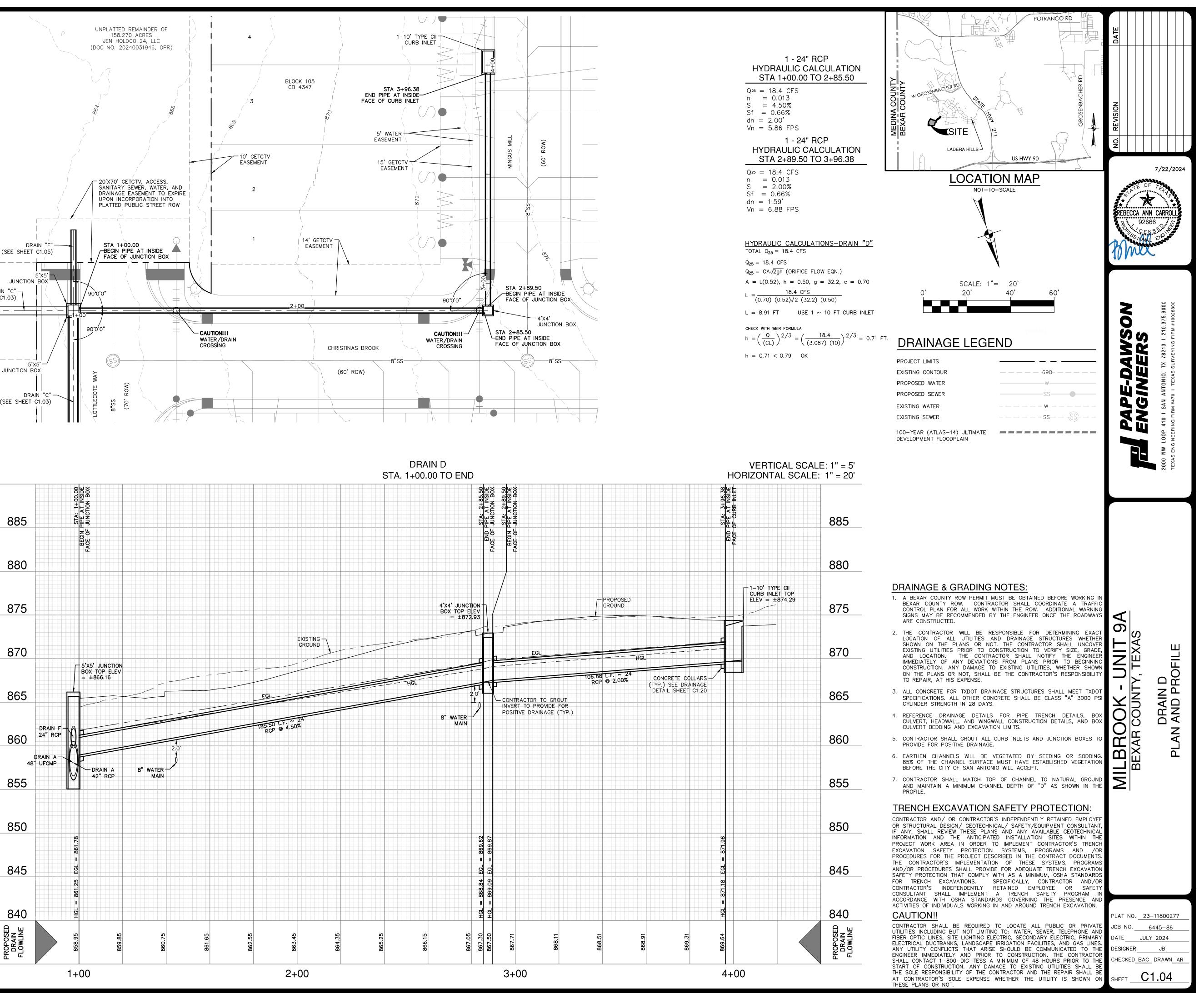
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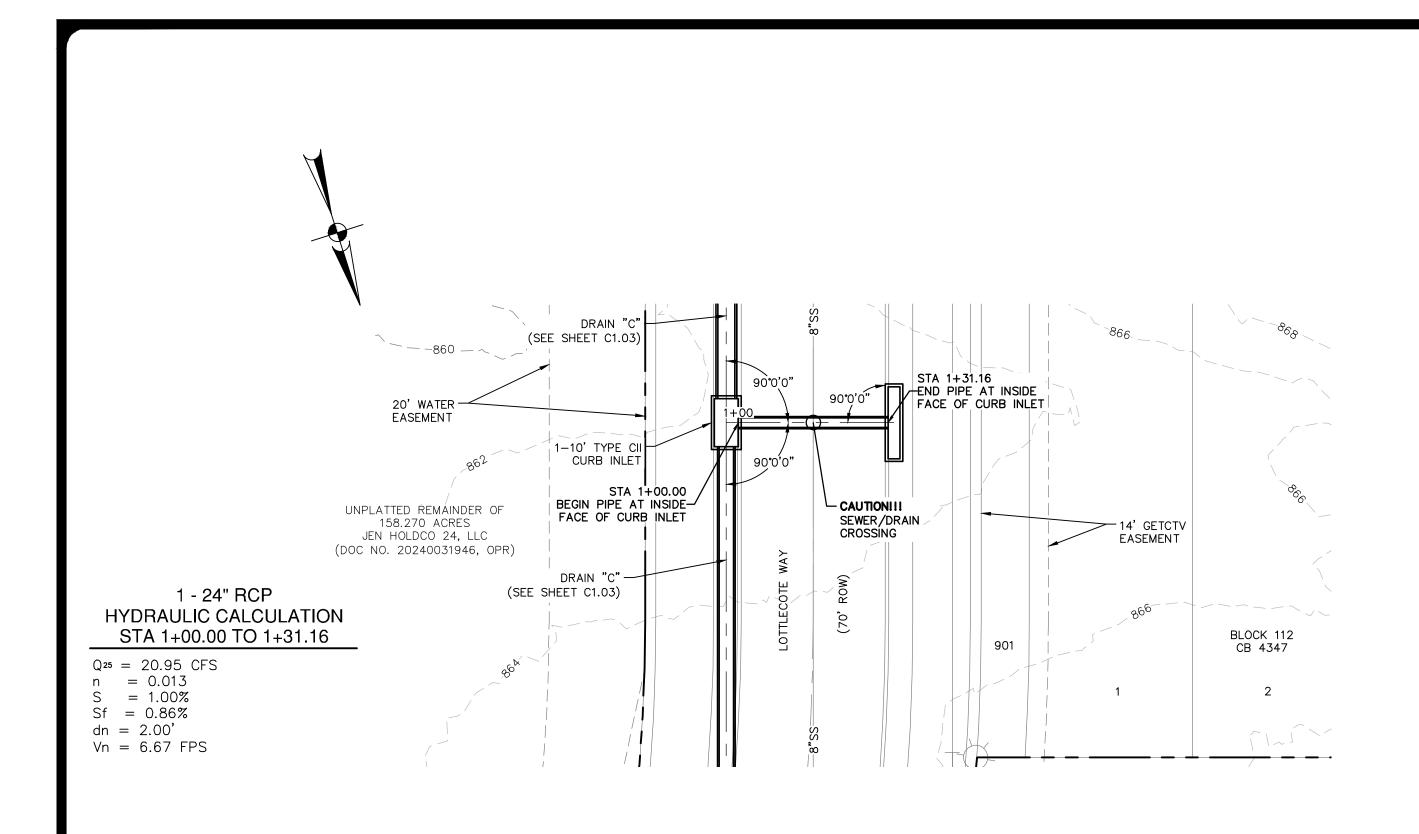
AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

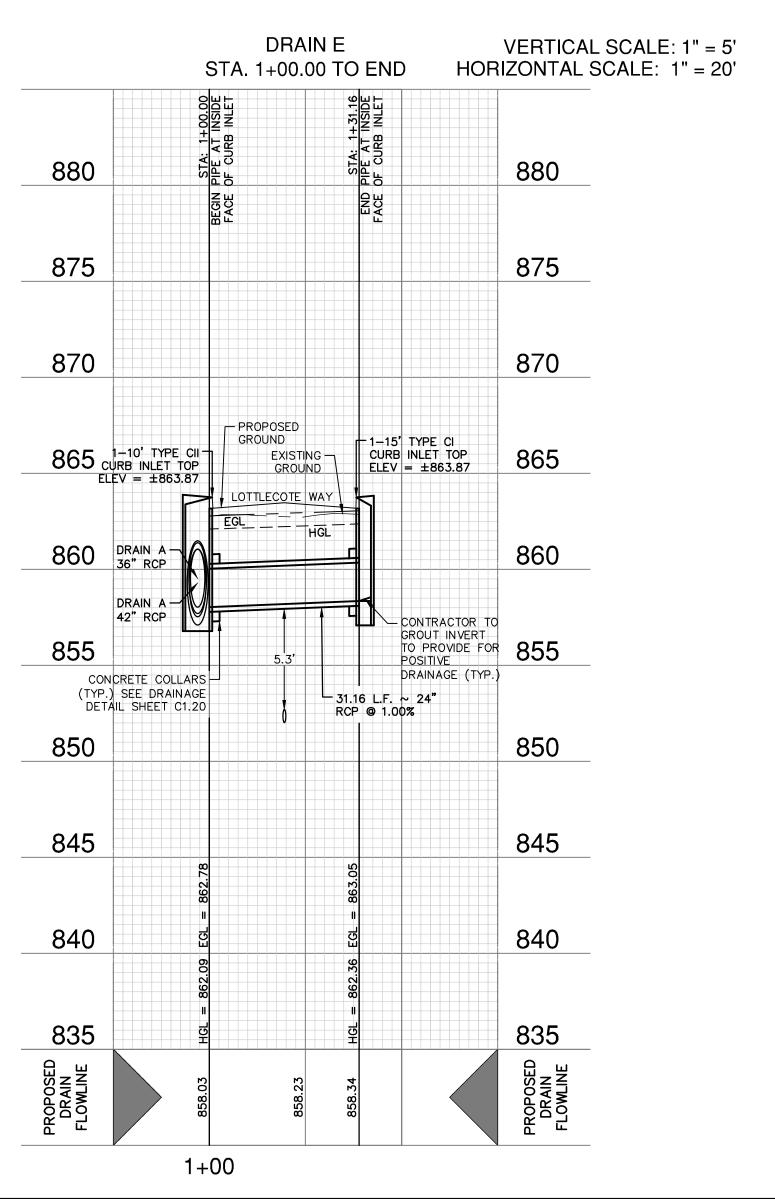


STA 3+50.00 TO 4+04.76
$Q^{25} = 139.1 \text{ CFS}$ n = 0.013 S = 1.00% Sf = 0.94% dn = 3.75' Vn = 11.36  FPS
1 - 42" RCP HYDRAULIC CALCULATION STA 4+09.76 TO 5+05.59
$\begin{array}{rcl} Q^{25} &=& 106.1 \ \text{CFS} \\ n &=& 0.013 \\ \text{S} &=& 1.00\% \\ \text{Sf} &=& 1.11\% \\ \text{dn} &=& 3.32' \end{array}$

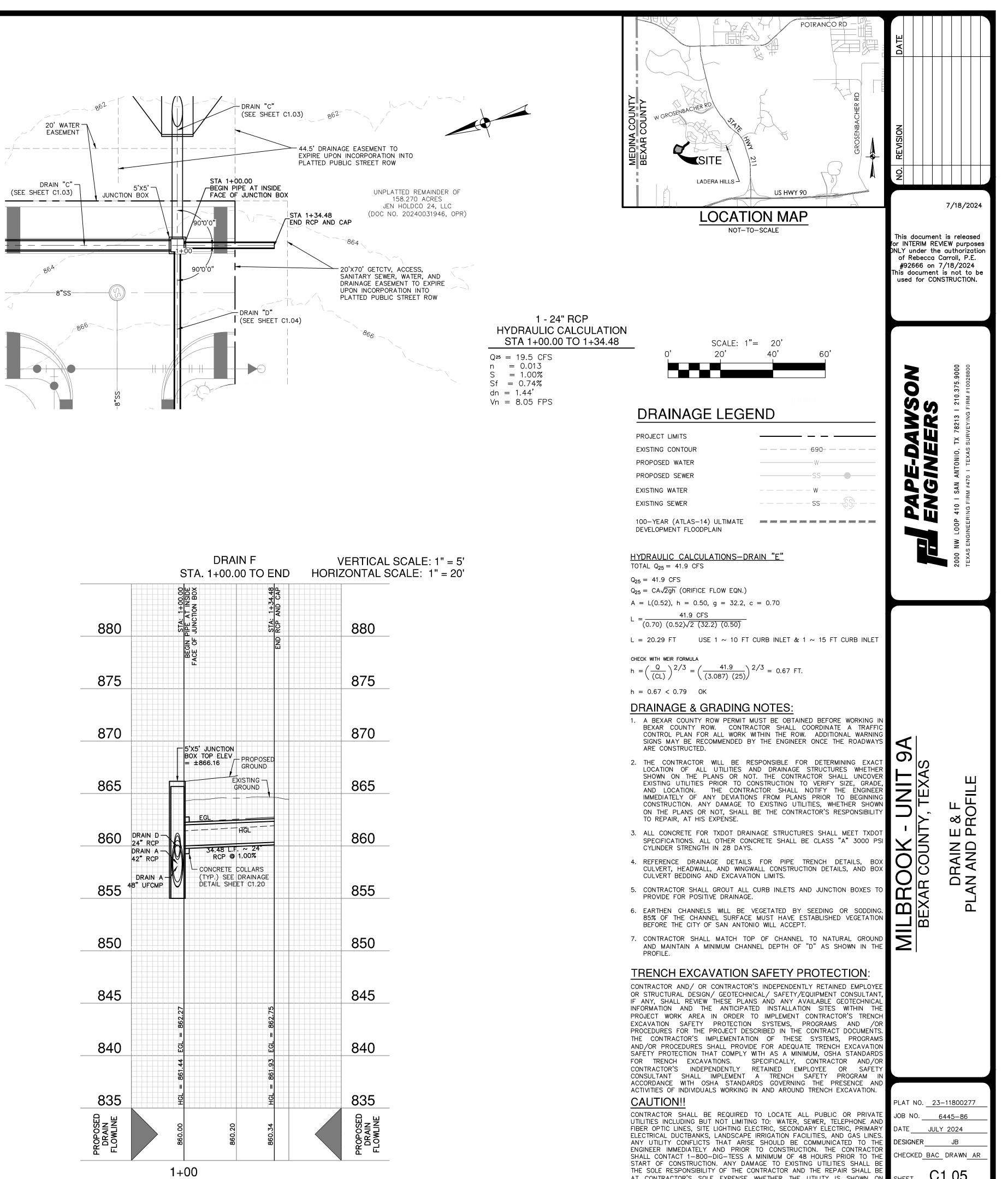


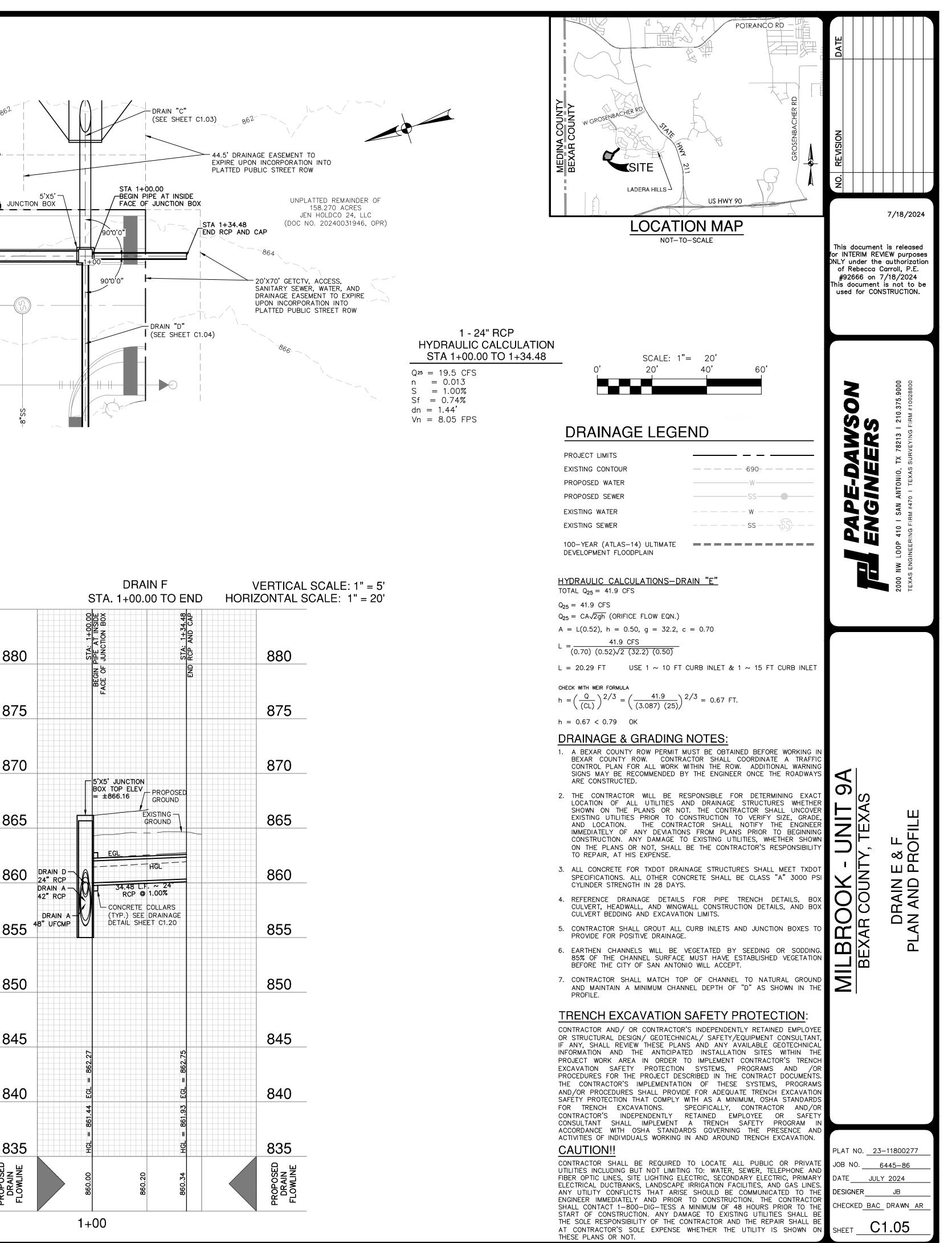


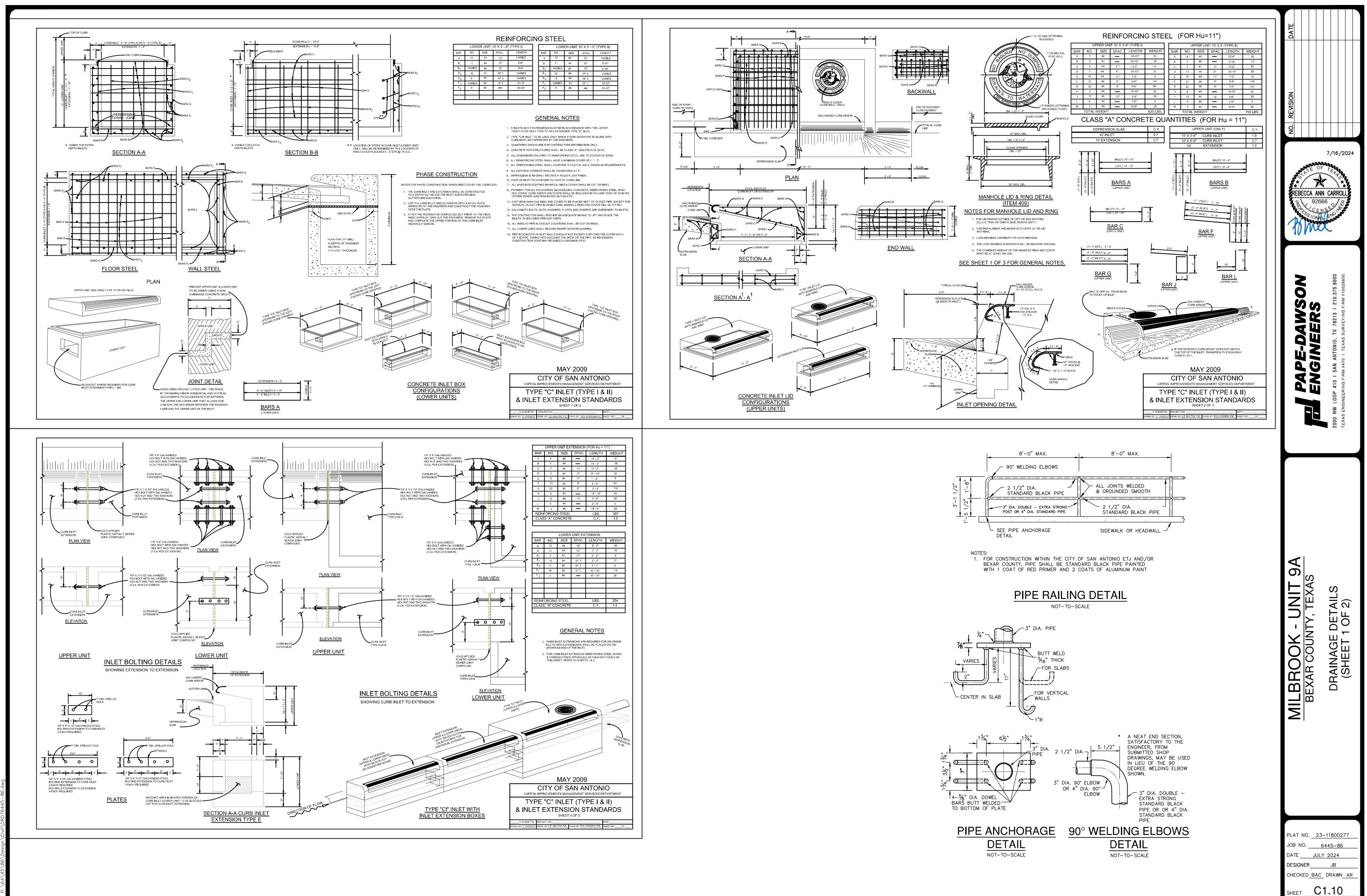




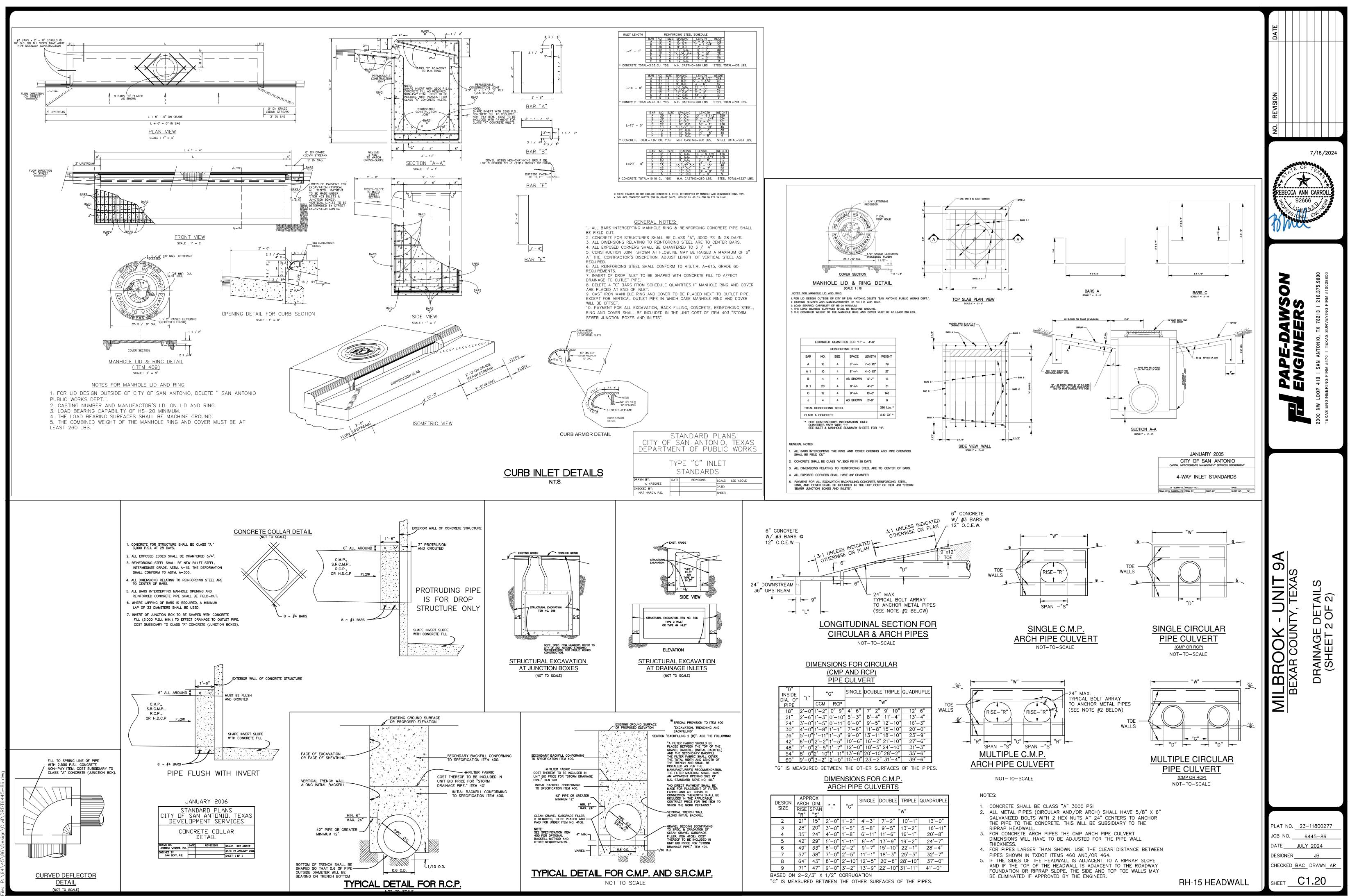
5 DOCUMENT HAS BEEN PRODUCED FROM MATERIAL THAT WAS STORED AND/OR TRANSMITTED ELECTRONICALLY AND MAY HAVE BEEN INADVERTENTLY ALTERED. RELY ONLY ON FINAL HARDCOPY MATERIALS BEARING THE CONSULTANT'S ORIGINAL SIGNATURE AND SEAL. AERIAL IMAGERY PROVIDED BY GOOGLE® UNLESS OTHERWISE NOTED. Imagery B 2016, CAPCOG, Digital Globe, Texas Orthorimagery Program, USDA Farm Service Agency.



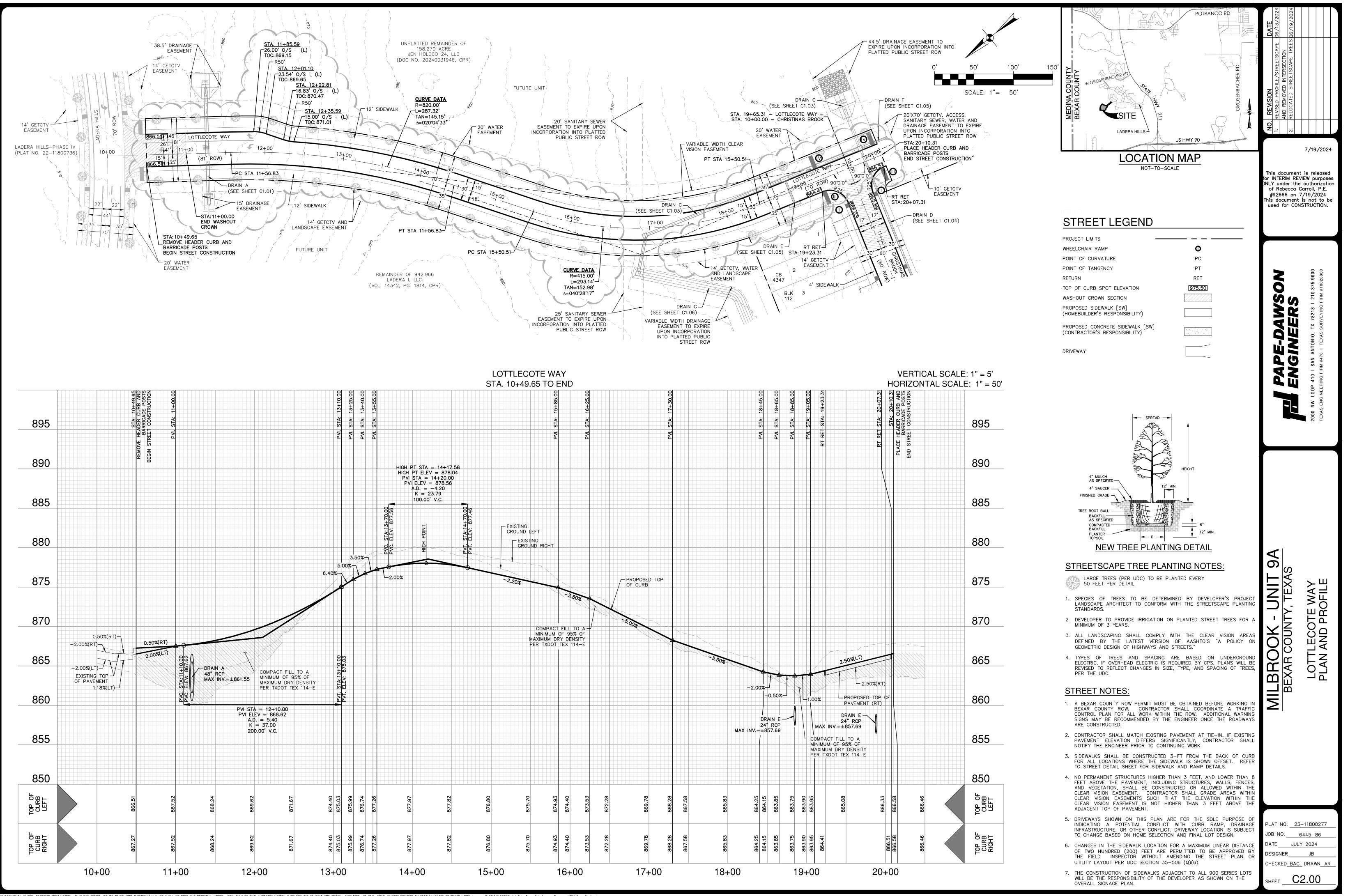




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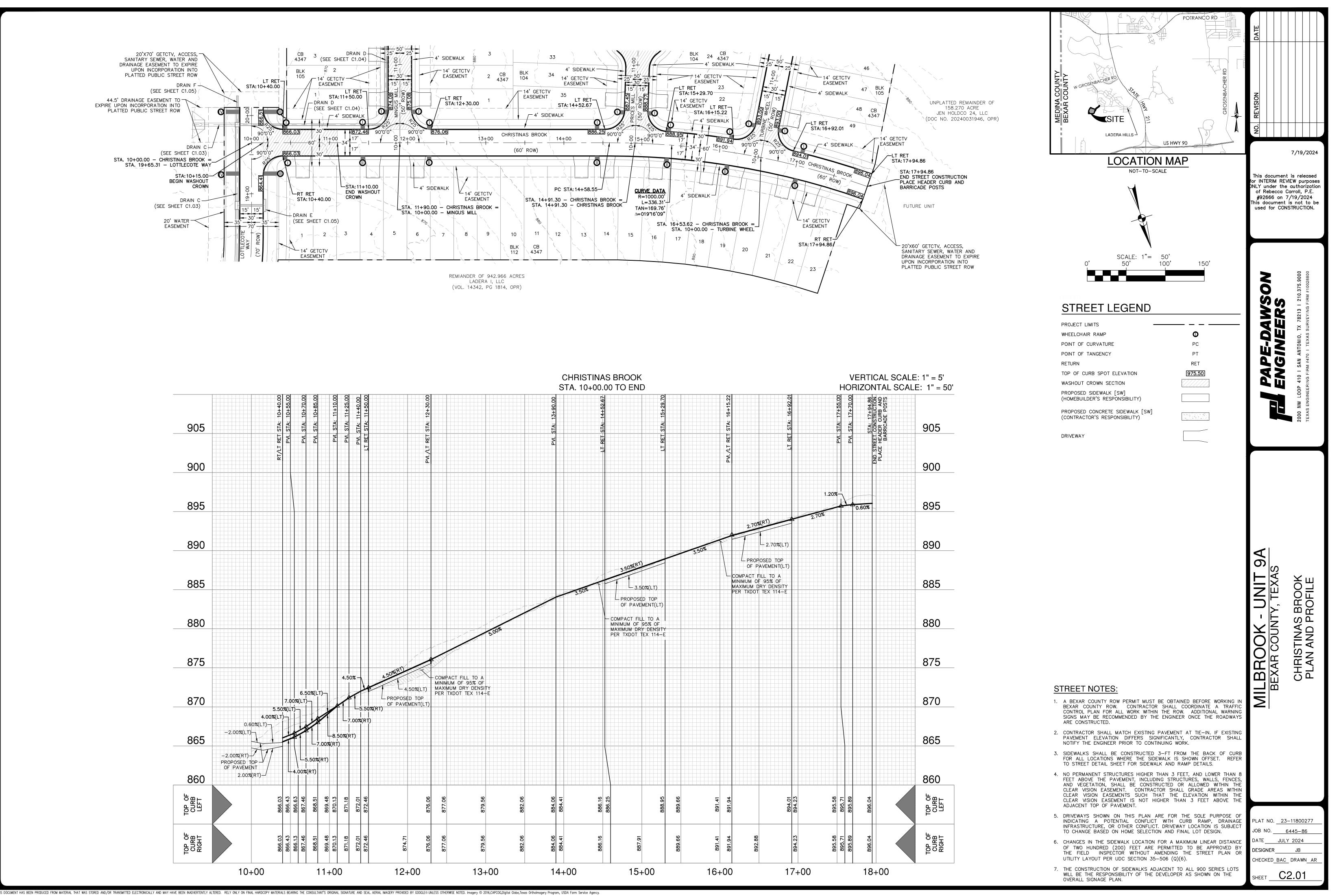


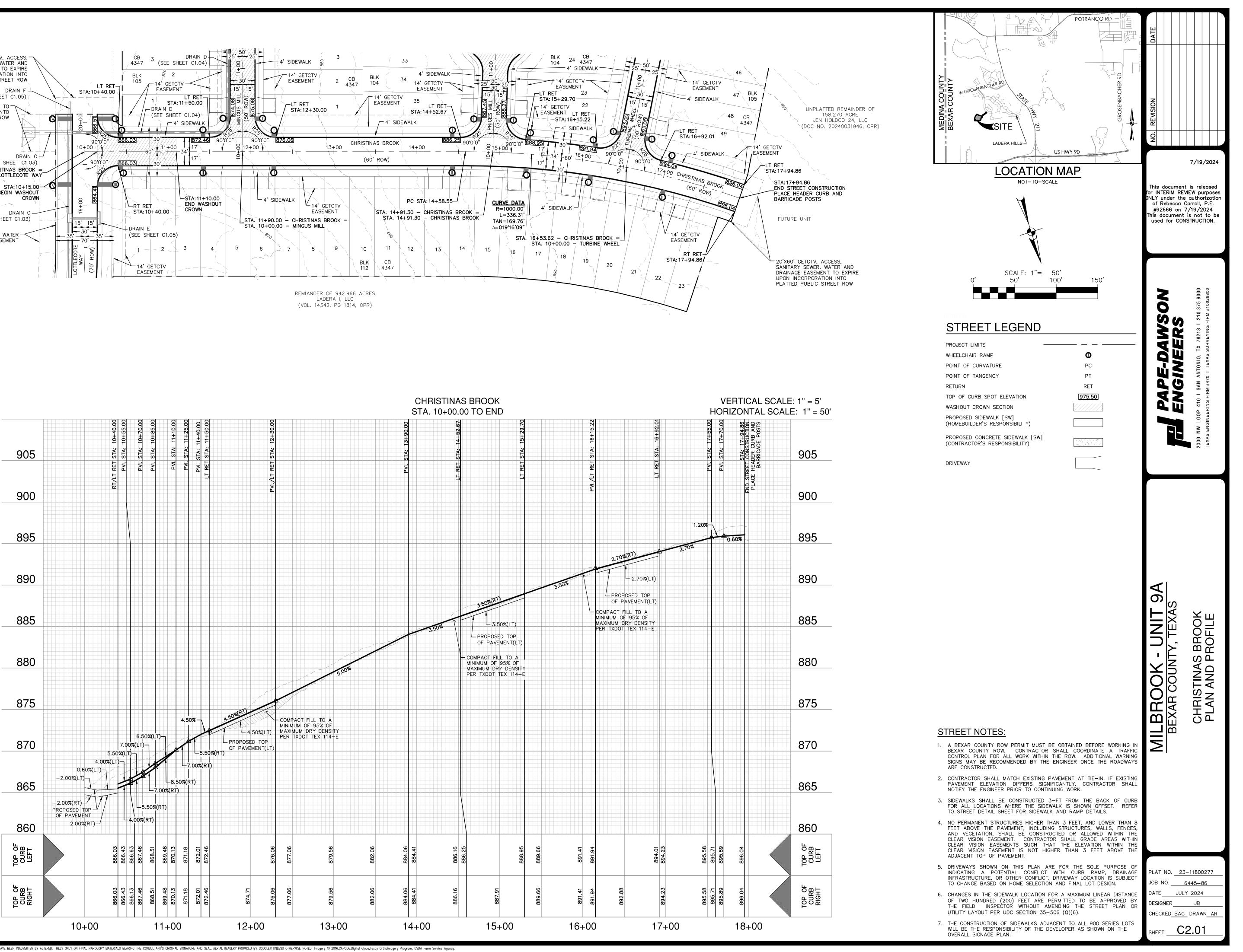
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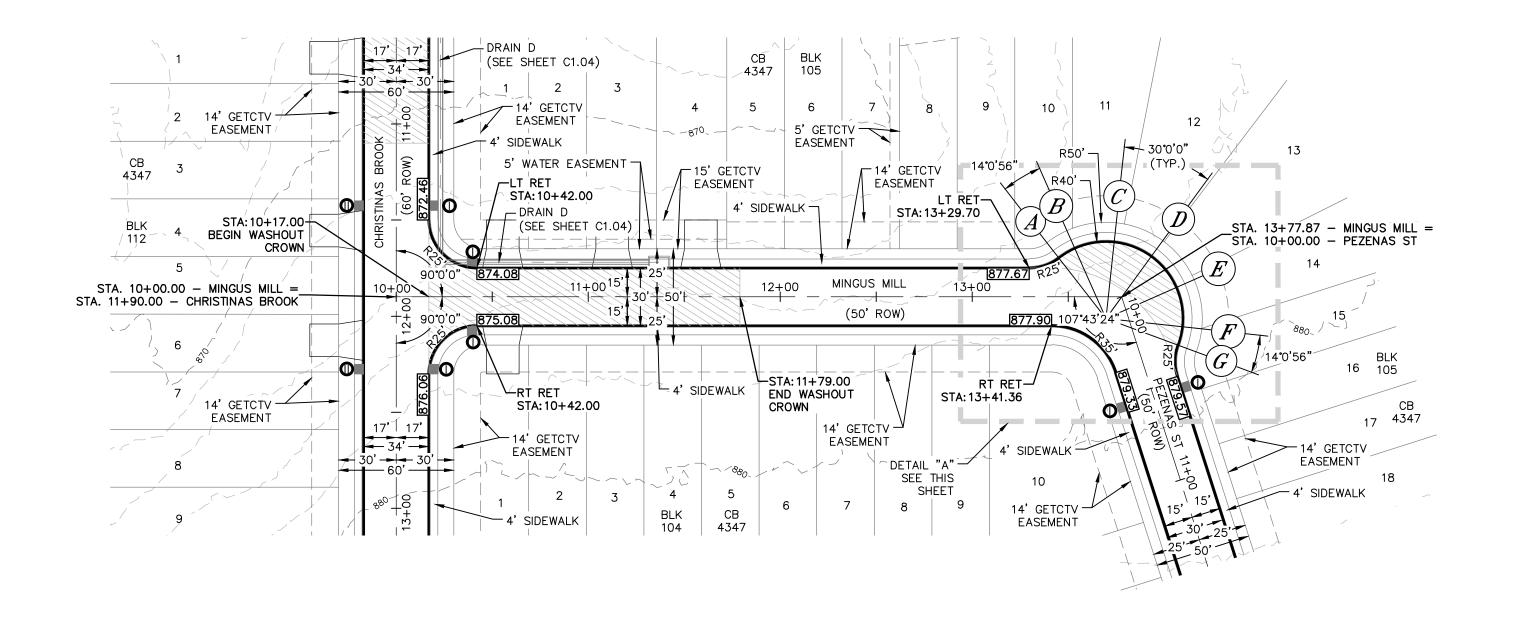


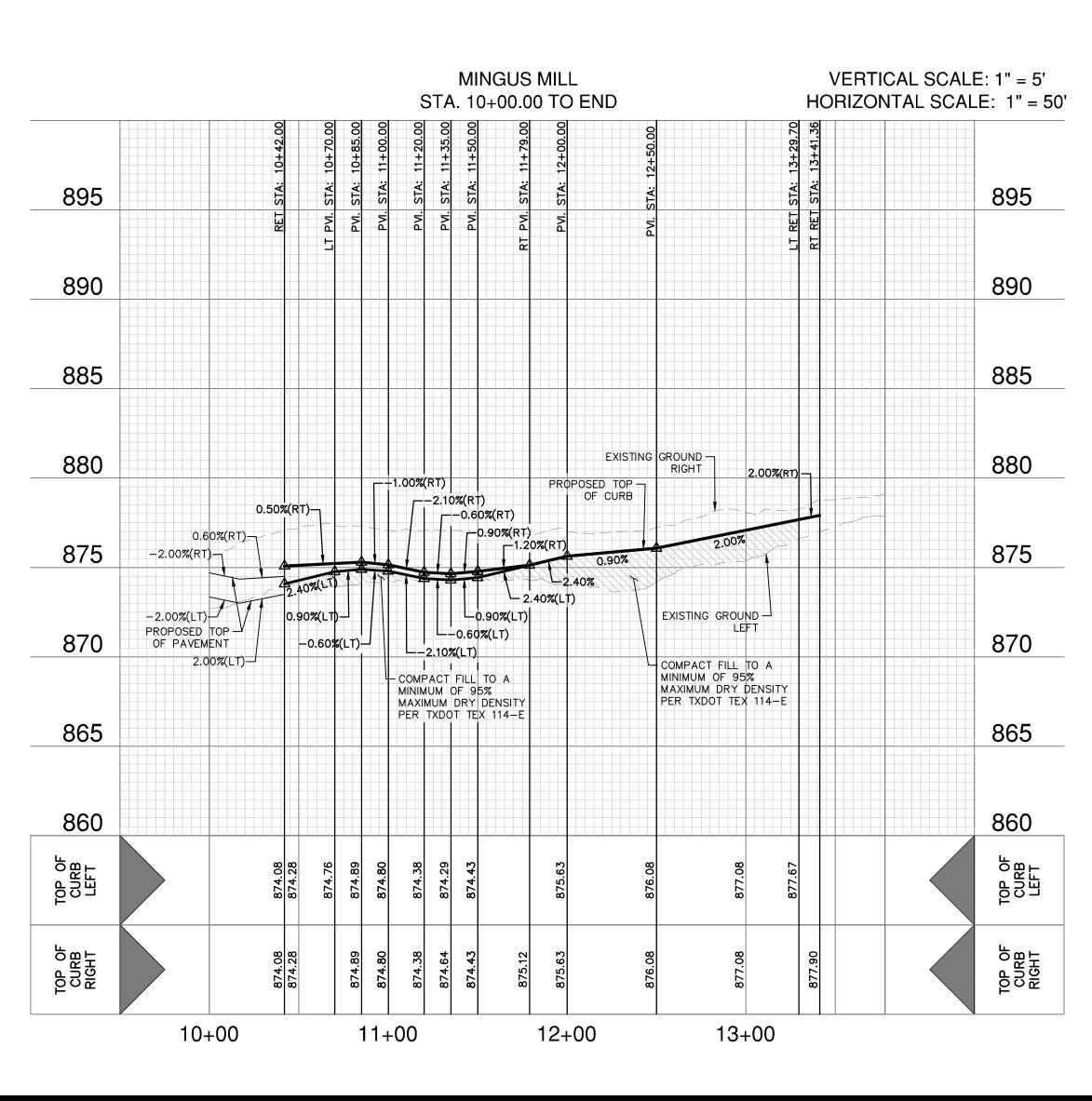
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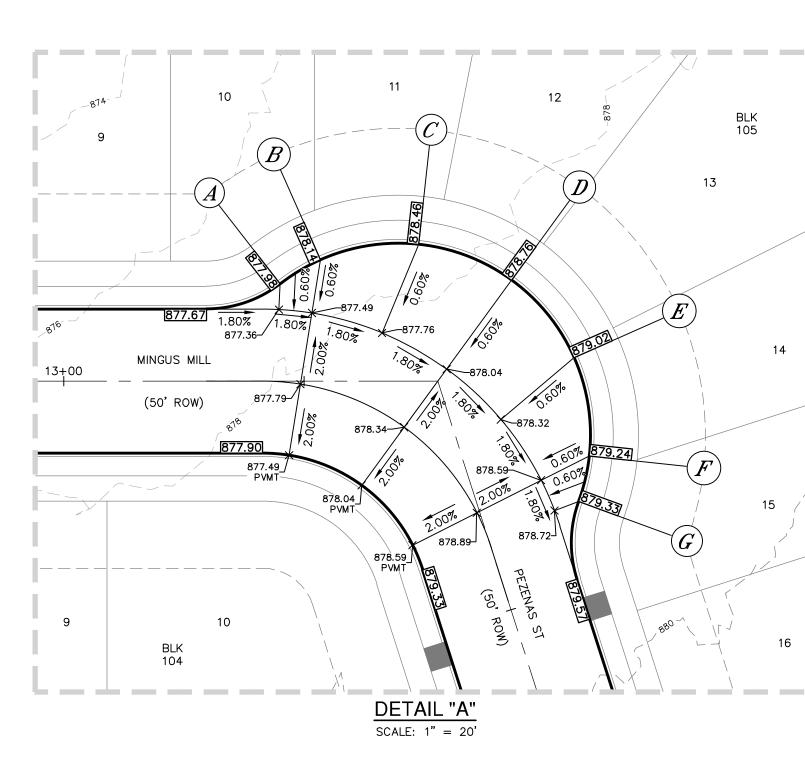


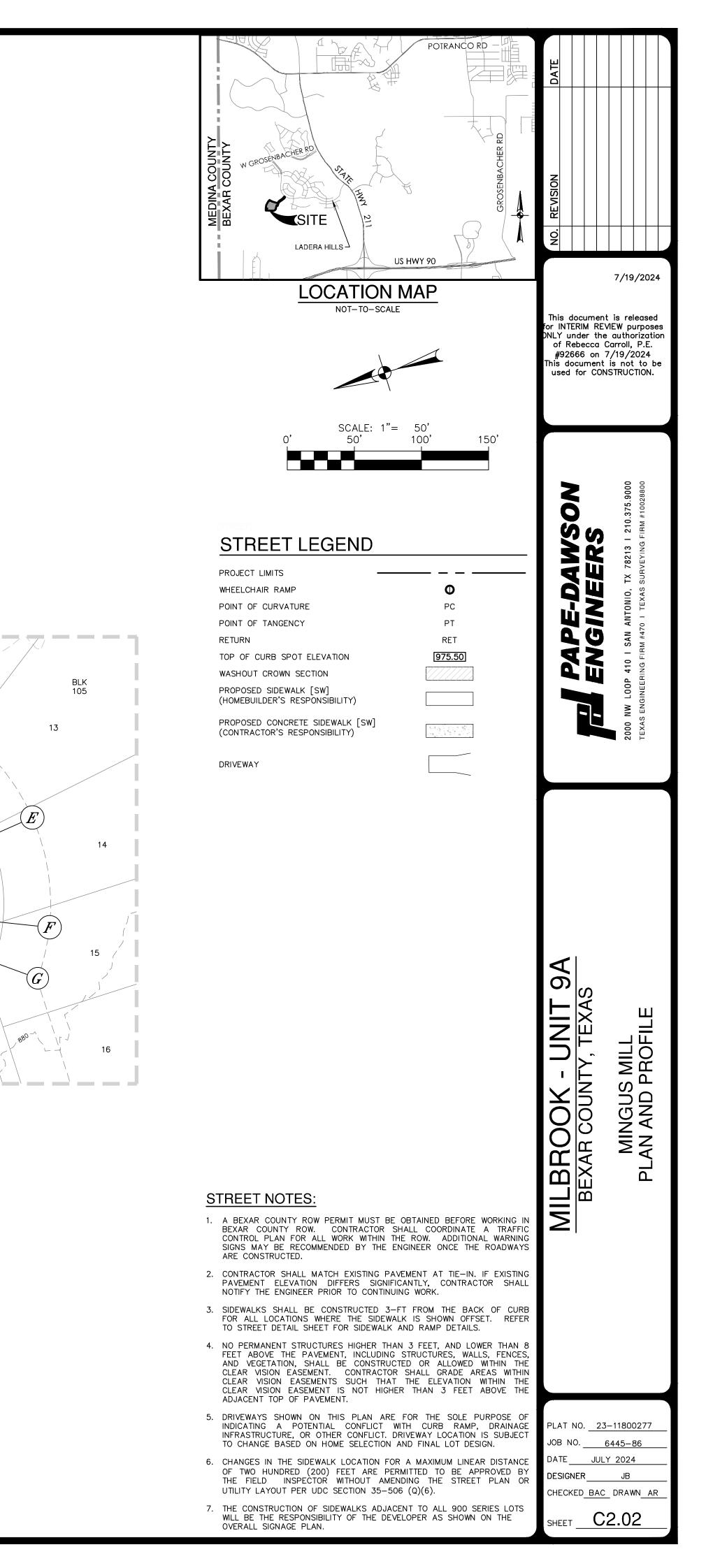


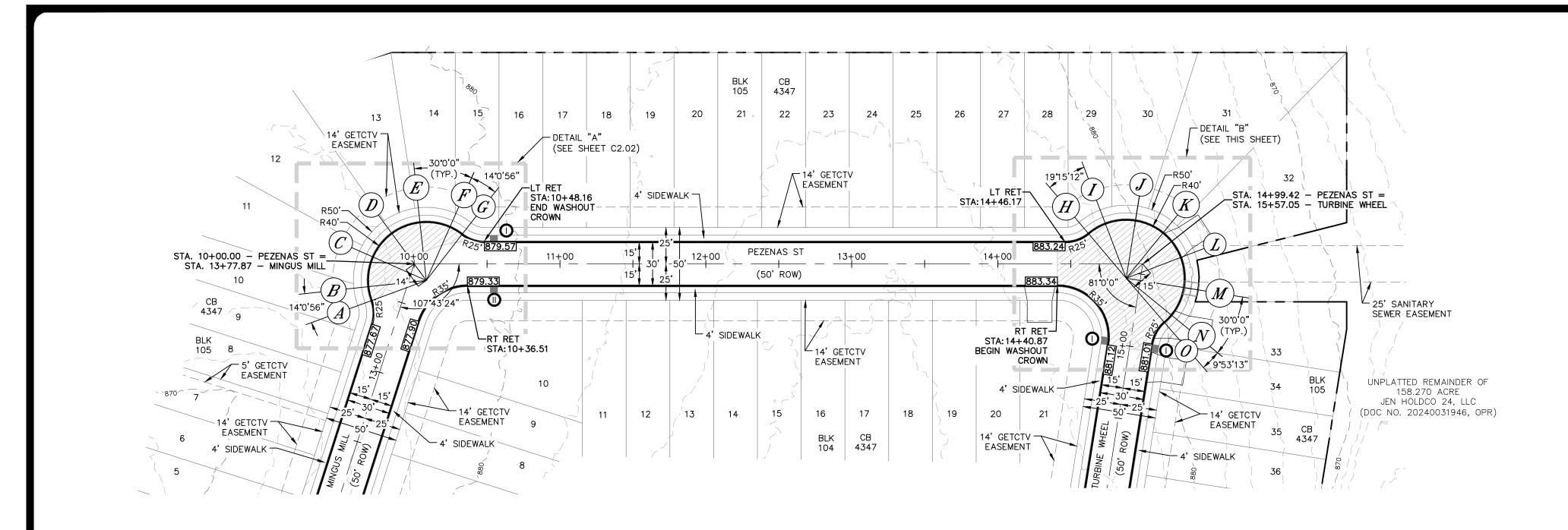


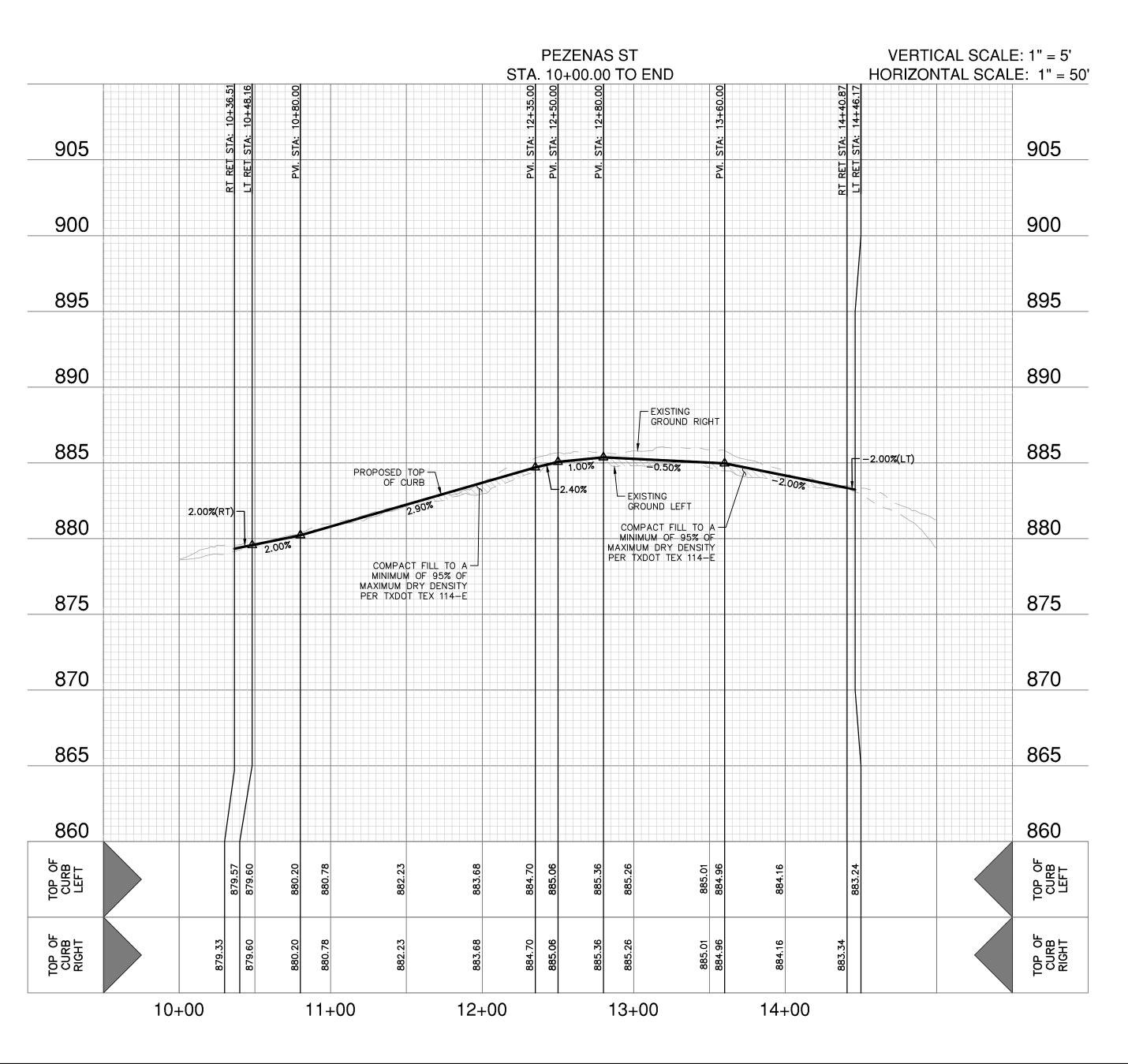


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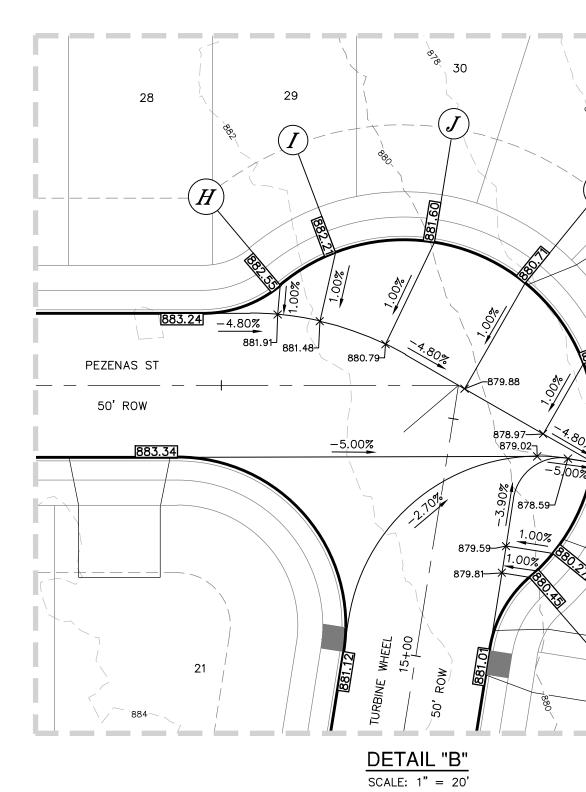


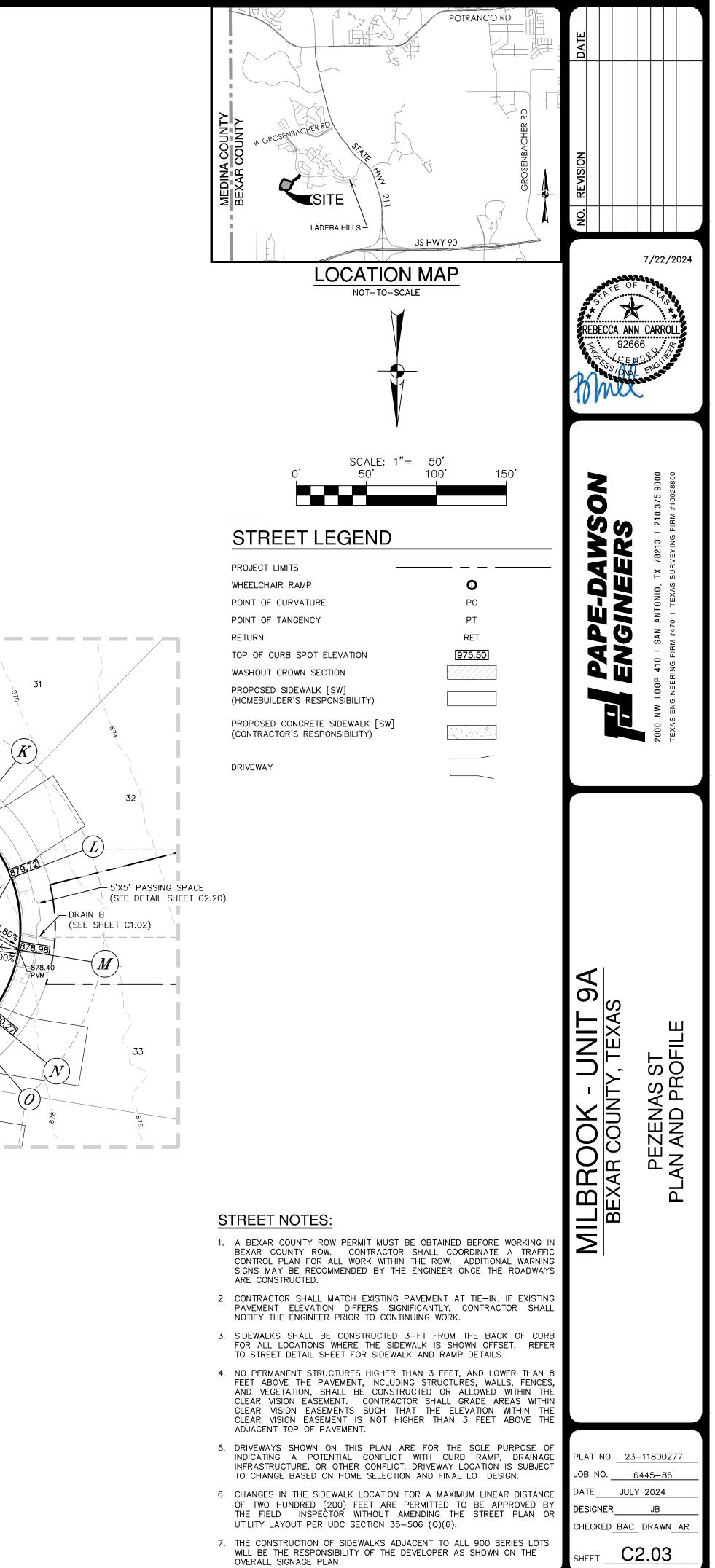


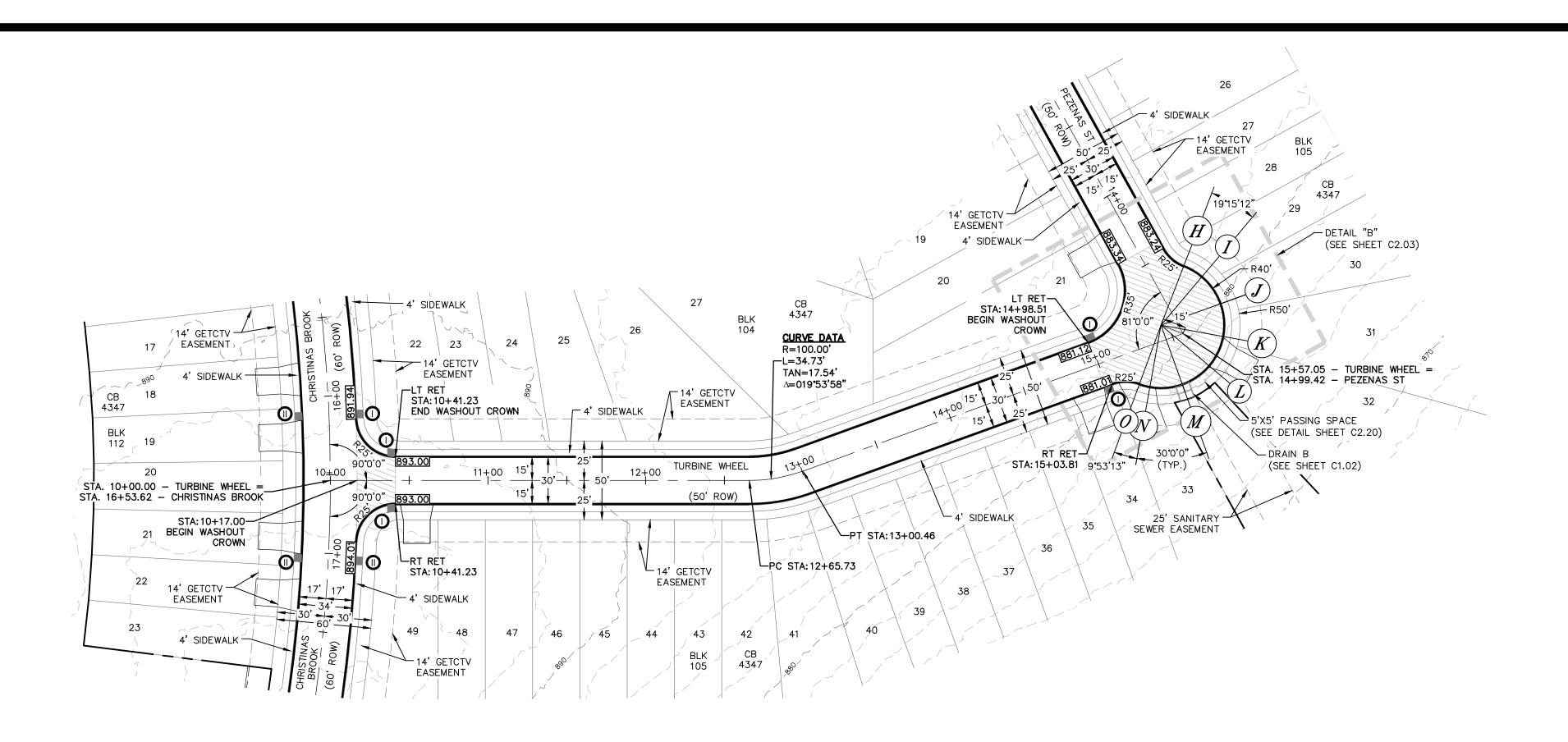


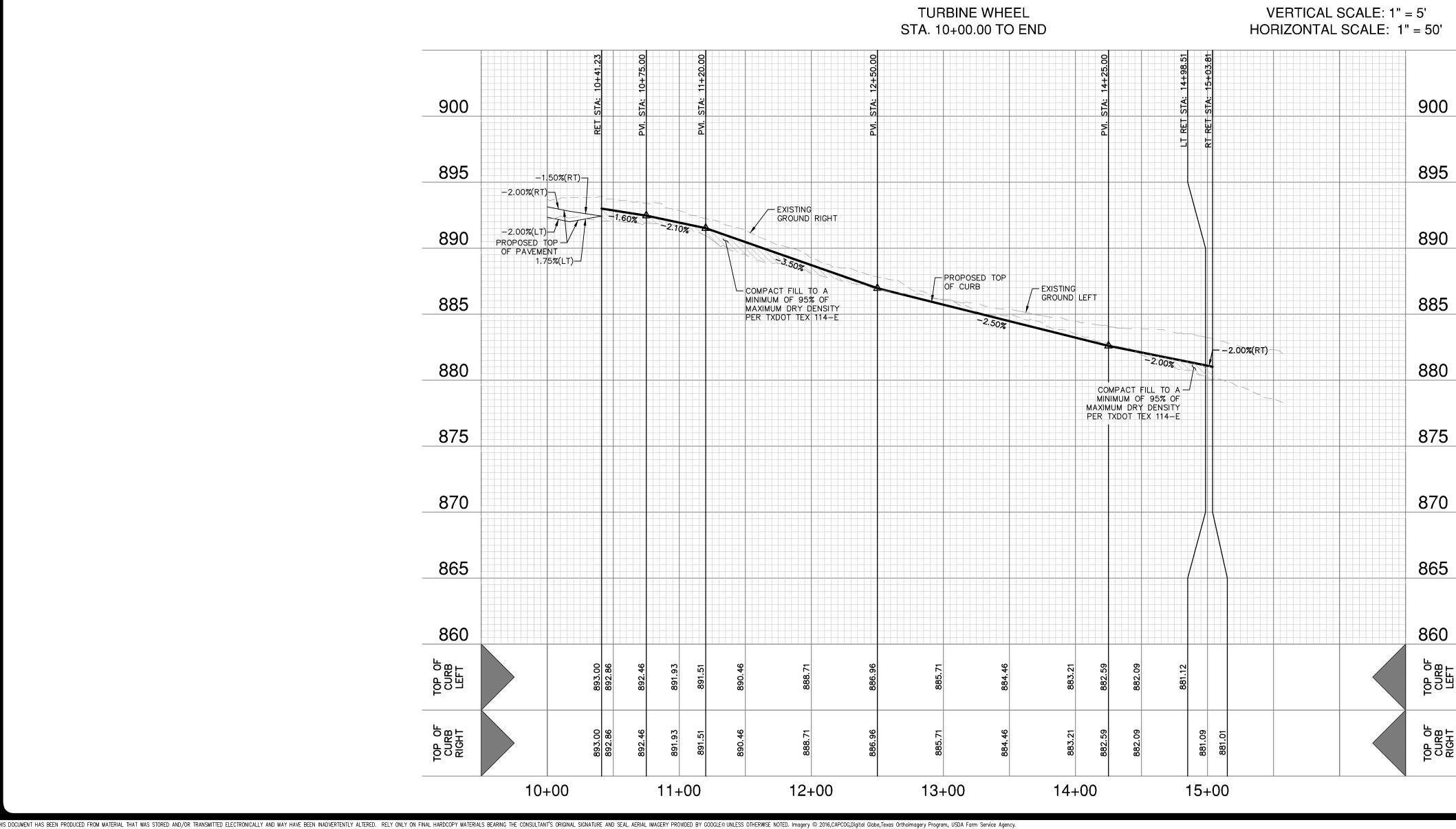


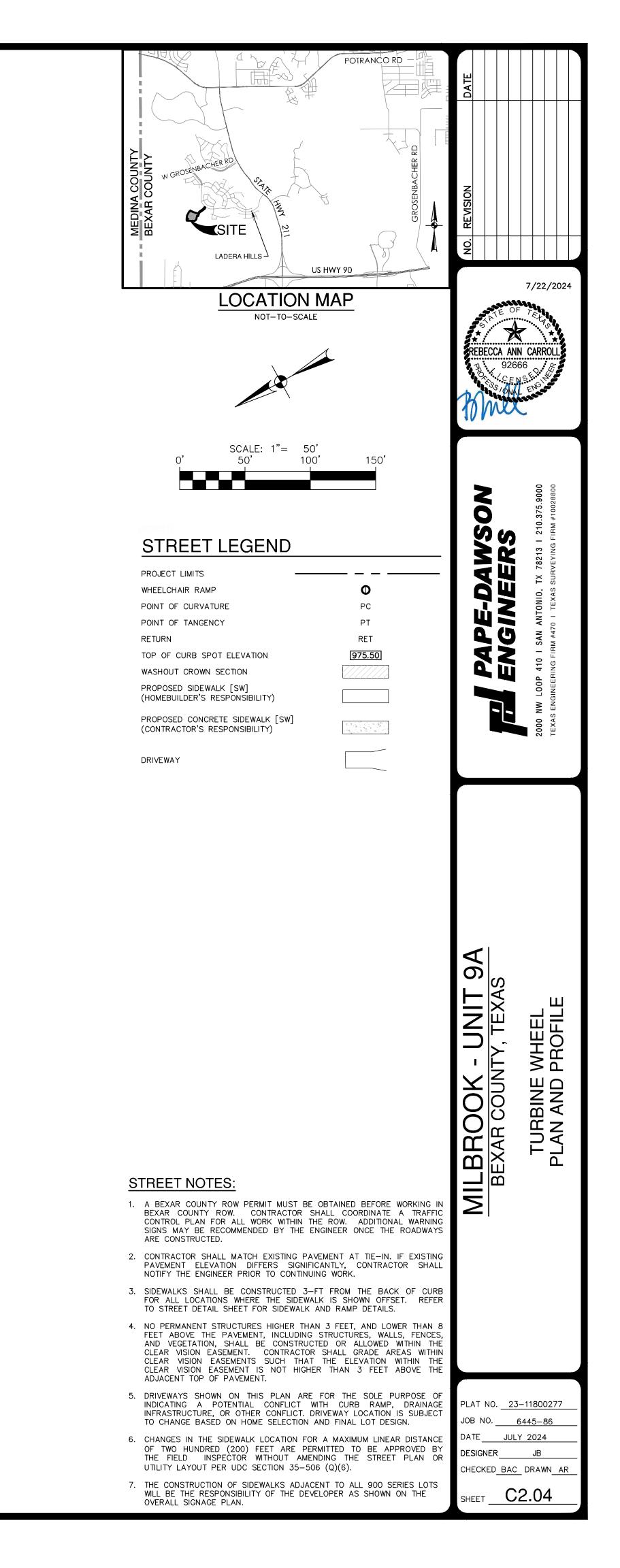
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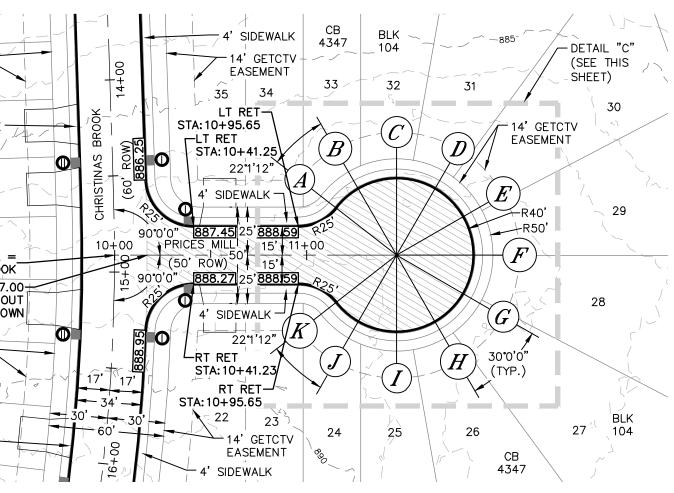








STA. 10 STA. 14+91	15 0+00.00 - PRICES MILL = 1.30 - CHRISTINAS BROOK
	STA: 10+17.0 BEGIN WASHOU 16 CROW
	14' GETCTV EASEMENT
	184' SIDEWALK
	905
	900
	895
	890
	005
	885
	880
	875
	870 
	TOP OF CURB LEFT
	TOP OF CURB RIGHT

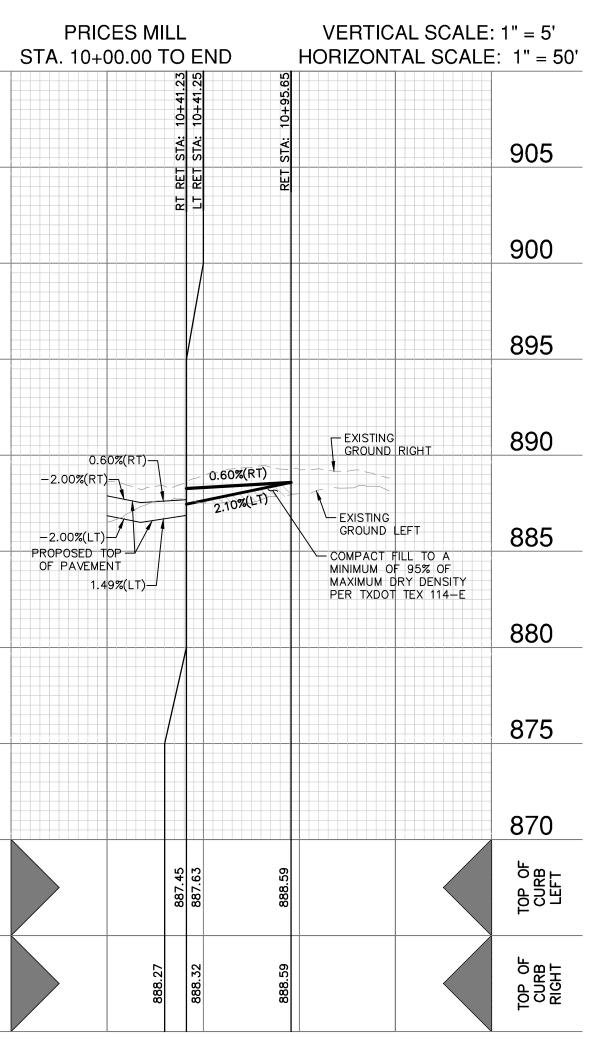


14'GETCTV -

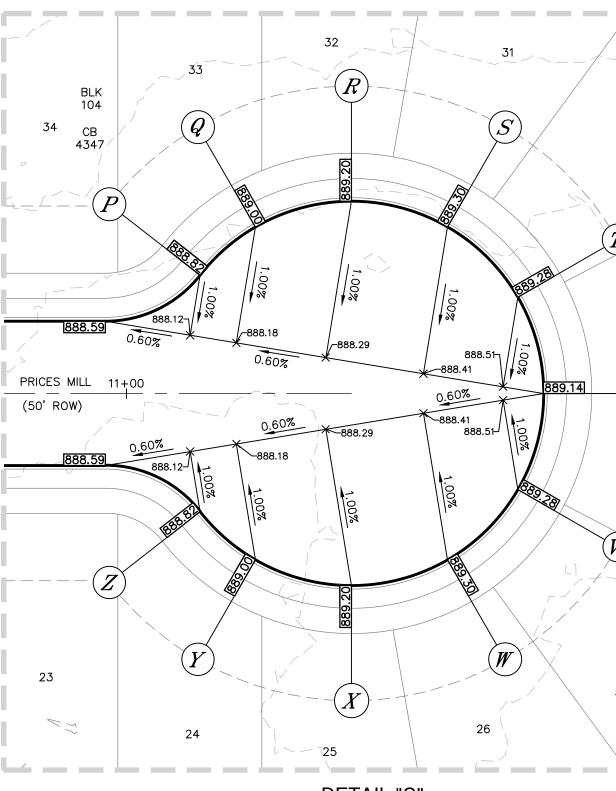
CB 4' SIDEWALK -

12

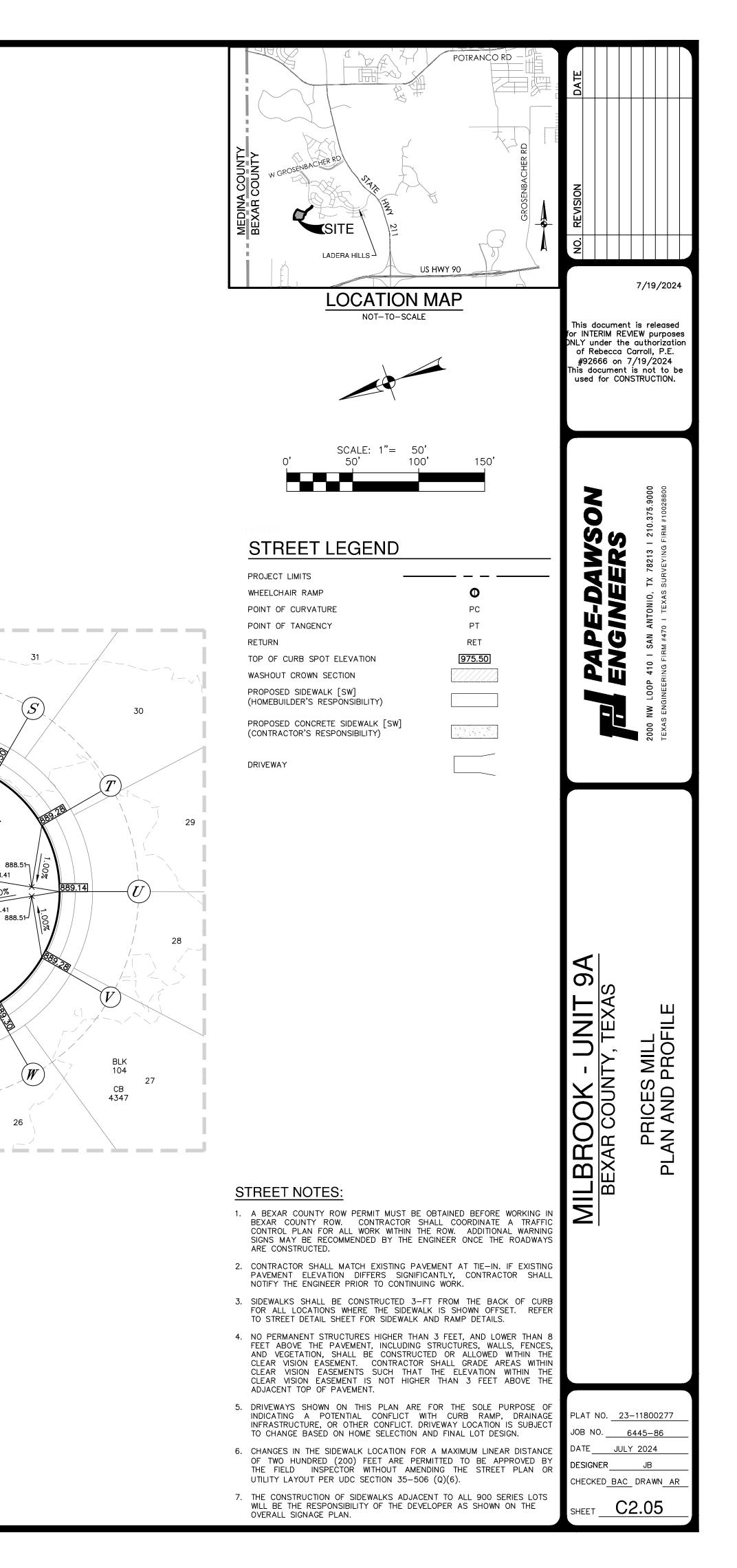
EASEMENT



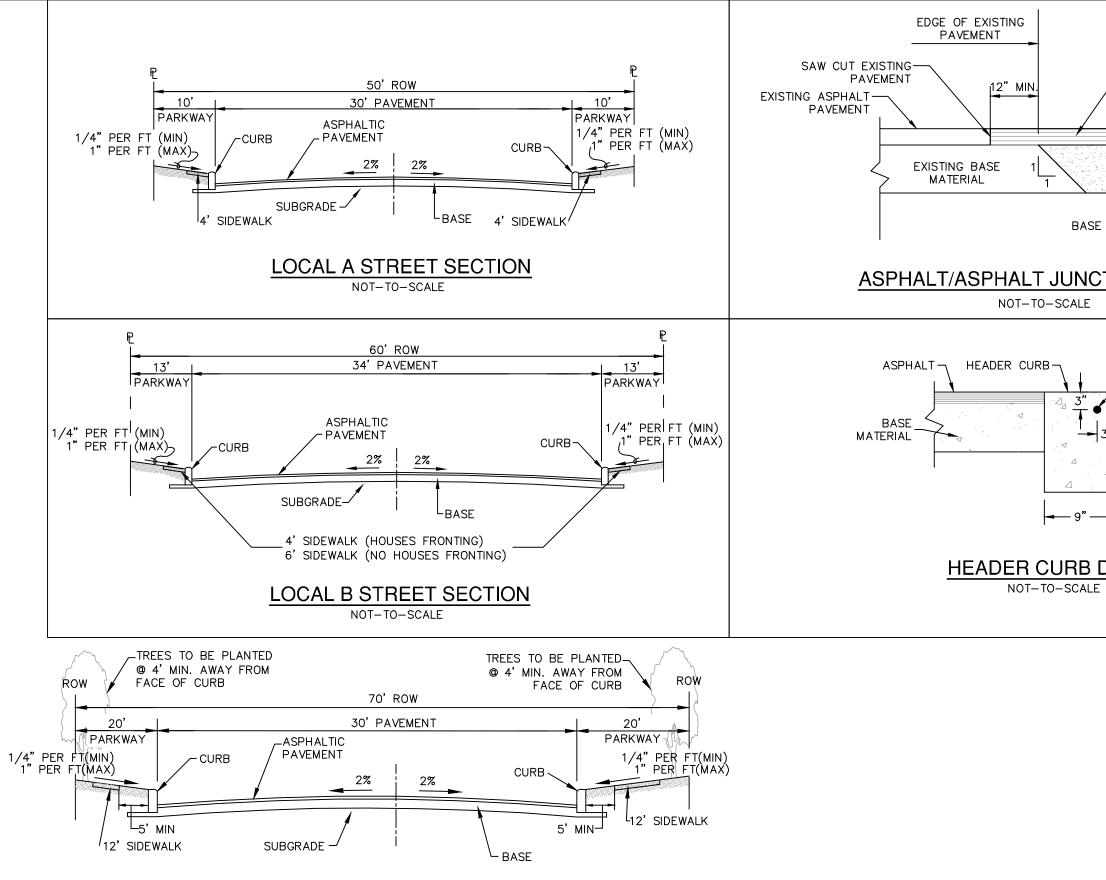




DETAIL "C" SCALE: 1" = 20'



	PAVEMENT SECTION DETAIL								
STREET NAME	CLASSIFICATION	STATION	TYPE "D" HMAC SURFACE TXDOT ITEM 340, in.	TYPE "C" HMAC SURFACE TXDOT ITEM 340, in.	AGGREGATE BASE, in. (TxDOT ITEM 247 TYPE A GRADE 1 OR 2)	LIME TREATED SUBGRADE	STRUCTURAL NUMBER		
LOTTLECOTE WAY	COLLECTOR	10+49.65 TO END	2"	2"	18"	6"	4.28		
CHRISTINAS BROOK	LOCAL B	10+00.00 TO END	2"	2"	16"	6"	4.00		
MNGUS MILL	LOCAL A	10+17.00 TO END	2"	_	10"	6"	2.28		
PEZENAS STREET	LOCAL A	10+00.00 TO END	2"	_	10"	6"	2.28		
TURBINE WHEEL	LOCAL A	10+17.00 TO END	2"	_	10"	6"	2.28		
PRICES MILL	LOCAL A	10+17.00 TO END	2"	_	10"	6"	2.28		



## COLLECTOR A STREET SECTION (W/ MULTI-USE PATH) NOT-TO-SCALE

## **GENERAL NOTES:**

- 1. CONTRACTOR SHALL REFERENCE THE PROJECT PAVEMENT DESIGN REPORT PREPARED BY **TTL, INC.** DATED NOVEMBER 8, 2023. 2. CONTRACTOR SHALL RETAIN A GEOTECHNICAL ENGINEER TO VERIFY THE SUB GRADE CONDITION PRIOR TO
- PLACING ANY BASE MATERIAL. GEOTECHNICAL ENGINEER SHALL DETERMINE THE SUB GRADE CONDITION AND IF LIME TREATMENT IS REQUIRED. 3. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR
- TO PLACEMENT OF AGGREGATE BASE. 4. THE FLEXIBLE BASE COURSE SHOULD BE CRUSHED LIMESTONE CONFORMING TO TXDOT STANDARD SPECIFICATIONS, ITEM 247, TYPE A, GRADES 1 OR 2.
- 5. THE MOISTURE CONTENT OF THE FILL SHOULD BE MAINTAINED WITHIN THE RANGE OF OPTIMUM WATER CONTENT TO 3 PERCENTAGE POINTS ABOVE THE OPTIMUM WATER CONTENT UNTIL PERMANENTLY COVERED
- 6. IN THE EVENT THAT THE CLAY FILL USED IS DIFFERENT THAN THE EXISTING SUBGRADE, THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT COULD BE INVALIDATED AND THE DESIGN ENGINEER MUST BE CONSULTED TO DETERMINE IF ADDITIONAL CBR TESTING AND THICKER PAVEMENT SECTIONS ARE REQUIRED.
- 7. WHERE PAVEMENT SUBGRADE IS LOCATED WITHIN 2-FEET OF THE EXISTING GROUND SURFACE (STRATUM 1 CLAYS), MOISTURE CONDITIONED SUBGRADE WILL BE REQUIRED. GEOTECHNICAL ENGINEER SHOULD VERIFY THE STREET SUBGRADE AT THE TIME OF CONSTRUCTION PRIOR TO PLACEMENT OF AGGREGATE BASE TO DETERMINE WHERE THE MOISTURE CONDITIONED SUBGRADE IS NEEDED. REFERENCE GEOTECHNICAL ENGINEERING REPORT FOR MORE INFORMATION.
- 8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL MATERIAL TESTING WITH THE PROJECT GEOTECHNICAL ENGINEER. TESTING SHALL BE PAID FOR BY THE OWNER.
- 9. FILL MATERIAL SHOULD BE NATIVE ON-SITE MATERIAL, FREE OF DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4 AND A PI WITHIN RANGE OF 5 AND 20. THE GRAVEL SIZE SHOULD NOT EXCEED 3 INCHES IN DIAMETER. LIME OR CEMENT APPLICATION RATES SHOULD BE RE-EVALUATED FOR THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES. CONTRACTOR TO VERIFY EXACT SPECIFICATIONS WITH PROJECT GEOTECHNICAL ENGINEERING REPORT.
- 10. A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN THE BEXAR COUNTY ROW. CONTRACTOR SHALL COORDINATE A TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN THE ROW. ADDITIONAL WARNING SIGNS MAY BE RECOMMENDED BY THE ENGINEER ONCE THE ROADWAYS ARE CONSTRUCTED. STREET SUBGRADE NOTES:
- 1. IF THE STREET SUBGRADE PLASTICITY INDEX VALUE IS GREATER THAN 20, SUBGRADE TREATMENT IS NEEDED AS PER CITY OF SAN ANTONIO REQUIREMENTS.
- 2. IF THE SUBGRADE PLASTICITY INDEX VALUE IS 20 OR LESS. SUBGRADE TREATMENT IS NOT NEEDED. THE SUBGRADE SHOULD BE MOISTURE CONDITIONED (COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AT A MINIMUM MOISTURE CONTENT OF OPTIMUM PLUS 2 PERCENT (TEX114E)).
- 3. THE SUBGRADE SHOULD BE TREATED USING 4 PERCENT LIME TO A DEPTH OF 6 INCHES AS NOTED ABOVE.
- 4. THE SUBGRADE SOILS SHOULD BE TESTED FOR SOIL SULFATE CONTENT PRIOR TO TREATMENT. IF THE SOIL SULFATE CONTENT IS HIGH, AN ALTERNATE PROCEDURE / RECOMMENDATION WILL BE NEEDED.
- 5. LIME APPLICATION RATE OF 22.0 LBS PER SQ YARD FOR 6 INCH DEPTH OF STABILIZATION IS RECOMMENDED. 6. APPROVED FILL MATERIAL SHOULD BE USED TO RAISE THE GRADE. THE FILL SHOULD BE FREE OF
- DELETERIOUS MATERIAL WITH A MINIMUM CBR VALUE OF 4.0. LIME APPLICATION RATES SHOULD BE RE-EVALUATED AND TESTED FOR SULFATE CONTENT PRIOR TO USE OF THE FILL MATERIAL. THE MATERIAL SHOULD BE PLACED AS PER APPLICABLE CITY OR COUNTY GUIDELINES. 7. THE SUBGRADE SHOULD BE PROOF ROLLED TO IDENTIFY SOFT AREAS BEFORE TREATMENT.

## LIME NOTES:

- FOR LIME TREATMENT CONSTRUCTION VERIFICATION THE FOLLOWING SHALL BE CONDUCTED ON THE FIELD: 1. AFTER INITIAL MIXING THE SOIL-LIME MIXTURE SHALL MELLOW FOR A PERIOD OF TWO TO THREE (2-3) DAYS. MAINTAIN MOISTURE DURING MELLOWING.
- 2. AFTER MELLOWING AND FINAL MIXING, THE PULVERIZATION SHALL BE CHECKED USING THE FOLLOWING CRITERIA (REMOVE NON-SLAKING AGGREGATES RETAINED ON THE  $\frac{3}{4}$  INCH SIEVE FROM THE SAMPLE): MINIMUM PASSING 1<sup>3</sup>/<sub>4</sub>" SIEVE 100

60

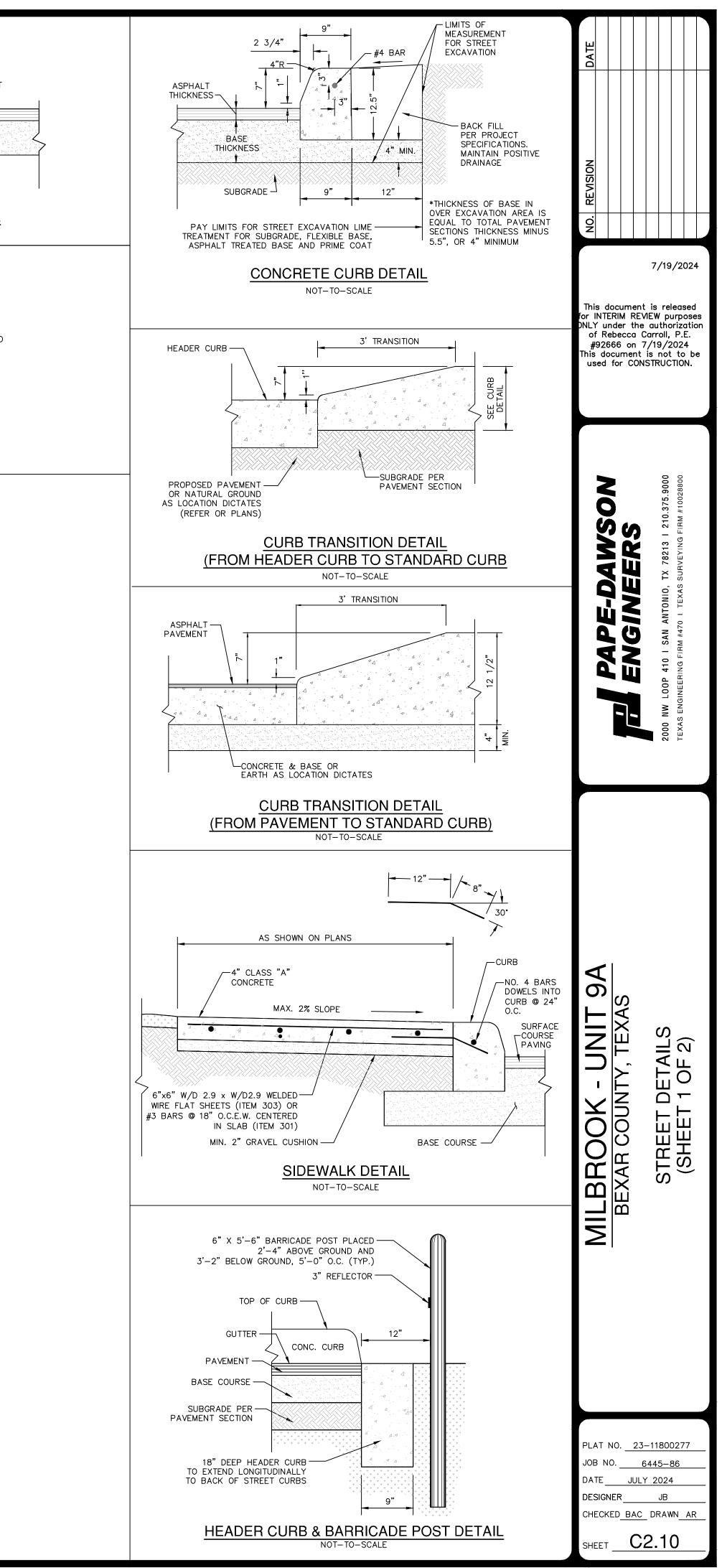
- MINIMUM PASSING <sup>3</sup>/<sub>4</sub>" SIEVE MINIMUM PASSING NO. 4 SIEVE
- 3. SAMPLE SOIL-LIME MIXTURE FOR DETERMINATION OF MAXIMUM DRY DENSITY (MDD). IN THE LABORATORY, MOLD SPECIMENS TO 95% OF MDD AT OPTIMUM MOISTURE CONTENT AND VERIFY UCS TO BE AT LEAST 160 PSI IN ACCORDANCE WITH PROCEDURE OUTLINED IN THE BEXAR COUNTY FLEXIBLE PAVEMENT DESIGN CRITERIA GUIDE FOR MIXTURE DESIGN.
- 4. COMPACT AND CHECK FIELD DENSITY (MINIMUM OF 95% OF MDD REQUIRED).
- 5. CURE FOR AN ADDITIONAL 2 TO 5 DAYS (TOTAL MELLOWING AND CURING TIME SHOULD TOTAL AT LEAST 5 DAYS).

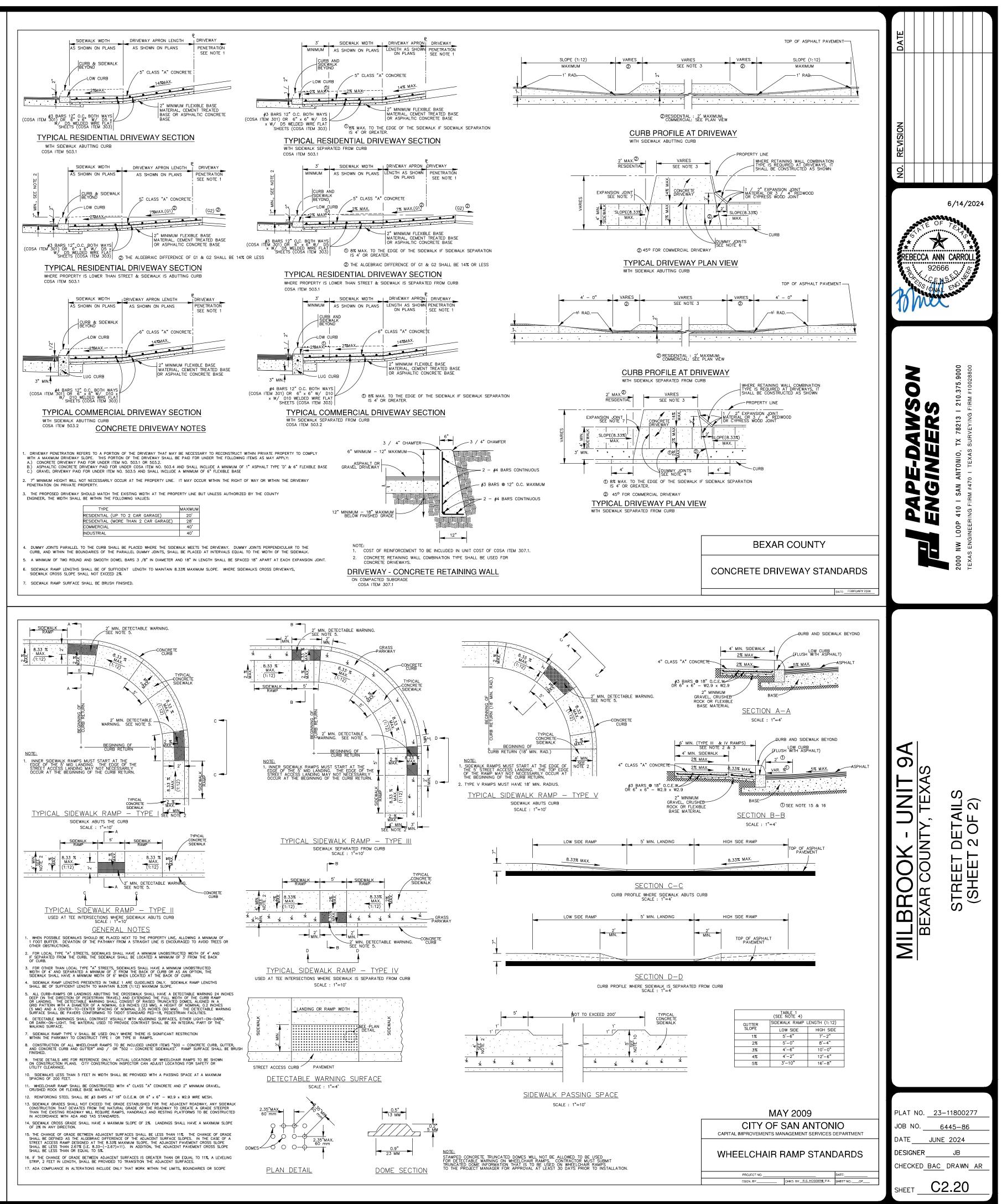
6. VERIFY DEPTH OF LIME TREATED LAYER TO DEPTH AS NOTED ON PLAN TO WITHIN +/- 1.0 INCH.

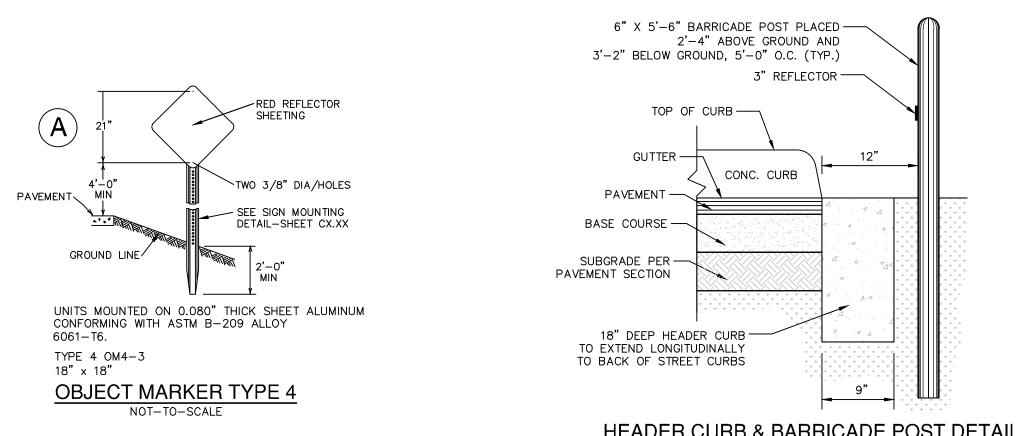
# -TACK COAT BASE COURSE-ASPHALT/ASPHALT JUNCTURE DETAIL NOT-TO-SCALE — #4 BARS 18" MIN. (MIN. 3" INTO SUBGRADE) **→** 9" →

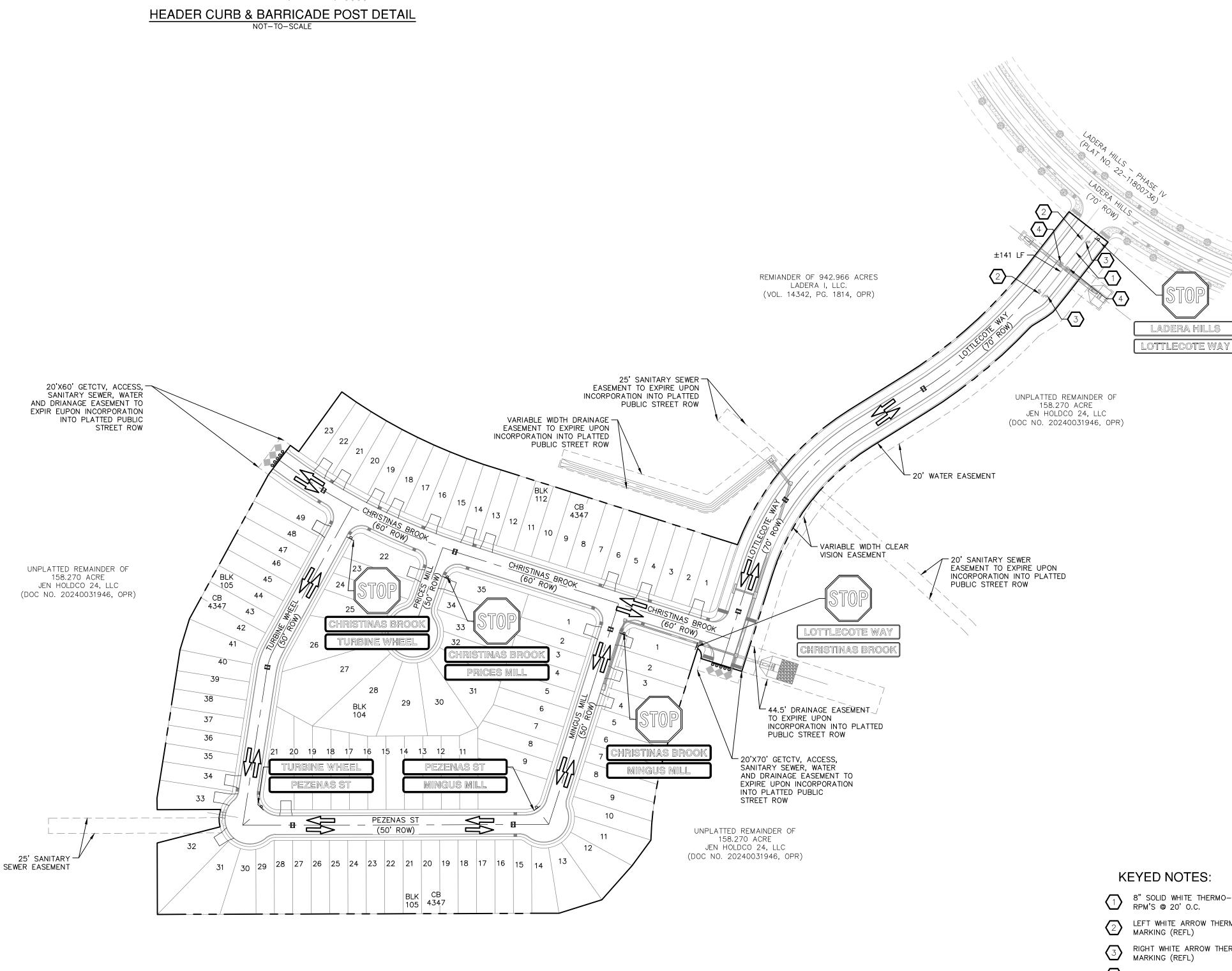
—H.M.A.C.

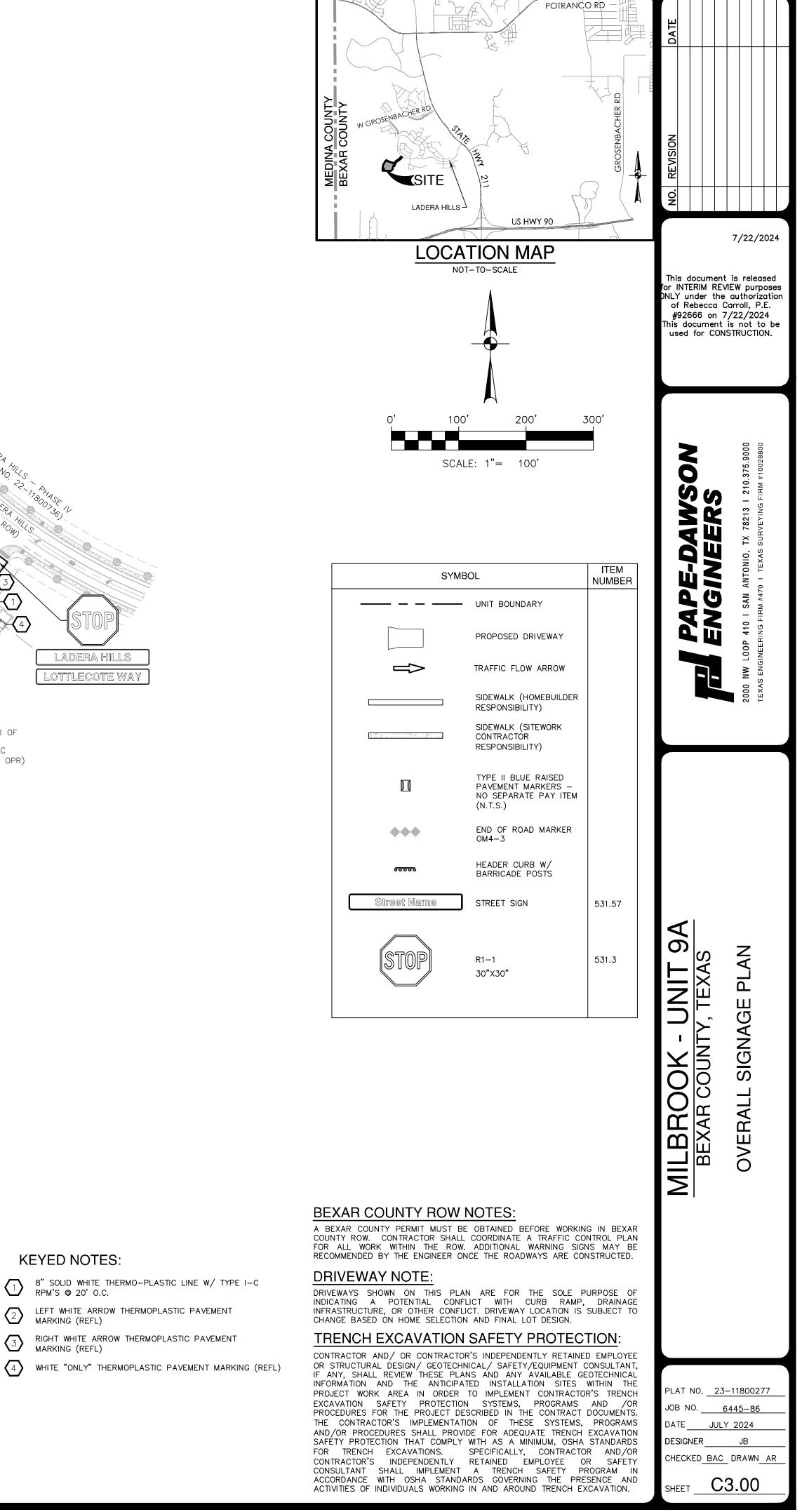
HEADER CURB DETAIL







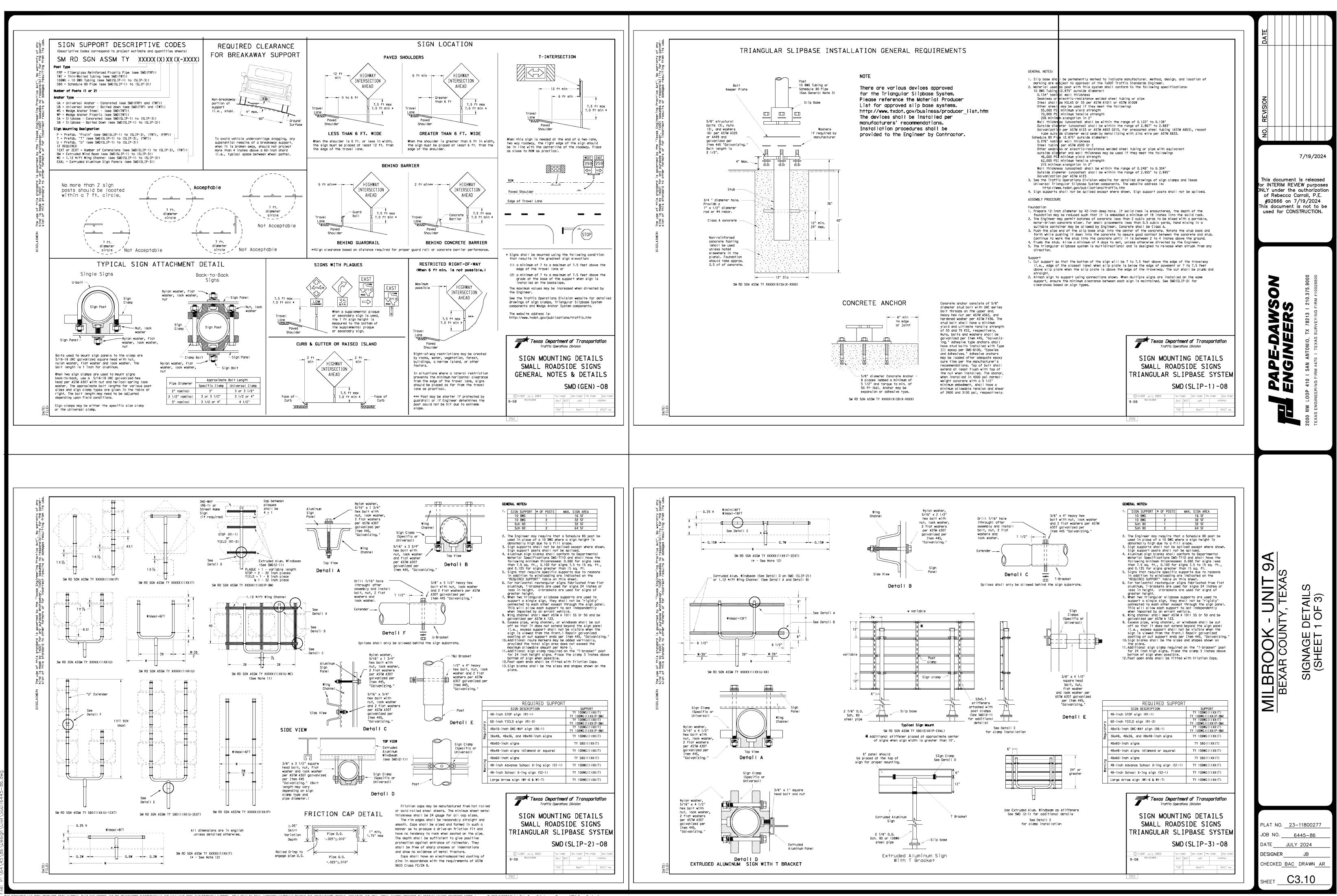




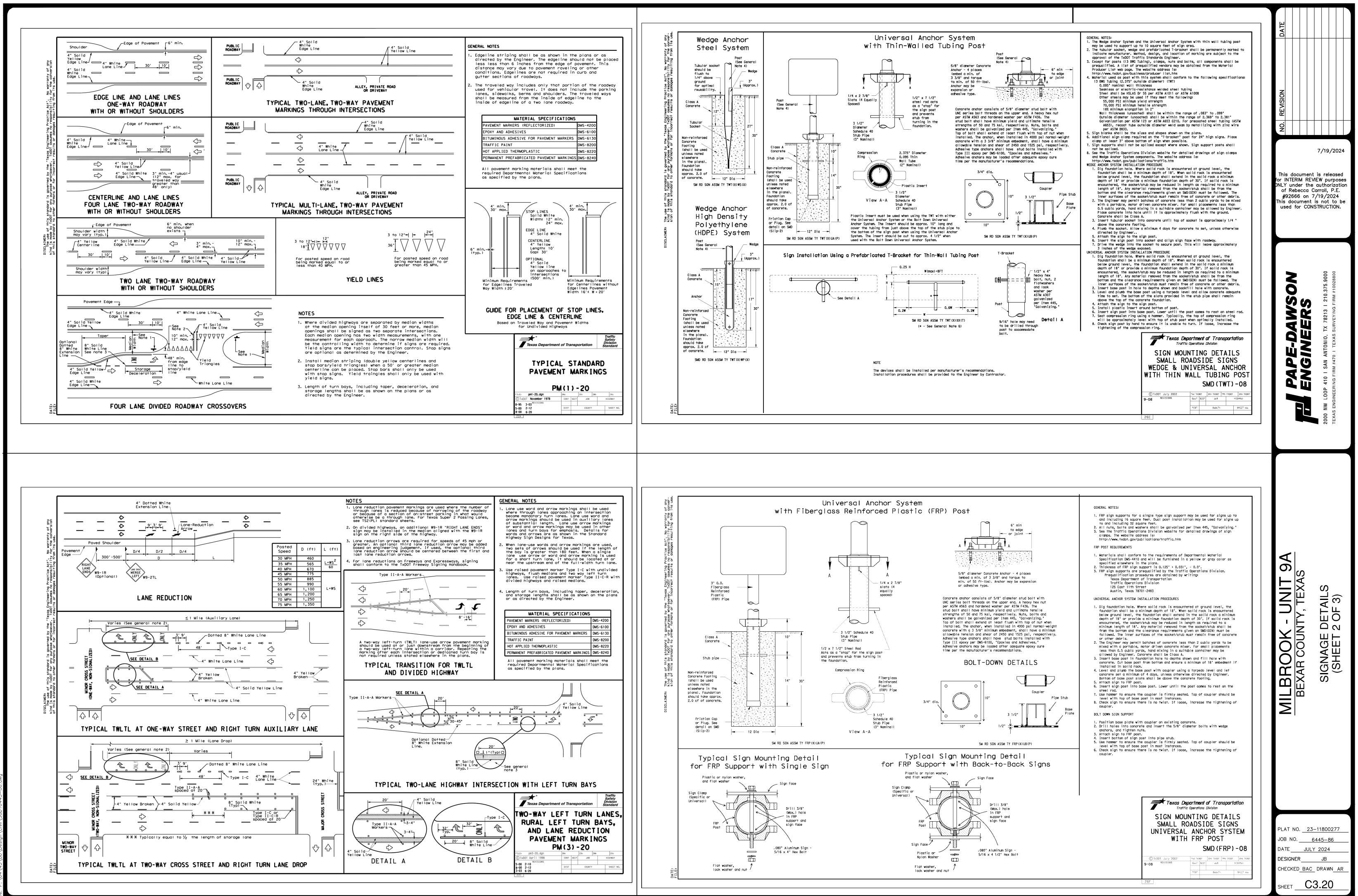
2 LEFT WHITE ARROW THERMOPLASTIC PAVEMENT MARKING (REFL)

RIGHT WHITE ARROW THERMOPLASTIC PAVEMENT

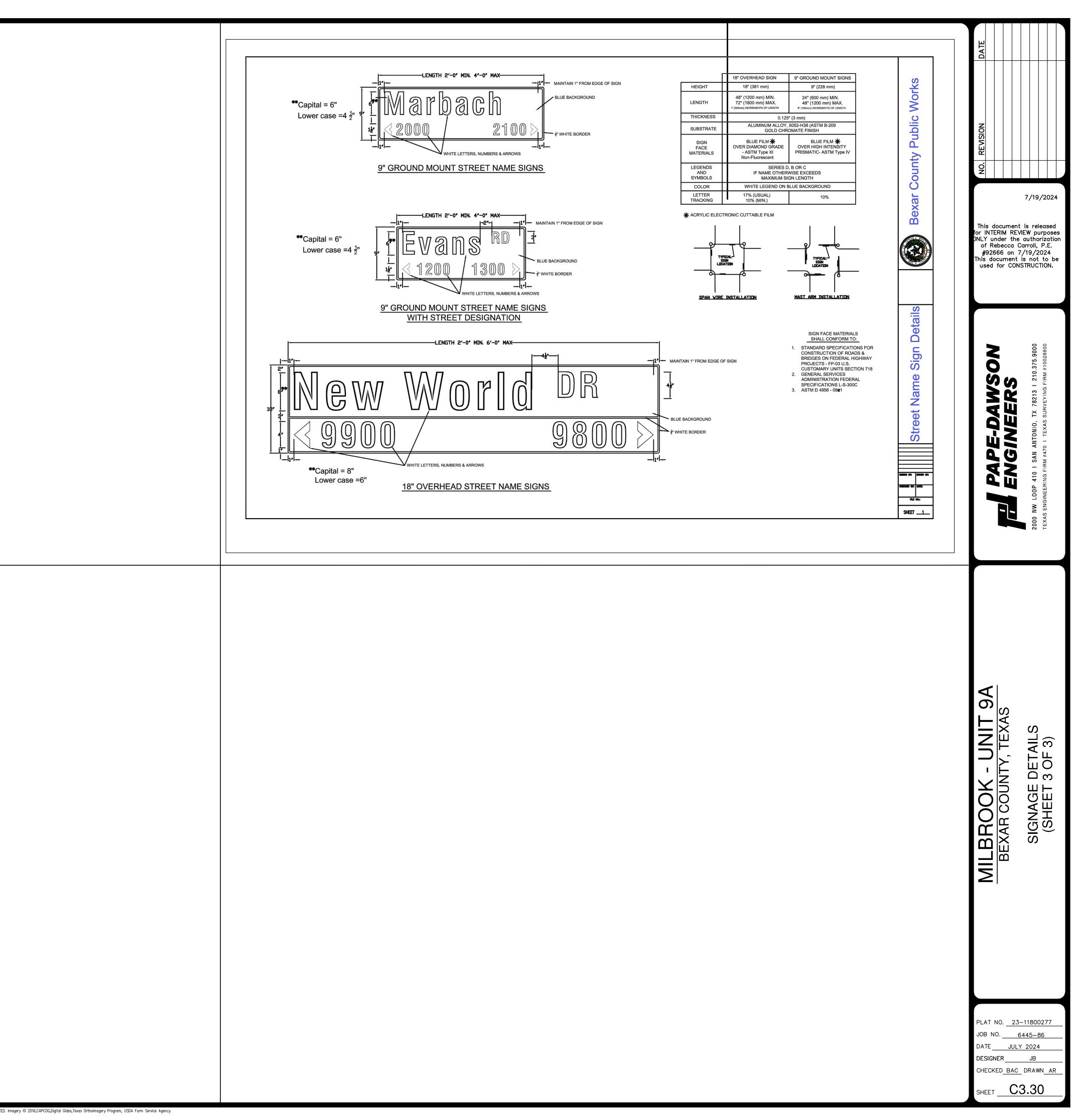
4 WHITE "ONLY" THERMOPLASTIC PAVEMENT MARKING (REFL)

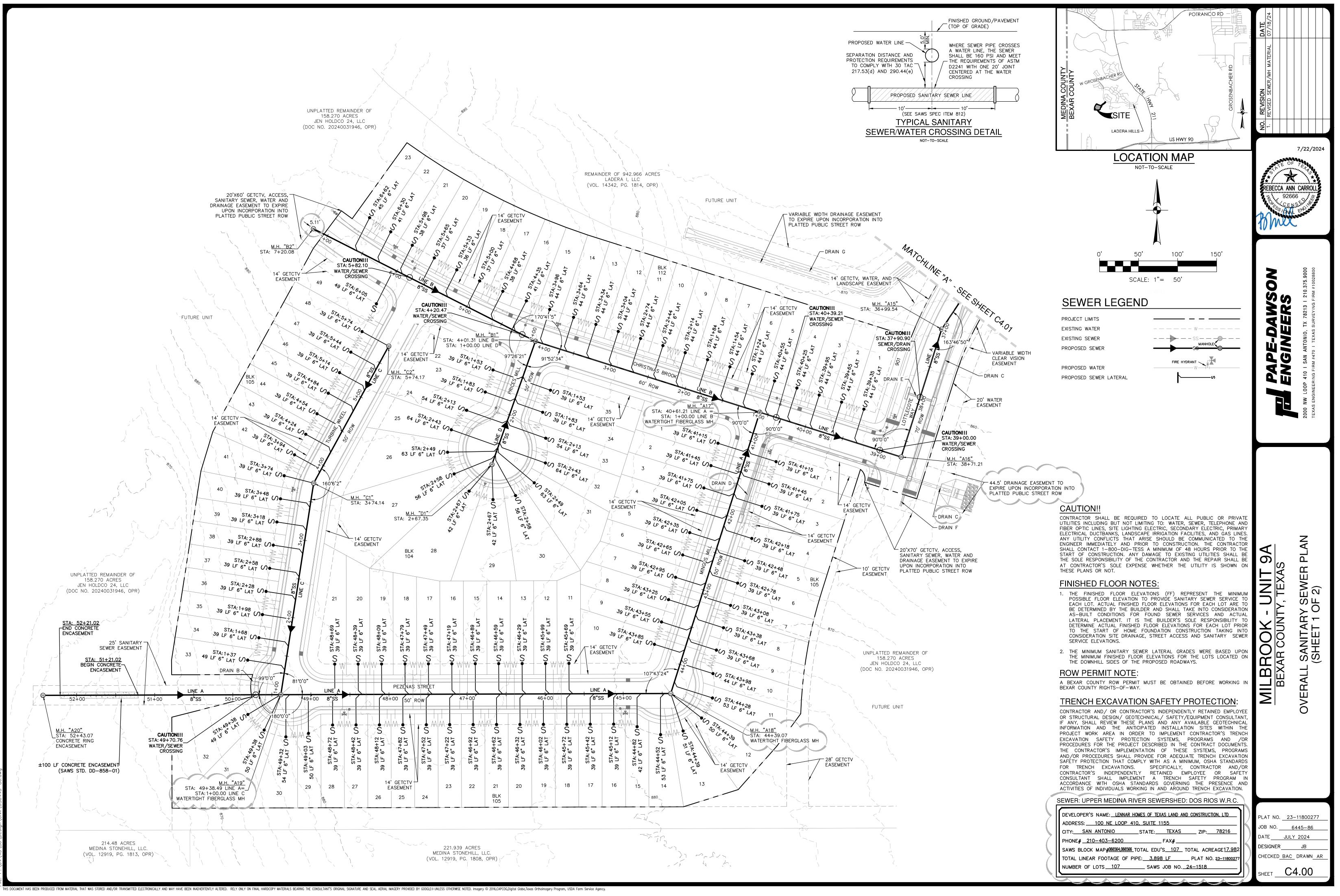


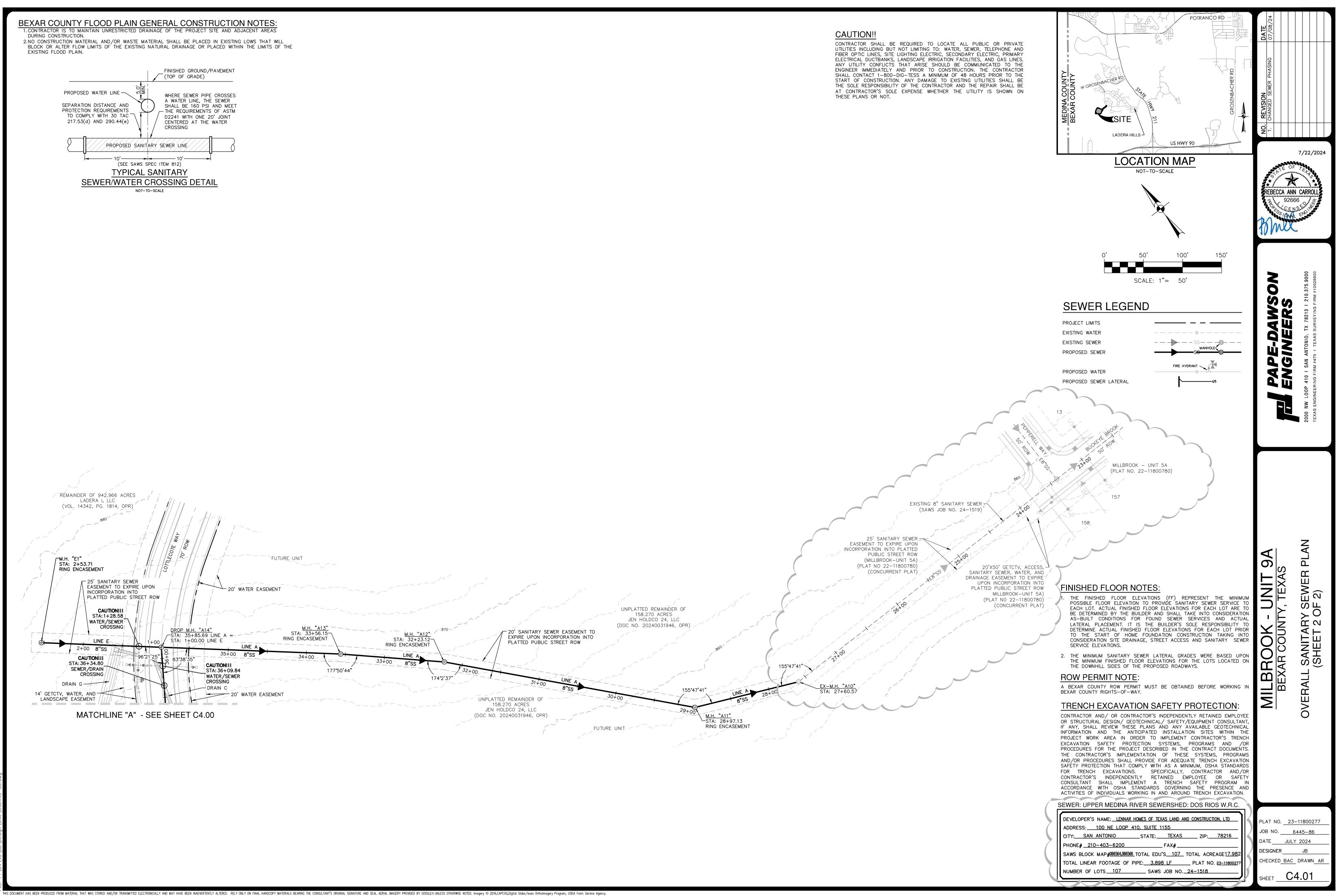
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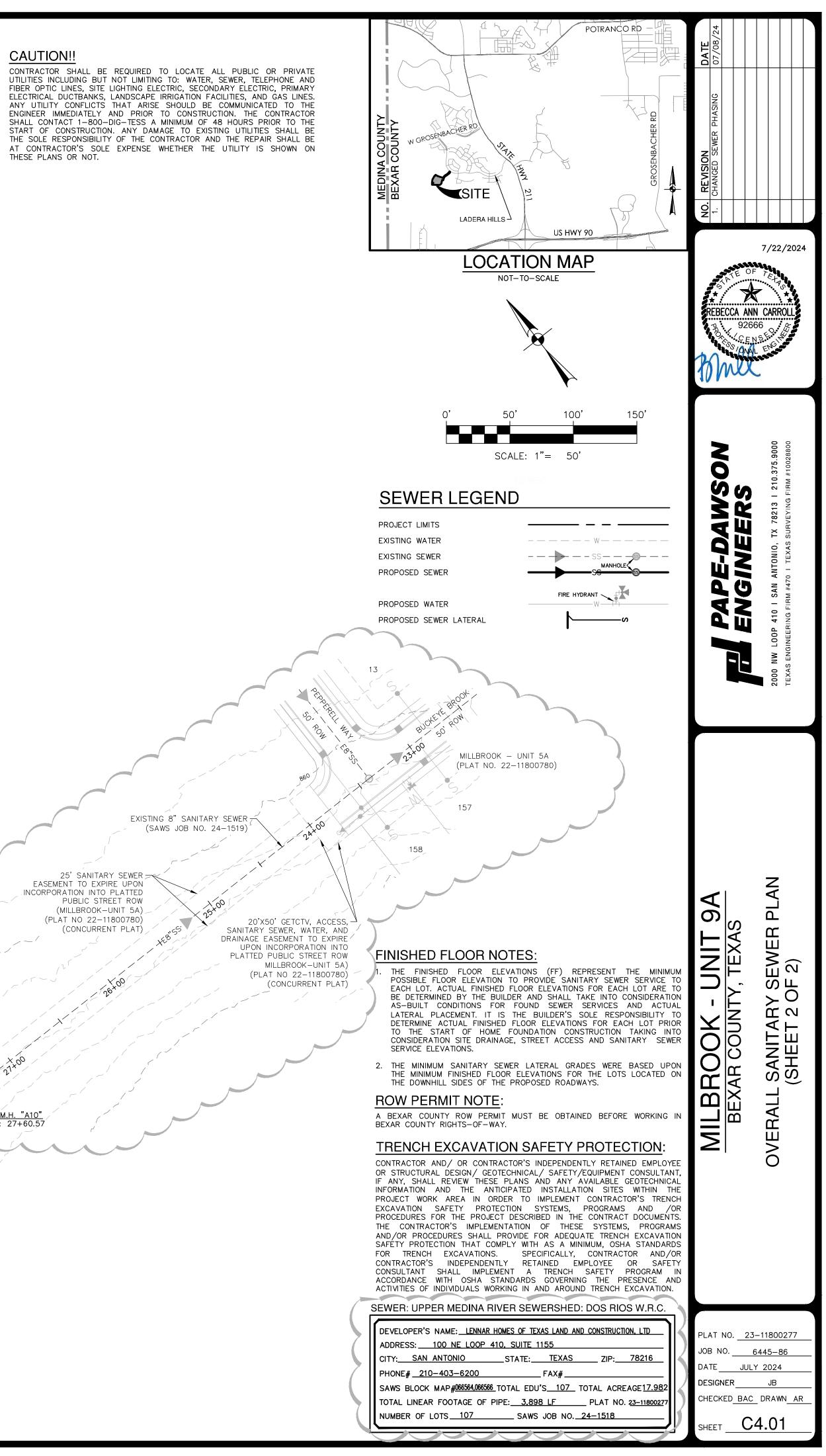


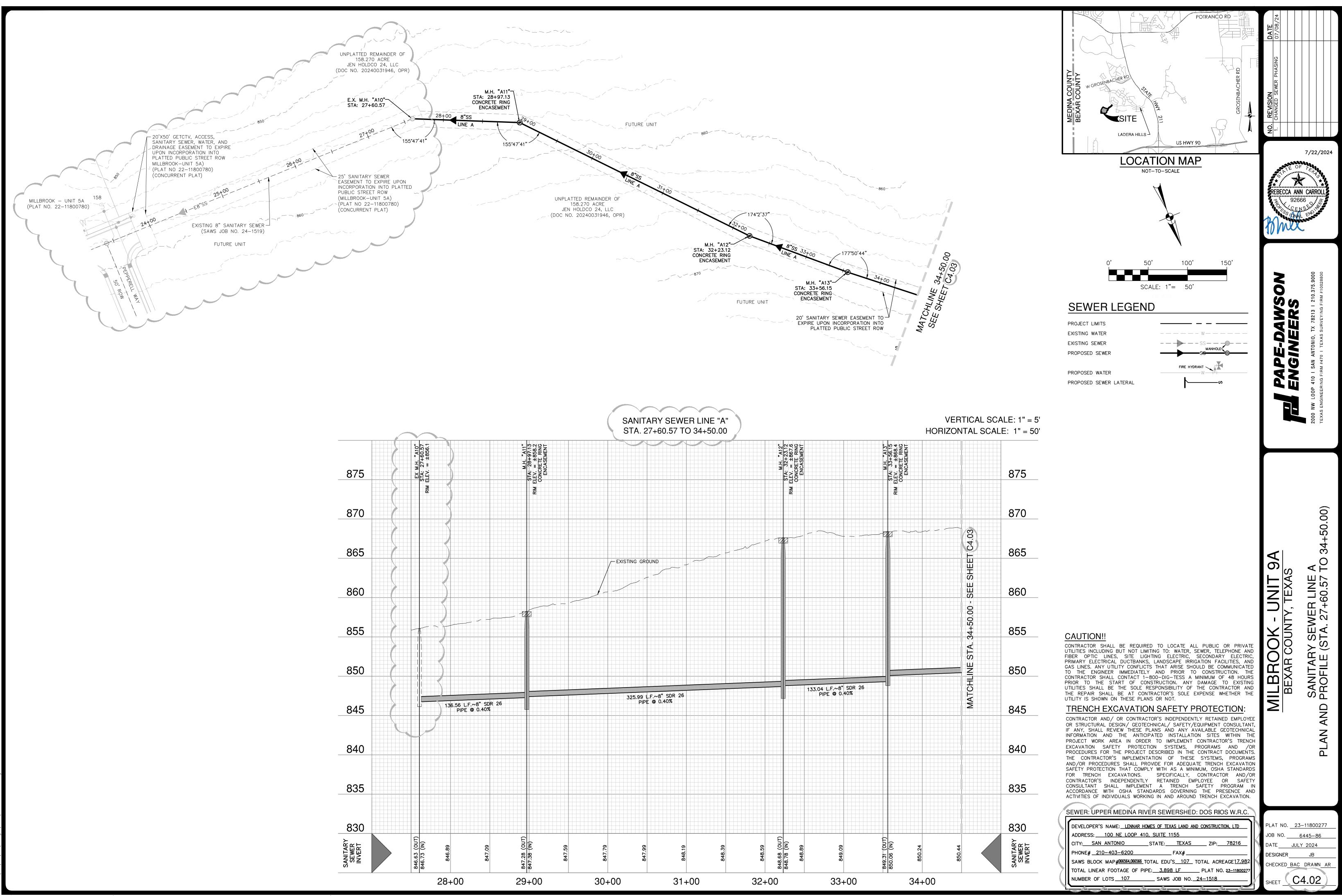
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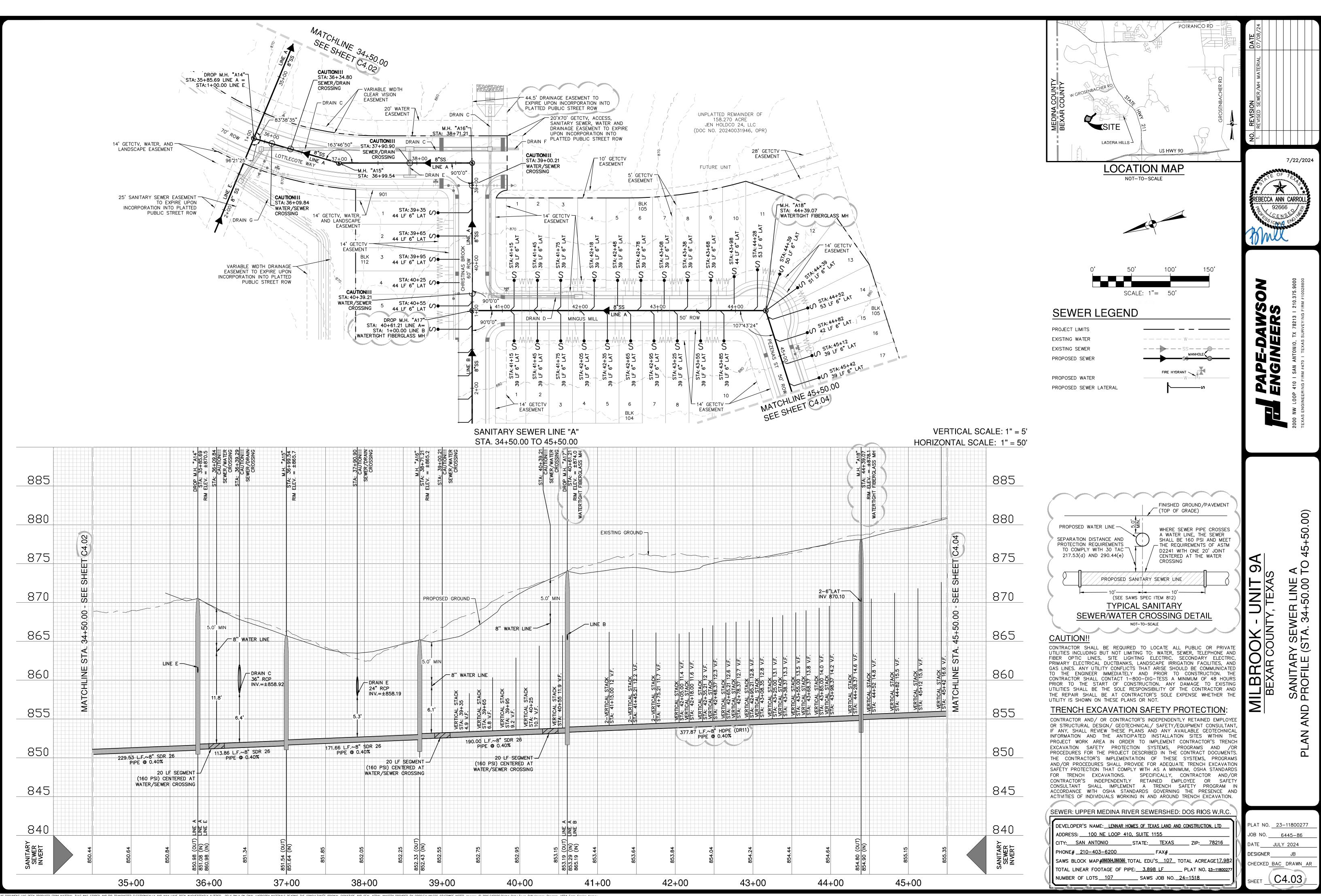




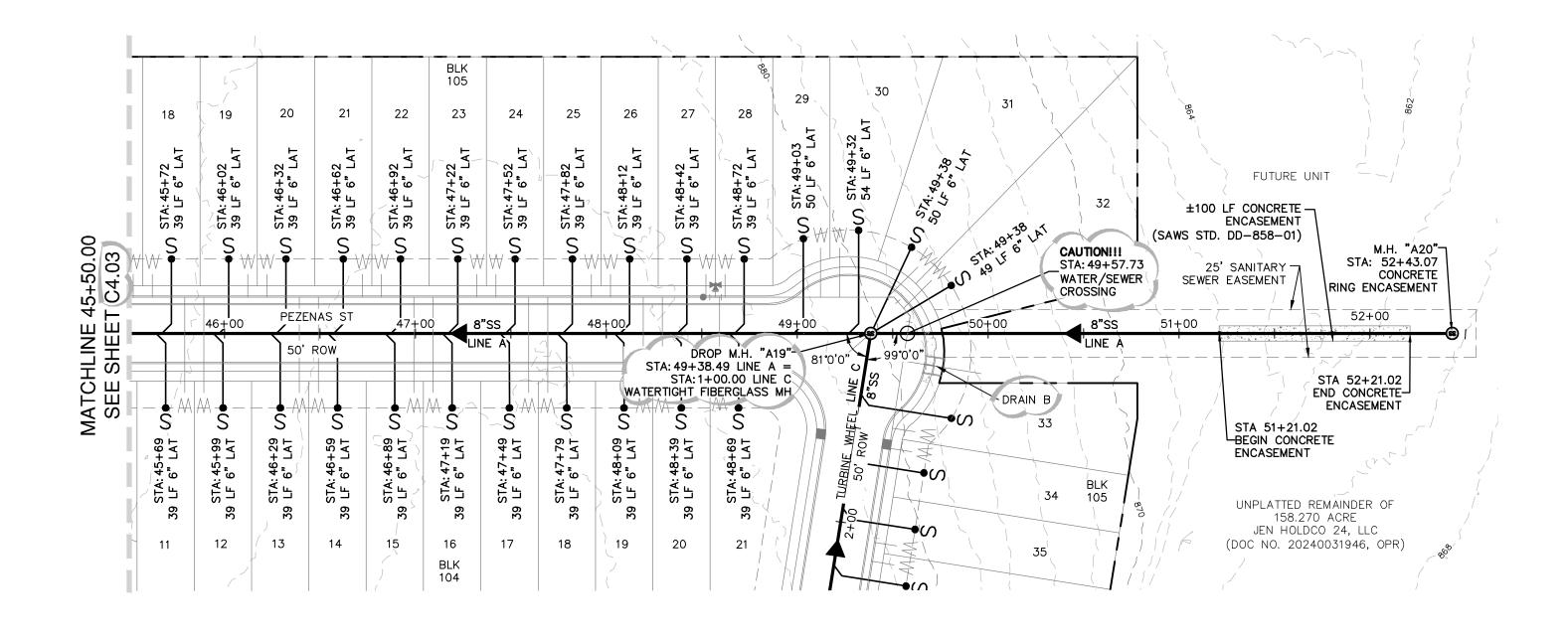


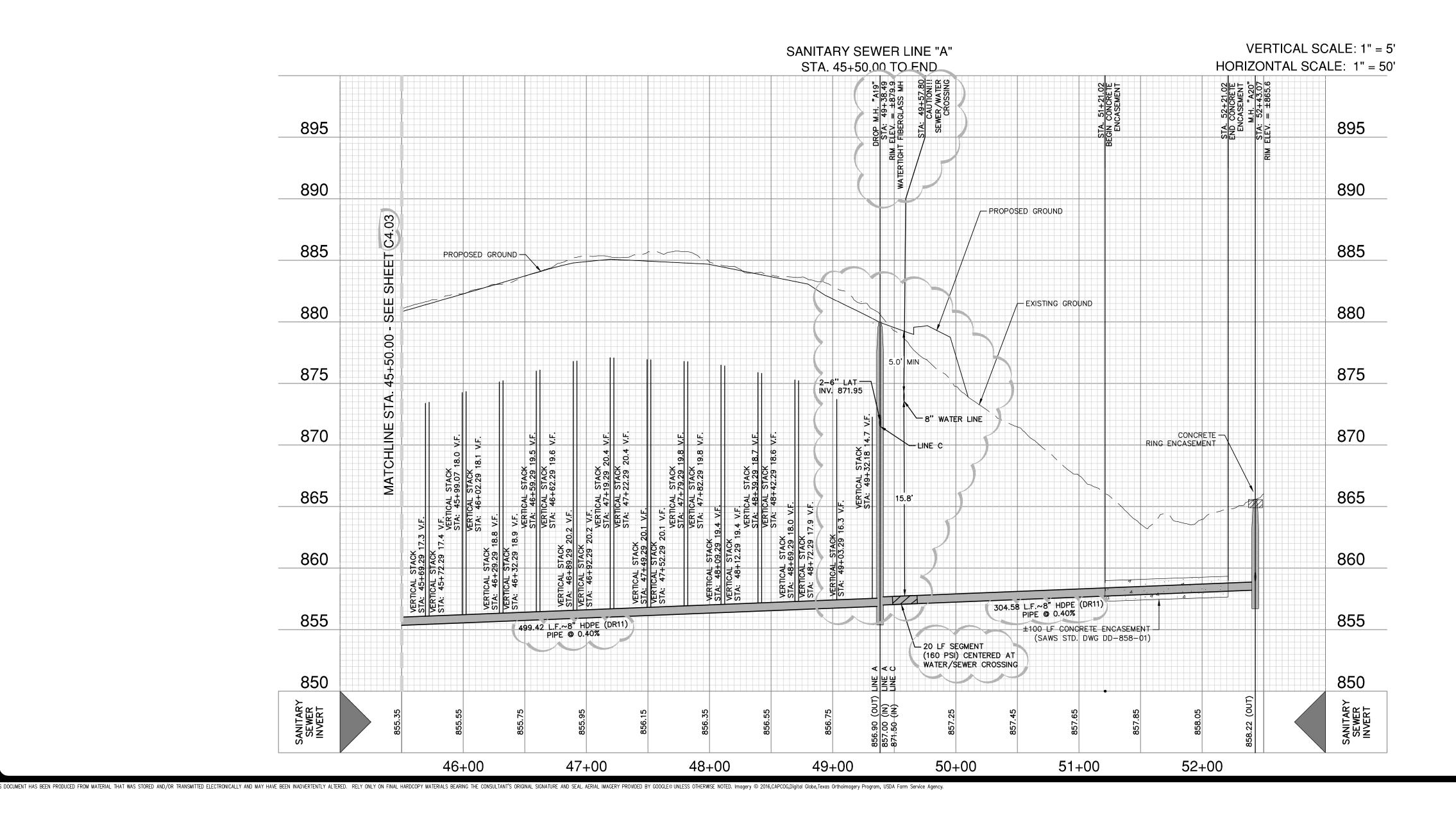




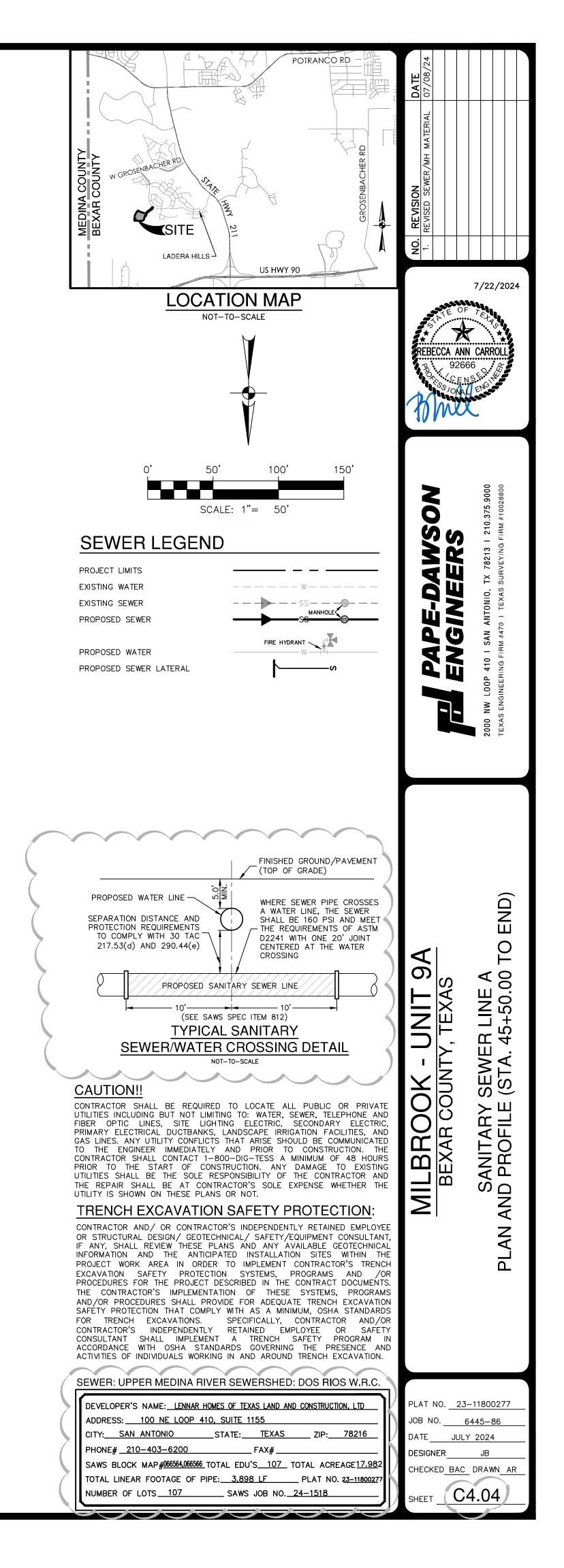


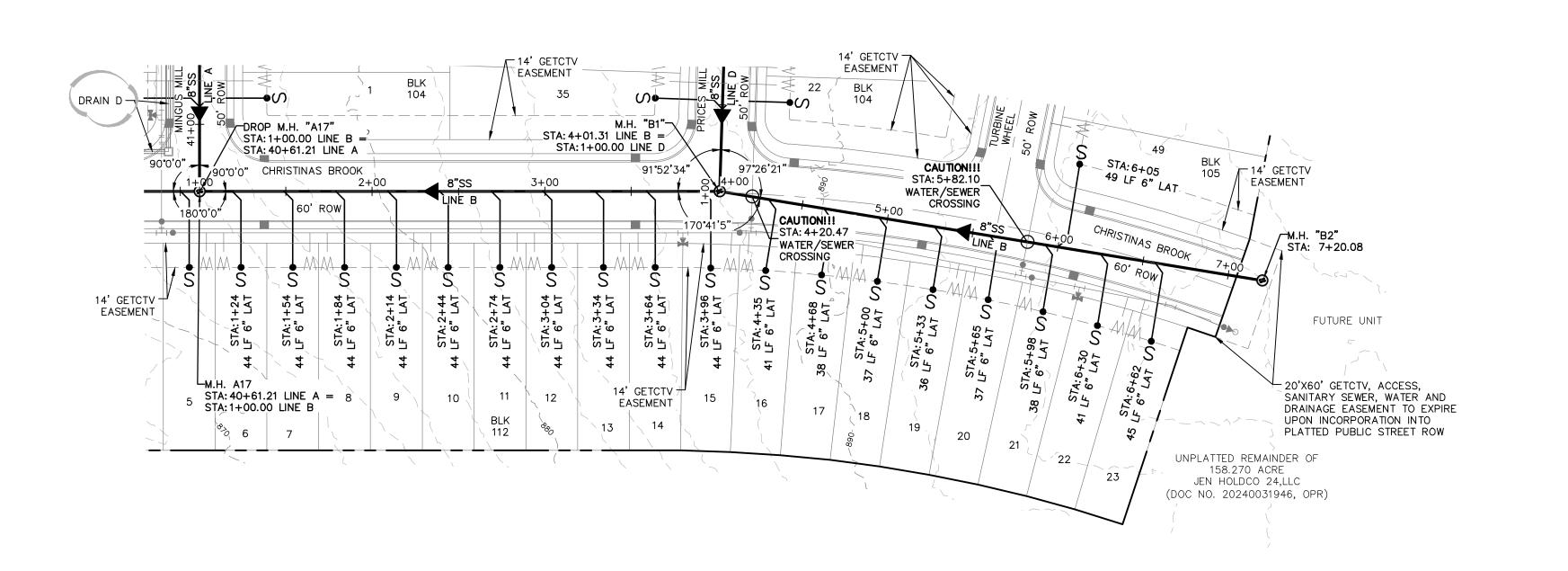
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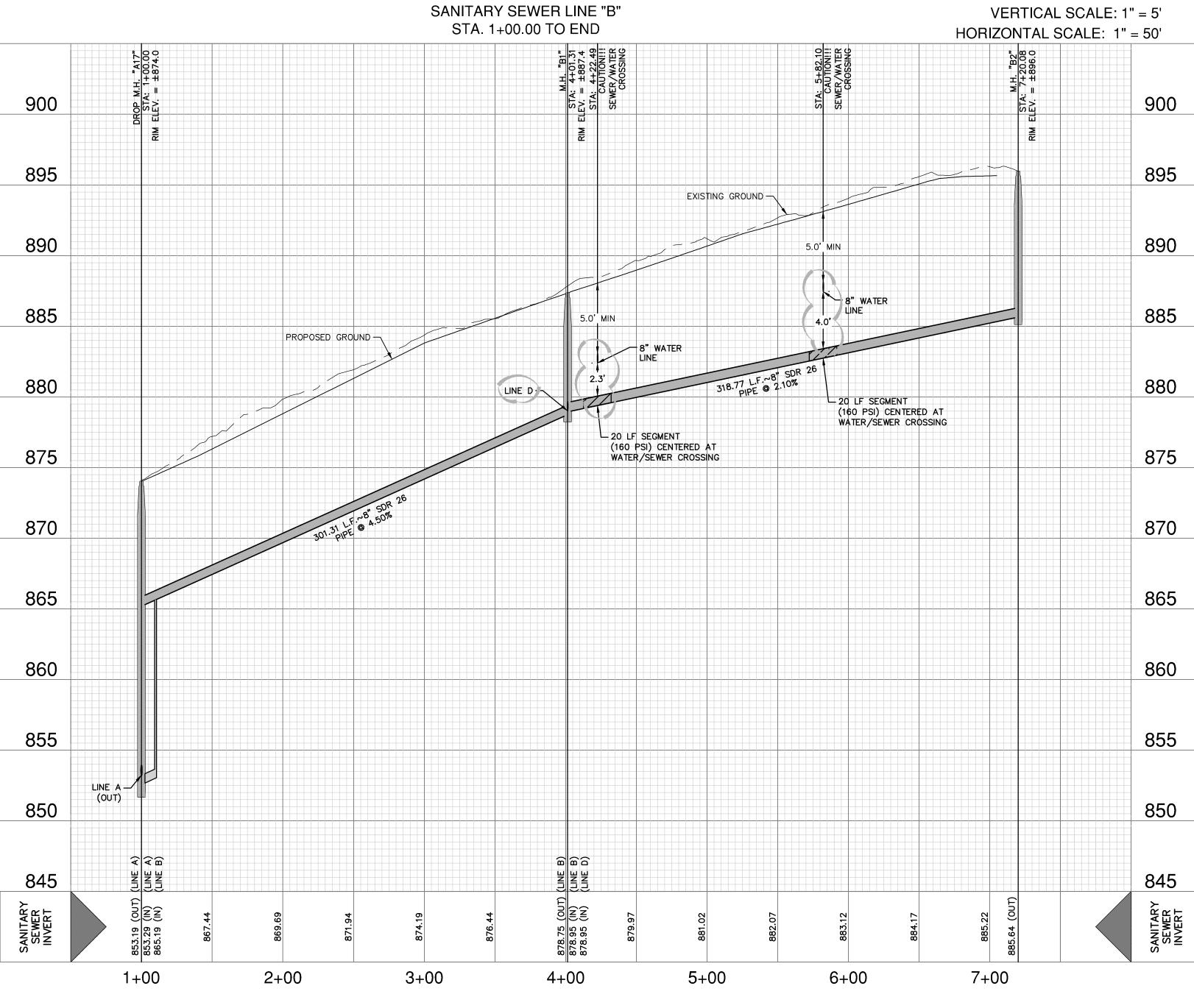




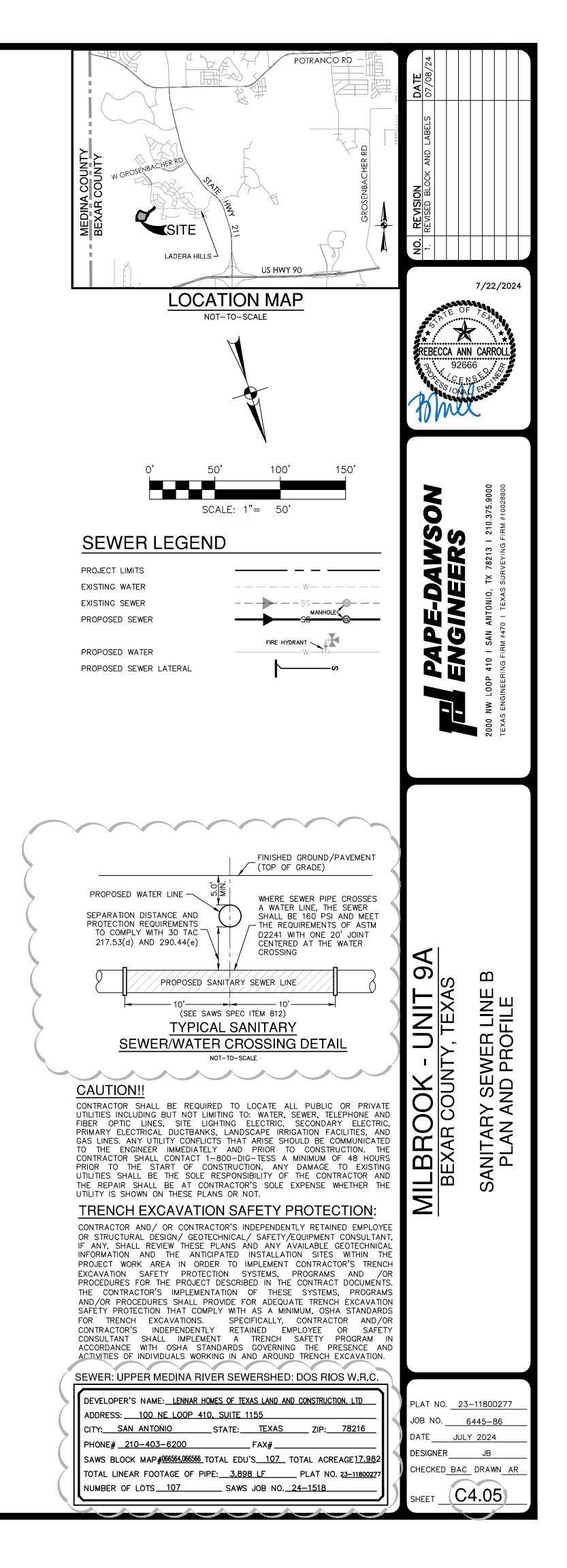
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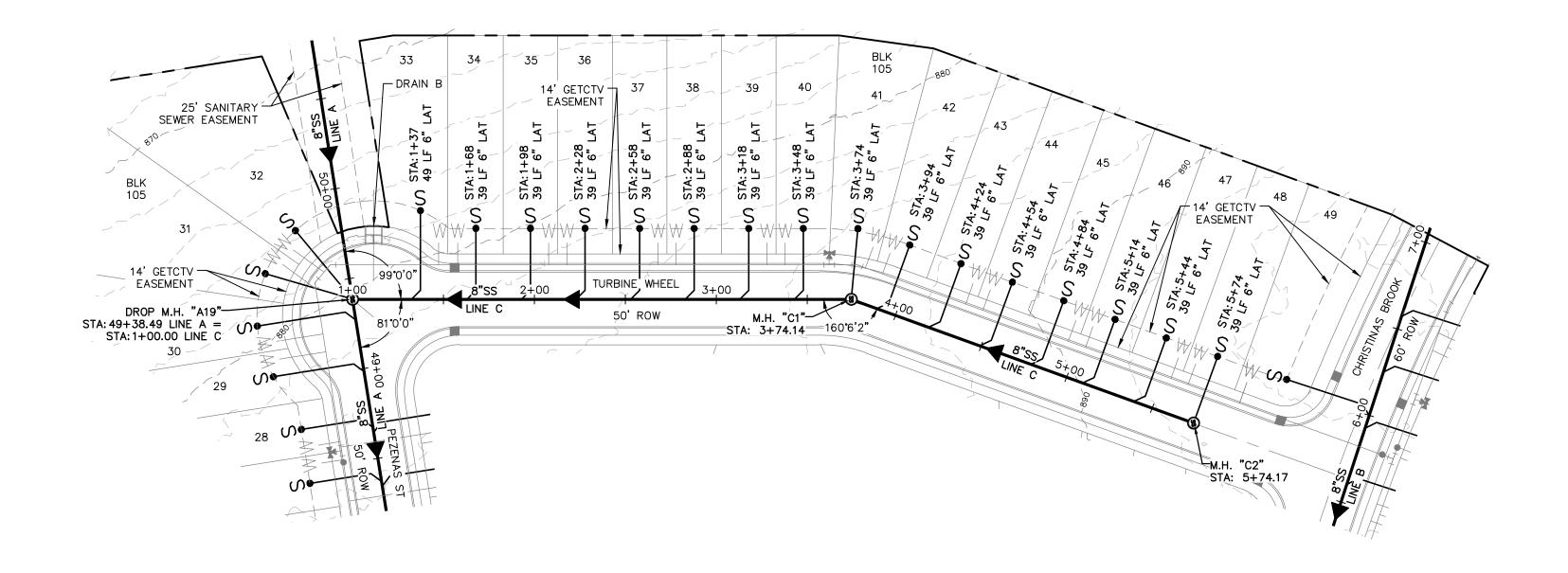


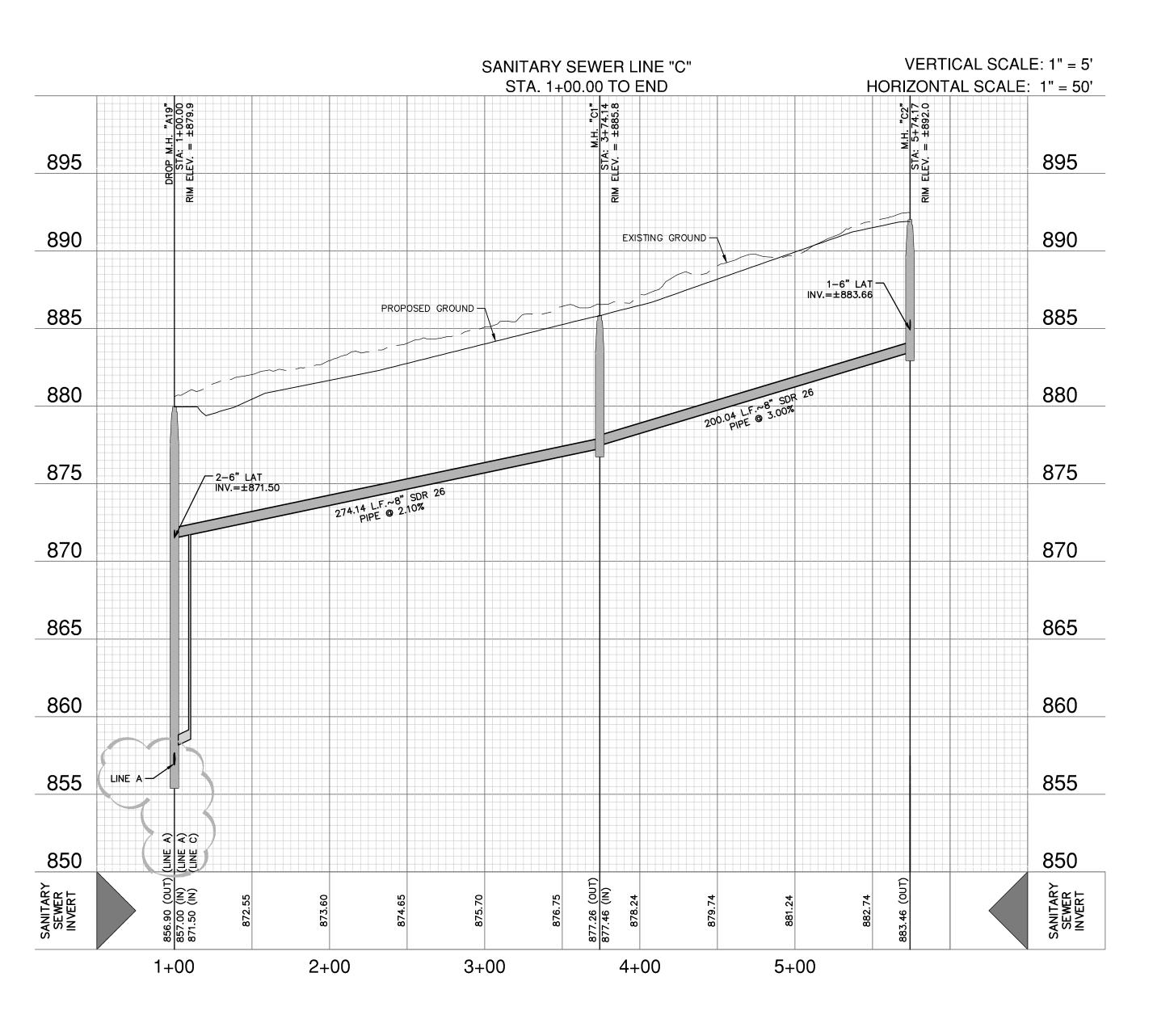


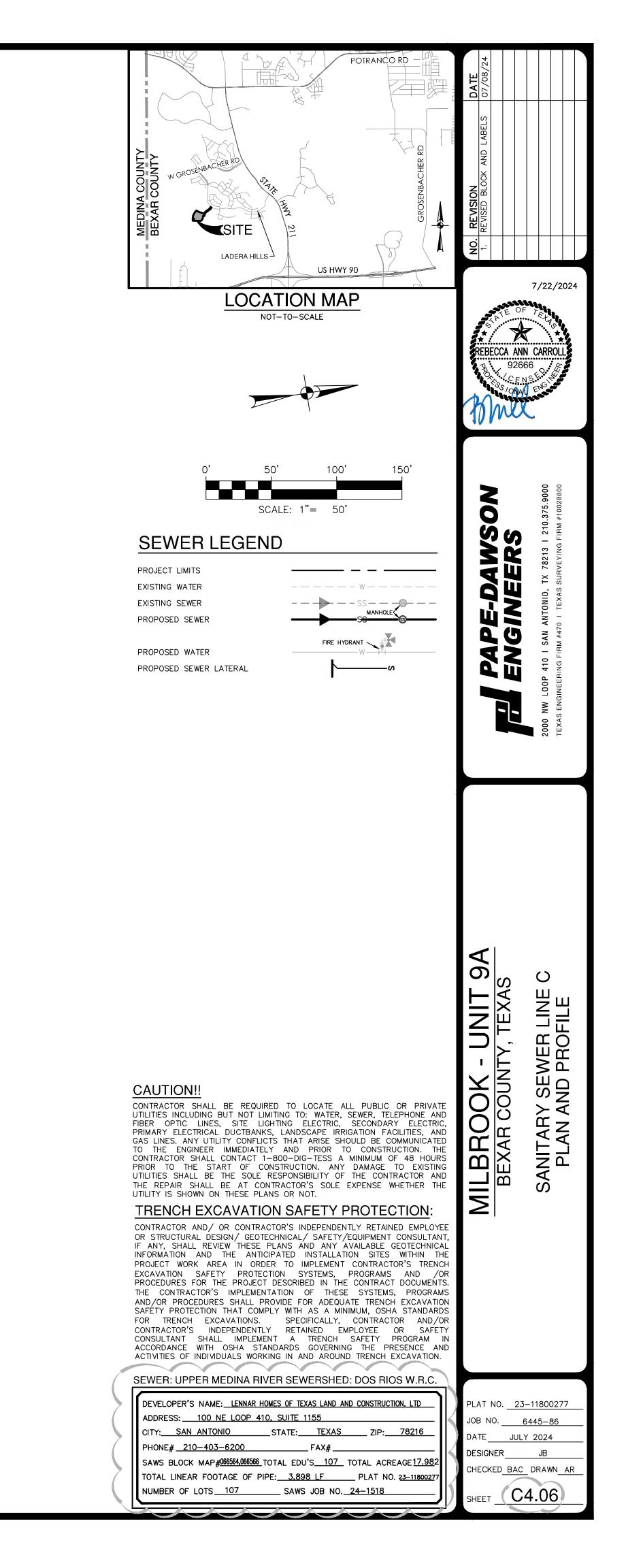


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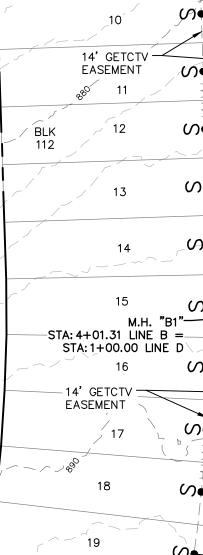


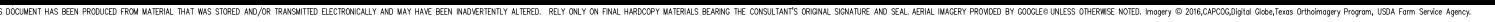


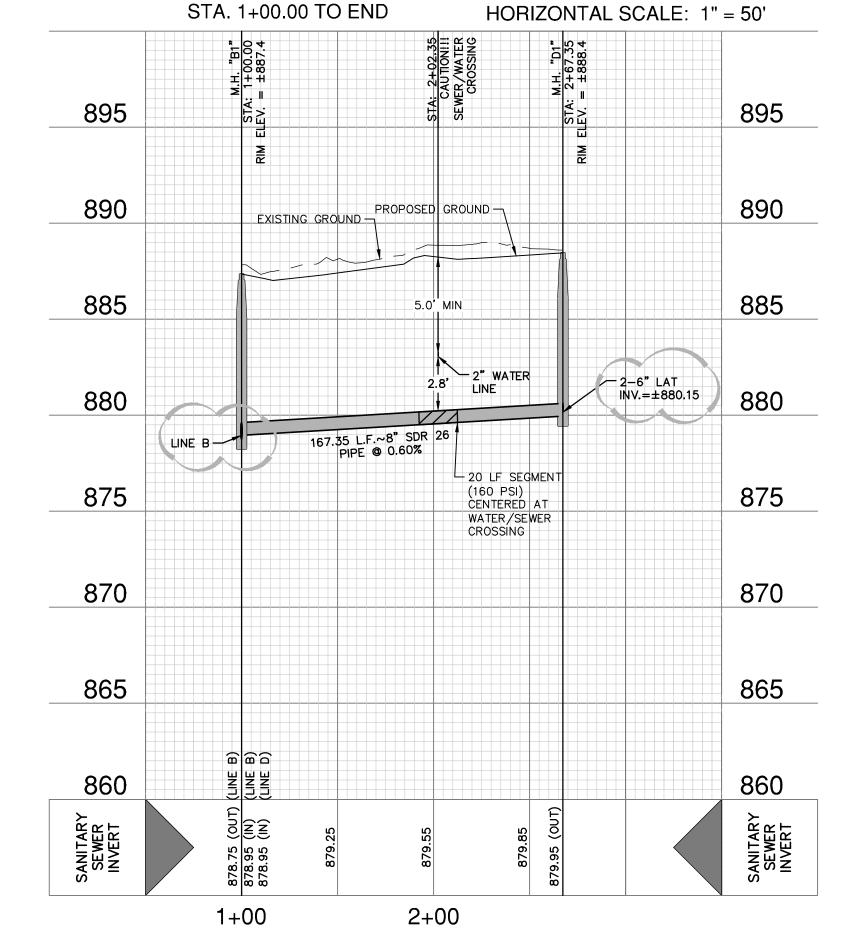




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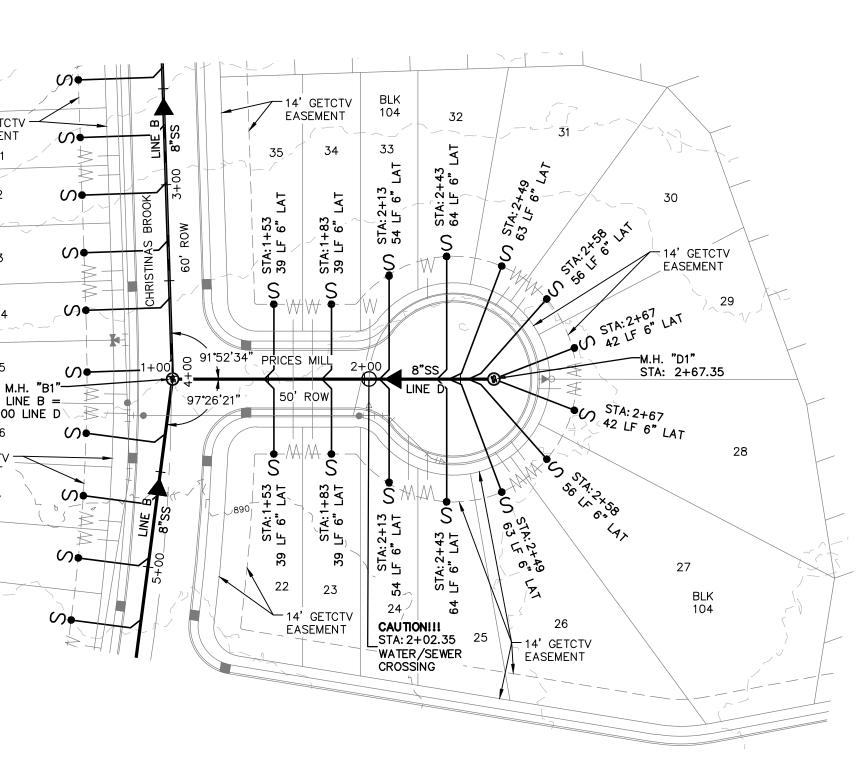


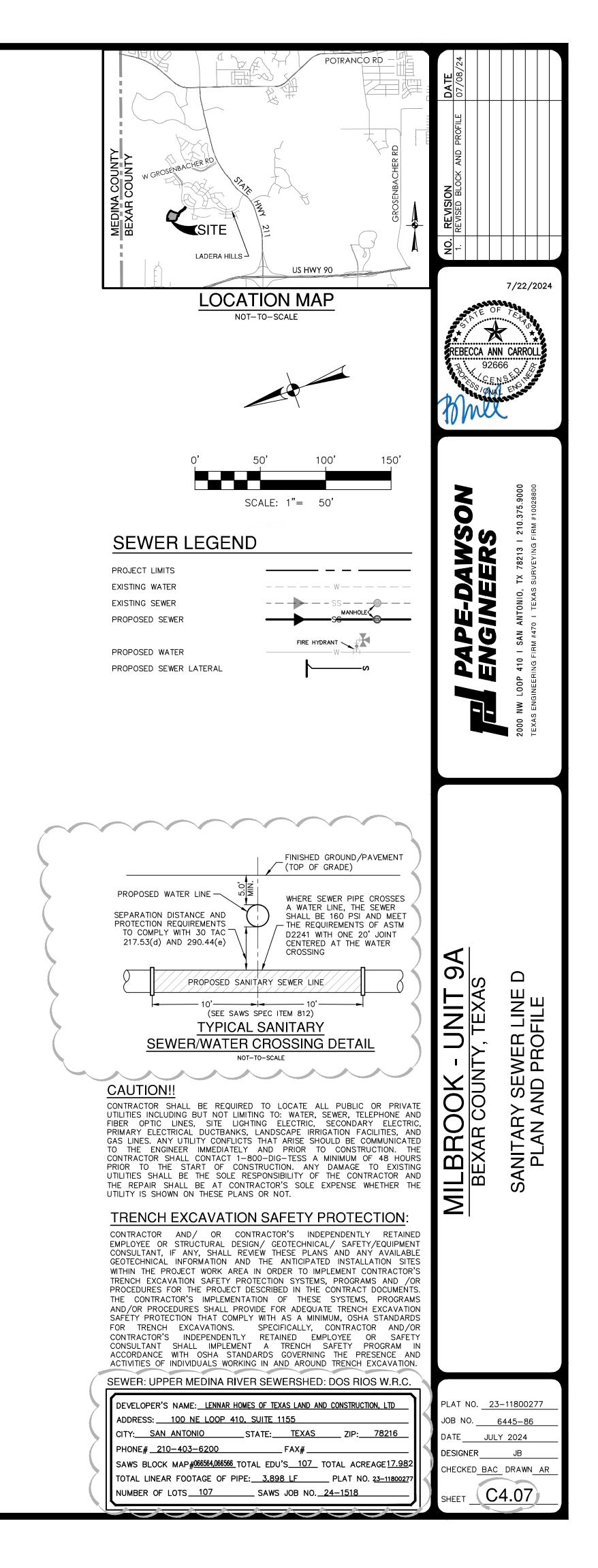


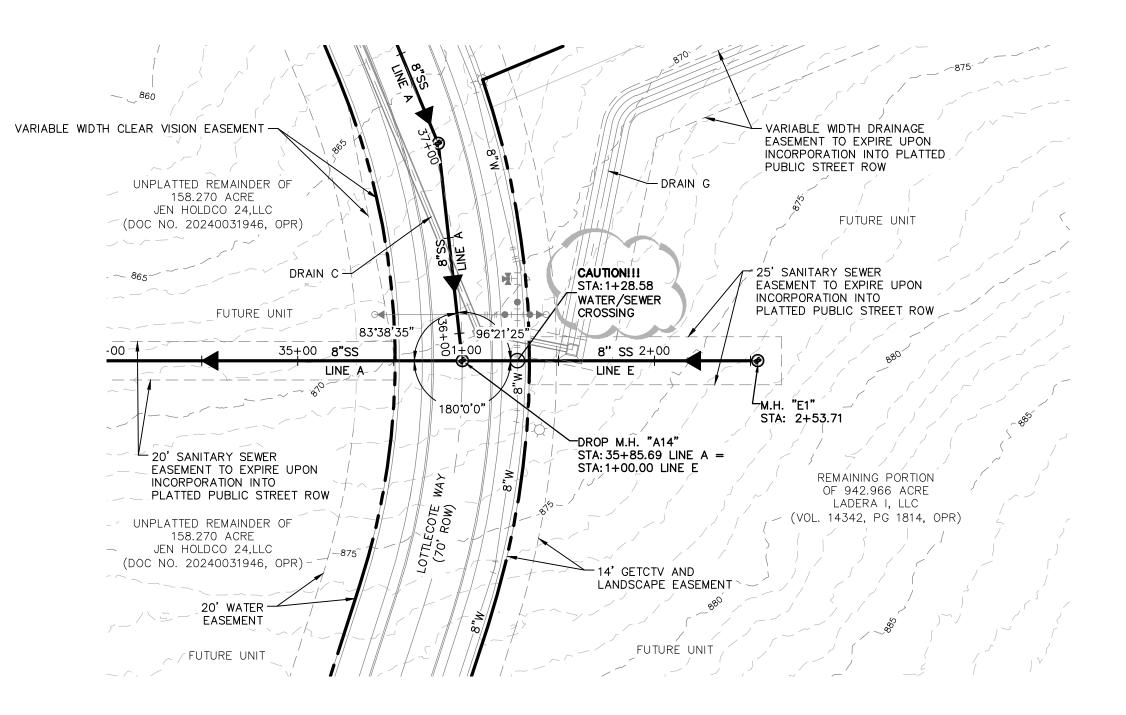


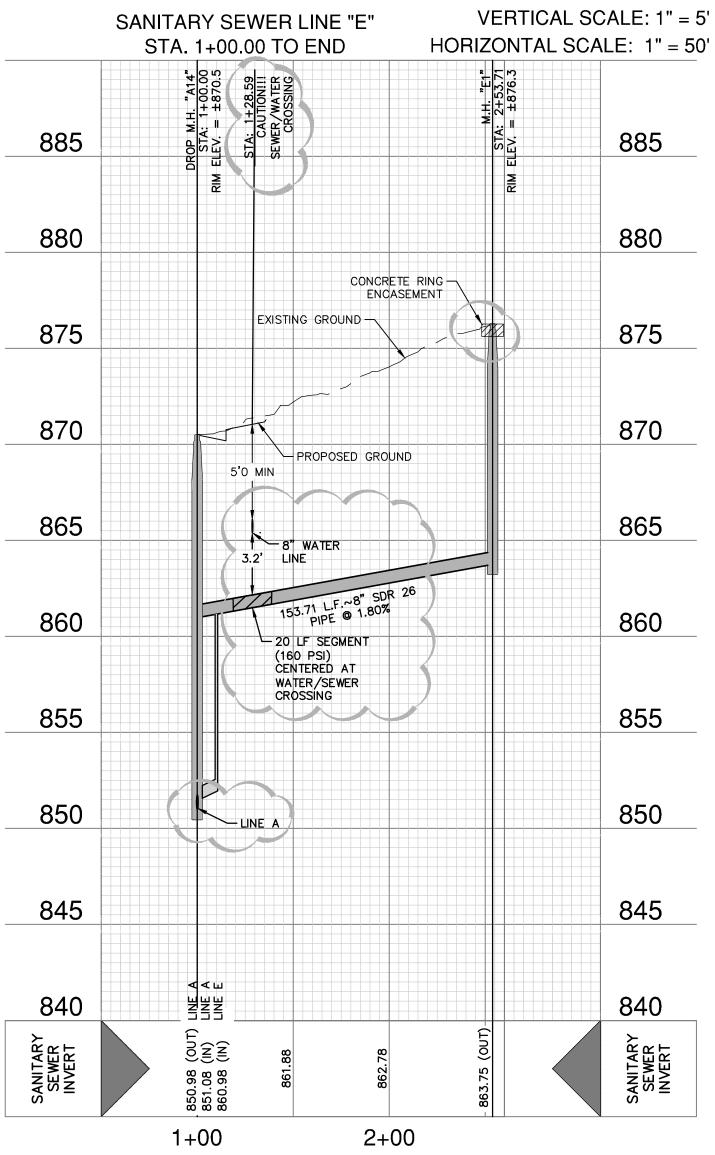
VERTICAL SCALE: 1" = 5'

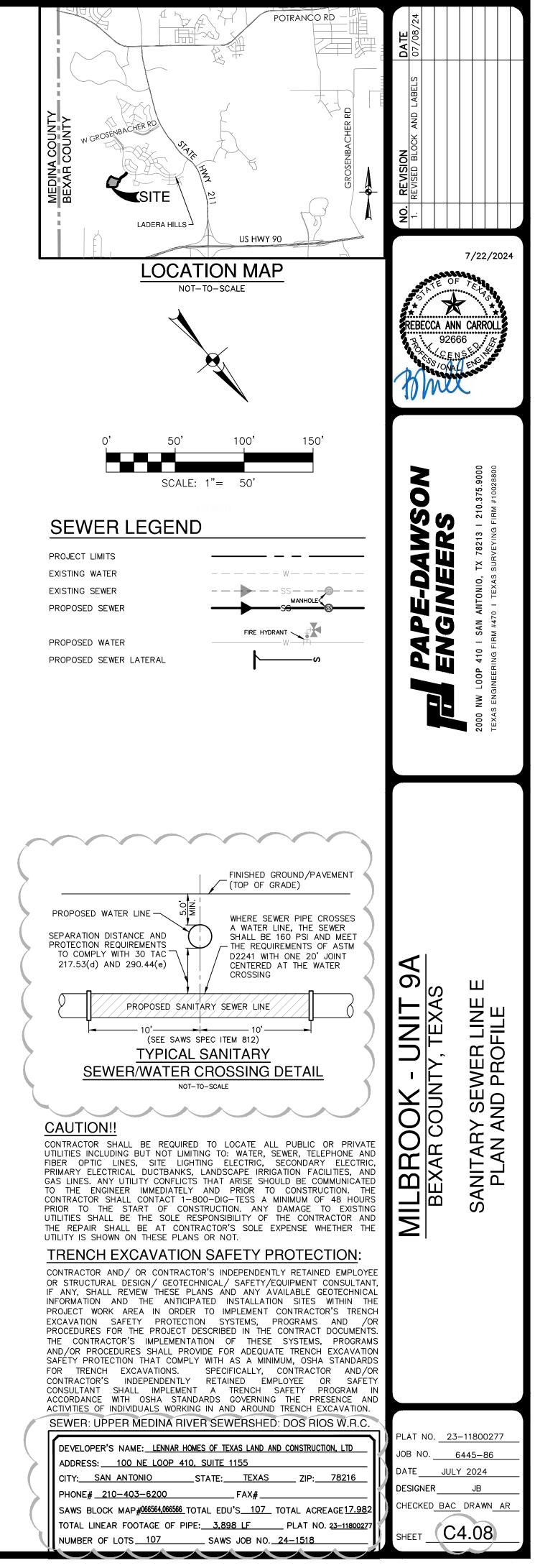
SANITARY SEWER LINE "D"













SAWS CONSTRUCTION NOTES (LAST REVISED JANUARY 2022)
SAWS GENERAL SECTION
<ol> <li>ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF TH CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AN COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH TH FOLLOWING AS APPLICABLE:</li> </ol>
<ul> <li>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.</li> <li>B. CURRENT TXDOT 'STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".</li> <li>C. CURRENT 'SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION".</li> <li>D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".</li> <li>E. CURRENT CITY OF SAN ANTONIO 'UTILITY EXCAVATION CRITERIA MANUAL" (UECM).</li> </ul>
2. THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNT THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENER/ CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED E SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND H/ ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WOR REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVE COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AN REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.
<ol> <li>THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAW WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWIS NOTED WITHIN THE DESIGN PLANS.</li> </ol>
4. THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.
5. LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN OF THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCAT UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THE DURING CONSTRUCTION AT NO COST TO SAWS.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIE AND DRAINAGE STRUCTURES AT LEAST 1-2 WEEKS PRIOR TO CONSTRUCTIO WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FO LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. TH FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:
<ul> <li>SAWS UTILITY LOCATES: HTTP: //WWW.SAWS.ORG/SERVICE/LOCATES</li> <li>COSA DRAINAGE (210) 207-0724 OR (210) 207-6026</li> <li>COSA TRAFFIC SIGNAL OPERATIONS (210) 206-8480</li> <li>COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951</li> <li>TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811</li> </ul>
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCE CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO I ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF TH PROJECT'S CONSTRUCTION.
8. ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEX/ COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTI
CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS. 9. THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHI GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
11. HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ( SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO
CONSTWORKREQ@SAWS.ORG. WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTIO CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WOR
REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.
APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION. 12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR
MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FO PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WI BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY TH SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOS LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTI AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED E PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION DIVISION.
Pavement Grade
48" Concentric Manhole Cone Flowable Fill (12" Min.) Opening as Specified At Drop Manhole Sewer
An Drop Maintole Sewer Snhall Come in Straight for Maintenance Concrete Encasement for Drop Manhole Only
Sanitary Sewer Line
Concrete Encasement Connection as Specified
Concrete Encasement
PROPERTY OF SAN ANTONIO WATER SYSTEM SAN ANTONIO, TEXAS     TYPICAL FIBERGLASS MANHOLE DETAIL     APPROVED AUG 2019     REVISED       DD-852-12     SHEET 1 OF

## **FION NOTES** (Y 2022)

OURES WITHIN THE SCOPE OF THIS ANTONIO WATER SYSTEM (SAWS) AND ENERAL CONDITIONS AND WITH THE

ANY PIPE INSTALLATION WORK UNTIL COUNTER PERMIT OR GENERAL ULTANT AND HAS BEEN NOTIFIED BY PROCEED WITH THE WORK AND HAS AND CONSULTANT FOR THE WORK ONTRACTOR WITHOUT AN APPROVED BE SUBJECT TO REMOVAL AND

ACTORS AND/OR THE DEVELOPER. STANDARD DETAILS FROM THE SAWS ENTER/SPECS. UNLESS OTHERWISE

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OCATION OF UNDERGROUND UTILITIES WEEKS PRIOR TO CONSTRUCTION ALLOW UP TO 7 BUSINESS DAYS FOR | KERS ON SAWS FACILITIES. THE ED FOR VERIFICATION PURPOSES:

FOR RESTORING EXISTING FENCES, IDSCAPING AND STRUCTURES TO ITS ARE MADE AS A RESULT OF THE

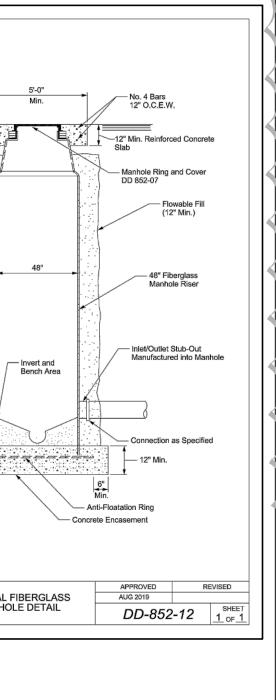
SPORTATION (TXDOT) AND/OR BEXAR IN ACCORDANCE WITH RESPECTIVE QUIREMENTS.

TY OF SAN ANTONIO OR OTHER WHEN EXCAVATING NEAR TREES. VASTE MATERIALS IN THE 100-YEAR PROVED FLOOD PLAIN PERMIT.

TO NOTIFY THE SAWS INSPECTION VANCE TO REQUEST WEEKEND WORK. @SAWS.ORG.

ACTOR SHALL BE RESPONSIBLE FOR ALL TRENCH BACKFILL AND FOR IRD PARTY. COMPACTION TESTS WILL SELECTED, OR AS INDICATED BY THE TRATOR, PER EACH 12-INCH LOOSE HIS PROJECT WILL NOT BE ACCEPTED REMENT BEING MET AND VERIFIED BY RESULTS.

FORWARDED TO SAWS CONSTRUCTION



## SAWS SEWER NOTES

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 SAWS EMERGENCY OPERATIONS CENTER (EOC) IMMEDIATELY AT (210) 233-2014. PROVIDE THE ADDRESS OF THE SPILL AND AN 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 SAWS DIRECTION) WITHIN 24 HOURS.

SHOULD THE CONTRACTOR FAIL TO ADDRESS AN SSO IMMEDIATELY AND TO SAWS SATISFACTION, THEY WILL BE RESPONSIBLE FOR ALL COSTS INCURRED BY SAWS, INCLUDING ANY FINES FROM EPA, TCEQ AND/OR ANY OTHER FEDERAL, STATE OR LOCAL AGENCIES.

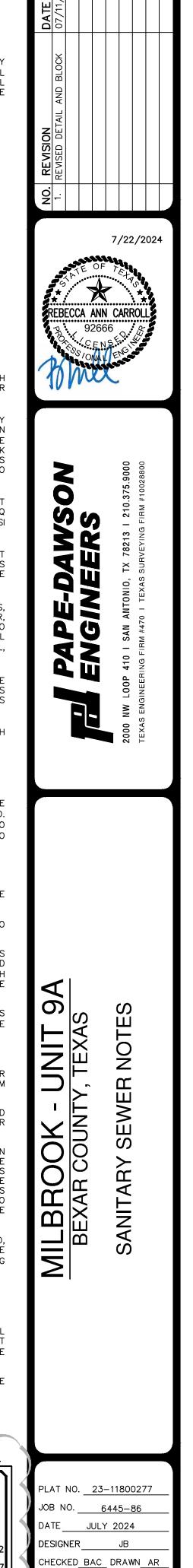
NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE FOR THIS WORK. ALL WORK SHALL BE DONE ACCORDING TO GUIDELINES SET BY THE TCEQ AND SAWS.

- IF BYPASS PUMPING IS REQUIRED. THE CONTRACTOR SHALL PERFORM SUCH WORK IN ACCORDANCE WITH SAWS STANDARD SPECIFICATION FOR WATER AND SANITARY SEWER CONSTRUCTION, ITEM NO. 864, "BYPASS PUMPING".
- PRIOR TO TIE-INS, ANY SHUTDOWNS OF EXISTING FORCE MAINS OF ANY SIZE MUST BE COORDINATED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT (210) 233-2973 AT LEAST ONE WEEK 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 SAWS OR THE PROJECT AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SEQUENCE THE WORK ACCORDINGLY.
- SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 PSI AND MEET THE REQUIREMENTS OF ASTM D2241, TAC 217.53 AND TCEQ 290.44(E)(4)(B). CONTRACTOR SHALL CENTER A 20' JOINT OF 160 PSI PRESSURE RATED PVC AT THE PROPOSED WATER CROSSING.
- ELEVATIONS POSTED FOR TOP OF MANHOLES ARE FOR REFERENCE ONLY: IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE ALLOWANCES AND ADJUSTMENTS FOR TOP OF MANHOLES TO MATCH THE FINISHED GRADE OF THE PROJECT'S IMPROVEMENTS. (NSPI)
- 6. SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER: ALL SPILLS, OVERFLOWS, OR DISCHARGES OF WASTEWATER, RECYCLED WATER, PETROLEUM PRODUCTS, OR CHEMICALS MUST BE REPORTED IMMEDIATELY TO THE SAWS INSPECTOR ASSIGNED TO THE COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP). THIS REQUIREMENT APPLIES TO EVERY SPILL, OVERFLOW, OR DISCHARGE RÉGARDLESS OF SIZE.
- MANHOLE AND ALL PIPE TESTING (INCLUDING THE TV INSPECTION) MUST BE PERFORMED AND PASSED PRIOR TO FINAL FIELD ACCEPTANCE BY SAWS CONSTRUCTION INSPECTION DIVISION, AS PER THE SAWS SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION.
- ALL PVC PIPE OVER 14 FEET OF COVER SHALL BE EXTRA STRENGTH WITH MINIMUM PIPE STIFFNESS OF 115 PSI.

## LOWED TO PERFORM SAWS WORK ON | PROJECT SEWER NOTES

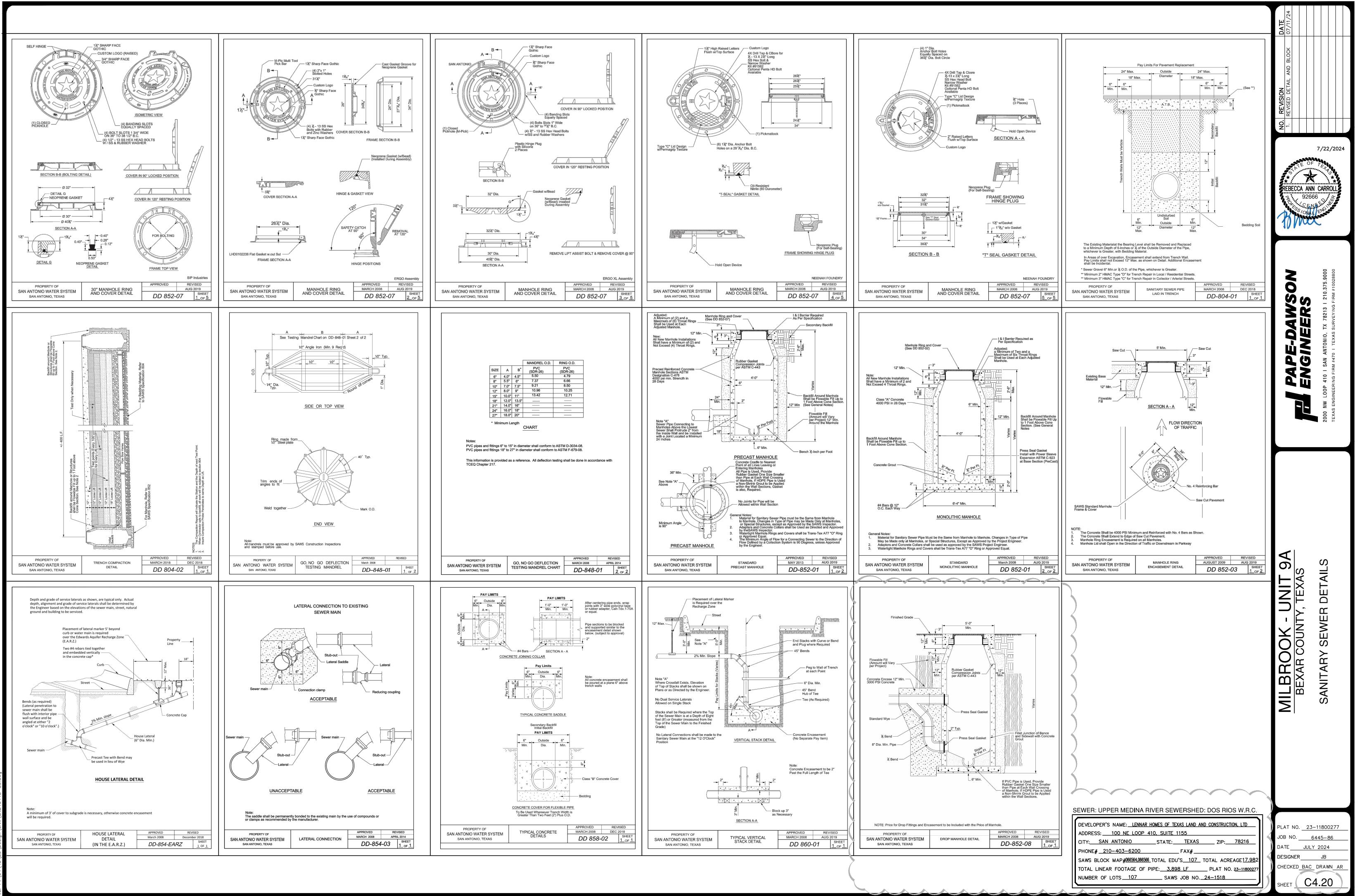
- ALL RESIDENTIAL SEWER SERVICE LATERALS ARE 6" DIA. AND SHALL BE EXTENDED TO 10' PAST THE PROPERTY LINE AND CAPPED AND SEALED. CONTRACTOR SHALL INSTALL A 2" X 4" STAKE, FOUR (4) FEET LONG, TWO (2) FEET DEEP INTO THE GROUND AT THE END OF EACH SERVICE. NO SEPARATE PAY ITEM.
- CONTRACTOR TO INSTALL CLEANOUTS AT THE END OF ALL SEWER LATERALS, PER LATERAL DETAIL SHEET C4.20
- NO VERTICAL STACKS ALLOWED FOR ANY LOTS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
- ALL 6" SEWER LATERALS WILL BE SET AT 2% GRADE FROM THE MAIN TO THE PROPERTY LINE.
- WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FOOT OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 150 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH SAWS CONSTRUCTION CRITERIA FOR CONSTRUCTION OF SEWER MAINS IN THE VICINITY OF WATER MAINS.
- 6. CONTRACTOR SHALL ENSURE THAT MANHOLES OUTSIDE OF PAVED AREAS ARE SET WITH TOP ELEVATIONS 6" ABOVE FINISHED GRADE WITH CONCRETE RING ENCASEMENT.
- ALL SEWER PIPES SHALL BE 8" PVC (SDR 26), UNLESS OTHERWISE NOTED. . CONTRACTOR IS TO VERIFY EXISTING INVERT OF EXISTING SANITARY SEWER
- MAINS AND ALERT ENGINEER IMMEDIATELY OF ANY DIFFERENCE FROM INVERT SHOWN ON PLANS.
- CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. ANY FENCE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
- 10. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
- CONCRETE RING ENCASEMENT TO BE INSTALLED ON ALL MANHOLES AND, WITHIN LIMITS OF PAVEMENT, BE INSTALLED TO THE TOP OF THE BASE LAYER WITH A MINIMUM OF 2" OF ASPHALT ON TOP OF THE RING ENCASEMENT.
- 12. MANHOLE OPENING INCREASED TO 30" AS PER TAC CHAPTER 217.55.
- 13. ALL SEWER PIPE LATERALS SHALL BE SDR 26 (CLASS 160) PVC PIPE.
- 14. IF THE GIVEN TOP OF MANHOLE ELEVATION DOES NOT AGREE ON ACTUAL GROUND SURFACE OR FINISH PAVEMENT, THE CONTRACTOR SHALL ADJUST ELEVATIONS SUCH THAT THE TOP OF MANHOLE SHALL BE 0.5' ABOVE EXISTING GROUND, OR FLUSH TO FINISH ASPHALT PAVEMENT.
- 15. ALL MANHOLES CONSTRUCTED OVER THE EDWARDS AQUIFER RECHARGE ZONE SHOULD BE WATERTIGHT.

*			-			· · ·
SEWER: UPF	PER MEDIN	A RIVER	SEWE	ERSHED	: DOS RIO	OS W.R.C
1						
DEVELOPER'S	NAME: LEN	NAR HOMES	OF TEXA	s land ani	D CONSTRUC	TION, LTD
ADDRESS:	100 NE LOC	)P 410, S	UITE 11	55		
CITY: <u>SAN</u>	ANTONIO	ST	ATE:	TEXAS	ZIP:	78216
PHONE#	0-403-6200			FAX#		
SAWS BLOCK	MAP# <u>066564,0</u>	<u>66566_</u> TOTA	L EDU'S	с <u>.</u> 1 <u>07</u> т	TOTAL ACR	EAGE17.98
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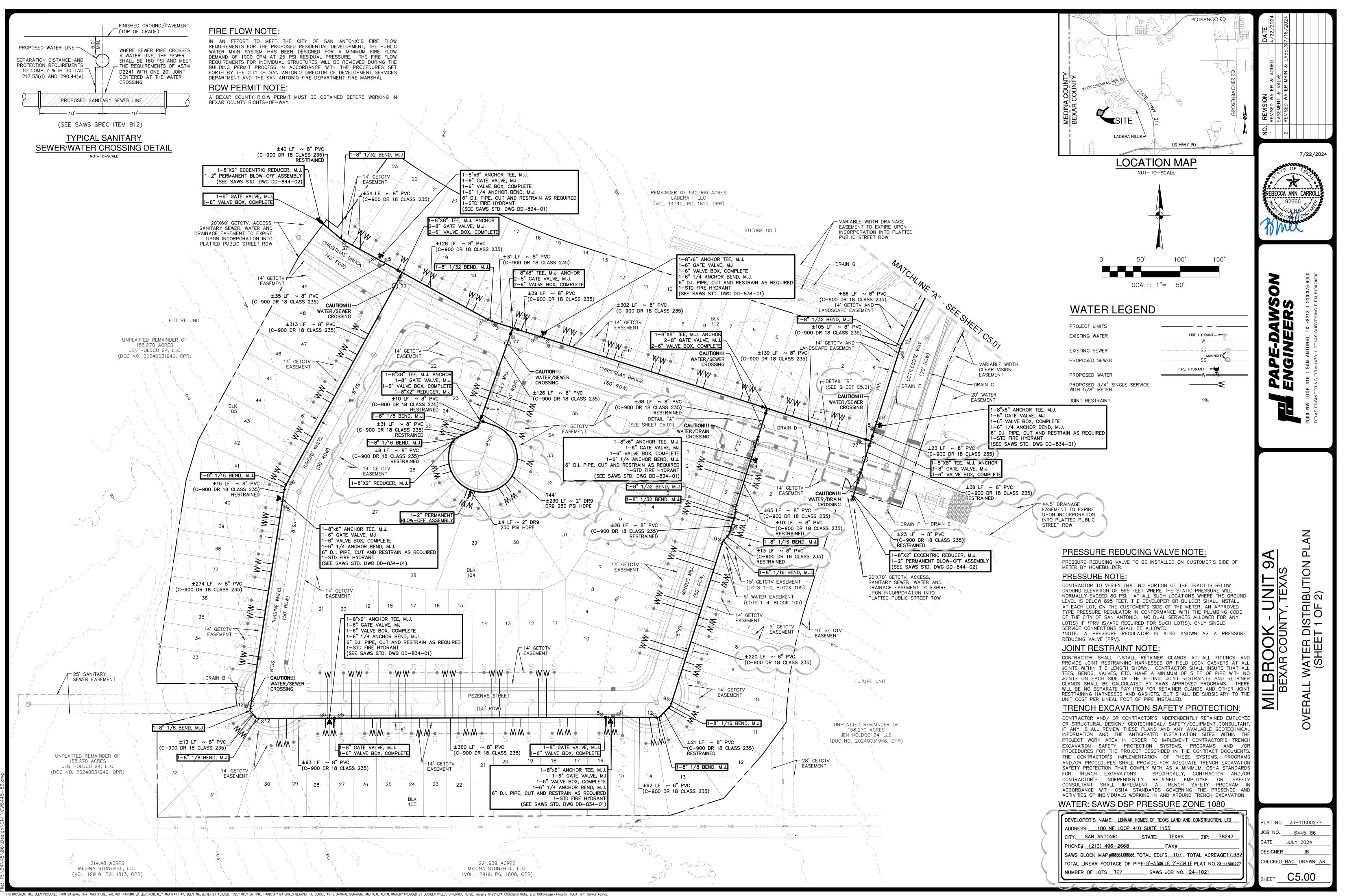


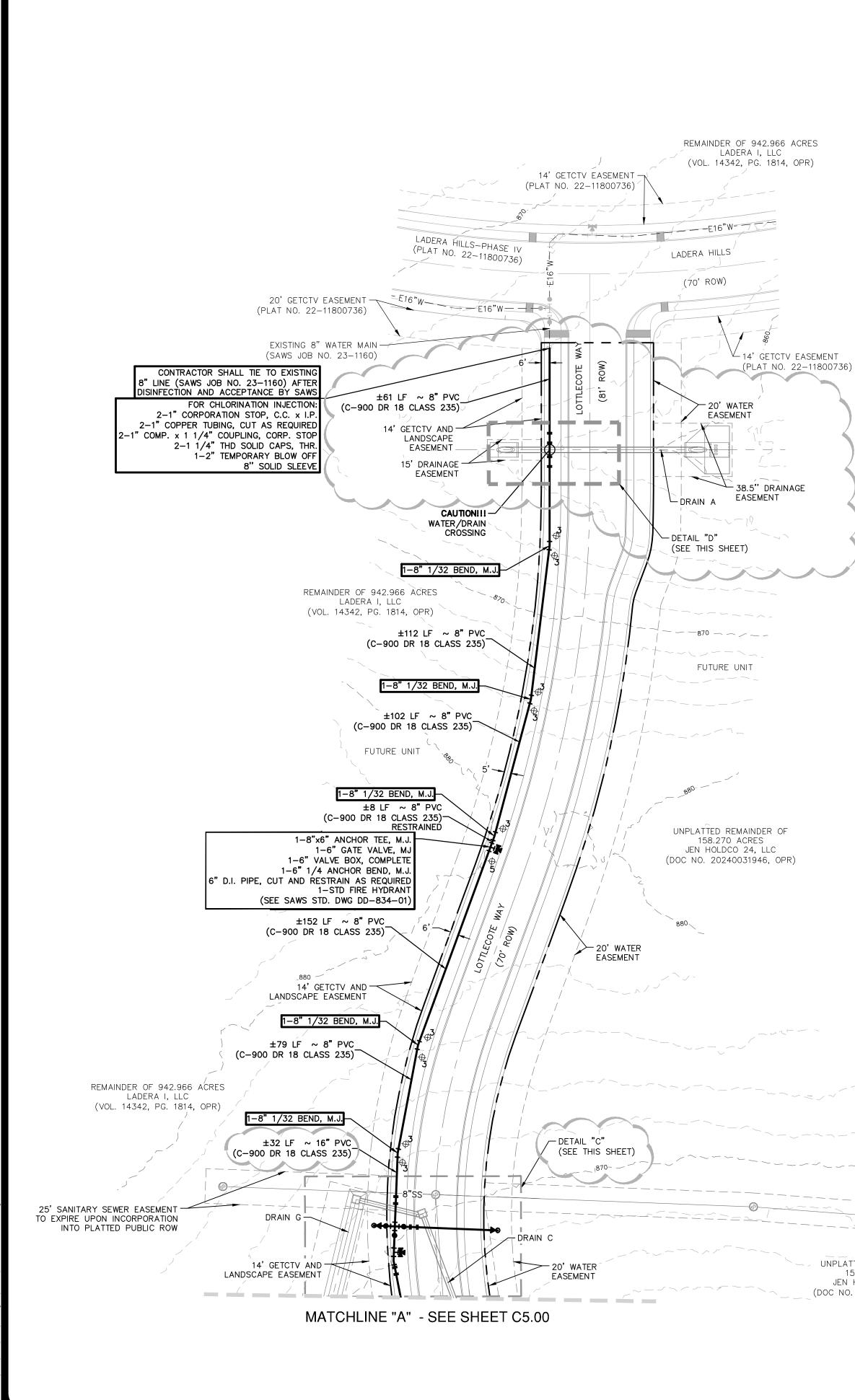
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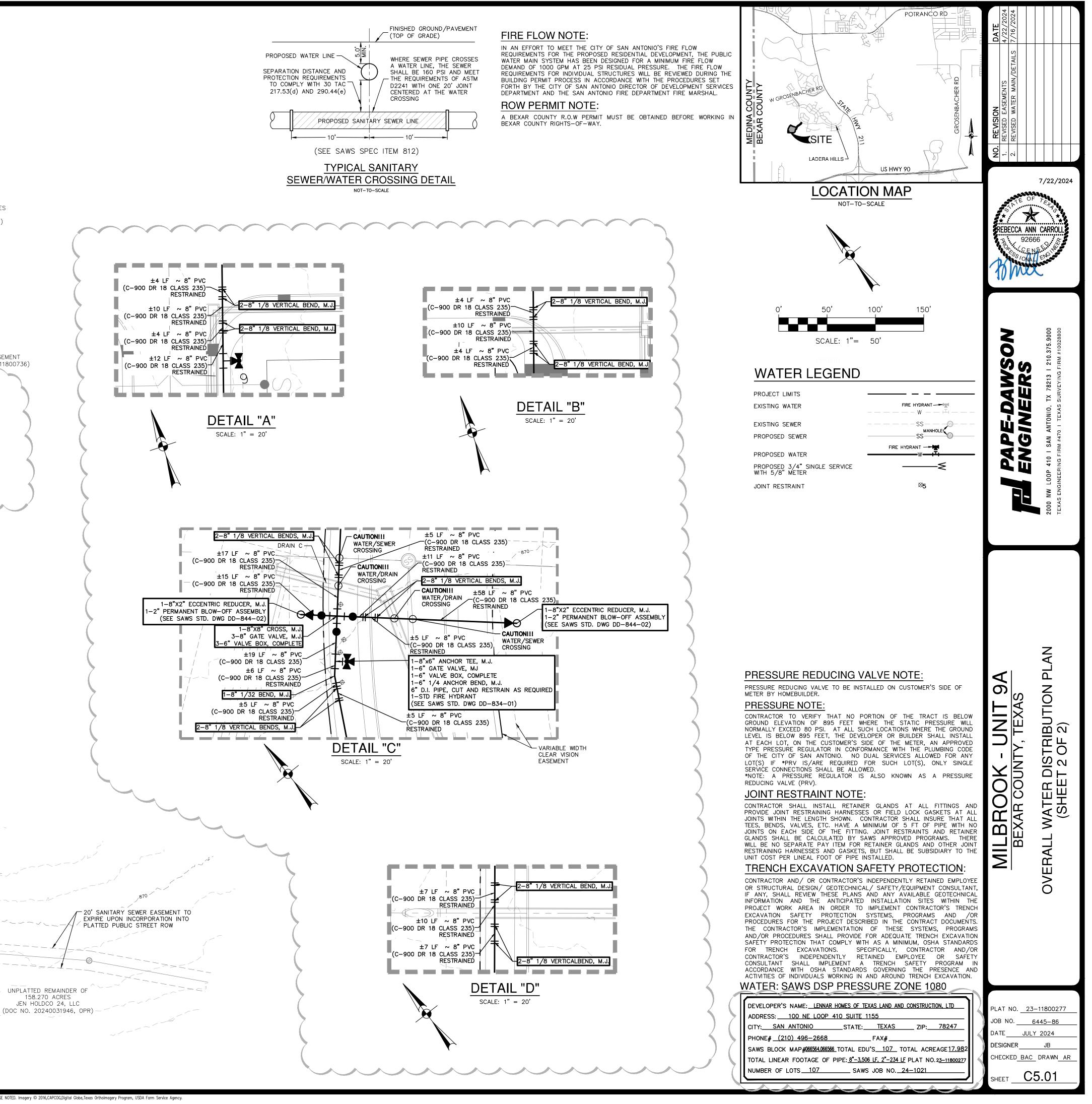
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# SAWS CONSTRUCTION NOTES

	(LAST REVISED JANUARY 2022)		
<u>S</u> ,	AWS GENERAL SECTION	<u>S/</u>	AWS WATE
1.	ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS CONTRACT SHALL BE APPROVED BY THE SAN ANTONIO WATER SYSTEM (SAWS) AND COMPLY WITH THE PLANS, SPECIFICATIONS, GENERAL CONDITIONS AND WITH THE FOLLOWING AS APPLICABLE:	1.	PRIOR TO TIE-I BE COORDINATE LEAST ONE WEE ALSO PROVIDE AT NO ADDITI(
	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		RESPONSIBILITY ACCORDINGLY.
	WATER", TAC TITLE 30 PART 1 CHAPTER 290. B.CURRENT TXDOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND DRAINAGE".		<ul> <li>FOR WATER CENTER (21</li> </ul>
	C. CURRENT "SAN ANTONIO WATER SYSTEM STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER CONSTRUCTION". D. CURRENT CITY OF SAN ANTONIO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".	2.	ASBESTOS CEM KNOWN TO CO LOCATED WITH PROCEDURES AI
•	E. CURRENT CITY OF SAN ANTONIO "UTILITY EXCAVATION CRITERIA MANUAL" (UECM).		WHEN REMOVAL IS TO BE MAD SPECIFICATION F
2.	THE CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE APPROVED COUNTER PERMIT OR GENERAL CONSTRUCTION PERMIT (GCP) FROM THE CONSULTANT AND HAS BEEN NOTIFIED BY SAWS CONSTRUCTION INSPECTION DIVISION TO PROCEED WITH THE WORK AND HAS ARRANGED A MEETING WITH THE INSPECTOR AND CONSULTANT FOR THE WORK REQUIREMENTS. WORK COMPLETED BY THE CONTRACTOR WITHOUT AN APPROVED	3.	VALVE REMOVAL THE CONTROL REMOVED AND F
	COUNTER PERMIT AND/OR A GCP WILL BE SUBJECT TO REMOVAL AND REPLACEMENT AT THE EXPENSE OF THE CONTRACTORS AND/OR THE DEVELOPER.	4.	PROVIDED AT A
3.	THE CONTRACTOR SHALL OBTAIN THE SAWS STANDARD DETAILS FROM THE SAWS WEBSITE, HTTP://WWW.SAWS.ORG/BUSINESS_CENTER/SPECS. UNLESS OTHERWISE NOTED WITHIN THE DESIGN PLANS.		CAPS, TEES, C STANDARD DRA STANDARD SPEC
4.	THE CONTRACTOR IS TO MAKE ARRANGEMENTS WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT		ALL VALVES SH
	(210) 233-2973, ON NOTIFICATION PROCEDURES THAT WILL BE USED TO NOTIFY AFFECTED HOME RESIDENTS AND/OR PROPERTY OWNERS 48 HOURS PRIOR TO BEGINNING ANY WORK.	6.	PRVS REQUIRED IS BELOW GROU WILL NORMALLY GROUND LEVEL
5.	LOCATION AND DEPTH OF EXISTING UTILITIES AND SERVICE LATERALS SHOWN ON THE PLANS ARE UNDERSTOOD TO BE APPROXIMATE. ACTUAL LOCATIONS AND DEPTHS MUST BE FIELD VERIFIED BY THE CONTRACTOR AT LEAST 1 WEEK PRIOR TO CONSTRUCTION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION AND TO PROTECT THEM DURING CONSTRUCTION AT NO COST TO SAWS.		INSTALL AT EA APPROVED TYP PLUMBING CODI ALLOWED FOR ONLY SINGLE PRESSURE REGI (PRV).
6.	THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF UNDERGROUND UTILITIES AND DRAINAGE STRUCTURES AT LEAST 1–2 WEEKS PRIOR TO CONSTRUCTION WHETHER SHOWN ON PLANS OR NOT. PLEASE ALLOW UP TO 7 BUSINESS DAYS FOR LOCATES REQUESTING PIPE LOCATION MARKERS ON SAWS FACILITIES. THE FOLLOWING CONTACT INFORMATION ARE SUPPLIED FOR VERIFICATION PURPOSES:	7.	PIPE DISINFECTI FEET. (ITEM WHERE SHOWN INSPECTOR, ANI METHOD OF DIS
	<ul> <li>SAWS UTILITY LOCATES: HTTP: //WWW.SAWS.ORG/SERVICE/LOCATES</li> <li>COSA DRAINAGE (210) 207–0724 OR (210) 207–6026</li> <li>COSA TRAFFIC SIGNAL OPERATIONS (210) 206–8480</li> </ul>		CONTRACTOR S PROTECT HIS PI

- COSA TRAFFIC SIGNAL DAMAGES (210) 207-3951 TEXAS STATE WIDE ONE CALL LOCATOR 1-800-545-6005 OR 811
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING EXISTING FENCES. CURBS, STREETS, DRIVEWAYS, SIDEWALKS, LANDSCAPING AND STRUCTURES TO ITS ORIGINAL OR BETTER CONDITION IF DAMAGES ARE MADE AS A RESULT OF THE PROJECT'S CONSTRUCTION.
- . ALL WORK IN TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) AND/OR BEXAR COUNTY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH RESPECTIVE CONSTRUCTION SPECIFICATIONS AND PERMIT REQUIREMENTS.
- . THE CONTRACTOR SHALL COMPLY WITH CITY OF SAN ANTONIO OR OTHER GOVERNING MUNICIPALITY'S TREE ORDINANCES WHEN EXCAVATING NEAR TREES.
- 10. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN PERMIT.
- HOLIDAY WORK: CONTRACTORS WILL NOT BE ALLOWED TO PERFORM SAWS WORK ON SAWS RECOGNIZED HOLIDAYS. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

WEEKEND WORK: CONTRACTORS ARE REQUIRED TO NOTIFY THE SAWS INSPECTION CONSTRUCTION DEPARTMENT 48 HOURS IN ADVANCE TO REQUEST WEEKEND WORK. REQUEST SHOULD BE SENT TO CONSTWORKREQ@SAWS.ORG.

ANY AND ALL SAWS UTILITY WORK INSTALLED WITHOUT HOLIDAY/WEEKEND APPROVAL WILL BE SUBJECT TO BE UNCOVERED FOR PROPER INSPECTION.

- 12. COMPACTION NOTE (ITEM 804): THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING THE COMPACTION REQUIREMENTS ON ALL TRENCH BACKFILL AND FOR PAYING FOR THE TESTS PERFORMED BY A THIRD PARTY. COMPACTION TESTS WILL BE DONE AT ONE LOCATION POINT RANDOMLY SELECTED, OR AS INDICATED BY THE SAWS INSPECTOR AND/OR THE TEST ADMINISTRATOR, PER EACH 12-INCH LOOSE LIFT PER 400 LINEAR FEET AT A MINIMUM. THIS PROJECT WILL NOT BE ACCEPTED AND FINALIZED BY SAWS WITHOUT THIS REQUIREMENT BEING MET AND VERIFIED BY PROVIDING ALL NECESSARY DOCUMENTED TEST RESULTS.
- 13. A COPY OF ALL TESTING REPORTS SHALL BE FORWARDED TO SAWS CONSTRUCTION INSPECTION DIVISION.

## ER NOTES

- 10) 233-2014
- MENT (AC) PIPE, ALSO KNOWN AS TRANSITE PIPE WHICH IS | ONTAIN ASBESTOS- CONTAINING MATERIAL (ACM), MAY BE IN THE PROJECT LIMITS. SPECIAL WASTE MANAGEMENT ND HEALTH AND SAFETY REQUIREMENTS WILL BE APPLICABLE AND/OR DISTURBANCE OF THIS PIPE OCCURS. SUCH WORK DE UNDER SPECIAL SPECIFICATION ITEM NO. 3000, "SPECIAL FOR HANDLING ASBESTOS CEMENT PIPE".
- L: WHERE THE CONTRACTOR IS TO ABANDON A WATER MAIN, VALVE LOCATED ON THE ABANDONING BRANCH WILL BE REPLACED WITH A CAP/PLUG. (NSPI)
- HORAGE/THRUST BLOCKING OR JOINT RESTRAINT SHALL BE ALL OF THE FOLLOWING MAIN LOCATIONS: DEAD ENDS. PLUGS. CROSSES, VALVES, AND BENDS, IN ACCORDANCE WITH THE AWINGS DD-839 SERIES AND ITEM NO. 839, IN THE SAWS CIFICATIONS FOR CONSTRUCTION.
- HALL READ "OPEN RIGHT".

- 8. BACKFLOW PREVENTION DEVICES:
- HAVE BACKFLOW PREVENTION DEVICES.
- BY SAWS PRIOR TO INSTALLATION.

### INS, ANY SHUTDOWNS OF EXISTING MAINS OF ANY SIZE MUST ED WITH THE SAWS CONSTRUCTION INSPECTION DIVISION AT EK IN ADVANCE OF THE SHUTDOWN. THE CONTRACTOR MUST A SEQUENCE OF WORK AS RELATED TO THE TIE-INS; THIS IS ONAL COST TO SAWS OR THE PROJECT AND IT IS THE OF THE CONTRACTOR TO SEQUENCE THE WORK 3.

MAINS 12" OR HIGHER: SAWS EMERGENCY OPERATIONS

CONTRACTOR TO VERIFY THAT NO PORTION OF THE TRACT UND ELEVATION OF <u>895</u> FEET WHERE THE STATIC PRESSURE Y EXCEED 80 PSI. AT ALL SUCH LOCATIONS WHERE THE . IS BELOW<u>895</u> FEET, THE DEVELOPER OR BUILDER SHALL ACH LOT, ON THE CUSTOMER'S SIDE OF THE METER, AN PE PRESSURE REGULATOR IN CONFORMANCE WITH THE DE OF THE CITY OF SAN ANTONIO. NO DUAL SERVICES ANY LOT(S) IF \*PRV IS/ARE REQUIRED FOR SUCH LOT(S), SERVICE CONNECTIONS SHALL BE ALLOWED. \*NOTE: A SULATOR IS ALSO KNOWN AS A PRESSURE REDUCING VALVE

TION WITH DRY HTH FOR PROJECTS LESS THAN 800 LINEAR NO. 847.3): MAINS SHALL BE DISINFECTED WITH DRY HTH IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ID SHALL NOT EXCEED A TOTAL LENGTH OF 800 FEET. THIS SINFECTION WILL ALSO BE FOLLOWED FOR MAIN REPAIRS. THE SHALL UTILIZE ALL APPROPRIATE SAFETY MEASURE TO PERSONNEL DURING DISINFECTION OPERATIONS.

• ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS ARE REQUIRED TO ALL COMMERCIAL BACKFLOW PREVENTION DEVICES MUST BE APPROVED

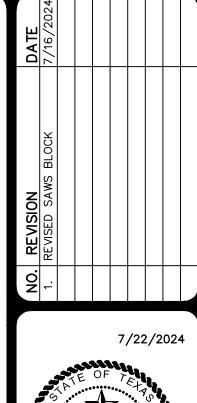
UNTIL THE WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED, AND SAWS HAS RELEASED THE MAIN FOR TIE-IN AND USE.

10. DIVISION VALVES: DIVISION VALVES SHOWN ON PLANS OR NOT SHOWN ON PLANS BUT FOUND IN THE FIELD SHALL ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF AND ONLY WITH PRIOR WRITTEN APPROVAL OF THE SAWS DIRECTOR OF PRODUCTION AND OPERATIONS AND PROPER COORDINATION WITH ALL SAWS DEPARTMENTS. CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE INSPECTOR A MINIMUM OF TWO WEEKS IN ADVANCE TO START THE COORDINATION PROCESS AND WILL BE INFORMED BY THE INSPECTOR WHEN THE DIVISION VALVE WILL BE OPERATED BY THE SAWS DISTRIBUTION AND COLLECTION STAFF. THE DIVISION VALVE CAN ONLY BE OPERATED BY SAWS DISTRIBUTION AND COLLECTION STAFF MEMBER NOT THE INSPECTOR OR THE CONTRACTOR. OPERATION OF A DIVISION VALVE WITHOUT THE EXPRESS PRIOR WRITTEN APPROVAL OF THE SAWS DISTRIBUTION AND COLLECTION STAFF WILL CONSTITUTE A MATERIAL BREACH OF ANY WRITTEN SAWS CONTRACT OR PERMIT IN ADDITION TO SUBJECTING THE CONTRACTOR TO LIABILITY FOR ANY AND ALL FINES. FEES. OR OTHER DAMAGES, DIRECT OR CONSEQUENTIAL, THAT MAY ARISE FROM OR BE CAUSED BY THE OPERATION OF THE VALVE WITHOUT PRIOR WRITTEN PERMISSION. PLEASE BE INFORMED THAT THE APPROVAL OF THE OPERATION

OR OPENING OR CLOSING OF A DIVISION VALVE CAN TAKE SEVERAL WEEKS FOR APPROVAL. DIVISION VALVES WILL ALSO HAVE A VALVE LID LABELED DIVISION VALVE AND A LOCKING MECHANISM INSTALLED WITH A KEY. THE LOCK AND KEY MECHANISM WILL BE PAID FOR BY THE CONTRACTOR BUT WILL BE INSTALLED BY SAWS DISTRIBUTION AND COLLECTION STAFF.

## PROJECT WATER NOTES

- MACHINE CHLORINATION BY THE S.A.W.S.
- ALL 8", 12" AND 16" PIPE SHALL BE P.V.C. C-900 CLASS 235 DR 18.
- . ALL MAINS SHALL BE HYDROSTATICALLY TESTED BY THE CONTRACTOR, AS PROVIDED FOR IN THE SPECIAL CONDITIONS.
- . THE WATER LINES WILL BE SET FROM THE STREET HUBS BEFORE THIS CONTRACT BEGINS. STREET CUT SHEETS WILL BE SUPPLIED TO THE CONTRACTOR. THERE SHOULD BE NO ADDITIONAL STAKES REQUIRED, AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE SITE AND VERIFY THAT ALL STAKES REQUIRED FOR HIS WORK ARE IN PLACE AT THE TIME THE CONSTRUCTION BEGINS. IF ANY STAKES ARE MISSING THE ENGINEER SHOULD BE NOTIFIED IMMEDIATELY. AFTER CONSTRUCTION BEGINS, ALL CONSTRUCTION STAKES, MARKS, ETC., SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR, AND IN CASE OF DESTRUCTION OR REMOVAL BY THE CONTRACTOR, HIS EMPLOYEE OR ANY OTHER MEANS, SUCH STAKES, MARKS, ETC., SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL FURNISH THE ENGINEER WITH ALL THE FINAL MEASUREMENTS, TAPS AND LENGTH OF SERVICE CONNECTIONS.
- THE LOT CORNERS WILL BE SET BY THE ENGINEER FOR INSTALLATION OF ALL WATER SERVICES. THESE LOT CORNERS SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR SO THE METER BOXES CAN BE SET IN PHASE II. ANY LOT CORNER DESTROYED OR REMOVED BY THE CONTRACTOR, HIS EMPLOYEES, OR BY ANY OTHER MEANS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- STREETS WILL HAVE BEEN EXCAVATED DOWN TO SUBGRADE AND THE PARKWAY WILL BE CUT DOWN TO TOP OF CURB BY THE STREET CONTRACTOR, PRIOR TO CONSTRUCTION OF THE WATER MAINS. IT WILL BE THE UTILITY CONTRACTOR'S RESPONSIBILITY TO PROVIDE A PAD FOR HIS EQUIPMENT.
- WATER METER BOXES IF APPLICABLE SHALL BE INSTALLED NINE FEET FROM FACE OF CURB TO CENTER OF THE METER BOX.
- ALL GARBAGE OR SPOIL MATERIAL FROM THIS WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR, AT HIS EXPENSE.
- 10. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE UNTIL WATER MAIN HAS BEEN PRESSURE TESTED, CHLORINATED AND THE S.A.W.S. RELEASES THE MAIN FOR TIE-IN AND USE.
- UNIT PRICE BID FOR "STANDARD FIRE HYDRANT ASSEMBLY" SHALL INCLUDE FIRE HYDRANT, 6-INCH GATE VALVE AND 6-INCH VALVE BOX COMPLETE, ANCHOR BEND, AND ALL 6-INCH DI PIPE REQUIRED (DI PIPE REQUIRED SHALL INCLUDE ALL PIPE FROM THE TEE ON THE MAIN LINE TO THE FIRE HYDRANT).
- 2. WHEN SEWER LINES ARE INSTALLED IN THE VICINITY OF WATER MAINS, SUCH INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE TEXAS NATURAL RESOURCE CONSERVATION COMMISSION "RULES AND REGULATIONS FOR PUBLIC WATER SYSTEMS" (1988 OR ANY REVISIONS THERETO).
- 13. A CLEAR SPACE SHALL BE PROVIDED AROUND ALL FIRE HYDRANTS. THIS AREA SHOULD HAVE A MINIMUM DIAMETER OF 3.0' AND BE CLEAN OF VERTICAL OBSTRUCTIONS, VALVES, AND METER BOXES.
- 9. FINAL CONNECTION TO THE EXISTING WATER MAIN SHALL NOT BE MADE | 14. SAWS REQUIRES LEAD FREE (< 0.25%) FIRE HYDRANTS.
  - 15. UNLESS OTHERWISE NOTED ALL SERVICES SHALL BE 3/4" WITH 5/8" METER.



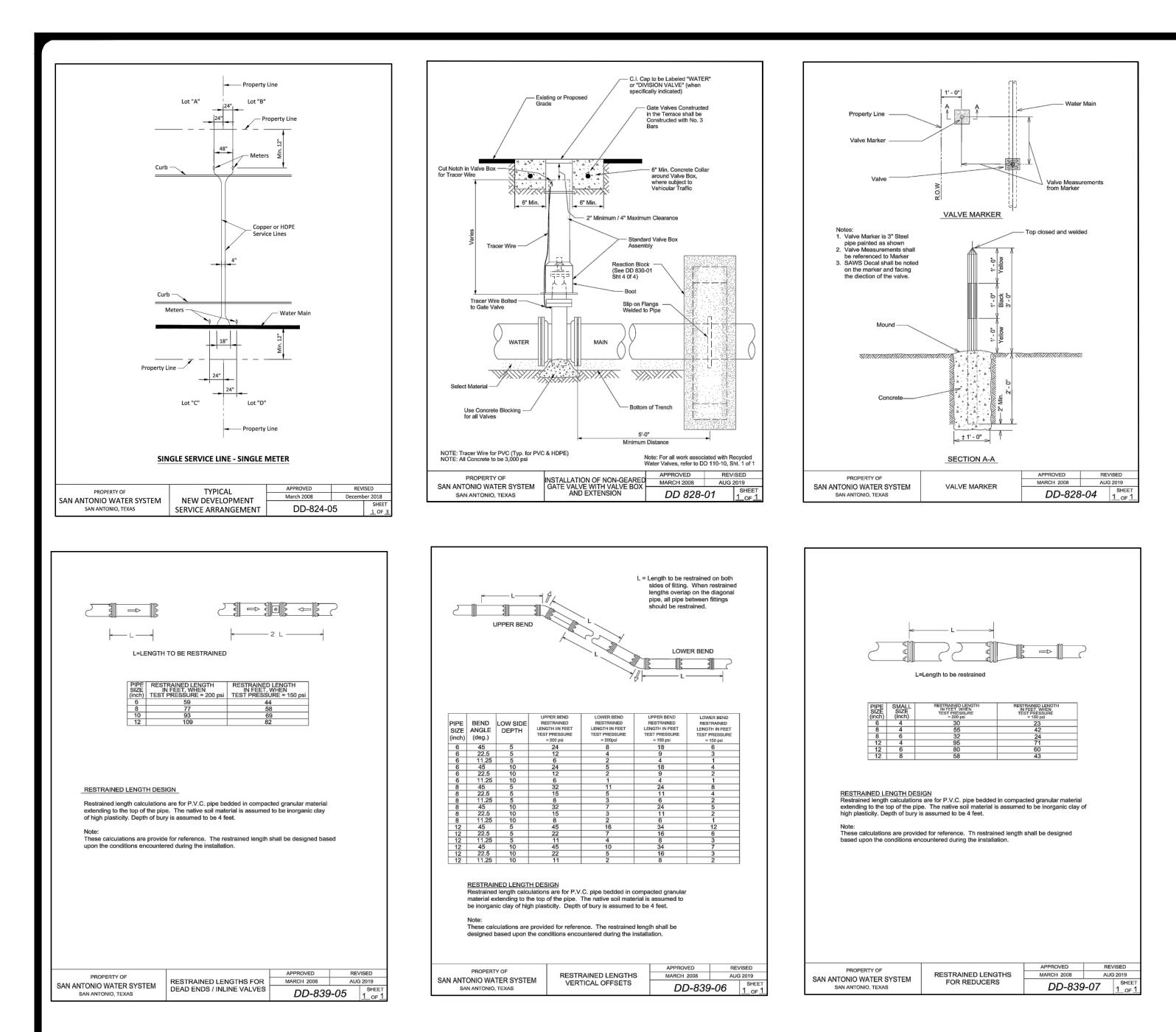


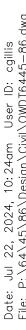


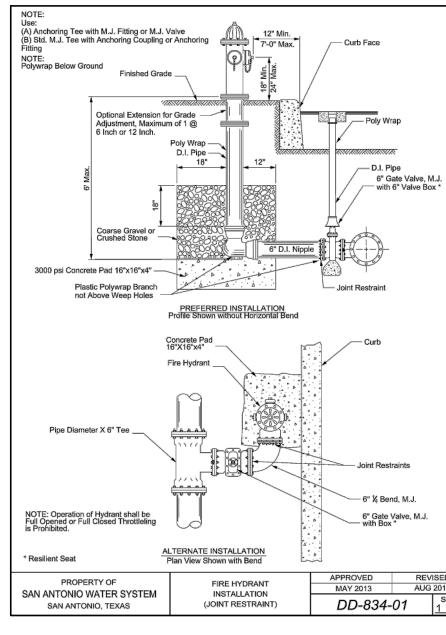
<b>3ROOK - UNIT 9A</b>	XAR COUNTY, TEXAS	WATER DISTRIBUTION NOTES
MILBRC	BEXAR	WATER DIS

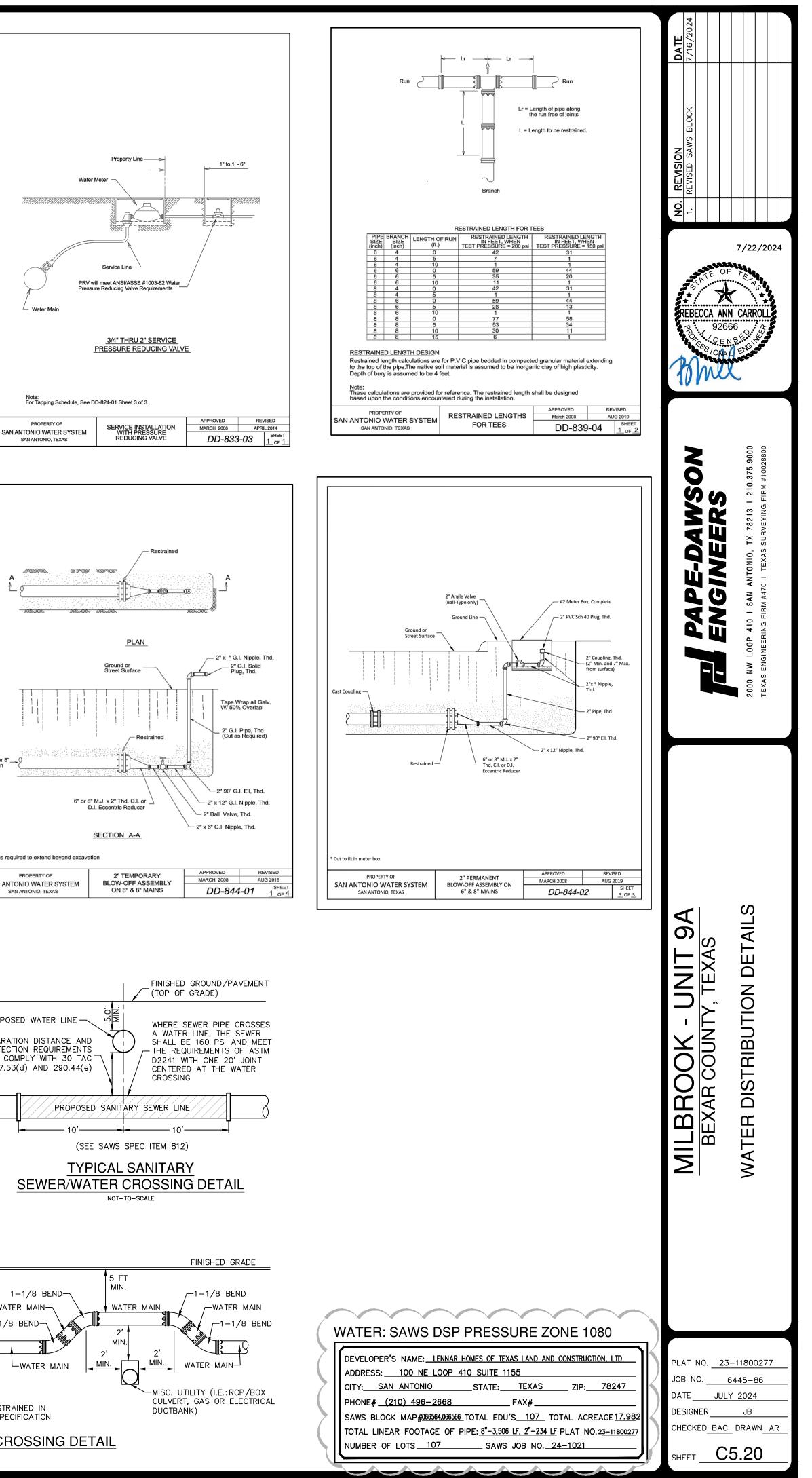
٧	VATER: SAWS DSP PRESSURE ZONE 1080
	DEVELOPER'S NAME: <u>LENNAR HOMES OF TEXAS LAND AND CONSTRUCTION, LTD</u> ADDRESS: <u>100 NE LOOP 410 SUITE 1155</u> CITY: <u>SAN ANTONIO</u> <u>STATE: TEXAS</u> <u>ZIP: 78247</u> PHONE# <u>(210) 496–2668</u> FAX# SAWS BLOCK MAP#066564.066566 TOTAL EDU'S <u>107</u> TOTAL ACREAGE <u>17.982</u> TOTAL LINEAR FOOTAGE OF PIPE: <u>8"-3,506 LF, 2"-234 LF</u> PLAT NO.2 <u>3-11800277</u> NUMBER OF LOTS <u>107</u> SAWS JOB NO. <u>24–1021</u>

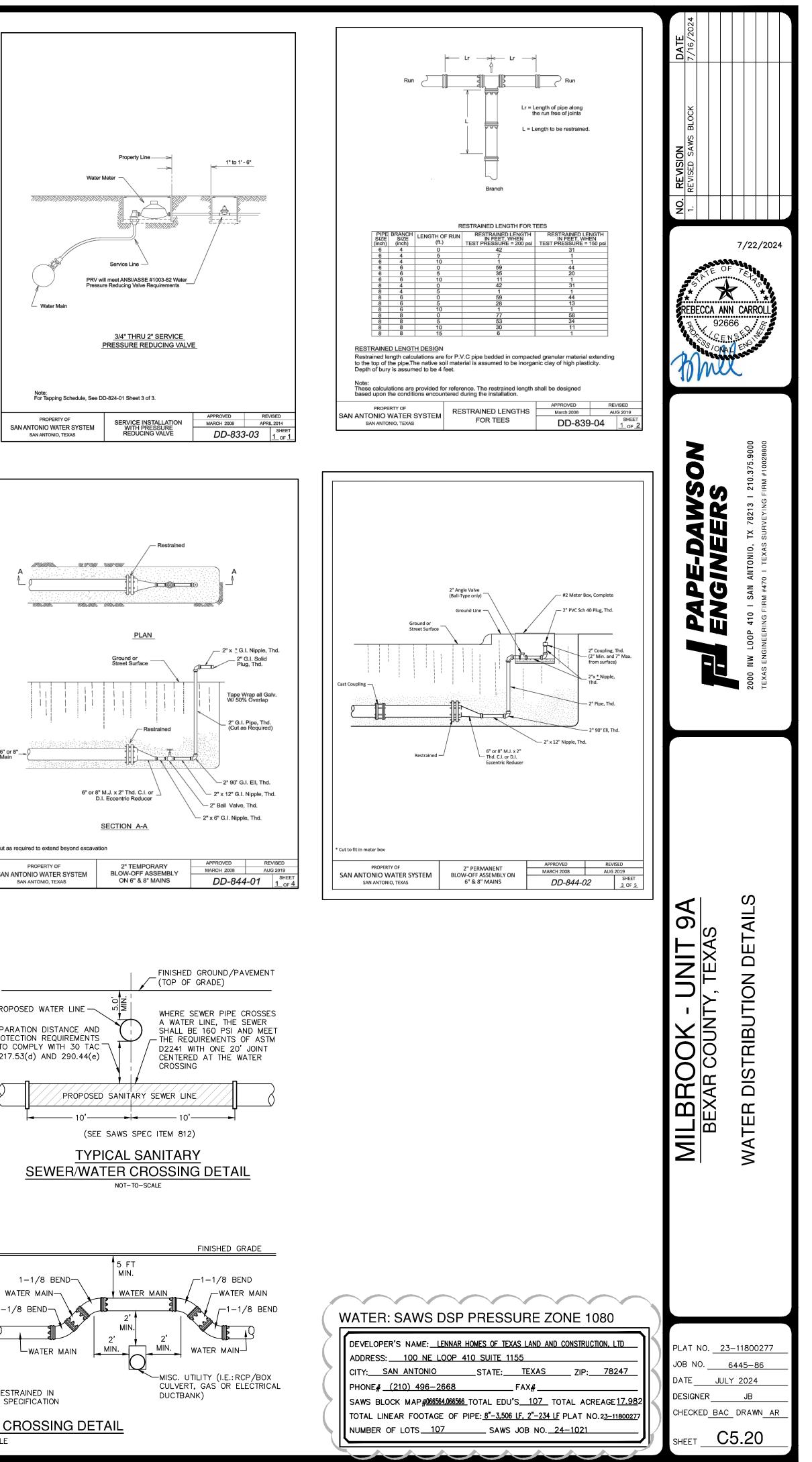
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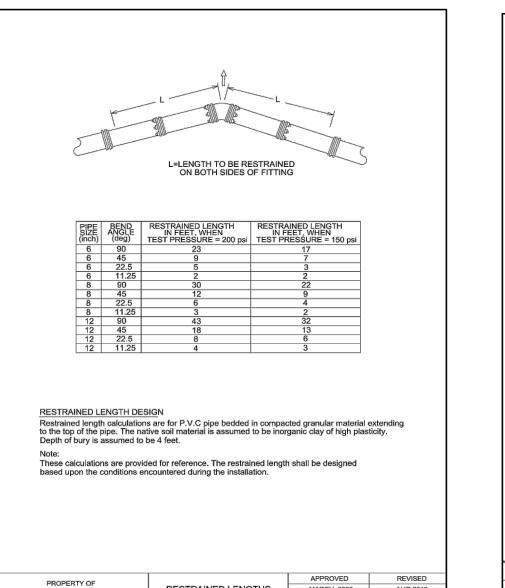


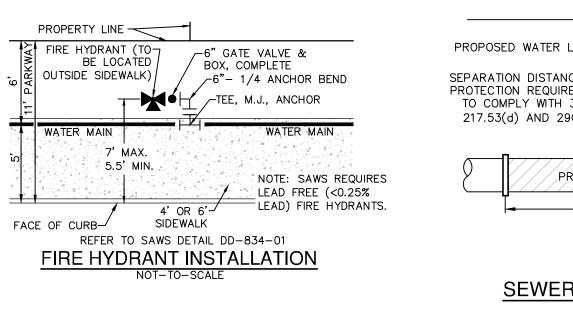


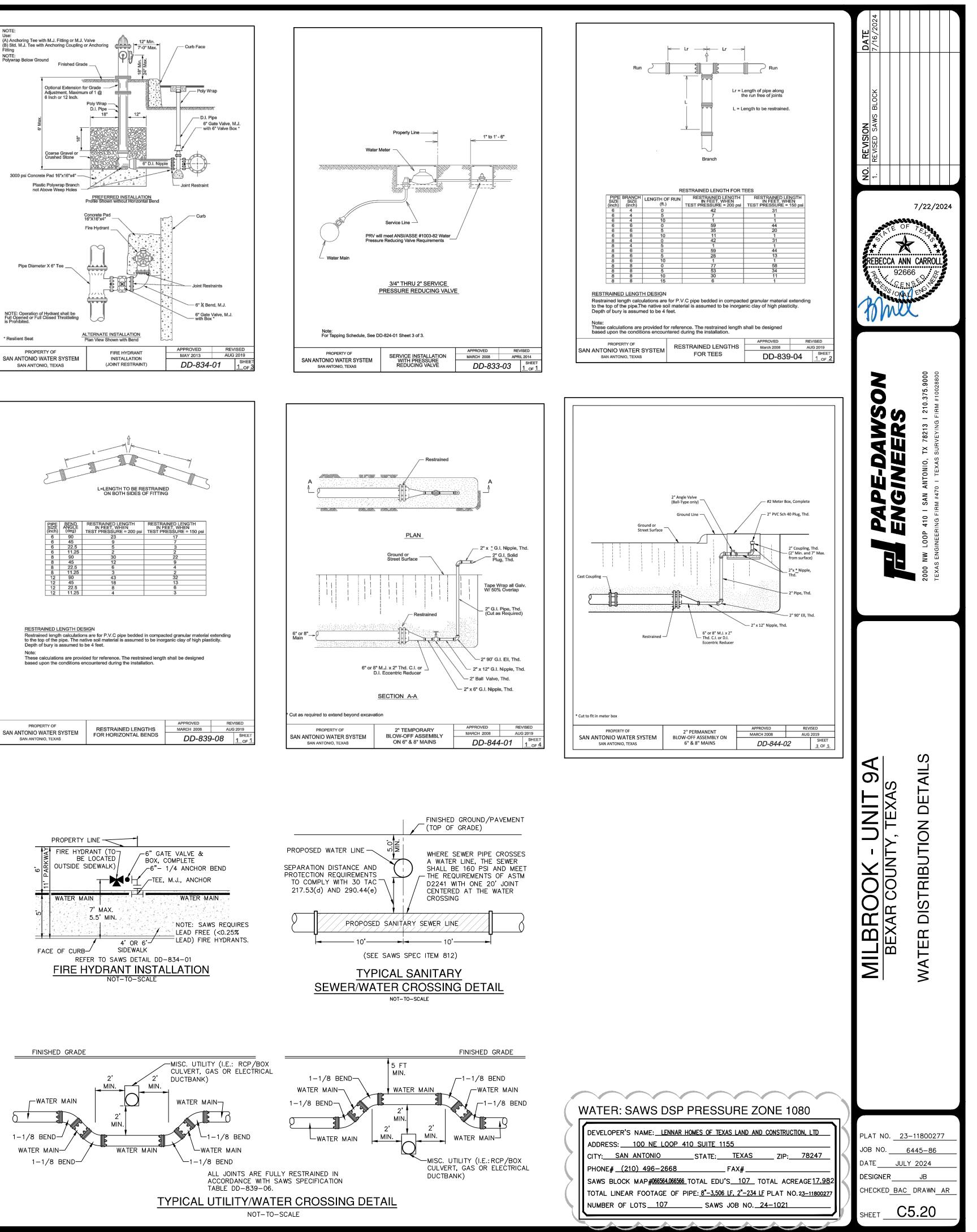


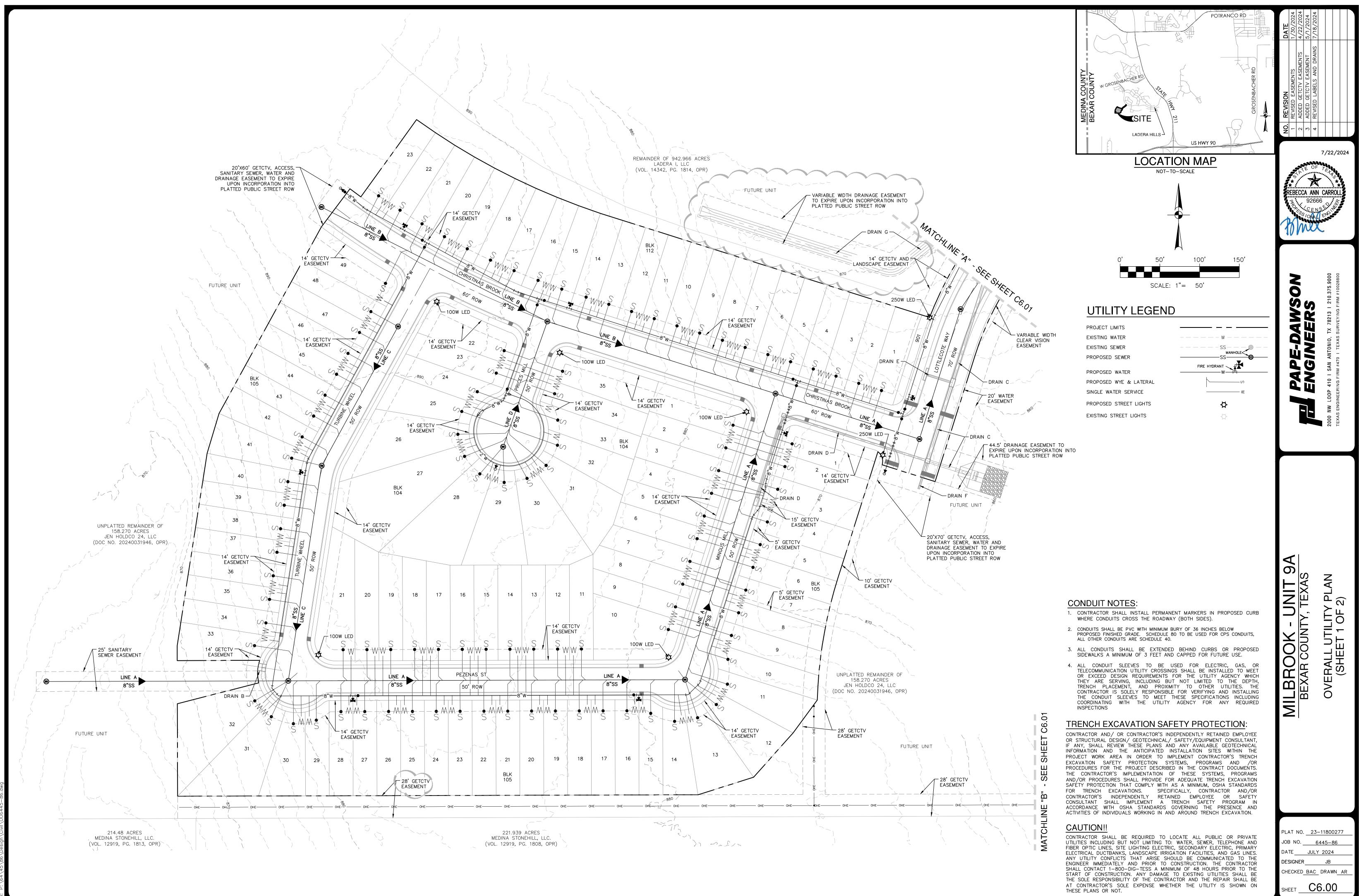




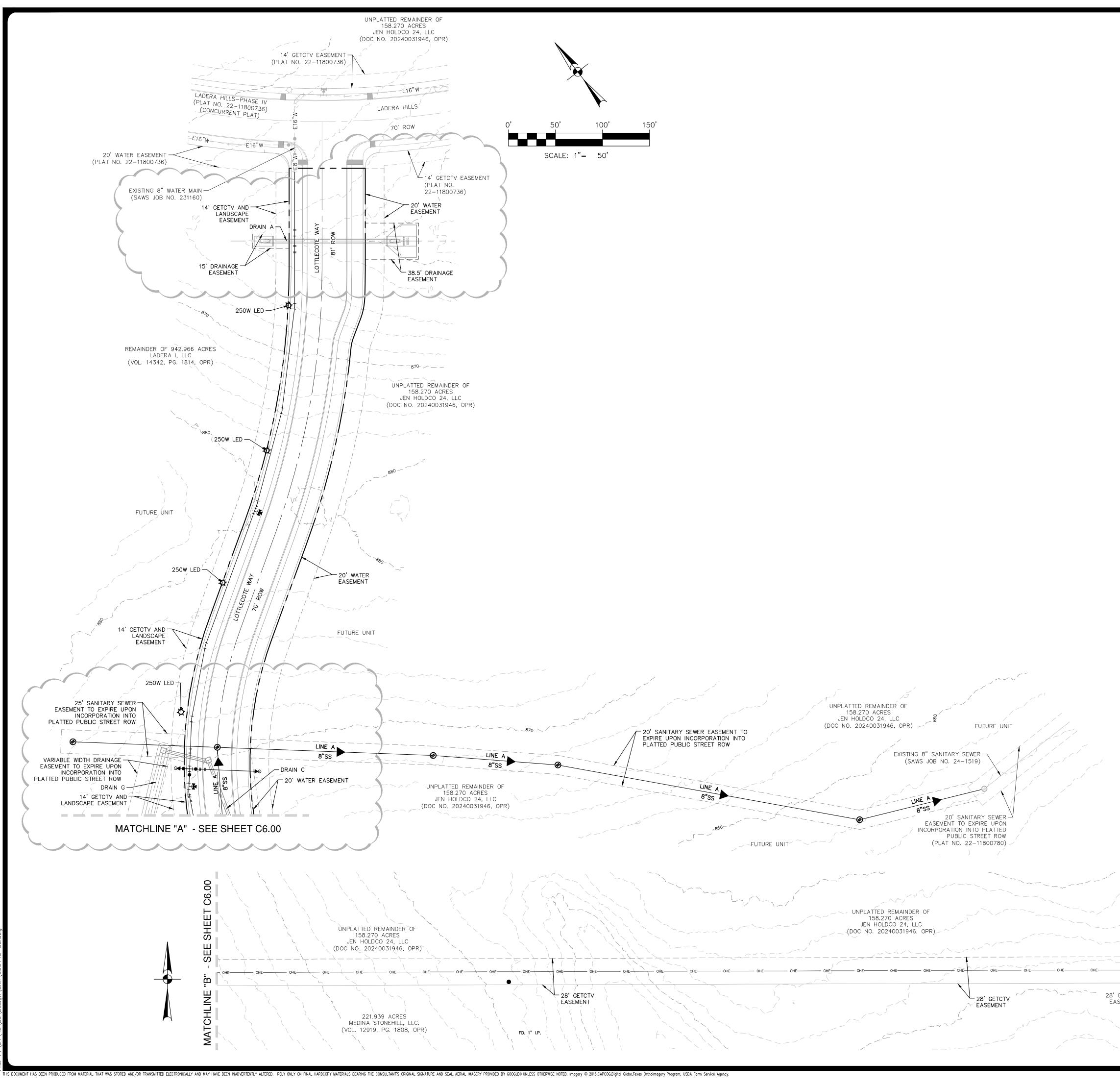


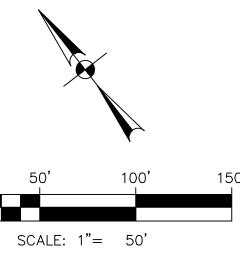


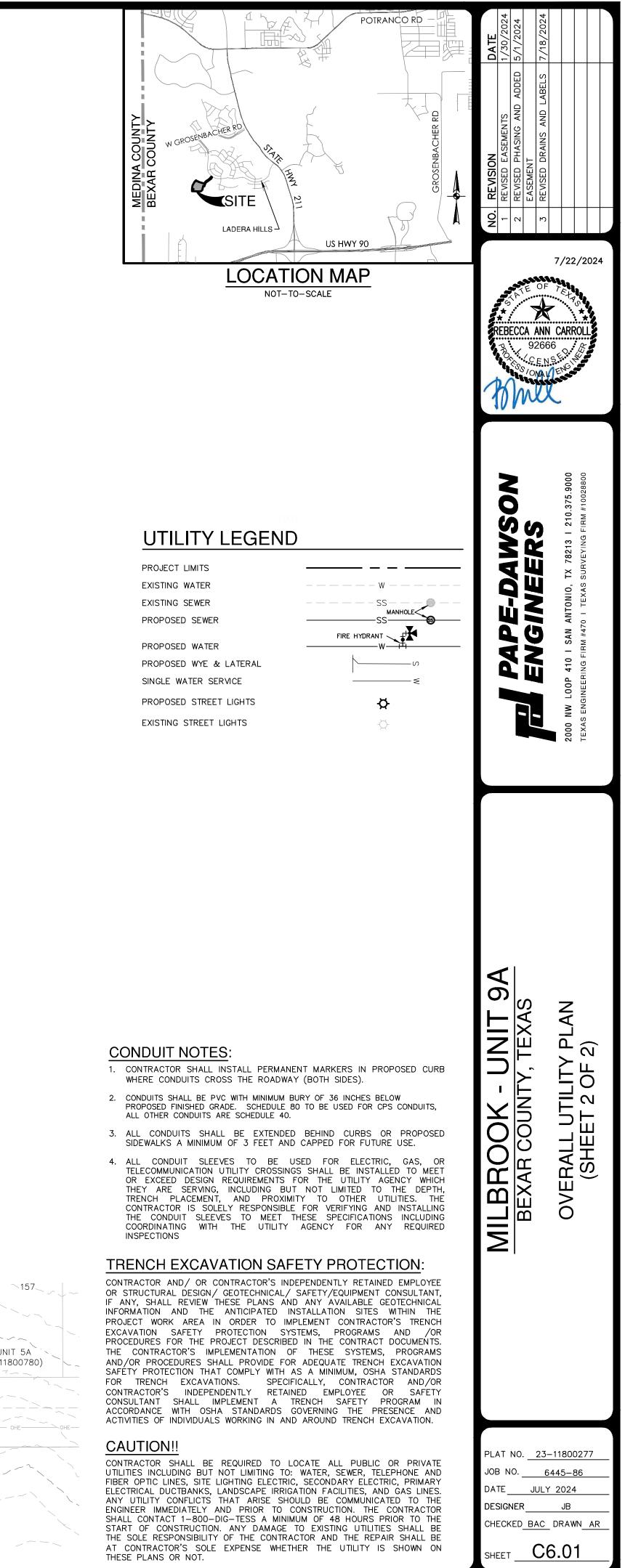




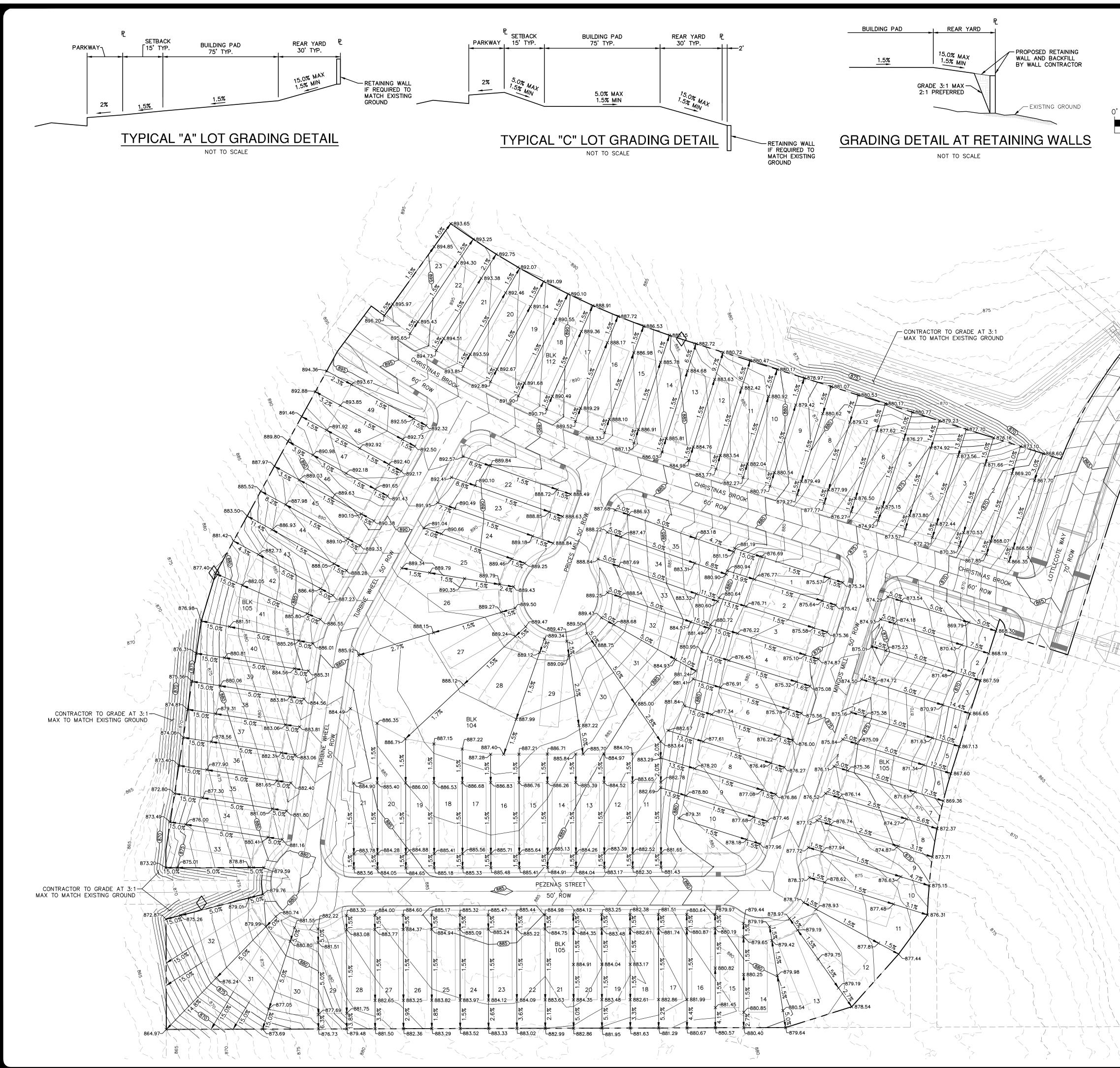
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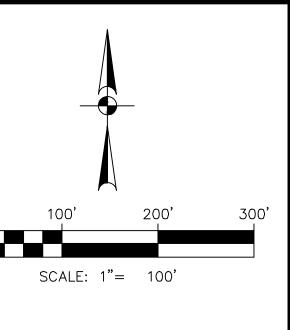


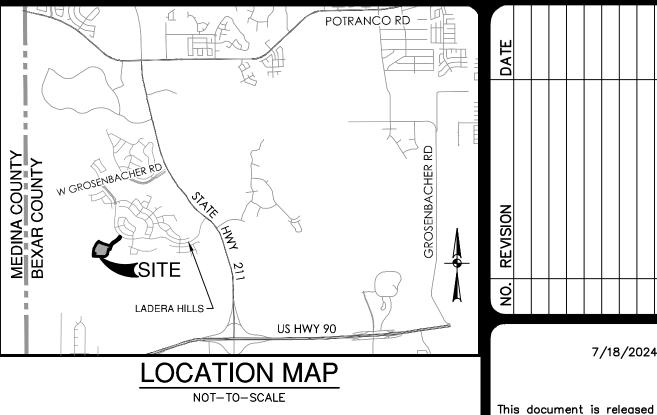


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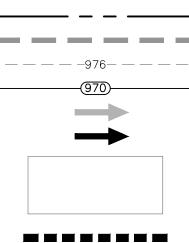
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# **GRADING LEGEND**

PROJECT LIMITS 100 YR FLOODPLAIN EXISTING CONTOUR PROPOSED CONTOUR FLOW ARROW (EXISTING) FLOW ARROW (PROPOSED) TYPICAL HOUSE PAD



RETAINING WALL (CONTRACTOR SHALL PROVIDE STRUCTURAL DESIGN)

# **GRADING NOTES:**

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THIS SCOPE OF WORK WHERE NOT SPECIFICALLY COVERED IN THE SPECIFICATIONS OR GEOTECHNICAL REPORT SHALL CONFORM TO ALL APPLICABLE CITY, COUNTY AND TXDOT STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION).

2. SITE PREPARATION, GRADING, EXCAVATION AND FILL SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT AND SPECIFICATIONS.

3. ALL SELECT FILL MATERIAL PROVIDED SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING AND COMPACTING.

4. ALL ELEVATIONS AND PROPOSED CONTOURS SHOWN ON THIS GRADING PLAN REFLECT FINISHED GRADES. THE THICKNESS OF PAVING, BASE GRASS, TOPSOIL, AND MULCH MUST BE SUBTRACTED TO OBTAIN SUBGRADE ELEVATIONS.

5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY QUESTIONS THAT MAY ARISE CONCERNING THE INTENT, PLACEMENT, OR LIMITS OF DIMENSIONS OR GRADES NECESSARY FOR CONSTRUCTION OF THIS PROJECT.

6. THE CONTRACTOR SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED TO COMPLETE CONSTRUCTION OF THIS PROJECT.

8. THE CONTRACTOR SHALL REMOVE TOP SOIL, GRASS, ROOTS, DEBRIS, ETC. AND DISPOSE OFF SITE THOSE MATERIALS NOT SUITABLE FOR EMBANKMENT AND TOPSOIL. CLEAN STRIPPINGS AND TOPSOIL MAY BE STOCKPILED ON SITE FOR REUSE IN A LOCATION SPECIFIED BY THE OWNER.

9. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR SITE STABILIZATION. ALL DISTURBED AREAS SHALL BE REVEGETATED IN ACCORDANCE WITH PROJECT SPECIFICATIONS AND TPDES/SWPPP REQUIREMENTS. REFERENCE THE LANDSCAPE ARCHITECT'S PLAN, IF APPLICABLE.

10. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS (USE OF SILT FENCES, ETC.) TO KEEP DRAINAGE AND SILT FROM WASHING ONTO ADJACENT PROPERTY, STREETS, OR DRAINAGE WAYS. CONTRACTOR SHALL IMMEDIATELY REMOVE SILT/DEBRIS WHICH WASHES OFFSITE OR INTO EXISTING STORM DRAIN SYSTEMS. (SEE SWPPP PLANS & TPDES BOOK).

11. THE CONTRACTOR SHALL OBTAIN GRADES SHOWN HEREON WITHIN +/- ONE-TENTH (0.10) FOOT.

12. IN PROPOSED PAVING AREAS, STREET DESIGN PLANS SHALL CONTROL ALL EARTHEN SLOPES SHALL BE A MAXIMUM OF 3:1 AND A MINIMUM OF 1.0% UNLESS OTHERWISE SHOWN.

13. THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING SITE AND PROPOSED IMPROVEMENTS.

14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL, OR BETTER, CONDITION ANY DAMAGE DONE TO EXISTING TREES, BUILDINGS, UTILITIES, FENCES, PAVEMENT, CURBS, OR DRIVEWAYS (NO SEPARATE PAY ITEMS).

15. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN WORKING NEAR UTILITIES, GAS LINES, SEWER, OR EXISTING APPURTENANCES. PRIOR TO PERFORMING ANY EXCAVATION, CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES AND ASSURE HIMSELF THAT ALL UTILITIES HAVE BEEN ADEQUATELY LOCATED AND IDENTIFIED. THE ENGINEER SHALL BE NOTIFIED IF ANY UTILITY CONFLICTS ARE DISCOVERED.

16. UTILITIES SHOWN ON THE PLANS ARE FROM INFORMATION SOURCES AVAILABLE AT THE TIME OF DESIGN BUT MAY NOT REPRESENT ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION AND VERIFY SIZE, GRADE AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR, AT HIS OWN EXPENSE.

17. POSITIVE DRAINAGE SHALL BE MAINTAINED THROUGHOUT THE SCOPE O THE PROJECT. DRAINAGE SHALL BE DIRECTED AWAY FROM ALL BUILDING FOUNDATIONS. CONTRACTOR SHOULD TAKE PRECAUTIONS NOT TO ALLOW ANY PONDING OF WATER.

18. FOR FILL PLACEMENT ON HILL SIDES OR STEEP SLOPE AREAS, THE CONTRACTOR SHALL REFERENCE THE PROJECT SPECIFICATIONS AND GEOTECHNICAL REPORT FOR SPECIAL INSTRUCTIONS REGARDING BENCHING.

A PERMIT.

19. NO WORK SHALL BE PERFORMED IN A PUBLIC RIGHT-OF-WAY WITHOUT

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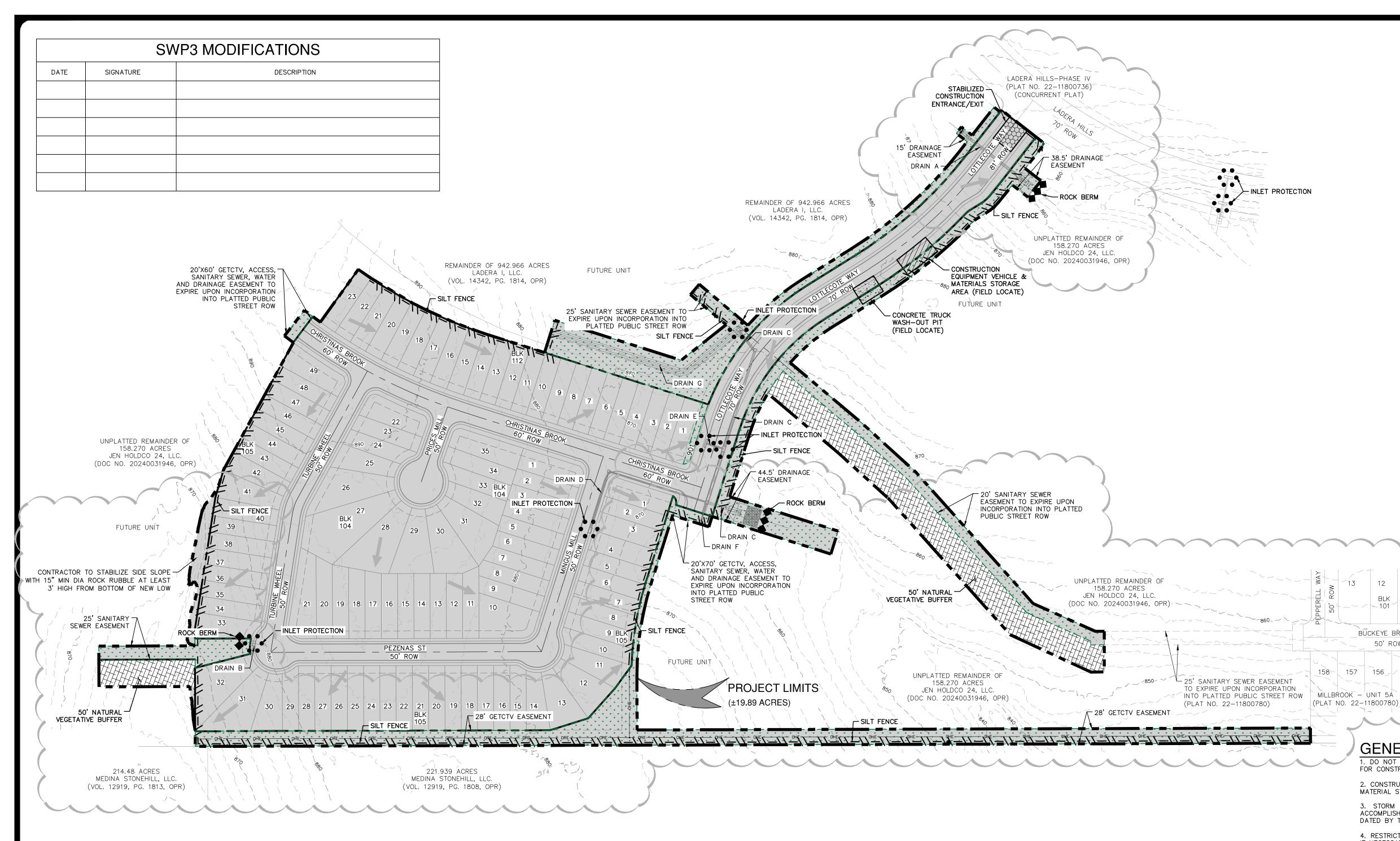
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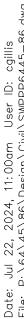
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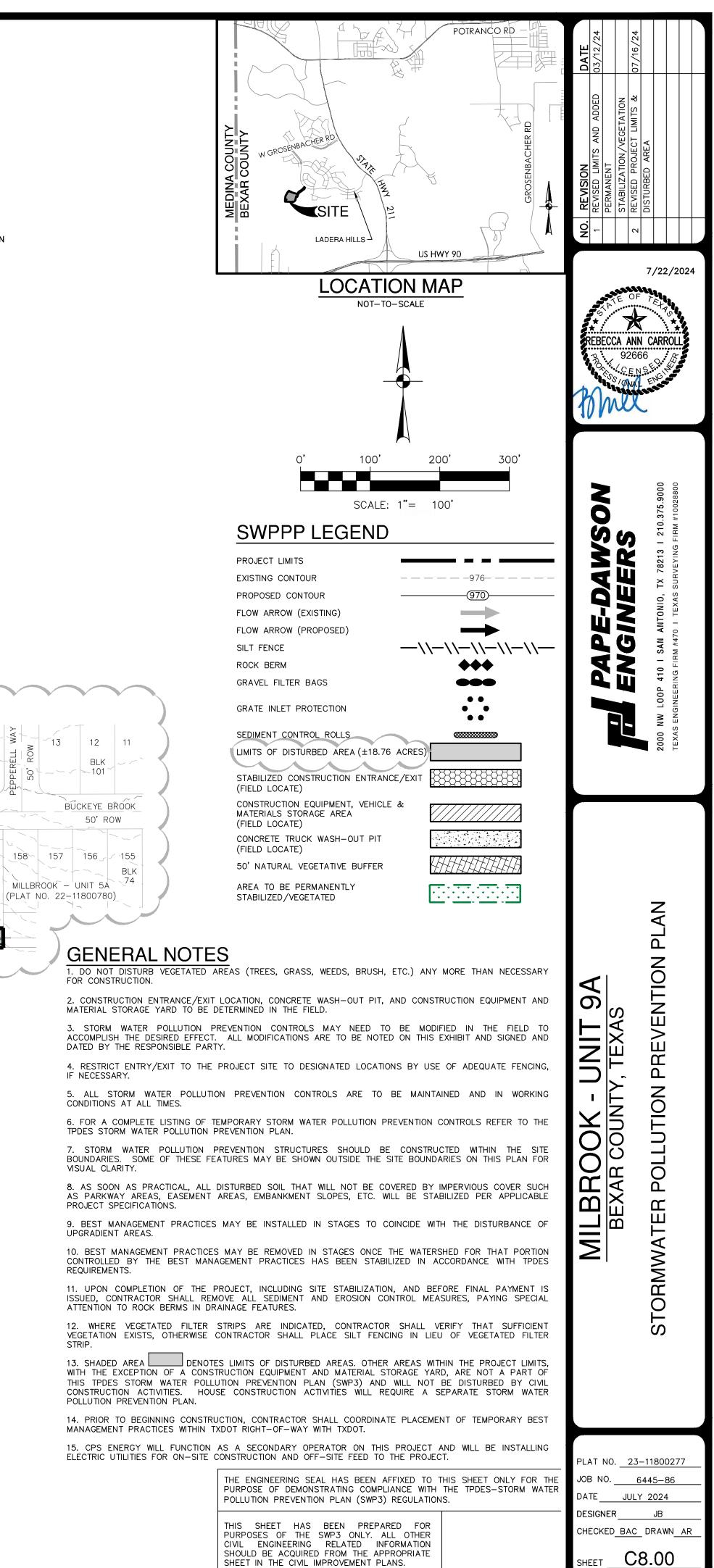
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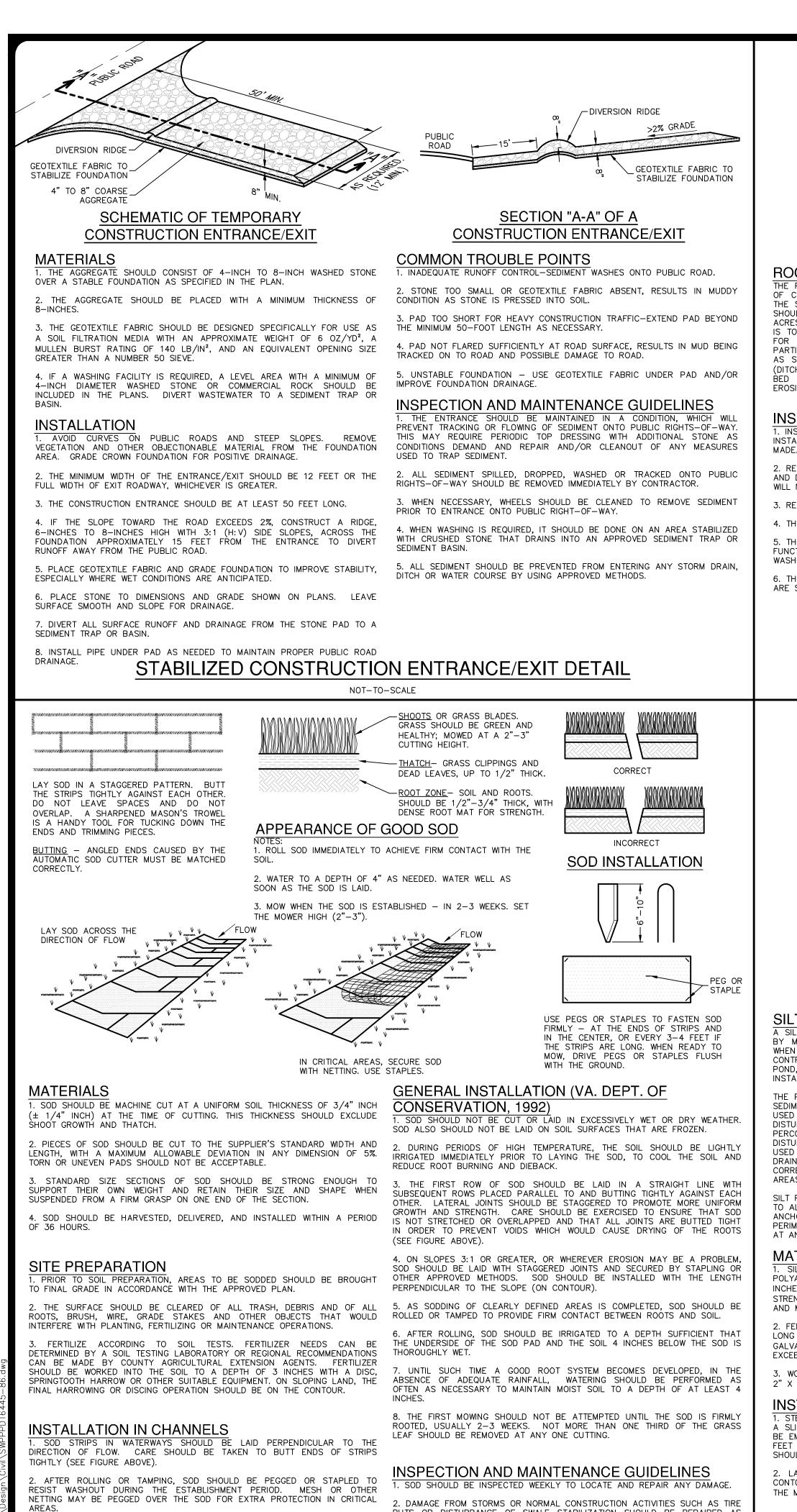
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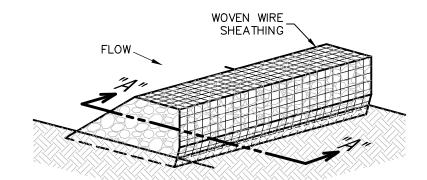
SHEET IN THE CIVIL IMPROVEMENT PLANS.



SOON AS PRACTICAL.

RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS

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## ISOMETRIC PLAN VIEW

## ROCK BERMS

THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT-LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

## INSPECTION AND MAINTENANCE GUIDELINES . INSPECTION SHOULD BE MADE WEEKLY BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE

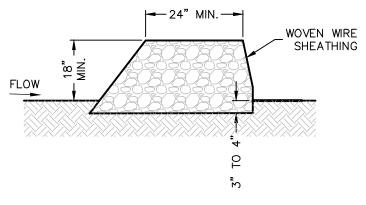
. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.

3. REPAIR ANY LOOSE WIRE SHEATHING.

4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION 5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS,

WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC. 6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS

ARE STABILIZED AND ACCUMULATED SILT REMOVED.



## SECTION "A-A'

## MATERIALS

THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.

2. CLEAN, OPEN GRADED 3-INCH TO 5-INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5-INCH TO 8-INCH DIAMETER ROCKS MAY BE USED.

## INSTALLATION

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".

4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

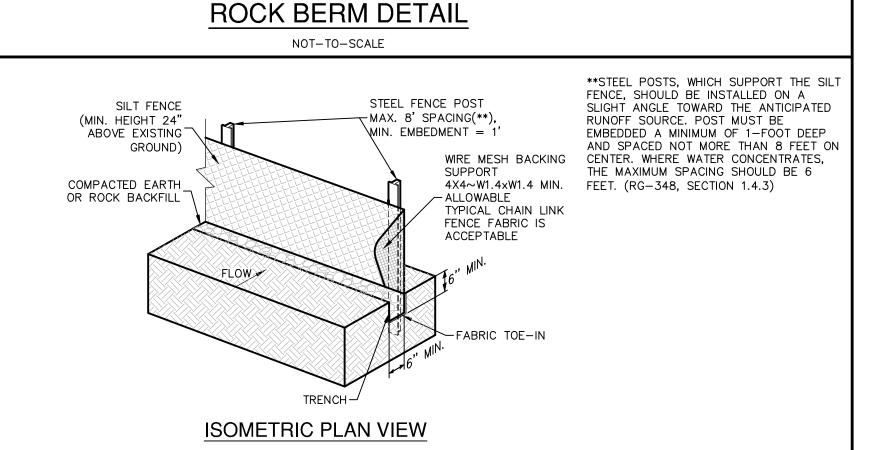
5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE

6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

## COMMON TROUBLE POINTS

. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).

2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE)



## SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED. SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER-BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.

SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

## MATERIALS

. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN2, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.

FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y-BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.

3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

## INSTALLATION

1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1-FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS 1/4 ACRE/100 FEET OF FENCE.

3. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN-SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

4. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3-FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

6. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.

2. FABRIC NOT SEATED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE).

3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).

4. FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE).

## INSPECTION AND MAINTENANCE GUIDELINES

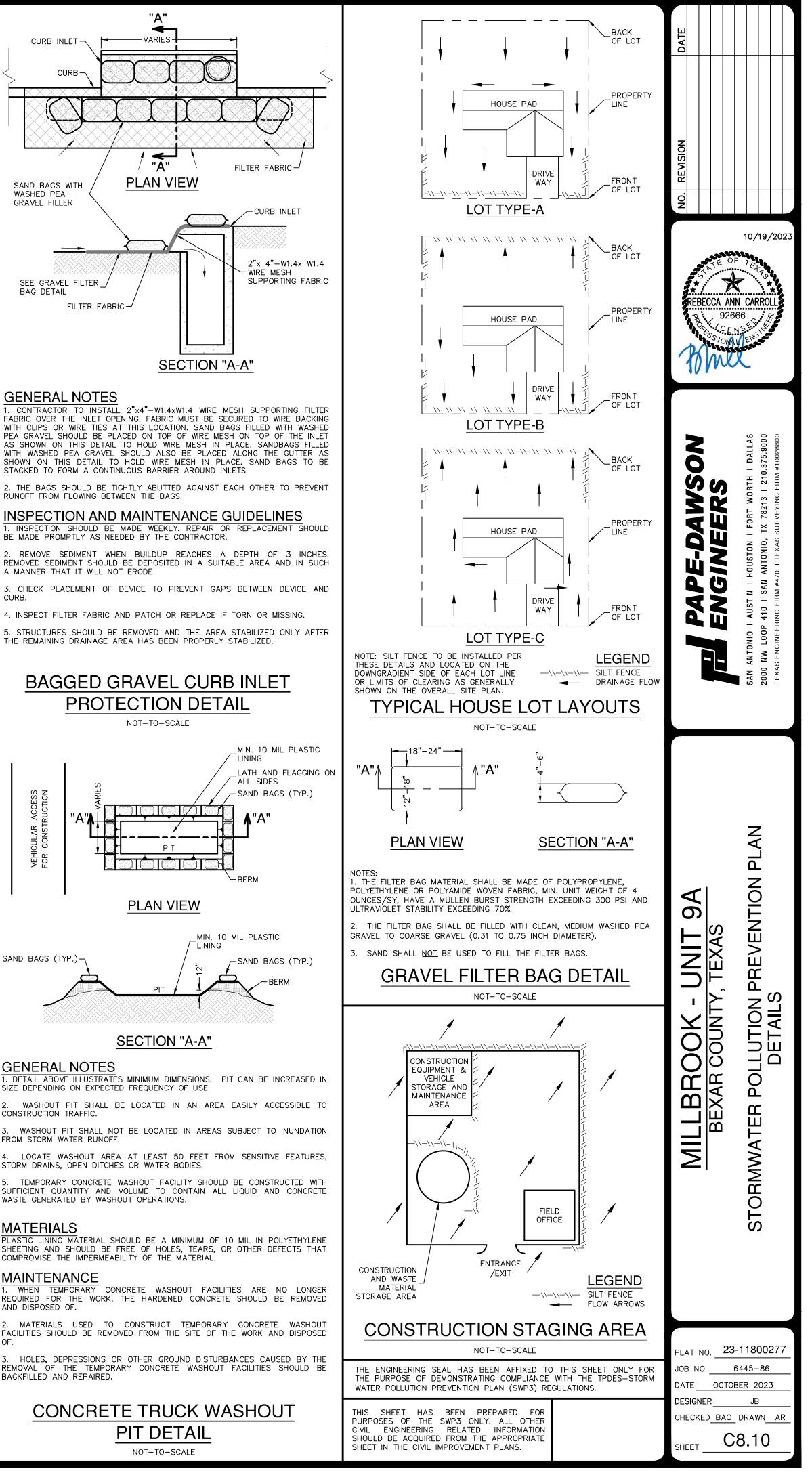
1. INSPECT ALL FENCING WEEKLY.

. REMOVE SEDIMENT WHEN BUILDUP APPROACHES 6 INCHES, BUT NOT TO EXCEED 50% OF HEIGHT.

3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.

WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.



SILT FENCE DETAIL

NOT-TO-SCALE