FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
6	-		1
STATE	STATE DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

ROSE VALLEY UNIT #2

ABBOTT RD & FM 1346
BEXAR COUNTY, TX

LIMITS
FROM: ABBOTT RD & FM1346 INTERSECTION
TO: 0.86 MILES NORTH OF ABBOTT RD & FM 1346 INTERSECTION

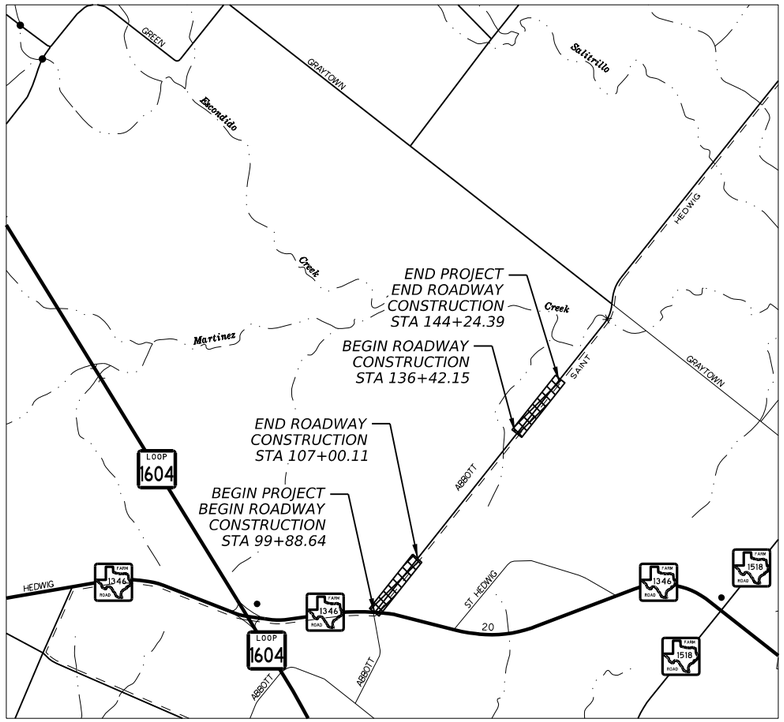
NET LENGTH OF PROJECT = 4435.75 FT 0.84 MI

ROAD CLASSIFICATION
SECONDARY ARTERIAL

POSTED SPEED
ABBOTT RD= 40 MPH

AREA OF DISTRIBUTED SOIL
1.61 ACRES

FOR WORK CONSISTING OF ROADWAY WIDENING, AND PAVEMENT MARKINGS
TO ACCOMMODATE TURN LANES .



LOCATION MAP
N.T.S

EXCEPTIONS: N/A
EQUATIONS: N/A
R.R. CROSSINGS: N/A

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NAME	P.E. #	DATE
EDWARD GALICIA	114275	1/5/2026

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230
210.660.1960 / TBPE Firm Registration No. 20623

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ROSE VALLEY SOUTH UNIT #2

INDEX OF SHEETS

SHEET 1 OF 1

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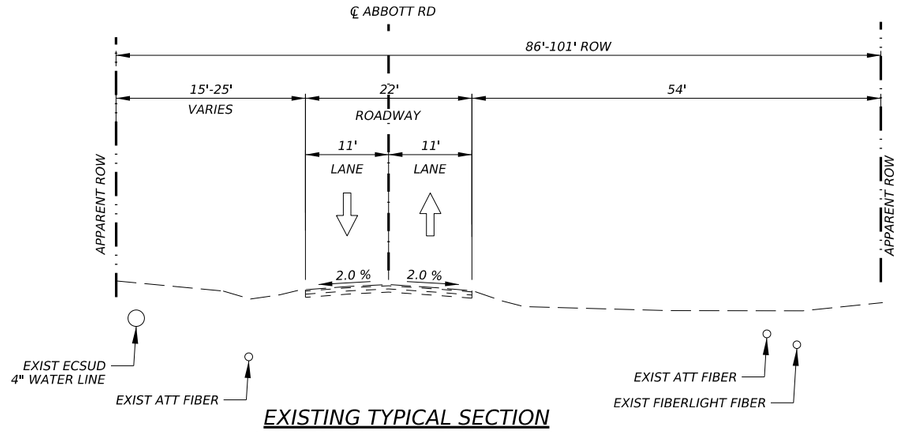
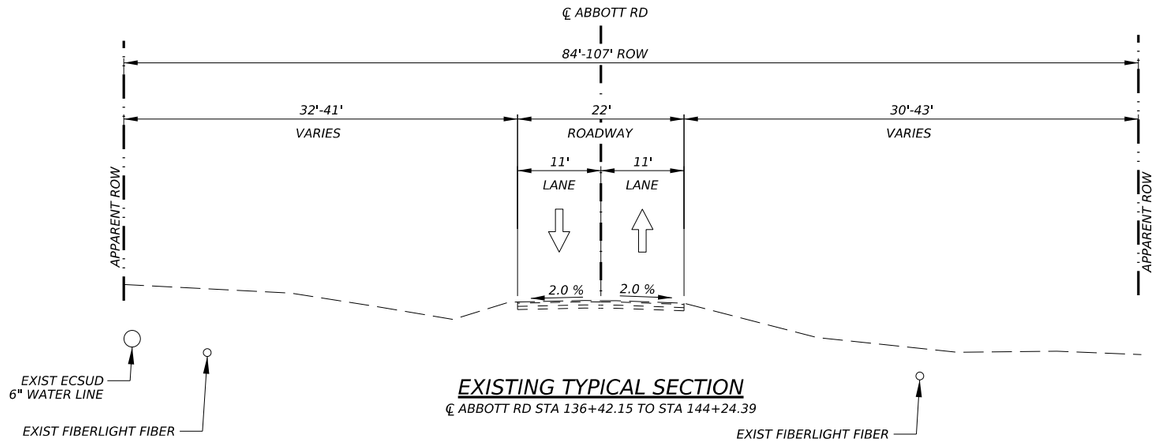
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD



EXISTING TYPICAL SECTION

℄ ABBOTT RD STA 99+88.64 TO STA 107+00.11



EXISTING TYPICAL SECTION

℄ ABBOTT RD STA 136+42.15 TO STA 144+24.39

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ROSE VALLEY SOUTH UNIT #2

EXISTING TYPICAL SECTIONS

N.T.S.

FED.RD. DIV.NO.	PROJECT NO.		SHEET
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STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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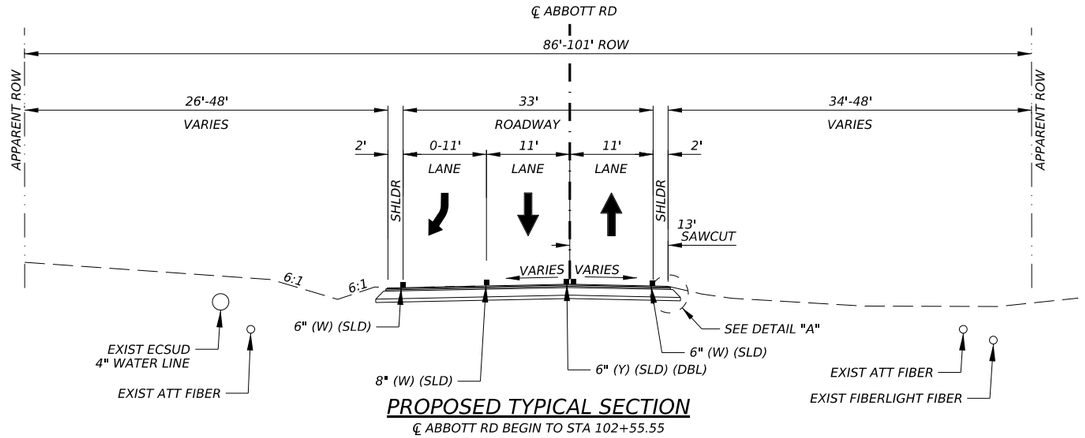
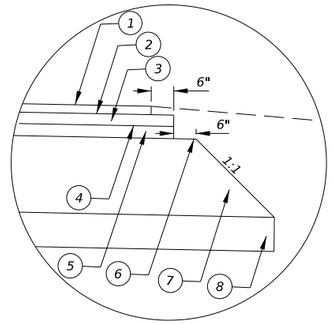


PROPOSED TYPICAL SECTION

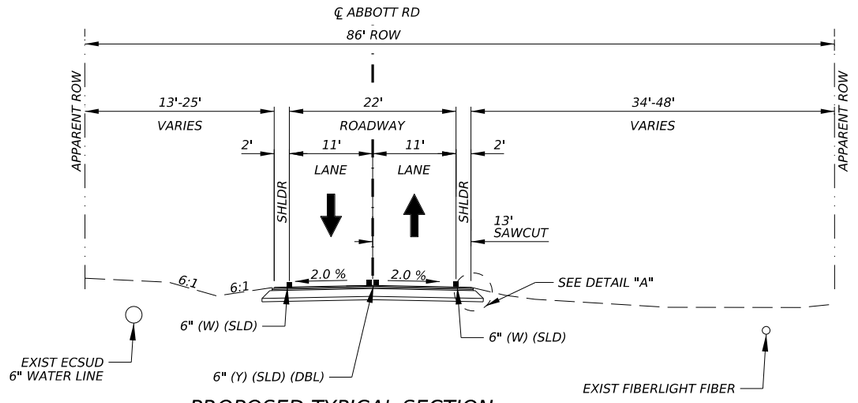
℄ ABBOTT RD BEGIN TO STA 102+55.55



DETAIL "A"
N. T. S.

1. 2" HMA TY D PG70-22
2. BONDING COURSE (0.12 GAL/SY)
3. 2.75" HMA TY B PG64-22
4. BONDING COURSE (0.12 GAL/SY)
5. 2.75" HMA TY B PG64-22
6. PRIME COAT (MC-30 OR AE-P) (0.20 GAL/SY)
7. 18" FL BS (CMP IN PLC) (TYD GR1-2) (FNAL POS CY)
8. 8" LIME TREATMENT SUBGRADE

NOTES:
1. LIME TREATMENT
   LIME TREATMENT @22.8 LB/SY FOR 8 INCHES DEPTH OF TREATMENT. REFER TO GEOTECH REPORT PSI PROJECT NO. 0312-3441 FOR ADDITIONAL INFORMATION.



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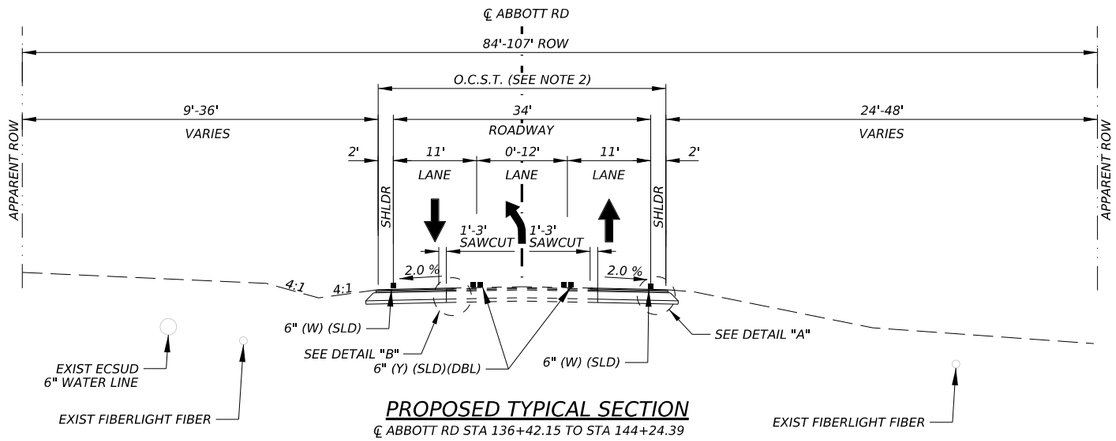
ROSE VALLEY SOUTH UNIT #2

PROPOSED TYPICAL SECTIONS

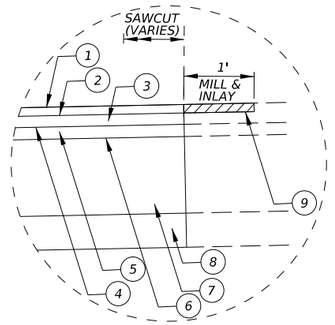
N.T.S. SHEET 1 OF 2

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		4
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD



PROPOSED TYPICAL SECTION

℄ ABBOTT RD STA 136+42.15 TO STA 144+24.39



DETAIL "B"
N. T. S.

1. 2" HMA TY D PG70-22
2. BONDING COURSE (0.12 GAL/SY)
3. 2.75" HMA TY B PG64-22
4. BONDING COURSE (0.12 GAL/SY)
5. 2.75" HMA TY B PG64-22
6. PRIME COAT (MC-30 OR AE-P) (0.20 GAL/SY)
7. 18" FL BS (CMP IN PLC) (TYD GR1-2) (FNAL POS CY)
8. 8" LIME TREATMENT SUBGRADE
9. PLANE ASPH CONC PAV(2")

NOTES:

1. LIME TREATMENT
   LIME TREATMENT @22.8 LB/SY FOR 8 INCHES DEPTH OF TREATMENT. REFER TO GEOTECH REPORT PSI PROJECT NO. 0312-3441 FOR ADDITIONAL INFORMATION.
2. O.C.S.T.
   ITEM 0316-7071 ASPH (AC-15P, AC-20-5TR OR AC-20XP) @0.32 GAL/SY
   ITEM 0316-7211 AGGR (TY-PB,GR-4)(SAC-B) @ 1CY/130 SY
   (CONTRACTOR TO REFER TO TXDOT MATERIAL SPECIFICATIONS AND STANDARDS FOR GUIDANCE CONCERNING CONSTRUCTION OF ALL PAVEMENT AND O.C.S.T)

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ROSE VALLEY SOUTH UNIT #2

PROPOSED TYPICAL SECTIONS

N.T.S. SHEET 2 OF 2

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		5
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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GENERAL NOTES

1. ALL CONSTRUCTION AND MATERIALS TO BE IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTAINANCE OF HIGHWAY, STREETS AND BRIDGES SEPTEMBER 2024" AND CITY OF SAN ANTONIO "STANDARD SPECIFCATIONS FOR PUBLIC WORKS CONSTRUCTION" DATED JUNE 2008 WITH ALL APPLICABLE AMENDMENTS AND ANY SPECIAL SPECIFICATIONS ISSUED FOR THE PROJECT UNLESS OTHERWISE SPECIFIED.
2. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS, BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED IN THE PAY ITEM TO WHICH IT RELATES.
3. CONFLICTS IN THE PLANS AND/OR SPECIFICATIONS FOUND BY THE CONTRACTOR SHALL BE PROMPTLY REPORTED TO THE INSPECTOR BEFORE PROCEEDING WITH CONSTRUCTION.
4. BIDDERS ARE HEREBY NOTIFIED TO MAKE SUBSURFACE INVESTIGATIONS AS THEY DEEM NECESSARY. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ROCK, SAND, GRAVEL OR OTHER UNSTABLE CONDITIONS ENCOUNTERED IN STREET EXCAVATION, BOX CULVERT EXCAVATION, STRUCTURAL EXCAVATION, OR CHANNEL EXCAVATION.
5. THE CONTRACTOR SHALL LIMIT WORK ACTIVITIES TO THE STREET RIGHTS-OF-WAY AND EASEMENTS. NO PROVISIONS HAVE BEEN MADE FOR WORK ACTIVITIES OR STORAGE OF MATERIALS AND/OR EQUIPMENT ON PRIVATE PROPERTY.
6. THE CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES, MARKERS, ETC. ANY CONSTRUCTION STAKES, MARKERS, ETC., REMOVED BY THE CONTRACTOR OR THE CONTRACTOR'S EMPLOYEES SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
7. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192.181, GAS UTILITY OWNERS MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
8. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF FENCING. DAMAGED FENCING SHALL BE REPLACED WITH EQUAL OR BETTER MATERIALS AND WORKMANSHIP. THE CONTRACTOR SHALL COORDINATE WITH THE LANDOWNER FOR WORK WITHIN PRIVATE PROPERTY. EASEMENT FENCES MAY BE REMOVED AND REPLACED AS REQUIRED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN AND SET UP TEMPORARY FENCING FOR LIVESTOCK AS NECESSARY FOR ALL PHASES OF WORK. NO SEPARATE PAYMENT SHALL BE MADE FOR MAINTAINING FENCING.
9. CONTRACTOR SHALL PROTECT FROM DAMAGE ALL TREES WITHIN THE PROJECT'S RIGHT-OF-WAY AND VARIOUS CONSTRUCTION AND FILL EASEMENTS EXCEPT FOR THOSE TREES SPECIFICALLY DESIGNATED BY THE "CONSTRUCTION INSPECTOR" TO BE REMOVED FOR CONSTRUCTION PURPOSES AND WILL BE SUBSIDARY TO THE VARIOUS BID ITEMS FOR THE PROJECT. ALL TREES WHICH ARE NOT DESIGNED FOR REMOVAL AND ARE DAMAGED BY CONTRACTOR SHALL BE COMPENSATED FOR OR REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF BEXAR COUTY OR THE PROPERTY OWNER.
10. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTUAL DESIGN/GEOTECHNICAL/SAFETY EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO DEVELOP THE CONTRACTOR'S PLAN TO IMPLEMENT THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS.
11. THE CONTRACTOR'S PLANS SHALL PROVIDE ADEQUATE TRENCH SAFETY SYSTEMS THAT COMPLY WITH AS MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS, SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL DEVELOP STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
12. THE CONTRACTOR SHALL MAINTAIN ALL ADJOINING STREETS AND TRAVELED ROUTES FREE FROM SPILLED AND/OR TRACKED CONSTRUCTION MATERIALS.
13. ANY CAVERN OR SOLUTION CHANNELS ENCOUNTERED DURING CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER AND THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) REGION 13 OFFICE WITH A REQUEST FOR APPROVAL OF CONSTRUCTION.
14. ALL WASTE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND IT WILL BE HIS SOLE RESPONSIBILITY TO DISPOSE OF THIS MATERIAL OFF THE LIMITS OF THE RIGHT-OF-WAY AND TO PRIVATE OWNERS. NO WASTE MATERIALS SHALL BE PLACED IN EXISTING LOWS THAT WILL BLOCK OR ALTER FLOW LIMITS OF EXISTING NATURAL DRAINAGE. THE CONTRACTOR SHALL NOT PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOODPLAIN WITHOUT FIRST OBTAINING A FLOOD PLAIN DEVELOPMENT PERMIT FROM THE APPROPRIATE ENTITY.
15. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREAS DURING CONSTRUCTION.
16. AFTER COMPLETION OF ALL WORK, THE CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE RIGHT-OF-WAY AND LEAVE THE WORK AREA NEAT AND CLEAN. ANY TEMPORARY FILL TO FACILITATE CONSTRUCTION SHALL BE REMOVED AND DISPOSED OF IN A MANNER APPROVED BY THE COUNTY ENGINEER.
17. ALL DISTURBED AREAS SHALL BE FINISHED WITH TOPSOIL AND HYDROMULCH OR SOD AS NOTED ON THE PLANS.
18. CONTRACTOR TO VERIFY EXISTING ELEVATIONS AT ALL TIE-IN LOCATIONS PRIOR TO CONSTRUCTION. NOTIFY ENGINEER IF SIGNIFICANT DISCREPANCIES EXIST.
19. THE EXISTING CONDITIONS AND UTILITIES SHOWN ON THE PLANS WERE DETERMINED AT THE TIME OF PLAN PREPARATION (NOVEMBER 2025). THE UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY. THE ACTUAL LOCATIONS AND DEPTHS OF UTILITIES SHOWN ON THE PLANS INCLUDING THOSE WHICH HAVE BEEN ADDED, ELIMINATED, ADJUSTED AND/OR RELOCATED AFTER THE AFOREMENTIONED DATE OF PLAN PREPARATION MUST BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO THE EXISTING UTILITIES DUE TO NEGLIGENCE OF THE CONTRACTOR OR DUE TO EXCAVATION OUTSIDE OF THE DEFINED CONSTRUCTION LIMITS OF THIS PROJECT. CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY OF FIELD VERIFYING EACH UTILITY LOCATION AND COORDINATING AND NOTIFYING OWNERS AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO EXCAVATION.
20. OVERHEAD UTILITIES MAY EXIST ON THE PROPERTY. WE HAVE NOT ATTEMPTED TO MARK THOSE SINCE THEY ARE CLEARLY VISIBLE. BUT YOU SHOULD LOCATE THEM BEFORE BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH AND SAFETY CODE FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES. CONTRACTOS AND OWNERS ARE LEGALLY RESPOSIBLE FOR SAFETY OF CONSTRUCTION WORKERS UNDER this LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILILTY, TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CONTACT CPS AT 210-978-3500.
21. CONTRACTOR SHALL BE RESPONSIBLE OR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED COMPLETING CONSTRUCTION OF THIS PROJECT.
22. CONTRACTOR SHALL NOTIFY THE COUNTY AT (210) 335-6700 TWENTY FOUR (24) HOURS PRIOR TO THE BACKFILL OF ANY TRENCHES TO SCHEDULE FOR DENSITY TESTING AS REQUIRED.
23. IF SUSPECTED CONTAMINATION IS ENCOUNTERED DURING CONSTRUCTION OPERATIONS, BEXAR COUNTY SHALL BE NOTIFIED IMMEDIATELY. THE NOTIFICATION SHOULD INCLUDE THE STATION NUMBER, TYPE OF CONTAMINATED MEDIA, EVIDENCE OF CONTAMINATION AND MEASURES TAKEN TO CONTAIN THE CONTAMINATED MEDIA AND PREVENT PUBLIC ACCESS. THE CONTAMINATED SOIL AND/OR GROUNDWATER SHALL NOT BE REMOVED FROM THE LOCATION WITHOUT PRIOR BEXAR COUNTY APPROVAL. THE CONTRACTOR MUST STOP THE EXCAVATION IMMEDIATELY AND CONTACT THE BEXAR COUNTY INSPECTOR. THE CONTRACTOR WILL NOT RE-COMMENCE EXCAVATION ACTIVITIES WITHOUT WRITTEN PERMISSION FROM BEXAR COUNTY.
24. LOCATION OF ALL CONCRETE FOUNDATIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
25. ALL SPOILS FROM EXCAVATION SHALL BE PLACED IN A TRUCK OR TRAILER TO BE REMOVED DAILY AND SHALL NOT BE PLACED ON THE GROUND OR ROADWAY.
26. ALL STREETS AND/OR DRIVEWAYS MUST BE BORED, IF NECESSARY. NO OPEN CUT OF STREETS OR DRIVEWAYS WILL BE ALLOWED.
27. REMOVE EXISTING RAISED PAVEMENT MARKERS AND EXISTING PAVEMENT MARKINGS AS THE WORK PROGRESSES OR AS APPROVED. THIS WORK IS SUBIDIARY TO THE VARIOUS BID ITEMS.
28. ANY MATERIALS REMOVED AND NOT REUSED AND DETERMINED TO BE SALVAGEABLE SHALL BE STORED WITHIN THE PROJECT LIMITS AT AN APPROVED LOCATION OR DELIVERED UNDAMAGED TO THE STORAGE YARD AS DIRECTED. PROPERLY DISPOSE UNSALVAGEABLE MATERIALS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
29. ANY SIGN PANELS THAT ARE ADJUSTED OR REMOVED AND REPLACED, SHALL BE DONE THE SAME WORKDAY UNLESS OTHERWISE APPROVED. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THIS PROJECT SHALL CONFORM TO APPLICABLE CITY OF SAN ANTONIO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (LATEsT ADDITION), TXDOT STANDARD SPECIFICATIONS AS WELL AS PROVISIONS APPLICABLE TO THE PROJECT AND AS OTHER SAFETY CODE AND INSPECTION REQUIREMENTS OF THE FIRE DEPARTMENT.
30. MATERIAL FURNISHED BY THE CONTRACTOR SHALL BE NEW, UN-DEPRECIATED STOCK. ALL EQUIPMENT SHALL BE NEW, UNLESS NOTED OTHERWISE ON THE PLANS.
31. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ORIGINAL CONDITION, OR BETTER, ANY DAMAGE DONE TO EXISTING BUILDINGS, RETAINING WALLS, UTILITIES, FENCES, PAVEMENT, CURBS OR DRIVEWAYS (NO SEPARATE PAY ITEM). CONTRACTOR SHALL RESTORE THE CONSTRUCTION AREA TO ORIGINAL CONDITION, OR BETTER, PRIOR TO FINAL INSPECTION.

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GENERAL NOTES

SHEET 1 OF 2

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		6
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

32. CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS AND SIDEWALKS ADJACENT TO THE PROJECT FREE OF MUD AND DEBRIS FROM THE CONSTRUCTION AT ALL TIMES.

33. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION CONTROL FACILITIES BEFORE, DURING AND AFTER ALL CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.

34. ALL JOINTS, SEALS, CONNECTIONS, AND MODIFICATIONS NECESSARY FOR PROPER INSTALLATION OF RCP SHALL BE SUBSIDIARY TO THE RCP PAY ITEM.

35. FOR PEDESTRIAN SAFETY, THE CONTRACTOR SHALL INSTALL ORANGE PLASTIC CONSTRUCTION FENCING (4 FEET TALL MINIMUM) AROUND ALL OPEN EXCAVATIONS OR AS DIRECTED BY THE ENGINEER. SUCH FENCING SHALL NOT OBSTRUCT SIGHT LINES OF THE TRAVELING PUBLIC.

36. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARING ANY CONSTRUCTION MATERIALS FROM ADJACENT WATERWAYS AFTER A FLOOD EVENT. REPAIR OF ANY DAMAGES TO DRAINAGE STRUCTURES IN THE PROJECT AREA, OR DOWNSTREAM CAUSED BY CONSTRUCTION DEBRIS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

37. PREPARATION OF RIGHT OF WAY SHALL INCLUDE ALL DRIVEWAY PENETRATION AREAS.

TRAFFIC NOTES

GENERAL AND SPECIAL CONDITIONS

1. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO SEE THAT ALL TRAFFIC CONTROL DEVICES ARE PROPERLY INSTALLED AND MAINTAINED AT THE JOB SITE IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND RELATED INDUSTRY STANDARDS AND REGULATIONS. THE CONTRACTOR SHALL SUBMIT FOR REVIEW A SIGN AND BARRICADE PLAN CONFORMING TO THE REQUIREMENTS OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. THE COUNTY'S CONSTRUCTION INSPECTOR AND THE TRAFFIC ENGINEERING REPRESENTATIVE WILL ONLY BE RESPONSIBLE TO INSPECT THE TRAFFIC CONTROL DEVICES BEING DEPLOYED. IF, IN THE OPINION OF THE TRAFFIC ENGINEERING REPRESENTATIVE AND THE CONSTRUCTION INSPECTOR, THE TRAFFIC CONTROL DEVICES DO NOT CONFORM TO ESTABLISHED STANDARDS OR ARE INCORRECTLY PLACED OR ARE INSUFFICIENT IN QUANTITY TO PROTECT THE GENERAL PUBLIC, THE CONSTRUCTION INSPECTOR SHALL HAVE THE OPTION TO STOP CONSTRUCTION OPERATIONS AT NO EXPENSE TO THE COUNTY UNTIL SUCH TIME AS THE CONDITIONS ARE CORRECTED BY THE CONTRACTOR.
2. PRIOR TO MOVING ANY TRAFFIC SIGNS OR TRAFFIC SIGNALS, THE CONTRACTOR SHALL CONTACT THE COUNTY'S TRAFFIC OPERATIONS SECTION. PRIOR TO COMPLETION OF THE CONTRACT AND REMOVAL OF THE BARRICADES, THE CONTRACTOR SHALL AGAIN CONTACT THE TRAFFIC OPERATIONS SECTION. THE BARRICADES SHALL NOT BE REMOVED UNTIL ALL APPLICABLE PERMANENT TRAFFIC SIGNS AND SIGNALS ARE IN PLACE.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND MAINTAIN TEMPORARY STOP SIGNS AND ALL OTHER TRAFFIC CONTROL DEVICES REQUIRED TO PROTECT THE GENERAL PUBLIC. IF THE COUNTY HAS REMOVED PERMANENT STOP SIGNS, THE CONTRACTOR SHALL REQUEST THAT TEMPORARY SIGNS BE FURNISHED TO THE CONSTRUCTION SITE SO THAT THEY CAN BE REINSTALLED BY HIM. ALL PERMANENT SIGNS OR TRAFFIC CONTROL DEVICES MISSING OR DAMAGED UPON COMPLETION OF CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR MUST CONTACT THE COUNTY ENGINEER OR HIS DESIGNATED REPRESENTATIVE 72 HOURS IN ADVANCE (NOT INCLUDING WEEKENDS OR HOLIDAYS) OF ANY MINOR STREET CLOSURE. THIS MUCH TIME IS NECESSARY TO INSTALL ADVISORY SIGNS AND GIVE THE MOTORIST A MINIMUM OF 3 DAYS NOTICE OF THE STREET CLOSURE. THE TRAFFIC ENGINEERING OFFICE WILL MAKE THE NECESSARY ARRANGEMENTS AND NOTIFY ALL EMERGENCY SERVICES AND AGENCIES.
5. AS WORK PROGRESSES, LOCATION OF TEMPORARY TRAFFIC CONTROL DEVICES WILL BE ADJUSTED AND MODIFIED AS NECESSARY BY THE CONTRACTOR, WITH THE APPROVAL OF THE TRAFFIC ENGINEER OR HIS DESIGNATED REPRESENTATIVE.
6. IF THE NEED ARISES, ADDITIONAL TEMPORARY TRAFFIC CONTROL DEVICES, SPECIAL DIRECTIONAL DEVICES AND/OR BUSINESS NAME SIGNS MAY BE ORDERED BY THE TRAFFIC ENGINEERING REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.
7. TEMPORARY TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE TXDOT "BC-07" SHEETS AND TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
8. THE CONTRACTOR MUST MAINTAIN ALL STREETS OPEN TO THROUGH TRAFFIC BY REPAIRING TRENCHES, POTHOLES, LEVELING UP WITH ASPHALT, ETC., AT NO DIRECT PAYMENT. COST TO BE INCLUDED WITH OTHER ITEMS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUITABLE ACCESS ACCOMMODATIONS FOR SCHOOL CHILDREN AND PEDESTRIANS.
10. THE CONTRACTOR SHALL PROVIDE ACCESS FOR DELIVERY OF MAIL BY THE U.S. POSTAL SERVICE.
11. THE CONTRACTOR SHALL PROVIDE FOR ACCESS TO RESIDENCES AND ALL BUSINESSES AT ALL TIMES WITHIN ALL PHASES OF THE WORK.
12. WHEN CONSTRUCTION WORK NECESSITATES THE UTILIZATION OF VEHICLE PATHS OTHER THAN THE LANES NORMALLY USED, TRAFFIC CONTROL MARKINGS NO LONGER APPLICABLE SHALL BE REMOVED AND APPROVED TEMPORARY PAVEMENT MARKINGS AND SIGNS SHALL BE INSTALLED IN ACCORDANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
13. ALL TEMPORARY TRAFFIC CONTROL DEVICES, ETC., SHALL BE PROVIDED BY THE CONTRACTOR WITHOUT DIRECT PAYMENT, UNLESS OTHERWISE NOTED OR STATED.
14. THE CONSTRUCTION INSPECTOR SHALL MONITOR THE CONTRACTOR'S TRAFFIC CONTROL DEVICES AND WILL BE RESPONSIBLE TO FURNISH ALL RESIDENTS AND BUSINESSES WITH PROGRESS ADVISORIES ON ALL PHASES DURING THE COURSE OF CONSTRUCTION.
15. ANY DAMAGE TO PERMANENT TRAFFIC SIGNALS, THE CONTROLLER BOX, LOOPS OR CONDUITS DURING OR UPON COMPLETION OF THE PROJECT SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE. THE DECISION TO REPAIR AS OPPOSED TO REPLACE THE DAMAGED EQUIPMENT SHALL BE MADE BY THE COUNTY TRAFFIC ENGINEERING SECTION.
16. CONTRACTOR SHALL PROVIDE APPROPRIATE SAFE ACCESS AND BARRICADE WORK AT ALL TIMES TO PROTECT THE PUBLIC. THE SITE MUST BE LEFT IN A SECURE SAFE CONDITION AT NIGHT. THIS INCLUDES SUBSTANTIAL BARRICADES AROUND ALL TRENCHES, OPEN EXCAVATIONS, EQUIPMENT, ETC. IT IS THE CONTRACTOR'S RESPONSIBILITY TO TAKE NECESSARY PRECAUTIONS TO PROTECT THE PUBLIC THROUGHOUT THE DURATION OF THE PROJECT.
17. ANY QUESTIONS REGARDING PHASING OR STAGING WILL BE STRICTLY HANDLED BY BEXAR COUNTY WHICH HAS COMPLETE AUTHORITY TO MAKE FINAL DECISIONS ON ANY CHANGES OR MODIFICATIONS.
18. EXISTING CROSS DRAINS SHALL BE TEMPORARILY EXTENDED AS REQUIRED BY THE PLANS FOR TEMPORARY WIDENING OF ROADWAYS. NO DIRECT PAYMENT.
19. ANY ADDITIONAL CONSTRUCTION THAT IS NOT SHOWN AND IS REQUIRED TO COMPLETE THE TEMPORARY PAVEMENT SECTION FOR TEMPORARY WIDENING OF ROADWAYS WILL BE AT NO DIRECT PAYMENT TO THE CONTRACTOR, COST TO BE INCLUDED IN OTHER ITEMS.
20. WHEN DROP-OFF ADJACENT TO THE ROADWAY (TEMPORARY OR OTHERWISE) EXCEEDS TWO (2)INCHES AND IS LESS THAN TWO (2) FEET, THE CONTRACTOR SHALL PROVIDE DELINEATED DRUMS OR VERTICAL PANELS IN ACCORDANCE WITH THE MOST CURRENT STANDARDS BY BEXAR COUNTY PUBLIC WORKS & THE TEXAS DEPARTMENT OF TRANSPORTATION. HOWEVER, THIS WILL ONLY BE POSSIBLE IF A MINIMUM BUFFER ZONE OF FOUR (4) FEET IS AVAILABLE BETWEEN THE EDGE OF TRAVELWAY AND THE WARNING OR CONTROL DEVICE. THE DRUMS OR PANELS SHALL BE PLACED AT TWENTY-FIVE (25) FOOT INTERVALS ALONG THE EDGE OF THE TEMPORARY ROADWAY. THERE WILL BE NO SEPARATE PAY FOR THIS WORK.
21. WHEN A DROP-OFF ON THE ROADWAY (TEMPORARY OR OTHERWISE) EXCEEDS TWO (2) FEET, THE CONTRACTOR SHALL PLACE A TEMPORARY PROTECTIVE BARRIER ON THE EDGE OF THE TEMPORARY ROADWAY CONFORMING TO THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, UNLESS OTHERWISE STATED ON PLANS. THE COST OF CONCRETE TRAFFIC BARRIERS (PORTABLE) FOR TEMPORARY WIDENING OF ROADWAYS SHALL NOT BE PAID DIRECTLY.
22. WHEN TWO-WAY TRAFFIC IS ROUTED ON ONE-SIDE OF THE EXISTING OR PROPOSED CENTER OF ROADWAY, AS PART OF STAGED CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY BEXAR COUNTY 48 HOURS PRIOR TO THE INSTALLATION OF TEMPORARY MARKINGS. CENTERLINE DIVIDING TWO-WAY TRAFFIC SHALL CONSIST OF SOLID DOUBLE YELLOW LINES, UNLESS BARRICADES OR BARRELS ARE APPROVED FOR SHORT TERM USE.
23. ADDITIONAL TEMPORARY WIDENING MAY BE REQUIRED FOR SLOPES TO MAINTAIN THE MINIMUM TRAVEL SURFACE. EMBANKMENT SHALL BE AT NO DIRECT PAYMENT, COST TO BE INCLUDED IN OTHER ITEMS.

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TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

GENERAL NOTES

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		7
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

TRAFFIC CONTROL PLAN QUANTITIES								
PLAN SHEET NO.	STATION TO STATION	502 7001 BARRICADES, SIGNS AND TRAFFIC HANDLING	503 7001 PORTABLE CHANGEABLE MESSAGE SIGN	505 7001 TMA (STATIONARY)	505 7003 TMA (MOBILE OPERATION)	510 7001 ONE-WAY TRAF CONT (FLAGGER CONT)	662 7112 WK ZN PAV MRK SHT TERM (TAB)TY W	662 7114 WK ZN PAV MRK SHT TERM (TAB)TY Y-2
		MO	DAY	DAY	DAY	HR	EA	EA
-	BEGIN TO END							
PROJECT TOTALS		2	56	39	2	32	36	212

ROADWAY QUANTITIES												
PLAN SHEET NO.	STATION TO STATION	0104 7006 REMOV CONC (RIPRAP)	* 0104 XXXX REMOV DRIVEWAY	0105 7026 RMV (6") TRT/UNTRT BASE & ASPH PAV	0110 7001 EXCAV (ROADWAY)	0132 7005 EMBANK (FNL)(OC)(TY C)	0247 7188 FL BS (CMP IN PLC)(TYD GR1-2)(FNAL POS	0260 7004 LIME (COMMERCIAL LIME SLURRY)	0260 7020 LIME TRT (SUBGRADE) (8")	0310 7013 PRIME COAT(MC-30 OR AE-P)	0316 7071 ASPH (AC-15P, AC-20-5TR OR AC-20XP)	0316 7211 AGGR (TY-PB, GR-4)(SAC-B)
		SY	SY	SY	CY	CY	CY	TON	SY	GAL	GAL	CY
44	BEGIN TO 104+00		46	158	373	122	871	21	1808	349		
45	104+00 TO 110+00		83	122	187	17	492	12	1033	197		
46	110+00 TO 116+00											
47	116+00 TO 122+00											
48	122+00 TO 128+00											
49	128+00 TO 134+00											
50	134+00 TO 140+00	2	56		323	129	368	10	796	148	442	11
51	140+00 TO END	3	52		177	64	518	12	1035	194	529	13
PROJECT TOTALS		5	237	280	1060	332	2249	55	4672	888	971	24

* SEE NOTE 1

ROADWAY QUANTITIES										
PLAN SHEET NO.	STATION TO STATION	0341 7001 D-GR HMA TY-B PG64-22	0341 7048 D-GR HMA TY-D PG70-22	0354 7051 PLANE ASPH CONC PAV(2")	0464 7003 RC PIPE (CL III)(18 IN)	0467 7307 SET (TY II) (18 IN) (RCP) (6: 1) (C)	0496 7007 REMOV STR (PIPE)	0530 7016 DRIVEWAYS (SURF TREAT)	0560 7012 RELOCATE EXISTING MAILBOX	3007 7001 BONDING COURSE
		TON	TON	SY	LF	EA	LF	SY	EA	GAL
44	BEGIN TO 104+00	516	183					51		392
45	104+00 TO 110+00	285	100					74	2	216
46	110+00 TO 116+00									
47	116+00 TO 122+00									
48	122+00 TO 128+00									
49	128+00 TO 134+00									
50	134+00 TO 140+00	202	78	79				41	1	153
51	140+00 TO END	271	105	94	31	2	22	55	2	205
PROJECT TOTALS		1274	466	173	31	2	22	221	5	966

SIGNING QUANTITIES			
PLAN SHEET NO.	STATION TO STATION	644 7001 IN SM RD SN SUP&AM TY10BWG(1)SA(P)	644 7073 REMOVE SM RD SN SUP&AM
		EA	EA
61	BEGIN TO 110+00	4	4
62	110+00 TO 122+00		
63	122+00 TO 134+00	1	
64	134+00 TO END	2	1
PROJECT TOTALS		7	5

DRAINAGE QUANTITIES										
PLAN SHEET NO.	STATION	105.1 CHANNEL EXCAVATION	307.1 CONCRETE RIPRAP	401.1 DRAIN PIPE (30" DIAM RCP CLASS IV)	401.4 SAFETY END TREATMENT	403.1 JUNCTION BOX (COMPLETE) 4'X4'X4'	407.4 CONCRETE COLLAR	410.2 GRAVEL SUBGRADE FILLER	XXX.01 8-12" DIAM ROCK RUBBLE	XXX.02 GRATE INLET
		CY	CY	LF	EA	EA	EA	CY	SY	EA
50	144+82.53									
51	110+00 TO 122+00	57	6	92	1	1	1	6	5	1
PROJECT TOTALS		57	6	92	1	1	1	6	5	1

NOTES:
1.THIS ITEM IS SUBSIDIARY TO INSTALLATION DRIVEWAYS (SURF TREAT)-530 7016

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ROSE VALLEY SOUTH UNIT #2

SUMMARY OF QUANTITIES

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		8
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

PAVEMENT MARKINGS QUANTITIES

PLAN SHEET NO.	STATION TO STATION	0666 7018	0666 7024	0666 7036	0666 7042	0666 7045	0666 7066	0666 7123	0666 7132	0666 7411	0666 7423	0672 7002	0672 7004	0677 7001
		REFL PAV MRK TY I (W)8"(DOT)(100 MIL)	REFL PAV MRK TY I (W)8"(SLD)(100M IL)	REFL PAV MRK TY I (W)24"(SLD)(100 MIL)	REFL PAV MRK TY I (W)(ARROW)(100 MIL)	REFL PAV MRK TY I(W)(DBL ARROW)(100MIL	REFL PAV MRK TY I (W)(WORD)(100M IL)	REFL PAV MRK TY I (Y)24"(SLD)(100 MIL)	REFL PAV MRK TY I(Y)(MED NOSE)(100MIL)	REFL PAV MRK TY I (W)6"(SLD)(100M IL)	REFL PAV MRK TY I (Y)6"(SLD)(100M IL)	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A	ELIM EXT PM & MRKS (4")
		LF	LF	LF	EA	EA	EA	LF	EA	LF	LF	EA	EA	LF
61	BEGIN TO 110+00	14	220	33	2	2	2			1420	1350	11	18	88
62	110+00 TO 122+00													
63	122+00 TO 134+00													
64	134+00 TO END	12	211		2			145	1	1384	2354	11	134	
PROJECT TOTALS		26	431	33	4	2	2	145	1	2804	3704	22	152	88

SW3P QUANTITIES

PLAN SHEET NO.	STATION TO STATION	0161 7002	0164 7009	0168 7001	0506 7004	0506 7011	0506 7039	0506 7041
		COMPOST MANUF TOPSOIL (4")	DRILL SEED (PERM_RURAL_SAND)	VEGETATIVE WATERING	ROCK FILTER DAMS (INSTALL) (TY 4)	ROCK FILTER DAMS (REMOVE)	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)
		SY	SY	TGL	LF	LF	LF	LF
61	BEGIN TO 110+00	2750	2750	43	57	57	869	869
62	110+00 TO 122+00							
63	122+00 TO 134+00							
64	134+00 TO END	3134	3134	49	133	133	1098	1098
PROJECT TOTALS		5884	5884	92	190	190	1967	1967

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ROSE VALLEY SOUTH UNIT #2

SUMMARY OF QUANTITIES

SHEET 2 OF 2

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		9
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

1. GENERAL

A. HANDLE TRAFFIC APPROPRIATELY THROUGHOUT THE PROJECT DURING CONSTRUCTION. PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC AT ALL TIMES. ROADWAY CLOSURES ARE NOT ALLOWED UNLESS OTHERWISE SPECIFIED IN THE PLANS AND/OR AS APPROVED BY THE ENGINEER. PROVIDE ACCESS TO PROPERTIES AND BUSINESSES ADJACENT TO THE RIGHT-OF-WAY AT ALL TIMES DURING THE DURATION OF THE PROJECT. THE ADEQUACY OF THE PROPERTY ACCESS WILL BE DETERMINED BY THE COUNTY AND ENGINEER DO NOT LEAVE EQUIPMENT IN A POSITTON THAT WILL ENDANGER THE TRAVELING PUBLIC. MAINTAIN ADEQUATE SAFETY PROVISIONS THROUGHOUT THE PROJECT BY INCLUSION OF SIGNING, MARKINGS, SIGNALS, BARRIERS AND BARRICADES, CONFORM TO THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD) WHEN USING THESE PROVISIONS.

B. THE USE OF THE RIGHT-OF-WAY IS NOT EXCLUSIVE. COOPERATE WITH THE COUNTY, THE VARIOUS UTILITY COMPANIES AND CONTRACTORS, AS REQUIRED TO ALLOW ADJUSTMENTS TO BE MADE BY OTHERS. IF BY VIRTUE OF THE ADJUSTMENTS OF THESE UTILITIES THE CONTRACTOR IS DELAYED, AN EXTENSION OF THE WORKING TIME MAY BE GRANTED. IF IN THE OPINION OF THE ENGINEER IT IS WARRANTED.

C. ALL DETOURS, TRAFFIC MOVEMENTS, ETC., ARE DIRECTLY RELATED TO THE SEQUENCE OF WORK; THEREFORE, PROCEED WITH CONSTRUCTION OPERATIONS IN CONFORMITY WITH THE DETAILS SHOWN ON THE PLANS AND AS REQUIRED BY THIS NARRATIVE.

D. PROPOSE AND/OR RECOMMEND ANY MODIFICATIONS TO THE SEQUENCE OF WORK FOR CONSIDERATION TO THE ENGINEER IN WRITING. INCLUDE ANY CHANGES TO THE VARIOUS PAY ITEMS, IMPACT TO TRAFFIC, AND THE EFFECT OF THE OVERALL PROJECT IN TIME AND COST, ETC. WITH ANY MAJOR RECOMMENDED MODIFICATIONS. WRITTEN APPROVAL FROM THE ENGINEER IS REQUIRED PRIOR TO PROCEEDING WITH ANY CONSTRUCTION OPERATION BASED ON A REVISED PHASE/SEQUENCE OF WORK.

E. OFF-DUTY PEACE OFFICERS MAY BE HIRED TO SUPPLEMENT THE WORK FORCE TO CONTROL TRAFFIC AT INTERSECTIONS DURING THE DETOURING OF TRAFFIC, CLOSURE OF ROADWAY AND/OR INTERSECTIONS, AND ANY OTHER CRITICAL PHASES OF TRAFFIC HANDLING AS DETERMINED BY THE ENGINEER.

F. THE ENGINEER MAY DIRECT THE CONTRACTOR TO VARY THE NUMBER AND LOCATIONS OF SIGNS AND BARRICADES FROM THAT INDICATED ON THE PLANS.

G. COOPERATE FULLY WITH THE VARIOUS UTILITY COMPANIES.

H. WEEKEND HOURS ARE DEFINED AS THE HOURS BETWEEN FRIDAY 9:00 PM TO MONDAY 5:00 AM.

I. OFF PEAK HOURS ARE DEFINED AS A TIME FRAME BETWEEN 8:00 PM TO 5:00 AM MONDAY THRU FRIDAY.

J. MAINTAIN POSITIVE DRAINAGE DURING CONSTRUCTION, INCLUDING OFFSITE DRAINAGE FROM ADJACENT PROPERTIES AND AVOID IMPEDING FLOW FROM PRIVATE PROPERTY.

K. PLACE CONSTRUCTION EXITS AS NEEDED OR AS DIRECTED BY THE ENGINEER.

L. DAILY LANE CLOSURES WILL BE USED IN ACCORDANCE WITH STATE TCP STANDARDS.

M. DROP OFF CONDITIONS OF GREATER THAN 2 IN. MUST HAVE A 3:1 SLOPE AT THE END OF EACH DAY, AS WELL AS THROUGHOUT THE PROJECT WHERE ACCESS TO ADJACENT PROPERTIES IS ALLOWED TO DRIVEWAYS AND SIDE STREETS.

N. PLANING, SURFACE TREATMENTS AND OVERLAYS SHALL BE PERFORMED IN THE DIRECTION OF TRAFFIC.

O. MAINTAIN ACCESS TO ADJACENT PROPERTIES AND INTERSECTING SIDE STREETS AT ALL TIMES DURING CONSTRUCTION. FOR PROPERTIES WITH MULTIPLE ACCESS DRIVEWAYS, COORDINATE WITH PROPERTY OWNERS FOR A SINGLE DRIVEWAY FULL CLOSURE IN ORDER TO MAINTAIN ACCESS. FOR PROPERTIES WITH SINGLE ACCESS DRIVEWAYS OR ONE-WAY DRIVEWAYS, CONSTRUCT DRIVEWAYS IN HALF-SECTIONS, UNLESS APPROVED BY PROPERTY OWNER AND ENGINEER.

P. CONTRACTOR TO GIVE 7 DAYS ADVANCED NOTICE TO THE PUBLIC USING PORTABLE CHANGEABLE MESSAGE SIGNS BEFORE EACH LONG TERM TCP PHASE/STEP.

2. SEQUENCE OF WORK

THE SEQUENCE OF WORK WILL BE AS FOLLOWS UNLESS OTHERWISE DIRECTED/APPROVED BY THE COUNTY INSPECTOR. THIS PROJECT WILL BE CONSTRUCTED IN (3) PHASES. BEFORE THE COMMENCEMENT OF EACH PHASE, INSTALL TRAFFIC CONTROL DEVICES AND SW3P MEASURES AS SHOWN AND/OR DIRECTED BY THE COUNTY INSPECTOR. APPROVAL BY THE ENGINEER MUST BE OBTAINED PRIOR TO THE BEGINNING OF CONSTRUCTION, REFER TO "BARRICADES AND CONSTRUCTION STANDARDS". PREPARING ROW / REMOVAL OF EXISTING ITEMS TO BE DONE ONLY IN AREAS WHERE WORK IS OCCURING, AS PER THE PHASES NOTED BELOW. A BRIEF DESCRIPTION OF THESE PHASES ARE AS FOLLOWS:

PHASE 1 - ABBOTT ROAD RECONSTRUCTION AT FM 1346 INTERSECTION

THE INTENT OF THIS PHASE IS TO RECONSTRUCT ABBOTT RD WITH A RIGHT TURN LANE AT FM 1346 INTERSECTION (BEGIN PROJECT TO STA 107+00.11).

STEP 1 - NORTHBOUND ABBOTT ROAD RECONSTRUCTION (BEGIN PROJECT TO STA 107+00.11)

THE INTENT OF THIS STEP IS TO RECONSTRUCT THE NORTHBOUND SIDE OF ABBOTT ROAD USING A DAILY SHOULDER CLOSURE ALONG FM 1346 AND A LONG TERM ONE-LANE ONE-WAY TCP SETUP ALONG ABBOTT ROAD WITH A DETOUR. CONTRACTOR TO BACKFILL ALL DROP OFF CONDITIONS WITH A 3:1 SLOPE AT THE END OF EACH WORKDAY.

1. INSTALL TCP SIGNS AND BARRICADES PER TXDOT TCP STANDARD (1-1b)-18, (2-8)-23, AND TCP PHASE 1 STEP 1 TYPICAL SECTIONS. REFER TO TCP PHASE 1 STEP 1 DETOUR.
2. SAWCUT EXISTING ROADWAY
3. EXCAVATE AND REMOVE ITEMS PER PLANS
4. COMPACT, EMBANK, AND LIME TREAT SUBGRADE
5. RECONSTRUCT DRIVEWAYS
6. PLACE 18" FLEX BASE
7. PAVE 5.5" HMA TYPE B
8. PAVE 2" HMA TYPE D

STEP 2 - SOUTHBOUND ABBOT ROAD RECONSTRUCTION (BEGIN PROJECT TO STA 107+00.11)

THE INTENT OF THIS STEP IS TO RECONSTRUCT THE SOUTHBOUND SIDE OF ABBOTT ROAD USING A DAILY SHOULDER CLOSURE ALONG FM 1346 AND A LONG TERM ONE-LANE ONE-WAY TCP SETUP ALONG ABBOTT ROAD WITH A DETOUR. CONTRACTOR TO BACKFILL ALL DROP OFF CONDITIONS WITH A 3:1 SLOPE AT THE END OF EACH WORKDAY.

1. INSTALL TCP SIGNS AND BARRICADES PER TXDOT TCP STANDARD (1-1b)-18, (2-8)-23, AND TCP PHASE 1 STEP 2 TYPICAL SECTIONS. REFER TO TCP PHASE 1 STEP 2 DETOUR.
2. SAWCUT EXISTING ROADWAY
3. EXCAVATE AND REMOVE ITEMS PER PLANS
4. COMPACT, EMBANK, AND LIME TREAT SUBGRADE
5. RECONSTRUCT DRIVEWAYS
6. PLACE 18" FLEX BASE
7. PAVE 5.5" HMA TYPE B
8. PAVE 2" HMA TYPE D

PHASE 2 - ROADWAY WIDENING ALONG ABBOTT ROAD

THE INTENT OF THIS PHASE IS TO WIDEN BOTH SIDES OF ABBOTT ROAD, RECONSTRUCT EXISTING DRIVEWAYS, AND CONSTRUCT A PROPOSED DRIVEWAY (STA 136+42.15 TO END PROJECT).

STEP 1 - NORTHBOUND ABBOTT ROAD WIDENING (STA 136+42.82 TO END PROJECT)

THE INTENT OF THIS STEP IS TO WIDEN THE NORTHBOUND SIDE OF ABBOTT ROAD USING A LONG TERM ONE-LANE ONE-WAY TCP SETUP ALONG ABBOTT ROAD WITH A DETOUR. CONTRACTOR TO BACKFILL ALL DROP OFF CONDITIONS WITH A 3:1 SLOPE AT THE END OF EACH WORKDAY. REFER TO TXDOT STANDARD WZ(RCD)-13 FOR APPLICABLE TCP SIGNING.

1. INSTALL TCP SIGNS AND BARRICADES PER TXDOT TCP STANDARD (2-8)-23 AND TCP PHASE 2 STEP 1 TYPICAL SECTION. REFER TO TCP PHASE 2 STEP 1 DETOUR.
2. SAWCUT EXISTING ROADWAY
3. MILL, EXCAVATE, AND REMOVE ITEMS PER PLANS
4. COMPACT, EMBANK, AND LIME TREAT SUBGRADE
5. PLACE 18" FLEX BASE
6. PAVE 5.5" HMA TYPE B
7. PAVE 2" HMA TYPE D

STEP 2 - NORTHBOUND ABBOTT ROAD DRIVEWAY RECONSTRUCTION

THE INTENT OF THIS STEP IS TO RECONSTRUCT THE DRIVEWAYS ALONG THE NORTHBOUND SIDE OF ABBOTT ROAD USING A DAILY SHOULDER CLOSURE ALONG ABBOTT ROAD. CONTRACTOR TO BACKFILL ALL DROP OFF CONDITIONS WITH A 3:1 SLOPE AT THE END OF EACH WORKDAY.

1. INSTALL TCP SIGNS AND BARRICADES PER TXDOT TCP STANDARD (1-1)-18 AND TCP PHASE 2 STEP 2 TYPICAL SECTION
2. RECONSTRUCT EXISTING DRIVEWAYS

STEP 3 - SOUTHBOUND ABBOTT ROAD WIDENING (STA 136+42.15 TO END PROJECT)

THE INTENT OF THIS STEP IS TO WIDEN THE SOUTHBOUND SIDE OF ABBOTT ROAD USING A LONG TERM ONE-LANE ONE-WAY TCP SETUP ALONG ABBOTT ROAD WITH A DETOUR. CONTRACTOR TO BACKFILL ALL DROP OFF CONDITIONS WITH A 3:1 SLOPE AT THE END OF EACH WORKDAY.

1. INSTALL TCP SIGNS AND BARRICADES PER TXDOT TCP STANDARD (2-8)-23 AND TCP PHASE 2 STEP 3 TYPICAL SECTION. REFER TO TCP PHASE 2 STEP 3 DETOUR.
2. SAWCUT EXISTING ROADWAY
3. MILL, EXCAVATE, AND REMOVE ITEMS PER PLANS
4. COMPACT, EMBANK, AND LIME TREAT SUBGRADE
5. PLACE 18" FLEX BASE
6. PAVE 5.5" HMA TYPE B
7. PAVE 2" HMA TYPE D

STEP 4 - SOUTHBOUND ABBOTT ROAD DRIVEWAY CONSTRUCTION

THE INTENT OF THIS STEP IS TO CONSTRUCT A DRIVEWAY ALONG THE SOUTHBOUND SIDE OF ABBOTT ROAD USING LONG-TERM LANE SHIFTS ALONG ABBOTT ROAD. CONTRACTOR TO BACKFILL ALL DROP OFF CONDITIONS WITH A 3:1 SLOPE AT THE END OF EACH WORKDAY.

1. INSTALL TCP SIGNS AND BARRICADES PER TXDOT TCP STANDARD (2-3a)-23 AND TCP PHASE 2 STEP 4 TYPICAL SECTION
2. CONSTRUCT PROPOSED DRIVEWAY

PHASE 3 - ONE COURSE SURFACE TREATMENT, PERMANENT PAVEMENT MARKINGS AND SIGNAGE ALONG ABBOTT ROAD

THE INTENT OF THIS PHASE IS TO PLACE A ONE COURSE SURFACE TREATMENT FROM STA 136+42.15 TO STA 144+24.84, PLACE PERMANENT PAVEMENT MARKINGS AND SIGNAGE.

PLACE THE ONE COURSE SURFACE TREATMENT USING A ONE-LANE TWO-WAY TCP SETUP PER TXDOT TCP STANDARD (1-2)-18 AND TCP (7-1)-13. INSTALL SHORT TERM PAVEMENT MARKING TABS PER TXDOT STANDARD WZ(STPM)-23 UNTIL FINAL PAVEMENT MARKINGS ARE INSTALLED. INSTALL THE PERMANENT PAVEMENT MARKINGS FOLLOWING TXDOT TCP STANDARD (3-1)-13 AND NO LATER THAN 14 CALENDAR DAYS AFTER PLACEMENT OF THE OCST. INSTALL THE PERMANENT SIGNING USING A DAILY SHOULDER CLOSURE FOLLOWING TXDOT TCP STANDARD (1-1)-18.

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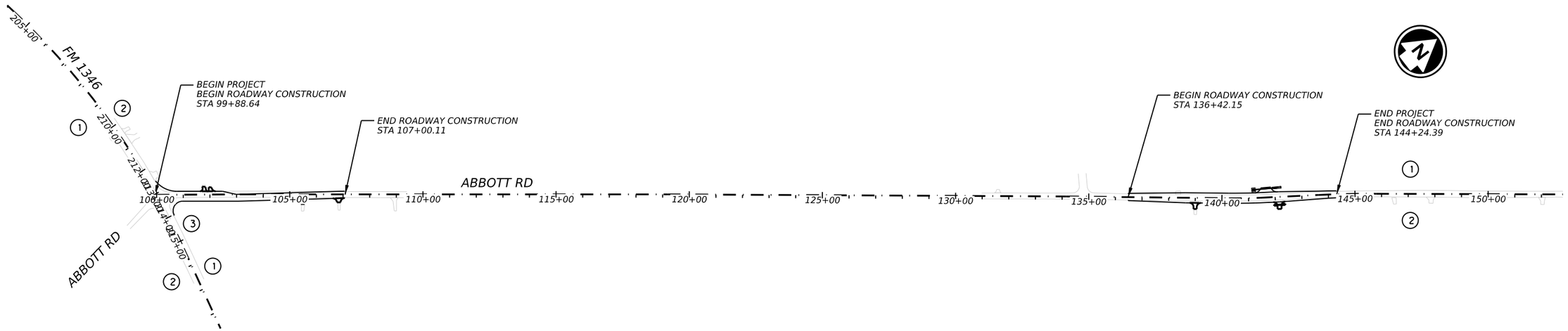
ROSE VALLEY SOUTH UNIT #2

TRAFFIC CONTROL PLAN SEQUENCE OF WORK

SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		10
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:28:09 AM
1/5/2026
Legacy Engineering Group
P:\DESIGN_PROJECTS\Martinez Creek Estates_FM_1346\4 - Design\Plan Set\02 TCP\MRTCRK_TCP_NARR.dgn



LOCATION NO. 1 TO BE PLACED AT THE BEGINNING OF PROJECT

LOCATION NO. 2 TO BE PLACED AT THE END OF THE PROJECT

LOCATION NO. 3 TO BE PLACED AT ENTERING SIDE STREETS OF THE PROJECT.

LOCATION NO. 4 TO BE PLACED AT EXITING SIDE STREETS OF THE PROJECT.

LOCATION NO. 5 TO BE USED THROUGHOUT THE COURSE OF THE PROJECT AS DIRECTED BY THE ENGINEER.

LOCATION	ROAD WORK AHEAD	END ROAD WORK	ROAD WORK ← NEXT X MILES NEXT X MILES →	ROAD WORK NEXT X MILES →	WORK ZONE	END WORK ZONE	BEGIN ROAD WORK NEXT X MILES	NAME ADDRESS CITY STATE CONTRACTOR	BEGIN WORK ZONE	STAY ALERT TALK OR TEXT LATER	OBEY WARNING SIGNS STATE LAW	TRAFFIC FINES DOUBLE	WHEN WORKERS ARE PRESENT	XX MPH	Give Us A BRAKE	1/2 MILE	1000 FT	ROAD WORK 1 MILE	DETOUR AHEAD	
	CW20-1D	G20-2	G20-1aT	G20-1bTL/R	G20-5aP	G20-2bT	G20-5T	G20-6T	G20-9TP	G20-10T	R20-3T	R20-5T	R20-5aTP	CW13-1P	CW21-1T	CW16-3aTP	CW16-3aTP	CW20-1F	CW20-2D	CW20-7
	48 X 48	48 X 24	72 X 36	72 X 24	24x18	48 X 24	48 X 24	48 X 30	36 X 30	60 X 48	48 X 42	36 X 36	36 X 18	24 X 24	48 X 48	36 X 12	36 X 12	48 X 48	48 X 48	48 X 48
1	✓				✓		✓	✓	✓	✓	✓	✓	✓							
2		✓				✓														
3	✓		✓	✓																
4		✓																		
5	✓			✓	✓									✓	✓	✓	✓	✓	✓	✓

LOCATION	XXX FEET	BE PREPARED TO STOP	ONE LANE ROAD AHEAD	ONE LANE ROAD XXX FT			DO NOT PASS	PASS WITH CARE	DETOUR			DO NOT ENTER	ROAD CLOSED 500 FT	ROAD CLOSED 1000 FT	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY	DETOUR	ROAD CLOSED	END DETOUR	ABBOTT RD
	CW16-2P	CW3-4	CW20-4D	CW20-4	CW1-6aT	CW1-4L/R	R4-1	R4-2	M4-8	R3-2	R3-1	R5-1	CW20-3C	CW20-3B	R11-3a	M4-10R	R11-2	M4-8a	M4-12T
	24 X 18	48 X 48	48 X 48	48 X 48	36 X 36	48 X 48	24 X 30	24 X 30	30 X 15	36 X 36	36 X 36	36 X 36	48 X 48	48 X 48	60 X 30	48 X 18	48 X 30	24 X 18	36 X 12
1																			
2																			
3																			
4																			
5	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

LOCATION	DETOUR	DETOUR	DETOUR				
	M4-9S	M4-9R	M4-9L	TY 3 BARRICADE	DRUMS	P.C.M.S.	VERTICAL PANELS
	30 X 24	30 X 24	30 X 24				
1							
2							
3							
4							
5	✓	✓	✓	✓	✓	✓	✓

NOTES:

1. *CERTAIN SIGNS MUST BE USED IN CONJUNCTION WITH OTHER SIGNS. EXAMPLE: "FLAGGERS AHEAD" MUST HAVE A "BE PREPARED TO STOP" SIGN.*
2. *BARRICADES AND WARNING SIGNS ON THIS SHEET ARE MINIMAL CONSTRUCTION ZONE SIGNING. ADDITIONAL BARRICADES, WARNING SIGNS, ARROW PANELS, CONES, ETC. IN ACCORDANCE WITH CURRENT BC STANDARDS AND THE TEXAS MUTCD, MAY BE REQUIRED IN AREAS OF ACTUAL CONSTRUCTION.*
3. *A DISTANCE PLAQUE IN FEET OR MILES MAY BE REQUIRED FOR USE IN CONJUNCTION WITH WARNING SIGNS.*
4. *UTILIZE EXPERIENCED FLAGGERS AT ALL TIMES.*
5. *TRUCK MOUNTED ATTENUATORS (TMA) WILL BE REQUIRED FOR THIS PROJECT.*

0' 200' 400'

SCALE: 1"=400'

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EDWARD GALICIA	114275	1/5/2026
NAME	P.E. #	DATE

LEGACY ENGINEERING GROUP

Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

TRAFFIC CONTROL PLAN SCHEDULE OF BARRICADES

SCALE: 1" = 400' *SHEET 1 OF 1*

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	11

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:28:22 AM
1/5/2026
Legacy Engineering Group
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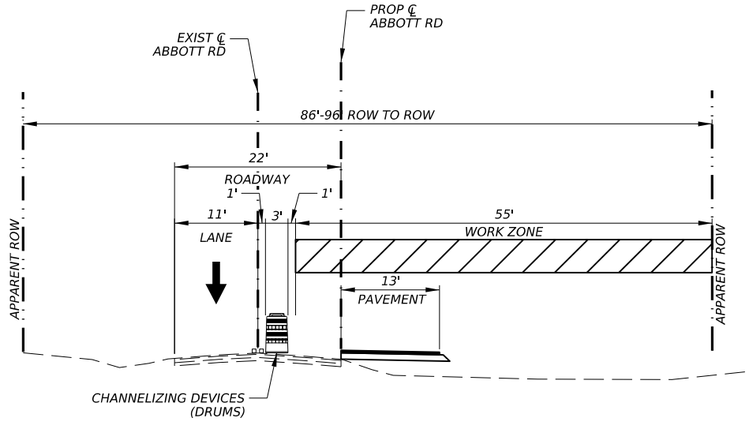
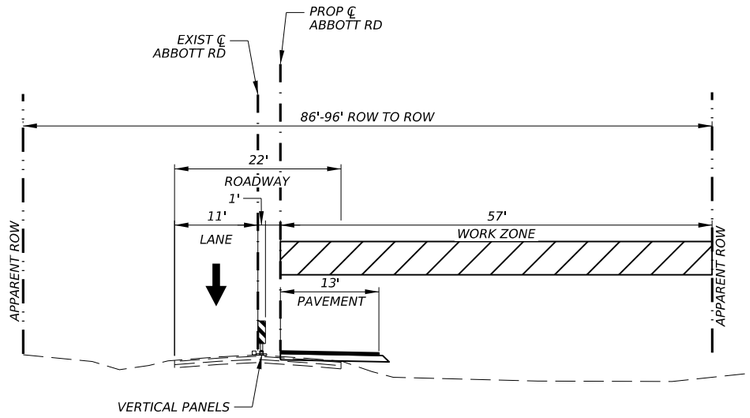


PHASE 1 STEP 1 - TCP TYPICAL SECTION (ABBOTT RD)

PROP ℄ ABBOTT RD STA 100+22.82 TO STA 106+00.00



PHASE 1 STEP 1 - TCP TYPICAL SECTION (ABBOTT RD)

PROP ℄ ABBOTT RD STA 106+00.00 TO STA 107+00.11

LEGEND

- EXISTING TRAFFIC FLOW
- TCP TRAFFIC FLOW
- CONSTRUCTION THIS PHASE/STEP
- CONSTRUCTED PREVIOUS PHASE/STEP

NOTES:

1. USE PROP ℄ FOR TCP LAYOUT CONTROL, UNLESS OTHERWISE SPECIFIED.

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ROSE VALLEY SOUTH UNIT #2

TRAFFIC CONTROL PLAN
PHASE 1 STEP 1
TYPICAL SECTIONS

N.T.S. SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		12
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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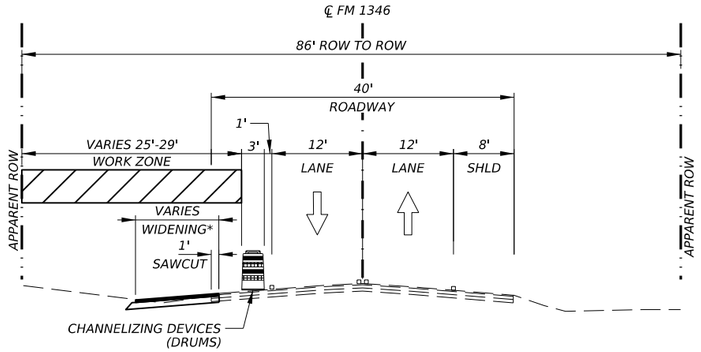
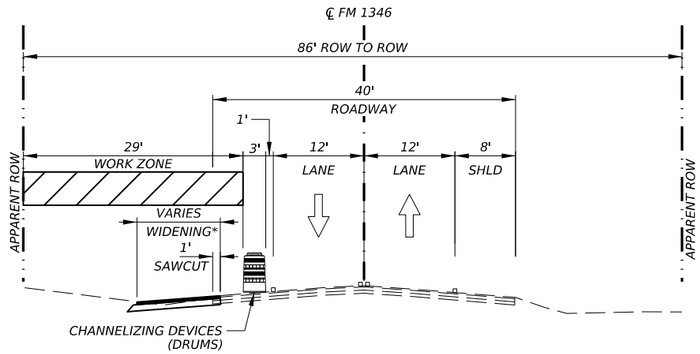


PHASE 1 STEP 1 - TCP TYPICAL SECTION (FM 1346)

℄ FM 1346 STA 213+68.55 TO STA 219+58.55
* SEE ROADWAY LAYOUTS FOR WIDENING LIMITS



PHASE 1 STEP 2 - TCP TYPICAL SECTION (FM 1346)

℄ FM 1346 STA 210+92.70 TO STA 213+04.95 AND STA 214+04.00 TO STA 217+49.91
* SEE ROADWAY LAYOUTS FOR WIDENING LIMITS

LEGEND

- EXISTING TRAFFIC FLOW
- TCP TRAFFIC FLOW
- CONSTRUCTION THIS PHASE/STEP
- CONSTRUCTED PREVIOUS PHASE/STEP

NOTES:

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ROSE VALLEY SOUTH UNIT #2

TRAFFIC CONTROL PLAN
PHASE 1 STEP 1/2
TYPICAL SECTIONS

N.T.S. SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		13
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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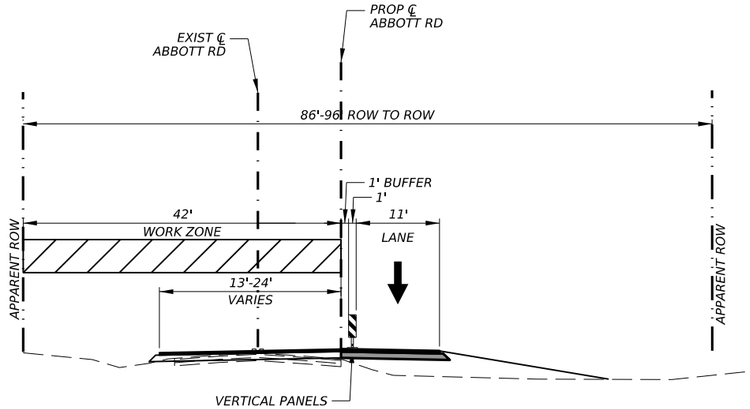
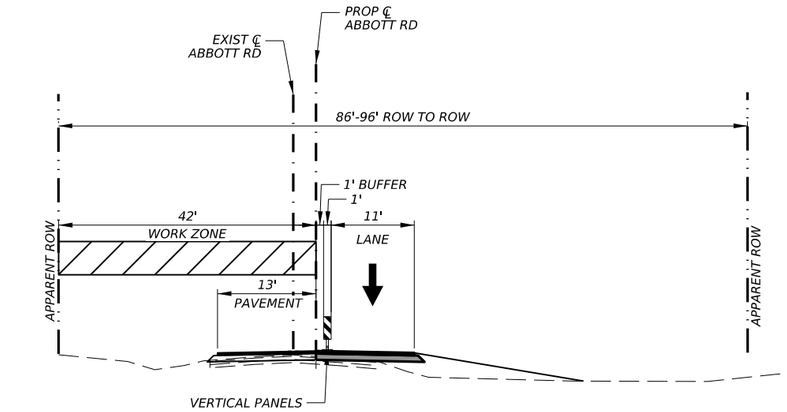


PHASE 1 STEP 2 - TCP TYPICAL SECTION (ABBOTT RD)

PROP ℄ ABBOTT RD STA 100+22.82 TO STA 106+00.00



PHASE 1 STEP 2 - TCP TYPICAL SECTION (ABBOTT RD)

PROP ℄ ABBOTT RD STA 106+00.00 TO STA 107+00.11

LEGEND

- EXISTING TRAFFIC FLOW
- TCP TRAFFIC FLOW
- CONSTRUCTION THIS PHASE/STEP
- CONSTRUCTED PREVIOUS PHASE/STEP

NOTES:

1. USE PROP ℄ FOR TCP LAYOUT CONTROL, UNLESS OTHERWISE SPECIFIED.

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ROSE VALLEY SOUTH UNIT #2

TRAFFIC CONTROL PLAN
PHASE 1 STEP 2
TYPICAL SECTIONS

N.T.S. SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		14
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
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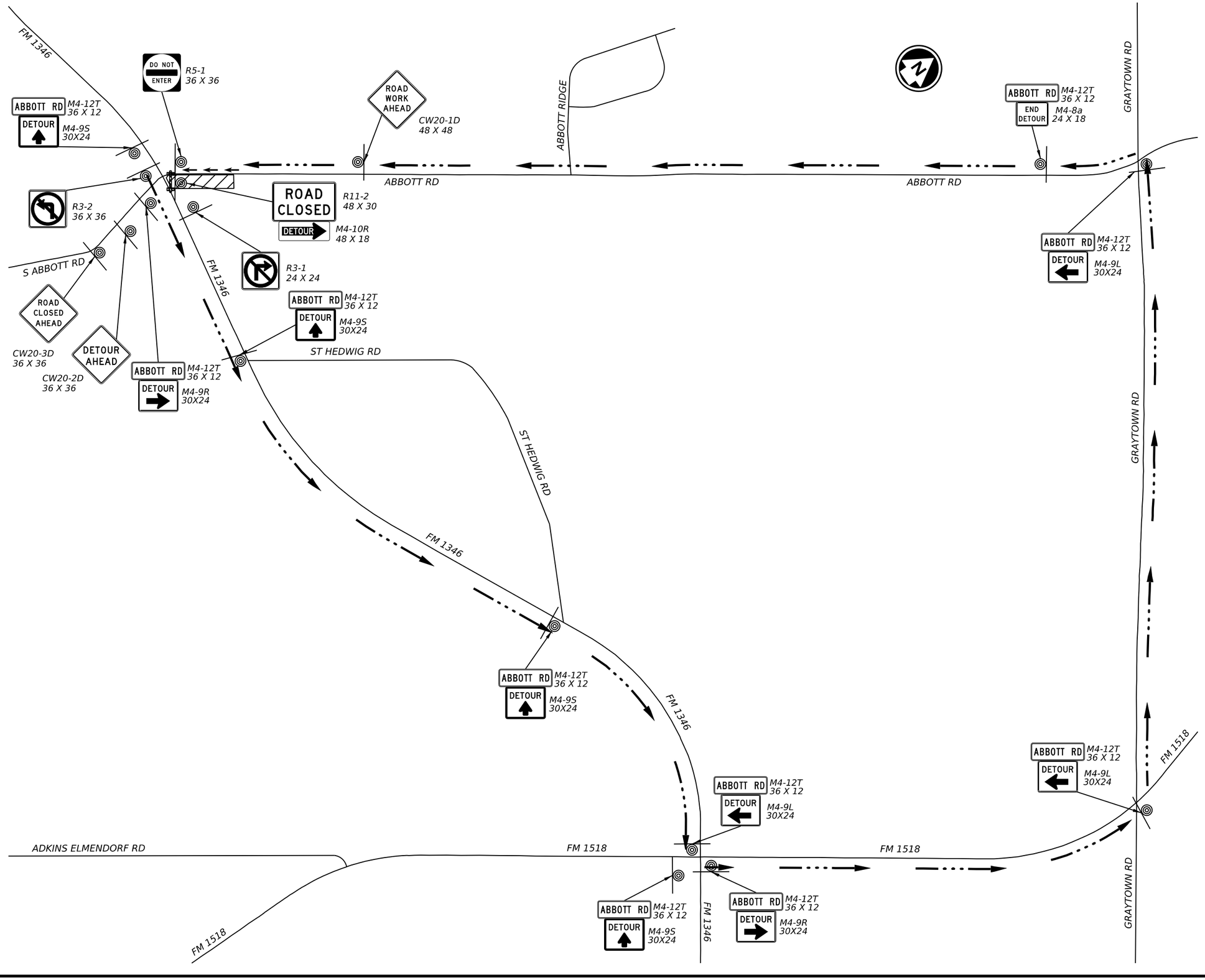

LEGEND

- CONSTRUCTION THIS PHASE/STEP
- DETOUR TRAFFIC FLOW ARROWS
- DETOUR SIGN
- TYPE 3 BARRICADE
- TRAFFIC FLOW ARROW

0' 400' 800'

SCALE: 1"=800'

NOTES:

1. DETOUR SIGNING SHOWN IS MINIMUM REQUIRED FOR DETOUR SETUP. SEE TXDOT TCP STANDARD REFERENCED IN SEQUENCE OF WORK FOR ADDITIONAL WORK ZONE SIGNING REQUIRED FOR THIS TCP PHASE/STEP.

2. ONE-WAY SIGNS (R6-1L/R) ARE TO BE PLACED AT ALL DRIVEWAYS THAT FALL WITHIN A ONE-WAY ONE-LANE TCP SETUP. THIS WORK IS SUBSIDIARY TO ITEM 502-7001.

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TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2
TRAFFIC CONTROL PLAN
PHASE 1 STEP 1
DETOUR LAYOUT

SCALE: 1" = 800' SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	15

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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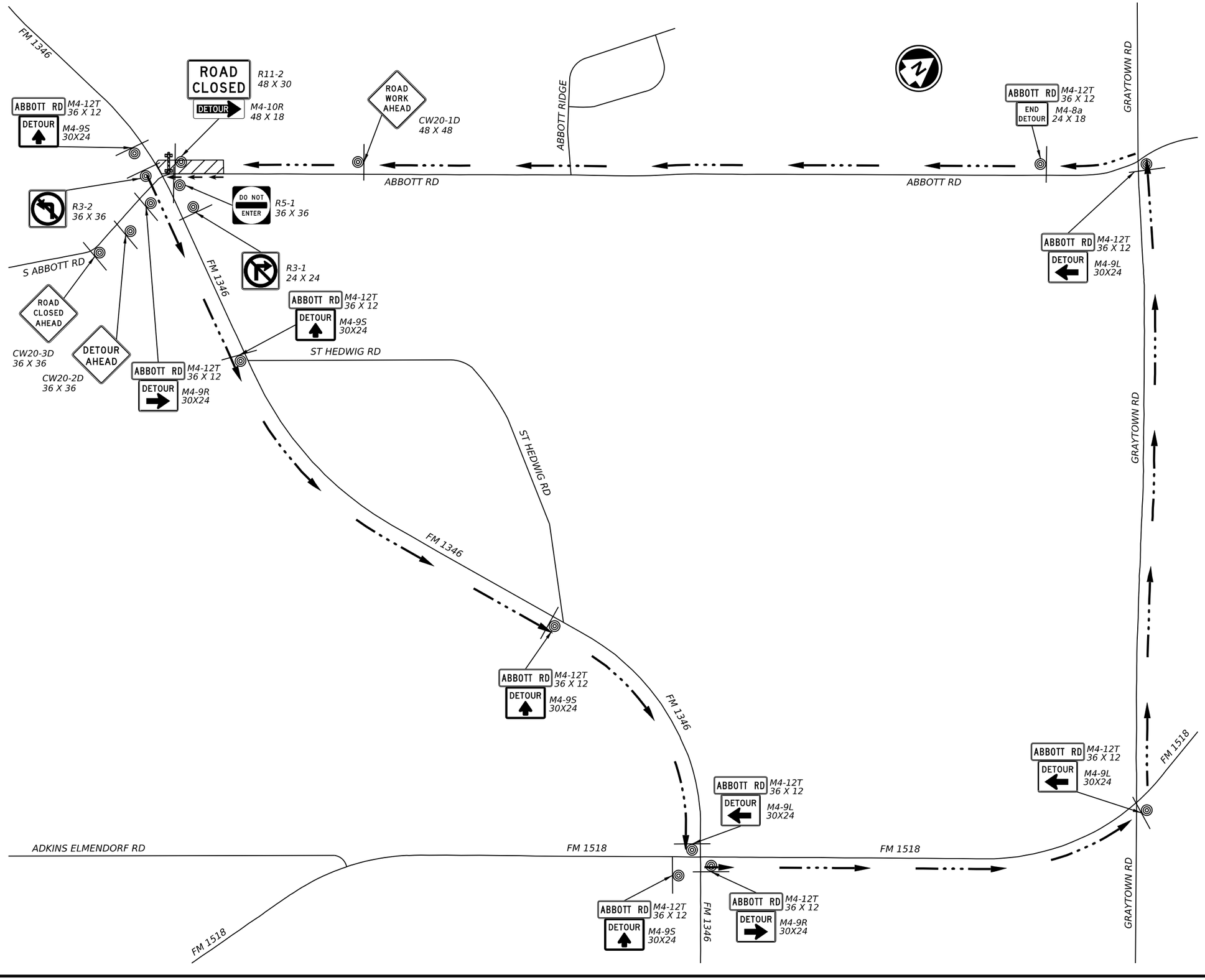

NOTES:

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ROSE VALLEY SOUTH UNIT #2
TRAFFIC CONTROL PLAN
PHASE 1 STEP 2
DETOUR LAYOUT

SCALE: 1" = 800' SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		16
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
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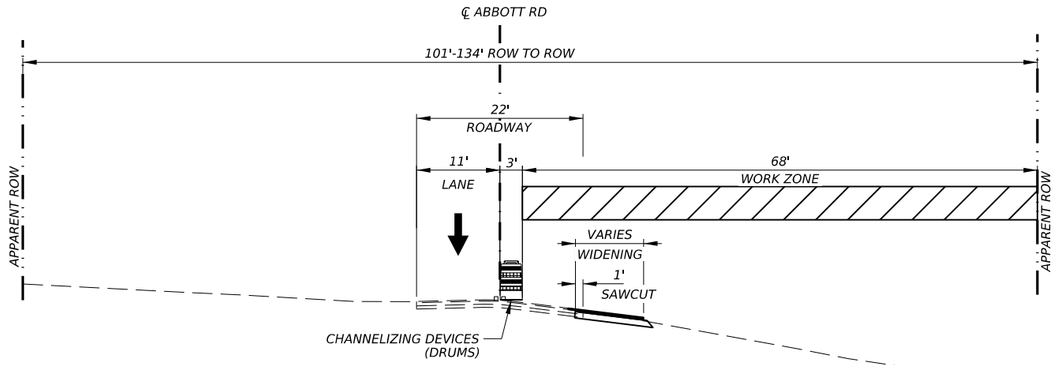


PHASE 2 STEP 1 - TCP TYPICAL SECTION (ABBOTT RD)

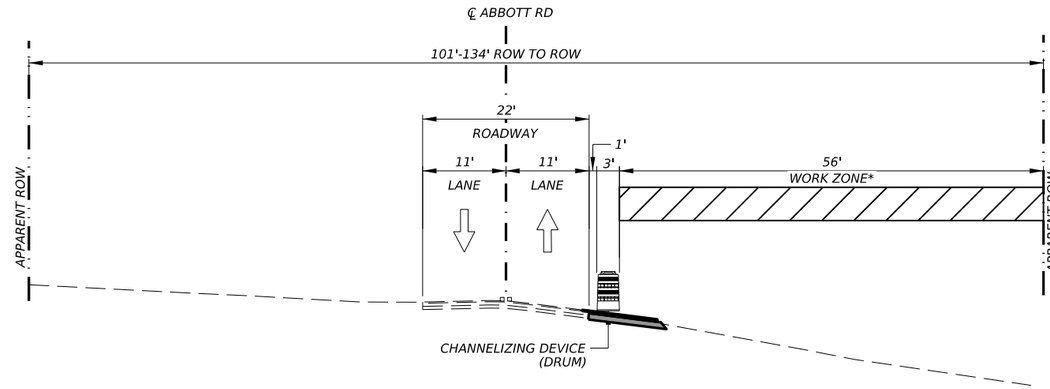
PROP ℄ ABBOTT RD STA 136+42.82 TO END PROJECT

LEGEND

- EXISTING TRAFFIC FLOW
- TCP TRAFFIC FLOW
- CONSTRUCTION THIS PHASE/STEP
- CONSTRUCTED PREVIOUS PHASE/STEP

NOTES:

1. USE PROP ℄ FOR TCP LAYOUT CONTROL, UNLESS OTHERWISE SPECIFIED.



PHASE 2 STEP 2 - TCP TYPICAL SECTION (ABBOTT RD)

PROP ℄ ABBOTT RD STA 136+42.82 TO END PROJECT

* SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR DRIVEWAY LOCATIONS AND CONSTRUCTION LIMITS

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TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

TRAFFIC CONTROL PLAN PHASE 2 STEP 1 & 2 TYPICAL SECTIONS

N.T.S. SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		17
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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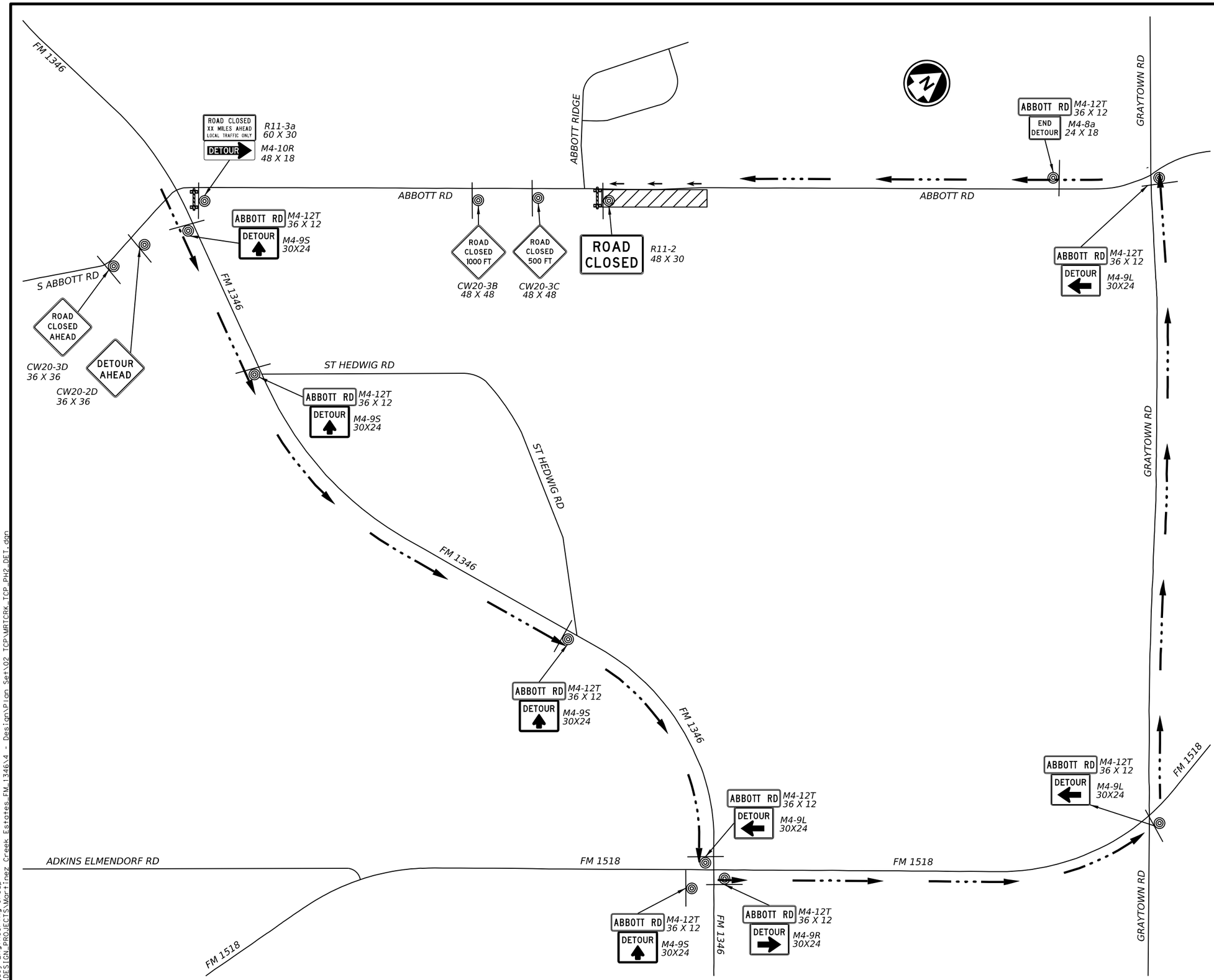

NOTES:

1. DETOUR SIGNING SHOWN IS MINIMUM REQUIRED FOR DETOUR SETUP. SEE TXDOT TCP STANDARD REFERENCED IN SEQUENCE OF WORK FOR ADDITIONAL WORK ZONE SIGNING REQUIRED FOR THIS TCP PHASE/STEP.

2. ONE-WAY SIGNS (R6-1L/R) ARE TO BE PLACED AT ALL DRIVEWAYS THAT FALL WITHIN A ONE-WAY ONE-LANE TCP SETUP. THIS WORK IS SUBSIDIARY TO ITEM 502-7001.

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ROSE VALLEY SOUTH UNIT #2
TRAFFIC CONTROL PLAN
PHASE 2 STEP 1
DETOUR LAYOUT

SCALE: 1" = 800' SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		18
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
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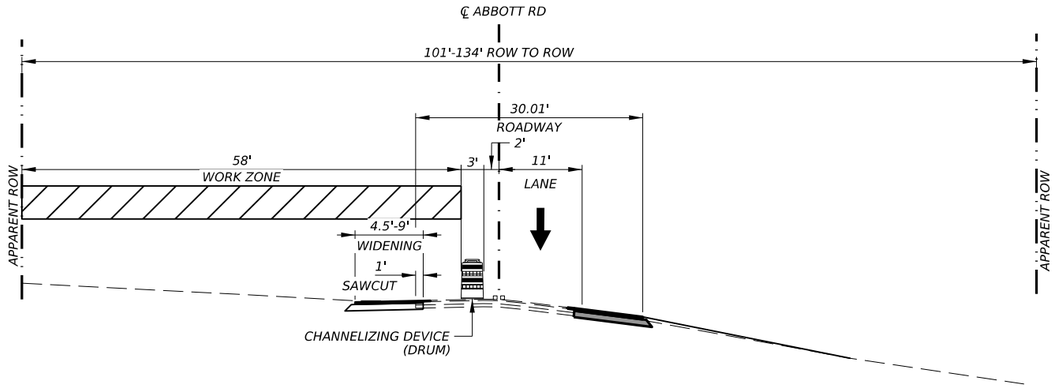
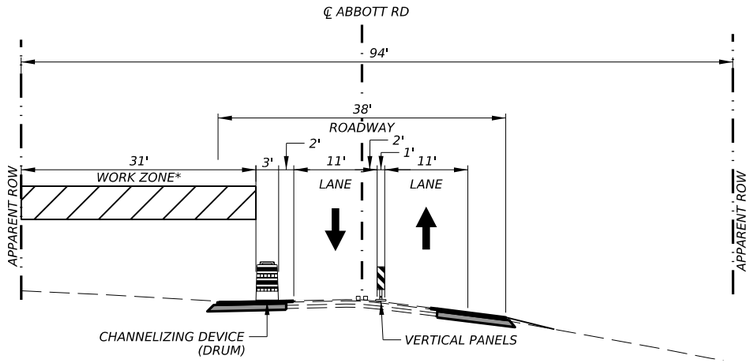


PHASE 2 STEP 3 - TCP TYPICAL SECTION (ABBOTT RD)

PROP ℄ ABBOTT RD STA 136+42.15 TO END PROJECT



PHASE 2 STEP 4 - TCP TYPICAL SECTION (ABBOTT RD)

PROP ℄ ABBOTT RD STA 136+42.15 TO END PROJECT

* SEE DRIVEWAY PLAN AND PROFILE SHEETS FOR DRIVEWAY LOCATION AND CONSTRUCTION LIMITS

LEGEND

- EXISTING TRAFFIC FLOW
- TCP TRAFFIC FLOW
- CONSTRUCTION THIS PHASE/STEP
- CONSTRUCTED PREVIOUS PHASE/STEP

NOTES:

1. USE PROP ℄ FOR TCP LAYOUT CONTROL, UNLESS OTHERWISE SPECIFIED.

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TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

TRAFFIC CONTROL PLAN
PHASE 2 STEP 3 & 4
TYPICAL SECTIONS

N.T.S. SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		19
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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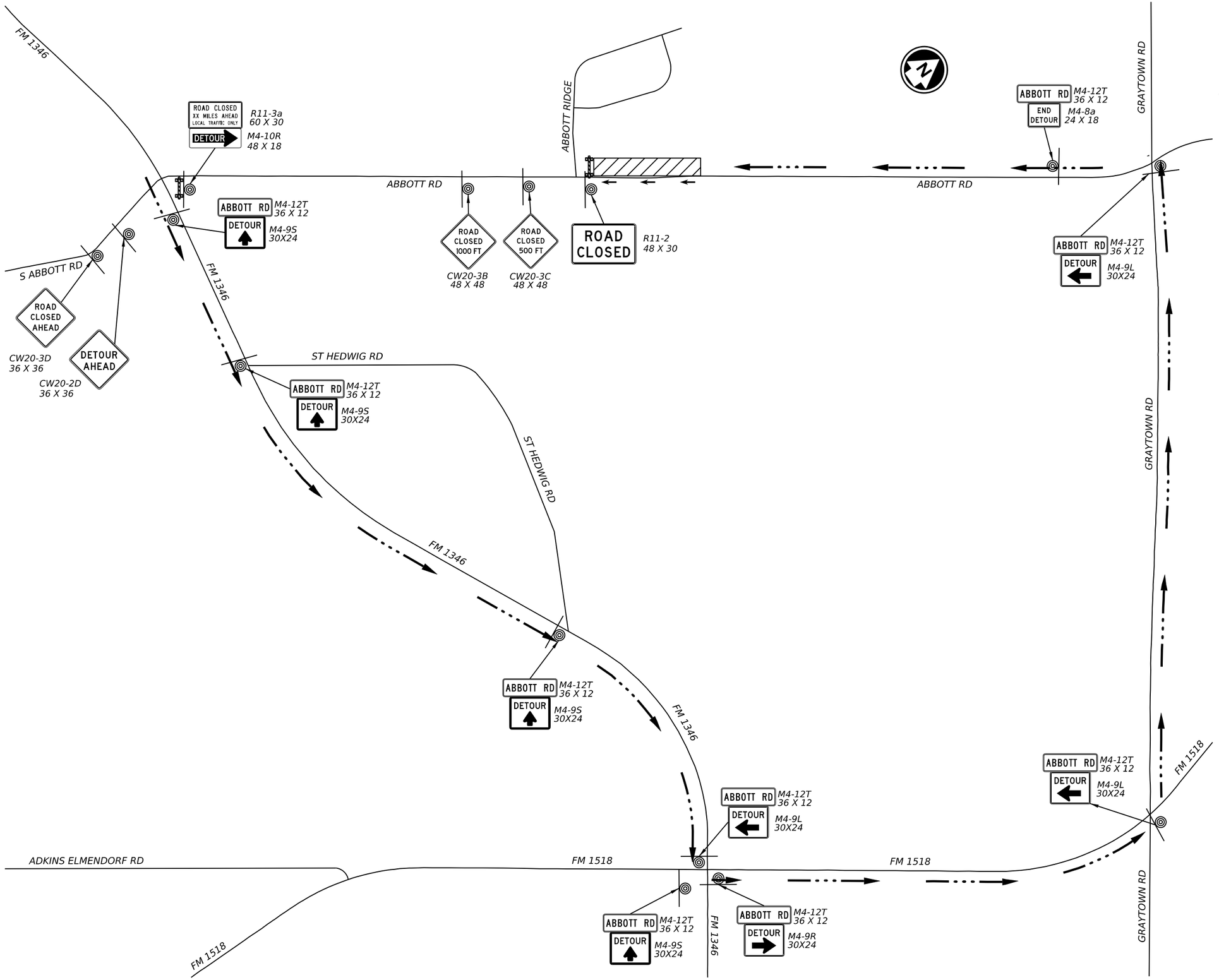

NOTES:

1. DETOUR SIGNING SHOWN IS MINIMUM REQUIRED FOR DETOUR SETUP. SEE TXDOT TCP STANDARD REFERENCED IN SEQUENCE OF WORK FOR ADDITIONAL WORK ZONE SIGNING REQUIRED FOR THIS TCP PHASE/STEP.

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ROSE VALLEY SOUTH UNIT #2
TRAFFIC CONTROL PLAN
PHASE 2 STEP 3
DETOUR LAYOUT

SCALE: 1" = 800' SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		20
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:28:31 AM
1/5/2026
Legacy Engineering Group
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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).

2. The development and design of the Traffic Control Plan (TCP)is the responsibility of the Engineer.

3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.

4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.

5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.

6. When projects abut, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.

7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.

8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.

10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.

11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.

12. The Engineer has the final decision on the location of all traffic control devices.

13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.

2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.

2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

SHEET 1 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
4-03 7-13	DIST	COUNTY		SHEET NO.
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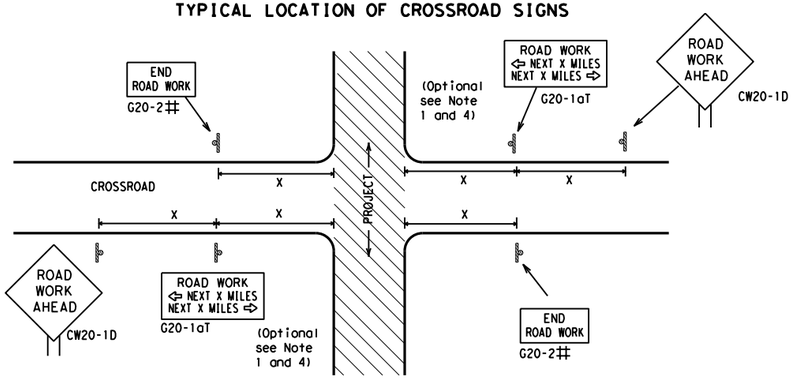
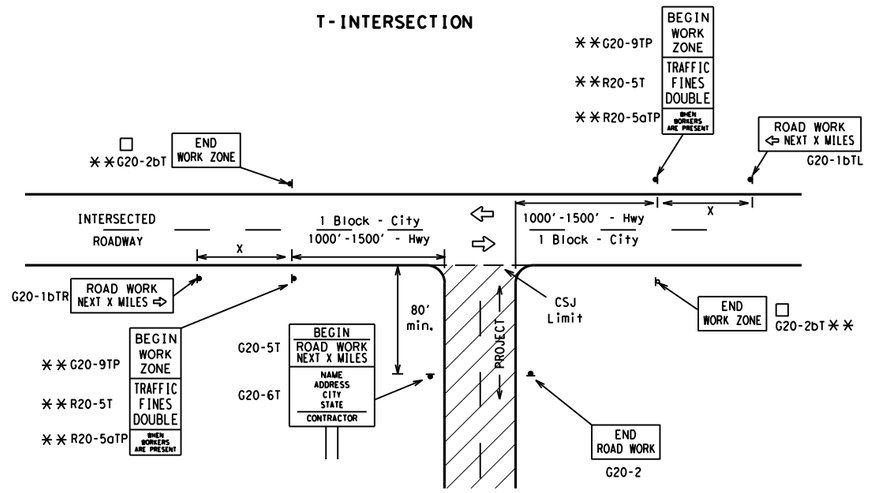
TYPICAL LOCATION OF CROSSROAD SIGNS



May be mounted on back of "ROAD WORK AHEAD"(CW20-1D) sign with approval of Engineer. (See note 2 below)

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
4. The "ROAD WORK NEXT X MILES"(G20-1aT)sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
6. When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME"(G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow(G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR)" signs shall be replaced by the detour signing called for in the plans.

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING[1,5,6]

SIZE

Sign Number or Series	Conventional Road	Expressway/ Freeway
CW20[4] CW21 CW22 CW23 CW25	48" x 48"	48" x 48"
CW1, CW2, CW7, CW8, CW9, CW11, CW14	36" x 36"	48" x 48"
CW3, CW4, CW5, CW6, CW8-3, CW10, CW12	48" x 48"	48" x 48"

SPACING

Posted Speed	Sign △ Spacing "X"
MPH	Feet (Apprx.)
30	120
35	160
40	240
45	320
50	400
55	500[2]
60	600[2]
65	700[2]
70	800[2]
75	900[2]
80	1000[2]
*	*[3]

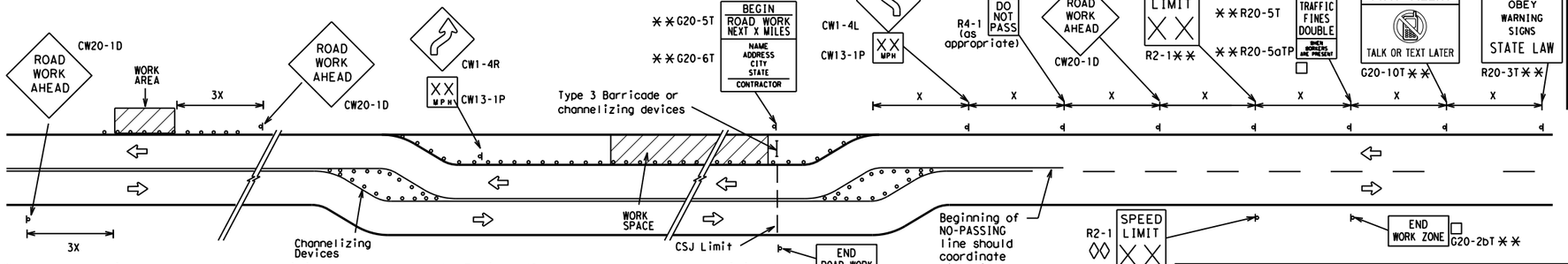
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ Minimum distance from work area to first Advance Warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

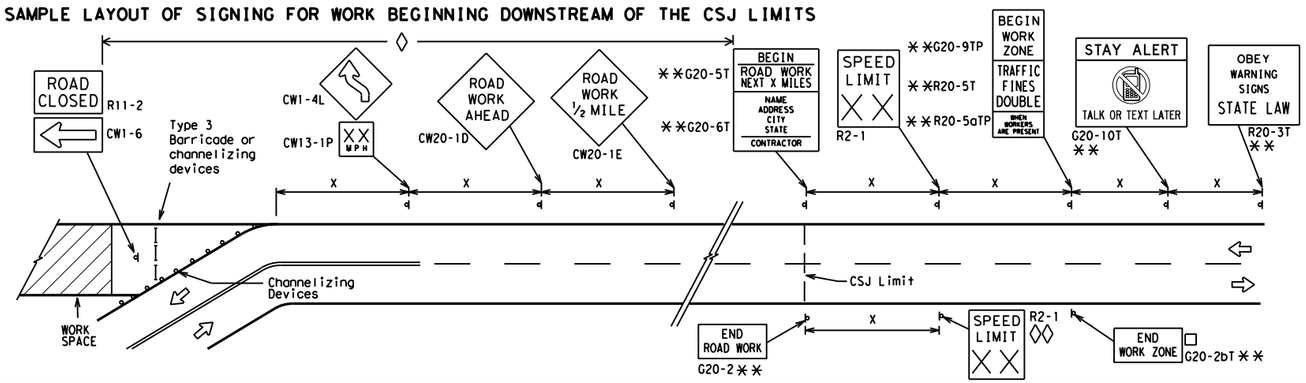
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD"(CW20-1D)signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



NOTES

The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES"(G20-5T)sign for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole mile with the approval of the Engineer. No decimals shall be used.

□ The "BEGIN WORK ZONE"(G20-9TP) and "END WORK ZONE" (G20-2bT) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the motorist of entering or leaving a part of the work zone lying outside the CSJ Limits where traffic fines may double if workers are present.

** CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.

◊ Area for placement of "ROAD WORK AHEAD" (CW20-1D)sign and other signs or devices as called for on the Traffic Control Plan.

◊◊ Contractor will install a regulatory speed limit sign at the end of the work zone.

LEGEND	
⟷	Type 3 Barricade
○ ○ ○	Channelizing Devices
▬	Sign
X	See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

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REVISIONS	-	-	-	ABBOT RD
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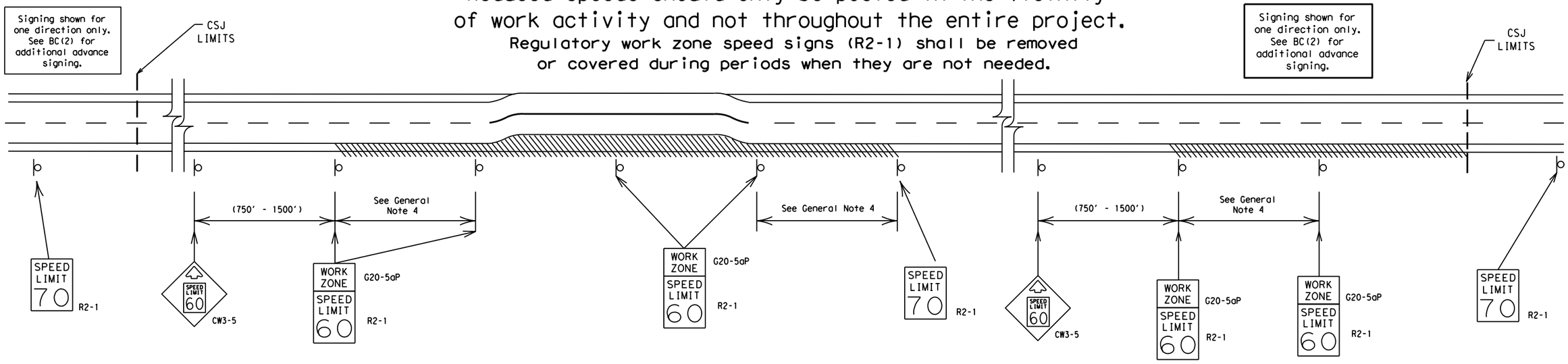
7-13 5-21	-	BEXAR		22

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project.

Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

a) rough road or damaged pavement surface
b) substantial alteration of roadway geometrics (diversions)
c) construction detours
d) grade
e) width
f) other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered.
(See Removing or Covering on BC(4)).

GENERAL NOTES

1. Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
2. Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
3. Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
4. Frequency of work zone speed limit signs should be:
   40 mph and greater 0.2 to 2 miles
   35 mph and less 0.2 to 1 mile
5. Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
6. Fabrication, erection and maintenance of the"ADVANCE SPEED LIMIT"(CW3-5)sign, "WORK ZONE"(G20-5aP) plaque and the "SPEED LIMIT"(R2-1)signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
7. Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
8. Techniques that may help reduce traffic speeds include but are not limited to:
   A. Law enforcement.
   B. Flagger stationed next to sign.
   C. Portable changeable message sign (PCMS).
   D. Low-power (drone) radar transmitter.
   E. Speed monitor trailers or signs.
9. Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
10. For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

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7-13 5-21	-	BEXAR		23

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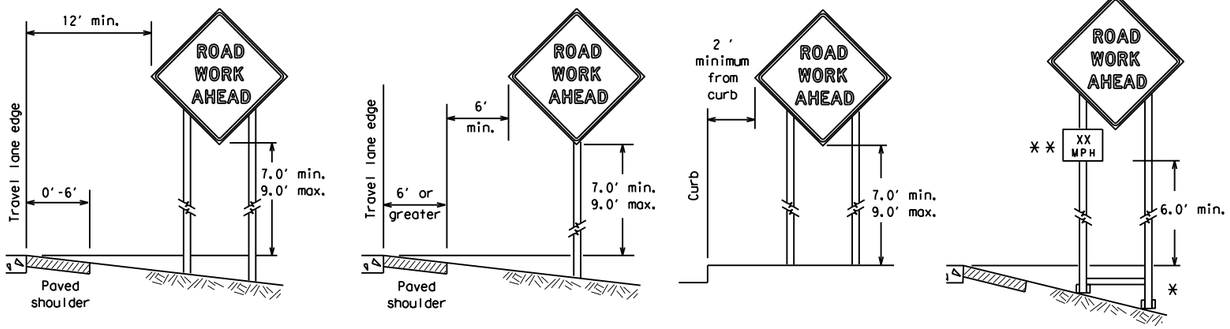
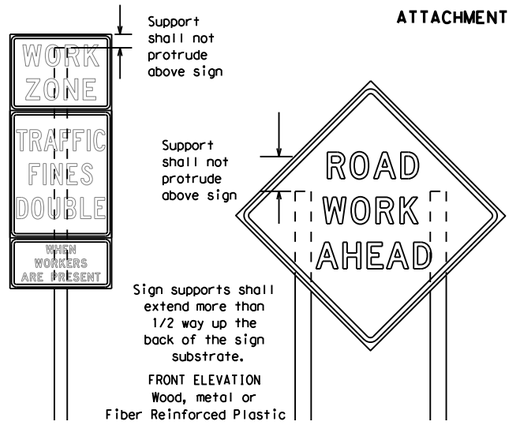
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

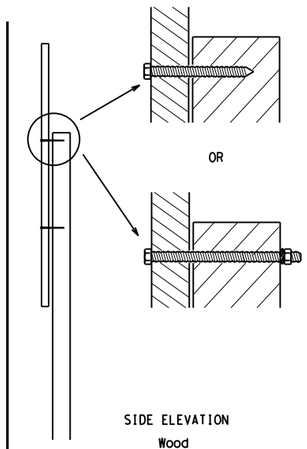


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS





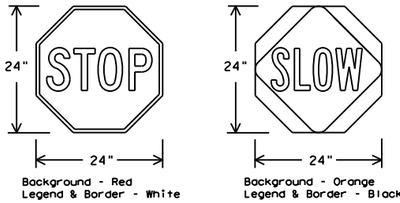
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed. Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the spice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflectorized when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
   a. Long-term stationary - work that occupies a location more than 3 days.
   b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
   c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
   d. Short, duration - work that occupies a location up to 1 hour.
   e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

1. The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTCD lists each substrate that can be used on the different types and models of sign supports.
2. "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
3. All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleat, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws that do not penetrate the face of the sign panel. The screws shall be placed on both sides of the splice and spaced at 6" centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

1. Flags may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. Flags shall not be allowed to cover any portion of the sign face.

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BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	-	BEXAR		24

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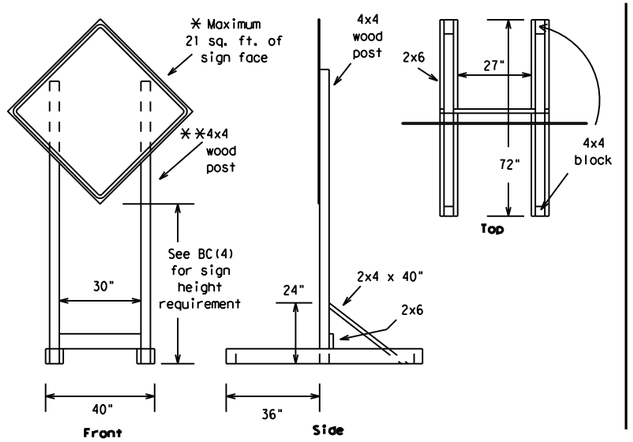
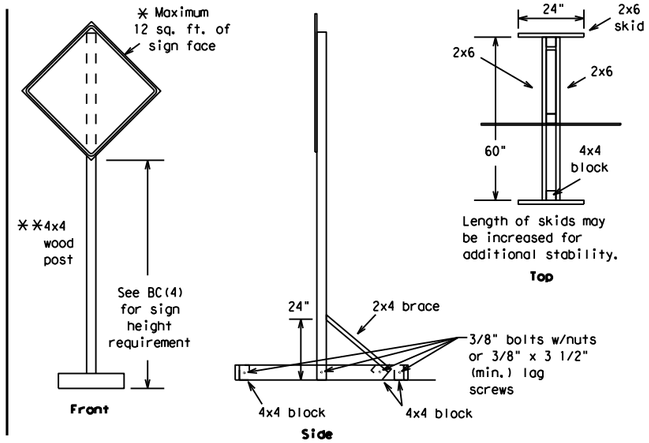
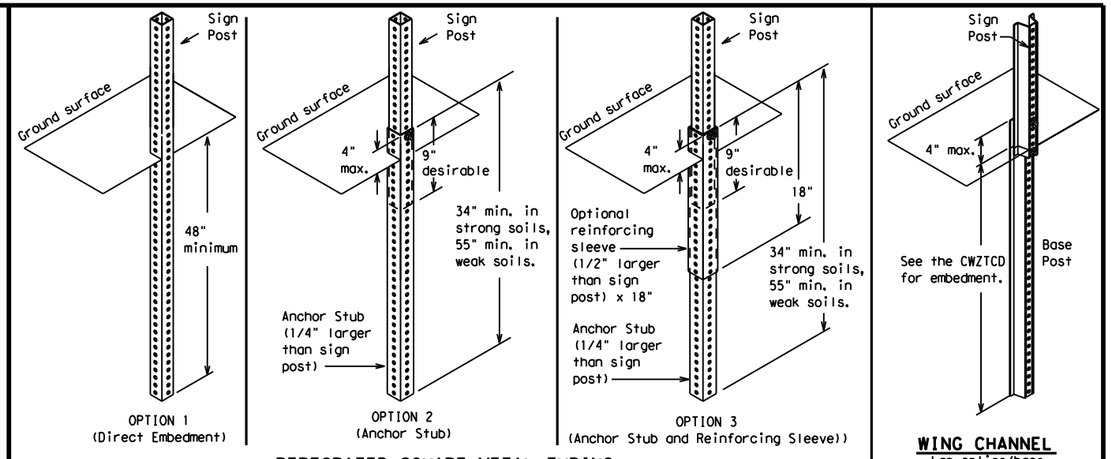




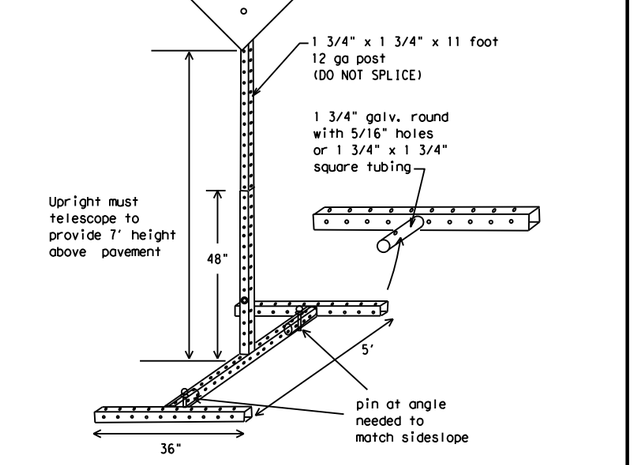
SKID MOUNTED WOOD SIGN SUPPORTS

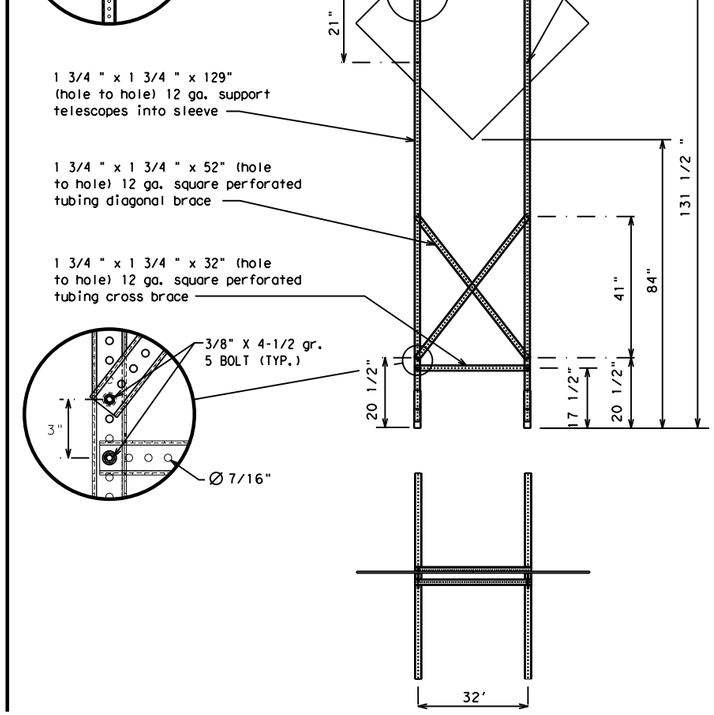
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

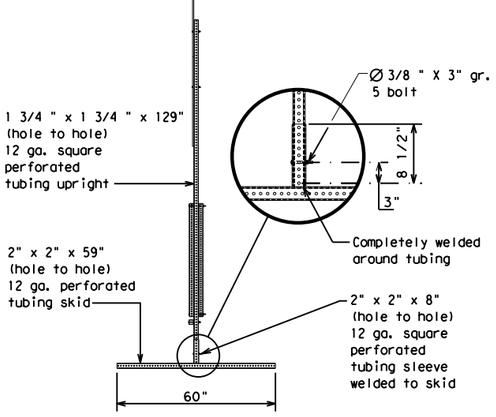


GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support.
The maximum sign square footage shall adhere to the manufacturer's recommendation.
Two post installations can be used for larger signs.







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCD LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES

1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
2. No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
3. When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.

* See BC(4) for definition of "Work Duration."

** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.

☐ See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	-	-	-	ABBOT RD
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	-	BEXAR		25

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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

1. The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
2. Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
3. Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
4. Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
5. Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
6. When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
7. The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
8. The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
9. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
10. Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
11. Do not use the word "Danger" in message.
12. Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
13. Do not display messages that scroll horizontally or vertically across the face of the sign.
14. The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
15. PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
16. Each line of text should be centered on the message board rather than left or right justified.
17. If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

Roadway designation * IH-number, US-number, SH-number, FM-number

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT
RIGHT X LANES CLOSED	RIGHT X LANES OPEN
CENTER LANE CLOSED	DAYTIME LANE CLOSURES
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE
EXIT CLOSED	RIGHT LN TO BE CLOSED
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI
XXXXXXXX BLVD CLOSED	

Other Condition List

ROADWORK XXX FT	ROAD REPAIRS XXXX FT
FLAGGER XXXX FT	LANE NARROWS XXXX FT
RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
DETOUR X MILE	ROUGH ROAD XXXX FT
ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
BUMP XXXX FT	US XXX EXIT X MILES
TRAFFIC SIGNAL XXXX FT	LANES SHIFT *

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

MERGE RIGHT	FORM X LINES RIGHT
DETOUR NEXT X EXITS	USE XXXXX RD EXIT
USE EXIT XXX	USE EXIT I-XX NORTH
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N
TRUCKS USE US XXX N	WATCH FOR TRUCKS
WATCH FOR TRUCKS	EXPECT DELAYS
EXPECT DELAYS	PREPARE TO STOP
REDUCE SPEED XXX FT	END SHOULDER USE
USE OTHER ROUTES	WATCH FOR WORKERS
STAY IN LANE *	

Location List

AT FM XXXX
BEFORE RAILROAD CROSSING
NEXT X MILES
PAST US XXX EXIT
XXXXXXX TO XXXXXXX
US XXX TO FM XXXX

Warning List

SPEED LIMIT XX MPH
MAXIMUM SPEED XX MPH
MINIMUM SPEED XX MPH
ADVISORY SPEED XX MPH
RIGHT LANE EXIT
USE CAUTION
DRIVE SAFELY
DRIVE WITH CARE

** Advance Notice List

TUE-FRI XX AM- X PM
APR XX-XX X PM-X AM
BEGINS MONDAY
BEGINS MAY XX
MAY X-X XX PM - XX AM
NEXT FRI-SUN
XX AM TO XX PM
NEXT TUE AUG XX
TONIGHT XX PM- XX AM

* LANES SHIFT in Phase 1 must be used with STAY IN LANE in Phase 2.

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

1. Only 1 or 2 phases are to be used on a PCMS.
2. The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
3. A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
4. A Location Phase is necessary only if a distance or location is not included in the first phase selected.
5. If two PCMS are used in sequence, they must be separated by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
6. For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

1. The words RIGHT, LEFT and ALL can be interchanged as appropriate.
2. Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
3. EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
4. Highway names and numbers replaced as appropriate.
5. ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
6. AHEAD may be used instead of distances if necessary.
7. FT and MI, MILE and MILES interchanged as appropriate.
8. AT, BEFORE and PAST interchanged as needed.
9. Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

1. When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
2. When symbol signs, such as the "Flagger Symbol"(CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
3. When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
4. A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	-	-	-	ABBOT RD
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	-	BEXAR		26

DATE: 1/5/2026 8:28:34 AM
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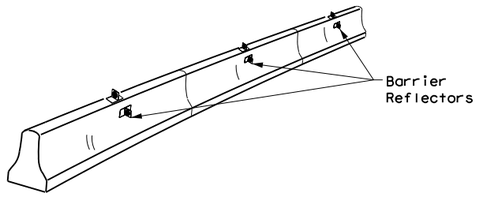
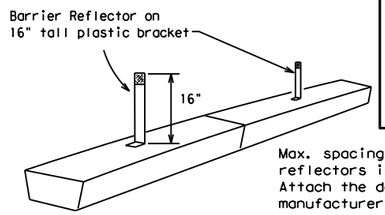
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



CONCRETE TRAFFIC BARRIER (CTB)

3. Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
4. Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional)while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
5. When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
6. Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
7. Maximum spacing of Barrier Reflectors is forty (40) feet.
8. Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
9. Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
10. Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
11. Single slope barriers shall be delineated as shown on the above detail.

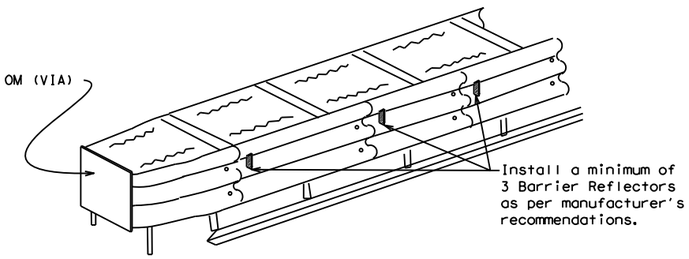


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)

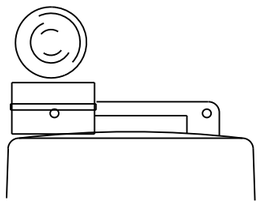


DELINEATION OF END TREATMENTS

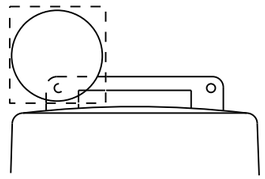
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the apppropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



Warning reflector may be round or square.Must have a yellow reflective surface area of at least 30 square inches

WARNING LIGHTS

1. Warning lights shall meet the requirements of the TMUTCD.
2. Warning lights shall NOT be installed on barricades.
3. Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
4. Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
5. The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
6. When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
7. When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
8. The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

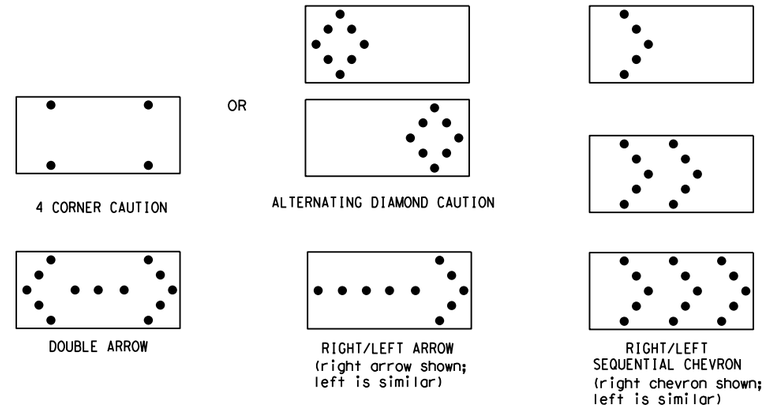
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
4. Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
5. Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
6. Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
7. The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

1. A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
2. The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CWZTCD.
3. The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
4. Round reflectors shall be fully reflectorized, including the area where attached to the drum.
5. Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where it attaches to the drum.
6. The side of the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
7. When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
8. The warning reflector should be mounted on the side of the handle nearest approaching traffic.
9. The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

1. The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
2. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
3. The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
4. The Flashing Arrow Board should be able to display the following symbols:



5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
6. The straight line caution display is NOT ALLOWED.
7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
8. Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
9. The sequential arrow display is NOT ALLOWED.
10. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
11. The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
12. A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
13. A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
14. Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

REQUIREMENTS			
TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
B	30 x 60	13	3/4 mile
C	48 x 96	15	1 mile

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE ARROW BOARD BEHIND CONCRETE TRAFFIC BARRIER OR GUARDRAIL.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
2. Refer to the CWZTCD for the requirements of Level 2 or Level 3 TMAs.
3. Refer to the CWZTCD for a list of approved TMAs.
4. TMAs are required on freeways unless otherwise noted in the plans.
5. A TMA should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
6. The only reason a TMA should not be required is when a work area is spread down the roadway and the work crew is an extended distance from the TMA.

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC(7)-21

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	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	-	BEXAR		27

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GENERAL NOTES

1. For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
2. For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
3. For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
4. Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
5. Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
6. The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

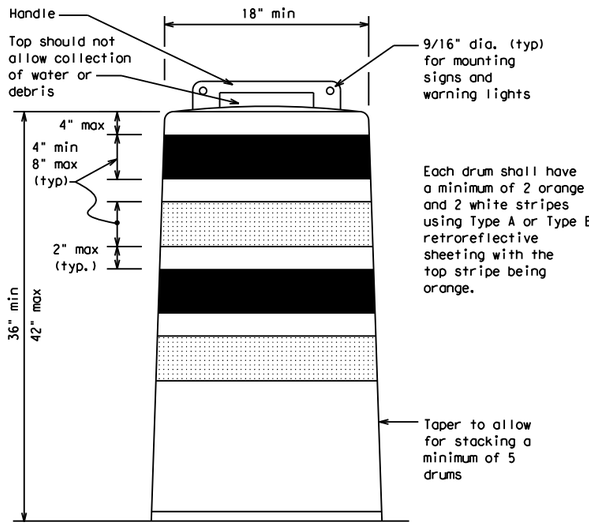
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
3. Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
4. Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
5. The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
6. The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectorized space between any two adjacent stripes shall not exceed 2 inches in width.
7. Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
8. Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
9. Drum body shall have a maximum unballasted weight of 11 lbs.
10. Drum and base shall be marked with manufacturer's name and model number.

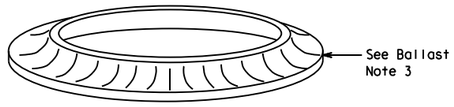
RETROREFLECTIVE SHEETING

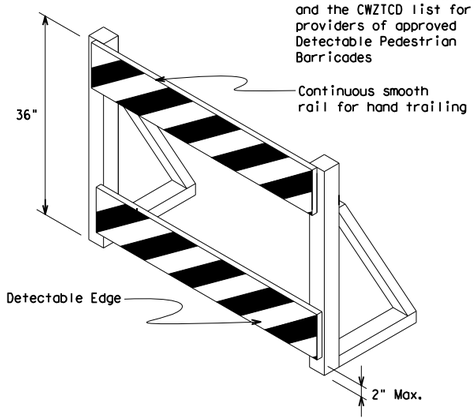
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

1. Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
2. Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
3. Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
4. The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
5. When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
6. Ballast shall not be placed on top of drums.
7. Adhesives may be used to secure base of drums to pavement.

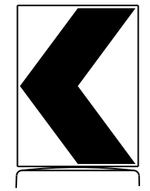




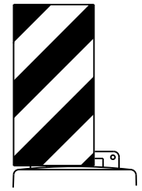


DETECTABLE PEDESTRIAN BARRICADES

1. When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
3. Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
4. Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
5. Warning lights shall not be attached to detectable pedestrian barricades.
6. Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24"
Vertical Panel
mount with diagonals sloping down towards travel way

Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

1. Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
2. Chevrons and other work zone signs with an orange background shall be manufactured with Type B_{FL} or Type C_{FL} Orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
3. Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the intended traveled lane.
4. Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
5. Signs shall be installed using a 1/2 inch bolt (nominal) and nut, two washers, and one locking washer for each connection.
6. Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
7. Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
8. R9-9, R9-10, R9-11 and R9-11a Sidewalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

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REVISIONS	-	-	-	ABBOT RD
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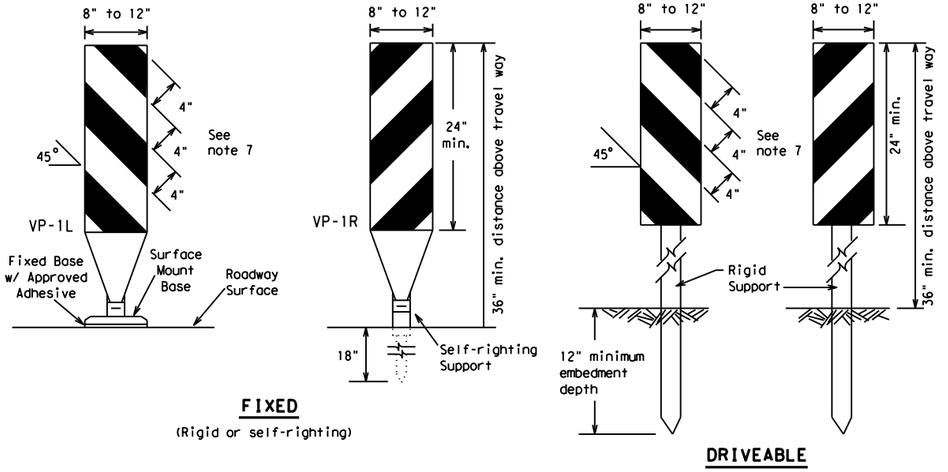
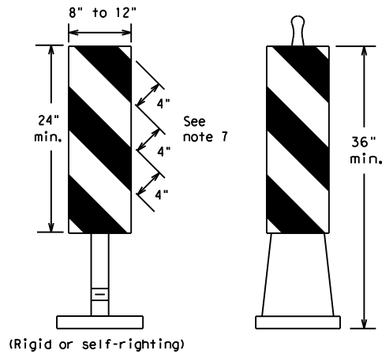


FIXED
(Rigid or self-righting)

DRIVEABLE

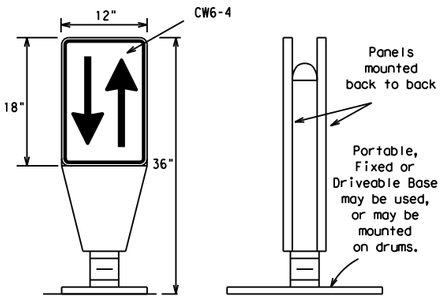


(Rigid or self-righting)

PORTABLE

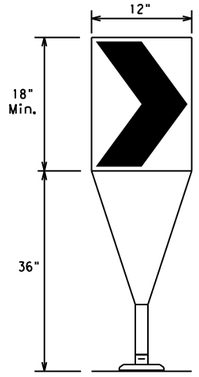
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use VP's for drop-offs.
3. VP's should be mounted back to back if used at the edge of cuts adjacent to two-way two lane roadways. Stripes are to be reflective orange and reflective white and should always slope downward toward the travel lane.
4. VP's used on expressways and freeways or other high speed roadways, may have more than 270 square inches of retroreflective area facing traffic.
5. Self-righting supports are available with portable base. See "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
6. Sheeting for the VP's shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300, unless noted otherwise.
7. Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.

VERTICAL PANELS (VPs)



1. Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
2. The OTLD may be used in combination with 42" cones or VPs.
3. Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
4. The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



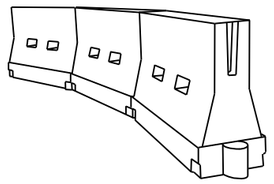
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

1. The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
2. Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
3. Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
4. To be effective, the chevron should be visible for at least 500 feet.
5. Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
6. For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS

GENERAL NOTES

1. Work Zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. Channelizing devices shown on this sheet may have a driveable, fixed or portable base. The requirement for self-righting channelizing devices must be specified in the General Notes or other plan sheets.
3. Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUTCD and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
4. The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
5. Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs.
6. Pavement surfaces shall be prepared in a manner that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
7. The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Driveable bases shall not be permitted on final pavement surfaces. The Engineer/Inspector shall approve all application and removal procedures of fixed bases.



LONGITUDINAL CHANNELIZING DEVICES (LCD)

1. LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
2. LCDs may be used instead of a line of cones or drums.
3. LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. LCDs should not be used to provide positive protection for obstacles, pedestrians or workers.
5. LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
6. LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rails as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

WATER BALLASTED SYSTEMS USED AS BARRIERS

1. Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
2. Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
3. Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
4. Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
5. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

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
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	L = WS	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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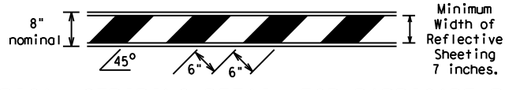
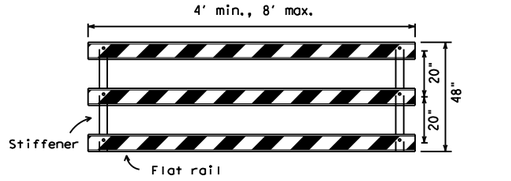
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



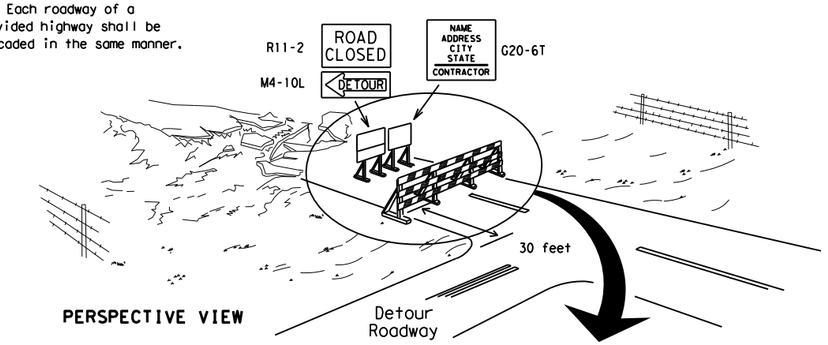
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

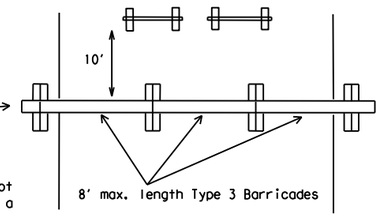
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

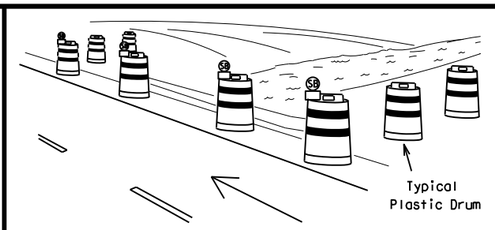
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

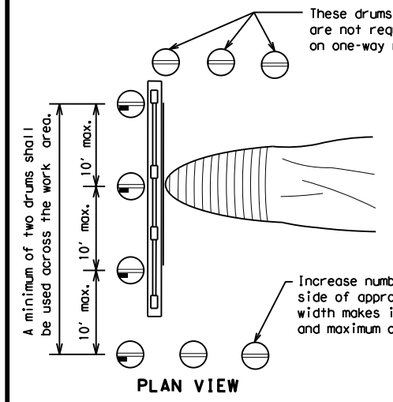
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

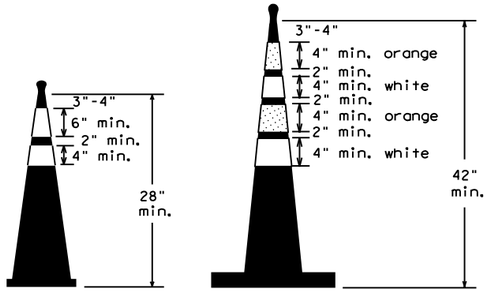
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.



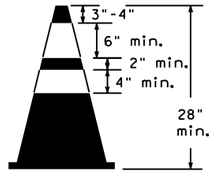
LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

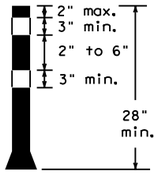
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



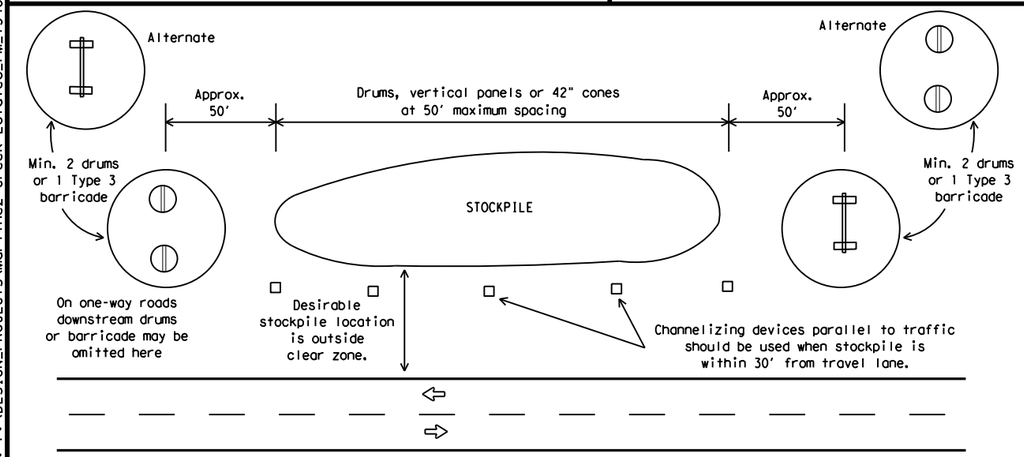
One-Piece cones



Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	-	BEXAR		30

104

DATE: 1/5/2026 8:28:36 AM
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WORK ZONE PAVEMENT MARKINGS

GENERAL

1. The Contractor shall be responsible for maintaining work zone and existing pavement markings, in accordance with the standard specifications and special provisions, on all roadways open to traffic within the CSJ limits unless otherwise stated in the plans.
2. Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
3. Additional supplemental pavement marking details may be found in the plans or specifications.
4. Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
5. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard Plan Sheet WZ(STPM).
6. When standard pavement markings are not in place and the roadway is opened to traffic, DO NOT PASS signs shall be erected to mark the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
7. All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

1. Raised pavement markers are to be placed according to the patterns on BC(12).
2. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

1. Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
2. Non-removable prefabricated pavement markings (foil back) shall meet the requirements of DMS-8240.

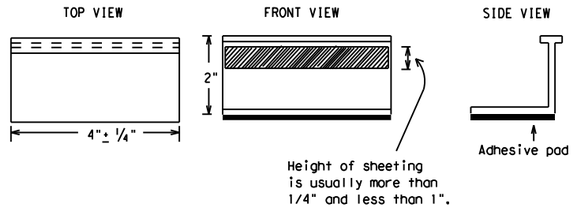
MAINTAINING WORK ZONE PAVEMENT MARKINGS

1. The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
2. Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Form 599.
3. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
4. Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

1. Pavement markings that are no longer applicable, could create confusion or direct a motorist toward or into the closed portion of the roadway shall be removed or obliterated before the roadway is opened to traffic.
2. The above shall not apply to detours in place for less than three days, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
3. Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernable marking. This shall be by any method approved by TxDOT Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
4. The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
5. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
6. Blast cleaning may be used but will not be required unless specifically shown in the plans.
7. Over-painting of the markings SHALL NOT BE permitted.
8. Removal of raised pavement markers shall be as directed by the Engineer.
9. Removal of existing pavement markings and markers will be paid for directly in accordance with Item 677, "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS," unless otherwise stated in the plans.
10. Black-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

1. Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
2. Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
   A. Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
   B. Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
3. Small design variances may be noted between tab manufacturers.
4. See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

1. Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
2. All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
3. Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:
YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	-	BEXAR		31
11-02 8-14				

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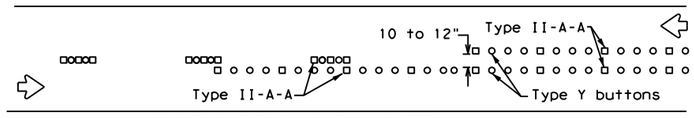
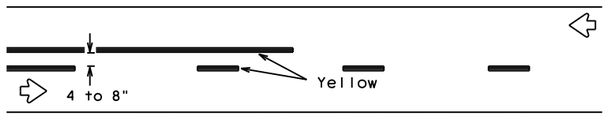
PAVEMENT MARKING PATTERNS

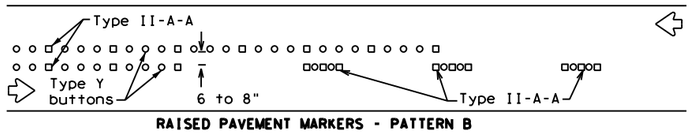
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



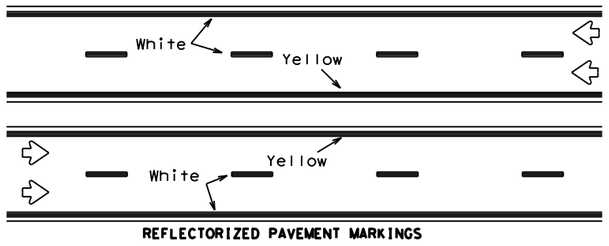
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



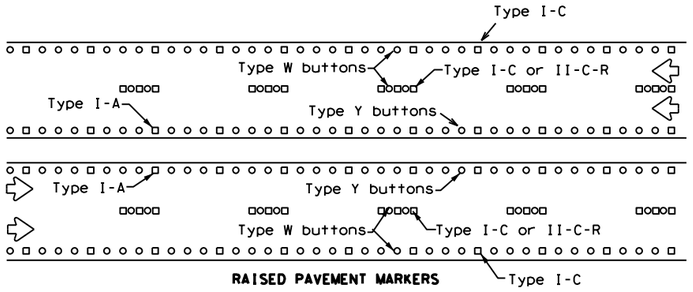
RAISED PAVEMENT MARKERS - PATTERN B

Pattern A is the TXDOT Standard, however Pattern B may be used if approved by the Engineer.
Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



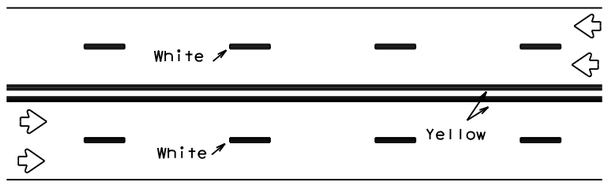
REFLECTORIZED PAVEMENT MARKINGS



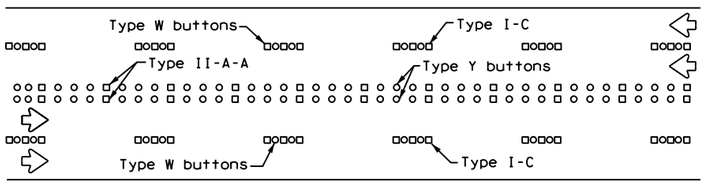
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



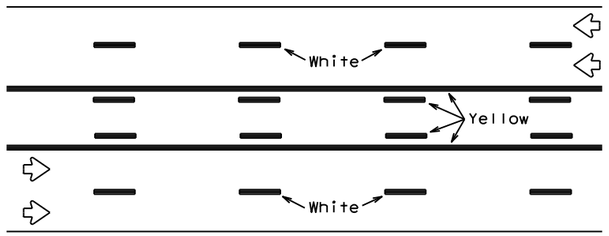
REFLECTORIZED PAVEMENT MARKINGS



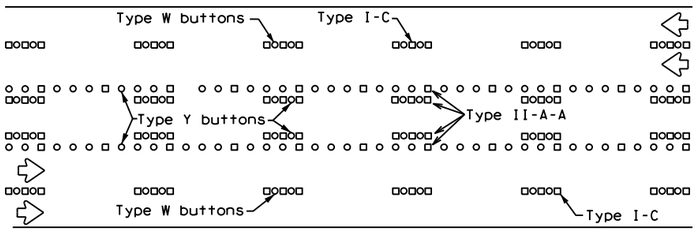
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

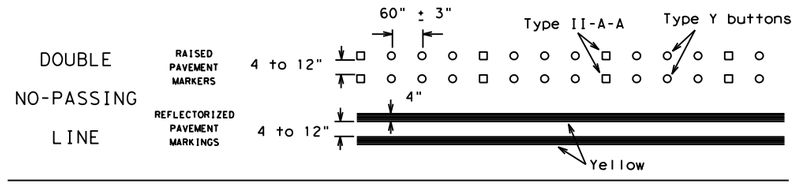
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

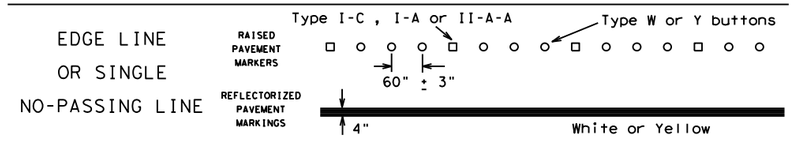
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

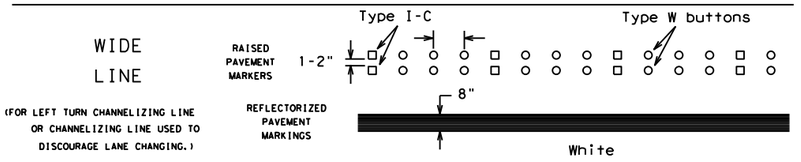


EDGE LINE OR SINGLE NO-PASSING LINE



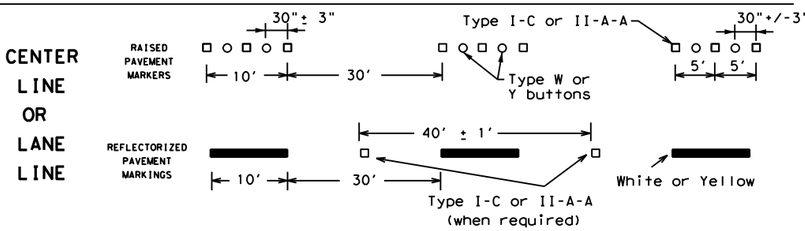
WIDE LINE

(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

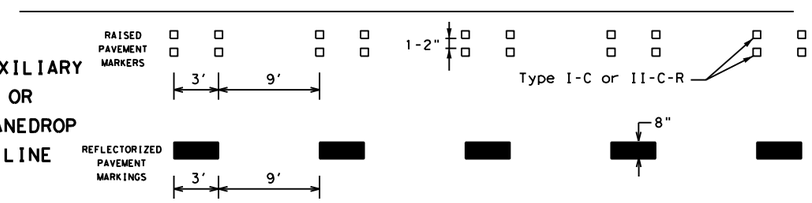


BROKEN LINES

CENTER LINE OR LANE LINE

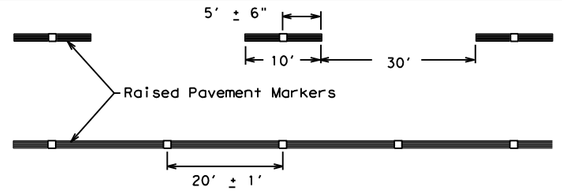


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



Centerline only - not to be used on edge lines

Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

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© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
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2-98 7-13	-	BEXAR		32
11-02 8-14				

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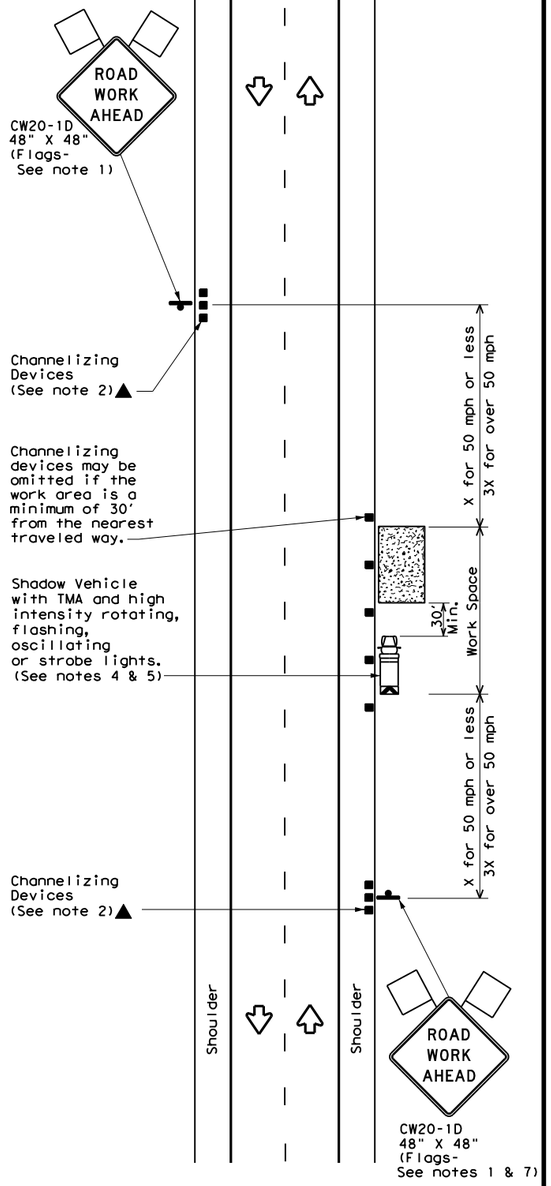
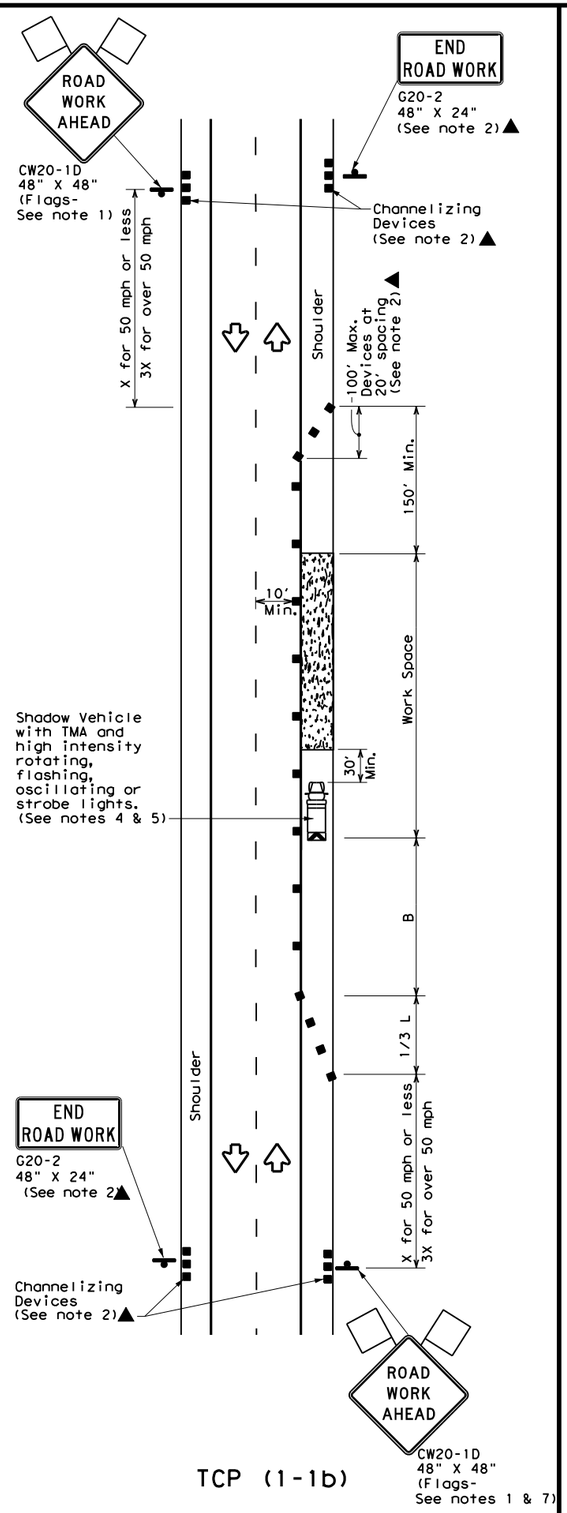


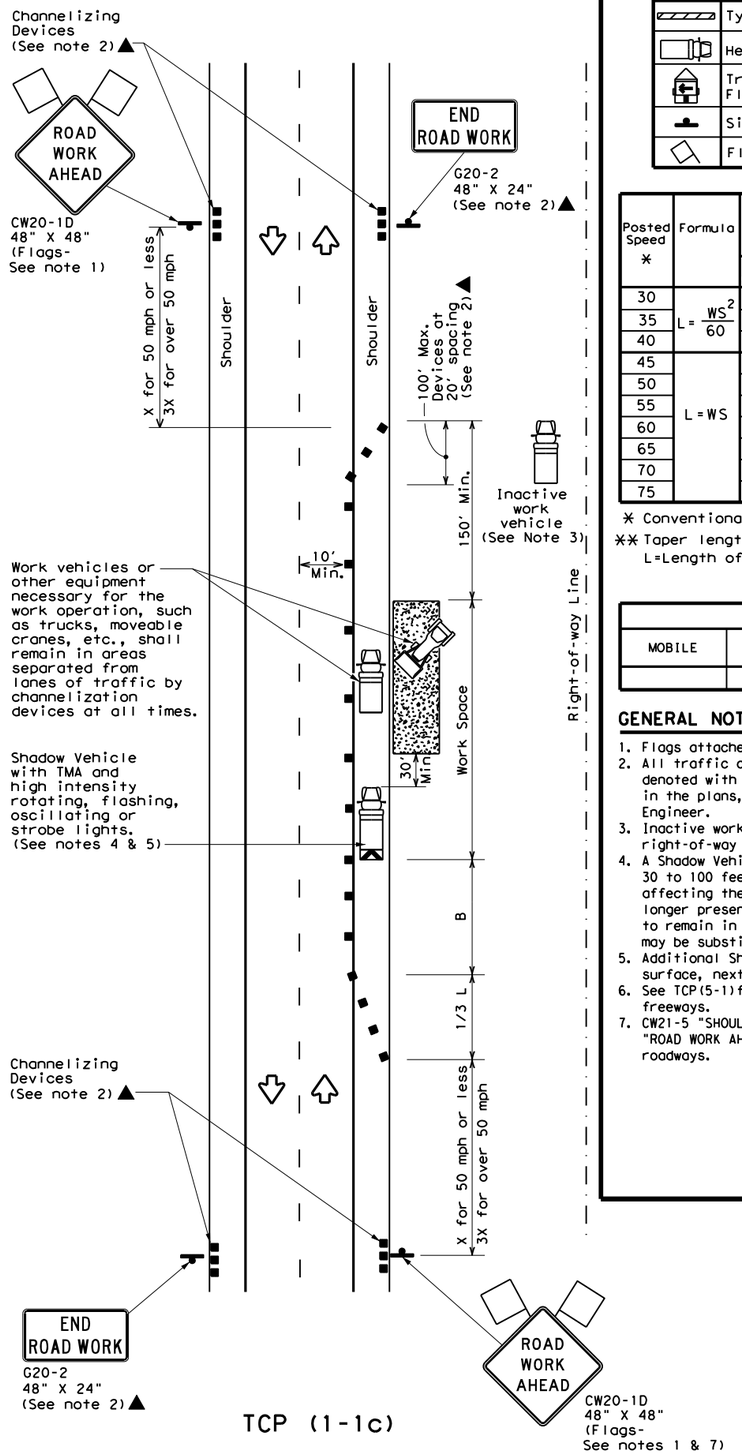
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	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 elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
4. 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 wider work spaces.
6. See TCP(5-1)for shoulder work on divided highways, expressways and freeways.
7. 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(1-1)-18

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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2-94 4-98	DIST	COUNTY		SHEET NO.
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1-97 2-18				

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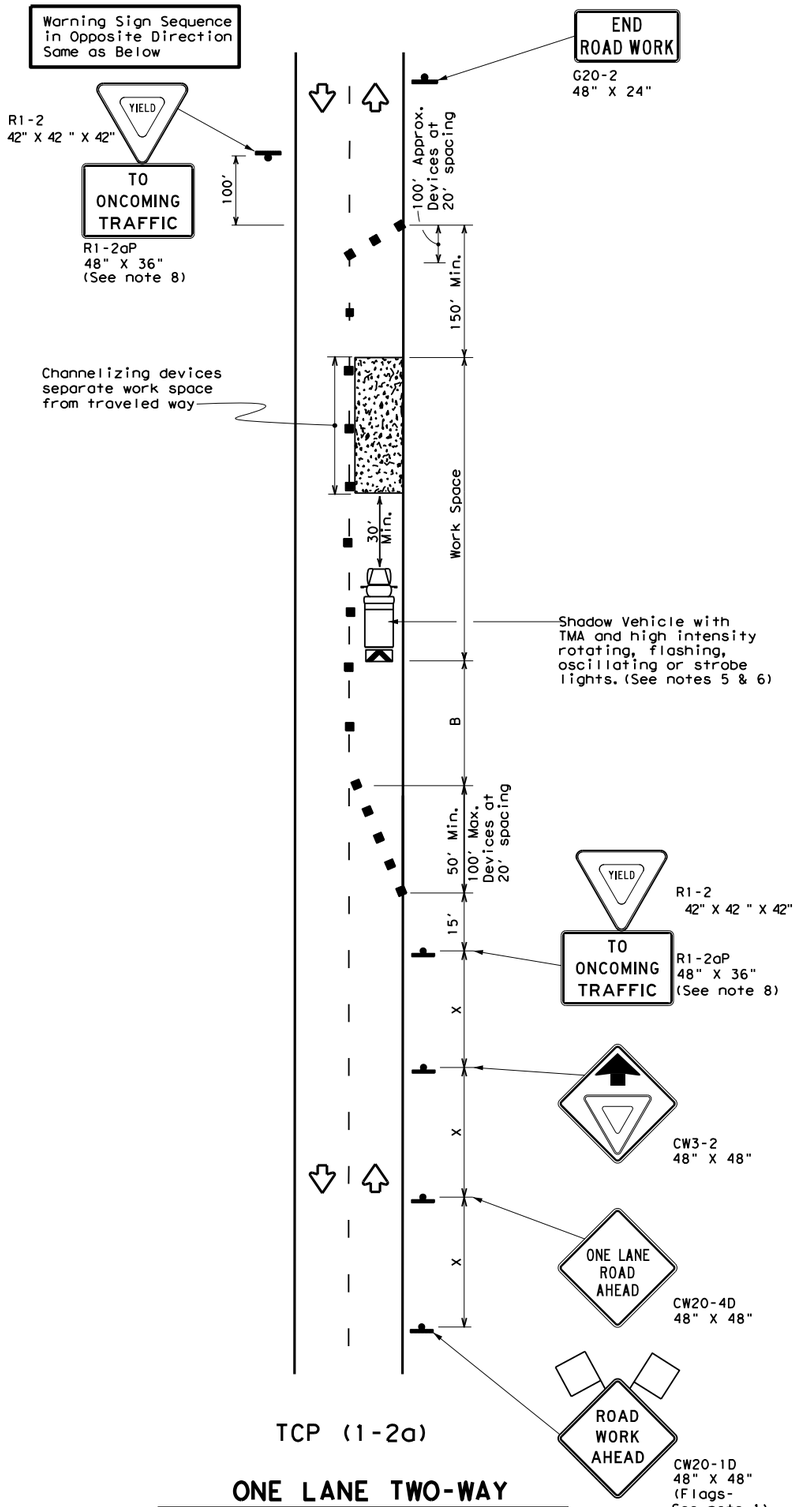
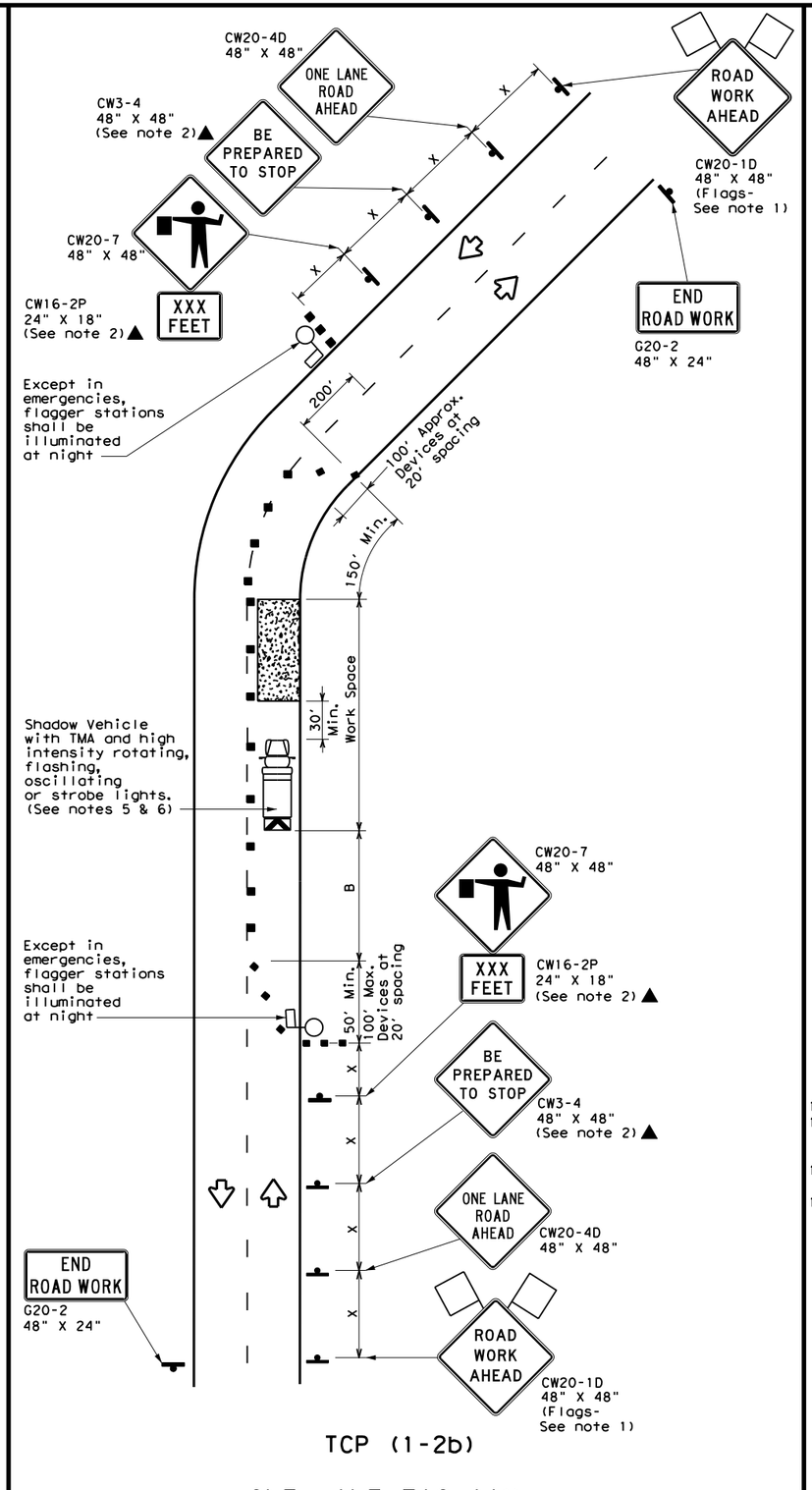


TCP (1-2a)

ONE LANE TWO-WAY CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See note 7)



TCP (1-2b)

ONE LANE TWO-WAY CONTROL WITH FLAGGERS

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	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"	Stopping Sight Distance
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* 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 elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. 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.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

7. R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work spaces should be no longer than one half city block. In rural areas on roadways with less than 2000 ADT, work spaces should be no longer than 400 feet.
8. R1-2 "YIELD" sign with R1-2aP "TO ONCOMING TRAFFIC" plaque shall be placed on a support at a 7 foot minimum mounting height.

TCP (1-2b)

9. Flaggers should use two-way radios or other methods of communication to control traffic.
10. Length of work space should be based on the ability of flaggers to communicate.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
12. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic and approved by the Engineer.
13. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(1-2)-18

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©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
4-90 4-98	DIST	COUNTY		SHEET NO.
2-94 2-12	-	BEXAR		34
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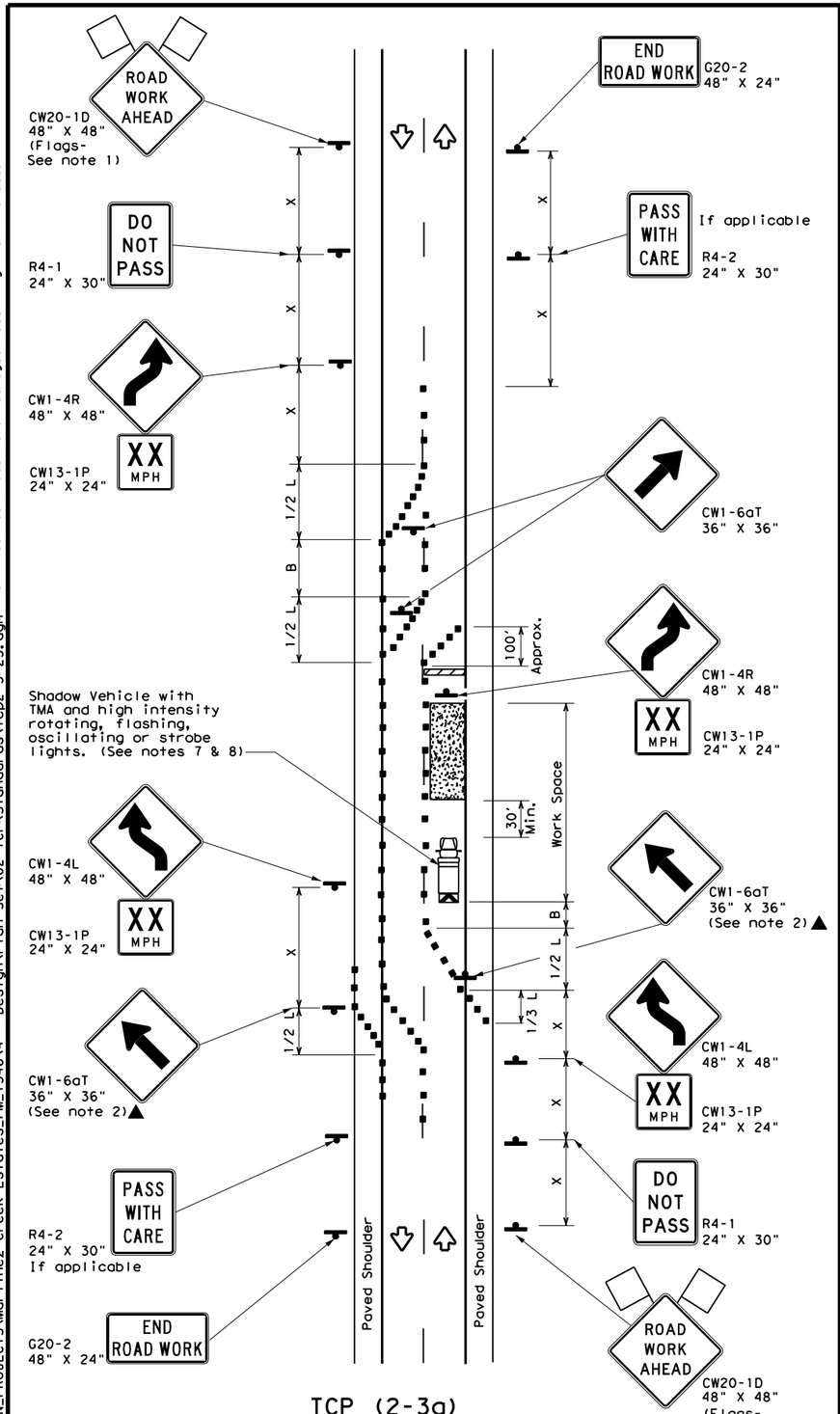
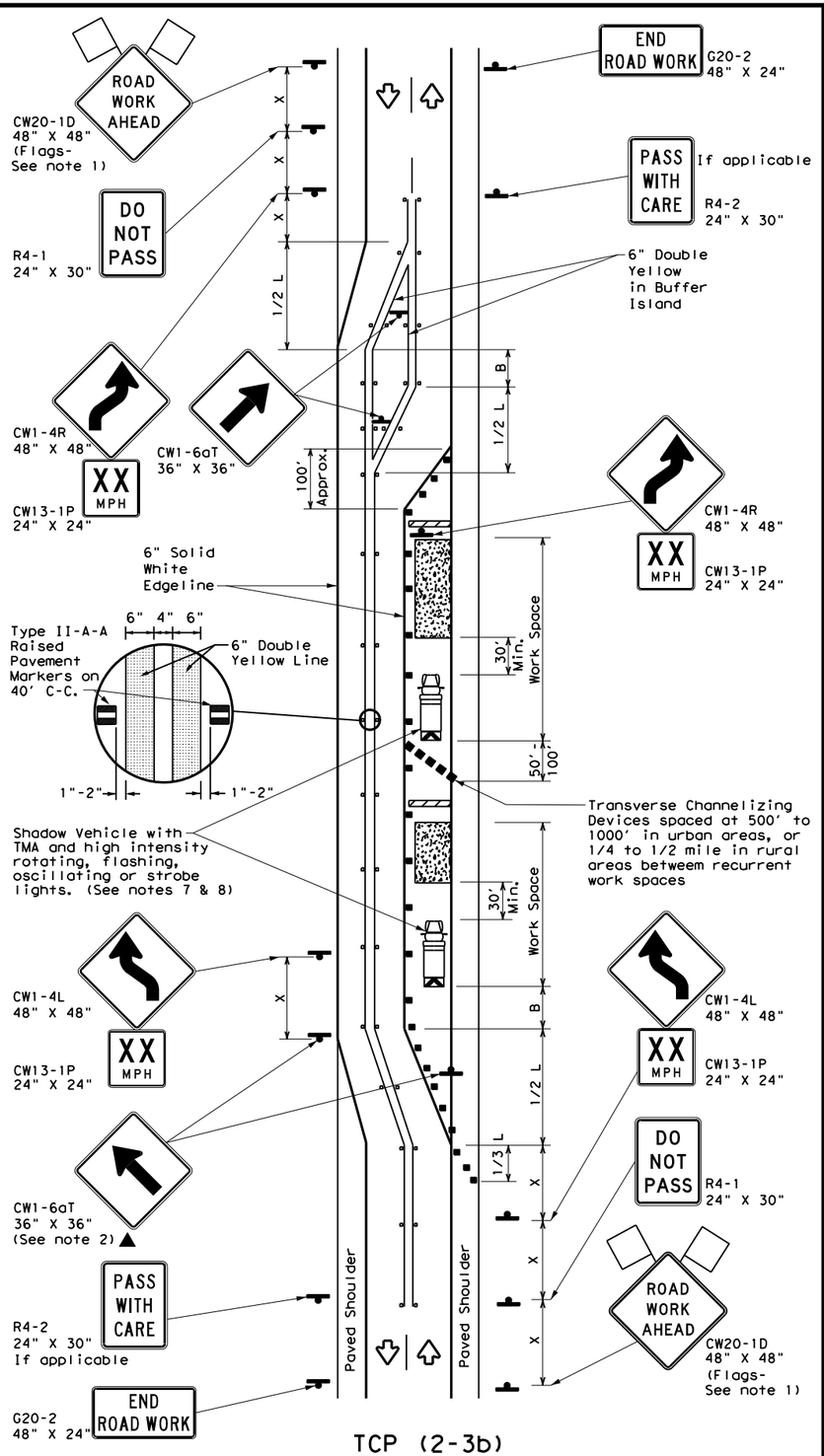


TCP (2-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



TCP (2-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND			
	Type 3 Barricade	■ ■	Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	....	Raised Pavement Markers Ty II-AA
	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
				TCP(2-3b)ONLY
			✓	✓

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 elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. The R4-1 "DO NOT PASS," R4-2 " PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
6. Conflicting pavement marking shall be removed for long term projects.
7. 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.
8. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-3a)

9. Conflicting pavement markings shall be removed for long-term projects. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15' if posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter device spacing is intended for the area of the conflicting markings, not the entire work zone.

Texas Department of Transportation — Traffic Safety Division Standard

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO-LANE ROADS

TCP(2-3)-23

FILE: tcp(2-3)-23.dgn	DN:	CK:	DW:	CK:
© TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
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12-85 4-98 2-18	DIST	COUNTY		SHEET NO.
8-95 3-03 4-23	-	BEXAR		35
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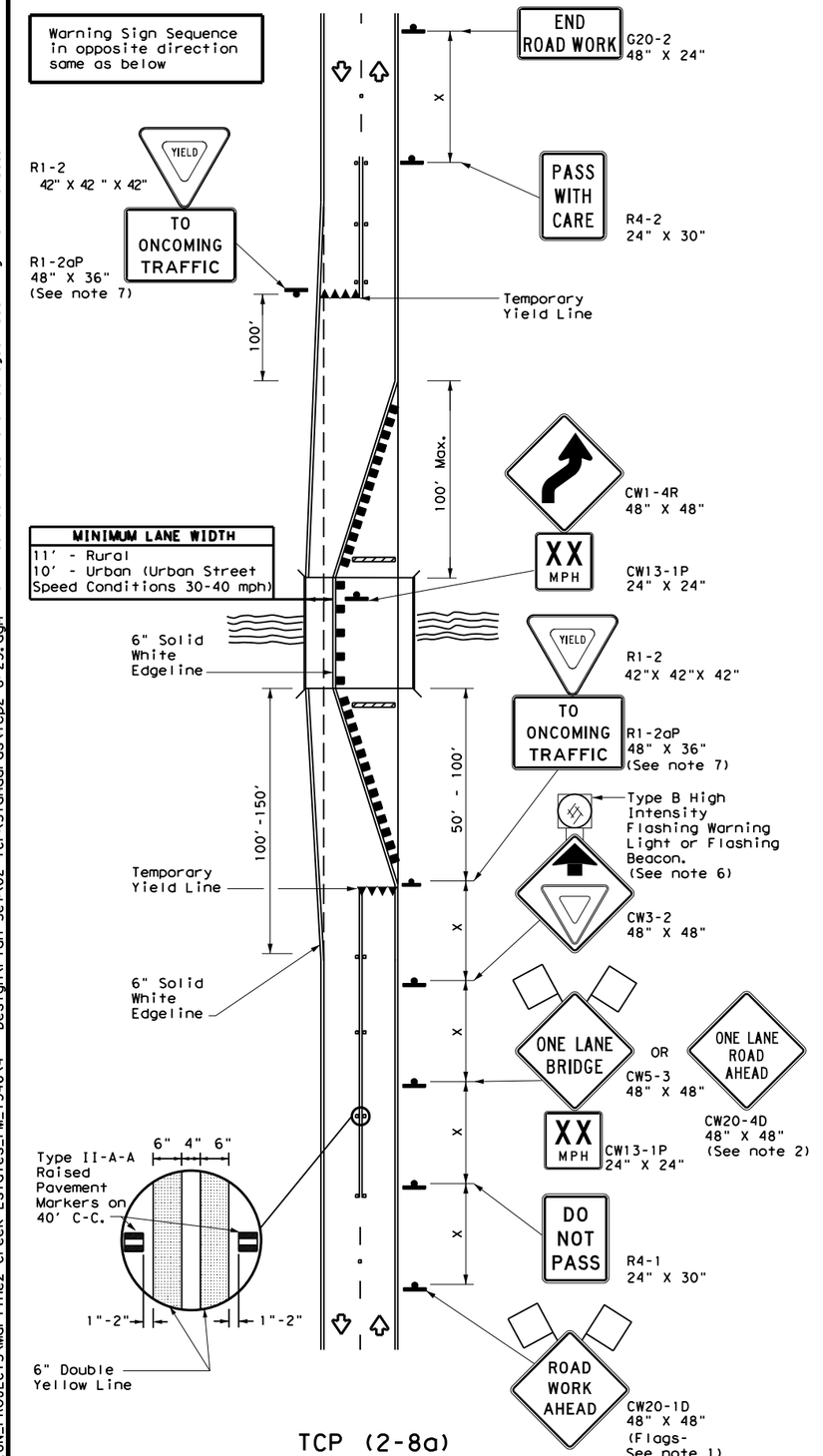
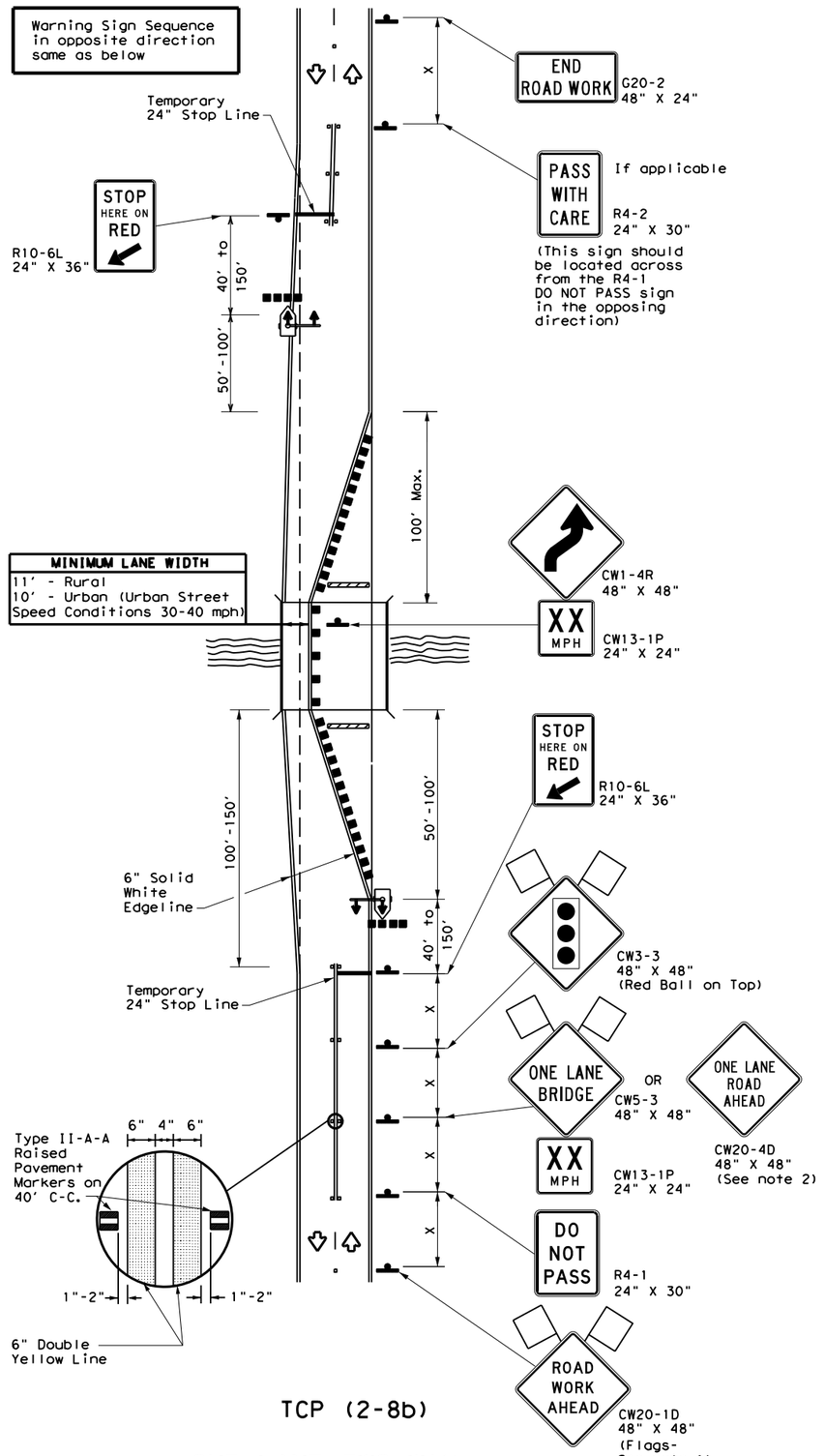


TCP (2-8a)

ONE LANE TWO-WAY
TRAFFIC CONTROL WITH YIELD SIGNS
(Less Than 2000 ADT-See Note 5)



TCP (2-8b)

ONE LANE TWO-WAY
TRAFFIC CONTROL WITH TRAFFIC SIGNAL

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Sign		Traffic Flow
	Flag		Flagger
	Raised Pavement Markers Ty II-AA		Temporary or Portable Traffic Signal

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"	Stopping Sight Distance
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* 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. When this TCP is used at a location which does not involve a bridge, a 48" x 48" CW20-4D "ONE LANE ROAD AHEAD" signs should be used in lieu of the CW5-3 "ONE LANE BRIDGE" signs. The CW13-1P Advisory Speed Plaque is required with either warning sign.
3. Raised pavement markers shall be placed 40 feet c-c on centerline between DO NOT PASS signs and stop or yield lines.
4. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 20 feet is recommended. The 20 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.

TCP (2-8a)

5. Traffic control by CW3-2 "YIELD AHEAD" symbol signs for one lane two-way traffic control operations should be limited to work spaces less than 400 feet long and roadways with less than 2000 ADT. Otherwise, portable traffic signals should be used.
6. If power is available, a flashing beacon should be attached to the CW3-2 "YIELD AHEAD" symbol sign for emphasis.
7. The R1-2 "YIELD" and R1-2aP "TO ONCOMING TRAFFIC" signs and other regulatory signs shall be installed at 7 foot minimum mounting height.

TCP (2-8b)

8. A list of approved Portable Traffic Signals can be found in the "Compliant Work Zone Traffic Control Devices" list.
9. Portable traffic signals should be located to provide adequate stopping sight distance for approaching motorist (See table above).

Texas Department of Transportation | Traffic Safety Division Standard

TRAFFIC CONTROL PLAN
LONG TERM ONE-LANE TWO-WAY CONTROL

TCP(2-8)-23

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© TxDOT April 2023	CONT	SECT	JOB	HIGHWAY
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8-95 3-03 4-23	-	BEXAR		36
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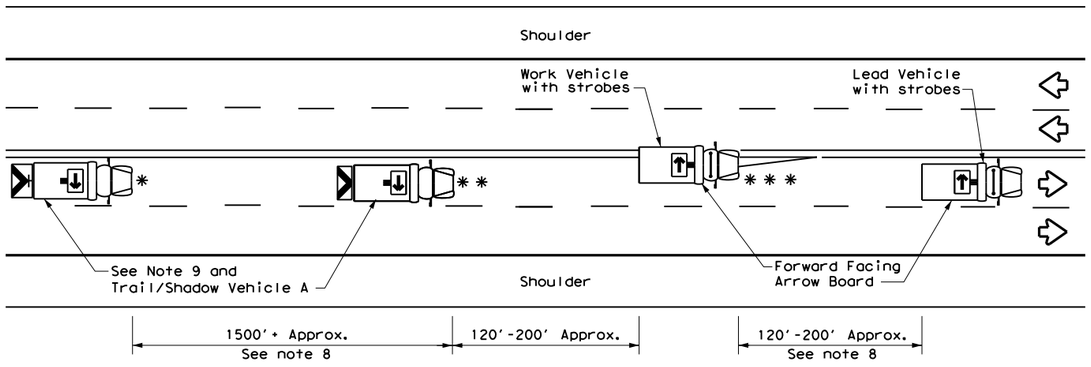
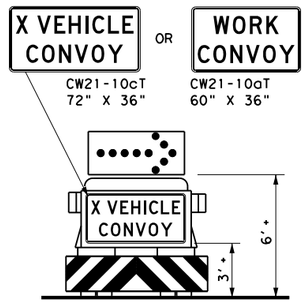


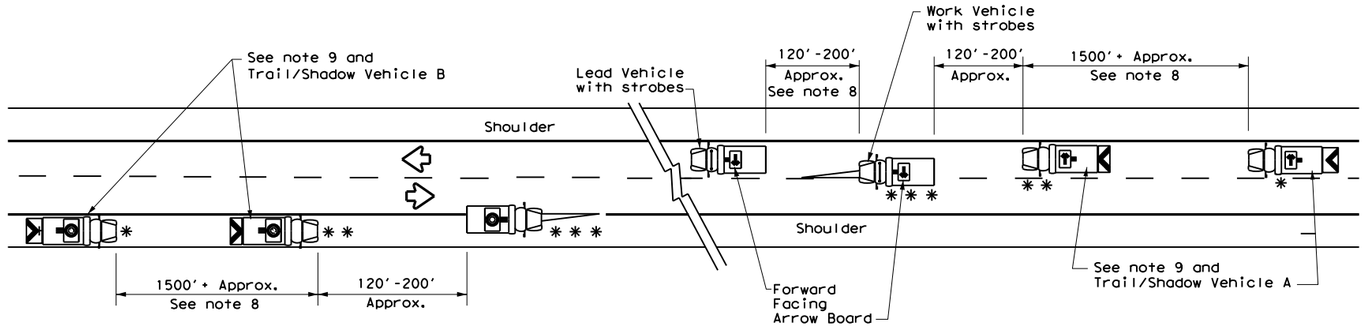
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

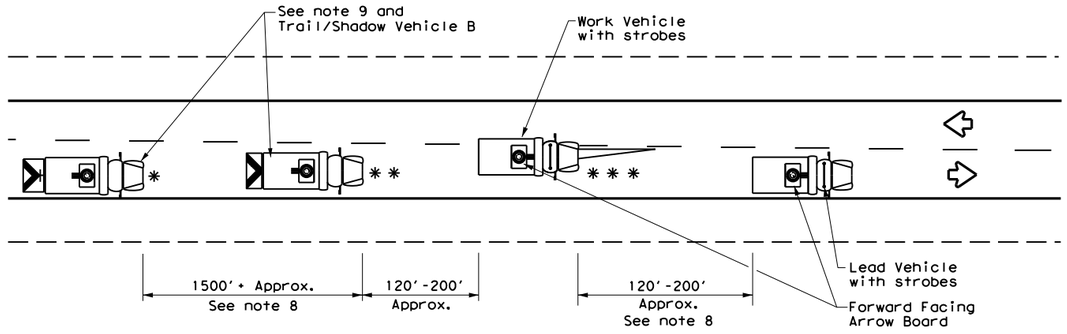


WORK ON SHOULDER

WORK ON TRAVEL LANE

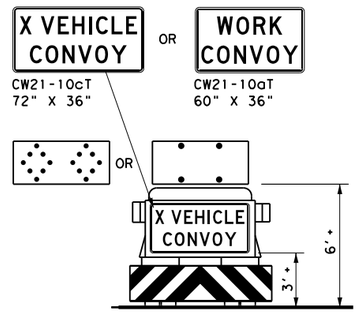
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

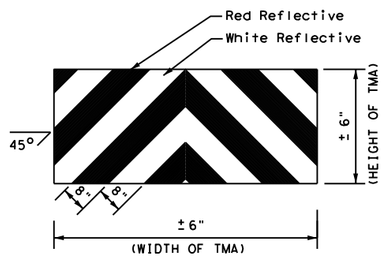
with Flashing Arrow Board in CAUTION display

LEGEND			
*	Trail Vehicle	ARROW BOARD DISPLAY	
* *	Shadow Vehicle		
* * *	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

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

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used the WORK vehicle must be equipped with an arrow board. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. "X VEHICLE CONVOY" (CW21-10cT) or "WORK CONVOY" (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" X 48" diamond shaped "WORK CONVOY"(CW21-10T) or "X VEHICLE CONVOY" (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The "X VEHICLE CONVOY" sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a "DO NOT PASS" (R4-1) sign should be placed on the back of the rearmost protection vehicle.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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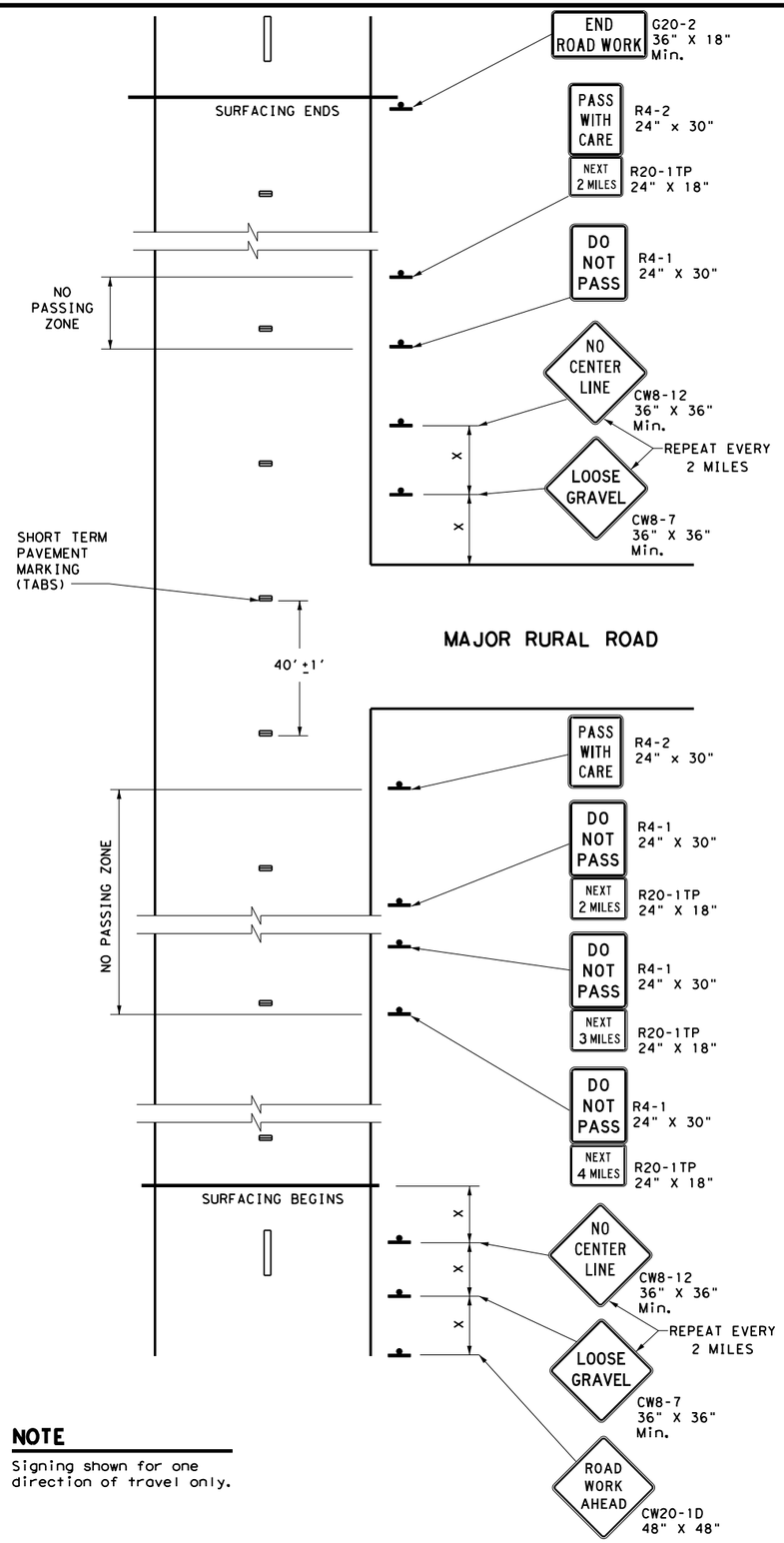
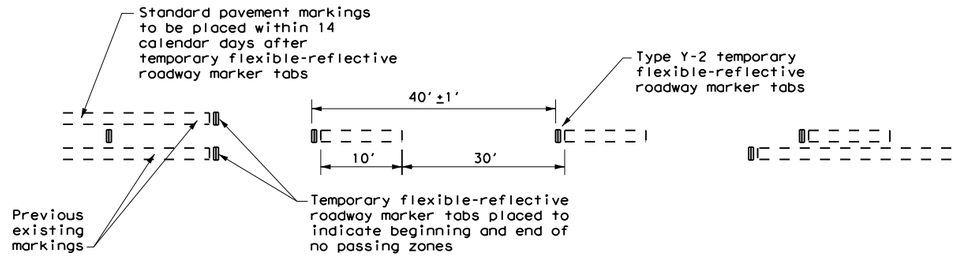


NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat, micro-surface or similar operations

"DO NOT PASS" SIGN (R4-1) and NO-PASSING ZONES

A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.

C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshield and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.

D. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

A. Center line markings are yellow pavement markings that delineate the separation of travel lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.

B. At the time construction activity obliterates the existing center line markings(low volume roads may not have an existing centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 mile intervals within the work area, beyond major intersections and other locations deemed necessary by the Engineer.

C. The NO CENTER LINE signs are to remain in place until standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately 2 miles in rural areas and closer in urban areas.

B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

PAVEMENT MARKINGS

A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement
no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.

B. Tabs shall not be used to simulate edge lines.

C. Tab placement for overlay/inlay operations shall be as shown on the WZ(STPM) standard sheet.

COORDINATION OF SIGN LOCATIONS

A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.

B. Where possible the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and one "X" sign spacing prior to the CONTRACTOR (G20-6T)sign typically located at or near the limits of surfacing. LOOSE GRAVEL and NO CENTER LINE signs will then be repeated as described above.

Posted Speed *	Minimum Sign Spacing "X" Distance
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

* Conventional Roads Only

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

GENERAL NOTES

1. The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where tabs must be placed prior to the surfacing operation which will cover or obliterate the existing pavement markings.
2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.
3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Long-Term / Intermediate-Term Work Zone Sign Supports.
4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".
5. Signs on divided highways, freeways and expressways will be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL DETAILS FOR SURFACING OPERATIONS

TCP(7-1)-13

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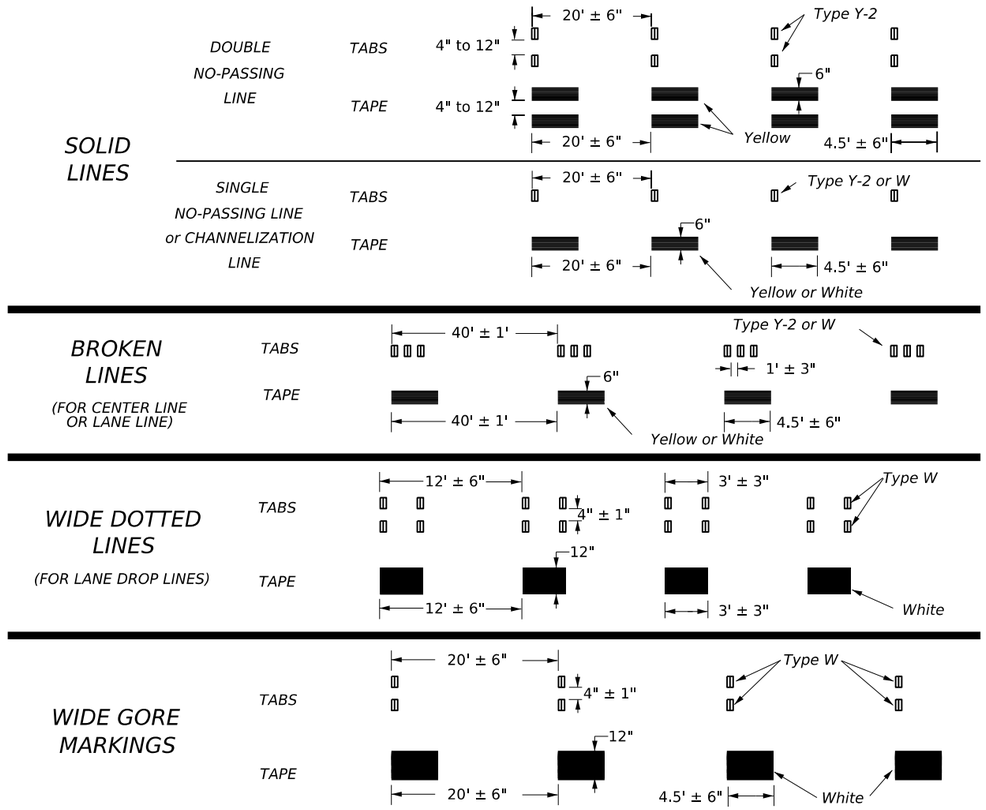
© TxDOT	March 1991	CONT	SECT	JOB	HIGHWAY
REVISIONS		-	-	-	ABBOT RD
4-92 4-98		DIST	COUNTY		SHEET NO.
1-97 7-13		-	BEXAR		38

WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS



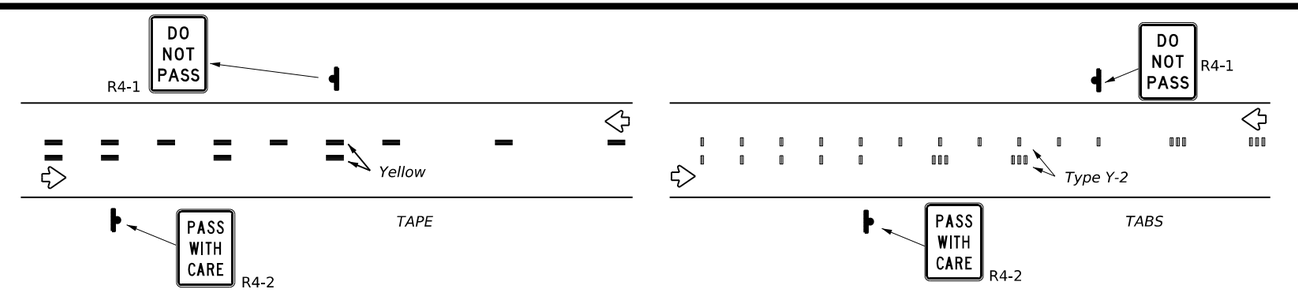
NOTES:

1. Short term pavement markings may be prefabricated markings (stick down tape) or temporary flexible reflective roadway marker tabs unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
4. Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
5. No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
6. For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
7. For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).
8. For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

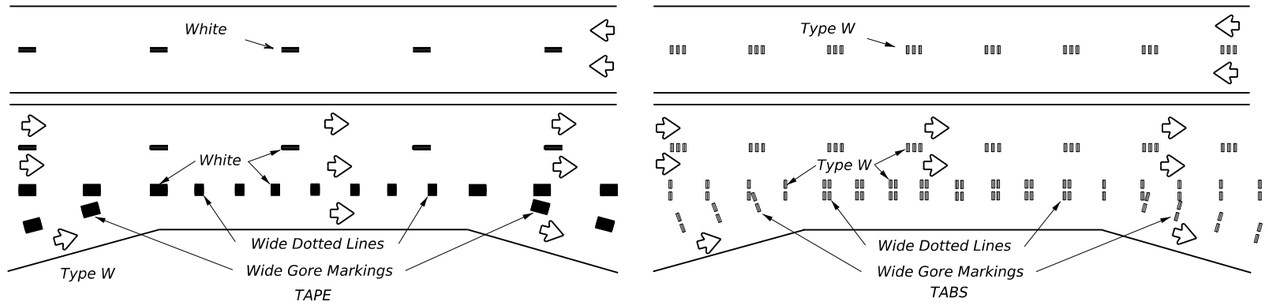
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

1. Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
4. No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

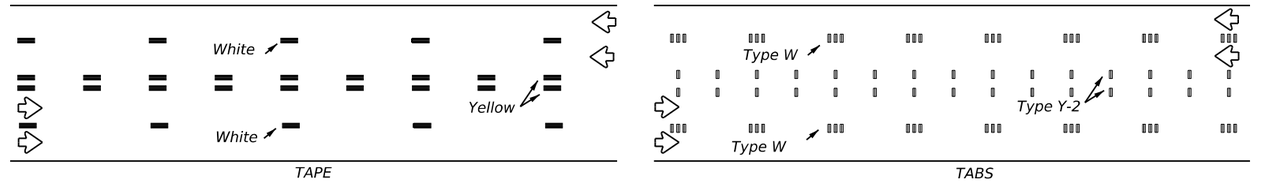
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



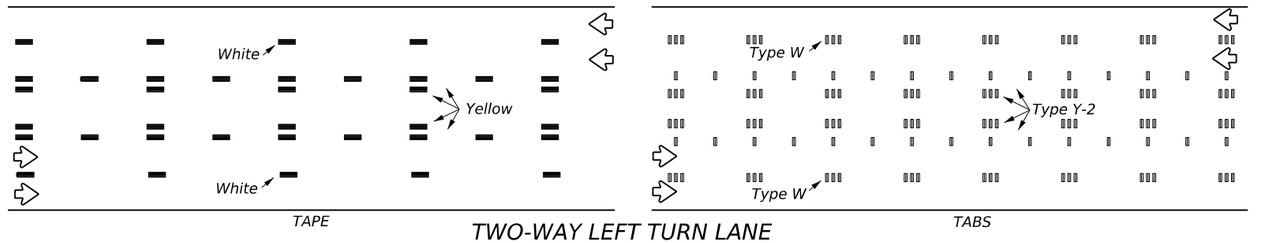
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



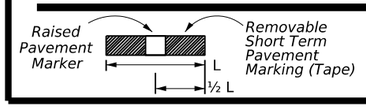
LANE LINES FOR DIVIDED HIGHWAY



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE



If raised pavement markers are used to supplement REMOVABLE short term markings, the markers shall be applied to the top of the tape at the approximate mid length of the tape. This allows an easier removal of raised markers and tape.

PREFABRICATED PAVEMENT MARKINGS

1. Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
2. Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Costruction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

1. All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:

http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

Texas Department of Transportation

Traffic Safety Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS

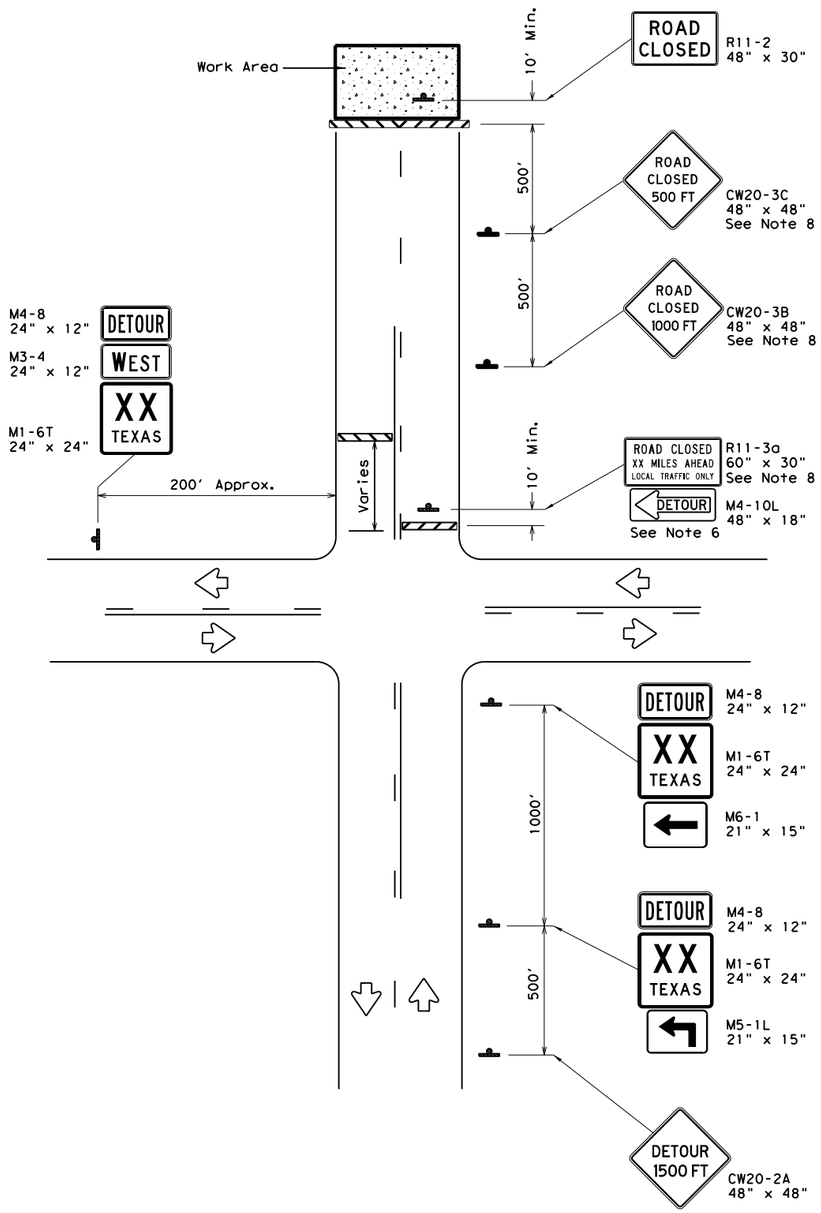
WZ(STPM)-23

FILE: wzstpm-23.dgn	DN:	CK:	DW:	CK:
©TxDOT February 2023	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
4-92 7-13	DIST	COUNTY		SHEET NO.
1-97 2-23	-	BEXAR		39
3-03				

111

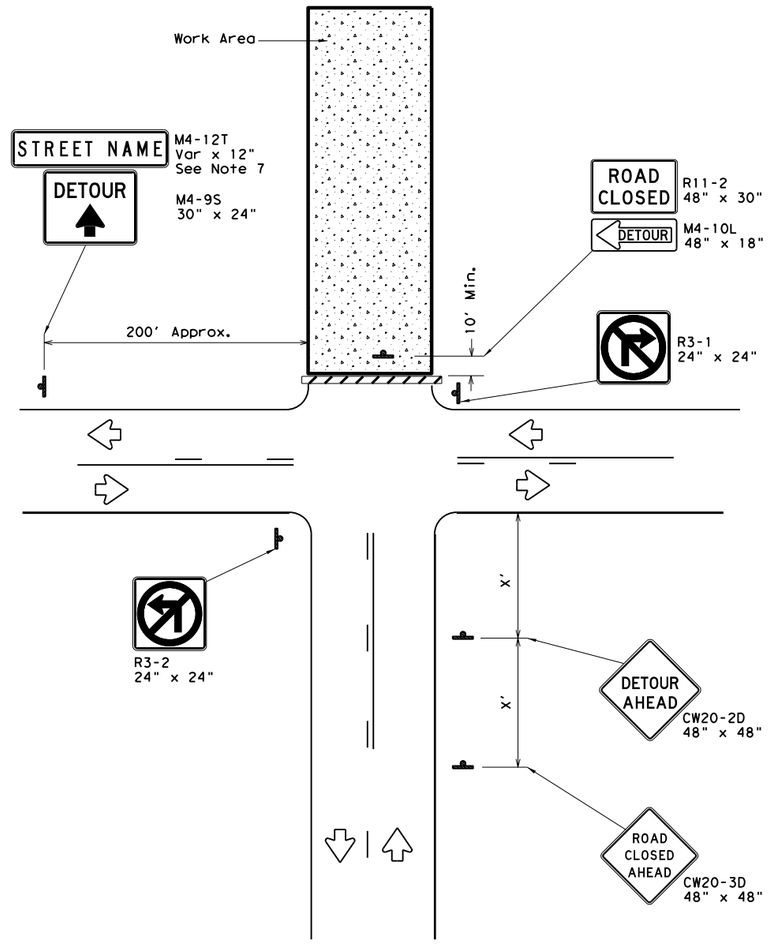
DATE: 1/5/2026 8:28:41 AM
FILE: P:\DESIGN_PROJECTS\Martinez Creek Estates_FM_13464 - Design\Plan Set\02 TCPStandards\wz(stpm)-23.dgn

DATE: 1/5/2026 8:28:42 AM
FILE: P:\DESIGN_PROJECTS\Martinez Creek Estates_FM_1346\4 - Design\Plan Set\02fm1346_wzrcd-13.dgn



ROAD CLOSURE BEYOND THE INTERSECTION

Signing for a Numbered Route with an Off-Site Detour



ROAD CLOSURE AT THE INTERSECTION

Signing for an Un-numbered Route with an Off-Site Detour

LEGEND	
	Type 3 Barricade
	Sign

Posted Speed *	Minimum Sign Spacing "X" Distance
30	120'
35	160'
40	240'
45	320'
50	400'
55	500'
60	600'
65	700'
70	800'
75	900'

* Conventional Roads Only

GENERAL NOTES

1. This sheet is intended to provide details for temporary work zone road closures. For permanent road closure details see the D&OM standards.
2. Barricades used shall meet the requirements shown on Barricade and Construction Standard BC(10) and listed on the Compliant Work Zone Traffic Control Devices list (CWZTCD).
3. Stockpiled materials shall not be placed on the traffic side of barricades.
4. Barricades at the road closure should extend from pavement edge to pavement edge.
5. Detour signing shown is intended to illustrate the type of signing that is appropriate for numbered routes or un-numbered routes as labeled. It does not indicate the full extent of detour signing required. Detour routes should be signed as shown elsewhere in the plans.
6. If the road is open for a significant distance beyond the intersection or there are significant origin/destination points beyond the intersection, the signs and barricades at this location should be located at the edge of the traveled way.
7. The Street Name (M4-12T) sign is to be placed above the DETOUR (M4-9S) sign.
8. For urban areas where there is a shorter distance between the intersection and the actual closure location, the ROAD CLOSED XX MILES AHEAD (R11-3a) sign may be replaced with a ROAD CLOSED TO THRU TRAFFIC (R11-4) sign. If adequate space does not exist between the intersection and the closure a single ROAD CLOSED AHEAD (CW20-3D) sign spaced as per the table above may replace the ROAD CLOSED 1000 FT (CW20-3B) and ROAD CLOSED 500 FT (CW20-3C) signs.
9. Signs and barricades shown shall be subsidiary to Item 502. Locations where these details will be required shall be as shown elsewhere in the plans.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE ROAD CLOSURE DETAILS

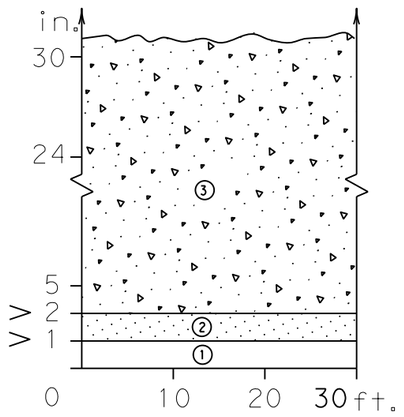
WZ(RCD)-13

FILE: wzrcd-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
1-97 4-98 7-13	DIST	COUNTY		SHEET NO.
2-98 3-03	-	BEXAR		40

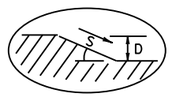
DATE: 1/5/2026 8:28:43 AM
FILE: P:\DESIGN_PROJECTS\Martinez Creek Estates_FM_1346\4 - Design\Plan Set\02 Interior Sheets\edgecon.dgn

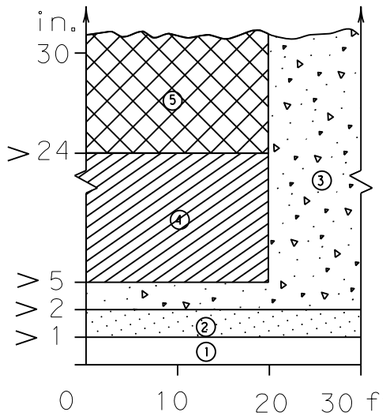
DEFINITION OF TREATMENT ZONES FOR VARIOUS EDGE CONDITIONS

Edge Height (D) in Inches versus Lateral Clearance (Y) in Feet

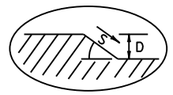


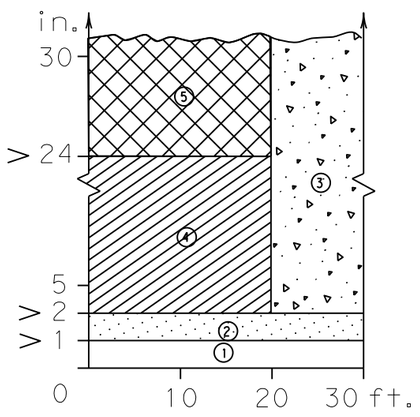
Edge Condition I
S = (3:1) (or flatter)



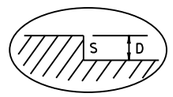


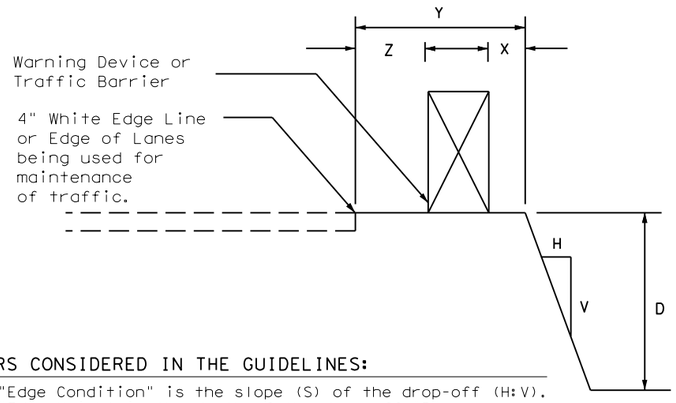
Edge Condition II
S = ((2.99):1) to (1:1)





Edge Condition III
S is steeper than (1:1)





FACTORS CONSIDERED IN THE GUIDELINES:

1. The "Edge Condition" is the slope (S) of the drop-off (H:V). The "Edge Height is the depth of the drop-off "D".

2. Distance "X" is to be the maximum practical under job conditions. Two feet minimum for high speed conditions. Distance "Y" is the lateral clearance from edge of travel lane to edge of dropoff. Distance "Z" does not have a minimum.

3. In addition to the factors considered in the guidelines, each construction zone drop-off situation should be analyzed individually, taking into account other variables, such as: traffic mix, posted speed in the construction zone, horizontal curvature, and the practicality of the treatment options.

4. The conditions for indicating the use of positive or protective barriers are given by Zone-5 and Figure-1. Traffic barriers are primarily applicable for high speed conditions. Urban areas with speeds of 30 mph or less may have a lesser need for signing, delineation, and barriers. Right-angled edges, however, with "D" greater than 2 inches and located within a lateral offset of 6 feet, may indicate a higher level of treatment.

5. If the distance "Y" must be less than 3 feet, the use of a positive barrier may not be feasible. In such a case, consider either: 1) narrowing the lanes to a desired 11 to 12 feet or 10 foot minimum (see CW20-8 sign), or 2) provide an edge slope such as Edge Condition I.

Zone	Treatment Types Guidelines:
①	No treatment
②	CW 8-11 "Uneven Lanes" signs.
③	CW 8-9a Shoulder Drop-Off" or CW 8-11 signs plus vertical panels.
④	CW8-9a or CW 8-11, signs plus drums. Where restricted space precludes the use of drums, use vertical panels. An edge slope to that of the profered Edge Condition I.
⑤	Check indications (Figure-1) for possitive barrier. Where positive barrier is not indicated, the treatment shown above for Zone-4 may be used after consideration of other applicable factors.

Edge Condition Notes:

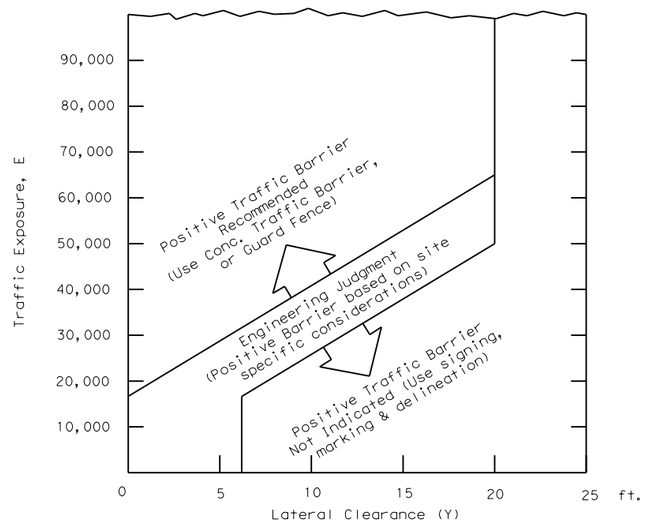
1. Edge Condition I: Most vehicles are able to traverse an edge condition with a slope rate of (3 to 1) or flatter. The slope must be constructed with a compacted material capable of supporting vehicles.

2. Edge Condition II: Most vehicles are able to traverse an edge condition with a slope between (2.99 to 1) and (1 to 1) so long as "D" does not exceed 5 inches. Under-carriage drag on most automobiles will occur when "D" exceeds 6 inches. As "D" exeeds 24 inches, the possibility for rollover is greater in most vehicles.

3. Edge Condition III: When slopes are greater than (1 to 1) and where "D" is greater than 2 inches, a more difficult control factor may exist for some vehicles, if not properly treated. For example, where "D" is greater than 2 inches and up to 24 inches different types of vehicles may experience different steering control at different edge heights. Automobiles might experience more steering control differential when "D" is greater than 2 inches and up to 5 inches. Trucks, particularly those with high loads, have more steering control differential when "D" is greater than 5 inches and up to 24 inches. When "D" exceeds 24 inches, the possibility of rollover is greater for most vehicles.

4. Milling or overlay operations that result in Edge Condition III should not be in place without appropriate warning treatments, and these conditions should not be left in place for extended periods of time.

FIGURE-1: CONDITIONS INDICATING USE OF POSITIVE BARRIER FOR ZONE 5 (▨)



1. E = ADT x T
Where ADT is that portion of the average daily traffic volume traveling within 20 feet (generally two adjacent lanes) of the edge dropoff condition; and, T is the duration time in years of the dropoff condition.

2. Figure-1 provides a practical approach to the use of positive barriers for the protection of vehicles from pavement drop-offs. Other factors, such as the presence of heavy machinery, construction workers, or the mix and volume of traffic may make the use of positive barriers appropriate, even when the edge condition alone may not justify the use of a barrier.

3. An approved end treatment should be provided for any positive barrier end located within the clear zone.

These guidelines apply to temporary traffic control areas or work zones where continuous pavement edges or drop-offs exists parallel and adjacent to a lane used by traffic. The edge conditions may be present between shoulders and travel lanes, between adjacent or opposing travel lanes, or at intermediate points across the width of the paved surface. Due to the variability in construction operations, tolerances in the variables may be allowed by the engineer. These guidelines do not apply to short term operations. These guidelines do not constitute a rigid standard or policy; rather, they are guidance to be used in conjunction with engineering judgement. These guidelines may be updated on the Design Division's on-line manuals.

Engineer's Seal

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EDWARD GALICIA (NAME) *114275* (P.E. #) *1/5/2026* (DATE)

Date _____

Texas Department of Transportation

Traffic Safety Division Standard

TREATMENT FOR VARIOUS EDGE CONDITIONS

FILE: edgecon.dgn	DN:	CK:	DW:	CK:
©TxDOT August 2000	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
03-01 08-01 9-21	DIST	COUNTY		SHEET NO.
	-	BEXAR		41

Alignment Name: BL FM 1346
Alignment Description:
Alignment Style: Alignment\Baseline

		Station	Northing	Easting
Element: Linear				
POT	(POT)	200+00.000 R1	13703939.838	2205845.652
PC	(PC)	204+24.214 R1	13704064.887	2206251.017
	Tangential Direction:	N72°51'20.822"E		
	Tangential Length:	424.214		
Element: Circular				
PC	(PC)	204+24.214 R1	13704064.887	2206251.017
PI	(PI)	209+84.127 R1	13704229.937	2206786.051
CC	(CC)		13701316.289	2207098.919
PT	(PT)	215+30.210 R1	13704182.244	2207343.929
	Radius:	2876.409		
	Delta:	22°01'49.971" Right		
	Degree of Curvature (Arc):	01°59'30.913"		
	Length:	1105.995		
	Tangent:	559.913		
	Chord:	1099.195		
	Middle Ordinate:	52.994		
	External:	53.989		
	Back Tangent Direction:	N72°51'20.822"E		
	Back Radial Direction:	S17°08'39.178"E		
	Chord Direction:	N83°52'15.807"E		
	Ahead Radial Direction:	S04°53'10.793"W		
	Ahead Tangent Direction:	S85°06'49.207"E		
Element: Linear				
PT	(PT)	215+30.210 R1	13704182.244	2207343.929
POT	(POT)	225+80.549 R1	13704092.777	2208390.451
	Tangential Direction:	S85°06'49.207"E		
	Tangential Length:	1050.340		

Alignment Name: EX_ABBOT_RD_CL
Alignment Description:
Alignment Style: Alignment\Baseline

		Station	Northing	Easting
Element: Linear				
POT	(POT)	100+00.000 R1	13704192.894	2207118.563
PI	(PI)	103+25.221 R1	13704476.680	2207277.417
	Tangential Direction:	N29°14'19.284"E		
	Tangential Length:	325.221		
Element: Linear				
PI	(PI)	103+25.221 R1	13704476.680	2207277.417
PI	(PI)	105+50.873 R1	13704672.809	2207389.005
	Tangential Direction:	N29°38'15.425"E		
	Tangential Length:	225.651		
Element: Linear				
PI	(PI)	105+50.873 R1	13704672.809	2207389.005
PI	(PI)	119+18.732 R1	13705862.847	2208063.431
	Tangential Direction:	N29°32'29.075"E		
	Tangential Length:	1367.860		
Element: Linear				
PI	(PI)	119+18.732 R1	13705862.847	2208063.431
PI	(PI)	134+15.207 R1	13707160.761	2208808.317
	Tangential Direction:	N29°51'06.912"E		
	Tangential Length:	1496.475		
Element: Linear				
PI	(PI)	134+15.207 R1	13707160.761	2208808.317
PC	(PC)	140+26.612 R1	13707689.358	2209115.565
	Tangential Direction:	N30°10'02.641"E		
	Tangential Length:	611.405		
Element: Circular				
PC	(PC)	140+26.612 R1	13707689.358	2209115.565
PI	(PI)	140+84.540 R1	13707739.441	2209144.675
CC	(CC)		13708763.052	2207268.358
PT	(PT)	141+42.440 R1	13707791.027	2209171.029
	Radius:	2136.584		
	Delta:	03°06'21.952" Left		
	Degree of Curvature (Arc):	02°40'53.951"		
	Length:	115.828		
	Tangent:	57.928		
	Chord:	115.814		
	Middle Ordinate:	0.785		
	External:	0.785		
	Back Tangent Direction:	N30°10'02.641"E		
	Back Radial Direction:	S59°49'57.359"E		
	Chord Direction:	N28°36'51.665"E		
	Ahead Radial Direction:	S62°56'19.310"E		
	Ahead Tangent Direction:	N27°03'40.690"E		
Element: Linear				
PT	(PT)	141+42.440 R1	13707791.027	2209171.029
PC	(PC)	143+62.563 R1	13707987.330	2209270.624
	Tangential Direction:	N26°54'03.408"E		
	Tangential Length:	220.123		
Element: Circular				
PC	(PC)	143+62.563 R1	13707987.330	2209270.624
PI	(PI)	144+71.005 R1	13708084.038	2209319.688
CC	(CC)		13706011.842	2213164.364
PT	(PT)	145+79.403 R1	13708178.190	2209373.493
	Radius:	4366.207		
	Delta:	02°50'43.764" Right		
	Degree of Curvature (Arc):	01°18'44.118"		
	Length:	216.840		
	Tangent:	108.442		
	Chord:	216.817		
	Middle Ordinate:	1.346		
	External:	1.346		
	Back Tangent Direction:	N26°54'03.408"E		
	Back Radial Direction:	S63°05'56.592"E		
	Chord Direction:	N28°19'25.290"E		
	Ahead Radial Direction:	S60°15'12.828"E		
	Ahead Tangent Direction:	N29°44'47.172"E		
Element: Linear				
PT	(PT)	145+79.403 R1	13708178.190	2209373.493
POT	(POT)	157+14.954 R1	13709164.110	2209936.912
	Tangential Direction:	N29°44'47.172"E		
	Tangential Length:	1135.552		

Alignment Name: PR_ABBOT_RD_BL
Alignment Description:
Alignment Style: Alignment\Baseline

		Station	Northing	Easting
Element: Linear				
POT	(POT)	100+00.000 R1	13704192.520	2207130.990
PC	(PC)	103+01.117 R1	13704454.595	2207279.274
	Tangential Direction:	N29°30'05.090"E		
	Tangential Length:	301.117		
Element: Circular				
PC	(PC)	103+01.117 R1	13704454.595	2207279.274
PI	(PI)	103+12.043 R1	13704464.104	2207284.654
CC	(CC)		13704829.838	2206616.072
PT	(PT)	103+22.966 R1	13704473.763	2207289.759
	Radius:	762.000		
	Delta:	01°38'34.203" Left		
	Degree of Curvature (Arc):	07°31'08.872"		
	Length:	21.849		
	Tangent:	10.925		
	Chord:	21.848		
	Middle Ordinate:	0.078		
	External:	0.078		
	Back Tangent Direction:	N29°30'05.090"E		
	Back Radial Direction:	S60°29'54.910"E		
	Chord Direction:	N28°40'47.989"E		
	Ahead Radial Direction:	S62°08'29.113"E		
	Ahead Tangent Direction:	N27°51'30.887"E		
Element: Linear				

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NAME	P.E. #	DATE
EDWARD GALICIA	114275	1/5/2026

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

HORIZONTAL ALIGNMENT DATA

SHEET 1 OF 2

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		42
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

PT	(PT)	103+22.966 R1	13704473.763	2207289.759
PC	(PC)	106+84.807 R1	13704793.667	2207458.844
	Tangential Direction:	N27°51'30.887"E		
	Tangential Length:	361.840		

Element: Circular

PC	(PC)	106+84.807 R1	13704793.667	2207458.844
PI	(PI)	106+95.732 R1	13704803.326	2207463.949
CC	(CC)		13704437.592	2208132.531
PT	(PT)	107+06.655 R1	13704812.835	2207469.329
	Radius:	762.000		
	Delta:	01°38'34.203" Right		
	Degree of Curvature (Arc):	07°31'08.872"		
	Length:	21.849		
	Tangent:	10.925		
	Chord:	21.848		
	Middle Ordinate:	0.078		
	External:	0.078		
	Back Tangent Direction:	N27°51'30.887"E		
	Back Radial Direction:	S62°08'29.113"E		
	Chord Direction:	N28°40'47.989"E		
	Ahead Radial Direction:	S60°29'54.910"E		
	Ahead Tangent Direction:	N29°30'05.090"E		

Element: Linear

PT	(PT)	107+06.655 R1	13704812.835	2207469.329
PI	(PI)	119+13.089 R1	13705862.847	2208063.431
	Tangential Direction:	N29°30'05.090"E		
	Tangential Length:	1206.434		

Element: Linear

PI	(PI)	119+13.089 R1	13705862.847	2208063.431
PI	(PI)	134+09.564 R1	13707160.761	2208808.317
	Tangential Direction:	N29°51'06.912"E		
	Tangential Length:	1496.475		

Element: Linear

PI	(PI)	134+09.564 R1	13707160.761	2208808.317
PC	(PC)	140+20.969 R1	13707689.358	2209115.565
	Tangential Direction:	N30°10'02.641"E		
	Tangential Length:	611.405		

Element: Circular

PC	(PC)	140+20.969 R1	13707689.358	2209115.565
PI	(PI)	140+78.897 R1	13707739.441	2209144.675
CC	(CC)		13708763.052	2207268.358
PT	(PT)	141+36.797 R1	13707791.027	2209171.029
	Radius:	2136.584		
	Delta:	03°06'21.952" Left		
	Degree of Curvature (Arc):	02°40'53.951"		
	Length:	115.828		
	Tangent:	57.928		
	Chord:	115.814		
	Middle Ordinate:	0.785		
	External:	0.785		
	Back Tangent Direction:	N30°10'02.641"E		
	Back Radial Direction:	S59°49'57.359"E		
	Chord Direction:	N28°36'51.665"E		
	Ahead Radial Direction:	S62°56'19.310"E		
	Ahead Tangent Direction:	N27°03'40.690"E		

Element: Linear

PT	(PT)	141+36.797 R1	13707791.027	2209171.029
PC	(PC)	143+56.920 R1	13707987.330	2209270.624
	Tangential Direction:	N26°54'03.408"E		
	Tangential Length:	220.123		

Element: Circular

PC	(PC)	143+56.920 R1	13707987.330	2209270.624
PI	(PI)	144+65.362 R1	13708084.038	2209319.688
CC	(CC)		13706011.842	2213164.364
PT	(PT)	145+73.759 R1	13708178.190	2209373.493
	Radius:	4366.207		
	Delta:	02°50'43.764" Right		
	Degree of Curvature (Arc):	01°18'44.118"		
	Length:	216.840		
	Tangent:	108.442		
	Chord:	216.817		
	Middle Ordinate:	1.346		
	External:	1.346		
	Back Tangent Direction:	N26°54'03.408"E		
	Back Radial Direction:	S63°05'56.592"E		
	Chord Direction:	N28°19'25.290"E		
	Ahead Radial Direction:	S60°15'12.828"E		
	Ahead Tangent Direction:	N29°44'47.172"E		

Element: Linear

PT	(PT)	145+73.759 R1	13708178.190	2209373.493
POT	(POT)	157+09.311 R1	13709164.110	2209936.912
	Tangential Direction:	N29°44'47.172"E		
	Tangential Length:	1135.552		

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NAME	P.E. #	DATE
EDWARD GALICIA	114275	1/5/2026

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

HORIZONTAL ALIGNMENT DATA

SHEET 2 OF 2

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	43

STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:28:45 AM
1/5/2026
Legacy Engineering Group
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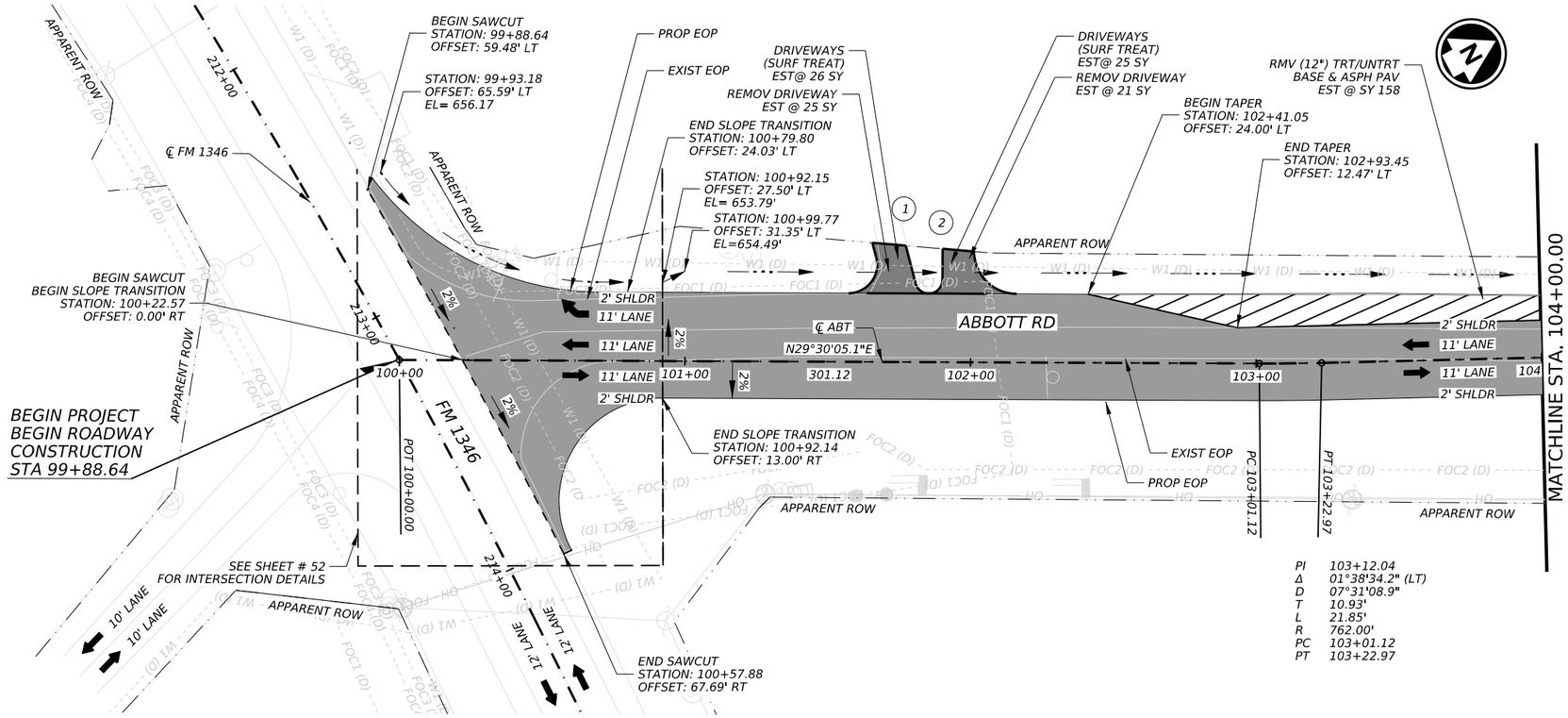

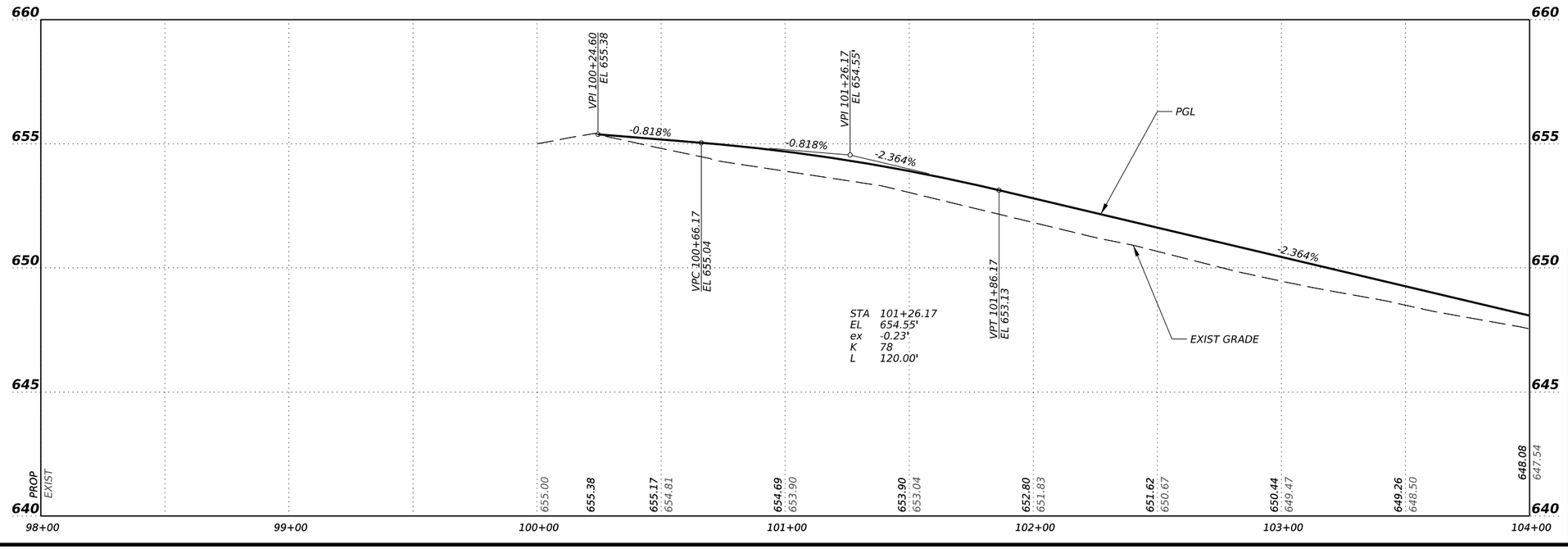

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LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

ROADWAY PLAN & PROFILE

BEGIN TO STA 104+00

SCALE: 1" = 50' SHEET 1 OF 8

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	44

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
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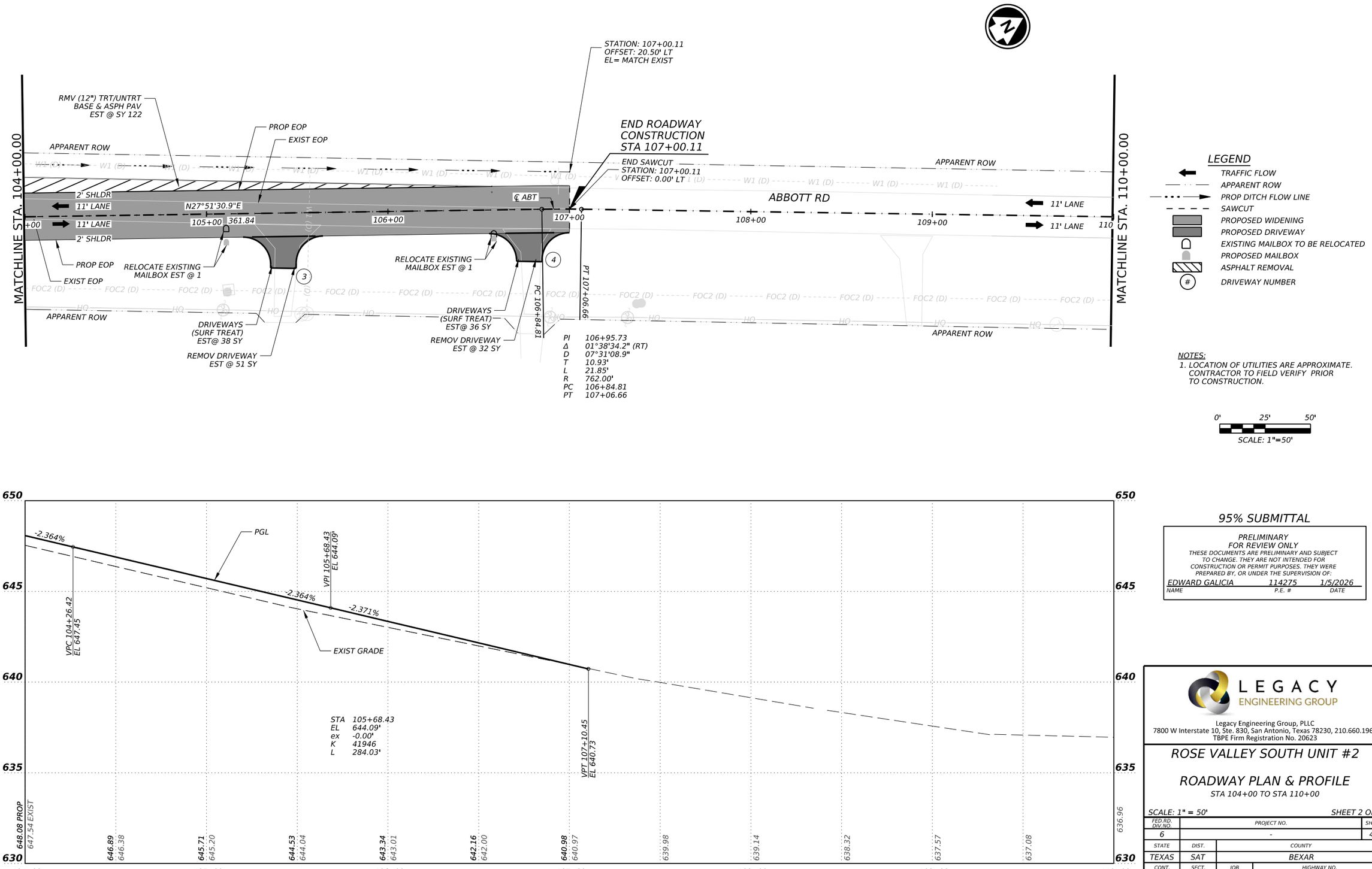

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LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

ROADWAY PLAN & PROFILE

STA 104+00 TO STA 110+00

SCALE: 1" = 50' SHEET 2 OF 8

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	45

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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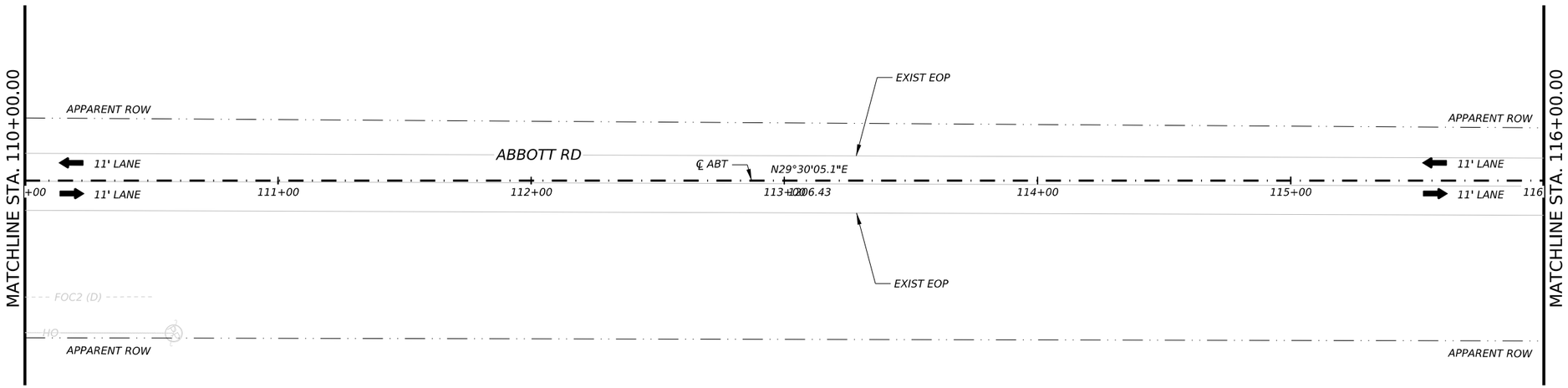


LEGEND

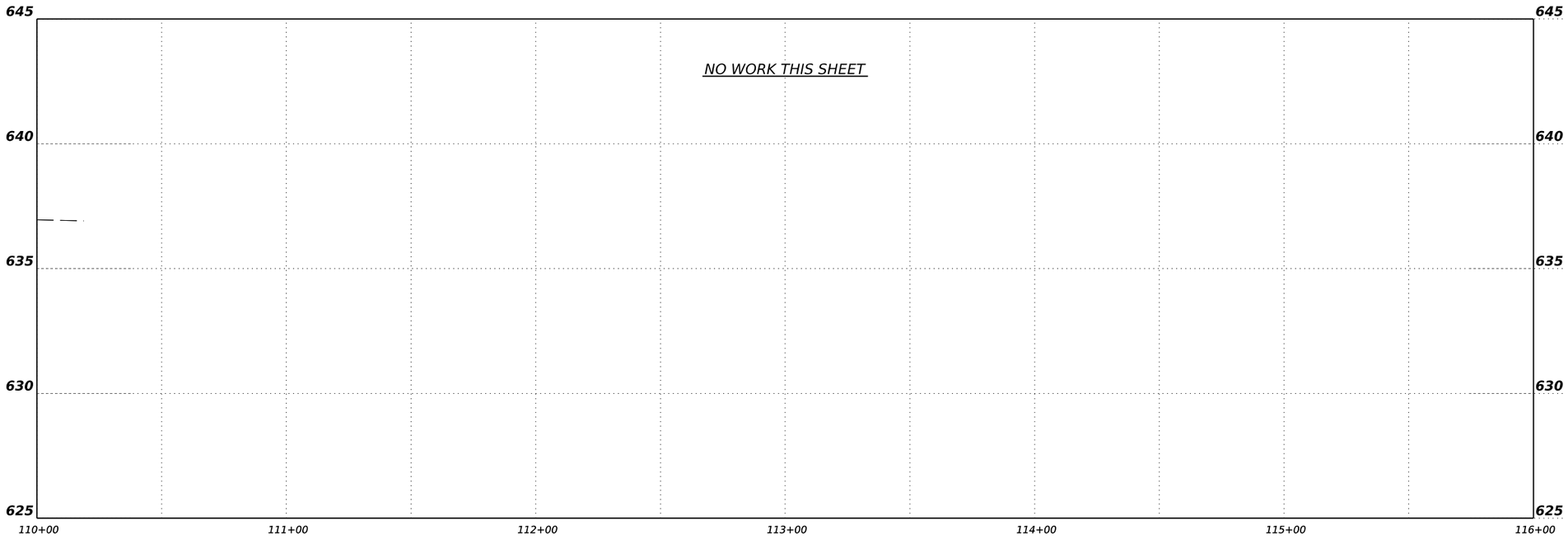
- TRAFFIC FLOW
- APPARENT ROW
- PROP DITCH FLOW LINE
- SAWCUT
- PROPOSED WIDENING
- PROPOSED DRIVEWAY
- EXISTING MAILBOX TO BE RELOCATED
- PROPOSED MAILBOX
- ASPHALT REMOVAL
- (#) DRIVEWAY NUMBER

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.

0' 25' 50'

SCALE: 1"=50'



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TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

ROADWAY PLAN & PROFILE

STA 110+00 TO STA 116+00

SCALE: 1" = 50' SHEET 3 OF 8

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		46
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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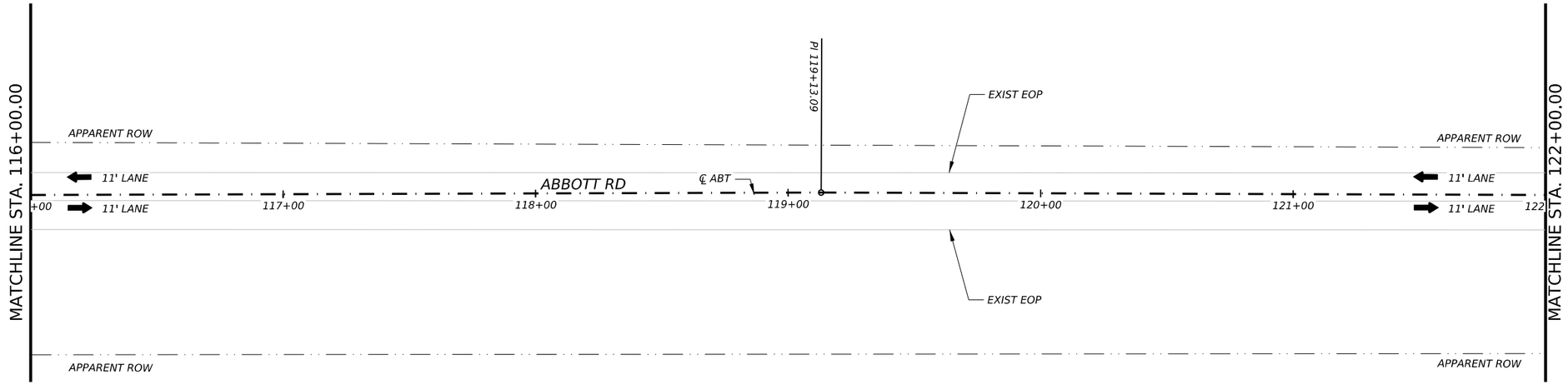

LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROP DITCH FLOW LINE
- SAWCUT
- PROPOSED WIDENING
- PROPOSED DRIVEWAY
- EXISTING MAILBOX TO BE RELOCATED
- PROPOSED MAILBOX
- ASPHALT REMOVAL
- (#) DRIVEWAY NUMBER

NOTES:

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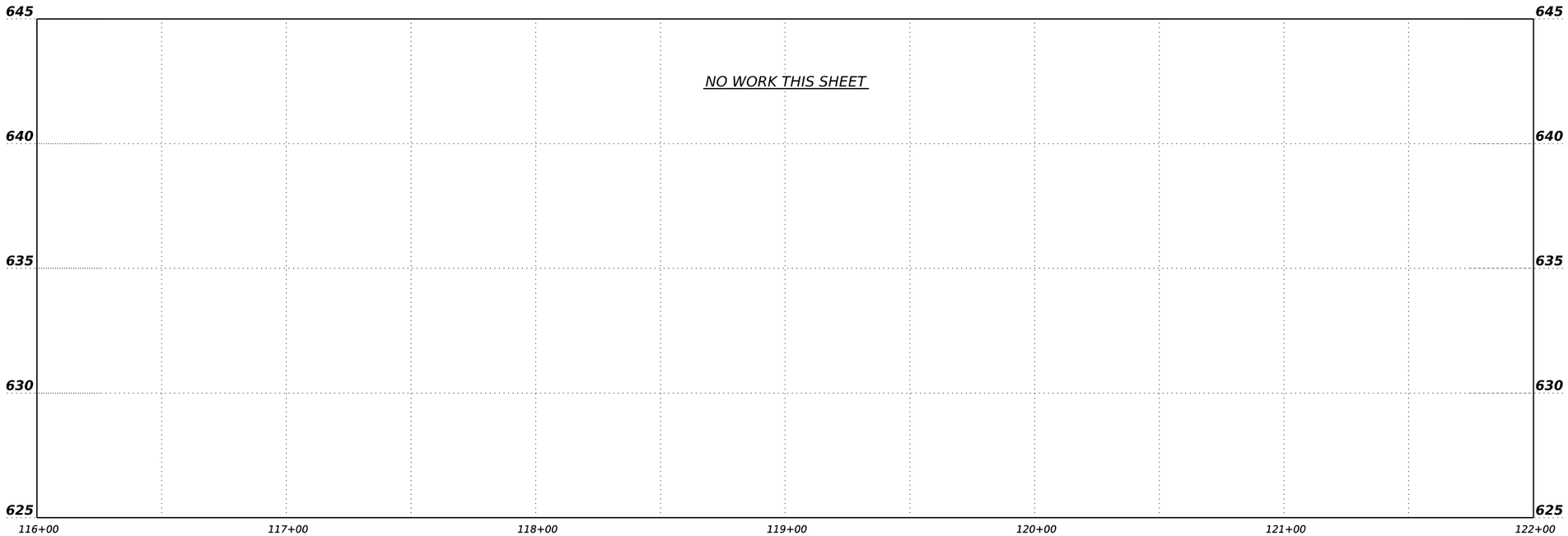
0' 25' 50'

SCALE: 1"=50'



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Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
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ROSE VALLEY SOUTH UNIT #2

ROADWAY PLAN & PROFILE

STA 116+00 TO STA 122+00

SCALE: 1" = 50' SHEET 4 OF 8

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		47
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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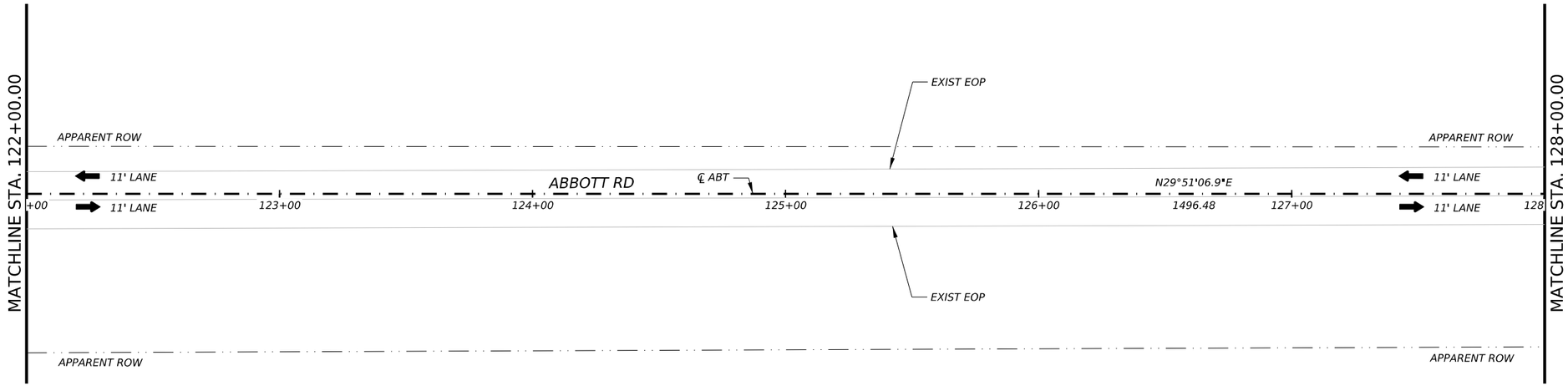

LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROP DITCH FLOW LINE
- SAWCUT
- PROPOSED WIDENING
- PROPOSED DRIVEWAY
- EXISTING MAILBOX TO BE RELOCATED
- PROPOSED MAILBOX
- ASPHALT REMOVAL
- # DRIVEWAY NUMBER

NOTES:

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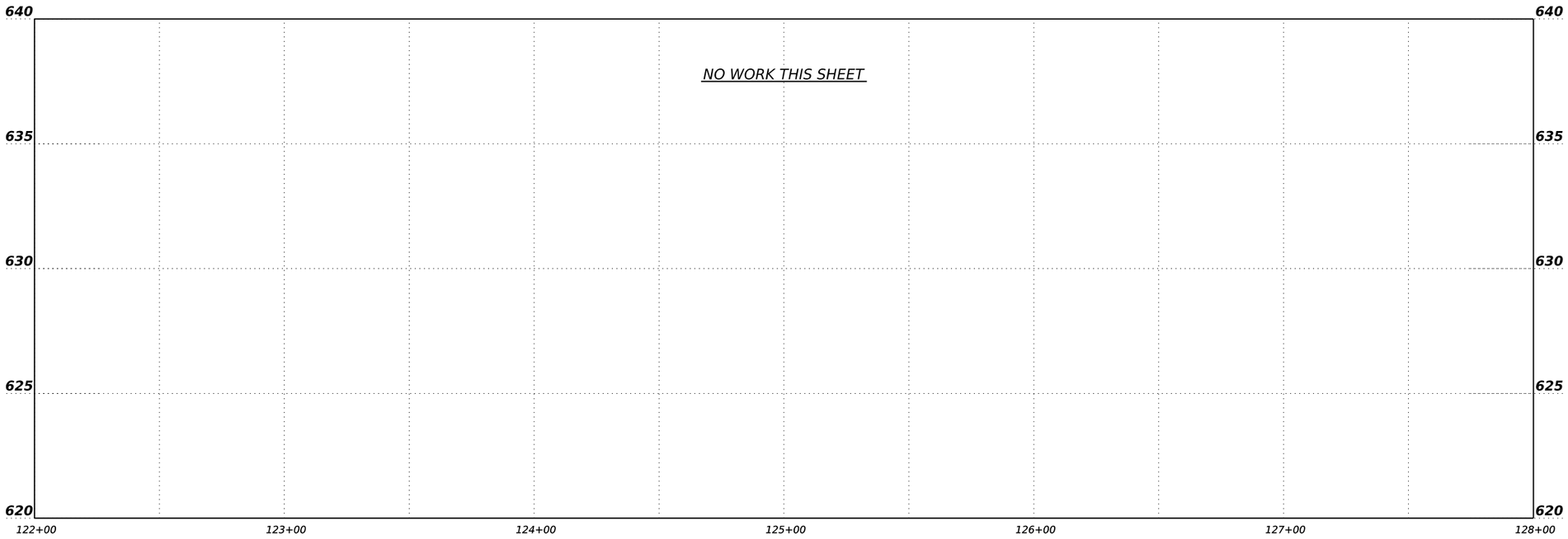
0' 25' 50'

SCALE: 1"=50'



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ROSE VALLEY SOUTH UNIT #2

ROADWAY PLAN & PROFILE

STA 122+00 TO STA 128+00

SCALE: 1" = 50' SHEET 5 OF 8

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		48
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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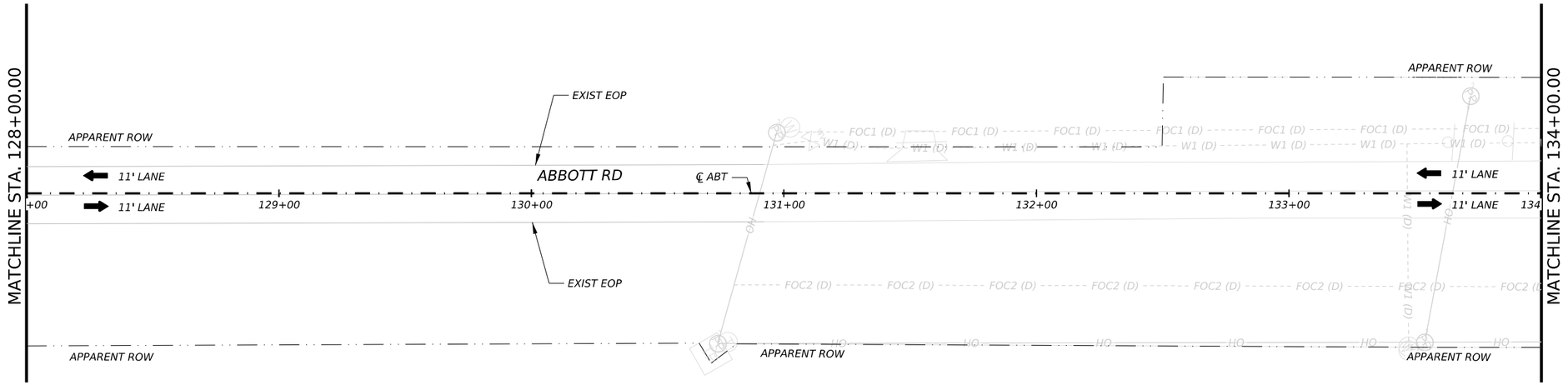

LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROP DITCH FLOW LINE
- SAWCUT
- PROPOSED WIDENING
- PROPOSED DRIVEWAY
- EXISTING MAILBOX TO BE RELOCATED
- PROPOSED MAILBOX
- ASPHALT REMOVAL
- DRIVEWAY NUMBER (#)

NOTES:

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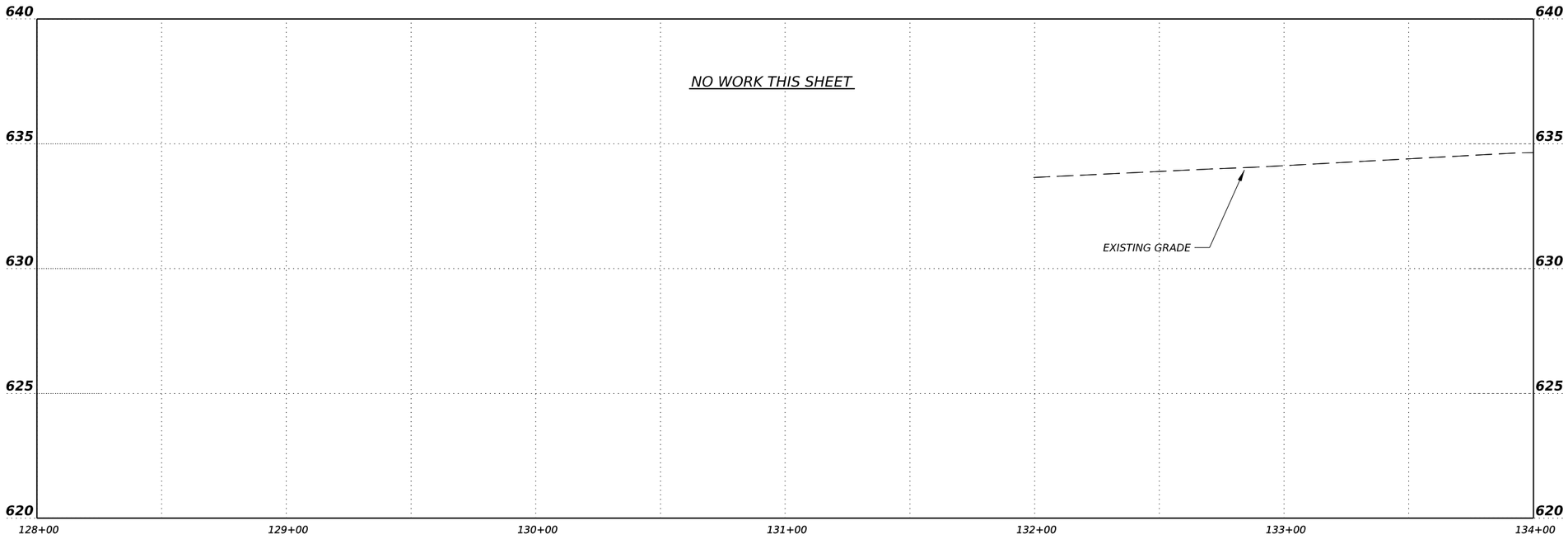
0' 25' 50'

SCALE: 1"=50'



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ROSE VALLEY SOUTH UNIT #2

ROADWAY PLAN & PROFILE

STA 128+00 TO STA 134+00

SCALE: 1" = 50' SHEET 6 OF 8

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		49
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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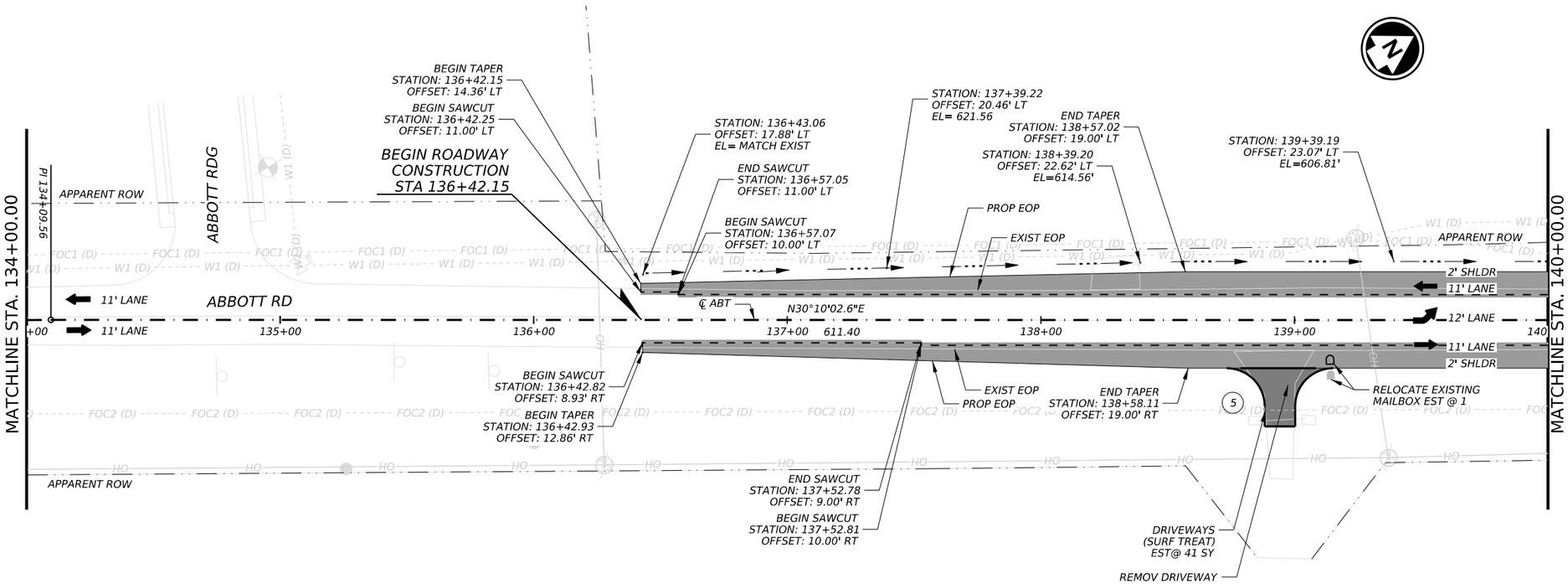

LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROP DITCH FLOW LINE
- SAWCUT
- PROPOSED WIDENING
- PROPOSED DRIVEWAY
- EXISTING MAILBOX TO BE RELOCATED
- PROPOSED MAILBOX
- ASPHALT REMOVAL
- (#) DRIVEWAY NUMBER

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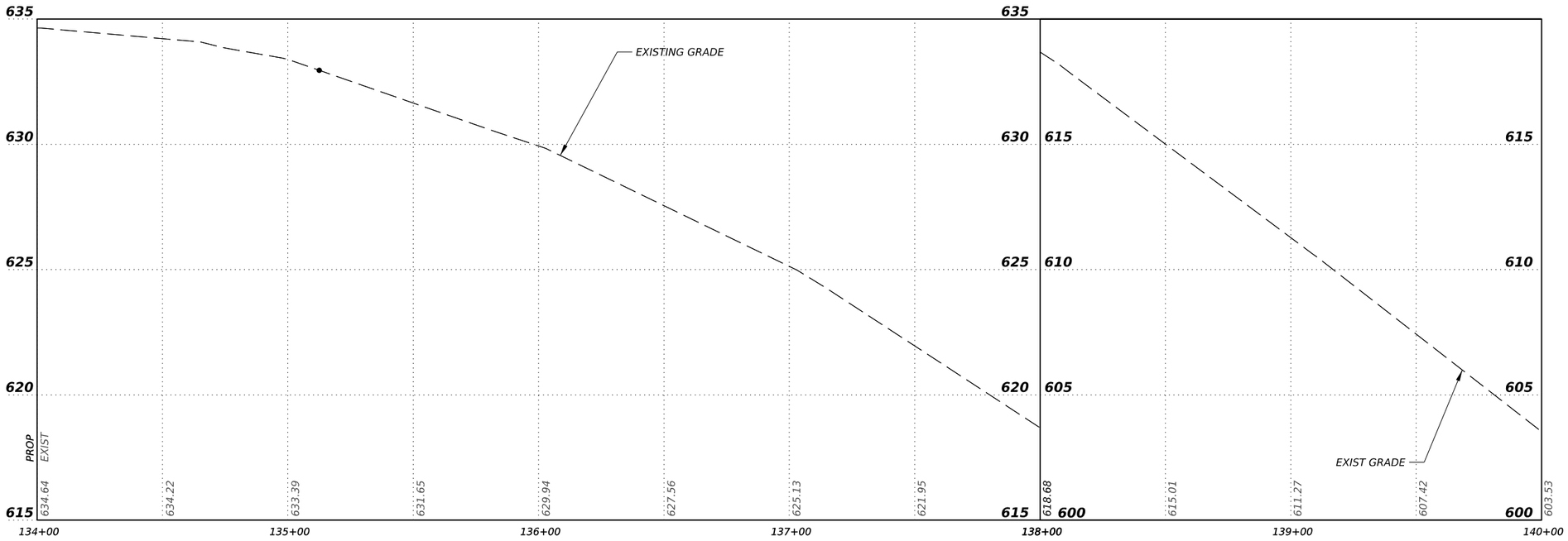
0' 25' 50'

SCALE: 1"=50'



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ROSE VALLEY SOUTH UNIT #2

ROADWAY PLAN & PROFILE

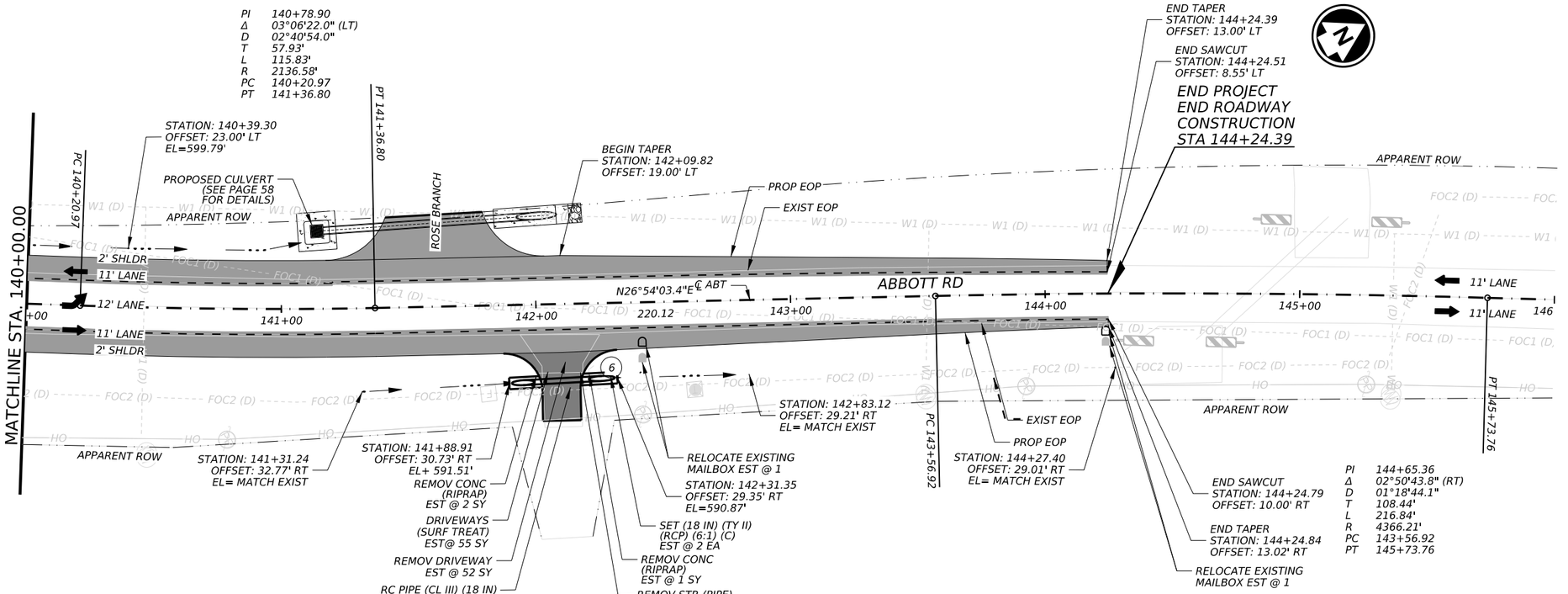
STA 134+00 TO STA 140+00

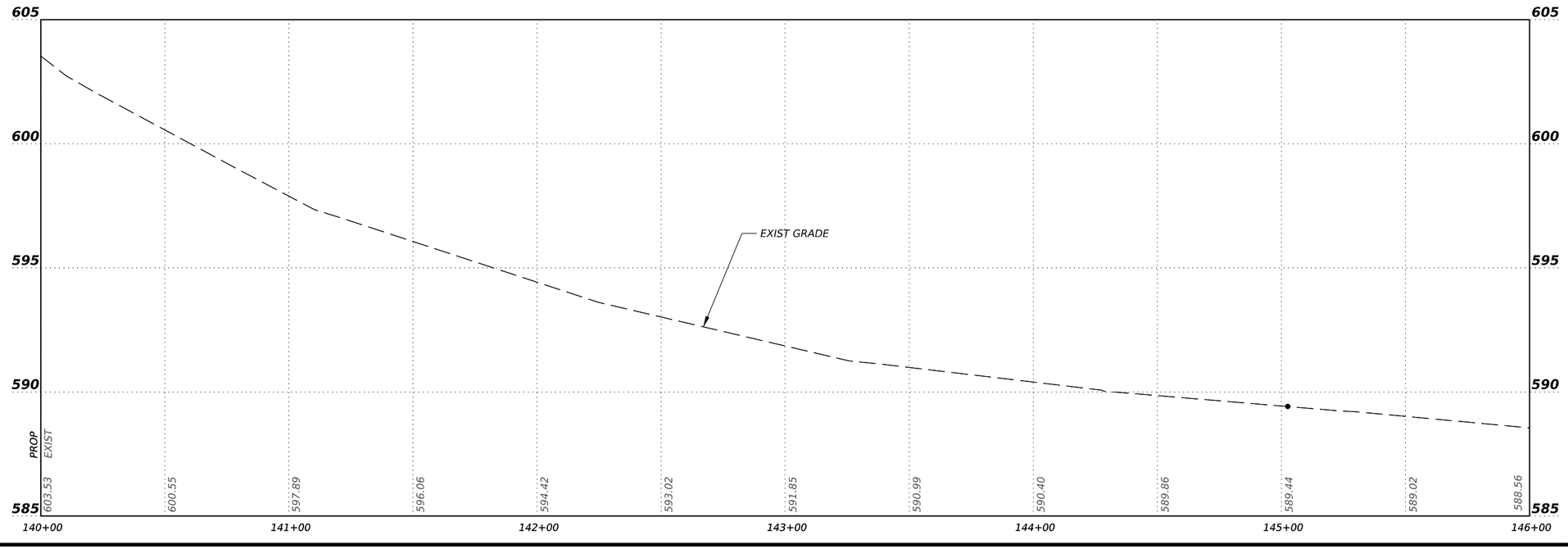
SCALE: 1" = 50' SHEET 7 OF 8

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	50

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD





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ROSE VALLEY SOUTH UNIT #2

ROADWAY PLAN & PROFILE

STA 140+00 TO END

SCALE: 1" = 50' SHEET 8 OF 8

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	51

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
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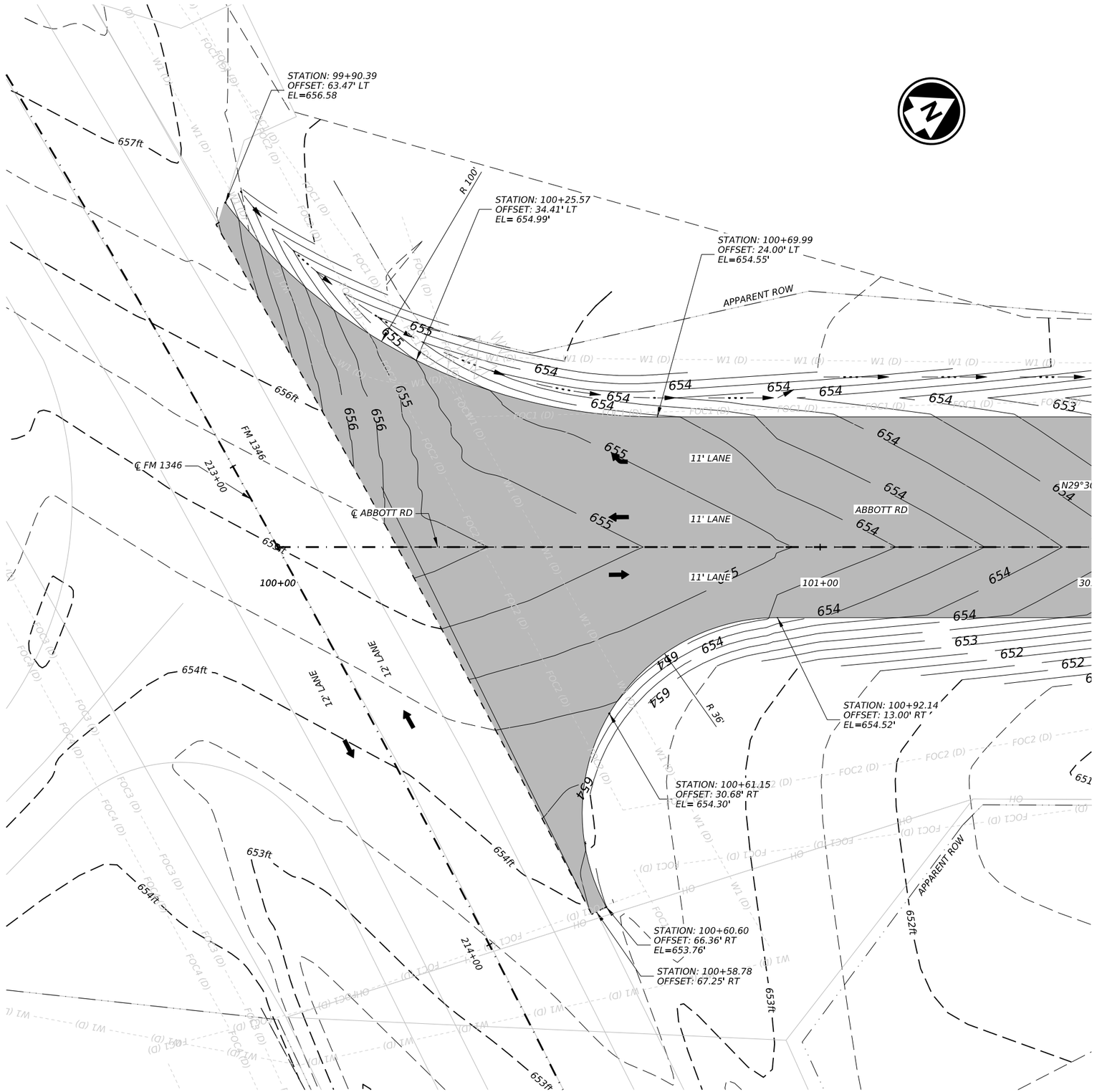

LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROP DITCH FLOW LINE
- SAWCUT
- PROPOSED WIDENING
- PROPOSED DRIVEWAY
- EXISTING MAILBOX TO BE RELOCATED
- PROPOSED MAILBOX
- ASPHALT REMOVAL
- (#) DRIVEWAY NUMBER

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.

0' 10' 20'

SCALE: 1"=20'

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7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

INTERSECTION LAYOUT

SCALE: 1" = 20' SHEET 1 OF 1

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		52
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:29:05 AM
1/5/2026
Legacy Engineering Group
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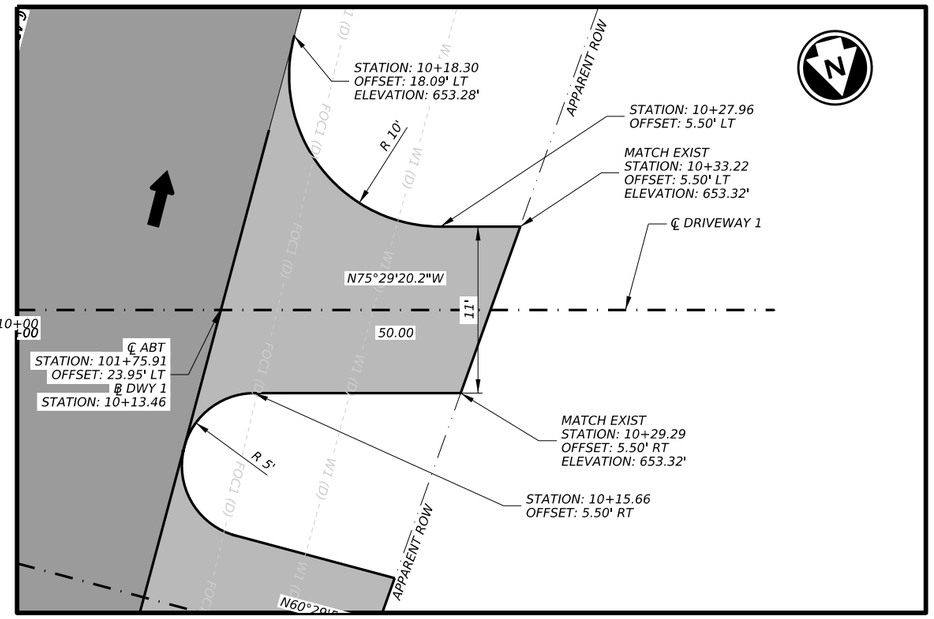
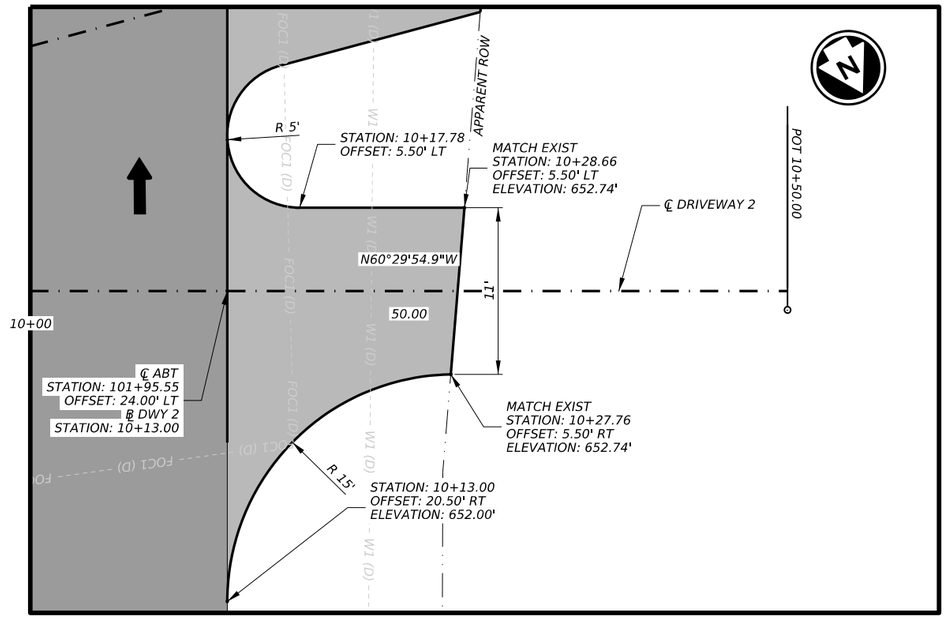
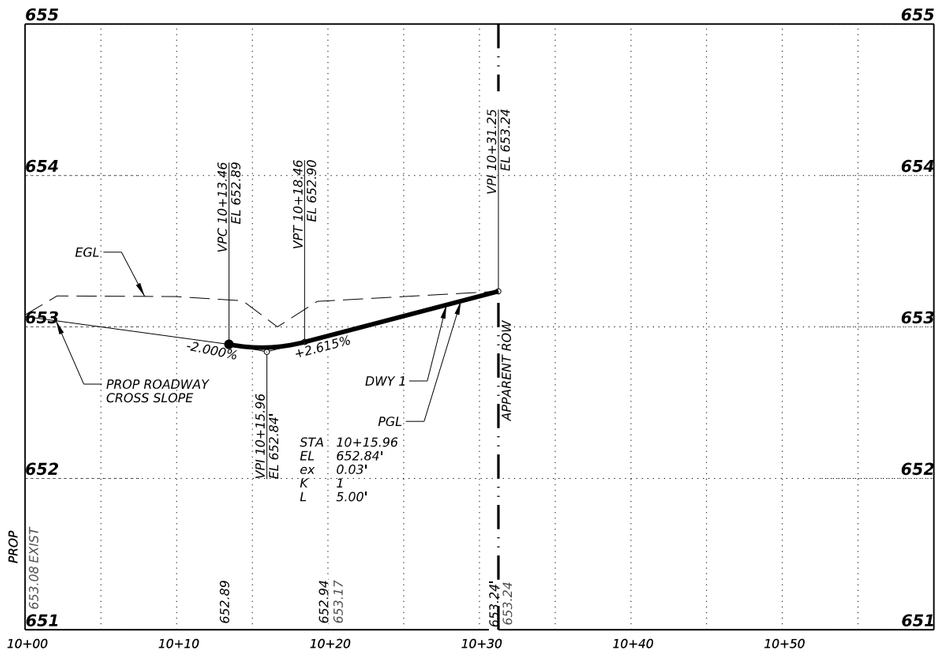
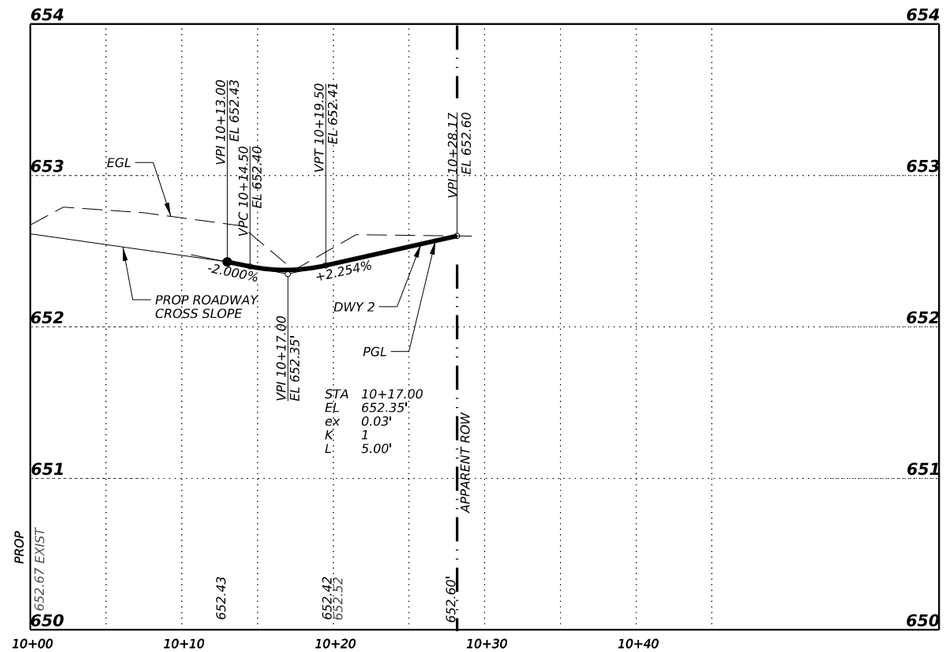


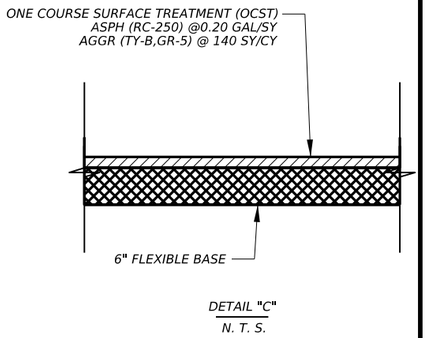
DRIVEWAY 1



DRIVEWAY 2







DETAIL "C"
N. T. S.

LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROPOSED WIDENING
- PROPOSED DRIVEWAY

NOTES:

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LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

DRIVEWAY PLAN & PROFILE

SCALE: 1" = 10'

SHEET 1 OF 4

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		53
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:29:14 AM
1/5/2026
Legacy Engineering Group
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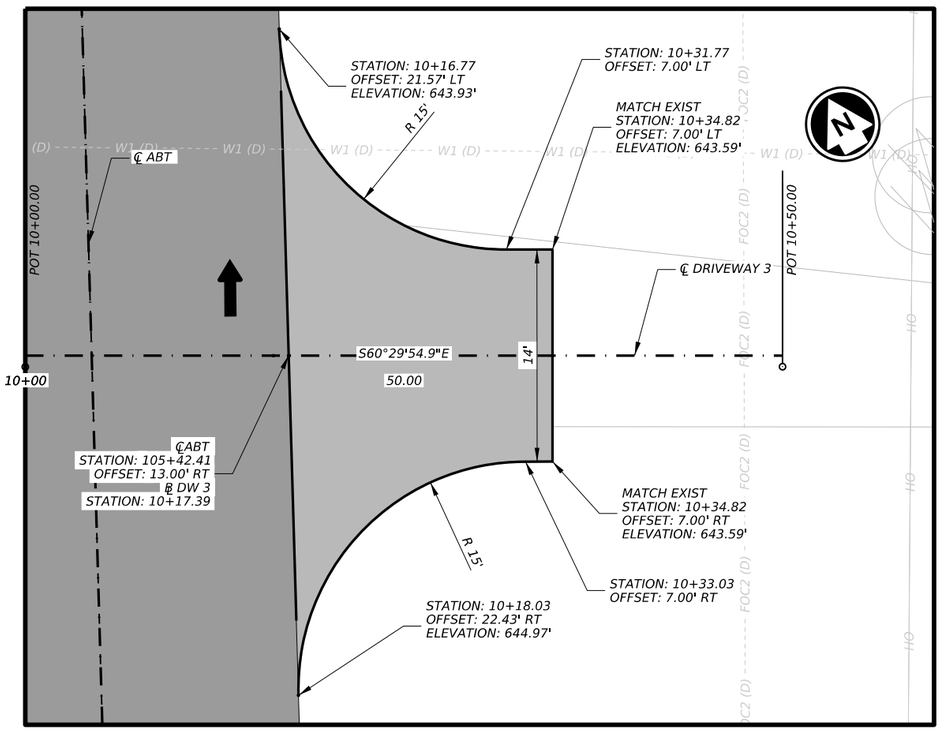
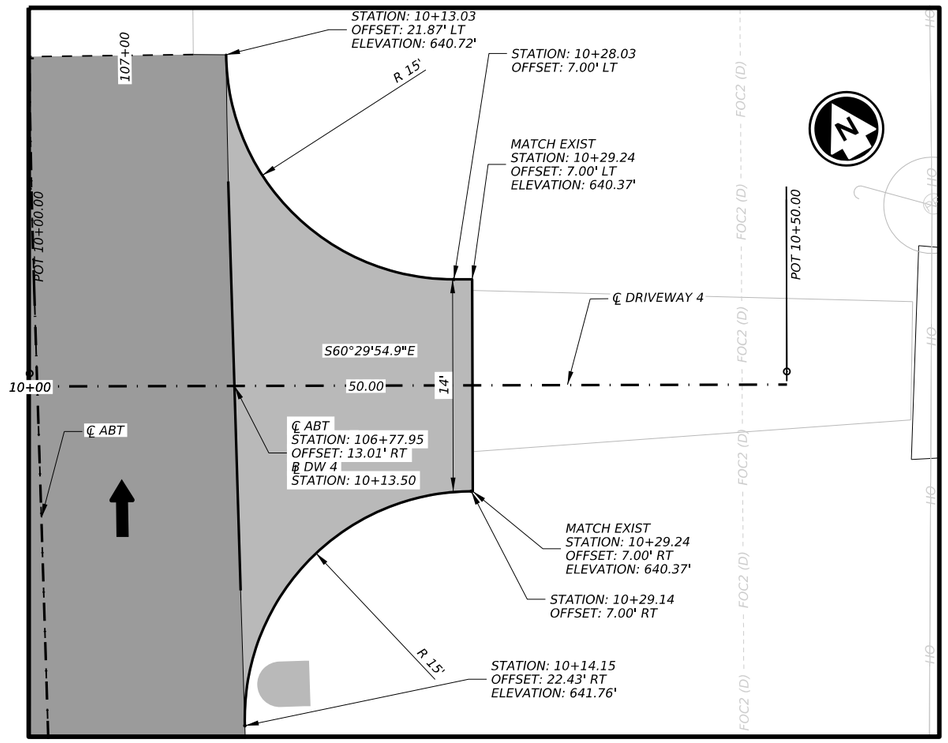
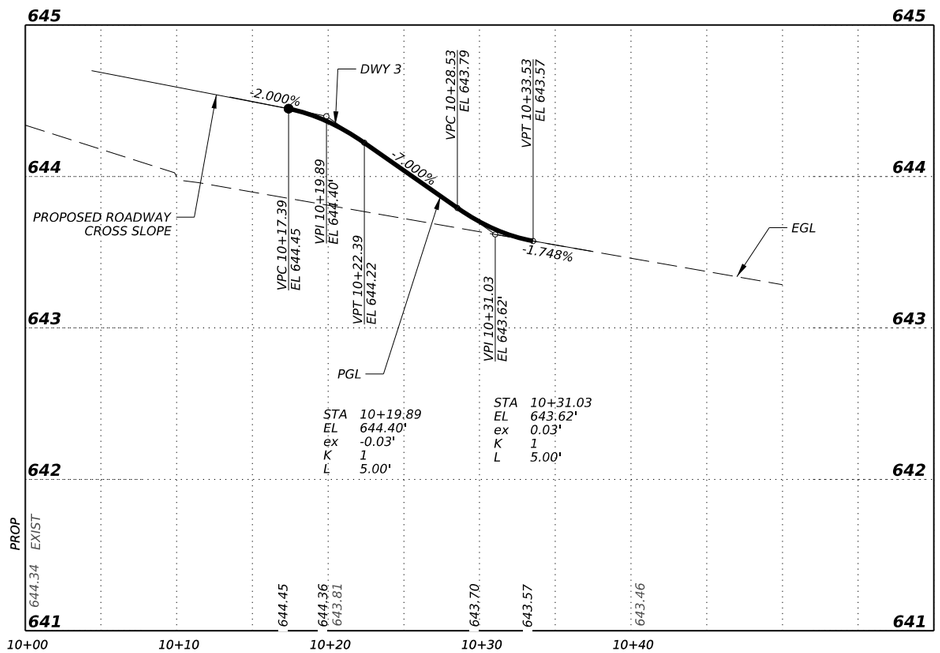
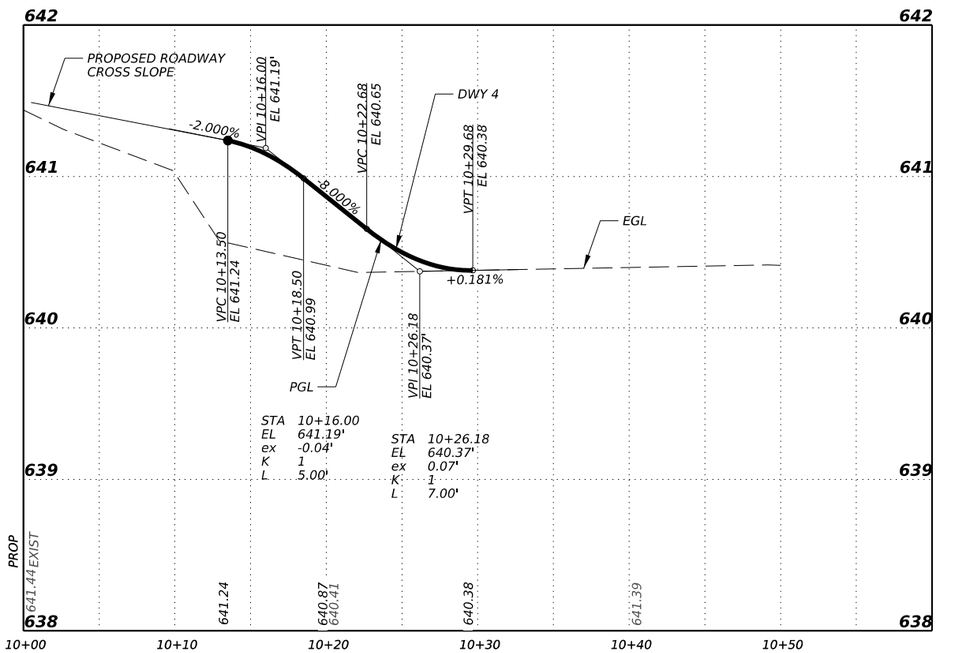


DRIVEWAY 3



DRIVEWAY 4





DRIVEWAY 4

LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROPOSED WIDENING
- PROPOSED DRIVEWAY

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE SHEET 52 "DETAIL C" FOR DRIVEWAY PAVEMENT DETAIL.

95% SUBMITTAL

PRELIMINARY
FOR REVIEW ONLY

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NAME	P.E. #	DATE
EDWARD GALICIA	114275	1/5/2026

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

DRIVEWAY PLAN & PROFILE

SCALE: 1" = 10'

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		54
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
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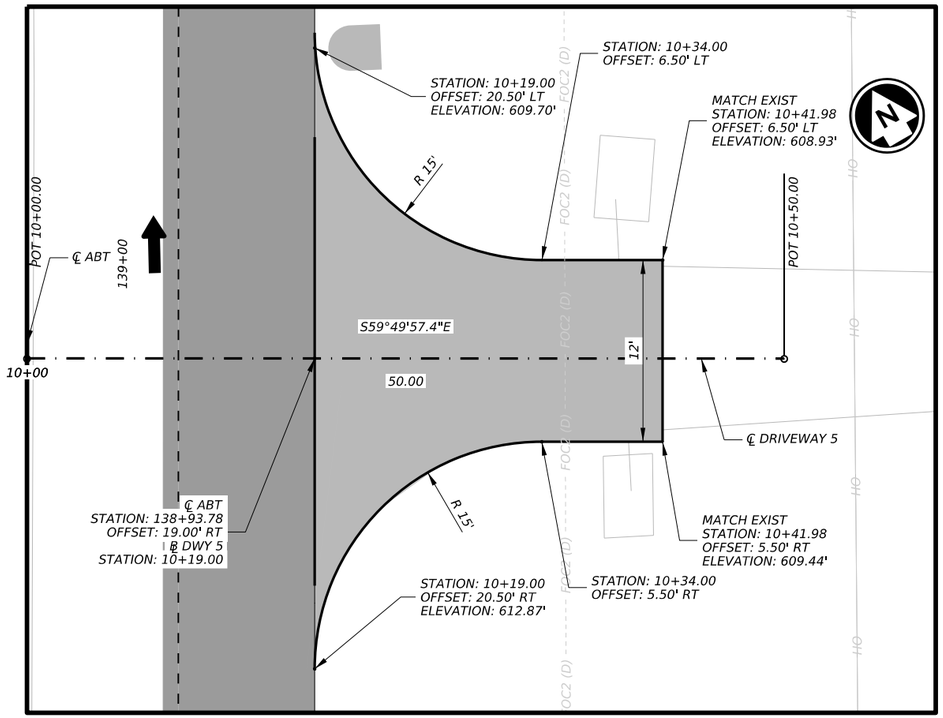
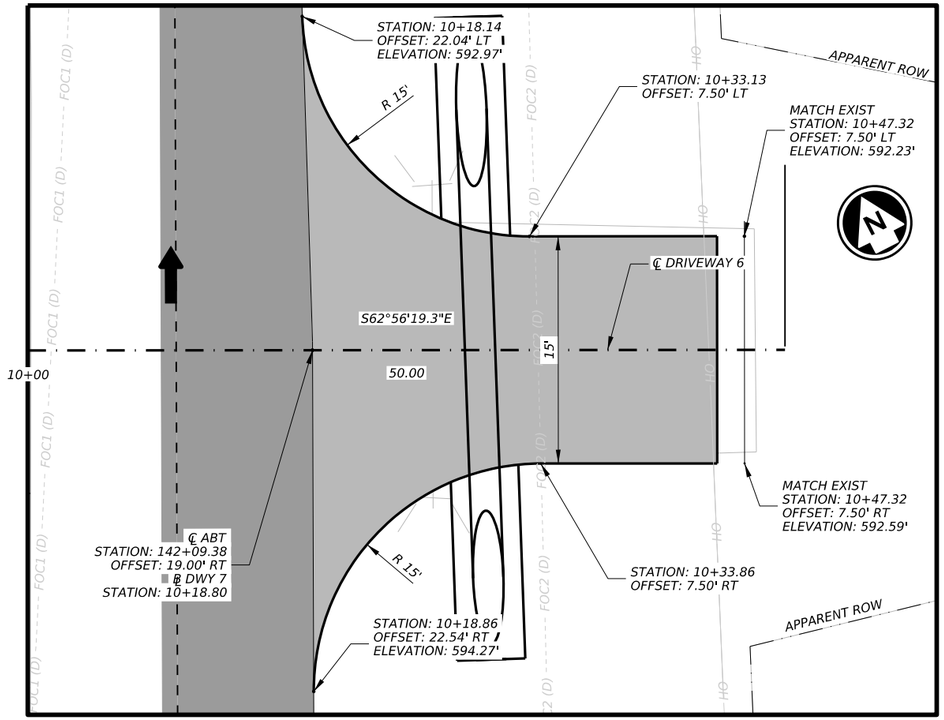


DRIVEWAY 5



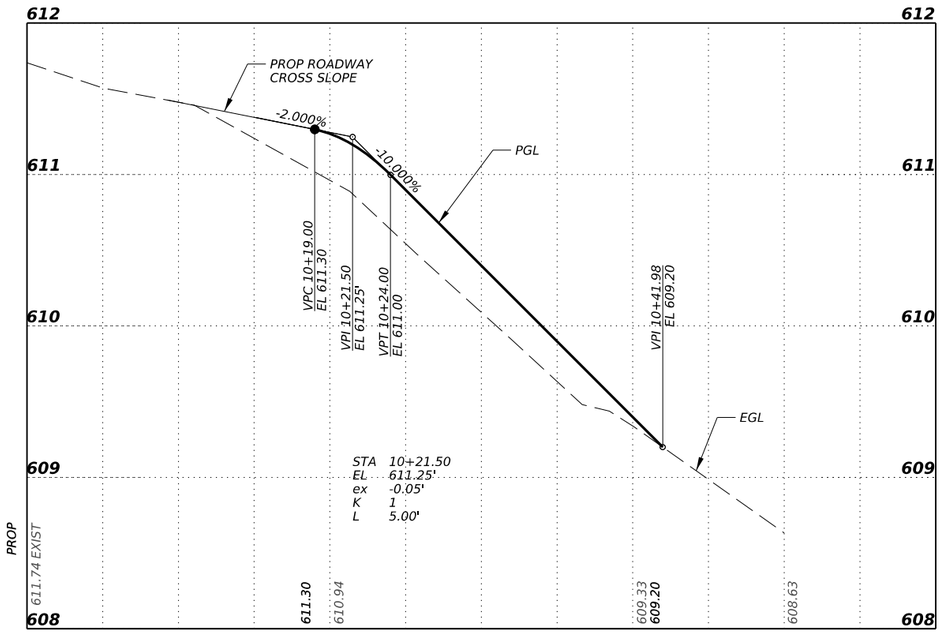
DRIVEWAY 6

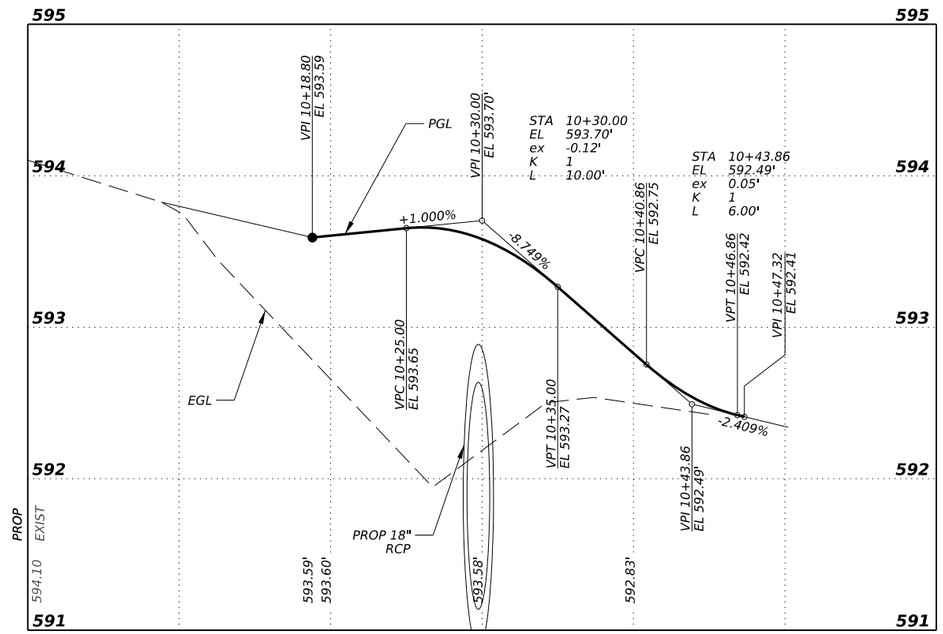
LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROPOSED WIDENING
- PROPOSED DRIVEWAY

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. SEE SHEET # 52 "DETAIL C" FOR DRIVEWAY PAVEMENT DETAIL.





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NAME	P.E. #	DATE
EDWARD GALICIA	114275	1/5/2026

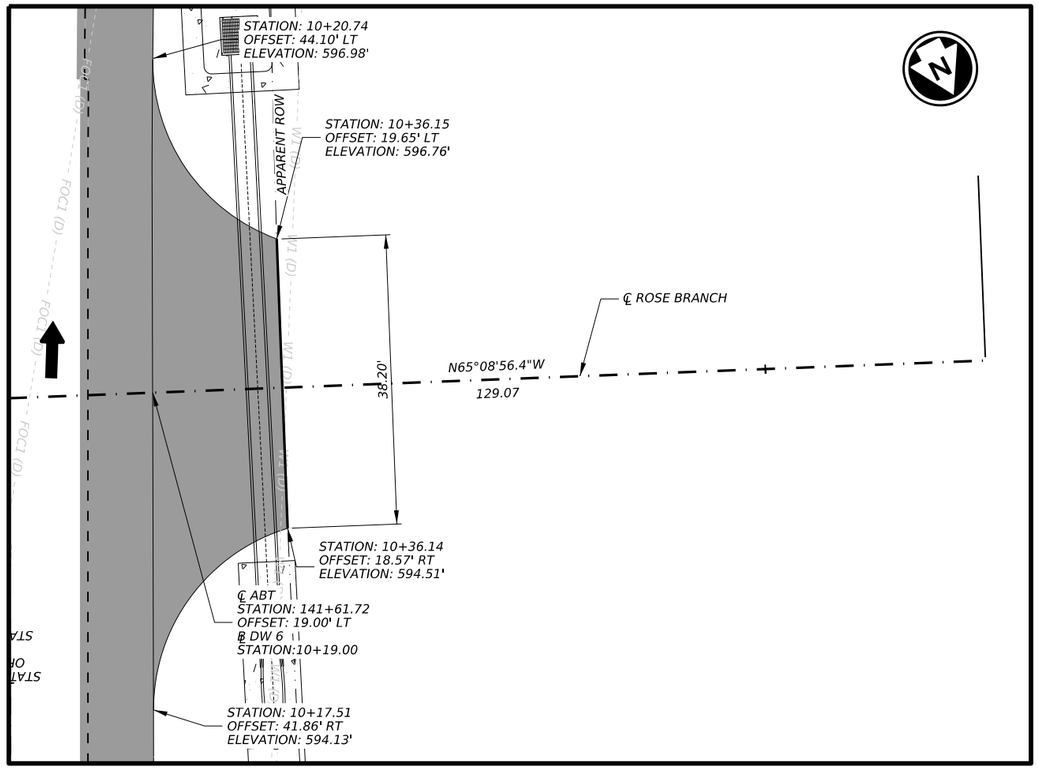
LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

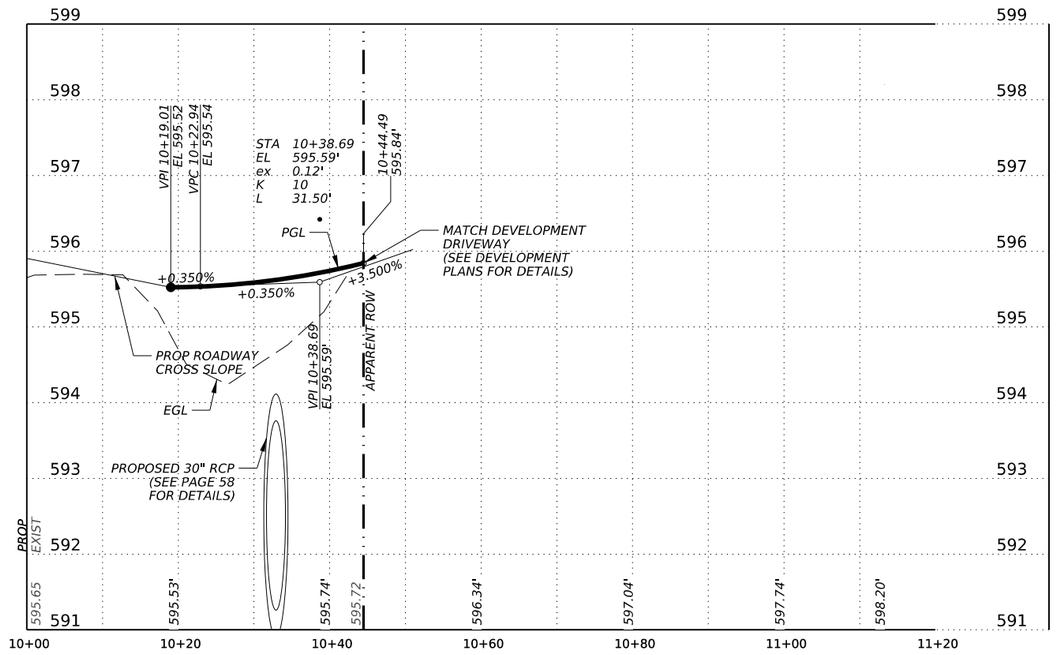
DRIVEWAY PLAN & PROFILE

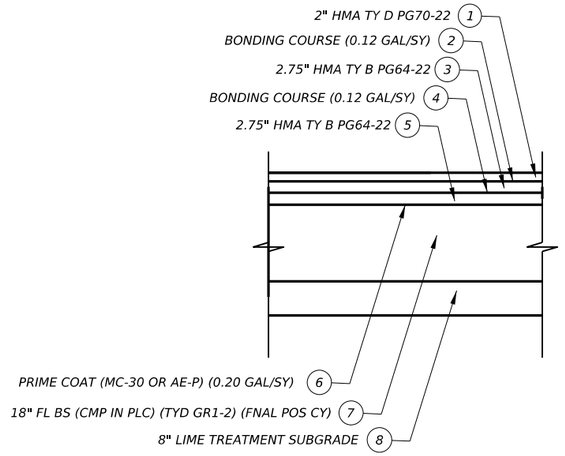
SCALE: 1" = 10' SHEET 3 OF 4

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		55
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD



ROSE BRANCH





DETAIL "D"
N. T. S.

LEGEND

- TRAFFIC FLOW
- APPARENT ROW
- PROPOSED WIDENING
- PROPOSED DRIVEWAY

NOTES:

1. LOCATION OF UTILITIES ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY PRIOR TO CONSTRUCTION.
2. LIME TREATMENT
   LIME TREATMENT @22.8 LB/SY FOR 8 INCHES DEPTH OF TREATMENT. REFER TO GEOTECH REPORT PSI PROJECT NO. 0312-3441 FOR ADDITIONAL INFORMATION.

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NAME	P.E. #	DATE
EDWARD GALICIA	114275	1/5/2026

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

ROSE BRANCH PLAN & PROFILE

SCALE: 1" = 20' SHEET 4 OF 4

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	56

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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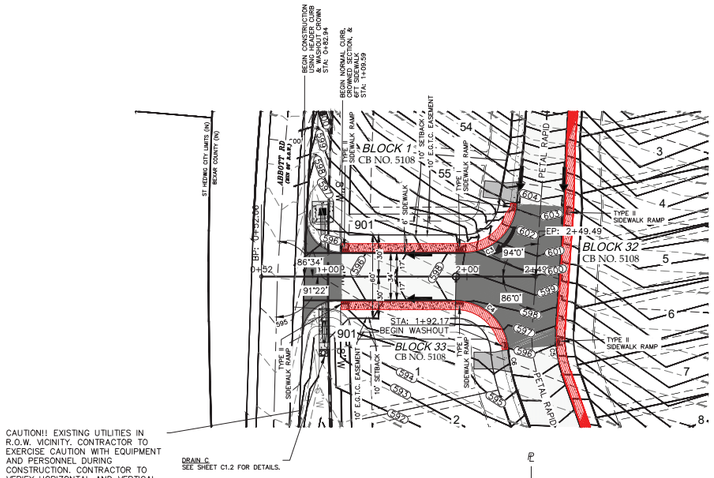
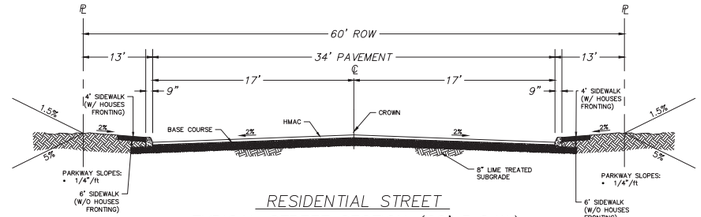
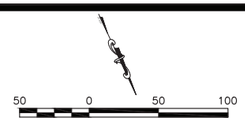




RESIDENTIAL STREET
TYPICAL STREET SECTION (60' R.O.W.)
(NOT TO SCALE)



LEGEND

- PROPERTY BOUNDARY
- SITE LINE
- ROAD CENTERLINE
- 650 EXISTING 1' CONTOUR
- 650 PROPOSED 1' CONTOUR
- EFFECTIVE FLOODPLAIN PER LOMR-C AS SUBMITTED TO BEXAR COUNTY
- WASHOUT CROWN
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER

CURVE TABLE					
CURVE	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C3	38.00'	085°59'53"	N71°51'12"E	51.83'	57.04'
C4	38.00'	085°35'54"	N22°20'55"W	51.64'	56.77'
C5	83.00'	023°20'50"	N17°10'50"E	33.59'	33.82'
C6	117.00'	014°56'37"	N12°58'44"E	30.43'	30.52'

NOTES:
1. EXISTING TOPOGRAPHIC CONTOURS DERIVED FROM ON THE GROUND SURVEY DATA WITHIN THE LIMITS OF THE PROPOSED ROADWAY CONSTRUCTION. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL REVEGETATE RIGHT-OF-WAY TO REDUCE EROSION AS PER BEXAR COUNTY SPECIFICATIONS.
3. CONTRACTOR TO SALVAGE & STOCKPILE 4 INCHES OF EXISTING TOPSOIL FOR FINAL DRESSING OF RIGHT-OF-WAY PRIOR TO SEEDING.
4. CONTRACTOR TO FOLLOW GEOTECH REPORT FOR PROPER PAVEMENT CONSTRUCTION.
5. TESTING TO BE PROVIDED BY OWNER'S QUALIFIED AGENT TO ASSURE COMPLIANCE TO SPECIFICATIONS OUTLINED IN GEOTECH REPORT.

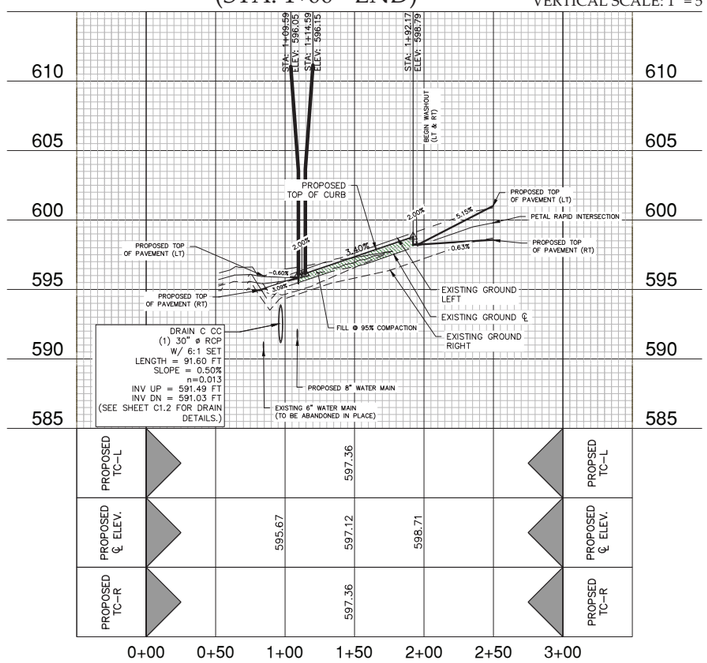
- SUBGRADE TO BE TESTED PER TEX-114-E D698 @ 95% DENSITY, 1 PER 10,000 SQ. FT.
- BASE TO BE PLACED IN MAXIMUM 8" THICK LOOSE LIFTS, COMPACTED, & TESTED PER TEX-113-E @ 95% DENSITY, 1 PER 5,000 SQ FT.

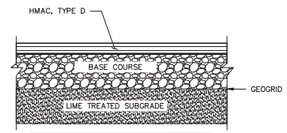
NOTE:
EROSION CONTROL MEASURES SUCH AS FLAT BOTTOM DITCHES, GRASS RETARDS, ROCK FILTER DAMS, AND SILT SCREENS SHALL BE UTILIZED AS NEEDED TO CONTROL SOIL EROSION IN BAR DITCHES.

BEXAR COUNTY R.O.W. NOTE
A BEXAR COUNTY R,O,W. PERMIT MUST BE OBTAINED PRIOR TO WORKING WITHIN EXISTING BEXAR COUNTY R.O.W.

ROSE BRANCH
(STA. 1+00 - END)

HORIZONTAL SCALE: 1" = 50' H
VERTICAL SCALE: 1" = 5' V





PAVEMENT MATERIAL	LOCAL B (60' ROW)
HMAC, TYPE D SURFACE COURSE	4"
TYPE "A" FLEX BASE	16"
FLEXIBLE BASE IN CONJUCTION WITH TENSAR+ NX750	YES
LIME TREATED SUBGRADE	8"

PROPOSED PAVEMENT SECTION

REFERENCE GEOTECH REPORT 0312-3441 PREPARED BY INTERTEK PSI, DATED JANUARY 30, 2025 FOR PAVEMENT MATERIALS AND CONSTRUCTION REQUIREMENTS. CONTRACTOR SHALL MEET OR EXCEED ALL PAVING RECOMMENDATIONS. ADDITIONAL PAVEMENT SECTIONS ARE AVAILABLE IN THE GEOTECH REPORT. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING MATERIAL TESTING. TESTING TO BE PAID BY OWNER.

RAKOWITZ
Engineering & Surveying
Texas Registered Engineering Firm F-9155
Texas Registered Surveying Firm 10161200
830-281-4060

ROSE VALLEY SOUTH - UNIT 2
ROSE BRANCH
STA. 1+00 - END
BEXAR COUNTY, TEXAS

"THIS DOCUMENT IS RELEASED FOR REVIEW PURPOSES" UNDER THE AUTHORIZATION OF BRADLEY A. KOETHER, P.E. #105068 NOT TO BE USED FOR CONSTRUCTION.

REV	DATE	DESCRIPTION	BY

JOB NO.	23-3159J
DATE	DEC. 2025
DESIGNER	CT
CHECKED	BK
DRAWN	CT

57

PLAT NO: CP202512

Date: Dec 03, 2025, 8:07pm User ID: CAD1 2022
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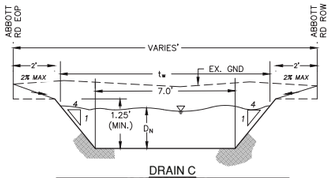
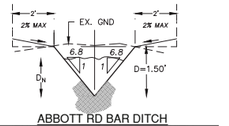
PERMIT SET (NOT FOR CONSTRUCTION)



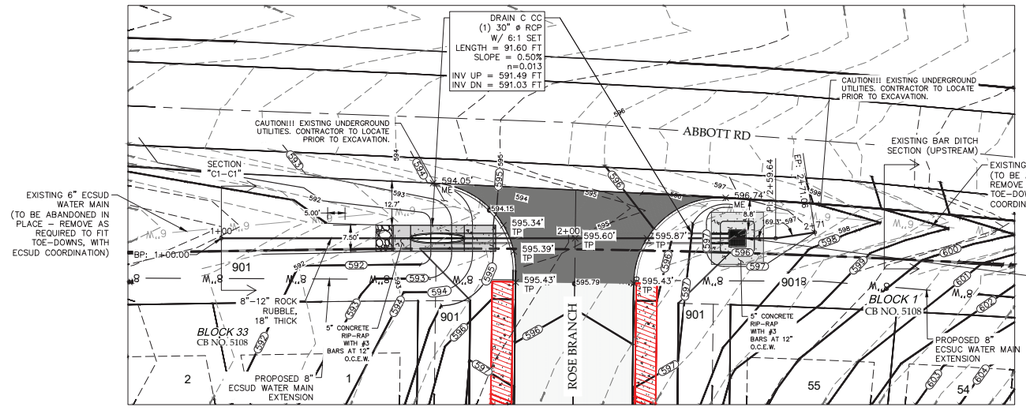
DRAIN C
SECTION "C1-C1"
STA. 1+00.00 - STA 1+44.51
NOT-TO-SCALE

FREQUENCY	Q(CFS)	SLOPE	D_N (ft)	V (fps)	t_w (ft)
25-YR	21.83	1.44%	0.68	3.30	12.4



ABBOTT RD BAR DITCH
(EXISTING CONSTRUCTION WITH PROPOSED FLOW)
STA. 1+00 - STA 1+15.62
STA. 2+50.72 - END
NOT-TO-SCALE

	FREQUENCY	Q(CFS)	SLOPE	D_N (ft)	V (fps)	t_w (ft)
DOWNSTREAM	25-YR	21.83	1.50%	1.00	3.21	13.60
UPSTREAM	25-YR	21.83	2.00%	0.95	3.56	12.92



ROSE BRANCH CULVERT CROSSING INLET:

GRATE INLET:
(SEE SHEET C1.5 FOR GRATE INLET AND APRON DETAILS)

AREA REQUIRED FOR 21.83 CFS: 5.49 FT^2
AREA REQUIRED FOR 50% CLOGGING FACTOR:10.99 FT^2

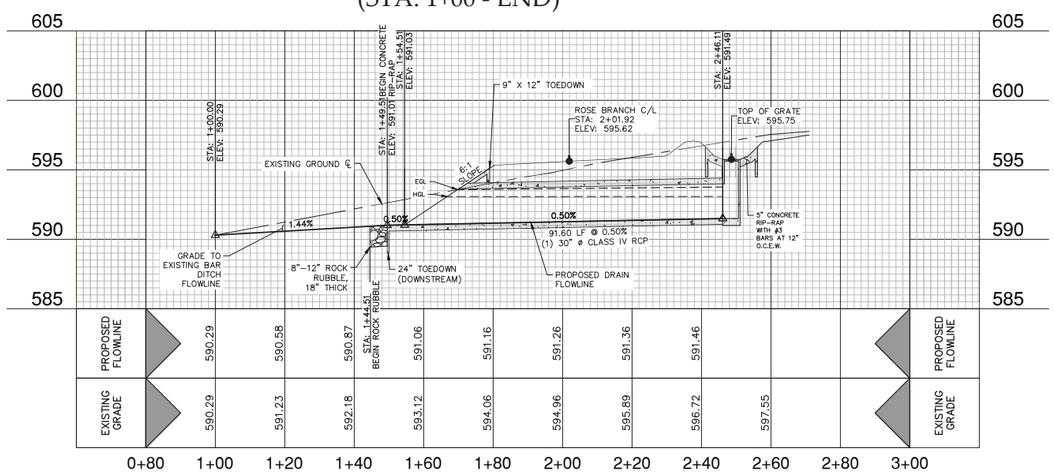
AREA PER GRATE: 14.63 FT^2
NO. OF GRATES PLANNED FOR DRAIN:1
TOTAL GRATE AREA: 14.6 FT^2

14.63 FT^2 > 10.99 FT^2

INVERT OF DROP INLET SHALL BE SHAPED WITH CONCRETE FILL TO EFFECTIVELY DRAIN TO OUTLET PIPE (30" RCP CULVERT).

DRAIN C (ROSE BRANCH ENTRANCE CC)
(STA. 1+00 - END)

HORIZONTAL SCALE: 1" = 20' H
VERTICAL SCALE: 1" = 5' V



BEXAR COUNTY R.O.W. NOTE:
A BEXAR COUNTY PERMIT MUST BE OBTAINED BEFORE WORKING IN THE BEXAR COUNTY R.O.W.

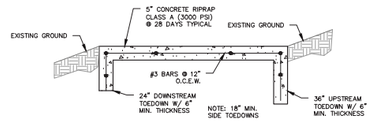
NOTE:
CONTRACTOR SHALL BEGIN MEASURES TO ESTABLISH VEGETATION IMMEDIATELY AFTER CONSTRUCTION OF EARTHEN DRAIN SECTIONS TO MITIGATE CHANNEL EROSION. CONTRACTOR SHALL USE HYDRO-MULCH SEEDING, SOD LINING, OR OTHER APPROVED METHODS.

STANDARD NOTES:

- IMPROVED EARTHEN CHANNELS AND DETENTION PONDS WILL BE VEGETATED BY SEEDING OR SODING. EIGHTY FIVE PERCENT (85%) OF THE CHANNEL SURFACE AREA MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF SAN ANTONIO WILL ACCEPT THE CHANNEL FOR MAINTENANCE.
- ALL CONCRETE LINING SHALL DEVELOP A MIN. COMPRESSIVE STRENGTH OF 3,000 PSI IN 28 DAYS.
- FOR NORMAL CONDITIONS, THE CONCRETE LINING SHALL BE A MINIMUM OF FIVE (5) INCHES THICK AND REINFORCED WITH NO. 4 ROUND BARS @18 INCHES ON CENTER EACH WAY. WHERE SURCHARGE, NATURE OF GROUND, HEIGHT AND STEEPNESS OF SLOPE, ETC, BECOME CRITICAL, DESIGN SHALL BE IN ACCORDANCE WITH LATEST STRUCTURAL STANDARDS. ALL CONCRETE LINING SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF NOT LESS THAN THREE THOUSAND (3,000) POUNDS PER SQUARE INCH IN TWENTY-EIGHT (28) DAYS. THE DEPTH OF ALL TOE DOWNS SHALL BE 36 INCHES UPSTREAM, 24 INCHES DOWNSTREAM, AND 18 INCHES FOR SIDE SLOPES. THE CITY'S CONSTRUCTION INSPECTOR MAY PERMIT AN 18" TOE DOWN IN ROCK SUBGRADE IN LIEU OF THE ABOVE TOE DOWN REQUIREMENTS. THE HORIZONTAL DIMENSIONS OF TOE DOWNS SHALL NOT BE LESS THAN SIX (6) INCHES.

OPEN EARTHEN CHANNEL NOTE:

- CONTRACTOR SHALL REFERENCE TABLE 9.3.8.1 – "RETARDATION CLASS FOR LINING MATERIALS" PROVIDED ON SHEET C1.4 AND SUPPLIED RETARDANCE CLASS (RC) FOR CHOICE OF COVER WITHIN OPEN EARTHEN CHANNEL CROSS SECTIONS.
- DRAIN C USES RC B, C, OR, D LINING MATERIALS.



CONCRETE RIP-RAP DETAIL (TYP.)
NOT-TO-SCALE

20 0 20 40
SCALE OF FEET
1" = 20'

LEGEND

- PROPERTY BOUNDARY
- SITE LINE
- ROAD CENTERLINE
- 650 EXISTING 1' CONTOUR
- 650 PROPOSED 1' CONTOUR
- WASHOUT CROWN
- SIDEWALK TO BE CONSTRUCTED BY DEVELOPER

RAKOWITZ
Engineering & Surveying
Texas Registered Engineering Firm F-9155
Texas Registered Surveying Firm 101812-00
830-281-4060

ROSE VALLEY SOUTH - UNIT 2
ENTRANCE CULVERT
CROSSING PLAN AND PROFILE
BEXAR COUNTY, TEXAS

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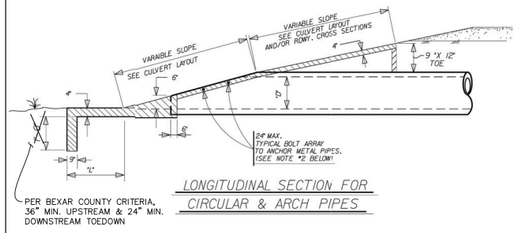
REV	DATE	DESCRIPTION	BY

JOB NO.	23-3159J
DATE	DEC. 2025
DESIGNER	CT
CHECKED	BK
DRAWN	CT

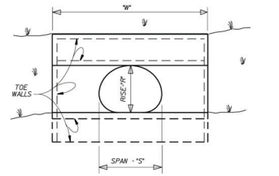
58
PLAT NO: CP202512

Date: Dec 03, 2025, 8:07am User ID: CAD1.2022
File: N:\Projects\2023\23-3159 Rose Valley South UT\Civil\23-3159 Drain PKP.dwg

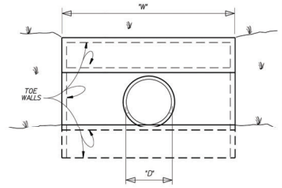
PERMIT SET (NOT FOR CONSTRUCTION)



LONGITUDINAL SECTION FOR CIRCULAR & ARCH PIPES



SINGLE C.M.P. ARCH PIPE CULVERT

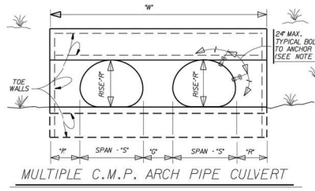


SINGLE CIRCULAR PIPE CULVERT
(CMP or RCP)

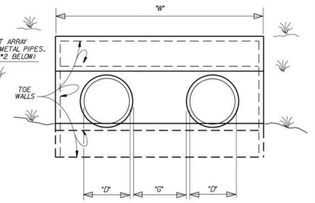
DIMENSIONS FOR CIRCULAR (CMP and RCP) PIPE CULVERTS

"D" INSIDE DIA. of PIPE	"L"	"D" CSM	"D" RCP	SINGLE "W"	DOUBLE "W"	TRIPLE "W"	QUADRUPLE "W"
18"	2'-0"	1'-2"	0'-9"	4'-6"	7'-2"	9'-10"	12'-6"
21"	2'-6"	1'-3"	0'-10"	5'-3"	8'-4"	11'-4"	13'-4"
24"	3'-0"	1'-5"	1'-0"	6'-0"	9'-5"	12'-10"	16'-3"
30"	4'-0"	1'-8"	1'-1"	7'-6"	11'-8"	15'-10"	20'-0"
36"	5'-0"	1'-11"	1'-3"	9'-0"	13'-11"	18'-10"	23'-9"
42"	6'-0"	2'-2"	1'-5"	10'-6"	16'-2"	21'-10"	27'-6"
48"	7'-0"	2'-5"	1'-7"	12'-0"	18'-5"	24'-10"	31'-3"
54"	8'-0"	2'-10"	1'-11"	13'-6"	20'-10"	28'-2"	35'-6"
60"	9'-0"	3'-2"	2'-0"	15'-0"	23'-2"	31'-4"	39'-6"

*"D" IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.



MULTIPLE C.M.P. ARCH PIPE CULVERT



MULTIPLE CIRCULAR PIPE CULVERT
(CMP or RCP)

DIMENSIONS FOR C.M.P. ARCH PIPE CULVERTS

DESIGN SIZE	APPROX. ARCH DIM. SPAN "S"	APPROX. ARCH DIM. RISE "H"	"L"	"D"	SINGLE "W"	DOUBLE "W"	TRIPLE "W"	QUADRUPLE "W"
2	22"	15"	2'-0"	1'-2"	4'-3"	7'-2"	10'-1"	13'-0"
3	28"	20"	3'-0"	1'-5"	5'-8"	9'-5"	13'-2"	16'-11"
4	35"	24"	4'-0"	1'-8"	6'-11"	11'-6"	16'-1"	20'-8"
5	42"	29"	5'-0"	1'-11"	8'-4"	13'-9"	19'-2"	24'-7"
6	49"	33"	6'-0"	2'-2"	9'-7"	15'-10"	22'-1"	28'-4"
7	57"	38"	7'-0"	2'-5"	11'-1"	18'-3"	25'-5"	32'-7"
8	64"	43"	8'-0"	2'-10"	12'-5"	20'-8"	28'-10"	37'-0"
9	71"	47"	9'-0"	3'-2"	13'-9"	22'-10"	31'-11"	41'-0"

*BASED ON 2-2/3"X 1/2" CORRUGATION
*"D" IS MEASURED BETWEEN THE OUTER SURFACES OF THE PIPES.

NOTES:

1.) FOR RIPRAP QUANTITIES AND SLOPES, SEE CULVERT LAYOUT SHEET. CONCRETE SHALL BE CLASS B UNLESS OTHERWISE SHOWN IN THE PLANS.

2.) ALL METAL PIPES (CIRCULAR AND/OR ARCH) SHALL HAVE 5/8"X 6" GALVANIZED BOLTS WITH 2 HEX NUTS AT 24" CENTERS TO ANCHOR THE PIPE TO THE CONCRETE. THIS WORK WILL BE SUBSIDIARY TO THE RIPRAP HEADWALL.

3.) FOR CONCRETE ARCH PIPES, THE CMP ARCH PIPE CULVERT DIMENSIONS WILL HAVE TO BE ADJUSTED FOR THE PIPE WALL THICKNESS.

4.) FOR PIPES LARGER THAN SHOWN, USE THE CLEAR DISTANCE BETWEEN PIPES SHOWN IN ITEMS 460 AND/OR 464.

5.) IF THE SIDES OF THE HEADWALL IS ADJACENT TO A RIPRAP SLOPE AND IF THE TOP OF THE HEADWALL IS ADJACENT TO THE ROADWAY FOUNDATION OR RIPRAP SLOPE, THE SIDE AND TOP TOE WALLS MAY BE ELIMINATED IF APPROVED BY THE ENGINEER.

SAN ANTONIO DISTRICT STANDARD
RIPRAP HEADWALL

FED.RD. DIV.NO.	PROJECT NO.	SHEET NO.
6		
STATE	STATE DISTRICT	COUNTY
TEXAS	SAT	
CONT.	SECT.	JOB	HIGHWAY NO.

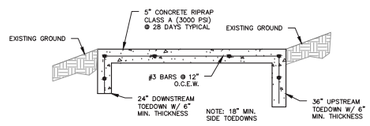
10/95

Permissible Shear Stresses for Various Linings

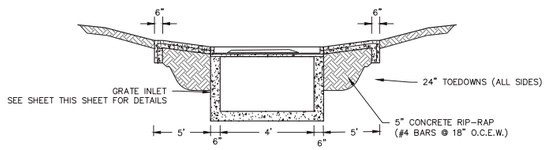
Protective Cover	(lb./sq.ft.)	t_p (N/m^2)
Retardance Class A Vegetation (See the "Retardation Class for Lining Materials" table above)	3.70	177
Retardance Class B Vegetation (See the "Retardation Class for Lining Materials" table above)	2.10	101
Retardance Class C Vegetation (See the "Retardation Class for Lining Materials" table above)	1.00	48
Retardance Class D Vegetation (See the "Retardation Class for Lining Materials" table above)	0.60	29
Retardance Class E Vegetation (See the "Retardation Class for Lining Materials" table above)	0.35	17
Woven Paper	0.15	7
Jute Net	0.45	22
Single Fiberglass	0.60	29
Double Fiberglass	0.85	41
Straw W/Net	1.45	69
Curled Wood Mat	1.55	74
Synthetic Mat	2.00	96
Gravel, D_{50} = 1 in. or 25 mm	0.40	19
Gravel, D_{50} = 2 in. or 50 mm	0.80	38
Rock, D_{50} = 6 in. or 150 mm	2.50	120
Rock, D_{50} = 12 in. or 300 mm	5.00	239
6-in. or 50-mm Gabions	35.00	1675
4-in. or 100-mm Geoweb	10.00	479
Soil Cement (8% cement)	>45	>2154
Dycel w/out Grass	>7	>335
Petraflex w/out Grass	>32	>1532
Armorflex w/out Grass	12-20	574-957
Erikamat w/3-in or 75-mm Asphalt	13-16	622-766
Erikamat w/1-in. or 25 mm Asphalt	<5	<239
Armorflex Class 30 with longitudinal and lateral cables, no grass	>34	>1628
Dycel 100, longitudinal cables, cells filled with mortar	<12	<574
Concrete construction blocks, granular filter underlayer	>20	>957
Wedge-shaped blocks with drainage slot	>25	>1197

Retardation Class for Lining Materials

Retardance Class	Cover	Condition
A	Weeping Lovegrass	Excellent stand, tall (average 30 in. or 760 mm)
	Yellow Bluestem Ischaemum	Excellent stand, tall (average 36 in. or 915 mm)
B	Kudzu	Very dense growth, uncut
	Bermuda grass	Good stand, tall (average 12 in. or 305 mm)
	Native grass mixture little bluestem, bluestem, blue gamma, other short and long stem midwest grasses	Good stand, unmowed
	Weeping lovegrass	Good Stand, tall (average 24 in. or 610 mm)
	Lespedeza sericea	Good stand, not woody, tall (average 19 in. or 480 mm)
	Alfalfa	Good stand, uncut (average 11 in or 280 mm)
	Weeping lovegrass	Good stand, unmowed (average 13 in. or 330 mm)
	Kudzu	Dense growth, uncut
	Blue gamma	Good stand, uncut (average 13 in. or 330 mm)
C	Crabgrass	Fair stand, uncut (10-to-48 in. or 55-to-1220 mm)
	Bermuda grass	Good stand, mowed (average 6 in. or 150 mm)
	Common lespedeza	Good stand, uncut (average 11 in. or 280 mm)
	Grass-legume mixture: summer (orchard grass redtop, Italian ryegrass, and common lespedeza)	Good stand, uncut (6-8 in. or 150-200 mm)
	Centipedegrass	Very dense cover (average 6 in. or 150 mm)
	Kentucky bluegrass	Good stand, headed (6-12 in. or 150-305 mm)
D	Bermuda grass	Good stand, cut to 2.5 in. or 65 mm
	Common lespedeza	Excellent stand, uncut (average 4.5 in. or 115 mm)
	Buffalo grass	Good stand, uncut (3-6 in. or 75-150 mm)
	Grass-legume mixture: fall, spring (orchard grass Italian ryegrass, and common lespedeza	Good Stand, uncut (4-5 in. or 100-125 mm)
	Lespedeza sericea	After cutting to 2 in. or 50 mm (very good before cutting)
E	Bermuda grass	Good stand, cut to 1.5 in. or 40 mm
	Bermuda grass	Burned stubble



CONCRETE RIP-RAP DETAIL (TYP.)
NOT-TO-SCALE



GRATE INLET APRON
N.T.S.

ALL CONCRETE SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 4500 psi.

REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60, A706 GRADE 60 OR A497 GRADE 70. BAR BENDING AND PLACEMENT SHALL COMPLY WITH THE LATEST ACI STANDARDS

STANDARD STRUCTURAL DESIGN IS BASED ON AASHTO HS 20 WHEEL LOADING

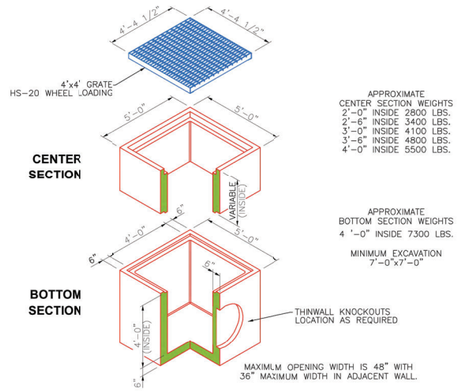
WATER TABLE IS AT 3'-0" BELOW GRADE FOR STANDARD STRUCTURAL DESGN

THE STANDARD DESIGN IS BASED ON THE TOP AT GRADE AND THE BASE AT 8'-0" MAX. BELOW GRADE.

THE STRUCTURE SHALL BE PLACED ON A COMPACTED GRANULAR BASE TO INSURE UNIFORM DISTRIBUTION OF SOIL PRESSURES.

SPECIAL DESIGNS BASED ON OTHER LOADINGS OR DEEPER INSTALLATION DEPTHS ARE AVAILABLE ON REQUEST.

KNOCKOUTS OR PIPE OPENINGS OR CAN BE PRCVIDED IN THE SIZE AND LOCATIONS REQUIRED.



APPROXIMATE CENTER SECTION WEIGHTS
2'-0" INSIDE 2800 LBS.
2'-6" INSIDE 3400 LBS.
3'-0" INSIDE 4100 LBS.
3'-6" INSIDE 4800 LBS.
4'-0" INSIDE 5500 LBS.

APPROXIMATE BOTTOM SECTION WEIGHTS
4 '-0" INSIDE 7300 LBS.

MINIMUM EXCAVATION
7'-0"x7'-0"

MAXIMLM OPENING WIDTH IS 48" WITH 36" MAXIMUM WIDTH IN ADJACENT WALL.

Oldcastle Precast
1900 Rilling Road San Antonio, TX 78214
Phone: (210) 923-4523 Fax: (213) 921-0473

GI44	4'-0"x4'-0" GRATE INLET
FILE NAME: 44GI.dwg	
ISSUE DATE: March, 2005	
www.oldcastlesanantonio.com	

RAKOWITZ
Engineering & Surveying
Texas Registered Engineering Firm F-9155
Texas Registered Surveying Firm 10161200
830-281-4060

ROSE VALLEY SOUTH - UNIT 2
DRAINAGE DETAILS

BEXAR COUNTY, TEXAS

"THIS DOCUMENT IS RELEASED FOR REVIEW PURPOSES" UNDER THE AUTHORIZATION OF BRADLEY A. KOETHER, P.E. #105048 NOT TO BE USED FOR CONSTRUCTION.

REV	DATE	DESCRIPTION	BY

JOB NO.	23-3159J
DATE	DEC. 2025
DESIGNER	CT
CHECKED	BK
DRAWN	CT

59

PLAT NO: CP202512

PERMIT SET (NOT FOR CONSTRUCTION)

Date: Dec 03, 2025, 8:07am User ID: CAD1-2022
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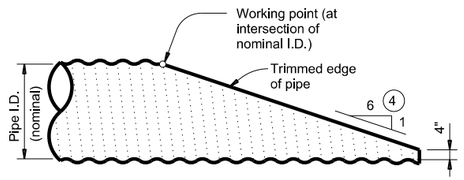
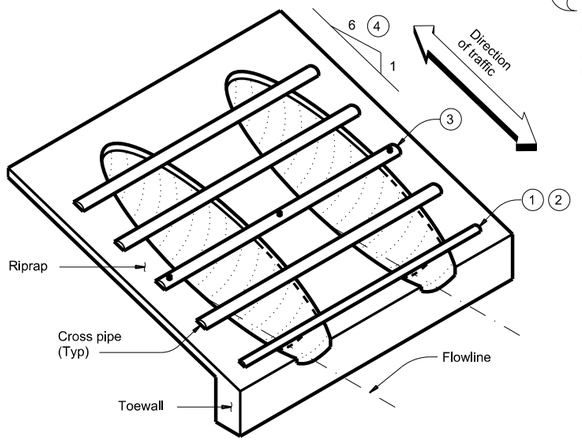
STRUCTURE_DESIGN
STANDARD_CONCRETEdwg.dgn



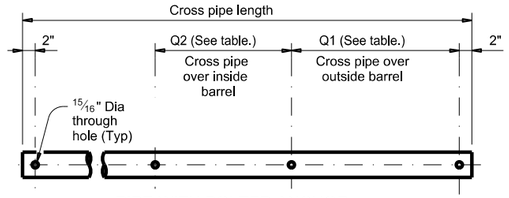
NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

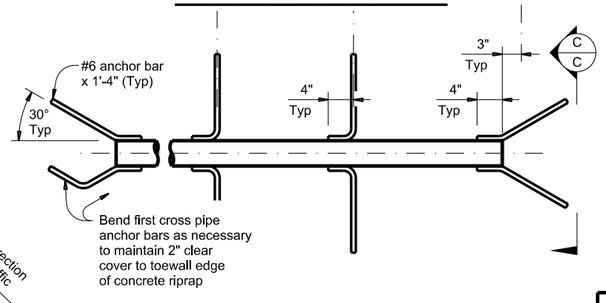
(Showing corrugated metal pipe (CMP) culvert Details at reinforced concrete pipe (RCP) culvert are similar.)



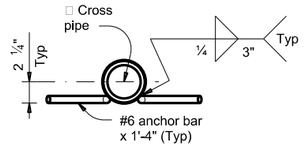
ISOMETRIC VIEW OF TYPICAL INSTALLATION



PIPE WITH BOLTED ANCHOR

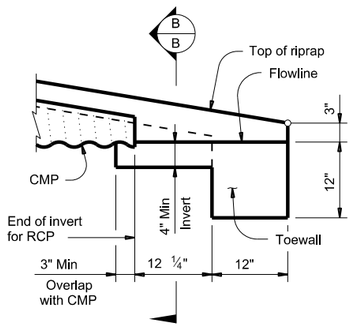


PIPE WITH ANCHOR BARS



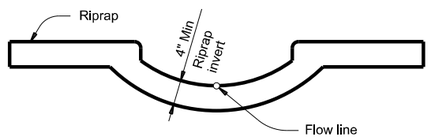
SECTION C-C

CROSS PIPE DETAILS



DETAIL "A"

(Showing invert with corrugated metal pipe (CMP) culvert. Reinforced concrete pipe (RCP) culvert details are similar. Cross pipes not shown for clarity.)



SECTION B-B

(Cross pipes not shown for clarity.)

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, AND RIPRAP QUANTITIES (2)

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"		
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"	3 or more pipe culverts	3 1/2" Std (4.000" O.D.)
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"	All pipe culverts	
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	4" Std (4.500" O.D.)
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"	All pipe culverts	5" Std (5.563" O.D.)
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"		
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		

(1) The proper installation of the first cross pipe is critical for vehicle safety. Place the top of the first cross pipe no more than 6" above the flow line.

(2) Provide cross pipes, except the first bottom pipe, of the size shown in the table. Provide a 3 1#2" standard pipe (4" O.D.) for the first bottom pipe.

(3) Install the third cross pipe from the bottom of the culvert using a bolted connection. Ensure that riprap concrete does not flow into the cross pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, install all other cross pipes using the bolted connection details.

(4) Match cross slope as shown elsewhere in the plans. Cross slope of 6:1 or flatter is required for vehicle safety.

(5) Riprap placed beyond the limits shown will be paid for as concrete riprap in accordance with Item 432, "Riprap."

(6) Quantities shown are for one end of one reinforced concrete pipe (RCP) culvert. For multiple pipe culverts or for corrugated metal pipe (CMP) culverts, quantities will need to be adjusted. Riprap quantities are for contractor's information only.

MATERIAL NOTES:

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Provide cross pipes that meet the requirements of ASTM A53 (Type E or S, Gr B), ASTM A500 (Gr B), or API 5LX52.

Provide ASTM A307 bolts and nuts.

Galvanize all steel components, except concrete reinforcing, after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

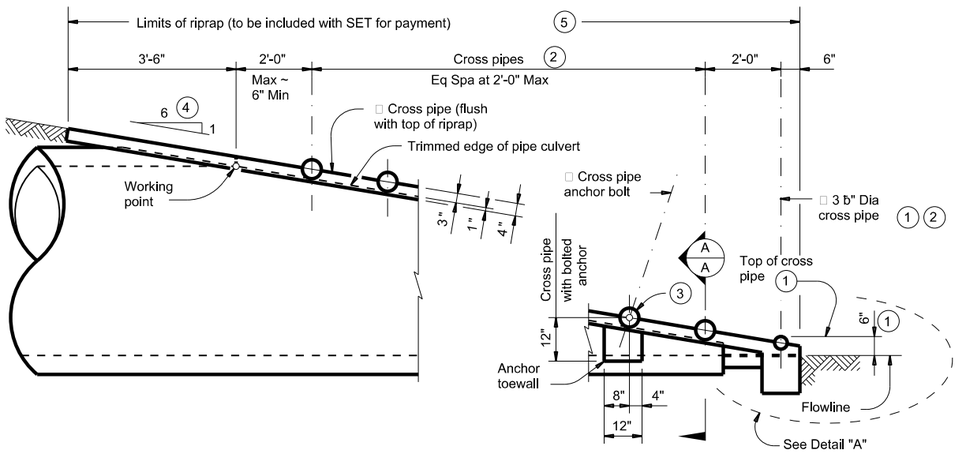
GENERAL NOTES:

Cross pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.

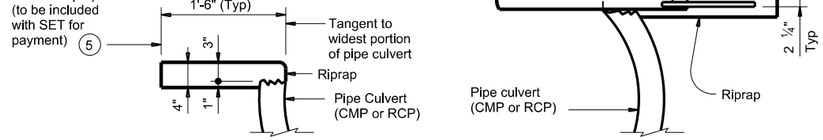
Construct concrete riprap and all necessary inverts in accordance with the requirements of Item 432, "Riprap."

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.



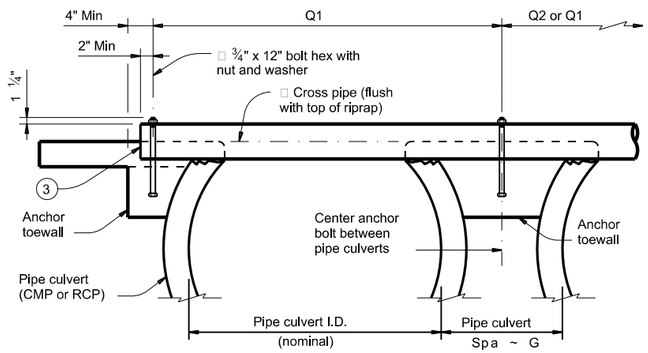
SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing reinforced concrete pipe (RCP) culvert. Details at corrugated metal pipe (CMP) culvert are similar.)



SHOWING CROSS PIPE WITH ANCHOR BAR

SHOWING TYPICAL PIPE CULVERT AND RIPRAP



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA PIPE CULVERTS TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE: CD-SETP-PD-20.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
	DIST	COUNTY		SHEET NO.
	-	BEXAR		60

DATE: 1/5/2026 8:29:22 AM
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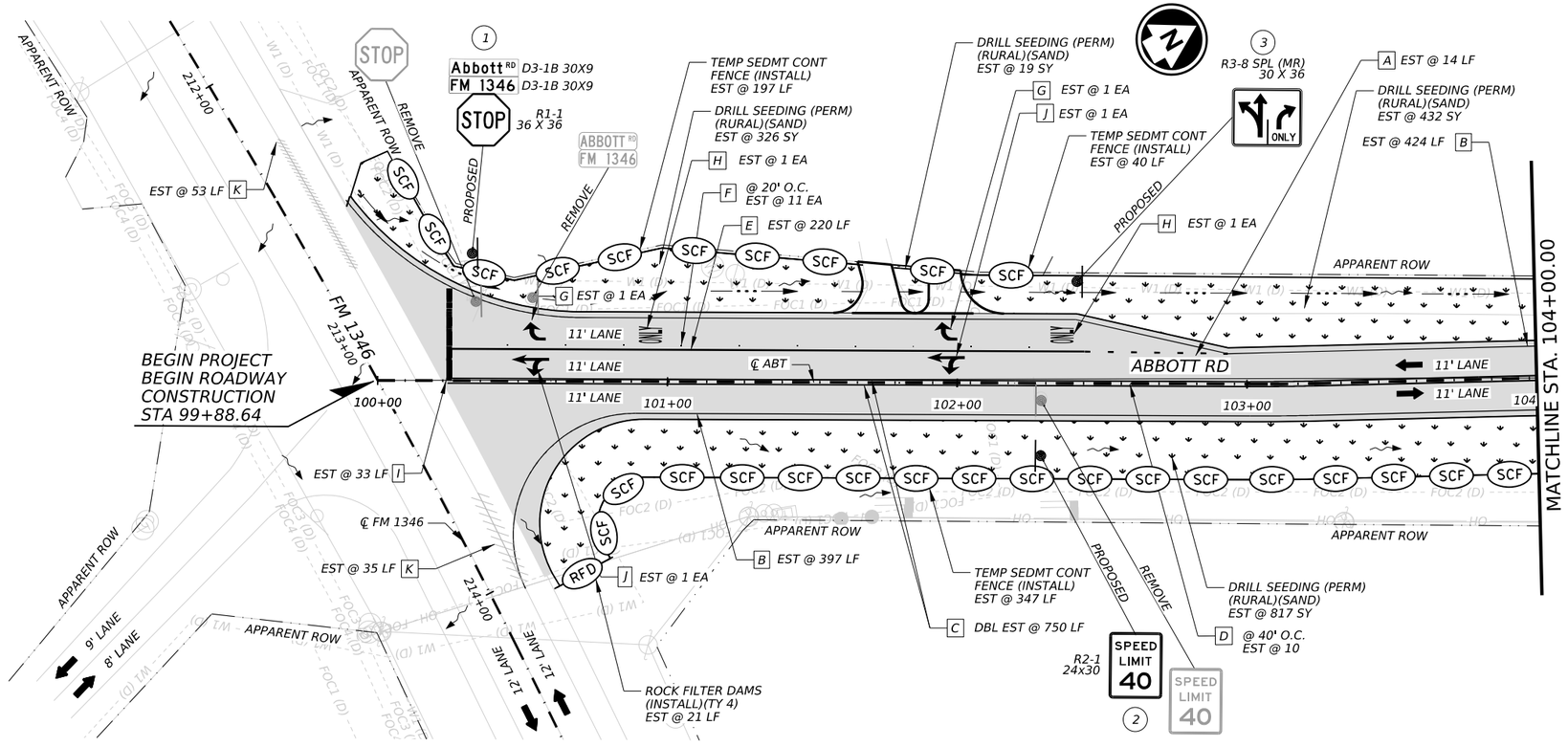

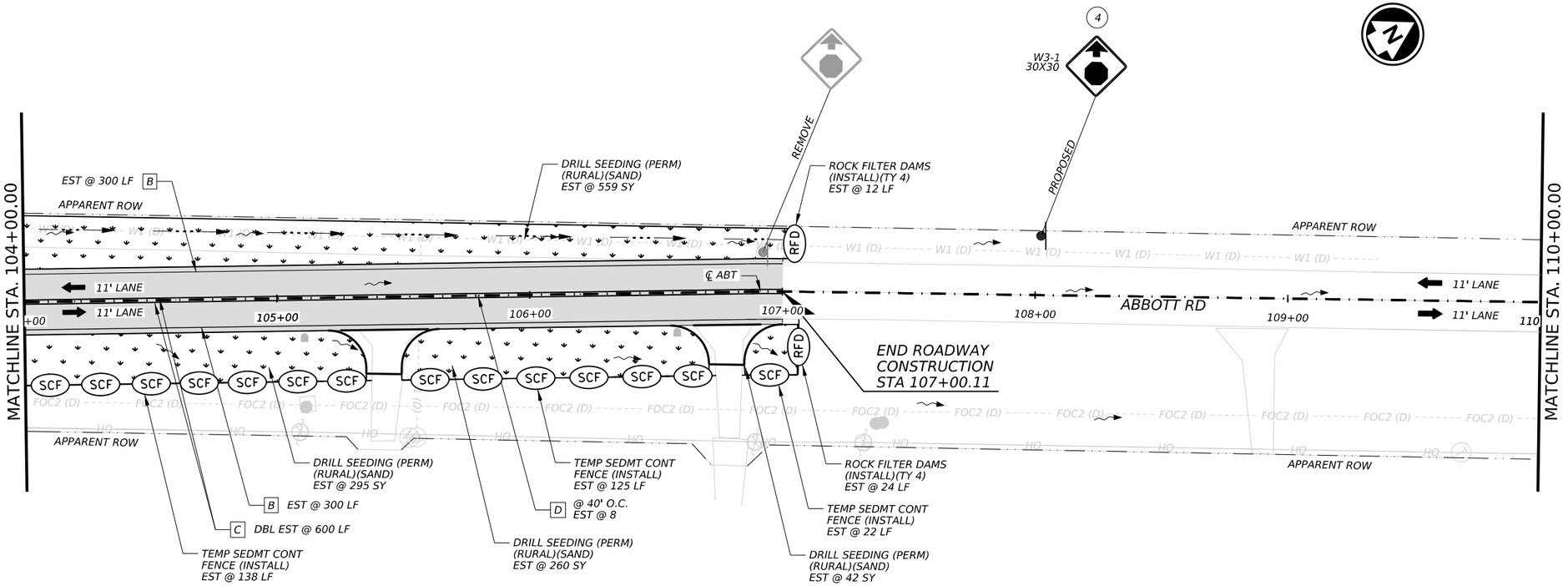

LEGEND

- DIRECTION OF TRAFFIC
- APPARENT ROW
- DRILL SEEDING
- SCF — TEMP SEDMT CONT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (INSTALL) (TY4)
- A — REFL PAV MRK TY I (W) 8" (DOT) (100MIL)
- B — REFL PAV MRK TY I (W) 6" (SLD) (100MIL)
- C — REFL PAV MRK TY I (Y) 6" (SLD) (100MIL)
- D — REFL PAV MRK TY II-A-A
- E — REFL PAV MRK TY I (W) 8"(SLD)(100MIL)
- F — REFL PAV MRK TY I-C
- G — REFL PAV MRK TY I (W)(ARROW)(100MIL)
- H — REFL PAV MRK TY I (W)(WORD)(100MIL)
- I — REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- J — REFL PAV MRK TY I (W)(DBL ARROW)(100MIL)
- K — ELIM EXT PM & MRKS (4")
- L — REFL PAV MRK TY I (Y) (MED NOSE) (100 MIL)
- M — REFL PAV MRK TY I (Y) 24"(SLD) (100 MIL)
- OBJECT MARKER

0' 25' 50'

SCALE: 1"=50'

95% SUBMITTAL

PRELIMINARY
FOR REVIEW ONLY
THESE DOCUMENTS ARE PRELIMINARY AND SUBJECT TO CHANGE. THEY ARE NOT INTENDED FOR CONSTRUCTION OR PERMIT PURPOSES. THEY WERE PREPARED BY, OR UNDER THE SUPERVISION OF:

NAME	P.E. #	DATE
EDWARD GALICIA	114275	1/5/2026

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT#2

SIGNING, PAVEMENT MARKINGS AND SW3P LAYOUT

SCALE: 1" = 50' SHEET 1 OF 4

FED.RD. DIV.NO.	PROJECT NO.	SHEET
6	-	61

STATE	DIST.	COUNTY
TEXAS	SAT	BEXAR

CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:29:27 AM
1/5/2026
Legacy Engineering Group
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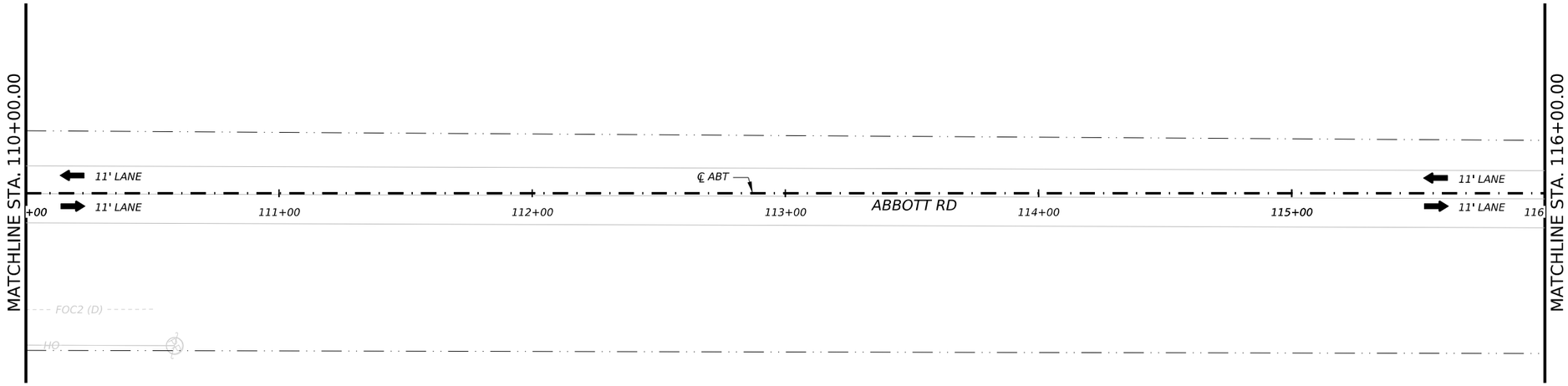
NO WORK THIS SHEET



LEGEND

- DIRECTION OF TRAFFIC
- APPARENT ROW
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- E — REFL PAV MRK TY I (W) 8"(SLD)(100MIL)
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- G — REFL PAV MRK TY I (W)(ARROW)(100MIL)
- H — REFL PAV MRK TY I (W)(WORD)(100MIL)
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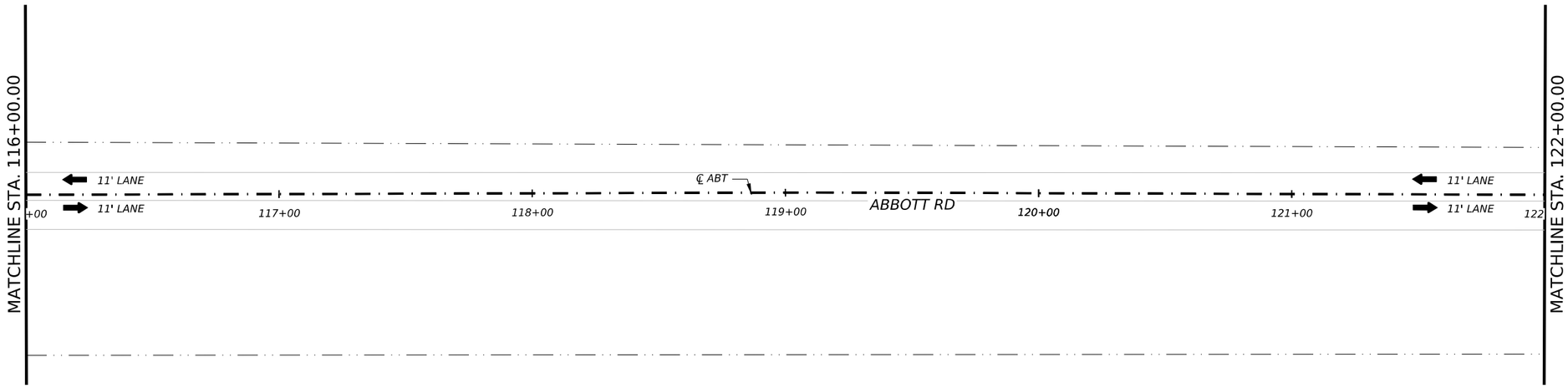
- L — REFL PAV MRK TY I (Y) (MED NOSE) (100 MIL)
- M — REFL PAV MRK TY I (Y) 24"(SLD) (100 MIL)
- OBJECT MARKER

0' 25' 50'

SCALE: 1"=50'

NO WORK THIS SHEET



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NAME	P.E. #	DATE
EDWARD GALICIA	114275	1/5/2026

LEGACY ENGINEERING GROUP

Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT#2

SIGNING, PAVEMENT MARKINGS AND SW3P LAYOUT

SCALE: 1" = 50' SHEET 2 OF 4

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		62
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:29:27 AM
1/5/2026
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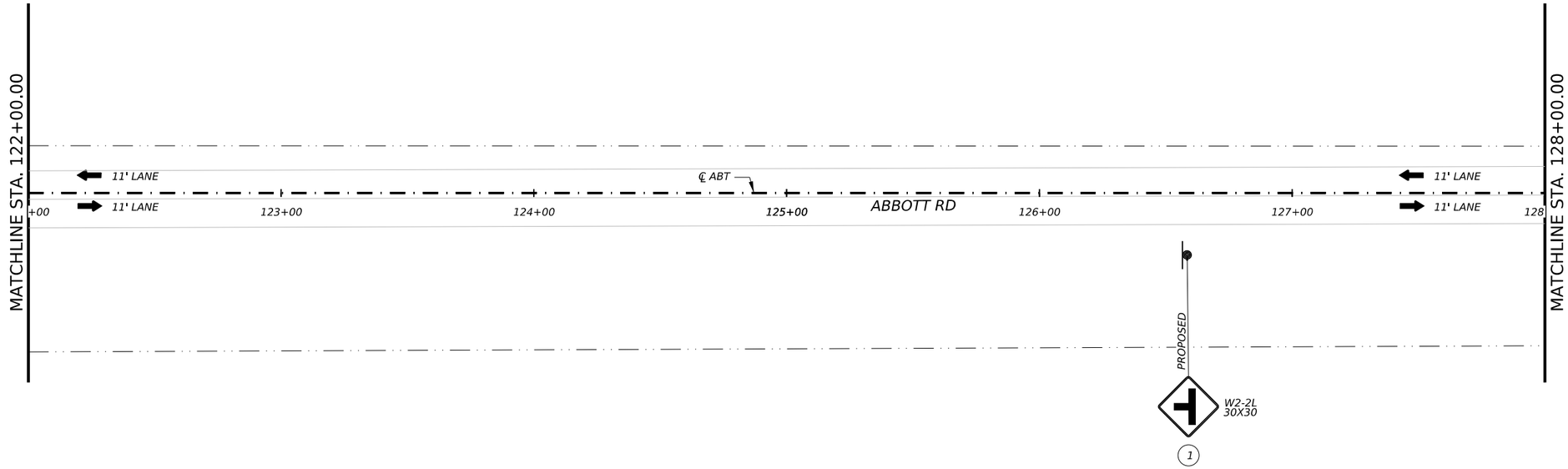


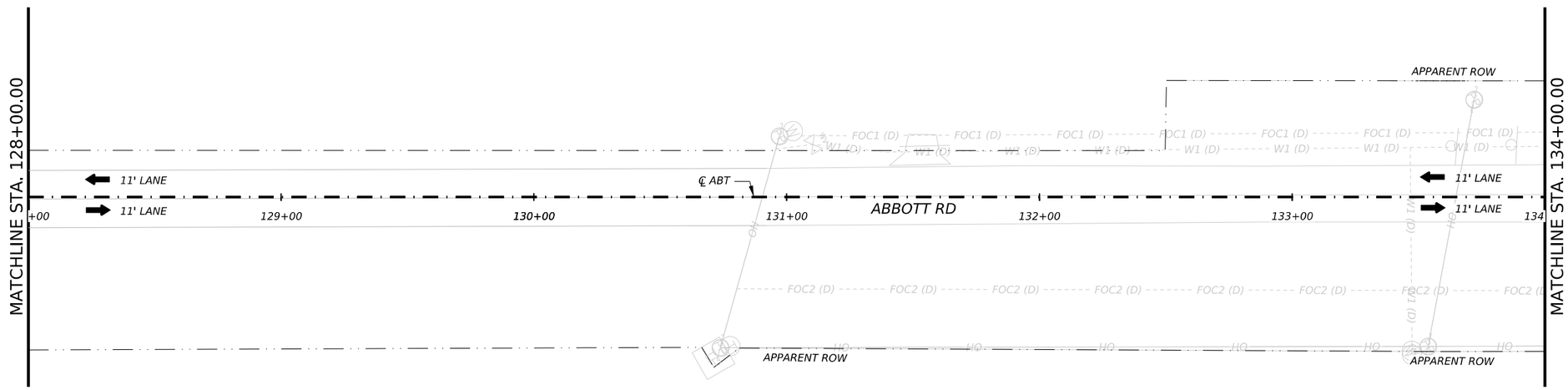
LEGEND

- DIRECTION OF TRAFFIC
- APPARENT ROW
- DRILL SEEDING
- SCF — TEMP SEDMT CONT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (INSTALL) (TY4)
- A — REFL PAV MRK TY I (W) 8" (DOT) (100MIL)
- B — REFL PAV MRK TY I (W) 6" (SLD) (100MIL)
- C — REFL PAV MRK TY I (Y) 6" (SLD) (100MIL)
- D — REFL PAV MRK TY II-A-A
- E — REFL PAV MRK TY I (W) 8"(SLD)(100MIL)
- F — REFL PAV MRK TY I-C
- G — REFL PAV MRK TY I (W)(ARROW)(100MIL)
- H — REFL PAV MRK TY I (W)(WORD)(100MIL)
- I — REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- J — REFL PAV MRK TY I (W)(DBL ARROW)(100MIL)
- K — ELIM EXT PM & MRKS (4")
- L — REFL PAV MRK TY I (Y) (MED NOSE) (100 MIL)
- M — REFL PAV MRK TY I (Y) 24"(SLD) (100 MIL)
- OBJECT MARKER

0' 25' 50'

SCALE: 1"=50'

NO WORK THIS SHEET



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TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT#2

SIGNING, PAVEMENT MARKINGS AND SW3P LAYOUT

SCALE: 1" = 50' SHEET 3 OF 4

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		63
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

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1/5/2026
Legacy Engineering Group
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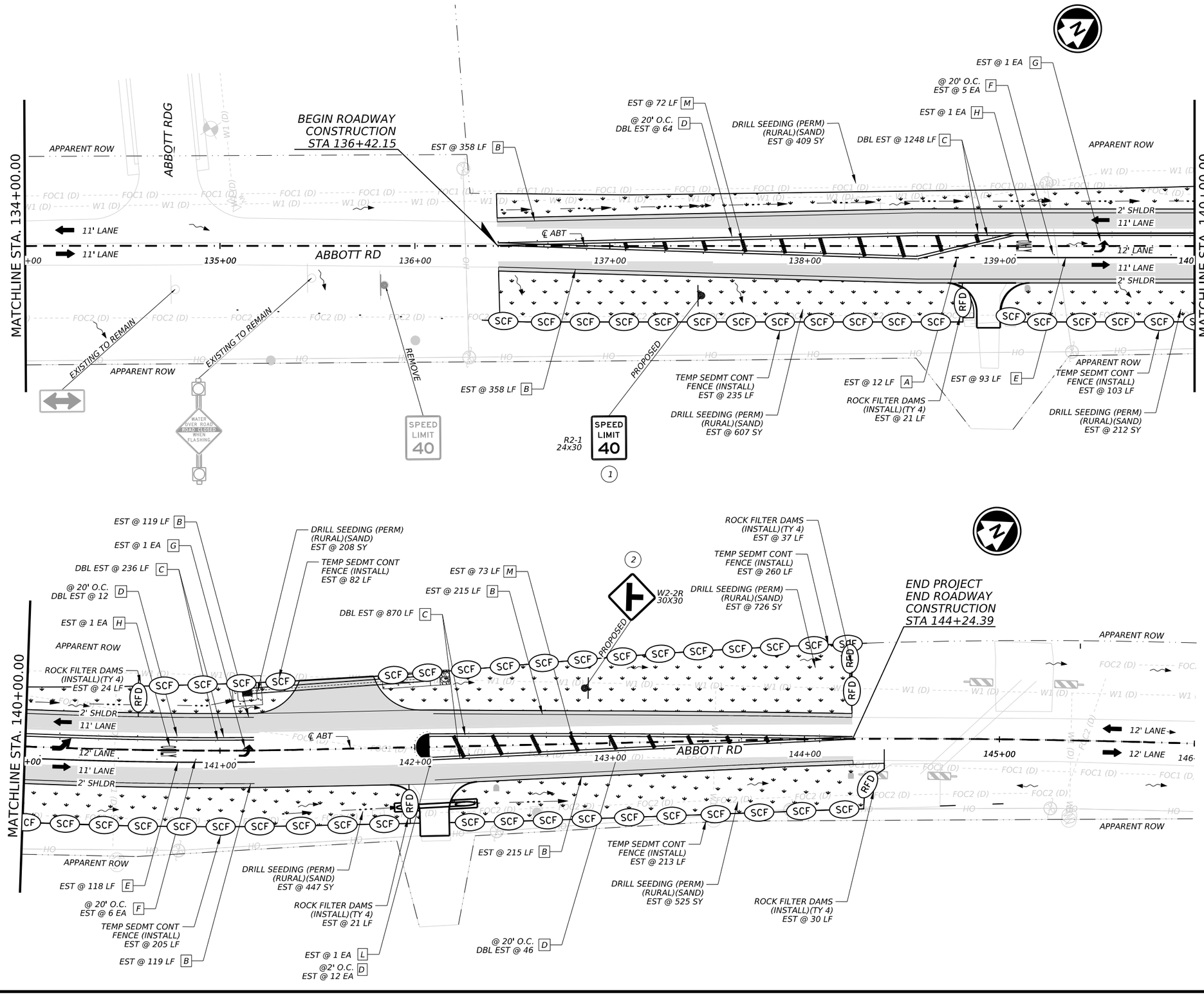

LEGEND

- DIRECTION OF TRAFFIC
- APPARENT ROW
- DRILL SEEDING
- SCF — TEMP SEDMT CONT FENCE (INSTALL)
- RFD — ROCK FILTER DAMS (INSTALL) (TY4)
- A — REFL PAV MRK TY I (W) 8" (DOT) (100MIL)
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- C — REFL PAV MRK TY I (Y) 6" (SLD) (100MIL)
- D — REFL PAV MRK TY II-A-A
- E — REFL PAV MRK TY I (W) 8"(SLD)(100MIL)
- F — REFL PAV MRK TY I-C
- G — REFL PAV MRK TY I (W)(ARROW)(100MIL)
- H — REFL PAV MRK TY I (W)(WORD)(100MIL)
- I — REFL PAV MRK TY I (W)24"(SLD)(100MIL)
- J — REFL PAV MRK TY I (W)(DBL ARROW)(100MIL)
- K — ELIM EXT PM & MRKS (4")
- L — REFL PAV MRK TY I (Y) (MED NOSE) (100 MIL)
- M — REFL PAV MRK TY I (Y) 24"(SLD) (100 MIL)
- OBJECT MARKER

0' 25' 50'

SCALE: 1"=50'

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Legacy Engineering Group, PLLC
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TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT#2

SIGNING, PAVEMENT MARKINGS AND SW3P LAYOUT

SCALE: 1" = 50' SHEET 4 OF 4

FED.RD. DIV.NO.	PROJECT NO.		SHEET
6	-		64
STATE	DIST.	COUNTY	
TEXAS	SAT	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOTT RD

8:29:29 AM
1/5/2026
Legacy Engineering Group
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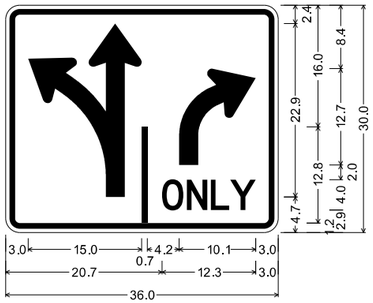
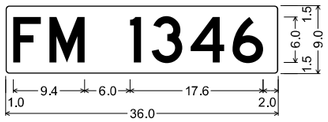


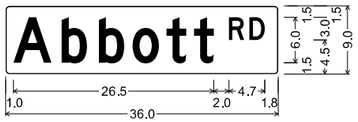
R3-8 SPL (MR) 36x30;
1.9" Radius, 0.8" Border, 0.5" Indent, Black on White;
M ir=13.25, s=2.5; L ir=4.5, s=2.5;
"ONLY", D 50% spacing;

SHEET 1 OF 4
SIGN NO. 3



D3-1B 36x9;
0.5" Radius, 0.2" Border, White on Blue;
"FM 1346", D;

SHEET 1 OF 4
SIGN NO. 1



D3-1B 36x9;
0.5" Radius, 0.2" Border, White on Blue;
"Abbott", D; "RD", D;

SHEET 1 OF 4
SIGN NO. 1

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EDWARD GALICIA	*114275*	*1/5/2026*
NAME	*P.E. #*	*DATE*

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

ROSE VALLEY SOUTH UNIT #2

SMALL SIGN DETAILS

N.T.S. *SHEET 1 OF 1*

FED.RD. DIV.NO.	*PROJECT NO.*		*SHEET*
6	*-*		*65*
STATE	*DIST.*	*COUNTY*	
TEXAS	*SAT*	*BEXAR*	
CONT.	*SECT.*	*JOB*	*HIGHWAY NO.*
-	*-*	*-*	*ABBOTT RD*

8:29:30 AM
1/5/2026
Legacy Engineering Group
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SUMMARY OF SMALL SIGNS

SM RD SGN ASSM TY XXXXX (X) XX (X-XXXX)

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
61	1	R1-1	STOP	36X36			10BWG	1	SA	P		
		D3-1B	Abbott RD	30X9								
		D3-1B	FM 1346	30X9								
61	2	R2-1	SPEED LIMIT 40	24X30			10BWG	1	SA	P		
61	3	R3-8 SPL (MR)	ONLY	30x30			10BWG	1	SA	P		
61	4	W3-1		36x30			10BWG	1	SA	P		
63	1	W2-2L		30X30			10BWG	1	SA	P		
64	1	R2-1	SPEED LIMIT 40	24X30			10BWG	1	SA	P		
64	2	W2-2R		30 X 30			10BWG	1	SA	P		

ALUMINUM SIGN BLANKS THICKNESS	
Square Feet	Minimum Thickness
Less than 7.5	0.080"
7.5 to 15	0.100"
Greater than 15	0.125"

The Standard Highway Sign Designs for Texas (SHSD) can be found at the following website.

http://www.txdot.gov/

NOTE:

1. Sign supports shall be located as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise shown on the plans, the Contractor shall stake and the Engineer will verify all sign support locations.
2. For installation of bridge mount clearance signs, see Bridge Mounted Clearance Sign Assembly (BMCS)Standard Sheet.
3. For Sign Support Descriptive Codes, see Sign Mounting Details Small Roadside Signs General Notes & Details SMD(GEN).

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

FILE:	sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS		-	-	-	ABBOT RD
4-16		DIST	COUNTY		SHEET NO.
8-16		-	BEXAR		66

18

DATE: 1/5/2026 8:29:31 AM
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DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

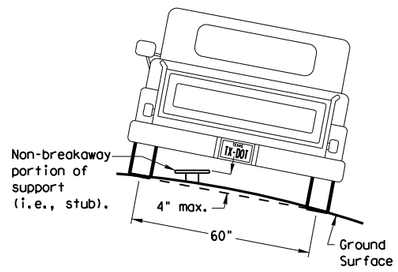
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-1))

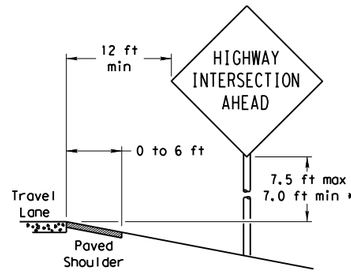
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

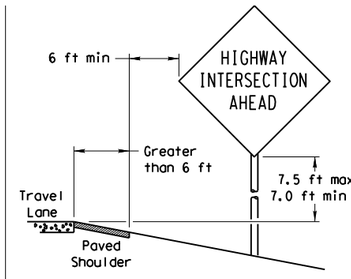
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

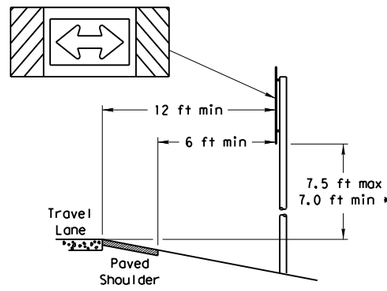
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



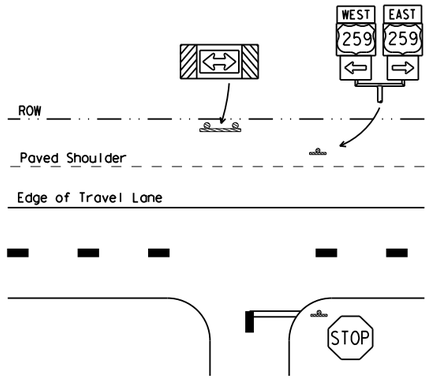
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

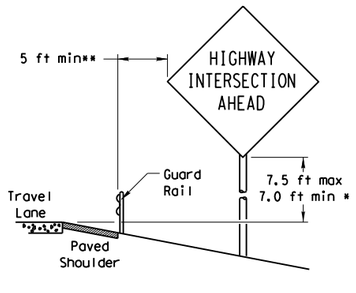
T-INTERSECTION



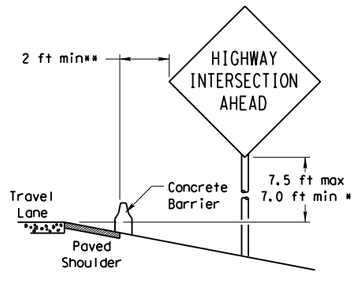
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

* Signs shall be mounted using the following condition that results in the greatest sign elevation:

(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

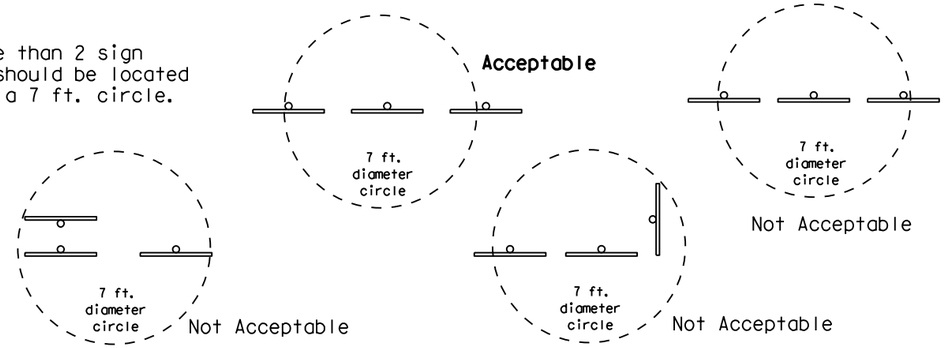
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

The maximum values may be increased when directed by the Engineer.

See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

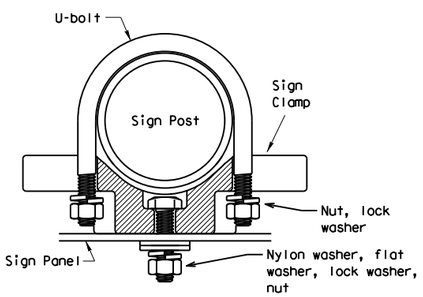
The website address is:
http://www.txdot.gov/publications/traffic.htm

No more than 2 sign posts should be located within a 7 ft. circle.



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

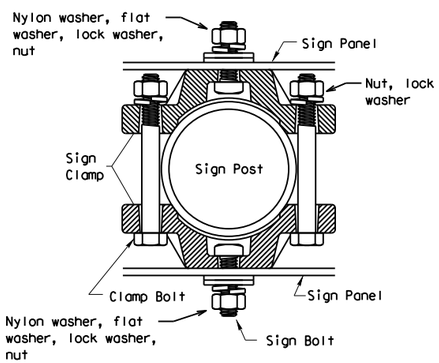


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

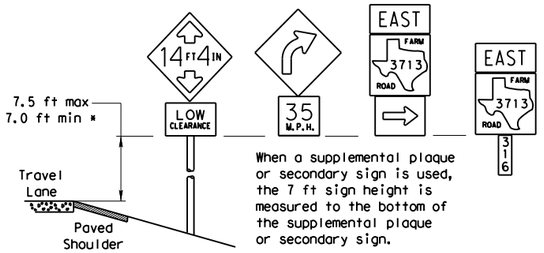
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



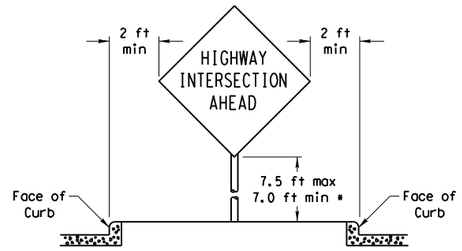
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



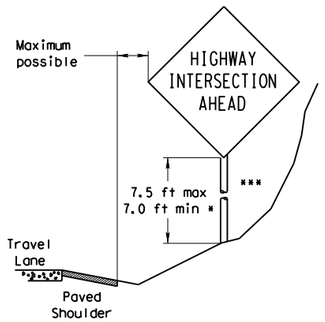
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

© TxDOT July 2002	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08 REVISIONS	CONT	SECT	JOB	HIGHWAY
	-	-	-	ABBOT RD
	DIST	COUNTY		SHEET NO.
	-	BEXAR		67

DATE:
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DATE: 1/5/2026 8:29:32 AM
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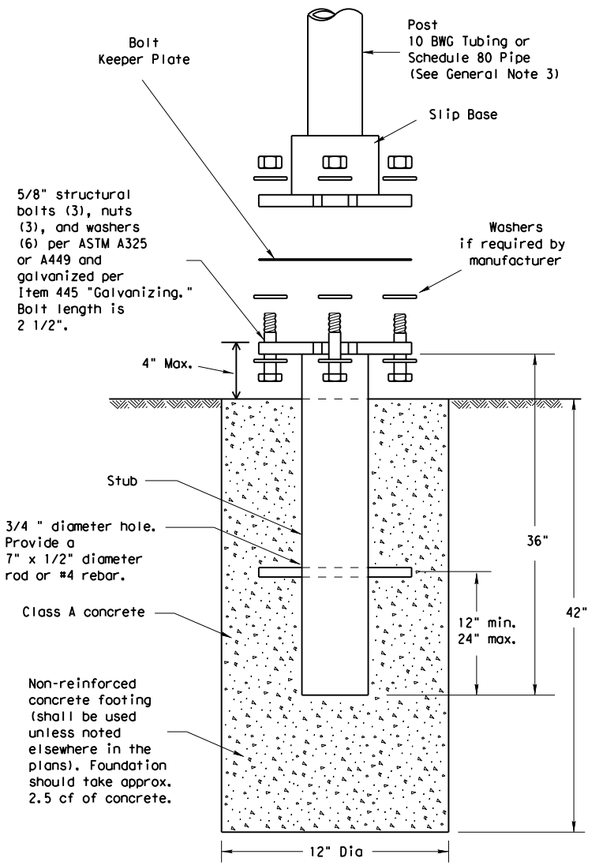
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

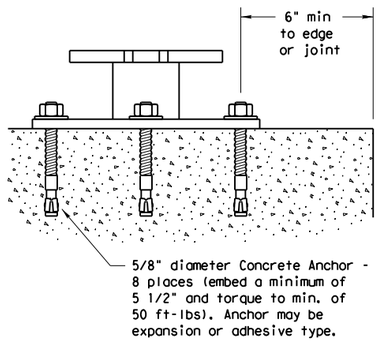
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

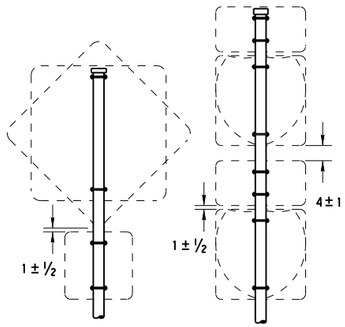
Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

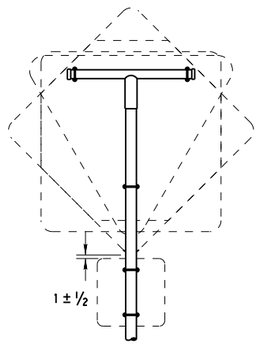
SMD(SLIP-1)-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

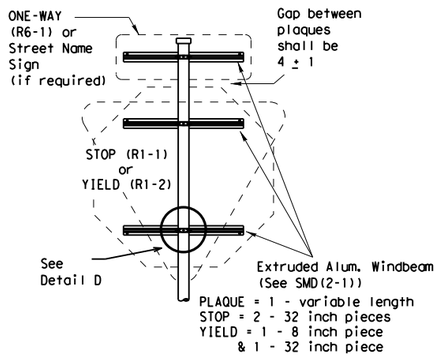
REVISIONS	CONT	SECT	JOB	HIGHWAY
9-08	-	-	-	ABBOT RD
	DIST	COUNTY		SHEET NO.
	-	BEXAR		68



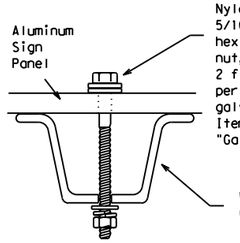
SM RD SGN ASSM TY XXXXX(1)XX(P)



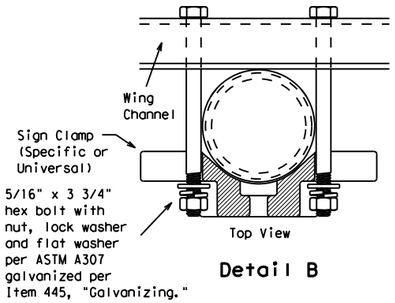
SM RD SGN ASSM TY XXXXX(1)XX(T)



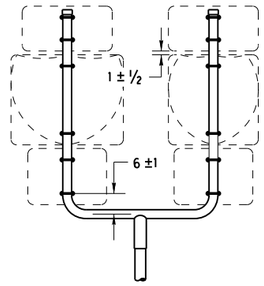
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



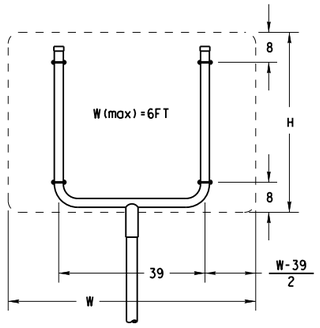
Detail A



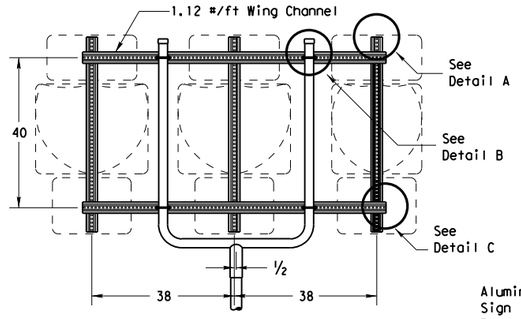
Detail B



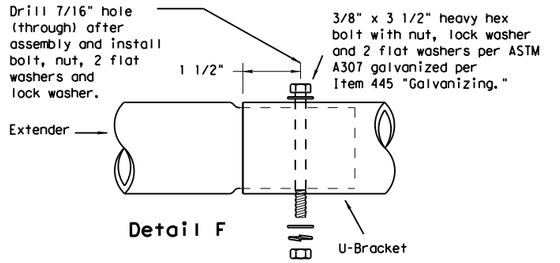
SM RD SGN ASSM TY XXXXX(1)XX(U)



SM RD SGN ASSM TY XXXXX(1)XX(U)

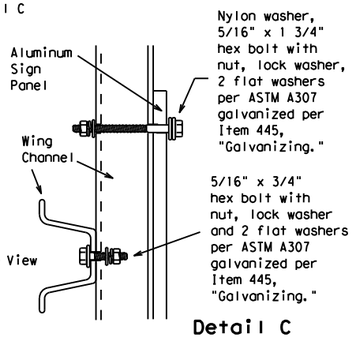


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

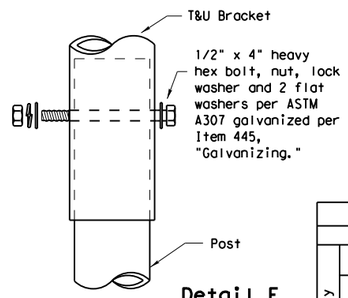


Detail F

Splices shall only be allowed behind the sign substrate.



Detail C



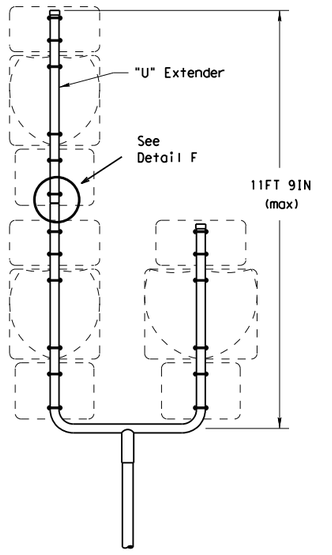
Detail E

GENERAL NOTES:

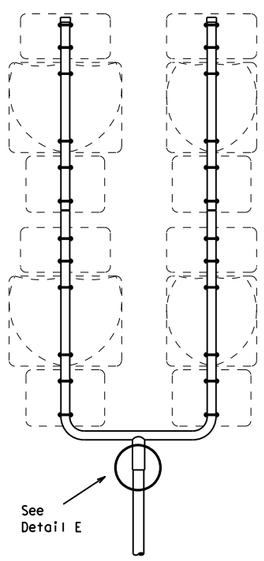
1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

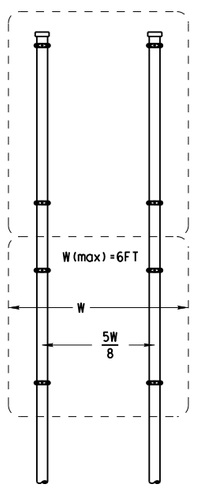
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.



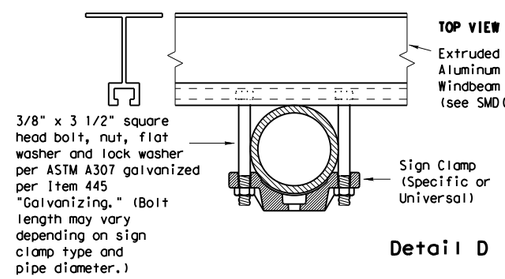
SM RD SGN ASSM TY S80(1)XX(U-1EXT)



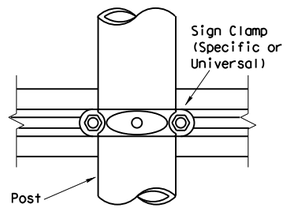
SM RD SGN ASSM TY S80(1)XX(U-2EXT)



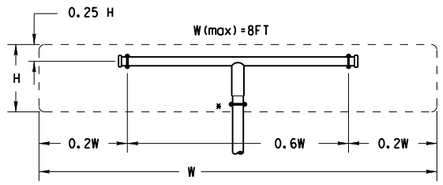
SM RD SGN ASSYM TY XXXXX(2)XX(P)



Detail D



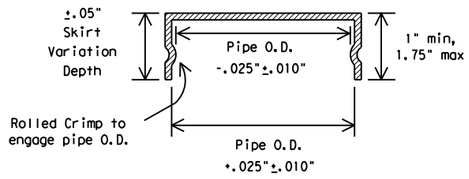
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



All dimensions are in english unless detailed otherwise.

SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

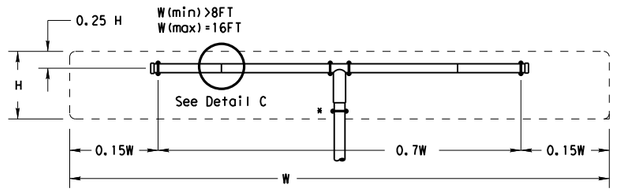
SMD(SLIP-2)-08

DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
CONT	SECT	JOB	HIGHWAY
-	-	-	ABBOT RD
DIST	COUNTY		SHEET NO.
-	BEXAR		69

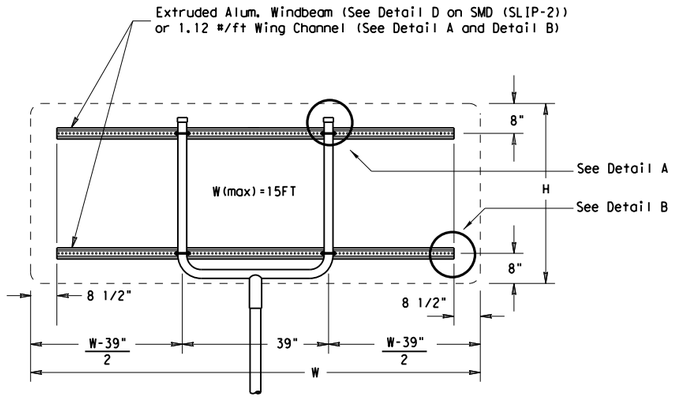
9-08 REVISIONS

DATE:
FILE:

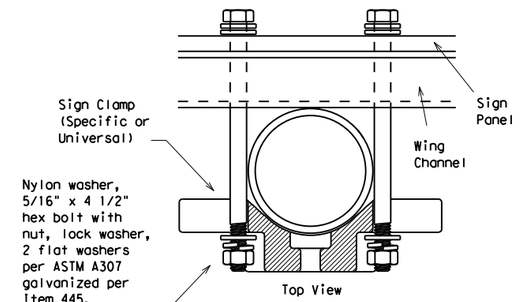
DATE:
FILE:



SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)

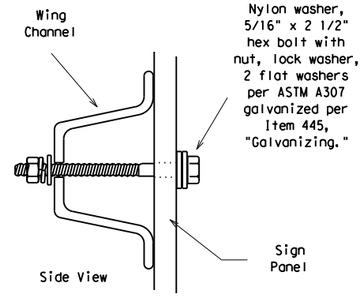


SM RD SGN ASSM TY XXXXX(1)XX(U-XX)

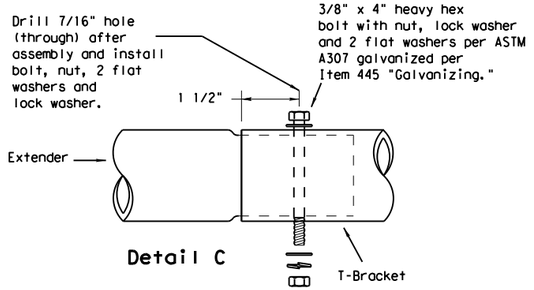


Top View

Detail A



Detail B



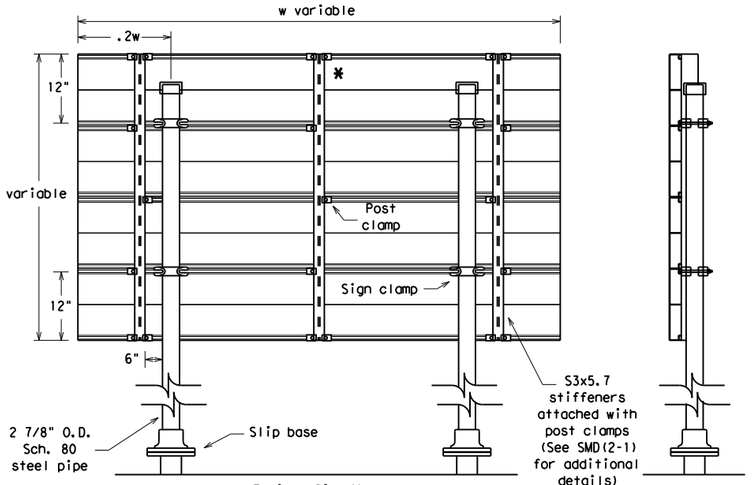
Detail C

Splices shall only be allowed behind the sign substrate.

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

1. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
2. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
3. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
4. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
5. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
6. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
7. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
8. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
9. Sign blanks shall be the sizes and shapes shown on the plans.
10. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
11. Post open ends shall be fitted with Friction Caps.

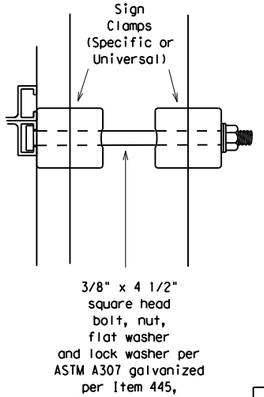


Typical Sign Mount

SM RD SGN ASSM TY S80(2)XX(P-EXAL)

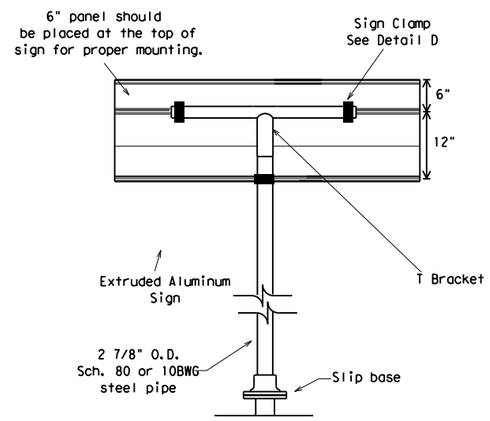
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.

See Detail E
for clamp installation

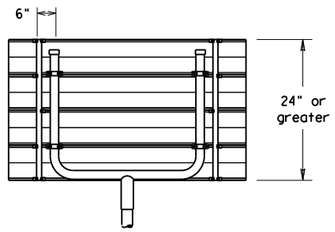


Detail E

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

REVISIONS
9-08

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
-	-	-	ABBOT RD
DIST	COUNTY		SHEET NO.
-	BEXAR		70

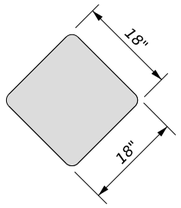
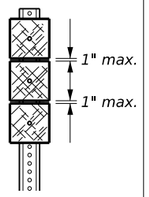
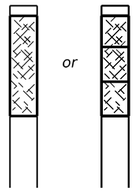
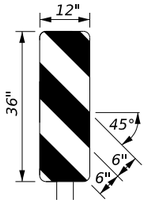
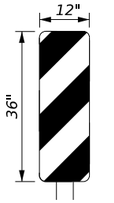
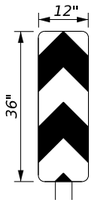
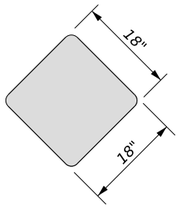
OBJECT MARKER - BID ITEM DESCRIPTIONS

XXXXX OM ASSM (OM-XX)(XXXX)XXXXX(XX)

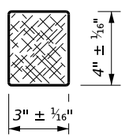
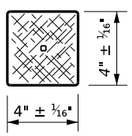
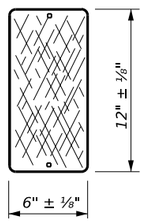
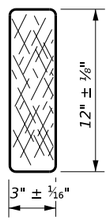
- **PAYMENT**
  - INSTL = Installation
  - REPLC = Replacement
- **TYPE OF OBJECT MARKER**
  - 1, 2, 3, or 4
- **NUMBER OF REFLECTORS OR DIRECTION**
  - X = 3-Size 2 reflector units (Type 2 only)
  - Y = 1-Size 3 reflector unit (Type 2 only)
  - Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
  - L = Left Side (Type 3 Object Marker only)
  - R = Right Side (Type 3 Object Marker only)
  - C = Center (Type 3 Object Marker only)
- **TYPE OF POST**
  - WC = Wing Channel Post
  - WFLX = White Flexible Post
  - YFLX = Yellow Flexible Post
  - TWT = Thin Walled Tubing
- **TYPE OF MOUNT**
  - GND = Ground Embedded (drivable or set in concrete)
  - SRF = Surface Mount
  - WAS = Wedge Anchor Steel
  - WAP = Wedge Anchor Plastic
- **IDENTIFICATION**
  - LL = Low Speed, Low Impact
  - HH = High Speed, High Impact
- **DIRECTION [if required]**
  - BI = Bi-Directional

OBJECT MARKER DEFINITION

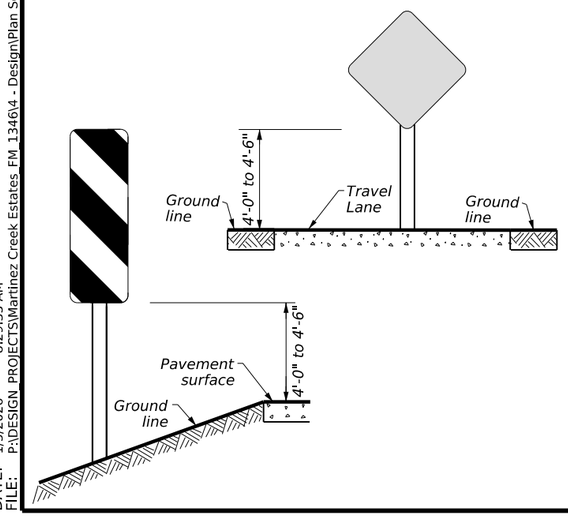
Devices used to mark obstructions within or adjacent to the roadway. (See TMUTCD - Chapter 2C, WARNING SIGNS AND OBJECT MARKERS.)

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE		 3-Size 2 reflector units	 1-Size 3 reflector unit	 1-Size 4 reflector unit or 3-Size 1 reflector units				
SHEETING	Yellow - Type B_{FL} or C_{FL} sheeting	White and Yellow - Type B or C sheeting			Alternating Acrylic Black and Retroflective Yellow - Type B_{FL} or C_{FL} sheeting			Red - Type B_{FL} or C_{FL} sheeting
POST TYPE	TWT	WC	WC	WFLX, YFLX	TWT, WFLX			TWT
MOUNT TYPE	WAS, WAP	GNDLL	GNDLL	GNDLL, GNDHH, SRFLL, SRFHH	WAS, WAP, GNDLL, GNDHH, SRFLL, SRFHH			WAS, WAP

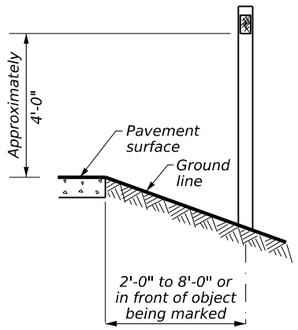
REFLECTOR UNIT DIMENSIONS FOR OBJECT MARKERS

	SIZE 1	SIZE 2	SIZE 3	SIZE 4
DEVICE				
NOTE	1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (flx). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic, or fiberglass backplate with $17/64$" mounting holes.			

TYPES 1, 3, AND 4 OBJECT MARKERS TYPICAL INSTALLATION



TYPE 2 OBJECT MARKERS TYPICAL INSTALLATION

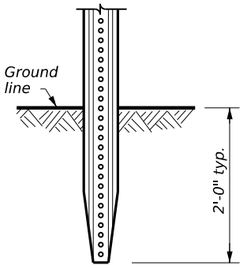


See General Notes 1, 2, and 3

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

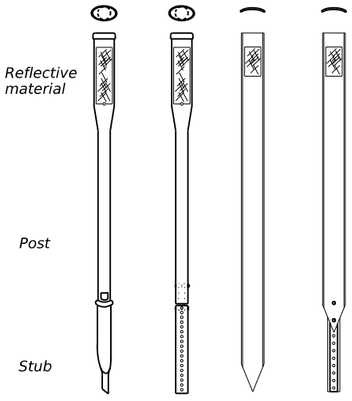


NOTES

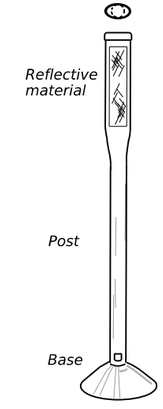
1. Embedded Wing Channel (WC) post option may be used for Type 2 object markers and delineators only.
2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499.

FLEXIBLE POSTS (YFLX, WFLX)

GND



SRF

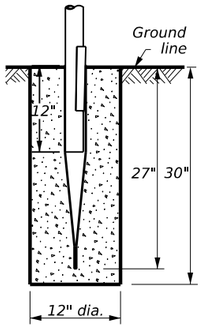


NOTES

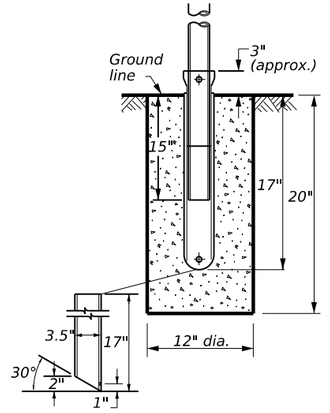
1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.

WEDGE ANCHOR SYSTEMS

WAS



WAP



NOTE

1. Install per manufacturer's recommendations.

GENERAL NOTES

1. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
2. When Type 2 object markers are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker as close to the recommended height as possible.
3. Install all object markers in accordance with the manufacturer's recommendation.
4. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.
5. Object marker substrates shall be 0.080" aluminum sign blank and conform to ASTM B-209 Alloy 6061-T6 or an approved alternative.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

Texas Department of Transportation

Traffic Safety Division Standard

OBJECT MARKER MATERIAL DESCRIPTION & INSTALLATION

D & OM(2)-25

FILE: dom2-25.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 2025	CONT	SECT	JOB	HIGHWAY
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8-04 5-25	DIST	COUNTY		SHEET NO.
3-15	-	BEXAR		71
7-20				

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DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

CONDITION	REQUIRED TREATMENT	MINIMUM SPACING
Fwy./Exp. Tangent	RPMs	See PM and FPM standard sheets
Fwy./Exp. Curve	Single delineators on right side	See delineator spacing table
Fwy/Exp.Ramp	Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 4a on D&OM(4))	100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves)
Acceleration/ Deceleration Lane	Double delineators (see Detail 4a on D&OM(4))	100 feet (See Detail 4a on D & OM(4))
Truck Escape Ramp	Single red delineators on both sides	50 feet
Bridge Rail (steel or concrete) and Metal Beam Guard Fence	Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction	Equal spacing (100'max) but not less than 3 delineators
Concrete Traffic Barrier (CTB) or Steel Traffic Barrier	Barrier reflectors matching the color of the edge line	Equal spacing 100' max
Cable Barrier	Reflectors matching the color of the edge line Bi-Directional Delineators when within clearzone	Every 5th cable barrier post (up to 100'max)
Cable Barrier Terminus / Impact Head	Object marker on end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM(6)
Guard Rail Terminus / Impact Head	Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end	Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM(5) and D & OM(6)
Bridges with no Approach Rail	Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail	See D & OM(5)
Reduced Width Approaches to Bridge Rail	Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge	Requires reflective sheeting provided by manufacturer per D & OM(VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM(5)
Culverts without MBGF	Type 2 Object Markers	See Detail 2 on D & OM(4)
Crossovers	Double yellow delineators and RPMs	See Detail 1 on D & OM(4)
Pavement Narrowing (lane merge) on Freeways/Expressway	Single delineators adjacent to affected lane for full length of transition	100 feet

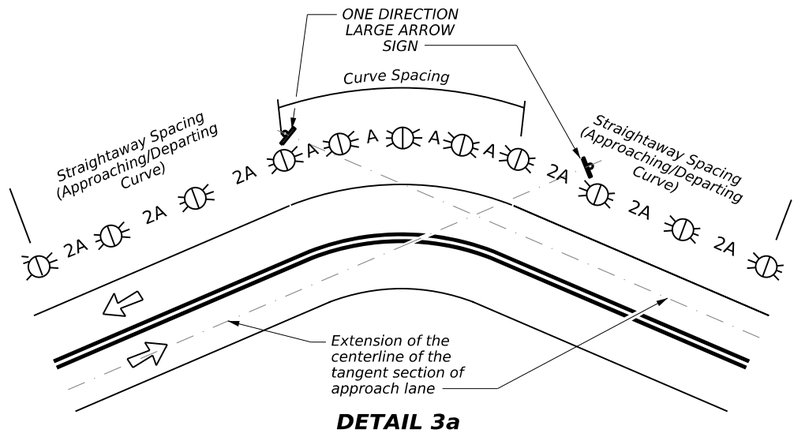
MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

Amount by which Advisory Speed is less than Posted Speed	Turn/Curve Advisory Speed: Turn (30 MPH or less)	Turn/Curve Advisory Speed: Curve (35 MPH or more)
5 MPH	• RPMs and Pavement Markings	
10 MPH	• Advance Horizontal Alignment Warning Sign with Advisory Speed Plaque; and • RPMs and Pavement Markings	
15 MPH	• Advance Horizontal Alignment Warning Sign with Advisory Speed Plaque; and • RPMs, Pavement Markings, and Delineators; or • RPMs, Pavement Markings, and One Direction Large Arrow sign(s)	• Advance Horizontal Alignment Warning Sign with Advisory Speed Plaque; and • RPMs, Pavement Markings, and Chevrons; or • RPMs, Pavement Markings, and One Direction Large Arrow sign(s) where geometric conditions or roadside obstacles prevent the installation of chevrons
20 MPH	• Advance Horizontal Alignment Warning Sign with Advisory Speed Plaque; and • RPMs, Pavement Markings, and Chevrons; or • RPMs, Pavement Markings, and One Direction Large Arrow sign(s) where geometric conditions or roadside obstacles prevent the installation of chevrons	
25 MPH or more	• Advance Horizontal Alignment Warning Sign with Advisory Speed Plaque; and • RPMs, Pavement Markings, and Chevrons; or • RPMs, Pavement Markings, and One Direction Large Arrow sign(s) where geometric conditions or roadside obstacles prevent the installation of chevrons	• Advance Horizontal Alignment Warning Sign with Advisory Speed Plaque; and • RPMs, Pavement Markings, and Chevrons

NOTE

A roadway is considered to have pavement markings when either a center line, edge lines, or both are present. A roadway is considered to have RPMs when they are used to supplement centerline pavement markings.

SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



DETAIL 3a

NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

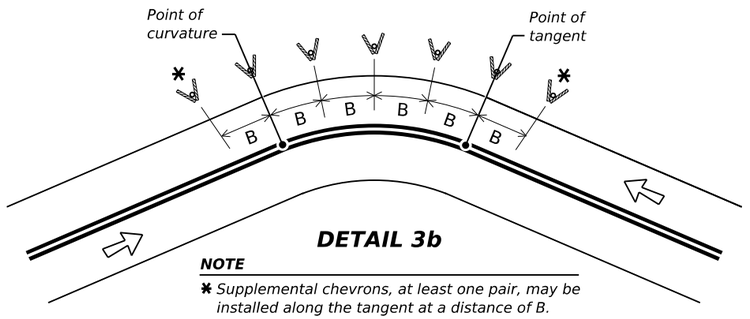
LEGEND

	Delineator
	Bi-directional Delineator
	Sign

GENERAL NOTES

1. Unless otherwise indicated, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
2. Barrier reflectors may be used to replace required delineators.
3. Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



DETAIL 3b

NOTE

✱ Supplemental chevrons, at least one pair, may be installed along the tangent at a distance of B. Adverse curve aligment is a factor in determining if supplemental chevrons are needed.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS KNOWN

Degree of Curve	FEET: Radius of Curve	Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
		A	2A	B
1	5730	225	450	—
2	2865	160	320	—
3	1910	130	260	200
4	1433	110	220	160
5	1146	100	200	160
6	955	90	180	160
7	819	85	170	160
8	716	75	150	160
9	637	75	150	120
10	573	70	140	120
11	521	65	130	120
12	478	60	120	120
13	441	60	120	120
14	409	55	110	80
15	382	55	110	80
16	358	55	110	80
19	302	50	100	80
23	249	40	80	80
29	198	35	70	40
38	151	30	60	40
57	101	20	40	40

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN

Advisory Speed (MPH)	FEET: Spacing in Curve	Spacing in Straightaway	Chevron Spacing in Curve
	A	2A	B
65	130	260	200
60	110	220	160
55	100	200	160
50	85	170	160
45	75	150	120
40	70	140	120
35	60	120	120
30	55	110	80
25	50	100	80
20	40	80	80
15	35	70	40

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS APPLICATION & SPACING D & OM(3)-25

FILE: dom3-25.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 2025	CONT	SECT	JOB	HIGHWAY
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8-04 7-20 3-15 5-25 8-15	DIST	COUNTY		SHEET NO.
	-	BEXAR		72

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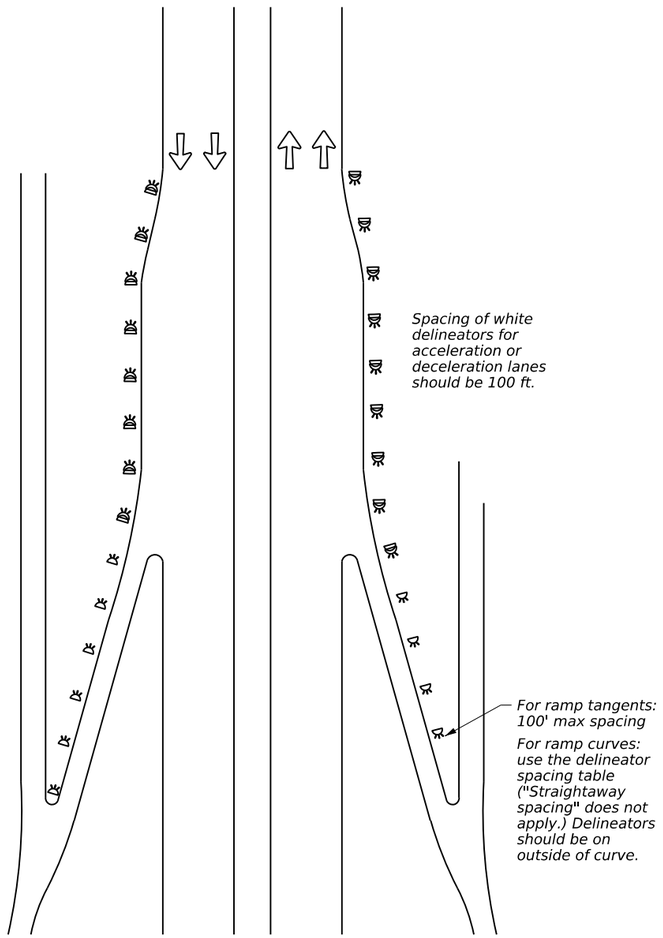
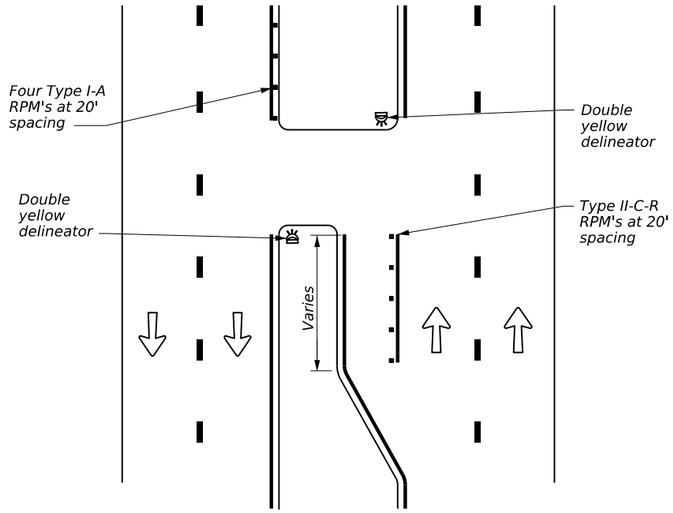
FREEWAY DELINEATION FOR RAMPS AND ACCELERATION / DECELERATION LANES



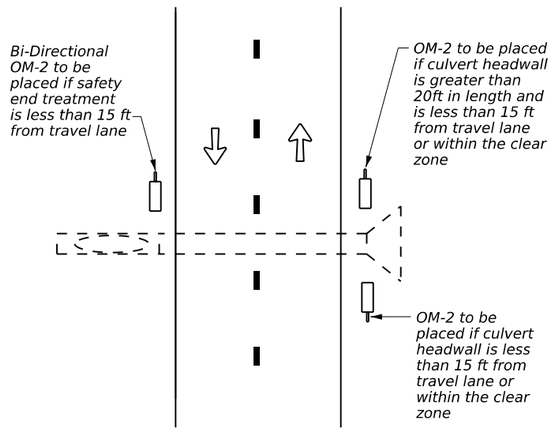
DETAIL 4a

CROSSOVERS



DETAIL 4b

FOR CULVERTS WITHOUT METAL BEAM GUARD FENCE (MBGF)

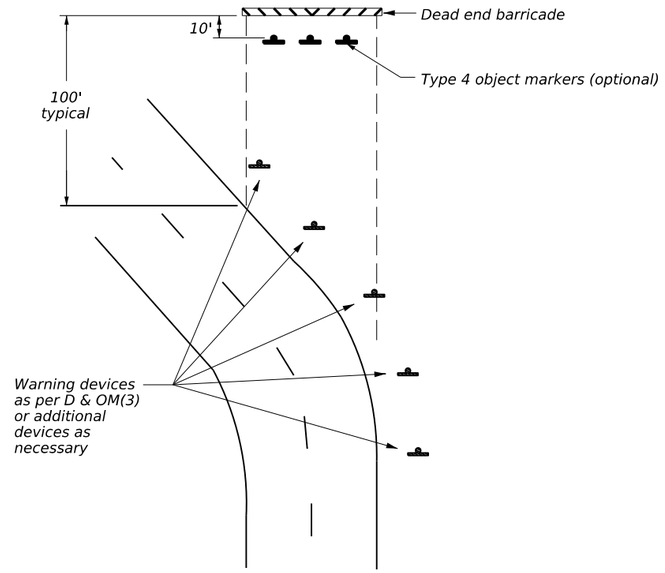


DETAIL 4c

NOTES

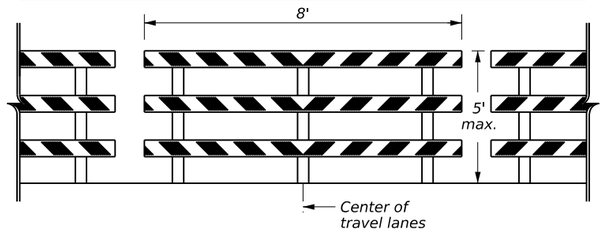
1. This detail applies for all existing culverts without MBGF, for application of OMs. New bridge-class culverts require safety end treatments, MBGF, or bridge railing. See the TxDOT Bridge Railing Manual.
2. For culverts with MBGF, see Sheet 5.

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4d

TYPICAL DEAD END BARRICADE INSTALLATION



DETAIL 4e

NOTES

1. Barricade striping shall be red and white reflective sheeting for all permanent road closures.
2. Barricade striping is red and white sloping toward the center of the roadway.
3. Type 3 Barricade Supports should be anchored to soil or pavement as described in the Compliant Work Zone Traffic Control Devices list (CWZTCD).

LEGEND

	Delineator
	Double delineator
	OM-2
	Sign
	Raised Pavement Marker (RPM)
	Traffic Flow

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4)-25

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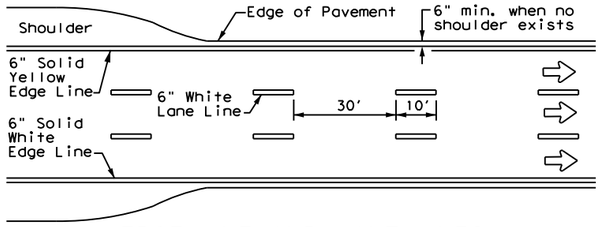
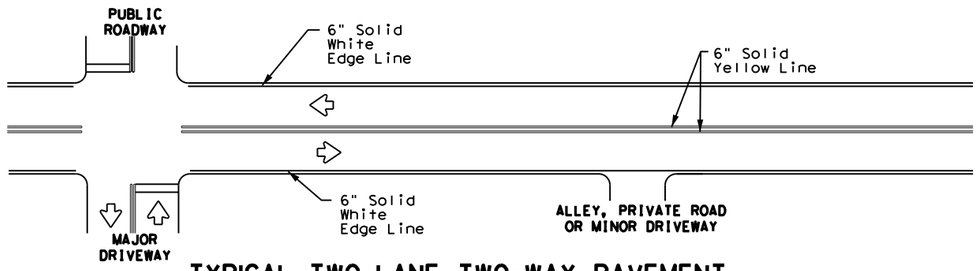
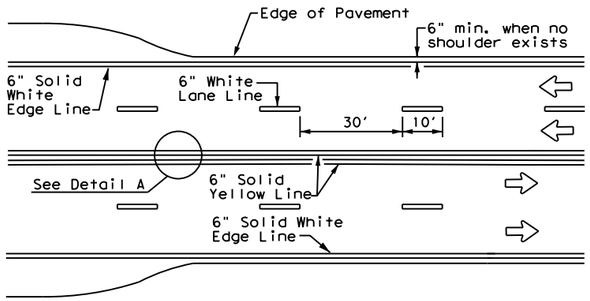
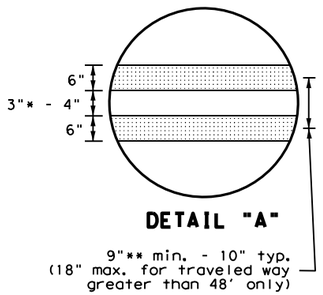


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

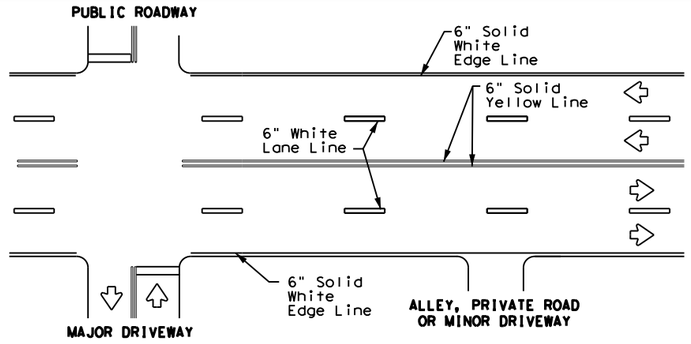




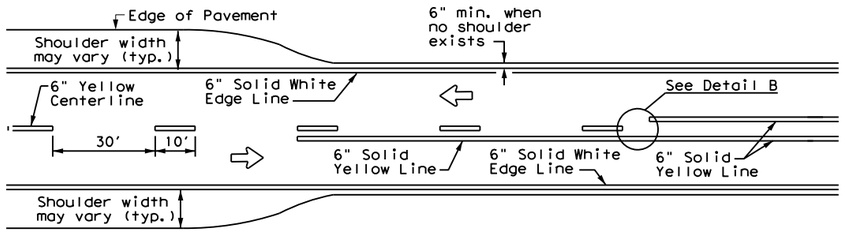
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

* 2" minimum for restripe projects when approved by the Engineer.

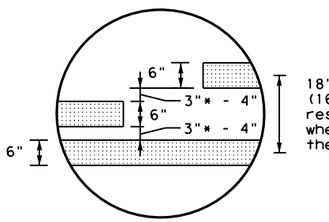
** 8" minimum for restripe projects when approved by the Engineer.



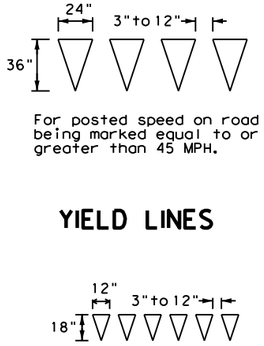
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS

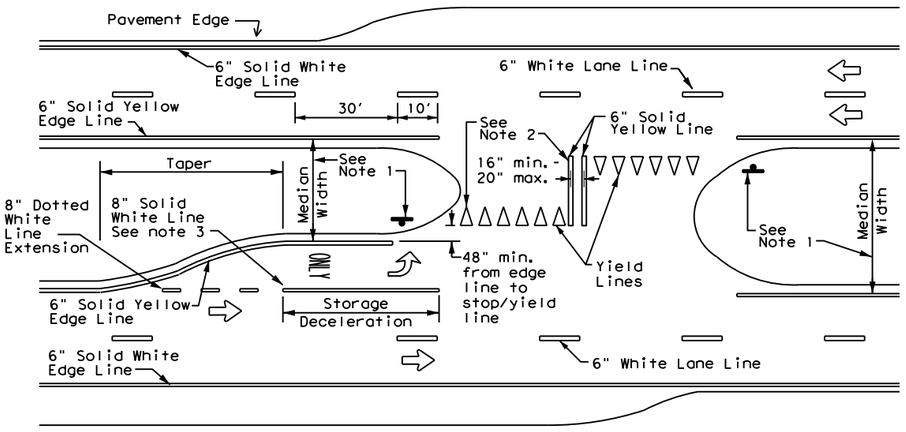


TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



* 2" minimum for restripe projects when approved by the Engineer.





FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

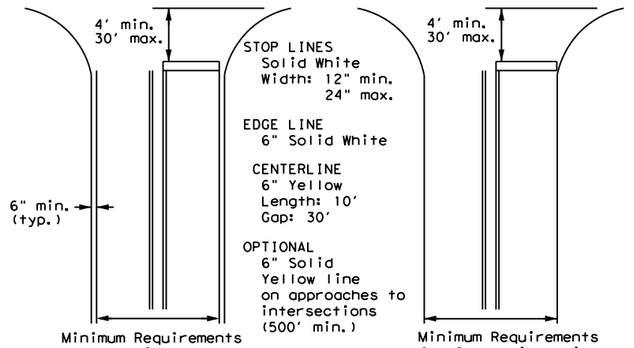
1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
2. Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

1. Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways

Texas Department of Transportation

Traffic Safety Division Standard

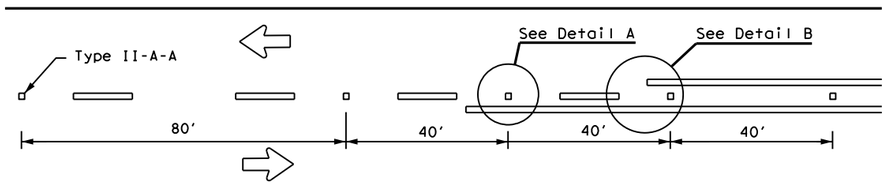
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

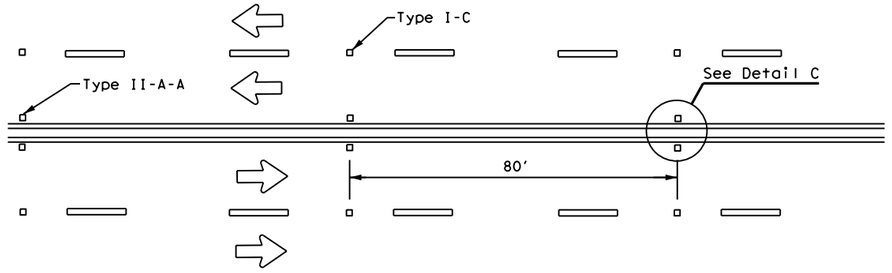
FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
11-78 8-00 6-20	DIST	COUNTY		SHEET NO.
8-95 3-03 12-22	-	BEXAR		74
5-00 2-12				

22A

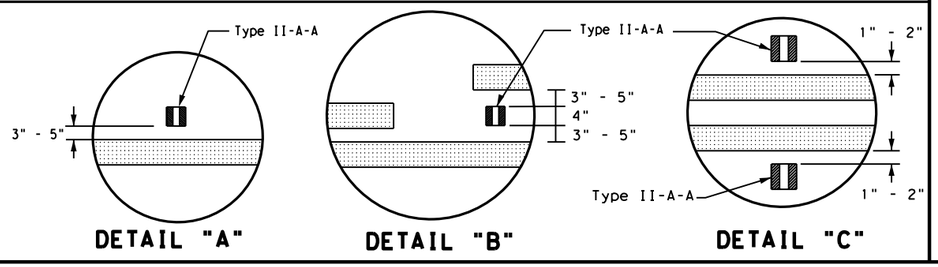
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



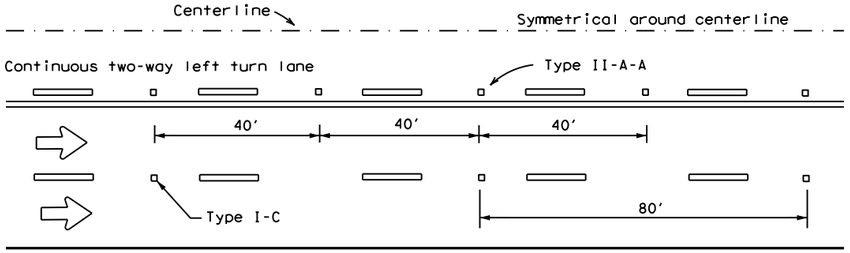
CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



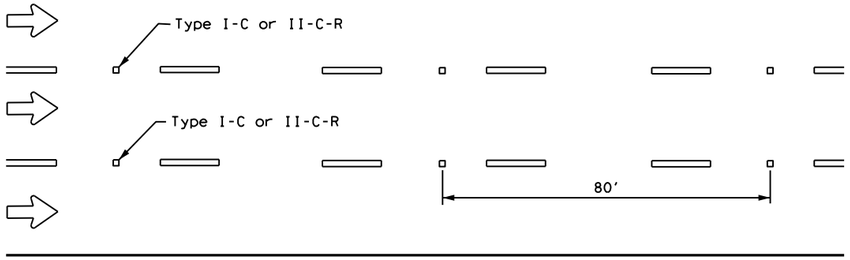
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS



DETAIL "A" **DETAIL "B"** **DETAIL "C"**



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



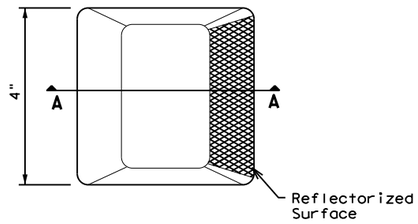
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

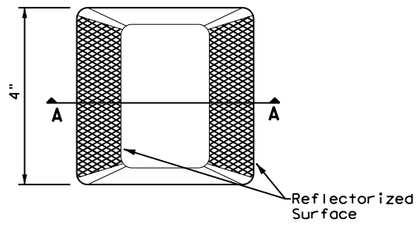
See Note 3.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

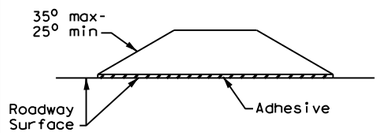
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

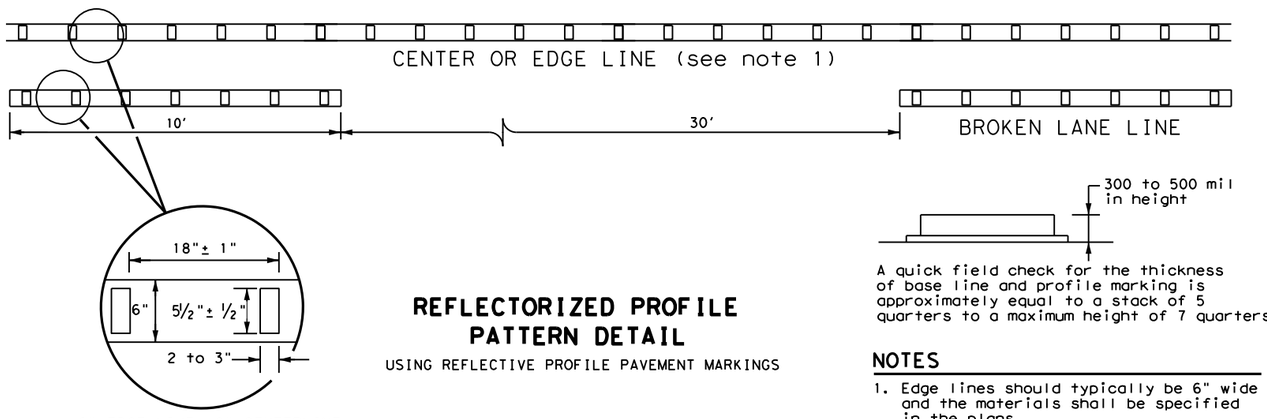


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



6" EDGE LINE, 6" CENTERLINE OR 6" LANE LINE

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTES

1. Edge lines should typically be 6" wide and the materials shall be specified in the plans.
2. Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed along broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements, the raised pavement markers should be placed to one side of the longitudinal joints.
3. Use raised pavement marker Type I-C with undivided roadways, flush medians, and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS REFLECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
4-77 8-00 6-20	DIST	COUNTY		SHEET NO.
4-92 2-10 12-22	-	BEXAR		75
5-00 2-12				

22B

DATE: 1/5/2026 8:29:38 AM
FILE: P:\DESIGN_PROJECTS\Martinez Creek Estates_FM_1346\4 - Design\Plan Set\08 Traffic\pm2-22.dgn

DATE: 1/5/2026 8:29:39 AM
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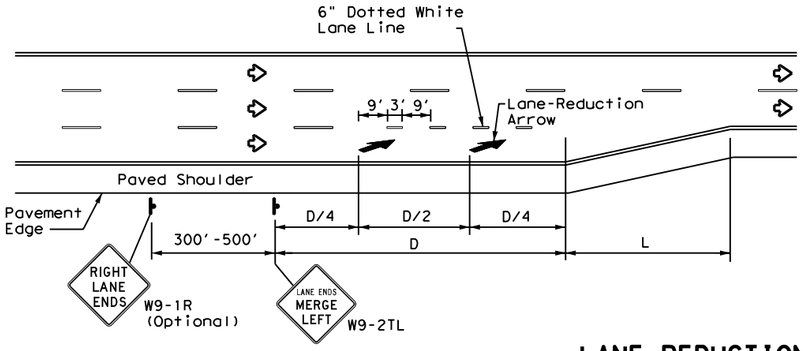
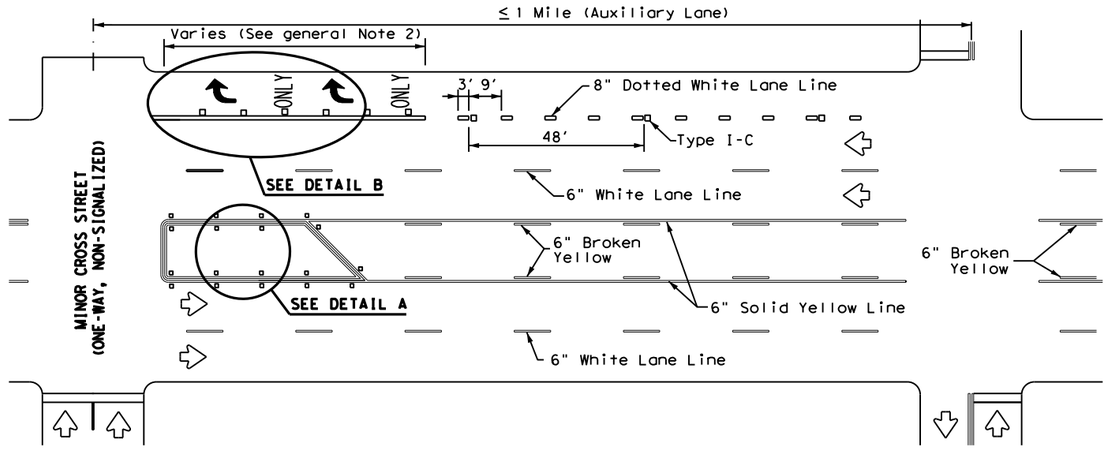


LANE REDUCTION

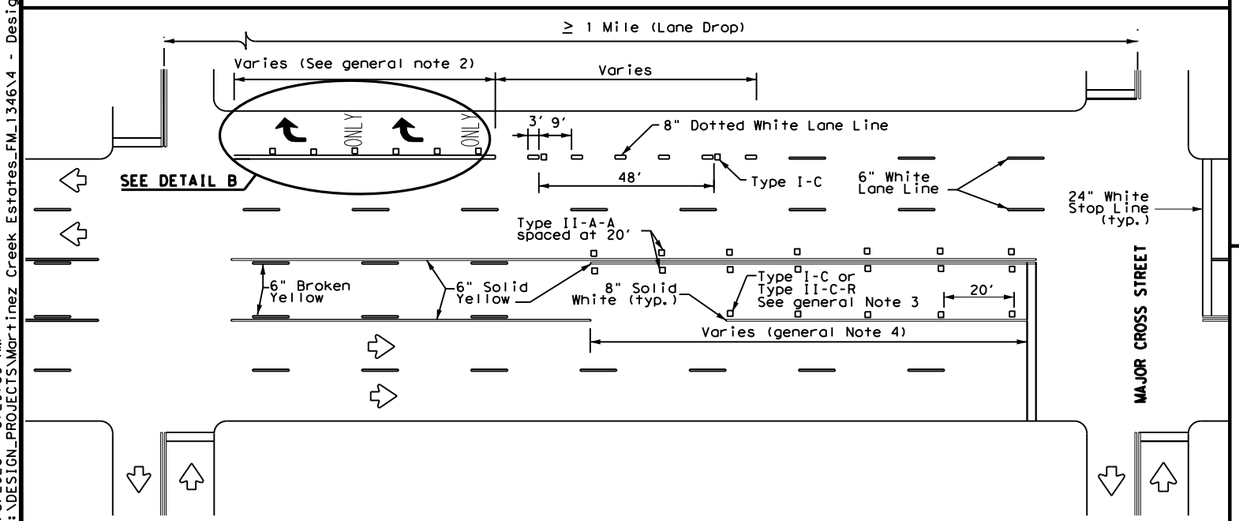
NOTES

1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

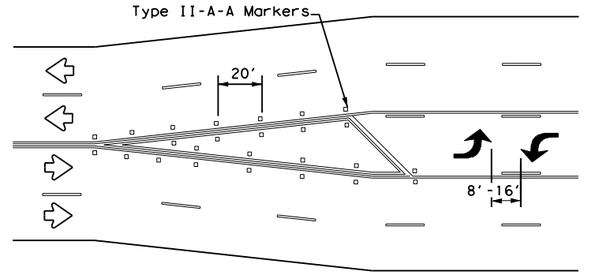
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	$L=\frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	



TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

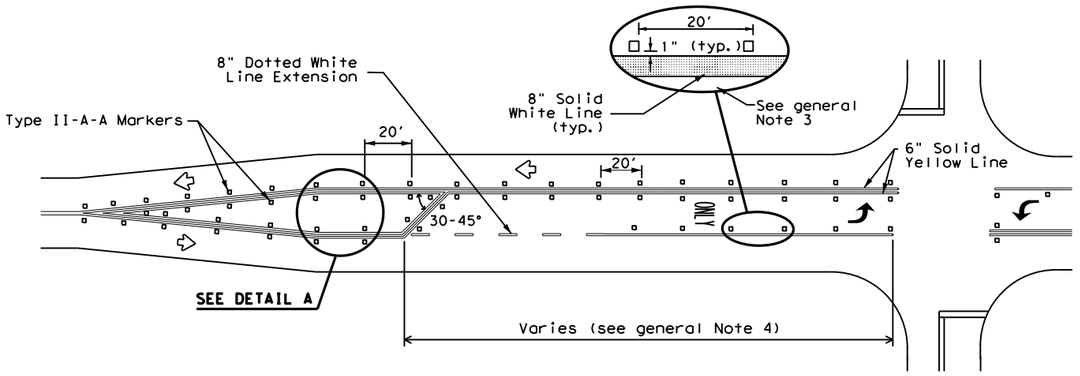
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

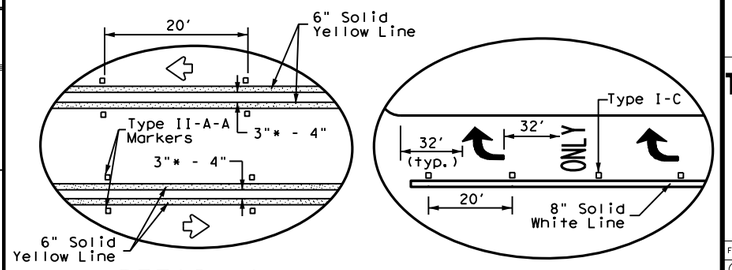
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
2. When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
3. Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
4. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.

MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



* 2" minimum allowed for restripe projects when approved by the Engineer.

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
4-98 3-03 6-20	DIST	COUNTY		SHEET NO.
5-00 2-10 12-22	-	BEXAR		76
8-00 2-12				

22C

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with the TPDES Construction General Permit TXR150000 (CGP). The Texas Department of Transportation (TxDOT) ensures that project specifications include adequate best management practices (BMPs) for this project.

For all projects with soil disturbing activity and for projects that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans and the projects environmental permits, issues, and commitments (EPICs). A copy of the CGP is included in Attachment 2.12 of the SWP3 binder.

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):

_____

1.2 PROJECT LIMITS:

From: FM 1346 AT ABBOTT RD INTERSECTION
.86 MI NORTH OF ABBOTT RD & FM1346 INTERSECTION
To: ON ABBOTT ROAD

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 29°25'20.61"N ,(Long) 98°15'5.41"W

END: (Lat) 29° 25' 59.11" N ,(Long) 98°14' 40.26" W

1.4 TOTAL PROJECT AREA (Acres): 2.52 ACRES

1.5 TOTAL AREA TO BE DISTURBED (Acres): 1.73 ACRES

1.6 NATURE OF CONSTRUCTION ACTIVITY:
ROADWAY WIDENING/ RECONSTRUCTION, CULVERT EXTENSION FOR TURN LANES

1.7 MAJOR SOIL TYPES:

Soil Type	Description
MIGUEL-FINE	PERMEABLE LOAMY
WILCO-FINE	PERMEABLE SANDY
WILCO-FINE	PERMEABLE SANDY
HEIDEN-CLAY	IMPERMEABLE CLAYEY
HEIDEN-FERRIS	MODERATELY PERMEABLE CLAYEY
MIGUEL-FINE	PERMEABLE LOAMY
FLORESVILLE-FINE	PERMEABLE SANDY LOAM

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- ☐ PSLs determined during preconstruction meeting
- ☐ PSLs determined during construction
- ☒ No PSLs planned for construction

Type	Sheet #s

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.5.)

- ☒ Mobilization
- ☒ Install sediment and erosion controls
- ☒ Blade existing topsoil into windrows, prep ROW, clear and grub
- ☒ Remove existing pavement
- ☒ Grading operations, excavation, and embankment
- ☒ Excavate and prepare subgrade for proposed pavement widening
- ☐ Remove existing culverts, safety end treatments (SETs)
- ☐ Remove existing metal beam guard fence (MBGF), bridge rail
- ☒ Install proposed pavement per plans
- ☒ Install culverts, culvert extensions, SETs
- ☐ Install mow strip, MBGF, bridge rail
- ☐ Place flex base
- ☒ Rework slopes, grade ditches
- ☐ Blade windrowed material back across slopes
- ☒ Revegetation of unpaved areas
- ☒ Achieve site stabilization and remove sediment and erosion control measures
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- ☒ Sediment laden stormwater from stormwater conveyance over disturbed area
- ☒ Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- ☒ Solvents, paints, adhesives, etc. from various construction activities
- ☒ Transported soils from offsite vehicle tracking
- ☒ Construction debris and waste from various construction activities
- ☒ Contaminated water from excavation or dewatering pump-out water
- ☒ Sanitary waste from onsite restroom facilities
- ☒ Trash from various construction activities/receptacles
- ☒ Long-term stockpiles of material and waste
- ☒ Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities.
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.11 RECEIVING WATERS:

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

Tributaries	Classified Waterbody

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES:

- ☒ Development of plans and specifications
- ☐ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- ☐ Post Construction Site Notice
- ☐ Submit NOI/CSN to local MS4
- ☐ Perform SWP3 inspections
- ☐ Maintain SWP3 records and update to reflect daily operations
- ☐ Complete and submit Notice of Termination to TCEQ
- ☐ Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- ☒ Day To Day Operational Control
- ☐ Submit Notice of Intent (NOI) to TCEQ (≥5 acres)
- ☒ Post Construction Site Notice
- ☐ Submit NOI/CSN to local MS4
- ☒ Maintain schedule of major construction activities
- ☒ Install, maintain and modify BMPs
- ☒ Complete and submit Notice of Termination to TCEQ
- ☒ Maintain SWP3 records for 3 years
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

1.14 LOCAL MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) OPERATOR COORDINATION:

MS4 Entity

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	-		77
STATE	STATE DIST.	COUNTY	
TEXAS	-	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOT RD

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- ☒ ☐ Protection of Existing Vegetation
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Soil Retention Blankets
- ☐ ☐ Geotextiles
- ☐ ☐ Mulching/ Hydromulching
- ☐ ☐ Soil Surface Treatments
- ☐ ☐ Temporary Seeding
- ☐ ☒ Permanent Planting, Sodding or Seeding
- ☐ ☐ Biodegradable Erosion Control Logs
- ☒ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Vertical Tracking
- ☐ ☐ Interceptor Swale
- ☐ ☐ Riprap
- ☐ ☐ Diversion Dike
- ☐ ☐ Temporary Pipe Slope Drain
- ☐ ☐ Embankment for Erosion Control
- ☐ ☐ Paved Flumes
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- ☐ ☐ Biodegradable Erosion Control Logs
- ☐ ☐ Dewatering Controls
- ☐ ☐ Inlet Protection
- ☒ ☐ Rock Filter Dams/ Rock Check Dams
- ☐ ☐ Sandbag Berms
- ☒ ☐ Sediment Control Fence
- ☒ ☐ Stabilized Construction Exit
- ☐ ☐ Floating Turbidity Barrier
- ☐ ☐ Vegetated Buffer Zones
- ☐ ☐ Vegetated Filter Strips
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____
- ☐ ☐ Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

Sediment control BMPs requiring design capacity calculations (See SWP3 Attachment 1.3.):

T / P

- ☐ ☐ Sediment Trap
  - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
  - ☐ 3,600 cubic feet of storage per acre drained
- ☐ ☐ Sedimentation Basin
  - ☐ Not required (<10 acres disturbed)
  - ☐ Required (>10 acres) and implemented.
    - ☐ Calculated volume runoff from 2-year, 24-hour storm for each acre of disturbed area
    - ☐ 3,600 cubic feet of storage per acre drained
  - ☐ Required (>10 acres), but not feasible due to:
    - ☐ Available area/Site geometry
    - ☐ Site slope/Drainage patterns
    - ☐ Site soils/Geotechnical factors
    - ☐ Public safety
    - ☐ Other: _____

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- ☒ Excess dirt/mud on road removed daily
- ☒ Haul roads dampened for dust control
- ☒ Loaded haul trucks to be covered with tarpaulin
- ☒ Stabilized construction exit
- ☒ Daily street sweeping
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- ☒ Chemical Management
- ☒ Concrete and Materials Waste Management
- ☒ Debris and Trash Management
- ☒ Dust Control
- ☒ Sanitary Facilities
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

Type	Stationing	
	From	To

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- ☒ Fire hydrant flushings
- ☒ Irrigation drainage
- ☒ Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- ☒ Potable water sources
- ☒ Springs
- ☒ Uncontaminated groundwater
- ☒ Water used to wash vehicles or control dust
- ☒ Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

When dewatering activities are present, a daily inspection will be conducted once per day during those activities and documented in accordance with CGP and TxDOT requirements.

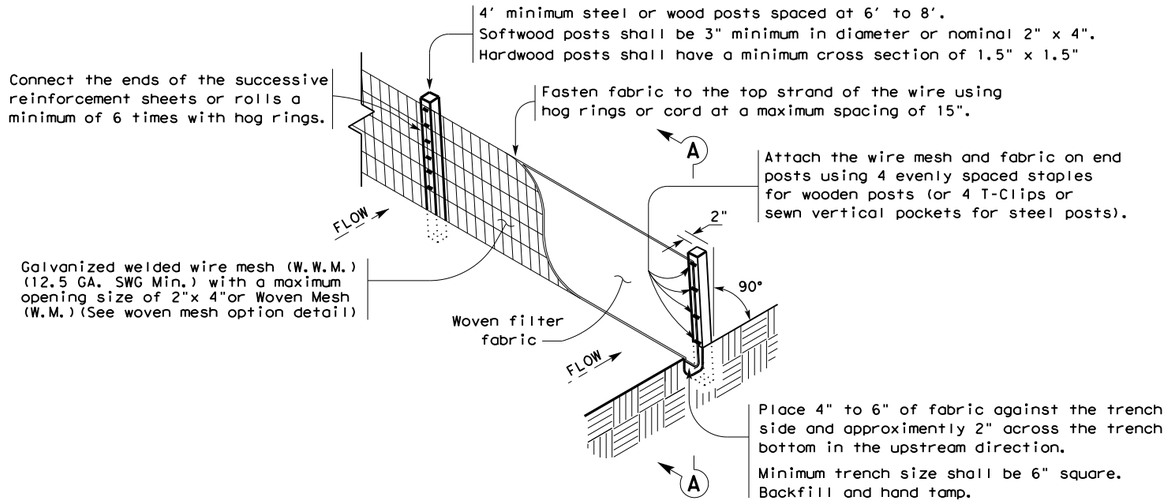
2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.5 of this SWP3.

STORMWATER POLLUTION PREVENTION PLAN (SWP3)

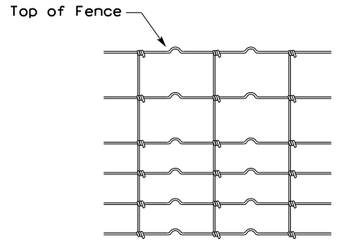
Texas Department of Transportation

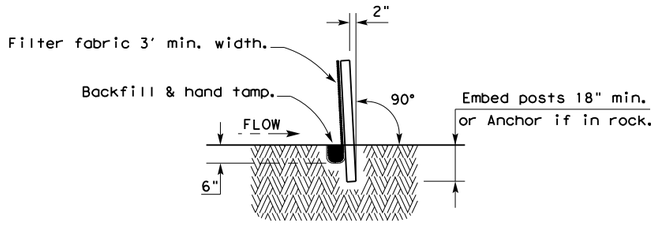
FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
	-		78
STATE	STATE DIST.	COUNTY	
TEXAS	-	BEXAR	
CONT.	SECT.	JOB	HIGHWAY NO.
-	-	-	ABBOT RD



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

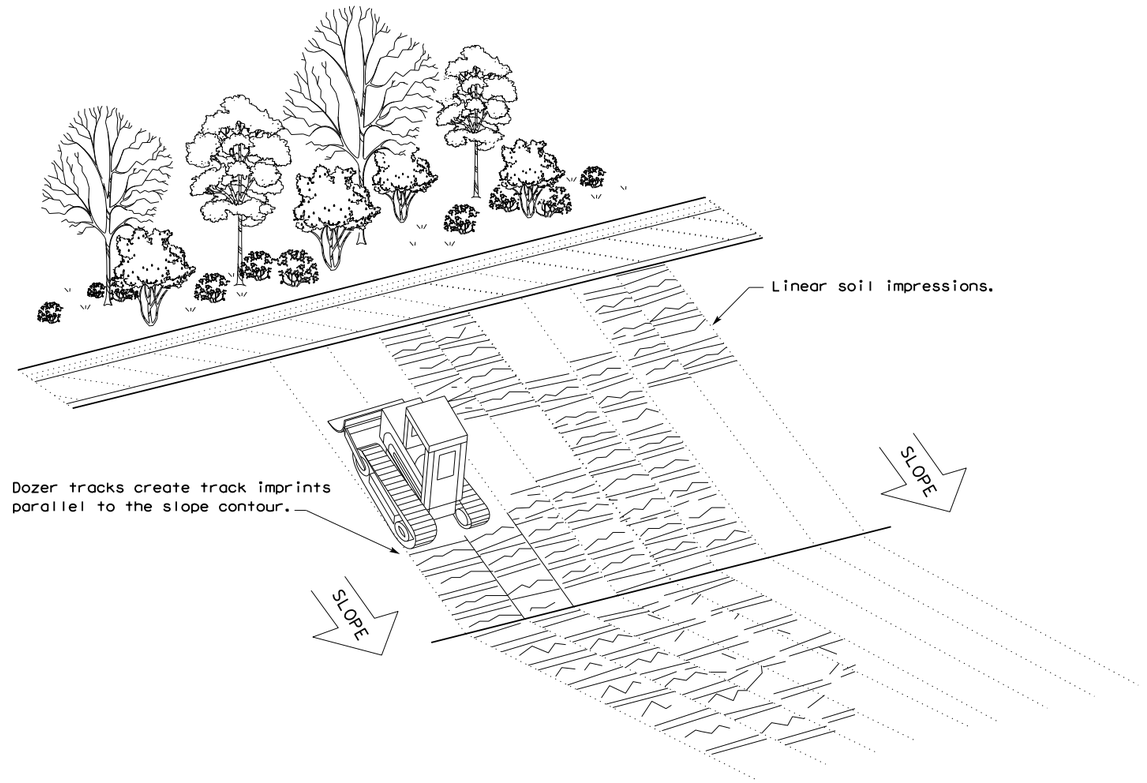
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	-	-	-	ABBOT RD
	DIST	COUNTY		SHEET NO.
	-	BEXAR		79

1057E026
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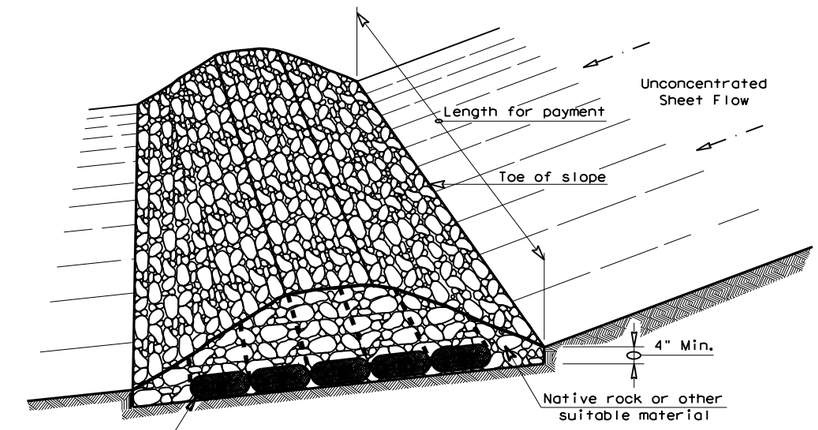
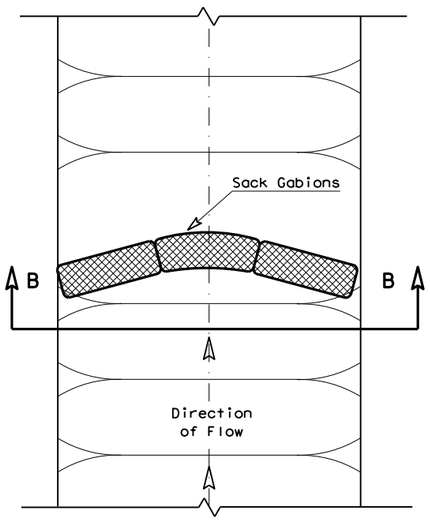
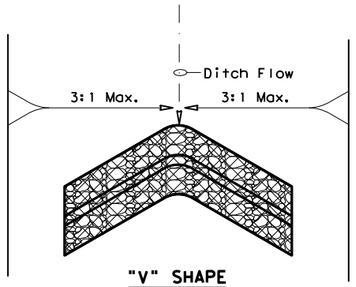


FILTER DAM AT TOE OF SLOPE

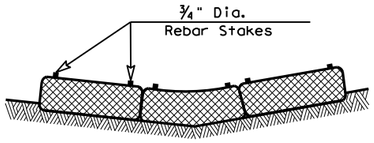
RFD1



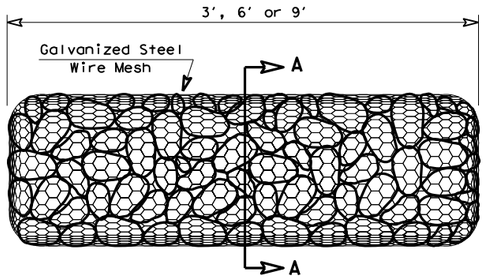
PLAN VIEW



"V" SHAPE PLAN VIEW

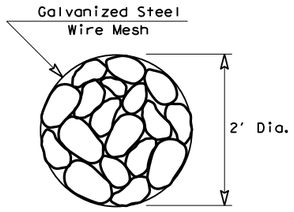


SECTION B-B

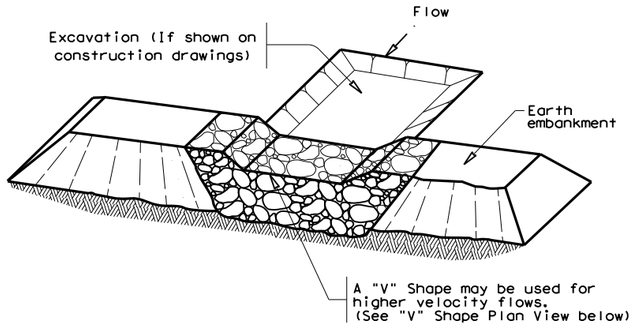


TYPE 4 (SACK GABIONS)

RFD4

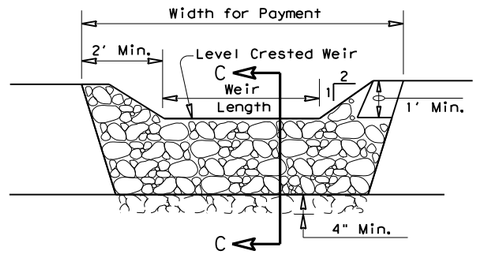


SECTION A-A

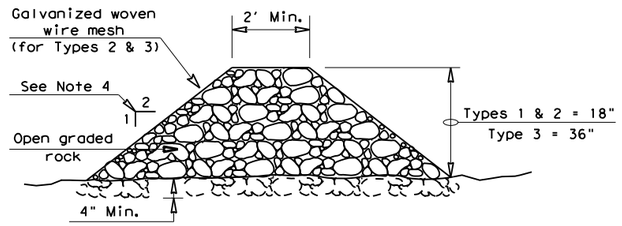


FILTER DAM AT SEDIMENT TRAP

RFD1 OR RFD2



PROFILE



SECTION C-C

ROCK FILTER DAM USAGE GUIDELINES

Rock Filter Dams should be constructed downstream from disturbed areas to intercept sediment from overland runoff and/or concentrated flow. The dams should be sized to filter a maximum flow through rate of 60 GPM/FT^2 of cross sectional area. A 2 year storm frequency may be used to calculate the flow rate.

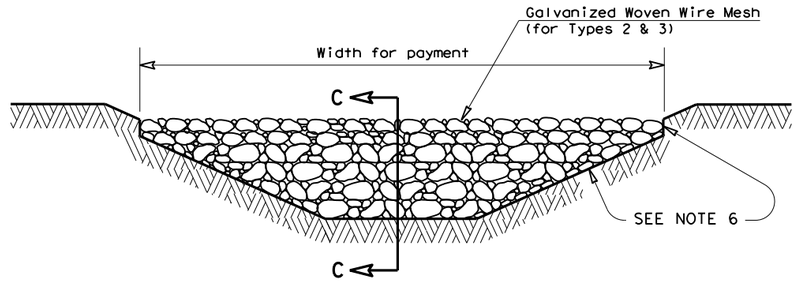
Type 1 (18" high with no wire mesh) (3" to 6" aggregate): Type 1 may be used at the toe of slopes, around inlets, in small ditches, and at dike or swale outlets. This type of dam is recommended to control erosion from a drainage area of 5 acres or less. Type 1 may not be used in concentrated high velocity flows (approximently 8 Ft/Sec or more) in which aggregate wash out may occur. Sandbags may be used at the embedded foundation (4" deep min.) for better filtering efficiency of low flows if called for on the plans or directed by the Engineer.

Type 2 (18" high with wire mesh) (3" to 6" aggregate): Type 2 may be used in ditches and at dike or swale outlets.

Type 3 (36" high with wire mesh) (4" to 8" aggregate): Type 3 may be used in stream flow and should be secured to the stream bed.

Type 4 (Sack gabions) (3" to 6" aggregate): Type 4 May be used in ditches and smaller channels to form an erosion control dam.

Type 5: Provide rock filter dams as shown on plans.



FILTER DAM AT CHANNEL SECTIONS

RFD1 OR RFD2 OR RFD3

GENERAL NOTES

1. If shown on the plans or directed by the Engineer, filter dams should be placed near the toe of slopes where erosion is anticipated, upstream and/or downstream at drainage structures, and in roadway ditches and channels to collect sediment.
2. Materials (aggregate, wire mesh, sandbags, etc.) shall be as indicated by the specification for "Rock Filter Dams for Erosion and Sedimentation Control".
3. The rock filter dam dimensions shall be as indicated on the SW3P plans.
4. Side slopes should be 2:1 or flatter. Dams within the safety zone shall have sideslopes of 6:1 or flatter.
5. Maintain a minimum of 1' between top of rock filter dam weir and top of embankment for filter dams at sediment traps.
6. Filter dams should be embedded a minimum of 4" into existing ground.
7. The sediment trap for ponding of sediment laden runoff shall be of the dimensions shown on the plans.
8. Rock filter dam types 2 & 3 shall be secured with 20 gauge galvanized woven wire mesh with 1" diameter hexagonal openings. The aggregate shall be placed on the mesh to the height & slopes specified. The mesh shall be folded at the upstream side over the aggregate and tightly secured to itself on the downstream side using wire ties or hog rings. For in stream use, the mesh should be secured or staked to the stream bed prior to aggregate placement.
9. Sack Gabions should be staked down with ¾" dia. rebar stakes, and have a double-twisted hexagonal weave with a nominal mesh opening of 2 ½" x 3 ¼"
10. Flow outlet should be onto a stabilized area (vegetation, rock, etc.).
11. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

PLAN SHEET LEGEND

Type 1 Rock Filter Dam	RFD1
Type 2 Rock Filter Dam	RFD2
Type 3 Rock Filter Dam	RFD3
Type 4 Rock Filter Dam	RFD4

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

ROCK FILTER DAMS

EC(2)-16

FILE: ec216	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	-	BEXAR		80

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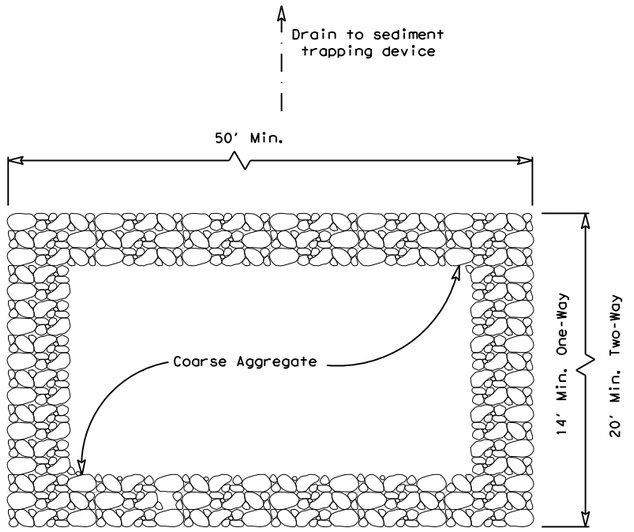

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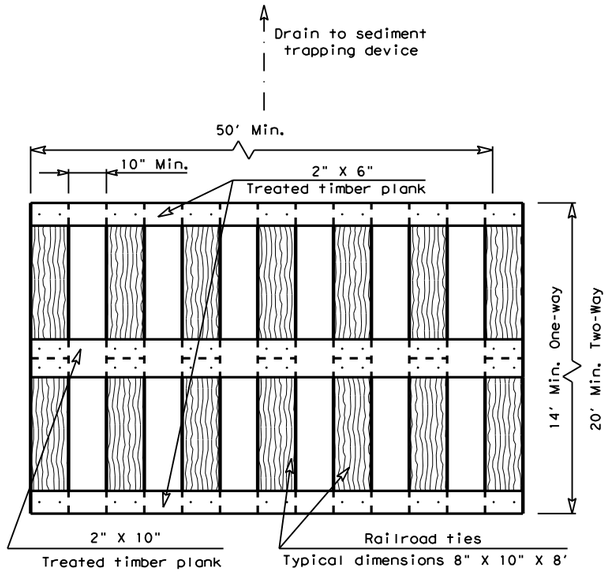

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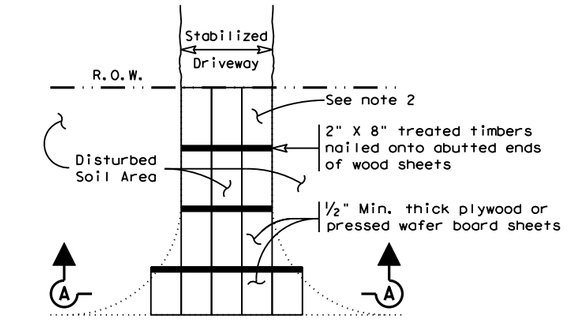

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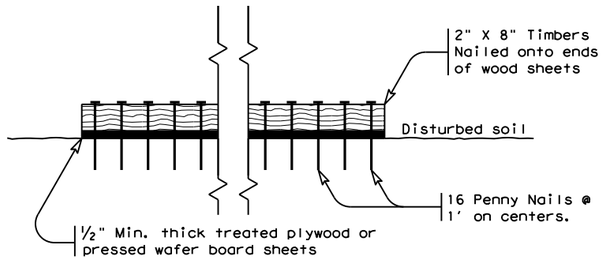
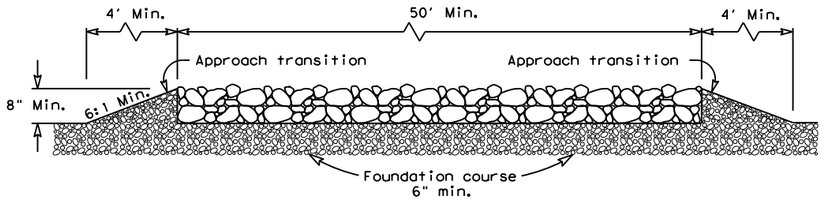


SECTION A-A

CONSTRUCTION EXIT (TYPE 3)

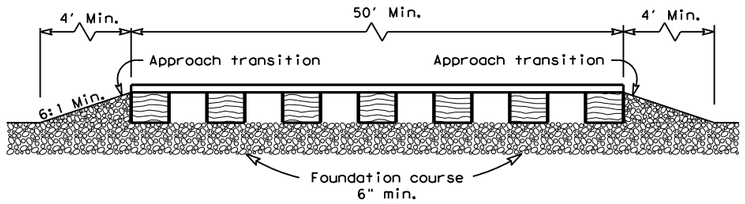
SHORT TERM



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 1)

ROCK CONSTRUCTION (LONG TERM)



ELEVATION VIEW

CONSTRUCTION EXIT (TYPE 2)

TIMBER CONSTRUCTION (LONG TERM)

GENERAL NOTES (TYPE 1)

1. The length of the type 1 construction exit shall be as indicated on the plans, but not less than 50'.
2. The coarse aggregate should be open graded with a size of 4" to 8".
3. The approach transitions should be no steeper than 6:1 and constructed as directed by the Engineer.
4. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other materialas approved by the Engineer.
5. The construction exit shall be graded to allow drainage to a sediment trapping device.
6. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
7. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 2)

1. The length of the type 2 construction exit shall be as indicated on the plans, but not less than 50'.
2. The treated timber planks shall be attached to the railroad ties with ½"x 6" min. lag bolts. Other fasteners may be used as approved by the Engineer.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The approach transitions shall be no steeper than 6:1 and constructed as directed by the Engineer.
5. The construction exit foundation course shall be flexible base, bituminous concrete, portland cement concrete or other material as approved by the Engineer.
6. The construction exit should be graded to allow drainage to a sediment trapping device.
7. The guidelines shown hereon are suggestions only and may be modified by the Engineer.
8. Construct exits with a width of at least 14 ft. for one-way and 20 ft. for two-way traffic for the full width of the exit, or as directed by the engineer.

GENERAL NOTES (TYPE 3)

1. The length of the type 3 construction exit shall be as shown on the plans, or as directed by the Engineer.
2. The type 3 construction exit may be constructed from open graded crushed stone with a size of two to four inches spread a min. of 4" thick to the limits shown on the plans.
3. The treated timber planks shall be #2 grade min., and should be free from large and loose knots.
4. The guidelines shown hereon are suggestions only and may be modified by the Engineer.

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

CONSTRUCTION EXITS

EC(3)-16

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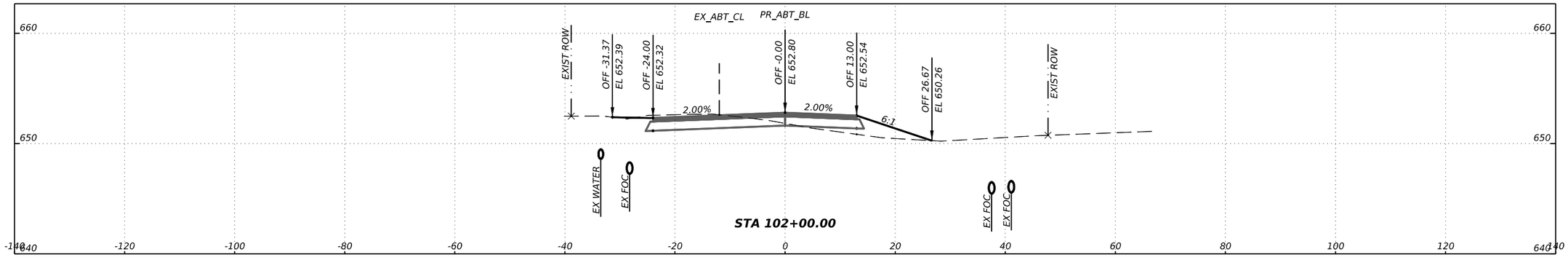
	DIST	COUNTY		SHEET NO.
	-	BEXAR		81



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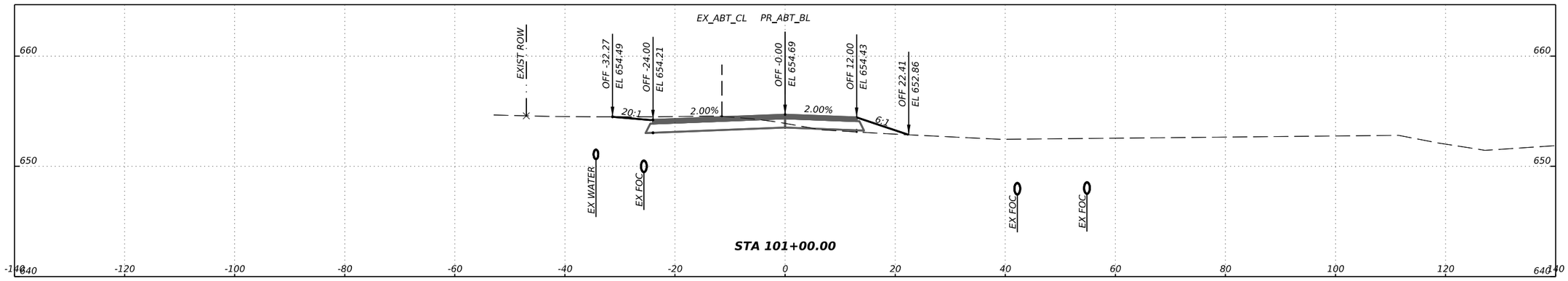

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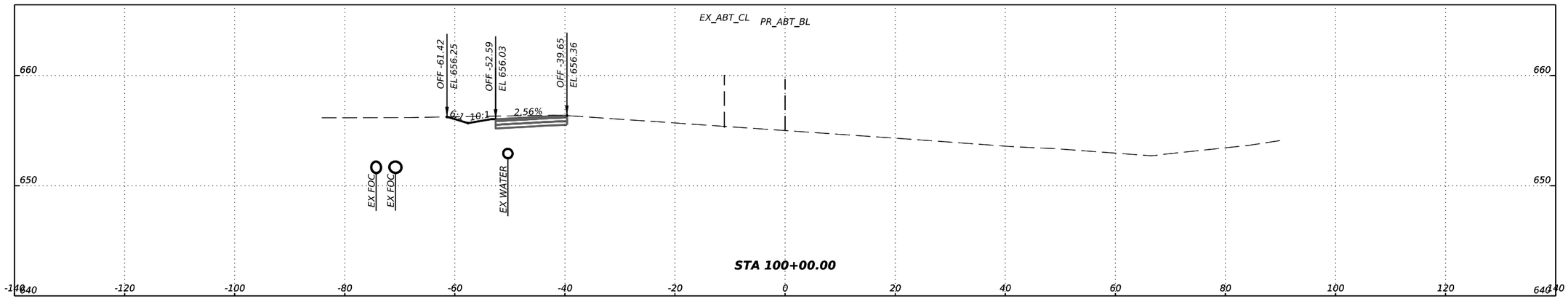

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VER. SCALE: 1"=10'

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

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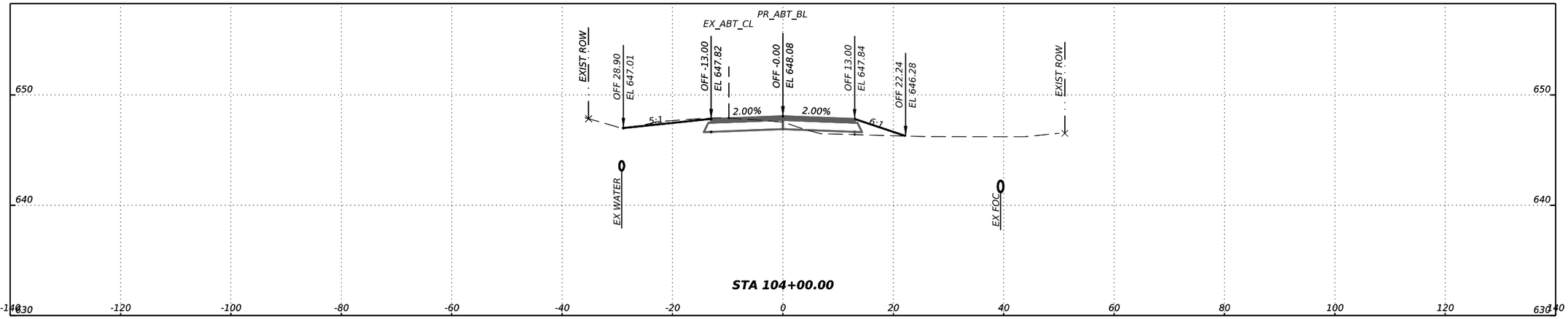

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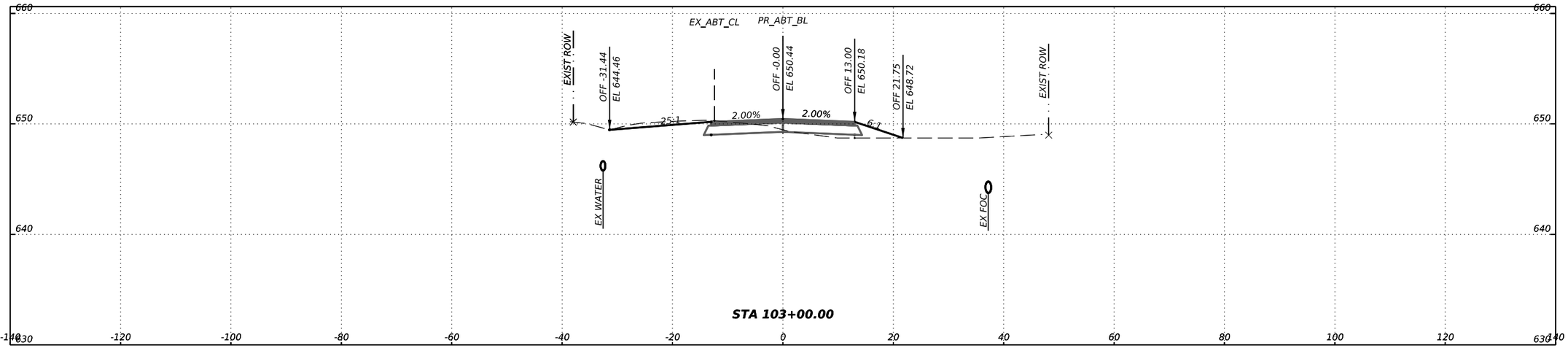

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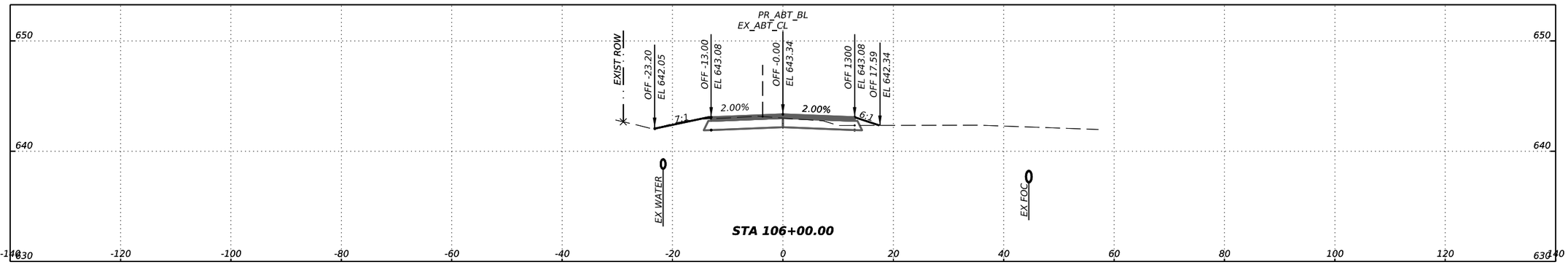

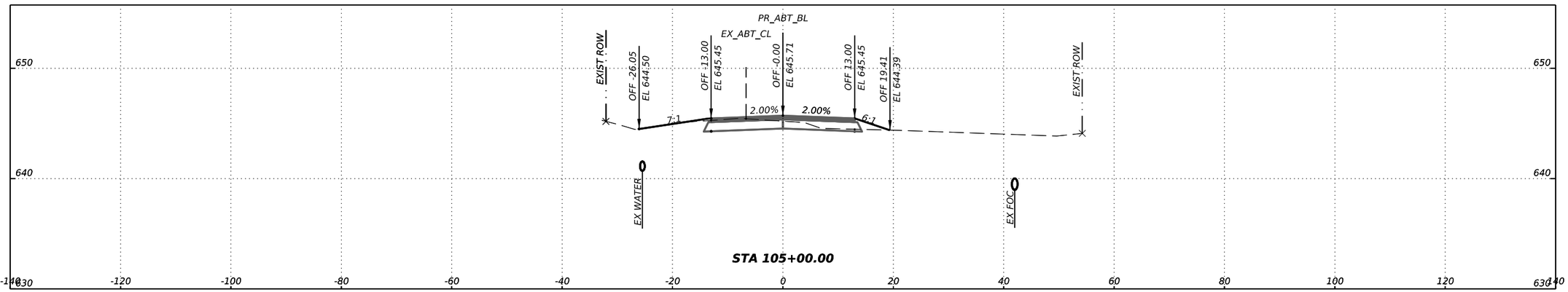

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VER. SCALE: 1"=10'

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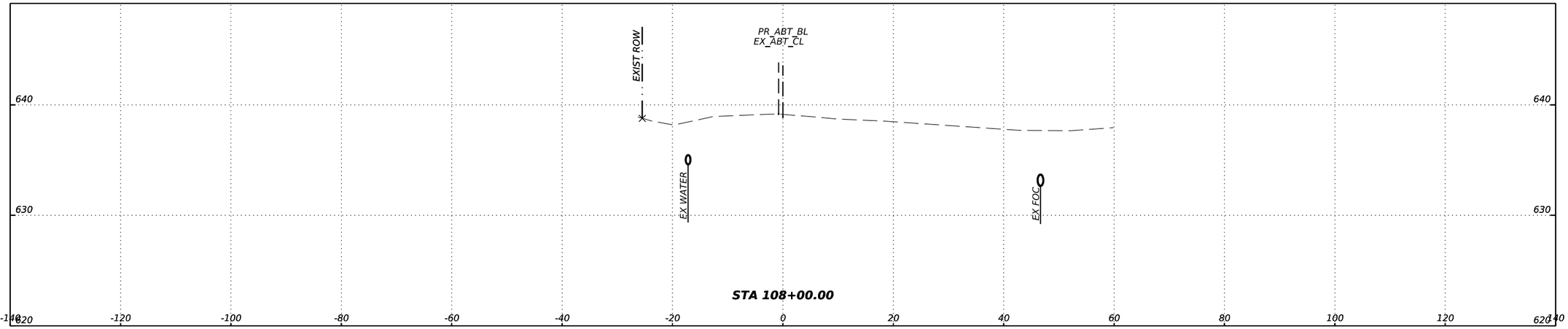

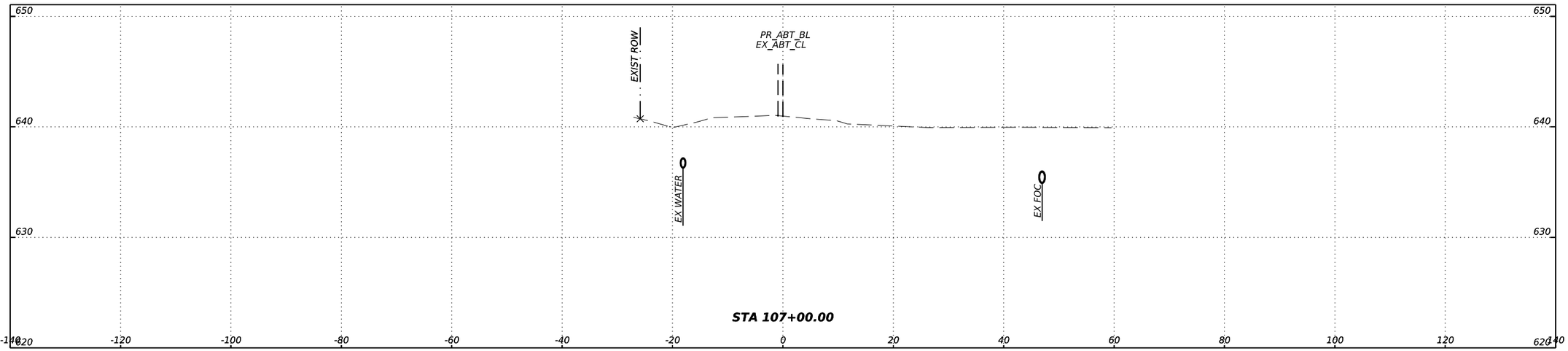

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VER. SCALE: 1"=10'

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

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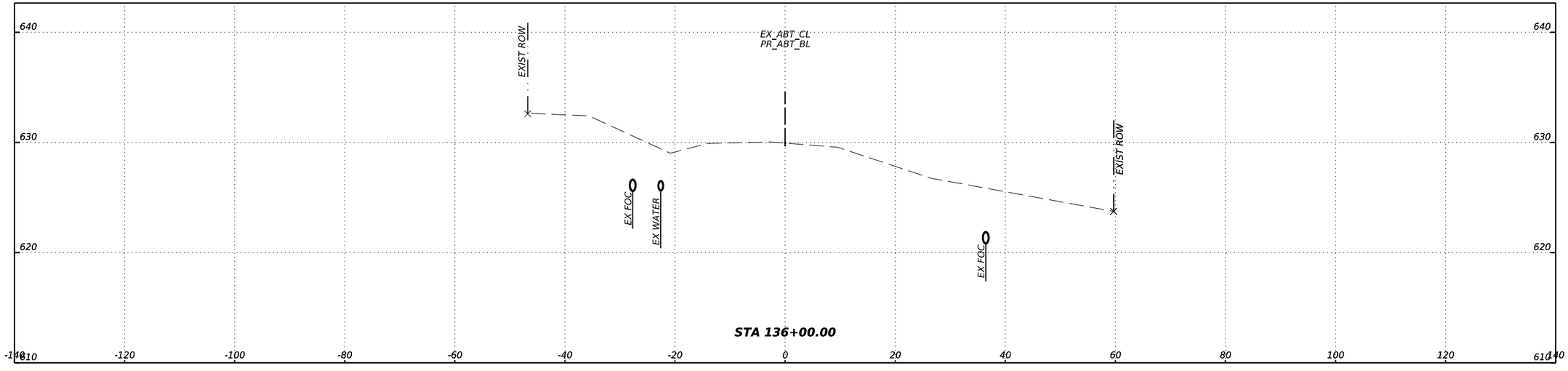

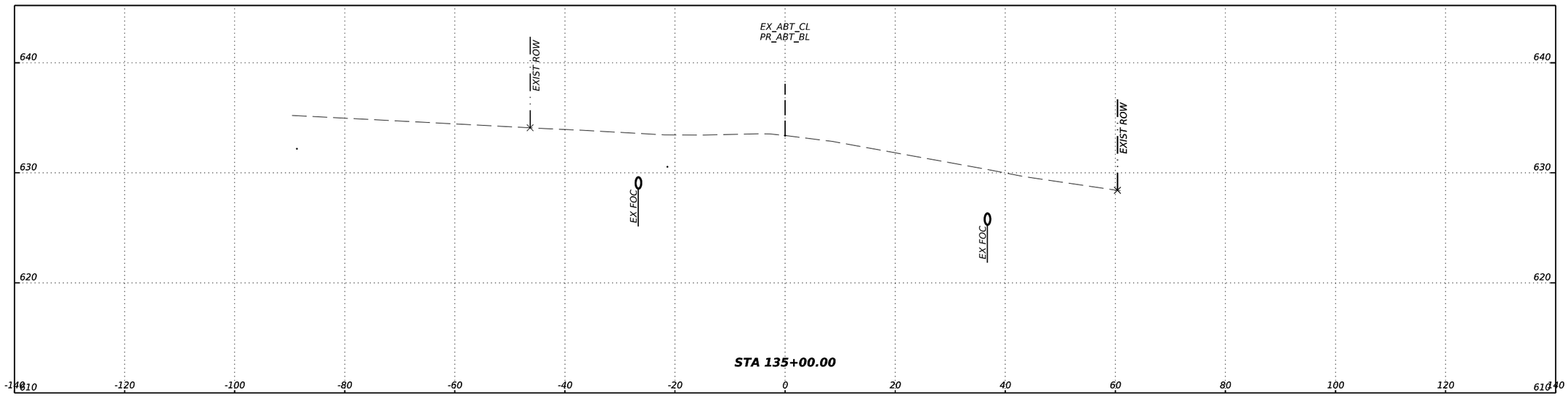

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VER. SCALE: 1"=10'

LEGACY ENGINEERING GROUP

Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

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XXX	XX	XXX	ABBOTT RD	XXX	BEXAR	86

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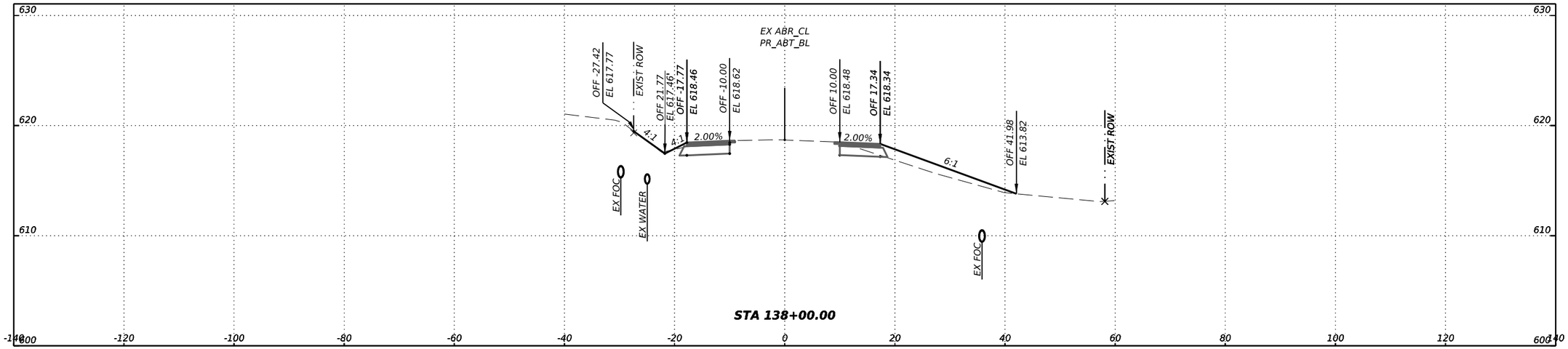
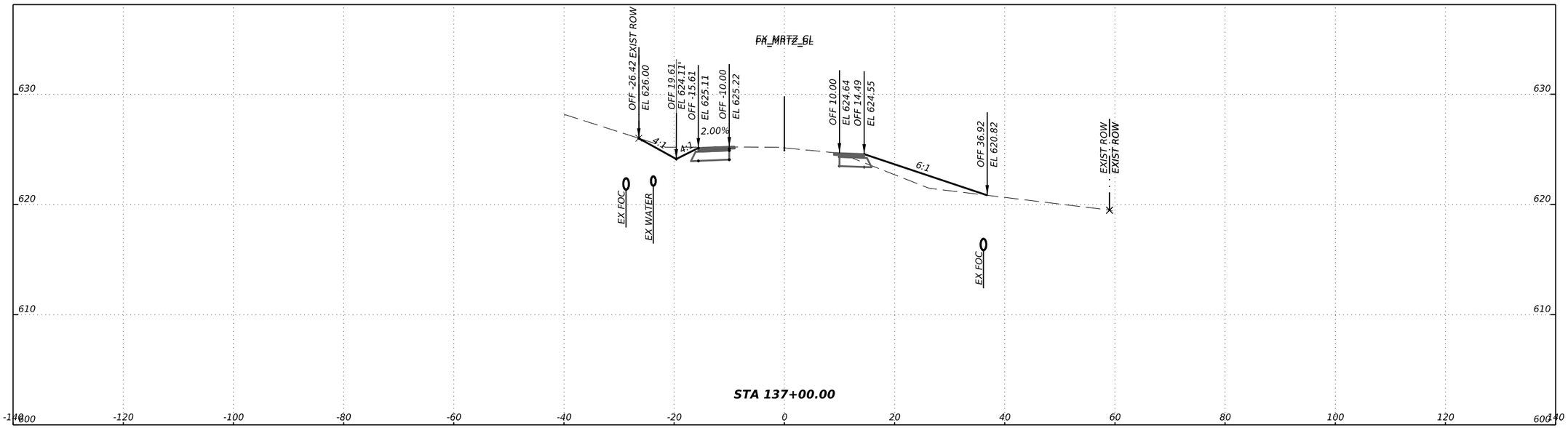
FILE: P:\DESIGN_PROJECTS\Martinez Creek Estates_FM 1346\4 - Design\Plan Set\03 Roadway\MRTCRK_RDW_XSEC.dgn





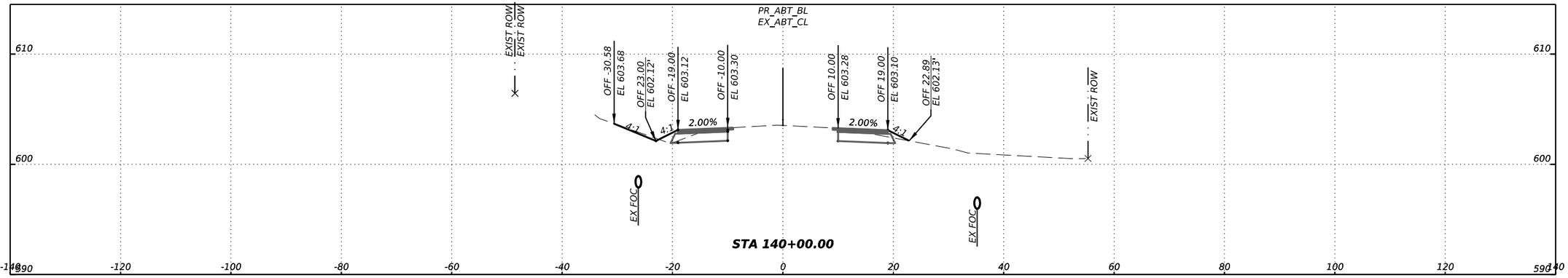
0' 10' 20'
HOR. SCALE: 1"=20'

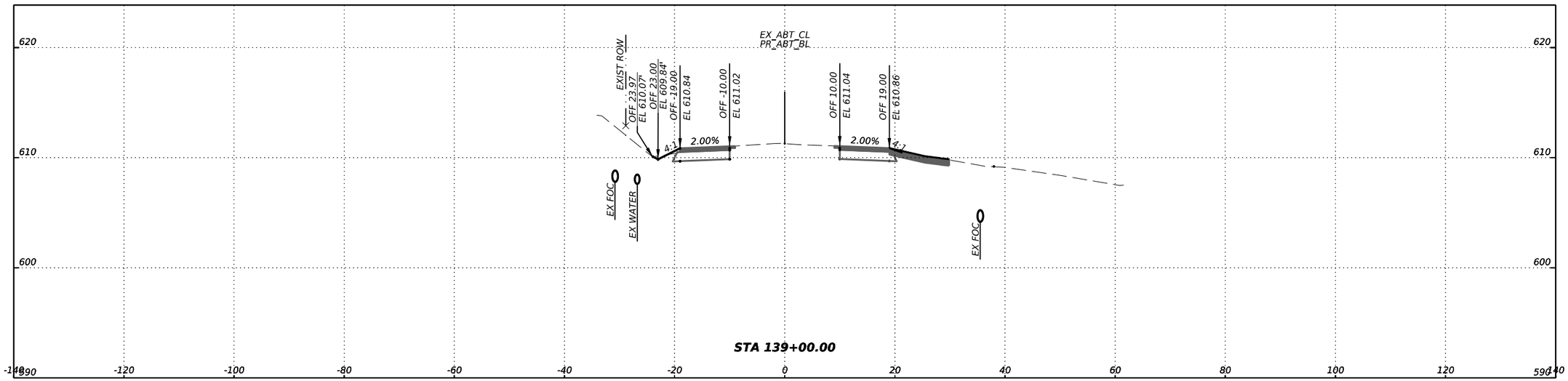
0' 5' 10'
VER. SCALE: 1"=10'

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

CONT	SECT	JOB	HIGHWAY	DIST	COUNTY	SHEET NO.
XXX	XX	XXX	ABBOTT RD	XXX	BEXAR	87

DATE: 1/5/2026 8:30:00 AM
FILE: P:\DESIGN PROJECTS\Martinez Creek Estates_FM 1346\4 - Design\Plan Set\03 Roadway\MRTCRK_RDW_XSEC.dgn





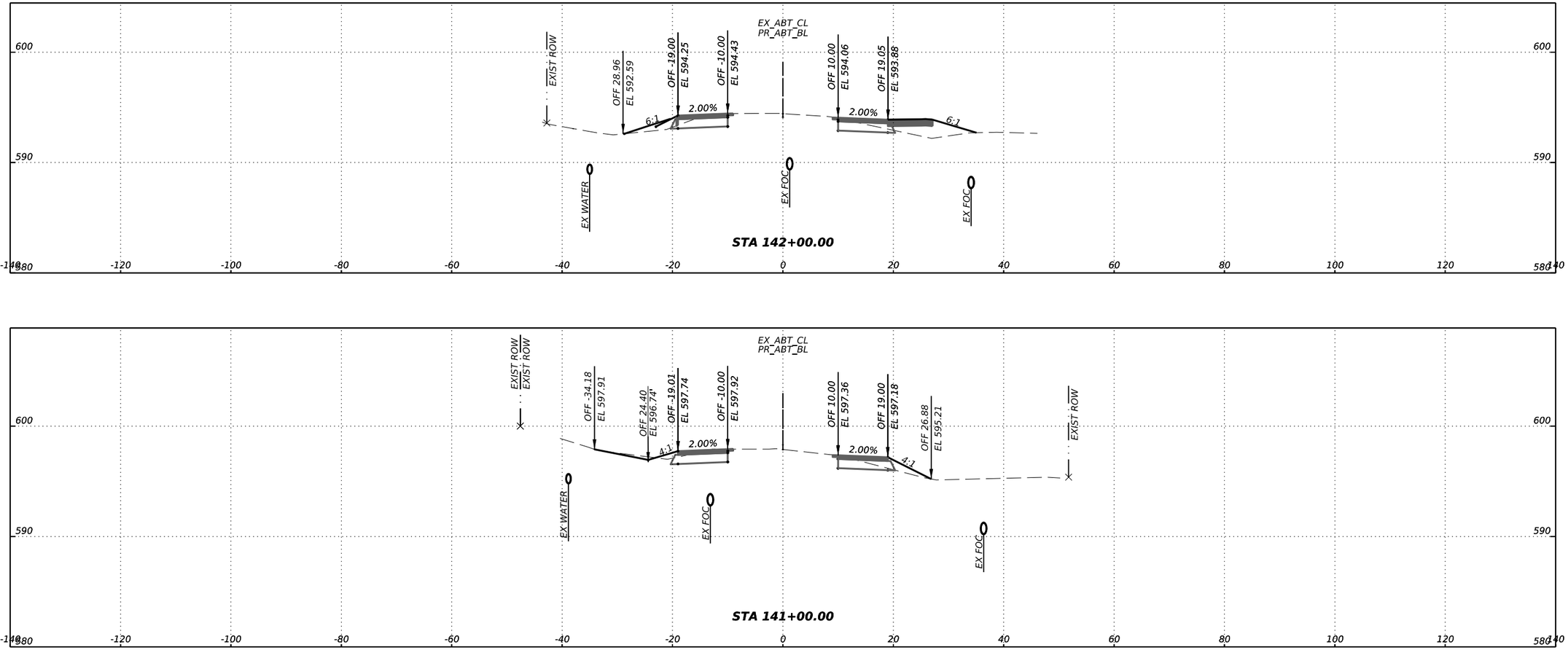
0' 10' 20'
HOR. SCALE: 1"=20'

0' 5' 10'
VER. SCALE: 1"=10'

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

CONT	SECT	JOB	HIGHWAY	DIST	COUNTY	SHEET NO.
XXX	XX	XXX	ABBOTT RD	XXX	BEXAR	88

DATE: 1/5/2026 8:30:01 AM
FILE: P:\DESIGN_PROJECTS\Martinez Creek Estates_FM 1346\4 - Design\Plan Set\03 Roadway\MRTCRK_ROW_XSEC.dgn



0' 10' 20'
HOR. SCALE: 1"=20'

0' 5' 10'
VER. SCALE: 1"=10'

LEGACY ENGINEERING GROUP

Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

CONT	SECT	JOB	HIGHWAY	DIST	COUNTY	SHEET NO.
XXX	XX	XXX	ABBOTT RD	XXX	BEXAR	89

DATE: 1/5/2026 8:30:03 AM
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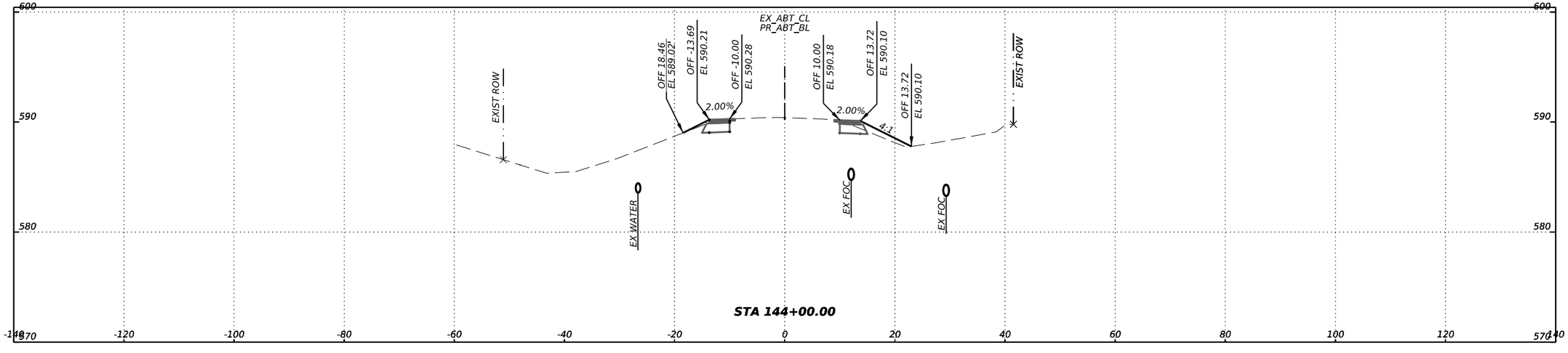

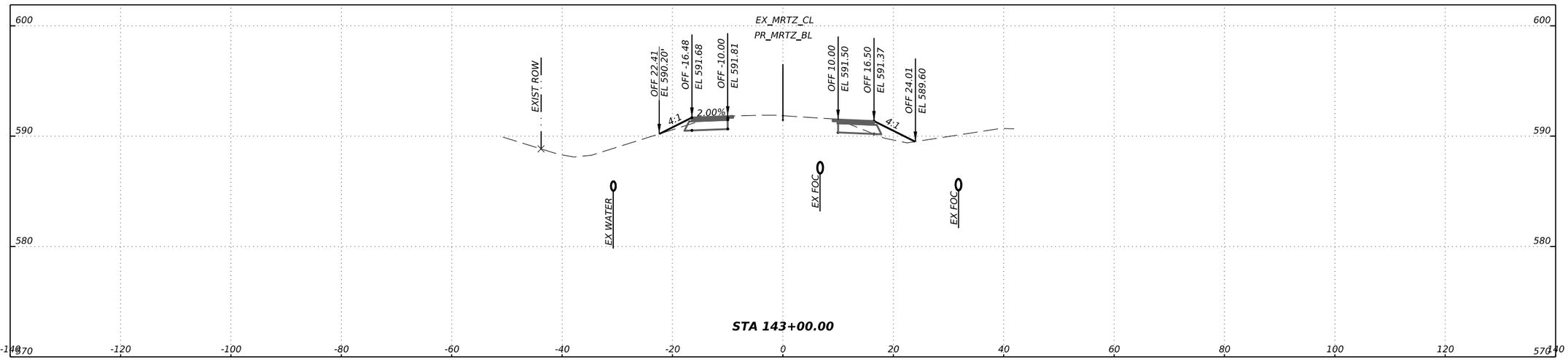

0' 10' 20'
HOR. SCALE: 1"=20'

0' 5' 10'
VER. SCALE: 1"=10'

LEGACY ENGINEERING GROUP
Legacy Engineering Group, PLLC
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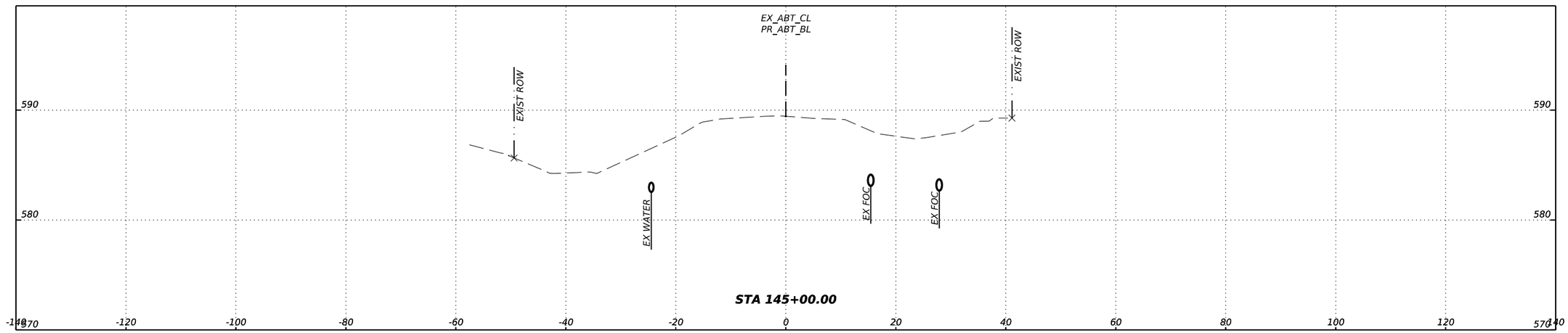
CONT	SECT	JOB	HIGHWAY	DIST	COUNTY	SHEET NO.
XXX	XX	XXX	ABBOTT RD	XXX	BEXAR	90

DATE: 1/5/2026 8:30:04 AM
FILE: P:\DESIGN_PROJECTS\Martinez Creek Estates_FM 1346\4 - Design\Plan Set\03 Roadway\MRTCRK_RDW_XSEC.dgn



0' 10' 20'
HOR. SCALE: 1"=20'

0' 5' 10'
VER. SCALE: 1"=10'

LEGACY ENGINEERING GROUP

Legacy Engineering Group, PLLC
7800 W Interstate 10, Ste. 830, San Antonio, Texas 78230, 210.660.1960
TBPE Firm Registration No. 20623

SHEET 10 OF 10

CONT	SECT	JOB	HIGHWAY	DIST	COUNTY	SHEET NO.
XXX	XX	XXX	ABBOTT RD	XXX	BEXAR	91

DATE: 1/5/2026 8:30:04 AM
FILE: P:\DESIGN_PROJECTS\Martinez Creek Estates_FM 1346\4 - Design\Plan Set\03 Roadway\MRTCRK_RDW_XSEC.dgn