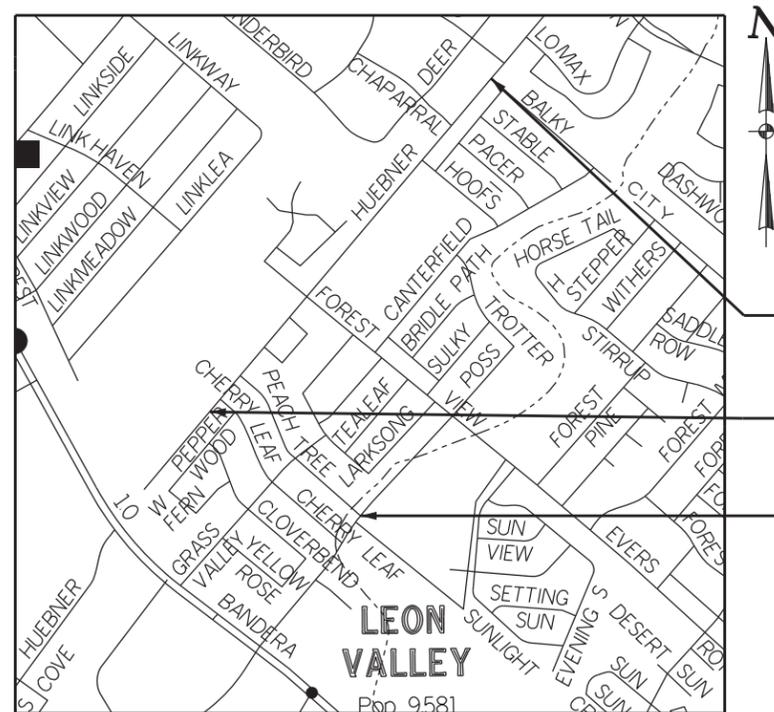


# LEON VALLEY PUBLIC WORKS DEPARTMENT



## PEDESTRIAN CROSSINGS HUEBNER RD AT BALKY ST HUEBNER RD AT LEON VALLEY ELEMENTARY SCHOOL PEACH TREE ST AT POSS RD

SHEET NO.	DESCRIPTION
<b>GENERAL</b>	
1	TITLE SHEET
2 - 3	GENERAL NOTES
<b>TRAFFIC SIGNAL LAYOUTS</b>	
4 - 5	PEDESTRIAN CROSSING RECTANGULAR RAPID FLASHING BEACON HUEBNER RD AT BALKY ST
6 - 7	PEDESTRIAN CROSSING RECTANGULAR RAPID FLASHING BEACON HUEBNER RD AT LEON VALLEY ELEMENTARY SCHOOL
8 - 9	PEDESTRIAN CROSSING RECTANGULAR RAPID FLASHING BEACON PEACH TREE ST AT POSS RD
<b>TRAFFIC SIGNAL STANDARDS</b>	
10	CCCG-12
10A	MB-14(2A)
11 - 14	PED-18 - SHEET (1) OF 4 THRU SHEET (4) OF 4 TYPICAL CROSSWALK DETAILS
15	SMD(GEN) - 08
16	SMD(SLIP - 1) - 08 THRU SMD(SLIP - 3) - 08
17 - 19	SMD(TWT) - 08
20	SMD(FRP) - 08
21	TS - FD - 12
22	
<b>TRAFFIC CONTROL PLAN</b>	
23 - 24	PHASE 1 - TCP LAYOUT AT HUEBNER RD AND BALKY ST
25 - 26	PHASE 2 - TCP LAYOUT AT HUEBNER RD AND BALKY ST
27 - 28	PHASE 1 - TCP LAYOUT LEON VALLEY ELEMENTARY SCHOOL AT HUEBNER RD
29 - 30	PHASE 2 - TCP LAYOUT LEON VALLEY ELEMENTARY SCHOOL AT HUEBNER RD
31 - 32	PHASE 1 - TCP LAYOUT PEACH TREE ST AT POSS RD
33 - 34	PHASE 2 - TCP LAYOUT PEACH TREE ST AT POSS RD
35	TCP(2-2)-18
36	TCP(2-4)-18



LOCATION MAP  
N.T.S.

PROJECT LOCATION  
HUEBNER RD AT BALKY ST

PROJECT LOCATION  
HUEBNER RD AT  
LEON VALLEY ELEMENTARY SCHOOL

PROJECT LOCATION  
PEACH TREE ST AT POSS RD



*Rene Arredondo* 12/5/19  
AC GROUP, LLC  
TBPE FIRM No. F-11727

PREPARED BY:



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**GENERAL NOTES:**

1. ALL CONSTRUCTION AND MATERIALS TO BE IN ACCORDANCE WITH THE TEXAS DEPARTMENT OF TRANSPORTATION (TXDOT) "STANDARD SPECIFICATION FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAY, STREETS AND BRIDGES JUNE 2014" AND CITY OF SAN ANTONIO "STANDARD SPECIFICATION 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 SPECIFICATION FOUND BY THE SHALL BE PROMPTLY REPORTED TO THE INSPECTOR BEFORE PROCEEDING WITH CONSTRUCTION.

4. BIDDERS ARE HEREBY NOTIFIED TO MAKE SUCH 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 HIS WORK ACTIVITIES TO THE STREET RIGHT-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., DESTROYED OR REMOVED BY THE CONTRACTOR OR HIS 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 TO MAINTAIN FENCING. DAMAGED FENCING SHALL BE REPLACED WITH EQUAL OR BETTER MATERIALS AND WORKMANSHIP. THE CONTRACTOR SHALL COORDINATE WITH THE LAND OWNER 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 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. ALL TREES WHICH ARE NOT DESIGNATED FOR REMOVAL AND ARE DAMAGED BY CONTRACTOR SHALL BE COMPENSATED FOR OR REPLACED BY THE CONTRACTOR TO THE SATISFACTION OF LEON VALLEY OR THE PROPERTY OWNER.

10. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL 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 PLANS TO IMPLEMENT THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS.

11. THE CONTRACTOR'S PLAN SHALL PROVIDE THE 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 TEXAS NATURAL RESOURCE CONSERVATION COMMISSION REGION 13 OFFICE WITH A REQUEST FOR APPROVAL OF CONSTRUCTION.

14. ALL WASTE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND IT SHALL 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 FROM THE APPROPRIATE ENTITY.

15. CONTRACTOR IS TO MAINTAIN UNRESTRICTED DRAINAGE OF THE PROJECT SITE AND ADJACENT AREA 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 CITY INSPECTOR.

17. THE EXISTING CONDITIONS WERE DETERMINED AT THE TIME OF PLAN PREPARATION NOVEMBER 2017 . THE LOCATIONS SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DAMAGES TO THE EXISTING UTILITIES DUE TO NEGLIGENCE OF THE CONTRACTOR OR DUE TO EXCAVATION OUTSIDE OF THE DEFINED CONSTRUCTION LIMITS OF THIS PROJECTS. 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. CALL 811 OR 1-800-545-6005 FOR UTILITY LOCATES. TELEPHONE NUMBERS OF UTILITY OWNERS ARE LISTED BELOW FOR THE CONTRACTOR'S CONVENIENCE.

COMPANY NAME	TELEPHONE NUMBER
C.P.S.	1-800-545-6005
S.A.W.S.	1-800-545-6005
S.W. BELL	1-800-545-6005
SPECTRUM	1-800-545-6005
LEON VALLEY WATER & SEWER	(210) 336-3858 ALBERT SAN MIGUEL (WATER & SEWER FOREMAN)
AT&T	1-800-252-1133
GREY FOREST UTILITIES	811

18. 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. CONTRACTORS AND OWNERS ARE LEGALLY RESPONSIBLE FOR SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY, TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CONTACT CPS AT 210-978-3500.

19. CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL PERMITS, TESTS, APPROVALS AND ACCEPTANCES REQUIRED COMPLETING CONSTRUCTION OF THIS PROJECT.

20. LOCATION OF ALL CONCRETE FOUNDATIONS SHALL BE APPROVED BY THE CITY INSPECTOR PRIOR TO INSTALLATION.

21. 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.

22. ALL STREETS AND/OR DRIVEWAYS MUST BE BORED, IF NECESSARY. NO OPEN CUT OF STREETS OR DRIVEWAYS WILL BE ALLOWED.

23. REMOVE EXISTING RAISED PAVEMENT MARKERS AND EXISTING PAVEMENT MARKINGS AS THE WORK PROGRESSES OR AS APPROVED. THIS WORK IS SUBSIDIARY TO THE VARIOUS BID ITEMS.

24. 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.

25. 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 SPECIFICATION AS WELL AS PROVISIONS APPLICABLE TO THE PROJECT AND AS OTHER SAFETY CODES AND INSPECTION REQUIREMENTS OF THE FIRE DEPARTMENT.

26. MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW, UN-DEPRECIATED STOCK. ALL EQUIPMENT SHALL BE NEW, UNLESS NOTED OTHERWISE ON THE PLANS.

27. 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.

**TXDOT 2014 SPECIFICATION ITEMS:**

– ITEM 5 'CONTROL OF THE WORK' – REFERENCE ALL EXISTING STRIPING AND OTHER PAVEMENT MARKINGS TO ALLOW THESE MARKINGS TO BE RE-ESTABLISHED. ENSURE THE MARKINGS (LANE LINES, EDGE LINES, RAMP GORES, ETC.) ARE IN LINE WITH THE SIGN, TMS ARROWS, ETC. LOCATED ON OVERHEAD SIGN SUPPORTS. WHEN WORKING NEAR AERIAL ELECTRIC LINES OR UTILITY POLES, COMPLY WITH FEDERAL, STATE AND LOCAL REGULATIONS. FOR ELECTRICAL LINES AND POLES SHOWN IN THE PLANS, IF THE LINES NEED TO BE DE-ENERGIZED OR IF POLES NEED TO BE BRACED, CONTACT THE ELECTRICAL COMPANY. WORK PERTAINING TO BE-ENERGIZING LINES, BRACING POLES, SHIELDING LINE AND OTHER PROTECTIVE MEASURES WILL NOT BE PAID FOR BY THE CITY OF LEON VALLEY.

– ITEM 7 "LEGAL RELATIONS AND RESPONSIBILITIES"– THE TOTAL DISTURBED AREAS WITHIN THE PROJECT IS ANTICIPATED AT LESS THAN ONE (1) ACRE, THEREFORE IT IS CLASSIFIED AS "SURFACE WORK" CONSISTING OF RE-SURFACING AN EXISTING ROADWAY WITHOUT SHOULDER-UP DISTURBANCES. DUE TO THIS TYPE OF CONSTRUCTION, THE PROJECT QUALIFIES FOR EXCLUSION UNDER THE CONSTRUCTION GENERAL PERMIT (CGP) ISSUED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) ON MARCH 5, 2003. HOWEVER, SHOULD THE SUM OF THE ENGINEER'S ANTICIPATED DISTURBANCES AND THE CONTRACTOR'S (ON OR OFF RIGHT-OF-WAY) PSL'S EQUAL OR EXCEED THE ONE (1) ACRE THRESHOLD; BOTH CITY OF LEON VALLEY AND THE CONTRACTOR HAVE PROJECT RESPONSIBILITIES UNDER THE CGP THAT REVERTS TO NON-EXCLUSION STATUS. OBTAIN APPROVAL FOR ALL NON-DEPICTED AREAS OF DISTURBANCE THAT INCREASES THE INITIAL SOIL AND VEGETATION DISTURBED AREA ESTIMATES BEFORE WORK STARTS AT THESE LOCATIONS. NOTIFY THE ENGINEER OF THE DISTURBED ACREAGE WITHIN ONE (1) MILE OF THE PROJECT LIMITS. OBTAIN AUTHORIZATION FROM THE TCEQ FOR CONTRACTOR PSL'S FOR CONSTRUCTION SUPPORT ACTIVITIES ON OR OFF RIGHT-OF-WAY.



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HUEBNER RD AT BALKY ST

**GENERAL NOTES**

SHEET 1 OF 2

FED. RD. DIST. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			2
STATE	STATE DIST. NO.	COUNTY	SCALE
CONT	SECT	JOB	HIGHWAY NO.

**GENERAL NOTES:**

– ITEM 8 "PROSECUTION AND PROGRESS" --

WORKING DAYS WILL BE COMPUTED AND CHARGED IN ACCORDANCE WITH ARTICLE 8.3.A OF THE SPECIFICATIONS. SIX-DAY WORK WEEK. THE NUMBER OF WORKING DAYS WAS CALCULATED USING A CONCEPTUAL TIME DETERMINATION SCHEDULE THAT ASSUMES GENERIC RESOURCES, PRODUCTION RATES, SEQUENCES OF CONSTRUCTION AND AVERAGE WEATHER CONDITION BASED ON HISTORIC DATA. THE CONTRACTOR WILL PRODUCE THEIR TIME DETERMINATION SCHEDULE AND WILL SUBMIT IT TO THE CITY OF LEON VALLEY FOR APPROVAL.

LOCATE AND REFERENCE WITH STATION AND OFFSET ALL MANHOLES AND VALVES WITHIN THE CONSTRUCTION AREA. EACH MANHOLE AND VALVE SHALL BE IDENTIFIED BY ITS OWNER (SAWS, CPS, ETC., ). NO ROADWORK WILL BEGIN UNTIL THIS LIST HAS BEEN SUBMITTED. GAS VALVES HAVE TO BE ACCESSIBLE AT ALL TIMES, THEREFORE; EQUIPMENT, MATERIALS STOCK PILES, ETC. CAN NOT BE PLACED OVER THESE VALVES.

– ITEM 100 "PREPARING RIGHT OF WAY" –  
BEGIN CLEARING OPERATIONS AFTER TREES AND OTHER AREAS OF VEGETATION TO BE PROTECTED HAVE BEEN IDENTIFIED AND APPROVED. INSTALL FENCING AROUND FEATURES TO BE PROTECTED AS SHOWN IN THE PLANS OR AS DIRECTED. COORDINATE ALL RIGHT OF WAY CLEARING OPERATIONS WITH SW3P.

– ITEM 104 "REMOVING CONCRETE" --  
REMOVE EXISTING HYDRAULIC CEMENT CONCRETE FROM LOCATIONS SHOWN ON THE PLANS. AVOID DAMAGING CONCRETE THAT WILL REMAIN IN PLACE. SAW-CUT AND REMOVE THE EXISTING CONCRETE TO NEAT LINES. REPLACE ANY CONCRETE DAMAGED BY THE CONTRACTOR AT NO EXPENSE TO THE DEPARTMENT. ACCEPT OWNERSHIP AND PROPERLY DISPOSE OF BROKEN CONCRETE IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS UNLESS OTHERWISE SHOWN ON THE PLANS.

– ITEM 162 "SODDING FOR EROSION CONTROL" –  
FURNISH AND PLACE BLOCK GRASS SOD.

– ITEM 168 "VEGETATIVE WATERING" –  
APPLY VEGETATIVE WATERING AS NEEDED TO SUPPLEMENT NATURAL RAINFALL DURING THE VEGETATION ESTABLISHMENT PERIOD. PLAN QUANTITY OF IRRIGATION WATER IS BASED ON THE APPLICATION OF 1.3 GAL OF WATER EACH WEEK FOR EACH SY OF AREA THAT IS SODDED OR SEEDED. ESTABLISHMENT TIME IS ESTIMATED TO BE 12 WEEKS FOR BOTH SOD AND PERMANENT SEED MIXES. TEMPORARY SEEDING WILL REQUIRE LESS TIME FOR ESTABLISHMENT. PROVIDE A SCHEDULE AND COORDINATE WATERING CYCLES AND RATES PER CYCLE WITH THE ENGINEER. OBTAIN APPROVAL IF THE QUANTITY OF WATER TO BE APPLIED IS EXPECTED TO EXCEED THE PLAN QUANTITY. ADJUST THE AMOUNT OF WATER APPLIED WITH EACH CYCLE AND THE NUMBER OF CYCLES EACH WEEK ACCORDING TO ACTUAL SITE CONDITIONS. DROUGHT OR OTHER CONDITIONS, AS DETERMINED BY THE ENGINEER, MAY REQUIRE THE APPLICATION OF SUPPLEMENTAL IRRIGATION DURING HOURS OTHER THAN NORMAL WORKING HOURS.

– ITEM 500 "MOBILIZATION" –  
"MATERIALS ON HAND" PAYMENT WILL NOT BE CONSIDERED IN DETERMINING PERCENTAGES FOR MOBILIZATION PAYMENTS.

– ITEM 531 "SIDEWALKS" –  
THE CURB RAMP TRUNCATED DOMES WILL BE TERRA COTTA, DETACHABLE WARNING PAVERS OR OTHERWISE APPROVED BY THE ENGINEER. THE CURB RAMP LOCATIONS SHOWN IN THE PLANS HAVE TAKEN INTO ACCOUNT THE GEOMETRIC FEATURES OF THE INTERSECTION, TRAFFIC SIGNALS, AND THE PAVEMENT MARKINGS, IF ANYTHING CHANGES DURING CONSTRUCTION, THE LOCATION OF CURB RAMPS MUST BE ADJUSTED TO ENSURE THEY MEET TAS REQUIREMENTS.

– ITEM 666 "RETROREFLECTORIZED PAVEMENT MARKINGS" –  
USE TY II MATERIALS (VS. AN ACRYLIC OR EPOXY) AS THE SEALER FOR THE TY I MARKINGS, PLACE THE TY II A MINIMUM OF 14 CALENDAR DAYS (TO PROVIDE ADEQUATE CURING) BEFORE PLACING THE TY I MARKINGS.

– ITEM 677 "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS" --  
OBTAIN APPROVAL BEFORE USING THE MECHANICAL METHOD FOR THE ELIMINATION OF EXISTING THERMOPLASTIC PAVEMENT MARKINGS.



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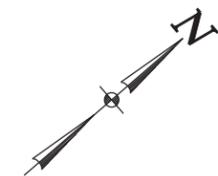
HUEBNER RD AT BALKY ST

**GENERAL NOTES**

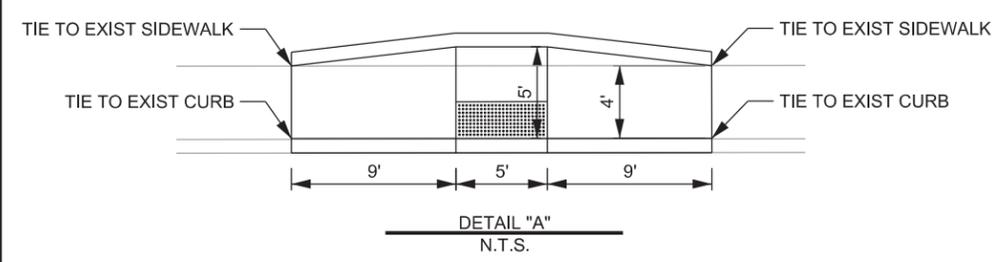
SHEET 2 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			3
STATE	STATE DIST. NO.	COUNTY	SCALE
CONT	SECT	JOB	HIGHWAY NO.

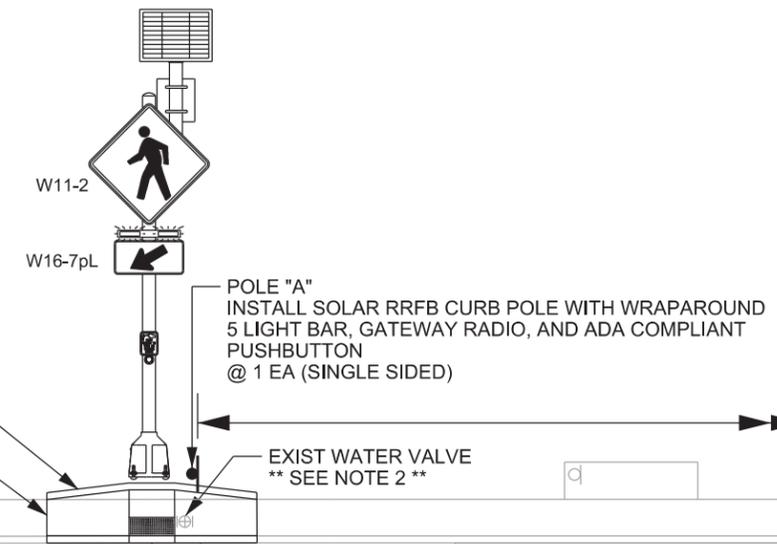
SDATES  
SFILELS



HORIZ. SCALE: 1"=20'  
 0 10 20  
 SCALE IN FEET



REMOVE CURB, REMOVE SIDEWALK AND INSTALL PEDESTRIAN RAMP  
 TYPICAL SIDEWALK RAMP TYPE II SEE DETAIL "A"

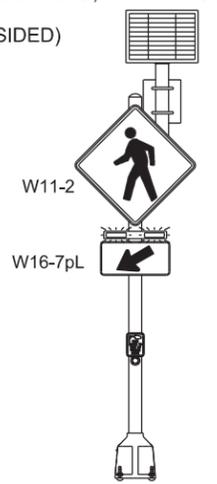
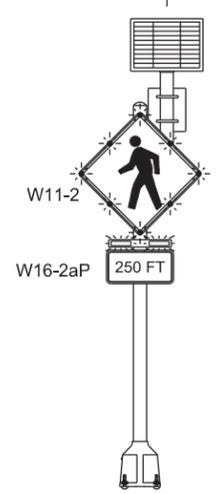


LEGEND	
	PROPOSED SIGN
	TRAFFIC FLOW ARROW
	EXIST WATER VALVE



POLE "C"  
 INSTALL SOLAR RRFB ADVANCED WARNING  
 2 LIGHT BAR, NODE RADIO, AND NO PUSHBUTTON  
 @ 1 EA

POLE B  
 INSTALL SOLAR RRFB CURB POLE WITH WRAPAROUND  
 5 LIGHT BAR, NODE RADIO, AND ADA COMPLIANT  
 PUSHBUTTON  
 @ 1 EA (SINGLE SIDED)



- NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
  2. THE EXISTING WATER VALVE WILL NEED TO BE ADJUSTED TO REST FLUSH WITH THE PROPOSED TYPICAL SIDEWALK RAMP TY II. THERE WILL BE NO SEPERATE PAY ITEM FOR THE UTILITY ADJUSTEMENTS, COST SHALL BE SUBSIDIARY TO ITEM 100 PREPARING RIGHT OF WAY.
  3. THE W11-2, W16-7pL, AND W16-2aP SIGNS SHALL BE FLOURESCENT YELLOW-GREEN (FYG).
  4. CONTRACTOR SHALL ORIENT THE PUSHBUTTONS AND ASSOCIATED SIGNS TO FACE THE CROSSWALK.
  5. CONTRACTOR SHALL NOTIFY THE CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT AT (210) 681- 1232 PRIOR TO INSTALLATION AND FOR INSPECTION OF THE BLINKERSIGN SYSTEM.
  6. POLE A , POLE B, POLE C, AND POLE D SHALL BE MOUNTED IN ACCORDANCE WITH TxDOT STANDARD TRAFFIC SIGNAL POLE FOUNDATION (TS-FD-12).
  7. ADVANCE WARNING SIGNS (W11-2) SHALL BE MOUNTED IN ACCORDANCE WITH TxDOT STANDARDS SMD (GEN) - 08 AND SMD (TWT) - 08, OR AS INDICATED IN MANUFACTURERS DETAILS/INSTRUCTIONS.
  8. CONTRACTOR TO COORDINATE WITH CITY OF LEON VALLEY PUBLIC WORKS TO OBTAIN ROW PERMIT PRIOR TO BEGINNING CONSTRUCTION.



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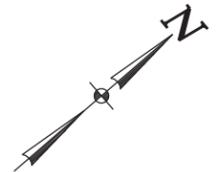
HUEBNER RD AT BALKY ST

**PEDESTRIAN CROSSING  
 RECTANGULAR RAPID  
 FLASHING BEACON**

SHEET 1 OF 2

FED. RD. DEV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
		4
STATE	STATE DIST. NO.	COUNTY
		SCALE
CONT	SECT	JOB
		HIGHWAY NO.

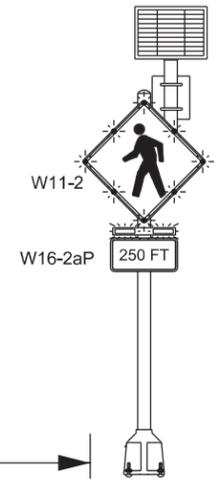
12/9/2019 L:\2019030400 HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\Traffic\04\_BALKY SIG\_03\_RRFB.dgn



HORIZ. SCALE: 1"=20'  
0 10 20  
SCALE IN FEET

LEGEND	
	PROPOSED SIGN
	TRAFFIC FLOW ARROW

REDBIRD LN



POLE "D"  
INSTALL SOLAR RRFB ADVANCED WARNING  
2 LIGHT BAR, NODE RADIO, AND NO PUSHBUTTON  
@ 1 EA

HUEBNER RD

250 FT

MATCHLINE "A"

NOTES:

1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. THE W11-2, W16-7pL, AND W16-2aP SIGNS SHALL BE FLOURESCENT YELLOW-GREEN (FYG).
3. CONTRACTOR SHALL ORIENT THE PUSHBUTTONS AND ASSOCIATED SIGNS TO FACE THE CROSSWALK.
4. CONTRACTOR SHALL NOTIFY THE CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT AT (210) 681- 1232 PRIOR TO INSTALLATION AND FOR INSPECTION OF THE BLINKERSIGN SYSTEM.
5. POLE A , POLE B, POLE C, AND POLE D SHALL BE MOUNTED IN ACCORDANCE WITH TxDOT STANDARD TRAFFIC SIGNAL POLE FOUNDATION (TS-FD-12).
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HUEBNER RD AT BALKY ST

PEDESTRIAN CROSSING  
 RECTANGULAR RAPID  
 FLASHING BEACON

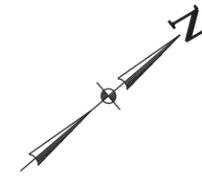
SHEET 2 OF 2

FED. RD. DIST. NO.	FEDERAL AID PROJECT NO.		SHEET NO.
			5
STATE	STATE DIST. NO.	COUNTY	SCALE
CONT	SECT	JOB	HIGHWAY NO.

12/9/2019 L:\2019030400 HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\Traffic\05 BALKY SIG 04 RRFB.dgn



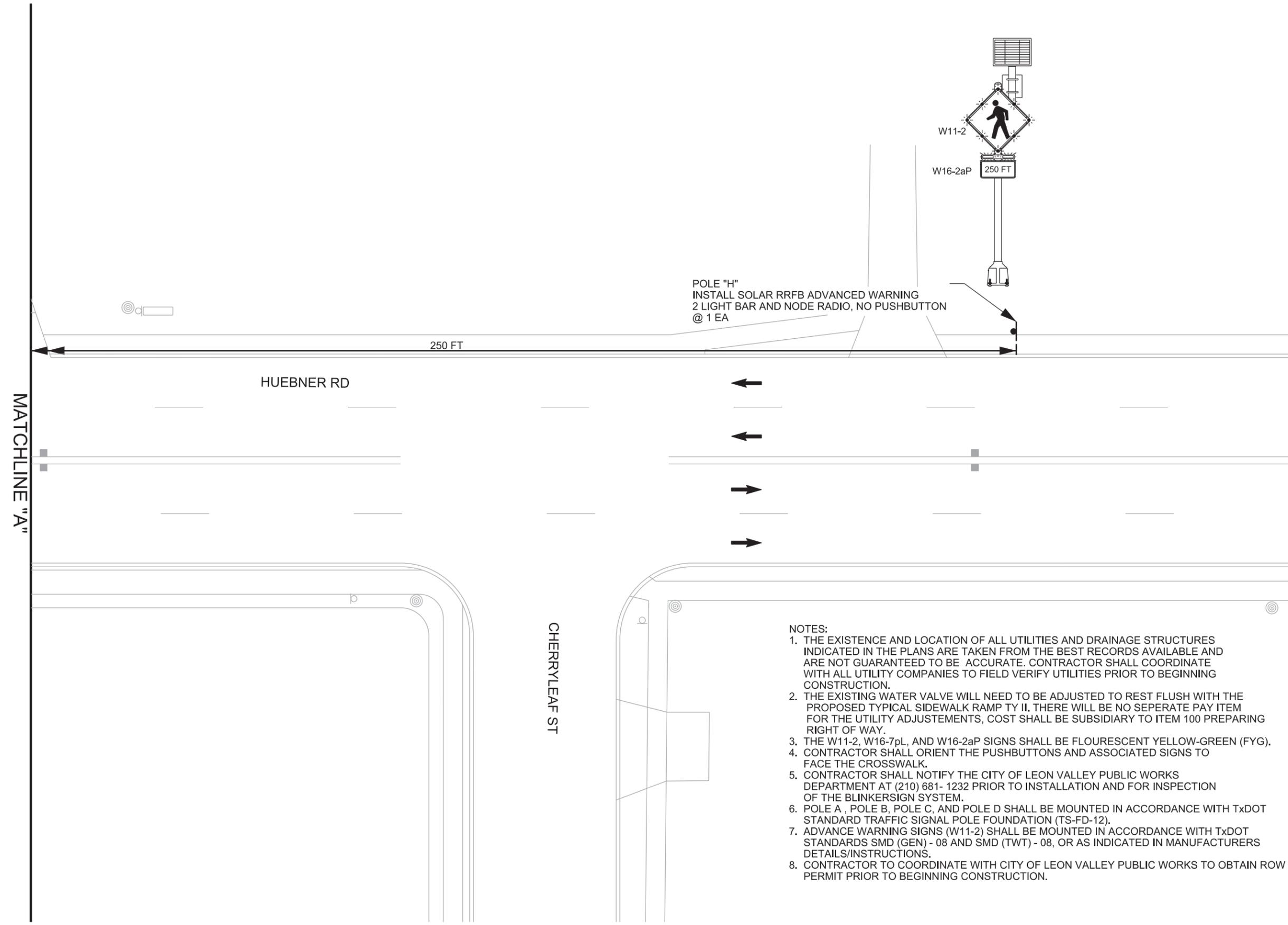
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HORIZ. SCALE: 1"=20'



LEGEND	
	PROPOSED SIGN
	TRAFFIC FLOW ARROW
	EXIST GAS VALVE



POLE "H"  
INSTALL SOLAR RRFB ADVANCED WARNING  
2 LIGHT BAR AND NODE RADIO, NO PUSHBUTTON  
@ 1 EA

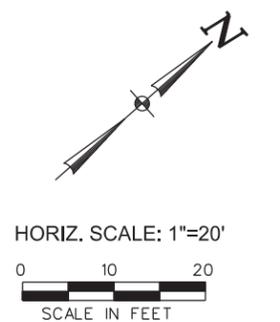
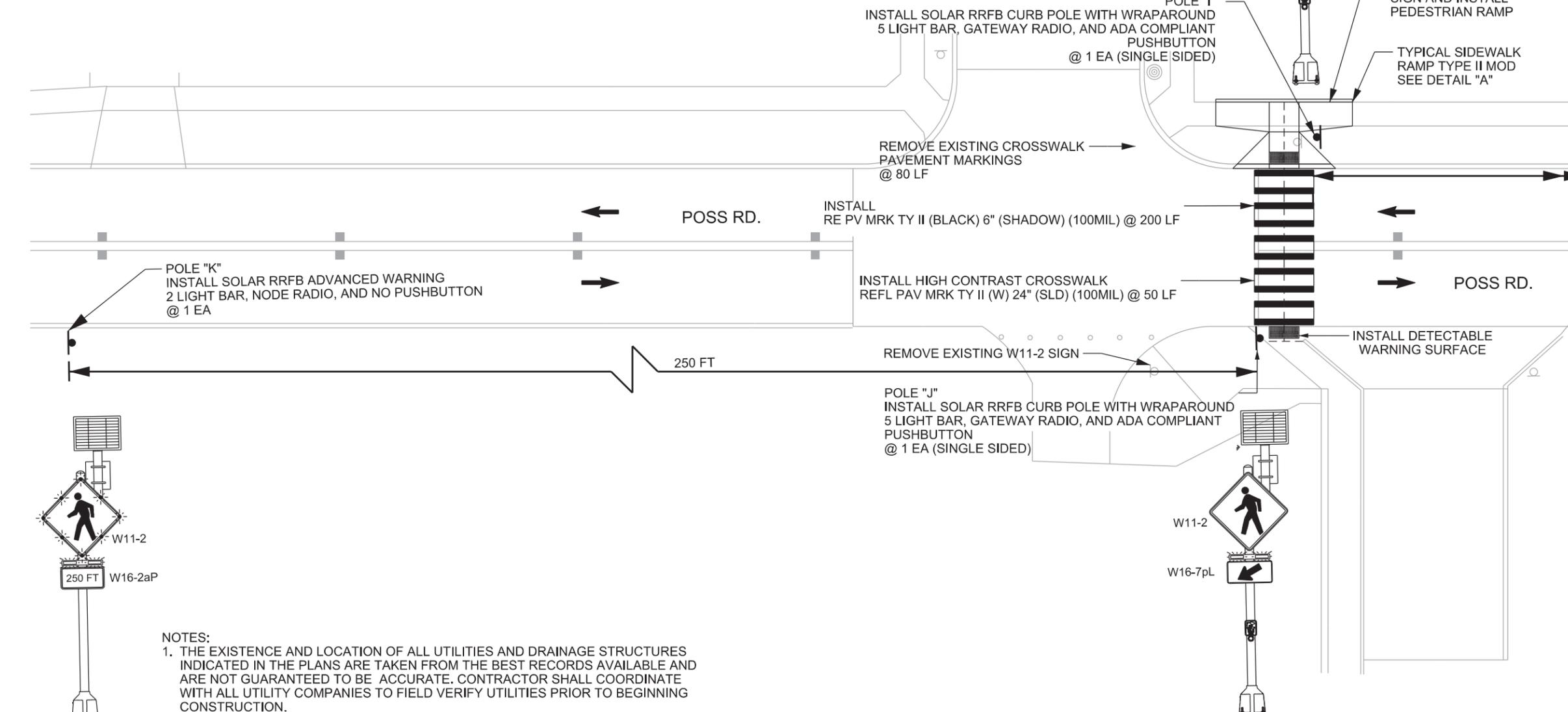
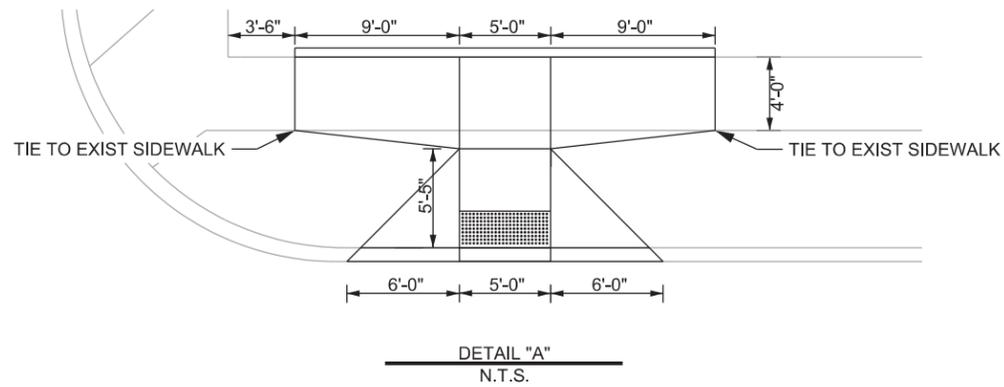
**NOTES:**

1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. THE EXISTING WATER VALVE WILL NEED TO BE ADJUSTED TO REST FLUSH WITH THE PROPOSED TYPICAL SIDEWALK RAMP TY II. THERE WILL BE NO SEPERATE PAY ITEM FOR THE UTILITY ADJUSTEMENTS, COST SHALL BE SUBSIDIARY TO ITEM 100 PREPARING RIGHT OF WAY.
3. THE W11-2, W16-7pL, AND W16-2aP SIGNS SHALL BE FLOURESCENT YELLOW-GREEN (FYG).
4. CONTRACTOR SHALL ORIENT THE PUSHBUTTONS AND ASSOCIATED SIGNS TO FACE THE CROSSWALK.
5. CONTRACTOR SHALL NOTIFY THE CITY OF LEON VALLEY PUBLIC WORKS DEPARTMENT AT (210) 681- 1232 PRIOR TO INSTALLATION AND FOR INSPECTION OF THE BLINKERSIGN SYSTEM.
6. POLE A , POLE B, POLE C, AND POLE D SHALL BE MOUNTED IN ACCORDANCE WITH TxDOT STANDARD TRAFFIC SIGNAL POLE FOUNDATION (TS-FD-12).
7. ADVANCE WARNING SIGNS (W11-2) SHALL BE MOUNTED IN ACCORDANCE WITH TxDOT STANDARDS SMD (GEN) - 08 AND SMD (TWT) - 08, OR AS INDICATED IN MANUFACTURERS DETAILS/INSTRUCTIONS.
8. CONTRACTOR TO COORDINATE WITH CITY OF LEON VALLEY PUBLIC WORKS TO OBTAIN ROW PERMIT PRIOR TO BEGINNING CONSTRUCTION.



*Rene Arredondo* 12/5/19  
AC GROUP, LLC  
TBPE FIRM No. F-11727

LEON VALLEY PUBLIC WORKS DEPARTMENT			
<b>AC GROUP</b> LLC <small>TRAFFIC ENGINEERING AND DATA COLLECTION</small>			
<small>TBPE FIRM NO. F-11727 5828 SEBASTIAN PLACE, STE 108 P. (210) 535-3558 SAN ANTONIO, TEXAS 78249</small>			
HUEBNER RD AT LEON VALLEY ELEMENTARY SCHOOL			
<b>PEDESTRIAN CROSSING RECTANGULAR RAPID FLASHING BEACON</b>			
SHEET 2 OF 2			
<small>FED. RD. DEV. NO.</small>	<small>FEDERAL AID PROJECT NO.</small>	<small>SHEET NO.</small>	
		7	
<small>STATE</small>	<small>STATE DIST. NO.</small>	<small>COUNTY</small>	<small>SCALE</small>
<small>CONT</small>	<small>SECT</small>	<small>JOB</small>	<small>HIGHWAY NO.</small>



LEGEND	
	PROPOSED SIGN
	TRAFFIC FLOW ARROW

MATCHLINE "A"



*Rene Arredondo* 12/5/19  
 AC GROUP, LLC  
 TBPE FIRM No. F-11727

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LEON VALLEY  
PUBLIC WORKS DEPARTMENT

**AC GROUP** LLC  
TRAFFIC ENGINEERING AND DATA COLLECTION  
TBPE FIRM NO. F-11727 5828 SEBASTIAN PLACE, STE 108  
 P. (210) 535-3558 SAN ANTONIO, TEXAS 78249

PEACH TREE ST  
AT POSS RD

**PEDESTRIAN CROSSING  
RECTANGULAR RAPID  
FLASHING BEACON**

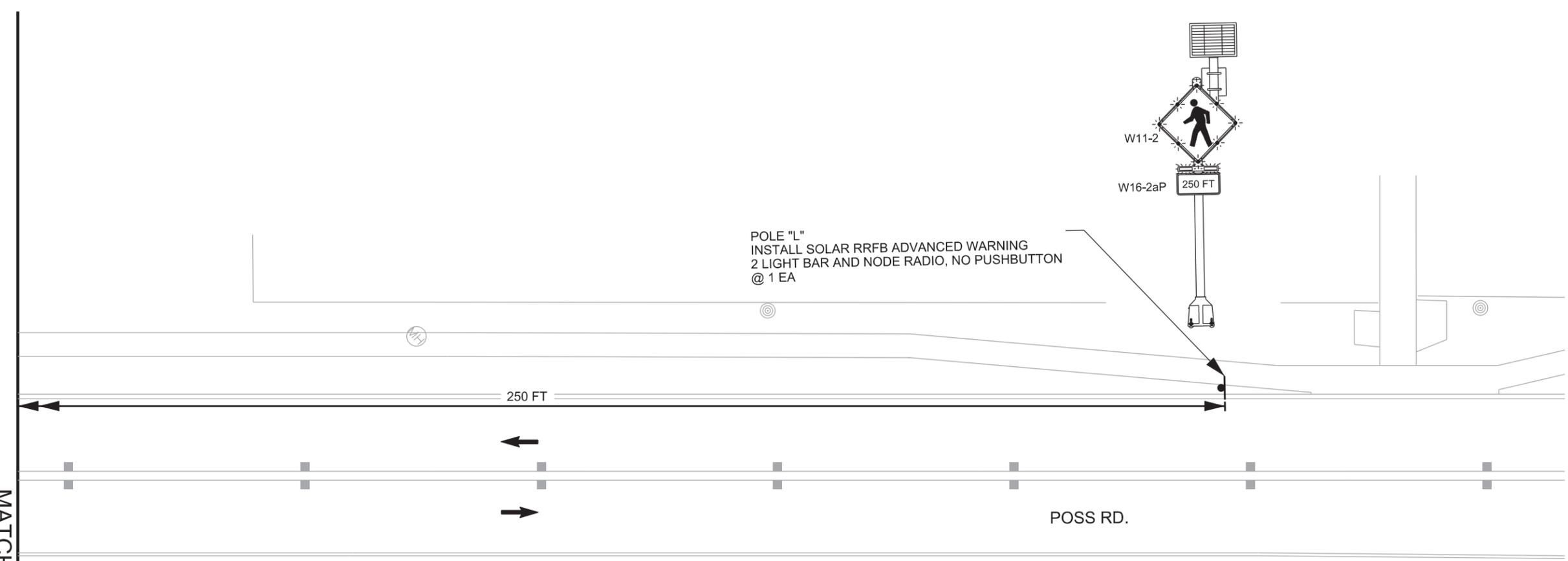
SHEET 1 OF 2

FED. RD. DEV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
		8
STATE	STATE DIST. NO.	COUNTY
		SCALE
CONT	SECT	JOB
		HIGHWAY NO.

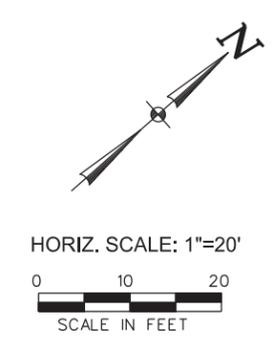
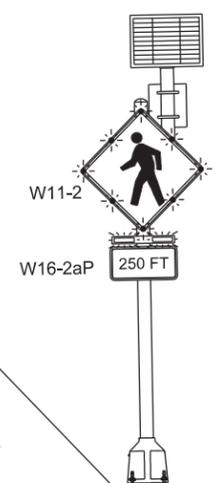
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12/9/2019 L:\2019013000 PEACH TREE ST and POSS RD PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\Traffic\PEACH TREE SIG\_04\_RRFB.dgn

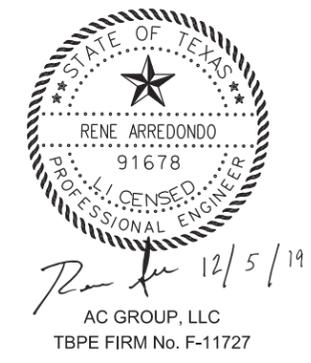
MATCHLINE "A"



POLE "L"  
INSTALL SOLAR RRFB ADVANCED WARNING  
2 LIGHT BAR AND NODE RADIO, NO PUSHBUTTON  
@ 1 EA



LEGEND	
	PROPOSED SIGN
	TRAFFIC FLOW ARROW



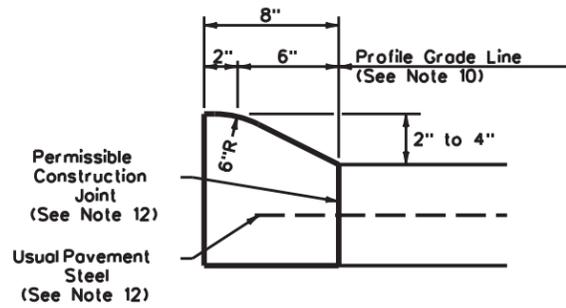
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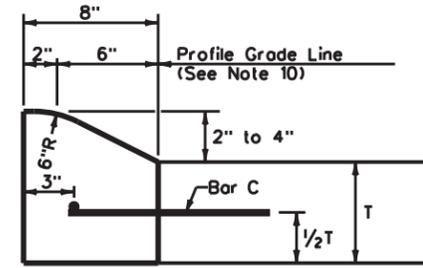
LEON VALLEY PUBLIC WORKS DEPARTMENT			
<small>TRAFFIC ENGINEERING AND DATA COLLECTION TBPE FIRM NO. F-11727 5828 SEBASTIAN PLACE, STE 108 P. (210) 535-3558 SAN ANTONIO, TEXAS 78249</small>			
PEACH TREE ST AT POSS RD			
<b>PEDESTRIAN CROSSING RECTANGULAR RAPID FLASHING BEACON</b>			
SHEET 2 OF 2			
FED. RD. DEV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
		9	
STATE	STATE DIST. NO.	COUNTY	SCALE
CONT	SECT	JOB	HIGHWAY NO.

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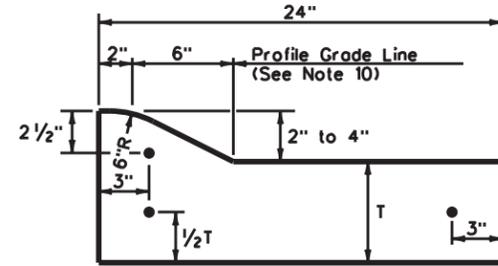
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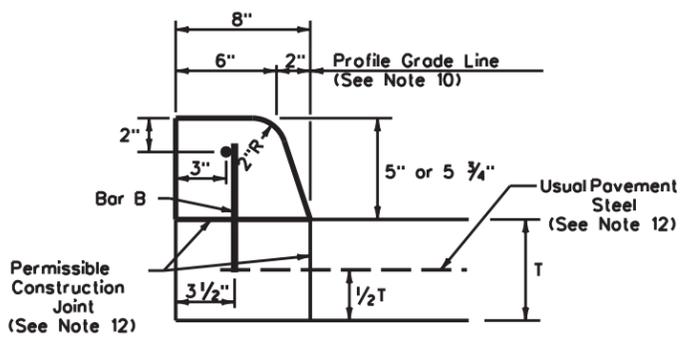
**TYPE I CURB (MONOLITHIC)**  
2" - 4" HEIGHT



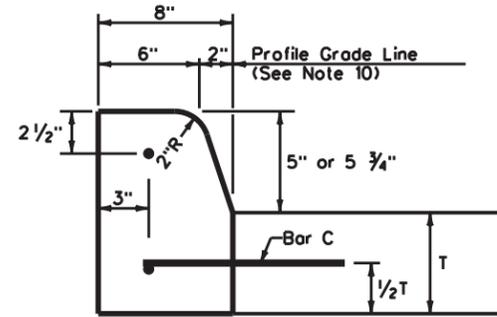
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2" - 4" HEIGHT



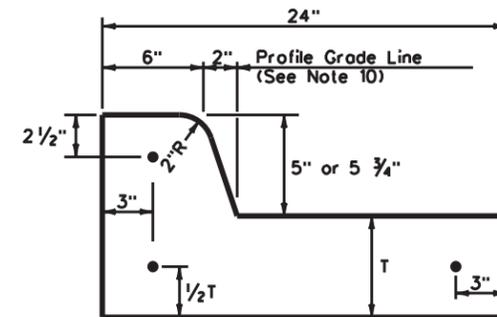
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2" - 4" HEIGHT



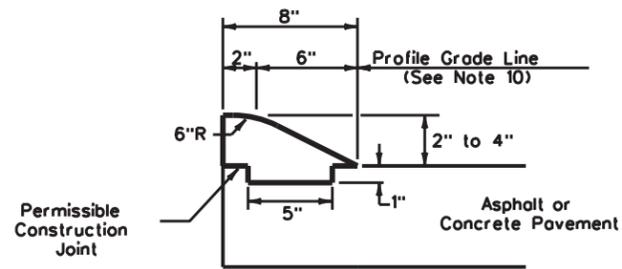
**TYPE II CURB (MONOLITHIC)**  
5" - 5 3/4" HEIGHT



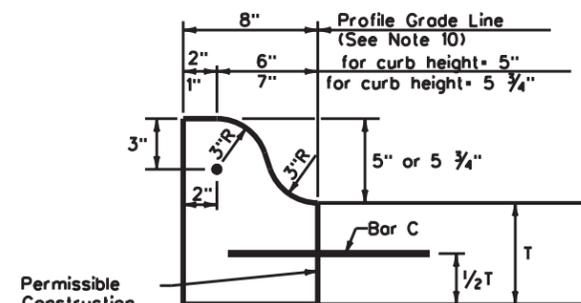
**TYPE II CURB**  
5" - 5 3/4" HEIGHT



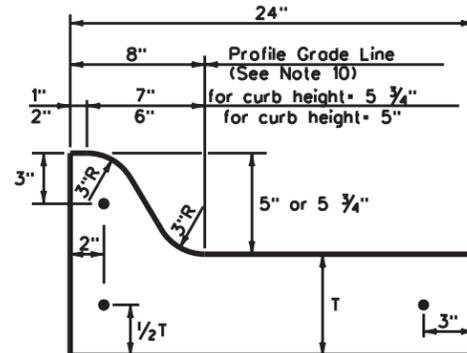
**TYPE II CURB AND GUTTER**  
5" - 5 3/4" HEIGHT



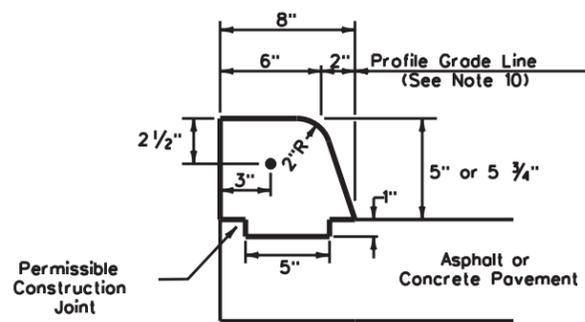
**TYPE III CURB (KEYED)**  
2" - 4" HEIGHT



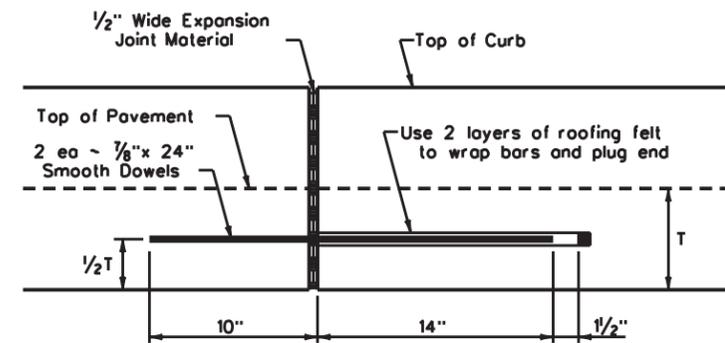
**TYPE IIa CURB**  
5" - 5 3/4" HEIGHT



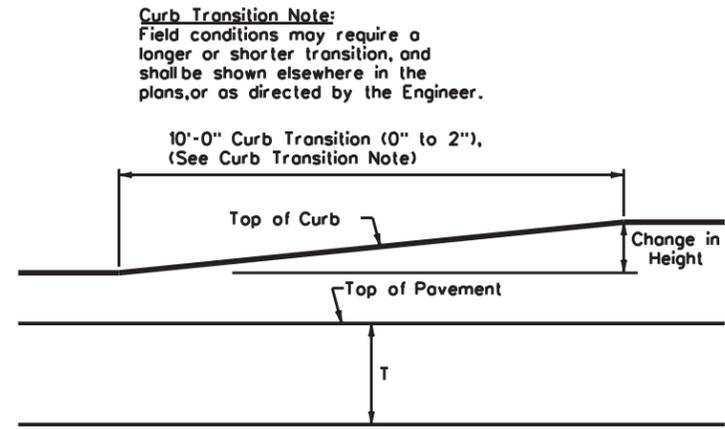
**TYPE IIa CURB AND GUTTER**  
5" - 5 3/4" HEIGHT



**TYPE IV CURB (KEYED)**  
5" - 5 3/4" HEIGHT



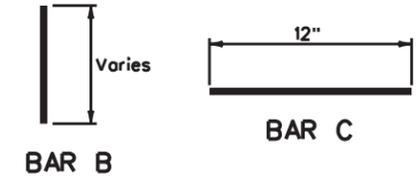
**EXPANSION JOINT DETAIL**



**CURB TRANSITION**  
Note: To be paid for as Highest Curb

**General Notes**

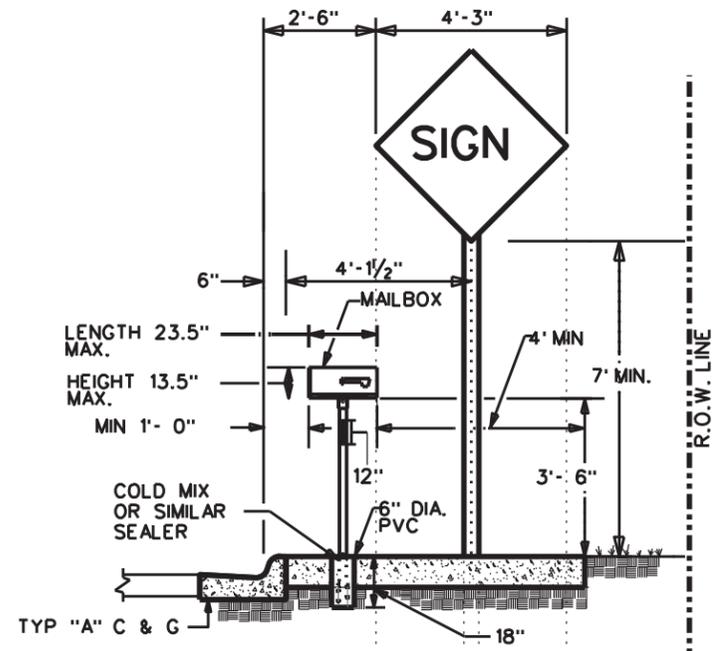
- All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
- Concrete shall be Class A.
- When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Producer List (MPL), maintained by TxDOT, Construction Division.
- Round exposed sharp edges with a rounding tool, to a minimum radius of 1/4 inch.
- All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
- Where concrete curb is placed on existing concrete pavement, the pavement shall be drilled and the reinforcing bars grouted in place.
- Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
- Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
- Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
- Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
- One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
- When vertical permissible construction joints are used, resulting in a longitudinal construction joint in the pavement, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans for longitudinal construction joints. Reinforcing steel for curb section shall then conform to that required for concrete curb.



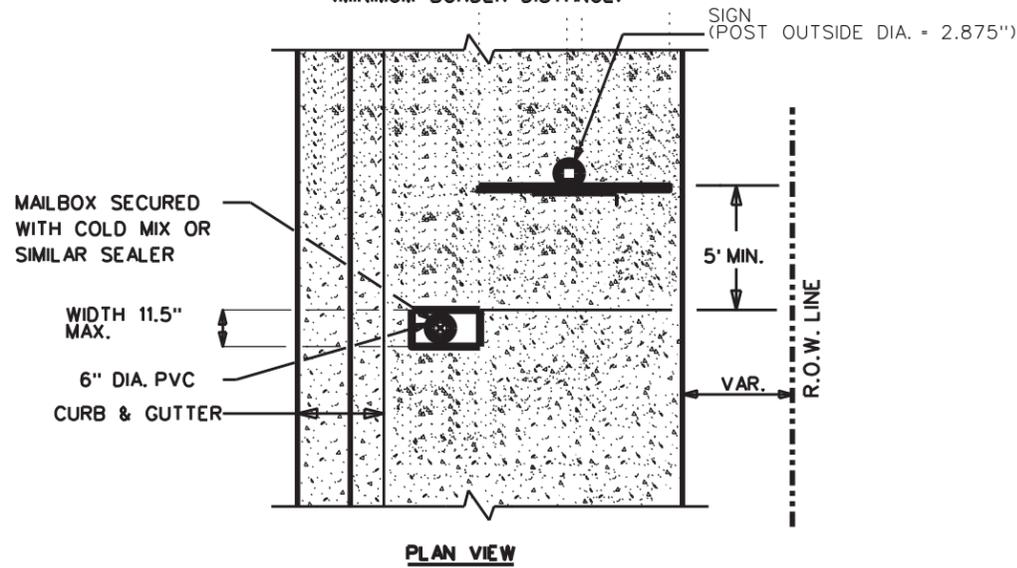
		Design Division Standard	
<h2>CONCRETE CURB AND GUTTER</h2> <h3>CCCC-12</h3>			
FILE: cccg12.dgn	DN: TxDOT	CK: AM	DW: VP
© TxDOT: 1995	CONT	SECT	JOB
REVISIONS	DIST		COUNTY
UPDATED 2012 - VP	SHEET NO.		10

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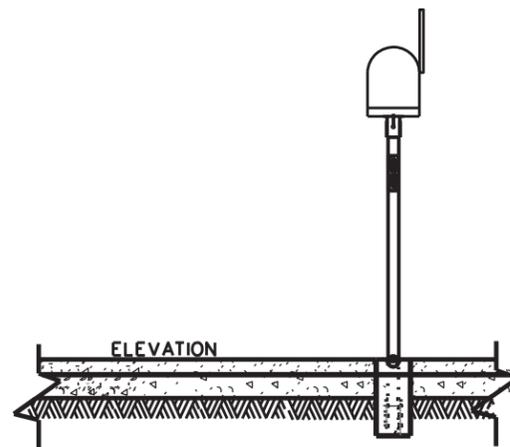
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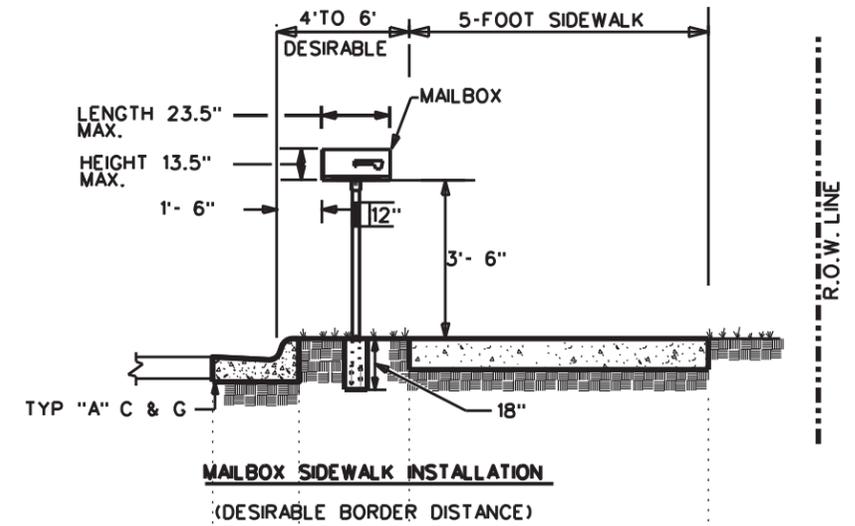
MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN (MINIMUM BORDER DISTANCE)



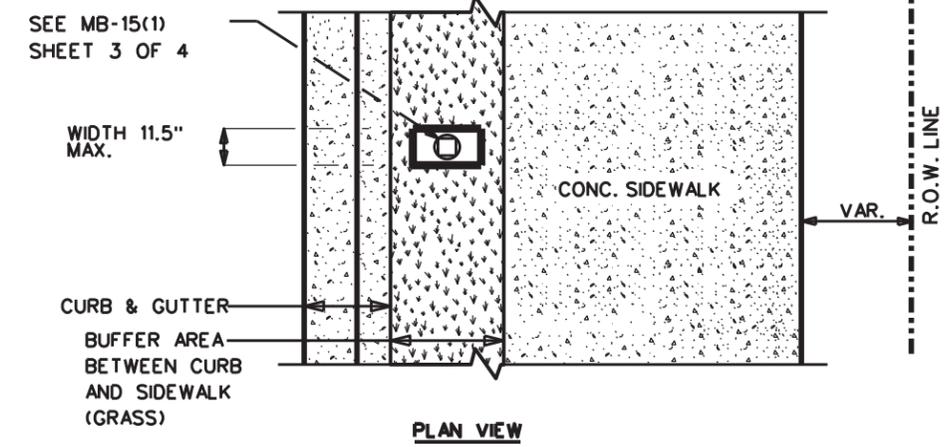
PLAN VIEW



ELEVATION



MAILBOX SIDEWALK INSTALLATION (DESIRABLE BORDER DISTANCE)



PLAN VIEW

SHEET 2 OF 3



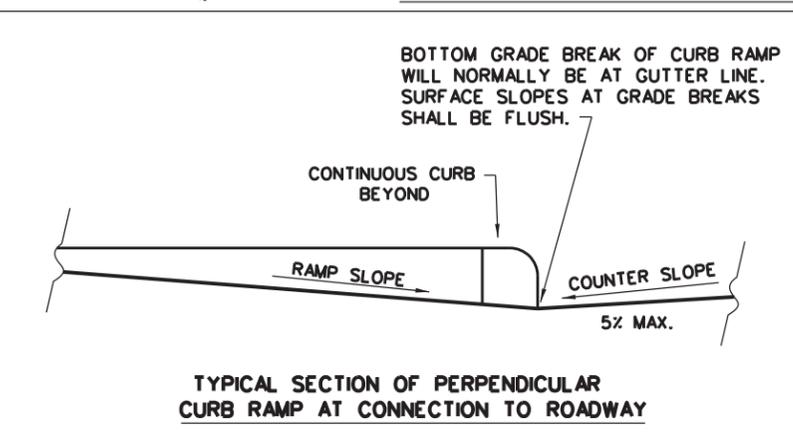
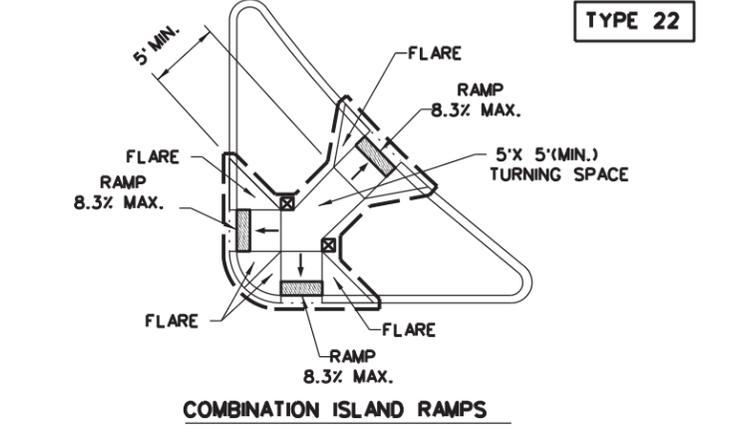
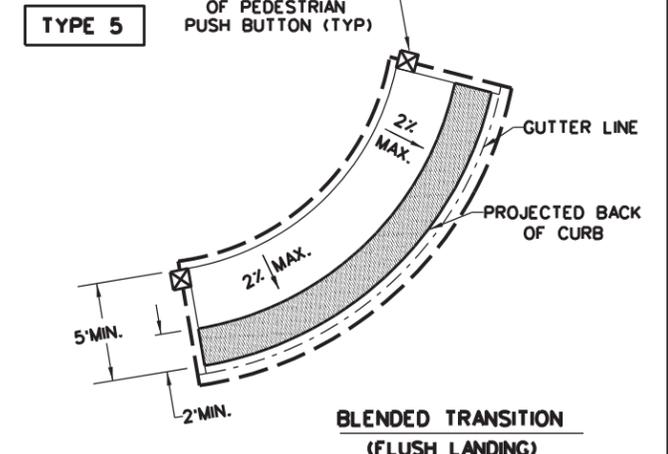
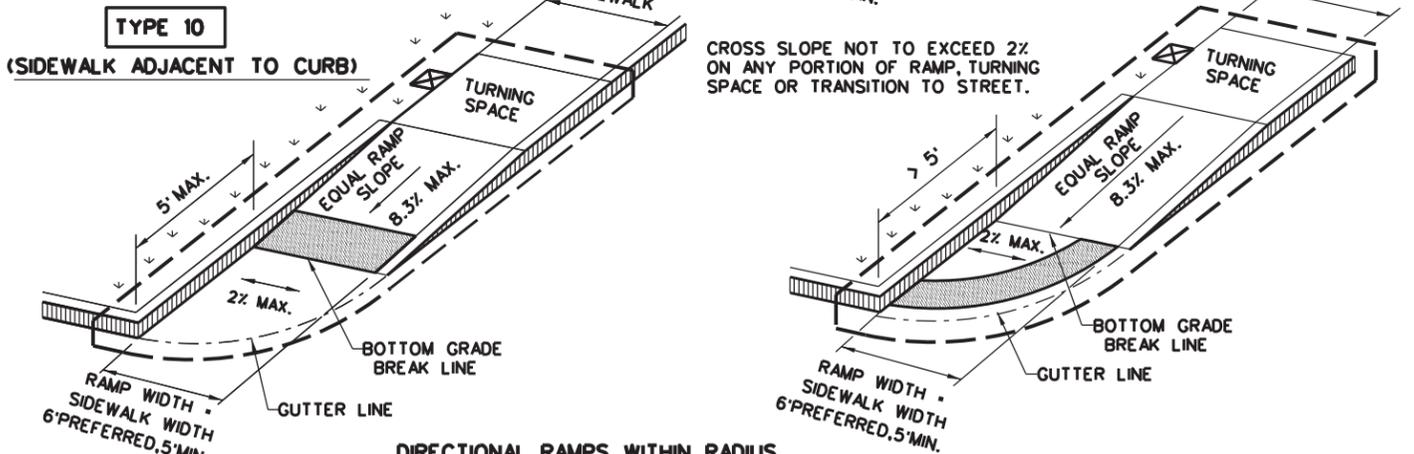
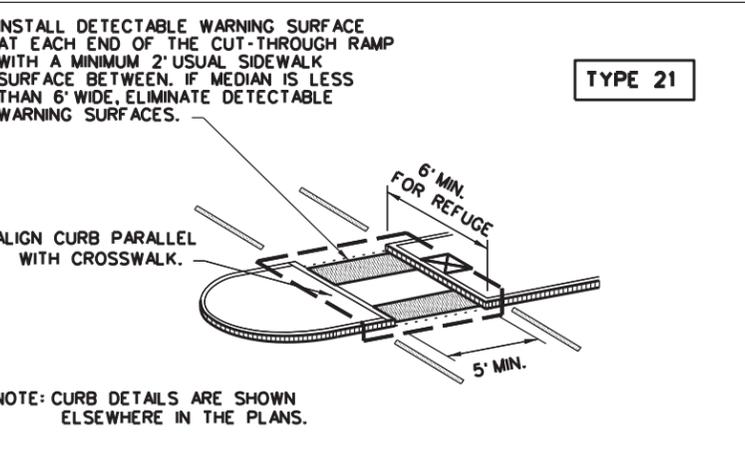
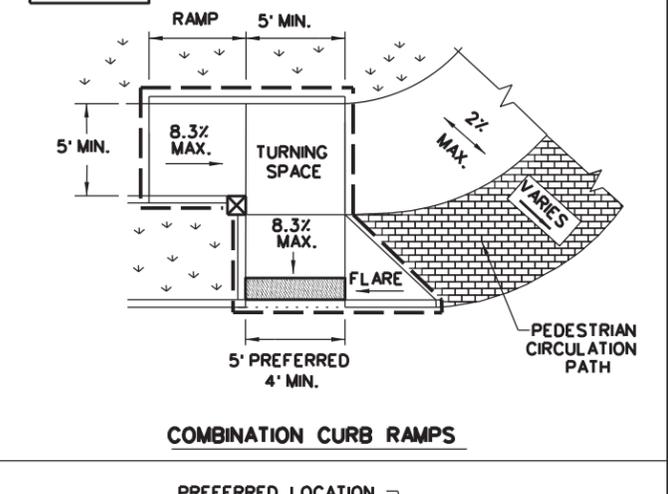
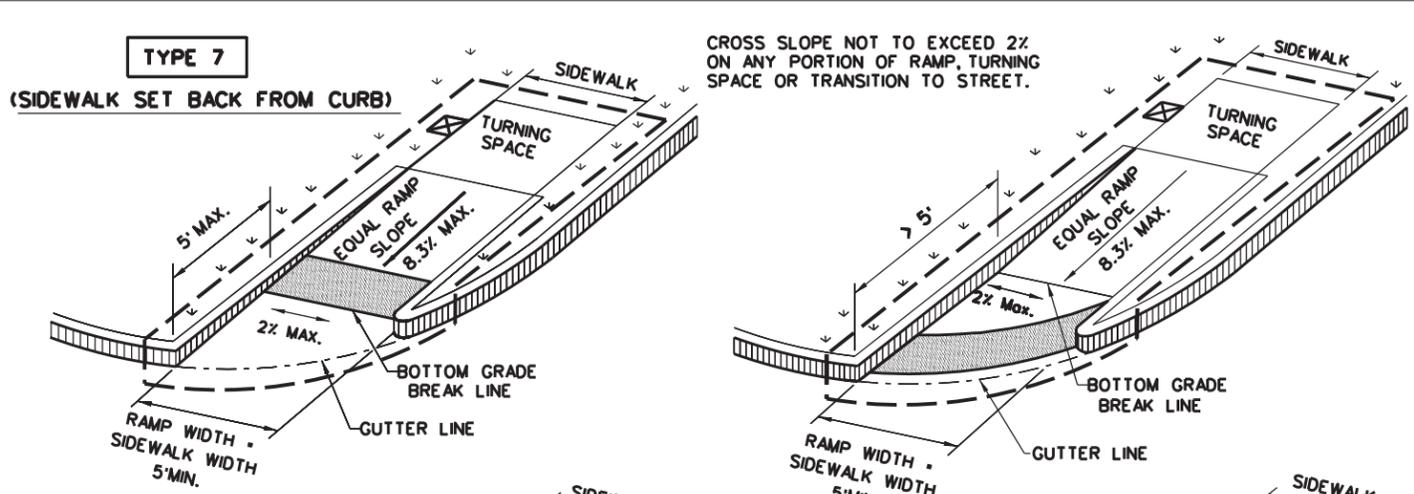
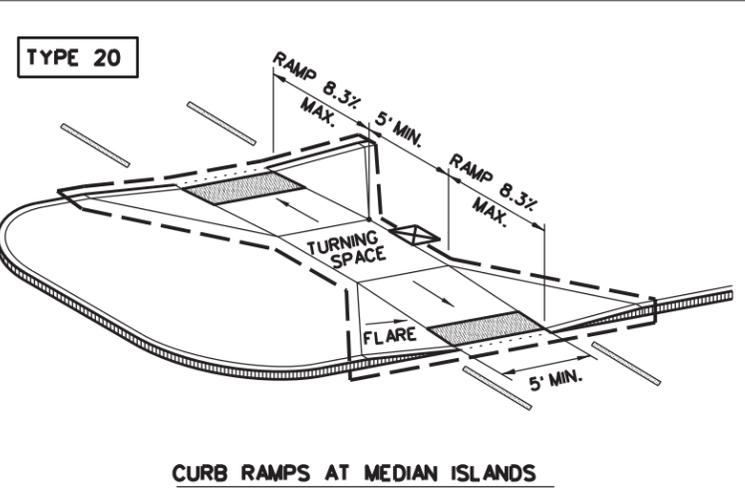
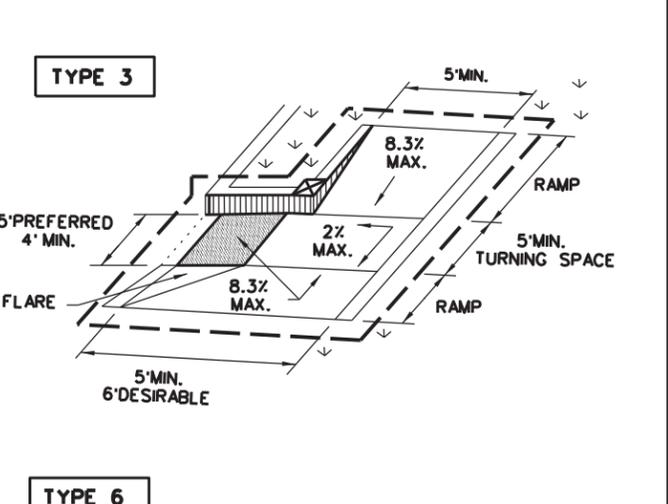
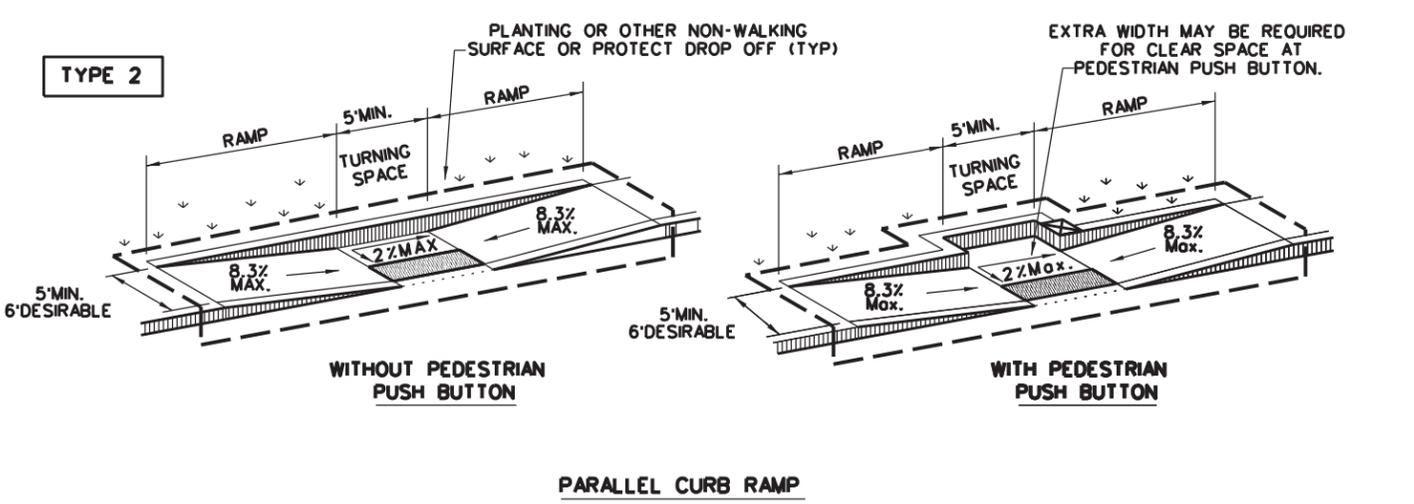
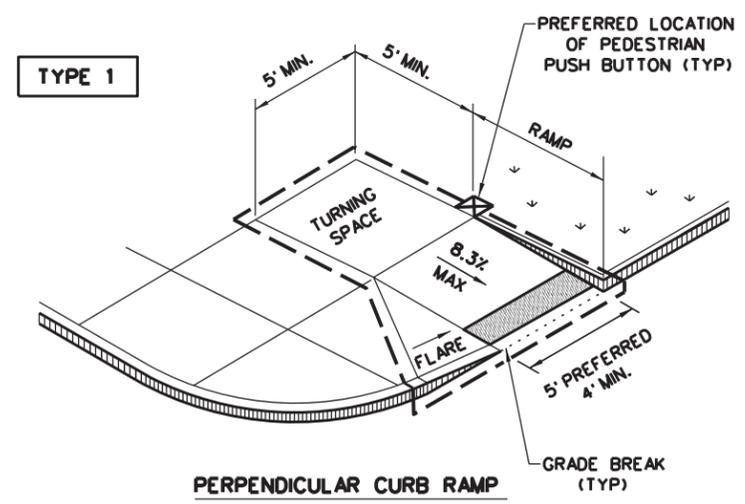
SINGLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

MB-14(2A)

FILE:MB-14(2A)	DN:	CK:	DW:	CK:
© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY	SHEET NO.	
			10A	

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L:\2019003400 HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TxDOT Standards\06 PEDESTRIAN FACILITIES CURB RAMPS\_ped18 - 01.dgn



**NOTES / LEGEND:**  
SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE ---

GRADE BREAK .....

RAMP LIMITS OF PAYMENT ---

SHEET 1 OF 4

Texas Department of Transportation  
Design Division Standard

**PEDESTRIAN FACILITIES CURB RAMPS**  
**PED-18**

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISED 08, 2005	REVISIONS			
REVISED 06, 2012	DIST	COUNTY	SHEET NO.	
REVISED 01, 2018			11	

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L:\2019003400 HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TxDOT Standards\07 PEDESTRIAN FACILITIES CURB RAMPS\_ped18 - 02.dgn

## GENERAL NOTES

### CURB RAMPS

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

### DETECTABLE WARNING MATERIAL

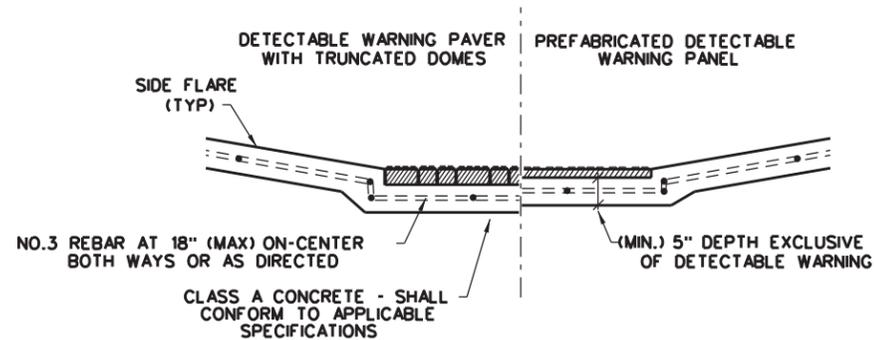
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the fullwidth of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

### DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

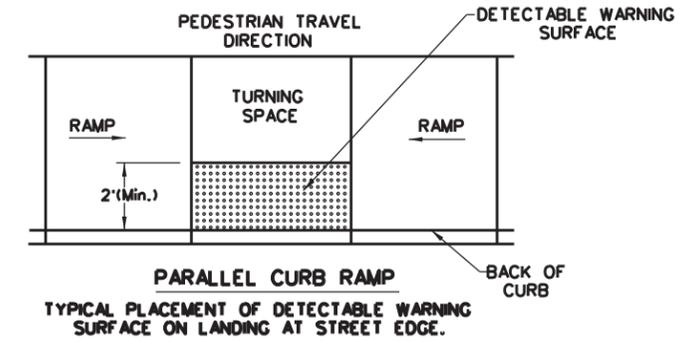
### SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

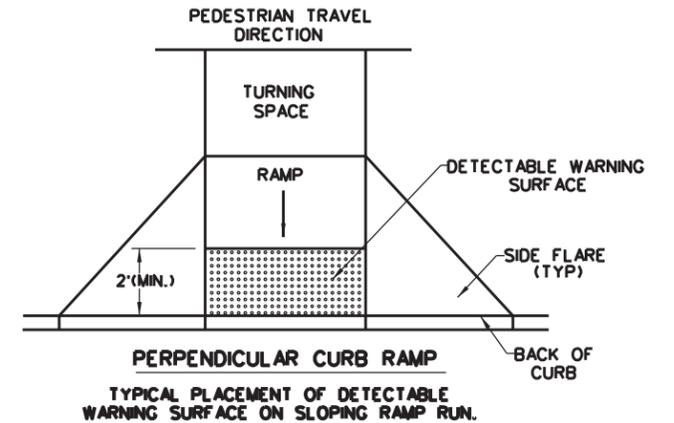


SECTION VIEW DETAIL  
CURB RAMP AT DETECTIBLE WARNINGS

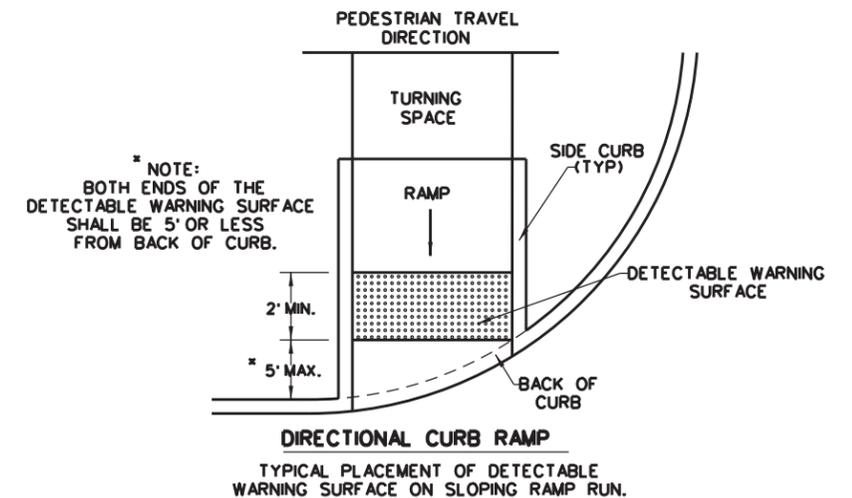
### DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP  
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP  
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP  
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

SHEET 2 OF 4



## PEDESTRIAN FACILITIES CURB RAMPS

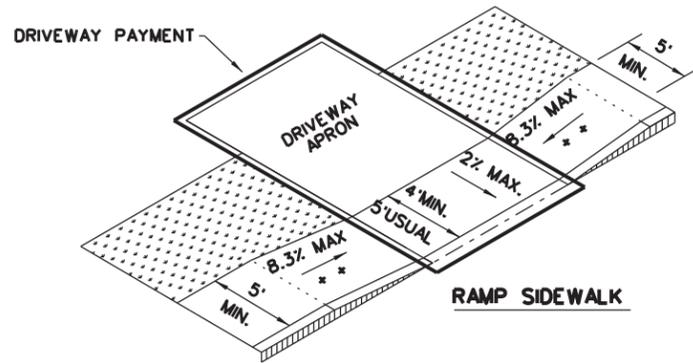
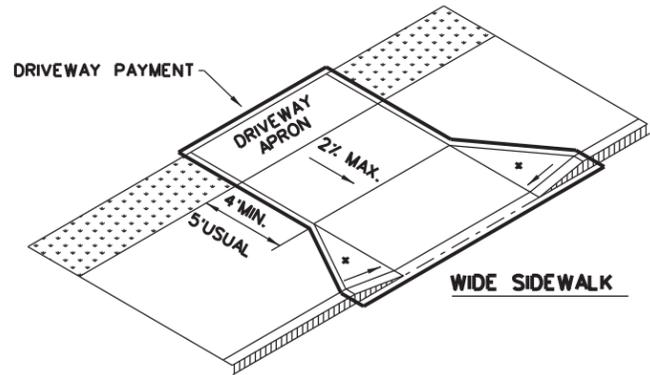
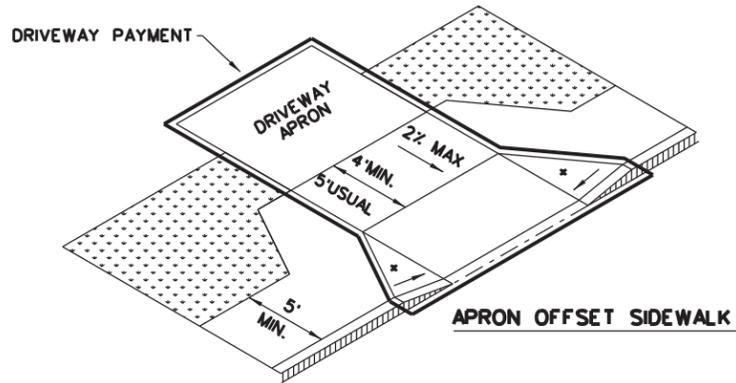
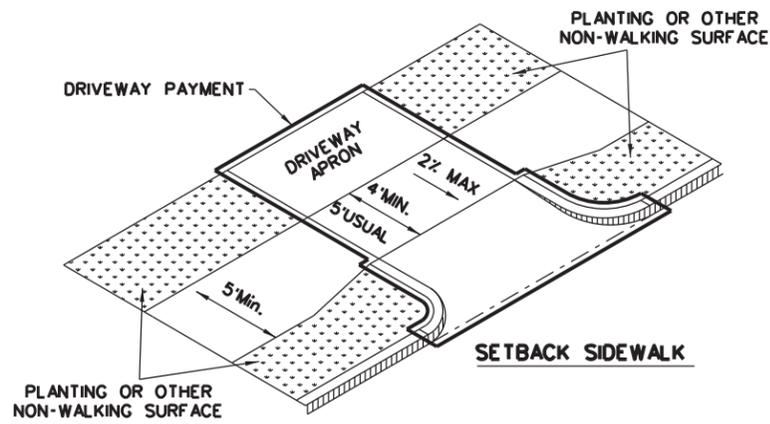
### PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012			12	
REVISED 01, 2018				

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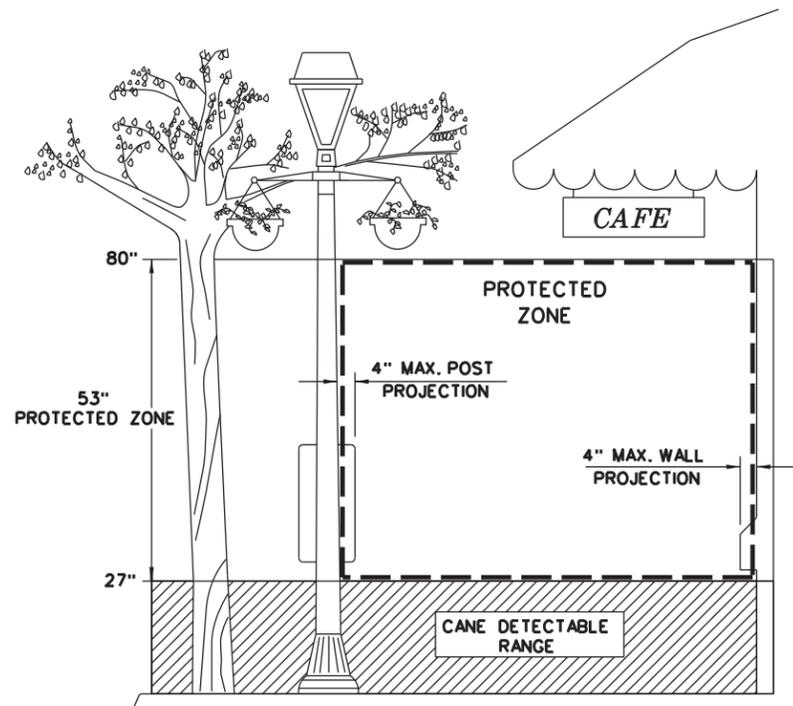
L:\2019003400 HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TxDOT Standards\08 PEDESTRIAN FACILITIES CURB RAMPS ped18 - 03.dgn

**SIDEWALK TREATMENT AT DRIVEWAYS**

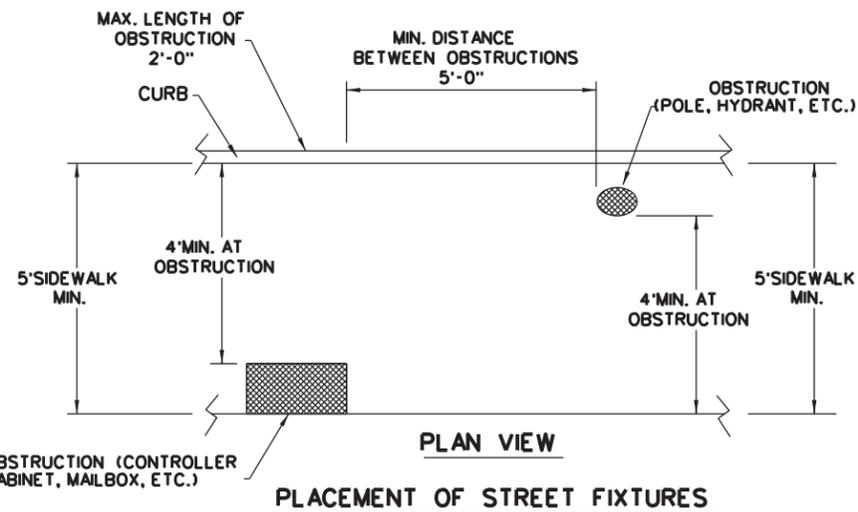
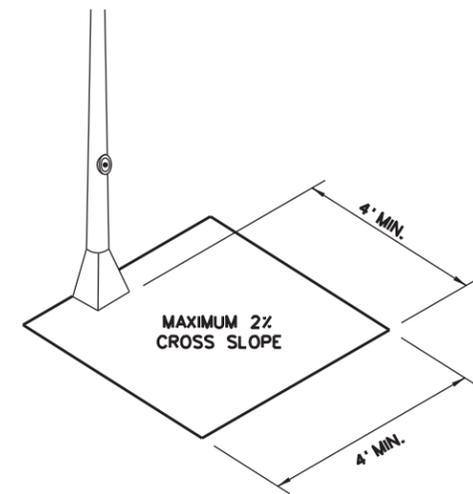


**NOTES:**

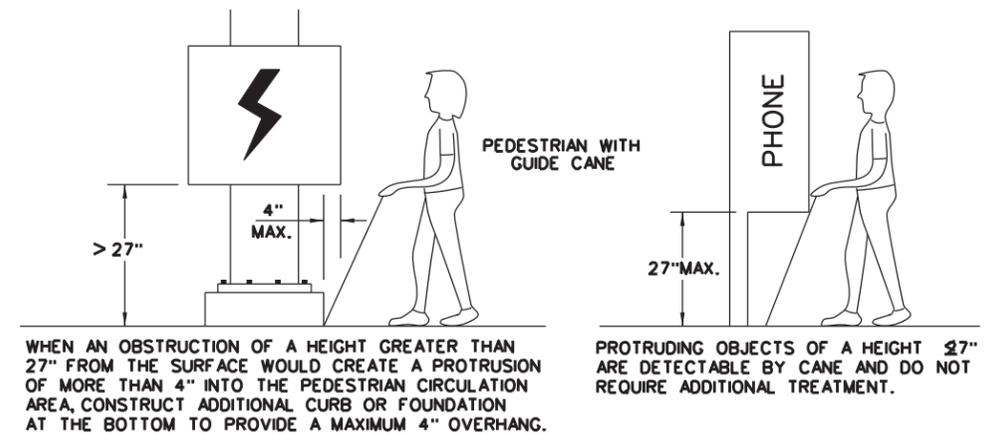
- \* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
- \*\* IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.



NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



SHEET 3 OF 4

Texas Department of Transportation  
Design Division Standard

**PEDESTRIAN FACILITIES CURB RAMPS PED-18**

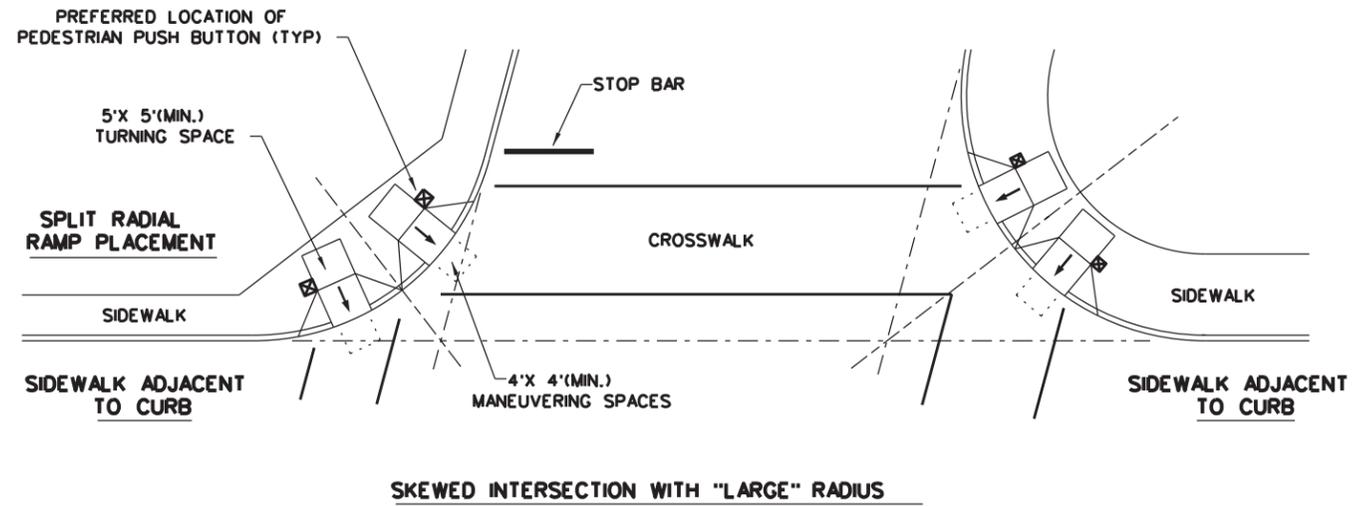
FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	DIST	COUNTY	SHEET NO.	
REVISED 08, 2005			13	
REVISED 06, 2012				
REVISED 01, 2018				

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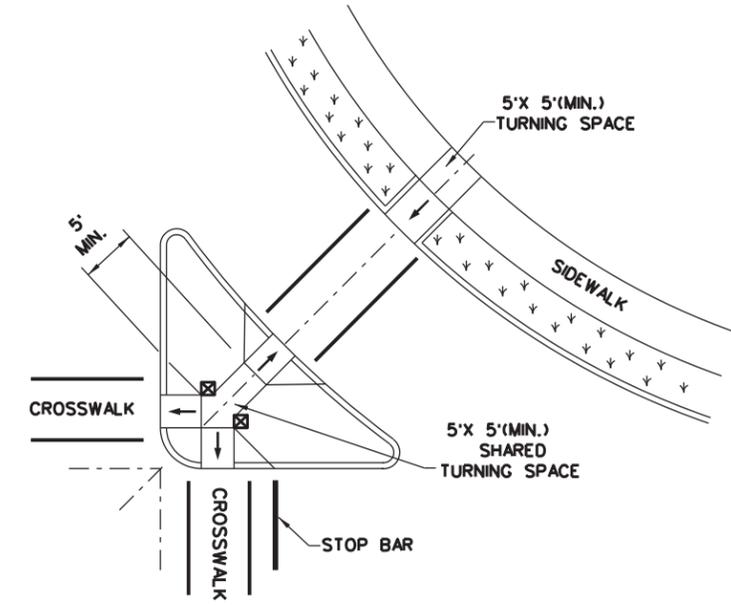
12/9/2019

L:\2019003400 HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TxDOT Standards\09 PEDESTRIAN FACILITIES CURB RAMSP\_ped18 - 04.dgn

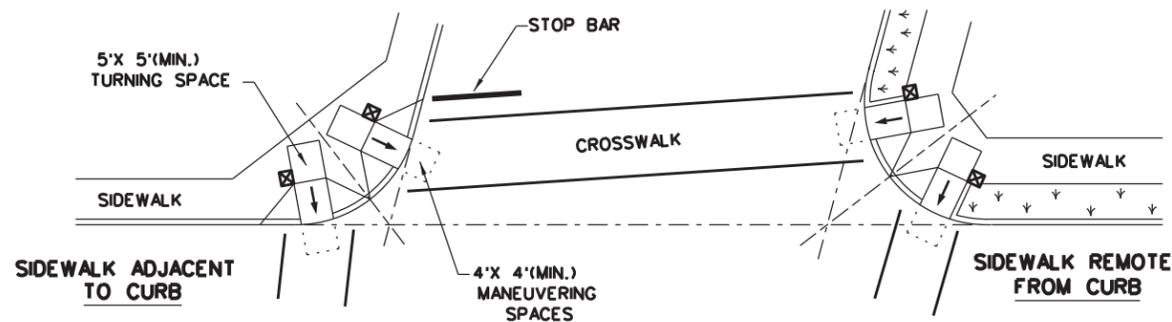
TYPICAL CROSSING LAYOUTS  
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



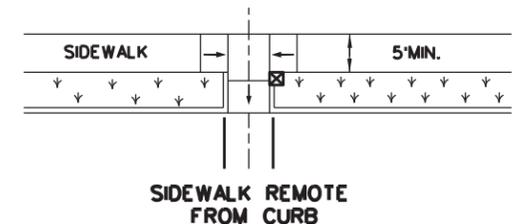
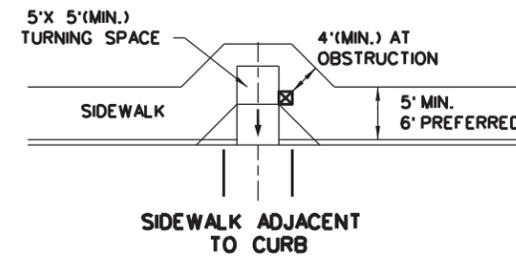
SKewed INTERSECTION WITH "LARGE" RADIUS



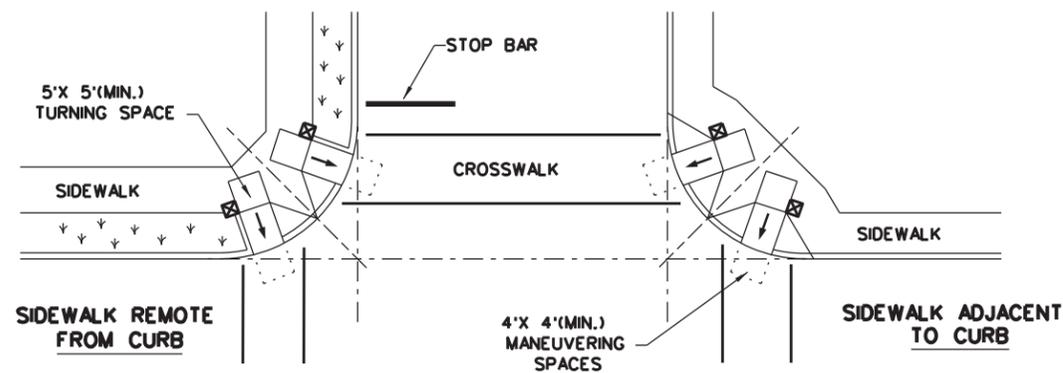
AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

SHOWS DOWNWARD SLOPE. →

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. ↙ ↘ ↗ ↖

SHEET 4 OF 4

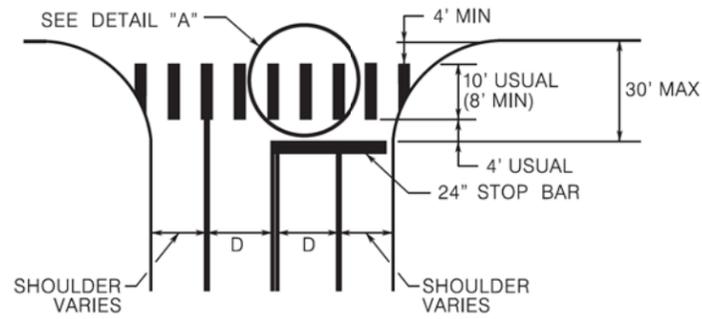


PEDESTRIAN FACILITIES  
CURB RAMPS

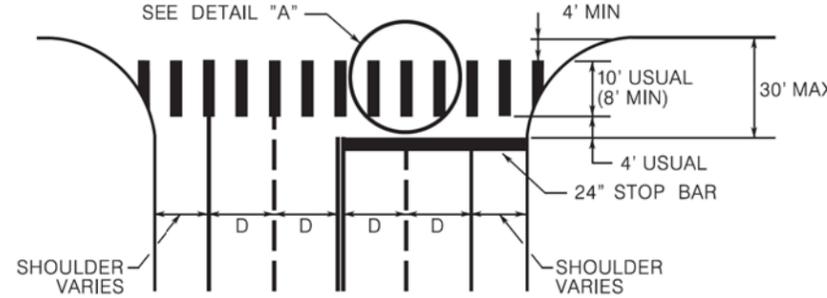
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS				
REVISED 08, 2005	DIST	COUNTY	SHEET NO.	
REVISED 06, 2012			14	
REVISED 01, 2018				

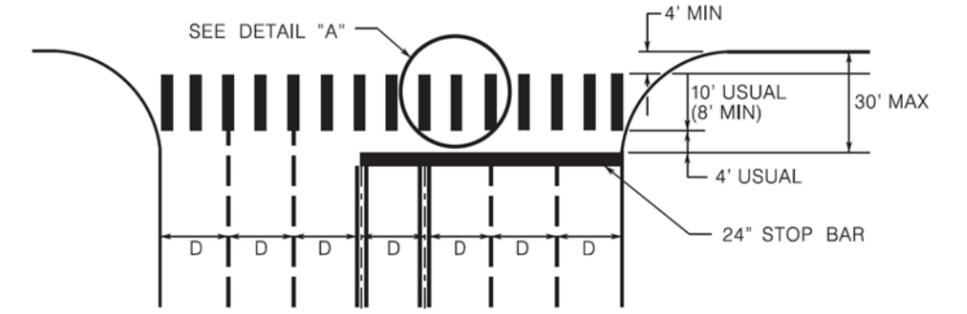
**TWO LANES WITH SHOULDERS**



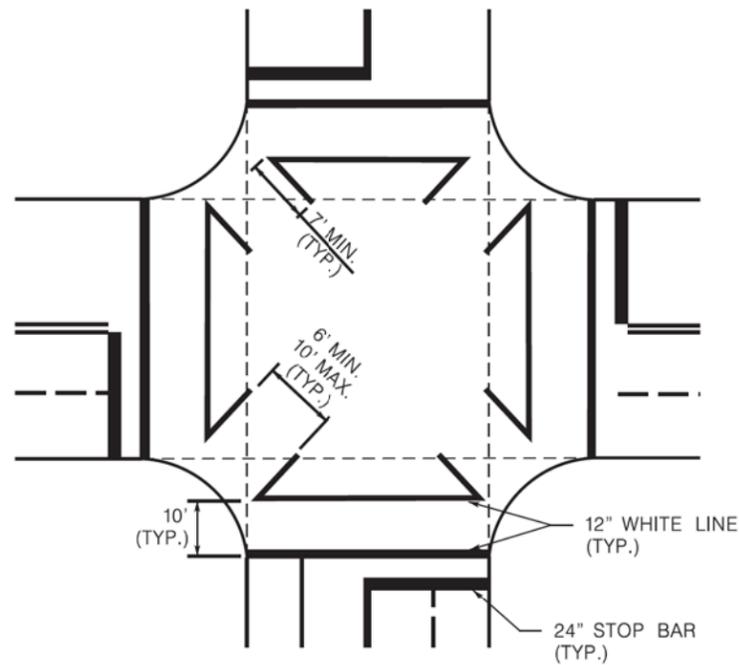
**FOUR LANES WITH SHOULDERS**



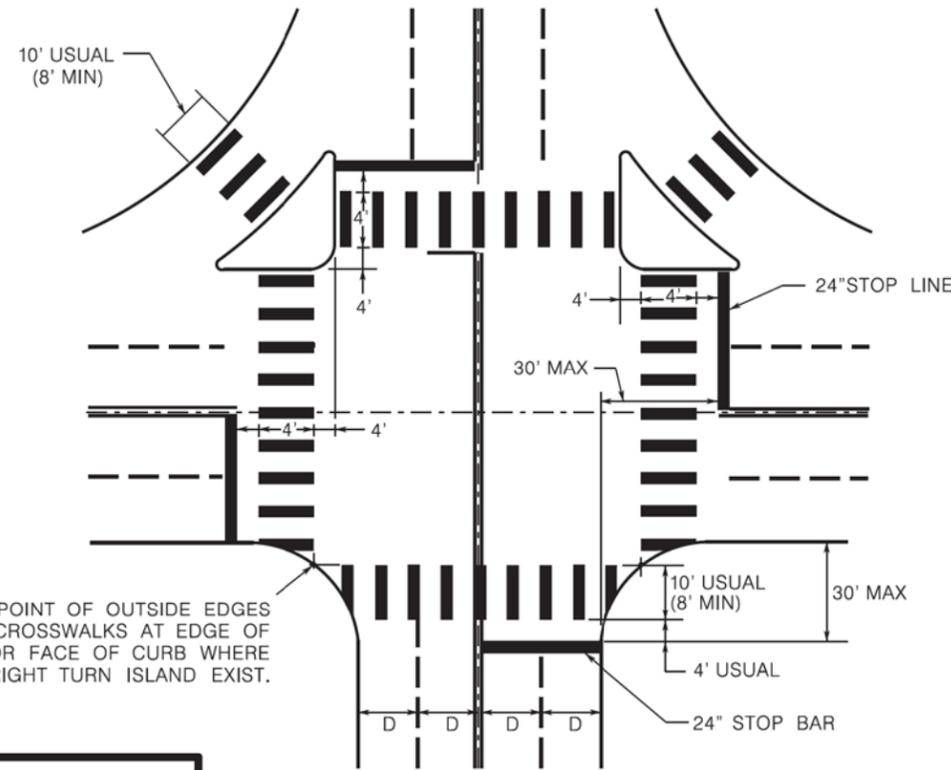
**MULTI - LANES**



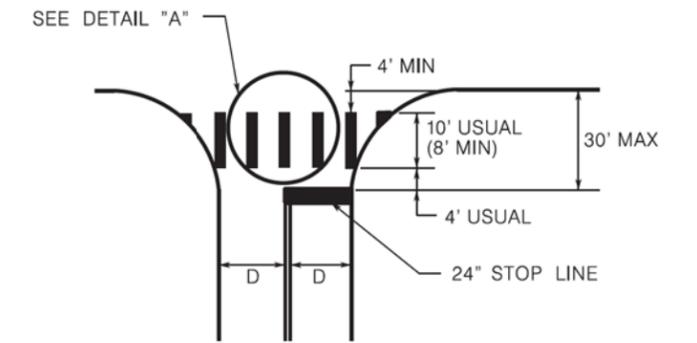
**EXCLUSIVE PEDESTRIAN PHASE**



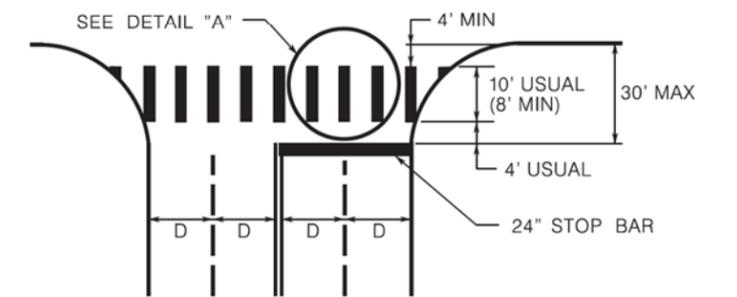
**INTERSECTION WITH RIGHT-TURN ISLANDS**



**TWO LANES**



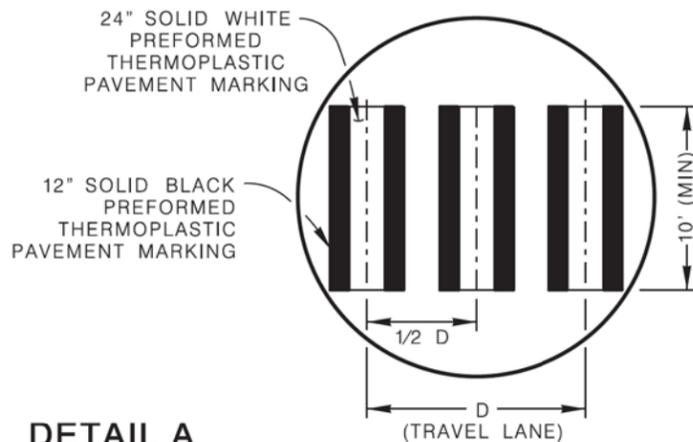
**FOUR LANES**



**HIGH CONTRAST CROSSWALK**

**NOTES:**

- 1) CROSSWALKS AND STOP BARS SHALL BE WHITE.
- 2) "D" IS EQUAL TO THE WIDTH OF TRAVEL LANE.
- 3) PREFORMED THERMOPLASTIC SHALL BE USED FOR ALL CROSSWALK PAVEMENT MARKINGS.
- 4) PREFORMED THERMOPLASTIC MATERIAL SHALL BE SUPPLIED BY A MANUFACTURER LISTED ON TxDOT'S MATERIAL PRODUCER LIST (MPL).



**DETAIL A**

**GENERAL NOTES:**

- 1) CROSSWALKS AND STOP BARS SHALL BE WHITE.
- 2) "D" IS EQUAL TO THE WIDTH OF TRAVEL LANE.
- 3) PREFORMED THERMOPLASTIC SHALL BE USED FOR ALL CROSSWALK PAVEMENT MARKINGS.
- 4) PREFORMED THERMOPLASTIC MATERIAL SHALL BE SUPPLIED BY A MANUFACTURER LISTED ON TxDOT'S MATERIAL PRODUCER LIST (MPL).

JULY 2017

**CITY OF SAN ANTONIO**

TRANSPORTATION & CAPITAL IMPROVEMENTS DEPARTMENT

TRANSPORTATION SERVICES CONSTRUCTION STANDARDS

**TYPICAL CROSSWALK DETAILS**

% SUBMITTAL	PROJECT NO.:	DATE: 7.25.17
DRWN. BY: LAN	RVSD. BY: AF	CHKD. BY: GE, PE
		SHEET NO.: 1 OF 1

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12/9/2019 L:\2019003400\_HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TxDOT Standards\11\_SIGN MOUNTING DETAILS\_GENERAL\_smd(gen) - 08.dgn

### SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

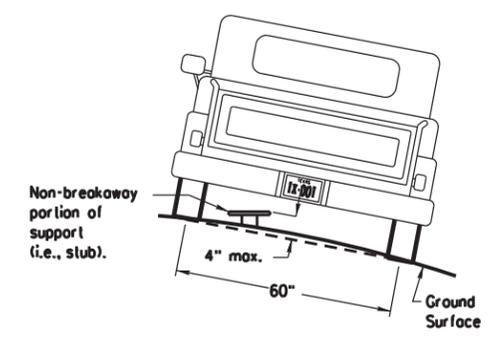
**Post Type**  
 FRP - Fiberglass Reinforced Plastic Pipe (see SMD(FRP))  
 TWT - Thin-Walled Tubing (see SMD(TWT))  
 10BWC - 10 BWC Tubing (see SMD(SLIP-1) to (SLIP-3))  
 S80 - Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

**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))

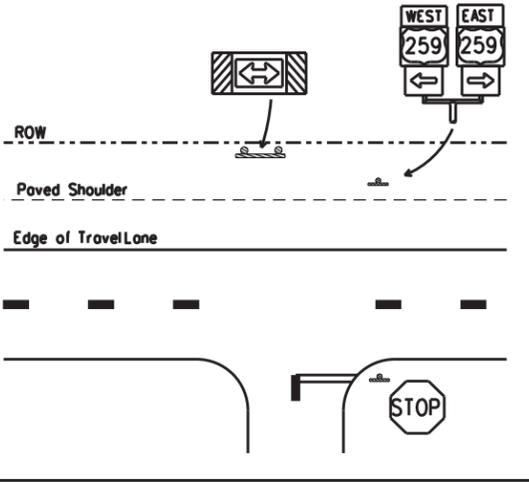
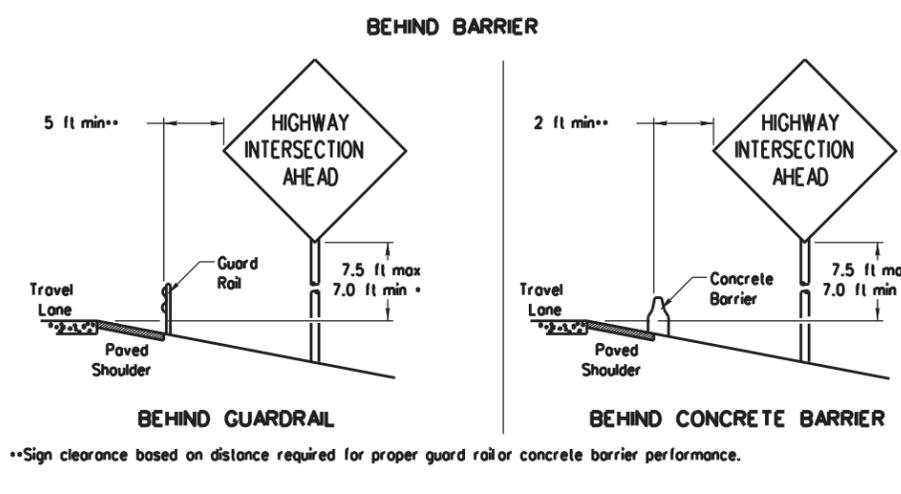
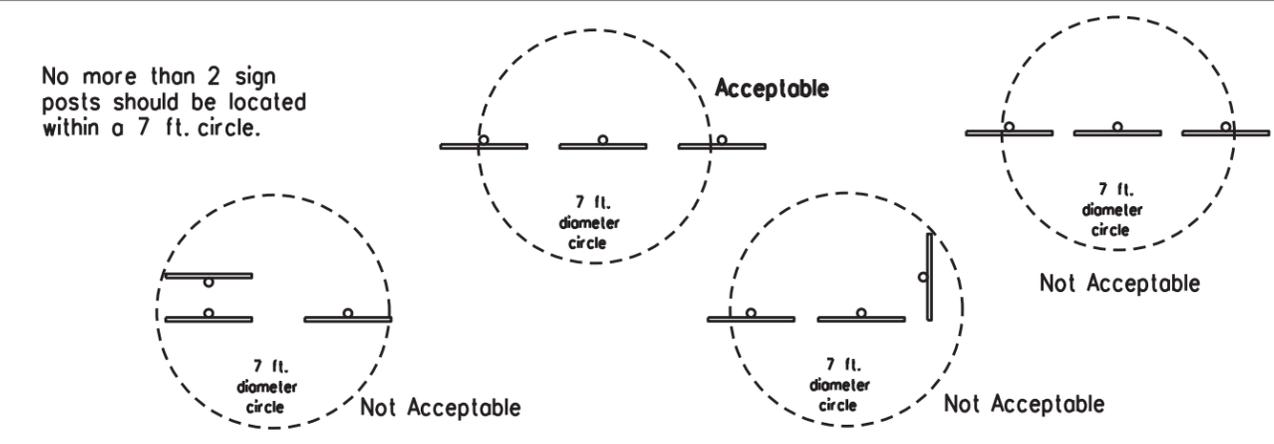
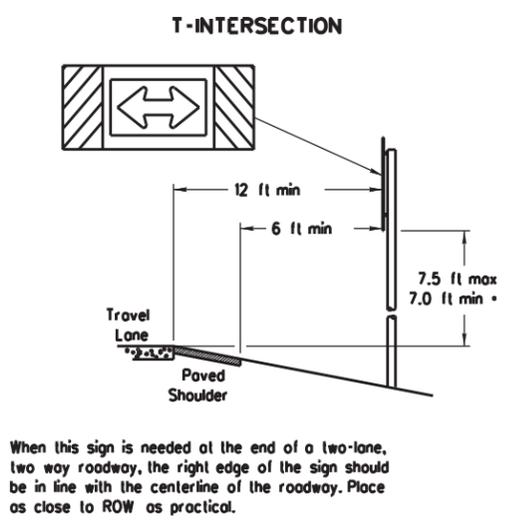
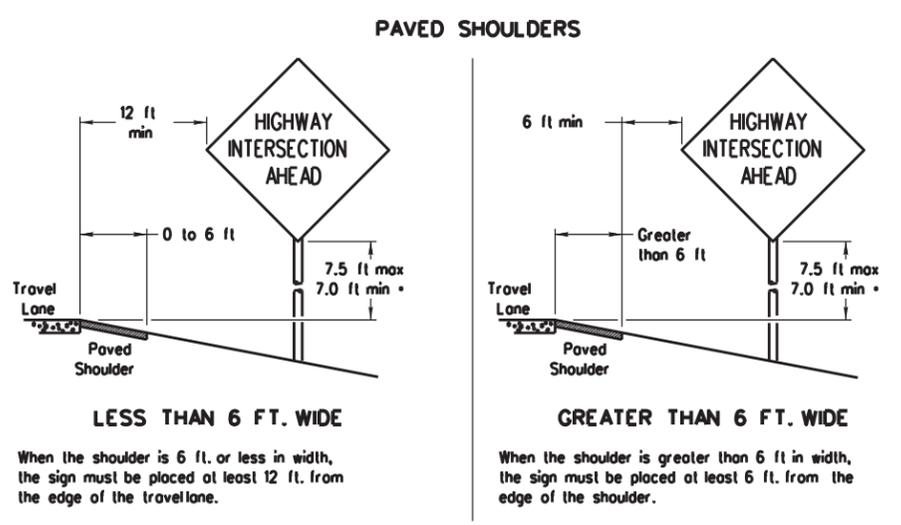
**Sign Mounting Designation**  
 P - Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))  
 T - Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))  
 U - Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))  
 IF REQUIRED  
 TEXT or 2EXT - Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))  
 BM - 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-3))

### 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 wheelpaths).

### SIGN LOCATION



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

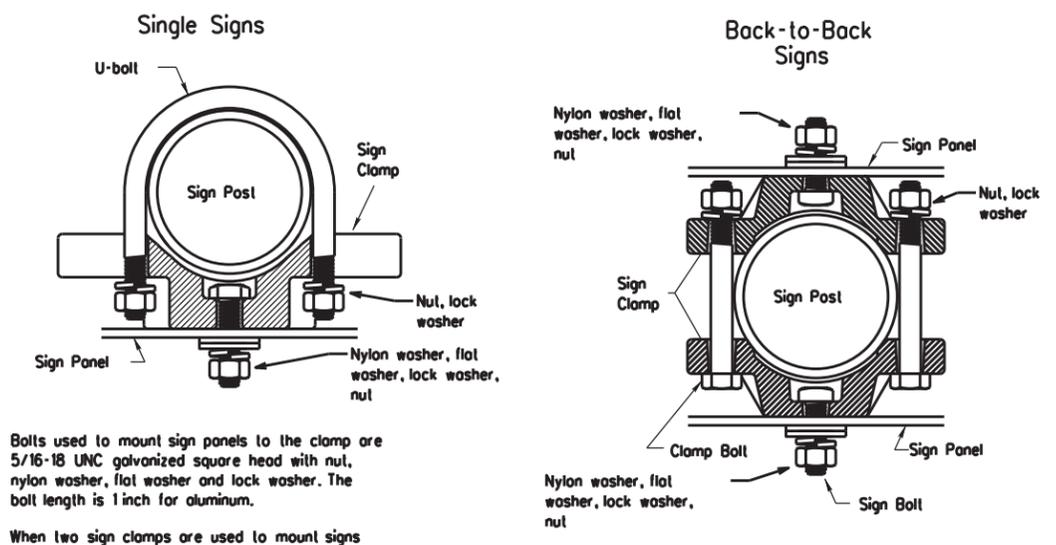
- a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or
- a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

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>

### TYPICAL SIGN ATTACHMENT DETAIL



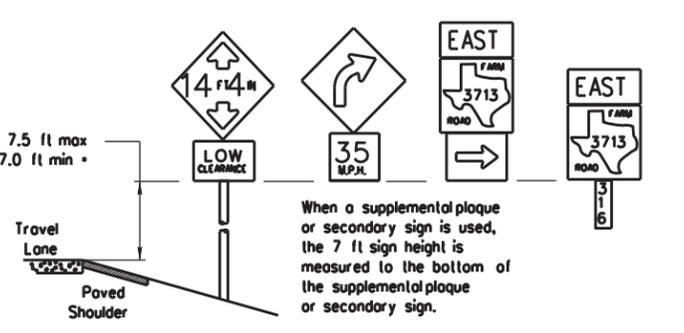
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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.

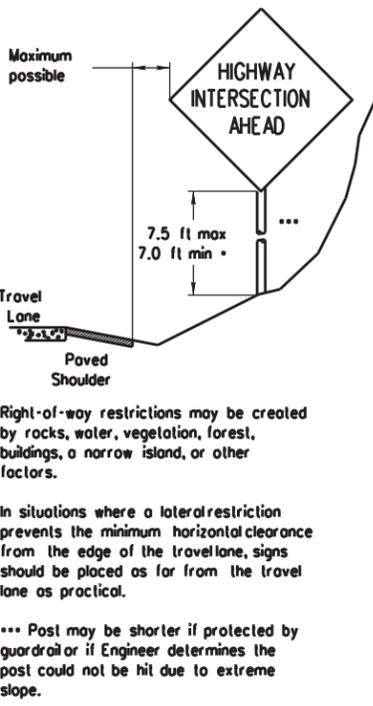
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

### SIGNS WITH PLAQUES

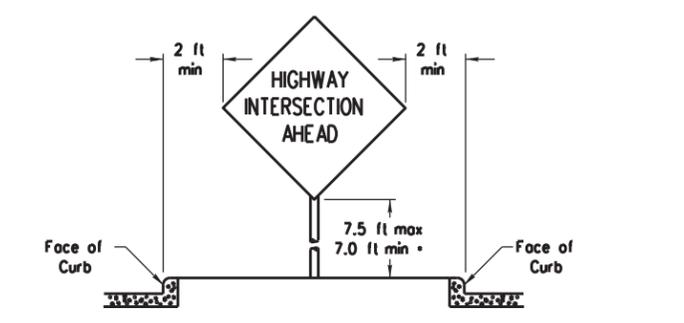


### RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



### CURB & GUTTER OR RAISED ISLAND



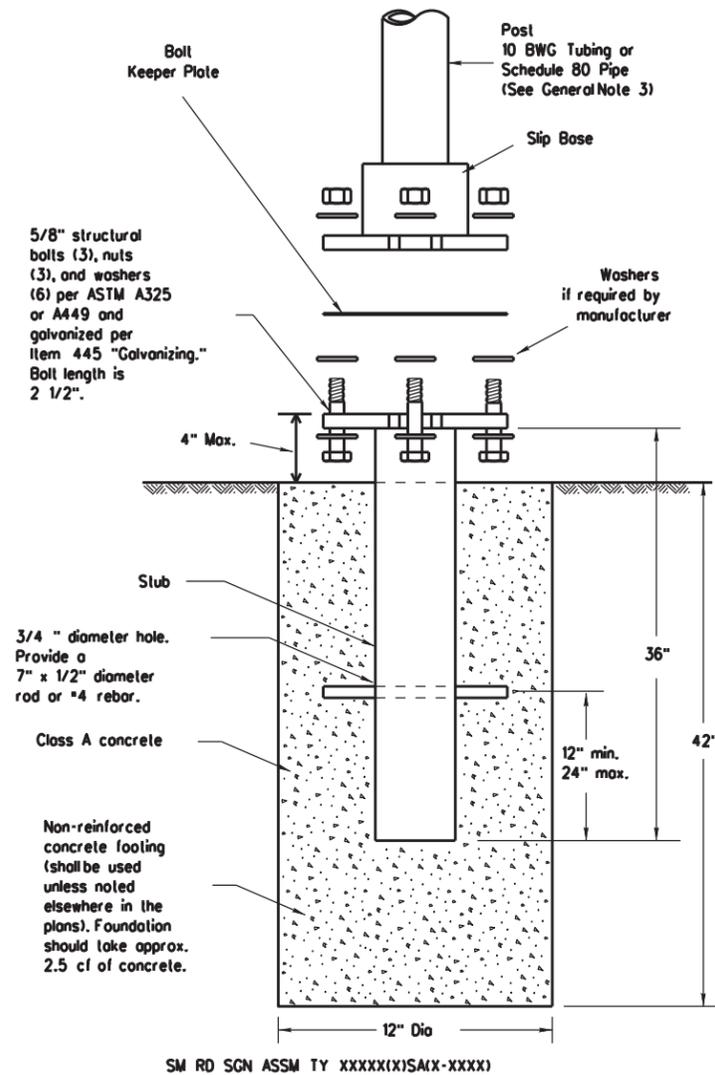
**Texas Department of Transportation**  
Traffic Operations Division

## 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
		DIST		COUNTY	SHEET NO.
					16

# TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



5/8" structural bolts (3), nuts (3), and washers (6) per ASTM A325 or A449 and galvanized per Item 445 "Galvanizing." Bolt length is 2 1/2".

3/4" diameter hole. Provide a 7" x 1/2" diameter rod or #4 rebar.

Class A concrete

Non-reinforced concrete footing (shall be used unless noted elsewhere in the plans). Foundation should take approx. 2.5 cf of concrete.

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](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.

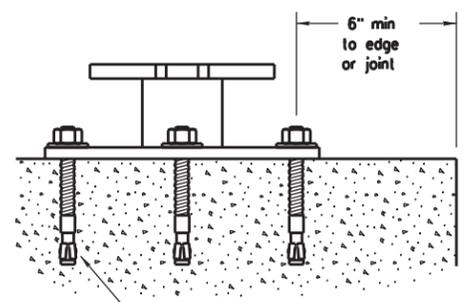
## GENERAL NOTES:

- 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.
- 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 pre-coated 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
- 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>
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

## ASSEMBLY PROCEDURE

- Foundation**
- 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.
  - 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.
  - 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.
  - Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
  - The triangular slipbase system is multidirectional and is designed to release when struck from any direction.
- Support**
- 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.
  - 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



5/8" diameter Concrete Anchor - 8 places (embed a minimum of 5 1/2" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.

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, "Epoxyes 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.

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Traffic Operations Division

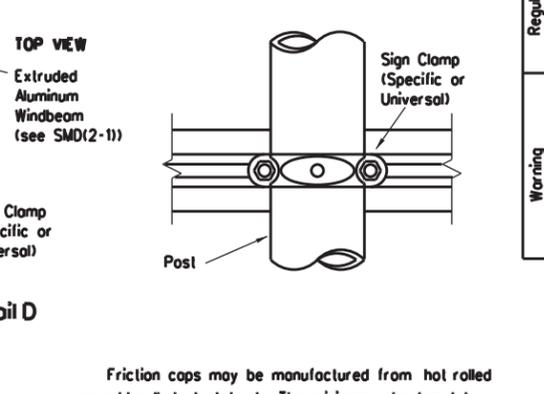
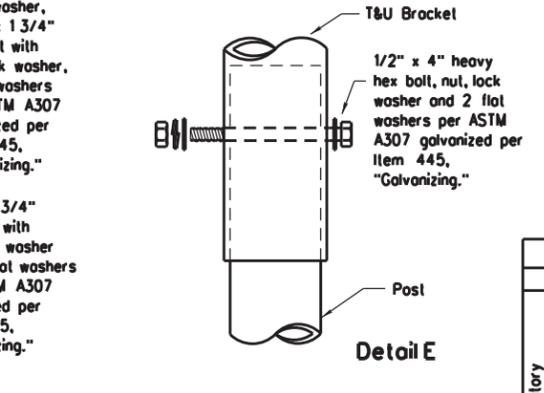
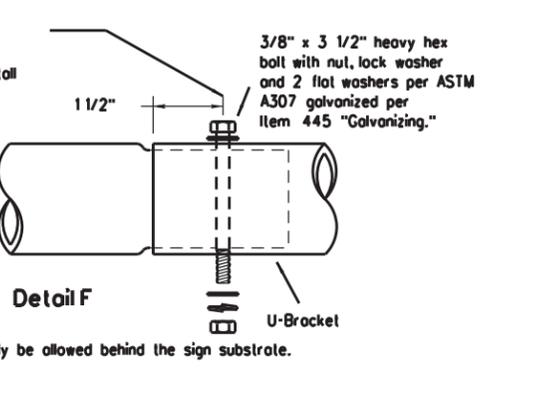
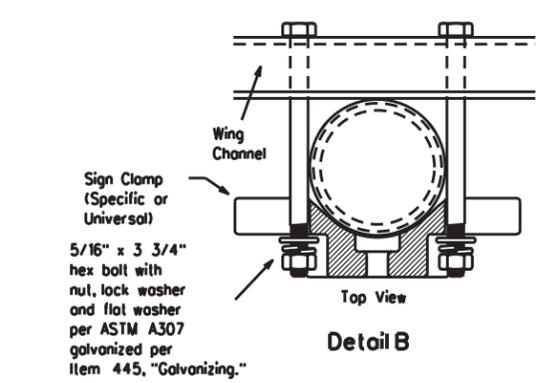
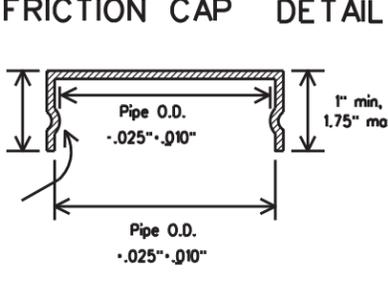
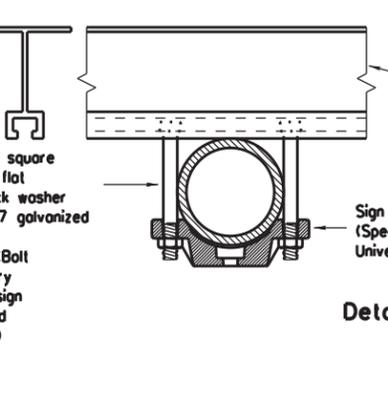
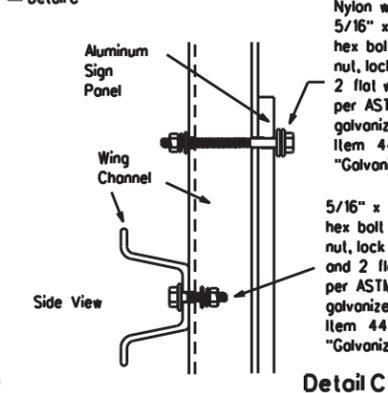
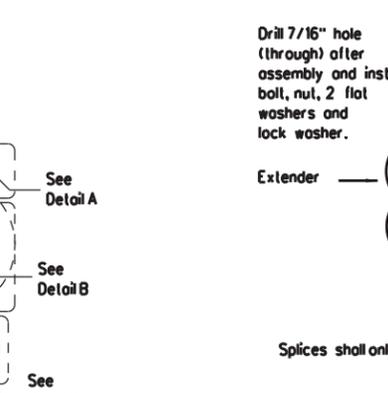
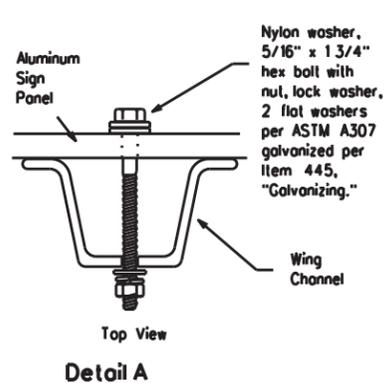
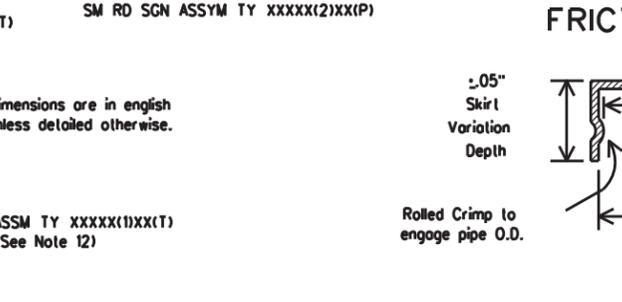
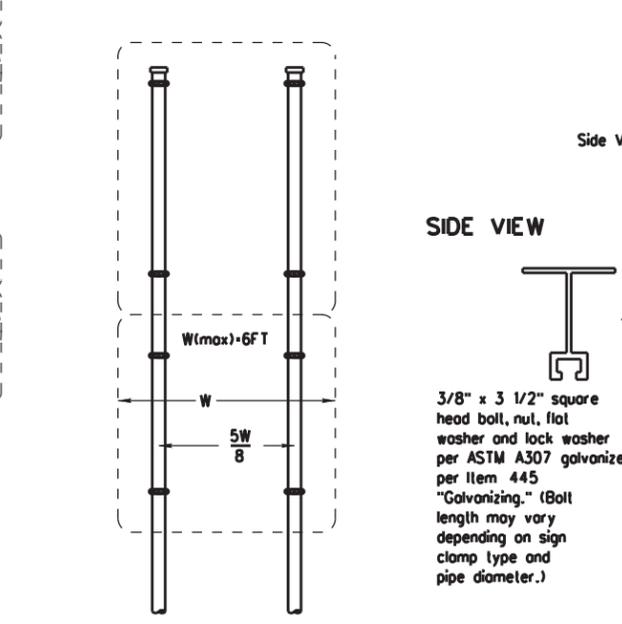
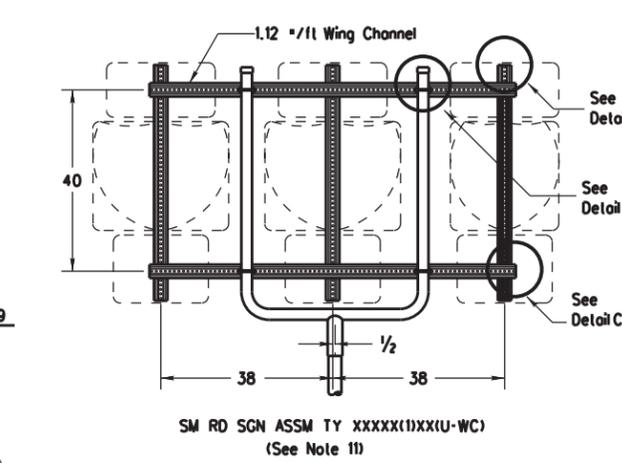
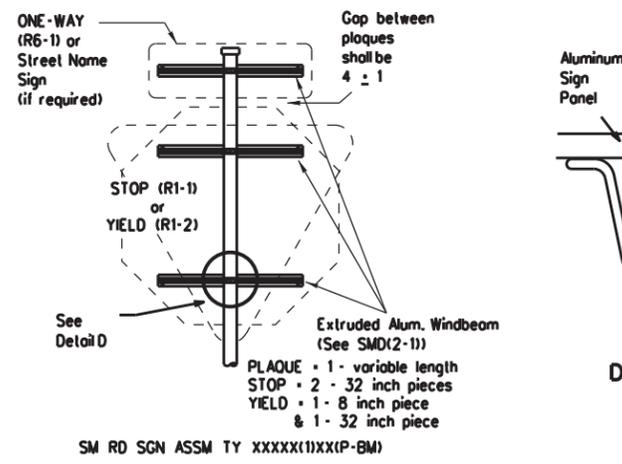
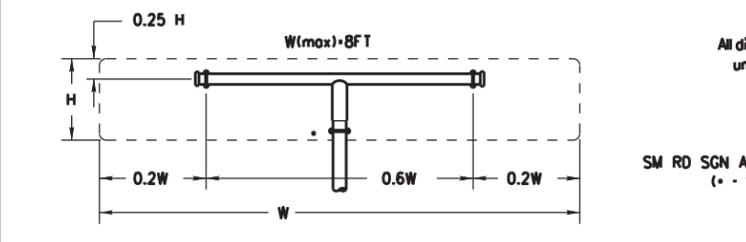
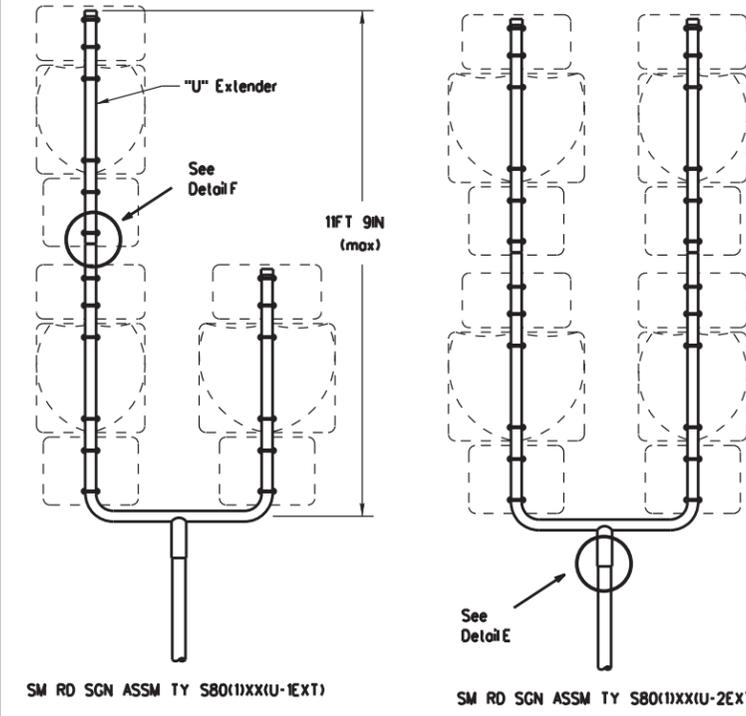
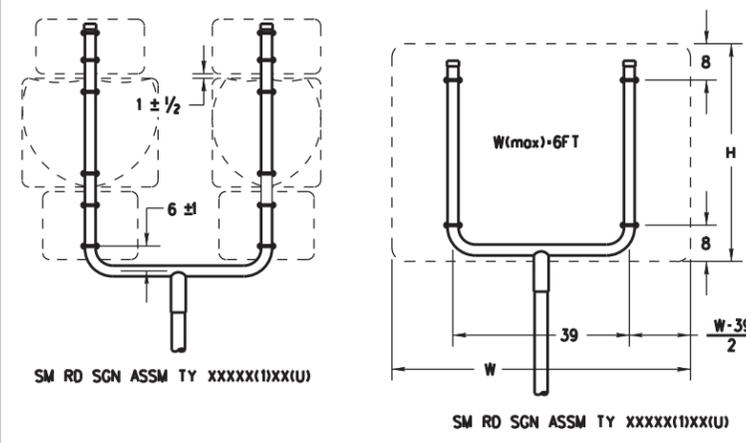
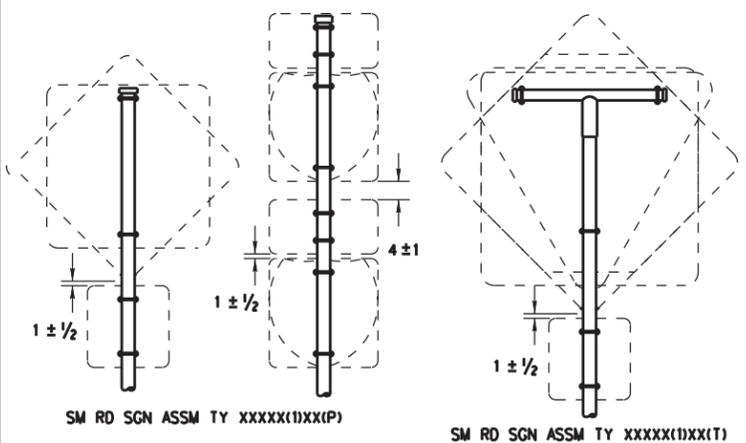
**SIGN MOUNTING DETAILS**  
**SMALL ROADSIDE SIGNS**  
**TRIANGULAR SLIPBASE SYSTEM**

**SMD(SLIP-1)-08**

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Friction caps may be manufactured from hot rolled or cold rolled steelsheets. 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.

GENERAL NOTES:

SIGN SUPPORT	NO. OF POSTS	MAX. SIGN AREA
10 BWC	1	16 SF
10 BWC	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

- The Engineer may require that a Schedule 80 post be used in place of a 10 BWC where a sign height is abnormally high due to a fill slope.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 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.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 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.
- 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.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- 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."
- Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
- 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.
- Post open ends shall be fitted with Friction Caps.
- Sign blanks shall be the sizes and shapes shown on the plans.

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

Texas Department of Transportation  
Traffic Operations Division

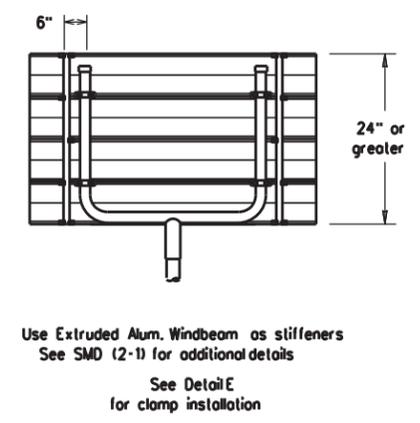
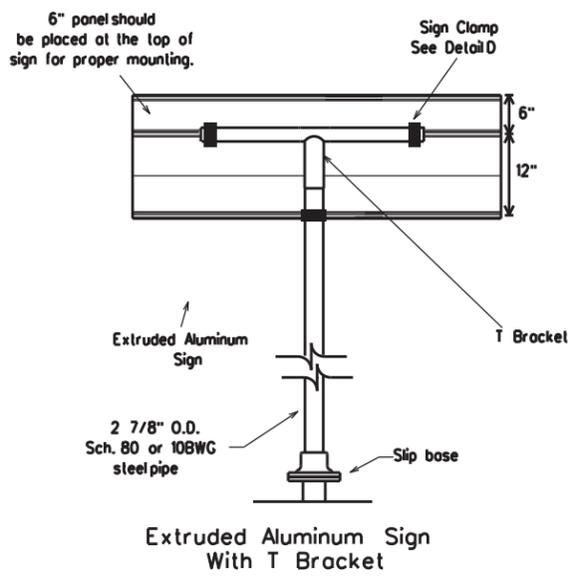
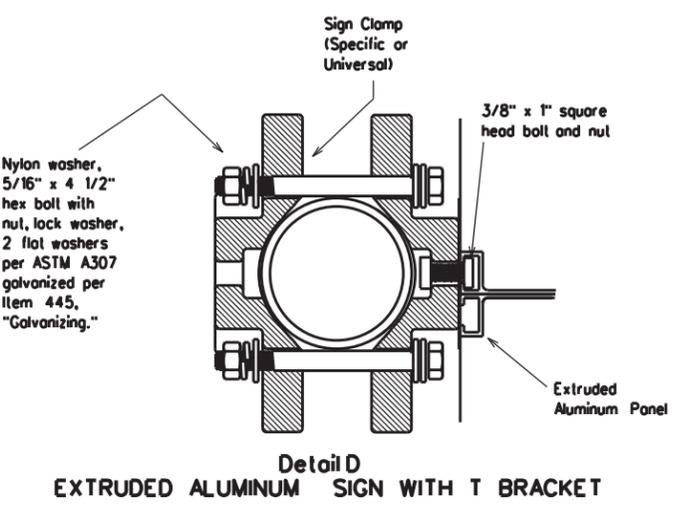
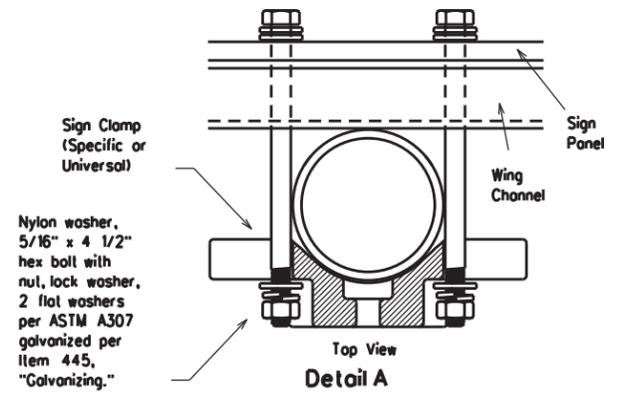
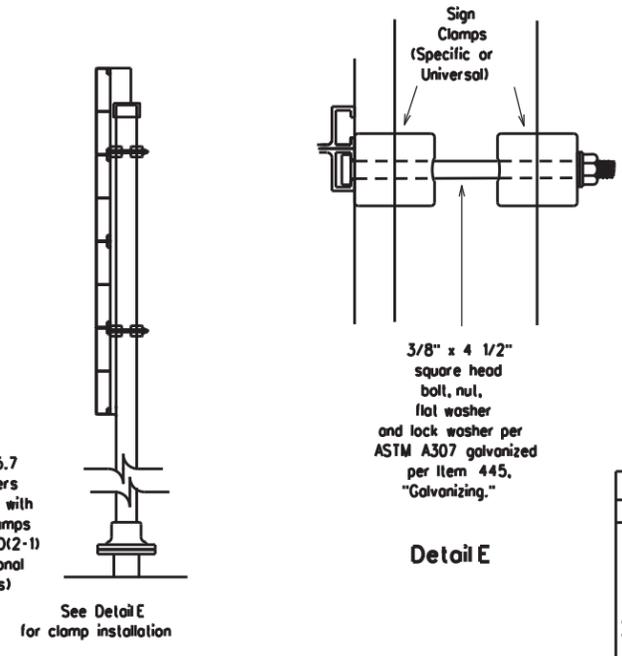
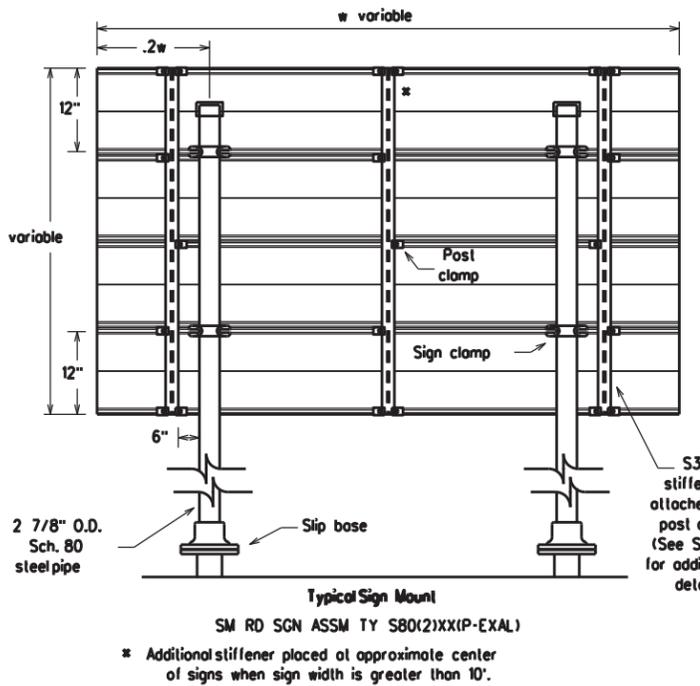
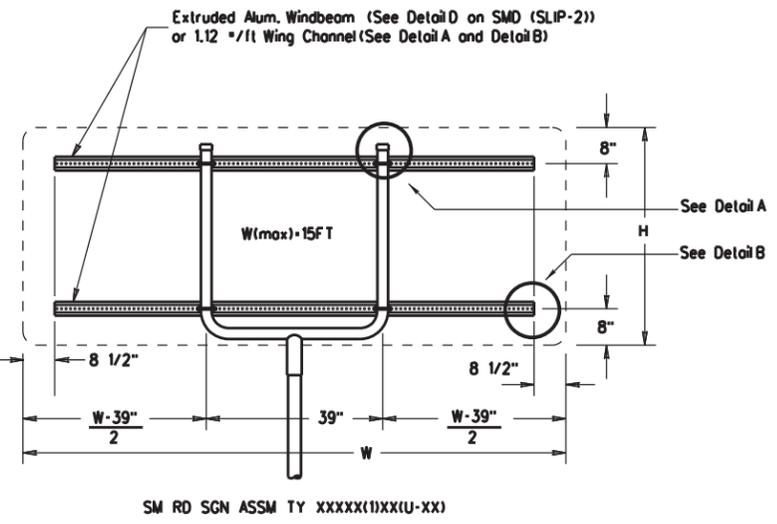
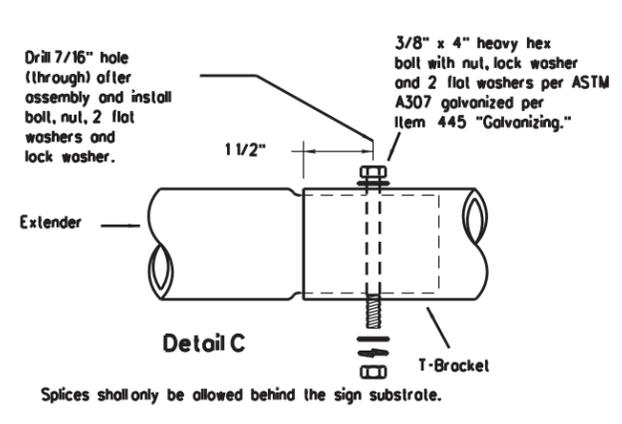
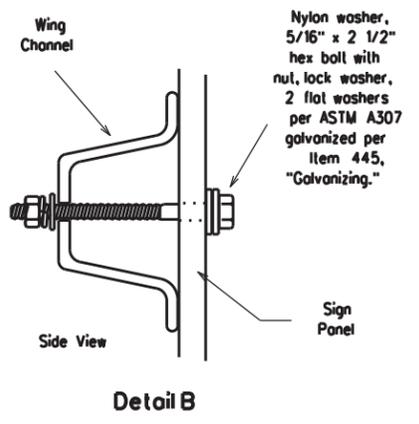
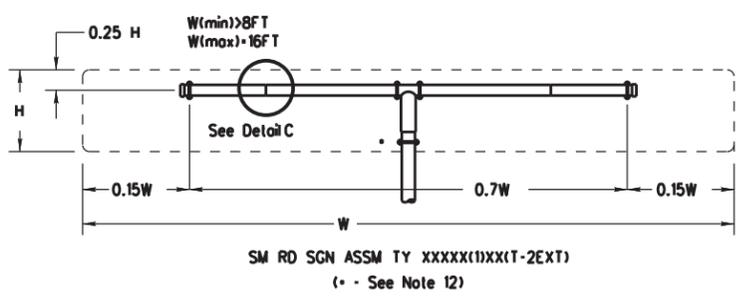
**SIGN MOUNTING DETAILS  
SMALL ROADSIDE SIGNS  
TRIANGULAR SLIPBASE SYSTEM**

**SMD(SLIP-2)-08**

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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          |
- 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.
- Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
- 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.
- Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
- 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.
- 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.
- Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
- 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."
- Sign blanks shall be the sizes and shapes shown on the plans.
- 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.
- Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT		
SIGN DESCRIPTION	SUPPORT	
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(IP-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(IP-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(IP-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
Warning	48x60-inch signs	TY S80(1)XX(T)
	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)

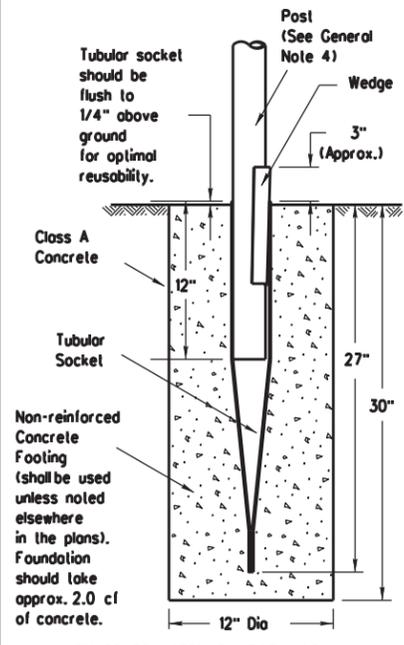


SIGN MOUNTING DETAILS  
SMALL ROADSIDE SIGNS  
TRIANGULAR SLIPBASE SYSTEM  
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				19

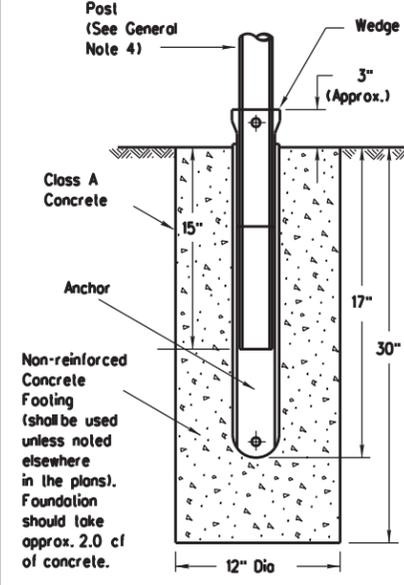
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### Wedge Anchor Steel System



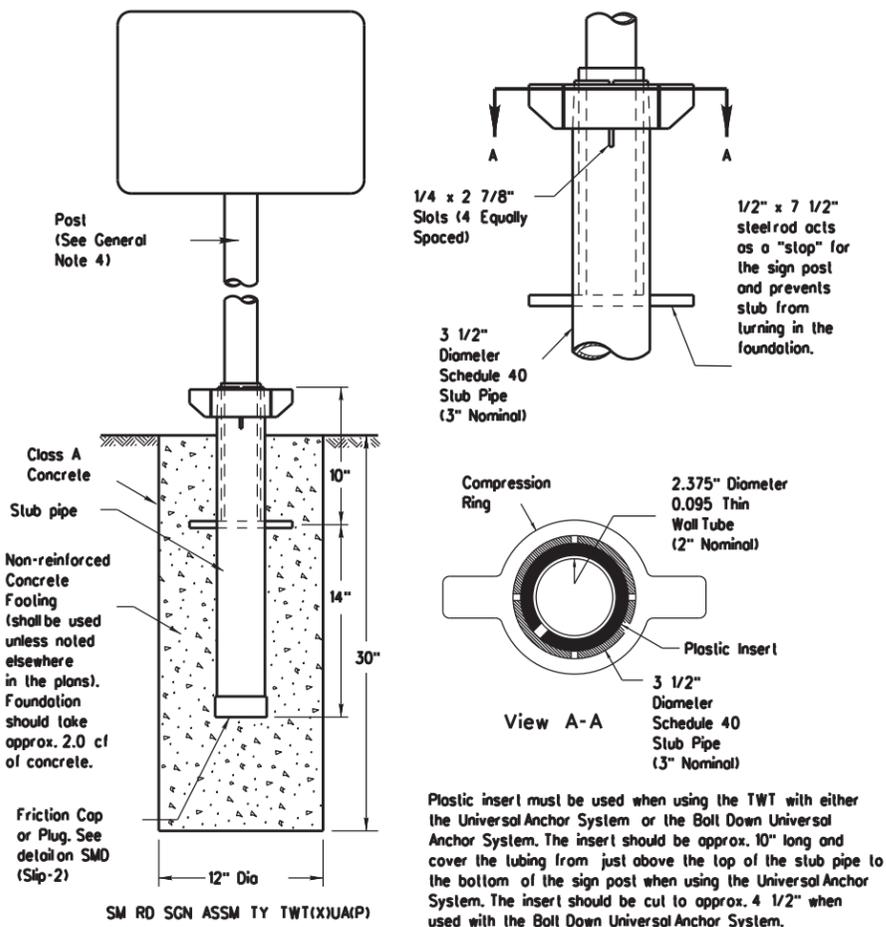
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### Wedge Anchor High Density Polyethylene (HDPE) System



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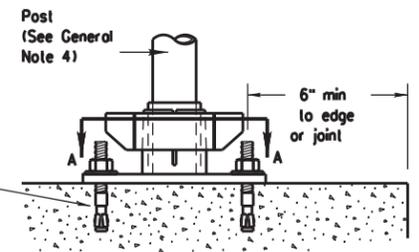
### Universal Anchor System with Thin-Walled Tubing Post



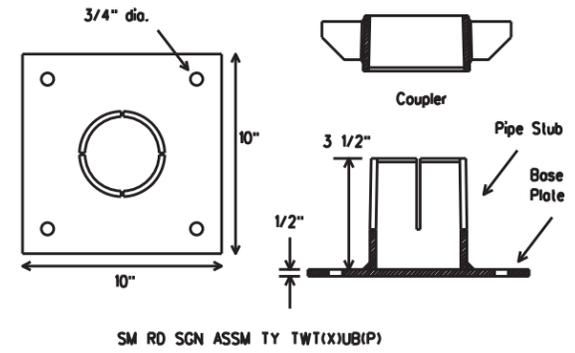
SM RD SGN ASSM TY TWT(X)UA(P)

Plastic insert must be used when using the TWT with either the Universal Anchor System or the Bolt Down Universal Anchor System. The insert should be approx. 10" long and cover the tubing from just above the top of the stub pipe to the bottom of the sign post when using the Universal Anchor System. The insert should be cut to approx. 4 1/2" when used with the Bolt Down Universal Anchor System.

5/8" diameter Concrete Anchor - 4 places (embed a min. of 3 3/8" and torque to min. of 50 ft-lbs). Anchor may be expansion or adhesive type.

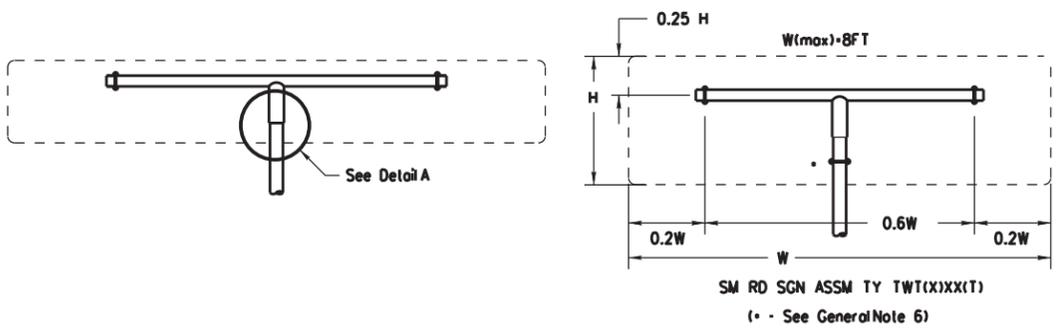


Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Top of bolt shall extend at least flush with top of nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 3 3/8" minimum embedment, shall have a minimum allowable tension and shear of 2450 and 1525 psi, respectively. Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxyes and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations.

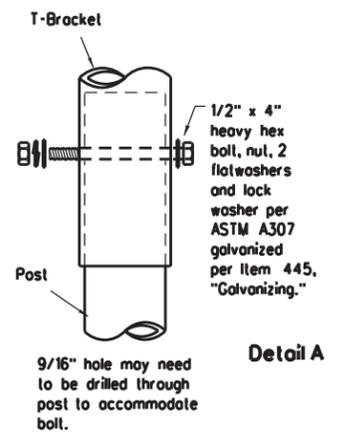


SM RD SGN ASSM TY TWT(X)UB(P)

### Sign Installation Using a Prefabricated T-Bracket for Thin-Wall Tubing Post



SM RD SGN ASSM TY TWT(X)XX(T)  
(\* - See General Note 6)



Detail A

NOTE  
The devices shall be installed per manufacturer's recommendations. Installation procedures shall be provided to the Engineer by Contractor.

- GENERAL NOTES:**
- The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
  - The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer, Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
  - Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: [http://www.txdot.gov/business/producer\\_list.htm](http://www.txdot.gov/business/producer_list.htm)
  - Material used as post with this system shall conform to the following specifications:  
13 BWG Tubing (2.375" outside diameter) (TWT)  
0.095" nominal wall thickness  
Seamless or electric-resistance welded steel tubing  
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  
18% minimum elongation in 2"  
Wall thickness (uncoated) shall be within the range of .083" to .099"  
Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"  
Galvanization per ASTM 123 or ASTM A653 G210. For pre-coated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
  - Sign blanks shall be the sizes and shapes shown on the plans.
  - Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
  - Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
  - See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: <http://www.txdot.gov/publications/traffic.htm>

- WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE**
- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
  - 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. Place concrete into hole until it is approximately flush with the ground. Concrete shall be Class A.
  - Insert tubular socket into concrete until top of socket is approximately 1/4" above the concrete footing.
  - Plumb the socket. Allow a minimum 4 days for concrete to set, unless otherwise directed by Engineer.
  - Attach the sign to the sign post.
  - Insert the sign post into socket and align sign face with roadway.
  - Drive the wedge into the socket to secure post. This will leave approximately 3 inches of the wedge exposed.

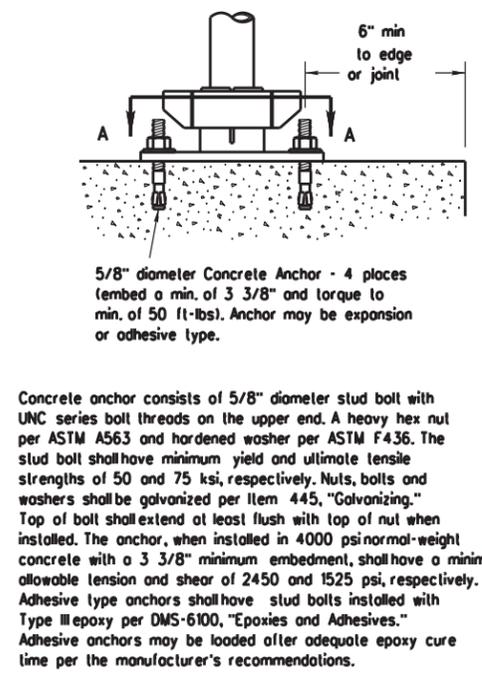
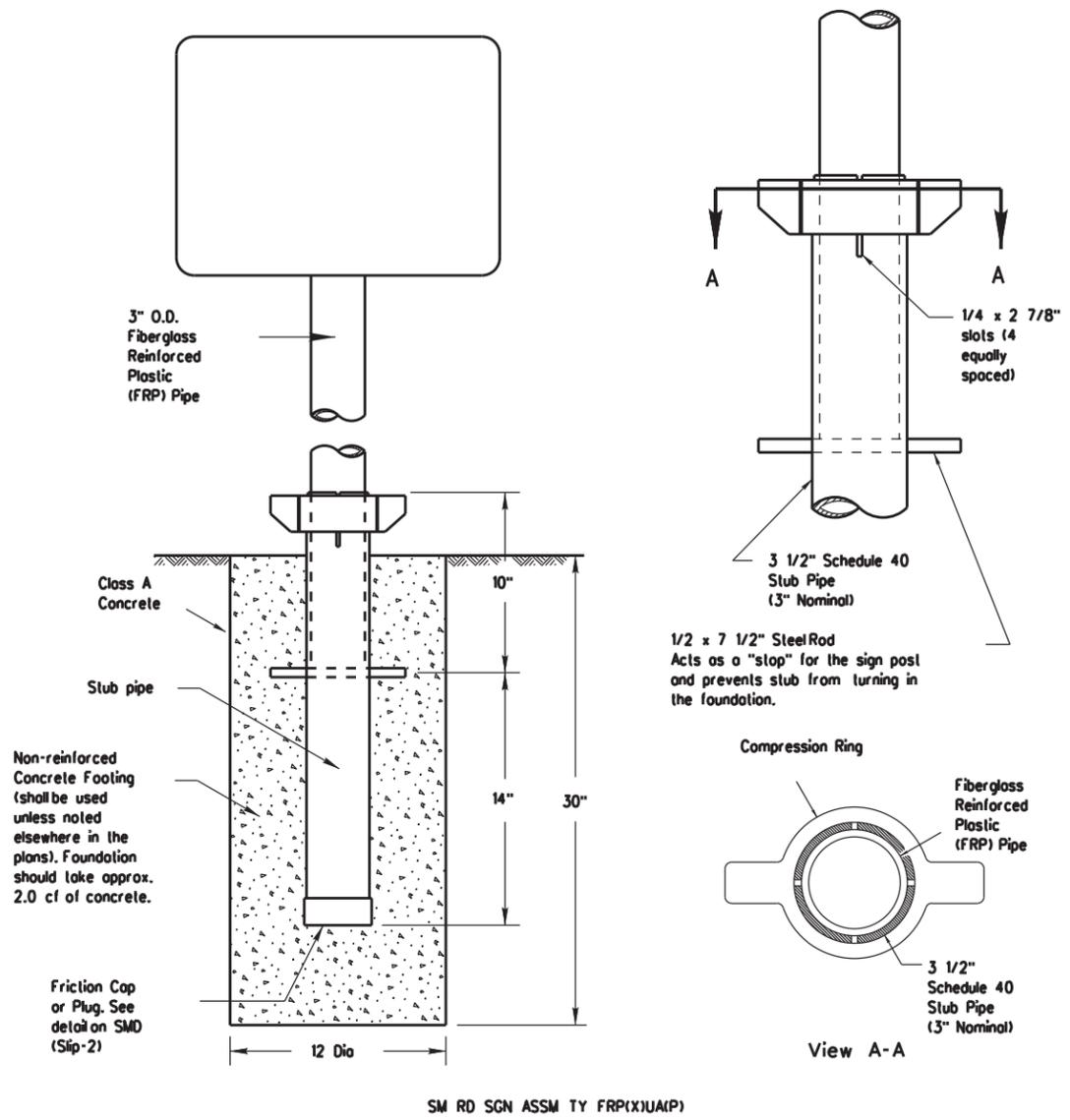
- UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE**
- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
  - Insert base post in hole to depths shown and backfill hole with concrete.
  - Level and plumb the base post using a torpedo level and allow concrete adequate time to set. The bottom of the slots provided in the stub pipe shall remain above the top of the concrete foundation.
  - Attach the sign to the sign post.
  - Install plastic insert around bottom of post.
  - Insert sign post into base post. Lower until the post comes to rest on steel rod.
  - Seat compression ring using a hammer. Typically, the top of compression ring will be approximately level with top of stub post when optimally installed.
  - Check sign post by hand to ensure it is unable to turn. If loose, increase the tightening of the compression ring.



## SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST SMD(TWT)-08

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## Universal Anchor System with Fiberglass Reinforced Plastic (FRP) Post



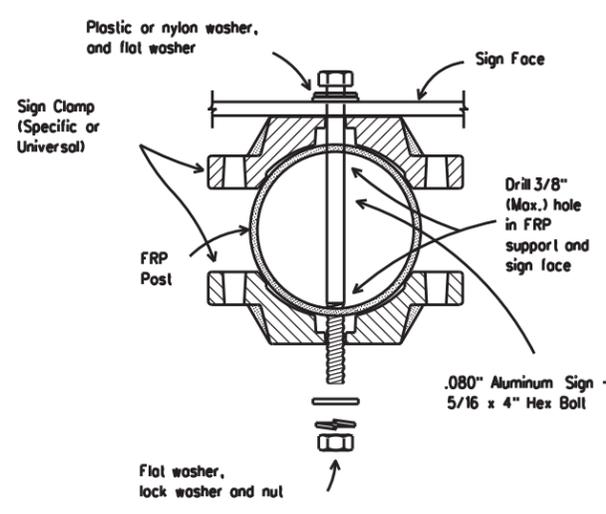
- GENERAL NOTES:**
- FRP sign supports for a single type sign support may be used for signs up to and including 16 square feet. Dual post installation may be used for signs up to and including 32 square feet.
  - All nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing."
  - See the Traffic Operations Division website for detailed drawings of sign clamps. The website address is: <http://www.txdot.gov/publications/traffic.htm>

- FRP POST REQUIREMENTS**
- Materials shall conform to the requirements of Departmental Material Specification DMS-4410 and will be furnished in a yellow or gray color as specified elsewhere in the plans.
  - Thickness of FRP sign support is 0.125" ± 0.031", - 0.0".
  - FRP sign supports are prequalified by the Traffic Operations Division. Prequalification procedures are obtained by writing:  
Texas Department of Transportation  
Traffic Operations Division  
125 East 11th Street  
Austin, Texas 78701-2483

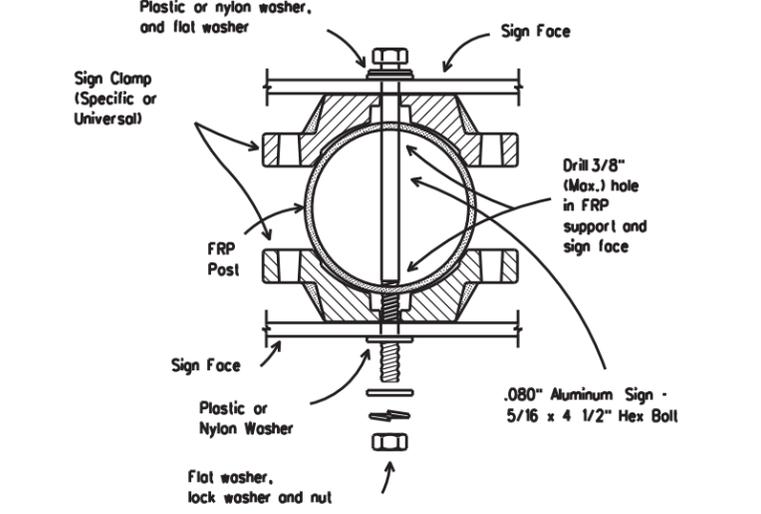
- UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURES**
- Dig foundation hole. Where solid rock is encountered at ground level, the foundation shall be a minimum depth of 18". When solid rock is encountered below ground level, the foundation shall extend in the solid rock a minimum depth of 18" or provide a minimum foundation depth of 30". If solid rock is encountered, the socket/stub may be reduced in length as required to a minimum length of 18". Any material removed from the socket/stub shall be from the bottom and the clearance requirements given on SMD(GEN) must be followed. The inner surfaces of the socket/stub must remain free of concrete or other debris.
  - 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.
  - Insert base post in foundation hole to depths shown and fill hole with concrete. Cut base post from bottom and ensure a minimum of 18" embedment if installed in solid rock.
  - Level and plumb the base post with coupler using a torpedo level and let concrete set a minimum of 4 days, unless otherwise directed by Engineer. Bottom of base post slots shall be above the concrete footing.
  - Attach sign to FRP post.
  - Insert sign post into base post. Lower until the post comes to rest on the steelrod.
  - Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
  - Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

- BOLT DOWN SIGN SUPPORT**
- Position base plate with coupler on existing concrete.
  - Drill holes into concrete and insert the 5/8" diameter bolts with wedge anchors, and tighten nuts.
  - Attach sign to FRP post.
  - Insert bottom of sign post into pipe stub.
  - Use hammer to ensure the coupler is firmly seated. Top of coupler should be level with top of base post in most instances.
  - Check sign to ensure there is no twist. If loose, increase the tightening of coupler.

### Typical Sign Mounting Detail for FRP Support with Single Sign



### Typical Sign Mounting Detail for FRP Support with Back-to-Back Signs



**Texas Department of Transportation**  
Traffic Operations Division

**SIGN MOUNTING DETAILS  
SMALL ROADSIDE SIGNS  
UNIVERSAL ANCHOR SYSTEM  
WITH FRP POST**

**SMD(FRP)-08**

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<b>9-08</b>	REVISIONS	CONT	SECT	JOB	HIGHWAY
		DIST	COUNTY	SHEET NO.	
					21

12/9/2019 L:\2019003400 HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TxDOT Standards\16 UNIVERSAL ANCHOR SYSTEM w FRP POST.smd(frp) - 08.dgn  
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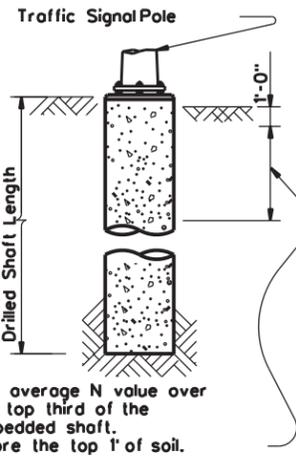
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**FOUNDATION DESIGN TABLE**

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft (4), (5), (6)			ANCHOR BOLT DESIGN (1)			FOUNDATION DESIGN LOAD (2)		TYPICAL APPLICATION	
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft			ANCHOR BOLT DIA	F <sub>y</sub> (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENTS K-ft		SHEAR Kips
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	3/4"	36	12 3/4"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 1/2"	55	17"	2	87	3	Most arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 3/4"	55	19"	2	131	5	Most arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Most arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with most arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 1/4"	55	23"	2	271	9	Most arm assembly. (see Selection Table)

**FOUNDATION SELECTION TABLE FOR STANDARD MAST ARM PLUS ILSN SUPPORT ASSEMBLIES (ft)**

80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
		24' x 24'			
MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	28' x 28'				
	32' x 28'				
	32' x 32'				
	36' x 36'				
100 MPH DESIGN WIND SPEED	40' x 36'				
	44' x 28'			44' x 36'	
	24' x 24'				
	28' x 28'				
MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	32' x 24'			32' x 32'	
				36' x 36'	
				40' x 24'	40' x 36'
				44' x 36'	



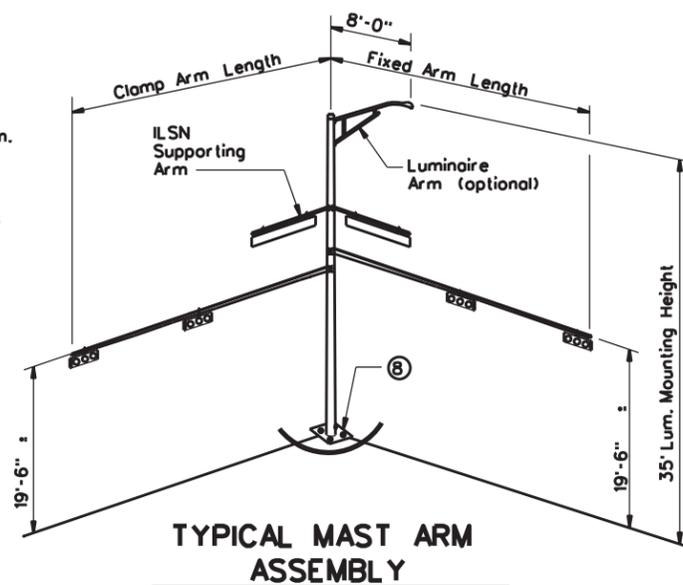
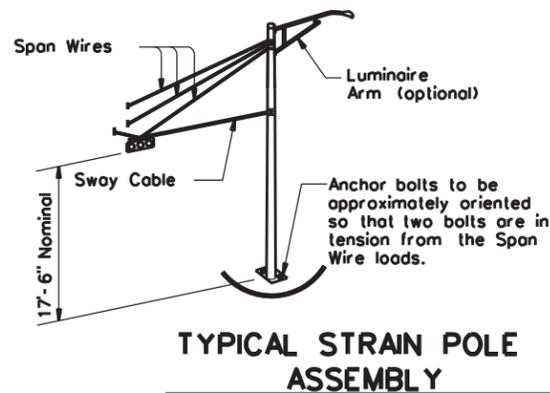
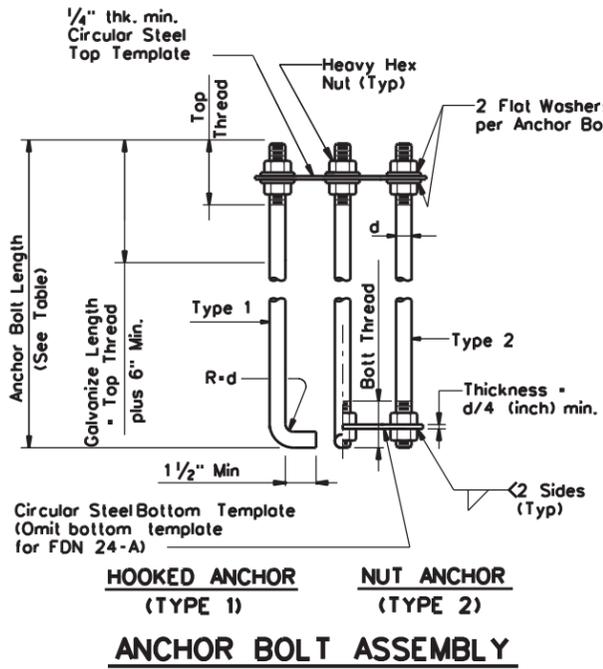
**ANCHOR BOLT & TEMPLATE SIZES**

BOLT DIA IN.	(7) BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R <sub>2</sub>	R <sub>1</sub>
3/4"	1'-6"	3"	—	12 3/4"	7 1/8"	5 3/8"
1 1/2"	3'-4"	6"	4"	17"	10"	7"
1 3/4"	3'-10"	7"	4 1/2"	19"	11 1/4"	7 3/4"
2"	4'-3"	8"	5"	21"	12 1/2"	8 1/2"
2 1/4"	4'-9"	9"	5 1/2"	23"	13 3/4"	9 1/4"

(7) Min dimensions given, longer bolts are acceptable.

**EXAMPLE:**

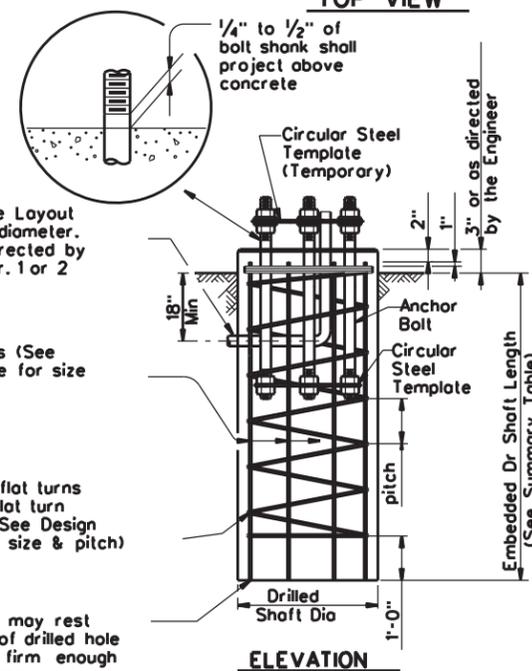
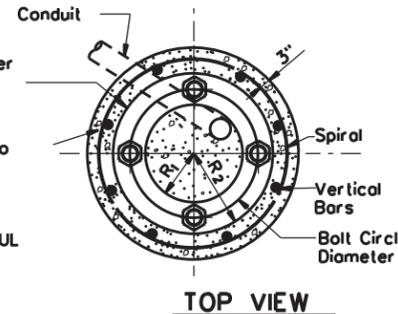
- For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
- For 100mph design wind speed, foundation 36-A can support a single 36' most arm.



(8) Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.

Steel Template with holes 1/16" greater than bolt diameter

Bond anchor bolts to rebar cage, two locations using #3 bar or #6 copper jumper. Mechanical connectors shall be UL Listed for concrete encasement.



Conduit (See Layout Sheets for diameter. Orient as directed by the Engineer. 1 or 2 required)

Vertical Bars (See Design Table for size & number).

Spiral, 3 flat turns top & 1 flat turn bottom. (See Design Table for size & pitch)

Vertical bars may rest on bottom of drilled hole if materials firm enough to do so when concrete is placed.

**FOUNDATION DETAILS**

**NOTES:**

- Anchor bolt design develops the foundation capacity given under Foundation Design Loads.
- Foundation Design Loads are the allowable moments and shears at the base of the structure.
- Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.
- Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.
- If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.
- Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

**FOUNDATION SUMMARY TABLE (3)**

LOCATION IDENTIFICATION	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH (6) (FEET)				
				24-A	30-A	36-A	36-B	42-A
<b>BALKY ST</b>								
POLE "A"	10	24-A	1	5.7				
POLE "B"	10	24-A	1	5.7				
POLE "C"	10	24-A	1	5.7				
POLE "D"	10	24-A	1	5.7				
<b>LV ELEM SCHOOL</b>								
POLE "E"	10	24-A	1	5.7				
POLE "F"	10	24-A	1	5.7				
POLE "G"	10	24-A	1	5.7				
POLE "H"	10	24-A	1	5.7				
<b>PEACH TREE ST</b>								
POLE "I"	10	24-A	1	5.7				
POLE "J"	10	24-A	1	5.7				
POLE "K"	10	24-A	1	5.7				
POLE "L"	10	24-A	1	5.7				
<b>TOTAL DRILLED SHAFT LENGTHS</b>				<b>68.4</b>				

**GENERAL NOTES:**

Design conforms to 1994 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals and interim revisions thereto.

Reinforcing steel shall conform to Item 440, "Reinforcing Steel".

Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of BUN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise noted. Exposed washers and exposed nuts shall be galvanized. All galvanizing shall be in accordance with Item 445, "Galvanizing".

Templates and embedded nuts need not be galvanized. Lubricate and tighten anchor bolts when erecting the structure in accordance with Item 449, "Anchor Bolts".



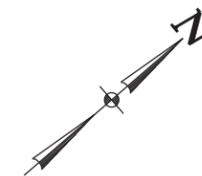
Ren Arredondo 12/5/19  
AC GROUP, LLC  
TBPE FIRM No. F-11727



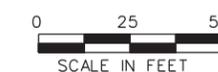
**TRAFFIC SIGNAL POLE FOUNDATION**

**TS-FD-12**

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REVISIONS		CONT	SECT	JOB	HIGHWAY
DIST		COUNTY		SHEET NO.	
				22	



HORIZ. SCALE: 1"=50'



LEGEND

- CONSTRUCTION AREA
- BARRICADE TY III
- TRAFFIC FLOW
- DRUM
- SIGN BASE

MATCHLINE "A"



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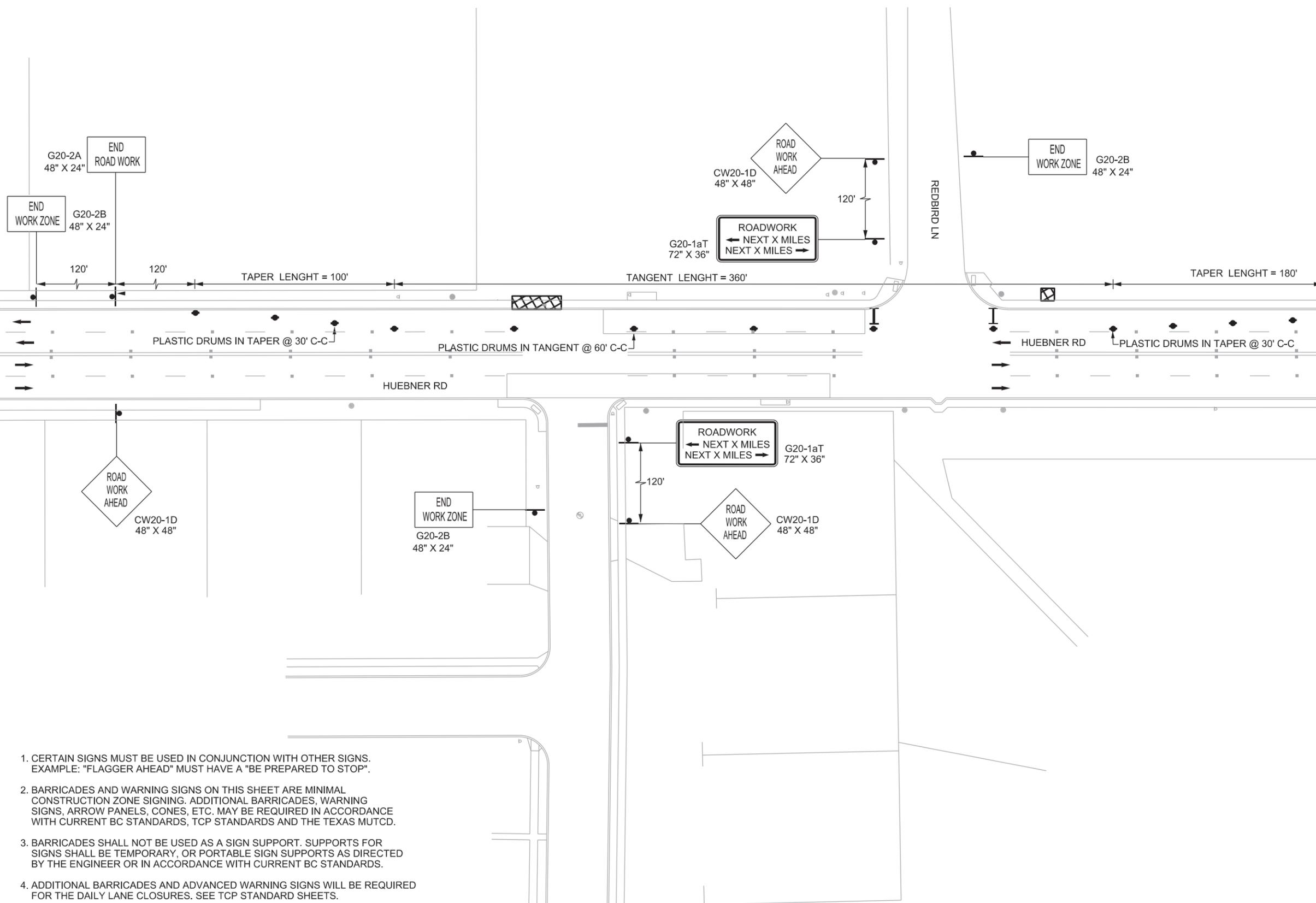
TBPE FIRM NO. F-11727 5828 SEBASTIAN PLACE, STE 108  
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HUEBNER RD AT BALKY ST

PHASE 1 TCP LAYOUT

SHEET 1 OF 2

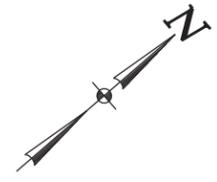
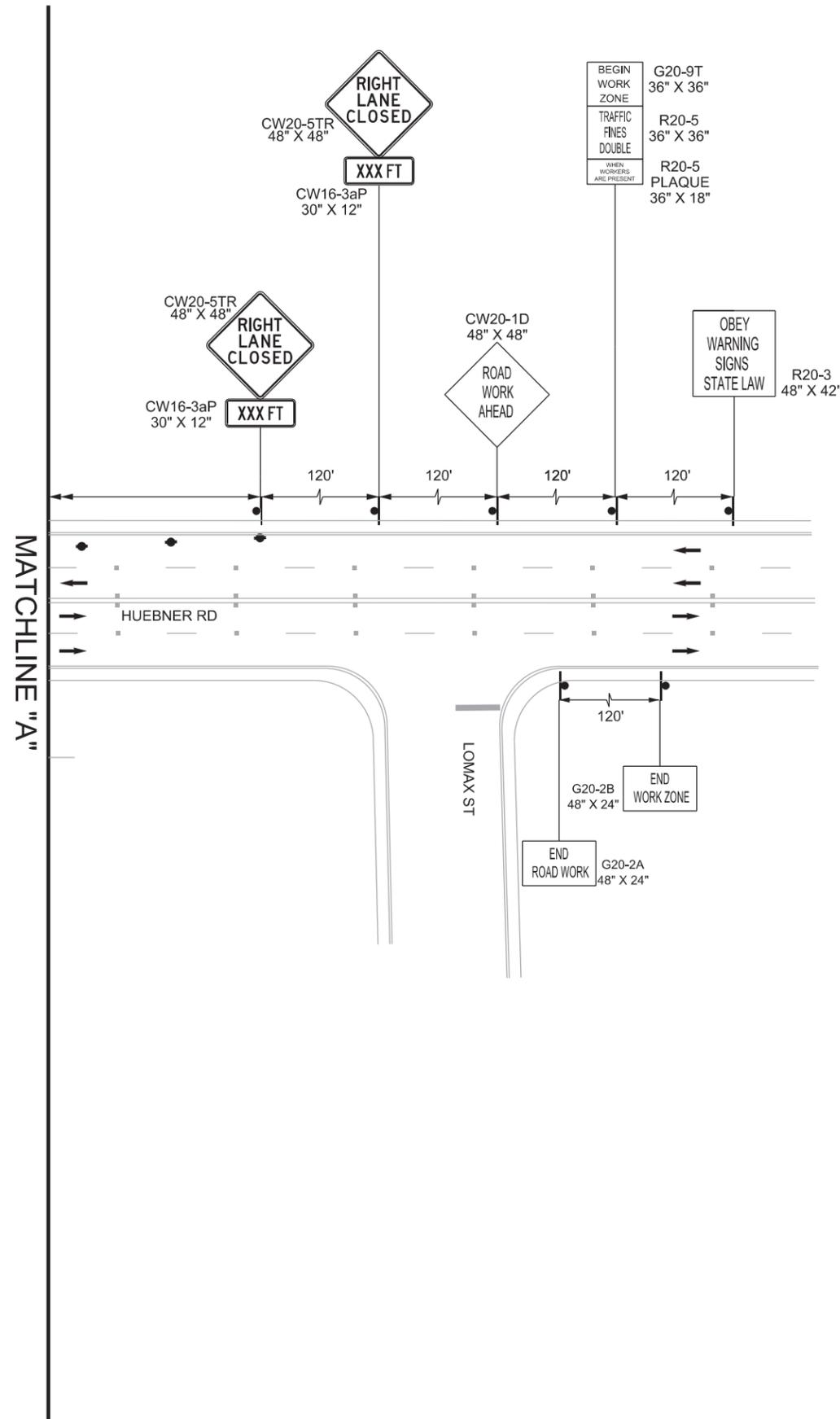
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STATE	STATE DIST. NO.	COUNTY
		SCALE
CONT	SECT	JOB
		HIGHWAY NO.



1. CERTAIN SIGNS MUST BE USED IN CONJUNCTION WITH OTHER SIGNS. EXAMPLE: "FLAGGER AHEAD" MUST HAVE A "BE PREPARED TO STOP".
2. BARRICADES AND WARNING SIGNS ON THIS SHEET ARE MINIMAL CONSTRUCTION ZONE SIGNING. ADDITIONAL BARRICADES, WARNING SIGNS, ARROW PANELS, CONES, ETC. MAY BE REQUIRED IN ACCORDANCE WITH CURRENT BC STANDARDS, TCP STANDARDS AND THE TEXAS MUTCD.
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5. BARRICADES AND ADVANCED WARNING SIGNS SHALL BE REMOVED DURING NON - CONSTRUCTION HOURS.

12/9/2019 L:\2019030400 HUEBNER AND BALKY PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TCP\TCP PHASE 1 BALKY TCP LAYOUT 1 OF 2.dgn

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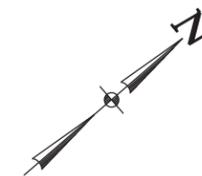
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	BARRICADE TY III
	TRAFFIC FLOW
	DRUM
	SIGN BASE



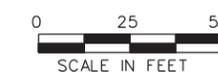
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 TBPE FIRM No. F-11727

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HUEBNER RD AT BALKY ST			
PHASE 1 TCP LAYOUT			
SHEET 2 OF 2			
FED. RD. DEV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
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CONT	SECT	JOB	HIGHWAY NO.

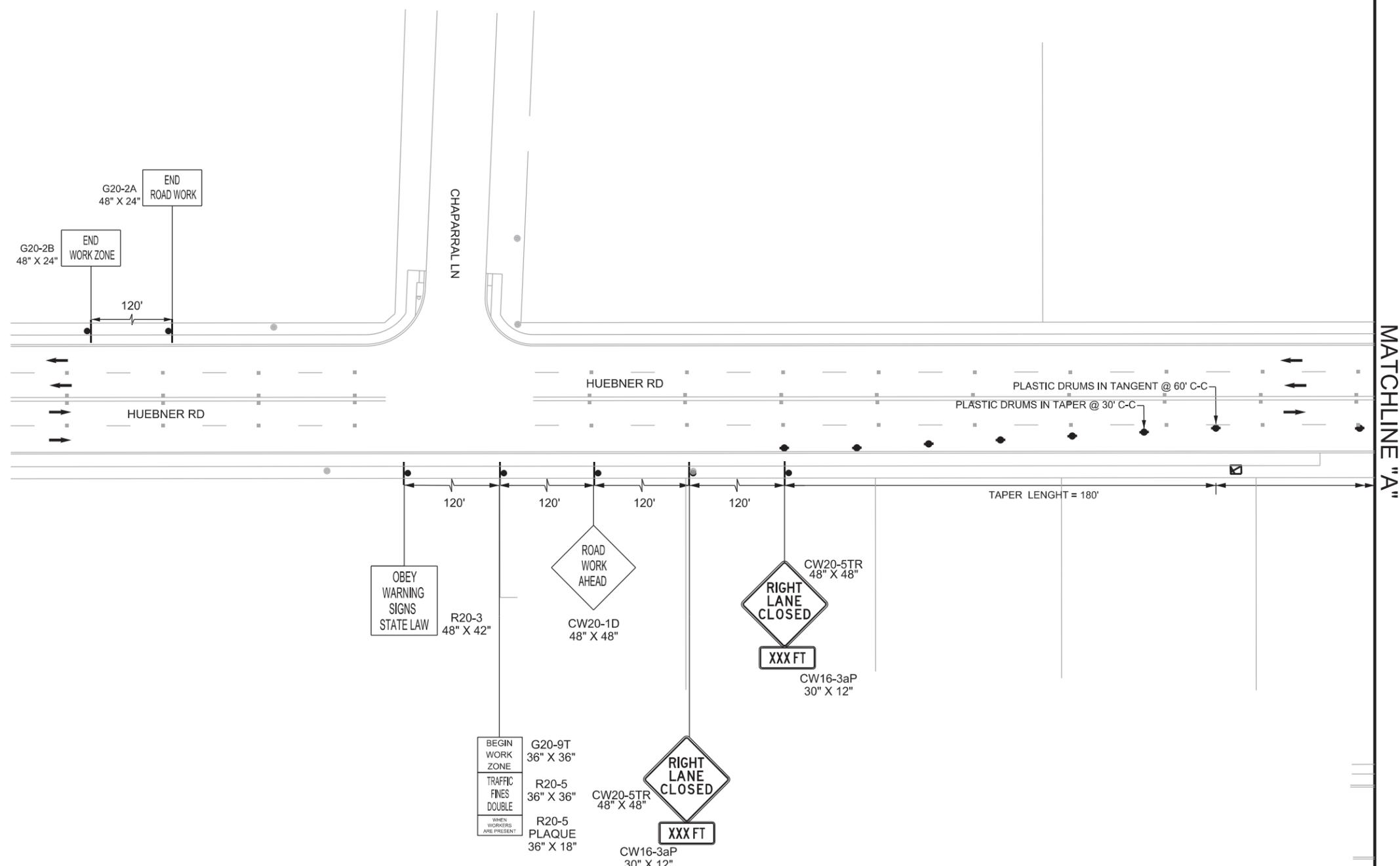


HORIZ. SCALE: 1"=50'



LEGEND

- CONSTRUCTION AREA
- BARRICADE TY III
- TRAFFIC FLOW
- DRUM
- SIGN BASE



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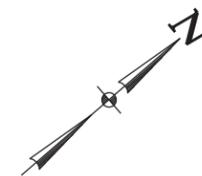
HUEBNER RD AT BALKY ST

PHASE 2 TCP LAYOUT

SHEET 1 OF 2

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		SCALE
CONT	SECT	JOB
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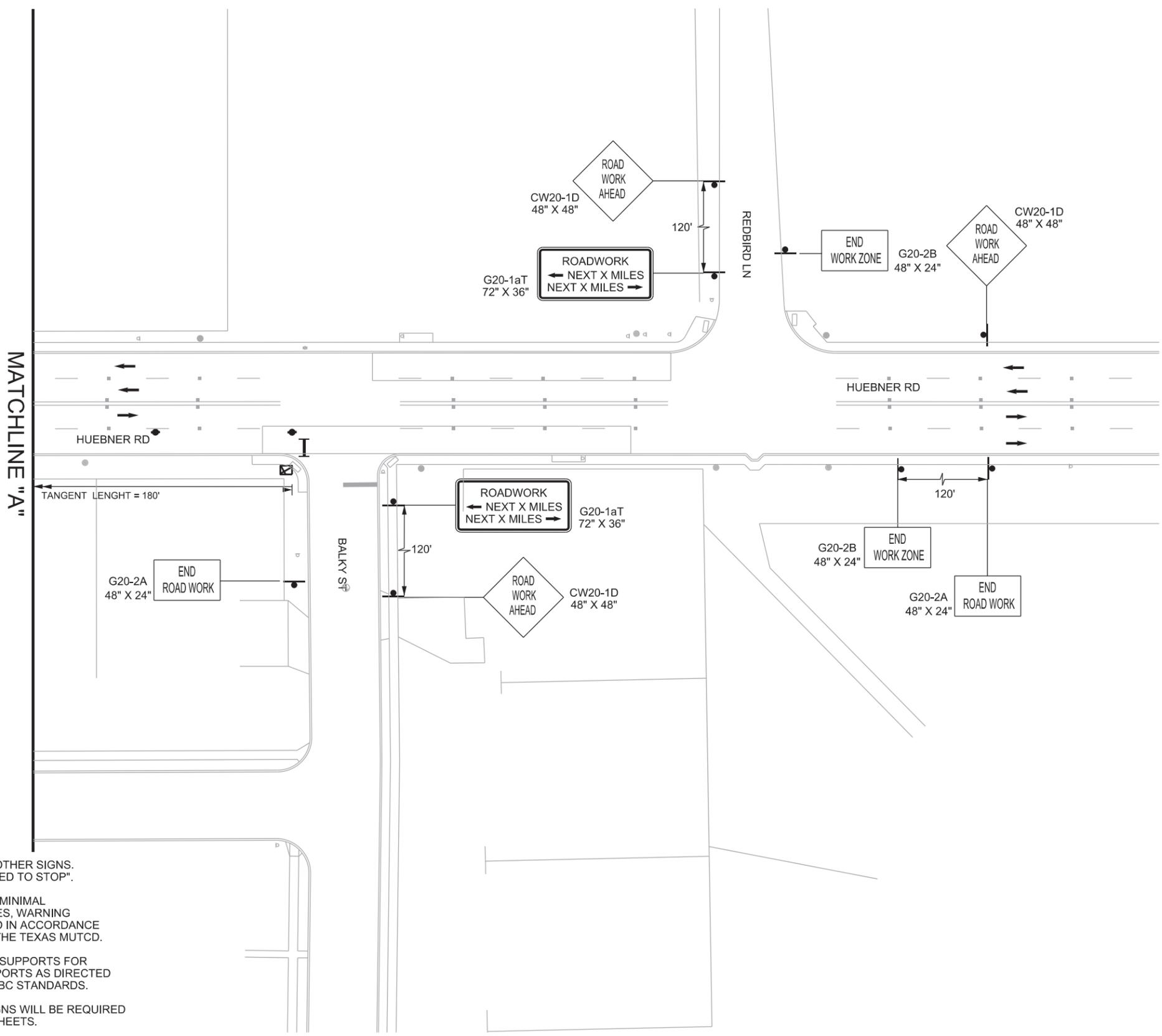


HORIZ. SCALE: 1"=50'



LEGEND

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- BARRICADE TY III
- TRAFFIC FLOW
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HUEBNER RD AT BALKY ST

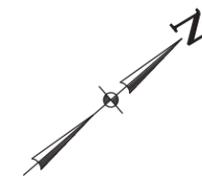
PHASE 2 TCP LAYOUT

SHEET 2 OF 2

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		SCALE
CONT	SECT	JOB
		HIGHWAY NO.

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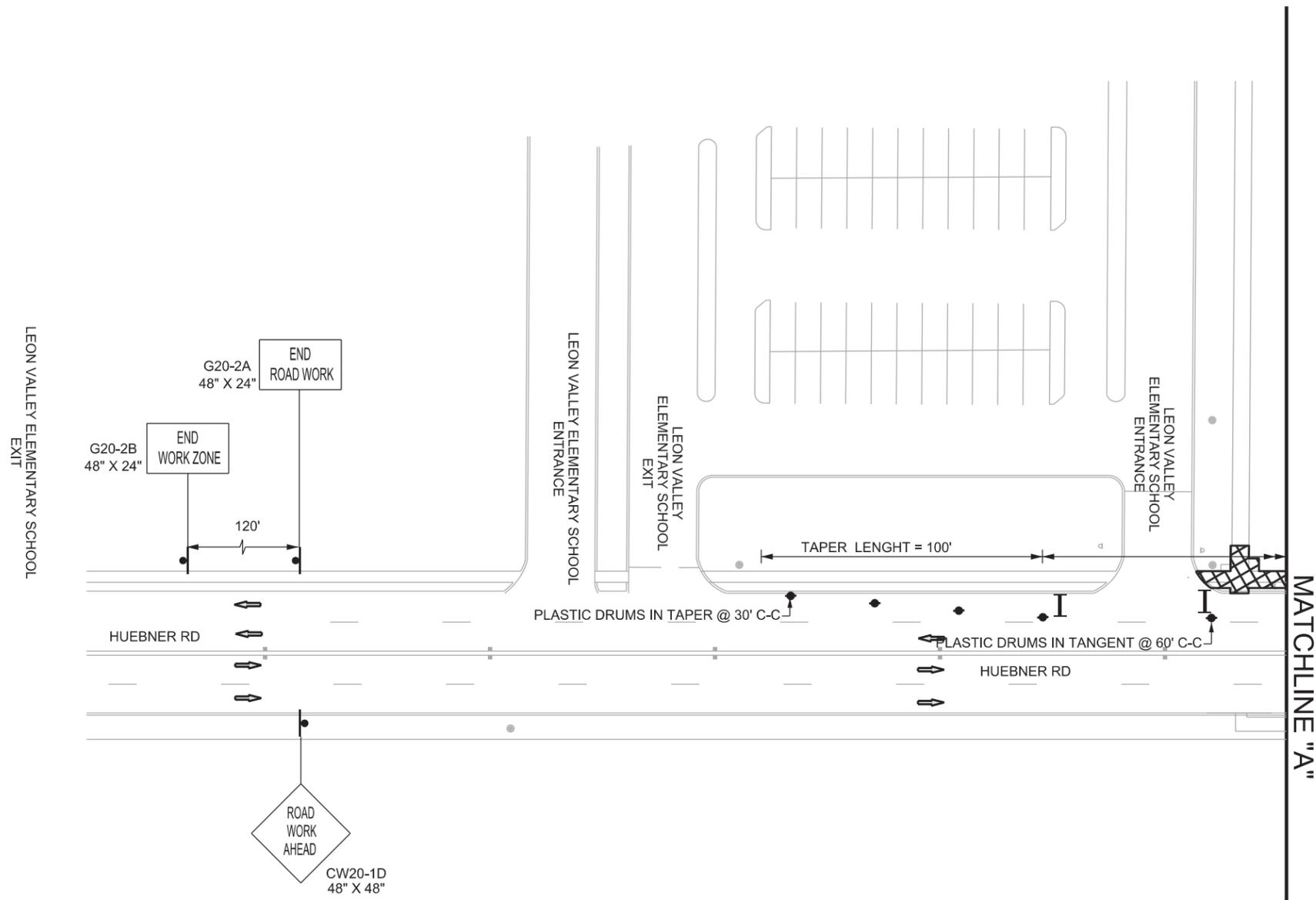


HORIZ. SCALE: 1"=50'



**LEGEND**

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- TRAFFIC FLOW
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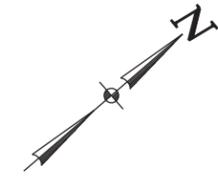
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ELEMENTARY SCHOOL**

**PHASE 1 TCP LAYOUT**

SHEET 1 OF 2

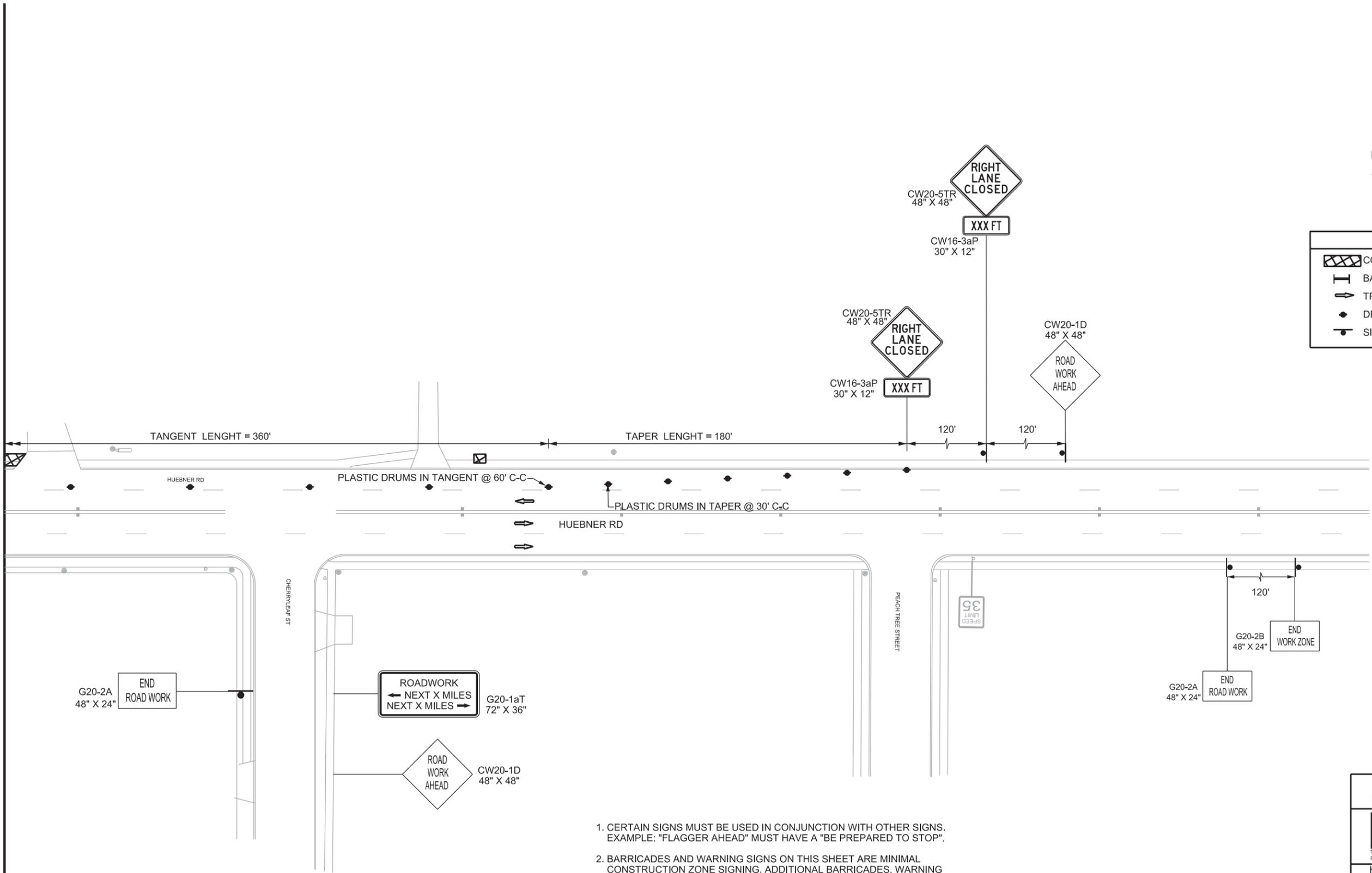
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	BARRICADE TY III
	TRAFFIC FLOW
	DRUM
	SIGN BASE

MATCHLINE "A"

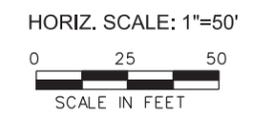
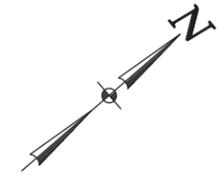


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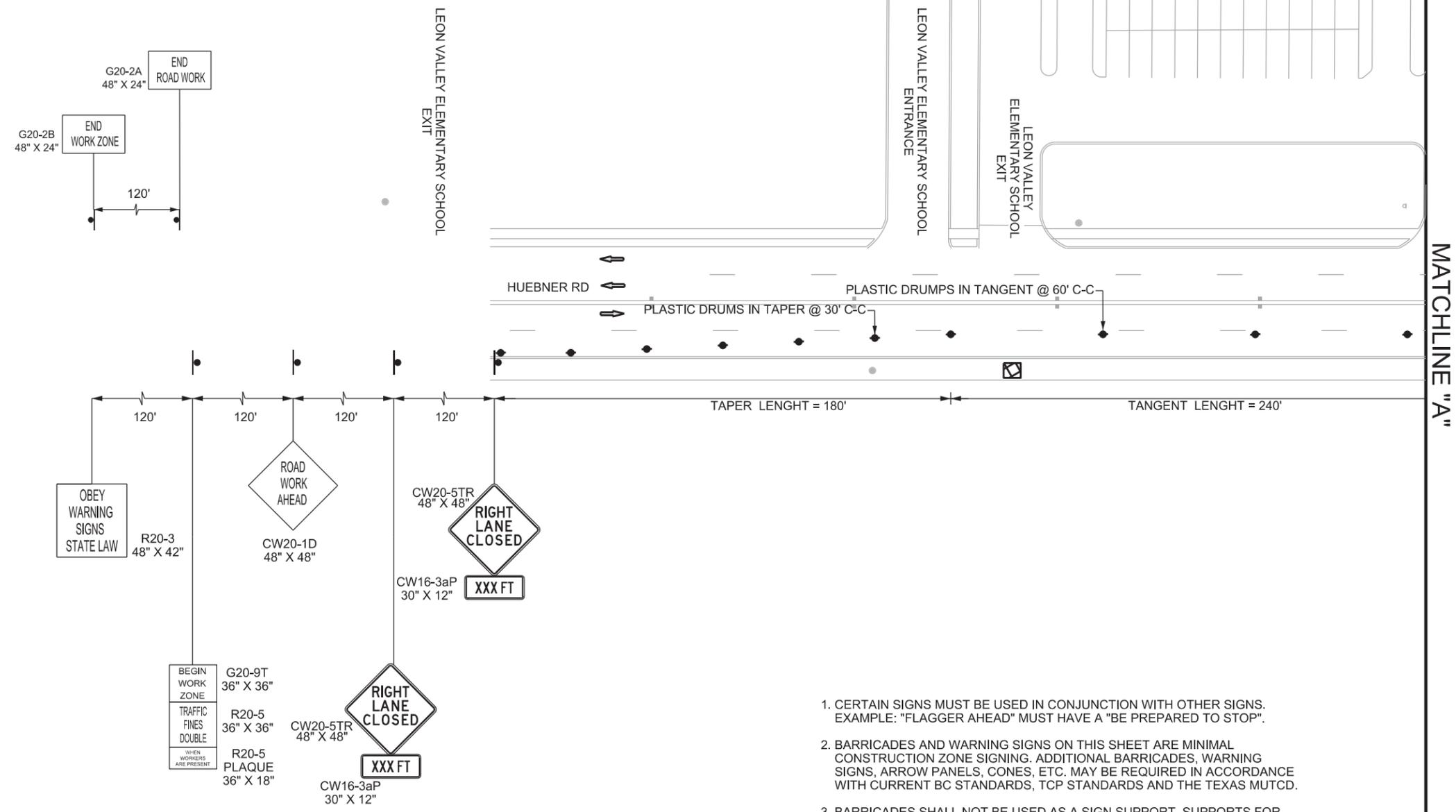
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TBPE FIRM NO. F-11727 5828 SEBASTIAN PLACE, STE 108 P. (210) 535-3558 SAN ANTONIO, TEXAS 78249			
HUEBNER RD AT LEON VALLEY ELEMENTARY SCHOOL			
PHASE 1 TCP LAYOUT			
SHEET 2 OF 2			
FED. RD. DIST. NO.	FEDERAL AID PROJECT NO.	SHEET NO.	
STATE	STATE DIST. NO.	COUNTY	SCALE
CONT.	SECT.	JOB	HIGHWAY NO.

12/9/2019 L:\2019013000 HUEBNER AND LEON VALLEY ELEMENTARY SCHOOL PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TCP\TCP PHASE 2 LEON VALLEY ELEM TCP LAYOUT 1 OF 2.dgn



LEGEND	
	CONSTRUCTION AREA
	BARRICADE TY III
	TRAFFIC FLOW
	DRUM
	SIGN BASE



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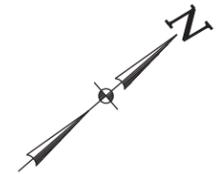
HUEBNER RD AT LEON VALLEY  
ELEMENTARY SCHOOL

PHASE 2 TCP LAYOUT

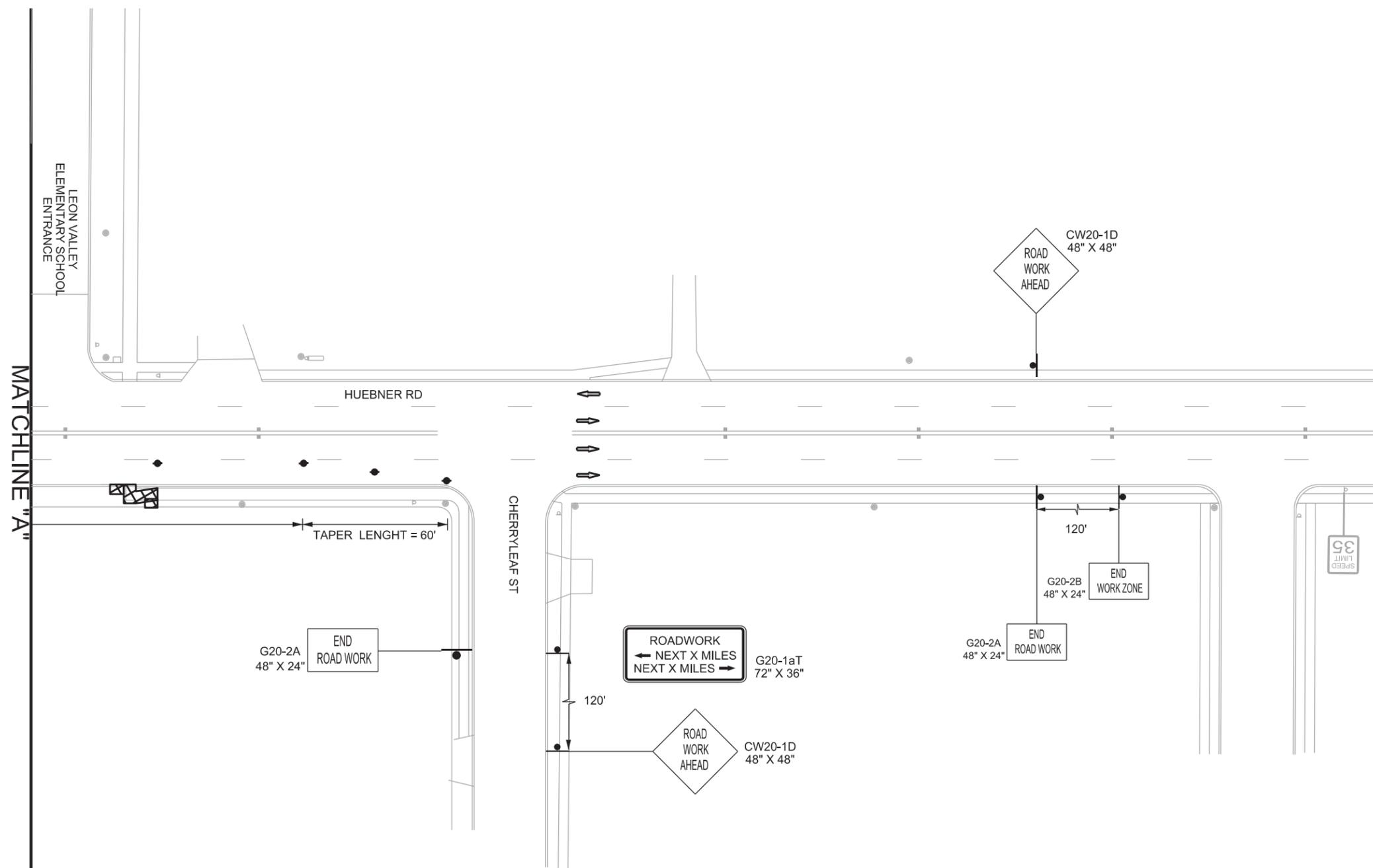
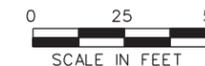
SHEET 1 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
		29
STATE	STATE DIST. NO.	COUNTY
		SCALE
CONT	SECT	JOB
		HIGHWAY NO.

12/9/2019 L:\2019013000 HUEBNER AND LEON VALLEY ELEMENTARY SCHOOL PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TCP\TCP PHASE 2 LEON VALLEY ELEM TCP LAYOUT 2 OF 2.dgn



HORIZ. SCALE: 1"=50'



LEGEND	
	CONSTRUCTION AREA
	BARRICADE TY III
	TRAFFIC FLOW
	DRUM
	SIGN BASE



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LEON VALLEY  
PUBLIC WORKS DEPARTMENT



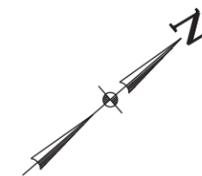
TRAFFIC ENGINEERING AND DATA COLLECTION  
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HUEBNER RD AT LEON VALLEY  
ELEMENTARY SCHOOL

PHASE 2 TCP LAYOUT

SHEET 2 OF 2

FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
		30
STATE	STATE DIST. NO.	COUNTY
		SCALE
CONT	SECT	JOB
		HIGHWAY NO.



HORIZ. SCALE: 1"=50'



LEGEND

- CONSTRUCTION AREA
- BARRICADE TY III
- TRAFFIC FLOW
- DRUM
- SIGN BASE



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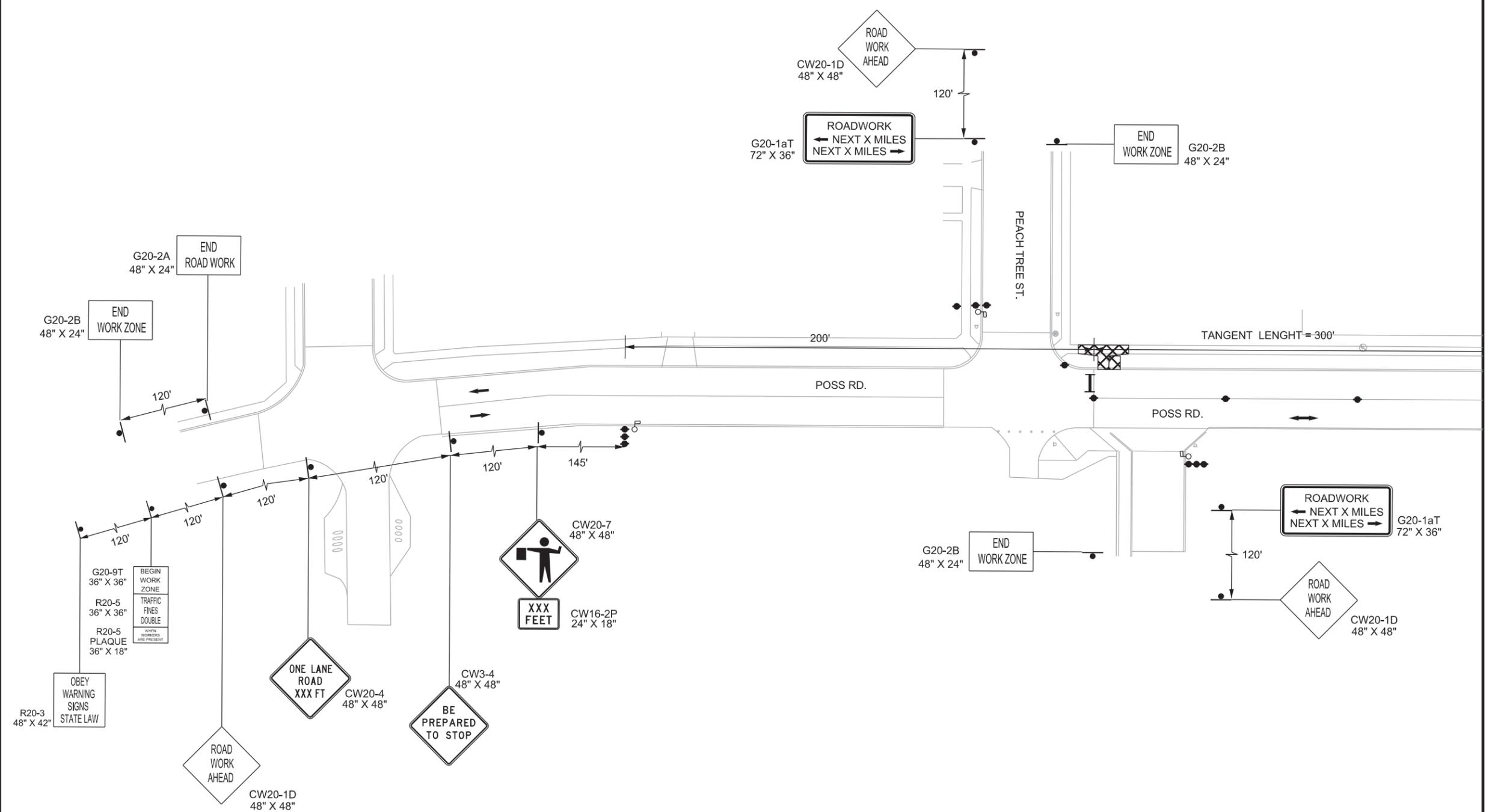
TBPE FIRM NO. F-11727 5828 SEBASTIAN PLACE, STE 108  
 P. (210) 535-3558 SAN ANTONIO, TEXAS 78249

PEACH TREE ST  
 AT POSS RD

PHASE 1 TCP LAYOUT

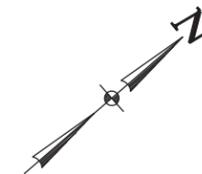
SHEET 1 OF 2

FED. RD. DEV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
		31
STATE	STATE DIST. NO.	COUNTY
		SCALE
CONT	SECT	JOB
		HIGHWAY NO.



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12/9/2019 L:\2019013400 PEACH TREE ST and POSS RD PEDESTRIAN CROSSING (LNN)\4-0 Production\4-01 Drawings\TCP\PHASE 1 PEACH TREE TCP LAYOUTS 1 OF 2.dgn

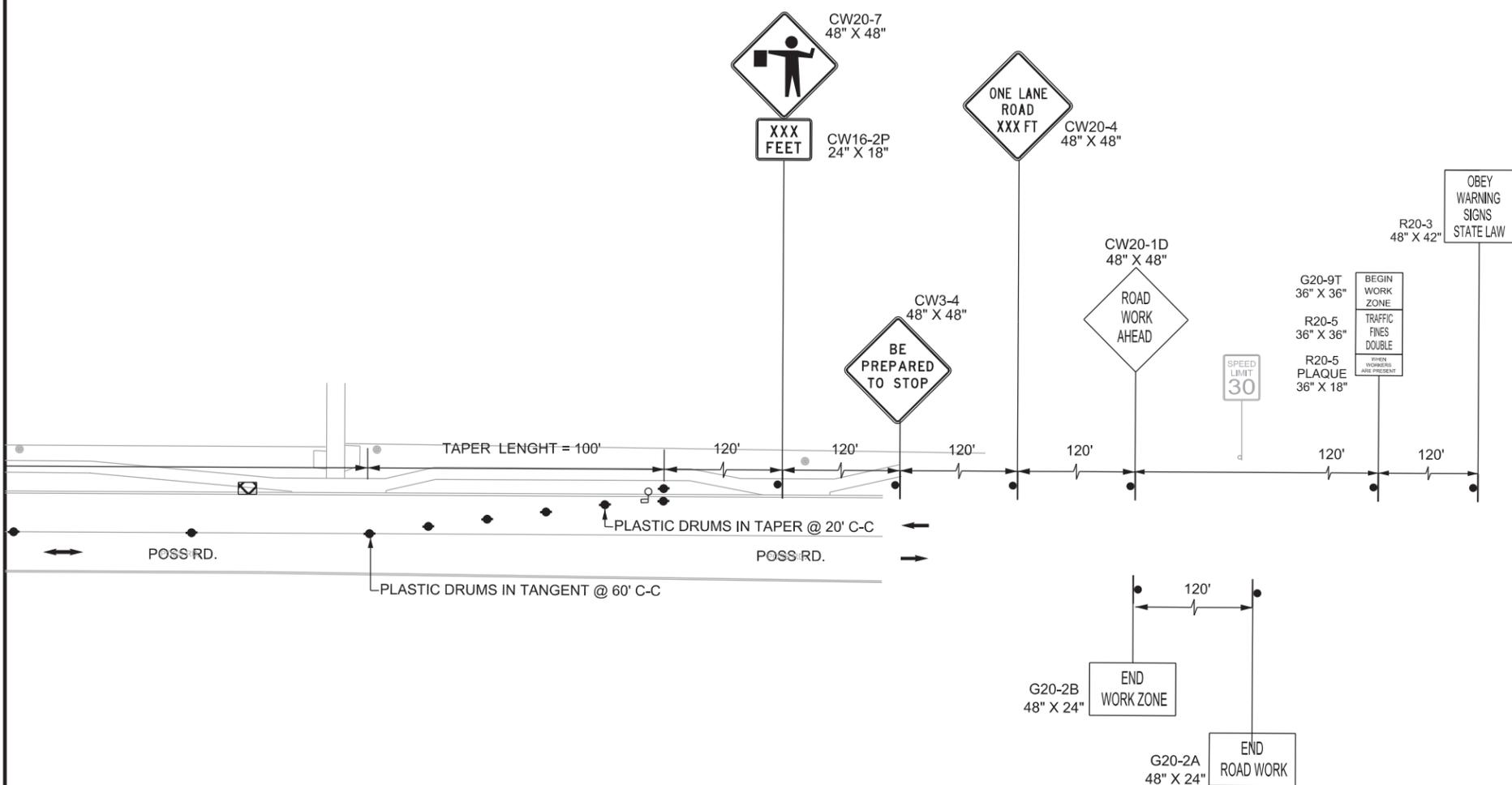


HORIZ. SCALE: 1"=50'



LEGEND	
	CONSTRUCTION AREA
	BARRICADE TY III
	TRAFFIC FLOW
	DRUM
	SIGN BASE

MATCHLINE "A"



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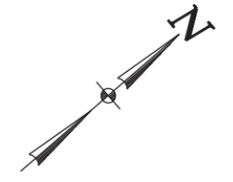
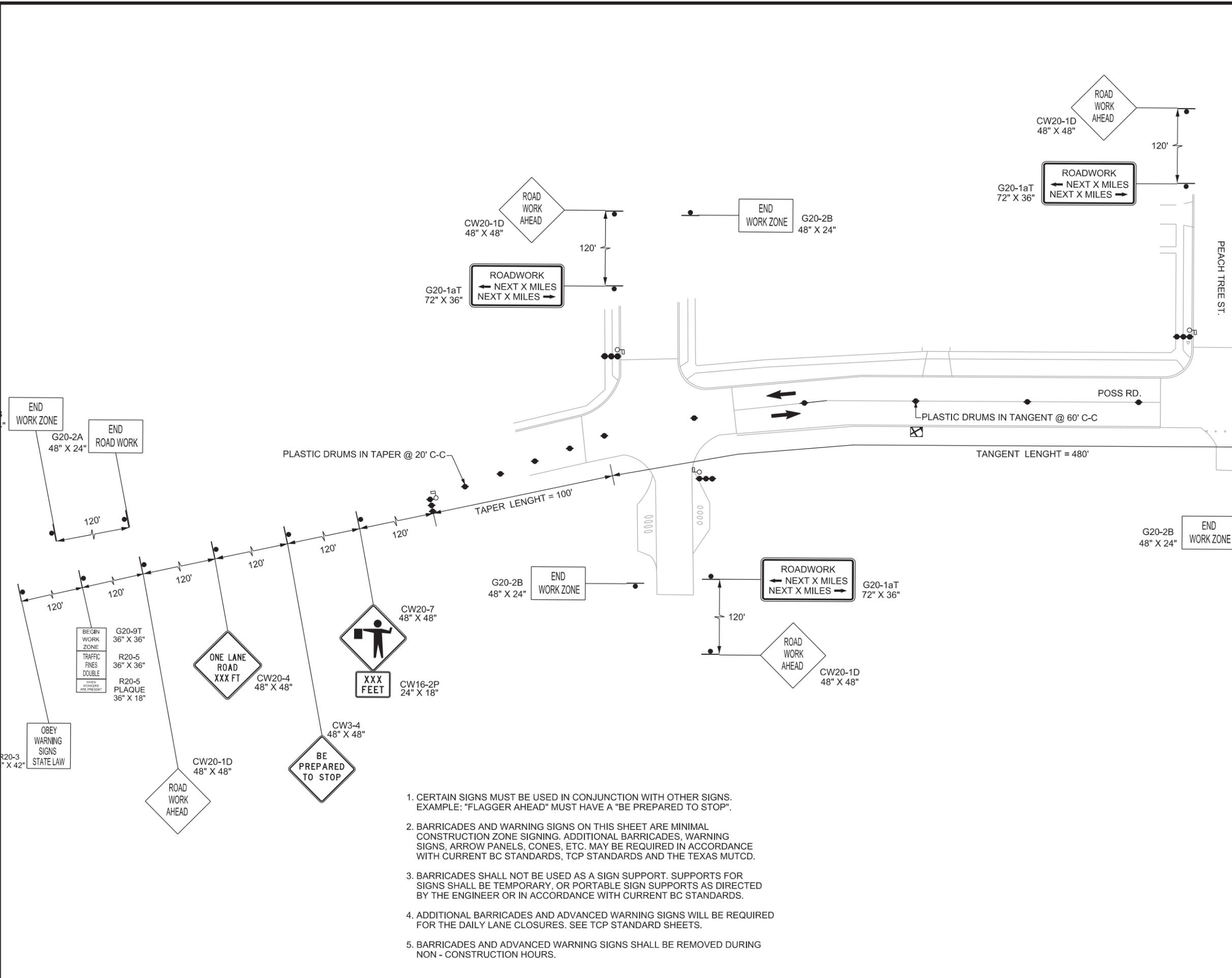


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<b>AC GROUP</b> LLC <small>TRAFFIC ENGINEERING AND DATA COLLECTION</small>			
<small>TBPE FIRM NO. F-11727 5828 SEBASTIAN PLACE, STE 108 P. (210) 535-3558 SAN ANTONIO, TEXAS 78249</small>			
PEACH TREE ST AT POSS RD			
PHASE 1 TCP LAYOUT			
SHEET 2 OF 2			
<small>FED. RD. DEV. NO.</small>	<small>FEDERAL AID PROJECT NO.</small>	<small>SHEET NO.</small>	
		32	
<small>STATE</small>	<small>STATE DIST. NO.</small>	<small>COUNTY</small>	<small>SCALE</small>
<small>CONT</small>	<small>SECT</small>	<small>JOB</small>	<small>HIGHWAY NO.</small>

12/9/2019 L:\2019013000 PEACH TREE ST and POSS RD PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TCP\TCP PHASE 1 PEACH TREE TCP LAYOUTS 2 OF 2.dgn

12/9/2019 L:\2019013400 PEACH TREE ST. and POSS RD. PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TCP\TCP PHASE 2 PEACH TREE TCP LAYOUTS 1 OF 2.dgn



HORIZ. SCALE: 1"=50'  
 0 25 50  
 SCALE IN FEET

LEGEND	
	CONSTRUCTION AREA
	BARRICADE TY III
	TRAFFIC FLOW
	DRUM
	SIGN BASE

MATCHLINE "A"



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PEACH TREE ST  
 AT POSS RD

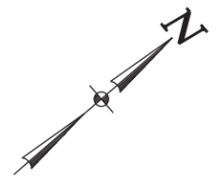
PHASE 2 TCP LAYOUT

SHEET 1 OF 2

FED. RD. DIST. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
		33
STATE	STATE DIST. NO.	COUNTY
		SCALE
CONT	SECT	JOB
		HIGHWAY NO.

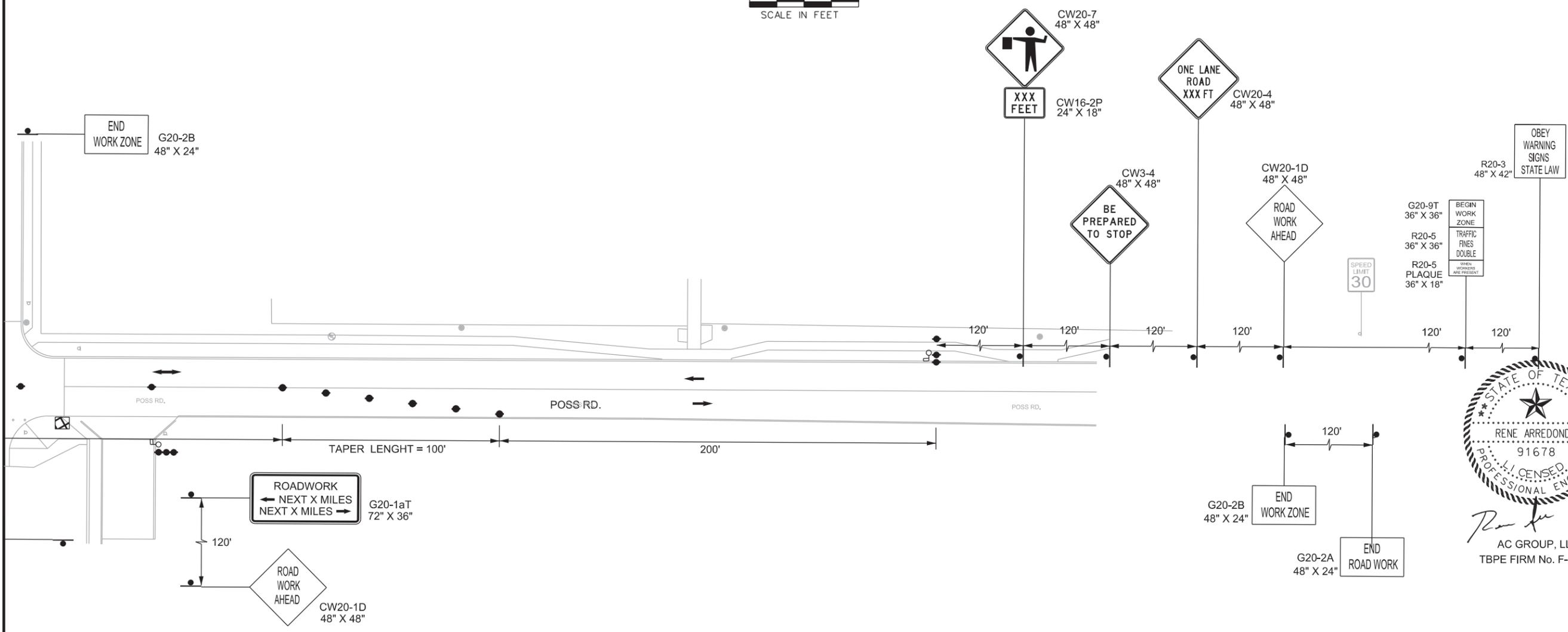
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12/9/2019 L:\2019013400 PEACH TREE ST. and POSS RD. PEDESTRIAN CROSSING (LNV)\4-0 Production\4-01 Drawings\TCP\TCP PHASE 2 PEACH TREE TCP LAYOUTS 2 OF 2.dgn



LEGEND	
	CONSTRUCTION AREA
	BARRICADE TY III
	TRAFFIC FLOW
	DRUM
	SIGN BASE

MATCHLINE "A"



*Rene Arredondo* 12/5/19  
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LEON VALLEY  
PUBLIC WORKS DEPARTMENT

TRAFFIC ENGINEERING AND DATA COLLECTION  
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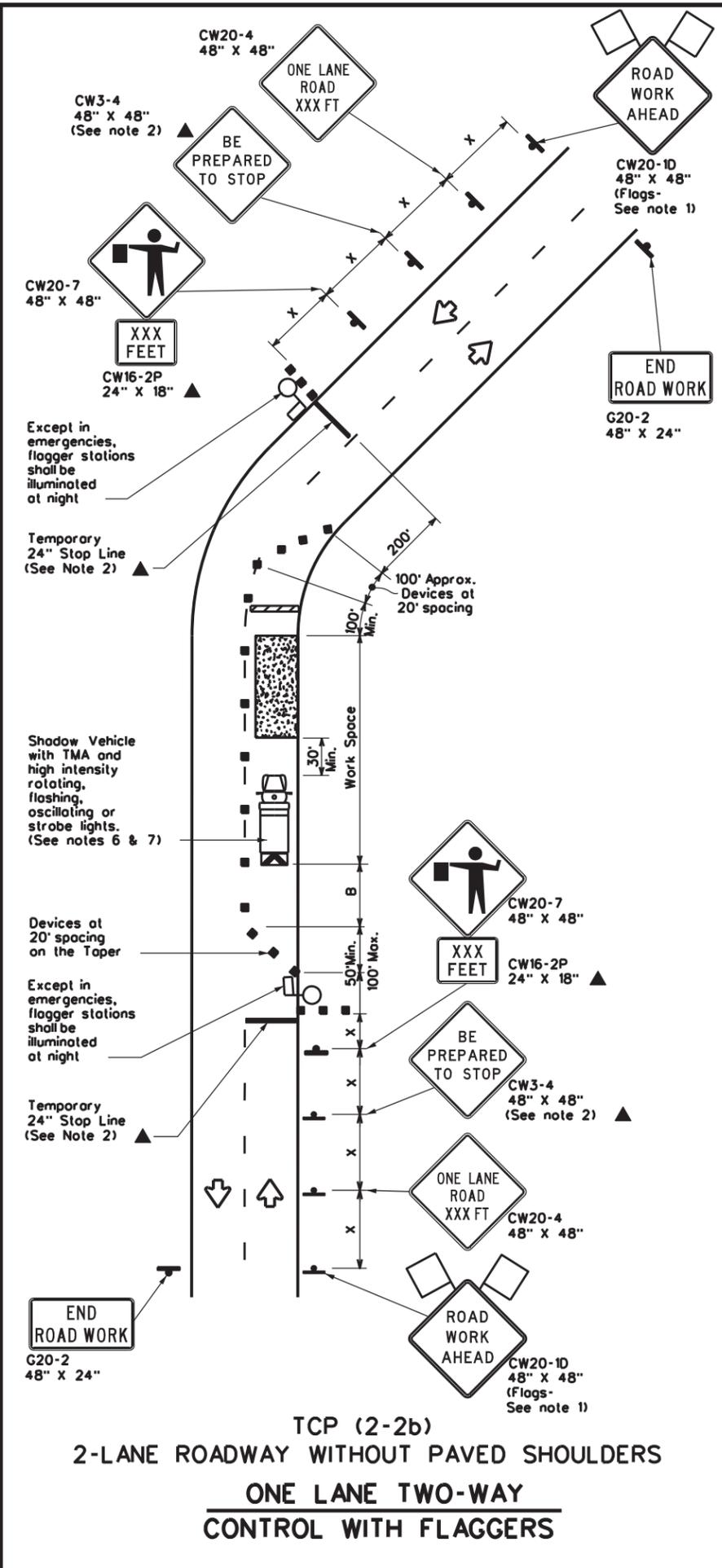
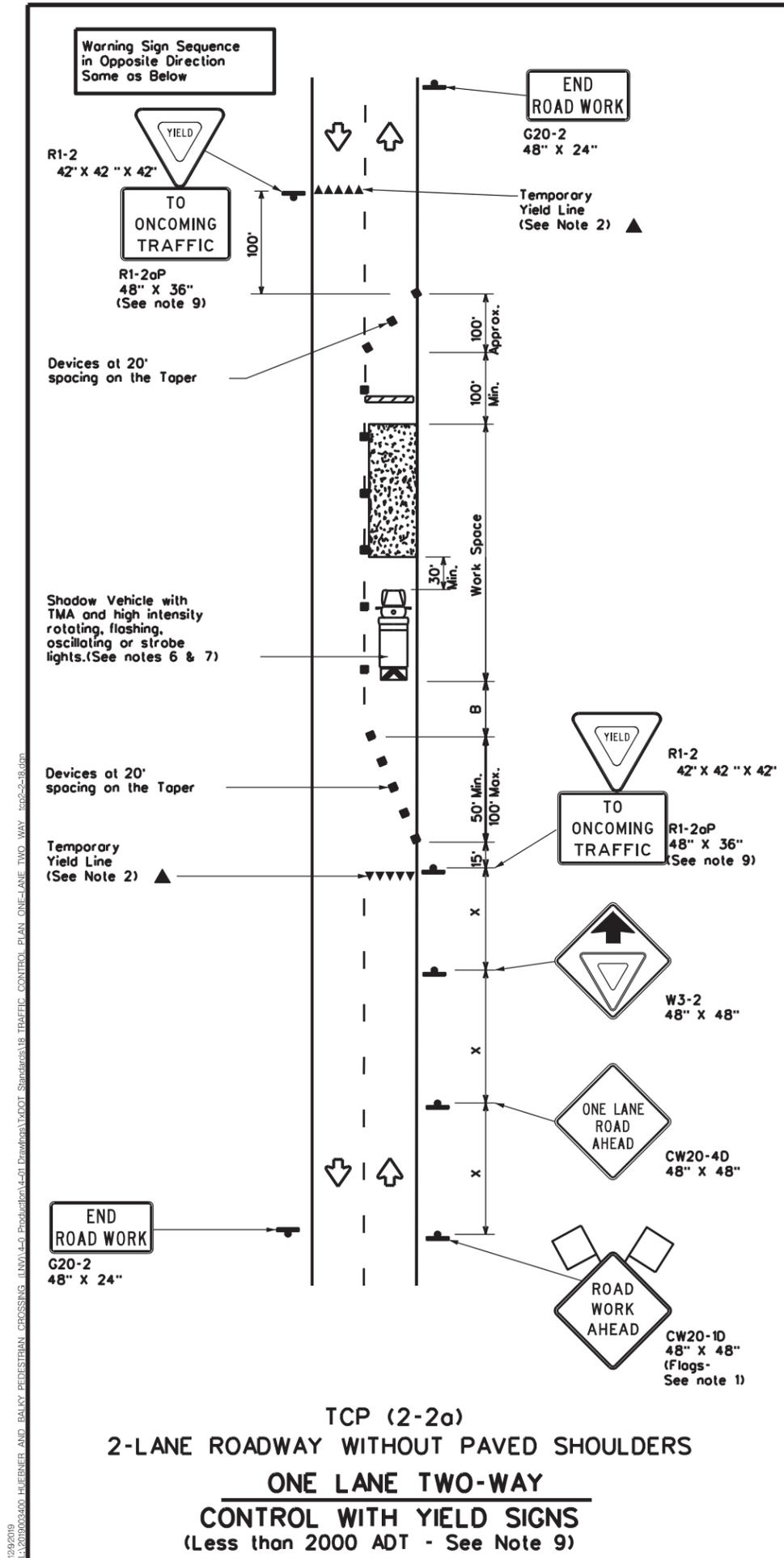
PEACH TREE ST  
AT POSS RD

PHASE 2 TCP LAYOUT

SHEET 2 OF 2

FED. RD. DEV. NO.	FEDERAL AID PROJECT NO.	SHEET NO.
		34
STATE	STATE DIST. NO.	COUNTY
		SCALE
CONT	SECT	JOB
		HIGHWAY NO.

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**LEGEND**

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

Posted Speed * x	Formula	Minimum Desirable Taper Lengths * x			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	L = WS <sup>2</sup> / 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  
 \* x 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**

- Flags attached to signs where shown, are REQUIRED.
  - 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.
  - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
  - Flaggers should use two-way radios or other methods of communication to control traffic.
  - Length of work space should be based on the ability of flaggers to communicate.
  - 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.
  - 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 (2-2a)**
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
  - The R1-2oP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support of a 7 foot minimum mounting height.
- TCP (2-2b)**
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
  - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
  - 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

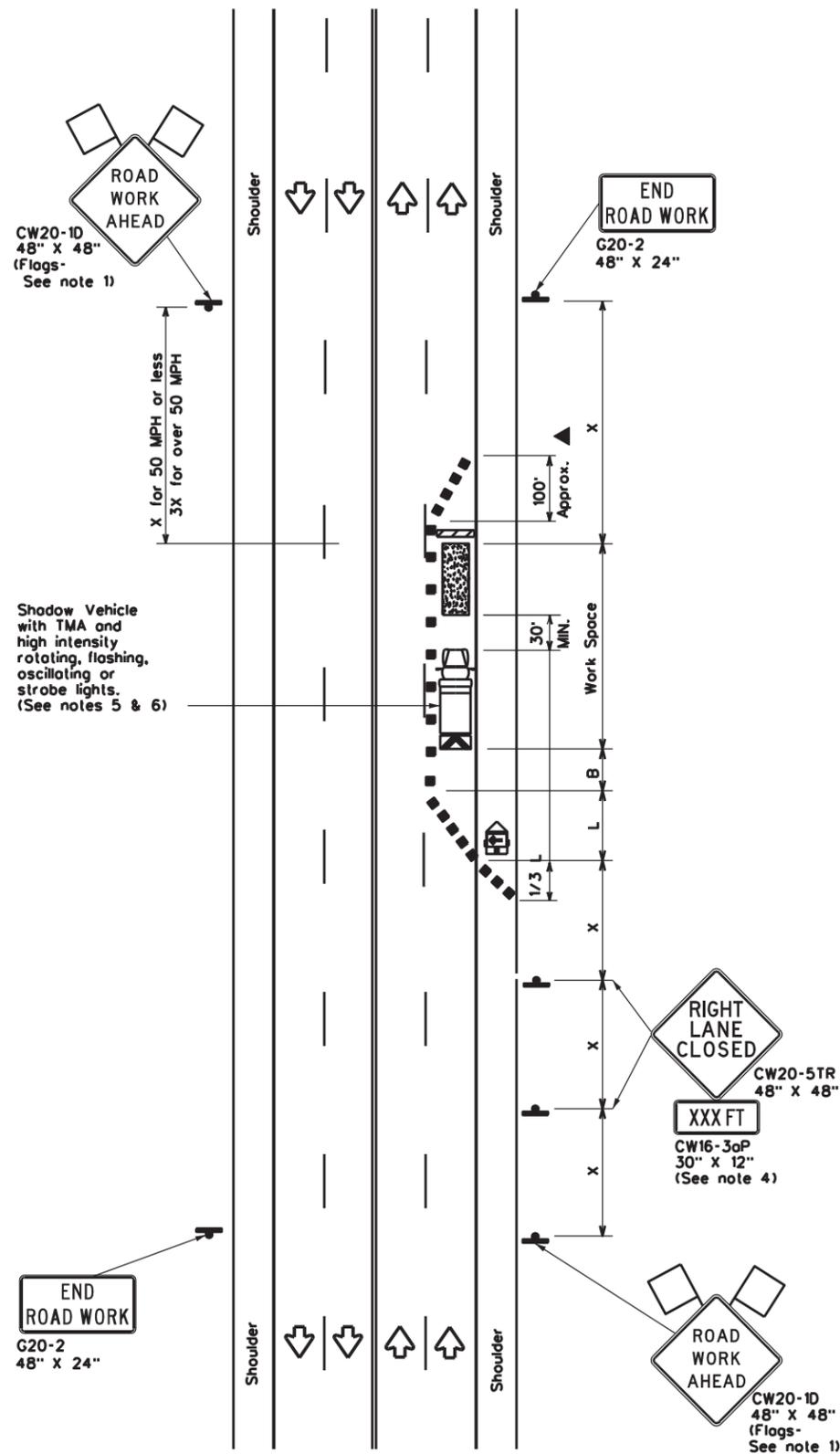
**TRAFFIC CONTROL PLAN**  
**ONE-LANE TWO-WAY**  
**TRAFFIC CONTROL**

**TCP(2-2)-18**

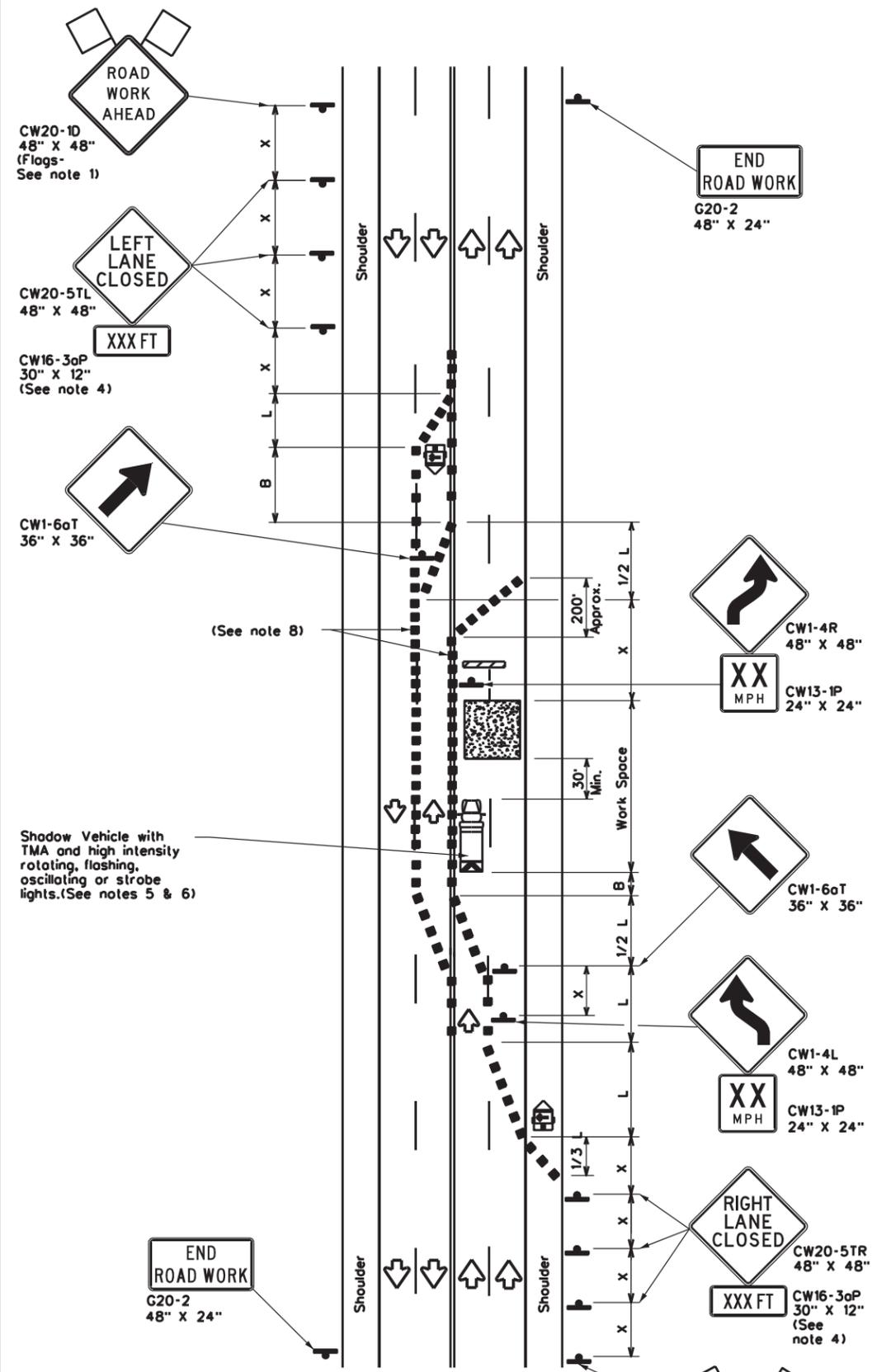
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS				
8-95 3-03				
1-97 2-12				
4-98 2-18				
DIST	COUNTY	SHEET NO.		35

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12/20/05 14200002000\_HERNER AND BAILEY PEDESTRIAN CROSSING\_FINAL.dwg Product: L-01 Drawn: J. T. D. Standard: 18 TCP LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS tcp2-4-18.dwg



TCP (2-4a)  
**ONE LANE CLOSED**



TCP (2-4b)  
**TWO LANES CLOSED**

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

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

x Conventional Roads Only  
 xx 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**

- Flags attached to signs where shown, are REQUIRED.
- 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.
- The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
- For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3oP supplemental plaque.
- 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.
- Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

**TCP (2-4a)**

- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

**TCP (2-4b)**

- 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 devices spacing is intended for the area of conflicting markings, not the entire work zone.

		Traffic Operations Division Standard	
<b>TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS</b>			
<b>TCP(2-4)-18</b>			
FILE: tcp2-4-18.dgn	DN:	CK:	DW:
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REVISIONS		HIGHWAY	
8-95 3-03	DIST		COUNTY
1-97 2-12	SHEET NO.		36
4-98 2-18			