CONT	SECT	JOB	HIGHWAY
0286	01	062, ETC.	SH 80, ETC.
DIST	COUNTY		SHEET NO.
AUS	HAYS		1

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

DESIGN SPEEDS: N/A
ADT: N/A

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

STATE AID PROJECT NUMBER
C 286-1-62, ETC.
CSJ 0286-01-062, ETC.

NET LENGTH OF PROJECT = 5,264.16 FEET = 0.997 MILES
- ROADWAY = 5,264.16 FEET = 0.997 MILES
- BRIDGE = 0.00 FEET = 0.00 MILES

	ROADWAY LENGTH		BRIDGE LENGTH		TOTAL LENGTH	
CSJ	(FT)	(MI)	(FT)	(MI)	(FT)	(MI)
0286-01-062	2,010.37	0.381	0.00	0.00	2,010.37	0.381
0286-01-063	3,253.79	0.616	0.00	0.00	3,253.79	0.616
TOTAL	5,264.16	0.997	0.00	0.00	5,264.16	0.997

HAYS COUNTY
SH 80, ETC.

FROM: SH 80 0.06 MI W OF CHEATHAM ST AT UP ROW
IH 35 SB FRONTAGE RD
TO: RIVER RD
RIO VISTA ST

FOR THE CONSTRUCTION OF CURB RAMP, DRAINAGE, AND SIDEWALK IMPROVEMENTS

CONSISTING OF: CONSTRUCTION OF PEDESTRIAN IMPROVEMENTS
CONSISTING OF SIDEWALK, CURB RAMPS, PEDESTRIAN BUSH BUTTONS
ALONG SH 80 IN SAN MARCOS

END CSJ 0286-01-062
BEGIN CSJ 0286-01-063
29°52'59.04"N
97°55'21.36"W

BEGIN PROJECT
BEGIN CONSTRUCTION
BEGIN CSJ 0286-01-062
29°53'06.30" N
97°55'29.70" W

END PROJECT
END CONSTRUCTION
END CSJ 0286-01-063
29°52'51.10" N
97°54'47.10" W

LOCATION MAP NOT TO SCALE

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: UPRR, 27' WEST OF START OF PROJECT

Registered Accessibility Specialist (RAS) Inspection Required

TDLR No. EABPRJ_____

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION ON NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: SPECIAL LABOR PROVISIONS FOR STATE PROJECTS (000--008)

Texas Department of Transportation

FINAL PLANS

DATE OF LETTING: _____
DATE WORK BEGAN: _____
DATE WORK COMPLETED AND ACCEPTED: _____
FINAL CONTRACT COST: $_____
CONTRACTOR: _____
LIST OF APPROVED CHANGE ORDERS:

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

STATE OF TEXAS
LESLIE D. POLLACK
101285
LICENSED
PROFESSIONAL ENGINEER

PREPARED BY:
HDR ENGINEERING, INC.
TBPE FIRM NO. F-754

Leslie D Pollack 11/2/22
LESLIE D. POLLACK DATE
PROJECT MANAGER

SUBMITTED FOR LETTING: 11/3/2022

DocuSigned by:
Mark Baumann
47A2D2ABE4CB4F3...
for AREA ENGINEER

RECOMMENDED FOR LETTING: 11/2/2022

DocuSigned by:
Angelia L Garcia, P.E.
BA9745A0D6C4400...
for DISTRICT DESIGN ENGINEER

APPROVED FOR LETTING: 11/3/2022

DocuSigned by:
Heather Kelly-Ngo
8912AF18F45A416...
DIRECTOR OF TRANSPORTATION
PLANNING & DEVELOPMENT

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: ABOHR
FILE: SanMarcos-Title.dgn
PENTABLE: 1033129i-San Marcos.tbl
DATE: 11/2/2022 TIME: 12:13:52 PM SCALE: id

SHEET NUMBERS	DESCRIPTION
	I. GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3, 3A-3F	GENERAL NOTES
4, 4A	ESTIMATE AND QUANTITY
5 - 8	SUMMARY SHEETS
9	PROJECT LAYOUT
	II. TRAFFIC CONTROL PLAN
	TRAFFIC CONTROL STANDARDS
10 - 21	* BC(1)-21 - BC(12)-21
22	* TCP(1-1)-18
23	* TCP(1-2)-18
24	* TCP(1-3)-18
25	* TCP(1-4)-18
26	* TCP(2-1)-18
27 - 28	* WZ(BTS-1)-13 - WZ(BTS-2)-13
29	* WZ(UL)-13
30	* WZ(RS)-22
	III. ROADWAY PLANS
31 - 51	SH 80 REMOVAL PLAN
52 - 55	S IH 35 REMOVAL PLAN
56 - 76	SH 80 SIDEWALK PLAN
77 - 80	S IH 35 SIDEWALK PLAN
81 - 83	SIDEWALK DETAILS
	ROADWAY STANDARDS
84	ASSET MAINTENANCE
85	* DWMB-22 (AUS)
86	* MCPSWMD-19 (AUS)
87	* CCCG-22
88 - 91	* PED-18
92 - 94	* PRD-13
95 - 98	* MB(1)-21 - MB(4)-21
99	* MB-14(2)
100	* MB-14(2A)
101	* MB-14(2B)
102	* PM(1)-20
103	* PM(4)-22
104	* SMD(GEN)-08
105	* SMD(SLIP-1)-08
106	* SMD(SLIP-2)-08
107	* SMD(SLIP-3)-08
108	* PEDESTAL POLE SLAB FOUNDATION DETAIL
109 - 112	* ED(1-4)-14
113	* ED(8)-14
114	* RFBA-13
115	* TS-FD-12
	IV. RAILROAD
116	RAILROAD SCOPE OF WORK
117 - 118	RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS
119 - 120	* RCD(1-2)-16
	V. ENVIRONMENTAL
121	EPIC
122	SW3P
123	SW3P GENERAL LAYOUT
	ENVIRONMENTAL STANDARDS
124 - 126	* EC(9)-16
127	* TPD-19 (AUS)
128	* PRWPD-20 (AUS)

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER

1/21/2022

* THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

Texas Department of Transportation

CURB RAMP PROGRAM

INDEX OF SHEETS

SHEET 1 OF 1

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS		SEE TITLE SHEET		SH80, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	2
	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

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FILE: SanMarcos-IndexOI.dgn
PENTABLE: I033I29I-San Marcos.tbl
DATE: 11/21/2022 TIME: 1:50:07 PM
SCALE: 1:1

GENERAL NOTES: Version: June 10, 2022

GENERAL
Contractor questions on this project are to be addressed to the following individual(s):
South Austin Mark.Baumann@txdot.gov
South Austin Shane.Swimm@txdot.gov

Contractor questions and request for documents will be accepted through email, phone, and in person by the above individuals. Response and documents will be posted to TxDOT's Public FTP at the following Address:
https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/

References to manufacturer's trade name or catalog numbers are for the purpose of identification only. Similar materials from other manufacturers are permitted if they are of equal quality, comply with the specifications for this project, and are approved.

If work is performed at Contractor's option, when inclement weather is impending, and the work is damaged by subsequent precipitation, the Contractor is responsible for all costs associated with replacing the work, if required.

Equip all construction equipment used in roadway work with highly visible omnidirectional flashing warning lights.

Provide a smooth, clean sawcut along the existing asphalt or concrete pavement structure, as directed. Consider subsidiary to the pertinent Items.

Construct all manholes/valves to final pavement elevations prior to the placement of final surface. If the manholes/valves are going to be exposed to traffic, place temporary asphalt around the manhole/valve to provide a 50:1 taper. The asphalt taper is subsidiary to the ACP work.

The contractor will be responsible for any sweeping above and beyond the normal maintenance required to keep fugitive sediment off the roadway as directed by the Engineer. This work will be subsidiary to other pertinent items.

Damage to existing pipes and SET's due to Contractor operations will be repaired at Contractor's expense.

All locations used for storing construction equipment, materials, and stockpiles of any type, within the right of way, will be as directed. Use of right of way for these purposes will be restricted to those locations where driver sight distance to businesses and side street intersections is not

obstructed and at other locations where an unsightly appearance will not exist. The Contractor will not have exclusive use of right of way but will cooperate in the use of the right of way with the city/county and various public utility companies as required.

ITEM 5 – CONTROL OF THE WORK
Place construction or silt fence 2 ft. inside TxDOT ROW along the Railroad ROW. If work is to be performed inside the Railroad ROW, then the Contractor will coordinate with the Railroad for a Railroad Flagger. This work is subsidiary.

Obtain and maintain compliance with additional training requested by UPRR "Property Access Training".

Place construction stakes at intervals of no more than 100 ft. This work is subsidiary.

Provide a 72 hour advance email notice to AUS_Locate@TxDOT.gov to request illumination, traffic signal, ITS, or toll equipment utility locates. Provide AUS_Locate@TxDOT.gov an electronic pdf of as-builts within 21 calendar days of illumination, traffic signal, ITS, or toll equipment being placed into operation. As-built shall include GPS coordinates of manholes and junction boxes. Include final version of RFI's and revised plan sheets.

Electronic Shop Drawing Submittals.
Submit electronic shop drawing submittals according to the current Guide to Electronic Shop Drawing Submittal https://www.txdot.gov/business/resources/specifications/shop-drawings.html (TxDOT.gov Business > Resources - General > Shop Drawings). Pre-approved producers can be found online at TxDOT.gov > Business > Resources - Material Producer List. Use the following contact list for all submittals that are not required to be sent to Bridge Division and to copy the Engineer for all submittals to the Bridge Division.

Submittal Contact List
South Austin Mark.Baumann@txdot.gov AUS_SA-ShopReview@txdot.gov

ITEM 6 - CONTROL OF MATERIALS
Give a minimum of 1 business day notice for materials, which require inspection at the Plant.

ITEM 7 – LEGAL RELATIONS AND RESPONSIBILITIES
TxDOT will coordinate with TDLR regarding pedestrian elements and sidewalks. The contractor will procure and provide all permits, licenses, and inspections; pay all charges, fees, and taxes regarding TDLR rules governing industrialized housing and buildings.

Roadway closures during key dates and/or special events are prohibited. See notes for Item 502 for the key dates and/or special events.

Refer to the Environmental Permits, Issues and Commitments (EPIC) plan sheets for additional requirements and permits.

When any abandoned well is encountered, cease construction operations in this area and notify the Engineer who will coordinate the proper plugging procedures. A water well driller licensed in the State of Texas must be used to plug a well.
Perform maintenance of vehicles or equipment at designated maintenance sites. Keep a spill kit on-site during fueling and maintenance. This work is subsidiary.

Maintain positive drainage for permanent and temporary work for the duration of the project. Be responsible for any items associated with the temporary or interim drainage and all related maintenance. This work is subsidiary.

Locate aboveground storage tanks kept on-site for construction purposes in a contained area as to not allow any exposure to soils. The containment will be sized to capture 150% of the total capacity of the storage tanks.

Work within a USACE Jurisdictional Area.
Do not initiate activities within a U.S. Army Corps of Engineers (USACE) jurisdictional area that have not been previously evaluated by the USACE as part of the permit review of this project. Such activities include, but are not limited to, haul roads, equipment staging areas, borrow and disposal sites. Obtain written approval from the Engineer for activities not specifically addressed in the plans. Provide a signed sketch and description of the location 60 business days prior to begin work at the location. Complete and return any forms provided by TxDOT. Approval of the work is not guaranteed. Un approved work is not a compensable impact.

Work over or near Bodies of Water (lakes, rivers, ponds, creeks, dry waterways, etc.).
Keep on site a universal spill kit adequate for the body of water and the work being performed. Debris is not allowed to fall into the ordinary high-water level (OHWL). Debris that falls into the OHWL must be removed at the end of each work day. Debris that falls into the floodway must be removed at the end of each work week or prior to a rain event. Install and maintain traffic control devices to maintain a navigable corridor for water traffic, except during bridge demo and beam placement. This work is subsidiary.

Obtain written approval from the Engineer for temporary fill or crossings not specifically addressed in the plans. Provide a signed sketch of the location 60 business days prior to begin work at the location. Complete and return any forms provided by TxDOT. Approval of the work is not guaranteed. Unapproved work is not a compensable impact.

Migratory Birds and Bats.
Migratory birds and bats may be nesting within the project limits and concentrated on roadway structures such as bridges and culverts. Remove all old and unoccupied migratory bird nests from any structures, trees, etc. between September 16 and February 28. Prevent migratory birds from re-nesting between March 1 and September 15. Prevention shall include all areas within 25 ft. of proposed work. All methods used for the removal of old nesting areas and the prevention of re-nesting must be submitted to TxDOT 30 business days prior to begin work. This work is subsidiary.

If active nests are encountered on-site during construction, all construction activity within 25 ft. of the nest must stop. Contact the Engineer to determine how to proceed.

Tree and Brush Trimming and Removal.
Work will be conducted September 16 thru February 28. Work conducted outside this timeframe will require a bird survey. Submit a survey request to TxDOT 30 business days prior to begin work.

No extension of time or compensation will be granted for a delay or suspension due to the above bird, bat and tree/brush requirements.

Law Enforcement Personnel.
Submit charge summary and invoices using the Department forms.

Patrol vehicles must be clearly marked to correspond with the officer's agency and equipped with appropriate lights to identify them as law enforcement. For patrol vehicles not owned by a law enforcement agency, markings will be retroreflective and legible from 100 ft. from both sides and the rear of the vehicle. Lights will be high intensity and visible from all angles.

No payment will be made for law enforcement personnel needed for moving equipment or payment for drive time to/from the event site. A minimum number of hours is not guaranteed. Payment is for work performed. If the Contractor has a field office, provide an office location for a supervisory officer when event requires a supervising officer. This work is subsidiary.

A maximum combined rate of $70 per hour for the law enforcement personnel and the patrol vehicle will be allowed. Any scheduling fee is subsidiary per Standard Specification 502.4.2.

Cancel law enforcement personnel when the event is canceled. Cancellation, minimums or "show up" fees will not be paid when cancellation is made 12 hours prior to beginning of the event. Failure to cancel within 12 hours will not be cause for payment for cancellation, minimums, or "show up" time. Payment of actual "show up" time to the event site due to cancellation will be on a case by case basis at a maximum of 2 hours per officer.

Alterations to the cancellation and maximum rate must be approved by the Engineer or pre-determined by official policy of the officers governing authority.

ITEM 8 – PROSECUTION AND PROGRESS
Working days will be charged in accordance with 8.3.1.4, "Standard Workweek."

ITEM 100 - PREPARING RIGHT OF WAY
Prep ROW must not begin until accessible trees designated for preservation have been protected, items listed in the EPIC have been addressed, and SW3P controls installed in accessible areas.

Backfill material will be Type B Embankment using ordinary compaction.

Follow Item 752.4 Work Methods and Item 752 general notes when removing or working on or near trees and brush.

Unless shown otherwise in the plans or a designated non-mow area, perform trimming or removal for areas within 30 ft. of edge of pavement under construction. Trim or remove to provide minimum of 5 ft. of horizontal clearance and 7 ft. of vertical clearance for the following: sidewalks, paths, guard fence, rails, signs, object markers, and structures. Trim to provide a minimum of 14 ft. vertical clearance under all trees. This work is subsidiary.

Any removals not specifically paid for will be subsidiary to Preparing Right of Way

ITEM 105 – REMOVING TREATED AND UNTREATED BASE AND ASPHALT PAVEMENT
Existing typical is based on information available. This typical may not account for all maintenance work such as overlays or pavement repairs. A change in material type or thickness does not warrant additional payment. Payment is full compensation for removing all material to the depth specified.

ITEM 160 - TOPSOIL
Off-site topsoil will have a minimum PI of 25.

No Sandy Loam allowed.

Obtain approval of the actual depth of the topsoil sources for both on-site and off-site sources. Construct topsoil stockpiles of no more than five (5) feet in height.

It is permissible to use topsoil dikes for erosion control berms within the right of way, as directed. Seed or track slopes within 14 days of placement.

Salvage topsoil from sites of excavation and embankment. Maximum salvage depth is 6 inches.

Windrowing of topsoil obtained from the Right of Way (ROW) is not allowed.

ITEM 162 – SODDING FOR EROSION CONTROL
Provide common Bermuda. Provide St. Augustine if the adjacent grass is St. Augustine.

ITEM 168 – VEGETATIVE WATERING
Water all areas of project to be seeded or sodded.

Maintain the seedbed in a condition favorable for the growth of grass. Watering can be postponed immediately after a rainfall on the site of ½ inch or greater, but will be resumed before the soil dries out. Continue watering until final acceptance.

Vegetative watering rates and quantities are based on ¼ inch of watering per week over a 3-month watering cycle. The actual rates used and paid for will be as directed and will be based on prevailing weather conditions to maintain the seedbed.

Obtain water at a source that is metered (furnish a current certification of the meter being used) or furnish the manufacturer's specifications showing the tank capacity for each truck used. Notify the Engineer, each day that watering takes place, before watering, so that meter readings or truck counts can be verified.

ITEM 300s – SURFACE COURSES AND PAVEMENTS
Asphalt season is May 1 thru September 15. The latest work start date for asphalt season is August 1.

If an under seal is not provided, furnish a tack coat. Apply tack coat at 0.08 GAL/SY (residual). Apply non-tracking tack coat using manufacturer recommend rates.

ITEMS 341, 344, & 3076 THRU 348/3082 - HOT-MIX ASPHALT PAVEMENT
Use a device to create a maximum 3H:1V notched wedge joint on all longitudinal joints of 2 in. or greater. This work is subsidiary.

Submit any proposed adjustments or changes to a JMF before production of the new JMF.

Tack every layer. Do not dilute tack coat. Apply it evenly through a distributor spray bar.

Provide a minimum transition of 10' for intersections, 10' for commercial driveways, and 6' for residential driveways unless otherwise shown on the plans.

ITEM 400 - EXCAVATION AND BACKFILL FOR STRUCTURES
Unless shown on the plans, the following backfill will apply to cutting and restoring flexible pavement. Backfill with cement-stabilized backfill. The cement-stabilized backfill is subsidiary. Cap the backfill with Type B hot-mix to a depth equal to the adjacent hot-mix. At locations where the backfill surface is final, place 1-1/2 in. Type D for the surface. The minimum hot-mix depth will be 4 in.

Saw-cut the pavement at the edge of the excavation. This work is subsidiary.

ITEM 416 - DRILLED SHAFT FOUNDATIONS
Stake all Foundations, for approval, before beginning drilling operations.
Obtain approval of placement prior to placing concrete.

Remove spoils from a flood plain at the end of each work day.

ITEM 432 - RIPRAP
Mow strip riprap will be 4 in. and all other riprap will be 5 in. unless otherwise shown on the plans. Fiber reinforcement is not allowed except in mow strip for cable barrier if foundation and mow strip are placed monolithically. GFRP is allowed reinforcement for all applications.

Saw-cut existing riprap then epoxy 12 in. long No. 3 or No. 4 bars 6 in. deep at a maximum spacing of 18 in. in each direction to tie new riprap to existing riprap. This work is subsidiary.

ITEM 479 – ADJUSTING MANHOLES AND INLETS
Use style SL, per standard PSL, for capping inlets and manholes unless otherwise shown on the plans. The cap may be cast in place. The cap must be level and overhang 6 in. beyond the outside edge of the structure. Dowel or attachment of the cap to the existing structure is not required.

ITEM 502 - BARRICADES, SIGNS, AND TRAFFIC HANDLING

Table 1

Roadway	Limits	Allowable Closure Time
IH 35	All (1 lane closed)	9 P to 5 A
IH 35	All (2 lanes closed, see allowable work below)	9 P to 5 A
IH 35	All (2 lanes closed, all work)	11 P to 5 A
SH 45	US 183 to SH130	8 P to 5 A
LP 1	William Cannon to Parmer Lane	8 P to 5 A
US 183	SH 29 to FM 1327	8 P to 5 A
SH 71	SH 130 to IH 35	8 P to 5 A
SH 71	SH 304 to Tahitian Drive	8 P to 5 A
SH 71	US 290 W to RM 3238	8 P to 5 A
US 290 W	IH 35 to Nutty Brown Rd	8 P to 5 A
US 290 E	IH 35 to SH 95	8 P to 5 A
FM 734	FM 1431 to US 290 E	8 P to 5 A
US 79	IH 35 to Bus 79 in Taylor	8 P to 5 A
RM 1431	Lohmans Ford Rd to IH 35	8 P to 5 A
SH 29	LP 332 western terminus to SH 130	8 P to 5 A
SH 80	Charles Austin to River Road	8 P to 5 A
RM 2222	All	8 P to 5 A
RM 620	All	8 P to 5 A
RM 2244	All	8 P to 5 A
SPUR 69	All	8 P to 5 A
LP 360	All	8 P to 5 A
LP 343	All	8 P to 5 A
LP 275	All	8 P to 5 A
FM 1325	All	8 P to 5 A
All	Within 200’ of a signalized intersection	9 P to 5 A
All	All (Full Closure, see allowable work below)	11 P to 4 A

For roadways without defined allowable closure times, nighttime lane closures will be allowed from 7 P to 6 A with approval by Engineer. Unless stated, daytime or Friday night lane closures will not be allowed and one lane in each direction will remain open at all times for all roadways.

No full closures are allowed.

No closures will be allowed on the weekends, working day prior, and working day after the National Holidays defined in the Standard Specifications, Good Friday, and Easter weekend. Closures the Sunday of the Super Bowl will not be allowed from 1 P to 11 P. No closures will be allowed on Friday and the weekends for projects within 20 miles of Formula 1 at COTA, ACL Fest, SXSW, ROT Rally, UT home football games (includes games not on a Friday

or weekend), sales tax holiday, Dell Match Play (includes Thursday)), Rodeo Austin, other special events that could be impacted by the construction. All lanes will be open by noon of the day before these special events. Additional key dates or special events include the following: San Marcos Bobcats home football games.

To account for directional traffic volumes, begin and end times of closures may be shifted equally by the Engineer. The closure duration will remain. Added compensation is not allowed.

Submit an emailed request for a lane closure (LCN) to TxDOT. The email will be submitted in the format provided. Receive concurrence prior to implementation. Submit a cancellation of lane closures a minimum of 18 hours prior to implementation. Blanket requests for extended periods are not allowed. Max duration of a request is 2 weeks prior to requiring resubmittal.

Provide 2 hour notice prior to implementation and immediately upon removal of the closure.

For roadways listed in Table 1: Submit the request 96 hours prior to implementation.

For roadways not listed in Table 1: Submit the request a minimum of 48 hours prior to the closure and by the following deadline immediately prior to the closure: 11A on Tuesday or 11A on Friday. For all roadways: Submit request for traffic detours and full roadway closures 168 hours prior to implementation. Submit request for nighttime work 96 hours to implementation date.

Cancellations of accepted closures (not applicable to full closures or detours) due to weather will not require resubmission in accordance with the above restrictions if the work is completed during the next allowable closure time.

Closures that conflict with adjacent contractor will be prioritized according to critical path work per latest schedule. Conflicting critical path or non-critical work will be approved for first LCN submitted. Denial of a closure due to prioritization or other reasons will not be reason for time suspension, delay, overhead, etc.

Cover, relocate or remove existing signs that conflict with traffic control. Install all permanent signs, delineation, and object markers required for the operation of the roadway before opening to traffic. Use of temporary mounts is allowed or may be required until the permanent mounts are installed or not impacted by construction. Maintain the temporary mounts. This work is subsidiary.

Meet with the Engineer prior to lane closures to ensure that sufficient equipment, materials, devices, and workers will be used. Take immediate action to modify traffic control, if at any time the queue becomes greater than 20 minutes. Have a contingency plan of how modification will occur. Consider inclement weather prior to implementing the lane closures. Do not set up traffic control when the pavement is wet.

Place a 28-inch cone, meeting requirements of BC(10), on top of foundations that have protruding studs. This work is subsidiary.

Edge condition treatment types must be in accordance with the TxDOT standard. Installation and removal of a safety slope is subsidiary.

To determine a speed limit or an advisory speed limit, submit a request to TxDOT 60 business days prior to manufacture of the sign.

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Do not begin work before sunrise or end work after sunset unless authorized by the Engineer, and remove all equipment from the roadway before sundown.

The project is broken out into 5 segments

a. SH 80, west of IH 35 (Phase 1)
b. SH 80 at IH 35 (Phase 2)
c. SH 80, east of IH 35 to Clarewood Dr (Phase 3)
d. SH 80, Clarewood Dr to River Road (Phase 4)
e. IH 35 SBFR (Phase 5)

Perform any erosion control measures such as seeding or sodding before starting another segment, unless otherwise authorized by the Engineer.

Work around existing culverts, signs, mailboxes, object markers and delineators unless otherwise shown on the plans or directed by the Engineer. Any damages resulting from the Contractor's operation shall be repaired by the Contrtactor to the satisfaction of the Engineer.
The Contractor shall not have two (2) work zones at the same time unless otherwise authorized by the Engineer.

ITEM 506 - TEMPORARY EROSION, SEDIMENTATION, AND ENV CONTROLS
If SW3P plan sheets are not provided, place the control measures as directed.

Install, maintain, remove control measures in areas of the right of way utilized by the Contractor that are outside the limits of disturbance required for construction. Permanently stabilize the area. This work is subsidiary.

Erosion control measures must be initiated immediately in areas where construction activities have ceased and will not resume for a period exceeding 14 calendar days. Vertical track all exposed soil, stockpiles, and slopes. Re-track after each rain event or every 14 days, whichever occurs first. Sheep foot roller is allowed for vertical tracking. This work is subsidiary.

Unless a specific pay item is provided in the plans, the installation of the 6:1 or flatter for RFD side slopes in the safety zone will be subsidiary to pertinent bid items.

ITEMS 528, 529, 530, 531, & 536 – MISCELLANEOUS CONSTRUCTION
Reinforcement will be in accordance with Section 432.3.1 unless shown on the plans. Fiber reinforcement is not allowed. GFRP is allowed reinforcement for all applications. Class A and B Concrete are allowed to use Coarse Aggregate Grades 1-8.

Unless shown on the plans, all concrete will be 5 in. thick and have 2 in. sand, base, or RAP bedding. Furnish base meeting the requirement for any type or grade in accordance with Item 247. Compressive strengths for flexible base are waived. RAP must be 100% passing a 1 in. sieve. Bedding and flexible base must be placed using ordinary compaction.

Expansion joints will be placed every 40 ft. Expansion joints must be 1 in. wide asphalt board and flush with the surface. The bottom of the asphalt board will be at half the depth of the concrete. The reinforcement will be continuous thru the expansion joint.

Sidewalk cross slope must not exceed 1.5%.

If roots are encountered verify with the Engineer before accommodating or removing 2 in. diameter or larger roots. Root removal must be in accordance with Section 752.4.2. Roots may remain in the bedding or base. For improvements within 6 in. of a root, the concrete thickness may be reduced by 1 in. and the bedding increased by 1 in. to minimize impacts to the roots. Adjust bedding and surface profile to provide a 1 in. bedding cushion around the roots. The surface profile may be adjusted to the extent allowed by ADA. This work is subsidiary.

ITEM 528 - COLORED TEXTURED CONCRETE AND LANDSCAPE PAVERS
Concrete and pavers will use a 90° herringbone pattern with 8 in. x 4 in. Pavestone Holland series or equivalent with adjacent sidewalks banded with a soldier course unless otherwise shown on the plans. Concrete or pavers will be terra cotta finish unless otherwise called out in plans. Concrete will have an antique finish attained by application of Scofield Lithochrome color hardener A-29 and A-57 as the release agent or equivalent. Seal concrete with a clear sealer provided by the color manufacturer. Paver joint-filling sand will be tan colored polymeric sand. Do not use expansion joint material between pavers and adjacent concrete.

ITEM 530 – INTERSECTIONS, DRIVEWAYS, AND TURNOUTS
Notify property owners at least 48 hr. before beginning work on their driveway. Provide a list of each notification and contact before each closure. Only close driveways for reconstruction if duration and alternate access are approved. Install and maintain material across a work zone as temporary access. This work is subsidiary.

Grade breaks must not exceed 8% for permanent or temporary. Sidewalk crossing slope will be 1.5% and 5 ft. wide with width reduction in approved locations.

For ACP or SURF TREAT, the pavement structure will match the adjacent roadway unless detailed on the plans. HMA, including surface, may use a maximum allowable quantity of 40% RAP and 5% RAS for private driveways, public driveways for 2-lane roadways or smaller, and turnouts. Blending of 2 or more sources is allowed.

For CONC, the pavement structure will be 6 in. thick and have 3 in. flexible base bedding unless detailed on the plans. Coarse Aggregate Grades 1-8 may be used for the required Class A concrete. Expansion joints will be placed every 20 ft. Construct expansion joints as detailed in the latest Austin District Standard for Sidewalk (MCPSWMD).

ITEMS 600s & 6000s – ITS, LIGHTING, SIGNING, MARKINGS, AND SIGNALS
Meet the requirements of the NEC, Texas MUTCD, TxDOT standards, and TxDOT Standard Specifications. Notify the Engineer if existing elements to remain do not meet code or specification.

Contractor shall provide all service, equipment and material required to provide a functional item and interface with existing equipment and software.
For signal shop contact Charles Vaughn Jr (Charles.Vaughn@txdot.gov) and Douglas Turner (Douglas.L.Turner@txdot.gov).
Use the TxDOT provided form to submit an electrical, illumination, and signal checklist prior to request for signal activation or a punch list.

Provide a 7 day advance email notice to the Engineer to request illumination or traffic signal punch list inspection.

Provide a 14 day advance email notice to the Engineer with signal technician contact information and signal locations prior to working or assuming operations of illumination or traffic signal.

Provide a 60 day advance email notice to the Engineer to request signal timing if timing is not provided in the plans.
Definitions of abbreviations used to designate ITS equipment, material, etc. can be provided by the Engineer.
Stakes or other physical method shall be installed to hold down conduit prior to placement of concrete/flow fill encasement.

ITEM 618 - CONDUIT
Shift the locations of conduit and ground boxes to accommodate field conditions. Install conduit not exceeding 2 feet in any direction from a straight line. Install conduit at a minimum depth of 2 ft. below finished grade. Installation of the conduit by jacking or boring method will be at a depth of at least 1 ft. below subgrade.

Install a high tension, non-metallic pull rope in all empty conduit runs. This work is subsidiary.

Use a coring device, not a hammer drill, when drilling holes through concrete structures.

For underground conduit, smooth wall schedule 40 HDPE can be substituted for schedule 40 PVC. Schedule 80 bore can be replaced with a schedule 40 HDPE carrier pipe of adequate size to carry the proposed conduits. HDPE must transition to RMC/PVC per ED (11)-14.

When using existing conduit, ensure that all conduits have bushings and cleaned of dirt, mud, grease, and other debris. Re-strap existing or relocated conduit per the specification. This work is subsidiary.

Abandoned underground conduit must have all conductors removed.

ITEM 620 - ELECTRICAL CONDUCTORS
Provide 10 amp time delay fuses.

For Flashing Beacons (Item 685) and Pedestal Poles (Item 687), provide single-pole breakaway disconnects.
Install a minimum size 8 AWG equipment grounding conductor (EGC) in all conduits including loop detectors and traffic signal cables. Payment and the size of the EGC will be in accordance with standard ED (3)-14 note 12.

ITEM 644 – SMALL ROADSIDE SIGN ASSEMBLIES
Triangular slip base that use set screws to secure the post will require 1 of the set screws to penetrate the post by drilling a hole in the post at the location of the screw. All set screws shall be treated with anti-seize compound.

ITEM 666 - RETROREFLECTORIZED PAVEMENT MARKINGS
Notify the Engineer at least 24 hr. before beginning work.

When the raised portion of a profile marking is placed as a separate operation from the pavement marking, the raised portion must be placed first then covered with TY I.

ITEM 677 - ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS
Dispose of removed materials and debris at locations off the right of way.

Elimination using a pavement marking will not be allowed in lieu of methods listed in specification.

Remove pavement markings on concrete surfaces by a blasting method. Flail milling will be allowed when total quantity of removal on concrete surfaces is less than 1000 ft.

Strip seal is only method allowed on seal coat surface unless project includes placement of a new surface. If total quantity of removal on a seal coat surface is less than 2000 ft., elimination using a pavement marking is allowed if a test section is approved by the Engineer. Test section shall demonstrate the thermo marking color matches the existing pavement color.

Remove pavement markings outside the limits of the new surface by a blasting method.

Use a TRAIL or a non-retroreflective paint to cover stripe remnants that remain after elimination. The test requirements for these materials are waived. The paint color shall be adjusted to resemble the existing pavement color. Installation and maintenance is subsidiary.

County: Hays
Highway: SH 80, Etc.

Sheet:
Control: 0286-01-062, Etc.

ITEM 682 – VEHICLE AND PEDESTRIAN SIGNAL HEADS
Install signal head attachments so the wiring to each passes from the signal pole through the attachment hardware to the signal head. Use UV rated tie wraps.
Use the four-point mounting system (TY A) for signal heads, except in cases of skewed or vertical heads when (TY B) will be used.

ITEM 684 – TRAFFIC SIGNAL CABLES
For Type A cables, cables meeting the requirements of IMSA 19-1 can be substituted for IMSA 20-1. For all types of cables, an increase of one size larger wire diameter and thickness can be substituted for plan size. For example, 12 AWG can be substituted for 14 AWG.

For each cable run, coil an extra 2 ft. of cable in each steel pole and 5 ft. in the controller cabinet. Provide a separate multi-conductor signal cable (14 AWG) inside pedestal poles and mast-arm signal poles from the terminal strip to each signal head as shown on the plans.

ITEM 687 – PEDESTAL POLE ASSEMBLIES
Verify the required pole height prior to ordering material.

ITEM 688 - PEDESTRIAN DETECTORS AND VEHICLE LOOP DETECTORS
Test period for the pedestrian detectors shall be in accordance with item 680.3.1.8.

Pedestrian push buttons will be mounted at 42 in. above the walking surface and have permanent type signs within the detector unit (9 in. x 12 in. sign and push button station on signal poles and 5 in. x 7 in. sign and push button station on pedestrian poles), which explains their purpose and indicates which crosswalk signal is actuated. Provide speech walk message as shown in the plans or per Engineer.

ITEM 752 – TREE AND BRUSH REMOVAL
Follow Item 752.4 Work Methods and Item 752 general notes when removing or working on or near trees and brush even if Item 752 is not included as a pay item.

Flailing equipment is not allowed. Burning brush is not allowed in urban areas or on ROW. Use hand methods or other means of removal if doing work by mechanical methods is impractical.

Prior to begin tree pruning, send email confirmation to the Engineer that training and demonstration of work methods has been provided to the employees. This work is subsidiary.

Shredded vegetation may be blended, at a rate not to exceed 15 percent by volume, with Item 160 if the maximum dimension is not greater than 2 in.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0286-01-062 **DISTRICT** Austin **COUNTY** Hays
HIGHWAY SH 21, SH 80

		CONTROL SECTION JOB		**0286-01-062**		**0286-01-063**		TOTAL EST.	TOTAL FINAL
		PROJECT ID		**A00178780**		**A00178781**			
		COUNTY		**Hays**		**Hays**			
		HIGHWAY		**SH 80**		**SH 21**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL		
	100-6002	PREPARING ROW	STA	17.000		30.000		47.000	
	104-6017	REMOVING CONC (DRIVEWAYS)	SY	428.000		714.000		1,142.000	
	104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	634.000		1,019.000		1,653.000	
	104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	1,009.000		1,295.000		2,304.000	
	104-6044	REMOVING CONC (FLUME)	SY			7.000		7.000	
	105-6011	REMOVING STAB BASE AND ASPH PAV (2"-6")	SY	485.000		40.000		525.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	433.000		932.000		1,365.000	
	162-6002	BLOCK SODDING	SY	433.000		932.000		1,365.000	
	168-6001	VEGETATIVE WATERING	MG	9.000		17.000		26.000	
	416-6002	DRILL SHAFT (24 IN)	LF	18.000		24.000		42.000	
	420-6074	CL C CONC (MISC)	CY			4.000		4.000	
	432-6041	RIPRAP (SPECIAL)	CY			30.000		30.000	
	450-6052	RAIL (HANDRAIL)(TY F)	LF			82.000		82.000	
	479-6001	ADJUSTING MANHOLES	EA			2.000		2.000	
	479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA			11.000		11.000	
	479-6010	ADJUSTING MANHOLES (ELECTRIC BOX)	EA	4.000		4.000		8.000	
	500-6001	MOBILIZATION	LS	1.000				1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	4.000		6.000		10.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	507.000		549.000		1,056.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	507.000		549.000		1,056.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	2,028.000		658.000		2,686.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	2,028.000		658.000		2,686.000	
	528-6002	COLORED TEXTURED CONC (6")	SY	100.000		84.000		184.000	
	528-6008	COLORED TEXTURED CONC (5")	SY	5.000		88.000		93.000	
	529-6002	CONC CURB (TY II)	LF			11.000		11.000	
	529-6008	CONC CURB & GUTTER (TY II)	LF	930.000		1,107.000		2,037.000	
	529-6015	CONC CURB (TY C1)	LF	22.000				22.000	
	529-6017	CONC CURB (TY F2)	LF			42.000		42.000	
	530-6004	DRIVEWAYS (CONC)	SY	990.000		716.000		1,706.000	
	531-6002	CONC SIDEWALKS (5")	SY	1,174.000		2,359.000		3,533.000	
	531-6003	CONC SIDEWALKS (6")	SY	235.000		162.000		397.000	
	531-6004	CURB RAMPS (TY 1)	EA	4.000		7.000		11.000	
	531-6005	CURB RAMPS (TY 2)	EA	3.000				3.000	
	531-6010	CURB RAMPS (TY 7)	EA	1.000		10.000		11.000	
	531-6016	CURB RAMPS (TY 21)	EA	2.000				2.000	
	531-6017	CURB RAMPS (TY 22)	EA	1.000				1.000	
	536-6002	CONC MEDIAN	SY	63.000				63.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0286-01-062 **DISTRICT** Austin **COUNTY** Hays
HIGHWAY SH 21, SH 80

			CONTROL SECTION JOB	**0286-01-062**		**0286-01-063**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00178780**		**A00178781**			
			COUNTY	**Hays**		**Hays**			
			HIGHWAY	**SH 80**		**SH 21**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL		
	560-6025	RELOCATE EXISTING MAILBOX	EA	1.000		1.000		2.000	
	618-6023	CONDT (PVC) (SCH 40) (2")	LF	55.000		120.000		175.000	
	620-6007	ELEC CONDR (NO.8) BARE	LF	55.000		120.000		175.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA			2.000		2.000	
	644-6075	RELOCATE SM RD SN SUP&AM(SIGN ONLY)	EA			1.000		1.000	
	647-6004	RELOCATE LRSS (SIGN ONLY)	EA			2.000		2.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	502.000		968.000		1,470.000	
	666-6182	REFL PAV MRK TY II (W) 24" (SLD)	LF	502.000		968.000		1,470.000	
	666-6196	REFL PAV MRK TY II (W) (RR XING)	EA	2.000				2.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	397.000				397.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	56.000				56.000	
	677-6005	ELIM EXT PAV MRK & MRKS (12")	LF			644.000		644.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	246.000		224.000		470.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF	480.000		968.000		1,448.000	
	682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA	4.000		9.000		13.000	
	684-6031	TRF SIG CBL (TY A)(14 AWG)(5 CONDR)	LF	985.000		1,425.000		2,410.000	
	684-6080	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	LF	985.000		1,425.000		2,410.000	
	687-6001	PED POLE ASSEMBLY	EA	3.000		7.000		10.000	
	688-6001	PED DETECT PUSH BUTTON (APS)	EA	7.000		13.000		20.000	
	690-6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6.000		9.000		15.000	
	690-6032	INSTALL OF PEDESTRIAN PUSH BUTTONS	EA	7.000		13.000		20.000	
	690-6089	REMOVE PED POLE ASSM	EA	2.000				2.000	
	690-6094	REMOV PED SIG LED TRAF SIG LAMP UNIT	EA	2.000		4.000		6.000	
	1004-6001	TREE PROTECTION	EA	6.000		4.000		10.000	
	6027-6009	GROUND BOX (ADJUST)	EA	3.000		1.000		4.000	
	6185-6002	TMA (STATIONARY)	DAY	90.000		180.000		270.000	
	18	RAILROAD FLAGGING: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000				1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000				1.000	
		EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000				1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000				1.000	

LOCATION	0100 6002	0104 6017	0104 6029	0104 6036	0104 6044	0105 6011	0160 6003	0162 6002	0168 6001	0416 6002	0420 6074	0432 6041	0450 6052	0479 6001	0479 6005	0479 6010
	PREPARING ROW	REMOVING CONC (DRIVEWAYS)	REMOVING CONC (CURB OR CURB & GUTTER)	REMOVING CONC (SIDEWALK OR RAMP)	REMOVING CONC (FLUME)	REMOVING STAB BASE AND ASPH PAV (2"-6")	FURNISHING AND PLACING TOPSOIL (4")	BLOCK SODDING	VEGETATIVE WATERING *	DRILL SHAFT (24 IN)	CL C CONC (MISC)	RIPRAP (SPECIAL)	RAIL (HANDRAIL)(TY F)	ADJUSTING MANHOLES	ADJUSTING MANHOLES (WATER VALVE BOX)	ADJUSTING MANHOLES (ELECTRIC BOX)
	STA	SY	LF	SY	SY	SY	SY	SY	MG	LF	CY	CY	LF	EA	EA	EA
0286-01-062																
SH 80 REMOVAL PLAN 1 OF 21	2	71	58	45	-	111	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 2 OF 21	2	103	181	104	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 3 OF 21	2	185	87	71	-	28	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 4 OF 21	2	-	94	186	-	91	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 5 OF 21	1	-	185	230	-	-	-	-	-	-	-	-	-	-	-	-
0286-01-063																
SH 80 REMOVAL PLAN 5 OF 21	1	-	52	144		-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 6 OF 21	2	-	187	153		-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 7 OF 21	2	-	101	13	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 8 OF 21	2	-	199	155	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 9 OF 21	2	-	-	34	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 10 OF 21	2	68	25	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 11 OF 21	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 12 OF 21	2	61	21	-	7	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 13 OF 21	1	69	23	17	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 14 OF 21	2	-	7	11	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 15 OF 21	2	234	20	78	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 16 OF 21	2	94	34	108	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 17 OF 21	2	93	22	81	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 18 OF 21	2	95	20	39	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 19 OF 21	2	-	12	278	-	2	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 20 OF 21	1	-	131	121	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 21 OF 21	1	-	165	63	-	38	-	-	-	-	-	-	-	-	-	-
0286-01-062																
S IH 35 REMOVAL PLAN 1 OF 4	2	-	-	118	-	136	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 2 OF 4	2	-	-	103	-	75	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 3 OF 4	2	69	-	93	-	44	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 4 OF 4	2	-	29	59	-	-	-	-	-	-	-	-	-	-	-	-
0286-01-062																
SH 80 SIDEWALK PLAN 1 OF 21	-	-	-	-	-	-	4	4	1	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 2 OF 21	-	-	-	-	-	-	35	35	1	6	-	-	-	-	-	2
SH 80 SIDEWALK PLAN 3 OF 21	-	-	-	-	-	-	3	3	1	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 4 OF 21	-	-	-	-	-	-	34	34	1	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 5 OF 21	-	-	-	-	-	-	25	25	1	12	-	-	-	-	-	2
0286-01-063																
SH 80 SIDEWALK PLAN 5 OF 21	-	-	-	-	-	-	9	9	1	-	-	2	-	-	-	3
SH 80 SIDEWALK PLAN 6 OF 21	-	-	-	-	-	-	18	18	1	-	-	-	-	-	2	-
SH 80 SIDEWALK PLAN 7 OF 21	-	-	-	-	-	-	25	25	1	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 8 OF 21	-	-	-	-	-	-	45	45	1	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 9 OF 21	-	-	-	-	-	-	69	69	1	-	-	-	-	1	-	-
SH 80 SIDEWALK PLAN 10 OF 21	-	-	-	-	-	-	83	83	1	-	-	-	30	-	1	-
SH 80 SIDEWALK PLAN 11 OF 21	-	-	-	-	-	-	65	65	1	-	-	14	-	-	-	-
SH 80 SIDEWALK PLAN 12 OF 21	-	-	-	-	-	-	64	64	1	-	4	5	32	-	1	-
SH 80 SIDEWALK PLAN 13 OF 21	-	-	-	-	-	-	42	42	1	-	-	9	20	-	1	1
SH 80 SIDEWALK PLAN 14 OF 21	-	-	-	-	-	-	14	14	1	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 15 OF 21	-	-	-	-	-	-	74	74	1	-	-	-	-	-	2	-
SH 80 SIDEWALK PLAN 16 OF 21	-	-	-	-	-	-	62	62	1	-	-	-	-	-	2	-
SH 80 SIDEWALK PLAN 17 OF 21	-	-	-	-	-	-	66	66	1	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 18 OF 21	-	-	-	-	-	-	65	65	1	-	-	-	-	1	-	-
SH 80 SIDEWALK PLAN 19 OF 21	-	-	-	-	-	-	111	111	1	-	-	-	-	-	2	-
SH 80 SIDEWALK PLAN 20 OF 21	-	-	-	-	-	-	69	69	1	6	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 21 OF 21	-	-	-	-	-	-	51	51	1	18	-	-	-	-	-	-
0286-01-062																
S IH 35 SIDEWALK PLAN 1 OF 4	-	-	-	-	-	-	130	130	2	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 2 OF 4	-	-	-	-	-	-	88	88	1	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 3 OF 4	-	-	-	-	-	-	76	76	1	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 4 OF 4	-	-	-	-	-	-	38	38	-	-	-	-	-	-	-	-
PROJECT TOTALS	47	1,142	1,653	2,304	7	525	1,365	1,365	26	42	4	30	82	2	11	8

* INDEFINITE QUANTITIES TO BE APPROVED BY THE ENGINEER.

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SUMMARIES

SHEET 1 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS		SEE TITLE SHEET		SH80, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	5
CHECK	CONTROL	SECTION	JOB	
	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: ABOHR
FILE: SanMarcos-SUM01.dgn
PENTABLE: 1033129i-San Marcos.tbl
DATE: 8/5/2022 TIME: 4:54:05 PM SCALE: 1:1

LOCATION	0528 6002	0528 6008	0529 6002	0529 6008	529 6015	0529 6017	0530 6004	0531 6002	0531 6003	0531 6004	0531 6005	0531 6010	0531 6016	0531 6017	0536 6002	0560 6025	0618 6023	0620 6007
	COLORED TEXTURED CONC (6")	COLORED TEXTURED CONC (5")	CONC CURB (TY II)	CONC CURB & GUTTER (TY II)	CONC CURB (TY C1)	CONC CURB (TY F2)	DRIVEWAYS (CONC)	CONC SIDEWALKS (5")	CONC SIDEWALKS (6")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)	CURB RAMPS (TY 7)	CURB RAMPS (TY 21)	CURB RAMPS (TY 22)	CONC MEDIAN	RELOCATE EXISTING MAILBOX	CONDT (PVC) (SCH 40) (2")	ELEC CONDR (NO. 8) BARE
	SY	SY	LF	LF	LF	LF	SY	SY	SY	EA	EA	EA	EA	EA	SY	EA	LF	LF
0286-01-062																		
SH 80 REMOVAL PLAN 1 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 2 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 3 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 4 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 5 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0286-01-063																		
SH 80 REMOVAL PLAN 5 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 6 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 7 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 8 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 9 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 10 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 11 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 12 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 13 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 14 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 15 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 16 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 17 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 18 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 19 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 20 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 21 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0286-01-062																		
S IH 35 REMOVAL PLAN 1 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 2 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 3 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 4 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0286-01-062																		
SH 80 SIDEWALK PLAN 1 OF 21	-	-	-	83	-	-	164	60	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 2 OF 21	-	5	-	347	-	-	103	131	-	4	2	-	2	-	63	-	30	30
SH 80 SIDEWALK PLAN 3 OF 21	-	-	-	93	-	-	204	83	-	-	-	-	-	-	-	1	-	-
SH 80 SIDEWALK PLAN 4 OF 21	-	-	-	99	22	-	218	114	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 5 OF 21	100	-	-	274	-	-	-	116	52	-	1	-	-	1	-	-	25	25
0286-01-063																		
SH 80 SIDEWALK PLAN 5 OF 21	84	80	-	116	-	-	-	52	-	1	-	-	-	-	-	-	20	20
SH 80 SIDEWALK PLAN 6 OF 21	-	-	-	187	-	-	-	147	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 7 OF 21	-	-	-	137	-	-	-	161	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 8 OF 21	-	-	-	205	-	-	-	203	-	2	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 9 OF 21	-	-	-	-	-	-	-	213	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 10 OF 21	-	-	-	-	-	-	68	196	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 11 OF 21	-	-	-	-	-	-	-	153	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 12 OF 21	-	-	9	12	-	-	61	154	-	2	-	2	-	-	-	-	30	30
SH 80 SIDEWALK PLAN 13 OF 21	-	8	2	-	-	21	69	113	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 14 OF 21	-	-	-	-	-	-	-	-	21	-	-	-	-	-	-	1	-	-
SH 80 SIDEWALK PLAN 15 OF 21	-	-	-	-	-	-	233	36	141	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 16 OF 21	-	-	-	79	-	-	94	160	-	2	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 17 OF 21	-	-	-	-	-	-	96	182	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 18 OF 21	-	-	-	-	-	-	95	177	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 19 OF 21	-	-	-	14	-	-	-	215	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 20 OF 21	-	-	-	178	-	-	-	143	-	-	-	-	4	-	-	-	40	40
SH 80 SIDEWALK PLAN 21 OF 21	-	-	-	179	-	21	-	54	-	-	-	-	4	-	-	-	40	40
0286-01-062																		
S IH 35 SIDEWALK PLAN 1 OF 4	-	-	-	-	-	-	126	353	-	-	-	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 2 OF 4	-	-	-	-	-	-	68	220	-	-	-	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 3 OF 4	-	-	-	-	-	-	107	92	100	-	-	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 4 OF 4	-	-	-	34	-	-	-	5	83	-	-	1	-	-	-	-	-	-
PROJECT TOTALS	184	93	11	2,037	22	42	1,706	3,533	397	11	3	11	2	1	63	2	185	185

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FILE: SanMarcos-SUM02.dgn

PENTABLE: I033I29I-San Marcos.tbl
DATE: 8/5/2022 TIME: 7:23:49 PM

SCALE: NI

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SUMMARIES

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS		SEE TITLE SHEET		SH80, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	6
	0286	01	062, ETC.	

LOCATION	0644 6068	0644 6075	0647 6004	0666 6048	0666 6182	0666 6196	0677 6001	0677 6003	0677 6005	0677 6007	0678 6008	0682 6018	0684 6031	0684 6080	0687 6001	0688 6001	0690 6030	0690 6032
	RELOCATE SM RD SN SUP&AM TY 10BWG	RELOCATE SM RD SN SUP&AM(SIGN ONLY)	RELOCATE LRSS (SIGN ONLY)	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	REFL PAV MRK TY II (W) 24" (SLD)	REFL PAV MRK TY II (W) (RR XING)	ELIM EXT PAV MRK & MRKS (4")	ELIM EXT PAV MRK & MRKS (8")	ELIM EXT PAV MRK & MRKS (12")	ELIM EXT PAV MRK & MRKS (24")	PAV SURF PREP FOR MRK (24")	PED SIG SEC (LED)(COUNTDOWN)	TRF SIG CBL (TY A)(14 AWG)(5 CONDR)	TRF SIG CBL (TY C)(14 AWG)(2 CONDR)	PED POLE ASSEMBLY	PED DETECT PUSH BUTTON (APS)	REMOVAL OF PEDESTRIAN PUSH BUTTONS	INSTALL OF PEDESTRIAN PUSH BUTTONS
	EA	EA	EA	LF	LF	EA	LF	LF	LF	LF	LF	EA	LF	LF	EA	EA	EA	EA
0286-01-062																		
SH 80 REMOVAL PLAN 1 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 2 OF 21	-	-	-	-	-	-	359	56	-	128	-	-	-	-	-	-	4	-
SH 80 REMOVAL PLAN 3 OF 21	-	-	-	-	-	-	38	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 4 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 5 OF 21	-	-	-	-	-	-	-	-	-	38	-	-	-	-	-	-	2	-
0286-01-063																		
SH 80 REMOVAL PLAN 5 OF 21	-	-	-	-	-	-	-	-	-	66	-	-	-	-	-	-	1	-
SH 80 REMOVAL PLAN 6 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 7 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 8 OF 21	-	-	-	-	-	-	-	-	33	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 9 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 10 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 11 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 12 OF 21	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-
SH 80 REMOVAL PLAN 13 OF 21	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 14 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 15 OF 21	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 16 OF 21	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 17 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 18 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 19 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 REMOVAL PLAN 20 OF 21	-	-	-	-	-	-	-	-	292	68	-	-	-	-	-	-	3	-
SH 80 REMOVAL PLAN 21 OF 21	-	-	-	-	-	-	-	-	319	90	-	-	-	-	-	-	3	-
0286-01-062																		
S IH 35 REMOVAL PLAN 1 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 2 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 3 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 REMOVAL PLAN 4 OF 4	-	-	-	-	-	-	-	-	-	80	-	-	-	-	-	-	-	-
0286-01-062																		
SH 80 SIDEWALK PLAN 1 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 2 OF 21	-	-	-	360	360	2	-	-	-	-	338	2	170	170	1	5	-	5
SH 80 SIDEWALK PLAN 3 OF 21	-	-	-	37	37	-	-	-	-	-	37	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 4 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 5 OF 21	-	-	-	30	30	-	-	-	-	-	30	2	815	815	2	2	-	2
0286-01-063																		
SH 80 SIDEWALK PLAN 5 OF 21	-	-	-	50	50	-	-	-	-	-	50	1	370	370	1	1	-	1
SH 80 SIDEWALK PLAN 6 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 7 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 8 OF 21	-	-	-	20	20	-	-	-	-	-	20	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 9 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 10 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 11 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 12 OF 21	-	-	-	204	204	-	-	-	-	-	204	2	180	180	2	4	-	4
SH 80 SIDEWALK PLAN 13 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 14 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 15 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 16 OF 21	-	-	-	60	60	-	-	-	-	-	60	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 17 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 18 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 19 OF 21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SH 80 SIDEWALK PLAN 20 OF 21	-	-	-	314	314	-	-	-	-	-	314	3	590	590	1	4	-	4
SH 80 SIDEWALK PLAN 21 OF 21	-	-	-	320	320	-	-	-	-	-	320	3	285	285	3	4	-	4
0286-01-062																		
S IH 35 SIDEWALK PLAN 1 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 2 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 3 OF 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
S IH 35 SIDEWALK PLAN 4 OF 4	-	-	-	75	75	-	-	-	-	-	75	-	-	-	-	-	-	-
PROJECT TOTALS	2	1	2	1,470	1,470	2	397	56	644	470	1,448	13	2,410	2,410	10	20	15	20

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SUMMARIES

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS		SEE TITLE SHEET		SH80, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	7
CHECK	CONTROL	SECTION	JOB	
	0286	01	062, ETC.	

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LOCATION	0690 6089	0690 6094	1004 6001	6027 6009	6185 6002
	REMOVE PED POLE ASSM	REMOV PED SIG LED TRAF SIG LAMP UNIT	TREE PROTECTION	GROUND BOX (ADJUST)	TMA (STATIONARY)
	EA	EA	EA	EA	DAY
0286-01-062					
SH 80 REMOVAL PLAN 1 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 2 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 3 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 4 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 5 OF 21	2	2	-	-	-
0286-01-063					
SH 80 REMOVAL PLAN 5 OF 21	1	1	-	-	-
SH 80 REMOVAL PLAN 6 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 7 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 8 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 9 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 10 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 11 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 12 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 13 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 14 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 15 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 16 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 17 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 18 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 19 OF 21	-	-	-	-	-
SH 80 REMOVAL PLAN 20 OF 21	-	1	-	-	-
SH 80 REMOVAL PLAN 21 OF 21	-	2	-	-	-
0286-01-062					
S IH 35 REMOVAL PLAN 1 OF 4	-	-	-	-	-
S IH 35 REMOVAL PLAN 2 OF 4	-	-	-	-	-
S IH 35 REMOVAL PLAN 3 OF 4	-	-	-	-	-
S IH 35 REMOVAL PLAN 4 OF 4	-	-	-	-	-
0286-01-062					
SH 80 SIDEWALK PLAN 1 OF 21	-	-	-	-	90
SH 80 SIDEWALK PLAN 2 OF 21	-	-	-	2	-
SH 80 SIDEWALK PLAN 3 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 4 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 5 OF 21	-	-	1	1	-
0286-01-063					
SH 80 SIDEWALK PLAN 5 OF 21	-	-	-	1	-
SH 80 SIDEWALK PLAN 6 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 7 OF 21	-	-	-	-	180
SH 80 SIDEWALK PLAN 8 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 9 OF 21	-	-	1	-	-
SH 80 SIDEWALK PLAN 10 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 11 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 12 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 13 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 14 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 15 OF 21	-	-	3	-	-
SH 80 SIDEWALK PLAN 16 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 17 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 18 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 19 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 20 OF 21	-	-	-	-	-
SH 80 SIDEWALK PLAN 21 OF 21	-	-	-	-	-
0286-01-062					
S IH 35 SIDEWALK PLAN 1 OF 4	-	-	-	-	-
S IH 35 SIDEWALK PLAN 2 OF 4	-	-	-	-	-
S IH 35 SIDEWALK PLAN 3 OF 4	-	-	3	-	-
S IH 35 SIDEWALK PLAN 4 OF 4	-	-	2	-	-
PROJECT TOTALS	3	6	10	4	270

LOCATION	0506 6038	0506 6039	0506 6041	0506 6043
	TEMP SEDMT * CONT FENCE (INSTALL)	TEMP SEDMT * CONT FENCE (REMOVE)	BIODEG EROSN * CONT LOGS (INSTL) (12")	BIODEG EROSN * CONT LOGS (REMOVE)
	LF	LF	LF	LF
SW3P GENERAL LAYOUT	1,056	1,056	2,686	2,686

NOTES:

1. TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS QUANTITIES WERE BASED ON PERCENTAGE OF PROJECT LENGTH. LAYOUT ENVIRONMENTAL CONTROL MEASURES BASED ON SW3P GENERAL LAYOUT SHEET OR AS DIRECTED.

* INDEFINITE QUANTITIES TO BE APPROVED BY THE ENGINEER.

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SUMMARIES

SHEET 4 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS		SEE TITLE SHEET		SH80, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	8
	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
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DATE: 8/5/2022
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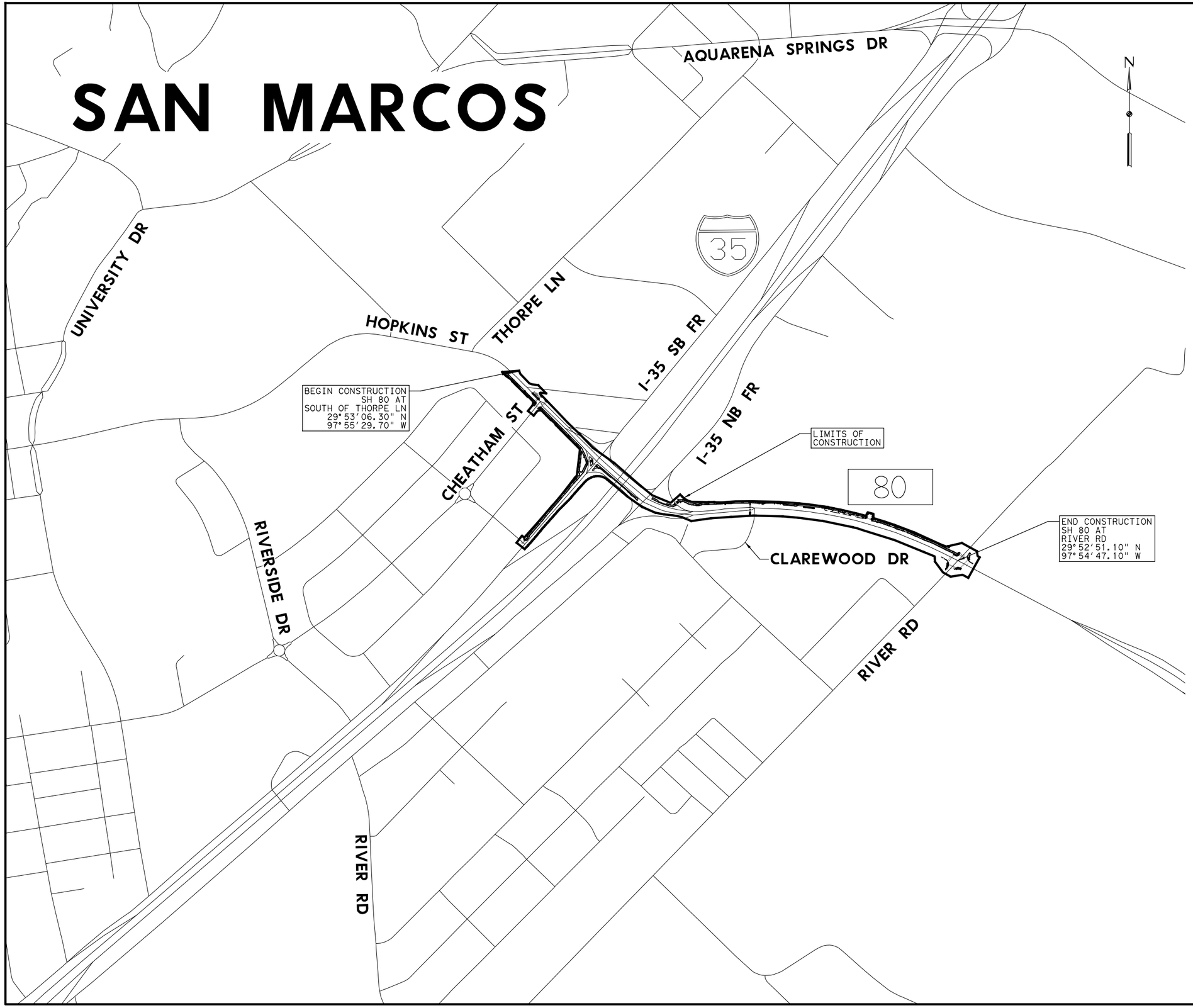
SCALE: 1:1



NOTES:

1. THE PROJECT IS BROKEN OUT INTO 5 SEGMENTS:

   A. SH 80, WEST OF IH 35 (PHASE 1)
   B. SH 80 AT IH 35 (PHASE 2)
   C. SH 80, EAST OF IH 35 TO CLAREWOOD DR (PHASE 3)
   D. SH 80, CLAREWOOD DR TO DRIVER RD (PHASE 4)
   E. IH 35 SBFR (PHASE 5)

2. ALL REMOVAL AND INSTALLATION WORK, EXCEPT PAVEMENT MARKINGS, MUST BE COMPLETED IN A PHASE BEFORE MOVING TO ANOTHER PHASE.

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

Texas Department of Transportation

CURB RAMP PROGRAM

PROJECT LAYOUT

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS		SEE TITLE SHEET		SH80, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	9
CHECK	CONTROL	SECTION	JOB	
	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SanMarcos-ProjectLayOl.dgn
PENTABLE: I033I29I-San Marcos.tbl
DATE: 8/5/2022
TIME: 3:29:6 PM
SCALE: 1:800

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13	0286	01	062, ETC.	SH80, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
5-10 5-21	AUS	HAYS		10

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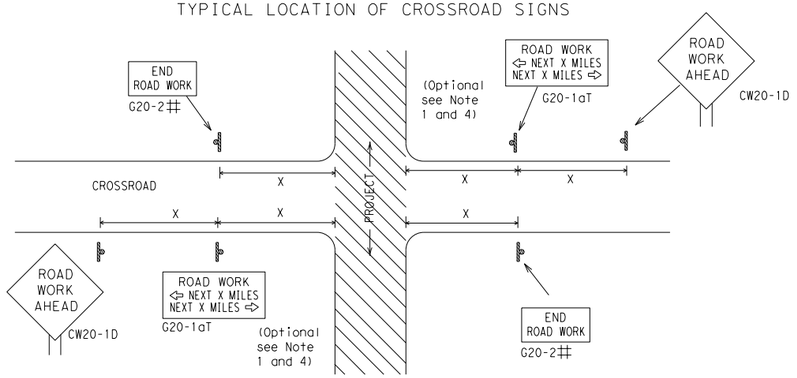
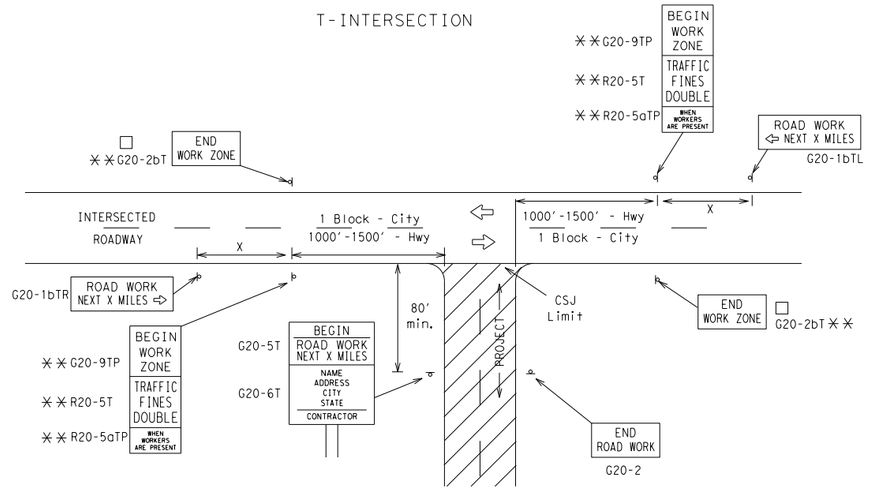
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

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

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

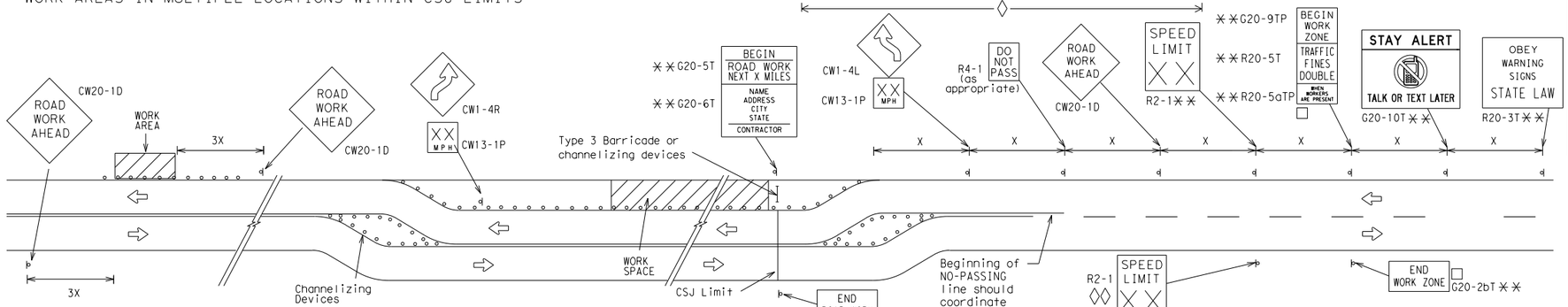
GENERAL NOTES

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

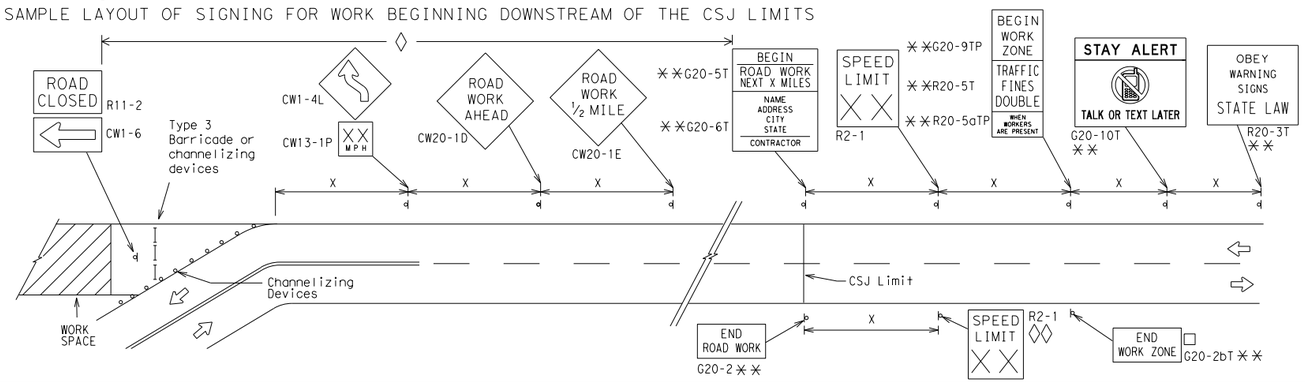
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



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



NOTES

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

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

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

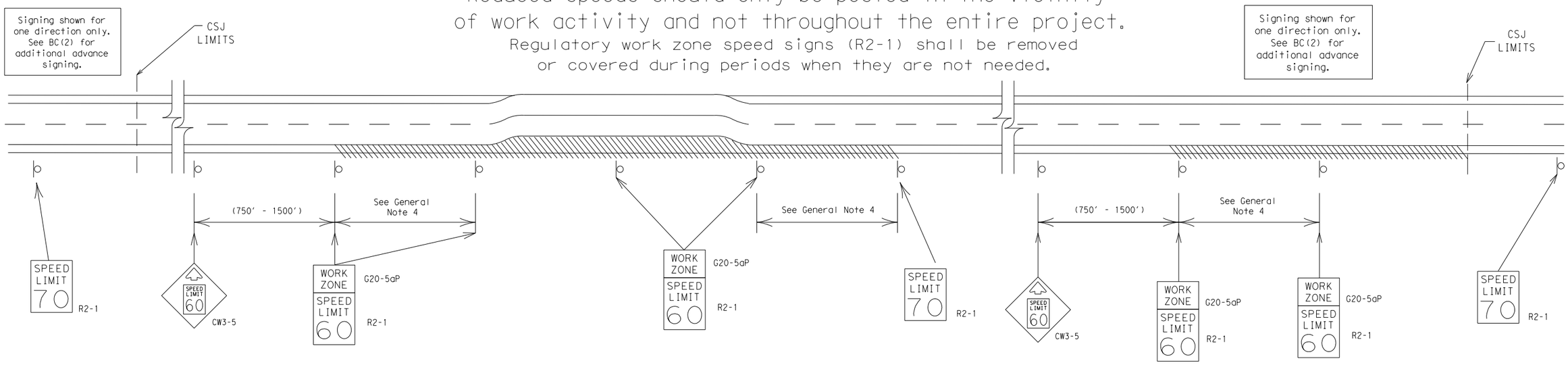
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	HAYS		11

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13 5-21	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
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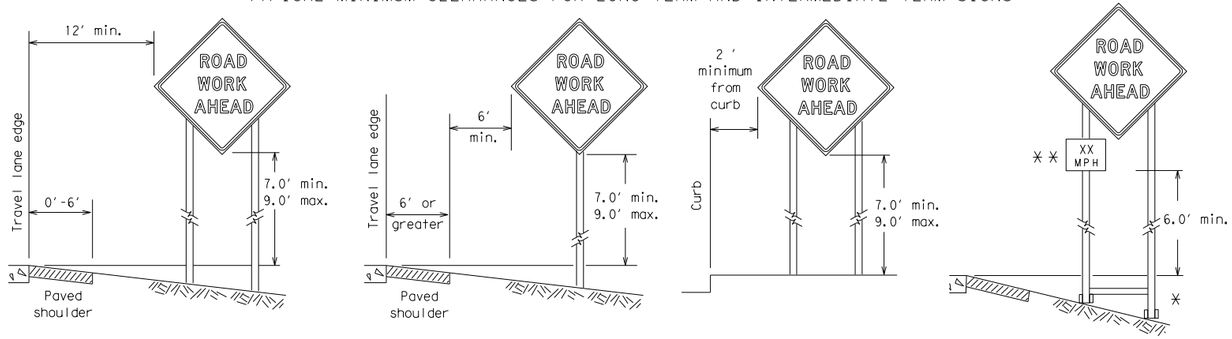
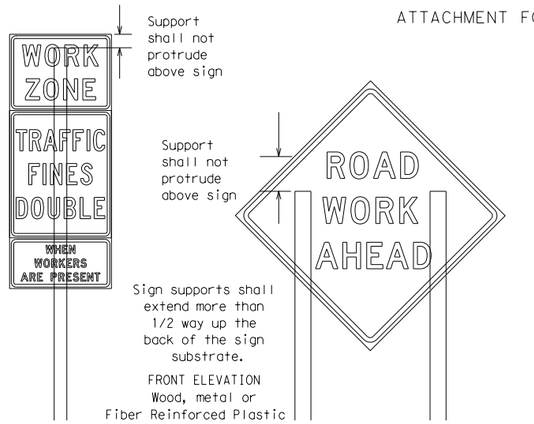
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

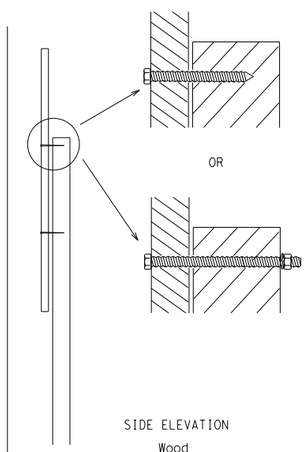


⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





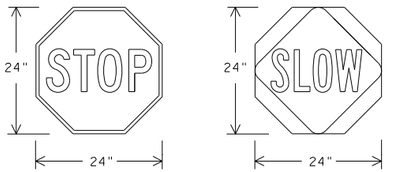
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



Background - Red
Legend & Border - White

Background - Orange
Legend & Border - Black

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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80,ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	HAYS		13

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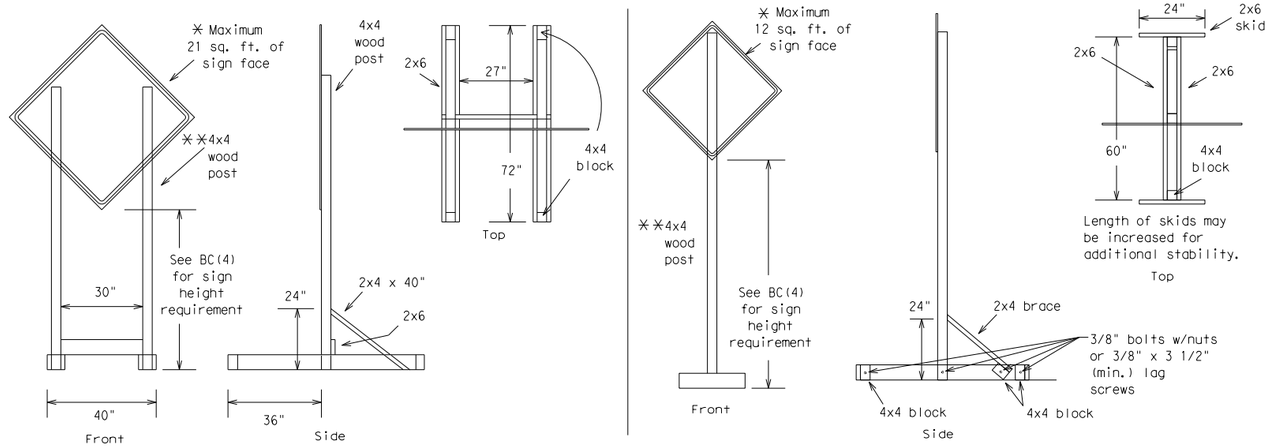
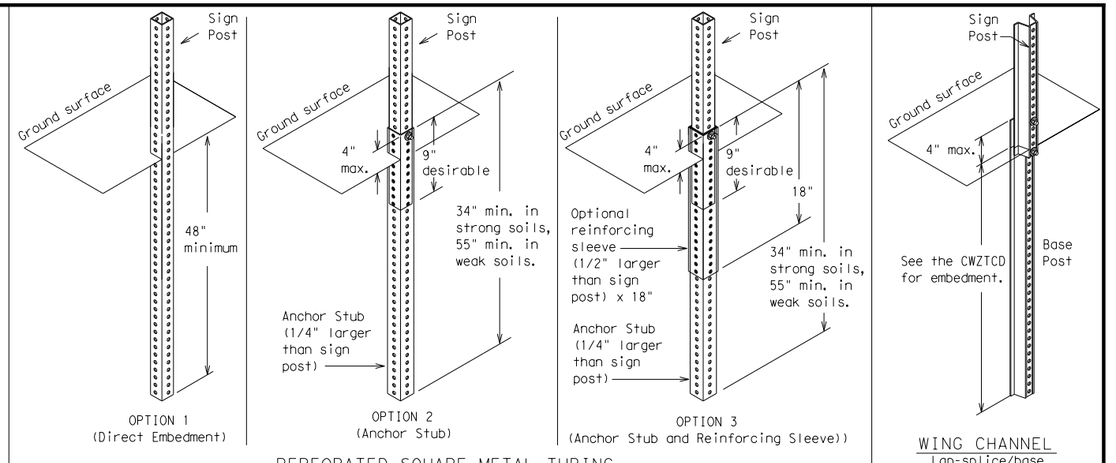


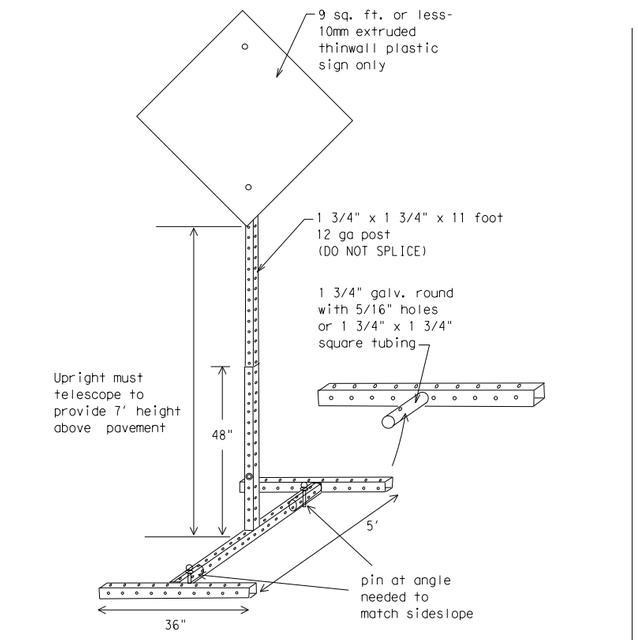
SKID MOUNTED WOOD SIGN SUPPORTS

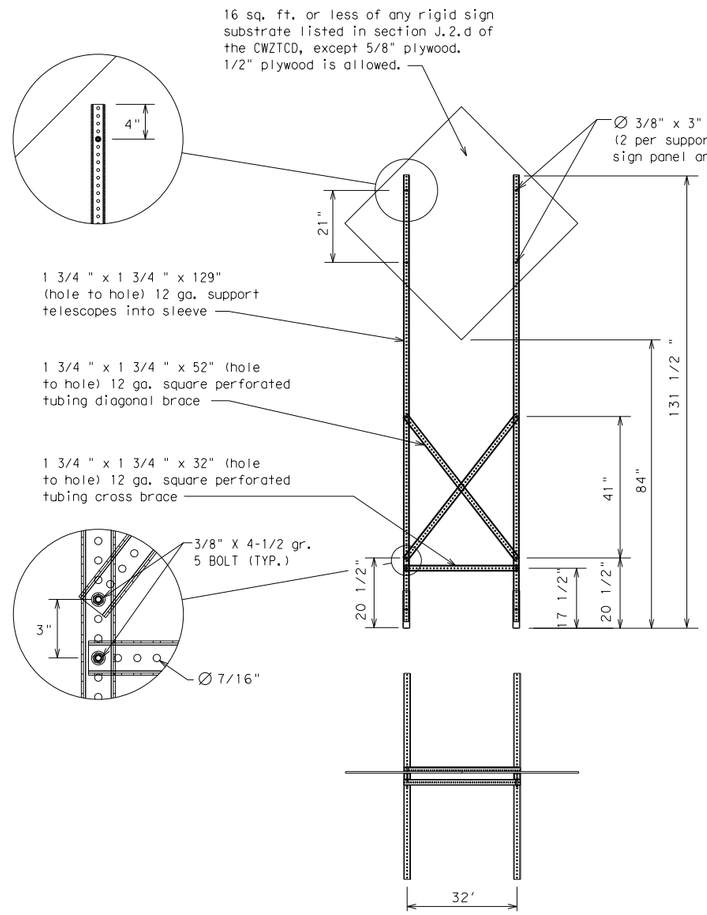
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

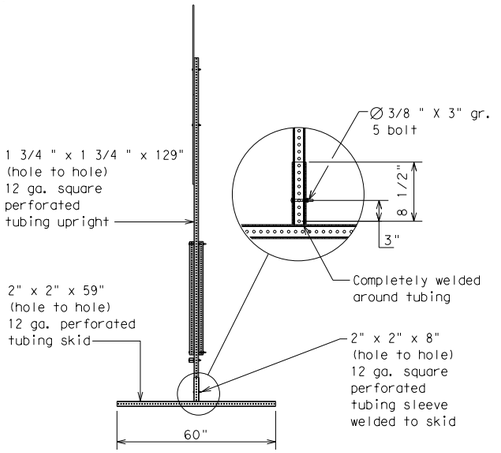


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

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Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0286	01	062, ETC.	SH80, ETC.
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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

PORTABLE CHANGEABLE MESSAGE SIGNS

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

WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD
Alternate	ALT
Avenue	AVE
Best Route	BEST RTE
Boulevard	BLVD
Bridge	BRDG
Cannot	CANT
Center	CTR
Construction Ahead	CONST AHD
CROSSING	XING
Detour Route	DETOUR RTE
Do Not	DONT
East	E
Eastbound	(route) E
Emergency	EMER
Emergency Vehicle	EMER VEH
Entrance, Enter	ENT
Express Lane	EXP LN
Expressway	EXPWY
XXXX Feet	XXXX FT
Fog Ahead	FOG AHD
Freeway	FRWY, FWY
Freeway Blocked	FWY BLKD
Friday	FRI
Hazardous Driving	HAZ DRIVING
Hazardous Material	HAZMAT
High-Occupancy	HOV
Vehicle Highway	HWY
Hour(s)	HR, HRS
Information	INFO
It Is	ITS
Junction	JCT
Left	LFT
Left Lane	LFT LN
Lane Closed	LN CLOSED
Lower Level	LWR LEVEL
Maintenance	MAINT

WORD OR PHRASE	ABBREVIATION
Major	MAJ
Miles	MI
Miles Per Hour	MPH
Minor	MNR
Monday	MON
Normal	NORM
North	N
Northbound	(route) N
Parking	PKING
Road	RD
Right Lane	RT LN
Saturday	SAT
Service Road	SERV RD
Shoulder	SHLDR
Slippery	SLIP
South	S
Southbound	(route) S
Speed	SPD
Street	ST
Sunday	SUN
Telephone	PHONE
Temporary	TEMP
Thursday	THURS
To Downtown	TO DWNTN
Traffic	TRAF
Travelers	TRVLRS
Tuesday	TUES
Time Minutes	TIME MIN
Upper Level	UPR LEVEL
Vehicles (s)	VEH, VEHS
Warning	WARN
Wednesday	WED
Weight Limit	WT LIMIT
West	W
Westbound	(route) W
Wet Pavement	WET PVMT
Will Not	WONT

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	HAYS		15

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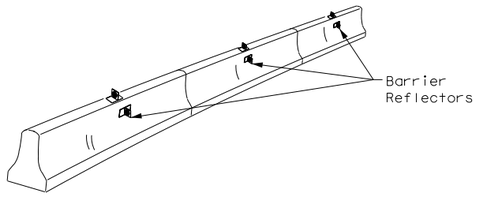
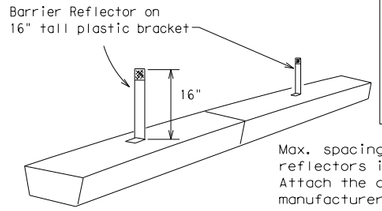
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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



CONCRETE TRAFFIC BARRIER (CTB)

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

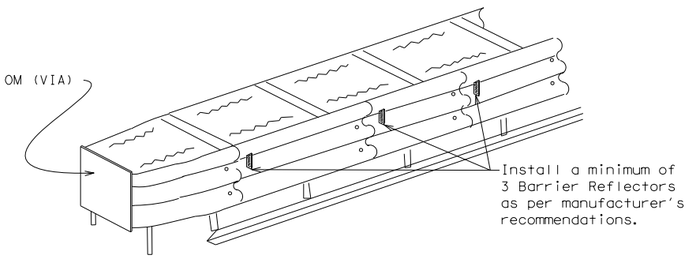


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

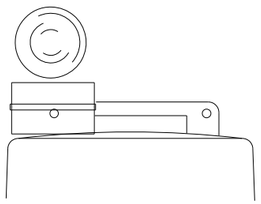


DELINEATION OF END TREATMENTS

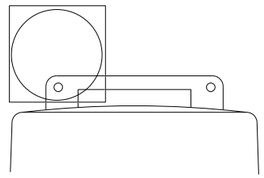
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

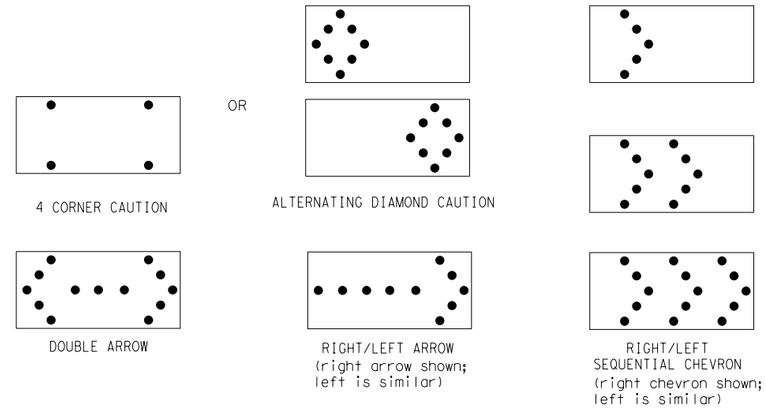
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



4 CORNER CAUTION

ALTERNATING DIAMOND CAUTION

DOUBLE ARROW

RIGHT/LEFT ARROW
(right arrow shown;
left is similar)

RIGHT/LEFT
SEQUENTIAL CHEVRON
(right chevron shown;
left is similar)

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

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

ATTENTION
Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0286	01	062, ETC.	SH80, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	HAYS		16

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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

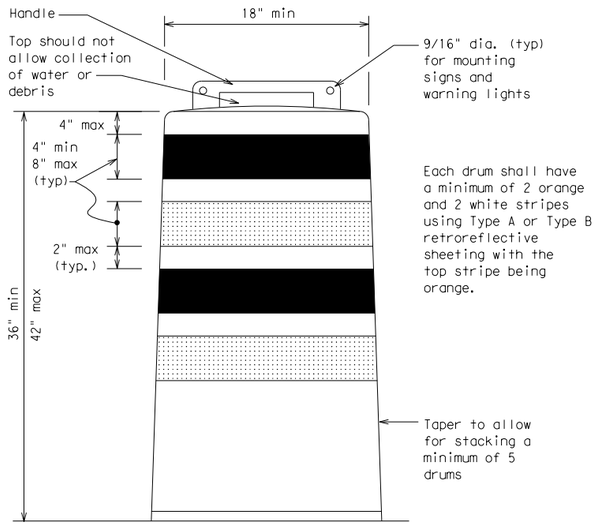
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

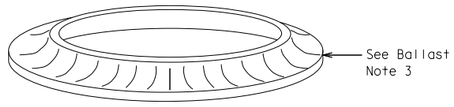
RETROREFLECTIVE SHEETING

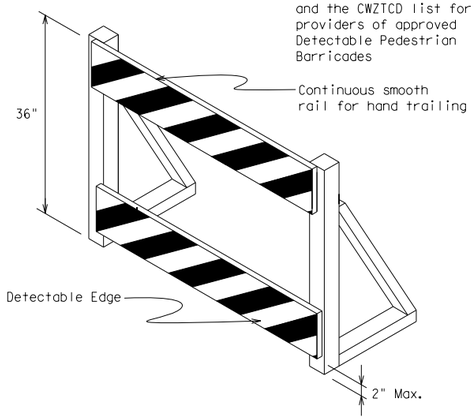
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

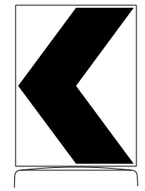




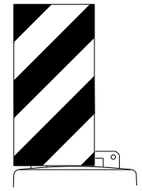


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
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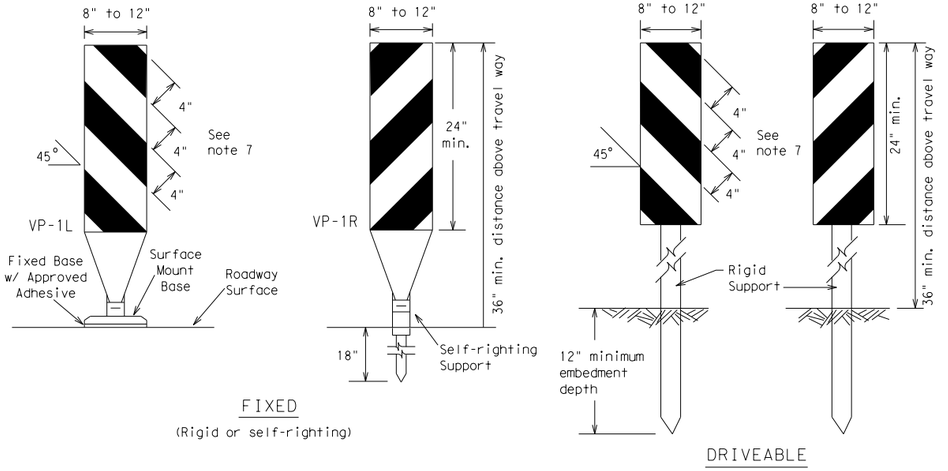
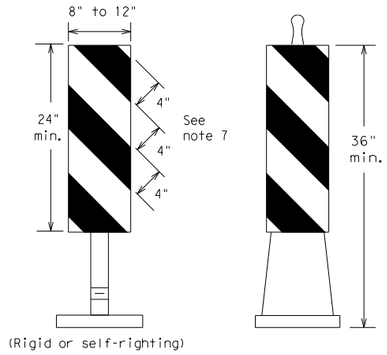


FIXED

(Rigid or self-righting)

DRIVEABLE

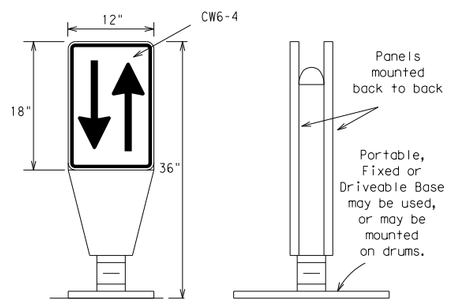


(Rigid or self-righting)

PORTABLE

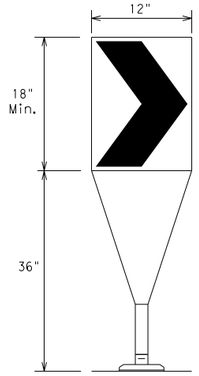
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



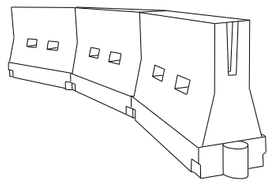
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

Posted Speed	Formula	Minimum Desirable Taper Lengths ✻✻			Suggested Maximum Spacing of Channelizing Devices	
		10′ Offset	11′ Offset	12′ Offset	On a Taper	On a Tangent
30	$L = \frac{WS^2}{60}$	150′	165′	180′	30′	60′
35		205′	225′	245′	35′	70′
40		265′	295′	320′	40′	80′
45	L = WS	450′	495′	540′	45′	90′
50		500′	550′	600′	50′	100′
55		550′	605′	660′	55′	110′
60		600′	660′	720′	60′	120′
65		650′	715′	780′	65′	130′
70		700′	770′	840′	70′	140′
75		750′	825′	900′	75′	150′
80		800′	880′	960′	80′	160′

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	HAYS		18

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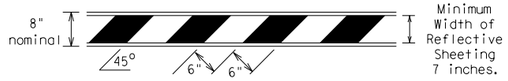
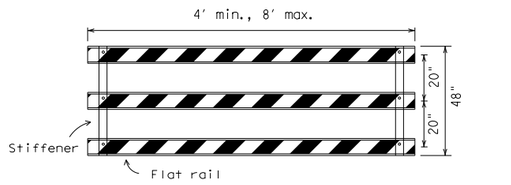
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



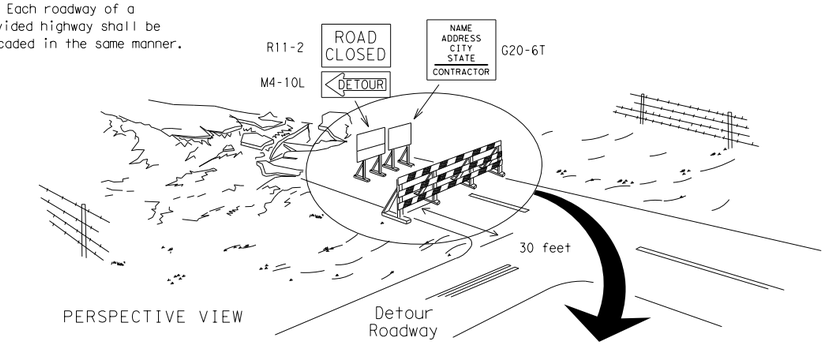
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

TYPICAL PANEL DETAIL
FOR SKID OR POST TYPE BARRICADES

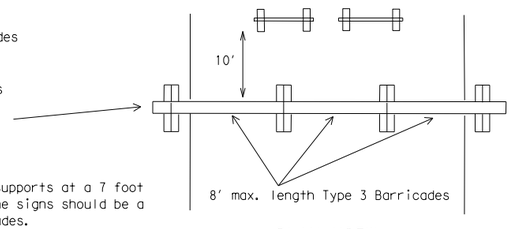
Each roadway of a divided highway shall be barricaded in the same manner.



PERSPECTIVE VIEW

The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.

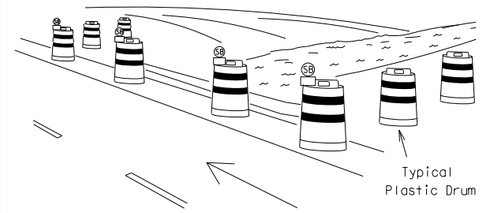
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

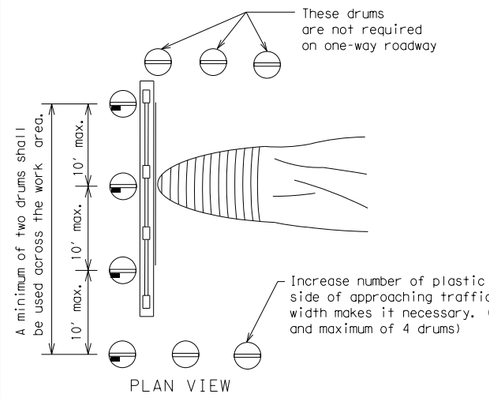
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

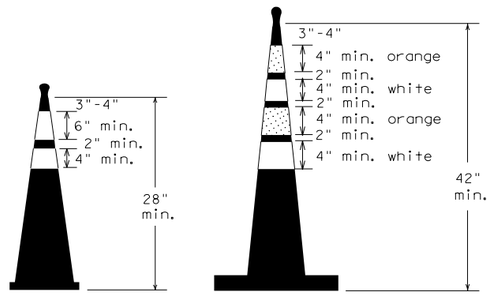
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



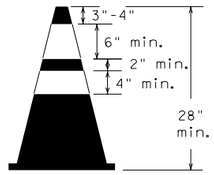
PLAN VIEW

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

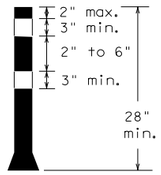
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

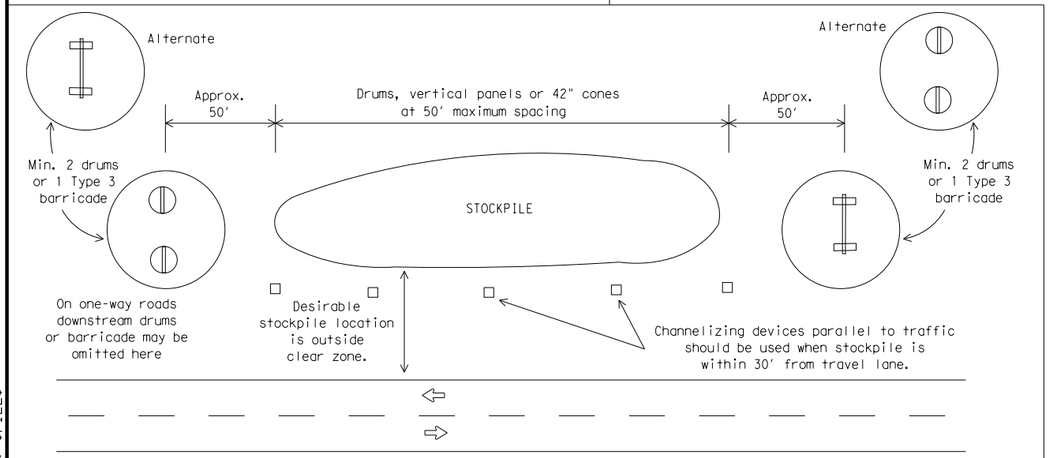


Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.

42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	HAYS		19

104

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

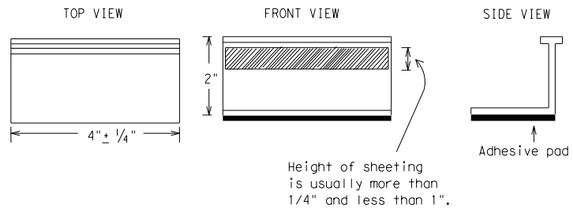
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	AUS	HAYS		20
11-02 8-14				

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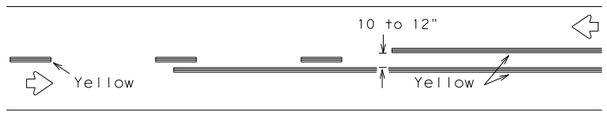
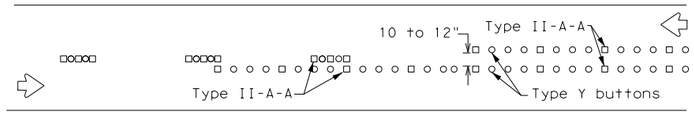
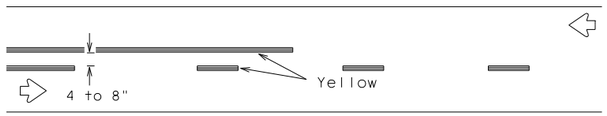
PAVEMENT MARKING PATTERNS



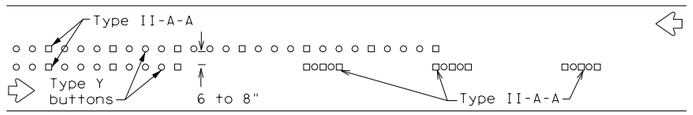
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



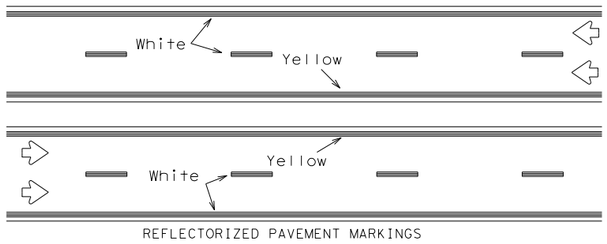
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



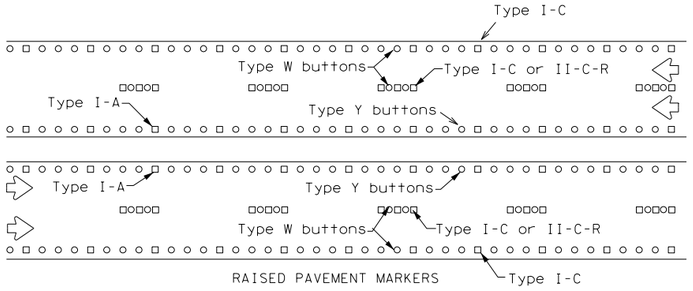
RAISED PAVEMENT MARKERS - PATTERN B

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

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



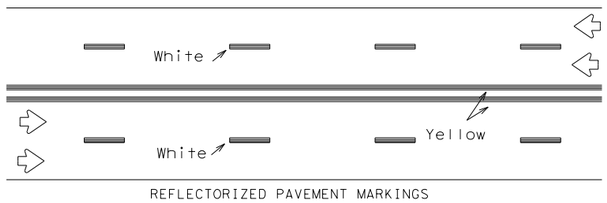
REFLECTORIZED PAVEMENT MARKINGS



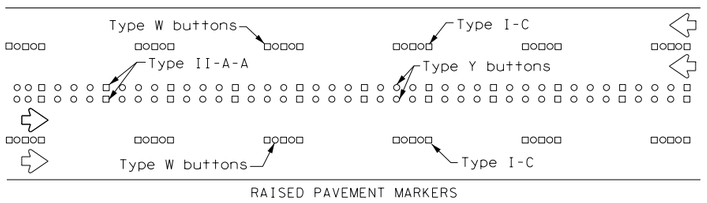
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



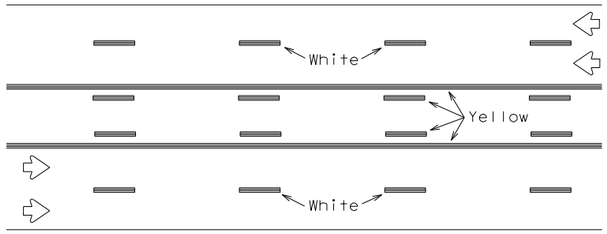
REFLECTORIZED PAVEMENT MARKINGS



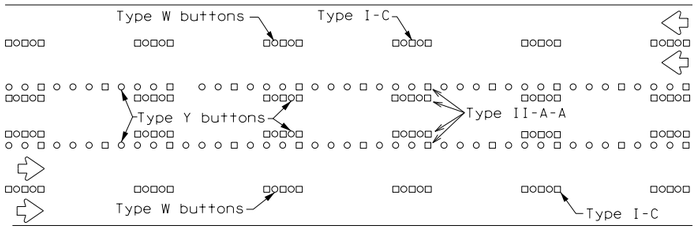
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

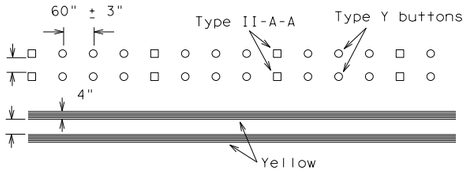
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

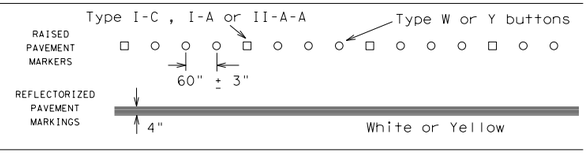
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

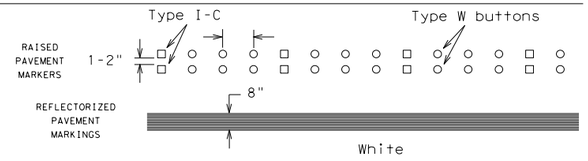


EDGE LINE OR SINGLE NO-PASSING LINE



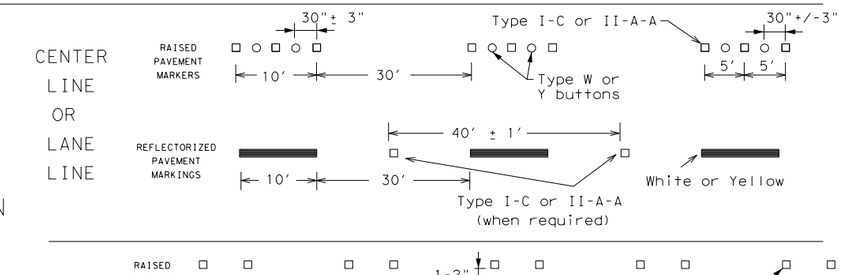
WIDE LINE

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

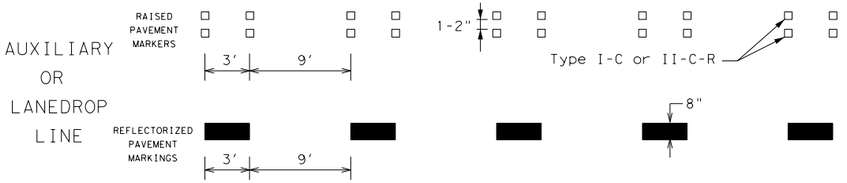


BROKEN LINES

CENTER LINE OR LANE LINE

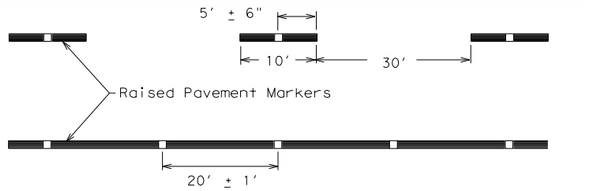


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21	0286	01	062, ETC.	SH80, ETC.
2-98 7-13	DIST	COUNTY		SHEET NO.
11-02 8-14	AUS	HAYS		21

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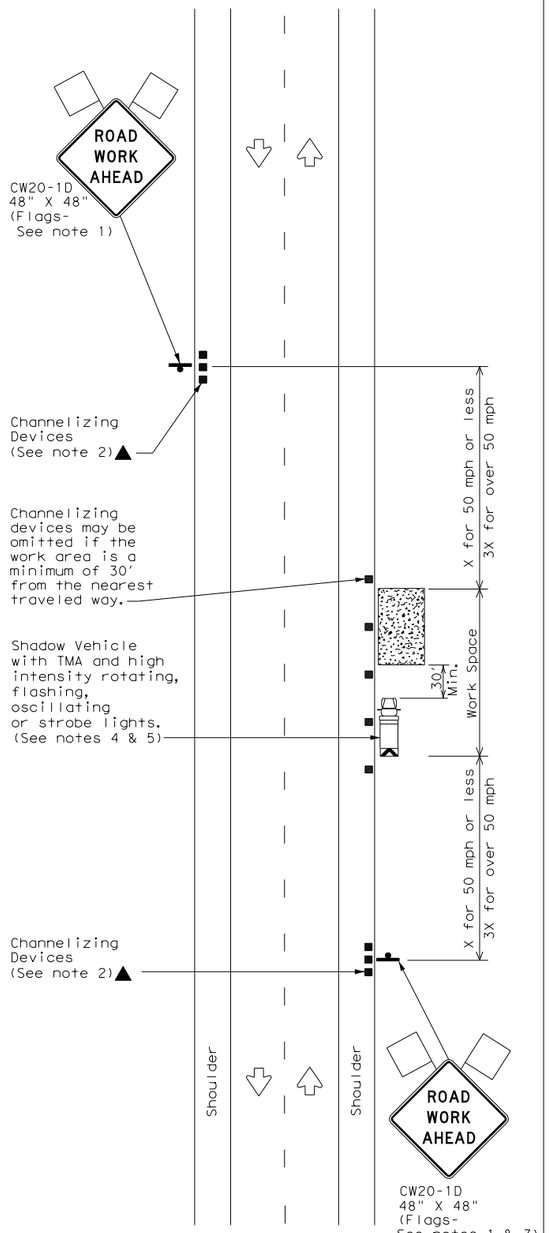
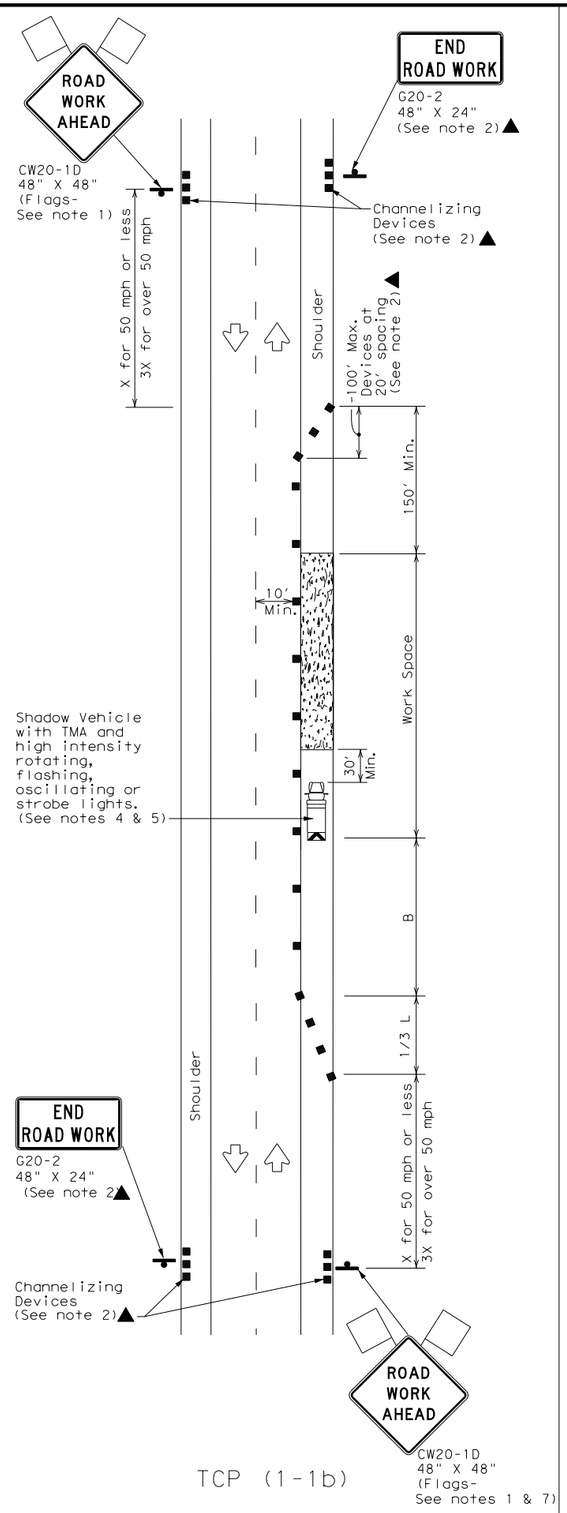


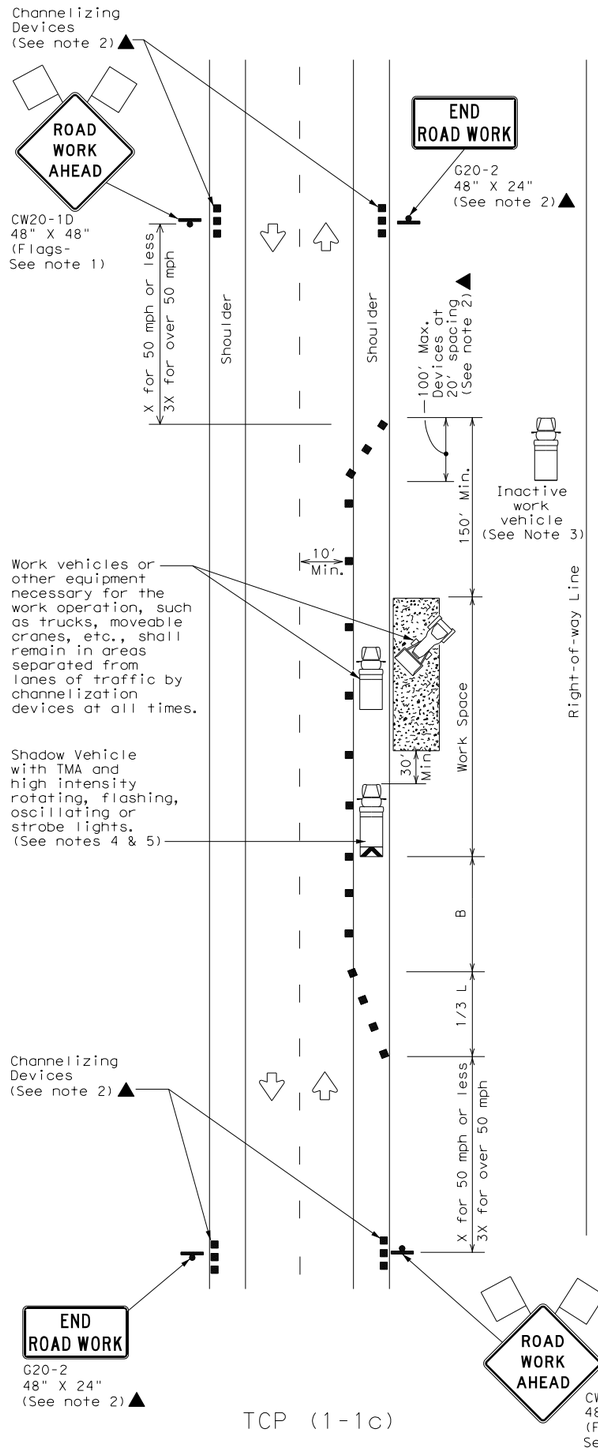
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: tcp1-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	AUS	HAYS		22
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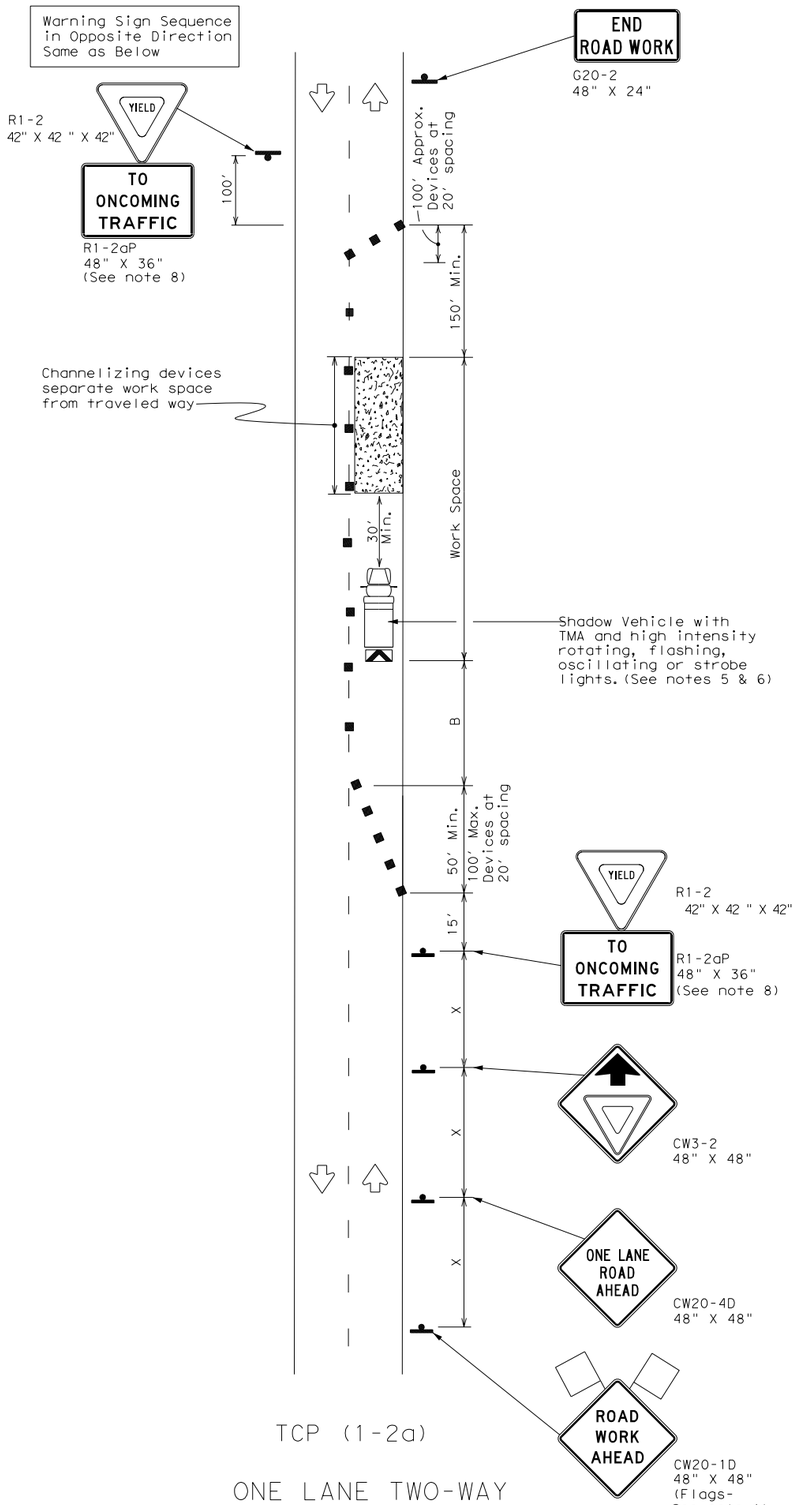
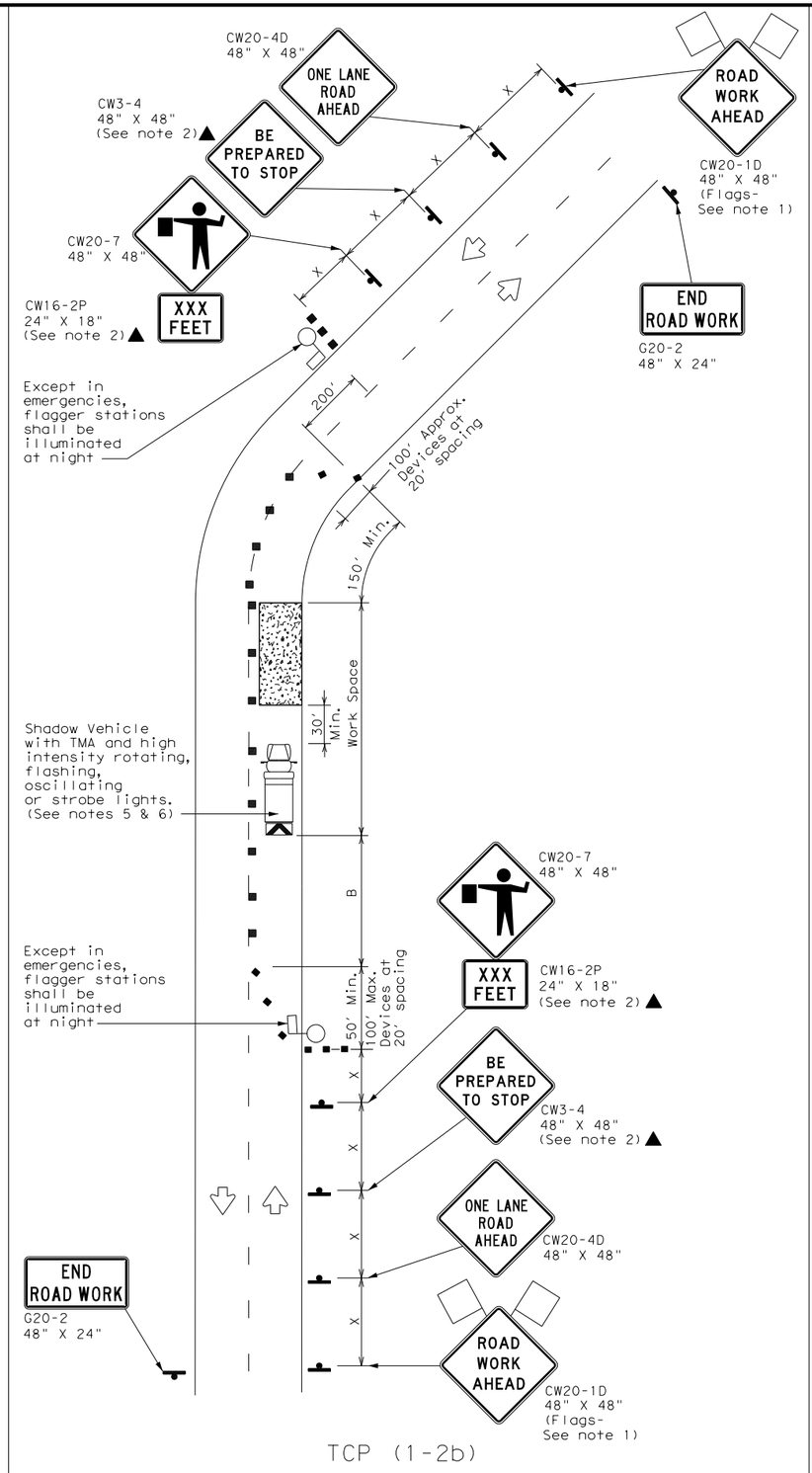


TCP (1-2a)

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



TCP (1-2b)

ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger or R1-2 "YIELD" sign is less than 1500 feet.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-2a)

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

TCP (1-2b)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP (1-2)-18

FILE: tcp1-2-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-90 4-98	0286	01	062, ETC.	SH80, ETC.
2-94 2-12	DIST	COUNTY		SHEET NO.
1-97 2-18	AUS	HAYS		23

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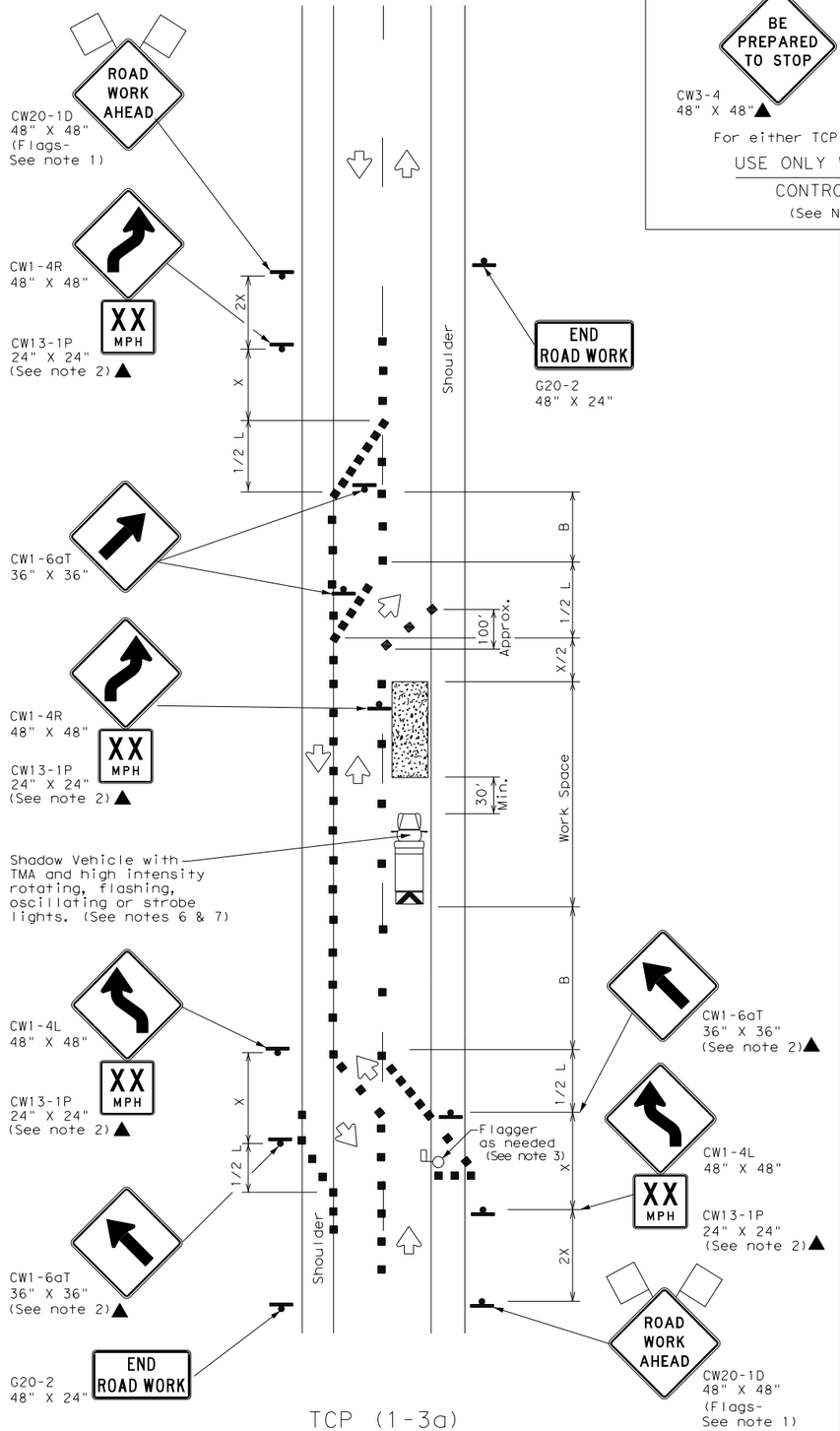


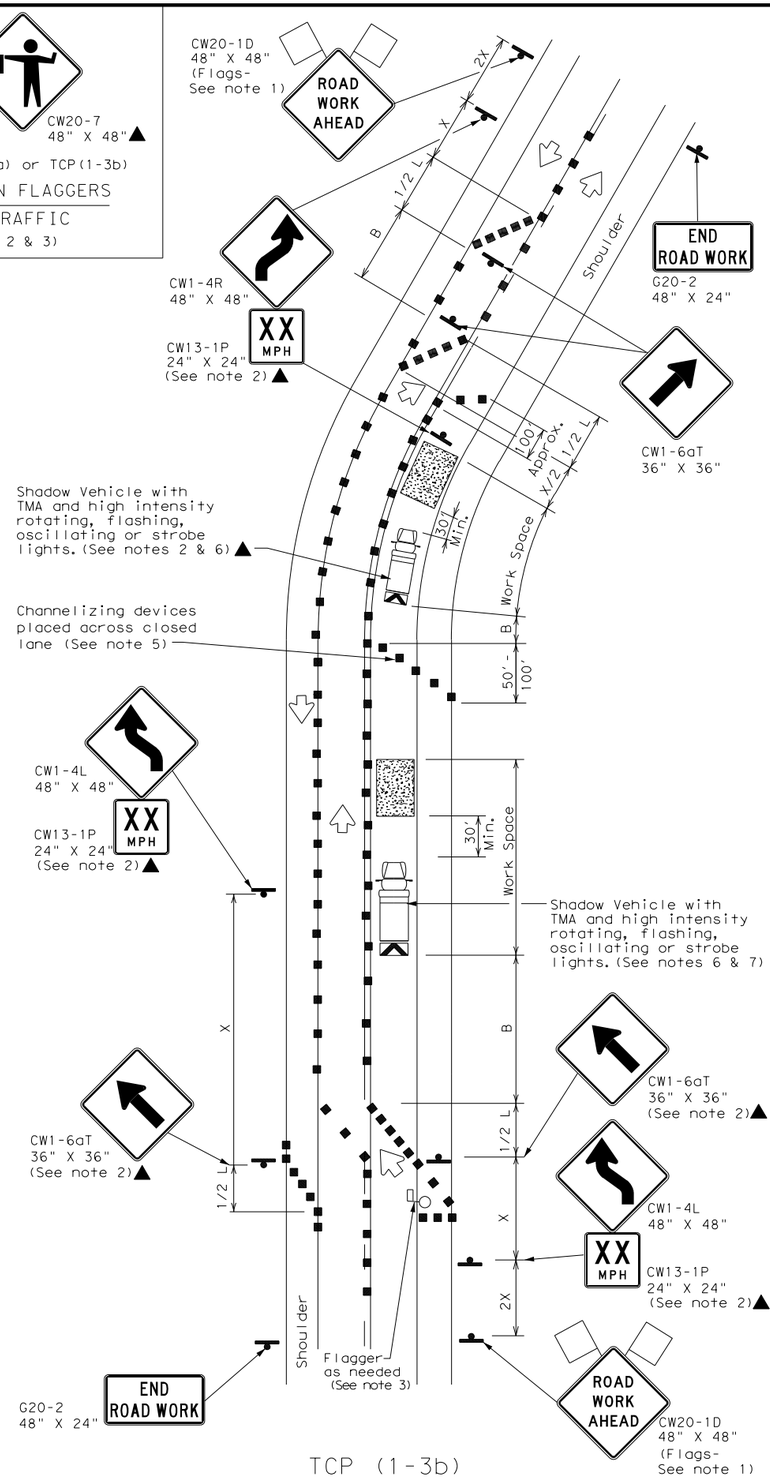
TCP (1-3a)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW

BE PREPARED TO STOP
CW3-4 48" X 48"
CW20-7 48" X 48"

For either TCP(1-3a) or TCP(1-3b)

USE ONLY WHEN FLAGGERS
CONTROL TRAFFIC
(See Notes 2 & 3)



TCP (1-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Additional flaggers may be positioned in advance of traffic queues to alert traffic to reduce speed.
4. DO NOT PASS, PASS WITH CARE and construction regulatory speed zone signs may be installed downstream of the ROAD WORK AHEAD signs.
5. When the work zone is made up of several work spaces, channelizing devices should be placed laterally across the closed lane to re-emphasize closure. Laterally placed channelizing devices should be repeated every 500 to 1000 feet in urban areas and every 1/4 to 1/2 mile in rural areas.
6. 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.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.
8. 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 speed are 35 mph or slower, and for tangent sections, at 1/2S where S is the speed in mph. This tighter device spacing is intended for the area of conflicting markings not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
TRAFFIC SHIFTS ON TWO LANE ROADS

TCP (1-3)-18

FILE: tcp1-3-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	AUS	HAYS		24
1-97 2-18				

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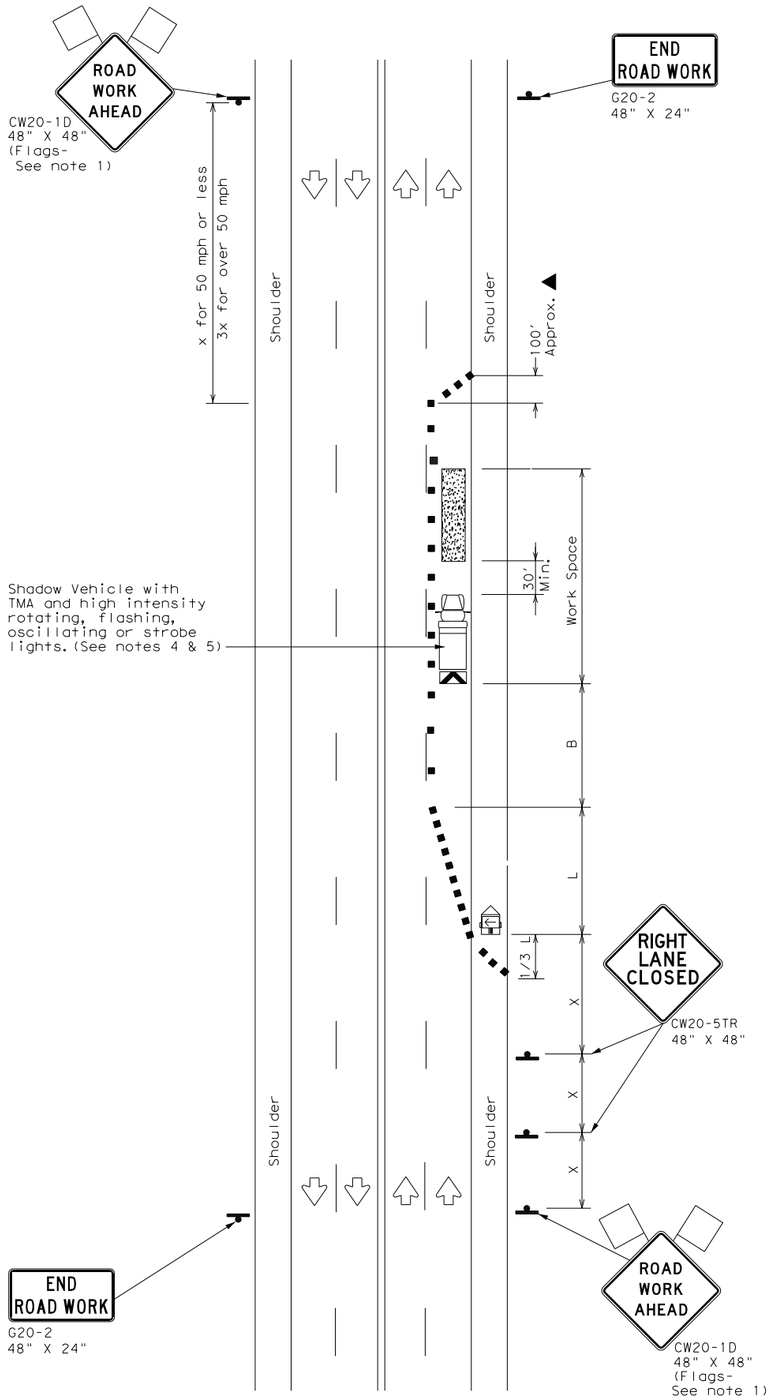
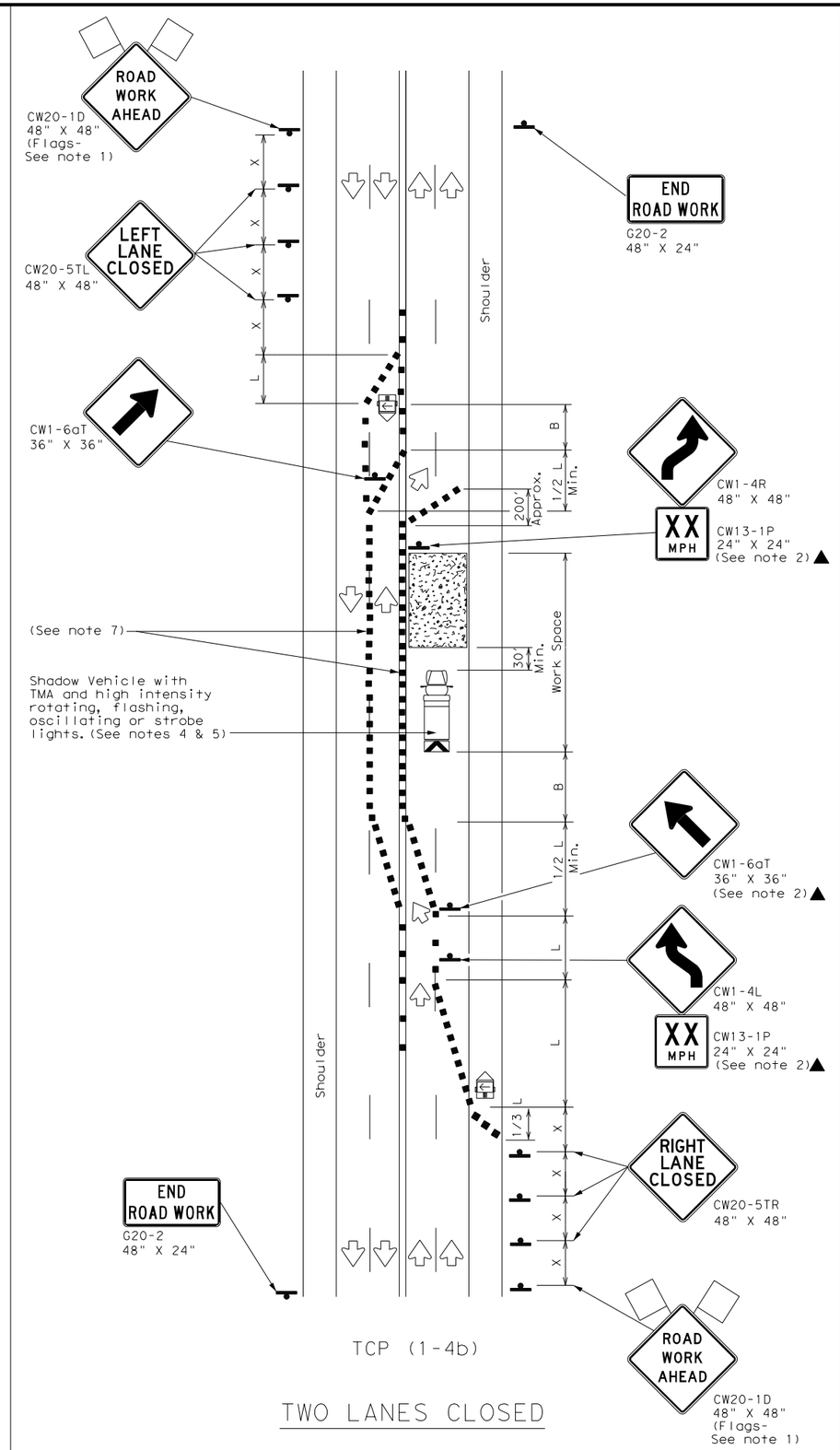


TCP (1-4a)

ONE LANE CLOSED



TCP (1-4b)

TWO LANES CLOSED

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

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

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
5. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect wider work spaces.

TCP (1-4a)

6. 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 where needed to protect the work space from opposing traffic with the arrow panel placed in the closed lane near the end of the merging taper.

TCP (1-4b)

7. 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 1/2S where S is the speed in mph. This tighter device spacing is intended for the areas of conflicting markings, not the entire work zone.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP (1-4)-18

FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	AUS	HAYS		25
1-97 2-18				

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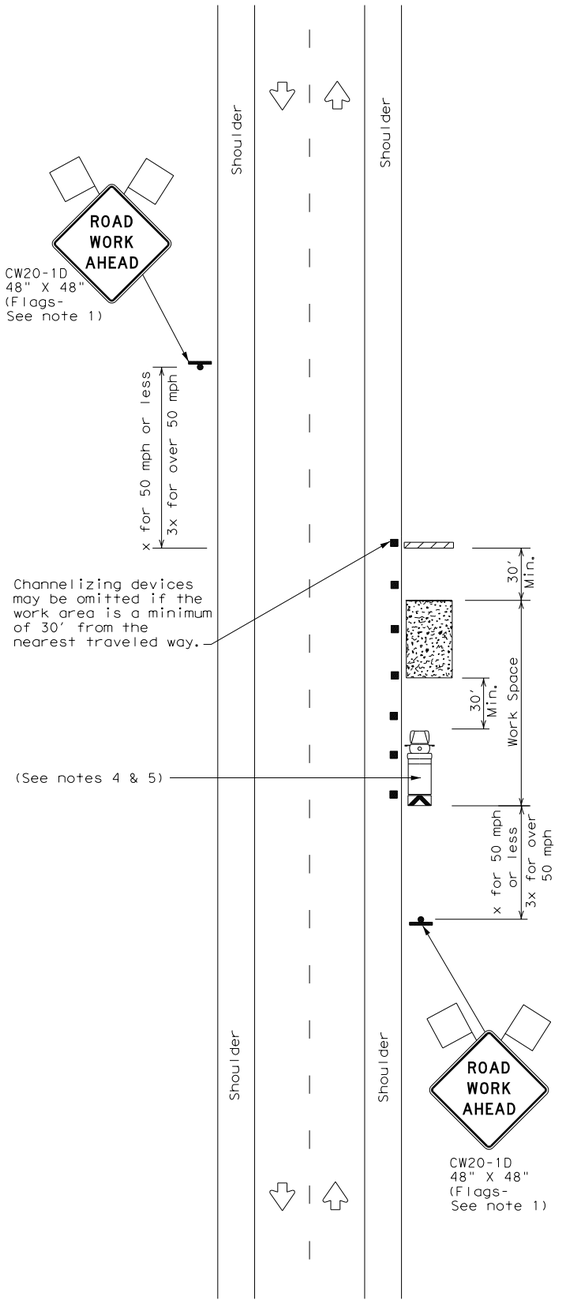
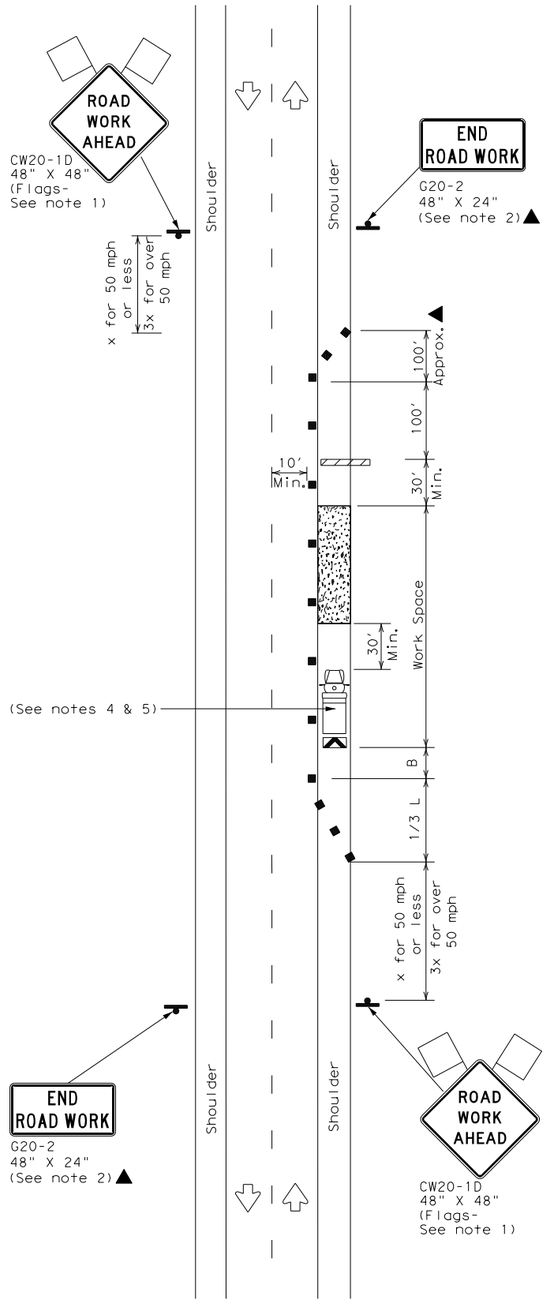


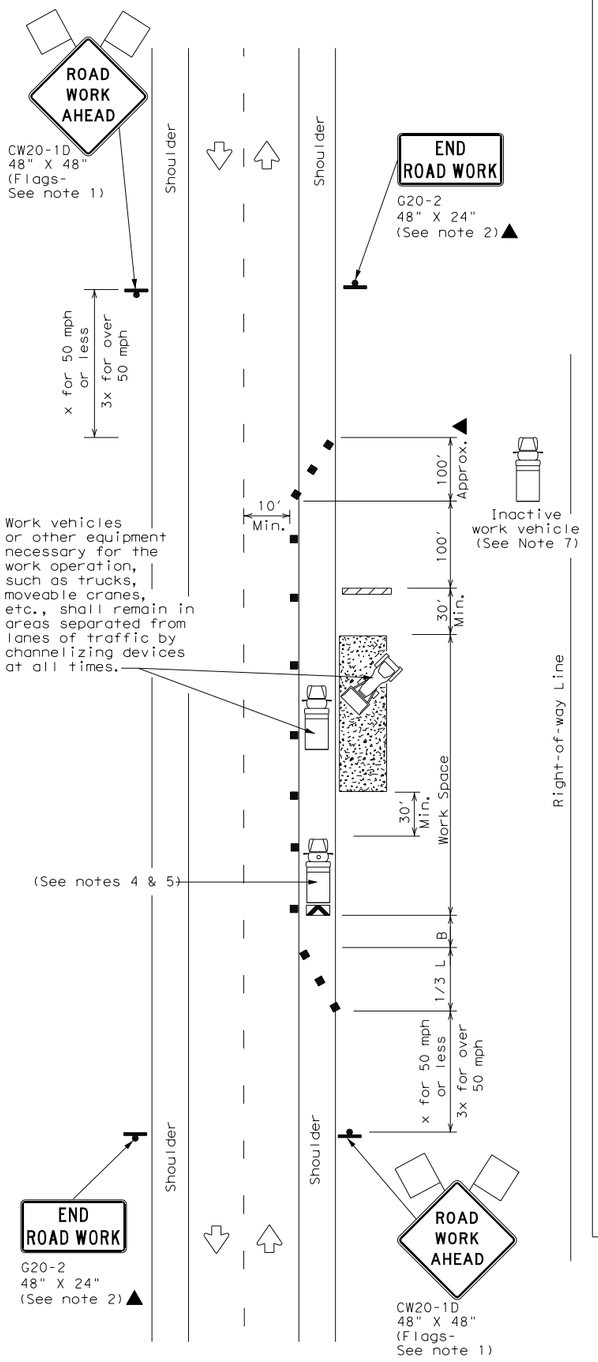
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

✳ Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	AUS	HAYS		26
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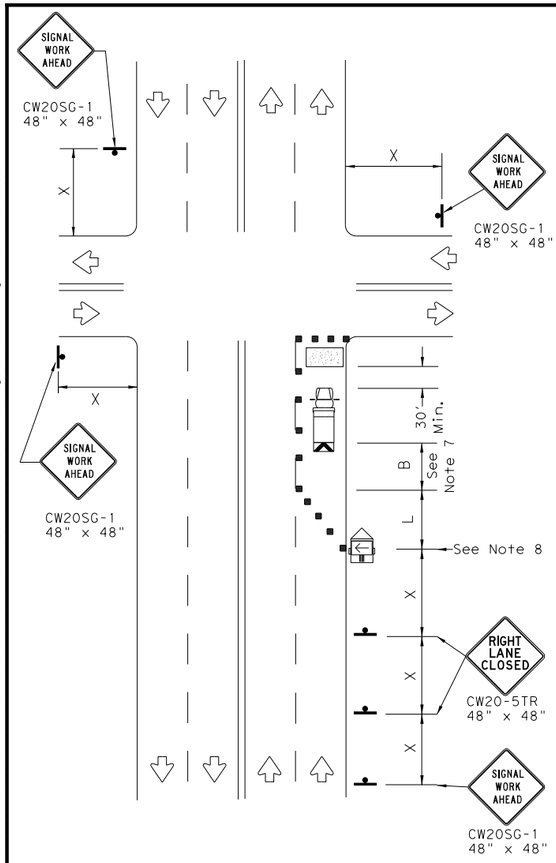
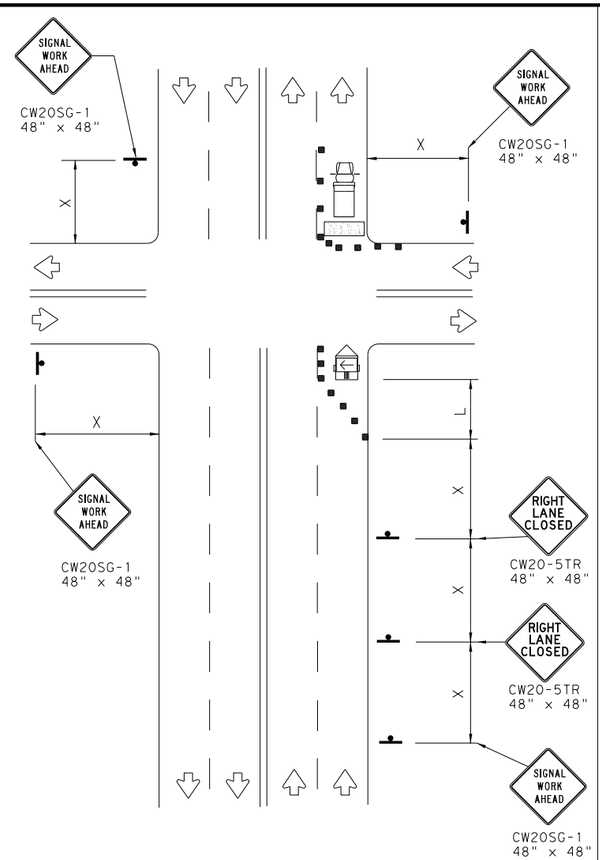


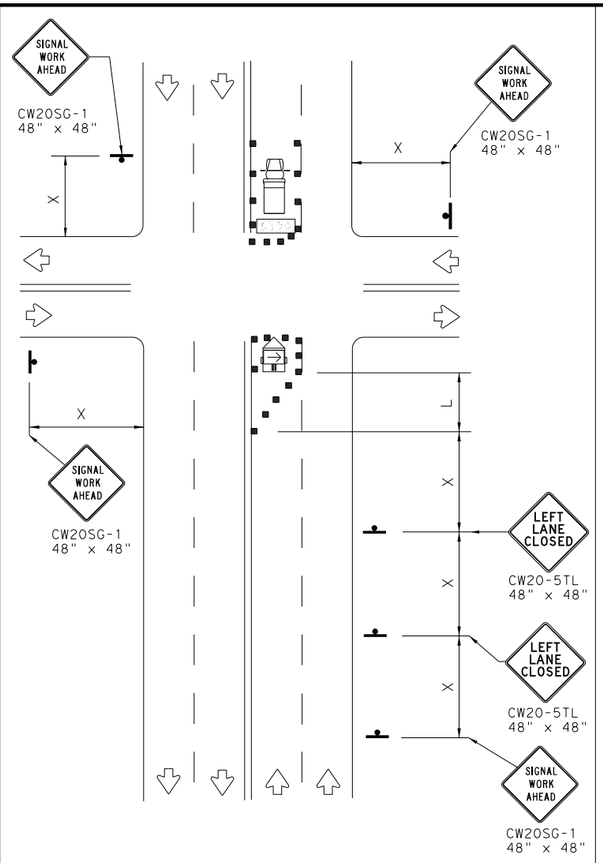
NEAR SIDE LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE RIGHT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE LEFT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY

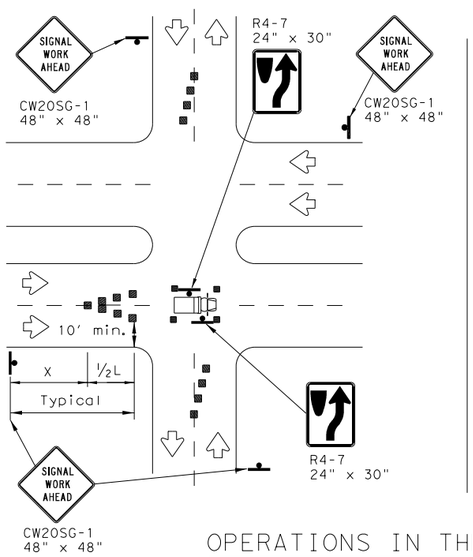
LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	M	Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

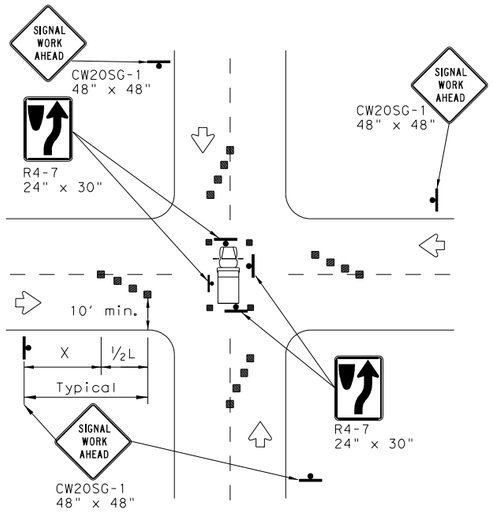
Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'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

* Conventional Roads Only

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

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.





OPERATIONS IN THE INTERSECTION

SHORT DURATION

GENERAL NOTES

1. The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
2. Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
3. Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
4. Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
5. High level warning devices (flag trees) may be used at corners of the vehicle.
6. When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
7. For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
8. The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
9. Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.

SHEET 1 OF 2

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ(BTS-1)-13

FILE: wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	AUS	HAYS		27

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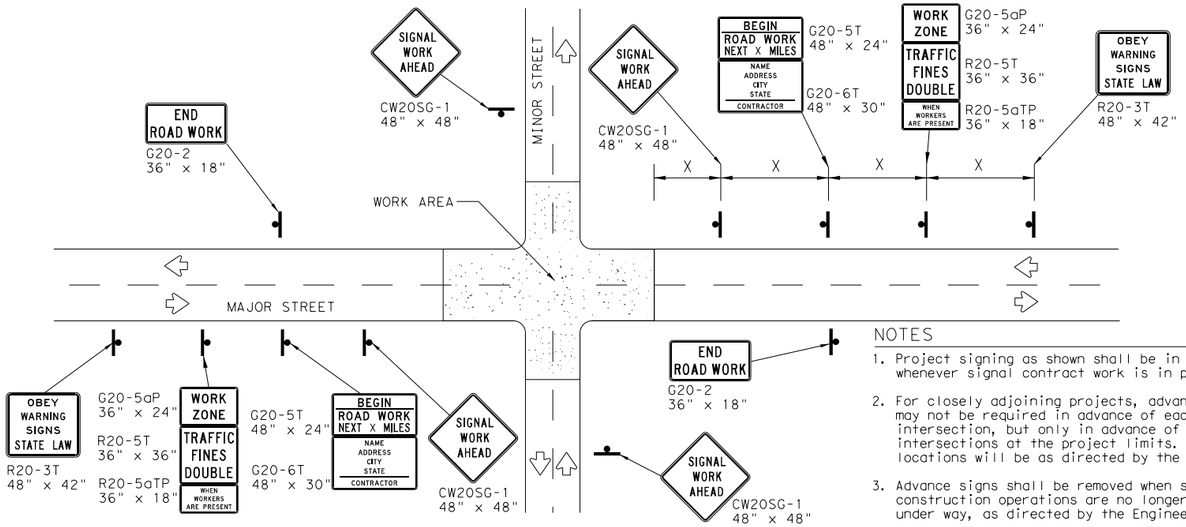


TYPICAL ADVANCE SIGNAL PROJECT SIGNING

FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

NOTES

1. Project signing as shown shall be in place whenever signal contract work is in progress.
2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
4. Warning sign spacing shown is typical for both directions.
5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 6G.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night without damaging the sign sheeting. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

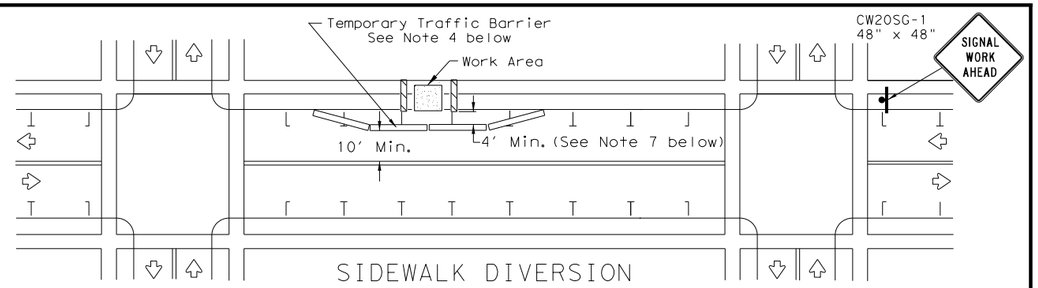
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support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

LEGEND	
	Sign
	Channelizing Devices
	Type 3 Barricade

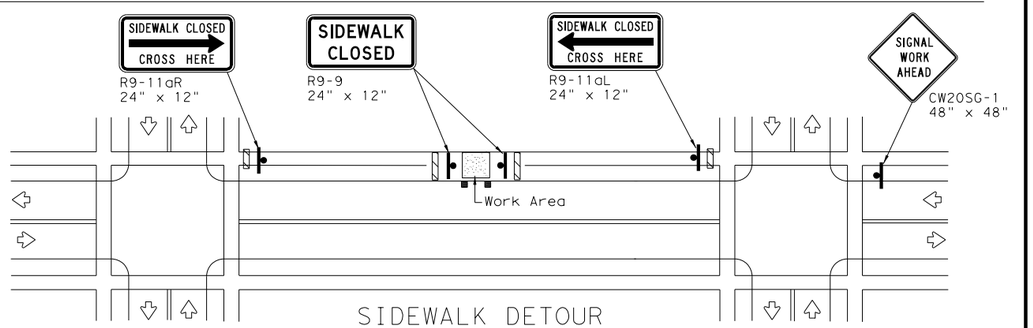
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL} SHEETING
WHITE	BACKGROUND	TYPE A SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

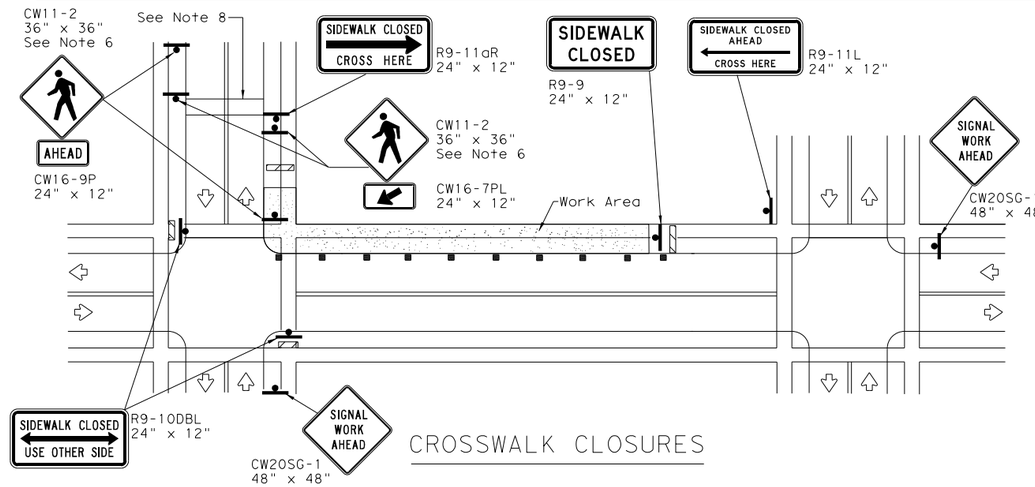
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

FILE:	wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT	April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS		0286	01	062, ETC.	SH80, ETC.
2-98 10-99 7-13		DIST	COUNTY		SHEET NO.
4-98 3-03		AUS	HAYS		28

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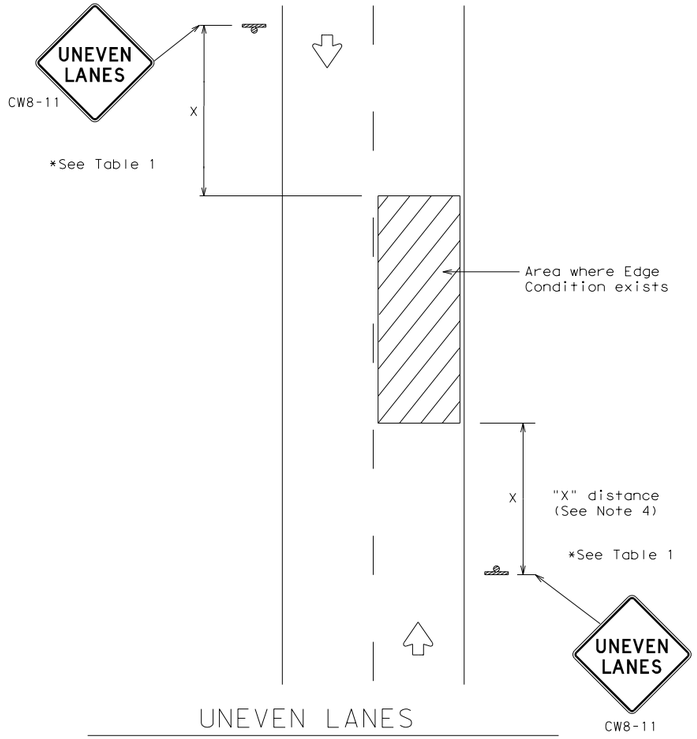
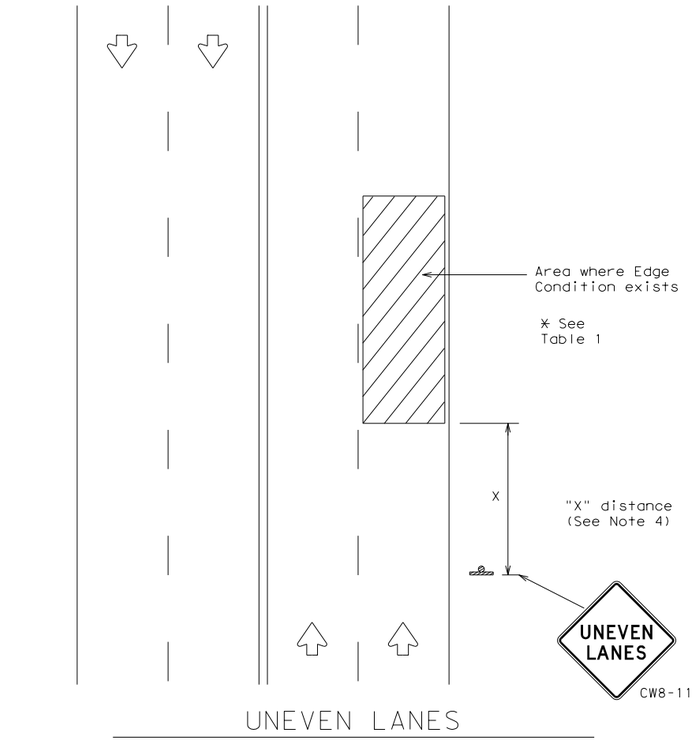
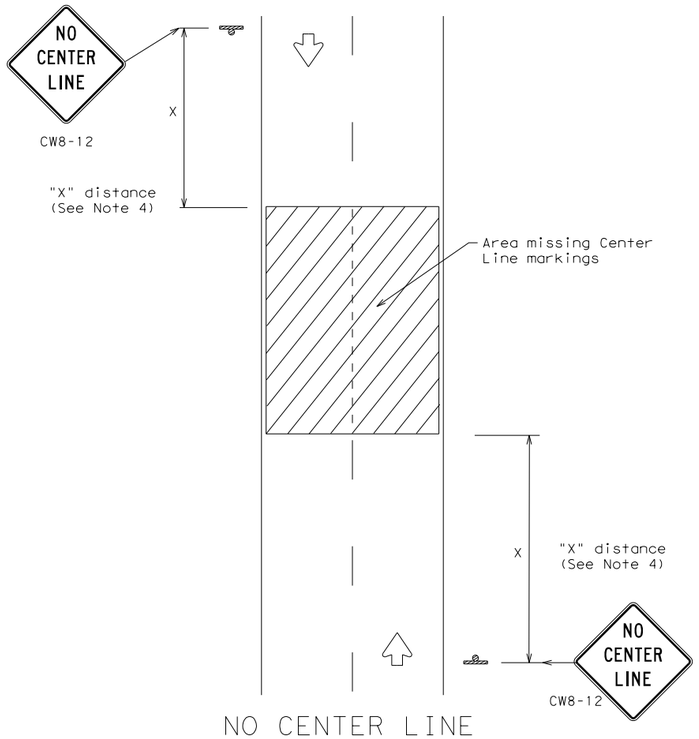


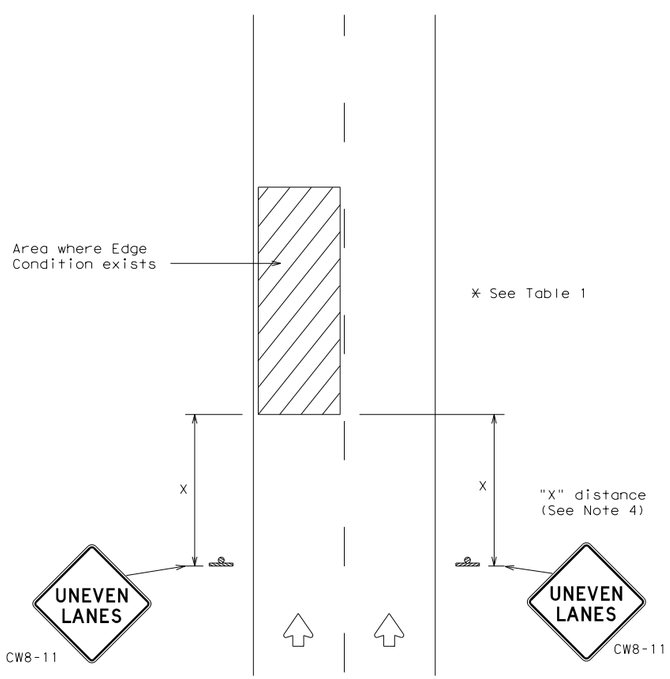
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

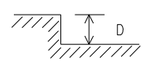
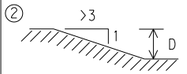
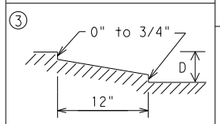
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

COLOR	USAGE	SHEETING MATERIAL
ORANGE	BACKGROUND	TYPE B_{FL} OR TYPE C_{FL} SHEETING
BLACK	LEGEND & BORDERS	ACRYLIC NON-REFLECTIVE SHEETING

GENERAL NOTES

1. If spalling or holes occur, ROUGH ROAD (CW8-8) signs should be placed in advance of the condition and be repeated every two miles where the condition persists.
2. UNEVEN LANES (CW8-11) signs shall be installed in advance of the condition and repeated every mile. Signs installed along the uneven lane condition may be supplemented with the NEXT XX MILES (CW7-3aP) plaque or Advisory Speed (CW13-1P) plaque.
3. NO CENTER LINE (CW8-12) signs and temporary pavement markings as per the WZ(STPM) standard shall be installed if yellow centerlines separating two way traffic are obscured or obliterated. Repeat NO CENTER LINE signs every two miles where the center line markings are not in place. The signs and markings shall remain in place until permanent pavement markings are installed.
4. Signs shall be spaced at the distances recommended as per BC standards.
5. Additional signs may be required as directed by the Engineer. Signs shall remain in place until final surface is applied. Signs shall be considered subsidiary to Item 502 "BARRICADES, SIGNS AND TRAFFIC HANDLING."
6. Signs shall be fabricated and mounted on supports as shown on the BC standards and/or listed on the "Compliant Work Zone Traffic Control Devices" list.
7. Short term markings shall not be used to simulate edge lines.
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition.

TABLE 1

Edge Condition	Edge Height (D)	* Warning Devices
① 	Less than or equal to: 1¼" (maximum-planing) 1½" (typical-overlay)	Sign: CW8-11
	Distance "D" may be a maximum of 1 1/4 " for planing operations and 2" for overlay operations if uneven lanes with edge condition 1 are open to traffic after work operations cease.	
② 	Less than or equal to 3"	Sign: CW8-11
③  Notched Wedge Joint	Distance "D" may be a maximum of 3" if uneven lanes with edge condition 2 or 3 are open to traffic after work operations cease. Uneven lanes should not be open to traffic when "D" is greater than 3".	

TRAFFIC CONTROL DURING PLANING, OVERLAY AND LEVELING OPERATIONS ARE SHOWN ELSEWHERE IN THE PLANS.

MINIMUM WARNING SIGN SIZE	
Conventional roads	36" x 36"
Freeways/expressways, divided roadways	48" x 48"

Texas Department of Transportation

Traffic Operations Division Standard

SIGNING FOR UNEVEN LANES

WZ(UL)-13

FILE: wzul-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
8-95 2-98 7-13	DIST	COUNTY		SHEET NO.
1-97 3-03	AUS	HAYS		29

112

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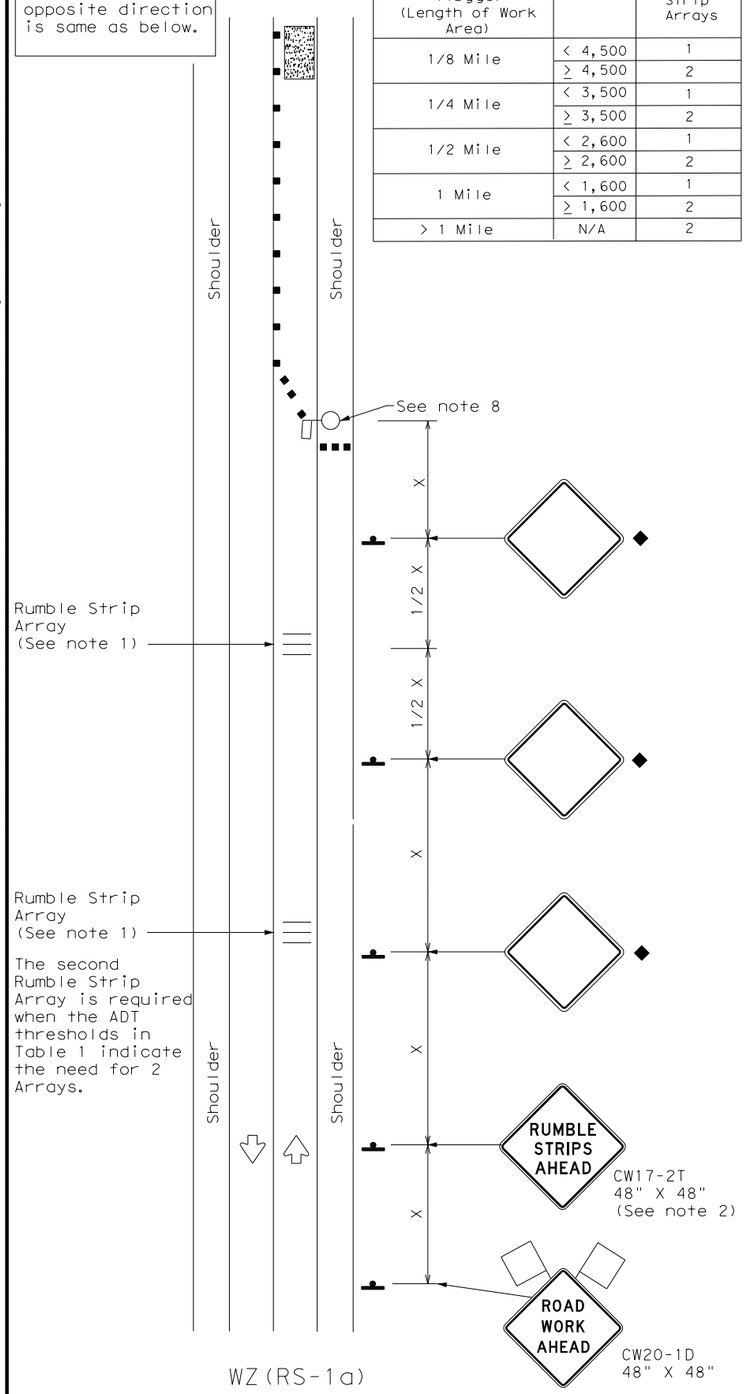
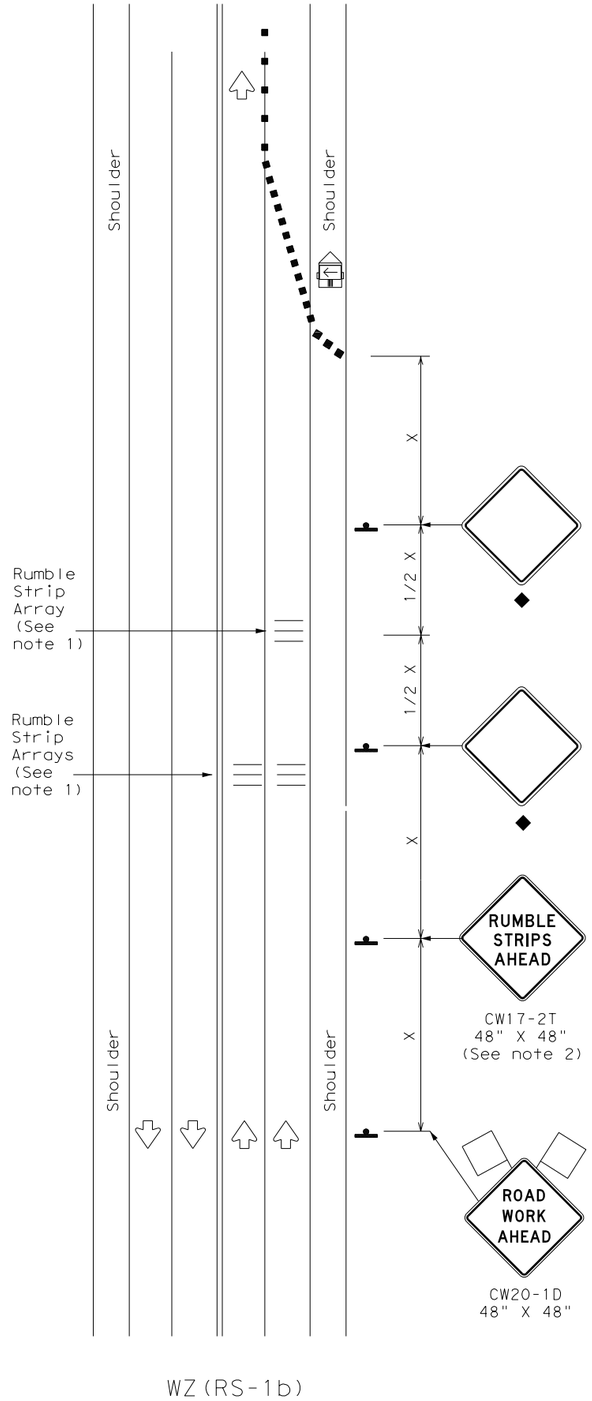
Warning sign and rumble strip sequence in opposite direction is same as below.

TABLE 1		
Flagger to Flagger (Length of Work Area)	ADT	# of Rumble Strip Arrays
1/8 Mile	< 4,500	1
	≥ 4,500	2
1/4 Mile	< 3,500	1
	≥ 3,500	2
1/2 Mile	< 2,600	1
	≥ 2,600	2
1 Mile	< 1,600	1
	≥ 1,600	2
> 1 Mile	N/A	2



WZ(RS-1a)

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



WZ(RS-1b)

RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

1. Each Rumble Strip Array should consist of three rumble strips spaced center to center at the spacing shown in Table 2, placed transverse across the lane at locations shown.
2. The CW17-2T "RUMBLE STRIPS AHEAD" sign should be located after the CW20-1D "ROAD WORK AHEAD sign and spaced as shown. If traffic is observed to be queuing, or is expected to queue beyond the Rumble Strips, the CW17-2T sign and the first Rumble Strip Array may be located upstream of the CW20-1D sign as necessary to provide needed warning.
3. Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
4. Remove Temporary Rumble Strips before removing the advanced warning signs.
5. Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
6. Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
7. This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
8. The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
9. Replace defective Temporary Rumble Strips as directed by the Engineer.
10. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

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

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

* Conventional Roads Only

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

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

◆ Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.

* For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.

TABLE 2	
Speed	Approximate distance between strips in an array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
= 60 MPH	20'
≥ 65 MPH	* 35' +

Texas Department of Transportation — Traffic Safety Division Standard

TEMPORARY RUMBLE STRIPS

WZ(RS)-22

FILE: wzrs22.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-14 1-22 4-16	0286	01	062, ETC.	SH80, ETC.
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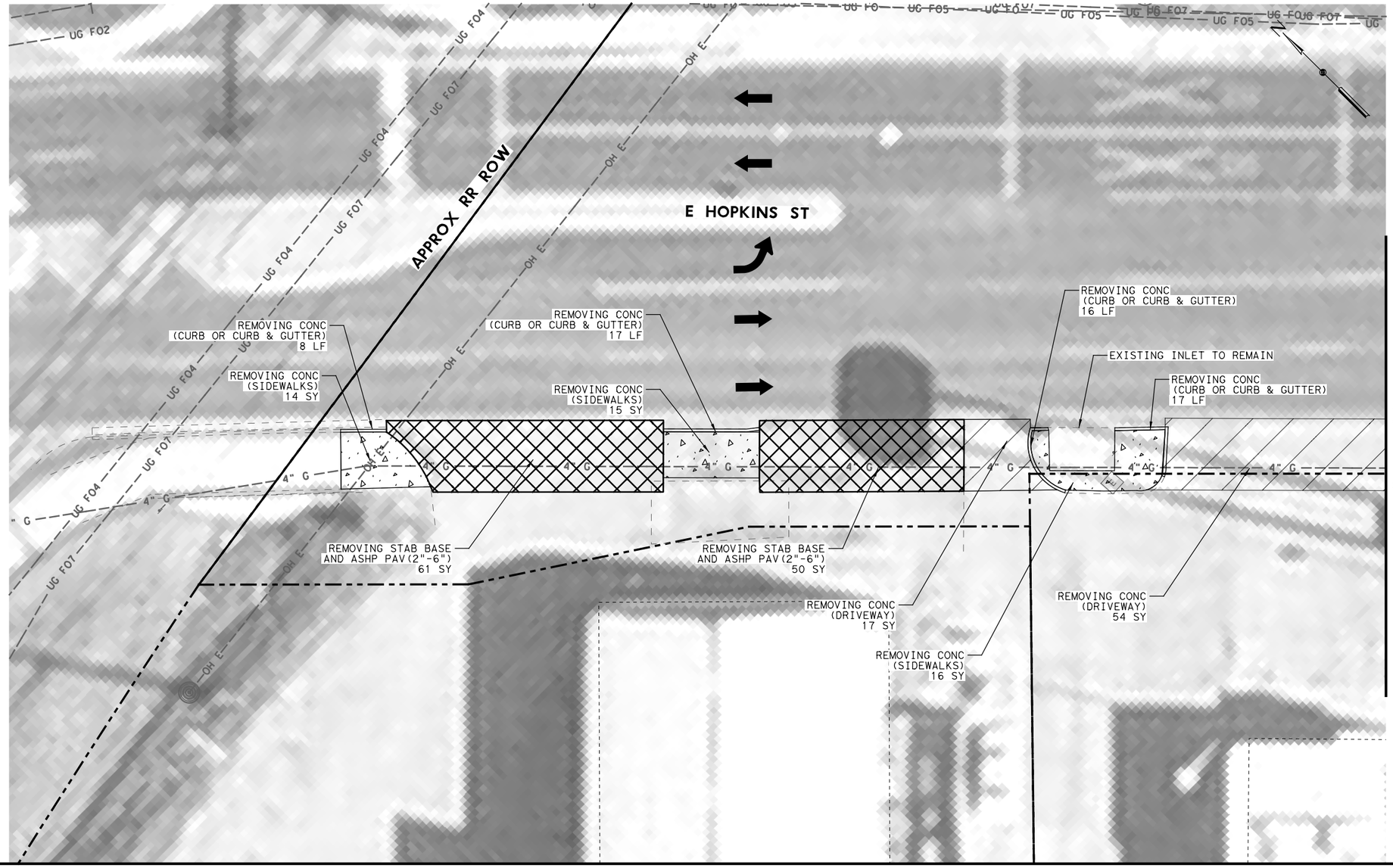

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

1. THE EXISTING LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. COORDINATE WITH ALL UTILITY COMPANIES TO FIELD-VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. ALL ITEMS REQUIRING REMOVAL NOT SPECIFICALLY CALLED OUT IN PLANS WILL BE CONSIDERED SUBSIDIARY TO PREP ROW.

0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 1 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
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GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
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CHECK	0286	01	062, ETC.	

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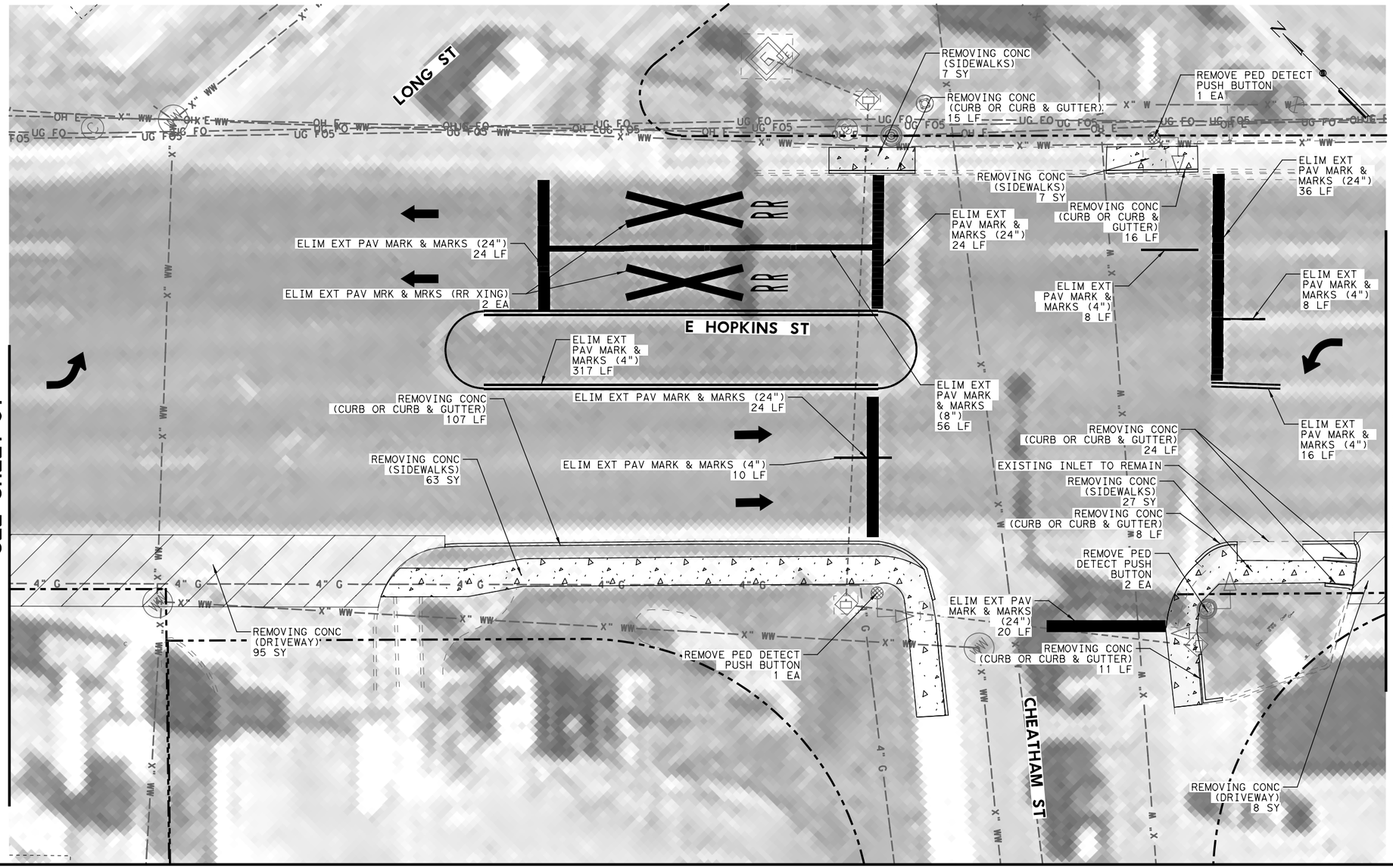

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
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SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 2 OF 21

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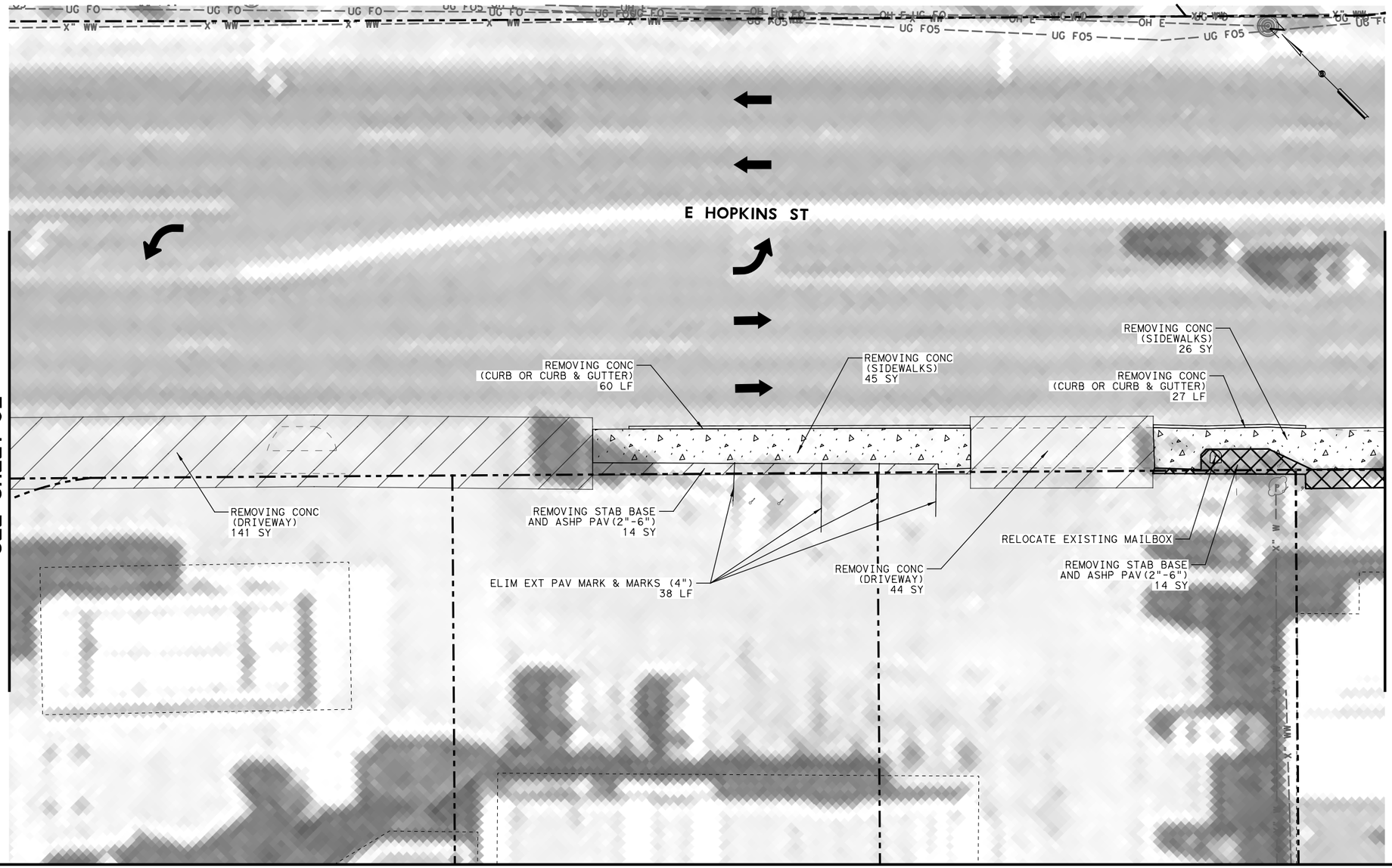

LEGEND

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- FEMA FLOOD LIMIT
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SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 3 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
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CHECK	TEXAS	AUS	HAYS	33
CHECK	CONTROL	SECTION	JOB	
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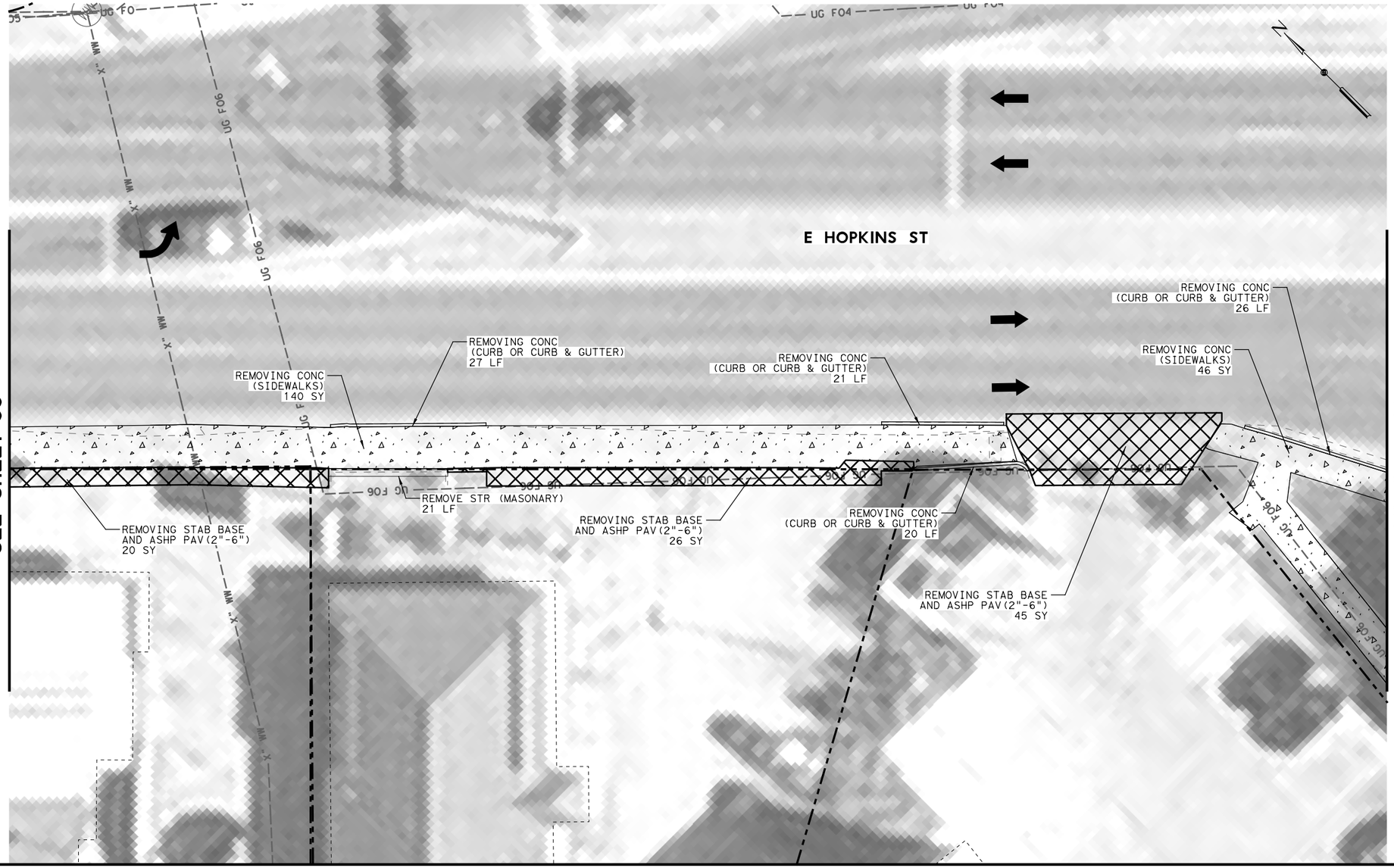

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
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SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 4 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
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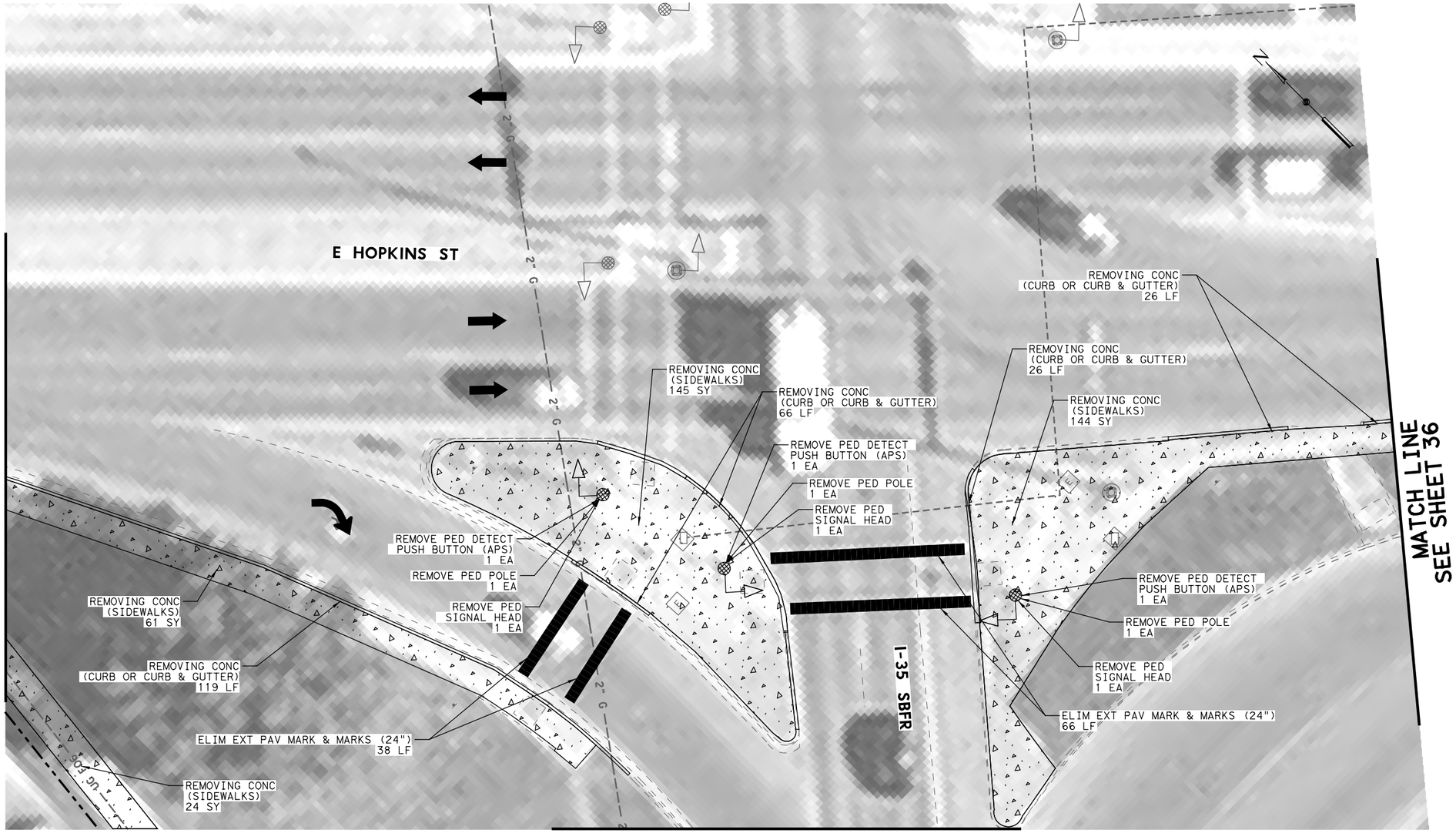

LEGEND

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- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
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08/05/2022

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CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 5 OF 21

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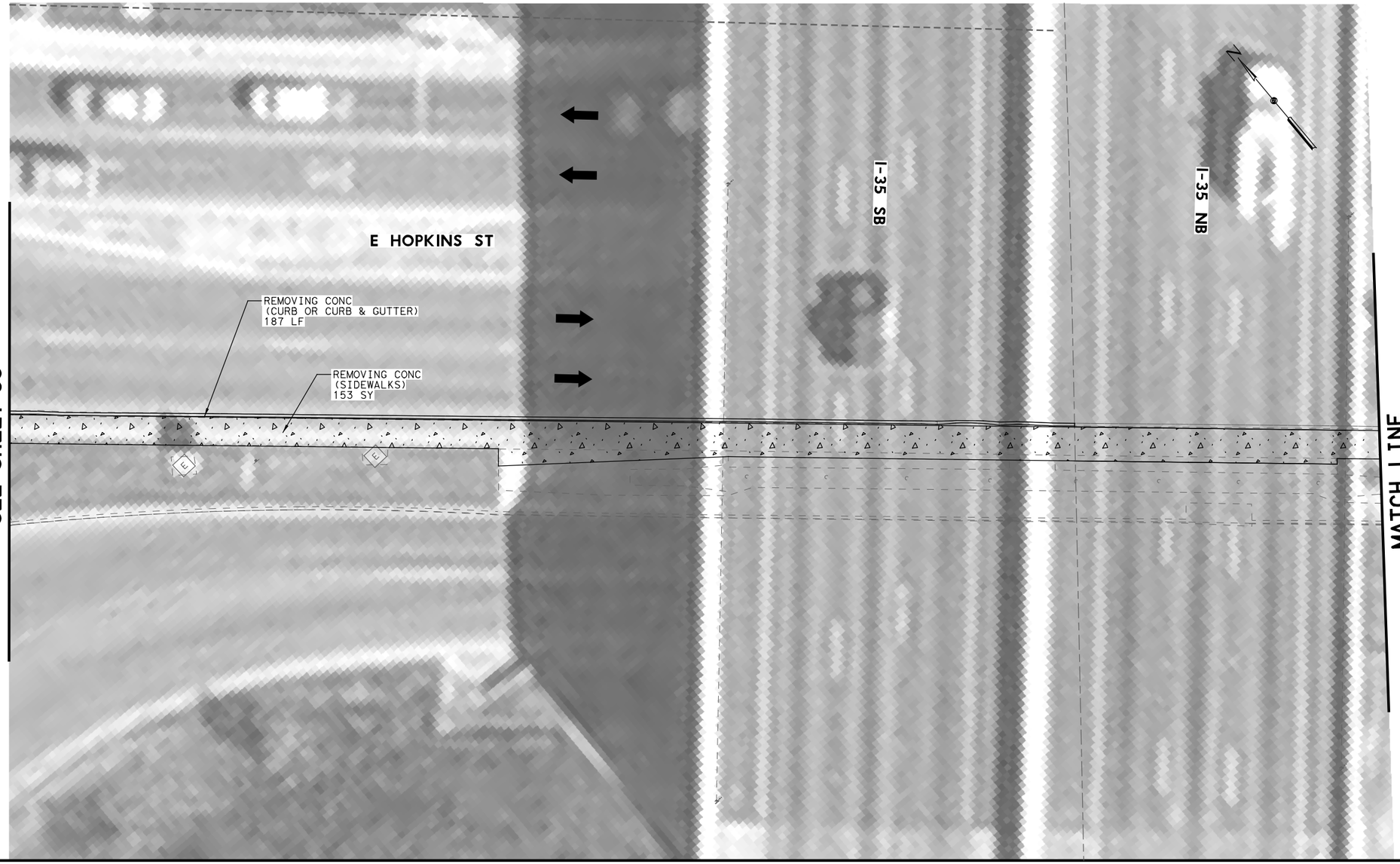

LEGEND

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- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

1. THE EXISTING LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. COORDINATE WITH ALL UTILITY COMPANIES TO FIELD-VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

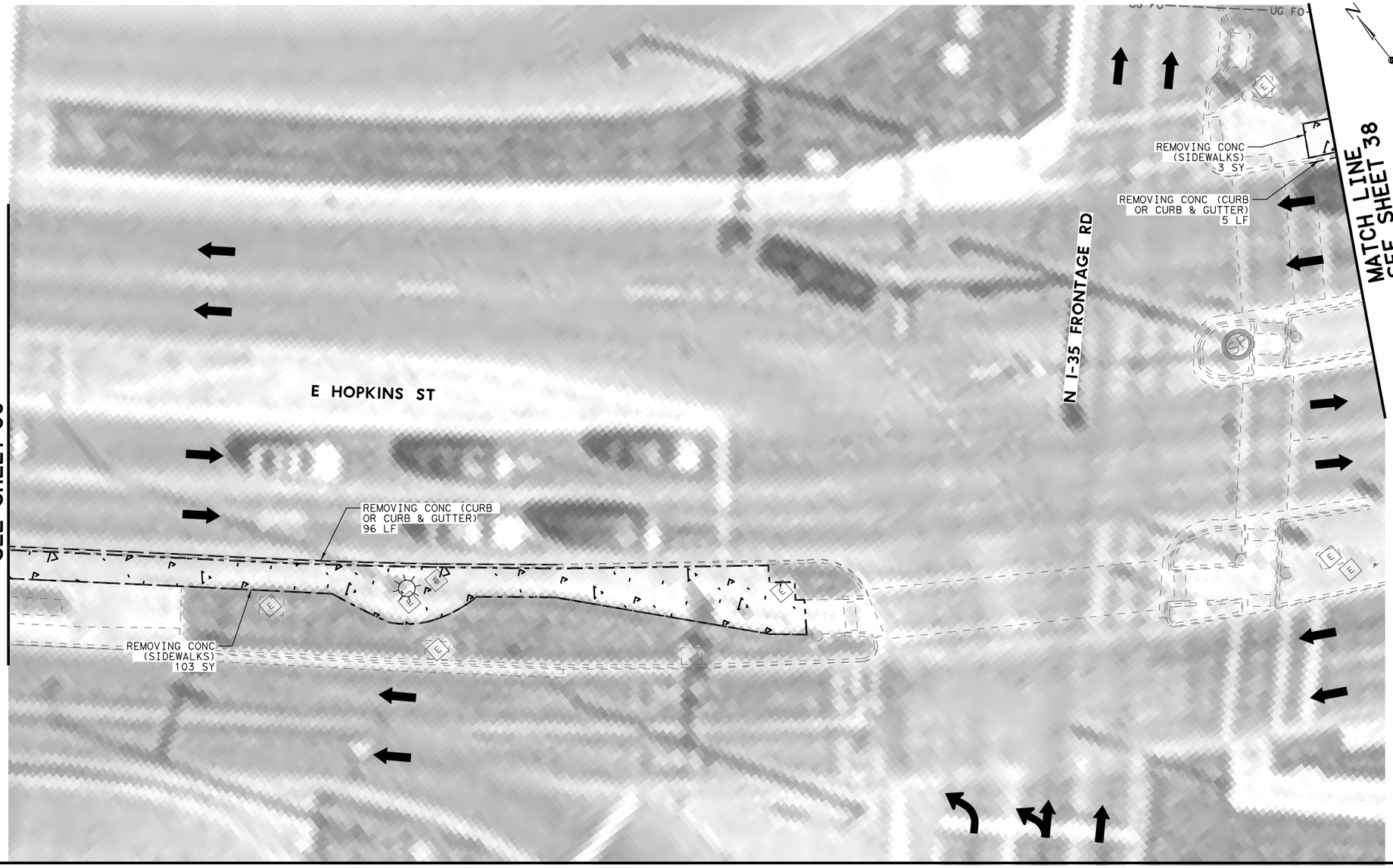
CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 6 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS LG	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	36
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-W-RMV06.dgn
PENTABLE: I033I29I San Marcos.tbl
DATE: 8/5/2022 TIME: 3:31:01 PM
SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
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08/05/2022

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Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 7 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	37
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV01.dgn
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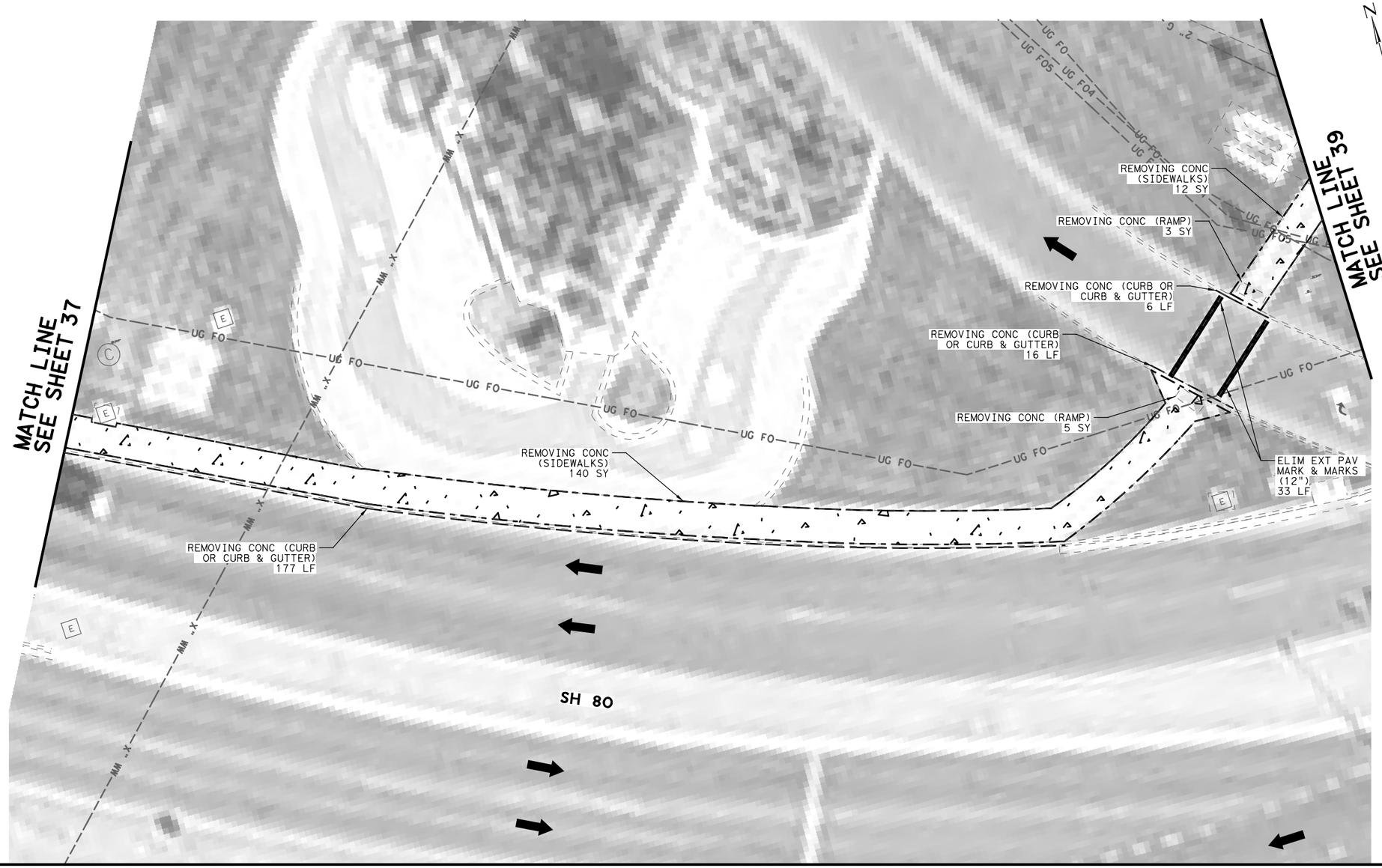
SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
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- PED SIGNAL HEAD TO REMAIN

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
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PROFESSIONAL ENGINEER
08/05/2022

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Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 8 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	38
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
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FILE: SM-E-RMV02.dgn
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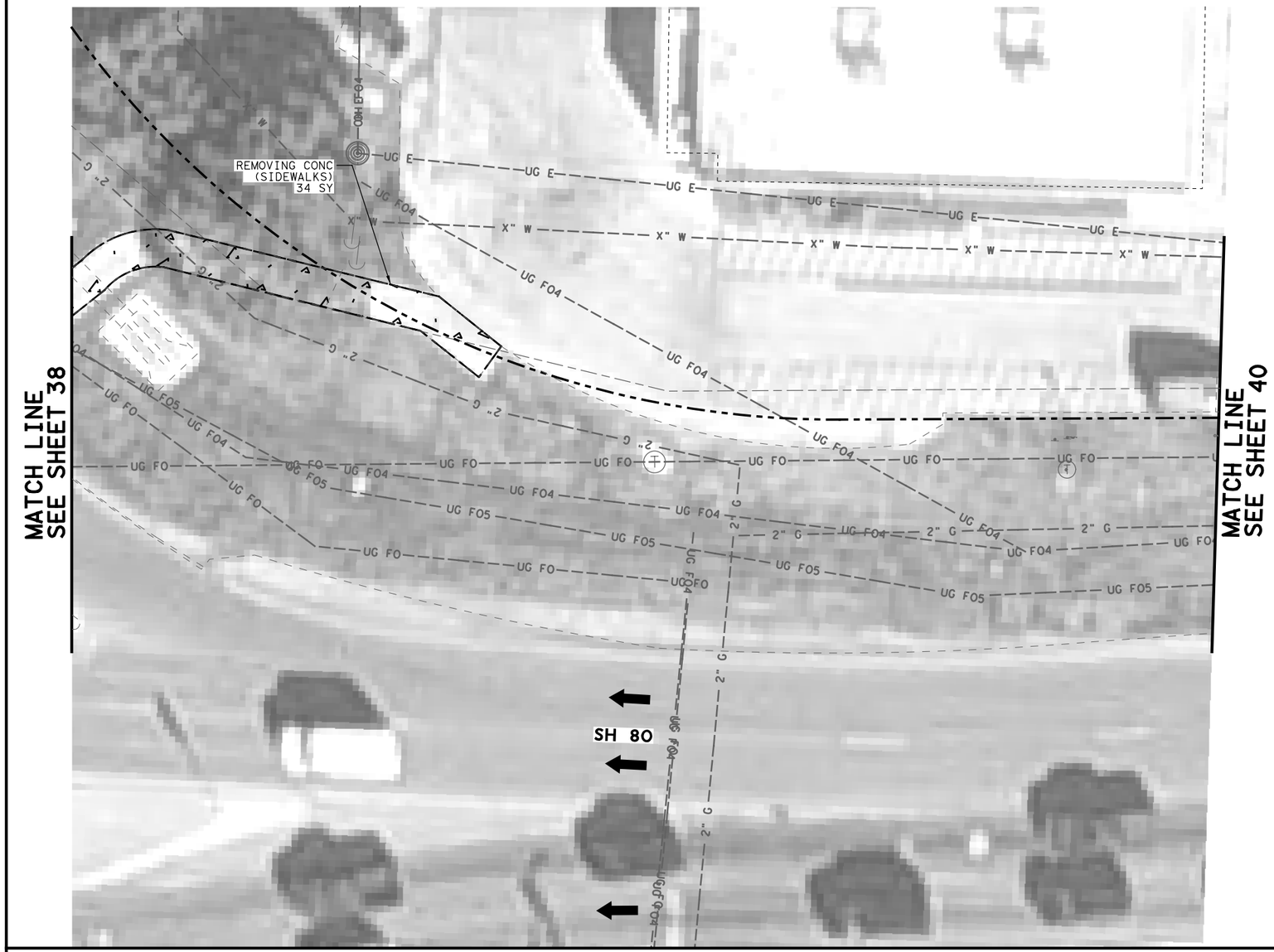

N

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

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SCALE IN FEET

STATE OF TEXAS
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CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 9 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	39
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV03.dgn
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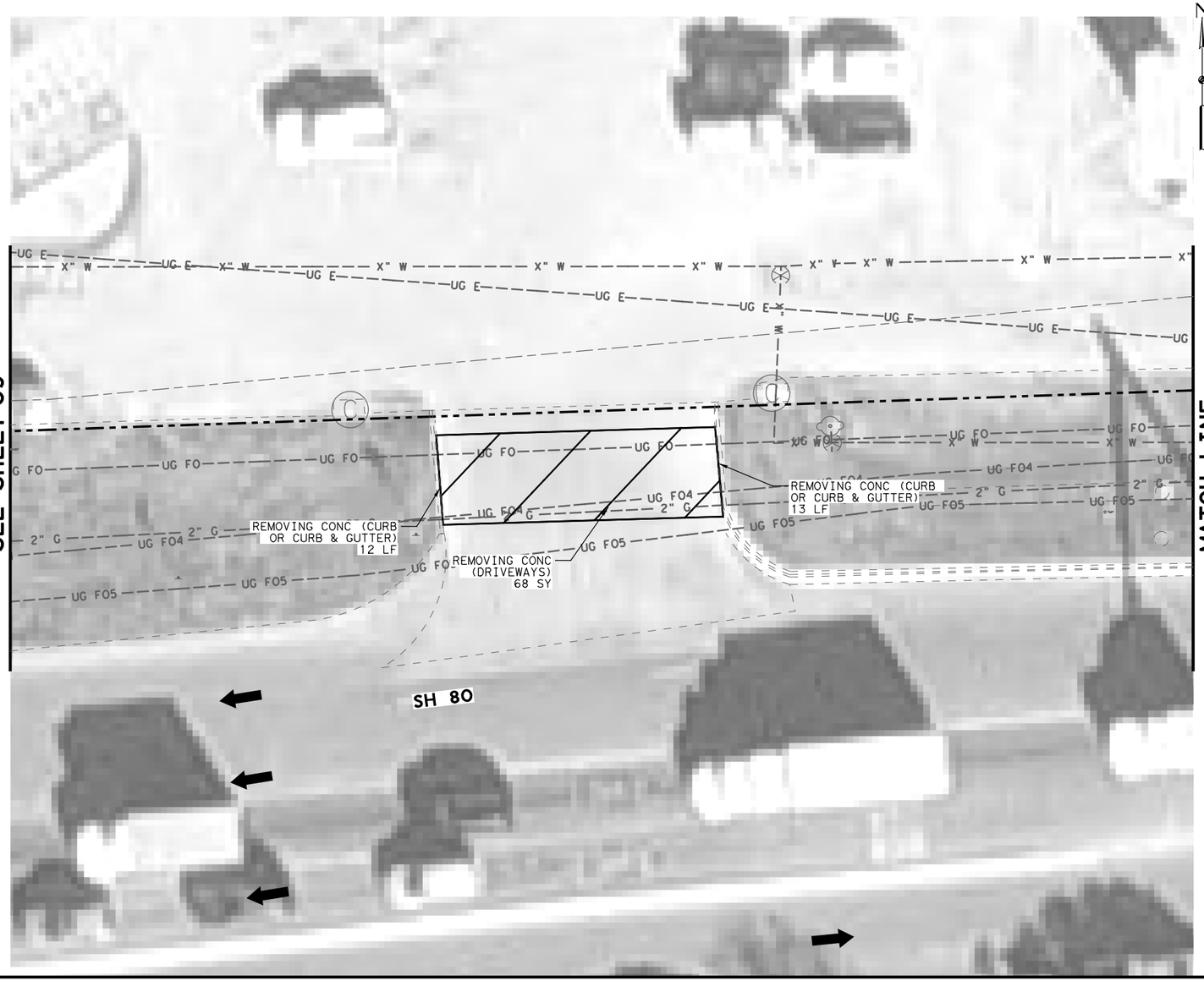
SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

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08/05/2022

NO.	DATE	REVISION	APPROVED

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Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 10 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	40
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV04.dgn
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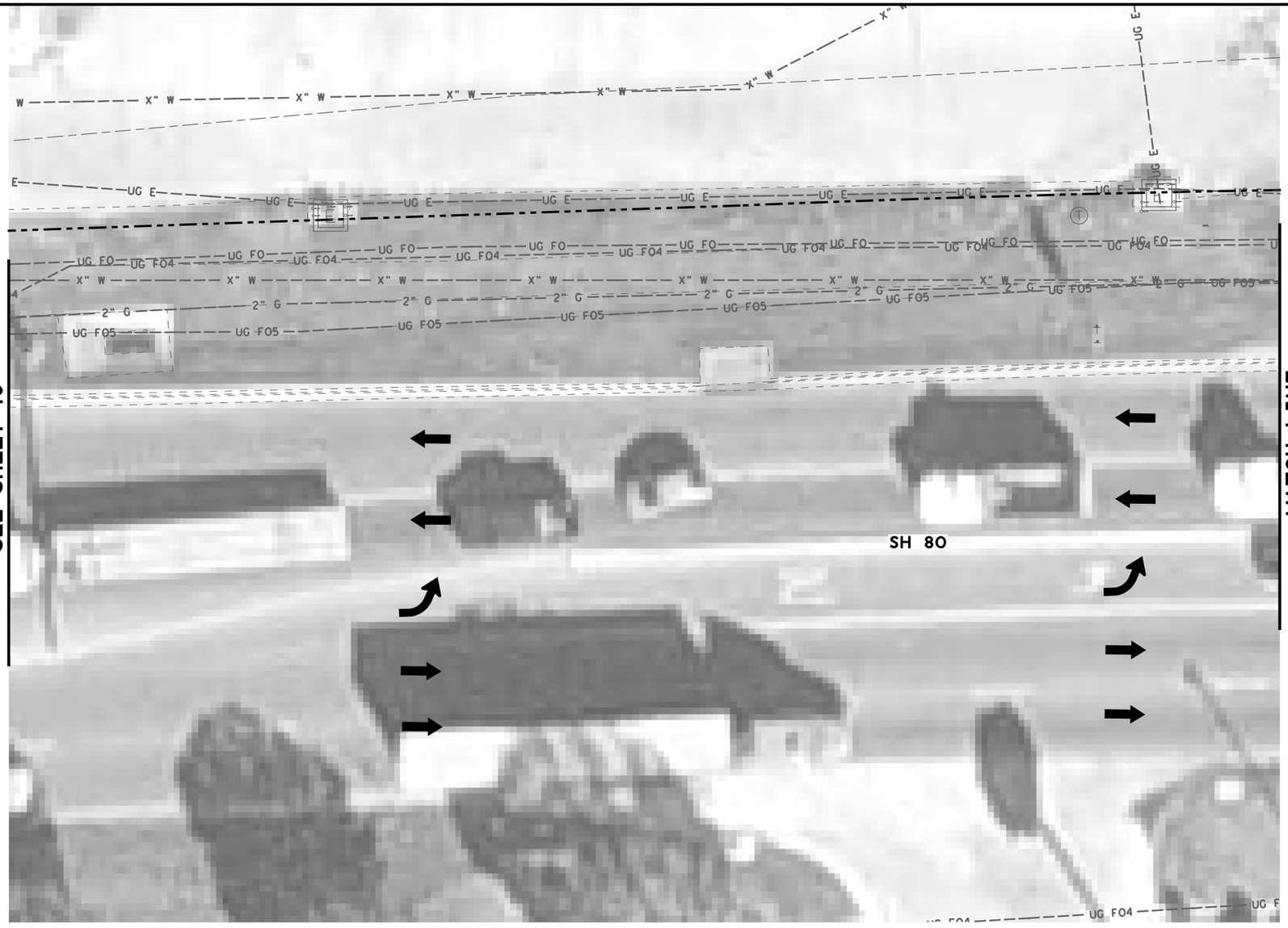
DATE: 8/5/2022 TIME: 3:31:43 PM SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
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- PED SIGNAL HEAD TO REMAIN

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SCALE IN FEET

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NO.	DATE	REVISION	APPROVED

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Texas Department of Transportation

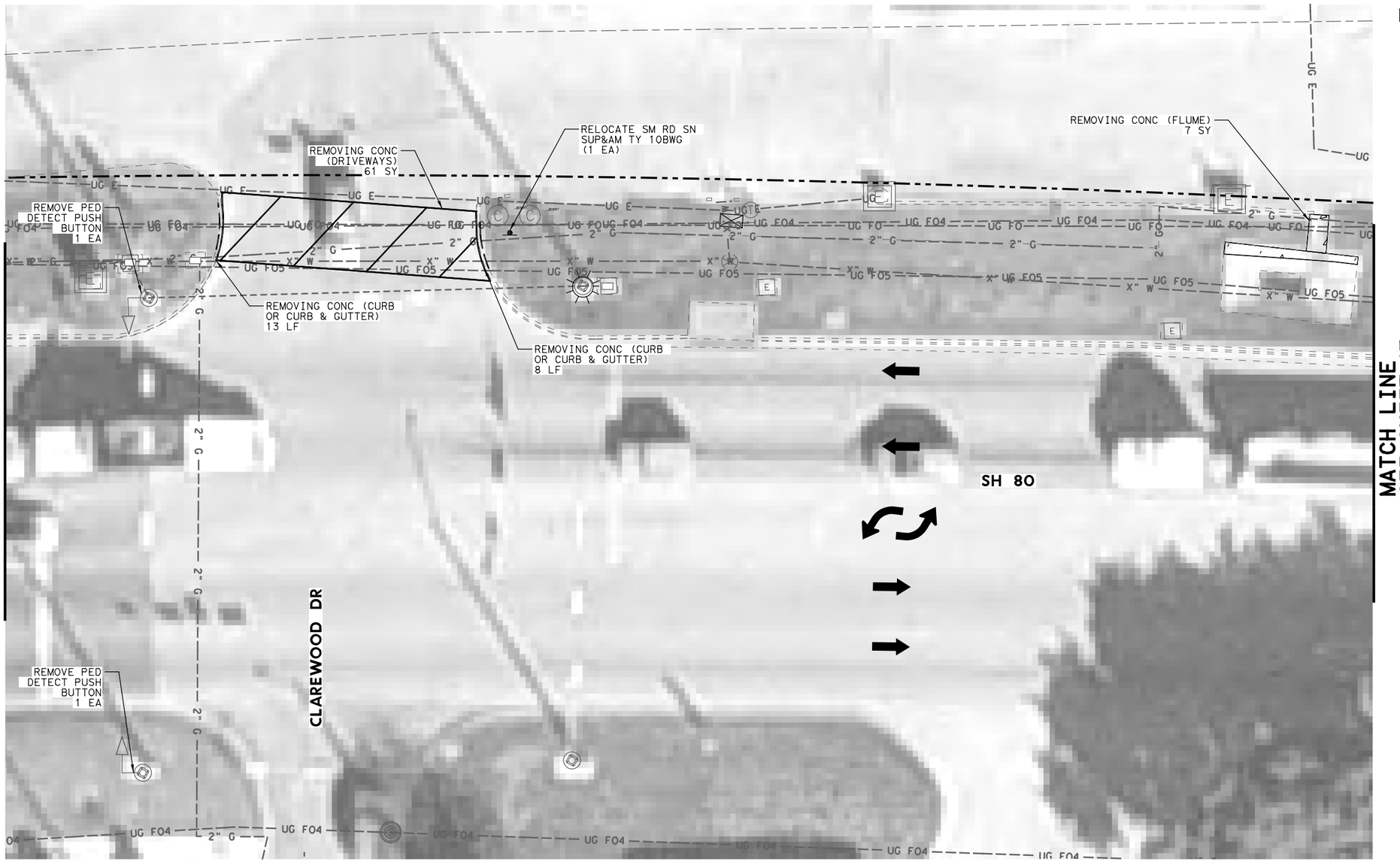
CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 11 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	41
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV05.dgn
PENTABLE: I033I29I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:3I:5I PM SCALE: I:20



N

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 12 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	42
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
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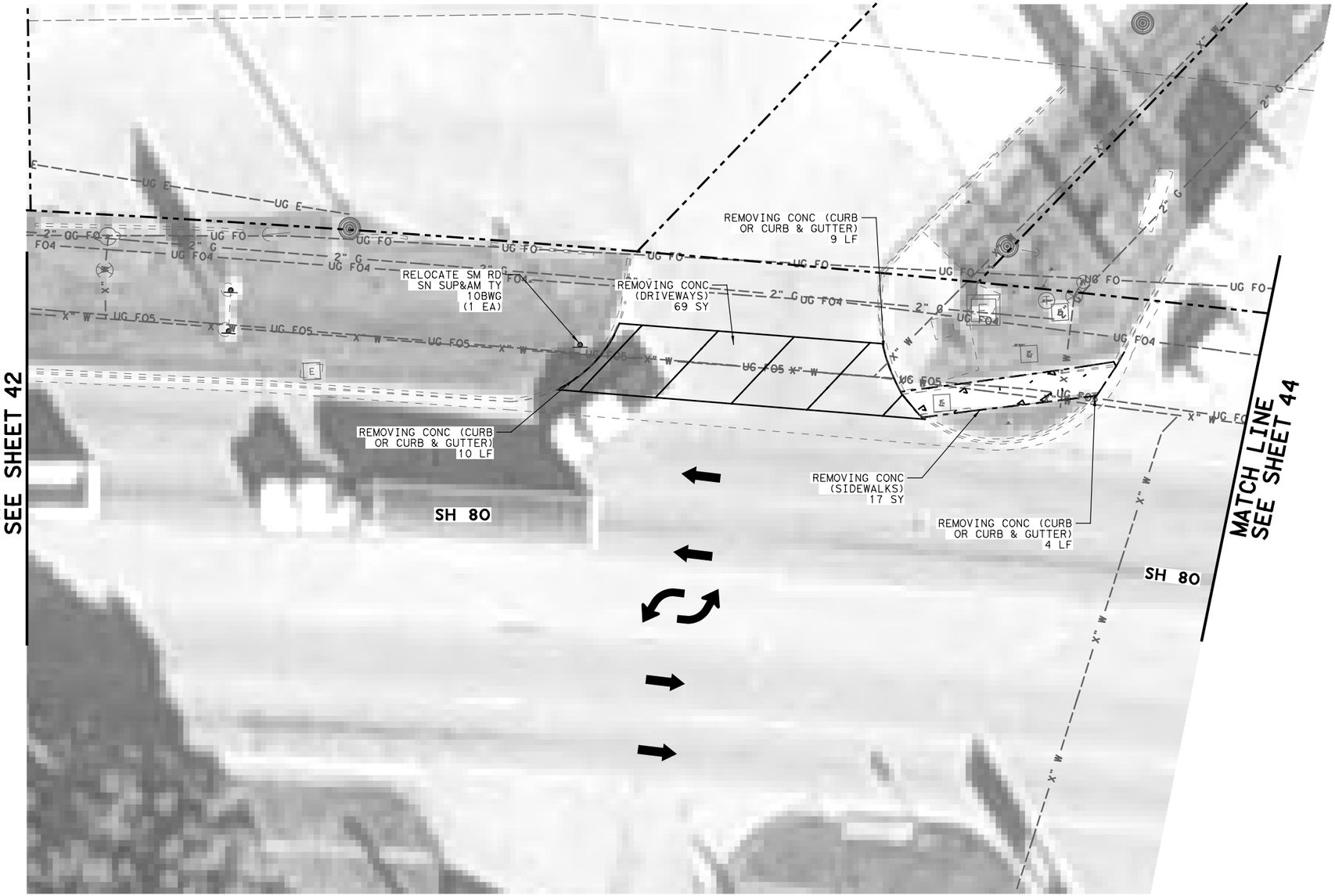
FILE: SM-E-RMV06.dgn
PENTABLE: I033129I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:32:02 PM SCALE: 1:20



N

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
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SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
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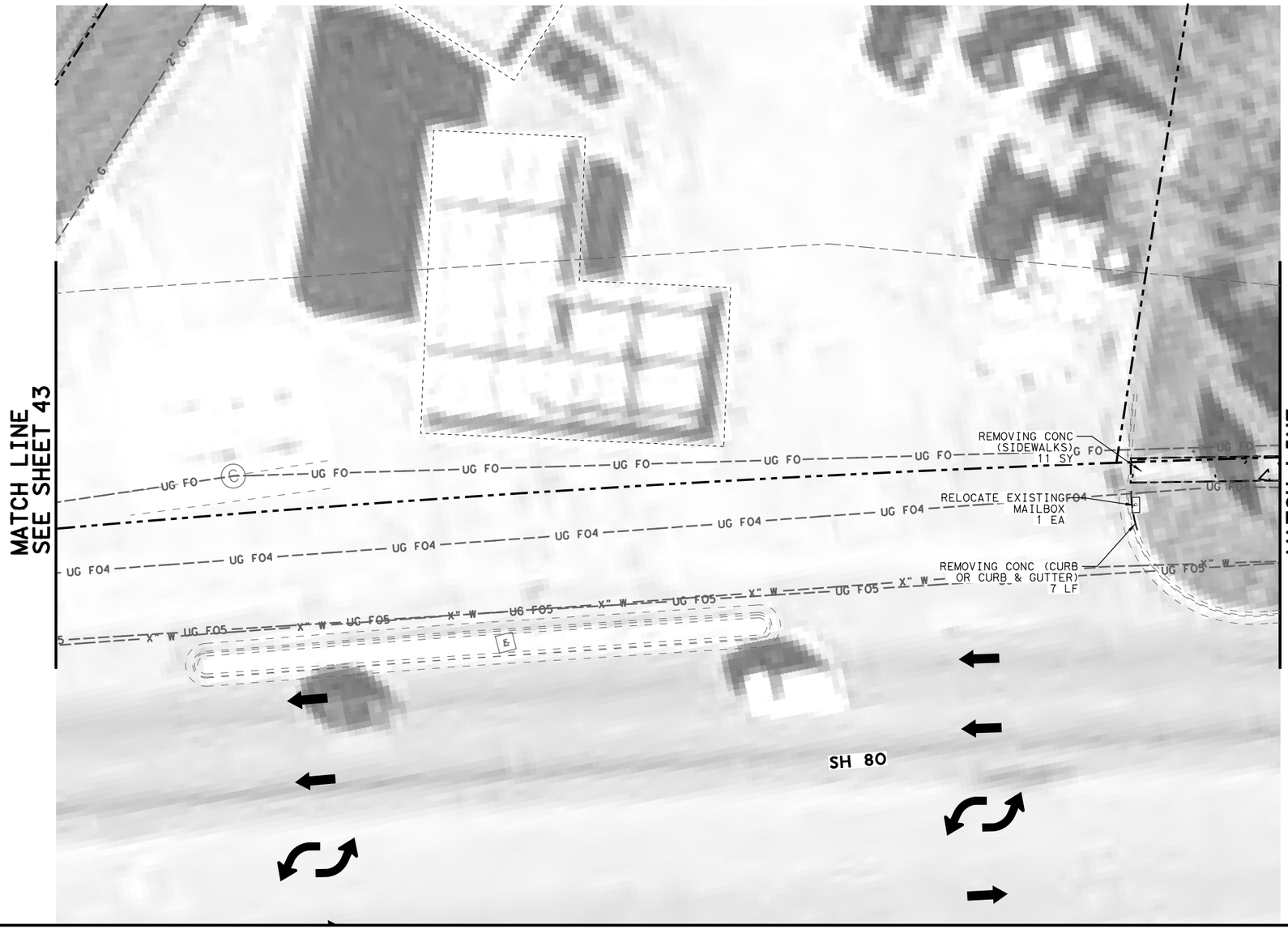
CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 13 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	43
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV01.dgn
PENTABLE: I033129I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:32:13 PM SCALE: 1:20



N

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
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STATE OF TEXAS
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08/05/2022

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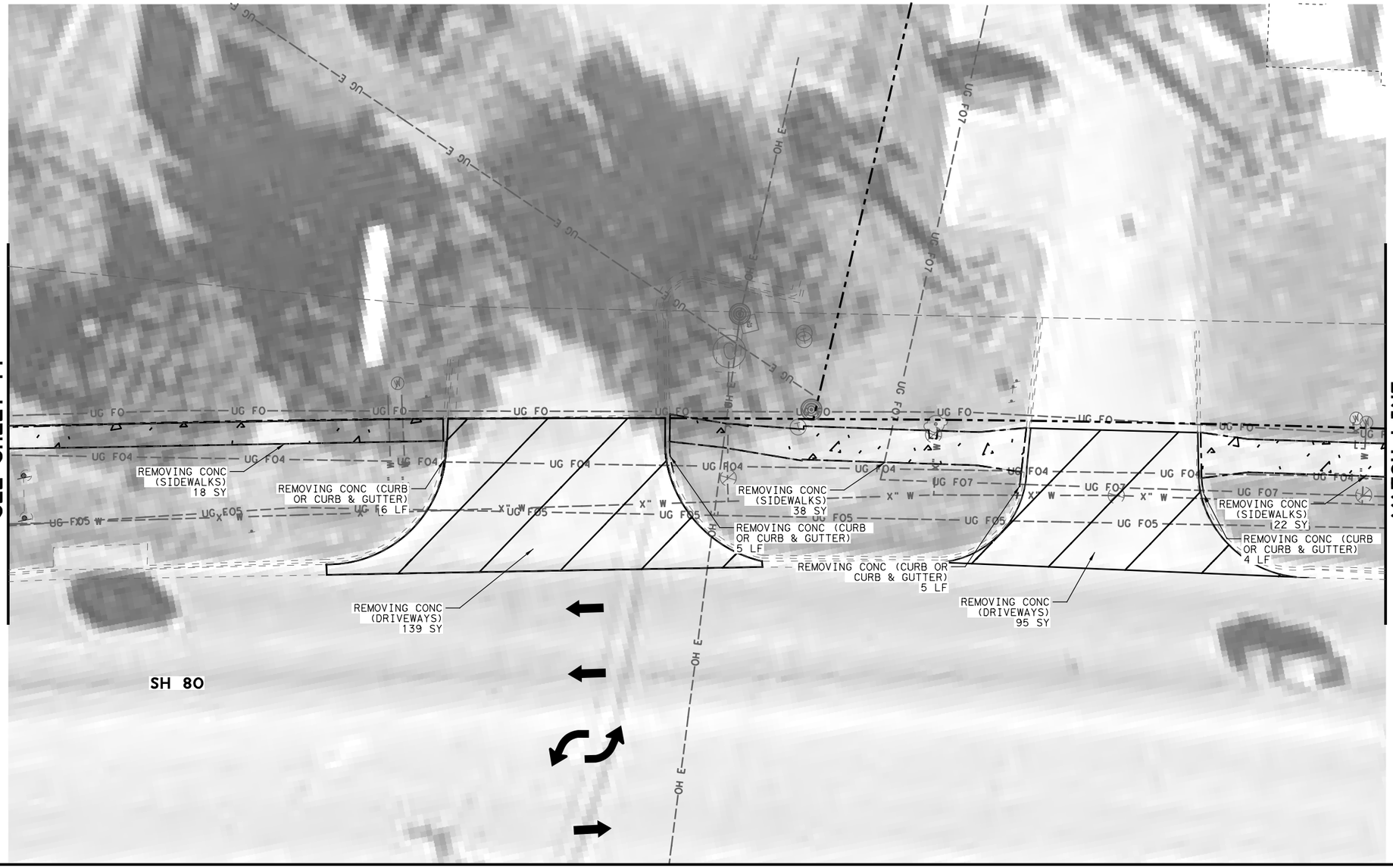
CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 14 OF 21

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	44
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV08.dgn
PENTABLE: I033I29I-San Marcos.tbl
DATE: 8/5/2022 TIME: 4:01:43 PM SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
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STATE OF TEXAS
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08/05/2022

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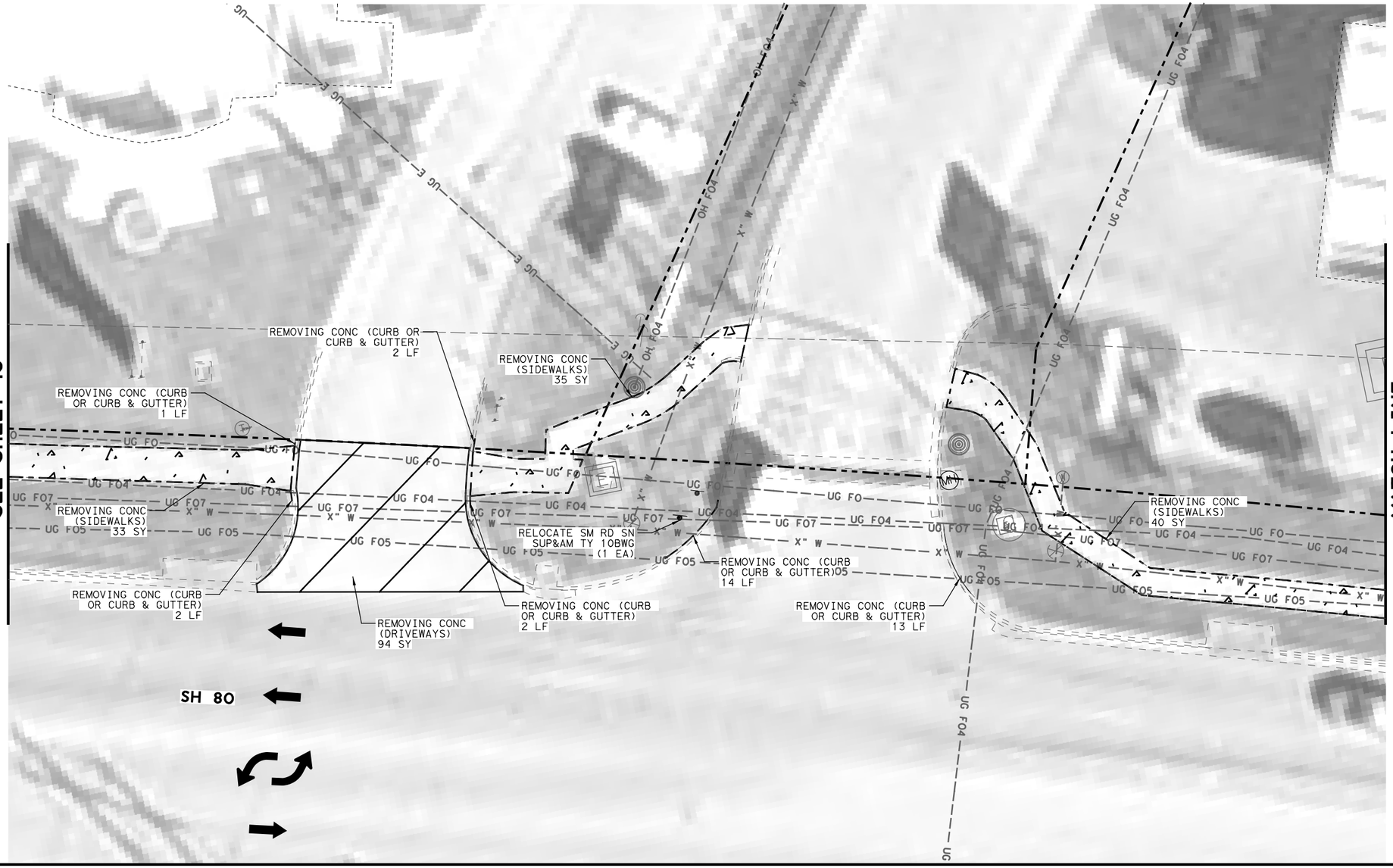
CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 15 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	45
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV09.dgn
PENTABLE: I033(29)-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:32:31 PM SCALE: 1:20



LEGEND

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- TRAVEL LANE
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CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 16 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	46
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV10.dgn
PENTABLE: 1033129-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:32:41 PM
SCALE: 1:20

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
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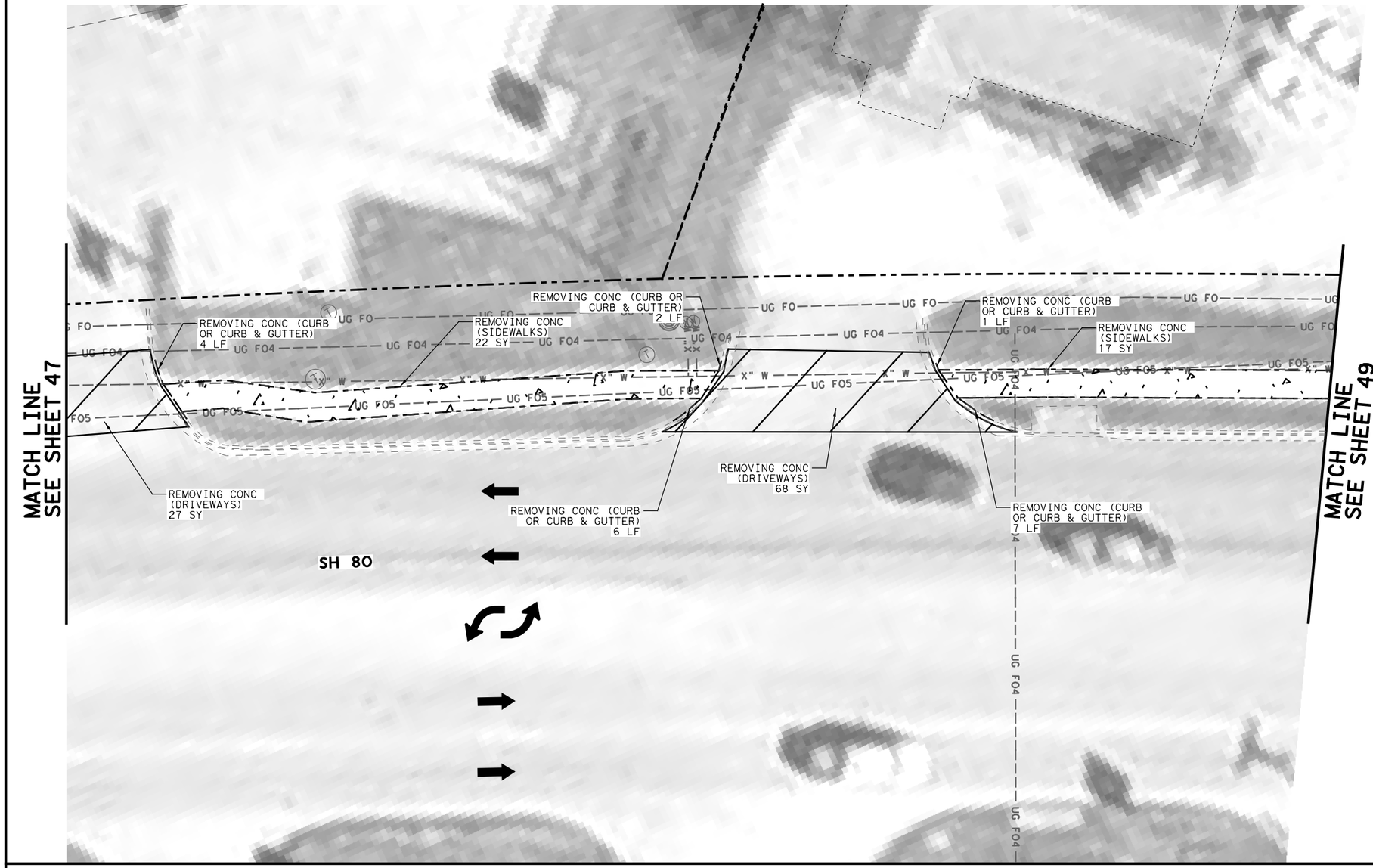
CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 17 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	47
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMVII.dgn
PENTABLE: I033129I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:32:50 PM
SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

1. THE EXISTING LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. COORDINATE WITH ALL UTILITY COMPANIES TO FIELD-VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. ALL ITEMS REQUIRING REMOVAL NOT SPECIFICALLY CALLED OUT IN PLANS WILL BE CONSIDERED SUBSIDIARY TO PREP ROW.

0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

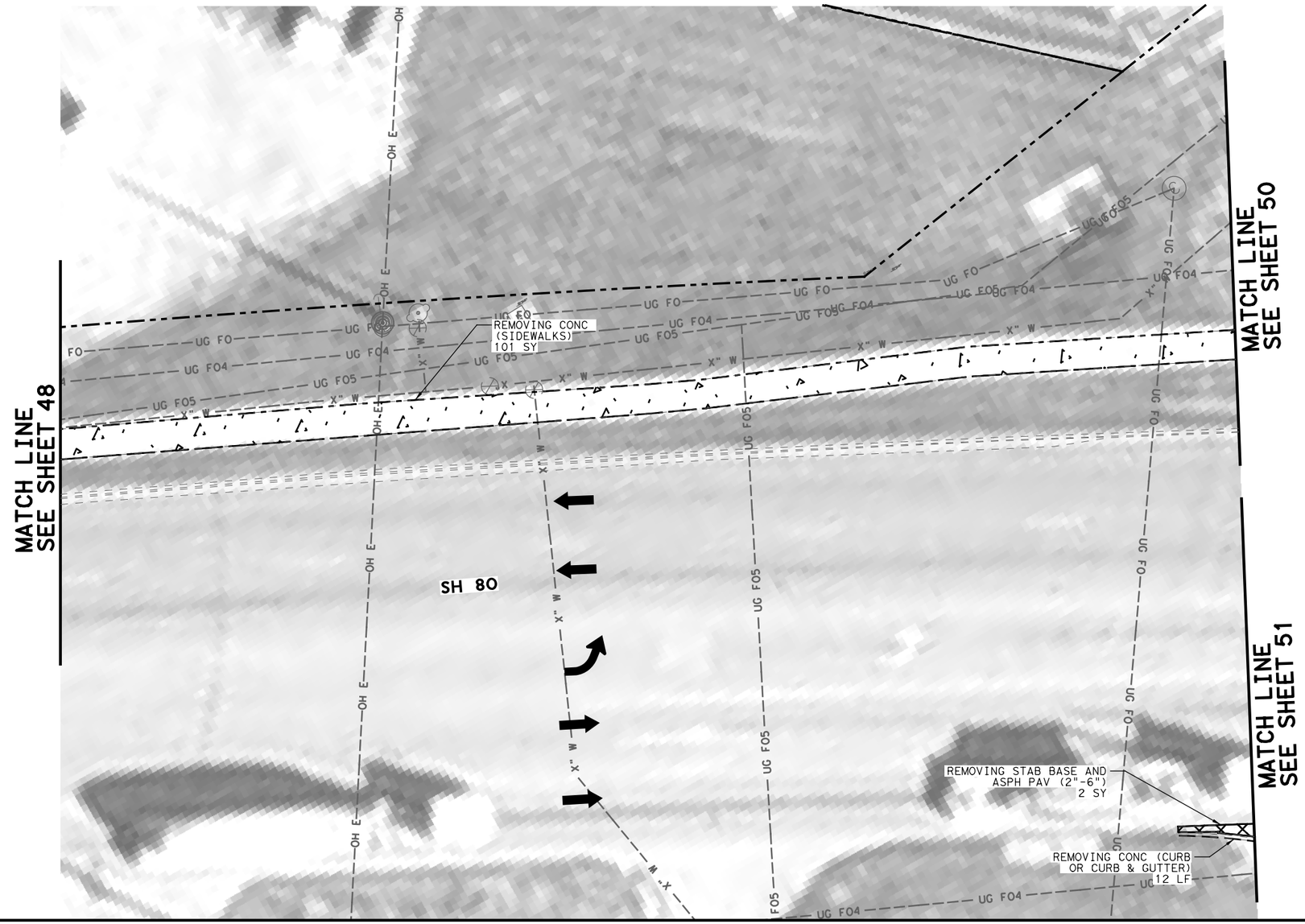
CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 18 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	48
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-E-RMV12.dgn
PENTABLE: I033129I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:32:59 PM SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 19 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	49
CHECK	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
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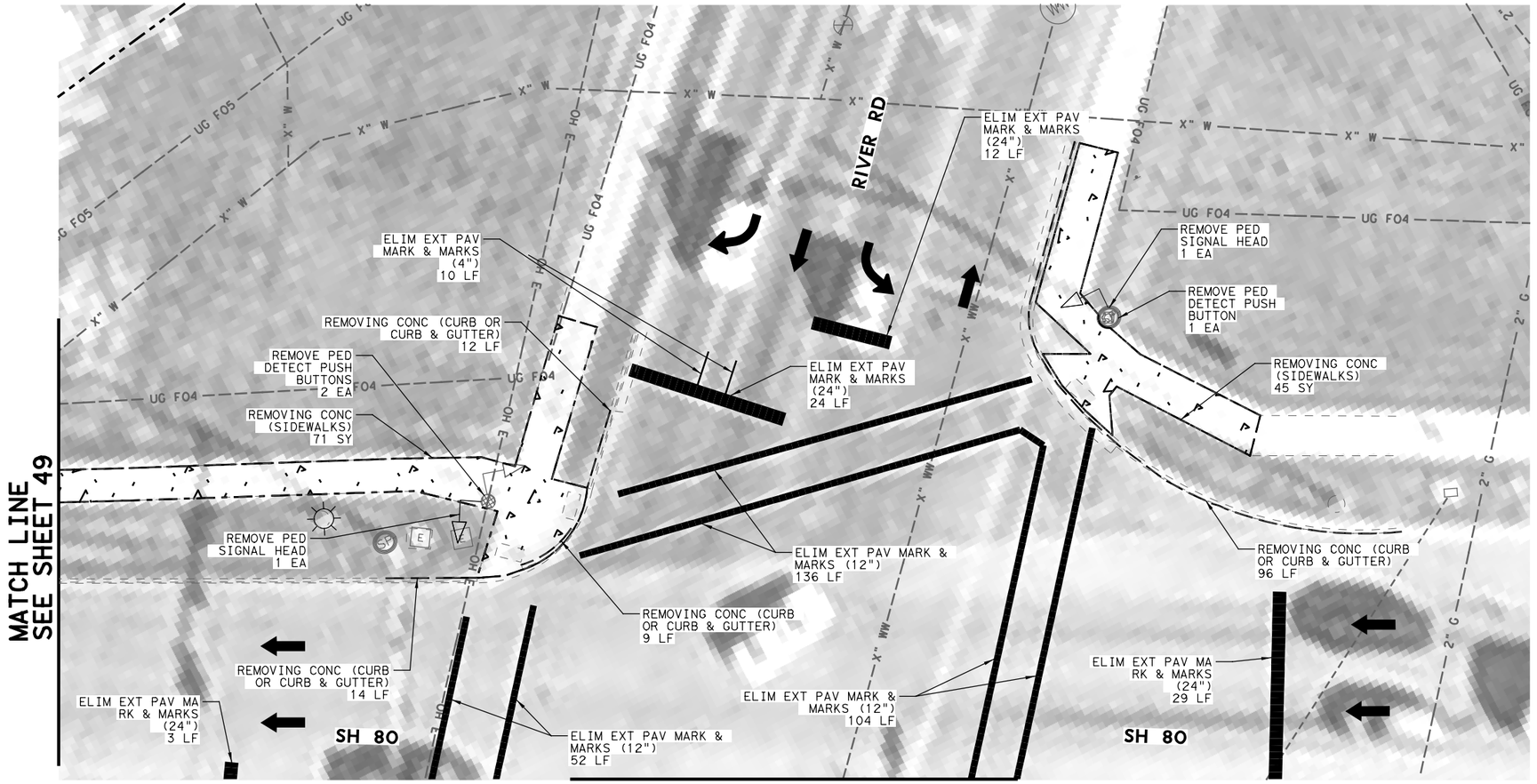

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 20 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	50
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
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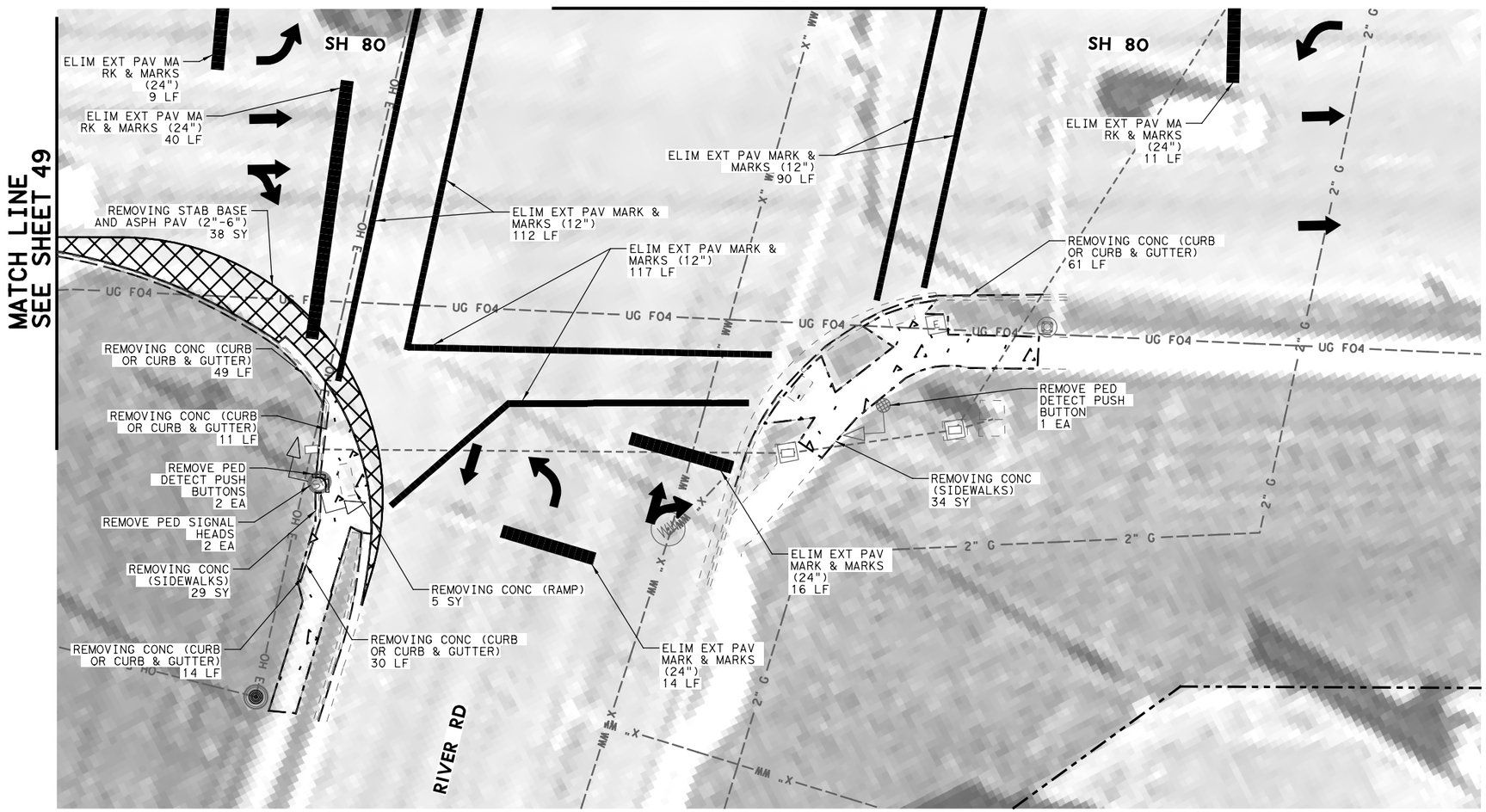

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
REMOVAL PLAN

SCALE: 1"=20' SHEET 21 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	51
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
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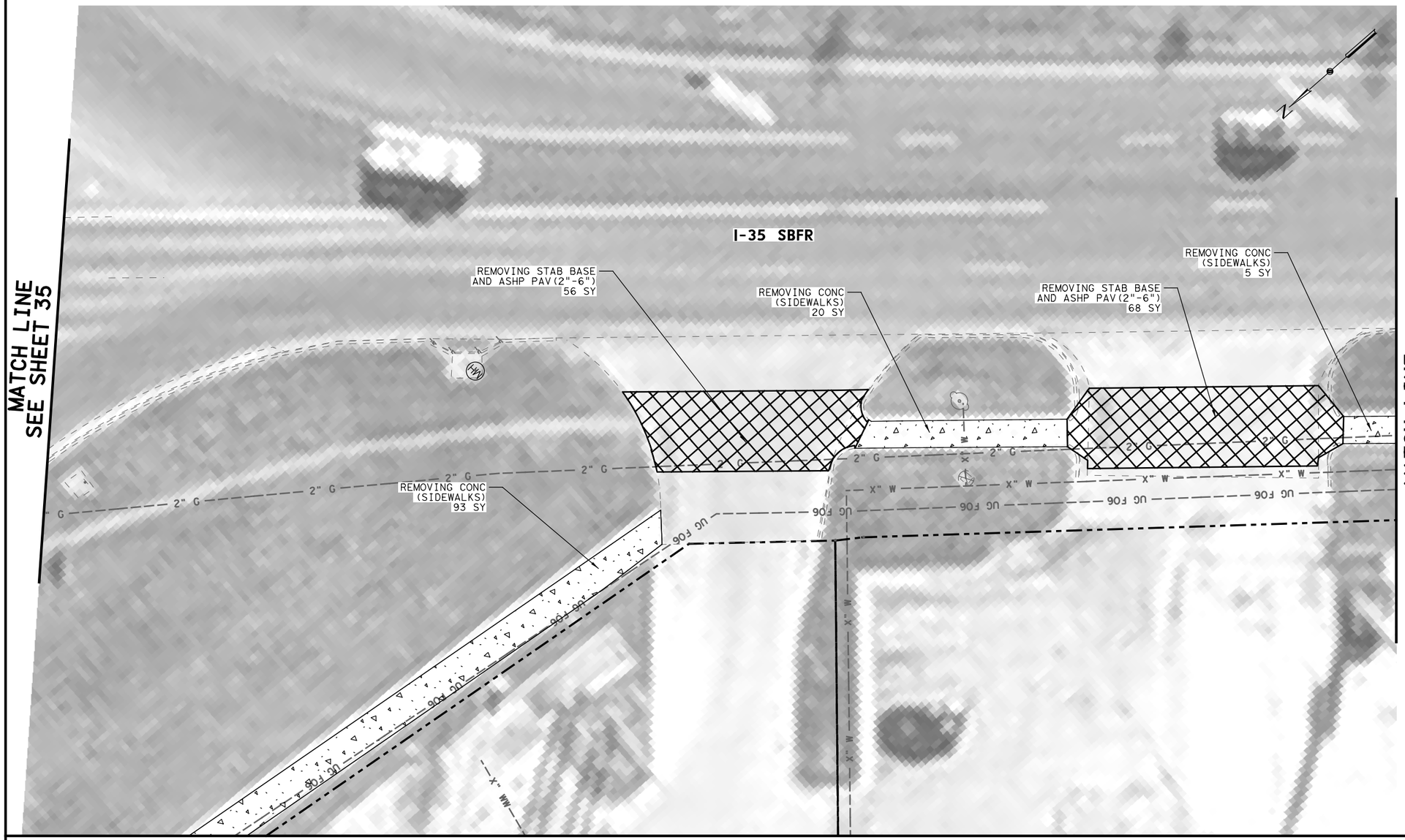

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

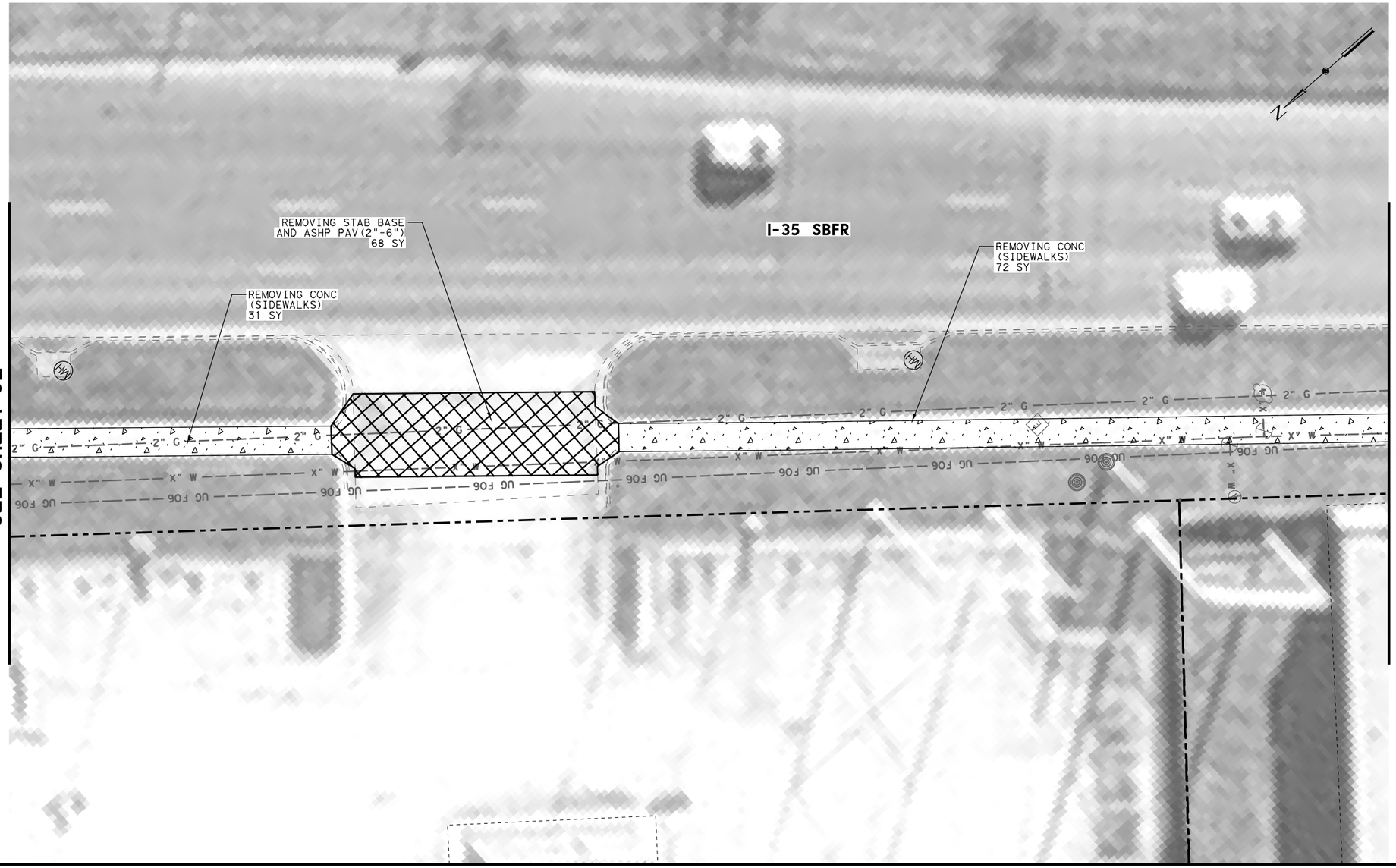
CURB RAMP PROGRAM

S IH 35
REMOVAL PLAN

SCALE: 1"=20' SHEET 1 OF 4

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	52
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-S-RMV01.dgn
PENTABLE: I033129I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:33:37 PM SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
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LICENSED PROFESSIONAL ENGINEER
08/05/2022

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Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

S IH 35
REMOVAL PLAN

SCALE: 1"=20' SHEET 2 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	53
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
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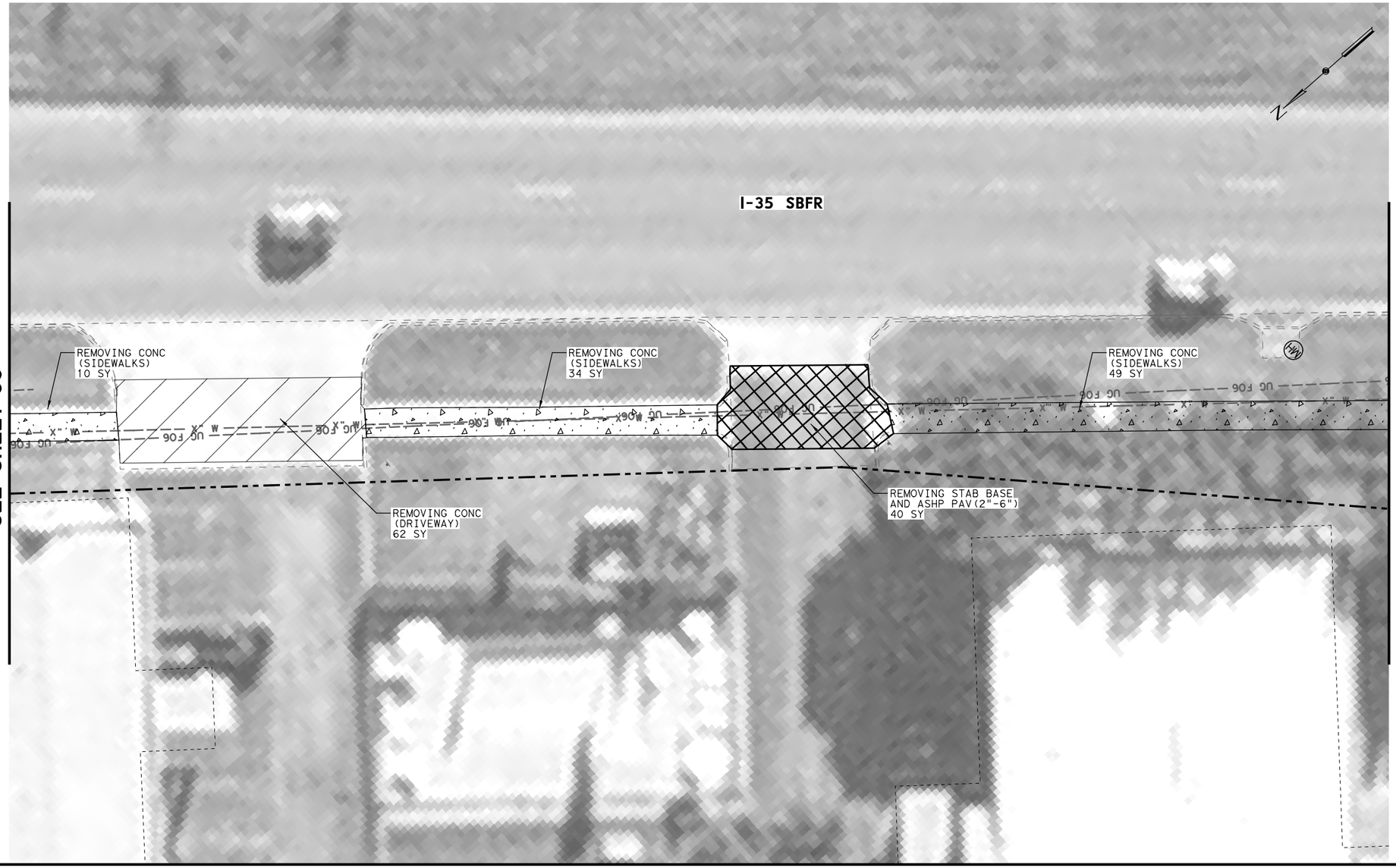

LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

S IH 35
REMOVAL PLAN

SCALE: 1"=20' SHEET 3 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	54
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
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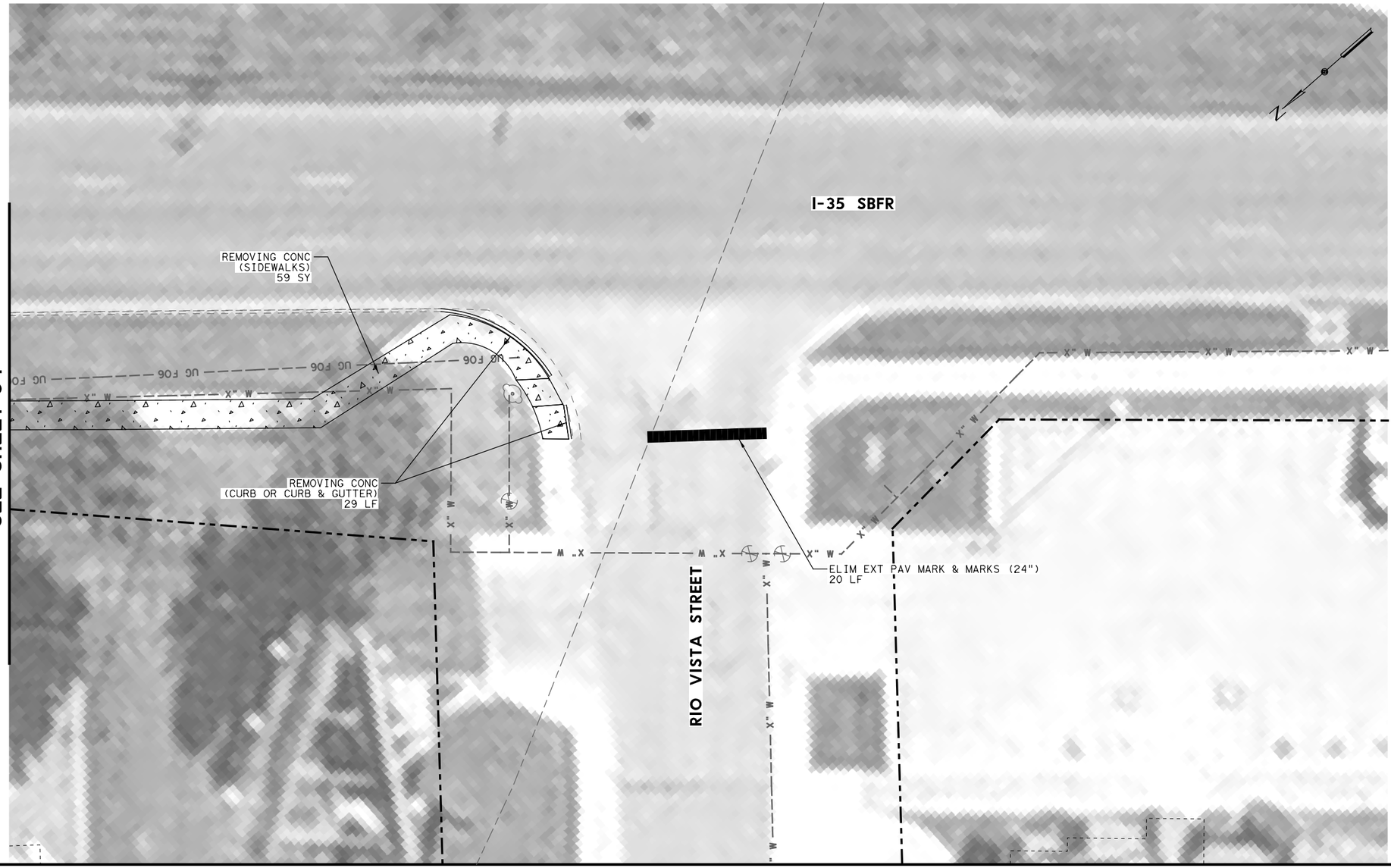
DATE: 8/5/2022 TIME: 3:34:00 PM SCALE: 1:20



LEGEND

- PROPERTY LINE (HAYS CENTRAL APPRAISAL DISTRICT)
- FEMA FLOOD LIMIT
- TRAVEL LANE
- REMOVE SIDEWALK
- DRIVEWAY REMOVE
- REMOVE STAB BASE AND ASPHALT PAVE
- REMOVE PED SIGNAL HEAD
- PED SIGNAL HEAD TO REMAIN

NOTES:

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0 10 20 30 40
SCALE IN FEET

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

S IH 35
REMOVAL PLAN

SCALE: 1"=20' SHEET 4 OF 4

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: LG	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	55
CHECK	CONTROL	SECTION	JOB	
	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
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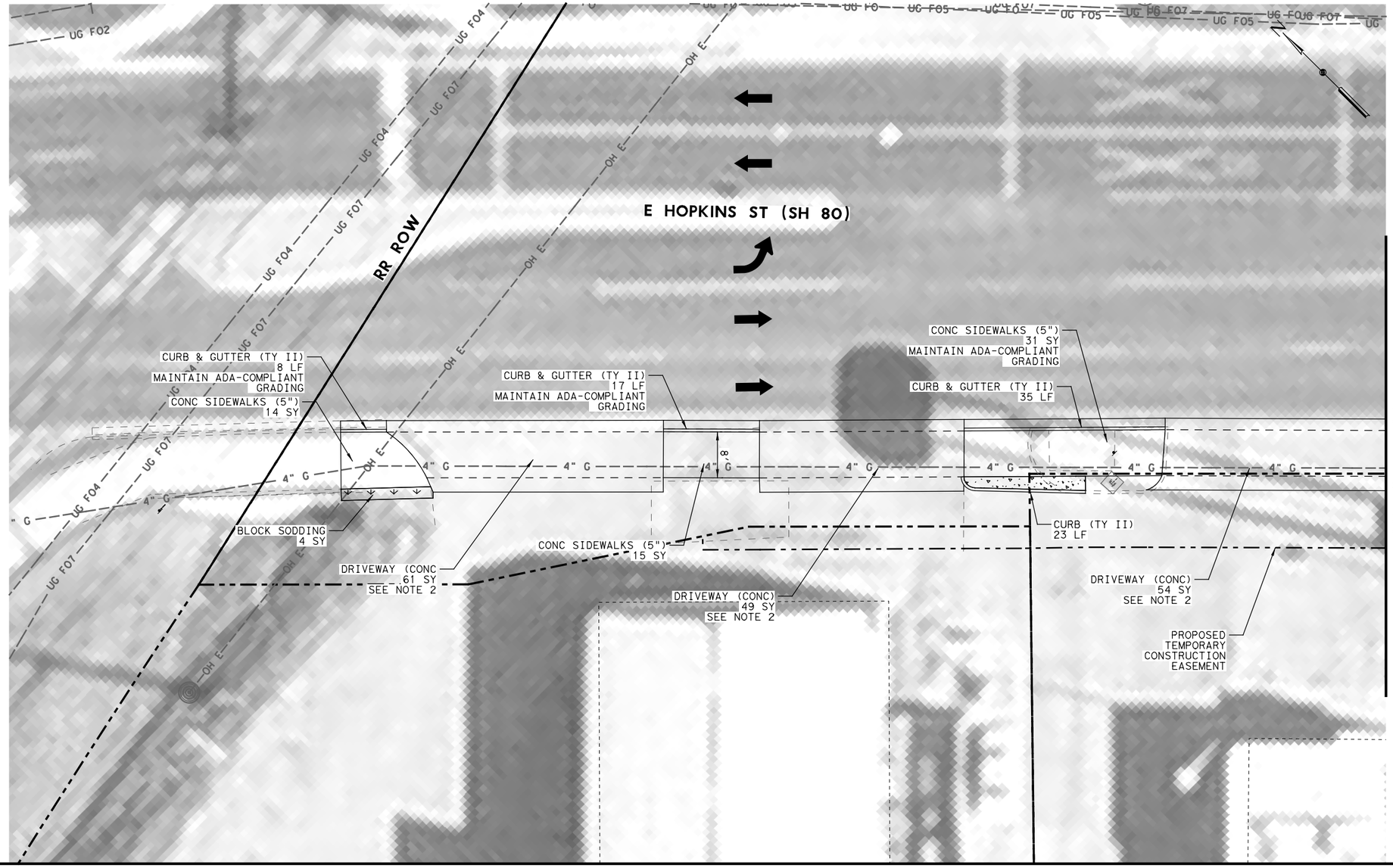
DATE: 8/5/2022 TIME: 3:34:10 PM SCALE: 1:20



LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40

SCALE IN FEET

NOTES:

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2. DRIVEWAY AREAS TO BE FIELD-ADJUSTED TO MEET SIDEWALK GRADING CROSS SLOPE ON DRIVEWAY. SEE STANDARD DWMB-22 FOR DETAILS.
3. TURNING SPACE, RAMP, AND DETECTABLE WARNING SURFACE SHOWN ON THE PLAN VIEW ARE FOR VISUALIZATION PURPOSES ONLY. ADJUSTMENT WILL BE NEEDED BASED ON FIELD CONDITIONS OR AS DIRECTED. REFER TO THE PEDESTRIAN FACILITIES CURB RAMPS STANDARD AND SIDEWALK DETAILS FOR MORE INFORMATION.
4. SEE SIDEWALK DETAILS SHEET 81 FOR CURB RAMP TRANSITION INTO ROADWAY.
5. PLACE TREE PROTECTION WITHOUT ENCROACHING ON PRIVATE PROPERTY OR AS DIRECTED.
6. ALL PAVEMENT MARKINGS AND SIGNAGE WILL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
7. "REFL PAV MRK" CALLOUT ABOVE INCLUDES QUANTITIES FOR REFL PAV MRK TY I, REFL PAV MRK TY II AND PAV SURF PREP FOR MARKINGS.
8. "BLOCK SODDING" CALLOUT ABOVE INCLUDES QUANTITIES FOR FURNISHING AND PLACING TOPSOIL (4"), BLOCK SODDING, AND VEGETATIVE WATERING.
9. VEGETATE ANY ADDITIONAL DISTURBED AREAS NOT CALLED OUT ON PLANS. PROVIDE TOPSOIL AND SODDING FOR THESE AREAS. SUBSIDIARY TO PERTINENT ITEMS.
10. PROTECT ALL CURB INLETS THAT RECEIVE SURFACE WATER FLOW FROM WORK AREAS FROM STORM WATER QUALITY MANAGEMENT. REFER TO SW3P, EPIC, AND TxDOT STANDARD EC(9)-16 FOR IMPLEMENTATION AND MAINTENANCE OF SW3P CONTROLS AND COMPLIANCE.
11. SIDEWALK MUST NOT OBSTRUCT THE EXISTING DRAINAGE PATTERN. CROSS SLOPE MUST NOT EXCEED 2%.
12. LOCATION OF TIE-IN FOR THE SIDEWALK CAN BE FIELD ADJUSTED AS DIRECTED.
13. NOTIFY THE DISTRICT SIGNAL MAINTENANCE OFFICE (ROBERT GUYDOSH AT 512-832-7012) AND AREA OFFICE ONE WEEK BEFORE BEGINNING ANY WORK INVOLVING TRAFFIC SIGNALS.
14. INSTALL CONDUIT, CONDUCTORS, AND PEDESTRIAN SIGNAL ITEMS AS NOTED ON PLANS. NEW PEDESTRIAN SIGNAL CONDUCTORS WILL BE RUN THROUGH NEW CONDUIT AND EXISTING CONDUIT FROM PEDESTRIAN SIGNALS TO THE CONTROLLER. WHERE EXISTING PEDESTRIAN SIGNALS ARE REPLACED, OLD SIGNAL CONDUCTORS WILL BE REMOVED FROM CONDUIT. COORDINATE WITH TXDOT TO HAVE WIRING INSTALLED IN CONTROLLER. USE 14 AWG 5-CONDUCTOR CABLE FOR PEDESTRIAN HEADS AND 14 AWG 2-CONDUCTOR CABLE FOR PUSH BUTTONS.
15. ITEM 110 EXCAVATION AND ITEM 132 EMBANKMENT WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO OTHER PERTINENT ITEMS SUCH AS ITEM 531 CONC SIDEWALKS. THE ENGINEER WILL DEFINE UNSUITABLE MATERIAL.
16. CONTRACTOR TO USE EMBANKMENT TYPE B USING ORDINARY COMPACTION METHOD.

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

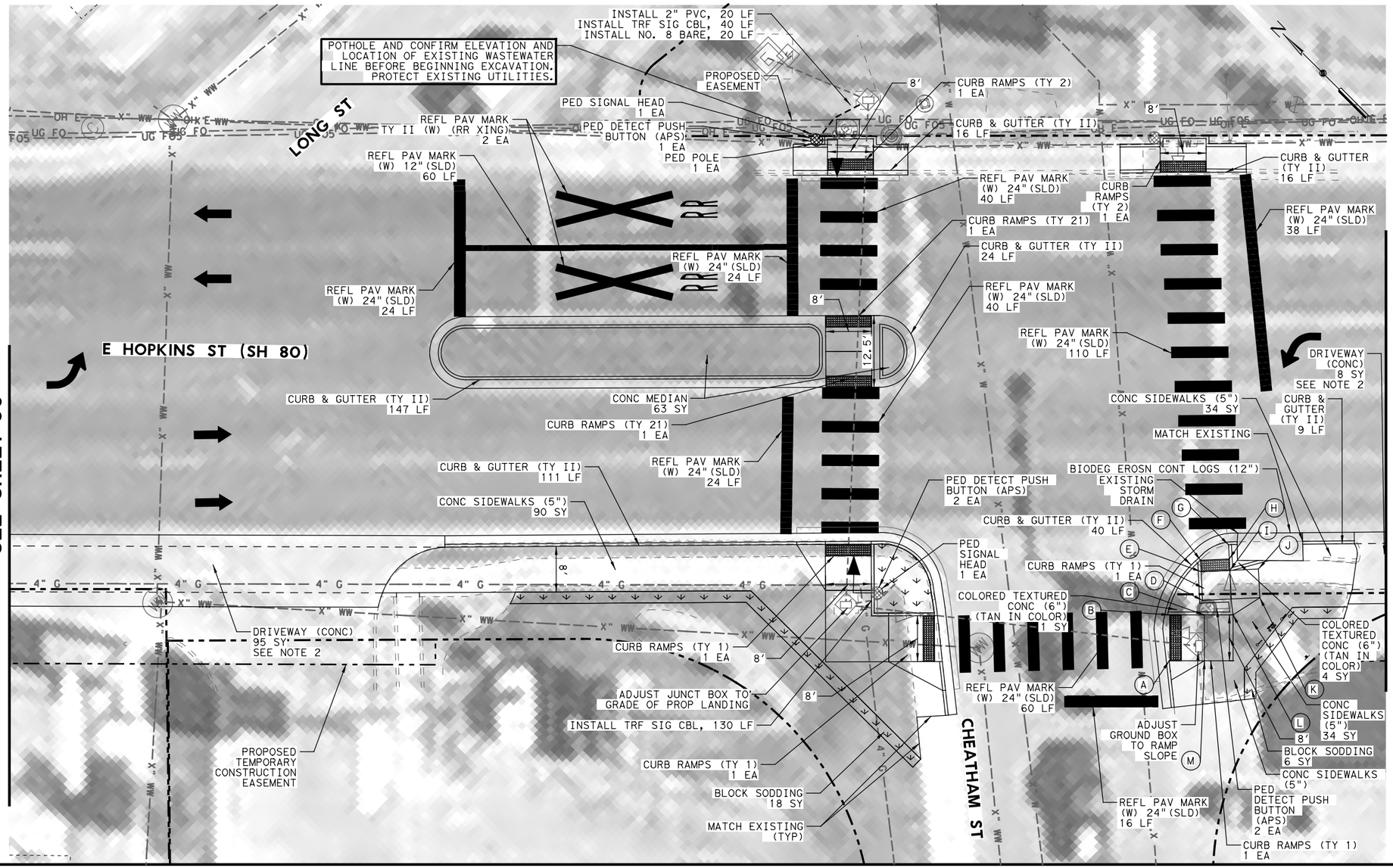
CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 1 OF 21

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	56
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SM-W-SDWK01.dgn
PENTABLE: I033129I:San Marcos.tbl
DATE: 8/5/2022 TIME: 3:34:20 PM SCALE: 1:20



LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- (X) ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

SIGNAL ITEMS ONLY

STATE OF TEXAS
KEVIN A. MARSH
132803
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

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710 Hesters Crossing, Suite 150
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Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 2 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS: LG	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	57
CHECK	CONTROL	SECTION	JOB	
	0286	01	062, ETC.	

NOTES:

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4. SEE SIDEWALK DETAILS SHEET 81 FOR CURB RAMP TRANSITION INTO ROADWAY.
5. PLACE TREE PROTECTION WITHOUT ENCROACHING ON PRIVATE PROPERTY OR AS DIRECTED.
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12. LOCATION OF TIE-IN FOR THE SIDEWALK CAN BE FIELD ADJUSTED AS DIRECTED.
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16. CONTRACTOR TO USE EMBANKMENT TYPE B USING ORDINARY COMPACTION METHOD.

ELEVATIONS:

(A)	578.524′	(H)	578.479′
(B)	578.364′	(I)	578.639′
(C)	578.844′	(J)	579.020′
(D)	578.639′	(K)	579.120′
(E)	578.539′	(L)	578.944′
(F)	578.379′	(M)	579.004′
(G)	581.174′		

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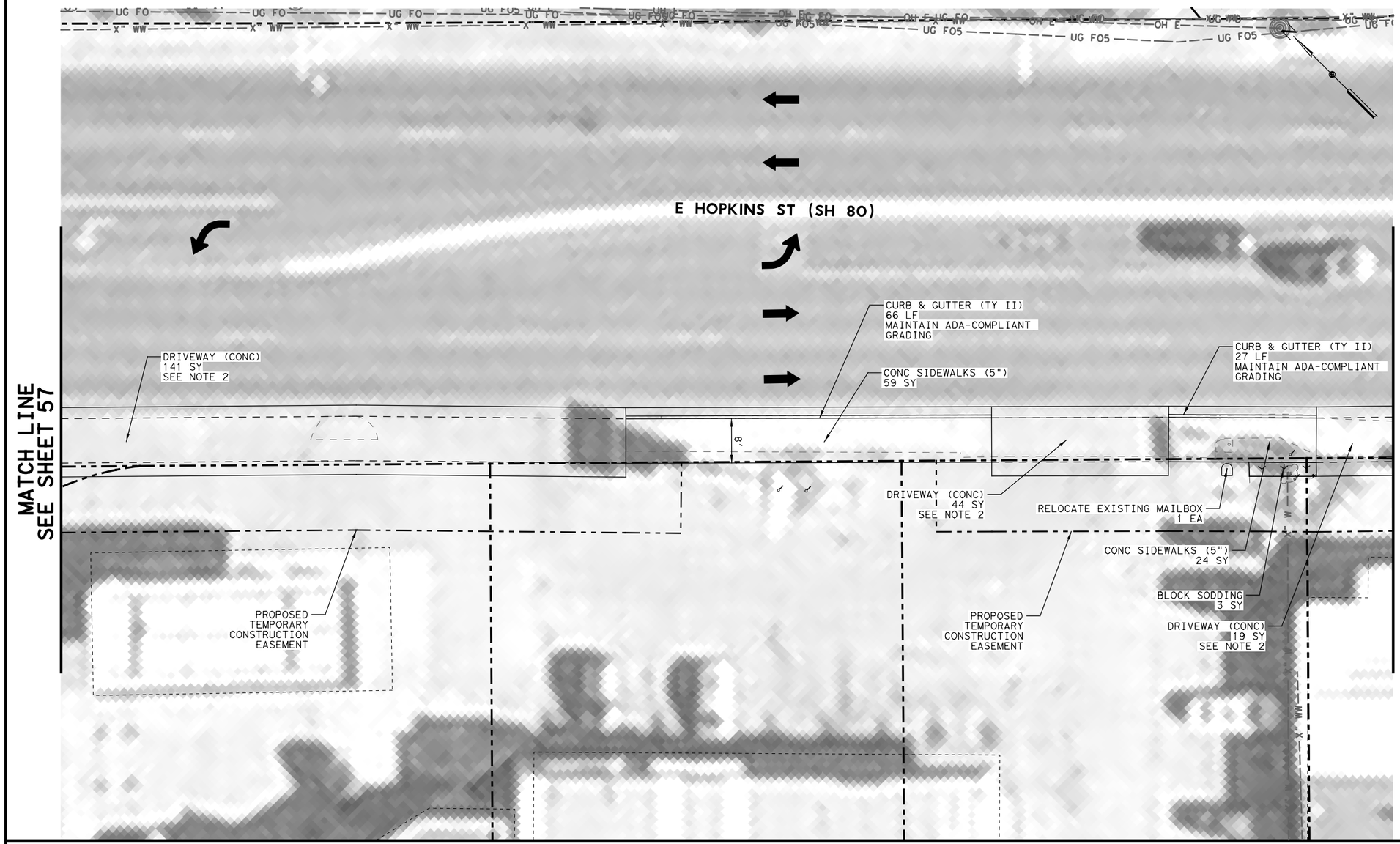

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

NOTES:

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STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: $H=80' SHEET 3 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	58
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

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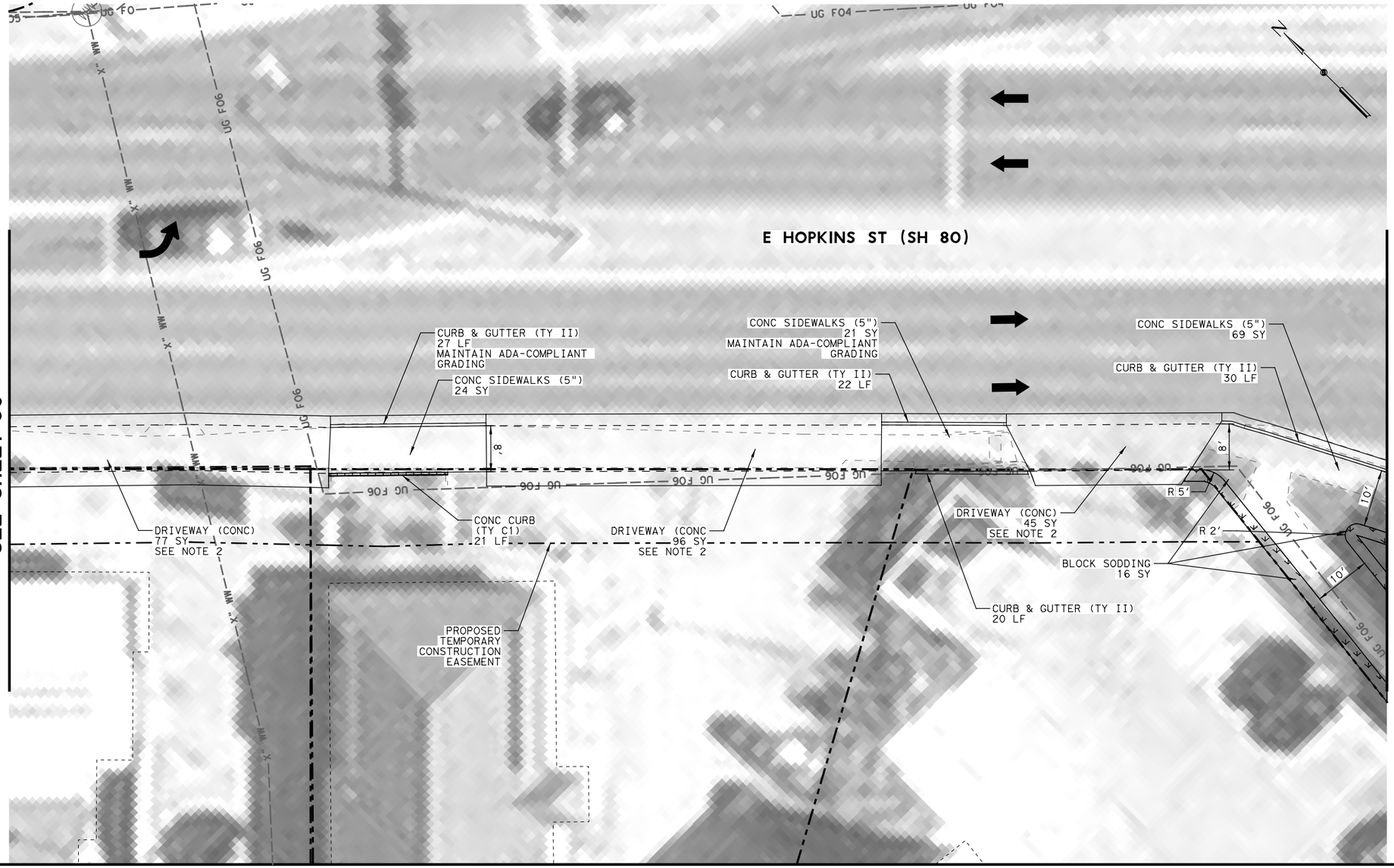

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- (X) ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

NOTES:

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STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 4 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	59
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

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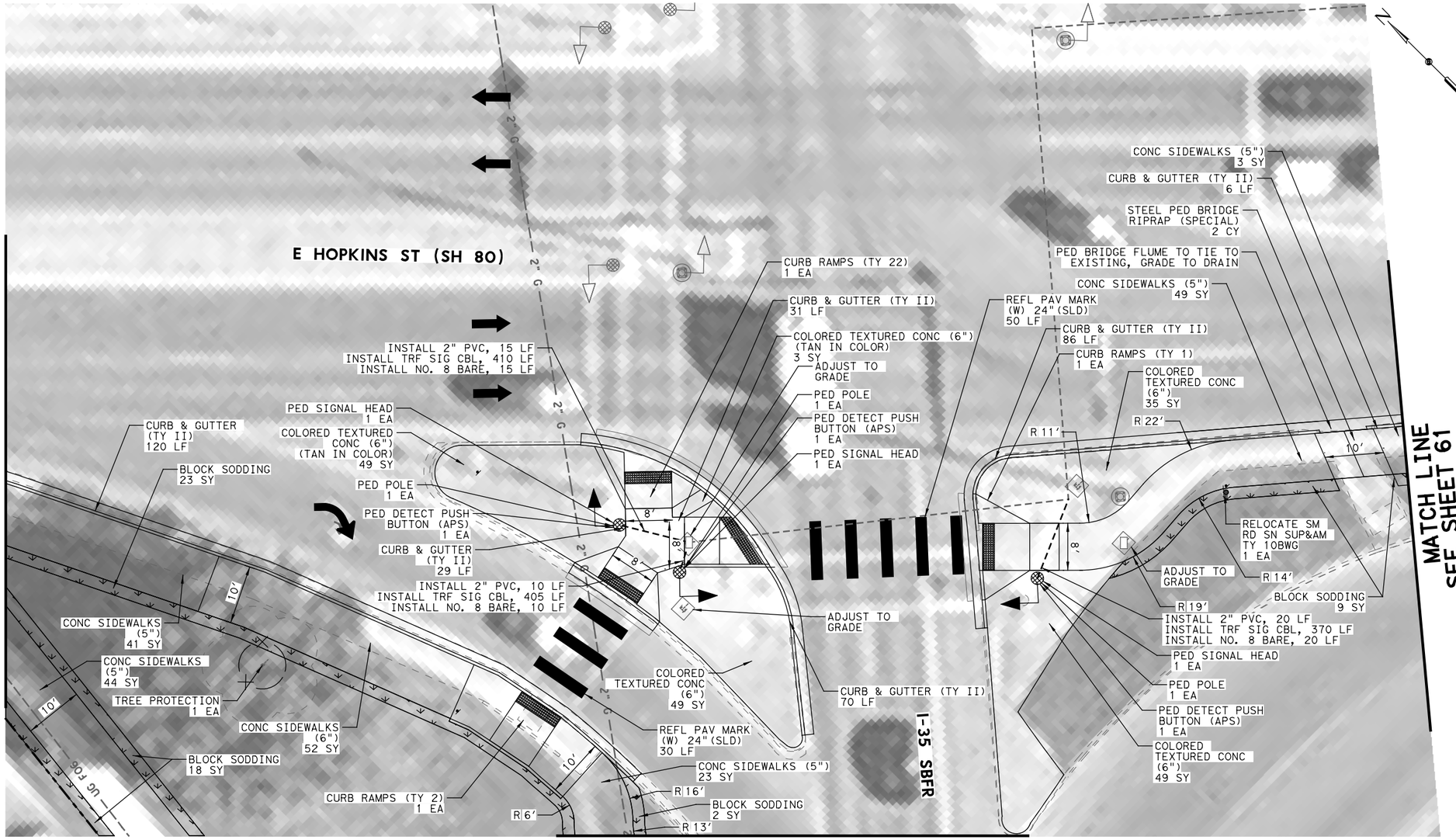

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

SIGNAL ITEMS ONLY

08/05/2022

STATE OF TEXAS
KEVIN A. MARSH
132803
LICENSED
PROFESSIONAL ENGINEER

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

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Round Rock, Texas 78681
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CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

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16. CONTRACTOR TO USE EMBANKMENT TYPE B USING ORDINARY COMPACTION METHOD.

SCALE: 1"=20' SHEET 5 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	60
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

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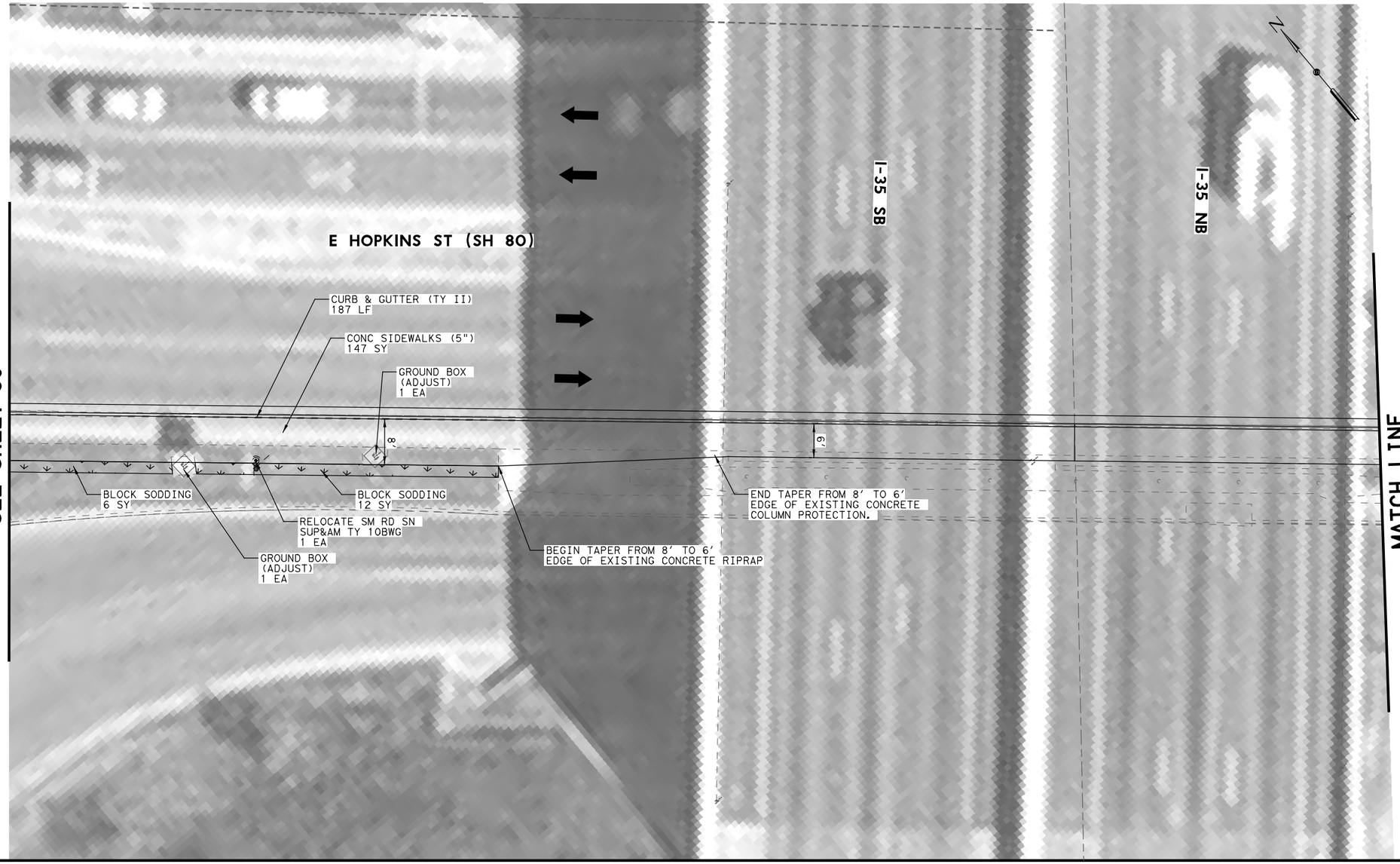

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0 10 20 30 40
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STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 6 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS LG	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	61
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

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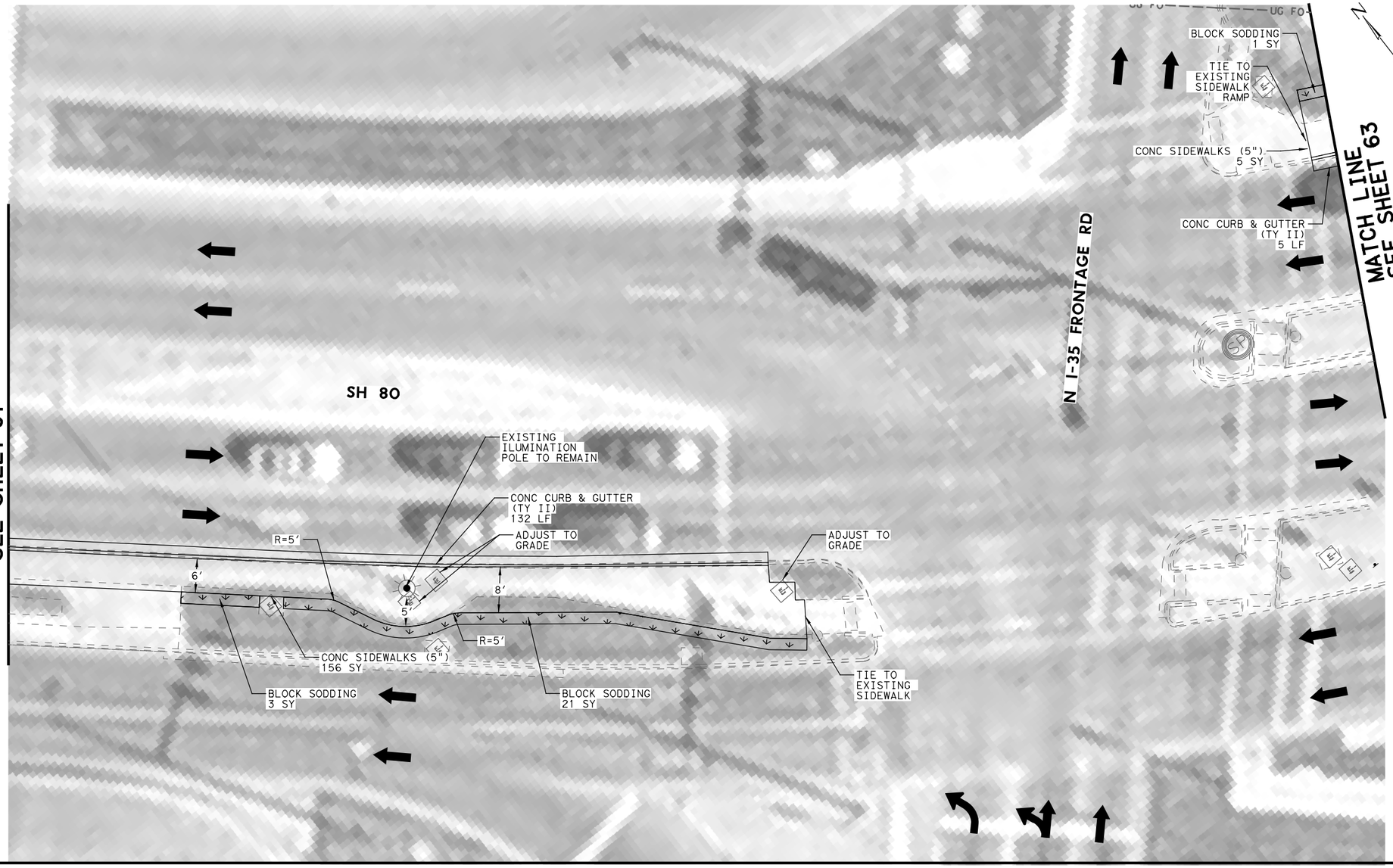

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0 10 20 30 40
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8. "BLOCK SODDING" CALLOUT ABOVE INCLUDES QUANTITIES FOR FURNISHING AND PLACING TOPSOIL (4"), BLOCK SODDING, AND VEGETATIVE WATERING.
9. VEGETATE ANY ADDITIONAL DISTURBED AREAS NOT CALLED OUT ON PLANS. PROVIDE TOPSOIL AND SODDING FOR THESE AREAS. SUBSIDIARY TO PERTINENT ITEMS.
10. PROTECT ALL CURB INLETS THAT RECEIVE SURFACE WATER FLOW FROM WORK AREAS FROM STORM WATER QUALITY MANAGEMENT. REFER TO SW3P, EPIC, AND TxDOT STANDARD EC(9)-16 FOR IMPLEMENTATION AND MAINTENANCE OF SW3P CONTROLS AND COMPLIANCE.
11. SIDEWALK MUST NOT OBSTRUCT THE EXISTING DRAINAGE PATTERN. CROSS SLOPE MUST NOT EXCEED 2%.
12. LOCATION OF TIE-IN FOR THE SIDEWALK CAN BE FIELD ADJUSTED AS DIRECTED.
13. NOTIFY THE DISTRICT SIGNAL MAINTENANCE OFFICE (ROBERT GUYDOSH AT 512-832-7012) AND AREA OFFICE ONE WEEK BEFORE BEGINNING ANY WORK INVOLVING TRAFFIC SIGNALS.
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15. ITEM 110 EXCAVATION AND ITEM 132 EMBANKMENT WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO OTHER PERTINENT ITEMS SUCH AS ITEM 531 CONC SIDEWALKS. THE ENGINEER WILL DEFINE UNSUITABLE MATERIAL.
16. CONTRACTOR TO USE EMBANKMENT TYPE B USING ORDINARY COMPACTION METHOD.

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 7 OF 21

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	62
CHECK	0286	01	063	

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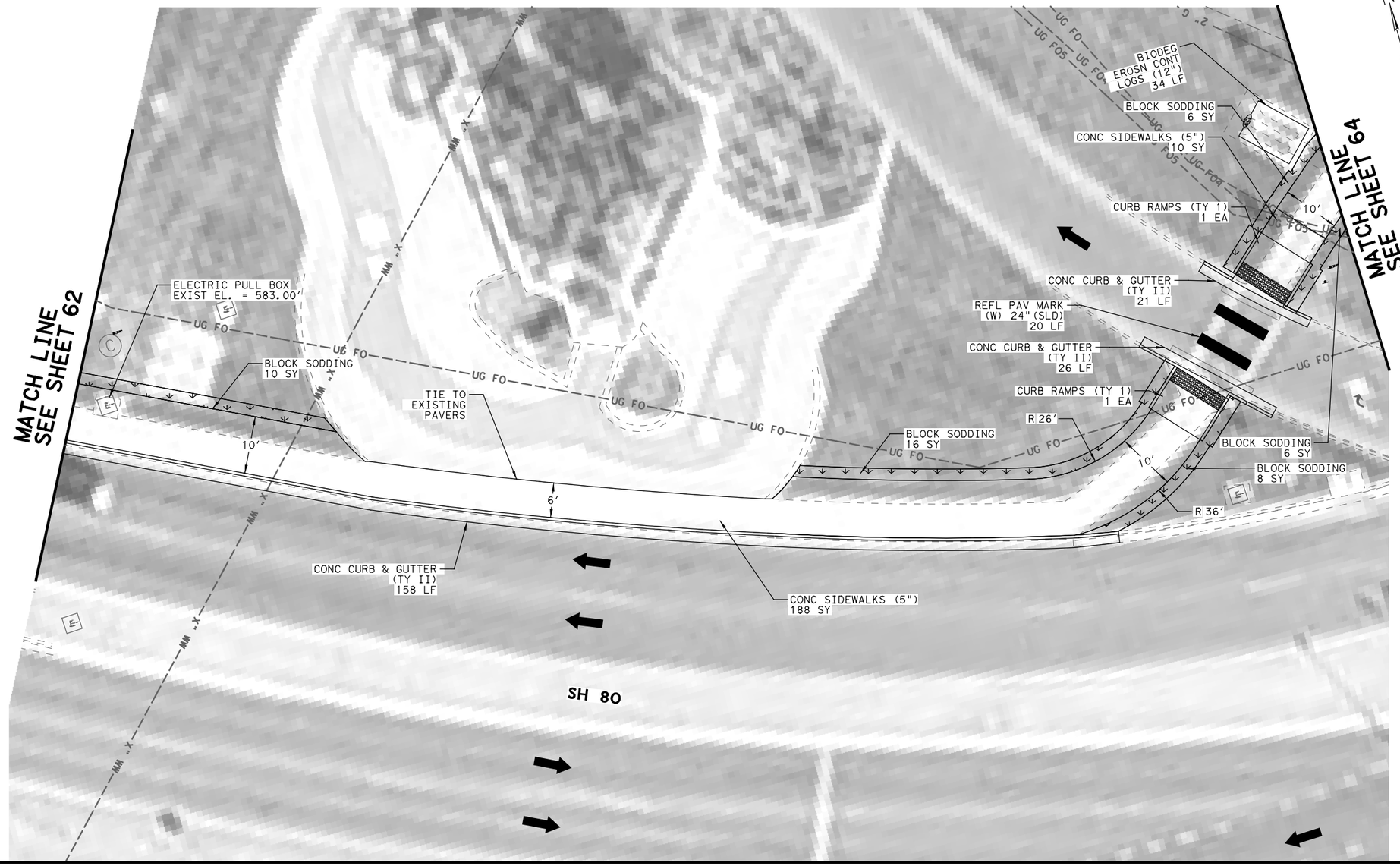

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

NOTES:

1. THE LOCATION OF ALL EXISTING UTILITIES AND DRAINAGE STRUCTURES INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. COORDINATE WITH ALL UTILITY COMPANIES TO FIELD-VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. DRIVEWAY AREAS TO BE FIELD-ADJUSTED TO MEET SIDEWALK GRADING CROSS SLOPE ON DRIVEWAY. SEE STANDARD DWMB-22 FOR DETAILS.
3. TURNING SPACE, RAMP, AND DETECTABLE WARNING SURFACE SHOWN ON THE PLAN VIEW ARE FOR VISUALIZATION PURPOSES ONLY. ADJUSTMENT WILL BE NEEDED BASED ON FIELD CONDITIONS OR AS DIRECTED. REFER TO THE PEDESTRIAN FACILITIES CURB RAMPS STANDARD AND SIDEWALK DETAILS FOR MORE INFORMATION.
4. SEE SIDEWALK DETAILS SHEET 81 FOR CURB RAMP TRANSITION INTO ROADWAY.
5. PLACE TREE PROTECTION WITHOUT ENCROACHING ON PRIVATE PROPERTY OR AS DIRECTED.
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STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 8 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	63
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

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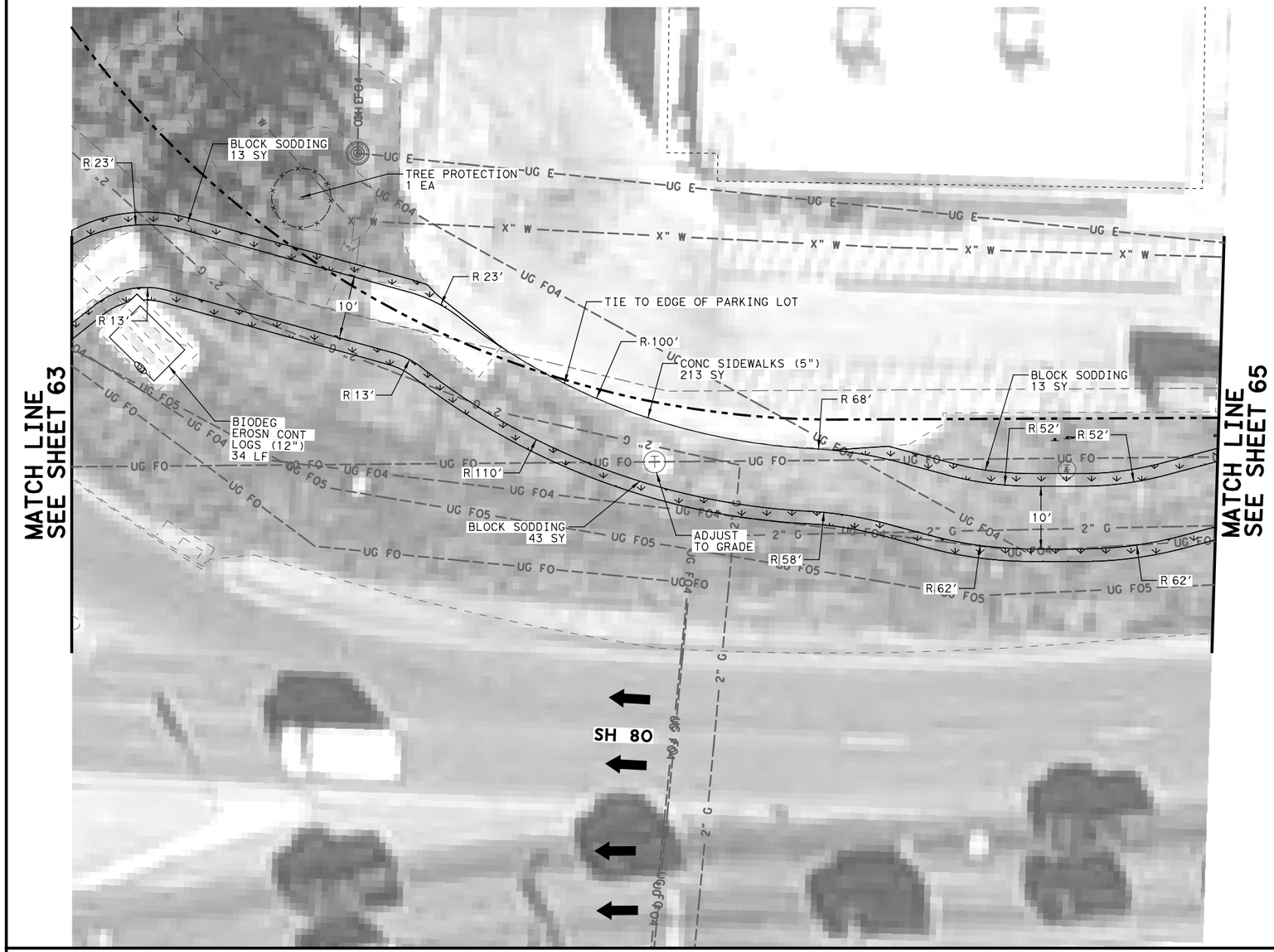

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

N

0 10 20 30 40
SCALE IN FEET

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16. CONTRACTOR TO USE EMBANKMENT TYPE B USING ORDINARY COMPACTION METHOD.

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20′ SHEET 9 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	64
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

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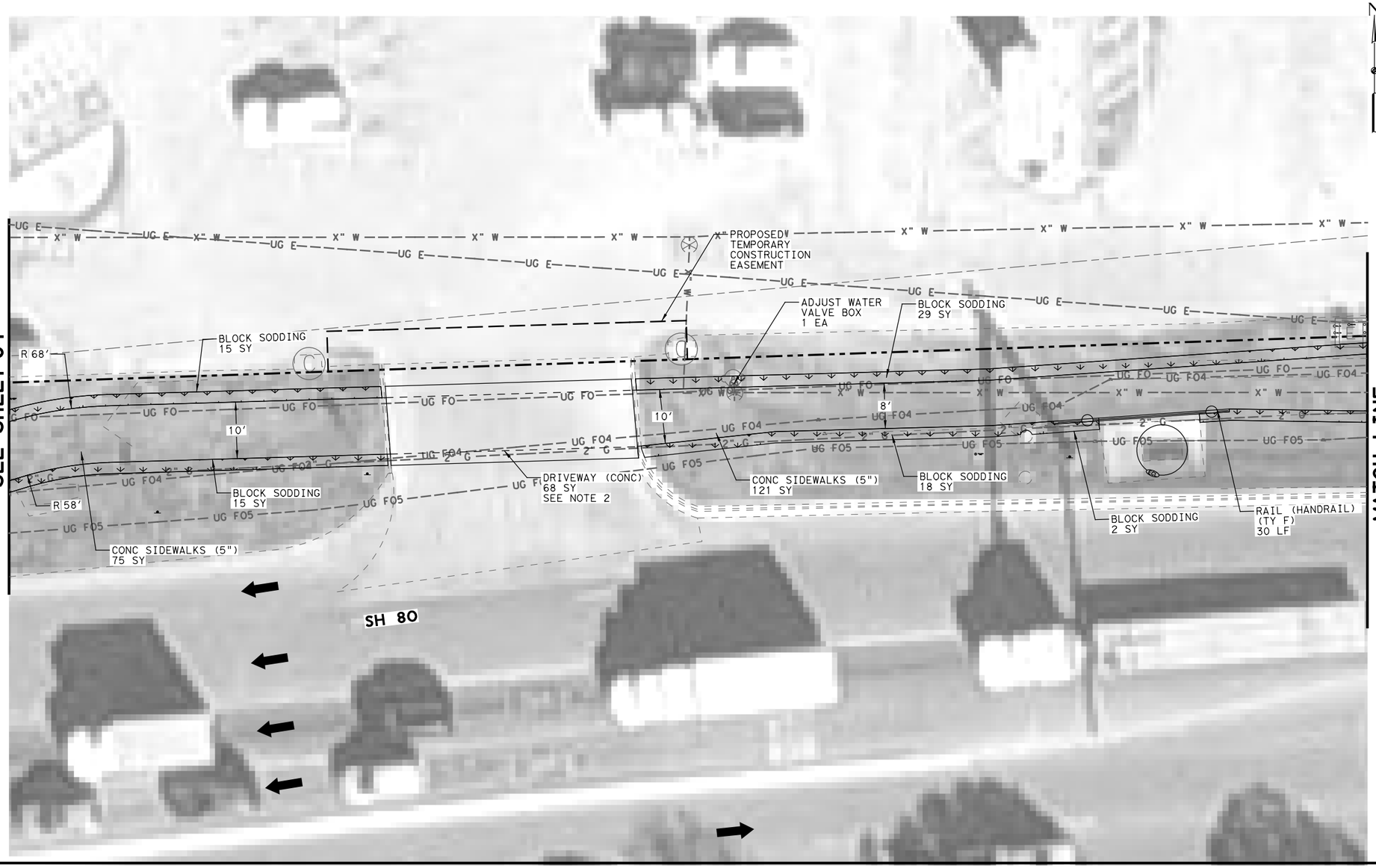

N

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
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- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- (X) ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
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0 10 20 30 40
SCALE IN FEET

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STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 10 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	65
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

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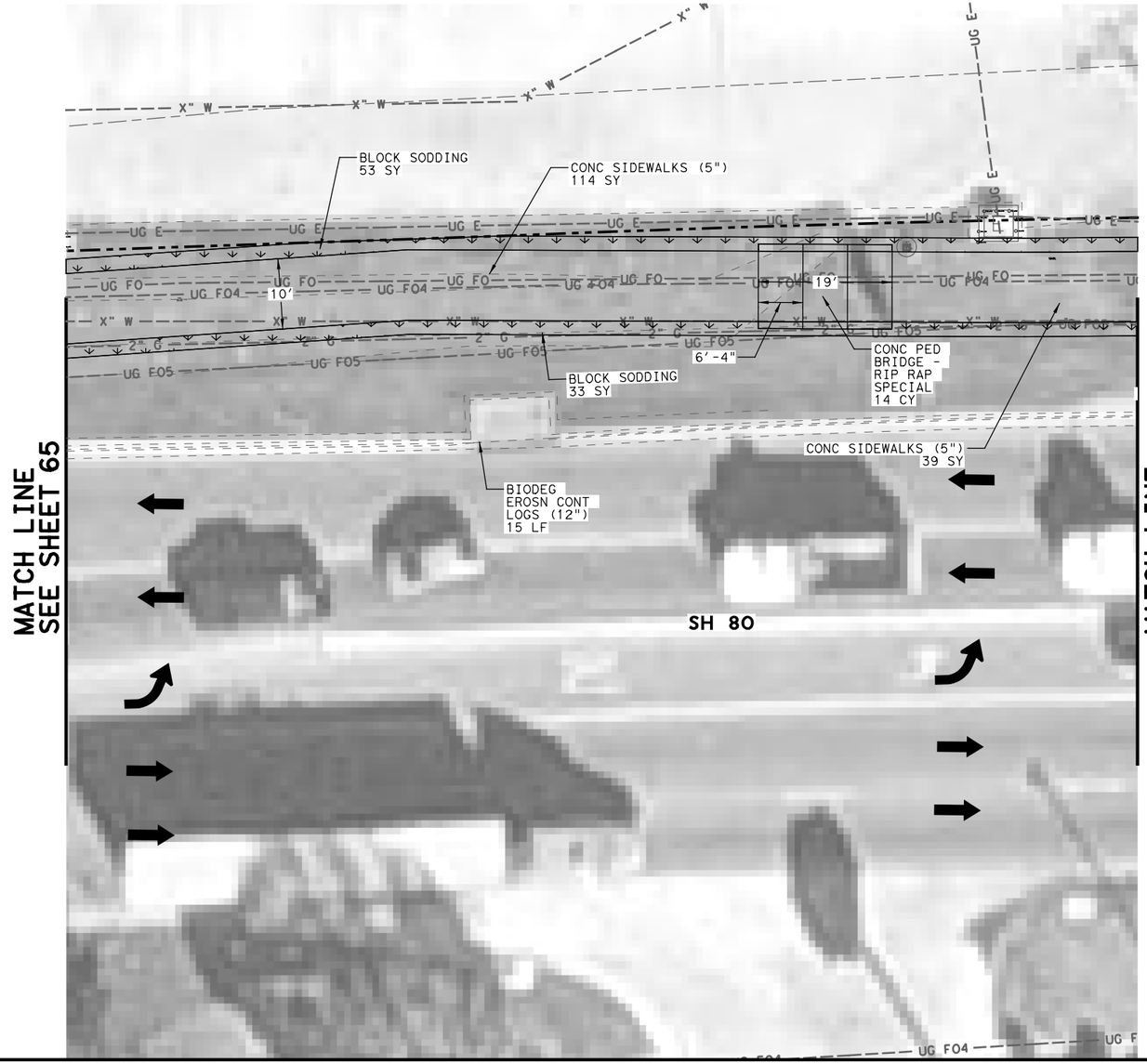

N

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
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- PROP. PEDESTRIAN SIGNAL HEAD
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0 10 20 30 40
SCALE IN FEET

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STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 11 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	66
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

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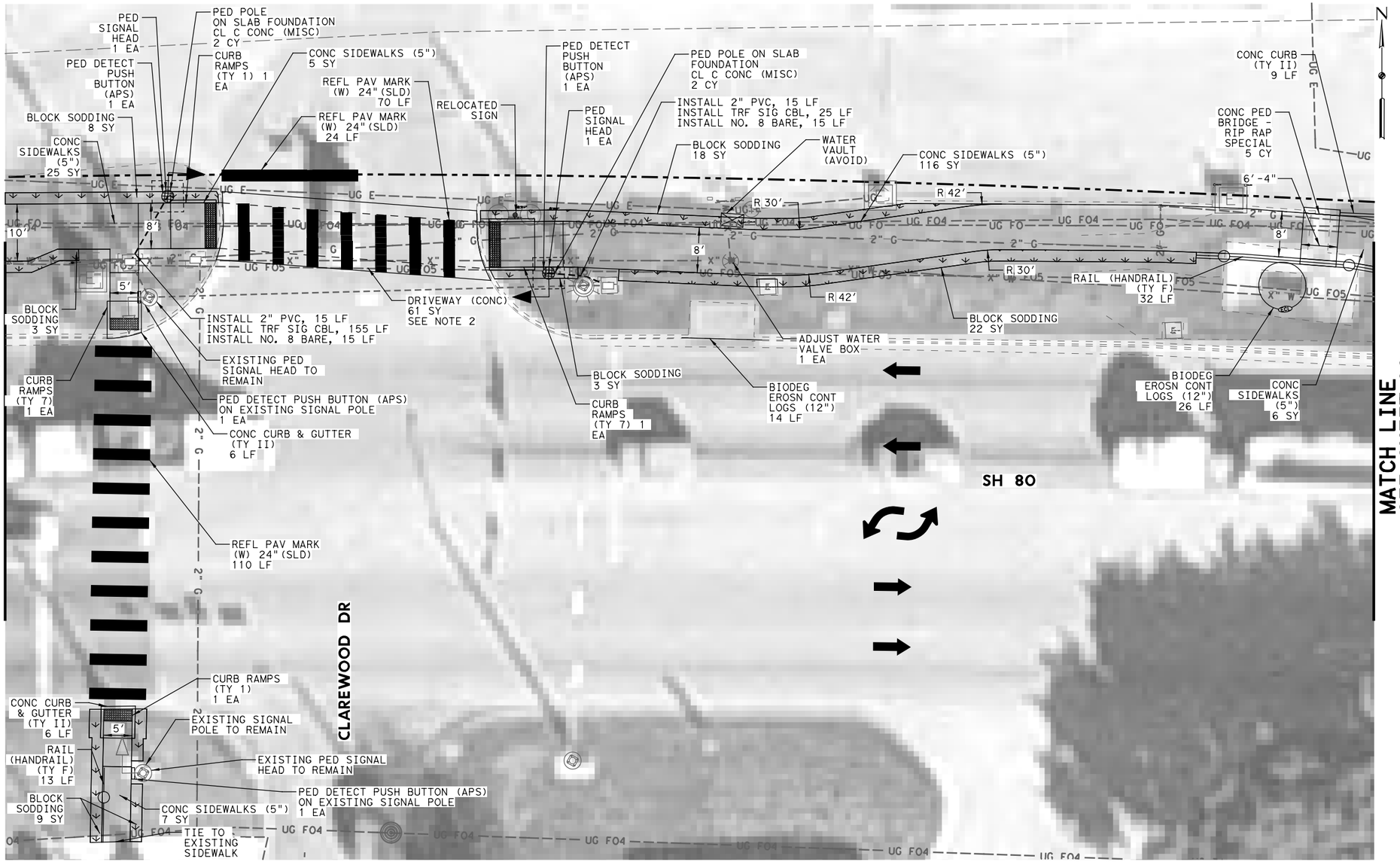

LEGEND

- ROW
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- FEMA FLOOD LIMIT
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- 4" TOPSOIL AND BLOCK SODDING
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- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

SIGNAL ITEMS ONLY

08/05/2022

STATE OF TEXAS
KEVIN A. MARSH
132803
LICENSED PROFESSIONAL ENGINEER

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

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CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 12 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	67
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

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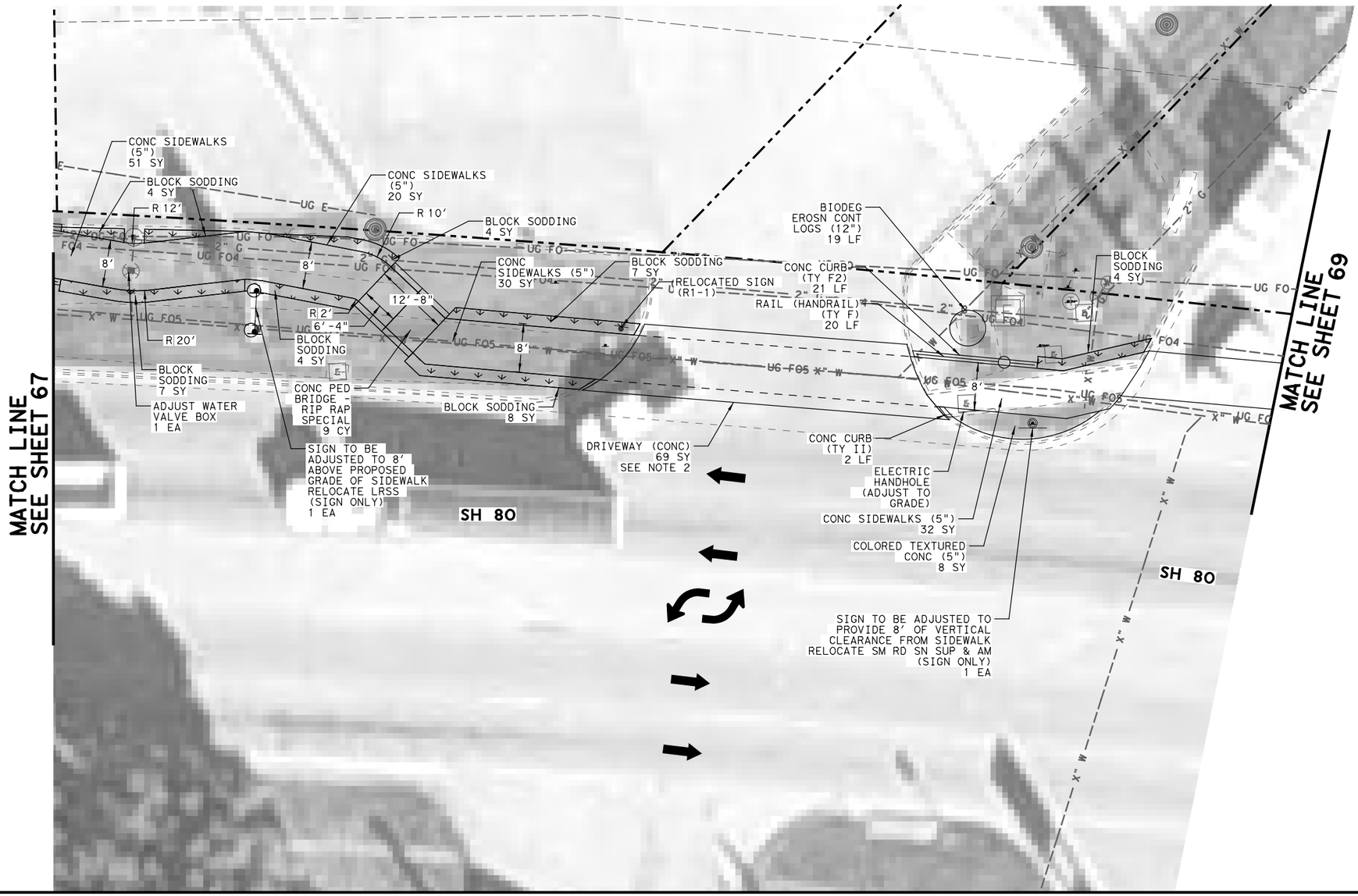

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ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 13 OF 21

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	68
CHECK	CONTROL	SECTION	JOB	
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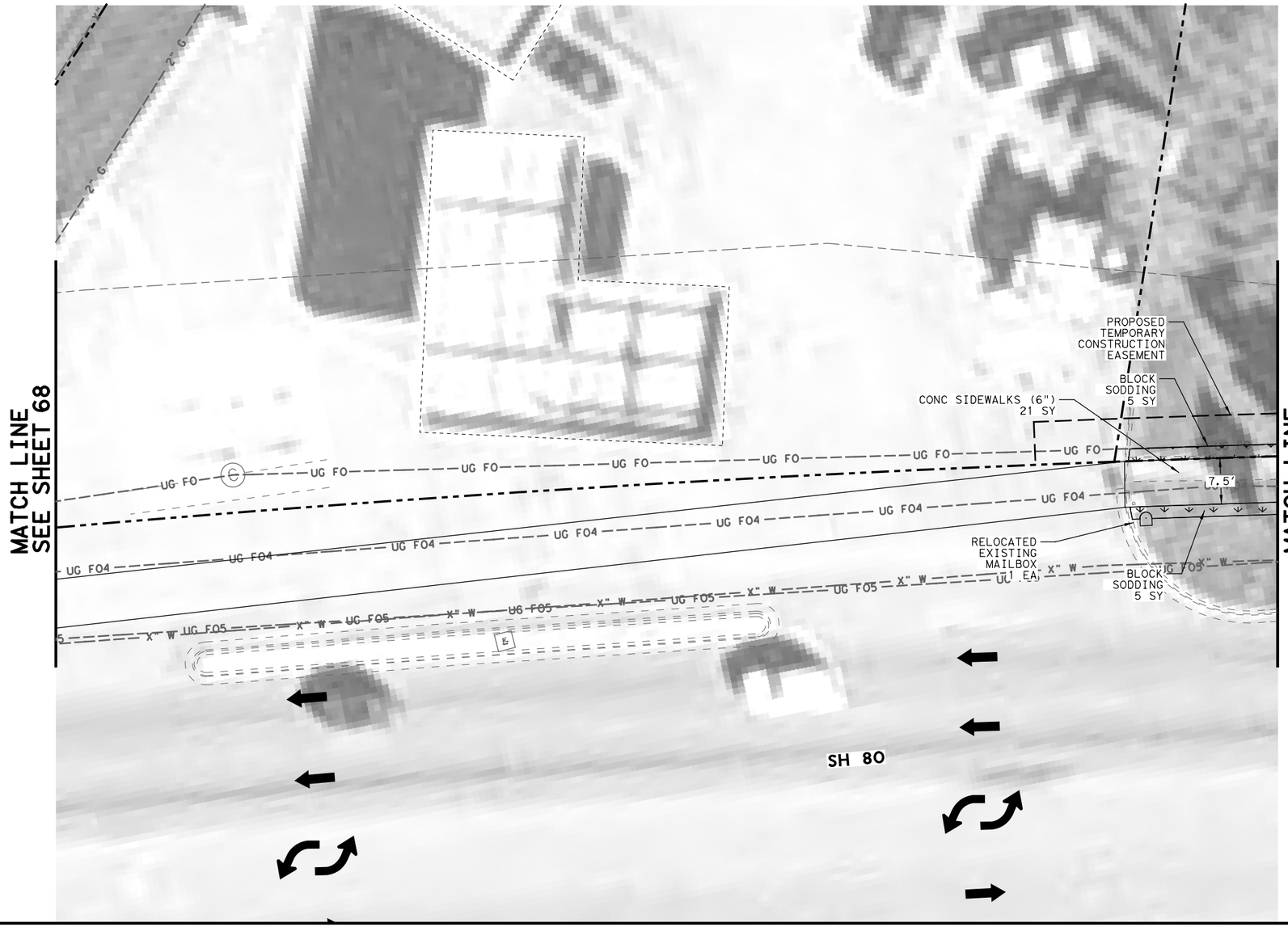

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

N

0 10 20 30 40
SCALE IN FEET

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CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 14 OF 21

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	69
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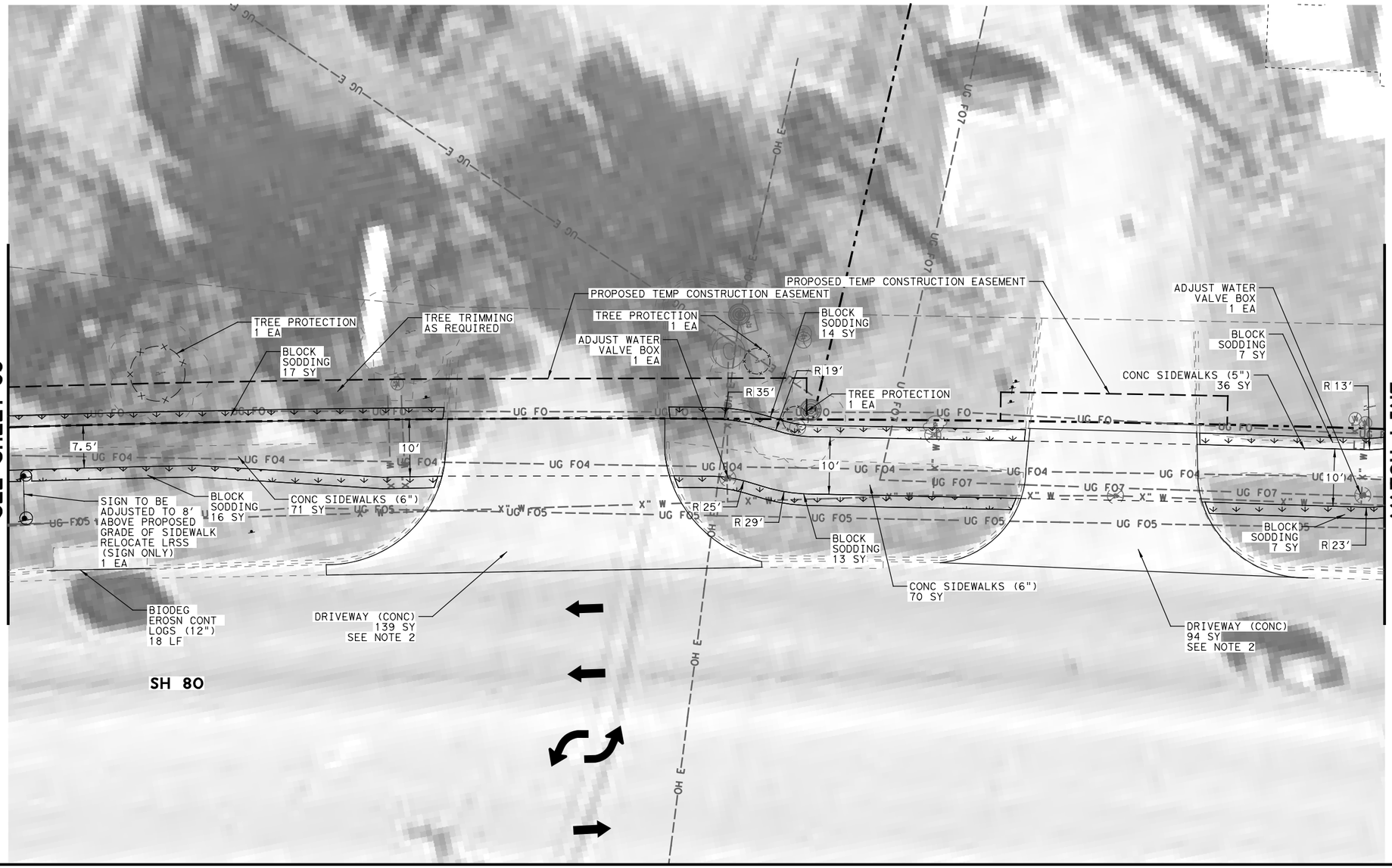

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Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 15 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
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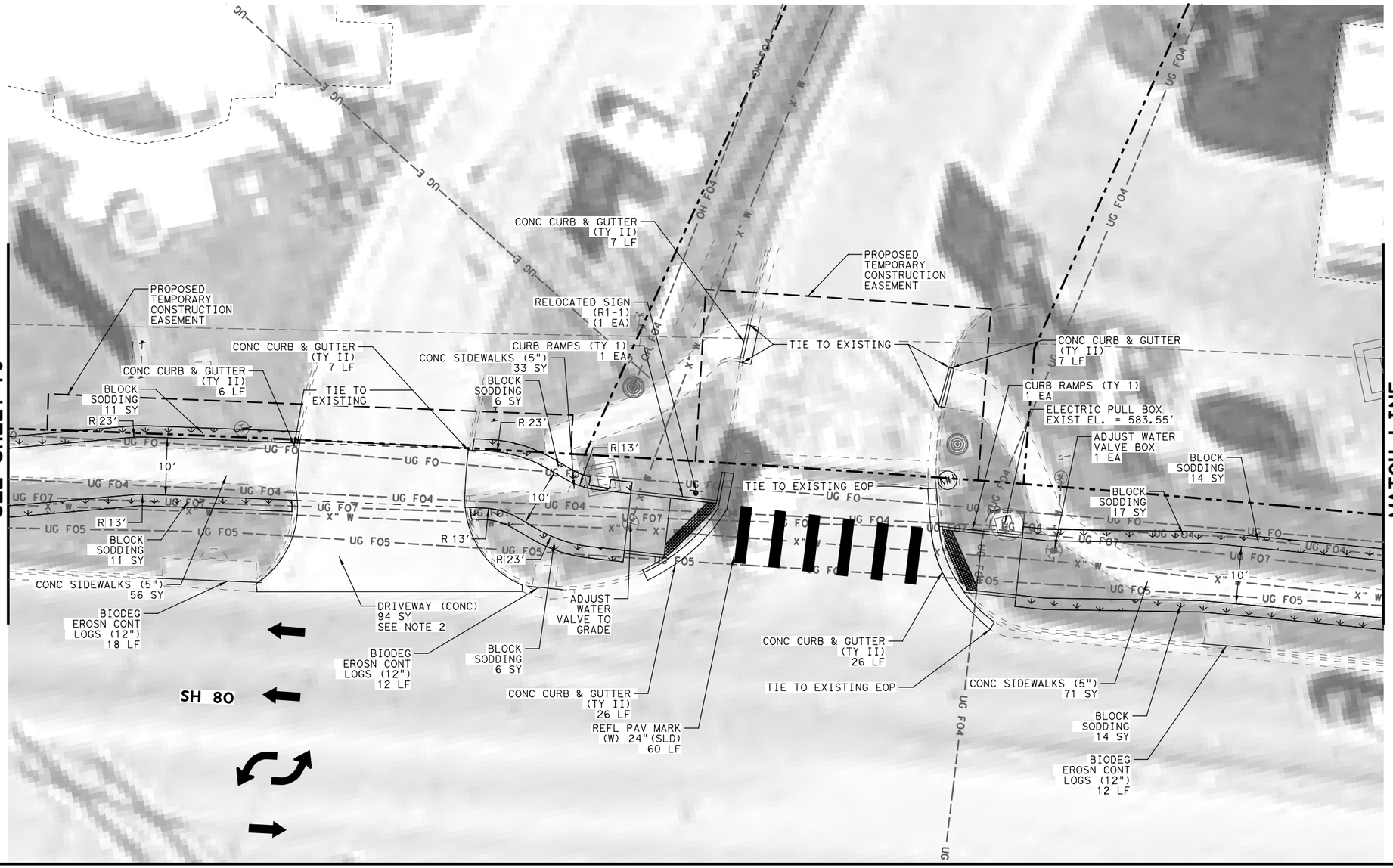

LEGEND

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CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20′ SHEET 16 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	71
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LEGEND

- ROW
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15. ITEM 110 EXCAVATION AND ITEM 132 EMBANKMENT WILL NOT BE PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO OTHER PERTINENT ITEMS SUCH AS ITEM 531 CONC SIDEWALKS. THE ENGINEER WILL DEFINE UNSUITABLE MATERIAL.
16. CONTRACTOR TO USE EMBANKMENT TYPE B USING ORDINARY COMPACTION METHOD.

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 17 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	72
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	063	

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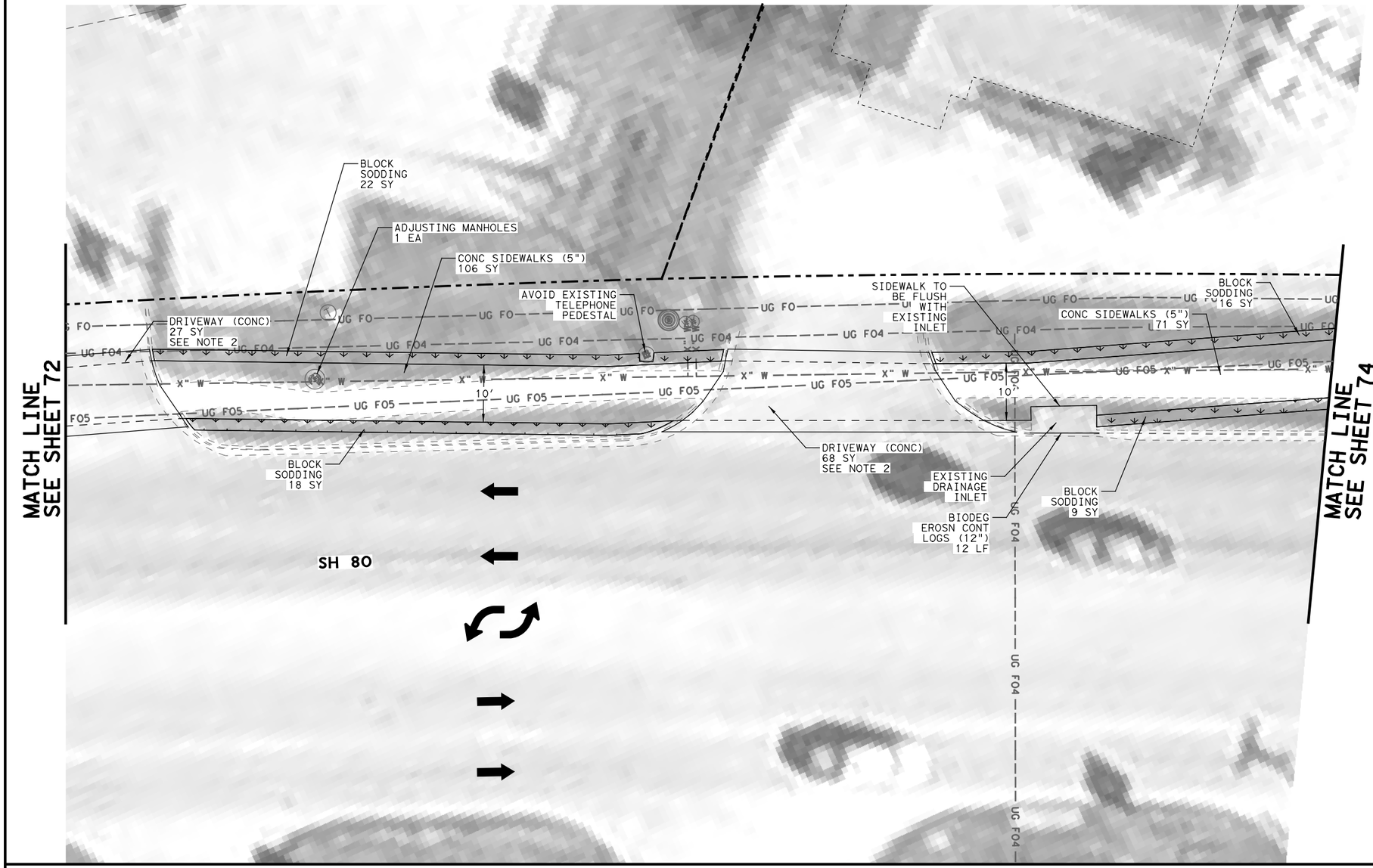

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

NOTES:

1. THE LOCATION OF ALL EXISTING UTILITIES AND DRAINAGE STRUCTURES INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. COORDINATE WITH ALL UTILITY COMPANIES TO FIELD-VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. DRIVEWAY AREAS TO BE FIELD-ADJUSTED TO MEET SIDEWALK GRADING CROSS SLOPE ON DRIVEWAY. SEE STANDARD DWMB-22 FOR DETAILS.
3. TURNING SPACE, RAMP, AND DETECTABLE WARNING SURFACE SHOWN ON THE PLAN VIEW ARE FOR VISUALIZATION PURPOSES ONLY. ADJUSTMENT WILL BE NEEDED BASED ON FIELD CONDITIONS OR AS DIRECTED. REFER TO THE PEDESTRIAN FACILITIES CURB RAMPS STANDARD AND SIDEWALK DETAILS FOR MORE INFORMATION.
4. SEE SIDEWALK DETAILS SHEET 81 FOR CURB RAMP TRANSITION INTO ROADWAY.
5. PLACE TREE PROTECTION WITHOUT ENCROACHING ON PRIVATE PROPERTY OR AS DIRECTED.
6. ALL PAVEMENT MARKINGS AND SIGNAGE WILL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD).
7. "REFL PAV MRK" CALLOUT ABOVE INCLUDES QUANTITIES FOR REFL PAV MRK TY I, REFL PAV MRK TY II AND PAV SURF PREP FOR MARKINGS.
8. "BLOCK SODDING" CALLOUT ABOVE INCLUDES QUANTITIES FOR FURNISHING AND PLACING TOPSOIL (4"), BLOCK SODDING, AND VEGETATIVE WATERING.
9. VEGETATE ANY ADDITIONAL DISTURBED AREAS NOT CALLED OUT ON PLANS. PROVIDE TOPSOIL AND SODDING FOR THESE AREAS. SUBSIDIARY TO PERTINENT ITEMS.
10. PROTECT ALL CURB INLETS THAT RECEIVE SURFACE WATER FLOW FROM WORK AREAS FROM STORM WATER QUALITY MANAGEMENT. REFER TO SW3P, EPIC, AND TxDOT STANDARD EC(9)-16 FOR IMPLEMENTATION AND MAINTENANCE OF SW3P CONTROLS AND COMPLIANCE.
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STATE OF TEXAS
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PROFESSIONAL ENGINEER
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Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 18 OF 21

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	73
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

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DATE: 8/5/2022 TIME: 3:37:00 PM SCALE: 1:20

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

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STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 19 OF 21

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	74
CHECK	0286	01	063	

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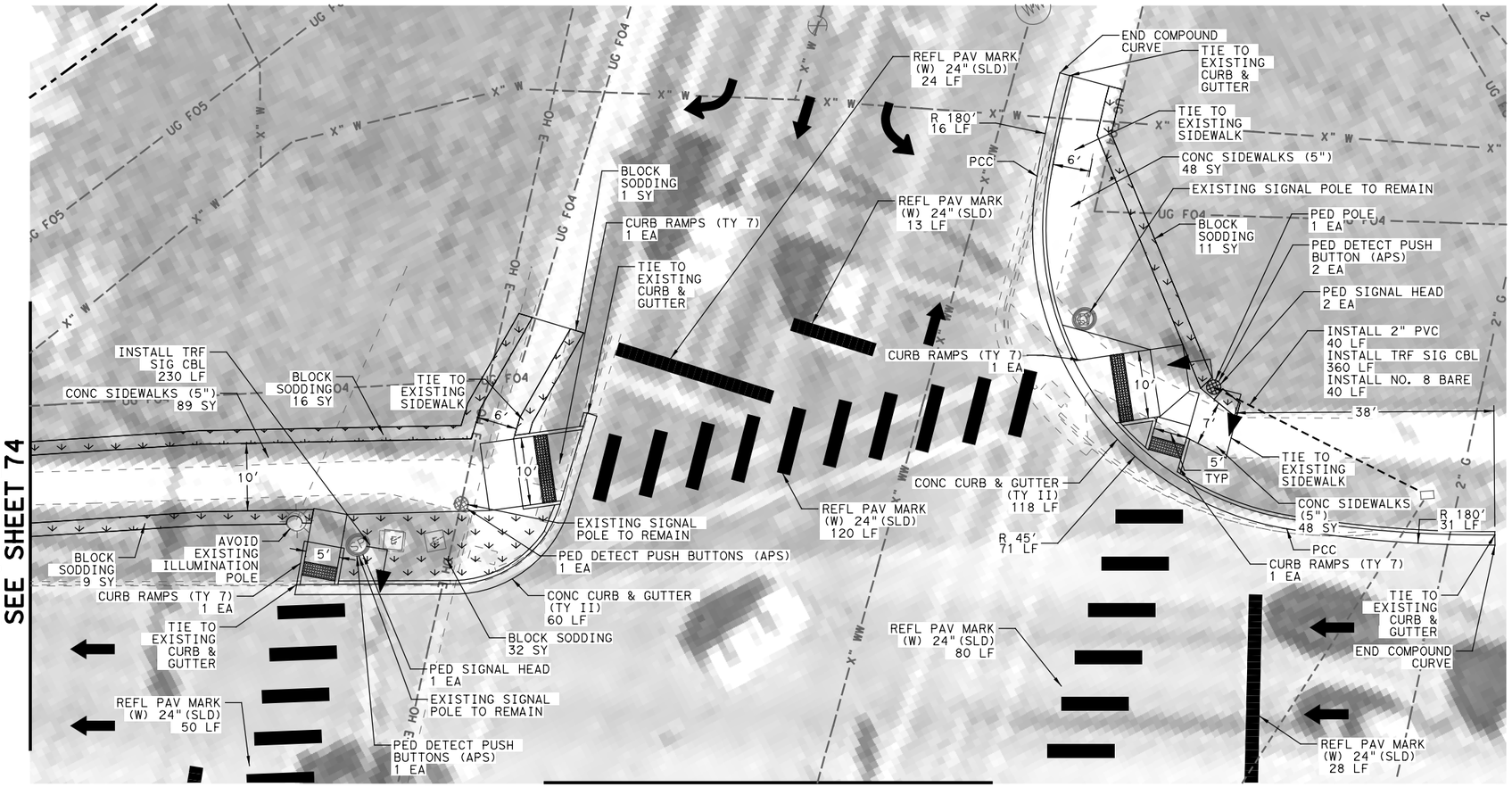

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- (X) ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

SIGNAL ITEMS ONLY

STATE OF TEXAS
KEVIN A. MARSH
132803
LICENSED PROFESSIONAL ENGINEER
08/05/2022

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

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CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

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16. CONTRACTOR TO USE EMBANKMENT TYPE B USING ORDINARY COMPACTION METHOD.

SCALE: 1"=20' SHEET 20 OF 21

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
AB	TEXAS	AUS	HAYS	75
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CHECK	0286	01	063	

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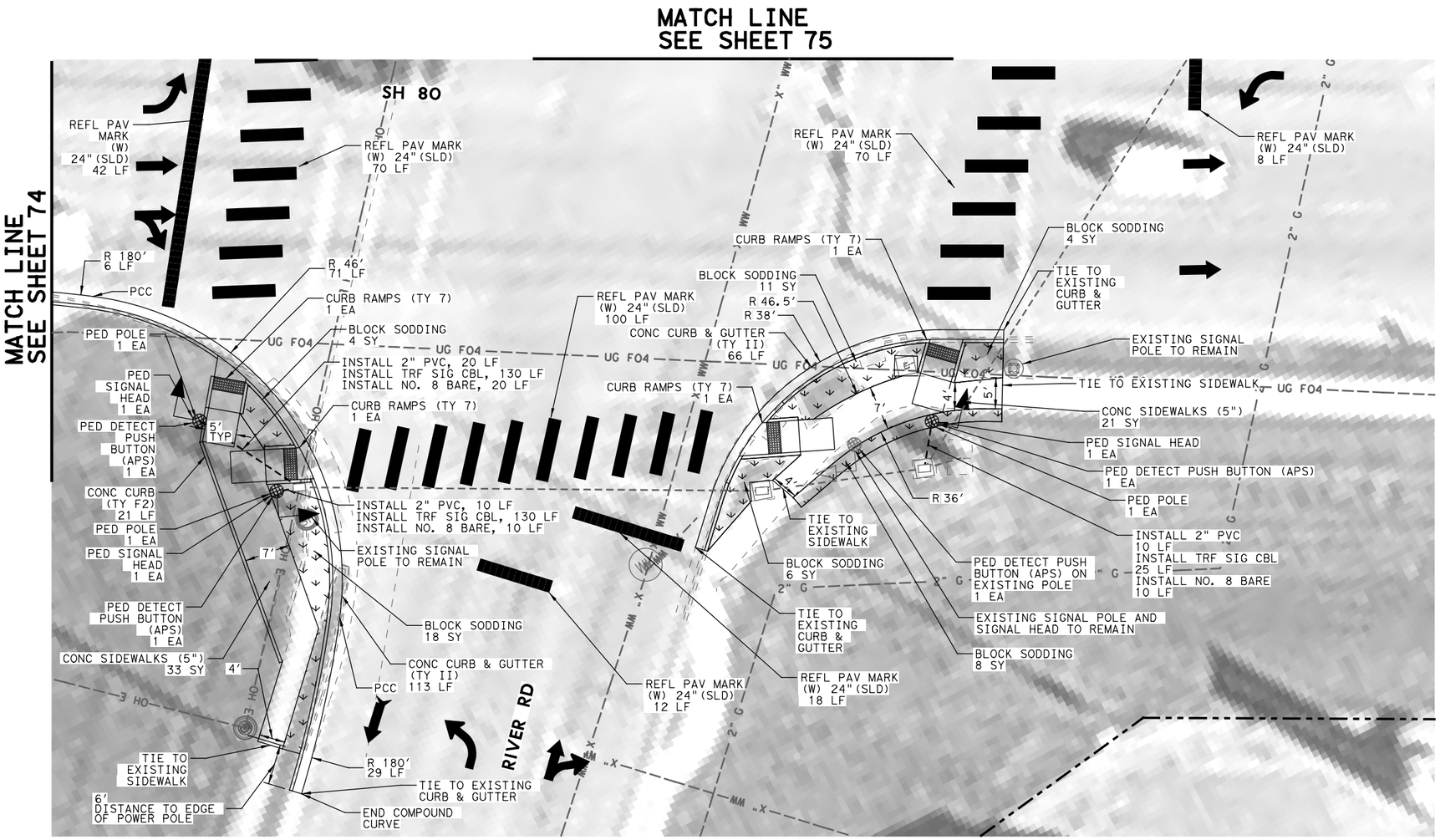

LEGEND

- ROW
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- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
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- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
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0 10 20 30 40
SCALE IN FEET

SIGNAL ITEMS ONLY

STATE OF TEXAS
KEVIN A. MARSH
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08/05/2022

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NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
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CURB RAMP PROGRAM

SH 80
SIDEWALK PLAN

SCALE: 1"=20' SHEET 21 OF 21

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: AB	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	76
CHECK	CONTROL	SECTION	JOB	
	0286	01	063	

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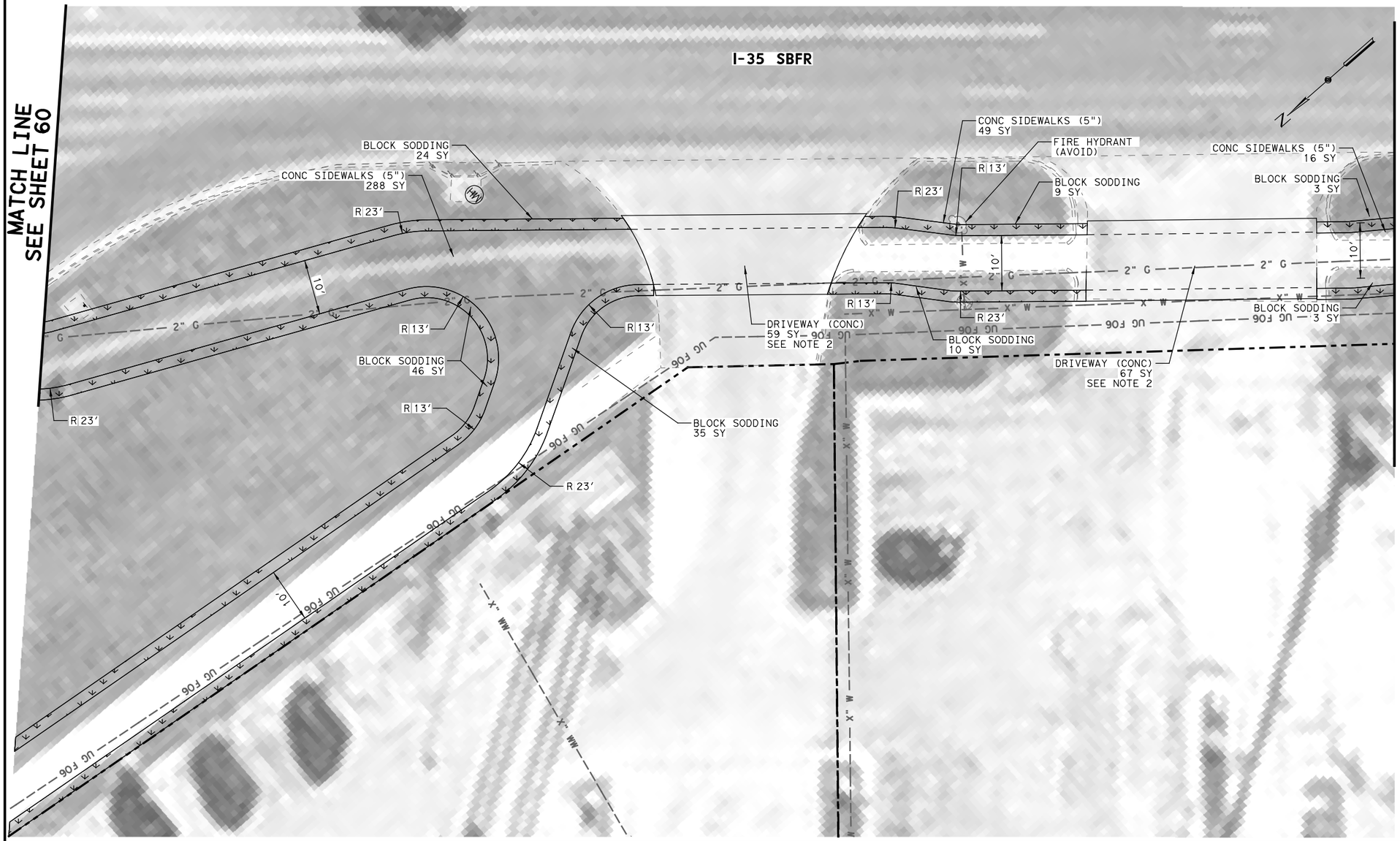

LEGEND

- ROW
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0 10 20 30 40
SCALE IN FEET

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16. CONTRACTOR TO USE EMBANKMENT TYPE B USING ORDINARY COMPACTION METHOD.

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

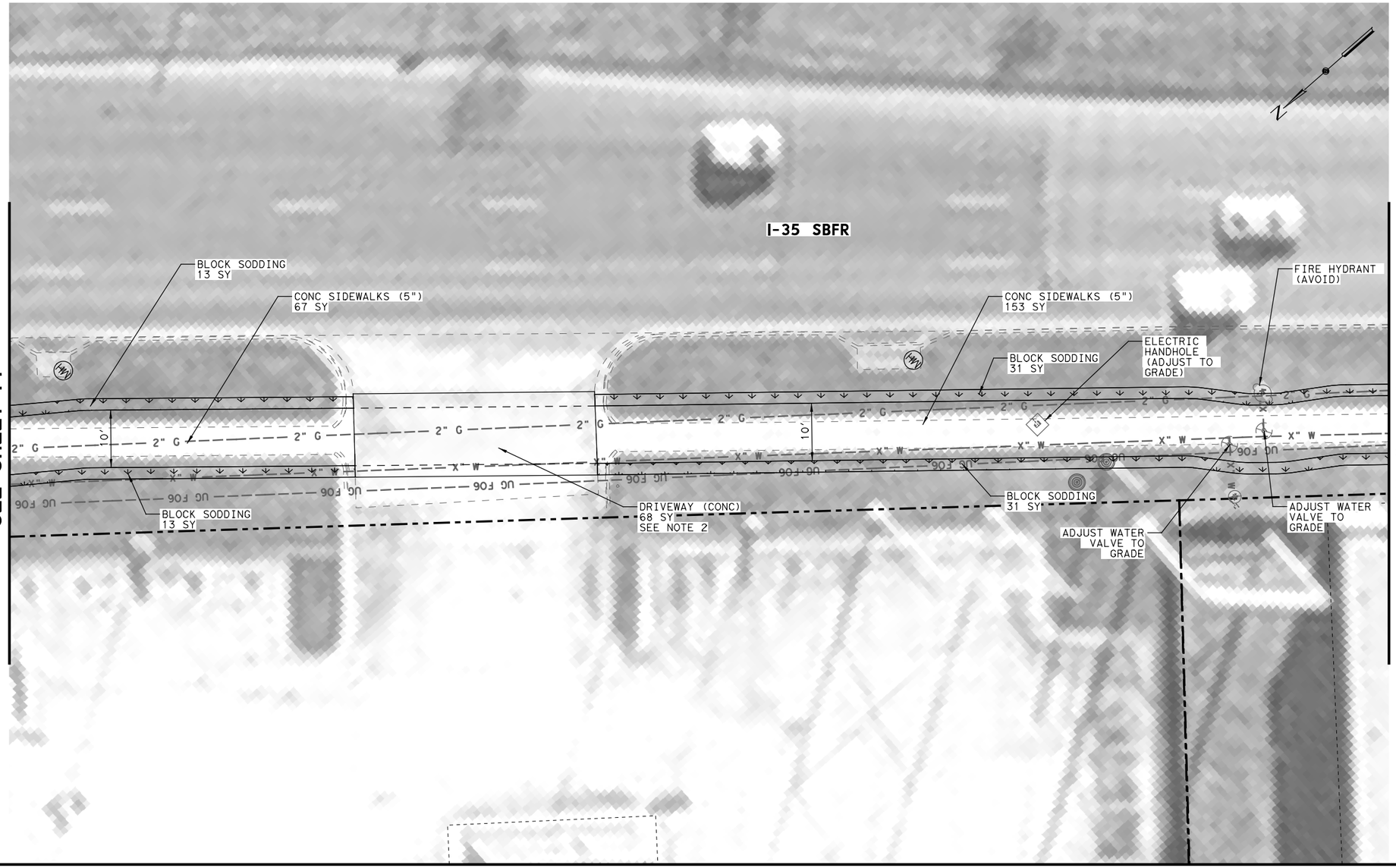
CURB RAMP PROGRAM

S IH 35
SIDEWALK PLAN

SCALE: 1"=20' SHEET 1 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	77
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFIT2PA
FILE: SM-S-SDWK01.dgn
PENTABLE: I033129I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:37:38 PM SCALE: 1:20



LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
- PROPOSED EDGE OF SIDEWALK
- HANDRAIL
- TRAVEL LANE
- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
- PROP. PEDESTAL POLE
- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
- ELEVATION CALLOUT
- PROP. SIGNAL CONDUIT
- EXIST. SIGNAL CONDUIT

0 10 20 30 40
SCALE IN FEET

NOTES:

1. THE LOCATION OF ALL EXISTING UTILITIES AND DRAINAGE STRUCTURES INDICATED ON THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. COORDINATE WITH ALL UTILITY COMPANIES TO FIELD-VERIFY UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. DRIVEWAY AREAS TO BE FIELD-ADJUSTED TO MEET SIDEWALK GRADING CROSS SLOPE ON DRIVEWAY. SEE STANDARD DWMB-22 FOR DETAILS.
3. TURNING SPACE, RAMP, AND DETECTABLE WARNING SURFACE SHOWN ON THE PLAN VIEW ARE FOR VISUALIZATION PURPOSES ONLY. ADJUSTMENT WILL BE NEEDED BASED ON FIELD CONDITIONS OR AS DIRECTED. REFER TO THE PEDESTRIAN FACILITIES CURB RAMPS STANDARD AND SIDEWALK DETAILS FOR MORE INFORMATION.
4. SEE SIDEWALK DETAILS SHEET 81 FOR CURB RAMP TRANSITION INTO ROADWAY.
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CURB RAMP PROGRAM

S IH 35
SIDEWALK PLAN

SCALE: 1"=20' SHEET 2 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	78
CHECK	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFIT2PA
FILE: SM-S-SDWK02.dgn
PENTABLE: I033129I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:37:47 PM SCALE: 1:20

LEGEND

- ROW
- TEMPORARY CONSTRUCTION EASEMENT
- FEMA FLOOD LIMIT
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- TREE PROTECTION
- 4" TOPSOIL AND BLOCK SODDING
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- PROP. PEDESTRIAN SIGNAL HEAD
- EXIST. PEDESTAL POLE
- EXIST. PEDESTRIAN SIGNAL HEAD
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- PROP. SIGNAL CONDUIT
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SCALE IN FEET

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CURB RAMP PROGRAM

S IH 35
SIDEWALK PLAN

SCALE: 1"=20' SHEET 3 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: LG	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	79
CHECK	CONTROL	SECTION	JOB	
	0286	01	062, ETC.	

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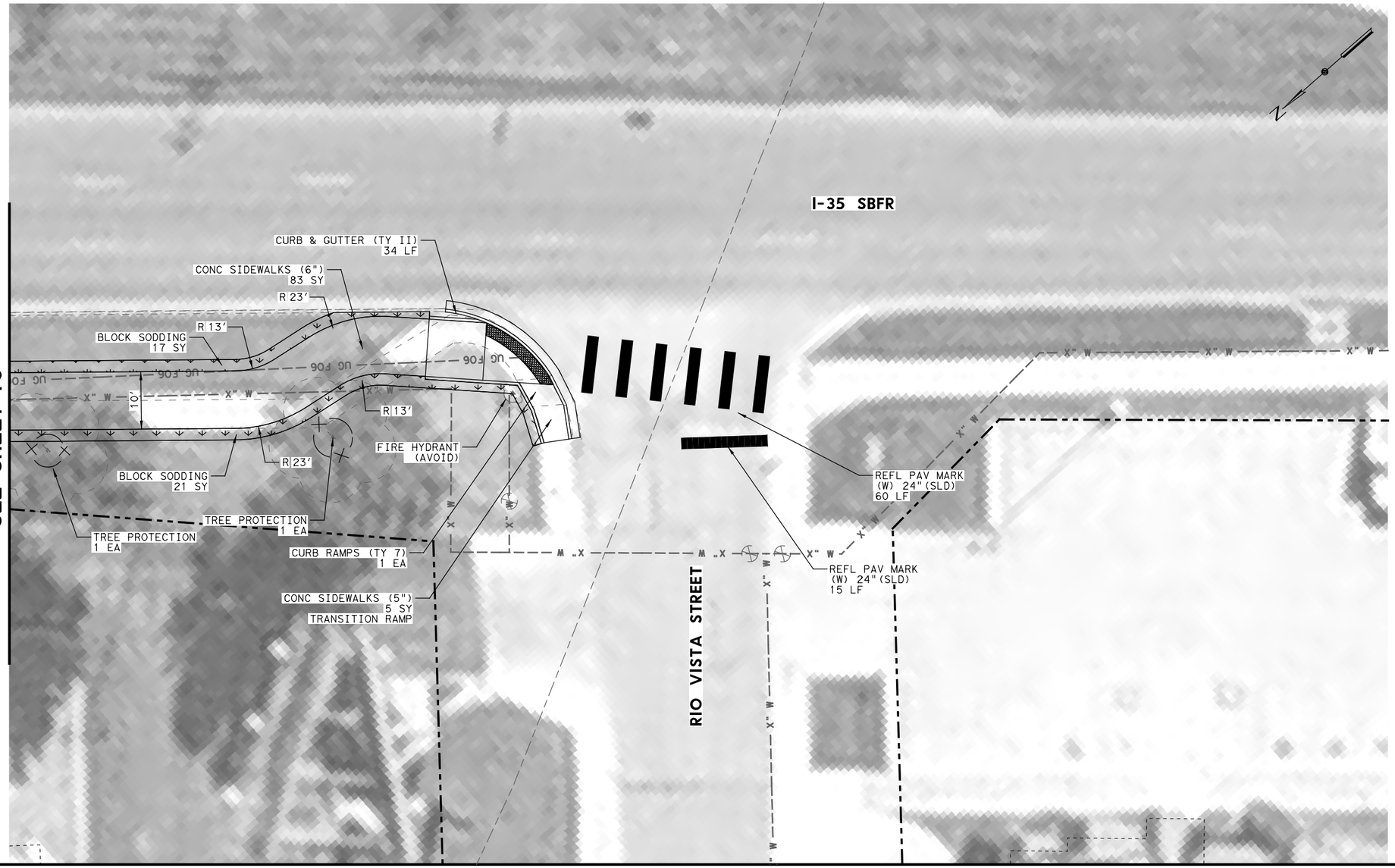

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ROGELIO G. RODRIGUEZ
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NO.	DATE	REVISION	APPROVED

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CURB RAMP PROGRAM

S IH 35
SIDEWALK PLAN

SCALE: 1"=20' SHEET 4 OF 4

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	80
CHECK	CONTROL	SECTION	JOB	
CHECK	0286	01	062, ETC.	

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USER: SEFITZPA
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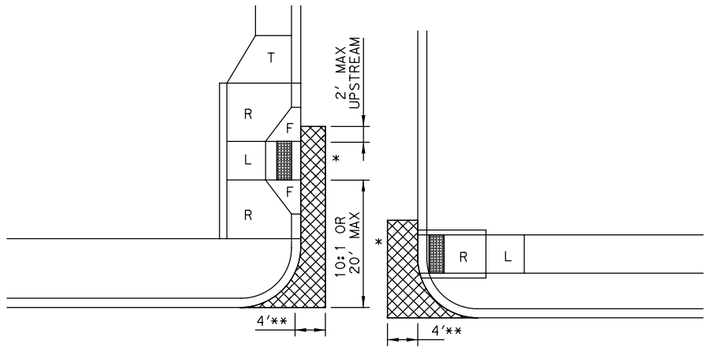
DATE: 8/5/2022 TIME: 3:38:07 PM SCALE: 1:20

SEQUENCE OF WORK NARRATIVE

1. ESTABLISH AND MAINTAIN TRAFFIC CONTROL AND SW3P FEATURES PER THE VARIOUS STANDARDS INCLUDED IN THIS PLAN SET OR AS DIRECTED.
2. REMOVE EXISTING CONCRETE, ASPHALT, FOUNDATIONS, OR OTHER FEATURES WHERE INDICATED IN THE PLANS WITHIN THE AREA OF PROPOSED WORK.
3. EXCAVATE OR BACKFILL AS NECESSARY TO ACHIEVE ADA-COMPLIANT GRADES. PLACE BEDDING MATERIALS.
4. FORM PROPOSED CONCRETE FEATURES.
5. POUR CONCRETE OR ASPHALT, REMOVE AND INSTALL PAVEMENT MARKINGS, AND RELOCATE MAILBOXES AS INDICATED.
6. REMOVE FORMWORK AND BACKFILL DISTURBED AREAS FOR A SMOOTH FINISHED GRADE. GRADE TO DRAIN AS NECESSARY.
7. PLACE AND IRRIGATE BLOCK SODDING WHERE INDICATED AND AS DIRECTED.
8. REMOVE ANY DEBRIS, TRAFFIC CONTROL, AND SW3P FEATURES AT THE COMPLETION OF CONSTRUCTION.

ASPHALT/SEALCOAT ROADWAY

NTS



LEGEND

R = RAMP (CROSS SLOPE NOT TO EXCEED 48:1; LONGITUDINAL NOT TO EXCEED 12:1)
F = FLARE (10:1 OR LESS)
L = LANDING (DO NOT EXCEED 48:1 SLOPE IN ANY DIRECTION)
T = TRANSITION (PAID FOR UNDER CONC SIDEWALKS)
(NSPI) = ITEM IS INCIDENTAL TO CURB RAMP/SIDEWALK CONSTRUCTION. (NO SEPARATE PAY ITEM)

* SAW CUT (NSPI)

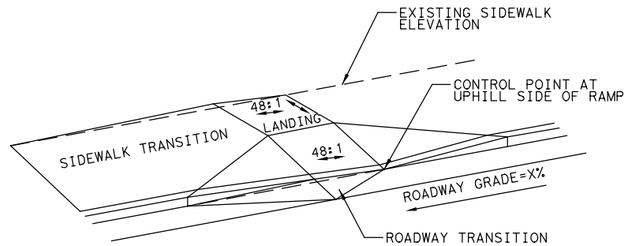
IN AREAS OF ROADWAY CROSS SLOPES EXCEEDING 48:1 LONGITUDINAL SLOPE, EXCAVATE 2' OF PAVEMENT IN FRONT OF RAMP AND TRANSITION THE RAMP LANDING INTO THE EXISTING PAVEMENT. THE PAVEMENT SHOULD THEN BE TRANSITIONED HORIZONTALLY INTO THE EXISTING PAVEMENT AT 10:1. PAVEMENT SHOULD MATCH EXISTING PAVEMENT DEPTH BUT NOT LESS THAN 2" MINIMUM. GUTTER LINES SHOULD NOT BE ADJUSTED DOWNWARD. ASPHALT TO CONFORM TO ITEM SS3076 AS DIRECTED.

DO NOT TAPER TO ZERO MINIMUM 1 1/2" DEPTH AT TIE-IN

** CONTRACTOR MAY EXCEED CROSS SLOPE TRANSITION DISTANCE AS APPROVED BY THE ENGINEER.

CURB ELEVATION

NTS



CURB ELEVATION

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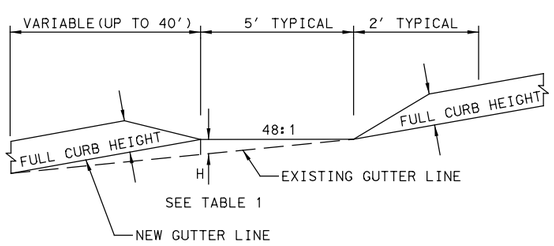

TABLE 1		
DIFFERENTIAL BETWEEN RAMP AND ROADWAY LONGITUDINAL SLOPE	H	
1%	0.04'	0.50"
2%	0.08'	1.00"
3%	0.12'	1.50"
4%	0.16'	2.00"
5%	0.20'	2.40"
6%	0.24'	2.90"

NOTES:

1. FIELD CONDITIONS MAY REQUIRE ADJUSTMENT OF VARIOUS ELEMENTS IDENTIFIED IN THE PLANS. WHEN ADJUSTED, ELEMENTS SHOULD FOLLOW THE SLOPES AND GRADES IDENTIFIED IN THE LEGEND.
2. USE CL C CONC MISC TO PROVIDE NECESSARY TRANSITIONS BETWEEN CURB RAMPS AND PAVERS. REMOVE HOTMIX TO PROVIDE MINIMUM OF 4 IN. OF CONCRETE.

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CURB RAMP PROGRAM

SIDEWALK DETAILS

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RR		SEE TITLE SHEET		SH80, ETC.
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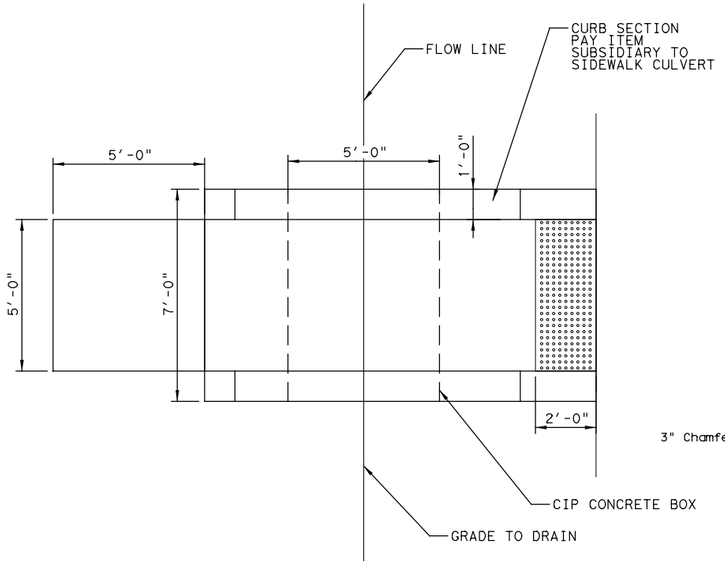
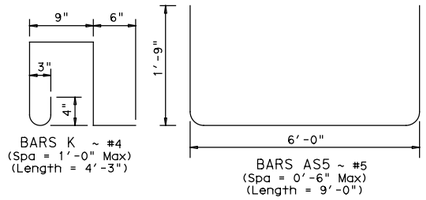
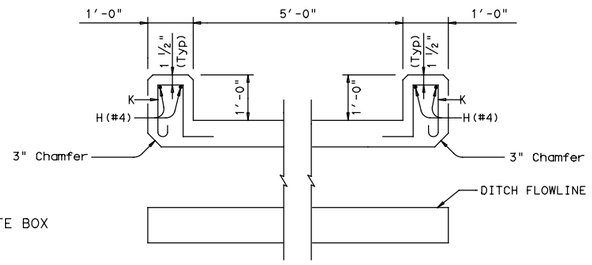


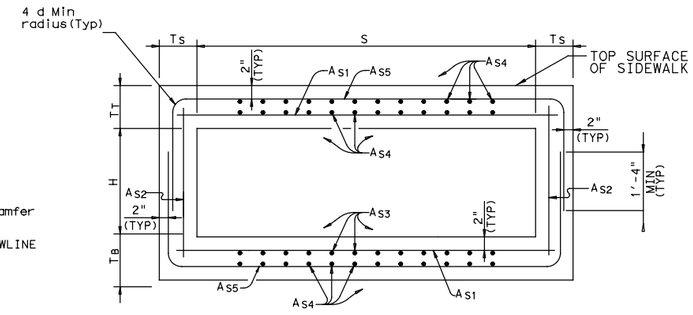
CAST IN PLACE CONCRETE BOX PLAN VIEW





SECTION THRU CURB

BOX DATA									
SECTION DIMENSIONS					REINFORCING (in^2/ft)				
S (ft)	H (ft)	T_T (in)	T_B (in)	T_S (in)	A_{S1}	A_{S2}	A_{S3}	A_{S4}	A_{S5}
5	0.5	9	9	8	0.62	0.62	0.20	0.20	0.62



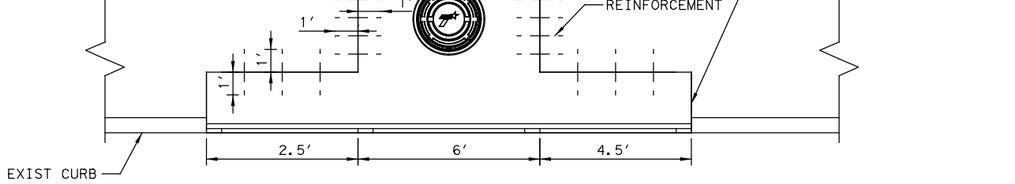
CAST IN PLACE CONCRETE BOX

GENERAL NOTES FOR CIP CONCRETE BOX:

1. DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATION 8TH EDITION(2017).
2. COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.
3. REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO -OUT OF BAR.
4. VERIFY FORM WORK AND REINFORCING WITH ENGINEER PRIOR TO PLACING CONCRETE. TOP OF X MUST MEET ADA.
5. VERIFY FLOW LINE ELEVATION WITH ENGINEER.
6. CIP CONCRETE BOX WILL SUPPORT HL-93 LOADING.

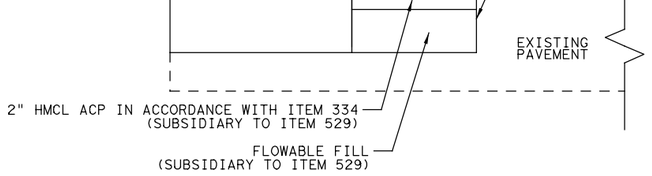
MATERIAL NOTES FOR CIP CONCRETE BOX:

1. PROVIDE 0.03 SQ. IN./FT. MINIMUM LONGITUDINAL REINFORCEMENT AT EACH FACE IN THE SLAB AND WALLS. THIS MINIMUM REQUIREMENT MAY BE MET BY THE TRANSVERSE WIRES WHEN WIRE MESH REINFORCEMENT IS USED.
2. PROVIDE CLASS H CONCRETE (f'c=5,000 PSI).
3. PROVIDE GRADE 60 REINFORCING STEEL.



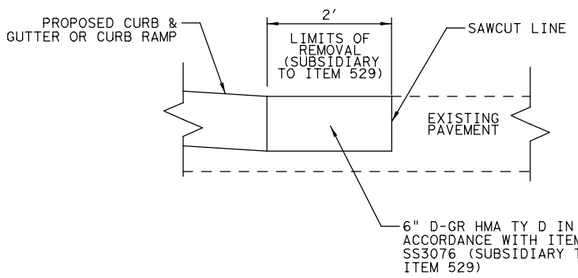
INLET DOWELING DETAIL

NTS



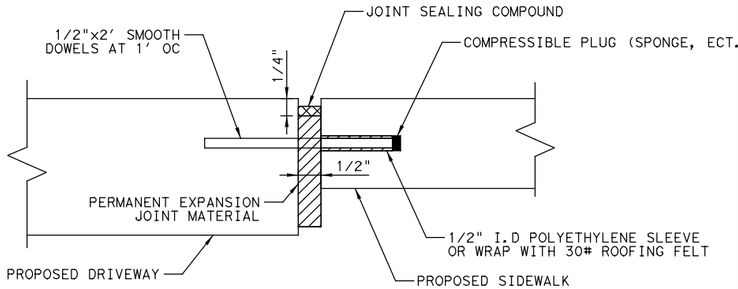
PROPOSED CURB & GUTTER ADJACENT PAVEMENT REMOVAL DETAIL

NTS



PAVEMENT CUT & RESTORE DETAIL

NTS



EXPANSION JOINT DETAIL

NTS

STATE OF TEXAS
KEDAR R. HALBE
129548
LICENSED PROFESSIONAL ENGINEER
06/27/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

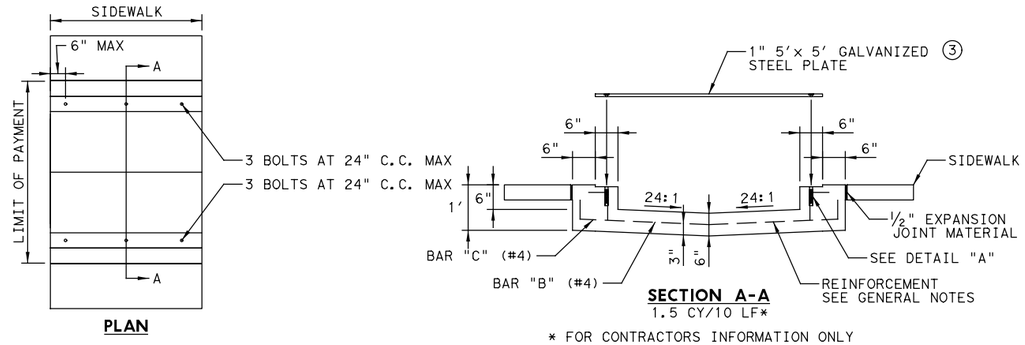
CURB RAMP PROGRAM

SIDEWALK DETAILS

NTS SHEET 2 OF 3

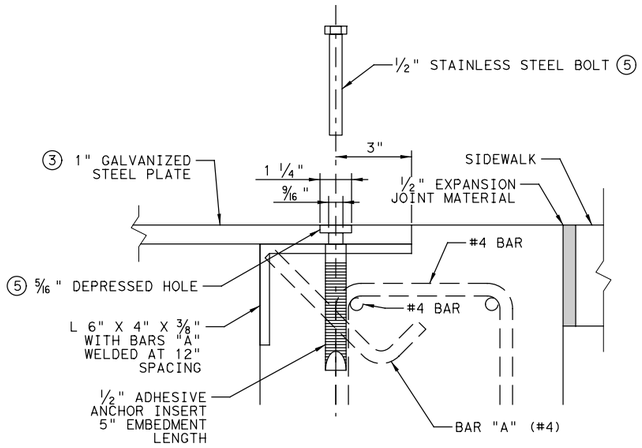
DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80,ETC.
GRAPHICS LG	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	82
	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: LGOMEZGONZ
FILE: SM-SQWK-DTL02.dgn
PENTABLE: I033I29I-San Marcos.tbl
DATE: 6/27/2022 TIME: 10:16:59 PM
SCALE:1:5

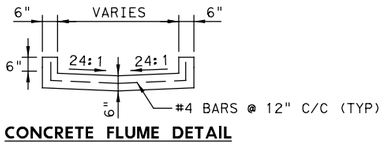


* FOR CONTRACTORS INFORMATION ONLY

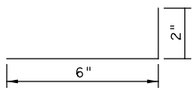
SIDEWALK BRIDGE (RIPRAP SPECIAL)



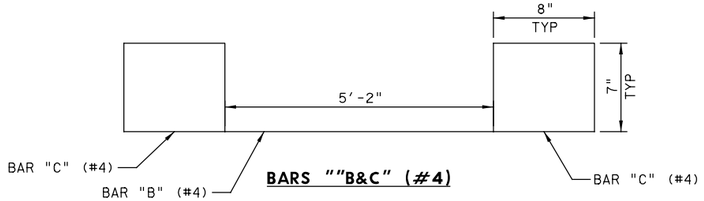
DETAIL "A"
N.T.S.



CONCRETE FLUME DETAIL
N.T.S.



BARS "A" (#4)



BARS ""B&C" (#4)

GENERAL NOTES:

DRAINAGE PLAN TO ADDRESS MINOR CURB ALTERATIONS ONLY. PROPOSED WORK DOES NOT SUBSTANTIALLY ALTER DRAINAGE PATTERNS OR IMPERVIOUS COVER. EXISTING CONDITIONS TO REMAIN. ALL REMOVED STRUCTURES TO BE REPLACED IN KIND.

SEE "ROADWAY PLAN" FOR CURB LOCATIONS, QUANTITIES, AND OTHER INFORMATION NOT SHOWN.

REINFORCEMENT FOR FLUMES MUST CONFORM TO ITEM 432 CONCRETE RIPRAP.

ALL REINFORCING STEEL MUST HAVE A MINIMUM COVER OF 2".

CURB FLUMES WILL BE PAID FOR IN CUBIC YARDS OF CONCRETE UNDER ITEM 420 CL A CONC (FLUME).

CURB AND GUTTER TO BE PAID IN ACCORDANCE WITH ITEM 529, "CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER".

SIDEWALK BRIDGE GENERAL NOTES:

SIDEWALK BRIDGE WILL SUPPORT HL-93 LOADING.

ALL CONCRETE MUST BE CLASS "A".

STRUCTURAL PLATE MUST BE A572 GR. 50 STEEL

REINFORCEMENT MUST CONSIST OF #4 BARS SPACED AT A MAXIMUM OF 12" IN EACH DIRECTION. PROVIDE A MINIMUM 6" LAP AT ALL SPLICES. FIELD BEND #4 BARS AS REQUIRED TO FIT. PLACE FIRST TRANSVERSE BAR 3" FROM END. PLACE FIRST PARALLEL BAR AS SHOWN IN DETAIL "A". ALL REINFORCING STEEL MUST BE GRADE 60.

ALL REINFORCING STEEL MUST HAVE A MINIMUM COVER OF 2".

ADHESIVE ANCHOR SYSTEM MUST BE HIS-RN INTERNALLY THREADED INSERTS (316 STAINLESS STEEL), AS FURNISHED BY HILTI, INC. OR EQUIVALENT.

ALL METAL COMPONENTS MUST BE GALVANIZED AFTER FABRICATION. GALVANIZING DAMAGED DURING TRANSPORT OR CONSTRUCTION MUST BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.

TOP OF STEEL PLATE MUST HAVE SLIP-RESISTANT COATING. SLIP-RESISTANT COATING AND PLATE PATTERN MUST BE APPROVED BY THE ENGINEER.

SIDEWALK BRIDGE COMPLETE AND IN PLACE WILL BE PAID FOR BY THE LINEAR FOOT UNDER ITEM 531 "CONC SIDEWALK (BRIDGE) (5')". ALL REINFORCEMENT, METAL PLATE, AND ANCHOR SYSTEM SUBSIDIARY TO ITEM 531.

SIDEWALK BRIDGE MUST BE ADA COMPLIANT.

NOTES:

1. QUANTIFIED AS TY II CURB & GUTTER.
2. QUANTIFIED AS CONC (FLUME).
3. 5' IS THE MINIMUM PLATE WIDTH. WIDER PLATES MAY BE USED. PLATE SPAN NOT TO EXCEED 5'.
4. DEPTH VARIES. REFER TO PLAN FOR ELEVATIONS.
5. ENSURE TOP OF BOLT IS FLUSH WITH TOP OF PLATE. DIMENSIONS SHOWN ASSUME 5/16" BOLT HEAD HEIGHT.

APPROVED SLIP RESISTANT PLATE	
PRODUCT NAME	MANUFACTURER WEBSITE
MEBAC® #3, STEEL	www.harscoikg.com
ALGRIP™, STEEL	www.algrip.com
SLIPNOT® GRADE 2, STEEL	www.slipnot.com

STATE OF TEXAS
KEDAR R. HALBE
129548
LICENSED
PROFESSIONAL ENGINEER
06/27/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

CURB RAMP PROGRAM

SIDEWALK DETAILS

NTS

SHEET 3 OF 3

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
RR		SEE TITLE SHEET		SH80, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
LG	TEXAS	AUS	HAYS	
CHECK	CONTROL	SECTION	JOB	83
CHECK	0286	01	062, ETC.	

PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: LGOMEZGONZ
FILE: SM-SDWK-DTL03.dgn
PENTABLE: I033129I-San Marcos.tbl
DATE: 6/27/2022 TIME: 10:17:00 PM
SCALE: 1:20

ASSET DESCRIPTION	ROADWAY	LIMITS	
		FROM	TO
Shared Use Path/ Sidewalk	LOCATION A: SOUTH SIDE OF SH 80	LAT: 29°53'06.30" LONG:-97°55'29.70"	IH 35 NBFR
	LOCATION B: NORTH SIDE OF SH 80	IH 35 NBFR	RIVER ROAD
	LOCATION C: WEST SIDE OF IH 35 SBFR	SH 80	RIO VISTA ST
Pedestrian Ramps	LOCATION A: SH 80 @ CHEATHAM ST	N/A	N/A
	LOCATION B: SH 80 @ IH 35 SB FR	N/A	N/A
	LOCATION C: SH 80 @ IH 35 NB FR, RIGHT TURN	N/A	N/A
	LOCATION D: SH 80 @ CLAREWOOD DR	N/A	N/A
	LOCATION E: SH 80 @ WALMART ACCESS RD	N/A	N/A
	LOCATION F: SH 80 @ RIVER RD	N/A	N/A
Pedestrian Rail	LOCATION A: 250' W OF CLAREWOOD DR	LAT: 29°52'55.50" LONG:-97°55'09.30"	LAT: 29°52'55.50" LONG:-97°55'09.03"
	LOCATION B: SH 80/CLAREWOOD DR-SW CORNER	LAT: 29°52'54.66" LONG:-97°55'06.81"	LAT: 29°52'54.54" LONG:-97°55'06.81"
	LOCATION C: 160' E OF CLAREWOOD DR	LAT: 29°52'54.55" LONG:-97°55'04.64"	LAT: 29°52'55.50" LONG:-97°55'04.24"
	LOCATION D: 330' E OF CLAREWOOD DR	LAT: 29°52'55.31" LONG:-97°55'02.60"	LAT: 29°52'55.34" LONG:-97°55'02.40"
Pedestrian Bridges	LOCATION A: 80' E OF IH 35 SBFR	LAT: 29°52'58.43" LONG:-97°55'20.82"	LAT: 29°52'58.38" LONG:-97°55'20.76"
	LOCATION B: 100' W OF CLAREWOOD DR	LAT: 29°52'55.56" LONG:-97°55'07.50"	LAT: 29°52'55.59" LONG:-97°55'07.40"
	LOCATION C: 170' E OF CLAREWOOD DR	LAT: 29°52'55.57" LONG:-97°55'04.41"	LAT: 29°52'55.56" LONG:-97°55'04.37"
	LOCATION D: 240' E OF CLAREWOOD DR	LAT: 29°52'55.47" LONG:-97°55'03.48"	LAT: 29°52'55.39" LONG:-97°55'03.42"
Crosswalks & Signs	CROSSWALK A: SH 80 @ CHEATHAM ST N/S XING, WEST SIDE	LAT: 29°53'04.08" LONG:-97°55'27.10"	LAT: 29°53'04.50" LONG:-97°55'26.55"
	CROSSWALK B: SH 80 @ CHEATHAM ST N/S XING, EAST SIDE	LAT: 29°53'03.76" LONG:-97°55'26.28"	LAT: 29°53'03.67" LONG:-97°55'26.61"
	CROSSWALK C: SH 80 @ CHEATHAM ST E/W XING, SOUTH SIDE	LAT: 29°53'03.93" LONG:-97°55'27.08"	LAT: 29°53'03.63" LONG:-97°55'26.77"
	CROSSWALK D: SH 80 EB @ IH 35 SB FR RIGHT TURN	LAT: 29°52'59.10" LONG:-97°55'22.20"	LAT: 29°52'59.13" LONG:-97°55'21.99"
	CROSSWALK E: SH 80 EB @ IH 35 SB FR E/W XING	LAT: 29°52'58.94" LONG:-97°55'21.74"	LAT: 29°52'58.71" LONG:-97°55'21.47"
	CROSSWALK F: SH 80 WB @ IH 35 NB FR RIGHT TURN	LAT: 29°52'55.50" LONG:-97°55'13.87"	LAT: 29°52'55.61" LONG:-97°55'13.73"
	CROSSWALK G: SH 80 WB @ CLAREWOOD DR E/W XING, NORTH SIDE	LAT: 29°52'55.54" LONG:-97°55'06.57"	LAT: 29°52'55.53" LONG:-97°55'06.06"
	CROSSWALK H: SH 80 WB @ CLAREWOOD DR N/S XING, WEST SIDE	LAT: 29°52'55.41" LONG:-97°55'06.77"	LAT: 29°52'54.76" LONG:-97°55'06.75"
	CROSSWALK I: SH 80 WB, 800' W OF RIVER RD	LAT: 29°52'54.23" LONG:-97°55'55.66"	LAT: 29°52'54.12" LONG:-97°55'55.24"
	CROSSWALK J: SH 80 WB @ RIVER RD N/S XING, WEST SIDE	LAT: 29°52'51.03" LONG:-97°54'47.29"	LAT: 29°52'50.48" LONG:-97°54'47.85"
	CROSSWALK K: SH 80 WB @ RIVER RD N/S XING, EAST SIDE	LAT: 29°52'50.67" LONG:-97°54'46.16"	LAT: 29°52'50.01" LONG:-97°54'46.85"
	CROSSWALK L: SH 80 WB @ RIVER RD E/W XING, NORTH SIDE	LAT: 29°52'50.67" LONG:-97°54'46.16"	LAT: 29°52'50.83" LONG:-97°54'46.16"
	CROSSWALK M: SH 80 WB @ RIVER RD E/W XING, SOUTH SIDE	LAT: 29°52'50.21" LONG:-97°54'47.89"	LAT: 29°52'49.99" LONG:-97°54'47.21"
Drainage Facilities	N/A	N/A	N/A
Water Quality Ponds/ Detention Ponds	N/A	N/A	N/A

Note: The asset locations specified in the tables are provided in GPS grid coordinates.

The City of SAN MARCOS accepts the fixed responsibility to maintain, control, supervise, and regulate the above on State highway ROW through its corporate limits Code.

This document is per Chapter 311 of the Texas Transportation Code supplemental to the existing Municipal Maintenance Agreement (MMA) with the City of SAN MARCOS.

This document does not relieve the City of SAN MARCOS from their responsibility to maintain all roads within their city limits as stated in the MMA.

Executed on behalf of the City by: _____ Date: _____

DATE: 8/5/2022 3:38:26 PM
FILE: $FILE$

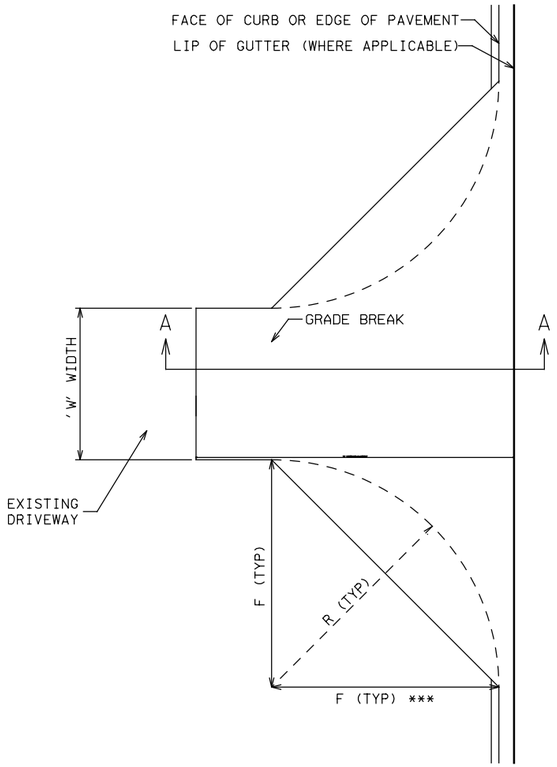
Austin District Maintenance Office

Texas Department of Transportation

SH 80, ETC.
ASSET MAINTENANCE

SHEET 1 OF 1

DS:	CK:	CONT	SECT	JOB	HIGHWAY
DW:	CK:	0286	01	062, ETC.	SH80, ETC.
		DIST	COUNTY		SHEET NO.
		AUS	HAYS		84



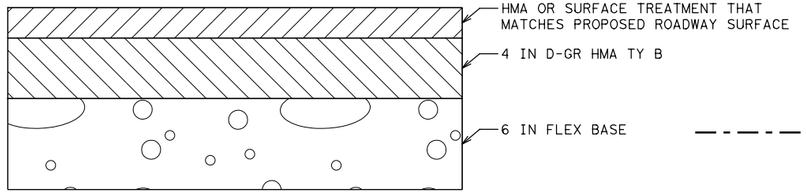
DRIVEWAY PLAN

FLARE OR RADIUS	FARM/RANCH	RESIDENTIAL	COMMERCIAL
"F" OR "R" (FT)	25	25	25

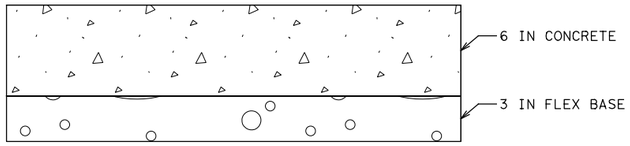
THESE ARE STANDARD DIMENSIONS UNLESS OTHERWISE SHOWN ELSEWHERE ON THE PLANS.

FLARES ARE TYPICALLY USED FOR SUBURBAN/URBAN (CURBED) ROADWAYS. RADII ARE TYPICALLY USED FOR RURAL OR UNCURBED ROADWAYS.

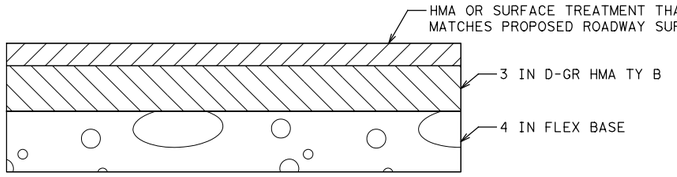
*** THIS 'F' DIMENSION MAY BE REDUCED TO KEEP WORK WITHIN THE ROW.



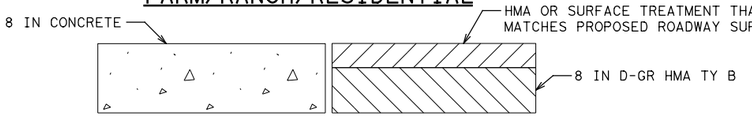
HMA OR SURFACE TREATEMENT - COMMERCIAL



CONCRETE - ALL DRIVEWAY TYPES

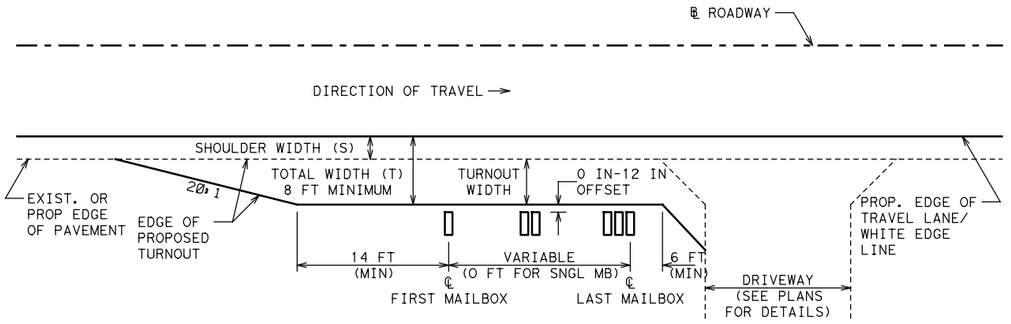


HMA OR SURFACE TREATMENT - FARM/RANCH/RESIDENTIAL

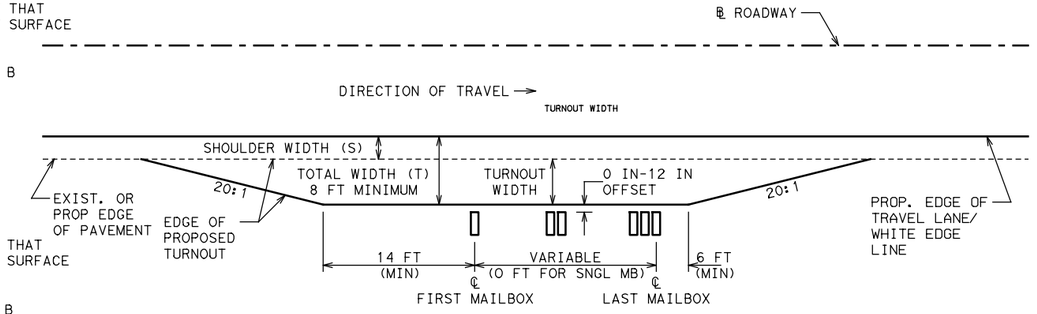


FAST TRACK ACP (TYPE 3) OR CONCRETE

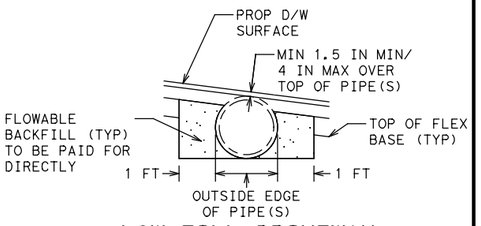
DRIVEWAY AND TURNOUT TYPICAL SECTIONS



MAILBOX TURNOUT PLAN WITH DRIVEWAY

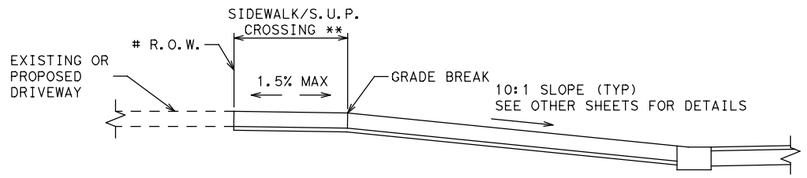


MAILBOX TURNOUT PLAN WITHOUT DRIVEWAY



LOW FILL DRIVEWAY

ONLY ONE PIPE SHOWN
SEE ELSEWHERE ON THE PLANS FOR SPECIFIC DRIVEWAY DETAILS



ACTUAL TIE-IN SHOWN ELSEWHERE IN PLANS OR AS DIRECTED

DRIVEWAY WITH GUTTER SECTION A-A

ENSURE GRADE BREAK DOES NOT EXCEED 8% UNLESS OTHERWISE DIRECTED. PROVIDE ABSOLUTE MINIMUM SIDEWALK CROSSING WIDTH OF 4' FOR DRIVEWAYS WIDTH OF 20' OR LESS

** LOCATE SIDEWALK CROSSING TO ALIGN WITH ADJACENT SIDEWALK; SIDEWALK/S.U.P. WIDTH AND LOCATION SHOWN ELSEWHERE ON THE PLANS.

GENERAL NOTES

PROVIDE EXPANSION 20 FT C-C FOR WIDTH OR LENGTH OVER 25 FT. EXPANSION JOINT PER AUS STANDARD FOR SIDEWALK (MCPSWMD).

REINFORCEMENT WILL BE IN ACCORDANCE WITH ITEM 432.3.1 USING NO. 3 OR NO. 4 BARS.

FIBER REINFORCEMENT IS NOT ALLOWED. CLASS A CONCRETE IS ALLOWED TO USE COARSE AGGREGATE GRADES 1-8.

IN LIEU OF PFC OR TOM, SURFACE MUST BE 1.5" D-GR HMA TY D. IF SURFACE IS A MULTIPLE COURSE SURFACE TREATEMENT, ALL COURSES MUST BE PLACED ON DRIVEWAY. SURFACE HMA IS PG 76-22. NON SURFACE HMA IS PG 64-22 AND MAY BE BLADE LAID.

FURNISH BASE MEETING THE REQUIREMENTS FOR ANY TYPE OR GRADE IN ACCORDANCE WITH ITEM 247. BASE COMPRESSIVE STRENGTHS ARE WAIVED.

THE BASE UNDER THE CONCRETE MAY BE REPLACED WITH CONCRETE AT A RATIO OF 3 INCHES OF BASE EQUALS 2 INCHES OF CONCRETE.

FAST TRACK DRIVEWAYS MUST BE CLOSED, CONSTRUCTED, AND REOPENED WITHIN 24 HOURS.

IF ROOTS ARE ENCOUNTERED VERIFY WITH THE ENGINEER PRIOR TO ACCOMMODATING OR REMOVING 2 IN. DIAMETER OR LARGER ROOTS. ROOT REMOVAL MUST BE IN ACCORDANCE WITH ITEM 752.4.2. ROOTS MAY REMAIN IN THE BASE. FOR IMPROVEMENTS WITHIN 6 IN. OF A ROOT, THE CONCRETE THICKNESS MAY BE REDUCED BY 1 IN. AND THE BASE INCREASED BY 1 IN. TO MINIMIZE IMPACTS TO THE ROOTS. ADJUST BASE AND SURFACE PROFILE TO PROVIDE A 1 IN. BASE CUSHION AROUND THE ROOTS. THE SURFACE PROFILE MAY BE ADJUSTED TO THE EXTENT ALLOWED BY ADA. THIS WORK IS SUBSIDIARY.

Texas Department of Transportation

Austin District Standard

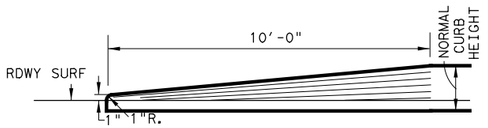
DRIVEWAYS AND MAILBOX TURNOUTS

DWMB-22 (AUS)

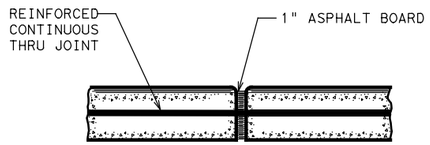
REVISIONS
01/16: SHEET CREATED
04/19: APPROVED
11/20: TABLE REVISED, GN ADDED, PLAN & PROFILE MODIFIED
01/22: ADDED TURNOUT INFO

CONT	SECT	JOB	HIGHWAY
0286	01	062, ETC.	SH80, ETC.
DIST	COUNTY		SHEET NO.
AUS	HAYS		85

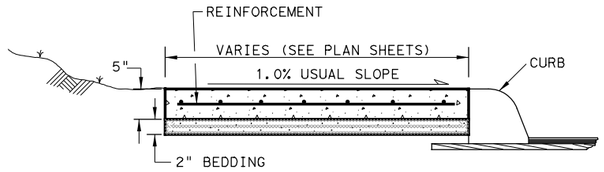
DATE: 8/5/2022 3:38:29 PM
FILE: $FILE$



TRANSITION FOR CONCRETE CURB ENDS



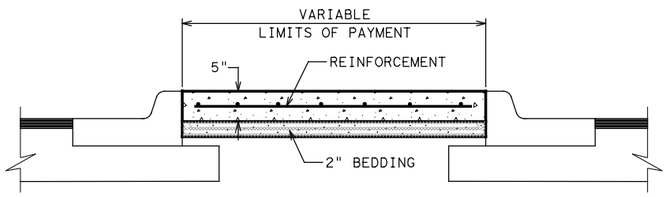
EXPANSION JOINT DETAIL



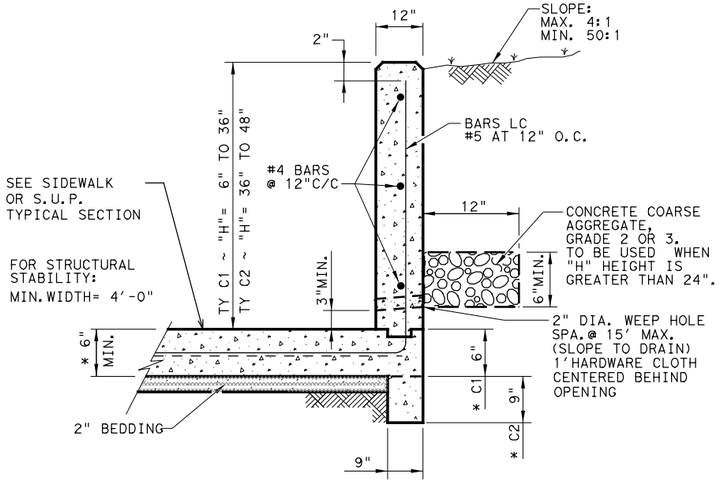
SIDEWALK & SHARED USE PATH (S.U.P.) TYP. SECT.

SIDEWALK OR S.U.P. EXPANSION JOINTS ARE TO BE AT A MAX. SPACING OF 40' AND COINCIDE WITH THE CURB EXPANSION JOINTS.

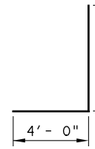
NOTE: TOOLED OR SAWED CONTRACTION JOINTS ARE NOT ALLOWED.



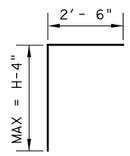
RIPRAP MEDIAN DETAIL



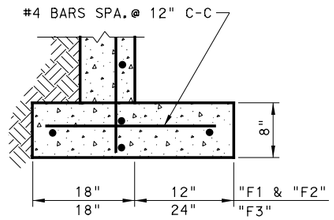
CONC CURB (TY C1) & (TY C2)



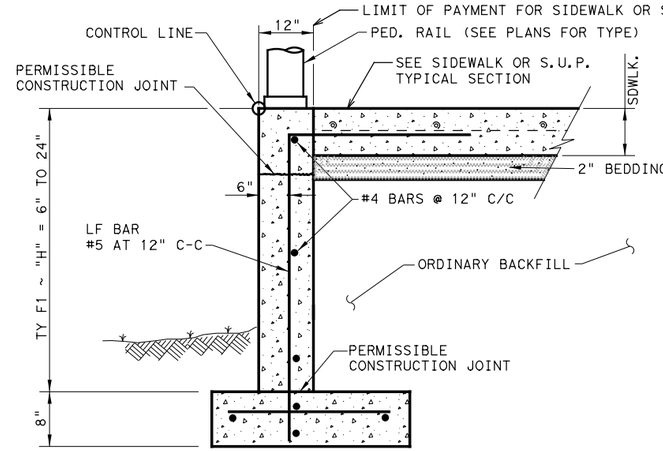
BAR LC



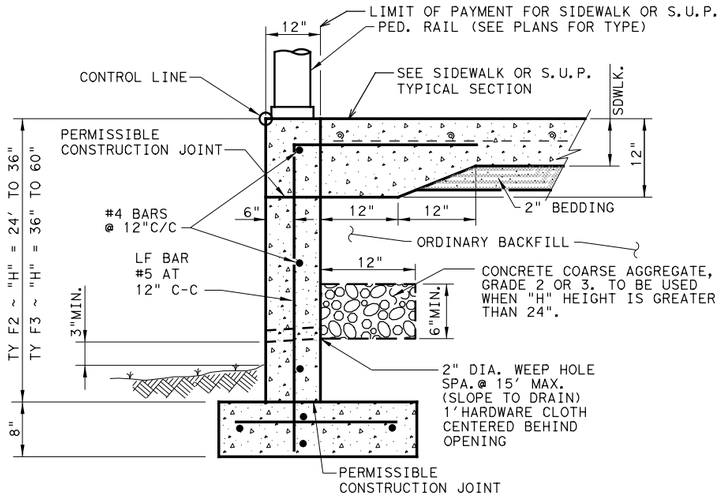
BAR LF



FOOTING DETAIL



CONC CURB (TY F1)‡



CONC CURB (TY F2) & (TY F3)‡

SIDEWALK, SHARED USE PATH, AND MEDIAN NOTES

Reinforcement will be in accordance with Item 432.3.1. Fiber reinforcement is not allowed. Class A and B Concrete are allowed to use Coarse Aggregate Grades 1-8.

Bedding may be sand, base, or RAP bedding. Furnish base meeting the requirement for any type or grade in accordance with Item 247. Base compressive strengths are waived. RAP must be 100% passing a 1 in. sieve. Bedding must be placed using ordinary compaction.

If roots are encountered verify with the Engineer prior to accommodating or removing 2 in. diameter or larger roots. Root removal must be in accordance with Item 752.4.2. Roots may remain in the bedding or base. For improvements within 6 in. of a root, the concrete thickness may be reduced by 1 in. and the bedding increased by 1 in. to minimize impacts to the roots. Adjust bedding and surface profile to provide a 1 in. bedding cushion around the roots. The surface profile may be adjusted to the extent allowed by ADA. This work is subsidiary.

CONCRETE CURB NOTES:
All Concrete, including adjacent sidewalk or S.U.P., shall be Class "C".
All Reinforcing Steel shall be Grade 60.
Minimum 4' sidewalk width for CONC CURB (TYPES C1 & C2).

‡ Until the sidewalk is complete, lateral support for the "F" curbs will be required.

ALL WORK SHOWN BEYOND TYPICAL SIDEWALK, S.U.P., AND PED RAIL IS SUBSIDIARY.

DESIGN SOIL PARAMETERS:
Soil Unit Wt.= 120 pcf
Phi = 30 Degrees
Cohesion = 50 psf
Min. PI = 15
Max. PI = 30
SURCHARGE:
TYPE F CURB q = 2' Adjacent to sidewalk
Max. slope behind TYPE C Curb = 4:1
Min. Factor of Safety against sliding is 1.5.
Designed in accordance with current AASHTO Standards and Interim Specifications.

NOT TO SCALE

Texas Department of Transportation

Austin District Standard

MISCELLANEOUS CURB, PATH, SIDEWALK, AND MEDIAN DETAILS

MCPSWMD-19 (AUS)

REVISIONS
04/19: APPROVED

CONT	SECT	JOB	HIGHWAY
0286	01	062, ETC.	SH80, ETC.
DIST	COUNTY		SHEET NO.
AUS	HAYS		86

DATE: 8/5/2022 3:38:31 PM
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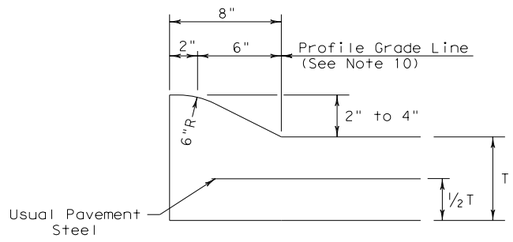
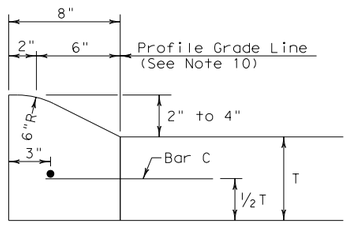
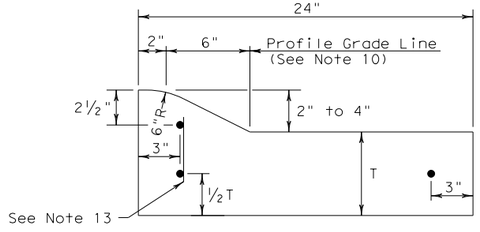
DATE: 11/21/2022
FILE: $FILE$



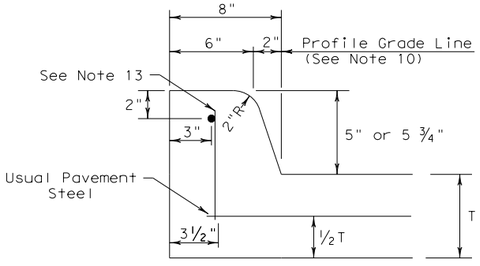
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



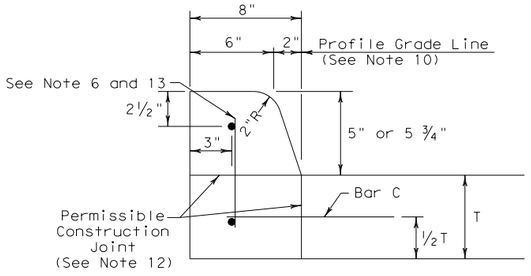
TYPE I CURB
2" - 4" HEIGHT



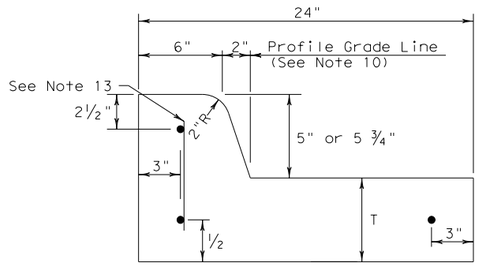
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



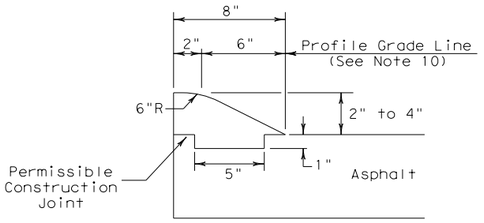
TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



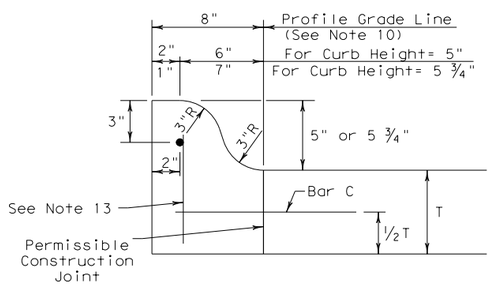
TYPE II CURB
5" - 5 ¾" HEIGHT



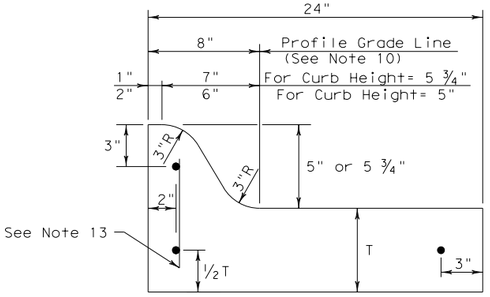
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



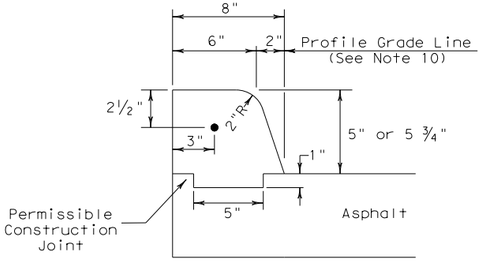
TYPE III CURB (KEYED)
2" - 4" HEIGHT



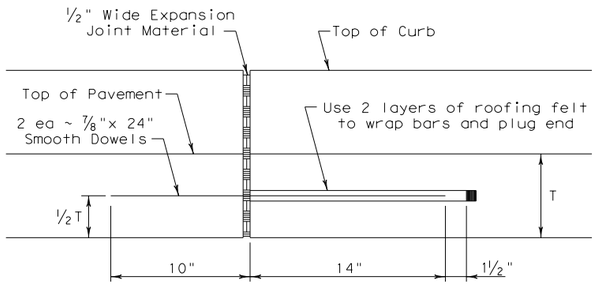
TYPE IIa CURB
5" - 5 ¾" HEIGHT



TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT

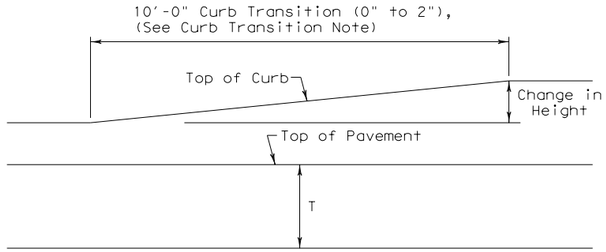


TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

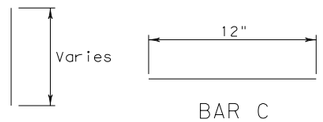
CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



CURB TRANSITION
Note: To be paid for as Highest Curb

GENERAL NOTES

1. All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
2. Concrete shall be Class A.
3. When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
4. Round exposed sharp edges with a rounding tool, to a minimum radius of ¼ inch.
5. All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
6. Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and grouted in place, or may be inserted into fresh concrete.
7. 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.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C~C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B placement as needed (typically at four ft. C-C) to support curb reinforcing steel during concrete placement.



BAR B

BAR C

Texas Department of Transportation

Design Division Standard

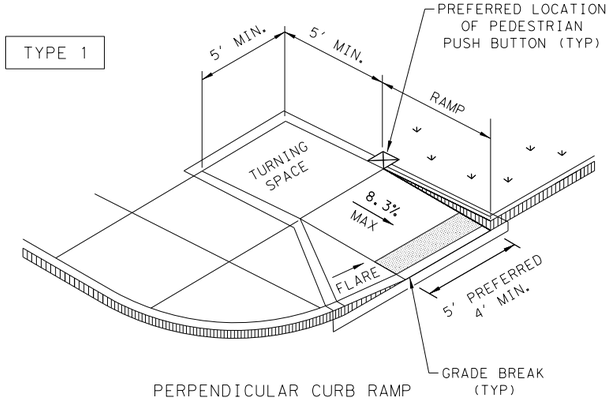
CONCRETE CURB AND CURB AND GUTTER

CCCG-22

FILE: cccg21.dgn	DN: TXDOT	CK: AN	DW: CS	CK: KM
© TxDOT: JUNE 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		87

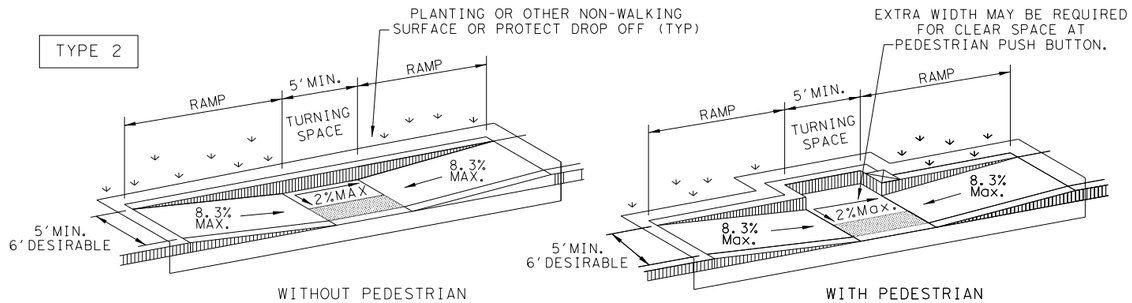
DATE: 8/5/2022
FILE: $FILE$

TYPE 1



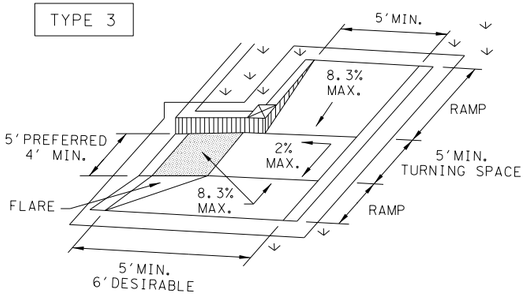
PERPENDICULAR CURB RAMP

TYPE 2

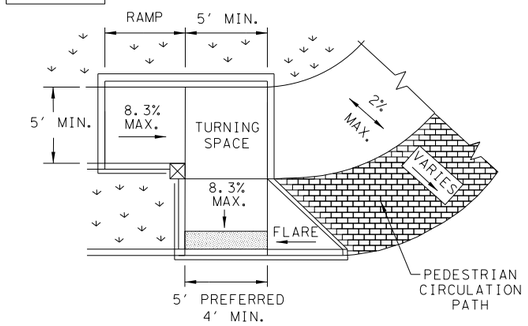


PARALLEL CURB RAMP

TYPE 3

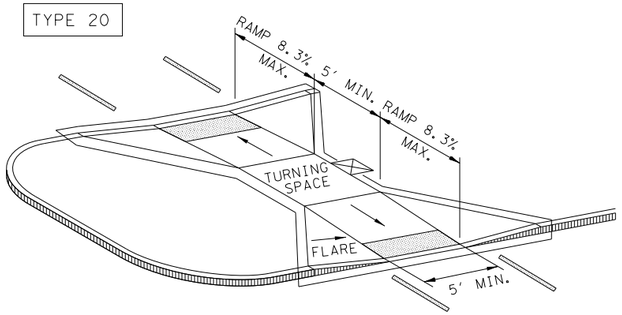


TYPE 6



COMBINATION CURB RAMPS

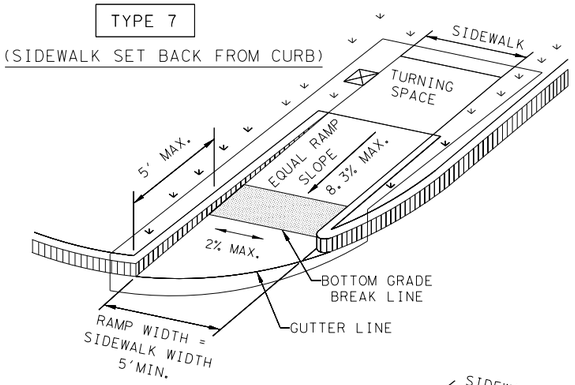
TYPE 20



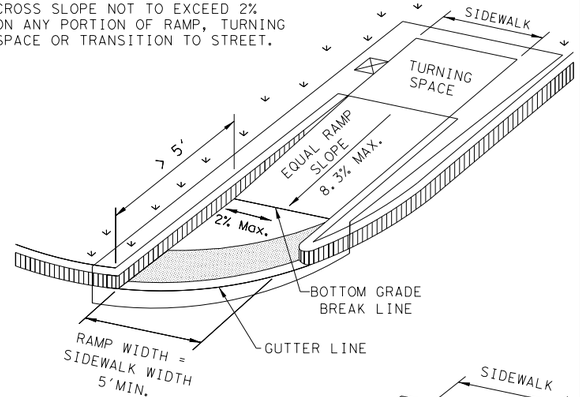
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

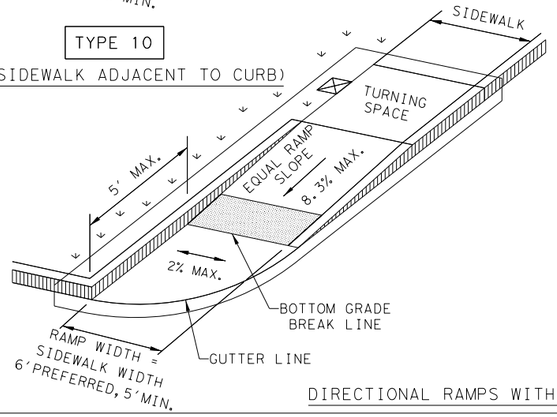


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

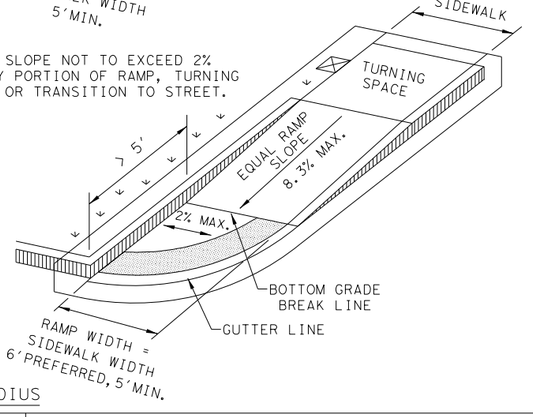


TYPE 10

(SIDEWALK ADJACENT TO CURB)

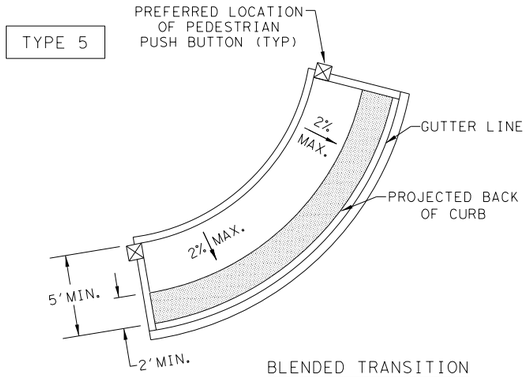


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

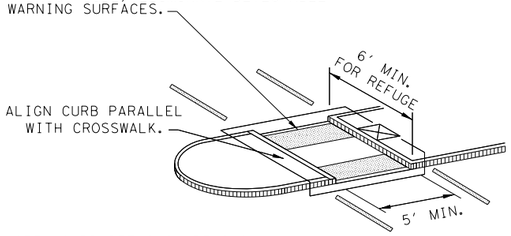
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

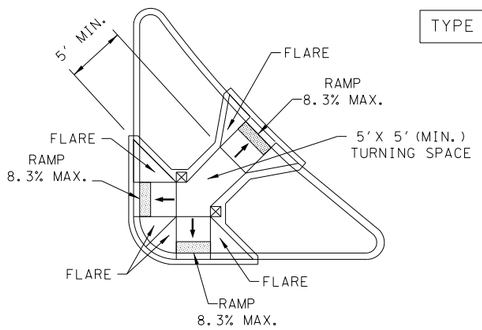
INSTALL DETECTABLE WARNING SURFACE AT EACH END OF THE CUT-THROUGH RAMP WITH A MINIMUM 2' USUAL SIDEWALK SURFACE BETWEEN. IF MEDIAN IS LESS THAN 6' WIDE, ELIMINATE DETECTABLE WARNING SURFACES.

TYPE 21



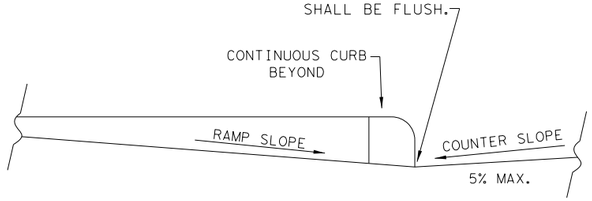
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS

BOTTOM GRADE BREAK OF CURB RAMP WILL NORMALLY BE AT GUTTER LINE. SURFACE SLOPES AT GRADE BREAKS SHALL BE FLUSH.



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

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.

DETECTABLE WARNING SURFACE

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
REVISIONS	0286	01	062, ETC.	SH80, ETC.
REVISED 08, 2005	DIST	COUNTY		SHEET NO.
REVISED 06, 2012	AUS	HAYS		88
REVISED 01, 2018				

DATE: 8/5/2022
FILE: $FILE$

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 applicalble standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

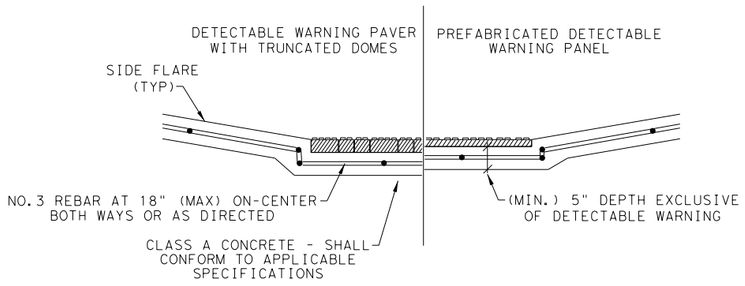
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material 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 full width 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.

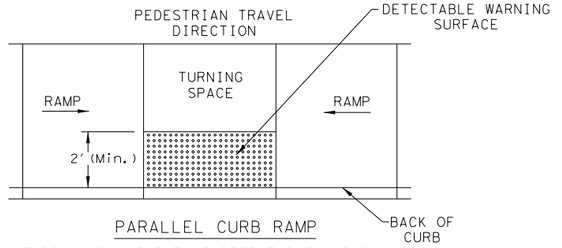
SIDEWALKS

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.



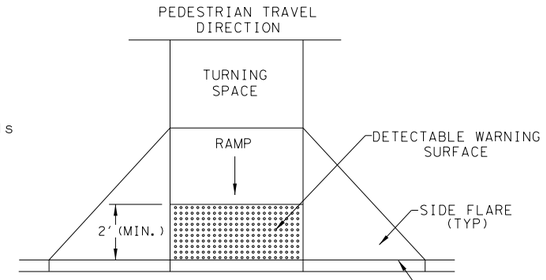
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



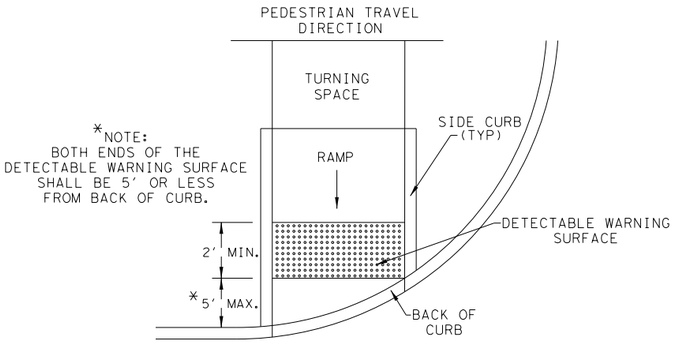
PARALLEL CURB RAMP

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.

Texas Department of Transportation

Design Division Standard

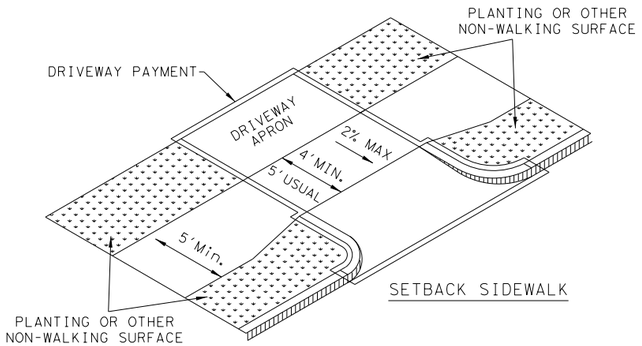
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

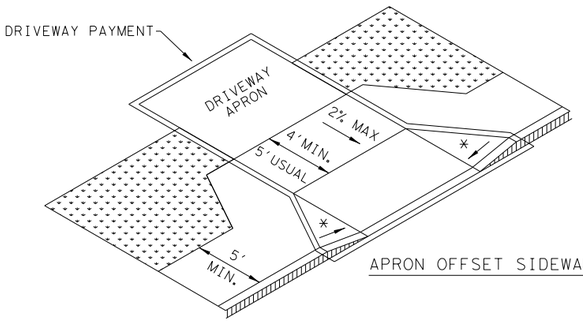
FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG	
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0286	01	062, ETC.	SH80, ETC.	
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.	
	AUS	HAYS		89	

DATE: 8/5/2022
FILE: $FILE$

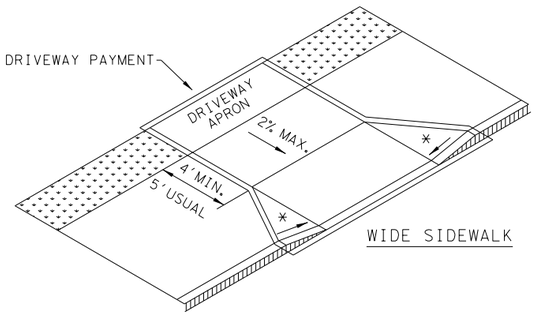
SIDEWALK TREATMENT AT DRIVEWAYS



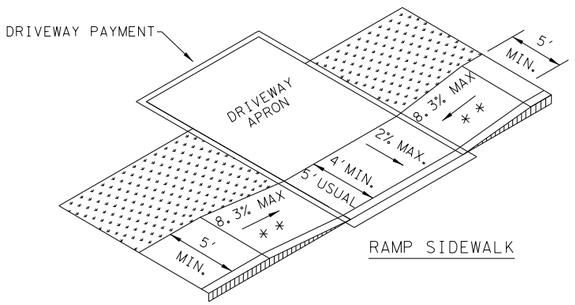
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

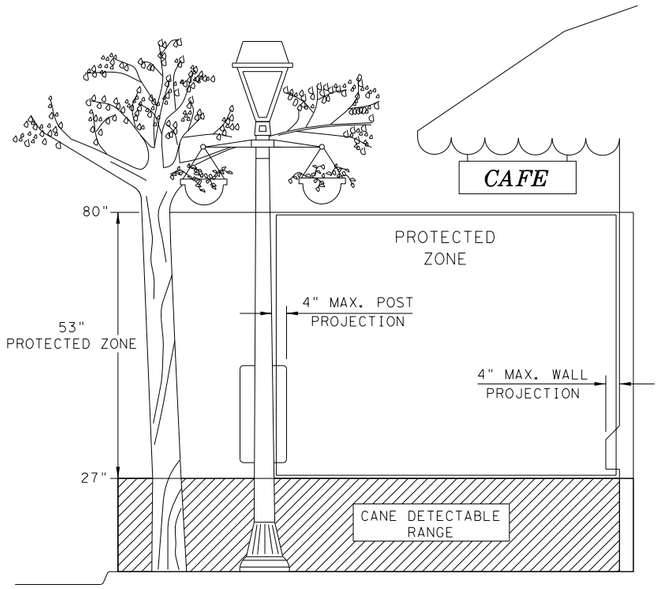


RAMP SIDEWALK

NOTES:

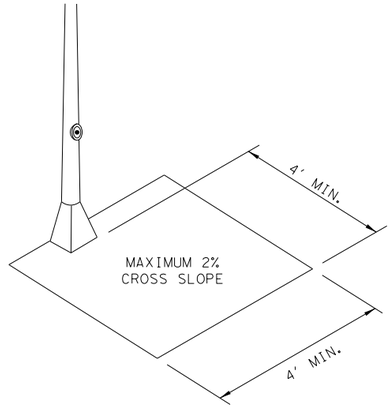
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

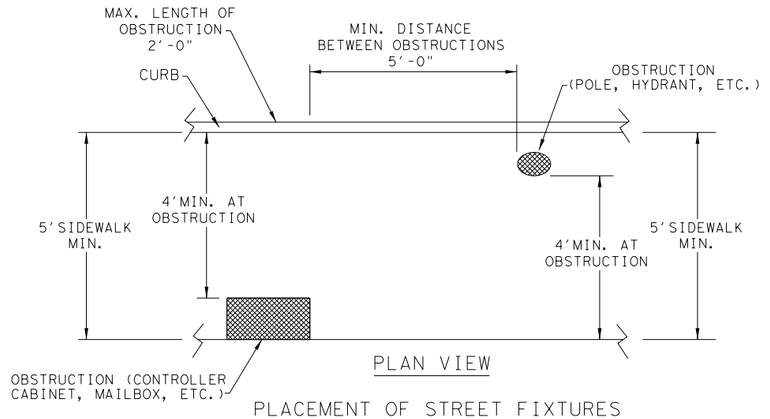


PROTECTED ZONE

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



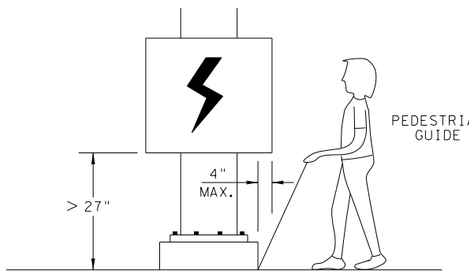
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



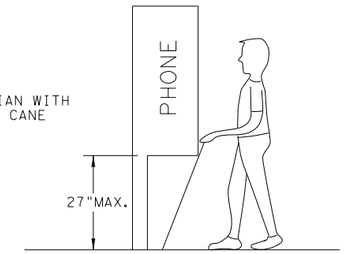
PLAN VIEW

PLACEMENT OF STREET FIXTURES

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



WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.



PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

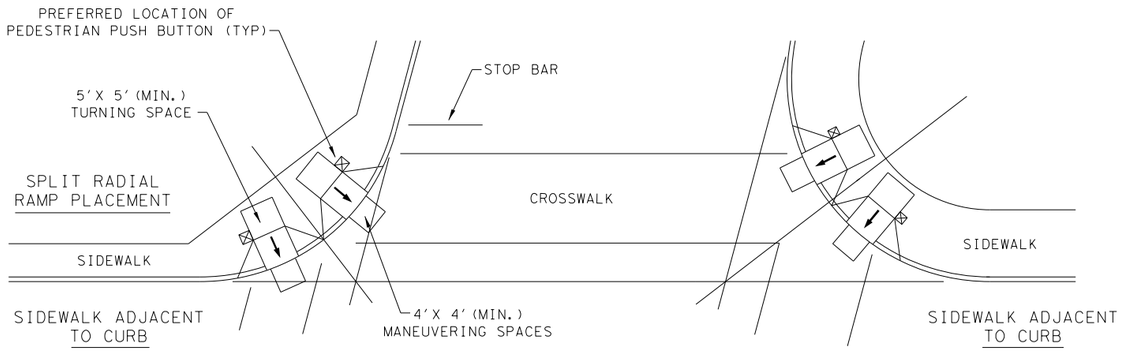
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG	
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0286	01	062, ETC.	SH80, ETC.	
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.	
	AUS	HAYS		90	

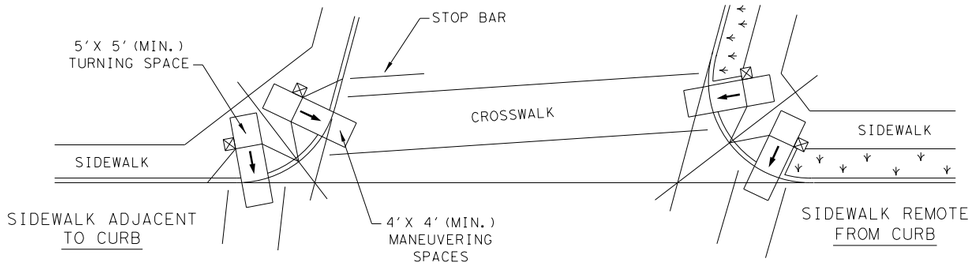
DATE: 8/5/2022
FILE: $FILE$

TYPICAL CROSSING LAYOUTS

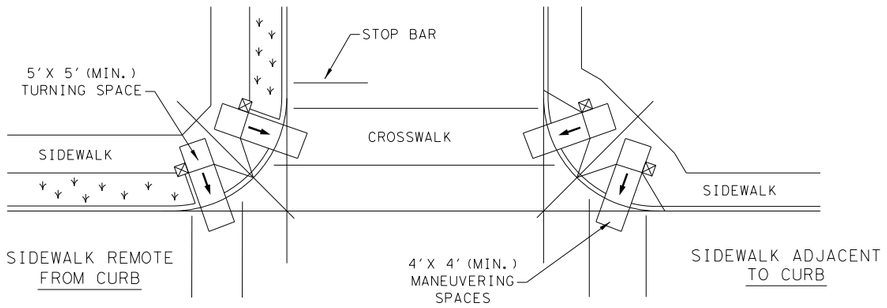
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



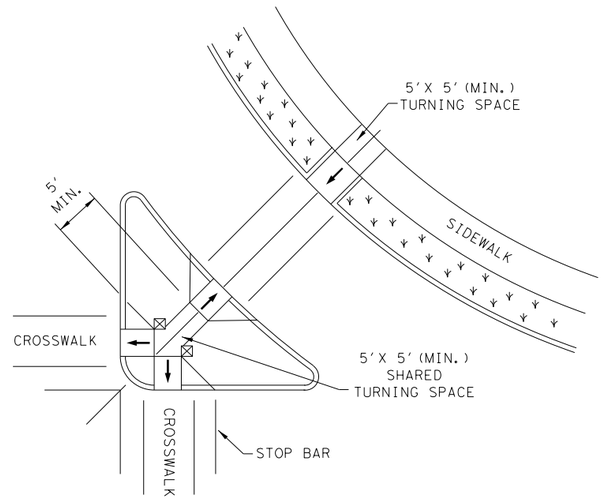
SKEWED INTERSECTION WITH "LARGE" RADIUS



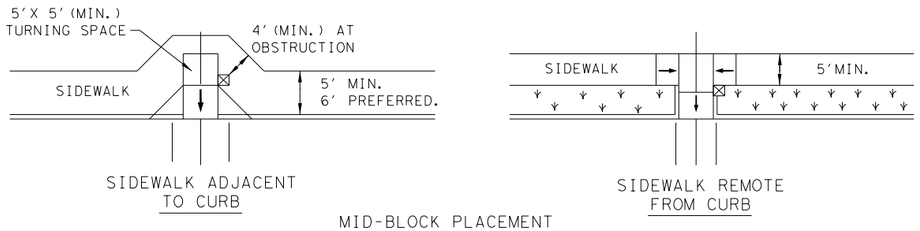
SKEWED INTERSECTION WITH "SMALL" RADIUS



NORMAL INTERSECTION WITH "SMALL" RADIUS



AT INTERSECTION
W/FREE RIGHT TURN & ISLAND



MID-BLOCK PLACEMENT
PERPENDICULAR RAMPS

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

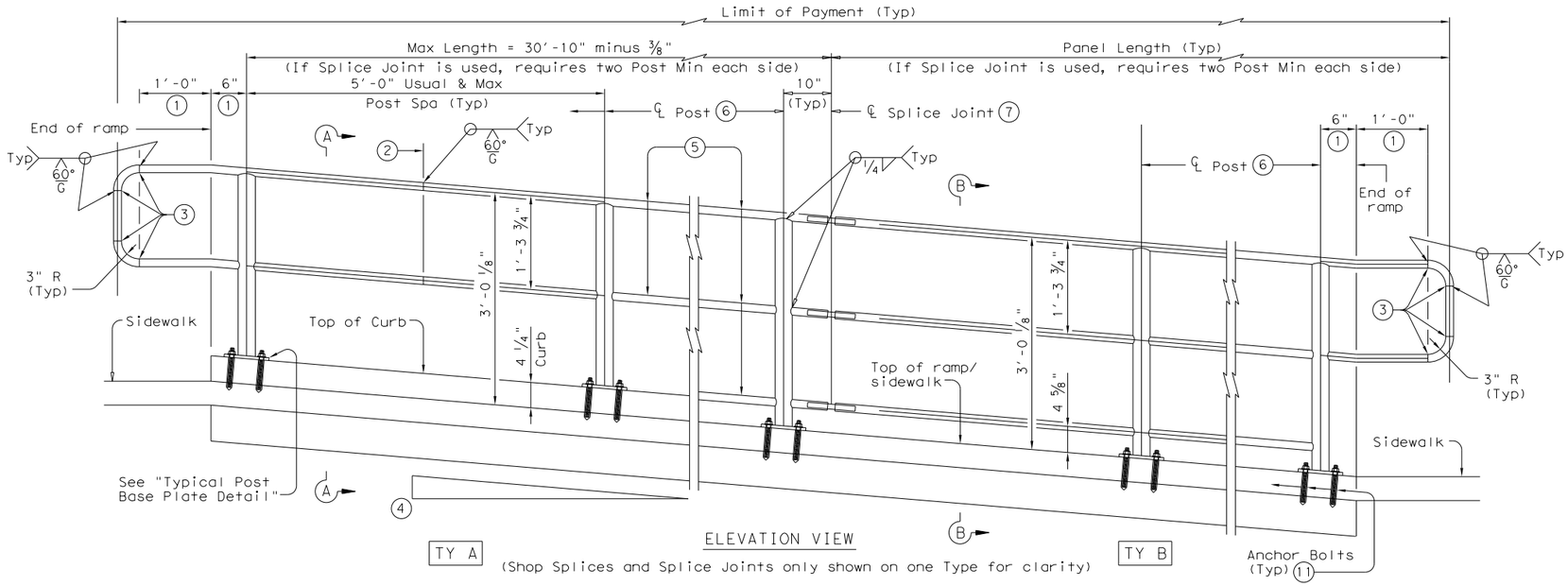
Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

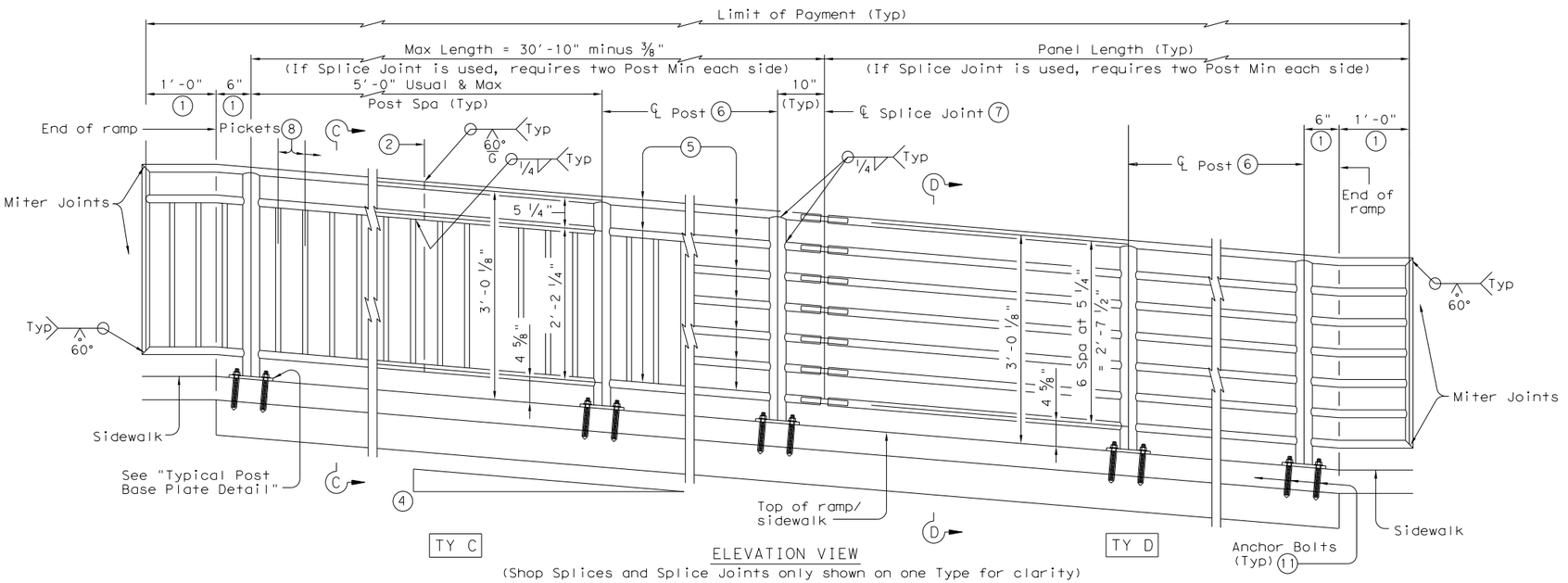
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY		SHEET NO.
	AUS	HAYS		91



ELEVATION VIEW

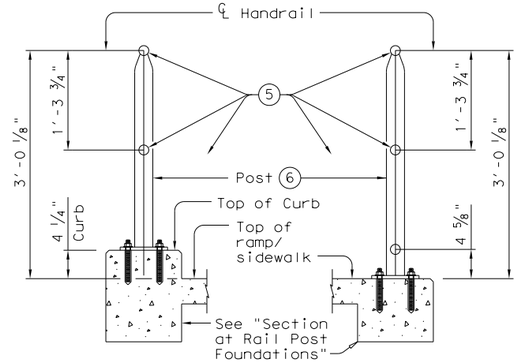
(Shop Splices and Splice Joints only shown on one Type for clarity)



ELEVATION VIEW

(Shop Splices and Splice Joints only shown on one Type for clarity)

RECOMMENDED USAGE (9)(10)	
Dropoff Height/ Condition	Recommended Rail Options
< 30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F

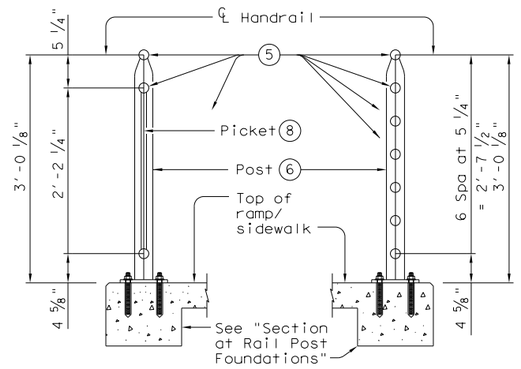


SECTION A-A

(Showing Handrail TY A)

SECTION B-B

(Showing Handrail TY B)



SECTION C-C

(Showing Handrail TY C)

SECTION D-D

(Showing Handrail TY D)

(1) Parallel to ground.

(2) One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(3) Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(4) See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.

(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

(6) 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.

(7) See "Handrail Fabrication Details" for Splice Joints.

(8) ℄ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.

(9) When needed for accessibility (grade > 5 percent) or as needed for pedestrian safety.

(10) Not to be used on bridges.

(11) See "General Notes" for anchor bolt information.

DATE: 8/5/2022
FILE: $FILE$

SHEET 1 OF 3

Texas Department of Transportation

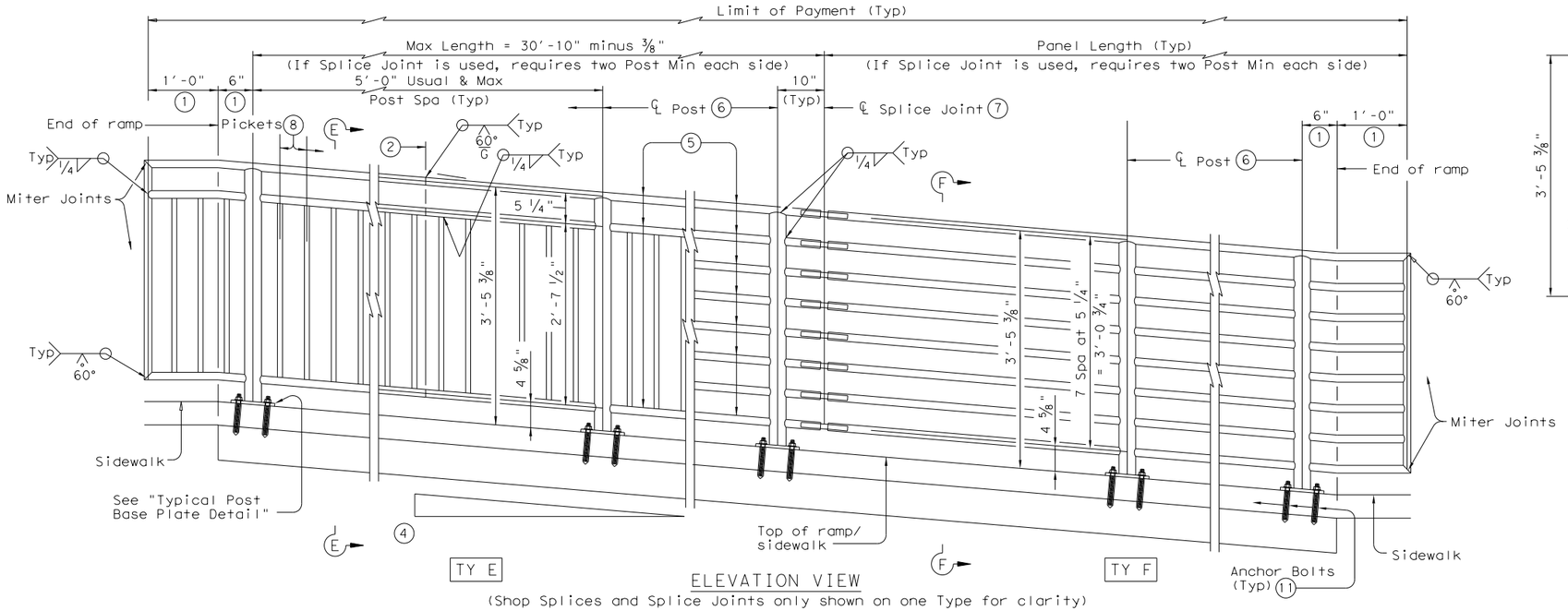
Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

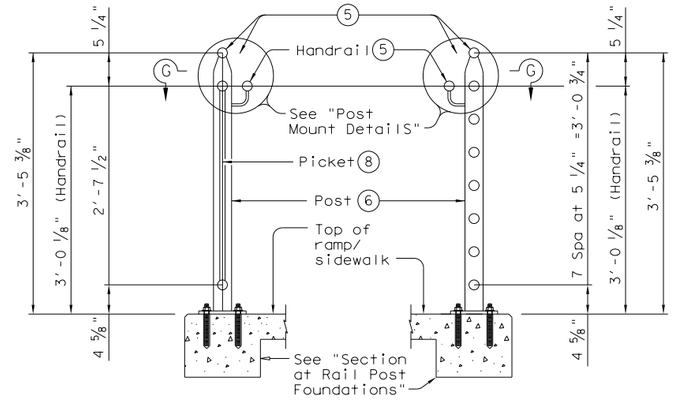
FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT Decmeber 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		92

DATE: 8/5/2022
FILE: $FILE$



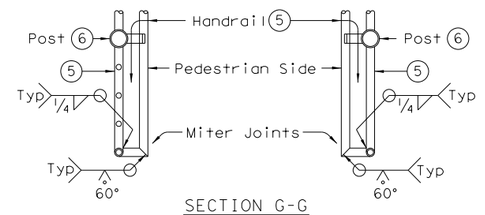
ELEVATION VIEW

(Shop Splices and Splice Joints only shown on one Type for clarity)

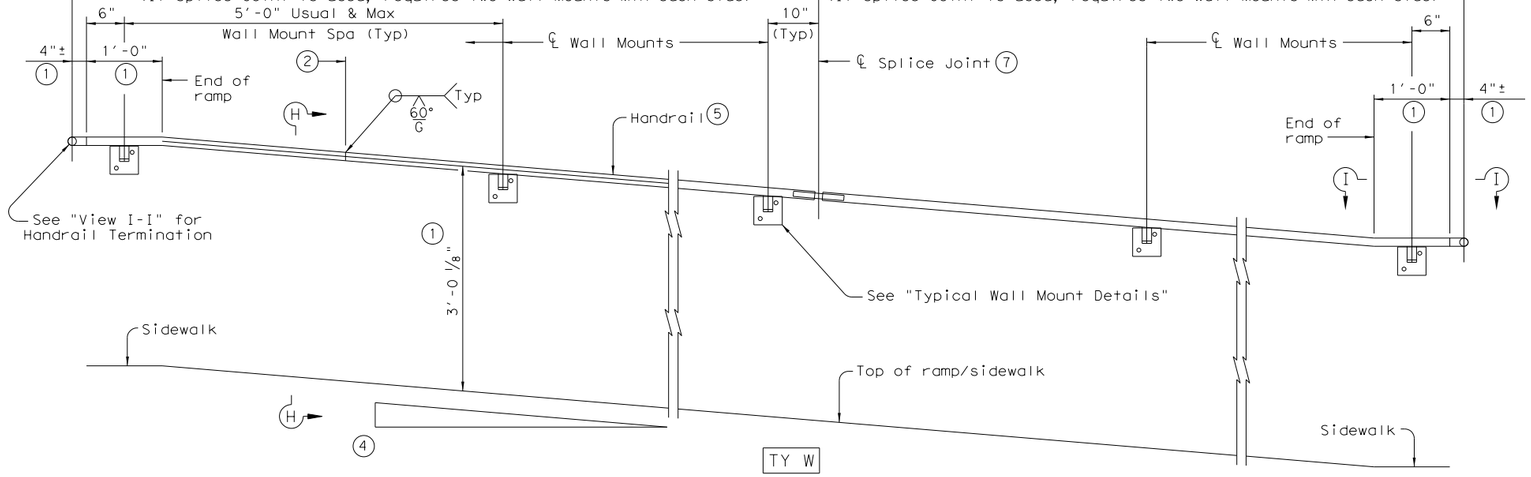


SECTION E-E
(Showing Handrail TY E)

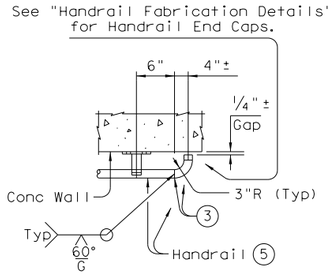
SECTION F-F
(Showing Handrail TY F)



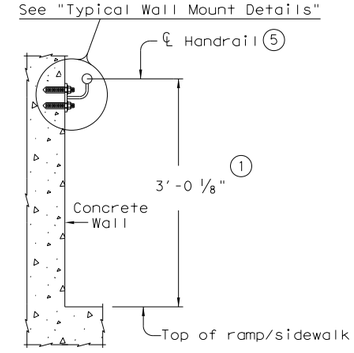
SECTION G-G
(Showing Handrail Termination)



ELEVATION VIEW



VIEW I-I
(Showing Handrail Termination)



SECTION H-H
(Showing Handrail TY W)

(1) Parallel to ground.

(2) One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(3) Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

(4) See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.

(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

(6) 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.

(7) See "Handrail Fabrication Details" for Splice Joints.

(8) ℄ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.

(11) See "General Notes" for anchor bolt information.

SHEET 2 OF 3

Texas Department of Transportation

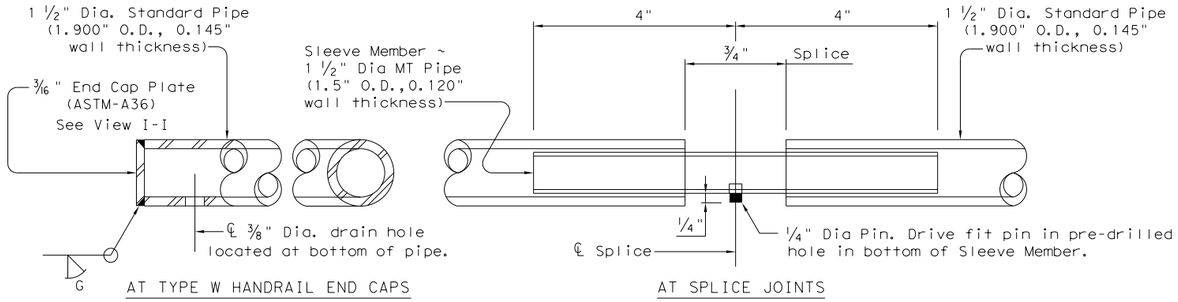
Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)	0286	01	062, ETC.	SH80,ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		93

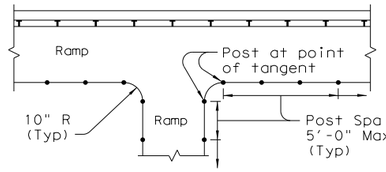
DATE: 8/5/2022
FILE: $FILE$



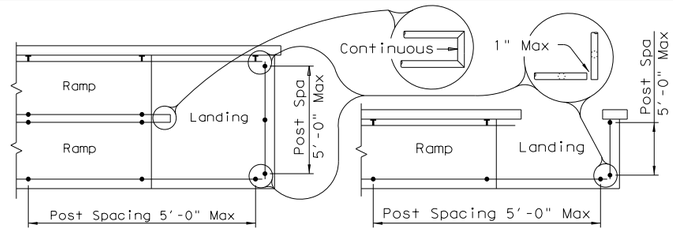
AT TYPE W HANDRAIL END CAPS

AT SPLICE JOINTS

HANDRAIL FABRICATION DETAILS



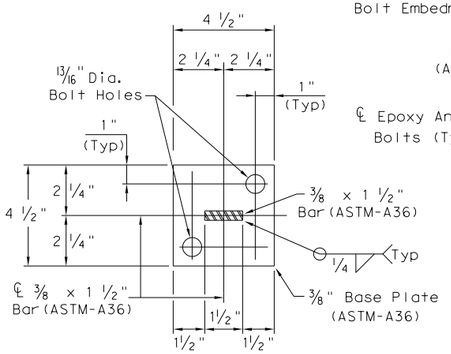
RAMP INTERSECTION



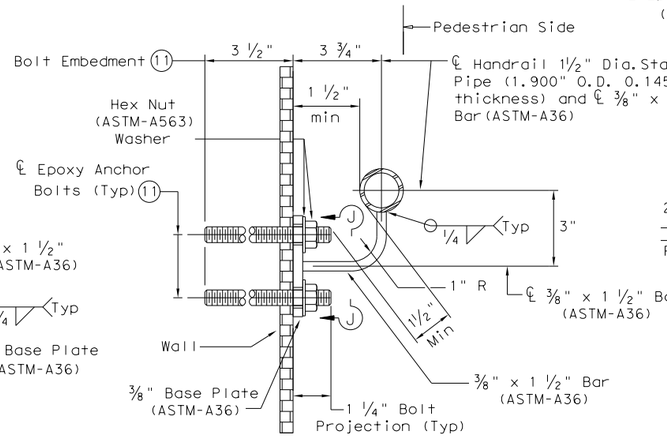
MULTI-LEVEL RAMP

SINGLE-LEVEL RAMP

PLAN SHOWING RAIL AT RAMP CONDITIONS

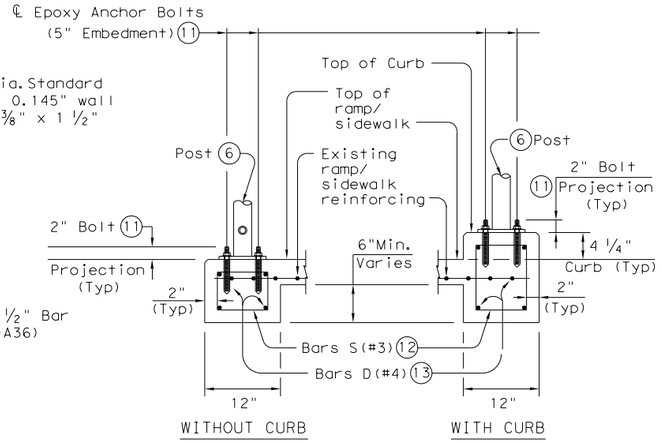


SECTION J-J
(Anchor Bolts not shown for clarity)



SECTION AT WALL MOUNT

TYPICAL WALL MOUNT DETAILS



SECTION AT RAIL POST FOUNDATIONS

GENERAL NOTES

Designed according to ADAAG, Texas Accessibility Standards, Uniform Building Code, and AASHTO LRFD Specifications.

Handrail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Pipe will conform to ASTM-A53 Grade B or A500 Grade B. Steel plates and steel bars will conform to ASTM-A36. Mechanical tubing (MT) will conform to ASTM A513 Grade 1015 or higher. Galvanize all steel components except reinforcing steel unless noted otherwise.

Concrete for foundations will be in accordance with Item 531 "Sidewalks". All reinforcing steel must be Grade 60. Bar laps, where required, will be as follows: Uncoated ~ #4 = 1'-5" Epoxy coated ~ #4 = 2'-1"

When the plans require painted steel, follow the requirements for painting galvanized steel in Item 446, "Cleaning and Painting Steel". Sleeve Members will receive galvanization and only get field painted after installation unless directed otherwise by Engineer.

Epoxy Anchor bolts for wall mount and post base plate will be ⅝" Dia. ASTM A36 threaded rods with one hex nut and one hardened steel washer at each bolt. ⅝" Dia. threaded rod embedment depth for wall mounts is 3 ½" and embedment depth for post base plate is 5".

Embed threaded rods into concrete with a Type III (Class C) epoxy meeting the requirements of DMS-6100, "Epoxies and Adhesives". Mix and dispense adhesive with the manufacturer's static mixing nozzle/dual cartridge system. Core drill holes (percussion drilling not permitted).

At the contractor's option the post base plate anchor bolts may be cast with the Ramp/Sidewalk (See Cast-in-Place Anchor Bolt Options).

Optional cast-in-place anchor bolts will be ⅝" Dia ASTM A307 Grade A bolts (or A36 threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer at each bolt. Embedment depth of cast-in-place bolt will be 8" for post base plate.

Handrails and any wall or other surface adjacent to them will be free of any sharp or abrasive elements.

Submit shop drawings to the Engineer unless otherwise noted. For curved handrail applications, fabricate the handrail to the curve if radius is less than 600 ft. Shop drawings are required when rail is fabricated to the curve.

For all handrails, erection drawings will be submitted to the Engineer for approval to ensure proper installation.

Drawings will show handrail mount locations with bolts setting, spacing, ramp slope, and/or splice joint locations, and handrail lengths with identification showing where each handrail goes on the layout.

Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

Payment for all items shown is to be included in unit price bid in accordance with Item 450 "Railing" of the type specified.

All exposed edges will be rounded or chamfered to approximately ⅛" by grinding.

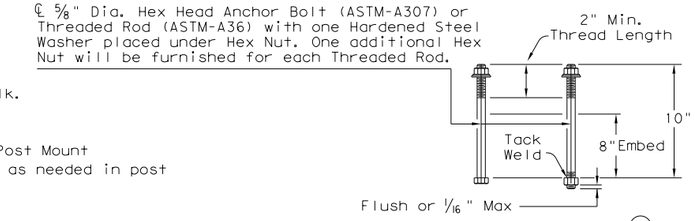
(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

(6) 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). Plumb all posts. See "Post Mount Detail" for crimping and trimming post to fit the diamenter of top rail. Provide holes as needed in post for galvanizing drainage and venting.

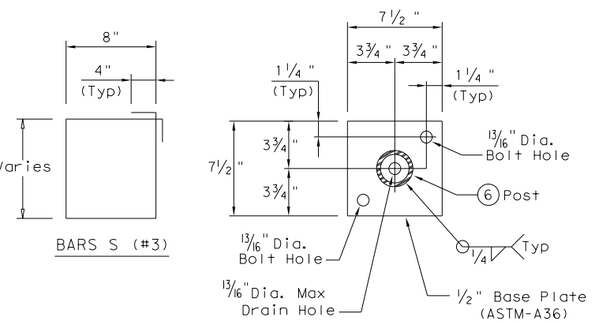
(11) See "General Notes" for anchor bolt information.

(12) Bars S(#3) spaced at 12" Max (Spaced 3" from outside edge of overall length of Ramp/Sidewalk).

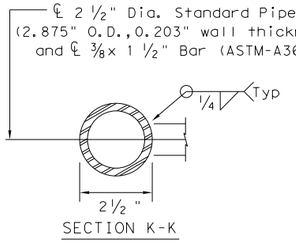
(13) Provide 1 ½" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



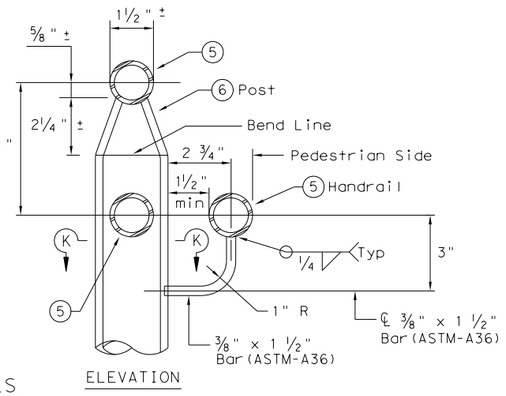
CAST-IN-PLACE ANCHOR BOLT OPTIONS
(Used for Post Base Plate only)



TYPICAL POST BASE PLATE DETAIL



SECTION K-K



ELEVATION

POST MOUNT DETAILS

SHEET 3 OF 3

Texas Department of Transportation

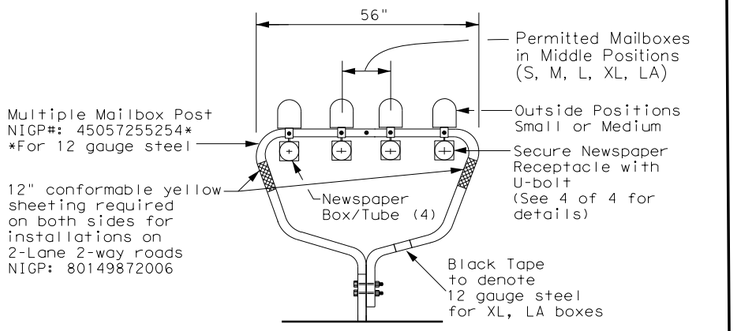
Design Division Standard

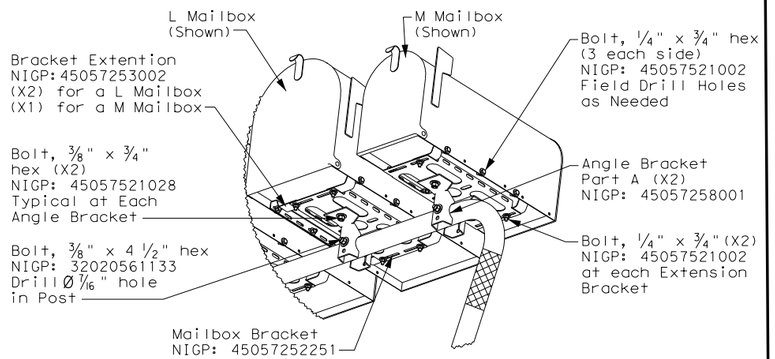
PEDESTRIAN HANDRAIL DETAILS

PRD-13

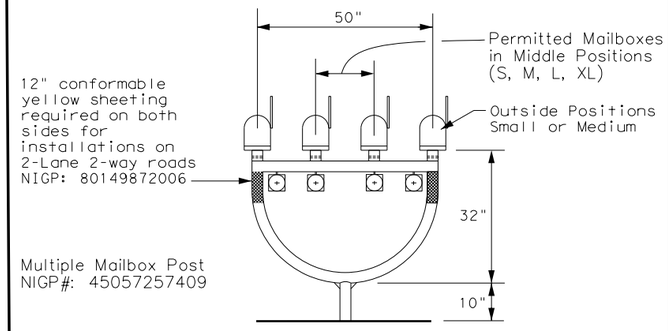
FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
REVISED MAY, 2013 (VP)	DIST	COUNTY		SHEET NO.
	AUS	HAYS		94

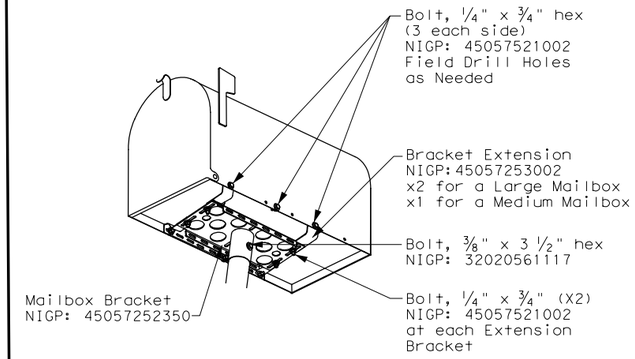
TYPE 1 - MULTIPLE





TYPE 4 - MULTIPLE





MAILBOX SIZES

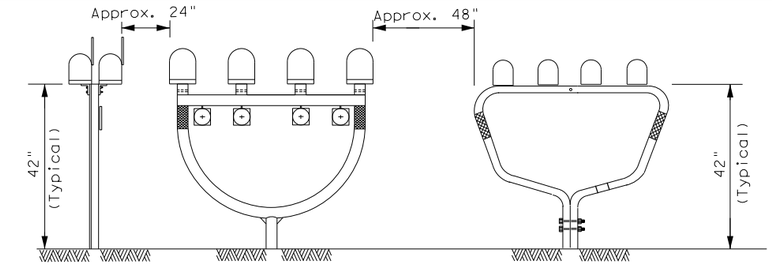
MAILBOX SIZE	TYPICAL DIMENSIONS			MAX **
	LENGTH	WIDTH	HEIGHT	WEIGHT
SMALL	19 1/2"	6"	7"	6 LBS
MEDIUM	22 1/2" *	8" *	11 1/2" *	8 LBS
LARGE	23 1/2"	11 1/2"	13 1/2"	11 LBS
EXTRA LARGE	18"	14"	12"	13 LBS
LOCKABLE	18"	11 1/2"	15"	23 LBS

* See Note 1.
** Excluding Molded Plastic on 4 X 4 Post

GENERAL NOTES:

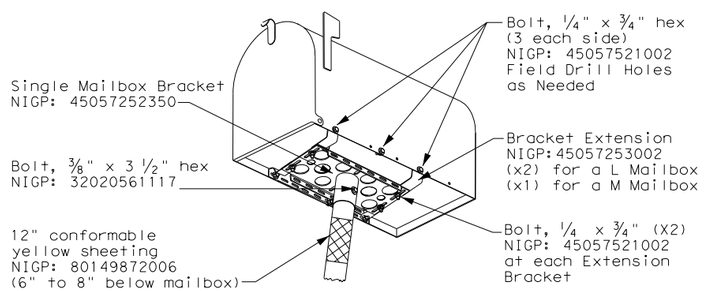
1. Dimensions shown (length, width, and height) are typical, not maximums. However, anytime a medium size mailbox is mounted on a single/double mount or on the outside position on a multi mount, the dimensions shown are maximums.
2. Mailboxes shall be made of light weight sheet metal or light weight plastic. Heavy steel, cast iron or decorative mailboxes shall not be used on the state highway system.

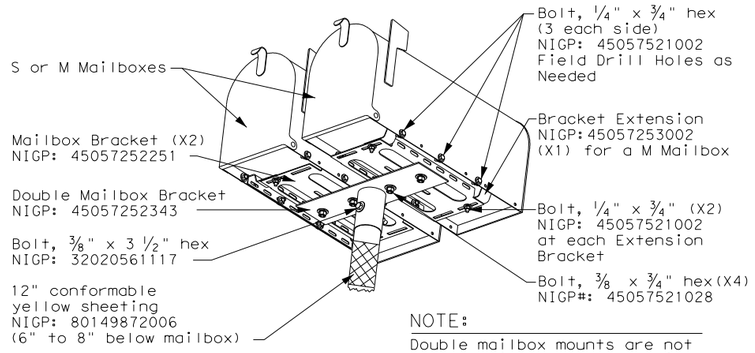
TYPICAL INSTALLATION MEASUREMENTS



NOTE:
Mailbox installations in sidewalk areas shall be in accordance with the latest TxDOT Design Standard sheets PED-Pedestrian Facilities Curb Ramps.

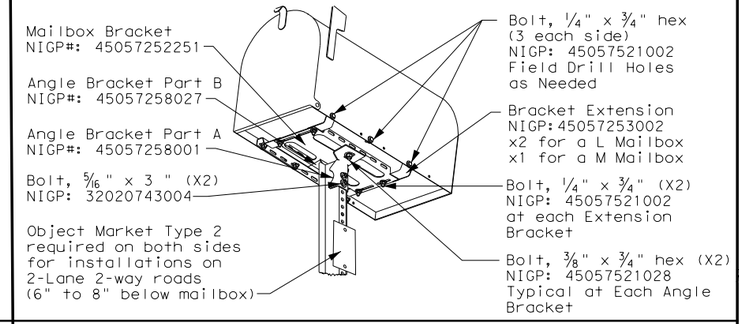
TYPE 2 and 4 - SINGLE/DOUBLE

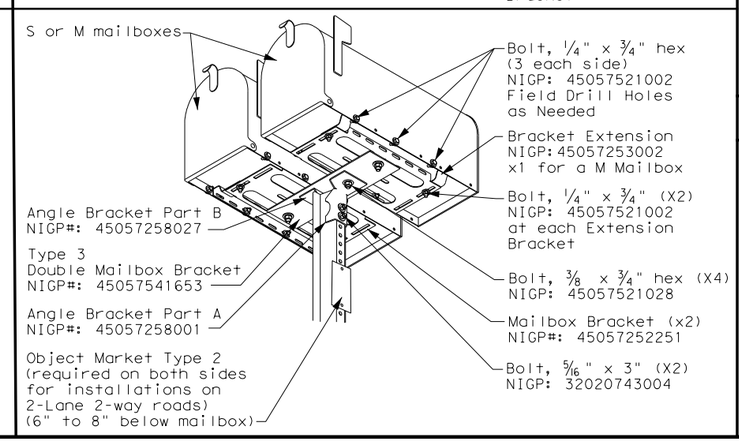




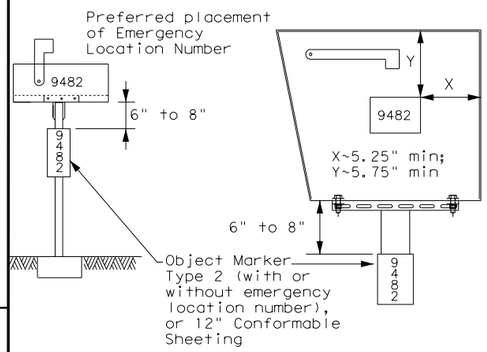
NOTE:
Double mailbox mounts are not allowed with a type 4 multiple mailbox installation

TYPE 3 - SINGLE/DOUBLE





PLACEMENT OF EMERGENCY LOCATION NUMBER

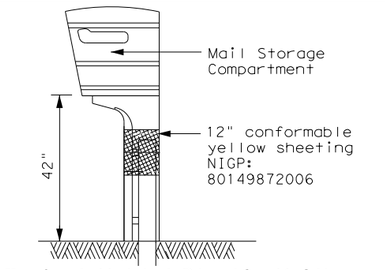


NOTES:

1. Location numbers are provided by homeowner. Minimum size 1" height.
2. Location number is typically placed on the mailbox in a contrasting color.
3. Black numbers may be placed on the Type 2 object marker if the numbers cannot be placed on the mailbox.
4. Alternatively, a green or blue plate with white numbers attached may be mounted below the object marker. Other contrasting color configuration, as approved, may be used.
5. See 3 of 4 for Foundation details.
6. See 4 of 4 for Hardware details.

SHEET 1 OF 4

TYPE 5



Typical Molded Plastic Mailbox

Texas Department of Transportation
Maintenance Division Standard

MAILBOX MOUNTING AND ASSEMBLY

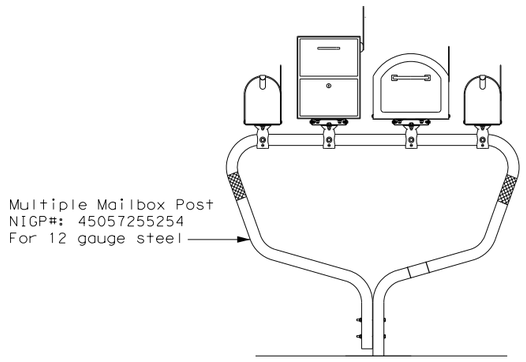
MB(1)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0286	01	062, ETC.	SH80,ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		95

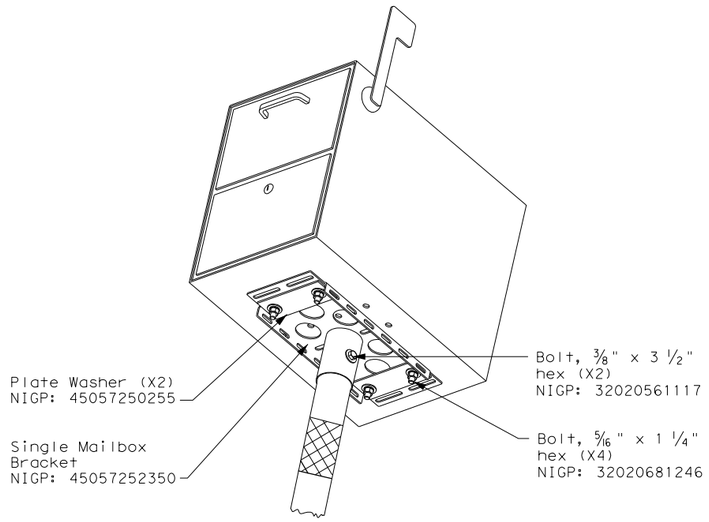
DATE: 8/5/2022 3:38:44 PM
FILE: $FILE$

DATE: 8/5/2022 3:38:45 PM
FILE: $FILE$

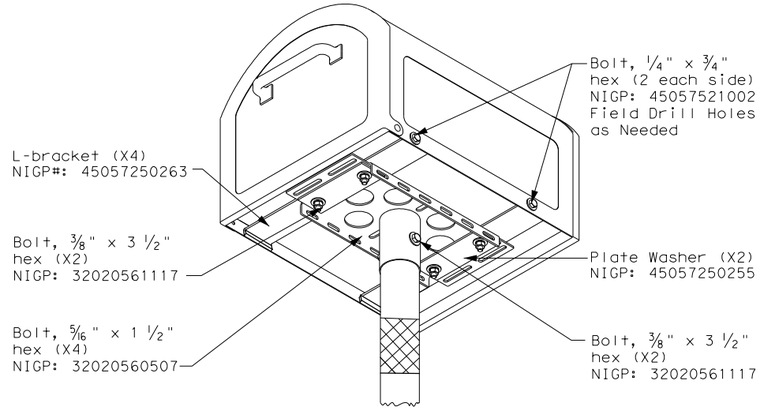
TYPE 1- MULTI LOCKABLE AND XL MAILBOX



TYPE 2/4 - SINGLE LOCKABLE MAILBOX

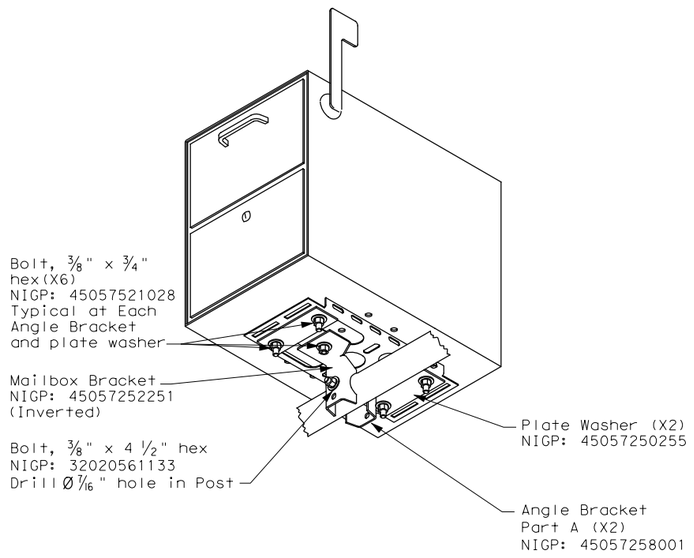


TYPE 2/4 - SINGLE XL MAILBOX

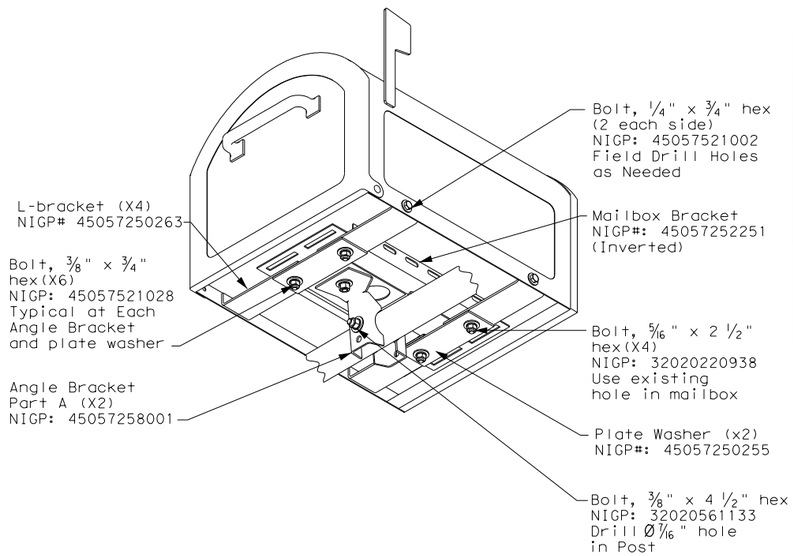


NOTE:
Follow same configuration when mounting an XL mailbox on a Type 4 multi post.

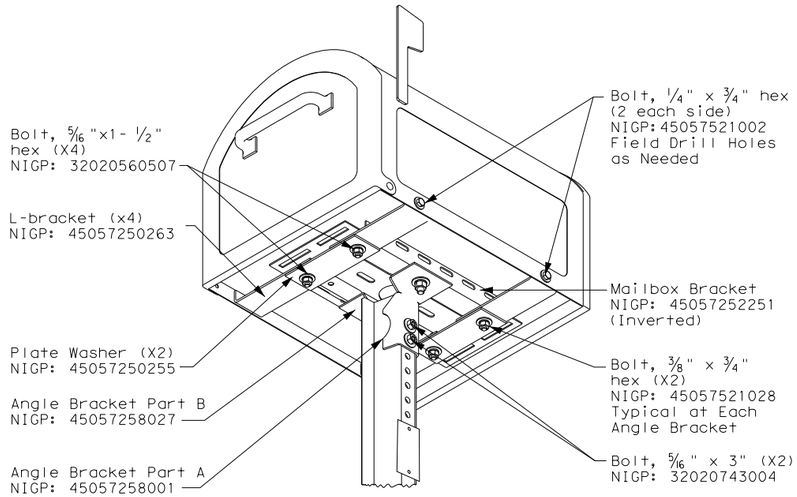
TYPE 1 MULTI – LOCKABLE ARCHITECTURAL (LA)



TYPE 1 MULTI – XL MAILBOX



TYPE 3 - XL MAILBOX MOUNTING



Texas Department of Transportation

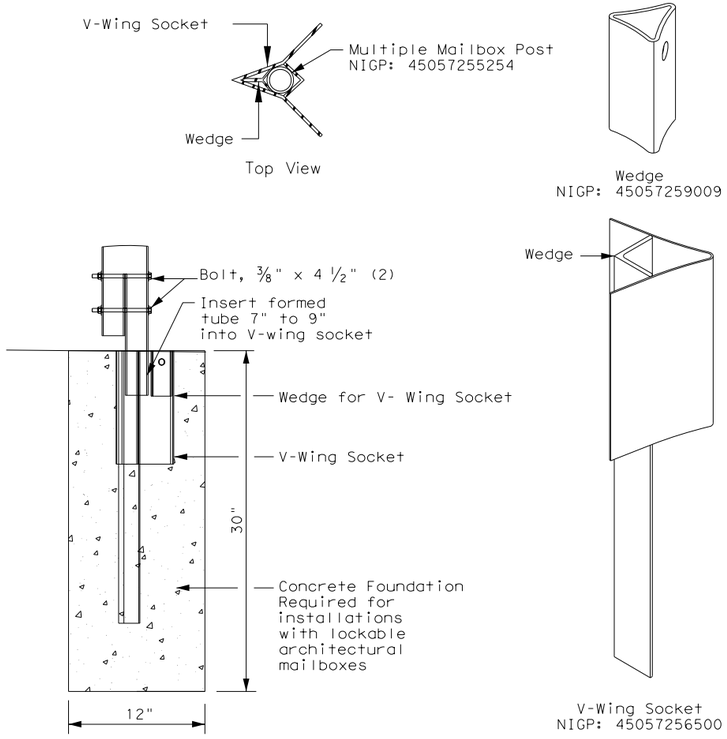
Maintenance Division Standard

XL AND LOCKABLE ARCHITECTURAL MAILBOX ASSEMBLY

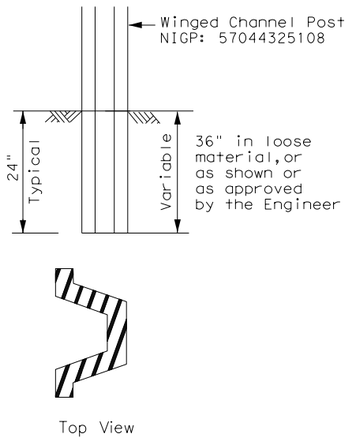
MB(2)-21

FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		96

TYPE 1 - SUPPORT/FOUNDATION
Thin Wall Tube w/ V-LOC Anchorage

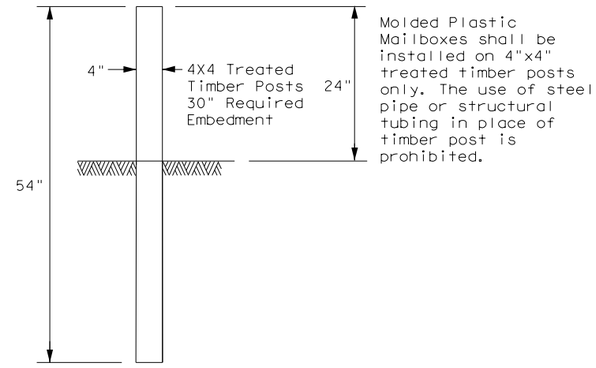


TYPE 3 - SUPPORT/FOUNDATION

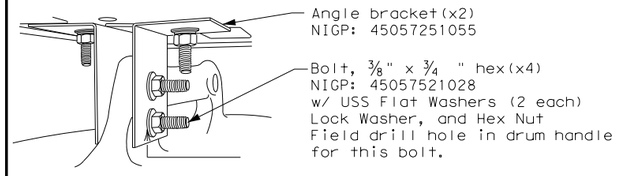


NOTES:
1. Attach Object Marker(OM) facing direction of traffic.
2. OM will also be required on opposite side if installed on a 2-Lane, 2-Way roadway.

TYPE 5 - SUPPORT/FOUNDATION



TYPE 6 - TEMPORARY MAILBOX SUPPORT

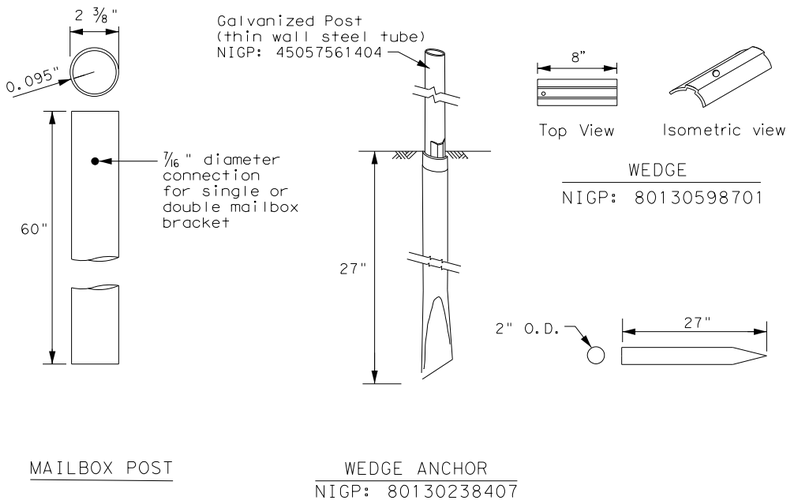


Plastic Drum NIGP: 55093383655
Rubber Collar NIGP: 55093387102

NOTES:
1. Place on approved plastic drum as shown in the Compliant Work Zone Traffic Control Devices (CWZTCD).
2. Existing attachment hardware shall be used unless damaged. Damaged hardware shall be replaced.

GENERAL NOTES:
1. Erect post plumb or vertical.
2. When galvanized part is required galvanize in accordance with Item 445.
3. Use a concrete footing as shown or when directed. Concrete footing will be required when soils do not hold the support/foundations in a stable condition, only on Type 1, Type 2, and Type 4

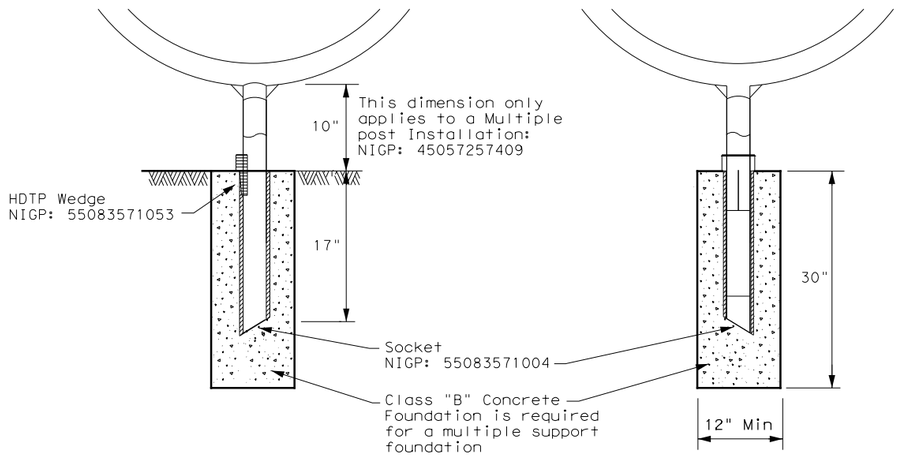
TYPE 2 - SUPPORT/FOUNDATION
Thin Wall Steel Tube w/Wedge Anchor System



MAILBOX POST

WEDGE ANCHOR
NIGP: 80130238407

TYPE 4 - SUPPORT/FOUNDATION
Whitecoated steel post NIGP: 45057561107
Multiple post NIGP: 45057257409
Recycled Rubber post (RR) NIGP: 45057561057



SHEET 3 OF 4

Texas Department of Transportation | Maintenance Division Standard

MAILBOX SUPPORT AND FOUNDATION

MB(3)-21

FILE: MB-21.dgn	DN:	CK:	DW:	CK:
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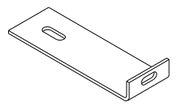
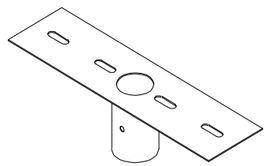
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		97

DATE: 8/5/2022 3:38:46 PM
FILE: $FILE$

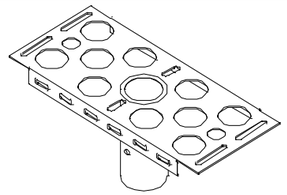
TYPE	TYPE 1	TYPE 2	TYPE 3	TYPE 4			TYPE 5	TYPE 6
Configuration	Multiple	Single or Double	Single or Double	Single	Double	Multiple	Single	Single
Mailbox Size NIGP #	Outside Position: S or M Inside Position: S, M, L, XL, or LA	Single: S, M, L, XL, or LA Double: SS, SM, MM	Single: S, M, L, or XL Double: SS, SM, MM	S, M, L, XL, or LA	SS, SM, or MM	Outside Position: S or M Inside Position: S, M, L, or XL	Molded Plastic	S, or M
Mailbox Post NIGP #	45057255254 (Galvanized Multiple)	45057561404 (Thin Walled Gavanize)	57044325108 (Wing Channel Post)	45057561107 (Thin walled white powder coated) 45057561057 (Recycled Rubber Post: S or M only)	45057561107 (Thin Walled White Powder Coated)	45057257409 (White Powder Coated Multiple)	4x4 Timber	Construction Barrel
Post and Mailbox Hardware NIGP #	45057259009 (Wedge) 45057256500 (V-Wing Socket) 45057253002 (Bracket Extension) 45057252251 (Mailbox Bracket) 45057258001 (Part A Angle Bracket x2) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	80130598701 (Wedge) 80130238407 (Wedge Anchor) 45057253002 (Bracket Extension) 45057252343 (Double MB Bracket) 45057252350 (S. Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket forXL x4)	45057541653 (Type 3 Double Mailbox Bracket) 45057252251 (Mailbox Bracket) 45057253002 (Bracket Extension) 45057258001 (Part A Angle Bracket) 45057258027 (Part B Angle Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057252350 (Single Mailbox Bracket) 45057253002 (Bracket Extension) 45057250255 (Plate Washer for XL/LA x2) 45057250263 (L-Bracket for XL x4)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252343 (Double Mount Bracket) 45057252251 (Mailbox Bracket x2)	55083571053 (Wedge) 55083571004 (Socket) 45057253002 (Bracket Extension) 45057252350 (Single Mount Bracket) 45057250255 (Plate Washer for XL x2) 45057250263 (L-Bracket for XL x4)	None	45057251055 Angle Bracket (x2)
Foundation Used	Class B Concrete (Required for LA Mailboxes)	Class B Concrete (Required for LA Mailboxes)	None	Class B Concrete (not used with recycled rubber post, required for LA Mailboxes)	Class B Concrete (not required)	Class B Concrete	None	None



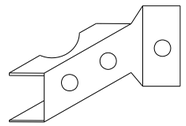
NIGP: 45057250263
L-Bracket x4 for
XL sized mailboxes



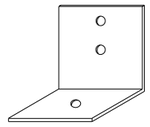
NIGP: 45057252343
Double Mailbox Bracket
For Type 2 and Type 4
double mount



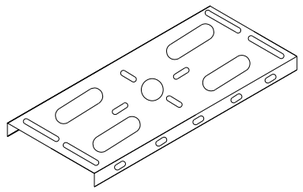
NIGP: 45057252350
Single Mailbox Bracket
For Type 2 single and for
Type 4 single and multi mount



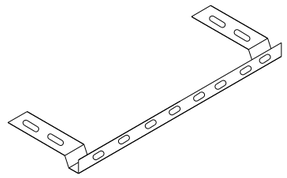
NIGP: 45057258001
Part "A" Angle Bracket
For Type 1 multi (2 per mailbox)
and Type 3 single and double



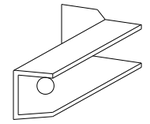
NIGP: 45057251055
Type 6 Angle Bracket
(2 per mailbox)



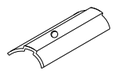
NIGP: 45057252251
Mailbox Bracket
For Type 1 multi and
any double mount (use 2)



NIGP: 45057253002
Bracket Extension
Use 1 for a medium Mailbox
Use 2 for a Large Mailbox



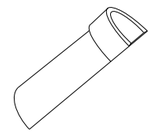
NIGP: 45057258027
Part "B" Angle Bracket
For Type 3 single
and double



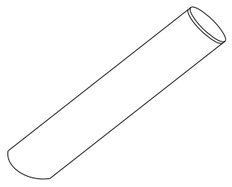
NIGP: 80130598701
Wedge for Type 2

NIGP: 45057250255
Plate Washer for Architecural
and XL Mailboxes

NIGP: 45057541653
Type 3 double mailbox bracket

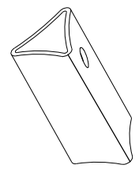


NIGP: 55083571053
Type 4 Mailbox Wedge

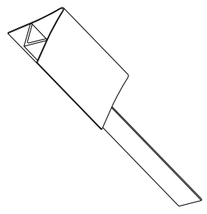


NIGP: 55083571004
Type 4 Mailbox Socket

NIGP: 80130238407
Type 2 Wedge Anchor



NIGP: 45057259009
Wedge for Type 1 V-wing Socket



NIGP: 45057256500
V-wing Socket for
Type 1 Foundation

NIGP #	OBJECT MARKERS AND CONFORMABLE SHEETING
55008311759	Type 2 OM 4"x4" (3 Needed) for Type 3 Wing Channel Post
55008312906	Type 2 OM 6"x12" (1 needed) for Type 3 Wing Channel Post
80149872006	12" Conformable Reflective Yellow Sheeting for Flexible Posts

NOTES:

1. Type 2 object marker in accordance with Traffic Engineering Standard Delineators & Object Markers.
2. A light weight receptacle for newspaper delivery can be attached to mailbox posts if the receptacle does not touch the mailbox, present a hazard to traffic or delivery of the mail, extend beyond the front of the mailbox, or display advertising, except the publication title.

BID CODES FOR CONTRACTS

MB-(X) ASSM TY (XXX) (X)

Type of Mailbox
- S = Single
- D = Double
- M = Multiple
- MP = Molded Plastic

Type of Post
- WC = Winged Channel Post
- RR = Recycled Rubber
- TWW = Thin Walled White Tubing
- TWG = Thin Walled Galvanized Tubing
- TIM = Timber

Type of Foundation
- Ty 1 = V-Loc
- Ty 2 = Wedge Anchor Steel System
- Ty 3 = Winged Channel post
- Ty 4 = Wedge Anchor Plastic System
- Ty 5 = 4 X 4 Post

DATE: 8/5/2022 3:38:46 PM
FILE: $FILE$

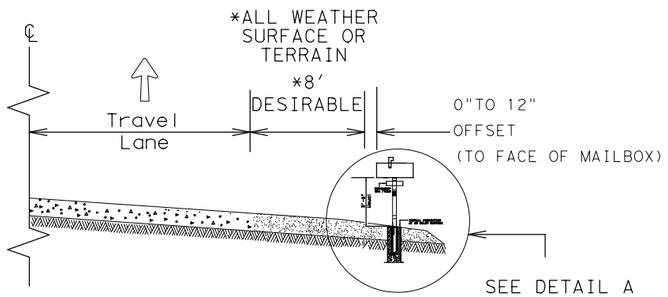
SHEET 4 OF 4

Texas Department of Transportation — Maintenance Division Standard

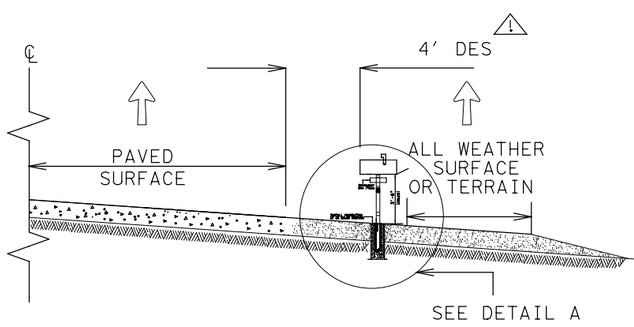
NIGP PARTS LIST AND COMPATIBILITY

MB(4)-21

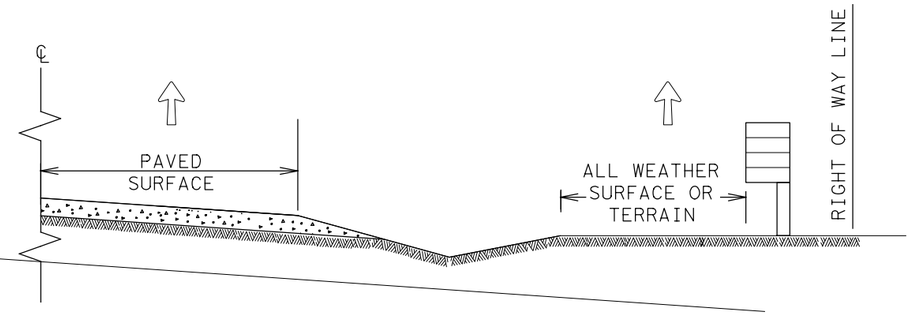
FILE: MB-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT March 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS 2/2005 11/2009 4/2015 6/2005 1/2011 11/2006 7/2014	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		98



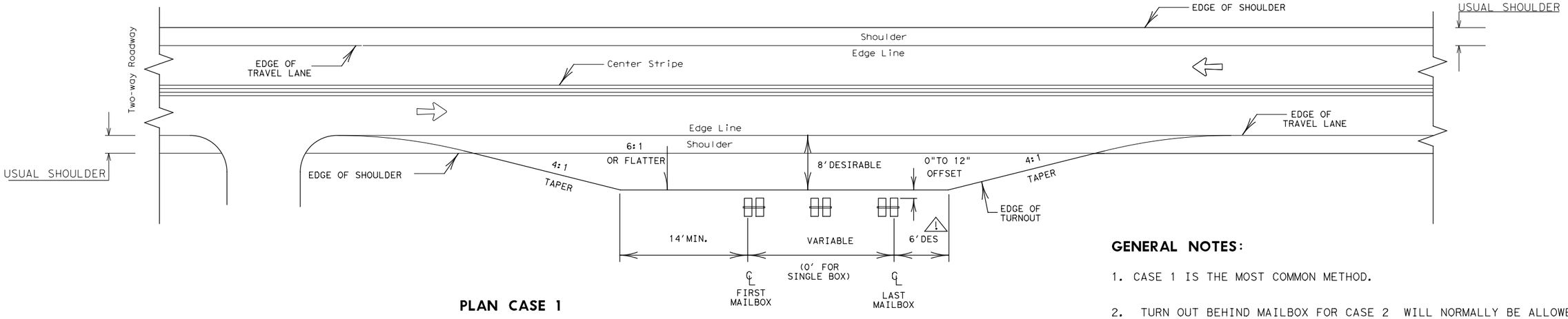
CASE 1. OFF TRAVEL WAY DELIVERY



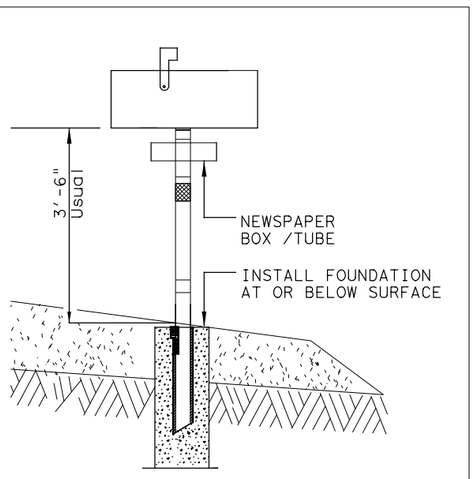
CASE 2. BACK SIDE DELIVERY



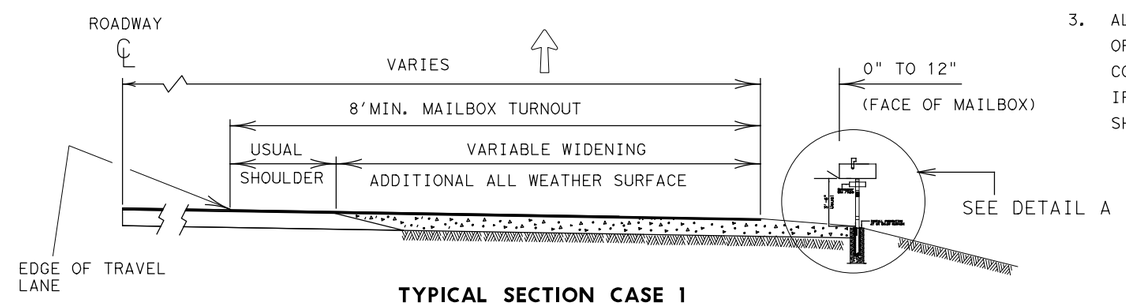
CASE 3. DELIVERY NEAR RIGHT OF WAY LINE



PLAN CASE 1



DETAIL A



TYPICAL SECTION CASE 1

MAIL DELIVERY VEHICLE TRAVEL DIRECTION

GENERAL NOTES:

1. CASE 1 IS THE MOST COMMON METHOD.
2. TURN OUT BEHIND MAILBOX FOR CASE 2 WILL NORMALLY BE ALLOWED FOR NATURAL TERRAIN THAT WILL SERVE AS AN ALL WEATHER SURFACE.
3. ALL WEATHER DRIVEWAYS FOR CASE 3 MAILBOXES LOCATED AT THE RIGHT OF WAY LINE SHOULD NORMALLY BE PLACED IN CONJUNCTION WITH COUNTY ROADS OR OTHER CONNECTING COMMUNITY ROADS OR STREETS. IF THE NUMBER OF MAILBOXES EXCEEDS FOUR, A COMMUNITY MAIL BOX SHOULD BE ENCOURAGED AT THESE LOCATIONS.

Texas Department of Transportation

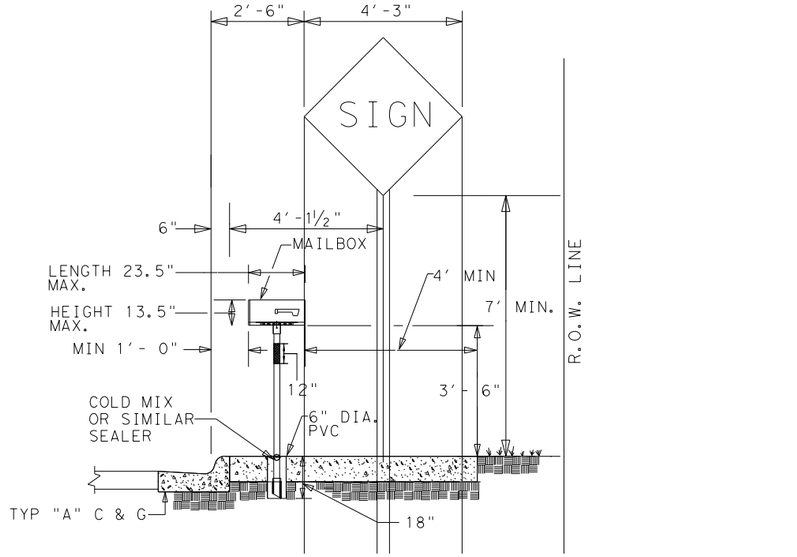
Maintenance Division Standard

Guideline

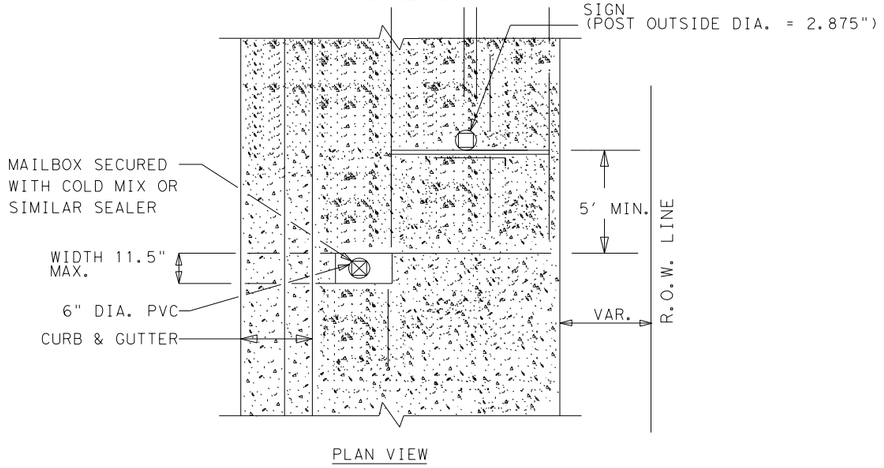
MAILBOX SIDE ROAD PLACEMENT AND TURNOUTS
MB-14(2)

FILE: MB14(2).DGN	DN: JEO	CK:	DW: JEO	CK:
© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS DECEMBER 2012-NEW TXDOT TITLE BLOCK	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		99

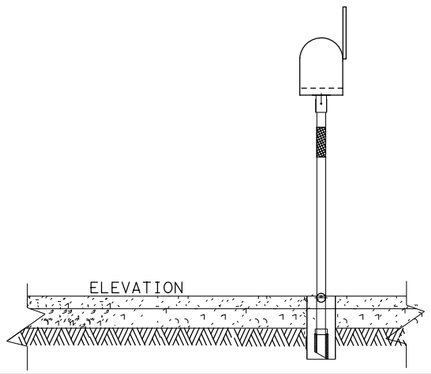
DATE: 8/5/2022 3:38:50 PM
FILE: $FILE$

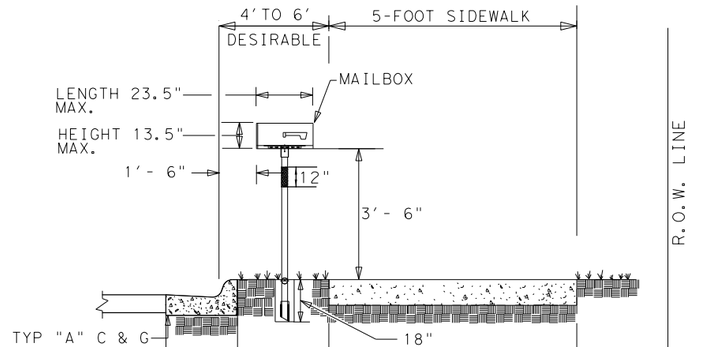


MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN
(MINIMUM BORDER DISTANCE)

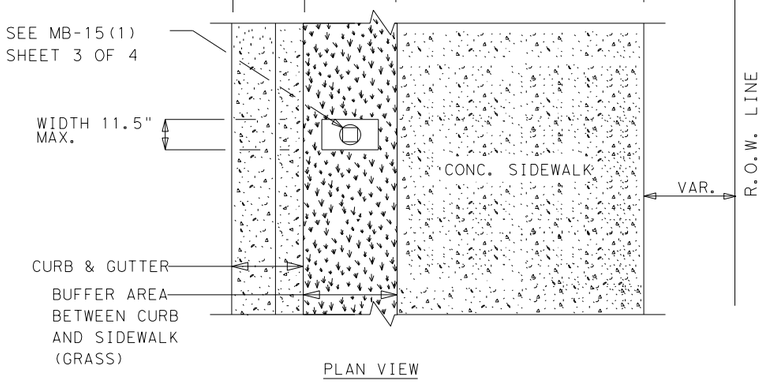


PLAN VIEW





MAILBOX SIDEWALK INSTALLATION
(DESIRABLE BORDER DISTANCE)



PLAN VIEW

Texas Department of Transportation

Maintenance Division Standard

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	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		100

DATE: 8/5/2022 3:38:50 PM
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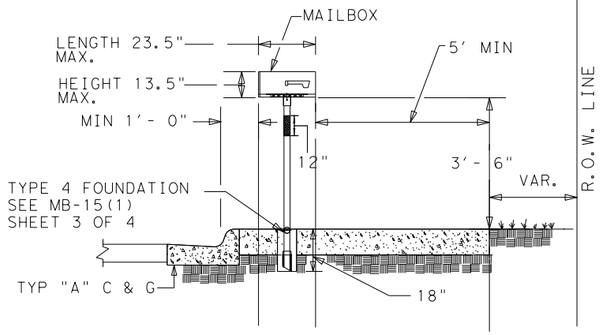
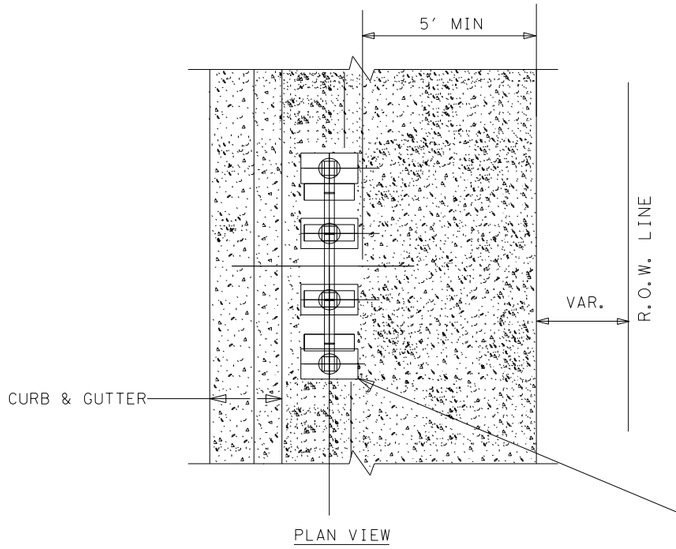
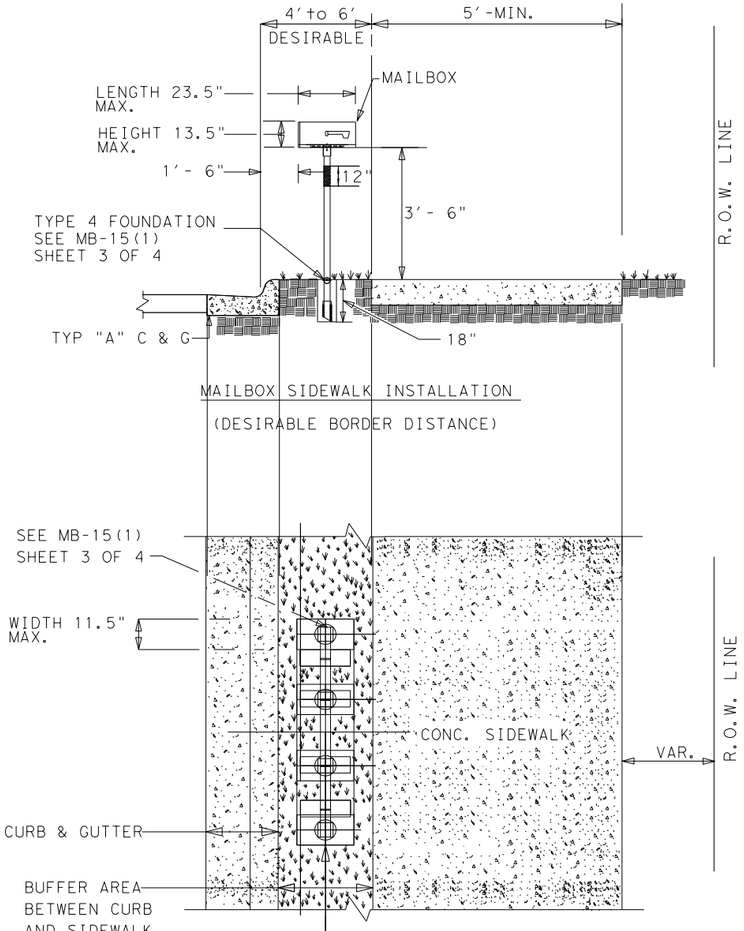


MAILBOX SIDEWALK INSTALLATION RELATIVE TO ANY OTHER OBSTRUCTION SUCH AS A SIGN
(MINIMUM BORDER DISTANCE)

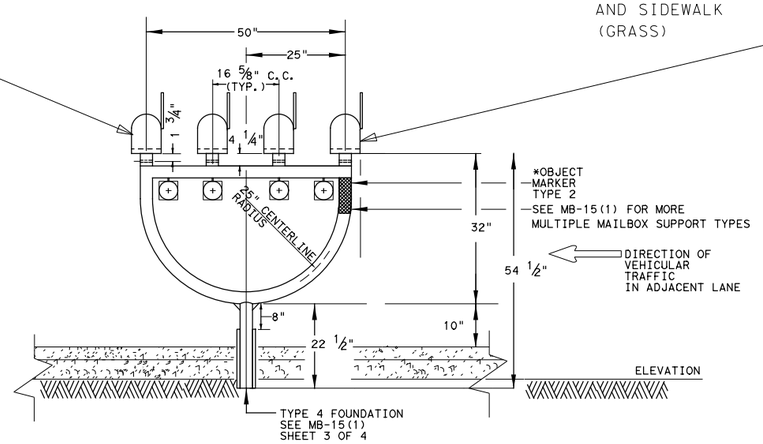


PLAN VIEW



MAILBOX SIDEWALK INSTALLATION
(DESIRABLE BORDER DISTANCE)

PLAN VIEW



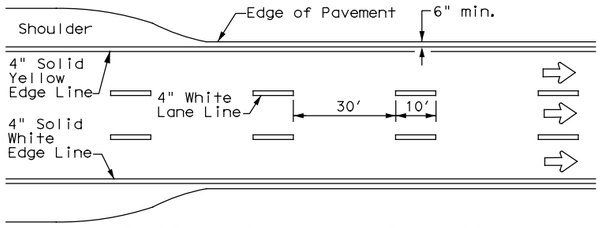
DATE: 8/5/2022 3:40:44 PM
FILE: $FILE$

Texas Department of Transportation | Maintenance Division Standard

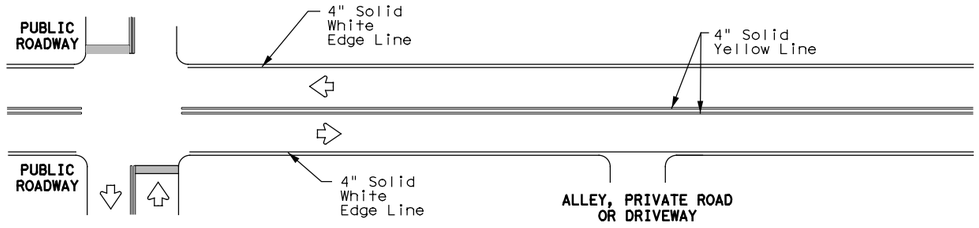
MULTIPLE MAILBOX PLACEMENT BEHIND CURBS WITH OR WITHOUT SIDEWALKS

MB-14(2B)

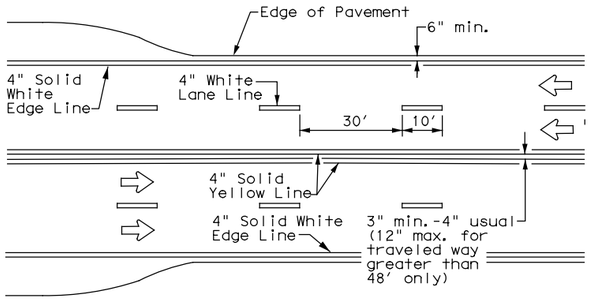
FILE: MB-14(2A)	DN:	CK:	DW:	CK:
© TxDOT MAY 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		101



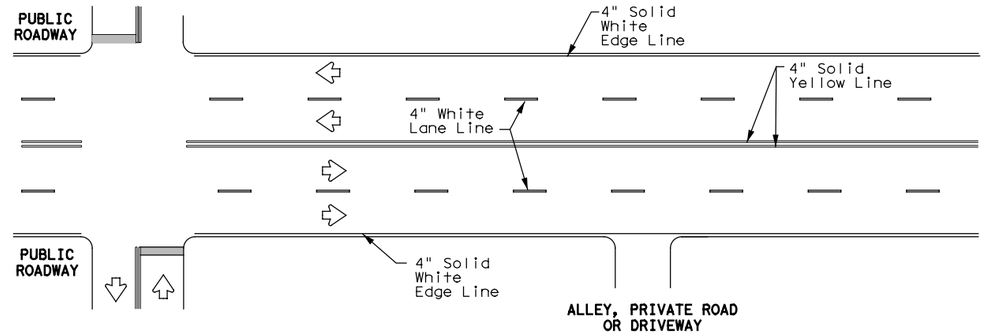
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



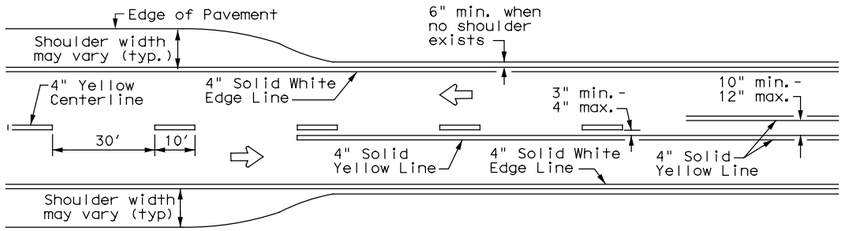
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



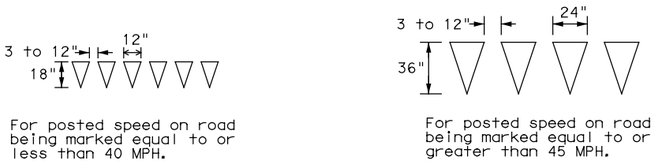
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



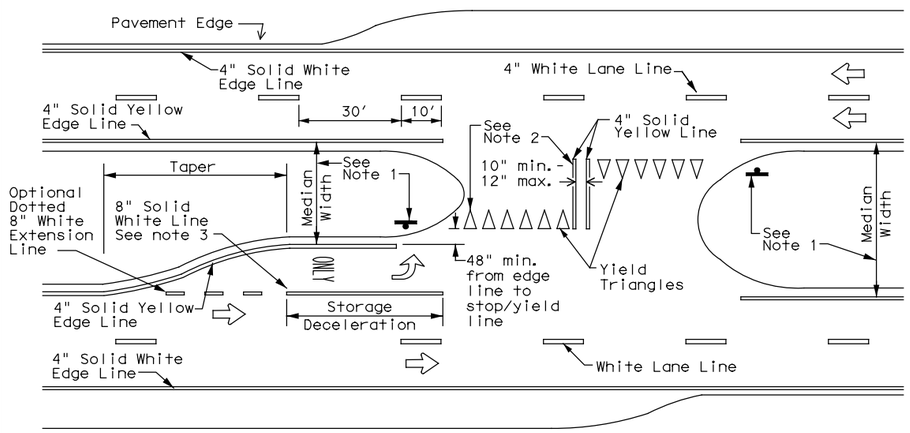
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles shall only be used with yield signs.

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

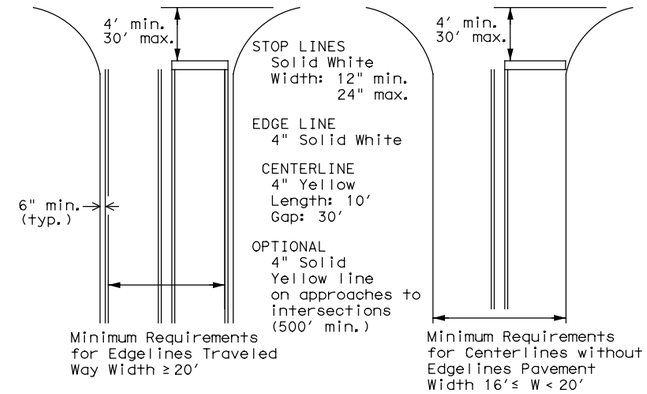
GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.

2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the inside of edgeline of a two lane roadway.

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

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



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

Texas Department of Transportation

Traffic Safety Division Standard

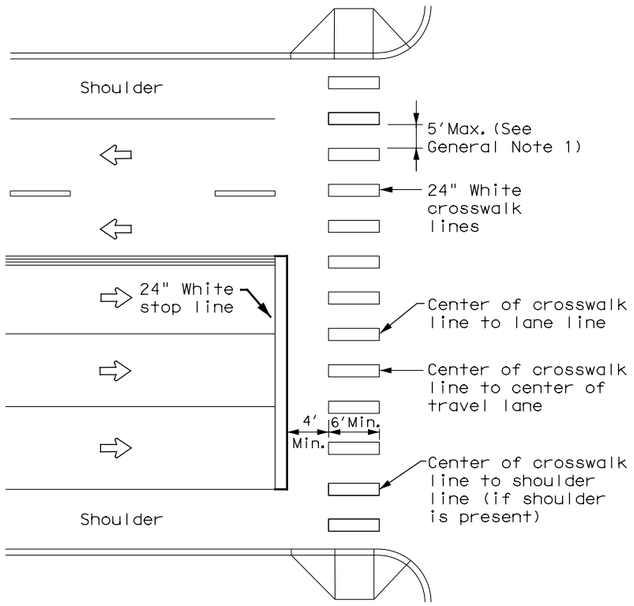
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-20

FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0286	01	062, ETC.	SH80, ETC.
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	AUS	HAYS		102

22A

DATE: 8/5/2022 3:40:47 PM
FILE: $FILE$



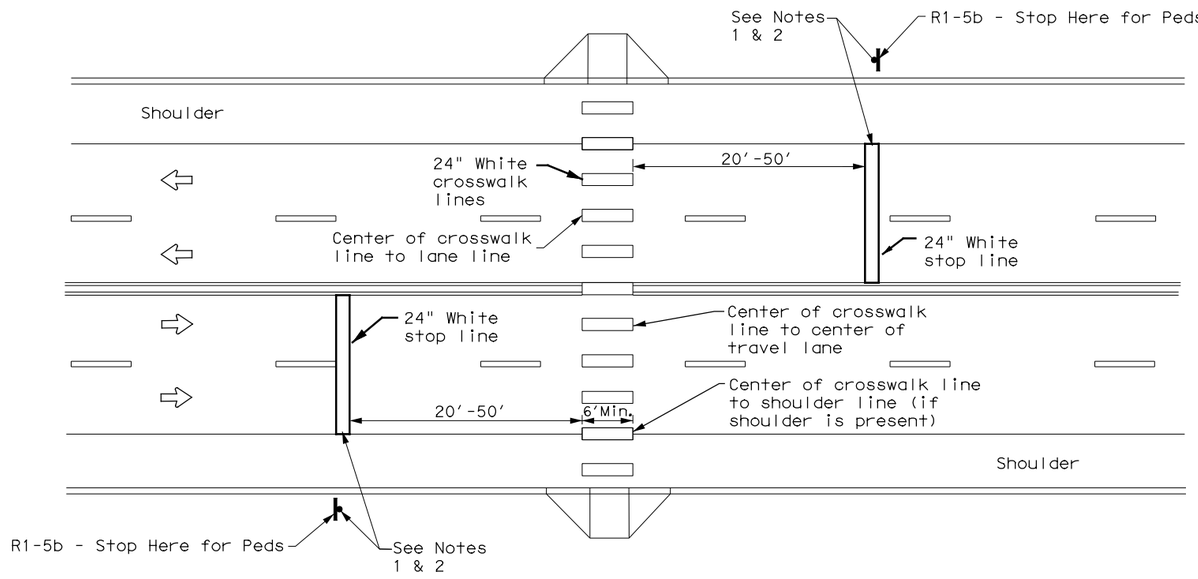
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

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

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



UNSIGNALIZED MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with "Stop Here for Pedestrians" signs at unsignalized mid block cross walks.
2. Use stop bars with "Stop Here on Red" signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-22

FILE: pm4-22.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS 3-22	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		103

22D

DATE: 11/21/2022 1:50:11 PM
FILE: $FILE$

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type

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

Number of Posts (1 or 2)

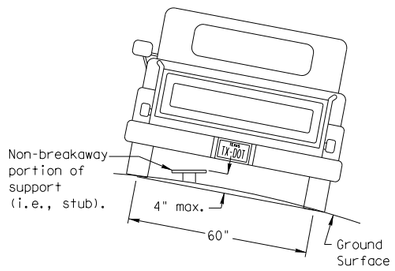
Anchor Type

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

Sign Mounting Designation

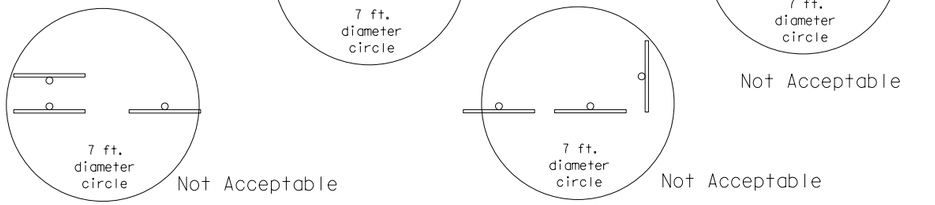
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))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

REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



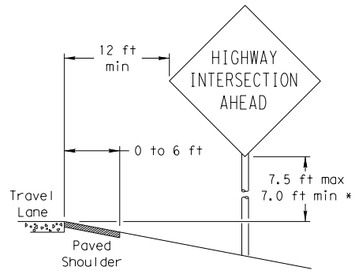
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

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



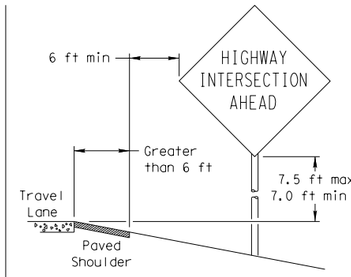
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

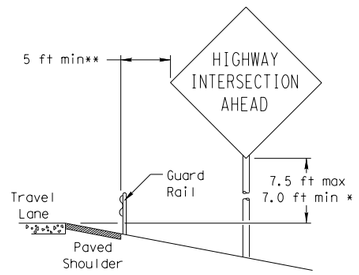
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



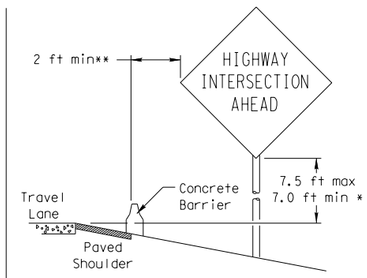
GREATER THAN 6 FT. WIDE

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

BEHIND BARRIER



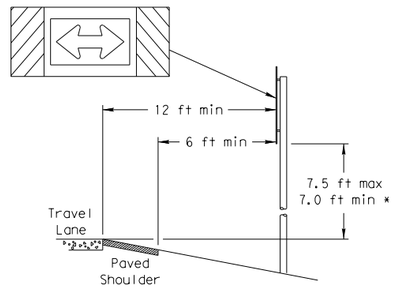
BEHIND GUARDRAIL



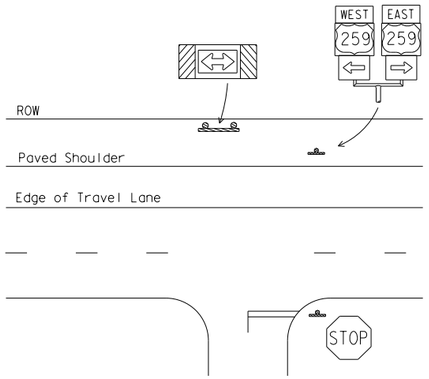
BEHIND CONCRETE BARRIER

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

T-INTERSECTION



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



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

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

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

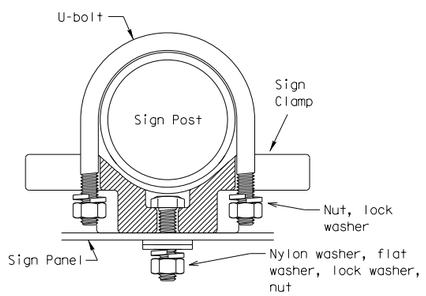
The maximum values may be increased when directed by the Engineer.

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

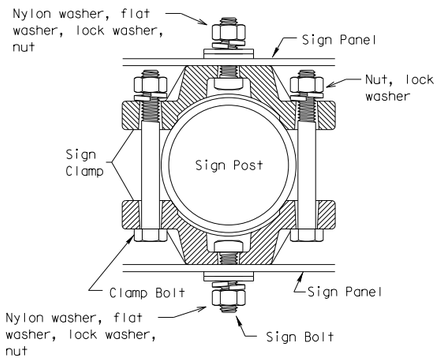
The website address is:
http://www.txdot.gov/publications/traffic.htm

TYPICAL SIGN ATTACHMENT DETAIL

Single Signs



Back-to-Back Signs



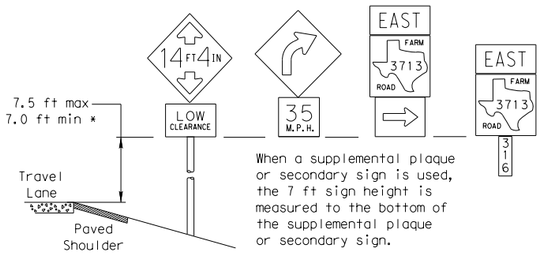
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

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

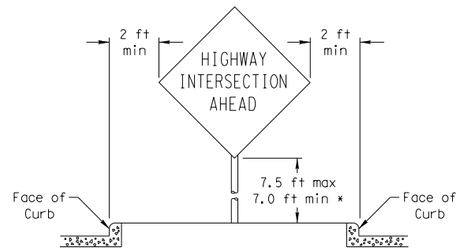
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



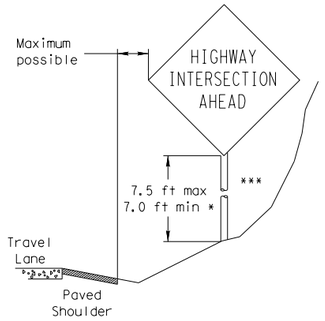
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		104

26A

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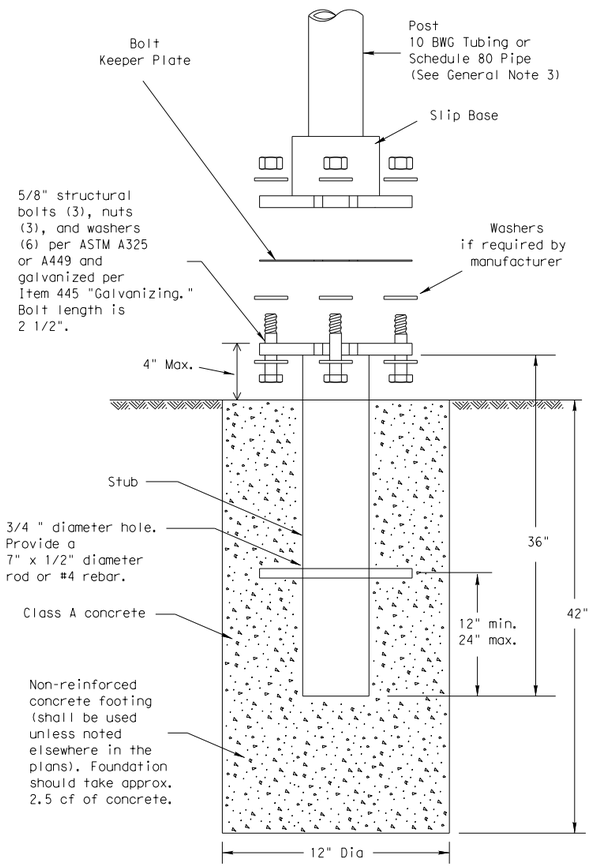
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

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

GENERAL NOTES:

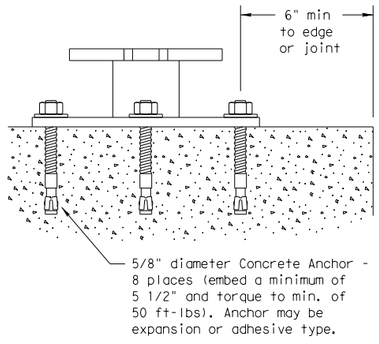
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

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

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

CONCRETE ANCHOR



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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0286	01	062, ETC.	SH80, ETC.

DIST	COUNTY	SHEET NO.
AUS	HAYS	105

26B

DATE: 8/5/2022 3:40:54 PM
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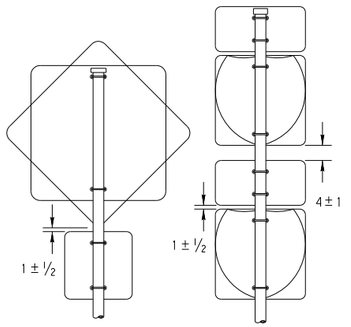
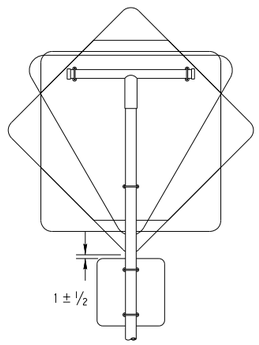
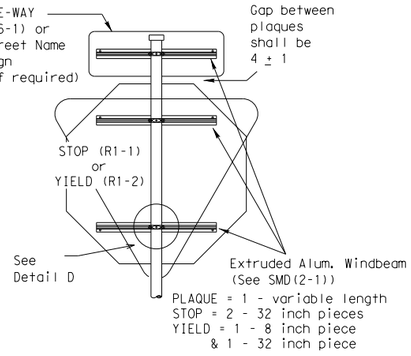


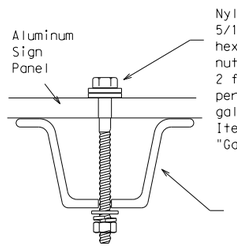
SM RD SGN ASSM TY XXXXX(1)XX(P)



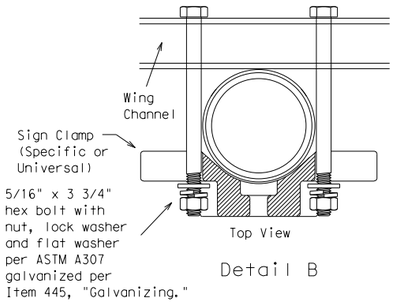
SM RD SGN ASSM TY XXXXX(1)XX(T)



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



Detail A



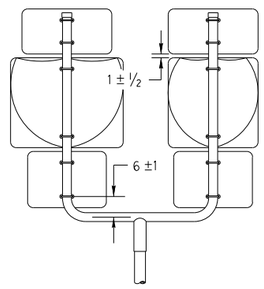
Detail B

GENERAL NOTES:

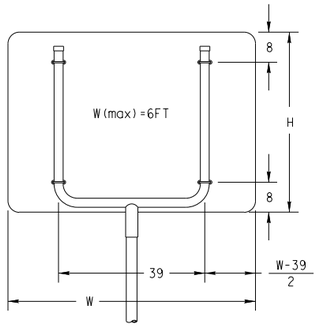
1.

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

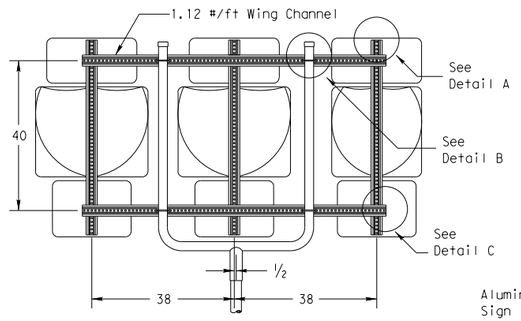
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material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



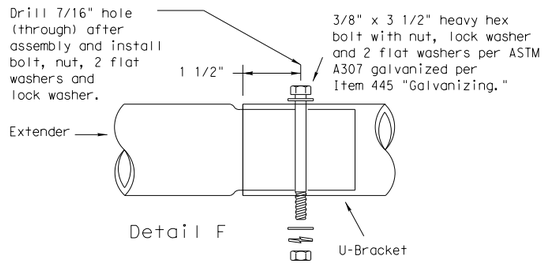
SM RD SGN ASSM TY XXXXX(1)XX(U)



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

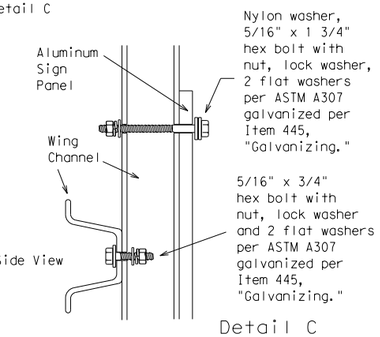


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

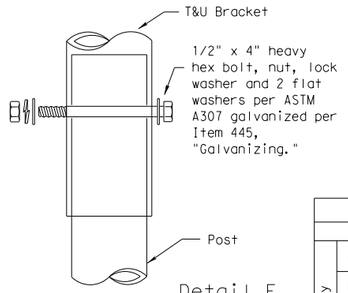


Detail F

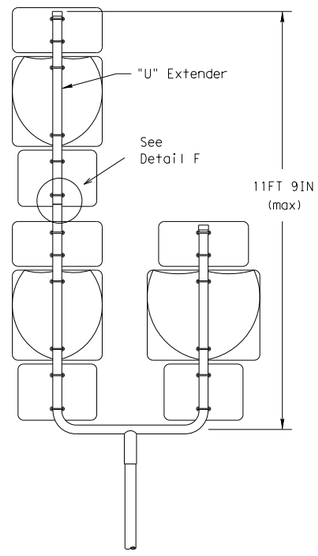
Splices shall only be allowed behind the sign substrate.



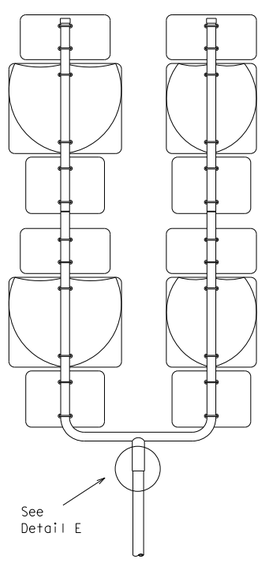
Detail C



Detail E



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



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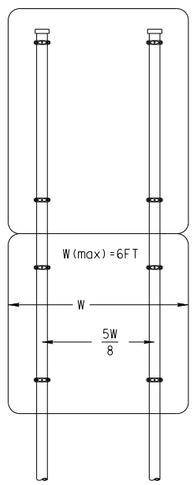
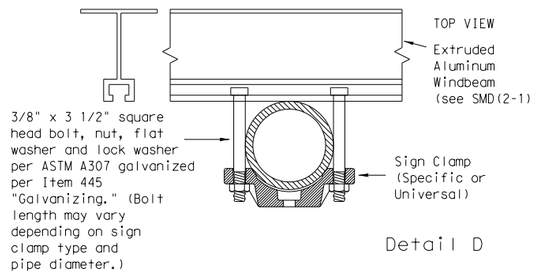
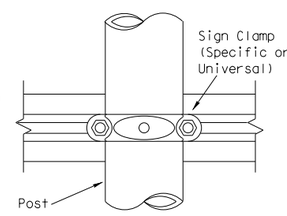


SM RD SGN ASSYM TY XXXXX(2)XX(P)

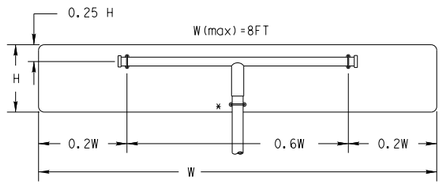
SIDE VIEW





Detail D

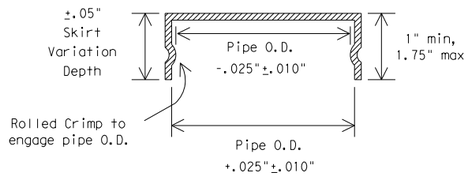
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)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



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

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		106

26C

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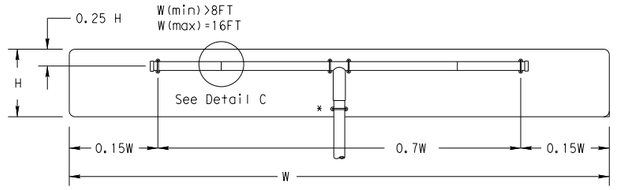
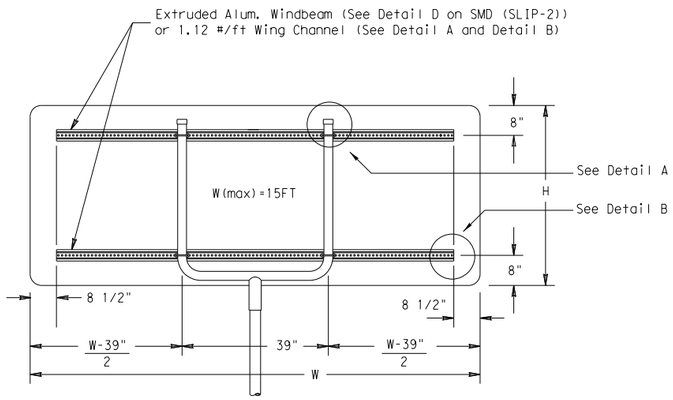
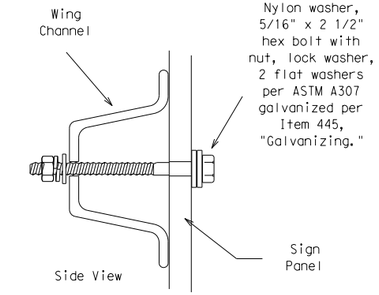


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

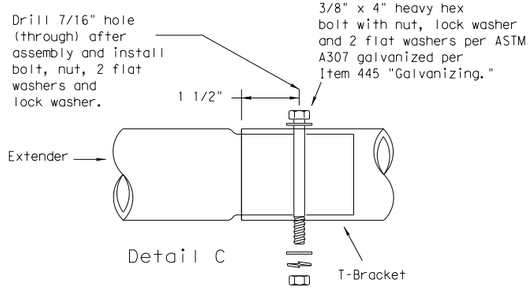
(* - See Note 12)



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

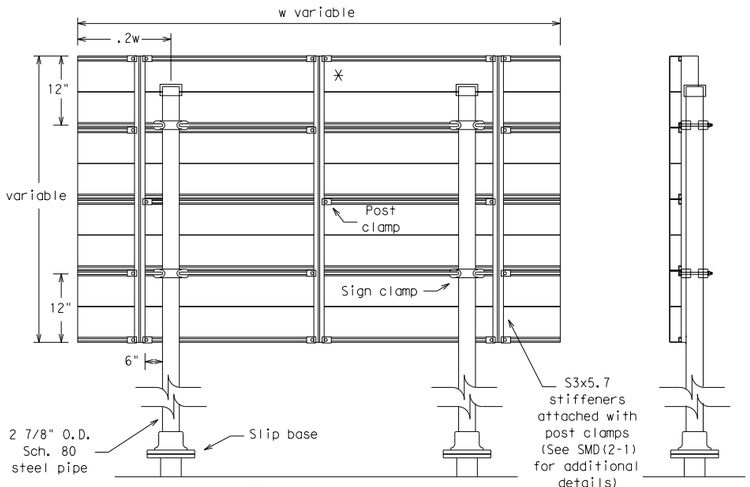


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

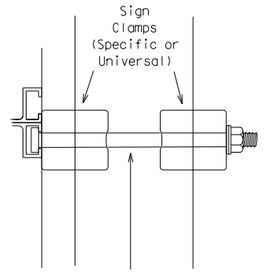


Typical Sign Mount

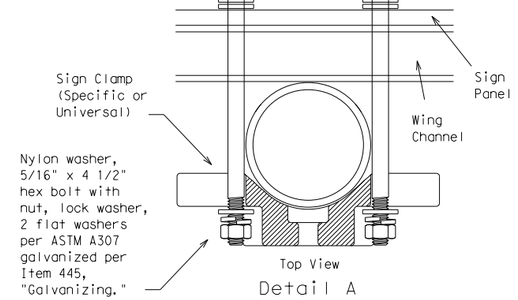
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

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

See Detail E
for clamp installation

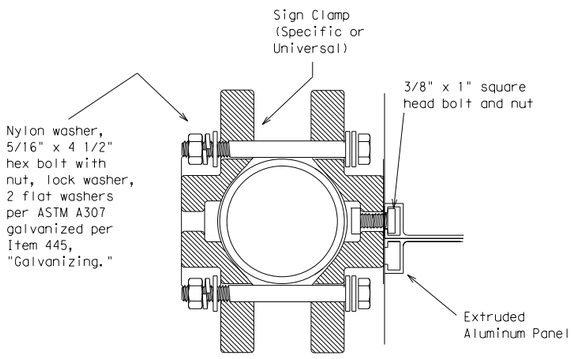


Detail E

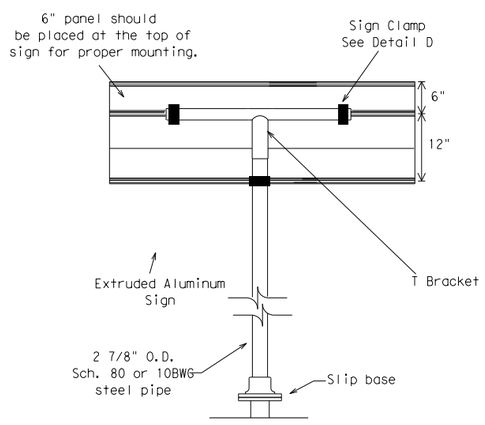


Top View

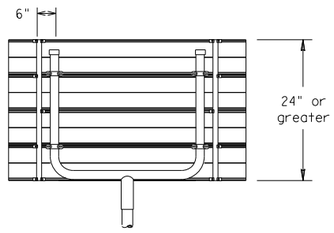
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET



Extruded Aluminum Sign
With T Bracket



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

See Detail E
for clamp installation

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

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. 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.
12. 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(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

REVISIONS
9-08

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

CONT	SECT	JOB	HIGHWAY
0286	01	062, ETC.	SH80, ETC.

DIST	COUNTY	SHEET NO.
AUS	HAYS	107

26D

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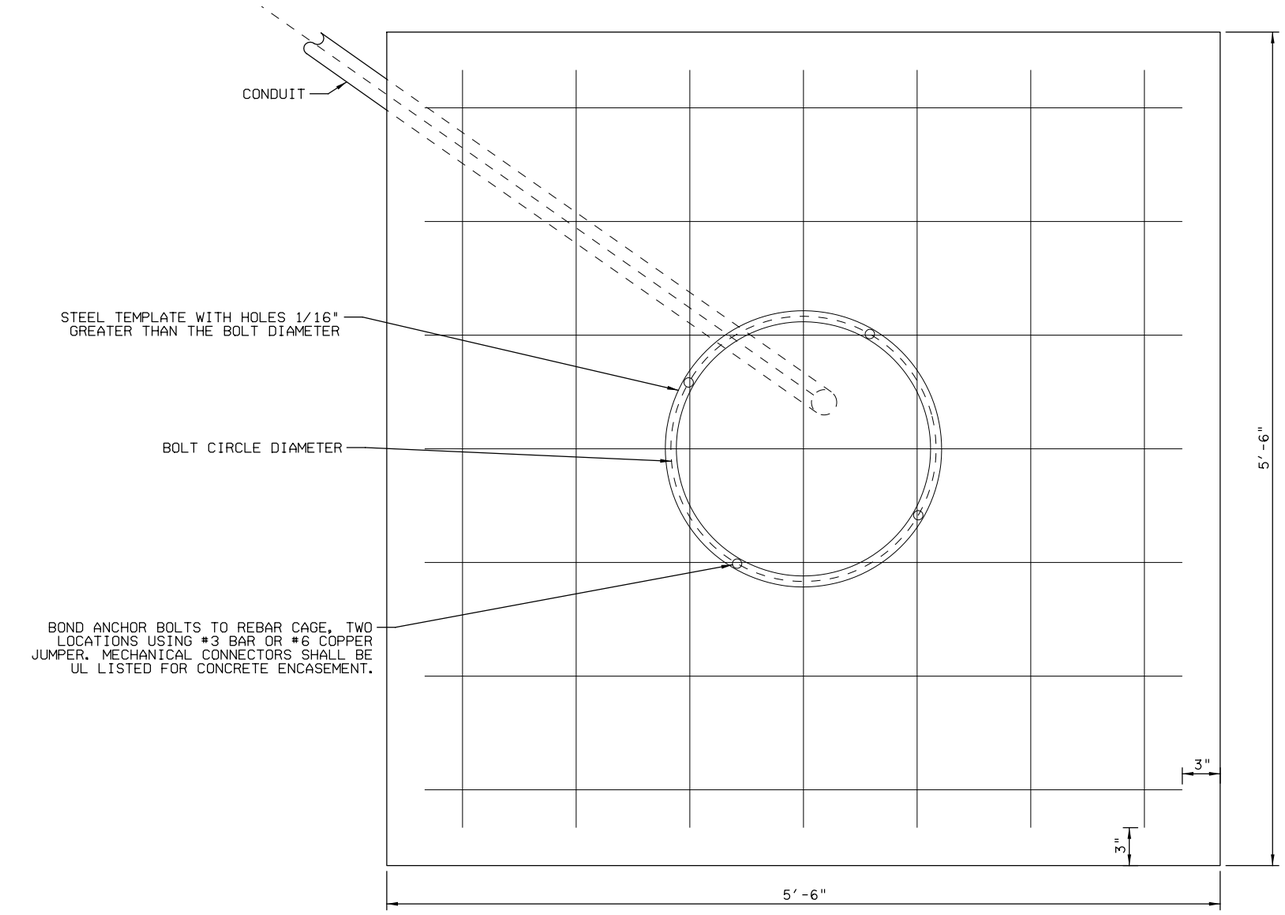
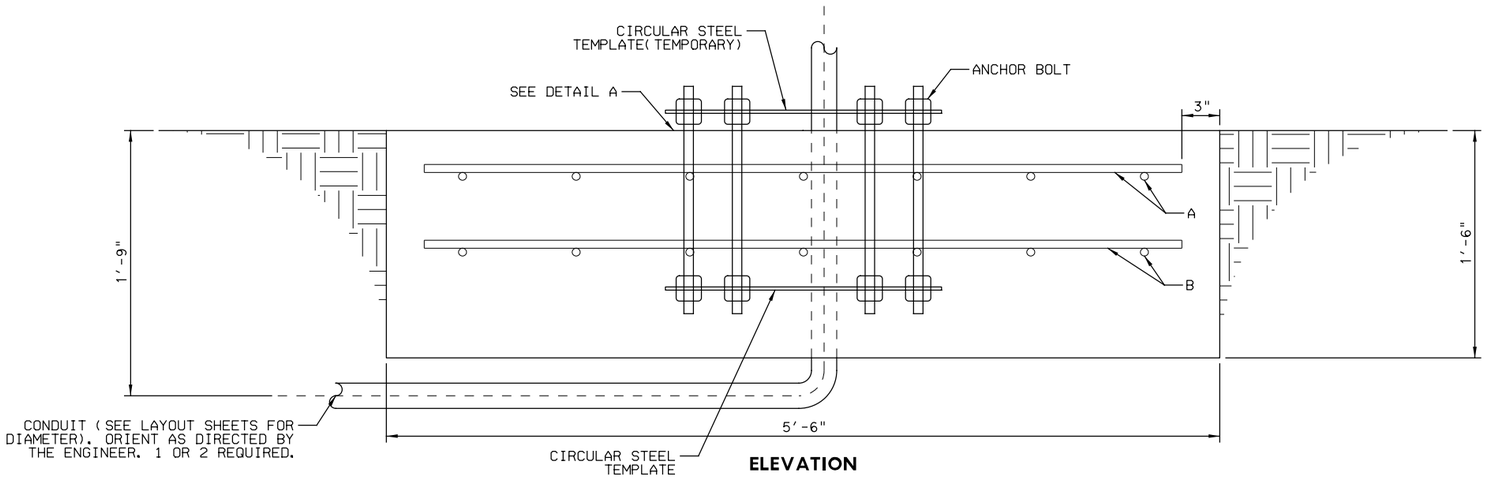
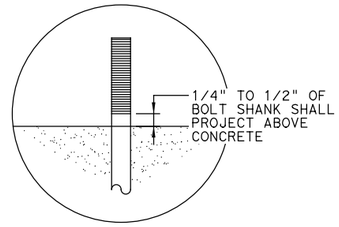


TOP VIEW



ELEVATION



DETAIL A

GENERAL NOTES

* CONCRETE SHALL BE CLASS 'C'
* REINFORCING STEEL SHALL CONFORM TO ITEM 440, "REINFORCING STEEL:, GRADE 60 MIN.
* 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 SHALL CONFORM TO ASTM A36. GALVANIZING A MINIMUM OF THE TAP AND 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".

ANCHOR BOLT & TEMPLATE SIZE

BOLT DIA IN.	BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R_2	R_1
3/4"	1'-6"	3"		12 3/4"	7 1/8"	5 3/8"

QUANTITIES (1)

MATTE	NO.	SIZE	MAX SPA.	LENGTH
A	14	#5	9" C-C	5'-0"
B	14	#5	9" C-C	5'-0"
REINFORCING STEEL			LD	146.0
CLASS 'C' CONCRETE			CY	1.7

(1) QUANTITY SHOWN IS THE AVERAGE FOR ON FOOTING ONLY.

06/27/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

Texas Department of Transportation

CURB RAMP PROGRAM

PEDESTAL POLE SLAB FOUNDATION DETAIL

SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS		SEE TITLE SHEET		SH80,ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	108
CHECK	CONTROL	SECTION	JOB	
	0286	01	062, ETC.	

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FILE: Ped Slab FoundationTXDOT).dgn
PENTABLE: I033I29I-San Marcos.tbl
DATE: 6/27/2022
TIME: 10:17:34 PM
SCALE: 1:1

GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.

10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

FILE:	ed1-14.dgn	DN:	CK:	DW:	CK:
© TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS		0286	01	062, ETC.	SH80, ETC.
		DIST	COUNTY		SHEET NO.
		AUS	HAYS		109

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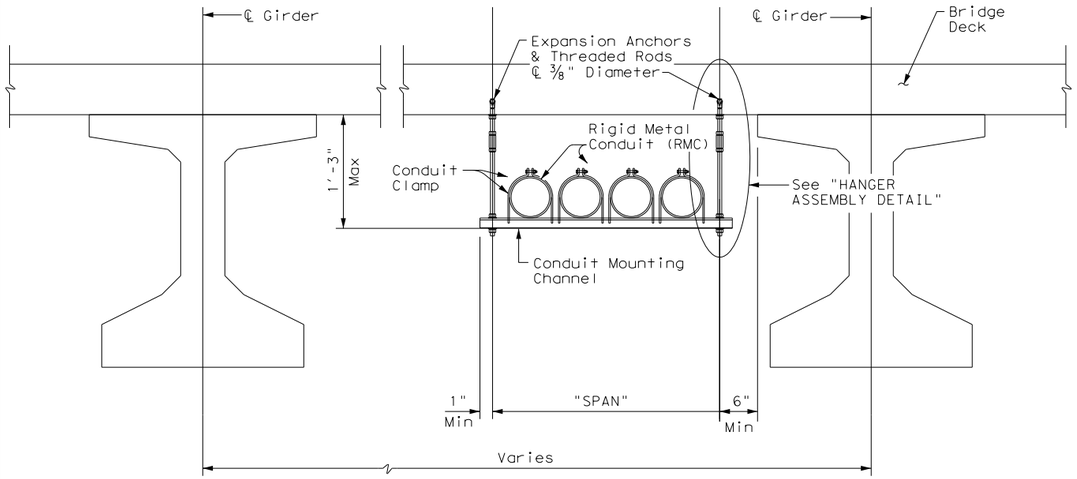
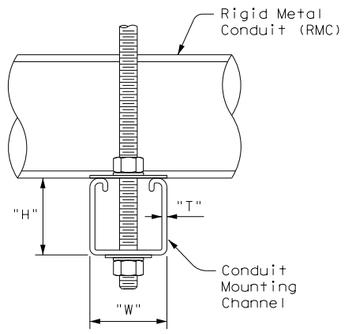
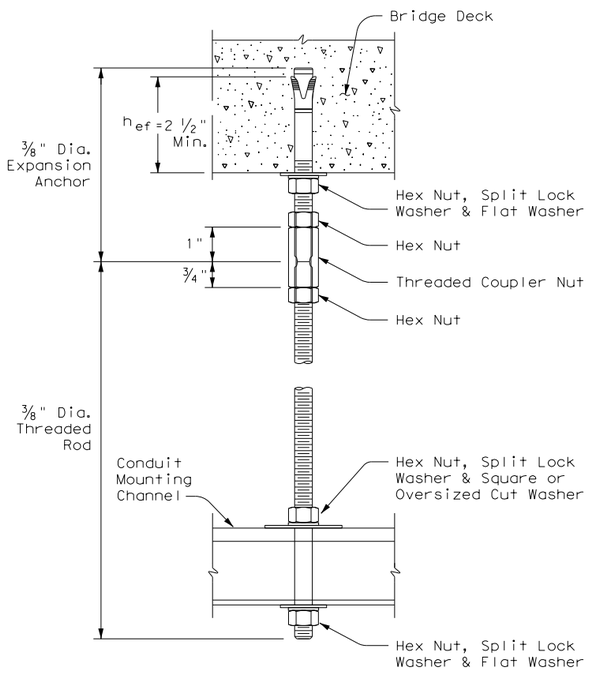


CONDUIT HANGING DETAIL

CONDUIT MOUNTING CHANNEL		
"SPAN"	"W" x "H"	"T"
less than 2'	1 5/8" x 1 3/8"	12 Ga.
2'-0" to 2'-6"	1 5/8" x 1 5/8"	12 Ga.
>2'-6" to 3'-0"	1 5/8" x 2 7/16"	12 Ga.

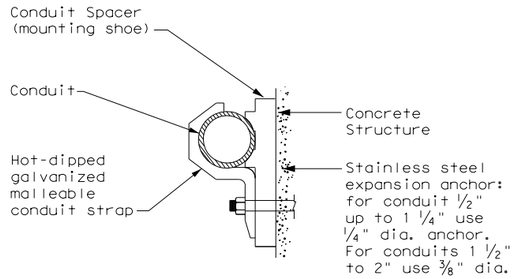
Channels with round or short slotted hole patterns are allowed, if the load carrying capacity is not reduced by more than 15%.

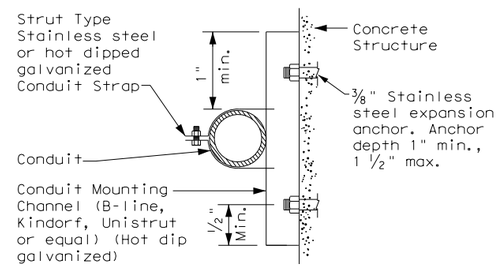




HANGER ASSEMBLY DETAIL

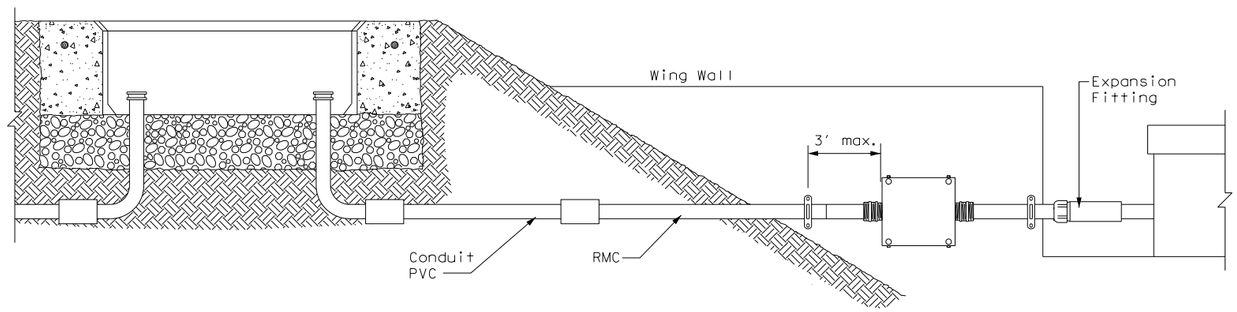
ELECTRIC CONDUIT TO BRIDGE DECK ATTACHMENT





CONDUIT MOUNTING OPTIONS

Attachment to concrete surfaces
See ED(1)B.2



TYPICAL CONDUIT ENTRY TO BRIDGE STRUCTURE DETAIL

EXPANSION ANCHOR NOTES FOR BRIDGE DECK ATTACHMENT

1. Use torque controlled mechanical expansion anchors that are approved for use in cracked concrete by the International Code Council, Evaluation Service (ICC-ES). The chosen anchor product shall have a designated ICC-ES Evaluation Report number, and its approval status shall be maintained on the ICC-ES website under Division 031600 for Concrete Anchors.

2. Unless otherwise approved by the Engineer: do not use adhesive anchors; do not use expansion anchors that are not included in the ICC-ES approval list; and do not use expansion anchors that are only approved for use in uncracked concrete.

3. Use anchors manufactured with stainless steel expansion wedges. Anchors manufactured with carbon steel expansion wedges are not allowed. Anchor bodies can be either zinc-plated carbon steel or stainless steel. For application in marine environment, both the anchor body and expansion wedge shall be stainless steel.

4. Install anchors as shown on the plans and in accordance with the anchor manufacturer's published installation instructions. Arrange a field demonstration test to evaluate the procedures and tools. The test shall be witnessed and approved by the Engineer prior to furnishing anchors on the structure.

5. Prior to hole drilling, use rebar locator to ensure clearing of existing deck strands or reinforcement. Install anchors to ensure a minimum effective embedment depth, (h_{ef}), as shown. Increase (h_{ef})as needed to ensure sufficient thread length for proper torqueing and tightening of anchors.

6. Use anchors of minimum 1600 Lbs tensile capacity (minimum of steel, concrete breakout, and concrete pullout strengths as determined by ACI 318 Appendix D) at the required minimum embedment depth (h_{ef}). No lateral loads shall be introduced after conduit installation.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
CONDUIT SUPPORTS

ED(2)-14

FILE: ed2-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		110

71B

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ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS)11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.

2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.

3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.

4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.

2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.

3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.

4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.

5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.

6. Support conductors in illumination poles with a J-hook at the top of the pole.

7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.

8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.

9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.

10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.

11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.

2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.

3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.

4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.

5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.

2. Do not place ground rods in the same drilled hole as a timber pole.

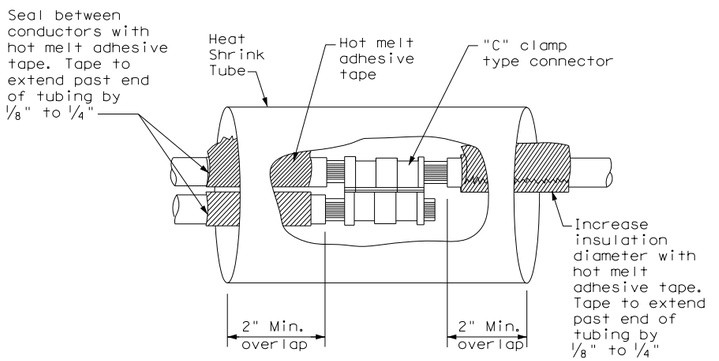
3. Install ground rods so the imprinted part number is at the upper end of the rod.

4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.

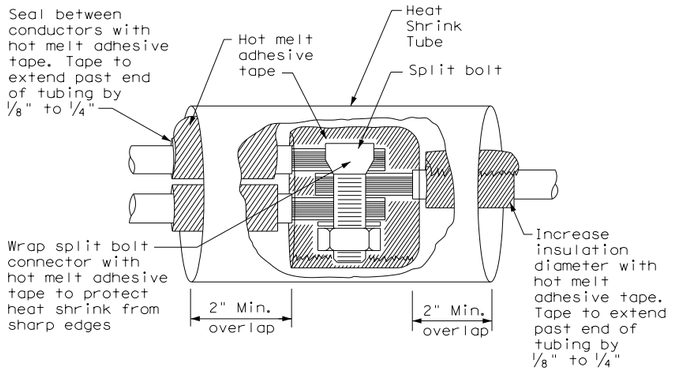
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.

6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.

7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



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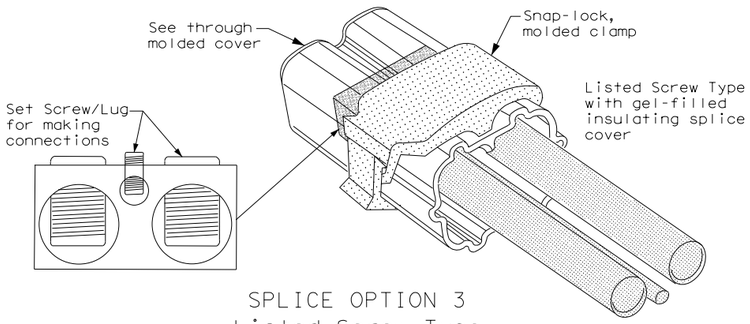
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

Texas Department of Transportation
Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUCTORS

ED(3)-14

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	DIST	COUNTY		SHEET NO.
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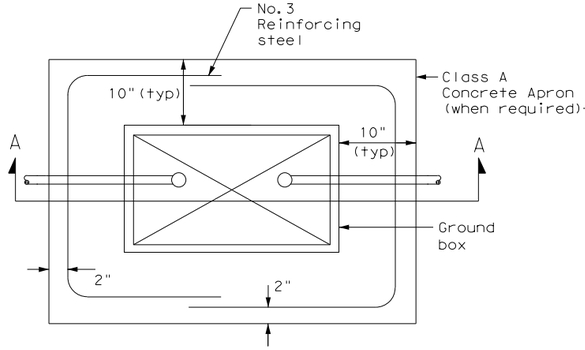
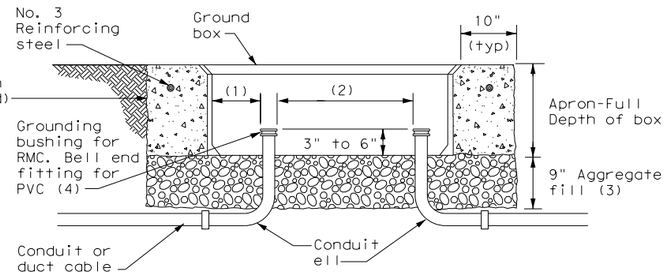


PLAN VIEW



SECTION A - A

APRON FOR GROUND BOX

(1) Uniformly space ends of conduits within the ground box. Position ends of conduits so that ground box walls do not interfere with the installation of grounding bushings or bell end fittings.

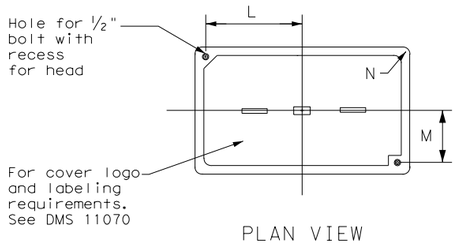
(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(3) Place aggregate under the box, not in the box. Aggregate should not encroach on the interior volume of the box.

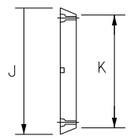
(4) Install a grounding bushing on the upper end of all RMC terminating in a ground box. Ground RMC elbows when any part of the elbow is less than 18 in. below the bottom of the ground box. Install a PVC bushing or bell end fitting on the upper end of all PVC conduits terminating in a ground box.

GROUND BOX DIMENSIONS	
TYPE	OUTSIDE DIMENSIONS (INCHES) (Width x Length X Depth)
A	12 X 23 X 11
B	12 X 23 X 22
C	16 X 29 X 11
D	16 X 29 X 22
E	12 X 23 X 17

GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



PLAN VIEW



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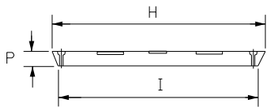

SIDE

GROUND BOX COVER

GROUND BOXES

A. MATERIALS

1. Provide polymer concrete ground boxes measuring 16x30x24 in. (WxLxD) or smaller in accordance with Departmental Material Specification (DMS) 11070 "Ground Boxes" and Item 624 "Ground Boxes."

2. Provide Type A, B, C, D, and E ground boxes as shown in the plans, and as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 624.

3. Ensure ground box cover is correctly labeled in accordance with DMS 11070.

4. Provide larger ground boxes in accordance with Item 624 and as shown in the plans.

B. CONSTRUCTION METHODS

1. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure aggregate bed is in place and at least 9 inches deep, prior to setting the ground box. Install ground box on top of aggregate.

2. Cast ground box aprons in place. Reinforcing steel may be field bent. Ensure the depth of concrete for the apron extends from finished grade to the top of the aggregate bed under the box. Ground box aprons, including concrete and reinforcing steel, are subsidiary to ground boxes when called for by descriptive code.

3. Keep bolt holes in the box clear of dirt. Bolt covers down when not working in ground boxes.

4. Install all conduits and ells in a neat and workmanlike manner. Uniformly space conduits so grounding bushings and bell end fittings can easily be installed.

5. Temporarily seal all conduits in the ground box until conductors are installed.

6. Permanently seal conduits immediately after the completion of conductor installation and pull tests. Permanently seal the ends of all conduits with duct seal, expandable foam, or other method as approved. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a sealant.

7. When a ground rod is present in a ground box, bond all equipment grounding conductors together and to the ground rod with listed connectors.

8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.

9. If an existing ground box in the contract has a metal cover, bond the cover to the equipment grounding conductor with a 3 ft. long stranded bonding jumper the same size as the grounding conductor. The bonding jumper is subsidiary to various bid items. Verify existing ground boxes with metal covers are shown on the plans, with notes fully describing the work required.

10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.

11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS GROUND BOXES

ED(4)-14

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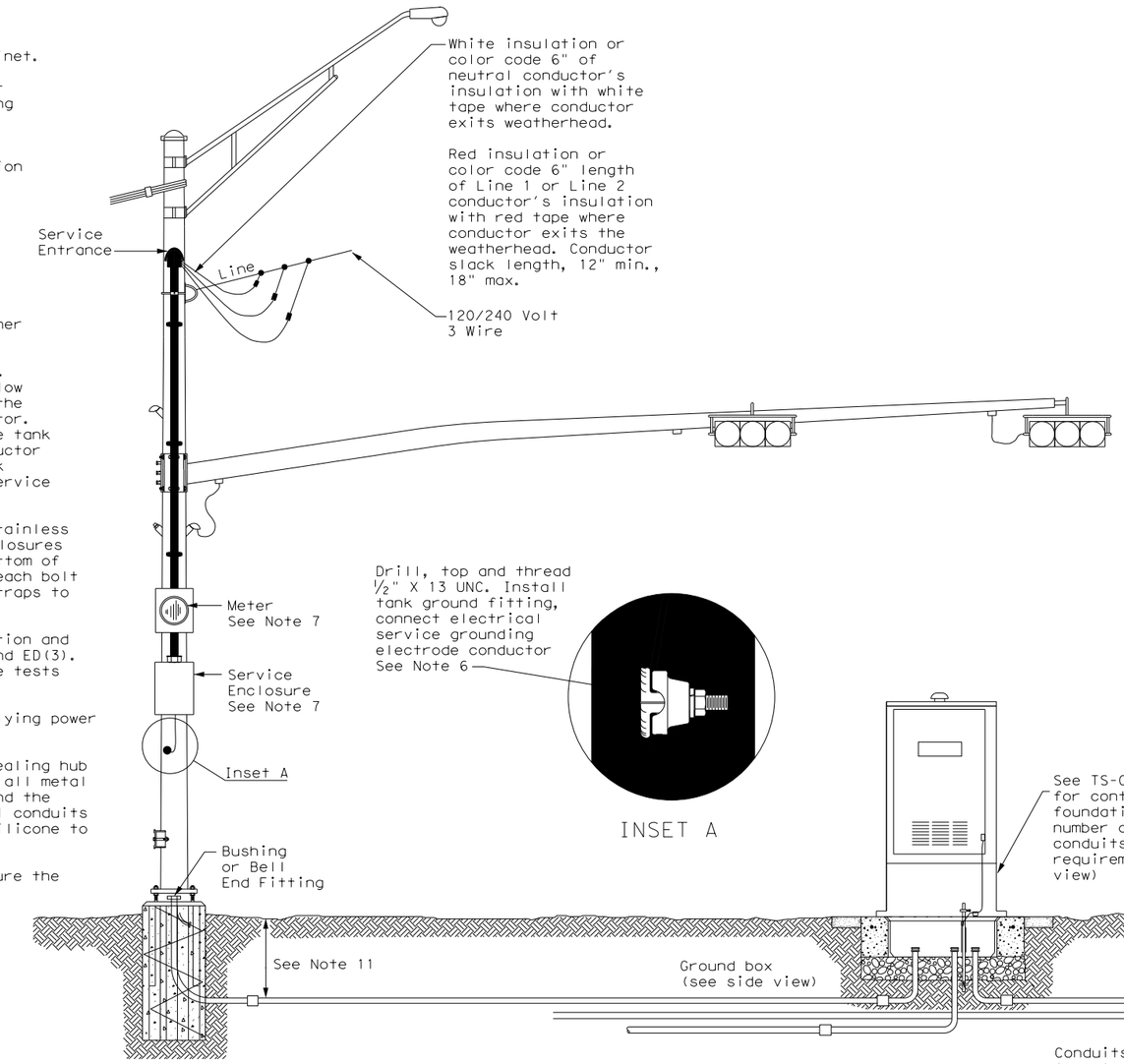
TRAFFIC SIGNAL NOTES

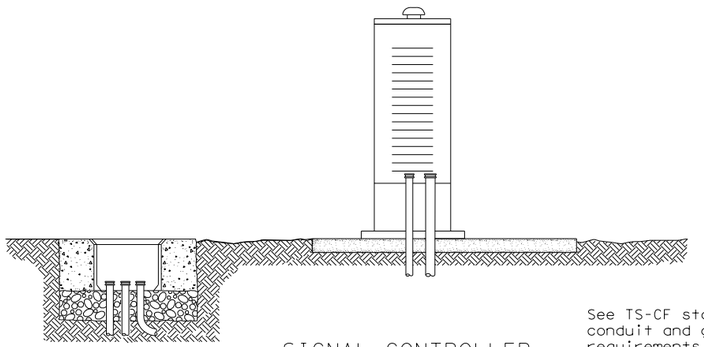
1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with the material and construction sections of Item 610, "Roadway Illumination Assemblies," except for performance testing of luminaires. Test installed roadway luminaires for proper operation as a part of the associated traffic signal system test.
4. If internally illuminated street name signs are approved for use, ground the fixture to the pole with a 12 AWG green XHHW conductor.
5. Bond anchor bolts to rebar cage in two locations using #3 bars or 6 AWG stranded copper conductors. Use listed mechanical connectors rated for embedment in concrete. See TXDOT standard TS-FD for further details.
6. Drill and tap signal poles for ½ in. X 13 UNC tank ground fitting. Provide and install tank ground fitting 4 in. to 6 in. directly below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Connect the electrical service grounding electrode conductor to the tank ground fitting. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. See Inset A detail for further information. Size service entrance conduit and branch circuit conduit as shown in the plans.
7. Mount electrical service enclosure and meter to signal pole with stainless steel bands. Ensure bands are a minimum width of ¾ in. Secure enclosures to bands using two-bolt brackets. Install properly sized stainless steel washers on each bolt in the enclosure. Band or drill and tap properly sized stand-off straps to signal pole for attaching conduit.
8. Conduct pull tests and insulation resistance tests on all illumination and power conductors as required in Item 620 "Electrical Conductors" and ED(3). To prevent electronics damage, do not conduct insulation resistance tests on traffic signal cables after termination.
9. Lock all enclosures and bolt down all ground box covers before applying power to the signal installation.
10. Terminate conduits entering the top of enclosures with a conduit-sealing hub or threaded boss such as meter hub. Install a grounding bushing on all metal conduits not connected to conduit-sealing hub or threaded boss. Bond the grounding bushing to the ground bus with a bonding jumper. Seal all conduits entering enclosures with duct seal or expanding foam. Do not use silicone to seal conduit ends.
11. For all conduits, ensure the burial depth is a minimum of 18". Ensure the minimum burial depth for conduit placed under a roadway is 24".



SIGNAL POLE WITH SERVICE

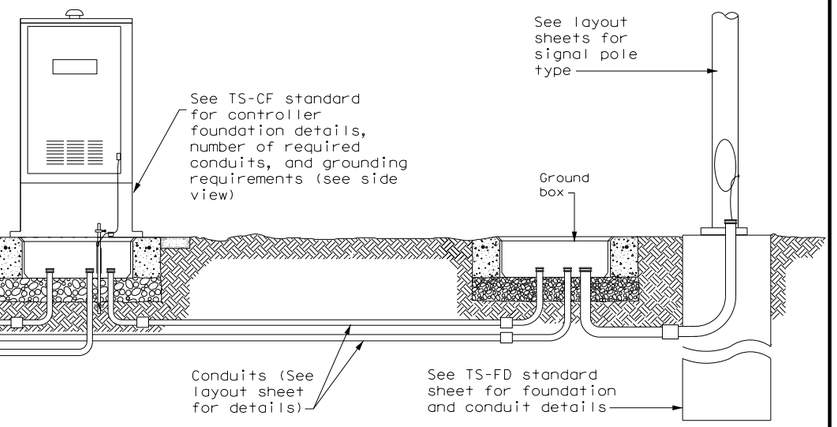
Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for additional details.

INSET A



SIGNAL CONTROLLER SIDE VIEW

See TS-CF standard for conduit and grounding requirements. See layout sheets for ground box locations and any additional conduits that are required.



SIGNAL CONTROLLER FRONT VIEW

SIGNAL POLE

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS TYPICAL TRAFFIC SIGNAL SYSTEM DETAILS

ED(8)-14

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	AUS	HAYS		113

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GENERAL NOTES:

1. Details show a typical warning sign with two flashing beacon heads, other arrangements are possible. When only one beacon is required, install the upper beacon.

2. See Item 685, "Roadside Flashing Beacon Assemblies" for further requirements.

3. See SMD standard sheets for lateral and vertical clearances and sign mounting details. Install signs as shown on the sign layout sheets.

4. Use either a Screw-In Type Anchor Foundation or a Drilled Shaft Foundation as shown elsewhere in the plans. When plans require a Drilled Shaft Foundation, see standard sheet TS-FD. Install the Screw-In Type Anchor Foundation as per manufacturer's recommendations. On a slope, install one edge at ground level. Screw-In/Drilled Shaft Foundation is subsidiary to Item 685. Installation of a ground rod is not required for solar powered flashing beacon assemblies.

5. When used, provide Screw-In Type Anchor Foundations as shown on TxDOT's Material Producer List (MPL) in the file "Highway Traffic Signals".

6. Install beacon heads as shown here, as shown elsewhere on the plans, or as directed. Use hardware specifically designed for mounting beacon heads on poles.

7. Conduit in foundation and within 6 in. of foundation is subsidiary to the Item 685, "Roadside Flashing Beacon Assemblies."

8. Unless otherwise shown on the plans, pole shaft shall be one piece, Schedule 40 Aluminum pipe, ASTM B429 or B221 (Alloy 6061-T6 only). Aluminum conduit will not develop the necessary strength and will not be allowed.

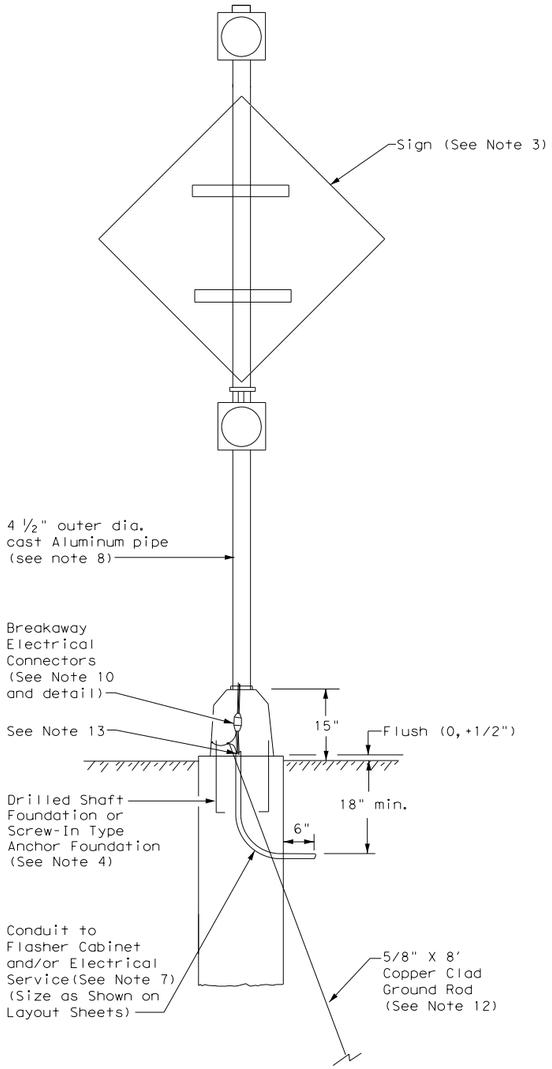
9. Per manufacturer's recommendations, engage all threads on the pedestal pole base and pipe unless the pipe is fully seated into base. In high winds, use a pole and base collar assembly to add strength and prevent loosening of connection.

10. Provide single pole non-fused watertight breakaway electrical connectors for frangible pedestal pole bases, as shown on TxDOT's MPL in the file "Roadway Illumination and Electrical Supplies." Approved models are listed under Item 685. For ungrounded (hot) conductors, install a breakaway connector with a dummy fuse slug). For grounded (neutral) conductors, install a breakaway connector with a white colored marking and a permanently installed dummy fuse (slug).

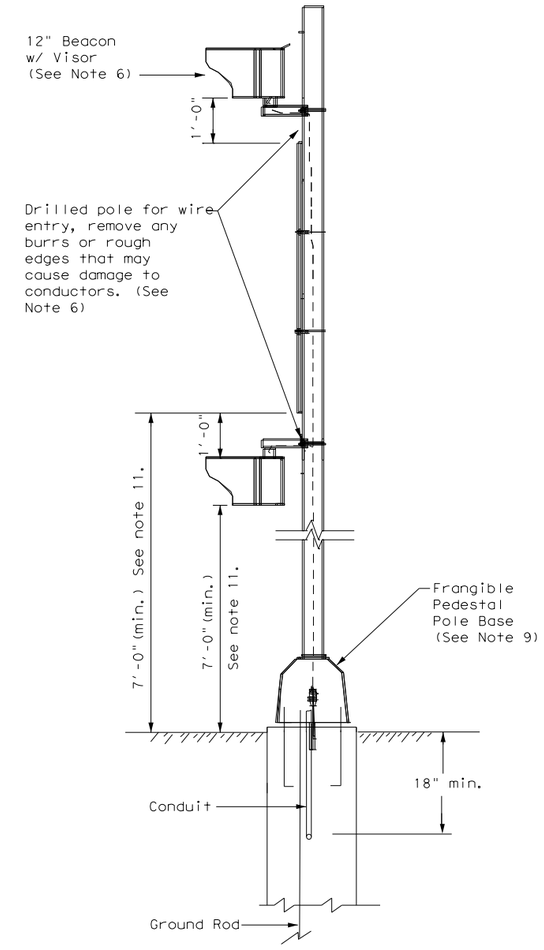
11. Provide clearance as shown above the sidewalk or pavement grade at the edge of the road. When a bottom beacon is not used, mount the bottom of the sign at least 7 ft. above the sidewalk or pavement grade at the edge of the road.

12. Make connections to ground rods according to NEC. Ground rod clamps shall be listed for their intended purpose.

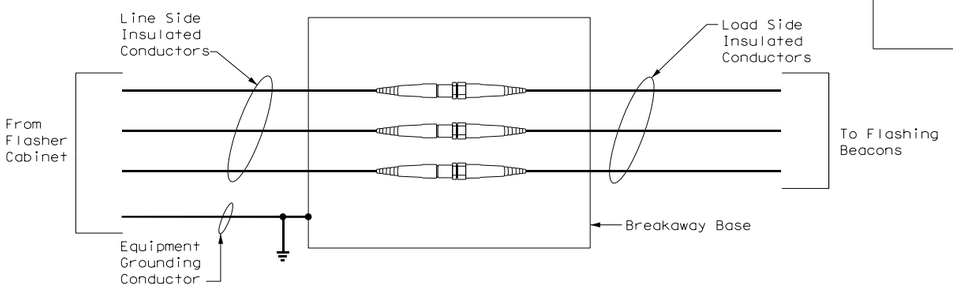
13. Ensure height of conduit and ground rod is below top of anchor bolts.



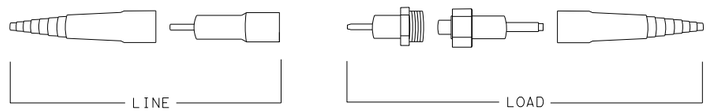
FRONT



SIDE



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS
EXPLODED VIEW

Texas Department of Transportation

Traffic Operations Division Standard

ROADSIDE FLASHING BEACON ASSEMBLY

RFBA-13

FILE: rfba-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS 5-93 12-04 10-93 3-13 4-98	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		114

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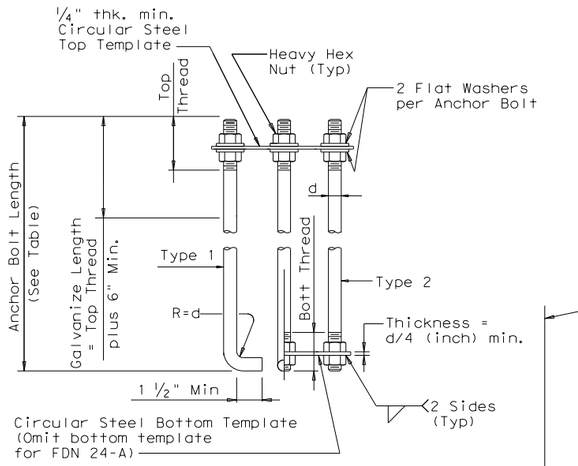
FOUNDATION DESIGN TABLE

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	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
				10	15	40							
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast 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	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

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

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'

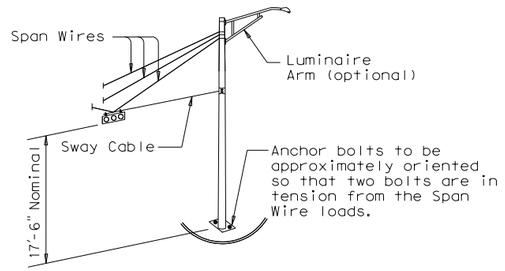
EXAMPLE:
1. For 80mph design wind speed, foundation 30-A can support up to a 32' arm with another arm up to 28'
2. For 100mph design wind speed, foundation 36-A can support a single 36' mast arm.



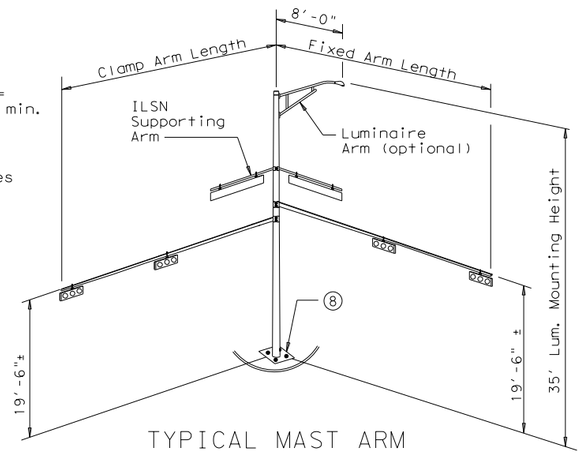
HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

ANCHOR BOLT ASSEMBLY

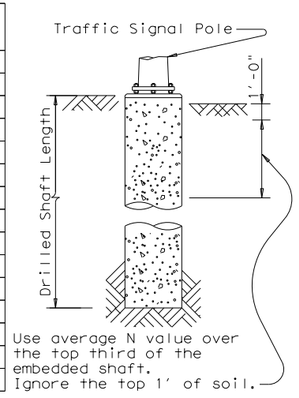
⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



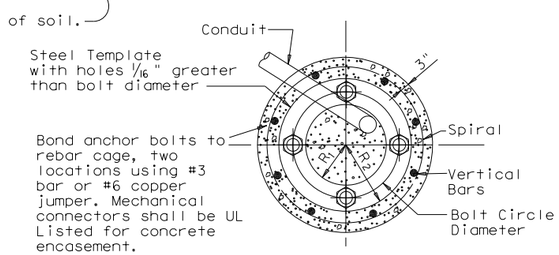
TYPICAL STRAIN POLE ASSEMBLY



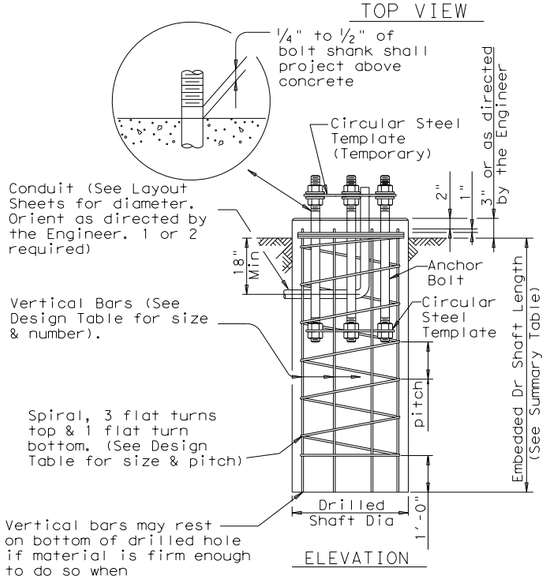
TYPICAL MAST ARM ASSEMBLY



Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.



TOP VIEW



ELEVATION

FOUNDATION DETAILS

ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

⑥ 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
2 of 21, NW	10			6				
5 of 21, NW	10			6				
5 of 21, SW	10			6				
20 of 21, NE	10			6				
21 of 21, SW	10			6				
21 of 21, SW	10			6				
21 of 21, SE	10			6				
TOTAL DRILLED SHAFT LENGTHS				60				

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 8UN 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".

08/05/2022

STATE OF TEXAS
KEVIN A. MARSH
132803
LICENSED
PROFESSIONAL ENGINEER

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS | CK: JSY | DW: MAO/MMF | CK: JSY/TEB

REVISIONS: 5-96, 11-99, 1-12

CONT	SECT	JOB	HIGHWAY
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I. WORK AT CROSSING LOCATIONS (AT GRADE, HIGHWAY OVERPASS, HIGHWAY UNDERPASS, PEDESTRIAN, OR CLOSED/ABANDONED)

DOT #: 415677N
Crossing Type: **AT GRADE
RR Company Owning Track at Crossing: UPRR
Operating RR Company at Track: UPRR
RR MP: 51.560
RR Subdivision: LOCKHART
City: SAN MARCOS
County: HAYS
CSJ at this Crossing: 0286-01-062
Highway/Roadway name crossing the railroad: SH 80
# of regularly scheduled trains per day at this crossing: 12
# of switching movements per day at this crossing: 0
% of estimated contract cost of work within railroad ROW: < 1%

Scope of Work at this Crossing to Be Performed by State Contractor:
REPLACEMENT OF SIDEWALK AND CURB RAMP STRUCTURES DIRECTLY OUTSIDE OF THE RAILROAD ROW LINE. TRAFFIC CONTROLS PROPOSED TO EXTEND INTO RAILROAD ROW.

Scope of Work at this Crossing to Be Performed by Railroad Company:
NONE

** Choose: Highway Overpass, Highway Underpass, At Grade, Pedestrian, or Closed/Abandoned

II. OTHER PROJECT WORK WITHIN RAILROAD RIGHTS-OF-WAY (ROW)

NONE

III. FLAGGING & INSPECTION

of Days of Railroad Flagging Expected: 5

On this project, night or weekend flagging is:

☐ Expected
☒ Not Expected

Flagging services will be provided by:

☐ Railroad Company: TxDOT will pay flagging invoices
☒ Outside Party: Contractor will pay flagging invoices, to be reimbursed by TxDOT

Contractor must incorporate flaggers into anticipated construction schedule. The Railroad requires a 30 day notice if their flaggers are to be utilized. If Contractor falls behind schedule due to their own negligence and is not ready for scheduled flaggers, any flagging charges will be paid by Contractor.

Contact Information for Flagging:

☒ UPRR - UP.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
- UP.request@nrssinc.net
Call Center 877-984-6777

☐ BNSF - BNSF.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging

☐ KCS - KCS.info@railpros.com
Call Center 877-315-0513, Select #1 for flagging
- Bottom Line On-Track Safety Services
bottomline076@aol.com, 903-767-7630

☐ OTHERS _____

Contractor must incorporate Construction Inspection into anticipated construction schedule.

☒ Not Required

☐ Required: Contact Information for Construction Inspection:

_____
_____
_____

IV. CONSTRUCTION WORK TO BE PERFORMED BY THE RAILROAD

On this project, construction work to be performed by a railroad company is:

☐ Required
☒ Not Required

Coordinate with TxDOT for any work to be performed by the Railroad Company. TxDOT must issue a work order for any work done by the Railroad Company prior to the work being performed.

V. RAILROAD INSURANCE REQUIREMENTS

Railroad reference number shall be provided by TxDOT CST or DO.

The Contractor shall confirm the insurance requirements with the Railroad as the insurance limits are subject to change without notice.

Insurance policies must be issued for and on behalf of the Railroad. Where more than one Railroad Company is operating on the same right of way or where several Railroad Companies are involved and operate on their own separate rights of way, provide separate insurance policies in the name of each Railroad Company.

No direct compensation will be made to the Contractor for providing the insurance coverages shown below or any deductibles. These costs are incidental to the various bid items.

Type of Insurance	Amount of Coverage (Minimum)
Workers Compensation	$500,000 / $500,000 / $500,000
Commercial General Liability	$2,000,000 / $4,000,000
Business Automobile	$2,000,000 combined single limit

Railroad Protective Liability		
☐	Not Required	
☒	Non - Bridge Projects	$2,000,000 / $6,000,000
☐	Bridge Projects	$5,000,000 / $10,000,000
☐	Other	

VI. CONTRACTOR'S RIGHT OF ENTRY (ROE) AGREEMENT

On this project, an ROE agreement is:

☐ Not Required

☐ Required: TxDOT CST to assist in obtaining with the UPRR (see Item 5, Article 8.3)

☒ Required: UPRR Maintenance Consent Letter. TxDOT CST to assist.

☐ Required: Contractor to obtain (see Item 5, Article 8.4)
With the following railroad companies: _____

To view previously approved ROE Agreement templates agreed upon between the State and Railroad, see:

http://www.txdot.gov/inside-txdot/division/rail/samples.html

Approved ROE Agreement templates are not to be modified by the Contractor.

Contractor shall not operate within Railroad Right of Way without an executed Construction & Maintenance Agreement between the State and the Railroad and an executed ROE agreement between the Contractor and the Railroad if required on project.

VII. RAILROAD COORDINATION MEETING

On this project, a Railroad Coordination Meeting is:

☒ Not Required
☐ Required

See Item 5, Article 8.1 for more details.

VIII. SUBCONTRACTORS

Contractor shall not subcontract work without written consent of TxDOT. Subcontractors are required to maintain the same insurance coverage as required of the Contractor.

IX. EMERGENCY NOTIFICATION

In Case of Railroad Emergency
Call UPRR
Railroad Emergency Line at 888-877-7267
Location: DOT 415677N
RR Milepost 51.560
Subdivision LOCKHART

Texas Department of Transportation | Rail Division

RAILROAD SCOPE OF WORK

PROJECT SPECIFIC DETAILS

FILE: RR Scope of Work.dgn	DN: TxDOT	CK:	DW:	CK:
©TxDOT June 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS 9/2021	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		116

PART 1 - GENERAL

1.01 DESCRIPTION

This project includes construction work within the right of way and/or properties of the Railroad and adjacent to its tracks, wire lines and other facilities. These sheets describe the minimum special requirements for coordination with the Railroad when working upon, over or under Railroad Right of Way or when impacting current or future Railroad operations. Coordinate with the Railroad while performing the work outlined herein, and afford the same cooperation with the Railroad as with TxDOT. Complete all submittals and work in accordance with TxDOT Standard Specifications, Railroad Guidelines and AREMA recommendations as modified by these minimum special requirements or as directed in writing by the Railroad Designated Representative.

For purposes of this project, the Railroad Designated Representative is the person or persons designated by the Railroad Manager of Industry and Public Projects to handle specific tasks related to the project.

1.02 REQUEST FOR INFORMATION / CLARIFICATION

Submit Requests for Information ("RFI") involving work within any Railroad Right of Way to the TxDOT Engineer. The TxDOT Engineer will submit the RFI to the Railroad Designated Representative for review and approval for RFI's corresponding to work within Railroad Right of Way. Allow six (6) weeks total time for review and approval, which includes four (4) weeks for review and approval by the Railroad.

1.03 PLANS / SPECIFICATIONS

TxDOT has received written Railroad approval of the plans and specifications for this project. Any revisions or changes in the plans after award of the Contract must have the approval of TxDOT and the Railroad.

PART 2 - UTILITIES AND FIBER OPTIC

Construct all utility installations in accordance with current AREMA recommendations, Railroad, TxDOT and owning utility specifications and requirements. Railroad general guidelines can be found on the Railroad website or by contacting the Railroad Designated Representative.

PART 3 - CONSTRUCTION

3.01 GENERAL

A. Perform all work in compliance with all applicable Railroad, Federal Railroad Administration (FRA), and TxDOT rules and regulations. Arrange and conduct work in a manner that does not endanger or interfere with the safe operation of the tracks and property of the Railroad and the traffic moving on such tracks, or the wires, signals and other property of the Railroad, its tenants or licensees, at or in the vicinity of the Work. The safe operation of railroad train movements takes precedence over any work to be performed by the Contractor. The Contractor is responsible for train delay cost and lost revenue claims due to any delays or interruption of train operations resulting from Contractor's construction or other activities.

B. Construction activities within 15 feet of the operational tracks will only be allowed if absolutely necessary and the Railroad's Designated Representative grants approval. Construction activities within 15 feet of the operational track(s) preferably allow the tracks to stay operational. In such cases, coordination and approval by the Railroad Track Manager is required with regard to schedule, flagging, and slow orders. See Sections 3.07 and 3.08 for additional information.

C. Provide track protection for all work equipment (including rubber tired equipment) operating within 25 feet from nearest rail. When not in use, keep Contractor machinery and materials at least 50 feet from the Railroad's nearest track.

D. Vehicular crossings of railroad track are allowed only at existing crossings, or haul road crossings developed with Railroad approval.

E. The Contractor is also advised that new railroad facilities within the project may be built by the Railroad. If applicable, these facilities are delineated in the plans. Be aware of the limits of responsibilities and coordinate efforts with the Railroad and TxDOT.

F. Railroad requirements do not allow work within 50 feet of track centers when a train passes the work site and all personnel must clear the area within 50 feet of the track centerline and secure all equipment. Additional allowances may be pursued as outlined in 3.02 and 3.03.

G. All permanent clearances shall be verified before project closing.

3.02 RAILROAD OPERATIONS

A. Trains and/or equipment are expected on any track, at any time, in either direction. Become familiar with the train schedules in this location and structure bid assuming intermittent track windows in this period, as defined in Paragraph B that follows.

B. All railroad tracks within and adjacent to the contract site are active, and rail traffic over these facilities shall be maintained throughout the Project. Activities may include both through moves and switching moves to local customers. railroad traffic and operations will occur continuously throughout the day and night on these tracks and shall be maintained at all times as defined herein. Coordinate and schedule the work so that construction activities do not interfere with railroad operations.

C. Coordinate work windows with TxDOT and the Railroad's Designated Representative. Types of work windows include Conditional Work Windows and Absolute Work Windows, as defined below:

1. Conditional Work Window: A Conditional Work Window is a period of time that railroad operations have priority over construction activities. When construction activities may occur on and/or adjacent to the railroad tracks within 25 feet of the nearest track, a railroad flag person will be required. At the direction of the railroad flag person, upon approach of a train, and when trains are present on the tracks, the tracks must be cleared (i.e., no construction equipment, materials or personnel within 25 feet, or as directed by the Railroad Designated Representative, from the tracks). Conditional Work Windows are available for the Project.

2. Absolute Work Window: An Absolute Work Window is a period of time that construction activities are given priority over railroad operations. During this time frame, the designated railroad track(s) will be inactive for train movements and may be fouled by the Contractor. At the end of an Absolute Work Window, the railroad tracks and/or signals must be completely operational for train operations and all Railroad, Public Utilities Commission (PUC) and FRA requirements, codes and regulations for operational tracks must be satisfied. In the situation where the operating tracks and/or signals have been affected, the Railroad will perform inspections of the work prior to placing that track back into service. Railroad flag persons will be required for construction activities requiring an Absolute Work Window. Absolute Work Windows will not generally be granted. Any request will require a detailed explanation for Railroad review.

3.03 RIGHT OF ENTRY, ADVANCE NOTICE AND WORK STOPPAGES

A. Do not perform any work within Railroad Right of Way without a valid executed Right of Entry Agreement if required on this project.

B. Give advance notice to the Railroad as required in the "Contractor's Right of Entry Agreement" before commencing work in connection with construction upon or over Railroad Right of Way and observe the Railroad's rules and regulations with respect thereto.

C. Perform all work upon Railroad Right of Way in a manner to avoid interference with or endanger the operations of the Railroad. Whenever work may affect the operations or safety of trains, submit the work method to the Railroad Designated Representative for approval. Approval does not relieve the Contractor from liability. Do not commence any work which requires flagging service or inspection service until the flagging protection required by the Railroad is available at the job site. See Section 3.15 for railroad flagging requirements.

D. Make requests in writing for both Absolute and Conditional Work Windows, at least 30 days in advance of any work. Include in the written request:
1. Exactly what the work entails.
2. The days and hours that work will be performed.
3. The exact location of work, and proximity to the tracks.
4. The type of window requested and the amount of time requested.
5. The designated contact person.

Provide a written confirmation notice to the Railroad at least 48 hours before commencing work in connection with approved work windows when work is within 25 feet of nearest rail. Perform all work in accordance with previously approved work plans.

E. Make provisions to protect operations and property of the Railroad should a condition arising from, or in connection with the work, require immediate and unusual action. If in the judgment of the Railroad Designated Representative such provisions are insufficient, the Railroad Designated Representative may require or provide such provisions as deemed necessary. In any event, such provisions shall be at the Contractor's expense and without cost to the Railroad or TxDOT. The Railroad or TxDOT shall have the right to order the Contractor to temporarily cease operations in the event of an emergency or, if in the opinion of the Railroad Designated Representative, the Contractor's operations could endanger railroad operations. In the event of such an order, immediately notify TxDOT of the order.

3.04 INSURANCE

Do not begin work upon or over Railroad Right of Way until furnishing the Railroad with the insurance policies, binders, certificates and endorsements required by the "Contractor's Right of Entry Agreement", and until the Railroad Designated Representative has advised TxDOT that such insurance is in accordance with the Agreement.

3.05 RAILROAD SAFETY ORIENTATION

A. Complete the railroad course "Orientation for Contractor's Safety", and maintain current registration prior to working on railroad property. This course is required to be completed annually by Contractor and Subcontractor personnel working on site.

"UPRR, BNSF, KCS/TEXMEX will not accept on-track safety training certificates from other railroads. Refer to Railroad specific contractor right of entry for training information."

B. Know and follow the "Contractor's Right of Entry Agreement" EXHIBIT D, MINIMUM SAFETY REQUIREMENTS regarding clothing, personal protective equipment, and general safety requirements.

3.06 COOPERATION

The Railroad will cooperate with Contractor so that work may be conducted in an efficient manner, and will cooperate with Contractor in enabling use of Railroad Right of Way in performing the work.

3.07 MINIMUM CONSTRUCTION CLEARANCES FOR FALSEWORK AND OTHER TEMPORARY STRUCTURES

Abide by the following minimum temporary clearances during the course of construction:
A. 15' - 0" (BNSF)(UPRR)and 14'-0" (KCS) horizontal from centerline of track
B. 22' (KCS) and 21' - 6" (UPRR & BNSF) vertically above top of rail.

For construction clearance less than listed above, obtain local Railroad Operating Unit review and approval.

3.08 APPROVAL OF REDUCED CLEARANCES

A. Maintain minimum track clearances during construction as specified in Section 3.07.

B. Submit any proposed infringement on the specified minimum clearances to the Railroad Designated Representative through TxDOT at least 30 days in advance of the work. Do not proceed with such infringement without written approval by the Railroad Designated Representative.

C. Do not commence work involving an approved infringement without receiving written assurance from the Railroad Designated Representative that arrangements have been made for any necessary flagging service.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
	CONT	SECT	JOB	HIGHWAY
REVISIONS March 2020	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		117

DATE: 8/5/2022 3:41:28 PM
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3.09 MAINTENANCE OF RAILROAD FACILITIES

A. Maintain all ditches and drainage structures free of silt or other obstructions resulting from Contractor's operations. Repair eroded areas and any other damage within Railroad Right of Way and repair any other damage to the property of the Railroad, or its tenants.

B. Perform all such maintenance and repair of damages due to the Contractors's operations at Contractor's expense.

C. Submit a proposed method of erosion control for review by the Railroad prior to beginning any grading on the project site. Comply with all applicable local, state and federal regulations when developing and implementing such erosion control.

3.10 SITE INSPECTIONS BY RAILROAD's DESIGNATED REPRESENTATIVE

A. In addition to the office reviews of construction submittals, site inspections may be performed by the Railroad Designated Representative at significant points during construction, including the following if applicable:
   1. Pre-construction meetings.
   2. Pile driving/drilling of caissons or drilled shafts.
   3. Reinforcement and concrete placement for railroad bridge substructure and/or superstructure.
   4. Erection of precast concrete or steel bridge superstructure.
   5. Placement of waterproofing (prior to placing ballast on bridge deck).
   6. Completion of the bridge structure.

B. Site inspection is not limited to the milestone events listed above. Site visits to check progress of the work may be performed at any time throughout the construction as deemed necessary by the Railroad.

C. Provide a detailed construction schedule, including the proposed temporary horizontal and vertical clearances and construction sequence for all work to TxDOT for submittal to the Railroad Designated Representative for review prior to commencement of work. Include the anticipated dates when the above listed events will occur. Update this schedule for the above listed events as necessary and each month at a minimum to allow the Railroad to schedule site inspections.

3.11 RAILROAD REPRESENTATIVES

Railroad representatives, conductors, flag person or watch person will be provided by the Railroad at expense of TxDOT to protect Railroad facilities, property and movements of its trains or engines. In general, the Railroad will furnish such personnel or other protective services as follows:

A. When any part of any equipment is standing or being operated within 25 feet, measured horizontally, from nearest rail of any track on which trains may operate, or when any object is off the ground and any dimension thereof could extend inside the 25 foot limit, or when any erection or construction activities are in progress within such limits, regardless of elevation above or below track.

B. For any excavation below elevation of track subgrade if, in the opinion of the Railroad Designated Representative, track or other railroad facilities may be subject to settlement or movement.

C. During any clearing, grubbing, excavation or grading in proximity to railroad facilities, which, in the opinion of the Railroad Designated Representative, may endanger railroad facilities or operations.

D. During any Contractor's operations when, in the opinion of the Railroad Designated Representative, railroad facilities, including, but not limited to, tracks, buildings, signals, wire lines, or pipe lines, may be endangered.

E. Arrange with the Railroad Designated Representative to provide the adequate number of flag persons to accomplish the work.

3.12 COMMUNICATIONS AND SIGNAL LINES

If required, the Railroad will rearrange its communications and signal lines, its grade crossing warning devices, train signals and tracks, and facilities that are in use and maintained by the Railroad's forces in connection with its operation at expense of TxDOT. This work by the Railroad will be done by its own forces and it is not a part of the Work under this Contract.

3.13 TRAFFIC CONTROL

Coordinate any operations that control traffic across or around railroad facilities with the Railroad Designated Representative.

3.14 CONSTRUCTION EXCAVATIONS AND BORING ACTIVITIES UNDER TRACK

A. Take special precaution and care in connection with excavating and shoring. Excavations for construction of footings, piers, columns, walls or other facilities that require shoring shall comply with requirements of TxDOT, OSHA, AREMA and Railroad "Guidelines for Temporary Shoring".

B. The project plans indicate whether there are fiber optic lines or other such telecommunications systems that require consideration. Regardless, contact the necessary call center to determine if such cable systems are present:

   UPRR 1-800-336-9193
   7:00 AM to 9:00 PM CST Monday-Friday except holidays,
   staffed 24 hrs/day for emergencies
   48 hrs notice required

   BNSF 1-800-533-2891
   24 hour number
   5 working days notice required

   KCS 1-800-344-8377
   Texas One Call, a 24 hour number
   48 hrs notice required, excluding weekends and holidays

   If a telecommunications system is buried anywhere on or near railroad property, coordinate with TxDOT, the Railroad and the Telecommunication Company(ies) to arrange for relocation or protective measures prior to beginning work on or near railroad property. Refer to the project General Notes for additional information.

C. Projects involving a boring or jack and bore operation under track such as drainage pipes or culverts and utilities require an installation plan reviewed and approved by the Railroad and TxDOT prior to proceeding with such construction. A railroad inspector and contractor assisted monitoring of ground and track movement is required to maintain safe passage of rail traffic. Stop installation and do not allow passage of trains if movements in excess of 1/4 inch vertical or horizontal is detected in the tracks. Immediately repair the damage to the satisfaction of TxDOT and the Railroad before proceeding.

3.15 RAILROAD FLAGGING

Per the Right of Entry Agreement for flagging, notify the Railroad Representative at least 10 working days in advance of Contractor's work and at least 30 working days in advance of any Contractor's work in which any person or equipment will be within 25 feet of nearest rail or as specified in the Contractor Right of Entry (CROE).

3.16 CLEANING OF RIGHT-OF-WAY

When work is complete, remove all tools, implements, and other materials brought into Railroad Right of Way and leave the right of Way in a clean and presentable condition to the satisfaction of TxDOT and the Railroad.

Texas Department of Transportation | Rail Division

RAILROAD REQUIREMENTS FOR NON-BRIDGE CONSTRUCTION PROJECTS

FILE:	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
October 2018	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	AUS	HAYS		118

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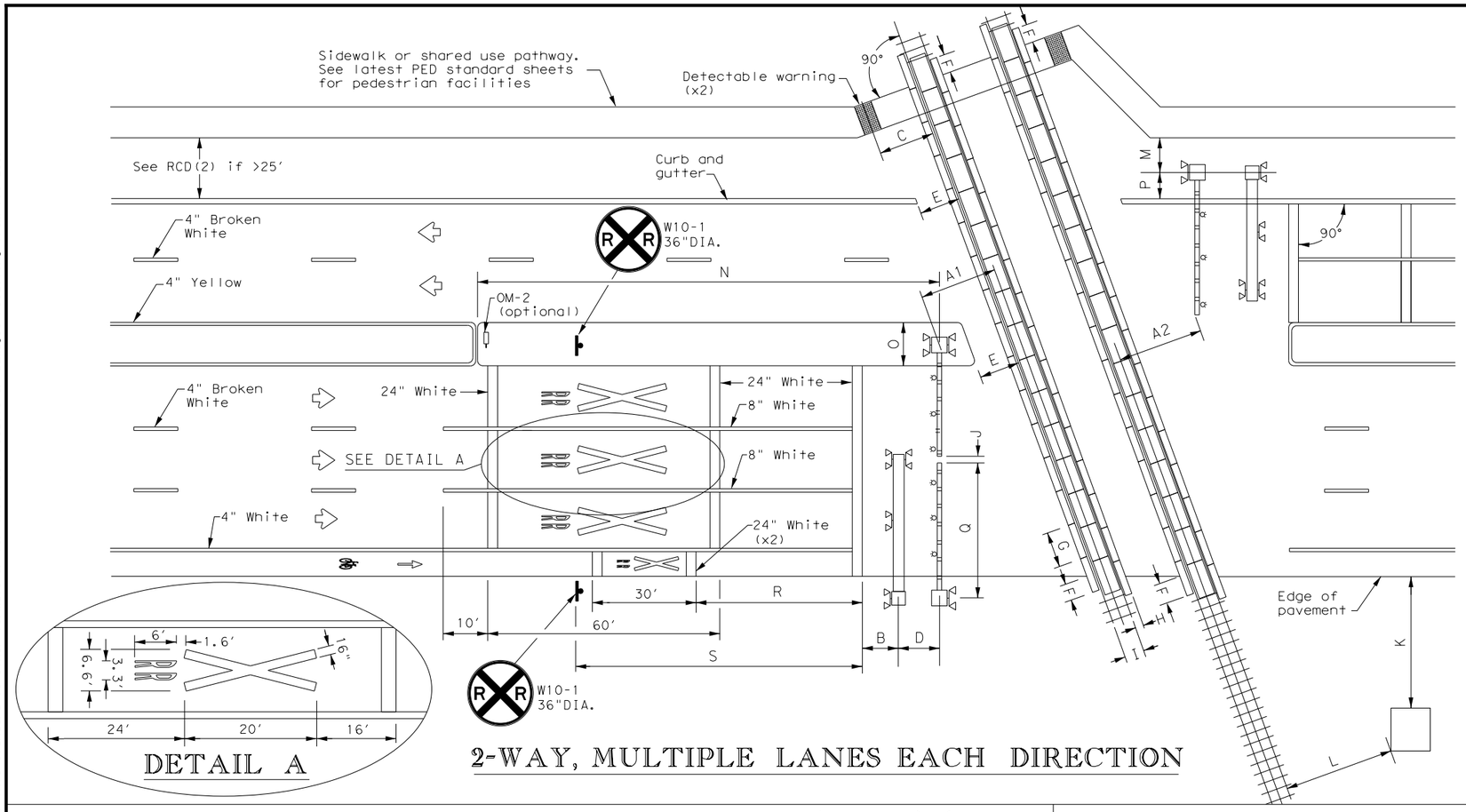


2-WAY, MULTIPLE LANES EACH DIRECTION

DETAIL A

NOTES

A1: Center of RR mast to center of rail: 12' minimum, 15' typical.

A2: Tip of gate to center of rail: 12' minimum, 15' typical.

B: Center of mast (cantilever, gate, or mast flasher) of nearest active traffic control device to stop line: 8' (NOTE: Stop line may be moved as needed, but should be at least 8' back from gates, if present).

C: Center of detectable warning device to nearest rail: 6' minimum

D: Center of gate mast to center of cantilever mast: 6' typical. NOTE: Cantilever may be located in front or behind gates.

E: Edge of median or curb to nearest rail: 10' typical. NOTE: Design median edge to be parallel with rail.

F: Edge of planking panel from edge of pavement or sidewalk: 3' minimum. NOTE: Field panels need not be in line with gauge panels.

G: Length of panels along rail: 8' typical.

H: Width of field panel: 2' typical (check with railroad company).

I: Distance between rails: 4'-8.5".

J: Tip of gate to tip of gate: 2' maximum for Quiet Zone SSM or 90% of traveled way covered by gates for all other locations.

K: Nearest edge of RR cabin from edge of pavement: 30' typical. NOTE: Cabinet not required to be parallel to edge of pavement.

L: Nearest edge of RR cabin from nearest rail: 25' typical.

M: Center of RR mast to edge of sidewalk: 6' minimum.

N: Center of gate mast to leading edge of non-traversable median: 100' minimum to qualify as a Quiet Zone SSM. NOTE: 60'will suffice if there is a street intersection within the 100' and all street intersections within 60' are closed.

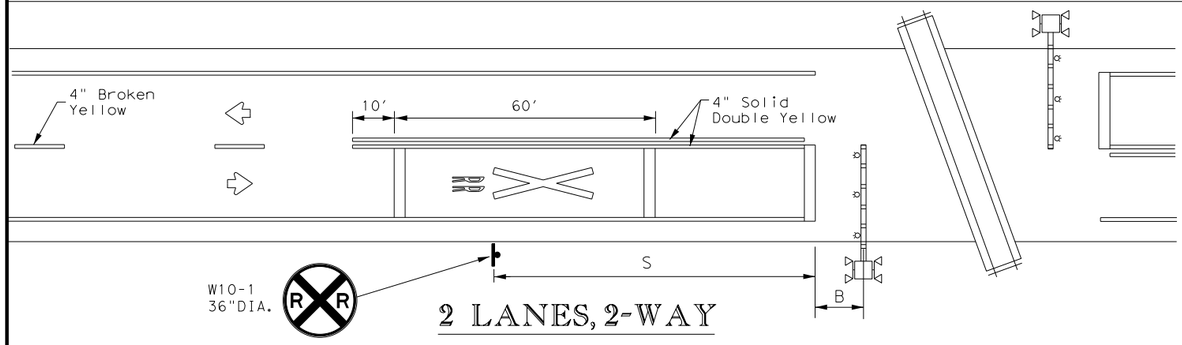
O: Width of median: 8'-6" minimum, 10' typical when using median gates. NOTE: Center of gate mast minimum 4'-3" from face of curb.

P: Center of RR mast to face of curb: 4'-3" minimum.
Center of RR mast to edge of pavement (with shoulder): 6' minimum
Center of RR mast to edge of pavement (no shoulder): 8'-3" minimum
NOTE: BNSF prefers 5'-3", 7', and 9'-3" minimums, respectively.

Q: Gate length: 28' or less typical, but railroad company may allow up to 32'under special circumstances.

R: Stop line to first RR Crossing transverse line (bike lane): 50' typical.

S: Stop line to GRADE CROSSING ADVANCE WARNING (W10-1) sign and adjacent RR Crossing pavement markings. See Table 1. See RCD(2) for other signs.



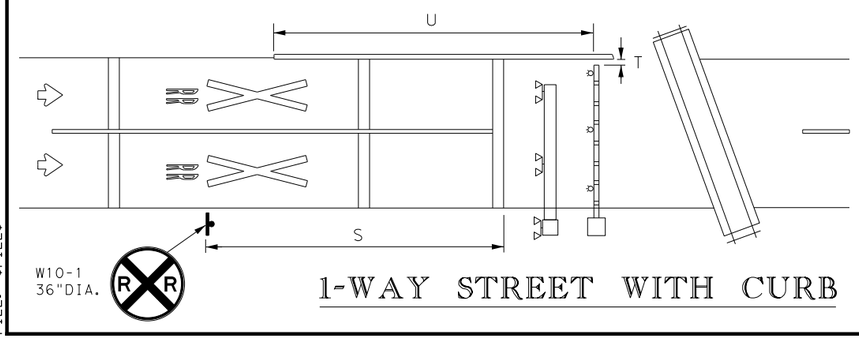
2 LANES, 2-WAY

TABLE 1	
Approach Speed(mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

LEGEND	
	Sign
	Object Marker
	Traffic Flow
	Cantilever
	Gate Assembly
	Mast Flasher Pair

GENERAL NOTES

1. Medians and curbs must be non-traversable to qualify as a Quiet Zone Supplementary Safety Measure (SSM). Non-traversable curbs in Quiet Zones are 6" tall minimum and used on roadways where speed does not exceed 40 mph.
2. Raised pavement markers may be used to supplement striping. See PM(2) and PM(3) standard sheets.
3. Medians preferred whenever possible to prevent vehicles from driving around gates.
4. Longitudinal edge striping may be continued thru crossing as needed. Illumination may also be considered for nighttime visibility.
5. See SMD standard sheets for sign mounting details.
6. See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.

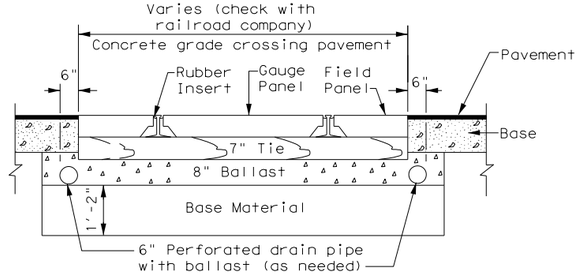


1-WAY STREET WITH CURB

NOTES

T: Tip of gate to edge of curb: 1' max for Quiet Zone SSM, 90% of traveled way covered by gates for all other locations

U: Non-traversable curb length from gate: 100' min. for a Quiet Zone SSM, 10' min for all other locations.



CROSSING SURFACE CROSS SECTION

Texas Department of Transportation

Traffic Operations Division Standard

RAILROAD CROSSING DETAILS SIGNING, STRIPING, AND DEVICE PLACEMENT RCD(1)-16

FILE: rcd1-16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT FEBRUARY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		119

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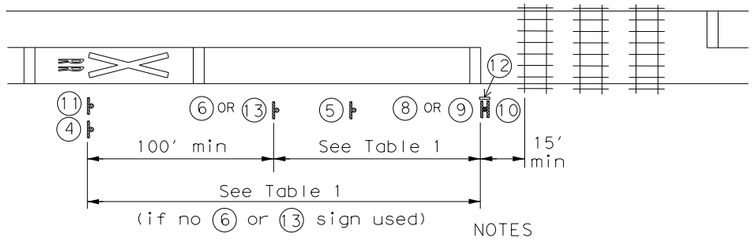
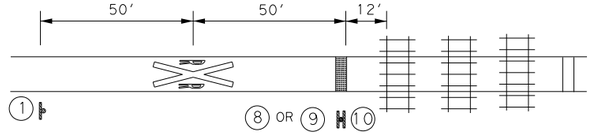


NOTES

1. Stop or yield sign may also be installed to the left of the crossbuck sign, rather than below it.
2. A 2" white retroreflective strip shall be installed on front and back of crossbuck sign post.

PASSIVE CROSSING



NOTES

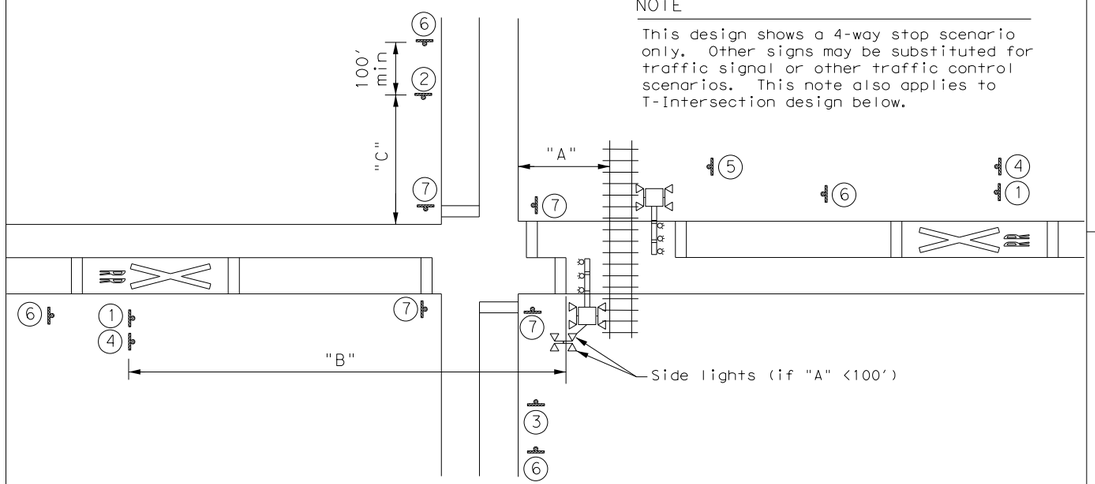
1. A shared use pathway is considered a separate pathway crossing when more than 25′ from traveled way of adjacent roadway.
2. Detectable warning used at stop bar.
3. Smaller sign sizes preferred than shown to the right on this sheet.

PATHWAY CROSSING

TABLE 1	
Approach Speed (mph)	Desirable Placement (feet)
20	100
25	100
30	100
35	100
40	125
45	175
50	250
55	325
60	400
65	475
70	550
75	650

GENERAL NOTES

1. Railroad company to provide active traffic control devices, CROSSBUCK (R15-1), NUMBER OF TRACKS Plaque (R15-2P) (if more than 1 track), and EMERGENCY NOTIFICATION (I-13) signs.
2. LOW GROUND CLEARANCE (W10-5) signs may be relocated further upstream of crossing to provide advance warning of alternate route.
3. GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2) signs may be modified as needed to fit roadway geometry.
4. Table 1 placement distances may vary per Sect. 2C.05 of the TMUTCD.
5. See Table 1 to determine placement of STOP AHEAD (W3-1) and YIELD AHEAD (W3-2) signs unless shown otherwise.
6. DO NOT STOP ON TRACKS (R8-8) signs installed when potential for vehicles stopping on tracks is significant as determined by sealing engineer. Install so sign does not block view of RR mast.
7. See the Standard Highway Sign Design for Texas (SHSD) manual for sign and pavement marking details.



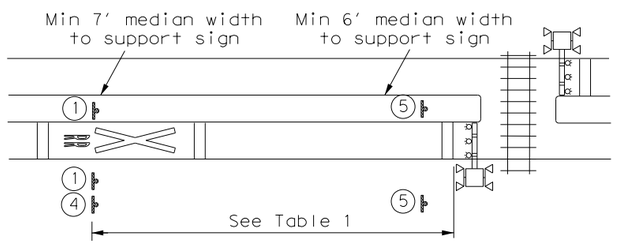
NOTE

This design shows a 4-way stop scenario only. Other signs may be substituted for traffic signal or other traffic control scenarios. This note also applies to T-Intersection design below.

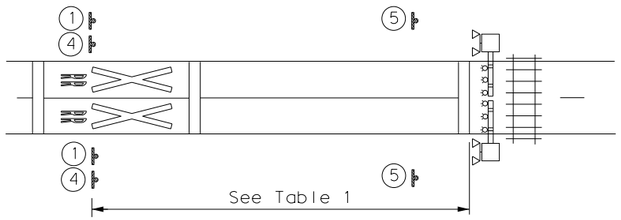
	"A" <100′	"A" ≥100′
"B"	See Table 1. Place pavement markings and signs on opposite side of intersection from rail if spacing from Table 1 would put markings within intersection.	See Table 1. Place pavement markings and signs between rail and intersection if spacing from Table 1 would put markings within intersection.
"C"	See Table 1.	GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-2, W10-3, W10-4) signs should only be installed if W10-1 sign is not between intersection and railroad crossing. If needed, see Table 1.

GRADE CROSSING NEAR A PARALLEL STREET

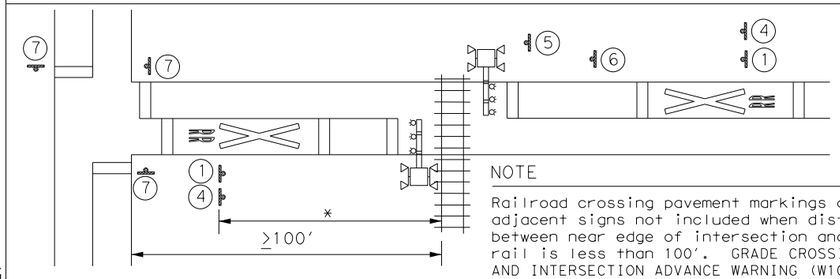
2-WAY



2-WAY WITH MEDIAN



1-WAY

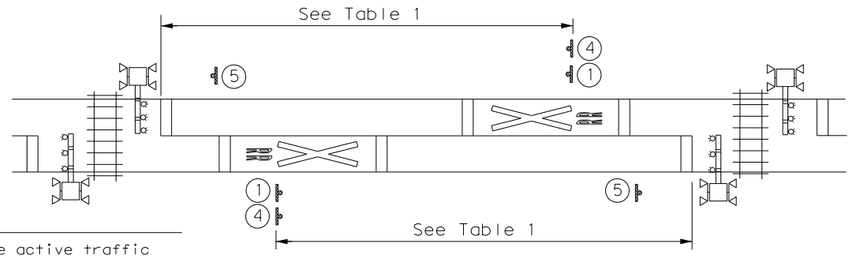


*Use Table 1 if sufficient space exists.

NOTE

Railroad crossing pavement markings and adjacent signs not included when distance between near edge of intersection and near rail is less than 100′. GRADE CROSSING AND INTERSECTION ADVANCE WARNING (W10-3) signs installed on roadway parallel with rail in this case.

T-INTERSECTION



NOTE

Separate active traffic control devices, railroad crossing pavement markings, and adjacent signs required when tracks are more than 100′ apart.

2 ADJACENT CROSSINGS

SIGNS

** 1 W10-1 36"DIA.	** 2 W10-2L 36"X36"	** 3 W10-2R 36"X36"	IF NEEDED 4 W10-5 36"X36" / LOW GROUND CLEARANCE W10-5P 30"x24"
IF NEEDED DO NOT STOP ON TRACKS 5 R8-8 24"X30"	IF NEEDED 6 W3-1 30"X30"	STOP R1-1 36"X36" / ALL WAY R1-3P 18"X6" 7	RAIL CROSSING ROAD 3 TRACKS R15-1 48"X9" / R15-2P 27"X18" / STOP R1-1 36"X36" 8
RAIL CROSSING ROAD 3 TRACKS R15-1 48"X9" / R15-2P 27"X18" / YIELD R1-2 48"X48"X48" 9	RAIL CROSSING ROAD 3 TRACKS R15-1 48"X9" / R15-2P 27"X18" 10	R W10-1 36"DIA. / NO GATES OR LIGHTS W10-13P 30"X24" 11 **	REPORT EMERGENCY OR PROBLEM 1-800-555-5555 CROSSING 836 597 H — Sign may be placed perpend. to travel lanes. 12 I-13 15"X9"
IF NEEDED 13 W3-2 30"X30"			

** Includes a NO TRAIN HORN Plaque (W10-9P) if crossing is in a Quiet Zone. LOW GROUND CLEARANCE Plaque (W10-5P) if needed is mounted below W10-2/W10-3/W10-4 signs.

NO TRAIN HORN W10-9P 30"X24"

LOW GROUND CLEARANCE W10-5P 30"X24"

Texas Department of Transportation

Traffic Operations Division Standard

RAILROAD CROSSING DETAILS SIGNING & STRIPING

RCD(2)-16

FILE: rcd2-16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT FEBRUARY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		120

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1.

2.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

1.

2.

3.

4.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☒ Mulch Filter Berm and Socks	☒ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.
Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☐ No Action Required ☒ Required Action

Action No.

1. During construction, the Contractor should avoid impacts to woody vegetation. Tree and brush trimming, cutting, and removal will be kept to a minimum and implemented only when necessary to complete project work.
2. Minimize the amount of vegetation cleared. Removal of native vegetation, particularly mature native trees and shrubs should be avoided to the greatest extent practicable.
3. The use of any non-native vegetation in landscaping and revegetation is discouraged. Locally adapted native species should be used.
4. Avoid and minimize construction-related vegetation and soil disturbance, including the removal of native vegetation, particularly mature native trees and shrubs, to the maximum extent practicable. This includes areas within the existing ROW and proposed ROW, but outside construction limits.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☒ Required Action

Action No.

1. The contractor shall remove all old migratory bird nests from any woody vegetation or structures between September 16 and February 28 while the nests are not occupied by a bird.
2. The contractor must be prepared to prevent migratory birds from re-nesting between March 1 and September 15. All methods must be approved by the Austin District Biologist well in advance of planned use.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☒ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☐ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Texas Department of Transportation

Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR	
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY	
REVISIONS 12-12-2011 (DS) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	0286	01	062, ETC.	SH80, ETC.	
	DIST	COUNTY		SHEET NO.	
	AUS	HAYS		121	

DATE: 8/5/2022
FILE: $FILE$

A. GENERAL SITE DATA

1. PROJECT LIMITS:
HOPKINS ST NORTH OF CHEATHAM ST TO HOPKINS ST AT RIVER RD
PROJECT LENGTH = 6,250 FT. = 1.183 MILES

PROJECT LOCATION:
BEG LATITUDE: 29°53′06.30" N BEG LONGITUDE: 97°55′29.70" W
END LATITUDE: 29°52′51.10" N END LONGITUDE: 97°54′47.10" W

2. PROJECT SITE MAPS:
* PROJECT LOCATION MAP: TITLE SHEET
* DRAINAGE PATTERNS: SIDEWALK PLAN
* SLOPES ANTICIPATED AFTER MAJOR GRADINGS OR AREAS OF SOIL DISTURBANCE: SIDEWALK PLAN, SIDEWALK DETAILS
* LOCATION OF EROSION AND SEDIMENT CONTROLS: SIDEWALK PLAN
* SURFACE WATERS AND DISCHARGE LOCATIONS: SIDEWALK PLAN
* PROJECT SPECIFIC LOCATIONS: TO BE SPECIFIED BY THE PROJECT FIELD OFFICE DURING CONSTRUCTION AND LOCATED IN THE PROJECT SW3P FILE. REFERENCE ITEM #10 BELOW

3. PROJECT DESCRIPTION: CONSTRUCTION OF PEDESTRIAN INFRASTRUCTURE

4. MAJOR SOIL DISTURBING ACTIVITIES:
SOIL DISTURBING ACTIVITIES WILL INCLUDE PREPARING THE RIGHT OF WAY, GRADING, EROSION CONTROLS, AND TOPSOIL WORK FOR FINAL SOD.

5. EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER:
URBAN DEVELOPMENT

6. TOTAL PROJECT AREA: 3.20 ACRES

7. TOTAL AREA TO BE DISTURBED: 1.40 ACRES

8. WEIGHTED RUNOFF COEFFICIENT
BEFORE CONSTRUCTION: 0.54
AFTER CONSTRUCTION: 0.64

9. NAME OF RECEIVING WATERS: (SEGMENT NUMBER OF RECEIVING WATERS)
N/A

10. PROJECT SW3P FILE: IF SOIL-DISTURBING ACTIVITIES ARE GREATER THAN ONE (1) ACRE AND LESS THAN FIVE (5) ACRES, THE PROJECT SHALL COMPLY WITH THE CONSTRUCTION GENERAL PERMIT, A STORMWATER POLLUTION PREVENTION PLAN (SW3P) SHALL BE DEVELOPED AND AVAILABLE ON-SITE AT A FIELD STATION DURING CONSTRUCTION, AND A CONSTRUCTION SITE NOTICE SHALL BE POSTED. IF NO FIELD OFFICE IS AVAILABLE THEN THE SW3P FILE SHALL BE KEPT IN THE INSPECTOR'S TRUCK.

B. EROSION AND SEDIMENT CONTROLS

1. SOIL STABILIZATION PRACTICES:

- [X] TEMPORARY SEEDING
- [X] PERMANENT PLANTING, SODDING, OR SEEDING
- [ ] MULCHING
- [ ] SOIL RETENTION BLANKET
- [ ] BUFFER ZONES
- [ ] PRESERVATION OF NATURAL RESOURCES

OTHER:

2. STRUCTURAL PRACTICES:

- [ ] SILT FENCES
- [ ] ROCK FILTER DAMS
- [ ] DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- [ ] DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- [ ] DIVERSION DIKE AND SWALE COMBINATIONS
- [ ] PIPE SLOPE DRAINS
- [ ] PAVED FLUMES
- [ ] ROCK BEDDING AT CONSTRUCTION EXIT
- [ ] TIMBER MATTING AT CONSTRUCTION EXIT
- [ ] CHANNEL LINERS
- [ ] SEDIMENT TRAPS
- [ ] SEDIMENT BASINS
- [ ] STORM INLET SEDIMENT TRAP
- [ ] STONE OUTLET STRUCTURES
- [X] CURBS AND GUTTERS
- [ ] STORM SEWERS
- [ ] VELOCITY CONTROL DEVICES

OTHER: EROSION CONTROL LOGS

3. STORM WATER MANAGEMENT:
STORM WATER DRAINAGE WILL BE PROVIDED BY EXISTING OPEN DITCHES THIS SYSTEM WILL CARRY THE DRAINAGE WITHIN THE RIGHT-OF-WAY TO EXISTING CROSS CULVERTS AND EXISTING INLETS

4. STORM WATER MANAGEMENT ACTIVITIES: (SEQUENCE OF CONSTRUCTION)
1. CONSTRUCT PROPOSED PEDESTRIAN FACILITIES FROM UPRR ROW TO SB IH 35 FRONTAGE RD.
2. CONSTRUCT PROPOSED PEDESTRIAN FACILITIES FROM SB IH 35 FRONTAGE RD RIO VISTA ST.
3. CONSTRUCT PROPOSED PEDESTRIAN FACILITIES UNDERNEATH IH 35 MAINLANES FROM SB IH FRONTAGE RD TO NB IH 35 FRONTAGE RD.
4. CONSTRUCT PROPOSED PEDESTRIAN FACILITIES FROM NB IH 35 FRONTAGE RD TO CLAREWOOD DR.
5. CONSTRUCT PROPOSED PEDESTRIAN FACILITIES FROM CLAREWOOD DR TO RIVER RD.

5. NON-STORM WATER DISCHARGES:
FILTER NON-STORM WATER DISCHARGES, OR HOLD RETENTION BASINS, BEFORE BEING ALLOWED TO MIX WITH STORM WATER. THESE DISCHARGES CONSIST OF NON-POLLUTED GROUND WATER, SPRING WATER, FOUNDATION AND/OR FOOTING DRAIN WATER; AND WATER USED FOR DUST CONTROL, PAVEMENT WASHING AND VEHICLE WASHWATER CONTAINING NO DETERGENTS.

C. OTHER REQUIREMENTS & PRACTICES

1. MAINTENANCE:
MAINTENANCE WILL BE PERFORMED AS INDICATED ON FIELD INSPECTION AND MAINTENANCE REPORT FORM 2118.

2. INSPECTION:
INSPECTION WILL BE PERFORMED AS INDICATED ON FIELD INSPECTION AND MAINTENANCE REPORT FORM 2118.

3. WASTE MATERIALS:
ALL WASTE MATERIALS WILL BE COLLECTED, STORED AND DISPOSED OF IN A LEGAL AND PROPER MANNER. NO CONSTRUCTION WASTE MATERIAL WILL BE BURIED ON SITE.

4. HAZARDOUS WASTE (INCLUDING SPILL REPORTING):
AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED TO BE HAZARDOUS. PAINTS, ACIDS FOR CLEANING MASONRY SURFACES, CLEANING SOLVENTS, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION, OR CONCRETE CURING COMPOUNDS AND ADDITIVES. IN THE EVENT A SPILL WHICH MAY BE HAZARDOUS, THE SPILL COORDINATOR MUST BE CONTACTED IMMEDIATELY.

5. SANITARY WASTE:
ALL SANITARY WASTE WILL BE COLLECTED FROM THE PORTABLE UNITS AS NECESSARY OR AS REQUIRED BY LOCAL REGULATION BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

OFFSITE VEHICLE TRACKING:

- [X] HAUL ROADS DAMPENED FOR DUST CONTROL
- [X] LOADED HAUL TRUCKS TO BE COVERED WITH TARPAULIN
- [X] EXCESS DIRT ON ROAD REMOVED DAILY
- [X] STABILIZED CONSTRUCTION ENTRANCE

OTHER:

REMARKS: DISPOSAL AREAS, STOCKPILES AND HAUL ROADS SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE AND CONTROL SEDIMENT FROM ENTERING RECEIVING WATERS. DISPOSAL AREAS SHALL NOT BE LOCATED IN ANY WATERBODY OR STREAMBED.

CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED TO MINIMIZE THE RUNOFF OF POLLUTANTS.

STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED PROFESSIONAL ENGINEER
08/05/2022

CURB RAMP PROGRAM
STORM WATER POLLUTION PREVENTION PLAN (SW3P)

Texas Department of Transportation

SHEET 1 OF 1

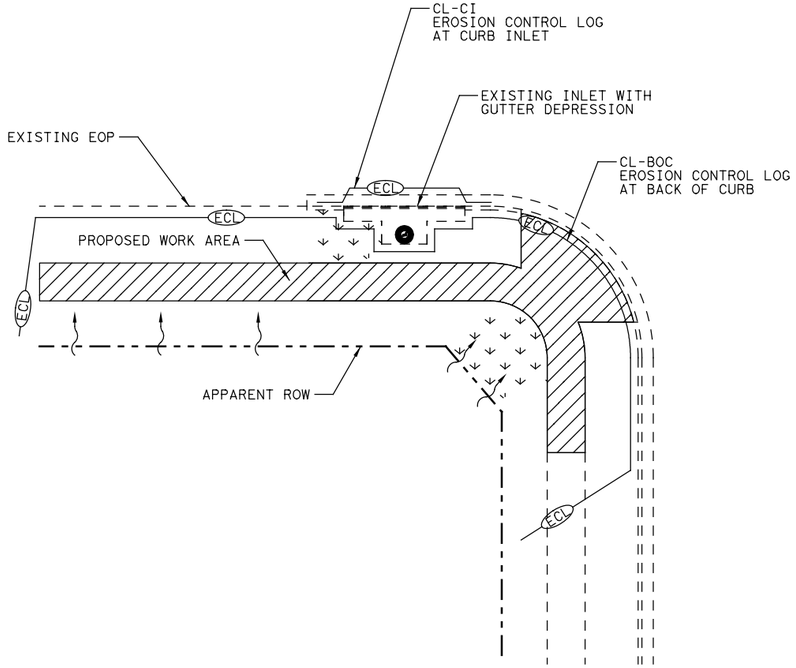
CONT	SECT	JOB	HIGHWAY
0286	01	062, ETC.	SH80, ETC.ETC.
DIST	COUNTY		SHEET NO.
AUS	HAYS		122

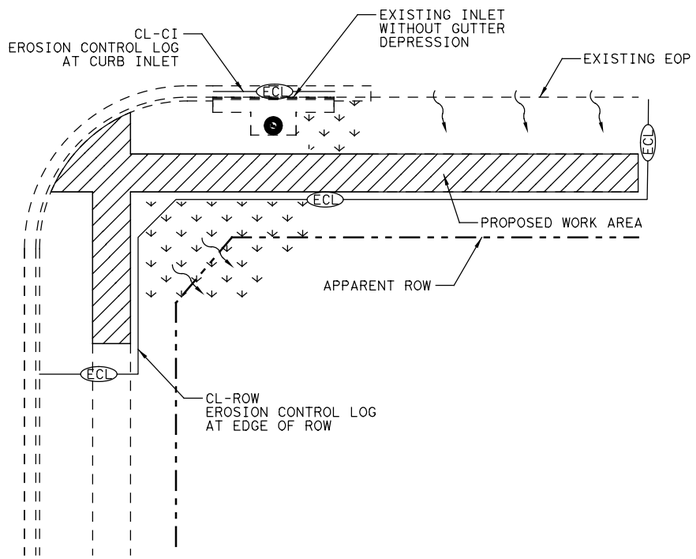
LEGEND

- 4" TOPSOIL AND BLOCK SODDING
- FLOW DIRECTION
- PROPOSED WORK AREA
- EXISTING FEATURES
- ECL — EROSION CONTROL LOG WITH WOOD OR METAL STAKES (AS APPROVED BY THE ENGINEER

NOTE:

1. REFERENCE ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS (EPIC) AND STORM WATER POLLUTION PREVENTION PLAN (SW3P) SHEETS FOR SPECIFIC CONSTRUCTION CONSIDERATIONS OR REQUIREMENTS.
2. EXAMPLES SHOWN ON THE SHEET ARE FOR GENERAL GUIDANCE AND MAY BE MODIFIED AS DIRECTED.
3. TEMPORARY SEDIMENT CONTROL FENCE MAY BE USED IN LIEU OF EROSION CONTROL LOGS WHERE APPROVED.
4. SITE CONDITIONS MAY DICTATE ADDITIONAL CONTERMEASURES AS DIRECTED.
5. USE ADDITIONAL STAKES AS NEEDED TO HOLD IN PLACE (NSPI).





STATE OF TEXAS
ROGELIO G. RODRIGUEZ
141817
LICENSED
PROFESSIONAL ENGINEER
08/05/2022

NO.	DATE	REVISION	APPROVED

HDR Engineering, Inc.
710 Hesters Crossing, Suite 150
Round Rock, Texas 78681
Texas Registered Engineering Firm F-754

Texas Department of Transportation

CURB RAMP PROGRAM

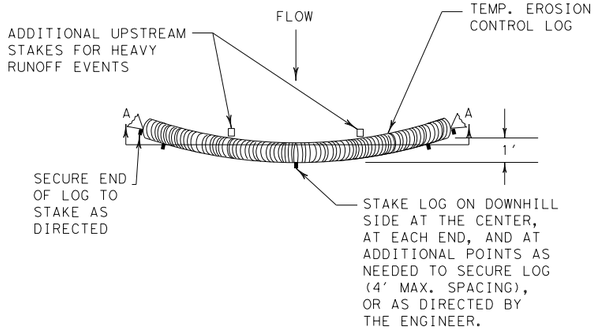
SW3P
GENERAL LAYOUT

NTS

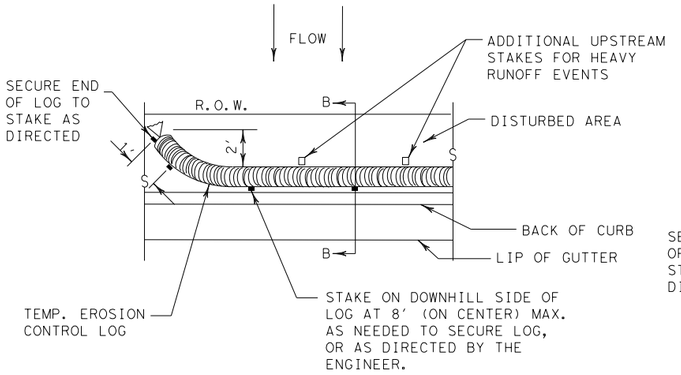
SHEET 1 OF 1

DESIGN	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
FT		SEE TITLE SHEET		SH80, ETC.
GRAPHICS: LG	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	AUS	HAYS	123
CHECK	CONTROL	SECTION	JOB	
	0286	01	062, ETC.	

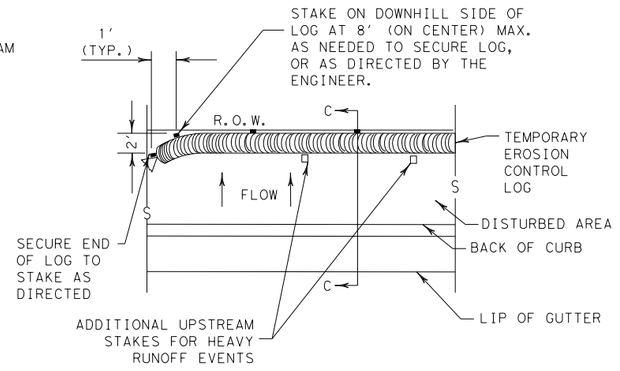
PLOT DRIVER: TXDOT_PDF_BW.pltcfg
USER: SEFITZPA
FILE: SW-SW3PDTL01.dgn
PENTABLE: I033I29I-San Marcos.tbl
DATE: 8/5/2022 TIME: 3:41:46 PM
SCALE: 1:20



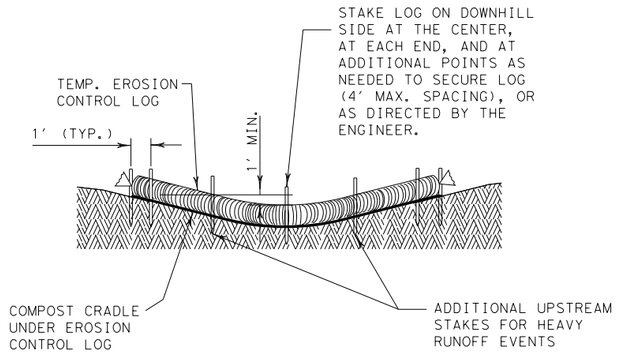
PLAN VIEW



PLAN VIEW



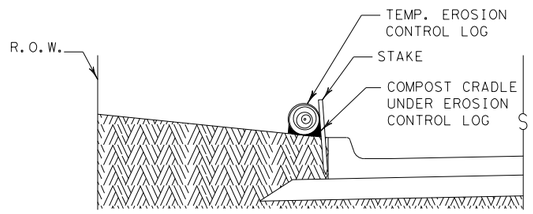
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

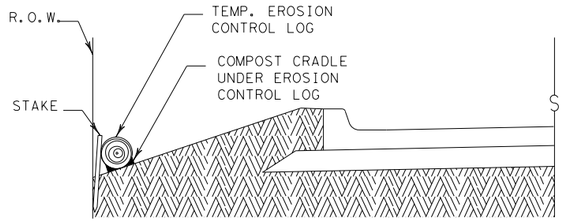
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

CL-BOC



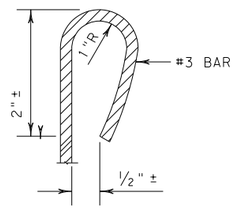
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW

LEGEND

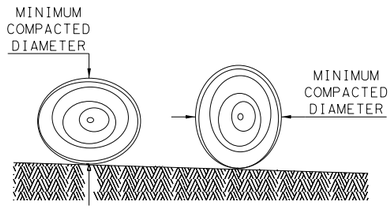
- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL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



REBAR STAKE DETAIL

GENERAL NOTES:

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



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SEDIMENT BASIN & TRAP USAGE GUIDELINES

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

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

Control logs should be placed in the following locations:

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

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

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

DATE: 8/5/2022
FILE: $FILE$

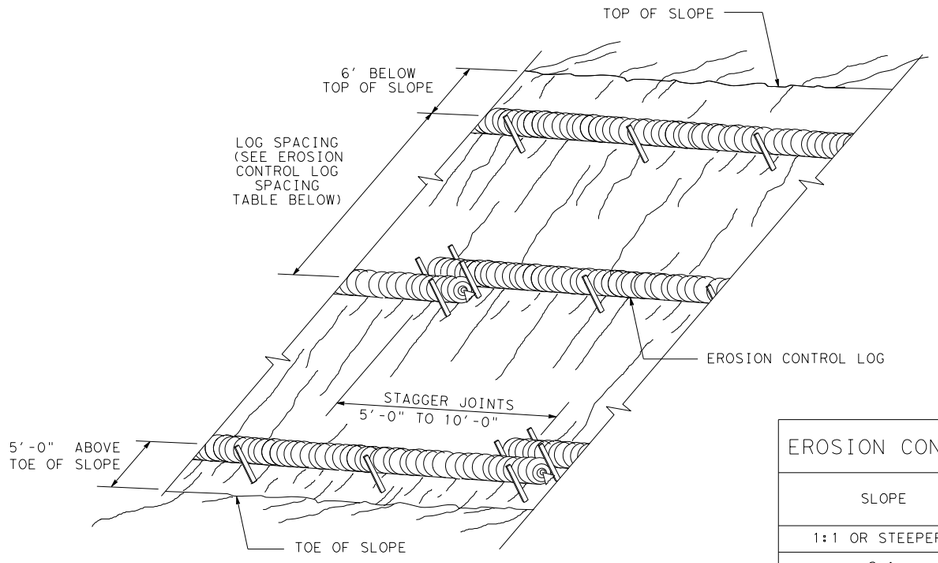
Texas Department of Transportation — Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

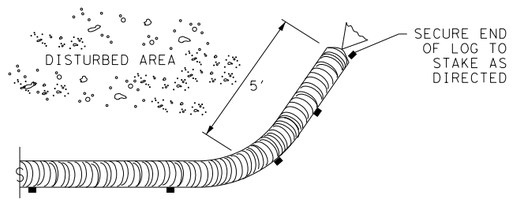
EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		124



EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

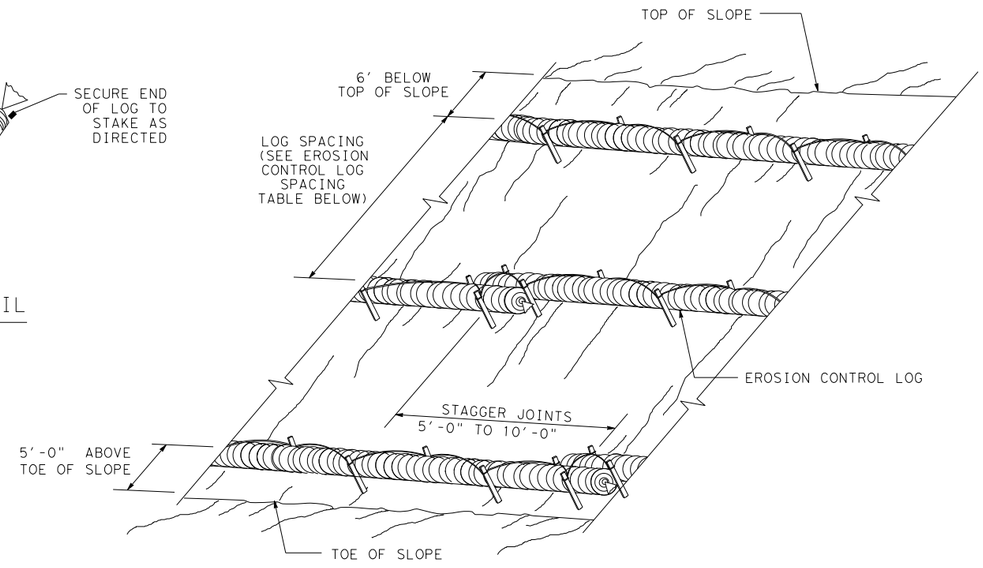
CL-SST



END SECTION RAP DETAIL

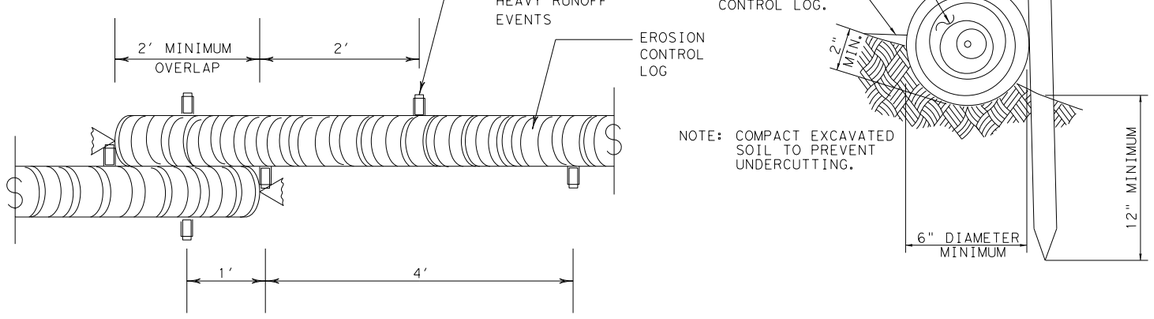
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

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



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

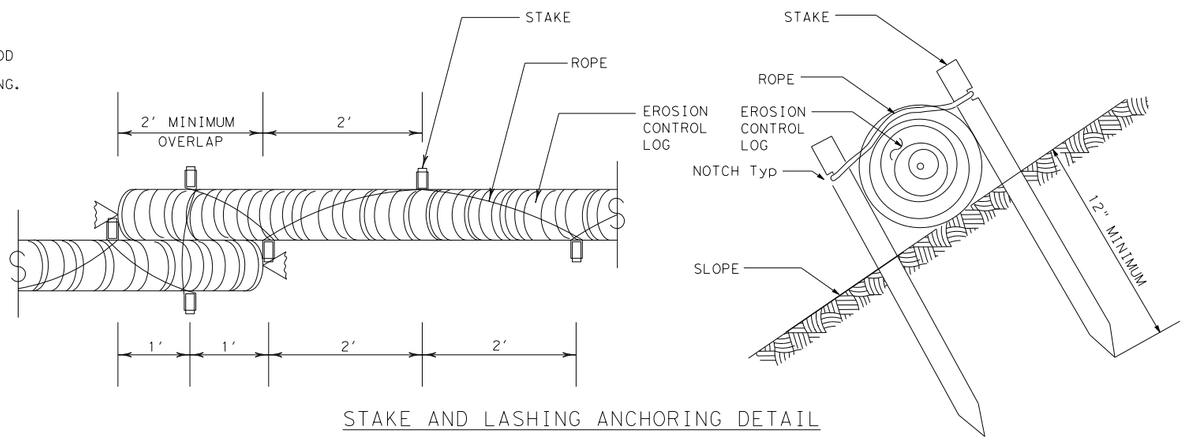
CL-SSL



STAKE AND TRENCHING ANCHORING DETAIL

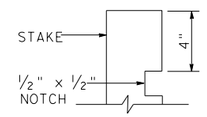
CL-SST

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



STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation

Design Division Standard

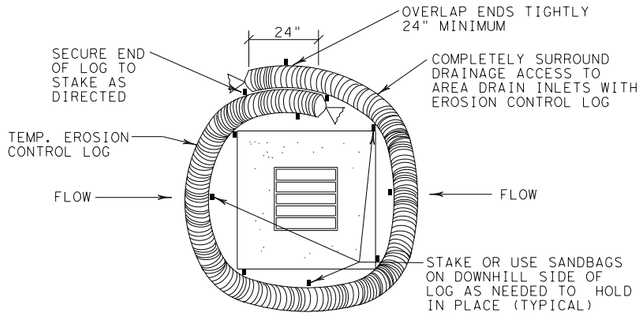
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

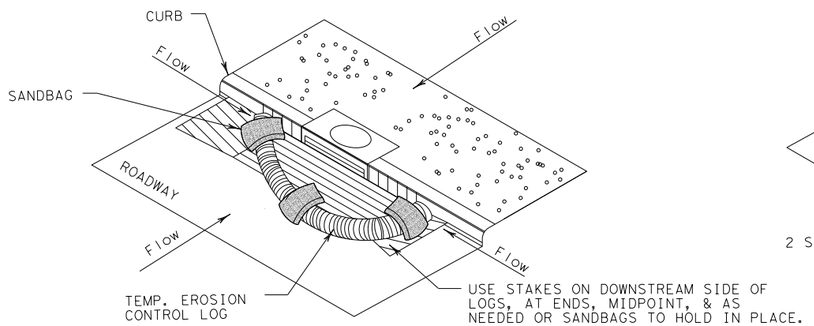
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS	
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0286	01	062, ETC.	SH80, ETC.	
	DIST	COUNTY		SHEET NO.	
	AUS	HAYS		125	

DATE: 8/5/2022
FILE: $FILE$



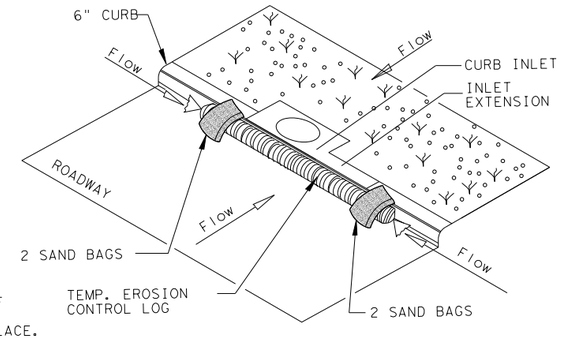
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

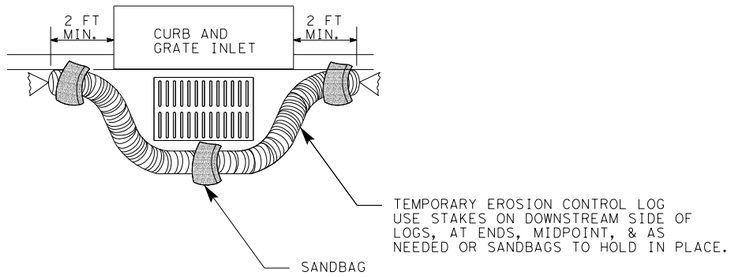
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

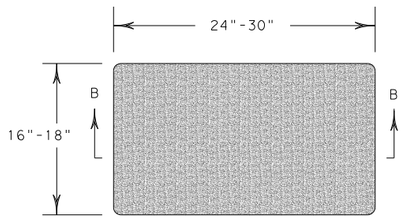
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI

SECTION B-B



SANDBAG DETAIL

SHEET 3 OF 3

Texas Department of Transportation | Design Division Standard

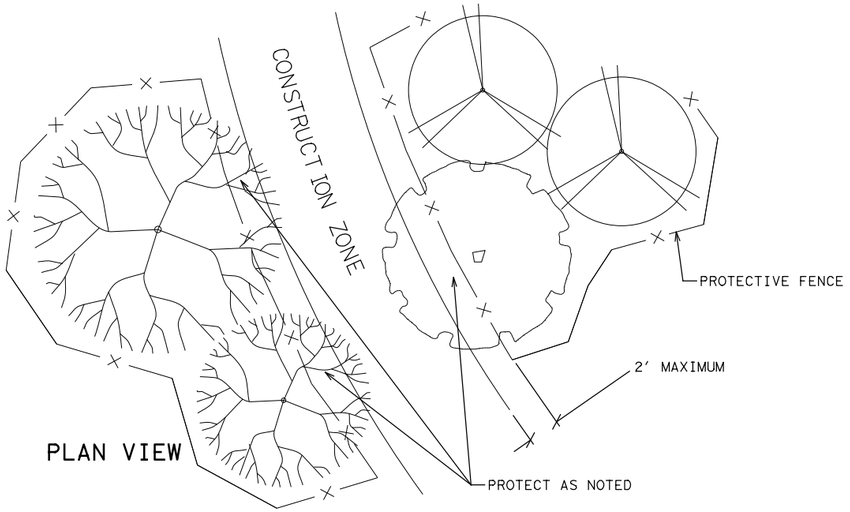
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

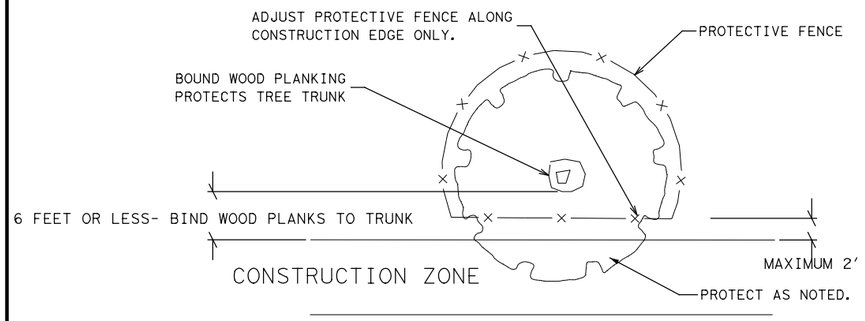
EC(9)-16

FILE: ec916	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0286	01	062, ETC.	SH80, ETC.
	DIST	COUNTY		SHEET NO.
	AUS	HAYS		126

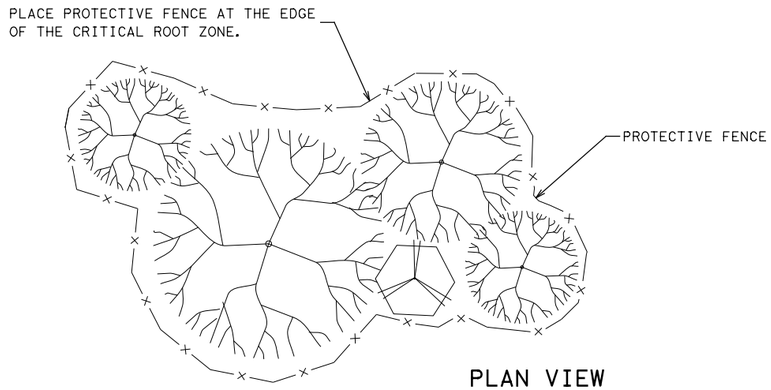
DATE: 8/5/2022
FILE: $FILE$



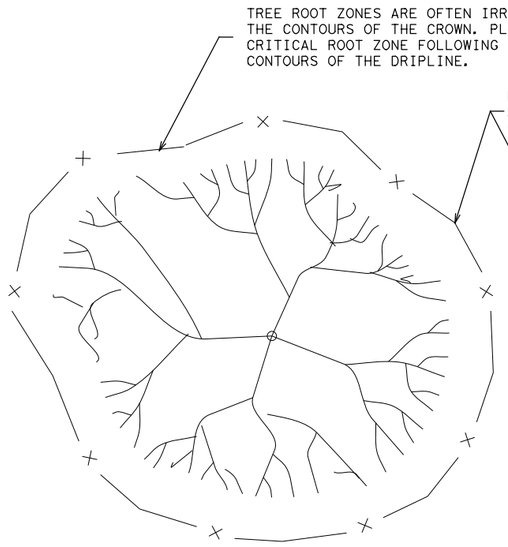
LINEAR CONSTRUCTION THROUGH STAND OF TREES

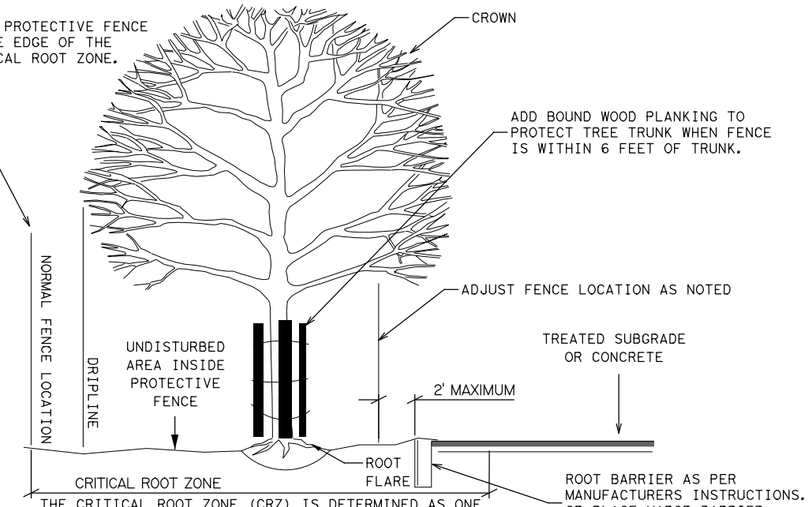


PLAN VIEW
PAVING UNDER TREES



TYPICAL TREE GROUPING PROTECTION





THE CRITICAL ROOT ZONE (CRZ) IS DETERMINED AS ONE (1) FOOT RADIUS FROM TRUNK FOR EACH CALIPER INCH (DIAMETER) OF TRUNK
EXAMPLE: THE CRZ FOR A 6 INCH CALIPER TREE WOULD EXTEND 6 FEET FROM THE TRUNK IN ALL DIRECTIONS

TYPICAL TREE PROTECTION

NOTES:

CRITICAL ROOT ZONE IS 1 FT. AWAY FROM TREE TRUNK FOR EVERY 1 IN. OF TREE DIAMETER MEASURED AT 4 FT. HEIGHT.

WATER TREES EVERY 2 WEEKS WITH A MINIMUM OF 100 GALLONS PER TREE.

SPRAY TREE WITH WATER TO REMOVE CONSTRUCTION DUST WHEN DIRECTED.

CONSTRUCTION FENCE SHALL BE 4 FT. TALL.

DO NOT PERFORM WORK OR STORE EQUIPMENT WITHIN PROTECTED AREA.

COVER THE CRITICAL ROOT ZONE BETWEEN THE PROTECTED AREA AND THE CONSTRUCTION ZONE WITH 4 IN. OF MULCH

PERFORM TREE TRIMMING AND WOUND REPAIR PER STANDARD SPECIFICATIONS.

DAMAGED AND EXPOSED ROOTS SHALL BE TRIMMED AND TREATED PER STANDARD SPECIFICATIONS. BACKFILL EXPOSED ROOTS WITH TOPSOIL WITHIN 24 HOURS OF EXPOSURE.

PLACE PLASTIC UNDER CONCRETE PLACED IN THE CRITICAL ROOT ZONE.

PLACE A ROOT BARRIER IN THE CRITICAL ROOT ZONE AT THE EDGE OF TREATED SUBGRADE TO THE DEPTH OF THE SUBGRADE.

ALL WORK IS SUBSIDIARY TO BID ITEM.

Texas Department of Transportation | Austin District Standard

TREE PROTECTION DETAILS

TPD-19(AUS)

REVISIONS
06/16: SHEET CREATED
04/19: APPROVED

CONT	SECT	JOB	HIGHWAY
0286	01	062, ETC.	SH80, ETC.
DIST	COUNTY		SHEET NO.
AUS	HAYS		127

DATE: 6/27/2022 11:12:54 PM
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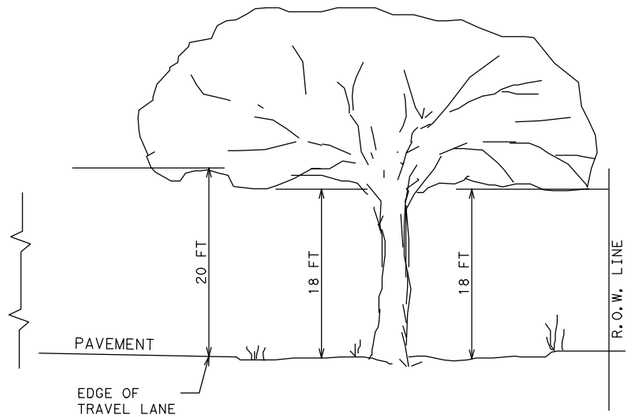
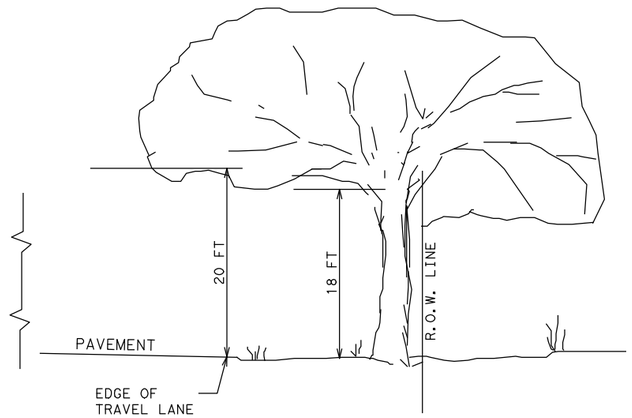
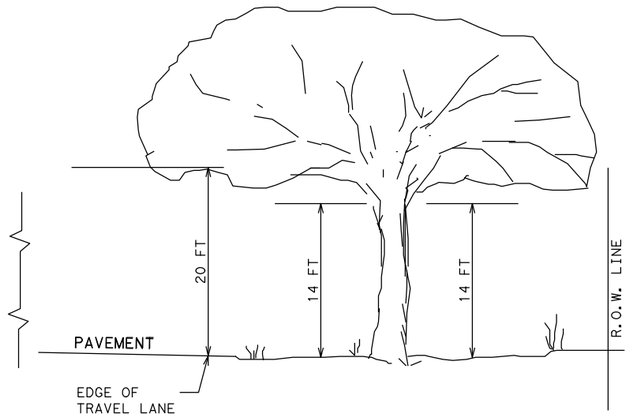
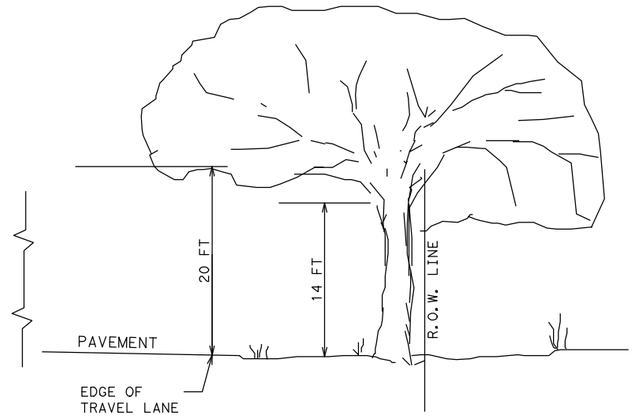




NON-OAK SPECIES
TREE PRUNING LIMITS



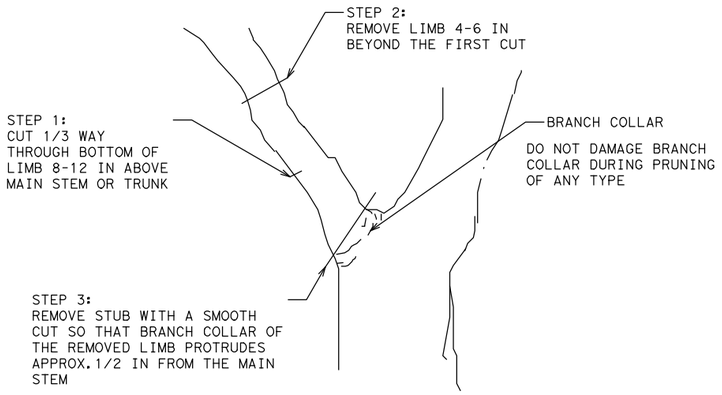


OAK SPECIES
TREE PRUNING LIMITS

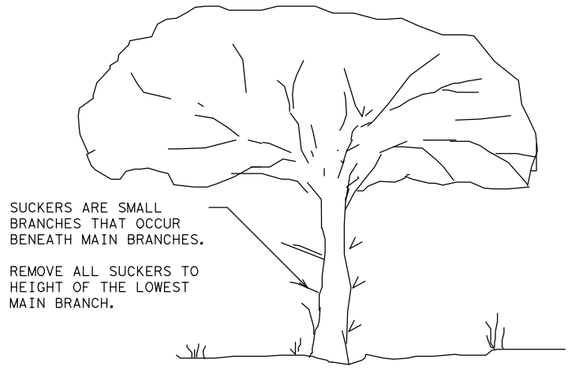
GENERAL NOTES

PAYMENT FOR THIS WORK IS SUBSIDIARY TO PREP R.O.W.

1. REMOVE ALL DEAD TREES, DEAD BRUSH, AND DEAD MULTI-TRUNKED TREES WITHIN THE R.O.W.. TREES, SHRUBS, OR MULTI-TRUNKED TREES THAT DIE DURING CONSTRUCTION SHALL BE REMOVED PRIOR TO COMPLETION OF THE PROJECT.
2. USE WORK METHODS IN ACCORDANCE WITH ANSI A300 STANDARDS AND ITEM 752.
3. FLAILING EQUIPMENT IS NOT ALLOWED ON OAK TREES.
4. REPAIR DAMAGE TO PRIVATE FENCES AND/OR PRIVATE PROPERTY.
5. PERFORM TREE PRUNING ONLY WITHIN THE R.O.W.. NO CUTS SHALL BE MADE OUTSIDE THE R.O.W..
6. PERFORM TREE PRUNING PER DETAIL FOR ENTIRE R.O.W. AREA WITHIN PROJECT LIMITS. THE ENGINEER MAY DEFINE AREAS TO RESTRICT TREE PRUNING.
7. REVIEW EPIC SHEETS FOR AREAS TO BE AVOIDED DUE TO ENVIRONMENTAL REASONS OR ADDITIONAL NOTES THAT PERTAIN TO TREE PRUNING.
8. MIGRATORY BIRDS AND BATS MAY BE NESTING WITHIN THE PROJECT LIMITS. PERFORM TREE TRIMMING OUTSIDE THE NESTING SEASON DATES LISTED IN THE GENERAL NOTES.
9. NO TRIMMING OF THE VEGETATION THAT CONTAINS AN ACTIVE NEST FOR MIGRATORY BIRDS IS ALLOWED.
10. THE TRIMMING OR CUTTING OF RED OAK AND LIVE OAK SPECIES FOR PURPOSES OTHER THAN PROTECTING PUBLIC SAFETY IS ONLY PERMITTED BETWEEN JULY 1ST AND JANUARY 31ST AND PROHIBITED BETWEEN FEBRUARY 1ST AND JUNE 30TH
11. ALL PRUNING CUTS MUST BE TREATED IMMEDIATELY WITH COMMERCIAL PRUNING PAINT TO SEAL THE EXPOSED SURFACE FROM CONTAMINATION. USE OF AEROSOL CAN IS THE PREFERRED METHOD OF APPLICATION FOR SEALING CUTS. ANY WOUNDS, WHETHER MADE BY TRIMMING, CONSTRUCTION OR ACCIDENT, SHALL BE TREATED IMMEDIATELY WITH COMMERCIAL PRUNING PAINT TO SEAL THE SURFACE FROM CONTAMINATION. THE TXDOT INSPECTOR MAY CONDUCT UNANNOUNCED INSPECTIONS TO ENSURE COMPLIANCE.
12. IF MORE THAN 25% OF THE TREE CANOPY WILL BE REMOVED CONTACT THE TXDOT ABORIST OR INSPECTOR FOR APPROVAL PRIOR TO PROCEEDING.



PROPER TREE PRUNING
FOR LIMBS 2" IN DIA. AND GREATER



SUCKER REMOVAL DETAIL

Texas Department of Transportation

Austin District Standard

Austin District Traffic

PREP R.O.W. PRUNING DETAIL

PRWPD-20 (AUS)

CONT	SECT	JOB	HIGHWAY
0286	01	062, ETC.	SH80, ETC.
DIST	COUNTY		SHEET NO.
AUS	HAYS		128

DATE: 9/21/2020 12:55:05 PM
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