CONT	SECT	JOB	HIGHWAY
0914	00	457	VA
DIST	COUNTY		SHEET NO.
AUS	VARIOUS		1

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NUMBER
STP 2022(643)
CSJ 0914-00-457

NET LENGTH OF PROJECT = 20,064 FEET = 3.80 MILES
- ROADWAY = 20,064 FEET = 3.80 MILES
- BRIDGE = 0.00 FEET = 0.00 MILES

TRAVIS COUNTY, ETC.
VARIOUS ROADWAYS

FROM: VARIOUS LOCATIONS IN BLANCO AND BURNET COUNTIES
TO: GILLESPIE AND LLANO COUNTIES

FOR THE CONSTRUCTION OF PEDESTRIAN INFRASTRUCTURE
CONSISTING OF ADA CURB RAMPS, REPAIRS, AND SIDEWALK CONNECTIONS

PEDESTRIAN FACILITIES

LENGTH: 20,064'

DATE OF LETTING: _____

DATE WORK BEGAN: _____

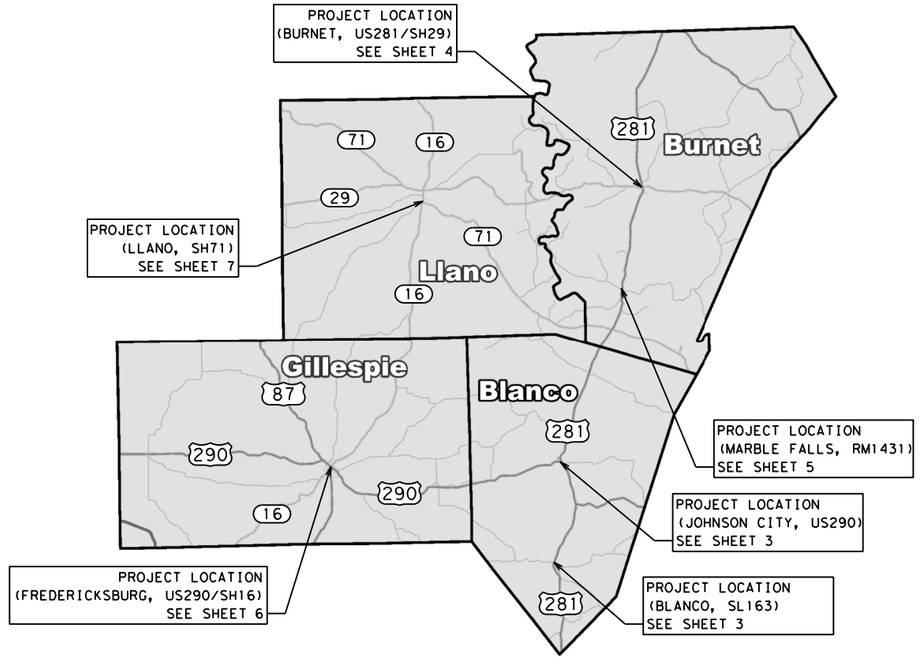
DATE WORK COMPLETED AND ACCEPTED: _____

FINAL CONTRACT COST: $_____

CONTRACTOR: _____

LIST OF APPROVED CHANGE ORDERS:

100% SUBMITTAL



LOCATION MAP
NTS

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

I CERTIFY THAT THIS PROJECT WAS CONSTRUCTED IN SUBSTANTIAL COMPLIANCE WITH THE FINAL AS-BUILT PLANS AND SPECIFICATIONS.

_____ P.E. _____
DATE

GARVER
285 SE INNER LOOP
SUITE 110
GEORGETOWN, TX 78626
(512) 485-0020
TBPE FIRM 5713

Registered Accessibility Specialist (RAS) Inspection Required

TDLR No. EABPRJ _____

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED
PROFESSIONAL ENGINEER
3/23/2022

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: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, MAY 2012).

Texas Department of Transportation

CORRECT:

CONSULTING ENG. (TBPE FIRM REG. F-5713)

RECOMMENDED FOR LETTING: 3/31/2022

DocuSigned by:
Dwayne Hellweg, P.E.
108012407A804A0...
DISTRICT DESIGN ENGINEER

SUBMITTED FOR LETTING: 3/30/2022

DocuSigned by:
Cathleen A Kratz, P.E.
E10D77F9666E43A...
AREA ENGINEER

APPROVED FOR LETTING: 3/31/2022

DocuSigned by:
Heather Ashley-Nguyen
8912AF18F45A416...
DIRECTOR OF TRANSPORTATION PLANNING & DEVELOPMENT

FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\01 General\001*AUS*ADA*RAMPS*TITLE*SHEET.dgn
DATE: 3/23/2022 2:09:19 PM

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED WITH AN ASTERICK SIGN (*), HAVE BEEN SELECTED BY ME, OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

INDEX OF SHEETS

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		2
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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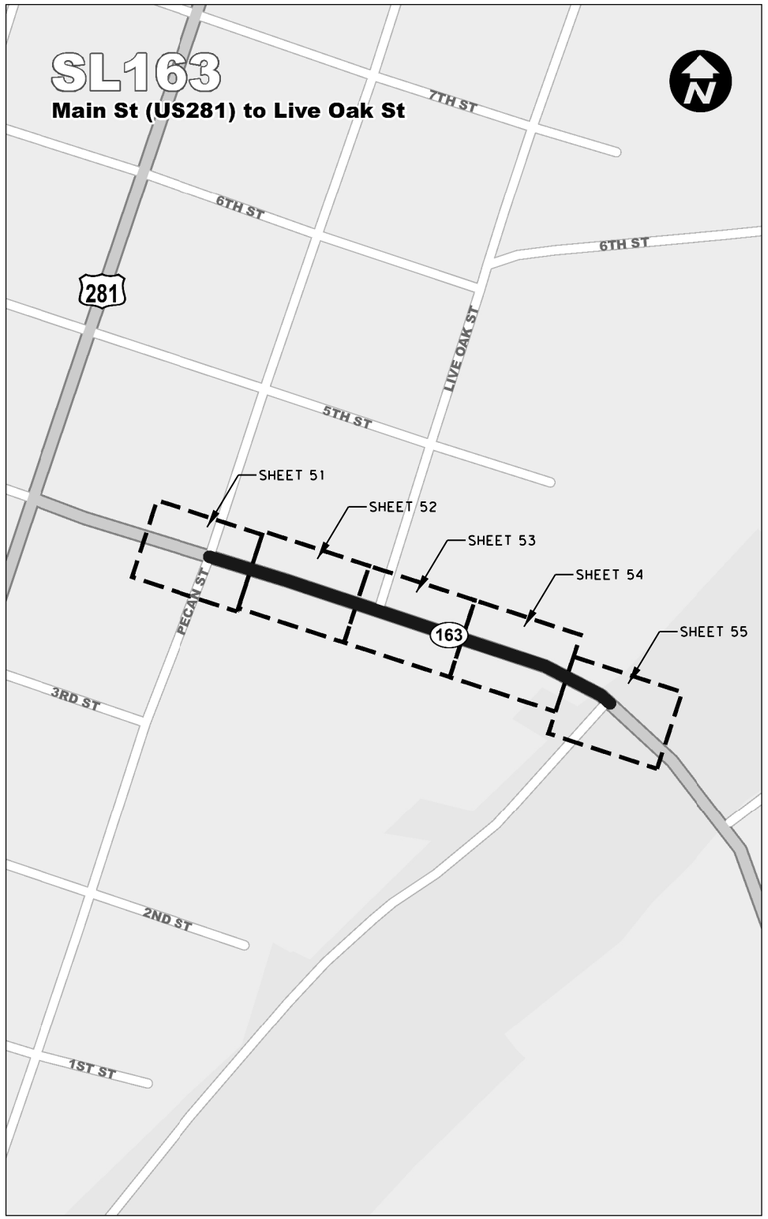
BLANCO



JOHNSON CITY

NOTE: PROGRESS WORK BY LOCATIONS USING THE FOLLOWING ORDER BY COUNTY:
BLANCO, BURNET, GILLESPIE, LLANO.
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STATE OF TEXAS
STEPHEN A. JOHNSON
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PROFESSIONAL ENGINEER
3/31/2022

Texas Department of Transportation

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PROJECT LOCATION MAPS

SHEET 1 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		3
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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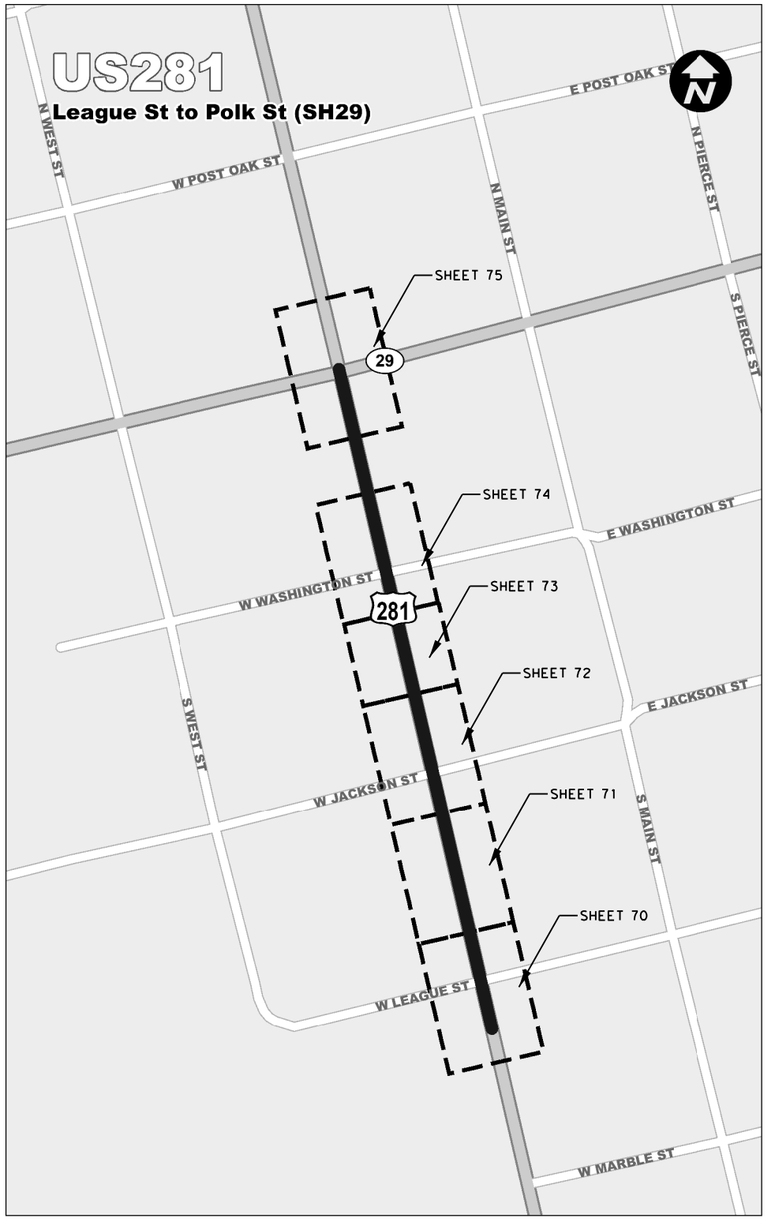
BURNET



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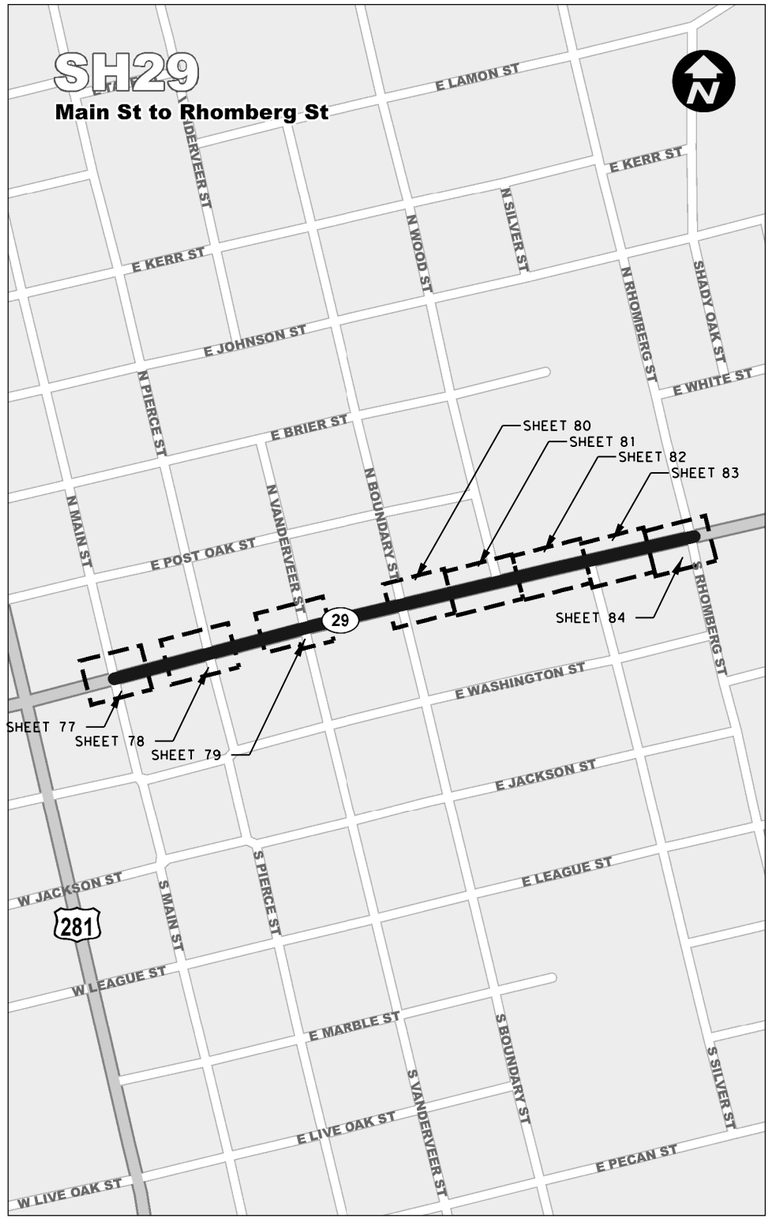

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PROFESSIONAL LICENSED ENGINEER
3/31/2022

Texas Department of Transportation

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PROJECT LOCATION MAPS

SHEET 2 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		4
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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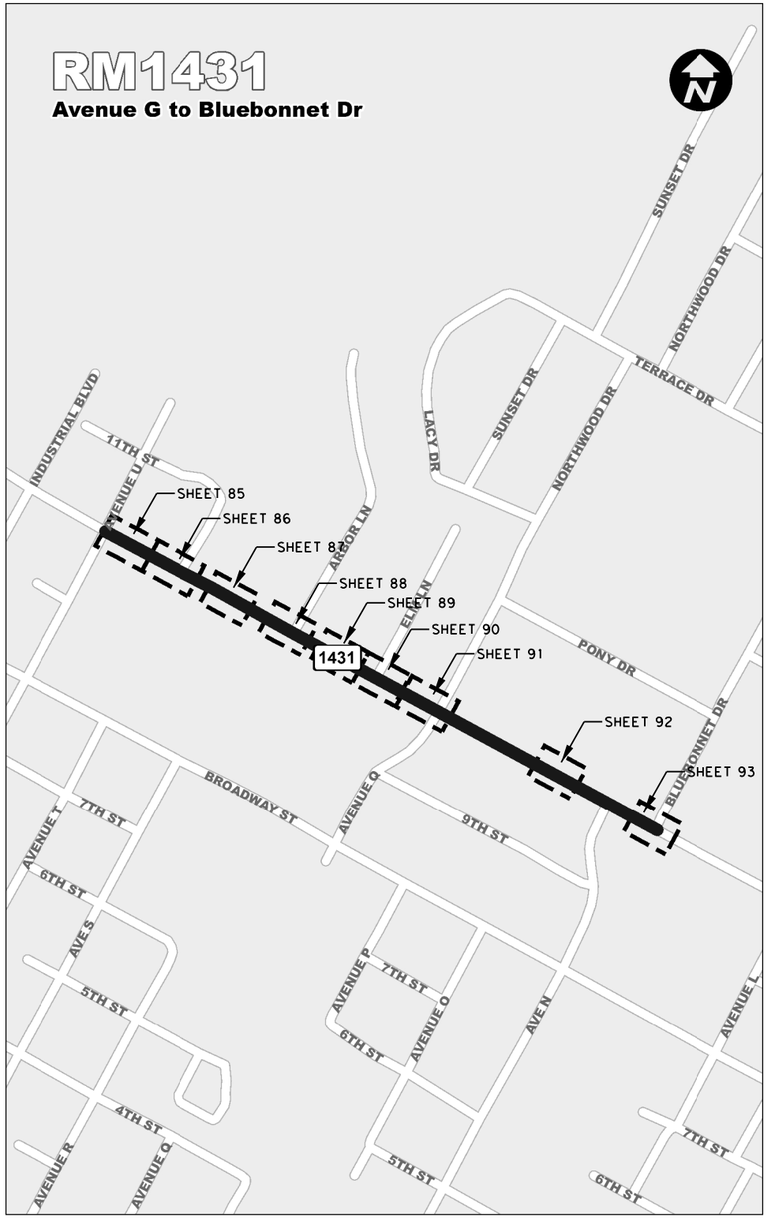
MARBLE FALLS



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STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
3/31/2022

Texas Department of Transportation

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PROJECT LOCATION MAPS

SHEET 3 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		5
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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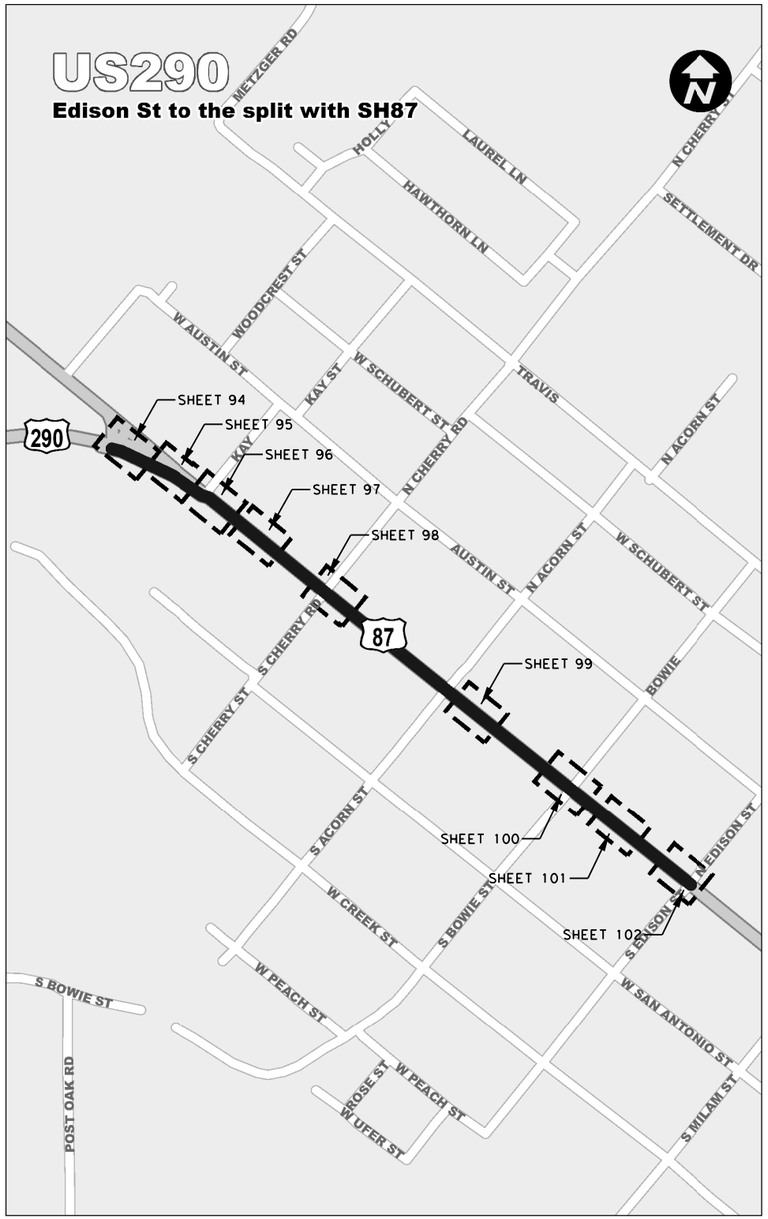
FREDERICKSBURG



FREDERICKSBURG

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3/31/2022

Texas Department of Transportation

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PROJECT LOCATION MAPS

SHEET 4 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		6
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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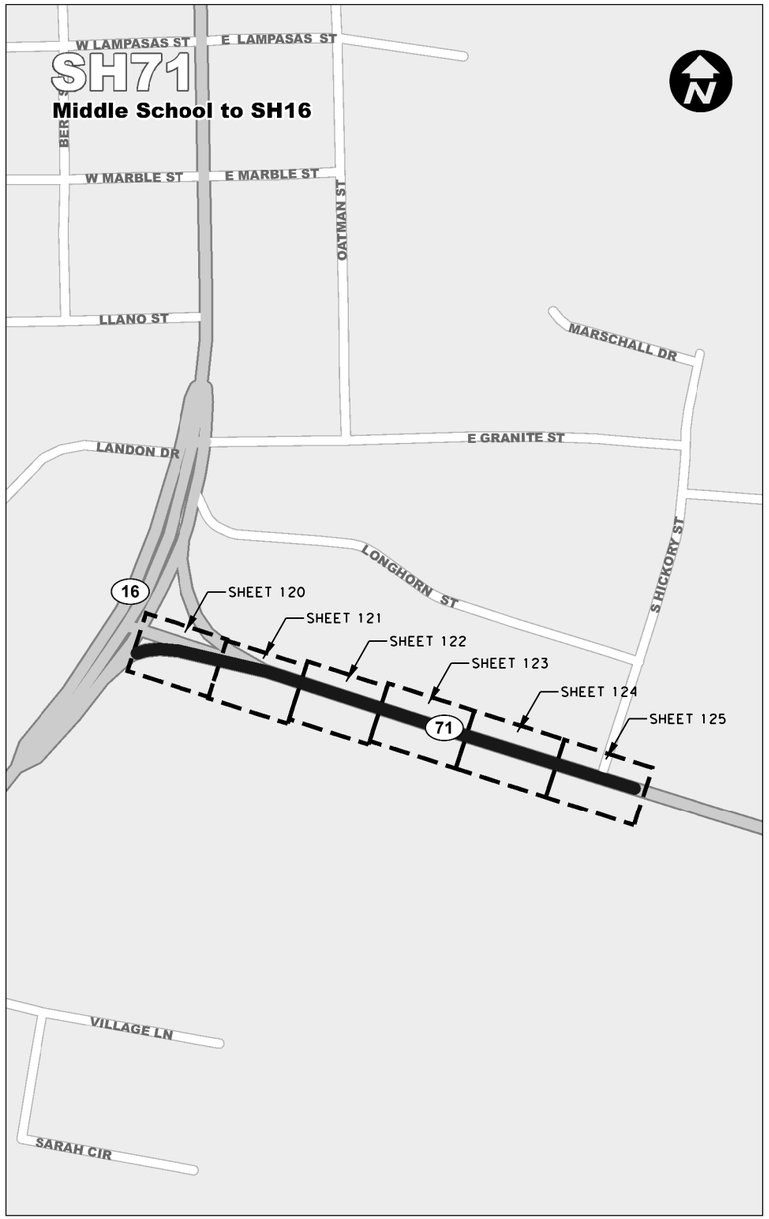
LLANO



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STEPHEN A. JOHNSON
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PROFESSIONAL ENGINEER
3/31/2022

Texas Department of Transportation

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PROJECT LOCATION MAPS

SHEET 5 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		7
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
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GENERAL NOTES: Version: January 13, 2022

Item	Description	**Rate
247	**Flexible Base (CMP IN PLC)**	132 LB/CF
310	**Prime Coat**	0.20 GAL/SY
314	**Emulsified Asphalt Treatment (SS-1 or MS-2)**	0.30 GAL/SY
300	**Tack Coat**	0.08 GAL/SY

** For Informational Purposes Only

The following standard detail sheet or sheets have been modified:

Modified Standards
N/A

GENERAL
Contractor questions on this project are to be addressed to the following individual(s):
Burnet Area Joe.Muck@txdot.gov

Contractor questions will be accepted through email, phone, and in person by the above individuals.

All contractor questions will be reviewed by the Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following Address:
https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/

All questions submitted that generate a response will be posted through this site. The site is organized by District, Project Type (Construction or Maintenance), Letting Date, CCSJ/Project Name.

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.

The roadbed will be free of organic material prior to placing any section of the pavement structure.

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

Intelligent Transportation Systems (ITS) Infrastructure may exist within the limits of this project and that the system must remain operational throughout construction. The exact location of ITS Infrastructure is not known. Contact the TxDOT Area Engineer's or Inspection Team's Office for the location(s) at least 48 hours before commencing any work that might affect present ITS Infrastructure. Use caution if working in these areas to avoid damaging or interfering with

County: Travis, etc. **Sheet:** 8
Highway: VA **Control: 0914-00-457**

existing facilities. Repair any damage to this system within 8 hours of occurrence at no cost to the Department. In the event of system damage, notify TxDOT/CTECC at (512) 974-0883 within one hour of occurrence. Failure of the Contractor to repair damage to any infrastructure that conveys any corridor information to TxDOT/CTECC will result in the Contractor being billed for the full cost of emergency repairs.

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.

Use a self-contained vacuum broom to sweep the roadway and keep it free of sediment as directed. 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.

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.

Coordinate and obtain approval for all bridgework over existing roadways.

Bridge Vertical Clearance and Traffic Handling.
Notify TxDOT project staff and the local bridge engineer 10 business days prior to the following: change in vertical clearance, placing beams/girders over traffic, opening or removing traffic from a bridge or portion of a bridge, and completion of bridge work. This requirement includes bridge class culverts. Provide vertical clearance for all structures (including signal mast arms, span wires, and overhead sign bridge structures) within the project limit. Submit information and notices to local bridge engineer at AUS_BRG_Notify@txdot.gov.

During evacuation periods for Hurricane events the Contractor will cooperate with Department for the restricting of Lane Closures and arranging for Traffic Control to facilitate Coastal Evacuation Efforts.

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.

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.

Precast Alternate Proposals.
When a precast or cast-in-place concrete element is included in the plans, a precast concrete alternate may be submitted in accordance with "Standard Operating Procedure for Alternate Precast Proposal Submission" found online at https://www.txdot.gov/inside-txdot/forms-publications/consultants-contractors/publications/bridge.html#design. Acceptance or denial of an alternate is at the sole discretion of the Engineer. Impacts to the project schedule and any additional costs resulting from the use of alternates are the sole responsibility of the Contractor.

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
Burnet Area Joe.Muck@txdot.gov AUS_BU-ShopReview@txdot.gov

Alignment and Profile.
Unless shown in the plans, profile and alignment data for roadways being overlaid or widened are for design verification only. Provide survey and construct the roadway in accordance with the typical section. Bid items and data may be provided to adjust cross slope and super elevations.

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

For structures with paint containing hazardous materials, provide locations of material removal 60 days prior to begin removal. For metal elements to be removed, mechanical shear or unbolting for removal and disposal does not require paint abatement but requires 60 day advance notice.

County: Travis, etc. **Sheet:** 8A
Highway: VA **Control: 0914-00-457**

The area designated as the potential habitat for the Houston Toad will not be allowed as a source for embankment unless approved by the Engineer. The general area is Bastrop County north of the Colorado River and east of SH 95 unless provided in the plans.

For removal, tie, or tap of asbestos concrete (AC) pipe, contact TxDOT and the local utility company 60 days prior to performing the work. Expose the AC pipe to provide a minimum of 1 ft. of clearance around the top and sides. A minimal amount of soil may remain around the AC pipe to avoid disturbance. The local utility company will be responsible for the demo notice to DSHS and removal of the AC pipe. Tie or tap into existing AC pipe may require removing an entire section of pipe from collar to collar and replacement of pipe with new pipe using existing bid items.

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.

No significant traffic generator events identified.

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.

Erosion control and stabilization measures must be initiated immediately in portions of the site where construction activities have temporarily ceased and will not resume for a period exceeding 14 calendar days. Track all exposed soil, stockpiles, and slopes. Tracking consists of operating a tracked vehicle or equipment up and down the slope, leaving track marks perpendicular to the direction of the slope. Re-track slopes and stockpiles after each rain event or every 14 days, whichever occurs first. This work is subsidiary.

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.

Suspend all activities near any significant recharge features, such as sinkholes, caves, or any other subterranean openings that are discovered during construction or core sampling. Do not proceed until the designated Geologist or TCEQ representative is present to evaluate and approve remedial action.

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.

Plan sheets were sent to the following local Floodplain Administrators on 1/26/2022:

- Martha Herden (Blanco)
- Mike Ingalsbe (Marble Falls)

PSL in Edwards Aquifer Recharge and Contributing Zone.
Obtain written approval from the Engineer for all on or off right of way PSLs not specifically addressed in the plans. Provide a signed SW3P sketch of the location 30 business days prior to use of the PSL. Include a list of materials, equipment and portable facilities that will be stored at the PSL.

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.

DSHS Asbestos and Demolition Notification.
Complete and provide the Texas Department of State Health Services (DSHS) notification form to the Engineer and email to AUS_BRG_Notify@txdot.gov at least 30 calendar days prior to bridge removal or renovation for each phase or step of work. Notify the Engineer via email of any changes to the work start and end dates.

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

County: Travis, etc. **Sheet:** 8B
Highway: VA **Control: 0914-00-457**

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.

Select Tree Preservation.
Provide a certified arborist to review the condition of the following trees: trees identified within these plans to be protected. An arborist shall provide a condition assessment of these trees and written direction for additional protection at least 5 business days prior to beginning work.

TxDOT will approve additional work. Payment for the arborist and work in addition to work shown on the plans will be paid for under the force account method in accordance with Article 9.7, "Payment for Extra Work and Force Account Method."

Once work commences, coordinate with the arborist while excavating, and take care when working in/near the critical root zone and shall expose existing tree roots and document with photographs to verify condition. The arborist shall review proposed improvements to be constructed and recommend improvements to avoid damage to tree roots. TxDOT will approve recommendations prior to construction. Damage to existing roots, root barriers or other underground facilities shall be replaced in-kind at the Contractor's expense.

During work hours, if it is deemed unsafe or insufficient room exists adjacent to provide tree protection fencing per the standards herein, tree protection chain link fencing may be removed temporarily within the work area. Tree protection planking shall remain and shall not be removed. After completion of work adjacent to trees in these areas, or at the end of each work day, tree protection fencing shall be re-erected.

Back Up Alarm.
For hours 9 P to 5 A, utilize a non-intrusive, self-adjusting noise level reverse signal alarm. This is not applicable to hot mix or seal coat operations. This is subsidiary.

ITEM 8 – PROSECUTION AND PROGRESS
Electronic versions of schedules will be saved in Primavera P6 format.

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.

Where proposed work is in proximity to historic districts, buildings, or other structures (walls, retaining walls, fences, stone markers), planting beds, and vegetation/groundcover, the contractor must follow the procedures listed below for demolition and construction at these locations:

Blanco, Blanco County:

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US 281 from 4th St (RR 1623) to 5th St
SL 163 from Main St (US 281) to Live Oak St

Johnson City, Blanco County:
US 290 from Avenue G to Avenue E

Fredericksburg, Gillespie County:
US 290 from Acorn St. to Edison St.

1. Note that work will be performed on the courthouse square in Blanco, the area by the US Post Office and City Park in Johnson City. Care must be taken to preserve the county's monuments.

2. No work shall occur on the courthouse square itself without prior approval from TxDOT and the Texas Historical Commission (THC).

3. To minimize potential damage to historic structures and materials, contractor must saw cut existing sidewalk 8 to 12 inches away from the historic resource.

4. Contractor shall construct new sidewalk next to the saw cut edge with installation of expansion joint in between. If existing sidewalk is to be removed entirely, the remaining 8 to 12 inches next to the historic structure, material, fence, or retaining wall must be removed by hand. Expansion joint must be placed between historic structure, material, fence, or retaining wall and new sidewalk.

5. Contractor must prevent damage to historic structure, materials, fences, retaining walls, including garden elements (planting beds, plantings) during the entire construction project, especially during removal of existing pavement, curb, or sidewalk. During the saw cut and hand removal process, contractor shall exercise utmost caution and shall physically protect historic structure foundation, materials, elevations, entryways with decorative flooring, fences, retaining walls, and landscape elements. When pouring concrete for repair or new install, contractor shall prevent splashback of concrete onto historic resource.

6. Contractor must repair or replace in kind, at his own expense, any historic materials damaged in the course of executing the work. Contractor shall locate replacement source for historic materials damaged in the course of the work. TxDOT-Environmental Affairs Division shall be informed of proposed repairs to facilitate consultation with Texas Historical Commission prior to execution of repair work.

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 132 – ALL EMBANKMENT
At no time will the retaining wall backfill material exceed the adjacent embankment operation by more than one lift. At no time will the embankment adjacent to the retaining wall backfill exceed the wall backfill by any elevation. Embankment placed over the area of MSE backfill must meet the same backfill requirements for the type specified under Item 423.

The Engineer will define unsuitable material. Material which the Contractor might deem to be unsuitable due to moisture content will not be considered unsuitable material.

Prior to begin embankment of existing area, correct or replace unstable material to a depth of 6 in. below existing grade. Embankment areas will be inspected prior to beginning work.

Rock or broken concrete produced by the project is allowed in earth embankments. The size of the rock or broken concrete will not exceed the layer thickness requirements in Section 132.3.4., "Compaction Methods." The material will not be placed vertically within 5 ft. of the finished subgrade elevation.

Embankment placed vertically within 5 ft. of the finished subgrade elevation or within the edges of the subgrade and treated with lime, cement, or other calcium based additives must have a sulfate content less than 3000 ppm. Allow 5 business days for testing. Treatment of sulfate material 3000 ppm to 7000 ppm requires 7 days of mellowing and continuous water curing, in accordance TxDOT guidelines for Treatment of Sulfate-Rich Soils and Bases in Pavement Structures (9/2005). Material over 7000 ppm is not allowed.

ITEM 132 – EMBANKMENT TY C
The Department must approve all Type C embankment material before use on the project. Do not furnish shale clays. Furnish embankment with sulfate content less than 3000 ppm if treated with calcium-based chemicals or within 5 ft. of the finished subgrade elevation. Existing material from within the project limits that meets the Type C Substitute requirements may substituted for Type C but is not allowed to substitute for C1, C2, or density-controlled material. Offsite material may be used to blend with onsite material to achieve the Type C requirements. The Type C substitute may also be existing material in accordance with 132 for rock embankment. The Type C substitute material may only be placed vertically beyond 5 ft. below the finished subgrade elevation or 5 ft. beyond the edge of the subgrade.

Type C				
Percent Retained		LL Max	PI Max	PI Min
3"	#4			
0	MIN 45	55	20	6
Type C Substitute				
Percent Retained			PI Max	
3"	#4			
Max 10	10-90		25	

TY C1 and C2

Description	Percent Retained					LL Max	PI Max	PI Min
	3"	1 3/4"	3/8"	#4	#40			
Embankment (Ordinary) (TY C1)	0	0-10	-	45-75	60-85	45	20	6

Description	Percent Retained					LL	PI	PI
Embankment (Ordinary) (TY C2)	-	-	0	30-75	50-85	55	25	8

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 161 - COMPOST
Furnish and install a 1-inch layer of General Use Compost.

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

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 169 – SOIL RETENTION BLANKETS
Type A blankets containing straw fibers are not allowed. Type B and D blankets shall be a spray type blanket.

ITEM 204 – SPRINKLING
Apply water for dust control as directed. When dust control is not being maintained, cease operations until dust control is maintained. Consider subsidiary to the pertinent Items.

ITEM 216 - PROOF ROLLING
Correct and perform "Proof Rolling" retest at the Contractor's expense, to the satisfaction of the Engineer, when initial "Proof Rolling" yields a failing result.

ITEM 247 - FLEXIBLE BASE
The layer thickness will be 4 in. to 6 in. unless shown on the plans. Placing in a single layer is allowed when total thickness of base is 8 in. or less. When placed in multiple layers, compact the bottom and middle layers to at least 95% and 98% of the maximum dry density, respectively. When placed in a single layer or the final layer, compact to at least 100%.

Correction of subgrade soft spots is subsidiary.

Complete per plans the subgrade, ditches, slopes, and drainage structures prior to the placement of base.

Do not use a vibratory roller to compact base placed directly on top of a drainage structure.

ITEM 300s – SURFACE COURSES AND PAVEMENTS
Asphalt season is May 1 thru September 15. Emulsified Asphalt season is April 1 thru October 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.

ITEM 305 – SALVAGING, HAULING, AND STOCKPILING RECLAIMABLE ASPHALT PAVEMENT
Contractor retains ownership of the material.

ITEM 310 – PRIME COAT
Apply blotter material to all driveways and intersections. This work is subsidiary.

When Multi Option is allowed, provide MC 30, EC 30 or AE-P. MC 30 is not allowed in Travis County.

Rolling to ensure penetration is required.

ITEM 320 - EQUIPMENT FOR ASPHALT CONCRETE PAVEMENT
Use of motor grader is allowed for placement of mixtures greater than 10 inches from the riding surface, when hotmix is used in lieu of flexbase, or as allowed.

ITEM 341 THRU 348 & 3076 THRU 3082 - HOT-MIX ASPHALT PAVEMENT

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Core holes may be filled with an Asphaltic patching material meeting the requirements of DMS-9203 or with SCM meeting requirements of DMS-9202.
Install transverse butt joints with 50 ft. H: 1 in. V transition from the new ACP to the existing surface. Install a butt joint with 24 in. H: 1 in. V transition from the new ACP to a driveway, pullout or intersection. Saw cut the existing pavement at the butt joints. This work is subsidiary.

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.

Prior to milling, core the existing pavement to verify thickness. This work is subsidiary.

Ensure placement sequence to avoid excess distance of longitudinal joint lap back not to exceed one day's production rates.

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.

Irregularities will require the replacement of a full lane width using an asphalt paver. Replace the entire sublot if the irregularities are greater than 40% of the sublot area.

Lime or an approved anti-stripping agent must be used when crushed gravel is utilized to meet a SAC "A" requirement.

When using RAP or RAS, include the management methods of processing, stockpiling, and testing the material in the QCP submitted for the project. If RAP and RAS are used in the same mix, the QCP must document that both of these materials have dedicated feeder bins for each recycled material. Blending of RAP and RAS in one feeder bin or in a stockpile is not permitted.

Asphalt content and binder properties of RAP and RAS stockpiles must be documented when recycled asphalt content greater than 20% is utilized.

No RAS is allowed in surface courses.

Department approved warm-mix additives is required for all surface mix application when RAP is used. Dosage rates will be approved during JMF approval.

The Hamburg Wheel Test will have a minimum rut depth of 3mm.

ITEM 3076 & 341/3078 - DENSE-GRADED HOT-MIX ASPHALT
Use the SGC for design and production testing of all mixtures. Design all Dense-Graded Type D mixtures as a surface mix, maximum 15% RAP and no RAS.

When using substitute binders, mold specimens for mix design and production at the temperature required for the substitute binder used to produce the HMA.
The Hamburg Wheel minimum number of passes for PG 64 or lower is reduced to 7,000. The Engineer may accept Hamburg Wheel test results for production and placement if no more than 1 of the 5 most recent tests is below the specified number of passes and the failing test is no more than 2,000 passes below the specified number of passes.

ITEM 351 – FLEXIBLE PAVEMENT STRUCTURE REPAIR
Use materials and lift thickness per SS3076. Type C and D mixes will receive an underseal per SS 3085 if the repair surface is the final surface. This work is subsidiary.

Unless otherwise shown on the plans, use the following for repairs:
Type C and D mix will use PG 76 -22 and will be placed with a paver.
Type B mix will use PG 64 -22 and may use a blade to place the mix.
For up to 2 in. deep repairs use Type D PG 76-22 SAC B.
For up to 6 in. deep repairs use Type C PG 76-22 SAC B.
For greater than 6 in. deep repairs use 2 in. Type C or D PG76-22 surface and Type B 64-22 for the bottom lifts. The final 2 lifts must be machine laid regardless of mix type. If a greater than 6 in. deep repair will be milled then overlaid, adjust the depth of the Type C or D PG 76-22 to provide Type C or D to a depth 1.5 in. below the bottom of the milling.

Full depth repair should match the thickness of the existing pavement. The contractor shall avoid cutting into the existing base material.

ITEM 354 - PLANING AND TEXTURING PAVEMENT
Contractor retains ownership of salvaged materials.

Mill and fill the work area during each shift unless otherwise shown on the plans.

Taper permanent transverse faces 50 ft. per 1 in. Taper temporary transverse faces 25 ft. per 1 in. Taper permanent longitudinal faces 6 ft. per 1 in. HMA may be used as temporary tapers. Provide minimum 1 in. butt joints at bridge ends and paving ends. This work is subsidiary.

Milled surfaces directly covered by a mat thickness of 1 in. or less shall produce a milled texture with a ridge to valley depth (RVD) no greater than 0.25 in. (6.5 mm).

ITEM 416 - DRILLED SHAFT FOUNDATIONS
Stake all Foundations, for approval, before beginning drilling operations.

Calculate the vertical signal head clearance before placing any signal pole foundation.

For mast-arm signal and strain pole anchor bolts, set two in tension and two in compression.

Obtain approval of placement prior to placing concrete.

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

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ITEM 423 - RETAINING WALLS
Mow strip shall be 2 ft. wide unless otherwise shown on the plans. Immediately backfill the face of the retaining wall after the wall height gets above the finish grade in front of the wall. Retaining wall coping gap from the face of the wall panel to the inside face of coping shall not be more than 1.5 in.

Provide a sample for approval of the surface finish prior to beginning fascia work and precast operations. Unless otherwise shown on the plans, the wall fascia shall receive an ashlar stone finish. This work is subsidiary.

Type BS backfill will use modified gradation limits as shown below.

Type	Sieve Size	Percent Retained
BS MOD	3 in.	0
	No. 4	85-100

ITEM 427 - SURFACE FINISHES FOR CONCRETE
Provide a rub finish to Surface Area I.

ITEM 432 - RIPRAP
Mow strip riprap will be 4 in. and all other riprap will be 5 in. unless otherwise shown on the plans or in the pay items. Mow strip for cable barrier may be placed monolithically with the barrier foundations if using concrete in accordance with Item 543. Fiber reinforcement is not allowed except in mow strip for cable barrier if foundation and mow strip are placed monolithically.

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.

For cement-stabilized riprap, provide Type A Grade 5 flexible base. Compressive strengths for Item 247 are waived.

SGT approach taper, paid using mow strip item, shall be installed using concrete, flexible base coated with SS-1 at a rate of 0.12 GAL/SY, or HMA Type B/C/D. Placement shall be ordinary compaction and does not require placement using an asphalt paver.

ITEM 450 - RAILING
Use the elliptical tube option for rails T401, T402, and C402.

ITEM 460 - CORRUGATED METAL PIPE
Field adjust pipe end to maintain the necessary slope. Field cutting of pipe end is allowed. Coat all field cuts with asphalt paint. Cut ditches to grade before laying pipe.

ITEM 465 – JUNCTION BOXES, MANHOLES, AND INLETS
Maintain drainage at curb inlets until the final roadway surface is placed.

For inlets not placed in roadway, construct cast-in-place reinforced concrete apron as shown in the standards. This work is subsidiary.

Backfill shall use cohesionless material per Item 400 or flowable fill if width between structure and extent of excavation is 2 ft. or less. This is subsidiary.

ITEM 466 - HEADWALLS AND WINGWALLS
Remove all loose formwork and materials from the waterway at the end of each work week or prior to a rain event. Debris that falls into the waterway must be removed at the end of each work day. Upon completion of the structure, stencil the National Bridge Inventory (NBI) number (structure number) using black paint and 4 in. tall numbers at 4 locations designated by TxDOT. This work is subsidiary.

ITEM 467 - SAFETY END TREATMENT
Field adjust pipe end to maintain the necessary slope. Field cutting of pipe end is allowed. Coat all metal field cuts or exposed reinforcement with asphalt paint.

ITEM 502 - BARRICADES, SIGNS, AND TRAFFIC HANDLING

Table 1

Roadway	Limits	Allowable Closure Time
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. 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.

Two lanes closed on IH 35 allowed to begin at 9 P for main lane (shoulder work not included) hotmix overlay or pavement repair operations (does not include bridge joint work).

Full closures only allowed Friday night thru Monday morning for bridge beam installation, bridge demolition, or OSB truss removal/installation. Full closures only allowed for roadways with frontage roads or if a designated detour route is provided in the plans.

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) or other special events that could be impacted by the construction. All lanes will be open by noon of the day before these special events.

Without prior approval from The Engineer, no closures will be allowed during the following events in:

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- Fredericksburg: Wanderlust Half Marathon, 10K and 5K, Wellness Center Wildflower Run/Walk 5K & 10K, Die Kunstler von Fredericksburg Spring Fling Art Show, Fredericksburg Lions Pancake Breakfast, Redbud Artisan Market, July 4th Fireworks Show, Hill Country Gem and Mineral Show, Polar Bear Plunge for the Pantry, Hill Country Indian Artifact Show, Fort Martin Scott Living History Days, Fredericksburg Farmers Market, Palmz in the Platz, Pedernales Creative Arts Alliance Summer Concert Series, Fredericksburg Jaycees Crawfish Festival, Friends of the Pioneer Library Book Sale, Busy Bee Handmade Market, Hill Country Swap Meet, Oktoberfest, Texas Mesquite Arts Festival, Fredericksburg Turkey Trot, Eisbahn - Ice Skating Rink, and Light the Night AfterGlow Market
- Blanco: Blanco Market Day, Blanco Lavender Festival, Hill Country Trail Ride Cowboy Breakfast, Twin Sisters Dance Hall Christmas Market, Christmas Market Day, Annual Lighting of Courthouse, and Annual Fish Fry
- Burnet: Burnet Bluebonnet Festival, Burnet County Fair & Rodeo, Burnet BBQ Cook-Off and Music Fest, Bluebonnet Air Show, Ft Croghan Day, Plein Air Competition Artfest & Auction, Octoberfest, Christmas on the Square, Main Street Bethlehem, Christmas at Ft Croghan, and Walkway of Lights.
- Bertram: Annual Oatmeal Festival
- Marble Falls: Main Street Market Day, Mayfest, Paint the Town, Howdy Roo Food Festival, Spring Market Day on Main, Sculpture on Main, Open Air Market, Fireworks on Lake Marble Falls, Walkway of Lights, Sculpture on Main, Marble Falls Music Festival, and Victorian Christmas
- Johnson City: Blanco County Livestock Show, Market Days, Blanco County Fair & Rodeo, Lights Spectacular, and LBJ 100 Bike Ride.
- Leander: Polar Bear Plunge, March Maddisc Tournament, Sunset Music Series, Mason Days, Kite Festival, and Old Town Christmas Festival
  Llano: Llano Earth Art Festival, Llano Fiddle Fest, Llano Crawfish Open, Llano Open Pro Rodeo & Parade, Llano Rock'n Riverfest, Llano Heritage Weekend, Starry Starry Nights in Bad Park, and Snow Day in Badu Park.

No closures shall occur during a scheduled running event, such as a marathon, half-marathon, 5k or 10k. All lanes will be open by noon of the day before these special events.

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.

For non-site specific signal projects, 2 months of barricades will be paid per work order location.

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.

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ITEM 504 - FIELD OFFICE AND LABORATORY

All labs and offices will include cleaning at least once a week. The cleaning will include sweeping and mopping of floors, cleaning the toilet and lavatory, and emptying wastebaskets. Space heaters are not considered adequate heating.

Projects with more than 500 CY of structural class concrete, 5000 SY of Class P concrete, and/or 2000 CY of non-structural concrete will include a concrete testing facility. Provide a structure with at least 200 sq. ft. of gross floor area in room 8 ft. high. The structure will include the laboratory equipment and all other related items to perform the contract-controlling test procedures.

Projects with HMAC, furnish a Type D structure for the Engineer’s exclusive use. The structure will include high speed internet service with WIFI signal, one desk, two chairs, and one file cabinet. Provide a minimum of three 120-volt circuits with 20-amp breakers and at most two grounded convenience outlets per circuit.

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.

ITEM 508 – CONSTRUCTING DETOURS
Detour typical section must match the adjacent roadway section, unless shown on the plans.

Flexible base will be Type A Grade 5 placed using ordinary compaction. Base compressive strengths are waived for roadways not listed in Item 502, Table 1.

ITEM 528, 531, & 536 – MISCELLANEOUS CONSTRUCTION
Reinforcement will be in accordance with Item 432.3.1 unless shown on the plans. Fiber reinforcement is not allowed. Class A and B Concrete are allowed to use Coarse Aggregate Grades 1-8. Expansion joints will be placed every 40 ft. Expansion joints must be 1” wide asphalt board and flush with the surface. The bottom of the joint shall be at half the depth of the concrete. Sidewalk cross slope must not exceed 1.5%.

Unless shown on the plans or in the pay items, 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. 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.

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

ITEM 530 – INTERSECTIONS, DRIVEWAYS, AND TURNOUTS
Notify property owners a minimum of 48 hr. in advance of beginning work on their driveway. Provide a list of each notification and contact prior to 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. Temporary access must not have grade breaks that exceed 8%. This work is subsidiary.

Grade breaks must not exceed 8%. 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 amount 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. Furnish base meeting the requirement for any type or grade in accordance with Item 247. Compressive strengths for flexible base are waived. Base must be placed using ordinary compaction.

For CONC, the pavement structure will be 6 in. thick and have 3 in. base bedding unless detailed on the plans. Furnish base meeting ACP or SURF TREAT requirements. Class A concrete is required and may use Coarse Aggregate Grades 1-8. Expansion joints will be placed every 20 ft.

Expansion joints will be constructed as detailed in the latest TxDOT Concrete Curb and Curb and Gutter Standard. Reinforcement will be in accordance with concrete riprap for Item 432.3.1., unless specified on the plans.

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ITEM 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.

Provide a 180 day advance email notice to the Engineer for equipment to be provided by TxDOT.

Provide equipment that requires TxDOT programming, etc. to TxDOT 180 day in advance.

Prior to relief of maintenance, a Test Period is required for signals and ITS equipment in accordance with Item 680.3.1.8. Response time to reported trouble calls shall be less than 2 hours. Complete repairs within 24 hours. Notify the Engineer and maintain a logbook in the controller cabinet of each trouble call. Do not clear the error log in the conflict monitor without approval.

Maintain the existing ITS equipment and HUB buildings operational during construction. ITS downtime is allowed from 12A to 4A. Downtime is restricted to one time per HUB or equipment.

Definitions of abbreviations used to designate ITS equipment, material, etc. can be provided by the Engineer.

For illumination conduit and ITS multi duct, smooth wall schedule 40 HDPE can be substituted for schedule 40 PVC. Minimum distance between HDPE joints will be 200 ft. If multi duct replaced with individual HDPE pipes, each ITS multi duct requires replacement with 4 x 1.5 in. pipes. If using individual pipes, ITS conduit spacers are not required but each set of 4 pipes shall be bound together at 5 ft. max spacing. For illumination conduit and ITS multi duct, schedule 80

bore can be replaced with an HDPE carrier pipe of adequate size to carry the proposed conduits. Stakes or other physical method shall be installed to hold down conduit prior to placement of encasement. Each LF payment of multi duct will include all 4 pipes and total quantity paid will not change due to substitution. All HDPE shall meet the material requirements of the applicable specification or be pre-qualified for Item 618.

ITEM 610 - ROADWAY ILLUMINATION ASSEMBLIES
Upon removal, contact signal shop to stockpile a maximum of 10 assemblies that meet the current TxDOT standards at the Austin District Headquarters located at 7901 North IH 35, 78753. If signal shop declines receipt of these assemblies, Contractor will be responsible for disposal.

For each assembly, paint the service, circuit, run and assembly number/letter using 3 in. tall characters and black paint. The marking shall be stacked vertically with the service on top and the assembly number/letter on the bottom. Paint 6 ft. above the roadway surface on the hand access door side of the pole or adjacent to the assembly if mounted to a structure. This work is subsidiary.

For both transformer and shoe-base type illumination poles, provide double-pole breakaway fuse holder.

Provide 10-amp time delay fuses.

Maintain all new and existing illumination for the duration of the contract. All existing illumination will remain operational until replaced by new illumination or required to be removed due to construction.

ITEM 618 - CONDUIT
Fit PVC and HDPE conduit terminations with bell ends.

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 conduit runs. Cap all empty conduit using standard weather tight conduit caps. This work is subsidiary.

Use a coring device when drilling holes through concrete structures.

Structurally mounted junction boxes will be as shown on the plans. When used for traffic signal installations, these boxes will be 12" x 12" x 8". This work is subsidiary.

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

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is subsidiary. Abandon existing underground conduit that is unusable is allowed if all conductors are removed. Replacement conduit will be paid using the existing bid items.

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.

Permanently mark “illumination” on the luminaire conductors installed inside a traffic signal pole. Make the marks easily visible from the hand hole.

ITEM 624 – GROUND BOXES
Aggregate for fill under the box will be crushed, have a maximum size of 2 in., minimum size of ½ in., and requirements per Item 302 are waived.

ITEM 628 – ELECTRICAL SERVICES
Contact the utility company upon execution of contract and prior to the pre-construction meeting to make arrangements for all work and materials provided by the utility company. Contact AUS_Business_Services@txdot.gov for account approval and information. Accounts shall be placed in the name of TxDOT.

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 658 – DELINEATOR AND OBJECT MARKER ASSEMBLIES
Installation and maintenance of portable CTB reflectors will be subsidiary to the barrier.

Flexible posts YFLX and WFLX must be tubular in shape. The “flat” flexible posts are not allowed.

ITEM 662 - WORK ZONE PAVEMENT MARKINGS
Notify the Engineer at least 24 hours in advance of work for this item.

Maintain removable and short-term markings daily. Remove within 48 hours after permanent striping has been completed.

Item 668 is not allowed for use as Item 662.

ITEM 666 - RETROREFLECTORIZED PAVEMENT MARKINGS

Notify the Engineer at least 24 hr. before beginning work.

Place longitudinal markings nightly for IH 35 main lanes or roadways with AADT greater than 100,000. Use of temporary flexible reflective roadway marker tabs is subsidiary and at the Contractor's option. Replace missing or damaged tabs nightly. If using tabs, place longitudinal markings weekly by 5 AM Friday for all weekday work and by 5 AM Monday for all weekend work. Failure to maintain tabs or place longitudinal markings by deadline will require nightly placement of longitudinal markings.

Place longitudinal markings no later than 7 calendar days after placement of the surface for roadways with AADT greater than 20,000.

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.

When using black shadow to cover existing stripe apply a non-retroreflective angular abrasive bead drop. The marking color shall be adjusted to resemble the pavement color. If Item 677 is not used prior to placement of black shadow, scrape the top of the marking with a blade or large piece of equipment unless surface is a seal coat. The scraping of the marking is subsidiary.

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.

ITEM 680 - HIGHWAY TRAFFIC SIGNALS
Luminaire arms shall be aligned with the signal head support. If multiple signal head supports, the luminaire arm shall be aligned with the support over the higher volume roadway.

Install 250W EQ LED illumination fixtures as shown in the plans. Test in accordance with Item 616. This work is subsidiary.

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Furnish all materials and install signs mounted on the traffic signal wire, traffic signal poles, mast arms, and pedestal pole assemblies. Remove all conflicting signs and sign foundations when signal is placed into operation. This work is subsidiary.

Place the traffic signal into operation after the traffic signal and stripe have been completed. The signal shop will be present to program the controller and assist with detection setup. Have a qualified technician and a representative from the controller supplier on the project site to place the traffic signals in operation.

If shown on the plans, install the Emergency Response Detection equipment supplied by the City.

Upon removal, contact signal shop to stockpile a maximum of 4 signal poles and mast arms that meet the current TxDOT standards at the Austin District Headquarters located at 7901 North IH 35, 78753. If signal shop declines receipt of material, Contractor will be responsible for disposal.

For city operated signals, the city may assist in determining how the detector loop lead-in cables are to be connected, and will also program the controller for operation, the video detection, hook up the conflict monitor, detector units and other equipment, and turn on the controller.

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.

Traffic signal heads will be aluminum unless otherwise shown on the plans. Back plates will be black aluminum.

Provide louvers, which have five vanes with a black finish on inside surfaces when required. Fasten a hardware cloth screen, securely, with ⅝" or smaller mesh size to the front face of each louver to prevent bird nesting.

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 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 6185 – TRUCK MOUNTED ATTENUATOR AND TRAILER ATTENUATOR
The TMA/TA used for installation/removal of traffic control for a work area will be subsidiary to the TMA/TA used to perform the work.

The contractor will be responsible for determining if one or more operations will be ongoing at the same time to determine the total number of TMA/TA required for the work. TMA/TAs paid by the day is full compensation for all worksite locations during an entire day.

TMA/TAs used to protect damaged attenuators will be paid by the day using the force account item for the repair.

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0914-00-457 **DISTRICT** Austin **COUNTY** Travis
HIGHWAY Various

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0914-00-457**			
		PROJECT ID		**A00134381**			
		COUNTY		**Travis**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	100-6001	PREPARING ROW	AC	1.000		1.000	
	104-6015	REMOVING CONC (SIDEWALKS)	SY	74.000		74.000	
	104-6017	REMOVING CONC (DRIVEWAYS)	SY	2,447.000		2,447.000	
	104-6021	REMOVING CONC (CURB)	LF	3,645.000		3,645.000	
	104-6028	REMOVING CONC (MISC)	SY	320.000		320.000	
	105-6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	1,549.000		1,549.000	
	132-6003	EMBANKMENT (FINAL)(ORD COMP)(TY B)	CY	400.000		400.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	5,353.000		5,353.000	
	162-6002	BLOCK SODDING	SY	5,353.000		5,353.000	
	168-6001	VEGETATIVE WATERING	MG	321.180		321.180	
	334-6080	HMCL ACP TY-D AC-1.5	TON	5.000		5.000	
	351-6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	1,593.000		1,593.000	
	432-6011	RIPRAP (CONC) (CL B) (6")	CY	92.000		92.000	
	432-6020	RIPRAP (STONE TY F)(GROUT)(6 IN)	CY	32.500		32.500	
	432-6038	BEDDING MATERIAL (3 IN)	CY	6.000		6.000	
	450-6048	RAIL (HANDRAIL)(TY B)	LF	459.000		459.000	
	460-6003	CMP (GAL STL 24 IN)	LF	17.000		17.000	
	464-6005	RC PIPE (CL III)(24 IN)	LF	68.000		68.000	
	464-6007	RC PIPE (CL III)(30 IN)	LF	10.000		10.000	
	465-6021	INLET (COMPL)(PCO)(5FT)(NONE)	EA	1.000		1.000	
	465-6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	14.000		14.000	
	467-6380	SET (TY II) (24 IN) (CMP) (6: 1) (P)	EA	1.000		1.000	
	467-6394	SET (TY II) (24 IN) (RCP) (6: 1) (C)	EA	4.000		4.000	
	479-6001	ADJUSTING MANHOLES	EA	1.000		1.000	
	479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	8.000		8.000	
	479-6008	ADJUSTING MANHOLES (WATER METER)	EA	7.000		7.000	
	496-6004	REMOV STR (SET)	EA	1.000		1.000	
	496-6030	REMOVE STR (BOLLARD)	EA	2.000		2.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	12.000		12.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	7,916.000		7,916.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	7,916.000		7,916.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	1,584.000		1,584.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	1,584.000		1,584.000	
	528-6002	COLORED TEXTURED CONC (6")	SY	20.000		20.000	
	528-6006	REMOVE AND RELAY PAVERS	SY	38.000		38.000	
	529-6002	CONC CURB (TY II)	LF	4,754.000		4,754.000	

Estimate & Quantity Sheet

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HIGHWAY Various

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0914-00-457**			
		PROJECT ID		**A00134381**			
		COUNTY		**Travis**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	529-6015	CONC CURB (TY C1)	LF	1,596.000		1,596.000	
	529-6016	CONC CURB (TY F1)	LF	433.000		433.000	
	530-6004	DRIVEWAYS (CONC)	SY	2,830.000		2,830.000	
	531-6002	CONC SIDEWALKS (5")	SY	6,591.000		6,591.000	
	531-6004	CURB RAMPS (TY 1)	EA	14.000		14.000	
	531-6005	CURB RAMPS (TY 2)	EA	1.000		1.000	
	531-6006	CURB RAMPS (TY 3)	EA	5.000		5.000	
	531-6009	CURB RAMPS (TY 6)	EA	19.000		19.000	
	531-6010	CURB RAMPS (TY 7)	EA	45.000		45.000	
	531-6013	CURB RAMPS (TY 10)	EA	15.000		15.000	
	531-6050	CONCRETE SIDEWALK (STEPS)	SY	1.000		1.000	
	560-6025	RELOCATE EXISTING MAILBOX	EA	3.000		3.000	
	618-6016	CONDT (PVC) (SCH 40) (1")	LF	75.000		75.000	
	618-6029	CONDT (PVC) (SCH 40) (3")	LF	850.000		850.000	
	618-6030	CONDT (PVC) (SCH 40) (3") (BORE)	LF	1,358.000		1,358.000	
	624-6005	GROUND BOX TY BATTERY (162915)	EA	6.000		6.000	
	624-6009	GROUND BOX TY D (162922)	EA	17.000		17.000	
	624-6010	GROUND BOX TY D (162922)W/APRON	EA	6.000		6.000	
	624-6028	REMOVE GROUND BOX	EA	20.000		20.000	
	636-6001	ALUMINUM SIGNS (TY A)	SF	106.000		106.000	
	636-6007	REPLACE EXISTING ALUMINUM SIGNS(TY A)	SF	1.000		1.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	84.000		84.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	4.000		4.000	
	658-6010	INSTL DEL ASSM (D-SW)SZ 2(WC)GND	EA	4.000		4.000	
	658-6046	INSTL OM ASSM (OM-2X)(WC)GND	EA	2.000		2.000	
	658-6060	REMOVE DELIN & OBJECT MARKER ASSMS	EA	4.000		4.000	
	668-6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	6,476.000		6,476.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	267.000		267.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	1,186.000		1,186.000	
	677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	2,404.000		2,404.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	1,453.000		1,453.000	
	682-6003	VEH SIG SEC (12")LED(YEL)	EA	8.000		8.000	
	682-6005	VEH SIG SEC (12")LED(RED)	EA	2.000		2.000	
	682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA	11.000		11.000	
	684-6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	5,492.000		5,492.000	
	684-6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	4,551.000		4,551.000	
	684-6031	TRF SIG CBL (TY A)(14 AWG)(5 CONDR)	LF	225.000		225.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0914-00-457 **DISTRICT** Austin **COUNTY** Travis
HIGHWAY Various

		CONTROL SECTION JOB		**0914-00-457**		TOTAL EST.	TOTAL FINAL
		PROJECT ID		**A00134381**			
		COUNTY		**Travis**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	685-6004	INSTL RDSD FLSH BCN ASSM (SOLAR PWRD)	EA	6.000		6.000	
	687-6001	PED POLE ASSEMBLY	EA	13.000		13.000	
	687-6003	RELOCATE PED POLE ASSEMBLY	EA	5.000		5.000	
	687-6005	REMOVE PED POLE ASSEMBLY	EA	4.000		4.000	
	688-6001	PED DETECT PUSH BUTTON (APS)	EA	16.000		16.000	
	688-6003	PED DETECTOR CONTROLLER UNIT	EA	2.000		2.000	
	690-6024	REMOVAL OF SIGNAL HEAD ASSM	EA	11.000		11.000	
	690-6027	REMOVAL OF SIGNAL RELATED SIGNS	EA	6.000		6.000	
	690-6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6.000		6.000	
	690-6031	REPLACE OF PEDESTRIAN PUSH BUTTONS	EA	1.000		1.000	
	690-6123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	10.000		10.000	
	1004-6001	TREE PROTECTION	EA	23.000		23.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000		1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	
		LAW ENFORCEMENT: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000		1.000	

SUMMARY OF QUANTITY ITEMS

		100 6001	104 6015	104 6017	104 6021	104 6028	105 6005	132 6003	160 6003	162 6002	168 6001	351 6036	432 6011	432 6020
		PREPARING ROW	REMOVING CONC (SIDEWALKS)	REMOVING CONC (DRIVEWAYS)	REMOVING CONC (CURB)	REMOVING CONC (MISC)	REMOVING STAB BASE AND ASPH PAV (3")	EMBANKMENT (FINAL) (ORD COMP) (TYP B)	FURNISHING AND PLACING TOPSOIL (4")	BLOCK SODDING	VEGETATIVE WATERING	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	RIPRAP (CONC) (CL B) (6")	RIPRAP (STONE TY F) (GROUT) (6 IN)
SHEET	LOCATION	AC	SY	SY	LF	SY	SY	CY	SY	SY	MG	SY	CY	CY
51	SL 163 AT PECAN ST		34		41		37		115	115	6.9	250	2	
52	SL 163 MIDBLOCK BETWEEN PECAN ST AND LIVE OAK ST			6										
53	SL 163 AT LIVE OAK ST								43	43	2.6	88		
54	SL 163 MIDBLOCK BETWEEN LIVE OAK ST AND P23								41	41	2.5			
55	SL 163 AT P23			88	23				13	13	0.8			
56	US290 AT AVENUE G			81					10	10	0.6			
57	US290 AT AVENUE F			193	40				16	16	1.0	73		
58	US290 MIDBLOCK BETWEEN AVENUE F AND AVENUE E			83	39									
59	US290 AT AVENUE E				38				28	28	1.7	56		
60	US290 LBJ/LIVEOAK DR				106				38	38	2.3	167		
61	US290 MIDBLOCK BETWEEN LBJ DR AND AVE C			82	140				61	61	3.7			
62	US290 AT AVENUE C /RANCHVIEW DR			127	188	12			107	107	6.4		4	
63	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (1)			15	210				175	175	10.5			
64	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (2)				214		43		161	161	9.7			
65	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (3)				131		59		119	119	7.1			
66	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (4)				202	91	176		287	287	17.2			
67	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (5)				202		143		398	398	23.9			
68	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (6)				163		48		72	72	4.3			
69	US290 AT SCOFIELD AVENUE				144				57	57	3.4		3	
70	US281 AT LEAGUE ST		2		50				62	62	3.7			
71	US281 MIDBLOCK BETWEEN LEAGUE ST AND JACKSON ST													
72	US281 AT JACKSON ST				13		37					26	5	
73	US281 MIDBLOCK BETWEEN JACKSON ST AND WASHINGTON ST		10		13		90						17	
74	US281 AT WASHINGTON ST		4		31		1						1	
75	US281 AT SH 29 (POLK ST) (1 OF 2)		4		104				24	24	1.4			
77	SH29 AT MAIN ST			54	42							84		
78	SH29 AT PIERCE ST				134									
79	SH29 AT VANDERVEER ST		6		87				9	9	0.5		2	
80	SH29 AT BOUNDARY ST			66	40				59	59	3.5	85		
81	SH29 AT WOOD ST			16	30				76	76	4.6	72		
82	SH29 MIDBLOCK BETWEEN WOOD ST AND SILVER ST			36	38				63	63	3.8			
83	SH29 AT SILVER ST			77	130				35	35	2.1	82	2	3
84	SH29 AT RHOMBERG ST				32		10		44	44	2.6		2	1
85	RM1431 AT AVENUE U			127					83	83	5.0			
86	RM1431 AT VETERANS DR								109	109	6.5			
87	RM1431 MIDBLOCK BETWEEN VETERANS DR AND ARBOR LN													
88	RM1431 AT ARBOR LN				30				70	70	4.2	61		
89	RM1431 MIDBLOCK BETWEEN ARBOR LN AND ELM LN			75					3	3	0.2		2	
90	RM1431 AT ELM LN			37	89				33	33	2.0	44		
91	RM1431 AT AVENUE Q			109	47				36	36	2.2	212		
92	RM1431 MIDBLOCK BETWEEN NORTHWOOD DR AND BLUEBONNET				4								1	
93	RM1431 AT BLUEBONNET DR				16				9	9	0.5		4	
94	US290 AT US 87 (1)	1			133		67	34	113	113	6.8			
95	US290 AT US 87 (2)			83	166		129	39	136	136	8.2		19	
96	US290 AT KAY ST			117	130	26	16		7	7	0.4		9	
97	US290 MIDBLOCK BETWEEN KAY ST AND CHERRY ST			109	13				10	10	0.6		3	
98	US290 AT CHERRY ST			86										
99	US290 AT ACORN ST			54					42	42	2.5			
100	US290 AT BOWIE ST				34	9								
101	US290 MIDBLOCK BETWEEN BOWIE ST AND EDISON ST			27					8	8	0.5			
102	US290 AT EDISON ST			40	5				39	39	2.3			
103	SH16 AT MILAM ST				12									
104	SH16 AT MEDICAL DR		11		28	13		5	136	136	8.2		2	
105	SH16 MIDBLOCK BETWEEN MEDICAL DR AND HWY ST								225	225	13.5			
106	SH16 AT EAST HIGHWAY ST				27				120	120	7.2	70		
107	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (1)								185	185	11.1			
108	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (2)			119	16				115	115	6.9			
109	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (3)			66	23				118	118	7.1			
110	SH16 AT WINDCREST DR		3		14				114	114	6.8			
111	SH16 MIDBLOCK BETWEEN WINDCREST DR AND HALE ST				11		129		46	46	2.8	126		1
112	SH16 AT HALE ST				60	7	97		26	26	1.6	97	2	
113	SH16 MIDBLOCK BETWEEN HALE ST AND WALNUT ST			207	104	121	205	185	322	322	19.3		8	
114	SH16 AT WALNUT ST			63	9	41	262	137	203	203	12.2			
115	SH16 MIDBLOCK BETWEEN WALNUT ST AND LIVE OAK ST								58	58	3.5		2	
116	SH16 AT LIVE OAK ST				7									
117	SH16 AT WALCH AVE				5				9	9	0.5			
118	SH16 MIDBLOCK BETWEEN WALCH AVE AND PARK ST								33	33	2.0			
119	SH16 AT PARK ST				19				49	49	2.9			
120	SH71 AT SH16								205	205	12.3			
121	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (1)								133	133	8.0			
122	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (2)								132	132	7.9			
123	SH71 AT OATMAN ST			95					52	52	3.1		2	22
124	SH71 MIDBLOCK BETWEEN OATMAN ST AND HICKORY ST			109	9				111	111	6.7			6
125	SH71 AT HICKORY ST				9				150	150	9.0			
MISCELLANEOUS QUANTITIES														
	PROJECT TOTALS	1	74	2447	3645	320	1549	400	5353	5353	321.2	1593	92	33

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SUMMARY OF QUANTITIES

SHEET 1 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		10
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SUMMARY OF QUANTITY ITEMS

SHEET	LOCATION	432 6038 BEDDING MATERIAL (3 IN) CY	450 6048 RAIL (HANDRAIL) (TY B) LF	460 6003 CMP (GAL STL 24 IN) LF	464 6005 RC PIPE (CL III) (24 IN) LF	464 6007 RC PIPE (CL III) (30 IN) LF	465 6021 INLET (COMPL) (PCO) (5FT) (NONE) EA	465 6233 INLET (COMP) (TY SIDEWALK BRIDGE) EA	467 6380 SET (TY II) (24 IN) (CMP) (6:1) (P) EA	467 6394 SET (TY II) (24 IN) (RCP) (6:1) (C) EA	479 6001 ADJUSTING MANHOLES EA	479 6005 ADJUSTING MANHOLES (WATER VALVE BOX) EA	479 6008 ADJUSTING MANHOLES (WATER METER) EA
51	SL 163 AT PECAN ST							2				3	
52	SL 163 MIDBLOCK BETWEEN PECAN ST AND LIVE OAK ST	4											
53	SL 163 AT LIVE OAK ST	2	114					2					
54	SL 163 MIDBLOCK BETWEEN LIVE OAK ST AND P23		171					4					
55	SL 163 AT P23		48					2					
56	US290 AT AVENUE G												
57	US290 AT AVENUE F												
58	US290 MIDBLOCK BETWEEN AVENUE F AND AVENUE E												
59	US290 AT AVENUE E												
60	US290 LBJ/LIVEOAK DR												
61	US290 MIDBLOCK BETWEEN LBJ DR AND AVE C												
62	US290 AT AVENUE C /RANCHVIEW DR		22										
63	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (1)												
64	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (2)												
65	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (3)												
66	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (4)												
67	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (5)												
68	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (6)												
69	US290 AT SCOFIELD AVENUE												
70	US281 AT LEAGUE ST												
71	US281 MIDBLOCK BETWEEN LEAGUE ST AND JACKSON ST												1
72	US281 AT JACKSON ST												
73	US281 MIDBLOCK BETWEEN JACKSON ST AND WASHINGTON ST												2
74	US281 AT WASHINGTON ST												
75	US281 AT SH 29 (POLK ST) (1 OF 2)												
77	SH29 AT MAIN ST												
78	SH29 AT PIERCE ST												
79	SH29 AT VANDERVEER ST												
80	SH29 AT BOUNDARY ST												
81	SH29 AT WOOD ST												
82	SH29 MIDBLOCK BETWEEN WOOD ST AND SILVER ST												
83	SH29 AT SILVER ST										1		
84	SH29 AT RHOMBERG ST												
85	RM1431 AT AVENUE U												
86	RM1431 AT VETERANS DR												
87	RM1431 MIDBLOCK BETWEEN VETERANS DR AND ARBOR LN												
88	RM1431 AT ARBOR LN												
89	RM1431 MIDBLOCK BETWEEN ARBOR LN AND ELM LN		26										
90	RM1431 AT ELM LN												
91	RM1431 AT AVENUE Q												
92	RM1431 MIDBLOCK BETWEEN NORTHWOOD DR AND BLUEBONNET												
93	RM1431 AT BLUEBONNET DR							1					
94	US290 AT US 87 (1)												
95	US290 AT US 87 (2)												
96	US290 AT KAY ST											1	1
97	US290 MIDBLOCK BETWEEN KAY ST AND CHERRY ST												
98	US290 AT CHERRY ST												
99	US290 AT ACORN ST												2
100	US290 AT BOWIE ST					10	1						
101	US290 MIDBLOCK BETWEEN BOWIE ST AND EDISON ST												
102	US290 AT EDISON ST												1
103	SH16 AT MILAM ST							1					
104	SH16 AT MEDICAL DR												
105	SH16 MIDBLOCK BETWEEN MEDICAL DR AND HWY ST												
106	SH16 AT EAST HIGHWAY ST												
107	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (1)		34										
108	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (2)												
109	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (3)												
110	SH16 AT WINDCREST DR												
111	SH16 MIDBLOCK BETWEEN WINDCREST DR AND HALE ST												
112	SH16 AT HALE ST							1				2	
113	SH16 MIDBLOCK BETWEEN HALE ST AND WALNUT ST							1				2	
114	SH16 AT WALNUT ST												
115	SH16 MIDBLOCK BETWEEN WALNUT ST AND LIVE OAK ST		44										
116	SH16 AT LIVE OAK ST												
117	SH16 AT WALCH AVE												
118	SH16 MIDBLOCK BETWEEN WALCH AVE AND PARK ST												
119	SH16 AT PARK ST												
120	SH71 AT SH16				68					4			
121	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (1)												
122	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (2)												
123	SH71 AT OATMAN ST												
124	SH71 MIDBLOCK BETWEEN OATMAN ST AND HICKORY ST			17					1				
125	SH71 AT HICKORY ST												
MISCELLANEOUS QUANTITIES													
	PROJECT TOTALS	6	459	17	68	10	1	14	1	4	1	8	7

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SUMMARY OF QUANTITIES

SHEET 2 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	11

STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SUMMARY OF QUANTITY ITEMS

		496	496	506	506	506	506	528	528	529	529	529	530	531
		6004	6030	6038	6039	6041	6043	6002	6006	6002	6015	6016	6004	6002
		REMOV STR (SET)	REMOV STR (BOLLARD)	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	COLORED TEXTURED CONC (6")	REMOVE AND RELAY PAVERS	CONC CURB (TY II)	CONC CURB (TY C1)	CONC CURB (TY F1)	DRIVEWAYS (CONC)	CONC SIDEWALKS (5")
SHEET	LOCATION	EA	EA	LF	LF	LF	LF	SY	SY	LF	LF	LF	SY	SY
51	SL 163 AT PECAN ST									184				113
52	SL 163 MIDBLOCK BETWEEN PECAN ST AND LIVE OAK ST			83	83					150		28	16	91
53	SL 163 AT LIVE OAK ST			157	157	30	30			143		133		63
54	SL 163 MIDBLOCK BETWEEN LIVE OAK ST AND P23			154	154	45	45			145		164	116	74
55	SL 163 AT P23			49	49					50		44	88	30
56	US290 AT AVENUE G			59	59	10	10	20		141			81	179
57	US290 AT AVENUE F			72	72					40			193	66
58	US290 MIDBLOCK BETWEEN AVENUE F AND AVENUE E									39			83	63
59	US290 AT AVENUE E			62	62					38				30
60	US290 LBJ/LIVEOAK DR			99	99					98				69
61	US290 MIDBLOCK BETWEEN LBJ DR AND AVE C			175	175					140			82	167
62	US290 AT AVENUE C /RANCHVIEW DR			197	197	15	15			188		13	127	118
63	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (1)			219	219	20	20			210			15	121
64	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (2)			217	217					214				121
65	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (3)			154	154					131			115	82
66	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (4)			203	203					202			53	105
67	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (5)			225	225					202			46	122
68	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (6)			158	158					163			43	101
69	US290 AT SCOFIELD AVENUE			165	165					144				69
70	US281 AT LEAGUE ST			139	139	21	21			50				118
71	US281 MIDBLOCK BETWEEN LEAGUE ST AND JACKSON ST					20	20							169
72	US281 AT JACKSON ST								26	13	20			169
73	US281 MIDBLOCK BETWEEN JACKSON ST AND WASHINGTON ST									13				99
74	US281 AT WASHINGTON ST					22	22			31				19
75	US281 AT SH 29 (POLK ST) (1 OF 2)			78	78	77	77			104	25			108
77	SH29 AT MAIN ST			23	23	62	62			42			54	39
78	SH29 AT PIERCE ST					68	68			134	19			76
79	SH29 AT VANDERVEER ST			25	25				12	87				44
80	SH29 AT BOUNDARY ST			146	146					40	21		66	88
81	SH29 AT WOOD ST			228	228					30	247		16	129
82	SH29 MIDBLOCK BETWEEN WOOD ST AND SILVER ST			181	181					38	22		36	114
83	SH29 AT SILVER ST			144	144	45	45			130			77	212
84	SH29 AT RHOMBERG ST			115	115					32				112
85	RM1431 AT AVENUE U			170	170						93		127	95
86	RM1431 AT VETERANS DR			147	147						146	22		80
87	RM1431 MIDBLOCK BETWEEN VETERANS DR AND ARBOR LN													11
88	RM1431 AT ARBOR LN									30				62
89	RM1431 MIDBLOCK BETWEEN ARBOR LN AND ELM LN					5	5						75	23
90	RM1431 AT ELM LN			49	49					89			37	69
91	RM1431 AT AVENUE Q			70	70	83	83			47	12		109	39
92	RM1431 MIDBLOCK BETWEEN NORTHWOOD DR AND BLUEBONNET					35	35			4				25
93	RM1431 AT BLUEBONNET DR			25	25	67	67			16	49			33
94	US290 AT US 87 (1)			111	111					149				110
95	US290 AT US 87 (2)			167	167					318			83	206
96	US290 AT KAY ST					105	105			130			117	63
97	US290 MIDBLOCK BETWEEN KAY ST AND CHERRY ST			25	25	87	87			13			109	42
98	US290 AT CHERRY ST												86	57
99	US290 AT ACORN ST										50		54	42
100	US290 AT BOWIE ST					46	46			34				42
101	US290 MIDBLOCK BETWEEN BOWIE ST AND EDISON ST												27	21
102	US290 AT EDISON ST									5			40	96
103	SH16 AT MILAM ST			73	73	26	26			12				
104	SH16 AT MEDICAL DR			168	168	86	86			28				95
105	SH16 MIDBLOCK BETWEEN MEDICAL DR AND HWY ST			246	246									137
106	SH16 AT EAST HIGHWAY ST			210	210	42	42			27	19			95
107	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (1)			214	214	44	44							159
108	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (2)			175	175					16			119	101
109	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (3)			198	198					23	41		66	144
110	SH16 AT WINDCREST DR			215	215	109	109			14	8			112
111	SH16 MIDBLOCK BETWEEN WINDCREST DR AND HALE ST			91	91	20	20			11				48
112	SH16 AT HALE ST			80	80	48	48			60	80			45
113	SH16 MIDBLOCK BETWEEN HALE ST AND WALNUT ST			221	221	20	20			178			207	147
114	SH16 AT WALNUT ST			159	159	20	20			135	22		63	91
115	SH16 MIDBLOCK BETWEEN WALNUT ST AND LIVE OAK ST			190	190	60	60				211			120
116	SH16 AT LIVE OAK ST		2			50	50			7				29
117	SH16 AT WALCH AVE			32	32	71	71			5				16
118	SH16 MIDBLOCK BETWEEN WALCH AVE AND PARK ST			88	88	20	20							43
119	SH16 AT PARK ST			18	18	55	55			19				86
120	SH71 AT SH16			198	198									106
121	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (1)			220	220						205			123
122	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (2)			220	220						220			123
123	SH71 AT OATMAN ST			193	193	10	10				86		95	108
124	SH71 MIDBLOCK BETWEEN OATMAN ST AND HICKORY ST	1		196	196	20	20			9			109	121
125	SH71 AT HICKORY ST			220	220	20	20			9		29		146
MISCELLANEOUS QUANTITIES														
	PROJECT TOTALS	1	2	7916	7916	1584	1584	20	38	4754	1596	433	2830	6591

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SUMMARY OF QUANTITIES

SHEET 3 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		12
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SUMMARY OF QUANTITY ITEMS

SHEET	LOCATION	531 6004 CURB RAMPS (TY 1) EA	531 6005 CURB RAMPS (TY 2) EA	531 6006 CURB RAMPS (TY 3) EA	531 6009 CURB RAMPS (TY 6) EA	531 6010 CURB RAMPS (TY 7) EA	531 6013 CURB RAMPS (TY 10) EA	531 6050 CONCRETE SIDEWALK (STEPS) SY	560 6025 RELOCATE EXISTING MAILBOX EA	618 6016 CONDT (PVC) (SCH 40) (1") LF	618 6029 CONDT (PVC) (SCH 40) (3") LF	618 6030 CONDT (PVC) (SCH 40) (3") (BORE) LF	624 6005 GROUND BOX TY BATTERY (162915) EA
51	SL 163 AT PECAN ST	2			2	4				25			2
52	SL 163 MIDBLOCK BETWEEN PECAN ST AND LIVE OAK ST												
53	SL 163 AT LIVE OAK ST						2						
54	SL 163 MIDBLOCK BETWEEN LIVE OAK ST AND P23												
55	SL 163 AT P23												
56	US290 AT AVENUE G	4				3				50			4
57	US290 AT AVENUE F					2							
58	US290 MIDBLOCK BETWEEN AVENUE F AND AVENUE E												
59	US290 AT AVENUE E				1	3							
60	US290 LBJ/LIVEOAK DR	2			4	3							
61	US290 MIDBLOCK BETWEEN LBJ DR AND AVE C												
62	US290 AT AVENUE C /RANCHVIEW DR				3	1							
63	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (1)												
64	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (2)												
65	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (3)												
66	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (4)												
67	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (5)												
68	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (6)												
69	US290 AT SCOFIELD AVENUE					3							
70	US281 AT LEAGUE ST					1	3						
71	US281 MIDBLOCK BETWEEN LEAGUE ST AND JACKSON ST												
72	US281 AT JACKSON ST	1			1						56	149	
73	US281 MIDBLOCK BETWEEN JACKSON ST AND WASHINGTON ST												
74	US281 AT WASHINGTON ST					2							
75	US281 AT SH 29 (POLK ST) (1 OF 2)	1		1	6						414	277	
77	SH29 AT MAIN ST	1				1	1						
78	SH29 AT PIERCE ST			4							161	232	
79	SH29 AT VANDERVEER ST					2							
80	SH29 AT BOUNDARY ST	1											
81	SH29 AT WOOD ST						2						
82	SH29 MIDBLOCK BETWEEN WOOD ST AND SILVER ST					1							
83	SH29 AT SILVER ST					1							
84	SH29 AT RHOMBERG ST					2					20	177	
85	RM1431 AT AVENUE U												
86	RM1431 AT VETERANS DR		1			1							
87	RM1431 MIDBLOCK BETWEEN VETERANS DR AND ARBOR LN												
88	RM1431 AT ARBOR LN						2						
89	RM1431 MIDBLOCK BETWEEN ARBOR LN AND ELM LN												
90	RM1431 AT ELM LN						2						
91	RM1431 AT AVENUE Q					1					19		
92	RM1431 MIDBLOCK BETWEEN NORTHWOOD DR AND BLUEBONNET					1					19	188	
93	RM1431 AT BLUEBONNET DR					2							
94	US290 AT US 87 (1)					1					86	117	
95	US290 AT US 87 (2)												
96	US290 AT KAY ST					2							
97	US290 MIDBLOCK BETWEEN KAY ST AND CHERRY ST												
98	US290 AT CHERRY ST												
99	US290 AT ACORN ST							1					
100	US290 AT BOWIE ST					1							
101	US290 MIDBLOCK BETWEEN BOWIE ST AND EDISON ST												
102	US290 AT EDISON ST	1											
103	SH16 AT MILAM ST												
104	SH16 AT MEDICAL DR					1							
105	SH16 MIDBLOCK BETWEEN MEDICAL DR AND HWY ST												
106	SH16 AT EAST HIGHWAY ST					2							
107	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (1)												
108	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (2)												
109	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (3)												
110	SH16 AT WINDCREST DR				1	3					75	218	
111	SH16 MIDBLOCK BETWEEN WINDCREST DR AND HALE ST												
112	SH16 AT HALE ST												
113	SH16 MIDBLOCK BETWEEN HALE ST AND WALNUT ST								1				
114	SH16 AT WALNUT ST				1				2				
115	SH16 MIDBLOCK BETWEEN WALNUT ST AND LIVE OAK ST												
116	SH16 AT LIVE OAK ST					1							
117	SH16 AT WALCH AVE						1						
118	SH16 MIDBLOCK BETWEEN WALCH AVE AND PARK ST												
119	SH16 AT PARK ST						2						
120	SH71 AT SH16												
121	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (1)												
122	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (2)												
123	SH71 AT OATMAN ST												
124	SH71 MIDBLOCK BETWEEN OATMAN ST AND HICKORY ST												
125	SH71 AT HICKORY ST	1											
MISCELLANEOUS QUANTITIES													
	PROJECT TOTALS	14	1	5	19	45	15	1	3	75	850	1358	6

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SUMMARY OF QUANTITIES

SHEET 4 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		13
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SUMMARY OF QUANTITY ITEMS

		624	624	624	636	636	644	644	658	658	658	668	677	677	677
		6009	6010	6028	6001	6007	6068	6076	6010	6046	6060	6018	6001	6003	6005
		GROUND BOX TY D (162922)	GROUND BOX TY D (162922) W/APRON	REMOVE GROUND BOX	ALUMINUM SIGNS (TY A)	REPLACE EXISTING ALUMINUM SIGNS (TY A)	RELOCATE SM RD SN SUP&AM TY 10BWG	REMOVE SM RD SN SUP&AM	INSTL DEL ASSM (D-SW)SZ 2(WC)GND	INSTL OM ASSM (OM-2X)(WC) GND	REMOVE DELIN & OBJECT MARKER ASSMS	PREFAB PAV MRK TY B (W)(24")(SLD)	ELIM EXT PAV MRK & MRKS (4")	ELIM EXT PAV MRK & MRKS (8")	ELIM EXT PAV MRK & MRKS (12")
SHEET	LOCATION	EA	EA	EA	SF	SF	EA	EA	EA	EA	EA	LF	LF	LF	LF
51	SL 163 AT PECAN ST				8		4					254	261		
52	SL 163 MIDBLOCK BETWEEN PECAN ST AND LIVE OAK ST														
53	SL 163 AT LIVE OAK ST											52			
54	SL 163 MIDBLOCK BETWEEN LIVE OAK ST AND P23														
55	SL 163 AT P23						3								
56	US290 AT AVENUE G				44		6					200			
57	US290 AT AVENUE F						1					238			
58	US290 MIDBLOCK BETWEEN AVENUE F AND AVENUE E						1								
59	US290 AT AVENUE E						1					232			
60	US290 LBJ/LIVEOAK DR						5					240			
61	US290 MIDBLOCK BETWEEN LBJ DR AND AVE C						3								
62	US290 AT AVENUE C /RANCHVIEW DR						1					108			
63	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (1)						3								
64	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (2)	1		1			3								
65	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (3)														
66	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (4)														
67	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (5)						2	2							
68	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (6)						4								
69	US290 AT SCOFIELD AVENUE						3					44			
70	US281 AT LEAGUE ST											112			
71	US281 MIDBLOCK BETWEEN LEAGUE ST AND JACKSON ST														
72	US281 AT JACKSON ST	2		2	2							388	6		203
73	US281 MIDBLOCK BETWEEN JACKSON ST AND WASHINGTON ST														
74	US281 AT WASHINGTON ST											60			
75	US281 AT SH 29 (POLK ST) (1 OF 2)	5	2	7			10					503			623
77	SH29 AT MAIN ST						3					112			30
78	SH29 AT PIERCE ST	1			8		2					336			363
79	SH29 AT VANDERVEER ST											88			
80	SH29 AT BOUNDARY ST						1					96			
81	SH29 AT WOOD ST						1					68			
82	SH29 MIDBLOCK BETWEEN WOOD ST AND SILVER ST														
83	SH29 AT SILVER ST						1					52			
84	SH29 AT RHOMBERG ST	2		2	2							233			269
85	RM1431 AT AVENUE U														
86	RM1431 AT VETERANS DR						3					60			
87	RM1431 MIDBLOCK BETWEEN VETERANS DR AND ARBOR LN														
88	RM1431 AT ARBOR LN											60			
89	RM1431 MIDBLOCK BETWEEN ARBOR LN AND ELM LN														
90	RM1431 AT ELM LN						1					110			
91	RM1431 AT AVENUE Q		2	1			1					251			284
92	RM1431 MIDBLOCK BETWEEN NORTHWOOD DR AND BLUEBONNET	1		1			1					223			308
93	RM1431 AT BLUEBONNET DR						1	1				284			191
94	US290 AT US 87 (1)				2		2					112			133
95	US290 AT US 87 (2)				9		5					11			
96	US290 AT KAY ST						2					68			
97	US290 MIDBLOCK BETWEEN KAY ST AND CHERRY ST														
98	US290 AT CHERRY ST														
99	US290 AT ACORN ST														
100	US290 AT BOWIE ST						2					153			
101	US290 MIDBLOCK BETWEEN BOWIE ST AND EDISON ST														
102	US290 AT EDISON ST											89			
103	SH16 AT MILAM ST											510		553	
104	SH16 AT MEDICAL DR						1					19			
105	SH16 MIDBLOCK BETWEEN MEDICAL DR AND HWY ST														
106	SH16 AT EAST HIGHWAY ST	1		1								312		323	
107	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (1)	2		2			1								
108	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (2)				9		1					14			
109	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (3)				9	1						14			
110	SH16 AT WINDCREST DR	1	1	1	11							248		187	
111	SH16 MIDBLOCK BETWEEN WINDCREST DR AND HALE ST														
112	SH16 AT HALE ST														
113	SH16 MIDBLOCK BETWEEN HALE ST AND WALNUT ST														
114	SH16 AT WALNUT ST						1					79			
115	SH16 MIDBLOCK BETWEEN WALNUT ST AND LIVE OAK ST						2								
116	SH16 AT LIVE OAK ST	1	1	2	2		1	1				167		123	
117	SH16 AT WALCH AVE											56			
118	SH16 MIDBLOCK BETWEEN WALCH AVE AND PARK ST														
119	SH16 AT PARK ST											71			
120	SH71 AT SH16														
121	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (1)														
122	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (2)														
123	SH71 AT OATMAN ST														
124	SH71 MIDBLOCK BETWEEN OATMAN ST AND HICKORY ST								2	1	1	53			
125	SH71 AT HICKORY ST						1		2	1	3	96			
MISCELLANEOUS QUANTITIES															
	PROJECT TOTALS	17	6	20	106	1	84	4	4	2	4	6476	267	1186	2404

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STATE OF TEXAS
STEPHEN A. JOHNSON
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1/18/2022

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SUMMARY OF QUANTITIES

SHEET 5 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		14
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SUMMARY OF QUANTITY ITEMS

SHEET	LOCATION	677 6007 ELIM EXT PAV MRK & MRKS (24") LF	682 6003 VEH SIG SEC (12")LED(YEL) EA	682 6005 VEH SIG SEC (12 IN) LED (RED) EA	682 6018 PED SIG SEC (LED) (COUNTDOWN) EA	684 6007 TRF SIG CBL (TY A) (12 AWG) (2 CONDR) LF	684 6009 TRF SIG CBL (TY A) (12 AWG) (4 CONDR) LF	684 6031 TRF SIG CBL (TY A) (14 AWG) (5 CONDR) LF	685 6004 INSTL RDSD FLSH BCN ASSM (SOLAR PWRD) EA	687 6001 PED POLE ASSEMBLY EA	687 6003 RELOCATE PED POLE ASSEMBLY EA	687 6005 REMOVE PED POLE ASSEMBLY EA
51	SL 163 AT PECAN ST	40		2				75	2			
52	SL 163 MIDBLOCK BETWEEN PECAN ST AND LIVE OAK ST											
53	SL 163 AT LIVE OAK ST											
54	SL 163 MIDBLOCK BETWEEN LIVE OAK ST AND P23											
55	SL 163 AT P23											
56	US290 AT AVENUE G		8					150	4			
57	US290 AT AVENUE F	65										
58	US290 MIDBLOCK BETWEEN AVENUE F AND AVENUE E											
59	US290 AT AVENUE E	128										
60	US290 LBJ/LIVEOAK DR	14										
61	US290 MIDBLOCK BETWEEN LBJ DR AND AVE C	47										
62	US290 AT AVENUE C /RANCHVIEW DR	14										
63	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (1)											
64	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (2)											
65	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (3)											
66	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (4)											
67	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (5)											
68	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (6)											
69	US290 AT SCOFIELD AVENUE											
70	US281 AT LEAGUE ST	25										
71	US281 MIDBLOCK BETWEEN LEAGUE ST AND JACKSON ST											
72	US281 AT JACKSON ST	76			2	325	335			1		
73	US281 MIDBLOCK BETWEEN JACKSON ST AND WASHINGTON ST											
74	US281 AT WASHINGTON ST	18										
75	US281 AT SH 29 (POLK ST) (1 OF 2)	155				1997	2037			2	4	
77	SH29 AT MAIN ST											
78	SH29 AT PIERCE ST	102			3	1593	562			3		1
79	SH29 AT VANDERVEER ST	26										
80	SH29 AT BOUNDARY ST	26										
81	SH29 AT WOOD ST	21										
82	SH29 MIDBLOCK BETWEEN WOOD ST AND SILVER ST											
83	SH29 AT SILVER ST	15										
84	SH29 AT RHOMBERG ST	65			2	466	476			2		1
85	RM1431 AT AVENUE U											
86	RM1431 AT VETERANS DR	14										
87	RM1431 MIDBLOCK BETWEEN VETERANS DR AND ARBOR LN											
88	RM1431 AT ARBOR LN											
89	RM1431 MIDBLOCK BETWEEN ARBOR LN AND ELM LN											
90	RM1431 AT ELM LN											
91	RM1431 AT AVENUE Q	67				64	69			1		
92	RM1431 MIDBLOCK BETWEEN NORTHWOOD DR AND BLUEBONNET					261	266				1	
93	RM1431 AT BLUEBONNET DR	92										
94	US290 AT US 87 (1)	24			2	302	312			2		2
95	US290 AT US 87 (2)											
96	US290 AT KAY ST											
97	US290 MIDBLOCK BETWEEN KAY ST AND CHERRY ST											
98	US290 AT CHERRY ST											
99	US290 AT ACORN ST											
100	US290 AT BOWIE ST	18										
101	US290 MIDBLOCK BETWEEN BOWIE ST AND EDISON ST											
102	US290 AT EDISON ST											
103	SH16 AT MILAM ST	148										
104	SH16 AT MEDICAL DR											
105	SH16 MIDBLOCK BETWEEN MEDICAL DR AND HWY ST											
106	SH16 AT EAST HIGHWAY ST	95										
107	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (1)											
108	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (2)											
109	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (3)											
110	SH16 AT WINDCREST DR				2	484	494			2		
111	SH16 MIDBLOCK BETWEEN WINDCREST DR AND HALE ST											
112	SH16 AT HALE ST											
113	SH16 MIDBLOCK BETWEEN HALE ST AND WALNUT ST											
114	SH16 AT WALNUT ST											
115	SH16 MIDBLOCK BETWEEN WALNUT ST AND LIVE OAK ST											
116	SH16 AT LIVE OAK ST	20										
117	SH16 AT WALCH AVE											
118	SH16 MIDBLOCK BETWEEN WALCH AVE AND PARK ST											
119	SH16 AT PARK ST											
120	SH71 AT SH16											
121	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (1)											
122	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (2)											
123	SH71 AT OATMAN ST											
124	SH71 MIDBLOCK BETWEEN OATMAN ST AND HICKORY ST	16										
125	SH71 AT HICKORY ST	122										
MISCELLANEOUS QUANTITIES												
	PROJECT TOTALS	1453	8	2	11	5492	4551	225	6	13	5	4

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STATE OF TEXAS
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1/18/2022

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SUMMARY OF QUANTITIES

SHEET 6 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		15
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SUMMARY OF QUANTITY ITEMS

		688	688	690	690	690	690	690	1004	334
		6001	6003	6024	6027	6030	6031	6123	6001	6080
		PED DETECT PUSH BUTTON (APS)	PED DETECTOR CONTROLLER UNIT	REMOVAL OF SIGNAL HEAD ASSM	REMOVAL OF SIGNAL RELATED SIGNS	REMOVAL OF PEDESTRIAN PUSH BUTTONS	REPLACE PEDESTRIAN PUSH BUTTONS	RELOCATE OF PEDESTRIAN PUSH BUTTON	TREE PROTECTION	HMCL ACP* TY-D AC-1.5
SHEET	LOCATION	EA	EA	EA	EA	EA	EA	EA	EA	
51	SL 163 AT PECAN ST									
52	SL 163 MIDBLOCK BETWEEN PECAN ST AND LIVE OAK ST									
53	SL 163 AT LIVE OAK ST									
54	SL 163 MIDBLOCK BETWEEN LIVE OAK ST AND P23									
55	SL 163 AT P23									
56	US290 AT AVENUE G									
57	US290 AT AVENUE F									
58	US290 MIDBLOCK BETWEEN AVENUE F AND AVENUE E									
59	US290 AT AVENUE E									
60	US290 LBJ/LIVEOAK DR									
61	US290 MIDBLOCK BETWEEN LBJ DR AND AVE C								2	
62	US290 AT AVENUE C /RANCHVIEW DR									
63	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (1)									
64	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (2)									
65	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (3)									
66	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (4)									
67	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (5)								1	
68	US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (6)									
69	US290 AT SCOFIELD AVENUE									
70	US281 AT LEAGUE ST									
71	US281 MIDBLOCK BETWEEN LEAGUE ST AND JACKSON ST									
72	US281 AT JACKSON ST	2								
73	US281 MIDBLOCK BETWEEN JACKSON ST AND WASHINGTON ST									
74	US281 AT WASHINGTON ST									
75	US281 AT SH 29 (POLK ST) (1 OF 2)			8				8		
77	SH29 AT MAIN ST									
78	SH29 AT PIERCE ST	8	1	1	6	6				
79	SH29 AT VANDERVEER ST								3	
80	SH29 AT BOUNDARY ST									
81	SH29 AT WOOD ST									
82	SH29 MIDBLOCK BETWEEN WOOD ST AND SILVER ST									
83	SH29 AT SILVER ST									
84	SH29 AT RHOMBERG ST	2								
85	RM1431 AT AVENUE U									
86	RM1431 AT VETERANS DR									
87	RM1431 MIDBLOCK BETWEEN VETERANS DR AND ARBOR LN									
88	RM1431 AT ARBOR LN									
89	RM1431 MIDBLOCK BETWEEN ARBOR LN AND ELM LN									
90	RM1431 AT ELM LN									
91	RM1431 AT AVENUE Q			1				1		
92	RM1431 MIDBLOCK BETWEEN NORTHWOOD DR AND BLUEBONNET			1				1		
93	RM1431 AT BLUEBONNET DR									
94	US290 AT US 87 (1)	2								
95	US290 AT US 87 (2)									
96	US290 AT KAY ST									
97	US290 MIDBLOCK BETWEEN KAY ST AND CHERRY ST									
98	US290 AT CHERRY ST									
99	US290 AT ACORN ST									
100	US290 AT BOWIE ST									
101	US290 MIDBLOCK BETWEEN BOWIE ST AND EDISON ST									
102	US290 AT EDISON ST									
103	SH16 AT MILAM ST									
104	SH16 AT MEDICAL DR								3	
105	SH16 MIDBLOCK BETWEEN MEDICAL DR AND HWY ST								1	
106	SH16 AT EAST HIGHWAY ST									
107	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (1)									
108	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (2)									
109	SH16 MIDBLOCK BETWEEN HWY ST AND WINDCREST DR (3)									
110	SH16 AT WINDCREST DR	2	1				1			
111	SH16 MIDBLOCK BETWEEN WINDCREST DR AND HALE ST								2	
112	SH16 AT HALE ST								2	
113	SH16 MIDBLOCK BETWEEN HALE ST AND WALNUT ST								6	
114	SH16 AT WALNUT ST									
115	SH16 MIDBLOCK BETWEEN WALNUT ST AND LIVE OAK ST									
116	SH16 AT LIVE OAK ST									
117	SH16 AT WALCH AVE									
118	SH16 MIDBLOCK BETWEEN WALCH AVE AND PARK ST								3	
119	SH16 AT PARK ST									
120	SH71 AT SH16									
121	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (1)									
122	SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (2)									
123	SH71 AT OATMAN ST									
124	SH71 MIDBLOCK BETWEEN OATMAN ST AND HICKORY ST									
125	SH71 AT HICKORY ST									
MISCELLANEOUS QUANTITIES										5
	PROJECT TOTALS	16	2	11	6	6	1	10	23	5

*ITEM TO BE USED FOR ROADWAY SURFACE LEVEL-UP

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STATE OF TEXAS
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3/31/2022

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SUMMARY OF QUANTITIES

SHEET 7 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		16
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

ASSET DESCRIPTION	ROADWAY	LIMITS	
		FROM	TO
PEDESTRIAN IMPROVEMENTS	SL 163	LAT= 30.097641	LAT= 30.096716
		LONG= -98.421277	LONG= -98.418525

The City of Blanco 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 Blanco.

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

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

STEPHEN A. JOHNSON
103591

1/18/2022

Texas Department of Transportation

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ASSET MAINTENANCE

SHEET 1 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT			SHEET NO.
6	SEE TITLE SHEET			17
STATE	DISTRICT	COUNTY		
TEXAS	AUS	VARIES		
CONTROL	SECTION	JOB	HIGHWAY	
0914	00	457	VA	

ASSET DESCRIPTION	ROADWAY	LIMITS	
		FROM	TO
PEDESTRIAN IMPROVEMENTS	US 290	LAT= 30.276747	LAT= 30.274513
		LONG= -98.411041	LONG= -98.402061

The City of Johnson City 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 Johnson City.

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

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

STEPHEN A. JOHNSON
103591

Stephen A Johnson

1/18/2022

Texas Department of Transportation

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ASSET MAINTENANCE

SHEET 2 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT			SHEET NO.
6	SEE TITLE SHEET			18
STATE	DISTRICT	COUNTY		
TEXAS	AUS	VARIES		
CONTROL	SECTION	JOB	HIGHWAY	
0914	00	457	VA	

ASSET DESCRIPTION	ROADWAY	LIMITS	
PEDESTRIAN IMPROVEMENTS	US 281	LAT= 30.754988	LAT= 30.758146
		LONG= -98.227981	LONG= -98.228770
	SH 29	LAT= 30.758284	LAT= 30.759580
		LONG= -98.227815	LONG= -98.221185

The City of Burnet 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 Burnet.

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

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

STEPHEN A. JOHNSON
103591
1/18/2022

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ASSET MAINTENANCE

SHEET 3 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		19
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

ASSET DESCRIPTION	ROADWAY	LIMITS	
		FROM	TO
PEDESTRIAN IMPROVEMENTS	RM 1431	LAT= 30.585003	LAT= 30.581040
		LONG= -98.286459	LONG= -98.278380

The City of Marble Falls 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 Marble Falls.

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

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

STEPHEN A. JOHNSON
103591

Stephen A. Johnson

1/18/2022

Texas Department of Transportation

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ASSET MAINTENANCE

SHEET 4 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		20
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

ASSET DESCRIPTION	ROADWAY	LIMITS	
		FROM	TO
PEDESTRIAN IMPROVEMENTS	US 290	LAT= 30.285419	LAT= 30.279939
		LONG= -98.887006	LONG= -98.878980
	SH 16	LAT= 30.260271	LAT= 30.399584
		LONG= -98.883438	LONG= -97.654932

The City of Fredericksburg 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 Fredericksburg .

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

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

STEPHEN A. JOHNSON
103591
1/18/2022

Texas Department of Transportation

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ASSET MAINTENANCE

SHEET 5 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT			SHEET NO.
6	SEE TITLE SHEET			21
STATE	DISTRICT	COUNTY		
TEXAS	AUS	VARIES		
CONTROL	SECTION	JOB	HIGHWAY	
0914	00	457	VA	

ASSET DESCRIPTION	ROADWAY	LIMITS	
PEDESTRIAN IMPROVEMENTS	SH 71	LAT= 30.738091	LAT= 30.736920
		LONG= -98.676388	LONG= -98.672332

The City of Llano 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 Llano.

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

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

STEPHEN A. JOHNSON
103591
1/18/2022

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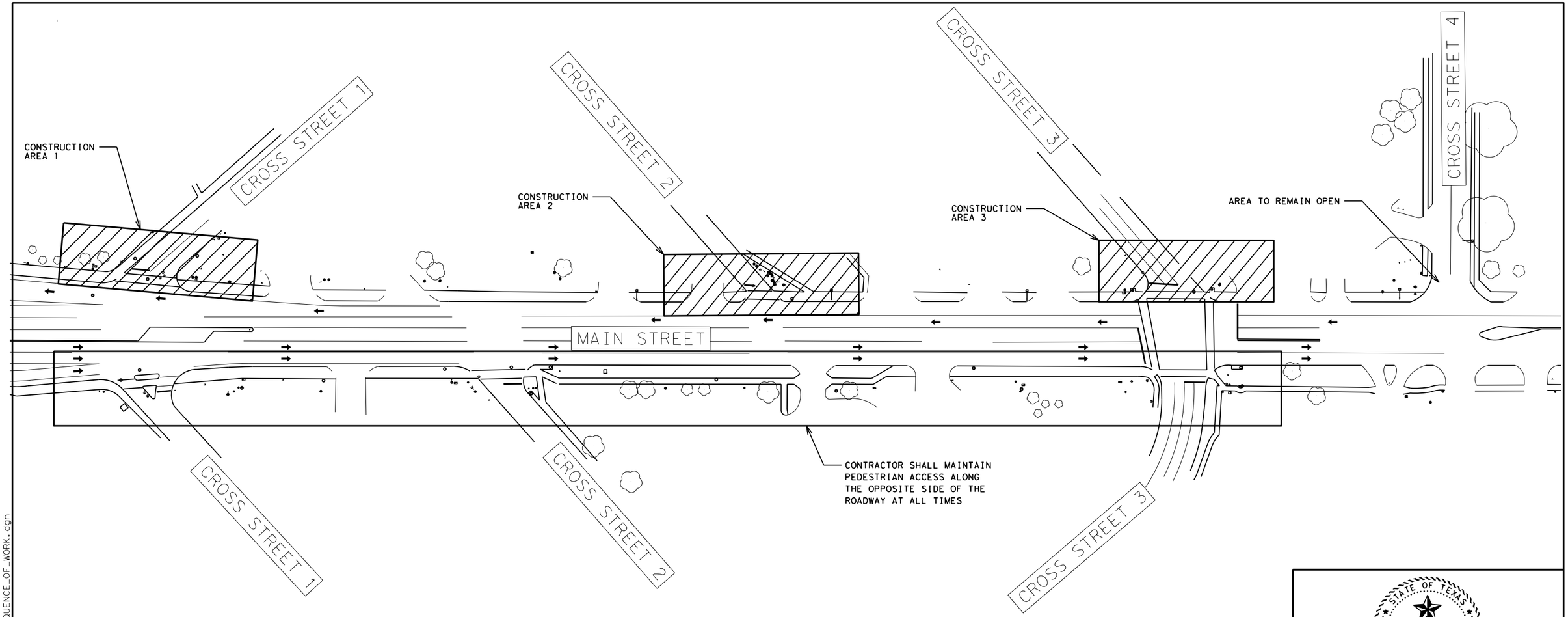
ASSET MAINTENANCE

SHEET 6 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		22
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA



1. CALL THE TEXAS STATE WIDE ONE CALL LOCATOR NUMBER 811, 48 HOURS BEFORE BEGINNING ANY EXCAVATION

2. DUE TO FEDERAL REGULATION TITLE 49, PART, 181, CONTRACTOR MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES IN THE PROJECT AREA.

3. THE CONTRACTOR WILL BE RESPONSIBLE FOR PROTECTING OVERHEAD AND UNDERGROUND ELECTRIC FACILITIES IF ADJACENT TO WORK AREA.

4. ALL EXISTING FEATURES ARE SHOWN ARE SCREENED BACK; I.E. FADED.

5. FOR INTERSECTION DETAILS REFER TO PLAN SHEETS.

6. THE CONTRACTOR SHALL NOT PLACE TRAFFIC CONTROL ITEMS, EQUIPMENT OF ANY KIND, OR WORKERS IN RAILROAD ROW.

7. CONTRACTOR SHALL MAINTAIN AN ACCESSIBLE PEDESTRIAN ROUTE THROUGHOUT CONSTRUCTION. AT NO TIME SHALL ALL FOUR CORNERS OF AN EXISTING INTERSECTION BE UNDER CONSTRUCTION WITHOUT A PEDESTRIAN DETOUR ROUTE, APPROVED BY THE ENGINEER. CONTRACTOR SHALL SUBMIT AN ADA - COMPLIANT PEDESTRIAN ROUTING PLAN TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

8. THE CONTRACTOR SHALL BEGIN WORK AT EACH LOCATION NO EARLIER THAN MONDAY AM DURING THE WORKING HOURS NOTED WITHIN THE GENERAL NOTES OR AS APPROVED/DIRECTED BY THE ENGINEER. CONTRACTOR SHALL COMPETE EACH LOCATION PRIOR TO THE END OF WORK HOURS, AND SHALL NOT LEAVE ANY PEDESTRIAN AREAS UNFINISHED, OR IN AN UNSAFE CONDITION TO PEDESTRIANS. ALL WORK PER SITE SHALL BE COMPLETED BY THE END OF WORK HOURS ON A FRIDAY.

9. PROGRESS WORK BY LOCATIONS USING THE FOLLOWING ORDER BY COUNTY: BLANCO, BURNET, GILLESPIE, LLANO. EACH GROUP OF SHEET LAYOUTS SHOWN BY CITY ON PROJECT LOCATION MAPS IS CONSIDERED A SINGLE LOCATION. EACH INDIVIDUAL SHEET SHOWN AT A LOCATION IS CONSIDERED AN AREA/INTERSECTION. THE CONTRACTOR SHALL BE LIMITED TO CONSTRUCTING THREE (3) SEQUENTIAL/ADJACENT INTERSECTIONS AT A TIME ON THE SAME SIDE OF A ROADWAY AND SHALL ALIGN TRAFFIC CONTROL DEVICES ACCORDINGLY. THE CONTRACTOR SHALL NOT CONSTRUCT MORE THAN THREE (3) INTERSECTIONS CONCURRENTLY WITHOUT PRIOR APPROVAL FROM THE ENGINEER. CONTRACTOR SHALL LIMIT ACTIVITIES TO TWO CORRIDORS AT A TIME.

10. THE CONTRACTOR SHALL NOT CLOSE MORE THAN ONE LANE OF VEHICULAR TRAFFIC ADJACENT TO THE CONSTRUCTION.

11. THE CONTRACTOR SHALL FOLLOW ALL TXDOT REQUIRED TRAFFIC CONTROL STANDARDS DURING CONSTRUCTION.

12. THE CONTRACTOR SHALL NOTIFY TXDOT OF ANY STATE LANE CLOSURES AT LEAST 48 HOURS PRIOR TO CLOSURE.

STATE OF TEXAS
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3/31/2022

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SEQUENCE OF WORK

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		23
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

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	0914	00	457	VA
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	AUS	VARIES		24
5-10 5-21				

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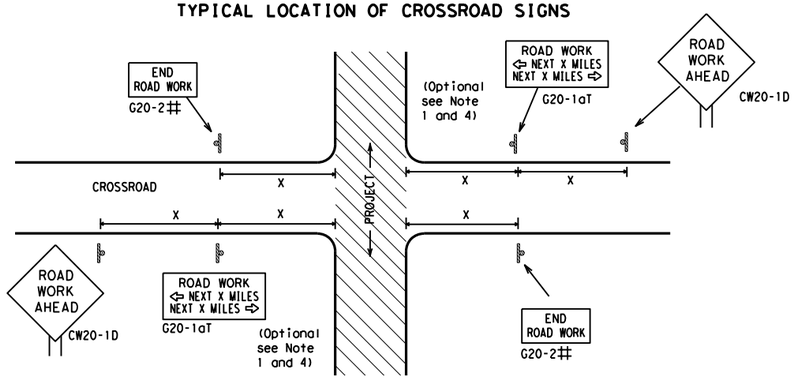
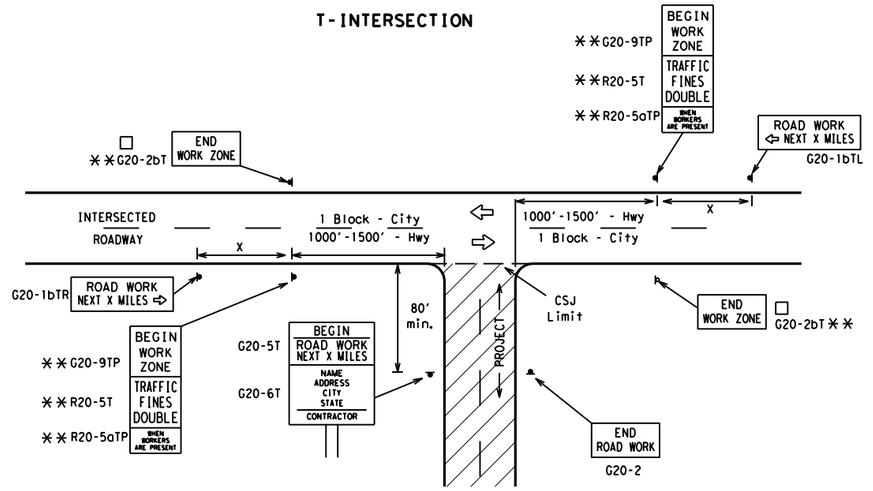
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

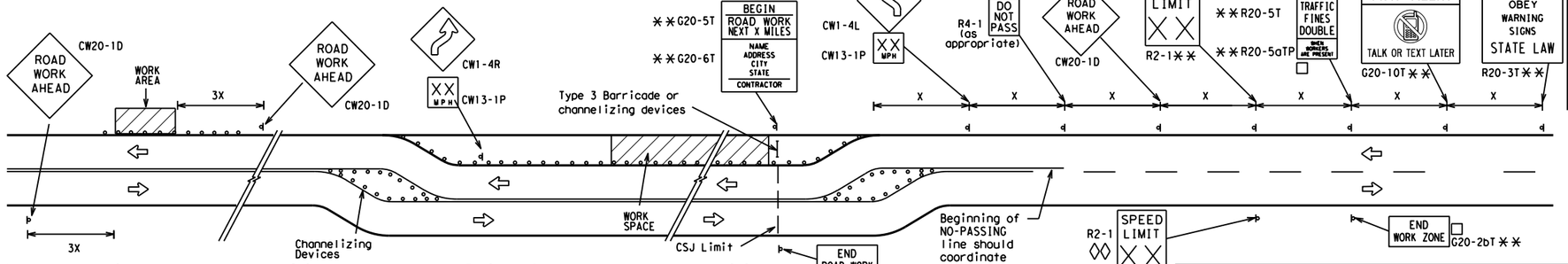
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ 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.

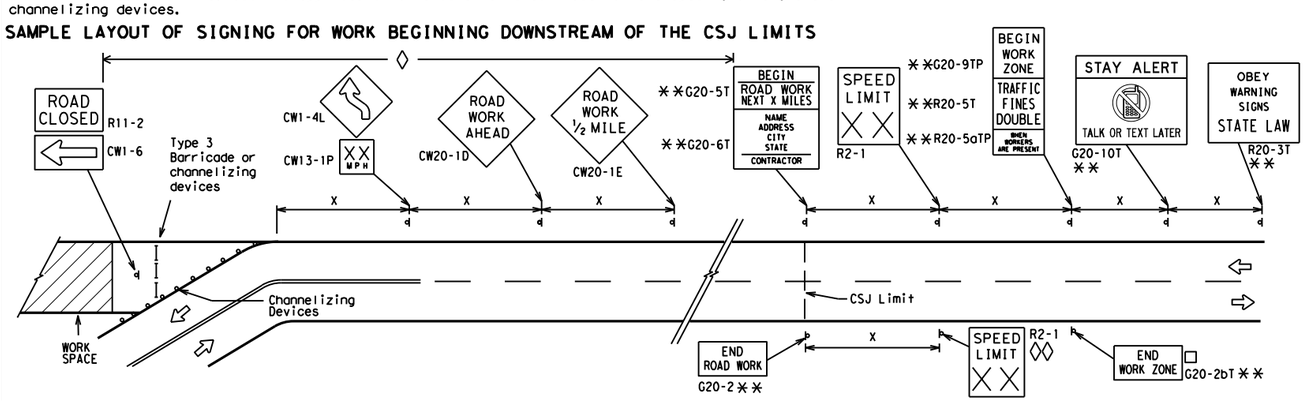
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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	0914	00	457	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	VARIES		25

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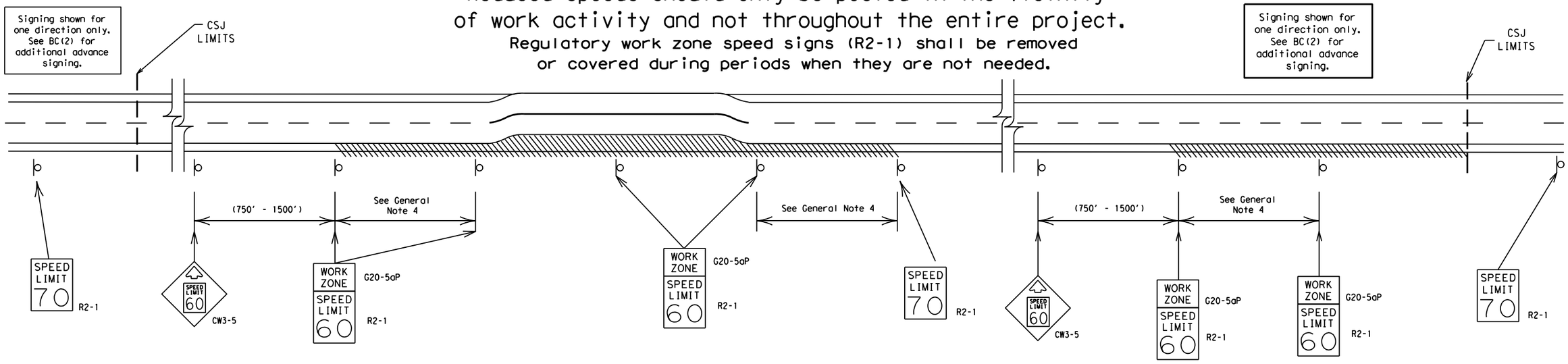
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
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7-13 5-21	AUS	VARIES		26

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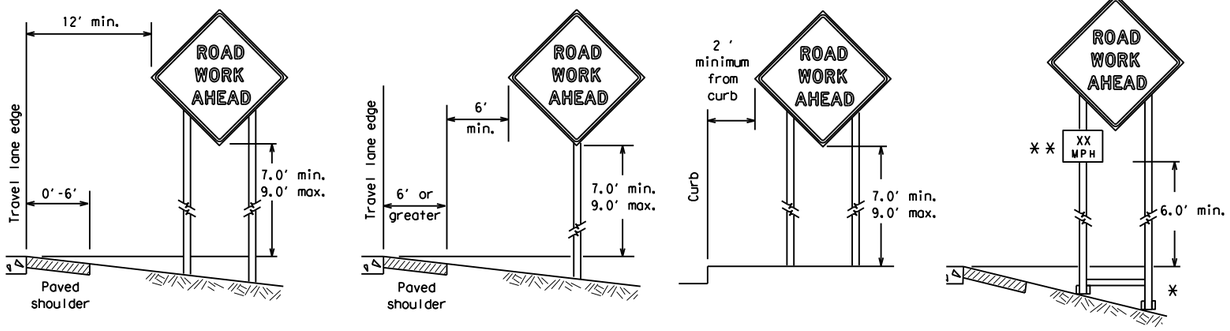
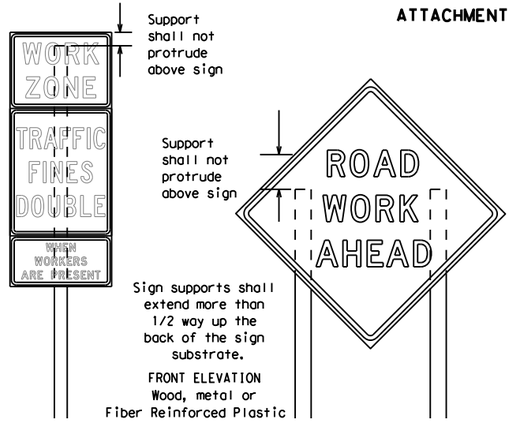
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

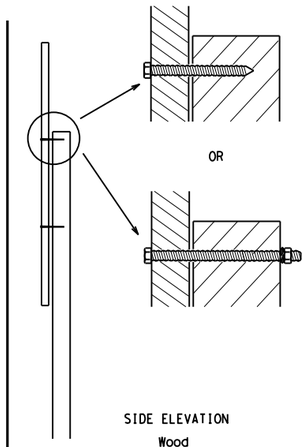


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





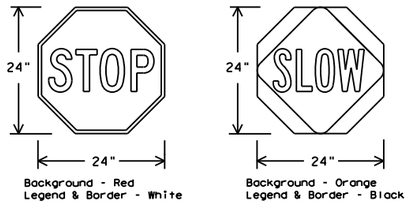
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

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BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

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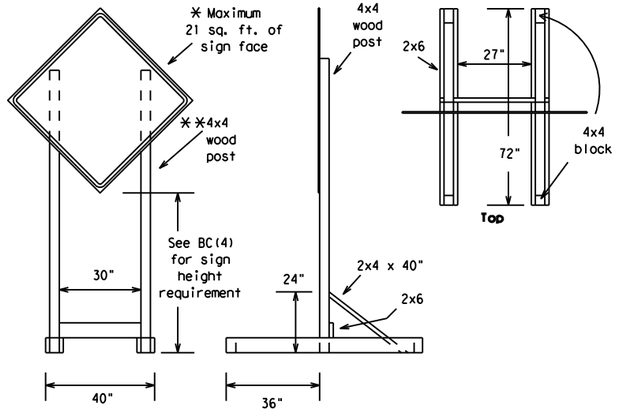
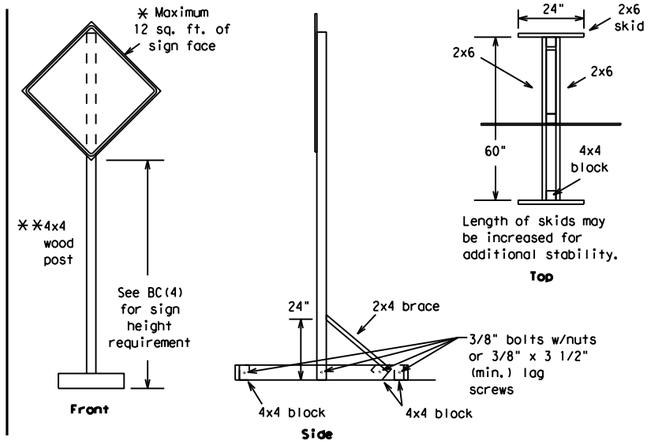
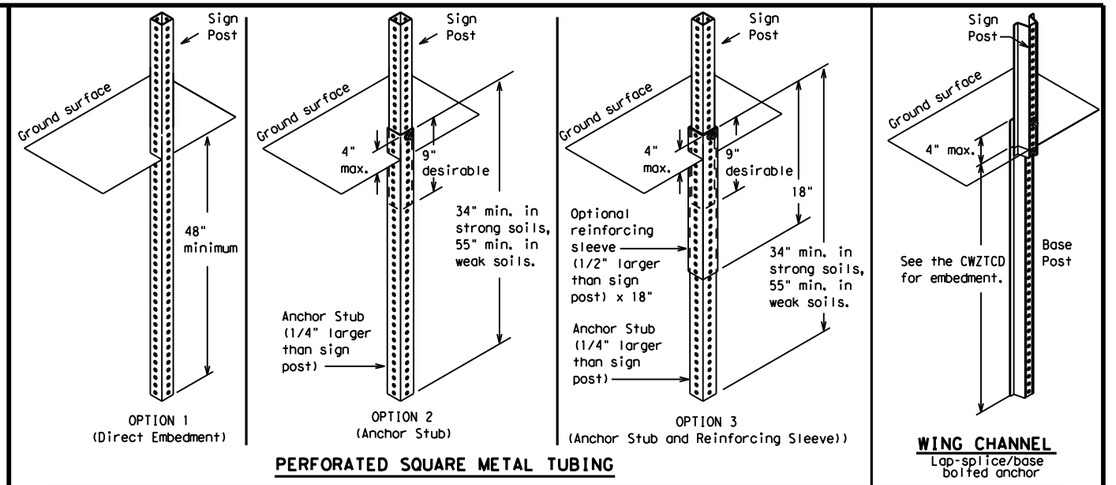
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	VARIES		27





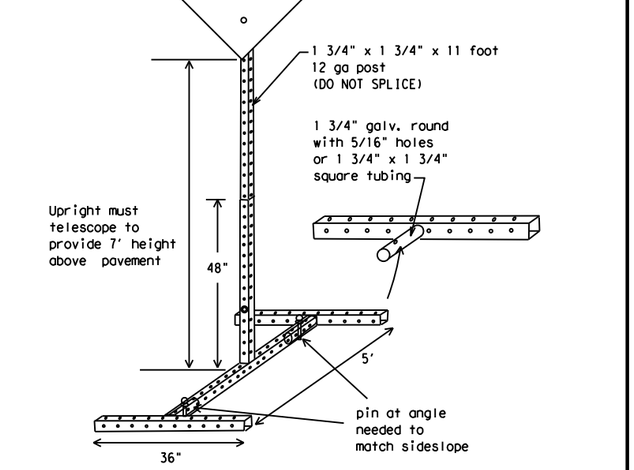
SKID MOUNTED WOOD SIGN SUPPORTS

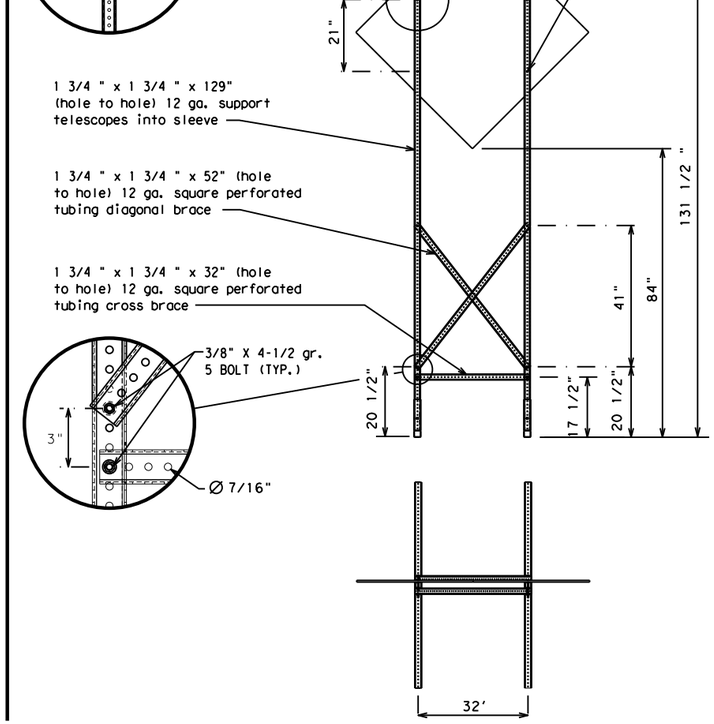
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

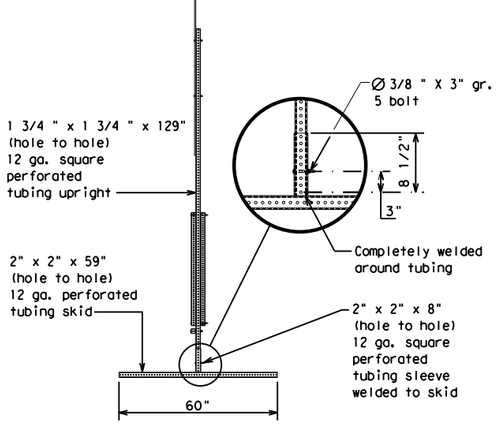


GROUND MOUNTED SIGN SUPPORTS

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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BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
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7-13 5-21	AUS	VARIES		28

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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 *

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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7-13 5-21	AUS	VARIES		29

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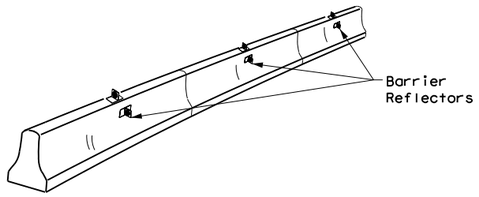
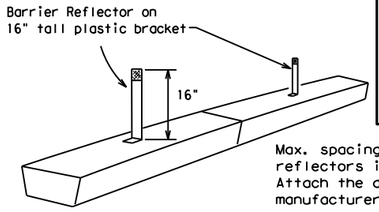
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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



CONCRETE TRAFFIC BARRIER (CTB)

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

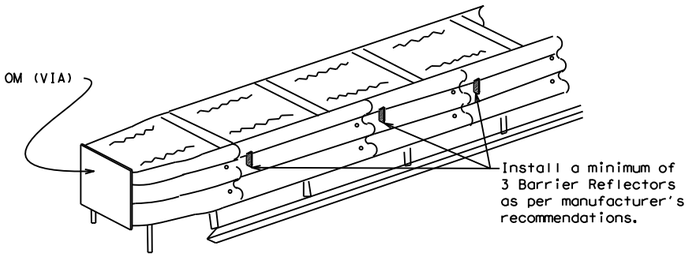


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

LOW PROFILE CONCRETE BARRIER (LPCB)

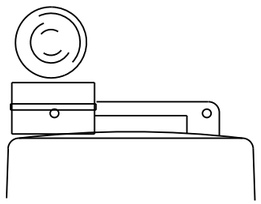


DELINEATION OF END TREATMENTS

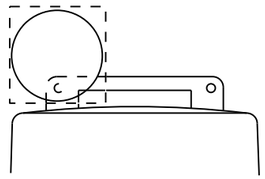
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

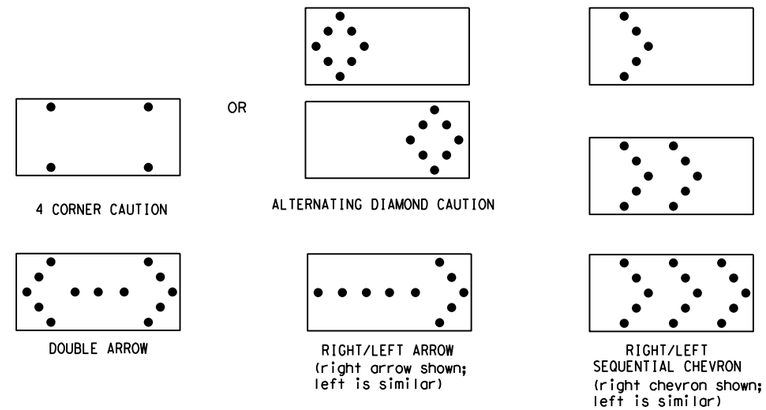
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation — Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0914	00	457	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	VARIES		30

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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:

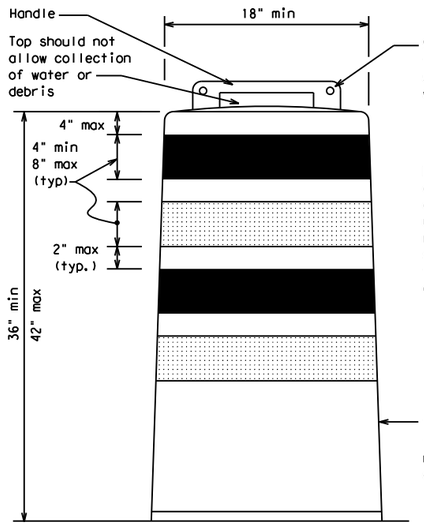
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents 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.

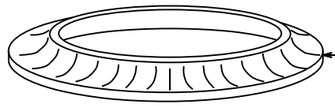
RETROREFLECTIVE SHEETING

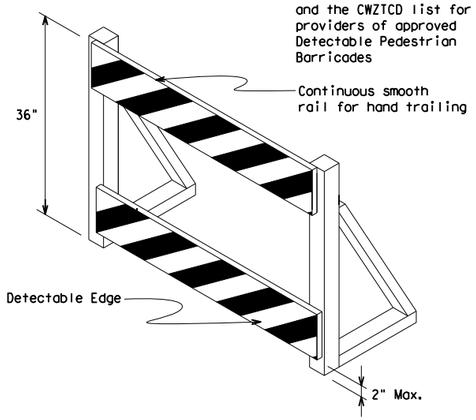
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall 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.

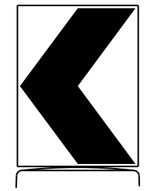




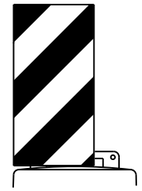


DETECTABLE PEDESTRIAN BARRICADES

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
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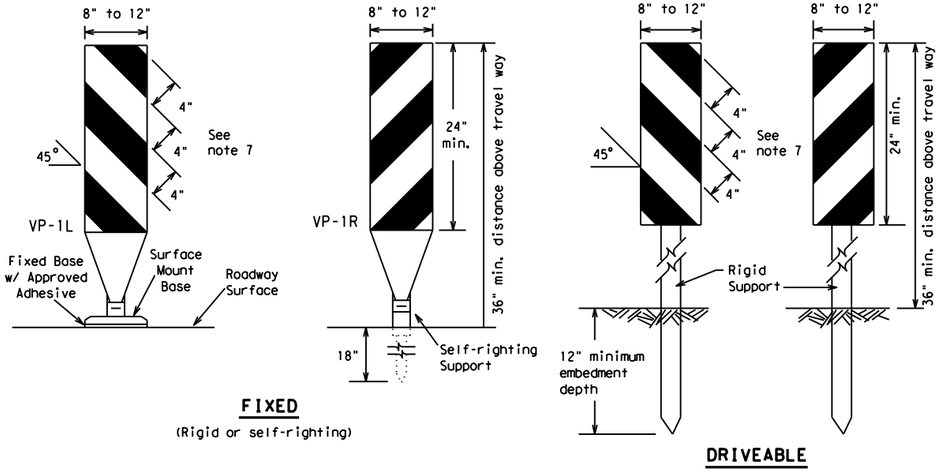
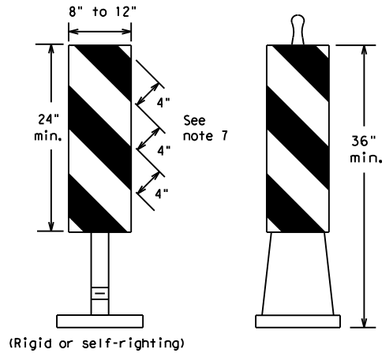


FIXED
(Rigid or self-righting)

DRIVEABLE

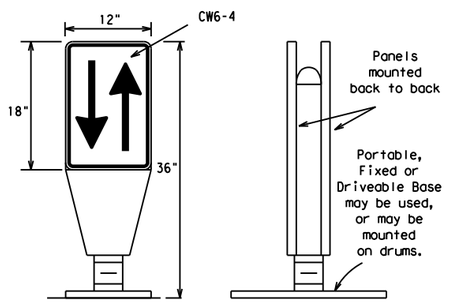


(Rigid or self-righting)

PORTABLE

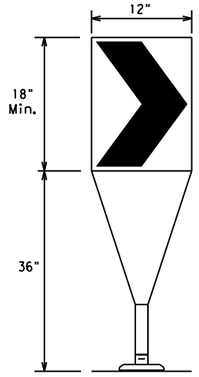
VERTICAL PANELS (VPs)

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.



OPPOSING TRAFFIC LANE DIVIDERS (OTLD)

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.



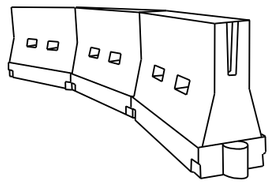
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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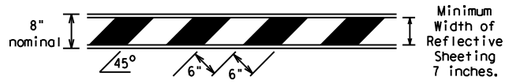
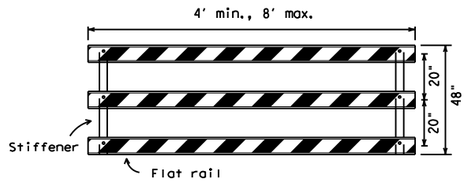
TYPE 3 BARRICADES

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.



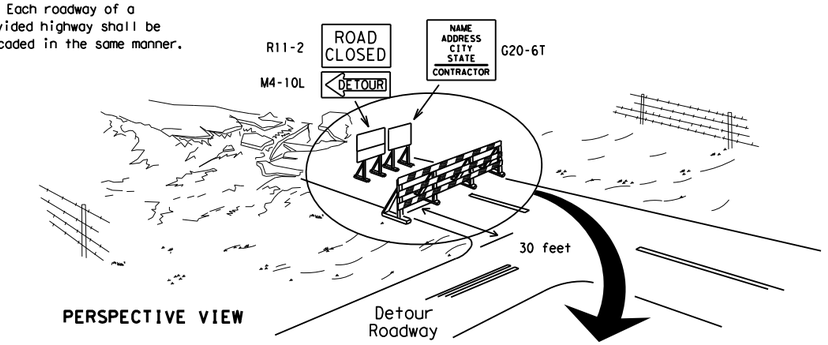
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

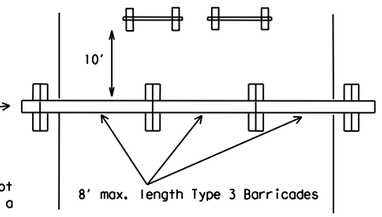
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

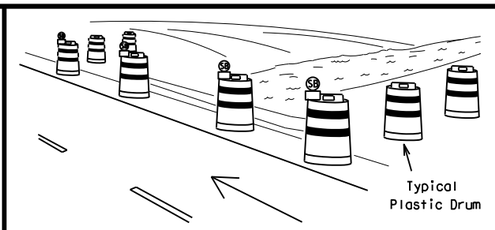
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

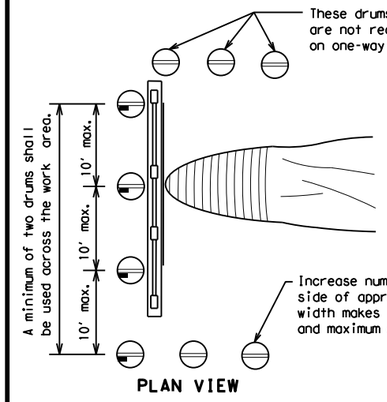
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

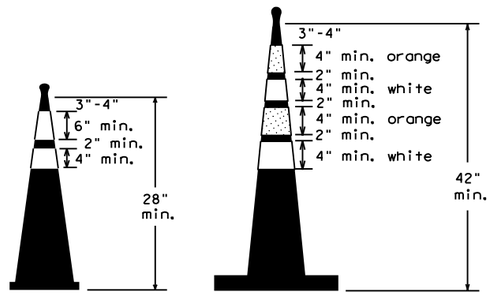
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder 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

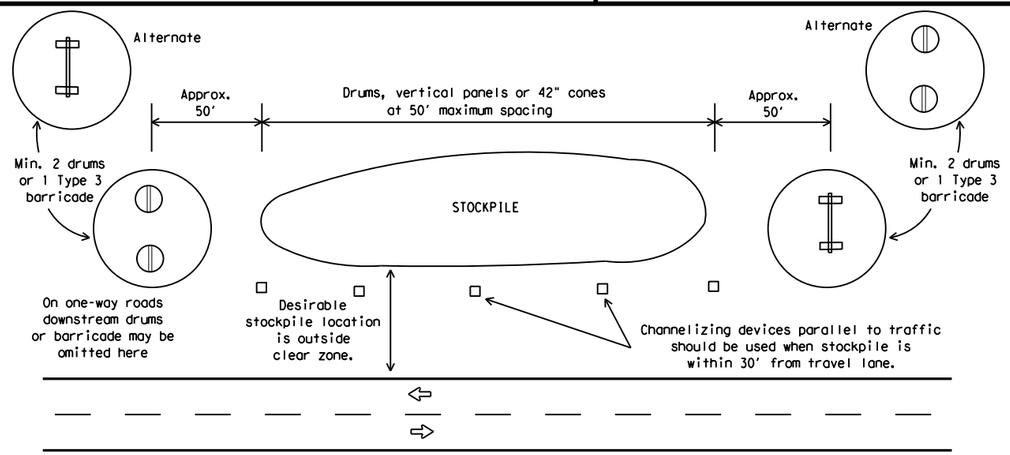


Two-Piece cones | One-Piece cones | Tubular Marker

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	0914	00	457	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	AUS	VARIES		33

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DATE: 1/18/2022 3:39:38 PM
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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.

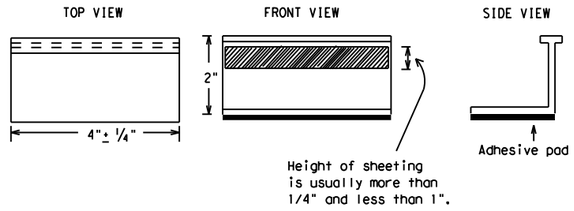
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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	0914	00	457	VA
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	AUS	VARIES		34
11-02 8-14				

105

DATE: 1/18/2022 3:39:39 PM
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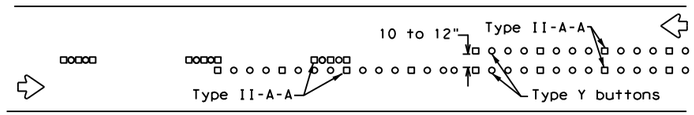
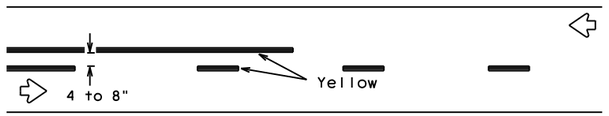
PAVEMENT MARKING PATTERNS

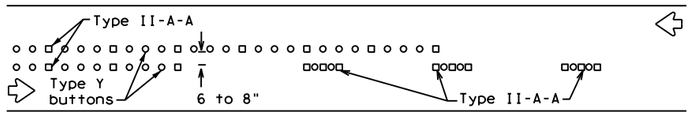
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



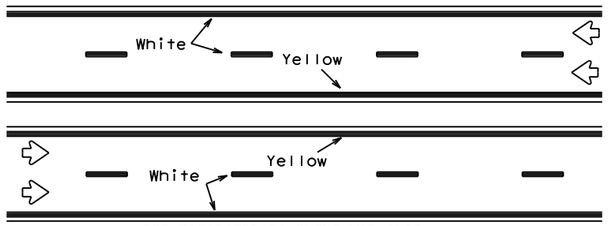
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



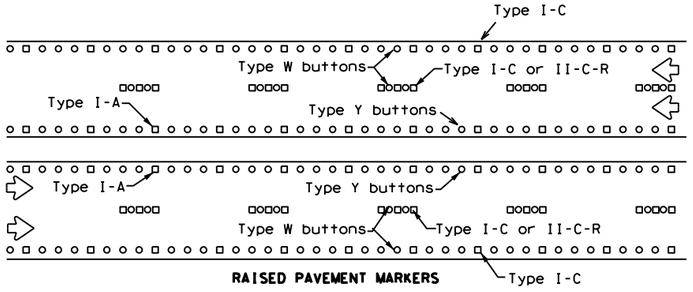
RAISED PAVEMENT MARKERS - PATTERN B

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

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



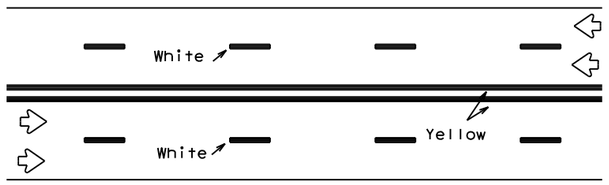
REFLECTORIZED PAVEMENT MARKINGS



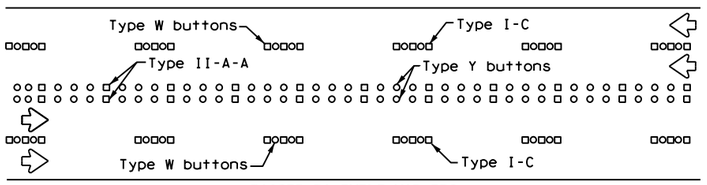
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



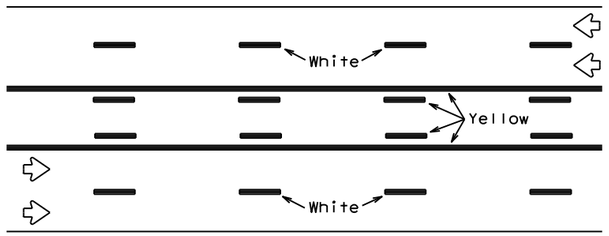
REFLECTORIZED PAVEMENT MARKINGS



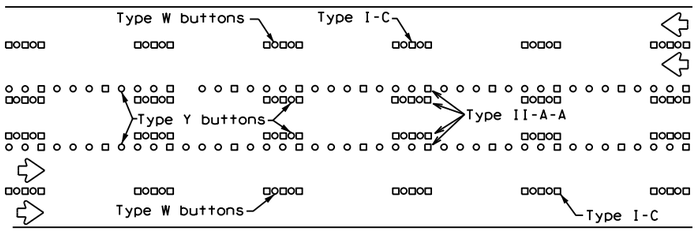
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

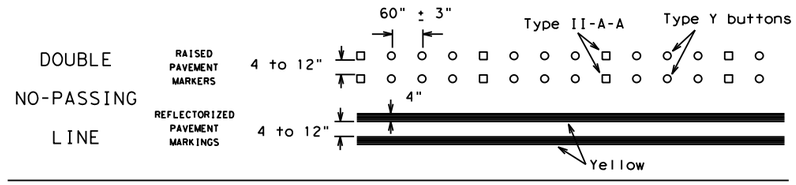
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

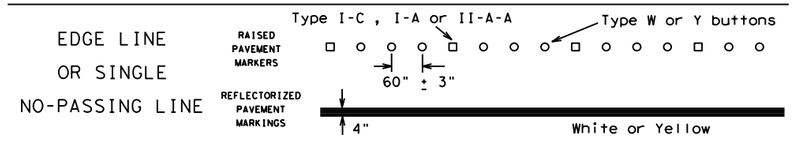
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

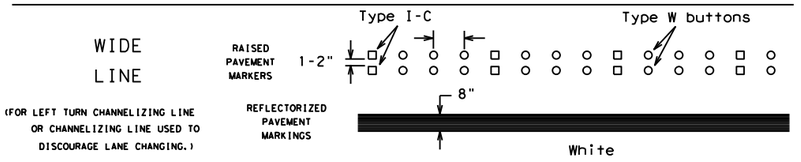


EDGE LINE OR SINGLE NO-PASSING LINE



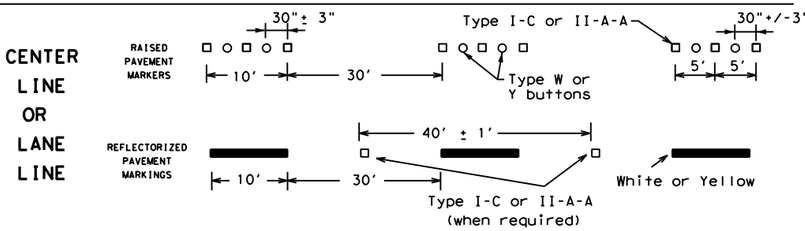
WIDE LINE

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

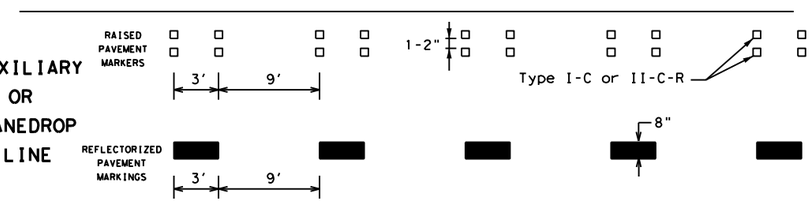


BROKEN LINES

CENTER LINE OR LANE LINE

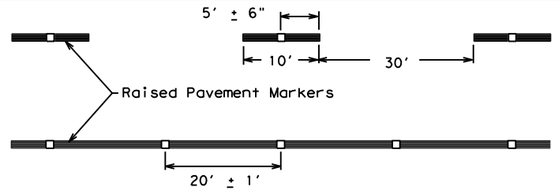


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

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©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
1-97 9-07 5-21	DIST	COUNTY		SHEET NO.
2-98 7-13	AUS	VARIES		35
11-02 8-14				

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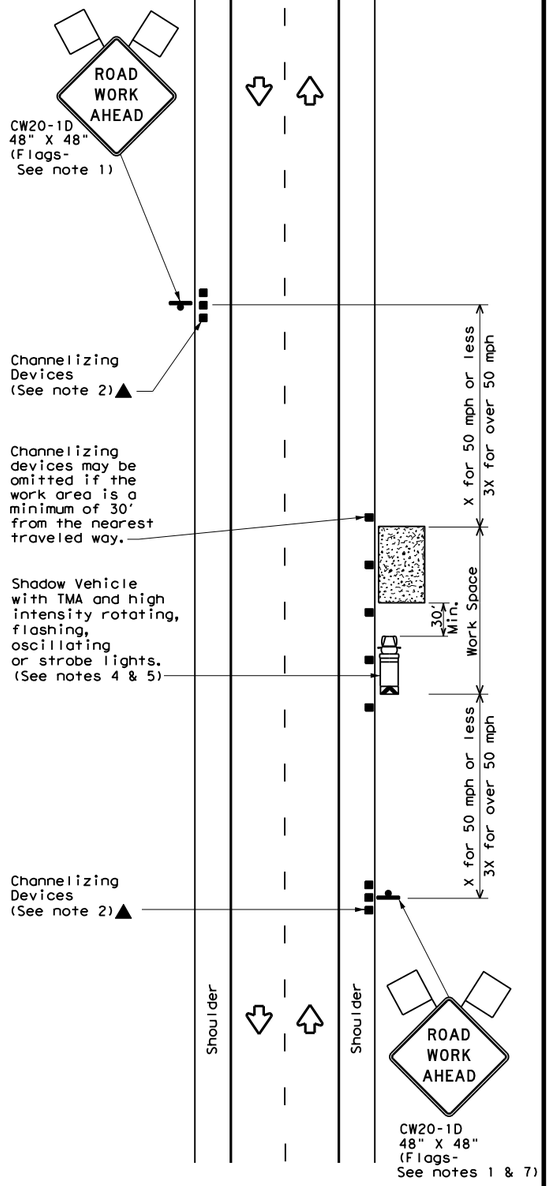
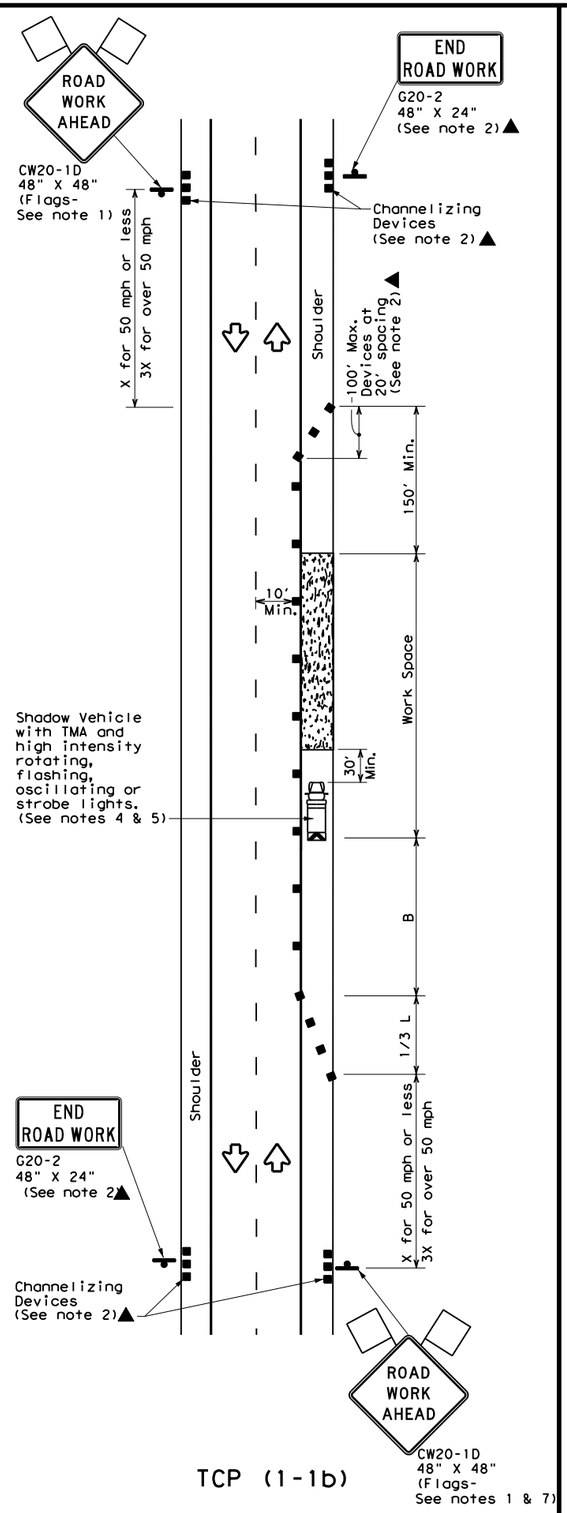


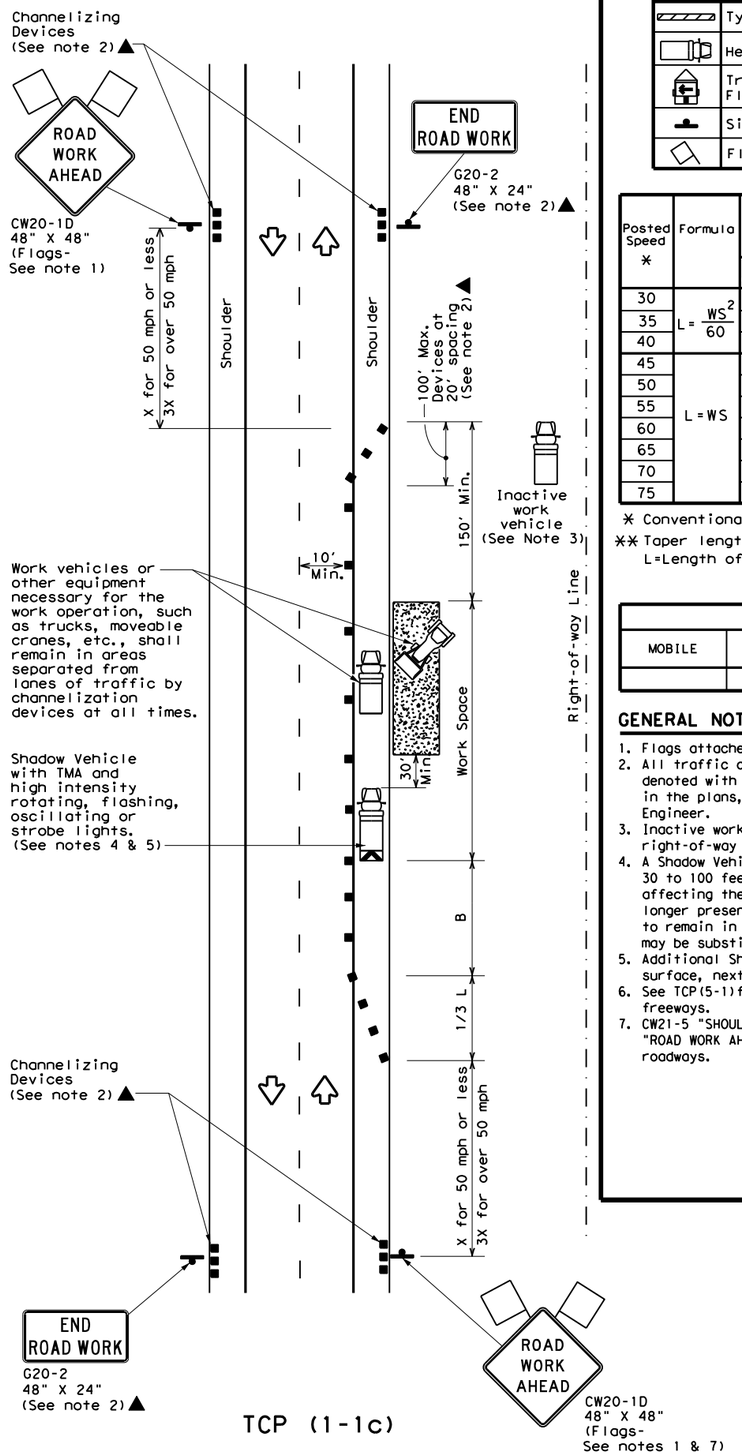
TCP (1-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (1-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (1-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

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

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(1-1)-18

FILE: 36	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98	0914	00	457	VA
8-95 2-12	DIST	COUNTY		SHEET NO.
1-97 2-18	AUS	VARIES		36

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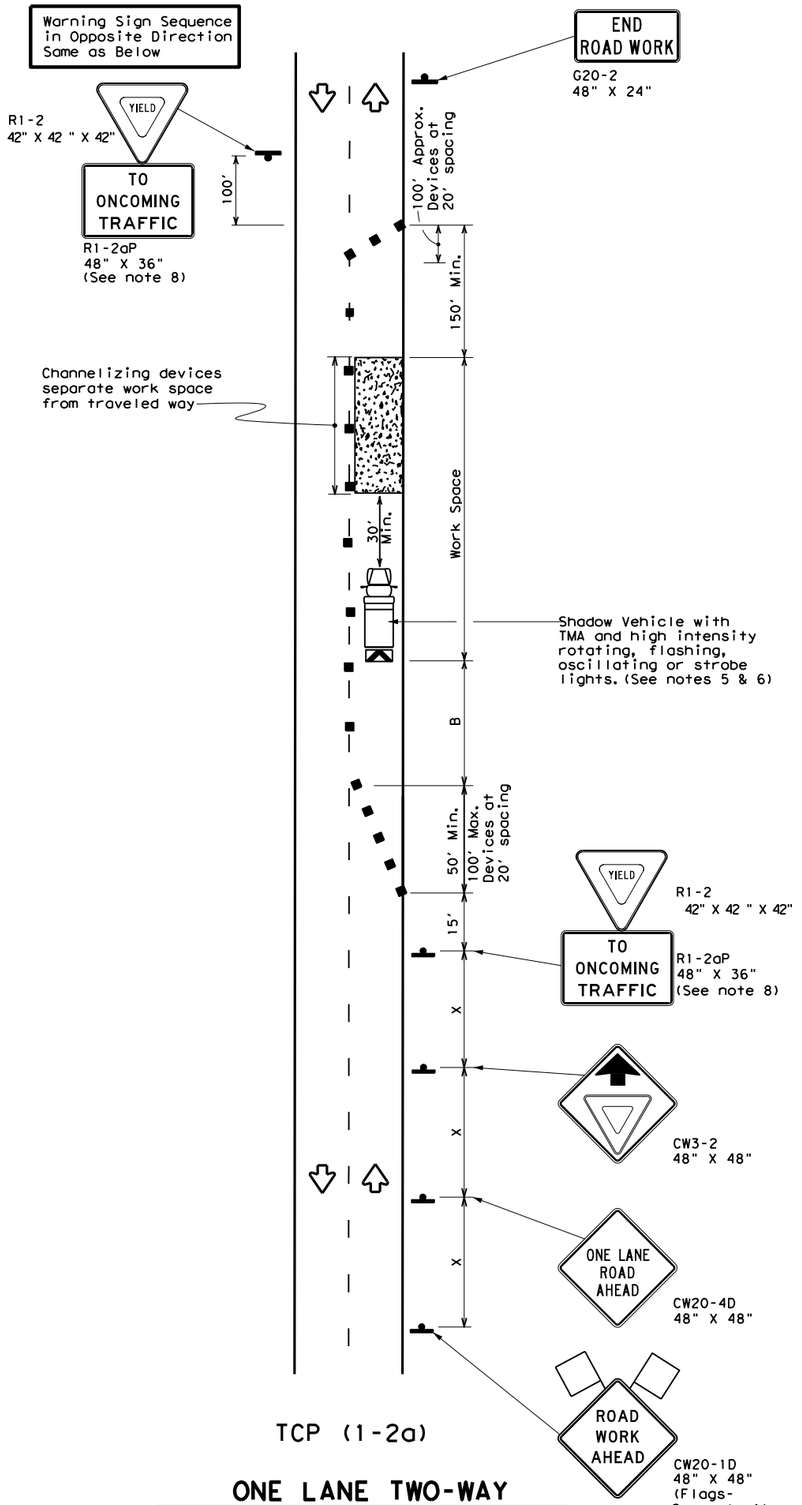
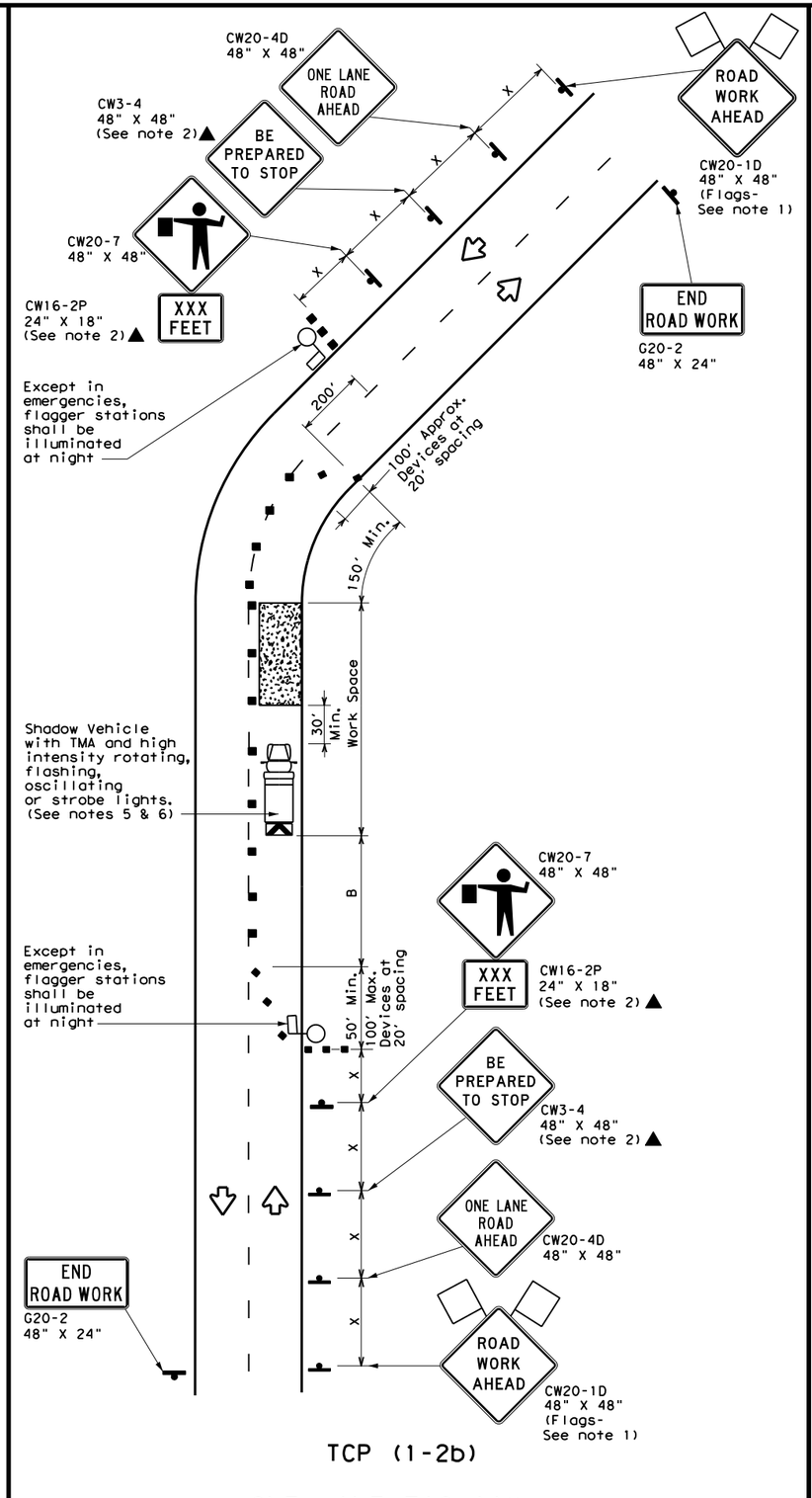


TCP (1-2a)

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



TCP (1-2b)

ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

LEGEND

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

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

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

TYPICAL USAGE

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

GENERAL NOTES

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

TCP (1-2a)

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

TCP (1-2b)

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

Texas Department of Transportation | Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP(1-2)-18

FILE: 37	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	AUS	VARIES		37

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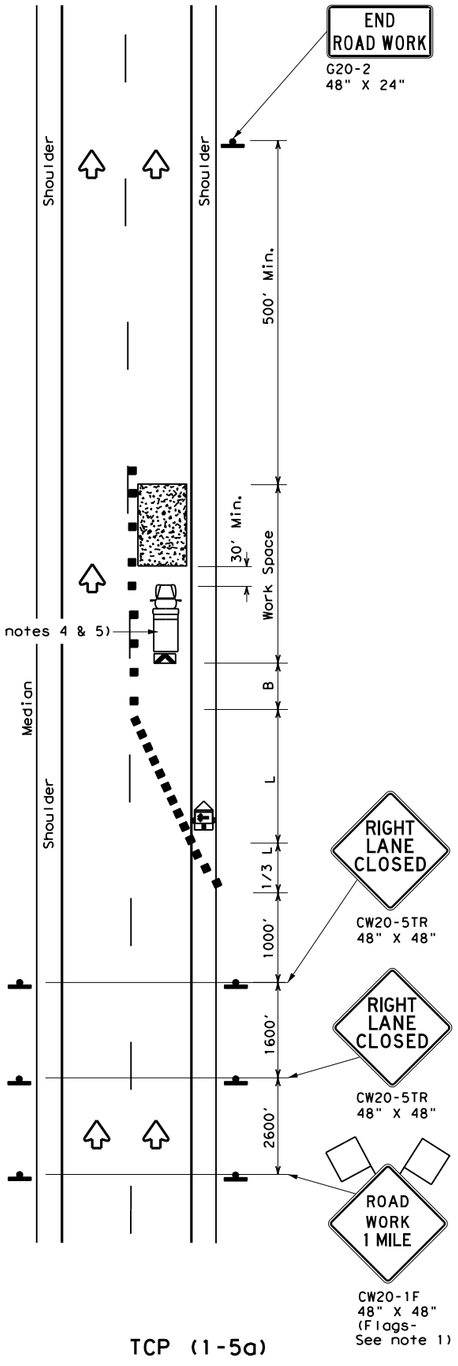
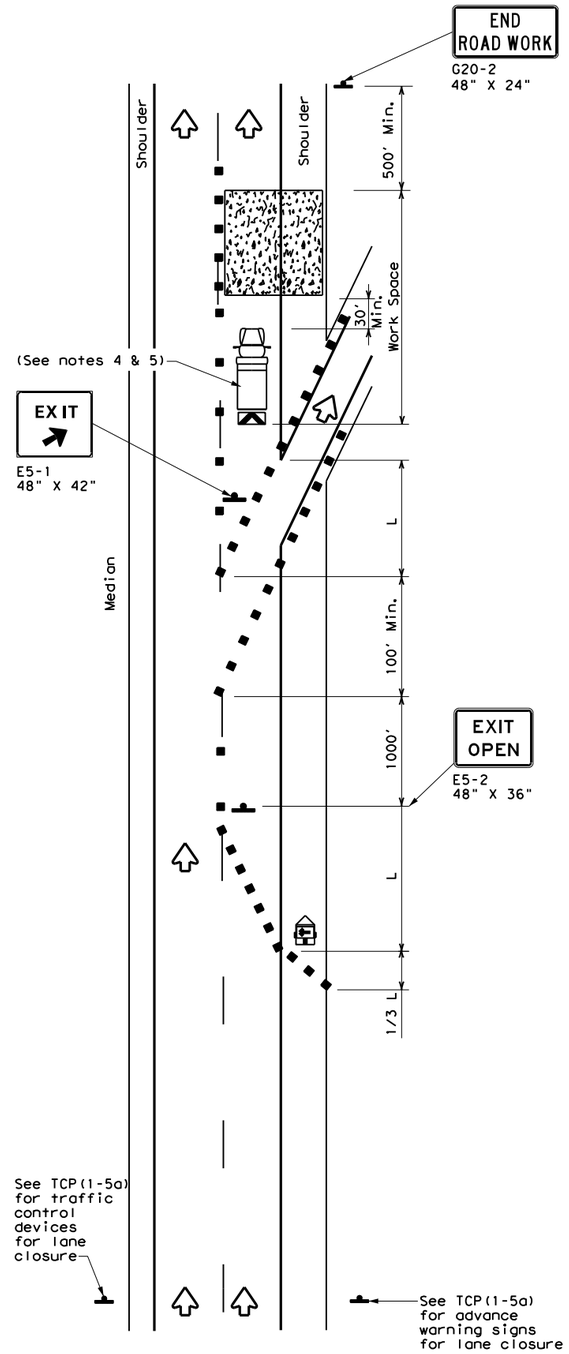


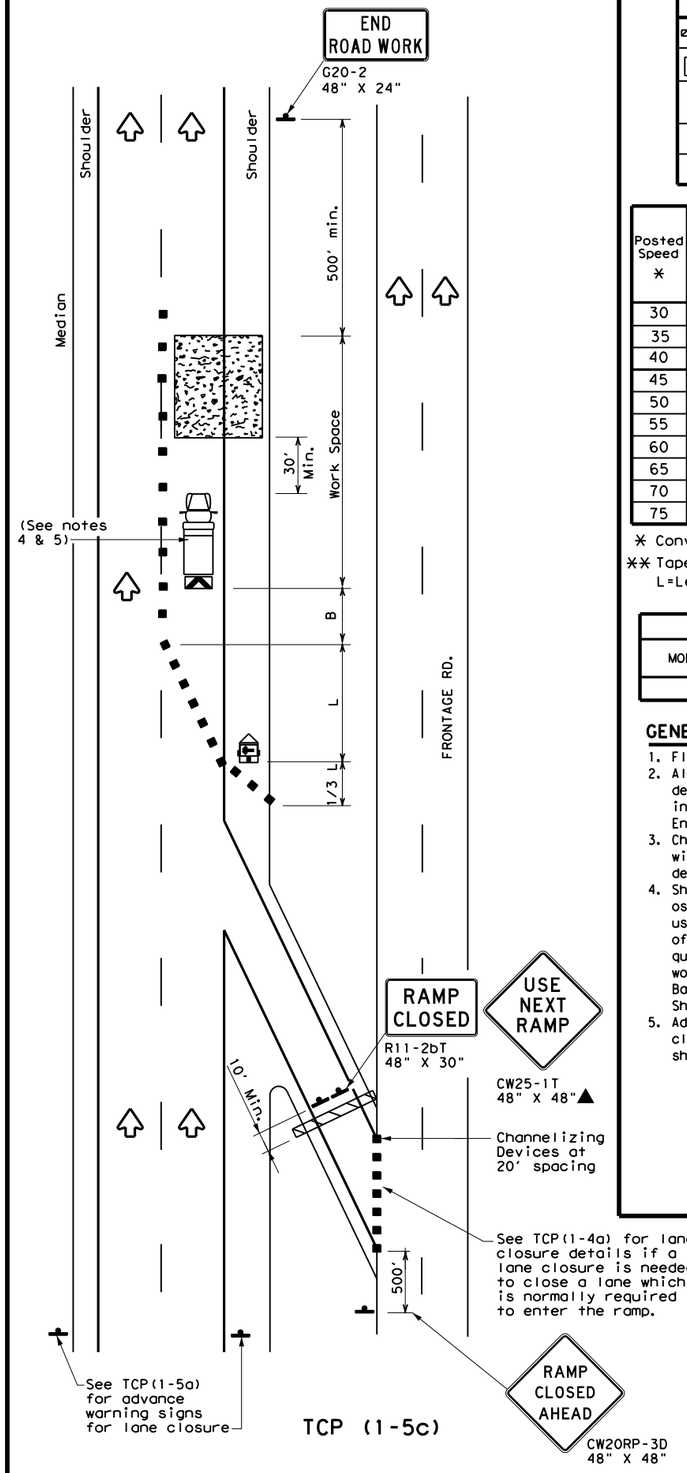
TCP (1-5a)

ONE LANE CLOSURE



TCP (1-5b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (1-5c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
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 in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

TCP(1-5)-18

FILE: 38	DN:	CK:	DW:	CK:
©TxDOT February 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-18	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		38

DATE: 1/18/2022 3:39:43 PM
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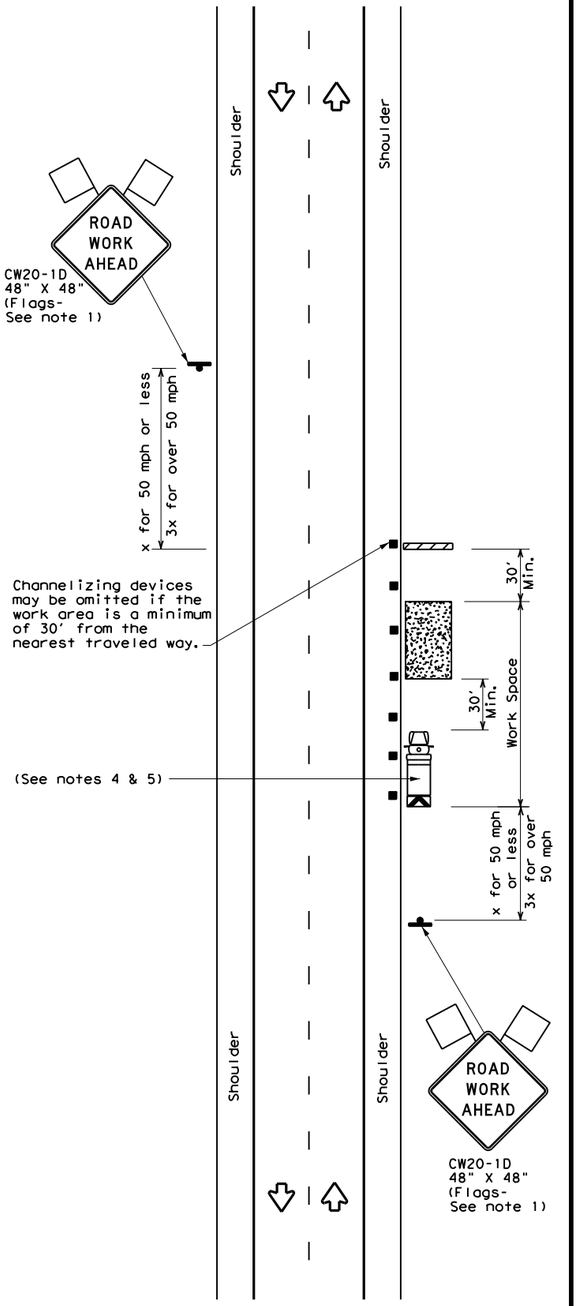
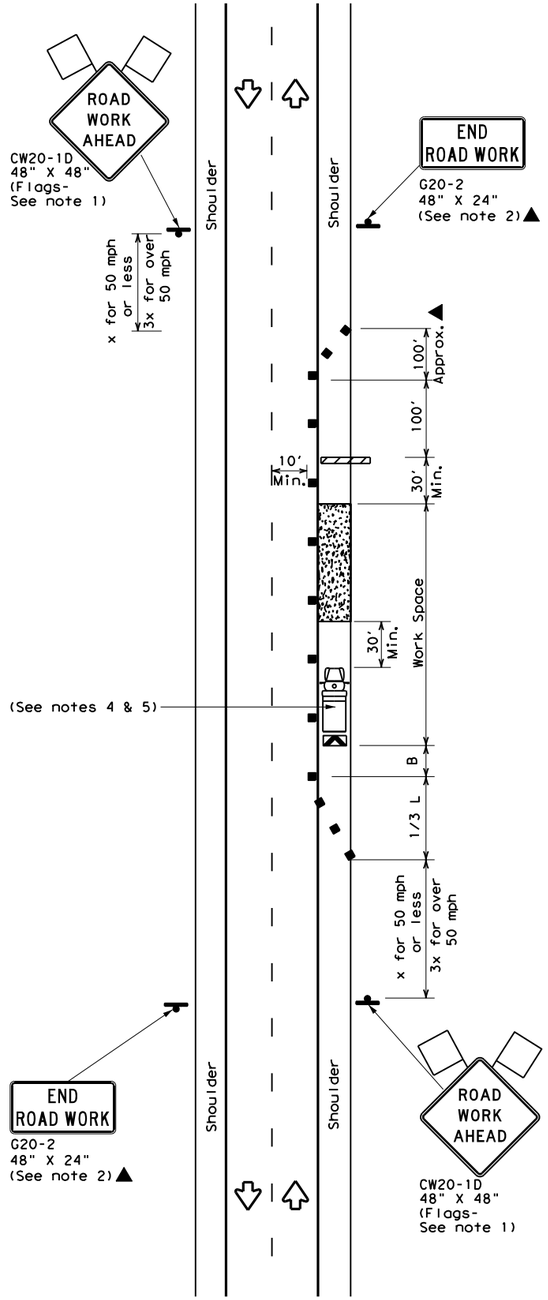


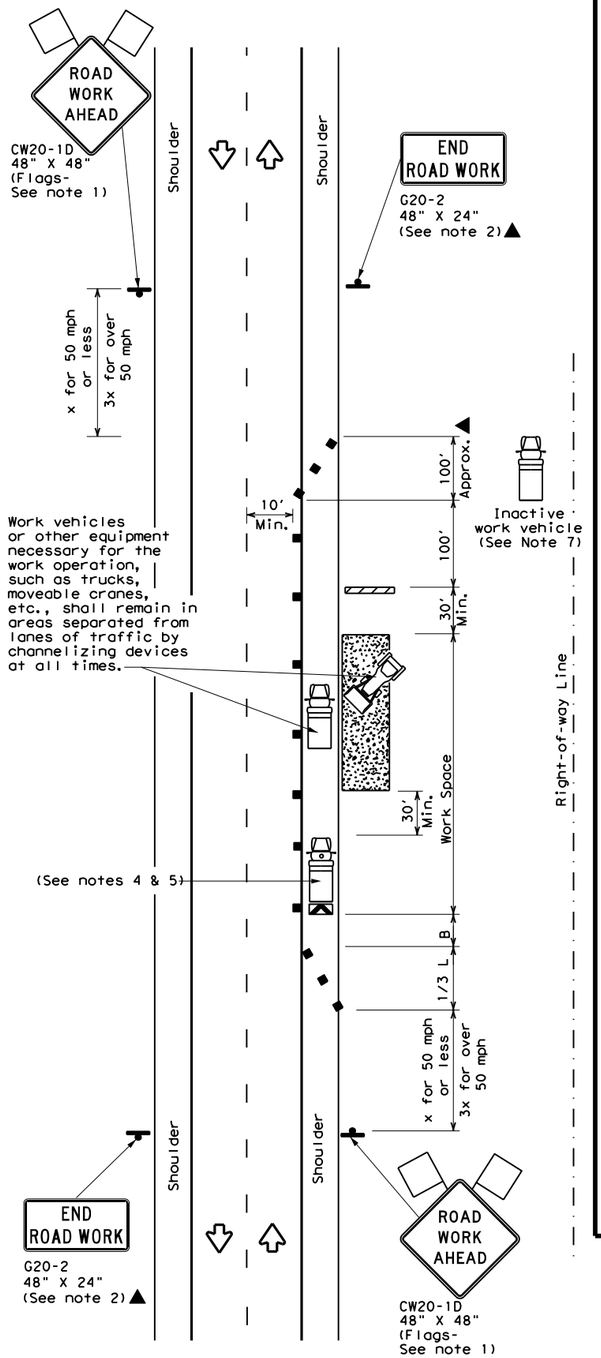
TCP (2-1a)

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: 39	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	AUS	VARIES		39
1-97 2-18				

DATE: 1/18/2022 3:39:44 PM
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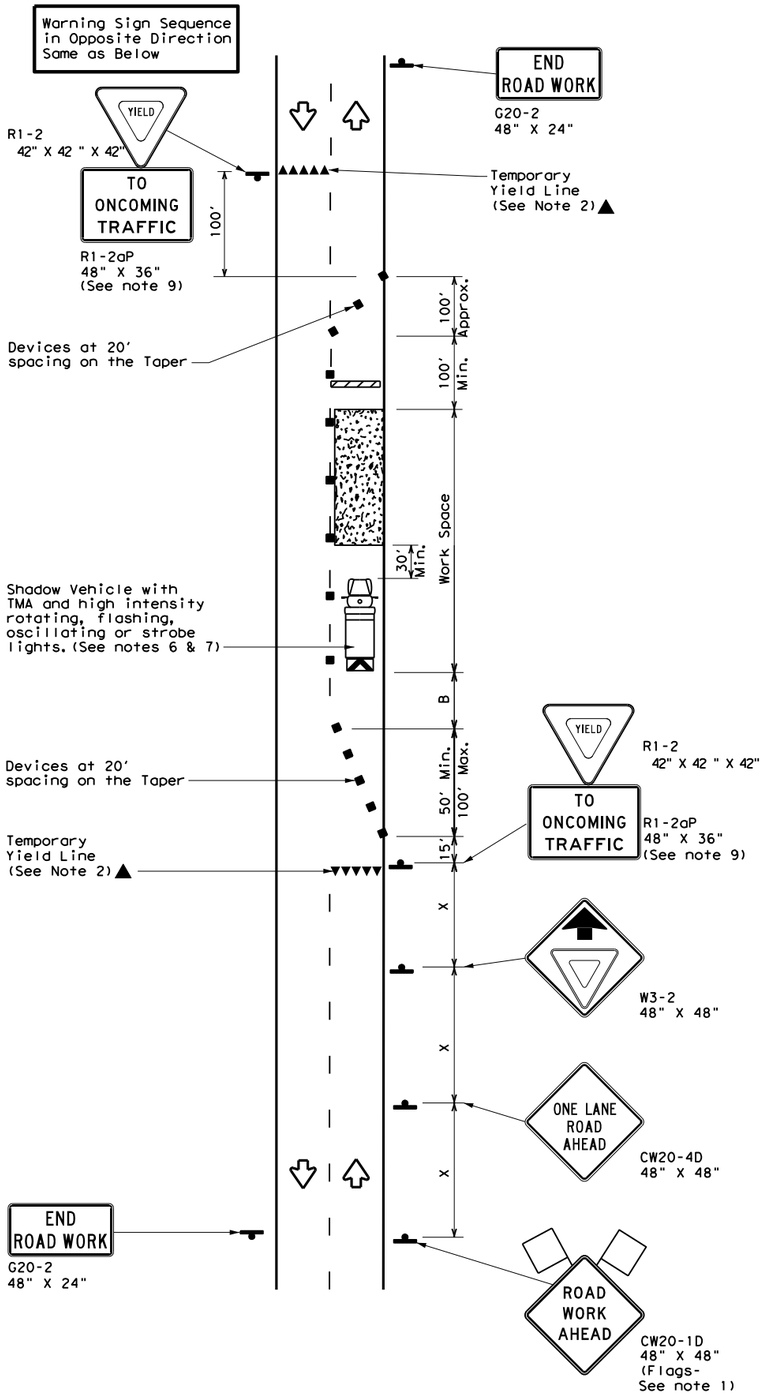
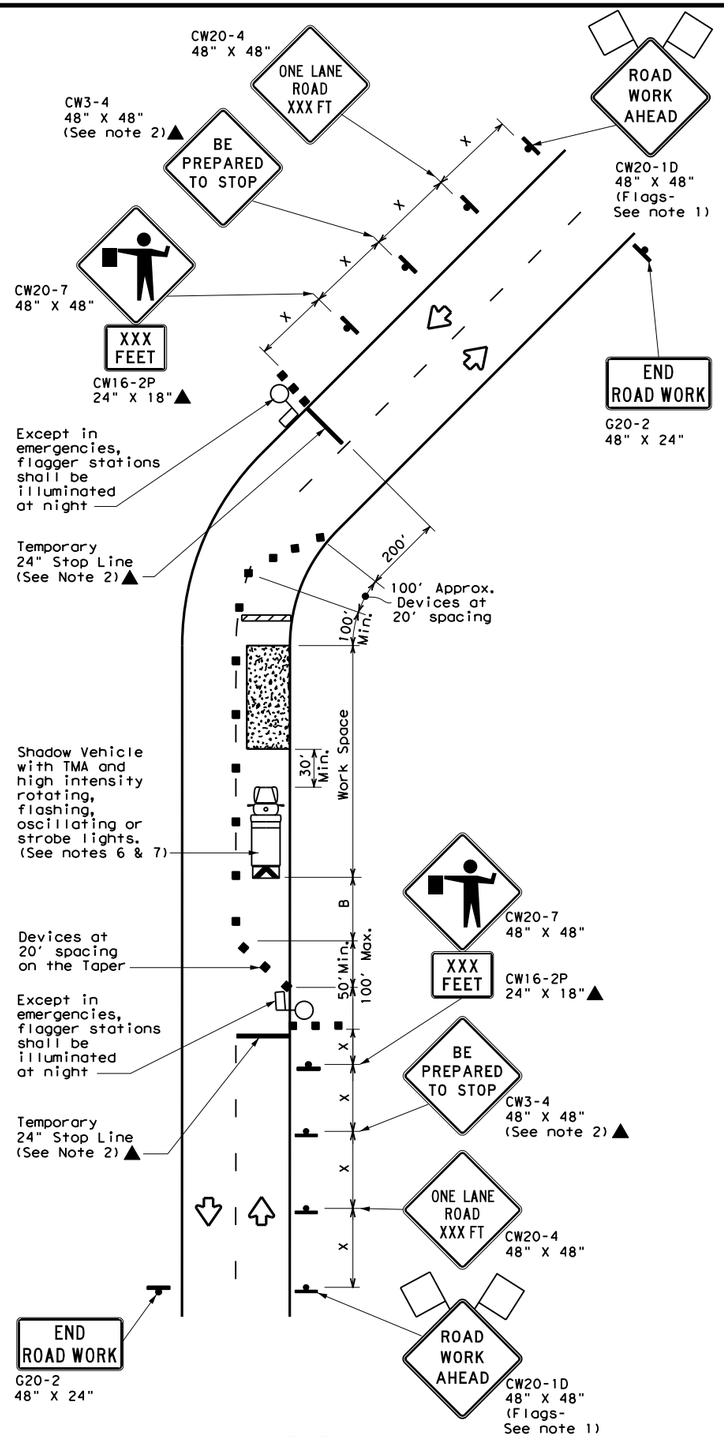


TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



TCP (2-2b)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH FLAGGERS

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices: On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
30		150'	165'	180'	30'	60'	120'	90'	200'
35	$L=\frac{WS^2}{60}$	205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45		450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55	L=WS	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 CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
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 a wider work space.

TCP (2-2a)

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

TCP (2-2b)

10. Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
11. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
12. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situtations.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(2-2)-18

FILE: 40	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		40

DATE: 1/18/2022 3:39:44 PM
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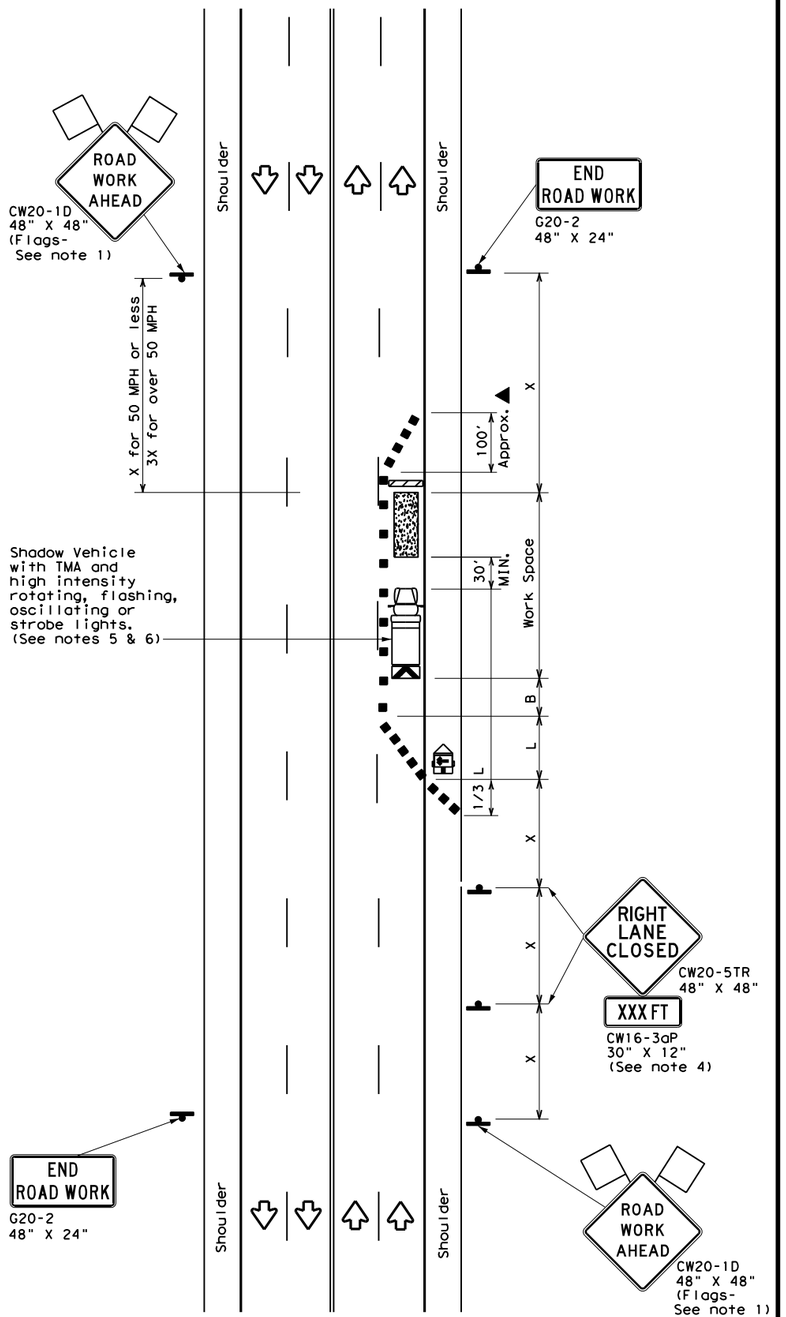
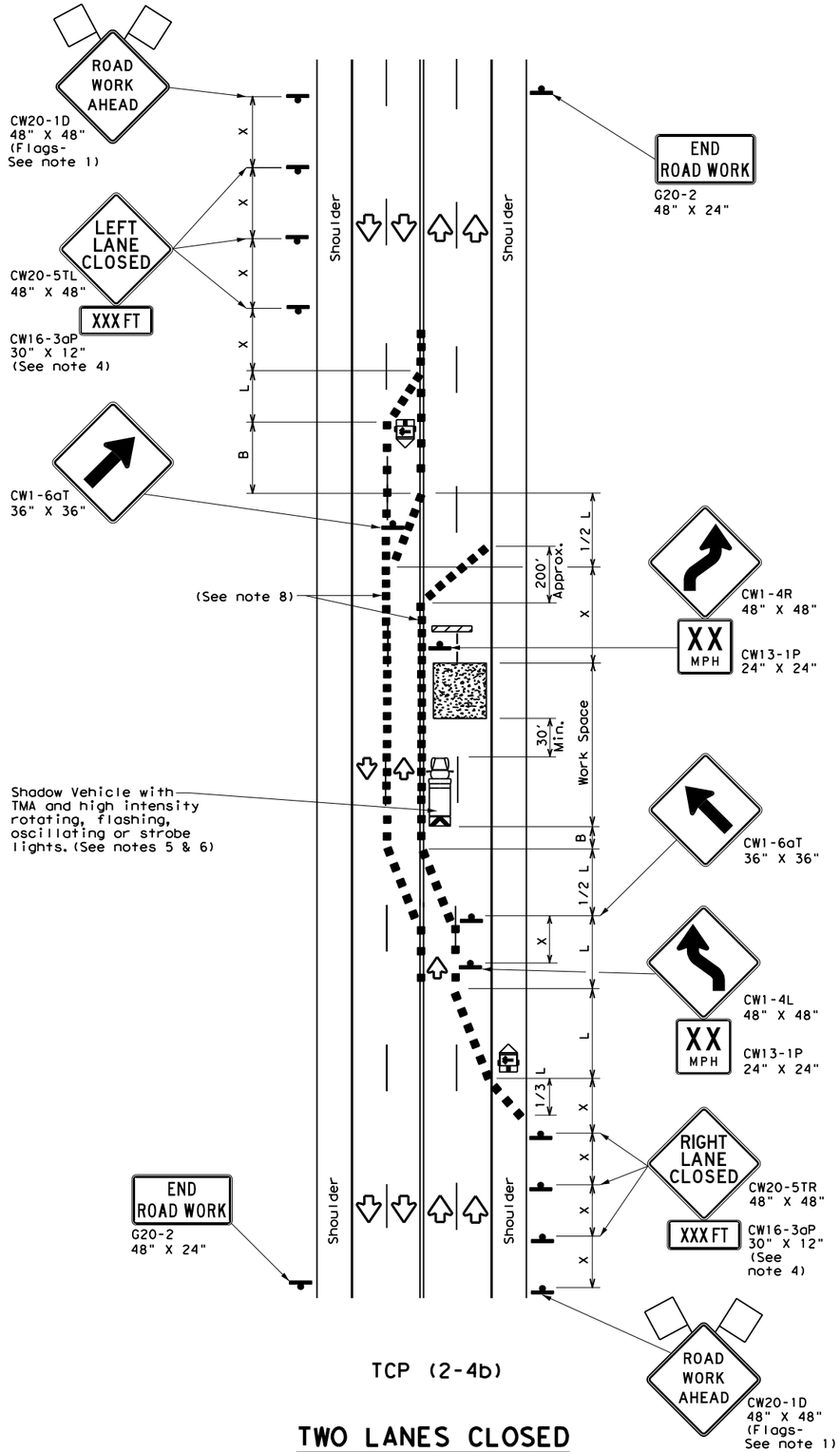


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

LEGEND			
	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	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 downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
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 in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

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

TCP (2-4b)

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

Texas Department of Transportation | *Traffic Operations Division Standard*

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

FILE: 41	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0914	00	457	VA
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	AUS	VARIES		41

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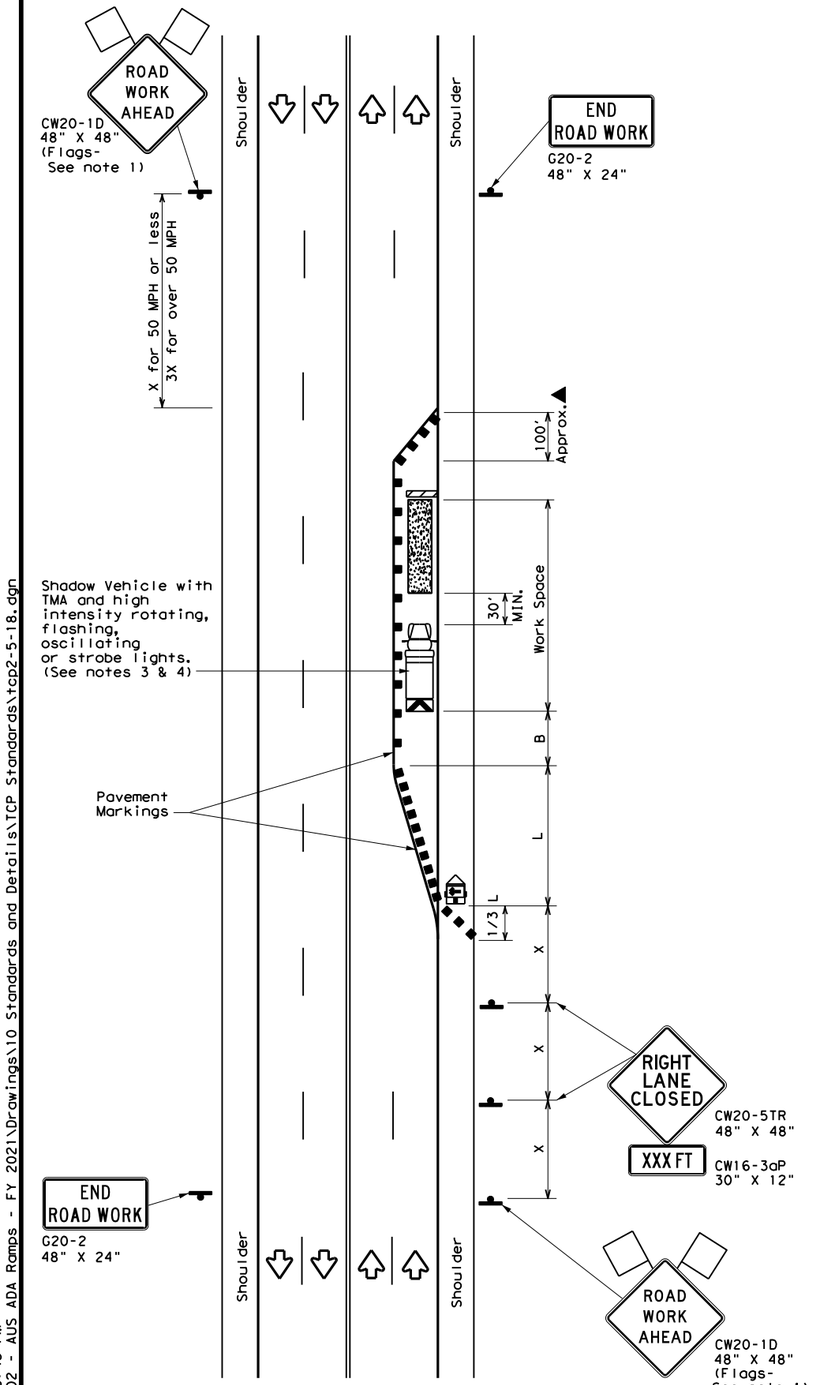
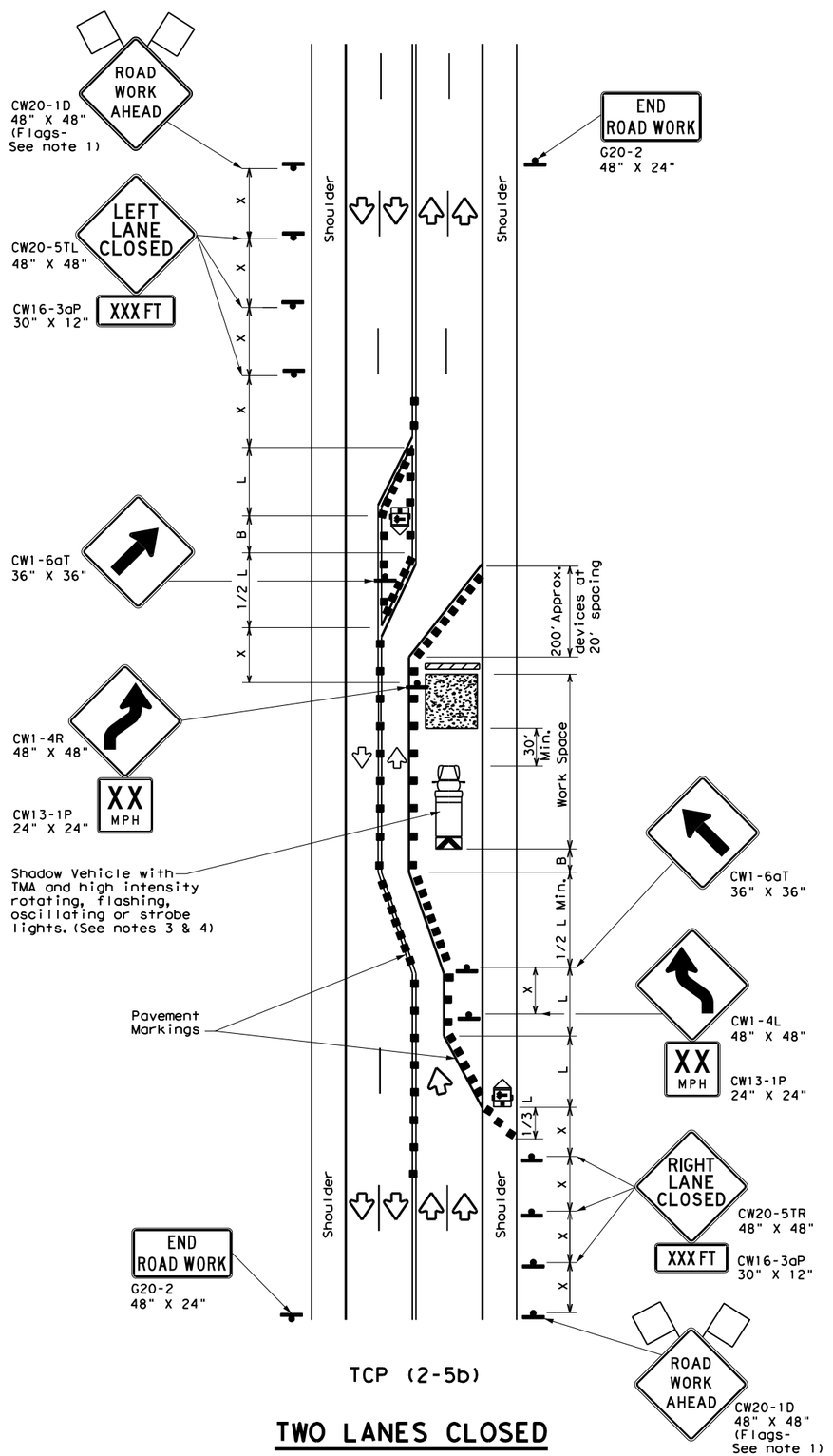


TCP (2-5a)

ONE LANE CLOSED



TCP (2-5b)

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. 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 eposure 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 substitutued for the Shadow Vehicle and TMA.
4. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
5. The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.

TCP (2-5a)

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 to protect the work space from opposing traffic, with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-5b)

7. Conflicting pavement markings shall be removed for long-term projects.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LONG TERM LANE CLOSURES MULTILANE CONVENTIONAL RDS.

TCP(2-5)-18

FILE: 42	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 2-12	0914	00	457	VA
1-97 3-03	DIST	COUNTY		SHEET NO.
4-98 2-18	AUS	VARIES		42

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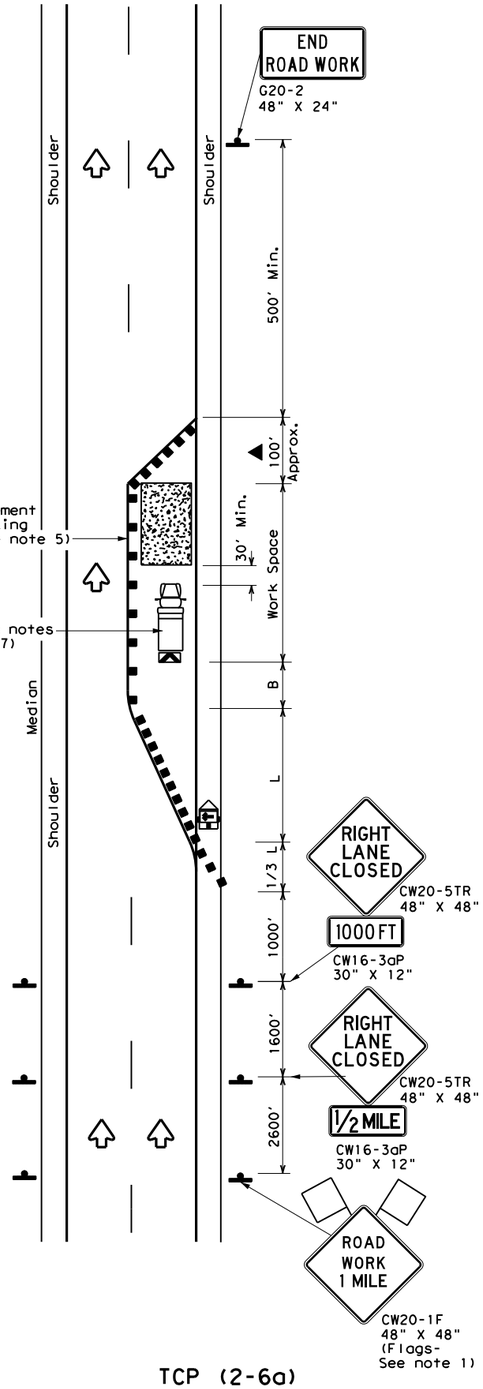
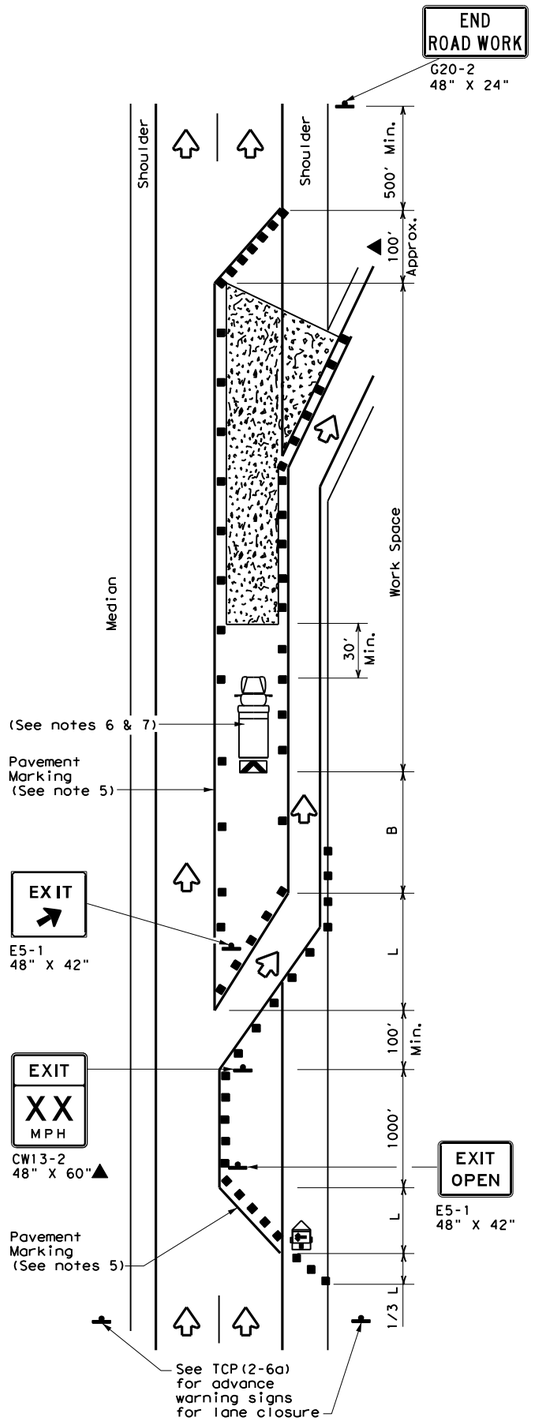


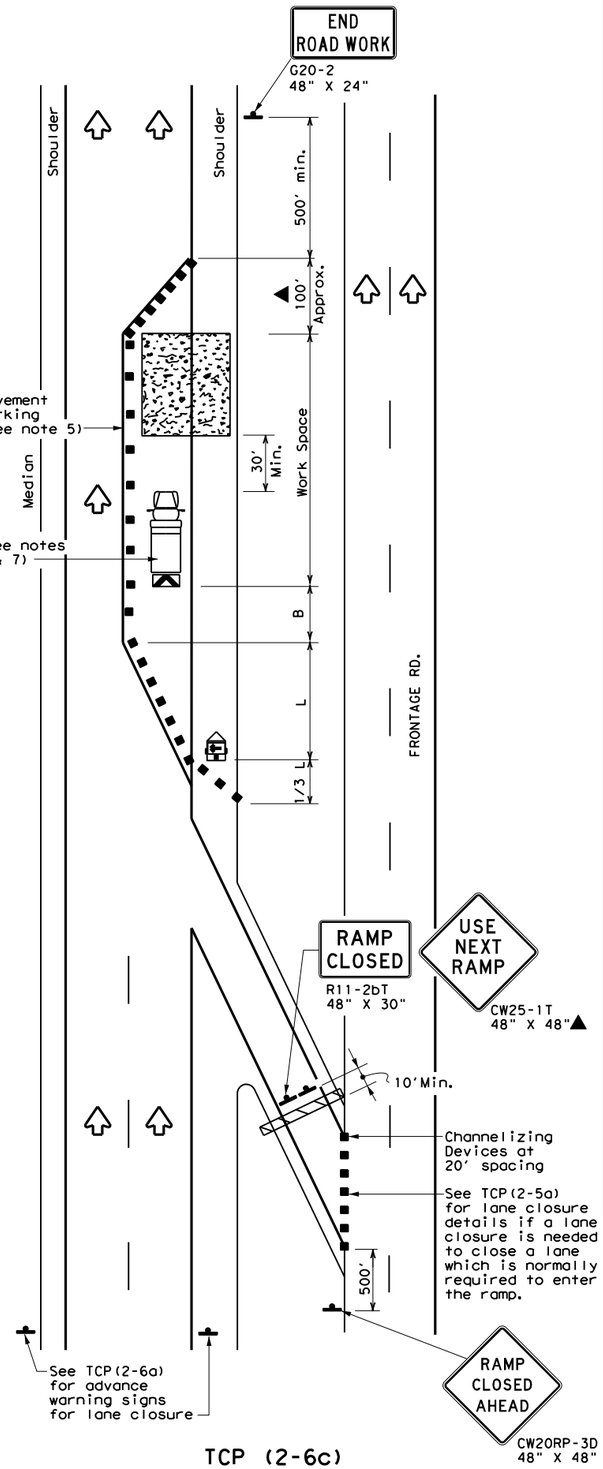
TCP (2-6a)

ONE LANE CLOSURE



TCP (2-6b)

LANE CLOSURE NEAR EXIT RAMPS



TCP (2-6c)

LANE CLOSURE NEAR ENTRANCE RAMPS

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. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on everyother channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
5. The placement of pavement markings may be omitted on Intermediate-term stationary work zones with the approval of the Engineer.
6. Shadow Vehicle with TMA and high intensity rotating, flashing,oscillating or strobe lights. 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.
7. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON DIVIDED HIGHWAYS

TCP(2-6)-18

FILE: 43	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	0914	00	457	VA
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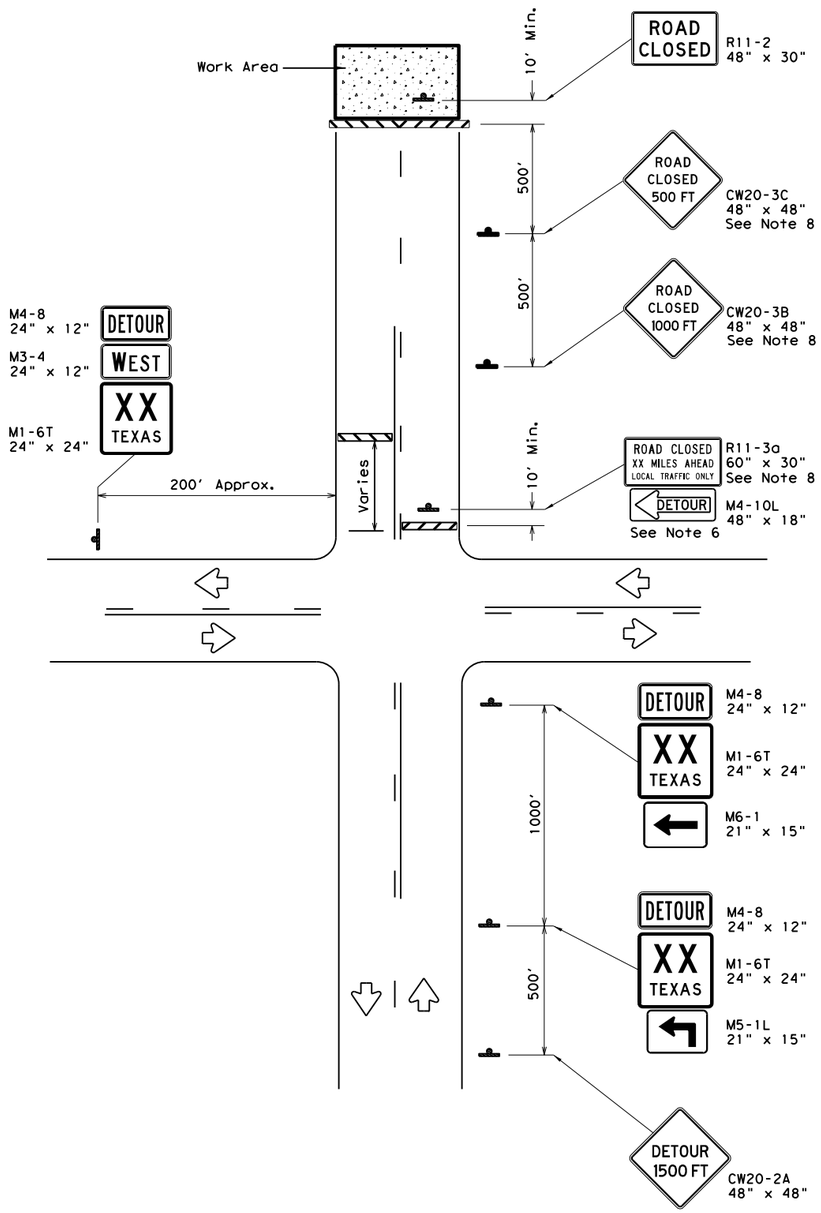
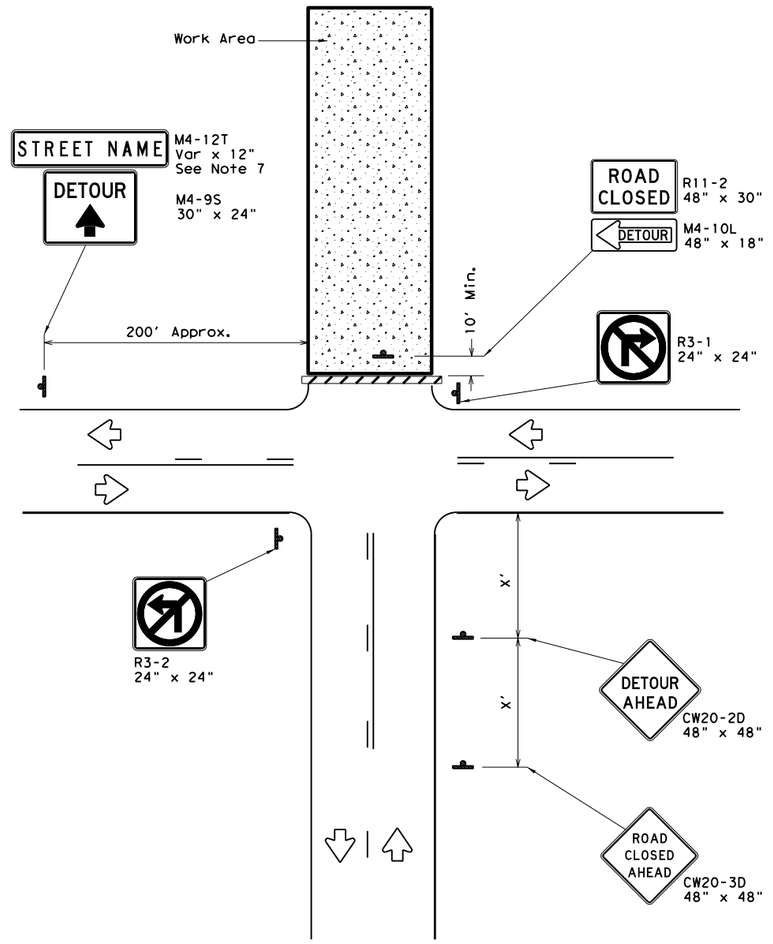


ROAD CLOSURE BEYOND THE INTERSECTION

Signing for a Numbered Route with an Off-Site Detour



ROAD CLOSURE AT THE INTERSECTION

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

LEGEND	
	Type 3 Barricade
	Sign

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

* Conventional Roads Only

GENERAL NOTES

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

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE ROAD CLOSURE DETAILS

WZ(RCD)-13

FILE: wzrcd-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
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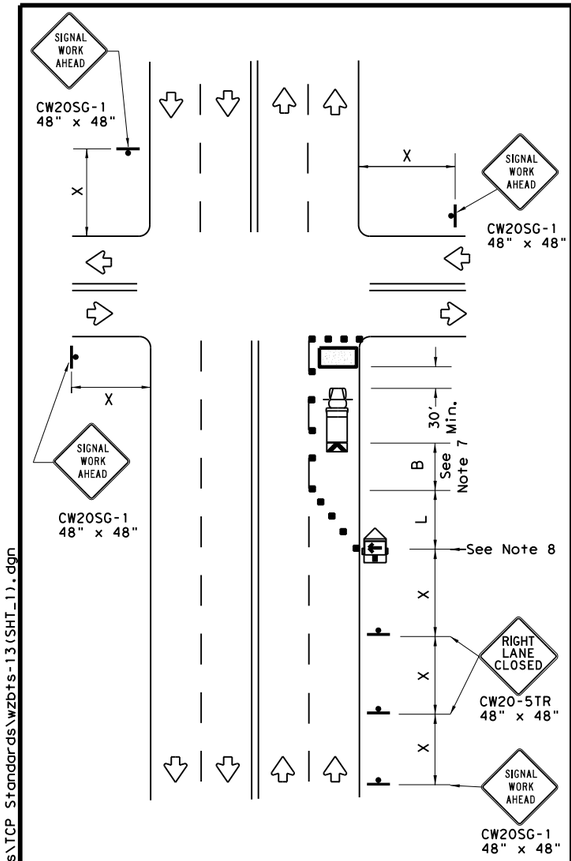
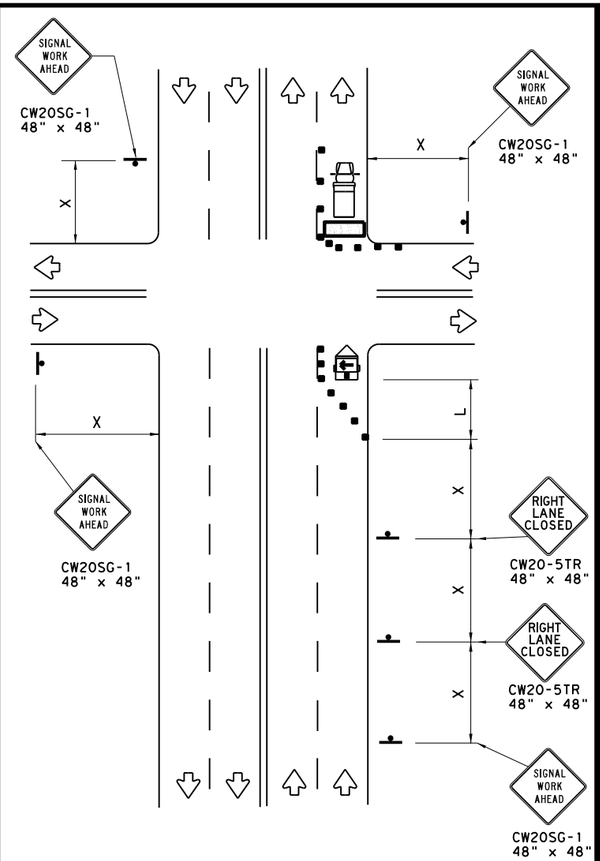


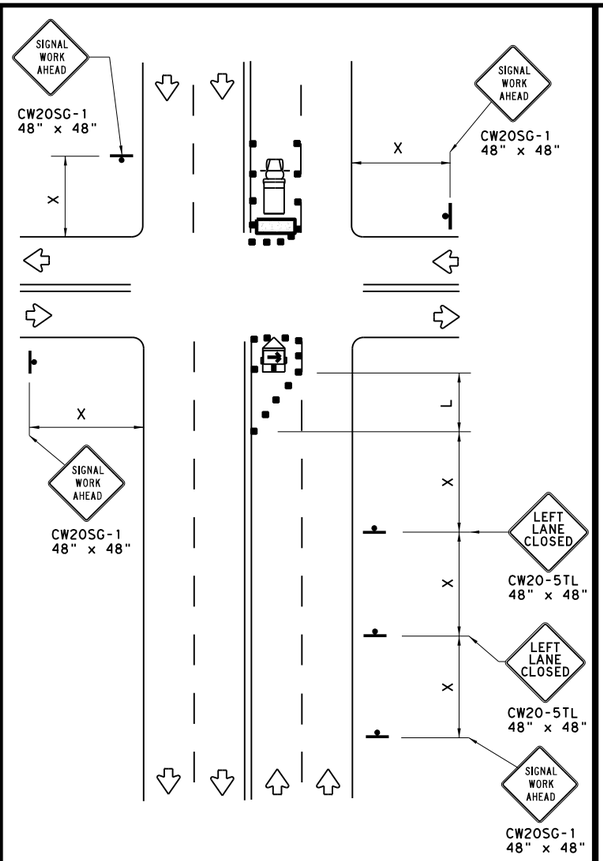
NEAR SIDE LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



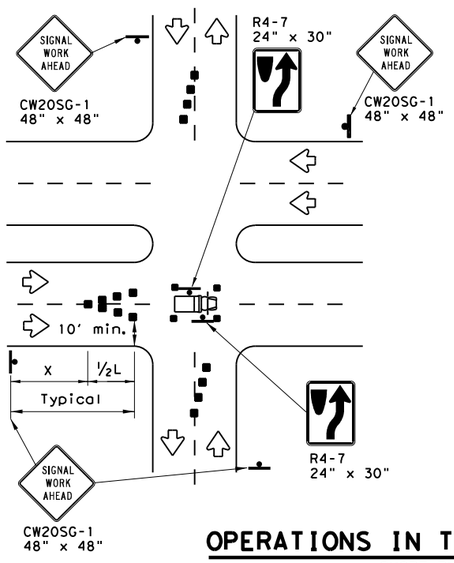
FAR SIDE RIGHT LANE CLOSURE

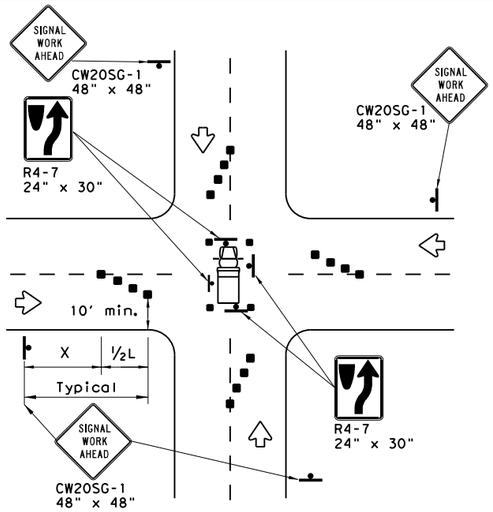
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE LEFT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY





OPERATIONS IN THE INTERSECTION

SHORT DURATION

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.

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.

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
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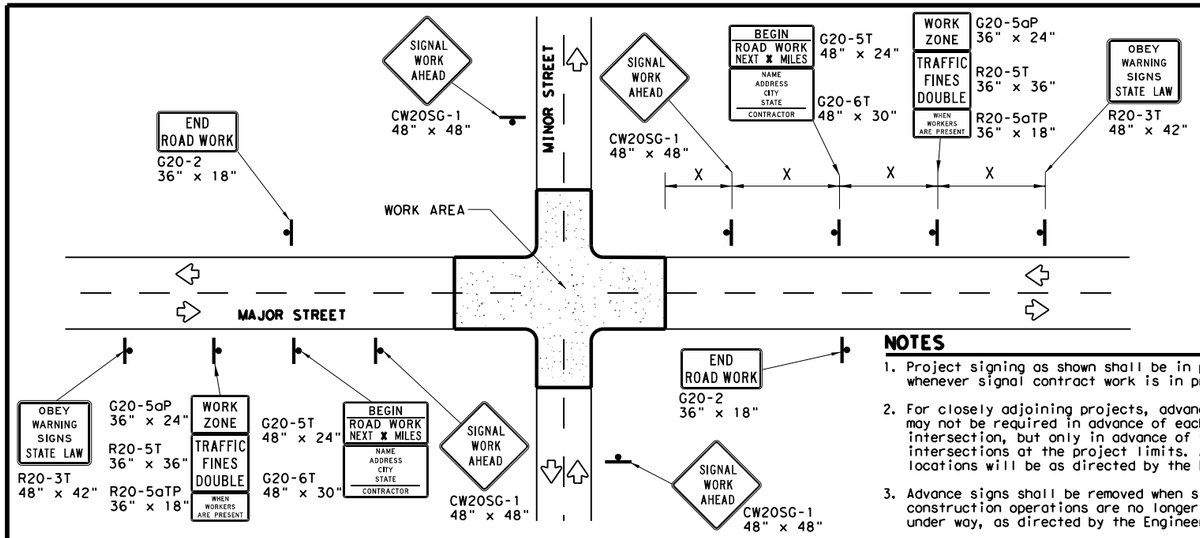


TYPICAL ADVANCE SIGNAL PROJECT SIGNING

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

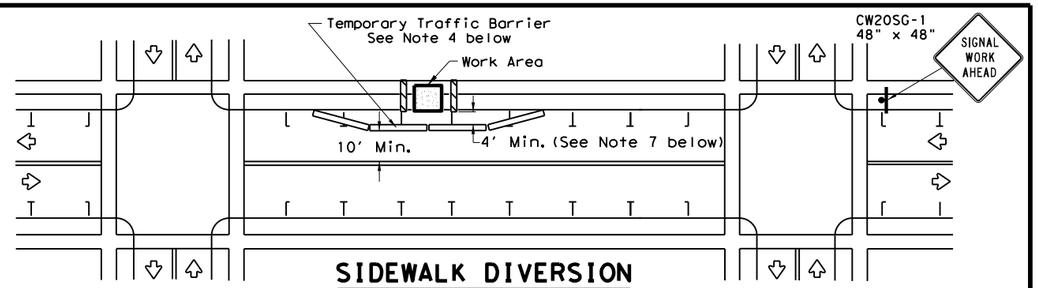
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support 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

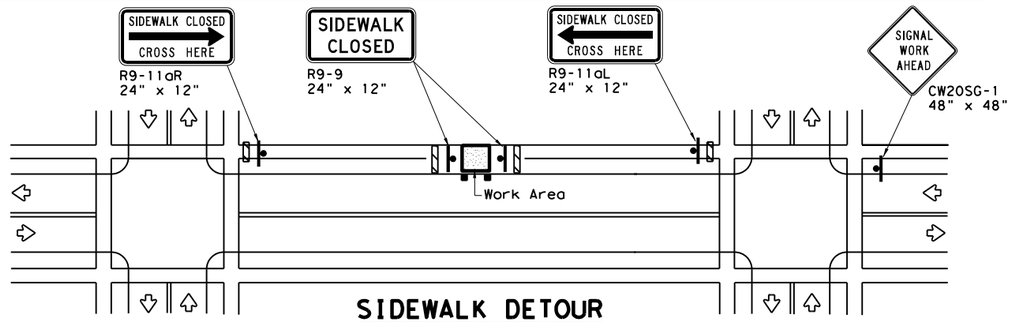
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

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

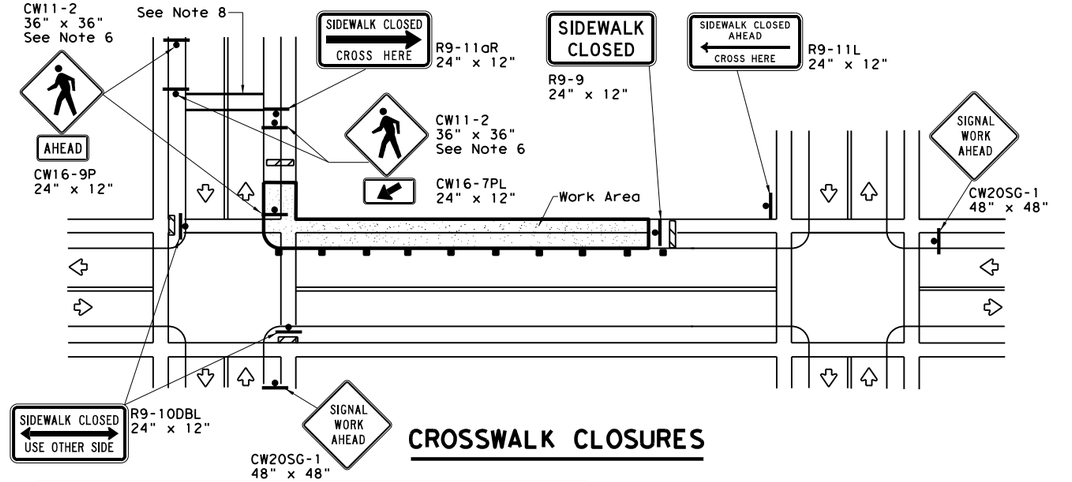
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



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.

SHEET 2 OF 2

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
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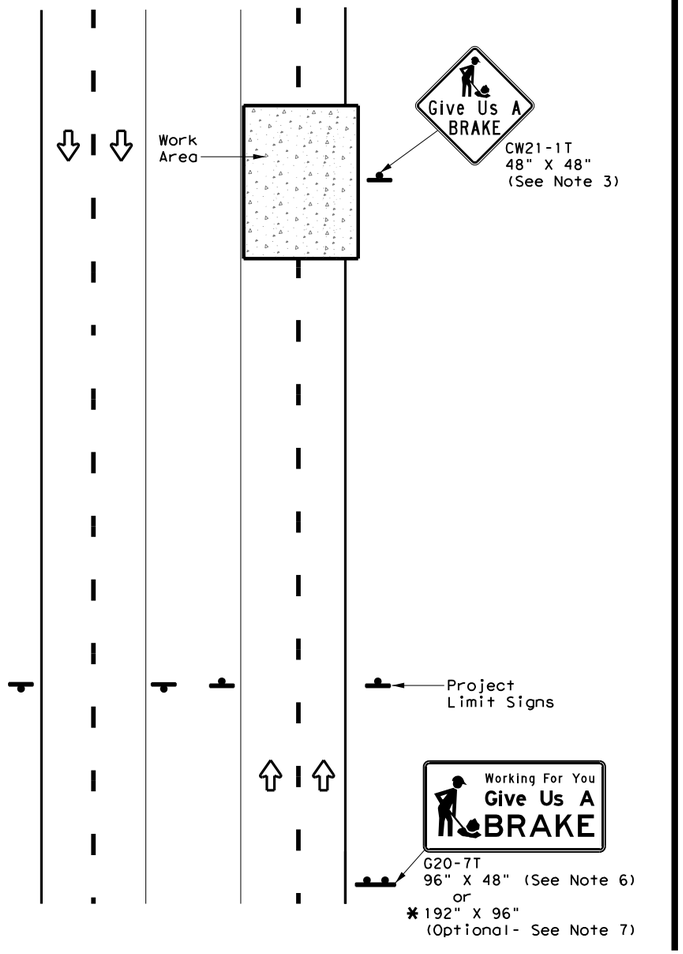
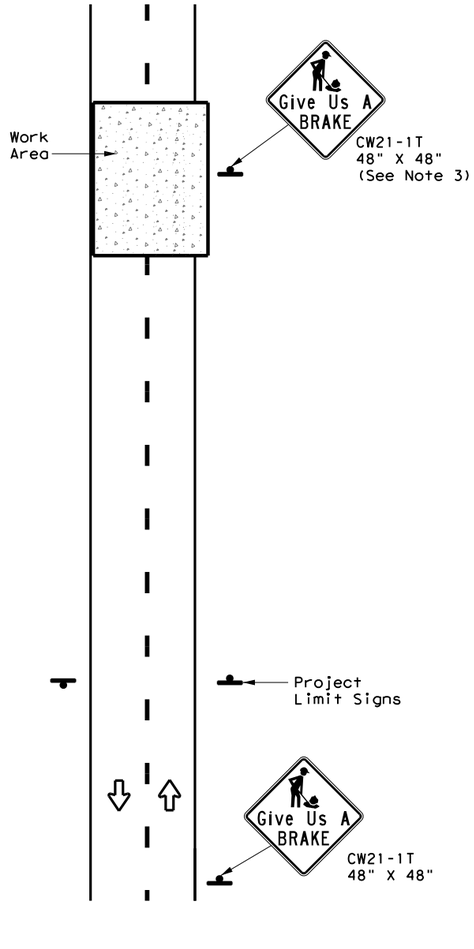


DIVIDED HIGHWAY



UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

* When the optional larger WORKING FOR YOU GIVE US A BRAKE (G20-7T) 192" x 96" sign is required, the locations shall be noted elsewhere in the plans.

SUMMARY OF LARGE SIGNS

BACKGROUND COLOR	SIGN DESIGNATION	SIGN	SIGN DIMENSIONS	REFLECTIVE SHEETING	SQ FT	GALVANIZED STRUCTURAL STEEL			DRILLED SHAFT 24" DIA. (LF)
						Size	(LF) ①	(LF) ②	
Orange	G20-7T	Working For You Give Us A BRAKE	96" X 48"	Type B_{FL} or C_{FL}	32	▲	▲	▲	▲
Orange	G20-7T	Working For You Give Us A BRAKE	192" X 96"	Type B_{FL} or C_{FL}	128	W8x18	16	17	12

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PLYWOOD SIGN BLANKS	DMS-7100
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
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.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

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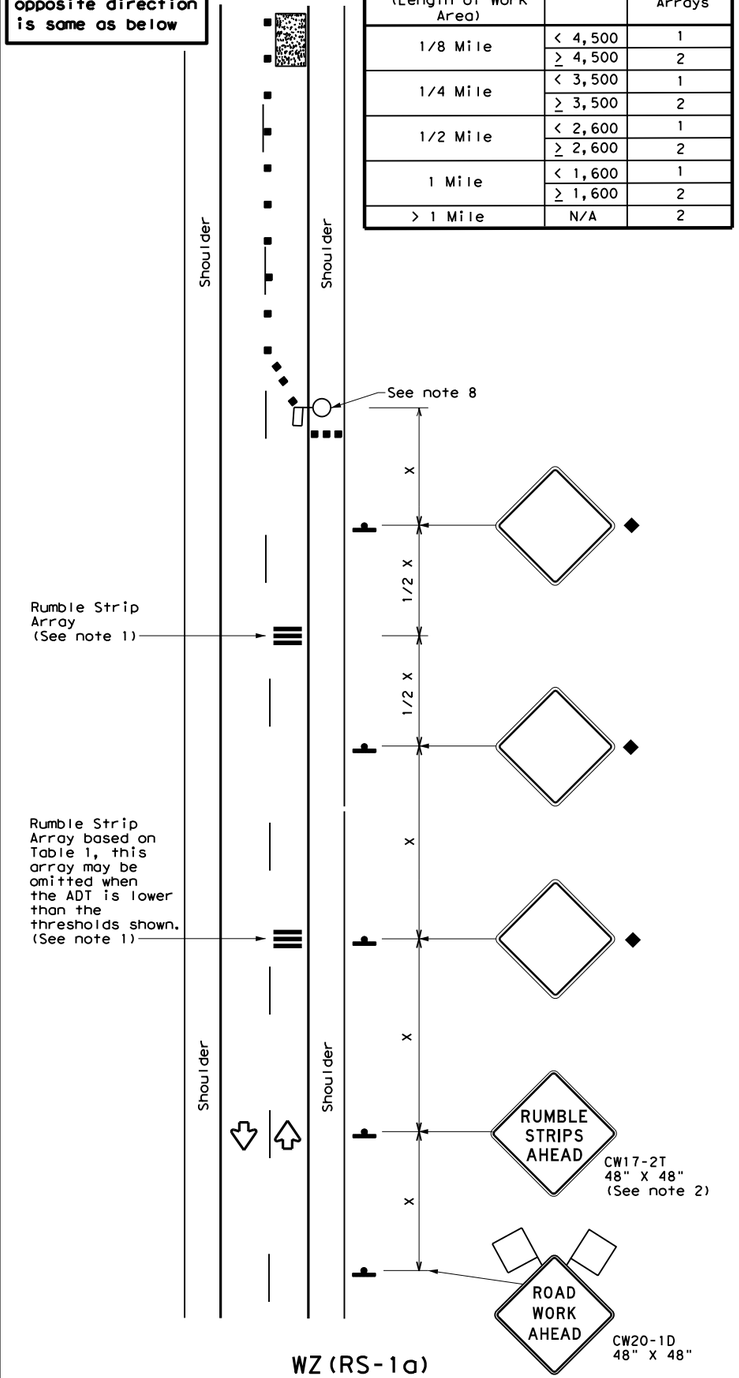
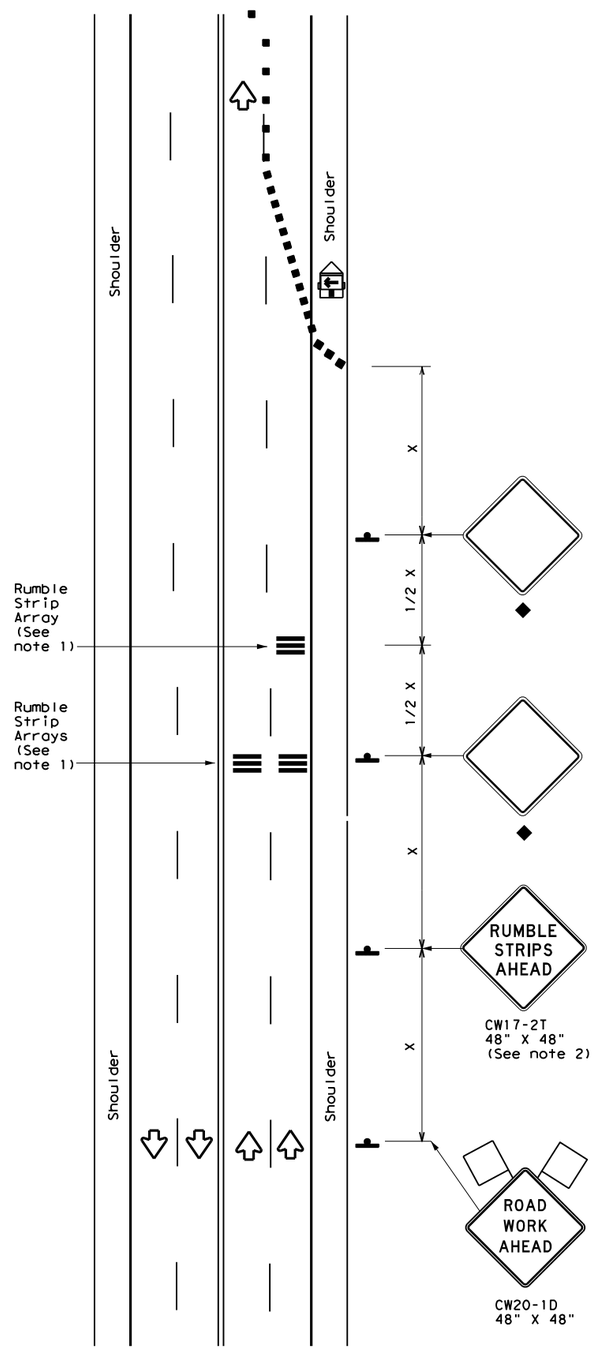
Warning sign and rumble strip sequence in opposite direction is same as below



WZ(RS-1a)
75 mph or Less

RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION

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-1b)
75 mph or Less

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. Removal of the Temporary Rumble Strips should be accomplished before removing the advance 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 AFAD or a portable traffic signal.
9. Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment.

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"
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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.**

TABLE 2	
Speed	Approximate distance between strips in an Array
≤ 40 MPH	10'
> 40 MPH & ≤ 55 MPH	15'
> 55 MPH	20'

Texas Department of Transportation

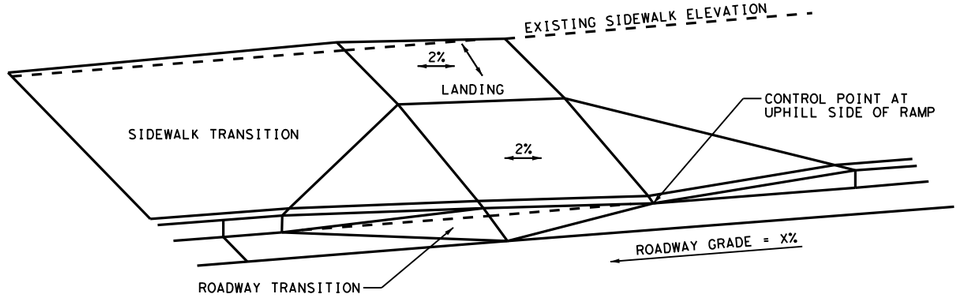
Traffic Operations Division Standard

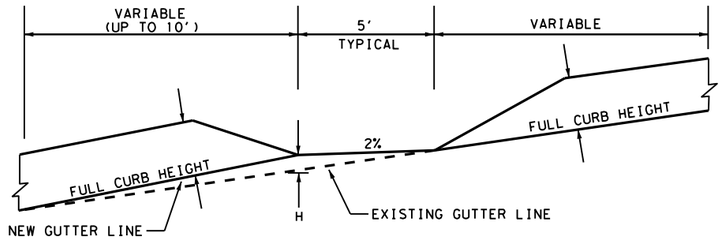
TEMPORARY RUMBLE STRIPS

WZ(RS)-16

FILE: 48	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2012	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
2-14	DIST	COUNTY		SHEET NO.
4-16	AUS	VARIES		48

ROADWAY TRANSITION





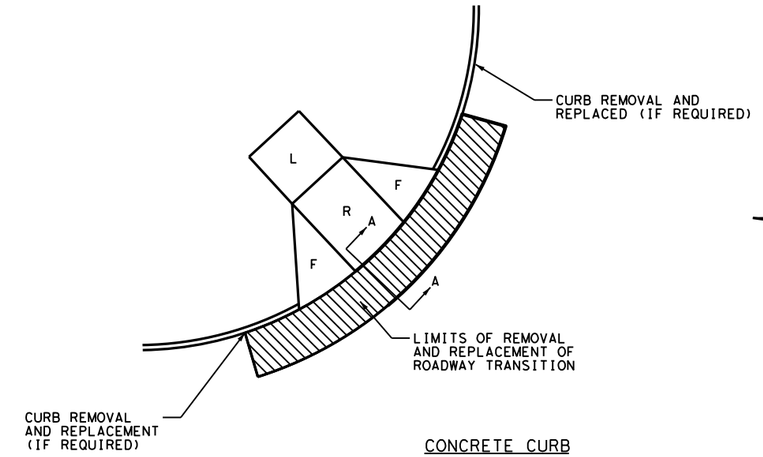
CURB ELEVATION
N.T.S.

GRADE DIFFERENTIAL BETWEEN CURB RAMP CROSS SLOPE AND ROADWAY GRADE	*H
1%	0.04' (1/2")
2%	0.08' (1")
3%	0.12' (1 1/2")
4%	0.16' (2")
5%	0.20' (2 1/2")

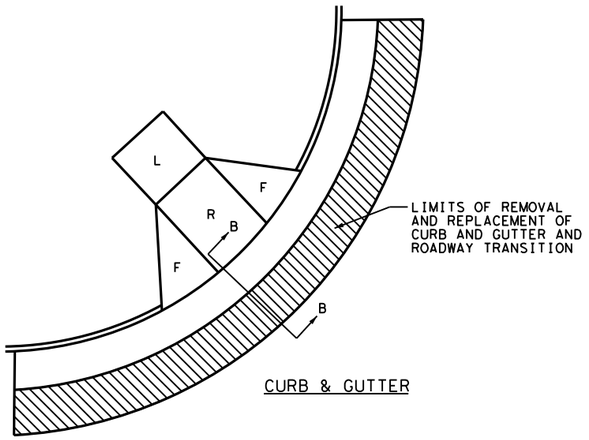
*H = DIFFERENCE IN ELEVATION BETWEEN THE NEW GUTTER LINE AND EXISTING GUTTER LINE

NOTES:

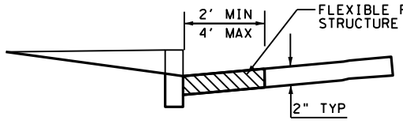
1. UTILIZE ROADWAY TRANSITION TO TIE CROSS SLOPE OF NEWLY CONSTRUCTED CURB RAMP TO THE EXISTING ROADWAY GRADE. ROADWAY TRANSITIONS SHOULD NOT EXTEND MORE THAN 4 FEET INTO ROADWAY.
2. FOR CURB SECTION, REMOVE A 2 FOOT WIDE (MIN.) BY 2 INCH DEEP SECTION OF PAVEMENT THE LENGTH OF THE TRANSITION PRIOR TO CONSTRUCTION.
3. FOR CURB AND GUTTER SECTION, REMOVE CURB, GUTTER AND IF NECESSARY A SECTION OF PAVEMENT (24 INCHES MIN.) BEYOND THE GUTTER BY 6 INCHES DEEP. CONSTRUCT TRANSITION IN THE GUTTER SECTION AS SHOWN.
4. CONSTRUCT FULL HEIGHT CURB AND CURB RAMP FLARES (IF REQUIRED) BASED ON NEW GUTTER LINE ELEVATIONS.
5. CONSTRUCT TRANSITION FROM BOTTOM OF CURB RAMP TO ROADWAY WITH HOT-MIX ASPHALT CONCRETE AS PER PLANS AND SPECIFICATION OR AS DIRECTED.
6. TRAFFIC SIGNAL LOOP DETECTORS MAY EXIST WITHIN THE ROADWAY CONSTRUCTION TRANSITION ZONE. MAINTAIN OPERATION OF LOOP DETECTORS THROUGHOUT CONSTRUCTION. REPAIR OR REPLACE ANY LOOP DETECTORS DAMAGED DURING CONSTRUCTION OPERATIONS.



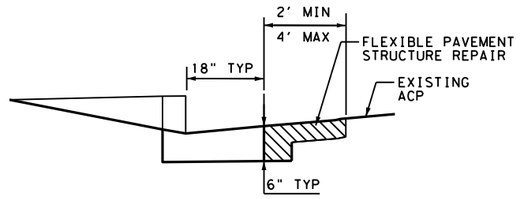
CONCRETE CURB



CURB & GUTTER



SECTION A-A



SECTION B-B

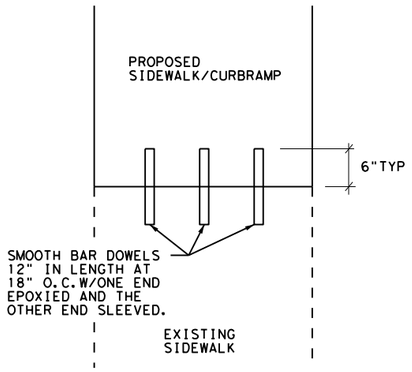
Texas Department of Transportation

ROADWAY TRANSITION DETAIL

SHEET 1 OF 1

© TxDOT May 2010	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		49

FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\01*RWS*ROADWAY TRANSITION.dgn
DATE: 1/18/2022 3:39:52 PM

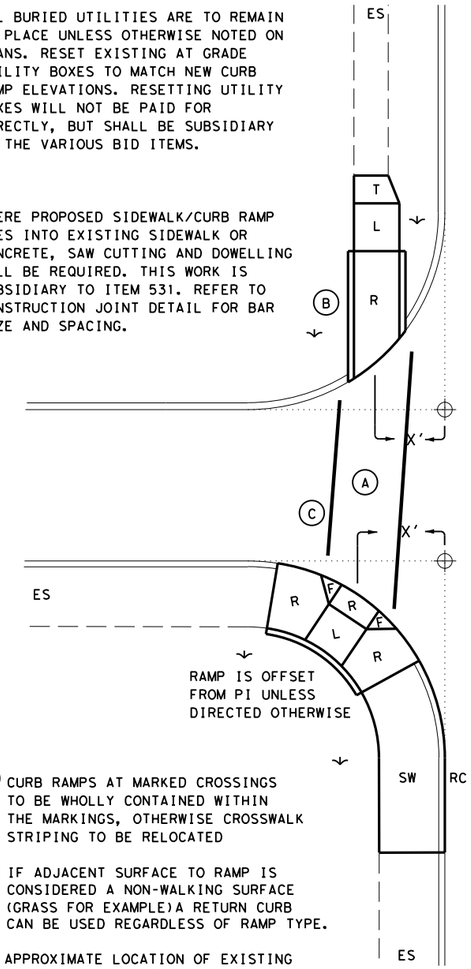


CONSTRUCTION JOINT

NOTES

1. ALL BURIED UTILITIES ARE TO REMAIN IN PLACE UNLESS OTHERWISE NOTED ON PLANS. RESET EXISTING AT GRADE UTILITY BOXES TO MATCH NEW CURB RAMP ELEVATIONS. RESETTING UTILITY BOXES WILL NOT BE PAID FOR DIRECTLY, BUT SHALL BE SUBSIDIARY TO THE VARIOUS BID ITEMS.

2. WHERE PROPOSED SIDEWALK/CURB RAMP TIES INTO EXISTING SIDEWALK OR CONCRETE, SAW CUTTING AND DOWELLING WILL BE REQUIRED. THIS WORK IS SUBSIDIARY TO ITEM 531. REFER TO CONSTRUCTION JOINT DETAIL FOR BAR SIZE AND SPACING.

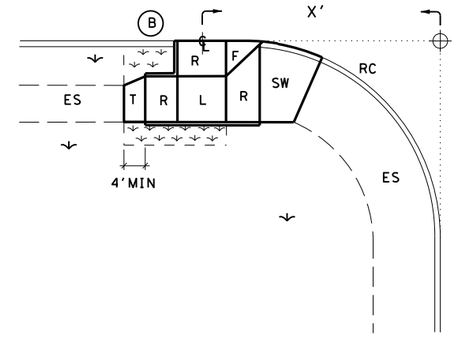


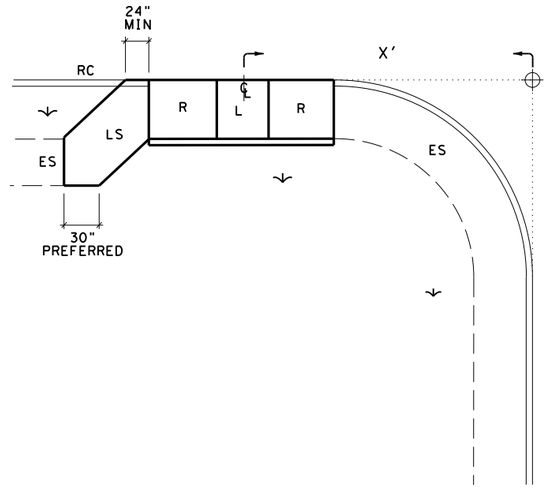
(A) CURB RAMPS AT MARKED CROSSINGS TO BE WHOLLY CONTAINED WITHIN THE MARKINGS, OTHERWISE CROSSWALK STRIPING TO BE RELOCATED

(B) IF ADJACENT SURFACE TO RAMP IS CONSIDERED A NON-WALKING SURFACE (GRASS FOR EXAMPLE) A RETURN CURB CAN BE USED REGARDLESS OF RAMP TYPE.

(C) APPROXIMATE LOCATION OF EXISTING CROSSWALK MARKINGS.

NOTE: BLOCK SOD PLACED ADJACENT TO RAMP AND/OR SIDEWALK WORK LIMITS AS REQUIRED TO RETURN SITE TO PRE-CONSTRUCTION CONDITION





SAMPLE CURB RAMP PLACEMENT
(HORIZONTAL CONTROL)

LEGEND

F = FLARE (10:1 OR LESS)

R = RAMP (CROSS SLOPE NOT TO EXCEED 2%: LONGITUDINAL NOT TO EXCEED 8.33% OR 12:1)

L = LANDING (NOT TO EXCEED 2% SLOPE IN ANY DIRECTION)

T = TRANSITION (PAID FOR UNDER CONC SIDEWALK)

RC = REPLACE CURB/CURB & GUTTER

ES = SIDEWALK (EXISTING)

X' = LENGTH MEASURED FROM PI POINT (SEE INTERSECTION SHEETS FOR DIMENSION)

SW = SIDEWALK (NOT EXCEED 2% CROSS SLOPE)

LS = LEVEL SIDEWALK (NOT EXCEED 2% SLOPE IN ANY DIRECTION)

⊕ = PI POINT MEASURED FROM TANGENTIAL CURBLINE INTERSECTION

↜ = EXISTING TURF

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

SPECIAL DETAILS
N. T. S.

SHEET 1 OF 1

REVISIONS

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

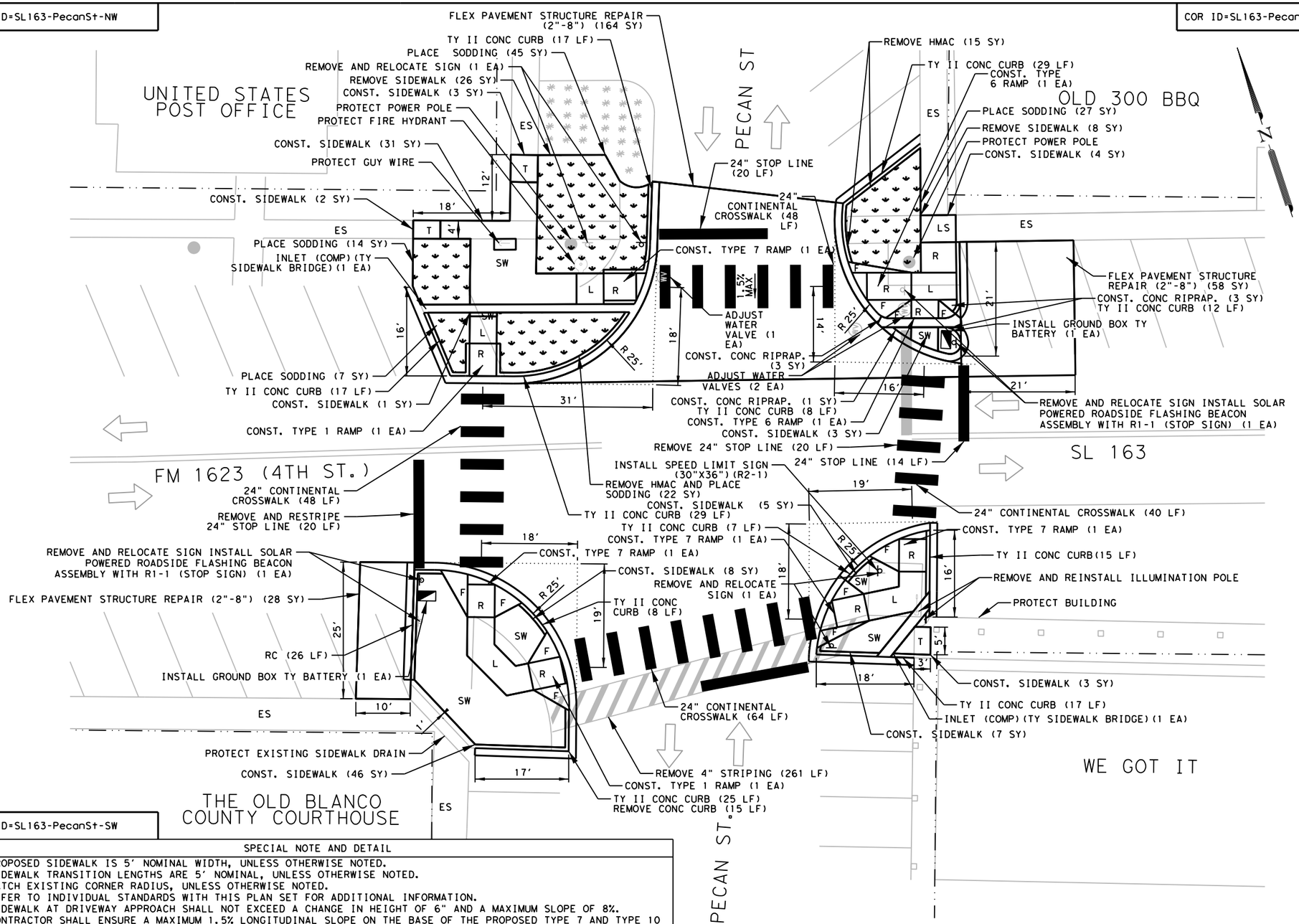
CONT	SECT	JOB	HIGHWAY
0914	00	457	VA

DIST	COUNTY	SHEET NO.
AUS	VARIES	50

FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\02+RWS+ROADWAY TRANSITION.dgn
DATE: 1/18/2022 3:39:53 PM

COR ID=SL163-PecanSt-NW

COR ID=SL163-PecanSt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	34
104	6021	REMOVING CONC (CURB)	LF	41
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	37
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	115
162	6002	BLOCK SODDING	SY	115
168	6001	VEGETATIVE WATERING	MG	6.9
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	250
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
465	6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	2
479	6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	3
529	6002	CONC CURB (TY II)	LF	184
531	6002	CONC SIDEWALKS (5")	SY	113
531	6004	CURB RAMPS (TY 1)	EA	2
531	6009	CURB RAMPS (TY 6)	EA	2
531	6010	CURB RAMPS (TY 7)	EA	4
618	6016	CONDT (PVC) (SCH 40) (1")	LF	25
624	6005	GROUND BOX TY BATTERY (162915)	EA	2
636	6001	ALUMINUM SIGNS (TY A)	SF	8
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	4
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	254
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	261
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	40
682	6005	VEH SIG SEC (12 IN) LED (RED)	EA	2
684	6031	TRF SIG CBL (TY A)(14 AWG)(5 CONDR)	LF	75
685	6004	INSTL RDSD FLSH BCN ASSM (SOLAR PWRD	EA	2

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10′ 20′

SCALE: 1" = 20′

COR ID=SL163-PecanSt-SW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5′ NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5′ NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) NE CORNER: CONCRETE RIPRAP BETWEEN THE SOUTHBOUND RAMP AND STOP SIGN CURB ISLAND SHALL HAVE 2% MAX CROSS SLOPE TO CONVEY VALLEY GUTTER DRAINAGE.
8) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
9) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
10) CONTRACTOR MUST PREVENT DAMAGE TO HISTORIC STRUCTURE, MATERIALS, FENCES, RETAINING WALLS, INCLUDING GARDEN ELEMENTS (PLANTING BEDS, PLANTINGS) DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAW CUT AND HAND REMOVAL PROCESS, CONTRACTOR SHALL EXERCISE UTMOST CAUTION AND SHALL PHYSICALLY PROTECT HISTORIC STRUCTURE FOUNDATION, MATERIALS, ELEVATIONS, ENTRYWAYS WITH DECORATIVE FLOORING, FENCES, RETAINING WALLS, AND LANDSCAPE ELEMENTS. WHEN POURING CONCRETE FOR REPAIR OR NEW INSTALL, CONTRACTOR SHALL PREVENT SPLASHBACK OF CONCRETE ONTO HISTORIC RESOURCE.
11) CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT HIS OWN EXPENSE, ANY HISTORIC MATERIALS DAMAGED IN THE COURSE OF EXECUTING THE WORK. CONTRACTOR SHALL LOCATE REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. TXDOT-ENVIRONMENTAL AFFAIRS DIVISION SHALL BE INFORMED OF PROPOSED REPAIRS TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION PRIOR TO EXECUTION OF REPAIR WORK.

COR ID=SL163-PecanSt-SE

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
= EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	= WATER VALVE
= NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	= GAS VALVE
= TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	= ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	= GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	= WATER METER

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
3/22/2022

Texas Department of Transportation

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Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

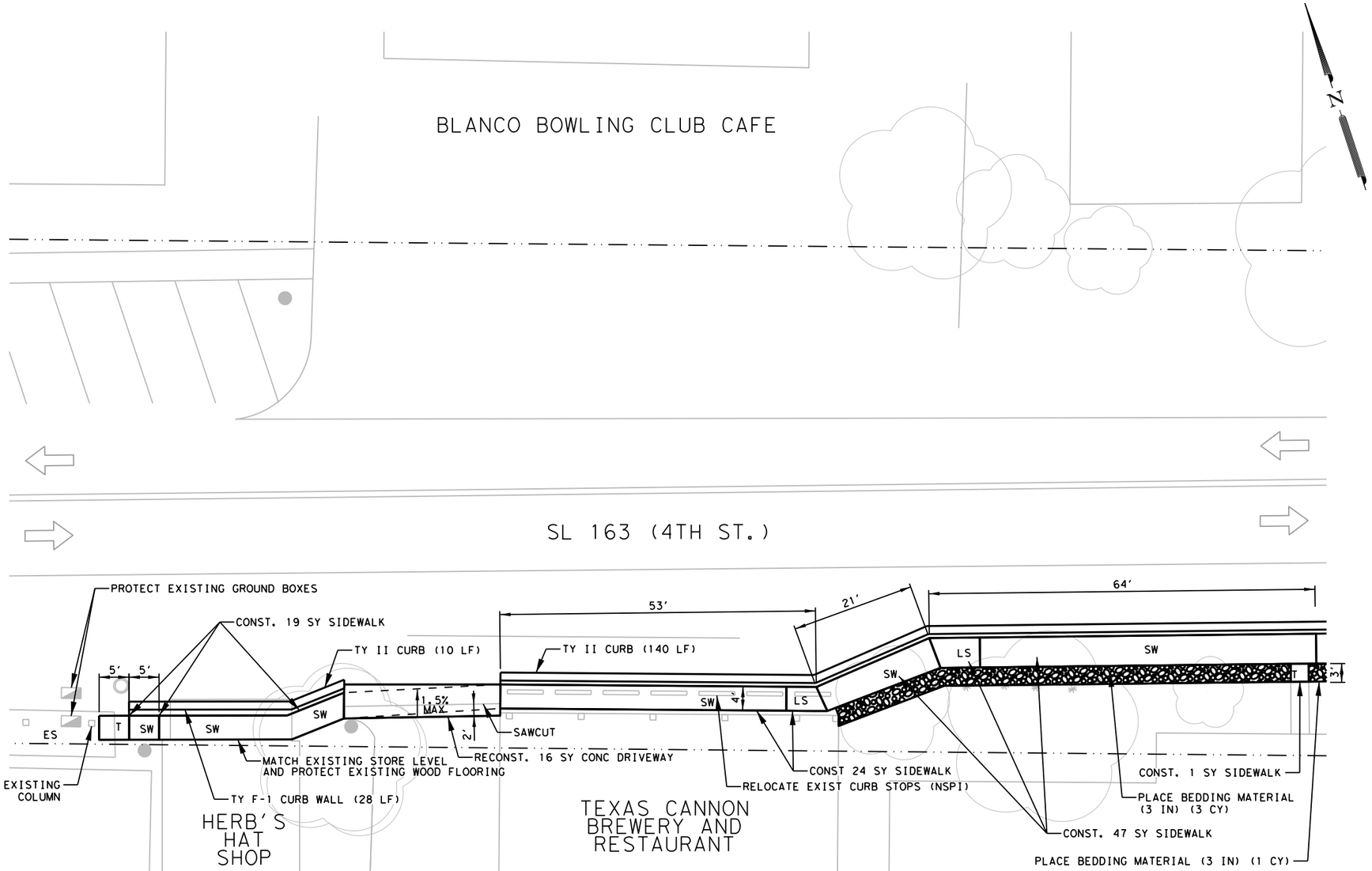
SL163 AT PECAN STREET BLANCO, TX

SHEET 1 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		51
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 3/22/2022 6:37:00 PM
FILE: L:\2018\8208002 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\02 SL163 Blanco (Blanco County)\001_SL163_at_Blanco.dgn

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	6
432	6038	BEDDING MATERIAL (3 IN)	CY	4
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	83
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	83
529	6002	CONC CURB (TY II)	LF	150
529	6016	CONC CURB (TY F1)	LF	28
530	6004	DRIVEWAYS (CONC)	SY	16
531	6002	CONC SIDEWALKS (5")	SY	91



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) BEDDING MATERIAL MUST MEET GRADATION REQUIREMENTS FOR ITEM 432 ON TABLE 3 OF STANDARD TXDOT SPECIFICATIONS.
8) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
9) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
10) CONTRACTOR MUST PREVENT DAMAGE TO HISTORIC STRUCTURE, MATERIALS, FENCES, RETAINING WALLS, INCLUDING GARDEN ELEMENTS (PLANTING BEDS, PLANTINGS) DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAW CUT AND HAND REMOVAL PROCESS, CONTRACTOR SHALL EXERCISE UTMOST CAUTION AND SHALL PHYSICALLY PROTECT HISTORIC STRUCTURE FOUNDATION, MATERIALS, ELEVATIONS, ENTRYWAYS WITH DECORATIVE FLOORING, FENCES, RETAINING WALLS, AND LANDSCAPE ELEMENTS. WHEN POURING CONCRETE FOR REPAIR OR NEW INSTALL, CONTRACTOR SHALL PREVENT SPLASHBACK OF CONCRETE ONTO HISTORIC RESOURCE.
11) CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT HIS OWN EXPENSE, ANY HISTORIC MATERIALS DAMAGED IN THE COURSE OF EXECUTING THE WORK. CONTRACTOR SHALL LOCATE REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. TXDOT-ENVIRONMENTAL AFFAIRS DIVISION SHALL BE INFORMED OF PROPOSED REPAIRS TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION PRIOR TO EXECUTION OF REPAIR WORK.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

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SL163 MIDBLOCK BETWEEN PECAN ST AND LIVE OAK ST BLANCO, TX

SHEET 2 OF 5

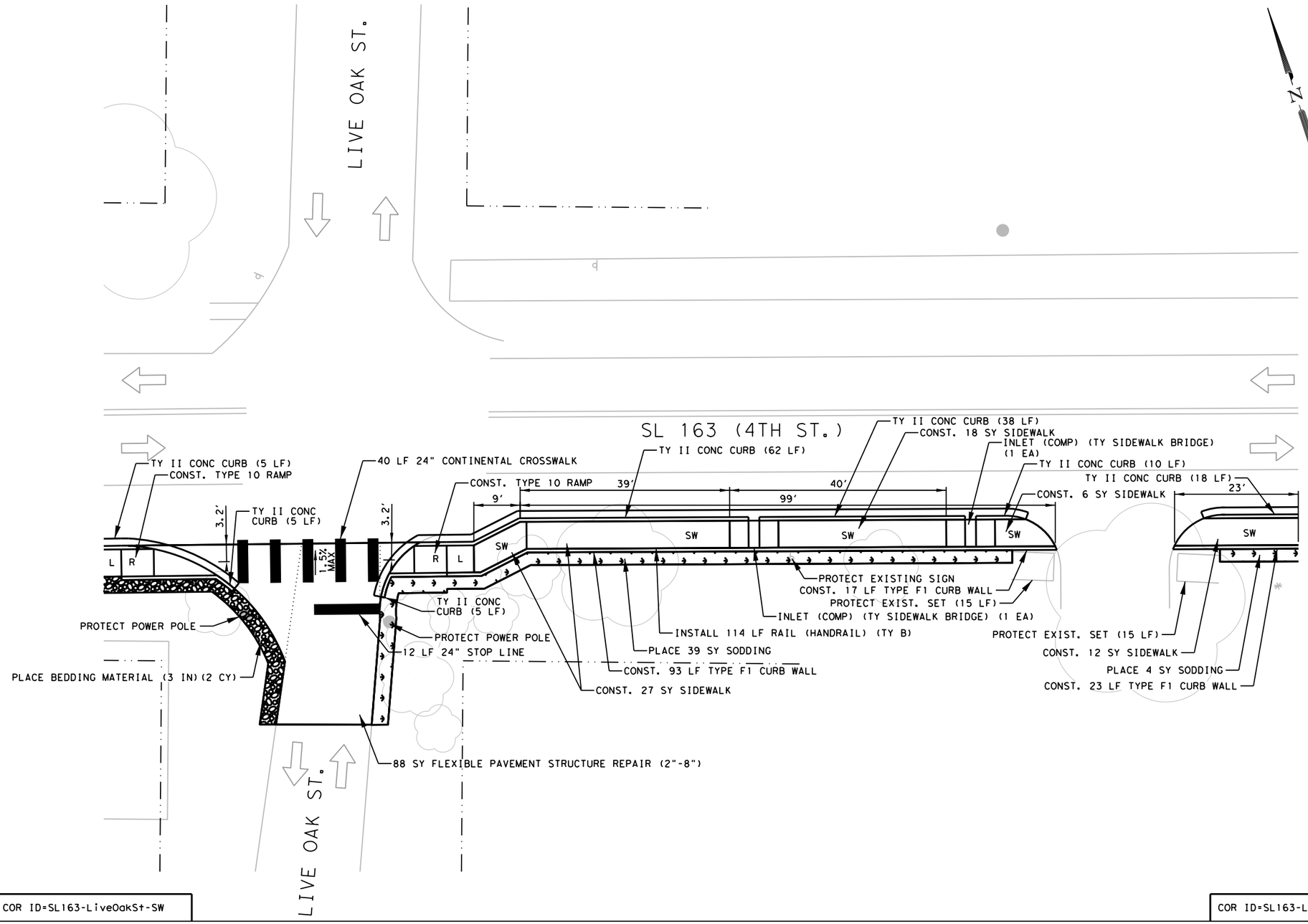
FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		52
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 1/18/2022 3:39:56 PM
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\02 SL163 Blanco (Blanco County)\002_SL163_at_Blanco.dgn

COR ID=SL163-LiveOakSt-NW

COR ID=SL163-LiveOakSt-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	43
162	6002	BLOCK SODDING	SY	43
168	6001	VEGETATIVE WATERING	MG	2.6
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	88
432	6038	BEDDING MATERIAL (3 IN)	CY	2
450	6048	RAIL (HANDRAIL)(TY B)	LF	114
465	6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	2
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	157
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	157
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	30
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	30
529	6002	CONC CURB (TY II)	LF	143
529	6016	CONC CURB (TY F1)	LF	133
531	6002	CONC SIDEWALKS (5")	SY	63
531	6013	CURB RAMPS (TY 10)	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	52



COR ID=SL163-LiveOakSt-SW

COR ID=SL163-LiveOakSt-SE

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/25/2022

Texas Department of Transportation

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SL163 AT LIVE OAK STREET BLANCO, TX

SHEET 3 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		53
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) BEDDING MATERIAL MUST MEET GRADATION REQUIREMENTS FOR ITEM 432 ON TABLE 3 OF STANDARD TXDOT SPECIFICATIONS.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
EP = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	WV = WATER VALVE
P = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	GV = GAS VALVE
T = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

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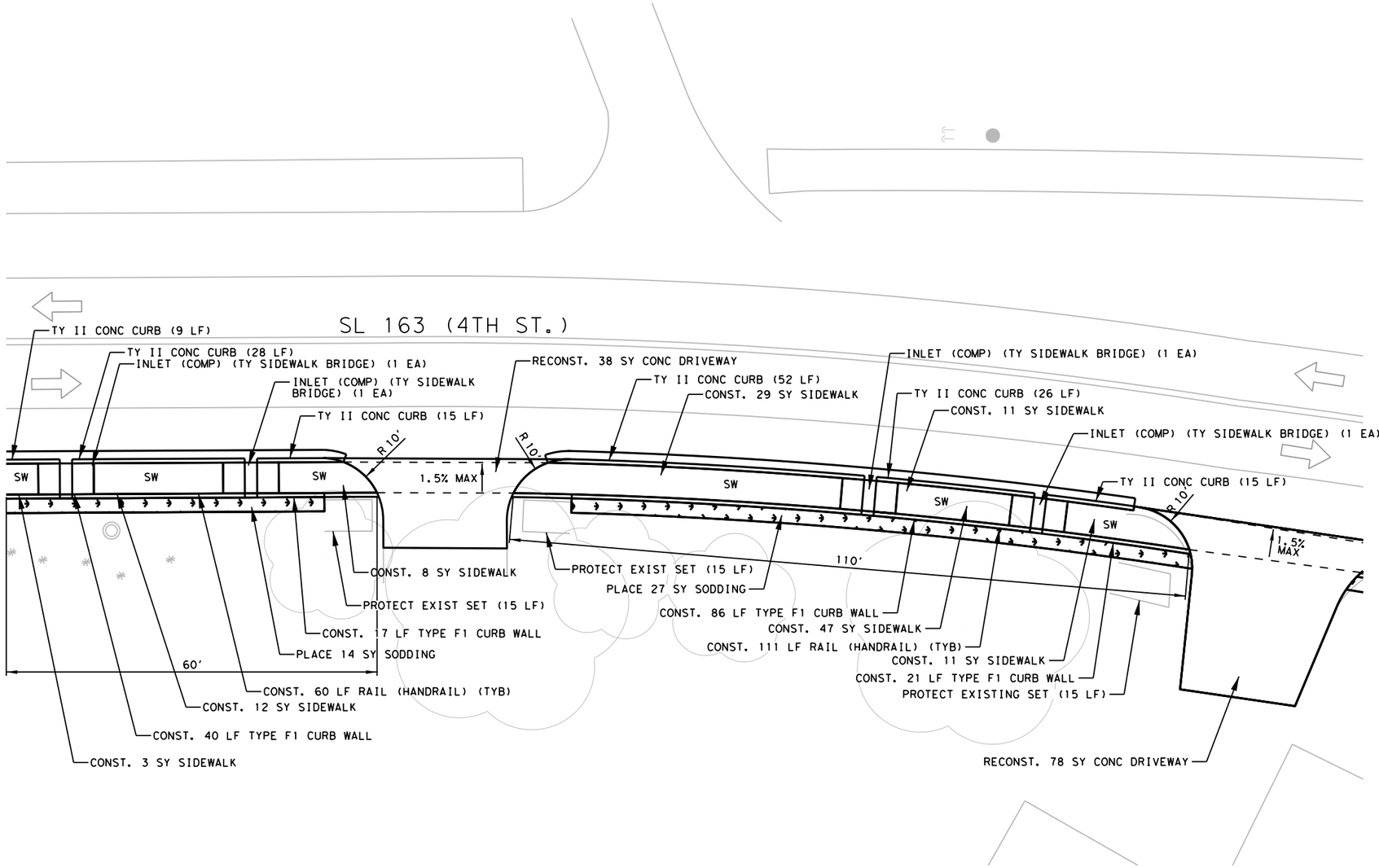
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	41
162	6002	BLOCK SODDING	SY	41
168	6001	VEGETATIVE WATERING	MG	2.5
450	6048	RAIL (HANDRAIL)(TY B)	LF	171
465	6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	4
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	154
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	154
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	45
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	45
529	6002	CONC CURB (TY II)	LF	145
529	6016	CONC CURB (TY F1)	LF	164
530	6004	DRIVEWAYS (CONC)	SY	116
531	6002	CONC SIDEWALKS (5")	SY	74



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED
PROFESSIONAL ENGINEER
1/25/2022

Texas Department of Transportation

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SL163 MIDBLOCK BETWEEN LIVE OAK ST AND P23 BLANCO, TX

SHEET 4 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		54
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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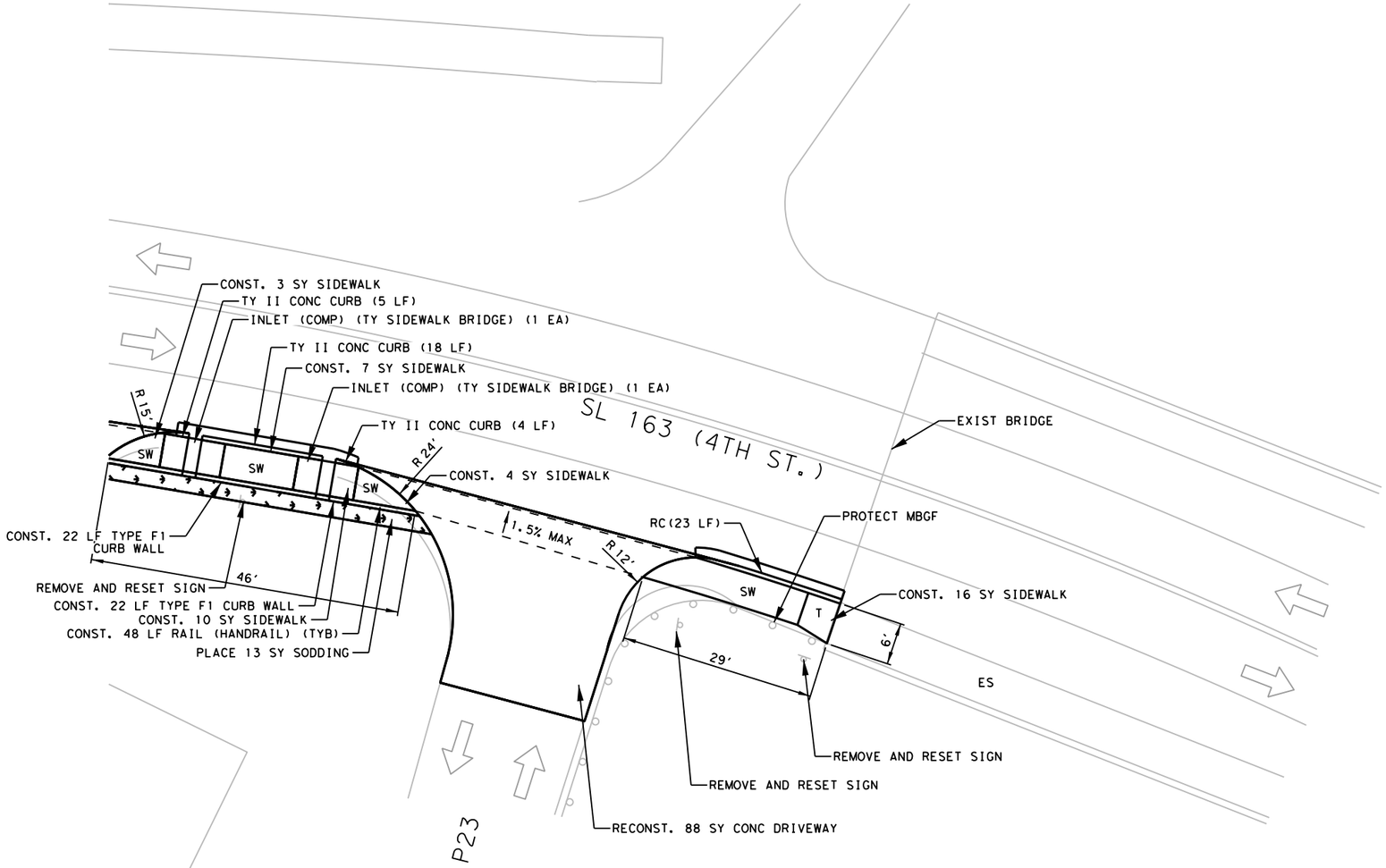
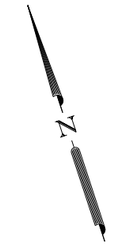
COR ID=SL163-P23-NW



COR ID=SL163-P23-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	88
104	6021	REMOVING CONC (CURB)	LF	23
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	13
162	6002	BLOCK SODDING	SY	13
168	6001	VEGETATIVE WATERING	MG	0.8
450	6048	RAIL (HANDRAIL)(TY B)	LF	48
465	6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	2
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	49
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	49
529	6002	CONC CURB (TY II)	LF	50
529	6016	CONC CURB (TY F1)	LF	44
530	6004	DRIVEWAYS (CONC)	SY	88
531	6002	CONC SIDEWALKS (5")	SY	30
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER

1/25/2022

Texas Department of Transportation

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SL163 AT P23 BLANCO, TX

SHEET 5 OF 5

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		55
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SL163-P23-SW

COR ID=SL163-P23-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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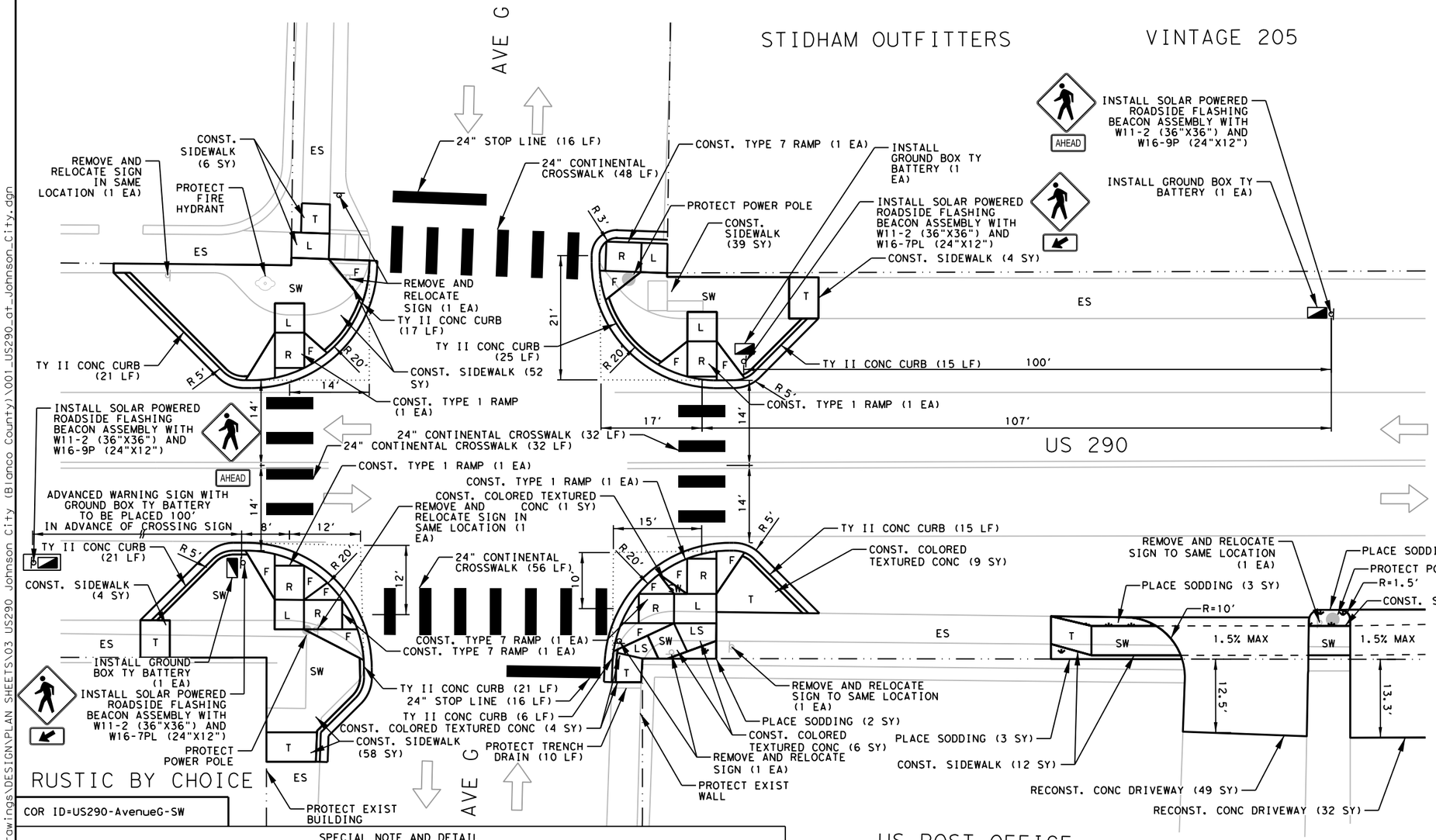
COR ID=US290-AvenueG-NW

COR ID=US290-AvenueG-NE

COR ID=US290-AvenueG-SW

COR ID=US290-AvenueG-SE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	81
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	10
162	6002	BLOCK SODDING	SY	10
168	6001	VEGETATIVE WATERING	MG	0.6
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	59
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	59
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	10
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	10
528	6002	COLORED TEXTURED CONC (6")	SY	20
529	6002	CONC CURB (TY II)	LF	141
530	6004	DRIVEWAYS (CONC)	SY	81
531	6002	CONC SIDEWALKS (5")	SY	179
531	6004	CURB RAMPS (TY 1)	EA	4
531	6010	CURB RAMPS (TY 7)	EA	3
618	6016	CONDT (PVC) (SCH 40) (1")	LF	50
624	6005	GROUND BOX TY BATTERY (162915)	EA	4
636	6001	ALUMINUM SIGNS (TY A)	SF	44
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	6
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	200
682	6003	VEH SIG SEC (12")LED(YEL)	EA	8
684	6031	TRF SIG CBL (TY A)(14 AWG)(5 CONDR)	LF	150
685	6004	INSTL RDSD FLSH BCN ASSM (SOLAR PWRD)	EA	4

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SCALE: 1" = 20'

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) SE CORNER: CONTRACTOR SHALL LIMIT REMOVAL OF EXISTING LIMESTONE PAVERS TO ONLY THOSE REQUIRED TO RECONSTRUCT THIS CORNER AS SHOWN. CONTRACTOR SHALL ENSURE THE COLOR OF THE RAMPS MATCH WITH THE COLORED TEXTURED CONCRETE SIDEWALK. UTILIZE CAST IRON DETECTABLE WARNINGS AT RAMPS. PRIOR TO CONSTRUTCTION CONTRACTOR SHALL PROVIDE A 3'X3' CONCRETE SAMPLE TO THE ENGINEER TO ENSURE THE CONCRETE MATCHES THE TONE AND COLOR OF SURROUNDING PAVERS.
8) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
9) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
10) CONTRACTOR MUST PREVENT DAMAGE TO HISTORIC STRUCTURE, MATERIALS, FENCES, RETAINING WALLS, INCLUDING GARDEN ELEMENTS (PLANTING BEDS, PLANTINGS) DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAW CUT AND HAND REMOVAL PROCESS, CONTRACTOR SHALL EXERCISE UTMOST CAUTION AND SHALL PHYSICALLY PROTECT HISTORIC STRUCTURE FOUNDATION, MATERIALS, ELEVATIONS, ENTRYWAYS WITH DECORATIVE FLOORING, FENCES, RETAINING WALLS, AND LANDSCAPE ELEMENTS. WHEN POURING CONCRETE FOR REPAIR OR NEW INSTALL, CONTRACTOR SHALL PREVENT SPLASHBACK OF CONCRETE ONTO HISTORIC RESOURCE.
11) CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT HIS OWN EXPENSE, ANY HISTORIC MATERIALS DAMAGED IN THE COURSE OF EXECUTING THE WORK. CONTRACTOR SHALL LOCATE REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. TXDOT-ENVIRONMENTAL AFFAIRS DIVISION SHALL BE INFORMED OF PROPOSED REPAIRS TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION PRIOR TO EXECUTION OF REPAIR WORK.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
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T = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

US290 AT AVENUE G JOHNSON CITY, TX

SHEET 1 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		56
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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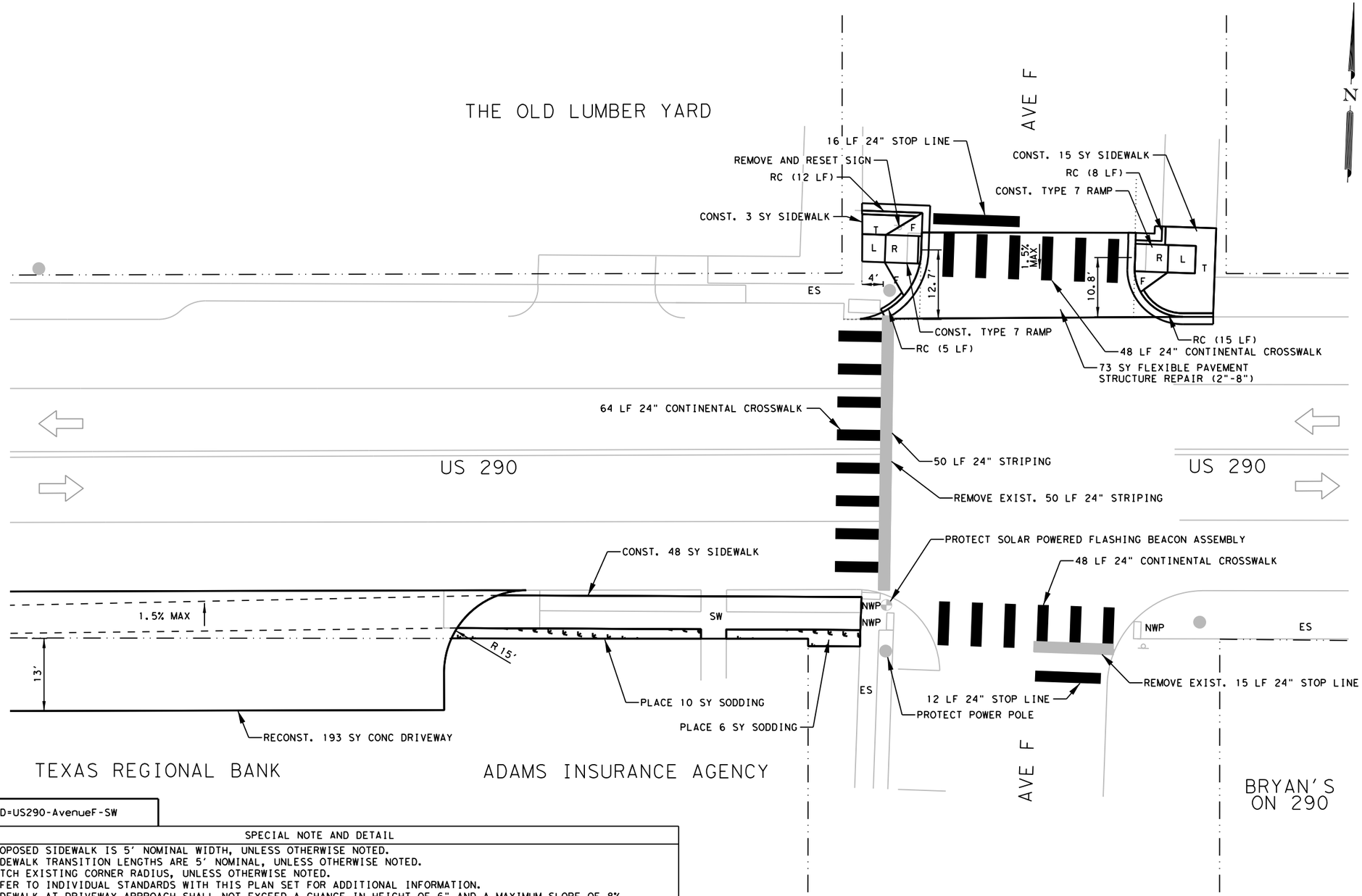
COR ID=US290-AvenueF-NW

COR ID=US290-AvenueF-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	193
104	6021	REMOVING CONC (CURB)	LF	40
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	16
162	6002	BLOCK SODDING	SY	16
168	6001	VEGETATIVE WATERING	MG	1.0
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	73
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	72
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	72
529	6002	CONC CURB (TY II)	LF	40
530	6004	DRIVEWAYS (CONC)	SY	193
531	6002	CONC SIDEWALKS (5")	SY	66
531	6010	CURB RAMPS (TY 7)	EA	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	234
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	15

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

COR ID=US290-AvenueF-SW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
8) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
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COR ID=US290-AvenueF-SE

LEGEND

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PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
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(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
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= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

US290 AT AVENUE F JOHNSON CITY, TX

SHEET 2 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		57
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 1/18/2022 3:40:03 PM
FILE: L:\2018\1820802 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\03 US290 Johnson City (Blanco County)\002_US290_at_Johnson_City.dgn

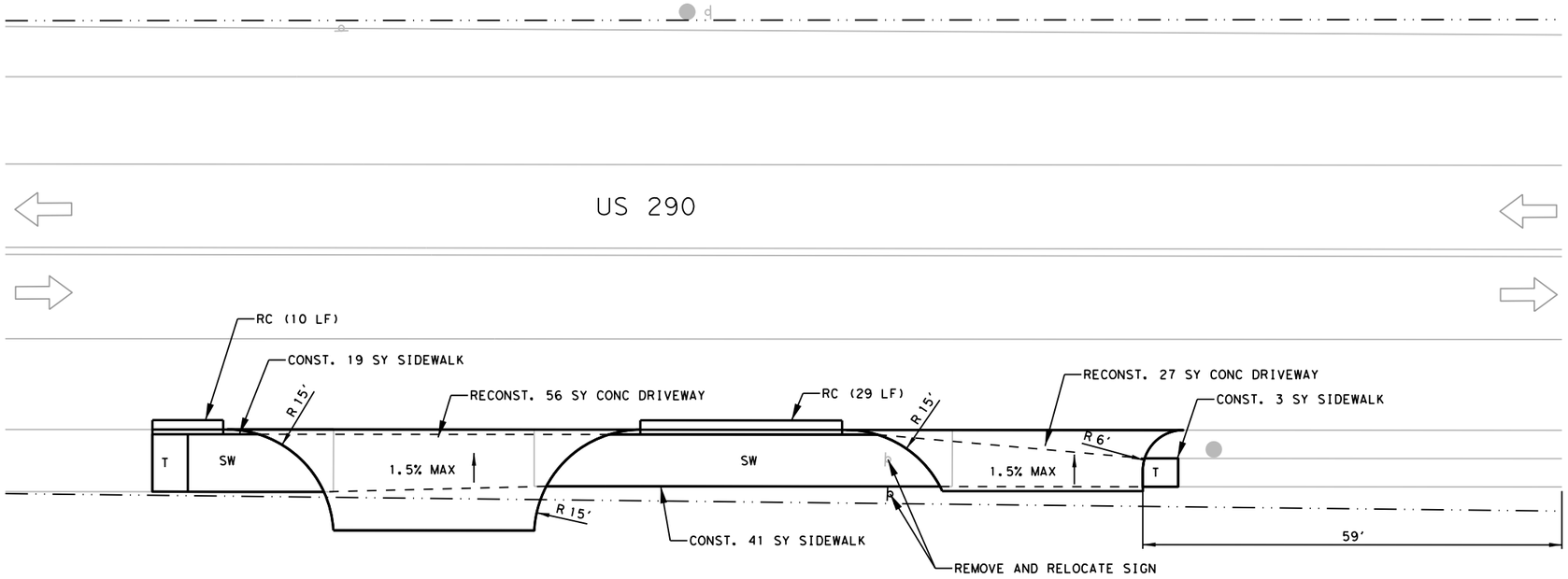
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	83
104	6021	REMOVING CONC (CURB)	LF	39
529	6002	CONC CURB (TY II)	LF	39
530	6004	DRIVEWAYS (CONC)	SY	83
531	6002	CONC SIDEWALKS (5")	SY	63
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1

N

FIRST BAPTIST CHURCH

LA TI DA DELUXE

US 290



BRYAN'S ON 290

THE NATURE CONSERVANCY

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
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7) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
8) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
9) CONTRACTOR MUST PREVENT DAMAGE TO HISTORIC STRUCTURE, MATERIALS, FENCES, RETAINING WALLS, INCLUDING GARDEN ELEMENTS (PLANTING BEDS, PLANTINGS) DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAW CUT AND HAND REMOVAL PROCESS, CONTRACTOR SHALL EXERCISE UTMOST CAUTION AND SHALL PHYSICALLY PROTECT HISTORIC STRUCTURE FOUNDATION, MATERIALS, ELEVATIONS, ENTRYWAYS WITH DECORATIVE FLOORING, FENCES, RETAINING WALLS, AND LANDSCAPE ELEMENTS. WHEN POURING CONCRETE FOR REPAIR OR NEW INSTALL, CONTRACTOR SHALL PREVENT SPLASHBACK OF CONCRETE ONTO HISTORIC RESOURCE.
10) CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT HIS OWN EXPENSE, ANY HISTORIC MATERIALS DAMAGED IN THE COURSE OF EXECUTING THE WORK. CONTRACTOR SHALL LOCATE REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. TXDOT-ENVIRONMENTAL AFFAIRS DIVISION SHALL BE INFORMED OF PROPOSED REPAIRS TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION PRIOR TO EXECUTION OF REPAIR WORK.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

US290 MIDBLOCK BETWEEN AVENUE F AND AVENUE E JOHNSON CITY, TX

SHEET 3 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		58
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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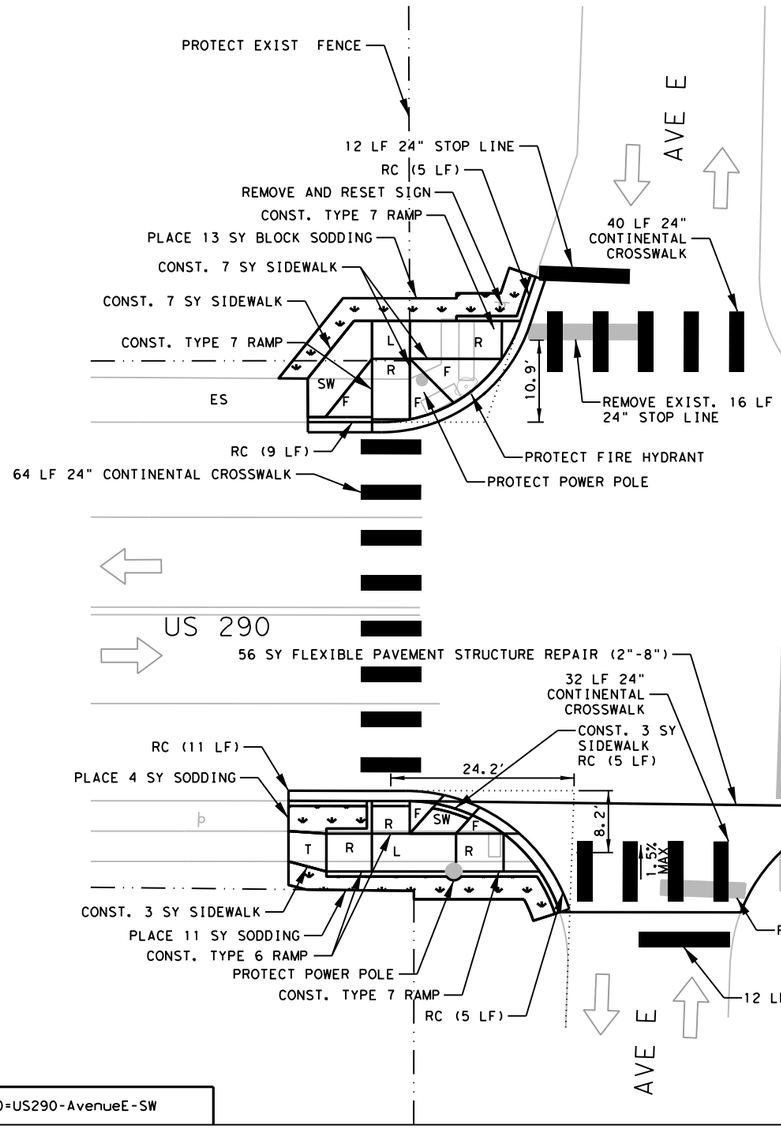
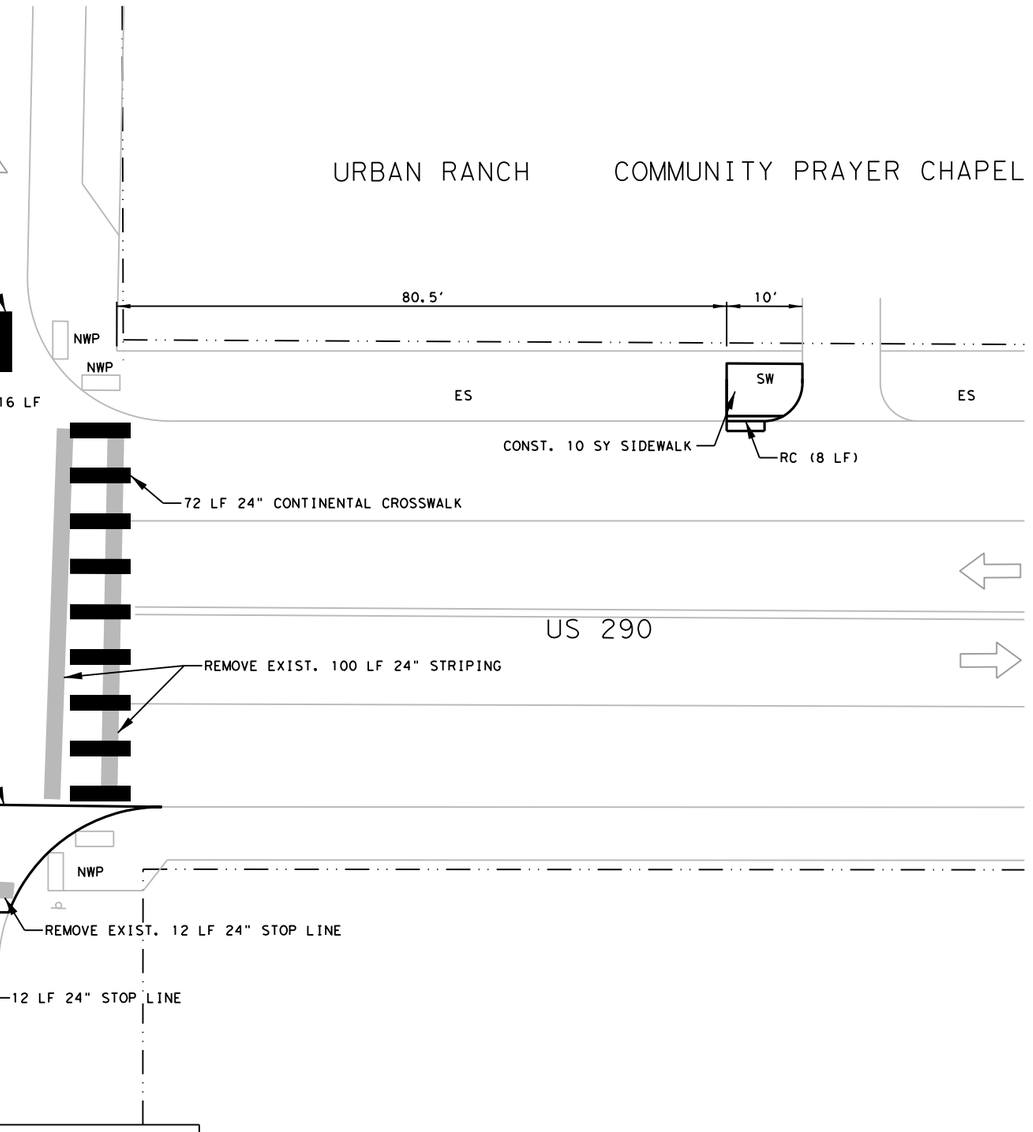


COR ID=US290-AvenueE-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	38
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	28
162	6002	BLOCK SODDING	SY	28
168	6001	VEGETATIVE WATERING	MG	1.7
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	56
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	62
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	62
529	6002	CONC CURB (TY II)	LF	38
531	6002	CONC SIDEWALKS (5")	SY	30
531	6009	CURB RAMPS (TY 6)	EA	1
531	6010	CURB RAMPS (TY 7)	EA	3
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	232
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	128

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

US290 AT AVENUE E JOHNSON CITY, TX

SHEET 4 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		59
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=US290-AvenueE-SW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
8) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
9) CONTRACTOR MUST PREVENT DAMAGE TO HISTORIC STRUCTURE, MATERIALS, FENCES, RETAINING WALLS, INCLUDING GARDEN ELEMENTS (PLANTING BEDS, PLANTINGS) DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAW CUT AND HAND REMOVAL PROCESS, CONTRACTOR SHALL EXERCISE UTMOST CAUTION AND SHALL PHYSICALLY PROTECT HISTORIC STRUCTURE FOUNDATION, MATERIALS, ELEVATIONS, ENTRYWAYS WITH DECORATIVE FLOORING, FENCES, RETAINING WALLS, AND LANDSCAPE ELEMENTS. WHEN POURING CONCRETE FOR REPAIR OR NEW INSTALL, CONTRACTOR SHALL PREVENT SPLASHBACK OF CONCRETE ONTO HISTORIC RESOURCE.
10) CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT HIS OWN EXPENSE, ANY HISTORIC MATERIALS DAMAGED IN THE COURSE OF EXECUTING THE WORK. CONTRACTOR SHALL LOCATE REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. TXDOT-ENVIRONMENTAL AFFAIRS DIVISION SHALL BE INFORMED OF PROPOSED REPAIRS TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION PRIOR TO EXECUTION OF REPAIR WORK.

MARY K HAGEMEIER GENERAL DENTISTRY

COR ID=US290-AvenueE-SE

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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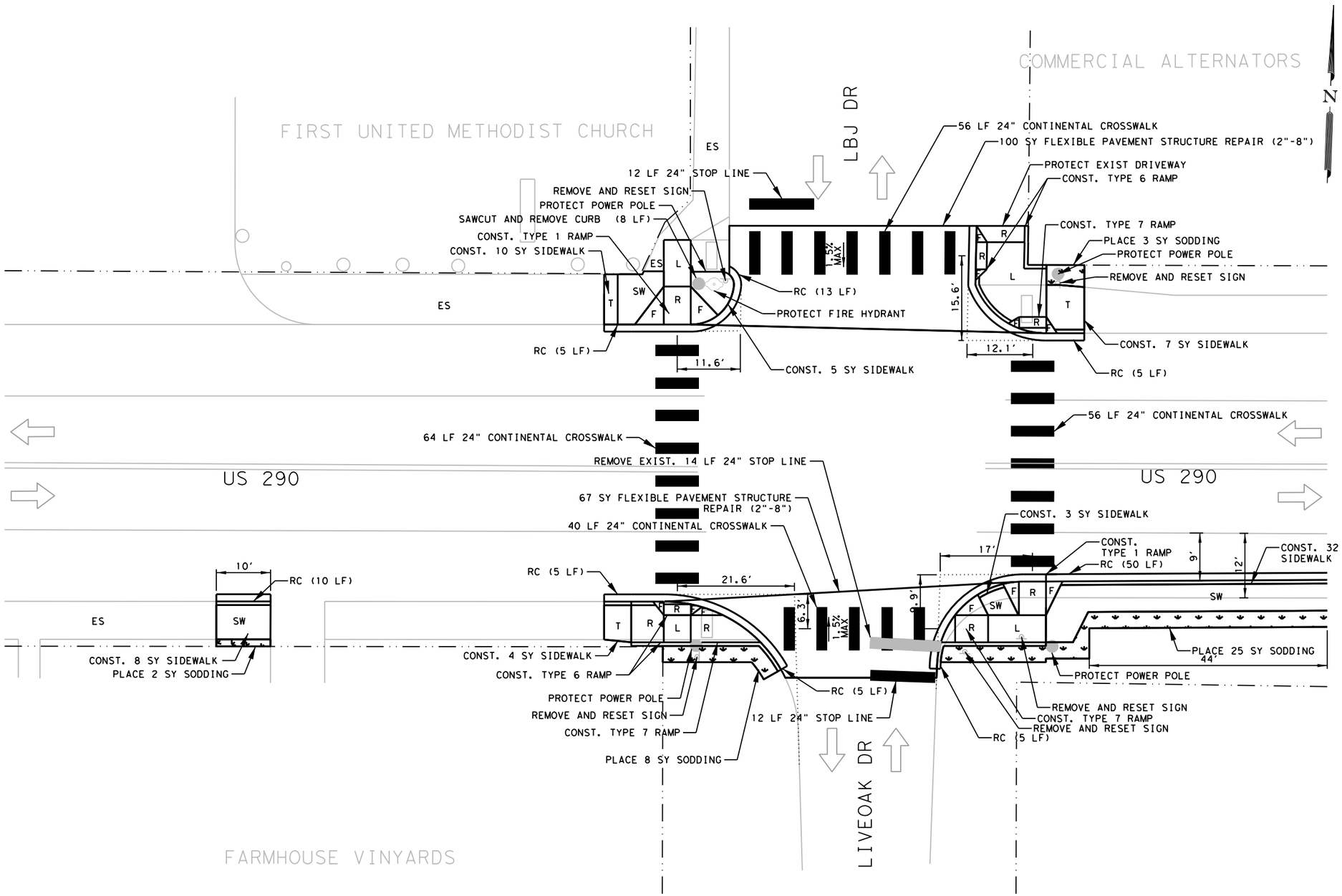
COR ID=US290-LBJDr-NW

COR ID=US290-LBJDr-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	106
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	38
162	6002	BLOCK SODDING	SY	38
168	6001	VEGETATIVE WATERING	MG	2.3
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	167
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	99
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	99
529	6002	CONC CURB (TY II)	LF	98
531	6002	CONC SIDEWALKS (5")	SY	69
531	6004	CURB RAMPS (TY 1)	EA	2
531	6009	CURB RAMPS (TY 6)	EA	4
531	6010	CURB RAMPS (TY 7)	EA	3
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	5
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	240
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	14



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

COR ID=US290-LiveoakDr-SW

COR ID=US290-LiveoakDr-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
EP = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	WV = WATER VALVE
P = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	GV = GAS VALVE
T = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

US290 AT LBJ/LIVEOAK DR JOHNSON CITY, TX

SHEET 5 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		60
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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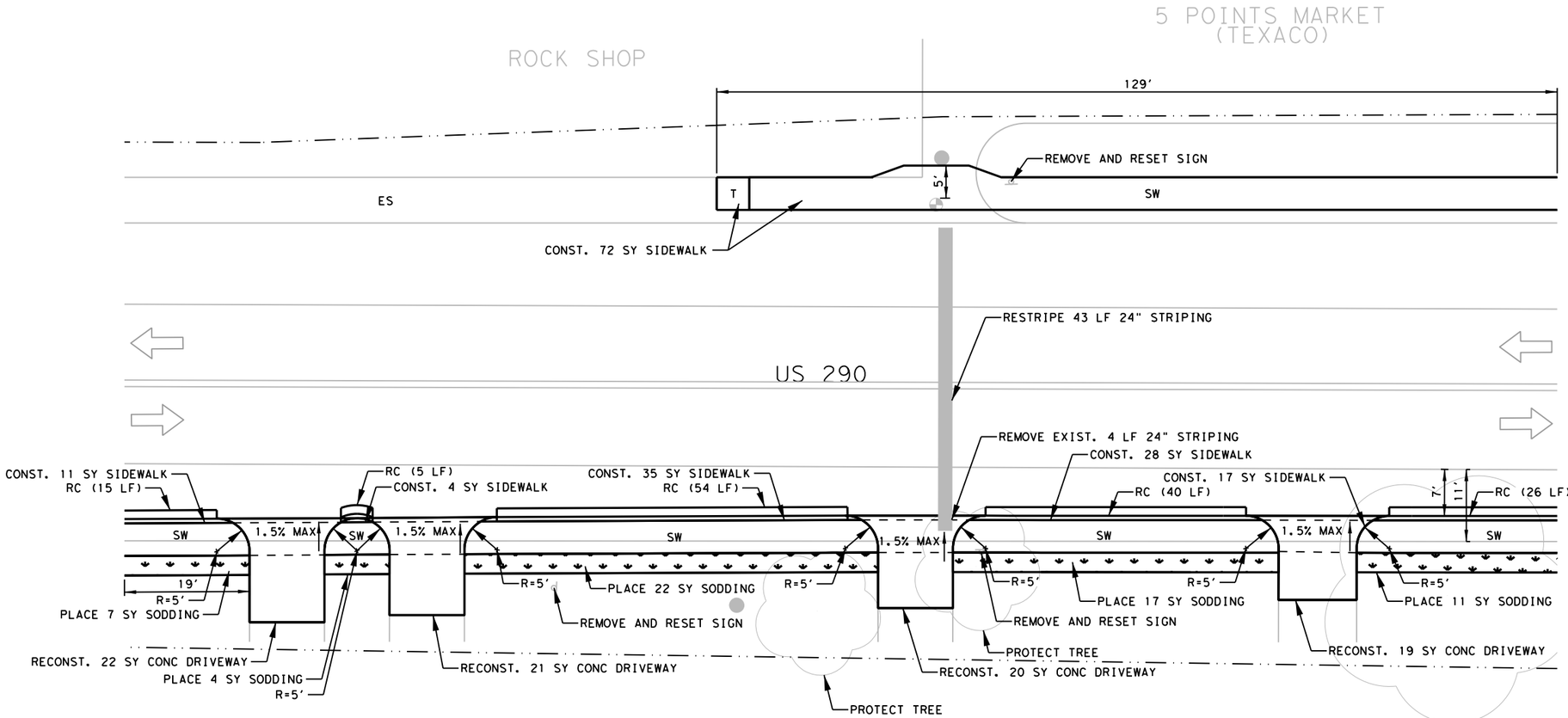
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	82
104	6021	REMOVING CONC (CURB)	LF	140
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	61
162	6002	BLOCK SODDING	SY	61
168	6001	VEGETATIVE WATERING	MG	3.7
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	175
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	175
529	6002	CONC CURB (TY II)	LF	140
530	6004	DRIVEWAYS (CONC)	SY	82
531	6002	CONC SIDEWALKS (5")	SY	167
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	47
1004	6001	TREE PROTECTION	EA	2



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LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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285 SE Inner Loop
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(512) 485-0020
TBPELS Firm 5713

US290 MIDBLOCK BETWEEN LBJ DR AND AVE C JOHNSON CITY. TX

SHEET 6 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		61
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- = FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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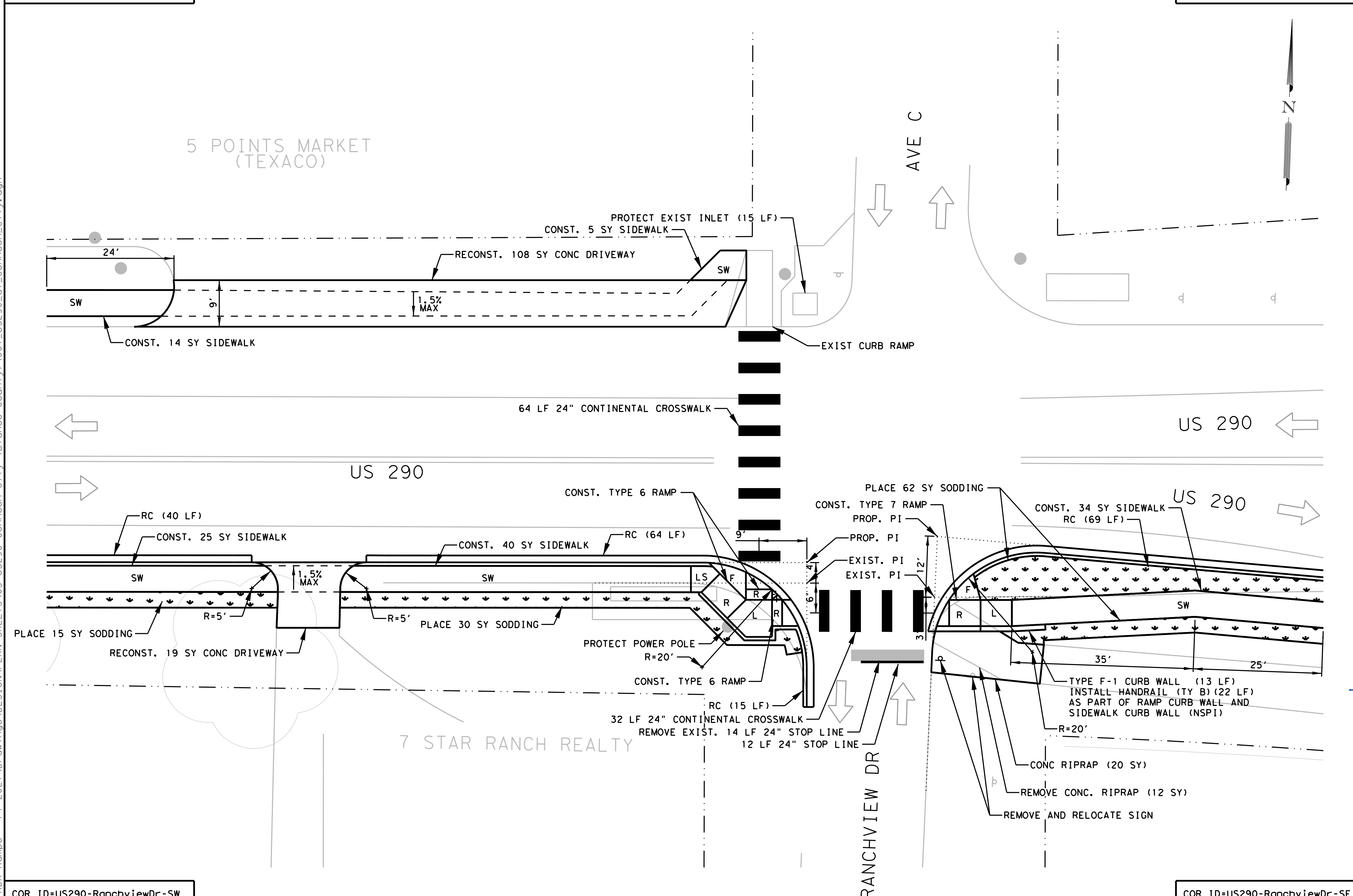
COR ID=US290-AvenueC-NW

COR ID=US290-AvenueC-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	127
104	6021	REMOVING CONC (CURB)	LF	188
104	6028	REMOVING CONC (MISC)	SY	12
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	107
162	6002	BLOCK SODDING	SY	107
168	6001	VEGETATIVE WATERING	MG	6.4
432	6011	RIPRAP (CONC) (CL B) (6")	CY	4
450	6048	RAIL (HANDRAIL)(TY B)	LF	22
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	197
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	197
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	15
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	15
529	6002	CONC CURB (TY II)	LF	188
529	6016	CONC CURB (TY F1)	LF	13
530	6004	DRIVEWAYS (CONC)	SY	127
531	6002	CONC SIDEWALKS (5")	SY	118
531	6009	CURB RAMPS (TY 6)	EA	3
531	6010	CURB RAMPS (TY 7)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	108
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	14

FOR CONTRACTOR'S INFORMATION ONLY
CURB RAMPS 26 SY



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

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

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

COR ID=US290-RanchviewDr-SW

COR ID=US290-RanchviewDr-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) SE CORNER: SHAPE DRAINAGE FLUME RIPRAP TO MATCH EXISTING ON EAST AND WEST ENDS. PLACE AN EXPANSION JOINT BETWEEN PROPOSED RIPRAP AND F-1 RETAINING WALL

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
EP = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	WV = WATER VALVE
P = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	GV = GAS VALVE
T = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

US290 AT AVENUE C/RANCHVIEW DR JOHNSON CITY, TX

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		62
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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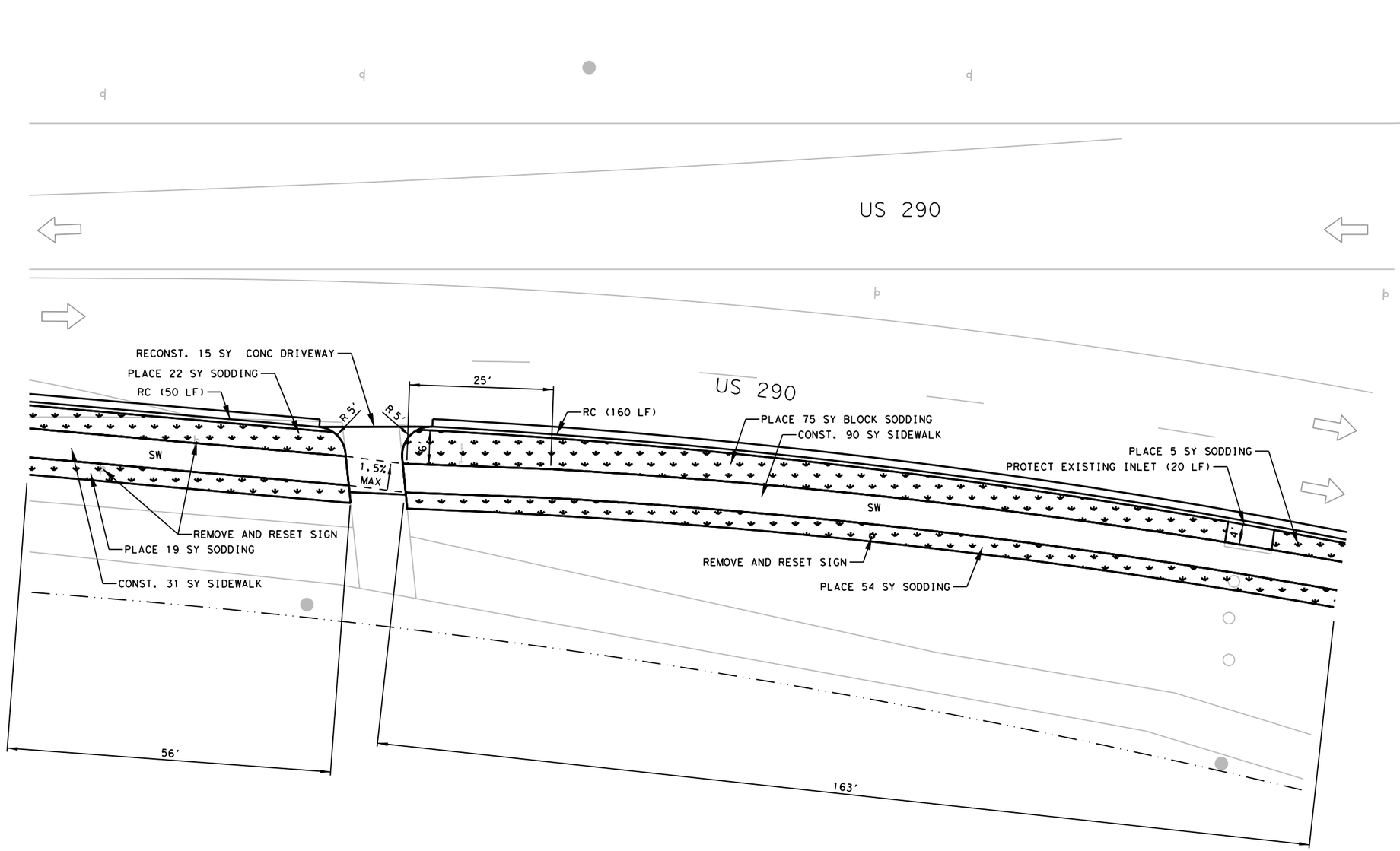
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	15
104	6021	REMOVING CONC (CURB)	LF	210
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	175
162	6002	BLOCK SODDING	SY	175
168	6001	VEGETATIVE WATERING	MG	10.5
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	219
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	219
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	20
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	20
529	6002	CONC CURB (TY II)	LF	210
530	6004	DRIVEWAYS (CONC)	SY	15
531	6002	CONC SIDEWALKS (5")	SY	121
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3



N

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

Texas Department of Transportation

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(512) 485-0020
TBPELS Firm 5713

US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (1 OF 6) JOHNSON CITY, TX

SHEET 8 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		63
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
[T] = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	[W] = WATER METER

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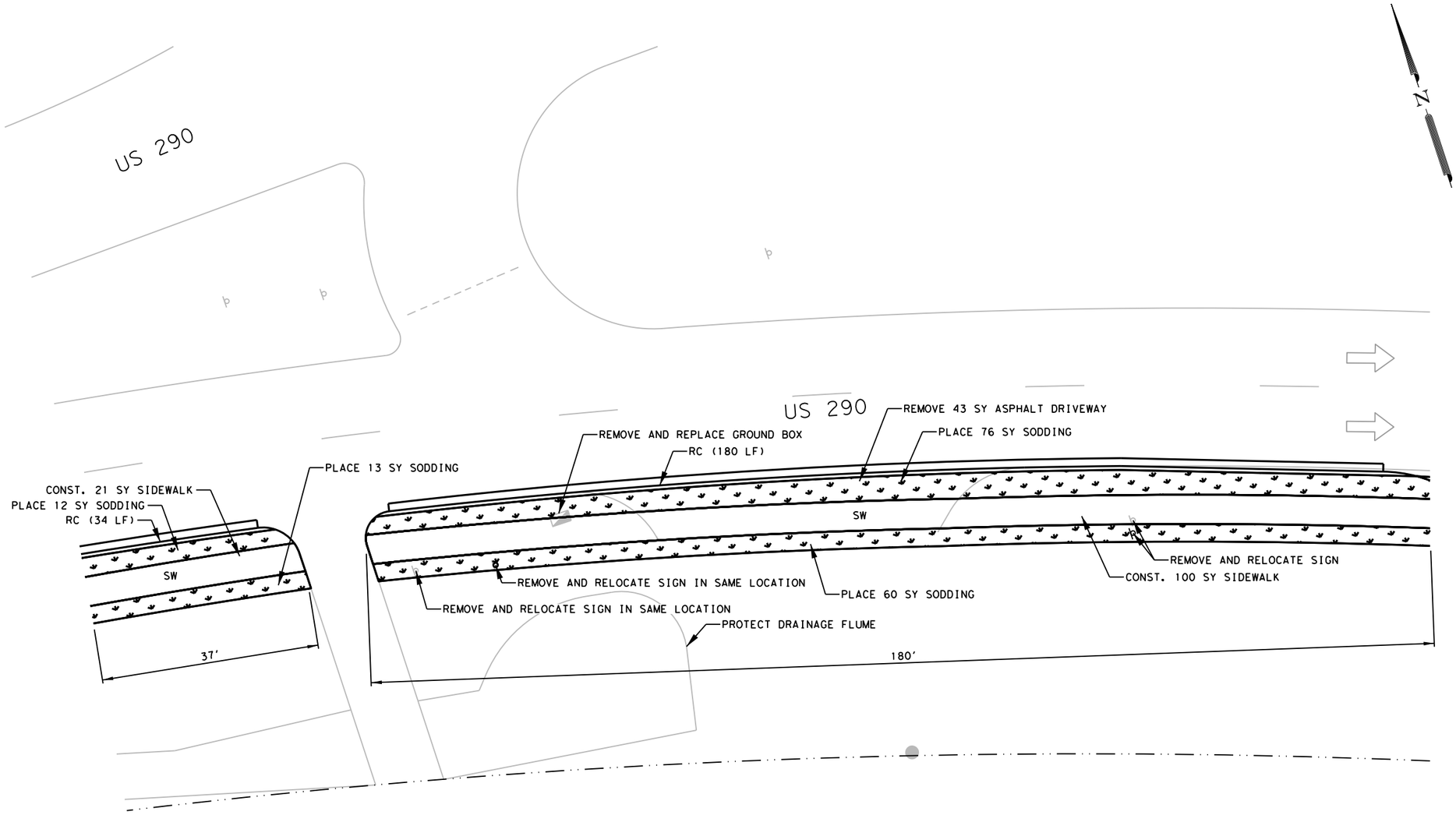
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	214
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	43
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	161
162	6002	BLOCK SODDING	SY	161
168	6001	VEGETATIVE WATERING	MG	9.7
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	217
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	217
529	6002	CONC CURB (TY II)	LF	214
531	6002	CONC SIDEWALKS (5")	SY	121
624	6009	GROUND BOX TY D (162922)	EA	1
624	6028	REMOVE GROUND BOX	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

Texas Department of Transportation

285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (2 OF 6) JOHNSON CITY, TX

SHEET 9 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		64
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
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(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
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= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	[W] = WATER METER

DATE: 1/18/2022 3:40:13 PM
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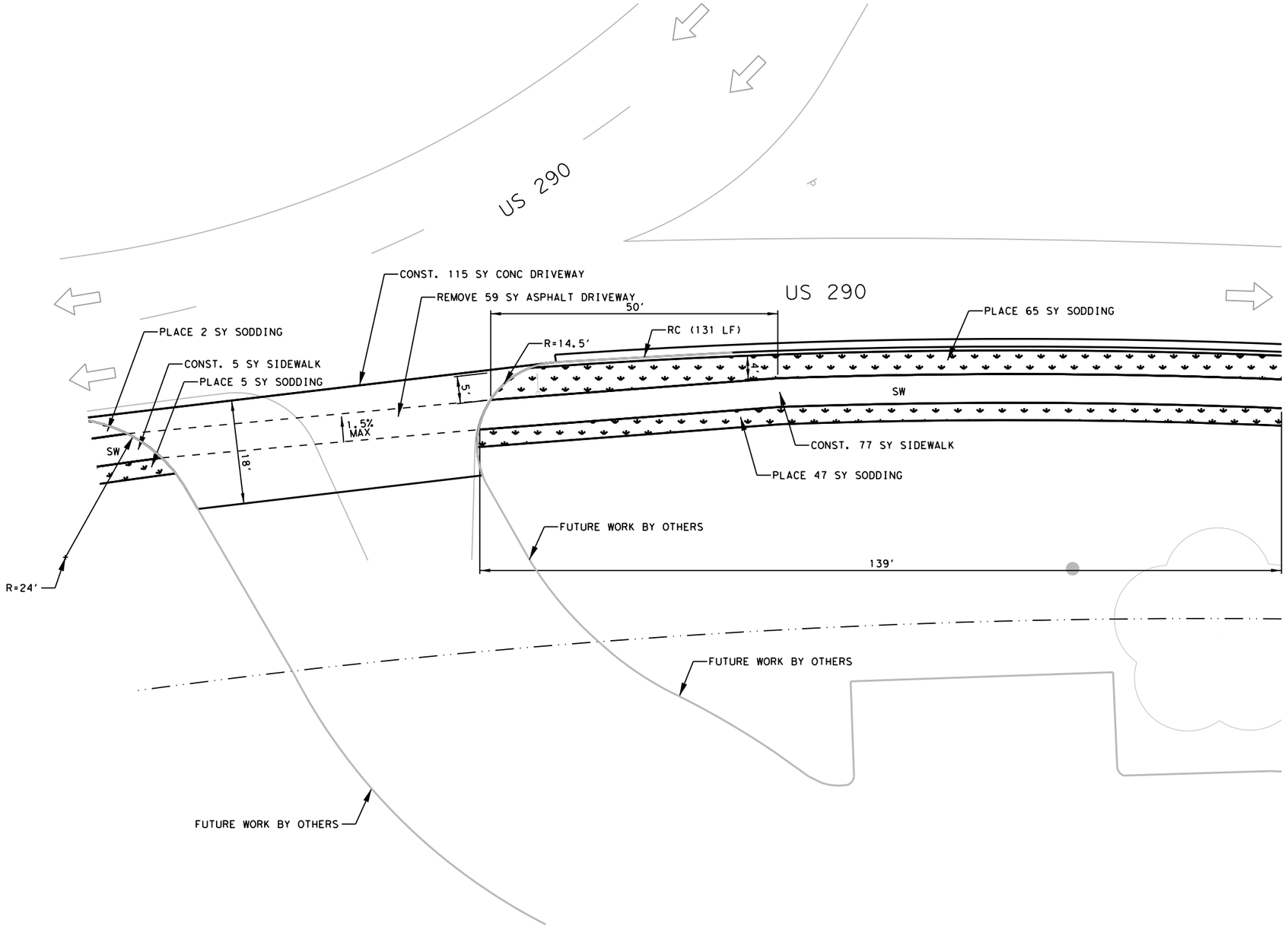
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	131
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	59
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	119
162	6002	BLOCK SODDING	SY	119
168	6001	VEGETATIVE WATERING	MG	7.1
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	154
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	154
529	6002	CONC CURB (TY II)	LF	131
530	6004	DRIVEWAYS (CONC)	SY	115
531	6002	CONC SIDEWALKS (5")	SY	82



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (3 OF 6) JOHNSON CITY, TX

SHEET 10 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		65
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
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(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

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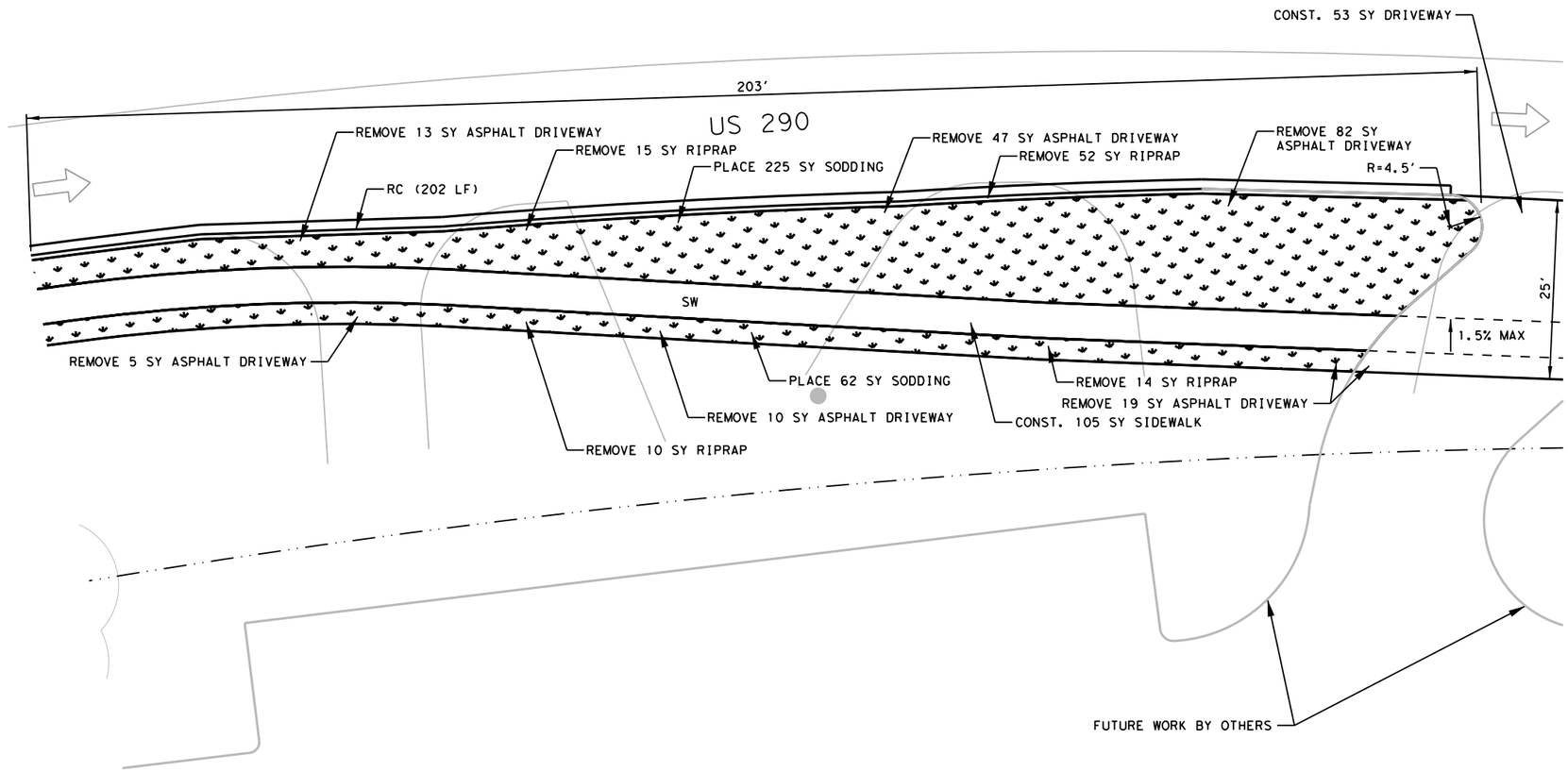
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	202
104	6028	REMOVING CONC (MISC)	SY	91
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	176
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	287
162	6002	BLOCK SODDING	SY	287
168	6001	VEGETATIVE WATERING	MG	17.2
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	203
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	203
529	6002	CONC CURB (TY II)	LF	202
530	6004	DRIVEWAYS (CONC)	SY	53
531	6002	CONC SIDEWALKS (5")	SY	105



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER

1/18/2022

Texas Department of Transportation

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US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (4 OF 6) JOHNSON CITY, TX

SHEET 11 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		66
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- (EP) = EXISTING PED POLE W/PED BUTTON
- (P) = NEW PED POLE W/PED BUTTON
- [T] = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- (WV) = WATER VALVE
- (GV) = GAS VALVE
- = FIRE HYDRANT
- (E) = ELECTRIC METER
- (G) = GAS METER
- [W] = WATER METER

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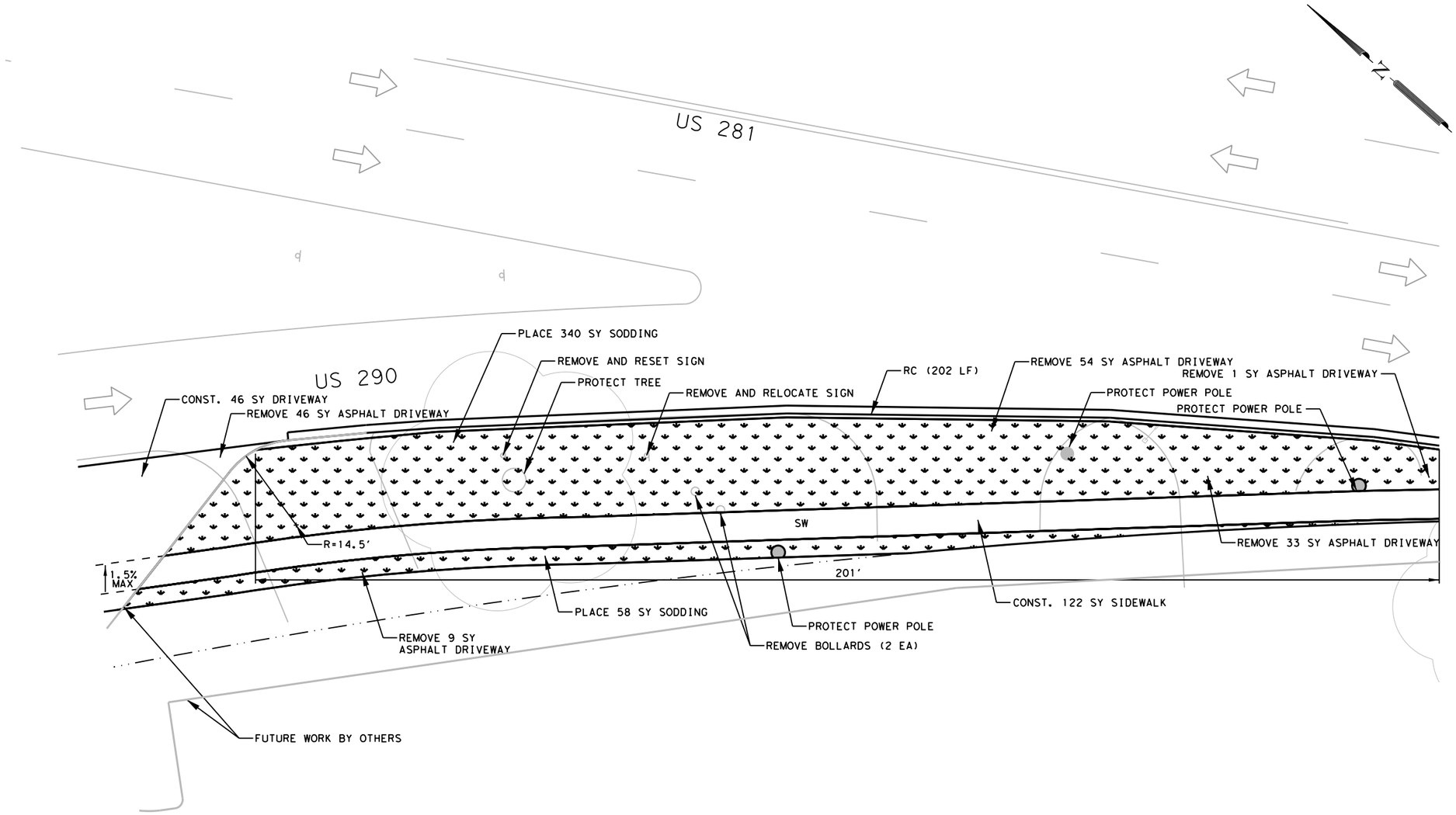
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	202
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	143
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	398
162	6002	BLOCK SODDING	SY	398
168	6001	VEGETATIVE WATERING	MG	23.9
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	225
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	225
529	6002	CONC CURB (TY II)	LF	202
530	6004	DRIVEWAYS (CONC)	SY	46
531	6002	CONC SIDEWALKS (5")	SY	122
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
644	6076	REMOVE SM RD SN SUP&AM	EA	2
1004	6001	TREE PROTECTION	EA	1



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

Texas Department of Transportation

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US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (5 OF 6) JOHNSON CITY, TX

SHEET 12 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		67
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
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(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
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(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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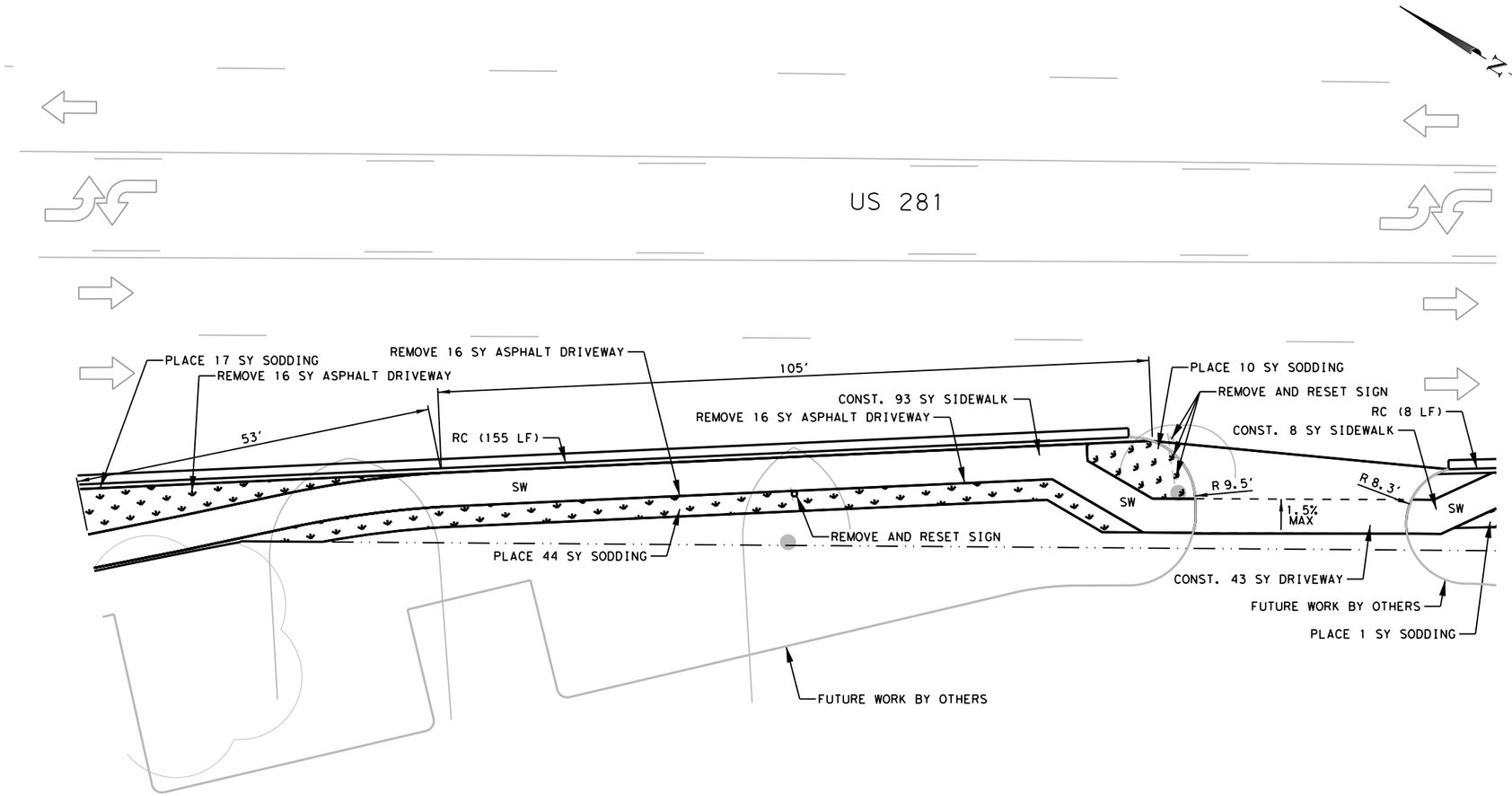
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	163
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	48
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	72
162	6002	BLOCK SODDING	SY	72
168	6001	VEGETATIVE WATERING	MG	4.3
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	158
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	158
529	6002	CONC CURB (TY II)	LF	163
530	6004	DRIVEWAYS (CONC)	SY	43
531	6002	CONC SIDEWALKS (5")	SY	101
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	4



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

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SPECIAL NOTE AND DETAIL

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(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
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RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

US290 MIDBLOCK BETWEEN RANCHVIEW DR AND US281 (6 OF 6) JOHNSON CITY, TX

SHEET 13 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		68
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 1/18/2022 3:40:18 PM
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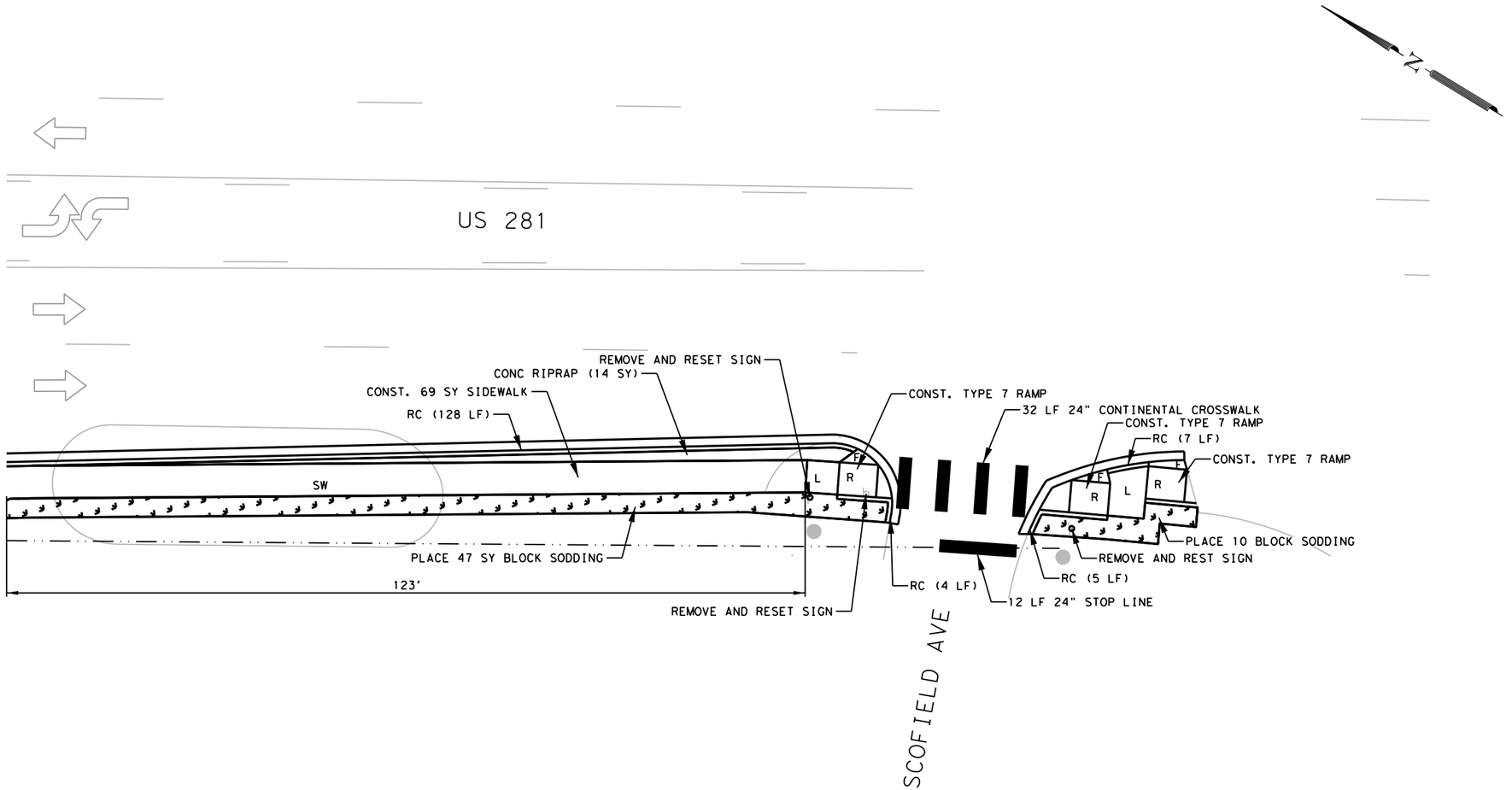
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	144
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	57
162	6002	BLOCK SODDING	SY	57
168	6001	VEGETATIVE WATERING	MG	3.4
432	6011	RIPRAP (CONC) (CL B) (6")	CY	3
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	165
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	165
529	6002	CONC CURB (TY II)	LF	144
531	6002	CONC SIDEWALKS (5")	SY	69
531	6010	CURB RAMPS (TY 7)	EA	3
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	44



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
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PROFESSIONAL LICENSED ENGINEER

1/18/2022

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COR ID=US290-ScofieldAve-NW

COR ID=US290-ScofieldAve-SW

SPECIAL NOTE AND DETAIL

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(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

US290 AT SCOFIELD AVE JOHNSON CITY, TX

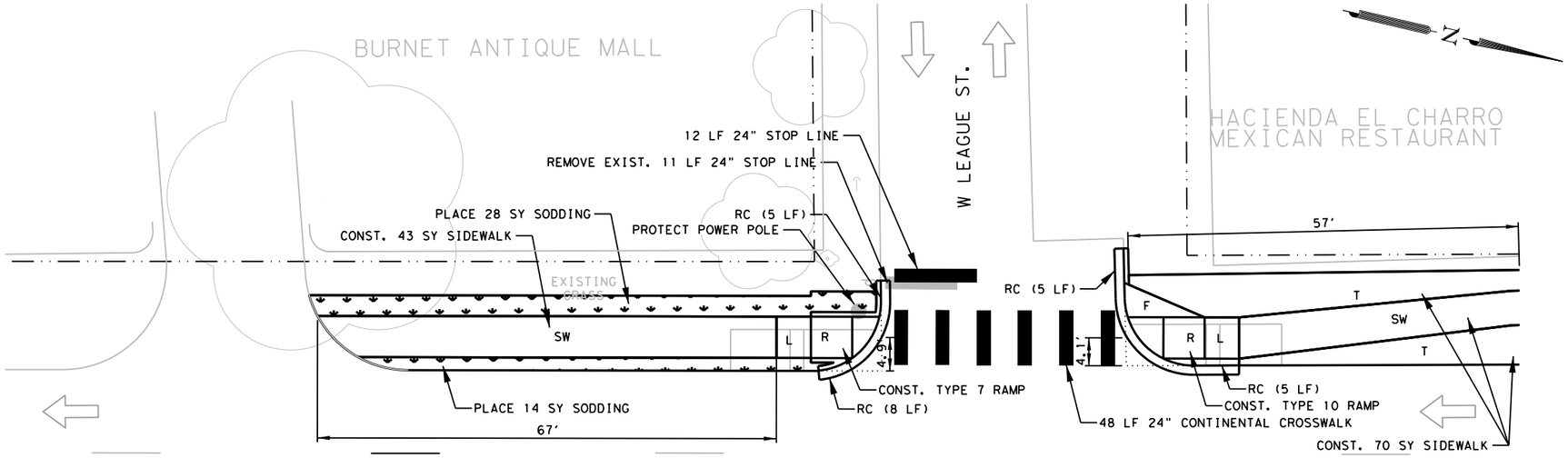
SHEET 14 OF 14

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		69
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BLANCO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 1/18/2022 3:40:20 PM
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\03 US290 Johnson City (Blanco County)\014_US290_at_Johnson_City.dgn

COR ID=US281-LeagueSt-SW

COR ID=US281-LeagueSt-NW



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	2
104	6021	REMOVING CONC (CURB)	LF	50
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	62
162	6002	BLOCK SODDING	SY	62
168	6001	VEGETATIVE WATERING	MG	3.7
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	139
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	139
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	21
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	21
529	6002	CONC CURB (TY II)	LF	50
531	6002	CONC SIDEWALKS (5")	SY	118
531	6010	CURB RAMPS (TY 7)	EA	1
531	6013	CURB RAMPS (TY 10)	EA	3
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	112
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	25

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

US281 AT LEAGUE ST BURNET, TX

SHEET 1 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		70
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=US281-LeagueSt-SE

COR ID=US281-LeagueSt-NE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
EP = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	WV = WATER VALVE
P = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	GV = GAS VALVE
T = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

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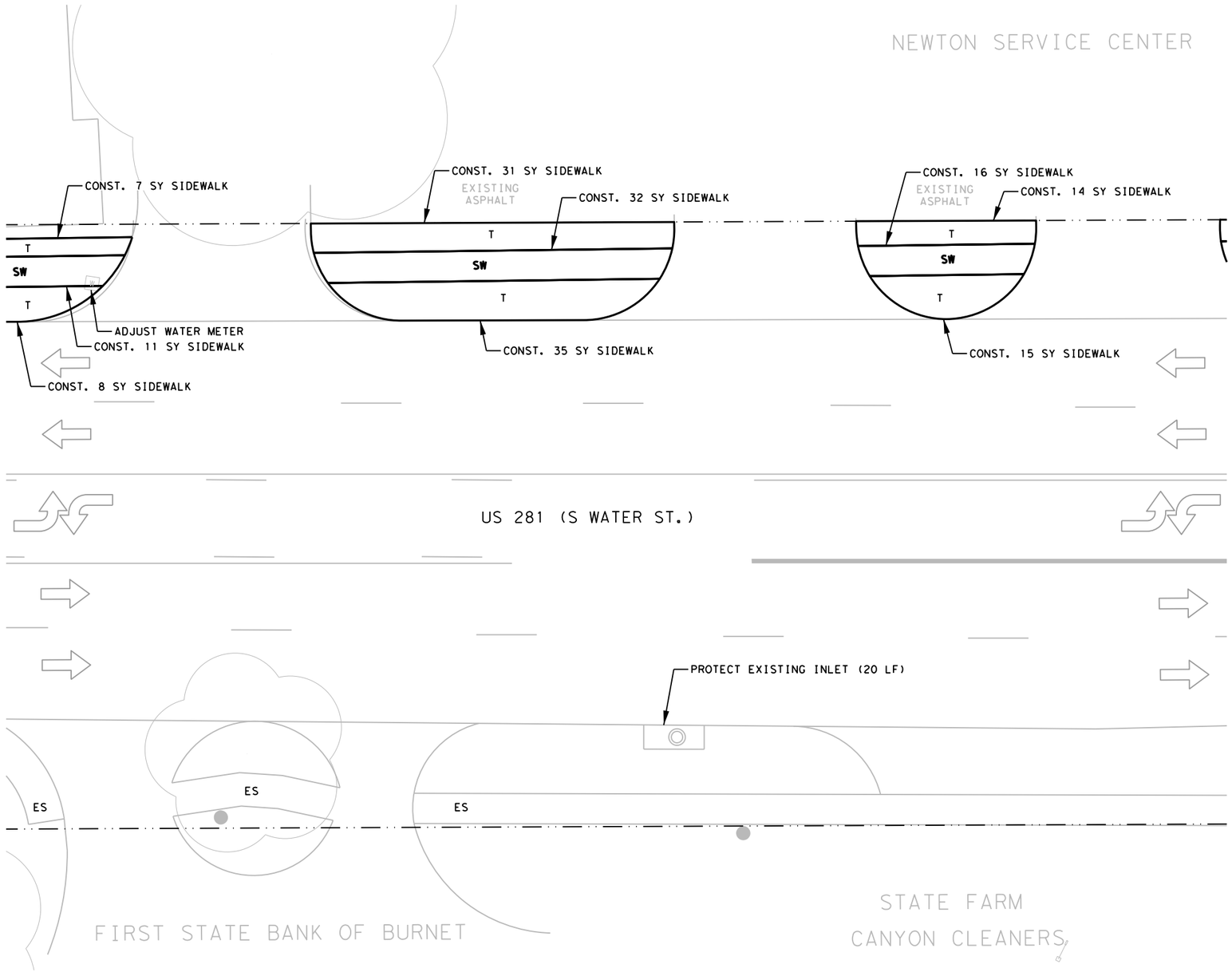
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
479	6008	ADJUSTING MANHOLES (WATER METER)	EA	1
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	20
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	20
531	6002	CONC SIDEWALKS (5")	SY	169



CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

0 10′ 20′

SCALE: 1" = 20′

STATE OF TEXAS
STEPHEN A. JOHNSON
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PROFESSIONAL LICENSED ENGINEER
1/18/2022

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TBPELS Firm 5713

US281 MIDBLOCK BETWEEN LEAGUE ST AND JACKSON ST BURNET, TX

SHEET 2 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		71
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5′ NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
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3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
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6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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COR ID=US281- JacksonSt-SW

COR ID=US281- JacksonSt-NW

COR ID=US281- JacksonSt-SE

COR ID=US281- JacksonSt-NE

SUMMARY OF PROPOSED CONDUITS AND CABLES					
RUN NO.	CONDUIT		NUMBER OF CABLES		
	TRENCH 3"	BORE 3"	LENGTH (FT)	2/C #12 AWG	4/C #12 AWG
1	E		24	2	2
2		1	61	2	2
3	1		19		1
4	1		19	1	
5		1	88	1	1
6	1		18	1	1
TOTAL	56	149		295	295

PROPOSED		
INSIDE POLES	12 AWG 2/C	12 AWG 4/C
SE POLES	5	10
SW POLE	5	10
TOTAL	10	20

PROPOSED	12 AWG	
INSIDE CABINET	2/C	4/C
TOTAL	20	20

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	13
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	37
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	26
432	6011	RIPRAP (CONC) (CL B) (6")	CY	5
528	6006	REMOVE AND RELAY PAVERS	SY	26
529	6002	CONC CURB (TY II)	LF	13
529	6015	CONC CURB (TY C1)	LF	20
531	6002	CONC SIDEWALKS (5")	SY	169
531	6004	CURB RAMPS (TY 1)	EA	1
531	6009	CURB RAMPS (TY 6)	EA	1
618	6029	CONDT (PVC) (SCH 40) (3")	LF	56
618	6030	CONDT (PVC) (SCH 40) (3")(BORE)	LF	149
624	6009	GROUND BOX TY D (162922)	EA	2
624	6028	REMOVE GROUND BOX	EA	2
636	6001	ALUMINUM SIGNS (TY A)	SF	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	388
677	6001	ELIM EXT PAV MRK & MRKS (4")	LF	6
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	203
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	76
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	2
684	6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	325
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	335
687	6001	PED POLE ASSEMBLY	EA	1
688	6001	PED DETECT PUSH BUTTON (APS)	EA	2

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LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

NEWTON SERVICE CENTER
JACKSON ST.
REMOVE EXIST. 17 LF 24" STOP LINE
17 LF 24" STOP LINE
INSTALL PED HEAD, PUSH BUTTON, AND SIGN
48 LF 24" CONTINENTAL CROSSWALK
CONST. 29 SY SIDEWALK
EXISTING ASPHALT
ES
NWP
SW
L
R
T
F
PROTECT TRAFFIC SIGNAL POLE
PROTECT TRAFFIC SIGNAL POLE
REMOVE EXISTING HMAC AND CONST. 13 SY CONC RIPRAP
REMOVE AND REPLACE GROUND BOX
CONST. TYPE 1 RAMP
CONST. 22 SY SIDEWALK
REMOVE EXIST. 39 LF 24" STOP LINE
REMOVE EXIST. 6 LF 4" STRIPING
88 LF 24" CONTINENTAL CROSSWALK
39 LF 24" STOP LINE
CONST. TYPE 6 RAMP
INSTALL NEW PED POLE ASSEMBLY WITH PED SIGN AND PUSH BUTTON
PROTECT TRAFFIC SIGNAL POLE AND INSTALL PED HEAD
PROTECT TRAFFIC SIGNAL POLE
REMOVE AND REPLACE GROUND BOX
REMOVE EXISTING HMAC AND CONST. 9 SY CONC RIPRAP
RC (13 LF)
REMOVE EXISTING HMAC AND CONST. 4 SY CONC RIPRAP
TYPE C1 CURB WALL (20 LF) INSTALL RAIL (HANDRAIL) (TY B) (25 LF) APART OF RAMP CURB WALL AND SIDEWALK CURB WALL (NSPI)
LS
CONST. 18 SY SIDEWALK
CONST. 22 SY SIDEWALK
EXISTING ASPHALT
REMOVE EXIST. 73 LF 12" STRIPING
26 SY FLEXIBLE PAVEMENT STRUCTURE REPAIR (2"-8")
1.5% MAX
48 LF 24" CONTINENTAL CROSSWALK
20 LF 24" STOP LINE
REMOVE EXIST. 20 LF 24" STOP LINE
26 SY REMOVE AND RELOCATE PAVERS TO CROSSWALK
CONST. 30 SY SIDEWALK
REMOVE EXISTING HMAC AND CONST. 3 SY CONC RIPRAP
CONST. 3 SY SIDEWALK
CONST. 45 SY SIDEWALK
88 LF 24" CONTINENTAL CROSSWALK
40 LF 24" STOP LINE
US 281 (S WATER ST.)
REMOVE EXIST. 130 LF 12" STRIPING
TRUCK STUFF
SHELL & SHELL ATTORNEYS AT LAW
ANGELAS HAIR DESIGN

SPECIAL NOTE AND DETAIL

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LEGEND

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- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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US281 AT JACKSON ST BURNET, TX

SHEET 3 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		72
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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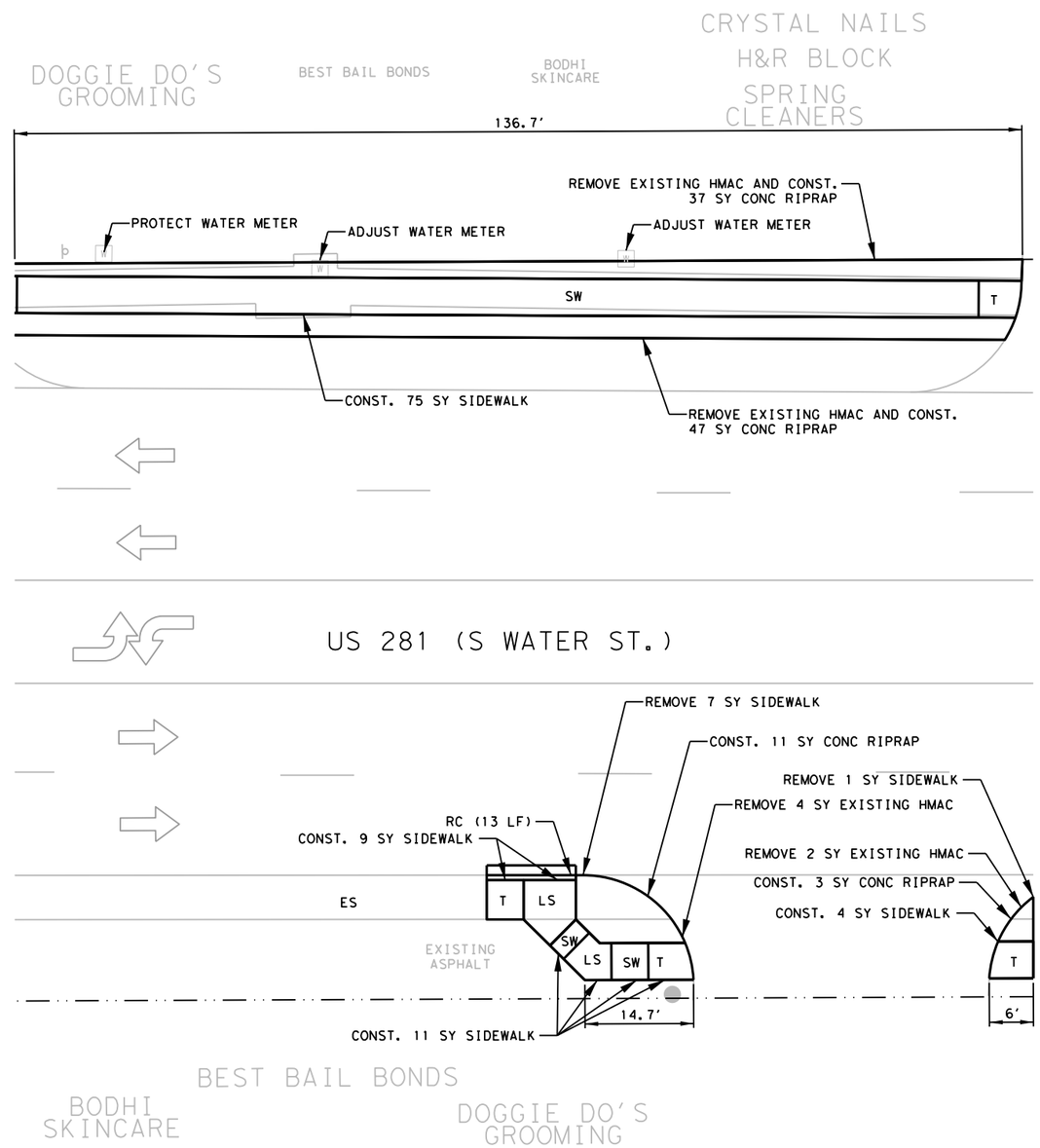
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	10
104	6021	REMOVING CONC (CURB)	LF	13
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	90
432	6011	RIPRAP (CONC) (CL B) (6")	CY	17
479	6008	ADJUSTING MANHOLES (WATER METER)	EA	2
529	6002	CONC CURB (TY II)	LF	13
531	6002	CONC SIDEWALKS (5")	SY	99



CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

US281 MIDBLOCK BETWEEN JACKSON ST AND WASHINGTON ST BURNET, TX

SHEET 4 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		73
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

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LEGEND

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- (EP) = EXISTING PED POLE W/PED BUTTON
- (P) = NEW PED POLE W/PED BUTTON
- [T] = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- (WV) = WATER VALVE
- (GV) = GAS VALVE
- = FIRE HYDRANT
- = ELECTRIC METER
- = GAS METER
- [W] = WATER METER

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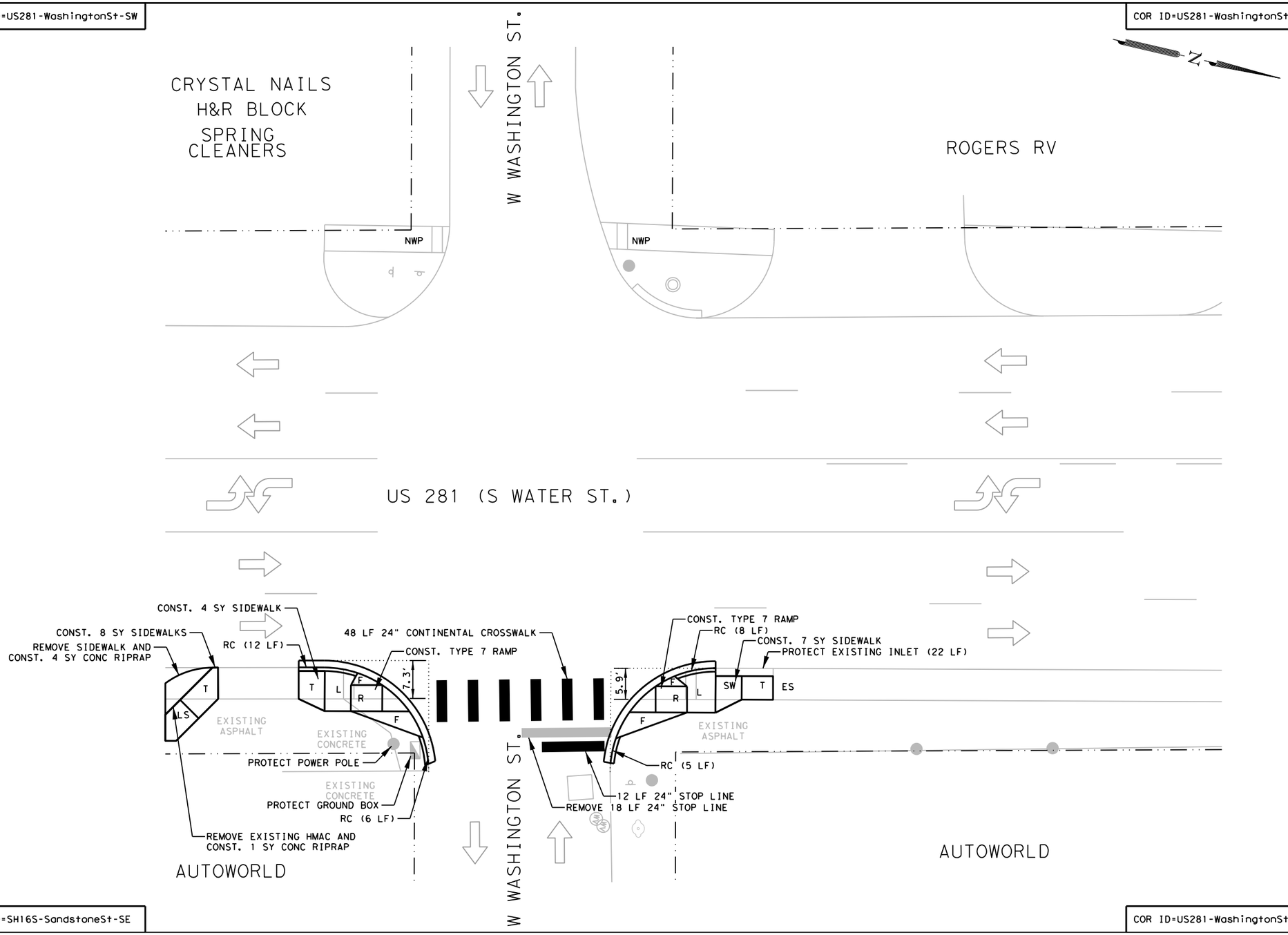
COR ID=US281-WashingtonSt-SW

COR ID=US281-WashingtonSt-NW

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	4
104	6021	REMOVING CONC (CURB)	LF	31
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	1
432	6011	RIPRAP (CONC) (CL B) (6")	CY	1
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	22
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	22
529	6002	CONC CURB (TY II)	LF	31
531	6002	CONC SIDEWALKS (5")	SY	19
531	6010	CURB RAMPS (TY 7)	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	60
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	18



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LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

0 10′ 20′

SCALE: 1" = 20′

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER
1/18/2022

Texas Department of Transportation

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US281 AT WASHINGTON ST BURNET, TX

SHEET 5 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		74
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SH16S-SandstoneSt-SE

COR ID=US281-WashingtonSt-NE

SPECIAL NOTE AND DETAIL

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- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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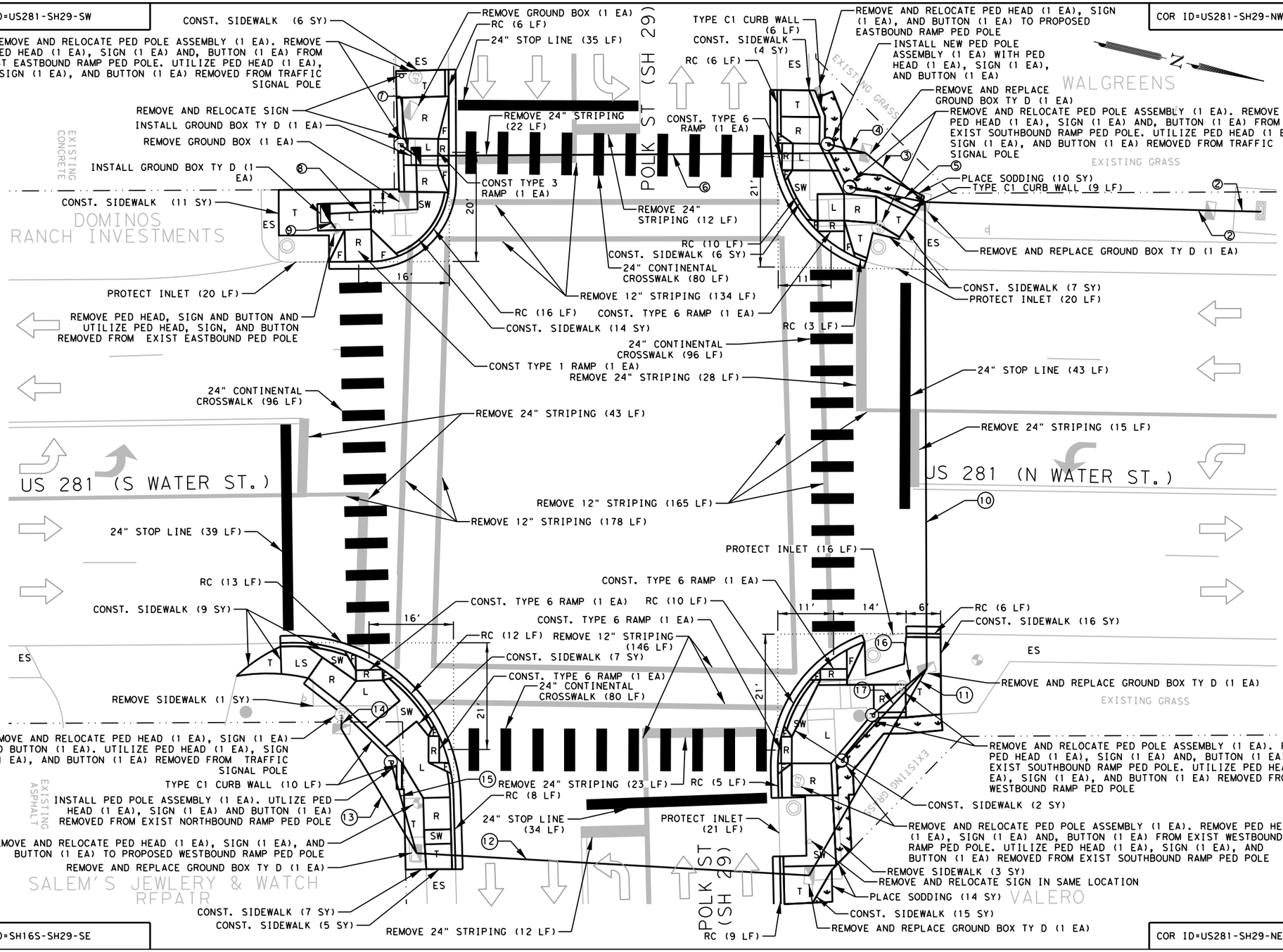
COR ID=US281-SH29-SW

COR ID=US281-SH29-NW

COR ID=SH16S-SH29-SE

COR ID=US281-SH29-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	4
104	6021	REMOVING CONC (CURB)	LF	104
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	24
162	6002	BLOCK SODDING	SY	24
168	6001	VEGETATIVE WATERING	MG	1.4
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	78
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	78
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	77
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	77
529	6002	CONC CURB (TY II)	LF	104
529	6015	CONC CURB (TY C1)	LF	25
531	6002	CONC SIDEWALKS (5")	SY	108
531	6004	CURB RAMPS (TY 1)	EA	1
531	6006	CURB RAMPS (TY 3)	EA	1
531	6009	CURB RAMPS (TY 6)	EA	6
618	6029	CONDT (PVC) (SCH 40) (3")	LF	414
618	6030	CONDT (PVC) (SCH 40) (3")(BORE)	LF	277
624	6009	GROUND BOX TY D (162922)	EA	5
624	6010	GROUND BOX TY D (162922)W/APRON	EA	2
624	6028	REMOVE GROUND BOX	EA	7
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	10
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	503
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	623
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	155
684	6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	1997
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	2037
687	6001	PED POLE ASSEMBLY	EA	2
687	6003	RELOCATE PED POLE ASSEMBLY	EA	4
690	6024	REMOVAL OF SIGNAL HEAD ASSM	EA	8
690	6123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	8

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

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- EXISTING CONDITIONS
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- APPARENT ROW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) POLK ST,SE CORNER:CONTRACTOR SHALL FIELD VERIFY ROW LOCATION AND HOLD AN ON SITE MEETING WITH THE ENGINEER AND PROPERTY OWNER PRIOR TO CONSTRUCTING IMPROVEMENTS OUTSIDE OF PUBLIC ROW.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

US281 AT SH29 (POLK ST)(1 OF 2) BURNET, TX

SHEET 6 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		75
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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SUMMARY OF PROPOSED CONDUITS AND CABLES					
RUN NO.	CONDUIT		NUMBER OF CABLES		
	TRENCH 3"	BORE 3"	LENGTH (FT)	2/C #12 AWG	4/C #12 AWG
1	E		20	8	8
2	1		64	8	8
3	1		25	3	3
4	1		18	1	1
5	1		25	1	1
6		1	95	2	2
7	1		38	1	1
8	1		38	1	1
9	1		14	1	1
10		1	98	4	4
11	1		55	2	2
12		1	84	2	2
13	1		38	1	1
14	1		13	1	1
15	1		28	1	1
16	1		24	1	1
17	1		34	1	1
TOTAL	414	277		1877	1877

PROPOSED		
INSIDE POLES	12 AWG	
	2/C	4/C
NW POLES	10	20
NE POLES	10	20
SE POLES	10	20
SW POLES	10	20
TOTAL	40	80

PROPOSED INSIDE CABINET	12 AWG	
	2/C	4/C
TOTAL	80	80

0 10′ 20′

SCALE: 1" = 20′

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

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US281 AT SH29 (POLK ST)(2 OF 2) BURNET, TX

SHEET 7 OF 7

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		76
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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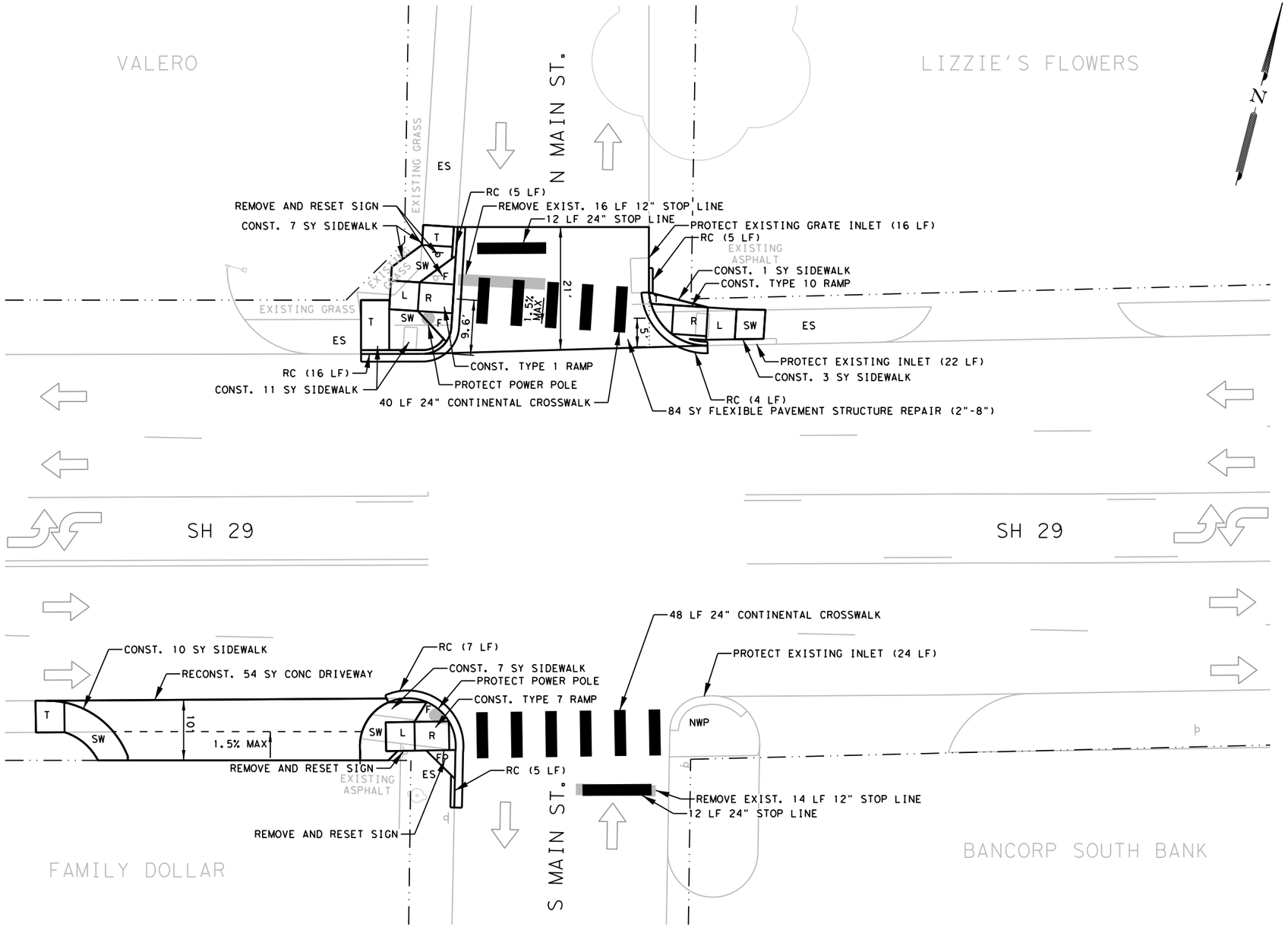
FILE: L:\2018\1820002 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\05 US281 Burnet (Burnet County)\006_US281_at_Burnet.dgn

COR ID=SH29-MainSt-NW

COR ID=SH29-MainSt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	54
104	6021	REMOVING CONC (CURB)	LF	42
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	84
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	23
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	23
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	62
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	62
529	6002	CONC CURB (TY II)	LF	42
530	6004	DRIVEWAYS (CONC)	SY	54
531	6002	CONC SIDEWALKS (5")	SY	39
531	6004	CURB RAMPS (TY 1)	EA	1
531	6010	CURB RAMPS (TY 7)	EA	1
531	6013	CURB RAMPS (TY 10)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	112
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	30

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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SH29 AT MAIN ST BURNET, TX

SHEET 1 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		77
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SH29-MainSt-SW

COR ID=SH29-MainSt-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
[T] = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	[W] = WATER METER

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COR ID=SH29-PierceSt-NW

COR ID=SH29-PierceSt-NE

COR ID=SH29-PierceSt-SW

COR ID=SH29-PierceSt-SE

SUMMARY OF PROPOSED CONDUITS AND CABLES					
RUN NO.	CONDUIT		NUMBER OF CABLES		
	TRENCH	BORE	LENGTH	2/C #12	4/C #12
	3"	3"	(FT)	AWG	AWG
1	E		39	8	3
2	1		27	2	
3		1	50	6	3
4	1		19	6	3
5		1	97	4	1
6	1		14	1	
7	1		25	1	1
8		1	85	2	
9	1		20	2	
10	1		18	1	1
11	1		38	1	1
TOTAL	161	232		1473	502

PROPOSED		
INSIDE POLES	12 AWG 2/C	4/C
NW POLE	10	
NE POLES	10	20
SE POLES	10	10
SW POLE	10	
TOTAL	40	30

PROPOSED INSIDE CABINET	12 AWG 2/C	4/C
TOTAL	80	30

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	134
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	68
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	68
529	6002	CONC CURB (TY II)	LF	134
529	6015	CONC CURB (TY C1)	LF	19
531	6002	CONC SIDEWALKS (5")	SY	76
531	6006	CURB RAMPS (TY 3)	EA	4
618	6029	CONDT (PVC) (SCH 40) (3")	LF	161
618	6030	CONDT (PVC) (SCH 40) (3")(BORE)	LF	232
624	6009	GROUND BOX TY D (162922)	EA	1
636	6001	ALUMINUM SIGNS (TY A)	SF	8
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	336
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	363
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	102
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	3
684	6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	1593
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	562
687	6001	PED POLE ASSEMBLY	EA	3
687	6005	REMOVE PED POLE ASSEMBLY	EA	1
688	6001	PED DETECT PUSH BUTTON (APS)	EA	8
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
690	6024	REMOVAL OF SIGNAL HEAD ASSM	EA	1
690	6027	REMOVAL OF SIGNAL RELATED SIGNS	EA	6
690	6030	REMOVAL OF PEDESTRIAN PUSH BUTTONS	EA	6

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

BEALLS (VACANT)

EXISTING ASPHALT

EXISTING PAVERS/TREE/ LANDSCAPING

N PIERCE ST.

S PIERCE ST.

BURNET CHAMBER OF COMMERCE

FIRST STATE BANK OF BURNET

BURNET PRESBYTERIAN CHURCH

SH 29

ONLY

PROTECT EXIST INLET (22 LF)

EXIST GROUND BOX TO REMAIN

CONST. TYPE 3 RAMP (1 EA)

REMOVE AND INSTALL PED PUSH BUTTON (2 EA), AND SIGN (2 EA)

PROTECT POWER POLE

REMOVE AND RESET SIGN (1 EA)

REMOVE AND RELOCATE SIGN (1 EA)

RC (99 LF)

CONST. SIDEWALK (62 SY)

CONST. TYPE 3 RAMP (1 EA)

RC (7 LF)

CONC RIPRAP (3 SY)

REMOVE EXIST 12" STRIPING (53 LF)

24" CONTINENTAL CROSSWALK (32 LF)

CONST. TYPE 3 RAMP (1 EA)

RC (18 LF)

CONC RIPRAP (4 SY)

PROTECT POWER POLE

CONST. TYPE 3 RAMP (1 EA)

REMOVE EXIST 12" STRIPING (120 LF)

REMOVE EXIST 12" STRIPING (123 LF)

80 LF 24" CONTINENTAL CROSSWALK

REMOVE AND RESTRIPE 24" STOP LINE (36 LF)

EXIST GROUND BOX TO REMAIN

REMOVE AND INSTALL PED PUSH BUTTON AND SIGN (2 EA)

REMOVE EXIST 12" STRIPING (67 LF)

24" CONTINENTAL CROSSWALK (48 LF)

PROTECT EXISTING INLET (16 LF)

PROTECT EXISTING INLET (25 LF)

REMOVE 24" STOP LINE (14 LF)

24" STOP LINE (12 LF)

PROTECT EXISTING INLET (21 LF)

EXIST GROUND BOX TO REMAIN

INSTALL GROUND BOX (1 EA)

CONST. SIDEWALK (3 SY)

CONST. TYPE C-1 CURB WALL (2 LF)

INSTALL PED POLE ASSEMBLY WITH PED SIGN (1 EA), BUTTON (1 EA), AND HEAD (1 EA)

REMOVE PED POLE ASSEMBLY (1 EA)

CONST. TYPE C-1 CURB WALL (7 LF)

CONST. SIDEWALK (5 SY)

INSTALL PED POLE ASSEMBLY WITH PED SIGN (1 EA), BUTTON (1 EA), AND HEAD (1 EA)

CONST. TYPE C-1 CURB WALL (10 LF)

CONST. SIDEWALK (6 SY)

RC (10 LF)

REMOVE AND RESTRIPE 24" STOP LINE (36 LF)

24" CONTINENTAL CROSSWALK (80 LF)

REMOVE PED PUSH BUTTON (2 EA), HEAD (1 EA), AND SIGN (2 EA) AND INSTALL PED PUSH BUTTON AND SIGN (1 EA)

INSTALL NEW PED POLE ASSEMBLY WITH SIGN (1 EA), BUTTON (1 EA) AND PED HEAD (1 EA)

REMOVE 24" STOP LINE (16 LF)

24" STOP LINE (12 LF)

97'

35'

27.6'

6.8'

8.6'

0 10' 20'

SCALE: 1" = 20'

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- (EP) = EXISTING PED POLE W/PED BUTTON
- (P) = NEW PED POLE W/PED BUTTON
- [T] = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- (WV) = WATER VALVE
- (GV) = GAS VALVE
- = FIRE HYDRANT
- (E) = ELECTRIC METER
- (G) = GAS METER
- [W] = WATER METER

STATE OF TEXAS
STEPHEN A. JOHNSON
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PROFESSIONAL LICENSED ENGINEER
1/18/2022

Texas Department of Transportation

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SH29 AT PIERCE ST BURNET, TX

SHEET 2 OF 8

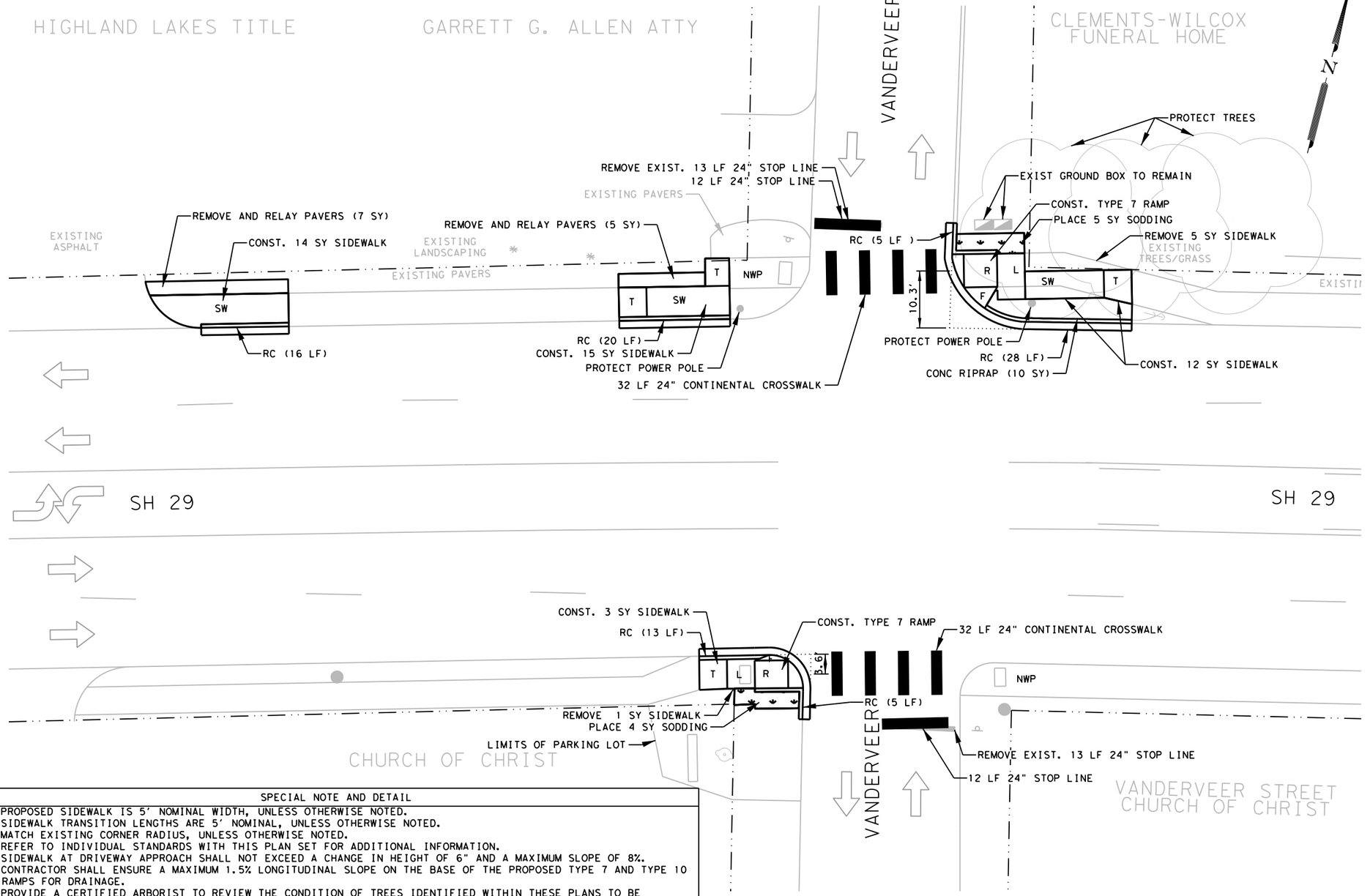
FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	78

STATE	DISTRICT	COUNTY
TEXAS	AUS	BURNET

CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 1/18/2022 3:40:36 PM
FILE: L:\2018\1820002 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\06 SH29 Burnet (Burnet County)\002_SH29_at_Burnet.dgn

COR ID=SH29-Vanderveer-NW



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	6
104	6021	REMOVING CONC (CURB)	LF	87
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	9
162	6002	BLOCK SODDING	SY	9
168	6001	VEGETATIVE WATERING	MG	0.5
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	25
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	25
528	6006	REMOVE AND RELAY PAVERS	SY	12
529	6002	CONC CURB (TY II)	LF	87
531	6002	CONC SIDEWALKS (5")	SY	44
531	6010	CURB RAMPS (TY 7)	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	88
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	26
1004	6001	TREE PROTECTION	EA	3

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) PROVIDE A CERTIFIED ARBORIST TO REVIEW THE CONDITION OF TREES IDENTIFIED WITHIN THESE PLANS TO BE PROTECTED. AN ARBORIST SHALL PROVIDE A CONDITION ASSESSMENT OF THESE TREES AND WRITTEN DIRECTION FOR ADDITIONAL PROTECTION AT LEAST 5 BUSINESS DAYS PRIOR TO BEGINNING WORK. TXDOT WILL APPROVE ADDITIONAL WORK. PAYMENT FOR THE ARBORIST AND WORK IN ADDITION TO WORK SHOWN ON THE PLANS WILL BE PAID FOR UNDER THE FORCE ACCOUNT METHOD IN ACCORDANCE WITH ARTICLE 9.7, "PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT METHOD."
8) ONCE WORK COMMENCES, COORDINATE WITH THE ARBORIST WHILE EXCAVATING, AND TAKE CARE WHEN WORKING IN/NEAR THE CRITICAL ROOT ZONE AND SHALL EXPOSE EXISTING TREE ROOTS AND DOCUMENT WITH PHOTOGRAPHS TO VERIFY CONDITION. THE AROBORIST SHALL REVIEW PROPOSED IMPROVEMENTS TO BE CONSTRUCTED AND RECOMMEND IMPROVEMENTS TO AVOID DAMAGE TO TREE ROOTS. TXDOT WILL APPROVE RECOMMENDATIONS PRIOR TO CONSTRUCTION. DAMAGE TO EXISTING ROOTS, ROOT BARRIERS OR OTHER UNDERGROUND FACILITIES SHALL BE REPLACED IN -KIND AT THE CONTRACTOR'S EXPENSE.
9) DURING WORK HOURS, IF IT IS DEEMED UNSAFE OR INSUFFICIENT ROOM EXISTS ADJACENT TO PROVIDE TREE PROTECTION FENCING PER THE STANDARDS HEREIN, TREE PROTECTION CHAIN LINK FENCING MAY BE REMOVED TEMPORARILY WITH IN THE WORK AREA. TREE PROTECTION PLANKING SHALL REMAIN AND SHALL NOT BE REMOVED. AFTER COMPLETION OF WORK ADJACENT TO TREES IN THESE AREAS, OR AT THE END OF EACH WORK DAY, TREE PROTECTION FENCING SHALL BE ERECTED.
10) TREE TRUNK LOCATIONS AND DIAMETERS ARE APPROX. ESTIMATIONS. NO TRADITIONAL TREE SURVEY WAS PERFORMED.

COR ID=SH29-Vanderveer-SW

COR ID=SH29-Vanderveer-SE

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

SH29 AT VANDERVEER BURNET, TX

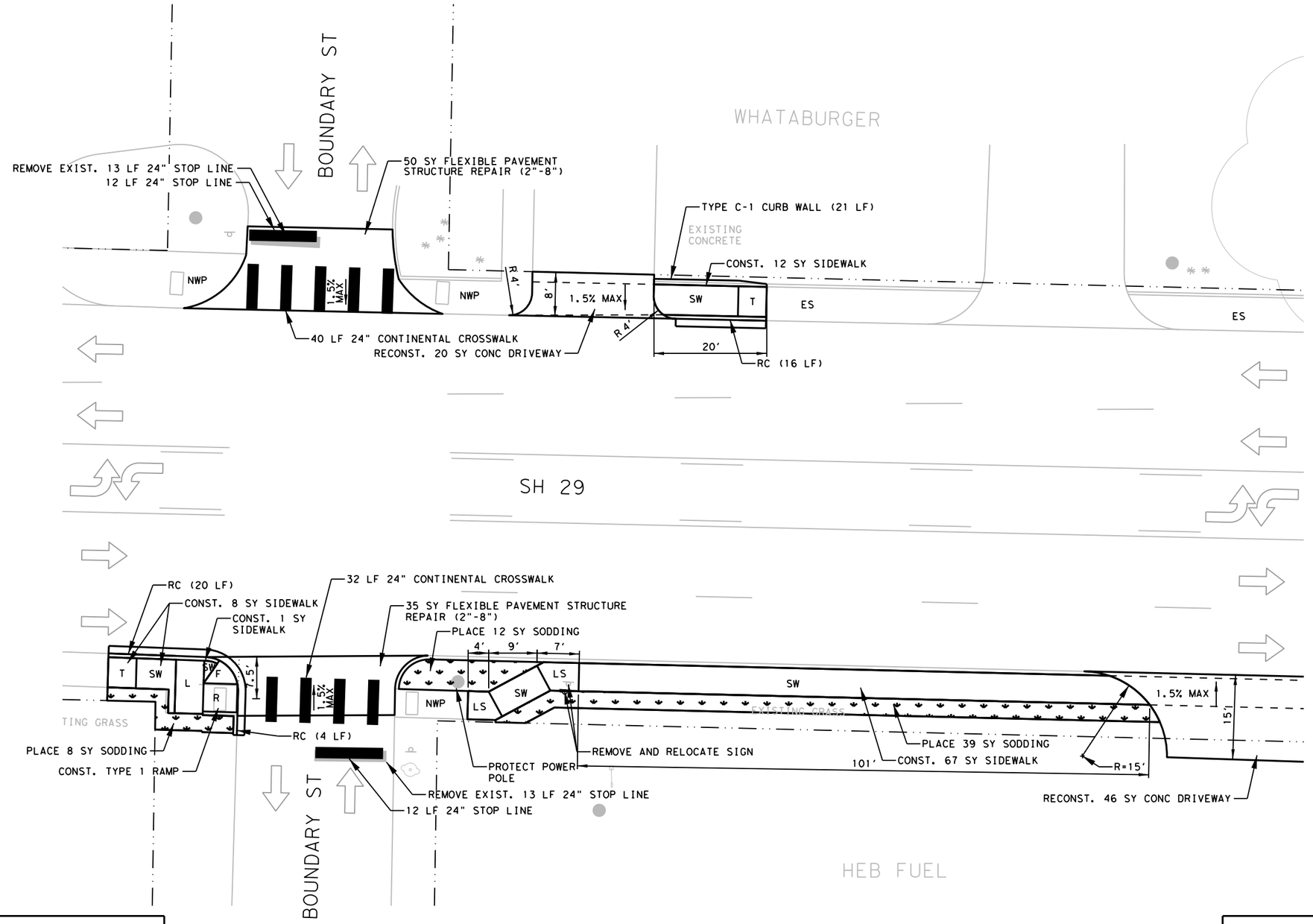
SHEET 3 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		79
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 1/18/2022 3:40:37 PM
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\06 SH29 Burnet (Burnet County)\003_SH29_at_Burnet.dgn

COR ID=SH29-BoundarySt-NW

COR ID=SH29-BoundarySt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	66
104	6021	REMOVING CONC (CURB)	LF	40
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	59
162	6002	BLOCK SODDING	SY	59
168	6001	VEGETATIVE WATERING	MG	3.5
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	85
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	146
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	146
529	6002	CONC CURB (TY II)	LF	40
529	6015	CONC CURB (TY C1)	LF	21
530	6004	DRIVEWAYS (CONC)	SY	66
531	6002	CONC SIDEWALKS (5")	SY	88
531	6004	CURB RAMPS (TY 1)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	96
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	26

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
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LICENSED
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

SH 29 AT BOUNDARY ST BURNET, TX

SHEET 4 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	80

STATE	DISTRICT	COUNTY
TEXAS	AUS	BURNET

CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SH29-BoundarySt-SW

COR ID=SH29-BoundarySt-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) BOUNDARY STREET, SE CORNER: CONTRACTOR SHALL FIELD VERIFY ROW LOCATION AND HOLD AN ON-SITE MEETING WITH THE ENGINEER AND PROPERTY OWNER PRIOR TO CONSTRUCTING ANY IMPROVEMENTS OUTSIDE OF PUBLIC ROW.

LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- (EP) = EXISTING PED POLE W/PED BUTTON
- (P) = NEW PED POLE W/PED BUTTON
- (T) = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- (WV) = WATER VALVE
- (GV) = GAS VALVE
- = FIRE HYDRANT
- (E) = ELECTRIC METER
- (G) = GAS METER
- (W) = WATER METER

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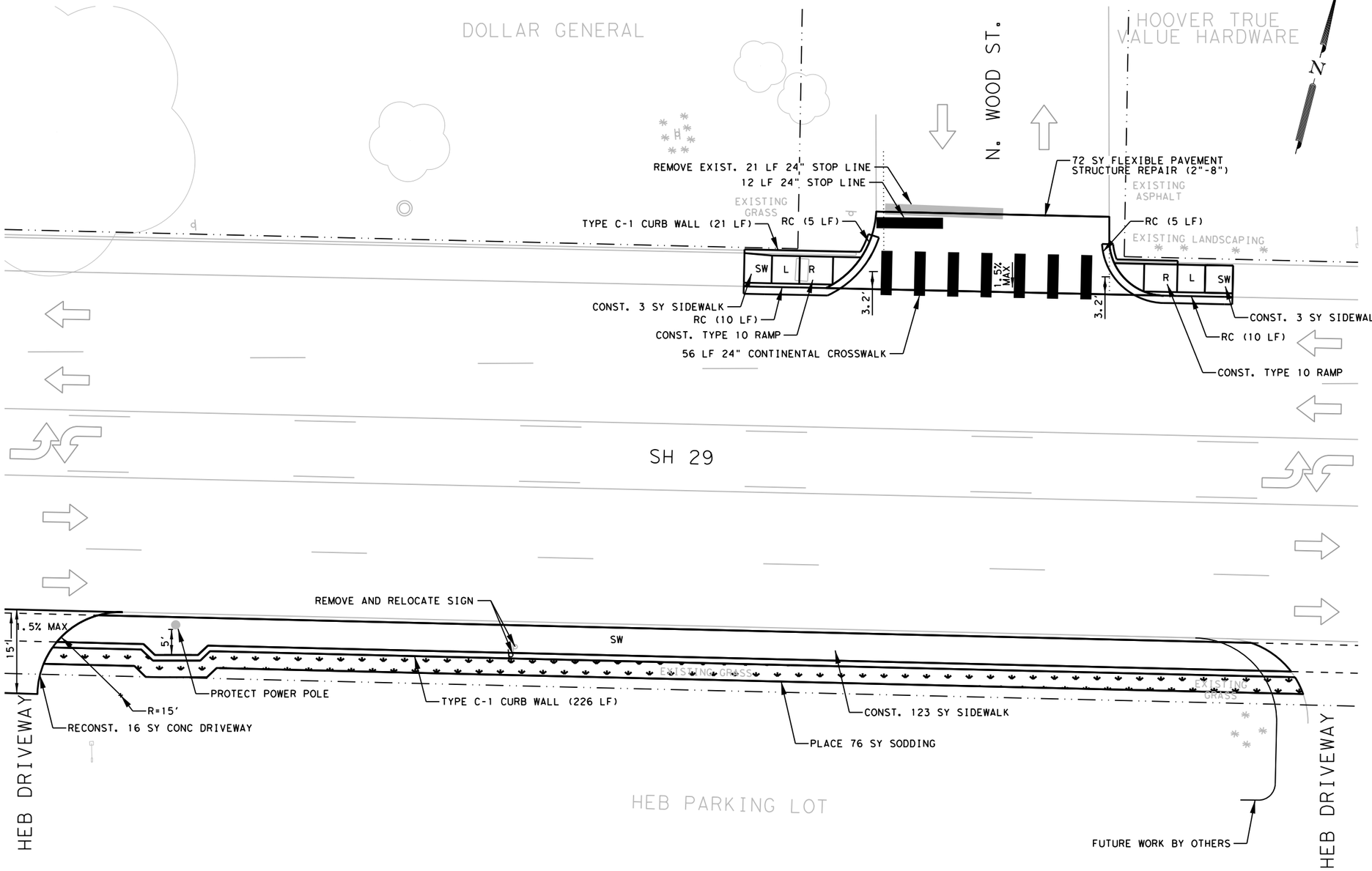
COR ID=SH29-WoodSt-NW

COR ID=SH29-WoodSt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	16
104	6021	REMOVING CONC (CURB)	LF	30
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	76
162	6002	BLOCK SODDING	SY	76
168	6001	VEGETATIVE WATERING	MG	4.6
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	72
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	228
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	228
529	6002	CONC CURB (TY II)	LF	30
529	6015	CONC CURB (TY C1)	LF	247
530	6004	DRIVEWAYS (CONC)	SY	16
531	6002	CONC SIDEWALKS (5")	SY	129
531	6013	CURB RAMPS (TY 10)	EA	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	68
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	21

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

SH29 AT WOOD ST BURNET, TX

SHEET 5 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		81
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) SOUTH SIDE, AT HEB DRIVEWAY: CONTRACTOR SHALL FIELD VERIFY ROW LOCATION AND HOLD AN ON-SITE MEETING WITH THE ENGINEER AND PROPERTY OWNER PRIOR TO CONSTRUCTING ANY IMPROVEMENTS OUTSIDE OF PUBLIC ROW.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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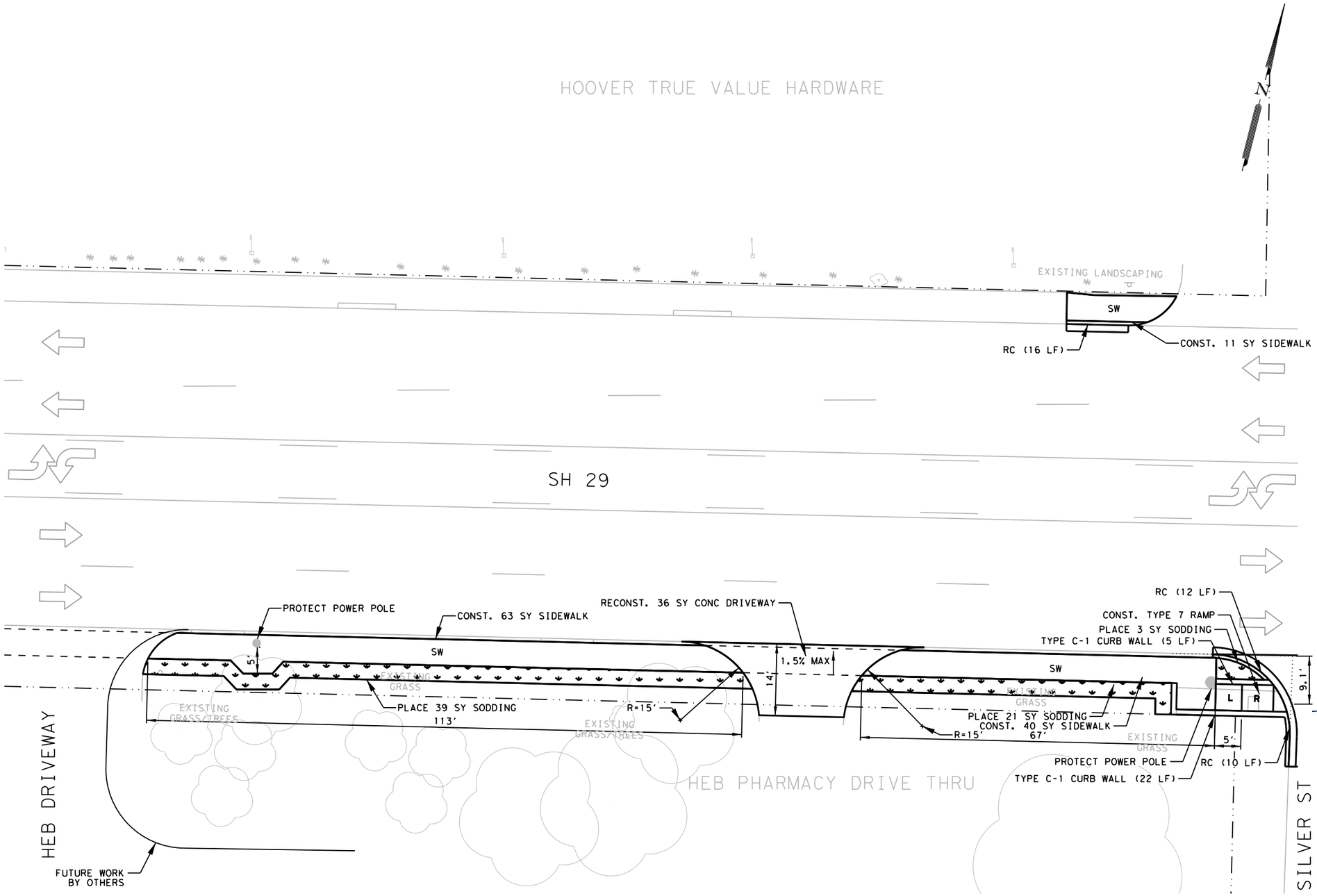
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	36
104	6021	REMOVING CONC (CURB)	LF	38
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	63
162	6002	BLOCK SODDING	SY	63
168	6001	VEGETATIVE WATERING	MG	3.8
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	181
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	181
529	6002	CONC CURB (TY II)	LF	38
529	6015	CONC CURB (TY C1)	LF	22
530	6004	DRIVEWAYS (CONC)	SY	36
531	6002	CONC SIDEWALKS (5")	SY	114
531	6010	CURB RAMPS (TY 7)	EA	1



CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
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1/18/2022

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SH29 MIDBLOCK BETWEEN WOOD ST AND SILVER ST BURNET, TX

SHEET 6 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		82
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

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5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) SOUTH SIDE, AT SILVER STREET: CONTRACTOR SHALL FIELD VERIFY ROW LOCATION AND HOLD AN ON-SITE MEETING WITH THE ENGINEER AND THE PROPERTY OWNER PRIOR TO CONSTRUCTING ANY IMPROVEMENTS OUTSIDE OF PUBLIC ROW.

LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- (EP) = EXISTING PED POLE W/PED BUTTON
- (P) = NEW PED POLE W/PED BUTTON
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- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
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- SW = SIDEWALK
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- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
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- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
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- = LIGHT POLE
- (WV) = WATER VALVE
- (GV) = GAS VALVE
- = FIRE HYDRANT
- (E) = ELECTRIC METER
- (G) = GAS METER
- [W] = WATER METER

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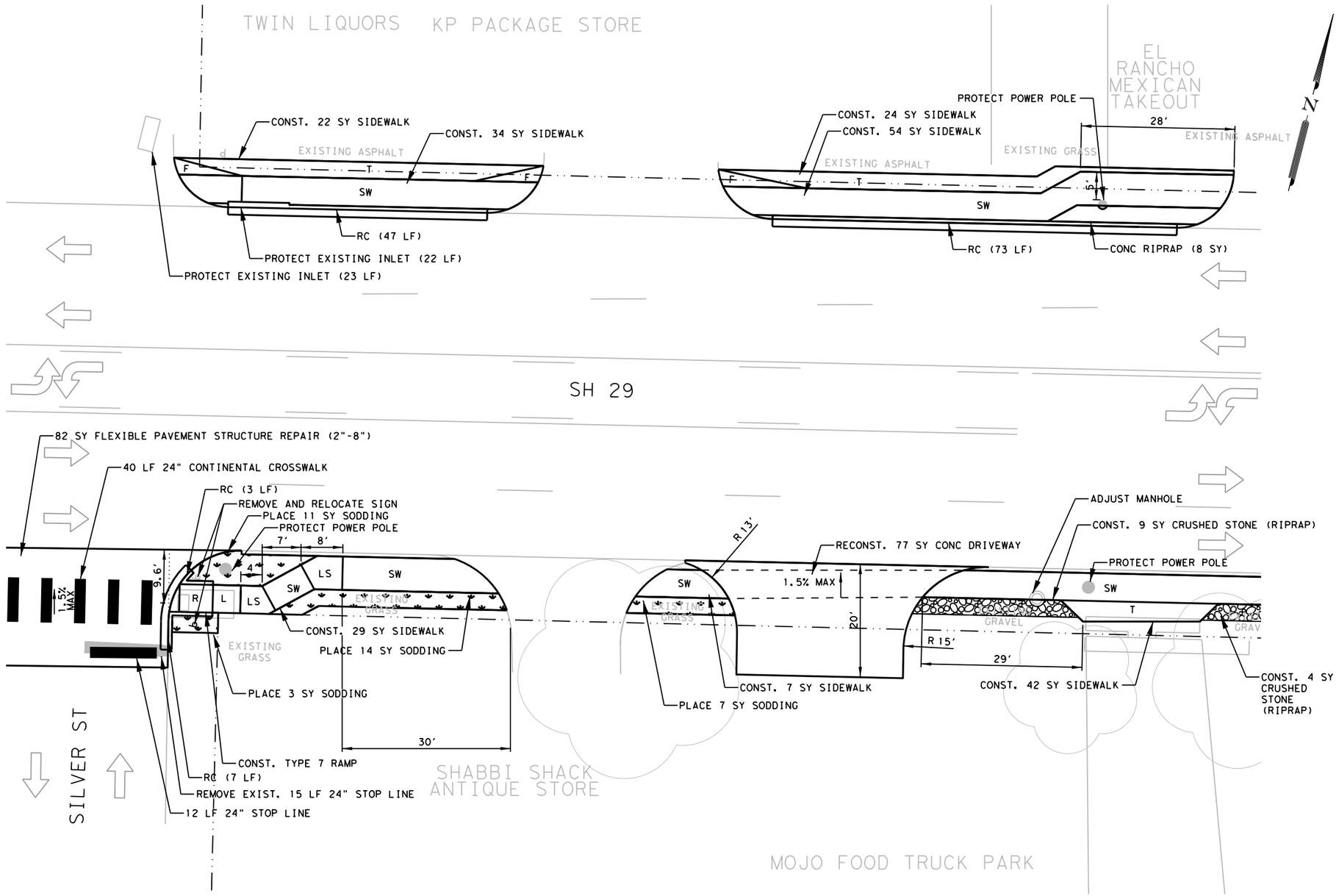
COR ID=SH29-SilverSt-NW

COR ID=SH29-SilverSt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	77
104	6021	REMOVING CONC (CURB)	LF	130
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	35
162	6002	BLOCK SODDING	SY	35
168	6001	VEGETATIVE WATERING	MG	2.1
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	82
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
432	6020	RIPRAP (STONE TY F)(GROUT)(6 IN)	CY	3
479	6001	ADJUSTING MANHOLES	EA	1
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	144
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	144
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	45
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	45
529	6002	CONC CURB (TY II)	LF	130
530	6004	DRIVEWAYS (CONC)	SY	77
531	6002	CONC SIDEWALKS (5")	SY	212
531	6010	CURB RAMPS (TY 7)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	52
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	15

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

COR ID=SH29-SilverSt-SW

COR ID=SH29-SilverSt-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
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6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) NORTH AND SOUTH SIDE, EXISTING BUSINESSES: CONTRACTOR SHALL FIELD VERIFY ROW LOCATION AND HOLD AN ON-SITE MEETING WITH THE ENGINEER AND PROPERTY OWNER PRIOR TO CONSTRUCTING ANY IMPROVEMENTS OUTSIDE OF PUBLIC ROW.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
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(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER

1/18/2022

Texas Department of Transportation

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SH29 AT SILVER ST BURNET, TX

SHEET 7 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		83
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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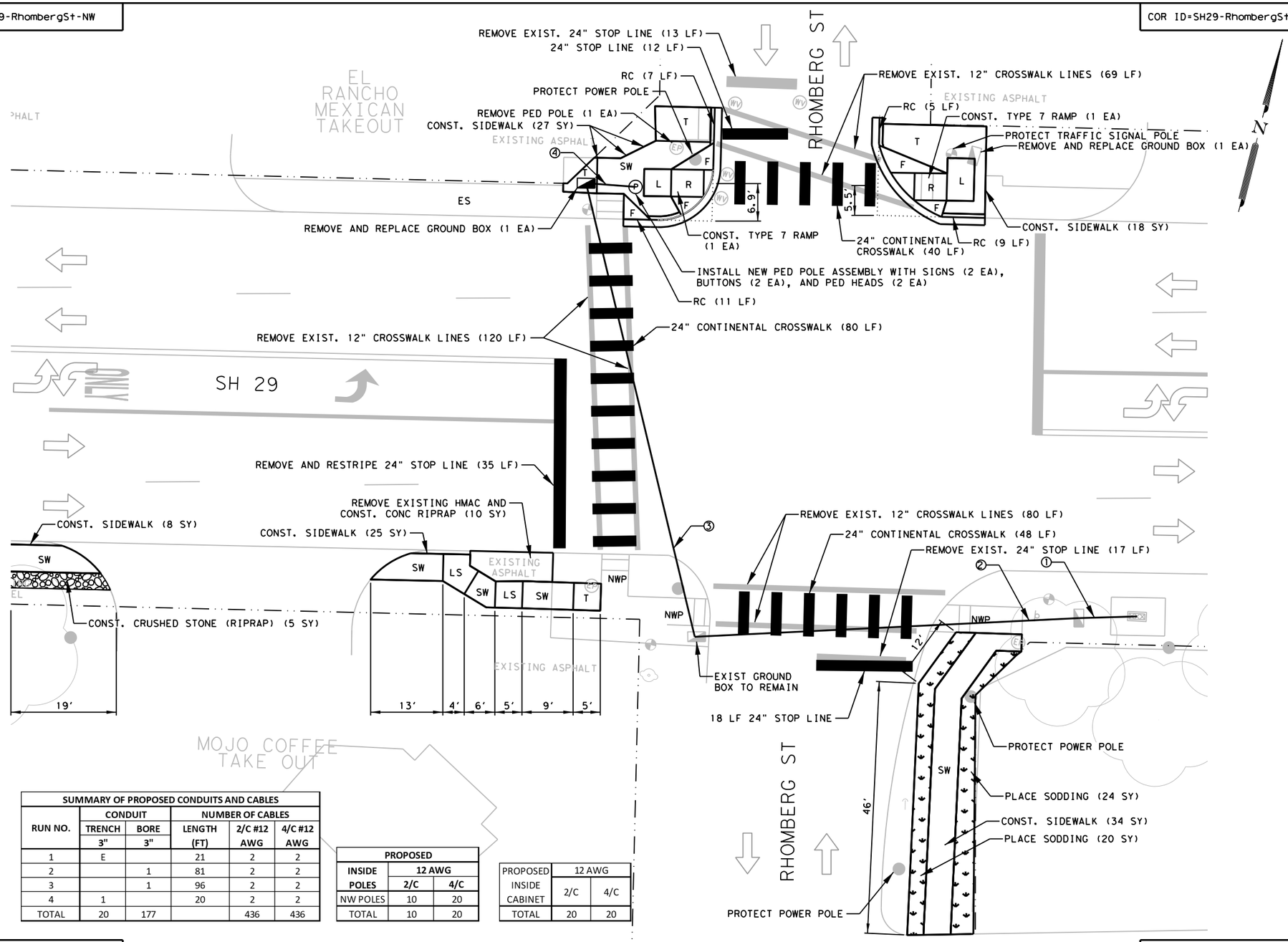
COR ID=SH29-RhombergSt-NW

COR ID=SH29-RhombergSt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	32
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	10
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	44
162	6002	BLOCK SODDING	SY	44
168	6001	VEGETATIVE WATERING	MG	2.6
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
432	6020	RIPRAP (STONE TY F)(GROUT)(6 IN)	CY	1
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	115
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	115
529	6002	CONC CURB (TY II)	LF	32
531	6002	CONC SIDEWALKS (5")	SY	112
531	6010	CURB RAMPS (TY 7)	EA	2
618	6029	CONDT (PVC) (SCH 40) (3")	LF	20
618	6030	CONDT (PVC) (SCH 40) (3")(BORE)	LF	177
624	6009	GROUND BOX TY D (162922)	EA	2
624	6028	REMOVE GROUND BOX	EA	2
636	6001	ALUMINUM SIGNS (TY A)	SF	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	233
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	269
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	65
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	2
684	6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	466
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	476
687	6001	PED POLE ASSEMBLY	EA	2
687	6005	REMOVE PED POLE ASSEMBLY	EA	1
688	6001	PED DETECT PUSH BUTTON (APS)	EA	2

CONTRACTOR SHALL FIELD VERIFY ROW AND SHALL COORDINATE WITH THE ENGINEER AND PROPERTY OWNER BEFORE BEGINNING CONSTRUCTION.

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- APPARENT ROW

SCALE: 1" = 20'

SUMMARY OF PROPOSED CONDUITS AND CABLES					
RUN NO.	CONDUIT		NUMBER OF CABLES		
	TRENCH 3"	BORE 3"	LENGTH (FT)	2/C #12 AWG	4/C #12 AWG
1	E		21	2	2
2		1	81	2	2
3		1	96	2	2
4	1		20	2	2
TOTAL	20	177		436	436

PROPOSED		
INSIDE POLES	12 AWG 2/C	4/C
NW POLES	10	20
TOTAL	10	20

PROPOSED INSIDE CABINET	12 AWG 2/C	4/C
TOTAL	20	20

COR ID=SH29-RhombergSt-SW

COR ID=SH29-RhombergSt-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
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= EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	= WATER VALVE
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= TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	= ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	= GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	= WATER METER

STATE OF TEXAS
STEPHEN A. JOHNSON
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LICENSED PROFESSIONAL ENGINEER
1/18/2022

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SH29 AT RHOMBERG ST BURNET, TX

SHEET 8 OF 8

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		84
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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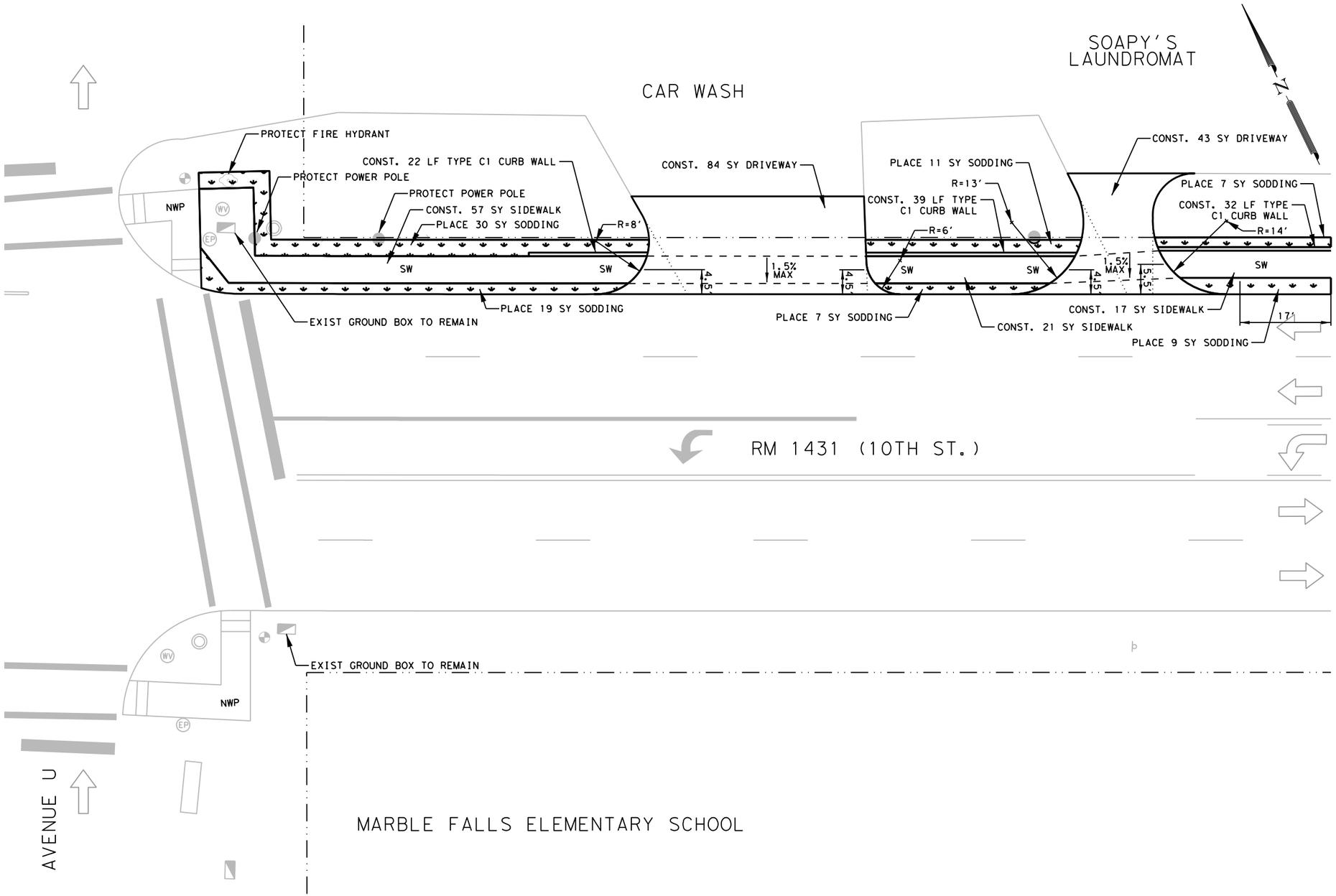
COR ID=RM1431-AvenueU-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	127
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	83
162	6002	BLOCK SODDING	SY	83
168	6001	VEGETATIVE WATERING	MG	5.0
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	170
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	170
529	6015	CONC CURB (TY C1)	LF	93
530	6004	DRIVEWAYS (CONC)	SY	127
531	6002	CONC SIDEWALKS (5")	SY	95



COR ID=RM1431-AvenueU-SE

SPECIAL NOTE AND DETAIL

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5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- = TRAFFIC SIGNAL POLE
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- EP = EXISTING PED POLE W/PED BUTTON
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- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
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- = SHRUB
- = GRASS
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- = LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
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LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
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PROFESSIONAL LICENSED ENGINEER
1/18/2022

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RM1431 AT AVENUE U MARBLE FALLS, TX

SHEET 1 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		85
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 1/18/2022 3:40:47 PM
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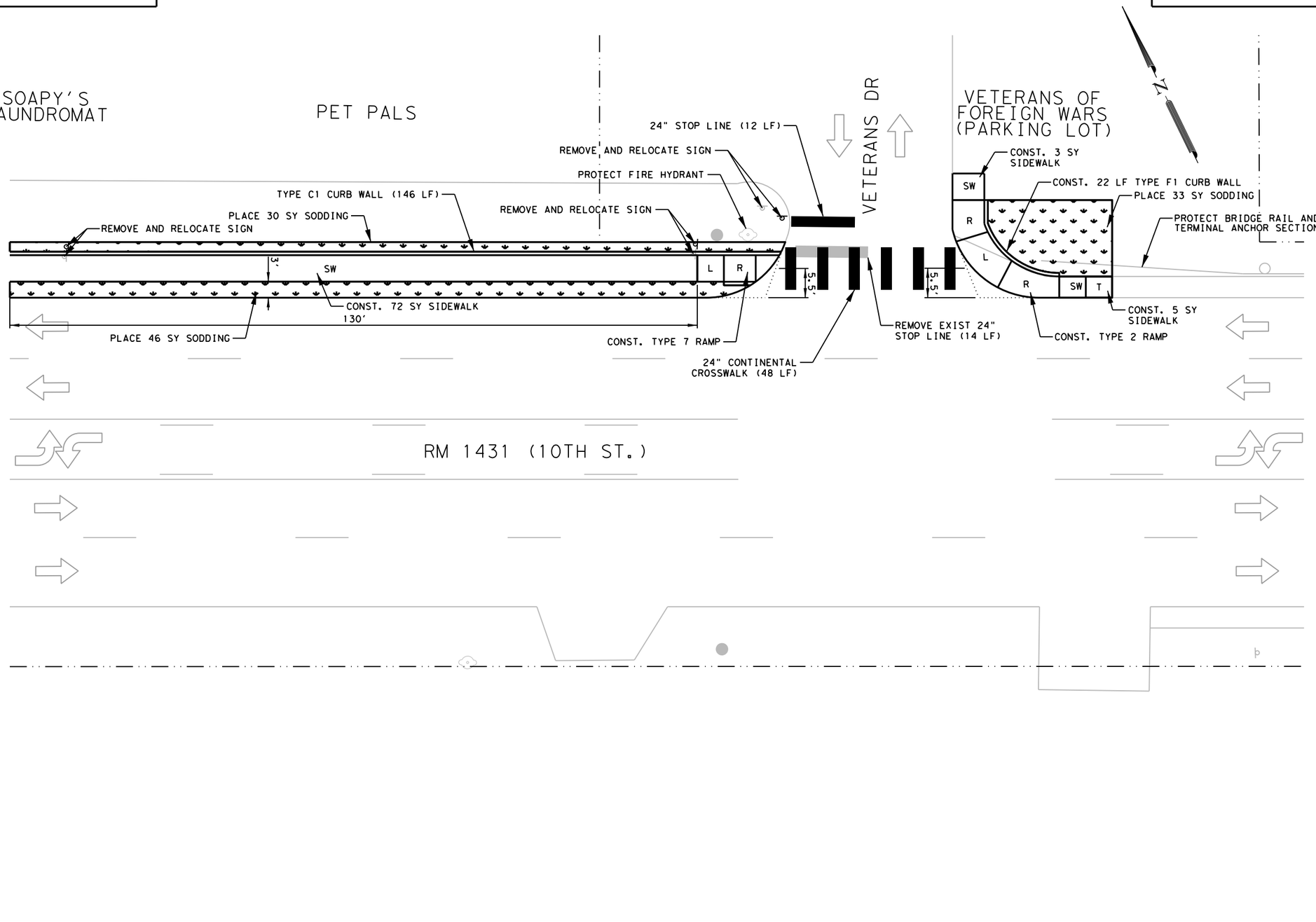
COR ID=RM1431-VeteransDr-NW

COR ID=RM1431-VeteransDr-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	109
162	6002	BLOCK SODDING	SY	109
168	6001	VEGETATIVE WATERING	MG	6.5
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	147
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	147
529	6015	CONC CURB (TY C1)	LF	146
529	6016	CONC CURB (TY F1)	LF	22
531	6002	CONC SIDEWALKS (5")	SY	80
531	6005	CURB RAMPS (TY 2)	EA	1
531	6010	CURB RAMPS (TY 7)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	60
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	14

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

RM1431 AT VETERANS DR MARBLE FALLS, TX

SHEET 2 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		86
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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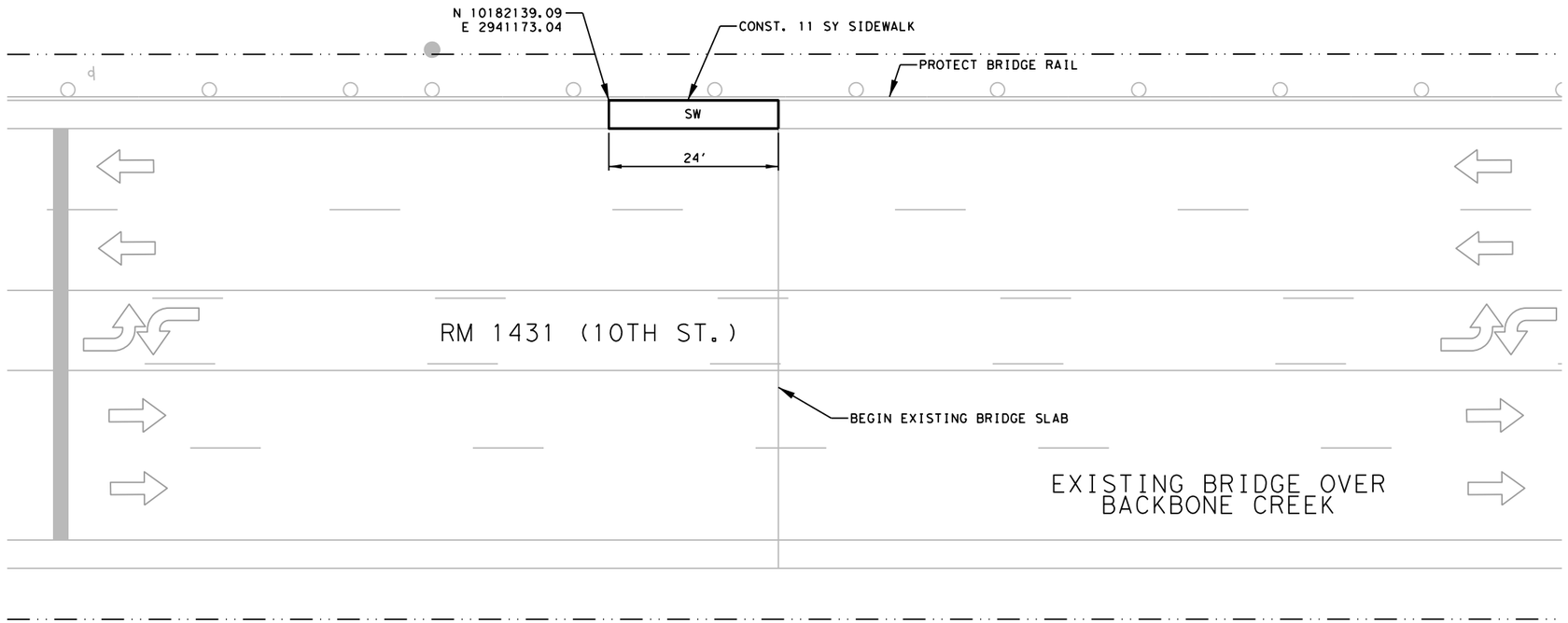
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
531	6002	CONC SIDEWALKS (5")	SY	11



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER

1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

RM1431 MIDBLOCK BETWEEN VETERANS DR AND ARBOR LN MARBLE FALLS, TX

SHEET 3 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		87
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) RECONSTRUCT SIDEWALK AS SHOWN ON THE NORTH SIDE OF RM 1431 TO ELIMINATE VERTICAL SETTLEMENT ISSUES AT BRIDGE SLAB. PROTECT BRIDGE SLAB. PROTECT EXISTING BRIDGE RAIL.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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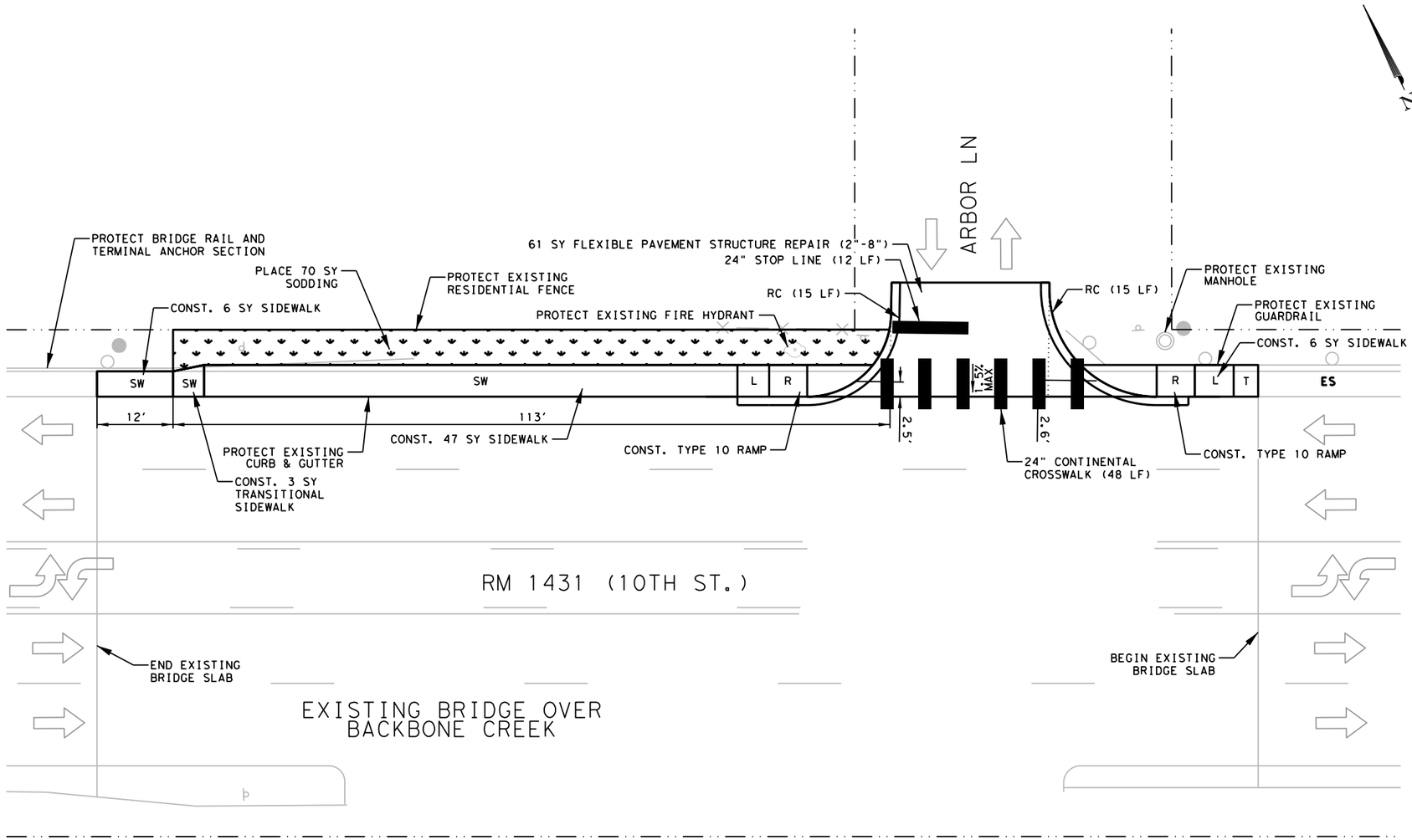
COR ID=RM1431-ArborLn-NW

COR ID=RM1431-ArborLn-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	30
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	70
162	6002	BLOCK SODDING	SY	70
168	6001	VEGETATIVE WATERING	MG	4.2
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	61
529	6002	CONC CURB (TY II)	LF	30
531	6002	CONC SIDEWALKS (5")	SY	62
531	6013	CURB RAMPS (TY 10)	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	60



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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RM1431 AT ARBOR LN MARBLE FALLS, TX

SHEET 4 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	88

STATE	DISTRICT	COUNTY
TEXAS	AUS	BURNET

CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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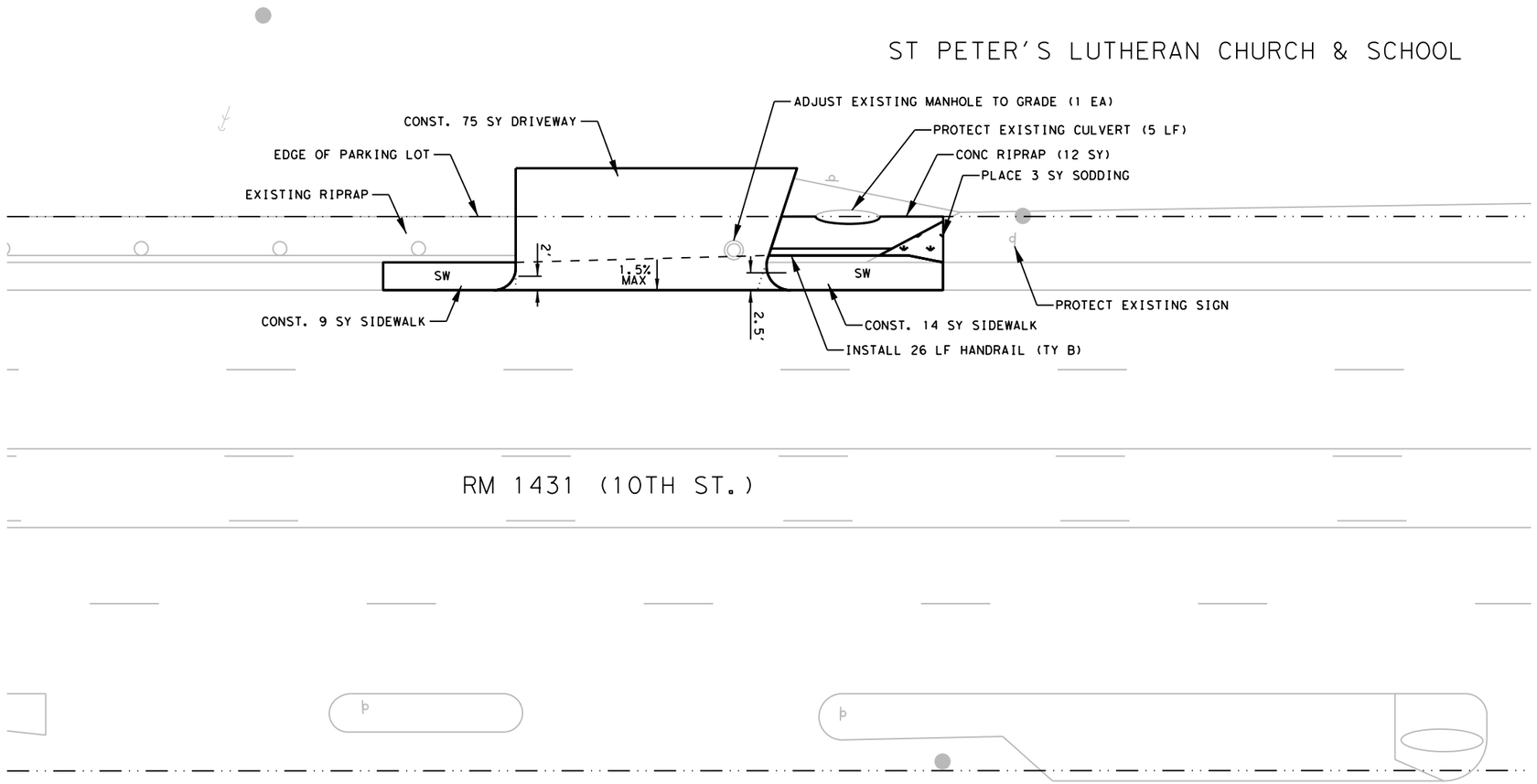
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	75
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	3
162	6002	BLOCK SODDING	SY	3
168	6001	VEGETATIVE WATERING	MG	0.2
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
450	6048	RAIL (HANDRAIL)(TY B)	LF	26
479	6001	ADJUSTING MANHOLES	EA	1
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	5
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	5
530	6004	DRIVEWAYS (CONC)	SY	75
531	6002	CONC SIDEWALKS (5")	SY	23



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER
1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

RM1431 MIDBLOCK BETWEEN ARBOR LN AND ELM LN MARBLE FALLS, TX

SHEET 5 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		89
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
[T] = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	[W] = WATER METER

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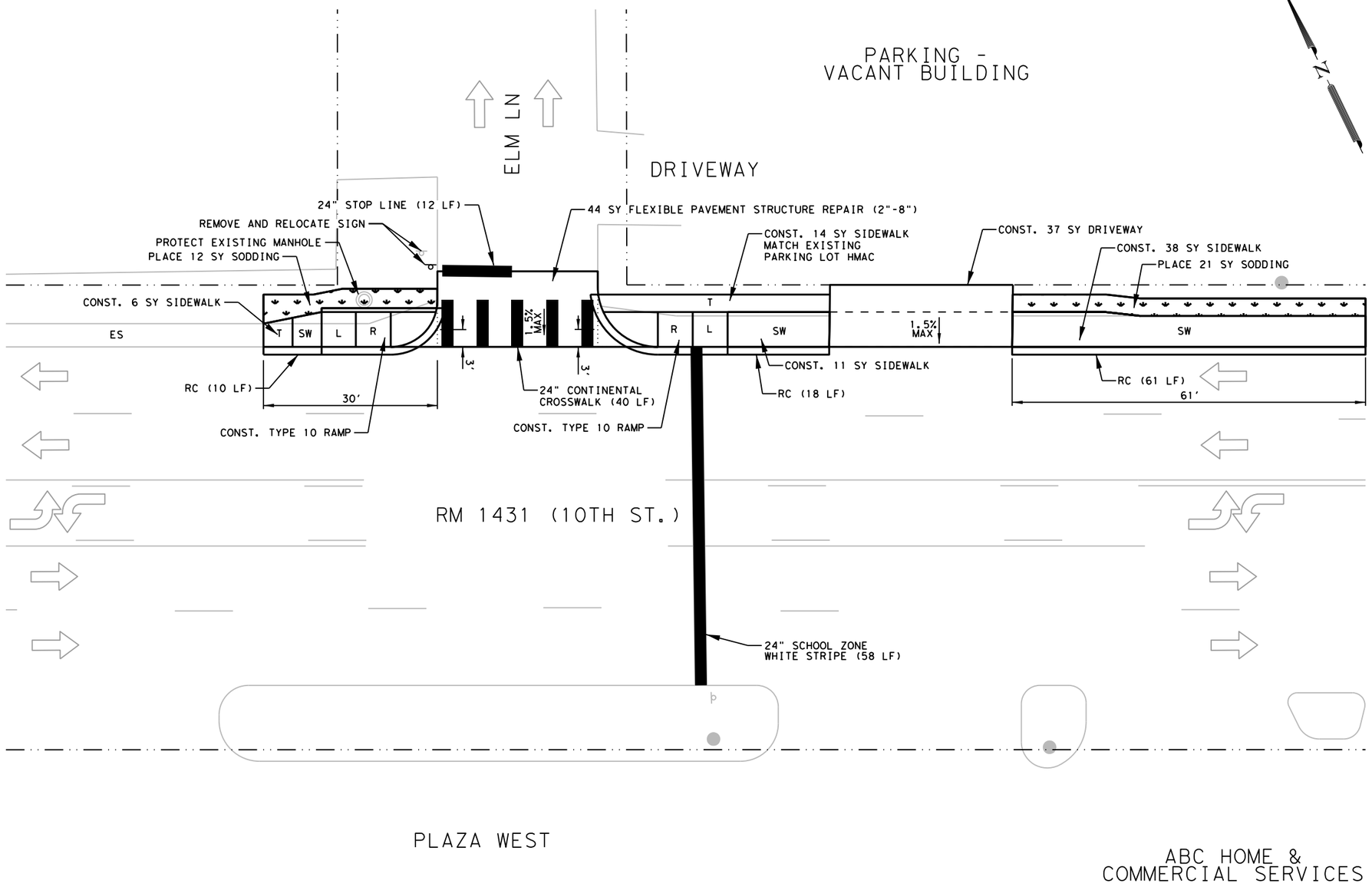
COR ID=RM1431-ElmLn-NW

COR ID=RM1431-ElmLn-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	37
104	6021	REMOVING CONC (CURB)	LF	89
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	33
162	6002	BLOCK SODDING	SY	33
168	6001	VEGETATIVE WATERING	MG	2.0
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	44
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	49
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	49
529	6002	CONC CURB (TY II)	LF	89
530	6004	DRIVEWAYS (CONC)	SY	37
531	6002	CONC SIDEWALKS (5")	SY	69
531	6013	CURB RAMPS (TY 10)	EA	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	110



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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(512) 485-0020
TBPELS Firm 5713

RM1431
AT
ELM LN
MARBLE FALLS, TX

SHEET 6 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		90
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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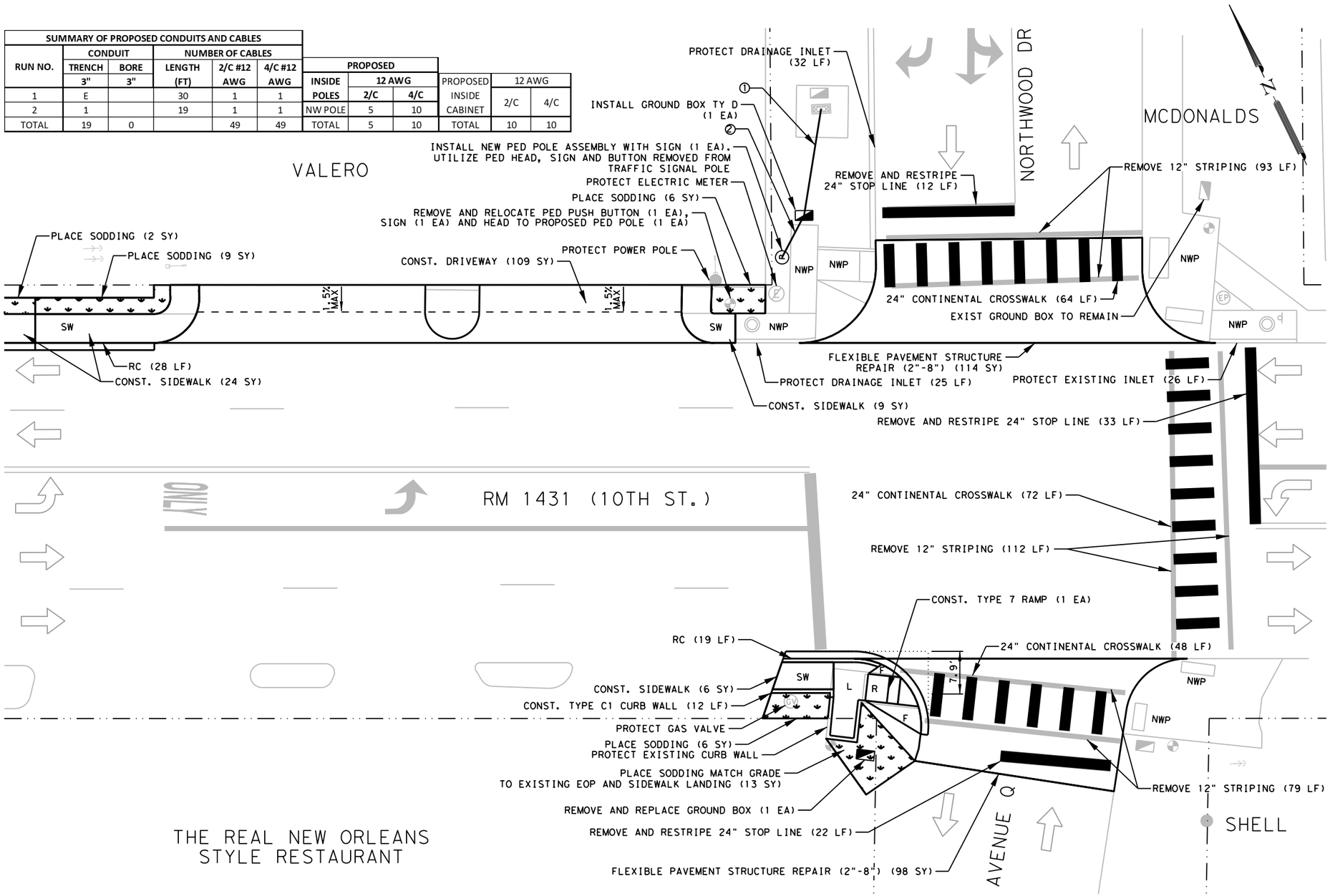
COR ID=RM1431-NorthwoodDr-NW

COR ID=RM1431-NorthwoodDr-NE

SUMMARY OF PROPOSED CONDUITS AND CABLES											
RUN NO.	CONDUIT		NUMBER OF CABLES			PROPOSED			PROPOSED	12 AWG	
	TRENCH	BORE	LENGTH	2/C #12	4/C #12	INSIDE	12 AWG		INSIDE	2/C	4/C
	3"	3"	(FT)	AWG	AWG	POLES	2/C	4/C	CABINET		
1	E		30	1	1						
2	1		19	1	1	NW POLE	5	10			
TOTAL	19	0		49	49	TOTAL	5	10	TOTAL	10	10

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	109
104	6021	REMOVING CONC (CURB)	LF	47
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	36
162	6002	BLOCK SODDING	SY	36
168	6001	VEGETATIVE WATERING	MG	2.2
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	212
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	70
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	70
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	83
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	83
529	6002	CONC CURB (TY II)	LF	47
529	6015	CONC CURB (TY C1)	LF	12
530	6004	DRIVEWAYS (CONC)	SY	109
531	6002	CONC SIDEWALKS (5")	SY	39
531	6010	CURB RAMPS (TY 7)	EA	1
618	6029	CONDT (PVC) (SCH 40) (3")	LF	19
624	6010	GROUND BOX TY D (162922)W/APRON	EA	2
624	6028	REMOVE GROUND BOX	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	251
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	284
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	67
684	6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	64
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	69
687	6001	PED POLE ASSEMBLY	EA	1
690	6024	REMOVAL OF SIGNAL HEAD ASSM	EA	1
690	6123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	1



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10′ 20′

SCALE: 1" = 20′

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
LICENSED
3/23/2022

Texas Department of Transportation

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285 SE Inner Loop
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Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

COR ID=RM1431-AvenueQ-SW

COR ID=RM1431-AvenueQ-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5′ NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5′ NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

RM1431 AT AVENUE Q/NORTHWOOD DR MARBLE FALLS, TX

SHEET 7 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		91
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

DATE: 3/23/2022 11:55:21 AM
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\07 RM1431 Marble Falls (Burnet County)\007_RM1431_at_Marble_Falls.dgn

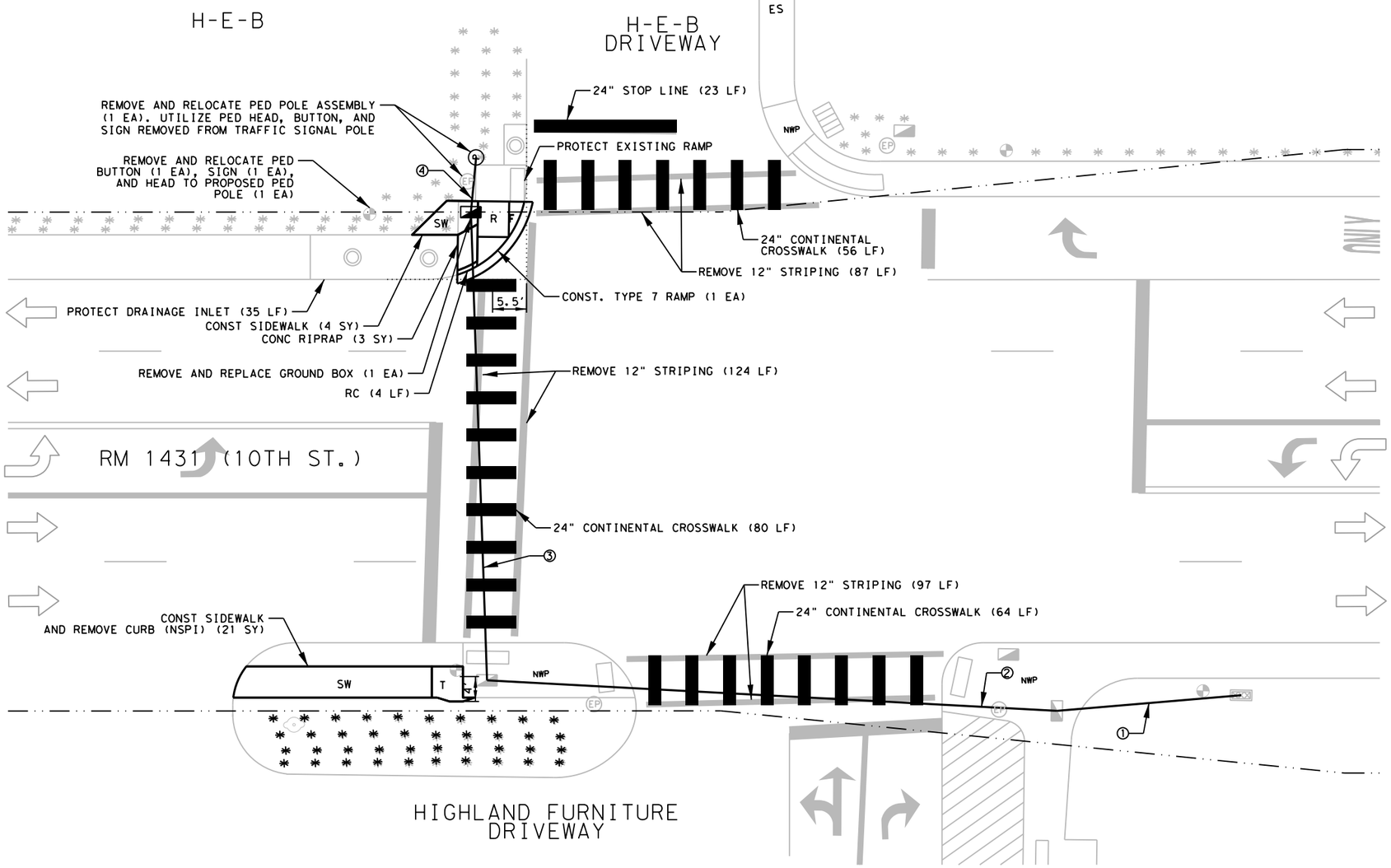
COR ID=RM1431-HEBDrvwy-NW

SUMMARY OF PROPOSED CONDUITS AND CABLES					
RUN NO.	CONDUIT		NUMBER OF CABLES		
	TRENCH	BORE	LENGTH	2/C #12	4/C #12
	3"	3"	(FT)	AWG	AWG
1	E		39	1	1
2		1	102	1	1
3		1	86	1	1
4	1		19	1	1
TOTAL	19	188		246	246

PROPOSED			PROPOSED		
INSIDE	12 AWG		INSIDE	12 AWG	
POLES	2/C	4/C	CABINET	2/C	4/C
NW POLE	5	10			
TOTAL	5	10	TOTAL	10	10

COR ID=RM1431-HEBDrvwy-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	4
432	6011	RIPRAP (CONC) (CL B) (6")	CY	1
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	35
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	35
529	6002	CONC CURB (TY II)	LF	4
531	6002	CONC SIDEWALKS (5")	SY	25
531	6010	CURB RAMPS (TY 7)	EA	1
618	6029	CONDT (PVC) (SCH 40) (3")	LF	19
618	6030	CONDT (PVC) (SCH 40) (3")(BORE)	LF	188
624	6009	GROUND BOX TY D (162922)	EA	1
624	6028	REMOVE GROUND BOX	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	223
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	308
684	6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	261
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	266
687	6003	RELOCATE PED POLE ASSEMBLY	EA	1
690	6024	REMOVAL OF SIGNAL HEAD ASSM	EA	1
690	6123	RELOCATE OF PEDESTRIAN PUSH BUTTON	EA	1



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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(512) 485-0020
TBPELS Firm 5713

RM1431 MIDBLOCK BETWEEN NORTHWOOD DR AND BLUEBONNET DR MARBLE FALLS, TX

SHEET 8 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		92
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=RM1431-HighlandFurn-SW

COR ID=RM1431-HighlandFurn-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) NW CORNER AT HEB: CONTRACTOR SHALL FIELD VERIFY ROW LOCATION AND HOLD AN ON-SITE MEETING WITH THE ENGINEER AND PROPERTY OWNER PRIOR TO CONSTRUCTING ANY IMPROVEMENTS OUTSIDE OF PUBLIC ROW.

LEGEND

◒ = TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	* = SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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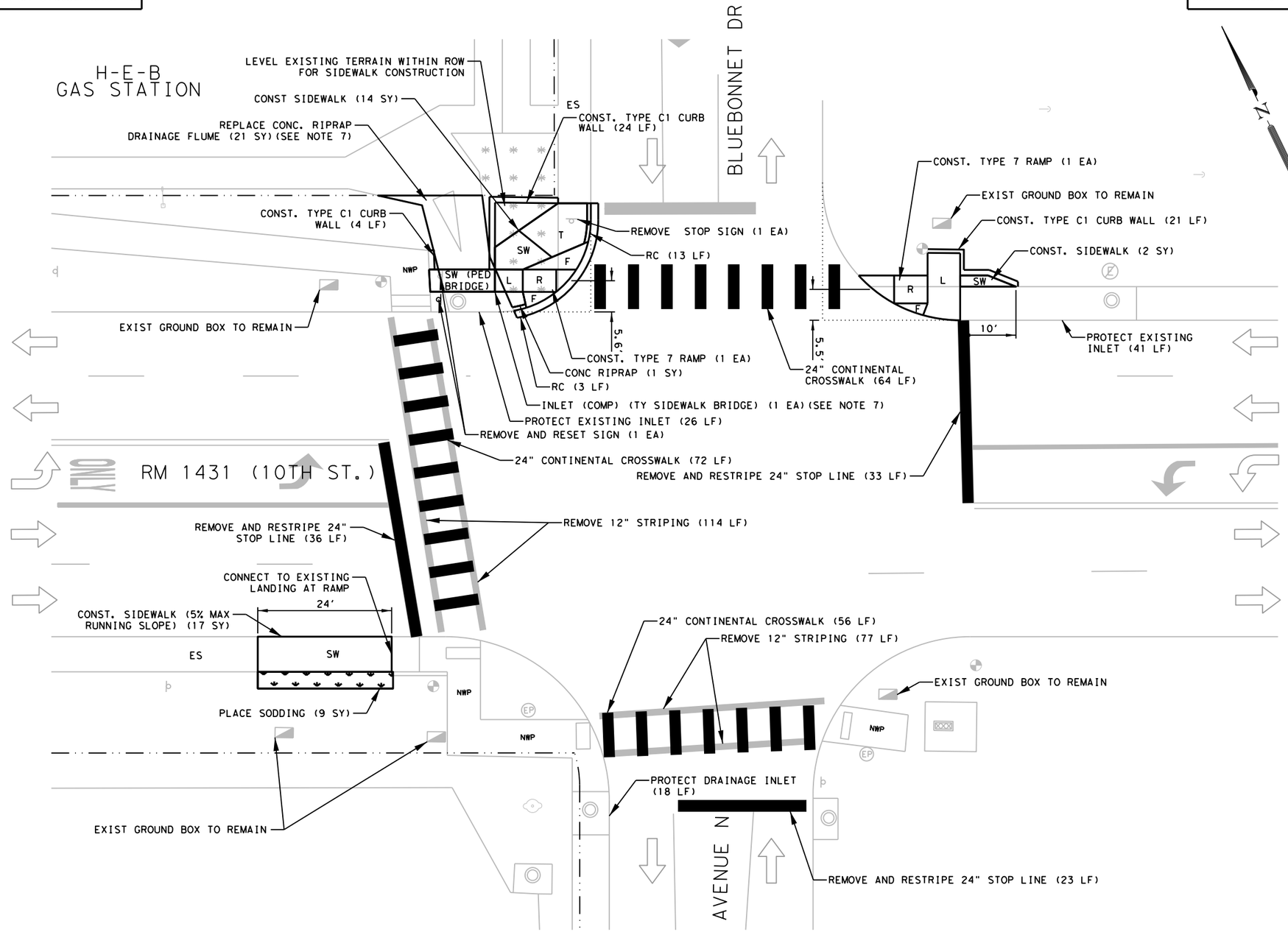
COR ID=RM1431-BluebonnetDr-NW

COR ID=RM1431-BluebonnetDR-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	16
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	9
162	6002	BLOCK SODDING	SY	9
168	6001	VEGETATIVE WATERING	MG	0.5
432	6011	RIPRAP (CONC) (CL B) (6")	CY	4
465	6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	1
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	25
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	25
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	67
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	67
529	6002	CONC CURB (TY II)	LF	16
529	6015	CONC CURB (TY C1)	LF	49
531	6002	CONC SIDEWALKS (5")	SY	33
531	6010	CURB RAMPS (TY 7)	EA	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
644	6076	REMOVE SM RD SN SUP&AM	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	284
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	191
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	92

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER

1/25/2022

Texas Department of Transportation

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Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

COR ID=RM1431-AvenueN-SW

COR ID=RM1431-AvenueN-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) NW CORNER: CONTRACTOR SHALL SHAPE DRAINAGE FLUME AND PROPOSED SIDEWALK BRIDGE TO NOT RESTRICT DRAINAGE FLOW FROM EXISTING CAPACITY.

LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- = FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

RM1431 AT BLUEBONNET DR MARBLE FALLS, TX

SHEET 9 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		93
STATE	DISTRICT	COUNTY	
TEXAS	AUS	BURNET	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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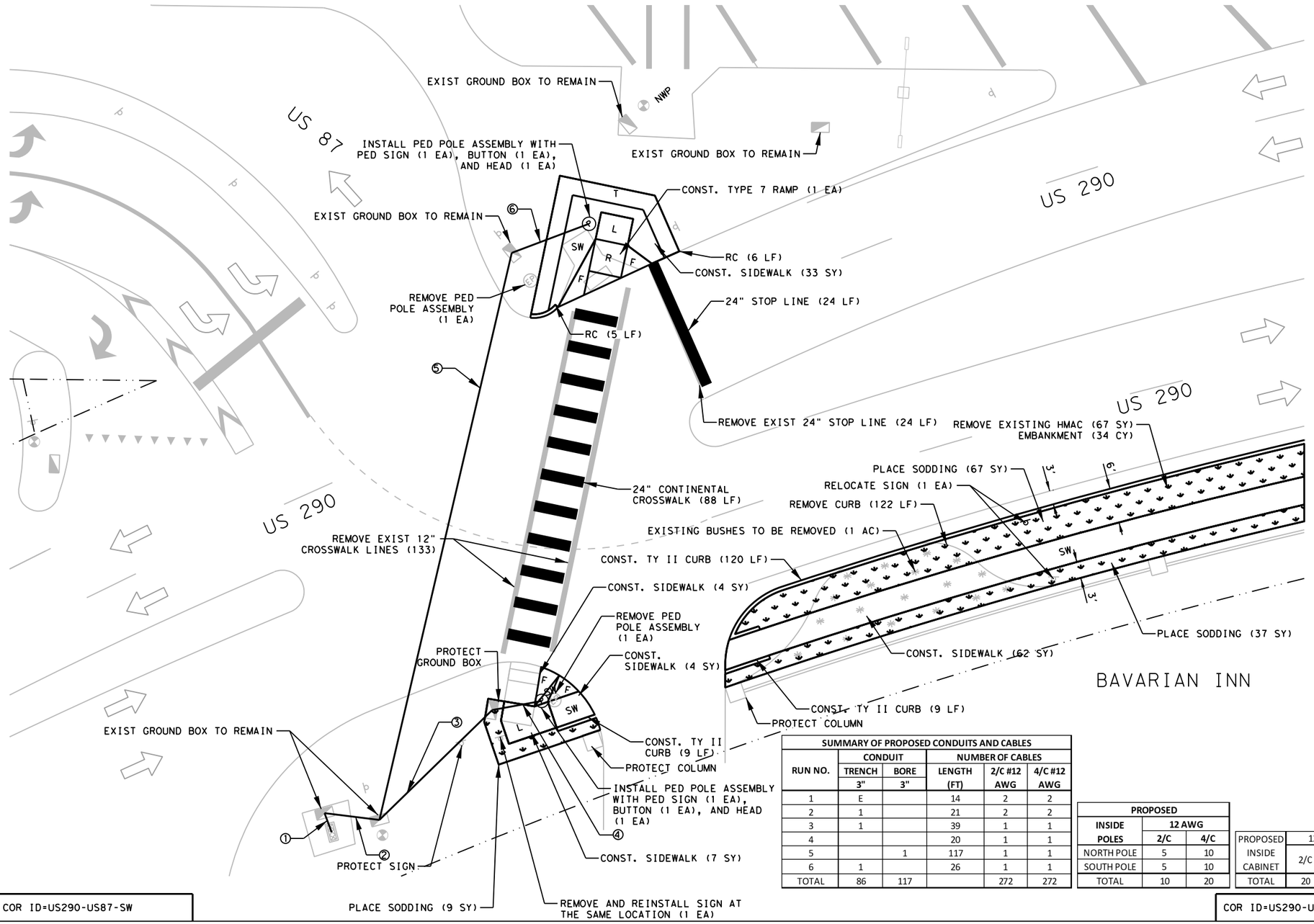
COR ID=US290-US87-NW

COR ID=US290-US87-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
100	6001	PREPARING ROW	AC	1
104	6021	REMOVING CONC (CURB)	LF	133
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	67
132	6003	EMBANKMENT (FINAL)(ORD COMP)(TYP B)	CY	34
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	113
162	6002	BLOCK SODDING	SY	113
168	6001	VEGETATIVE WATERING	MG	6.8
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	111
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	111
529	6002	CONC CURB (TY II)	LF	149
531	6002	CONC SIDEWALKS (5")	SY	110
531	6010	CURB RAMPS (TY 7)	EA	1
618	6029	CONDT (PVC) (SCH 40) (3")	LF	86
618	6030	CONDT (PVC) (SCH 40) (3")(BORE)	LF	117
636	6001	ALUMINUM SIGNS (TY A)	SF	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	112
677	6005	ELIM EXT PAV MRK & MRKS (12")	LF	133
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	24
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	2
684	6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	302
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	312
687	6001	PED POLE ASSEMBLY	EA	2
687	6005	REMOVE PED POLE ASSEMBLY	EA	2
688	6001	PED DETECT PUSH BUTTON (APS)	EA	2

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SUMMARY OF PROPOSED CONDUITS AND CABLES

RUN NO.	CONDUIT TRENCH 3"	CONDUIT BORE 3"	NUMBER OF CABLES LENGTH (FT)	2/C #12 AWG	4/C #12 AWG
1	E		14	2	2
2	1		21	2	2
3	1		39	1	1
4			20	1	1
5		1	117	1	1
6	1		26	1	1
TOTAL	86	117		272	272

PROPOSED INSIDE POLES	12 AWG 2/C	12 AWG 4/C
NORTH POLE	5	10
SOUTH POLE	5	10
TOTAL	10	20

PROPOSED INSIDE CABINET	12 AWG 2/C	12 AWG 4/C
TOTAL	20	20

COR ID=US290-US87-SW

COR ID=US290-US87-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) PROTECT EXISTING LANDSCAPING IN AREAS ADJACENT TO PROPOSED SIDEWALK, WHERE POSSIBLE.

LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- = FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/25/2022

Texas Department of Transportation

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TBPELS Firm 5713

US290 AT US87 (1 OF 2) FREDERICKSBURG, TX

SHEET 1 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	94

STATE	DISTRICT	COUNTY
TEXAS	AUS	GILLESPIE

CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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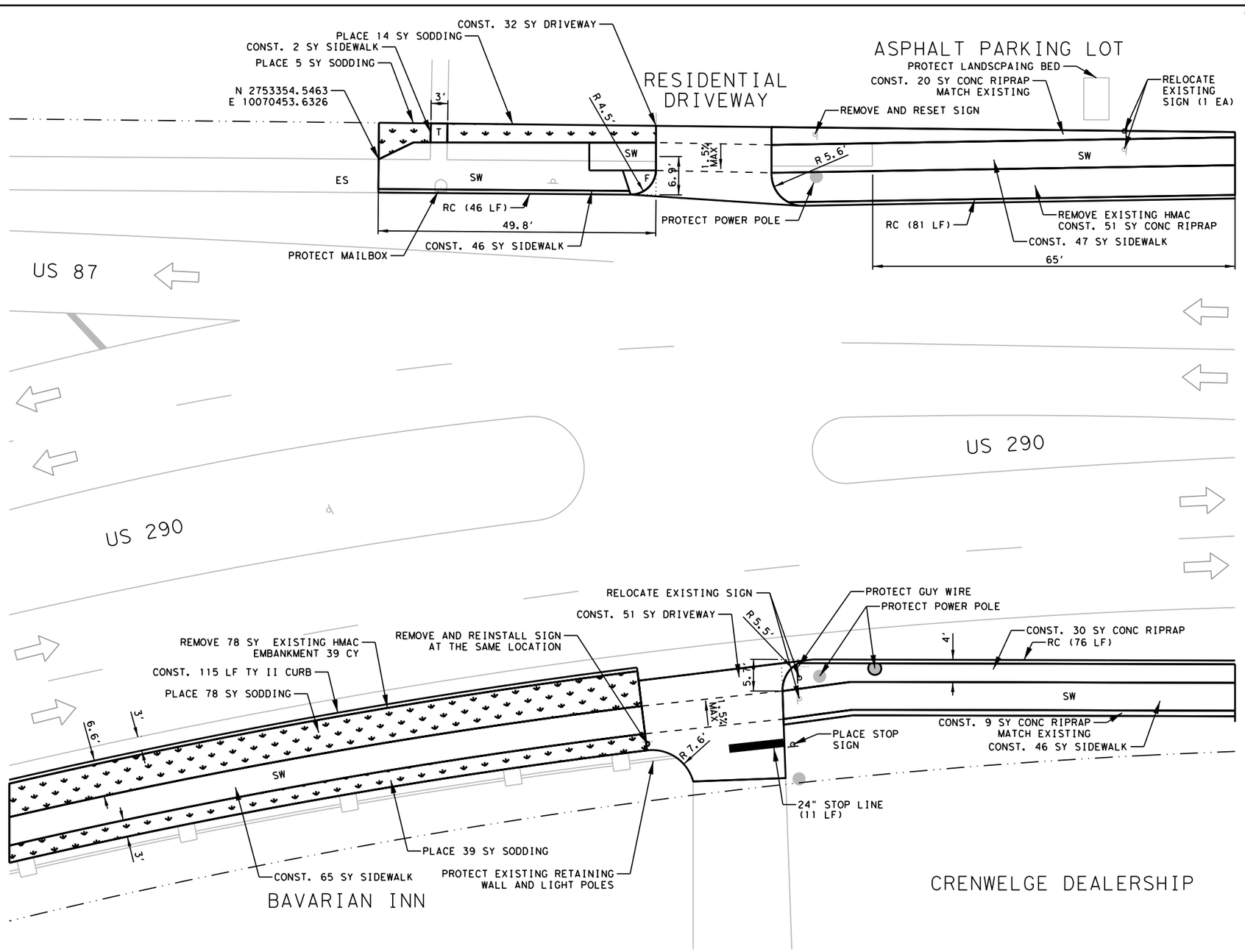

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	83
104	6021	REMOVING CONC (CURB)	LF	203
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	129
132	6003	EMBANKMENT (FINAL)(ORD COMP)(TYP B)	CY	39
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	136
162	6002	BLOCK SODDING	SY	136
168	6001	VEGETATIVE WATERING	MG	8.2
432	6011	RIPRAP (CONC) (CL B) (6")	CY	19
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	167
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	167
529	6002	CONC CURB (TY II)	LF	318
530	6004	DRIVEWAYS (CONC)	SY	83
531	6002	CONC SIDEWALKS (5")	SY	206
636	6001	ALUMINUM SIGNS (TY A)	SF	9
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	5
668	6018	PREFAB PAVMRK TY B (W)(24")(SLD)	LF	11

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER
1/25/2022

Texas Department of Transportation

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TBPELS Firm 5713

US290 AT US87 (2 OF 2) FREDERICKSBURG, TX

SHEET 2 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	95

STATE	DISTRICT	COUNTY
TEXAS	AUS	GILLESPIE

CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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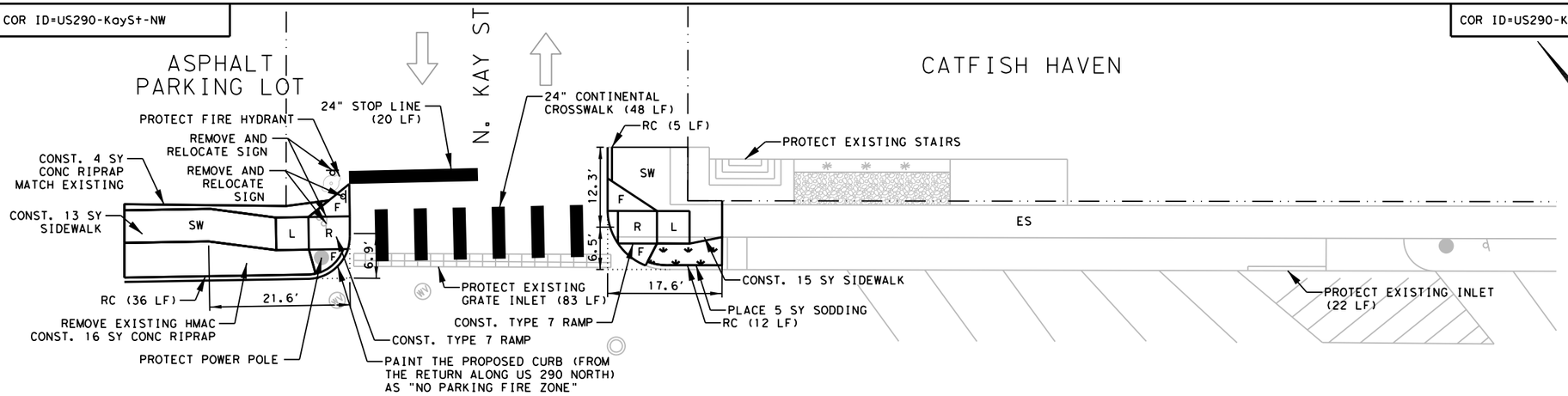

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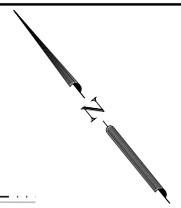

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	117
104	6021	REMOVING CONC (CURB)	LF	130
104	6028	REMOVING CONC (MISC)	SY	26
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	16
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	7
162	6002	BLOCK SODDING	SY	7
168	6001	VEGETATIVE WATERING	MG	0.4
432	6011	RIPRAP (CONC) (CL B) (6")	CY	9
479	6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	1
479	6008	ADJUSTING MANHOLES (WATER METER)	EA	1
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	105
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	105
529	6002	CONC CURB (TY II)	LF	130
530	6004	DRIVEWAYS (CONC)	SY	117
531	6002	CONC SIDEWALKS (5")	SY	63
531	6010	CURB RAMPS (TY 7)	EA	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	68

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER
3/22/2022

Texas Department of Transportation

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TBPELS Firm 5713

US290 AT KAY SREET FREDERICKSBURG, TX

SHEET 3 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		96
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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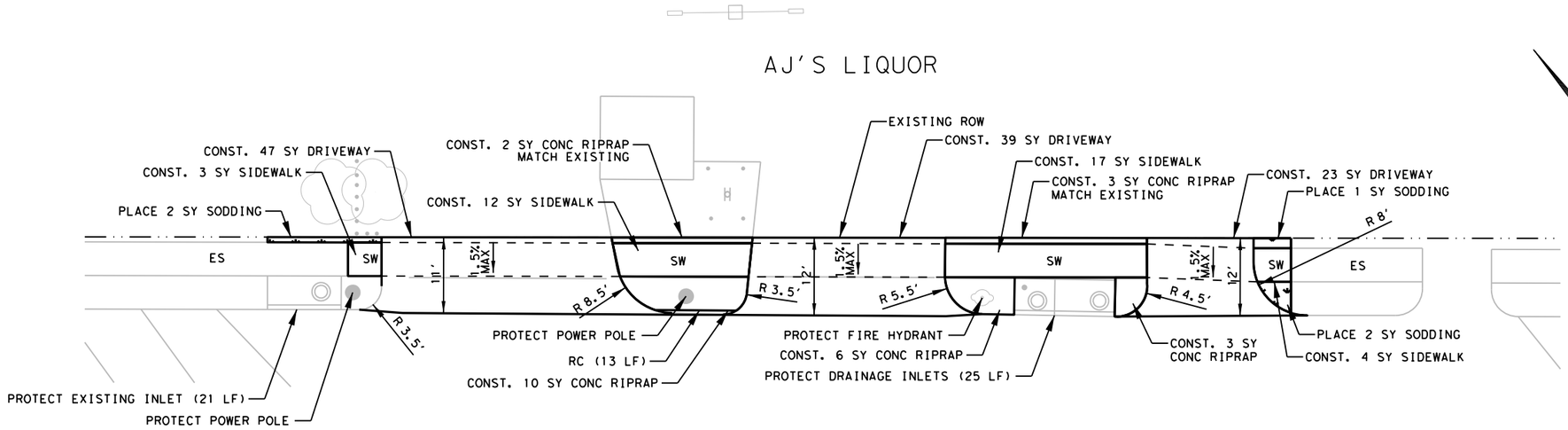
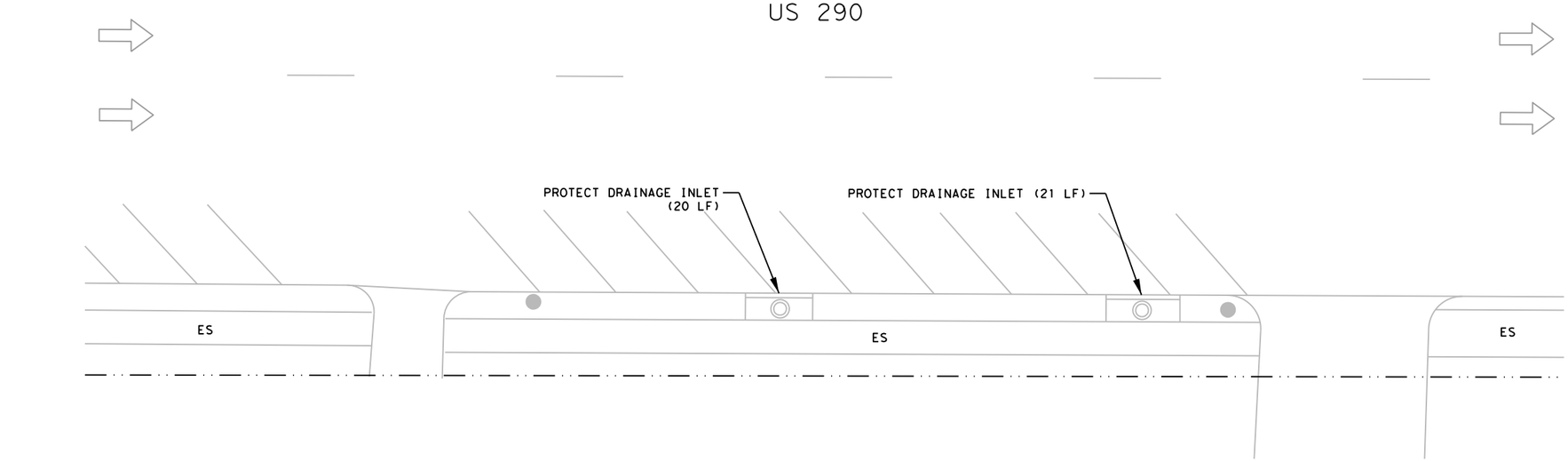
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	109
104	6021	REMOVING CONC (CURB)	LF	13
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	5
162	6002	BLOCK SODDING	SY	5
168	6001	VEGETATIVE WATERING	MG	0.3
432	6011	RIPRAP (CONC) (CL B) (6")	CY	3
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	25
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	25
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	87
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	87
529	6002	CONC CURB (TY II)	LF	13
530	6004	DRIVEWAYS (CONC)	SY	109
531	6002	CONC SIDEWALKS (5")	SY	42





LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
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(512) 485-0020
TBPELS Firm 5713

US290 MIDBLOCK BETWEEN KAY ST AND CHERRY ST FREDERICKSBURG, TX

SHEET 4 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		97
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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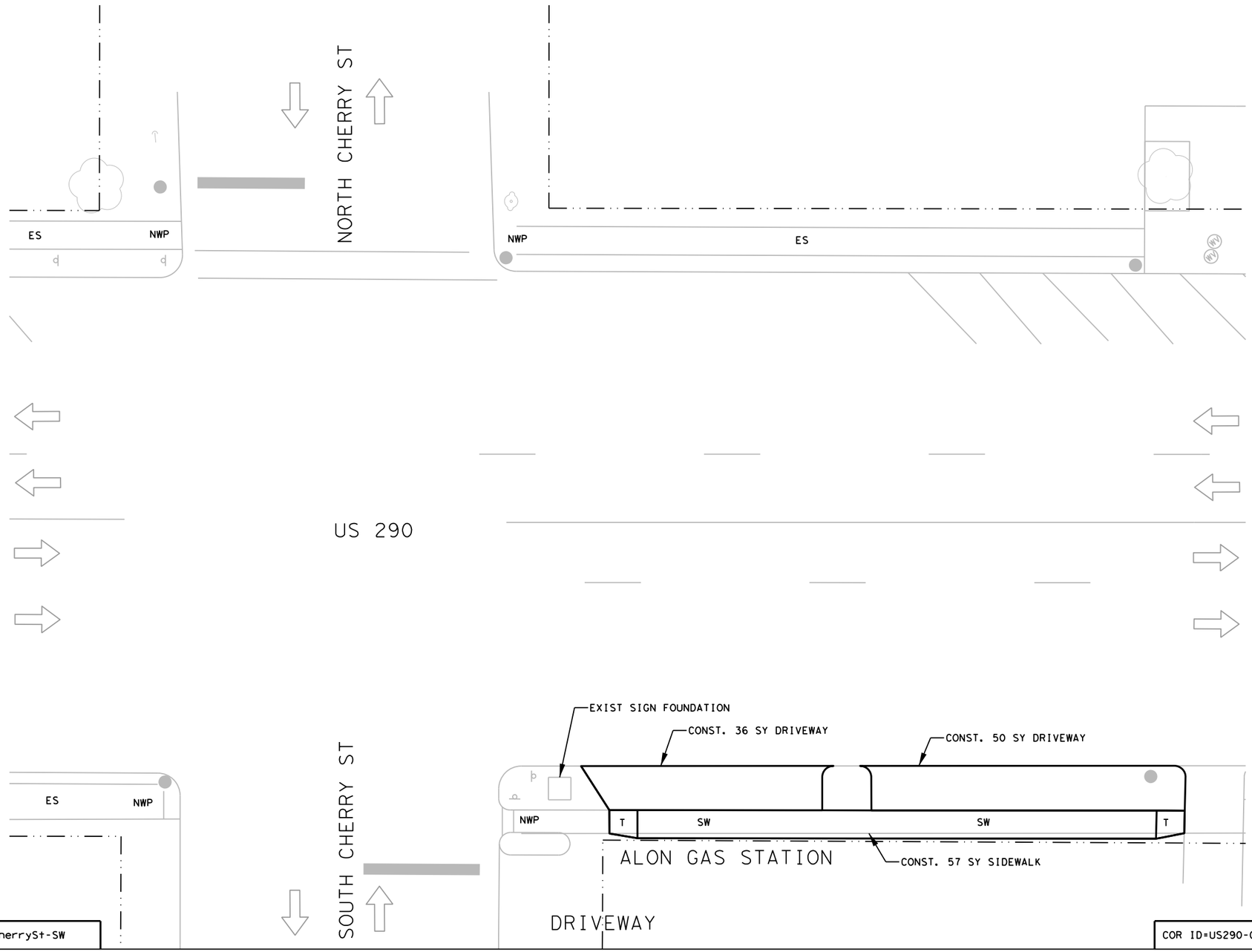
COR ID=US290-CherrySt-NW

COR ID=US290-CherrySt-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	86
530	6004	DRIVEWAYS (CONC)	SY	86
531	6002	CONC SIDEWALKS (5")	SY	57



COR ID=US290-CherrySt-SW

COR ID=US290-CherrySt-SE

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/25/2022

Texas Department of Transportation

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US290 AT CHERRY ST FREDERICKSBURG, TX

SHEET 5 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		98
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) SE CORNER AT ALON GAS STATION: CONTRACTOR SHALL FIELD VERIFY ROW LOCATION AND HOLD AN ON-SITE MEETING WITH THE ENGINEER AND PROPERTY OWNER PRIOR TO CONSTRUCTION. INGRESS AND EGRESS DRIVEWAYS SHALL BE REPLACED ONE AT A TIME TO MINIMIZE BUSINESS DISRUPTION.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	54
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	42
162	6002	BLOCK SODDING	SY	42
168	6001	VEGETATIVE WATERING	MG	2.5
479	6008	ADJUSTING MANHOLES (WATER METER)	EA	2
529	6015	CONC CURB (TY C1)	LF	50
530	6004	DRIVEWAYS (CONC)	SY	54
531	6002	CONC SIDEWALKS (5")	SY	42
531	6050	CONCRETE SIDEWALK (STEPS)	SY	1

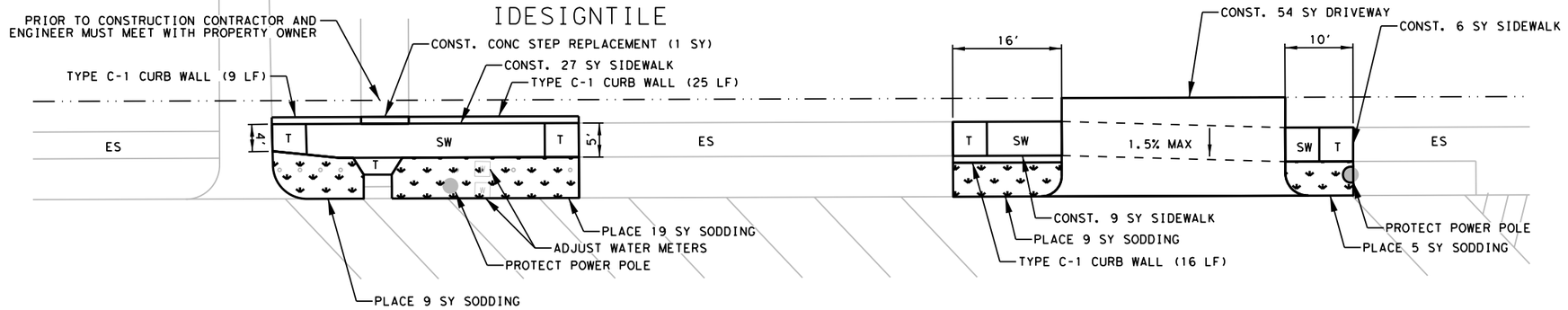
SPLENDID INN

LAUGHLIN HOMES & RESTORATION

POTTERY RANCH

STATE REPRESENTATIVE BIEDERMANN OFFICE

IDESIGNTILE



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

US290 AT ACORN ST FREDERICKSBURG, TX

SHEET 6 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		99
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
8) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
9) CONTRACTOR MUST PREVENT DAMAGE TO HISTORIC STRUCTURE, MATERIALS, FENCES, RETAINING WALLS, INCLUDING GARDEN ELEMENTS (PLANTING BEDS, PLANTINGS) DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAW CUT AND HAND REMOVAL PROCESS, CONTRACTOR SHALL EXERCISE UTMOST CAUTION AND SHALL PHYSICALLY PROTECT HISTORIC STRUCTURE FOUNDATION, MATERIALS, ELEVATIONS, ENTRYWAYS WITH DECORATIVE FLOORING, FENCES, RETAINING WALLS, AND LANDSCAPE ELEMENTS. WHEN POURING CONCRETE FOR REPAIR OR NEW INSTALL, CONTRACTOR SHALL PREVENT SPLASHBACK OF CONCRETE ONTO HISTORIC RESOURCE.
10) CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT HIS OWN EXPENSE, ANY HISTORIC MATERIALS DAMAGED IN THE COURSE OF EXECUTING THE WORK. CONTRACTOR SHALL LOCATE REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. TXDOT-ENVIRONMENTAL AFFAIRS DIVISION SHALL BE INFORMED OF PROPOSED REPAIRS TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION PRIOR TO EXECUTION OF REPAIR WORK.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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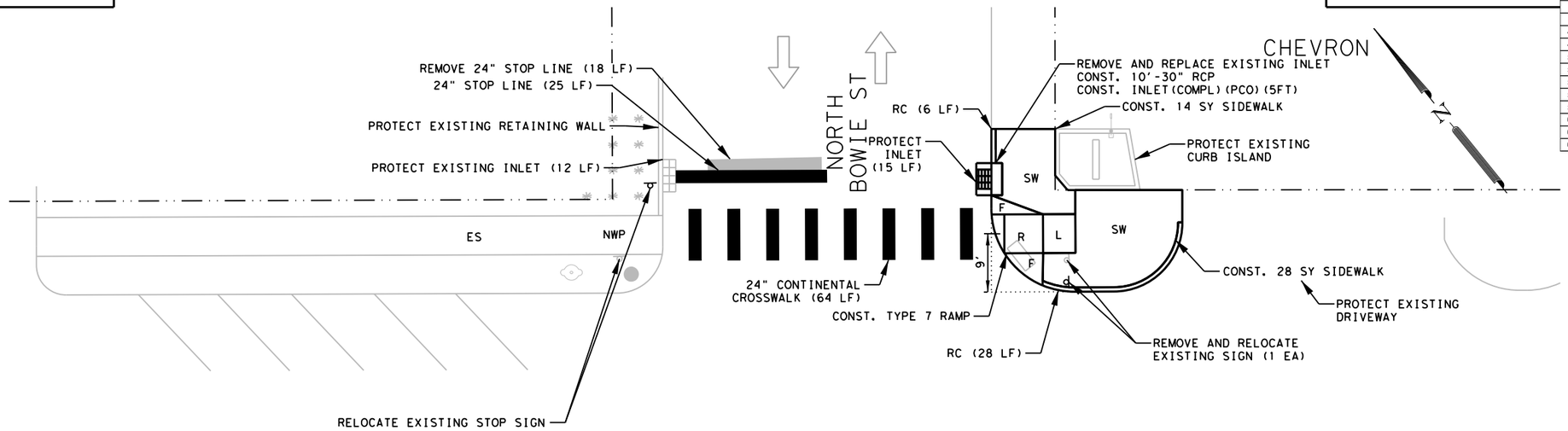
COR ID=US290-BowieSt-NW

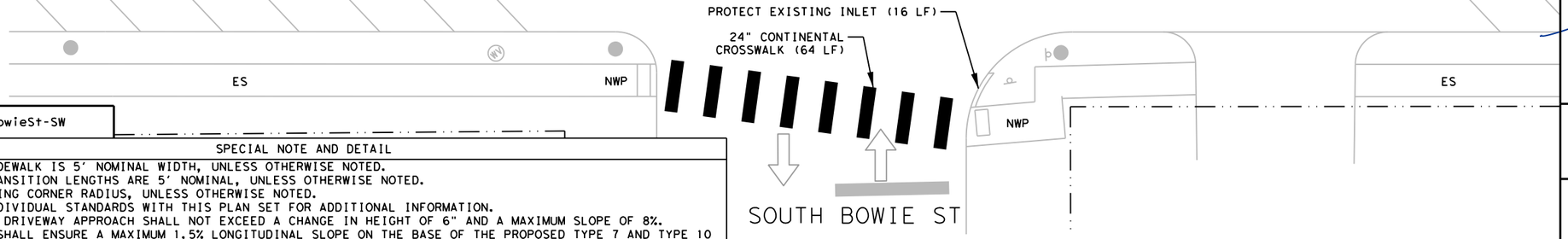
COR ID=US290-BowieSt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	34
104	6028	REMOVING CONC (MISC)	SY	9
168	6001	VEGETATIVE WATERING	MG	0.0
464	6007	RC PIPE (CL III)(30 IN)	LF	10
465	6021	INLET (COMPL)(PCO)(5FT)(NONE)	EA	1
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	46
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	46
529	6002	CONC CURB (TY II)	LF	34
531	6002	CONC SIDEWALKS (5")	SY	42
531	6010	CURB RAMPS (TY 7)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	153
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	18

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW



COR ID=US290-BowieSt-SW

COR ID=US290-BowieSt-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) PAINT PROPOSED CURB RED FROM PC TO PT ON ALL CORNERS, AND LABEL IN WHITE PAINT "FIRE ZONE NO PARKING"
8) CONTRACTOR SHALL LOCATE ALL UTILITIES PRIOR TO REMOVING THE EXISTING AND CONSTRUCTING THE NEW INLET ON THE NE CORNER, AND SHALL BE LIABLE FOR ANY DAMAGES.
9) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
10) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
11) CONTRACTOR MUST PREVENT DAMAGE TO HISTORIC STRUCTURE, MATERIALS, FENCES, RETAINING WALLS, INCLUDING GARDEN ELEMENTS (PLANTING BEDS, PLANTINGS) DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAW CUT AND HAND REMOVAL PROCESS, CONTRACTOR SHALL EXERCISE UTMOST CAUTION AND SHALL PHYSICALLY PROTECT HISTORIC STRUCTURE FOUNDATION, MATERIALS, ELEVATIONS, ENTRYWAYS WITH DECORATIVE FLOORING, FENCES, RETAINING WALLS, AND LANDSCAPE ELEMENTS. WHEN POURING CONCRETE FOR REPAIR OR NEW INSTALL, CONTRACTOR SHALL PREVENT SPLASHBACK OF CONCRETE ONTO HISTORIC RESOURCE.
12) CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT HIS OWN EXPENSE, ANY HISTORIC MATERIALS DAMAGED IN THE COURSE OF EXECUTING THE WORK. CONTRACTOR SHALL LOCATE REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. TXDOT-ENVIRONMENTAL AFFAIRS DIVISION SHALL BE INFORMED OF PROPOSED REPAIRS TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION PRIOR TO EXECUTION OF REPAIR WORK.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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US290 AT BOWIE ST FREDERICKSBURG, TX

SHEET 7 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		100
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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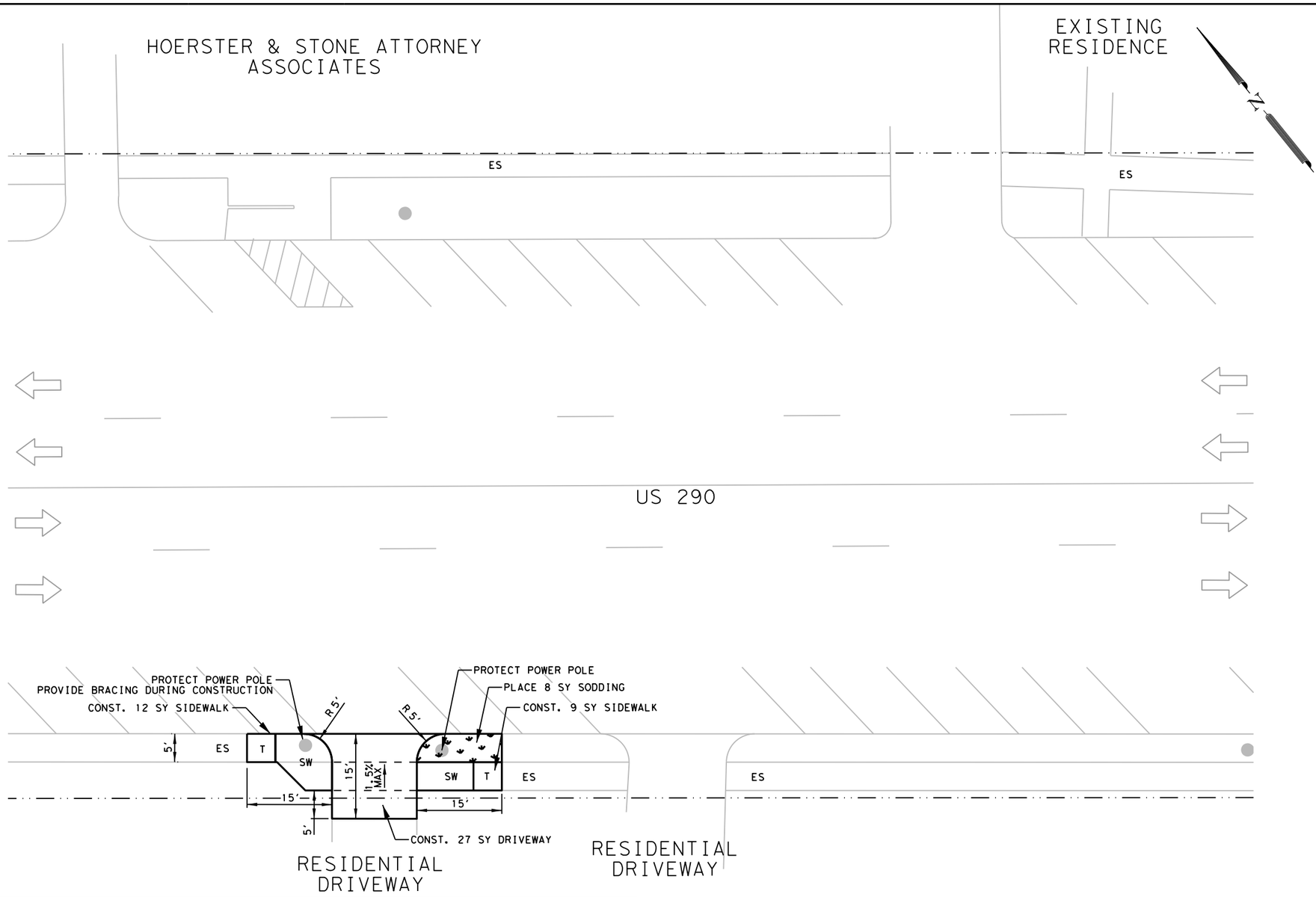
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	27	40
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	8	37
162	6002	BLOCK SODDING	SY	8	37
168	6001	VEGETATIVE WATERING	MG	0.5	2.2
530	6004	DRIVEWAYS (CONC)	SY	27	40
531	6002	CONC SIDEWALKS (5")	SY	21	98



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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(512) 485-0020
TBPELS Firm 5713

US290 MIDBLOCK BETWEEN BOWIE ST AND EDISON ST FREDERICKSBURG, TX

SHEET 8 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		101
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
8) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
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LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
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(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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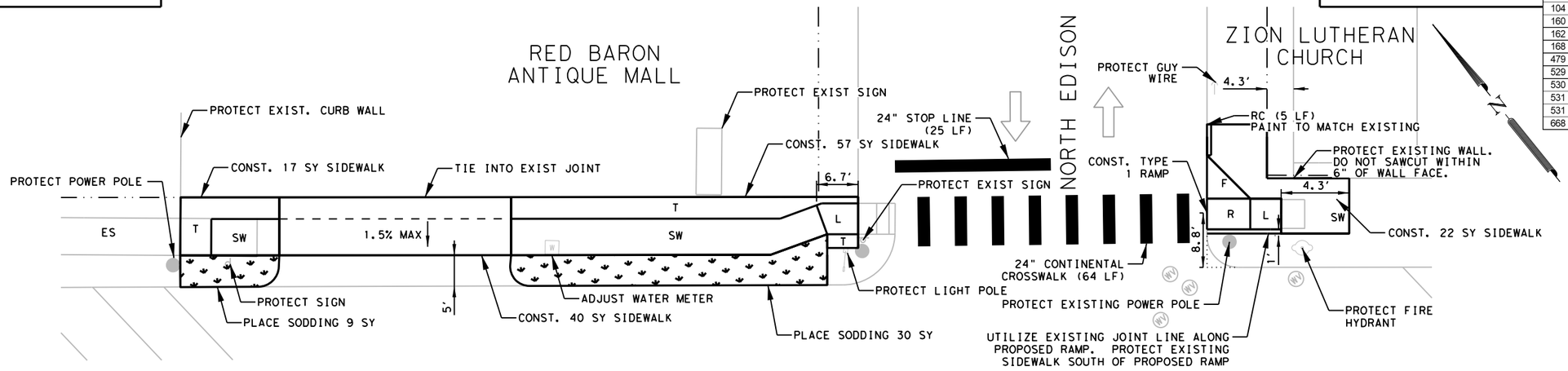
COR ID=US290-EdisonSt-NW

COR ID=US290-EdisonSt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	40
104	6021	REMOVING CONC (CURB)	LF	5
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	39
162	6002	BLOCK SODDING	SY	39
168	6001	VEGETATIVE WATERING	MG	2.3
479	6008	ADJUSTING MANHOLES (WATER METER)	EA	1
529	6002	CONC CURB (TY II)	LF	5
530	6004	DRIVEWAYS (CONC)	SY	40
531	6002	CONC SIDEWALKS (5")	SY	96
531	6004	CURB RAMPS (TY 1)	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	89

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

COR ID=US290-EdisonSt-SW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) TO MINIMIZE POTENTIAL DAMAGE TO HISTORIC STRUCTURES AND MATERIALS, CONTRACTOR MUST SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE HISTORIC RESOURCE.
8) CONTRACTOR SHALL CONSTRUCT NEW SIDEWALK NEXT TO THE SAW CUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF EXISTING SIDEWALK IS TO BE REMOVED ENTIRELY, THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL MUST BE REMOVED BY HAND. EXPANSION JOINT MUST BE PLACED BETWEEN HISTORIC STRUCTURE, MATERIAL, FENCE, OR RETAINING WALL AND NEW SIDEWALK.
9) CONTRACTOR MUST PREVENT DAMAGE TO HISTORIC STRUCTURE, MATERIALS, FENCES, RETAINING WALLS, INCLUDING GARDEN ELEMENTS (PLANTING BEDS, PLANTINGS) DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAW CUT AND HAND REMOVAL PROCESS, CONTRACTOR SHALL EXERCISE UTMOST CAUTION AND SHALL PHYSICALLY PROTECT HISTORIC STRUCTURE FOUNDATION, MATERIALS, ELEVATIONS, ENTRYWAYS WITH DECORATIVE FLOORING, FENCES, RETAINING WALLS, AND LANDSCAPE ELEMENTS. WHEN POURING CONCRETE FOR REPAIR OR NEW INSTALL, CONTRACTOR SHALL PREVENT SPLASHBACK OF CONCRETE ONTO HISTORIC RESOURCE.
10) CONTRACTOR MUST REPAIR OR REPLACE IN KIND, AT HIS OWN EXPENSE, ANY HISTORIC MATERIALS DAMAGED IN THE COURSE OF EXECUTING THE WORK. CONTRACTOR SHALL LOCATE REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. TXDOT-ENVIRONMENTAL AFFAIRS DIVISION SHALL BE INFORMED OF PROPOSED REPAIRS TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION PRIOR TO EXECUTION OF REPAIR WORK.

COR ID=US290-EdisonSt-SE

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

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US290 AT EDISON ST FREDERICKSBURG, TX

SHEET 9 OF 9

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		102
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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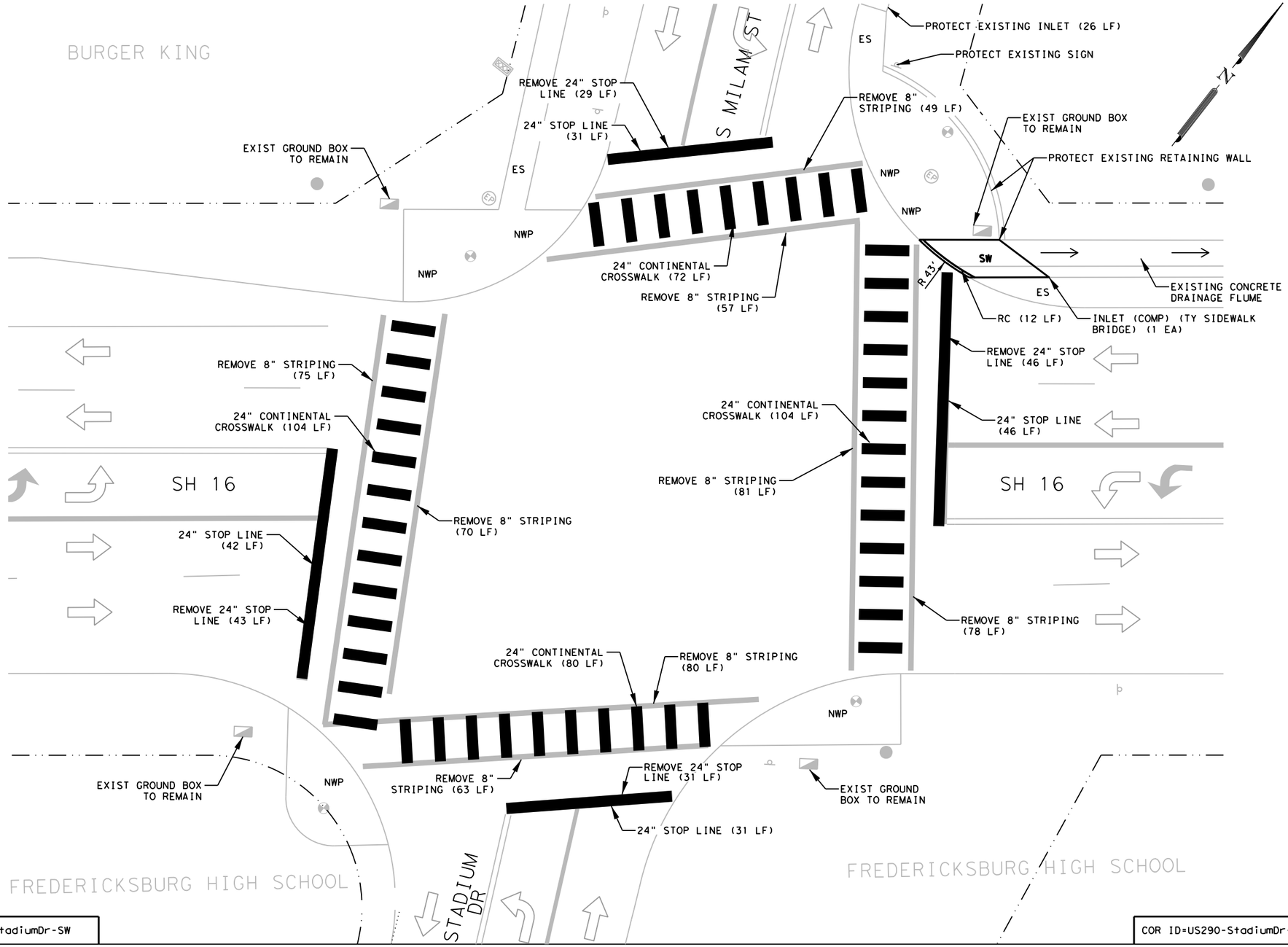
COR ID=US290-MilamSt-NW

COR ID=US290-MilamSt-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	12
465	6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	1
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	73
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	73
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	26
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	26
529	6002	CONC CURB (TY II)	LF	12
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	510
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	553
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	148



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
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IOWA

1/25/2022

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SH16 AT MILAM ST FREDERICKSBURG, TX

SHEET 1 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		103
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=US290-StadiumDr-SW

COR ID=US290-StadiumDr-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) PLACE EROSION CONTROL MEASURES WITHIN THE CHANNEL.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
[T] = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	[W] = WATER METER

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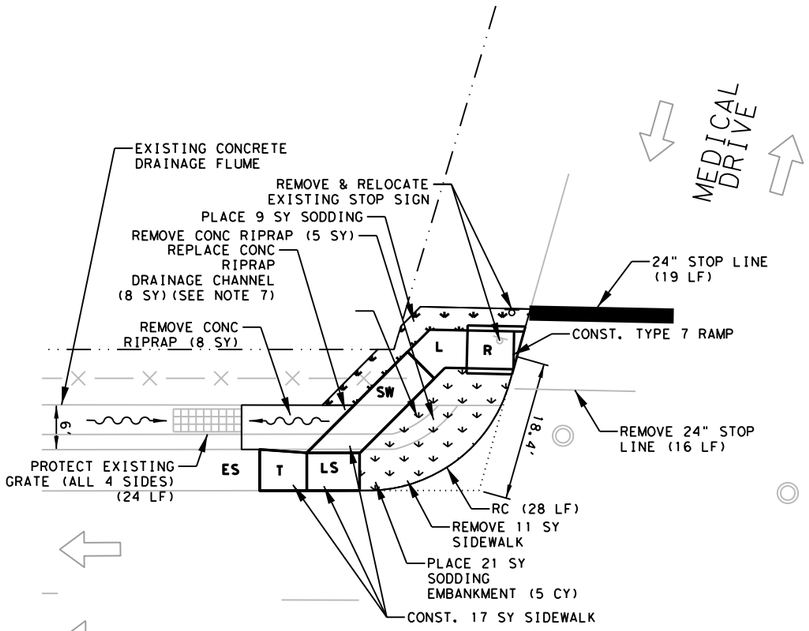

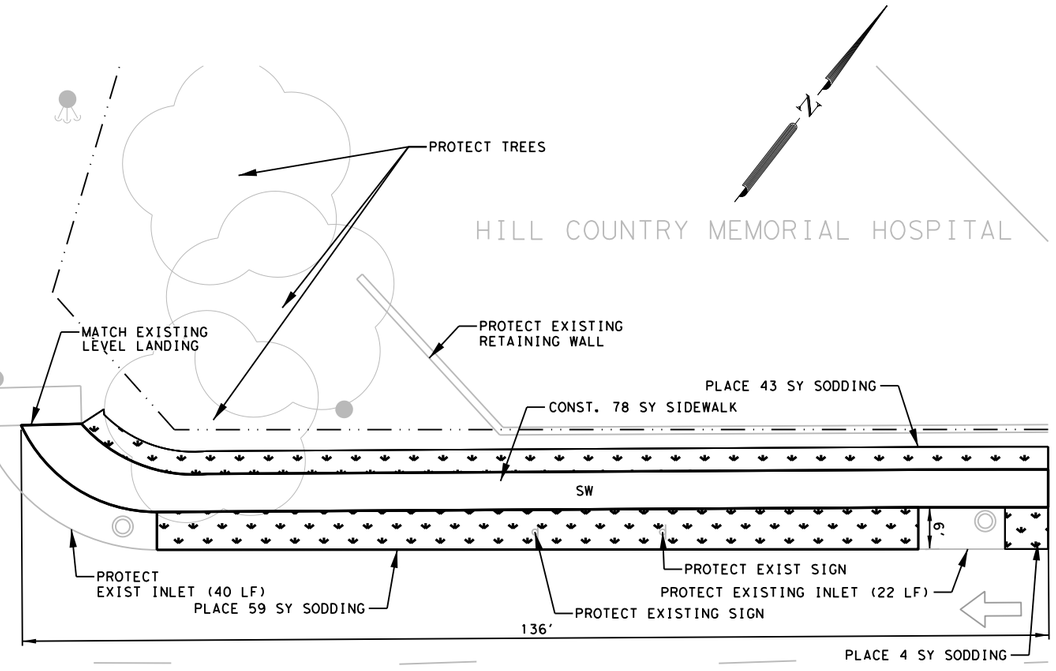

SH 16

FREDERICKSBURG HIGH SCHOOL

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	11
104	6021	REMOVING CONC (CURB)	LF	28
104	6028	REMOVING CONC (MISC)	SY	13
132	6003	EMBANKMENT (FINAL)(ORD COMP)(TYP B)	CY	5
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	136
162	6002	BLOCK SODDING	SY	136
168	6001	VEGETATIVE WATERING	MG	8.2
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	168
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	168
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	86
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	86
529	6002	CONC CURB (TY II)	LF	28
531	6002	CONC SIDEWALKS (5")	SY	95
531	6010	CURB RAMPS (TY 7)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	19
1004	6001	TREE PROTECTION	EA	3

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) CONTRACTOR SHALL ENSURE TO REPLACE RIPRAP CHANNEL WITH THE SAME SHAPE AS EXISTING AND GRADE TO DRAIN.
8) PROVIDE A CERTIFIED ARBORIST TO REVIEW THE CONDITIONS OF TREES IDENTIFIED WITHIN THESE PLANS TO BE PROTECTED. AN ARBORIST SHALL PROVIDE A CONDITION ASSESSMENT OF THESE TREES AND WRITTEN DIRECTION FOR ADDITIONAL PROTECTION AT LEAST 5 BUSINESS DAYS PRIOR TO BEGINNING WORK. TXDOT WILL APPROVE ADDITIONAL WORK. PAYMENT FOR THE ARBORIST AND WORK IN ADDITION TO WORK SHOWN ON THE PLANS WILL BE PAID FOR UNDER THE FORCE ACCOUNT METHOD IN ACCORDANCE WITH ARTICLE 9.7, "PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT METHOD."
9) ONCE WORK COMMENCES, COORDINATE WITH THE ARBORIST WHILE EXCAVATING, AND TAKE CARE WHEN WORKING IN/NEAR THE CRITICAL ROOT ZONE AND SHALL EXPOSE EXISTING TREE ROOTS AND DOCUMENT WITH PHOTOGRAPHS TO VERIFY CONDITION. THE ARBORIST SHALL REVIEWED PROPOSED IMPROVEMENTS TO BE CONSTRUCTED AND RECOMMEND IMPROVEMENTS TO AVOID DAMAGE TO TREE ROOTS. TXDOT WILL APPROVE RECOMMENDATIONS PRIOR TO CONSTRUCTION. DAMAGE TO EXISTING ROOTS, ROOT BARRIERS OR OTHER UNDERGROUND FACILITIES SHALL BE REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE.
10) DURING WORK HOURS, IF IT IS DEEMED UNSAFE OR UNSUFFICIENT ROOM EXISTS ADJACENT TO PROVIDE TREE PROTECTION FENCING PER THE STANDARDS HEREIN, TREE PROTECTION CHAIN LINK FENCING MAY BE REMOVED TEMPORARILY WITHIN THE WORK AREA. TREE PROTECTION PLANKING SHALL REMAIN AND SHALL NOT BE REMOVED. AFTER COMPLETION OF WORK ADJACENT TO TREES IN THESE AREAS, OR AT THE END OF EACH WORK DAY, TREE PROTECTION FENCING SHALL BE ERECTED.
11) TREE TRUNK LOCATIONS AND DIAMETERS ARE APPROX. ESTIMATIONS. NO TRADITIONAL TREE SURVEY WAS PERFORMED.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

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SH16 AT MEDICAL DRIVE FREDERICKSBURG, TX

SHEET 2 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		104
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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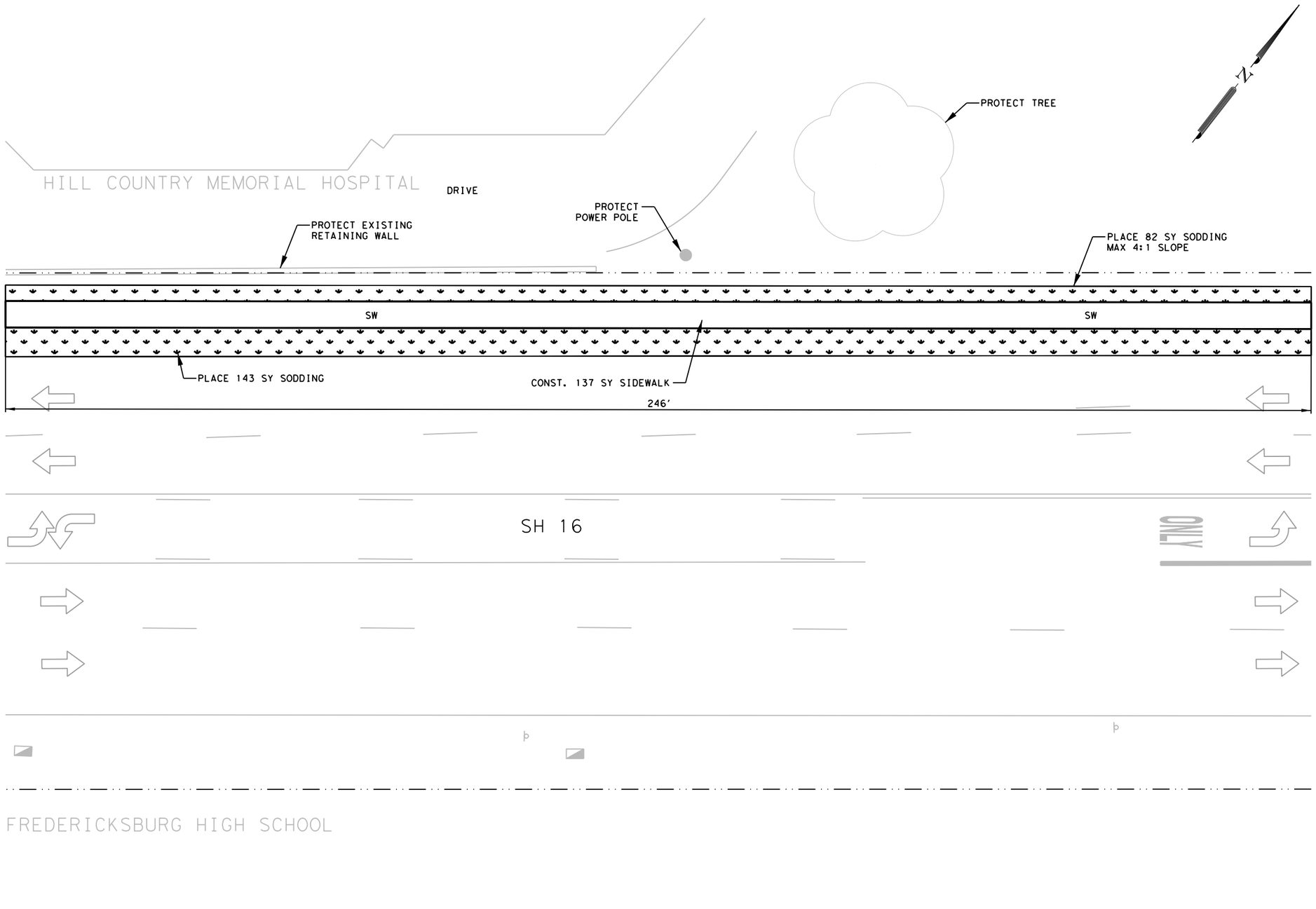
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	225
162	6002	BLOCK SODDING	SY	225
168	6001	VEGETATIVE WATERING	MG	13.5
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	246
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	246
531	6002	CONC SIDEWALKS (5")	SY	137
1004	6001	TREE PROTECTION	EA	1



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SCALE: 1" = 20'

STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

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SH16 MIDBLOCK BETWEEN MEDICAL DRIVE AND HWY ST FREDERICKSBURG, TX

SHEET 3 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		105
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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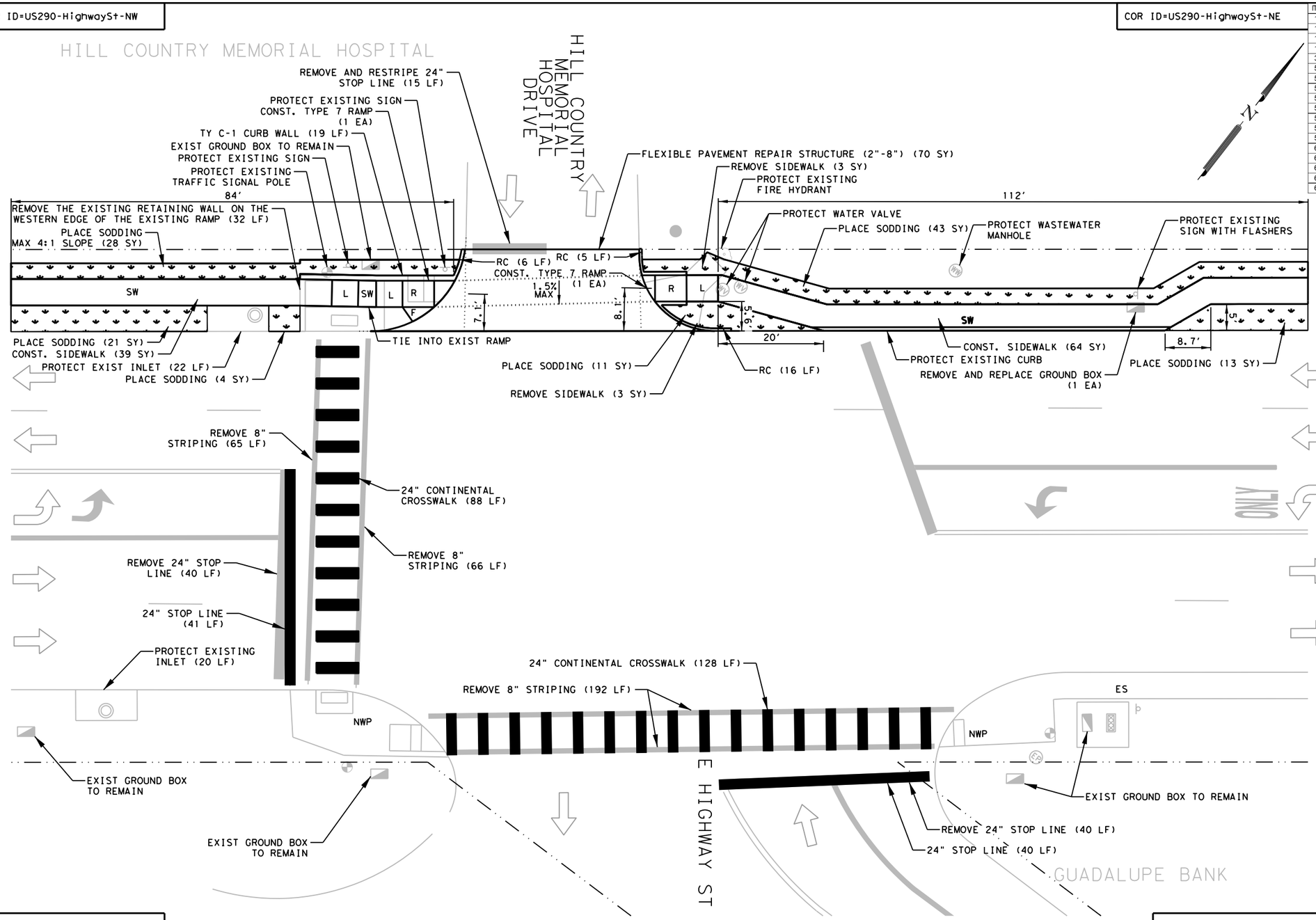
COR ID=US290-HighwaySt-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	27
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	120
162	6002	BLOCK SODDING	SY	120
168	6001	VEGETATIVE WATERING	MG	7.2
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	70
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	210
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	210
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	42
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	42
529	6002	CONC CURB (TY II)	LF	27
529	6015	CONC CURB (TY C1)	LF	19
531	6002	CONC SIDEWALKS (5")	SY	95
531	6010	CURB RAMPS (TY 7)	EA	2
624	6009	GROUND BOX TY D (162922)	EA	1
624	6028	REMOVE GROUND BOX	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	312
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	323
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	95

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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SH16 AT EAST HIGHWAY ST FREDERICKSBURG, TX

SHEET 4 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		106
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=US290-HighwaySt-SW

COR ID=US290-HighwaySt-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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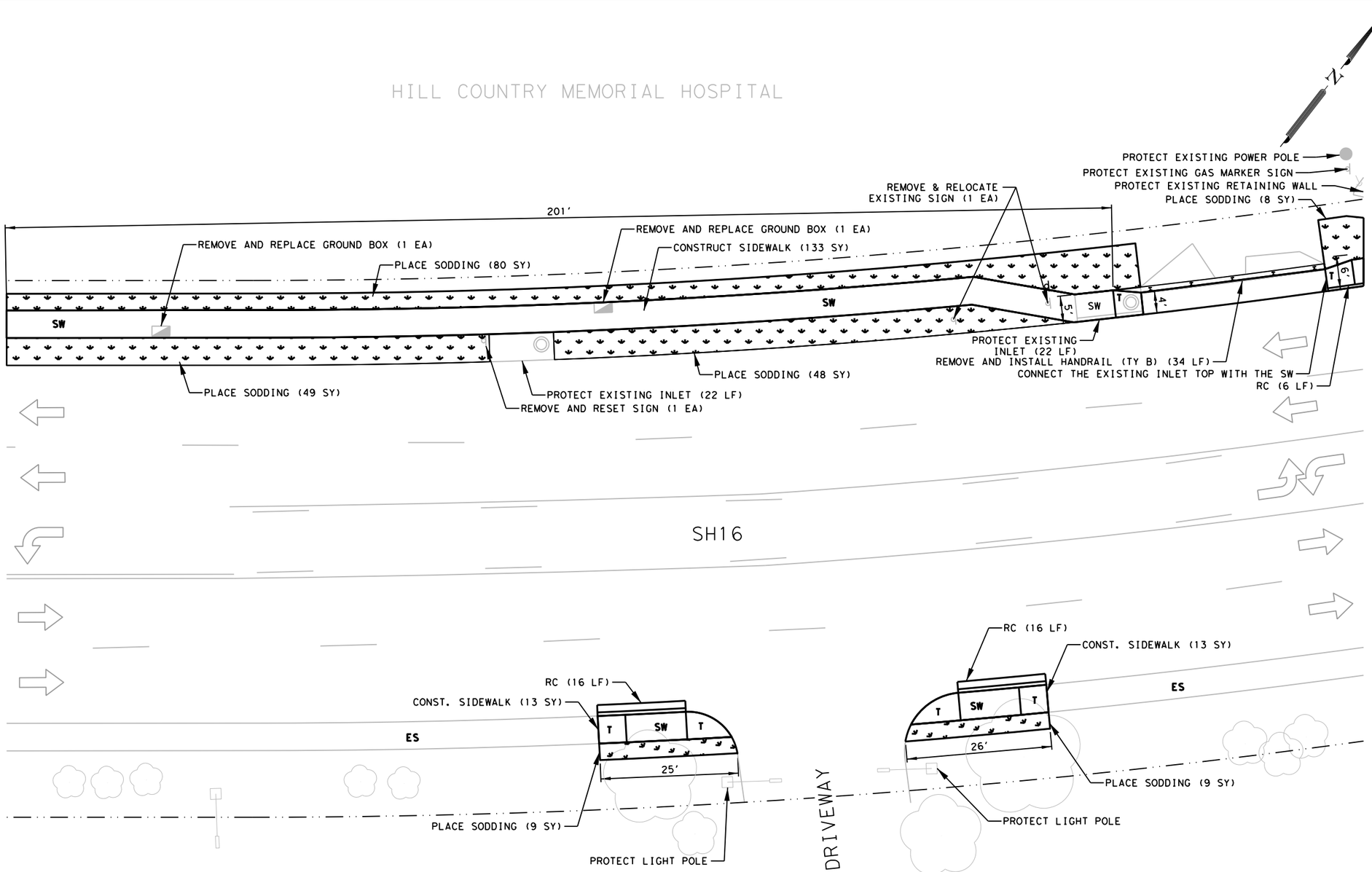
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	185
162	6002	BLOCK SODDING	SY	185
168	6001	VEGETATIVE WATERING	MG	11.1
450	6048	RAIL (HANDRAIL)(TY B)	LF	34
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	214
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	214
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	44
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	44
531	6002	CONC SIDEWALKS (5")	SY	159
624	6009	GROUND BOX TY D (162922)	EA	2
624	6028	REMOVE GROUND BOX	EA	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
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LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

SH16 MIDBLOCK BETWEEN HIGHWAY ST AND WINDCREST DR (1 OF 3) FREDERICKSBURG, TX

SHEET 5 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		107
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- (EP) = EXISTING PED POLE W/PED BUTTON
- (P) = NEW PED POLE W/PED BUTTON
- [T] = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- (WV) = WATER VALVE
- (GV) = GAS VALVE
- = FIRE HYDRANT
- = ELECTRIC METER
- = GAS METER
- [W] = WATER METER

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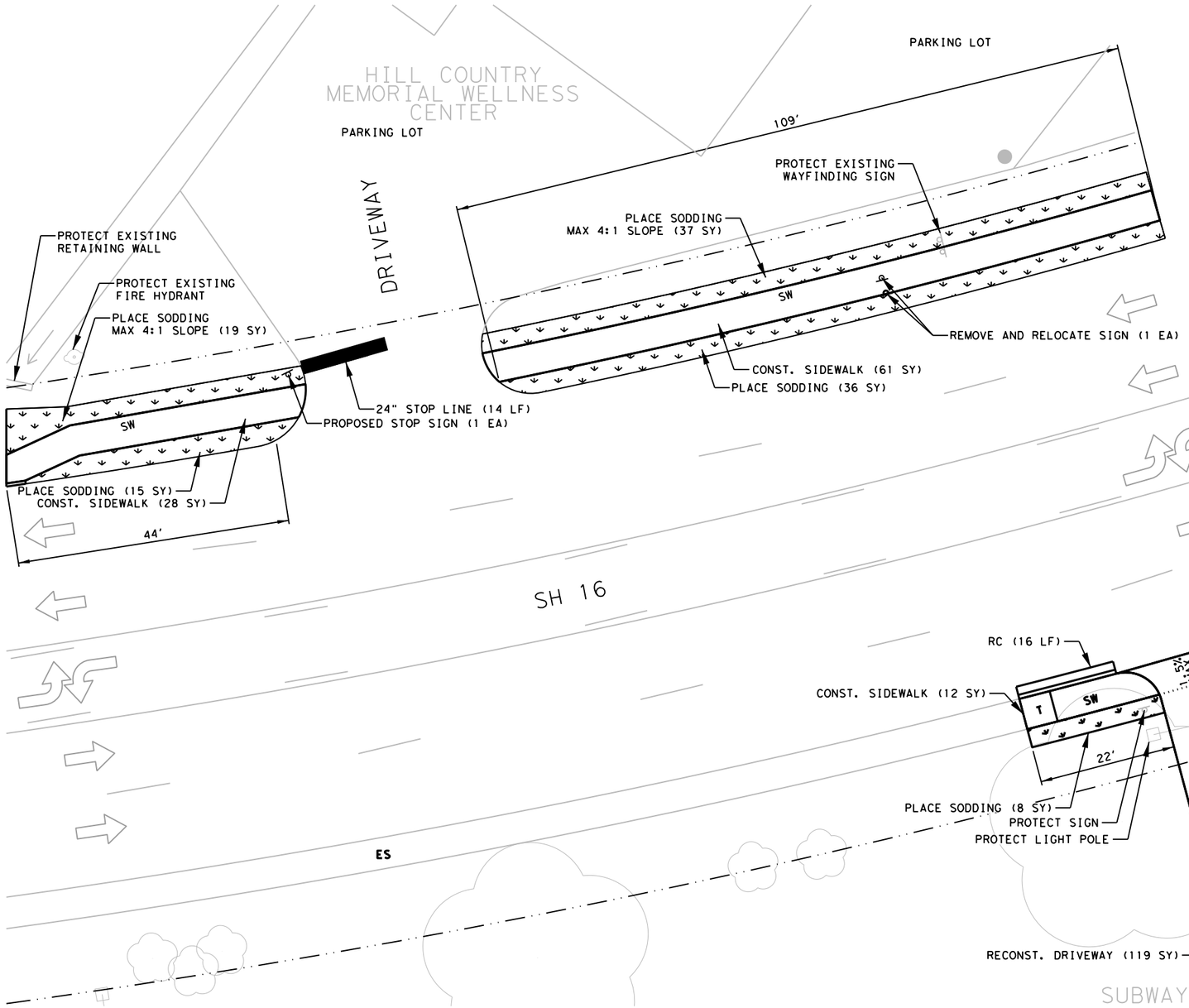
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	119
104	6021	REMOVING CONC (CURB)	LF	16
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	115
162	6002	BLOCK SODDING	SY	115
168	6001	VEGETATIVE WATERING	MG	6.9
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	175
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	175
529	6002	CONC CURB (TY II)	LF	16
530	6004	DRIVEWAYS (CONC)	SY	119
531	6002	CONC SIDEWALKS (5")	SY	101
636	6001	ALUMINUM SIGNS (TY A)	SF	9
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	14



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER
1/18/2022

Texas Department of Transportation

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SH16 MIDBLOCK BETWEEN HIGHWAY ST AND WINDCREST DR (2 OF 3) FREDERICKSBURG, TX

SHEET 6 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		108
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

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6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
EP = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	WV = WATER VALVE
P = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	GV = GAS VALVE
T = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

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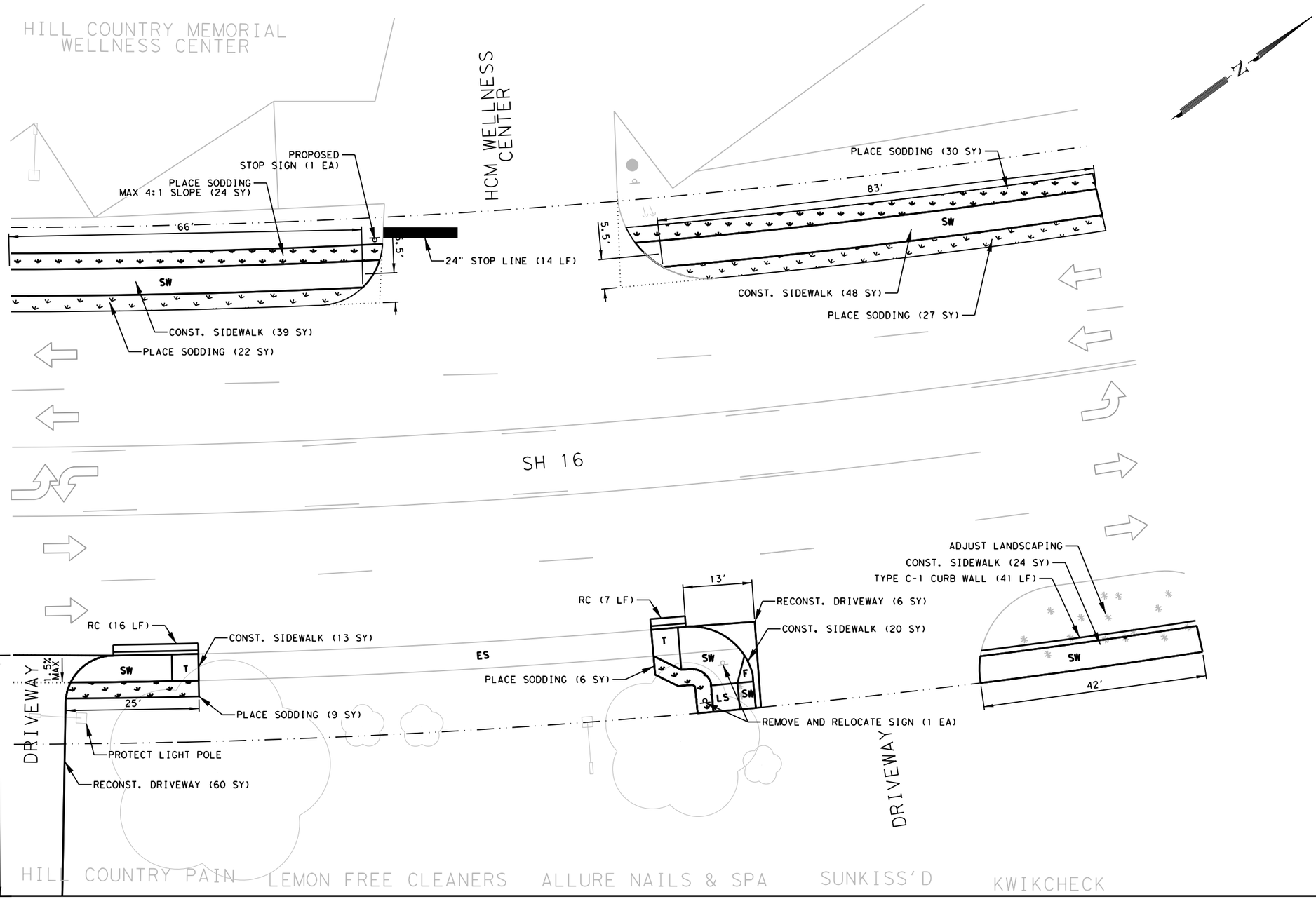
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	66
104	6021	REMOVING CONC (CURB)	LF	23
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	118
162	6002	BLOCK SODDING	SY	118
168	6001	VEGETATIVE WATERING	MG	7.1
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	198
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	198
529	6002	CONC CURB (TY II)	LF	23
529	6015	CONC CURB (TY C1)	LF	41
530	6004	DRIVEWAYS (CONC)	SY	66
531	6002	CONC SIDEWALKS (5")	SY	144
636	6001	ALUMINUM SIGNS (TY A)	SF	9
636	6007	REPLACE EXISTING ALUMINUM SIGNS(TY A)	SF	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	14



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

SPECIAL NOTE AND DETAIL

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6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
[T] = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	[W] = WATER METER

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1/18/2022

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SH16 MIDBLOCK BETWEEN HIGHWAY ST AND WINDCREST DR (3 OF 3) FREDERICKSBURG, TX

SHEET 7 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		109
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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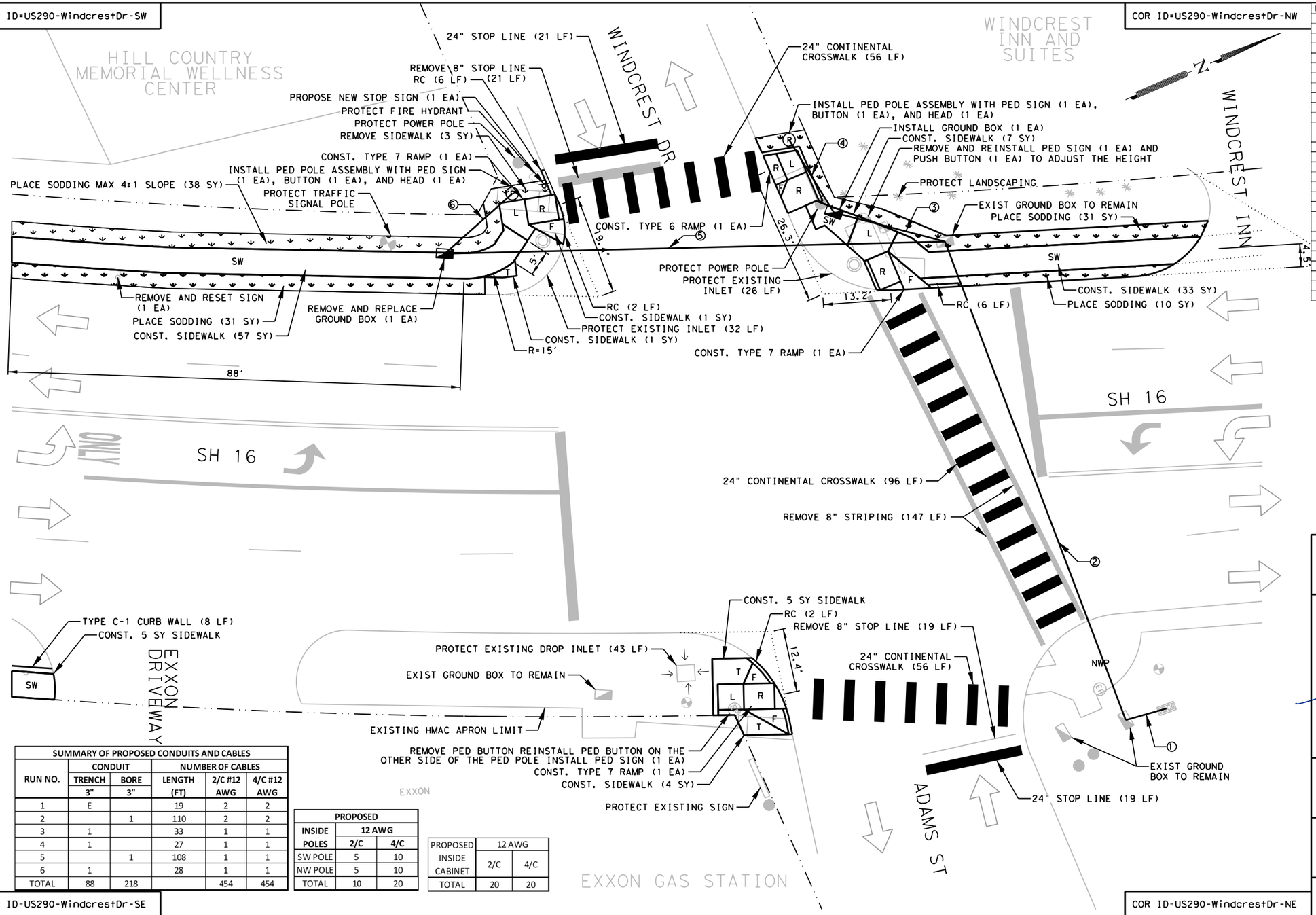
COR ID=US290-WindcrestDr-NW

COR ID=US290-WindcrestDr-SE

COR ID=US290-WindcrestDr-NE



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6015	REMOVING CONC (SIDEWALKS)	SY	3
104	6021	REMOVING CONC (CURB)	LF	14
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	114
162	6002	BLOCK SODDING	SY	114
168	6001	VEGETATIVE WATERING	MG	6.8
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	215
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	215
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	109
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	109
529	6002	CONC CURB (TY II)	LF	14
529	6015	CONC CURB (TY C1)	LF	8
531	6002	CONC SIDEWALKS (5")	SY	112
531	6009	CURB RAMPS (TY 6)	EA	1
531	6010	CURB RAMPS (TY 7)	EA	3
618	6029	CONDT (PVC) (SCH 40) (3")	LF	75
618	6030	CONDT (PVC) (SCH 40) (3")(BORE)	LF	218
624	6009	GROUND BOX TY D (162922)	EA	1
624	6010	GROUND BOX TY D (162922)W/APRON	EA	1
624	6028	REMOVE GROUND BOX	EA	1
636	6001	ALUMINUM SIGNS (TY A)	SF	11
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	248
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	187
682	6018	PED SIG SEC (LED)(COUNTDOWN)	EA	2
684	6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	484
684	6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	494
687	6001	PED POLE ASSEMBLY	EA	2
688	6001	PED DETECT PUSH BUTTON (APS)	EA	2
688	6003	PED DETECTOR CONTROLLER UNIT	EA	1
690	6031	REPLACE PEDESTRIAN PUSH BUTTONS	EA	1

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SUMMARY OF PROPOSED CONDUITS AND CABLES

RUN NO.	CONDUIT		NUMBER OF CABLES		
	TRENCH 3"	BORE 3"	LENGTH (FT)	2/C #12 AWG	4/C #12 AWG
1	E		19	2	2
2		1	110	2	2
3	1		33	1	1
4	1		27	1	1
5		1	108	1	1
6	1		28	1	1
TOTAL	88	218		454	454

PROPOSED INSIDE POLES	12 AWG 2/C	12 AWG 4/C
SW POLE	5	10
NW POLE	5	10
TOTAL	10	20

PROPOSED INSIDE CABINET	12 AWG 2/C	12 AWG 4/C
TOTAL	20	20

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
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5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) RECONSTRUCT THE SUNSET GRILL DRIVEWAY. DRIVEWAY CLOSURE SHALL NOT COMMENCE WITHOUT APPROVAL FROM THE ENGINEER. COORDINATE WITH THE PROPERTY OWNER.
8) NW CORNER: CONTRACTOR SHALL ENSURE SIDEWALK IS FLUSH WITH EXISTING INLET.

LEGEND

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T = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

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TBPELS Firm 5713

SH16 AT WINDCREST DR FREDERICKSBURG, TX

SHEET 8 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		110
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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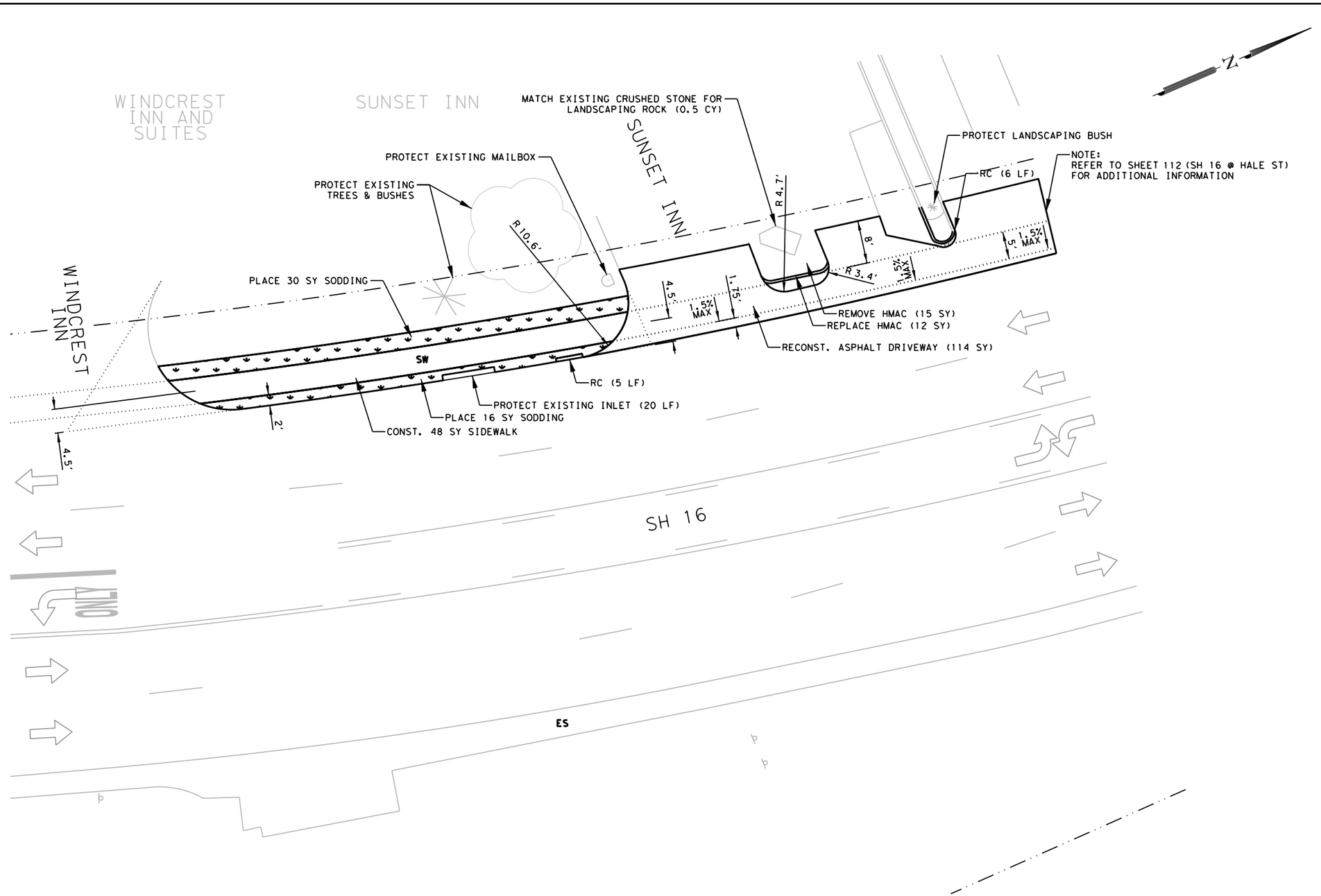
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	11
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	129
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	46
162	6002	BLOCK SODDING	SY	46
168	6001	VEGETATIVE WATERING	MG	2.8
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	126
432	6020	RIPRAP (STONE TY F)(GROUT)(6 IN)	CY	0.5
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	91
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	91
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	20
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	20
529	6002	CONC CURB (TY II)	LF	11
531	6002	CONC SIDEWALKS (5")	SY	48
1004	6001	TREE PROTECTION	EA	2



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SCALE: 1" = 20'

STATE OF TEXAS
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PROFESSIONAL ENGINEER
1/18/2022

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SH16 MIDBLOCK BETWEEN WINDCREST DR AND HALE ST FREDERICKSBURG, TX

SHEET 9 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		111
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

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2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) RECONSTRUCT THE SUNSET INN AND SUNSET GRILL DRIVEWAY. DRIVEWAY CLOSURE SHALL NOT COMMENCE WITHOUT APPROVAL FROM THE ENGINEER. COORDINATE WITH THE PROPERTY OWNER.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
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ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	[W] = WATER METER

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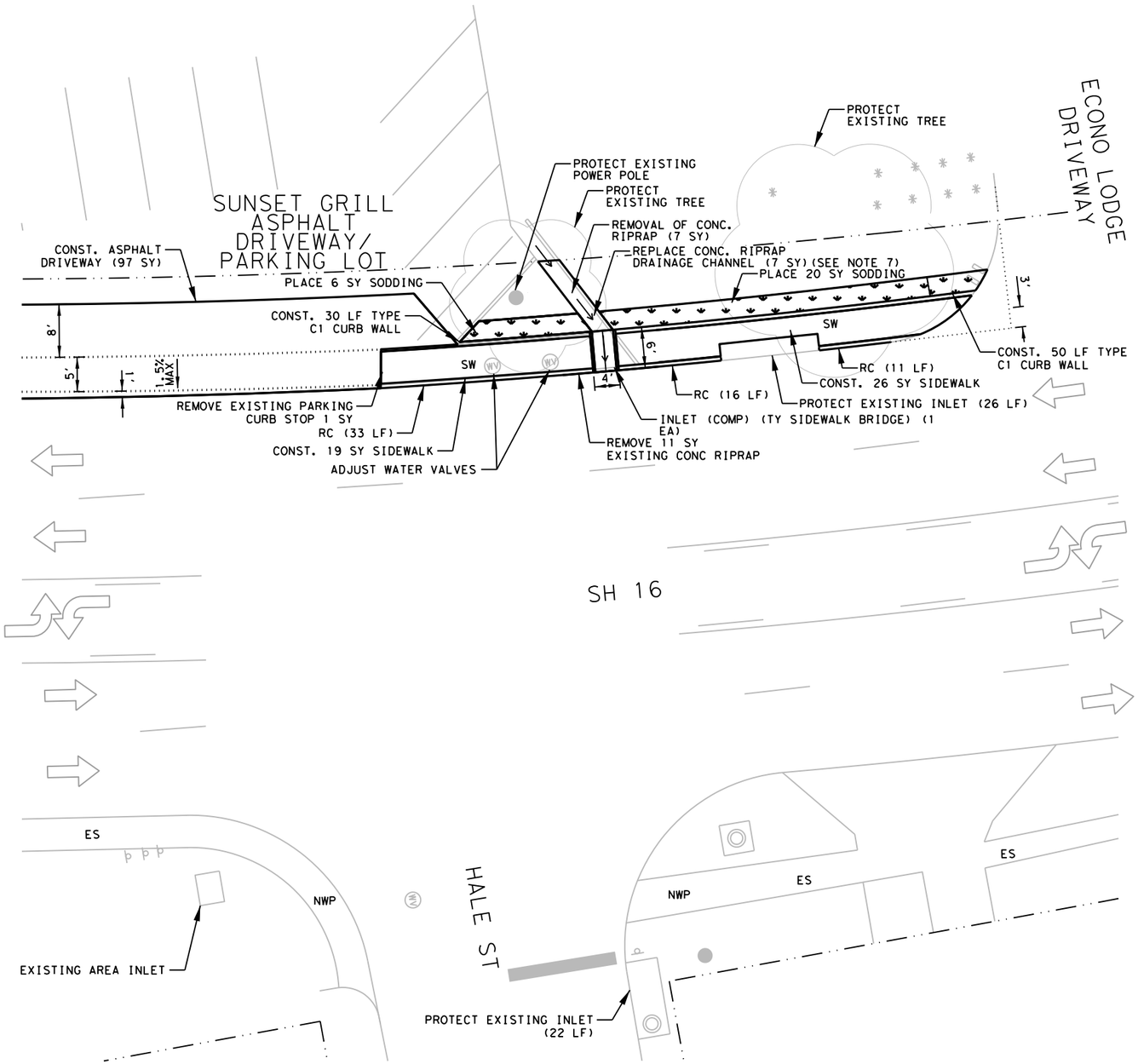
COR ID=SH16S-HaleSt-SW



COR ID=SH16S-HaleSt-NW

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	60
104	6028	REMOVING CONC (MISC)	SY	7
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	97
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	26
162	6002	BLOCK SODDING	SY	26
168	6001	VEGETATIVE WATERING	MG	1.6
351	6036	FLEX PAVEMENT STRUCTURE REPAIR (2-8")	SY	97
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
465	6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	1
479	6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	2
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	80
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	80
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	48
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	48
529	6002	CONC CURB (TY II)	LF	60
529	6015	CONC CURB (TY C1)	LF	80
531	6002	CONC SIDEWALKS (5")	SY	45
1004	6001	TREE PROTECTION	EA	2

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
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3/22/2022

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SH16 AT HALE ST FREDERICKSBURG, TX

SHEET 10 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	112

STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SH16S-HaleSt-SE

COR ID=SH16S-HaleSt-NE

SPECIAL NOTE AND DETAIL

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6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) CONTRACTOR SHALL ENSURE TO REPLACE RIPRAP CHANNEL WITH THE SAME SHAPE AS EXISTING BUT TIE INTO THE PROPOSED SIDEWALK BRIDGE FLOWLINE.

LEGEND

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PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
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RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

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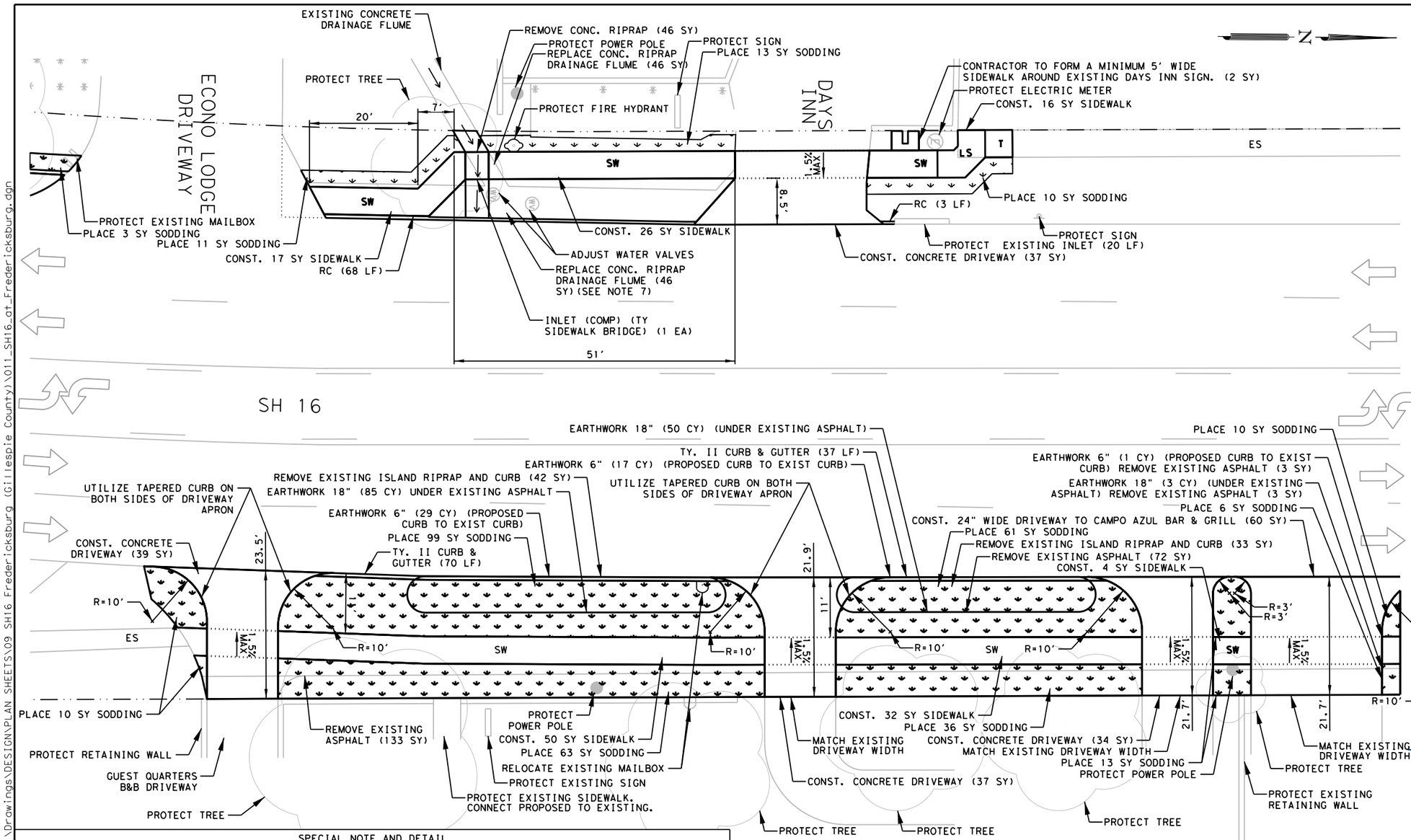

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	207
104	6021	REMOVING CONC (CURB)	LF	104
104	6028	REMOVING CONC (MISC)	SY	121
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	205
132	6003	EMBANKMENT (FINAL)(ORD COMP)(TYP B)	CY	185
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	322
162	6002	BLOCK SODDING	SY	322
168	6001	VEGETATIVE WATERING	MG	19.3
432	6011	RIPRAP (CONC) (CL B) (6")	CY	8
465	6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	1
479	6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	2
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	221
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	221
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	20
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	20
529	6002	CONC CURB (TY II)	LF	178
530	6004	DRIVEWAYS (CONC)	SY	207
531	6002	CONC SIDEWALKS (5")	SY	147
560	6025	RELOCATE EXISTING MAILBOX	EA	1
1004	6001	TREE PROTECTION	EA	6

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) CONTRACTOR SHALL ENSURE TO REPLACE RIPRAP CHANNEL WITH THE SAME SHAPE AS EXISTING BUT TIE INTO THE PROPOSED SIDEWALK BRIDGE FLOWLINE.
8) PROVIDE A CERTIFIED ARBORIST TO REVIEW THE CONDITIONS OF TREES IDENTIFIED WITHIN THESE PLANS TO BE PROTECTED. AN ARBORIST SHALL PROVIDE A CONDITION ASSESSMENT OF THESE TREES AND WRITTEN DIRECTION FOR ADDITIONAL PROTECTION AT LEAST 5 BUSINESS DAYS PRIOR TO BEGINNING WORK. TXDOT WILL APPROVE ADDITIONAL WORK. PAYMENT FOR THE ARBORIST AND WORK IN ADDITION TO WORK SHOWN ON THE PLANS WILL BE PAID FOR UNDER THE FORCE ACCOUNT METHOD IN ACCORDANCE WITH ARTICLE 9.7, "PAYMENT FOR EXTRA WORK AND FORCE ACCOUNT METHOD."
9) ONCE WORK COMMENCES, COORDINATE WITH THE ARBORIST WHILE EXCAVATING, AND TAKE CARE WHEN WORKING IN/NEAR THE CRITICAL ROOT ZONE AND SHALL EXPOSE EXISTING TREE ROOTS AND DOCUMENT WITH PHOTOGRAPHS TO VERIFY CONDITION. THE ARBORIST SHALL REVIEWED PROPOSED IMPROVEMENTS TO BE CONSTRUCTED AND RECOMMEND IMPROVEMENTS TO AVOID DAMAGE TO TREE ROOTS. TXDOT WILL APPROVE RECOMMENDATIONS PRIOR TO CONSTRUCTION. DAMAGE TO EXISTING ROOTS, ROOT BARRIERS OR OTHER UNDERGROUND FACILITIES SHALL BE REPLACED IN-KIND AT THE CONTRACTOR'S EXPENSE.
10) DURING WORK HOURS, IF IT IS DEEMED UNSAFE OR UNSUFFICIENT ROOM EXISTS ADJACENT TO PROVIDE TREE PROTECTION FENCING PER THE STANDARDS HEREIN, TREE PROTECTION CHAIN LINK FENCING MAY BE REMOVED TEMPORARILY WITHIN THE WORK AREA. TREE PROTECTION PLANKING SHALL REMAIN AND SHALL NOT BE REMOVED. AFTER COMPLETION OF WORK ADJACENT TO TREES IN THESE AREAS, OR AT THE END OF EACH WORK DAY, TREE PROTECTION FENCING SHALL BE ERECTED.
11) TREE TRUNK LOCATIONS AND DIAMETERS ARE APPROX. ESTIMATIONS. NO TRADITIONAL TREE SURVEY WAS PERFORMED.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/26/2022

Texas Department of Transportation

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TBPELS Firm 5713

SH16 MIDBLOCK BETWEEN HALE ST AND E WALNUT ST FREDERICKSBURG, TX

SHEET 11 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		113
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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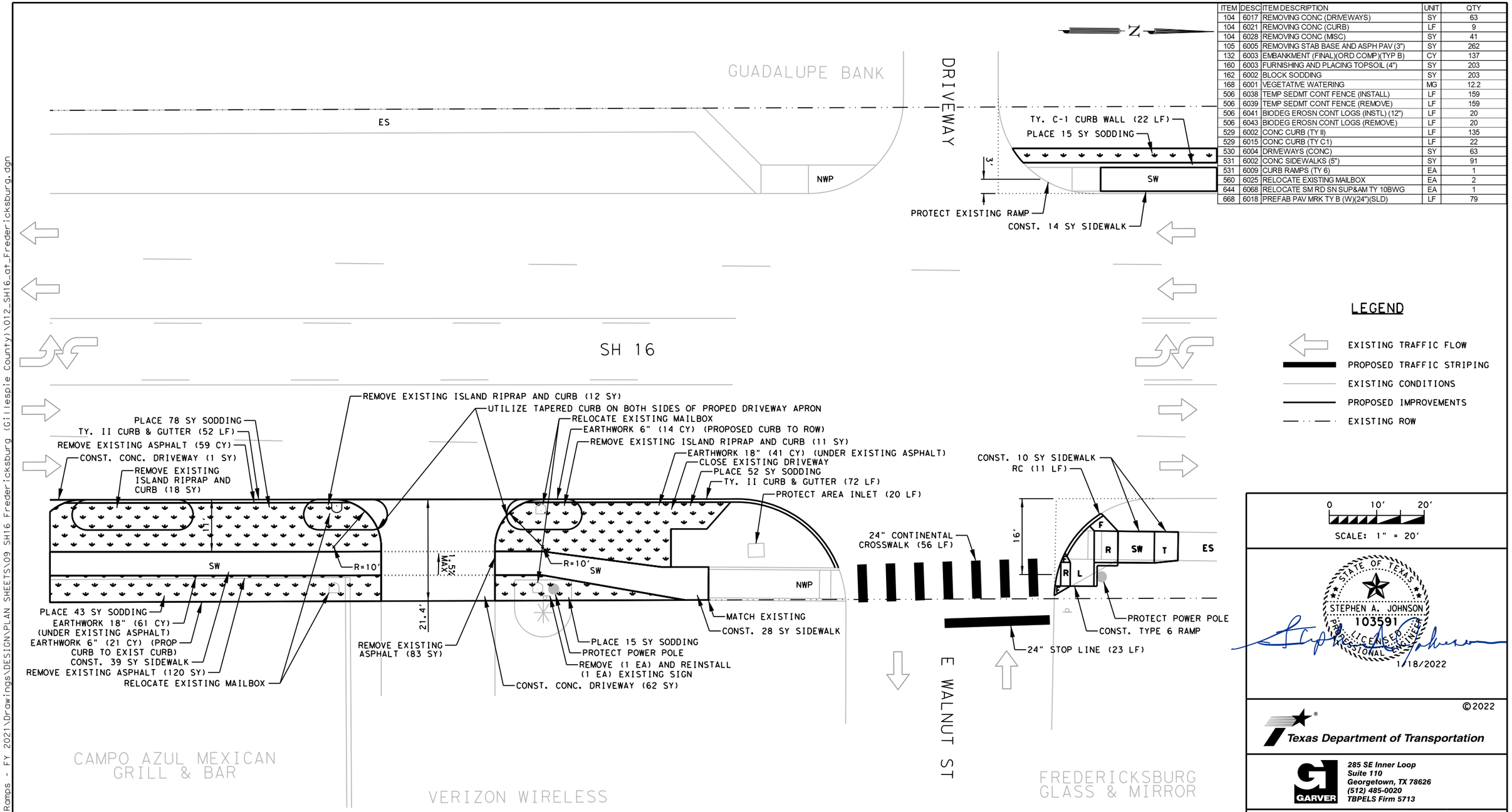
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	63
104	6021	REMOVING CONC (CURB)	LF	9
104	6028	REMOVING CONC (MISC)	SY	41
105	6005	REMOVING STAB BASE AND ASPH PAV (3")	SY	262
132	6003	EMBANKMENT (FINAL)(ORD COMP)(TYP B)	CY	137
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	203
162	6002	BLOCK SODDING	SY	203
168	6001	VEGETATIVE WATERING	MG	12.2
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	159
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	159
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	20
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	20
529	6002	CONC CURB (TY II)	LF	135
529	6015	CONC CURB (TY C1)	LF	22
530	6004	DRIVEWAYS (CONC)	SY	63
531	6002	CONC SIDEWALKS (5")	SY	91
531	6009	CURB RAMPS (TY 6)	EA	1
560	6025	RELOCATE EXISTING MAILBOX	EA	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	79



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER
1/18/2022

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TBPELS Firm 5713

COR ID=SH16-WALNUTST-SE

COR ID=SH16-WALNUTST-NE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- = TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- = FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

SH16 AT WALNUT ST FREDERICKSBURG, TX

SHEET 12 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		114
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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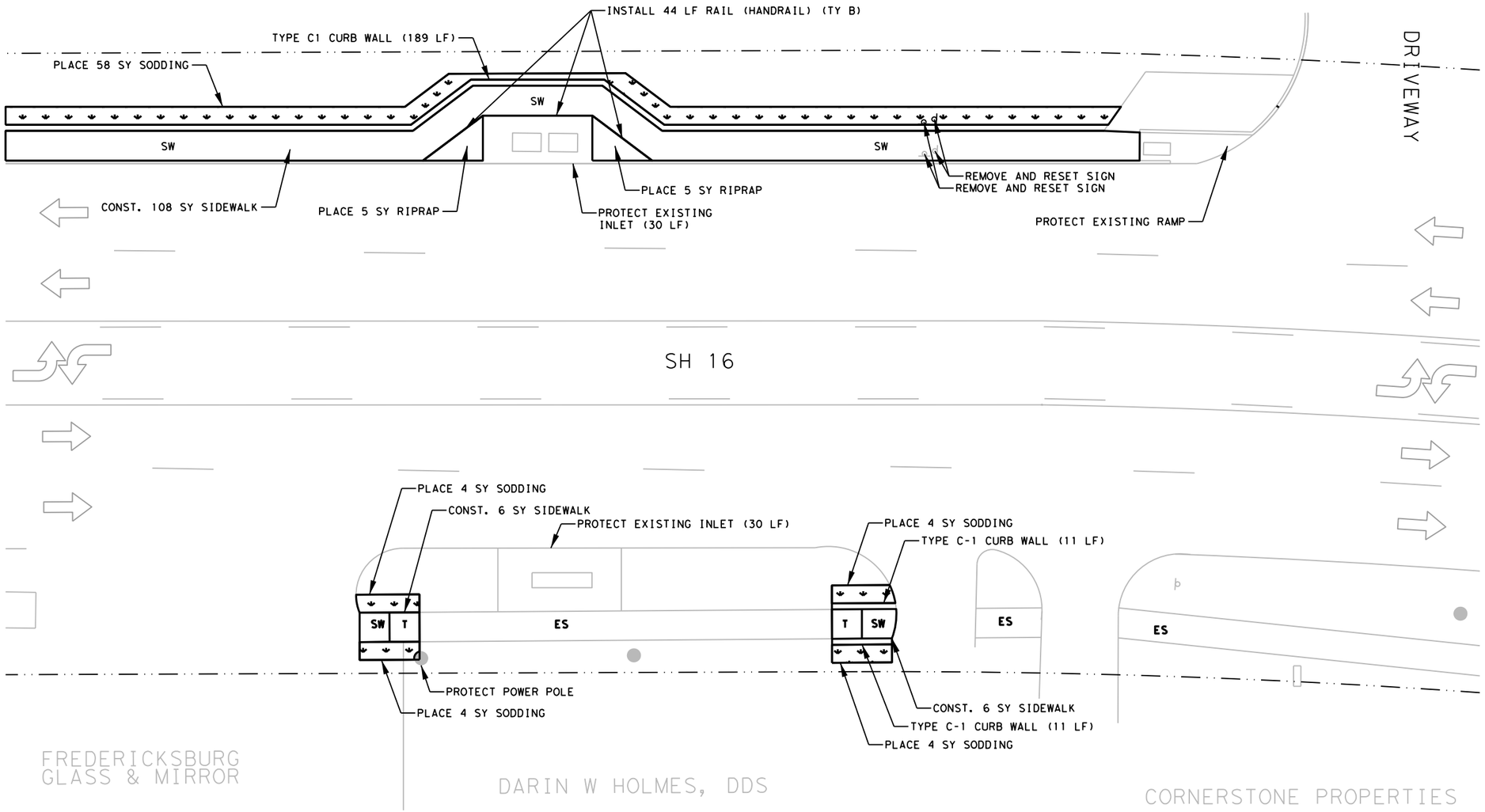
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	58
162	6002	BLOCK SODDING	SY	58
168	6001	VEGETATIVE WATERING	MG	3.5
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
450	6048	RAIL (HANDRAIL)(TY B)	LF	44
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	190
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	190
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	60
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	60
529	6015	CONC CURB (TY C1)	LF	211
531	6002	CONC SIDEWALKS (5")	SY	120
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10′ 20′

SCALE: 1" = 20′

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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SH16 MIDBLOCK BETWEEN WALNUT ST AND LIVE OAK ST FREDERICKSBURG, TX

SHEET 13 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		115
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5′ NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5′ NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
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6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
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- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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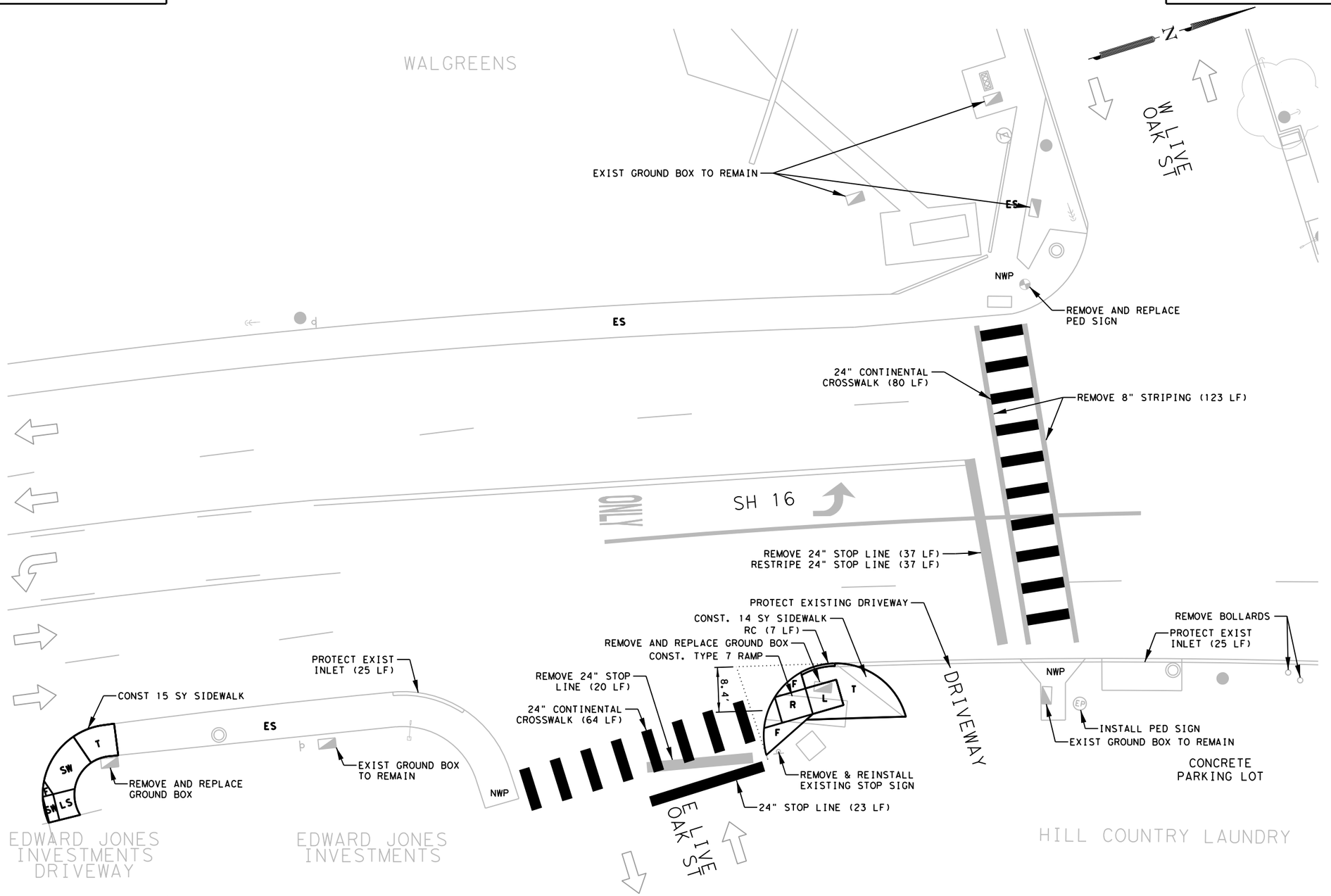
COR ID=SH16-WestLiveOakSt-SW

COR ID=SH16-WestLiveOakSt-NW

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	7
496	6030	REMOV STR (BOLLARD)	EA	2
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	50
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	50
529	6002	CONC CURB (TY II)	LF	7
531	6002	CONC SIDEWALKS (5")	SY	29
531	6010	CURB RAMPS (TY 7)	EA	1
624	6009	GROUND BOX TY D (162922)	EA	1
624	6010	GROUND BOX TY D (162922)W/APRON	EA	1
624	6028	REMOVE GROUND BOX	EA	2
636	6001	ALUMINUM SIGNS (TY A)	SF	2
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
644	6076	REMOVE SM RD SN SUP&AM	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	167
677	6003	ELIM EXT PAV MRK & MRKS (8")	LF	123
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	20



COR ID=SH16-EastLiveOakSt-SE

COR ID=SH16-WestLiveOakSt-NE

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10′ 20′

SCALE: 1" = 20′

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5′ NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
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LEGEND

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- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- = TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- = TREE
- = SHRUB
- = GRASS
- = GROUND BOX
- = SIGN
- = MANHOLE
- = GUY ANCHOR
- = STONE RIPRAP
- = POWER POLE
- = LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- = FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER
1/18/2022

Texas Department of Transportation

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SH16 AT LIVE OAK ST FREDERICKSBURG, TX

SHEET 14 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	116

STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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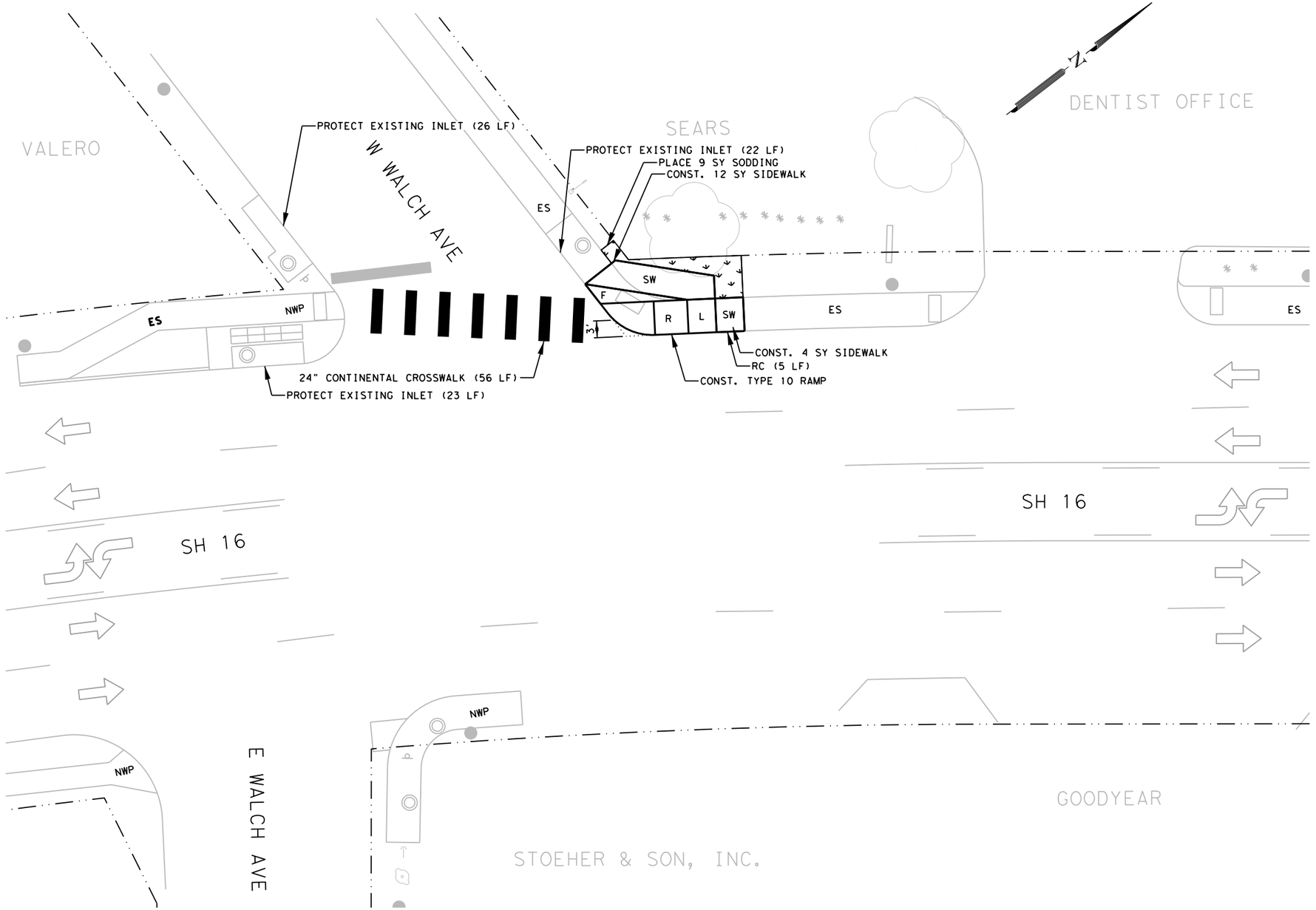
COR ID=SH16-WalchAve-SW

COR ID=SH16-WalchAve-NW



ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	5
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	9
162	6002	BLOCK SODDING	SY	9
168	6001	VEGETATIVE WATERING	MG	0.5
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	32
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	32
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	71
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	71
529	6002	CONC CURB (TY II)	LF	5
531	6002	CONC SIDEWALKS (5")	SY	16
531	6013	CURB RAMPS (TY 10)	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	56

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER
1/18/2022

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SH16 AT WALCH AVE FREDERICKSBURG, TX

SHEET 15 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT	SHEET NO.
6	SEE TITLE SHEET	117

STATE	DISTRICT	COUNTY
TEXAS	AUS	GILLESPIE

CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SH16-WalchAve-SE

COR ID=SH16-WalchAve-NE

SPECIAL NOTE AND DETAIL

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2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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LEGEND

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- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
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- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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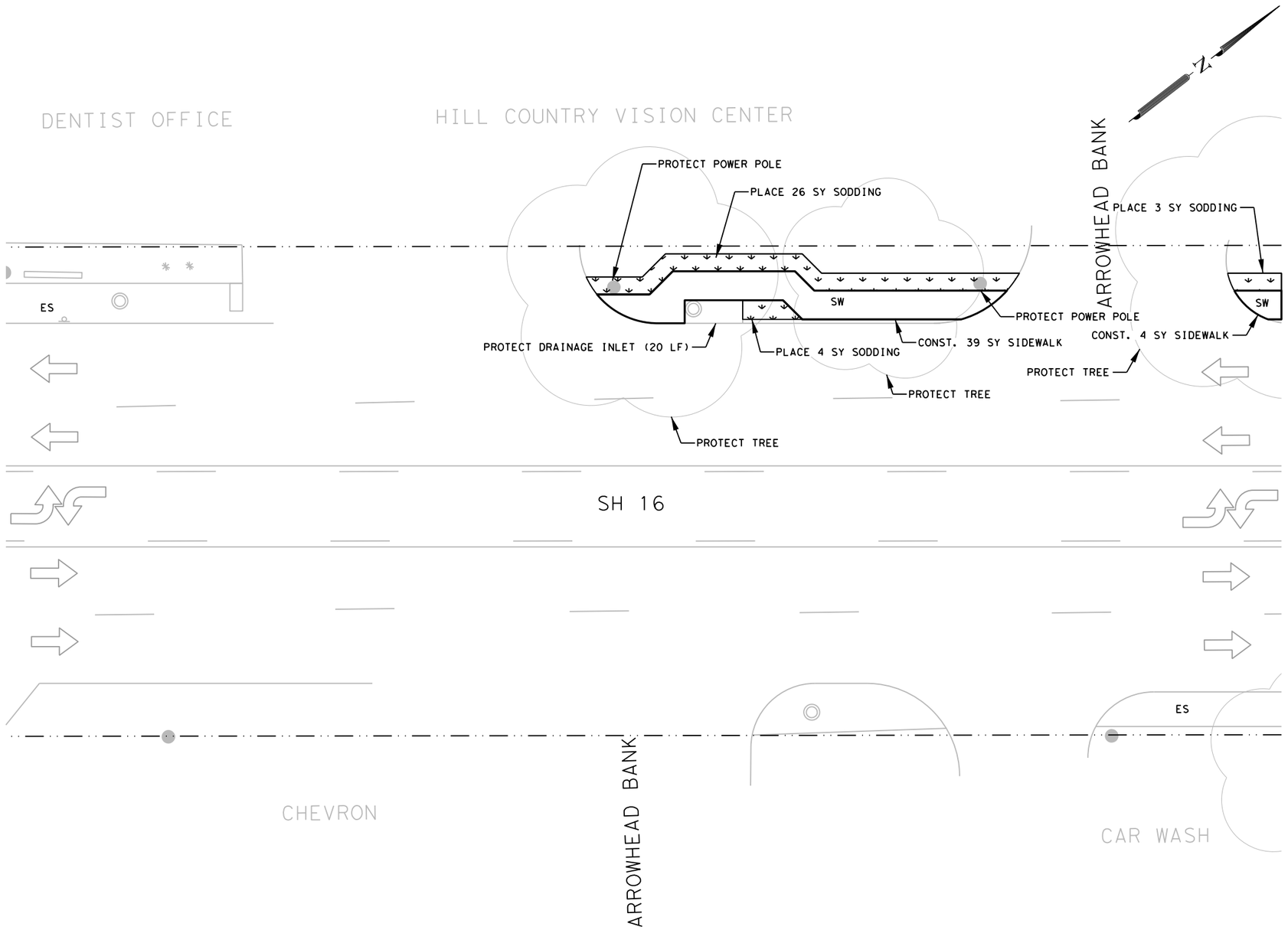
COR ID=SH16-WalchAve-SW

COR ID=SH16-WalchAve-NW

160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	33
162	6002	BLOCK SODDING	SY	33
168	6001	VEGETATIVE WATERING	MG	2.0
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	88
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	88
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	20
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	20
531	6002	CONC SIDEWALKS (5")	SY	43
1004	6001	TREE PROTECTION	EA	3



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10′ 20′

SCALE: 1" = 20′

STATE OF TEXAS
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PROFESSIONAL ENGINEER
1/18/2022

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SH16 MIDBLOCK BETWEEN WALCH AVE AND PARK ST FREDERICKSBURG, TX

SHEET 16 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		118
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SH16-WalchAve-SE

COR ID=SH16-WalchAve-NE

SPECIAL NOTE AND DETAIL

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2) SIDEWALK TRANSITION LENGTHS ARE 5′ NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- (EP) = EXISTING PED POLE W/PED BUTTON
- (P) = NEW PED POLE W/PED BUTTON
- [T] = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- (WV) = WATER VALVE
- (GV) = GAS VALVE
- FIRE HYDRANT
- (E) = ELECTRIC METER
- (G) = GAS METER
- [W] = WATER METER

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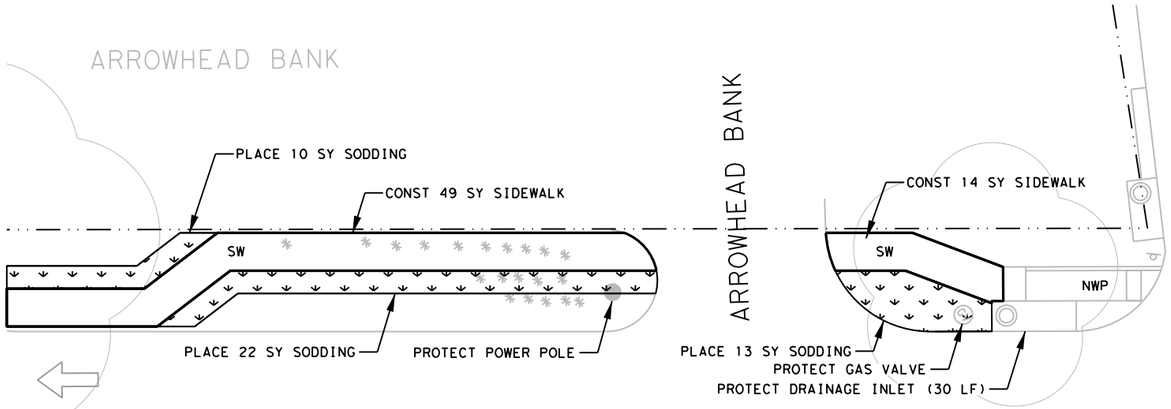

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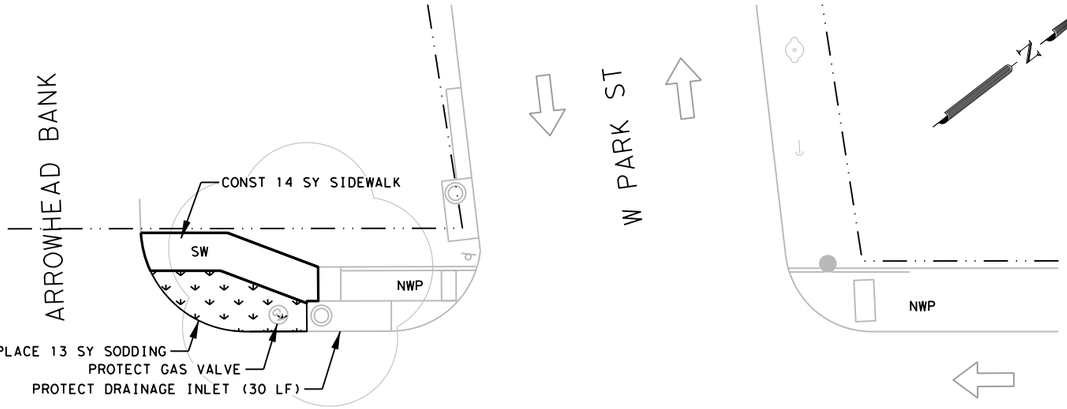
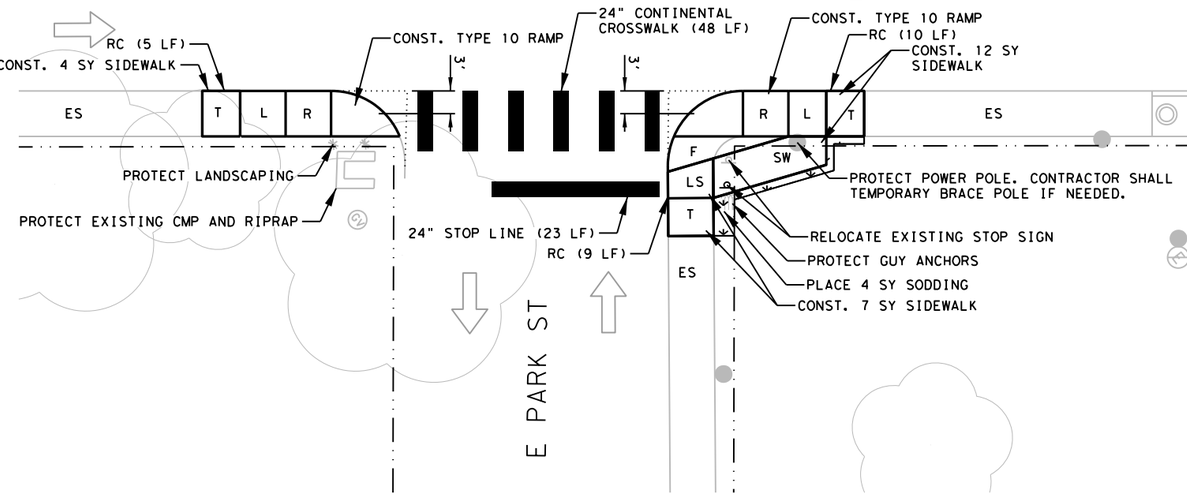


ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	19
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	49
162	6002	BLOCK SODDING	SY	49
168	6001	VEGETATIVE WATERING	MG	2.9
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	18
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	18
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	55
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	55
529	6002	CONC CURB (TY II)	LF	19
531	6002	CONC SIDEWALKS (5")	SY	86
531	6013	CURB RAMPS (TY 10)	EA	2
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	71

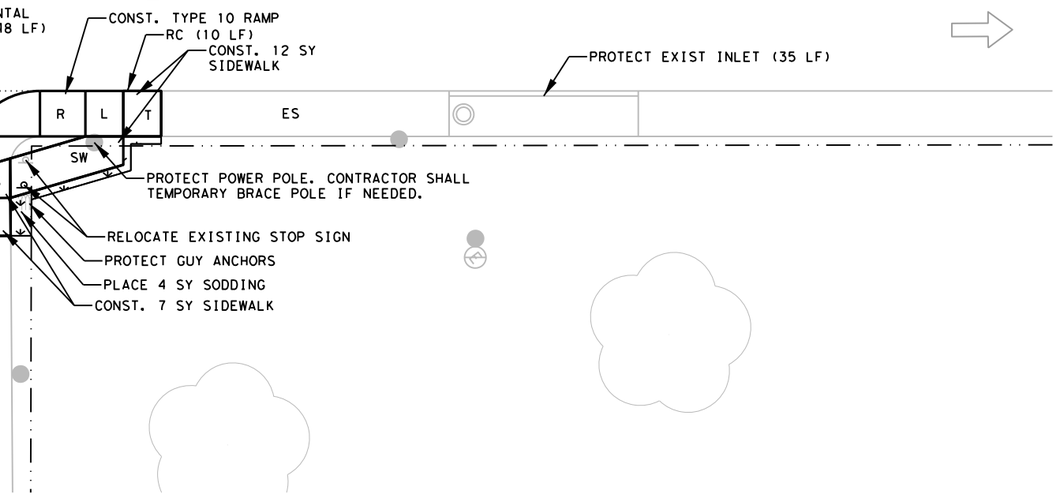
LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

COR ID=US290-ParkSt-SW



COR ID=US290-ParkSt-SE



0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

SH16 AT PARK ST FREDERICKSBURG, TX

SHEET 17 OF 17

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		119
STATE	DISTRICT	COUNTY	
TEXAS	AUS	GILLESPIE	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.
7) SE CORNER AT HEB FUEL STATION: CONTRACTOR SHALL FIELD VERIFY ROW LOCATION AND HOLD AN ON-SITE MEETING WITH THE ENGINEER AND PROPERTY OWNER PRIOR TO CONSTRUCTION

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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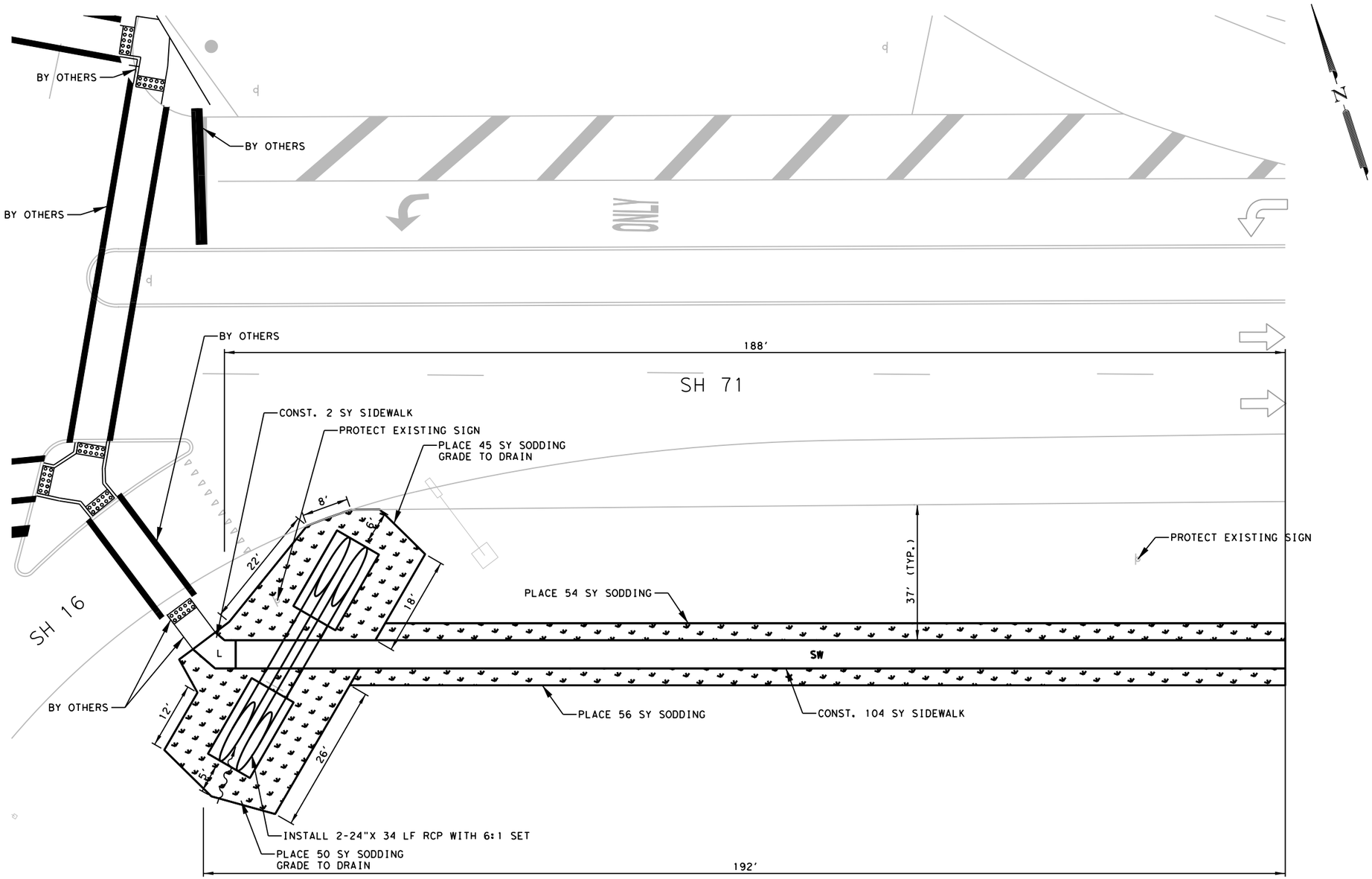
COR ID=SH71-SH16-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
132	6003	EMBANKMENT (FINAL)(ORD COMP)(TYP B)	CY	35
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	205
162	6002	BLOCK SODDING	SY	205
168	6001	VEGETATIVE WATERING	MG	12.3
464	6005	RC PIPE (CL III)(24 IN)	LF	68
467	6394	SET (TY II)(24 IN)(RCP)(6:1)(C)	EA	4
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	198
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	198
531	6002	CONC SIDEWALKS (5")	SY	106



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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SH71 AT SH16 LLANO, TX

SHEET 1 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		120
STATE	DISTRICT	COUNTY	
TEXAS	AUS	LLANO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SH71-SH16-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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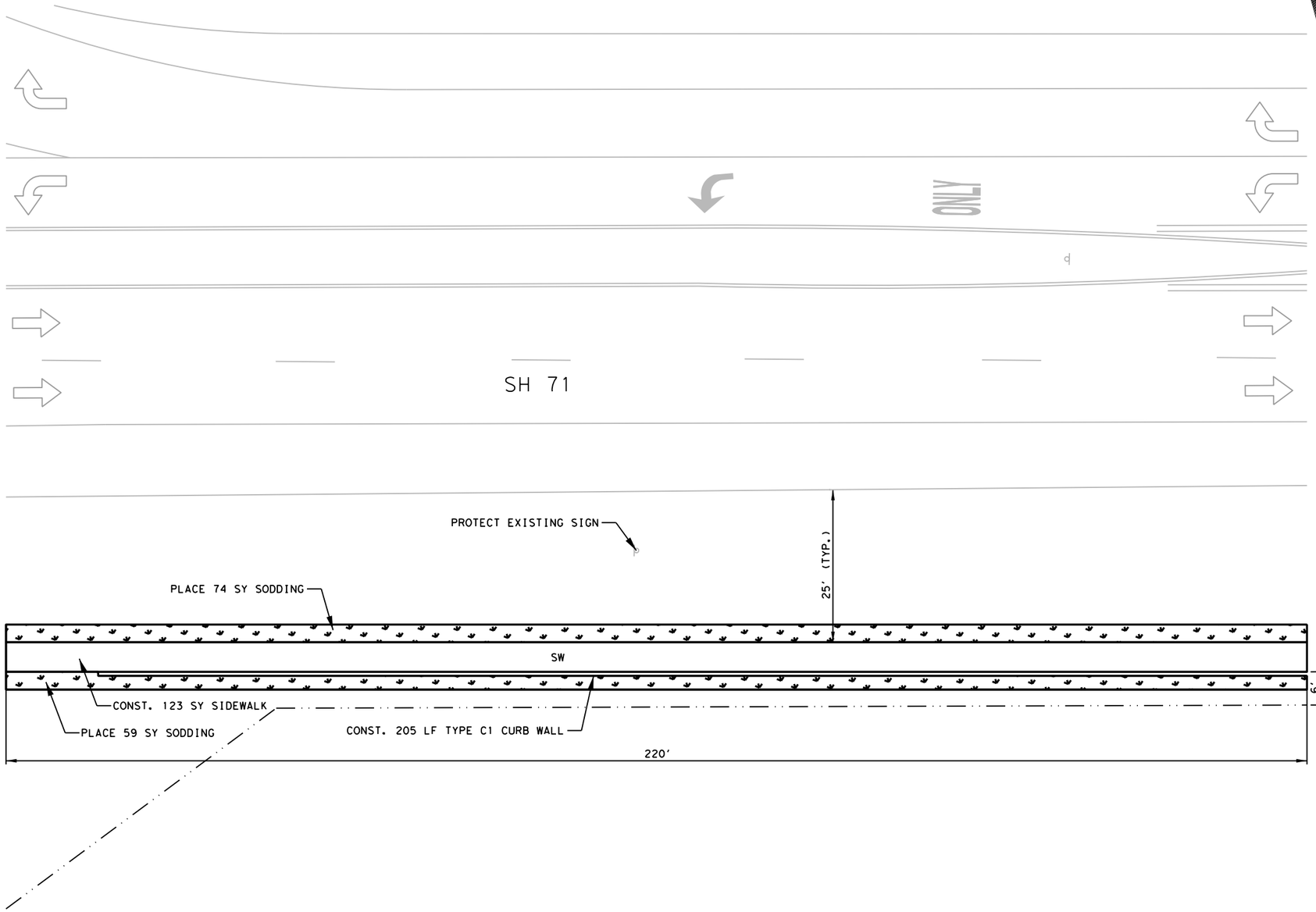
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	133
162	6002	BLOCK SODDING	SY	133
168	6001	VEGETATIVE WATERING	MG	8.0
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	220
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	220
529	6015	CONC CURB (TY C1)	LF	205
531	6002	CONC SIDEWALKS (5")	SY	123



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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(512) 485-0020
TBPELS Firm 5713

SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (1 OF 2) LLANO, TX

SHEET 2 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		121
STATE	DISTRICT	COUNTY	
TEXAS	AUS	LLANO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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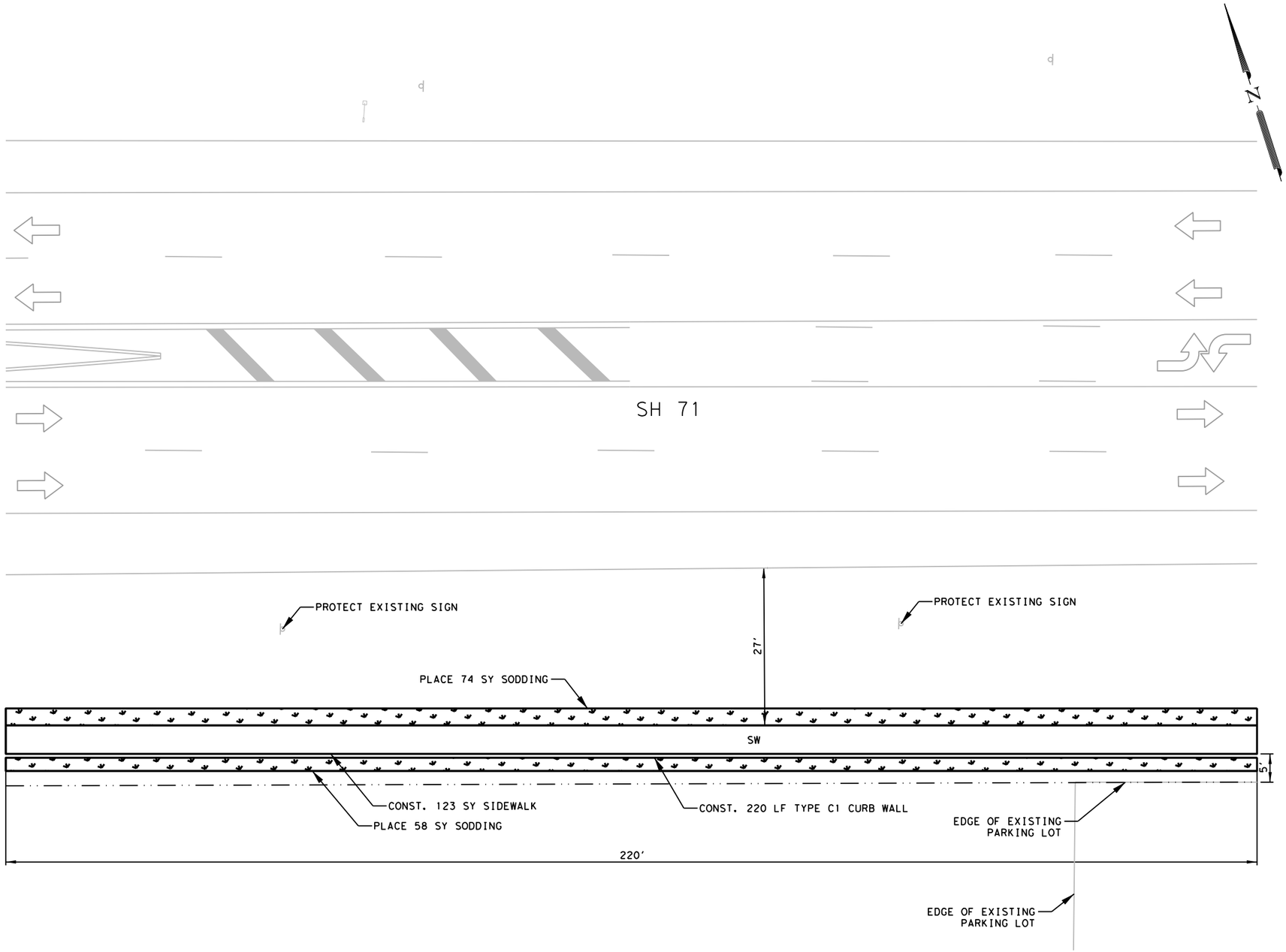
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	132
162	6002	BLOCK SODDING	SY	132
168	6001	VEGETATIVE WATERING	MG	7.9
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	220
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	220
529	6015	CONC CURB (TY C1)	LF	220
531	6002	CONC SIDEWALKS (5")	SY	123



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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Suite 110
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(512) 485-0020
TBPELS Firm 5713

SH71 MIDBLOCK BETWEEN SH16 AND OATMAN ST (2 OF 2) LLANO, TX

SHEET 3 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		122
STATE	DISTRICT	COUNTY	
TEXAS	AUS	LLANO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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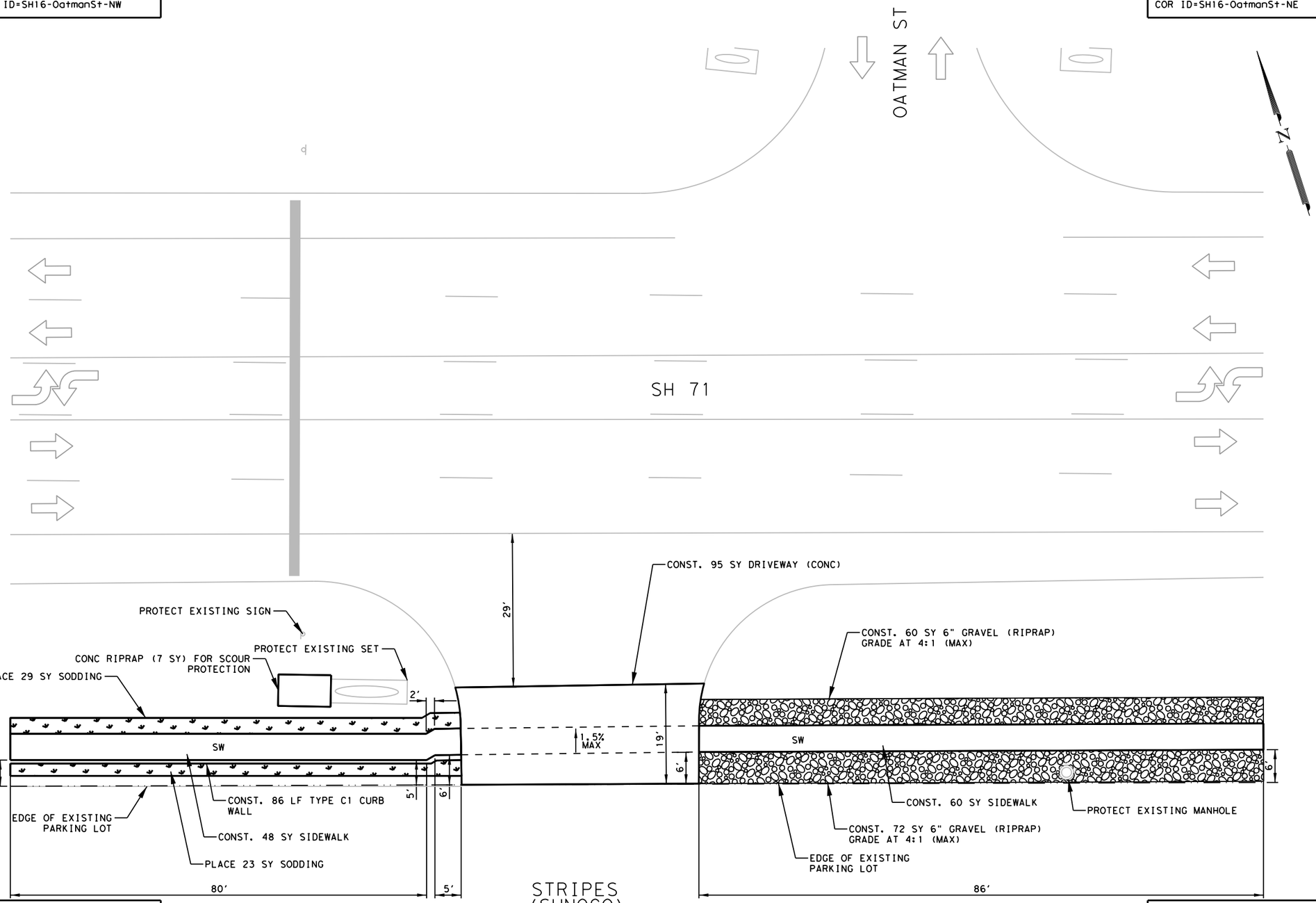
COR ID=SH16-OatmanSt-NW

COR ID=SH16-OatmanSt-NE

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	95
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	52
162	6002	BLOCK SODDING	SY	52
168	6001	VEGETATIVE WATERING	MG	3.1
432	6011	RIPRAP (CONC) (CL B) (6")	CY	2
432	6020	RIPRAP (STONE TY F)(GROUT)(6 IN)	CY	22
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	193
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	193
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	10
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	10
529	6015	CONC CURB (TY C1)	LF	86
530	6004	DRIVEWAYS (CONC)	SY	95
531	6002	CONC SIDEWALKS (5")	SY	108



STRIPES (SUNOCO)

COR ID=SH16-OatmanSt-SW

COR ID=SH16-OatmanSt-SE

LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

SH71 AT OATMAN ST LLANO, TX

SHEET 4 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		123
STATE	DISTRICT	COUNTY	
TEXAS	AUS	LLANO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
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LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
(EP) = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	(WV) = WATER VALVE
(P) = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	(GV) = GAS VALVE
(T) = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	(E) = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	(G) = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	(W) = WATER METER

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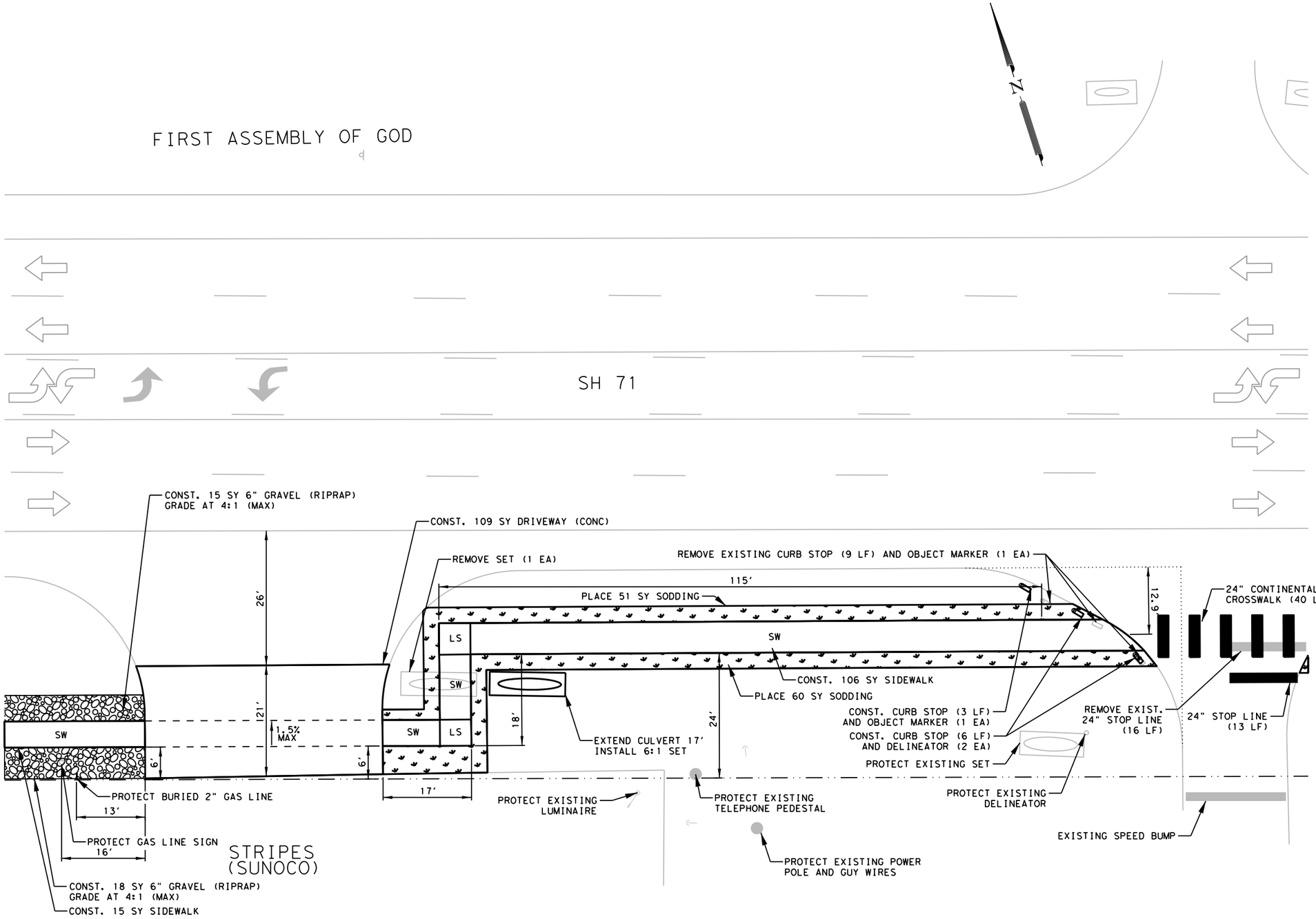
ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6017	REMOVING CONC (DRIVEWAYS)	SY	109
104	6021	REMOVING CONC (CURB)	LF	9
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	111
162	6002	BLOCK SODDING	SY	111
168	6001	VEGETATIVE WATERING	MG	6.7
432	6020	RIPRAP (STONE TY F)(GROUT)(6 IN)	CY	6
460	6003	CMP (GAL STL 24 IN)	LF	17
467	6380	SET (TY II)(24 IN)(CMP)(6:1)(P)	EA	1
496	6004	REMOV STR (SET)	EA	1
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	196
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	196
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	20
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	20
529	6002	CONC CURB (TY II)	LF	9
530	6004	DRIVEWAYS (CONC)	SY	109
531	6002	CONC SIDEWALKS (5")	SY	121
658	6010	INSTL DEL ASSM (D-SW)SZ 2(WC)GND	EA	2
658	6046	INSTL OM ASSM (OM-2X)(WC)GND	EA	1
658	6060	REMOVE DELIN & OBJECT MARKER ASSMS	EA	1
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	53
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	16



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
PROFESSIONAL LICENSED ENGINEER

1/18/2022

Texas Department of Transportation

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TBPELS Firm 5713

SH71 MIDBLOCK BETWEEN OATMAN ST AND HICKORY ST LLANO, TX

SHEET 5 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		124
STATE	DISTRICT	COUNTY	
TEXAS	AUS	LLANO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

SPECIAL NOTE AND DETAIL

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6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

- TRAFFIC SIGNAL POLE
- PB = PEDESTRIAN BUTTON
- EP = EXISTING PED POLE W/PED BUTTON
- P = NEW PED POLE W/PED BUTTON
- T = TELEPHONE PEDESTAL BOX
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TRAFFIC SIGNAL CONTROLLER BOX
- ES = EXIST SIDEWALK
- SW = SIDEWALK
- L = LANDING
- F = FLARE
- T = TRANSITION
- R = RAMP
- NWP = NO WORK PROPOSED
- LS = LEVEL SIDEWALK
- TREE
- SHRUB
- GRASS
- GROUND BOX
- SIGN
- MANHOLE
- GUY ANCHOR
- STONE RIPRAP
- POWER POLE
- LIGHT POLE
- WV = WATER VALVE
- GV = GAS VALVE
- FIRE HYDRANT
- E = ELECTRIC METER
- G = GAS METER
- W = WATER METER

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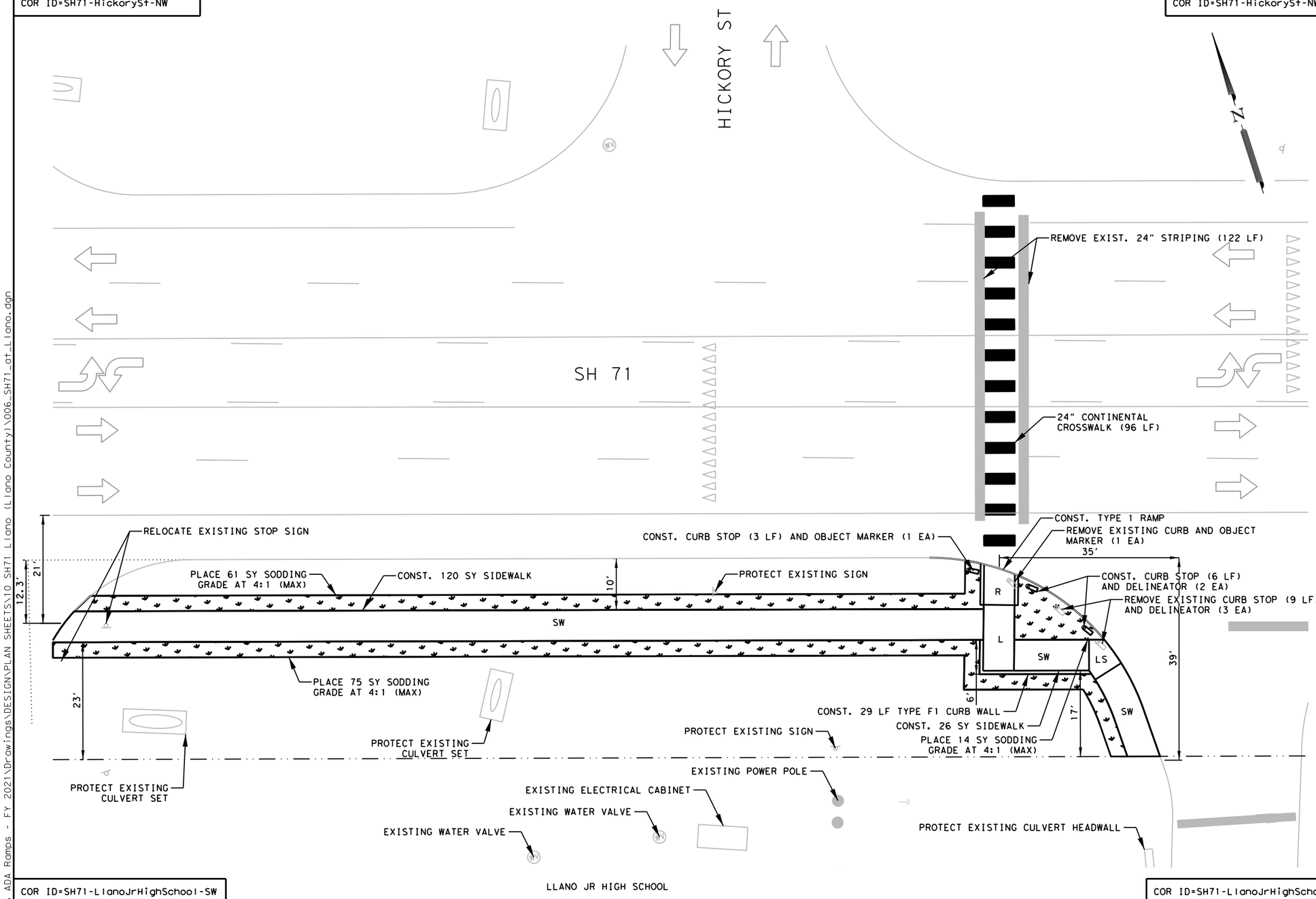
COR ID=SH71-HickorySt-NW

COR ID=SH71-HickorySt-NW

ITEM	DESC	ITEM DESCRIPTION	UNIT	QTY
104	6021	REMOVING CONC (CURB)	LF	9
160	6003	FURNISHING AND PLACING TOPSOIL (4")	SY	150
162	6002	BLOCK SODDING	SY	150
168	6001	VEGETATIVE WATERING	MG	9.0
506	6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	220
506	6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	220
506	6041	BIODEG EROSN CONT LOGS (INSTL) (12")	LF	20
506	6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	20
529	6002	CONC CURB (TY II)	LF	9
529	6016	CONC CURB (TY F1)	LF	29
531	6002	CONC SIDEWALKS (5")	SY	146
531	6004	CURB RAMPS (TY 1)	EA	1
644	6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
658	6010	INSTL DEL ASSM (D-SW)SZ 2(WC)GND	EA	2
658	6046	INSTL OM ASSM (OM-2X)(WC)GND	EA	1
658	6060	REMOVE DELIN & OBJECT MARKER ASSMS	EA	3
668	6018	PREFAB PAV MRK TY B (W)(24")(SLD)	LF	96
677	6007	ELIM EXT PAV MRK & MRKS (24")	LF	122



LEGEND

- EXISTING TRAFFIC FLOW
- PROPOSED TRAFFIC STRIPING
- EXISTING CONDITIONS
- PROPOSED IMPROVEMENTS
- EXISTING ROW

0 10' 20'

SCALE: 1" = 20'

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPELS Firm 5713

SH71 AT HICKORY ST LLANO, TX

SHEET 6 OF 6

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		125
STATE	DISTRICT	COUNTY	
TEXAS	AUS	LLANO	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

COR ID=SH71-LlanoJrHighSchool-SW

COR ID=SH71-LlanoJrHighSchool-SE

SPECIAL NOTE AND DETAIL

1) PROPOSED SIDEWALK IS 5' NOMINAL WIDTH, UNLESS OTHERWISE NOTED.
2) SIDEWALK TRANSITION LENGTHS ARE 5' NOMINAL, UNLESS OTHERWISE NOTED.
3) MATCH EXISTING CORNER RADIUS, UNLESS OTHERWISE NOTED.
4) REFER TO INDIVIDUAL STANDARDS WITH THIS PLAN SET FOR ADDITIONAL INFORMATION.
5) SIDEWALK AT DRIVEWAY APPROACH SHALL NOT EXCEED A CHANGE IN HEIGHT OF 6" AND A MAXIMUM SLOPE OF 8%.
6) CONTRACTOR SHALL ENSURE A MAXIMUM 1.5% LONGITUDINAL SLOPE ON THE BASE OF THE PROPOSED TYPE 7 AND TYPE 10 RAMPS FOR DRAINAGE.

LEGEND

= TRAFFIC SIGNAL POLE	ES = EXIST SIDEWALK	= TREE	= POWER POLE
PB = PEDESTRIAN BUTTON	SW = SIDEWALK	= SHRUB	= LIGHT POLE
EP = EXISTING PED POLE W/PED BUTTON	L = LANDING	= GRASS	WV = WATER VALVE
P = NEW PED POLE W/PED BUTTON	F = FLARE	= GROUND BOX	GV = GAS VALVE
T = TELEPHONE PEDESTAL BOX	T = TRANSITION	= SIGN	= FIRE HYDRANT
RC = REPLACE CURB/CURB & GUTTER	R = RAMP	= MANHOLE	E = ELECTRIC METER
ADW = ADD DETECTABLE WARNING	NWP = NO WORK PROPOSED	= GUY ANCHOR	G = GAS METER
= TRAFFIC SIGNAL CONTROLLER BOX	LS = LEVEL SIDEWALK	= STONE RIPRAP	W = WATER METER

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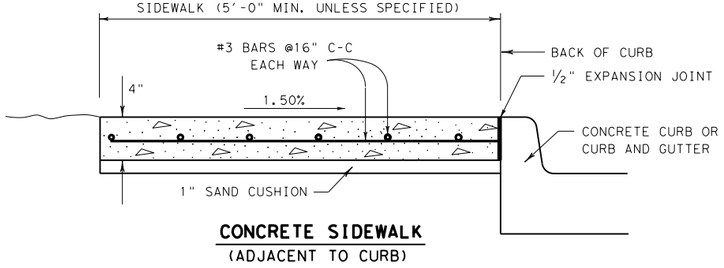
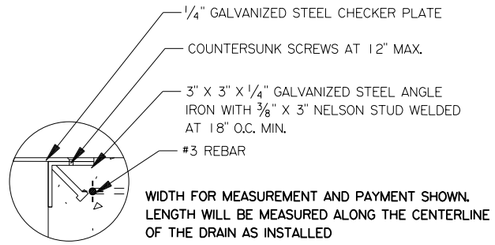
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\DESIGN\PLAN SHEETS\10 SH71 Llano (Llano County)\006_SH71_at_Llano.dgn

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the completeness of this standard in other formats or for incorrect results or damages resulting from its use.



CONCRETE SIDEWALK
(ADJACENT TO CURB)

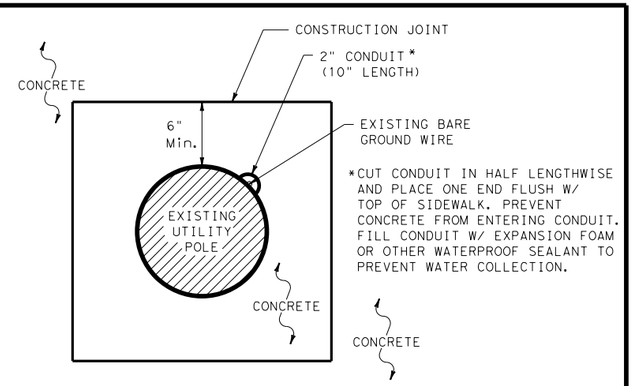
CONCRETE SIDEWALK DETAIL
NTS



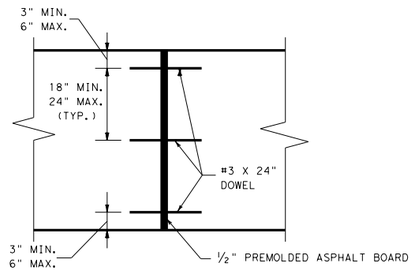
WIDTH FOR MEASUREMENT AND PAYMENT SHOWN. LENGTH WILL BE MEASURED ALONG THE CENTERLINE OF THE DRAIN AS INSTALLED

GRADE OF BOTTOM OF TRENCH DRAIN SHALL FOLLOW EXISTING GRADE OF GUTTER LINE UNLESS OTHERWISE INSTRUCTED BY THE ENGINEER.

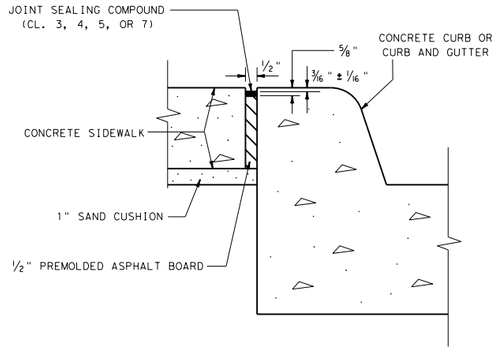
GRATE CONNECTION
NTS



BARE GROUND WIRE PROTECTION
SUBSIDIARY TO ITEM 531, SIDEWALK OR CURB RAMP
NTS



TRANSVERSE EXPANSION JOINT
NTS



1/2" EXPANSION JOINT
(SIDEWALK ADJACENT TO CURB) NTS

SEE PLAN SHEETS FOR LOCATIONS OF SIDEWALKS AND RETAINING WALLS.

LONGITUDINAL SLOPE OF SIDEWALKS SHALL NOT EXCEED 5% EXCEPT IN CASES WHERE THE ADJACENT ROADWAY SLOPE EXCEEDS 5%. IF ROADWAY SLOPE EXCEEDS 5%, LONGITUDINAL SLOPE OF SIDEWALK MAY MATCH THAT OF ROADWAY.

IF SIDEWALK WIDTH IS LESS THAN 5', PROVIDE 5' x 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' SPACING.

SURFACE TREATMENT OF RETAINING WALL FACE DETAILED ELSEWHERE IN THE PLANS.

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

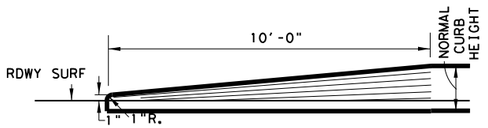
Texas Department of Transportation

MISC CONSTRUCTION DETAILS

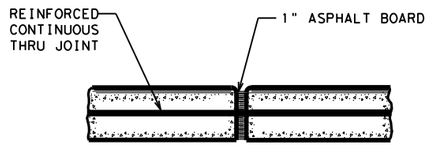
(SHT 1 OF 1)

ORIGINAL DRAWING	FED.RD. DIV.NO.	PROJECT NO.		SHEET NO.
	6	SEE TITLE SHEET		126
REVISIONS:	STATE	DIST.	COUNTY	
	TEXAS	AUS	VARIES	
	CONT.	SECT.	JOB	HIGHWAY NO.
	0914	00	457	VARIES

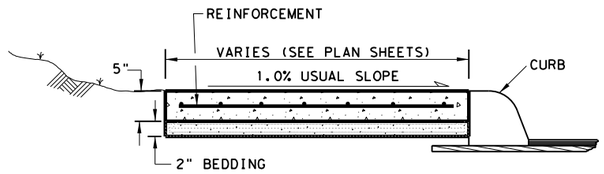
LEVELS DISPLAYED
1 3 6



TRANSITION FOR CONCRETE CURB ENDS



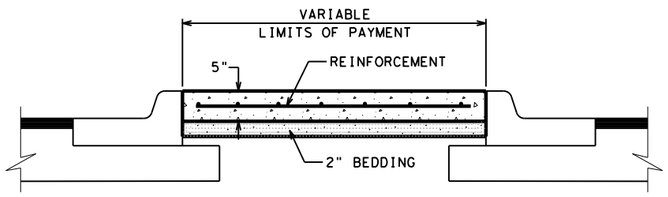
EXPANSION JOINT DETAIL



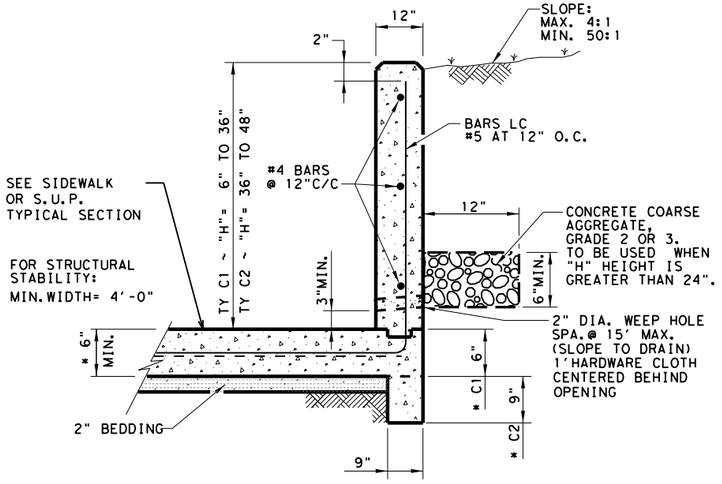
SIDEWALK & SHARED USE PATH (S.U.P.) TYP. SECT.

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

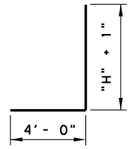
NOTE: TOOLED OR SAWED CONTRACTION JOINTS ARE NOT ALLOWED.



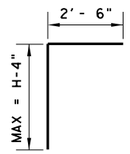
RIPRAP MEDIAN DETAIL



CONC CURB (TY C1) & (TY C2)



BAR LC



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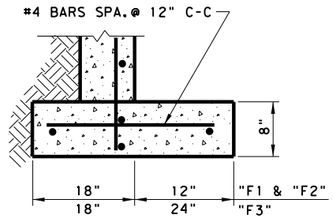
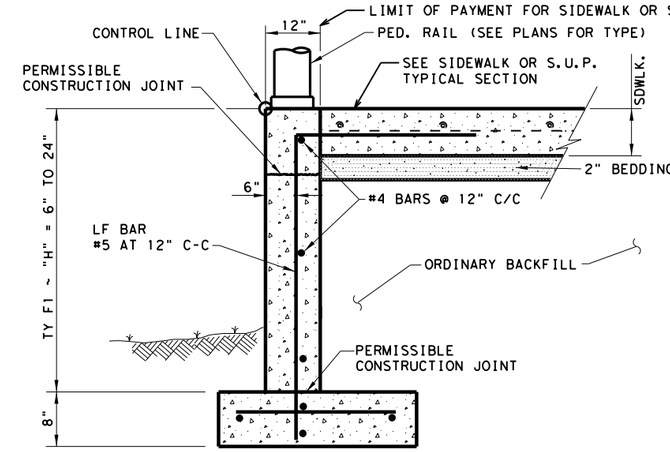
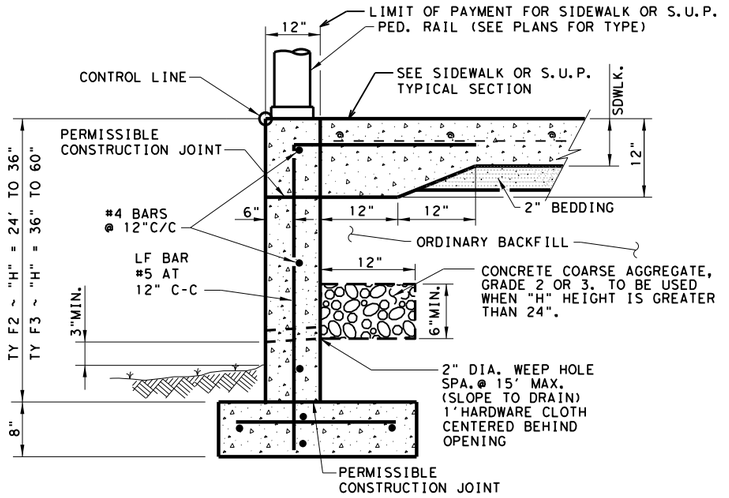


FOOTING DETAIL



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
0914	00	457	VA
DIST	COUNTY		SHEET NO.
AUS	VARIES		127

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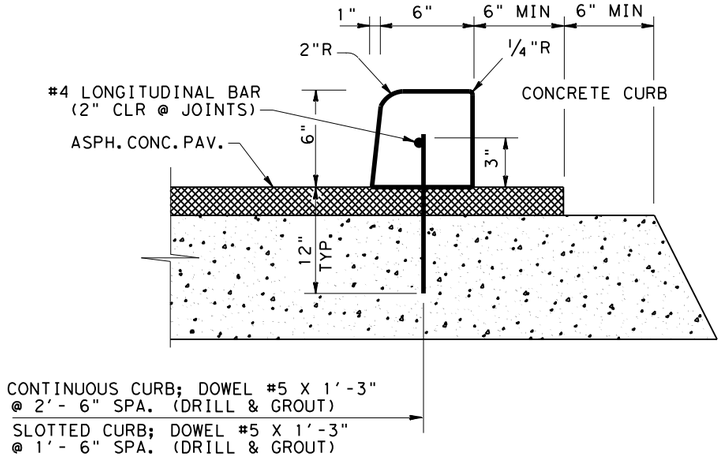
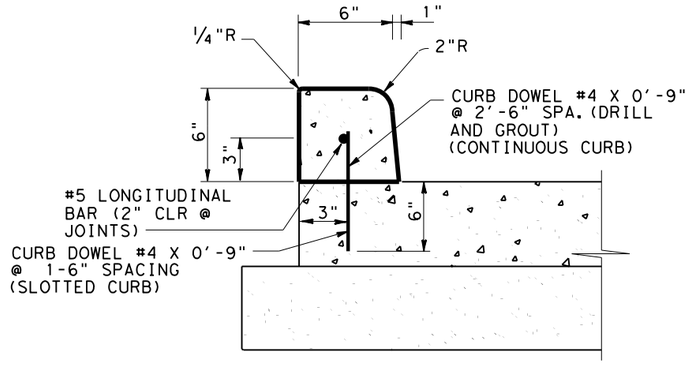


SHOWN ON EXISTING OR PROPOSED ACP PAVEMENT

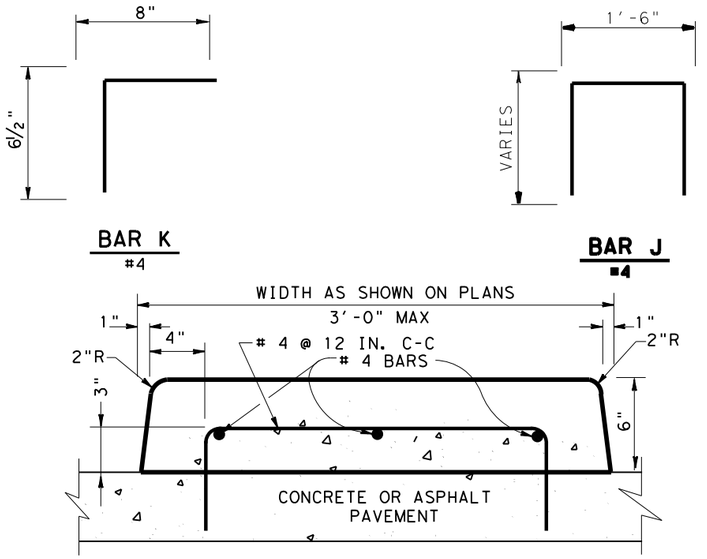
(PAY ITEM 529-6011) - FOR CONTINUOUS



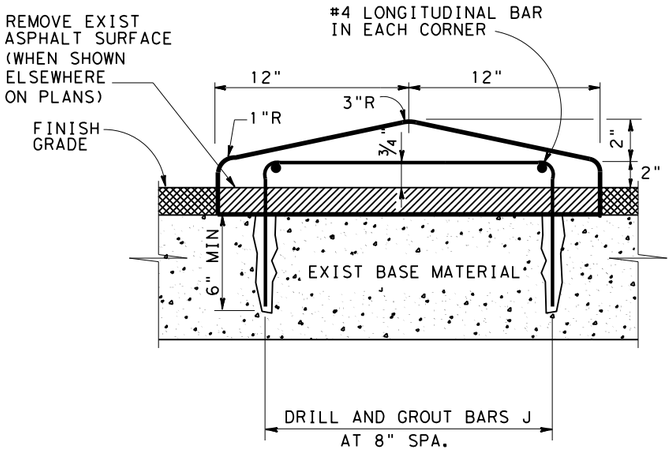
SHOWN ON EXISTING OR PROPOSED CONCRETE PAVEMENT

(PAY ITEM 529-6011) - FOR CONTINUOUS

CONCRETE CURB (DOWEL) (6 IN.)

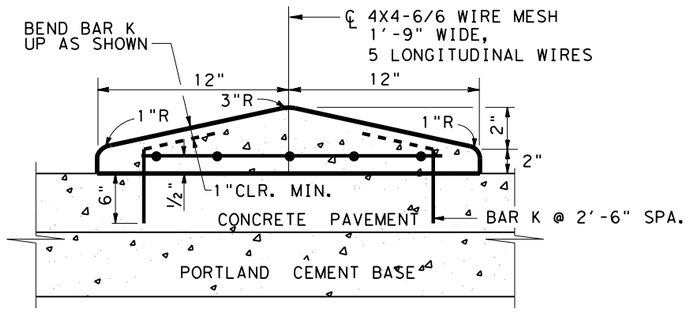


ITEM 536-6001 CONCRETE MEDIAN
SEE NOTE 2



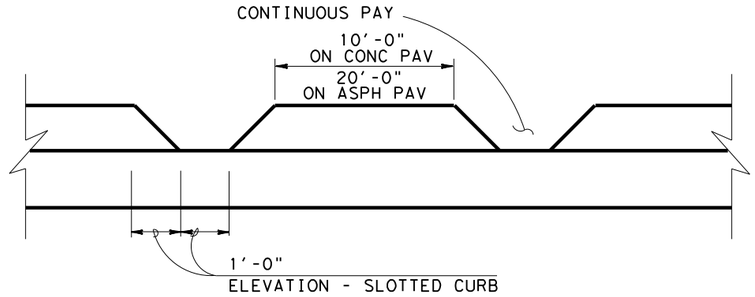
SHOWN ON EXISTING ACP PAVEMENT

SEE NOTE 2 - ITEM 536-6003 CONC DIRECTIONAL ISLAND



SHOWN ON EXISTING OR PROPOSED CONCRETE PAVEMENT

SEE NOTE 2 - ITEM 536-6003 CONC DIRECTIONAL ISLAND



ITEM 529-6012 CONCRETE CURB (SLOTTED) - ON CONC.
ITEM 529-6009 CONC CURB (DOWEL)(SLOTTED) - ON ASPH.

CONCRETE DIRECTIONAL ISLAND

NOTES:

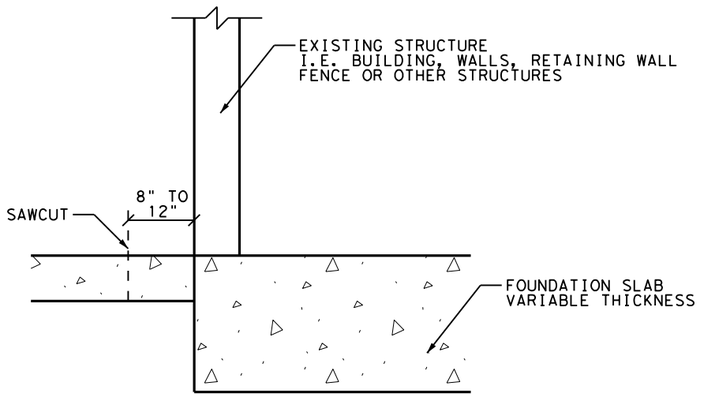
1. DRILL AND GROUT BARS SHOWN AS PER ITEM 420.4.7.10, 6" EMBEDMENT, MINIMUM ON CONC.
2. INSTALL A 2" DRAINAGE OPENING AT 10' C-C WHEN CURB/ISALND IS NOT ON TOP OF CROSS SECTION (LOCATED ON A 2 OR 3 PERCENT TRANSVERSE GRADE, OR SUPERELEVATION.)

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED
PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

CONCRETE CURB AND DIRECTIONAL ISLAND DETAILS CC & DID

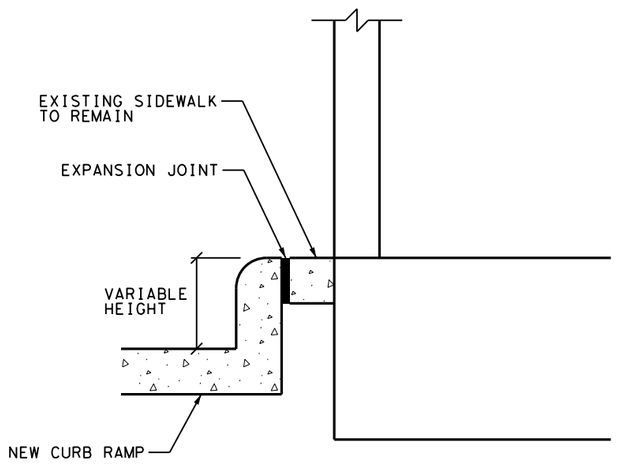
FILE: STDB-9.dgn	DN:	CK:	DW:	CK:
©TxDOT 2014	DIST	FED REG	PROJECT NO.	SHEET
REVISIONS	AUS	6	SEE TITLE SHEET	128
	COUNTY	CONTROL	SECT	JOB	HIGHWAY
	TRAVIS	0914	00	457	VA



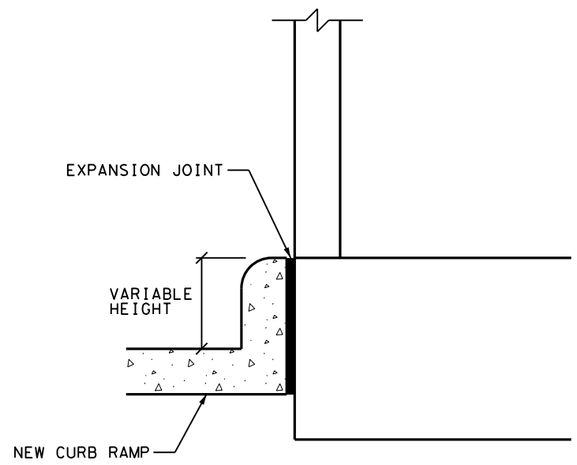
SAWCUT DETAIL
N. T. S.

GENERAL BUILDINGS AND STRUCTURES (INCLUDING HISTORICAL BUILDINGS) PROTECTION NOTES:

1. SAWCUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM THE STRUCTURE TO MINIMIZE POTENTIAL DAMAGE TO BUILDINGS, WALLS AND STRUCTURES.
2. CONSTRUCT NEW SIDEWALK NEXT TO SAWCUT EDGE WITH INSTALLATION OF EXPANSION JOINT IN BETWEEN. IF REMOVING THE EXISTING SIDEWALK ENTIRELY, THEN REMOVE BY HAND THE REMAINING 8 TO 12 INCHES NEXT TO THE HISTORIC BUILDING. PLACE EXPANSION JOINT BETWEEN BUILDING AND NEW SIDEWALK.
3. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING DAMAGE TO ALL BUILDINGS AND STRUCTURES DURING THE ENTIRE CONSTRUCTION PROJECT, ESPECIALLY DURING REMOVAL OF EXISTING PAVEMENT, CURB, OR SIDEWALK. DURING THE SAWCUT AND HAND REMOVAL PROCESS, PROTECT FROM DAMAGE TO THE BUILDING'S FOUNDATION, MATERIALS, ELEVATIONS, AND ENTRYWAYS WITH DECORATIVE FLOORING.
4. REPAIR OR REPLACE IN KIND, AT THE CONTRACTOR'S EXPENSE, ANY DAMAGE TO HISTORIC MATERIAL THAT RESULTS FROM AN ACT OR OMISSION ON THE PART OF OR ON BEHALF OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING A REPLACEMENT SOURCE FOR HISTORIC MATERIALS DAMAGED IN THE COURSE OF THE WORK. INFORM TXDOT ENVIRONMENTAL AFFAIRS DIVISION OF PROPOSED REPAIRS TO DAMAGED AREAS IN ORDER TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION.
5. REFER TO EPIC SHEET FOR DETAILED DIRECTION ON LOCATIONS.



ADJACENT SIDEWALK TO REMAIN DETAIL
N. T. S.



ADJACENT SIDEWALK REMOVED DETAIL
N. T. S.

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED
PROFESSIONAL ENGINEER
2/3/2022

BUILDINGS AND STRUCTURES PROTECTION PLAN

N. T. S.

 Texas Department of Transportation

SHEET 1 OF 1

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
	SEE TITLE SHEET		129
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY NO.
0914	00	457	VA

FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Miscellaneous Details\MISC DT*BUILDING PROTECTION.dgn
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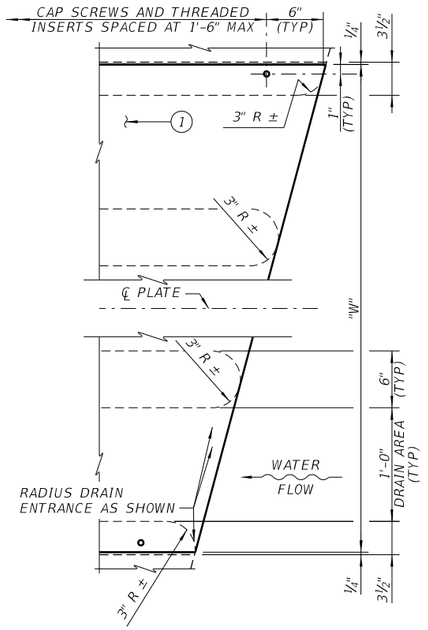
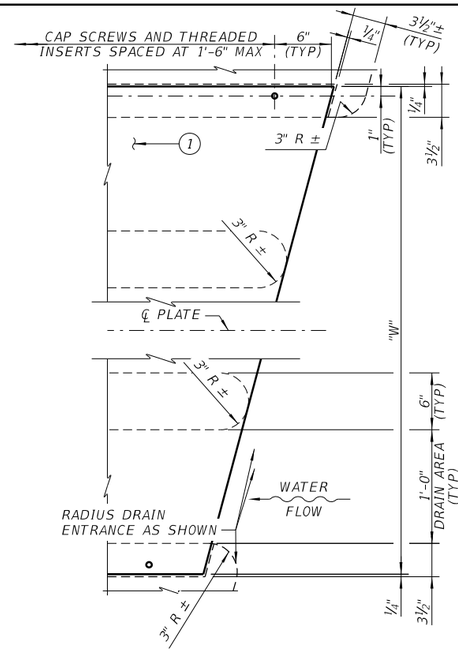


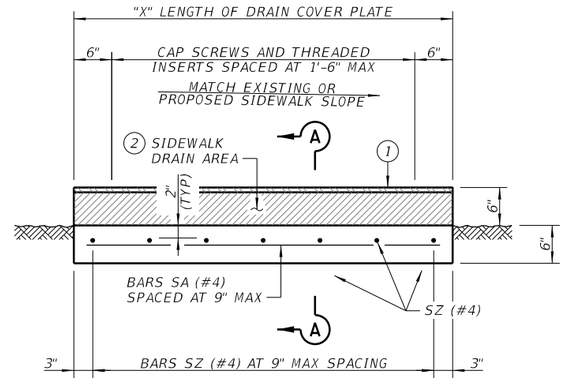
PARTIAL PLAN SIDEWALK DRAIN

(WITHOUT CURB – SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)



PARTIAL PLAN SIDEWALK DRAIN

(ADJACENT TO CURB – SEE PLAN SHEETS FOR ADDITIONAL INFORMATION)



TYPICAL TRANSVERSE SECTION

(SECTION THRU DRAIN)

APPROVED SLIP RESISTANT PLATE	
Product	Manufacturer Website
Algrip™, Steel	www.algrip.com
Mebac® #3, Steel	www.harscoikg.com
SlipNOT® Grade 2, Steel	www.slipnot.com

Provide drain cover plates fabricated with a product from this list. No exceptions are permitted.

1. DRAIN COVER PLATE (PL ¾" SLIP RESISTANT STEEL PLATE). INSTALL FLUSH WITH TOP OF SIDEWALK.
2. STEEL TROWEL TOP SURFACE OF CONCRETE IN DRAIN LOCATIONS.
3. SEE PLAN SHEETS FOR LOCATIONS OF PROPOSED SIDEWALK, EXISTING SIDEWALK, PROPOSED SIDEWALK RAMPS, OR PROPOSED SOD.

MATERIAL NOTES:

PROVIDE CLASS S CONCRETE.

PROVIDE GRADE 60 REINFORCING STEEL. DEFORMED WELDED WIRE REINFORCEMENT (WWR) MEETING ASTM A1064 OF EQUIVALENT SIZE AND SPACING MAY BE SUBSTITUTED FOR BARS SA.

PROVIDE HOT-DIP GALVANIZE SLIP RESISTANT STEEL PLATE AFTER FABRICATION IN ACCORDANCE WITH ITEM 445, "GALVANIZING". CHAMFER OR ROUND EDGES APPROXIMATELY 1/16" PRIOR TO GALVANIZING.

GENERAL NOTES:

DESIGNED ACCORDING TO AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO FABRICATION.

PROVIDE THE FOLLOWING BAR OR WIRE LAP LENGTHS WHEN REQUIRED: 1'-7" MIN.

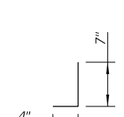
SUBMITTAL AND APPROVAL OF DRAIN COVER PLATE SHOP DRAWINGS IS NOT REQUIRED IF FABRICATION IS ACCORDANCE WITH THESE DETAILS.

SIDEWALK DRAIN, INCLUDING ALL LABOR, DRAIN COVER PLATE, AND OTHER MATERIAL COMPLETE AND IN PLACE MUST BE PAID FOR UNDER ITEM 465, "INLET (COMP) (TY SIDEWALK BRIDGE)" BY LOCATION.

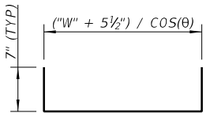
COVER DIMENSIONS ARE CLEAR DIMENSIONS, UNLESS NOTED OTHERWISE.

REINFORCING BAR DIMENSIONS SHOWN ARE OUT-TO-OUT OF BAR.

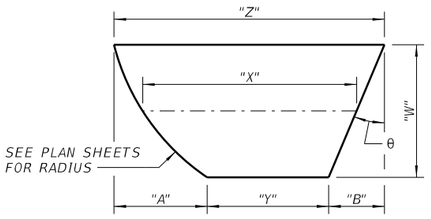
HL93 LOADING



BARS SG (#4)

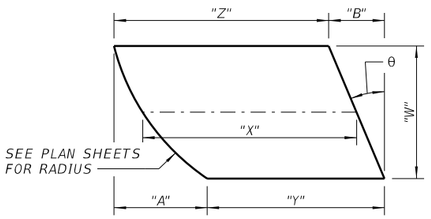


BARS SZ (#4)



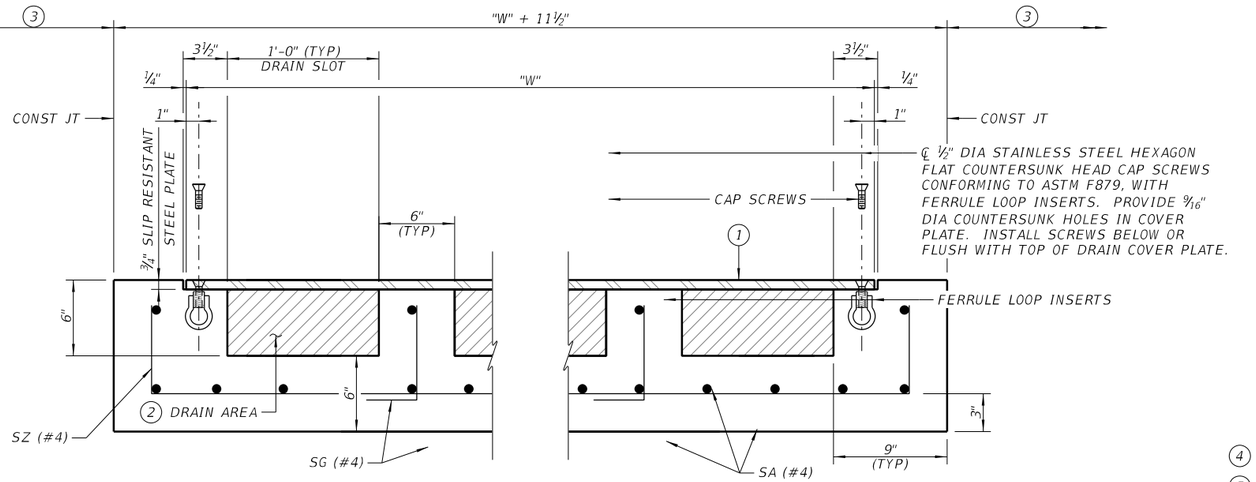
DRAIN COVER PLATE DETAIL

(SL163 AT PECAN STREET BLANCO, TX)



DRAIN COVER PLATE DETAIL

(SH16 AT MILAM ST FREDERICKSBURG, TX)



SECTION A-A

4. 2 TOTAL DRAIN LOCATIONS
5. 4 TOTAL DRAIN LOCATIONS

TABLE OF SIDEWALK DRAIN COVER PLATE DIMENSIONS

SIDEWALK DRAIN LOCATION	LOCATION	NO. DRAIN SLOTS	"A"	"B"	"W"	"X"	"Y"	"Z"
SL163 AT PECAN STREET BLANCO, TX	NW CORNER	1	7¾"	11½"	1'-6½"	37'-6⅜"	36'-8⅜"	38'-3½"
	SE CORNER	1	1'-2"	1'-11⅛"	1'-6½"	12'-7¼"	11'-0⅜"	14'-1½"
SL163 AT LIVE OAK ST BLANCO, TX (4)		2	-	-	3'-0½"	-	6'-0½"	-
SL163 MIDBLOCK BETWEEN LIVE OAK ST AND P23 BLANCO, TX (5)		2	-	-	3'-0½"	-	6'-0½"	-
RM1431 AT BLUEBONNET DR MARBLE FALLS, TX		6	-	-	9'-0½"	-	4'-0"	-
SH16 AT MILAM ST FREDERICKSBURG, TX		4	7'-11⅛"	8'-0⅝"	6'-0½"	14'-8¼"	14'-0⅞"	14'-3⅛"
SH16 AT HALE ST FREDERICKSBURG, TX		2	-	-	3'-0½"	-	6'-0½"	-
SH16 MIDBLOCK BETWEEN HALE ST AND E WALNUT ST FREDERICKSBURG, TX		2	-	-	3'-0½"	-	5'-0"	-

STATE OF TEXAS
JAIME M. QUILTY
130393
LICENSED PROFESSIONAL ENGINEER
Jaime M. Quilty
01/19/2022

GARVER
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(512) 485-0020
TBPE Firm 5713

Texas Department of Transportation

SIDEWALK DRAIN DETAILS

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		130
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

1/19/2022 4:37:15 PM
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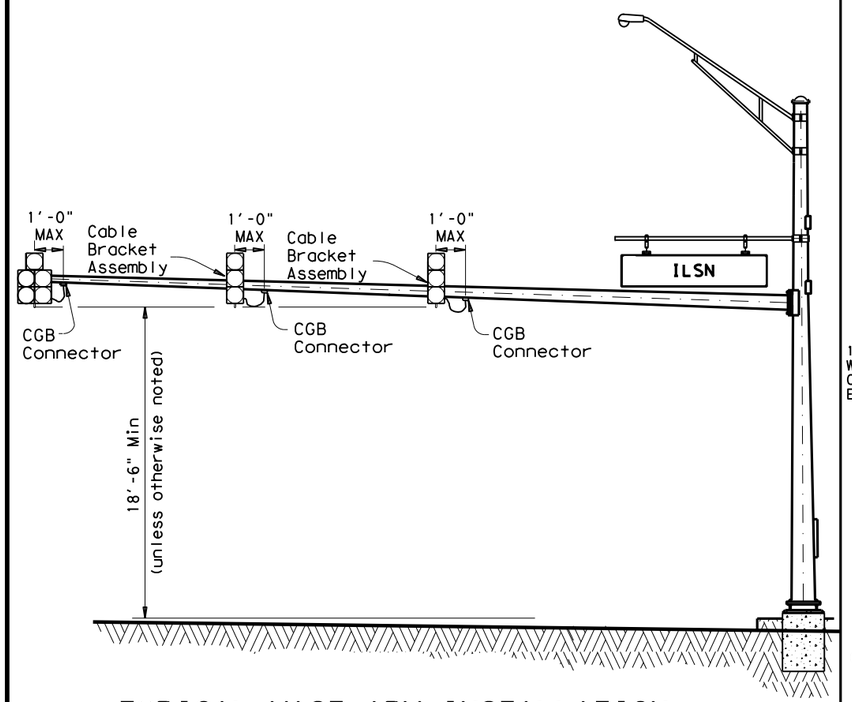
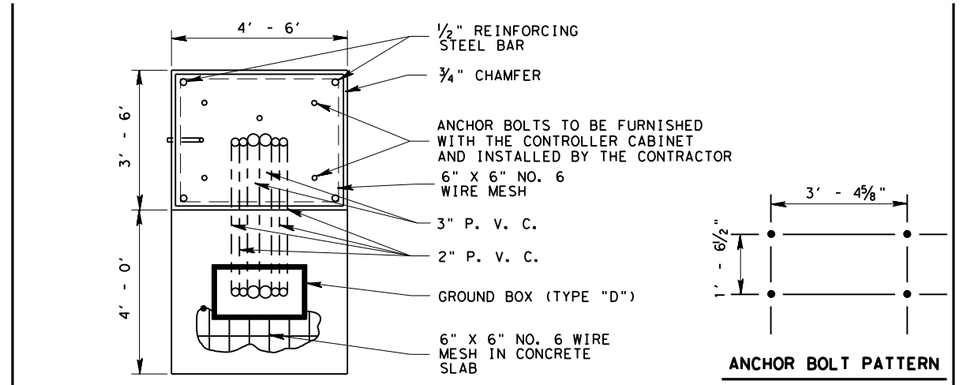
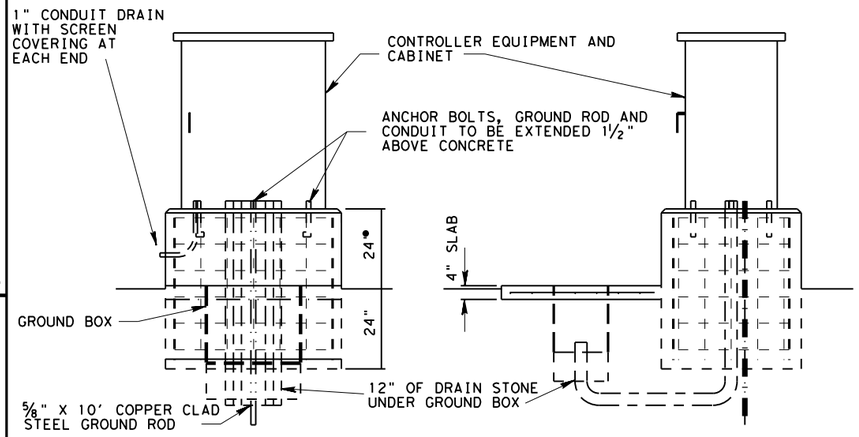


TYPICAL MAST ARM INSTALLATION

BACKPLATES ARE NOT SHOWN FOR CLARITY



ANCHOR BOLT PATTERN



CONTROLLER MOUNT NOTES :

ALL WIRING TERMINATING IN THE CONTROLLER SHALL BE LABELED IN A MANNER THAT CAN BE IDENTIFIED WHEN THE CONTROLLER IS INSTALLED THE CONTRACTOR SHALL CONNECT THE FIELD WIRING TO THE CONTROLLER

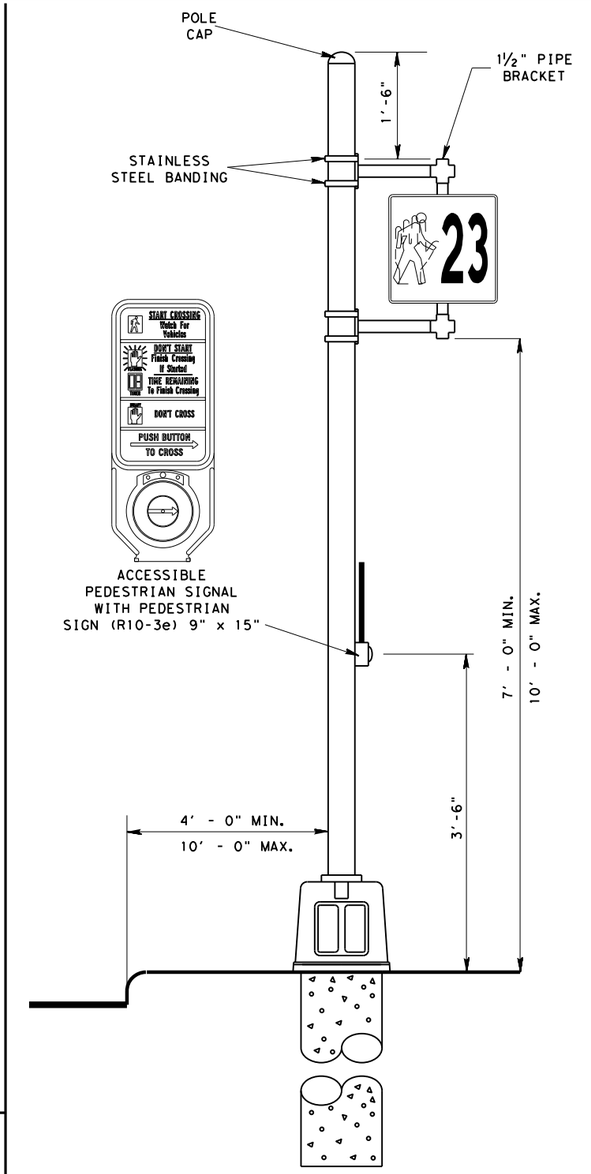
ONE 2" PVC SHALL REMAIN EMPTY FOR FUTURE USE

CONCRETE SHALL BE TESTED AS MISCELLANEOUS CONCRETE

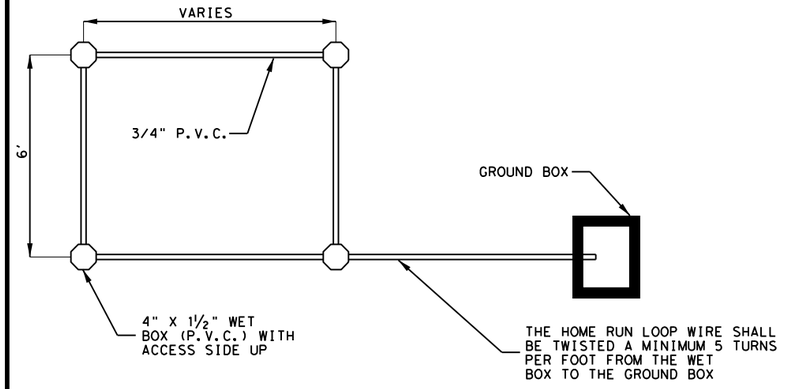
ALL MATERIALS SHOWN AND LABOR TO INSTALL THE CONTROLLER FOUNDATION SHALL BE CONSIDERED SUBSIDIARY TO PERTINENT ITEMS

CONTROLLER FOUNDATION SHALL BE AS SHOWN ON THE PLANS, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TYPICAL CONTROLLER MOUNT DETAILS



TYPICAL PEDESTAL POLE ASSEMBLY



NOTES:

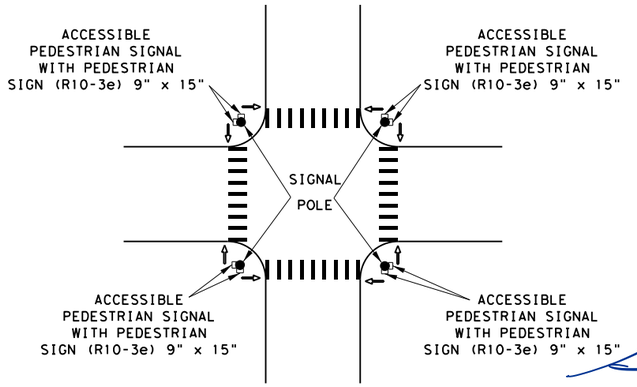
SHALL INSTALL CONDUIT ENCASED LOOPS AT THE LOCATIONS SHOWN ON THE PLANS USING 3/4 " DIAMETER PVC SCHEDULE 40 OR AT NO ADDITIONAL COST 1" DIAMETER PVC SCHEDULE 80.

LOOP LOCATIONS MAY BE STAGGERED SLIGHTLY (6") TO ACCOMMODATE HOME RUN PLACEMENT.

INDIVIDUAL HOME RUN CONDUITS SHALL BE EXTENDED TO THE GROUND BOX SHOWN ON THE PLANS FOR EACH LOOP INSTALLED.

THE NUMBER OF LOOP WIRE TURNS SHALL BE AS SHOWN ON THE TYPICAL LOOP DETECTOR DETAILS.

CONDUIT ENCASED LOOPS



TYPICAL PED PUSH BUTTON LOCATION

THE ENGINEER SHALL VERIFY ALL PEDESTRIAN SIGNAL AND PEDESTRIAN PUSH BUTTON LOCATIONS PRIOR TO INSTALLATION.

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation

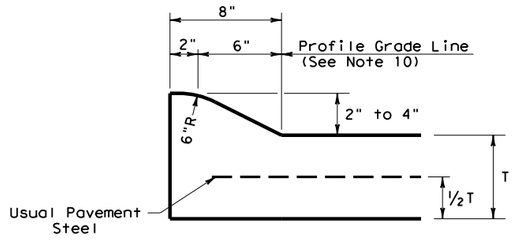
MISCELLANEOUS TRAFFIC SIGNAL DETAILS

SCALE: NS

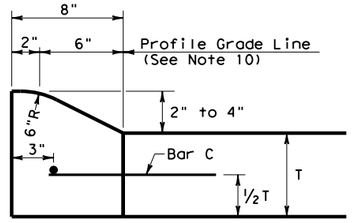
MTS-18

REVISIONS	FED.RD. DIV.NO.	FEDERAL AID PROJECT NO.		SHEET NO.
FEB 2006				131
OCT 2007	STATE	DIST.	COUNTY	
MAR 2017		AUS	TRAVIS	
MAY 2018	CONT.	SECT.	JOB	HIGHWAY NO.
	0914	00	457	VA

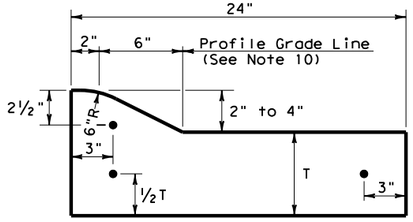
DATE: 1/18/2022
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Roadway Standards\cccg21.dgn



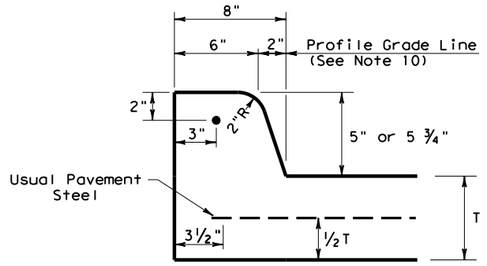
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



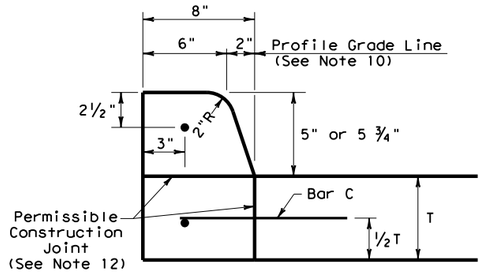
TYPE I CURB
2" - 4" HEIGHT



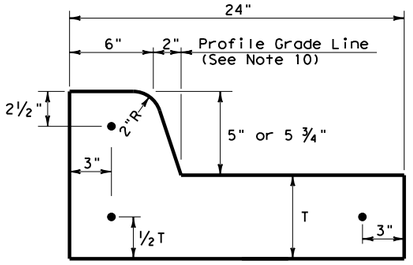
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



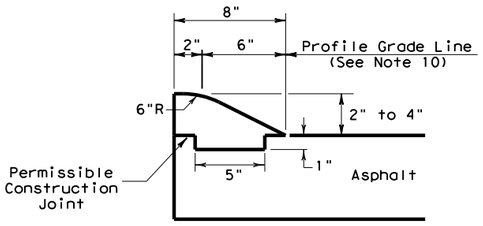
TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



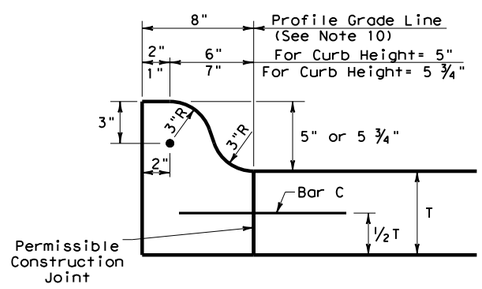
TYPE II CURB
5" - 5 ¾" HEIGHT



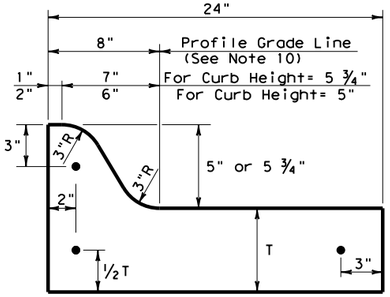
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



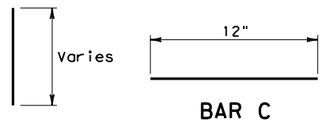
TYPE III CURB (KEYED)
2" - 4" HEIGHT



TYPE IIa CURB
5" - 5 ¾" HEIGHT

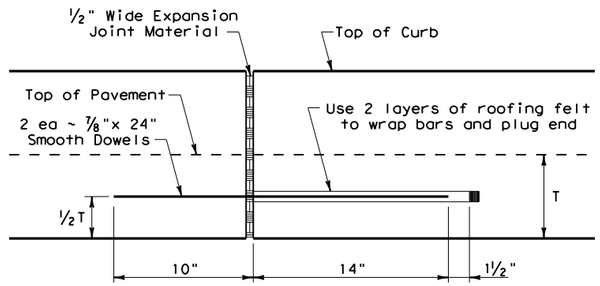


TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT



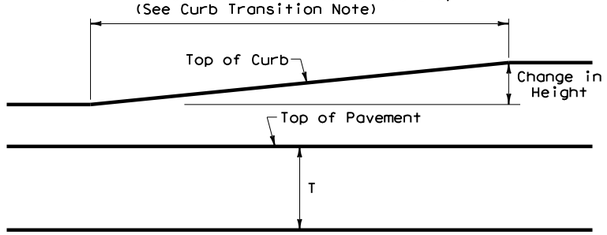
BAR B

BAR C



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 the 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 used as needed to support curb reinforcing steel during concrete placement.

Texas Department of Transportation

Design Division Standard

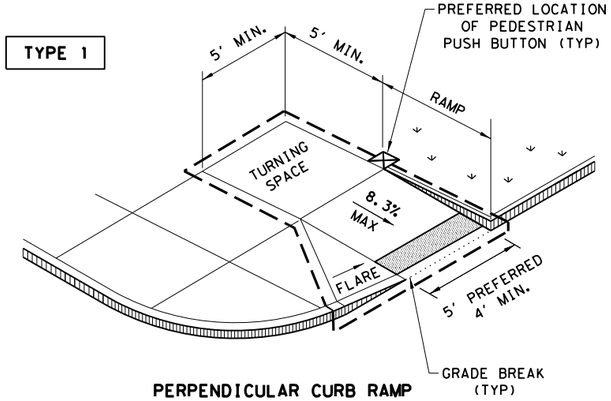
CONCRETE CURB AND CURB AND GUTTER

CCCG-21

FILE: 132	DN: TXDOT	CK: AN	DW: SS	CK: KM
© TxDOT: FEBRUARY 2021 REVISIONS	CONT	SECT	JOB	HIGHWAY
	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		132

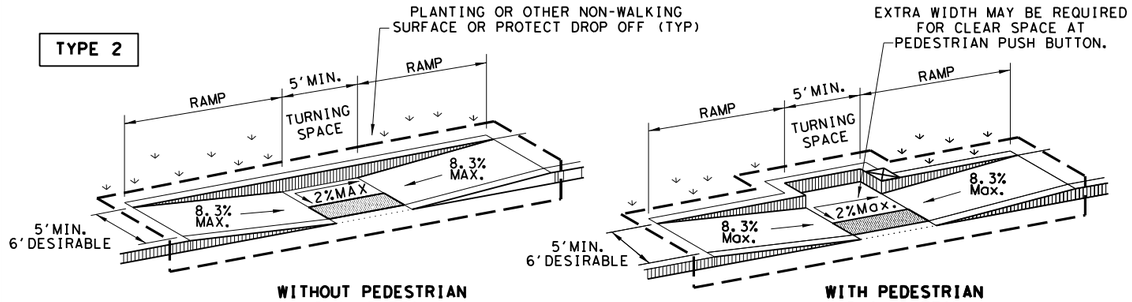
DATE: 1/18/2022
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Roadway Standards\ped18(SHT_1).dgn

TYPE 1



PERPENDICULAR CURB RAMP

TYPE 2

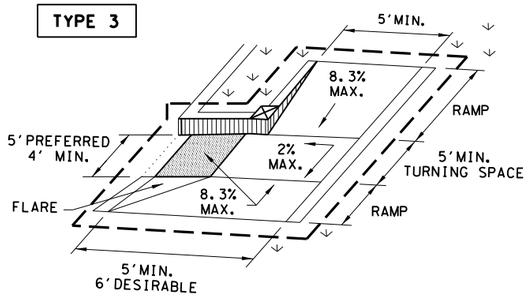


WITHOUT PEDESTRIAN PUSH BUTTON

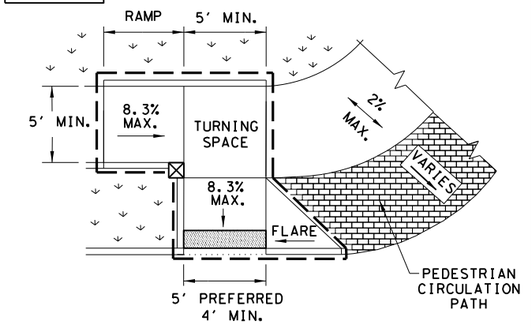
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

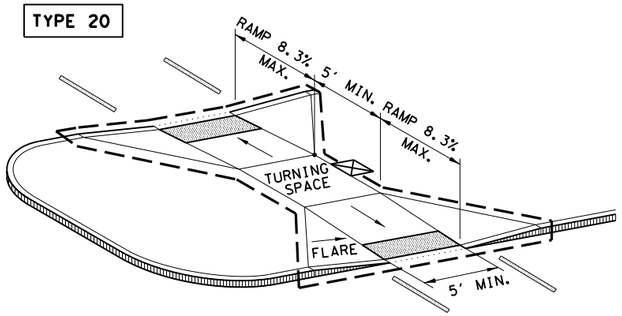


TYPE 6



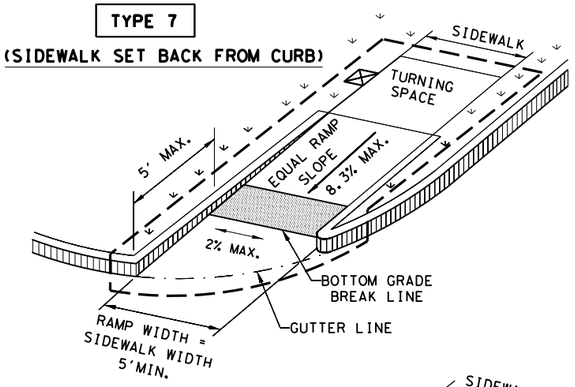
COMBINATION CURB RAMPS

TYPE 20

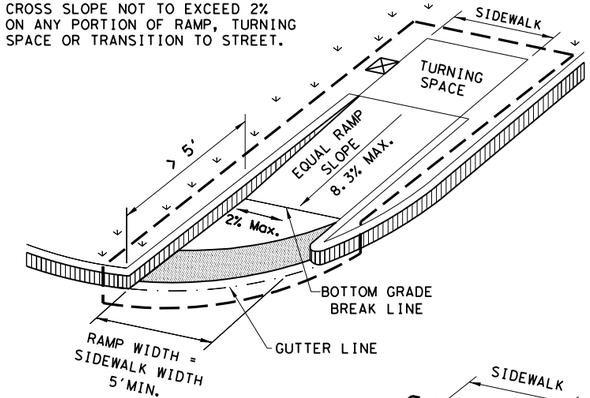


CURB RAMPS AT MEDIAN ISLANDS

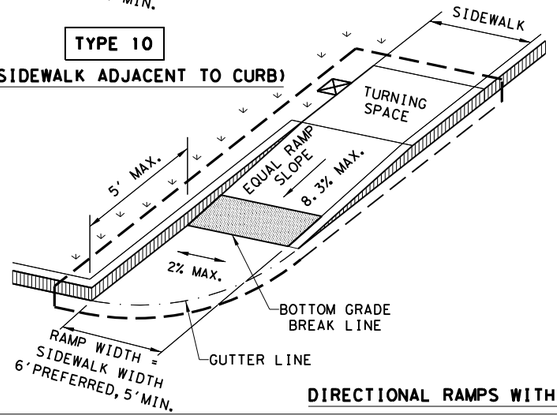
TYPE 7
(SIDEWALK SET BACK FROM CURB)



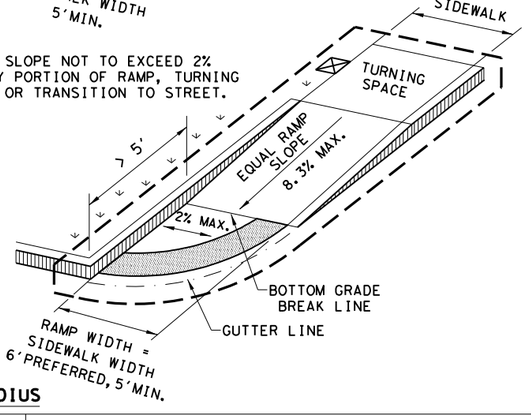
CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



TYPE 10
(SIDEWALK ADJACENT TO CURB)

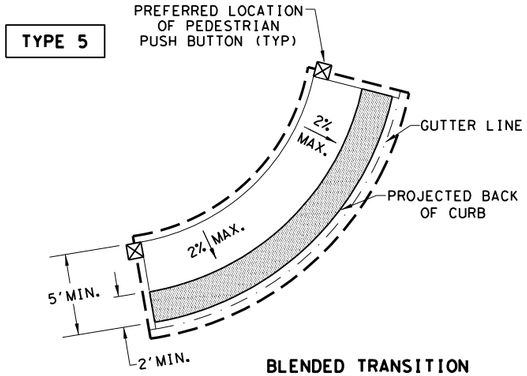


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

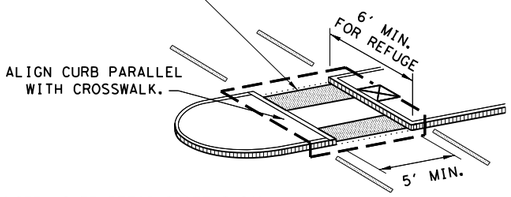
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

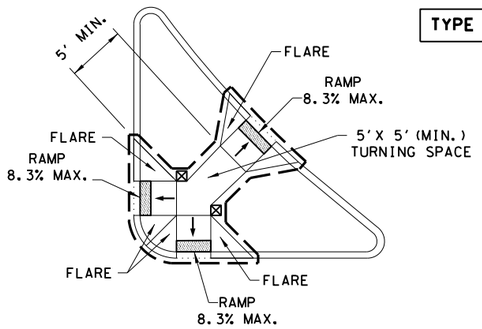
TYPE 21

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.



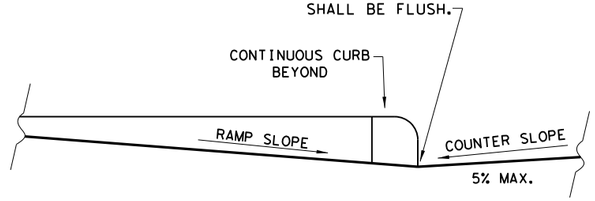
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

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

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	0914	00	457	VA
REVISED 08,2005	DIST	COUNTY		SHEET NO.
REVISED 06,2012	AUS	VARIES		133
REVISED 01,2018				

DATE: 1/18/2022
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Roadway Standards\ped18(SHT_2).dgn

GENERAL NOTES

CURB RAMPS

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

DETECTABLE WARNING MATERIAL

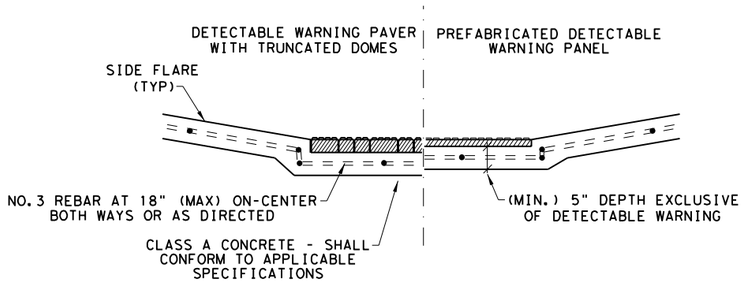
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the 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.

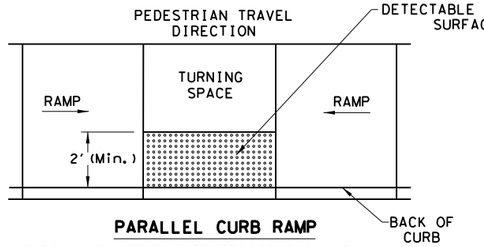
SIDEWALKS

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.



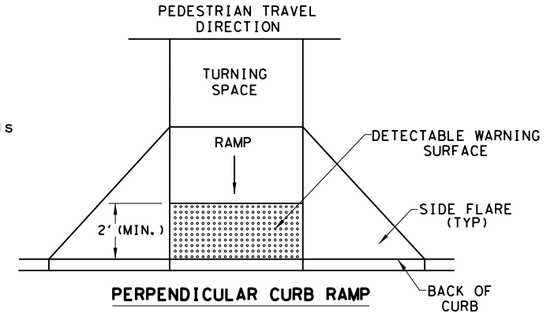
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



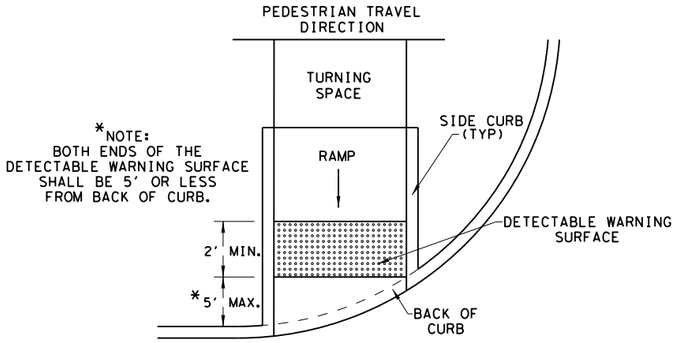
PARALLEL CURB RAMP

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

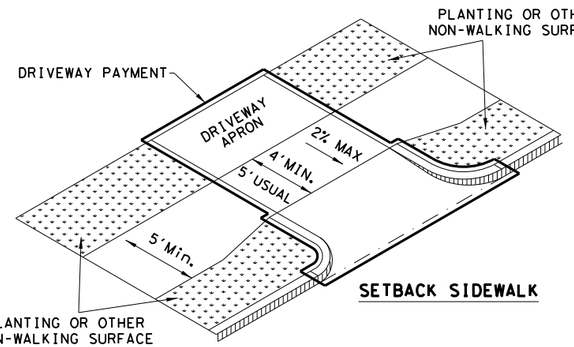
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

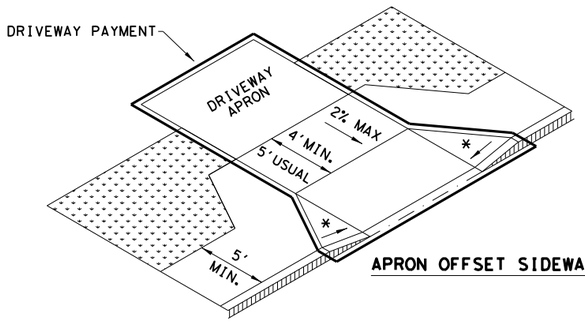
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0914	00	457		VA
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			SHEET NO.
	AUS	VARIES			134

DATE: 1/18/2022
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Roadway Standards\ped18(SHT_3).dgn

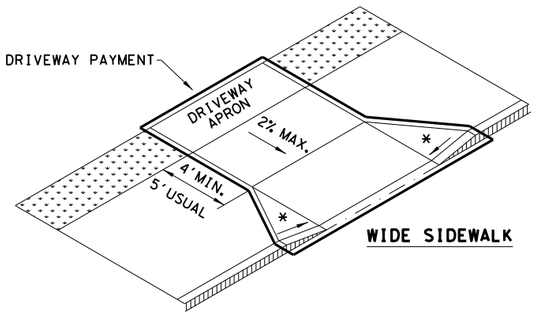
SIDEWALK TREATMENT AT DRIVEWAYS



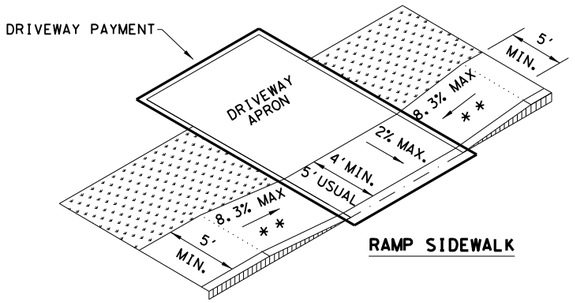
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

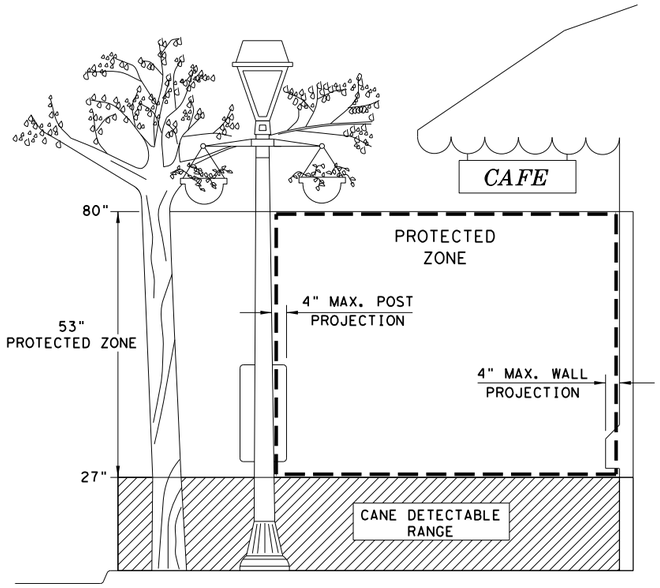


RAMP SIDEWALK

NOTES:

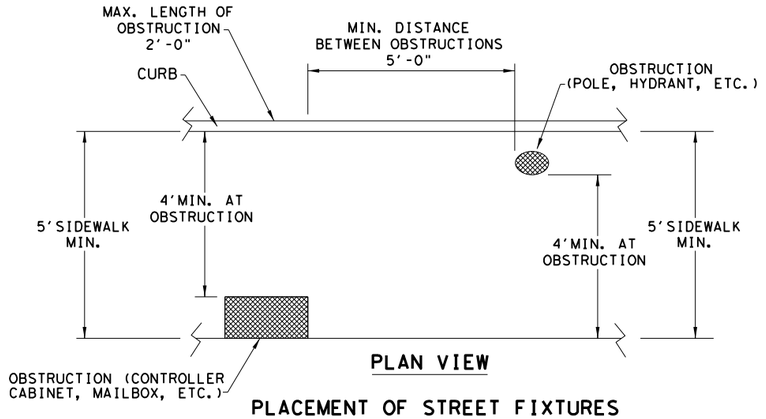
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

* * 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

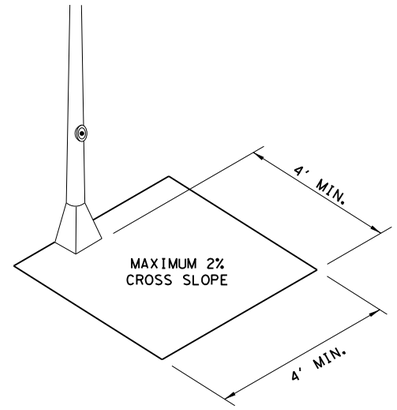
NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.



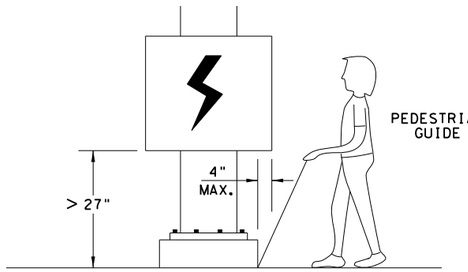
PLAN VIEW

PLACEMENT OF STREET FIXTURES

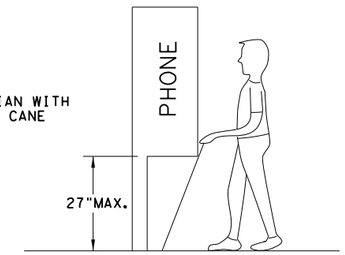
NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



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

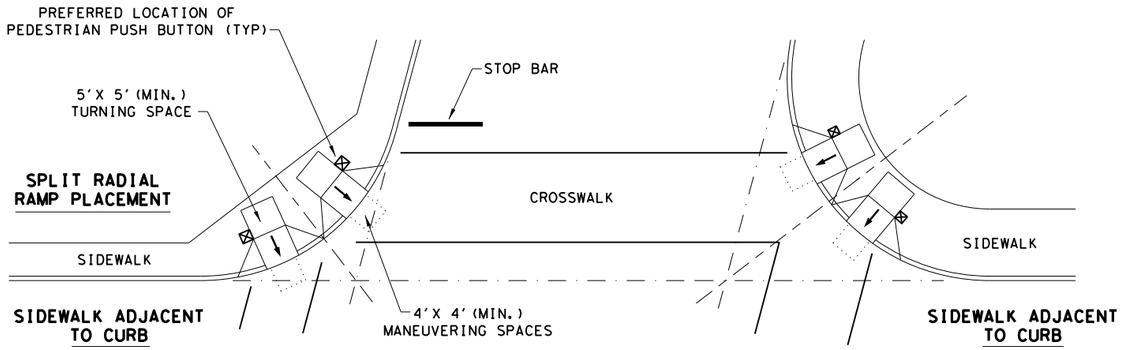
PED-18

FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0914	00	457		VA
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			SHEET NO.
	AUS	VARIES			135

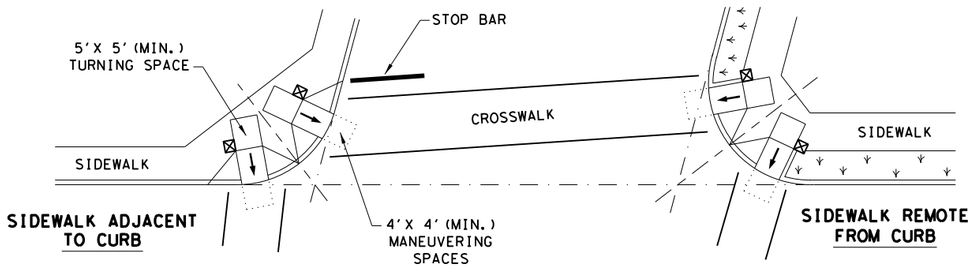
DATE: 1/18/2022
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Roadway Standards\ped18(SHT_4).dgn

TYPICAL CROSSING LAYOUTS

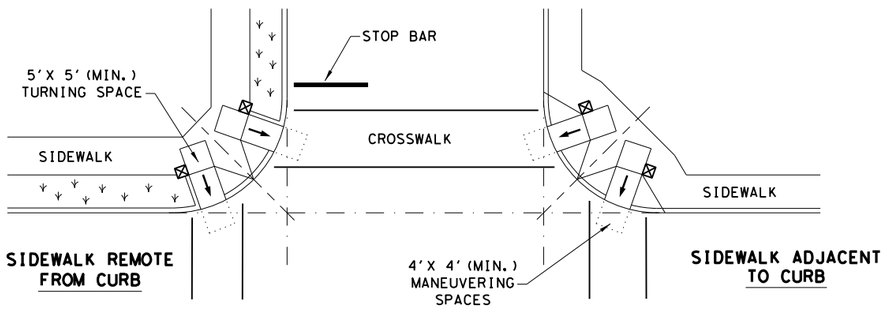
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



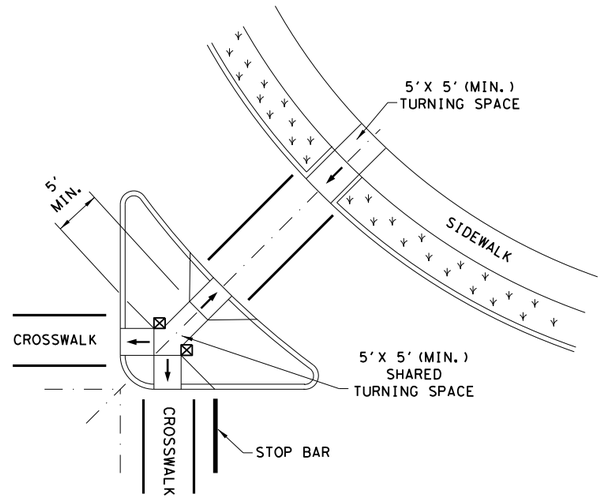
SKEWED INTERSECTION WITH "LARGE" RADIUS



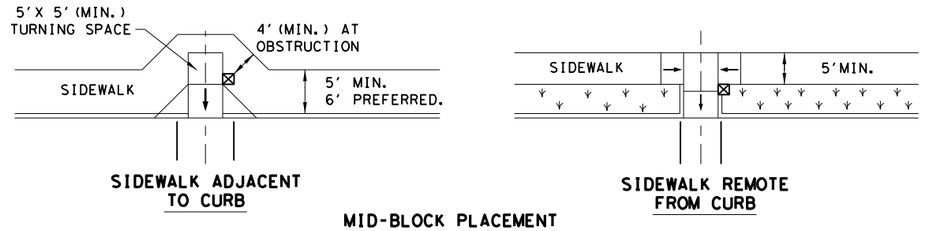
SKEWED INTERSECTION WITH "SMALL" RADIUS



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.

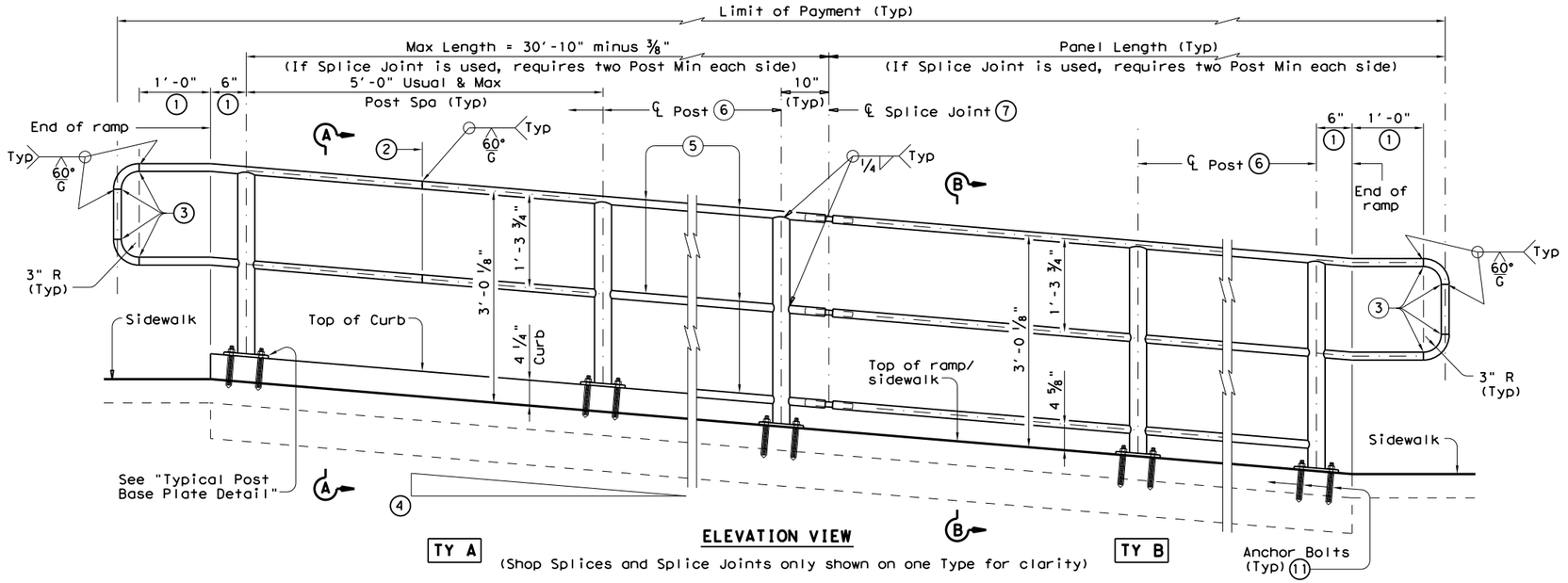
Texas Department of Transportation — Design Division Standard

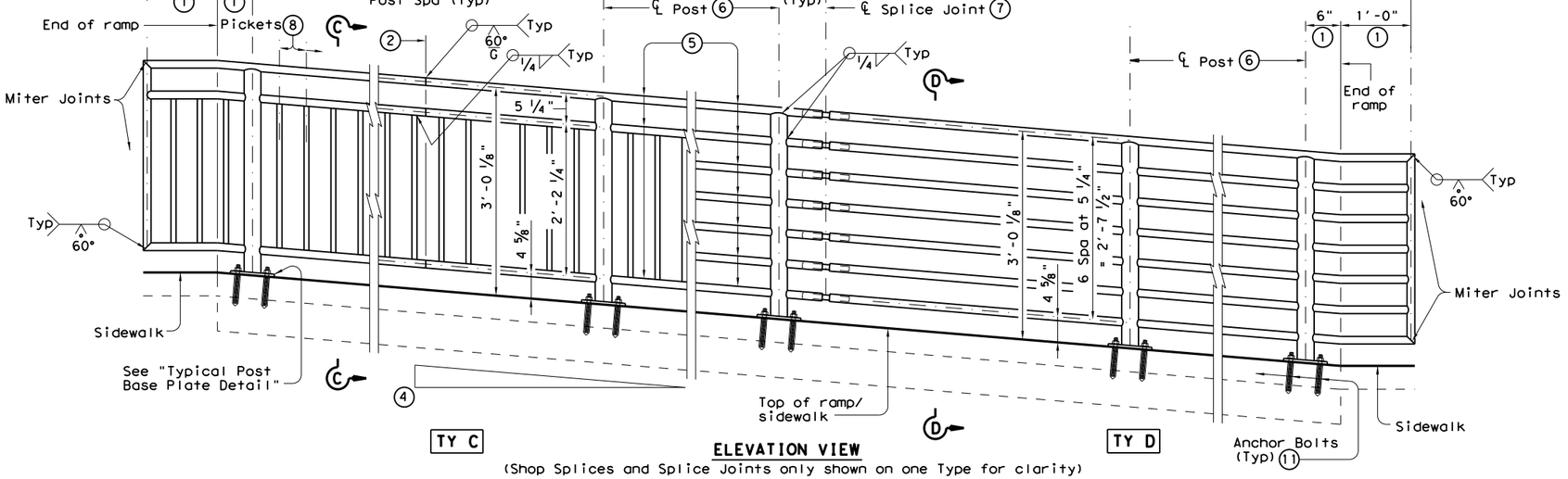
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

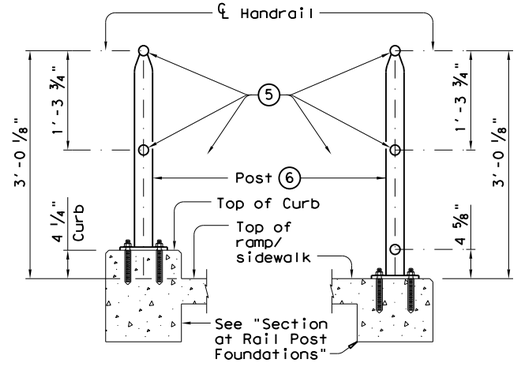
FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
	AUS	VARIES		136

DATE: 1/18/2022
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Roadway Standards\prd13(SHT_1).dgn



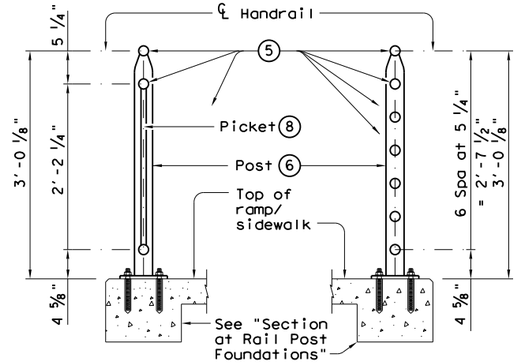


RECOMMENDED USAGE (9) (10)	
Dropoff Height/ Condition	Recommended Rail Options
<30" dropoff	TY A, TY B, TY C, or TY D
≥ 30" dropoff, or along Bike Path	TY E or TY F



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.

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)	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		137

DATE: 1/18/2022
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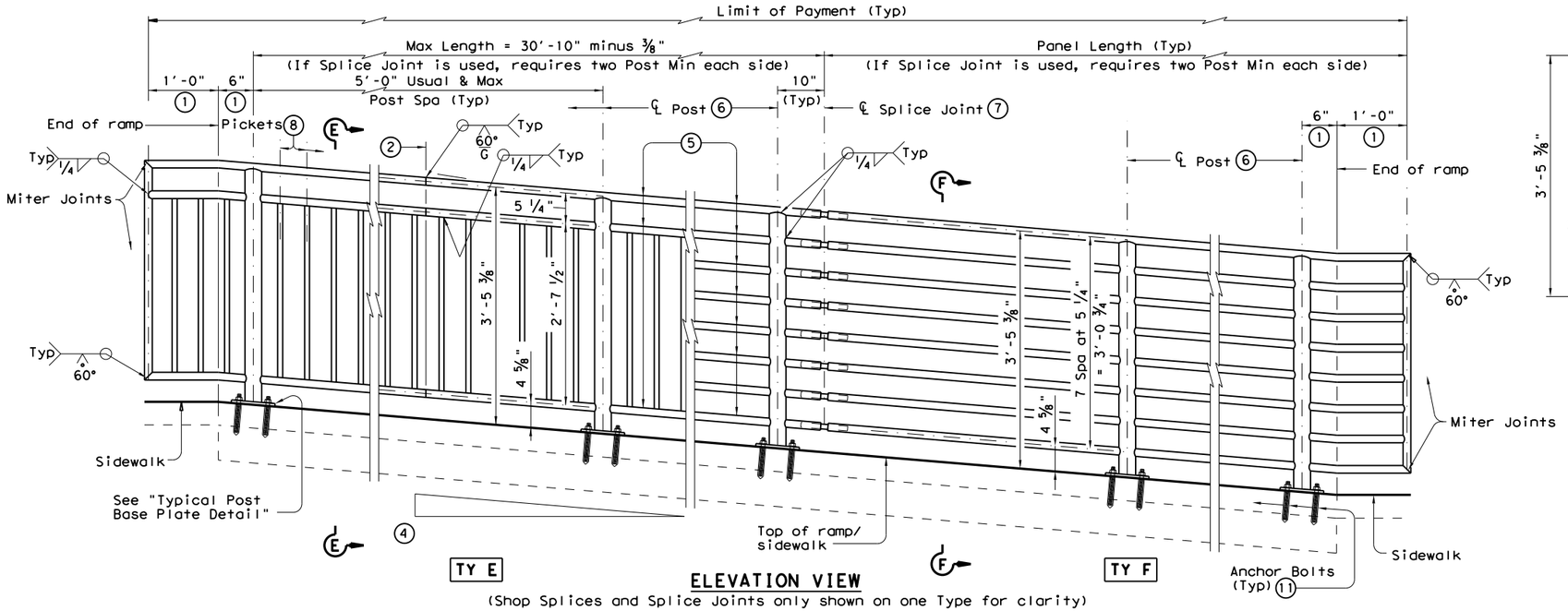

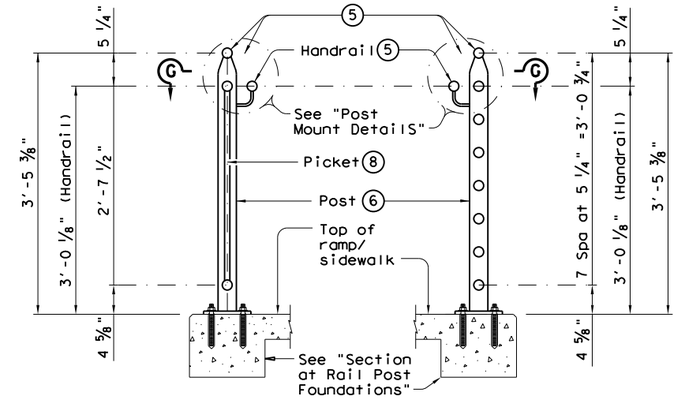

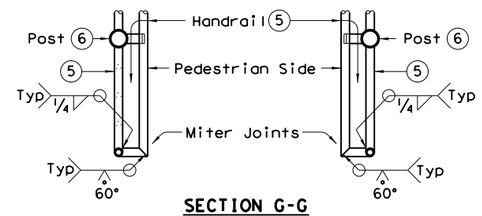

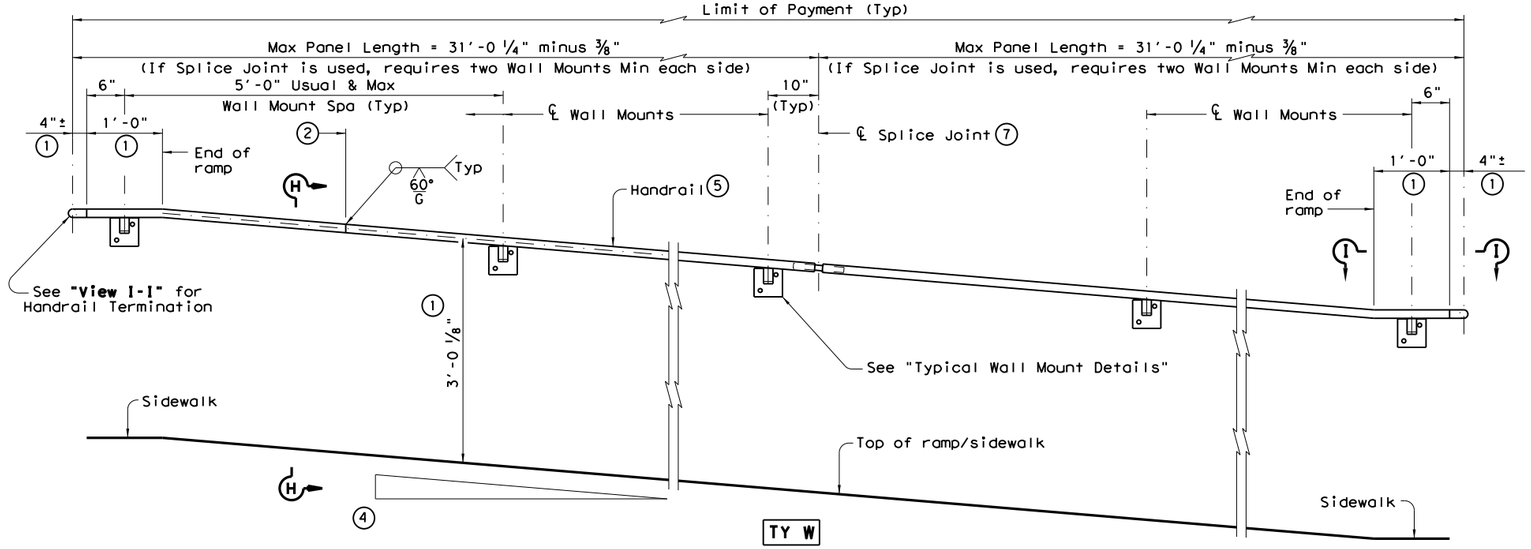

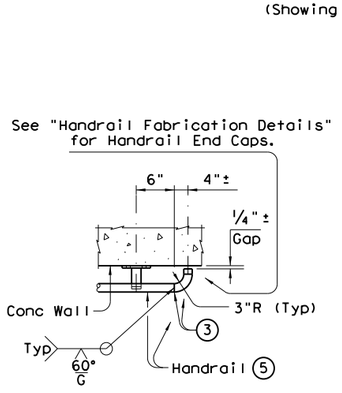

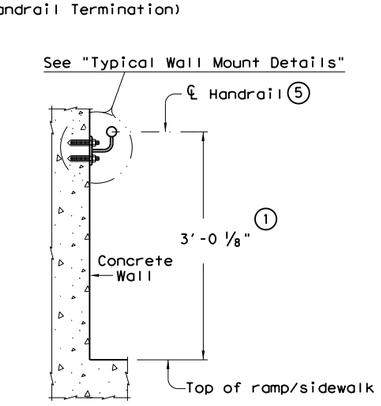

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3. Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
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7. See "Handrail Fabrication Details" for Splice Joints.
8. ℄ ⅝" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.
11. See "General Notes" for anchor bolt information.

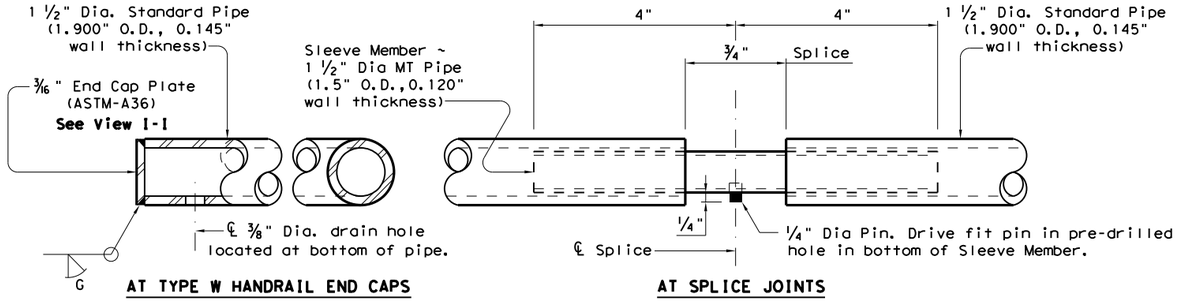
Texas Department of Transportation — Design Division Standard

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)	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		138

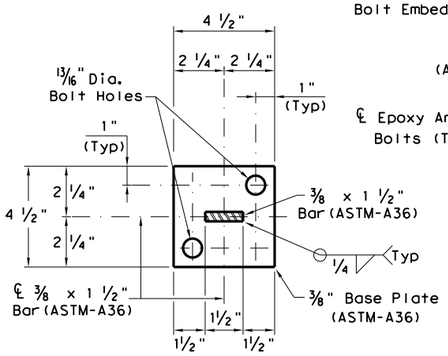
DATE: 1/18/2022
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Roadway Standards\prd13(SHT_3).dgn



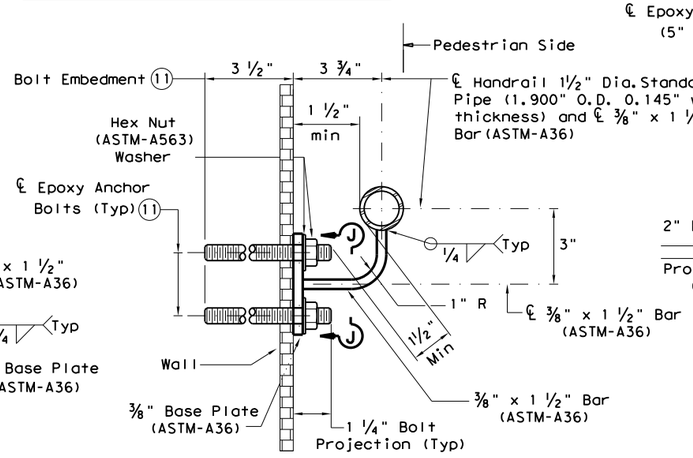
AT TYPE W HANDRAIL END CAPS

AT SPLICE JOINTS

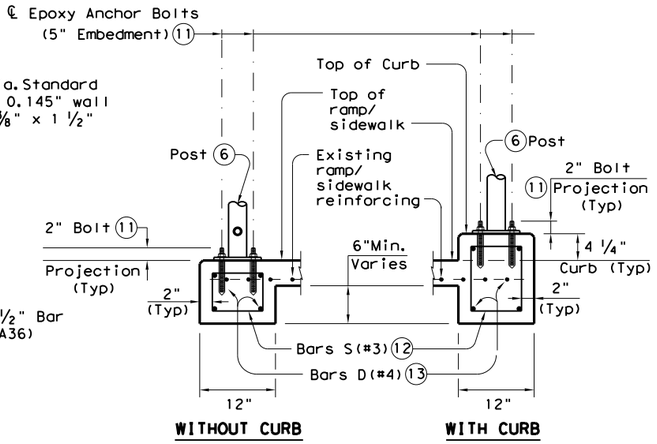
HANDRAIL FABRICATION DETAILS



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



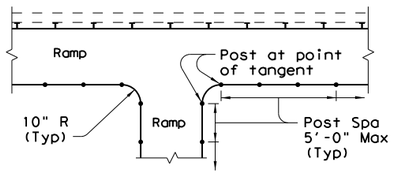
SECTION AT WALL MOUNT



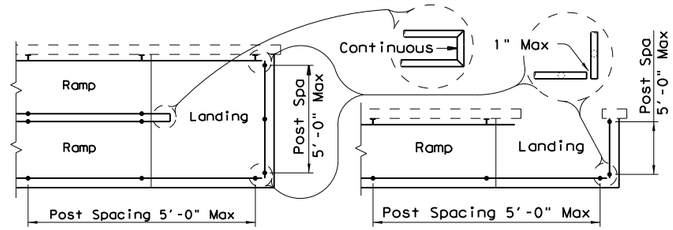
WITHOUT CURB

WITH CURB

SECTION AT RAIL POST FOUNDATIONS



RAMP INTERSECTION



MULTI-LEVEL RAMP

SINGLE-LEVEL RAMP

PLAN SHOWING RAIL AT RAMP CONDITIONS

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.

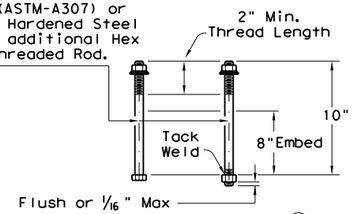
Payment for concrete sidewalks or curb ramps will be paid for in accordance with Item 531 "Sidewalks".

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.

TYPICAL WALL MOUNT DETAILS

℄ ⅝" Dia. Hex Head Anchor Bolt (ASTM-A307) or Threaded Rod (ASTM-A36) with one Hardened Steel Washer placed under Hex Nut. One additional Hex Nut will be furnished for each Threaded Rod.



CAST-IN-PLACE ANCHOR BOLT OPTIONS (11)
(Used for Post Base Plate only)

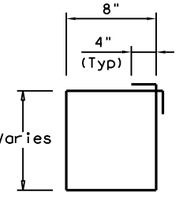
(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

(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.

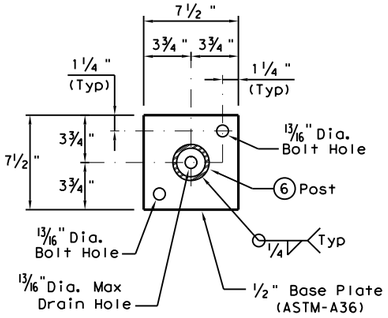
(11) See "General Notes" for anchor bolt information.

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

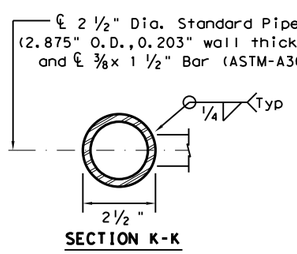
(13) Provide 1 ½" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



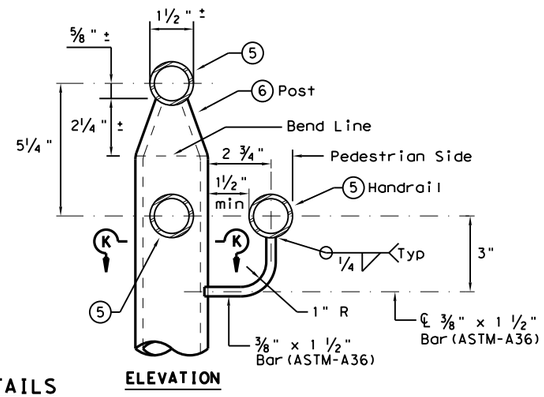
BARS S (#3)



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

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©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
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REVISED MAY, 2013 (VP)	DIST	COUNTY		SHEET NO.
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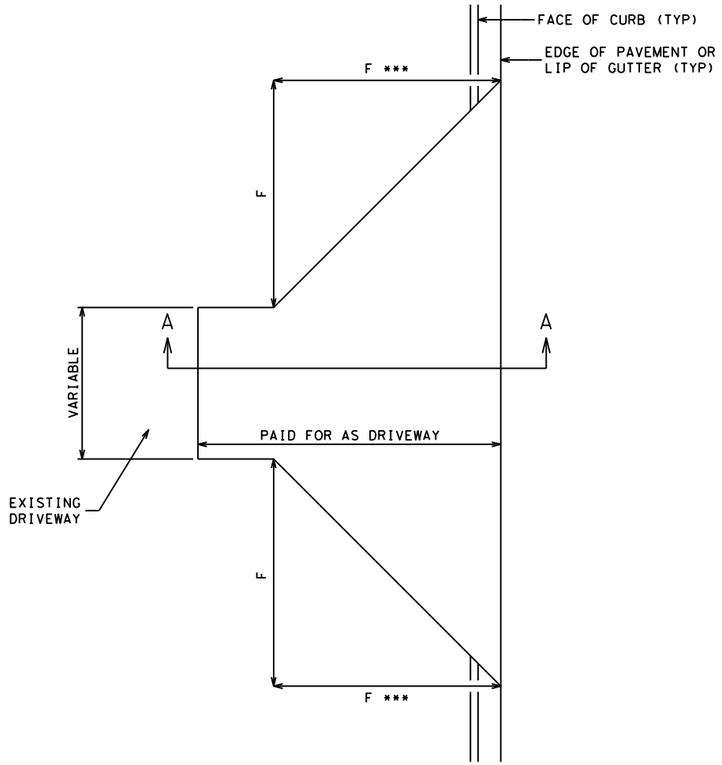
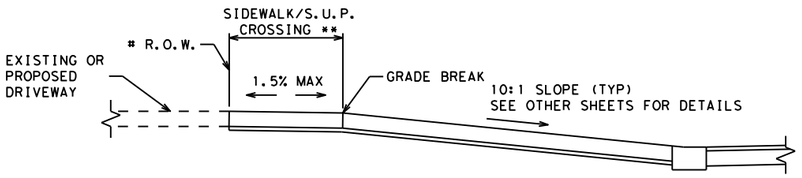
*** THIS DIMENSION MAY BE REDUCED TO KEEP WORK WITHIN THE ROW.



DRIVEWAY PLAN

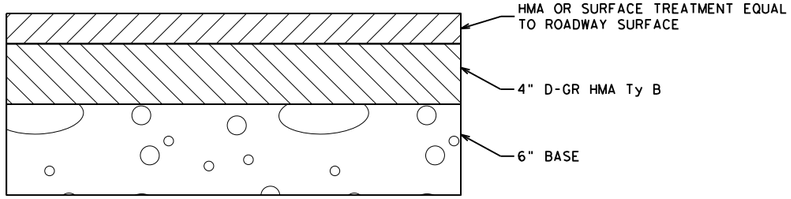


* ACTUAL TIE-IN SHOWN ELSEWHERE IN PLANS OR AS DIRECTED

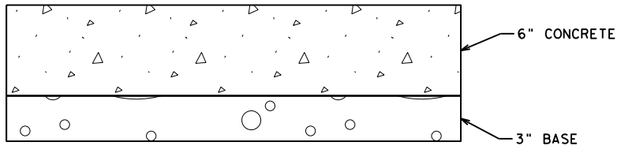
DRIVEWAY WITH GUTTER SECTION A-A

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

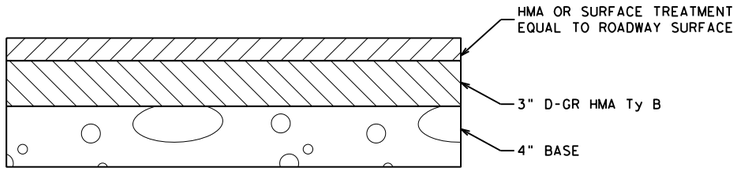
** LOCATE SIDEWALK CROSSING TO ALIGN WITH ADJACENT SIDEWALK; SIDEWALK/S.U.P. WIDTH AND LOCATION SHOWN ELSEWHERE IN PLANS.



HMA OR SURFACE TREATEMENT - COMMERCIAL



CONCRETE - ALL DRIVEWAY TYPES



HMA OR SURFACE TREATMENT - FARM/RANCH/RESIDENTIAL

FLARE	FARM/RANCH	RESIDENTIAL	COMMERCIAL
"F" (FT)	25	15	25

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 SHALL BE 1.5" D-GR HMA Ty D. IF SURFACE IS A MULTIPLE COURSE SURFACE TREATEMENT, ALL COURSES MUST BE PLACED ON DRIVEWAY.

BLADE LAY HMA IS ALLOWED.

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.

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

NOT TO SCALE

DW-20 (AUS)

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

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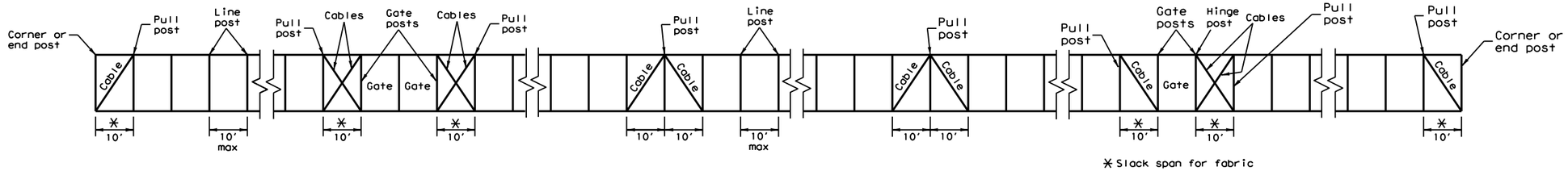
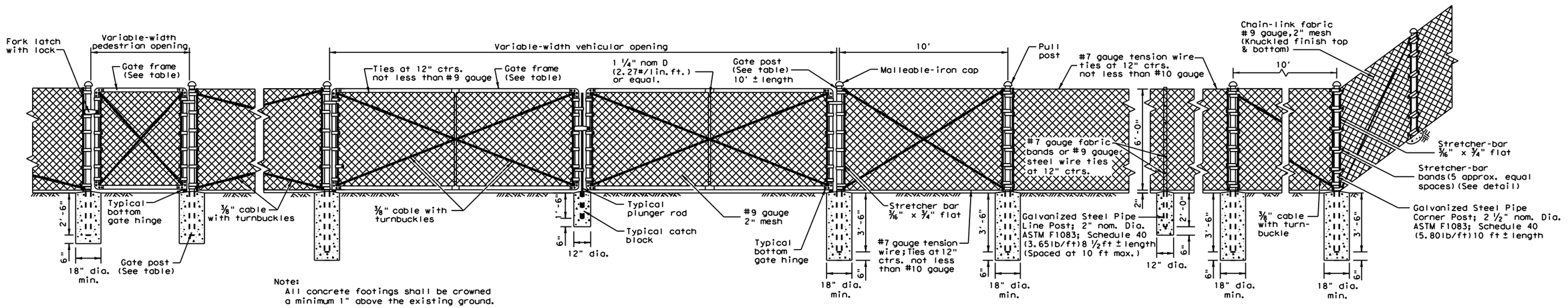


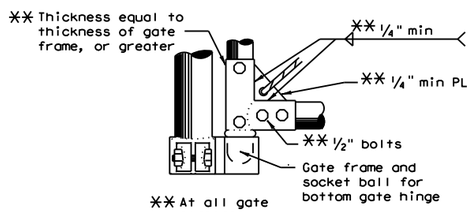
TYPICAL CABLE AND POST ARRANGEMENT



Note:
All concrete footings shall be crowned a minimum 1" above the existing ground.

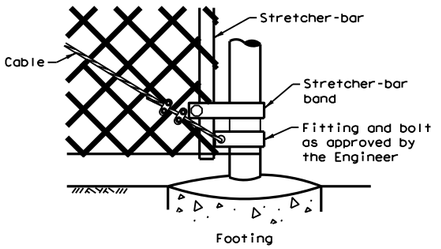
CHAIN-LINK BARRIER FENCE (6 FT.)

Foundation designs shown are "minimums" for a 6 ft. fence.
Taller fences may require larger foundation designs.



TYPICAL BOTTOM GATE HINGE

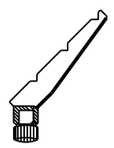
TYPICAL STRETCHER-BAR BAND



TERMINAL POST DETAIL

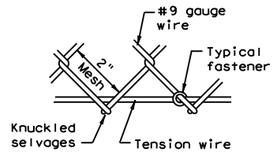
GATE (TYPES AND SIZES)	
Single Inclusive	Double Inclusive
Up to 6' Over 6' to 12' Over 12' to 18' Over 18'	Up to 12' Over 12' to 26' Over 26' to 36' Over 36'

GATE FRAME (WEIGHT)		GATE POST (WEIGHT)	
SIZE	WT./LIN. FT.	SIZE	WT./LIN. FT.
1 ½" nom dia. or equal	2.72 Lbs.	2 ½" nom dia. or equal	5.79 Lbs.
		3 ½" nom dia. or equal	9.11 Lbs.
		6" nom dia.	18.97 Lbs.
		8" nom dia.	24.70 Lbs.



"OPTIONAL" 3 WIRE 45° BARBED WIRE ARM

Barbed wire arm related items shall conform to Item 550, "Chain Link Fence."



FABRIC & TENSION WIRE DETAIL, TOP & BOTTOM

GENERAL NOTES

1. Items hereon shall conform to Item 550, "Chain Link Fence."
2. Typical installation plan may vary as shown elsewhere on the plans or as directed by the Engineer. Location of gates shown elsewhere on plans.
3. Gate-frame members shall be bolted, at frame corners, to joint fittings with four ½" bolts per joint.
4. All cable connections are to be made with two ⅜" cable clamps.
5. All pull posts and end posts and their foundations shall have the same respective dimensions as those shown for corner post.
6. All pull post shall be furnished with two stretcher bars.
7. One end of each turnbuckle may be attached directly to fittings with a clevis.
8. Concrete footings are to be crowned at the top to shed water.

Texas Department of Transportation

Design Division Standard

CHAIN LINK FENCE

CLF-10

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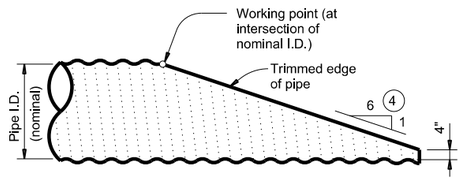
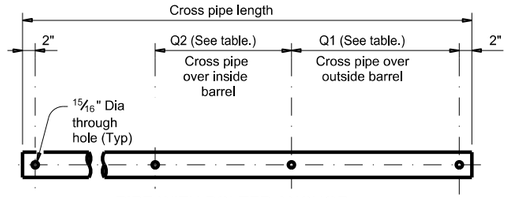


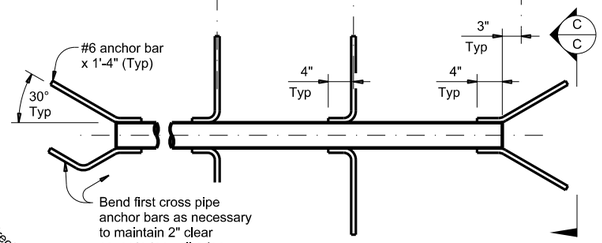
NOTE: All cross pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

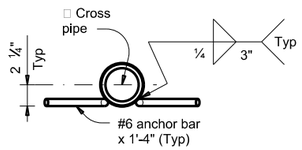
(Showing corrugated metal pipe (CMP) culvert Details at reinforced concrete pipe (RCP) culvert are similar.)



PIPE WITH BOLTED ANCHOR

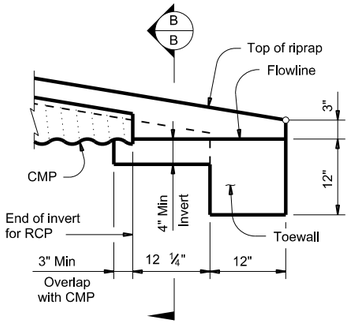


PIPE WITH ANCHOR BARS



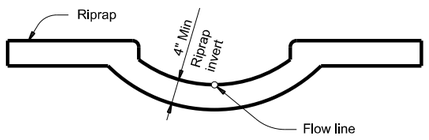
SECTION C-C

CROSS PIPE DETAILS



DETAIL "A"

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



SECTION B-B

(Cross pipes not shown for clarity.)

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

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for Use of Cross Pipes	Cross Pipe Sizes
12"	0.6	0' - 9"	N/A	2' - 1"	1' - 9"	3 or more pipe culverts	3" Std (3.500" O.D.)
15"	0.7	0' - 11"	N/A	2' - 5"	2' - 2"		
18"	0.8	1' - 2"	N/A	2' - 10"	2' - 8"		
21"	0.9	1' - 4"	N/A	3' - 2"	3' - 1"		
24"	0.9	1' - 7"	N/A	3' - 6"	3' - 7"		
27"	1.0	1' - 8"	N/A	3' - 10"	3' - 11"	3 or more pipe culverts	3 ½" Std (4.000" O.D.)
30"	1.1	1' - 10"	N/A	4' - 2"	4' - 4"	2 or more pipe culverts	
33"	1.2	1' - 11"	4' - 2"	4' - 5"	4' - 8"	All pipe culverts	
36"	1.3	2' - 1"	4' - 5"	4' - 9"	5' - 1"	All pipe culverts	4" Std (4.500" O.D.)
42"	1.5	2' - 4"	4' - 11"	5' - 5"	5' - 10"		
48"	1.7	2' - 7"	5' - 5"	6' - 0"	6' - 7"	All pipe culverts	5" Std (5.563" O.D.)
54"	2.0	3' - 0"	5' - 11"	6' - 9"	7' - 6"		
60"	2.2	3' - 3"	6' - 5"	7' - 4"	8' - 3"		
66"	2.4	3' - 3"	6' - 11"	7' - 10"	8' - 9"		
72"	2.7	3' - 4"	7' - 5"	8' - 5"	9' - 4"		

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

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

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

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

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

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

MATERIAL NOTES:

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

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

Provide ASTM A307 bolts and nuts.

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

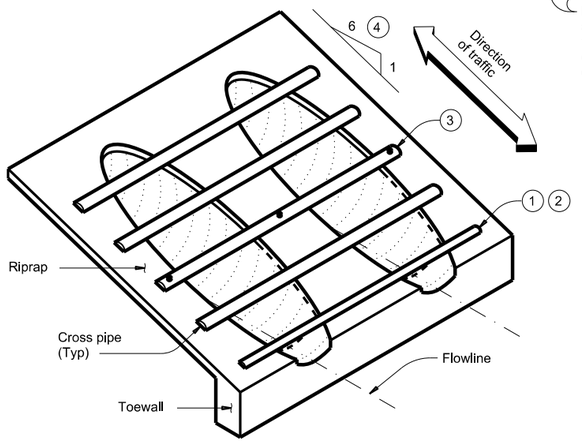
GENERAL NOTES:

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

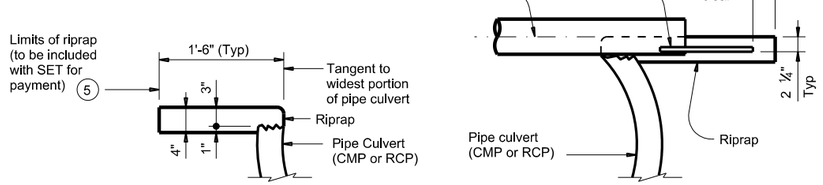
Safety end treatments (SET) shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the cross pipes.

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

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

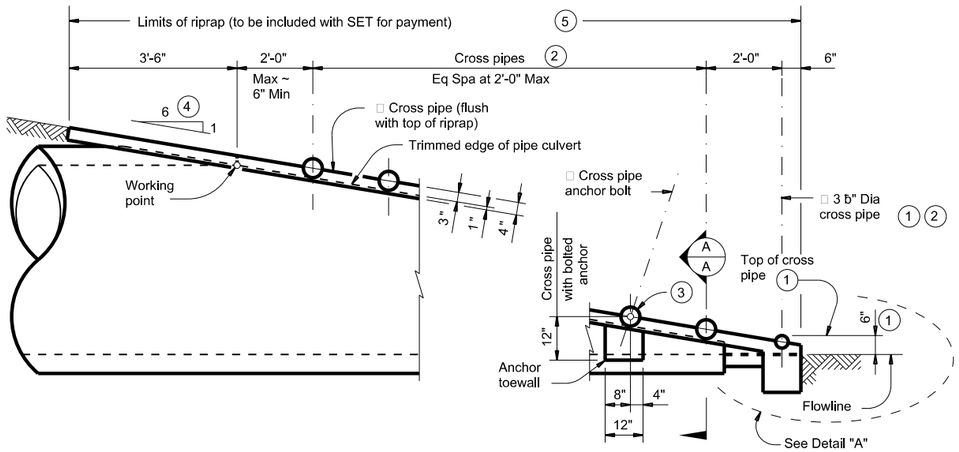


ISOMETRIC VIEW OF TYPICAL INSTALLATION



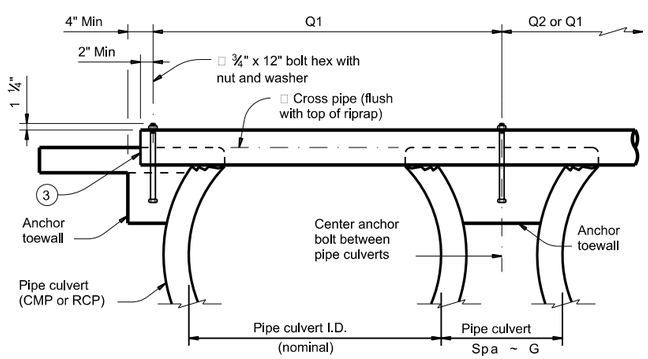
SHOWING CROSS PIPE WITH ANCHOR BAR

SHOWING TYPICAL PIPE CULVERT AND RIPRAP



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

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



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

Texas Department of Transportation

Bridge Division Standard

SAFETY END TREATMENT

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

SETP-PD

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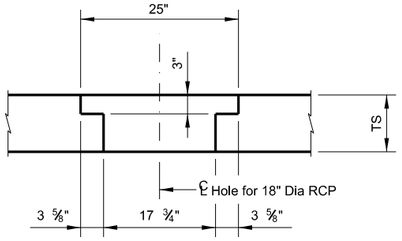
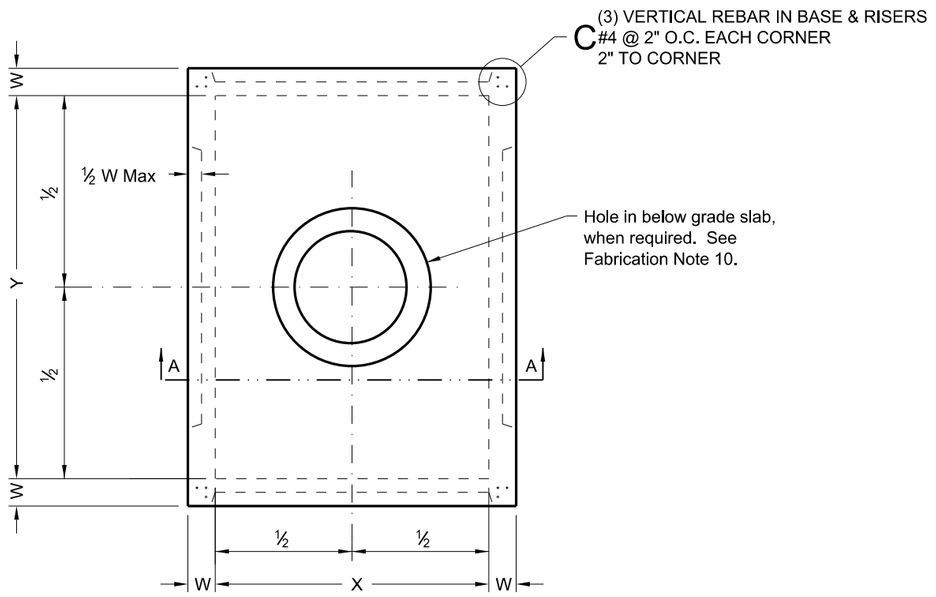
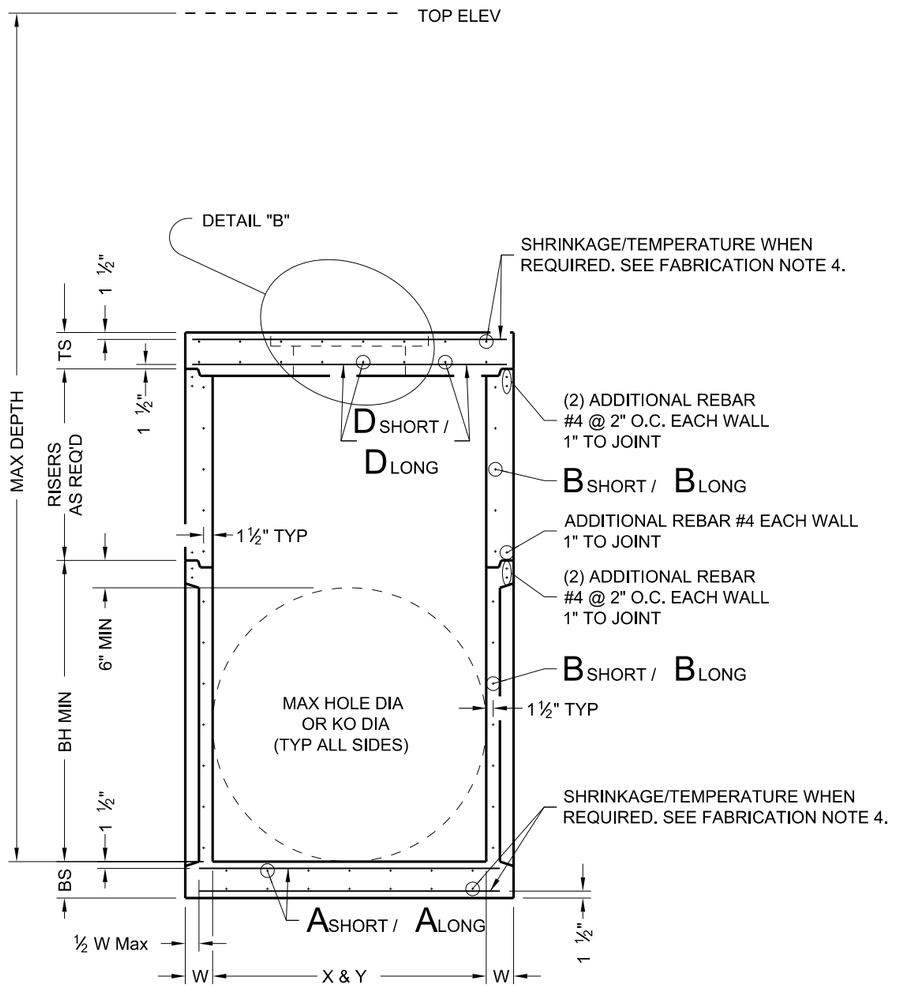


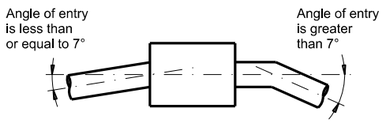
DETAIL "B"



PLAN VIEW



SECTION A-A



PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PJB wall.
If necessary, use pipe elbow or curved approach alignment to stay within this limit.

FABRICATION NOTES:
1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.
10. Provide hole in below grade slab only when PJB is installed with inlet type POD.

INSTALLATION NOTES:
1. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to junction box.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for junction box is per Item 465 "Junction Boxes, Manholes, and Inlets" by type and size.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

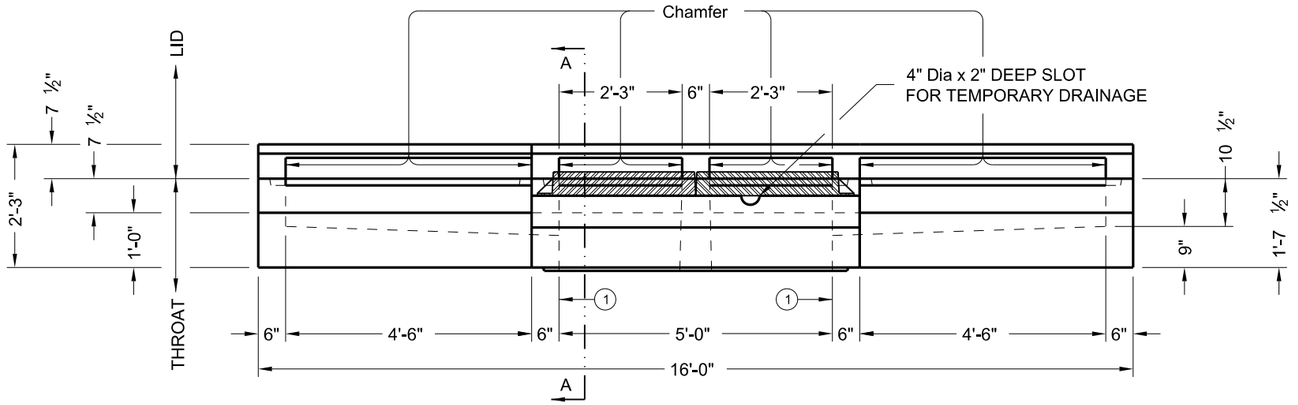
Texas Department of Transportation

Bridge Division Standard

PRECAST JUNCTION BOX

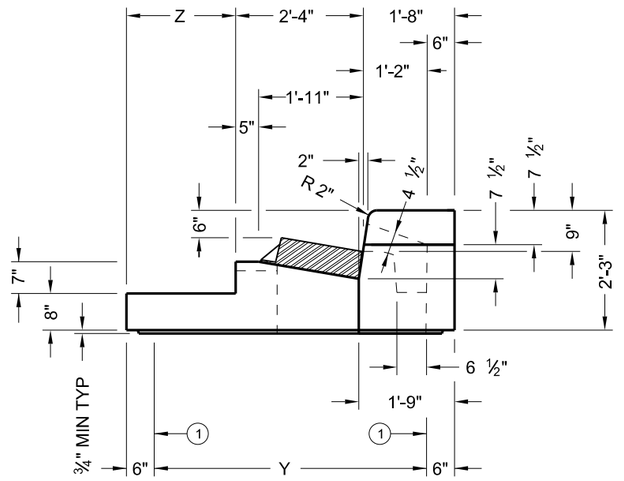
PJB

FILE: 143	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		143

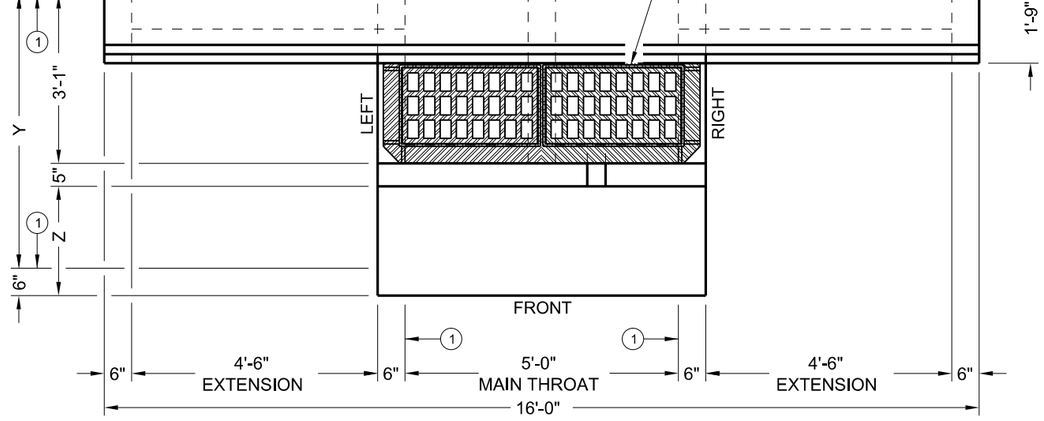


FRONT VIEW

(SHOWING LEFT AND RIGHT EXTENSIONS)



SECTION A-A



PLAN VIEW

(SHOWING LEFT AND RIGHT EXTENSIONS)

(1) Matches inside face of wall of precast base or riser below inlet.

HS20 LOADING SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

PRECAST CURB INLET UNDER ROADWAY

PCU

FILE: prestd04-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		144

DATE: 1/18/2022 3:42:06 PM
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DATE: 1/18/2022 3:42:07 PM
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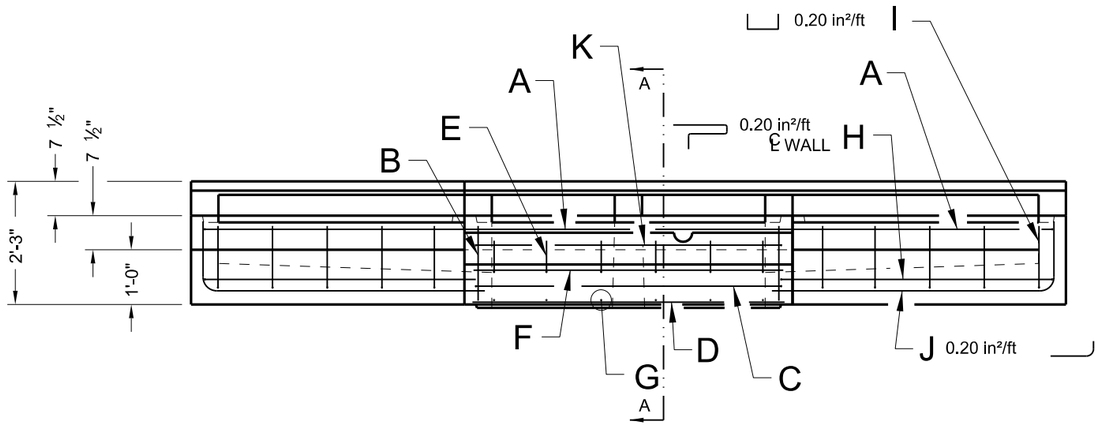
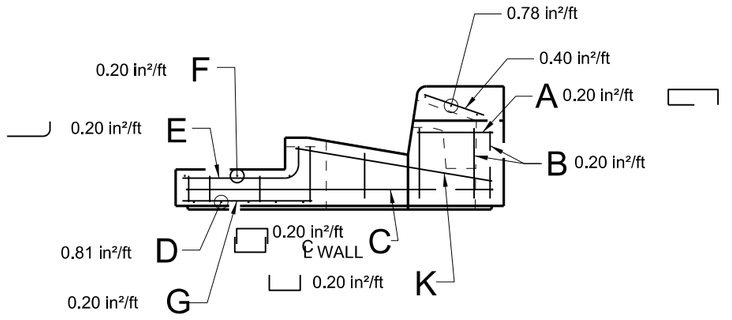
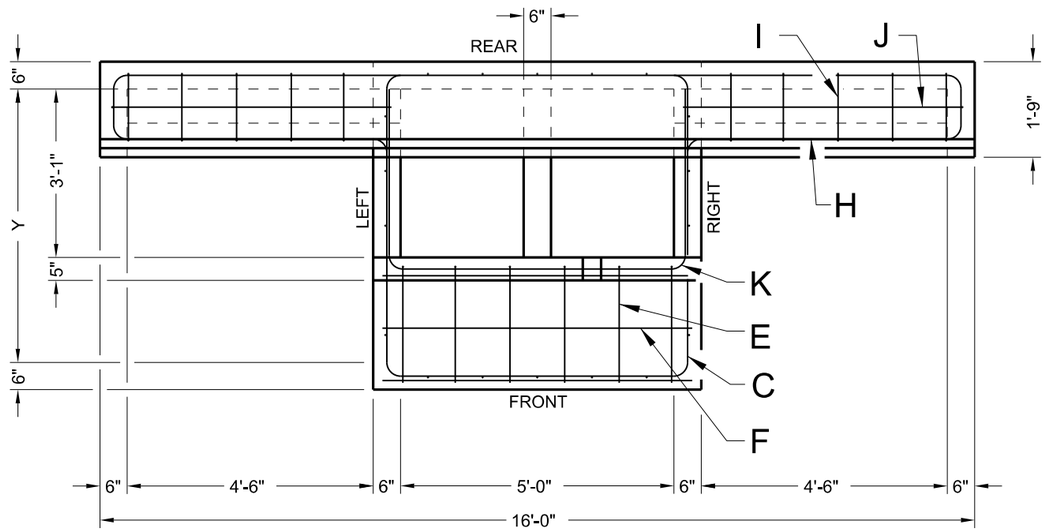


FRONT VIEW

(SHOWING LEFT AND RIGHT EXTENSIONS)



SECTION A-A



PLAN VIEW

(SHOWING LEFT AND RIGHT EXTENSIONS)

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel from surface of concrete or lower outside shoulder.
4. Extensions may be right, left, both or none. Provide extensions as specified elsewhere in plans.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾". Top slab may employ a butt joint with dowels at the Contractor's option.
6. Provide lifting devices in conformance with Manufacturer's recommendations.
7. Chamfer vertical edges on inlet lid ¾" as shown in Front View, sheet 1.

INSTALLATION NOTES:

1. Inlet throat is placed under roadway and intended for direct traffic. Inlet lid is not for direct traffic. Do not place Inlet lid in roadway.
2. Seal tongue and groove joints and butt joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.

GENERAL NOTES:

1. Designed according to ASTM C913.
2. Open area of main throat = 324 sq in. Open area of one extension throat = 324 sq in.
3. Payment for inlet is per Item 465, "Junction Boxes, Manholes and Inlets" by type, size and extension placement. Extensions are subsidiary to inlet.

SIZE (Y)	Z
3'	0'
4'	1'
5'	2'
6'	3'

HS20 LOADING SHEET 2 OF 2

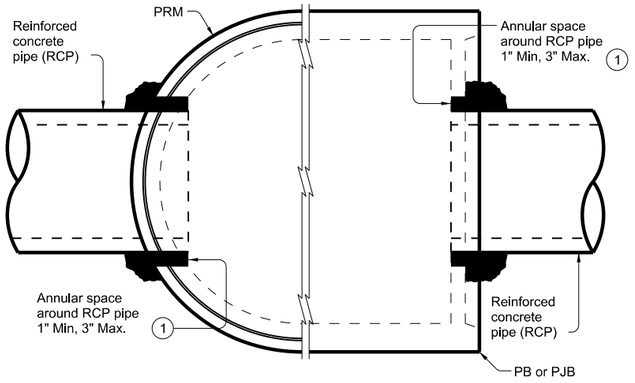
Texas Department of Transportation

Bridge Division Standard

PRECAST CURB INLET UNDER ROADWAY

PCU

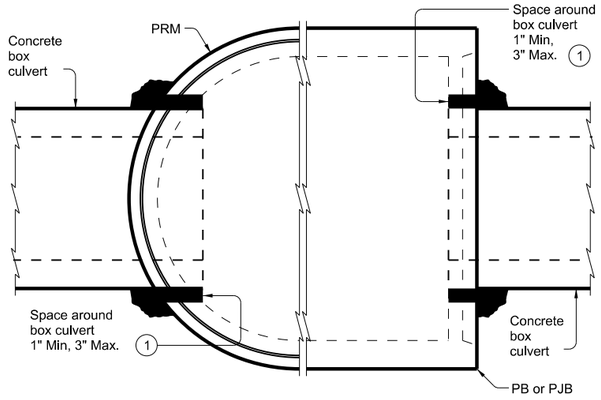
FILE: prestd04-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		145



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

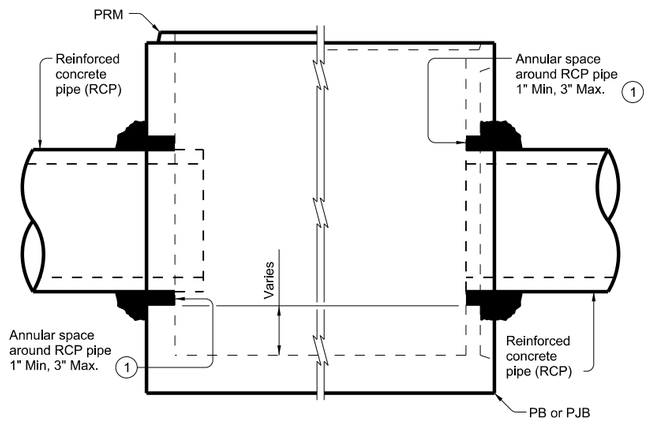
TYPICAL HALF PLAN



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

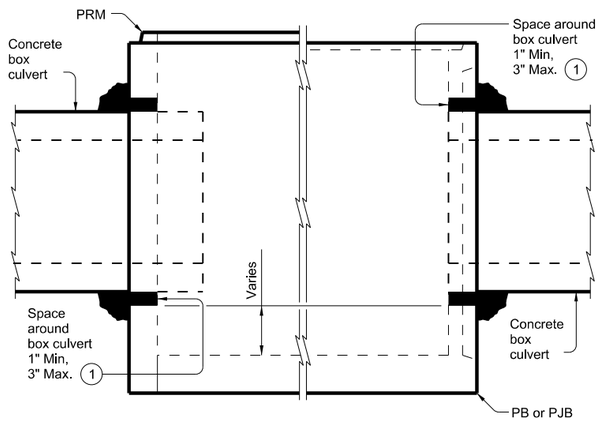
TYPICAL HALF PLAN



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

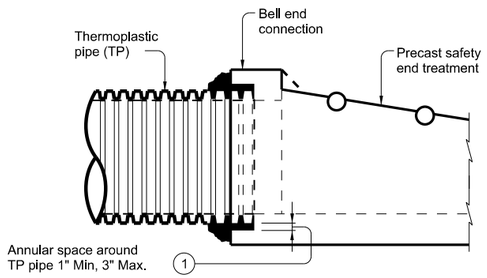
TYPICAL HALF ELEVATION



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

TYPICAL HALF ELEVATION



TYPICAL PARTIAL ELEVATION OF PRECAST SAFETY END TREATMENTS

Showing square PSET for parallel drainage, cross drainage shown similar.

(1) Completely fill the void between the precast structure and the connecting pipe or box with cementitious grouts and mortars in accordance with DMS-4675 "Cementitious Grouts and Mortars for Miscellaneous Application".

CONSTRUCTION NOTES:

Do not grout rubber gasket joints without Manufacturer's recommendations.

Do not use bricks, masonry blocks, native stone, or similar materials in conjunction with grouted connections when filling void spaces around pipes or box culverts.

MATERIAL NOTES:

Provide grouted connections in accordance with DMS-4675 "Cementitious Grouts and Mortars for Miscellaneous Application".

GENERAL NOTES:

See applicable standards for notes and details not shown:

- Precast Base (PB)
- Precast Junction Box (PJB)
- Precast Round Manhole (PRM)
- Precast Safety End Treatments C/D Square (PSET-SC)
- Precast Safety End Treatments P/D Square (PSET-SP)

Provide Concrete Box Culverts in accordance with Item 462 "Concrete Box Culverts and Drains".

Provide Reinforced Concrete Pipe (RCP) in accordance with Item 464 "Reinforced Concrete Pipe".

Provide Thermoplastic Pipe (TP) in accordance with Special Specification Thermoplastic Pipe.

Payment for grouted connections is considered subsidiary to other bid items.

Texas Department of Transportation

Bridge Division Standard

PIPE AND BOX GROUTED CONNECTIONS FOR PRECAST STRUCTURES

PBGC

FILE: 146	DN: TxDOT	CK: TAR	DW: JTR	CK: TAR
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		146

DATE: 1/18/2022 3:42:08 PM
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DATE: 1/18/2022 3:42:09 PM
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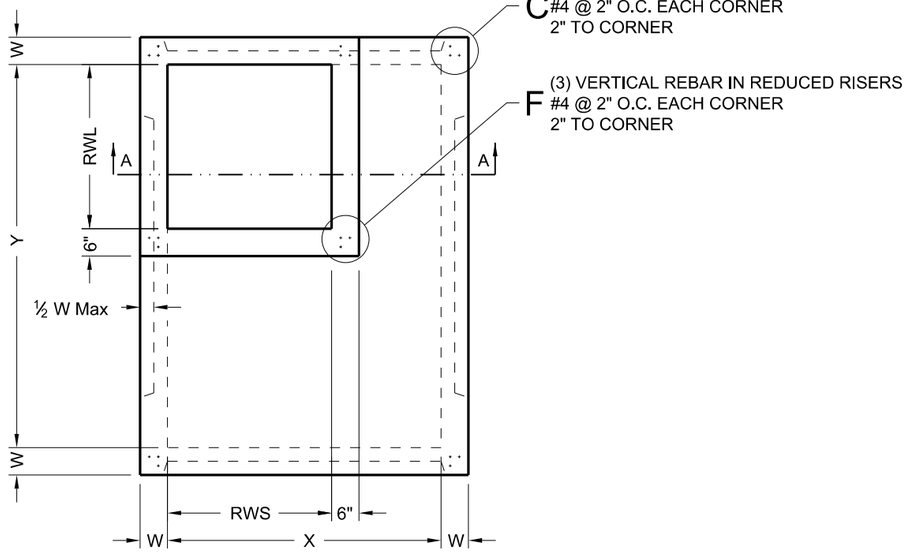
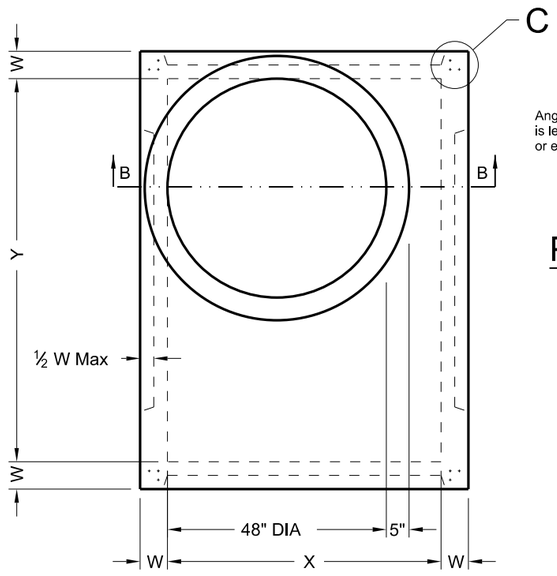


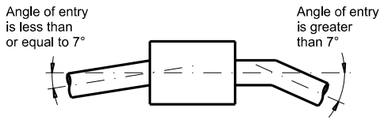
PLAN VIEW "A"

SQUARE REDUCED RISER OPTION



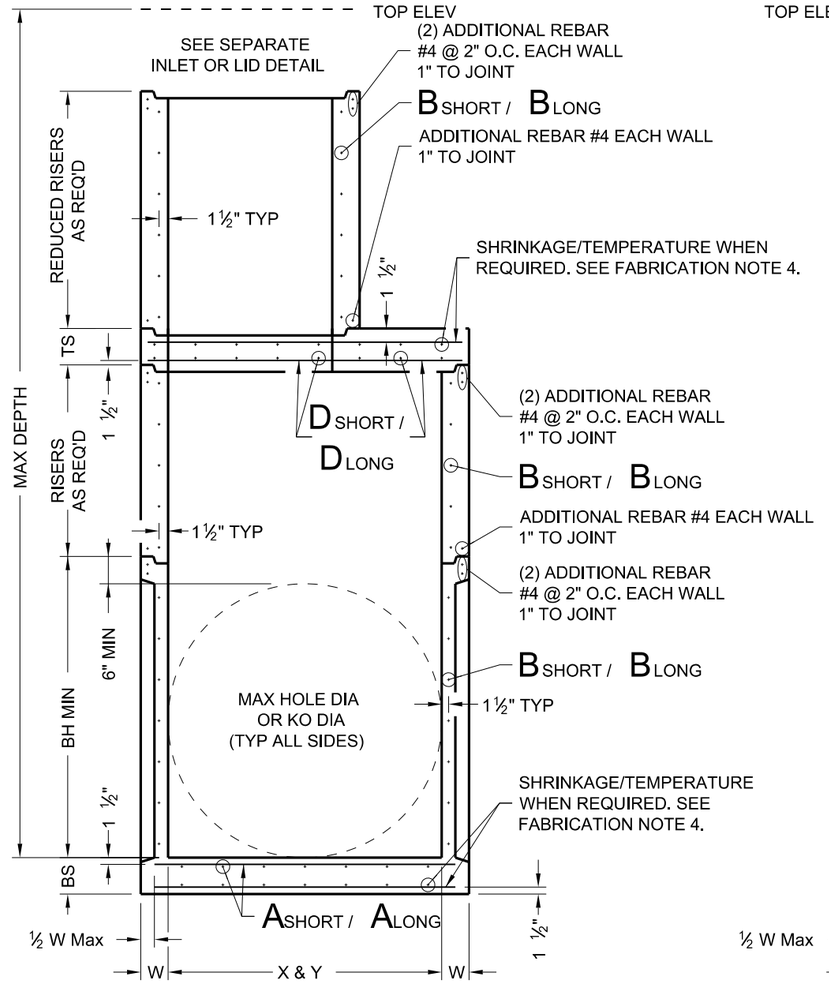
PLAN VIEW "B"

ROUND REDUCED RISER OPTION



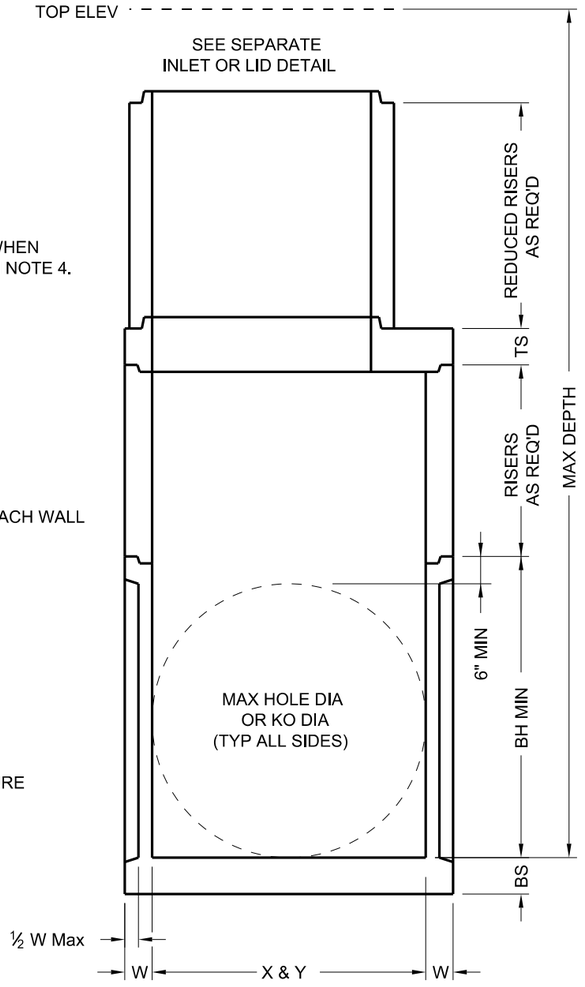
PIPE CONNECTION DETAIL

Connect pipes within 7° of normal to PB wall.
If necessary, use pipe elbow or curved
approach alignment to stay within this limit.



SECTION A-A

SQUARE REDUCED RISER OPTION



SECTION B-B

ROUND REDUCED RISER OPTION

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide typical clear cover of 1 ½" to reinforcing steel at interior or exterior walls.
4. Walls or slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
5. No substitution is allowed for vertical and horizontal #4 bars in corners.
6. Manufacture base and risers to nearest 3" increment.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.
9. See sheet PDD for sizes, dimensions, and reinforcing steel not shown.

INSTALLATION NOTES:

1. If required elsewhere. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to specified inlet or manhole.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. For rigid pipe, cut hole in thin wall panel (KO) 4" Max, 2" Min larger than pipe OD.
5. For flexible pipe, consult boot/seal Manufacturer's specification for placement tolerance and hole size. Center pipe in hole and install boot/seal per Manufacturer's specification.

GENERAL NOTES:

1. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PDD for sizes.
2. Designed according to ASTM C913.
3. Payment for precast base is subsidiary to the specified inlet, per Item 465, "Junction Boxes, Manholes, and Inlets."

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST BASE

PB

FILE:	147	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS		0914	00	457	VA
		DIST	COUNTY		SHEET NO.
		AUS	VARIES		147

DATE: 1/18/2022 3:42:10 PM
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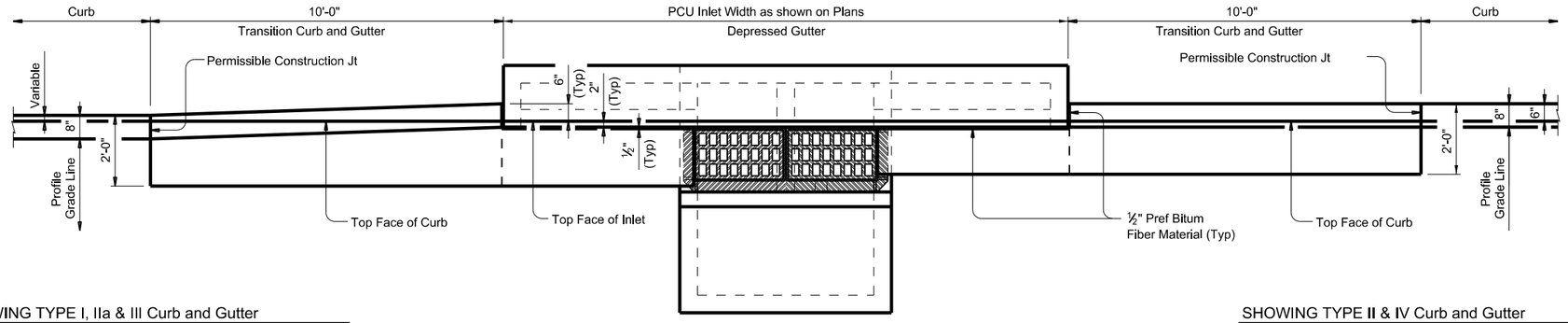
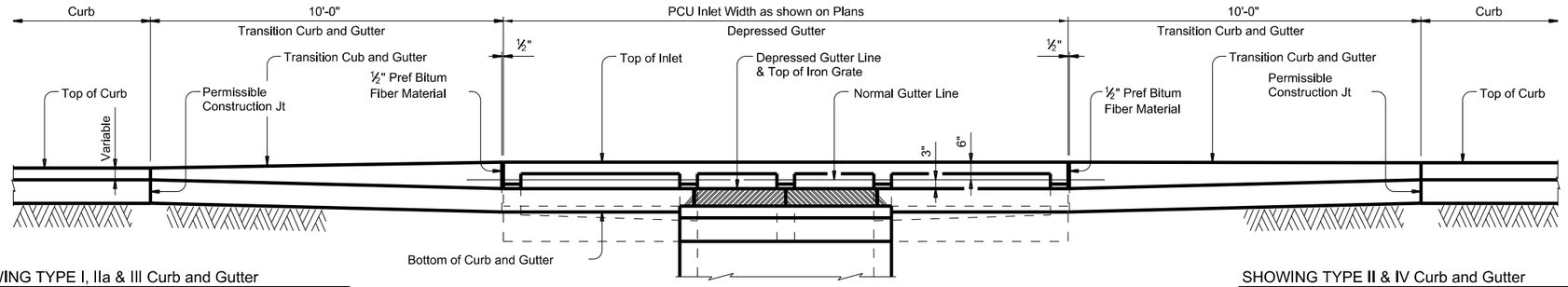


SHOWING TYPE I, IIa & III Curb and Gutter

SHOWING TYPE II & IV Curb and Gutter

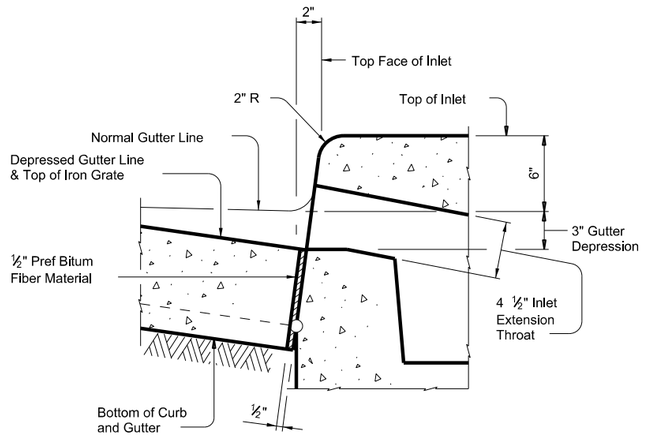
PLAN



SHOWING TYPE I, IIa & III Curb and Gutter

SHOWING TYPE II & IV Curb and Gutter

ELEVATION



SECTION AT GUTTER AND INLET

Reinforcing steel not shown for clarity.

CONSTRUCTION NOTES:
Align top face of curb with PCU Inlet as shown.

MATERIAL NOTES:
Provide ½" Preformed Bituminous Fiber Material.

GENERAL NOTES:
See Precast Curb Inlet Under Roadway standard PCU for details and notes not shown.
See Concrete Curb and Curb and Gutter standard CCCG-12 for details and notes not shown.
Curb and Gutter Transitions is paid for and in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
Preformed Bituminous Fiber Material is subsidiary to PCU Inlet.

Texas Department of Transportation

Bridge Division Standard

CURB AND GUTTER TRANSITION DETAILS FOR PCU INLET

CGT-PCU

FILE: 148	DN: TxDOT	CK: AES	DW: JTR	CK: AES
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		148

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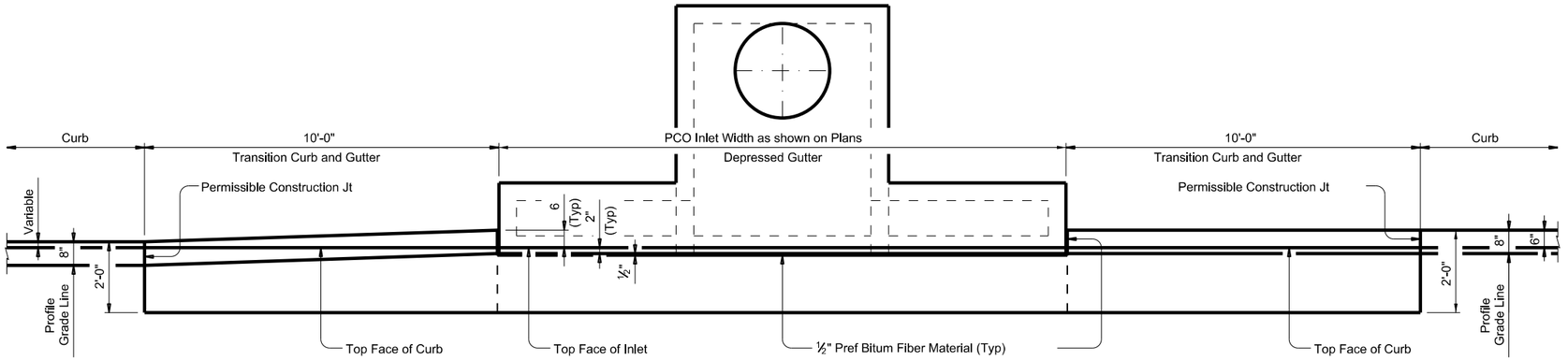
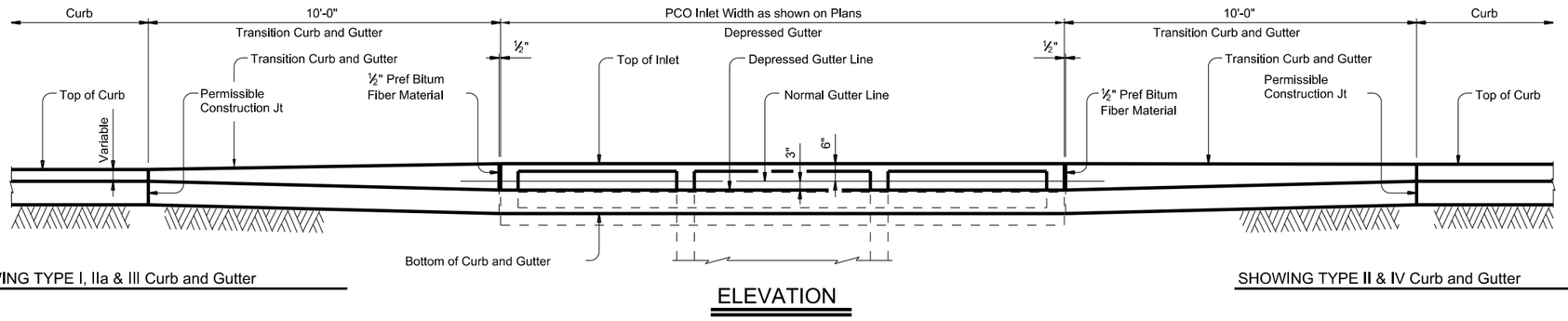


SHOWING TYPE I, IIa & III Curb and Gutter

SHOWING TYPE II & IV Curb and Gutter

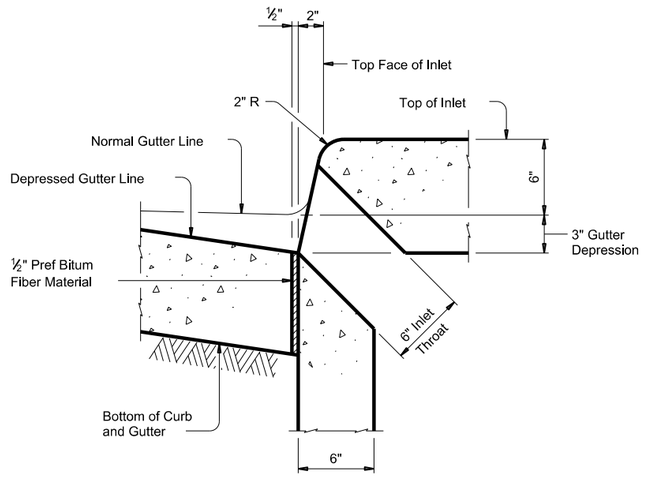
PLAN



SHOWING TYPE I, IIa & III Curb and Gutter

SHOWING TYPE II & IV Curb and Gutter

ELEVATION



SECTION AT GUTTER AND INLET

Reinforcing steel not shown for clarity.

CONSTRUCTION NOTES:
Align top face of curb with PCO Inlet as shown.

MATERIAL NOTES:
Provide ½" Preformed Bituminous Fiber Material.

GENERAL NOTES:
See Precast Curb Inlet Outside Roadway (PCO) standard for details and notes not shown.
See Concrete Curb and Curb and Gutter (CCCG-12) standard for details and notes not shown.
Curb and Gutter Transitions is paid for and in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
Preformed Bituminous Fiber Material is subsidiary to PCO Inlet.

Texas Department of Transportation

Bridge Division Standard

CURB AND GUTTER TRANSITION DETAILS FOR PCO INLET

CGT-PCO

FILE: 149	DN: TxDOT	CK: AES	DW: JTR	CK: AES
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		149

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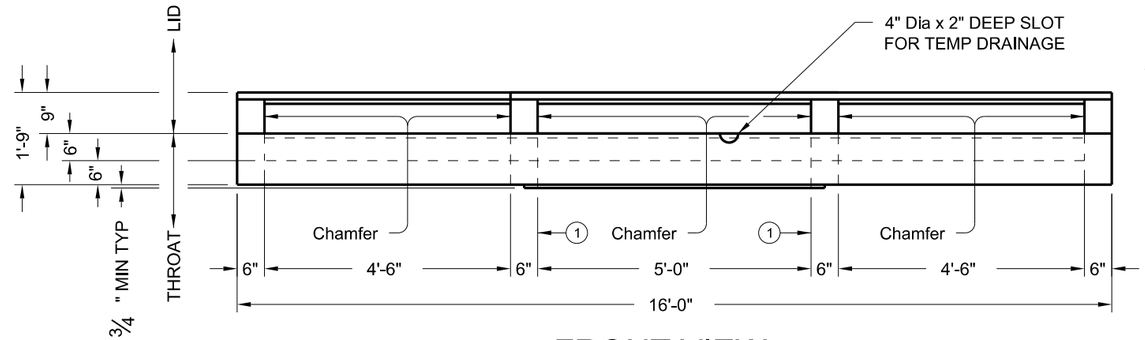
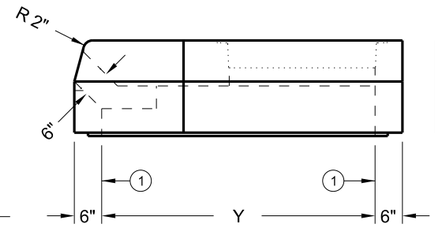
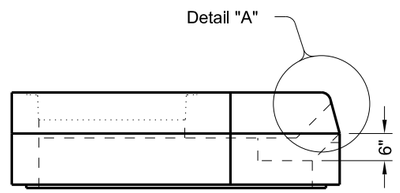


FRONT VIEW
(SHOWING LEFT AND RIGHT EXTENSIONS)



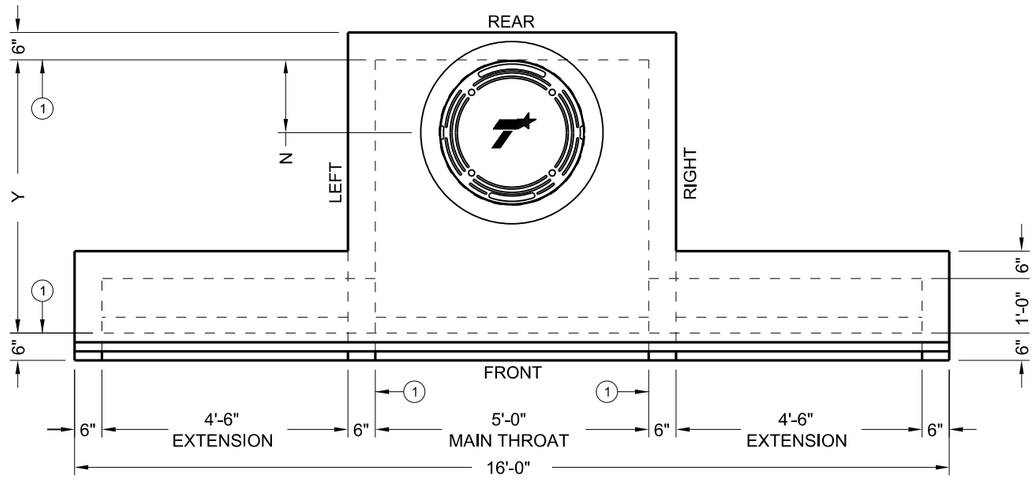
RIGHT VIEW

REAR VIEW
(EXTENSIONS NOT SHOWN)

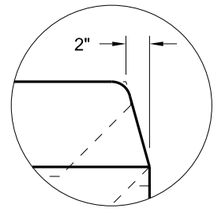


LEFT VIEW

(1) Matches inside face of wall of precast base or riser below inlet.



PLAN VIEW
(SHOWING LEFT AND RIGHT EXTENSIONS)



DETAIL "A"

HS20 LOADING SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

PRECAST CURB INLET OUTSIDE ROADWAY

PCO

FILE: prestd03-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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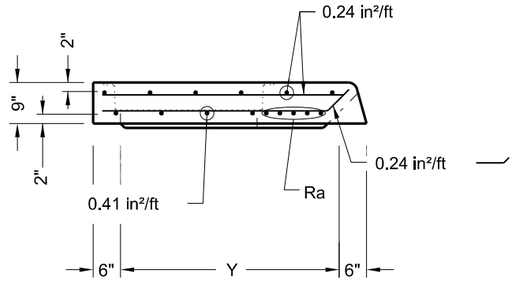
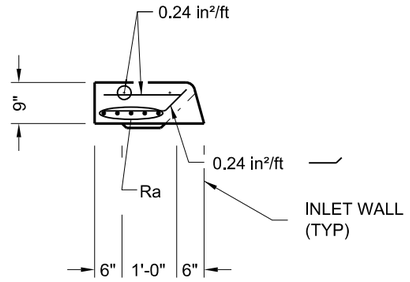


LID SECTION A-A



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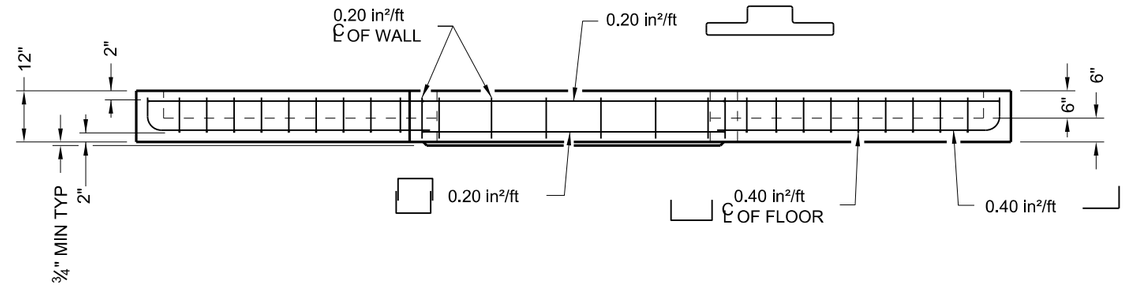
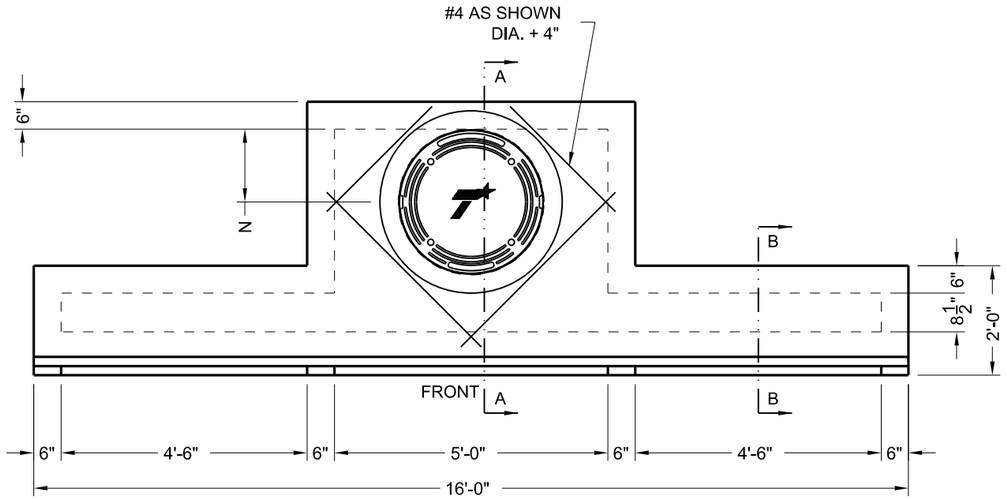


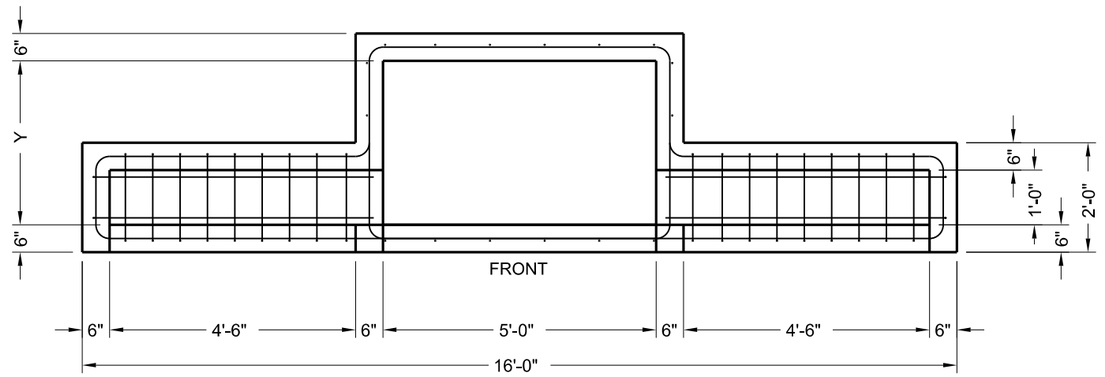
THROAT ELEVATION VIEW

(SHOWING LEFT AND RIGHT EXTENSIONS)



LID PLAN VIEW

(SHOWING LEFT AND RIGHT EXTENSIONS)



THROAT PLAN VIEW

(SHOWING LEFT AND RIGHT EXTENSIONS)

SIZE (Y)	N	MH DIA ✳	Ra
3'	9"	18"	(4) #5 Additional
4'	16"	32"	(4) #5 Additional
5'	16"	32"	(4) #5 Additional
6'	16"	32"	(4) #5 Additional

✳ Nominal ring and cover size.

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Extensions may be right, left, both or none. Provide extensions as specified elsewhere in the plans.
4. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾". Lid may employ a butt joint with dowels at the Contractor's option.
5. Provide lifting devices in conformance with Manufacturer's recommendations.
6. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.
7. Chamfer vertical edges of inlet lid ¾" as shown in Front View, sheet 1.

INSTALLATION NOTES:

1. Inlet throat and lid are not intended for direct traffic. Do not place in roadway.
2. Seal tongue and groove joints and butt joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.

GENERAL NOTES:

1. Designed according to ASTM C913.
2. Open area of main throat = 360 sq in. Open area of one extension throat = 324 sq in.
3. Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, size, and extension placement. Extensions are subsidiary to inlet.

Cover dimensions are clear dimensions, unless noted otherwise.

HS20 LOADING SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

PRECAST CURB INLET OUTSIDE ROADWAY

PCO

FILE: prestd03-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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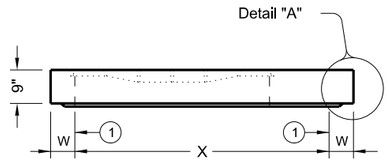
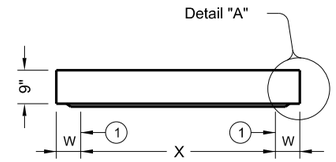
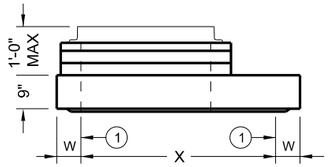


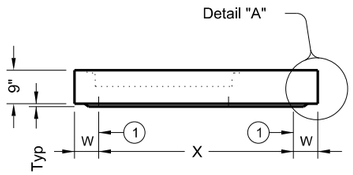
STYLE 'FG'



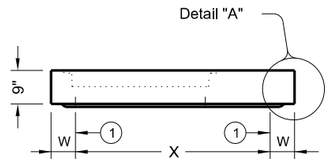
ELEVATION VIEW



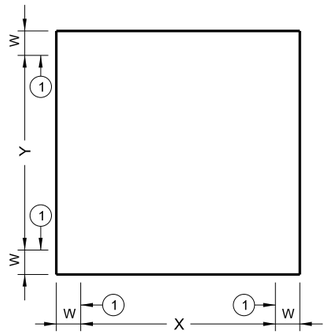
ELEVATION VIEW



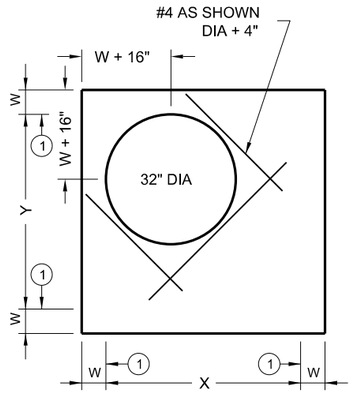
ELEVATION VIEW



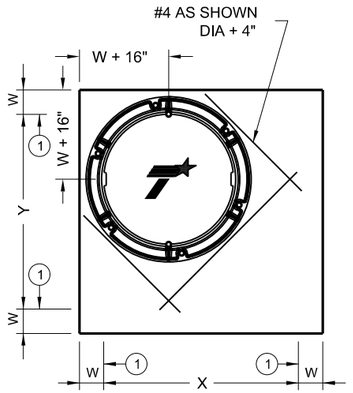
ELEVATION VIEW



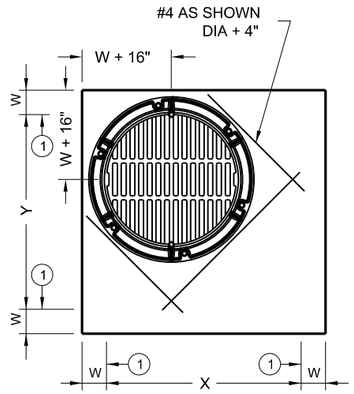
PLAN VIEW
NO OPENINGS
STYLE 'SL'



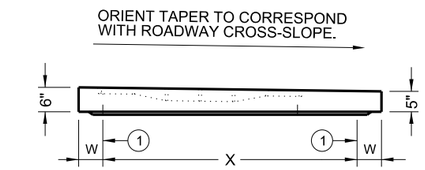
PLAN VIEW
SHIP LOOSE RING & COVER
STYLE 'RH'



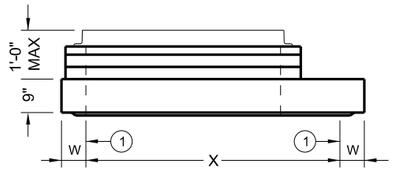
PLAN VIEW
32" DIA CAST-IN RING & COVER
STYLE 'RC'



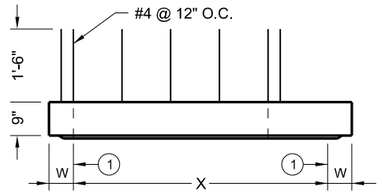
PLAN VIEW
32" DIA CAST-IN RING & GRATE
STYLE 'RG'



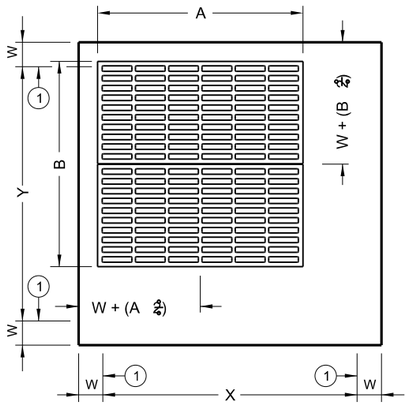
STYLE 'SFG'
ELEVATION VIEW



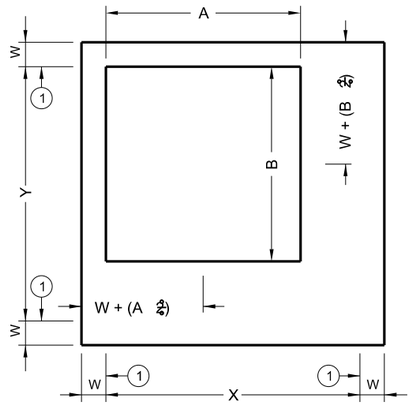
ELEVATION VIEW



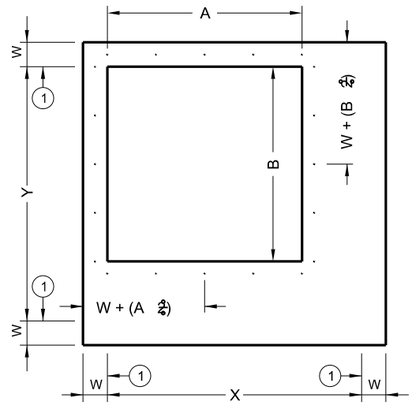
ELEVATION VIEW



PLAN VIEW
CAST-IN FRAME & GRATE
STYLES 'FG' & 'SFG'



PLAN VIEW
SHIP LOOSE FRAME & GRATE
STYLE 'SH'



PLAN VIEW
EXPOSED REBAR
STYLE 'S1'

(1) Matches inside face of wall of precast base or riser below inlet.

HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

PRECAST SLAB LID

PSL

FILE: prestd05-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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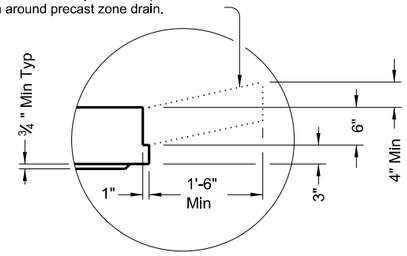
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		152

Style	Size (X x Y)	W (2)	A x B (nominal)	Short Span Reinf Steel Area	Long Span Reinf Steel Area
SL	3'x3'	6"	n/a	0.37 in□/ft	0.37 in□/ft
RH,RC,RG,SH,S1,FG	3'x3'	6"	3'x3' or 32" Dia	0.37 in□/ft	0.37 in□/ft
SFG	3'x3'	6"	3'x3'	0.32 in□/ft	0.32 in□/ft
SL	4'x4'	6"	n/a	0.34 in□/ft	0.34 in□/ft
RH,RC,RG,SH,S1,FG	4'x4'	6"	3'x3' or 32" Dia	0.41 in□/ft	0.41 in□/ft
SH,S1,FG	4'x4'	6"	4'x4'	0.41 in□/ft	0.41 in□/ft
SFG	4'x4'	6"	4'x4'	0.32 in□/ft	0.32 in□/ft
SL	3'x5'	6"	n/a	0.39 in□/ft	0.39 in□/ft
RH,RC,RG,SH,S1,FG	3'x5'	6"	3'x3' or 32" Dia	0.48 in□/ft	0.48 in□/ft
SH,S1,FG	3'x5'	6"	3'x5'	0.48 in□/ft	0.48 in□/ft
SFG	3'x5'	6"	3'x5'	0.32 in□/ft	0.32 in□/ft
SL	4'x5'	6"	n/a	0.42 in□/ft	0.42 in□/ft
RH,RC,RG,SH,S1,FG	4'x5'	6"	3'x3' or 32" Dia	0.42 in□/ft	0.42 in□/ft
SH,S1,FG	4'x5'	6"	4'x4'	0.63 in□/ft	0.63 in□/ft
SH,S1,FG	4'x5'	6"	3'x5'	0.66 in□/ft	0.66 in□/ft
SL	5'x5'	6"	n/a	0.36 in□/ft	0.36 in□/ft
RH,RC,RG,SH,S1,FG	5'x5'	6"	3'x3' or 32" Dia	0.43 in□/ft	0.43 in□/ft
SH,S1,FG	5'x5'	6"	4'x4'	0.63 in□/ft	0.63 in□/ft
SH,S1,FG	5'x5'	6"	3'x5'	0.63 in□/ft	0.63 in□/ft
SL	5'x6'	6"/8"	n/a	0.48 in□/ft	0.48 in□/ft
RH,RC,RG,SH,S1,FG	5'x6'	6"/8"	3'x3' or 32" Dia	0.48 in□/ft	0.48 in□/ft
SH,S1,FG	5'x6'	6"/8"	4'x4'	0.60 in□/ft	0.60 in□/ft
SH,S1,FG	5'x6'	6"/8"	3'x5'	0.60 in□/ft	0.60 in□/ft
SL	6'x6'	6"/8"	n/a	0.43 in□/ft	0.43 in□/ft
RH,RC,RG,SH,S1,FG	6'x6'	6"/8"	3'x3' or 32" Dia	0.56 in□/ft	0.56 in□/ft
SH,S1,FG	6'x6'	6"/8"	4'x4'	0.56 in□/ft	0.56 in□/ft
SH,S1,FG	6'x6'	6"/8"	3'x5'	0.59 in□/ft	0.59 in□/ft
SL	8'x8'	8"/10"	n/a	0.45 in□/ft	0.45 in□/ft
RH,RC,RG,SH,S1,FG	8'x8'	8"/10"	3'x3' or 32" Dia	0.45 in□/ft	0.45 in□/ft
SH,S1,FG	8'x8'	8"/10"	4'x4'	0.45 in□/ft	0.45 in□/ft
SH,S1,FG	8'x8'	8"/10"	3'x5'	0.45 in□/ft	0.45 in□/ft

(2) See sheet PDD for corresponding wall thickness (W) of base unit or riser.

Construct cast-in-place reinforced concrete apron, when shown elsewhere in plans. Use Class "A" concrete. Apron is subsidiary to PSL. Apron is 1'-6" Min width around precast zone drain.



DETAIL "A"

(Reinforcing not shown for clarity)

When an apron is to be cast around PSL, use detail above to create an apron ledge on all 4 sides.

FABRICATION NOTES:

1. Locate penetration (Style 'RH'), ring and cover (Style 'RC'), ring and grate (Style 'RG'), and frame and grate (Style 'FG') in a corner. Only one penetration is allowed per slab lid.
2. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
3. Provide Grade 60 reinforcing steel or equivalent area of WWR.
4. Provide clear cover of ¾" to reinforcing from lower outside shoulder of slab for structural reinforcement, and 2" from top of slab for shrinkage and temperature reinforcement. Place short span reinforcing closest to surface.
5. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing. Provide steel area = 0.11 in²/ft each way.
6. No substitution is allowed for diagonal #4 bars around openings.
7. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
8. Provide lifting devices in conformance with Manufacturer's recommendations.

INSTALLATION NOTES:

1. Precast slab lids are intended for direct traffic and may be placed in roadway.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.
4. Initial installation of grade adjustment rings for Styles 'RH' and 'SH' is limited to 1'-0" Max as shown.
5. Grade adjustment rings for Styles 'RH' and 'SH' may be increased to 2'-0" Max when future construction affects final grade of structure. Make adjustments greater than 2'-0" with additional risers. Adjustments can be made up to Max depth shown on sheet PDD. Structure must be evaluated if Max depth will be exceeded.
6. Orient long dimension of grate slots perpendicular to traffic, unless noted otherwise on plans

GENERAL NOTES:

1. Designed according to ASTM C913.
2. Payment for lid is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, style, size, and opening size (when applicable).

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

PRECAST SLAB LID

PSL

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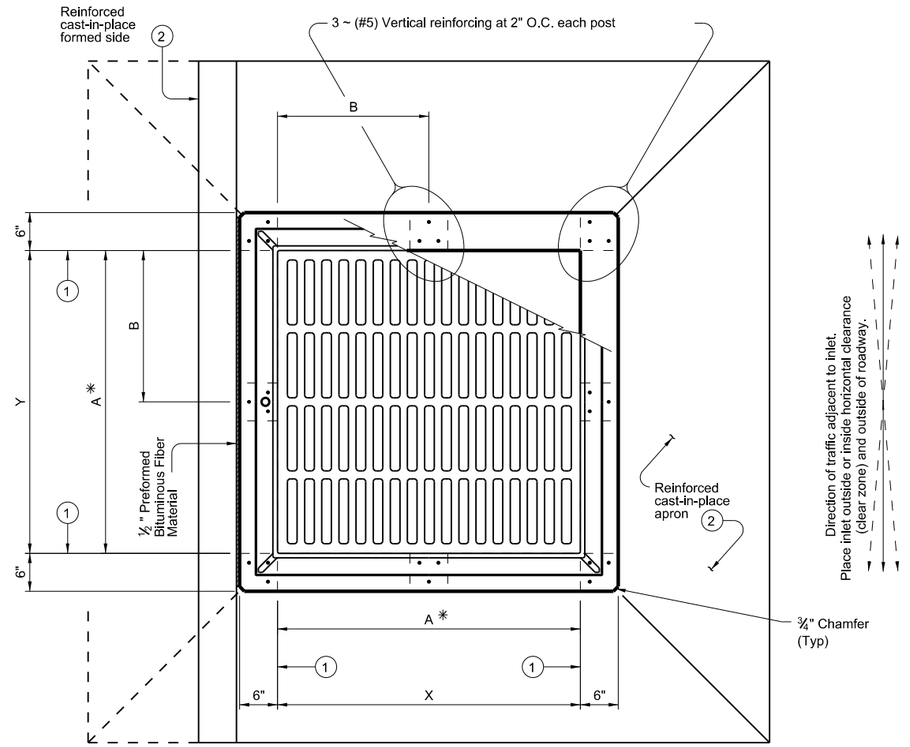
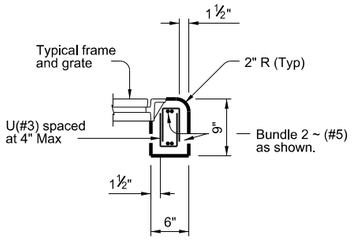
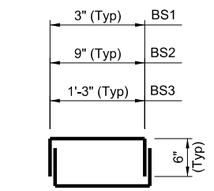


PLAN VIEW ~ STYLE 'FG' (3)

Direction of traffic adjacent to inlet.
Place inlet outside or inside horizontal clearance (clear zone) and outside of roadway.



SECTION A-A ~ BS1

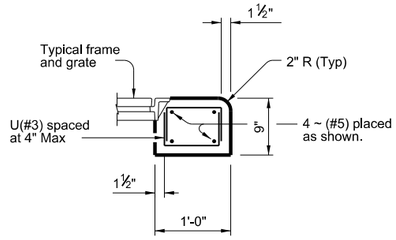


BARS U (#3)

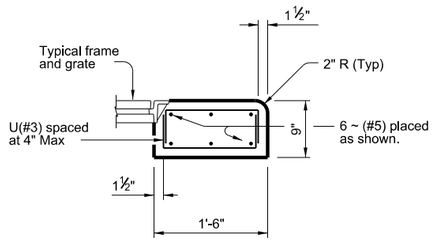
Showing one complete bar.

Style	Size (X x Y)	A x A *	B x B	Beam Section
FG	3'x3'	3'x3'	1.5'x1.5'	BS1
FG	4'x4'	3'x3'	2'x2'	BS2
FG	4'x4'	4'x4'	2'x2'	BS1
FG	5'x5'	3'x3'	2.5'x2.5'	BS3
FG	5'x5'	4'x4'	2.5'x2.5'	BS2

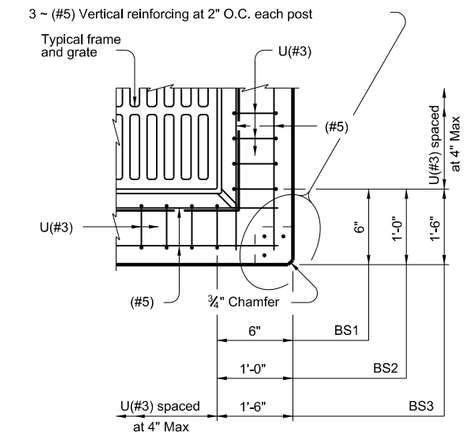
* Nominal frame/grate size.



SECTION A-A ~ BS2

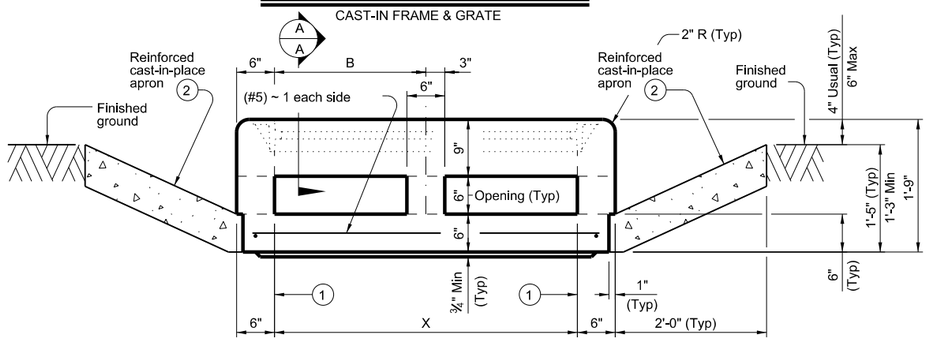


SECTION A-A ~ BS3

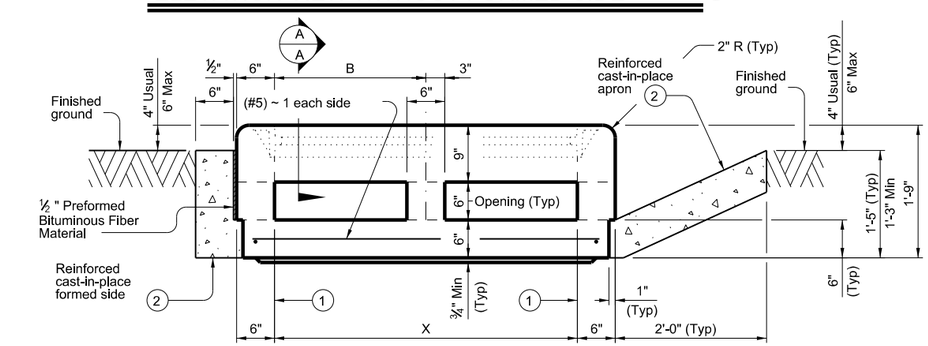


TYPICAL CORNER REINFORCING PLAN DETAIL

Showing BS2 other beam sections similar.



ELEVATION VIEW WITHOUT FORMED SIDE (4)



ELEVATION VIEW WITH FORMED SIDE (4)

1 Matches inside face of wall of precast base or riser below inlet.

2 Construct cast-in-place reinforced concrete with or without formed side. Place formed side/sides as directed elsewhere in the plans. Formed sides may only be used on sides parallel to traffic. Use Class "C" concrete. Apron and formed side reinforcing not shown for clarity. Apron and formed side are subsidiary to PAZD-CZ. Apron is 2'-0" width around precast zone drain, unless an optional formed side is used. For apron and formed side, provide (#4) reinforcing at 12" O.C.

3 Top slab reinforcing not shown for clarity.

4 Top slab reinforcing and post reinforcing not shown for clarity.

FABRICATION NOTES:

1. Provide Class "H" concrete in accordance with Item 421 and having a minimum compressive strength of 5,000 psi.
2. Provide Grade 60 reinforcing steel or equivalent area of WWR.
3. Provide clear cover of ¾" to reinforcing from bottom of slab and 2" to reinforcing from top of slab for structural reinforcement.
4. Provide 1 ½" end cover on (#5) reinforcing.
5. Design tongue and groove joints for full closure on both shoulders. Minimum spigot depth is ¾".
6. Provide lifting devices in conformance with Manufacturer's recommendations.

INSTALLATION NOTES:

1. Precast Area Zone Drain within Clear Zone (PAZD-CZ) is for use in ditches and medians outside and inside of the horizontal clearance (clear zone). PAZD-CZ is never placed in the roadway.
2. Seal tongue and groove joints with preformed or bulk mastic in conformance with Manufacturer's recommendations. Tongue and groove joints may be grouted no more than 1" between each section, or ½ the joint depth, whichever is greater.
3. Do not grout rubber gasket joints without Manufacturer's recommendation.

GENERAL NOTES:

1. Designed according to ASTM C913.
2. Payment for inlet is per Item 465, "Junction Boxes, Manholes, and Inlets" by type, style, size, and opening size (when applicable).

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRECAST AREA ZONE DRAIN WITHIN CLEAR ZONE

PAZD-CZ

FILE: prestd15-20.dgn	DN: SDC	CK: TAR	DW: JTR	CK: SDC
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		154

DATE: 1/18/2022 3:42:15 PM
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DATE: 1/18/2022 3:42:16 PM
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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)

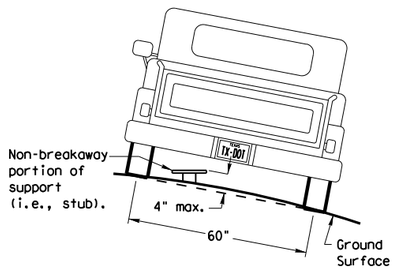
Anchor Type

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

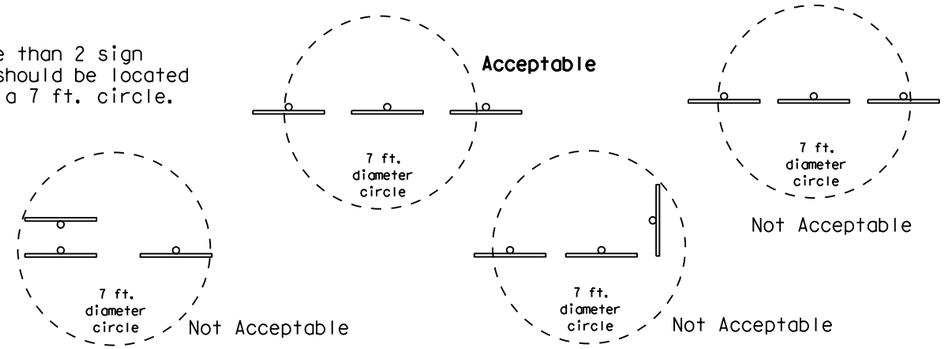
P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
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



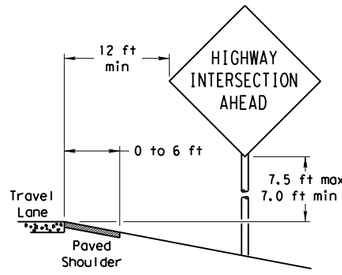
To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

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



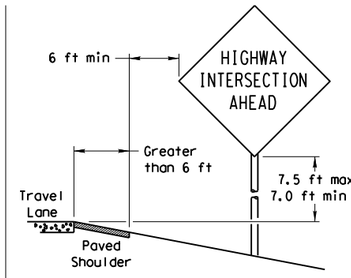
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

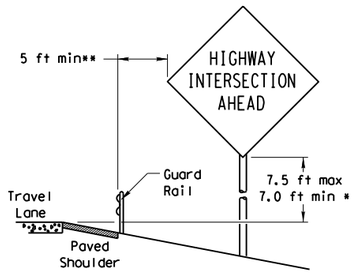
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



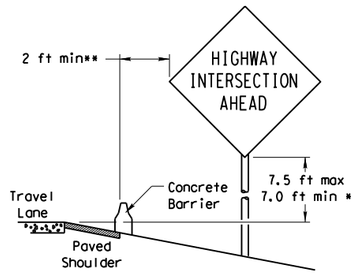
GREATER THAN 6 FT. WIDE

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



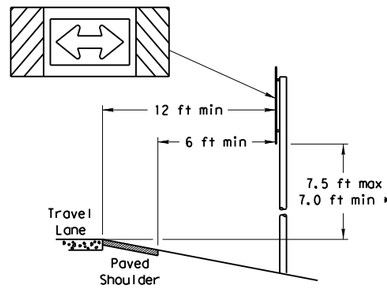
BEHIND GUARDRAIL



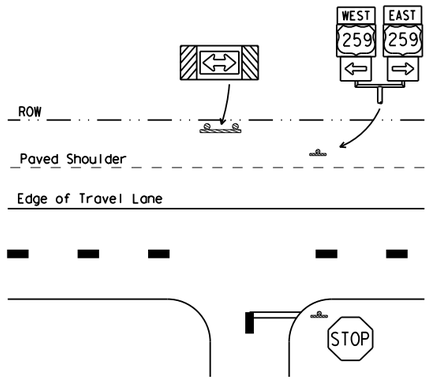
BEHIND CONCRETE BARRIER

****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.

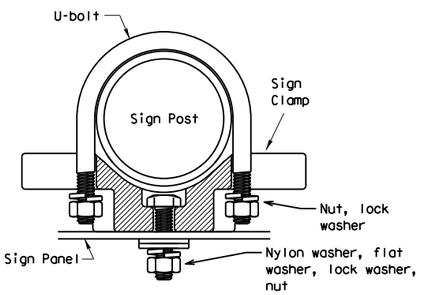
The maximum values may be increased when directed by the Engineer.

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

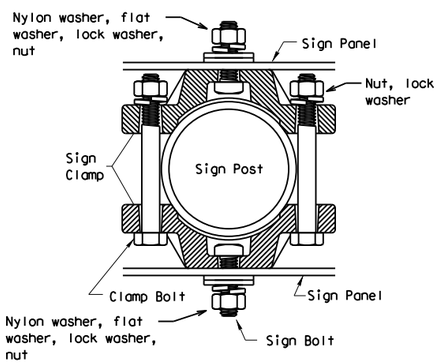


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

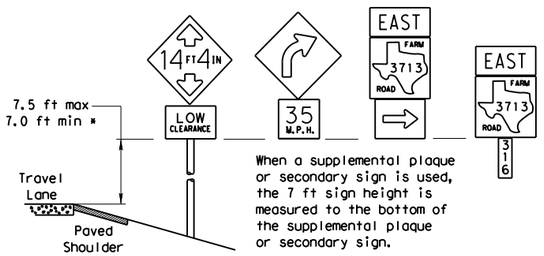
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



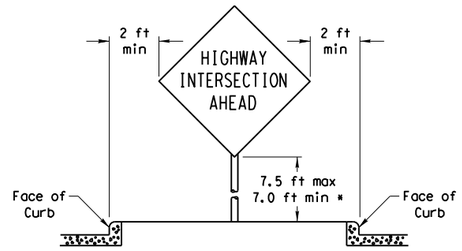
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



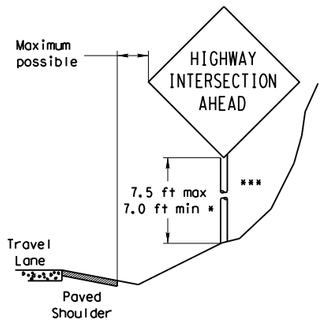
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		155

DATE: 1/18/2022 3:42:17 PM
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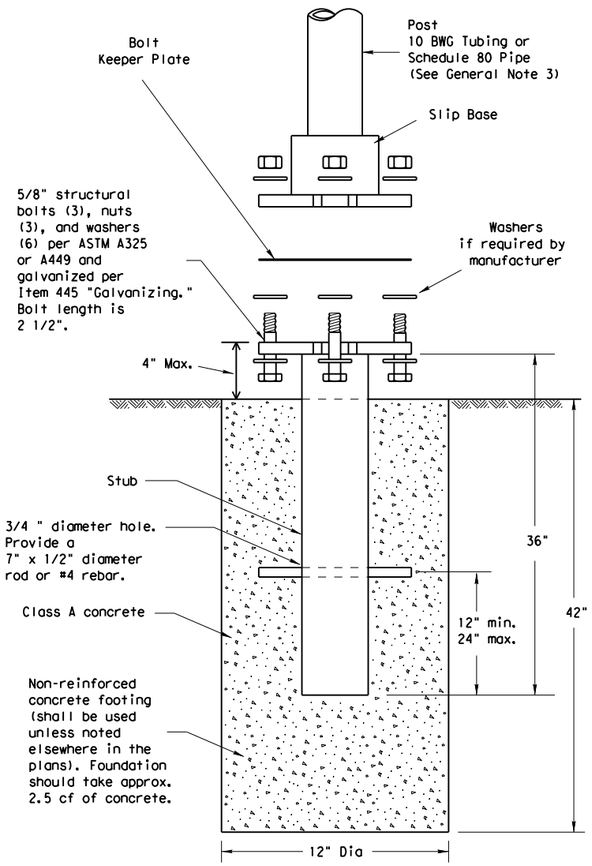
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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.

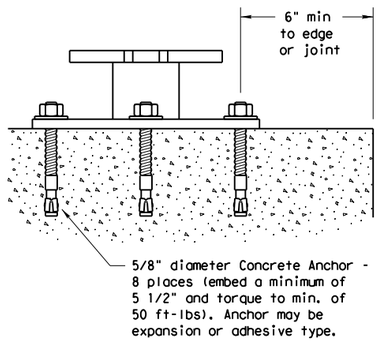
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum 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

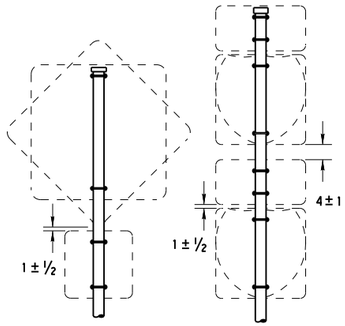
SMD(SLIP-1)-08

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

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0914	00	457	VA

DIST	COUNTY	SHEET NO.
AUS	VARIES	156



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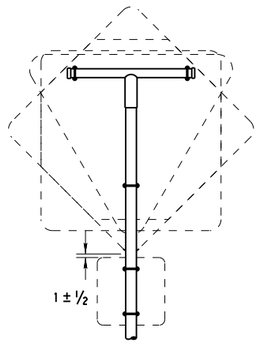

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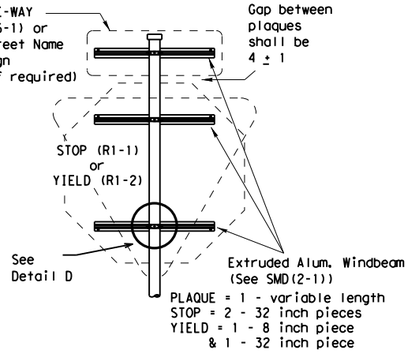

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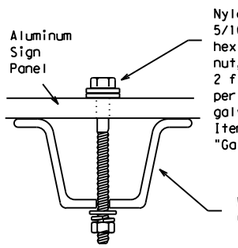
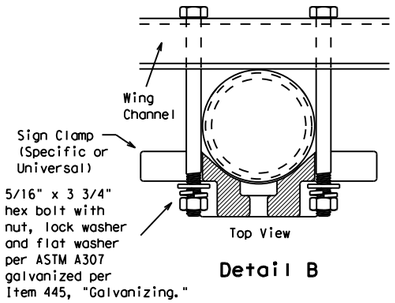
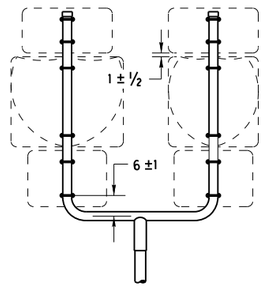


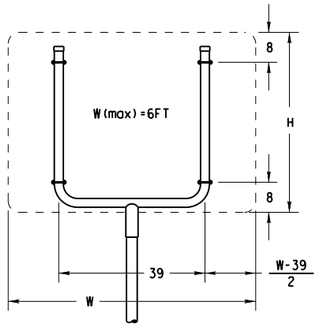
Detail A



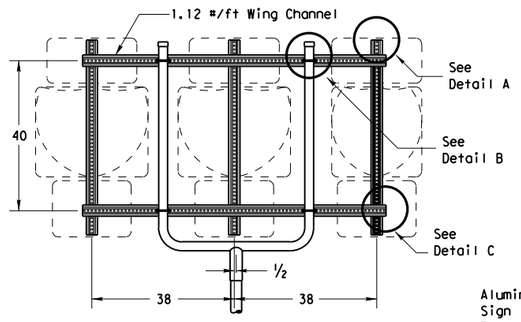
Detail B



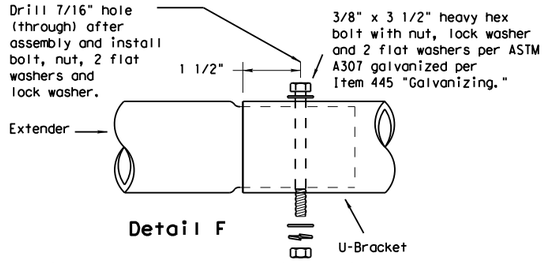
SM RD SGN ASSM TY XXXXX(1)XX(U)



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

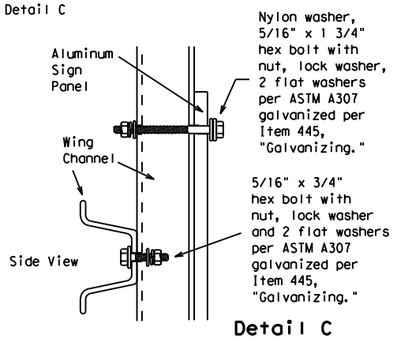


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

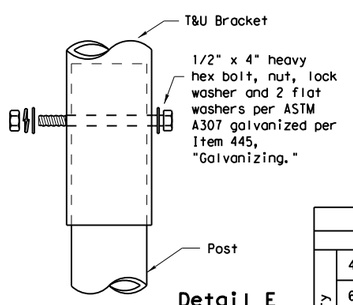


Detail F

Splices shall only be allowed behind the sign substrate.



Detail C



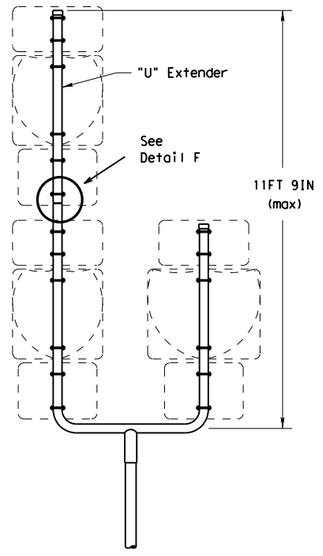
Detail E

GENERAL NOTES:

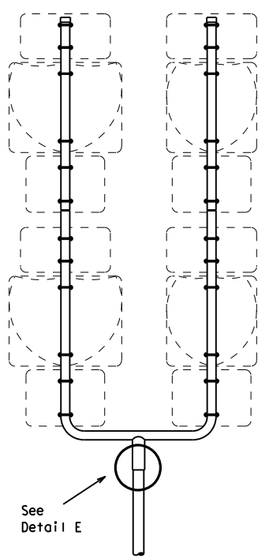
1.

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

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



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



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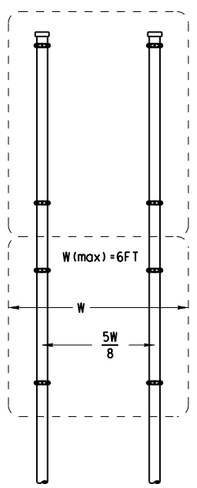
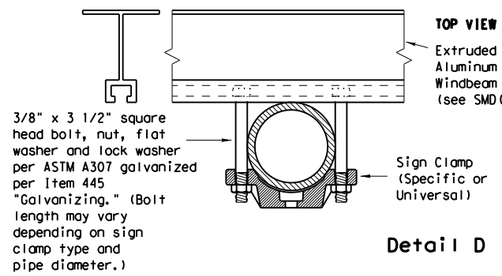
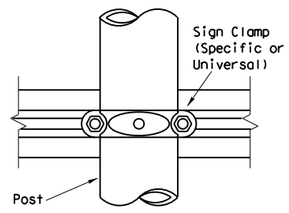


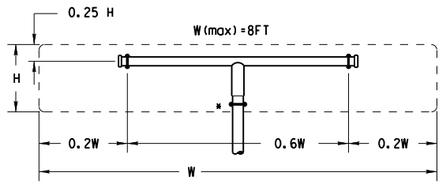
SM RD SGN ASSYM TY XXXXX(2)XX(P)



Detail D



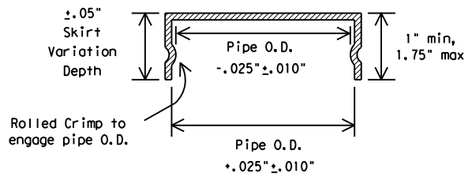
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)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



All dimensions are in english unless detailed otherwise.

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

FRICTION CAP DETAIL



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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

CONT	SECT	JOB	HIGHWAY
0914	00	457	VA

DIST	COUNTY	SHEET NO.
AUS	VARIES	157

9-08 REVISIONS

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DATE: 1/18/2022 3:42:18 PM
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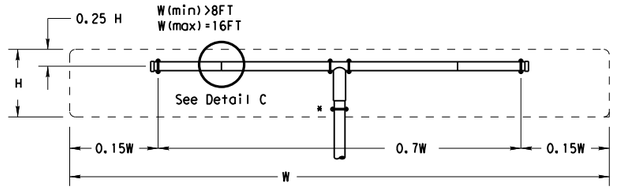
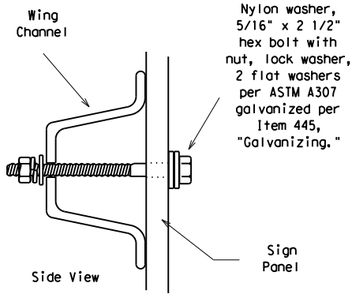
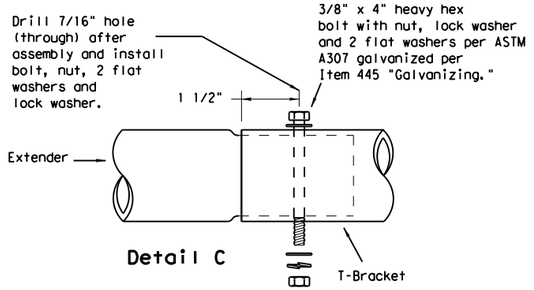


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



Detail B



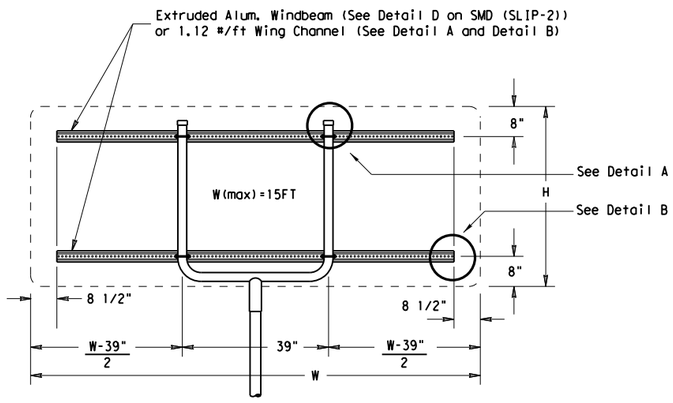
Detail C

Splices shall only be allowed behind the sign substrate.

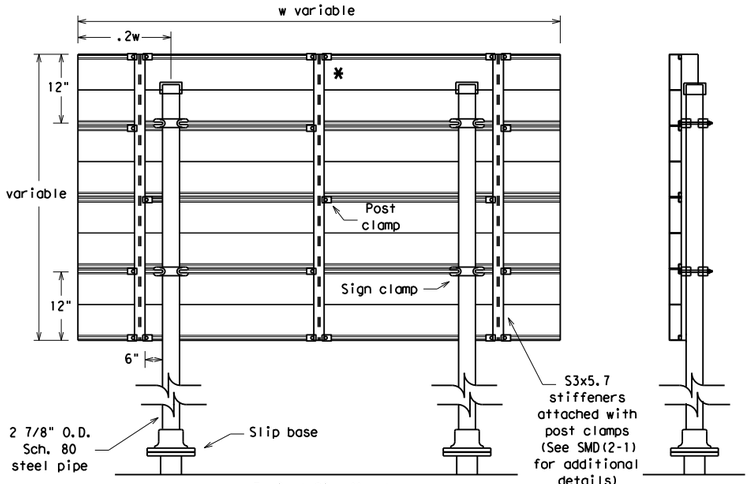
GENERAL NOTES:

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

1. See table above.
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.



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

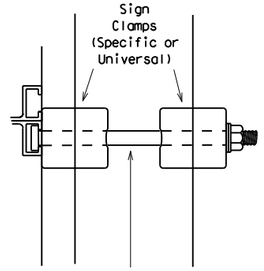


Typical Sign Mount

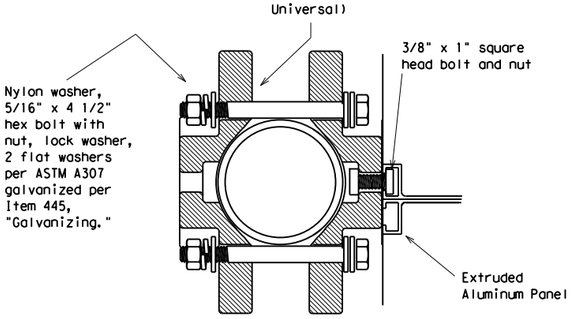
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

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

See Detail E
for clamp installation

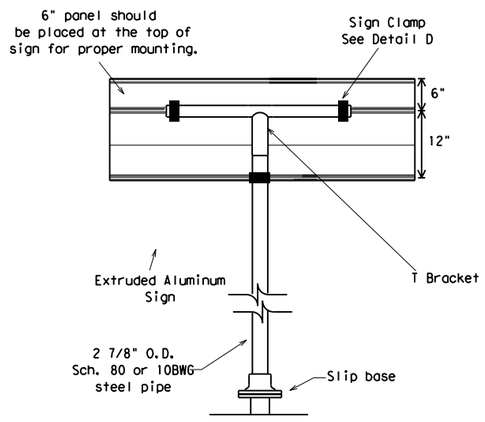


Detail E

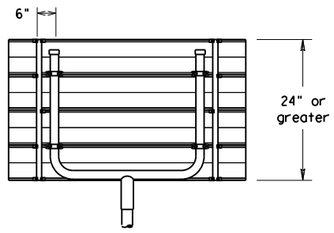


Detail A

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

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
0914	00	457	VA
DIST	COUNTY		SHEET NO.
AUS	VARIES		158

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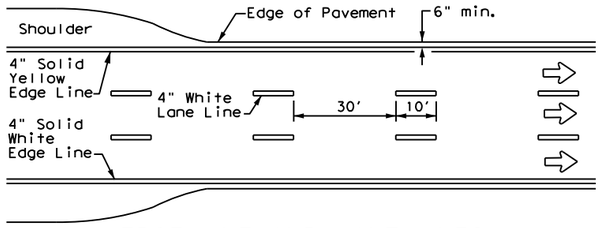
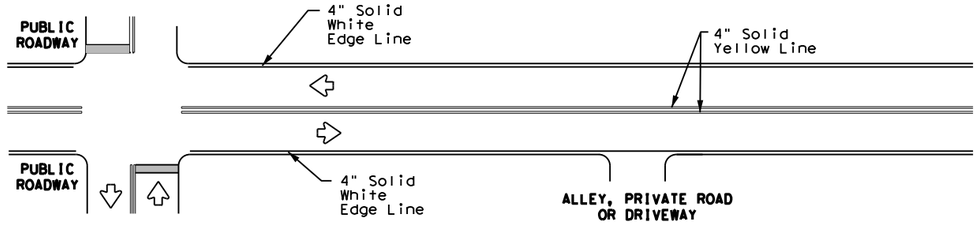
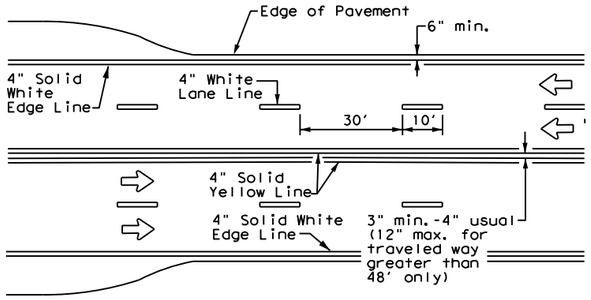


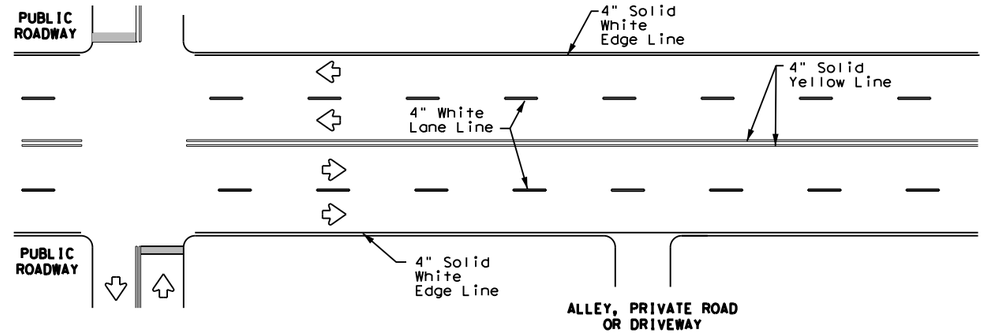
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



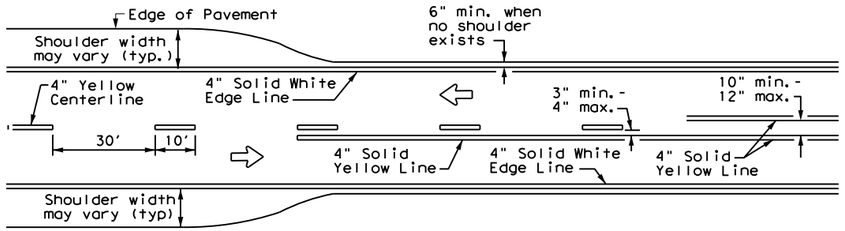
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



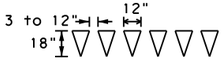
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



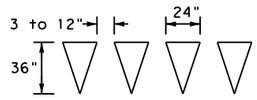
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

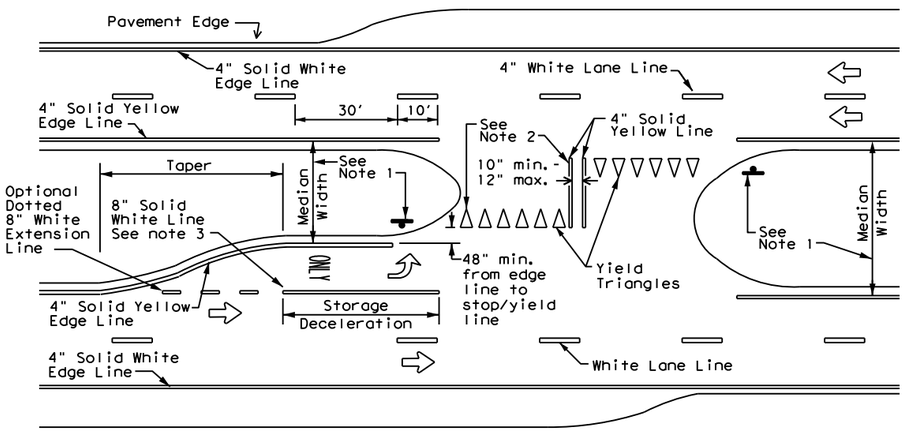


For posted speed on road being marked equal to or less than 40 MPH.



For posted speed on road being marked equal to or greater than 45 MPH.

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.

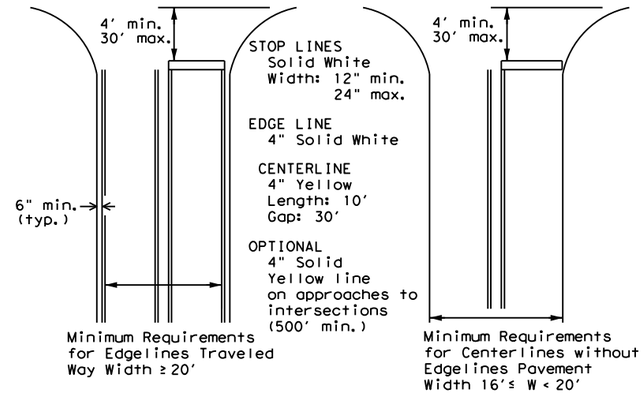
GENERAL NOTES

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

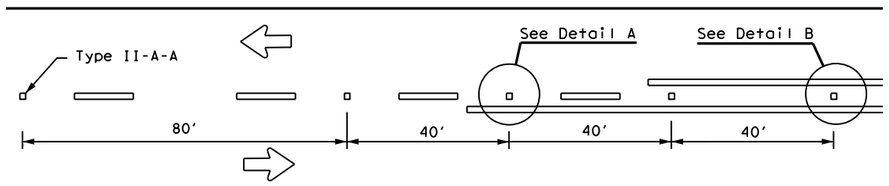
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-20

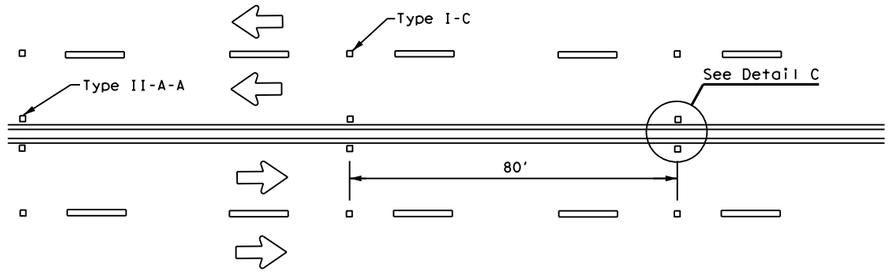
FILE: 159	DN:	CK:	DW:	CK:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0914	00	457	VA
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	AUS	VARIES		159

22A

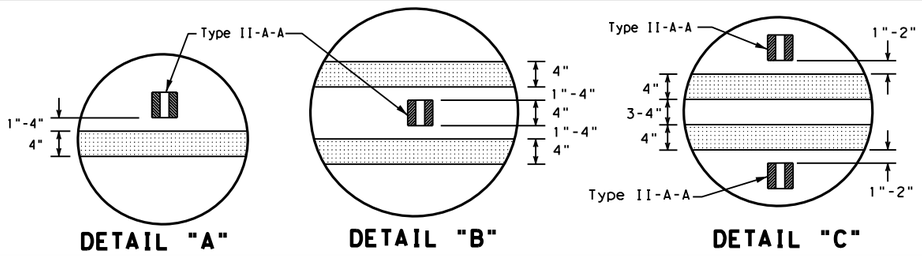
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



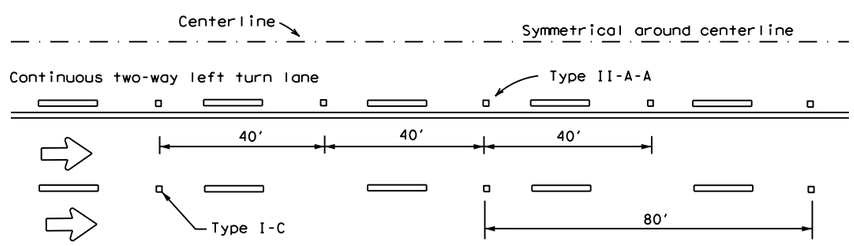
CENTERLINE FOR ALL TWO LANE ROADWAYS



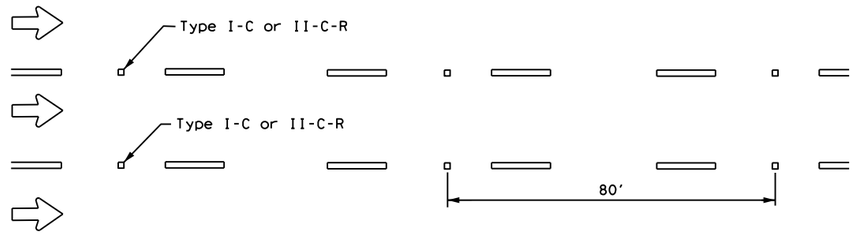
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



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



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE

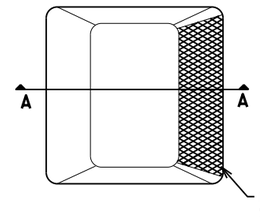


LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

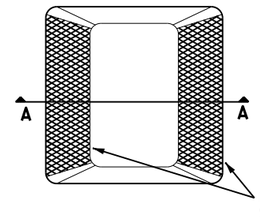
Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.

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

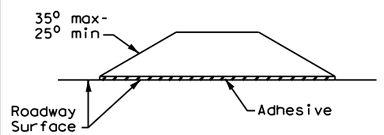
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

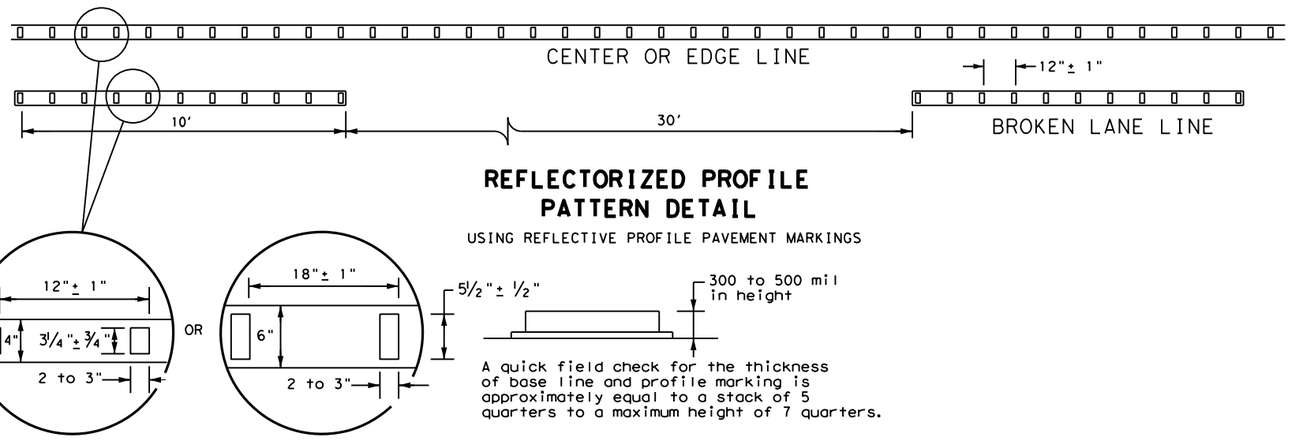


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

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

4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

NOTE

Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

Texas Department of Transportation

Traffic Safety Division Standard

POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-20

FILE: 160	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10	0914	00	457	VA
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	AUS	VARIES		160

22B

DATE: 1/18/2022 3:42:20 PM
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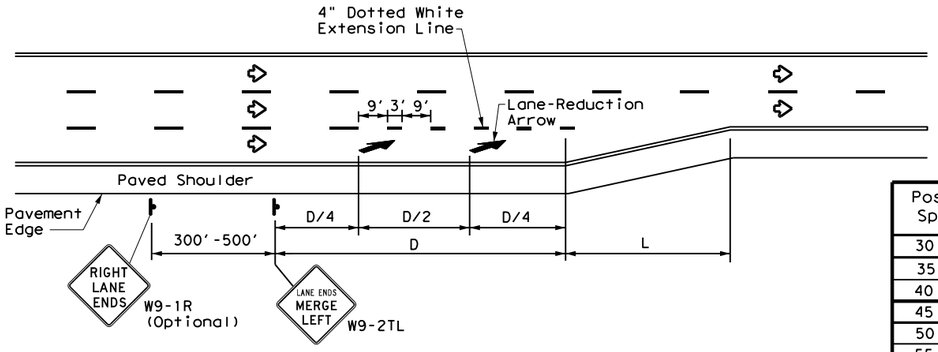
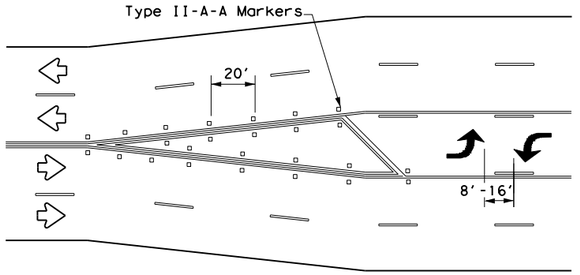


LANE REDUCTION

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

NOTES

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



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

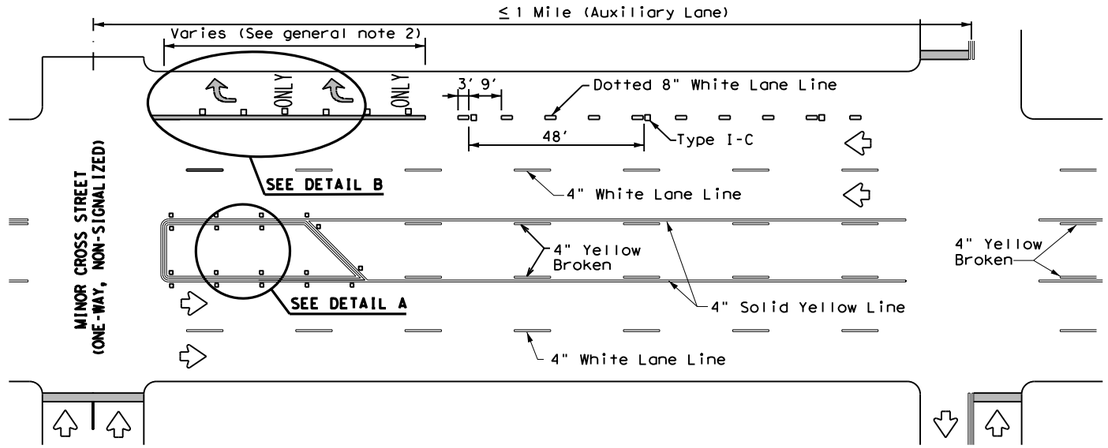
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

GENERAL NOTES

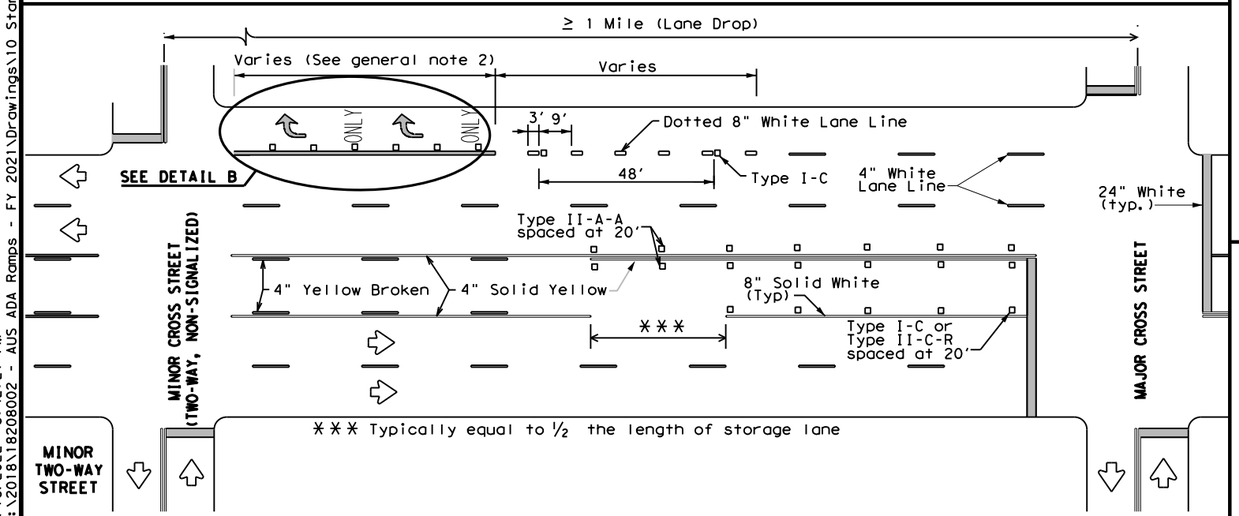
1. Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn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

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

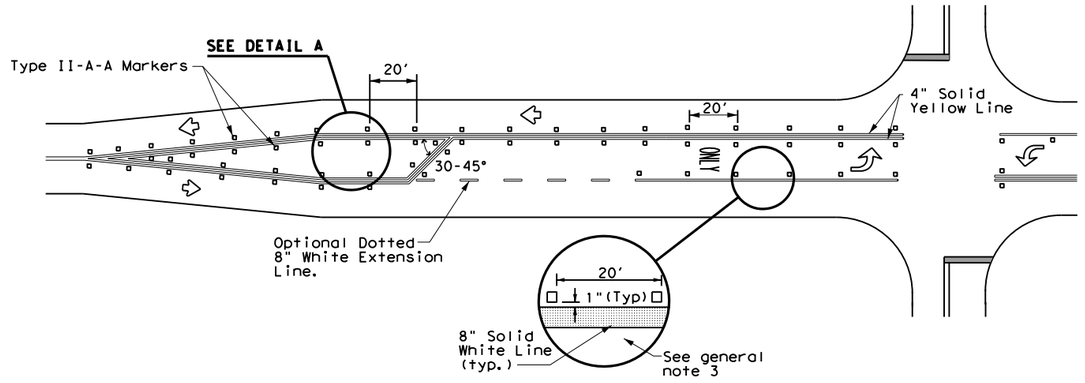
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



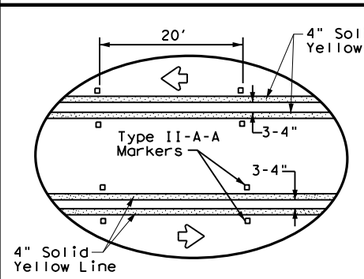
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



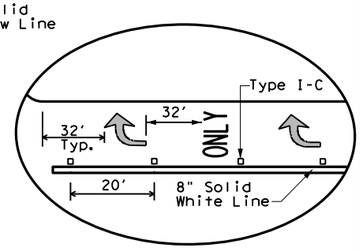
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A



DETAIL B

Texas Department of Transportation

Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: 161	DN:	CK:	DW:	CK:
© TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
5-00 2-10	DIST	COUNTY		SHEET NO.
8-00 2-12	AUS	VARIES		161
3-03 6-20				

22C

DATE: 1/18/2022 3:42:21 PM
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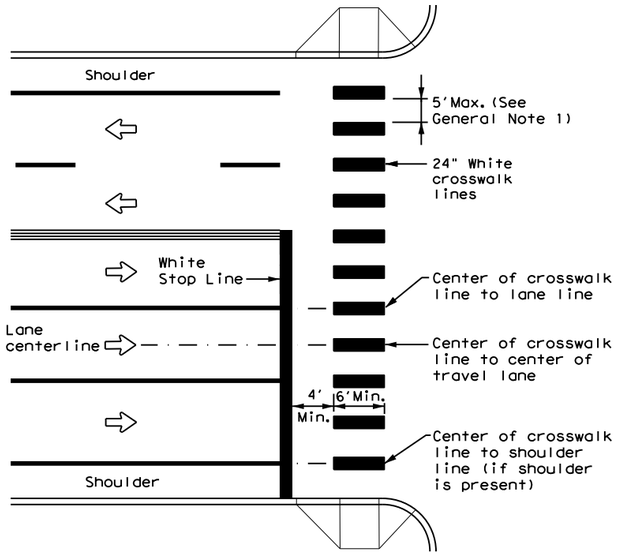


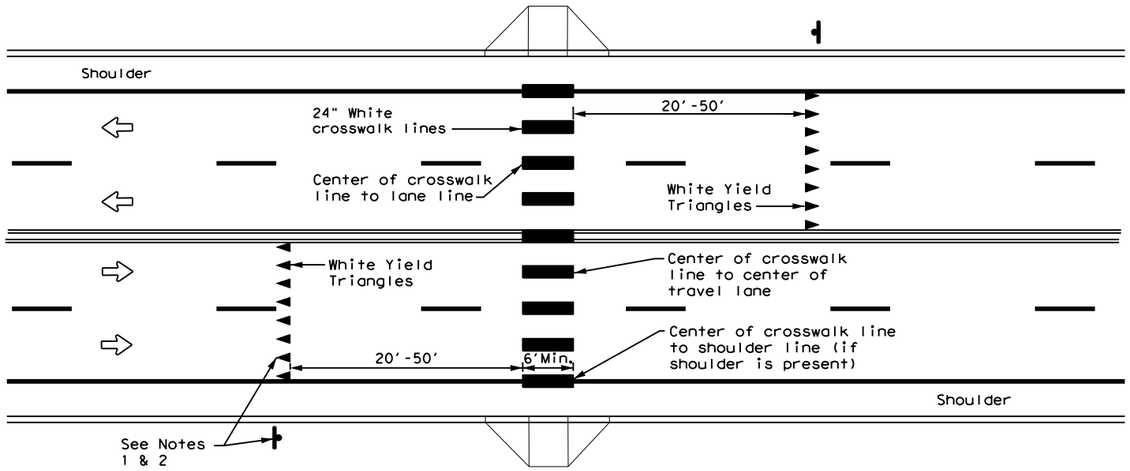
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

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/Yield Triangles 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 yield triangles with "Yield Here to Pedestrians" signs at unsignalized mid block crosswalks.
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)-20

FILE: 162	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
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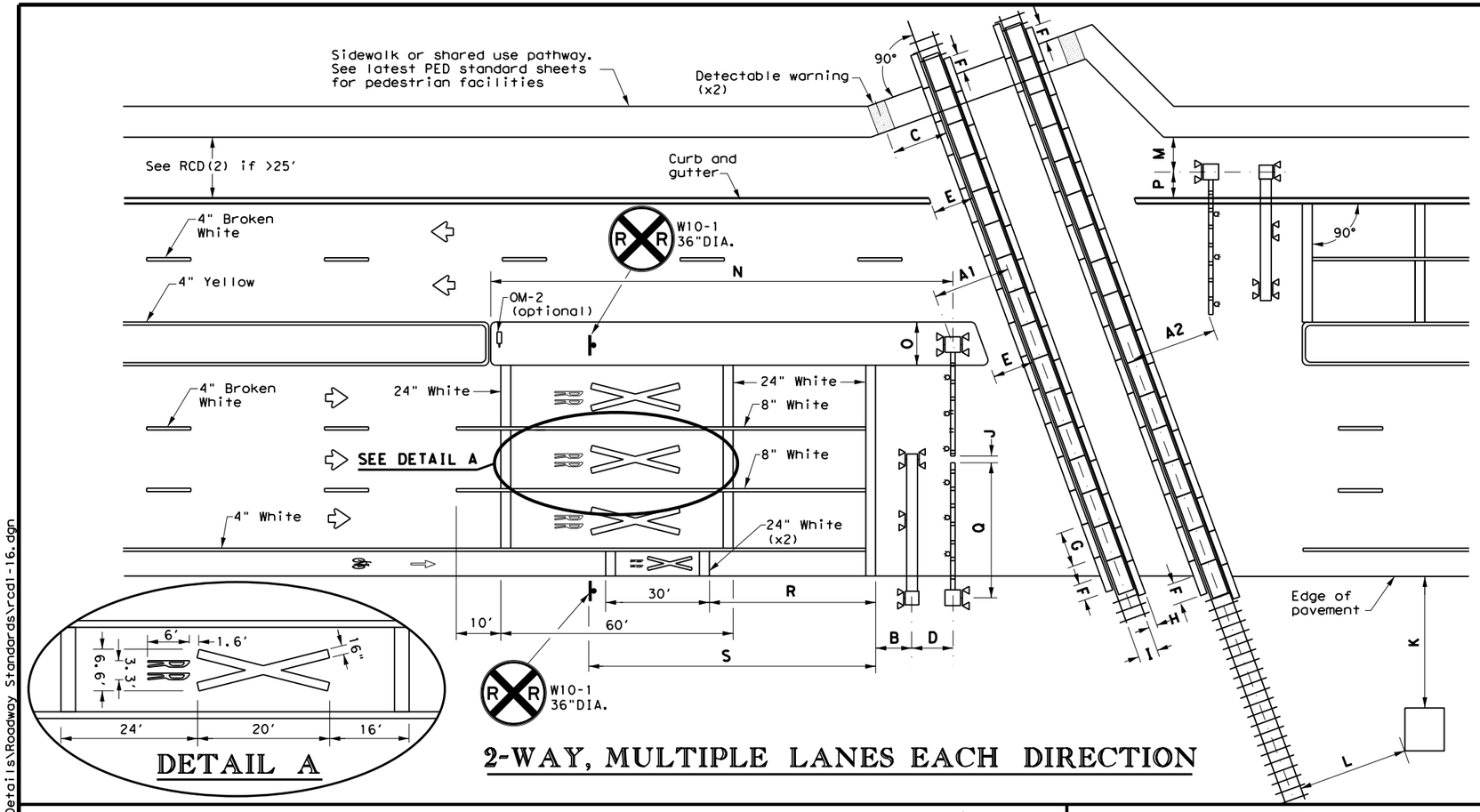
	AUS	VARIES		162

22D



DETAIL A

2-WAY, MULTIPLE LANES EACH DIRECTION

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.

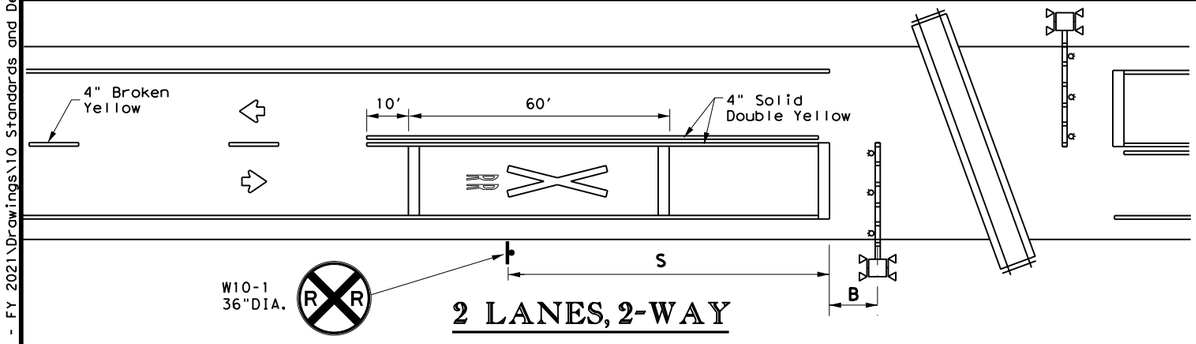
O: Width of median: 8'-6" minimum, 10' typical when using median gates. NOTE: Center of gate mast minimum 4'-3" from face of curb.

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.



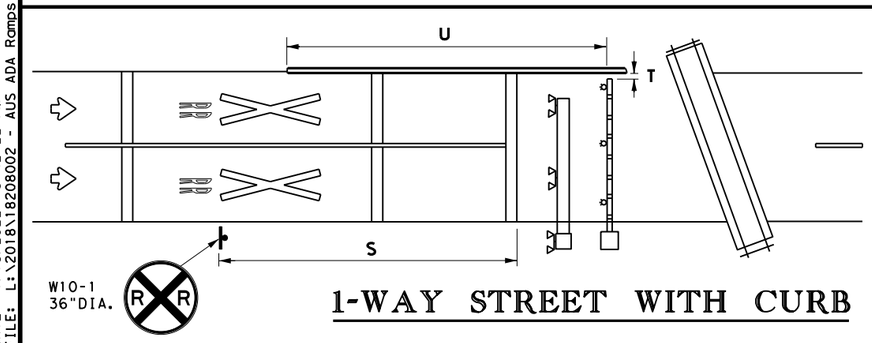
2 LANES, 2-WAY

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.

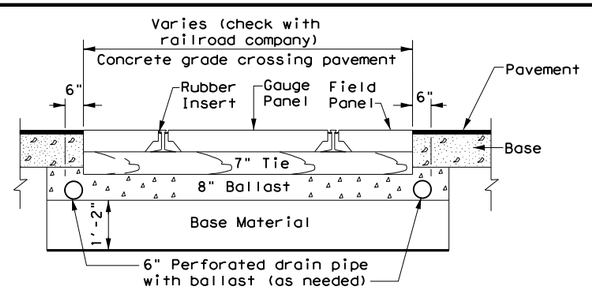


1-WAY STREET WITH CURB

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: 163	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT FEBRUARY 2016	CONT	SECT	JOB	HIGHWAY
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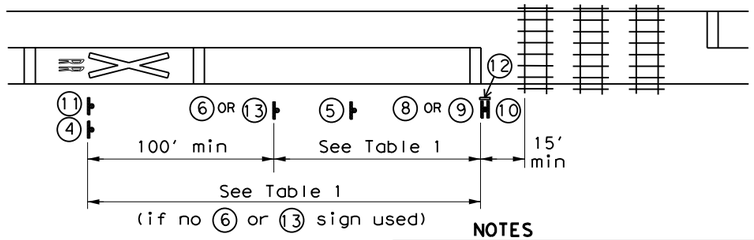
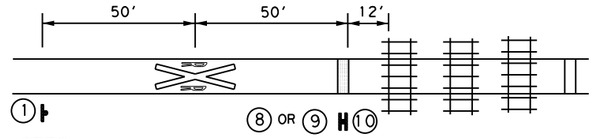


NOTES

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

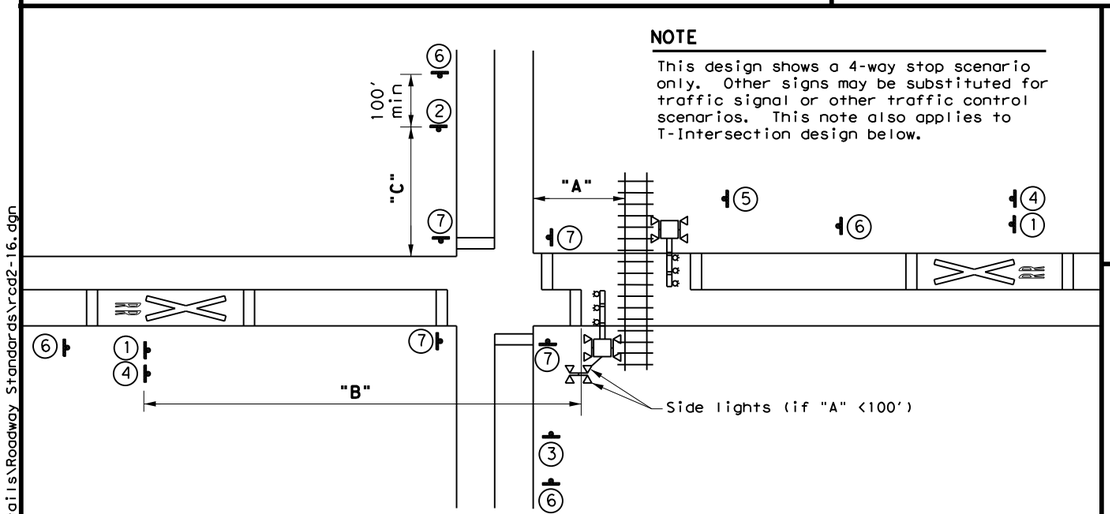
1. A shared use pathway is considered a separate pathway crossing when more than 25' from traveled way of adjacent roadway.
2. Detectable warning used at stop bar.
3. Smaller sign sizes preferred than shown to the right on this sheet.

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.

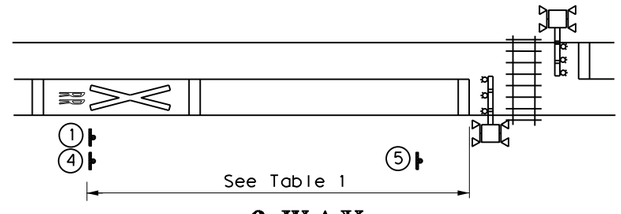


NOTE

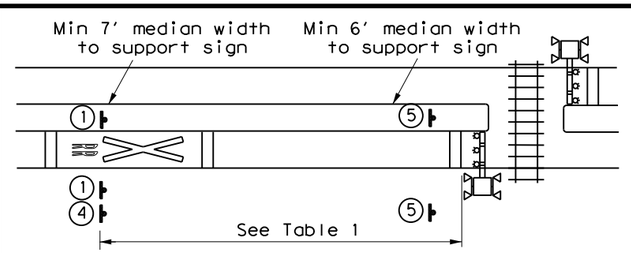
This design shows a 4-way stop scenario only. Other signs may be substituted for traffic signal or other traffic control scenarios. This note also applies to T-Intersection design below.

	"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.

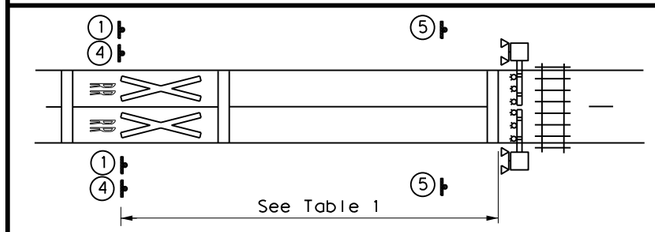
GRADE CROSSING NEAR A PARALLEL STREET



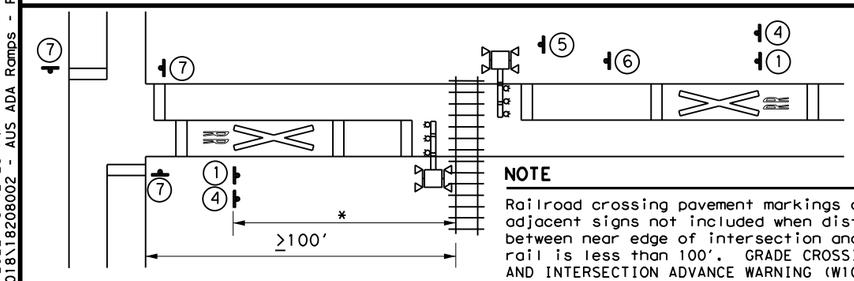
2-WAY



2-WAY WITH MEDIAN



1-WAY

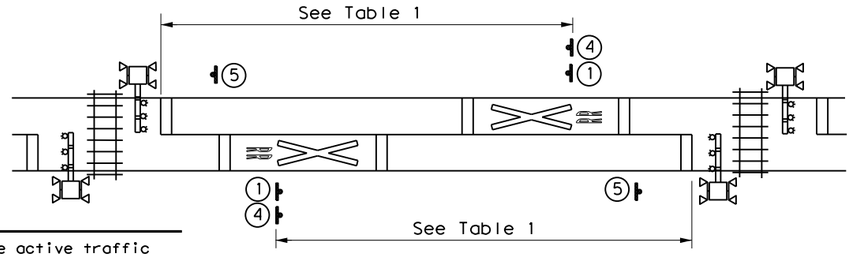


*Use Table 1 if sufficient space exists.

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

**	**	**	IF NEEDED
1 W10-1 36"DIA.	2 W10-2L 36"X36"	3 W10-2R 36"X36"	4 W10-5 36"X36" / W10-5P 30"x24" (LOW GROUND CLEARANCE)
IF NEEDED	IF NEEDED		
5 R8-8 24"X30" (DO NOT STOP ON TRACKS)	6 W3-1 30"X30"	7 R1-1 36"X36" (STOP) / R1-3P 18"X6" (ALL WAY)	R15-1 48"X9" (RAIL CROSSING ROAD) / R15-2P 27"X18" (3 TRACKS) / 8 R1-1 36"X36" (STOP)
R15-1 48"X9" (RAIL CROSSING ROAD) / R15-2P 27"X18" (3 TRACKS) / YIELD 9 R1-2 48"X48"X48"	R15-1 48"X9" (RAIL CROSSING ROAD) / R15-2P 27"X18" (3 TRACKS) 10	11 W10-1 36"DIA. (R R) / W10-13P 30"X24" (NO GATES OR LIGHTS) / **	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: 164	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT FEBRUARY 2016 REVISIONS	CONT	SECT	JOB	HIGHWAY
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DATE: 1/18/2022 3:42:24 PM
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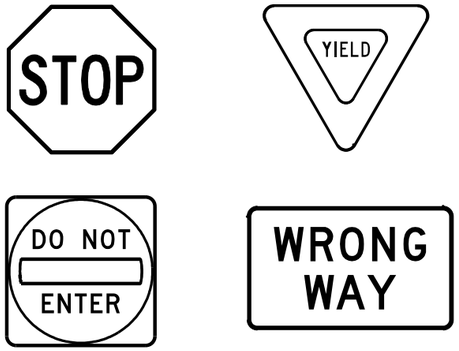
REQUIREMENTS FOR RED BACKGROUND REGULATORY SIGNS

(STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)



REQUIREMENTS FOR FOUR SPECIFIC SIGNS ONLY

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	WHITE	TYPE B OR C SHEETING
LEGEND & BORDERS	WHITE	TYPE B OR C SHEETING
LEGEND	RED	TYPE B OR C SHEETING

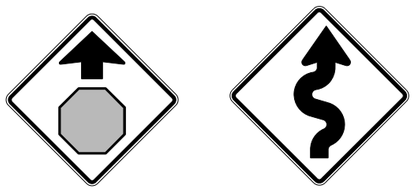
REQUIREMENTS FOR WHITE BACKGROUND REGULATORY SIGNS

(EXCLUDING STOP, YIELD, DO NOT ENTER AND WRONG WAY SIGNS)

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	ALL OTHERS	TYPE B OR C SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND, BORDERS AND SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR WARNING SIGNS



TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	FLOURESCENT YELLOW	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND & BORDERS	BLACK	ACRYLIC NON-REFLECTIVE FILM
LEGEND & SYMBOLS	ALL OTHER	TYPE B OR C SHEETING

REQUIREMENTS FOR SCHOOL SIGNS

TYPICAL EXAMPLES

SHEETING REQUIREMENTS		
USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	WHITE	TYPE A SHEETING
BACKGROUND	FLOURESCENT YELLOW GREEN	TYPE B_{FL} OR C_{FL} SHEETING
LEGEND, BORDERS AND SYMBOLS	BLACK	ACRYLIC NON-REFLECTIVE FILM
SYMBOLS	RED	TYPE B OR C SHEETING

GENERAL NOTES

1. Signs to be furnished shall be as detailed elsewhere in the plans and/or as shown on sign tabulation sheet. Standard sign designs and arrow dimensions can be found in the "Standard Highway Sign Designs for Texas" (SHSD).
2. Sign legend shall use the Federal Highway Administration (FHWA) Standard Highway Alphabets (B, C, D, E, Emod or F).
3. Lateral spacing between letters and numerals shall conform with the SHSD, and any approved changes thereto. Lateral spacing of legend shall provide a balanced appearance when spacing is not shown.
4. Black legend and borders shall be applied by screening process or cut-out acrylic non-reflective black film to background sheeting, or combination thereof.
5. White legend and borders shall be applied by screening process with transparent colored ink, transparent colored overlay film to white background sheeting or cut-out white sheeting to colored background sheeting, or combination thereof.
6. Colored legend shall be applied by screening process with transparent colored ink, transparent colored overlay film or colored sheeting to background sheeting, or combination thereof.
7. Sign substrate shall be any material that meets the Departmental Material Specification requirements of DMS-7110 or approved alternative.
8. Mounting details for roadside mounted signs are shown in the "SMD series" Standard Plan Sheets.

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

DEPARTMENTAL MATERIAL SPECIFICATIONS	
ALUMINUM SIGN BLANKS	DMS-7110
SIGN FACE MATERIALS	DMS-8300

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

http://www.txdot.gov/

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(4)-13

FILE: tsr4-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
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12-03 7-13 9-08	DIST	COUNTY		SHEET NO.
	AUS	VARIES		165

DATE: 1/18/2022 3:42:25 PM
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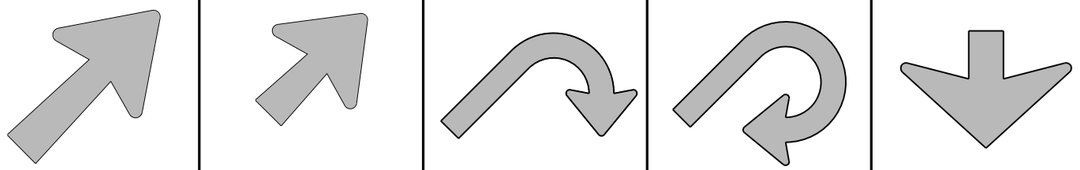
ARROW DETAILS

for Large Ground-Mounted and Overhead Guide Signs



TYPE	LETTER SIZE	USE
A-1	10.67" U/L and 10" Caps	Single Lane Exits
A-2	13.33" U/L and 12" Caps	
A-3	16" & 20" U/L	
B-1	10.67" U/L and 10" Caps	Multiple Lane Exits
B-2	13.33" U/L and 12" Caps	
B-3	16" & 20" U/L	

CODE	USED ON SIGN NO.
E-3	E5-1aT
E-4	E5-1bT

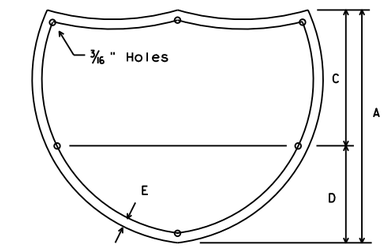
NOTE

Arrow dimensions are shown in the "Standard Highway Sign Designs for Texas" manual.

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

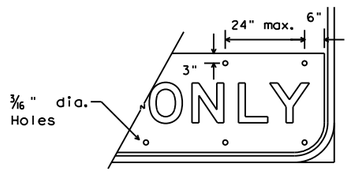
http://www.txdot.gov/

SIGN BLANK PUNCHING DETAILS FOR ATTACHMENTS WHEN SPECIFIED TO BE TYPE A ALUMINUM SIGNS (FOR MOUNTING TO GUIDE SIGN FACE)

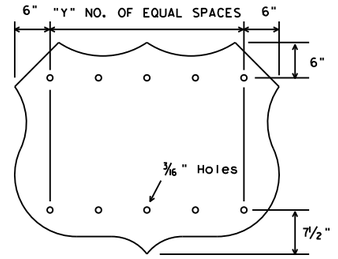


INTERSTATE ROUTE MARKERS

A	C	D	E
36	21	15	1 1/2
48	28	20	1 3/4

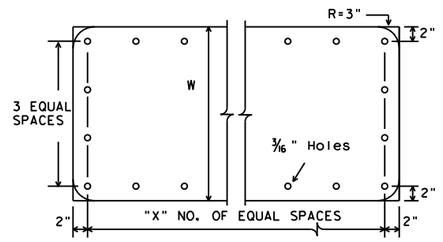


EXIT ONLY PANEL



U.S. ROUTE MARKERS

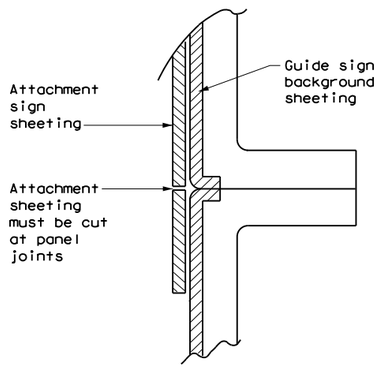
Sign Size	"Y"
24x24	2
30x24	3
36x36	3
45x36	4
48x48	4
60x48	5



STATE ROUTE MARKERS

No. of Digits	W	X
4	24	4
4	36	5
4	48	6
3	24	3
3	36	4
3	48	5

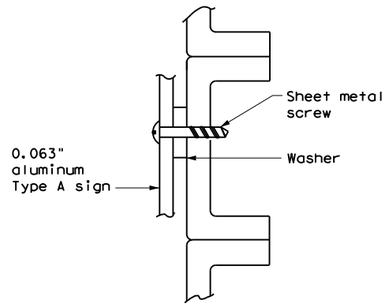
MOUNTING DETAILS OF ATTACHMENTS TO GUIDE SIGN FACE ("EXIT ONLY" AND "LEFT EXIT" PANELS, ROUTE MARKERS AND OTHER ATTACHMENTS)



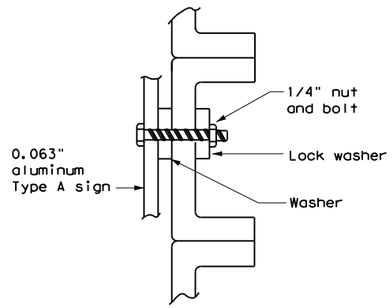
DIRECT APPLIED ATTACHMENT

NOTE:

1. Sheeting for legend, symbols, and borders must be cut at panel joints.
2. Direct applied attachment signs will be subsidiary to "Aluminum Signs" or "Fiberglass Signs".



SCREW ATTACHMENT



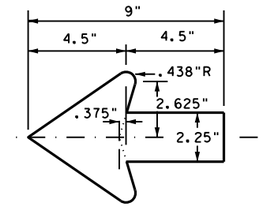
NUT/BOLT ATTACHMENT

NOTE:

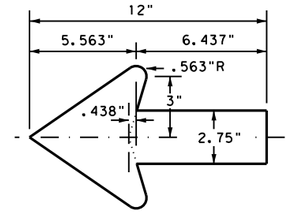
Furnish Type A aluminum sign attachments only when specified in the plans. These signs will be paid for under "Aluminum Signs".

ARROW DETAILS

for Destination Signs (Type D)



Standard arrow to be used with 6 inch letters.



Standard arrow to be used with 8 inch letters.

Texas Department of Transportation

Traffic Operations Division Standard

TYPICAL SIGN REQUIREMENTS

TSR(5)-13

FILE: tsr5-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2003	CONT	SECT	JOB	HIGHWAY
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9-08	AUS	VARIES		166

DATE: 1/18/2022 3:42:25 PM
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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

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© TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
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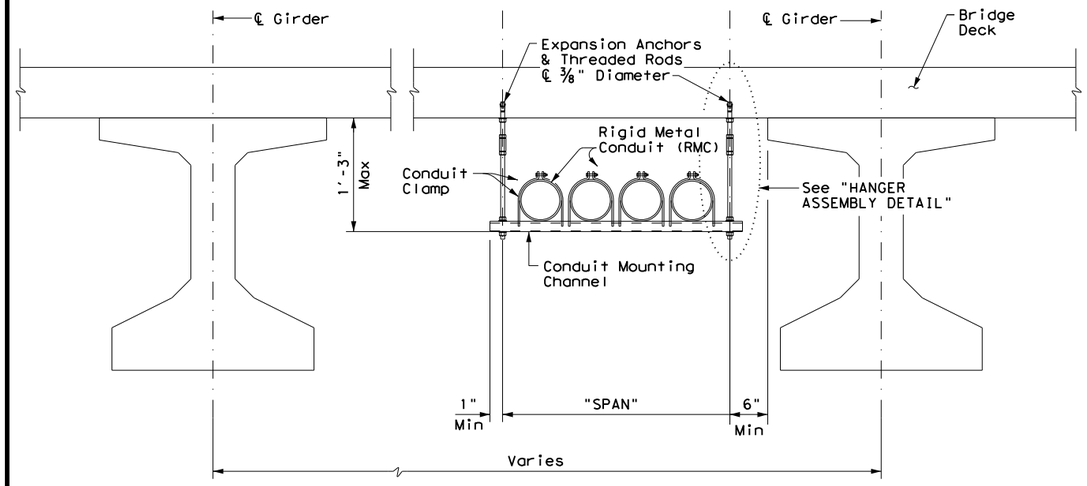
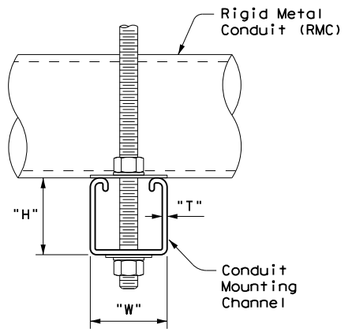
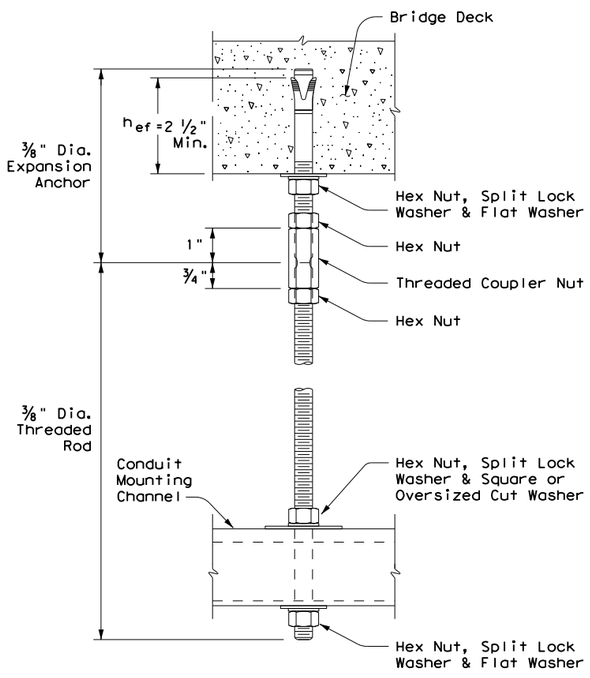


CONDUIT HANGING DETAIL

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.

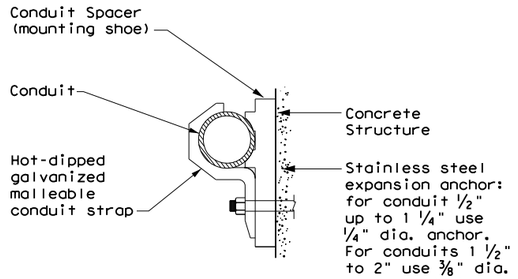
Channels with round or short slotted hole patterns are allowed, if the load carrying capacity is not reduced by more than 15%.

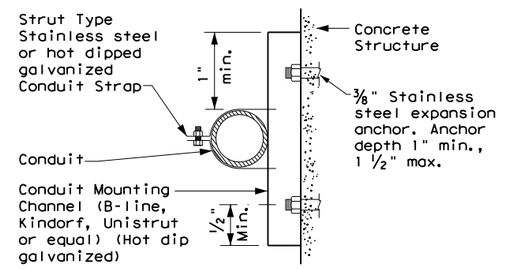




HANGER ASSEMBLY DETAIL

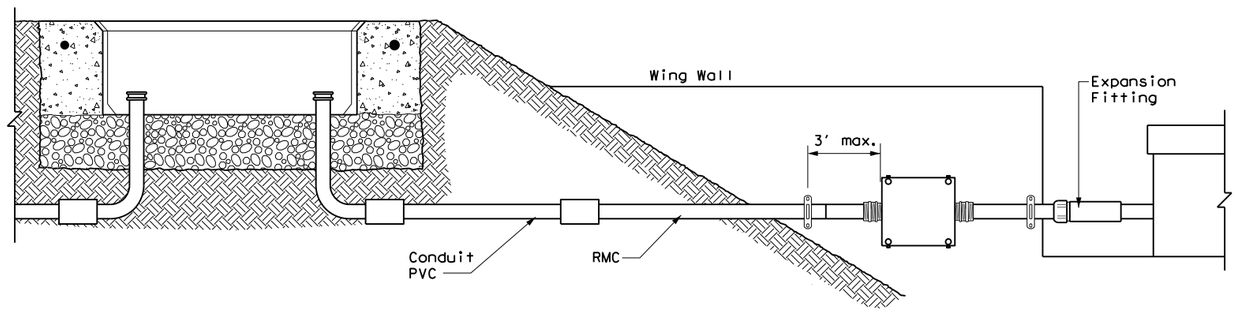
ELECTRIC CONDUIT TO BRIDGE DECK ATTACHMENT





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

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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.

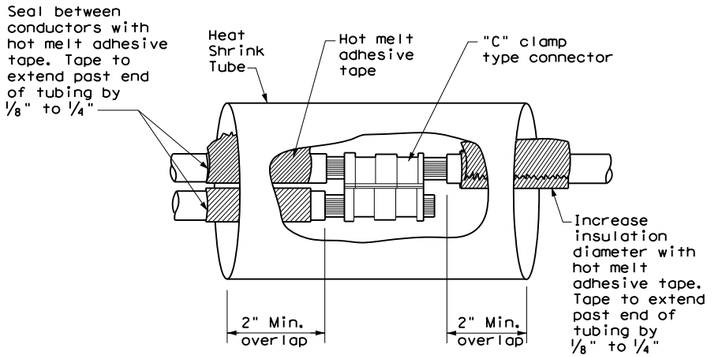
3. Install ground rods so the imprinted part number is at the upper end of the rod.

4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.

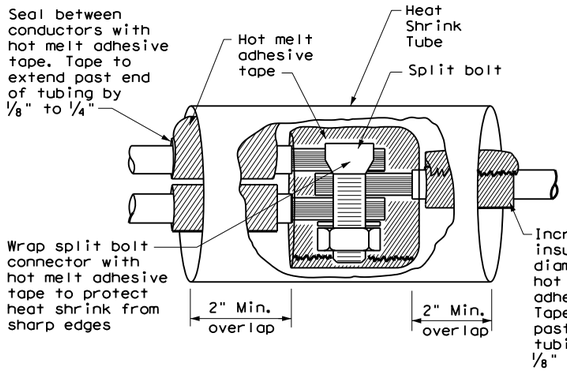
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.

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.

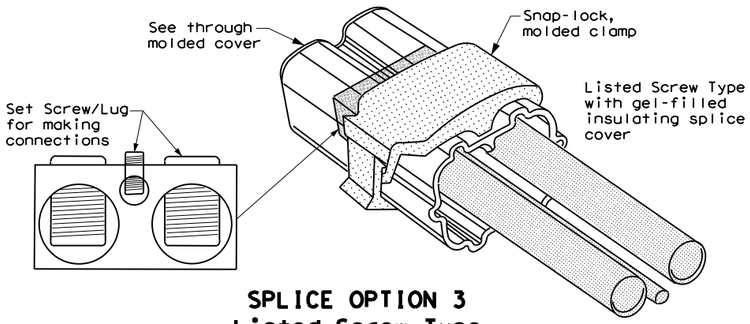
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



SPLICE OPTION 1
Compression Type



SPLICE OPTION 2
Split Bolt Type



SPLICE OPTION 3
Listed Screw Type

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS CONDUCTORS

ED(3)-14

FILE: 169	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
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	AUS	VARIES		169

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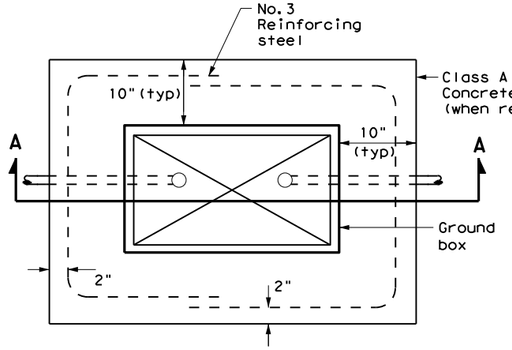
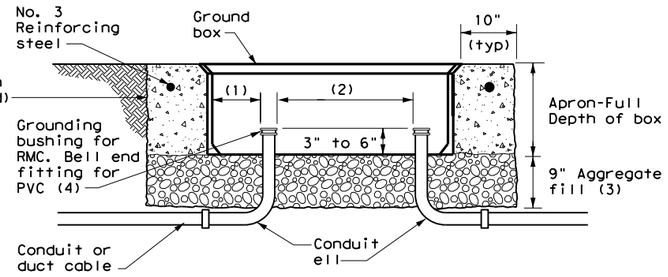


PLAN VIEW



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.

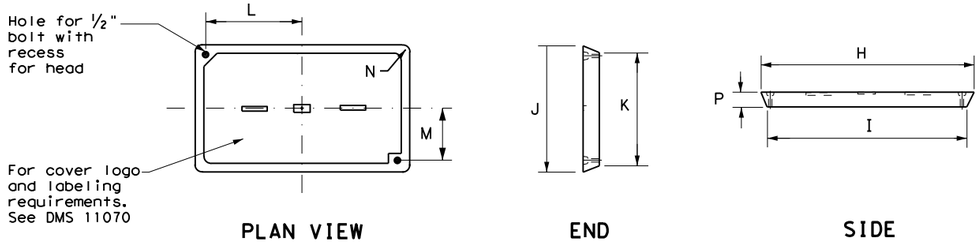
(2) Maintain sufficient space between conduits to allow for proper installation of bushing.

(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 END 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

FILE: 170	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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ELECTRICAL SERVICES NOTES

1. Provide new materials. Ensure installation and materials comply with the applicable provisions of the National Electrical Code (NEC) and National Electrical Manufacturers Association (NEMA) standards. Ensure material is Underwriters Laboratories (UL) listed. Provide and install electrical service conduits, conductors, disconnects, contactors, circuit breaker panels, and branch circuit breakers as shown on the Electrical Service Data chart in the plans. Faulty fabrication or poor workmanship in material, equipment, or installation is justification for rejection. Where manufacturers provide warranties and guarantees as a customary trade practice, furnish these to the State.

2. Provide electrical services in accordance with Electrical Details standard sheets, Departmental Material Specification (DMS) 11080 "Electrical Services,"DMS 11081 "Electrical Services-Type A," DMS 11082 "Electrical Services-Type C," DMS 11083 "Electrical Services-Type D," DMS 11084 "Electrical Services-Type T," DMS 11085 "Electrical Services-Pedestal (PS)", and Item 628 "Electrical Services" of the Standard Specifications. Provide electrical service types A, C, and D, as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies," Item 628. Provide other service types as detailed on the plans.

3. Provide all work, materials, services, and any incidentals needed to install a complete electrical service as specified in the plans.

4. Coordinate with the Engineer and the utility provider for metering and compliance with utility requirements. Primary line extensions, connection charges, meter charges, and other charges by the utility company to provide power to the location are paid for in accordance with Item 628. Get approval for the costs associated with these charges prior to engaging the utility company to do the work. Consult with the utility provider to determine costs and requirements, and coordinate the work as approved.

5. The enclosure manufacturer will provide Master Lock Type 2 with brass tumblers keyed #2195 for all custom electrical enclosures. Installing Contractor is to provide Master Lock #2195 Type 2 with brass tumblers for "off the shelf" enclosures. Master Lock #2195 keys and locks become property of the State. Unless otherwise approved, do not energize electrical service equipment until locks are installed.

6. Enclosures with external disconnects that de-energize all equipment inside the enclosure do not need a dead front trim. Protect incoming line terminations from incidental contact as required by the NEC.

7. When galvanized is specified for nuts, screws, bolts or miscellaneous hardware, stainless steel may be used.

8. Provide wiring and electrical components rated for 75°C. Provide red, black, and white colored XHHW service entrance conductors of minimum size 6 American Wire Gauge (AWG). Identify size 6 AWG conductors by continuous color jacket. Identify electrical conductors sized 4 AWG and larger by continuous color jacket or by colored tape. Mark at least 6 inches of the conductor's insulation with half laps of colored tape, when identifying conductors. Ensure each service entrance conductor exits through a separately bushed non-metallic opening in the weatherhead. The lengths of the conductors outside the weatherhead are to be 12 inches minimum, 18 inches maximum, or as required by utility.

9. All electrical service conduit and conductors attached to the electrical service including the riser or the elbow below ground are subsidiary to the electrical service. For an underground utility feed, all service conduit and conductors after the elbow, including service conduit and conductors for the utility pole riser when furnished by the Contractor, will be paid for separately.

10. Provide rigid metal conduit (RMC) for all conduits on service, except for the ½ in. PVC conduit containing the electrical service grounding electrode conductor. Size the service entrance conduit as shown in the plans. Ensure conduit for branch circuit entry to enclosure is the same size as that shown on the layout sheets for branch circuit conduit. Extend all rigid metal conduits a minimum of 6 inches underground and then couple to the type and schedule of the conduit shown on the layout for that particular branch circuit. Install a grounding bushing on the RMC where it terminates in the service enclosure.

11. Use of liquidtight flexible metal conduit (LFMC) is allowed between the meter and service enclosure when they are mounted 90 to 180 degrees to each other. Size the LFMC the same size as service entrance conduit. LFMC must not exceed 3 feet in length. Strap LFMC within 1 foot of each end. LFMC less than 12 inches in length need not be strapped. Each end of LFMC must have a grounding bushing or be terminated with a grounding fitting. The LFMC must contain a grounded (neutral) conductor. Ensure any bend in LFMC never exceeds 180 degrees. A pull test is required on all installed conductors, with at least six inches of free conductor movement demonstrated to the satisfaction of the Engineer.

12. Ensure all mounting hardware and installation details of services conform to utility company specifications.

13. For all electrical service enclosures listed under Item 628 on the MPL, the UL 508 enclosure manufacturers will prepare and submit a schematic drawing unique to each service. Before shipment to the job site, place the applicable laminated schematic drawings and the laminated plan sheet showing the electrical service data chart used to build the enclosure in the enclosure's data pocket. The installing contractor will copy and laminate the actual project plan sheets detailing all equipment and branch circuits supplied by that service. The laminated plan sheets are to be placed in the service enclosure's document pocket. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in. before laminating. If the installation differs from the plan sheets, the installing contractor is to redline plan sheets before laminating.

14. When providing an "Off The Shelf" Type D or Type T service, provide laminated plan sheets detailing equipment and branch circuits supplied by that service. Reduce 11 in. x 17 in. plan sheets to 8 ½ in. x 11 in before laminating. Deliver these drawings before completion of the work to the Engineer, instead of placing in enclosure that has no door pocket.

15. Do not install conduit in the back wall of a service enclosure where it would penetrate the equipment mounting panel inside the enclosure. Provide grounding bushings on all metal conduits, and terminate bonding jumpers to grounding bus. Grounding bushings are not required when the end of the metal conduit is fitted with a conduit sealing hub or threaded boss, such as a meter base hub.

SERVICE ASSEMBLY ENCLOSURE

1. Provide threaded hub for all conduit entries into the top of enclosure.

2. Type galvanized steel (GS) enclosures may be used for Type C panelboards and for Type D and T services that do not use an enclosure mounted photocell or lighting contactor. Provide GS enclosures in accordance with DMS 11080, 11082, 11083, and 11084.

3. Provide aluminum (AL) and stainless steel (SS) enclosures for Types A, C, and D in accordance with DMS 11080, 11081, 11082, 11083, and 11084. Do not paint stainless steel.

4. Provide pedestal service (PS) enclosures in accordance with ED(9) and DMS 11080 and 11085. Do not provide GS pedestal services. If GS is shown in the PS descriptive code, provide an AL enclosure.

MAIN DISCONNECT & BRANCH CIRCUIT BREAKERS

1. Field drill flange-mounted remote operator handle if needed, to ensure handle is lockable in both the "On" and "Off" positions.

2. When the utility company provides a transformer larger than 50 KVA, verify that the available fault current is less than the circuit breaker's ampere interrupting capacity (AIC) rating and provide documentation from the electric utility provider to the Engineer.

PHOTOELECTRIC CONTROL

1. Provide photocell as listed on the MPL. Move, adjust, or shield the photocell from stray or ambient night time light to ensure proper operation. Mount photocell facing north when practical. Mount top of pole photocells as shown on Top Mounted Photocell Detail.

*ELECTRICAL SERVICE DATA

Elec. Service ID	Plan Sheet Number	Electrical Service Description	Service Conduit **Size	Service Conductors No./Size	Safety Switch Amps	Main Ckt. Bkr. Pole/Amps	Two-Pole Contractor Amps	Panelbd/ Loadcenter Amp Rating	Branch Circuit ID	Branch Ckt. Bkr. Pole/Amps	Branch Circuit Amps	KVA Load
SB 183	289	ELC SRV TY A 240/480 100(SS)AL(E)SF(U)	2"	3/#2	100	2P/100	100	N/A	Lighting NB	2P/40	26	28.1
									Lighting SB	2P/40	25	
									Underpass	1P/20	15	
NB Access	30	ELC SRV TY D 120/240 060(NS)SS(E)TS(O)	1 ¼"	3/#6	N/A	2P/60		100	Sig. Controller	1P/30	23	5.3
							30		Luminaires	2P/20	9	
									CCTV	1P/20	3	
2nd & Main	58	ELC SRV TY T 120/240 000(NS)GS(N)SP(O)	1 ¼"	3/#6	N/A	N/A	N/A	70	Flashing Beacon 1	1P/20	4	1.0
									Flashing Beacon 2	1P/20	4	

* Example only, not for construction. All new electrical services must have electrical service data chart specific to that service as shown in the plans.

** Verify service conduit size with utility. Size may change due to utility meter requirements. Ensure conduit size meets the National ELectrical Code.

EXPLANATION OF ELECTRICAL SERVICE DESCRIPTIVE CODE

ELEC SERV TY X XXX/XXX XXX (XX) XX (X) XX (X)

Schematic Type

Service Voltage V / V

Disconnect Amp Rating
000 indicates main lug only/
Typically Type T

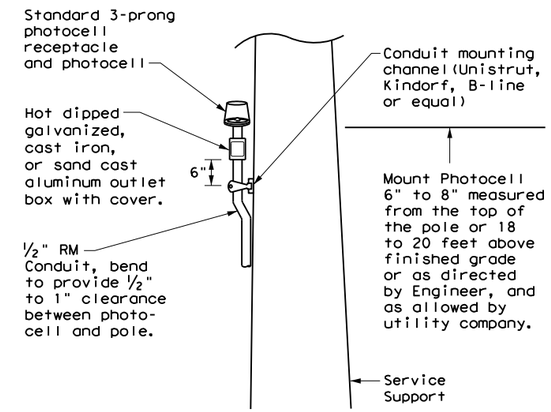
(SS)= Safety Switch Ahead of Meter-Check with Utility
(NS)= No safety Switch Ahead of Meter-Check with Utility

Enclosure Type
GS= Galvanized steel("off the shelf")
SS= Stainless steel(Custom Enclosure)See MPL
AL= Aluminum (Custom Enclosure)See MPL

Photocell Mounting Location
(E)= Inside Service/Enclosure Mounted
(T)= Top of pole
(L)= Luminaire mounted
(N)= None/No Photocell or Lighting Contactor Required

Service Support Type
GC= Granite concrete
OC= Other concrete
TP= Timber pole
SP= Steel pole
SF= Steel frame
OT= Pole by others or paid for separately
EX= Existing pole
TS= Service on traffic signal pole
PS= Pedestal Service

O= Overhead Service Feed from Utility
U= Underground Service Feed from Utility



TOP MOUNTED PHOTOCELL

Install conduit strap maximum 3 feet from box. 5 foot maximum spacing between straps supporting conduit.

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE NOTES & DATA

ED(5)-14

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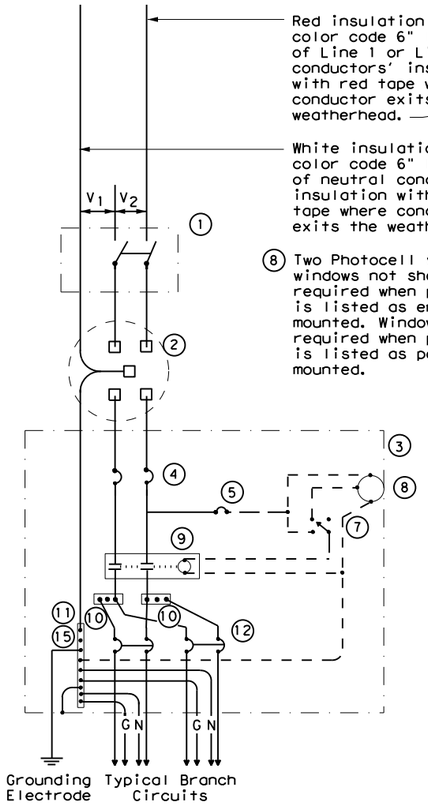
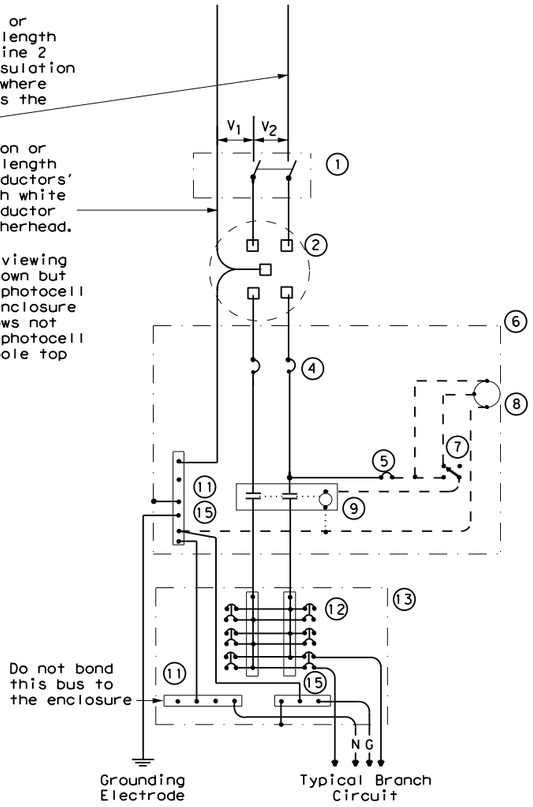
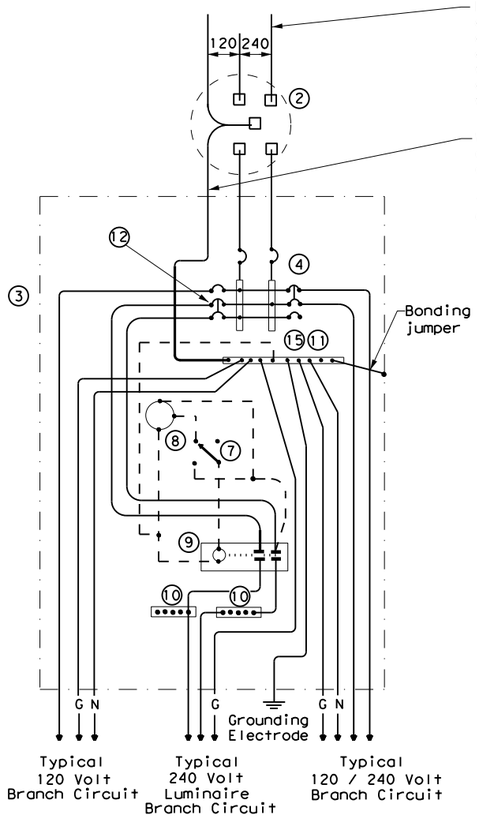


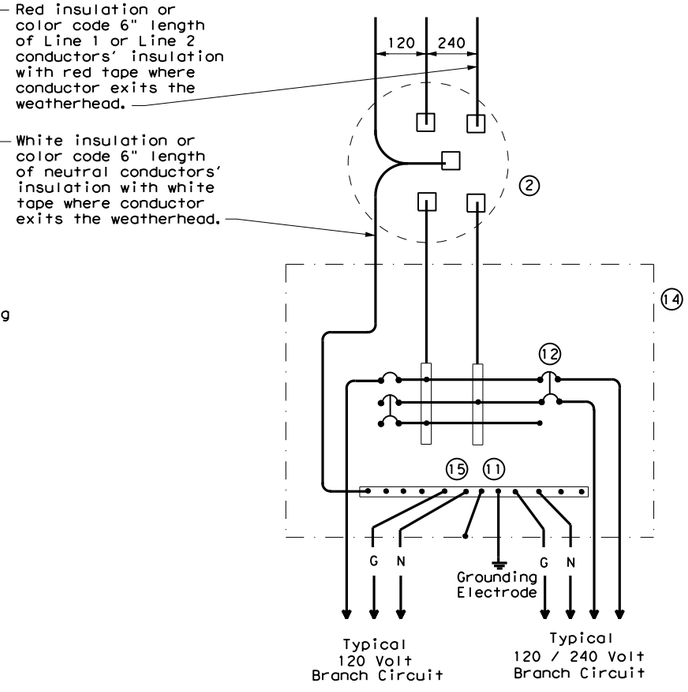
SCHEMATIC TYPE A
THREE WIRE



SCHEMATIC TYPE C
THREE WIRE



SCHEMATIC TYPE D - CUSTOM
120/240 VOLTS - THREE WIRE



SCHEMATIC TYPE T
120/240 VOLTS - THREE WIRE

Galvanized steel-"Buy Off The Shelf" only. When required install photocell top of the pole or on luminaire only, no lighting contractor will be installed.

WIRING LEGEND	
———	Power Wiring
- - - -	Control Wiring
—N—	Neutral Conductor
—G—	Equipment grounding conductor-always required

SCHEMATIC LEGEND	
1	Safety Switch (when required)
2	Meter (when required-verify with electric utility provider)
3	Service Assembly Enclosure
4	Main Disconnect Breaker (See Electrical Service Data)
5	Circuit Breaker, 15 Amp (Control Circuit)
6	Auxiliary Enclosure
7	Control Station ("H-O-A" Switch)
8	Photo Electric Control (enclosure-mounted shown)
9	Lighting Contactor
10	Power Distribution Terminal Blocks
11	Neutral Bus
12	Branch Circuit Breaker (See Electrical Service Data)
13	Separate Circuit Breaker Panelboard
14	Load Center
15	Ground Bus

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE ENCLOSURE AND NOTES

ED(6)-14

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SUPPORT TYPE STEEL POLE (SP) AND STEEL FRAME (SF)

1. Provide steel pole and steel frame supports as per TxDOT Departmental Material Specification (DMS)11080 "Electrical Services." Mount all equipment and conduit on 12 gauge galvanized steel or stainless steel channel strut, 1 ½ in. or 1 ⅝ in. wide by 1 in. up to 3 ¾ in. deep Unistrut, Kindorf, B-line or equal. Bolt or weld all channel and hardware to vertical members as approved. Do not stack channel. File smooth and paint field cut ends of all channel with zinc-rich paint before installing.

2. Provide poles for overhead service with an eyebolt or similar fitting for attachment of the service drop to the pole in conformance with the electric utility provider's specifications.

3. Provide and install galvanized ¾ in. x 18 in. x 4 in. (dia. x length x hook length) anchor bolts for underground service supports. Provide and install galvanized ¾ in. x 56 in. x 4 in. anchor bolts for overhead service supports. Ensure anchor bolts have 3 in of thread, with 3 ¼ in. to 3 ½ in. of the exposed anchor bolt projecting above finished foundation. Provide and install leveling nuts for all anchor bolts.

4. Bond one of the anchor bolts to the rebar cage with 6 AWG bare stranded copper conductor. Use listed mechanical connectors rated for embedment in concrete. See Inset B.

5. Furnish and install rigid metallic ells in all steel pole and steel frame foundations for all conduits entering the service from underground.

6. Use class C concrete for foundations. Ensure reinforcing steel is Grade 60 with 3" of unobstructed concrete cover.

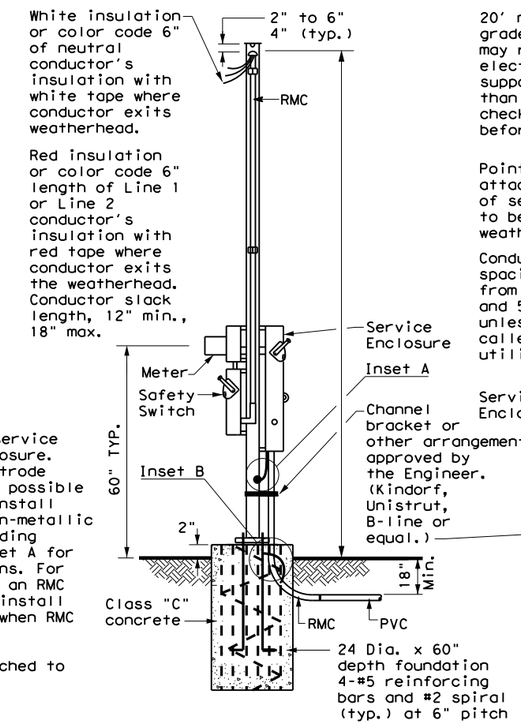
7. Drill and tap steel poles and frames for ½ in. X 13 UNC tank ground fitting. For steel pole service supports, provide and install tank ground fitting 4 in. to 6 in. below electrical service enclosure. Provide properly sized hole through the bottom of the enclosure for the service grounding electrode conductor. Ensure electrical service grounding electrode conductor is as short and straight as possible from the enclosure to the tank ground fitting. For steel frame service supports, provide and install tank ground fitting on steel frame post. Install service grounding electrode conductor in a non-metallic conduit or tubing from the enclosure to the steel frame post. Connect electrical service grounding electrode conductor to the tank ground fitting. See steel frame and steel pole details and Inset A for more information. Size service entrance conduit and branch circuit conduit as shown in the plans. For underground conduit runs from the electrical service, extend RMC from the service enclosure to an RMC elbow, and then connect the schedule type and size of conduit shown in the plans. Provide and install grounding bushings where RMC terminates in the enclosure. Grounding bushings are not required when RMC is fitted into a sealing hub or threaded boss.

8. If Steel pole or frame is painted, bond each separate painted piece with a bonding jumper attached to a tapped hole.

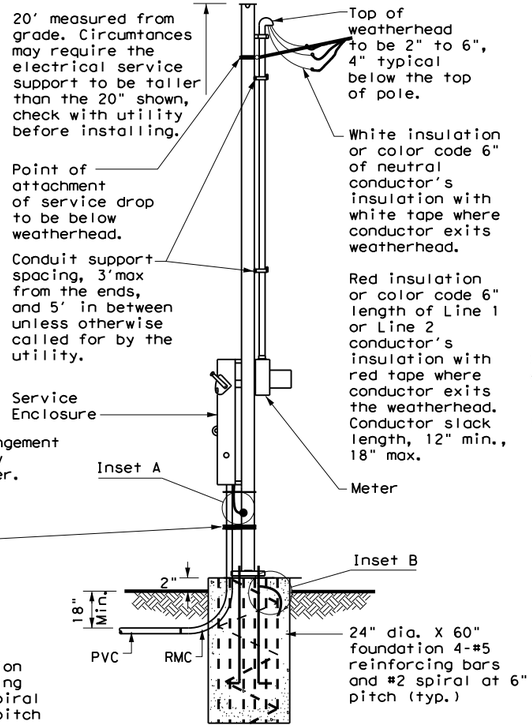
9. Provide ¼" - 20 machine screws for bonding. Do not use sheet metal screws. Remove all non-conductive material at contact points. Terminate bonding jumpers with listed devices. Install minimum size 6 AWG stranded copper bonding jumpers. Make up all threaded bonding connections wrench tight.

10. Avoid contact of the service drop and service entrance conductors with the metal pole to prevent abrasion of the insulated conductors.

11. Shop drawings are not required for service support structure unless specifically stated elsewhere or directed by the Engineer.

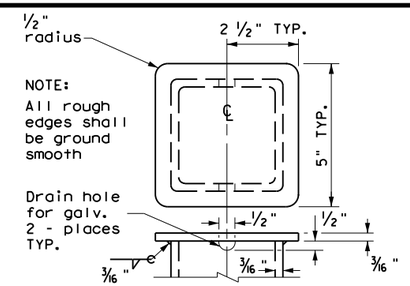


WITH SAFETY SWITCH

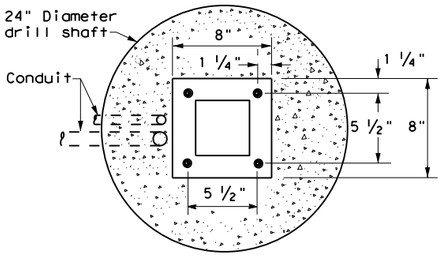


WITHOUT SAFETY SWITCH

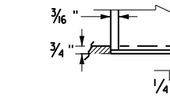
SERVICE SUPPORT TYPE SP (O) - OVERHEAD SERVICE



POLE TOP PLATE

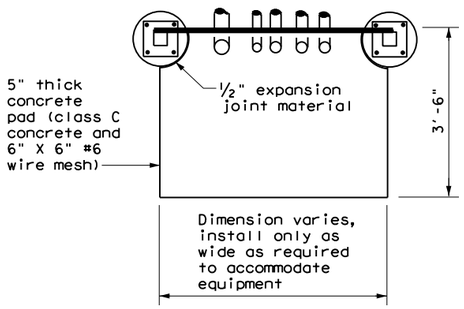


BASE PLATE DETAIL



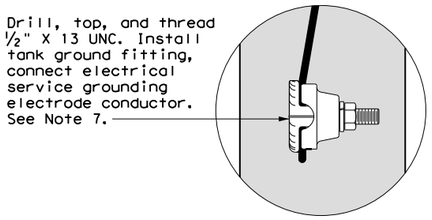
BOTTOM OF POLE

SERVICE SUPPORT TYPE SF & SP



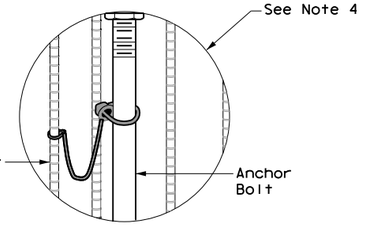
TOP VIEW

SERVICE SUPPORT TY SF (O) & SF (U)

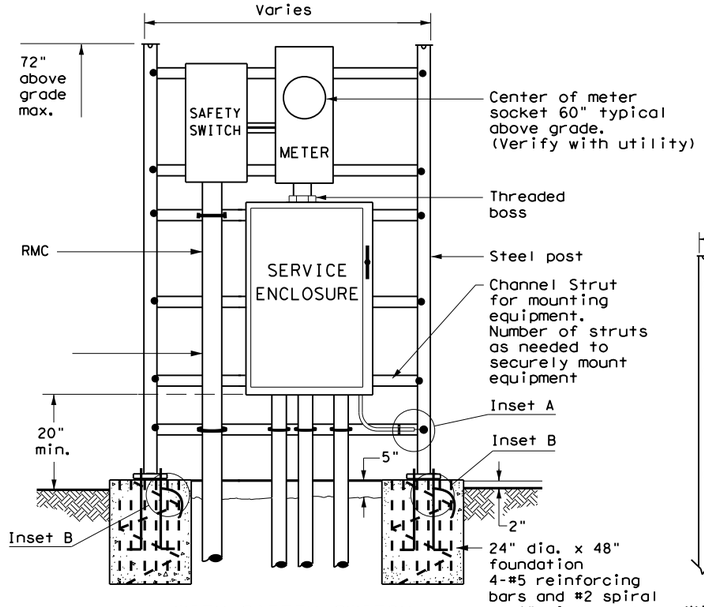


FRONT VIEW

INSET A

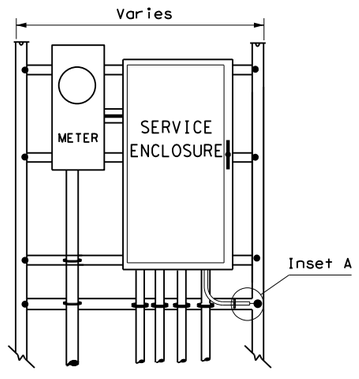


INSET B



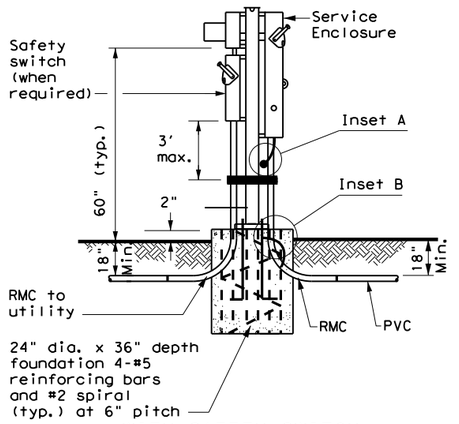
WITH SAFETY SWITCH

FRONT VIEW

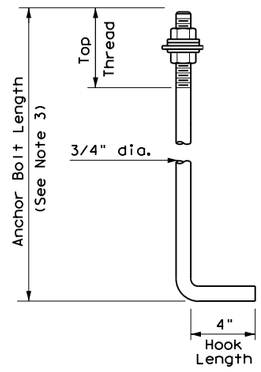


WITHOUT SAFETY SWITCH

SERVICE SUPPORT TYPE SF(U) - UNDERGROUND SERVICE



WITH SAFETY SWITCH



HOOKED ANCHOR DETAIL

SERVICE SUPPORT TYPE SP(U) - UNDERGROUND SERVICE

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES SF & SP

ED(7)-14

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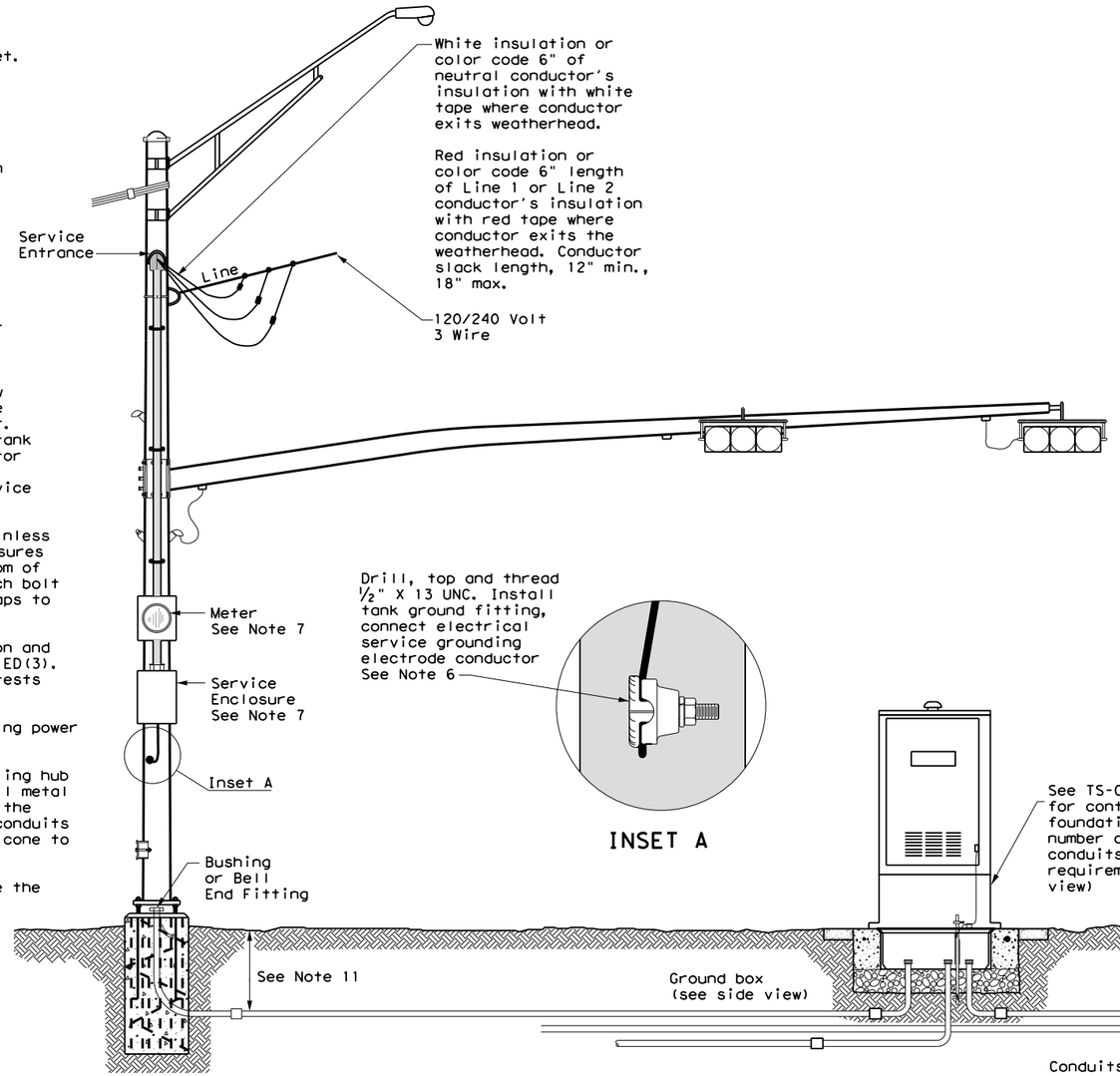
TRAFFIC SIGNAL NOTES

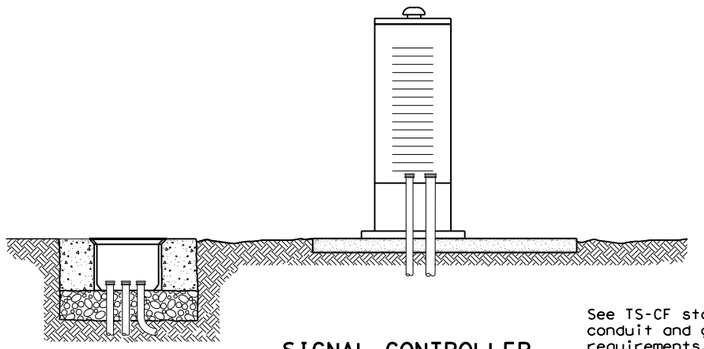
1. Do not pass luminaire conductors through the signal controller cabinet.
2. Include an equipment grounding conductor in all conduits throughout the electrical system. Bond all exposed metal parts to the grounding conductor.
3. Provide roadway luminaires, when required, in accordance with the material 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 brackets near top and bottom of each enclosure. 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

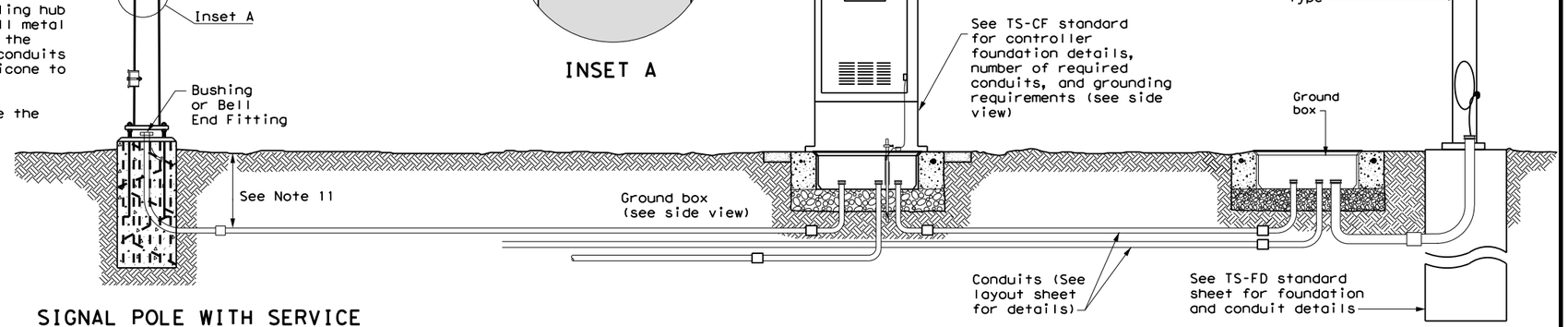
Type T electrical service mounted on signal pole shown as an example. See electrical details, layout sheets, and electrical service data chart for additional details.

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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PEDESTAL SERVICE NOTES

1. Manufacture pedestal electrical services in accordance with Departmental Material Specifications (DMS)11080 "Electrical Services", 11085 "Electrical Services-Pedestal (PS)" and Item 628 "Electrical Services. "Provide pedestal electrical services as listed on the Material Producers list (MPL) on the Department's web site under "Roadway Illumination and Electrical Supplies," Item 628. Ensure all mounting hardware and installation details of services meet utility company specifications. Contact the local utility company for approval of pedestal details prior to installing the electrical pedestal service. Submit any changes required by the utility company prior to manufacturing the pedestal enclosure.

2. When a meter socket is required, provide a socket with a minimum 100 amp rating that complies with local utility requirements.

3. Provide Class A or C concrete for pedestal service foundations in accordance with Item 420, "Concrete Substructures," except that concrete will not be paid for directly but is considered subsidiary to Item 628.

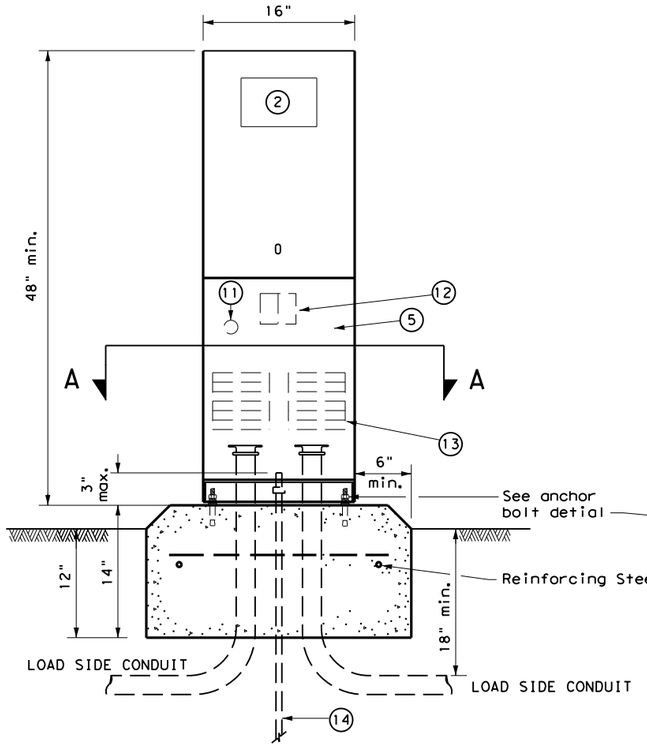
4. Provide #4 reinforcing steel for foundations in accordance with Item 440, "Reinforcement for Concrete."

5. Install ½ in. X 2 ⁵⁄₁₆ in. minimum length concrete single expansion type anchors for mounting pedestal enclosure to foundation. Anchor location to match mounting holes in each corner of enclosure. Secure each of the four corners of the pedestal enclosure to the anchors in the foundation with a ½ in. galvanized or stainless steel machine thread bolt, a properly sized locknut and a flat washer.

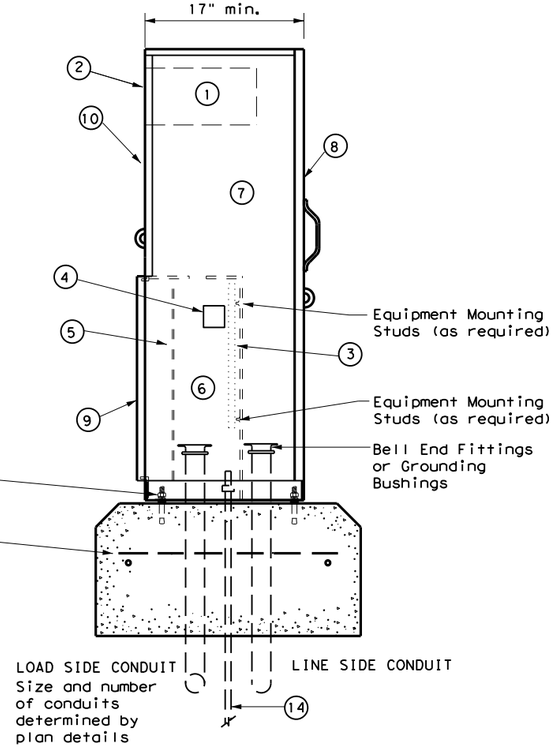
6. Finish top of concrete foundation in a neat and workmanlike manner. If leveling washers are used, ensure no more than ⅛ in. gap at any corner. Do not exceed a maximum dip or rise in the foundation of ⅛ in. per foot. When properly installed, ensure the top of the service enclosure is level front to back and side to side within ¼ in. Repair rocking or movement of the service enclosure at no additional cost to the department.

7. Do not use liquidtight flexible metal conduit (LFMC) on pedestal type services.

8. Ensure all elbows in the foundation are sized as per utility provider's conduit requirements for underground conduit and feeders. PVC extensions may be installed provided the ends of the rigid metal conduits are more than 2 in. below the top of the concrete foundation. Where extension conduits are metal, grounding bushings must be installed with a bonding jumper properly terminated.

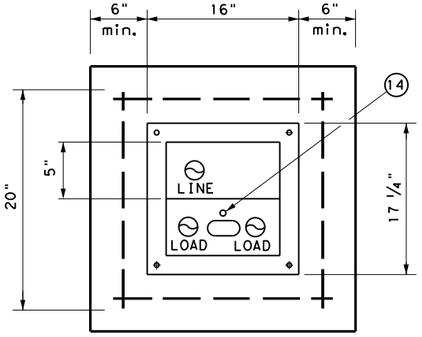


FRONT VIEW

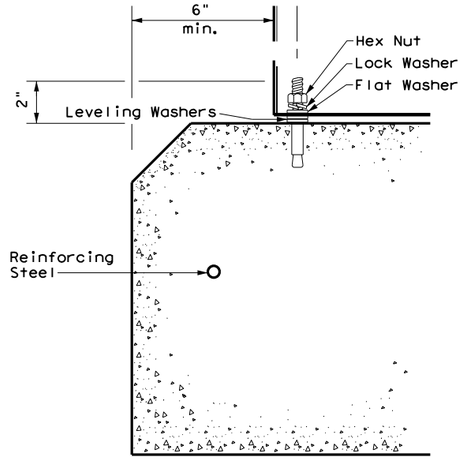


SIDE VIEW

TYPE C shown, TYPE A similar except that TYPE A shall have individual circuit breakers (CB) mounted on an equipment mounting panel. CB Handles shall protrude through hinged deadfront trim.



SECTION A-A



ANCHOR BOLT DETAIL

LEGEND	
1	Meter Socket, (when required)
2	Meter Socket Window, (when required)
3	Equipment Mounting Panel
4	Photo Electric Control Window, (When required)
5	Hinged Deadfront Trim
6	Load Side Conduit Trim
7	Line Side Conduit Area
8	Utility Access Door, with handle
9	Pedestal Door
10	Hinged Meter Access
11	Control Station (H-O-A Switch)
12	Main Disconnect
13	Branch Circuit Breakers
14	Copper Clad Ground Rod - 5/8" X 10'

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
ELECTRICAL SERVICE SUPPORT
PEDESTAL SERVICE TYPE PS

ED(9)-14

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TIMBER POLE (TP) SERVICE SUPPORT NOTES

1. Ensure electrical service support is a class 5 treated timber pole as per Item 627 "Treated Timber Poles." Embed timber pole to depth required in Item 627.
2. Conduit and electrical conductors attached to the electrical service pole and underground within 12 in. of service pole are not paid for directly but are subsidiary to the electrial service.
3. Install pole-top mounted photocell (T) on north side of pole, or in service enclosure (E) as required. See Electrical Service Data chart in plan set.
4. Gain pole as required to provide flat surface for each channel. Gain timber pole to 5/8 in. max. depth and 1 7/8 in. max. height. Gain pole in a neat and workmanlike manner.
5. Mount meter and service equipment on stainless steel or galvanized channel (Unistrut, Kindorf, or equal). Provide channel sized 1 in. to 3 3/4 in. maximum depth, and 1 1/2 in. to 1 5/8 in. maximum width. File smooth the cut ends of galvanized channel and paint with zinc rich paint before installing on pole. Secure each channel section to timber pole with two galvanized or SS lag bolts, 1/4 in. minimum diameter by 1 1/2 in. minimum length. Use a galvanized or SS flat washer on each lag bolt. Do not stack channel.
6. When excess length must be trimmed from poles, trim from the top end only.

(1) Class 5 pole, height as required

(2) Service drop from utility company (attached below weatherhead)

(3) Service conduit (RMC) and service entrance conductors - One Red, One Black, One White (See Electrical Service Data)

(4) Safety switch (when required)

(5) Meter (when required)

(6) Service enclosure

(7) 6 AWG bare grounding electrode conductor in 1/2 in. PVC to ground rod - extend 1/2 in. PVC 6 in. underground.

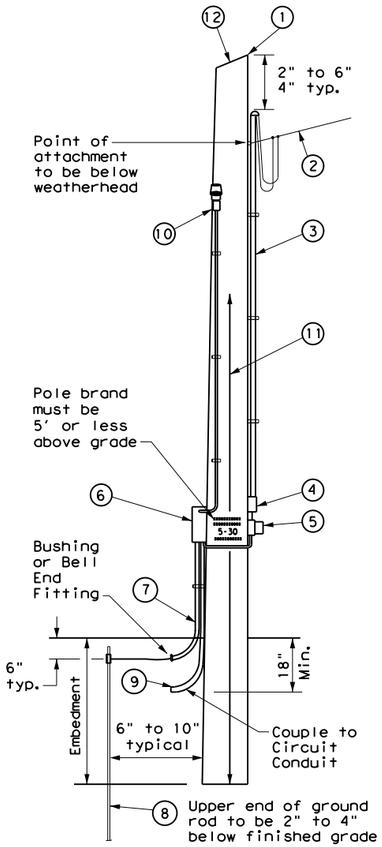
(8) 5/8 in. x 8 ft. Copper clad ground rod - drive ground rod to a depth of 2 in. to 4 in. below grade.

(9) RMC same size as branch circuit conduit.

(10) See pole-top mounted photocell detail on ED(5).

(11) When required by the serving utility provide bare 6 AWG copper conductor. Run wire from pole top to butt wrap or copper butt plate. Protect conductor with non-conductive material to a height of 8 ft. above finished grade.

(12) When required by utility, cut top of pole at an angle to enhance rain run off.

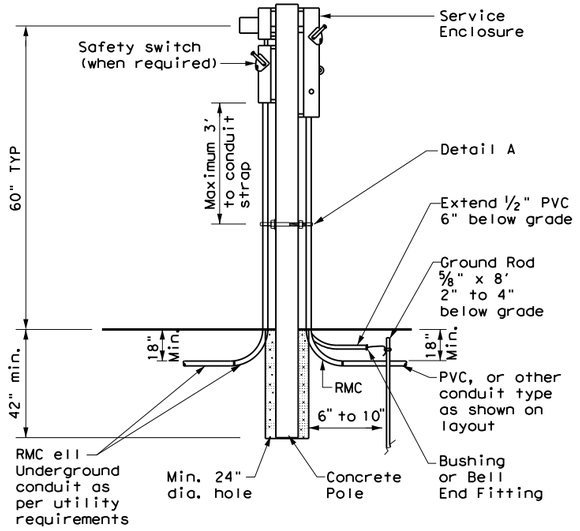


SERVICE SUPPORT TYPE TP (O)

GRANITE CONCRETE (GC) & OTHER CONCRETE (OC) NOTES

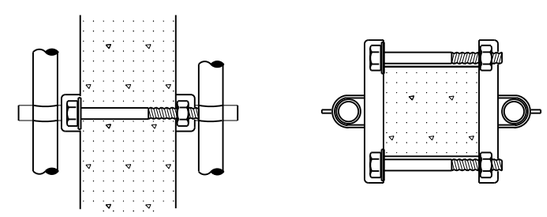
Ensure electrical service support structures bid as type Granite Concrete (GC) or Other Concrete (OC) meet the following requirements.

1. Provide GC and OC poles that meet the requirements of DMS 11080 "Electrical Services."
2. Provide prestressed concrete poles suitable for direct embedment into the ground without special foundations.
3. Verify poles are marked as required on DMS 11080. Location of marking should be approximately 4' above final grade. Use the two-point pickup locations when handling pole in horizontal position, and one-point pickup location for use in raising the pole to a vertical position. These marks are small but conspicuous.
4. Embed poles 42 in. or 10% of the length plus 2 ft., whichever is greater.
5. Ensure all installation details of services are in accordance with utility company specifications.
6. Install a one point rack or eye bolt bracket 6 inches to 12 inches below the weatherhead as an overhead service drop anchoring point for the electric utility.
7. Furnish and install galvanized or stainless steel channel strut 1 1/2 in. or 1 5/8 in. wide by 1 in. up to 3 3/4 in. deep (Unistrut, Kindorf, B-line or equal). Attach channel strut with stainless steel concrete anchors (max. 1" depth), square U-bolts or back to back channel strut with long bolts, or other secure mounting as approved by the Engineer. Ensure bolts are galvanized in accordance with ASTM A153. Do not stack channel struts.
8. Backfill the holes thoroughly by tamping in 6 in. lifts. After tamping to grade, place additional backfill material in a 6 inch high cone around the pole to allow for settling. Use material equal in composition and density to the surrounding area. Backfilling will not be paid for directly but is subsidiary to various bid items.



CONCRETE SERVICE SUPPORT

Underground (U)



DETAIL A

See Note 7. Before installing channel that has been cut, file sharp edges and paint with zinc-rich paint. Ensure there is no paint splatter on the pole.

CONCRETE SERVICE SUPPORT

Overhead (O)

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS SERVICE SUPPORT TYPES GC, OC, & TP

ED(10)-14

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DUCT CABLE & HDPE CONDUIT NOTES

1. Provide duct cable in accordance with Departmental Material Specification (DMS) 11060 "Duct Cable" and Item 622 "Duct Cable." Provide duct cable as listed on the Material Producer List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 622.

2. Provide High-Density Polyethylene (HDPE) conduit in accordance with DMS 11060 and Item 618, "Conduit." Provide HDPE as listed on the MPL on the Department web site under "Roadway Illumination and Electrical Supplies," Item 618.

3. Supply duct cable with a minimum 2 in. diameter, unless otherwise shown in the plans. Provide duct cable and HDPE conduit as shown by descriptive code or on the plans. Bend duct cable and HDPE conduit as recommended by the manufacturer, with a minimum bending radius of 26 in. for 2 in. duct. Follow manufacturers' recommendations when handling duct cable and HDPE conduit reels and during installation of duct cable and HDPE conduit.

4. Do not splice conductors within duct cable or HDPE conduit. Couple duct cable and HDPE entering a ground box or foundation to a PVC elbow. When galvanized steel RMC elbows are called for in the plans and any portion of the RMC elbow is buried less than 18" from possible contact, ground the RMC elbow.

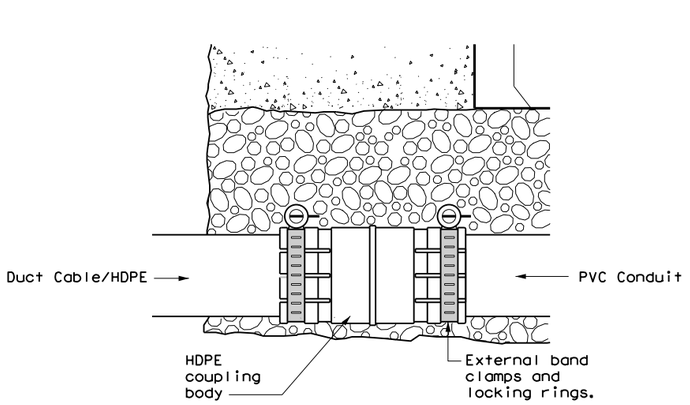
5. Furnish and install duct cable with factory installed conductors, sized as shown in the plans and as required by the National Electrical Code (NEC). The NEC contains specific requirements for duct cable in Article, "Nonmetallic Underground Conduit with Conductors: Type NUCC."

6. When conduit casing is called for in the plans, extend duct cable or HDPE conduit through the conduit casing in one continuous length without connection to the casing.

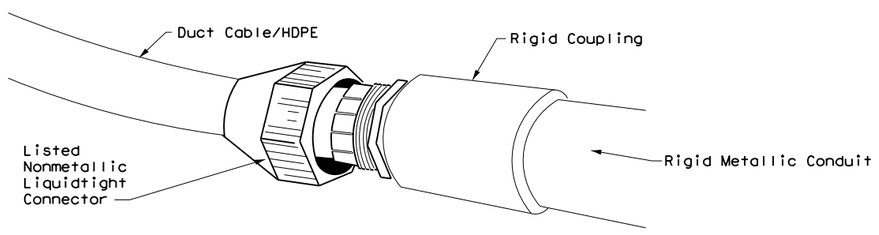
7. Seal the ends of duct cable or HDPE conduit with duct seal, expandable foam, or other approved method after completing the pull tests required by Item 622.

8. Provide minimum cover of 24 in. under roadways, 18 in. in other locations, or as shown on the plans.

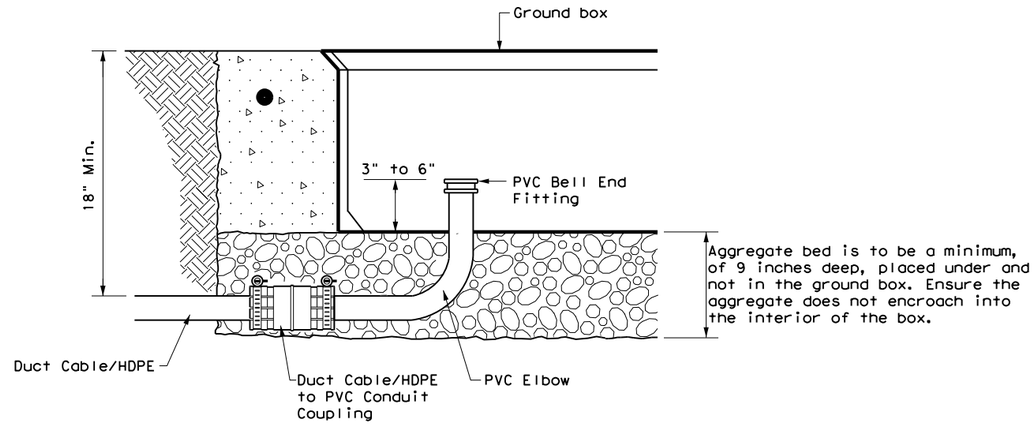
9. Furnish and install listed fittings to couple duct cable or HDPE conduit to other types of conduit. Duct cable and HDPE conduit may be field-threaded and spliced with PVC or RMC threaded couplings; connected with listed tie-wrap fittings; connected using listed coupling made of HDPE with stainless steel external banding clamps and locking rings; connected with approved electrofusion conduit couplings; or connected using an approved chemical fusion method using an epoxy or adhesive specifically designed for HDPE couplings and connectors all installed in accordance with their manufacturer's instructions. Do not use PVC glue on HDPE. Do not use water pipe fittings, or connect conduit with heat shrink tubing.



DUCT CABLE/HDPE TO PVC



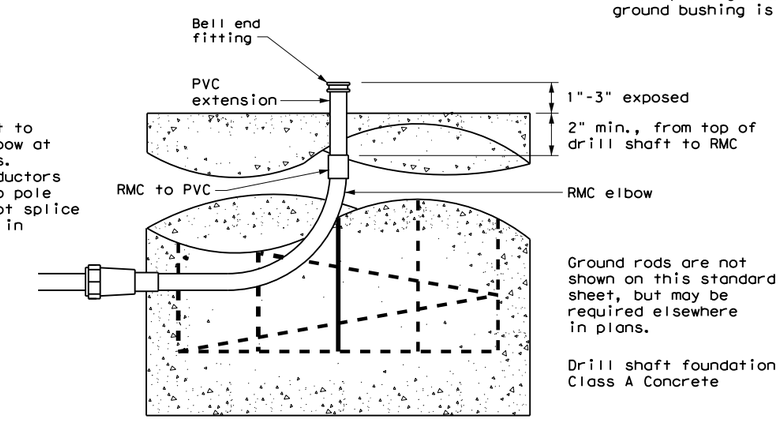
DUCT CABLE/HDPE TO RMC



DUCT CABLE/HDPE AT GROUND BOX

When the upper end of an RMC Ell does not enter the ground box, it may be extended with a SCH-40 PVC conduit nipple and bell end, provided there is a minimum of 18" of cover over all parts of the elbow. If not, a rigid extension and ground bushing is required.

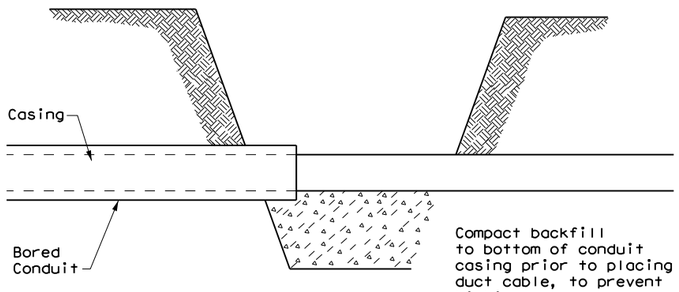
Couple duct to conduit elbow at foundations. Ensure conductors extend into pole base. Do not splice conductors in conduit.



Ground rods are not shown on this standard sheet, but may be required elsewhere in plans.

Drill shaft foundation Class A Concrete

DUCT CABLE / HDPE AT FOUNDATION



BORE PIT DETAIL

Texas Department of Transportation

Traffic Operations Division Standard

ELECTRICAL DETAILS
DUCT CABLE/ HDPE CONDUIT

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BATTERY BOX GROUND BOXES NOTES

A. MATERIALS

1. Provide polymer concrete or fiberglass reinforced plastic (FRP) battery box ground box and cover in accordance with Departmental Material Specification (DMS) 11071 "Battery Box Ground Boxes." Battery box will accommodate up to 4 batteries, each measuring 8 in. x 13.5 in. x 10 in. (W x L x D). Label battery box ground box cover in accordance with DMS 11071.

2. Supply a marine grade batteries with covers. Secure the marine grade batteries with covers to the stainless steel rack in the bottom of the ground box with tie down straps.

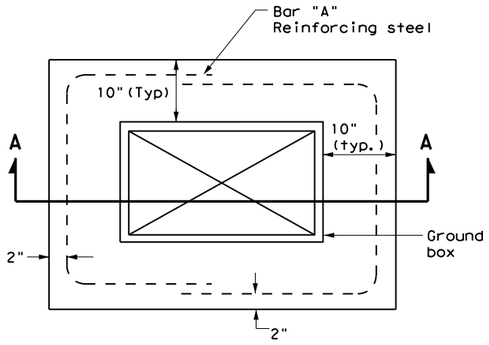
B. CONSTRUCTION METHODS

1. Ensure conduit entry will not interfere with placement of the batteries in the battery box ground box.

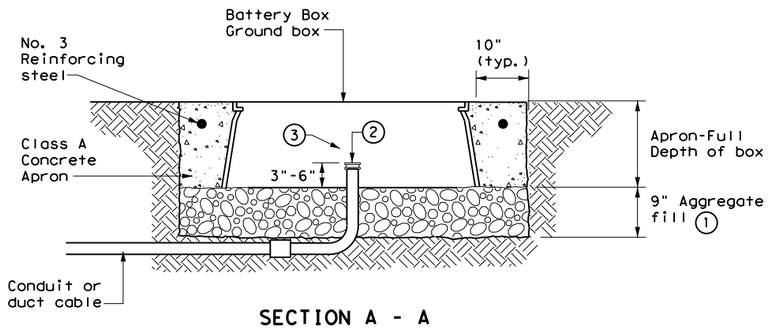
2. Remove all gravel and dirt from conduit. Cap all conduits prior to placing aggregate and setting battery box ground box. Provide Grade 3 or 4 coarse aggregate as shown on Table 2 of Item 302 "Aggregates for Surface Treatments." Ensure the aggregate bed is in place and is a minimum of 9 in. deep prior to setting the box. Install battery box ground box on top of aggregate.

3. Cast battery 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. Battery box ground box aprons, including concrete and reinforcing steel, are subsidiary to battery box ground boxes when called for by descriptive code.

4. Bolt covers down when not working in battery box ground boxes. Keep bolt holes in the box clear of dirt.



PLAN VIEW



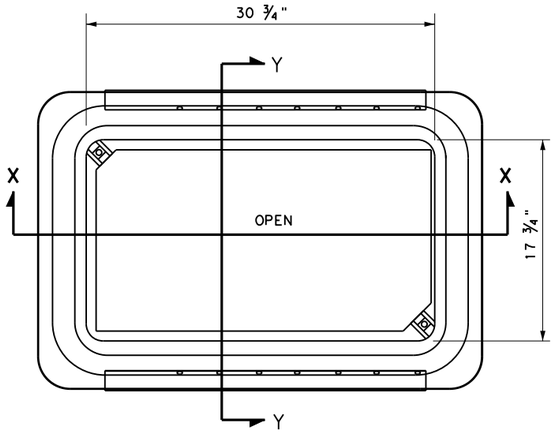
SECTION A - A

APRON FOR BATTERY BOX GROUND BOXES

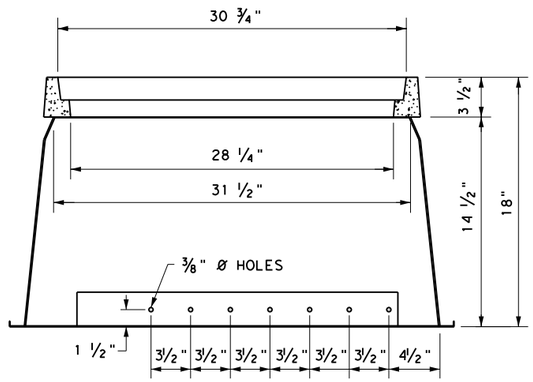
(1) Place aggregate under the box and not in the box. Aggregate should not encroach on the interior volume of the box.

(2) Install bushing or bell end fitting on the upper end of all ells.

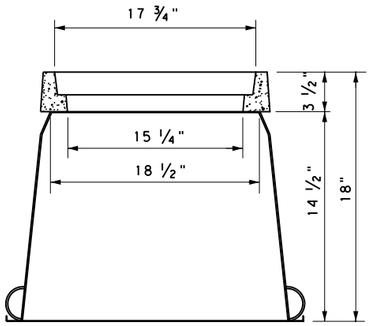
(3) Install all conduits in a neat and workmanlike manner.



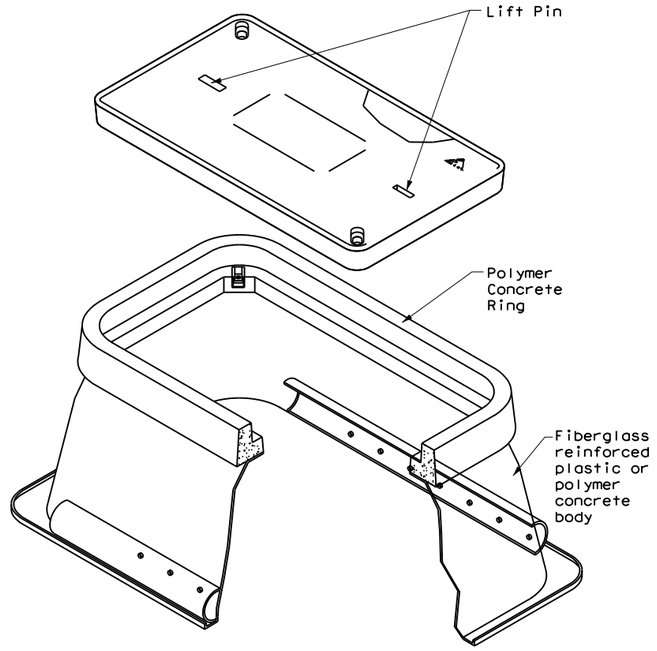
BATTERY BOX TOP VIEW



SECTION X-X



SECTION Y-Y



Texas Department of Transportation | Traffic Operations Division Standard

ELECTRICAL DETAILS
BATTERY BOX
GROUND BOXES

ED(12)-14

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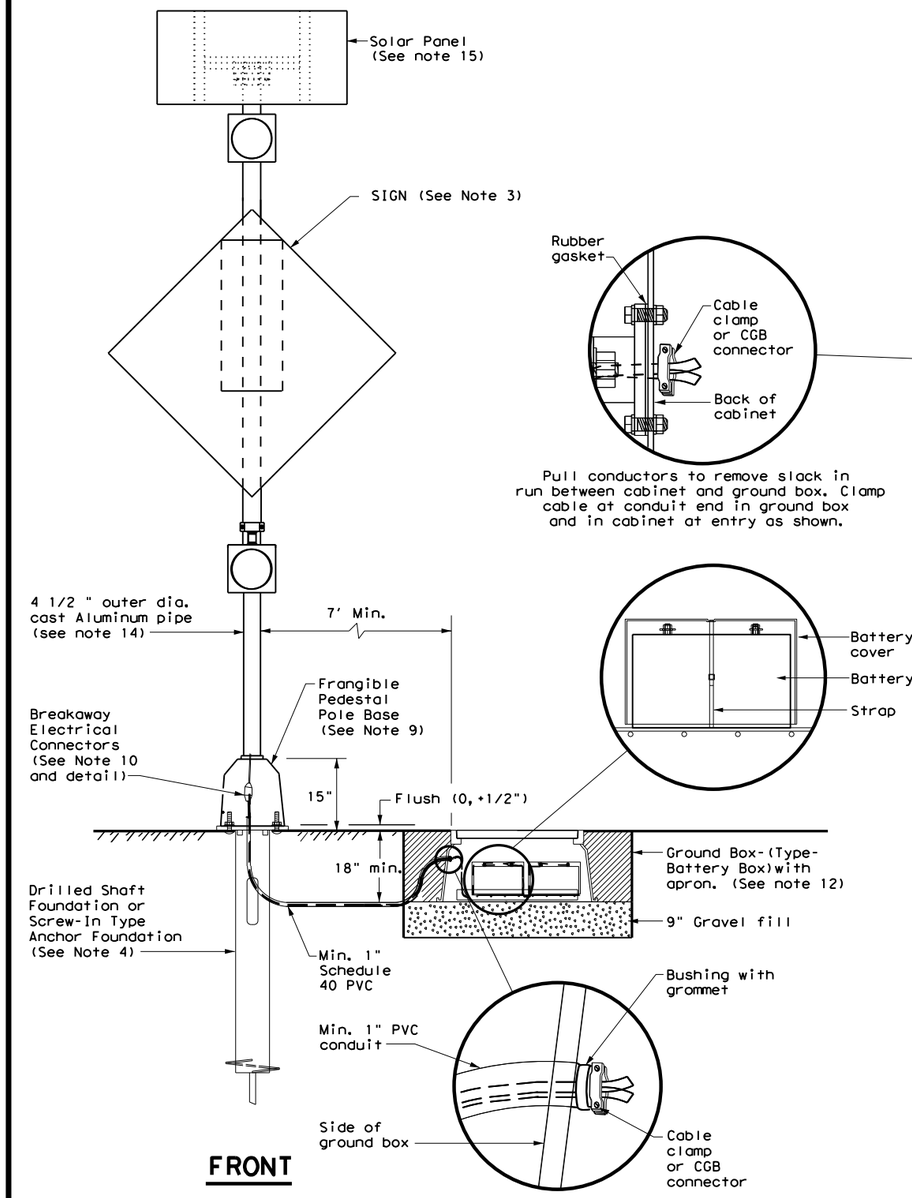
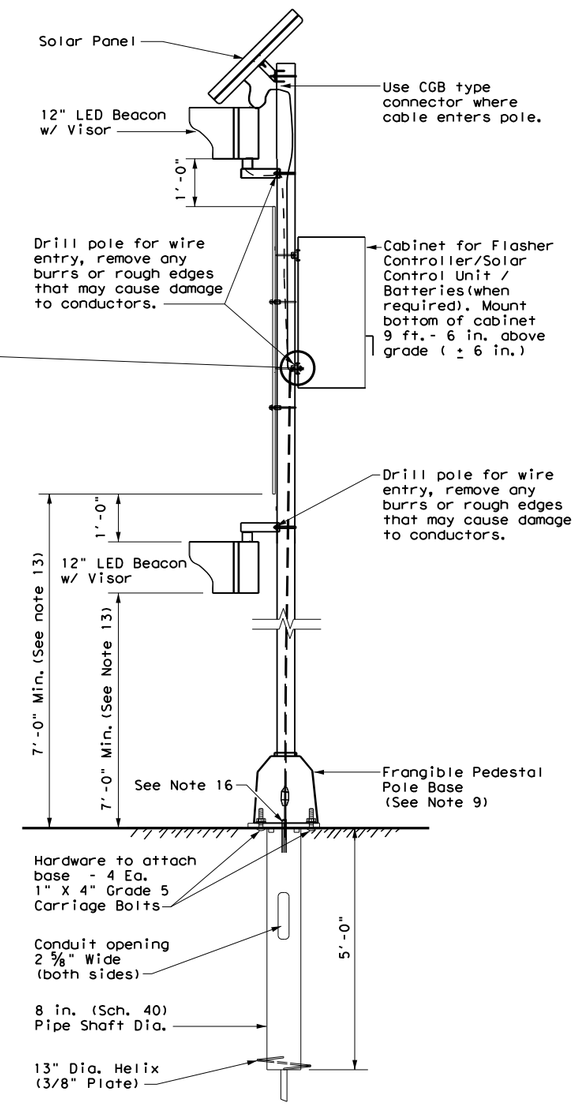
GENERAL NOTES:

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. Use materials specifically designed for attaching cabinets, beacon heads, solar panels, etc., to poles.
7. 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.
8. Conduit in foundation and within 6 in. of foundation is subsidiary to the Item 685, "Roadside Flashing Beacon Assemblies."
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 on 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. Install the batteries in a battery box. Place the batteries on a 3/16" thick plastic sheet and connect together. Place a plastic cover (battery bell jar) over the top of each battery and secure the battery bell jar to the battery with a strap. The batteries, bell jars, straps and 3/16" plastic sheet are subsidiary to the Item 685, "Roadside Flashing Beacon Assemblies." When required, install batteries in the flasher cabinet. Wire batteries according to manufacturers recommendations. Provide the number of batteries as required by the manufacturer.
12. See standard sheet Electrical Details (ED) for additional requirements regarding the installation of ground boxes/battery boxes, conduit, and cabinets.
13. 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.
14. 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.
15. Orient solar panel for optimum exposure to sunlight (face to the south). Prior to installation, check the location to ensure there is no overhead obstruction that would block the solar panel from receiving full sunlight. Unless specified elsewhere, mount a minimum of 14' above grade.
16. Ensure height of conduit is below top of anchor bolts.

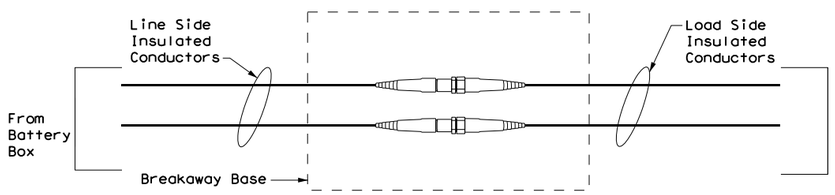


Pull conductors to remove slack in run between cabinet and ground box. Clamp cable at conduit end in ground box and in cabinet at entry as shown.

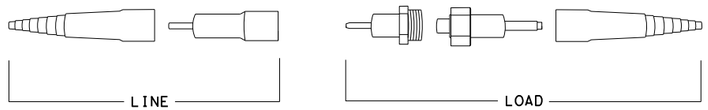
FRONT



SIDE



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS



NON-FUSED BREAKAWAY ELECTRICAL CONNECTORS EXPLODED VIEW

Texas Department of Transportation

Traffic Operations Division Standard

SOLAR POWERED ROADSIDE FLASHING BEACON ASSEMBLY DETAILS

SPRFBA(1)-13

FILE: 179	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 2003	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
12-04 3-13	DIST	COUNTY		SHEET NO.
	AUS	VARIES		179

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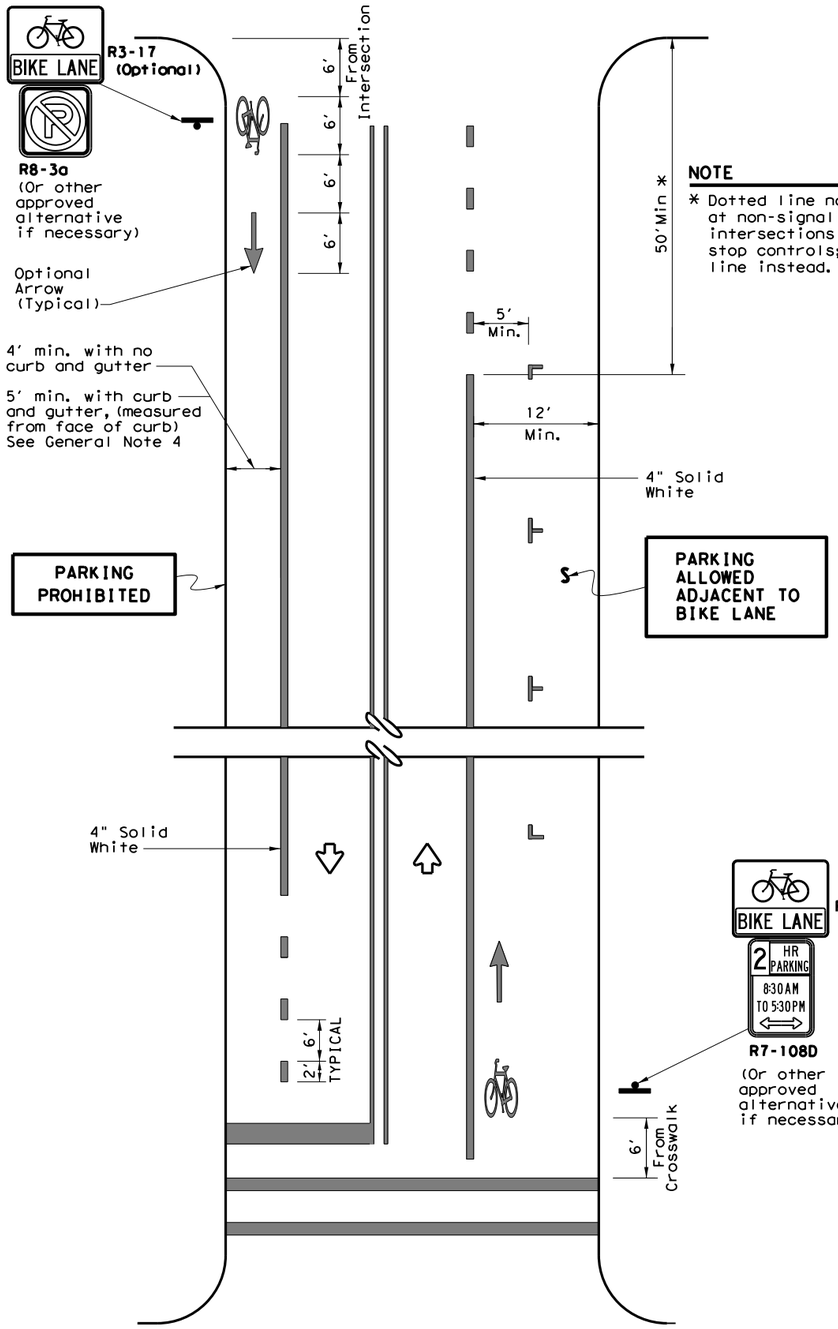


NOTE

* Dotted line not necessary at non-signalized minor intersections with no stop controls; Use solid line instead.

GENERAL NOTES

1. All bicycle lane pavement markings shall be white unless otherwise noted.
2. All pavement marking materials shall meet the required Department Material Specifications as specified by the plans.
3. Exact sign placement and details are shown elsewhere in the plans.
4. The current edition of AASHTO'S Guide for the Development of Bicycle Facilities should be referenced for variations in design, other geometric conditions, and lane width options.
5. Other bicycle lane symbol or word markings as shown in the Texas Manual on Uniform Traffic Control Devices may be used. Details for words, arrows and symbols as shown in the Standard Highway Sign Designs for Texas.
6. The "BIKE LANE" (R3-17) sign with the "AHEAD" (R3-17a) sign mounted directly below should be installed in advance of the beginning of a marked bike lane.
7. The "BIKE LANE" (R3-17) sign with the "END" (R3-17b) sign mounted directly below should be installed at the end of marked bicycle lane.

LEGEND	
	Sign
	Traffic Flow

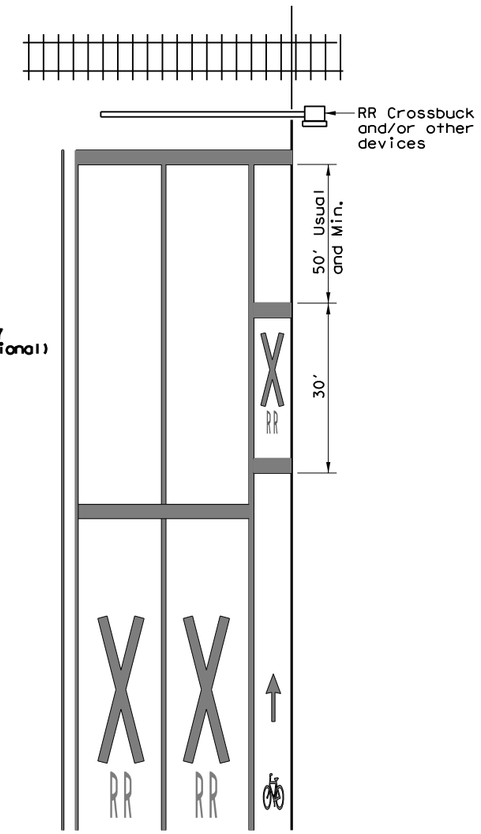
SPECIFICATION REFERENCE TABLE	
Traffic Paint	DMS-8200
Hot Applied Thermoplastic	DMS-8220
Permanent Prefabricated Pavement Markings	DMS-8240
Glass Traffic Beads	DMS-8290

NOTES

1. Bicycle lane pavement markings typically repeated after each intersection or signalized driveway.
2. On uninterrupted sections of roadway, bicycle lane pavement markings typically repeated as follows:

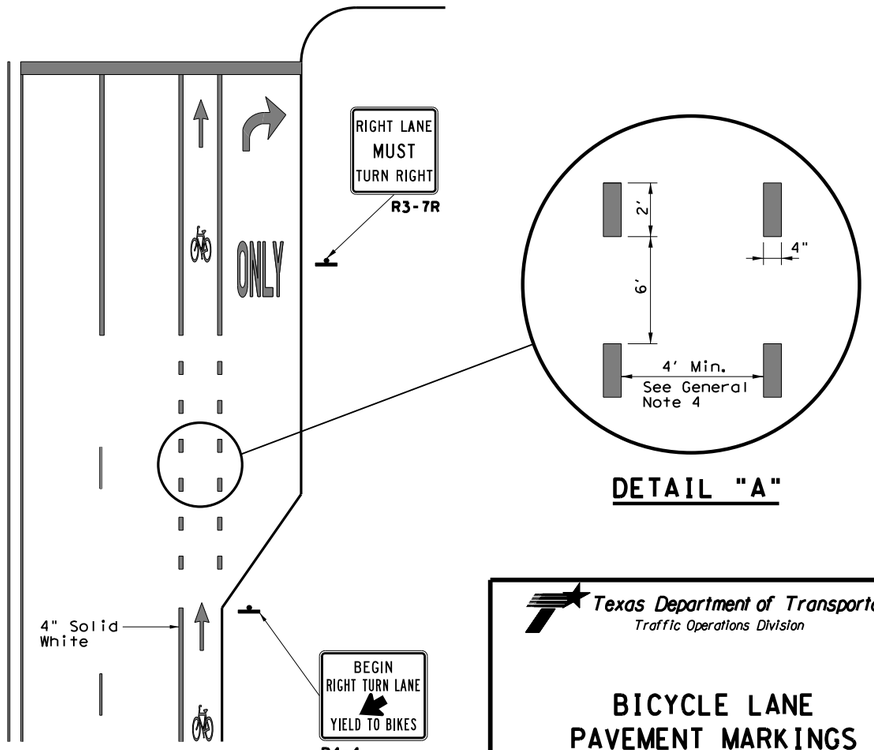
   -1200' for 45 MPH or less roads
   -2500' for 50 MPH and greater roads.

TWO-WAY STREET



(See RCPM Standard for travel lane details)

RAILROAD CROSSING APPROACH



RIGHT TURN ONLY LANE

DETAIL "A"

Texas Department of Transportation
Traffic Operations Division

BICYCLE LANE PAVEMENT MARKINGS

BLPM-10

© TxDOT May 2010	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
REVISIONS	CONT	SECT	JOB	HIGHWAY
	0914	00	457	VA
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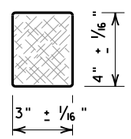
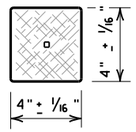
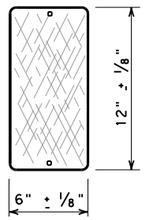
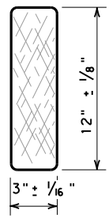
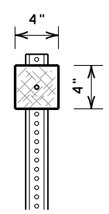
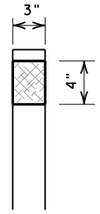
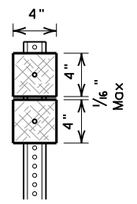
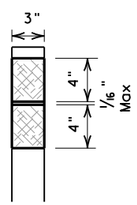
REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

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

DELINEATORS

DEVICE	SINGLE		DOUBLE	
				
	1-Size 2 reflector unit	1-Size 1 reflector unit	2-Size 2 reflector units	2-Size 1 reflector units
SHEETING	Yellow, White or Red Type B or C Reflective Sheeting			
POST TYPE	WC	YFLX, WFLX	WC	YFLX, WFLX
MOUNT TYPE	GND	GND, SRF	GND	GND, SRF

D & OM DESCRIPTIVE CODES

INSTL DEL ASSM (D-XX)SZ X (XXXX)XXX(XX)

NUMBER OF REFLECTORS
S = Single
D = Double

COLOR OF REFLECTORS
W = White
Y = Yellow
R = Red

REFLECTOR UNIT SIZE
1 or 2

TYPE OF POST OR DELINEATOR
WC = Wing Channel Post
YFLX = Yellow Flexible Post
WFLX = White Flexible Post
BRF = Barrier Reflector

TYPE OF MOUNT
GND = Embedded (drivable or set in concrete)
CTB = Concrete Barrier Mount
GF1 or GF2 = Guard Fence Attachment
SRF = Surface Mount

DIRECTION
If Required
BI = Bi-Directional
BR = Bi-Directional with red on back

INSTL OM ASSM (OM-XX) (XXXX)XXX(XX)

TYPE OF OBJECT MARKER
1, 2, 3, or 4

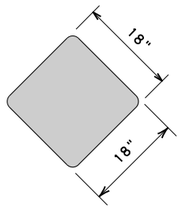
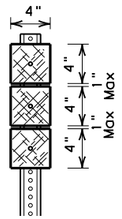
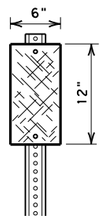
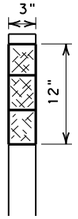
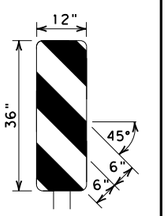
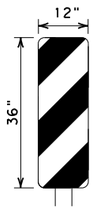
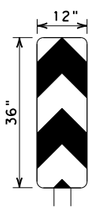
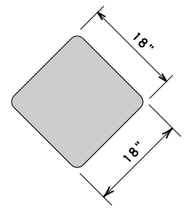
NUMBER OF REFLECTORS OR DIRECTION
X = 3-Size 2 reflector units (Type 2 only)
Y = 1-Size 3 reflector unit (Type 2 only)
Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
L = Left Side (Type 3 Object Marker only)
R = Right Side (Type 3 Object Marker only)
C = Center (Type 3 Object Marker only)

TYPE OF POST
WC = Wing Channel Post
WFLX = White Flexible Post
TWT = Thin Walled Tubing

TYPE OF MOUNT
GND = Embedded (drivable)
SRF = Surface Mount
WAS = Wedge Anchor Steel
WAP = Wedge Anchor Plastic

DIRECTION
If Required
BI = Bi-Directional

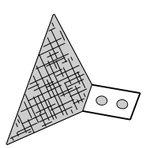
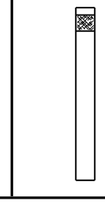
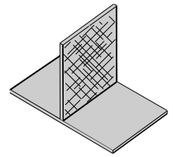
OBJECT MARKERS

	Type 1 (OM-1)	Type 2 (OM-2)			Type 3 (OM-3)			Type 4 (OM-4)
	OM-1	OM-2X	OM-2Y	OM-2Z	OM-3L	OM-3R	OM-3C	OM-4
DEVICE								
		3-Size 2 reflector units	1-Size 3 reflector unit	3-Size 1 reflector units or 1-Size 4 reflector unit				
SHEETING	Yellow-Type B_{FL} or C_{FL} Sheeting	Yellow - Type B or C Sheeting			Alternating acrylic black and retroflective yellow - Type B_{FL} or C_{FL} Sheeting			Red -Type B_{FL} or C_{FL} Sheeting
POST TYPE	TWT	WC	WC	WFLX	TWT			TWT
MOUNT TYPE	WAS, WAP	GND	GND	GND, SRF	WAS, WAP			WAS, WAP

DEPARTMENTAL MATERIAL SPECIFICATIONS

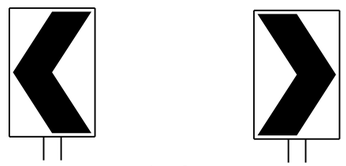
FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES)	DMS-4400
SIGN FACE MATERIALS	DMS-8300
DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS	DMS-8600

BARRIER REFLECTORS (BRF)

	GF1	GF2	CTB
DEVICE			
	1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov.		
SHEETING	Yellow, White, Red		
NOTE	1. Reflective sheeting shall have a minimum dimension of 3 inches and minimum surface area of 9 square inches.		

CHEVRONS

DEVICE



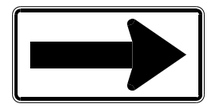
W1-8

SIZE (W x L)	18"x 24" (Conventional)	24"x 30" (Conventional Oversize)	30"x 36" (Expressway)	36" x 48" (Freeway)
MOUNTING HEIGHT	4'-0" or 7'-0"		7'-0" Only	

NOTE
1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies).
2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6).

ONE DIRECTION LARGE ARROW

DEVICE



W1-6

SIZE (W x L)	48" x 24" (Conventional)	60" x 30" (Expressway & Freeway)
MOUNTING HEIGHT	7'-0"	

NOTE:

Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

D & OM(1)-20

FILE: dam1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
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10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	AUS	VARIES		181

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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)

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.

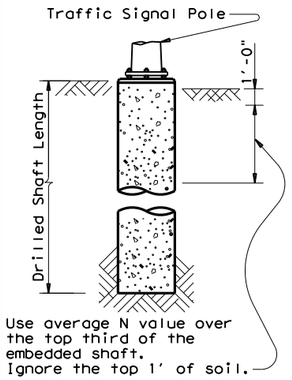
FOUNDATION SUMMARY TABLE ③

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
PED POLE ASSEM.	10	24-A	18	103				
TOTAL DRILLED SHAFT LENGTHS				103				

1 UPDATED FOUNDATION SUMMARY TABLE SAJ 01/20/2022

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'



Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.

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.

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".

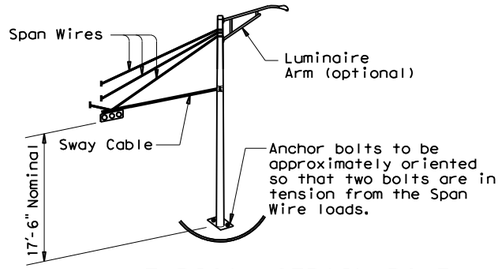
Concrete shall be Class "C".

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.

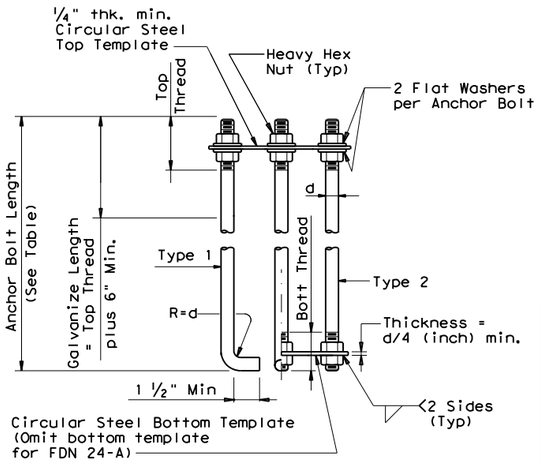
Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise 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".

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.



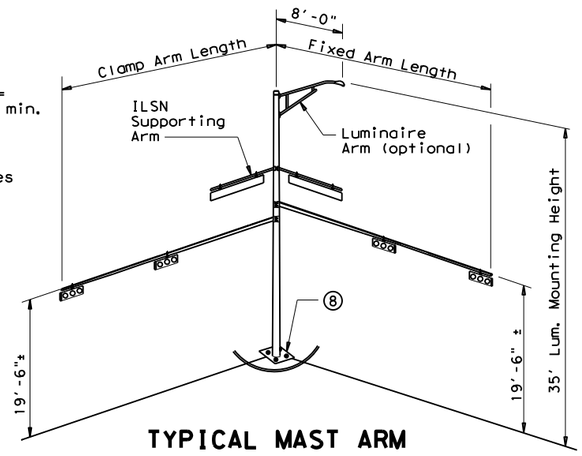
TYPICAL STRAIN POLE ASSEMBLY



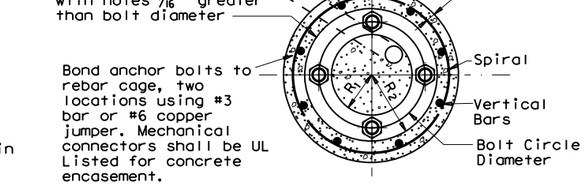
HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

ANCHOR BOLT ASSEMBLY

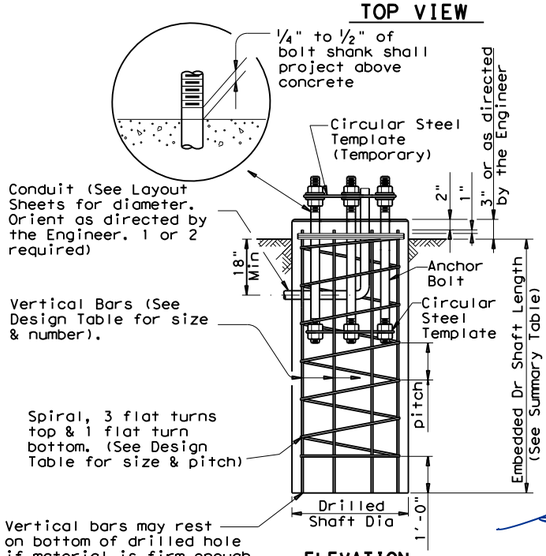
⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TYPICAL MAST ARM ASSEMBLY



TOP VIEW



ELEVATION

FOUNDATION DETAILS

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED PROFESSIONAL ENGINEER
1/18/2022

Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

TS-FD-12

DN: MS	CK: JSY	DW: MAQ/MMF	CK: JSY/TEB

REVISIONS 5-96 11-99 1-12

CONT	SECT	JOB	HIGHWAY
0914	00	457	VA
DIST	COUNTY		SHEET NO.
AUS	VARIES		182

DATE: 1/18/2022 3:42:44 PM
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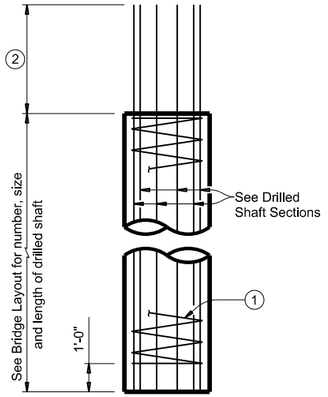
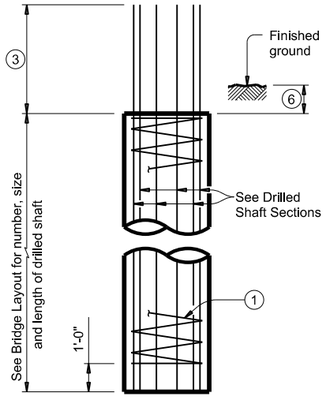
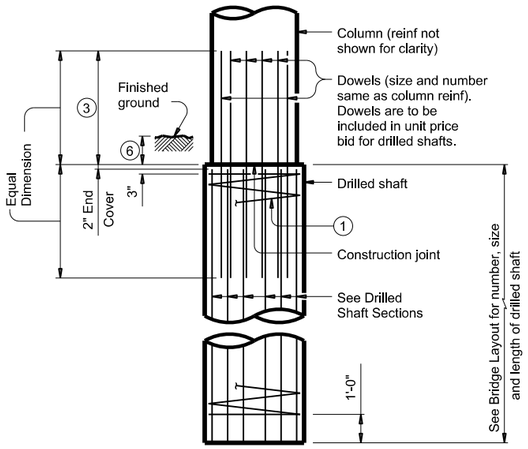


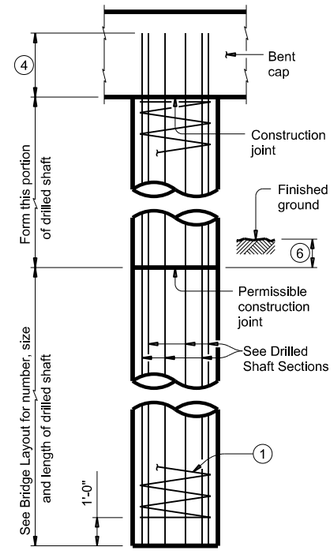
ABUTMENTS, WINGWALLS AND MULTI-DRILLED SHAFT FOOTINGS



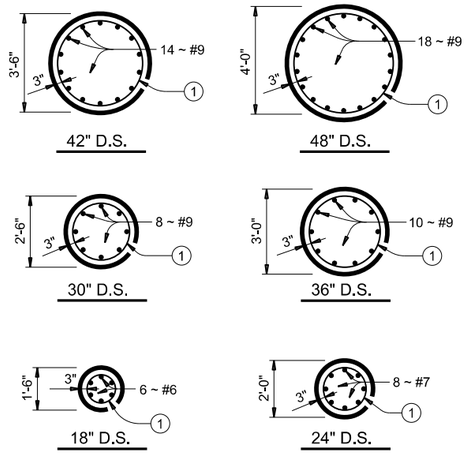
INTERIOR BENTS DRILLED SHAFT DIA EQUAL TO COLUMN DIA



INTERIOR BENTS DRILLED SHAFT DIA GREATER THAN COLUMN DIA



OPTIONAL INTERIOR BENT DRILLED SHAFT DETAIL (5)

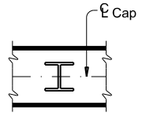


DRILLED SHAFT SECTIONS

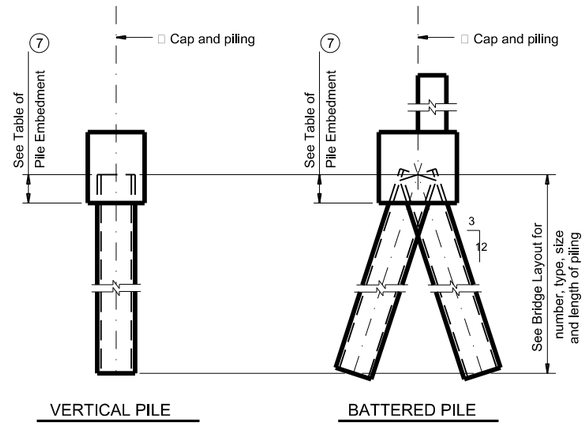
DRILLED SHAFT DETAILS

TABLE OF PILE EMBEDMENT	
Pile Type	Embedment Depth (Ft)
16" Sq Concrete 18" Sq Concrete HP14 Steel HP16 Steel	1'-0"
20" Sq Concrete 24" Sq Concrete HP18 Steel	1'-6"

See Prestressed Concrete Piling (CP) standard for additional details on concrete pile embedment.

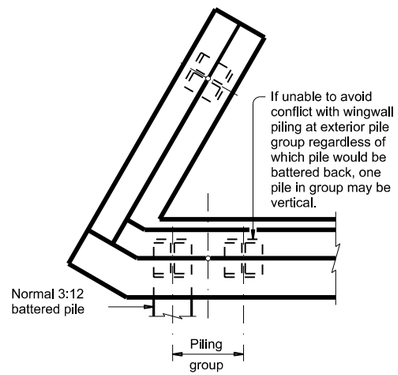


ORIENTATION OF STEEL H-PILING

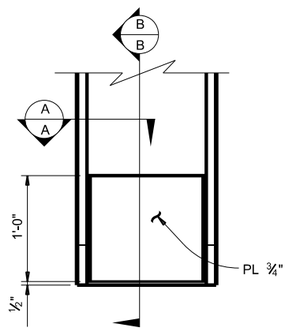


VERTICAL PILE BATTERED PILE

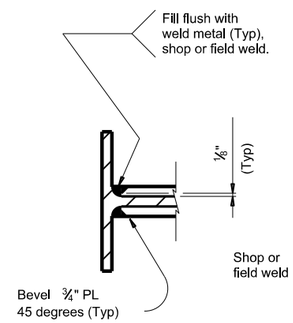
PILING DETAILS
(Concrete or steel H)



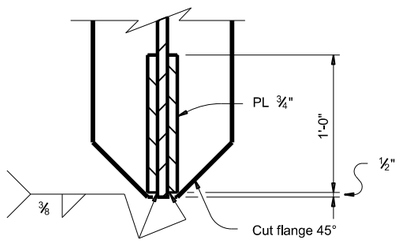
DETAIL "A"
(Showing plan view of a 30° skewed abutment)



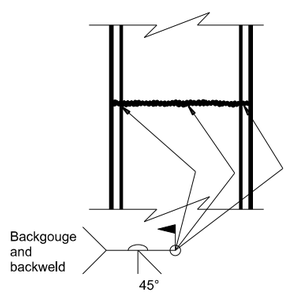
ELEVATION

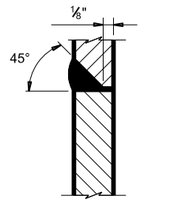


SECTION A-A



SECTION B-B





SECTION THRU FLANGE OR WEB

STEEL H-PILE TIP REINFORCEMENT

See Item 407 "Steel Piling" to determine when tip reinforcement is required and for options to the details shown.

STEEL H-PILE SPLICE DETAIL

Use when required.

(1) #3 spiral at 6" pitch (one and a half flat turns top and bottom).

(2) Min extension into supported element:
#6 Bars = 1'-11"
#7 Bars = 2'-0"
#9 Bars = 2'-3"

(3) Min lap with column reinf:
#7 Bars = 2'-11"
#9 Bars = 3'-9"
#11 Bars = 4'-8"

(4) Min extension into supported element:
#6 Bars = 1'-11"
#7 Bars = 2'-3"
#9 Bars = 2'-9"

(5) Drilled shafts may extend to the bottom of bent caps for "H" heights of 6 ft and less (as shown on the Bridge Layout), if approved. This option can only be used when the drilled shaft diameter equals the column diameter. Obtain approval of the forming method above the ground line prior to construction. No adjustments in payment will be made if this option is used.

(6) 1'-0" Min, unless shown otherwise on plans.

(7) Or as shown on plans.

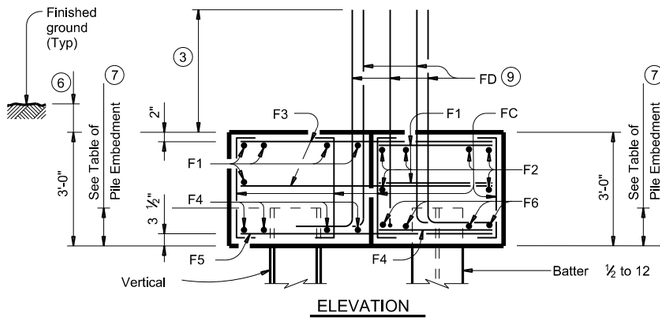
Texas Department of Transportation

Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: fdstde01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
01-20: Added #11 bars to the FD bars.	DIST	COUNTY		SHEET NO.
	AUS	VARIES		183



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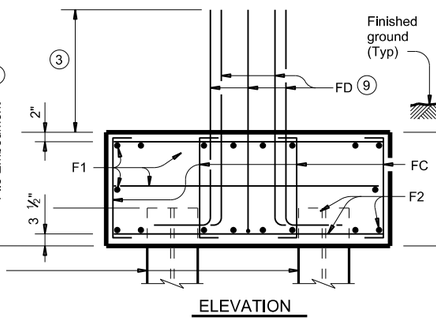

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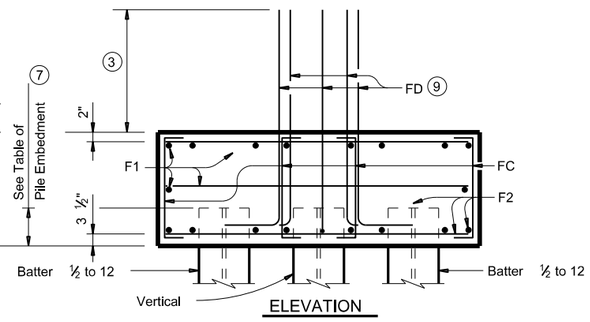

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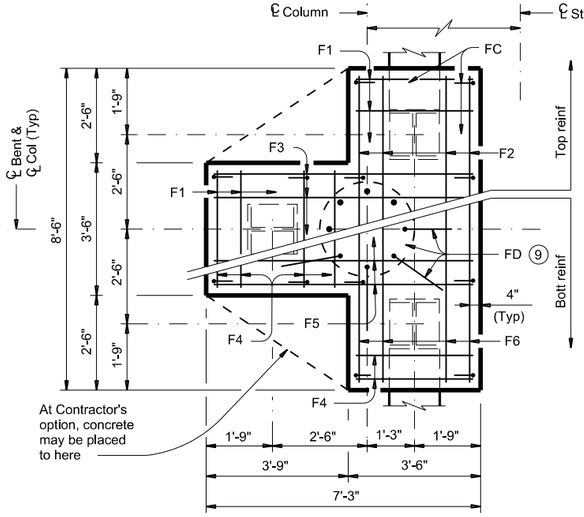
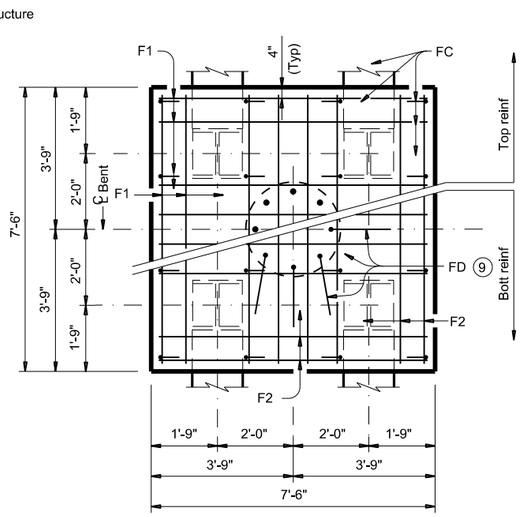


PLAN

THREE PILE FOOTING (8)

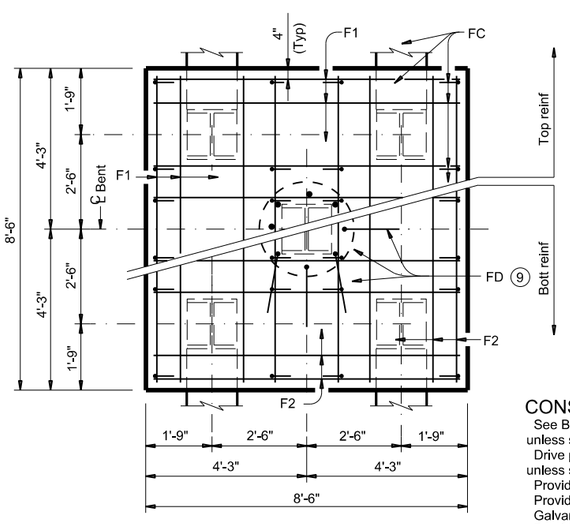
For 36" Dia and smaller columns.



PLAN

FOUR PILE FOOTING (8)

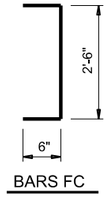
For 42" Dia and smaller columns.



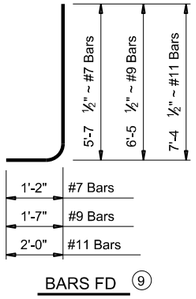
PLAN

FIVE PILE FOOTING (8)

For 42" Dia and smaller columns.



BARS FC



BARS FD (9)

(3) Min lap with column reinforcing:
#7 Bars = 2'-11"
#9 Bars = 3'-9"
#11 Bars = 4'-8"

(6) 1'-0" Min, unless shown otherwise on plans.

(7) Or as shown on plans.

(8) See Bridge Layout for type, size and length of piling.

(9) Number and size of FD bars must match column reinforcing. Tie FD bars to the top of the bottom reinforcing mat.

(10) Adjust FD quantity, size and weight as needed to match column reinforcing.

TABLE OF FOOTING QUANTITIES FOR 30" COLUMNS

ONE 3 PILE FOOTING				
Bar	No.	Size	Length	Weight
F1	11	#4	3'- 2"	23
F2	6	#4	8'- 2"	33
F3	6	#4	6'- 11"	28
F4	8	#9	3'- 2"	86
F5	4	#9	6'- 11"	94
F6	4	#9	8'- 2"	111
FC	12	#4	3'- 6"	28
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	623
Class "C" Concrete			CY	4.8

ONE 4 PILE FOOTING				
Bar	No.	Size	Length	Weight
F1	20	#4	7'- 2"	96
F2	16	#8	7'- 2"	306
FC	16	#4	3'- 6"	37
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	659
Class "C" Concrete			CY	6.3

ONE 5 PILE FOOTING				
Bar	No.	Size	Length	Weight
F1	20	#4	8'- 2"	109
F2	16	#9	8'- 2"	444
FC	24	#4	3'- 6"	56
FD (10)	8	#9	8'- 1"	220
Reinforcing Steel			Lb	829
Class "C" Concrete			CY	8.0

CONSTRUCTION NOTES:

See Bridge Layout for foundation type required. Use these foundation details unless shown otherwise.

Drive piling under abutment wingwalls to a minimum resistance of 10 Tons/Pile unless shown otherwise.

Provide Class C Concrete (f'c = 3,600 psi), unless shown otherwise.

Provide Grade 60 reinforcing steel.

Galvanize reinforcing if shown elsewhere in the plans.

Provide bar laps for drilled shaft reinforcing, where required, as follows:

Uncoated or galvanized (#6) ~ 2'-6"
Uncoated or galvanized (#7) ~ 2'-11"
Uncoated or galvanized (#9) ~ 3'-9"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

DESIGNER NOTES:

Do not use the drilled shaft details shown on this standard for retaining wall, noise wall, barrier, or sign foundations without structural evaluation.

Do not use the footings shown on this standard in direct contact with salt water or exposed to salt water spray.

Maximum allowable pile loads for the footings shown are:

72 Tons/Pile with 24" Dia Columns
80 Tons/Pile with 30" Dia Columns
100 Tons/Pile with 36" Dia Columns
120 Tons/Pile with 42" Dia Columns

Texas Department of Transportation

Bridge Division Standard

COMMON FOUNDATION DETAILS

FD

FILE: fdstde01-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
01-20: Added #11 bars to the FD bars.	DIST	COUNTY		SHEET NO.
	AUS	VARIES		184

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A. GENERAL SITE DATA

1. PROJECT LIMITS: *VARIOUS LOCATIONS IN BLANCO, BURNET, GILLESPIE & LLANO COUNTIES*

2. PROJECT SITE MAPS:
   - *Project Latitude: Various Project Longitude: Various*
   - *Project Location Map: SEE TITLE SHEET & LOCATION MAPS*
   - *Drainage Patterns: N/A*
   - *Approx. Slopes Anticipated After Major Gradings and Areas of Soil Disturbance: N/A*
   - *Major Controls and Locations of Stabilization Practices: AT EXIST CURB INLETS/GRASS SWALES*
   - *Surface waters & dischage locations: N/A*
   - *Project Specific Locations: TO BE SPECIFIED BY THE PROJECT FIELD OFFICE DURING CONSTRUCTION & LOCATED IN THE PROJECT SW3P FILE. REFERENCE ITEM 7. BELOW*

3. PROJECT DESCRIPTION: *CONSTRUCT ADA CURB RAMPS AND SIDEWALK AT VARIOUS LOCATIONS ALONG SL 163, US 281, SH 29, RM 1431, US 290, SH 16 & SH 71*

4. FOR MAJOR SOIL DISTURBING ACTIVITIES SEQUENCE OF EVENTS:

   1. *Install controls down-slope of work area and initiate inspection and maintenance activities.*
   2. *Begin phased construction with interim stabilization practices. Adjust erosion and sedimentation controls during construction to meet requirements and changing conditions and as directed/approved by the Engineer.*
   3. *Major soil disturbing activities may include but are not limited to: right-of-way preparation, cut and/or fill to improve roadway profile, final grading and placement of topsoil and the following:*

      ____ *Placement of road base*
      ____ *Extensive ditch grading*
      ____ *Upgrade or replacing culverts or bridges*
      ____ *Temporary Detour road(s)*
      _X_ *Other: New and Replacement Sidewalk and ADA Curb Ramps*

5. EXISTING AND PROPOSED CONDITIONS:

   Description of existing vegetative cover: GRASSES & WEEDS W/ SOME BUSHES AND TREES
   Percentage of existing vegetative cover: 65-70%
   Existing vegetative cover: (mark one)
   ____ *Thick or uniformly established*
   _X_ *Thin and Patchy*
   ____ *None or minimal cover*
   Description of soils: HIGHLY COMPACTED OR COVERED WITH PAVEMENT
   Site Acreage: 3.63 ACRES Acreage disturbed: 3.63 ACRES
   Site runoff coefficient (pre-construction): 0.9 Site runoff coefficient (post-construction): 0.9

6. RECEIVING WATERS:

NEAR BLANCO:	*BLANCO CITY LAKE NUMBER 1*
NEAR MARBLE FALLS:	*BACKBONE CREEK, WHITMAN BRANCH*
NEAR LLANO:	*OATMAN CREEK*
NEAR BURNET:	*HAYNIE BRANCH AND DAUGHERTY BRANCH OF HAMILTON CREEK*
NEAR FREDERICKSBURG:	*BARONS CREEK*
NEAR JOHNSON CITY:	*TOWN CREEK*

7. PROJECT SW3P FILE:

FOR PROJECTS DISTURBING ONE ACRE OR MORE TXDOT WILL MAINTAIN AN SW3P FILE WITH ALL PERTINENT ENVIRONMENTAL DOCUMENTS, CORRESPONDENCE, ECT. AT THE PROJECT FIELD OFFICE. IF NO FIELD OFFICE IS AVAILABLE, THEN THE SW3P FILE SHALL BE KEPT IN THE INSPECTOR'S TRUCK.

B. BEST MANAGEMENT PRACTICES

General timing or sequence for implementation of BMPs shall be as required and/or as directed/approved by the Engineer to provide adequate controls. BMPs shown on plan sheets are to be considered "proposed" unless/until install date is shown. BMPs are to reduce sediments from road construction activities.

1. SOIL STABILIZATION PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

T	SEEDING	____	PRESERVATION OF NATURAL RESOURCES
T	MULCHING (Hay or Straw)	____	FLEXIBLE CHANNEL LINER
____	BUFFER ZONES	____	RIGID CHANNEL LINER
____	PLANTING	____	SOIL RETENTION BLANKET
____	COMPOST/MULCH FILTER BERM	____	COMPOST MANUFACTURED TOPSOIL
T/P	SODDING	____	OTHER: (Specify Practice)

2. STRUCTURAL PRACTICES: (Select T = Temporary or P = Permanent, as applicable)

T	SILT FENCES
____	HAY BALES
____	ROCK FILTER DAMS
____	DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
____	DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
____	DIVERSION DIKE AND SWALE COMBINATIONS
____	PIPE SLOPE DRAINS
P	PAVED FLUMES
____	ROCK BEDDING AT CONSTRUCTION EXIT
____	TIMBER MATTING AT CONSTRUCTION EXIT
____	CHANNEL LINERS
____	SEDIMENT TRAPS
____	SEDIMENT BASINS
T	STORM INLET SEDIMENT TRAP
____	STONE OUTLET STRUCTURES
P	CURBS AND GUTTERS
P	STORM SEWERS
____	VELOCITY CONTROL DEVICES
T	OTHER: *BIODEGRADABLE EROSION CONTROL LOGS (MULCH FILTER SOCKS)*

3. STORM WATER MANAGEMENT:

The proposed facility was designed in consideration of hydraulic design standards to convey stormwater in a manner that is protective of public safety and property. The control of erosion from the facility is inherent to the design. Additional factors affecting post-construction stormwater at the project location include: (mark all that apply)

_X_ *Existing or new vegetation provides natural filtration.*
____ *The design includes provisions for permanent erosion controls provided by strategically placed pervious and impervious surfaces.*
____ *Project includes permanent sedimentation controls (other than grass).*
_X_ *Velocities do not require dissipation devices.*
____ *Velocity-dissipation devices included in the design.*
____ *Other : _____*

4. NON-STORM WATER DISCHARGES:

Off-site discharges are prohibited except as follows:

1. *Discharges from fire fighting activities and/or fire hydrant flushings.*
2. *Vehicle, external building, and pavement wash water where detergents and soaps are not used and where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed).*
3. *Plain water used to control dust.*
4. *Plain water originating from potable water sources.*
5. *Uncontaminated groundwater, spring water or accumulated stormwater.*
6. *Foundation or footing drains where flows are not contaminated with process materials such as solvents.*
7. *Other: _____*

Concrete truck wash water discharges on the site should be prohibited or minimized. If allowed by the Engineer, they must be managed in a manner so as not to contaminate surface water. They must not be located in areas of concentrated flow. Concrete truck wash-out locations must be shown on the SW3P Layout and included in the inspections.

Hazardous material spill/leak shall be prevented or minimized. At a minimum, this includes asphalt products, fuels, oils, lubricants, solvents, paints, acids, concrete curing compounds and chemical additives for soil stabilization. BMPs shall be implemented to the storage areas of these products. All spills must be cleaned and disposed properly and reported to the Engineer. Report any release at or above the reportable quantity during a 24 hour period to the National Response Center at 1-800-424-8802.

C. OTHER REQUIREMENTS & PRACTICES

1. MAINTENANCE:

All erosion and sediment controls shall be maintained in good working order. If a repair is necessary, it shall be performed before the next anticipated storm event but no later than 7 calendar days after the surrounding exposed ground has dried sufficiently to prevent further damage from equipment. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable. Disturbed areas on which construction activities have ceased, temporarily or permanently, shall be stabilized within 14 calendar days unless they are scheduled to and do resume within 21 calendar days. The areas adjacent to creeks and drainageways shall have priority followed by protecting storm sewer inlets.

2. INSPECTION:

For areas of the construction site that have not been finally stabilized, areas used for storage of materials, structural control measures, and locations where vehicles enter or exit the site, personnel provided by the permittee and familiar with the SW3P must inspect disturbed areas at least once every seven (7) calendar days. An Inspection and Maintenance Report shall be prepared for each inspection and the controls shall be revised on the SW3P within seven (7) calendar days following the inspection.

3. WASTE MATERIALS:

All non-hazardous municipal waste materials such as litter, rubbish, trash and garbage located on or originating from the project shall be collected and stored in a securely lidded metal dumpster, provided by the Contractor. The dumpster shall be emptied as necessary or as required by local regulation and the trash shall be hauled to a permitted disposal facility. The burying of non-hazardous municipal waste on the project shall not be permitted. Construction material waste sites, stockpiles and haul roads shall be constructed to minimize and control the amount of sediment that may enter receiving waters. Construction material waste sites shall not be located in any wetland, water body or stream bed. Construction staging areas and vehicle maintenance areas shall be constructed in a manner to minimize the runoff of pollutants.

4. OFFSITE VEHICLE TRACKING:

Off-site vehicle tracking of sediments and the generation of dust must be minimized. Excess sediments on road shall be removed on a regular basis as directed/approved by the Engineer.

5. OTHER:

See the EPIC sheet for additional environmental information.

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED
PROFESSIONAL ENGINEER
1/18/2022

GARVER
285 SE Inner Loop
Suite 110
Georgetown, TX 78626
(512) 485-0020
TBPE Firm 5713

Texas Department of Transportation

STORM WATER POLUTION PREVENTION PLAN (SW3P)

SHEET 1 OF 1

FED. RD. DIV. NO.	FEDERAL AID PROJECT		SHEET NO.
6	SEE TITLE SHEET		185
STATE	DISTRICT	COUNTY	
TEXAS	AUS	VARIES	
CONTROL	SECTION	JOB	HIGHWAY
0914	00	457	VA

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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.

☐ 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.
5. NOI Required: ☐ Yes ☒ No

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.

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

III. CULTURAL RESOURCES CONT.

Action No.
Blanco, Blanco County: US 281 from 4th St (RR 1623) to 5th St; SL 163 from Main St (US 281) to Live Oak St
Johnson City, Blanco County: US 290 from Avenue G to Avenue E
Fredericksburg, Gillespie County: US 290 from Acorn St. to Edison St.

1. Note that work will be performed on the courthouse square in Blanco, the area by the US Post Office and City Park in Johnson City. Care must be taken to preserve the county's monuments.

2. No work shall occur on the courthouse square itself without prior approval from TxDOT and the Texas Historical Commission (THC).

3. To minimize potential damage to historic structures and materials, contractor must saw cut existing sidewalk 8 to 12 inches away from the historic resource.

4. Contractor shall construct new sidewalk next to the saw cut edge with installation of expansion joint in between. If existing sidewalk is to be removed entirely, the remaining 8 to 12 inches next to the historic structure, material, fence, or retaining wall must be removed by hand. Expansion joint must be placed between historic structure, material, fence, or retaining wall and new sidewalk.

5. Contractor must prevent damage to historic structure, materials, fences, retaining walls, including garden elements (planting beds, plantings) during the entire construction project, especially during removal of existing pavement, curb, or sidewalk. During the saw cut and hand removal process, contractor shall exercise utmost caution and shall physically protect historic structure foundation, materials, elevations, entryways with decorative flooring, fences, retaining walls, and landscape elements. When pouring concrete for repair or new install, contractor shall prevent splashback of concrete onto historic resource.

6. Contractor must repair or replace in kind, at his own expense, any historic materials damaged in the course of executing the work. Contractor shall locate replacement source for historic materials damaged in the course of the work. TxDOT-Environmental Affairs Division shall be informed of proposed repairs to facilitate consultation with Texas Historical Commission prior to execution of repair work.

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. Contractor to prune existing trees and brush for construction and ADA clearance, in accordance with the General Notes.
2. Provide a certified arborist to review the condition of trees identified within these plans to be protected. An arborist shall provide a condition assessment of these trees and written direction for additional protection at least 5 business days prior to beginning work. TxDOT will approve additional work. Payment for the arborist and work in addition to work shown on the plans will be paid for under the force account method in accordance with Article 9.7, "Payment for Extra Work and Force Account Method."

3. Once work commences, coordinate with the arborist while excavating, and take care when working in/near the critical root zone and shall expose existing tree roots and document with photographs to verify condition. The arborist shall review proposed improvements to be constructed and recommend improvements to avoid damage to tree roots. TxDOT will approve recommendations prior to construction. Damage to existing roots, root barriers or other underground facilities shall be replaced in-kind at the Contractor's own expense.

4. During work hours, if it is deemed unsafe or insufficient room exists adjacent to provide tree protection fencing per the standards herein, tree protection chain link fencing may be removed temporarily within the work area. Tree protection planking shall remain and shall not be removed. After completion of work adjacent to trees in these areas, or at the end of each work day, tree protection fencing shall be re-erected.

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

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS. CONT.

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.

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 ☒ N/A

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

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

STATE OF TEXAS
STEPHEN A. JOHNSON
103591
LICENSED
PROFESSIONAL ENGINEER
1/18/2022

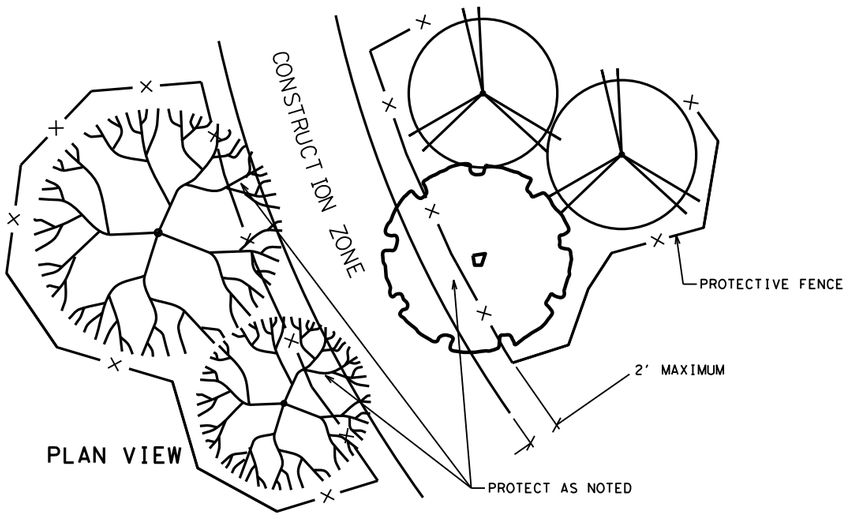
Texas Department of Transportation

Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

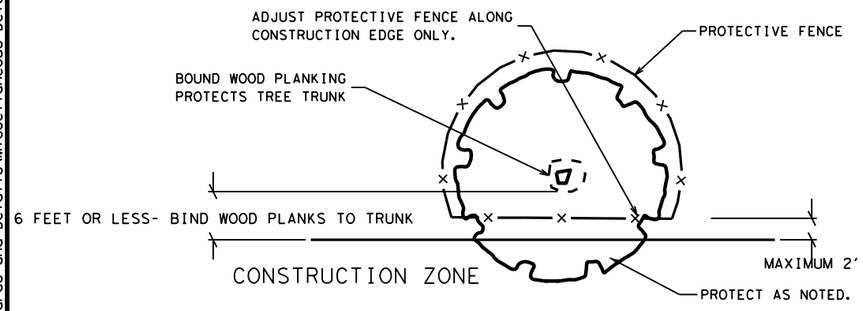
EPIC

FILE: epic.dgn	DN: TxDOT	CK: SAJ	DW: AQN	CK: AQN
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
12-12-2011 (DS)	DIST	COUNTY		SHEET NO.
05-07-14 ADDED NOTE SECTION IV.	AUS	VARIES		186
01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.				

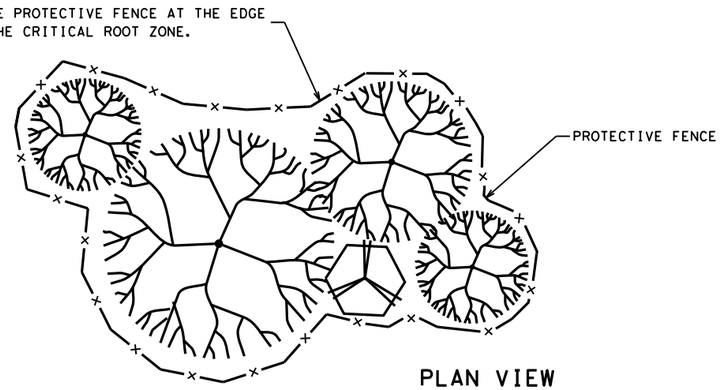


PLAN VIEW

LINEAR CONSTRUCTION THROUGH STAND OF TREES

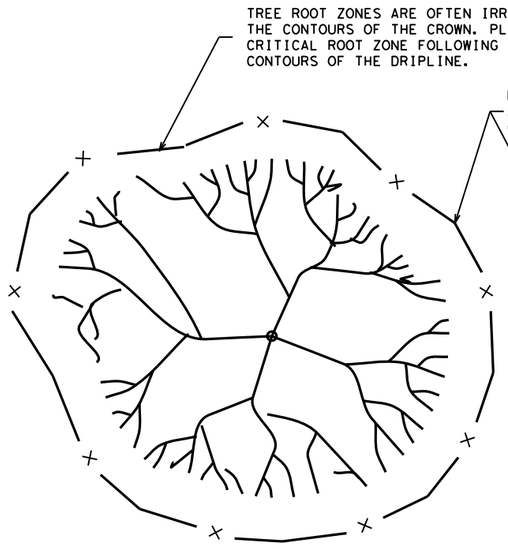


PLAN VIEW PAVING UNDER TREES

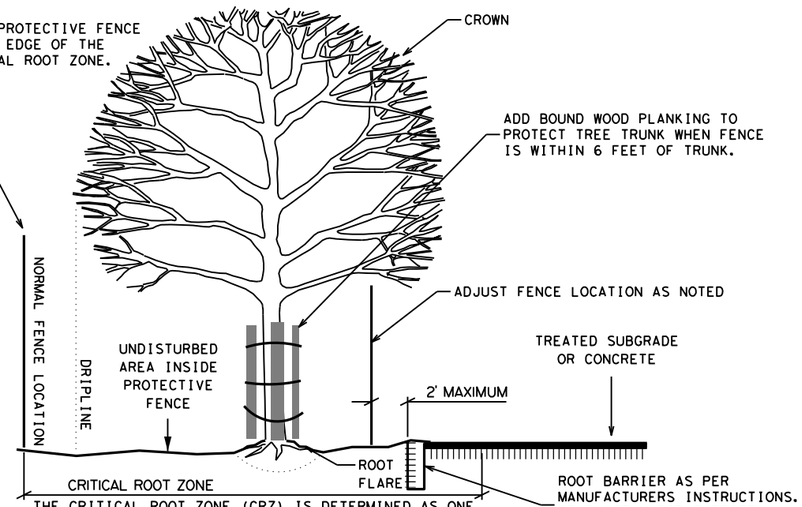


PLAN VIEW

TYPICAL TREE GROUPING PROTECTION



PLAN VIEW



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

SECTION VIEW

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
0914	00	457	VA
DIST	COUNTY		SHEET NO.
AUS	VARIES		187

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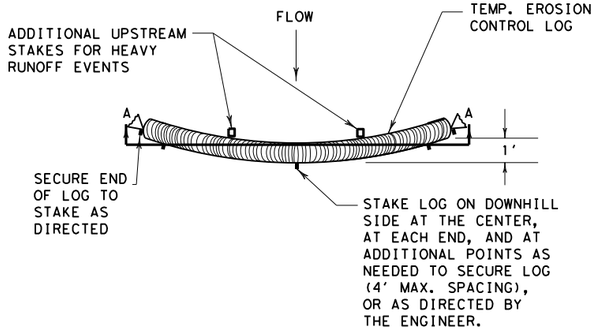

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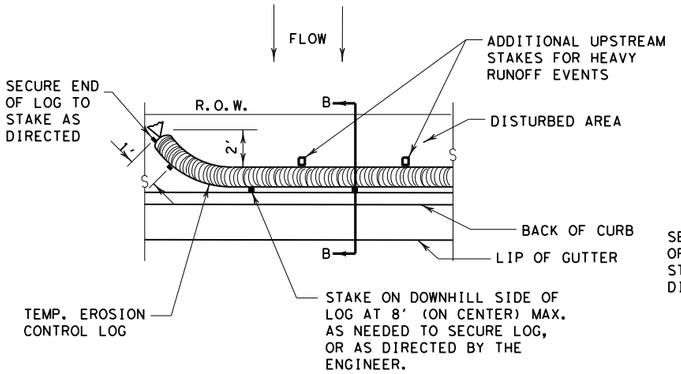

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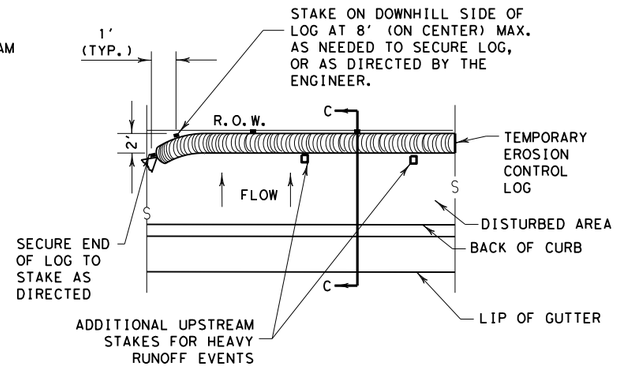
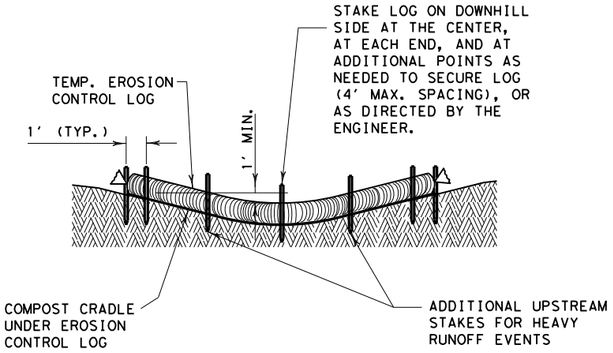


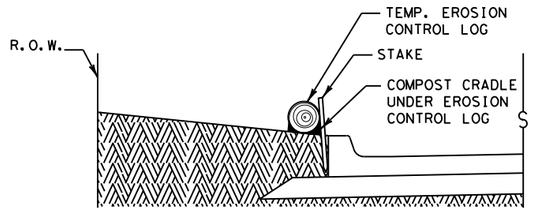
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

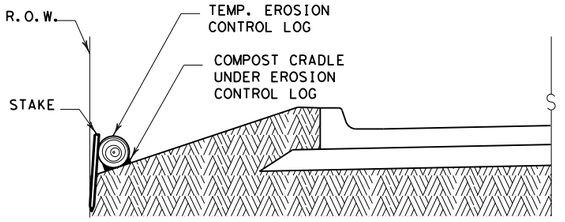
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

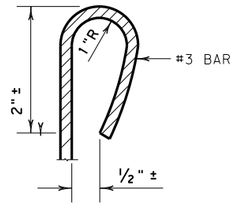
CL-BOC



SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



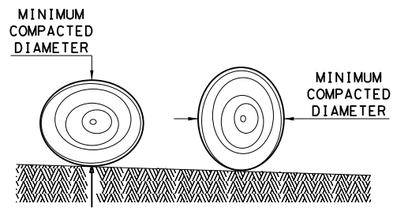
REBAR STAKE DETAIL

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

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.

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	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		188

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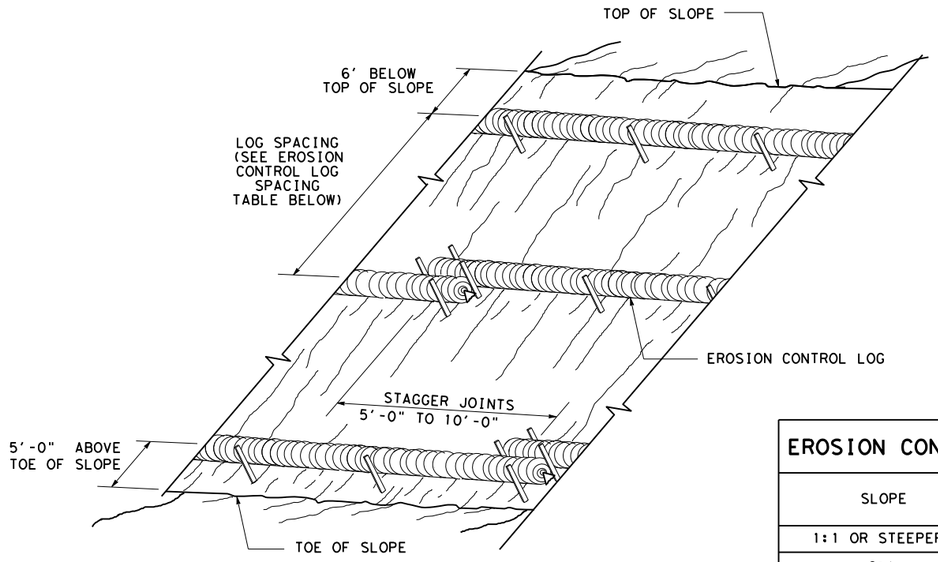
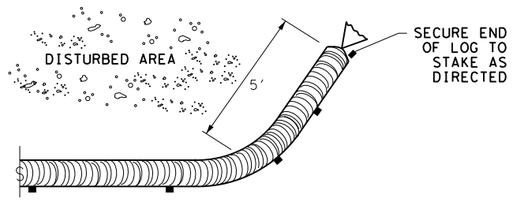


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

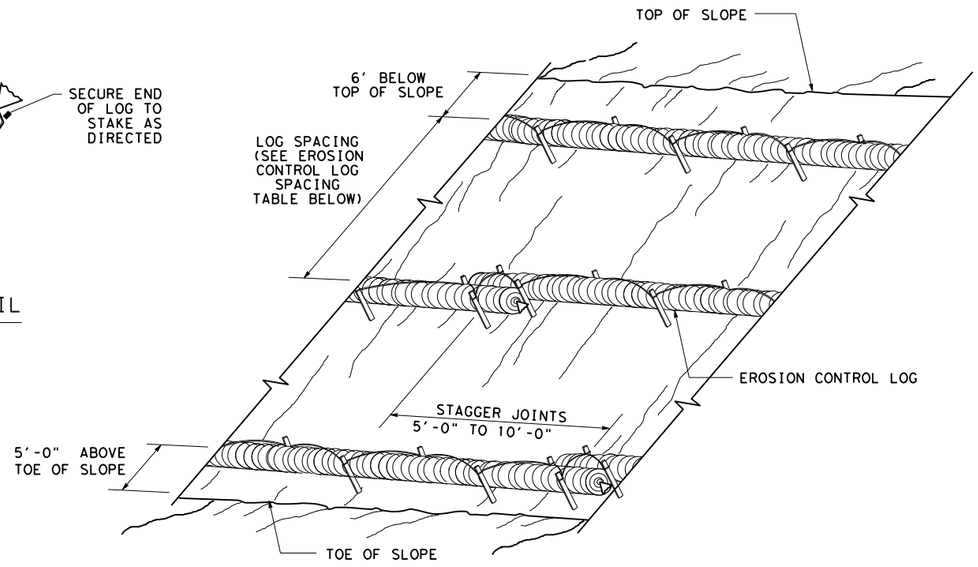
CL-SST



END SECTION RAP DETAIL

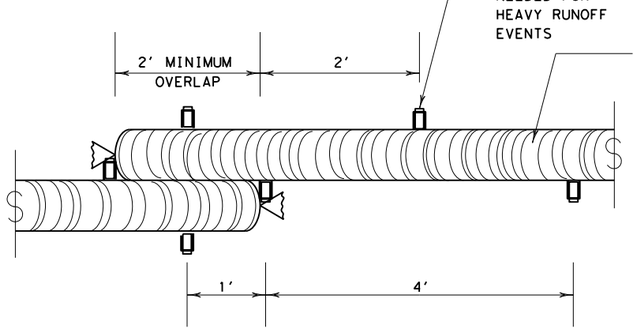
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

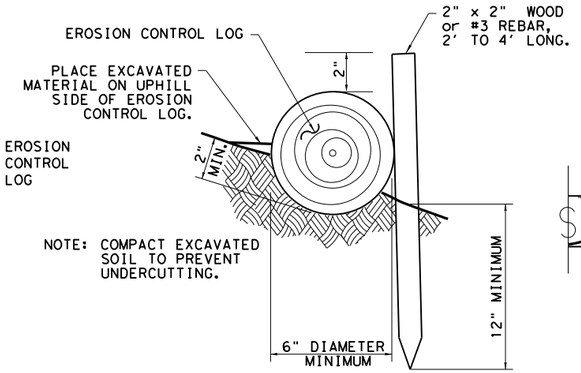
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

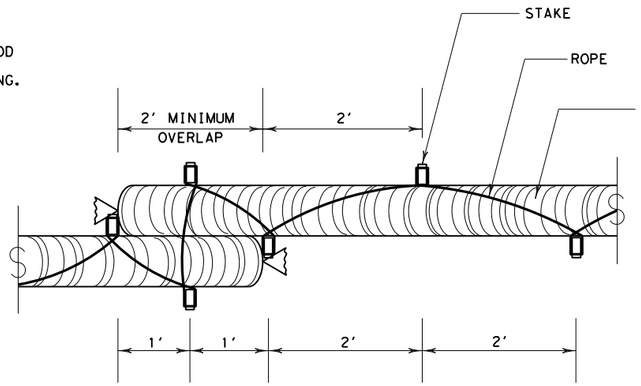


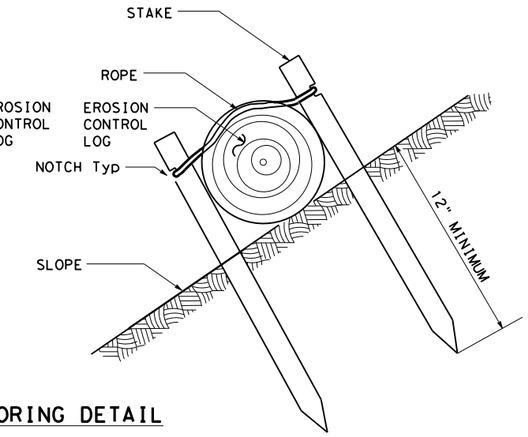


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

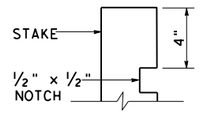
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



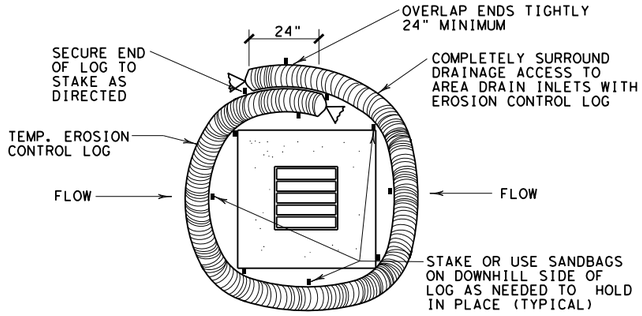
STAKE NOTCH DETAIL

Texas Department of Transportation — Design Division Standard

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

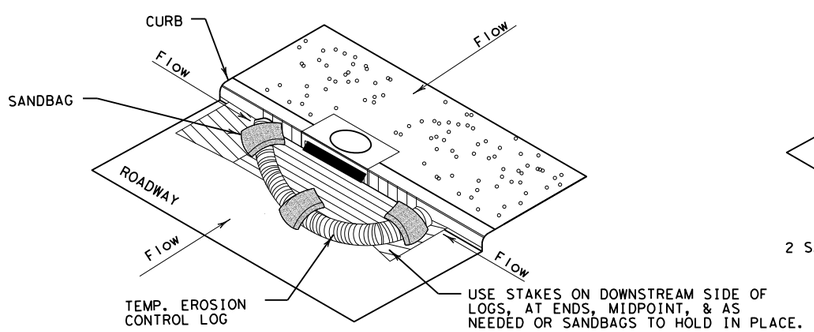
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0914	00	457	VA
	DIST	COUNTY		SHEET NO.
	AUS	VARIES		189

DATE: 1/18/2022
FILE: L:\2018\18208002 - AUS ADA Ramps - FY 2021\Drawings\10 Standards and Details\Miscellaneous Standards\ec916(SHT_3).dgn



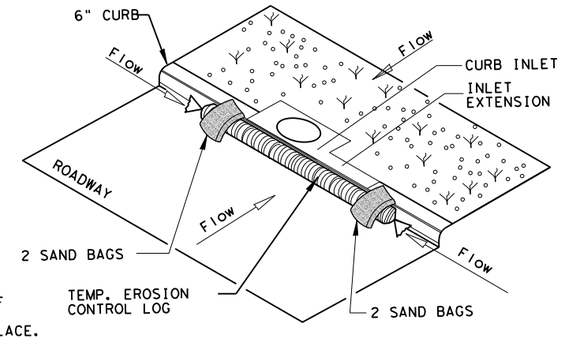
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

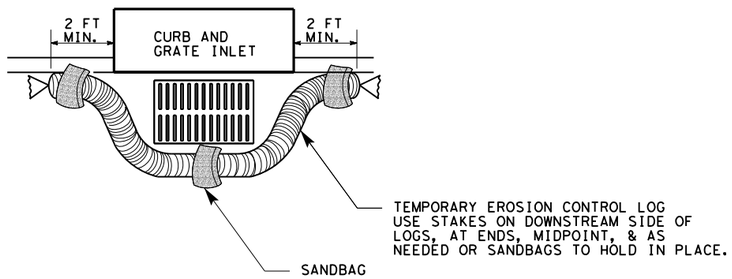
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

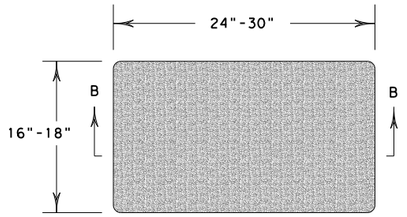
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



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	0914	00	457		VA	
	DIST	COUNTY				SHEET NO.
	AUS	VARIES				190