FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	STP 2024 (774) TAPS		1
STATE	STATE DIST.	COUNTY	
TEXAS	CRP	LIVE OAK	
CONT.	SECT.	JOB	HIGHWAY NO.
0916	29	019	VA

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
PEDESTRIAN IMPROVEMENTS

FEDERAL AID PROJECT PROJECT NO.: STP 2024 (774) TAPS
CSJ: 0916-29-019

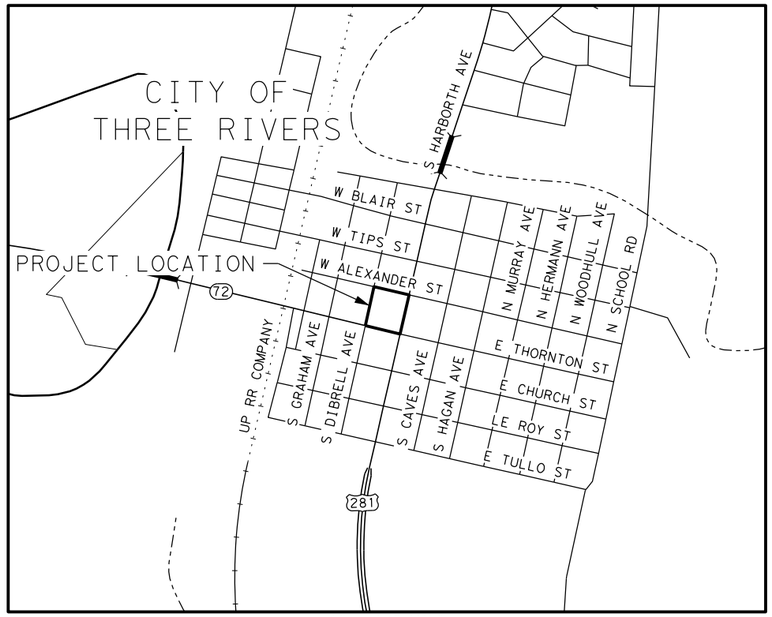
LIVE OAK COUNTY
HWY: VARIOUS

NET LENGTH OF ROADWAY = 1909 FT = 0.36 MI
NET LENGTH OF BRIDGE = 0.00 FT = 0.00 MI
NET LENGTH OF PROJECT = 1909 FT = 0.36 MI

LIMITS: VARIOUS LOCATIONS IN THREE RIVERS

FOR THE CONSTRUCTION OF: PEDESTRIAN SIDEWALKS AND CURB RAMPS

CONSISTING OF: REMOVE AND REPLACE DETERIORATED SIDEWALKS WITH SEGMENTS OF 5- TO 8-FOOT-WIDE SIDEWALKS ALONG THORNTON ST, DIBRELL AVE, AND W ALEXANDER ST. PROJECT ALSO INCLUDES ADA CURB RAMPS, CROSSWALKS, SIGNAGE, AND BULB OUTS.



1" = 1/3 MILE

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH BC(1)-21 THRU BC(12)-21 AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, 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, OCTOBER, 2023)

EXCEPTIONS: NONE
EQUATIONS: NONE
R.R. CROSSINGS: N/A

INDEX OF SHEETS

SEE SHEET 2 FOR INDEX OF SHEETS

DESIGN SPEED = 30 MPH
AREA OF DISTURBED SOIL = 0.43 AC
ADT: 2022 (15,076)
ACCESSIBILITY STANDARDS = PROWAG

REGISTERED ACCESSIBILITY SPECIALIST (RAS) INSPECTION REQUIRED

TDLR NO. _____

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS COMPLETED & ACCEPTED: _____

FINAL CONTRACT COST: $ _____

CONTRACTOR: _____

FINAL PLANS STATEMENT:

THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS.

_____ P.E. _____
AREA ENGINEER DATE

RECOMMENDED FOR LETTING 5/28/2024

DocuSigned by:
Paula Sales-Evans, P.E.
5975450A18CC48B... DIRECTOR OF TRANSPORTATION PLANNING AND DEVELOPMENT

APPROVED FOR LETTING 5/28/2024

DocuSigned by:
Valente Olivarez
303F64E8A9B44E0... DISTRICT ENGINEER

FILE LOCATION
S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\612540601_3_Rivers_TITLESHEET.dgn
5/23/2024

LEVELS DISPLAYED
1

☒ THE STANDARDS SHEETS SPECIFICALLY IDENTIFIED ON THIS SHEET HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED · PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED · PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

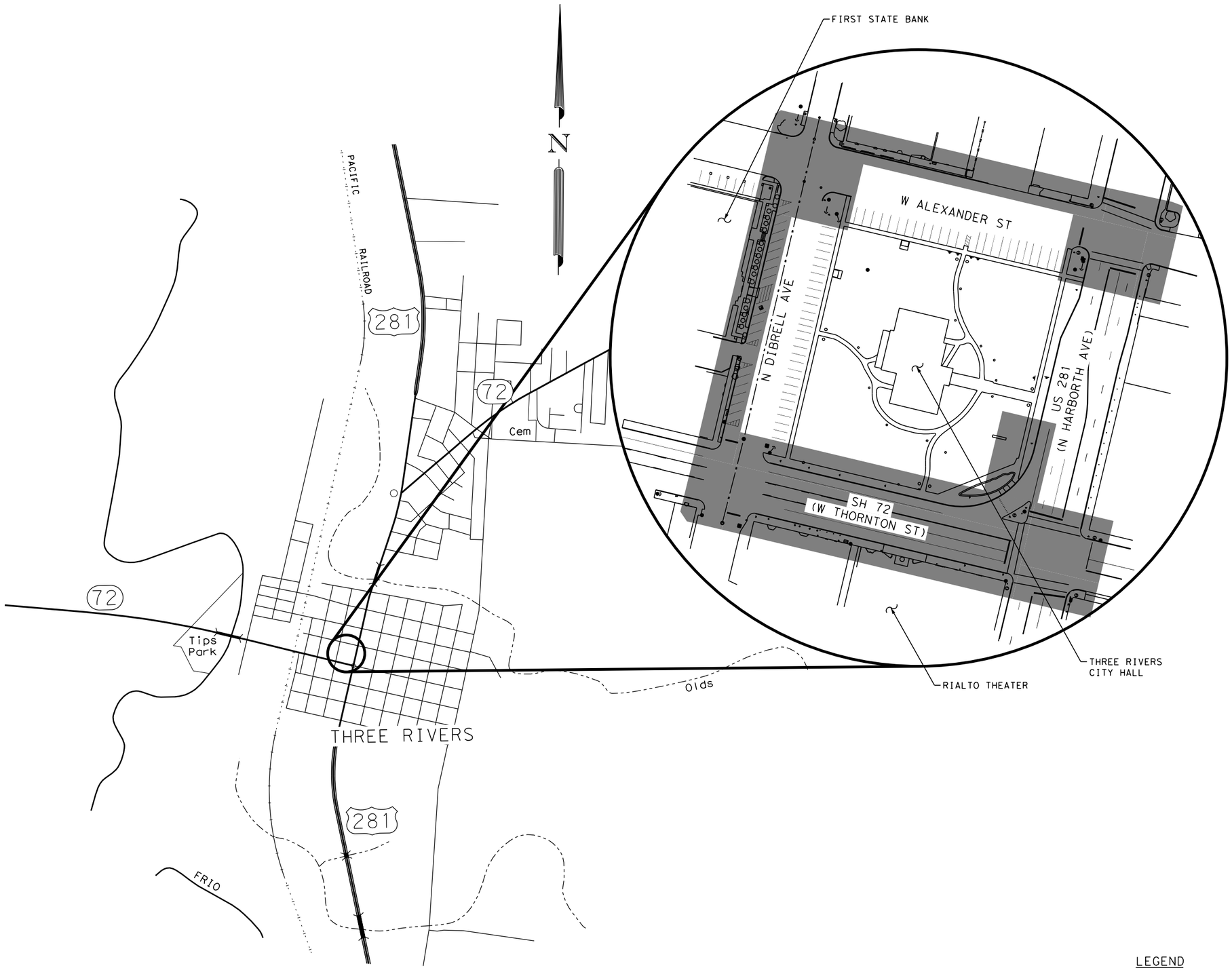
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

INDEX OF SHEETS

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	2

Plotted on: 5/23/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_PRJ.dgn



DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

PROJECT LAYOUT MAP

LEGEND

PROJECT LIMITS

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	3

GENERAL NOTES:

Find, for your information and convenience, tools such as forms, software, materials, and various other information provided by the Department at https://www.txdot.gov/business.html. Please note that these tools are updated periodically and your attention is directed to the latest edition.

In the event of a called evacuation, emergencies, impending adverse weather or as directed, do not perform any work without written authorization. The District reserves the right to suspend all work in support of evacuations or emergencies occurring from other parts of the state. Any work performed, other than work directed by the Department, is unauthorized work in accordance with Item 5.

Sweep, clean and remove any construction waste, surplus materials or debris from the roadway and right of way at the end of each day unless otherwise approved. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Asphalt application season will be established in accordance with Item 316.4.4 Adverse Weather Conditions or as directed by the Engineer.

Cut existing pavement using a saw or other approved method to ensure a neat transverse and/or longitudinal line to assure a smooth tie-in with new pavement. Cut to a minimum depth of the final lift thickness. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Promptly pick up and properly dispose of paper and other materials used for pavement joints.

All pavement markings shall be in accordance with the latest edition of Texas MUTCD.

Contractor questions on this project are to be addressed to the following individual(s):

Lucia Adame, P.E. Lucia.Adame@txdot.gov
Eric Martinez, P.E. Eric.Martinez@txdot.gov

Contractor questions will be accepted through email, phone, and in person by the above individuals. Questions may also be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the

County: LIVE OAK **Control: 0916-29-019**

Highway: VARIOUS

controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.
To minimize potential damage to historical age structures and materials identified in the plans, including the Rialto Theater, First State Bank, and 101 E Thornton St, contractor must saw cut sidewalk 8-12 inches away from the historical structure and take the following precautionary measures.

1. 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.

2. Contractor must prevent damage to historic structure, materials, fences, retaining walls, 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.

3. 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.

4. Contractor shall protect all historical structures and materials identified utilizing barrels and fencing during construction and as directed by the Engineer to ensure no adverse effects. This work will not be paid for directly, but will be subsidiary to item 502.

Contractor is responsible for providing 4”x8” cylinders for the project.

ITEM 2

It is recommended that prospective bidders examine the specified work locations with the Engineer to view the nature of the work, the need for close coordination with the various utilities, traffic control considerations, and other factors influencing the prosecution of the work.

ITEM 5

Field verify all dimensions and notify Engineer prior to initiating any work.

Verify the locations of utilities, underground or overhead, shown within the limits of the right-of-way. Adhere to OSHA Standards when working within the vicinity of overhead power lines.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GENERAL NOTES

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	4A

Coordinate with the utility companies and notify the Engineer of any possible conflicts. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

The 811 call services for a utility location does not include TxDOT facilities. Provide notification to the District Traffic Signal Shop by email at CRP_Utility_Locate@txdot.gov or call 361-739-6044 when planning, drilling, or excavating in areas where existing TxDOT underground utilities exist. Visual evidence of TxDOT underground utilities in the area include illumination poles, ground boxes, flashing beacons, traffic signals, etc. This notification must be provided 48 hours in advance of performing the work, but no earlier than 72 business hours before the work will commence. Drilled shaft locations or excavation areas must be staked prior to the notification so that the underground utilities can be located in relationship to the proposed work.

Notify the Engineer immediately of utility conflicts in accordance with Item 5.6. Refer to Item 4.5 for consideration of differing site conditions.

Establish and mark the location of existing standard pavement markings including but not limited to edge lines, transitions, passing and no passing zones, gore areas, etc.

ITEM 6

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit an original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link. https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html for clarification on material categorization.

ITEM 7

The work performed for Item 7.2.4, “Public Safety and Convenience” will not be measured or paid for directly, but will be subsidiary to pertinent Items.

When working at street, farm-to-market, state highway, and county road intersections, schedule work to minimize intersection closures. During nonworking hours, all public road intersections will be open to the traveling public.

County: LIVE OAK **Control: 0916-29-019**

Highway: VARIOUS

The total disturbed area for this project is 0.7 acres. The disturbed area in this project, all project locations in the Contract, and Contractor project specific locations (PSLs), within 1 mile of the project limits, for the Contract will further establish the authorization requirements for storm water discharges. The Department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans. The Contractor is to obtain any required authorization from the TCEQ for any Contractor PSLs for construction support activities on or off ROW. When the total area disturbed for all projects in the Contract and PSLs within 1 mile of the project limits exceeds 5 acres, provide a copy of the Contractor NOI for PSLs on the ROW to the Engineer.

Establish uniform perennial vegetative coverage with a density of at least 70% of the native background vegetative cover to achieve final stabilization.

Comply with the Texas Aggregate Quarry and Pit Safety Act for waste areas or material source areas resulting from this project.

No significant traffic generator events identified.

ITEM 8

Prepare the progress schedule using the Critical Path Method (CPM). Submit (2) two 11” x 17” hard copies and an electronic file of the original or updated progress schedule. Submit the original progress schedule seven (7) days before the Preconstruction Conference.

Submit an updated progress schedule as directed to show proposed major changes, changes affecting compliance with the contract requirements, or changes affecting the critical path/controlling item of work. (For Item 8.5)

Working days will be computed and charge in accordance with Article 8.3.1.4, “Standard Workweek”. (For Item 8.3.1.4.)

Notify the Engineer at least 48 hours in advance of weekend or nighttime work.

Complete all work along one corridor before proceeding to a new corridor unless otherwise approved. If additional corridors are approved, erect barricades only for those additional corridors. Maintain barricades at each of these corridors until all work at the site is completed and accepted.

ITEM 9

Monthly progress payments will be made for items of work completed by the 28th day of each month. Any work completed after the 28th will be included for payment in the subsequent monthly progress estimate.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GENERAL NOTES

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	4B

Submit signed request for compensation of material-on-hand (MOH), including any requests from subcontractors, suppliers, or fabricators for MOH, at least two (2) working days prior to the end of the month on the Departments approved forms.

ITEM 100

Coordinate all right of way preparation activities with the project's Storm Water Pollution Prevention Plan (SWP3) and Environmental Permit Issues, and Commitments Sheet (EPIC) or as approved.

Prune trees and shrubs as directed. Use accepted pruning practices in accordance with Item 192 and as defined by the National Arborist Association. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

ITEM 162

Restore and sod areas not shown in the plans disturbed by the Contractor's operations. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

ITEM 168

Distribute water to only those areas shown in the plans or as directed. Excessive overspray will not be permitted.

Water all areas of the project to be seeded or sodded every two (2) days for 90 days or as directed. Apply water in a manner to ensure adequate moisture but not to erode the soil in-place. During periods of adequate moisture, mechanical watering may not be required as approved. Upon final stabilization, the Engineer may require to continue watering as specified for a period not to exceed 30 days.

The Basis of Estimate below establishes the approximate quantity of water required to complete the 90-day watering cycle:

Rate	Water (Gal/Acre/Day)	Area (Acre)	Total Gallons (Min)
0.25 inch/week	1961	1	88.245

ITEM 351

Use of motor grader will not be permitted unless approved.

County: LIVE OAK **Control: 0916-29-019**

Highway: VARIOUS

Saw cut and remove the full depth of pavement repair at all transverse joints.

ITEM 423

Furnish and install pipe underdrains for all retaining walls. Include the details and manufacturer, the limits and dimensions, the outfall location, and all details necessary to incorporate the underdrain system in the working drawings. The work performed for the underdrain system within and outside the limits of the retaining wall to the outfall will not be measured or paid for directly, but will be subsidiary to pertinent Items.

ITEM 432

Saw cut the existing riprap to ensure a neat transverse and/or longitudinal line to assure a smooth tie-in with new riprap. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Reinforce concrete riprap with flat sheets of welded wire fabric or with No. 3 reinforcing bars spaced at a maximum of 12 inch in each direction.

Weep holes shall be required unless otherwise directed by engineer.

Place asphalt expansion joint material between proposed riprap and utility poles, guy wires, vent pipes, stand pipes and as directed.

Place felt or filter fabric at open joints as required by the Engineer. This will be considered subsidiary.

ITEM 465

Shape and route floor inverts passing through the manhole or inlet with Class "B" concrete. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

ITEM 500

"Materials on Hand" payments are not considered when determining partial payments.

ITEM 502

Furnish additional barricades, signs, and traffic handling as directed. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GENERAL NOTES

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	4C

Traffic control for daytime lane closures shall be in accordance with applicable standards. Traffic control shall include temporary rumble strips in accordance with WZ (RS)-22.

Attach stop/slow paddle to a staff with a minimum length of 6 feet to the bottom of the sign.

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

All items marked as optional on all traffic control standards shall be required unless otherwise approved by an Engineer.

Trail vehicle shall be required on all mobile traffic control operations.

ITEM 504

No field office will be required for this project.

ITEM 506

Designate in writing a Contractor Responsible Person (CRP) for implementing, maintaining, and reviewing environmental requirements.

ITEM 529

Construct an expansion joint at a depth equal to the depth of the curb, gutter, and combined curb and gutter every 40 feet. Construct a tooled joint every 10 feet. When sidewalks are constructed next to curb or curb and gutter, place sidewalk expansion joints at the same location as the curb and gutter expansion joints.

HMA removed for proposed curb and ramps will be replace with 3076 DG-D HMA at 2ft width along the perimeter of the section removed and will require tack coat to be used. This HMA work will not be paid for directly, but will be subsidiary to this bid item.

ITEM 530

If conditions warrant, driveway locations, widths, or lengths may be adjusted as directed.

County: LIVE OAK **Control: 0916-29-019**

Highway: VARIOUS

Use Class A Concrete for all concrete driveways.

High early strength concrete for proposed driveways to be available as deemed necessary and as directed.

ITEM 531

Reinforce sidewalks with 6 x 6 – D6 welded wire fabric or with No. 3 reinforcing bars spaced at a maximum of 12 inch in each direction unlessf otherwise shown.

Construct an expansion joint at a depth equal to the depth of the sidewalk every 40 feet. Construct a tooled joint every 5 feet. When sidewalks are constructed next to curb or curb and gutter, place sidewalk expansion joints at the same location as the curb and gutter expansion joints.

Mixing of detectable warning materials is not permitted on curb ramps.

Retaining walls integrated with the sidewalk are not paid for separately and are considered subsidiary to Item 531 Conc Sidewalks (Special) (Type B). Wall heights, as measured from top of footing to top of wall are 15" typical in cut scenarios and 2' typical in fill scenarios. See plans for specific wall heights and lengths.

The curb ramp locations shown in the plans have taken into account the geometric features of the intersection, utilities, traffic signals, and the pavement markings. If anything changes during construction, the location of curb ramps must be adjusted to ensure they meet PROWAG requirements.

The furnishing and installation of the sand cushion in proposed sidewalks, curb ramps, and driveways will not be paid for directly but will be subsidiary to this bid item.

Truncated dome pavers are prohibited.

All detectable warning surfaces are to be prefabricated panels constructed of cast iron or composite materials of contrasting color to the surrounding material, as approved by the Engineer.

Proposed curb ramps, sidewalks, curbs, and riprap are to be doweled 8 in minimum, unless otherwise shown, into existing concrete using ½-in reinforcement placed on 12 in centers.

Curb wall along ramps and landings, unless otherwise shown on the plans, is not paid for separately but is subsidiary to the ramp or landing. If the wall extends above the plane of the ramp, Concrete sidewalks (Special) (Type B) should be utilized unless otherwise noted on the plans. See special details sheets for more information.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GENERAL NOTES

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	4D

Areas labeled with a “T” on the construction drawings allow the Contractor to transition to existing conditions. Slope and grade of all transitions must be approved by the Engineer.

For driveways and turnouts, coarse aggregate Grade No. 3 through No. 8 conforming to the gradation requirements specified in the Item, “Hydraulic Cement Concrete” will be permitted.

Construct ADA-compliant curb ramps based upon referenced design criteria, PROWAG and TxDOT Pedestrian Facilities Standards. Consider the locations of existing traffic and pedestrian control devices including loop detectors and pedestrian push buttons during curb ramp construction at signalized intersections, and construct ramps to allow such existing facilities to remain undisturbed and reused to the fullest extent possible while providing for full ADA compliance. All intersection corners are unique and it may be necessary to use various combinations of ramp, landing, wall, and flare elements to achieve an ADA-compliant ramp configuration.

Review the curb ramp location and layout with the inspector prior to demolition so that both parties agree that the curb ramp can be installed properly. Should it become apparent at any time during the ramp layout and construction process that a curb ramp cannot be installed as indicated on the plans, promptly notify the Engineer.

Any approval, inspection, or checking of the Contractor’s layout and the acceptance of all or any part of it shall not relieve the Contractor of his responsibility to secure the proper dimensions, grades and elevations of the various parts of the work.

Construction of each curb ramp is to be completed within seven (7) working days after start of construction process. Construction process of curb ramps shall include: demolition of existing conditions, placement of concrete or brick, removal of lips, street surface patching in front of the curb or ramp, adjustment of counter slope within 24-inches of the bottom of the ramp or curb and gutter, street level landings, backfill, placement of topsoil, grading and sodding, and clean-up. All other related work such as adjustment of crosswalk, special heat-welds, asphalt overlays, and other work that does not affect accessibility shall be completed per a schedule pre-approved by the Engineer.

Contractor is to match existing concrete color and texturing at various locations determined by the Engineer.

The furnishing and installation of pipe underdrains, filter material, and other incidentals to ensure proper drainage of special concrete sidewalk with retaining wall per Concrete Sidewalk (Special)(Type B) will not be paid for directly but shall be considered subsidiary to this bid item and in accordance with Item 556.

Removal of existing concrete, surfaces, asphalt, base material, sign posts, miscellaneous materials, and all incidentals is included in this pay item within the footprint of the proposed work.

County: LIVE OAK **Control: 0916-29-019**

Highway: VARIOUS

In areas where there is no curb fillet or concrete pavement, saw cut the existing curb and gutter and remove the curb.

When lack of right of way width or obstructions creates insufficient space, the ramp may be relocated within the right of way when authorized by the Engineer.

All deficient ramps will be removed and replaced at the Contractor's expense.

For curb ramps, form tooled joints on each side of the ramp section where it meets a flare or curb wall, at each break in ramp slope or geometry, and at intervals equivalent to the width of the sidewalk for the purpose of cracking control. Place expansion joint material between proposed ramps and existing concrete.

Place expansion joint material between proposed sidewalk and utility poles, guy wires, vent pipes, stand pipes and as directed.

Schedule work such that two-way traffic is provided through all intersections and intersecting streets at all times, unless otherwise authorized by the Engineer.

Limit operations such that no more than 12 separate curb ramp locations or 3 blocks of sidewalk are under construction and incomplete at any time, unless otherwise authorized by the Engineer.

ITEM 618

Seal all conduits terminating in ground boxes and pole foundations with a sealant made of polyurethane or equivalent that will cure in the presence of moisture. Ensure sealant is suitable for sealing ends with electrical conductor extending past the ends of the conduit. Inject the sealant a minimum of 3 inches and a maximum of 5 inches into the conduit.

Provide rigid metal conduit (RMC) elbows for all underground conduit bends of 45 degrees or more, including bends into ground boxes. Provide a polyvinyl chloride conduit (PVC) elbow in lieu of a RMC elbow for conduit 1 inch or larger. Ensure the elbow is the same schedule rating as the conduit to which it is connected.

Bond the RMC to the grounding conductor with grounding type bushings when the RMC is exposed or extends into the ground box.

Provide a flat, high tensile strength polyester fiber pull tape in each conduit to pull conductors. All conduit runs under existing pavement or existing driveways not being reconstructed as a part of the project shall be bored. Where boring is required, it shall be placed at a minimum depth of 3.5 feet from proposed grade.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GENERAL NOTES

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	4E

Design Filename: S:\projects\6125\54\06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_GEN.dgn Plotted on: 5/23/2024

ITEM 624

Aggregate fill shall consist of ¾ inch up to 2 inch course aggregate. Ensure aggregate is in place prior to setting box and conduits shall be capped.

ITEM 644

Use crash worthy supports as shown on the BC sheets, the CWZTCD, or as directed for signs relocated using temporary supports. The work performed will not be measured or paid for directly, but will be subsidiary to pertinent Items.

All slip bases and hardware including but not limited to nuts, bolts, screws and washers will be galvanized. All sign and housing components will be galvanized. Slip bases shall be clamp-style.

ITEM 677

Eliminate all conflicting pavement markings as work progresses or as directed.

Removal method must be approved by the Engineer.

No Surface Treatment Method on concrete surfaces.

When using Surface Treatment Method for asphaltic pavements, use a PB Grade 5 aggregate at an application rate of 1 cy/130 sy and asphalt AC-10, CRS-2 or HFRS-2 at a application rate of 0.39 Gal/sy.

ITEM 3076

SAC requirements apply to aggregates used on all surfaces.

Construct longitudinal joints with a joint maker providing a maximum one (1) inch vertical edge (1/2 inch desirable) with an adjacent 6:1 taper. Backfill edges within the same day.

The Engineer reserves the right to test all sources even if the source is listed in the Bituminous Source Rated Quality Catalog

Provide the testing lab samples to calibrate the ignition oven no later than five (5) working days prior to mix design verification.

Place HMA utilizing an automatic, dual, longitudinal-grade control system and automatic transverse-grade control system as specified under Item 320, unless otherwise approved by the Engineer.

County: LIVE OAK **Control: 0916-29-019**

Highway: VARIOUS

Contractor shall temporarily cover all inlets during the milling and paving operations. Inlets shall be uncovered when milling and paving operations are complete. This shall be subsidiary to Item 3076 and not paid for directly.

ITEM 6001

Furnish the portable changeable message signs displaying the correct message at least seven (7) days prior to beginning work or as directed.

The Contractor's Responsible Person (CRP) will maintain full control of messages at all times.

The Engineer will provide the sign message text to use at each sign.

A minimum of 1 PCMS will be required. However, additional units may be necessary depending on the work in progress.

Standby time will not be measured or paid for directly, but will be subsidiary to pertinent Items.

Portable changeable message signs may be moved and message changed at any time as deemed necessary by the Engineer. This will be considered subsidiary to Item 6001.

ITEM 6185

A minimum of 1 TMAS will be required. However, additional units may be necessary depending on the work in progress.

Provide manufacturer's curb weight or certified scales weight ticket to the Engineer for approval.

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

GENERAL NOTES

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	4F

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0916-29-019 **DISTRICT** Corpus Christi **COUNTY** Live Oak
HIGHWAY Various

							TOTAL EST.	TOTAL FINAL
			CONTROL SECTION JOB		**0916-29-019**			
			PROJECT ID		**A00185354**			
			COUNTY		**Live Oak**			
			HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**		**UNIT**	EST.	FINAL		
	100-6001	PREPARING ROW		AC	1.000		1.000	
	100-6004	PREPARING ROW(TREE)(12" TO 24" DIA)		EA	1.000		1.000	
	104-6009	REMOVING CONC (RIPRAP)		SY	51.000		51.000	
	104-6015	REMOVING CONC (SIDEWALKS)		SY	46.000		46.000	
	104-6017	REMOVING CONC (DRIVEWAYS)		SY	41.000		41.000	
	104-6029	REMOVING CONC (CURB OR CURB & GUTTER)		LF	707.000		707.000	
	105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")		SY	362.000		362.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")		SY	205.000		205.000	
	162-6002	BLOCK SODDING		SY	205.000		205.000	
	168-6001	VEGETATIVE WATERING		MG	4.000		4.000	
	351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")		SY	807.000		807.000	
	402-6001	TRENCH EXCAVATION PROTECTION		LF	77.000		77.000	
	416-6001	DRILL SHAFT (18 IN)		LF	40.000		40.000	
	420-6071	CL C CONC (COLLAR)		EA	2.000		2.000	
	420-6074	CL C CONC (MISC)		CY	9.600		9.600	
	420-6132	CL A CONC (STEPS)		CY	3.000		3.000	
	432-6003	RIPRAP (CONC)(6 IN)		CY	18.900		18.900	
	450-6047	RAIL (HANDRAIL)(TY A)		LF	50.000		50.000	
	450-6048	RAIL (HANDRAIL)(TY B)		LF	211.000		211.000	
	464-6005	RC PIPE (CL III)(24 IN)		LF	59.000		59.000	
	464-6010	RC PIPE (CL III)(48 IN)		LF	8.000		8.000	
	465-6002	MANH (COMPL)(PRM)(48IN)		EA	1.000		1.000	
	465-6004	MANH (COMPL)(PRM)(72IN)		EA	1.000		1.000	
	465-6127	INLET (COMPL)(PSL)(FG)(4FTX4FT-3FTX3FT)		EA	2.000		2.000	
	465-6557	INLET (CURB)(SPL)		EA	2.000		2.000	
	471-6003	GRATE & FRAME		EA	44.000		44.000	
	479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)		EA	10.000		10.000	
	500-6001	MOBILIZATION		LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING		MO	6.000		6.000	
	506-6041	BIODEG EROSN CONT LOGS (INSTL) (12")		LF	500.000		500.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)		LF	500.000		500.000	
	528-6004	LANDSCAPE PAVERS		SY	6.000		6.000	
	529-6001	CONC CURB (TY I)		LF	6.000		6.000	
	529-6002	CONC CURB (TY II)		LF	543.000		543.000	
	529-6007	CONC CURB & GUTTER (TY I)		LF	46.000		46.000	
	529-6008	CONC CURB & GUTTER (TY II)		LF	1,100.000		1,100.000	
	530-6004	DRIVEWAYS (CONC)		SY	168.000		168.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0916-29-019 **DISTRICT** Corpus Christi **COUNTY** Live Oak
HIGHWAY Various

			CONTROL SECTION JOB		**0916-29-019**	TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00185354**		
			COUNTY		**Live Oak**		
			HIGHWAY		**Various**		
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	530-6005	DRIVEWAYS (ACP)	SY	5.000		5.000	
	531-6001	CONC SIDEWALKS (4")	SY	518.000		518.000	
	531-6018	CURB RAMPS (TY 1)	SY	73.000		73.000	
	531-6019	CURB RAMPS (TY 2)	SY	54.000		54.000	
	531-6020	CURB RAMPS (TY 3)	SY	120.000		120.000	
	531-6023	CURB RAMPS (TY 6)	SY	17.000		17.000	
	531-6024	CURB RAMPS (TY 7)	SY	70.000		70.000	
	531-6030	CURB RAMPS (TY 21)	SY	15.000		15.000	
	531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	285.000		285.000	
	618-6023	CONDT (PVC) (SCH 40) (2")	LF	885.000		885.000	
	618-6024	CONDT (PVC) (SCH 40) (2") (BORE)	LF	229.000		229.000	
	618-6037	CONDT (PVC) (SCH 40) (6")	LF	1,431.000		1,431.000	
	618-6038	CONDT (PVC) (SCH 40) (6") (BORE)	LF	320.000		320.000	
	624-6009	GROUND BOX TY D (162922)	EA	19.000		19.000	
	624-6010	GROUND BOX TY D (162922)W/APRON	EA	1.000		1.000	
	624-6028	REMOVE GROUND BOX	EA	6.000		6.000	
	644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	10.000		10.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	17.000		17.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	1.000		1.000	
	666-6036	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	LF	95.000		95.000	
	666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	1,494.000		1,494.000	
	666-6099	REF PAV MRK TY I(W)18"(YLD TRI)(100MIL)	EA	8.000		8.000	
	666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)	LF	199.000		199.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	2.000		2.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	2.000		2.000	
	668-6112	PRE PM TY C (ACC PRK)(WHT)(SYMBL ONLY)	EA	2.000		2.000	
	677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	271.000		271.000	
	677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	101.000		101.000	
	677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	650.000		650.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	197.000		197.000	
	677-6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	1.000		1.000	
	677-6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	1.000		1.000	
	677-6017	ELIM EXT PAV MRK & MRKS (SYMBOL)	EA	1.000		1.000	
	677-6018	ELIM EXT PAV MRK & MRKS (18")(YLD TRI)	EA	10.000		10.000	
	3076-6066	TACK COAT	GAL	85.000		85.000	
	3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	97.000		97.000	
	4128-6001	PRECAST LIGHT POLE FOUNDATION	EA	8.000		8.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0916-29-019 **DISTRICT** Corpus Christi **COUNTY** Live Oak
HIGHWAY Various

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0916-29-019**			
		PROJECT ID		**A00185354**			
		COUNTY		**Live Oak**			
		HIGHWAY		**Various**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	198.000		198.000	
	6185-6002	TMA (STATIONARY)	DAY	99.000		99.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	4.000		4.000	
	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	

Plotted on: 6/17/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SUMM.dgn

ROADWAY QUANTITIES

	ITEM	0100-6004	0104-6009	0104-6015	0104-6017	0104-6029	0105-6037	0160-6003
SHT NO	DESCRIPTION	PREPARING ROW(TREE)(12" TO 24" DIA)	REMOVING CONC (RIPRAP)	REMOVING CONC (SIDEWALKS)	REMOVING CONC (DRIVEWAYS)	REMOVING CONC (CURB OR CURB & GUTTER)	REMOVING STAB BASE AND ASPH PAV(0"-16")	FURNISHING AND PLACING TOPSOIL (4")
		EA	SY	SY	SY	LF	SY	SY
43	SIDEWALK PLAN SHEET 1 OF 20		1			23	19	20
44	SIDEWALK PLAN SHEET 2 OF 20							
45	SIDEWALK PLAN SHEET 3 OF 20		26			7		
46	SIDEWALK PLAN SHEET 4 OF 20			8		34	3	
47	SIDEWALK PLAN SHEET 5 OF 20		2	2		91	21	
48	SIDEWALK PLAN SHEET 6 OF 20					65	25	
49	SIDEWALK PLAN SHEET 7 OF 20					87	19	
50	SIDEWALK PLAN SHEET 8 OF 20		6			10	19	
51	SIDEWALK PLAN SHEET 9 OF 20					10	26	
52	SIDEWALK PLAN SHEET 10 OF 20					45	52	26
53	SIDEWALK PLAN SHEET 11 OF 20				22	96		4
54	SIDEWALK PLAN SHEET 12 OF 20					108	55	
55	SIDEWALK PLAN SHEET 13 OF 20					33	25	15
56	SIDEWALK PLAN SHEET 14 OF 20	1	18			7		3
57	SIDEWALK PLAN SHEET 15 OF 20		4	10			65	23
58	SIDEWALK PLAN SHEET 16 OF 20			17	19	11	25	60
59	SIDEWALK PLAN SHEET 17 OF 20			5		38	44	20
60	SIDEWALK PLAN SHEET 18 OF 20					40	22	13
61	SIDEWALK PLAN SHEET 19 OF 20					2	6	11
62	SIDEWALK PLAN SHEET 20 OF 20					10		10
	TOTALS	1	57	42	41	717	426	205

	ITEM	0162-6002	0168-6001	0351-6006	0402-6001	0420-6071	0420-6074	0420-6132
SHT NO	DESCRIPTION	BLOCK SODDING	VEGETATIVE WATERING	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	TRENCH EXCAVATION PROTECTION	CL C CONC (COLLAR)	CL C CONC (MISC)	CL A CONC (STEPS)
		SY	MG	SY	LF	EA	CY	CY
43	SIDEWALK PLAN SHEET 1 OF 20	20	0.4	45			0.6	
44	SIDEWALK PLAN SHEET 2 OF 20							
45	SIDEWALK PLAN SHEET 3 OF 20							
46	SIDEWALK PLAN SHEET 4 OF 20							
47	SIDEWALK PLAN SHEET 5 OF 20			32			0.6	
48	SIDEWALK PLAN SHEET 6 OF 20						2.2	1.0
49	SIDEWALK PLAN SHEET 7 OF 20						1.6	
50	SIDEWALK PLAN SHEET 8 OF 20							
51	SIDEWALK PLAN SHEET 9 OF 20			81			0.6	
52	SIDEWALK PLAN SHEET 10 OF 20	26	0.5	47			1.2	
53	SIDEWALK PLAN SHEET 11 OF 20	4	0.1					
54	SIDEWALK PLAN SHEET 12 OF 20			95	27	2	1.2	
55	SIDEWALK PLAN SHEET 13 OF 20	15	0.3	281			0.8	
56	SIDEWALK PLAN SHEET 14 OF 20	3	0.1	97				2.0
57	SIDEWALK PLAN SHEET 15 OF 20	23	0.4				0.8	
58	SIDEWALK PLAN SHEET 16 OF 20	60	1.1					
59	SIDEWALK PLAN SHEET 17 OF 20	20	0.4					
60	SIDEWALK PLAN SHEET 18 OF 20	13	0.3	138	48			
61	SIDEWALK PLAN SHEET 19 OF 20	11	0.2					
62	SIDEWALK PLAN SHEET 20 OF 20	10	0.2					
	TOTALS	205	4.0	816	75	2	9.6	3.0

	ITEM	0432-6003	0450-6047	0450-6048	0464-6005	0464-6010	0465-6002	0465-6004
SHT NO	DESCRIPTION	RIPRAP (CONC)(6 IN)	RAIL (HANDRAIL)(TY A)	RAIL (HANDRAIL)(TY B)	RC PIPE (CL III)(24 IN)	RC PIPE (CL III)(48 IN)	MANH (COMPL)(PRM)(48IN)	MANH (COMPL)(PRM)(72IN)
		CY	LF	LF	LF	LF	EA	EA
43	SIDEWALK PLAN SHEET 1 OF 20	1.4						
44	SIDEWALK PLAN SHEET 2 OF 20							
45	SIDEWALK PLAN SHEET 3 OF 20	4.3						
46	SIDEWALK PLAN SHEET 4 OF 20	1.0						
47	SIDEWALK PLAN SHEET 5 OF 20	1.8		31				
48	SIDEWALK PLAN SHEET 6 OF 20	1.8	20	80				
49	SIDEWALK PLAN SHEET 7 OF 20	0.7						
50	SIDEWALK PLAN SHEET 8 OF 20	0.9						
51	SIDEWALK PLAN SHEET 9 OF 20	1.8						
52	SIDEWALK PLAN SHEET 10 OF 20	1.4						
53	SIDEWALK PLAN SHEET 11 OF 20							
54	SIDEWALK PLAN SHEET 12 OF 20	1.7			9	8		1
55	SIDEWALK PLAN SHEET 13 OF 20	1.0						
56	SIDEWALK PLAN SHEET 14 OF 20		30	100				
57	SIDEWALK PLAN SHEET 15 OF 20							
58	SIDEWALK PLAN SHEET 16 OF 20	1.2						
59	SIDEWALK PLAN SHEET 17 OF 20							
60	SIDEWALK PLAN SHEET 18 OF 20	0.6			48		1	
61	SIDEWALK PLAN SHEET 19 OF 20							
62	SIDEWALK PLAN SHEET 20 OF 20							
	TOTALS	19.6	50	211	57	8	1	1

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF QUANTITIES

SHEET 1 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	6

Plotted on: 6/17/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SUMM.dgn

ROADWAY QUANTITIES (CONT.)

	ITEM	0465-6127	0465-6557	0471-6003	0479-6005	0528-6004	0529-6001	0529-6002
SHT NO	DESCRIPTION	INLET (COMPL)(PSL)(FG)(4FTX4FT-3FTX3FT)	INLET (CURB)(SPL)	GRATE & FRAME	ADJUSTING MANHOLES (WATER VALVE BOX)	LANDSCAPE PAVERS	CONC CURB (TY I)	CONC CURB (TY II)
		EA	EA	EA	EA	SY	LF	LF
43	SIDEWALK PLAN SHEET 1 OF 20			3				34
44	SIDEWALK PLAN SHEET 2 OF 20							
45	SIDEWALK PLAN SHEET 3 OF 20							
46	SIDEWALK PLAN SHEET 4 OF 20							
47	SIDEWALK PLAN SHEET 5 OF 20			3	2			38
48	SIDEWALK PLAN SHEET 6 OF 20			10	2			80
49	SIDEWALK PLAN SHEET 7 OF 20		1	13	3	6		23
50	SIDEWALK PLAN SHEET 8 OF 20				1		7	
51	SIDEWALK PLAN SHEET 9 OF 20			3				38
52	SIDEWALK PLAN SHEET 10 OF 20			6				71
53	SIDEWALK PLAN SHEET 11 OF 20							21
54	SIDEWALK PLAN SHEET 12 OF 20			6				91
55	SIDEWALK PLAN SHEET 13 OF 20			3	1			54
56	SIDEWALK PLAN SHEET 14 OF 20							
57	SIDEWALK PLAN SHEET 15 OF 20		1	3	1			22
58	SIDEWALK PLAN SHEET 16 OF 20							65
59	SIDEWALK PLAN SHEET 17 OF 20							
60	SIDEWALK PLAN SHEET 18 OF 20	2						18
61	SIDEWALK PLAN SHEET 19 OF 20							
62	SIDEWALK PLAN SHEET 20 OF 20							5
	TOTALS	2	2	50	10	6	7	560

	ITEM	0529-6007	0529-6008	0530-6004	0530-6005	0531-6001	0531-6018	0531-6019
SHT NO	DESCRIPTION	CONC CURB & GUTTER (TY I)	CONC CURB & GUTTER (TY II)	DRIVEWAYS (CONC)	DRIVEWAYS (ACP)	CONC SIDEWALKS (4")	CURB RAMPS (TY 1)	CURB RAMPS (TY 2)
		LF	LF	SY	SY	SY	SY	SY
43	SIDEWALK PLAN SHEET 1 OF 20		30			11	18	
44	SIDEWALK PLAN SHEET 2 OF 20							
45	SIDEWALK PLAN SHEET 3 OF 20		78			15		15
46	SIDEWALK PLAN SHEET 4 OF 20		30			16		
47	SIDEWALK PLAN SHEET 5 OF 20		108			10	19	
48	SIDEWALK PLAN SHEET 6 OF 20		79			37		
49	SIDEWALK PLAN SHEET 7 OF 20		112			68	9	18
50	SIDEWALK PLAN SHEET 8 OF 20	25	10	2	7	20		
51	SIDEWALK PLAN SHEET 9 OF 20		43			11	20	
52	SIDEWALK PLAN SHEET 10 OF 20		59			74	15	
53	SIDEWALK PLAN SHEET 11 OF 20		75	22		50		11
54	SIDEWALK PLAN SHEET 12 OF 20		119			62	6	2
55	SIDEWALK PLAN SHEET 13 OF 20		46			7	22	
56	SIDEWALK PLAN SHEET 14 OF 20	8	97			60		
57	SIDEWALK PLAN SHEET 15 OF 20		91	65		15		
58	SIDEWALK PLAN SHEET 16 OF 20		61	38		32	21	
59	SIDEWALK PLAN SHEET 17 OF 20		43	41		22		12
60	SIDEWALK PLAN SHEET 18 OF 20		49			22		
61	SIDEWALK PLAN SHEET 19 OF 20		25			8		
62	SIDEWALK PLAN SHEET 20 OF 20	1	9			9		
	TOTALS	34	1164	168	7	549	130	58

	ITEM	0531-6020	0531-6024	0531-6030	0531-6033	0644-6001	0644-6068	0644-6076
SHT NO	DESCRIPTION	CURB RAMPS (TY 3)	CURB RAMPS (TY 7)	CURB RAMPS (TY 21)	CONC SIDEWALKS (SPECIAL) (TYPE B)	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	RELOCATE SM RD SN SUP&AM TY 10BWG	REMOVE SM RD SN SUP&AM
		SY	SY	SY	SY	EA	EA	EA
43	SIDEWALK PLAN SHEET 1 OF 20					1	3	
44	SIDEWALK PLAN SHEET 2 OF 20						1	
45	SIDEWALK PLAN SHEET 3 OF 20			15			1	
46	SIDEWALK PLAN SHEET 4 OF 20	27					1	
47	SIDEWALK PLAN SHEET 5 OF 20				72	1	2	
48	SIDEWALK PLAN SHEET 6 OF 20				54			
49	SIDEWALK PLAN SHEET 7 OF 20				5		2	
50	SIDEWALK PLAN SHEET 8 OF 20	22					2	
51	SIDEWALK PLAN SHEET 9 OF 20					1		
52	SIDEWALK PLAN SHEET 10 OF 20					1	1	
53	SIDEWALK PLAN SHEET 11 OF 20				4	1	1	1
54	SIDEWALK PLAN SHEET 12 OF 20		9			2		
55	SIDEWALK PLAN SHEET 13 OF 20					1		
56	SIDEWALK PLAN SHEET 14 OF 20	22			44	1		
57	SIDEWALK PLAN SHEET 15 OF 20				80		1	
58	SIDEWALK PLAN SHEET 16 OF 20				9			
59	SIDEWALK PLAN SHEET 17 OF 20	12			11		1	
60	SIDEWALK PLAN SHEET 18 OF 20		16			1	1	
61	SIDEWALK PLAN SHEET 19 OF 20		21					
62	SIDEWALK PLAN SHEET 20 OF 20	28					1	
	TOTALS	111	46	15	279	10	18	1

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF QUANTITIES

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	7

Plotted on: 6/17/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SUMM.dgn

ROADWAY QUANTITIES (CONT.)

	ITEM	0666-6036	0666-6048	0666-6099	0666-6303	0668-6077	0668-6085	0668-6112
SHT NO	DESCRIPTION	REFL PAV MRK TY I (W)8"(SLD)(100MIL)	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	REF PAV MRK TY I(W)18"(YLD TRI)(100MIL)	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)	PREFAB PAV MRK TY C (W) (ARROW)	PREFAB PAV MRK TY C (W) (WORD)	PRE PM TY C (ACC PRK)(WHT)(SYMBL ONLY)
		LF	LF	EA	LF	EA	EA	EA
43	SIDEWALK PLAN SHEET 1 OF 20		40					
44	SIDEWALK PLAN SHEET 2 OF 20							
45	SIDEWALK PLAN SHEET 3 OF 20	95	125	8		1	1	
46	SIDEWALK PLAN SHEET 4 OF 20		154					
47	SIDEWALK PLAN SHEET 5 OF 20		72					
48	SIDEWALK PLAN SHEET 6 OF 20							
49	SIDEWALK PLAN SHEET 7 OF 20		87					
50	SIDEWALK PLAN SHEET 8 OF 20		168					
51	SIDEWALK PLAN SHEET 9 OF 20		109					
52	SIDEWALK PLAN SHEET 10 OF 20		55					
53	SIDEWALK PLAN SHEET 11 OF 20				166	1	1	1
54	SIDEWALK PLAN SHEET 12 OF 20		35		33			1
55	SIDEWALK PLAN SHEET 13 OF 20		94					
56	SIDEWALK PLAN SHEET 14 OF 20		50					
57	SIDEWALK PLAN SHEET 15 OF 20							
58	SIDEWALK PLAN SHEET 16 OF 20		102					
59	SIDEWALK PLAN SHEET 17 OF 20		166					
60	SIDEWALK PLAN SHEET 18 OF 20		39					
61	SIDEWALK PLAN SHEET 19 OF 20		37					
62	SIDEWALK PLAN SHEET 20 OF 20		126					
	TOTALS	95	1459	8	199	2	2	2

	ITEM	0677-6001	0677-6003	0677-6005	0677-6007	0677-6008	0677-6012	0677-6017
SHT NO	DESCRIPTION	ELIM EXT PAV MRK & MRKS (4")	ELIM EXT PAV MRK & MRKS (8")	ELIM EXT PAV MRK & MRKS (12")	ELIM EXT PAV MRK & MRKS (24")	ELIM EXT PAV MRK & MRKS (ARROW)	ELIM EXT PAV MRK & MRKS (WORD)	ELIM EXT PAV MRK & MRKS (SYMBOL)
		LF	LF	LF	LF	EA	EA	EA
43	SIDEWALK PLAN SHEET 1 OF 20	18						
44	SIDEWALK PLAN SHEET 2 OF 20							
45	SIDEWALK PLAN SHEET 3 OF 20		94	80	16	1	1	
46	SIDEWALK PLAN SHEET 4 OF 20			113	25			
47	SIDEWALK PLAN SHEET 5 OF 20	14						
48	SIDEWALK PLAN SHEET 6 OF 20							
49	SIDEWALK PLAN SHEET 7 OF 20	7	7	96	27			
50	SIDEWALK PLAN SHEET 8 OF 20			112	37			
51	SIDEWALK PLAN SHEET 9 OF 20	8						
52	SIDEWALK PLAN SHEET 10 OF 20							
53	SIDEWALK PLAN SHEET 11 OF 20	176						1
54	SIDEWALK PLAN SHEET 12 OF 20	48						
55	SIDEWALK PLAN SHEET 13 OF 20							
56	SIDEWALK PLAN SHEET 14 OF 20							
57	SIDEWALK PLAN SHEET 15 OF 20							
58	SIDEWALK PLAN SHEET 16 OF 20			32	26			
59	SIDEWALK PLAN SHEET 17 OF 20			95	23			
60	SIDEWALK PLAN SHEET 18 OF 20							
61	SIDEWALK PLAN SHEET 19 OF 20			30	7			
62	SIDEWALK PLAN SHEET 20 OF 20			92	31			
	TOTALS	271	101	650	192	1	1	1

	ITEM	0677-6018	3076-6066	3076-6072
SHT NO	DESCRIPTION	ELIM EXT PAV MRK & MRKS (18")(YLD TRI)	TACK COAT	D-GR HMA TY-D PG 76-22 (EXEMPT)
		EA	GAL	TON
43	SIDEWALK PLAN SHEET 1 OF 20		5	6
44	SIDEWALK PLAN SHEET 2 OF 20			
45	SIDEWALK PLAN SHEET 3 OF 20	10		
46	SIDEWALK PLAN SHEET 4 OF 20			
47	SIDEWALK PLAN SHEET 5 OF 20		4	4
48	SIDEWALK PLAN SHEET 6 OF 20			
49	SIDEWALK PLAN SHEET 7 OF 20			
50	SIDEWALK PLAN SHEET 8 OF 20			
51	SIDEWALK PLAN SHEET 9 OF 20		9	10
52	SIDEWALK PLAN SHEET 10 OF 20		5	6
53	SIDEWALK PLAN SHEET 11 OF 20			
54	SIDEWALK PLAN SHEET 12 OF 20		10	11
55	SIDEWALK PLAN SHEET 13 OF 20		29	33
56	SIDEWALK PLAN SHEET 14 OF 20		10	12
57	SIDEWALK PLAN SHEET 15 OF 20			
58	SIDEWALK PLAN SHEET 16 OF 20			
59	SIDEWALK PLAN SHEET 17 OF 20			
60	SIDEWALK PLAN SHEET 18 OF 20		14	16
61	SIDEWALK PLAN SHEET 19 OF 20			
62	SIDEWALK PLAN SHEET 20 OF 20			
	TOTALS	10	86	98

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF QUANTITIES

SHEET 3 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	8

IRRIGATION QUANTITIES

	ITEM	0618-6037	0618-6038
	DESCRIPTION	CONDT (PVC) (SCH 40) (6")	CONDT (PVC) (SCH 40) (6") (BORE)
SHT NO		LF	LF
101	IRRIGATION LAYOUT SHEET 1 OF 4	255	158
102	IRRIGATION LAYOUT SHEET 2 OF 4	480	92
103	IRRIGATION LAYOUT SHEET 3 OF 4	521	
104	IRRIGATION LAYOUT SHEET 4 OF 4	175	70
	TOTALS	1431	320

ILLUMINATION & SIGNAL QUANTITIES

	ITEM	0416-6001	0618-6023	0618-6024	0624-6009	0624-6010	0624-6028	4128-6001
	DESCRIPTION	DRILL SHAFT (18 IN)	CONDT (PVC) (SCH 40) (2")	CONDT (PVC) (SCH 40) (2") (BORE)	GROUND BOX TY D (162922)	GROUND BOX TY D (162922)W/APRON	REMOVE GROUND BOX	PRECAST LIGHT POLE FOUNDATION
SHT NO		LF	LF	LF	EA	EA	EA	EA
97	ILLUMINATION AND SIGNAL PLAN SHEET 1 OF 4	10	220	176	9	1	5	2
98	ILLUMINATION AND SIGNAL PLAN SHEET 2 OF 4	15	325		4			3
99	ILLUMINATION AND SIGNAL PLAN SHEET 3 OF 4	10	217		3			2
100	ILLUMINATION AND SIGNAL PLAN SHEET 4 OF 4	5	123	53	1	1		1
	TOTALS	40	885	229	17	2	5	8

INCIDENTAL QUANTITIES

	ITEM	0100-6001	0506-6041	0506-6043	6001-6001	6185-6002	6185-6005
	DESCRIPTION	PREPARING ROW	BIODEG EROSN CONT LOGS (INSTL) (12")	BIODEG EROSN CONT LOGS (REMOVE)	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)	TMA (MOBILE OPERATION)
SHT NO		AC	LF	LF	DAY	DAY	DAY
	INCIDENTAL QUANTITIES	1.00	500	500	198	99	4
	TOTALS	1.00	500	500	198	99	4

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SUMMARY OF QUANTITIES

SHEET 4 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	9

LOC NO.	TCP PHASE	SPECIFIC TCP PLAN SHEET OR TCP STANDARD SHEET	FURNISH TMA/TA	RELOCATE/REUSE TMA/TA	TOTAL TMA/TA PER SET UP	DURATION OF TMA/TA SET UP	6185 6002 TMA (STATIONARY)	6185 6005 TMA (MOBILE OPERATION)
		SHEET NUMBER	EA	EA	EA	DAYS PER TMA/TA USE	DAY	DAY
1	ALL	TCP(2-1)-18 AND TCP(2-4)-18	1		1	99	99	
1	ALL	TCP(3-1)-13 AND TCP(3-4)-13	1	1	2			4
		TOTALS					99	4

NOTE.
FURNISH TMA/TA - THE NUMBER OF ATTENUATORS BEING FURNISHED FOR THE SPECIFIC TCP.
RELOCATE/REUSE TMA/TA - THE NUMBER OF ATTENUATORS BEING REUSED FROM A PREVIOUS TCP FOR THE SPECIFIC TCP.
TOTAL TMA/TA PER SET UP = (FURNISH TMA/TA) + (RELOCATE/REUSE TMA/TA)
DURATION OF TMA/TA SET UP - THE NUMBER OF DAYS THE ATTENTUATORS WILL BE USED FOR THE SPECIFIC TCP.
TMA/TA (STATIONARY) = (TOTAL TMA/TA PER SET UP) X (THE DURATION OF TMA/TA SET UP)
TMA/TA (MOBILE OPERATION) = (TOTAL TMA/TA PER SET UP) X (THE DURATION OF TMA/TA SET UP)

TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA) SUMMARY SHEET

FILE: tma.dgn	DN: TxDOT	CK:		CK:
© TxDOT	CONT	SECT	JOB	HIGHWAY
REVISIONS 3/2018	0916	29	019	VA
	DIST		COUNTY	
	CRP		LIVE OAK	
	FEDERAL AID PROJECT			SHEET NO.
	STP 2024 (774) TAPS			10

DATE: 5/23/2024 11:29:39 AM
FILE: S:\projects\612X54V06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

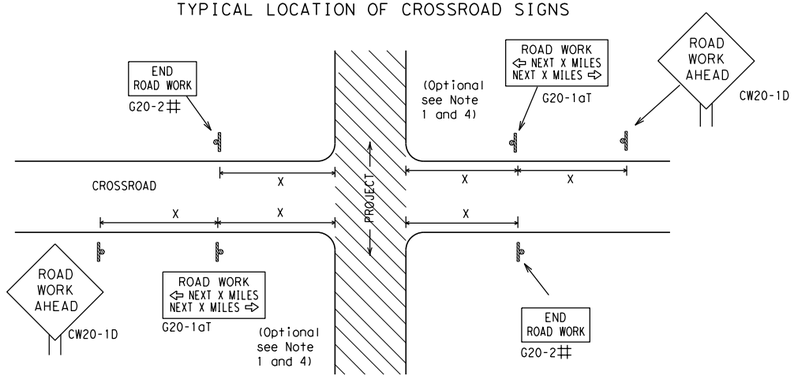
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-03 7-13	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
5-10 5-21	CRP	LIVE OAK		11

DATE: 5/23/2024 11:29:39 AM
FILE: S:\Projects\6i2\54\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

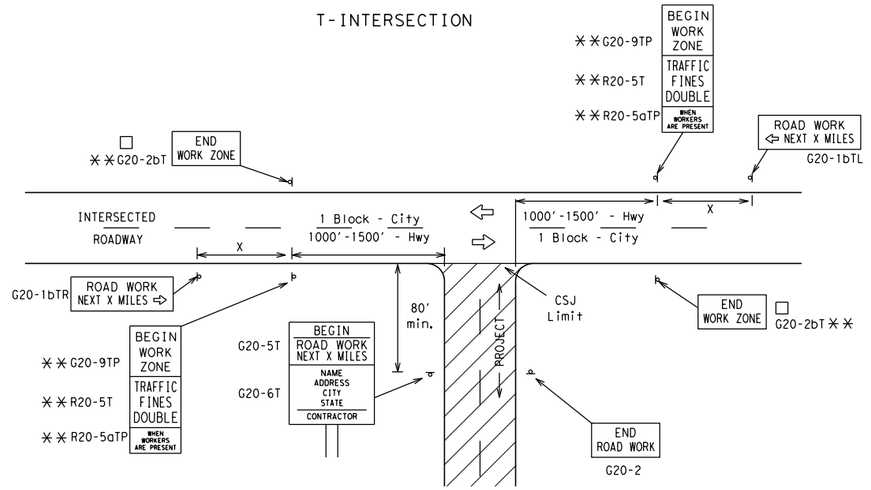
TYPICAL LOCATION OF CROSSROAD SIGNS



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]

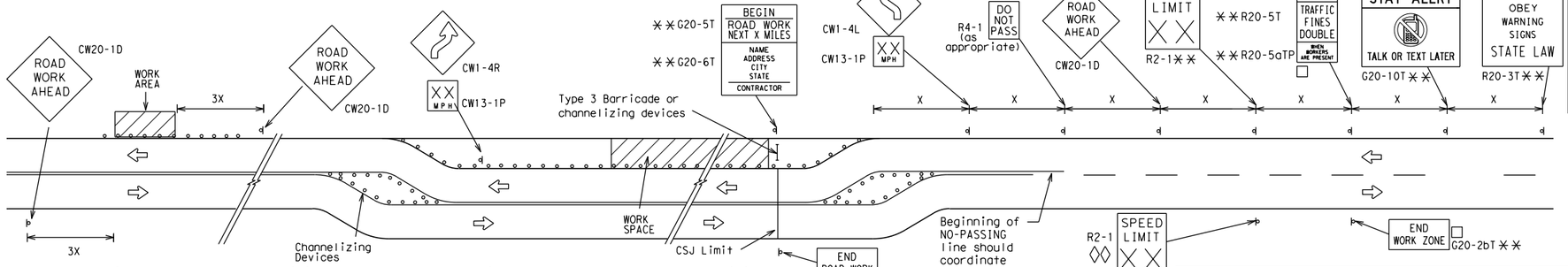
✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

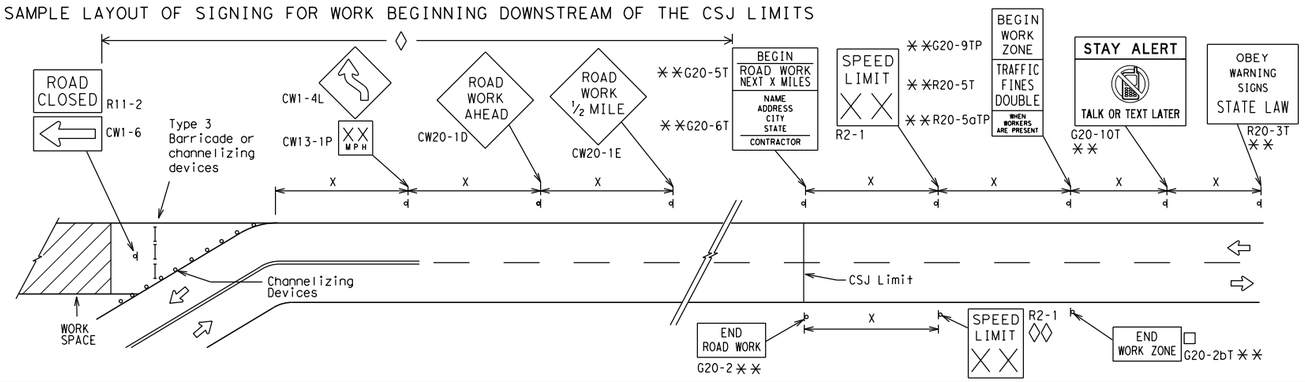
1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" "ROAD WORK AHEAD" (CW20-1D)signs may 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 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	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	CRP	LIVE OAK		12

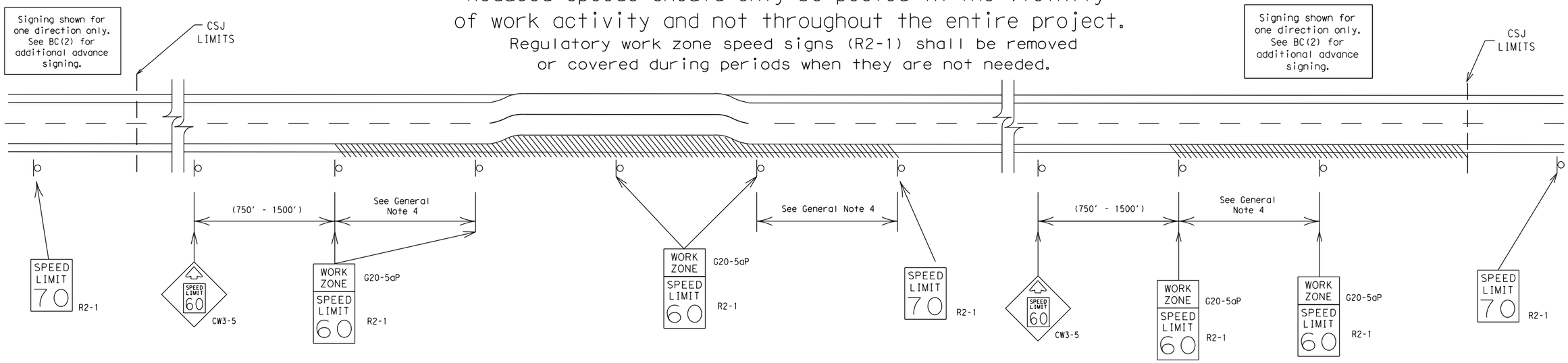
DATE: 5/23/2024 11:29:40 AM
FILE: S:\Projects\612154\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

Texas Department of Transportation | Traffic Safety Division Standard

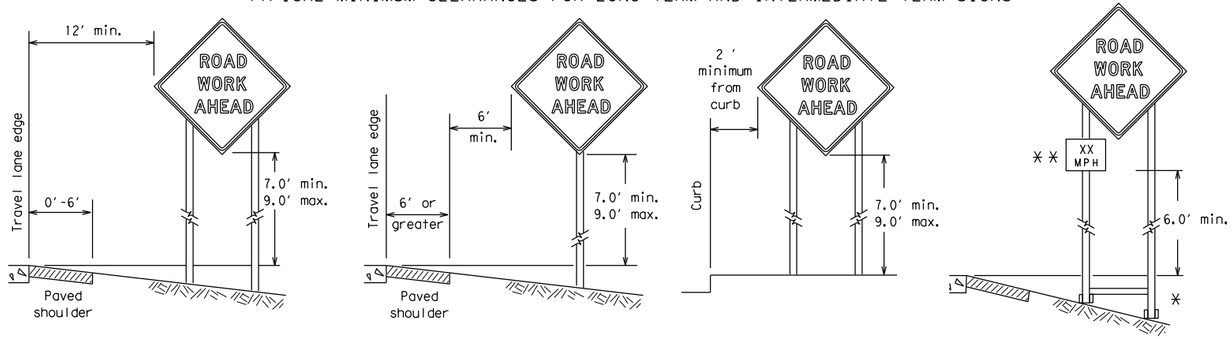
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	CRP	LIVE OAK		13

DATE: 5/23/2024 11:29:41 AM
FILE: S:\Projects\612154\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

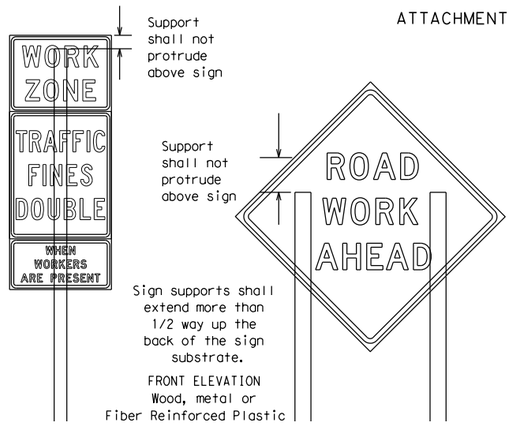
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

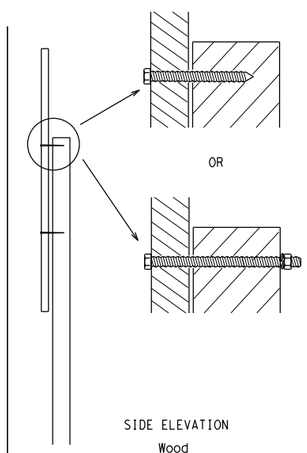


⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

⁎⁎ 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





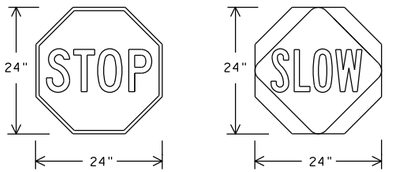
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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.

Texas Department of Transportation

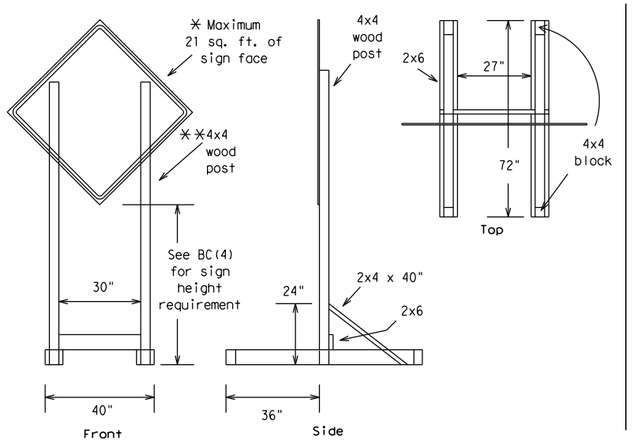
Traffic Safety Division Standard

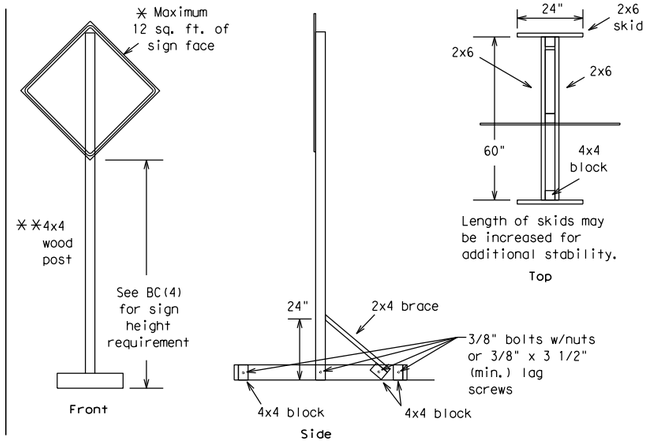
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	CRP	LIVE OAK		14

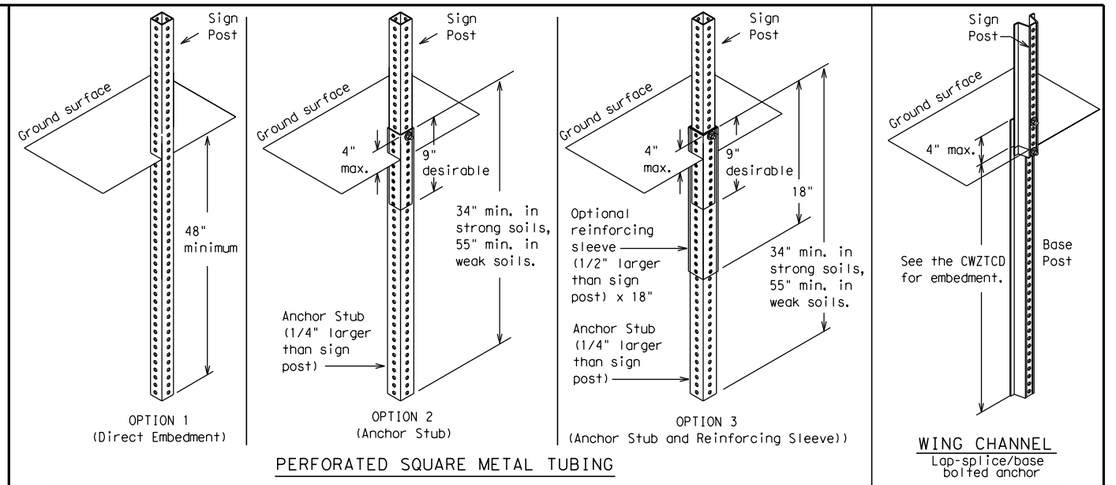
DATE: 5/23/2024 11:29:41 AM
FILE: S:\Projects\612154\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn





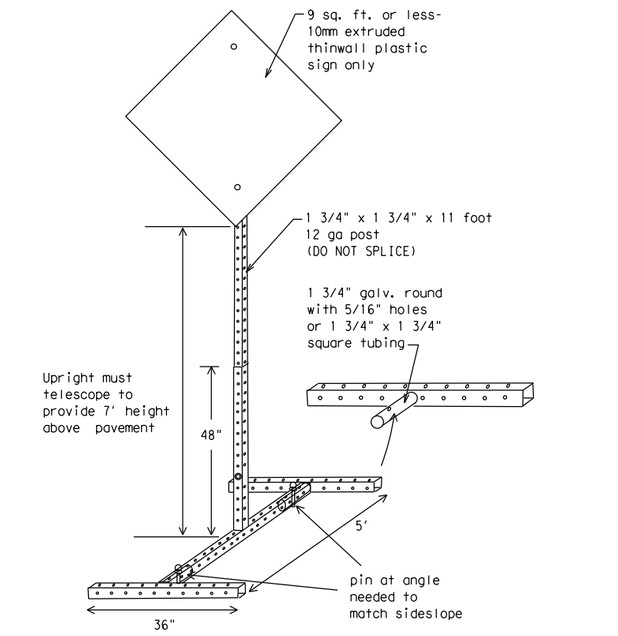
SKID MOUNTED WOOD SIGN SUPPORTS

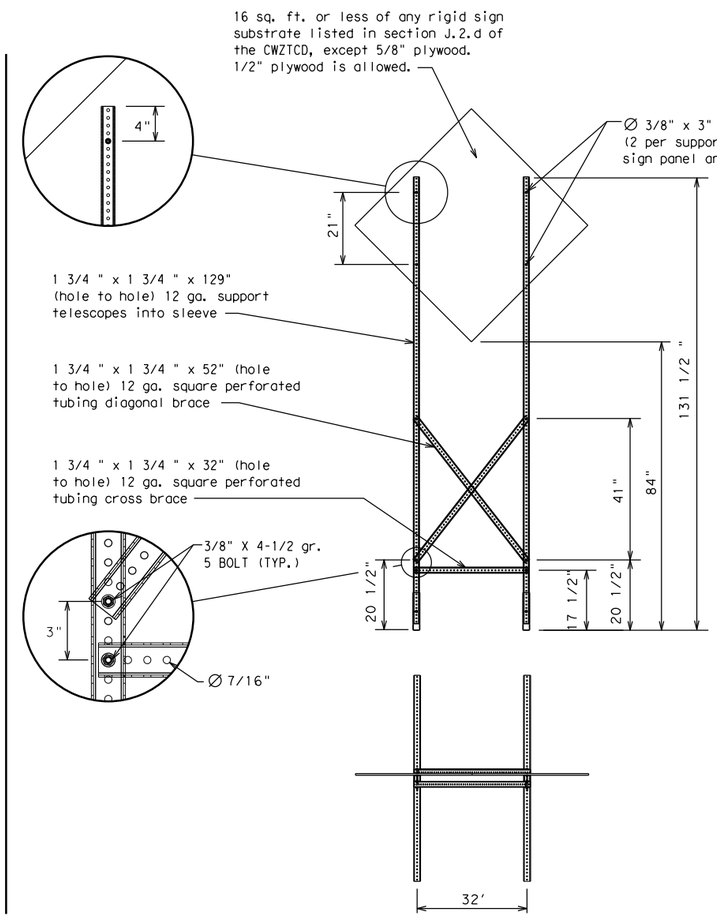
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

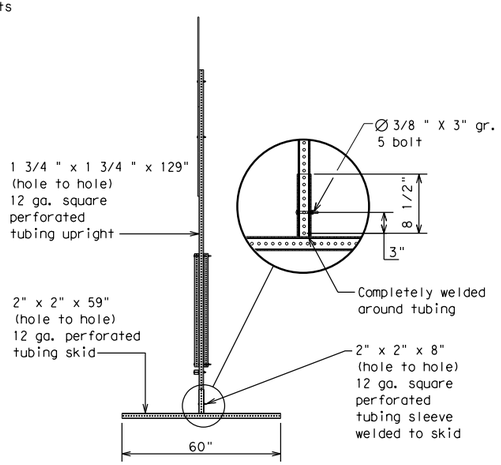


GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	CRP	LIVE OAK		15

DATE: 5/23/2024 11:29:42 AM
FILE: S:\Projects\612534\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

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

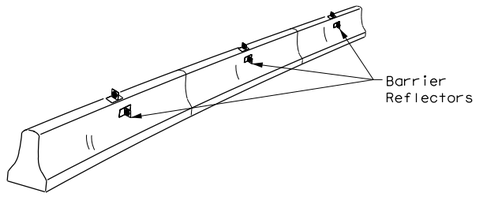
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	CRP	LIVE OAK		16

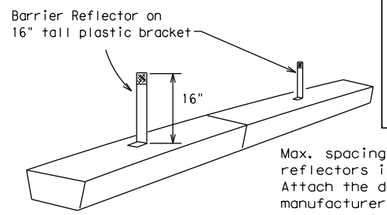
DATE: 5/23/2024 11:29:43 AM
FILE: S:\projects\612154\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

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



CONCRETE TRAFFIC BARRIER (CTB)

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

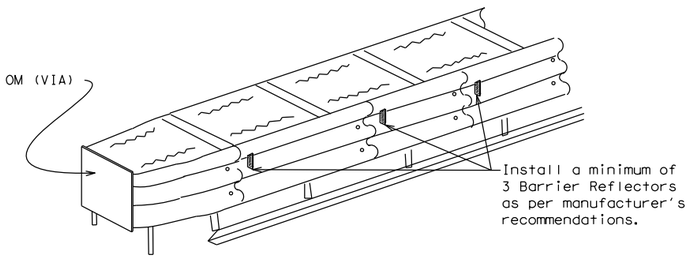


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB)

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

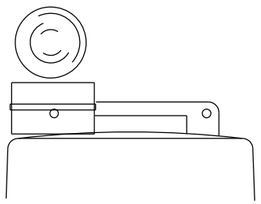


DELINEATION OF END TREATMENTS

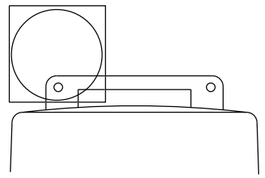
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

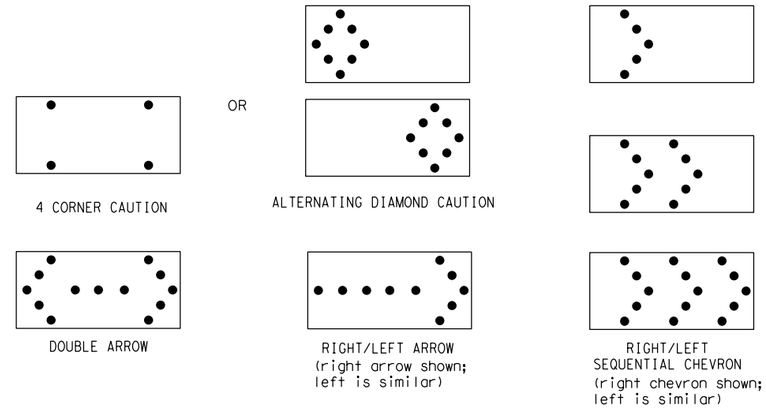
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



4 CORNER CAUTION

ALTERNATING DIAMOND CAUTION

DOUBLE ARROW

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

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

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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	CRP	LIVE OAK		17

DATE: 5/23/2024 11:29:43 AM
FILE: S:\Projects\6121541\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

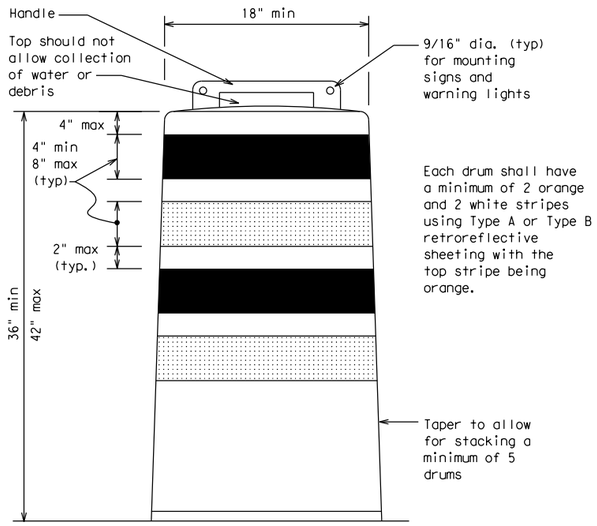
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

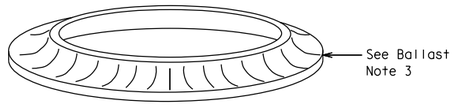
RETROREFLECTIVE SHEETING

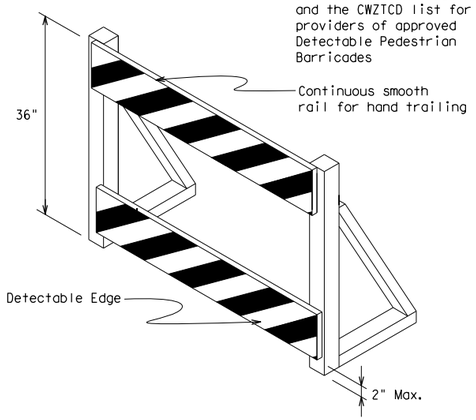
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

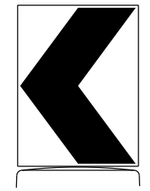




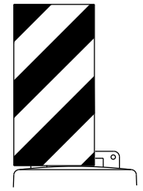


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

Texas Department of Transportation | Traffic Safety Division Standard

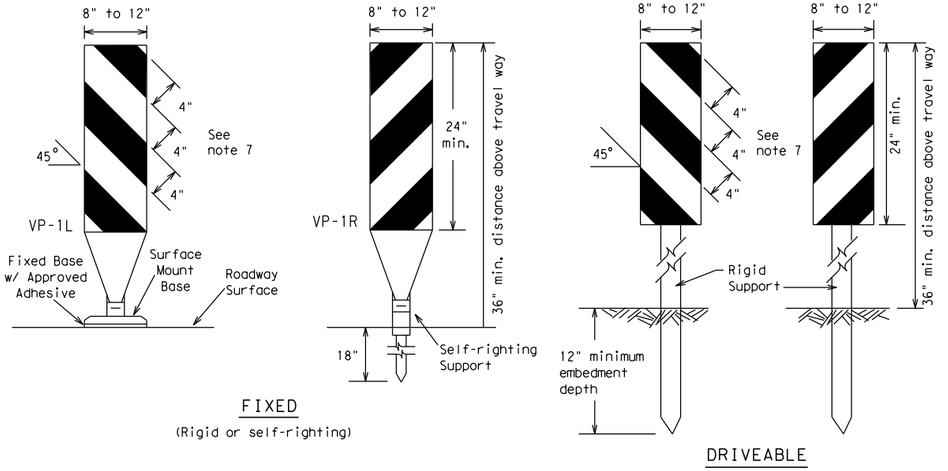
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	CRP	LIVE OAK		18
7-13				

102

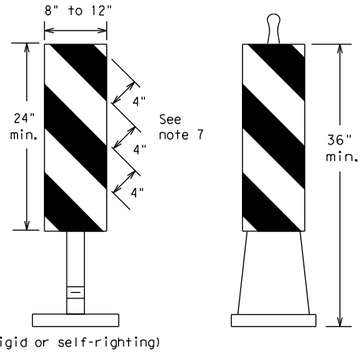
DATE: 5/23/2024 11:29:44 AM
FILE: S:\projects\612534\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn



FIXED

(Rigid or self-righting)

DRIVEABLE

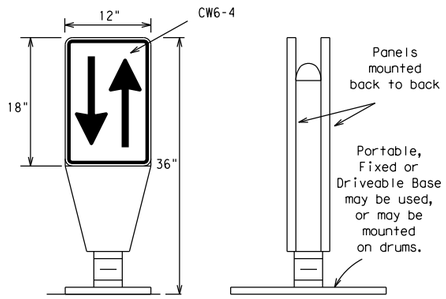


(Rigid or self-righting)

PORTABLE

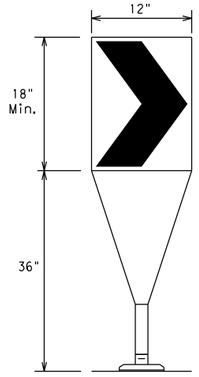
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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

VERTICAL PANELS (VPs)



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



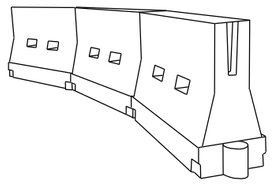
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

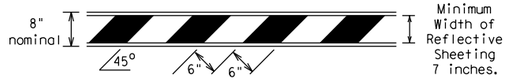
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	CRP	LIVE OAK		19

DATE: 5/23/2024 11:29:45 AM
FILE: S:\Projects\6121541\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

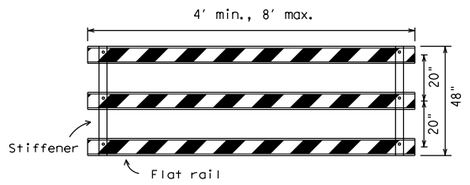
TYPE 3 BARRICADES

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.



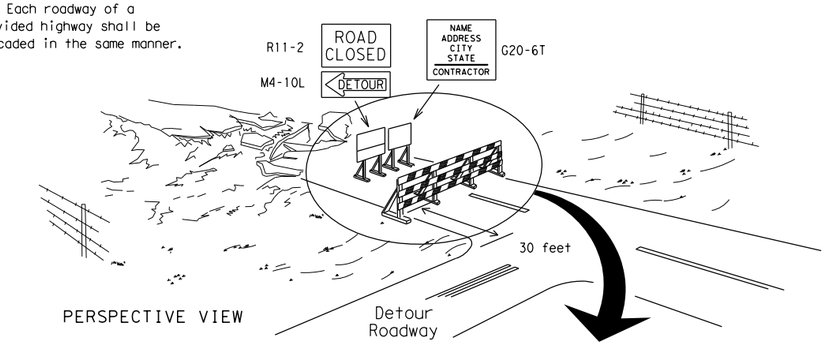
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

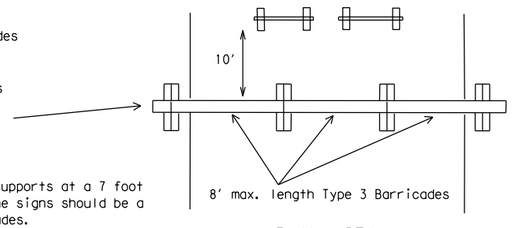
TYPICAL PANEL DETAIL
FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

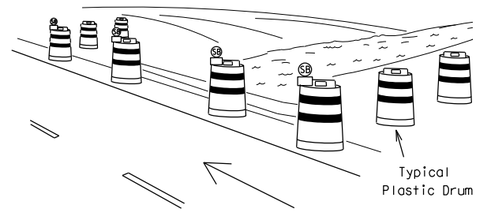
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

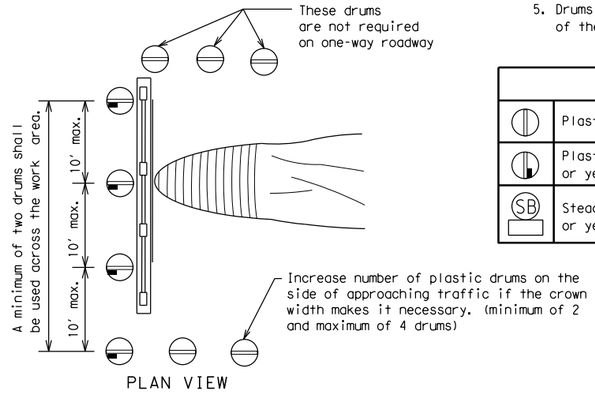
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

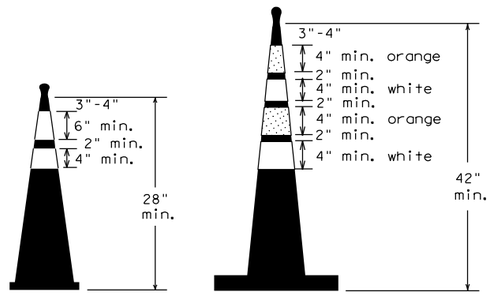
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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

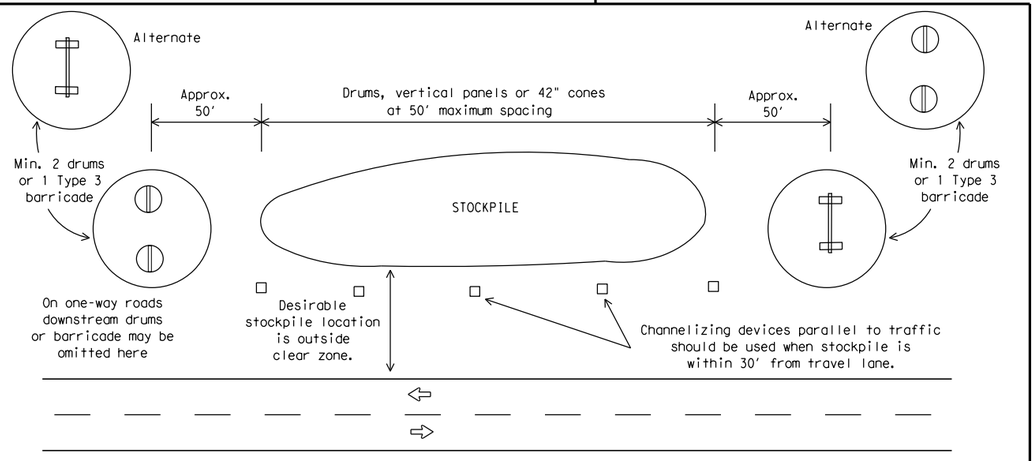
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

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	0916	29	019	VA
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	CRP	LIVE OAK		20

DATE: 5/23/2024 11:29:45 AM
FILE: S:\projects\612X54V06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

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.

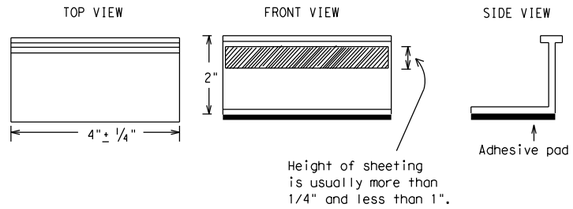
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

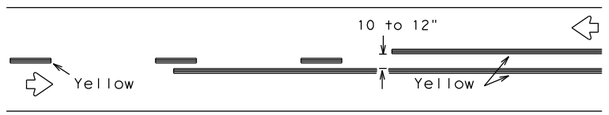
BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

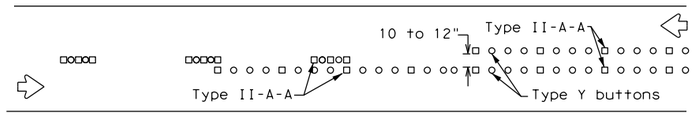
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-98 9-07 5-21 1-02 7-13 11-02 8-14	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		21

DATE: 5/23/2024 11:29:46 AM
FILE: S:\projects\612XS4\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\bc-21.dgn

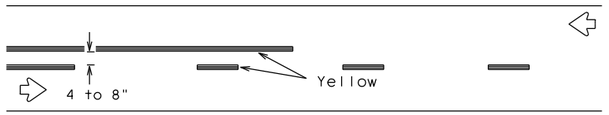
PAVEMENT MARKING PATTERNS



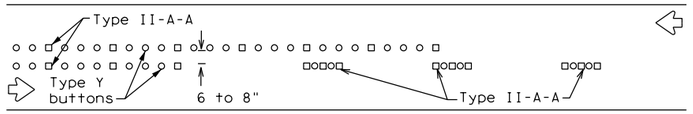
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



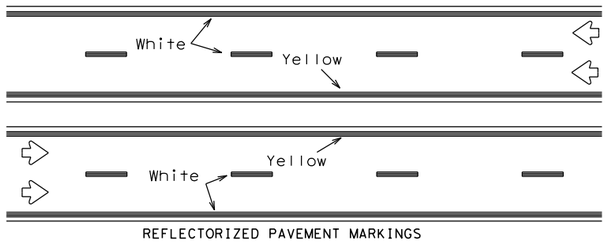
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



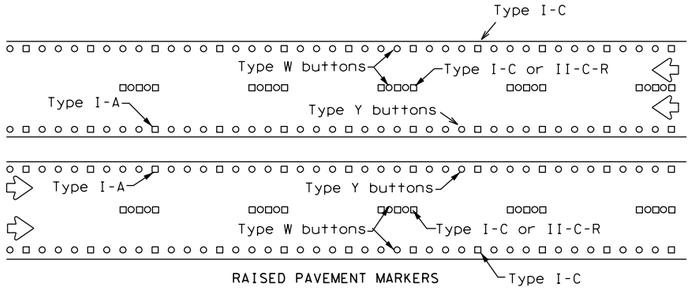
RAISED PAVEMENT MARKERS - PATTERN B

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



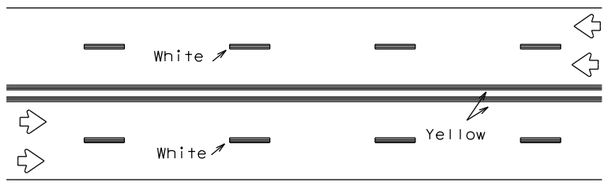
REFLECTORIZED PAVEMENT MARKINGS



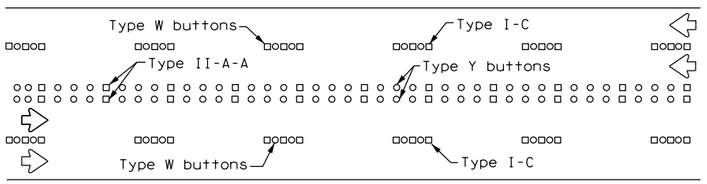
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



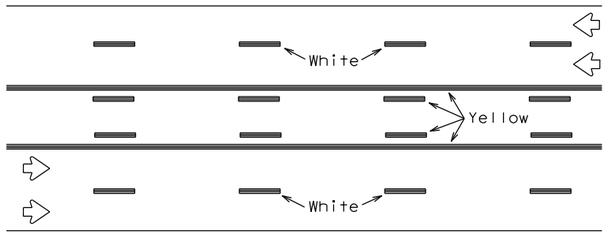
REFLECTORIZED PAVEMENT MARKINGS



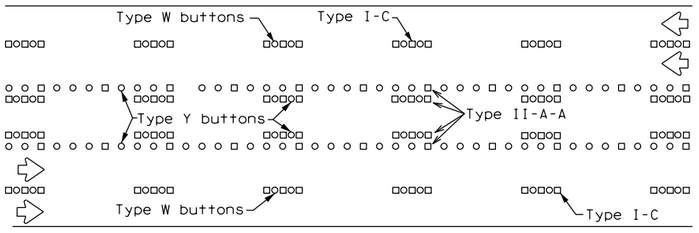
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



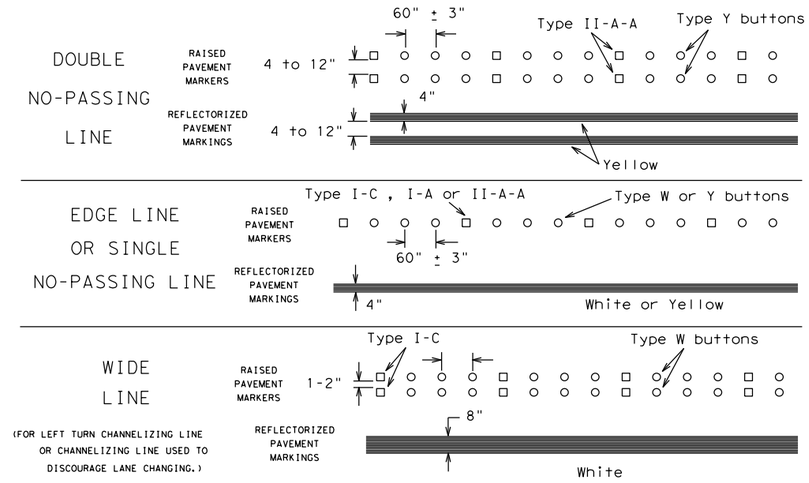
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

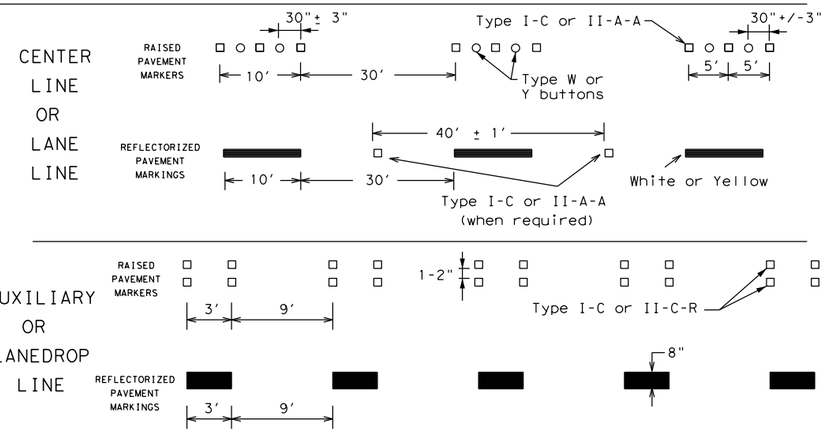
TWO-WAY LEFT TURN LANE

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

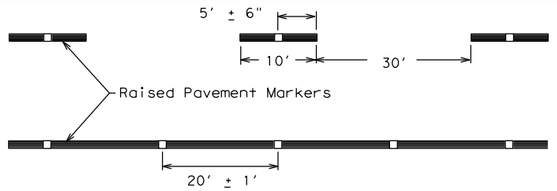


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

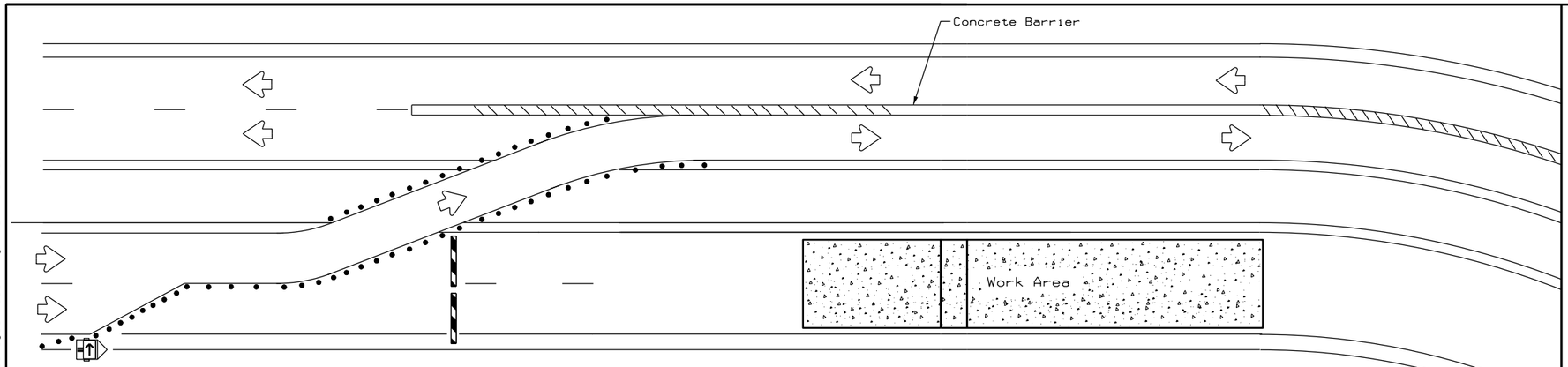
Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		22



NOTES:

1. Length of Safety Glare screen will be specified elsewhere in the plans.
2. The cumulative nominal length of the modular safety glare screen units shall equal the length of the individual sections of temporary concrete traffic barrier on which they are installed so the joint between barrier sections will not be spanned by any one safety glare screen unit.
3. Screen Panel/blades will be designed such that reflective sheeting conforming with Departmental Material Specification DMS-8300, Sign Face Materials, Type B or C Yellow, minimum size of 2 inches by 12 inches can be attached to the edge of the panel/blade. The sheeting shall be attached to one glare screen panel/blade per section of concrete barrier not to exceed a spacing of 30 feet. Barrier reflectors are not necessary when panel/blades are installed with reflective sheeting as described.
4. Payment for these devices will be under statewide Special Specification "Modular Glare Screens for Headlight Barrier."
5. This detail is only intended to show types of locations where Glare Screens would be appropriate. Required signing and other devices shall be as shown elsewhere in the plans.

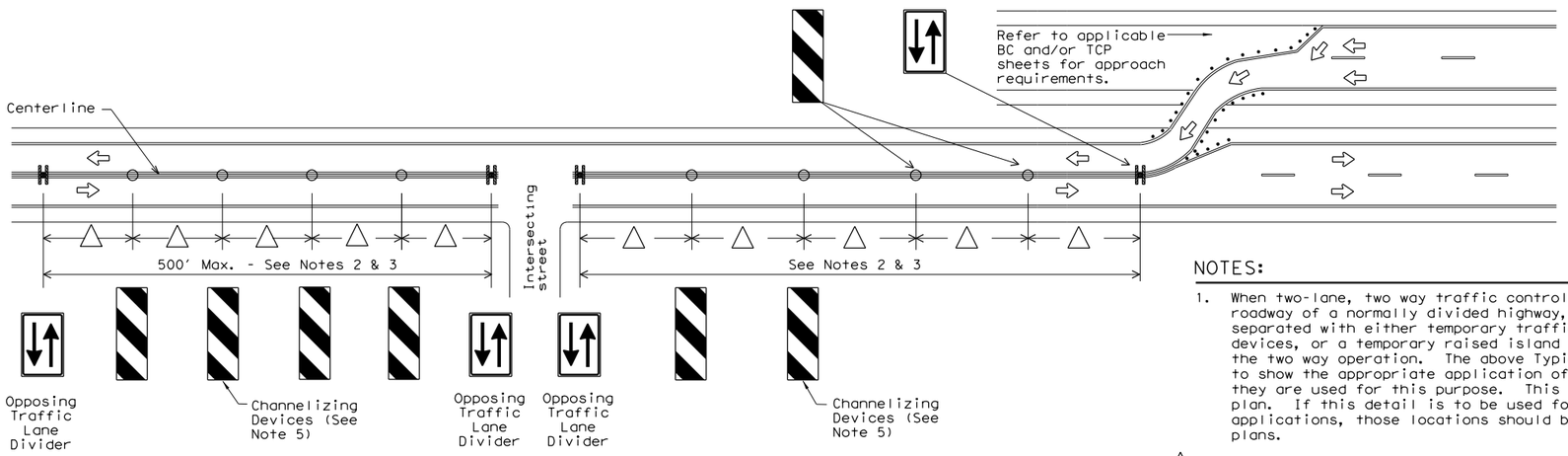
BARRIER DELINEATION WITH MODULAR GLARE SCREENS

LEGEND	
	Type 3 Barricade
• • •	Channelizing Devices
	Trailer Mounted Flashing Arrow Board
	Sign
\\\\	Safety glare screen

DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
DELINEATORS AND OBJECT MARKERS	DMS-8600
MODULAR GLARE SCREENS FOR HEADLIGHT BARRIER	DMS-8610

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/business/resources/producer-list.html



VERTICAL PANELS & OPPOSING TRAFFIC LANE DIVIDERS (OTLD) SEPARATING TWO-WAY TRAFFIC ON NORMALLY DIVIDED HIGHWAYS

NOTES:

1. When two-lane, two way traffic control must be maintained on one roadway of a normally divided highway, opposing traffic shall be separated with either temporary traffic barriers, channelizing devices, or a temporary raised island throughout the length of the two way operation. The above Typical Application is intended to show the appropriate application of channelizing devices when they are used for this purpose. This is not a traffic control plan. If this detail is to be used for other types of roads or applications, those locations should be stated elsewhere in the plans.
2. △ Space devices according to the Tangent Spacing shown on the Device Spacing table on BC(9) but not exceeding 100′.
3. Every fifth device should be an OTLD except when spaced closer to accommodate an intersection. An OTLD should be the first device on each side of intersecting streets or roads.
4. Locations where surface mount bases with adhesives or self-righting devices will be required in order to maintain them in their proper position should be noted elsewhere in the plans.
5. Channelizing devices are to be vertical panels, 42" cones or tubular markers that are at least 36" tall. Tubular markers used to separate traffic should have a rubber base weighing at least 30 pounds. Tubular markers that are 42" tall or more shall have four bands of reflective material as detailed for 42" cones on BC(10). Tubular markers less than 42" but at least 36" tall shall have three bands of 3" wide white reflective material spaced 2" apart. Reflective material shall meet DMS-8300, Type A.

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TYPICAL DETAILS

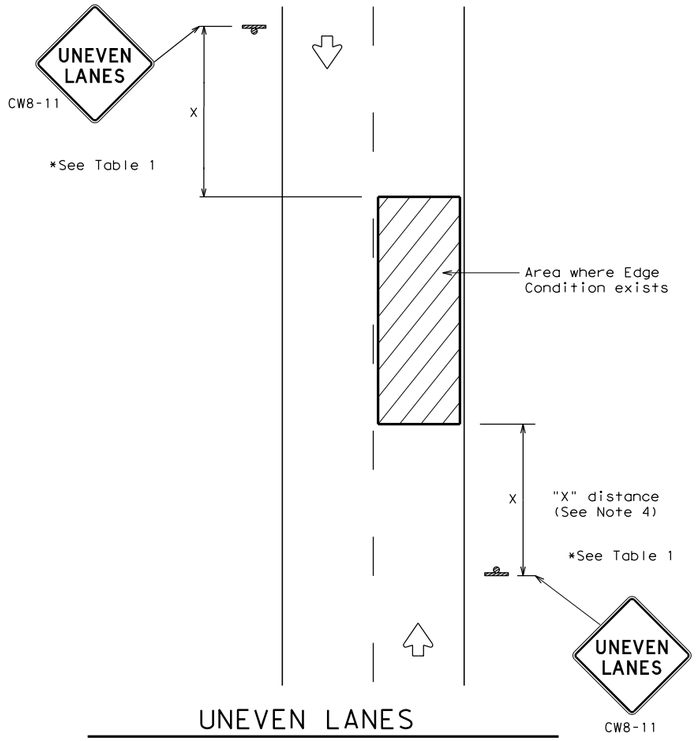
WZ(TD)-17

FILE: wztd-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 2-17 3-03 7-13	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		23

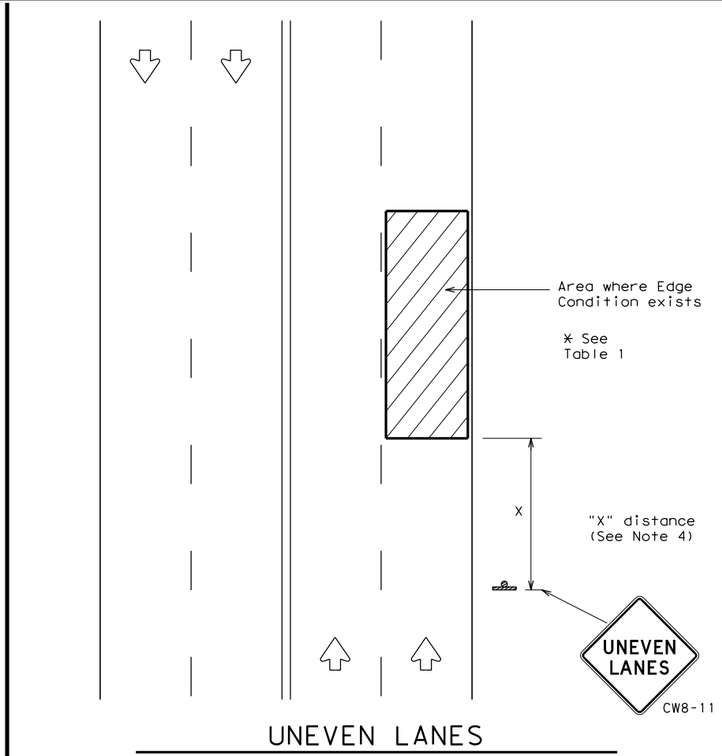
110

DATE: 5/23/2024 11:30:03 AM
FILE: S:\Projects\6i2\54\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\wztd-17.dgn

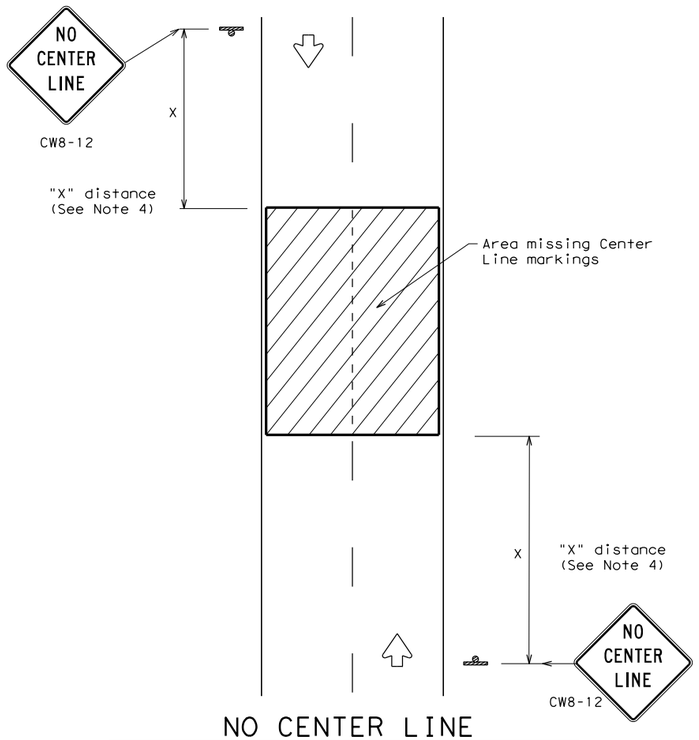
DATE: 5/23/2024 11:30:05 AM
FILE: S:\projects\612534\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\wzu-pfi-13.dgn



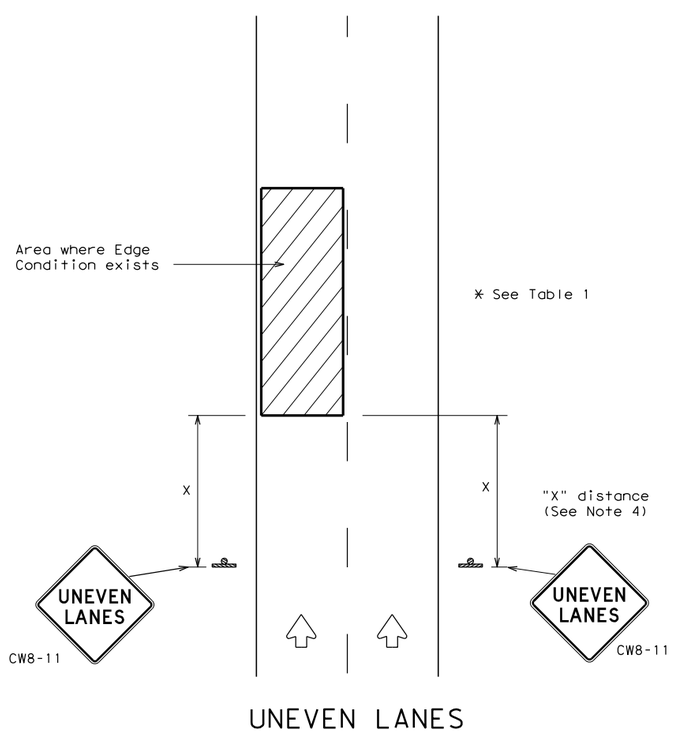
UNEVEN LANES
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
FOUR LANE CONVENTIONAL ROAD



NO CENTER LINE
TWO LANE CONVENTIONAL ROAD



UNEVEN LANES
DIVIDED ROADWAY

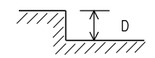
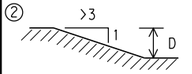
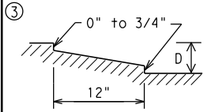
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY (REMOVABLE) PREFABRICATED PAVEMENT MARKINGS	DMS-8241
SIGN FACE MATERIALS	DMS-8300

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

GENERAL NOTES

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

TABLE 1

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

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

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

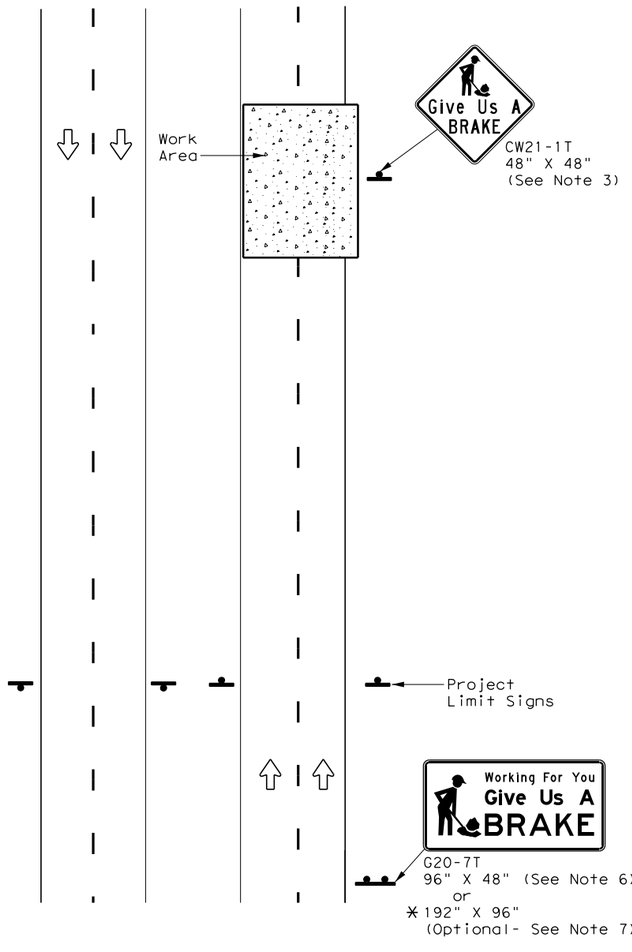
Texas Department of Transportation

Traffic Operations Division Standard

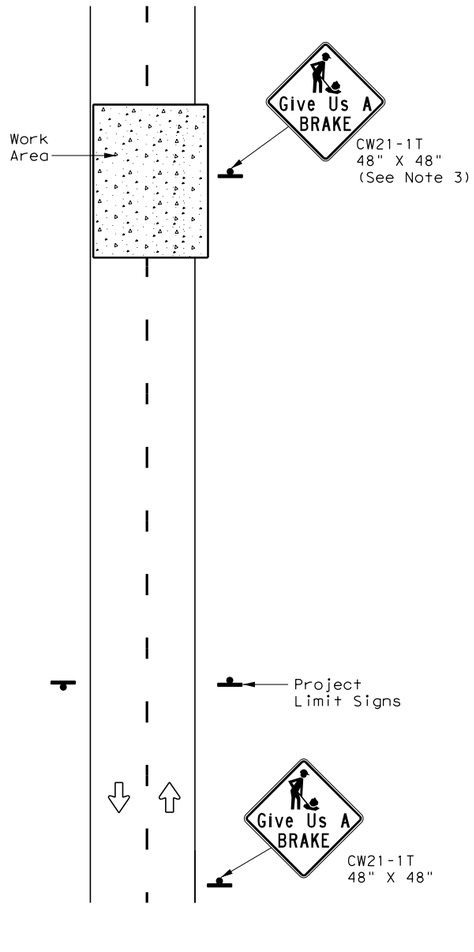
SIGNING FOR UNEVEN LANES

WZ(UL)-13

FILE: wzul-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
8-95 2-98 7-13	DIST	COUNTY		SHEET NO.
1-97 3-03	CRP	LIVE OAK		24



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

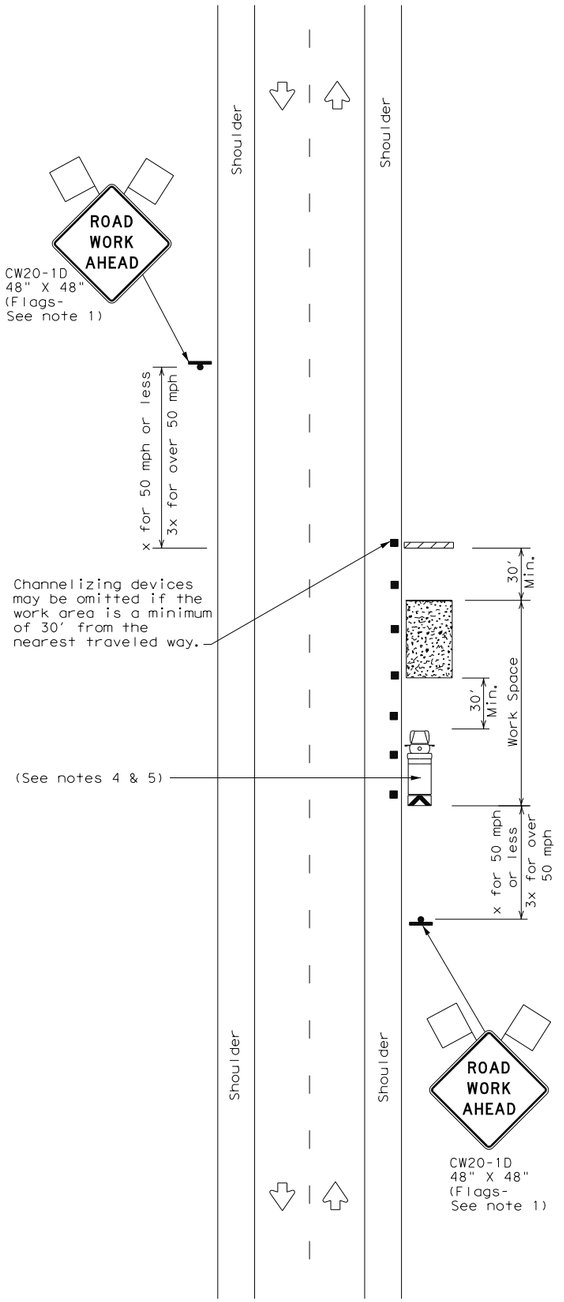
WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
6-96 5-98 7-13 8-96 3-03	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		25

116

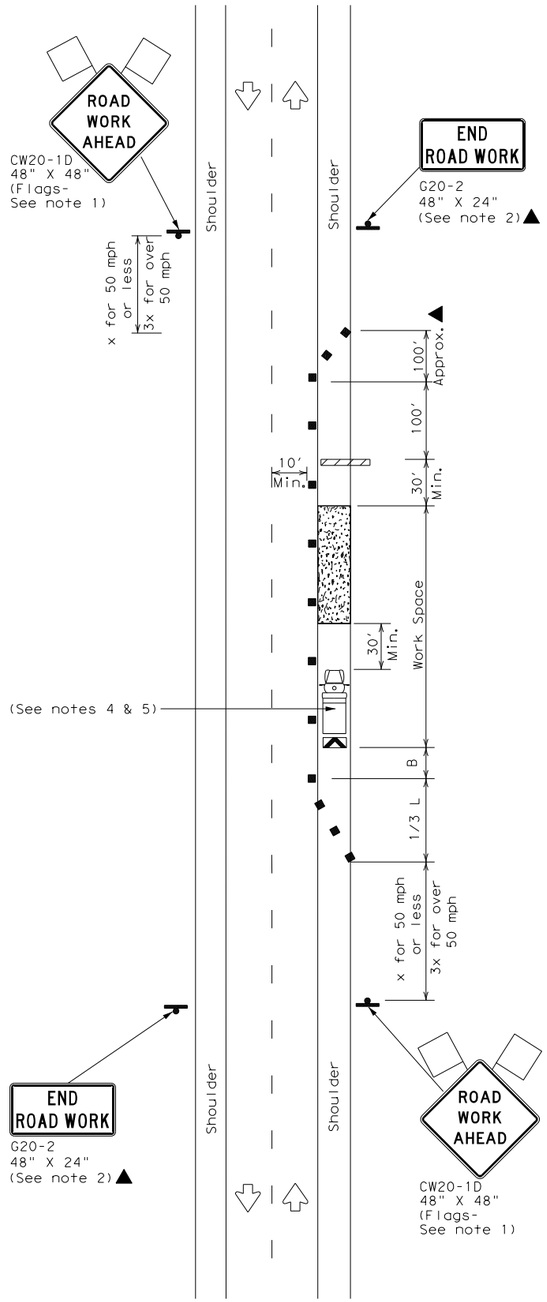
DATE: 5/23/2024 11:30:06 AM
FILE: S:\projects\612534\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\wzbrk-13.dgn

DATE: 5/23/2024 11:30:08 AM
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\tcp2-1-18.dgn



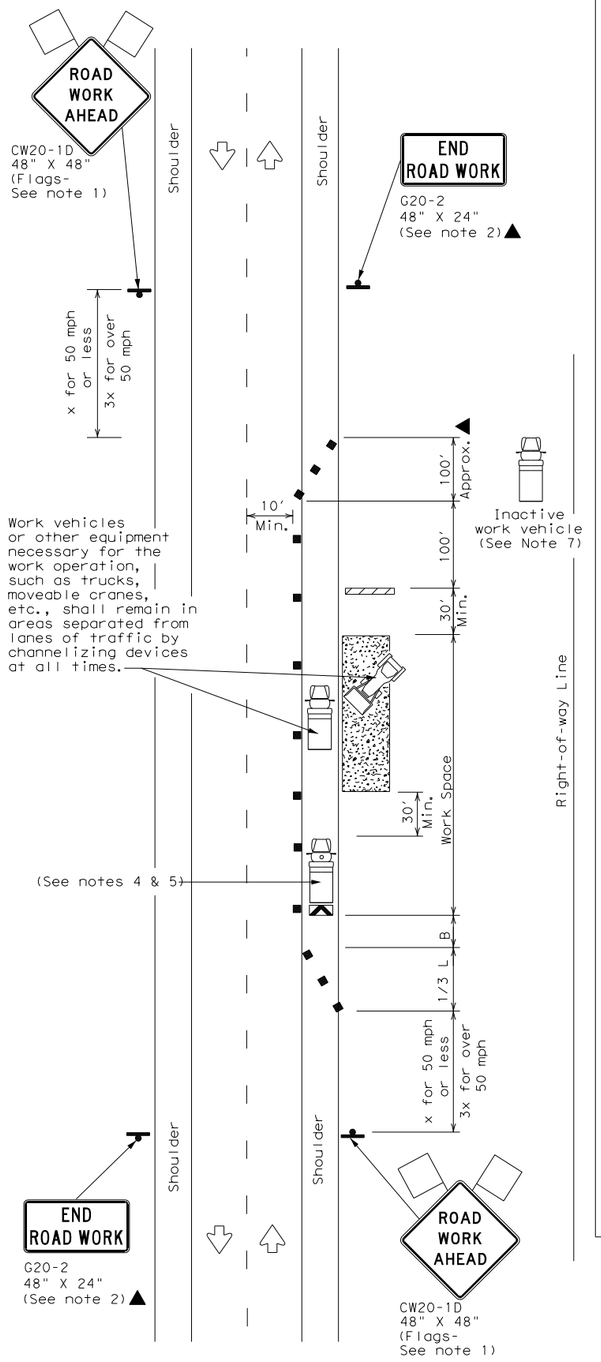
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation

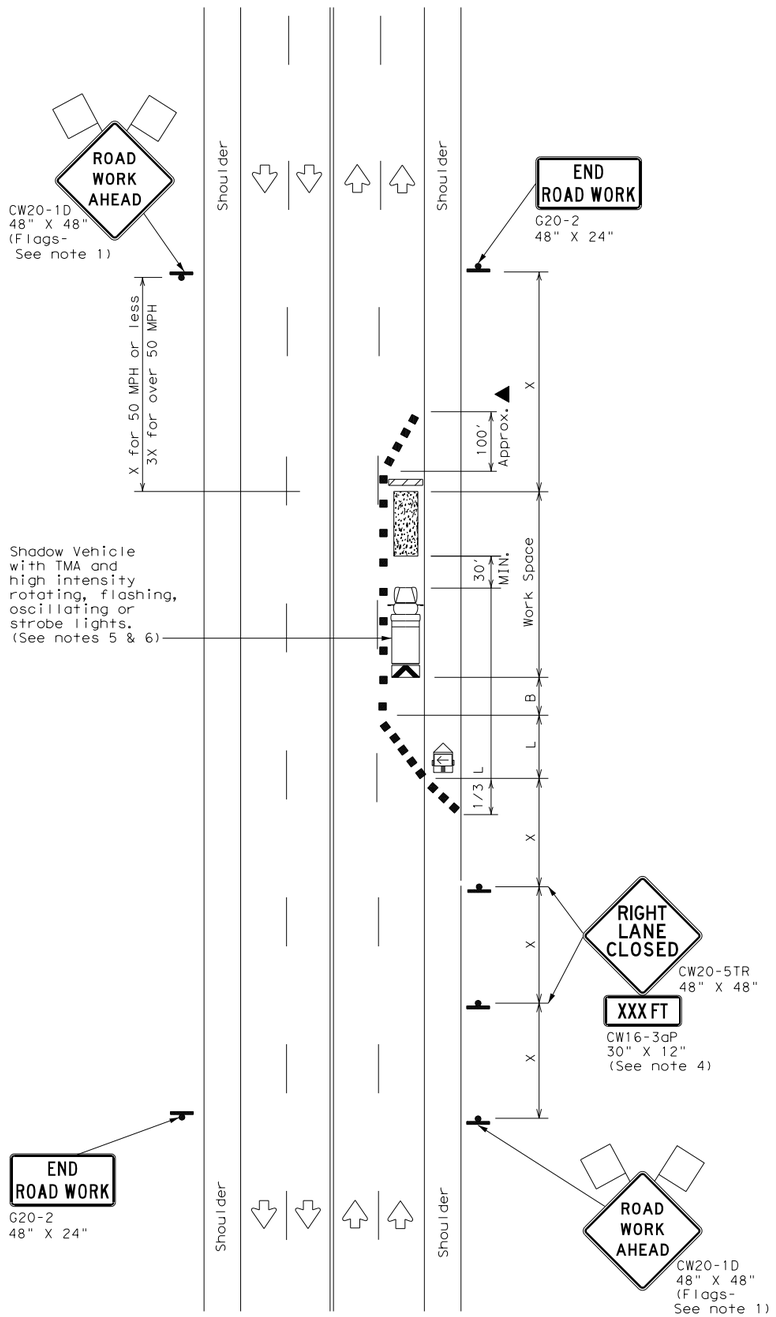
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN CONVENTIONAL ROAD SHOULDER WORK

TCP(2-1)-18

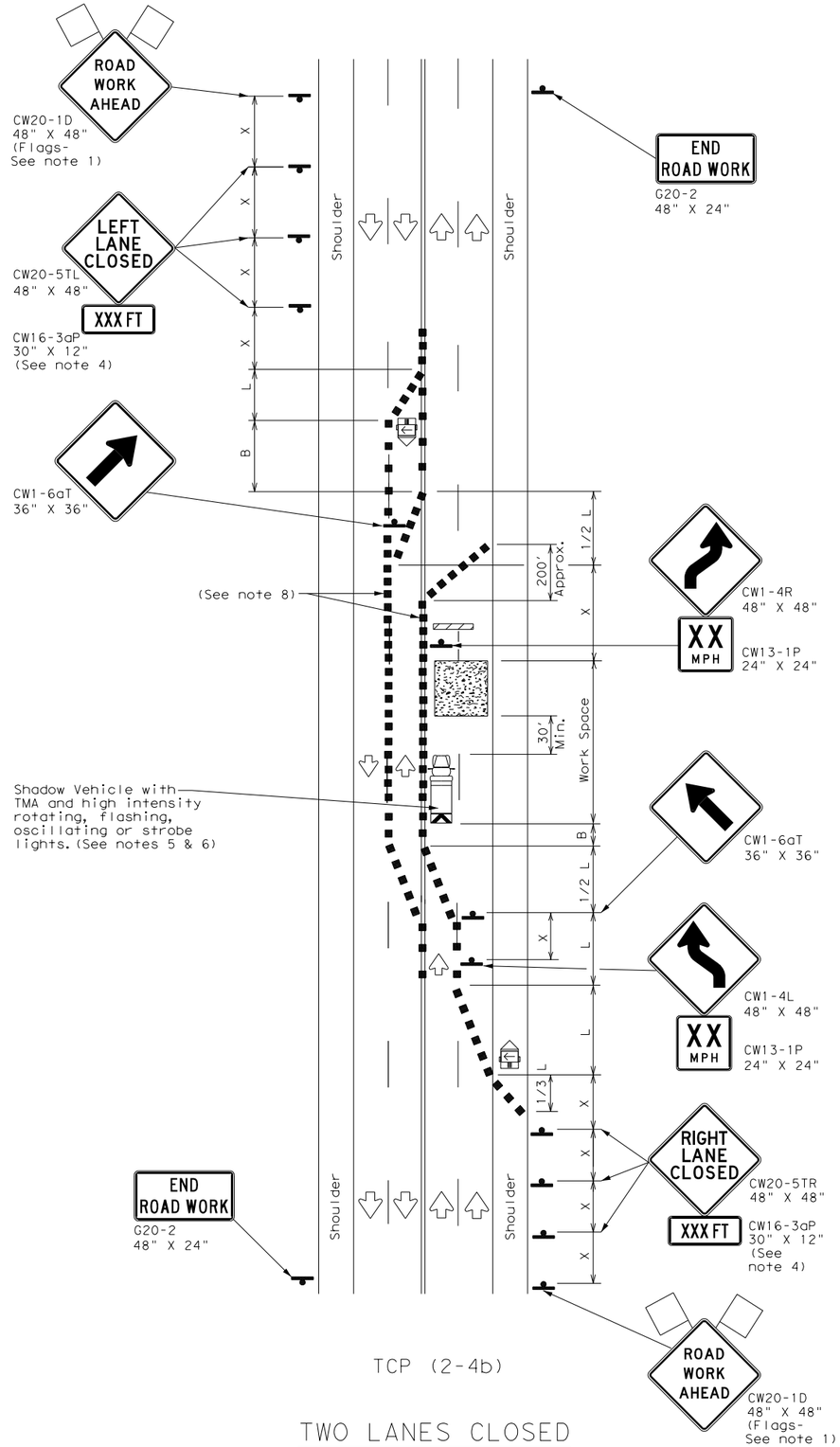
FILE: tcp2-1-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	CRP	LIVE OAK		26
1-97 2-18				

DATE: 5/23/2024 11:30:09 AM
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\tcp2-4-18s.dgn



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

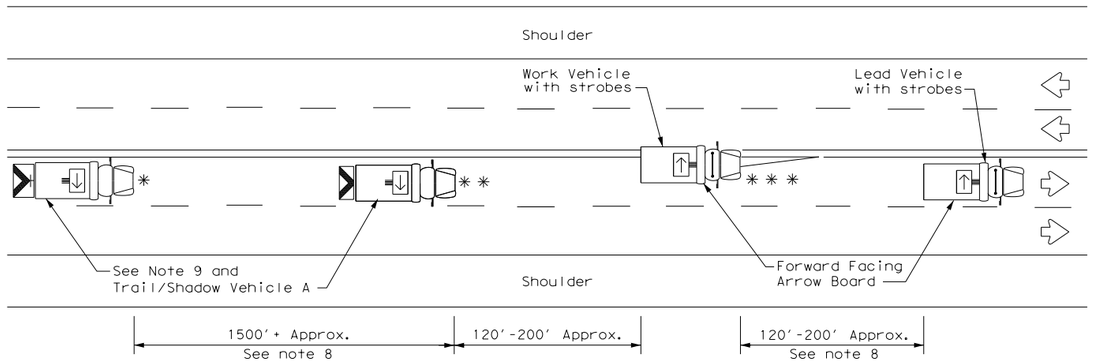
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

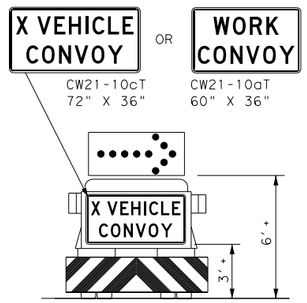
FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0916	29	019	VA
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	CRP	LIVE OAK		27

DATE: 5/23/2024 11:30:11 AM
FILE: S:\Projects\612554\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\tcp3-1-13.dgn



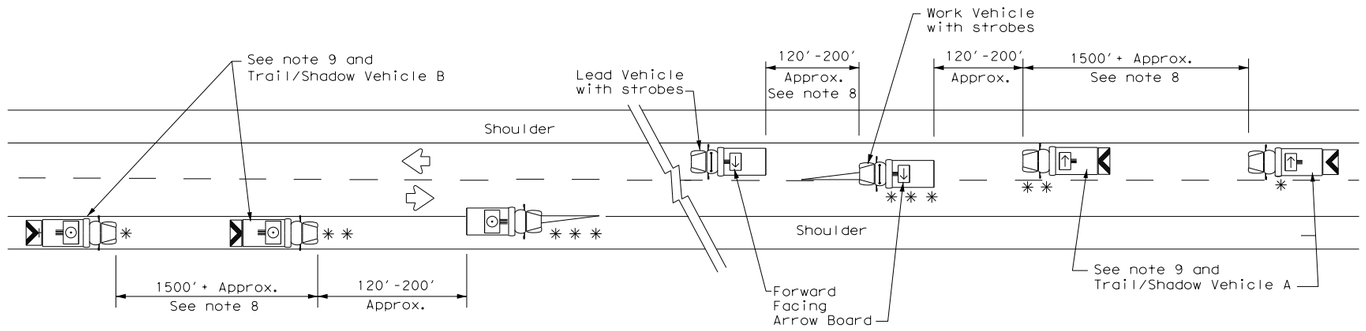
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

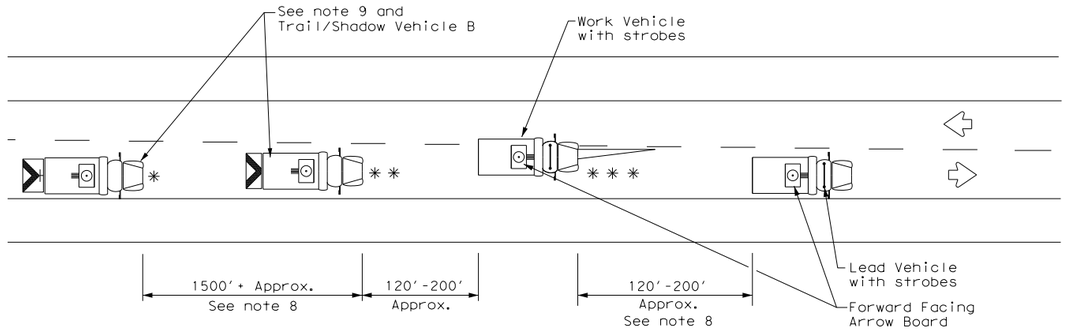


WORK ON SHOULDER

WORK ON TRAVEL LANE

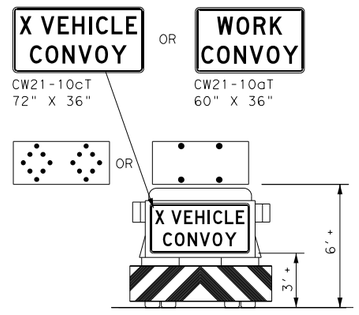
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

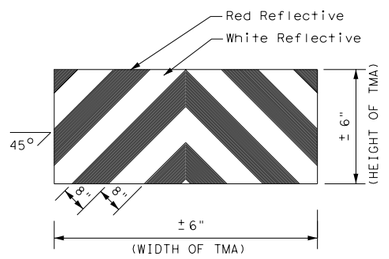
with Flashing Arrow Board in CAUTION display

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

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

GENERAL NOTES

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



STRIPING FOR TMA

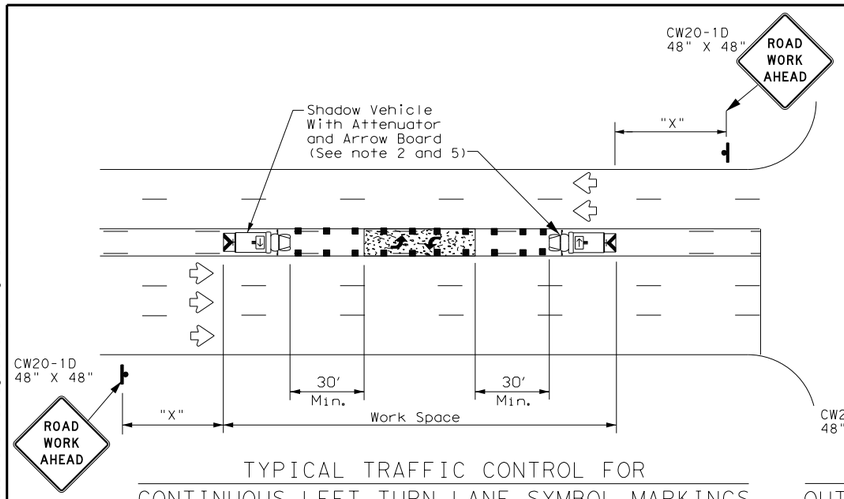
Texas Department of Transportation

Traffic Operations Division Standard

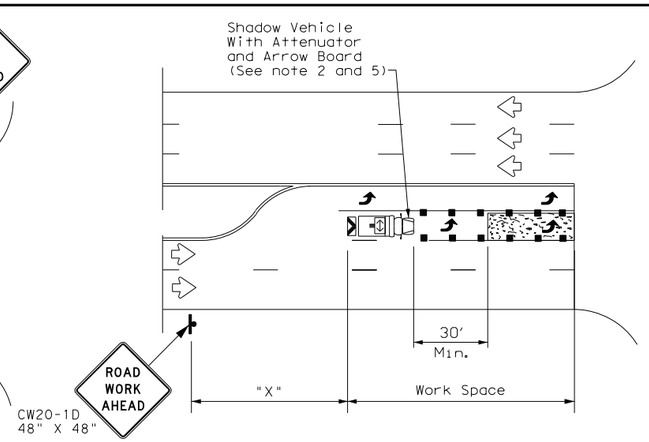
TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

TCP(3-1)-13

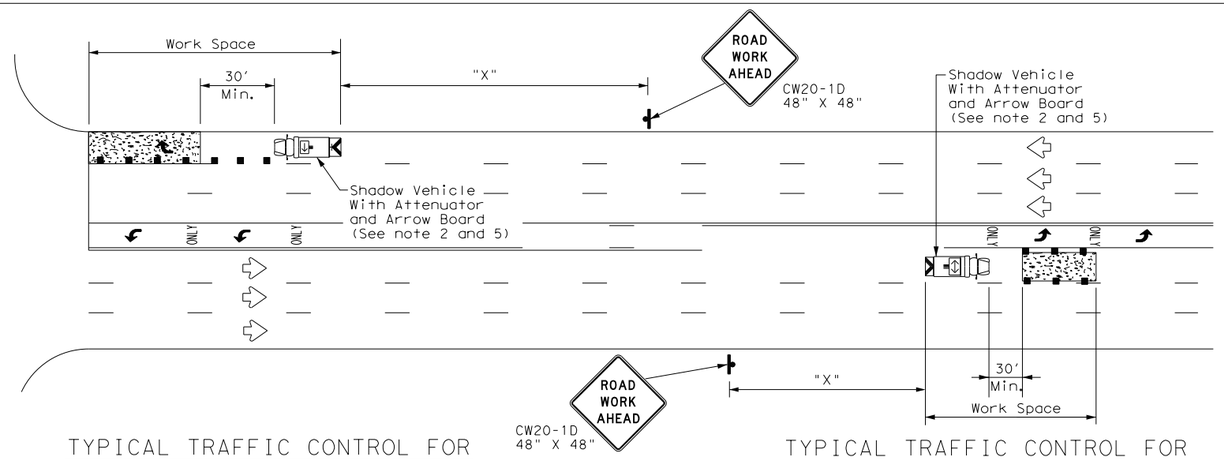
FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		28



TYPICAL TRAFFIC CONTROL FOR
CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

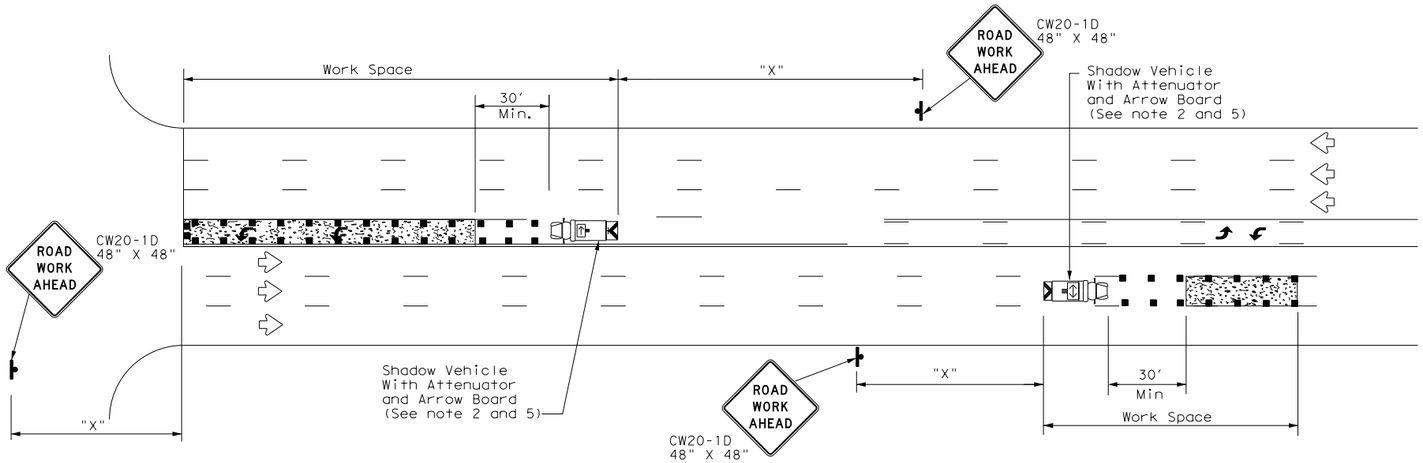


TYPICAL TRAFFIC CONTROL FOR
OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



TYPICAL TRAFFIC CONTROL FOR
OUTSIDE LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
INSIDE LANE MARKINGS



TYPICAL TRAFFIC CONTROL FOR
LEFT TURN LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
CENTER LANE MARKINGS

LEGEND			
✳	Trail Vehicle	ARROW BOARD DISPLAY	
✳✳	Shadow Vehicle		
✳✳✳	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow	■ ■ ■	Channelizing Devices

Posted Speed ✳	Formula	Minimum Desirable Taper Lengths ✳✳			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L=\frac{WS^2}{60}$	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'

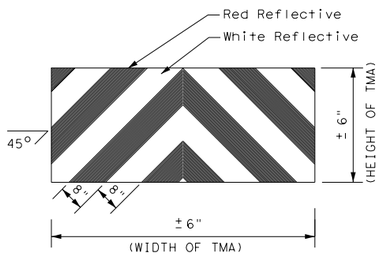
✳ Conventional Roads Only

✳✳ 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. This traffic control plan is for use on conventional roads posted at 45 mph or less and is intended for mobile operations that move continuously or intermittently (stopping up to approximately 15 minutes) such as short-line striping and in-lane rumble strips. When activities are anticipated to take longer amounts of time or traffic conditions warrant, a short duration or short-term stationary traffic control plan should be used.
2. A Truck Mounted Attenuator shall be used on Shadow Vehicle. Striping on the back panel of all truck mounted attenuators shall be 8" red and white reflective sheeting placed in an inverted "V" design. Reflective sheeting shall meet or exceed the reflectivity and color requirements of departmental material specification DMS-8300, Type A.
3. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
4. The use of yellow rotating beacons or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the drivers side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
5. Flashing arrow board shall be used on Shadow Vehicle. Flashing arrow board shall be Type B or Type C as per BC Standards. The arrow board operation shall be controlled from inside the truck.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS FOR ISOLATED WORK AREAS UNDIVIDED HIGHWAYS

TCP(3-4)-13

FILE: tcp3-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT July, 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		29

DATE: 5/23/2024 11:30:12 AM
FILE: S:\Projects\6i2\54\06\Design\01_CRP_3 Rivers\Civil\Standards\TCP\tcp3-4-13.dgn

N DIBRELL AVE

Beginning chain N DIBRELL AVE description

Point P5	N	13,352,125.95 E	2,230,756.54 Sta	300+00.00
Course from P5 to P6 N 13° 23′ 06" E Dist 999.96				
Point P6	N	13,353,098.75 E	2,230,988.03 Sta	309+99.96

Ending chain N DIBRELL AVE description

N HARBORTH AVE

Beginning chain N HARBORTH AVE description

Point P7	N	13,352,040.42 E	2,231,116.08 Sta	400+00.00
Course from P7 to P8 N 13° 24′ 45" E Dist 999.97				
Point P8	N	13,353,013.12 E	2,231,348.03 Sta	409+99.97

Ending chain N HARBORTH AVE description

W ALEXANDER ST

Beginning chain W ALEXANDER ST description

Point P1	N	13,352,891.66 E	2,230,639.49 Sta	100+00.00
Course from P1 to P2 S 76° 36′ 54" E Dist 1,000.00				
Point P2	N	13,352,660.16 E	2,231,612.32 Sta	110+00.00

Ending chain W ALEXANDER ST description

W THORNTON ST

Beginning chain W THORNTON ST description

Point P3	N	13,352,527.32 E	2,230,552.84 Sta	200+00.00
Course from P3 to P4 S 76° 36′ 54" E Dist 999.88				
Point P4	N	13,352,295.85 E	2,231,525.56 Sta	209+99.88

Ending chain W THORTON ST description

DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

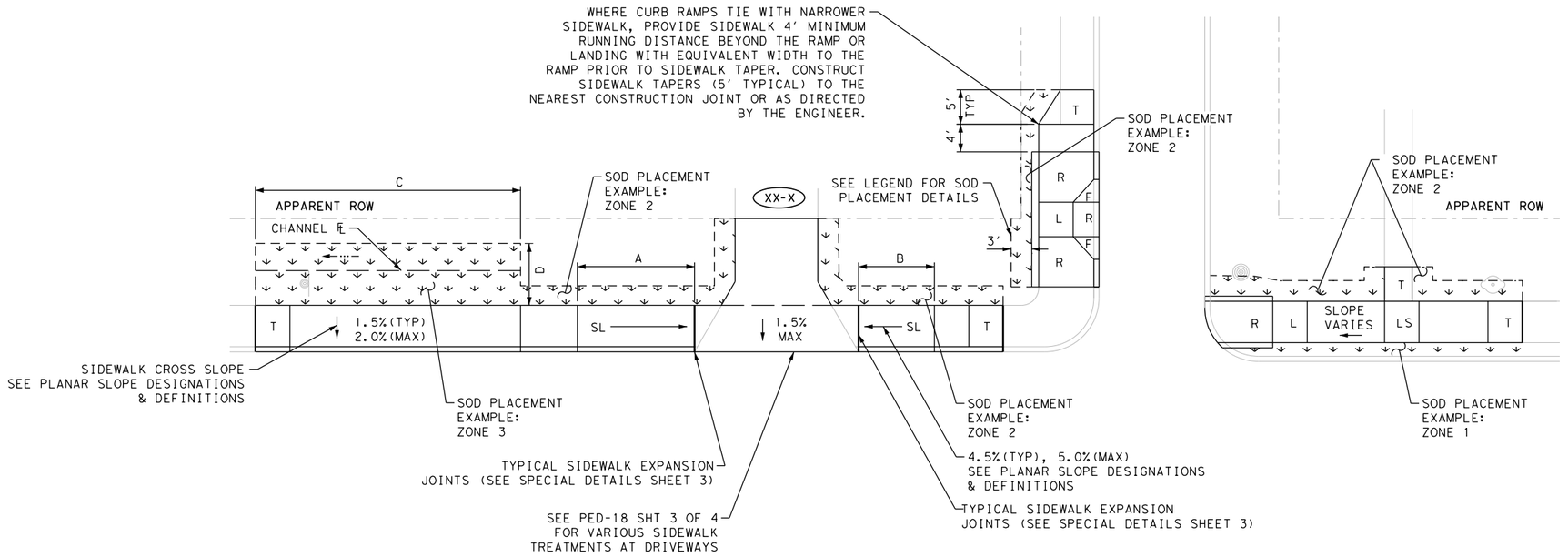
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

HORIZONTAL ALIGNMENT DATA SHEET

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	30

SAMPLE PLAN LAYOUT



PLANAR SLOPE DESIGNATIONS & DEFINITIONS

F = FLARE: (10:1 OR LESS) MEASURED AT FACE OF CURB

R = RAMP CROSS SLOPE: 1.5% TYP, 2.0% MAX; LONGITUDINAL NOT TO EXCEED 8.3%

L = LANDING: 1.5% TYP, 2.0% MAX SLOPE IN ANY DIRECTION)

L1 = SHARED LANDING: 1.5% TYP, 2.0% MAX SLOPE IN ANY DIRECTION)

LS = LEVEL SIDEWALK: 1.5% TYP, 2.0% MAX SLOPE IN ANY DIRECTION

SL = SLOPED SIDEWALK: IF INDICATED, CONSTRUCT SLOPED SIDEWALK AT LONGITUDINAL SLOPE SHOWN ON THE PLANS. SLOPED SIDEWALK LENGTHS A & B ARE 12' TYPICAL IN FLAT TERRAIN, BUT MAY BE LENGTHENED OR SHORTENED TO ACHIEVE FULL CURB HEIGHT. THE LONGITUDNAL SLOPE MAY NOT EXCEED 5.0%.

T = TAPER SIDEWALK WIDTH TO NEAREST EXISTING PANEL JOINT (5' TYP)

SDWK = SIDEWALK

DRWY = DRIVEWAY

LP = LANDSCAPE PAVERS

TYPICAL LIMITS OF SOD PLACEMENT ARE AS FOLLOWS:

ZONE 1: PLACE SOD BETWEEN THE BACK OF CURB AND PROPOSED IMPROVEMENTS (SIDEWALK, DRIVEWAY, RIPRAP, ETC.)

ZONE 2: PLACE SOD 3' BEYOND PROPOSED IMPROVEMENTS

IF THE SPACE BETWEEN THE IMPROVEMENTS AND THE ROW IS LESS THAN 3', PLACE SOD BETWEEN PROPOSED IMPROVEMENTS AND THE ROW

ZONE 3: PLACE SOD WITHIN THE LIMITS OF SOIL DISTURBANCE DUE TO EXCAVATION OR EMBANKMENT AS DIMENSIONED ON THE PLANS. (C x D)

PLACE SOD AS DIRECTED BY THE ENGINEER

NOTES

1. FLARE (F), RAMP (R), AND LANDING (L), DIRECTLY IN CONTACT WITH THE CURB RAMP ARE PAID FOR UNDER ITEM 531 "CURB RAMPS"
2. LEVEL SIDEWALK (LS) AND RAMPS (R) NOT DIRECTLY IN CONTACT WITH THE CURB RAMP ARE PAID FOR UNDER ITEM 531 "SIDEWALK"

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

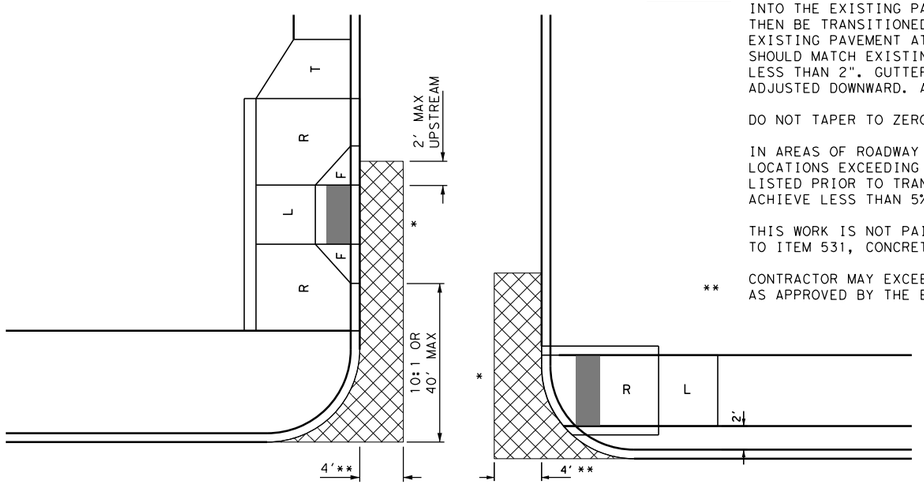
SAMPLE PLAN LAYOUT

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	31

Plotted on: 5/23/2024
Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SPL&LEGEND.dgn

CURB RAMP PAVEMENT TRANSITION DETAIL

ASPHALT/SEALCOAT ROADWAY



* SAW CUT (NSPI)

IN AREAS OF ROADWAY CROSS SLOPES EXCEEDING 2% LONGITUDINAL SLOPE, EXCAVATE 4' OF PAVEMENT IN FRONT OF RAMP AND TRANSITION THE RAMP LANDING INTO THE EXISTING PAVEMENT. THE PAVEMENT SHOULD THEN BE TRANSITIONED HORIZONTALLY INTO THE EXISTING PAVEMENT AT A SLOPE OF 10%. PAVEMENT SHOULD MATCH EXISTING PAVEMENT DEPTH BUT NOT LESS THAN 2". GUTTERLINES SHOULD NOT BE ADJUSTED DOWNWARD. ASPHALT TO CONFORM TO ITEM 3076.

DO NOT TAPER TO ZERO (MINIMUM 2" DEPTH @ TIE-IN).

IN AREAS OF ROADWAY COUNTER SLOPE AT CURB RAMP LOCATIONS EXCEEDING 5%, UTILIZE SIMILAR METHODS LISTED PRIOR TO TRANSITION EXISTING PAVEMENT TO ACHIEVE LESS THAN 5% COUNTER SLOPE IF FEASIBLE

THIS WORK IS NOT PAID FOR DIRECTLY, BUT IS SUBSIDIARY TO ITEM 531, CONCRETE SIDEWALKS.

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

ROADWAY TRANSITION

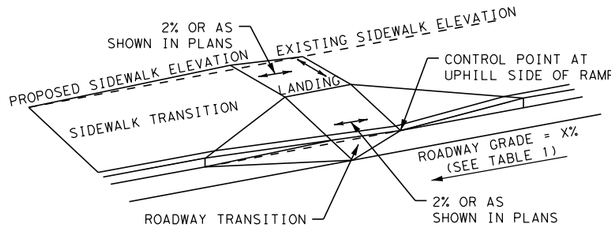
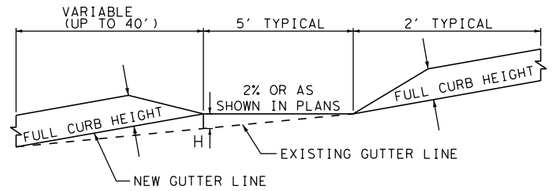
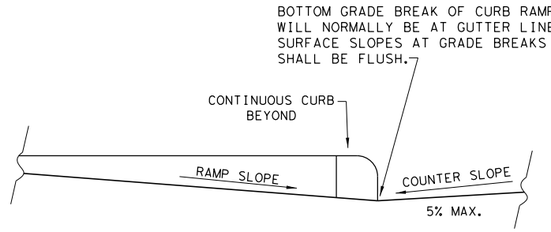


TABLE 1		
DIFFERENTIAL BETWEEN RAMP AND ROADWAY LONGITUDINAL SLOPE	H	
1%	0.04'	0.50"
2%	0.08'	1.00"
3%	0.12'	1.50"
4%	0.16'	2.00"
5%	0.20'	2.40"
6%	0.24	2.90"

CURB ELEVATION





TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

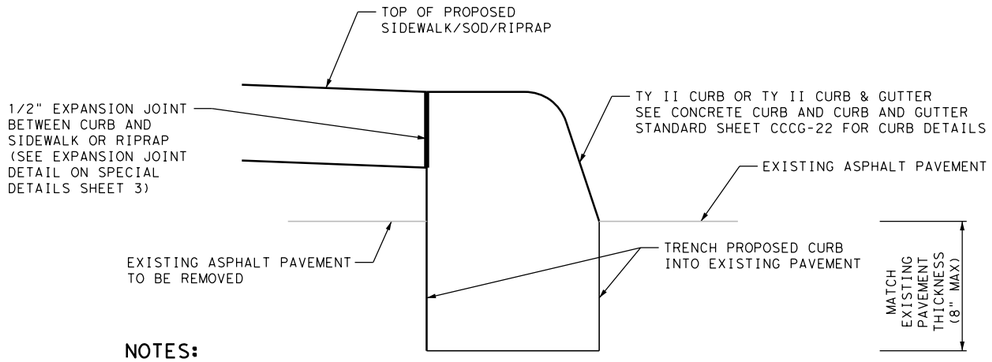
SPECIAL DETAILS

SHEET 1 OF 10

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	32

CURB TRENCH DETAIL

USE WHEN INSTALLING A CURB INTO EXISTING ASPHALT PAVEMENT



NOTES:

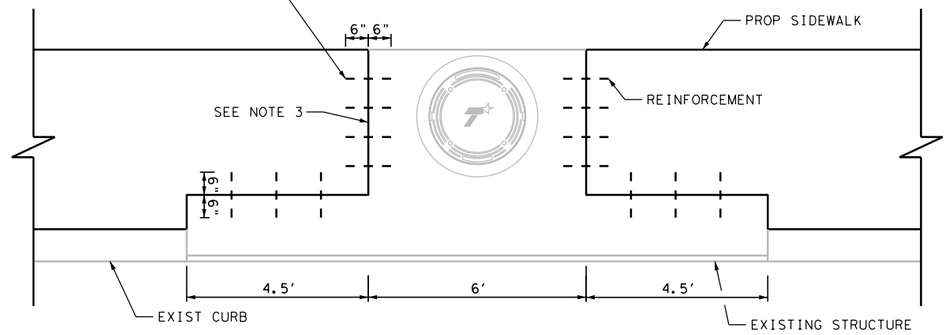
1. VERTICAL DOWELING PROPOSED CURB INTO EXISTING PAVEMENT IS NOT PERMITTED
2. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ADDITIONAL CONCRETE REQUIRED TO MATCH EXISTING PAVEMENT THICKNESS
3. SEE CCCG-22 FOR MORE INFORMATION

STRUCTURE DOWELING DETAIL

NOT TO SCALE

#4 DOWEL BARS (SMOOTH) @ 12" C-C (TYP) INCIDENTAL TO PAY ITEM 530

STRUCTURE TYPES MAY VARY AND ADDITIONAL REINFORCEMENT MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

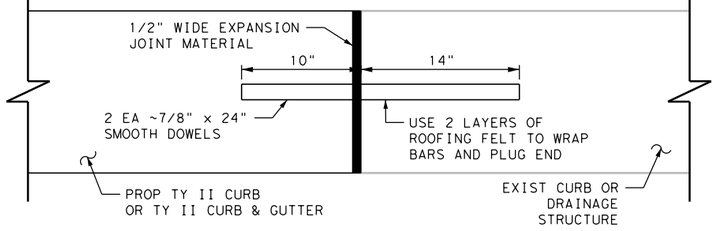


NOTES:

1. DOWEL BARS TO BE DRILLED INTO EXISTING CONCRETE.
2. GROUT OR EPOXY BARS INTO EXISTING CONCRETE AS APPROVED BY THE ENGINEER.
3. CONTRACTOR REQUIRED TO MAINTAIN SMOOTH TRANSITION FROM PROPOSED SIDEWALK TO EXISTING STUCTURES. TOP OF PROPOSED SIDEWALK SHALL MATCH FLUSH WITH TOP OF EXISTING STRUCTURE. CHANGES IN LEVEL ARE NOT PERMITTED.

CURB TIE-IN DETAIL

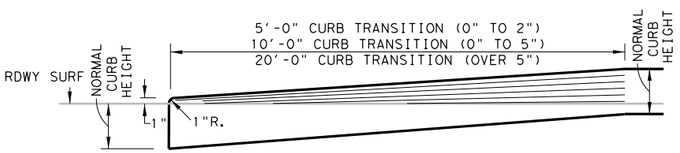
USE WHEN INSTALLING A CURB ABUTTING AN EXISTING CURB OR DRAINAGE STRUCTURE



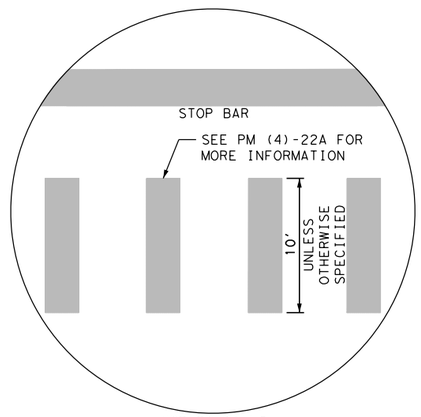
NOTES:

1. DOWEL BARS TO BE DRILLED INTO EXISTING CONCRETE.
2. GROUT OR EPOXY BARS INTO EXISTING CONCRETE AS APPROVED BY THE ENGINEER.
3. SEE CCCG-22 FOR MORE DETAILS.

TYPICAL TRANSITION FOR CONCRETE CURB ENDS



HIGH VISIBILITY LONGITUDINAL CROSSWALK DETAIL



NOT TO SCALE

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

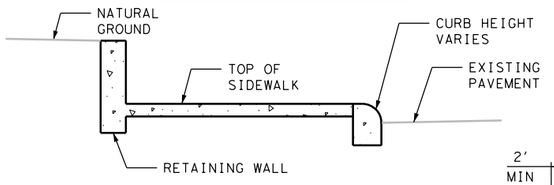
SHEET 2 OF 10

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	33

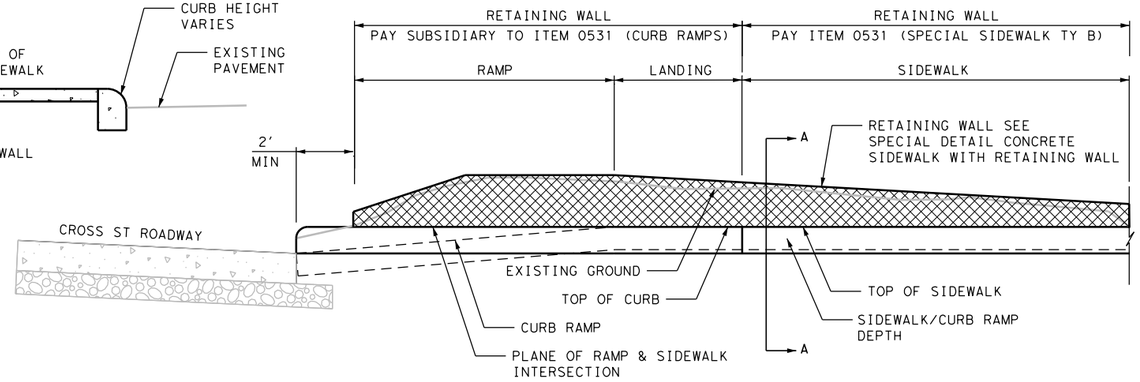
Plotted on: 5/23/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SAMPLE02.dgn

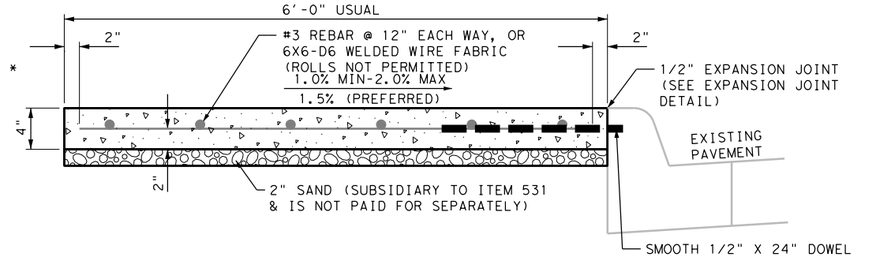
SECTION A-A



RETAINING WALL DETAIL



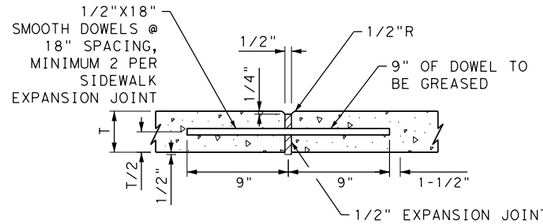
SIDEWALK DETAILS



PLACE GROOVED JOINTS IN THE SIDEWALK AT A MAX SPACING OF 6 FT
PLACE 1/2" EXPANSION JOINTS AT A MAX SPACING OF 40FT TO COINCIDE WITH THE CURB EXPANSION JOINTS.

* UNLESS OTHERWISE SHOWN

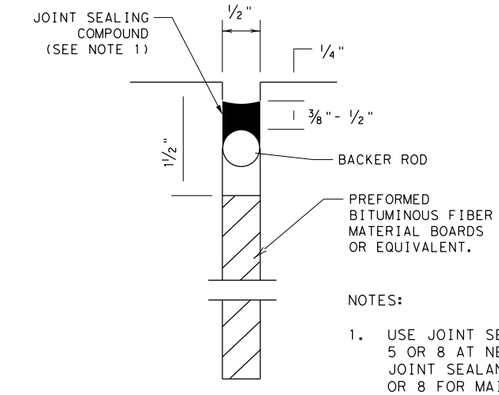
SIDEWALK EXPANSION JOINT DETAIL



NOTES:

1. SIDEWALK EXPANSION JOINT DOWELS ARE CONSIDERED SUBSIDIARY TO ITEM 531.
2. SIDEWALK EXPANSION JOINTS SHALL BE INSTALLED AT MAXIMUM 40 FT INTERVALS, COINCIDE WITH CURB EXPANSION JOINT, CONNECTIONS TO EXISTING CONCRETE, CONNECTIONS TO PROPOSED CONCRETE DRIVEWAYS, WHERE DAILY WORK TERMINATES, AND AS DIRECTED BY THE ENGINEER.

EXPANSION JOINT DETAIL



NOTES:

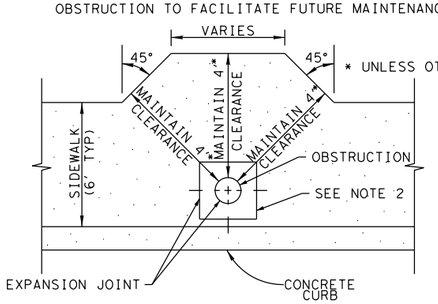
1. USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4, 5, 7, OR 8 FOR MAINTAINING EXISTING JOINTS.

OBSTRUCTION CONFLICT

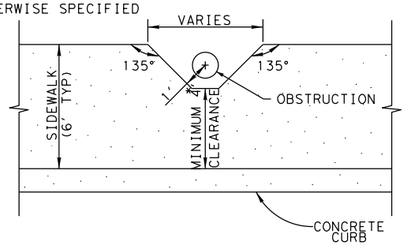
NOTES:

1. UTILIZE DETAIL AT OBSTRUCTION ENCROACHMENTS INTO THE PEDESTRIAN ACCESS ROUTE. A MINIMUM UNOBSTRUCTED CLEARANCE OF 4', UNLESS OTHERWISE SPECIFIED, SHOULD BE MAINTAINED AROUND THE OBSTRUCTION MEASURED FROM THE MOST RESTRICTIVE LOCATION OR AS APPROVED BY THE ENGINEER

2. IF OBSTRUCTION IS LOCATED WITHIN THE SIDEWALK, CONSTRUCT 2' SQUARE CONSTRUCTION JOINT CENTERED ON OBSTRUCTION TO FACILITATE FUTURE MAINTENANCE WITHOUT FULL SIDEWALK PANEL REMOVAL/REPLACEMENT

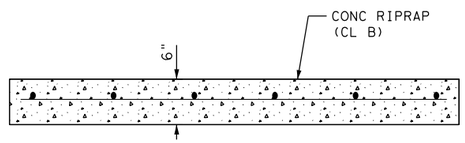


OBSTRUCTION IN SIDEWALK

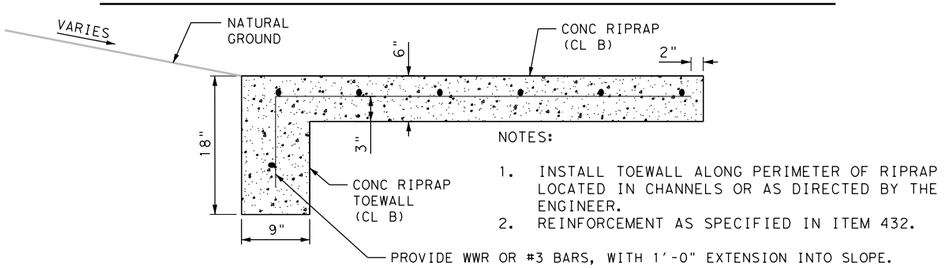


OBSTRUCTION OUTSIDE SIDEWALK

CONCRETE RIPRAP DETAIL



CONCRETE RIPRAP W/ TOEWALL DETAIL



NOTES:

1. INSTALL TOEWALL ALONG PERIMETER OF RIPRAP LOCATED IN CHANNELS OR AS DIRECTED BY THE ENGINEER.
2. REINFORCEMENT AS SPECIFIED IN ITEM 432.

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

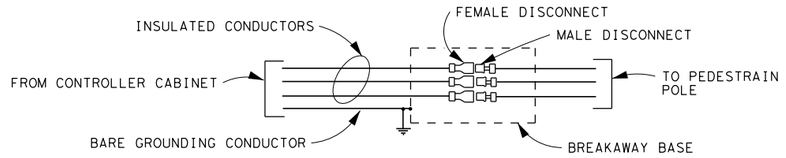
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

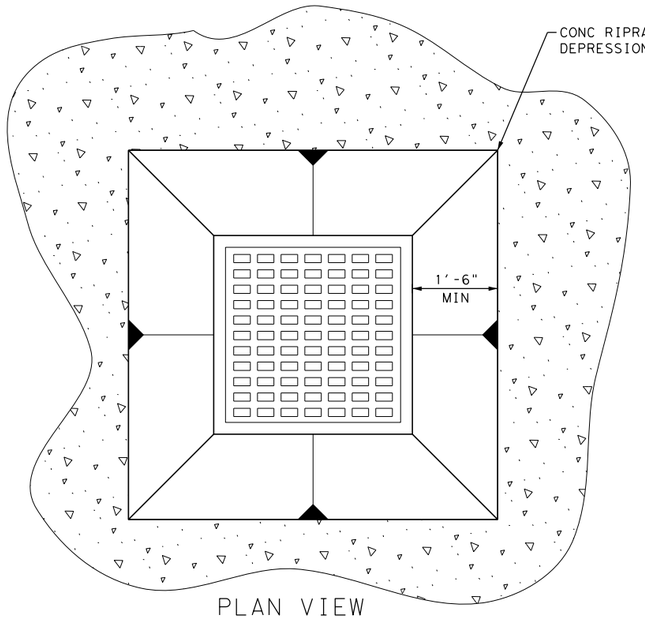
SPECIAL DETAILS

SHEET 3 OF 10

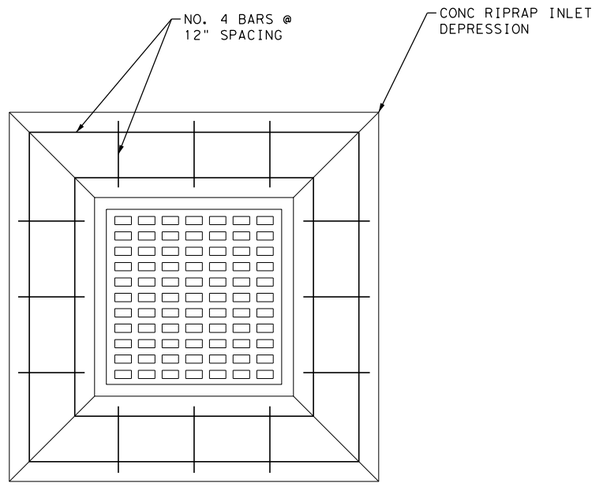
DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	34



BREAKAWAY IN-LINE FUSE HOLDERS



PLAN VIEW



STEEL DETAILS

CONCRETE RIPRAP INLET DEPRESSION

DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

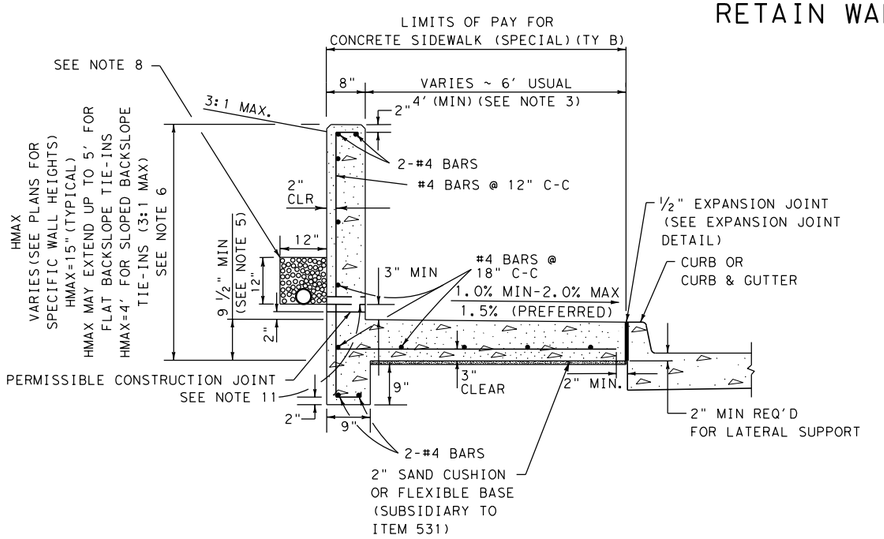
SHEET 4 OF 10

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	35

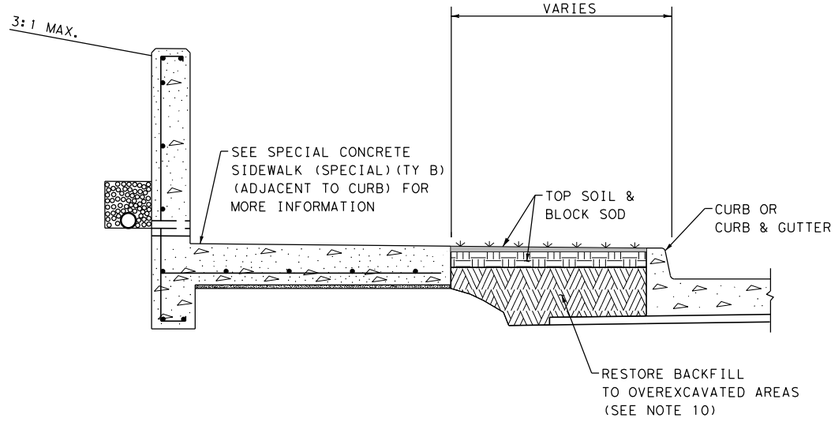
Plotted on: 5/23/2024

Design Filename: S:\projects\612554\06\Design\01_CRP_3 Rivers\Civil\General\612540 6_01_3_Rivers_SAMPLE05.dgn

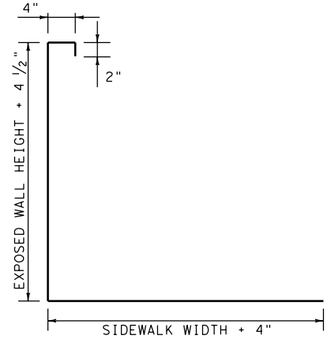
CONCRETE SIDEWALK (SPECIAL) (TY B)
RETAIN WALL (CUT)



ADJACENT TO CURB

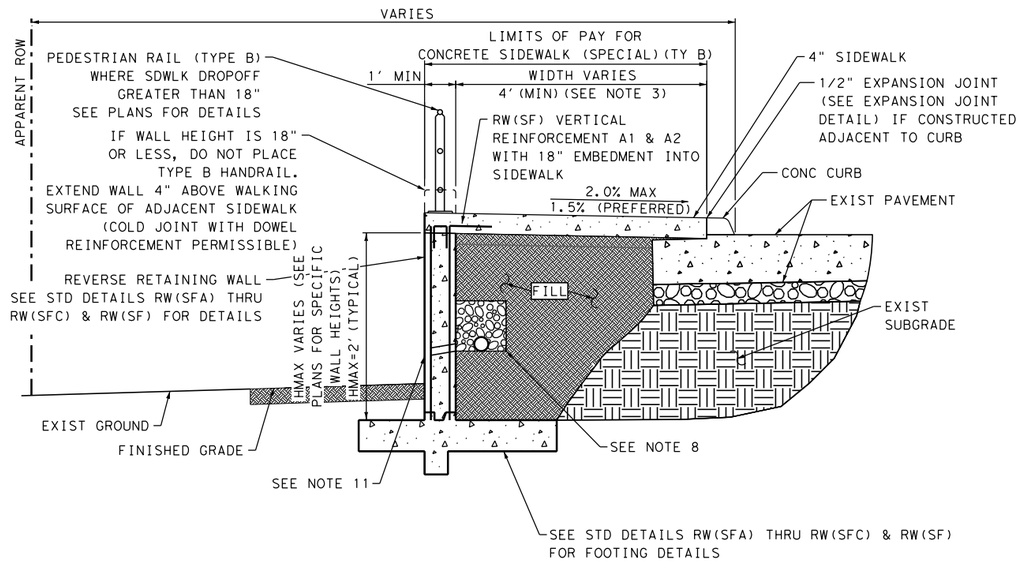


SEPARATED FROM CURB



REINFORCING STEEL DETAIL

CONCRETE SIDEWALK (SPECIAL) (TY B)
RETAIN WALL (FILL)



NOTES:

1. SEE PLAN SHEETS FOR LOCATIONS OF SIDEWALKS WITH INTEGRATED CUT OR FILL RETAINING WALLS.
2. 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.
3. IF SIDEWALK WIDTH IS LESS THAN 5', PROVIDE 5' x 5' PASSING AREAS AT INTERVALS NOT TO EXCEED 200' SPACING.
4. RETAINING WALL IS CONSIDERED SUBSIDIARY TO ITEM 531, WALL LENGTH AND HMAX ARE SHOWN ON THE PLANS FOR CONTRACTOR INFORMATION ONLY.
5. FOR RETAINING WALL (CUT) FEATURES, CONCRETE SIDEWALK (SPECIAL) (TY B) THICKNESS IS PERMITTED TO BE 6" IN AREAS WHERE HMAX IS LESS THAN OR EQUAL TO 3'. THE SIDEWALK THICKNESS SHALL BE CONSTRUCTED AS INDICATED ON DETAIL FOR HMAX IN EXCESS OF 3' OR WHERE WALLS OF ANY HEIGHT ARE TO BE CONSTRUCTED ADJACENT TO PARKING.
6. EXCAVATION, HAULING, AND DISPOSAL OF EXCAVATED MATERIAL IS NOT PAID FOR SEPARATELY, CONSIDERED SUBSIDIARY TO ITEM 531.
7. EXCAVATED MATERIAL MAY BE USED AS EMBANKMENT IF APPROVED BY THE AREA ENGINEER.
8. CONSTRUCT FILTER MATERIAL AND 4" DRAIN PIPE PER ITEM 556 (TYPE 5, 6, 7, OR 8) (NOT PAID FOR SEPARATELY, SUBSIDIARY TO ITEM 531). SLOPE TO DRAIN AND TERMINATE AT WALL LIMITS OR AS DIRECTED BY THE ENGINEER. IF, IN THE OPINION OF THE ENGINEER, THE USE OF AN UNDERDRAIN IS IMPRACTICAL, WEEP HOLES MAY BE USED (NSPI).
9. CHAMFER ALL EXPOSED CORNERS 3/4".
10. WHERE OVER-EXCAVATION IS REQUIRED TO FORM CURB AND/OR SIDEWALK, RESTORE AND COMPACT BACKFILL UP TO LIMITS OF TOPSOIL BEFORE BACKFILLING BEHIND WALL.
11. 2" WEEP HOLES AT 15' MAX SPACING. SLOPE TO DRAIN. 1' SQUARE HARDWARE CLOTH (1/4" MESH) CENTERED BEHIND OPENING.

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

SHEET 5 OF 10

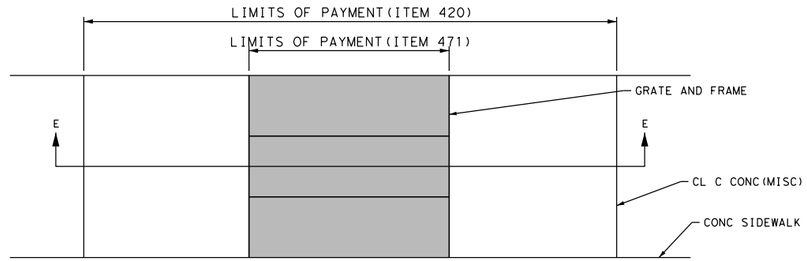
DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	36

Design Filename: S:\projects\612554\06\Design\01_CRP_3 Rivers\Civil\General\612540 6_01_3_Rivers_SAMPLE06.dgn
Plotted on: 5/23/2024

GRATE & FRAME DETAIL

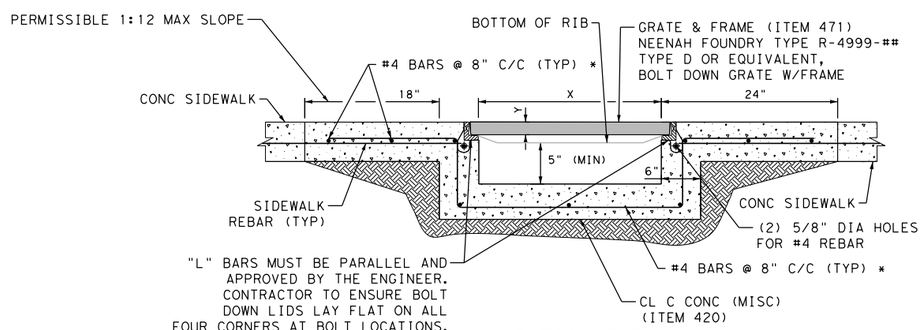
N.T.S

* REINFORCEMENT IS SUBSIDIARY TO ITEM 420.



SINGLE CHANNEL PLAN VIEW

N.T.S

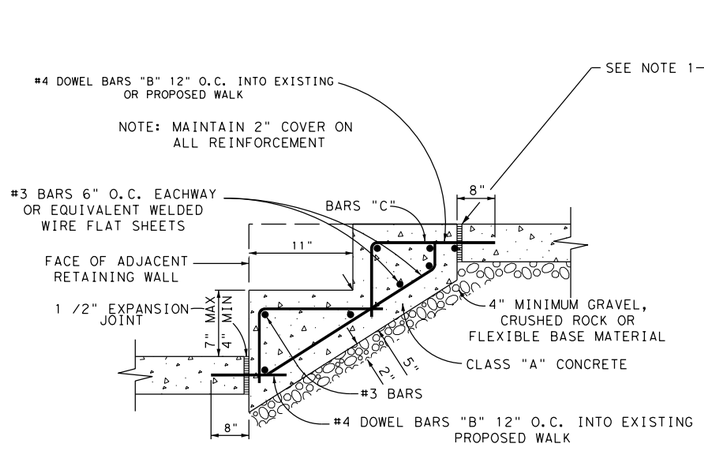


SECTION E-E

N.T.S

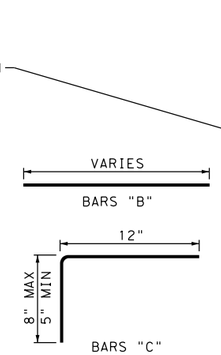
GRATE LENGTH	X	Y	R-4999-##
20"	18"	1.5"	FX
26"	24"	1.5"	HX
39"	36"	2.0"	MX
51"	48"	2.0"	OX

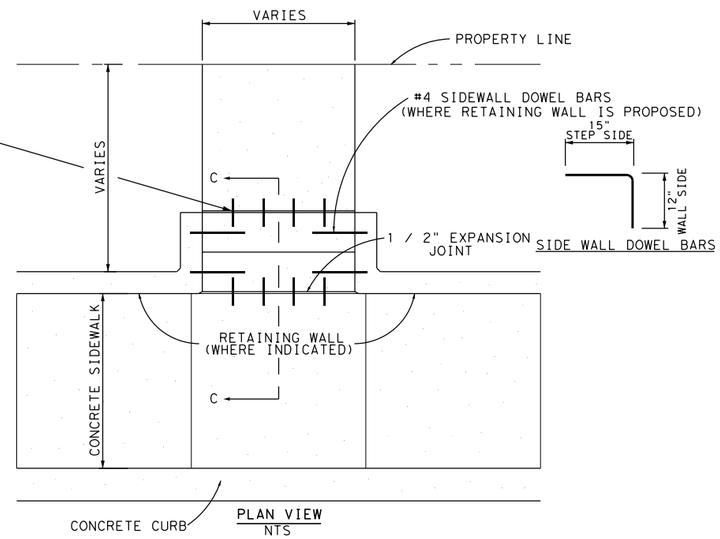
CONCRETE STEPS (ITEM 420)



SECTION "C-C"

SCALE : NTS





PLAN VIEW

NTS

NOTES:

1. WHEN CONSTRUCTING STEPS ADJACENT TO HISTORIC RESOURCES IDENTIFIED ON THE PLANS, CONTRACTOR SHALL ADHERE TO REQUIREMENTS OF SIDEWALK CONSTRUCTION NEXT TO HISTORIC RESOURCE PER ITEM 5114. THIS IS CONSIDERED SUBSIDIARY TO ITEM 420(NSPI).

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

SHEET 6 OF 10

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	37

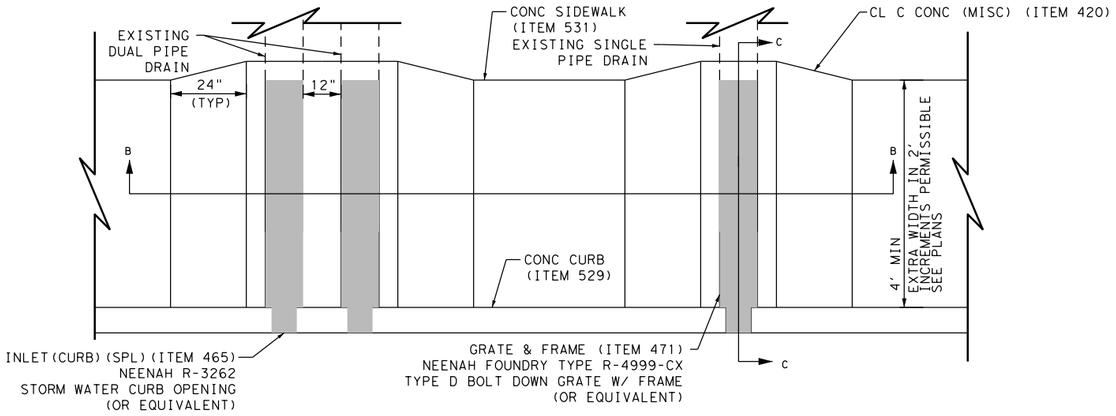
Plotted on: 6/17/2024

Design Filename: S:\projects\6125406\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SAMPLE07.dgn

Plotted on: 5/23/2024

Design Filename: S:\projects\6125406\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SAMPLE07.1.dgn

PIPE DRAIN DETAIL

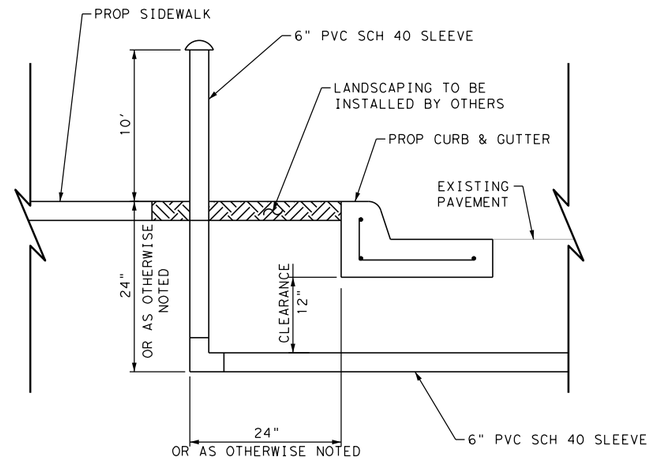


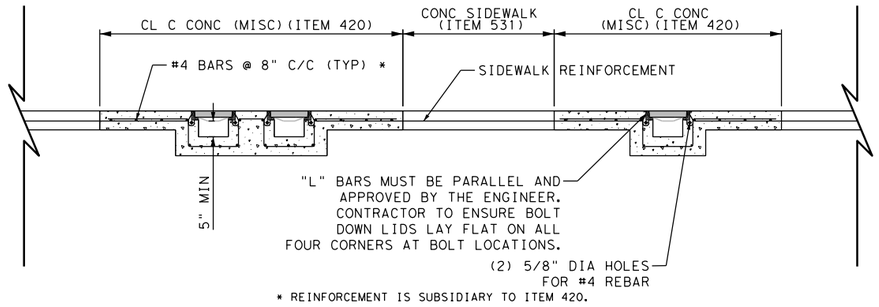
DUAL PIPE DRAIN PLAN
N.T.S

SINGLE PIPE DRAIN PLAN
N.T.S

IRRIGATION SLEEVE DETAIL

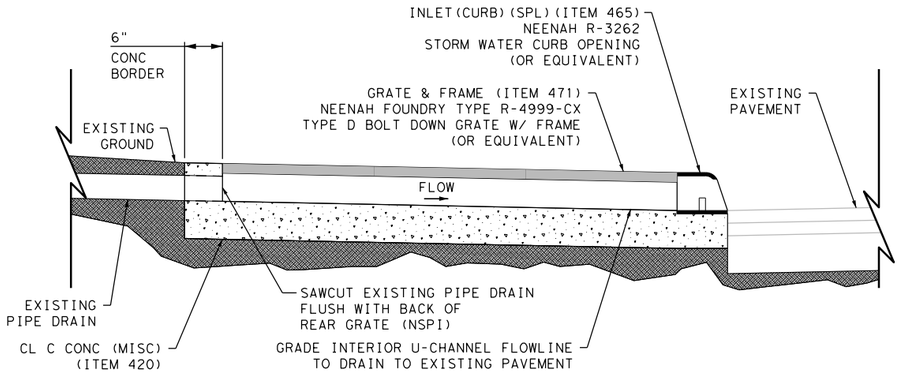
N.T.S.





* REINFORCEMENT IS SUBSIDIARY TO ITEM 420.

SECTION B-B
N.T.S



SECTION "C-C"
N.T.S

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

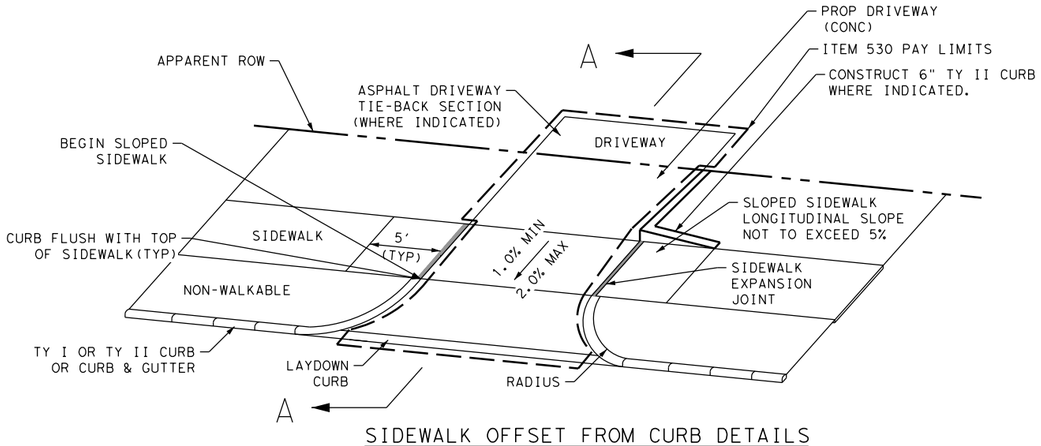
PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

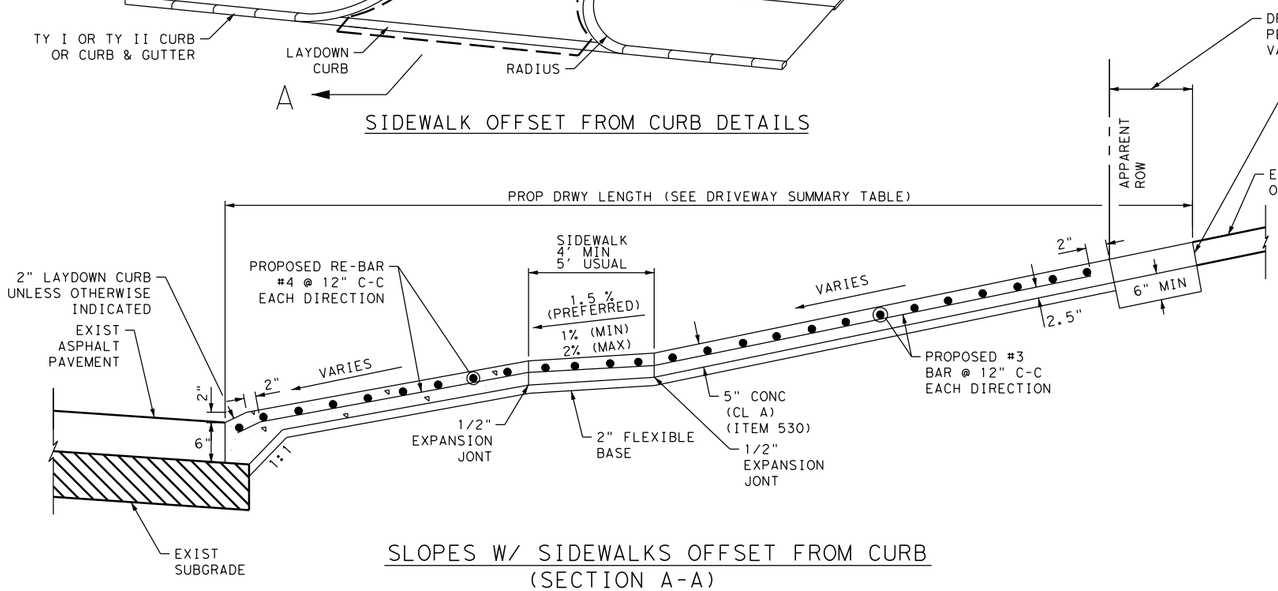
SPECIAL DETAILS

SHEET 7 OF 10

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	38



SIDEWALK OFFSET FROM CURB DETAILS



SLOPES W/ SIDEWALKS OFFSET FROM CURB
(SECTION A-A)

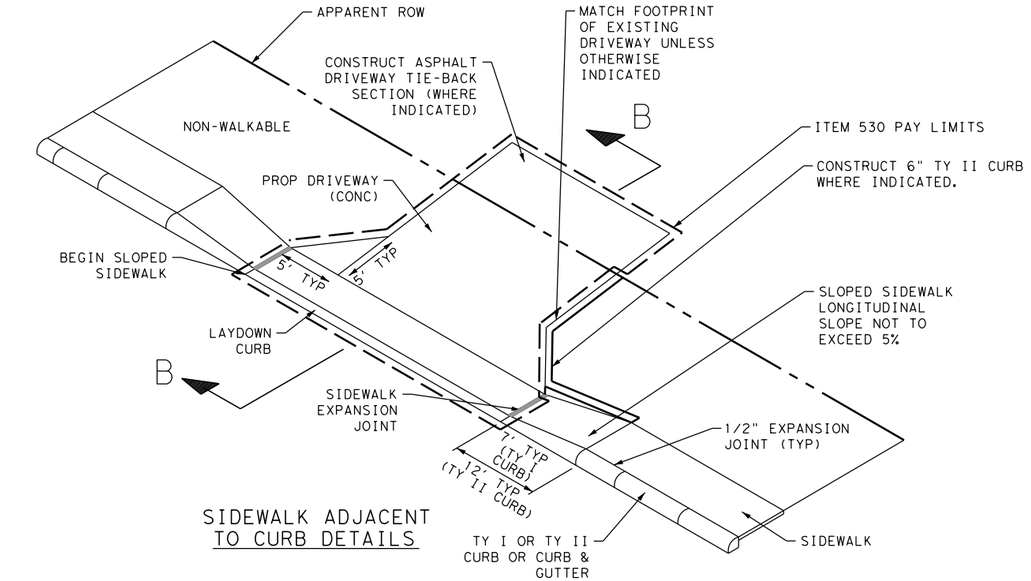
NOTES:

1) SLOPED SIDEWALK SEGMENT LENGTHS ARE SHOWN TO CONSERVATIVELY ACCOMMODATE STANDARD CURB HEIGHTS ON LEVEL STREETS. SOME SLOPED SIDEWALK SEGMENTS MAY REQUIRE ADDITIONAL LENGTH TO ENSURE LONGITUDINAL SLOPES DO NOT EXCEED 5%. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY EXTEND THE SLOPED SIDEWALK SEGMENT TO THE NEXT PLANAR ELEMENT (LS, L, SL, R, T, ETC.) OR UNTIL THE SLOPED SIDEWALK REACHES CURB HEIGHT, WHICHEVER IS SHORTER.

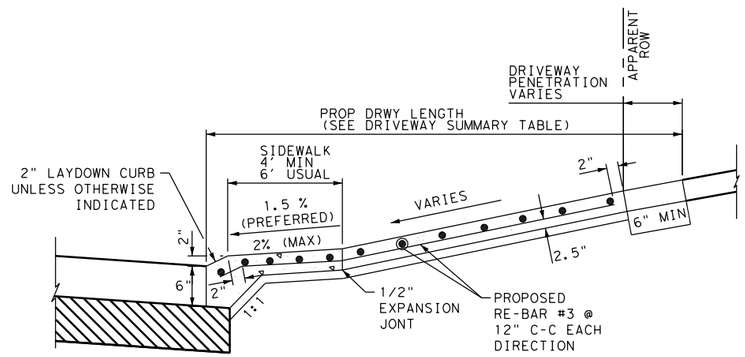
2) IF DRIVEWAY TIE-BACK IS SPECIFIED AS CONCRETE, SAWCUT EXISTING CONCRETE AT THE TIE-IN LOCATION MIN. 1/2", THEN BREAKBACK, CLEAN, AND EXPOSE 18" STEEL REINFORCING IN EXISTING CONCRETE. INSTALL FLEXIBLE BASE AS INDICATED. CONSTRUCT CONCRETE DRIVEWAY PER ITEM 530.

   IF DRIVEWAY TIE-BACK IS SPECIFIED AS ASPHALT, SAWCUT EXISTING ASPHALT AT THE TIE-IN LOCATION. INSTALL 6" FLEXIBLE BASE OR ASPHALTIC CONCRETE BASE (SUBSIDIARY TO ITEM 530). CONSTRUCT ASPHALT DRIVEWAY (PG 64-22 SAC C) PER ITEM 530.

3) LETTER OF PERMISSION NEEDS TO BE OBTAINED FROM PROPERTY OWNERS FOR THE CONSTRUCTION OF DRIVEWAYS THAT EXTEND ONTO PRIVATE PROPERTY. THE CONTRACTOR SHALL CONTACT EACH PROPERTY OWNER PRIOR TO CONSTRUCTION OF THESE DRIVEWAYS. REFERENCE TEMPORARY CONSTRUCTION EASEMENTS FOR DETAILS.



SIDEWALK ADJACENT TO CURB DETAILS



DRIVEWAY SLOPES W/ SIDEWALKS ADJACENT TO CURB
(SECTION B-B)

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

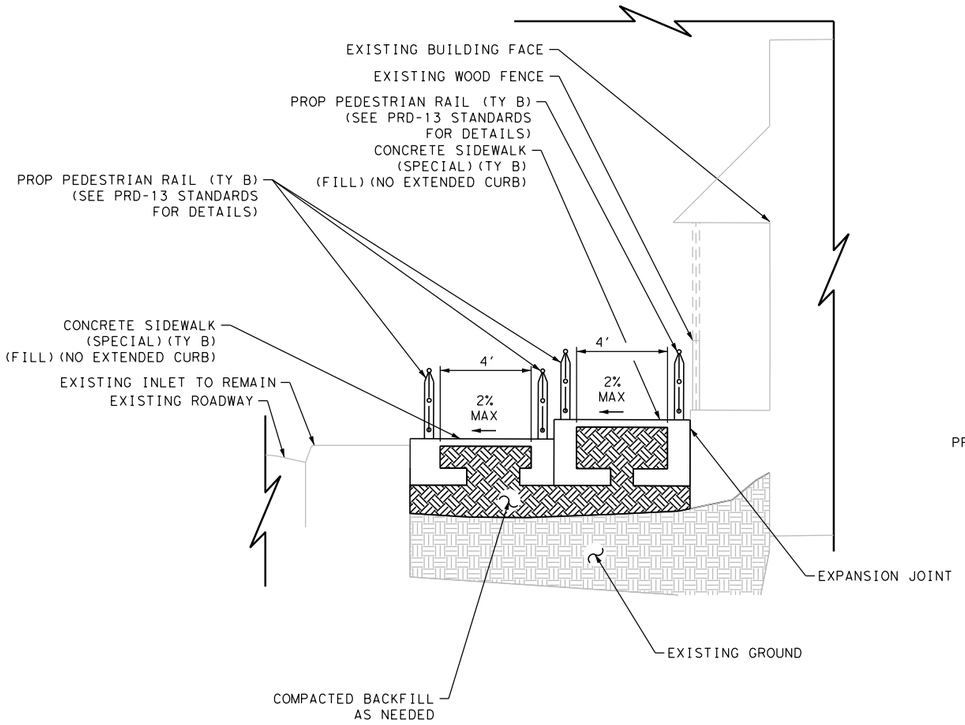
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

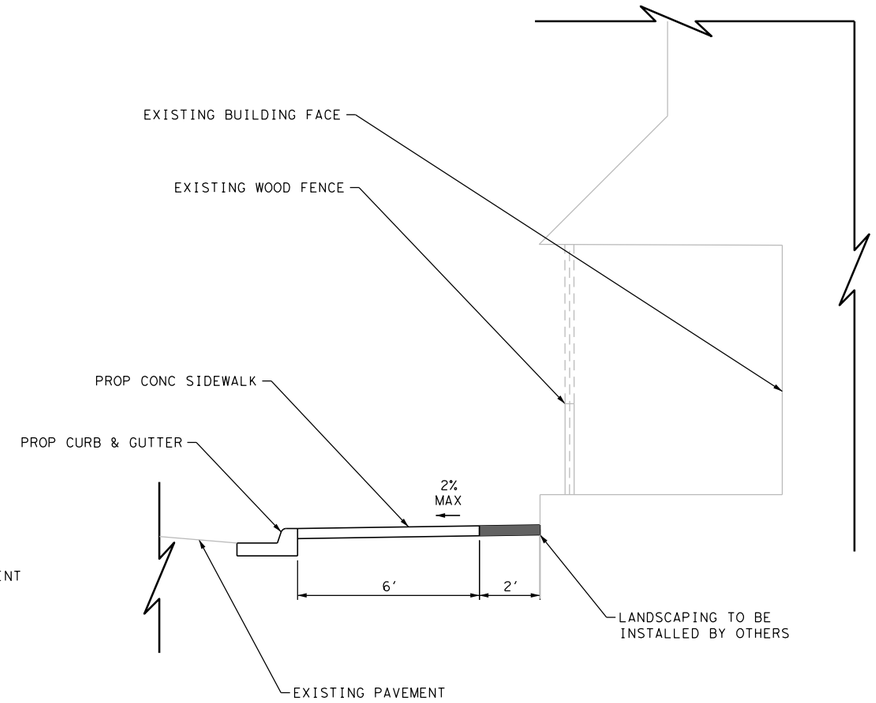
SHEET 8 OF 10

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	39

Plotted on: 5/23/2024
Design Filename: S:\projects\612454.06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SAMPLE08.dgn

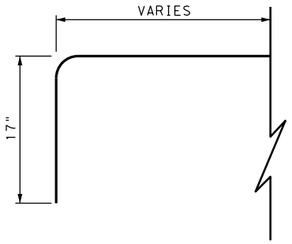


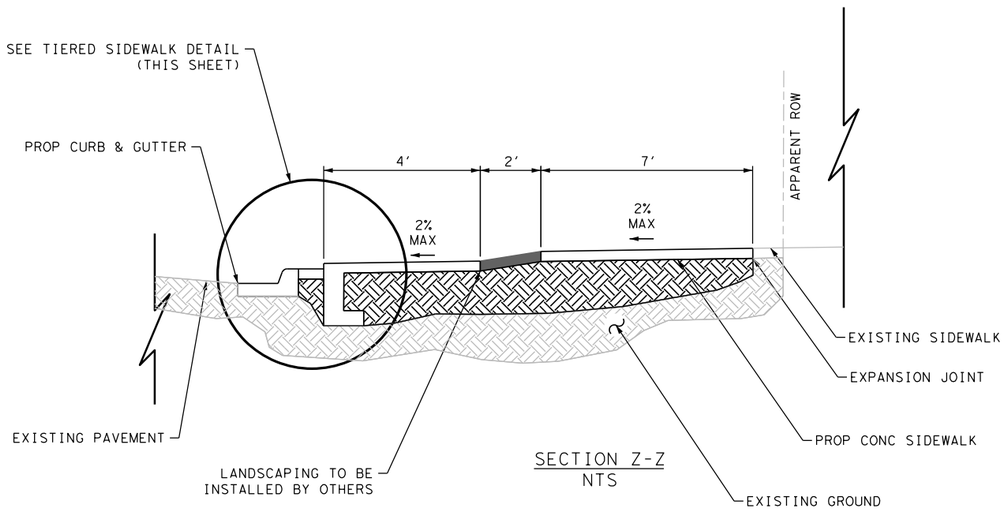
SECTION X-X
NTS



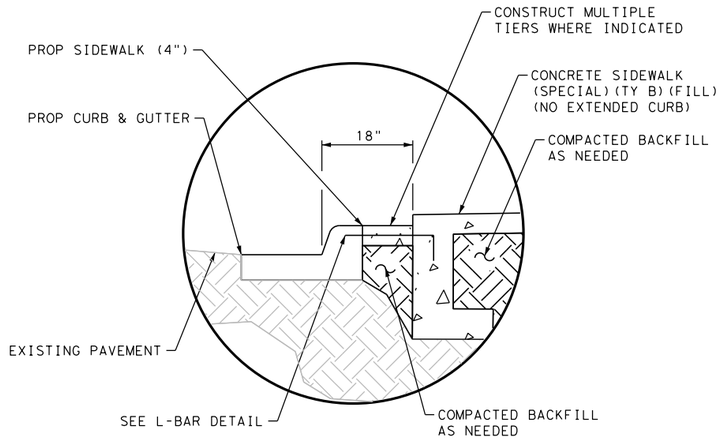
SECTION Y-Y
NTS

L-BAR DETAIL
NTS





SECTION Z-Z
NTS



TIERED SIDEWALK DETAIL
NTS

DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

NOT TO SCALE

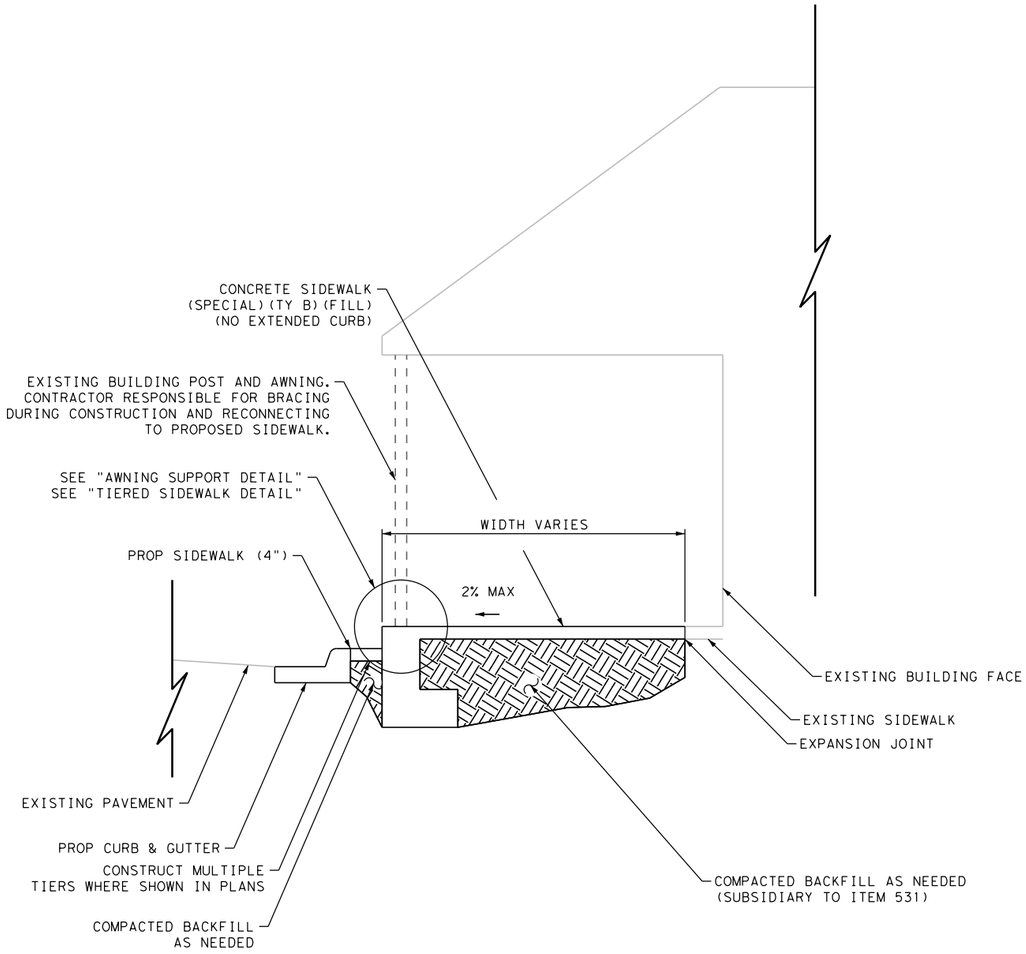
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SPECIAL DETAILS

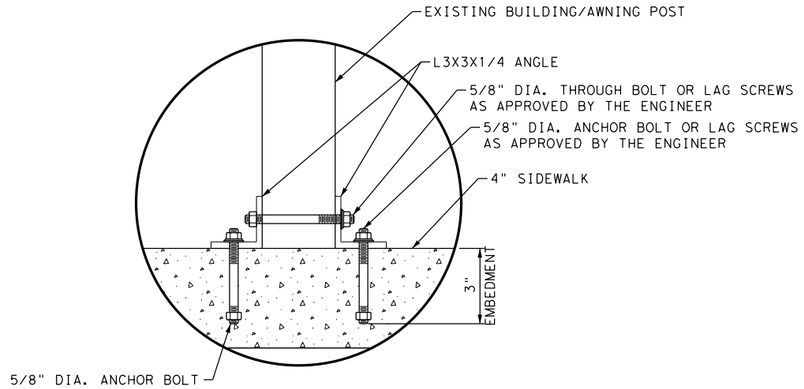
SHEET 9 OF 10

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	40



SECTION W-W
NTS

AWNING SUPPORT DETAIL
NTS



DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

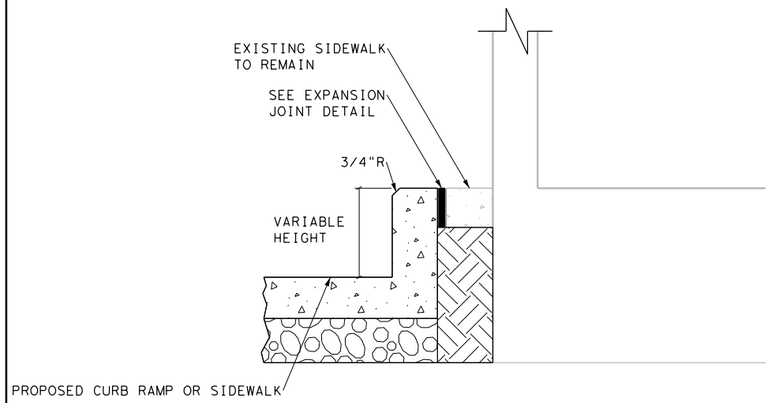
SPECIAL DETAILS

SHEET 10 OF 10

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	41

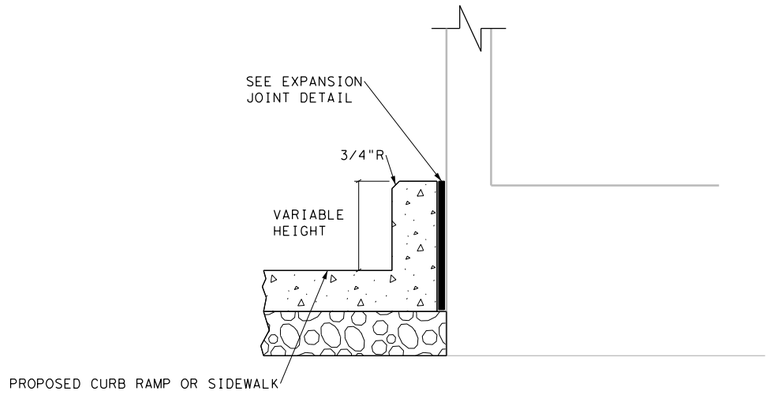
Plotted on: 5/23/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\6125406_01_3_Rivers_SAMPLE10.dgn



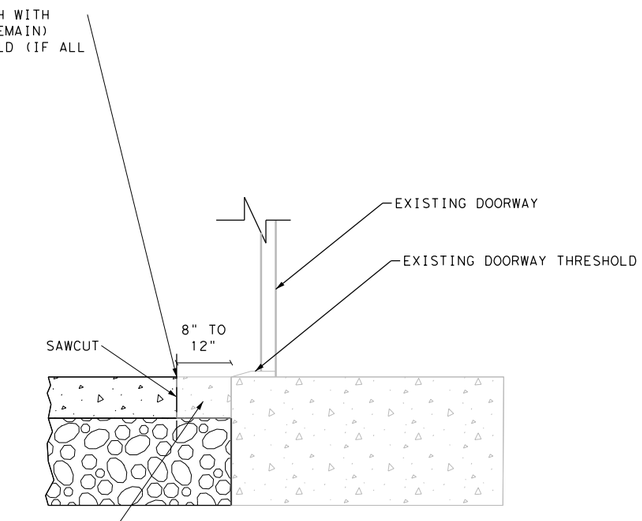
ADJACENT SIDEWALK
TO REMAIN DETAIL

NOT TO SCALE



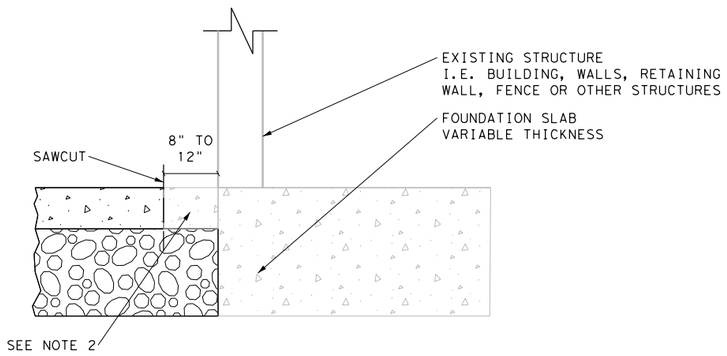
ADJACENT SIDEWALK
REMOVED DETAIL

NOT TO SCALE



DOORWAY DETAIL

NOT TO SCALE



SAWCUT DETAIL

NOT TO SCALE

GENERAL PROTECTION NOTES FOR BUILDINGS AND HISTORIC STRUCTURES:

1. SAW CUT EXISTING SIDEWALK 8 TO 12 INCHES AWAY FROM BUILDING/STRUCTURE TO MINIMIZE POTENTIAL DAMAGE PRIOR TO DEMOLITION OF WALK PER SAWCUT AND DOORWAY DETAILS (THIS SHEET).

2. CONTRACTOR IS RESPONSIBLE FOR PREVENTING DAMAGE TO ALL BUILDINGS AND STRUCTURES DURING THE ENTIRE CONSTRUCTION PROJECT. IF DIRECTED BY ENGINEER TO HAND REMOVE EXISTING CONCRETE ADJACENT TO BUILDINGS OR HISTORIC STRUCTURES, PROTECT FOUNDATION, MATERIALS, ELEVATION AND ENTRYWAYS.

3. CONCRETE REMOVAL BETWEEN THE SAWCUT AND BUILDING FACE SHALL BE AT THE DIRECTION OF THE ENGINEER. DO NOT REMOVE EXISTING MATERIALS IF FACADE (BRICK/STONE, ETC.) UTILIZES THE MATERIALS TO BE REMOVED AS A FOOTING, FOUNDATION OR SUPPORT. IF THIS CONDITION IS OBSERVED, IMMEDIATELY CONTACT ENGINEER AND DO NOT EXCAVATE FURTHER. SEPARATE PAYMENT WILL NOT BE MADE FOR HAND REMOVAL.

4. REPAIR OR REPLACE IN KIND, AT CONTRACTORS EXPENSE, ANY DAMAGE TO HISTORIC OR NON-HISTORIC MATERIAL THAT RESULTS FROM AN ACT OF OMISSION ON THE PART OF OR ON BEHALF OF THE CONTRACTOR. CONTRACTOR IS REPONSIBLE FOR LOCATING A REPLACEMENT SOURCE FOR HISTORIC AND NON-HISTORIC MATERIALS DAMAGED IN THE PROCESS OF CONSTRUCTION. INFORM TXDOT ENVIRONMENTAL AFFAIRS DIVISION (ENV) OF PROPOSED REPAIRS AND/OR DAMAGED AREAS IN ORDER TO FACILITATE CONSULTATION WITH TEXAS HISTORICAL COMMISSION. MATERIAL AND SOURCE SHALL BE APPROVED BY TXDOT ENV PRIOR TO REPLACEMENT.

5. PROTECT BUILDINGS AND STRUCTURE FROM CONCRETE SPLASH UTILIZING A MATERIAL APPROVED BY THE ENGINEER. ANY CONCRETE SPLASH AS A RESULT OF CONSTRUCTION ACTIVITIES MUST BE REMOVED FROM THE BUILDING OR STRUCTURE AT CONTRACTORS EXPENSE. NO PAYMENT WILL BE MADE FOR BUILDING PROTECTION.

6. REFER TO HISTORIC BUILDING PROTECTION NOTES, EPIC (ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS) SHEET FOR FURTHER DIRECTION INFORMATION.

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

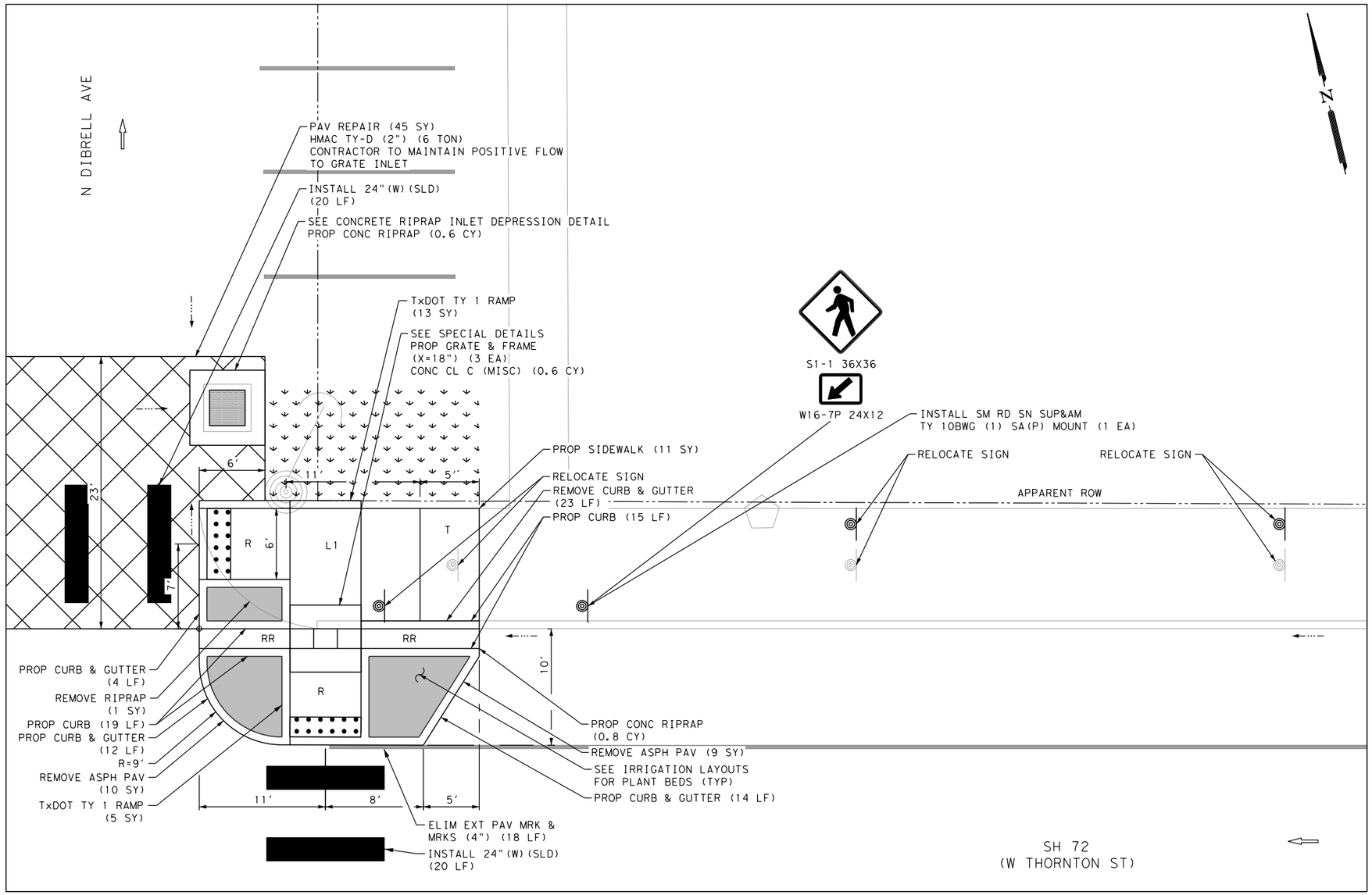
BUILDING WALL DETAIL

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	42

Plotted on: 5/23/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\General\612540601_3_Rivers_BLDGWALL01.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	1
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	23
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	19
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	20
0162-6002	BLOCK SODDING	SY	20
0168-6001	VEGETATIVE WATERING	MG	0.4
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	45
0420-6074	CL C CONC (MISC)	CY	0.6
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.4
0471-6003	GRATE & FRAME	EA	3
0529-6002	CONC CURB (TY II)	LF	34
0529-6008	CONC CURB & GUTTER (TY II)	LF	30
0531-6001	CONC SIDEWALKS (4")	SY	11
0531-6018	CURB RAMPS (TY 1)	SY	18
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	3
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	40
0677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	18
3076-6066	TACK COAT	GAL	5
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	6

MATCH LINE "A"

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

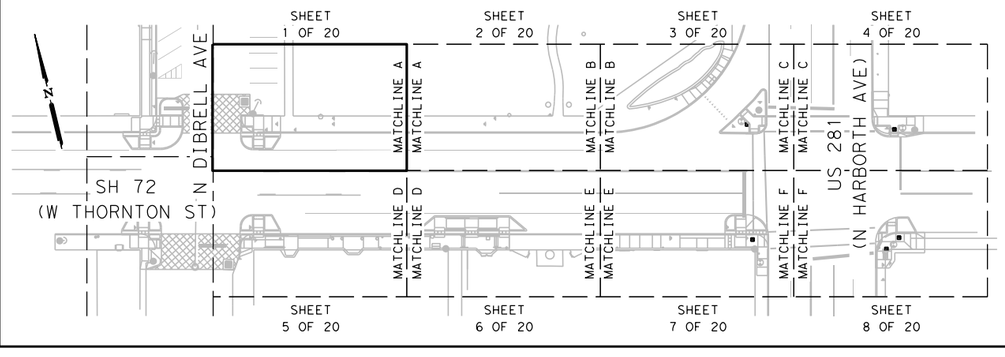
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

SIDEWALK PLAN

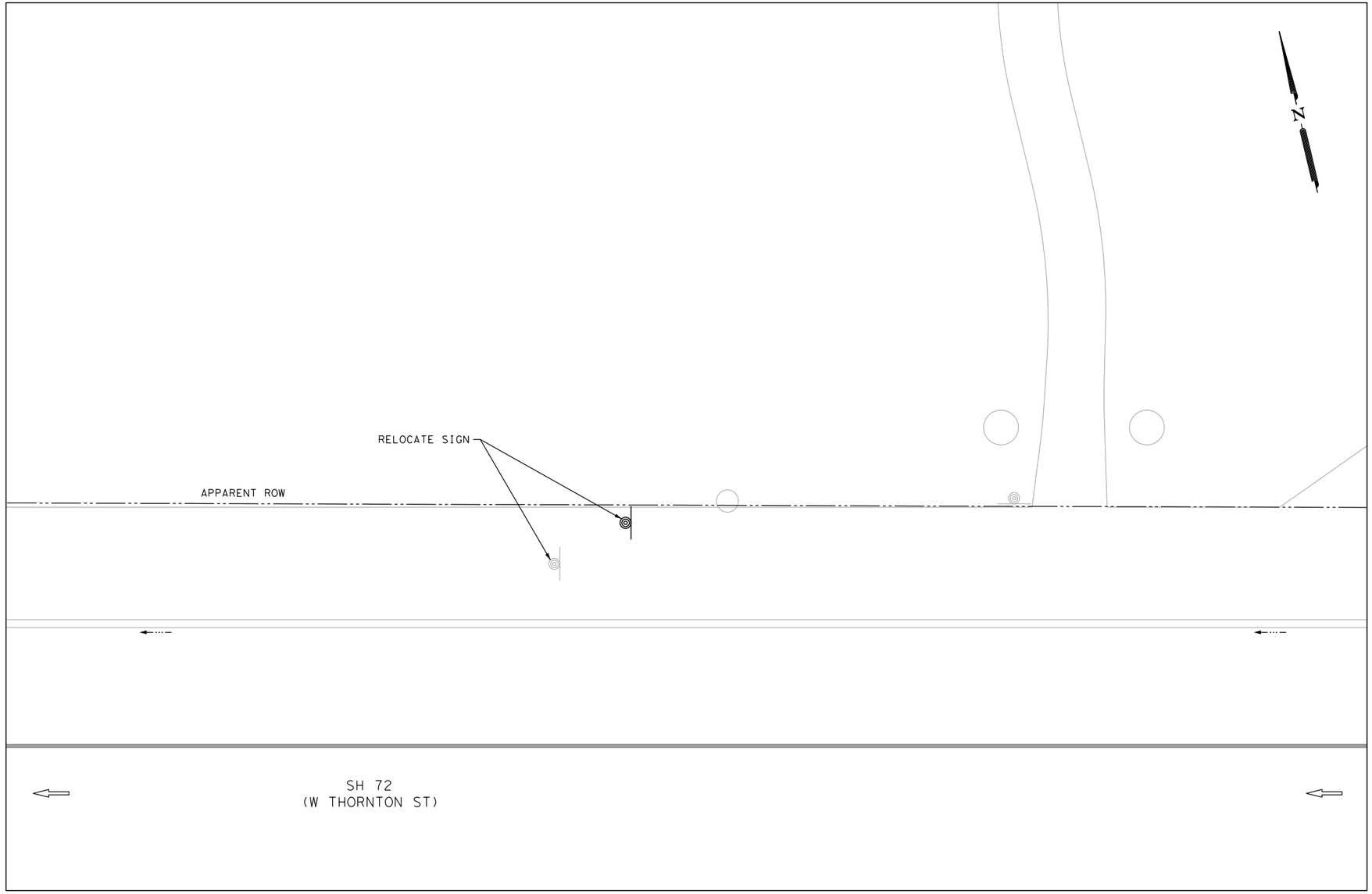
SHEET 1 OF 20

REV. NO.	DATE	DESCRIPTION	BY

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	43

Plotted on: 6/17/2024
Design Filename: S:\projects\6125406\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN01.dgn

ITEM	DESCRIPTION	UNI	QTY
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1



NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

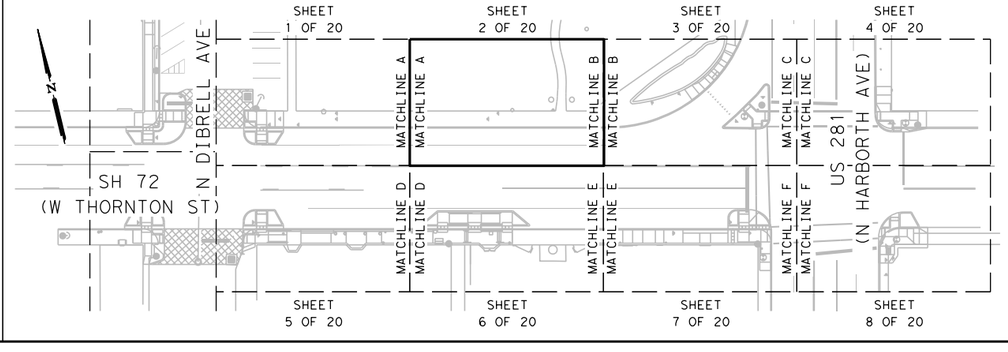
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

⟶	DRAINAGE FLOW ARROW		TRASH CAN		TRAFFIC FLOW
F	FLARE		MANHOLE		CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
L	LANDING		TRAFFIC SIGNAL POLE		TRAFFIC SIGNAL CONTROLLER
L1	LANDING (COMMON)		POWER/UTILITY POLE		PI POINT
LS	LEVEL SIDEWALK (2% MAX)		SIGN		SODDING
NSPI	NO SEPARATE PAY ITEM		FIRE HYDRANT		PAVEMENT REPAIR
R	RAMP		GROUND BOX		DETECTABLE WARNING SURFACE
RR	RIPRAP (CONC)		GUY WIRE		PLANT BEDS
SL	LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	W	WATER METER		APPARENT RIGHT OF WAY
		WV	WATER VALVE		
T	TRANSITION		TREE/BUSHES		GRATE INLET
LP	LANDSCAPE PAVERS	TB	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

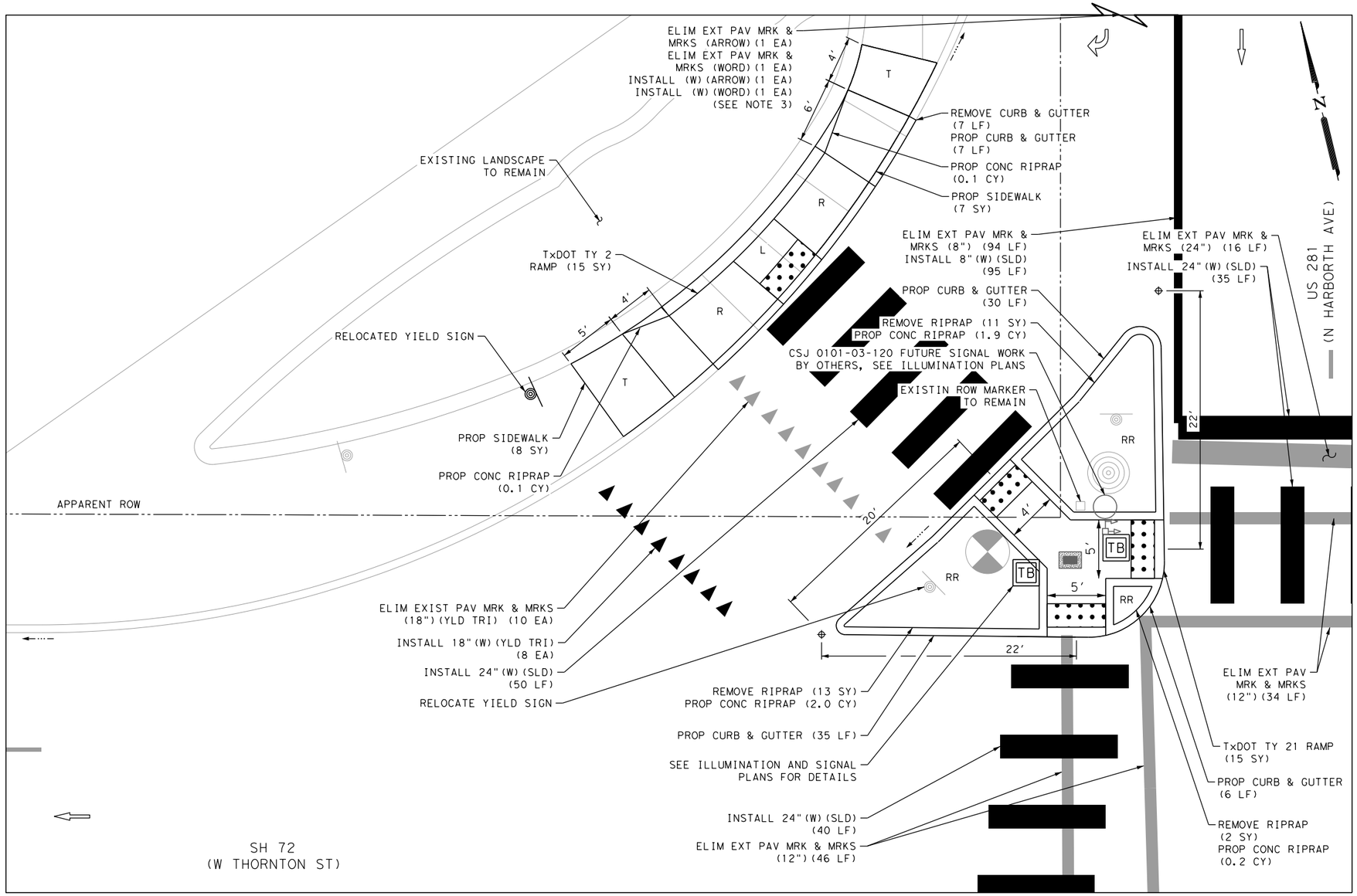
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SIDEWALK PLAN

SHEET 2 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	44

Plotted on: 6/17/2024
Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN02.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	26
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	7
0432-6003	RIPRAP (CONC) (6 IN)	CY	4.3
0529-6008	CONC CURB & GUTTER (TY II)	LF	78
0531-6001	CONC SIDEWALKS (4")	SY	15
0531-6019	CURB RAMPS (TY 2)	SY	15
0531-6030	CURB RAMPS (TY 21)	SY	15
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666-6036	REFL PAV MRK TY I (W) 8" (SLD) (100MIL)	LF	95
0666-6048	REFL PAV MRK TY I (W) 24" (SLD) (100MIL)	LF	125
0666-6099	REF PAV MRK TY I (W) 18" (YLD TRI) (100MIL)	EA	8
0668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	1
0668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	1
0677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	94
0677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	80
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	16
0677-6008	ELIM EXT PAV MRK & MRKS (ARROW)	EA	1
0677-6012	ELIM EXT PAV MRK & MRKS (WORD)	EA	1
0677-6018	ELIM EXT PAV MRK & MRKS (18") (YLD TRI)	EA	10

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR TO ELIMINATE AND INSTALL (RIGHT TURN) ARROW AND (ONLY) WORD NOT SHOWN IN PLANS LOCATED AT NORTH HARBORTH AVE SOUTHBOUND RIGHT TURN LANE
4. CONTRACTOR SHALL COORDINATE WITH CSJ 0101-03-120 CONTRACTOR TO ENSURE FUTURE PEDESTRIAN SIGNAL POLE AND PUSH BUTTON PLACEMENT BY OTHERS ARE INSTALLED IN ACOORDANCE WITH APPLICABLE PROWAG AND TXDOT PEDESTRIAN FACILITIES STANDARDS

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

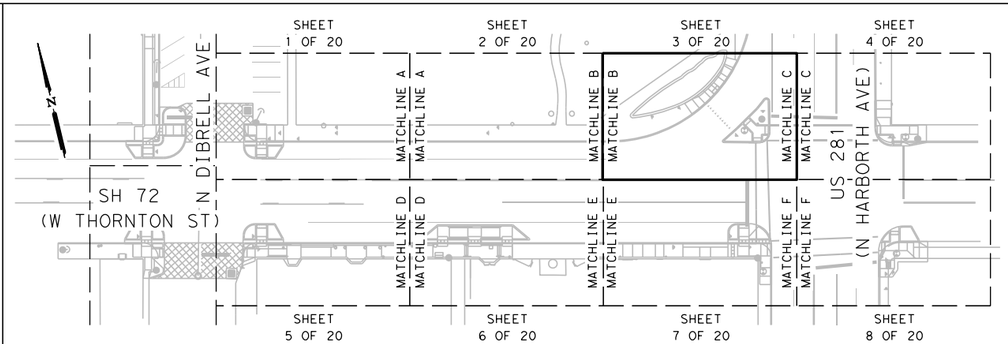
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

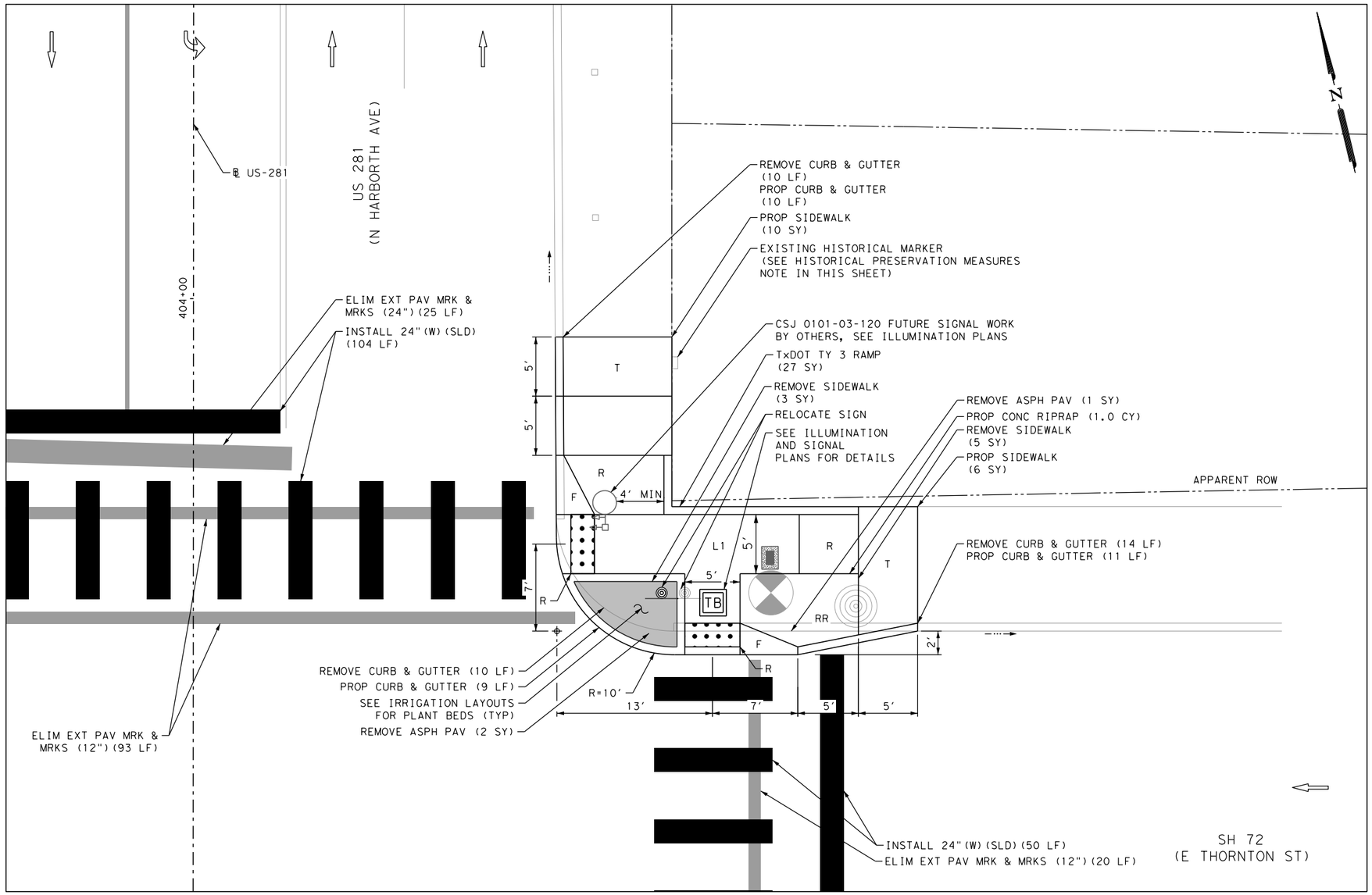
SIDEWALK PLAN

SHEET 3 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	45

Plotted on: 6/17/2024

Design Filename: S:\projects\612554\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN03.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6015	REMOVING CONC (SIDEWALKS)	SY	8
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	34
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	3
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.0
0529-6008	CONC CURB & GUTTER (TY II)	LF	30
0531-6001	CONC SIDEWALKS (4")	SY	16
0531-6020	CURB RAMPS (TY 3)	SY	27
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	154
0677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	113
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	25

HISTORICAL PRESERVATION MEASURES

CONTRACTOR SHALL PROTECT ALL HISTORICAL MARKERS AND ARTIFACTS UTILIZING BARRELS AND FENCING DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER TO ENSURE NO ADVERSE EFFECTS. THIS WORK WILL NOT BE PAID DIRECTLY, BUT WILL BE SUBSIDIARY TO ITEM 502.

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR SHALL COORDINATE WITH CSJ 0101-03-120 CONTRACTOR TO ENSURE FUTURE PEDESTRIAN SIGNAL POLE AND PUSH BUTTON PLACEMENT BY OTHERS ARE INSTALLED IN ACOORDANCE WITH APPLICABLE PROWAG AND TXDOT PEDESTRIAN FACILITIES STANDARDS

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

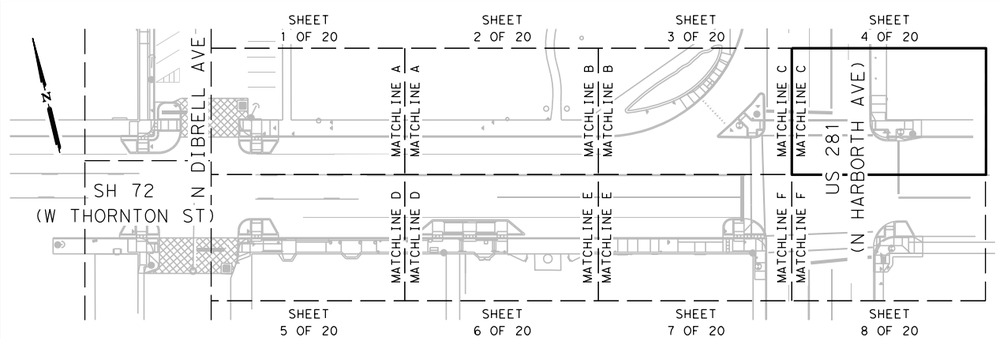
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

- DRAINAGE FLOW ARROW
- F FLARE
- L LANDING
- L1 LANDING (COMMON)
- LS LEVEL SIDEWALK (2% MAX)
- NSPI NO SEPARATE PAY ITEM
- R RAMP
- RR RIPRAP (CONC)
- SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
- T TRANSITION
- LP LANDSCAPE PAVERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC SIGNAL BOX
- TRAFFIC FLOW
- CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



REV. NO.	DATE	DESCRIPTION	BY

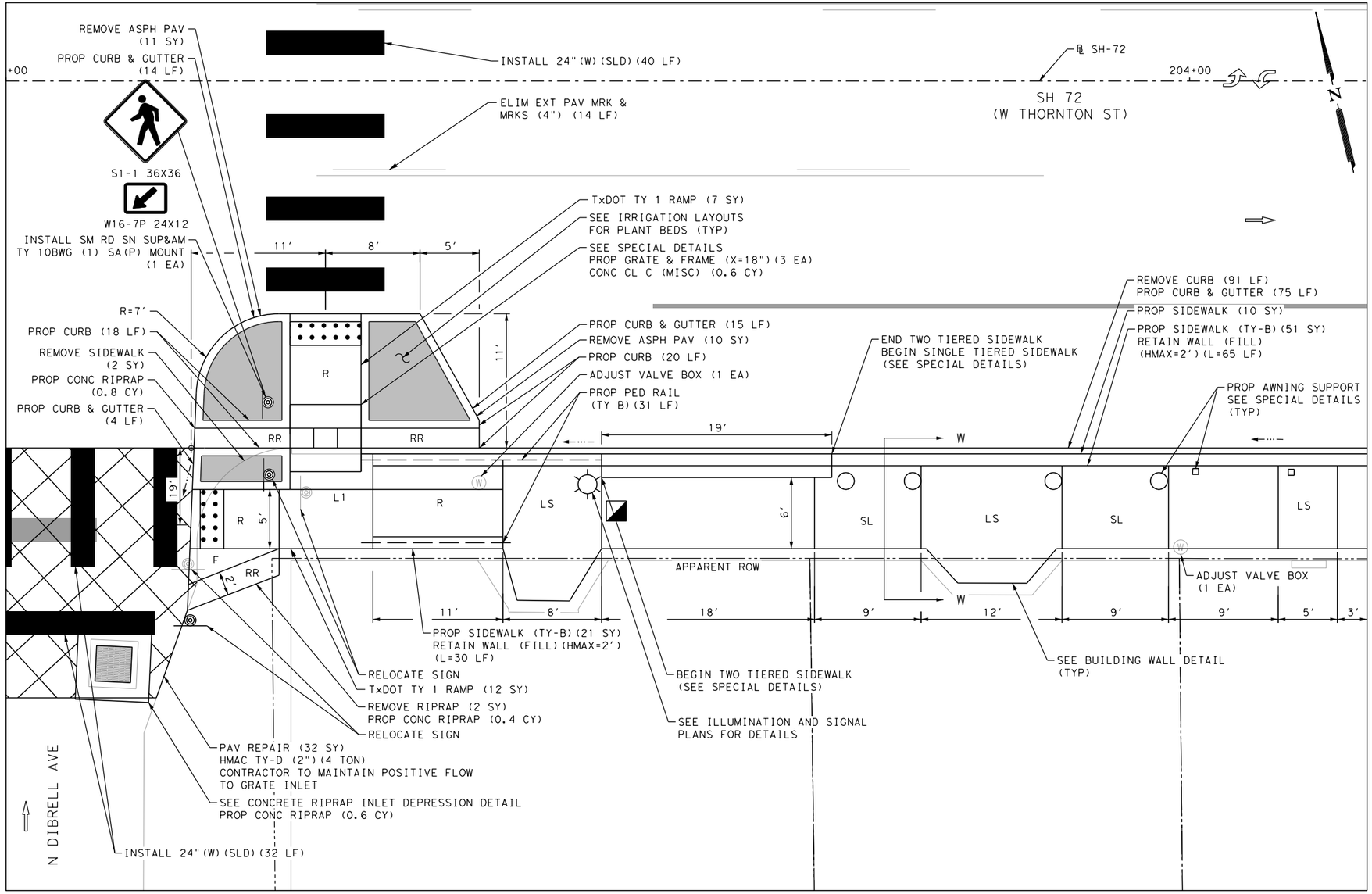
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation

SIDEWALK PLAN

SHEET 4 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	46



MATCH LINE "D"

ITEM	DESCRIPTION	UNI	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	2
0104-6015	REMOVING CONC (SIDEWALKS)	SY	2
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	91
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	21
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	32
0420-6074	CL C CONC (MISC)	CY	0.6
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.8
0450-6048	RAIL (HANDRAIL)(TY B)	LF	31
0471-6003	GRATE & FRAME	EA	3
0479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	2
0529-6002	CONC CURB (TY II)	LF	38
0529-6008	CONC CURB & GUTTER (TY II)	LF	108
0531-6001	CONC SIDEWALKS (4")	SY	10
0531-6018	CURB RAMPS (TY 1)	SY	19
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	72
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	72
0677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	14
3076-6066	TACK COAT	GAL	4
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	4

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

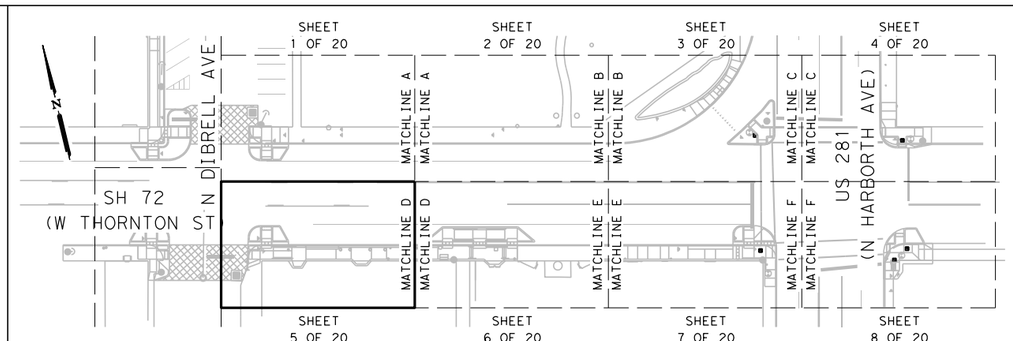
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation ©2024

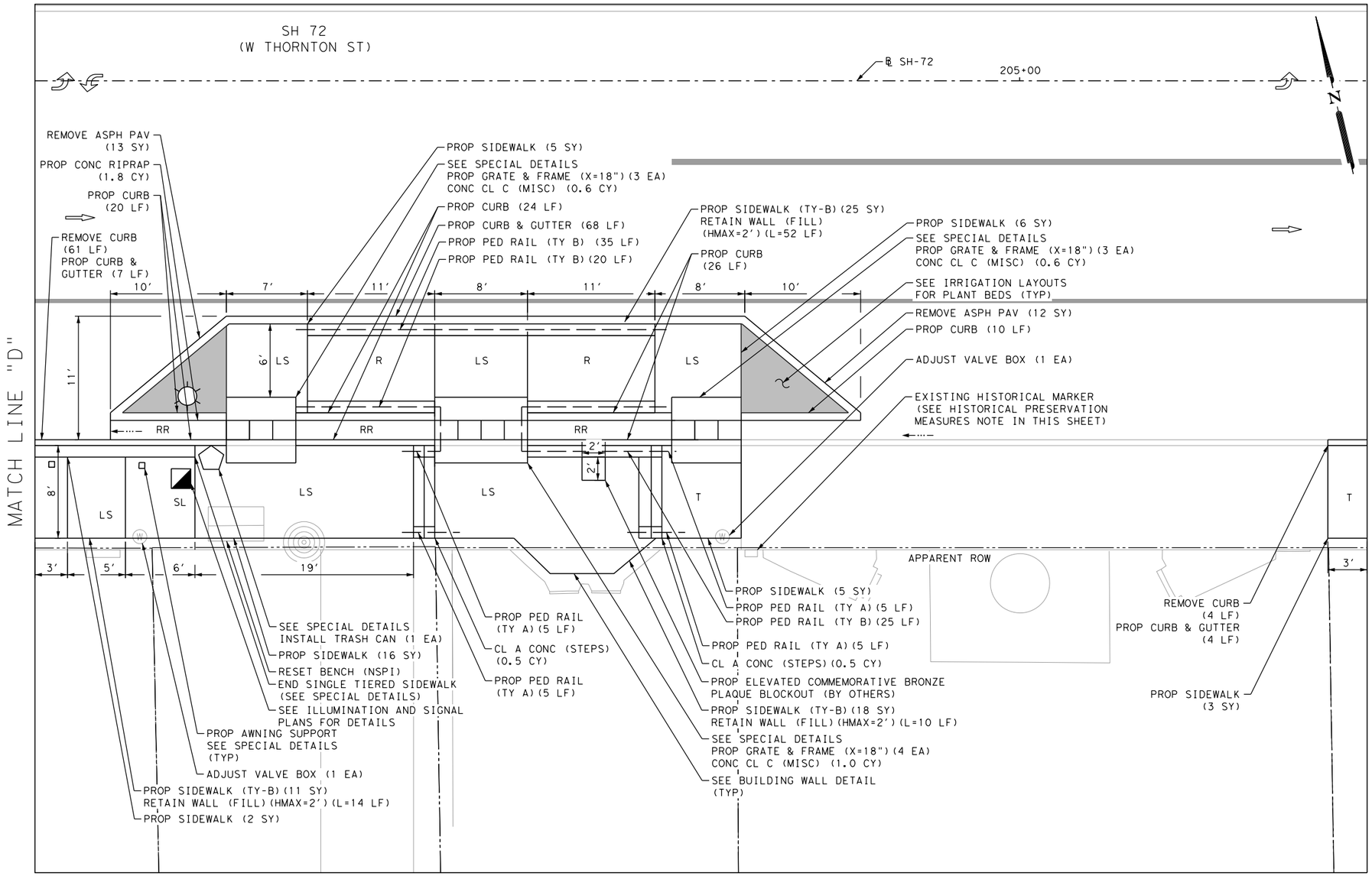
SIDEWALK PLAN

SHEET 5 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	47

Plotted on: 6/17/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN05.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	65
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	25
0420-6074	CL C CONC (MISC)	CY	2.2
0420-6132	CL A CONC (STEPS)	CY	1.0
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.8
0450-6047	RAIL (HANDRAIL)(TY A)	LF	20
0450-6048	RAIL (HANDRAIL)(TY B)	LF	80
0471-6003	GRATE & FRAME	EA	10
0479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	2
0529-6002	CONC CURB (TY II)	LF	80
0529-6008	CONC CURB & GUTTER (TY II)	LF	79
0531-6001	CONC SIDEWALKS (4")	SY	37
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	54

HISTORICAL PRESERVATION MEASURES

CONTRACTOR SHALL PROTECT ALL HISTORICAL MARKERS AND ARTIFACTS UTILIZING BARRELS AND FENCING DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER TO ENSURE NO ADVERSE EFFECTS. THIS WORK WILL NOT BE PAID DIRECTLY, BUT WILL BE SUBSIDIARY TO ITEM 502.

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

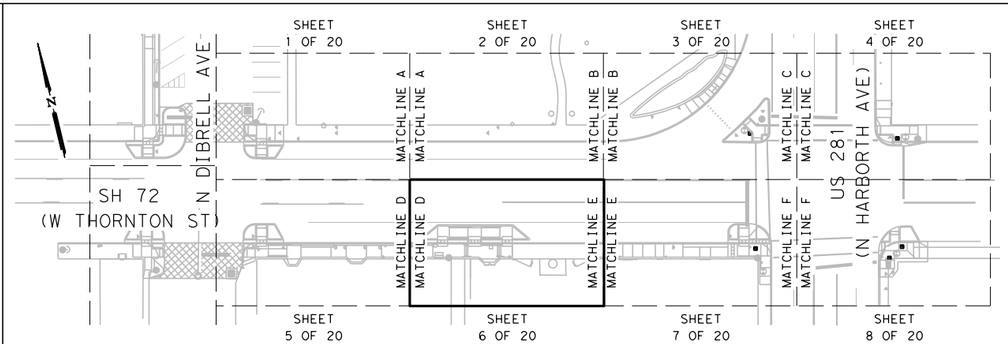
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

- DRAINAGE FLOW ARROW
- F FLARE
- L LANDING
- L1 LANDING (COMMON)
- LS LEVEL SIDEWALK (2% MAX)
- NSPI NO SEPARATE PAY ITEM
- R RAMP
- RR RIPRAP (CONC)
- SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
- T TRANSITION
- LP LANDSCAPE PAVERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC SIGNAL BOX
- TRAFFIC FLOW
- CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

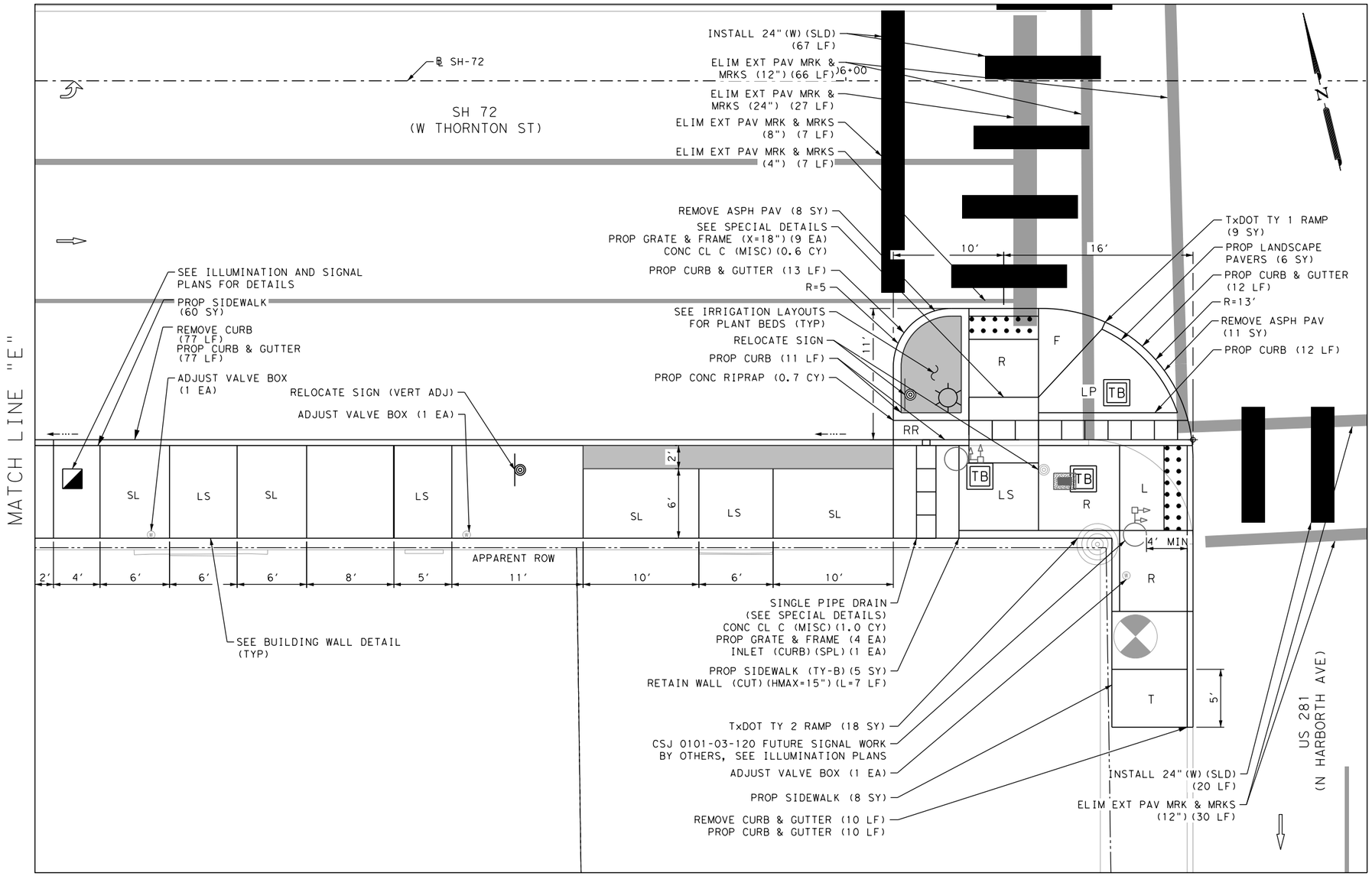
Texas Department of Transportation

SIDEWALK PLAN

SHEET 6 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	48

Plotted on: 6/17/2024
Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN06.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	87
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	19
0420-6074	CL C CONC (MISC)	CY	1.6
0432-6003	RIPRAP (CONC)(6 IN)	CY	0.7
0465-6557	INLET (CURB)(SPL)	EA	1
0471-6003	GRATE & FRAME	EA	13
0479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	3
0528-6004	LANDSCAPE PAVERS	SY	6
0529-6002	CONC CURB (TY II)	LF	23
0529-6008	CONC CURB & GUTTER (TY II)	LF	112
0531-6001	CONC SIDEWALKS (4")	SY	68
0531-6018	CURB RAMPS (TY 1)	SY	9
0531-6019	CURB RAMPS (TY 2)	SY	18
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	5
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	87
0677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	7
0677-6003	ELIM EXT PAV MRK & MRKS (8")	LF	7
0677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	96
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	27

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR SHALL COORDINATE WITH CSJ 0101-03-120 CONTRACTOR TO ENSURE FUTURE PEDESTRIAN SIGNAL POLE AND PUSH BUTTON PLACEMENT BY OTHERS ARE INSTALLED IN ACOORDANCE WITH APPLICABLE PROWAG AND TXDOT PEDESTRIAN FACILITIES STANDARDS

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

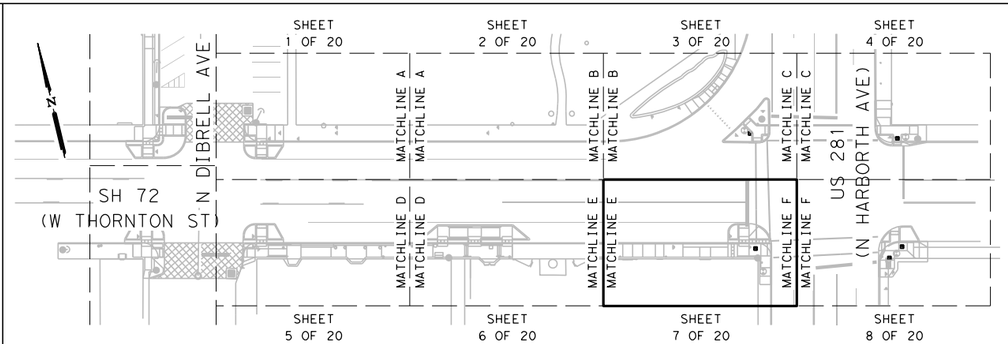
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

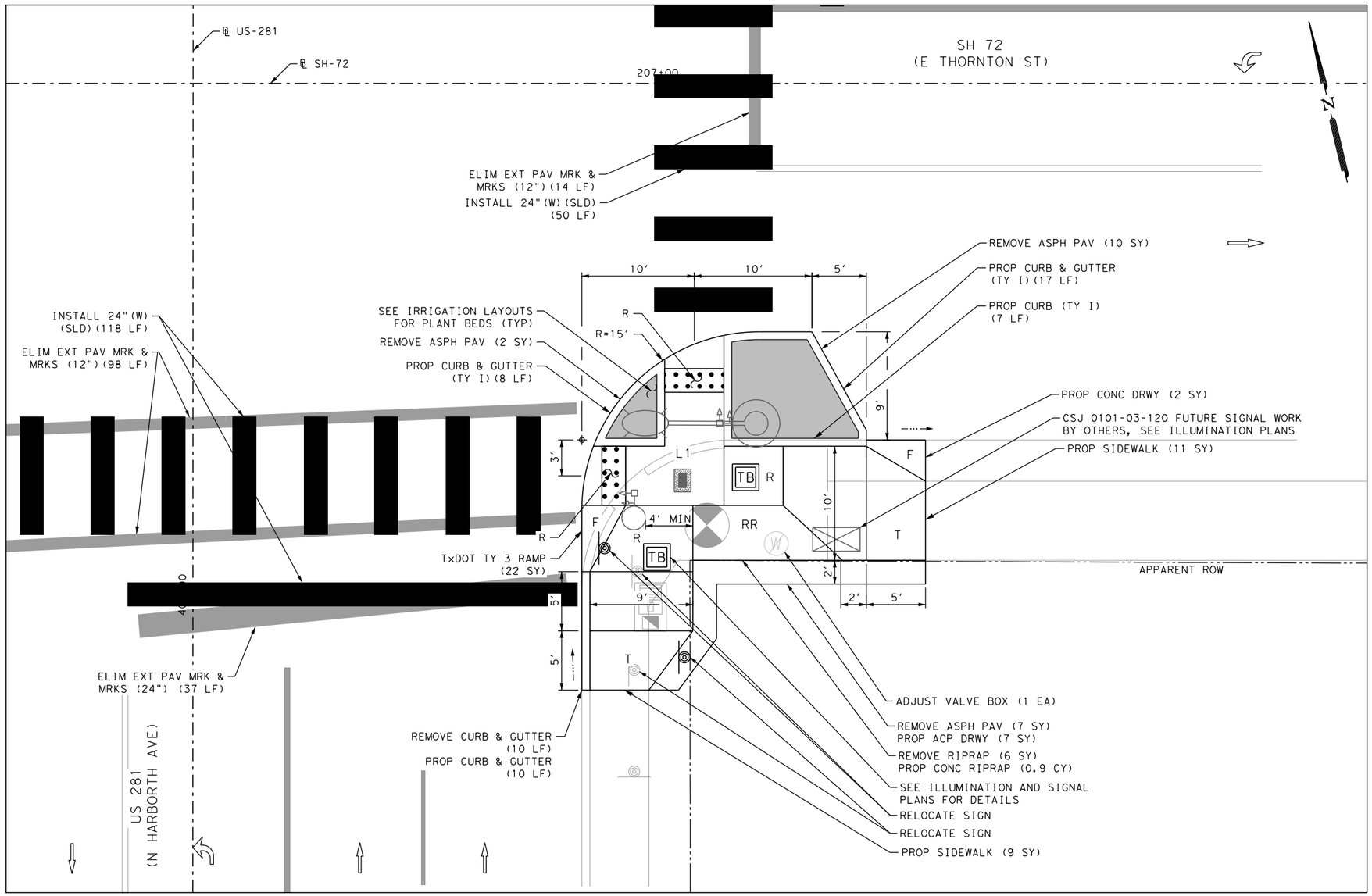
Texas Department of Transportation

SIDEWALK PLAN

SHEET 7 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	49

Plotted on: 6/17/2024
Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN07.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	6
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	10
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	19
0432-6003	RIPRAP (CONC)(6 IN)	CY	0.9
0479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	1
0529-6001	CONC CURB (TY I)	LF	7
0529-6007	CONC CURB & GUTTER (TY I)	LF	25
0529-6008	CONC CURB & GUTTER (TY II)	LF	10
0530-6004	DRIVEWAYS (CONC)	SY	2
0530-6005	DRIVEWAYS (ACP)	SY	7
0531-6001	CONC SIDEWALKS (4")	SY	20
0531-6020	CURB RAMPS (TY 3)	SY	22
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	2
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	168
0677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	112
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	37

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR SHALL COORDINATE WITH CSJ 0101-03-120 CONTRACTOR TO ENSURE FUTURE PEDESTRIAN SIGNAL POLE AND PUSH BUTTON PLACEMENT BY OTHERS ARE INSTALLED IN ACOORDANCE WITH APPLICABLE PROWAG AND TXDOT PEDESTRIAN FACILITIES STANDARDS

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

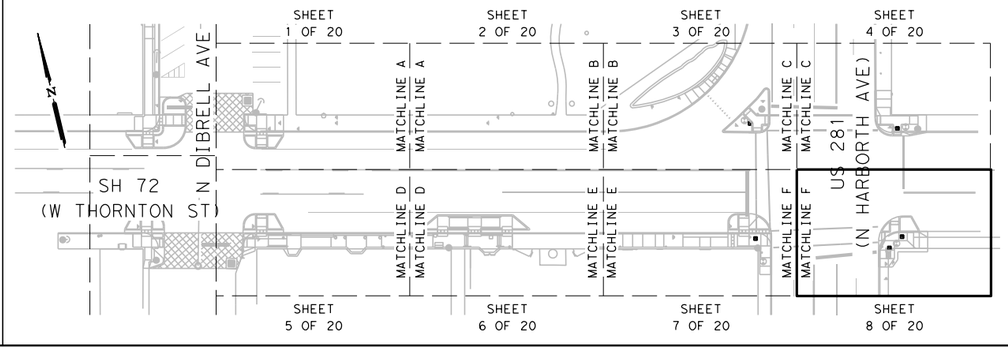
JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15

SCALE: 1"= 10'

LEGEND

- DRAINAGE FLOW ARROW
- F FLARE
- L LANDING
- L1 LANDING (COMMON)
- LS LEVEL SIDEWALK (2% MAX)
- NSPI NO SEPARATE PAY ITEM
- R RAMP
- RR RIPRAP (CONC)
- SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
- T TRANSITION
- LP LANDSCAPE PAVERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC SIGNAL BOX
- TRAFFIC FLOW
- CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

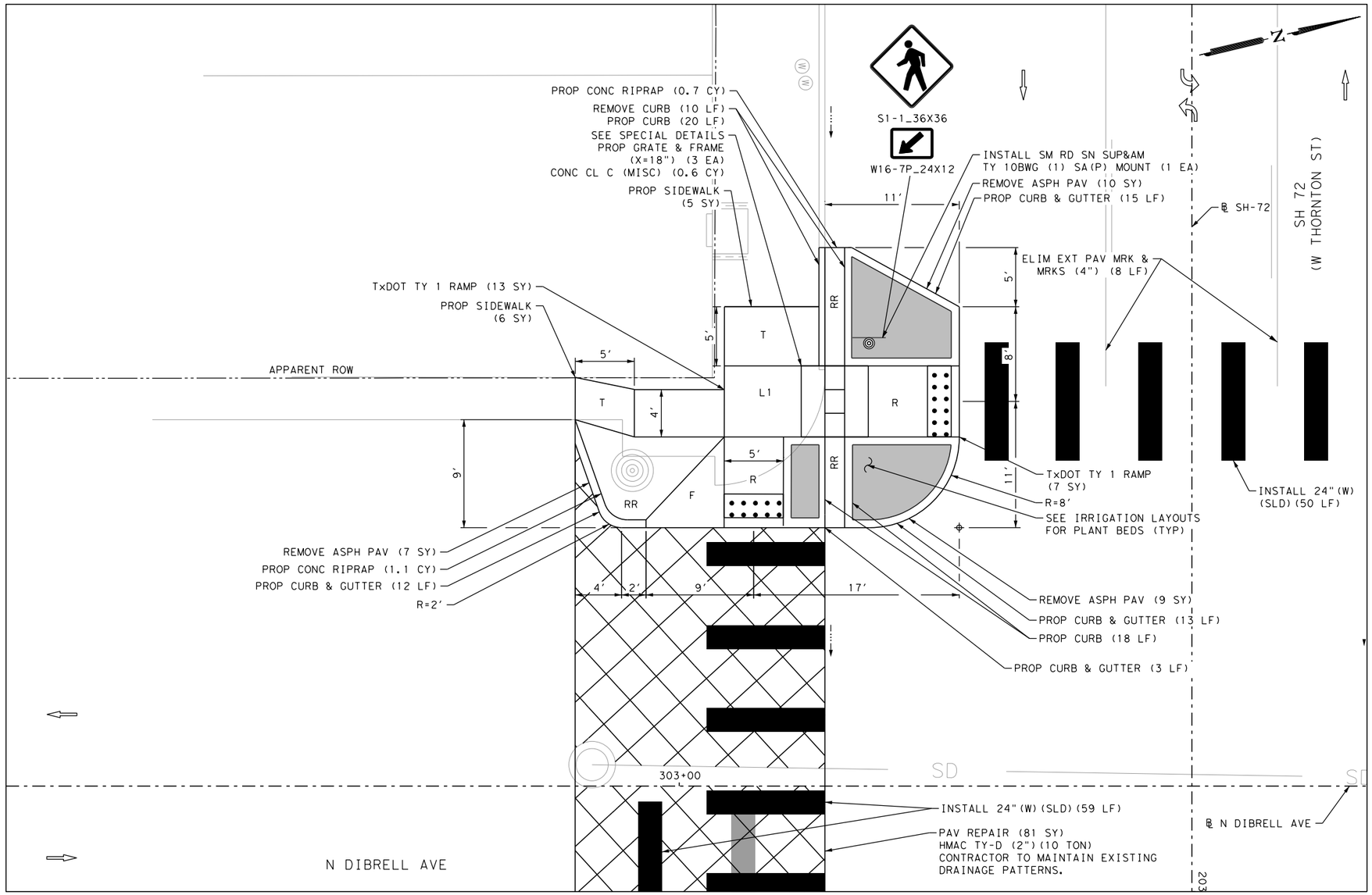
SIDEWALK PLAN

SHEET 8 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	50

Plotted on: 6/17/2024

Design Filename: S:\projects\612454.06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN08.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	10
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	26
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	81
0420-6074	CL C CONC (MISC)	CY	0.6
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.8
0471-6003	GRATE & FRAME	EA	3
0529-6002	CONC CURB (TY II)	LF	38
0529-6008	CONC CURB & GUTTER (TY II)	LF	43
0531-6001	CONC SIDEWALKS (4")	SY	11
0531-6018	CURB RAMPS (TY 1)	SY	20
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	109
0677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	8
3076-6066	TACK COAT	GAL	9
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	10

MATCH LINE "G"

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED · PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

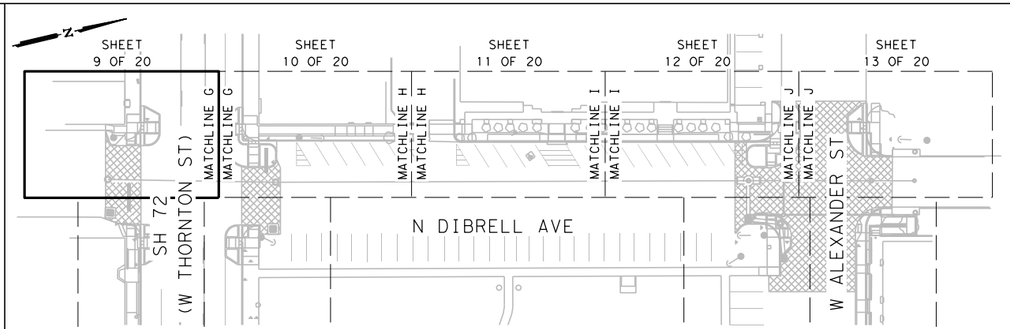
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED · PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

- DRAINAGE FLOW ARROW
- F FLARE
- L LANDING
- L1 LANDING (COMMON)
- LS LEVEL SIDEWALK (2% MAX)
- NSPI NO SEPARATE PAY ITEM
- R RAMP
- RR RIPRAP (CONC)
- SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
- T TRANSITION
- LP LANDSCAPE PAVERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC SIGNAL BOX
- TRAFFIC FLOW
- CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



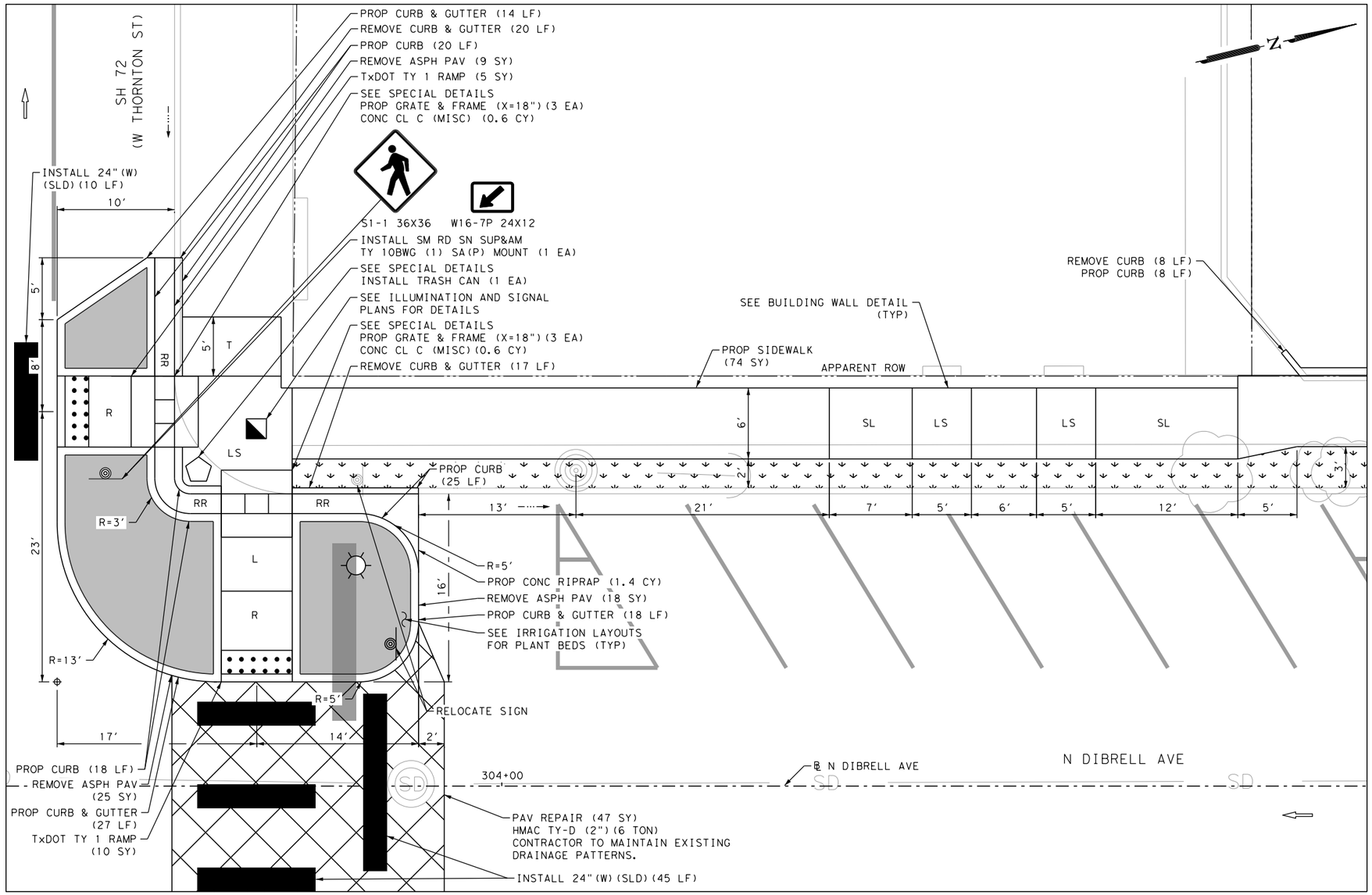
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SIDEWALK PLAN

SHEET 9 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	51



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	45
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	52
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	26
0162-6002	BLOCK SODDING	SY	26
0168-6001	VEGETATIVE WATERING	MG	0.5
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	47
0420-6074	CL C CONC (MISC)	CY	1.2
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.4
0471-6003	GRATE & FRAME	EA	6
0529-6002	CONC CURB (TY II)	LF	71
0529-6008	CONC CURB & GUTTER (TY II)	LF	59
0531-6001	CONC SIDEWALKS (4")	SY	74
0531-6018	CURB RAMPS (TY 1)	SY	15
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	55
3076-6066	TACK COAT	GAL	5
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	6

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

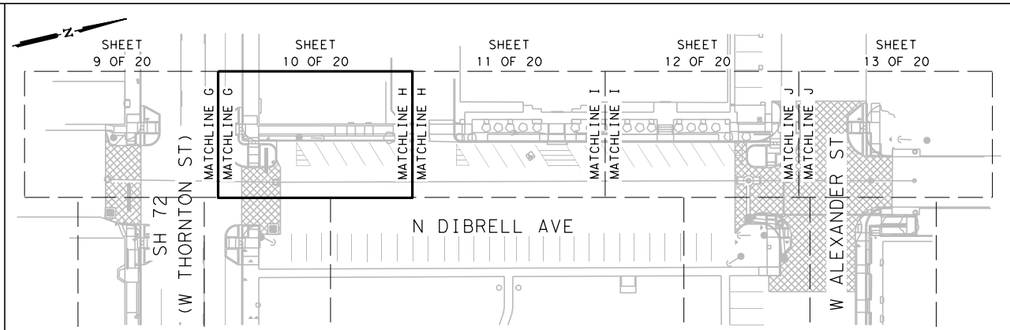
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

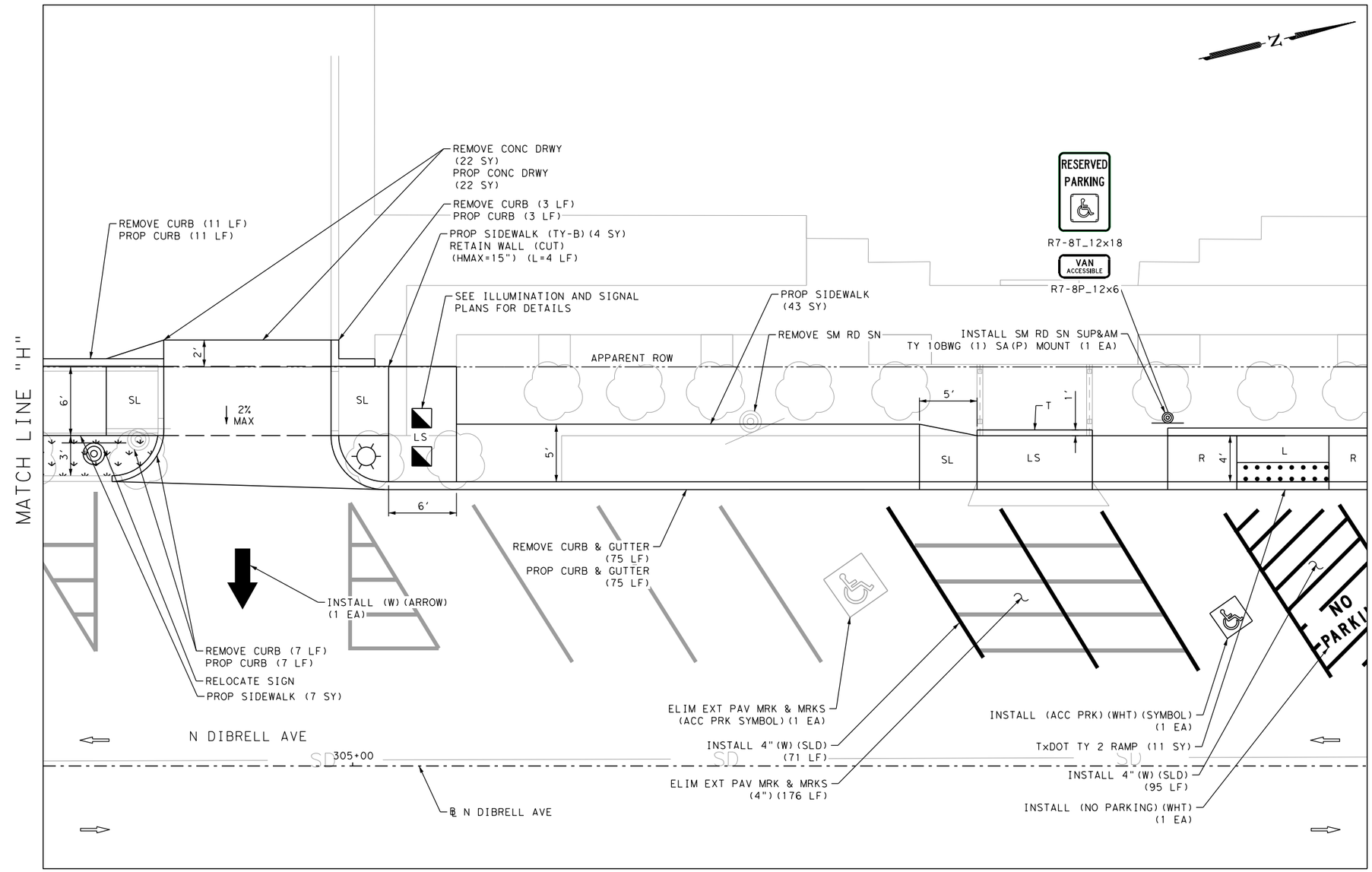
SIDEWALK PLAN

SHEET 10 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	52

Plotted on: 6/17/2024
Design Filename: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN10.dgn

ITEM	DESCRIPTION	UNI	QTY
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	22
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	96
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	4
0162-6002	BLOCK SODDING	SY	4
0168-6001	VEGETATIVE WATERING	MG	0.1
0529-6002	CONC CURB (TY II)	LF	21
0529-6008	CONC CURB & GUTTER (TY II)	LF	75
0530-6004	DRIVEWAYS (CONC)	SY	22
0531-6001	CONC SIDEWALKS (4")	SY	50
0531-6019	CURB RAMPS (TY 2)	SY	11
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	4
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0644-6076	REMOVE SM RD SN SUP&AM	EA	1
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)	LF	166
0668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	1
0668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	1
0668-6112	PRE PM TY C (ACC PRK)(WHT)(SYMBL ONLY)	EA	1
0677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	176
0677-6017	ELIM EXT PAV MRK & MRKS (SYMBOL)	EA	1



HISTORICAL PRESERVATION MEASURES

CONTRACTOR SHALL PROTECT ALL HISTORICAL MARKERS AND ARTIFACTS UTILIZING BARRELS AND FENCING DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER TO ENSURE NO ADVERSE EFFECTS. THIS WORK WILL NOT BE PAID DIRECTLY, BUT WILL BE SUBSIDIARY TO ITEM 502.

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

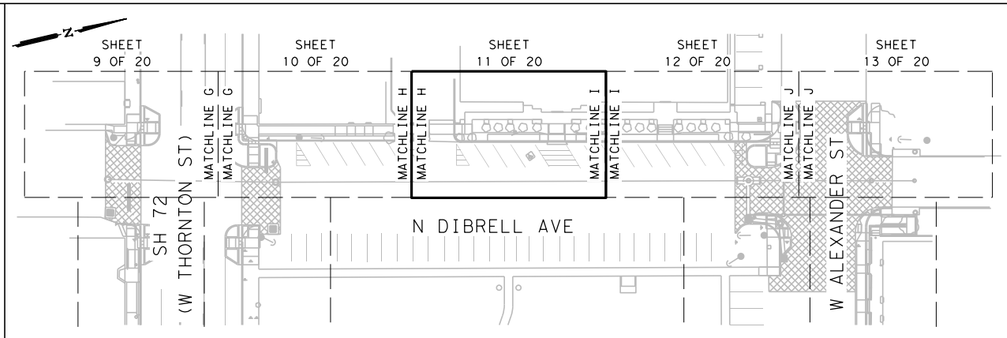
APPROVAL

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

⇢	DRAINAGE FLOW ARROW		TRASH CAN		TRAFFIC FLOW
F	FLARE		MANHOLE		CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
L	LANDING		TRAFFIC SIGNAL POLE		TRAFFIC SIGNAL CONTROLLER
L1	LANDING (COMMON)		POWER/UTILITY POLE		PI POINT
LS	LEVEL SIDEWALK (2% MAX)		SIGN		SODDING
NSPI	NO SEPARATE PAY ITEM		FIRE HYDRANT		PAVEMENT REPAIR
R	RAMP		GROUND BOX		DETECTABLE WARNING SURFACE
RR	RIPRAP (CONC)		GUY WIRE		PLANT BEDS
SL	LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	W	WATER METER		APPARENT RIGHT OF WAY
		WV	WATER VALVE		
T	TRANSITION		TREE/BUSHES		GRATE INLET
LP	LANDSCAPE PAVERS	TB	TRAFFIC SIGNAL BOX		



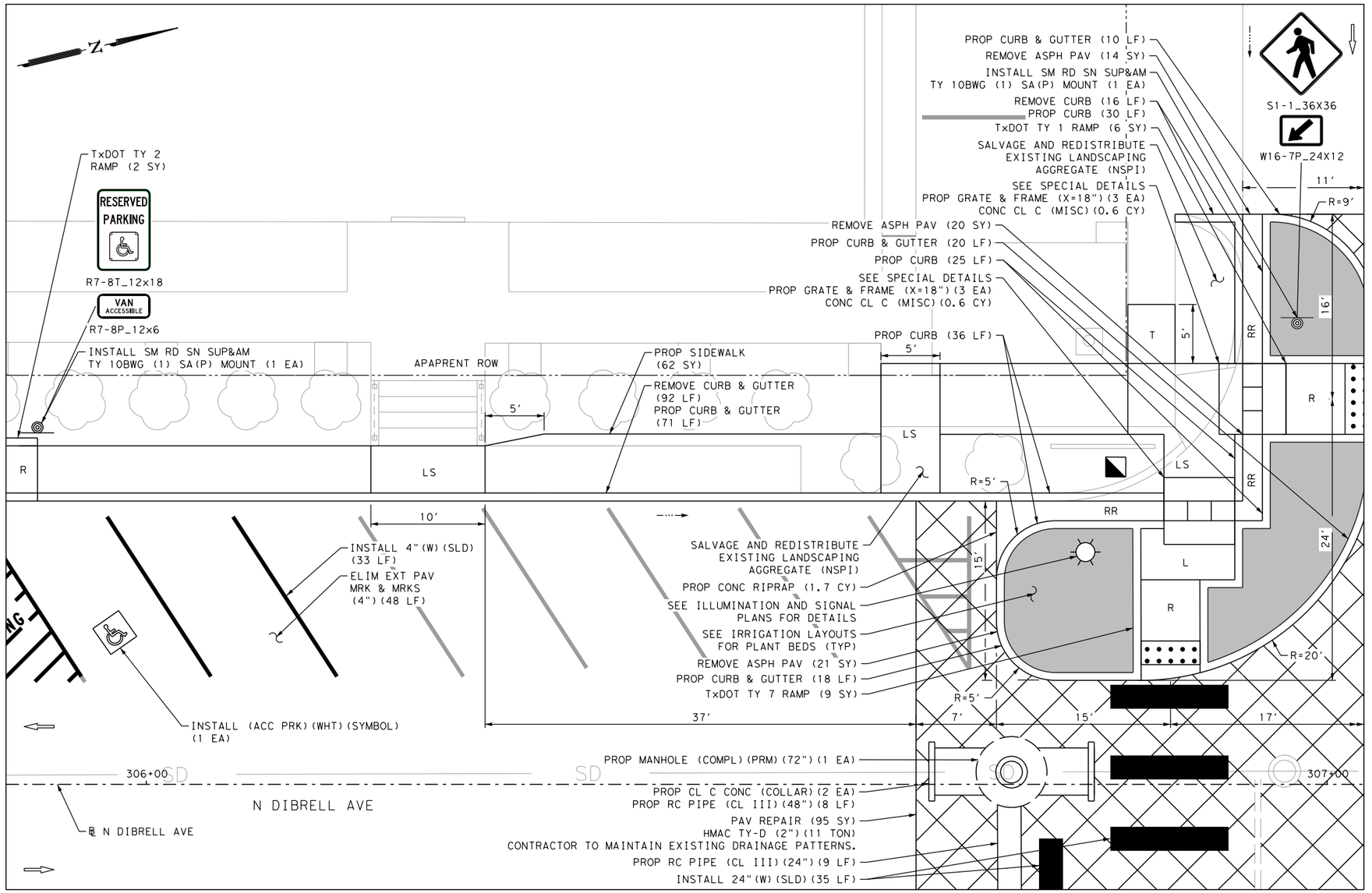
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SIDEWALK PLAN

SHEET 11 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	53



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	108
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	55
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	95
0402-6001	TRENCH EXCAVATION PROTECTION	LF	27
0420-6071	CL C CONC (COLLAR)	EA	2
0420-6074	CL C CONC (MISC)	CY	1.2
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.7
0464-6005	RC PIPE (CL III)(24 IN)	LF	9
0464-6010	RC PIPE (CL III)(48 IN)	LF	8
0465-6004	MANH (COMPL)(PRM)(72IN)	EA	1
0471-6003	GRATE & FRAME	EA	6
0529-6002	CONC CURB (TY II)	LF	91
0529-6008	CONC CURB & GUTTER (TY II)	LF	119
0531-6001	CONC SIDEWALKS (4")	SY	62
0531-6018	CURB RAMPS (TY 1)	SY	6
0531-6019	CURB RAMPS (TY 2)	SY	2
0531-6024	CURB RAMPS (TY 7)	SY	9
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	2
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	35
0666-6303	RE PM W/RET REQ TY I (W)4"(SLD)(100MIL)	LF	33
0668-6112	PRE PM TY C (ACC PRK)(WHT)(SYMBL ONLY)	EA	1
0677-6001	ELIM EXT PAV MRK & MRKS (4")	LF	48
3076-6066	TACK COAT	GAL	10
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	11

HISTORICAL PRESERVATION MEASURES

CONTRACTOR SHALL PROTECT ALL HISTORICAL MARKERS AND ARTIFACTS UTILIZING BARRELS AND FENCING DURING CONSTRUCTION AND AS DIRECTED BY THE ENGINEER TO ENSURE NO ADVERSE EFFECTS. THIS WORK WILL NOT BE PAID DIRECTLY, BUT WILL BE SUBSIDIARY TO ITEM 502.

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

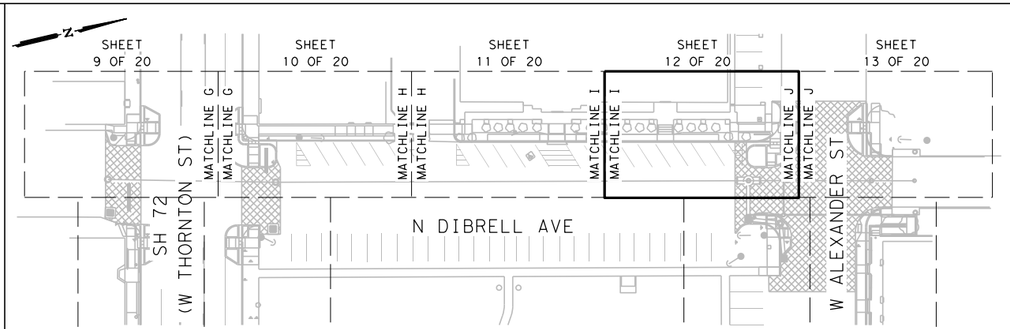
STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

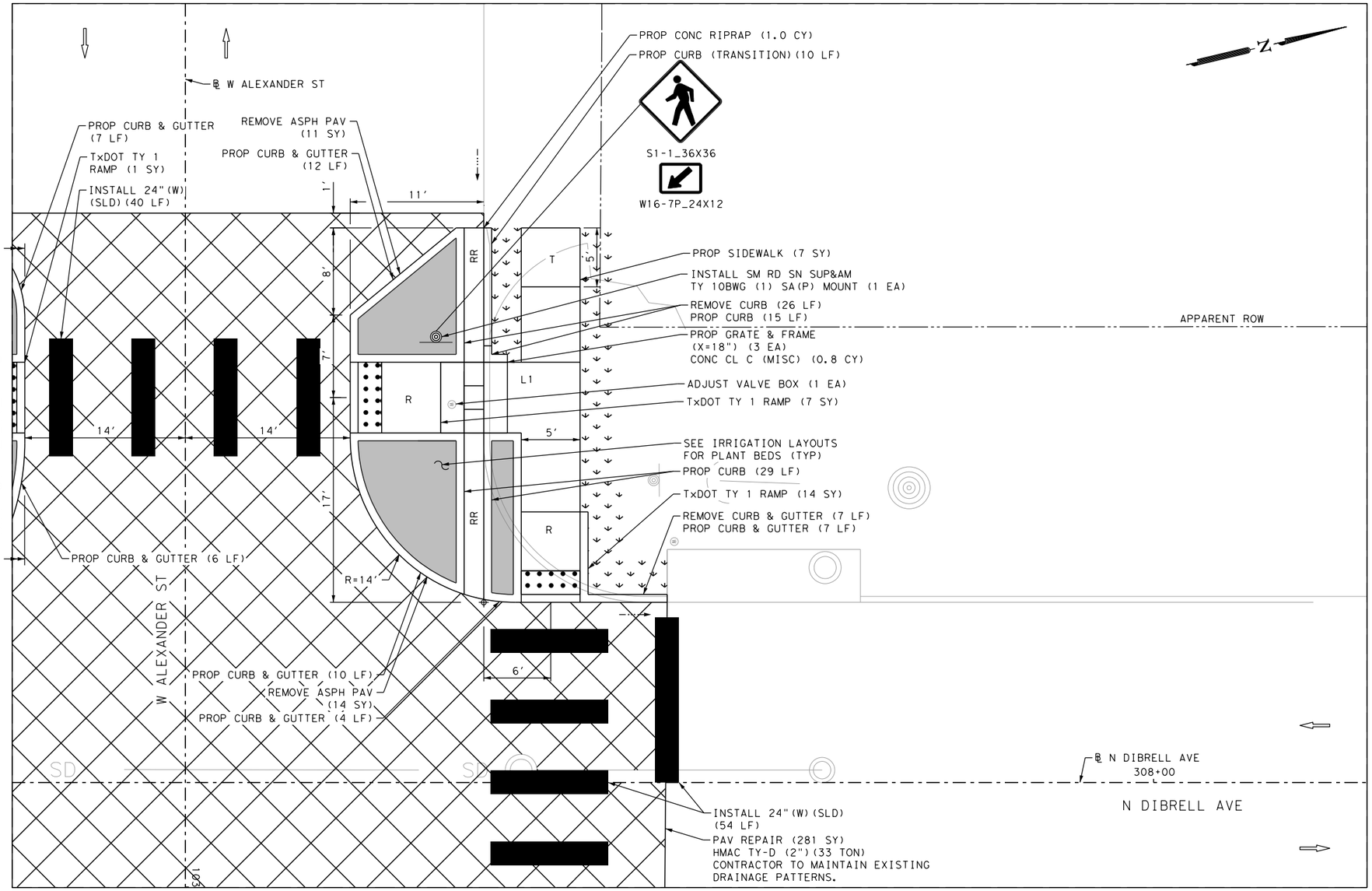
Texas Department of Transportation

SIDEWALK PLAN

SHEET 12 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	54

Plotted on: 6/17/2024
Design Filename: S:\projects\612554\06\Design\01_CRP_3 Rivers\Civil\Roadway\612540 6_01_3_Rivers_PLN12.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	33
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	25
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	15
0162-6002	BLOCK SODDING	SY	15
0168-6001	VEGETATIVE WATERING	MG	0.3
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	281
0420-6074	CL C CONC (MISC)	CY	0.8
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.0
0471-6003	GRATE & FRAME	EA	3
0479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	1
0529-6002	CONC CURB (TY II)	LF	54
0529-6008	CONC CURB & GUTTER (TY II)	LF	46
0531-6001	CONC SIDEWALKS (4")	SY	7
0531-6018	CURB RAMPS (TY 1)	SY	22
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	94
3076-6066	TACK COAT	GAL	29
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	33

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED · PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

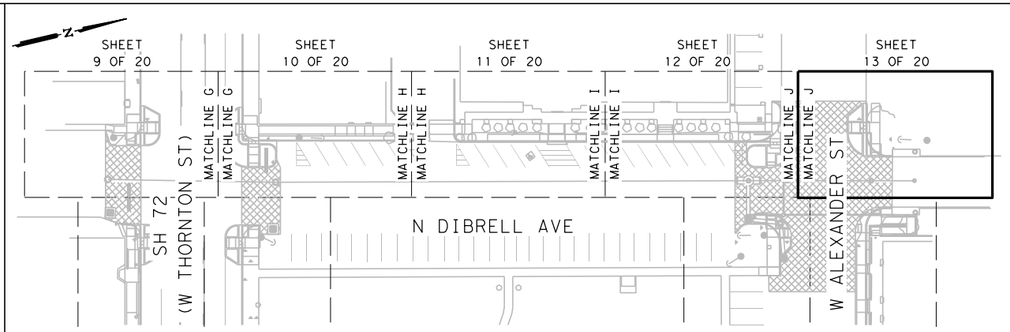
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED · PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

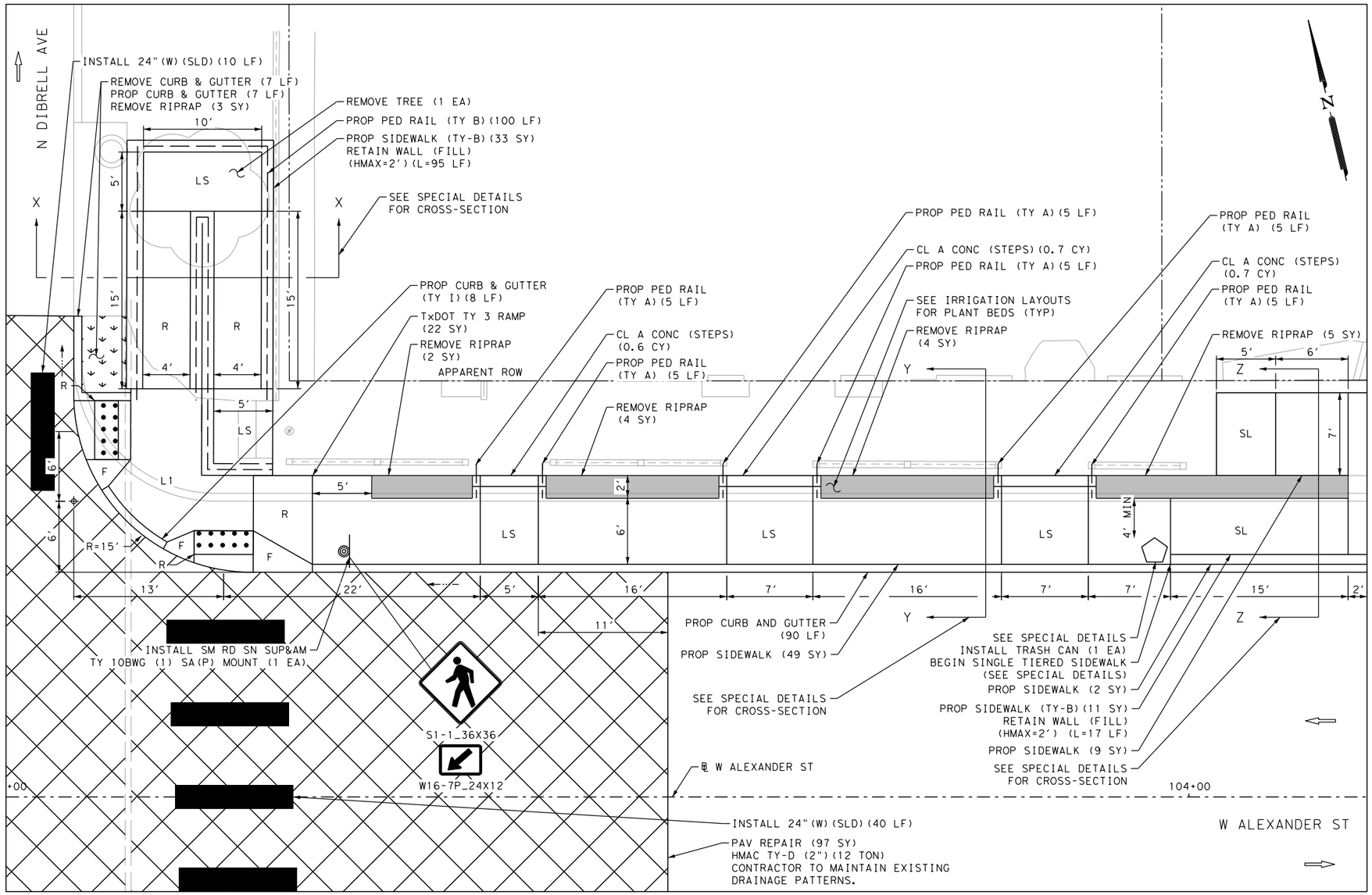
Texas Department of Transportation ©2024

SIDEWALK PLAN

SHEET 13 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	55

Plotted on: 6/17/2024
Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\612540601_3_RIVERS_PLN13.dgn



ITEM	DESCRIPTION	UNI	QTY
0100-6004	PREPARING ROW(TREE)(12" TO 24" DIA)	EA	1
0104-6009	REMOVING CONC (RIPRAP)	SY	18
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	7
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	3
0162-6002	BLOCK SODDING	SY	3
0168-6001	VEGETATIVE WATERING	MG	0.1
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	97
0420-6132	CL A CONC (STEPS)	CY	2.0
0450-6047	RAIL (HANDRAIL)(TY A)	LF	30
0450-6048	RAIL (HANDRAIL)(TY B)	LF	100
0529-6007	CONC CURB & GUTTER (TY I)	LF	8
0529-6008	CONC CURB & GUTTER (TY II)	LF	97
0531-6001	CONC SIDEWALKS (4")	SY	60
0531-6020	CURB RAMPS (TY 3)	SY	22
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	44
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	50
3076-6066	TACK COAT	GAL	10
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	12

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

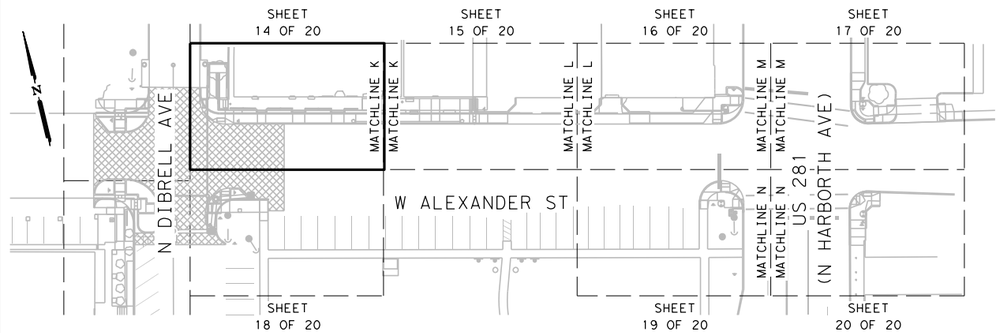
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

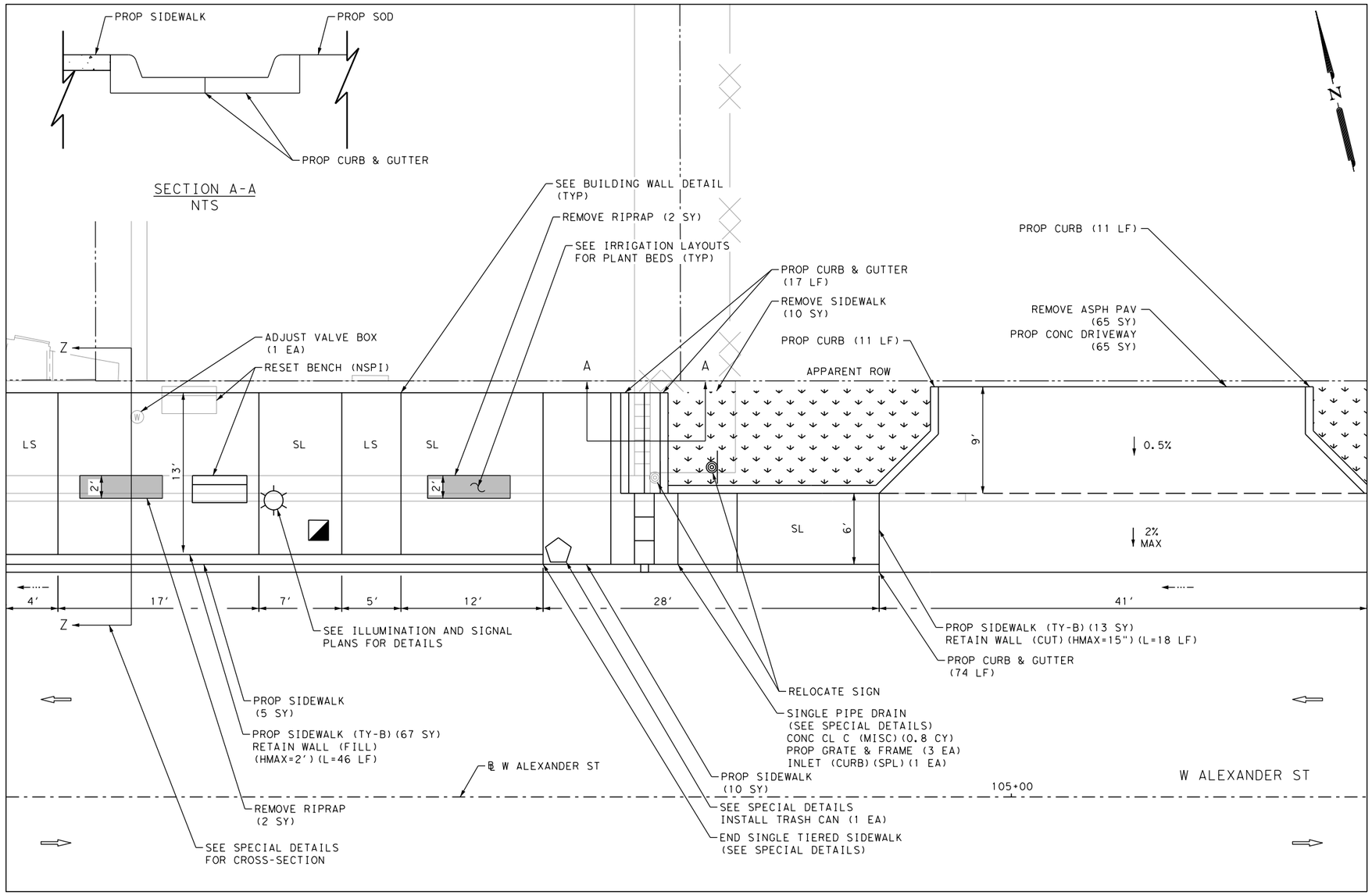
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SIDEWALK PLAN

SHEET 14 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	56

Plotted on: 6/17/2024
Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\612540601_3_Rivers_PLN14.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6009	REMOVING CONC (RIPRAP)	SY	4
0104-6015	REMOVING CONC (SIDEWALKS)	SY	10
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	65
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	23
0162-6002	BLOCK SODDING	SY	23
0168-6001	VEGETATIVE WATERING	MG	0.4
0420-6074	CL C CONC (MISC)	CY	0.8
0465-6557	INLET (CURB) (SPL)	EA	1
0471-6003	GRATE & FRAME	EA	3
0479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	1
0529-6002	CONC CURB (TY II)	LF	22
0529-6008	CONC CURB & GUTTER (TY II)	LF	91
0530-6004	DRIVEWAYS (CONC)	SY	65
0531-6001	CONC SIDEWALKS (4")	SY	15
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	80
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

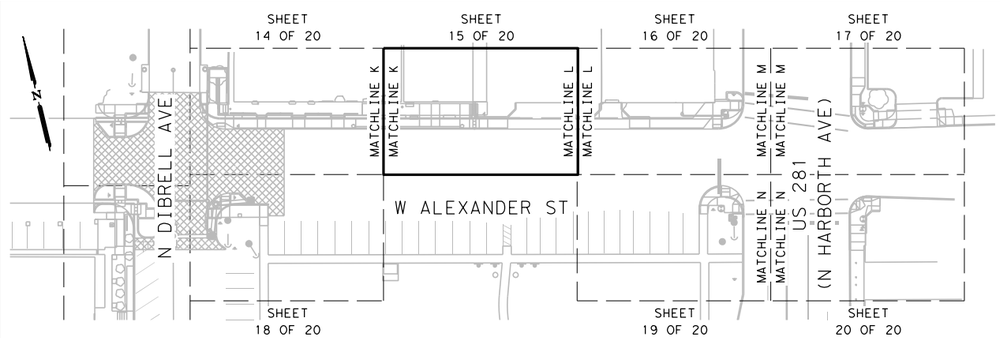
JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

⇢	DRAINAGE FLOW ARROW	⬠	TRASH CAN
F	FLARE	◎	MANHOLE
L	LANDING	⊠	TRAFFIC SIGNAL POLE
L1	LANDING (COMMON)	◎	POWER/UTILITY POLE
LS	LEVEL SIDEWALK (2% MAX)	⊥	SIGN
NSPI	NO SEPARATE PAY ITEM	⬡	FIRE HYDRANT
R	RAMP	◪	GROUND BOX
RR	RIPRAP (CONC)	⟶	GUY WIRE
SL	LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	Ⓦ	WATER METER
		WV	WATER VALVE
T	TRANSITION	⬡	TREE/BUSHES
LP	LANDSCAPE PAVERS	TB	TRAFFIC SIGNAL BOX

⇨	TRAFFIC FLOW
——	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
▣	TRAFFIC SIGNAL CONTROLLER
⌖	PI POINT
↙↙	SODDING
XXXX	PAVEMENT REPAIR
⋯⋯	DETECTABLE WARNING SURFACE
▭	PLANT BEDS
—·—	APPARENT RIGHT OF WAY
▥	GRATE INLET



REV. NO.	DATE	DESCRIPTION	BY

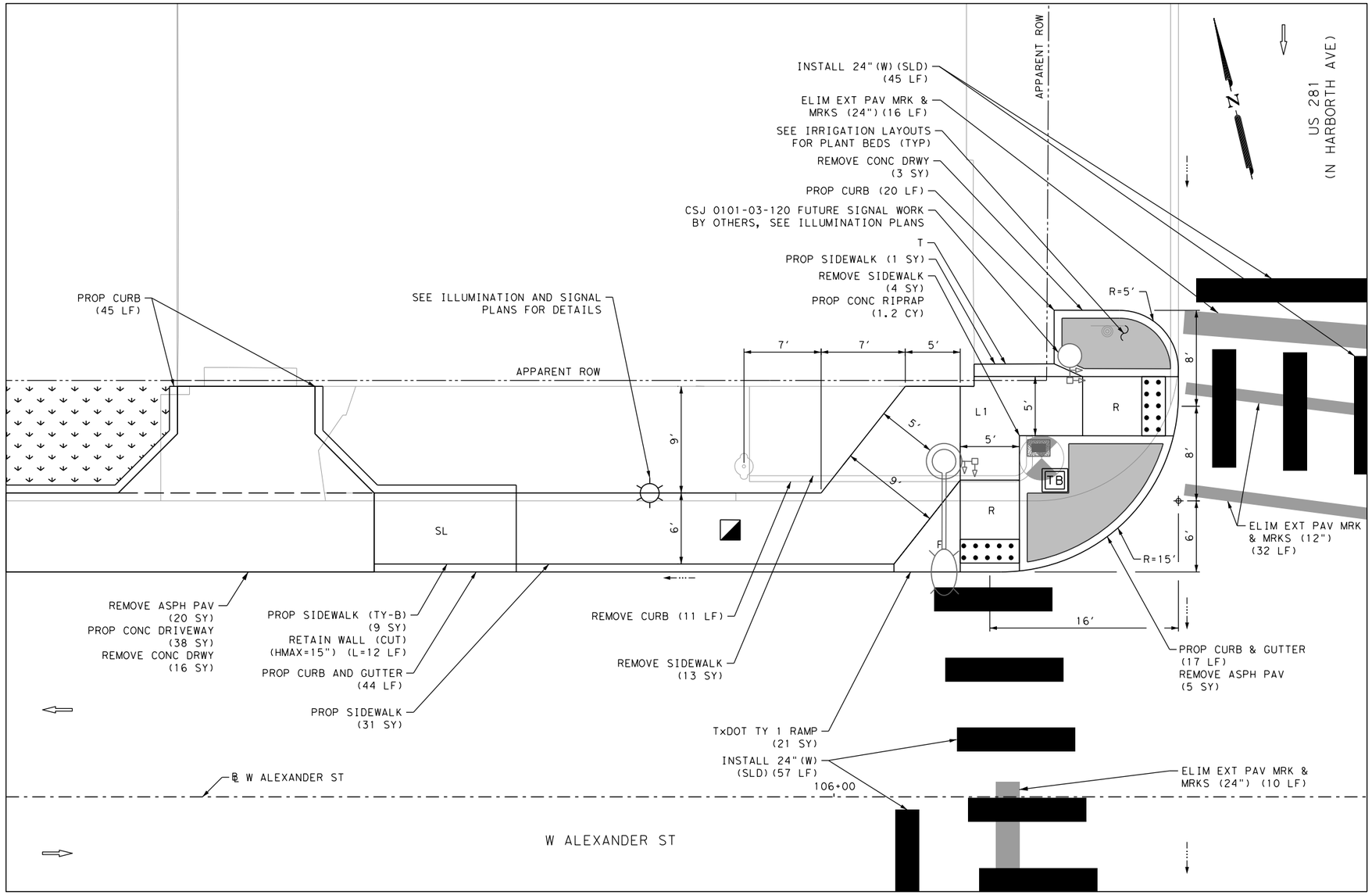
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

Texas Department of Transportation

SIDEWALK PLAN

SHEET 15 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	57



ITEM	DESCRIPTION	UNI	QTY
0104-6015	REMOVING CONC (SIDEWALKS)	SY	17
0104-6017	REMOVING CONC (DRIVEWAYS)	SY	19
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	11
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	25
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	60
0162-6002	BLOCK SODDING	SY	60
0168-6001	VEGETATIVE WATERING	MG	1.1
0432-6003	RIPRAP (CONC)(6 IN)	CY	1.2
0529-6002	CONC CURB (TY II)	LF	65
0529-6008	CONC CURB & GUTTER (TY II)	LF	61
0530-6004	DRIVEWAYS (CONC)	SY	38
0531-6001	CONC SIDEWALKS (4")	SY	32
0531-6018	CURB RAMPS (TY 1)	SY	21
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	9
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	102
0677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	32
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	26

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR SHALL COORDINATE WITH CSJ 0101-03-120 CONTRACTOR TO ENSURE FUTURE PEDESTRIAN SIGNAL POLE AND PUSH BUTTON PLACEMENT BY OTHERS ARE INSTALLED IN ACOORDANCE WITH APPLICABLE PROWAG AND TXDOT PEDESTRIAN FACILITIES STANDARDS

DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

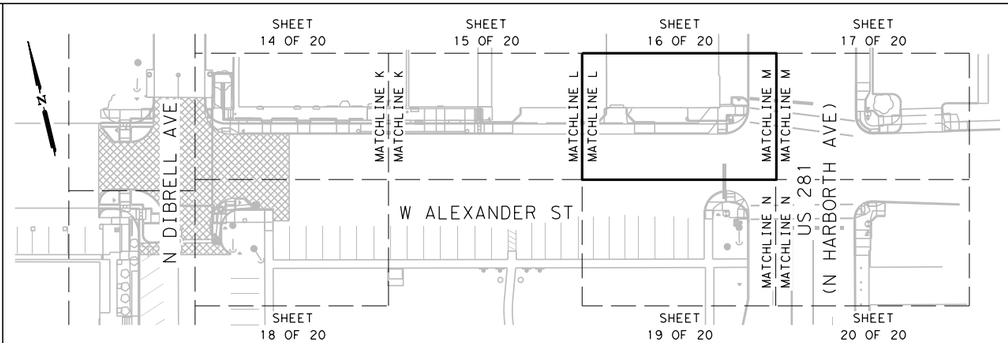
STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

- DRAINAGE FLOW ARROW
- F FLARE
- L LANDING
- L1 LANDING (COMMON)
- LS LEVEL SIDEWALK (2% MAX)
- NSPI NO SEPARATE PAY ITEM
- R RAMP
- RR RIPRAP (CONC)
- SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
- T TRANSITION
- LP LANDSCAPE PAVERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WV WATER VALVE
- TREE/BUSHES
- TB TRAFFIC SIGNAL BOX
- TRAFFIC FLOW
- CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



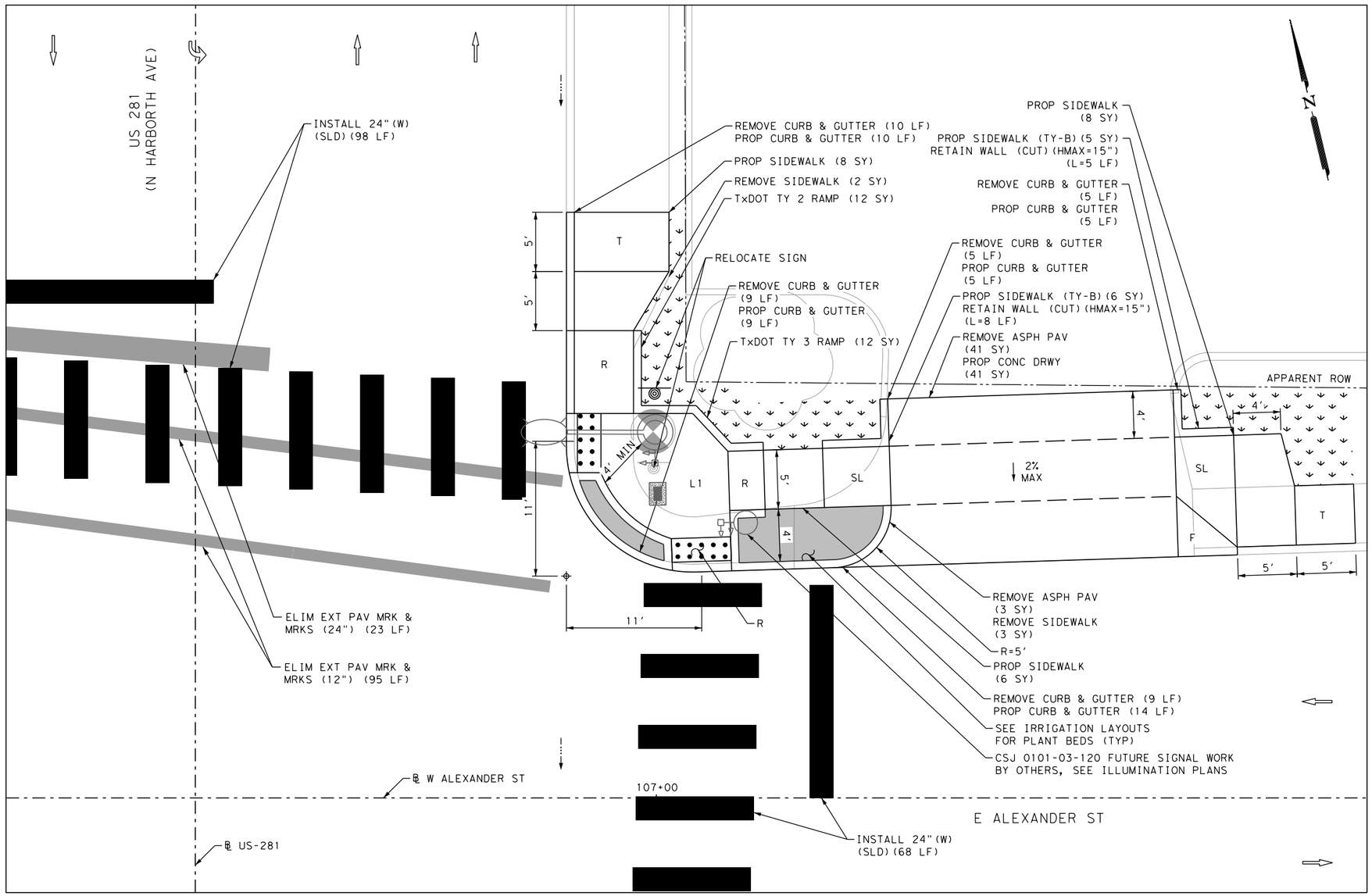
REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SIDEWALK PLAN

SHEET 16 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	58



ITEM	DESCRIPTION	UNI	QTY
0104-6015	REMOVING CONC (SIDEWALKS)	SY	5
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	38
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	44
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	20
0162-6002	BLOCK SODDING	SY	20
0168-6001	VEGETATIVE WATERING	MG	0.4
0529-6008	CONC CURB & GUTTER (TY II)	LF	43
0530-6004	DRIVEWAYS (CONC)	SY	41
0531-6001	CONC SIDEWALKS (4")	SY	22
0531-6019	CURB RAMPS (TY 2)	SY	12
0531-6020	CURB RAMPS (TY 3)	SY	12
0531-6033	CONC SIDEWALKS (SPECIAL) (TYPE B)	SY	11
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	166
0677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	95
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	23

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR SHALL COORDINATE WITH CSJ 0101-03-120 CONTRACTOR TO ENSURE FUTURE PEDESTRIAN SIGNAL POLE AND PUSH BUTTON PLACEMENT BY OTHERS ARE INSTALLED IN ACOORDANCE WITH APPLICABLE PROWAG AND TXDOT PEDESTRIAN FACILITIES STANDARDS

DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

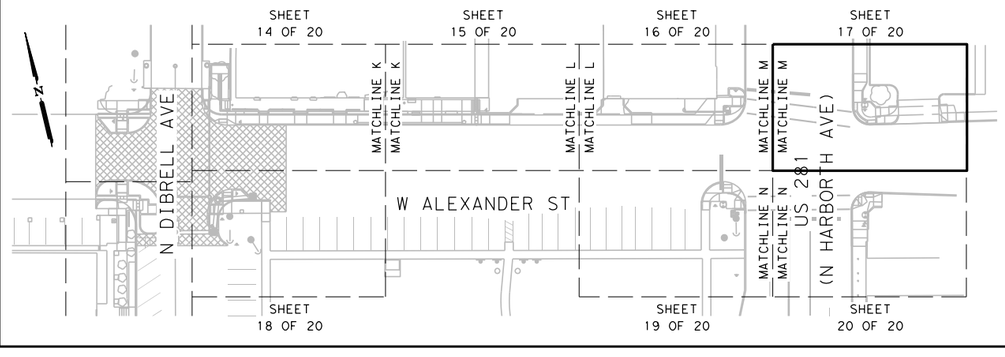
STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

- DRAINAGE FLOW ARROW
- F FLARE
- L LANDING
- L1 LANDING (COMMON)
- LS LEVEL SIDEWALK (2% MAX)
- NSPI NO SEPARATE PAY ITEM
- R RAMP
- RR RIPRAP (CONC)
- SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%
- T TRANSITION
- LP LANDSCAPE PAVERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC SIGNAL BOX
- TRAFFIC FLOW
- CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



REV. NO.	DATE	DESCRIPTION	BY

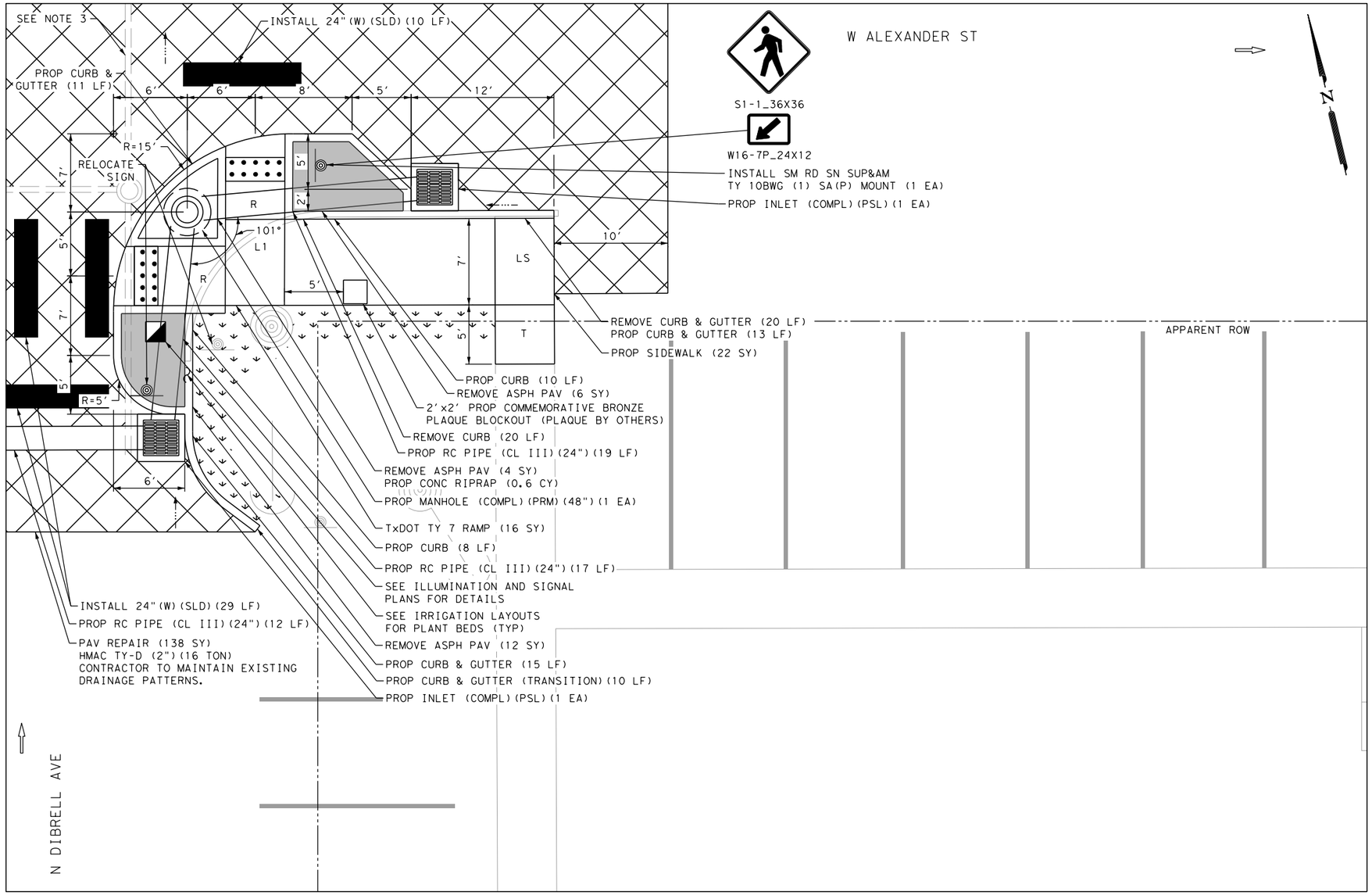
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SIDEWALK PLAN

SHEET 17 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	59

Plotted on: 6/17/2024
Design Filename: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN17.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	40
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	22
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	13
0162-6002	BLOCK SODDING	SY	13
0168-6001	VEGETATIVE WATERING	MG	0.3
0351-6006	FLEXIBLE PAVEMENT STRUCTURE REPAIR(10")	SY	138
0402-6001	TRENCH EXCAVATION PROTECTION	LF	48
0432-6003	RIPRAP (CONC)(6 IN)	CY	0.6
0464-6005	RC PIPE (CL III)(24 IN)	LF	48
0465-6002	MANH (COMPL)(PRM)(48IN)	EA	1
0465-6127	INLET (COMPL)(PSL)(FG)(4FTX4FT-3FTX3FT)	EA	2
0529-6002	CONC CURB (TY II)	LF	18
0529-6008	CONC CURB & GUTTER (TY II)	LF	49
0531-6001	CONC SIDEWALKS (4")	SY	22
0531-6024	CURB RAMPS (TY 7)	SY	16
0644-6001	IN SM RD SN SUP&AM TY10BWG(1)SA(P)	EA	1
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	39
3076-6066	TACK COAT	GAL	14
3076-6072	D-GR HMA TY-D PG 76-22 (EXEMPT)	TON	16

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR SHALL TAKE CARE WHEN EXCAVATING FOR AND INSTALLING PROPOSED RC PIPE TO ENSURE NO DAMAGE IS DONE TO THE EXISTING 6" SANITARY LINE

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

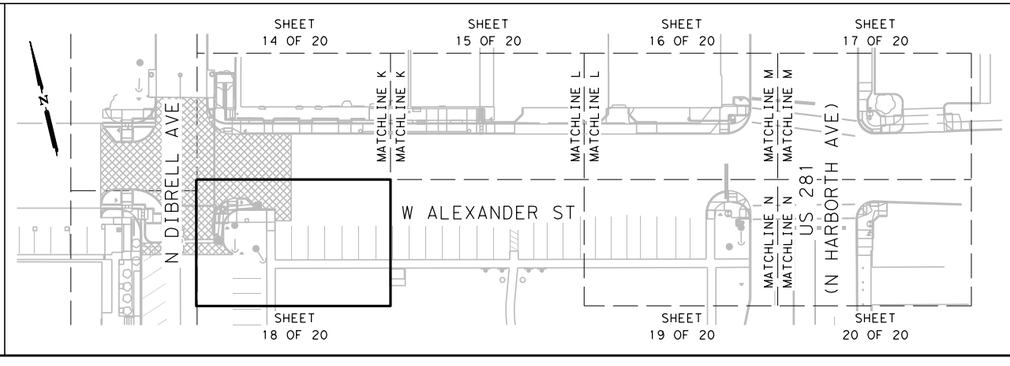
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

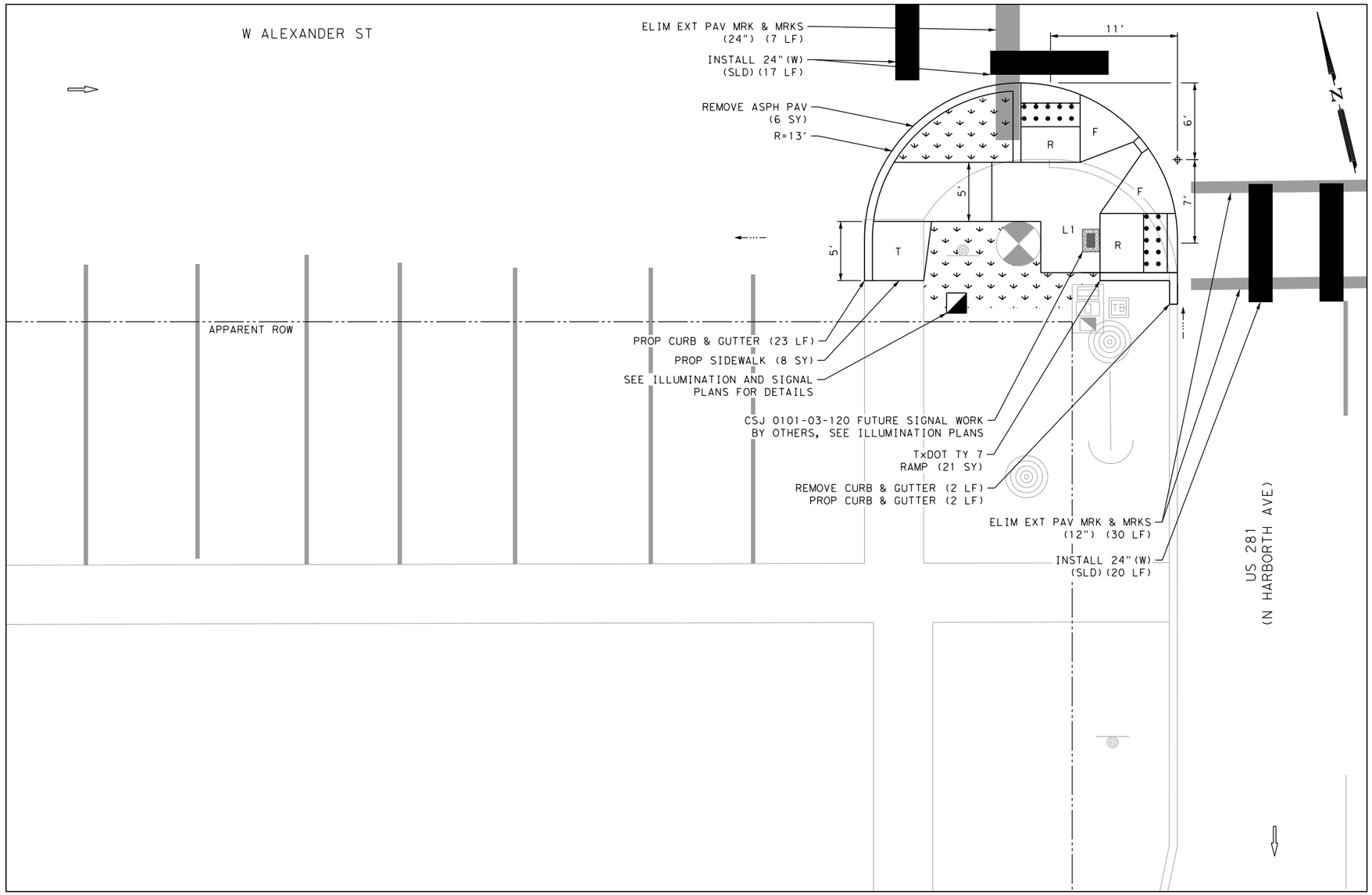
PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SIDEWALK PLAN

SHEET 18 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	60

Plotted on: 6/17/2024
Design Filename: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN18.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	2
0105-6037	REMOVING STAB BASE AND ASPH PAV(0"-16")	SY	6
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	11
0162-6002	BLOCK SODDING	SY	11
0168-6001	VEGETATIVE WATERING	MG	0.2
0529-6008	CONC CURB & GUTTER (TY II)	LF	25
0531-6001	CONC SIDEWALKS (4")	SY	8
0531-6024	CURB RAMPS (TY 7)	SY	21
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	37
0677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	30
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	7

MATCH LINE "N"

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR SHALL COORDINATE WITH CSJ 0101-03-120 CONTRACTOR TO ENSURE FUTURE PEDESTRIAN SIGNAL POLE AND PUSH BUTTON PLACEMENT BY OTHERS ARE INSTALLED IN ACOORDANCE WITH APPLICABLE PROWAG AND TXDOT PEDESTRIAN FACILITIES STANDARDS

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

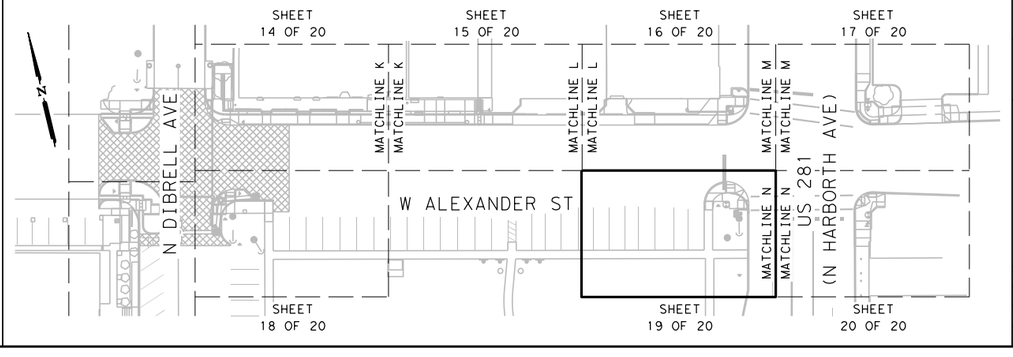
STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15
SCALE: 1"= 10'

LEGEND

DRAINAGE FLOW ARROW	TRASH CAN	TRAFFIC FLOW	
F FLARE	MANHOLE	CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS	
L LANDING	TRAFFIC SIGNAL POLE	TRAFFIC SIGNAL CONTROLLER	
L1 LANDING (COMMON)	POWER/UTILITY POLE	PI POINT	
LS LEVEL SIDEWALK (2% MAX)	SIGN	SODDING	
NSPI NO SEPARATE PAY ITEM	FIRE HYDRANT	PAVEMENT REPAIR	
R RAMP	GROUND BOX	DETECTABLE WARNING SURFACE	
RR RIPRAP (CONC)	GUY WIRE	PLANT BEDS	
SL LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	WATER METER	APPARENT RIGHT OF WAY	
T TRANSITION	WATER VALVE	GRATE INLET	
LP LANDSCAPE PAVERS	TREE/BUSHES		
	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

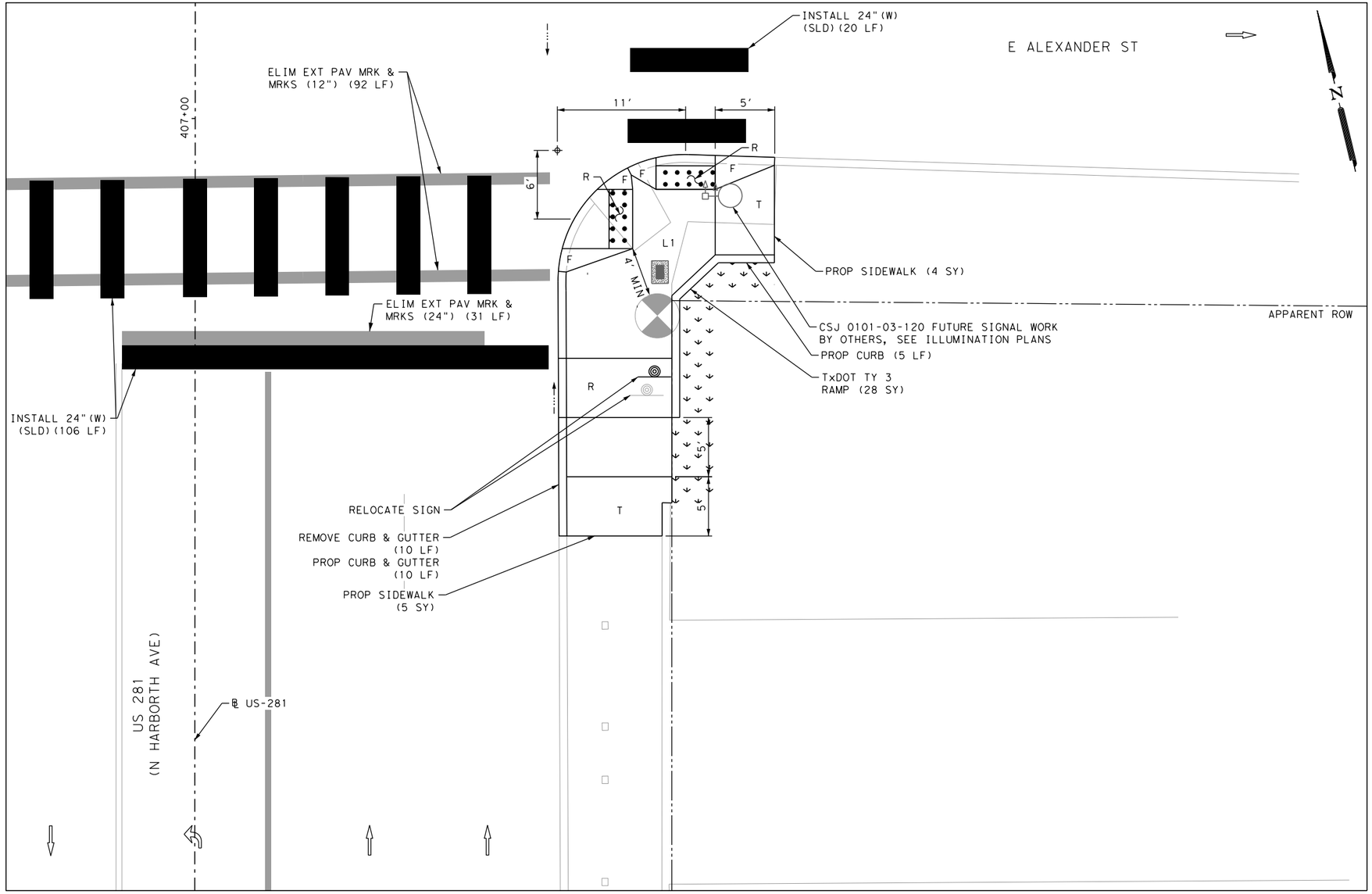
Texas Department of Transportation ©2024

SIDEWALK PLAN

SHEET 19 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	61

Plotted on: 6/17/2024
Design Filename: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN19.dgn



ITEM	DESCRIPTION	UNI	QTY
0104-6029	REMOVING CONC (CURB OR CURB & GUTTER)	LF	10
0160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	10
0162-6002	BLOCK SODDING	SY	10
0168-6001	VEGETATIVE WATERING	MG	0.2
0529-6002	CONC CURB (TY II)	LF	5
0529-6007	CONC CURB & GUTTER (TY I)	LF	1
0529-6008	CONC CURB & GUTTER (TY II)	LF	9
0531-6001	CONC SIDEWALKS (4")	SY	9
0531-6020	CURB RAMPS (TY 3)	SY	28
0644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	1
0666-6048	REFL PAV MRK TY I (W)24"(SLD)(100MIL)	LF	126
0677-6005	ELIM EXT PAV MRK & MRKS (12")	LF	92
0677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	31

NOTES:
1. THE EXISTENCE AND LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES INDICATED IN THE PLANS ARE TAKEN FROM THE BEST RECORDS AVAILABLE AND ARE NOT GUARANTEED TO BE ACCURATE. CONSTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES TO FIELD VERIFY UTILITIES PRIOR TOBEGGINING CONSTRUCTION.
2. EXISTING FEATURES ARE SHOWN SCREENED BACK; i.e. FADED
3. CONTRACTOR SHALL COORDINATE WITH CSJ 0101-03-120 CONTRACTOR TO ENSURE FUTURE PEDESTRIAN SIGNAL POLE AND PUSH BUTTON PLACEMENT BY OTHERS ARE INSTALLED IN ACOORDANCE WITH APPLICABLE PROWAG AND TXDOT PEDESTRIAN FACILITIES STANDARDS

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

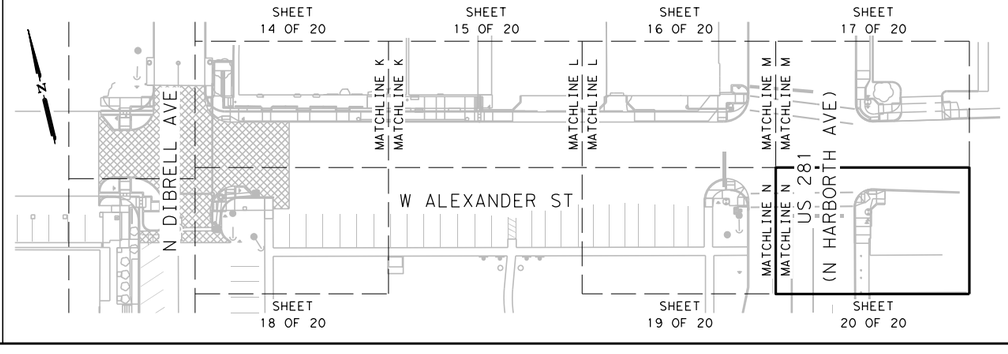
JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 5 10 15

SCALE: 1"= 10'

LEGEND

⋯→	DRAINAGE FLOW ARROW		TRASH CAN		TRAFFIC FLOW
F	FLARE		MANHOLE		CSJ 0101-03-120 FUTURE SIGNAL WORK BY OTHERS
L	LANDING		TRAFFIC SIGNAL POLE		TRAFFIC SIGNAL CONTROLLER
L1	LANDING (COMMON)		POWER/UTILITY POLE		PI POINT
LS	LEVEL SIDEWALK (2% MAX)		SIGN		SODDING
NSPI	NO SEPARATE PAY ITEM		FIRE HYDRANT		PAVEMENT REPAIR
R	RAMP		GROUND BOX		DETECTABLE WARNING SURFACE
RR	RIPRAP (CONC)		GUY WIRE		PLANT BEDS
SL	LONGITUDINAL SLOPES MAY NOT EXCEED 5%, CROSS SLOPES MAY NOT EXCEED 2%	W	WATER METER		APPARENT RIGHT OF WAY
		WV	WATER VALVE		
T	TRANSITION		TREE/BUSHES		GRATE INLET
LP	LANDSCAPE PAVERS	TB	TRAFFIC SIGNAL BOX		



REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SIDEWALK PLAN

SHEET 20 OF 20

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	62

Plotted on: 6/17/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\6125406_01_3_Rivers_PLN20.dgn

GENERAL NOTES FOR TREE PROTECTION

1. PROTECT AND INSURE THE CONTINUED GOOD HEALTH OF EXISTING TREES IDENTIFIED ON THE PLANS OR DIRECTED BY THE ENGINEER. PRESERVE ALL EXISTING VEGETATION WITHIN THE PREFERRED ROOT PROTECTION ZONE.

2. SECURE THE SERVICES OF A TREE CARE SPECIALIST TO PERFORM OR OVERSEE ANY OPERATION INVOLVING LIMB PRUNING, ROOT PRUNING, CHEMICAL APPLICATION, OR ASSESSMENT OF THE CONDITION OF TREES OR EFFECTS OF CONSTRUCTION ON TREES DESIGNATED FOR PROTECTION.

3. WITHIN THE PREFERRED ROOT PROTECTION ZONE, NONE OF THE FOLLOWING ACTIVITIES ARE ALLOWED:

PARKING OF ANY VEHICLES; ERECTION OF ANY SHED OR STRUCTURE; STORAGE OF ANY EQUIPMENT OR MATERIALS; USE BY PEOPLE FOR ANY REASON; DUMPING OF ANY LITTER, WASTE MATERIALS, OR LIQUIDS; IMPOUNDMENT OF WATER; ADDITION OF FILL-SOIL; EXCAVATION, BORING, OR TRENCHING OF ANY TYPE

DEFINITIONS

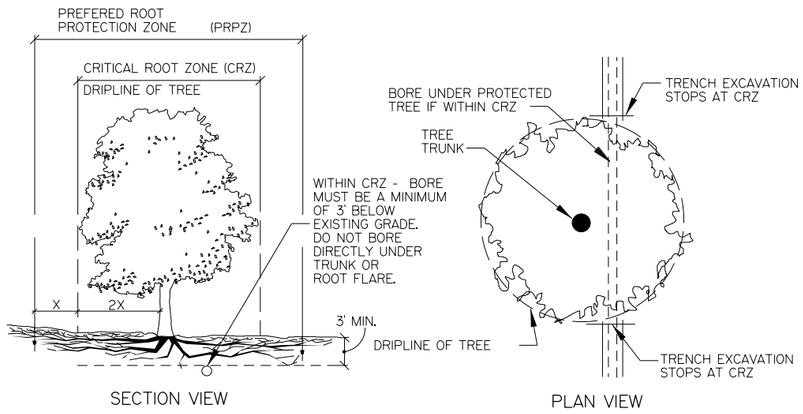
1. DRIPLINE - THE LINE ON THE GROUND DIRECTLY BELOW THE OUTER TIPS OR ENDS OF THE TREE LIMBS.

2. CRITICAL ROOT ZONE (CRZ) - THE GROUND AREA EXTENDING OUT FROM THE TREE TRUNK TO THE DRIPLINE.

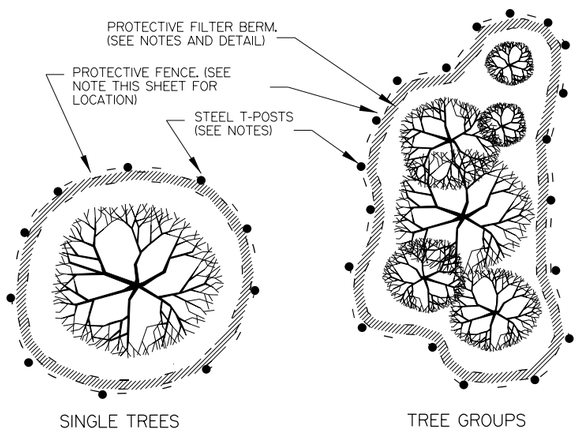
3. PREFERRED ROOT PROTECTION ZONE (PRPZ) - THE GROUND AREA EXTENDING OUT FROM THE TREE TRUNK A DISTANCE EQUAL TO ONE AND ONE HALF OF THE DISTANCE FROM THE TRUNK TO THE DRIPLINE.

4. TREE CARE SPECIALIST - CERTIFIED ARBORIST OR PROFESSIONAL URBAN FORESTER.

5. O.C. - ON CENTER



TRENCHING PAST TREES



PLAN VIEW OF FENCING LAYOUT

CONSTRUCTION METHODS

1. PRIOR TO THE START OF CONSTRUCTION, MARK ALL TREES OR OTHER FEATURES INDICATED ON THE PLANS TO BE PROTECTED WITH YELLOW FLAGGING FOR APPROVAL BY THE ENGINEER.

2. PRIOR TO CONSTRUCTION, PRUNE PROTECTED TREES AS FOLLOWS:
   A. REMOVE ANY DISEASED OR DEAD LIMBS AND CORRECT ANY PREVIOUS IMPROPER PRUNING
   B. REMOVE LIMBS FOR NECESSARY EQUIPMENT ACCESS (AS APPROVED BY THE ENGINEER).
   C. REMOVE LIMBS THAT WILL BE WITHIN TWENTY FEET (20) VERTICAL CLEARANCE OF VEHICLE TRAVEL LANES.
   D. REMOVE LIMBS THAT WILL BE WITHIN TEN FEET (10) VERTICAL CLEARANCE OF PEDESTRIAN AREAS.

3. PERFORM PRUNING USING ONLY TOOLS SPECIFICALLY DESIGNED FOR THE JOB AND IN ACCORDANCE WITH ANSI A300 PRUNING STANDARD. PRUNED MATERIAL BECOMES THE PROPERTY OF THE CONTRACTOR AND WILL BE DISPOSED OF OFF-SITE.

4. ERECT PROTECTIVE FENCING AT ALL TREES, GROUPS OF TREES, OR OTHER FEATURES AS SHOWN ON THE PLANS, OR DESIGNATED BY THE ENGINEER, OR OTHERWISE INDICATED FOR PROTECTION.

5. ERECT PROTECTIVE FENCING FOR TREES AT THE EDGE OF THE PRPZ. PLACE FENCING IN OTHER LOCATIONS ONLY WITH THE APPROVAL OF THE ENGINEER. THE FENCE MATERIAL SHALL BE CHAIN-LINK FENCE.
   A. CHAIN-LINK FENCING SHALL BE SIX-FOOT (6) IN HEIGHT AND SUPPORTED BY EIGHT-FOOT (8) STEEL T-POSTS SPACED SIX FEET (6) O.C., DRIVEN A MINIMUM OF 20" INTO EXISTING GRADE.
   B. THE FENCING SHALL BE CONTINUOUS BETWEEN POSTS AND SHALL BE FIRMLY ATTACHED TO THE POSTS WITH A MINIMUM OF 4 WIRE TIES.

6. PREPARE SIGNS WITH THE FOLLOWNG WORDING, AND INSTALL AT A MINIMUM OF 50' ON CENTER ALONG THE PROTECTIVE FENCING:
   PROTECTED AREA
   DO NOT ENTER
   THIS FENCE MAY NOT BE REMOVED OR MODIFIED WITHOUT THE PERMISSION OF THE ENGINEER
   CONTACT (PHONE NUMBER)

7. IF IT BECOMES NECESSARY TO LOCATE THE PROTECTIVE FENCING WITHIN SIX FEET (6) OF THE TRUNK OF A TREE, SECURE WOOD PLANKING TO THE TRUNK. THE PLANKING SHALL BE NOMINAL 2X4 DIMENSION LUMBER SECURED WITH A ROPE, BAND, OR STRAP OF SUFFICIENT DURABILITY TO REMAIIN IN PLACE FOR THE DURATION OF THE PROJECT. INSTALL PLANKS TO A HEIGHT OF TEN FEET (10) OR TO THE LOWEST MAJOR BRANCHES WHICHEVER IS LOWEST. DO NOT USE NAILS, SCREWS, OR ANY OTHER DAMAGING ATTACHMENTS UNDER ANY CIRCUMSTANCES.

8. ERECT A FILTER BERM COMPOSED OF WOOD CHIPS TO THE DIMENSIONS AND LOCATION SHOWN IN THE DETAILS. USE WOOD CHIPS LESS THAN OR EQUAL TO 5 IN. IN LENGTH WITH 95% PSSING A 2-IN. SCREEN AND LESS THAN 30% PASSING A 1-IN. SCREEN.

9. IMMEDIATELY REMOVE ANY CONCRETE, LIME OR OTHER CHEMICALS ACCIDENTALLY SPILLED WITHIN THE PROTECTED ROOT ZONE. IMMEDIATELY TREAT FOR ACCIDENTAL DAMAGE TO ANY TREE AS DIRECTED BY THE ENGINEER. SECURE THE SERVICES OF A TREE CARE SPECIALIST TO ASSESS AND/OR TREAT FOR THE DAMAGE.

10. MAINTAIN ALL TREE PROTECTION MATERIALS THROUGHOUT ENTIRE LENGTH OF PROJECT. REPAIR ANY DAMAGED TREE PROTECTION MATERIALS IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. ADDITIONAL COMPOST OR MULCH MATERIALS MAY BE REQUIRED.

11. NO TRENCHING, EXCAVATING, FILLING, OR COMPACTION IS ALLOWED WITHIN THE CRITICAL ROOT ZONE EXCEPT AS SPECIFICALLY IDENTIFIED IN THE PLANS OR APPROVED BY THE ENGINEER.

12. IF ROOT REMOVAL OR EXCAVATION IS UNAVOIDABLE WITHIN THE PREFERRED ROOT PROTECTION ZONE, HAND-DIG TO EXPOSE MAJOR TREE ROOTS OF ONE-INCH (1") DIAMETER OR GREATER. ONCE EXPOSED, PRUNE ROOTS WITH SHARP, CLEAN TOOLS DESIGNED FOR THAT PURPOSE. BACKFILL EXPOSED ROOT ENDS AS SOON AS POSSIBLE OR COVERED WITH SIX INCHES (6") SHREDDED HARDWOOD MULCH WITHIN THE SAME DAY OF EXCAVATION.

13. PRUNE ANY ROOTS EXPOSED BY CONSTRUCTION FLUSH WITH THE SOIL. BACKFILL ROOT AREAS WITH GOOD QUALITY TOPSOIL AS SOON AS POSSIBLE. IF EXPOSED ROOTS ARE NOT TO BE BACKFILLED WITHIN TWO DAYS, COVER THEM WITH A MINIMUM OF SIX INCHES (6") OF SHREDDED HARDWOOD MULCH.

14. SHOULD ACCESS ACROSS THE CRITICAL ROOT ZONE BE NECESSARY, OPEN ONLY THAT PORTION NEEDED FOR ACCESS AND THE COMPLETION OF THE TASK. INSTALL SIX INCHES (6") OF SHREDDED HARDWOOD BARK IN ACCESS AREAS BEFORE ANY WHEELED OR TRACKED VEHICES ENTER THE CRITICAL ROOT ZONE. REPLACE PROTECTIVE FENCING TO ITS ORIGINAL POSITIONS AS SOON AS POSSIBLE AFTER THE CONSTRUCTION TASK IS COMPLETED AND REMOVE THE BARK MULCH LAYER AND STOCKPILE OUTSIDE THE CRITICAL ROOT ZONE.

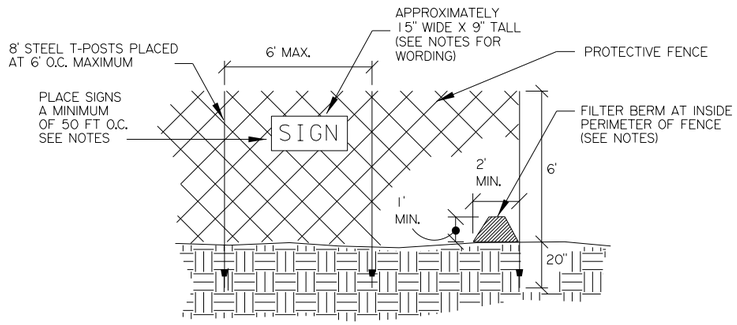
15. FOR PROPOSED UNDERGROUND UTILITIES SHOWN ELSEWHERE IN THE PLANS THAT CROSS THE CRITICAL ROOT ZONE, BORE AT A MINIMUM OF THREE FEET (3) BELOW EXISTING GRADE. TRENCH FOR BORE SHALL NOT INTRUDE INTO CRITICAL ROOT ZONE.

POST CONSTRUCTION

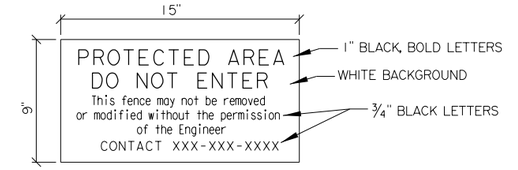
1. UPON THE COMPLETION OF CONSTRUCTION ACTIVITIES, CONDUCT A FINAL ASSESSMENT BY A TREE CARE SPECIALIST TO DETERMINE THE HEALTH AND CONDITION OF THE TREES. THE SPECIALIST SHOULD PROVIDE RECOMMENDATIONS FOR THE FOLLOWING INSPECTION ITEMS FOR NEEDED POST-CONSTRUCTION MEASURES:
   A. DAMAGE TO ANY PART OF THE TREE
   B. CHANGES IN SOILS STRUCTURE SUCH AS COMPACTION, FILLS, EROSION, OR LOSS OF ORGANIC MATTER

IMPLEMENT THE RECOMMENDATIONS MADE BY THE TREE CARE SPECIALIST AS DIRECTED. AT A MINIMUM, PERFORM THE FOLLOWING:
   A. REMOVE TREES THAT MAY HAVE DIED DURING CONSTRUCTION
   B. REMOVE ANY FILL SOIL FROM ROOT ZONES
   C. REPAIR AREAS DAMAGED DURING CONSTRUCTION

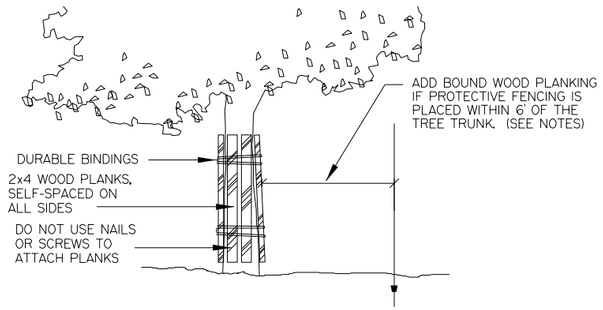
2. AFTER ALL CONSTRUCTION ACTIVITIES HAVE CEASED, REMOVE ALL TREE PROTECTION MATERIALS FROM THE PROJECT SITE. MULCH MAY BE SPREAD OVER THE SITE IN A TWO-INCH THICK MAXIMUM LAYER.



PROTECTIVE FENCE AND SIGN PLACEMENT



SIGNAGE FOR PROTECTED AREAS



WOOD PLANKING INSTALLATION

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

THIS WORK AND ALL ASSOCIATED MATERIALS WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE SUBSIDIARY TO ITEM 100 - PREPARING RIGHT OF WAY.

NOT TO SCALE

Texas Department of Transportation

TREE PROTECTION

T:Engdata/Standards/SATreeProtection.dgn

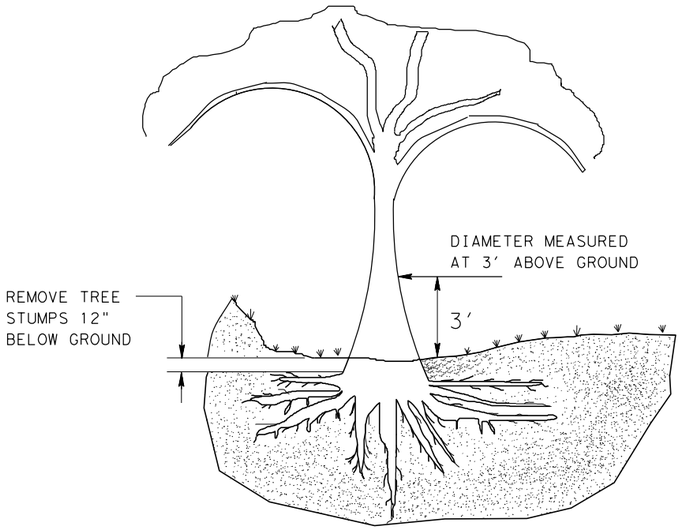
ORIGINAL DRAWING DATE: 12-18-18

REVISIONS

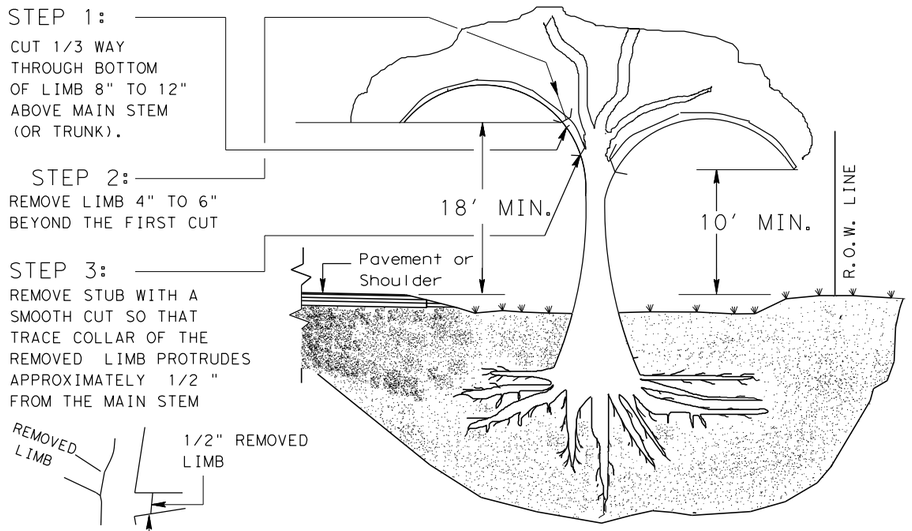
PREPARED BY AND FOR USE OF TxDoT.

STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT #	SHEET
CRP	6	STP 2024 (774) TAPS	63

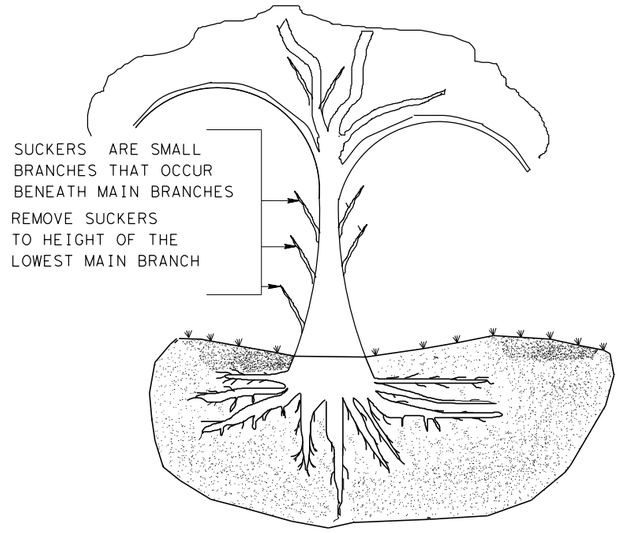
COUNTY	CONTROL	SECTION	JOB	HIGHWAY
LIVE OAK	0916	29	019	VA



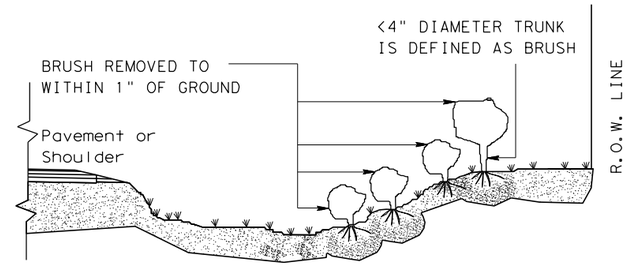
TREE REMOVAL



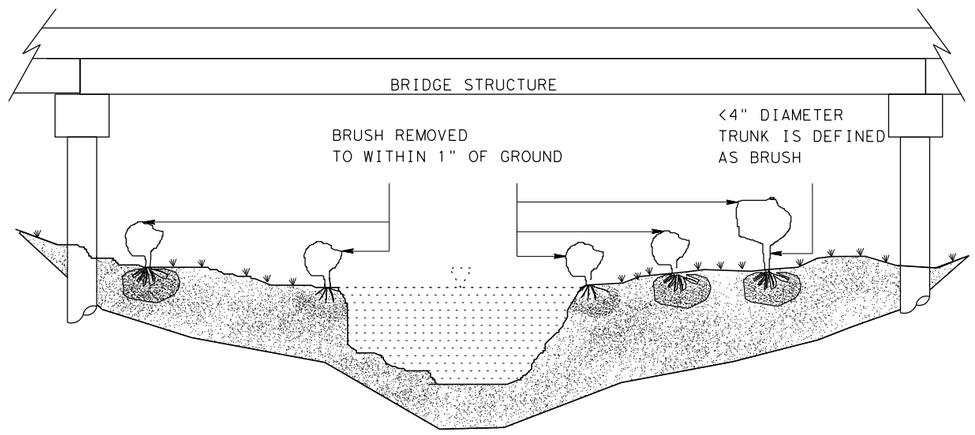
TREE TRIMMING



STEPS 1, 2 AND 3 APPLY WHEN REMOVING LIMBS 2" IN DIAMETER OR LARGER.



BRUSH REMOVAL



BRUSH REMOVAL UNDER BRIDGE AND IN CHANNEL

GENERAL NOTES:

TREE TRIMMING

1. TRIM AND REMOVE ALL TREE LIMBS ON THE PAVEMENT SIDE OF THE TRUNK 18' ABOVE THE PAVEMENT OR BRIDGE DECK ELEVATION, UNLESS OTHERWISE SHOWN ON THE PLANS.

2. TRIM AND REMOVE ALL TREE LIMBS BETWEEN THE TRUNK AND R.O.W. LINE 10' ABOVE NATURAL GROUND, TERRAIN OR OTHER STRUCTURE ELEVATION, UNLESS OTHERWISE SHOWN ON THE PLANS.

TREE REMOVAL

3. FOR TREES MARKED FOR REMOVAL, THE DIAMETER OF TREES ARE DETERMINED BY MEASUREMENT OF THE TRUNK CIRCUMFERENCE 3' ABOVE THE GROUND. TREES WITH TRUNKS OF LESS THAN 4" DIAMETER ARE CONSIDERED TO BE BRUSH. TREES WITH MULTIPLE TRUNKS AT THE POINT OF MEASUREMENT ARE MEASURED AND PAID FOR SEPARATELY.

4. MEASUREMENTS FOR PAYMENT OF TREE DIAMETERS ARE DIVIDED INTO THE RANGES SHOWN IN TABLE 1.

TABLE 1
TREE TRUNK SIZE FOR TREE REMOVAL PAYMENT

PAY ITEM	RANGE FOR PAY ITEMS			
	TRUNK DIAMETER *		TRUNK CIRCUMFERENCE	
	LOWER LIMIT IS GREATER THAN	UPPER LIMIT IS LESS THAN OR EQUAL TO	LOWER LIMIT IS GREATER THAN	UPPER LIMIT IS LESS THAN OR EQUAL TO
752 6005	4	12	12 1/2	37 1/2
752 6006	12	18	37 1/2	56 1/2
752 6007	18	24	56 1/2	75 1/2
752 6008	24	30	75 1/2	94
752 6009	30	36	94	113
752 6010	36	42	113	132
752 6011	42	48	132	151
752 6012	48	60	151	188 1/2
752 6013	60	72	188 1/2	226
752 6019	72	84	226	264
	84	GREATER THAN 84	264	NOT APPLICABLE

*SEE GENERAL NOTE #3.

Texas Department of Transportation — Maintenance Division Standard

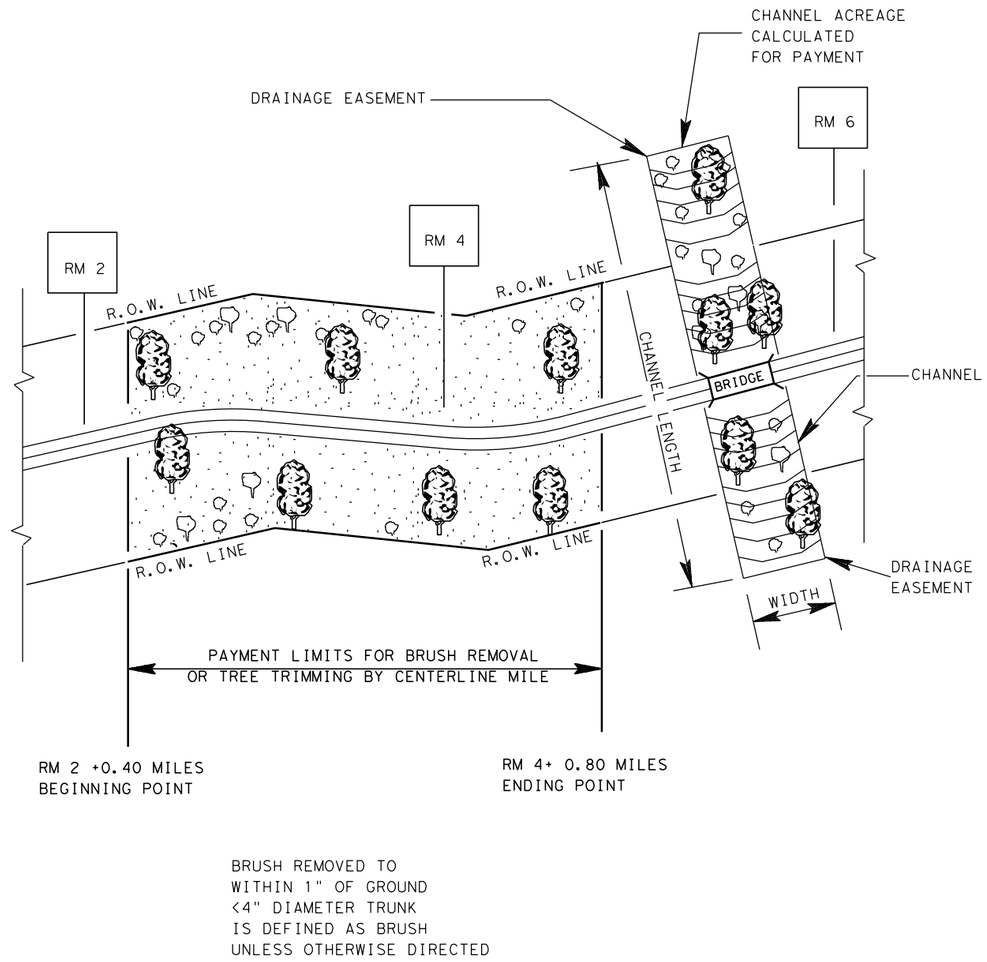
TREE AND BRUSH REMOVAL

TRB-15(1)

SHEET 1 OF 2

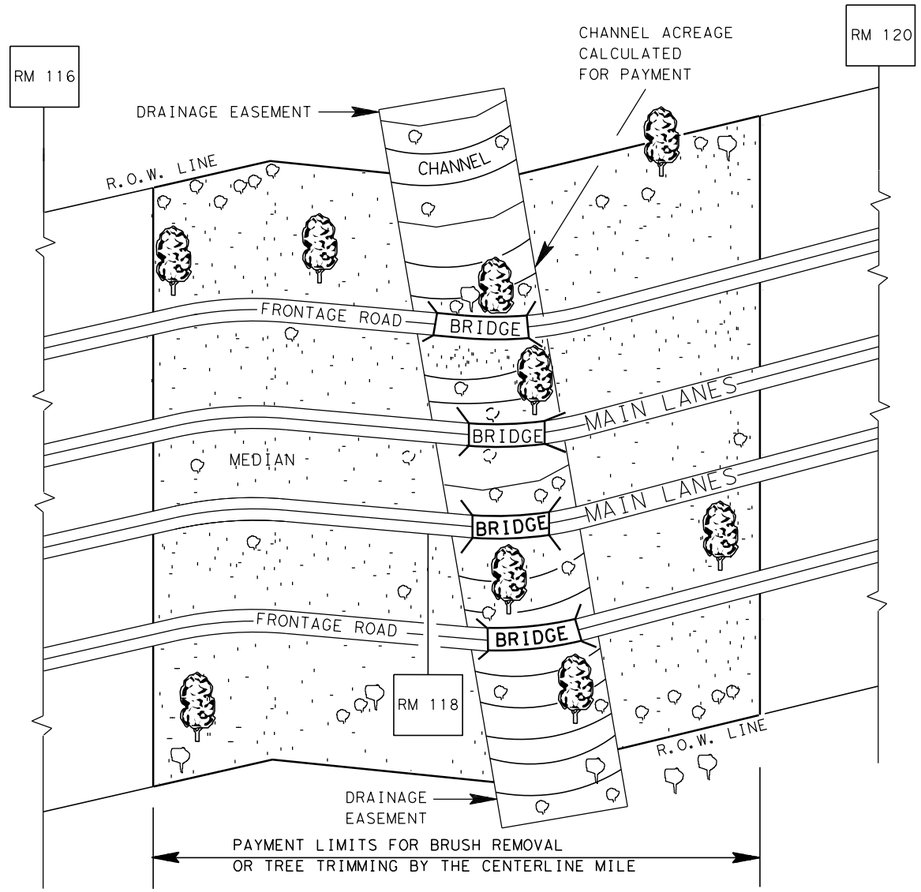
FILE:	DN: JEO	CK: LJB	DW: JEO	CK:
© TxDOT MARCH 2015	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
Revised table 1 to 2014 Specification	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		64

LEVELS DISPLAYED: 1



BRUSH REMOVED TO
WITHIN 1" OF GROUND
<4" DIAMETER TRUNK
IS DEFINED AS BRUSH
UNLESS OTHERWISE DIRECTED

EXAMPLE: UNDIVIDED HIGHWAY



BRUSH REMOVED TO
WITHIN 1" OF GROUND
<4" DIAMETER TRUNK
IS DEFINED AS BRUSH
UNLESS OTHERWISE DIRECTED

EXAMPLE: DIVIDED HIGHWAY WITH FRONTAGE ROADS

GENERAL NOTES:

TREE TRIMMING AND BRUSH REMOVAL

1. PAYMENT BY THE CENTERLINE MILE IS MADE TO THE NEAREST 1/100 (0.01) MILE.
2. LIMITS OF WORK ARE SHOWN AS DISTANCES FROM REFERENCE MARKERS (RM).
3. PAY ITEMS BY THE CENTERLINE MILE INCLUDE ALL TREE TRIMMING OR BRUSH REMOVAL IN THE RIGHT OF WAY ON BOTH SIDES OF THE HIGHWAY. FOR DIVIDED HIGHWAYS, THE MEDIAN IS INCLUDED. FOR HIGHWAYS WITH FRONTAGE ROADS, THE AREAS BETWEEN THE FRONTAGE ROADS AND MAIN LANES, AND THE AREAS OUTSIDE OF THE FRONTAGE ROADS ARE INCLUDED.
4. BRUSH REMOVAL AND TREE TRIMMING UNDER BRIDGES, IN AND ALONG CHANNELS AND EASEMENTS ARE PAID FOR BY THE ACRE FOR AREAS DESIGNATED ON THE PLANS.

Texas Department of Transportation
Maintenance Division
Standard Plans

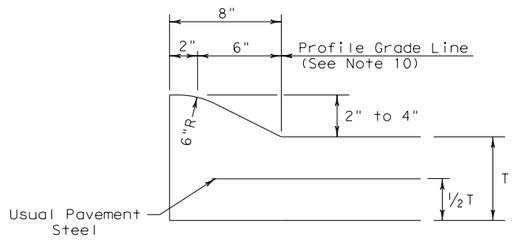
TREE AND BRUSH REMOVAL

TRB-15(2)

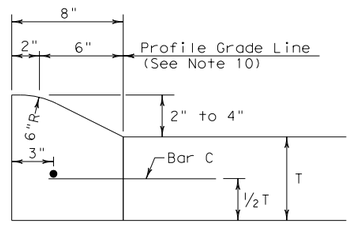
NOT TO SCALE — SHEET 2 OF 2

FILE: TRB-15(2).DGN	DRAWN: JEO MODIFIED:		CHECKED: DW: LJB	DW: -	CK: -		NEG NO.:	
© TxDOT APRIL 2015		STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT #				SHEET
REVISED: 5/13/2004	LJB	CRP		STP 2024 (774) TAPS				65
REVISED: 9/24/2004	LJB	COUNTY			CONTROL	SECTION	JOB	HIGHWAY
REVISED: APRIL 2015	JEO	LIVE OAK			0916	29	019	VA

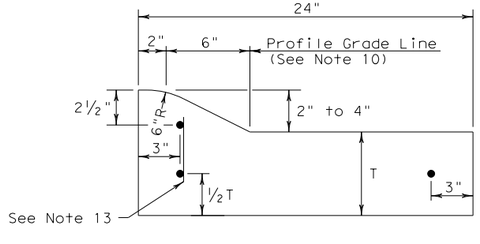
DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Roadway\cccg22.dgn



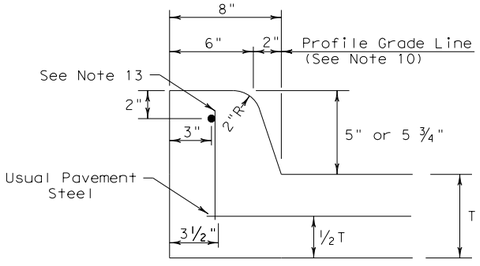
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



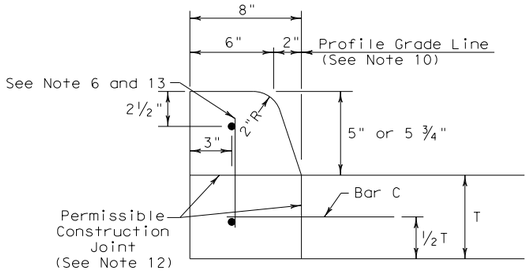
TYPE I CURB
2" - 4" HEIGHT



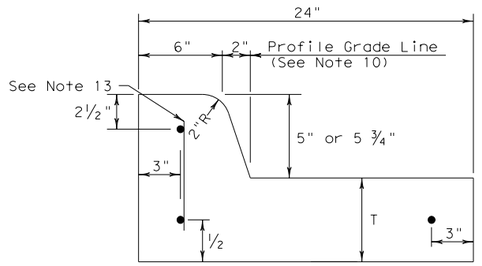
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



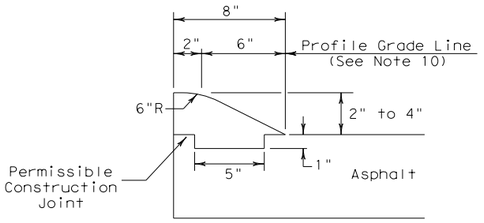
TYPE II CURB (MONOLITHIC)
5" - 5 ¾" HEIGHT



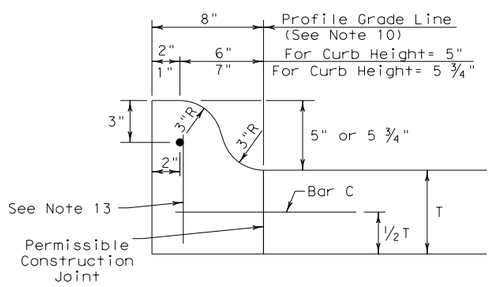
TYPE II CURB
5" - 5 ¾" HEIGHT



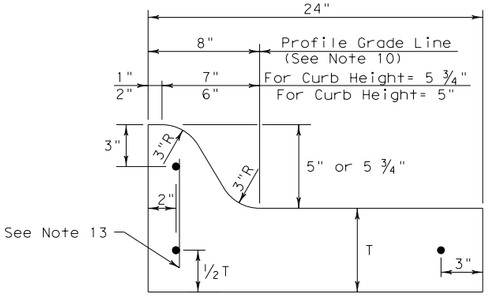
TYPE II CURB AND GUTTER
5" - 5 ¾" HEIGHT



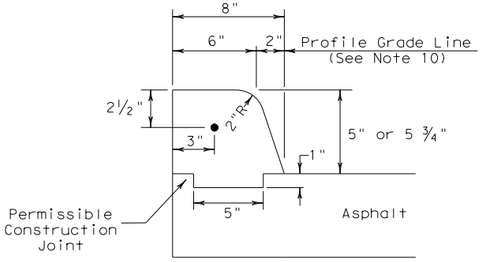
TYPE III CURB (KEYED)
2" - 4" HEIGHT



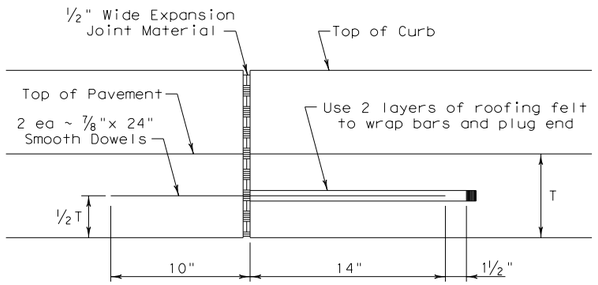
TYPE IIa CURB
5" - 5 ¾" HEIGHT



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

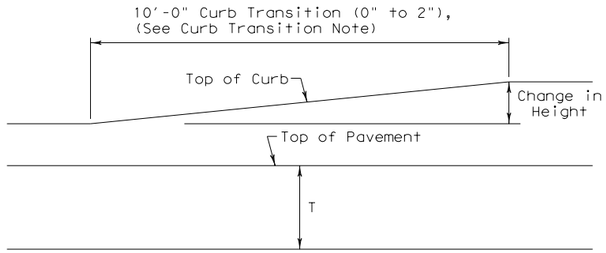


TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

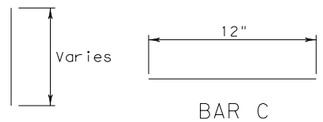
CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



CURB TRANSITION
Note: To be paid for as Highest Curb

GENERAL NOTES

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



BAR B

BAR C

Texas Department of Transportation

Design Division Standard

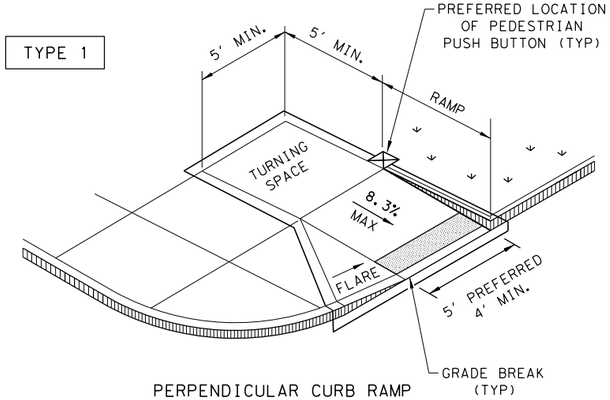
CONCRETE CURB AND CURB AND GUTTER

CCCG-22

FILE: cccg22.dgn	DN: TXDOT	CK: AN	DW: CS	CK: KM
© TxDOT: JUNE 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		66

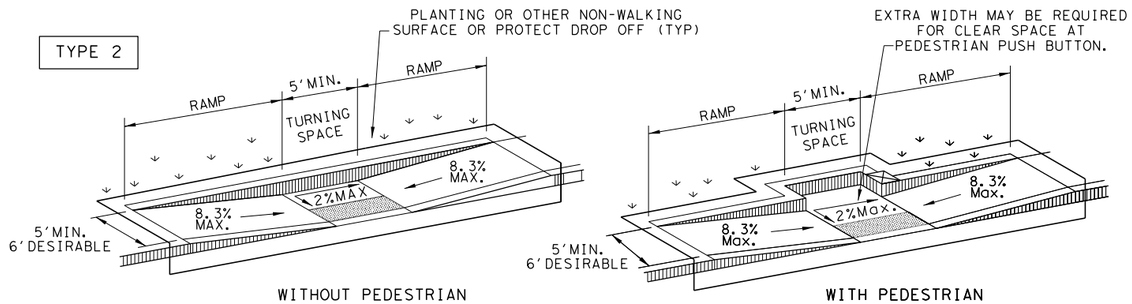
DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Roadway\ped18.dgn

TYPE 1



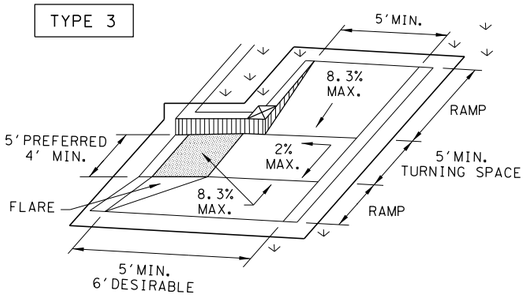
PERPENDICULAR CURB RAMP

TYPE 2

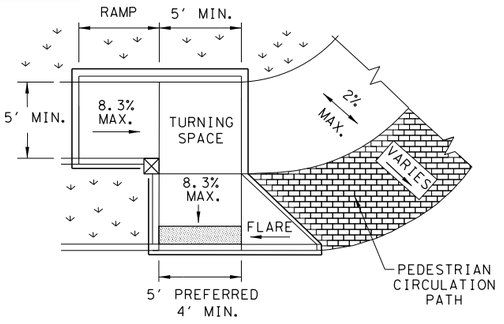


PARALLEL CURB RAMP

TYPE 3

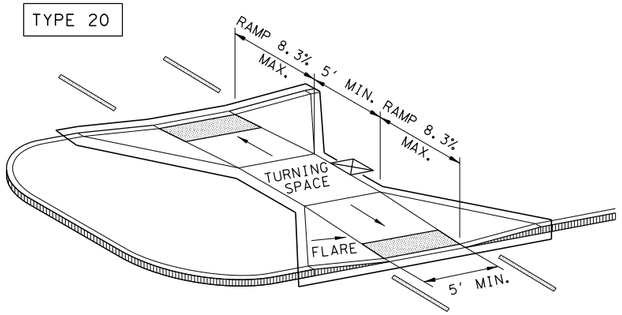


TYPE 6



COMBINATION CURB RAMPS

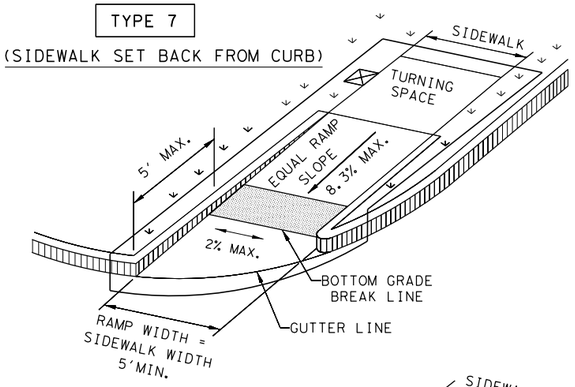
TYPE 20



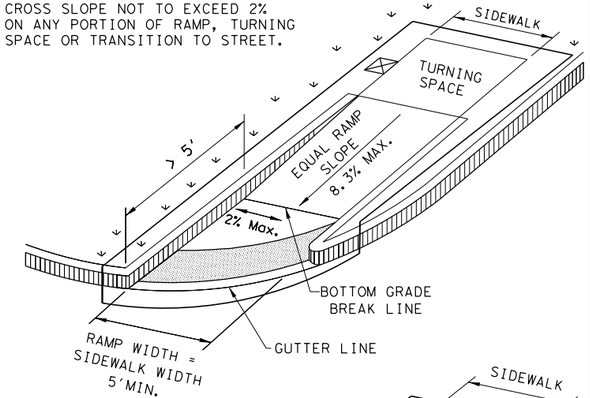
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

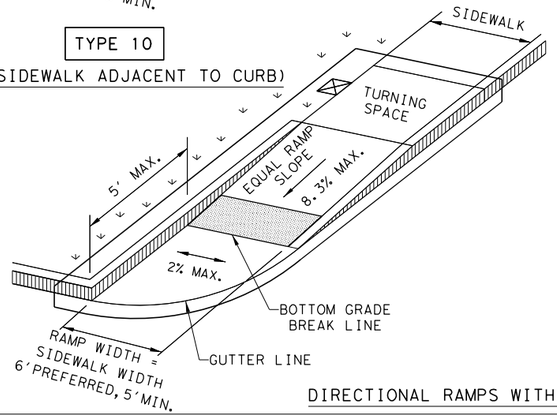


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

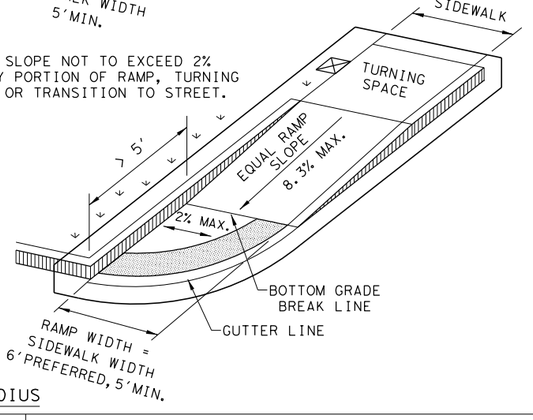


TYPE 10

(SIDEWALK ADJACENT TO CURB)

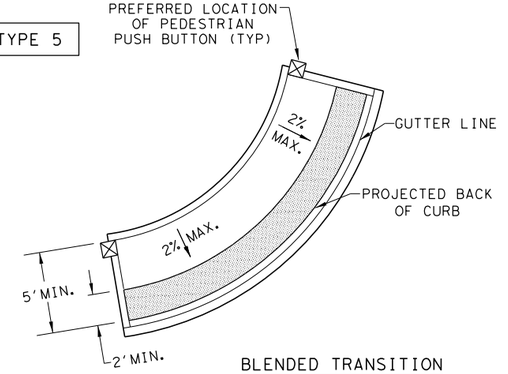


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

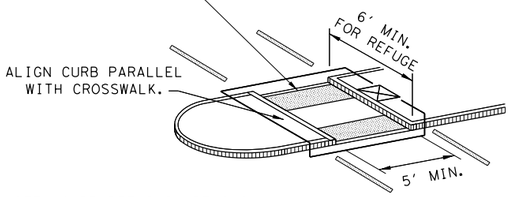
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

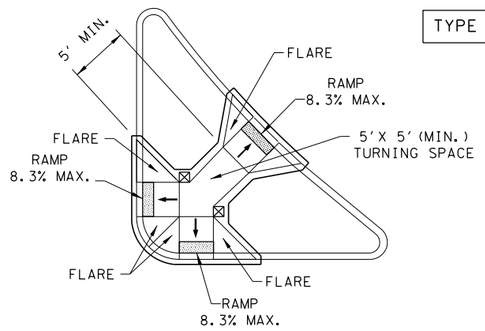
TYPE 21

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.



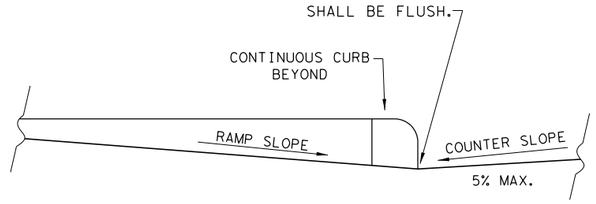
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

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	0916	29	019	VA
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		67

DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Roadway\ped18.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 applicalble standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

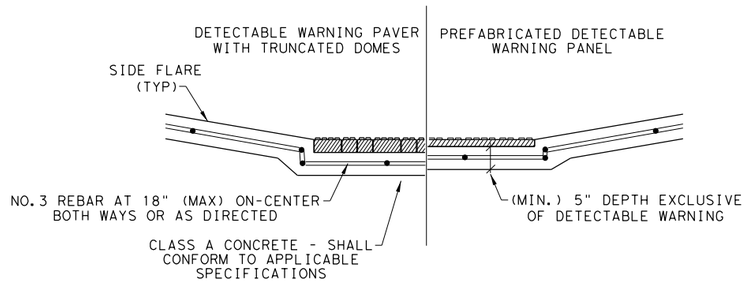
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material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

DETECTABLE WARNING PAVERS (IF USED)

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

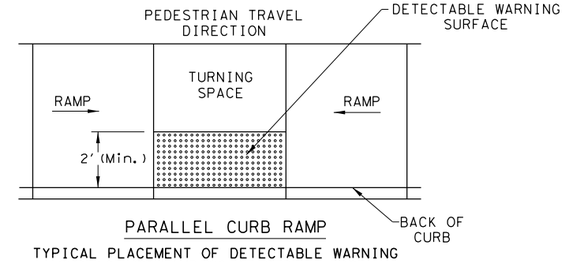
SIDEWALKS

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



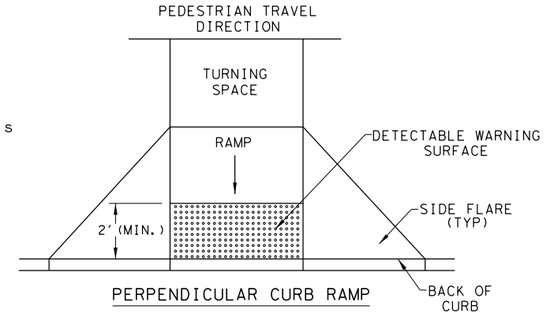
SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

DETECTABLE WARNING SURFACE DETAILS



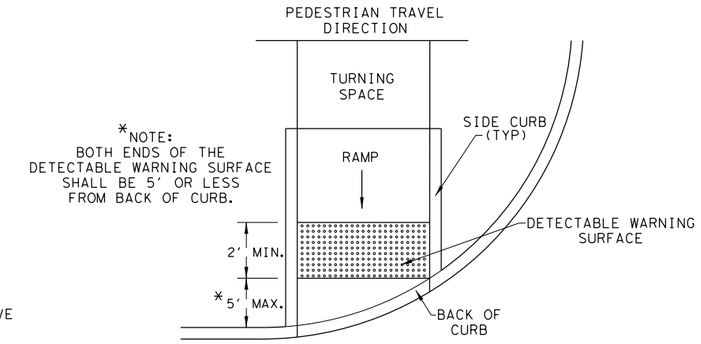
PARALLEL CURB RAMP

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



PERPENDICULAR CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



DIRECTIONAL CURB RAMP

TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

Texas Department of Transportation | Design Division Standard

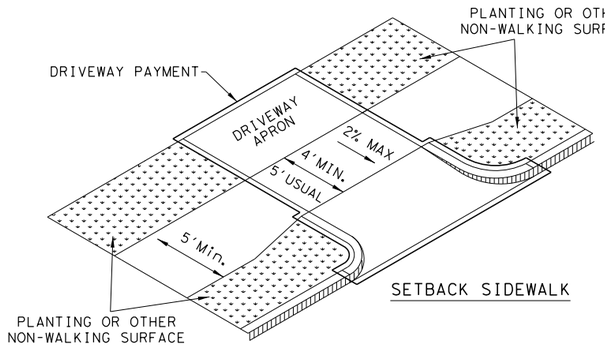
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

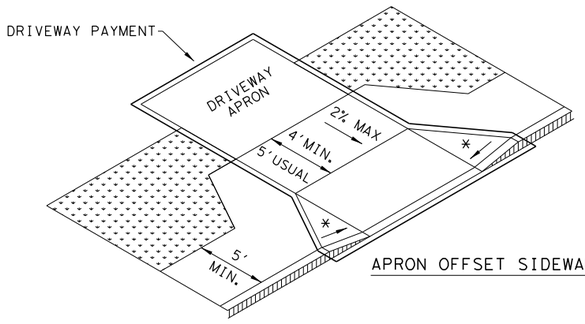
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0916	29	019		VA
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY			SHEET NO.
	CRP	LIVE OAK			68

DATE: 5/23/2024
FILE: S:\projects\612554\06\Design\01_CRP_3 Rivers\Civil\Standards\Roadway\ped18.dgn

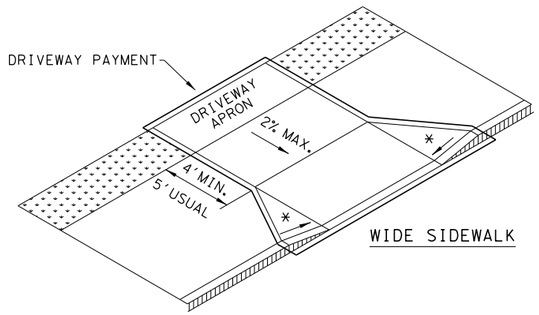
SIDEWALK TREATMENT AT DRIVEWAYS



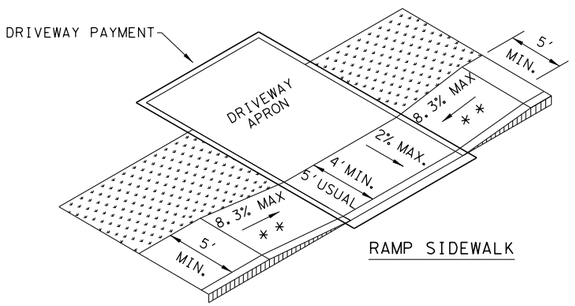
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

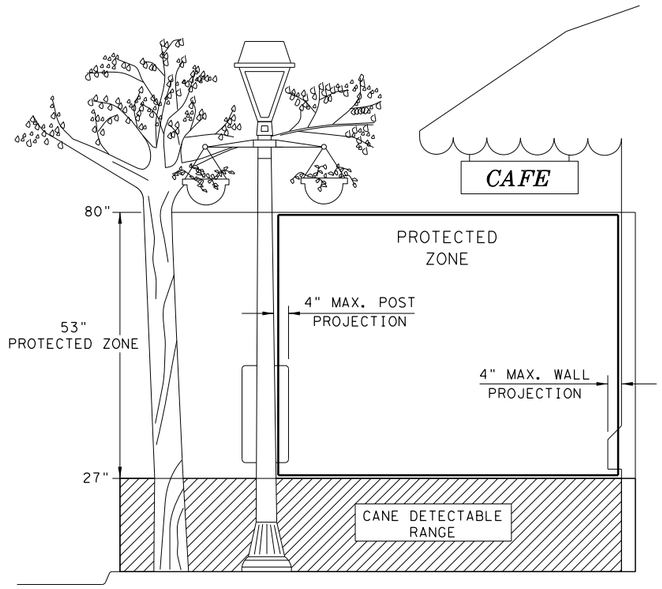


RAMP SIDEWALK

NOTES:

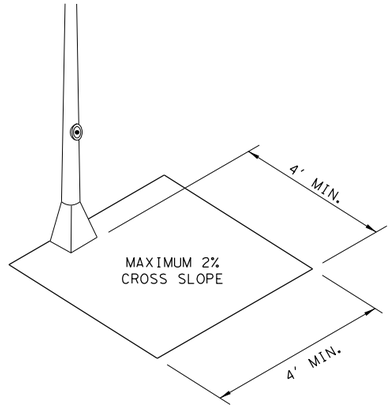
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

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

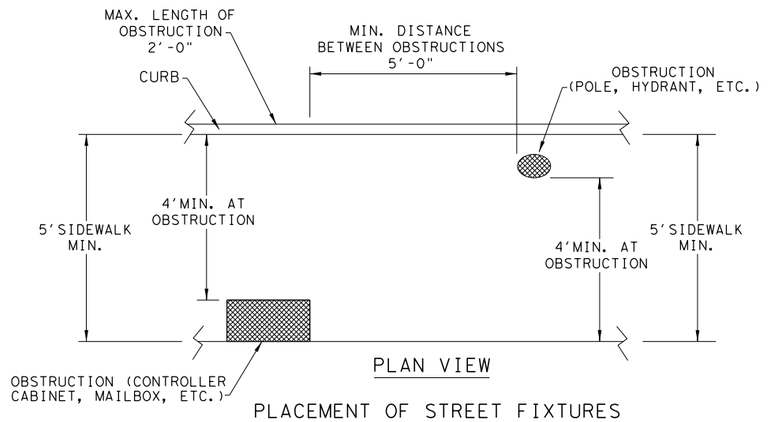


PROTECTED ZONE

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



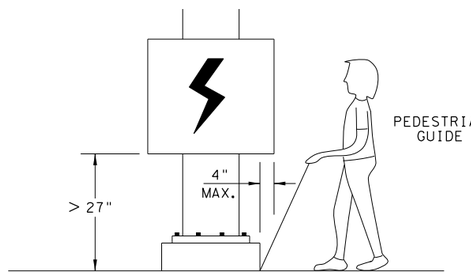
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



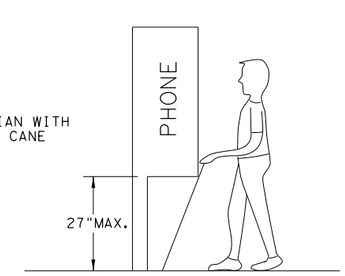
PLAN VIEW

PLACEMENT OF STREET FIXTURES

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



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



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

DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

Texas Department of Transportation

Design Division Standard

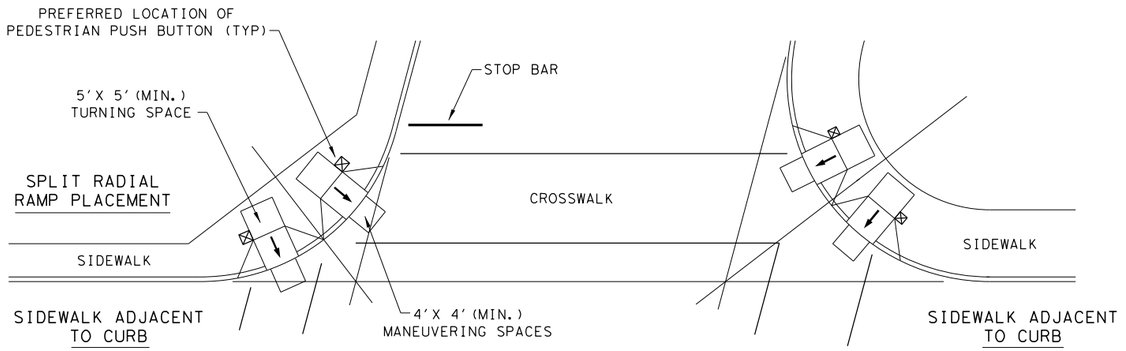
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

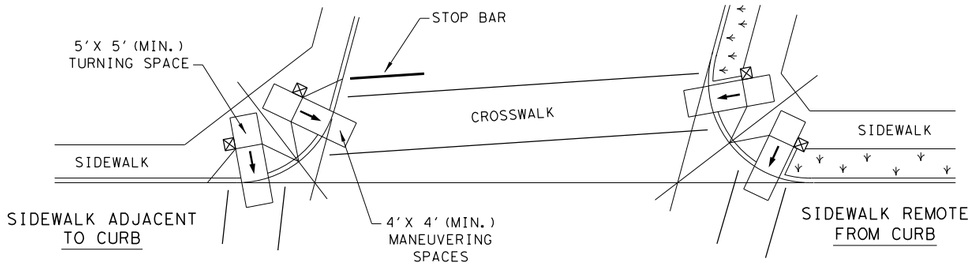
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0916	29	019		VA
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY			SHEET NO.
	CRP	LIVE OAK			69

DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Roadway\ped18.dgn

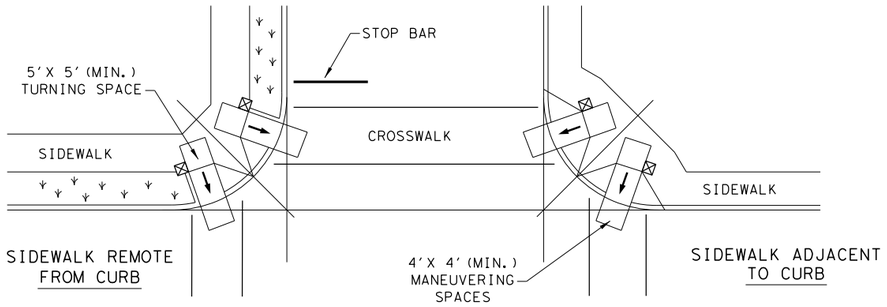
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



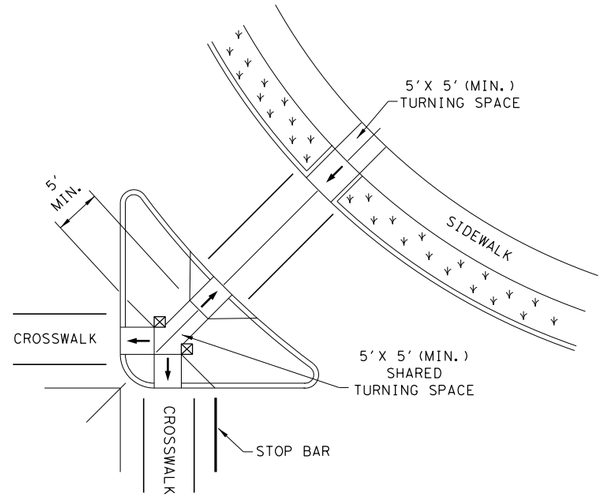
SKEWED INTERSECTION WITH "LARGE" RADIUS



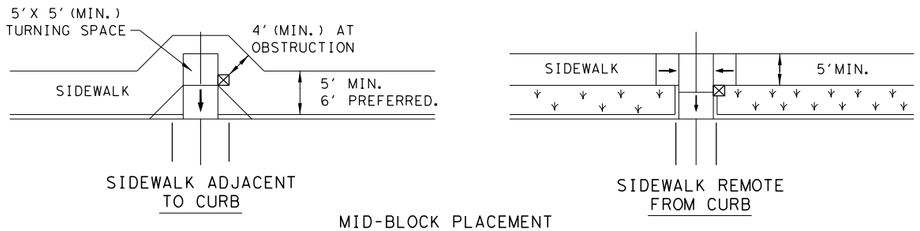
SKEWED INTERSECTION WITH "SMALL" RADIUS



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.

SHEET 4 OF 4

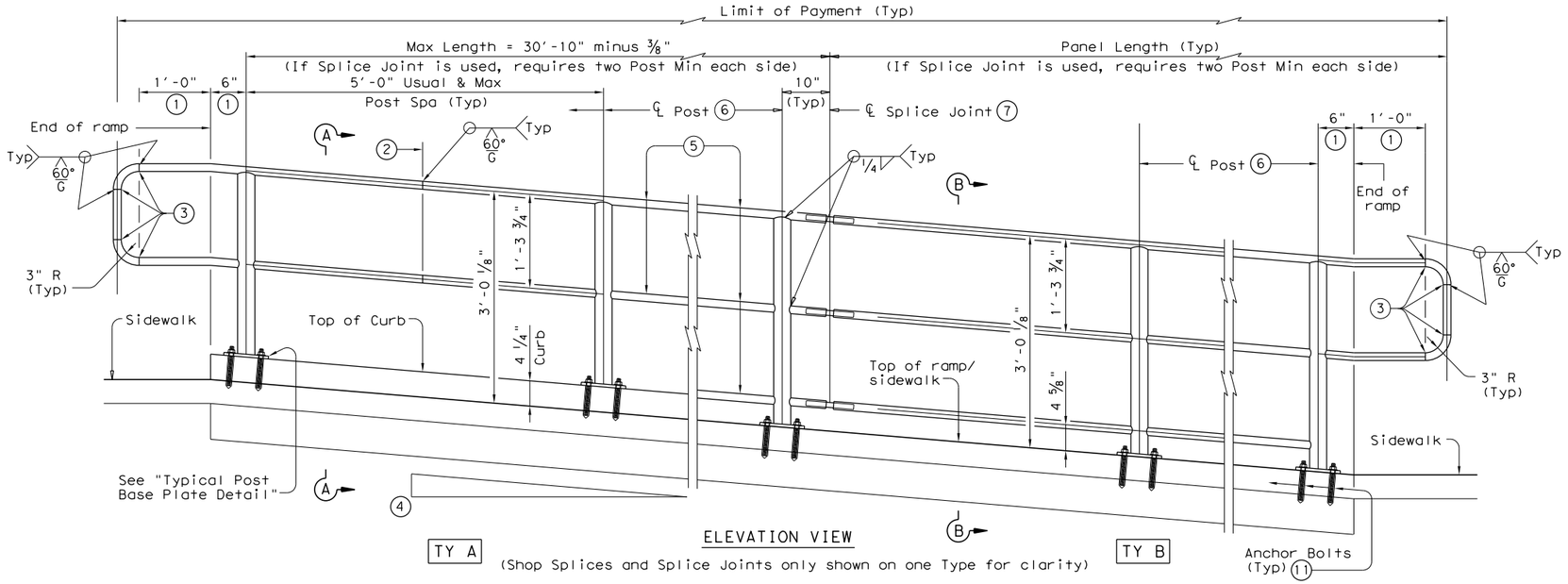
Texas Department of Transportation | Design Division Standard

PEDESTRIAN FACILITIES
CURB RAMPS

PED-18

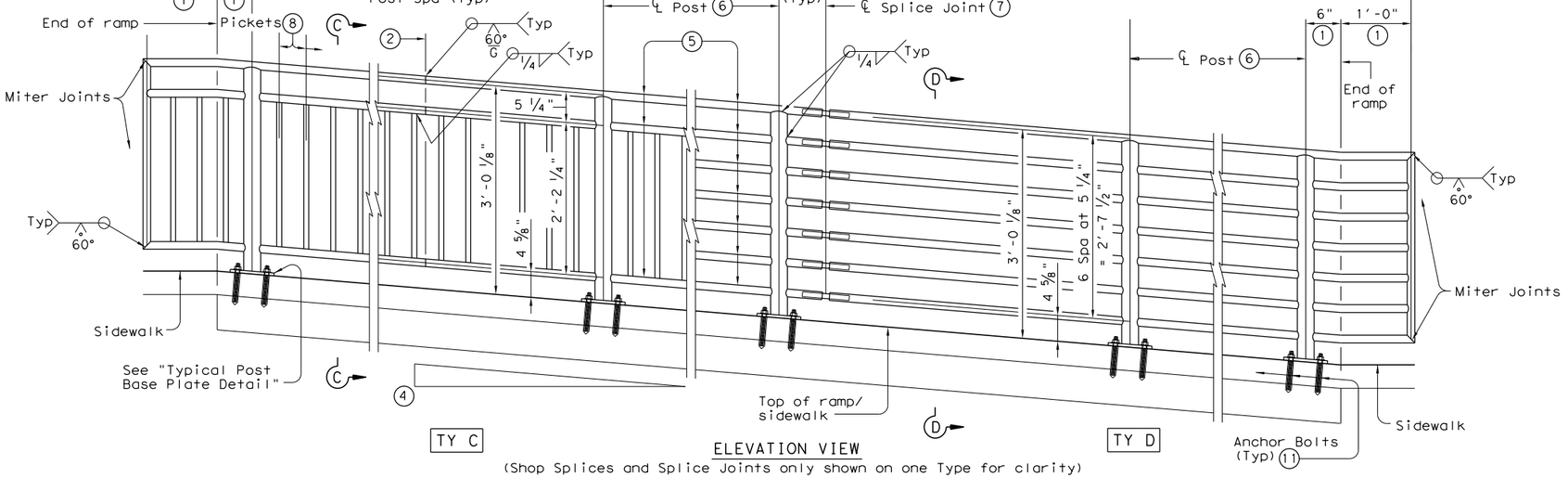
FILE: ped18	DN: TxDOT		DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB		HIGHWAY
REVISIONS	0916	29	019		VA
REVISED 08, 2005 REVISED 06, 2012 REVISED 01, 2018	DIST	COUNTY			SHEET NO.
	CRP	LIVE OAK			70

DATE: 5/23/2024
FILE: S:\projects\6121\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Roadway\prd13.dgn



ELEVATION VIEW

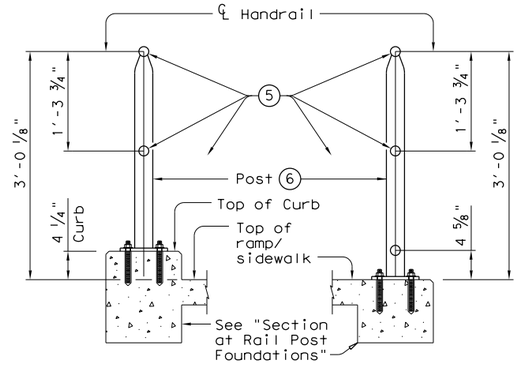
(Shop Splices and Splice Joints only shown on one Type for clarity)



ELEVATION VIEW

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

RECOMMENDED USAGE ⑨⑩	
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

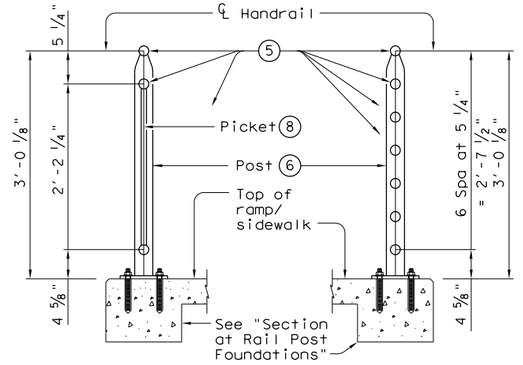


SECTION A-A

(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

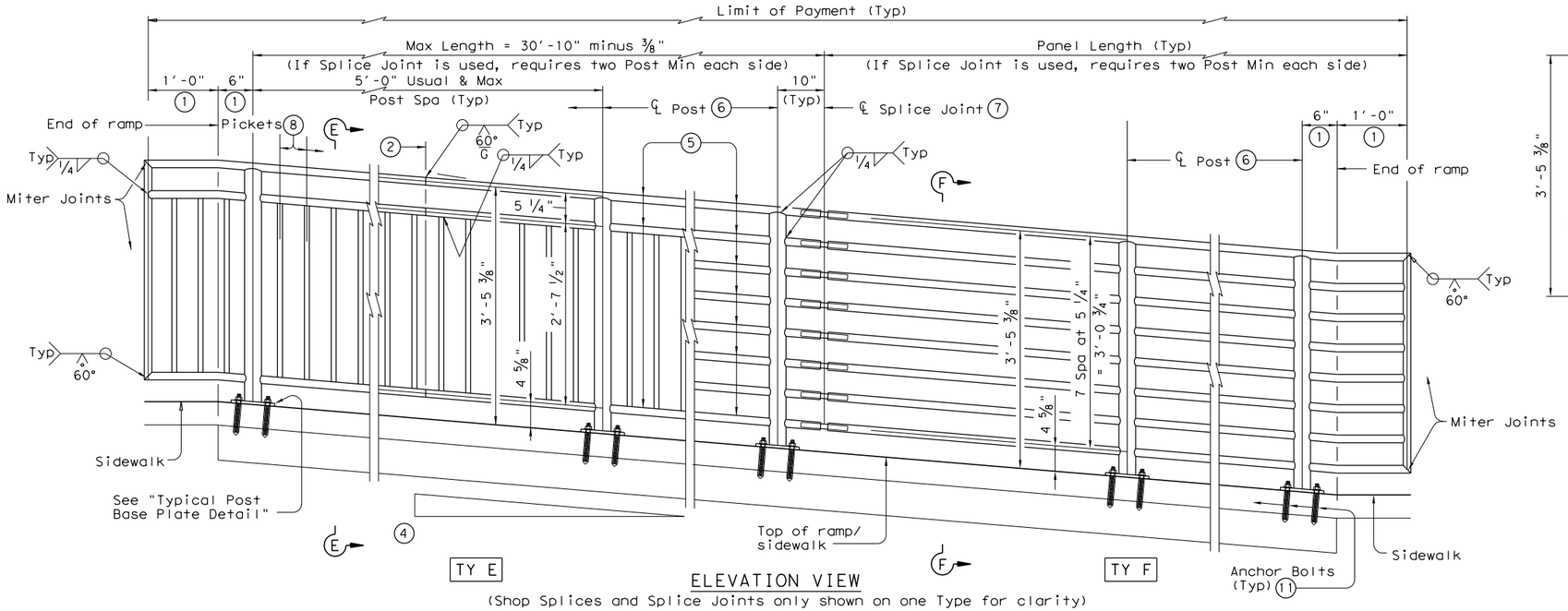
Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

PRD-13

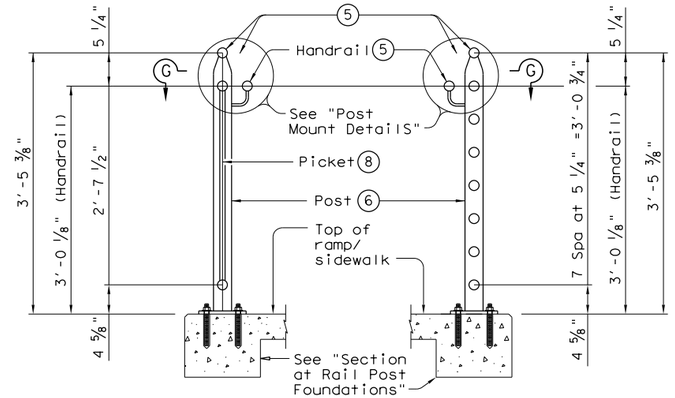
FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT Decmeber 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS REVISED MAY, 2013 (VP)	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		71

DATE: 5/23/2024
FILE: S:\Projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Roadway\prd13.dgn



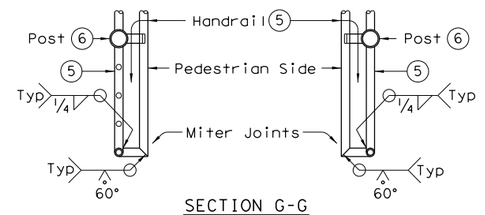
ELEVATION VIEW

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

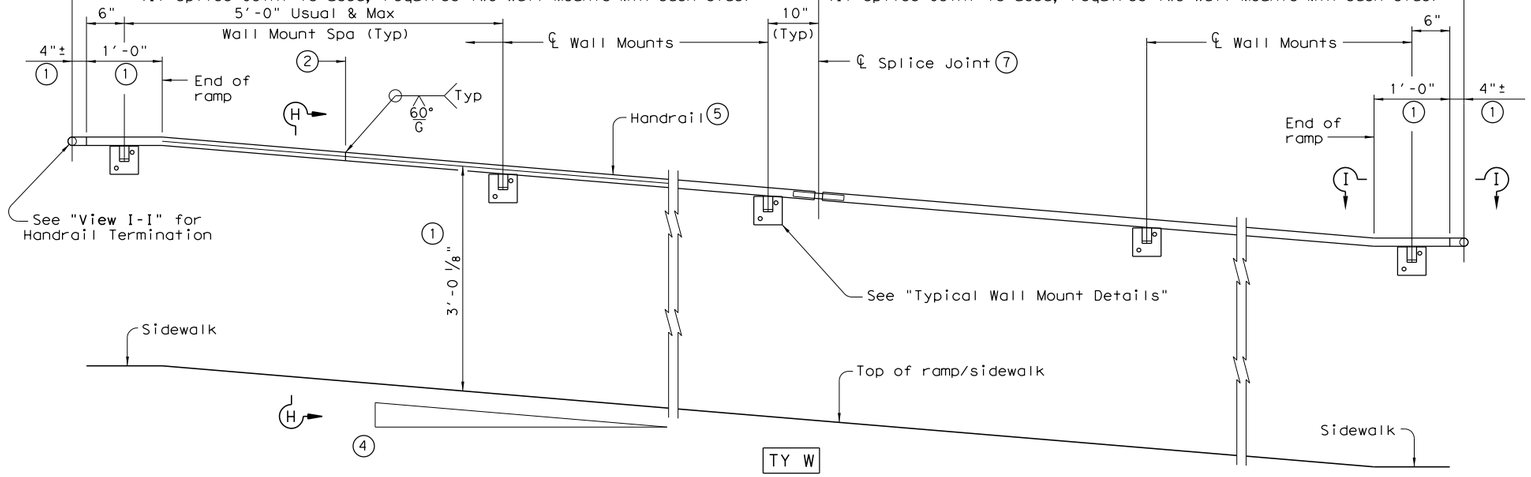


SECTION E-E
(Showing Handrail TY E)

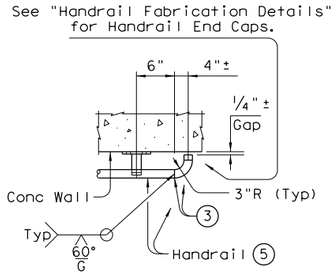
SECTION F-F
(Showing Handrail TY F)



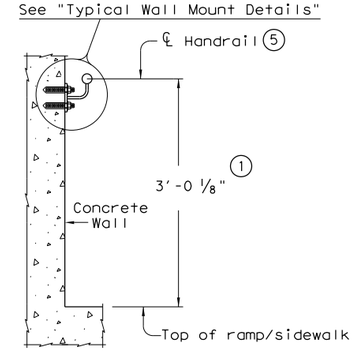
SECTION G-G
(Showing Handrail Termination)



ELEVATION VIEW



VIEW I-I
(Showing Handrail Termination)



SECTION H-H
(Showing Handrail TY W)

1. Parallel to ground.
2. One shop splice per panel is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
3. Shop splice is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
4. See Ramp Details located elsewhere in plans for ramp slope and dimensions. Maximum ramp slope will not exceed 8.3 percent. Level landing required for each 30" rise if grade exceeds 5 percent.
5. 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp / sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.
6. 2 ½" Dia. Standard Pipe (2.875" O.D., 0.203" wall thickness). See "Post Mount Detail" for crimping and trimming post to fit Dia. of top rail. Provide holes as needed in post for galvanizing drainage and venting. Plumb all posts.
7. See "Handrail Fabrication Details" for Splice Joints.
8. ℄ 5/8" Dia. Round Bar equal spacing at 4 ½" Max. Plumb all pickets.
11. See "General Notes" for anchor bolt information.

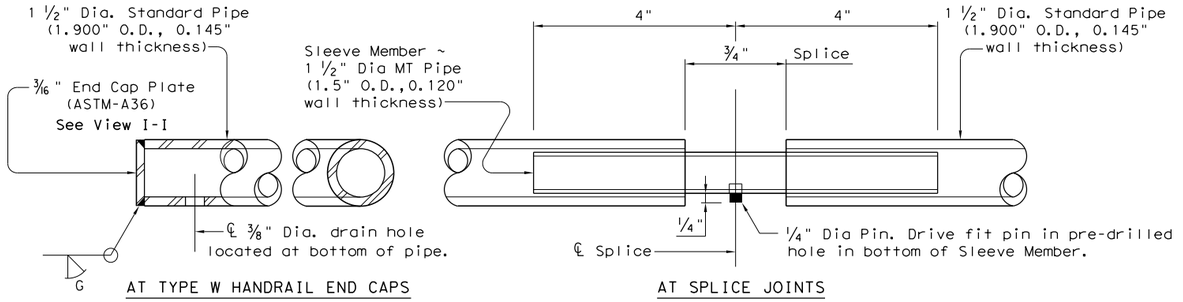
Texas Department of Transportation | Design Division Standard

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)	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		72

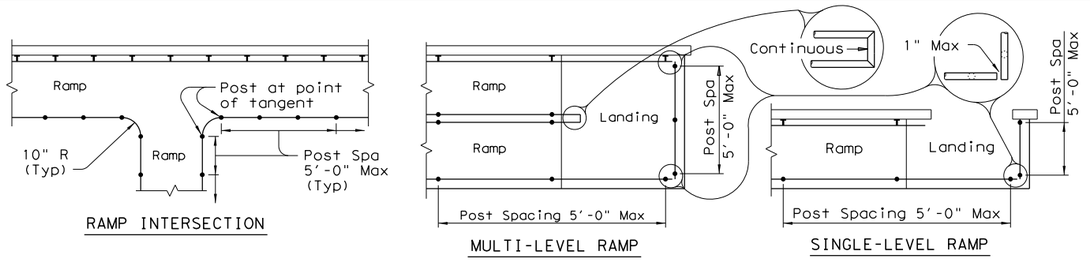
DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Roadway\prd13.dgn



AT TYPE W HANDRAIL END CAPS

AT SPLICE JOINTS

HANDRAIL FABRICATION DETAILS

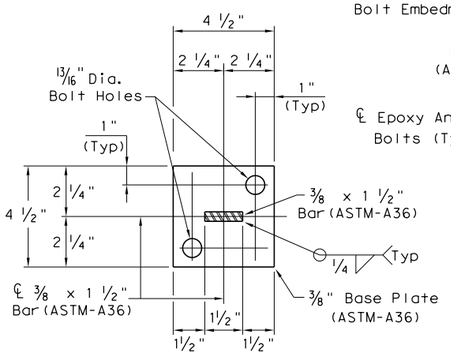


RAMP INTERSECTION

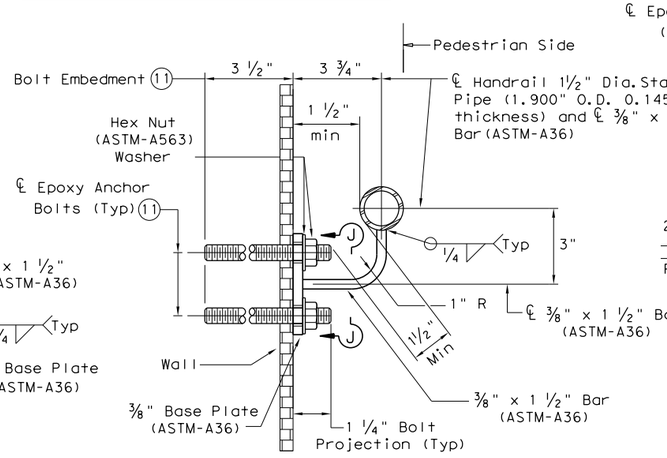
MULTI-LEVEL RAMP

SINGLE-LEVEL RAMP

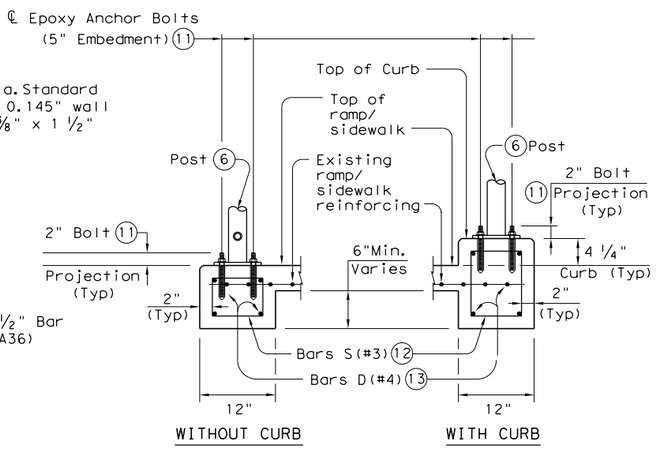
PLAN SHOWING RAIL AT RAMP CONDITIONS



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



SECTION AT WALL MOUNT



SECTION AT RAIL POST FOUNDATIONS

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TYPICAL WALL MOUNT DETAILS

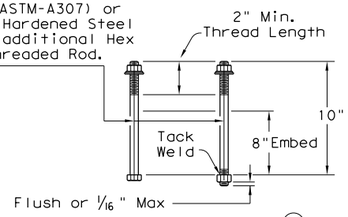
(5) 1 ½" Dia. Standard Pipe (1.900" O.D., 0.145" wall thickness). Parallel to ramp/sidewalk. Provide holes as needed in 1 ½" Dia. pipe for galvanizing drainage and venting.

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

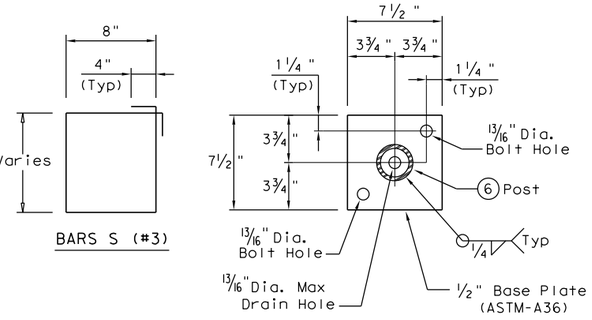
(11) See "General Notes" for anchor bolt information.

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

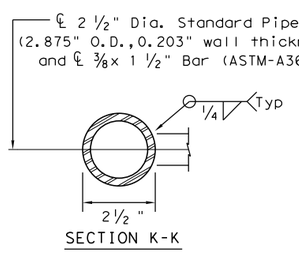
(13) Provide 1 ½" end cover to Bars D(#4) from outside edge of overall length of Ramp/Sidewalk.



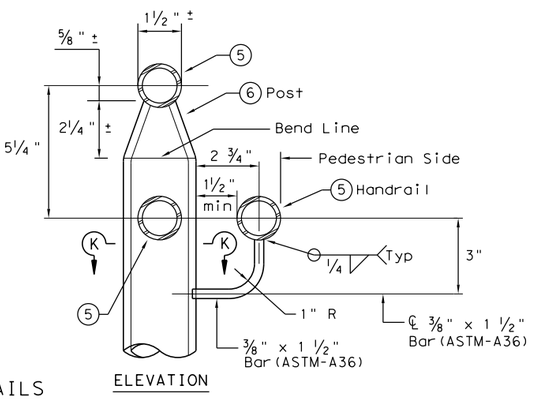
CAST-IN-PLACE ANCHOR BOLT OPTIONS
(Used for Post Base Plate only)



TYPICAL POST BASE PLATE DETAIL



SECTION K-K



ELEVATION

POST MOUNT DETAILS

SHEET 3 OF 3

Texas Department of Transportation

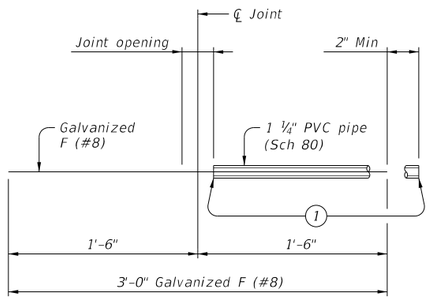
Design Division Standard

PEDESTRIAN HANDRAIL DETAILS

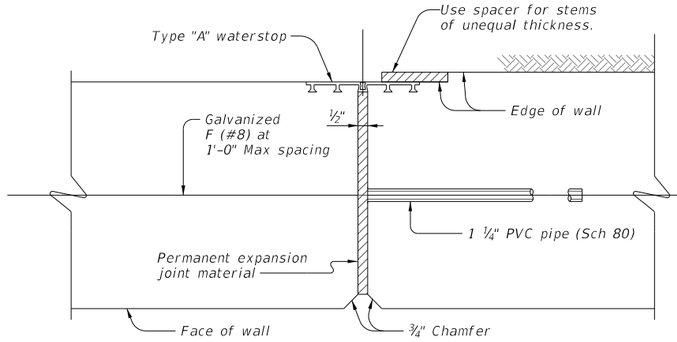
PRD-13

FILE: prd13.dgn	DN: TxDOT	CK: AM	DW: JTR	CK: CGL
©TxDOT December 2006	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
REVISED MAY, 2013 (VP)	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		73

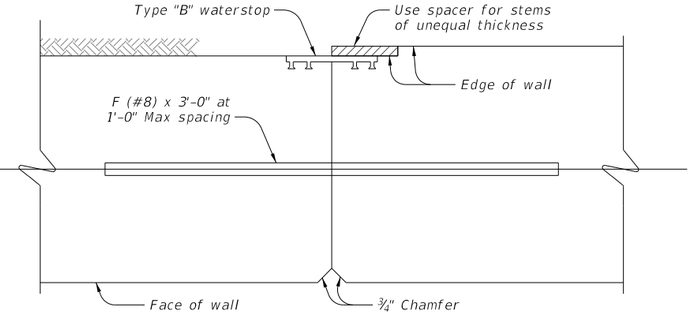
DATE: 5/23/2024 11:32:37 AM
FILE: S:\Projects\612154\06\Design\01_CRP_3 Rivers\Civil\Standards\Retaining Walls\RW-SF-22.dgn



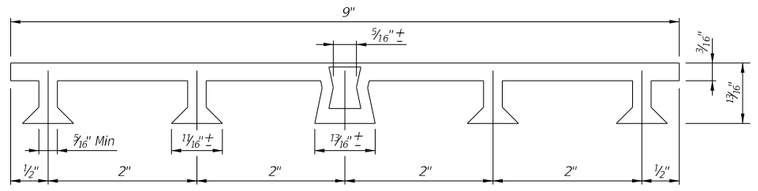
BAR F (#8) ASSEMBLY DETAIL



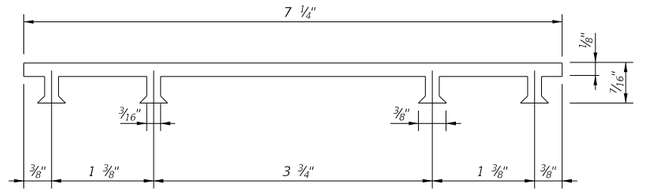
EXPANSION JOINT



CONSTRUCTION JOINT



PVC WATERSTOP TYPE "A"



PVC WATERSTOP TYPE "B"

Note: Dimensions and shapes may vary slightly depending on manufacturer.

(1) Tape ends of 1 ¼" PVC Schedule 80 to prevent concrete or mortar from seeping in.

(2) Class C unreinforced concrete when difference in top of footing elevations is less than 2 feet. Omit when Dowel Bars F can be placed between adjacent footings with 4-inch cover top and bottom. Footing elevation difference not to exceed 4 feet.

(3) Underdrain pipe to be in accordance with Item 556, "Pipe Underdrains."

MATERIAL NOTES:

Provide Class C concrete (f'c=3,600 psi.)
Provide Grade 60 reinforcing steel.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

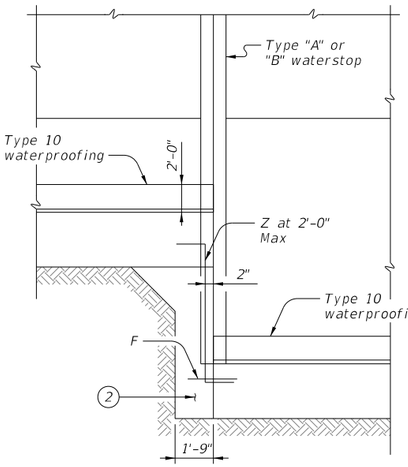
Walls are designed assuming unit weight of soil = 120 pcf and a friction angle = 30 degrees for foundation and retained soil.

The undisturbed or compacted soil depth in front of walls must not measure less than Kd + Ft + 1 foot as measured upwards from bottom of key.

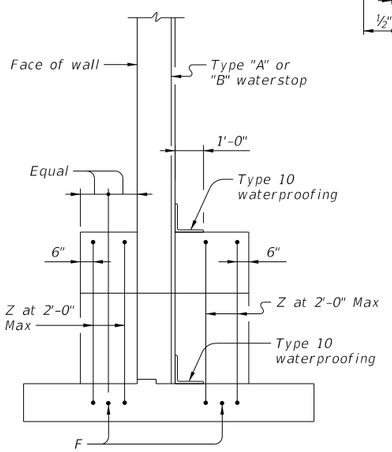
Retaining walls are detailed to be placed on grades up to 10% with level footing, with no changes in reinforcing steel. Steeper grades can be accommodated by shortening Bars A and Bars B and increasing the length of legs of Bars U by the same amount. No change in quantities will be required.

Retaining walls may be placed on horizontal curves by adjusting lengths of Bars T and Bars H in the footing. Minor revisions to concrete quantities may be required as a result.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

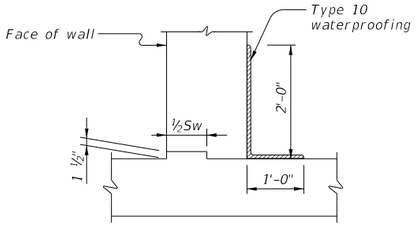


PARTIAL ELEVATION

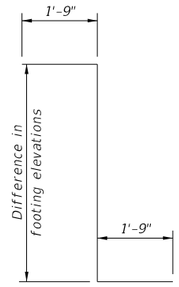


PARTIAL SECTION

SHOWING WATERSTOP AT FOOTING ELEVATION TRANSITION



JOINT AND WATERSTOP DETAILS



BARS Z (#5)

(Omit Bars Z when difference in top of footing elevations is less than 2 ft).

DRAINAGE DETAILS AND EXCAVATION DIAGRAM

Note A: Stop coarse aggregate at this level when weep holes are used.

Note B: Use coarse aggregate to here when underdrains are used.

Texas Department of Transportation

Bridge Division Standard

SPREAD FOOTING RETAINING WALL MISCELLANEOUS DETAILS

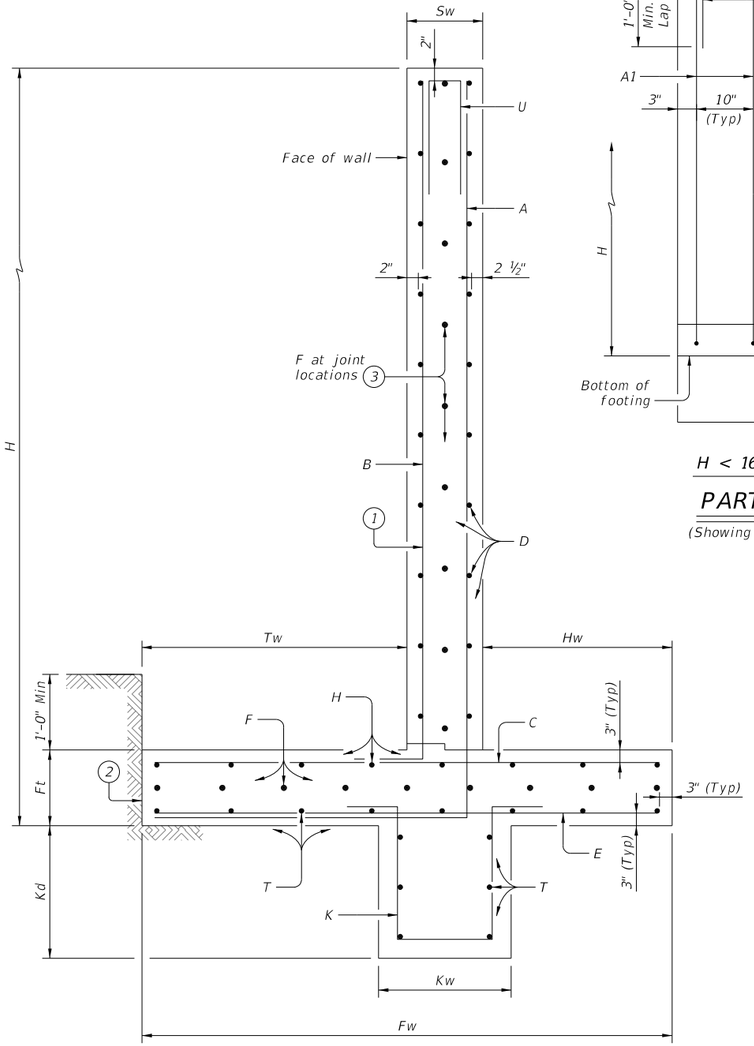
RW(SF)

FILE: RW-SF-22.dgn	DN: TAR	CK: RLE	DW: JER	CK: TAR
©TxDOT June 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
8-22: Updated underdrain requirements.	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		74

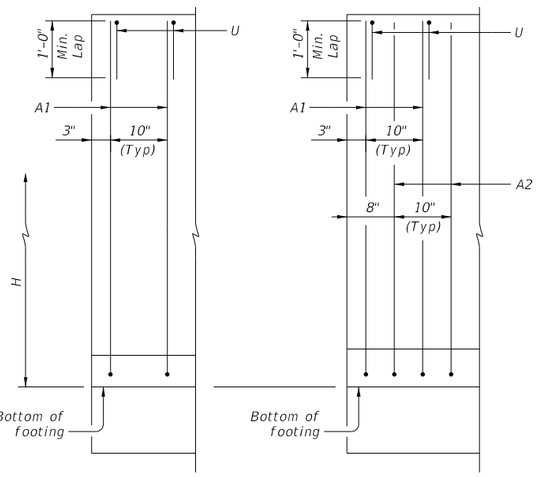
DATE: 5/23/2024 11:32:39 AM
FILE: S:\Projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Retaining Walls\RW-SFA-22.dgn

PROPERTIES / REINFORCING STEEL FOR ONE 32' PANEL (DESIGN A)

Wall Height "H"	WALL DIMENSIONS							MAX SOIL PRESS	Bars A1					Bars A2					Bars B					Bars C					Bars E					Bars K					D (#5) at 12" Max.		Dowel F at 12" Max.		H (#5) at 12" Max.		T (#5) at 12" Max.		U ~ 39 #5 at 10" Max.		QUANTITY FOR ONE 32' PANEL		Wall Height "H"
(Ft)	Fw	Tw	Sw	Hw	Ft	Kw	Kd	T/SF	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	Length	Weight	Conc (CY)	REINF (LB)	(Ft)
2	1'-4"	0'-4"	1'-0"	0'-0"	0'-9"	0'-9"	0'-9"	0.164	39	#4	10"	2'-6"	66						39	#4	10"	2'-2"	57												39	#4	10"	3'-1"	81	6	198	5	41	2	66	2	66	2'-5"	99	3.4	674	2
4	2'-5"	0'-8"	1'-0"	0'-9"	1'-0"	0'-9"	0'-9"	0.287	39	#4	10"	4'-10"	126						39	#4	10"	3'-11"	103	39	#4	10"	1'-11"	50	39	#4	10"	1'-11"	50	39	#4	10"	3'-1"	81	8	263	7	57	3	99	3	99	6'-0"	245	7.1	1173	4
6	3'-6"	1'-2"	1'-0"	1'-4"	1'-0"	0'-9"	0'-9"	0.373	39	#4	10"	7'-4"	192						39	#4	10"	5'-11"	155	39	#4	10"	3'-0"	79	39	#4	10"	3'-0"	79	39	#4	10"	3'-1"	81	12	395	10	81	4	132	4	132	8'-5"	343	10.8	1669	6
8	5'-1"	1'-9"	1'-0"	2'-4"	1'-0"	0'-9"	0'-9"	0.425	39	#4	10"	9'-11"	259						39	#4	10"	7'-11"	207	39	#4	10"	4'-7"	120	39	#4	10"	4'-7"	120	39	#4	10"	3'-1"	81	16	526	14	113	6	198	6	198	8'-5"	343	15.0	2165	8
10	6'-7"	2'-3"	1'-0"	3'-4"	1'-2"	1'-0"	1'-0"	0.513	39	#4	10"	12'-5"	324						39	#4	10"	9'-9"	255	39	#4	10"	6'-1"	159	39	#4	10"	6'-1"	159	39	#4	10"	3'-10"	100	20	658	18	145	8	263	8	263	8'-5"	343	20.8	2669	10
12	8'-4"	2'-10"	1'-1"	4'-5"	1'-4"	1'-3"	1'-3"	0.589	39	#5	10"	15'-1"	614						39	#4	10"	11'-7"	302	39	#5	10"	7'-10"	319	39	#4	10"	7'-10"	205	39	#4	10"	4'-7"	120	24	789	21	169	9	296	9	296	8'-6"	346	28.8	3456	12
14	9'-11"	3'-5"	1'-2"	5'-4"	1'-7"	1'-6"	1'-6"	0.674	39	#6	10"	17'-9"	1040						39	#4	10"	13'-4"	348	39	#6	10"	9'-5"	553	39	#4	10"	9'-5"	246	39	#4	10"	5'-4"	139	28	920	25	201	11	362	11	362	8'-7"	350	38.5	4521	14
16	11'-5"	4'-0"	1'-3"	6'-2"	1'-9"	1'-9"	1'-9"	0.756	39	#6	10"	20'-5"	1196	39	#4	10"	20'-5"	532	39	#4	10"	15'-2"	396	39	#6	10"	10'-11"	640	39	#4	10"	10'-11"	285	39	#4	10"	6'-1"	159	32	1052	28	225	12	395	12	395	8'-8"	353	48.5	5628	16
18	12'-8"	4'-7"	1'-4"	6'-9"	1'-9"	2'-0"	2'-0"	0.830	39	#6	10"	23'-1"	1353	39	#5	10"	23'-1"	939	39	#4	10"	17'-2"	448	39	#7	10"	12'-2"	971	39	#4	10"	12'-2"	318	39	#4	10"	6'-10"	179	36	1183	32	257	14	460	14	460	8'-9"	356	56.7	6924	18
20	14'-4"	5'-2"	1'-6"	7'-8"	2'-0"	2'-0"	2'-0"	0.910	39	#6	10"	25'-10"	1514	39	#6	10"	25'-10"	1514	39	#4	10"	18'-11"	493	39	#7	10"	13'-10"	1103	39	#4	10"	13'-10"	361	39	#4	10"	6'-10"	179	38	1249	34	273	15	493	15	493	8'-11"	363	70.8	8035	20



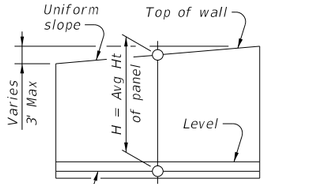
SECTION



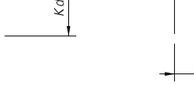
H < 16' H ≥ 16'

PARTIAL WALL ELEVATIONS

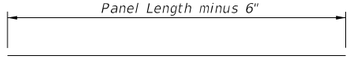
(Showing vertical reinforcing pattern in back face.)



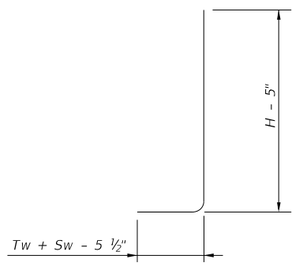
H DEFINITION



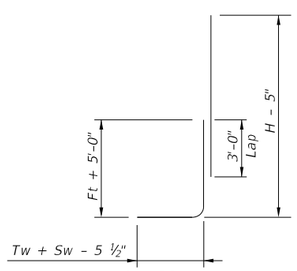
BARS F (3)



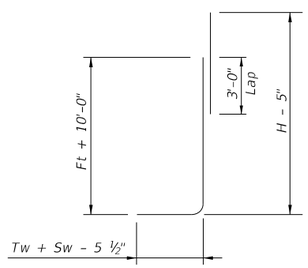
BARS D, H, and T



BARS A1 & A2

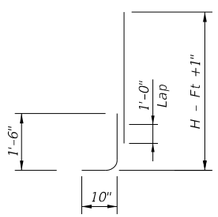


OPTIONAL BARS A1 (4)

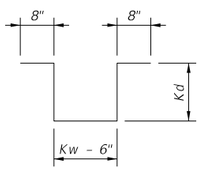


OPTIONAL BARS A2 (4)

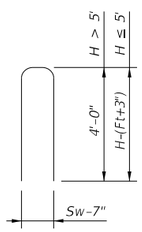
BARS B



OPTIONAL BARS B (4)



BARS K



BARS U

(1) Place vertical bars inside of horizontal bars (Typical both faces).
(2) Place footing toe against undisturbed soil.
(3) See Retaining Wall Miscellaneous Details (RW(SF)) standard for size.
(4) Optional bars splices not included in above table.

MATERIAL NOTES:

Provide Class C concrete (f'c=3,600 psi.)
Provide Grade 60 reinforcing steel.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Walls are designed assuming unit weight of soil = 120 pcf and a friction angle = 30 degrees for foundation and retained soil.
See Retaining Wall Miscellaneous Details (RW(SF)) standard for details and notes not shown.
These details provide designs for wall heights of 2 to 20 feet. For heights not shown, round up "H" to determine wall dimensions and reinforcing. (For example, a 9-foot high wall would use the 10-foot high dimensions and reinforcing.)
Quantities are based on "H" being average height of panel.
Retaining walls are designed to be coded as follows on Retaining Wall Layout Sheets:

A - 15 - 32
- 32: Panel length ~ 32 ft. is standard; 28 ft. requires special quantities.
- 15: Average height (H) of panel.
- A: Design A = No surcharge or slope above wall. Design B = No surcharge; slopes to 3:1. Design C = Traffic surcharge; no slope above wall.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation | Bridge Division Standard

SPREAD FOOTING RETAINING WALL

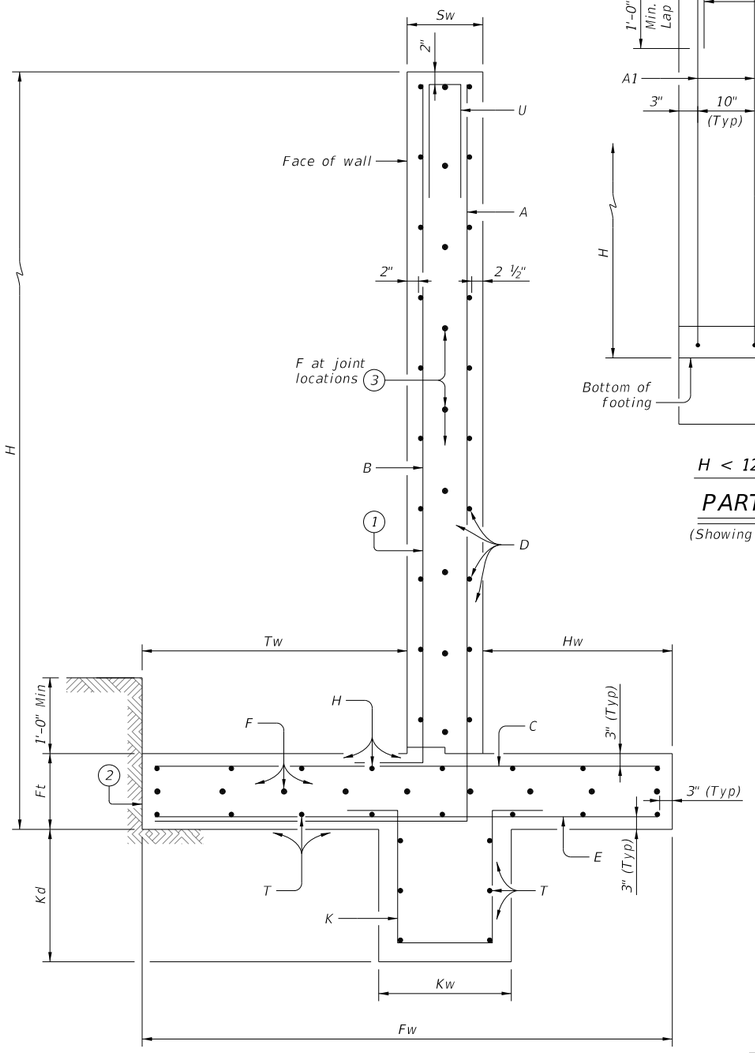
RW(SFA)

FILE: RW-SFA-22.dgn	DN: TAR	CK: RLE	DW: JER	CK: TAR
©TxDOT June 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
8-22: Constructability update.	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		75

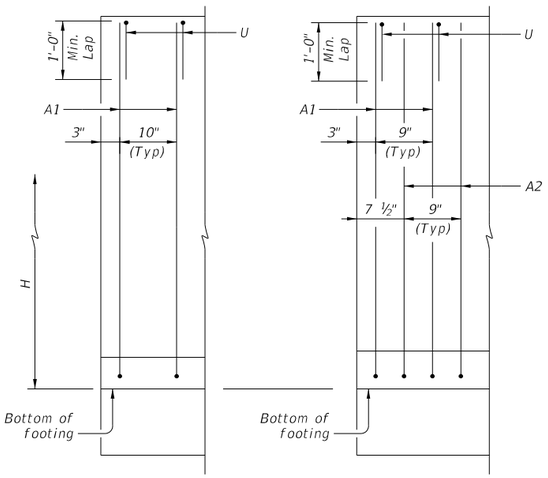
DATE: 5/23/2024 11:32:41 AM
FILE: S:\Projects\612534\06\Design\01_CRP_3 Rivers\Civil\Standards\Retaining Walls\RW-SFB-22.dgn

PROPERTIES / REINFORCING STEEL FOR ONE 32' PANEL (DESIGN B)

Wall Height "H"	WALL DIMENSIONS							MAX SOIL PRESS	Bars A1					Bars A2					Bars B					Bars C					Bars E					Bars K					D (#5) at 12" Max.		Dowel F at 12" Max.		H (#5) at 12" Max.		T (#5) at 12" Max.		U ~ #5 (5)		QUANTITY FOR ONE 32' PANEL		Wall Height "H"
									No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	Length	Weight	Conc (CY)	REINF (LB)	
(Ft)	Fw	Tw	Sw	Hw	Ft	Kw	Kd	T/SF																																										(Ft)
2	1'-4"	0'-4"	1'-0"	0'-0"	0'-9"	0'-9"	0'-9"	0.175	39	#4	10"	2'-6"	66						39	#4	10"	2'-2"	57														39	#4	10"	3'-1"	81	6	198	5	41	2	66	2	66	2'-5"	99	3.4	674	2
4	2'-5"	0'-8"	1'-0"	0'-9"	1'-0"	0'-9"	0'-9"	0.317	39	#4	10"	4'-10"	126						39	#4	10"	3'-11"	103	39	#4	10"	1'-11"	50	39	#4	10"	1'-11"	50	39	#4	10"	3'-1"	81	8	263	7	57	3	99	3	99	6'-0"	245	7.1	1173	4
6	4'-2"	1'-3"	1'-0"	1'-11"	1'-0"	0'-9"	0'-9"	0.390	39	#4	10"	7'-5"	194						39	#4	10"	5'-11"	155	39	#4	10"	3'-8"	96	39	#4	10"	3'-8"	96	39	#4	10"	3'-1"	81	12	395	11	89	5	165	5	165	8'-5"	343	11.6	1779	6
8	6'-3"	1'-8"	1'-0"	3'-7"	1'-0"	0'-9"	0'-9"	0.492	39	#4	10"	9'-10"	257						39	#4	10"	7'-11"	207	39	#4	10"	5'-9"	150	39	#4	10"	5'-9"	150	39	#4	10"	3'-1"	81	16	526	15	121	7	230	7	230	8'-5"	343	16.4	2295	8
10	8'-4"	2'-4"	1'-1"	4'-11"	1'-2"	1'-0"	1'-0"	0.593	39	#5	10"	12'-7"	512						39	#4	10"	9'-9"	255	39	#5	10"	7'-10"	319	39	#4	10"	7'-10"	205	39	#4	10"	3'-10"	100	20	658	19	153	9	296	9	296	8'-6"	346	24.1	3140	10
12	10'-6"	3'-0"	1'-2"	6'-4"	1'-4"	1'-3"	1'-3"	0.720	43	#4	9"	15'-4"	441	43	#4	9"	15'-4"	441	43	#4	9"	11'-7"	333	43	#6	9"	10'-0"	646	43	#4	9"	10'-0"	288	43	#4	9"	4'-7"	132	24	789	23	185	11	362	11	362	8'-7"	385	33.2	4364	12
14	12'-1"	3'-7"	1'-3"	7'-3"	1'-7"	1'-6"	1'-6"	0.833	43	#5	9"	18'-0"	808	43	#5	9"	18'-0"	808	43	#4	9"	13'-4"	383	43	#7	9"	11'-7"	1019	43	#4	9"	11'-7"	333	43	#4	9"	5'-4"	154	28	920	27	217	13	428	13	428	8'-8"	389	43.8	5887	14
16	13'-11"	4'-2"	1'-5"	8'-4"	1'-9"	1'-9"	1'-9"	0.951	43	#6	9"	20'-9"	1341	43	#5	9"	20'-9"	931	43	#4	9"	15'-2"	436	43	#8	9"	13'-5"	1542	43	#4	9"	13'-5"	386	43	#4	9"	6'-1"	175	32	1052	31	249	15	493	15	493	8'-10"	397	56.5	7495	16
18	15'-9"	4'-11"	1'-8"	9'-2"	2'-0"	2'-0"	2'-0"	1.065	43	#6	9"	23'-9"	1534	43	#6	9"	23'-9"	1534	43	#4	9"	16'-11"	486	43	#8	9"	15'-3"	1751	43	#4	9"	15'-3"	439	43	#4	9"	6'-10"	197	34	1118	34	273	17	559	17	559	9'-1"	408	73.7	8858	18
20	17'-6"	5'-5"	1'-9"	10'-4"	2'-3"	2'-0"	2'-0"	1.182	43	#7	9"	26'-4"	2315	43	#7	9"	26'-4"	2315	43	#4	9"	18'-8"	537	43	#9	9"	17'-0"	2486	43	#4	9"	17'-0"	489	43	#4	9"	6'-10"	197	38	1249	37	297	18	592	18	592	9'-2"	412	88.3	11481	20



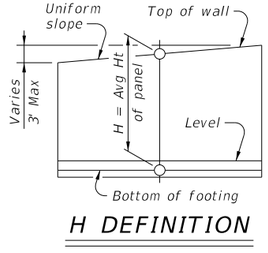
SECTION



H < 12' H ≥ 12'

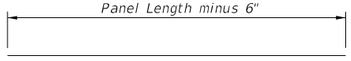
PARTIAL WALL ELEVATIONS

(Showing vertical reinforcing pattern in back face.)

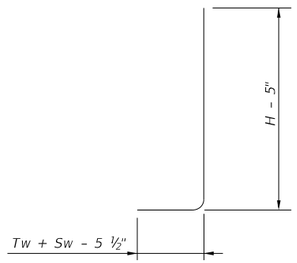


H DEFINITION

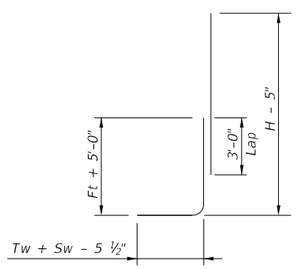
BARS F (3)



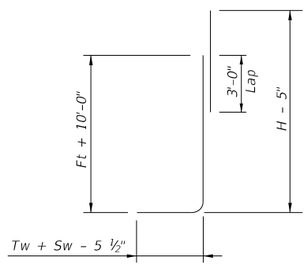
BARS D, H, and T



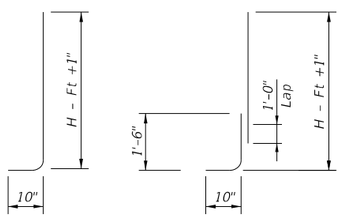
BARS A1 & A2



OPTIONAL BARS A1 (4)

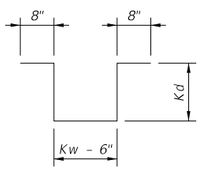


OPTIONAL BARS A2 (4)

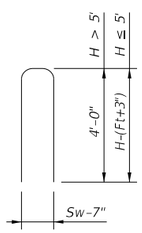


BARS B

OPTIONAL BARS B (4)



BARS K



BARS U

(1) Place vertical bars inside of horizontal bars (Typical both faces).
(2) Place footing toe against undisturbed soil.
(3) See Retaining Wall Miscellaneous Details (RW(SF)) standard for size.
(4) Optional bars splices not included in above table.
(5) Bars U lapped with Bars A1:
H ≤ 10'-0", 10" Max Spa, 39 bars.
H > 10'-0", 9" Max Spa, 43 bars.

MATERIAL NOTES:

Provide Class C concrete (f'c=3,600 psi.)
Provide Grade 60 reinforcing steel.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Walls are designed assuming unit weight of soil = 120 pcf and a friction angle = 30 degrees for foundation and retained soil.
See Retaining Wall Miscellaneous Details (RW(SF)) standard for details and notes not shown.
These details provide designs for wall heights of 2 to 20 feet. For heights not shown, round up "H" to determine wall dimensions and reinforcing. (For example, a 9-foot high wall would use the 10-foot high dimensions and reinforcing.)
Quantities are based on "H" being average height of panel.
Retaining walls are designed to be coded as follows on Retaining Wall Layout Sheets:

B - 15 - 32
- 32 — Panel length ~ 32 ft. is standard; 28 ft. requires special quantities.
- 15 — Average height (H) of panel.
- B — Design A = No surcharge or slope above wall.
  Design B = No surcharge; slopes to 3:1.
  Design C = Traffic surcharge; no slope above wall.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation

Bridge Division Standard

SPREAD FOOTING RETAINING WALL

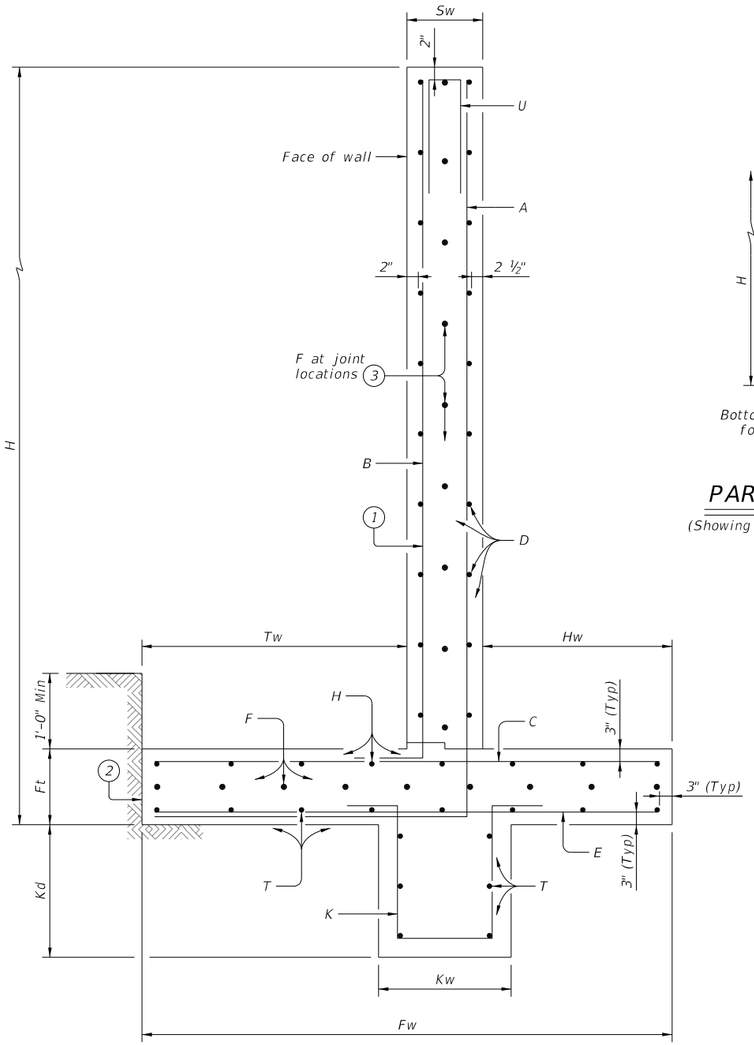
RW(SFB)

FILE: RW-SFB-22.dgn	DN: TAR	CK: RLE	DW: JER	CK: TAR
©TxDOT June 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
8-22: Constructability update.	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		76

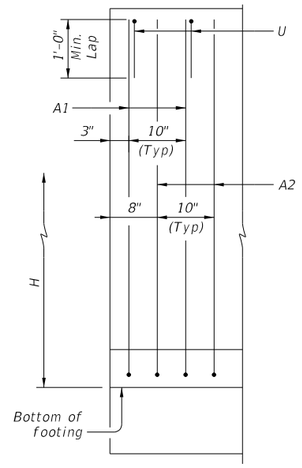
DATE: 5/23/2024 11:32:43 AM
FILE: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Standards\Retaining Walls\RW-SFC-22.dgn

PROPERTIES / REINFORCING STEEL FOR ONE 32' PANEL (DESIGN C)

Wall Height "H"	WALL DIMENSIONS							MAX SOIL PRESS	Bars A1					Bars A2					Bars B					Bars C					Bars E					Bars K					D (#5) at 12" Max.		Dowel F at 12" Max.		H (#5) at 12" Max.		T (#5) at 12" Max.		U ~ 39 #5 at 10" Max		QUANTITY FOR ONE 32' PANEL		Wall Height "H"
									No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Size	Spa.	Length	Weight	No.	Weight	No.	Weight	No.	Weight	No.	Weight	Length	Weight	Conc (CY)	REINF (LB)	
(Ft)	Fw	Tw	Sw	Hw	Ft	Kw	Kd	T/SF																																										(Ft)
2	5'-0"	1'-0"	1'-0"	3'-0"	1'-0"	1'-0"	1'-0"	0.218	39	#4	10"	3'-2"	83	39	#4	10"	3'-2"	83	39	#4	10"	1'-11"	50	39	#4	10"	4'-6"	118	39	#4	10"	4'-6"	118	39	#4	10"	3'-10"	100	4	132	8	65	6	198	6	198	2'-0"	82	8.3	1227	2
4	5'-0"	1'-0"	1'-0"	3'-0"	1'-0"	1'-0"	1'-0"	0.321	39	#4	10"	5'-2"	135	39	#4	10"	5'-2"	135	39	#4	10"	3'-11"	103	39	#4	10"	4'-6"	118	39	#4	10"	4'-6"	118	39	#4	10"	3'-10"	100	8	263	10	81	6	198	6	198	6'-0"	245	10.7	1694	4
6	5'-6"	1'-6"	1'-0"	3'-0"	1'-0"	1'-0"	1'-0"	0.395	39	#4	10"	7'-8"	200	39	#4	10"	7'-8"	200	39	#4	10"	5'-11"	155	39	#4	10"	5'-0"	131	39	#4	10"	5'-0"	131	39	#4	10"	3'-10"	100	12	395	12	97	6	198	6	198	8'-5"	343	13.7	2148	6
8	7'-4"	1'-9"	1'-1"	4'-6"	1'-0"	1'-0"	1'-0"	0.500	39	#4	10"	10'-0"	261	39	#4	10"	10'-0"	261	39	#4	10"	7'-11"	207	39	#4	10"	6'-10"	179	39	#4	10"	6'-10"	179	39	#4	10"	3'-10"	100	16	526	16	129	8	263	8	263	8'-6"	346	18.9	2714	8
10	8'-8"	2'-4"	1'-1"	5'-3"	1'-2"	1'-6"	1'-6"	0.590	39	#5	10"	12'-7"	512	39	#4	10"	12'-7"	328	39	#4	10"	9'-9"	255	39	#5	10"	8'-2"	333	39	#4	10"	8'-2"	213	39	#4	10"	5'-4"	139	20	658	20	161	10	329	10	329	8'-6"	346	26.0	3603	10
12	10'-4"	2'-11"	1'-2"	6'-3"	1'-4"	1'-9"	1'-9"	0.684	39	#5	10"	15'-3"	621	39	#4	10"	15'-3"	398	39	#4	10"	11'-7"	302	39	#5	10"	9'-10"	400	39	#4	10"	9'-10"	257	39	#4	10"	6'-1"	159	24	789	23	185	11	362	11	362	8'-7"	350	34.8	4185	12
14	11'-8"	3'-6"	1'-4"	6'-10"	1'-7"	2'-0"	2'-0"	0.769	39	#5	10"	18'-0"	733	39	#4	10"	18'-0"	469	39	#4	10"	13'-4"	348	39	#5	10"	11'-2"	455	39	#4	10"	11'-2"	291	39	#4	10"	6'-10"	179	28	920	27	217	13	428	13	428	8'-9"	356	46.3	4824	14
16	13'-1"	4'-0"	1'-6"	7'-7"	1'-9"	2'-0"	2'-0"	0.853	39	#5	10"	20'-8"	841	39	#4	10"	20'-8"	841	39	#4	10"	15'-2"	396	39	#6	10"	12'-7"	738	39	#4	10"	12'-7"	329	39	#4	10"	6'-10"	179	32	1052	30	241	14	460	14	460	8'-11"	363	57.3	5900	16
18	14'-7"	4'-6"	1'-8"	8'-5"	1'-9"	2'-0"	2'-0"	0.937	39	#6	10"	23'-4"	1367	39	#5	10"	23'-4"	950	39	#4	10"	17'-2"	448	39	#7	10"	14'-1"	1124	39	#4	10"	14'-1"	368	39	#4	10"	6'-10"	179	36	1183	34	273	16	526	16	526	9'-1"	370	67.1	7314	18
20	16'-5"	5'-0"	1'-10"	9'-7"	2'-0"	2'-0"	2'-0"	1.039	39	#6	10"	26'-0"	1524	39	#6	10"	26'-0"	1524	39	#4	10"	18'-11"	493	39	#7	10"	17'-11"	1429	39	#4	10"	17'-11"	467	39	#4	10"	6'-10"	179	38	1249	36	289	17	559	17	559	9'-3"	377	82.8	8649	20

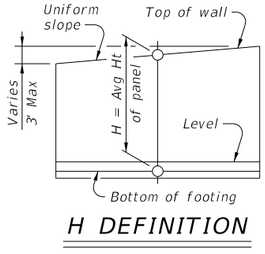


SECTION

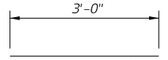


PARTIAL WALL ELEVATION

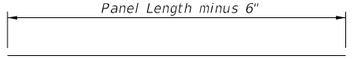
(Showing vertical reinforcing pattern in back face.)



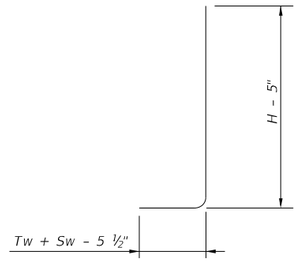
H DEFINITION



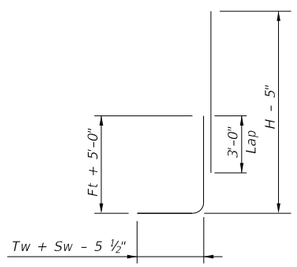
BARS F (3)



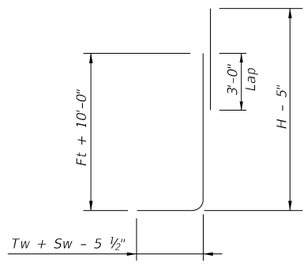
BARS D, H, and T



BARS A1 & A2

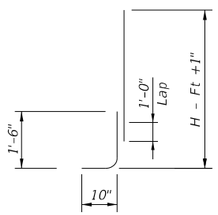


OPTIONAL BARS A1 (4)

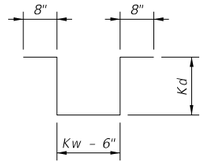


OPTIONAL BARS A2 (4)

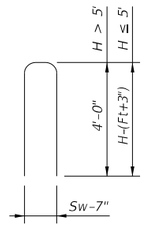
BARS B



OPTIONAL BARS B (4)



BARS K



BARS U

(1) Place vertical bars inside of horizontal bars (Typical both faces).

(2) Place footing toe against undisturbed soil.

(3) See Retaining Wall Miscellaneous Details (RW(SF)) standard for size.

(4) Optional bars splices not included in above table.

MATERIAL NOTES:

Provide Class C concrete (f'c=3,600 psi.)
Provide Grade 60 reinforcing steel.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Walls are designed assuming unit weight of soil = 120 pcf and a friction angle = 30 degrees for foundation and retained soil.
See Retaining Wall Miscellaneous Details (RW(SF)) standard for details and notes not shown.
These details provide designs for wall heights of 2 to 20 feet. For heights not shown, round up "H" to determine wall dimensions and reinforcing. (For example, a 9-foot high wall would use the 10-foot high dimensions and reinforcing.)
Quantities are based on "H" being average height of panel.
Retaining walls are designed to be coded as follows on Retaining Wall Layout Sheets:

C - 15 - 32
- Panel length ~ 32 ft. is standard; 28 ft. requires special quantities.
- Average height (H) of panel.
- Design A = No surcharge or slope above wall.
- Design B = No surcharge; slopes to 3:1.
- Design C = Traffic surcharge; no slope above wall.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation

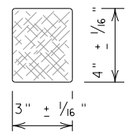
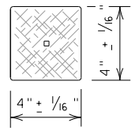
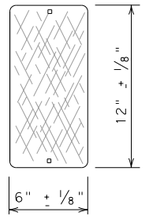
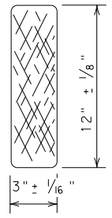
Bridge Division Standard

SPREAD FOOTING RETAINING WALL

RW(SFC)

FILE: RW-SFC-22.dgn	DN: TAR	CK: RLE	DW: JER	CK: TAR
©TxDOT June 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
8-22: Constructability update.	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		77

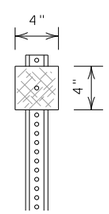
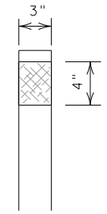
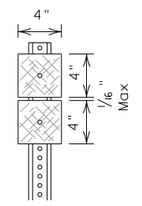
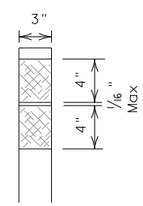
REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS

	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

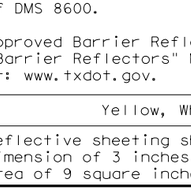
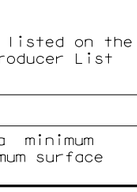
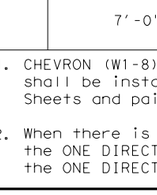
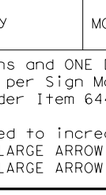
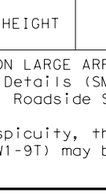
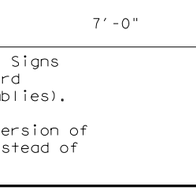
NUMBER OF REFLECTORS OR DIRECTION
- X = 3-Size 2 reflector units (Type 2 only)
- Y = 1-Size 3 reflector unit (Type 2 only)
- Z = 3-Size 1 or 1-Size 4 reflector unit(s)(Type 2 only)
- L = Left Side (Type 3 Object Marker only)
- R = Right Side (Type 3 Object Marker only)
- C = Center (Type 3 Object Marker 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

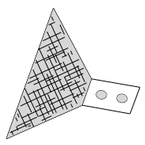
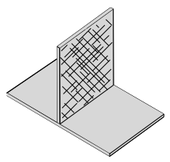
DIRECTION
- If Required
- BI = Bi-Directional

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)

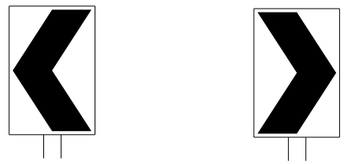
	GF1	GF2	CTB
DEVICE			

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	

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

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).

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: dom1-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
©TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	CRP	LIVE OAK		78

20A

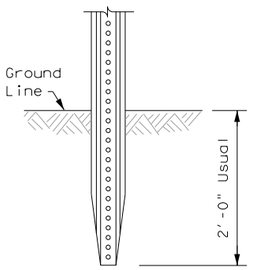
DATE: 5/23/2024 11:32:46 AM
FILE: S:\Projects\612154\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic\dom1-20.dgn

DATE: 5/23/2024 11:32:47 AM
FILE: S:\Projects\6121541\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic\dom2-20.dgn

POST TYPE AND SUPPORT FOUNDATION DETAILS

WING CHANNEL (WC)

GND

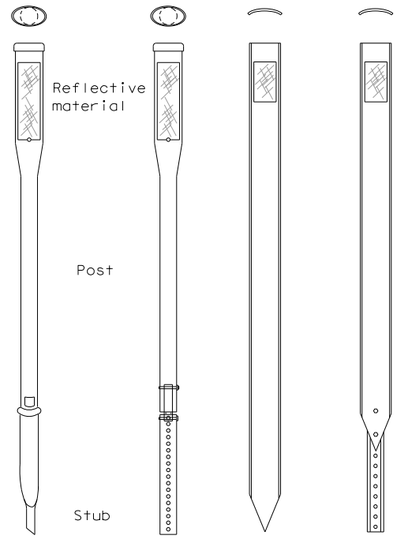


NOTES

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

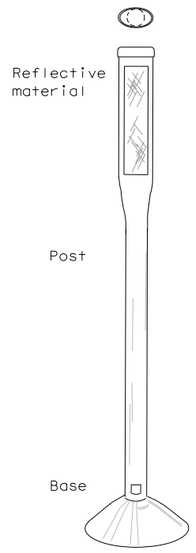
FLEXIBLE POSTS (YFLX, WFLX)

GND



EMBEDDED

SRF



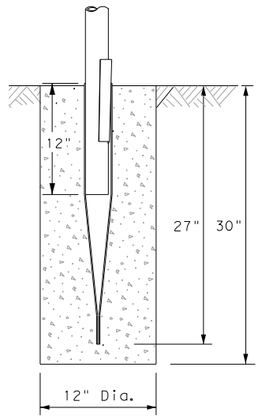
SURFACE MOUNT

NOTES

1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices.
2. Install per manufacturer's recommendations.
3. Post length may vary to meet field conditions.
4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow.

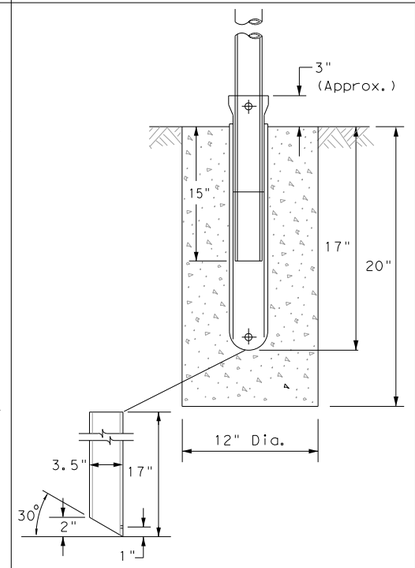
WEDGE ANCHOR SYSTEMS

WAS



STEEL

WAP



PLASTIC

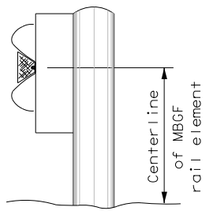
NOTE

1. Install per manufacturer's recommendations.

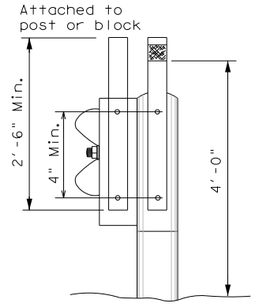
TYPE OF BARRIER MOUNTS

GUARD FENCE ATTACHMENT

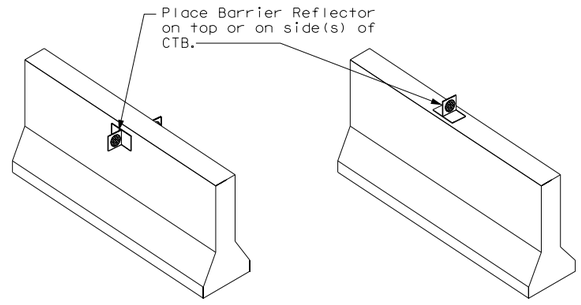
GF1



GF2



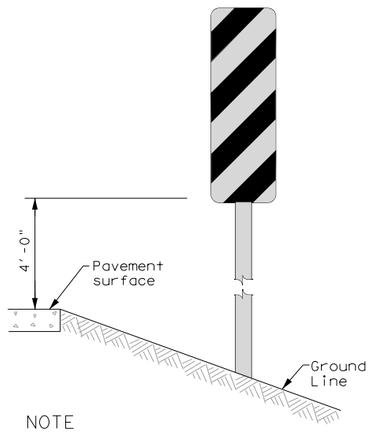
CONCRETE TRAFFIC BARRIER (CTB)



GENERAL NOTES

1. Place delineators on a section of roadway at a consistent distance from the edge of pavement.
2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction.
3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible.
4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation.
5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface.
6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane.

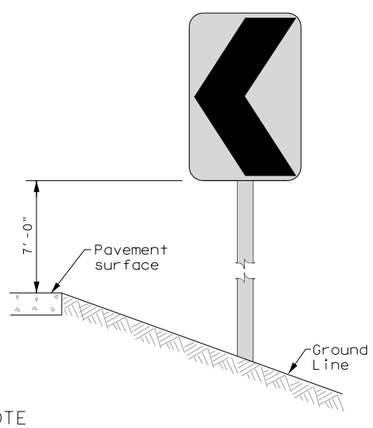
TYPES 1, 3, AND 4 OBJECT MARKERS AND CHEVRONS



NOTE

Mounting at 4 feet to the bottom of the chevron is permitted for chevrons that will not exceed a height of 6'-6" to the top of the chevron (sizes 24" x 30" and smaller)

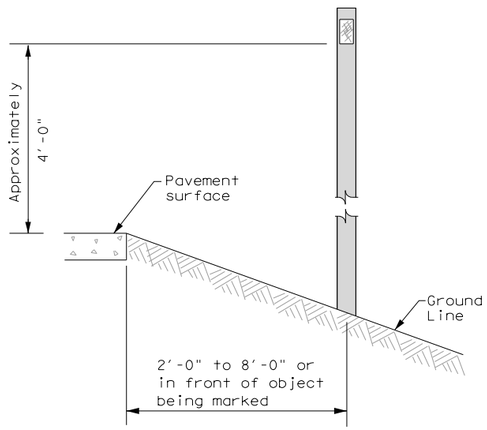
CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



NOTE

Chevrons 30" x 36" and larger shall be mounted at a height of 7' to the bottom of the chevron. Chevron sign and ONE DIRECTION LARGE ARROW sign (W1-9T) shall be installed per SMD standard sheets and paid under item 644.

DELINEATORS AND TYPE 2 OBJECT MARKERS



See general notes 1, 2 and 3.

Texas Department of Transportation

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

FILE: dom2-20.dgn	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
© TxDOT August 2004	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
10-09 3-15	DIST	COUNTY		SHEET NO.
4-10 7-20	CRP	LIVE OAK		79

20B

DATE: 5/23/2024 11:32:49 AM
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic Items\smdgen.dgn

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type

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

Number of Posts (1 or 2)

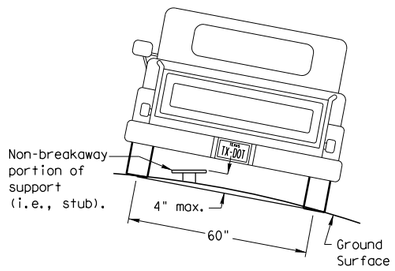
Anchor Type

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

Sign Mounting Designation

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

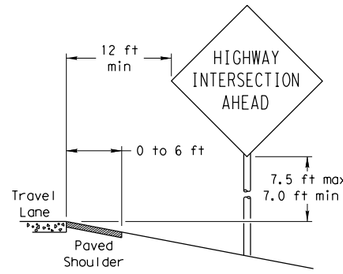
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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

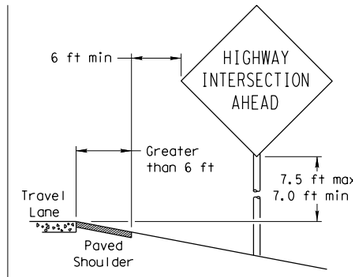
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

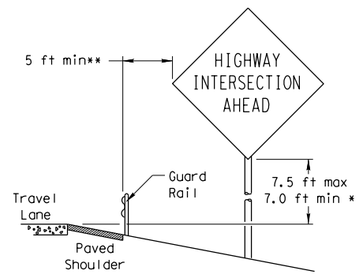
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



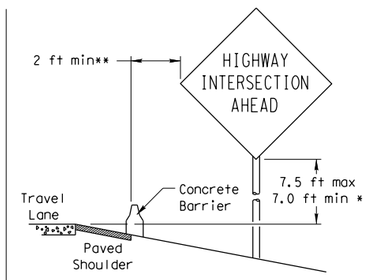
GREATER THAN 6 FT. WIDE

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

BEHIND BARRIER



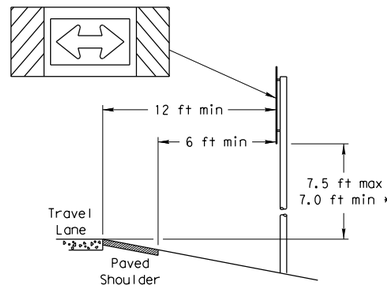
BEHIND GUARDRAIL



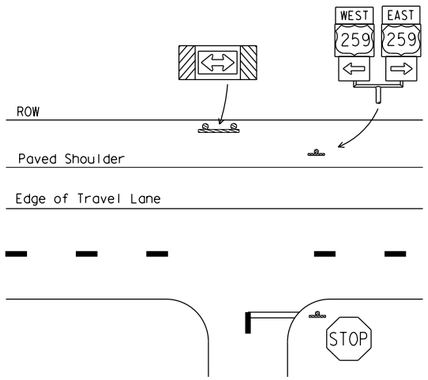
BEHIND CONCRETE BARRIER

**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

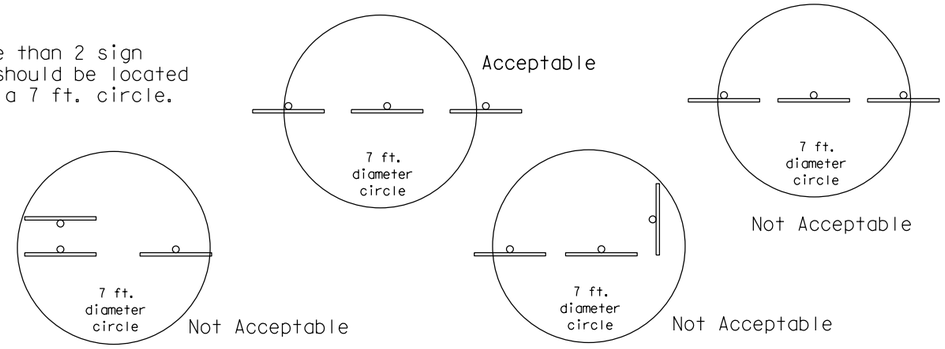
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

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.

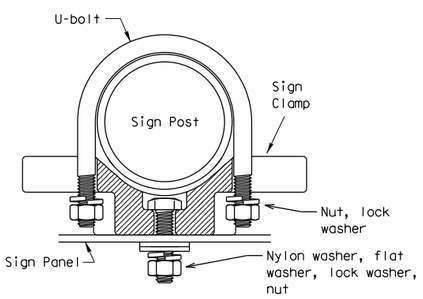
The website address is:
http://www.txdot.gov/publications/traffic.htm

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



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

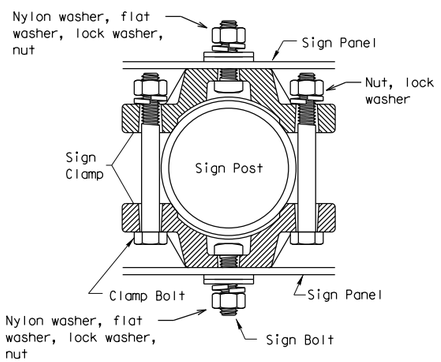


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

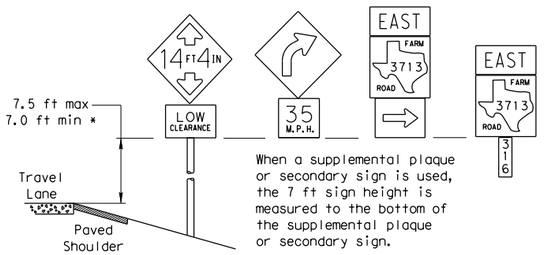
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



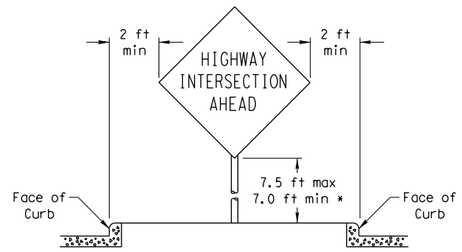
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



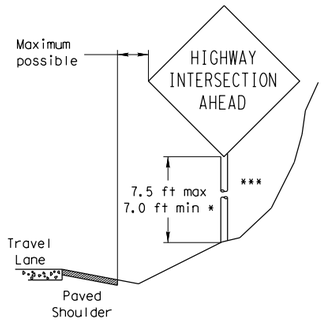
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

Texas Department of Transportation
Traffic Operations Division

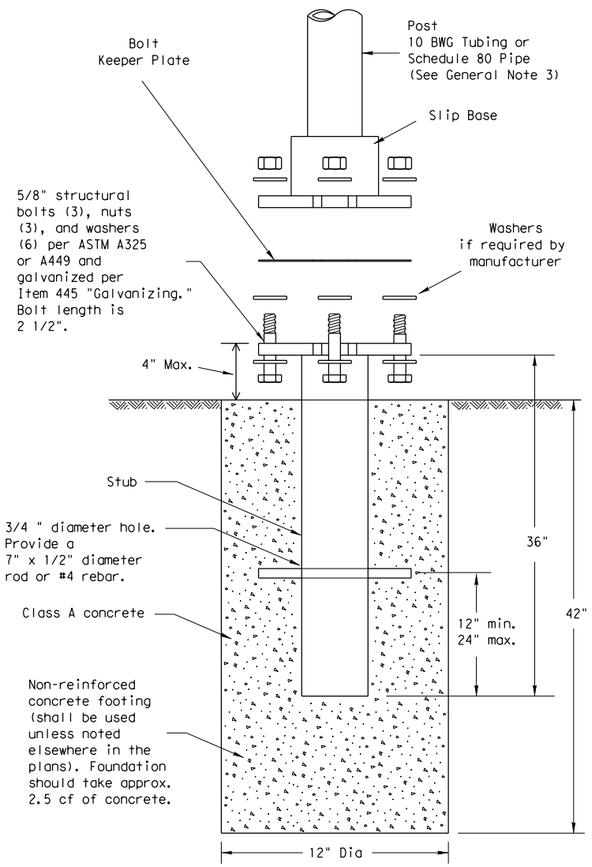
SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		80

DATE: 5/23/2024 11:32:50 AM
FILE: S:\Projects\612534\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic Items\smds1.dgn

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.

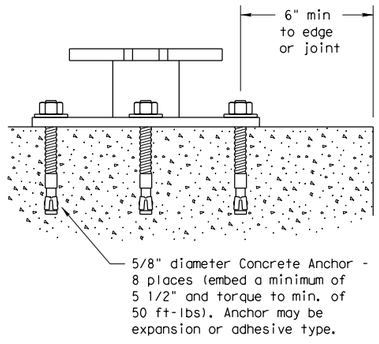
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum 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

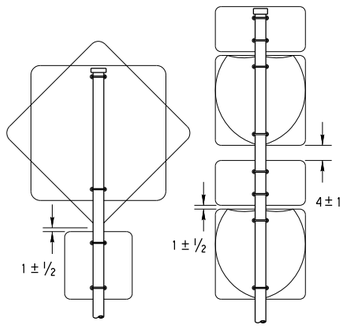
SMD(SLIP-1)-08

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

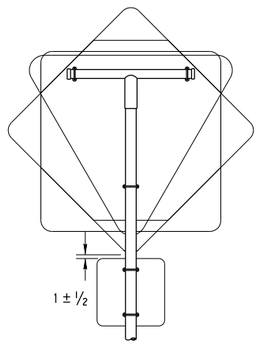
REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0916	29	019	VA

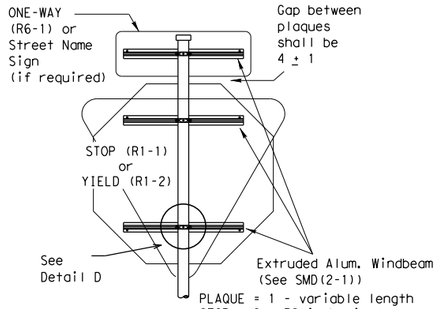
DIST	COUNTY	SHEET NO.
CRP	LIVE OAK	81



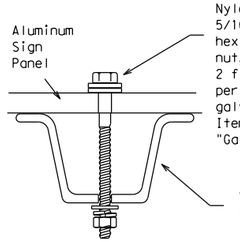
SM RD SGN ASSM TY XXXXX(1)XX(P)



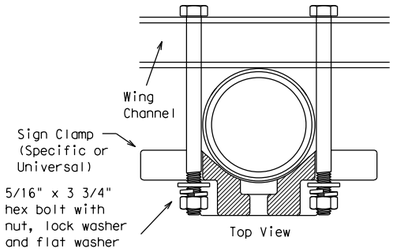
SM RD SGN ASSM TY XXXXX(1)XX(T)



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



Detail A



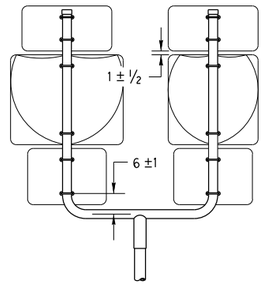
Detail B

GENERAL NOTES:

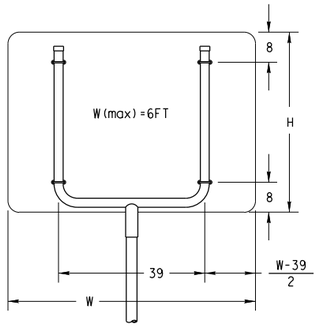
1.

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

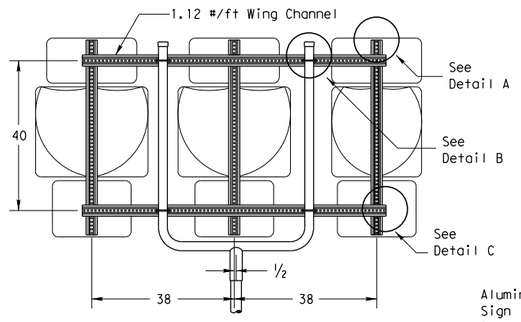
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material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



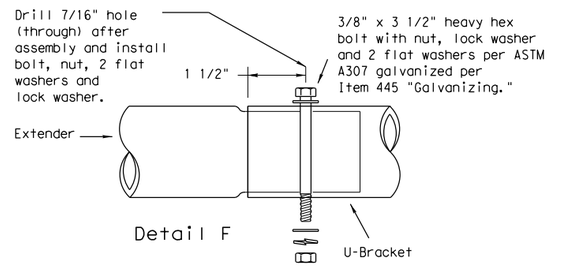
SM RD SGN ASSM TY XXXXX(1)XX(U)



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

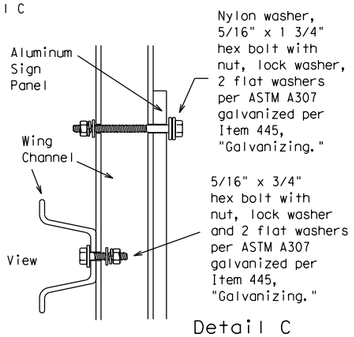


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

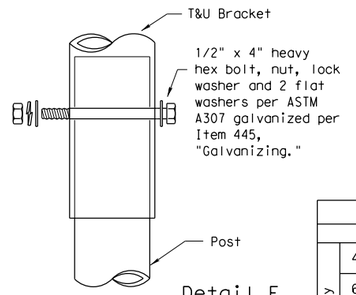


Detail F

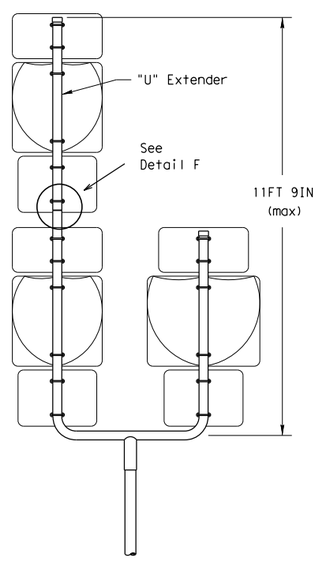
Splices shall only be allowed behind the sign substrate.



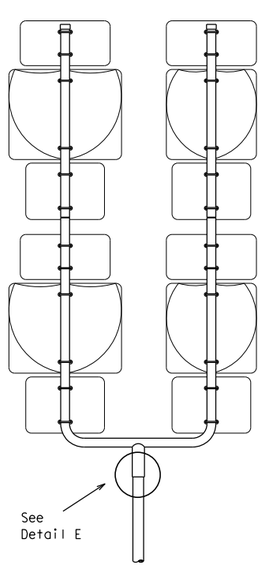
Detail C



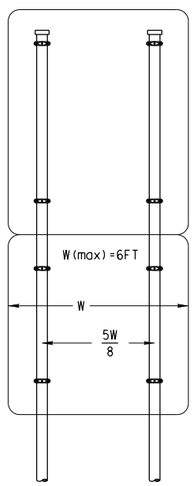
Detail E



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

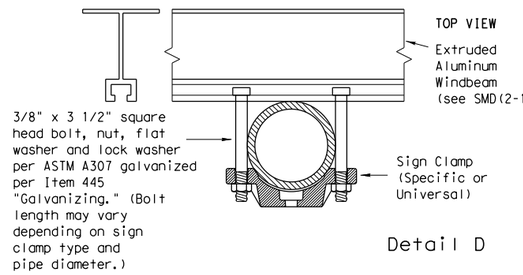


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

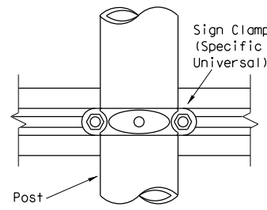


SM RD SGN ASSYM TY XXXXX(2)XX(P)

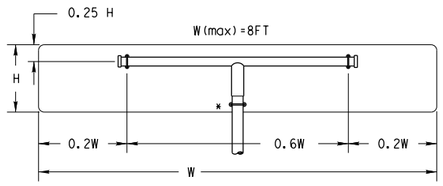
SIDE VIEW



Detail D



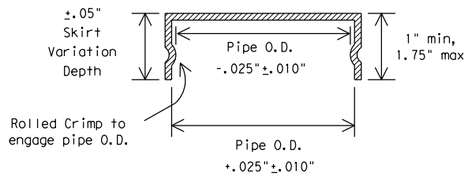
REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)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



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

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

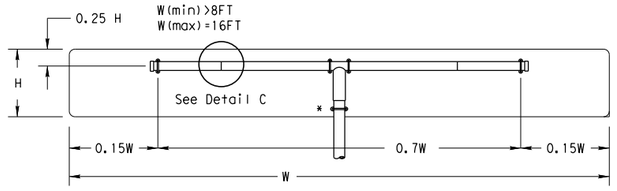
SMD(SLIP-2)-08

REVISIONS	DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
9-08	CONT	SECT	JOB	HIGHWAY
	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		82

26C

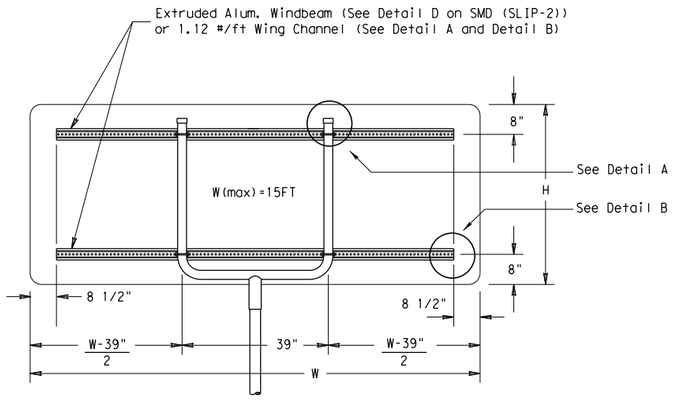
DATE: 5/23/2024 11:32:52 AM
FILE: S:\projects\6i2154\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic Items\smds2.dgn

DATE: 5/23/2024 11:32:53 AM
FILE: S:\projects\612534\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic Items\smds3.dgn

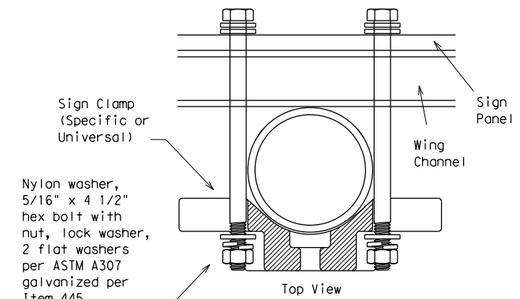


SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)

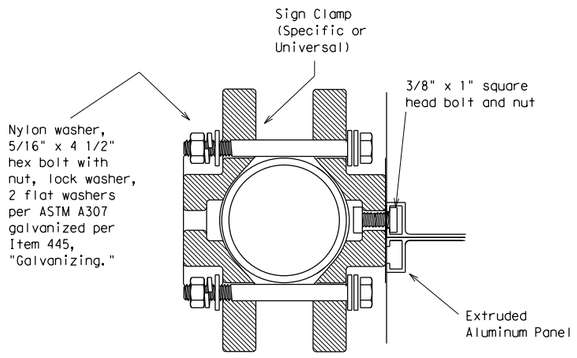
(* - See Note 12)



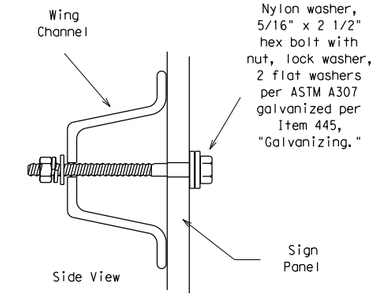
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



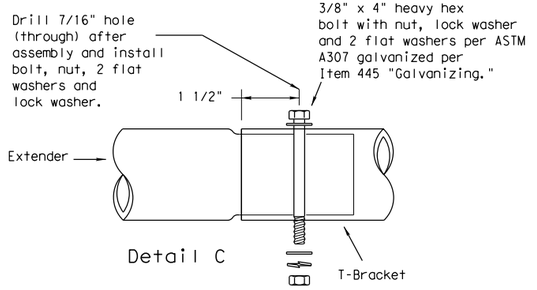
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

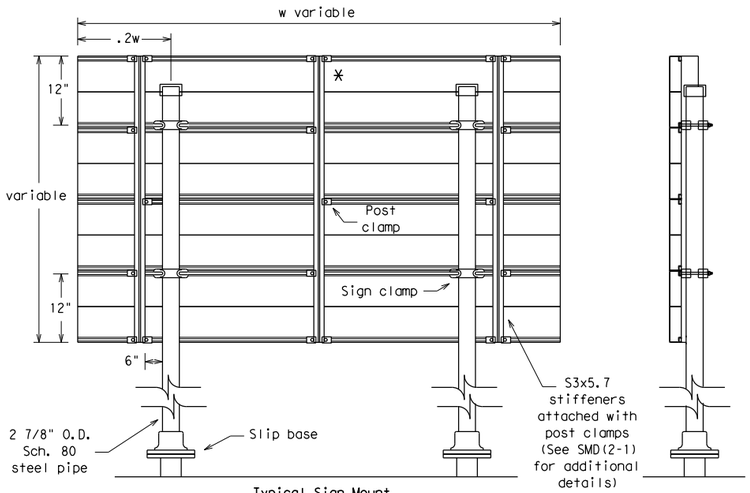


Detail B



Detail C

Splices shall only be allowed behind the sign substrate.

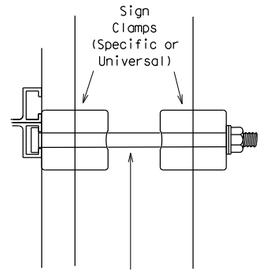


Typical Sign Mount

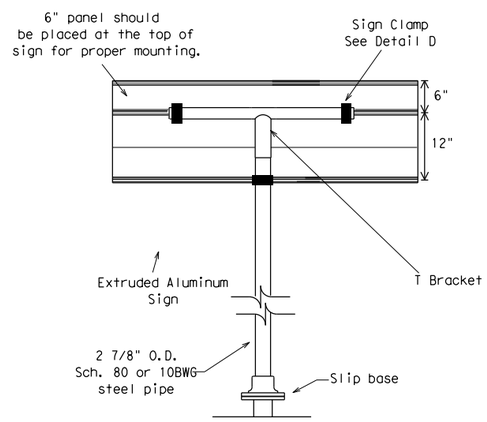
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

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

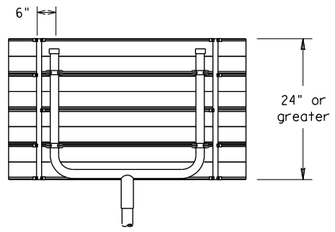
See Detail E
for clamp installation



Detail E



Extruded Aluminum Sign
With T Bracket



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

See Detail E
for clamp installation

GENERAL NOTES:

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

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

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

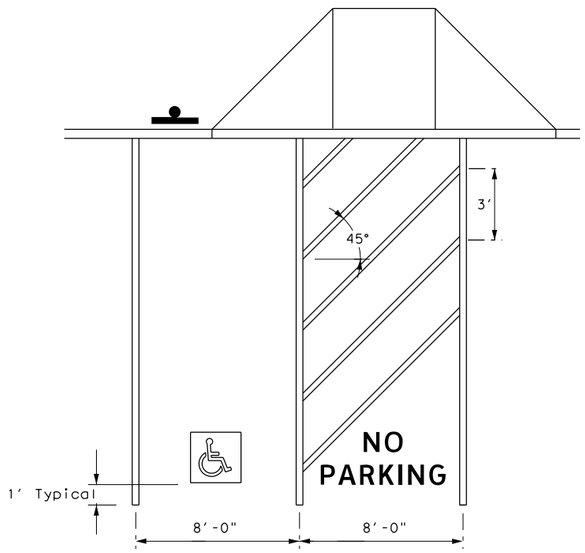
SMD(SLIP-3)-08

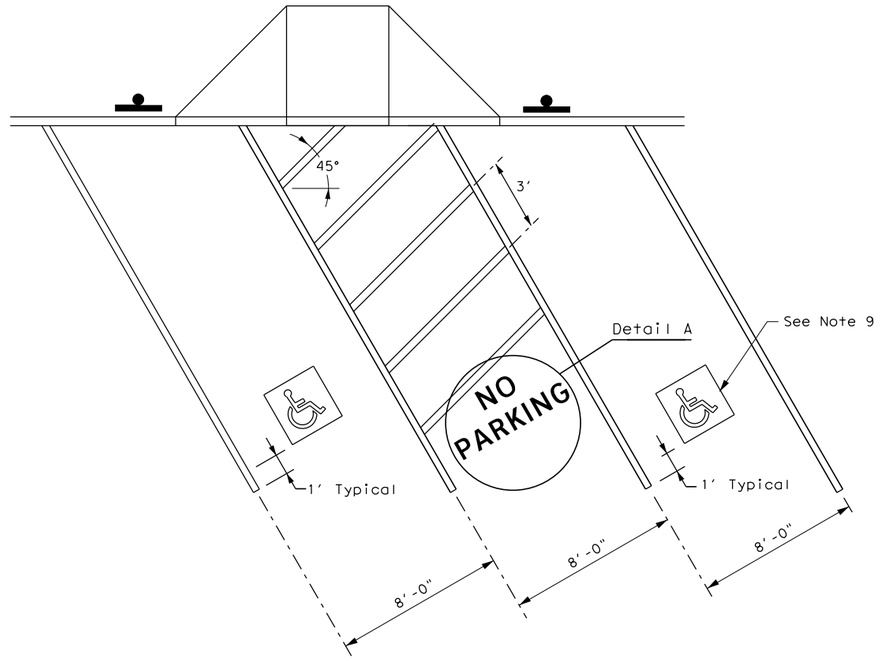
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0916	29	019	VA
DIST	COUNTY		SHEET NO.
CRP	LIVE OAK		83

DATE:
FILE:





PERPENDICULAR OR ANGLED ACCESSIBLE PARKING SPACE DIMENSIONS

R7-8T

R7-8P

R7-8aPT

ACCESSIBLE
PARKING SIGNS

Detail A

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
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
SIGN FACE MATERIALS	DMS-8300

GENERAL NOTES:

1. All paved accessible parking space limit lines shall be 4" solid white lines.

2. Paved accessible parking spaces must include a white International Symbol of Accessibility applied conspicuously on the surface in a color that contrasts the pavement. A blue background with white border may supplement the symbol for additional contrast.

3. The words "NO PARKING" must be applied on any access aisle adjacent to the parking space. The words must be white, applied:

   a) in all capital letters.

   b) centered within each access aisle adjacent to the parking space.

4. RESERVED PARKING (R7-8T) sign including the International Symbol of Accessibility.

   a) shall be REQUIRED for each accessible parking space.

   b) shall NOT be placed between two accessible parking spaces.

   c) shall NOT be placed in a location that restricts movement of wheelchairs within the adjacent sidewalk.

   d) shall have a mounting height of 7 feet to the bottom of the sign.

5. A sign identifying the consequences of parking illegally in a paved accessible parking space. Must:

   a) at a minimum state "VIOLATORS SUBJECT TO FINE AND TOWING" (Plaque)(R7-8aPT).

   b) be mounted on a pole, post, wall or freestanding board.

   c) be no more than eight inches (8") below sign R7-8T a sign required by the Texas Accessibility Standards, 502.6.

   d) be installed so that the bottom edge of the sign is no lower than 48 inches and no higher than 80 inches above the ground level.

6. Signs identifying van parking spaces shall contain the designation "VAN ACCESSIBLE" (R7-8P) Signs shall be 60 inches minimum above the ground level measured to the bottom of the sign.

7. Perpendicular or angled parking spaces shall be 8 feet wide minimum with an access aisle 8 feet minimum wide (van accessible). Two parking spaces are permitted to share a common access aisle.

8. Access aisles shall be at street level, extend the full length of the parking space they serve, follow ADA surface requirements, and marked to discourage parking in the access aisle. Curb ramps shall connect the access aisle to the adjacent pedestrian access route. Curb ramps shall not be located within the access aisle.

9. International Symbol of Accessibility Parking Space Marking and sign details can be found in The Standard Highway Sign Designs for Texas (SHSD) at the following website. http://www.txdot.gov/

Texas Department of Transportation

Traffic Safety Division Standard

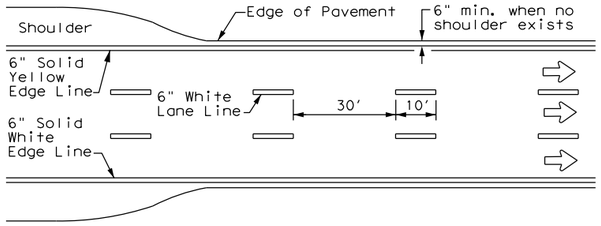
PAVEMENT MARKINGS AND SIGNING FOR ACCESSIBLE PARKING

PM(AP)-21

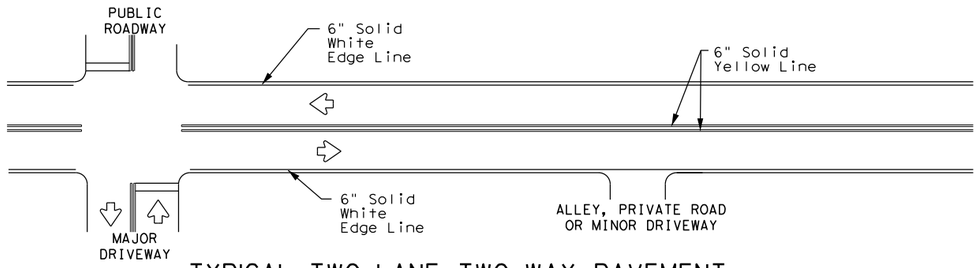
FILE: pm(ap)-21	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT July 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		84

22F

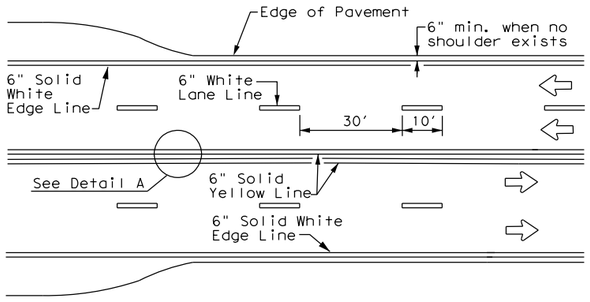
DATE: 5/23/2024 11:32:57 AM
FILE: S:\projects\6125406\Design\01_CRP_3 Rivers\Civil\Standards\Traffic offsite\pm1-22.dgn

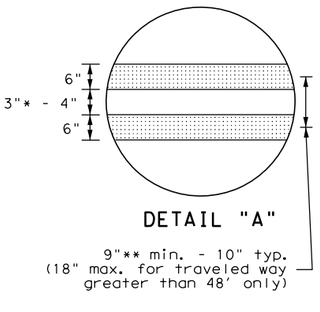


EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



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

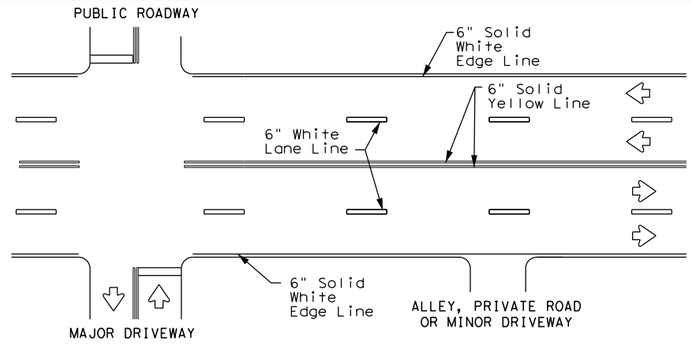




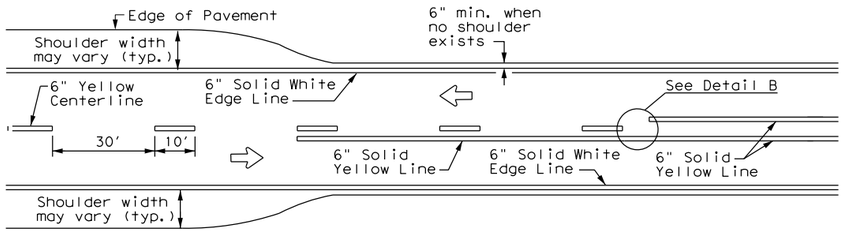
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

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

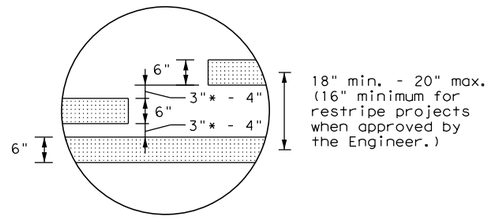
** 8" minimum for restripe projects when approved by the Engineer.



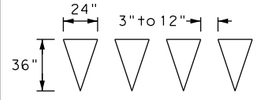
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



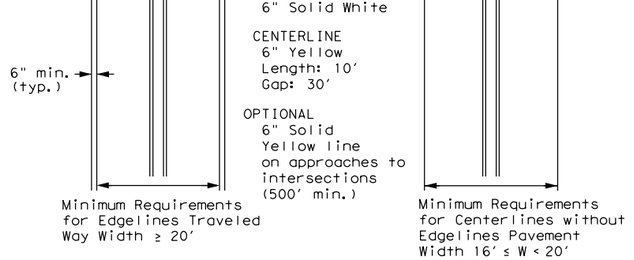
* 2" minimum for restripe projects when approved by the Engineer.



For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES

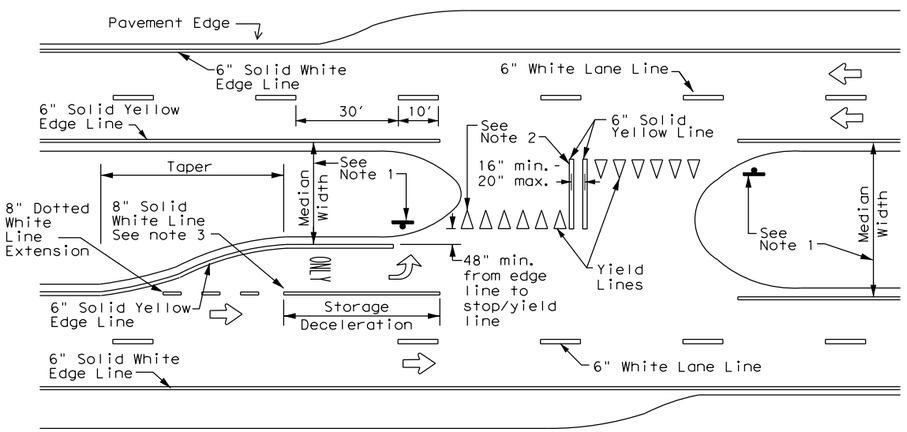
For posted speed on road being marked equal to or less than 40 MPH.



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

GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Roadways



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

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

GENERAL NOTES

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

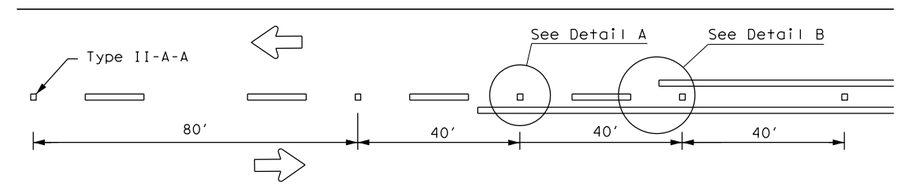
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-22

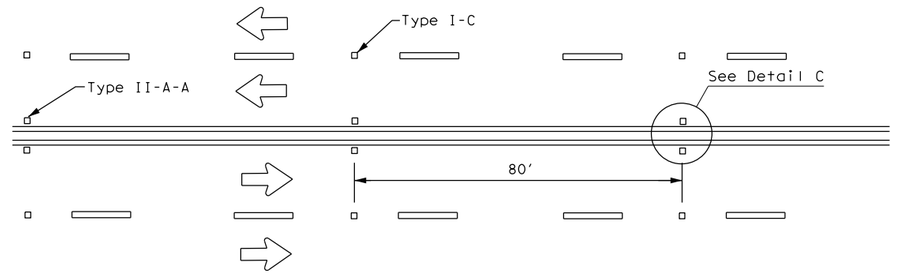
FILE: pm1-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 11-78 8-00 6-20 8-95 3-03 12-22 5-00 2-12	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		85

22A

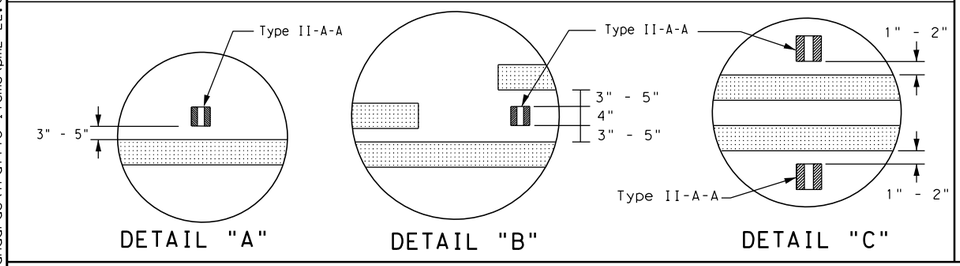
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



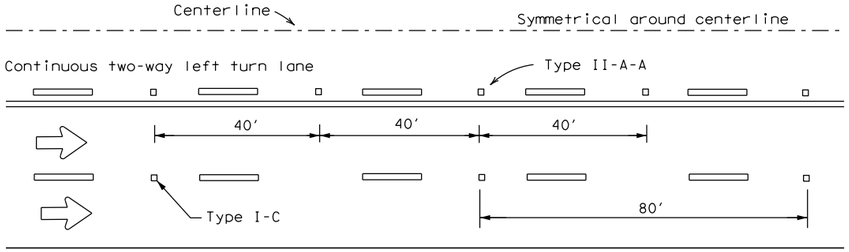
CENTERLINE FOR ALL TWO LANE TWO-WAY ROADWAYS



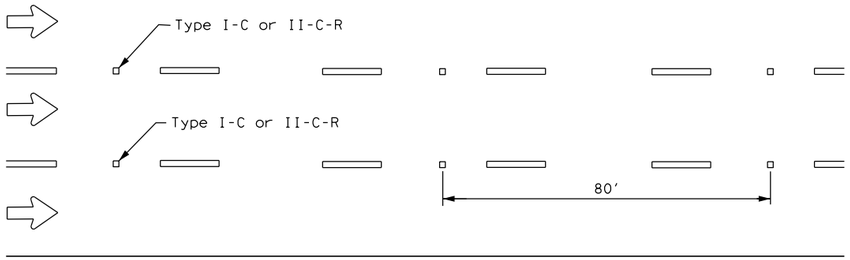
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY ROADWAYS



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



CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



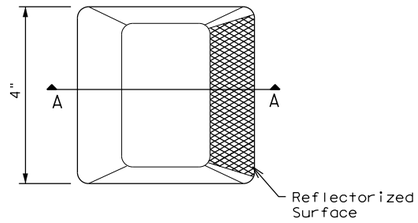
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

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

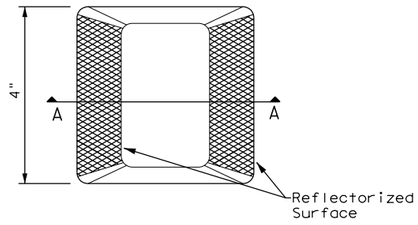
See Note 3.

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

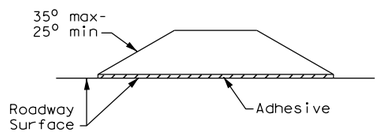
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)

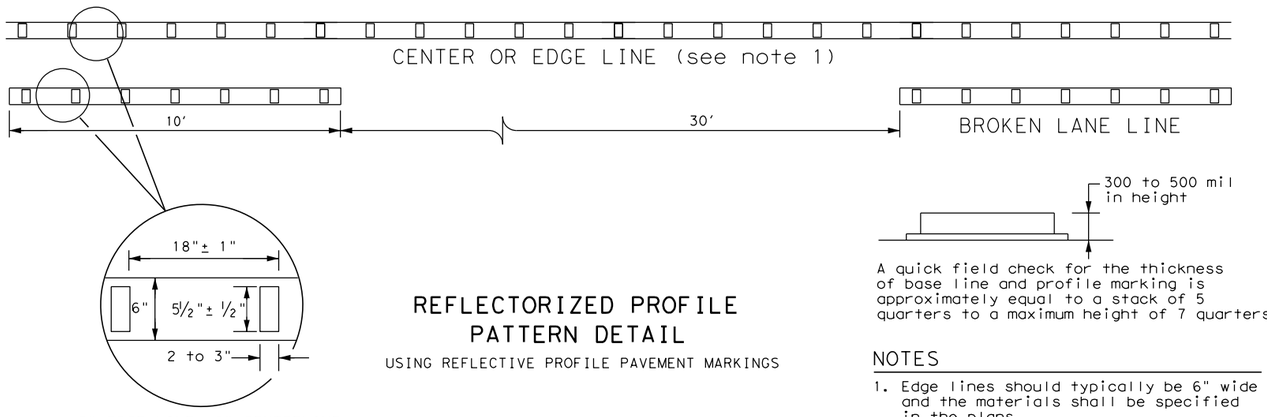


Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS



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

REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS

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

NOTES

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

GENERAL NOTES

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

Texas Department of Transportation

Traffic Safety Division Standard

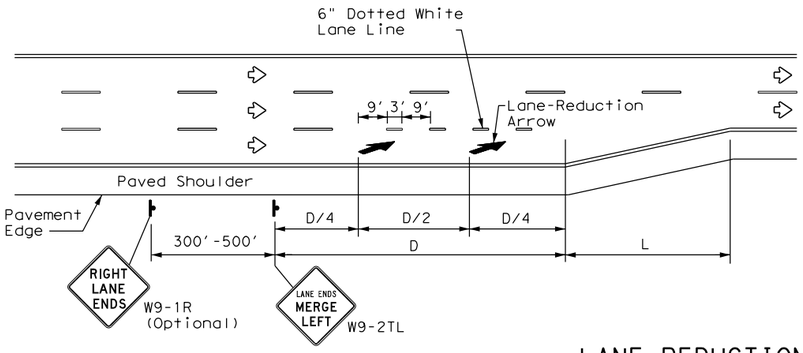
POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-22

FILE: pm2-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-77 8-00 6-20 4-92 2-10 12-22 5-00 2-12	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		86

22B

DATE: 5/23/2024 11:32:58 AM
FILE: S:\Projects\6125406\Design\01_CRP_3 Rivers\Civil\Standards\Traffic\pm2-22.dgn

DATE: 5/23/2024 11:32:59 AM
FILE: S:\Projects\6121541\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic\pm3-22.dgn



LANE REDUCTION

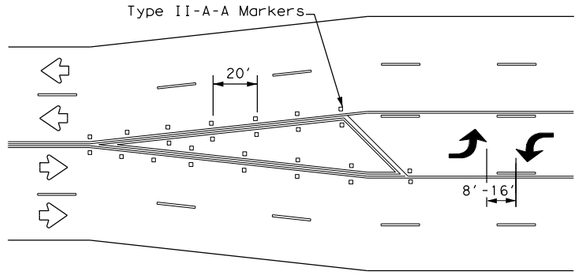
NOTES

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

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

GENERAL NOTES

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

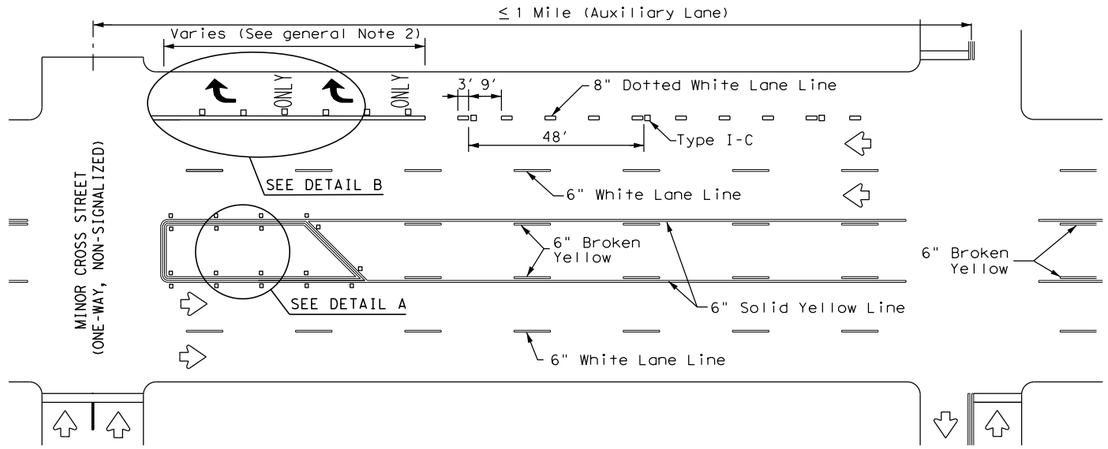


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

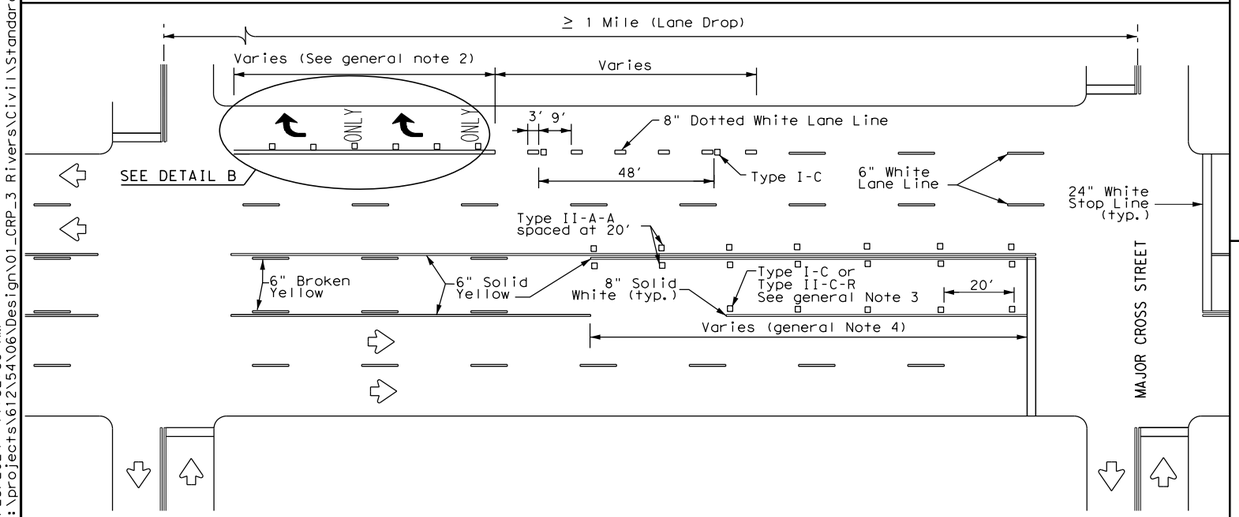
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY

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

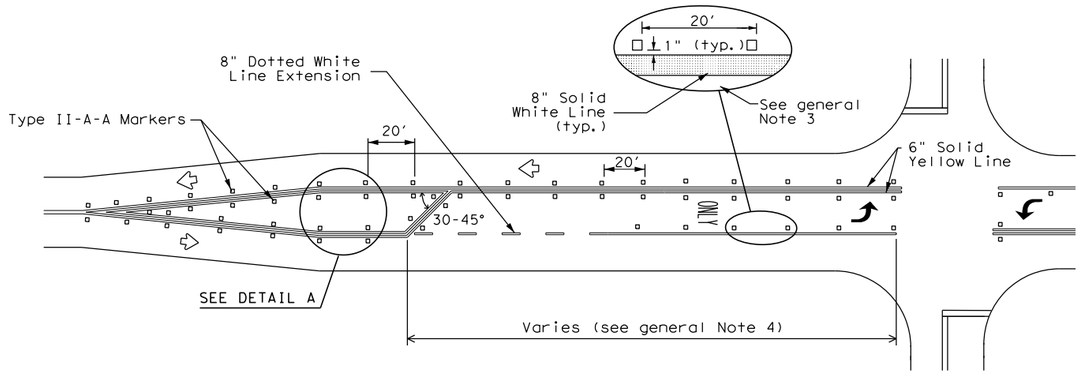
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



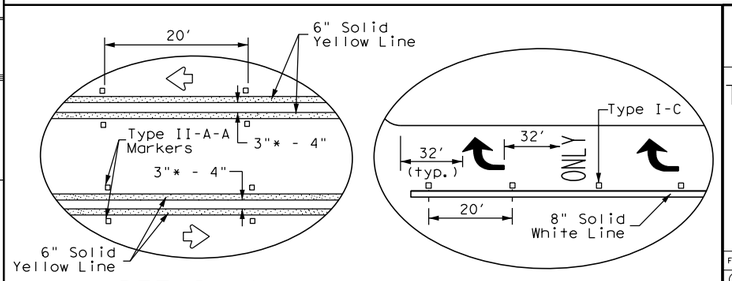
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



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



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



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

Texas Department of Transportation

Traffic Safety Division Standard

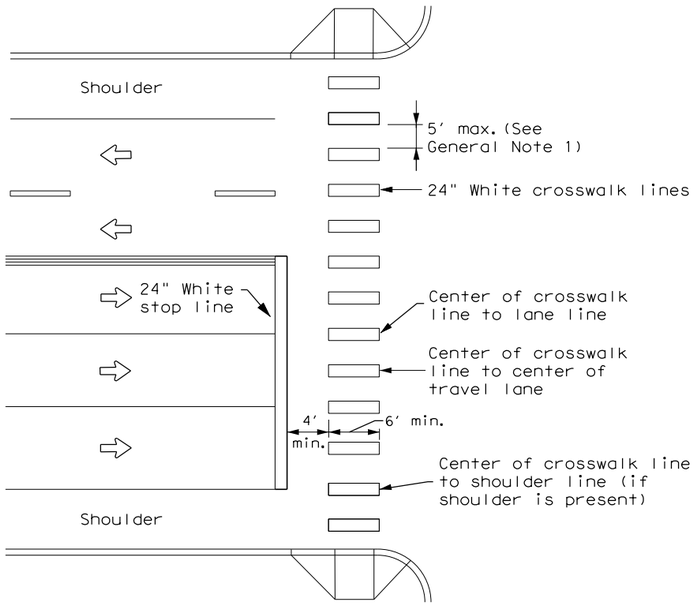
TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS

PM(3)-22

FILE: pm3-22.dgn	DN:	CK:	DW:	CK:
©TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		87

22C

DATE: 5/23/2024 11:33:01 AM
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic\pm4-22a.dgn



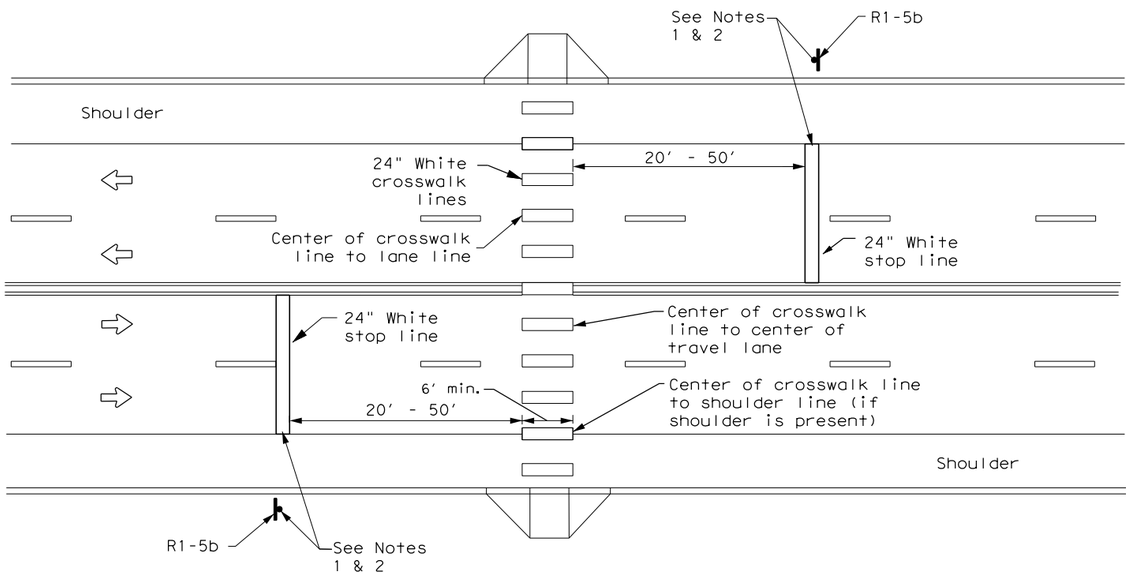
HIGH-VISIBILITY LONGITUDINAL CROSSWALK
AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

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

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



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY
LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock cross walks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) 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)-22A

FILE: pm4-22a.dgn	DN:	CK:	DW:	CK:
© TxDOT December 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
6-20	DIST	COUNTY		SHEET NO.
6-22	CRP	LIVE OAK		88
12-22				
22D				

DATE: 5/23/2024 11:33:02 AM
FILE: S:\Projects\612\S4\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic Items\ed1-14.dgn

GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.

2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.

3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is ½ in. or less in diameter.

4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.

5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.

6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.

2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.

3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.

AWG	3 CONDUCTORS	5 CONDUCTORS	7 CONDUCTORS
#1	10" x 10" x 4"	12" x 12" x 4"	16" x 16" x 4"
#2	8" x 8" x 4"	10" x 10" x 4"	12" x 12" x 4"
#4	8" x 8" x 4"	10" x 10" x 4"	10" x 10" x 4"
#6	8" x 8" x 4"	8" x 8" x 4"	10" x 10" x 4"
#8	8" x 8" x 4"	8" x 8" x 4"	8" x 8" x 4"

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.

5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.

6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.

7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.

9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.

10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.

2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.

3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.

4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.

5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."

6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.

7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.

8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.

9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.

10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.

11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.

12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).

13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.

14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

Texas Department of Transportation

Traffic Operations Division Standard

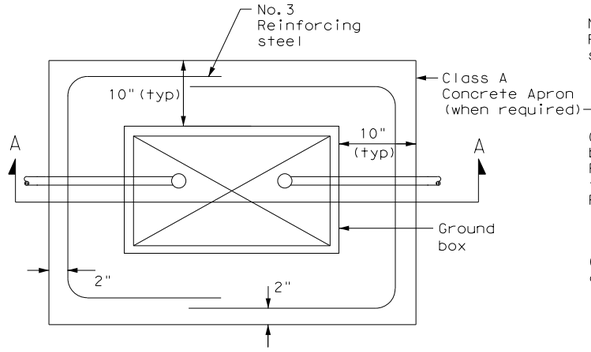
ELECTRICAL DETAILS CONDUITS & NOTES

ED(1)-14

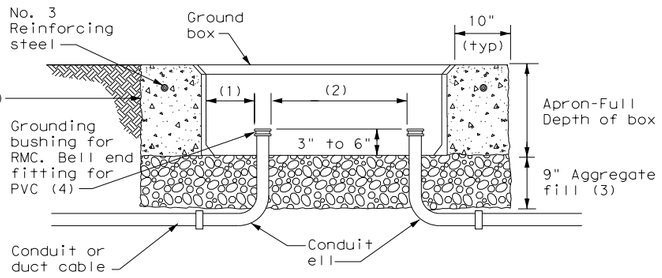
FILE:	ed1-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT	October 2014	CONT	SECT	JOB	HIGHWAY
	REVISIONS	0916	29	019	VA
		DIST	COUNTY		SHEET NO.
		CRP	LIVE OAK		89

71A

DATE: 5/23/2024 11:33:04 AM
FILE: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Standards\Traffic Items\ed4-14.dgn



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 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.

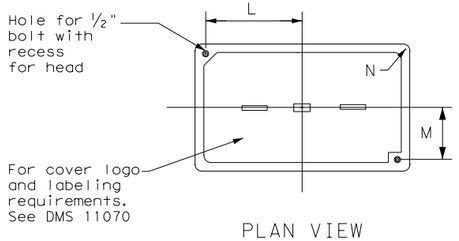
8. When a type B or D ground box is stacked to meet volume requirements, it is allowable to cut an appropriately sized hole for conduit entry in the side wall at least 18 inches below grade.

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.

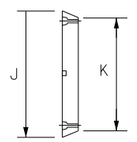
10. If other ground boxes with metal covers are within the project limits but are not part of the contract, the Engineer may direct the Contractor to bond the metal covers, identifying the specific boxes in writing. This work will be paid for separately.

11. Bond metal ground box covers to the grounding conductor with a tank ground type lug.

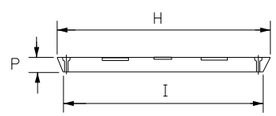
GROUND BOX COVER DIMENSIONS								
TYPE	DIMENSIONS (INCHES)							
	H	I	J	K	L	M	N	P
A, B & E	23 1/4	23	13 3/4	13 1/2	9 7/8	5 1/8	1 3/8	2
C & D	30 1/2	30 1/4	17 1/2	17 1/4	13 1/4	6 3/4	1 3/8	2



PLAN VIEW



END



SIDE

GROUND BOX COVER

Texas Department of Transportation

Traffic Operations Division Standard

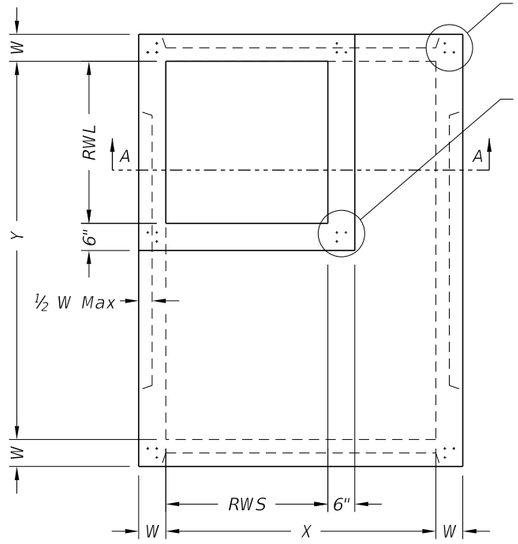
ELECTRICAL DETAILS GROUND BOXES

ED(4)-14

FILE: ed4-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT October 2014	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		90

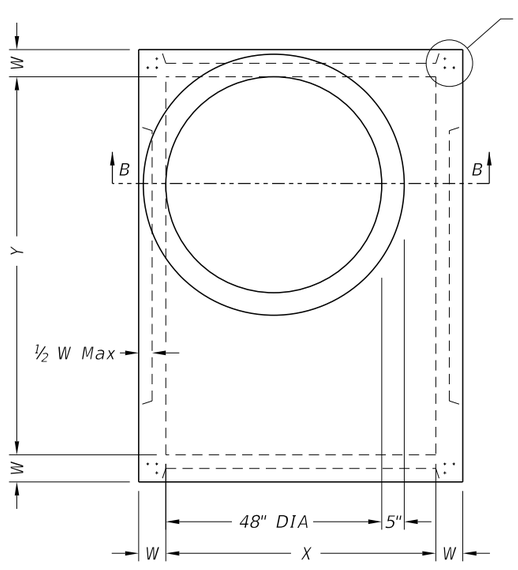
71D

DATE:
FILE:



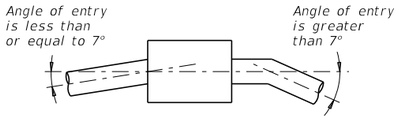
PLAN VIEW "A"

SQUARE REDUCED RISER OPTION



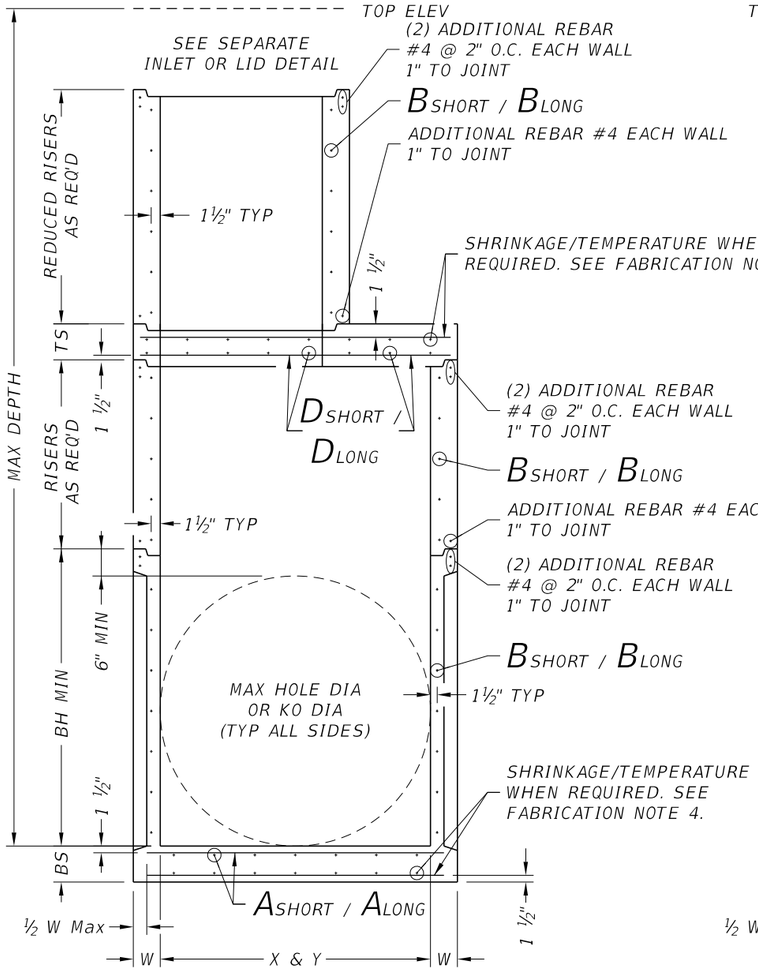
PLAN VIEW "B"

ROUND REDUCED RISER OPTION



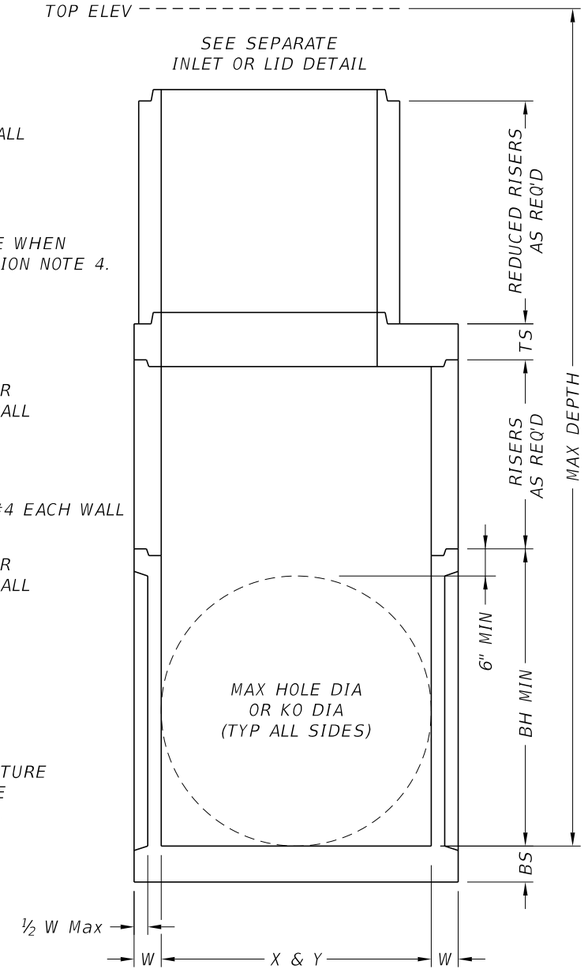
PIPE CONNECTION DETAIL

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

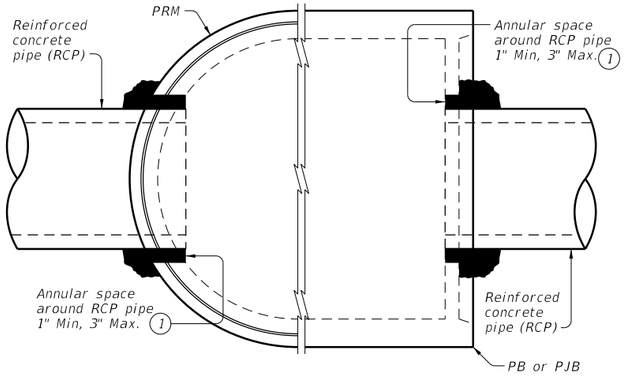
Bridge Division Standard

PRECAST BASE

PB

FILE: CD-PB-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		91

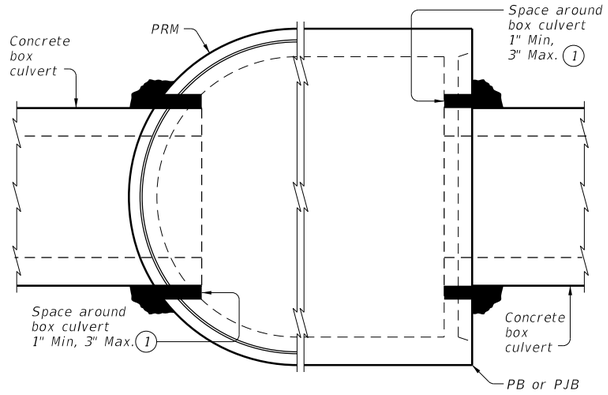
DATE:
FILE:



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

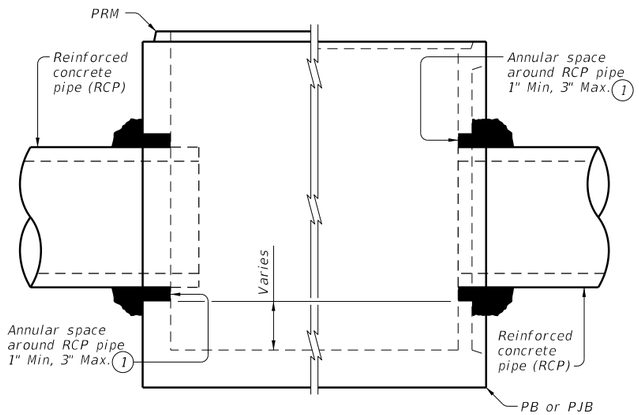
TYPICAL HALF PLAN



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

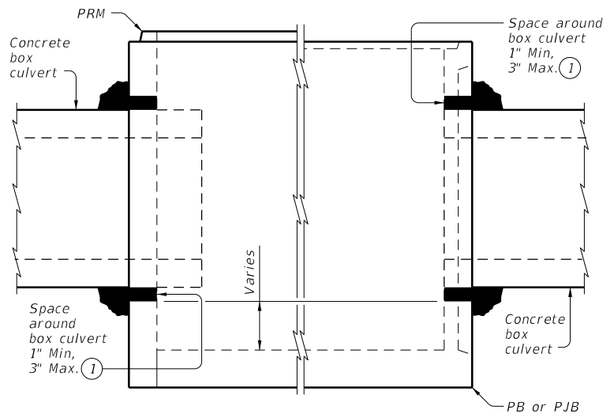
TYPICAL HALF PLAN



PRECAST ROUND MANHOLE (PRM) WITH THROUGH-HOLE

PRECAST BASE (PB) OR PRECAST JUNCTION BOX (PJB) WITH THIN-WALL KNOCK-OUT

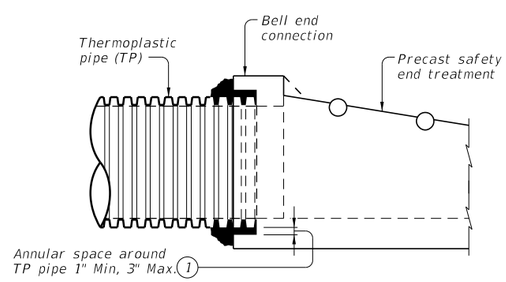
TYPICAL HALF ELEVATION



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: CD-PBGC-20.dgn	DN: TxDOT	CK: TAR	DW: JTR	CK: TAR
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		92

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

DATE:
FILE:

	Size	MAX DEPTH = 15 ft. to top of BASE SLAB										MAX DEPTH = 25 ft. to top of BASE SLAB										Min Height (See Gen Note 3)	Max HOLE DIA (See Fab Note 2)	Max KO DIA (See Fab Note 2)
		Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)				Base Slab			Base Unit or Riser Walls			Below Grade Slab (w/PJB) Reducing Slab (w/PB)						
		Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness	Reduced Riser Size	Short Span Reinf Steel Area	Long Span Reinf Steel Area	Thickness			
	X x Y	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	Ashort	Along	BS	Bshort	Blong	W	RWSxRWL or ID	Dshort	Dlong	TS	BH MIN	HOLE DIA	KO DIA
	ft.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	in^2/ft	in^2/ft	in.	ft. **	in^2/ft	in^2/ft	in.	ft.	in.	in.
Precast Junction Box (PJB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	0.37	0.37	9	0.29	0.29	6	0.24	0.24	6	N/A	0.37	0.37	9	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	0.41	0.41	9	0.47	0.47	6	0.38	0.38	6	N/A	0.41	0.41	9	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	N/A	0.48	0.48	9	0.39	0.18	6	0.23	0.59	6	N/A	0.48	0.48	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	N/A	0.42	0.42	9	0.53	0.26	6	0.39	0.59	6	N/A	0.42	0.42	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	N/A	0.43	0.43	9	0.62	0.62	6	0.59	0.59	6	N/A	0.43	0.43	9	5.5	60	60
	5x6	0.27	0.27	9	0.34	0.45	6	N/A	0.48	0.48	9	0.47	0.45	9	0.38	0.54	8	N/A	0.48	0.48	9	5.5	60/72	60/72
	6x6	0.27	0.27	9	0.45	0.45	6	N/A	0.56	0.56	9	0.52	0.52	9	0.54	0.54	8	N/A	0.56	0.56	9	6.5	72	72
	8x8	0.46	0.46	9	0.51	0.51	8	N/A	0.45	0.45	12	0.87	0.87	9	0.59	0.59	10	N/A	0.45	0.45	12	8.5	96	72
Precast Base (PB)	3x3	0.23	0.23	6	0.19	0.19	6	N/A	N/A	N/A	N/A	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	3.5	36	36
	4x4	0.29	0.29	6	0.24	0.24	6	N/A	N/A	N/A	N/A	0.47	0.47	6	0.38	0.38	6	N/A	N/A	N/A	N/A	4.5	48	48
	3x5	0.29	0.18	6	0.19	0.35	6	3x3	0.30	0.34	9	0.39	0.18	6	0.23	0.59	6	3x3	0.40	0.40	9	3.5	36/60	36/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x3	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	3x3	0.46	0.37	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	4x4	0.30	0.30	9	0.53	0.26	6	0.39	0.59	6	4x4	0.39	0.39	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	48"	0.39	0.39	9	0.53	0.26	6	0.39	0.59	6	48"	0.47	0.47	9	4.5	48/60	48/60
	4x5	0.36	0.18	6	0.22	0.34	6	3x5	0.33	0.40	9	0.53	0.26	6	0.39	0.59	6	3x5	0.48	0.48	9	4.5	48/60	48/60
	5x5	0.36	0.36	6	0.34	0.34	6	3x3	0.34	0.34	9	0.62	0.62	6	0.59	0.59	6	3x3	0.53	0.53	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	4x4	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	4x4	0.64	0.64	9	5.5	60	60
	5x5	0.38	0.38	6	0.34	0.34	6	48"	0.36	0.36	9	0.62	0.62	6	0.59	0.59	6	48"	0.64	0.64	9	5.5	60	60
	5x5	0.36	0.36	6	0.34	0.34	6	3x5	0.34	0.40	9	0.62	0.62	6	0.59	0.59	6	3x5	0.53	0.53	9	5.5	60	60
	5x6	0.31	0.31	9	0.34	0.45	6	3x3	0.34	0.34	9	0.47	0.45	9	0.38	0.54	8	3x3	0.61	0.50	9	5.5	60/72	60/72
	5x6	0.27	0.27	9	0.34	0.45	6	4x4	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	4x4	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	48"	0.36	0.45	9	0.47	0.45	9	0.38	0.54	8	48"	0.74	0.57	9	5.5	60/72	60/72
	5x6	0.29	0.29	9	0.34	0.45	6	3x5	0.45	0.45	9	0.47	0.45	9	0.38	0.54	8	3x5	0.61	0.61	9	5.5	60/72	60/72
	6x6	0.29	0.29	9	0.45	0.45	6	3x3	0.41	0.41	9	0.52	0.52	9	0.54	0.54	8	3x3	0.74	0.74	9	6.5	72	72
	6x6	0.27	0.27	9	0.45	0.45	6	4x4	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	4x4	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	48"	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	48"	0.87	0.87	9	6.5	72	72
	6x6	0.29	0.29	9	0.45	0.45	6	3x5	0.45	0.45	9	0.52	0.52	9	0.54	0.54	8	3x5	0.87	0.87	9	6.5	72	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x3	0.61	0.61	12	0.91	0.91	9	0.70	0.70	10	3x3	0.85	0.85	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	4x4	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	4x4	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	48"	0.70	0.70	12	0.87	0.87	9	0.70	0.70	10	48"	1.01	1.01	12	8.5	96	72
	8x8	0.52	0.52	9	0.51	0.51	8	3x5	0.70	0.85	12	0.87	0.87	9	0.70	0.70	10	3x5	1.01	1.01	12	8.5	96	72

** Unless otherwise indicated.

FABRICATION NOTES:
1. Maximum spacing of reinforcement is 8".
2. At manufacturer's option, provide cast or cored holes or thin wall panels (KO) to the maximum diameter shown for each. When no penetration is required, it is acceptable to provide a wall with no sectional reduction.

GENERAL NOTES:
1. Precast Junction Box consists of base slab, base unit, risers (as required), and below grade slab. See sheet PJB for details.
2. Precast Base consists of base slab, base unit, risers (as required), reducing slab (as required), and reduced risers (as required). See sheet PB for details.
3. Min Height shown is for stock base units. Use stock base units whenever practical. Smaller height base units can be used in special installation circumstances, when noted elsewhere in the plans. Absolute minimum height of base units is 2'-6".

HL93 LOADING

Texas Department of Transportation

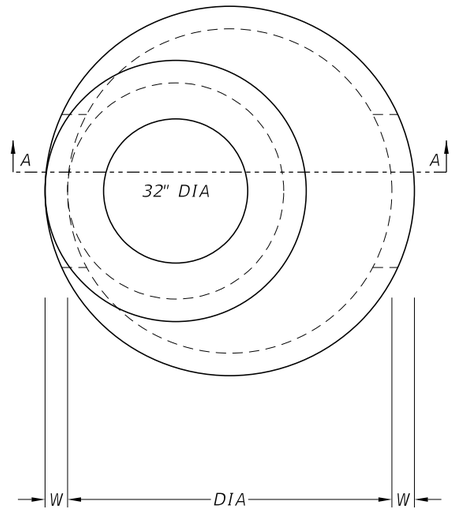
Bridge Division Standard

DESIGN DATA FOR PRECAST BASE AND JUNCTION BOX

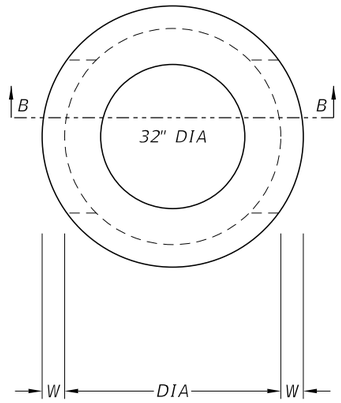
PDD

FILE: CD-PDD-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		93

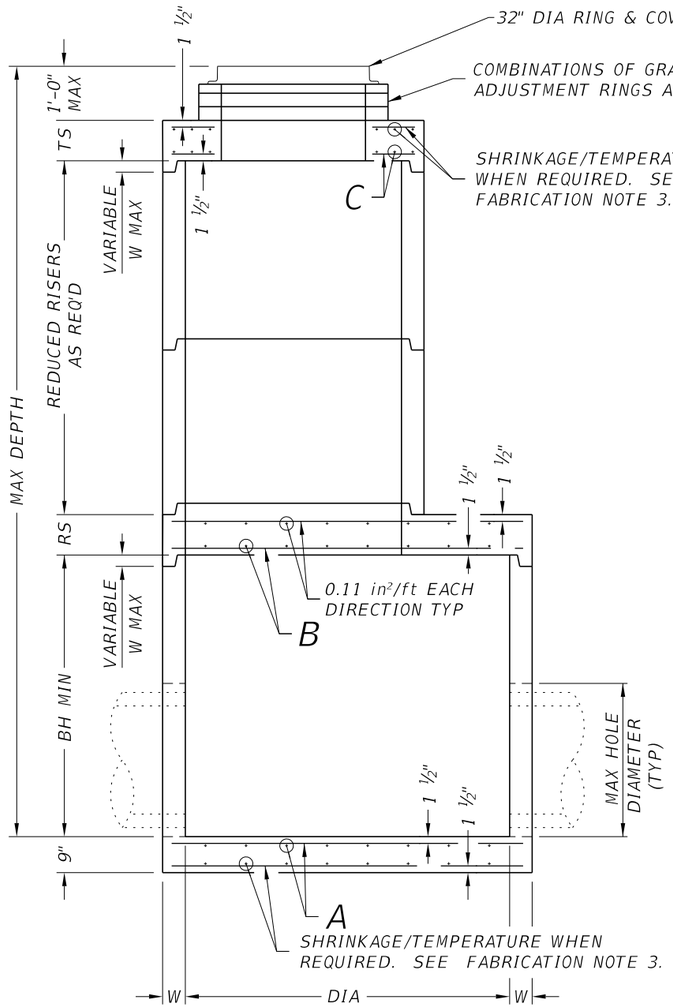
DATE:
FILE:



PLAN VIEW "A"

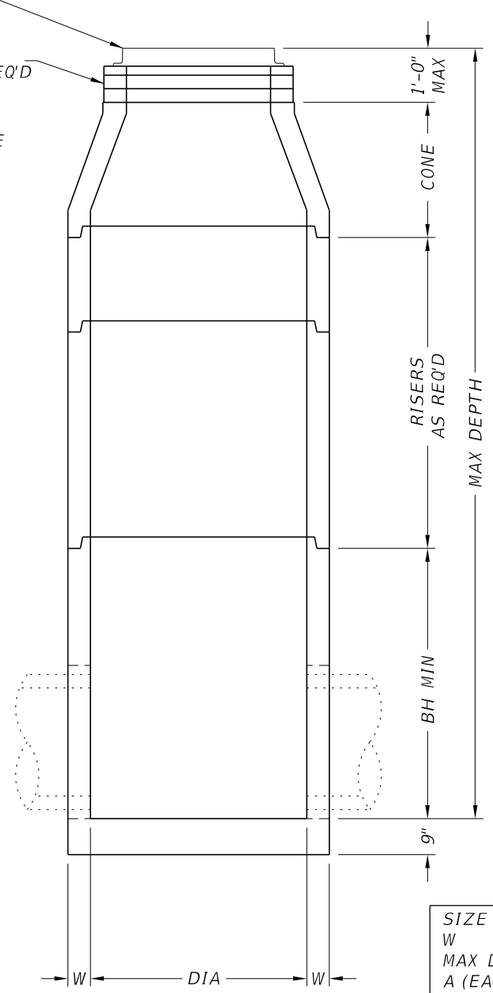


PLAN VIEW "B"



SECTION A-A

ROUND REDUCED RISER OPTION
SHOWING FLAT SLAB TOP



SECTION B-B

ROUND RISER OPTION
SHOWING CONE

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. Provide circumferential reinforcing steel in vertical walls of base, riser and cone in accordance with ASTM C478.
3. Slabs with a thickness of 8" or greater require shrinkage and temperature reinforcing steel. Provide steel area = 0.11 in²/ft each way.
4. Manufacture base and risers to nearest 3" increment.
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.
7. Provide cast iron solid cover, unless noted otherwise elsewhere in the plans.

INSTALLATION NOTES:

1. Cones may be concentric or eccentric. Reduction cones are acceptable. See Manufacturer for cone dimensions.
2. Inverts (benching) to be provided by Contractor. Concrete or mortar used for invert is subsidiary to this item.
3. 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.
4. Do not grout rubber gasket joints without Manufacturer's recommendation.
5. Initial installation of grade adjustment rings is limited to 1'-0" Max as shown.
6. Grade adjustment rings 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 may be made up to the Max depth shown. Structure must be evaluated if Max depth will be exceeded.

GENERAL NOTES:

1. Designed according to ASTM C478.
2. Payment for manhole is per Item 465, "Junction Boxes, Manholes, and Inlets" by type and size.
3. Pipe OD + placement tolerance must be equal or less than Max hole diameter. For rigid pipe, placement tolerance is 4" Max, 2" Min. For flexible pipe, consult boot/seal manufacturer's specification for placement tolerance.

Cover dimensions are clear dimensions, unless noted otherwise.

SIZE (DIA)	48 in	60 in	72 in
W	5 in	6 in	7 in
MAX DEPTH	25 ft	25 ft	25 ft
A (EACH WAY)	0.22 in²/ft	0.30 in²/ft	0.45 in²/ft
B (EACH WAY)	N/A	0.37 in²/ft	0.62 in²/ft
C (EACH WAY)	0.24 in²/ft	0.46 in²/ft	0.46 in²/ft
BH MIN	12 in	36 in	36 in
TS	9 in	9 in	9 in
RS	N/A	9 in	12 in
REDUCED RISER DIA	N/A	48 in	48/60 in
MAX HOLE DIA	32 in	40 in	54 in

HL93 LOADING

Texas Department of Transportation

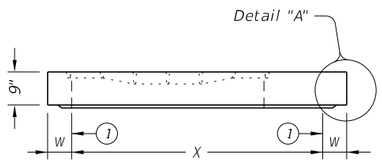
Bridge Division Standard

PRECAST ROUND MANHOLE

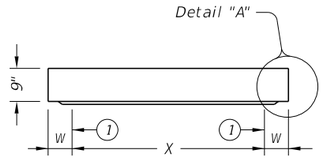
PRM

FILE: CD-PRM-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS 3/2023 ~ Corrected TS and RS callout	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		94

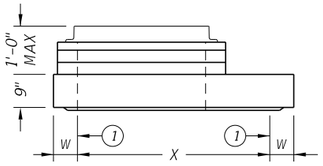
DATE:
FILE:



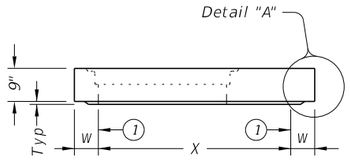
STYLE 'FG'



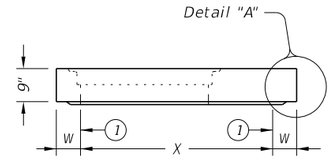
ELEVATION VIEW



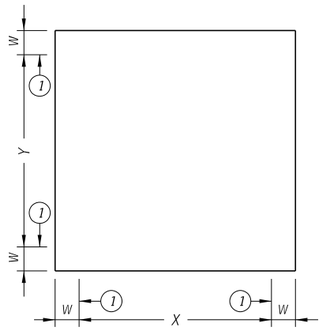
ELEVATION VIEW



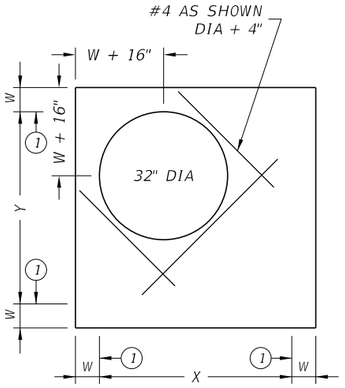
ELEVATION VIEW



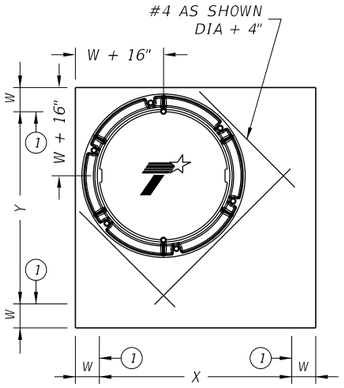
ELEVATION VIEW



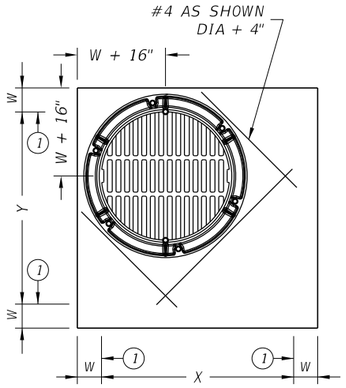
PLAN VIEW
NO OPENINGS
STYLE 'SL'



PLAN VIEW
SHIP LOOSE RING & COVER
STYLE 'RH'

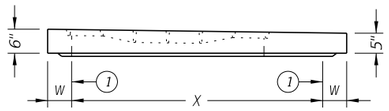


PLAN VIEW
32" DIA CAST-IN RING & COVER
STYLE 'RC'

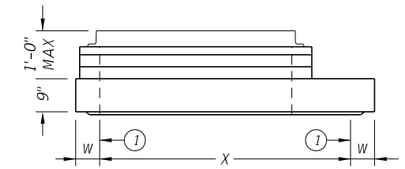


PLAN VIEW
32" DIA CAST-IN RING & GRATE
STYLE 'RG'

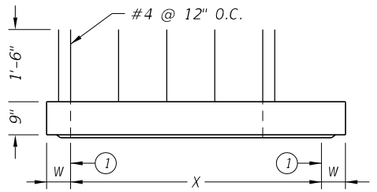
ORIENT TAPER TO CORRESPOND WITH ROADWAY CROSS-SLOPE.



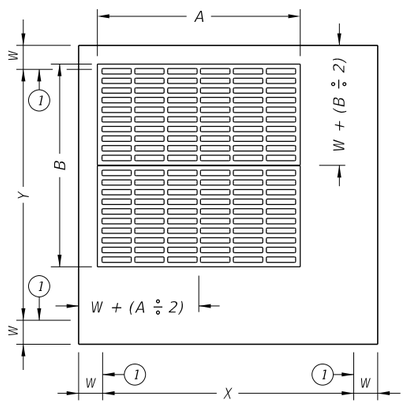
STYLE 'SFG'
ELEVATION VIEW



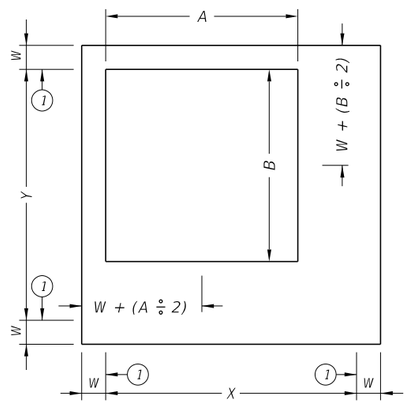
ELEVATION VIEW



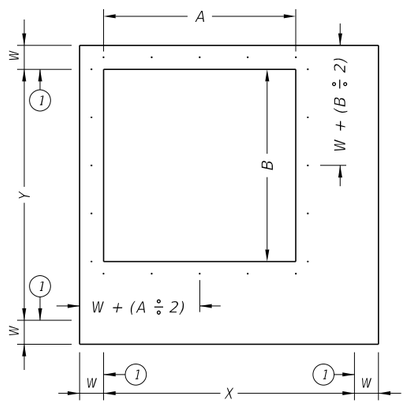
ELEVATION VIEW



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

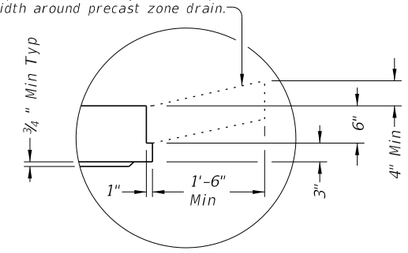
FILE: CD-PSL-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		95

DATE:
FILE:

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 in²/ft	0.37 in²/ft
RH,RC,RG,SH,S1,FG	3'x3'	6"	3'x3' or 32" Dia	0.37 in²/ft	0.37 in²/ft
SFG	3'x3'	6"	3'x3'	0.32 in²/ft	0.32 in²/ft
SL	4'x4'	6"	n/a	0.34 in²/ft	0.34 in²/ft
RH,RC,RG,SH,S1,FG	4'x4'	6"	3'x3' or 32" Dia	0.41 in²/ft	0.41 in²/ft
SH,S1,FG	4'x4'	6"	4'x4'	0.41 in²/ft	0.41 in²/ft
SFG	4'x4'	6"	4'x4'	0.32 in²/ft	0.32 in²/ft
SL	3'x5'	6"	n/a	0.39 in²/ft	0.39 in²/ft
RH,RC,RG,SH,S1,FG	3'x5'	6"	3'x3' or 32" Dia	0.48 in²/ft	0.48 in²/ft
SH,S1,FG	3'x5'	6"	3'x5'	0.48 in²/ft	0.48 in²/ft
SFG	3'x5'	6"	3'x5'	0.32 in²/ft	0.32 in²/ft
SL	4'x5'	6"	n/a	0.42 in²/ft	0.42 in²/ft
RH,RC,RG,SH,S1,FG	4'x5'	6"	3'x3' or 32" Dia	0.42 in²/ft	0.42 in²/ft
SH,S1,FG	4'x5'	6"	4'x4'	0.63 in²/ft	0.63 in²/ft
SH,S1,FG	4'x5'	6"	3'x5'	0.66 in²/ft	0.66 in²/ft
SL	5'x5'	6"	n/a	0.36 in²/ft	0.36 in²/ft
RH,RC,RG,SH,S1,FG	5'x5'	6"	3'x3' or 32" Dia	0.43 in²/ft	0.43 in²/ft
SH,S1,FG	5'x5'	6"	4'x4'	0.63 in²/ft	0.63 in²/ft
SH,S1,FG	5'x5'	6"	3'x5'	0.63 in²/ft	0.63 in²/ft
SL	5'x6'	6"/8"	n/a	0.48 in²/ft	0.48 in²/ft
RH,RC,RG,SH,S1,FG	5'x6'	6"/8"	3'x3' or 32" Dia	0.48 in²/ft	0.48 in²/ft
SH,S1,FG	5'x6'	6"/8"	4'x4'	0.60 in²/ft	0.60 in²/ft
SH,S1,FG	5'x6'	6"/8"	3'x5'	0.60 in²/ft	0.60 in²/ft
SL	6'x6'	6"/8"	n/a	0.43 in²/ft	0.43 in²/ft
RH,RC,RG,SH,S1,FG	6'x6'	6"/8"	3'x3' or 32" Dia	0.56 in²/ft	0.56 in²/ft
SH,S1,FG	6'x6'	6"/8"	4'x4'	0.56 in²/ft	0.56 in²/ft
SH,S1,FG	6'x6'	6"/8"	3'x5'	0.59 in²/ft	0.59 in²/ft
SL	8'x8'	8"/10"	n/a	0.45 in²/ft	0.45 in²/ft
RH,RC,RG,SH,S1,FG	8'x8'	8"/10"	3'x3' or 32" Dia	0.45 in²/ft	0.45 in²/ft
SH,S1,FG	8'x8'	8"/10"	4'x4'	0.45 in²/ft	0.45 in²/ft
SH,S1,FG	8'x8'	8"/10"	3'x5'	0.45 in²/ft	0.45 in²/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

Texas Department of Transportation

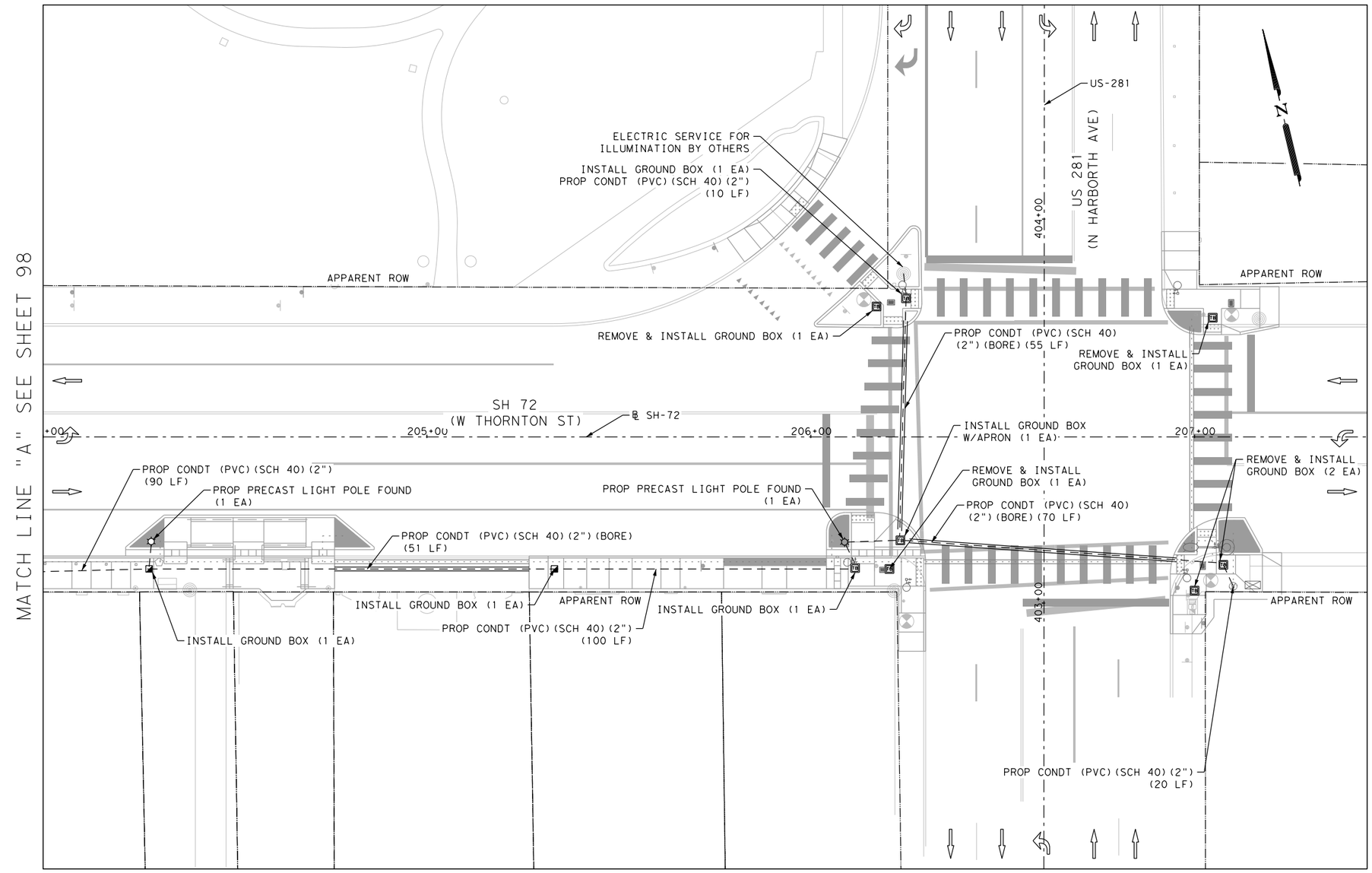
Bridge Division Standard

PRECAST SLAB LID

PSL

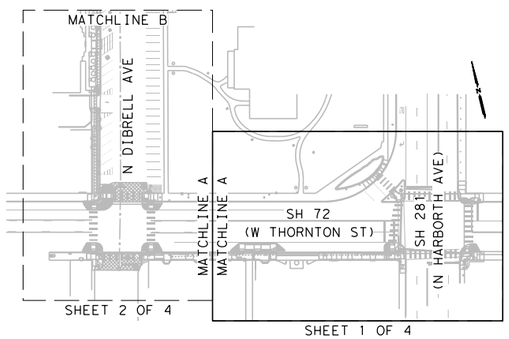
FILE: CD-PSL-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		96

ITEM	DESCRIPTION	UNIT	QTY
0416-6001	DRILL SHAFT (18 IN)	LF	10
0618-6023	CONDT (PVC) (SCH 40) (2")	LF	220
0618-6024	CONDT (PVC) (SCH 40) (2") (BORE)	LF	176
0624-6009	GROUND BOX TY D (162922)	EA	9
0624-6010	GROUND BOX TY D (162922)W/APRON	EA	1
0624-6028	REMOVE GROUND BOX	EA	5
4128-6001	PRECAST LIGHT POLE FOUNDATION	EA	2



LEGEND

- DRAINAGE FLOW ARROW
- CONDUIT
- CONDUIT (BORE)
- PRECAST LIGHT POLE FOUNDATION (FUTURE LIGHT POLE ASSEMBLY BY OTHERS)
- TRAFFIC SIGNAL POLE BY OTHERS
- PEDESTRIAN SIGNAL POLE BY OTHERS
- TRAFFIC SIGNAL BOX BY OTHERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC FLOW
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 10 20 30 40

SCALE: 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

ILLUMINATION & SIGNAL PLAN

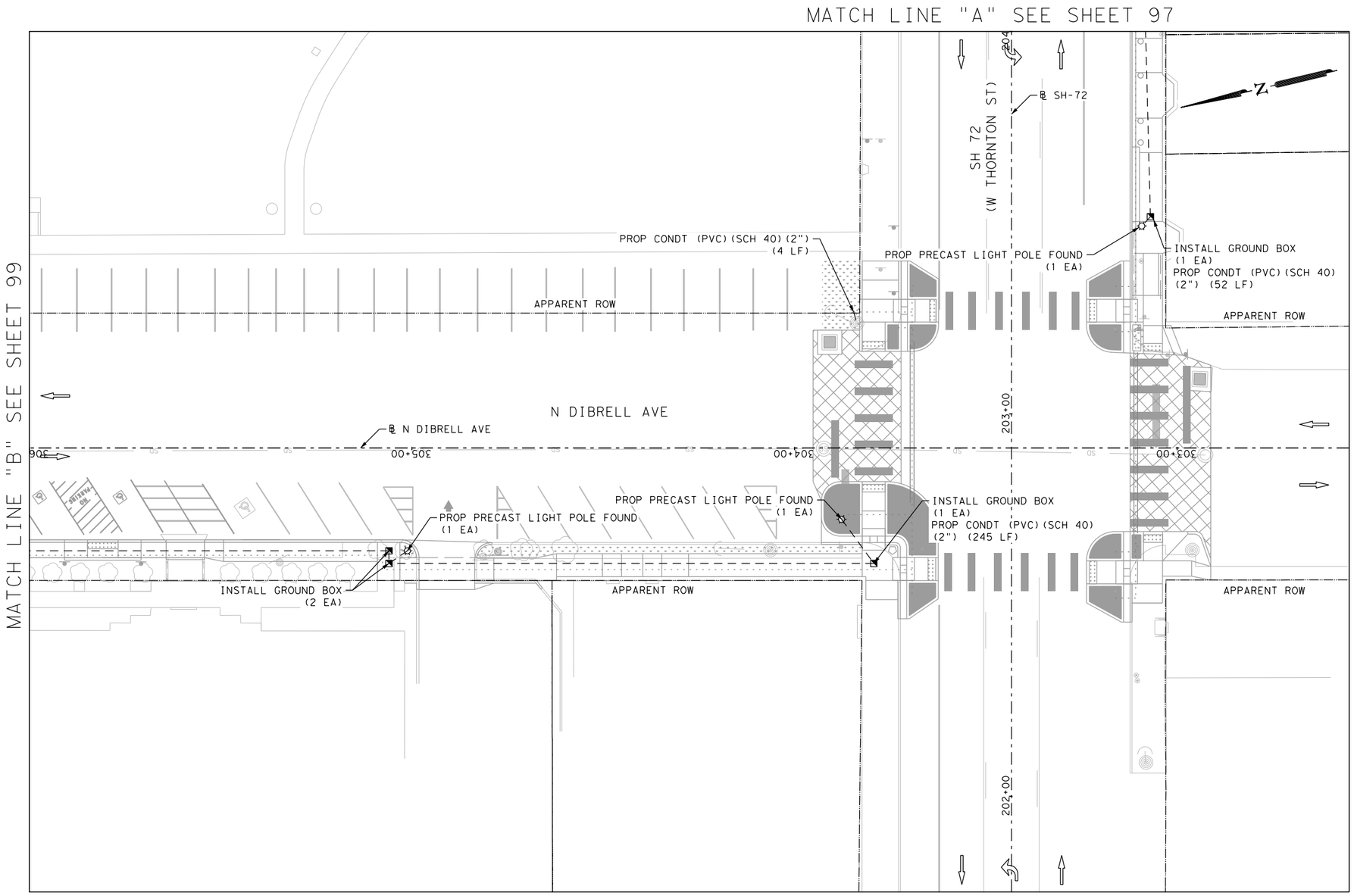
SHEET 1 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	97

Design Filename: S:\projects\612554\06\Design\01_CRP_3 Rivers\Civil\Roadway\ELECTRICITY\6125406_01_3_Rivers_ELEC01.dgn

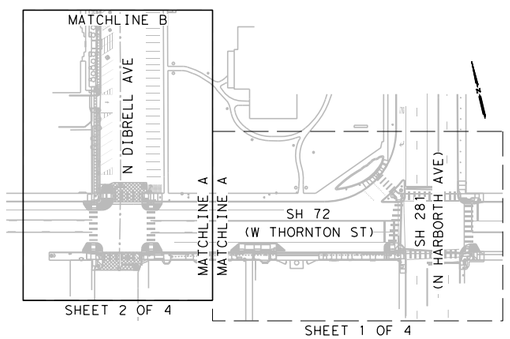
Plotted on: 6/17/2024

ITEM	DESCRIPTION	UNIT	QTY
0416-6001	DRILL SHAFT (18 IN)	LF	15
0618-6023	CONDT (PVC) (SCH 40) (2")	LF	325
0624-6009	GROUND BOX TY D (162922)	EA	4
4128-6001	PRECAST LIGHT POLE FOUNDATION	EA	3



LEGEND

- DRAINAGE FLOW ARROW
- CONDUIT
- CONDUIT (BORE)
- PRECAST LIGHT POLE FOUNDATION (FUTURE LIGHT POLE ASSEMBLY BY OTHERS)
- TRAFFIC SIGNAL POLE BY OTHERS
- PEDESTRIAN SIGNAL POLE BY OTHERS
- TRAFFIC SIGNAL BOX BY OTHERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC FLOW
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



DESIGN

STATE OF TEXAS
TYLER PAYNE DUBE
118612
LICENSED
PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS
JOHN A. TYLER
105193
LICENSED
PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 10 20 30 40
SCALE: 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

ILLUMINATION & SIGNAL PLAN

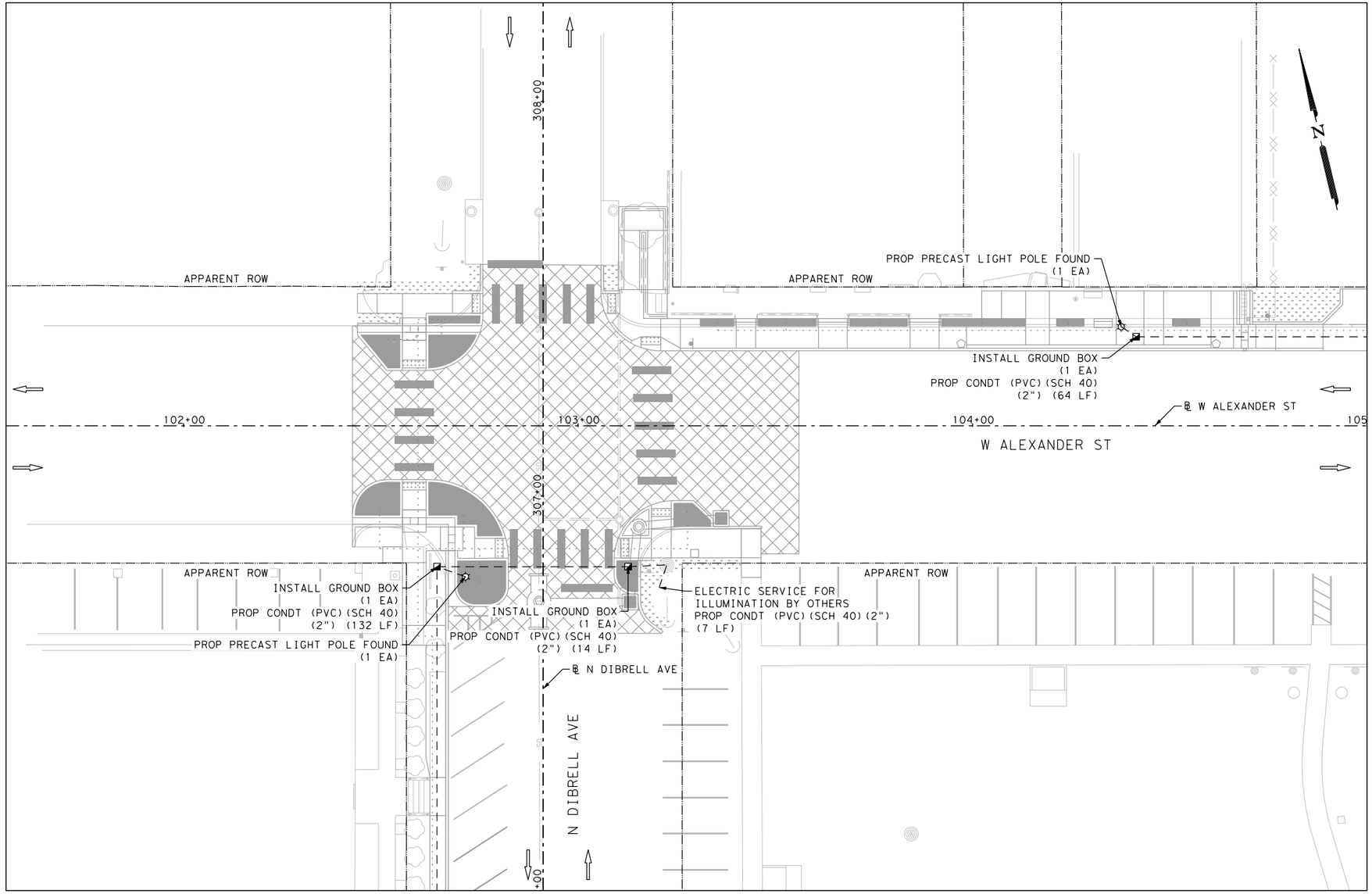
SHEET 2 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	98

Design Filename: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Roadway\ELECTRICITY\6125406_01_3_Rivers_ELEC02.dgn

Plotted on: 6/17/2024

ITEM	DESCRIPTION	UNIT	QTY
0416-6001	DRILL SHAFT (18 IN)	LF	10
0618-6023	CONDT (PVC) (SCH 40) (2")	LF	217
0624-6009	GROUND BOX TY D (162922)	EA	3
4128-6001	PRECAST LIGHT POLE FOUNDATION	EA	2

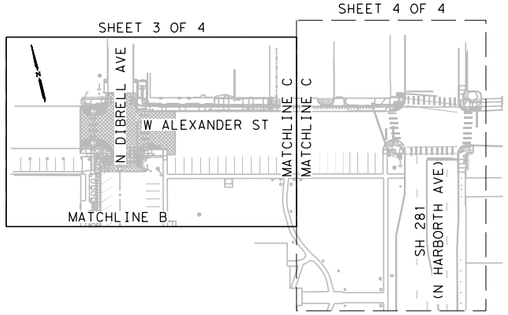


MATCH LINE "B" SEE SHEET 98

MATCH LINE "C" SEE SHEET 100

LEGEND

- DRAINAGE FLOW ARROW
- CONDUIT
- CONDUIT (BORE)
- PRECAST LIGHT POLE FOUNDATION (FUTURE LIGHT POLE ASSEMBLY BY OTHERS)
- TRAFFIC SIGNAL POLE BY OTHERS
- PEDESTRIAN SIGNAL POLE BY OTHERS
- TRAFFIC SIGNAL BOX BY OTHERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC FLOW
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 10 20 30 40

SCALE: 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

ILLUMINATION & SIGNAL PLAN

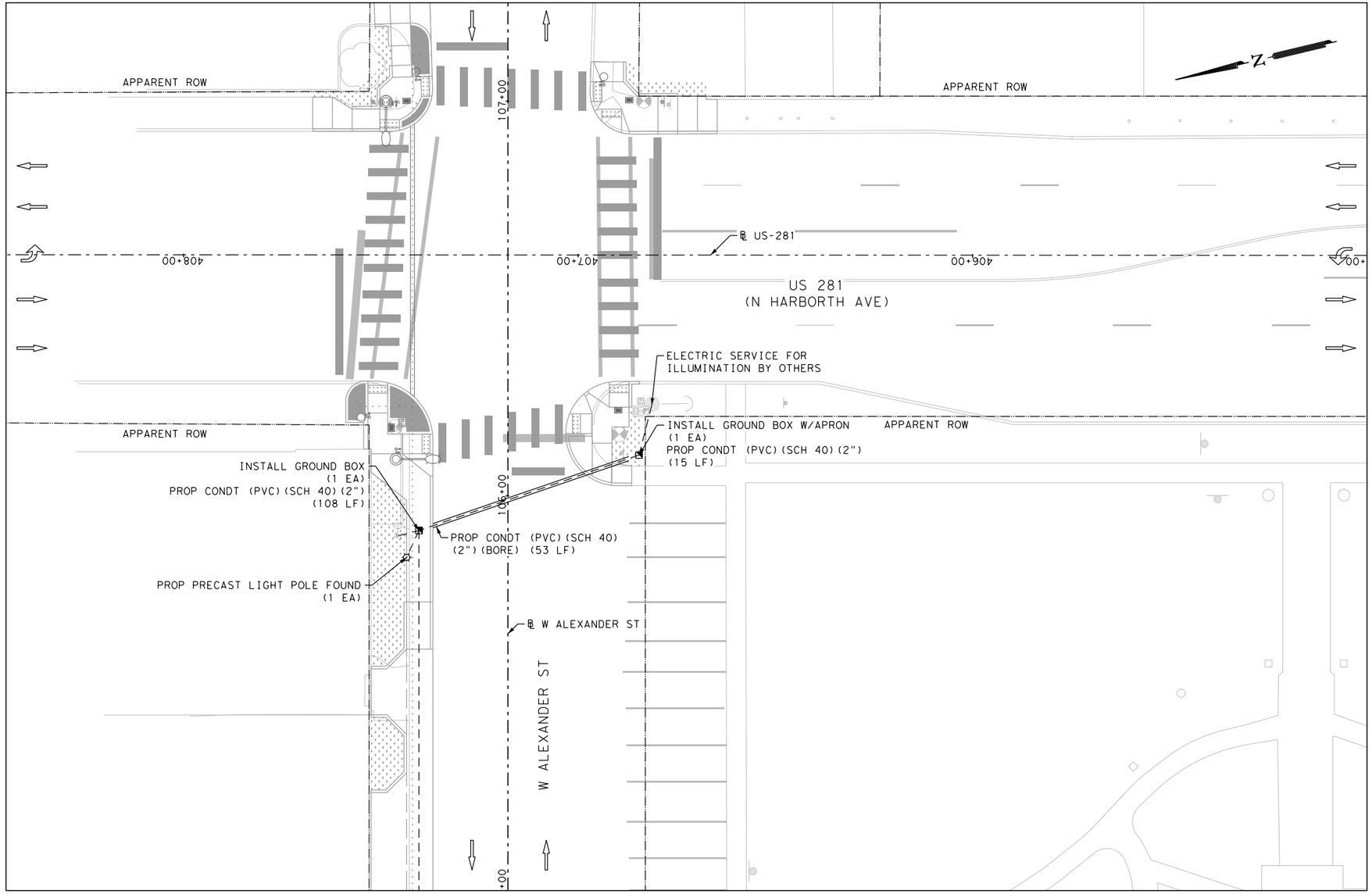
SHEET 3 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	99

Plotted on: 6/17/2024

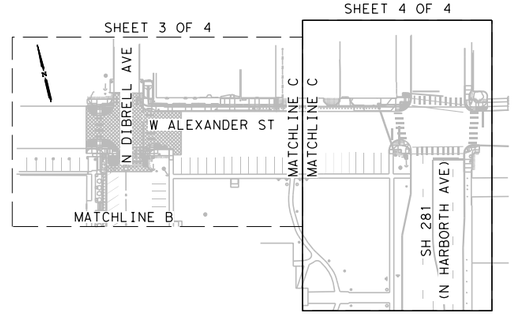
Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\ELECTRICITY\6125406_01_3_Rivers_ELEC03.dgn

ITEM	DESCRIPTION	UNIT	QTY
0416-6001	DRILL SHAFT (18 IN)	LF	5
0618-6023	CONDT (PVC) (SCH 40) (2")	LF	123
0618-6024	CONDT (PVC) (SCH 40) (2") (BORE)	LF	53
0624-6009	GROUND BOX TY D (162922)	EA	1
0624-6010	GROUND BOX TY D (162922)W/APRON	EA	1
4128-6001	PRECAST LIGHT POLE FOUNDATION	EA	1



LEGEND

- DRAINAGE FLOW ARROW
- CONDUIT
- CONDUIT (BORE)
- PRECAST LIGHT POLE FOUNDATION (FUTURE LIGHT POLE ASSEMBLY BY OTHERS)
- TRAFFIC SIGNAL POLE BY OTHERS
- PEDESTRIAN SIGNAL POLE BY OTHERS
- TRAFFIC SIGNAL BOX BY OTHERS
- TRASH CAN
- MANHOLE
- TRAFFIC SIGNAL POLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC FLOW
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 10 20 30 40

SCALE: 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

ILLUMINATION & SIGNAL PLAN

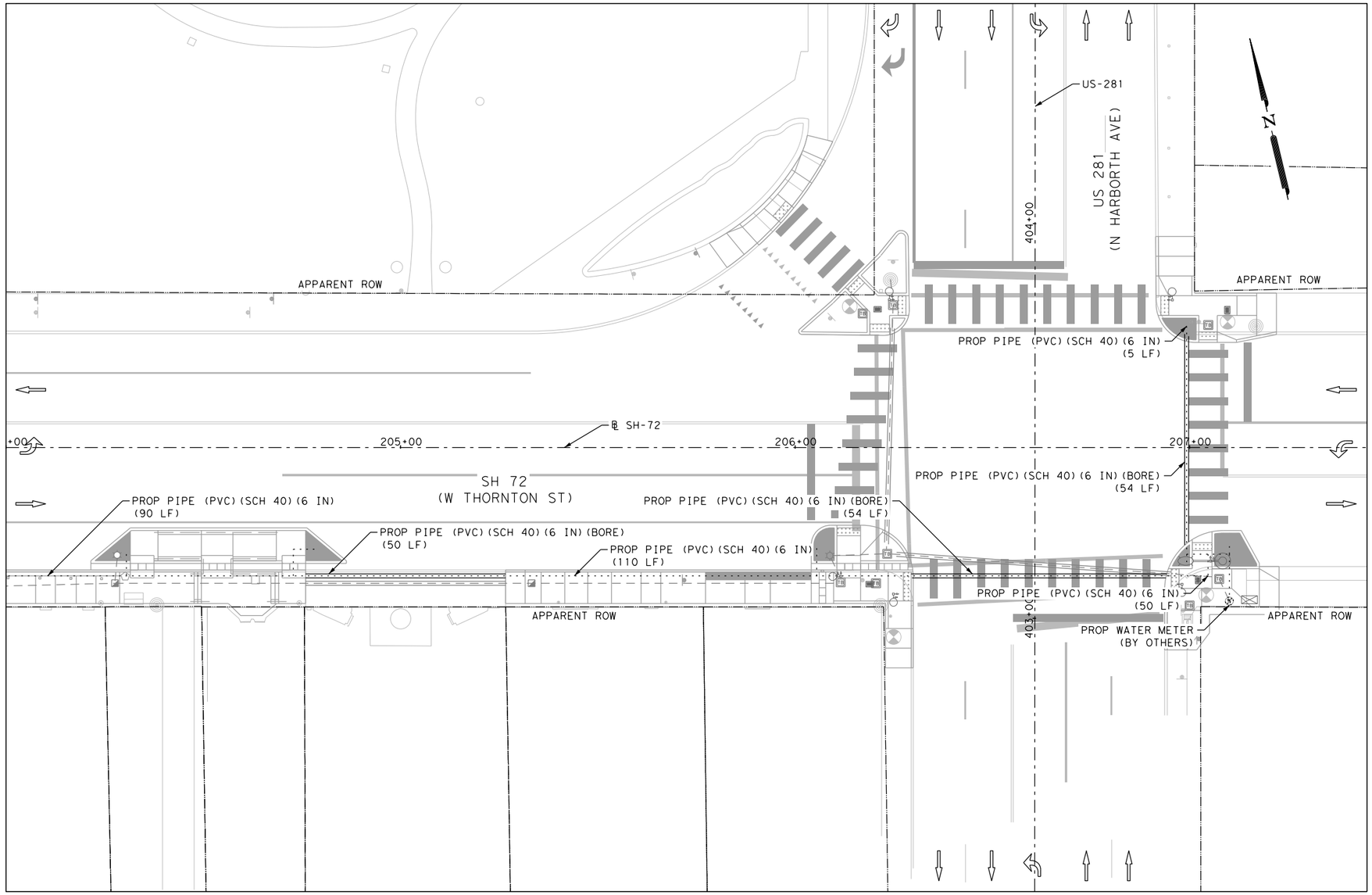
SHEET 4 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	100

Plotted on: 6/17/2024

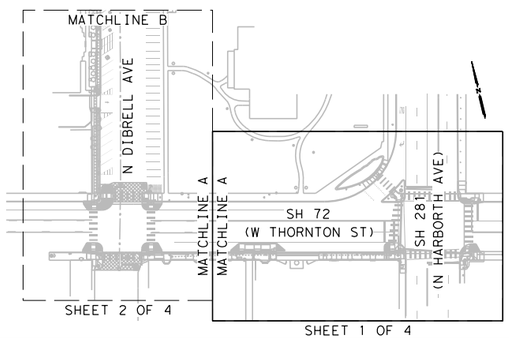
Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\ELECTRICITY\6125406_01_3_Rivers_ELEC04.dgn

ITEM	DESCRIPTION	UNIT	QTY
0618-6037	CONDT (PVC) (SCH 40) (6")	LF	255
0618-6038	CONDT (PVC) (SCH 40) (6") (BORE)	LF	158



LEGEND

- DRAINAGE FLOW ARROW
- 6" PVC SLEEVE
- 6" PVC SLEEVE (BORE)
- TRASH CAN
- MANHOLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC FLOW
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- TRAFFIC SIGNAL POLE
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 10 20 30 40

SCALE: 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

IRRIGATION LAYOUT

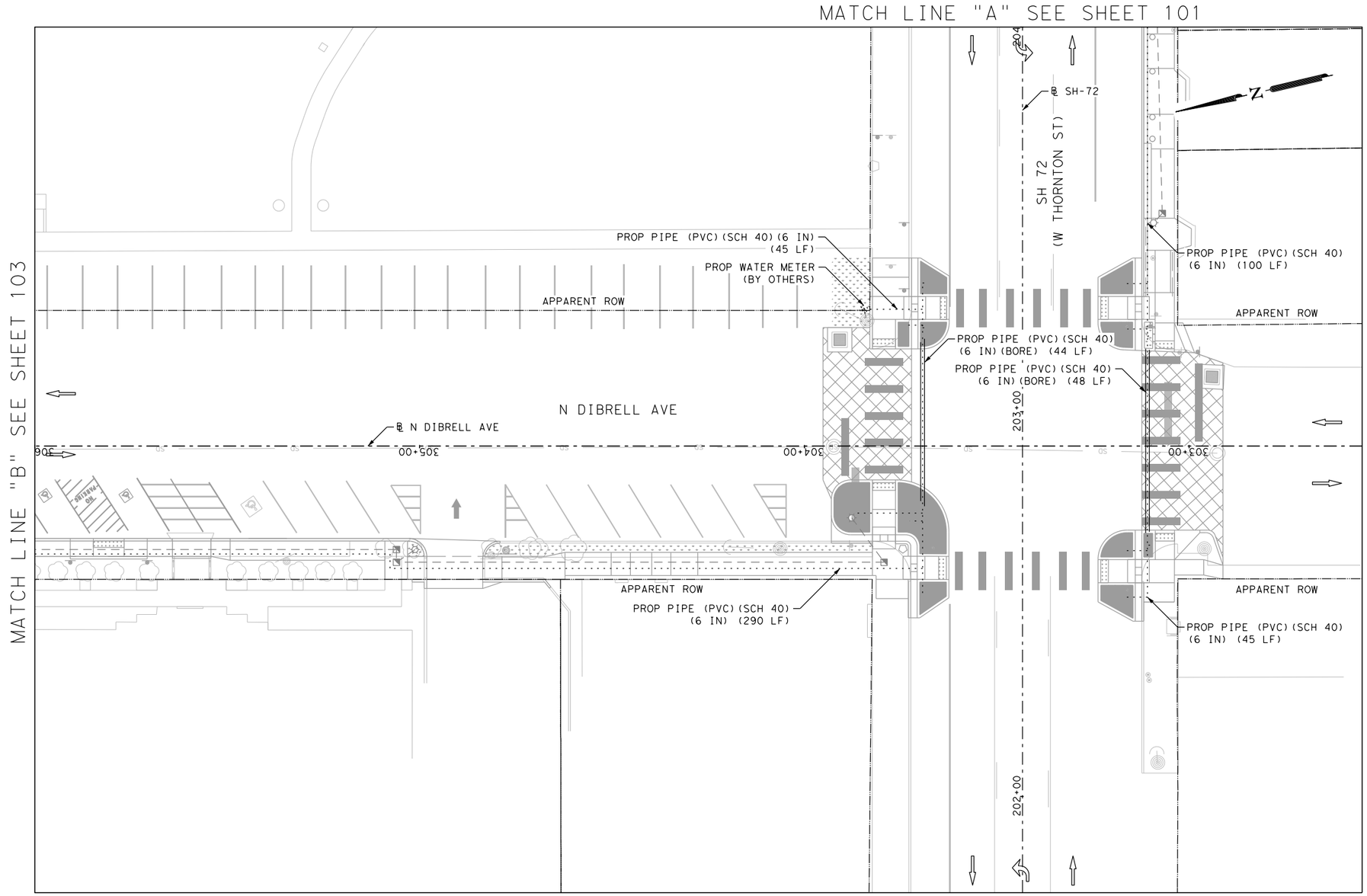
SHEET 1 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	101

Design Filename: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Roadway\IRRIGATION\6125406_01_3_Rivers_IRR01.dgn

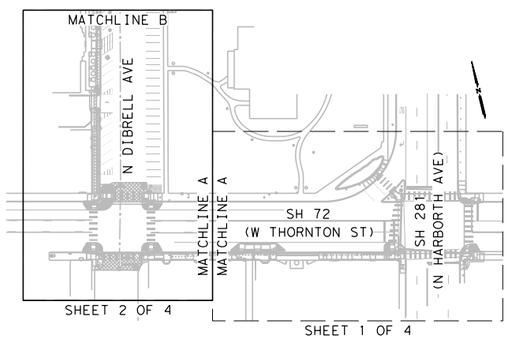
Plotted on: 6/17/2024

ITEM	DESCRIPTION	UNIT	QTY
0618-6037	CONDT (PVC) (SCH 40) (6")	LF	480
0618-6038	CONDT (PVC) (SCH 40) (6") (BORE)	LF	92



LEGEND

- DRAINAGE FLOW ARROW
- 6" PVC SLEEVE
- 6" PVC SLEEVE (BORE)
- TRASH CAN
- MANHOLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC FLOW
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- TRAFFIC SIGNAL POLE
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 10 20 30 40

SCALE: 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

IRRIGATION LAYOUT

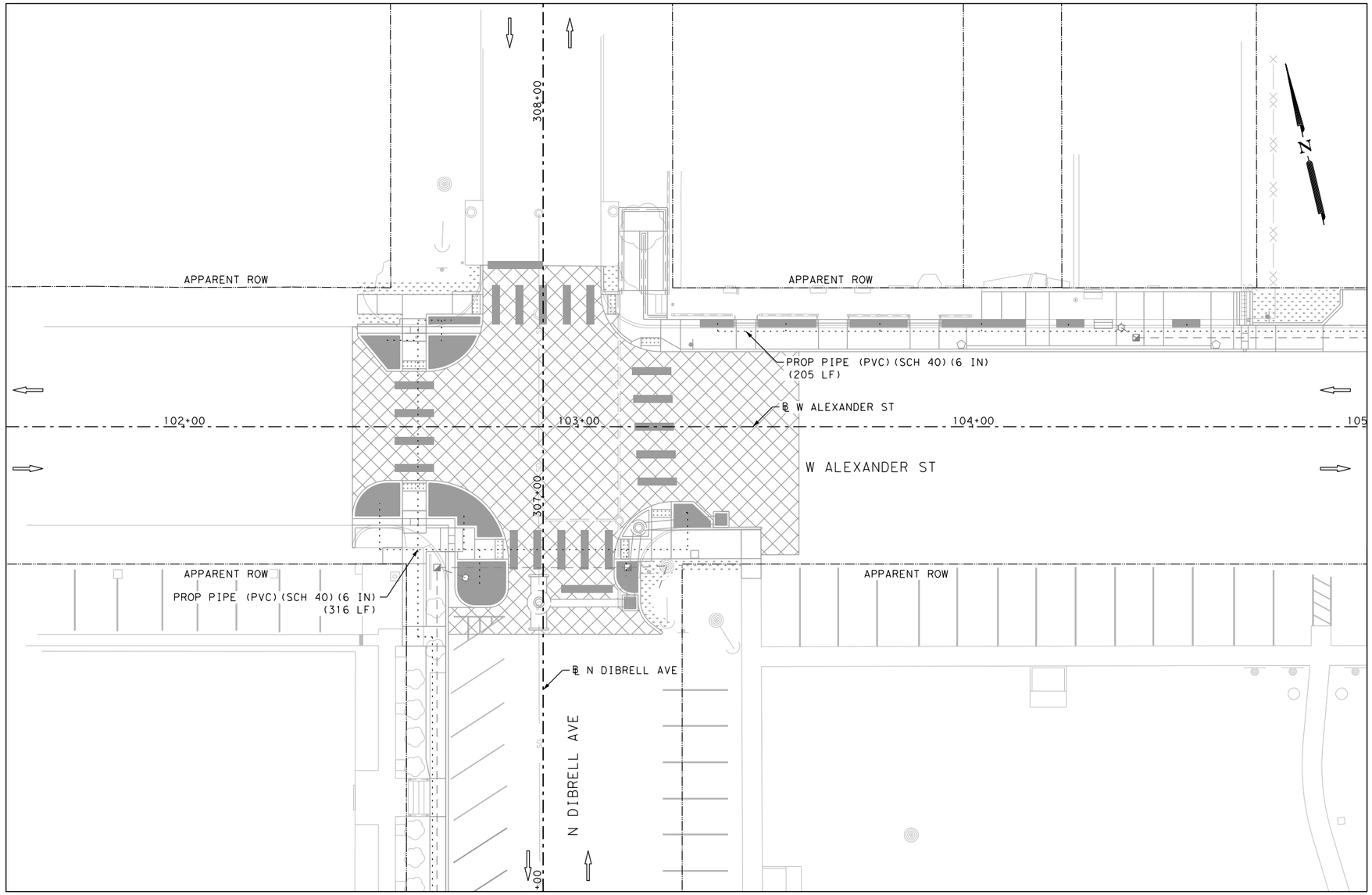
SHEET 2 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	102

Design Filename: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Roadway\IRRIGATION\6125406_01_3_Rivers_IRR02.dgn

Plotted on: 6/17/2024

ITEM	DESCRIPTION	UNIT	QTY
0618-6037	CONDT (PVC) (SCH 40) (6")	LF	521

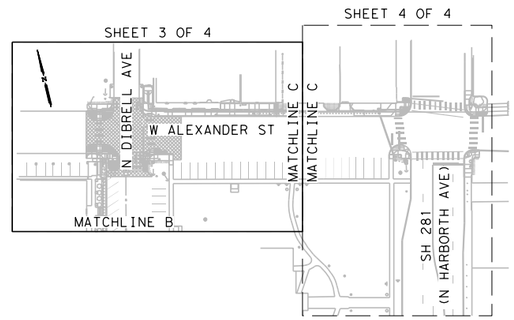


MATCH LINE "C" SEE SHEET 104

MATCH LINE "B" SEE SHEET 102

LEGEND

- DRAINAGE FLOW ARROW
- 6" PVC SLEEVE
- 6" PVC SLEEVE (BORE)
- TRASH CAN
- MANHOLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC FLOW
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- TRAFFIC SIGNAL POLE
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 10 20 30 40

SCALE: 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

IRRIGATION LAYOUT

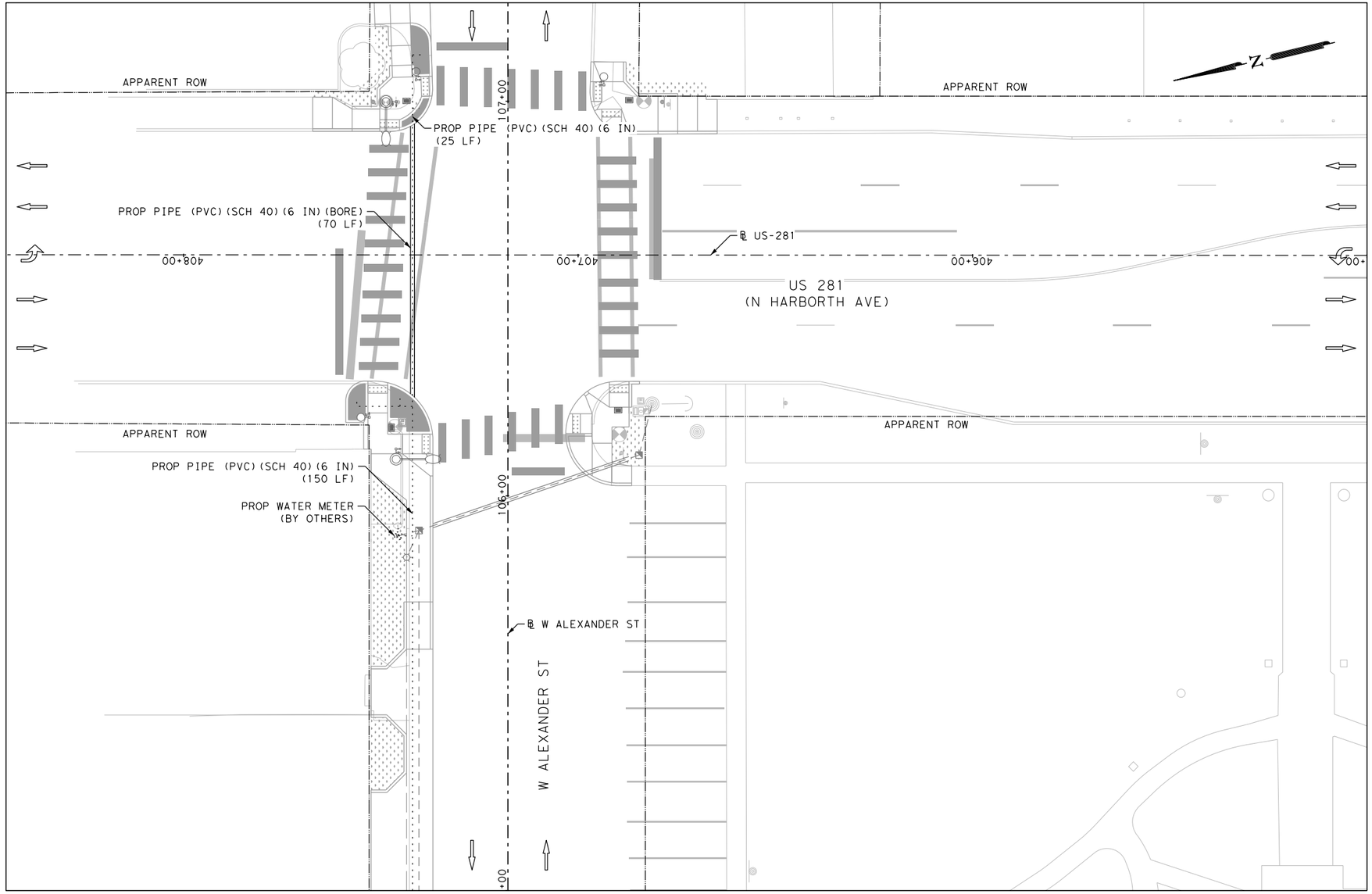
SHEET 3 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	103

Design Filename: S:\projects\612454\06\Design\01_CRP_3 Rivers\Civil\Roadway\IRRIGATION\612540 6_01_3_Rivers_IRR03.dgn

Plotted on: 6/17/2024

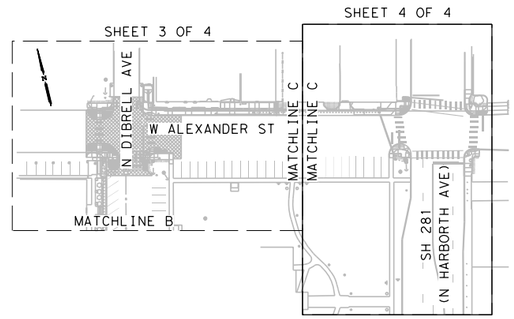
ITEM	DESCRIPTION	UNIT	QTY
0618-6037	CONDT (PVC) (SCH 40) (6")	LF	175
0618-6038	CONDT (PVC) (SCH 40) (6") (BORE)	LF	70



MATCH LINE "C" SEE SHEET 103

LEGEND

- DRAINAGE FLOW ARROW
- 6" PVC SLEEVE
- 6" PVC SLEEVE (BORE)
- TRASH CAN
- MANHOLE
- POWER/UTILITY POLE
- SIGN
- FIRE HYDRANT
- GROUND BOX
- GUY WIRE
- WATER METER
- WATER VALVE
- TREE/BUSHES
- TRAFFIC FLOW
- TRAFFIC SIGNAL BOX
- TRAFFIC SIGNAL CONTROLLER
- TRAFFIC SIGNAL POLE
- PI POINT
- SODDING
- PAVEMENT REPAIR
- DETECTABLE WARNING SURFACE
- PLANT BEDS
- APPARENT RIGHT OF WAY
- GRATE INLET



DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 6/17/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 6/17/2024 DATE

0 10 20 30 40

SCALE: 1"= 30'

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS

SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS

2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000

TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

IRRIGATION LAYOUT

SHEET 4 OF 4

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	104

Plotted on: 6/17/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Roadway\IRRIGATION\6125406_01_3_Rivers_IRR04.dgn

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with TxDOT policy for projects disturbing less than 1 acre of soil, and not part of a larger common plan of development.

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

This SWP3 is consistent with requirements specified in applicable stormwater plans, and the project's environmental permits, issues, and commitments (EPICs).

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):
0916-29-019

1.2 PROJECT LIMITS:
From: VARIOUS LOCATIONS AT THREE RIVERS

To: VARIOUS LOCATIONS AT THREE RIVERS

1.3 PROJECT COORDINATES:
BEGIN: (Lat) VARIES ,(Long) VARIES

END: (Lat) VARIES ,(Long) VARIES

1.4 TOTAL PROJECT AREA (Acres): 0.43

1.5 TOTAL AREA TO BE DISTURBED (Acres): 0.43

1.6 NATURE OF CONSTRUCTION ACTIVITY:

1.7 MAJOR SOIL TYPES:

Soil Type	Description
BcA	Buchel clay, 0 to 1 percent slopes, occasionally flooded

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

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

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

Type	Sheet #s

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

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.3.)

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

1.10 POTENTIAL POLLUTANTS AND SOURCES:

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

1.11 RECEIVING WATERS:

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

Tributaries	Classified Waterbody

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

1.12 ROLES AND RESPONSIBILITIES: TxDOT

☒ Development of plans and specifications
☒ Perform SWP3 inspections
☒ Maintain SWP3 records and update to reflect daily operations
☐ Other: _____
☐ Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

☒ Day To Day Operational Control
☒ Maintain schedule of major construction activities
☒ Install, maintain and modify BMPs
☐ Other: _____
☐ Other: _____
☐ Other: _____

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER, P.E. — 5/23/2024 DATE

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

July 2023 Sheet 1 of 2

Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	STP 2024 (774) TAPS		105
STATE	STATE DIST.	COUNTY	
TEXAS	CRP	LIVE OAK	
CONT.	SECT.	JOB	HIGHWAY NO.
0916	29	019	VA

STORMWATER POLLUTION PRVENTION PLAN (SWP3):

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

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

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

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

2.2 SEDIMENT CONTROL BMPs:

T / P

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

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

2.3 PERMANENT CONTROLS:

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

BMPs To Be Left In Place Post Construction:

Type	Stationing	
	From	To

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

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

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

2.5 POLLUTION PREVENTION MEASURES:

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

2.6 VEGETATED BUFFER ZONES:

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

Type	Stationing	
	From	To

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

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

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

2.8 DEWATERING:

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

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3 .

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3.

DESIGN

STATE OF TEXAS — TYLER PAYNE DUBE — 118612 — LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS — JOHN A. TYLER — 105193 — LICENSED PROFESSIONAL ENGINEER

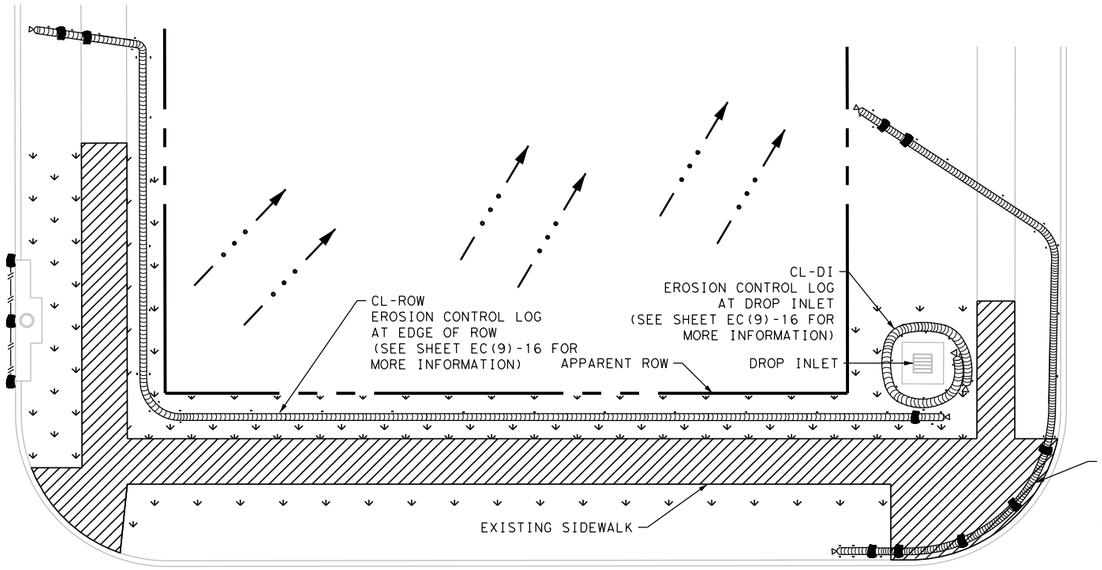
JOHN A. TYLER, P.E. — 5/23/2024 DATE

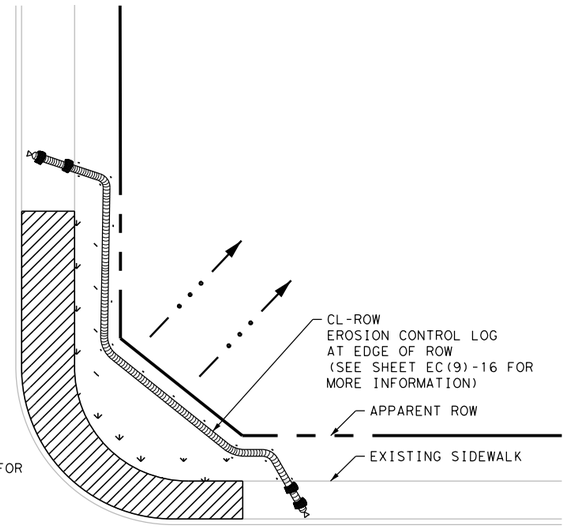
STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

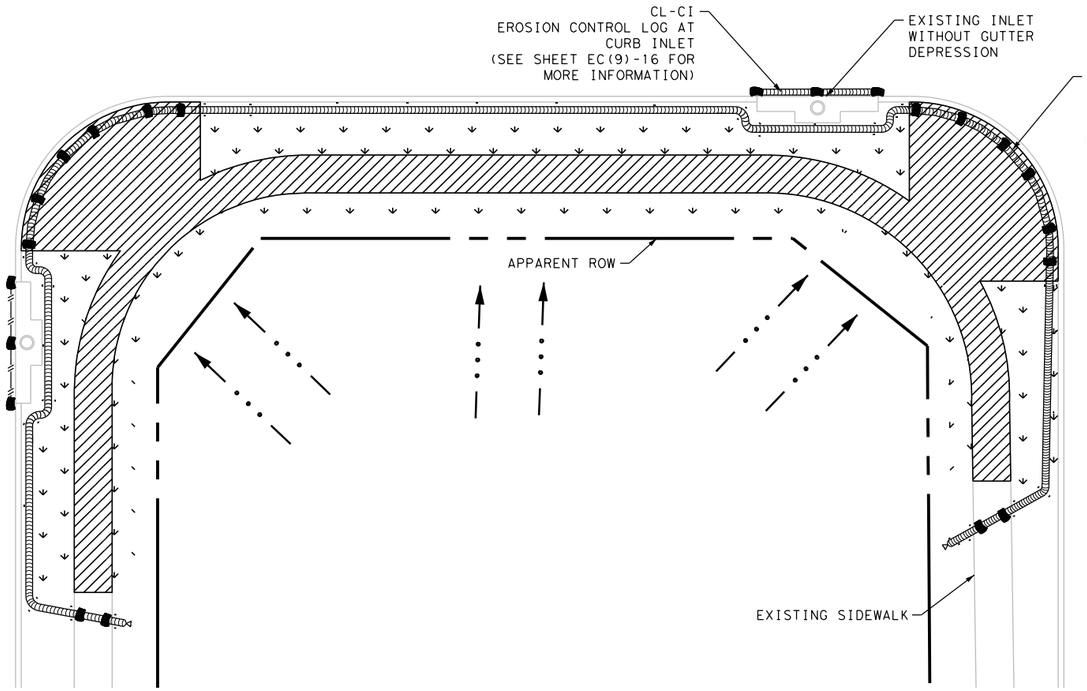
July 2023 — Sheet 2 of 2

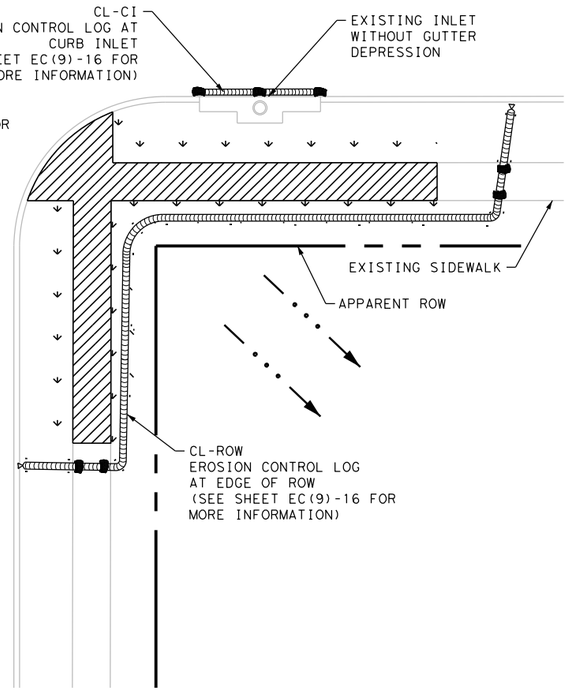
Texas Department of Transportation

FED. RD. DIV. NO.	PROJECT NO.		SHEET NO.
6	STP 2024 (774) TAPS		106
STATE	STATE DIST.	COUNTY	
TEXAS	CRP	LIVE OAK	
CONT.	SECT.	JOB	HIGHWAY NO.
0916	29	019	VA









LEGEND

- BLOCK SODDING
- FLOW DIRECTION
- EROSION CONTROL LOG
- WOOD OR METAL STAKES (AS APPROVED BY THE ENGINEER)
- SANDBAGS
- EXISTING FEATURES
- PROPOSED WORK AREA

NOTES:

REFERENCE ENVIRONMENTAL PERMITS, ISSUES, AND COMMITMENTS (EPIC)AND STORM WATER POLLUTION PREVENTION PLAN (SW3P) SHEETS FOR SPECIFIC CONSTRUCTION CONSIDERATIONS OR REQUIREMENTS.

EXAMPLES SHOWN ON THE SHEET ARE FOR GENERAL GUIDANCE AND MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

SITE CONDITIONS MAY DICTATE ADDITIONAL COUNTERMEASURES AS DIRECTED BY THE ENGINEER.

USE ADDITIONAL STAKES OR SAND BAGS AS NEEDED TO HOLD IN PLACE (NSPI)

INSTALLATION OF COUNTERMEASURES MUST BE APPROVED BY THE ENGINEER PRIOR TO PLACEMENT.

DESIGN

STATE OF TEXAS · TYLER PAYNE DUBE · 118612 · LICENSED PROFESSIONAL ENGINEER

TYLER PAYNE DUBE, P.E. — 5/23/2024 DATE

APPROVAL

STATE OF TEXAS · JOHN A. TYLER · 105193 · LICENSED PROFESSIONAL ENGINEER

JOHN A. TYLER P.E. — 5/23/2024 DATE

NOT TO SCALE

REV. NO.	DATE	DESCRIPTION	BY

PAPE-DAWSON ENGINEERS
SAN ANTONIO | AUSTIN | HOUSTON | FORT WORTH | DALLAS
2000 NW LOOP 410 | SAN ANTONIO, TX 78213 | 210.375.9000
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

SW3P EXAMPLE LAYOUTS

SHEET 1 OF 1

DGN:	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.			HIGHWAY NO.
CHK DGN:	6	TEXAS				VA
DWG:	DIST.	COUNTY	CONT. NO.	SECT. NO.	JOB NO.	SHEET NO.
CHK DWG:	CRP	LIVE OAK	0916	29	019	107

Plotted on: 5/23/2024

Design Filename: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\SW3P\sw3pex01.dgn

DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\SW3P\EPIC_ThreeRivers.dgn

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1.

☐ No Action Required ☒ Required Action

Action No.

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SW3P and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Action No.

1. Minimize the use of equipment in streams and riparian areas during construction. When possible, equipment access should be from banks, bridge decks, or barges.
2. When temporary stream crossings are unavoidable, remove stream crossings once they are no longer needed and stabilize banks and soils around the crossing.

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

☐ No Action Required ☒ Required Action

Action No.

1. 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.

To minimize potential damage to historical age structures and materials, contractor must saw cut sidewalk 8-12 inches away from the historical structure.

2. 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.
3. Contractor must prevent damage to hisotirc 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 strucutre foundation, materials, elevations, entryways with decorative flooring, fences, retaining walls, and landscape elements.
4. 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 work. TxDOT-Enviromental Affairs Division shall be informed of proposed repairs to facilitate consultation with Texas Historical Comission prior to execution of repair work.

IV. VEGETATION RESOURCES

☐ No Action Required ☒ Required Action

Action No.

1. 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.
2. Minimize the amount of vegetation cleared. Removal of native vegetation, particularly mature native trees and shrubs should be avoided to the greatest extent practicable. Wherever practicable, impacted vegetation should be replaced with in-kind on-site replacement/restoration of native vegetation.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☐ No Action Required ☒ Required Action

Action No.

Birds

1. The Federal Migratory Bird Treaty Act (MBTA) states that it is unlawful to pursue, hunt, take, kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal permit. This project does not have a federal permit; therefore, in accordance with this regulation, the Contractor will avoid disturbing, destroying, removing, or relocating migratory birds and active nests found in trees, culverts, bridges, on the ground, etc. Typical breeding season occurs from March through August; therefore, tree trimming and other vegetation clearing activities that may disturb breeding birds should be done in the non-breeding season (September-February), when possible. If work must be performed during the breeding season, the Contractor shall have a qualified biologist conduct a survey of the right of way to determine if bird nests are present. In the event that active nests are encountered on-site during construction, the Contractor shall notify the Engineer and measures shall be taken to avoid disturbance of these birds, their occupied nest, eggs, and/or young, in accordance with the MBTA. Phasing of work during construction may be necessary to stay in compliance with the MBTA. The Contractor can discuss other preventative measures with the Project Engineer and/or District Environmental Staff.
2. Prior to construction, perform daytime surveys for nests including under bridges and in culverts to determine if they are active before removal. Nests that are active should not be disturbed. Do not disturb, destroy, or remove active nests, including ground nesting birds, during the nesting season. Avoid the removal of unoccupied, inactive nests, as practicable. Prevent the establishment of active nests during the nesting season on TxDOT owned and operated facilities and structures proposed for replacement or repair. Do not collect, capture, relocate, or transport birds, eggs, young, or active nests without a permit.

Insects

3. Be advised of the potential occurrence of Monarch Butterfly in the project area. This species can inhabit a variety of habitats including native prairies, pastures, open woodlands and savannas, desert scrub, roadsides, and other habitats with abundant nectar plants, including urbanized areas. Although adults may be present year-round, they are primarily observed between March and November (Caterpillars; April and September). Common host plants in Texas are milkweeds, milkweed vines, climbing milkweed, swallowworts, and Anglepod.

Plants

4. Minimize the amount of vegetation cleared. Removal of native vegetation, particularly mature native trees and shrubs should be avoided to the greatest extent practicable. Wherever practicable, impacted vegetation should be replaced with in-kind on-site replacement/restoration of native vegetation. The use of seed mix that contains seeds from only locally adapted native species is recommended.

5. Avoid vegetation clearing activities during the general bird nesting season, March through August, to minimize adverse impacts to birds.

Other

6. Do not attempt to handle or catch any of these species. Report all sightings and/or impacts to the TxDOT-Corpus Christ District Environmental Section.

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

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

Texas Department of Transportation

Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR
	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
12-12-2011 (DS)	DIST	COUNTY		SHEET NO.
05-07-14 ADDED NOTE SECTION IV.	CRP	LIVE OAK		108
01-23-2015 SECTION I. (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.				

DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\SW3P\EPIC_ThreeRivers.dgn

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☒ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☐ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☐ No Action Required ☒ Required Action

Action No.

1. Do not attempt to handle or catch any of these species. Report all sightings and/or impacts to the TxDOT Corpus Christi District Environmental Section.

LIST OF ABBREVIATIONS

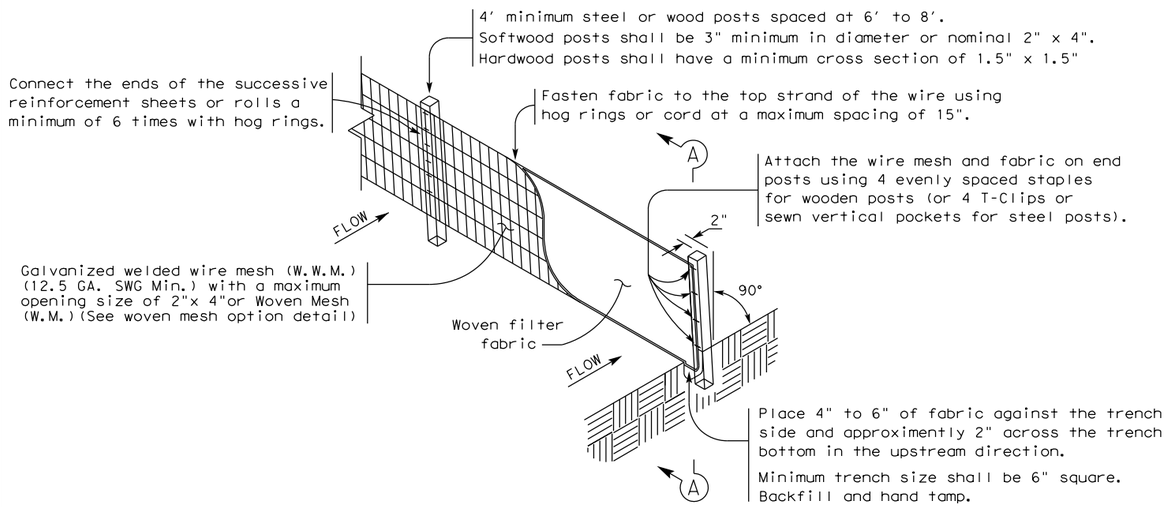
BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
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

Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

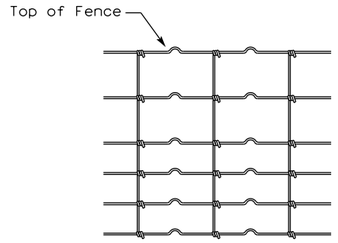
EPIC

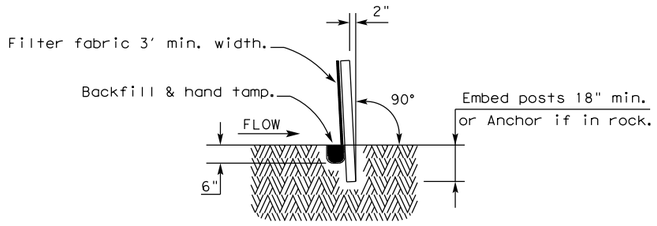
FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR	
	CONT	SECT	JOB	HIGHWAY	
REVISIONS 12-12-2011 (DS) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	0916	29	019	VA	
	DIST	COUNTY		SHEET NO.	
	CRP	LIVE OAK		109	



TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

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

SEDIMENT CONTROL FENCE USAGE GUIDELINES

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

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

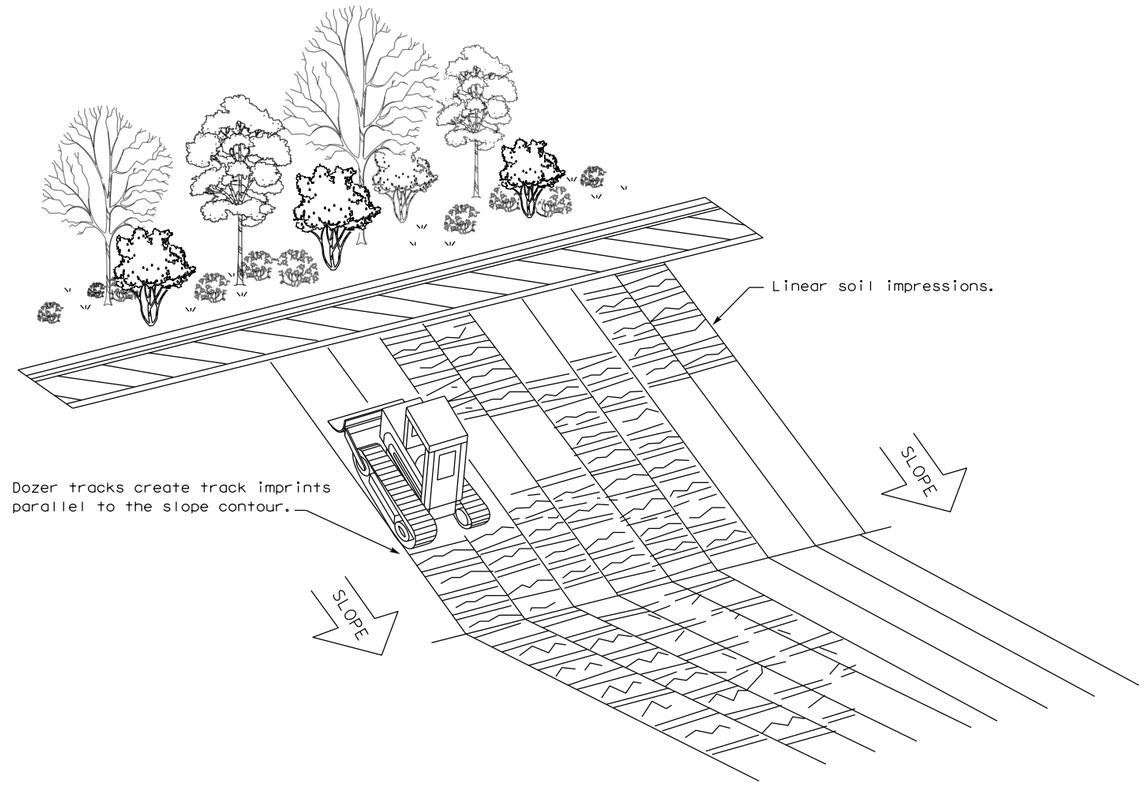
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

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



VERTICAL TRACKING

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

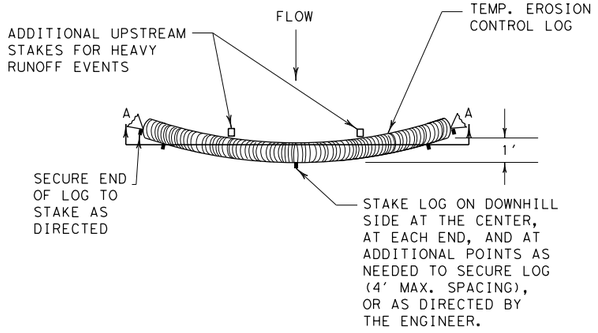
FENCE & VERTICAL TRACKING

EC(1)-16

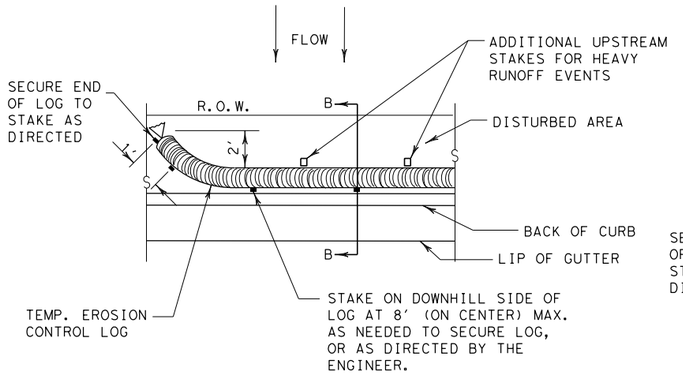
FILE: ec116	DN: TxDOT	CK: KM	DW: VP	DN/CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		110

5/31/2024
SFile: Projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\SWP\ec116.dgn

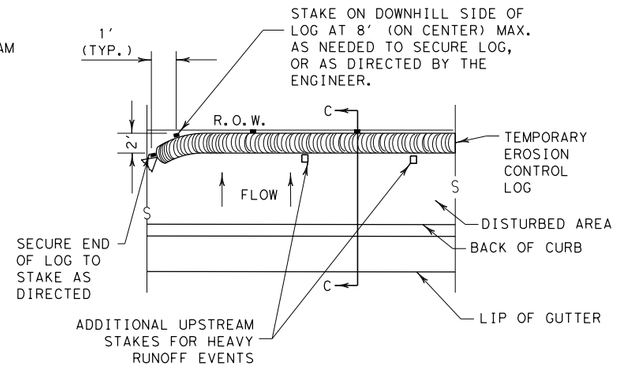
DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\SW3P\ec916.dgn



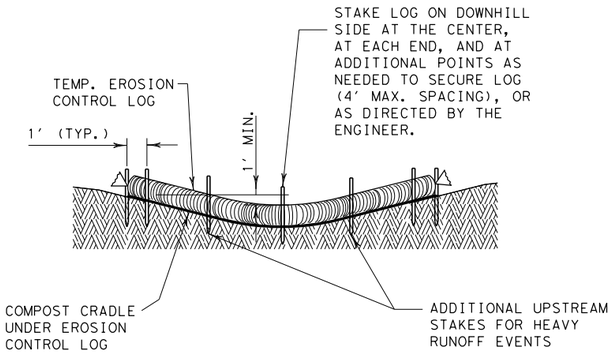
PLAN VIEW



PLAN VIEW



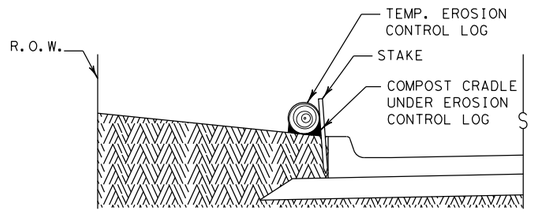
PLAN VIEW



SECTION A-A

EROSION CONTROL LOG DAM

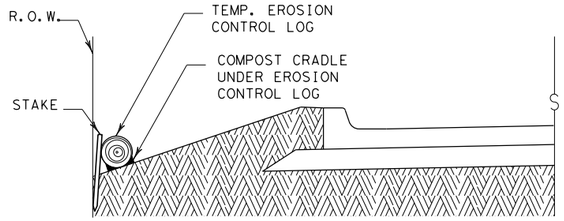
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

CL-BOC



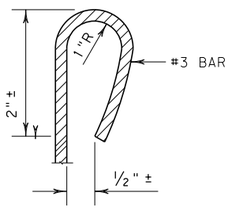
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW

LEGEND

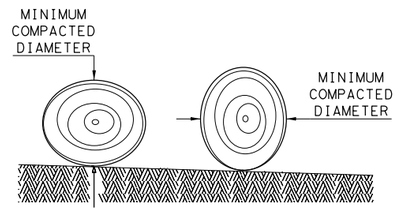
- CL-D — EROSION CONTROL LOG DAM
- CL-BOC — EROSION CONTROL LOG AT BACK OF CURB
- CL-ROW — EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
- CL-SST — EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
- CL-SSL — EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
- CL-DI — EROSION CONTROL LOG AT DROP INLET
- CL-CI — EROSION CONTROL LOG AT CURB INLET
- CL-GI — EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL

GENERAL NOTES:

1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

Texas Department of Transportation

Design Division Standard

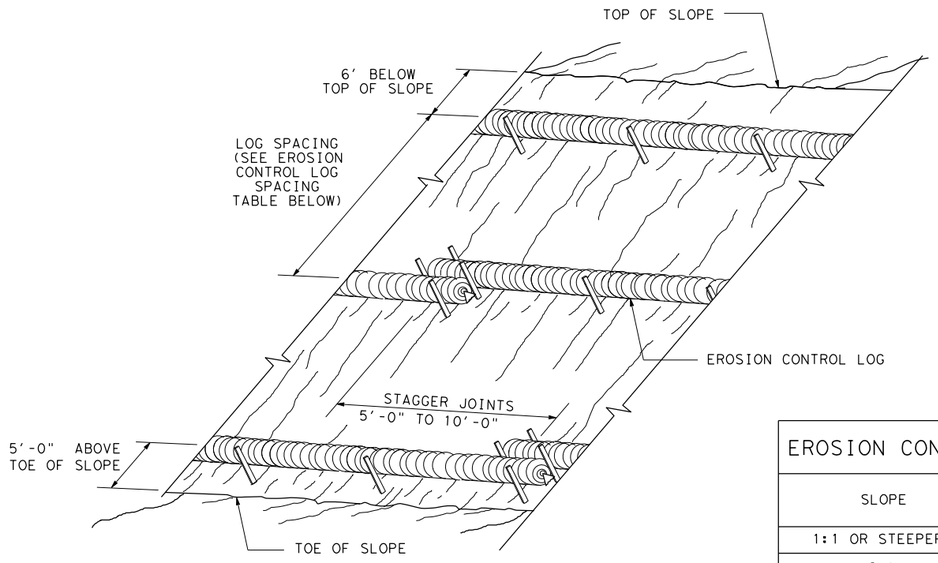
TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

EC(9)-16

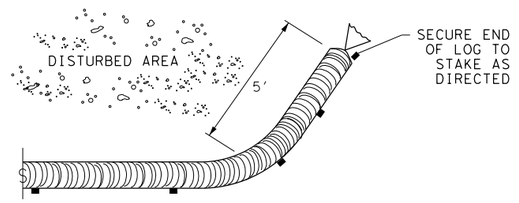
FILE: ec916	DN: TxDOT		CK: KM		DW: LS/PT		CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB		HIGHWAY		
REVISIONS	0916	29	019		VA		
	DIST	COUNTY				SHEET NO.	
	CRP	LIVE OAK				111	

DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\SW3P\ec916.dgn



EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

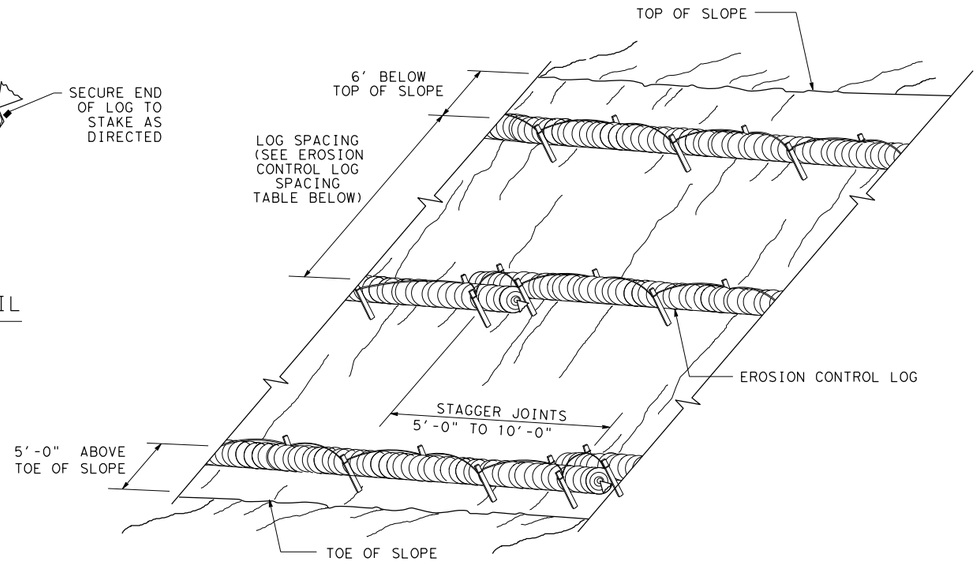
CL-SST



END SECTION RAP DETAIL

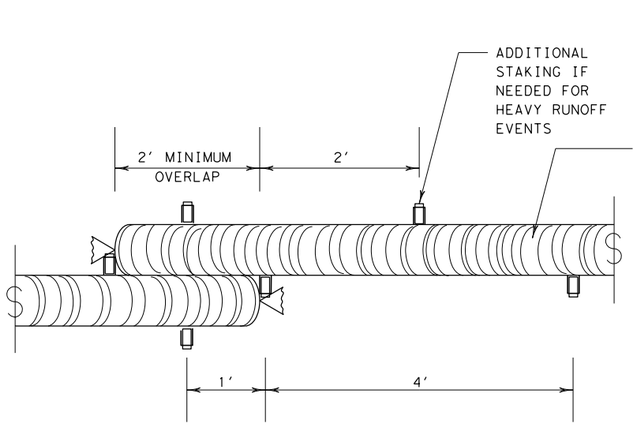
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5'	10'	15'	20'
2:1	10'	20'	30'	40'
3:1	15'	30'	45'	60'
4:1 OR FLATTER	20'	40'	60'	80'

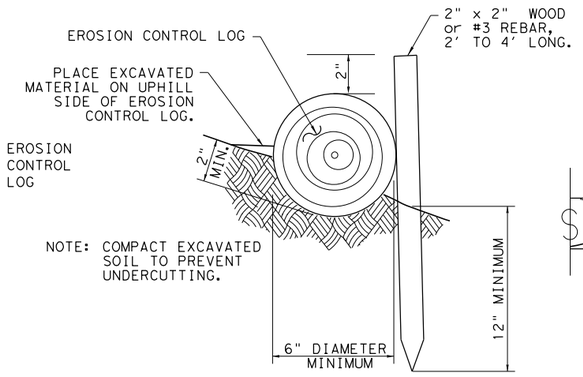
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

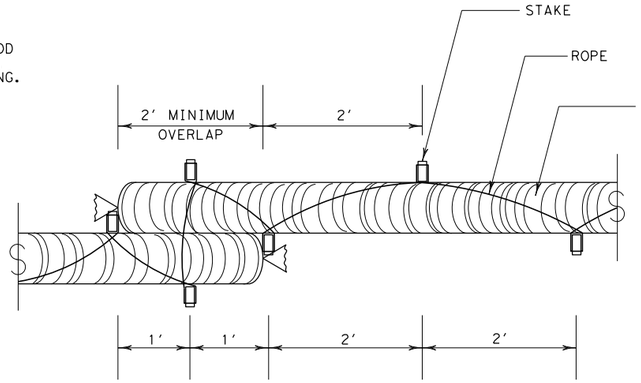


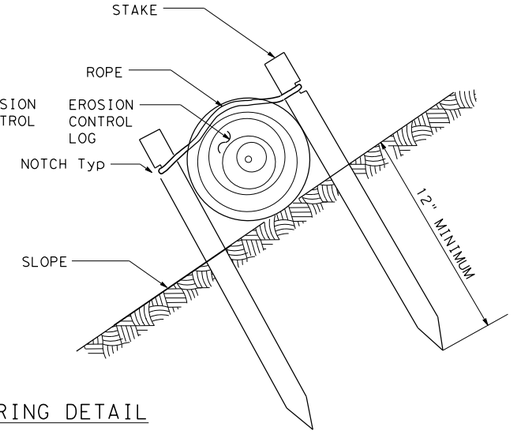


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

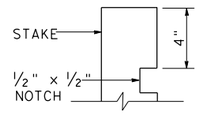
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



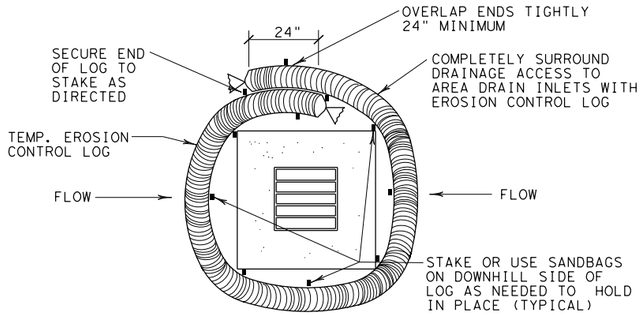
STAKE NOTCH DETAIL

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES
EROSION CONTROL LOG
EC(9)-16

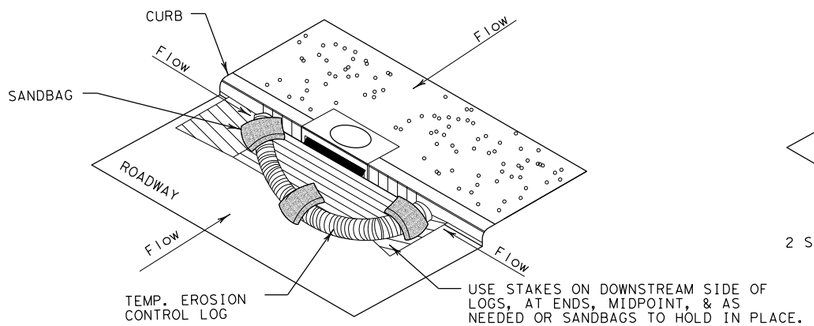
FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0916	29	019	VA
	DIST	COUNTY		SHEET NO.
	CRP	LIVE OAK		112

DATE: 5/23/2024
FILE: S:\projects\612\54\06\Design\01_CRP_3 Rivers\Civil\Standards\SW3P\ec916.dgn



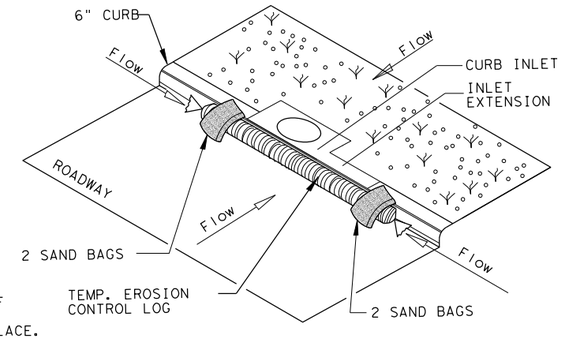
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

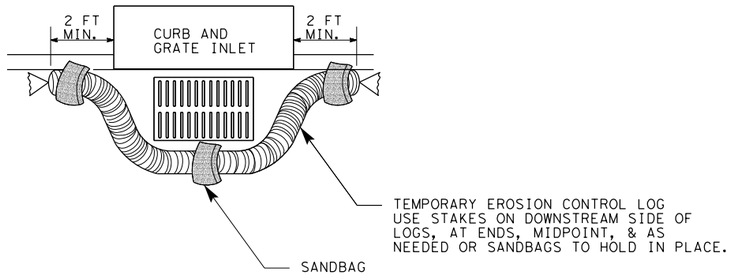
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

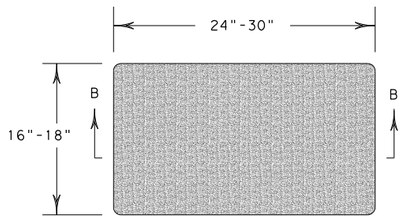
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



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	0916	29	019		VA		
	DIST	COUNTY					SHEET NO.
	CRP	LIVE OAK					113