SEE SHEET 2 FOR INDEX OF SHEETS

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

FHWA TEXAS DIVISION	PROJECT NO.		SHEET NO.
	F 2021(825)		1
STATE	DISTRICT	COUNTY	
TEXAS	LFK	ANGELINA	
CONTROL	SECTION	JOB	HIGHWAY NO.
0176	02	124	BU 59-G

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT
PROJECT NO. F 2021(825)

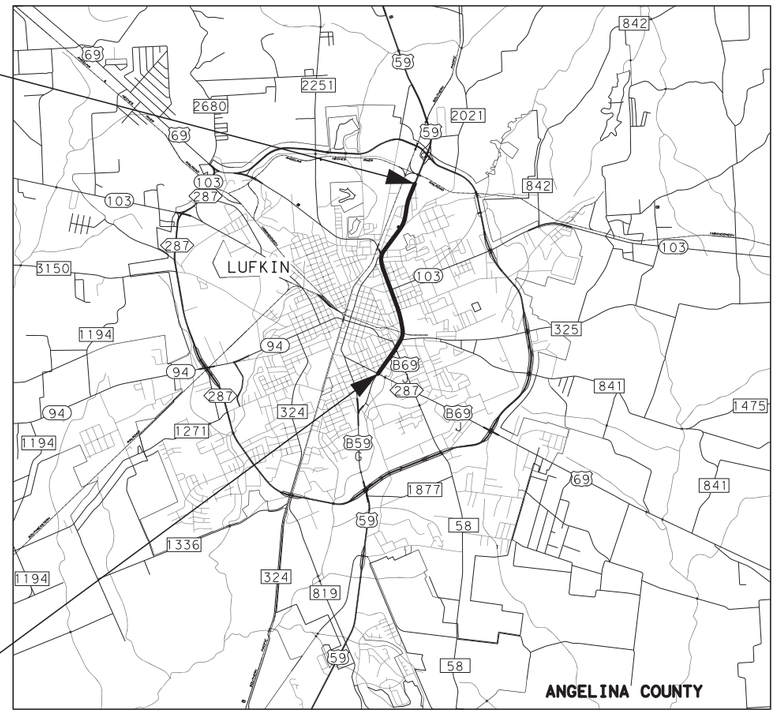
BU 59-G
ANGELINA COUNTY

NET LENGTH OF PROJECT = 13,001.87 FT. = 2.462 MI.

LIMITS: FROM DENMAN AVE TO APPROX
1,180 LF N OF FOREST PARK BLVD

FOR THE CONSTRUCTION OF SAFETY IMPROVEMENT PROJECTS
CONSISTING OF ADD SIDEWALKS AND PEDESTRIAN UPGRADES-RTZ

BEGIN PROJECT
CSJ: 0176-02-124
STA: 145+01.87
REF MRK: 386+0.323
LAT: 31.36389° N
LONG: 94.71394° W



END PROJECT
CSJ: 0176-02-124
STA: 10+00.00
REF MRK: 388+1.089
LAT: 31.33052° N
LONG: 94.72303° W

SCALE: 1"=10,000'

EXCEPTIONS: STA 40+00.00 TO STA 45+00.00
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE

FUNCTIONAL CLASS.: PRINCIPAL ARTERIAL

*DESIGN SPEED = 40 MPH
ADT (2019) = 26,408
ADT (2039) = 48,591

*DESIGN SPEED APPLICABLE ONLY TO THE DESIGN ELEMENTS AFFECTED BY THE SCOPE OF THE RTZ PROJECT.

FINAL PLANS

LETTING DATE: _____
DATE CONTRACTOR BEGAN WORK: _____
DATE WORK WAS COMPLETED: _____
DATE WORK WAS ACCEPTED: _____
FINAL CONTRACT COST: $ _____
CONTRACTOR: _____

CONSTRUCTION WORK ON THIS PROJECT WAS PERFORMED IN ACCORDANCE WITH PLANS, CONTRACT AND APPROVED CHANGE ORDERS.

_____ DATE _____

REGISTERED ACCESSIBILITY SPECIALIST (RAS) INSPECTION REQUIRED.

TDLR NO. TABS2021015500

BARRICADES AND WARNING SIGNS

PROVIDE AND ERECT BARRICADES AND WARNING SIGNS IN ACCORDANCE WITH THE BARRICADE & CONSTRUCTION STANDARDS, TCP STANDARDS, THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND AS DIRECTED.

STATE OF TEXAS
CHIA-PIN HSU
90999
LICENSED PROFESSIONAL ENGINEER
05/21/2021

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

Texas Department of Transportation

RECOMMENDED FOR LETTING: 5/25/2021

DocuSigned by: Elizabeth Ortega, P.E.
1B27AAE71511446...
DISTRICT DESIGN ENGINEER

APPROVED FOR LETTING: 5/25/2021

DocuSigned by: Kelly O. Morris, P.E.
F044211639424B4...
DISTRICT ENGINEER

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, MAY 2012).

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DATE: 5/21/2021 7:42:19 PM

SHEET NO.	DESCRIPTION
	GENERAL
1	TITLE SHEET
2	INDEX OF SHEETS
3 - 6	PROJECT LAYOUT
7, 7A-7E	GENERAL NOTES
8, 8A	QUANTITY SHEET
9 - 11	QUANTITY SUMMARY
12 - 13	SUMMARY OF SMALL SIGNS
	TRAFFIC CONTROL PLAN
14	TRAFFIC CONTROL PLAN NARRATIVE
	TRAFFIC CONTROL PLAN STANDARDS
*15 - 26	BC(1)-14 THRU BC(12)-14
*27	TCP(1-4)-18
*28 - 32	TCP(2-1)-18 THRU TCP(2-5)-18
*33	WZ(BRK)-13
*34	WZ(BTS-1)-13
*35	WZ(BTS-2)-13
	ROADWAY DETAILS
36 - 37	SURVEY CONTROL INDEX SHEET
38	HORIZONTAL & VERTICAL CONTROL SHEET
39	HORIZONTAL ALIGNMENT DATA
40 - 53	PLAN LAYOUT
54	DRIVEWAY DETAILS
55 - 56	DRIVEWAY TABLE
57 - 58	MISCELLANEOUS CURB AND SIDEWALK DETAILS
	ROADWAY DETAILS STANDARDS
*59	CONCRETE RIPRAP DETAILS (LUFKIN DISTRICT STANDARD)
*60	CLEARING DETAILS (LUFKIN DISTRICT STANDARD)
*61	CCCG-21
*62 - 65	PED-18
	DRAINAGE ITEMS
66	MISCELLANEOUS DRAINAGE DETAILS
	DRAINAGE ITEMS STANDARDS
*67	PSET-SP
	TRAFFIC ITEMS
68 - 69	PEDESTRIAN SIGNAL LAYOUT
70 - 83	SMALL SIGN AND PAVEMENT MARKING PLAN
	TRAFFIC ITEMS STANDARDS
**84	SMD(GEN)-08
**85	SMD(SLIP-1)-08
**86	SMD(SLIP-2)-08
**87	SMD(TWT)-08
88	TS-FD-12
**89	PEDESTRIAN SIGNAL DETAILS (LUFKIN DISTRICT STANDARD)
**90	PM(4)-20

SHEET NO.	DESCRIPTION
	ENVIRONMENTAL ISSUES
91	EPIC
92	TXDOT SWP3 INDEX
	ENVIRONMENTAL ISSUES STANDARDS
*93	EC(1)-16
*94 - 96	EC(9)-16

STATE OF TEXAS
DOUGLAS BURNETT JR.
140757
LICENSED
PROFESSIONAL ENGINEER

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

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED
PROFESSIONAL ENGINEER

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

REV	DESCRIPTION	DATE	INIT

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

INDEX OF SHEETS

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	2

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PROJECT LAYOUT LEGEND

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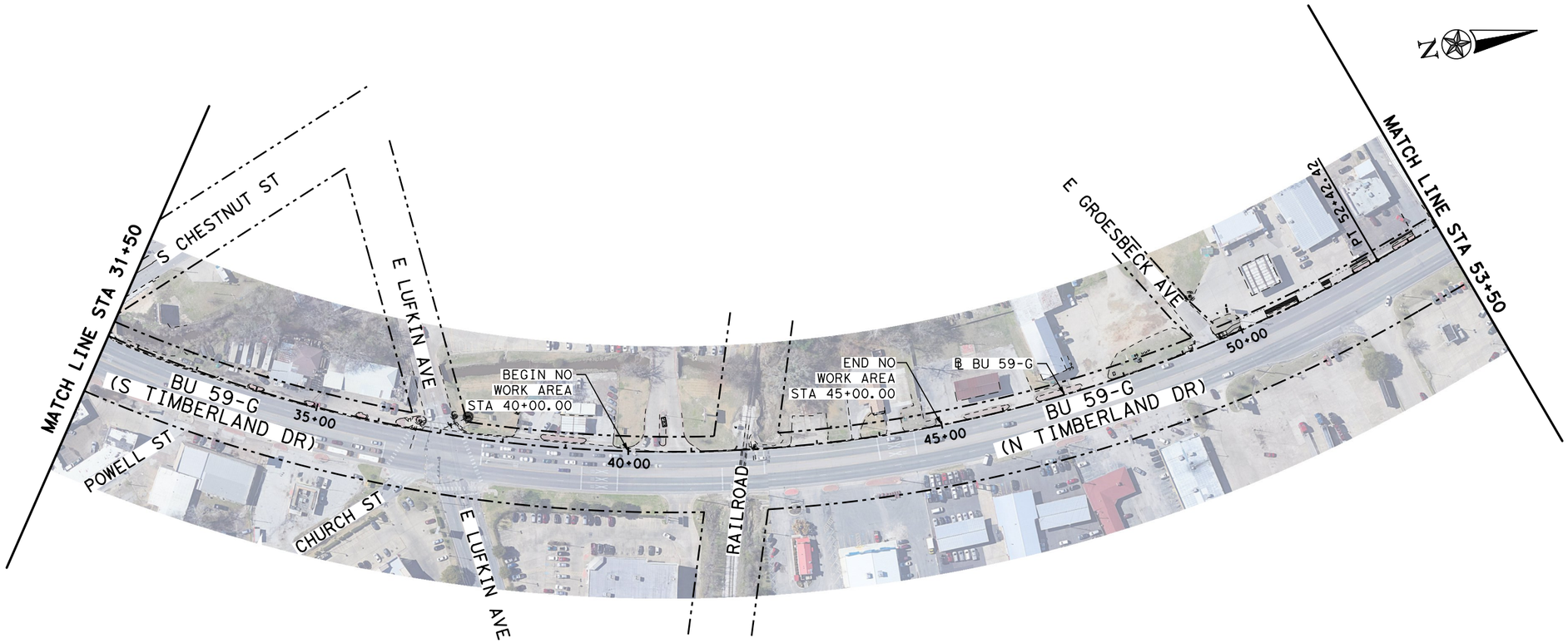

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
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LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

PROJECT LAYOUT

(END PROJECT TO STA 53+50)

SHEET 1 OF 4

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	3

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PROJECT LAYOUT LEGEND

EXIST R.O.W.

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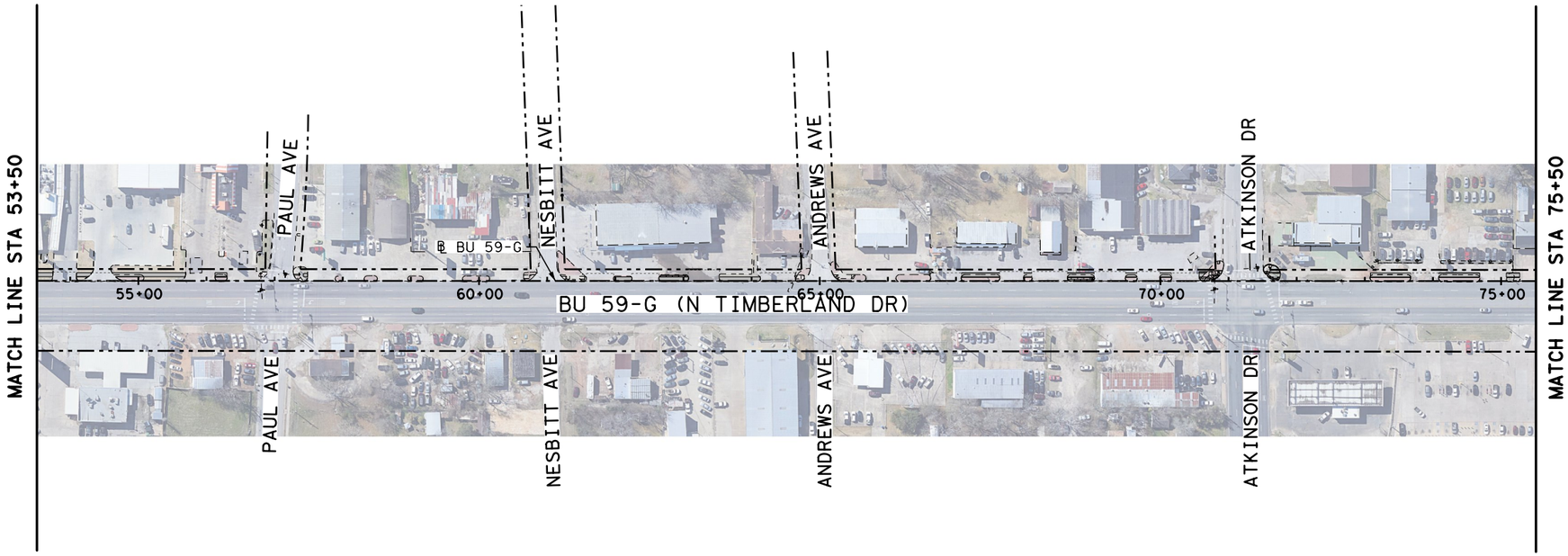

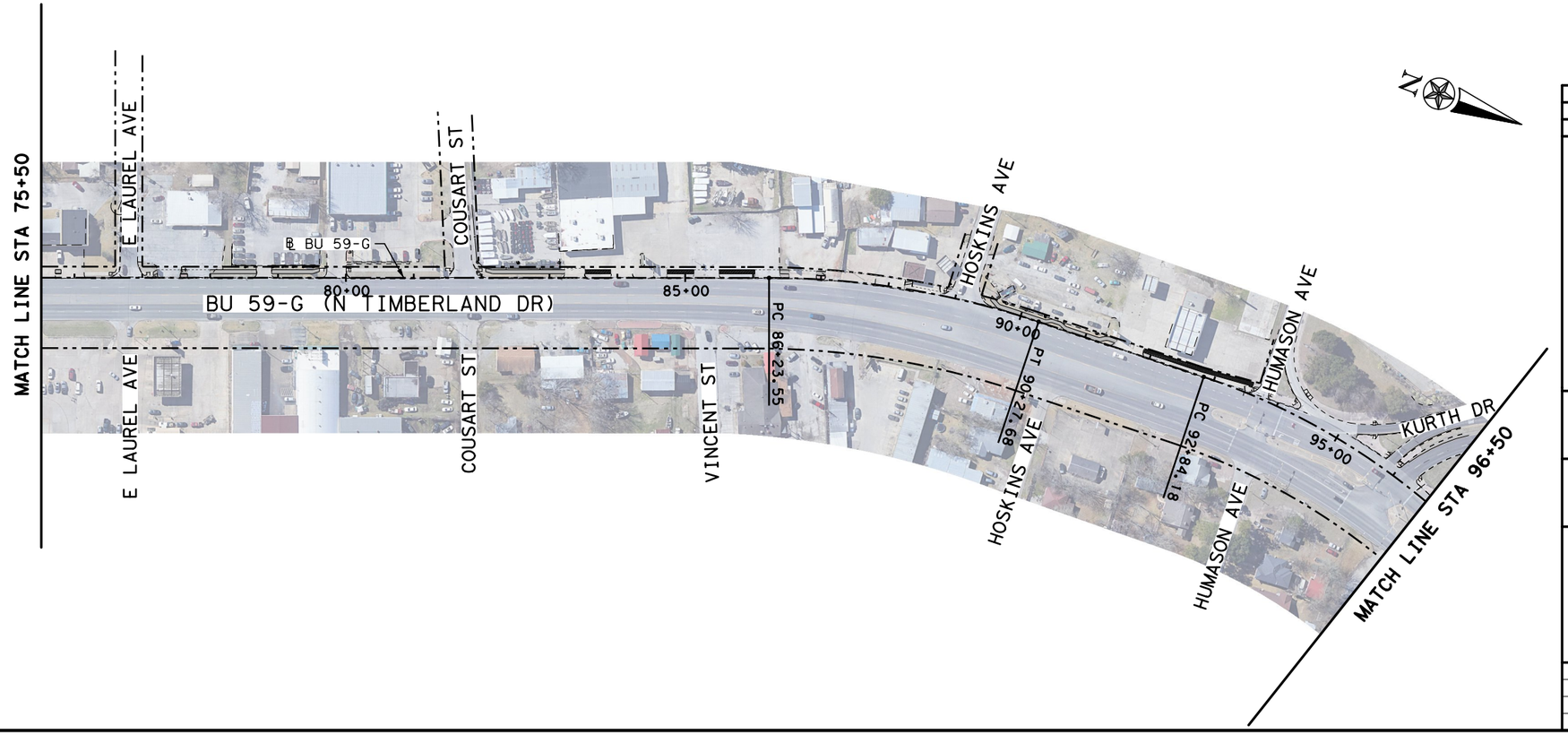

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
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2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

PROJECT LAYOUT

(STA 53+50 TO STA 96+50)

SHEET 2 OF 4

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	4

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PROJECT LAYOUT LEGEND

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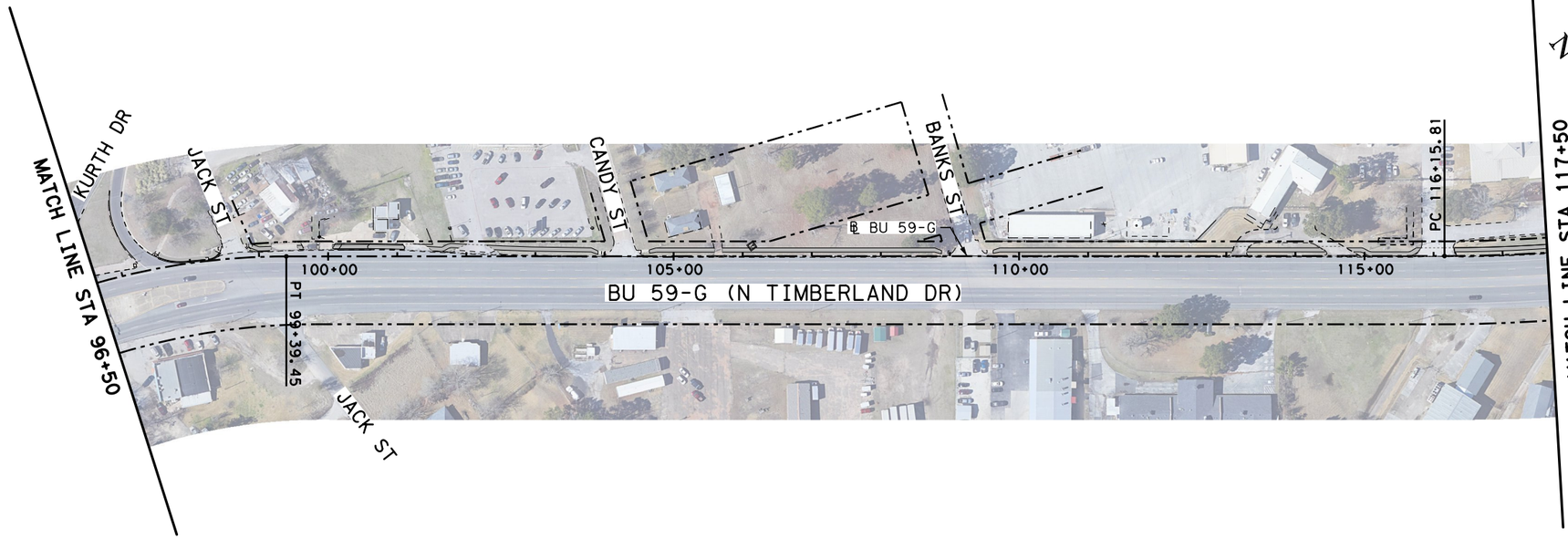

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
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2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
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TBPELS F-02263

PROJECT LAYOUT

(STA 96+50 TO STA 138+50)

SHEET 3 OF 4

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	5

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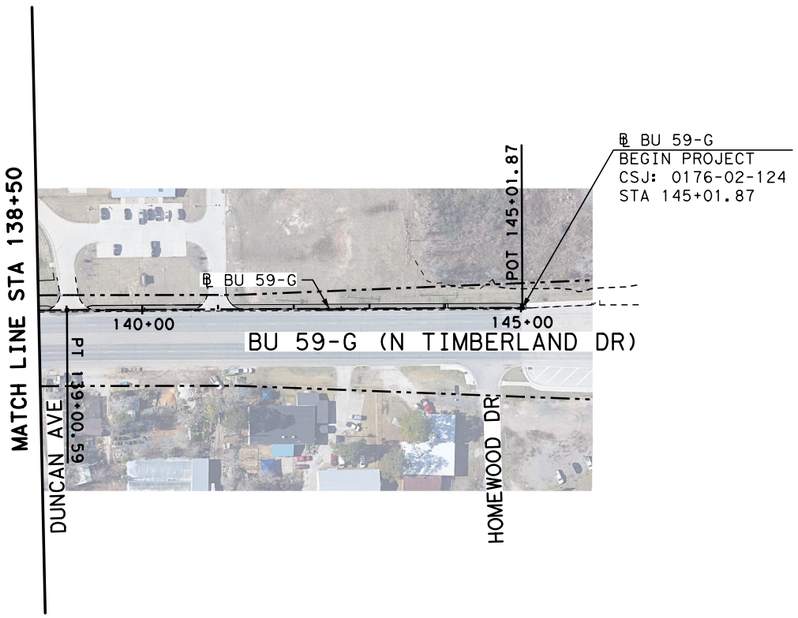
SCALE IN FEET

PROJECT LAYOUT LEGEND

EXIST R.O.W.



REV	DESCRIPTION	DATE	INIT

KAMERON K. RABURN
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LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

Texas Department of Transportation

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2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
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TBPELS F-02263

PROJECT LAYOUT

(STA 138+50 TO BEGIN PROJECT)

SHEET 4 OF 4

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	6

GENERAL NOTES:

Existing regulatory, warning and guide signs within project limits are to remain visible to the traveling public at all times. If a sign must be repositioned during construction operations, move and install the sign to an approved location. Use care when working near existing signs and repair or replace signs damaged by work operations. All work involved repositioning existing signs will be subsidiary to various bid items.

Furnish materials and make repairs to the existing roadway at any location damaged by construction operations. This work shall be done in an approved manner and will be subsidiary to various bid items.

Ensure drainage structures and outfall channels constructed on this project are free of silt and debris at the time of project acceptance. Final clean out work will be subsidiary to various bid items.

Maintain adequate surface drainage throughout the project limits during all phases of construction.

Roadway cross slopes shall conform approximately to the existing surface, unless otherwise directed.

Provide suitable access at all times to adjacent businesses, private property and side roads.

When construction work necessitates the moving of mailboxes, temporarily relocate them as necessary to keep them clear of construction operations and convenient for the mail carrier. Mounts for temporarily relocating mailboxes shall conform to the Department's "Compliant Work Zone Traffic Control Device List" or the mailbox standard. Temporary relocation of mailboxes will be subsidiary to various bid items.

Remove dirt, silt, rocks, debris and other foreign matter that accumulates in structures due to the Contractor's operations as directed. Keep stream channels open at all times. This work will not be paid for directly, but will be subsidiary to pertinent Items.

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

Jesse Sisco Jesse.Sisco@txdot.gov
Praveen Ramanathan Praveen.Ramanathan@txdot.gov

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

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

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

Project Mowing

Mow at locations where contract work, equipment or stockpiles conflict with TxDOT's mowing operations. Mowing will not be measured or paid for directly, but will be subsidiary to various bid items.

The equipment used for mowing shall consist of approved mowing units capable of mowing on slopes without marring finished slope surfaces or injuring existing growth. The minimum cutting width shall not be less than 5 ft., unless otherwise approved.

Mow all areas of existing vegetation and vegetation placed during the project as directed. The mowing height shall be 5 in. unless otherwise directed. Repair portions of sod or grass that are injured during mowing operations as directed.

Mow as close as possible to all fixed objects, exercising extreme care not to damage trees, plants, shrubs, signs, delineators or other appurtenances which are part of the facility. Hand trim around such objects, unless otherwise specified.

Use safety chains or other manufacturer's safety device to prevent damage to people or property caused by flying debris propelled out from under rotary mowers. Chains shall be a minimum size of 5/16 in. and links spaced side by side around the mower's front, sides and rear. When mowing at the specified cutting height, the chains shall be long enough to drag the ground. If at any time, it is determined mowing or trimming equipment is defective to the point that it may affect the quality of work or create an unsafe condition, then that equipment shall be immediately repaired or replaced.

Litter Pickup

In addition to the requirements in Item 5, Section 11, Final Cleanup; remove litter from the right of way at locations where the Contractor may be required to mow. Litter pickup will not be measured or paid for directly, but will be subsidiary to various bid items.

The equipment used for litter pickup shall be approved.

Collect and dispose of all litter deposited by construction operations or the traveling public including cans, bottles, paper, plastic items, metal scraps, lumber, etc. from within the project right of way or as directed. Properly dispose of all collected litter. Do not dump or stockpile collected litter on State property.

For removal of large dead animals, contact nearest TxDOT maintenance section for disposal instructions. Do not bury animal carcasses on State property.

Item 5: Control of the Work

There are several existing sewer manholes within the right of way. Work around them with care to prevent damage to the sewer system.

In the event utility lines needing unforeseen adjustments are encountered during construction operations, alter operations and continue to prosecute the contract in such a manner that will allow utility adjustments to be made by others. An extension of working time may be granted for any delays caused by the utility adjustments if deemed necessary.

Electronic files (pdf only) containing cross-sections will be available on the FTP site upon request.

Texas Department of Licensing and Regulation (TDLR) will perform an inspection of sidewalks, pedestrian ramps and other pedestrian facilities upon completion of the project to verify conformance with Texas Accessibility Standards. Deficiencies found by TDLR shall be corrected as directed.

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

Item 7: Legal Relations and Responsibilities

No significant traffic generator events identified.

This project has a soil disturbance of 1 acre or more but less than 5 acres.

The Department will be considered a primary operator for Operational Control over Plans and Specifications as defined in TPDES GP TXR 150000 for construction activity in the right of way. The Department will post a small site notice along with other requirements as defined in TPDES GP TXR 150000 as the entity of having operational control over plans and specifications for work shown on the plans in the right of way.

The Contractor will be considered a Primary Operator for Day-to-Day Operational Control as defined in TPDES GP TXR 150000 for construction activity in the right of way. In addition to the Department's actions, the Contractor will post a small site notice along with other requirements as defined in TPDES GP TXR 150000 as the entity of having day-to-day operational control of the work shown on the plans in the right of way. This is in addition to the Contractor being responsible for TPDES GP TXR 150000 requirements for on- right of way and off- right of way PSL's. Adhere to all requirements of the SWP3 as shown on the plans. The

Contractor will be responsible for Implement of the SWP3 for the project site in accordance with the plans and specifications, TPDES General Permit TXR150000, and as directed.

Dispose of all vegetative matter and any other materials removed from State Right of Way in accordance with applicable environmental laws, rules, regulations and requirements.

Burning locations must be approved by the Engineer prior to beginning. Burning activities must be conducted in compliance with Texas Commission on Environmental Quality (TCEQ) regulations. Notify the Engineer when burning activities will take place.

Item 8: Prosecution and Progress

For this project, working days will be computed and charged in accordance with Item 8, Section 3.1.4, "Standard Workweek."

No lane or shoulder closures will be allowed after Noon on Fridays or on days preceding National Holidays unless otherwise approved. Extra time has been added to the total number of working days allocated for this.

Submit monthly progress schedules no later than the 20th calendar day of the month. Failure to comply with this deadline may result in the Engineer withholding progress (monthly) payments.

Item 100: Preparing Right of Way

The equipment used to trim limbs shall be approved. A boom axe will not be allowed.

Item 105: Removing Treated and Untreated Base and Asphalt Pavement

Material removed by this operation will become the property of the Contractor.

Item 110: Excavation
Item 132: Embankment

Hauling materials with scrapers across or along existing roadways will not be permitted without written permission.

Drying of material deeper than 6 inches below subgrade elevations will not be permitted without written permission.

Grading required for shaping driveways and side road turnouts for pipe culverts at all access locations, will be subsidiary to various bid items.

All blading, rolling, and scraper work to construct and remove temporary slopes adjacent to pavement drop-offs, will be subsidiary to various bid items.

Compact embankment material used to reshape existing slopes to a density comparable with adjacent undisturbed material to the satisfaction of the Engineer.

Specification Data			
Description	**Soil Constants**		
	Max LL	**Max PI**	**Min PI**
Embankment (Type C)	40	18	6

Item 158: Specialized Excavation Work

Use specialized excavation work at structures to improve drainage as directed.

Item 162: Sodding for Erosion Control

Provide Bermuda block sod unless St. Augustine is the prevailing grass cover at particular placement locations. Provide St. Augustine block sod at those locations.

Item 166: Fertilizer

Fertilize all seeded or sodded areas.

Item 168: Vegetative Watering

Equip water trucks with sprinkler systems capable of watering all of the entire seeded or sodded areas from the roadway.

Water all newly placed sodded or seeded areas at the time of installation. Thereafter, maintain the sodded or seeded areas in a well-watered condition, at no time allow the areas to dry to a condition where water stress is evident.

Item 320: Equipment for Asphalt Concrete Pavement

Cover each load of asphalt with waterproof tarpaulins.

Item 400: Excavation and Backfill for Structures

When cutting an existing roadway open to traffic, complete all operations including structural excavation, laying pipe and backfilling within daylight hours the day they are initiated.

Replace excavated material deemed unsuitable for backfilling with material approved by the Engineer, paid for under the pertinent bid items or as extra work. This provision does not apply to excavated materials that are too wet and are replaced for the Contractor's convenience to expedite the work.

When excavation does not generate enough material to complete the backfill, additional material must be approved prior to use. Additional material will be subsidiary to various bid items.

Item 421: Hydraulic Cement Concrete

The Engineer will provide curing facilities and strength testing equipment for acceptance testing at *1805 N. Timberland Dr., Lufkin, TX 75901*.

Item 427: Surface Finishes for Concrete

Provide a rub finish for Surface Area I.

Provide the following surface finish for the listed elements: Sidewalks – Medium broom finish.

Item 432: Riprap

Welded wire fabric will not be allowed for reinforcing concrete riprap. Reinforcing shall consist of No. 3 or 4 bars meeting the requirements of grade 60 reinforcing steel. Place bars on 12 in. centers in each direction, supported on reinforcing chairs.

Item 464: Reinforced Concrete Pipe

Lay each private entrance or side road pipe culvert to the line and grade as directed.

At locations where existing driveway pipes are to be removed and replaced, replace the top 6 in. of the existing driveway with material equal to or better than the existing driveway material. This work will be subsidiary to various bid items.

When excavation does not generate enough material to complete the backfill, additional material must be approved prior to use.

Item 465: Junction Boxes, Manholes, and Inlets

Depress gutter lines 3 in. at all inlets and extensions.

Item 467: Safety End Treatment

Use Type II precast concrete units of the same style and design.

Provide 12 in. deep toewalls on Type II precast safety end treatments.

To improve drainage, grade existing ditch within ten feet of proposed safety end treatment. This work shall be subsidiary to Item 467.

When excavation does not generate enough material to complete the backfill, additional material must be approved prior to use. Additional material will be subsidiary to various bid items.

Check each location where safety end treatments are to be installed to verify pipe lengths shown will produce the desired slope. Extra pipe will be paid for, but removing and replacing safety end treatment units previously installed under this Contract will not be paid for.

Place safety end treatments along the same slope as the pipe.

Item 502: Barricades, Signs, and Traffic Handling

Traffic Control Plan (TCP):

Ensure the Contractor's Responsible Person (CRP) or their alternate for Barricades, Signs and Traffic Handling is available at all times and able to receive instructions from the Engineer or authorized Department representative. The CRP shall be a person that is usually at the project site during normal working hours.

For protection of the traveling public, direct traffic through the work area using signs, flaggers and other devices. Required signs are shown in the plans on the Barricade and Construction Standards and Traffic Control Plan Sheets. The latest edition of the "Texas Manual on Uniform Traffic Control Devices" shall also be used as a guide for handling traffic on this project.

Restrict construction work to single lane widths with only minor disruptions in traffic flow. Lane closures shall conform to the Traffic Control Plan for lane closures as shown in the plans. No overnight closures will be permitted.

Limit lane closures for multilane roads (4 or more lanes) to 2 mi. in length, unless otherwise approved.

Lane closure lengths can exclude the end tapers.

Plan the sequence of work to minimize the time lane closures are in place. Install lane closures only where construction operations are anticipated to start within 1 hr. and limited to the amount of lane that can be reached by the construction activity within 2 hr. unless otherwise approved.

Provide temporary rumble strips as shown on work zone rumble strip standards.

Provide adequate flaggers to protect the traveling public when working on or near a roadway carrying traffic. All flaggers shall wear hardhats and reflective vests.

Install "Be Prepared to Stop" (CW3-4) and "Flagger Ahead" (CW20-7aD) signs when flaggers are present. Position the signs where good visibility and traffic control can be maintained.

Use a flashing arrow board in addition to the required signs to warn motorists of flaggers.

Use additional flaggers at roadway intersections to direct traffic entering the work area, when deemed necessary by the Engineer.

Open all traffic lanes to traffic at the close of work each day.

Provide one high-intensity yellow, rotating dome-light on all equipment such as distributors, spreader boxes, lay-down machines, rollers, backhoes, road graders, loaders, etc. Mount lights high enough to be visible from all directions and operating when the equipment is within 30 ft. of the travel way. On all other equipment such as trucks, trailers, automobiles, etc. use emergency flashers while within the work zone.

Install vertical panels or drums at 100-ft. spacings where drop-offs or construction work occurs along edges of existing pavement. Unless otherwise authorized, these shall remain in place until final striping.

Install "Shoulder Drop-Off" (CW8-9aT), "Slow Down on Wet Road" (CW8-5aT), "Shoulder Drop-Off" (CW8-17), "Uneven Lanes" (CW8-11), "Bump" (CW8-1) and "Soft Shoulder" (CW8-4) signs during construction as directed.

Restrict construction operations so that no drop off along the edge of pavement will remain overnight.

All blading, rolling and scraper work to construct and remove temporary slopes adjacent to pavement drop-offs, will be considered subsidiary to various bid items.

Notify the Engineer prior to placing any materials or equipment on the right of way. Locate equipment, stockpiles or other materials not in use as far as possible from the driving lanes and in no case closer than 30 ft. unless otherwise authorized. Any equipment, stockpiles, or materials placed within 30 ft. of the driving lane must have adequate signs, barricades or other warning devices as approved. As a minimum place an 8 ft. wide TY III Barricade or barrels on the approach side of each site that is within 30 ft. of the driving lane. Use TY III Barricade or barrels for the site similarly on the departure side if the location is within 30 ft. of the opposing traffic lane.

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.

Texas Transportation Code 547.105 authorizes the use of warning lights to promote safety and provides an effective means of gaining the travelling public's attention as they drive in areas where construction crews are present. In order to influence the public to move over when high risk construction activities are taking place, minimize the utilization of blue warning lights. These lights must be used only while performing work on or near the travel lanes or shoulder where the travelling public encounters construction crews that are not protected by a standard work zone set up such as a lane closure, shoulder closure, or one-way traffic control. Refrain from leaving the warning lights engaged while travelling from one work location to another or while parked on the right of way away from the pavement or a work zone.

Temporary stop lines as shown on TCP (2-2)-18 should be omitted.

Provide an illuminated flagger station when nighttime work is performed.

Install "Stay Alert" (G20-10T) and "OBEY" (R20-3T) signs at the beginning of the construction zone at “T” intersections as directed.

All workers on TxDOT right-of-way shall wear reflective clothing meeting ANSI Class II requirements during the day and ANSI Class III requirements during the night.

Item 506: Temporary Erosion, Sedimentation, and Environmental Controls

Locations and types of BMPs may require adjustments prior to or after placement as directed by the Engineer. Adjustments should be made to ensure BMPs are working effectively and maintain compliance with the Construction General Permit. Notify the Engineer prior to making adjustments.

Furnish compost for core material in biodegradable erosion control logs.

Item 529: Concrete Curb, Gutter, and Combined Curb and Gutter

Concrete curb for the metal beam guard fence transition shall have one No. 3 or No. 4 bar for longitudinal reinforcement. Dowel the curb into the pavement structure using 12 in. long No. 3 or No. 4 bars at 18 in spacing.

Item 530: Intersections, Driveways, and Turnouts

Welded wire fabric will not be allowed for reinforcing concrete driveways. Use reinforcing steel consisting of No. 3 or 4 bars meeting the requirements of grade 60 reinforcing steel. Place bars on 12 in. centers in each direction, supported on reinforcing chairs.

Unless otherwise directed, install 1/2 in. pre-molded expansion joint material between existing concrete and new concrete.

Item 531: Sidewalks

Welded wire fabric will not be allowed for reinforcing sidewalks. Use reinforcing steel consisting of No. 3 bars meeting the requirements of grade 60 reinforcing steel. Place bars on 18 in. centers in each direction, supported on reinforcing chairs.

Unless otherwise directed, install 1/2 in. pre-molded expansion joint material between existing concrete and new concrete. Clean all expansion joints and install joint sealant in accordance with applicable details.

Construct curb ramps and landings with a minimum depth of 4 inches, unless otherwise shown in the plans.

Item 618: Conduit

When conduit is laid in a trench or bored, minimum depth to the top of the conduit shall be 3 ft. Where obstructions prevent laying conduit at this depth, place conduit at the maximum depth possible.

Where a trench for laying conduit is cut through pavement, surfaced shoulder, median or driveway, replace the base and surfacing with similar materials equal in appearance and quality to the original construction. Replacing base and surfacing will be subsidiary to Item 618.

Place conduit under existing pavement by boring unless otherwise directed. Pits for boring shall not be closer than 2 ft. from edge of pavement unless otherwise approved. Water jetting will not be permitted. At the close of work each day, cover all open pits and barricade for safety.

When boring is used for under-pavement conduit installations, maximum allowable overcut shall be 1 in. diameter.

Use of a pneumatically driven device for punching holes beneath pavement (commonly known as a "missile") will not be permitted on this project.

All underground conduit bends of 45° or more in PVC conduit systems, including bends into ground boxes, shall be made with rigid metal conduit. Where rigid metal conduit is exposed at any point and where rigid metal conduit extends into ground boxes, bond the metal conduit to the grounding conduction with grounding type bushings or by other approved UL listed grounding connectors. Rigid metal bends will not be paid for separately but will be incidental to the PVC conduit system.

The location of conduits is diagrammatic only and may be shifted to accommodate field conditions as directed.

Item 624: Ground Boxes

Location and estimated number of ground boxes are diagrammatic only. The location and number of ground boxes may vary to accommodate field conditions as directed.

Item 644: Small Roadside Sign Assemblies

Install adjacent signs with bottom edges at equal heights.

Sign placement shall be in accordance with the “Sign Crew Field Book” and as shown on the plans, except that the Engineer may shift the sign supports, within design guidelines, where necessary to secure a more desirable location or to avoid conflict with utilities. Stake all sign support locations for verification and approval.

Existing supports shall not be reused, and shall become the property of the Contractor.

Salvage all sign blanks to be removed and deliver the same day to TxDOT’s facility at*: Angelina County Maintenance Facility, 1410 Kurth Drive, Lufkin, TX 75901*.

Place relocated signs as close as feasible to existing signs, unless placement conflicts with the Sign Crew Field Book.

Wrap red retroreflective tape (NGIP Code 801-49-87-1008) around the support post of all STOP, YIELD, and DO NOT ENTER signs. Tape shall be placed approximately 4 feet above the surface of the edge of the roadway adjacent to the sign and shall be wrapped to a height of 12 inches. The tape and the placement of the tape on the proposed sign posts shall be subsidiary to the sign assembly. The tape and the placement of the tape on the existing sign posts is not a pay item and subsidiary to various bid items.

Item 680: Highway Traffic Signals

Provide for properly functioning traffic signals to remain in full operation for the duration of this project. Existing traffic signal devices may be turned off only for brief periods of time to allow for installation of new devices. Power may be turned off only during off-peak periods from 9:00 A.M. until 11:00 A.M. and 1:00 P.M until 3:00 P.M. Provide temporary signing, flaggers or additional traffic control as directed so that safe traffic movement through the intersection is maintained. At the end of each day, Contractor shall ensure all traffic and pedestrian signals are fully functional and operational.

Item 682: Vehicle and Pedestrian Signal Heads

Use polycarbonate traffic signal heads.

Cover all signal heads securely with burlap and keep covered until placed in operation.

Provide necessary mounting hardware to insure proper mounting of all signal heads.

Provide Articulating Brackets when required.

Alternate signal head mounting hardware may be used when approved.

Mount all signal heads so they hang level and plumb.

Use stainless steel for miscellaneous hardware not otherwise specified unless approved in writing.

Item 684: Traffic Signal Cables

Identify each cable as shown in the plans (Cable 1, etc.) with permanent marking labels (Panduit Type PLM standard single marker tie, Thomas and Betts TY 548M, or equivalent) at each ground box, pole base and controller.

Terminate all wiring from each signal head in the terminal block in the pole base where such terminal blocks are provided by the manufacturer. Otherwise, wire runs shall be continuous to the controller.

Item 690: Maintenance of Traffic Signals

Immediately upon removal, deliver all salvaged signal materials to the Department's signal shop at 1805 North Timberland Drive in Lufkin. Neatly stockpile these materials.

Item 6185: Truck Mounted Attenuator (TMA) and Trailer Attenuator (TA)

Two (2) TMAs will be required for this project. The contractor will be responsible for determining if multiple operations will be ongoing at the same time to determine the total number of TMAs needed for the project.

QUANTITY SHEET

CONTROLLING PROJECT ID 0176-02-124 **DISTRICT** Lufkin **COUNTY** Angelina
HIGHWAY BU 59G

						TOTAL EST.	TOTAL FINAL
		CONTROL SECTION JOB		**0176-02-124**			
		PROJECT ID		**A00137967**			
		COUNTY		**Angelina**			
		HIGHWAY		**BU 59G**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	100-6002	PREPARING ROW	STA	135.000		135.000	
	104-6017	REMOVING CONC (DRIVEWAYS)	SY	2,734.000		2,734.000	
	104-6021	REMOVING CONC (CURB)	LF	45.000		45.000	
	104-6022	REMOVING CONC (CURB AND GUTTER)	LF	700.000		700.000	
	104-6031	REMOVING CONC (HEADWALL)	CY	0.400		0.400	
	104-6036	REMOVING CONC (SIDEWALK OR RAMP)	SY	112.000		112.000	
	104-6040	REMOVING CONC (PAVERS)	SY	358.000		358.000	
	105-6046	REMOVING STAB BASE & ASPH PAV (0"-10")	SY	1,002.000		1,002.000	
	158-6003	SPEC EXCAV WORK (HYD EXCAVATOR)	HR	8.000		8.000	
	160-6003	FURNISHING AND PLACING TOPSOIL (4")	SY	1,501.000		1,501.000	
	162-6002	BLOCK SODDING	SY	1,501.000		1,501.000	
	164-6071	BROADCAST SEED (TEMP)(WARM OR COOL)	SY	1,501.000		1,501.000	
	168-6001	VEGETATIVE WATERING	MG	68.000		68.000	
	351-6002	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	SY	50.000		50.000	
	420-6071	CL C CONC (COLLAR)	EA	1.000		1.000	
	432-6001	RIPRAP (CONC)(4 IN)	CY	41.200		41.200	
	464-6003	RC PIPE (CL III)(18 IN)	LF	10.000		10.000	
	465-6233	INLET (COMP) (TY SIDEWALK BRIDGE)	EA	1.000		1.000	
	467-6363	SET (TY II) (18 IN) (RCP) (6: 1) (P)	EA	1.000		1.000	
	479-6005	ADJUSTING MANHOLES (WATER VALVE BOX)	EA	1.000		1.000	
	479-6008	ADJUSTING MANHOLES (WATER METER)	EA	2.000		2.000	
	479-6010	ADJUSTING MANHOLES (ELECTRIC BOX)	EA	3.000		3.000	
	500-6001	MOBILIZATION	LS	100.00%		100.00%	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	10.000		10.000	
	506-6038	TEMP SEDMT CONT FENCE (INSTALL)	LF	1,390.000		1,390.000	
	506-6039	TEMP SEDMT CONT FENCE (REMOVE)	LF	1,390.000		1,390.000	
	506-6040	BIODEG EROSN CONT LOGS (INSTL) (8")	LF	470.000		470.000	
	506-6043	BIODEG EROSN CONT LOGS (REMOVE)	LF	470.000		470.000	
	528-6001	COLORED TEXTURED CONC (4")	SY	82.000		82.000	
	529-6002	CONC CURB (TY II)	LF	672.000		672.000	
	529-6008	CONC CURB & GUTTER (TY II)	LF	426.000		426.000	
	530-6004	DRIVEWAYS (CONC)	SY	4,077.000		4,077.000	
	531-6001	CONC SIDEWALKS (4")	SY	3,839.000		3,839.000	
	531-6010	CURB RAMPS (TY 7)	EA	9.000		9.000	
	531-6016	CURB RAMPS (TY 21)	EA	1.000		1.000	
	618-6023	CONDT (PVC) (SCH 40) (2")	LF	65.000		65.000	
	644-6009	IN SM RD SN SUP&AM TY10BWG(1)SB(P)	EA	5.000		5.000	

QUANTITY SHEET

CONTROLLING PROJECT ID 0176-02-124 **DISTRICT** Lufkin **COUNTY** Angelina
HIGHWAY BU 59G

			CONTROL SECTION JOB		**0176-02-124**	TOTAL EST.	TOTAL FINAL
			PROJECT ID		**A00137967**		
			COUNTY		**Angelina**		
			HIGHWAY		**BU 59G**		
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL		
	644-6027	IN SM RD SN SUP&AM TYS80(1)SA(P)	EA	1.000		1.000	
	644-6034	IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT)	EA	2.000		2.000	
	644-6060	IN SM RD SN SUP&AM TYTWT(1)WS(P)	EA	5.000		5.000	
	644-6068	RELOCATE SM RD SN SUP&AM TY 10BWG	EA	8.000		8.000	
	644-6076	REMOVE SM RD SN SUP&AM	EA	13.000		13.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	364.000		364.000	
	677-6007	ELIM EXT PAV MRK & MRKS (24")	LF	334.000		334.000	
	678-6008	PAV SURF PREP FOR MRK (24")	LF	364.000		364.000	
	682-6018	PED SIG SEC (LED)(COUNTDOWN)	EA	4.000		4.000	
	684-6007	TRF SIG CBL (TY A)(12 AWG)(2 CONDR)	LF	472.000		472.000	
	684-6009	TRF SIG CBL (TY A)(12 AWG)(4 CONDR)	LF	888.000		888.000	
	687-6001	PED POLE ASSEMBLY	EA	3.000		3.000	
	688-6001	PED DETECT PUSH BUTTON (APS)	EA	2.000		2.000	
	688-6002	PED DETECT PUSH BUTTON (STANDARD)	EA	2.000		2.000	
	688-6003	PED DETECTOR CONTROLLER UNIT	EA	1.000		1.000	
	6001-6002	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.000		2.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	31.000		31.000	
	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	

SUMMARY OF ROADWAY ITEMS

ITEM	100	104						105	158	351	420	432	464	465	467	479			528
LOCATION	PREPARING ROW	REMOVING CONC (DRIVEWAYS)	REMOVING CONC (CURB)	REMOVING CONC (CURB AND GUTTER)	REMOVING CONC (HEADWALL)	REMOVING CONC (SIDEWALK OR RAMP)	REMOVING CONC (PAVERS)	REMOVING STAB BASE & ASPH PAV (0"-10")	SPEC EXCAV WORK (HYD EXCAVATOR)	FLEXIBLE PAVEMENT STRUCTURE REPAIR(6")	CL C CONC (COLLAR)	RIPRAP (CONC)(4 IN)	RC PIPE (CL III) (18 IN)	INLET (COMP) (TY SIDEWALK BRIDGE)	SET (TY II) (18 IN) (RCP) (6: 1) (P)	ADJUSTING MANHOLES (WATER VALVE BOX)	ADJUSTING MANHOLES (WATER METER)	ADJUSTING MANHOLES (ELECTRIC BOX)	COLORED TEXTURED CONC (4")
	STA	SY	LF	LF	CY	SY	SY	SY	HR	SY	EA	CY	LF	EA	EA	EA	EA	EA	SY
END PROJECT TO STA 19+50	10	365		143		82	109	147		11		3.4		1					39
STA 19+50 TO STA 29+50	10	90		45			42	122		5		0.4							5
STA 29+50 TO STA 39+50	10											0.7							
STA 39+50 TO STA 49+50	10																		
STA 49+50 TO STA 59+50	10	401	45	93		6	26	181		8		5							
STA 59+50 TO STA 69+50	10	345		117			121	189				5				1	1		33
STA 69+50 TO STA 79+50	10	173		201		24	60	95		2		13.7						3	5
STA 79+50 TO STA 89+50	10	507		14								5							
STA 89+50 TO STA 99+50	10	116		87						10		1							
STA 99+50 TO STA 109+50	10	195								6							1		
STA 109+50 TO STA 119+50	10							268											
STA 119+50 TO STA 129+50	10	279																	
STA 129+50 TO STA 139+50	10	170			0.4				8		1	7	10		1				
STA 139+50 TO BEGIN PROJECT	5	93								8									
PROJECT TOTALS	**135**	**2734**	**45**	**700**	**0.4**	**112**	**358**	**1002**	**8**	**50**	**1**	**41.2**	**10**	**1**	**1**	**1**	**2**	**3**	**82**

SUMMARY OF ROADWAY ITEMS (CONT.)

ITEM	529		530	531			6001	6185
LOCATION	CONC CURB (TY II)	CONC CURB & GUTTER (TY II)	DRIVEWAYS (CONC)	CONC SIDEWALKS (4")	CURB RAMPS (TY 7)	CURB RAMPS (TY 21)	PORTABLE CHANGEABLE MESSAGE SIGN	TMA (MOBILE OPERATION)
	LF	LF	SY	SY	EA	EA	EA	DAY
END PROJECT TO STA 19+50	112	96	578	212	3			
STA 19+50 TO STA 29+50	90	43	212	301				
STA 29+50 TO STA 39+50				31				
STA 39+50 TO STA 49+50								
STA 49+50 TO STA 59+50	17	70	637	166	1			
STA 59+50 TO STA 69+50	157		534	159				
STA 69+50 TO STA 79+50	194	11	268	221	3	1		
STA 79+50 TO STA 89+50	12		614	107				
STA 89+50 TO STA 99+50	10	88	229	204				
STA 99+50 TO STA 109+50	30	48	195	487				
STA 109+50 TO STA 119+50	10		268	571				
STA 119+50 TO STA 129+50			279	462				
STA 129+50 TO STA 139+50	20		170	576	2			
STA 139+50 TO BEGIN PROJECT	20	70	93	342				
PROJECT TOTALS	**672**	**426**	**4077**	**3839**	**9**	**1**	**2**	**31**

SUMMARY OF EARTHWORK ITEMS

ITEM	#	# & ##
LOCATION	EXCAVATION (ROADWAY)	EMBANKMENT (FINAL) (ORD COMP) (TY C)
	CY	CY
PROJECT TOTALS	**1356**	**40**

NOTES:

\# FOR CONTRACTOR'S INFORMATION ONLY. EARTHWORK IS SUBSIDIARY TO ITEM 530 AND 531. SEE CROSS SECTIONS FOR GRADING.

\## FOLLOW THE SPECIFICATION REQUIREMENTS BEHIND AND BENEATH CURBS. ALL OTHER EMBANKMENT MAY BE TY B.

REV	DESCRIPTION	DATE	INIT

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

QUANTITY SUMMARY (ROADWAY)

SHEET 1 OF 3

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	9

SUMMARY OF SMALL SIGNS AND PAVEMENT MARKING ITEMS

ITEMS	644						668	677	678
LOCATION	IN SM RD SN SUP&AM TY10BWG(1)SB(P)	IN SM RD SN SUP&AM TYS80(1)SA(P)	IN SM RD SN SUP&AM TYS80(1)SA(U-1EXT)	IN SM RD SN SUP&AM TYTWT(1)WS(P)	RELOCATE SM RD SN SUP&AM TY 10BWG	REMOVE SM RD SN SUP&AM	PREFAB PAV MRK TY C (W) (24") (SLD)	ELIM EXT PAV MRK & MRKS (24")	PAV SURF PREP FOR MRK(24")
	EA	EA	EA	EA	EA	EA	LF	LF	LF
END PROJECT TO STA 19+50	1				1	1			
STA 19+50 TO STA 29+50				2		2			
STA 29+50 TO STA 39+50									
STA 39+50 TO STA 49+50									
STA 49+50 TO STA 59+50									
STA 59+50 TO STA 69+50	1			1		2			
STA 69+50 TO STA 79+50	1		2			3	316	334	316
STA 79+50 TO STA 89+50		1			1	1			
STA 89+50 TO STA 99+50	2				1	2	48		48
STA 99+50 TO STA 109+50				2	2	2			
STA 109+50 TO STA 119+50					2				
STA 119+50 TO STA 129+50									
STA 129+50 TO STA 139+50					1				
STA 139+50 TO BEGIN PROJECT									
PROJECT TOTALS	**5**	**1**	**2**	**5**	**8**	**13**	**364**	**334**	**364**

SUMMARY OF TRAFFIC SIGNAL ITEMS

ITEMS	618	682	684		687	688		
LOCATION	CONDT (PVC) (SCH 40) (2")	PED SIG SEC (LED) (COUNTDOWN)	TRF SIG CBL (TY A) (12 AWG) (2 CONDR)	TRF SIG CBL (TY A) (12 AWG) (4 CONDR)	PED POLE ASSEMBLY	PED DETECT PUSH BUTTON (APS)	PED DETECT PUSH BUTTON (STANDARD)	PED DETECTOR CONTROLLER UNIT
	LF	EA	LF	LF	EA	EA	EA	EA
PEDESTRIAN SIGNAL SHEET 1 OF 2	15	2	6	414	1		2	
PEDESTRIAN SIGNAL SHEET 2 OF 2	50	2	466	474	2	2		1
PROJECT TOTALS	**65**	**4**	**472**	**888**	**3**	**2**	**2**	**1**

REV	DESCRIPTION	DATE	INIT

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

QUANTITY SUMMARY
(TRAFFIC)

SHEET 2 OF 3

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	10

SUMMARY OF SWP3

ITEMS	160	162	164	168	506			
LOCATION	FURNISHING AND PLACING TOPSOIL (4")	BLOCK SODDING	BROADCAST SEED (TEMP) (WARM OR COOL)	VEGETATIVE WATERING	TEMP SEDMT CONT FENCE (INSTALL)	TEMP SEDMT CONT FENCE (REMOVE)	BIODEG EROSN CONT LOGS (INSTL) (8")	BIODEG EROSN CONT LOGS (REMOVE)
				10 GAL/SY (2 APPS)				
	SY	SY	SY	MG	LF	LF	LF	LF
END PROJECT TO STA 19+50	61	61	61	3			84	84
STA 19+50 TO STA 29+50	79	79	79	4	390	390	204	204
STA 29+50 TO STA 39+50	5	5	5	1	57	57		
STA 39+50 TO STA 49+50								
STA 49+50 TO STA 59+50	80	80	80	4	107	107	14	14
STA 59+50 TO STA 69+50	7	7	7	1	54	54	14	14
STA 69+50 TO STA 79+50	31	31	31	2			14	14
STA 79+50 TO STA 89+50	28	28	28	2			28	28
STA 89+50 TO STA 99+50	79	79	79	4			28	28
STA 99+50 TO STA 109+50	223	223	223	9	392	392		
STA 109+50 TO STA 119+50	370	370	370	15	292	292		
STA 119+50 TO STA 129+50	204	204	204	9			14	14
STA 129+50 TO STA 139+50	189	189	189	8	98	98	42	42
STA 139+50 TO BEGIN PROJECT	145	145	145	6			28	28
PROJECT TOTALS	**1501**	**1501**	**1501**	**68**	**1390**	**1390**	**470**	**470**

NOTE:

1. LOCATIONS AND TYPES OF BMPs MAY REQUIRE ADJUSTMENTS PRIOR TO OR AFTER PLACEMENT AS DIRECTED BY THE ENGINEER. ADJUSTMENTS SHOULD BE MADE TO ENSURE BMPs ARE WORKING EFFECTIVELY AND MAINTAIN COMPLIANCE WITH THE CONSTRUCTION GENERAL PERMIT. NOTIFY THE ENGINEER PRIOR TO MAKING ADJUSTMENTS.

REV	DESCRIPTION	DATE	INIT

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

QUANTITY SUMMARY
(SWP3)

SHEET 3 OF 3

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	11

SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS INCHES W X H	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	MOUNTING DESIGNATION 1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
1 OF 14	P01	M4-3	BUSINESS 59	24 X 12	X		10 BWG	1	SB	P		
		M1-4B		24 X 24	X							
		M6-4		21 X 15	X							
2 OF 14	P02	R2-1	SPEED LIMIT 40	30 X 36	X		TWT	1	WS	P		
2 OF 14	P03	M3-3	SOUTH BUSINESS 59	24 X 12	X		TWT	1	WS	P		
		M4-3		24 X 12	X							
		M1-4B		24 X 24	X							
6 OF 14	P04	R2-1	SPEED LIMIT 40	30 X 36	X		TWT	1	WS	P		
6 OF 14	P05	M3-3	SOUTH BUSINESS 59 69	24 X 12	X		10 BWG	1	SB	P		
		M4-3		24 X 12	X							
		M1-4B		24 X 24	X							
		M1-4B		24 X 24	X							
7 OF 14	P06	M3-1	NORTH BUSINESS 59 69 WEST 103 TEXAS; SOUTH BUSINESS 59 69	24 X 12	X		S80	1	SA	U	1-EXT	
		M4-3		24 X 12	X							
		M3-3 M1-4B		24 X 12 24 X 24	X							
		M4-3 M1-4B		24 X 12 24 X 24	X							
		M1-4B M3-4		24 X 24 24 X 12	X							
		M1-4B M1-6T		24 X 24 24 X 24	X							
		M6-1 M6-1		21 X 15 21 X 15	X							
7 OF 14	P07	M3-3	SOUTH BUSINESS 59 69; EAST 103 TEXAS	24 X 12	X		S80	1	SA	U	1-EXT	
		M4-3		24 X 12	X							
		M3-2 M1-4B		24 X 12 24 X 24	X							
		M1-6T M1-4B		24 X 24 24 X 24	X							
		M6-1 M6-3		21 X 15 21 X 15	X							
7 OF 14	P08	M3-2	EAST 103 TEXAS	24 X 12	X		10 BWG	1	SB	P		
		M1-6T		24 X 24	X							
		M5-1L		21 X 15	X							
8 OF 14	P09	M3-3	SOUTH BUSINESS 59 69 EAST 103 TEXAS	24 X 12	X		S80	1	SA	P		
		M4-3		24 X 12	X							
		M1-4B		24 X 24	X							
		M1-4B		24 X 24	X							
		M3-2		24 X 12	X							
		M1-6T		24 X 24	X							
9 OF 14	P10	D9-2	H	24 X 24	X		10 BWG	1	SB	P		
		M6-1B		21 X 15	X							

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

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

http://www.txdot.gov/

NOTE:

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

Texas Department of Transportation

Traffic Operations Division Standard

SUMMARY OF SMALL SIGNS

SOSS

SHEET 1 OF 2

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
4-16	DIST	COUNTY		SHEET NO.
8-16	LFK	ANGELINA		12

18

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SUMMARY OF SMALL SIGNS

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

PLAN SHEET NO.	SIGN NO.	SIGN NOMENCLATURE	SIGN	DIMENSIONS	FLAT ALUMINUM (TYPE A)	EXAL ALUMINUM (TYPE G)	POST TYPE FRP = Fiberglass TWT = Thin-Wall 10BWG = 10 BWG S80 = Sch 80	POSTS 1 or 2	ANCHOR TYPE UA=Universal Conc UB=Universal Bolt SA=Slipbase-Conc SB=Slipbase-Bolt WS=Wedge Steel WP=Wedge Plastic	MOUNTING DESIGNATION PREFABRICATED P = "Plain" T = "T" U = "U"	1EXT or 2EXT = # of Ext BM = Extruded Wind Beam WC = 1.12 #/ft Wing Channel EXAL= Extruded Alum Sign Panels	BRIDGE MOUNT CLEARANCE SIGNS (See Note 2) TY = TYPE TY N TY S
9 OF 14	P11	M3-3		24 X 12	X		10 BWG	1	SB	P		
		M1-6L		24 X 24	X							
		M6-1		21 X 15	X							
10 OF 14	P12	W4-1R		36 X 36	X		TWT	1	WS	P		
10 OF 14	P13	M2-1		21 X 15	X		TWT	1	WS	P		
		M1-6L		24 X 24	X							

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

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

http://www.txdot.gov/

NOTE:

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

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Texas Department of Transportation

Traffic Operations Division Standard

SOSS

SHEET 2 OF 2

FILE: sums16.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT May 1987	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
4-16	DIST	COUNTY		SHEET NO.
8-16	LFK	ANGELINA		13

GENERAL TCP NOTES

1. ALL TRAFFIC CONTROL DEVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), LATEST EDITION AND AMENDMENTS. ALL TRAFFIC CONTROL DEVICES SHALL ALSO COMPLY WITH THE CRASH WORTHINESS REQUIREMENTS OF THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).

2. REFER TO TXDOT STANDARD BC(2)-14 FOR ADDITIONAL INFORMATION ON THE TYPICAL LOCATION OF CROSSROAD SIGNS. ALL SIDE STREETS WITHIN THE PROJECT LIMITS SHALL HAVE CROSSROAD SIGNS IN ACCORDANCE WITH THIS STANDARD. ALL PROJECT LIMIT WARNING SIGNS SHALL BE PLACED PRIOR TO CONSTRUCTION BEGINNING AT THE RELEVANT LOCATION AND ARE TO REMAIN IN PLACE THROUGHOUT THE DURATION OF THE PROJECT UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

3. TRAFFIC MUST BE HANDLED APPROPRIATELY THROUGHOUT THE PROJECT DURING CONSTRUCTION, AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC AT ALL TIMES. CONTRACTOR IS RESPONSIBLE FOR COORDINATING TRAFFIC CONTROL WITH ADJACENT ROADWAY CONSTRUCTION PROJECTS AS REQUIRED.

4. AT POINTS WHERE IT IS NECESSARY FOR TRUCKS TO STOP AND UNLOAD, WARNING SIGNS AND FLAGGERS SHALL BE PROVIDED AS NECESSARY TO ADEQUATELY PROTECT THE TRAVELING PUBLIC.

5. CONTRACTOR SHALL MAINTAIN EXISTING DRAINAGE DURING CONSTRUCTION. TEMPORARY DRAINAGE WORK AND ITEMS (INCLUDING, BUT NOT LIMITED TO TEMPORARY CAPS AND PLUGS) SHALL BE SUBSIDIARY TO ITEM 502.

6. THE CONTRACTOR MAINTAINS THE RESPONSIBILITY TO PROTECT THE UTILITIES DURING CONSTRUCTION.

7. CONSTRUCTION IN ANY AREA THAT IS ADVERSELY AFFECTING TRAFFIC FLOW MUST BE PURSUED DILIGENTLY BY THE CONTRACTOR. IF, IN THE OPINION OF THE ENGINEER, CONSTRUCTION IS NOT PROCEEDING TOWARDS COMPLETION IN THESE AREAS, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO ALTER THE WORK SCHEDULE TO EXPEDITE COMPLETION IN THE AREAS OF CONCERN.

8. THE USE OF ADVANCE WARNING FLASHING ARROW BOARDS ARE REQUIRED FOR THE CLOSING OF TRAFFIC LANES. THE CONTRACTOR SHALL BE REQUIRED TO FURNISH ONE STAND-BY UNIT, IN GOOD WORKING CONDITION AT THE JOB SITE, READY FOR IMMEDIATE USE.

9. ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE REMOVED AS SOON AS PRACTICAL WHEN THEY ARE NO LONGER NEEDED. WHEN WORK IS SUSPENDED FOR SHORT PERIODS OF TIME, TEMPORARY TRAFFIC CONTROL DEVICES THAT ARE NO LONGER APPROPRIATE SHALL BE REMOVED OR COVERED.

10. ACCESS TO ALL SIDE STREETS AND DRIVEWAYS SHOULD TO THE GREATEST EXTENT POSSIBLE BE MAINTAINED AT ALL TIMES AT THE SOLE EXPENSE OF THE CONTRACTOR. THE CONTRACTOR WILL CONTACT THE BUSINESS OR PROPERTY OWNER AT LEAST 5 DAYS IN ADVANCE OF DRIVEWAY CONSTRUCTION. IF THE PROPERTY OWNER HAS MORE THAN ONE DRIVEWAY, CONSTRUCTION WILL ONLY BE PERMITTED ON ONE DRIVEWAY AT A TIME. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE TEMPORARY SURFACING FOR TRANSITIONS BETWEEN PAVEMENT ELEVATIONS FOR ALL DRIVEWAYS.

11. SEDIMENT CONTROLS SHALL BE IN PLACE PRIOR TO COMMENCING ANY SOIL DISTURBING ACTIVITIES.

12. ALL PERIMETER SEDIMENT CONTROLS AND INLET PROTECTION TO REMAIN UNTIL END OF CONSTRUCTION OR UNLESS OTHERWISE APPROVED BY TXDOT.

13. COORDINATE WITH SETH FRANKS (936-633-4486) WITH LUFKIN TRAFFIC OFFICE TO LOCATE SIGNAL LINES.

SEQUENCE OF CONSTRUCTION

1. PRIOR TO BEGINNING WORK AT EACH LOCATION, CONTRACTOR SHALL PLACE TEMPORARY EROSION CONTROL DEVICES AND ADVANCE WARNING SIGNS UTILIZING APPLICABLE TXDOT STANDARDS BC(1)-14 THRU BC(12)-14 AND THE TMUTCD.

2. IN THE EVENT OF LANE CLOSURES, CONTRACTOR WILL REFER TO APPLICABLE BC AND TCP STANDARDS FOR CLOSING OF LANES.

3. FULL ROADWAY CLOSURES WILL NOT BE ALLOWED FOR THE DURATION OF THE PROJECT.

4. REMOVE EROSION CONTROL DEVICES AND PERFORM FINAL CLEAN UP.

REV	DESCRIPTION	DATE	INIT

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

TRAFFIC CONTROL PLAN NARRATIVE

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	14

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

10. As shown on BC(2), the OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER (see Sign Detail G20-10T) and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. However, the TRAFFIC FINES DOUBLE sign will not be required on projects consisting solely of mobile operation work, such as striping or milling edgeline rumble strips. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits.

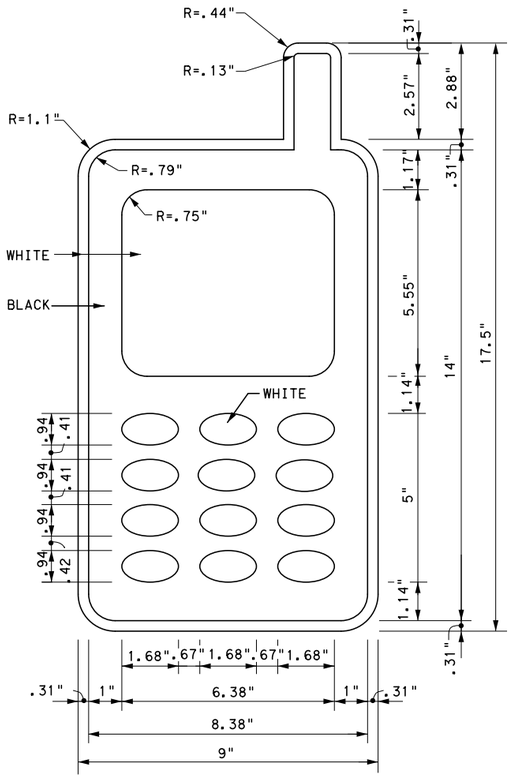
11. Except for devices required by Note 10, traffic control devices should be in place only while work is actually in progress or a definite need exists.

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 APPAREL 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.



3.0" Radius, 1.25" Border, 0.75" Indent, Black on Yellow;
[STAY ALERT] Font: D
3.0" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[TALK OR TEXT LATER] Font: C specified length;

SIGN DETAIL (G20-10T)

Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found on-line at the web address given below or by contacting:

Texas Department of Transportation
Traffic Operations Division - TE
Phone (512) 416-3118

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 Operations Division Standard

BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-14

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© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
4-03 5-10 8-14	DIST	COUNTY		SHEET NO.
9-07 7-13	LFK	ANGELINA		15

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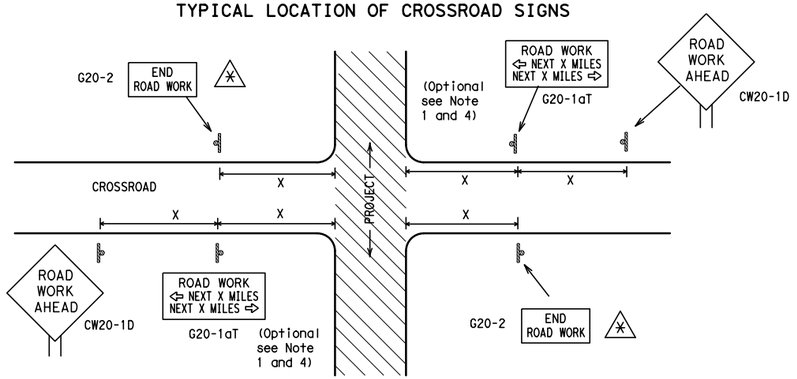
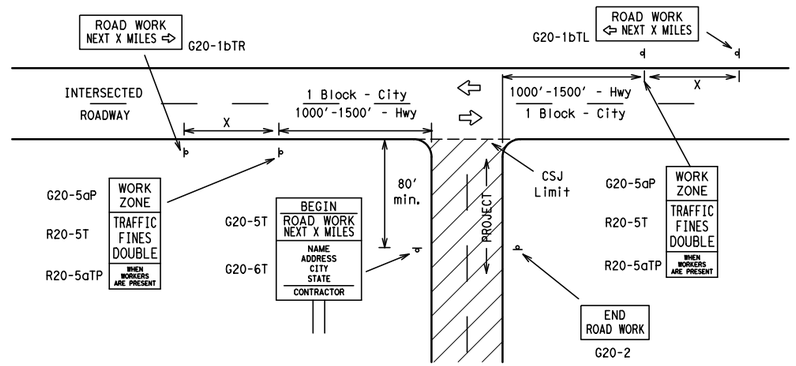
TYPICAL LOCATION OF CROSSROAD SIGNS



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

1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D)sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK"(G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume. 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]

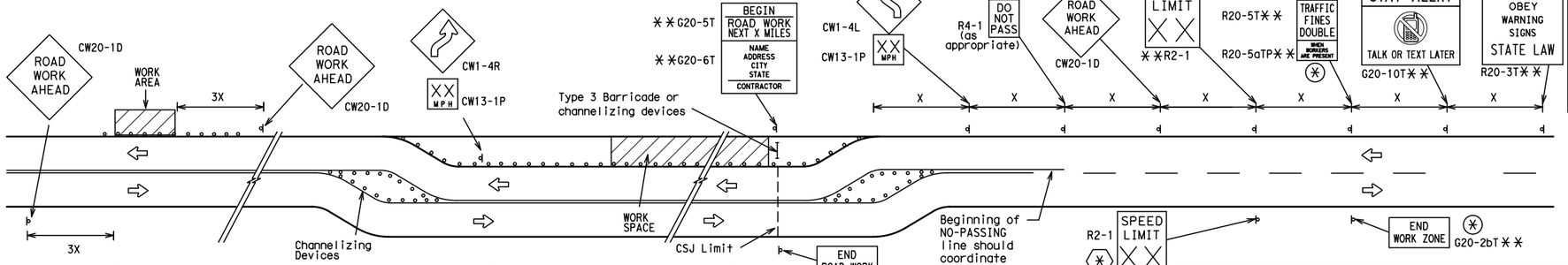
✳ For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

△ 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. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD", Sign Appendix or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

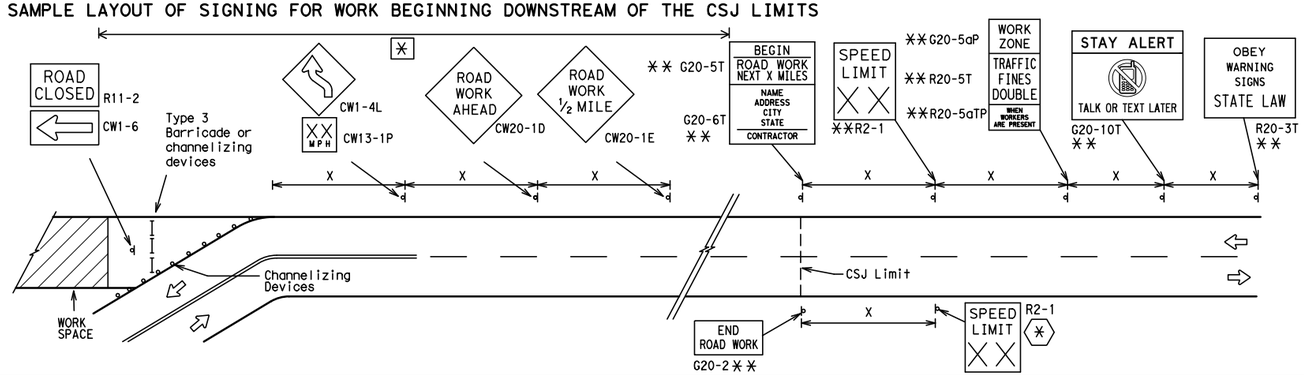
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

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



NOTES

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

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

✳✳ Required CSJ Limit signing. See Note 10 on BC(1). TRAFFIC FINES DOUBLE signs will not be required on projects consisting solely of mobile operations work.

✳ 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 Operations Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS	0176	02	124	BU 59-G
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	LFK	ANGELINA		16

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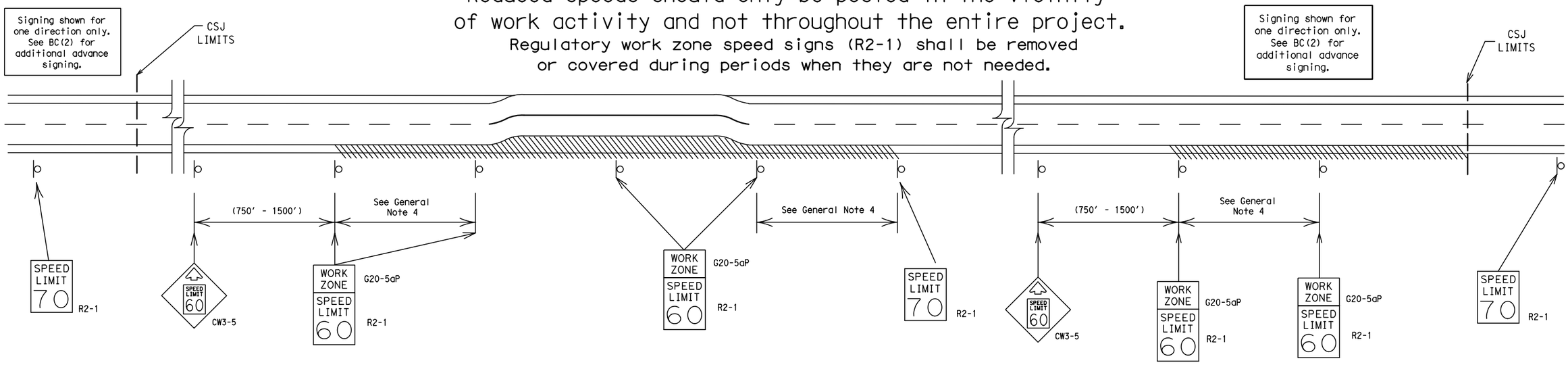
TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

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



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC(3)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS 9-07 8-14 7-13	0176	02	124	BU 59-G
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		17

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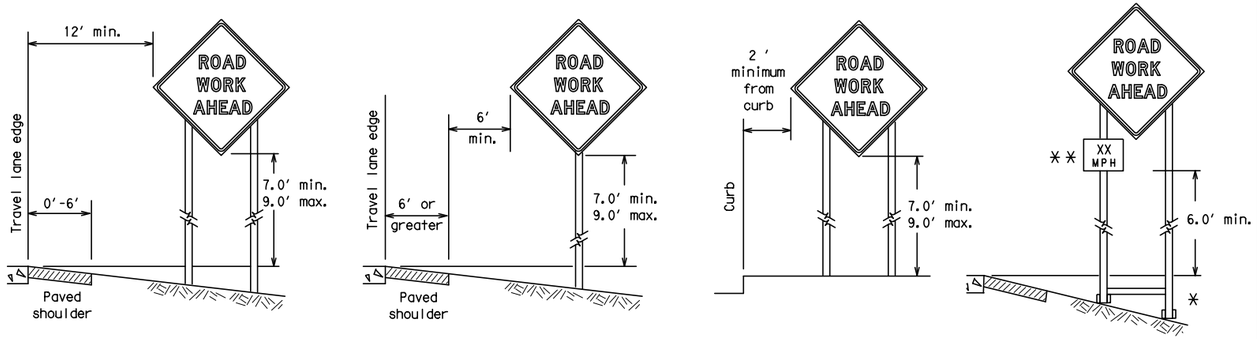
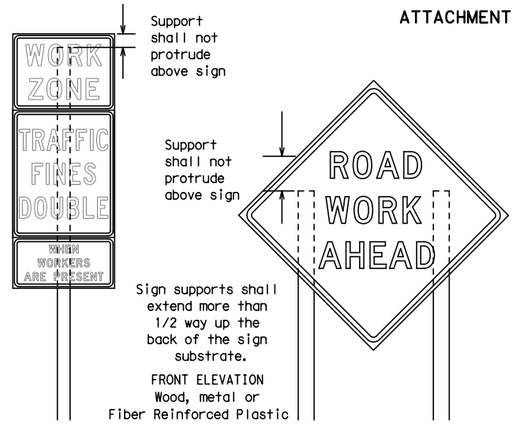
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

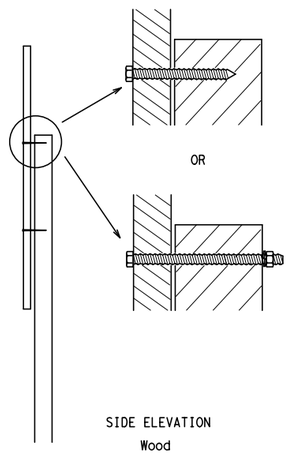


⁎ When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





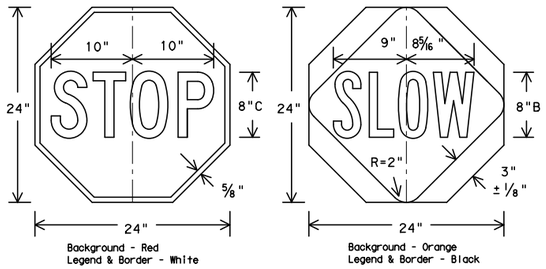
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24" as detailed below.
2. When used at night, the STOP/SLOW paddle shall be retroreflectorized.
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.



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, 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.
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 sheets or the CWZTCD. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards 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). 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 Operations Division Standard

BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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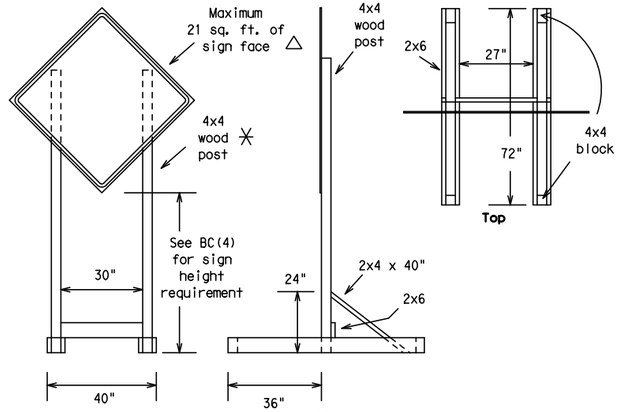
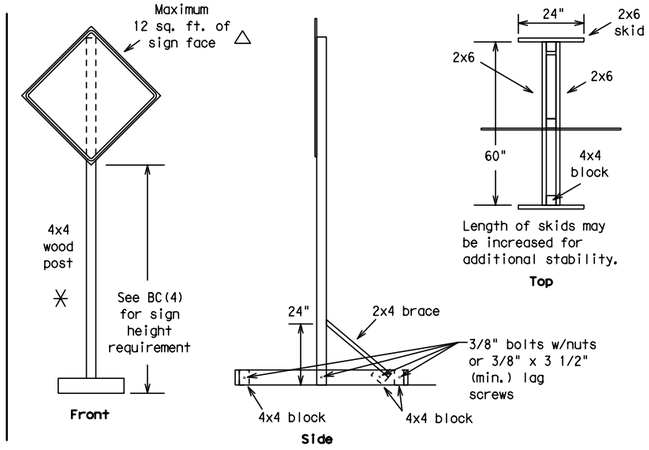
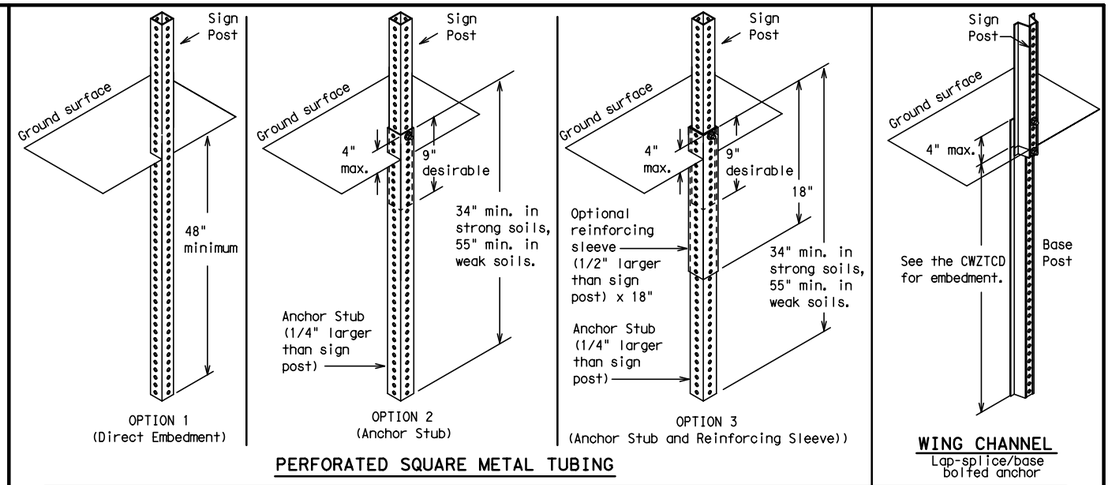
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		18





SKID MOUNTED WOOD SIGN SUPPORTS

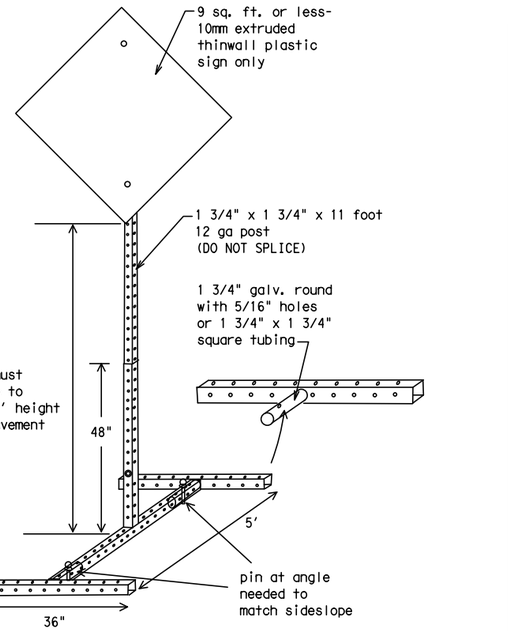
LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS □

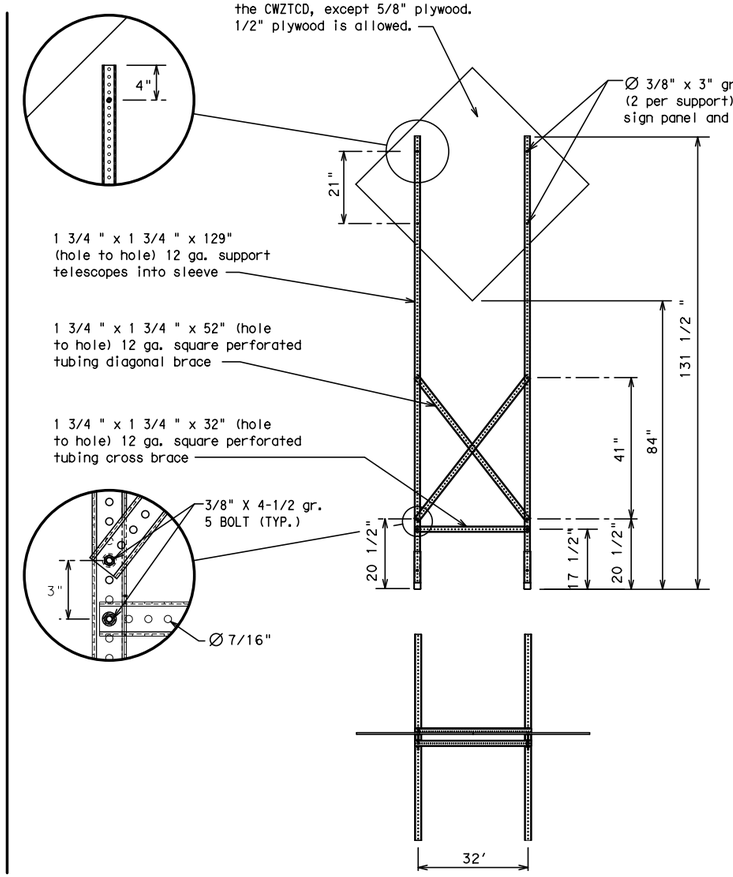


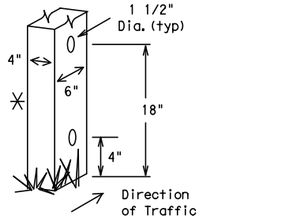
PERFORATED SQUARE METAL TUBING

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.

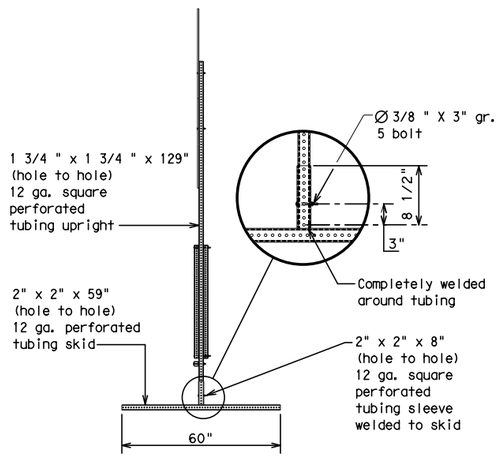






Nominal Post Size	Number of Posts	Maximum Sq. feet of Sign Face	Minimum Soil Embedment	Drilled Hole(s) Required
4 x 4	1	12	36"	NO
4 x 4	2	21	36"	NO
4 x 6	1	21	36"	YES
4 x 6	2	36	36"	YES

WOOD POST SYSTEM FOR GROUND 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.

SHEET 5 OF 12

Texas Department of Transportation | Traffic Operations Division Standard

SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-14

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
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9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	LFK	ANGELINA		19

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

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

Other Condition List

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

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

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

Location List

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

Warning List

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

** Advance Notice List

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

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC(6)-14

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©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	LFK	ANGELINA		20

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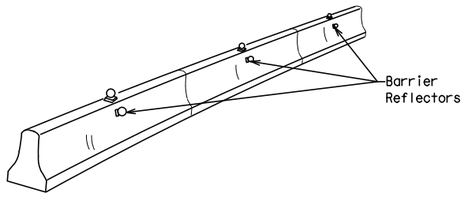
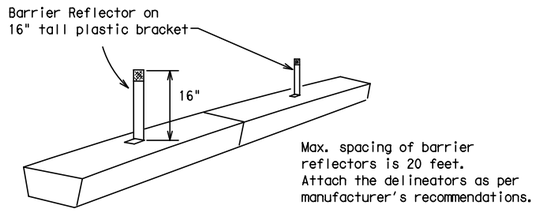
1. Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
2. Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost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

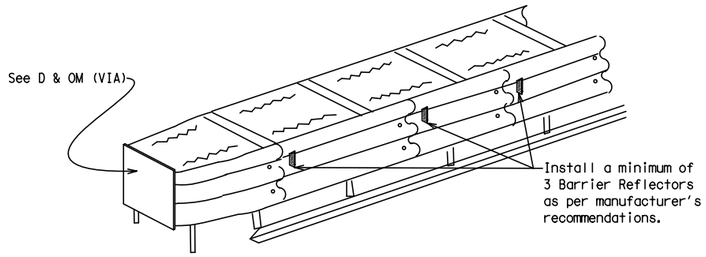


CONCRETE TRAFFIC BARRIER (CTB)

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



LOW PROFILE CONCRETE BARRIER (LPCB)

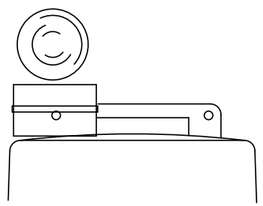


DELINEATION OF END TREATMENTS

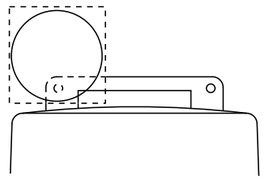
END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet crashworthy standards as defined in the National Cooperative Highway Research Report 350. Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

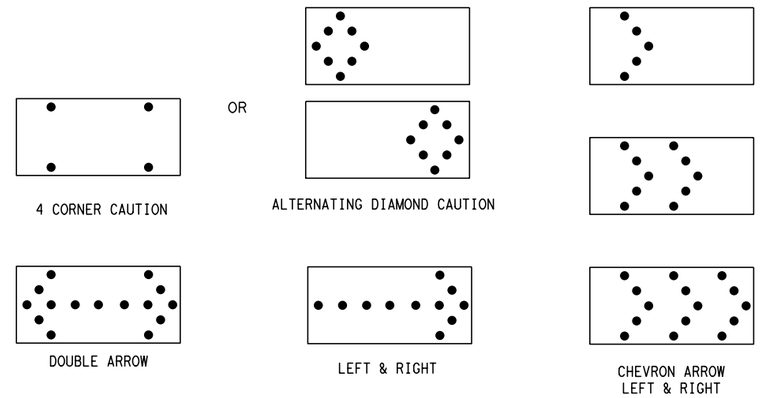
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

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

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

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the National Cooperative Highway Research Report No. 350 (NCHRP 350) or 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 Operations Division Standard

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

BC(7)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

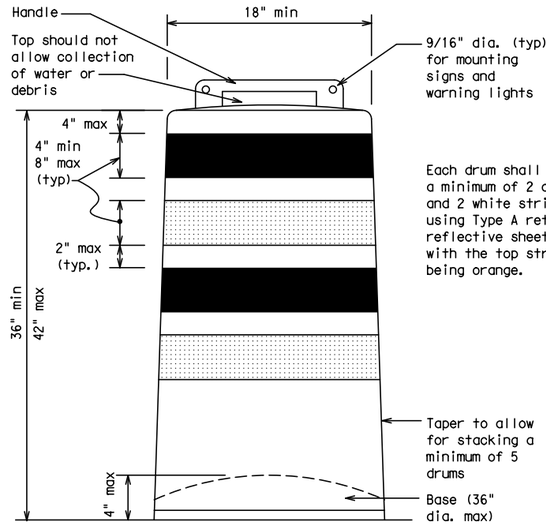
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

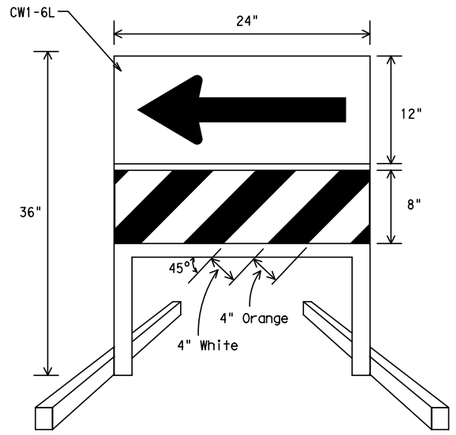
RETROREFLECTIVE SHEETING

1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A 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.

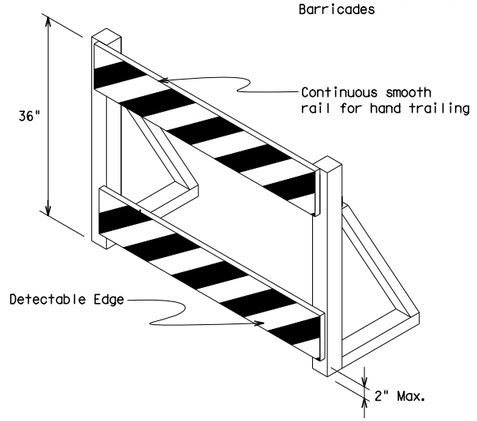




DIRECTION INDICATOR BARRICADE

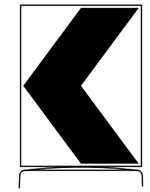
1. The Direction Indicator Barricade may be used in tapers, transitions, and other areas where specific directional guidance to drivers is necessary.
2. If used, the Direction Indicator Barricade should be used in series to direct the driver through the transition and into the intended travel lane.
3. The Direction Indicator Barricade shall consist of One-Direction Large Arrow (CW1-6) sign in the size shown with a black arrow on a background of Type B_{FL} or Type C_{FL} Orange retroreflective sheeting above a rail with Type A retroreflective sheeting in alternating 4" white and orange stripes sloping downward at an angle of 45 degrees in the direction road users are to pass. Sheeting types shall be as per DMS 8300.
4. Double arrows on the Direction Indicator Barricade will not be allowed.
5. Approved manufacturers are shown on the CWZTCD List. Ballast shall be as approved by the manufacturers instructions.

This detail is not intended for fabrication. See note 3 and the CWZTCD list for providers of approved Detectable Pedestrian Barricades

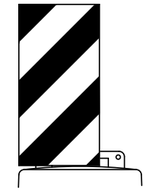


DETECTABLE PEDESTRIAN BARRICADES

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.
2. Where pedestrians with visual disabilities normally use the closed sidewalk, a device that is detectable by a person with a visual disability traveling with the aid of a long cane shall be placed across the full width of the closed sidewalk.
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 for Buildings and Facilities (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 may 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 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 Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-14

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REVISIONS	0176	02	124	BU 59-G
4-03 7-13	DIST	COUNTY		SHEET NO.
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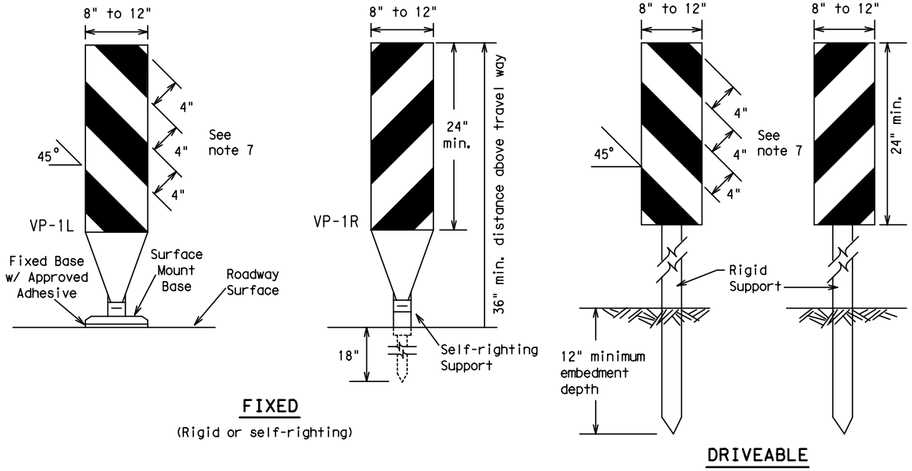
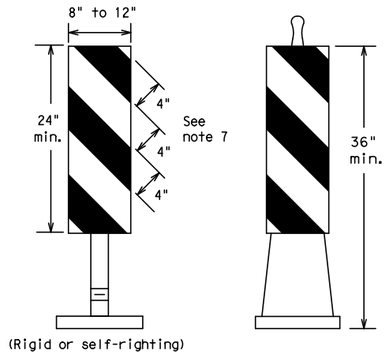


FIXED
(Rigid or self-righting)

DRIVEABLE

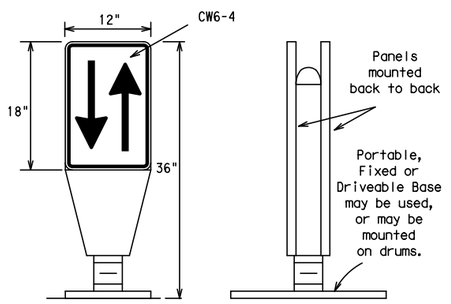


(Rigid or self-righting)

PORTABLE

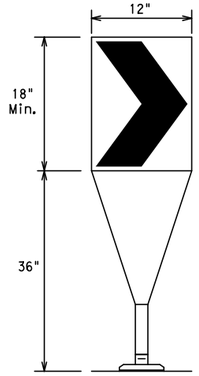
1. Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
2. VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual Appendix B "Treatment of Pavement Drop-offs in Work Zones" for additional guidelines on the use of 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 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)



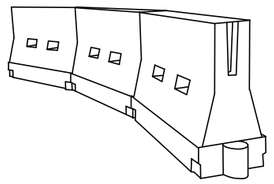
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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) placed 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 NCHRP 350 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 Operations Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-14

FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13	LFK	ANGELINA		23

DATE: 4/14/2021 12:00:30 AM
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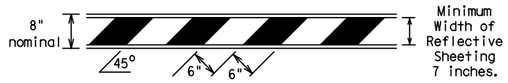
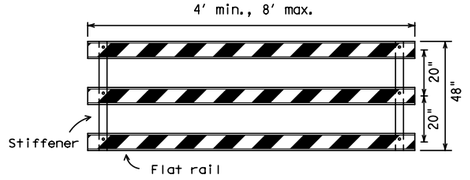
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



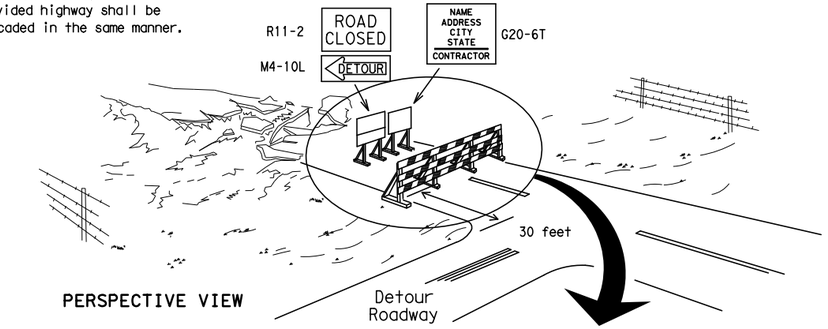
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

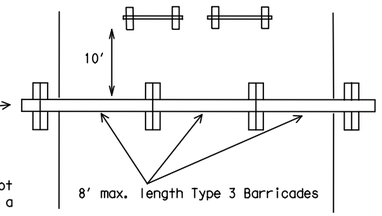
Each roadway of a divided highway shall be barricaded in the same manner.



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.

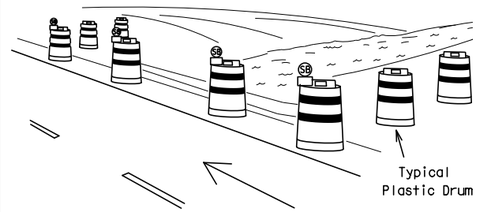
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

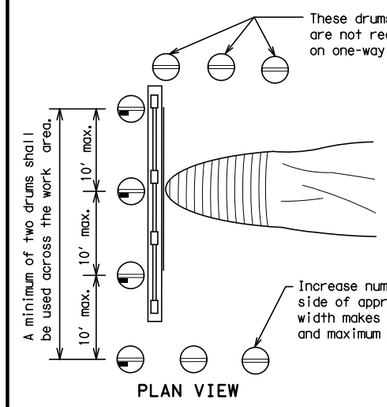
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

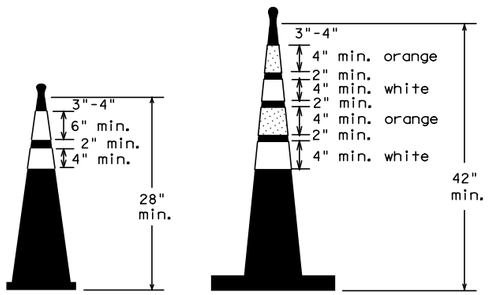
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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

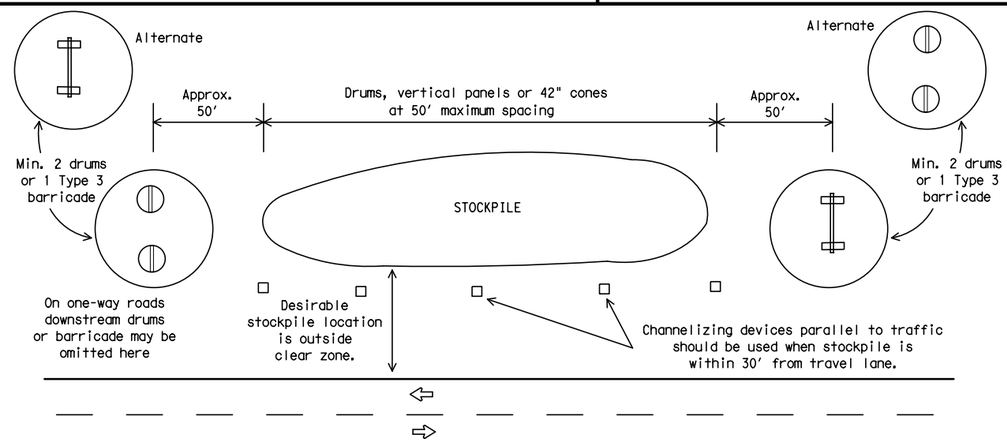
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



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

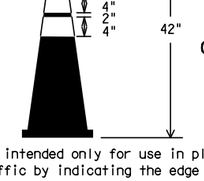
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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 used at night 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.
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

THIS DEVICE SHALL NOT BE USED ON PROJECTS LET AFTER MARCH 2014.



1. This device is intended only for use in place of a vertical panel to channelize traffic by indicating the edge of the travel lane. It is not intended to be used in transitions or tapers.
2. This device shall not be used to separate lanes of traffic (opposing or otherwise) or warn of objects.
3. This device is based on a 42 inch, two-piece cone with an alternate striping pattern: four 4 inch retroreflective bands, with an approximate 2 inch gap between bands. The color of the band should correspond to the color of the edgeline (yellow for left edgeline, white for right edgeline) for which the device is substituted or for which it supplements. The reflectorized bands shall be retroreflective Type A conforming to Departmental Material Specification DMS-8300, unless otherwise noted.
4. The base must weigh a minimum of 30 lbs.

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BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-14

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

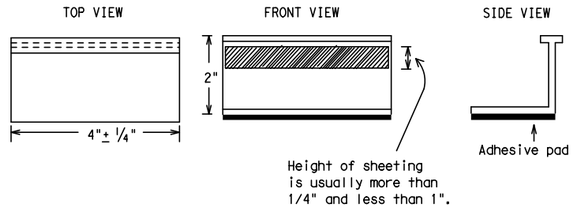
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

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Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-14

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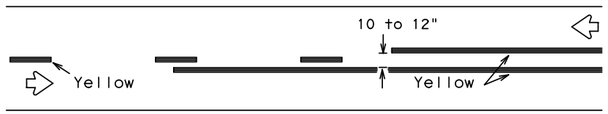
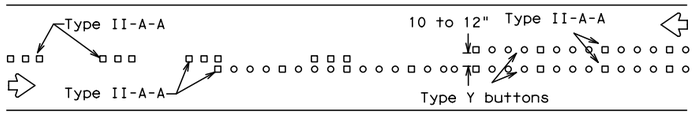
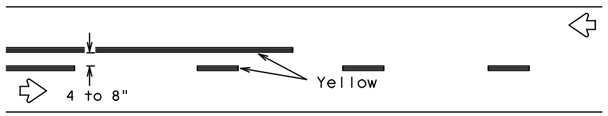
PAVEMENT MARKING PATTERNS



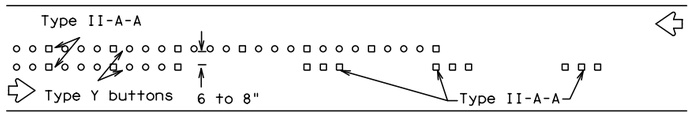
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



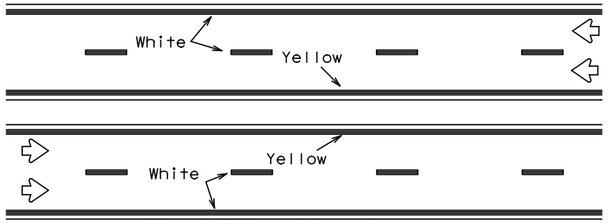
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



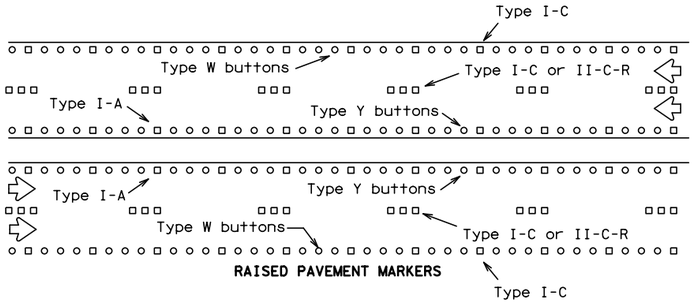
RAISED PAVEMENT MARKERS - PATTERN B

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

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



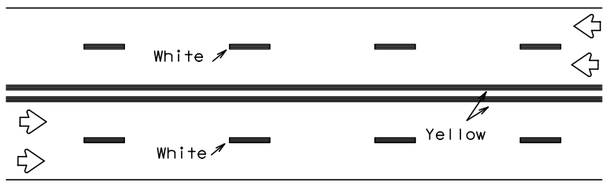
REFLECTORIZED PAVEMENT MARKINGS



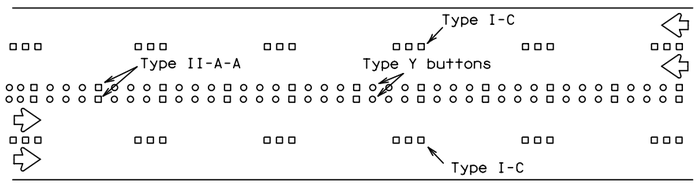
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



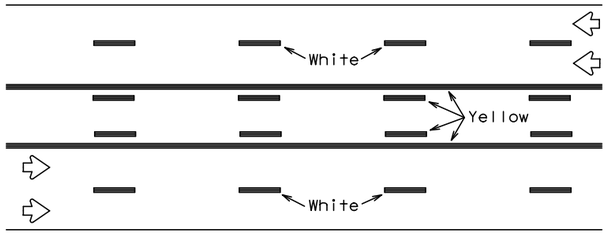
REFLECTORIZED PAVEMENT MARKINGS



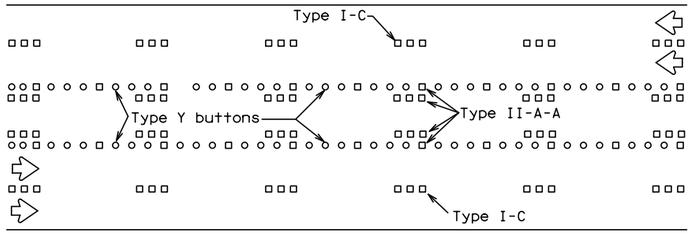
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

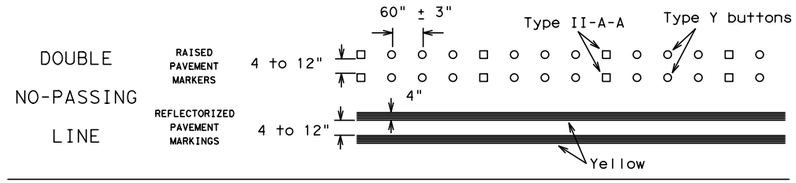
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

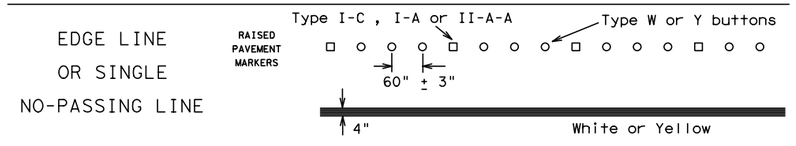
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

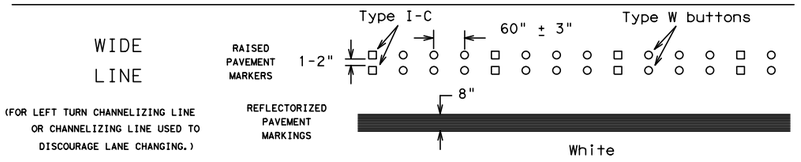


EDGE LINE OR SINGLE NO-PASSING LINE



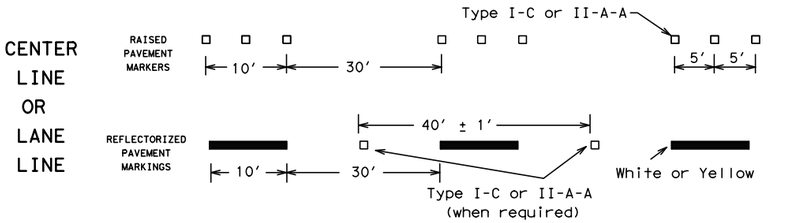
WIDE LINE

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

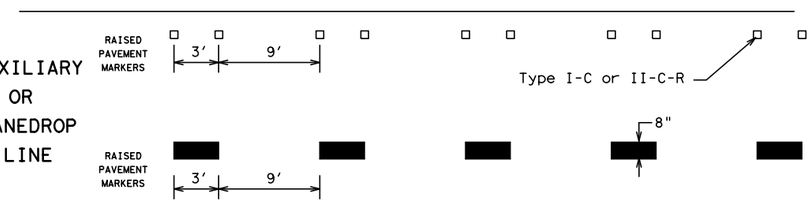


BROKEN LINES

CENTER LINE OR LANE LINE

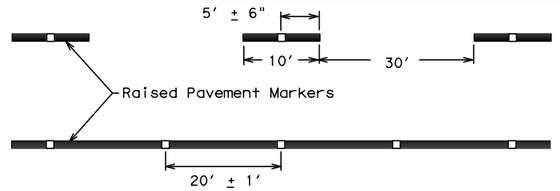


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

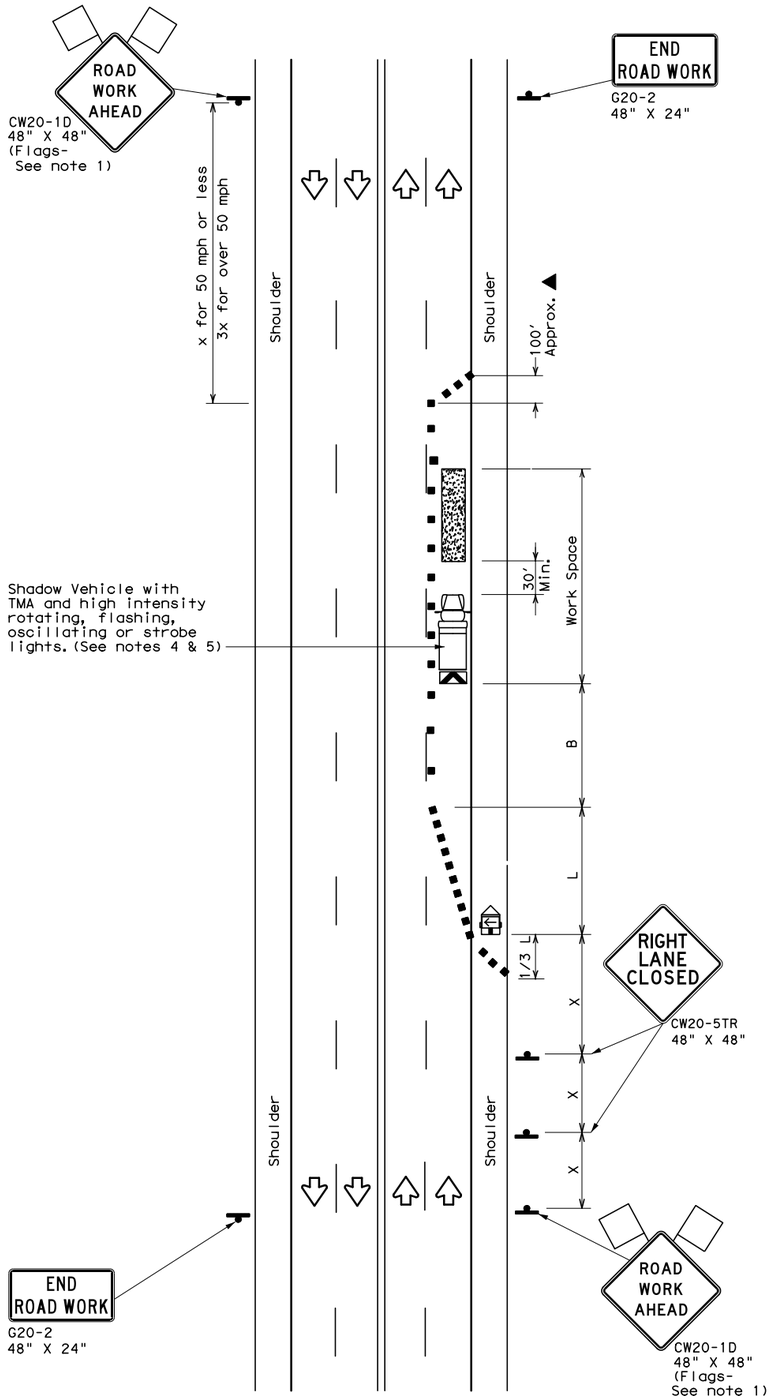
Traffic Operations Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-14

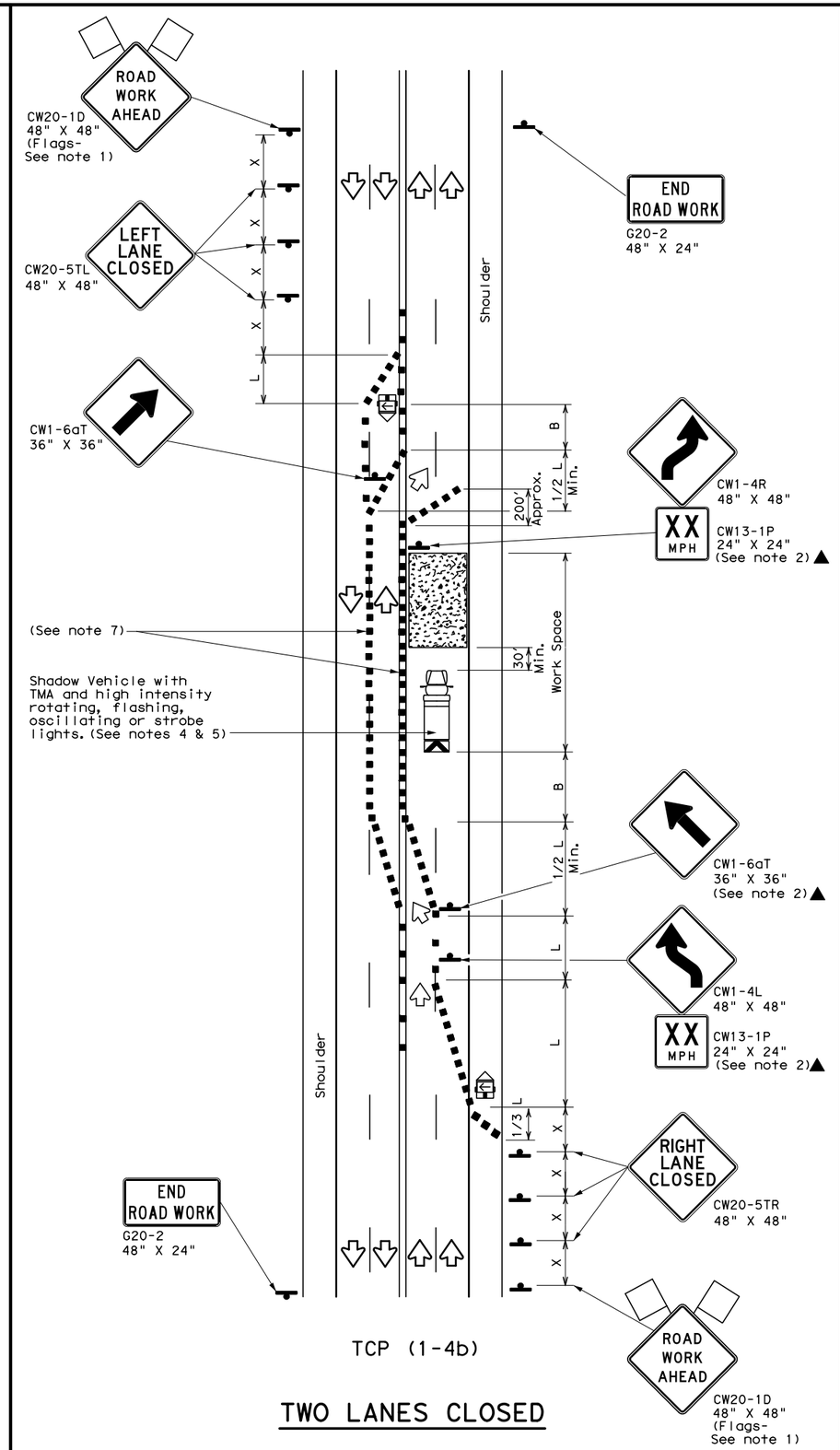
FILE: bc-14.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
1-97 9-07	DIST	COUNTY		SHEET NO.
2-98 7-13	LFK	ANGELINA		26
11-02 8-14				

DATE: 4/13/2021 11:59:43 PM
FILE: \\wsppw04icso1\ICS_pdf_work_dir\120205\312034_4\BU59G_029-301-TCP141-18.dgn



TCP (1-4a)

ONE LANE CLOSED



TCP (1-4b)

TWO LANES CLOSED

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

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

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

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

GENERAL NOTES

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

TCP (1-4a)

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

TCP (1-4b)

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

Texas Department of Transportation

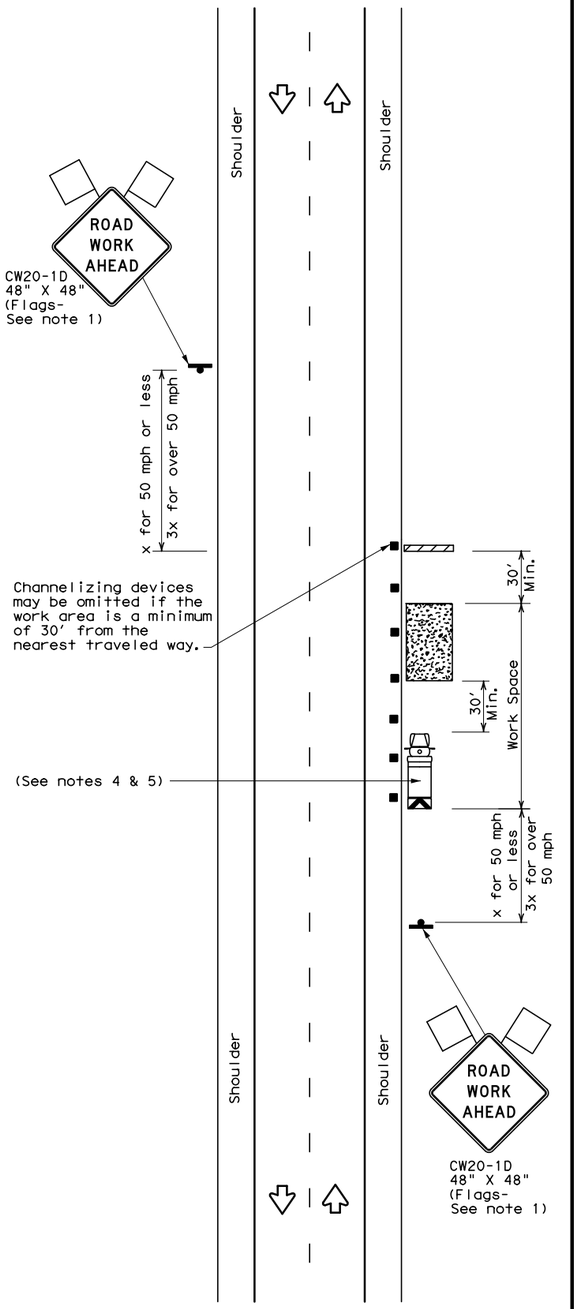
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(1-4)-18

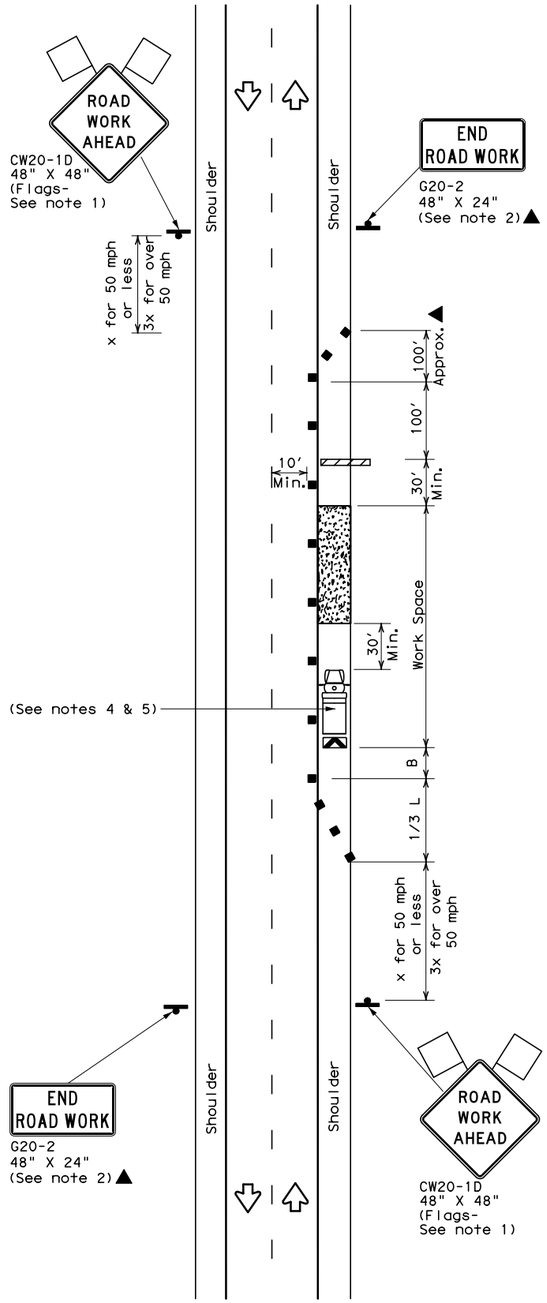
FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	LFK	ANGELINA		27
1-97 2-18				

DATE: 4/14/2021 12:00:08 AM
FILE: \\wspdw04ios01\ics_pdf_work_dir\120205\312034_5\BU59G_029-302-TCP2118.dgn



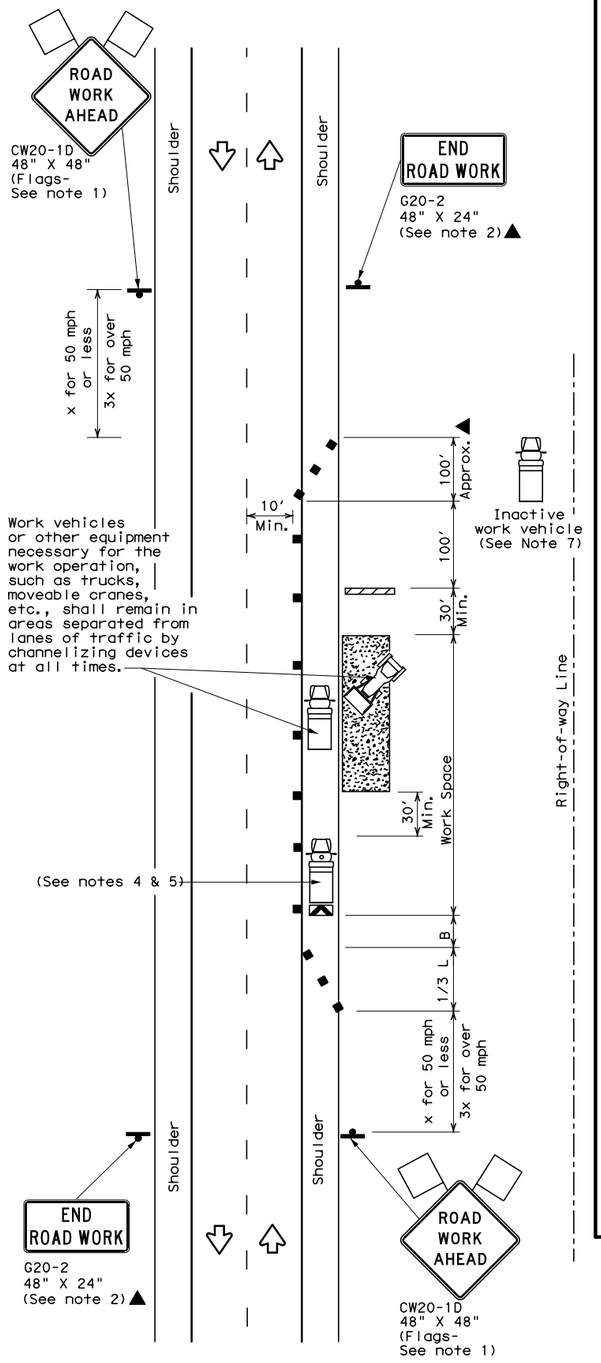
TCP (2-1a)

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	0176	02	124	BU 59-G
2-94 4-98	DIST	COUNTY		SHEET NO.
8-95 2-12	LFK	ANGELINA		28
1-97 2-18				

DATE: 4/13/2021 11:59:45 PM
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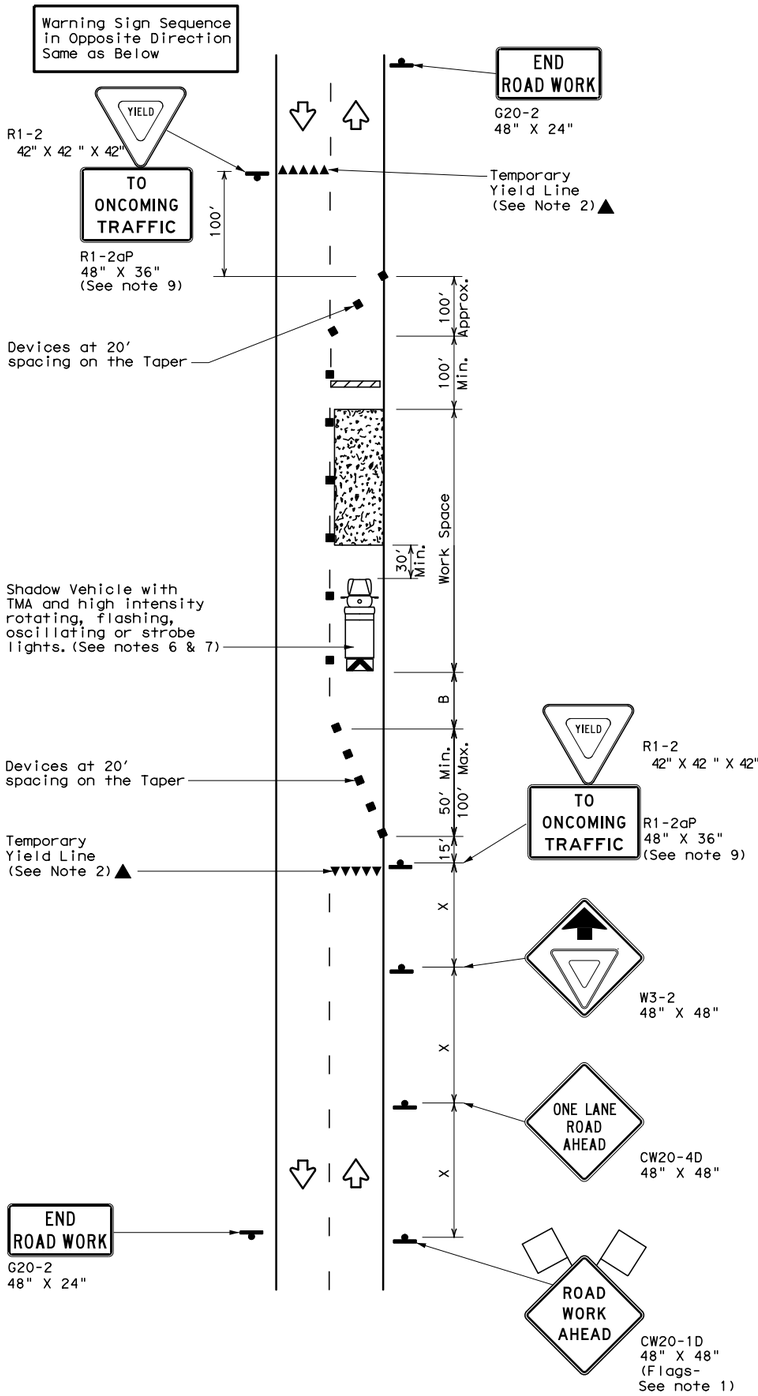
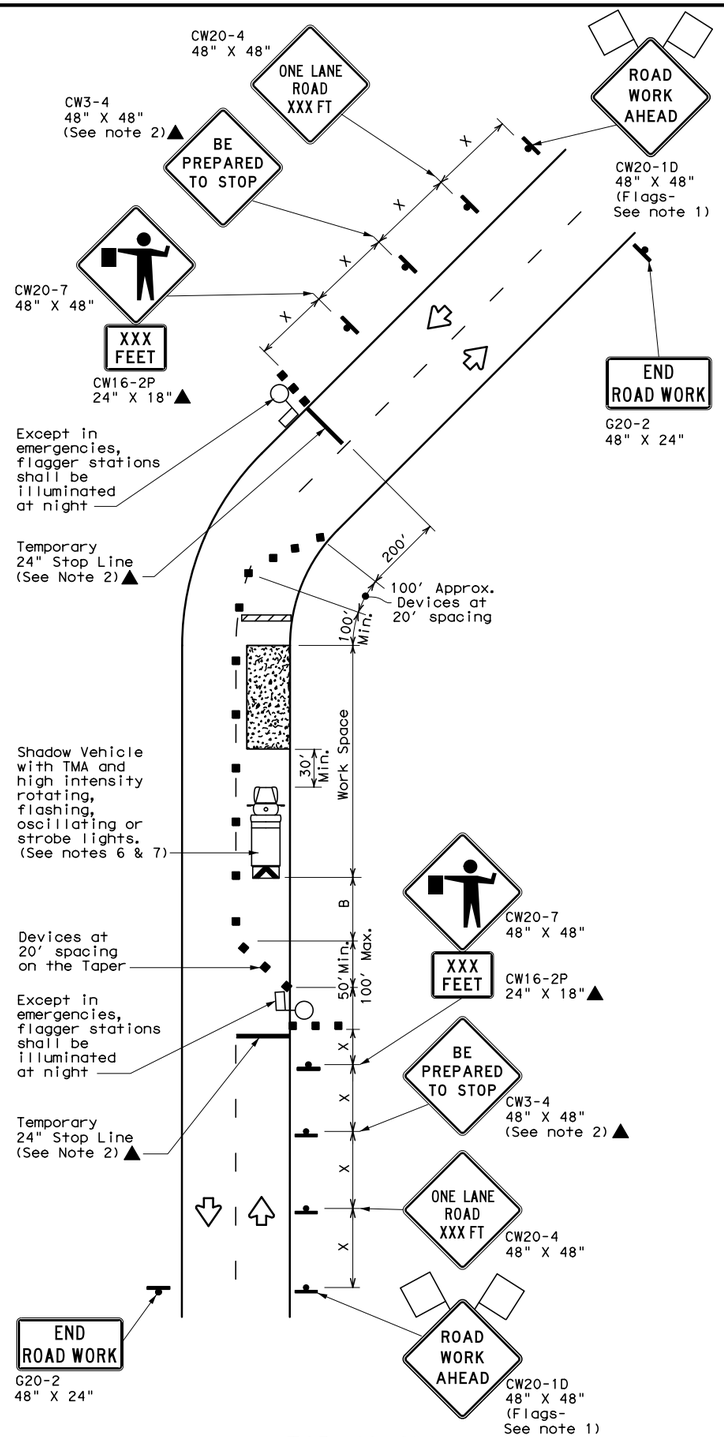


TCP (2-2a)
2-LANE ROADWAY WITHOUT PAVED SHOULDERS
ONE LANE TWO-WAY
CONTROL WITH YIELD SIGNS
(Less than 2000 ADT - See Note 9)



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

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

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

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication to control traffic.
5. Length of work space should be based on the ability of flaggers to communicate.
6. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
7. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-2a)

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

TCP (2-2b)

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

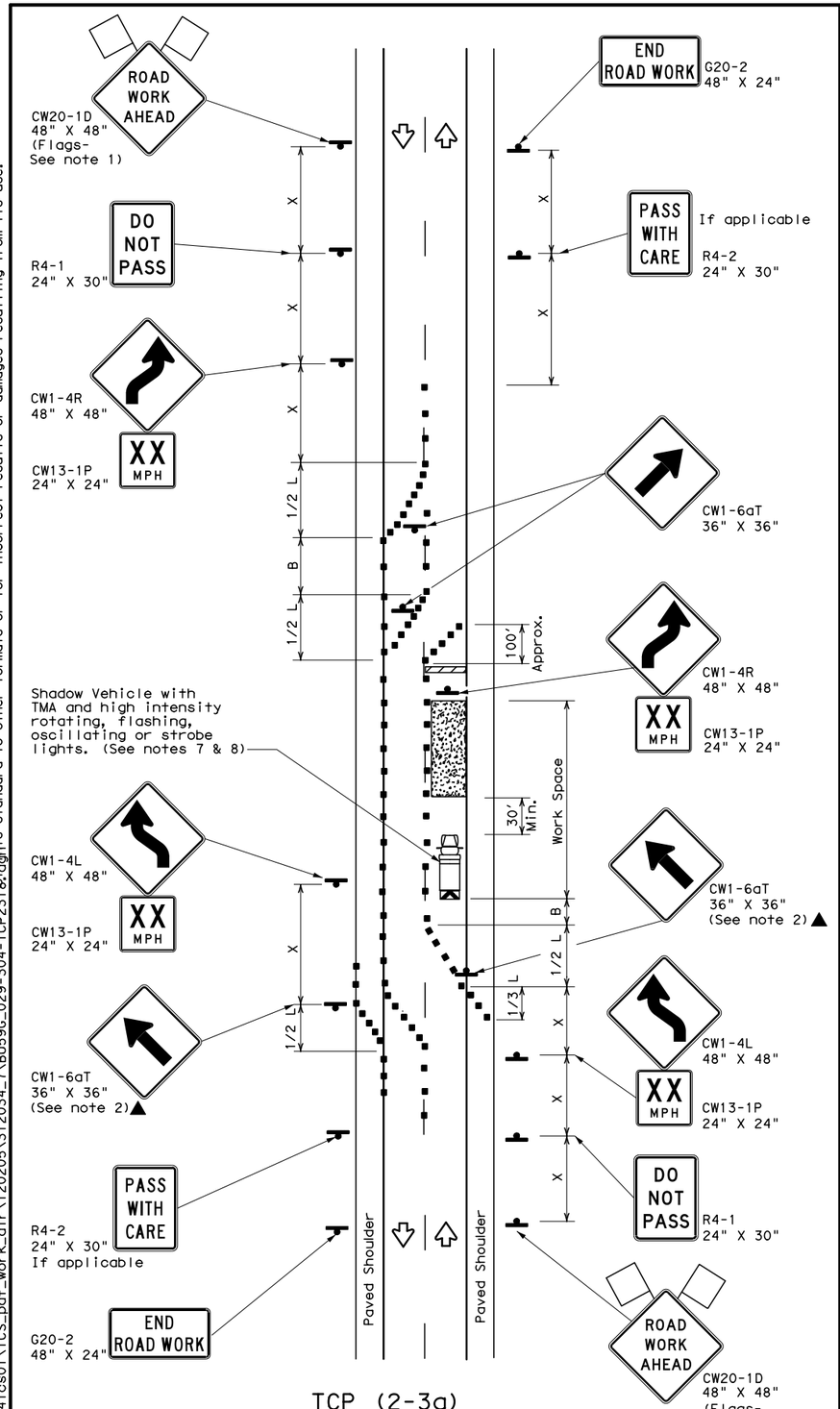
Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY TRAFFIC CONTROL

TCP(2-2)-18

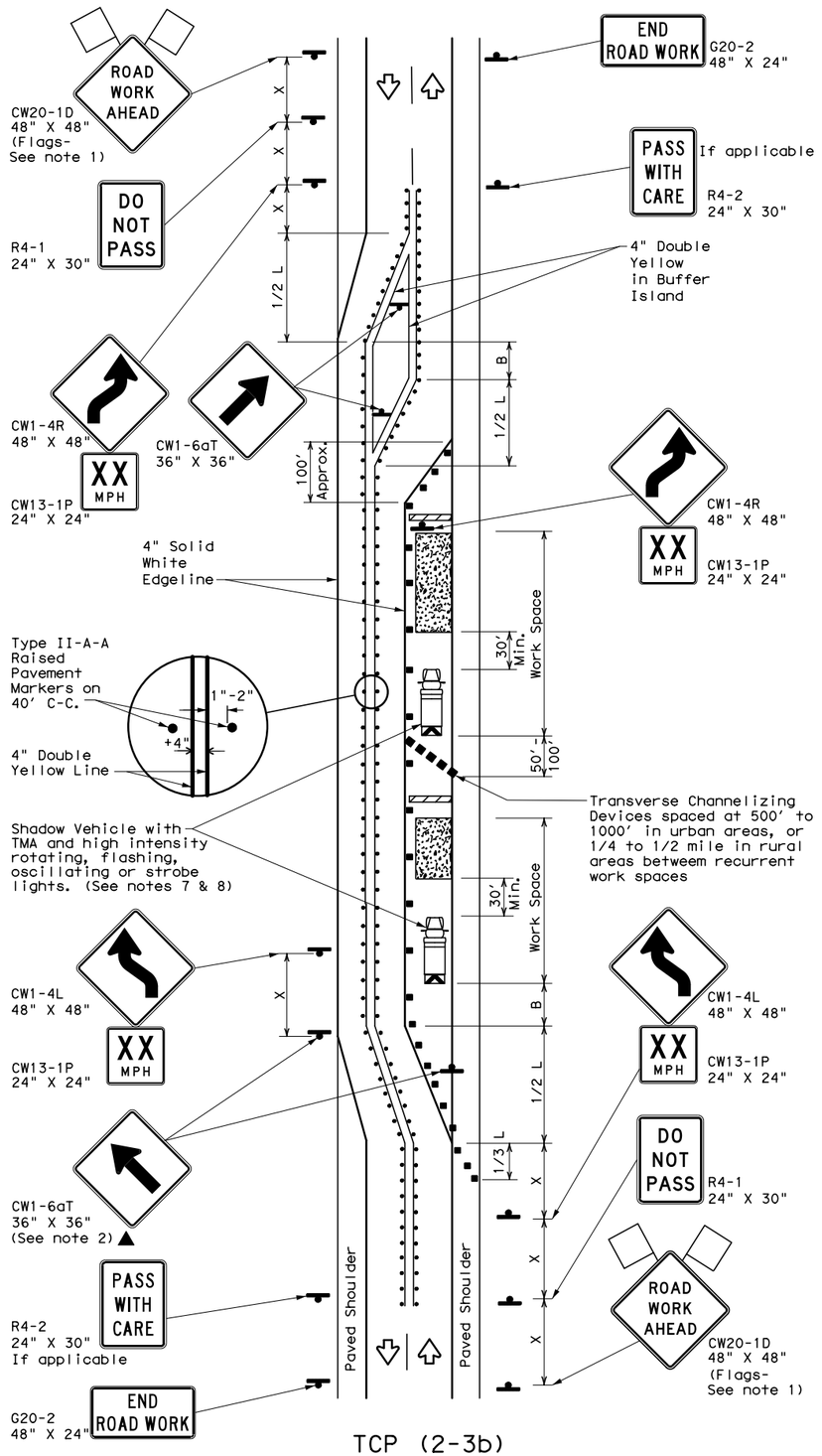
FILE: tcp2-2-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18	0176	02	124	BU 59-G
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		29

DATE: 4/13/2021 11:59:46 PM
FILE: \\wsppw041cs01\tcs_pdf_work_dir\120205\312034_7\BU59G_029-304-TCP2318-tcp(2-3)-18.dgn



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

ONE LANE CLOSED
ADEQUATE FIELD OF VIEW



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

ONE LANE CLOSED
INADEQUATE FIELD OF VIEW

LEGEND			
	Type 3 Barricade	■ ■	Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board	• • • •	Raised Pavement Markers Ty II-AA
	Sign		Traffic Flow
	Flag		Flagger

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

* Conventional Roads Only

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

TYPICAL USAGE				
MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
				TCP(2-3b)ONLY
			✓	✓

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. When work space will be in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
4. Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safely control traffic. Flagger should be positioned at end of traffic queue.
5. The R4-1 "DO NOT PASS," R4-2 " PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
6. Conflicting pavement marking shall be removed for long term projects.
7. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted.
8. Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-3a)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN TRAFFIC SHIFTS ON TWO-LANE ROADS

TCP(2-3)-18

FILE: tcp(2-3)-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
8-95 3-03	DIST	COUNTY		SHEET NO.
1-97 2-12	LFK	ANGELINA		30
4-98 2-18				

DATE: 4/13/2021 11:59:39 PM
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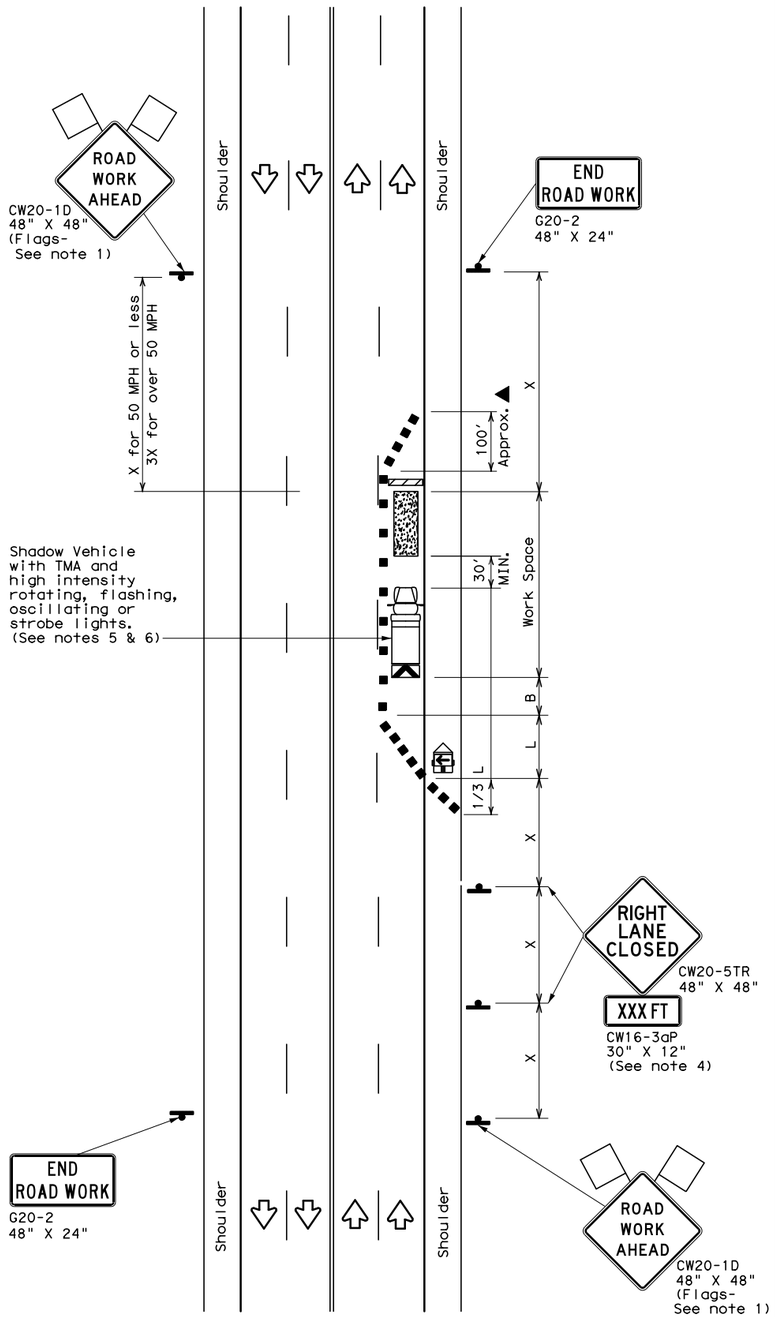
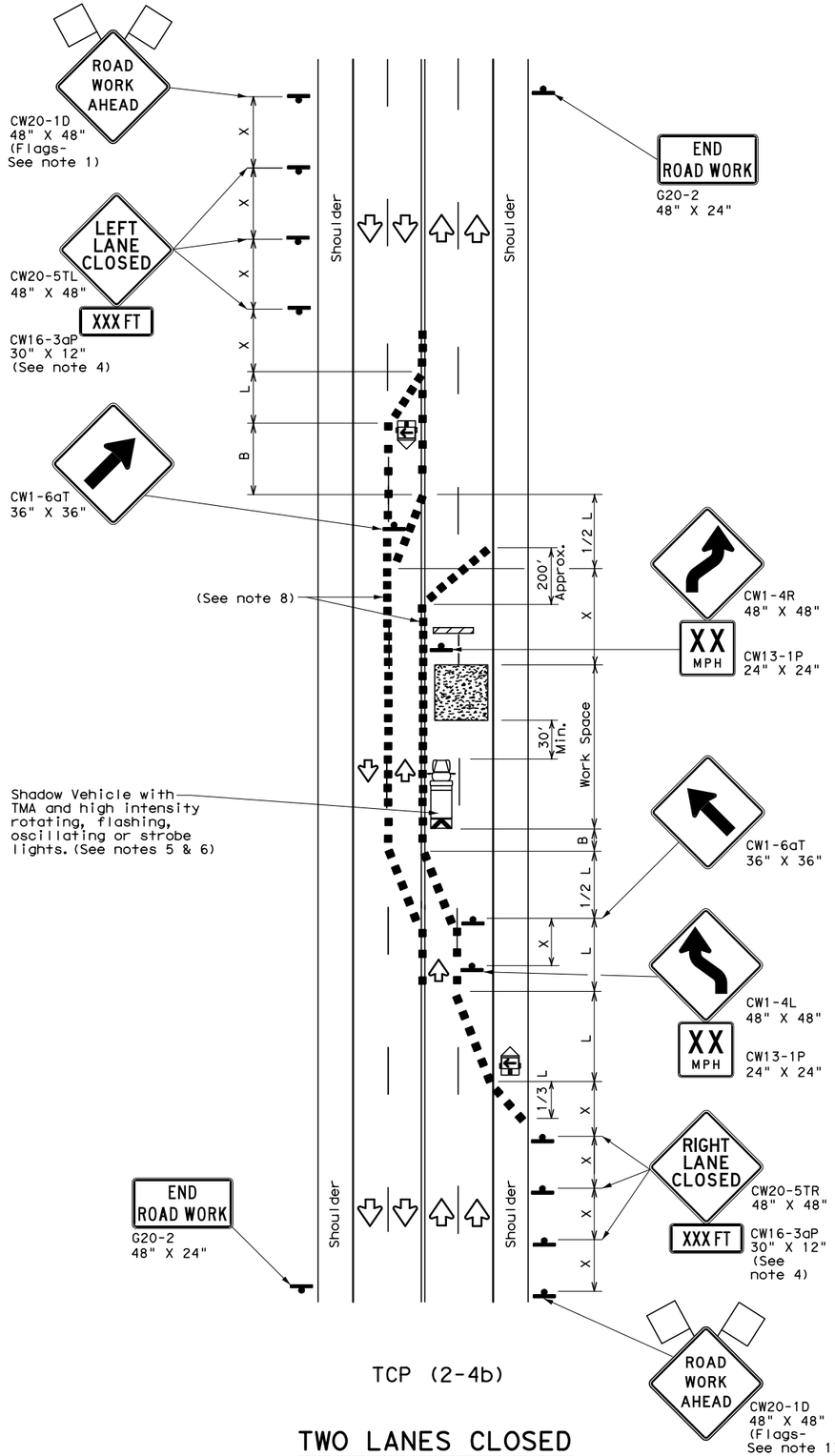


TCP (2-4a)

ONE LANE CLOSED



TCP (2-4b)

TWO LANES CLOSED

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
4. For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
5. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
6. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

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

TCP (2-4b)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(2-4)-18

FILE: tcp2-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0176	02	124	BU 59-G
1-97 2-12	DIST	COUNTY		SHEET NO.
4-98 2-18	LFK	ANGELINA		31

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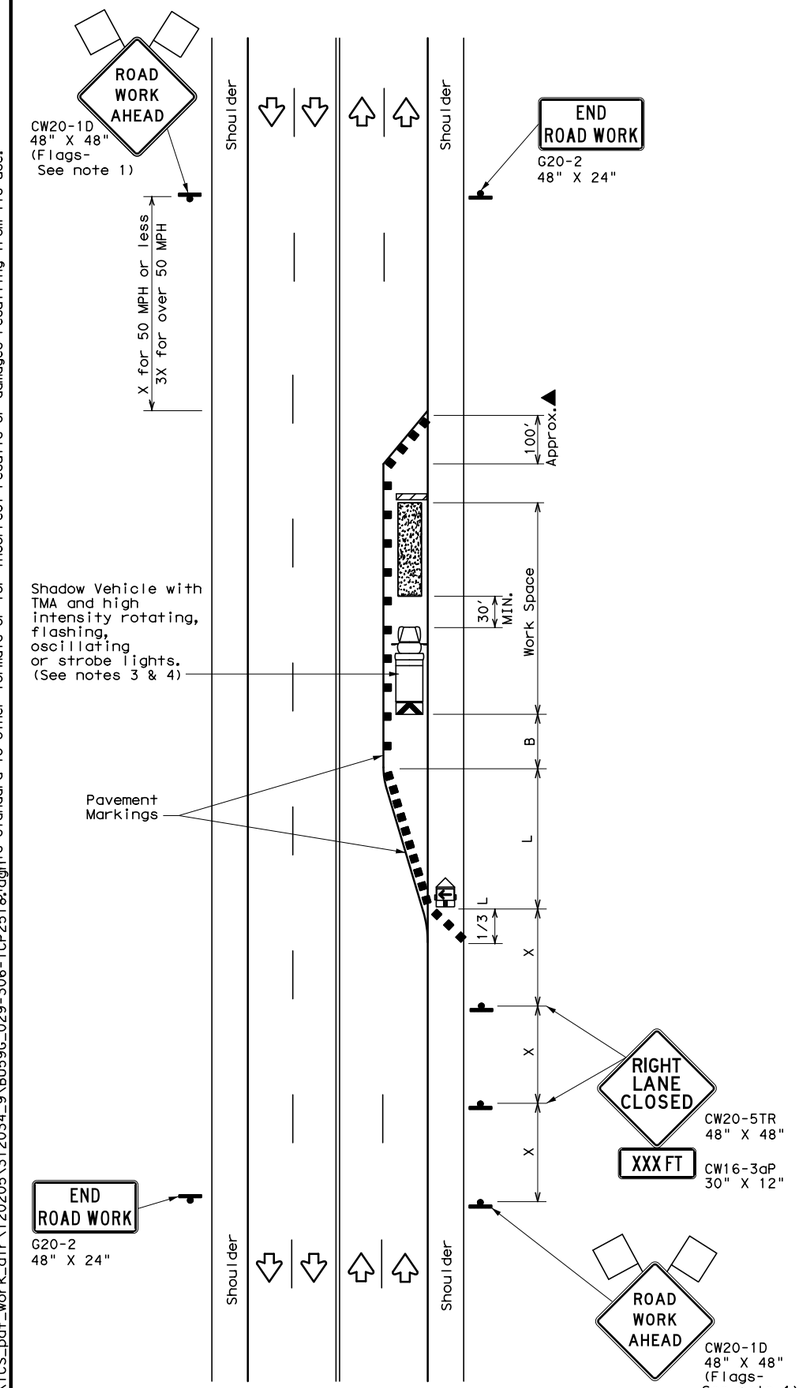
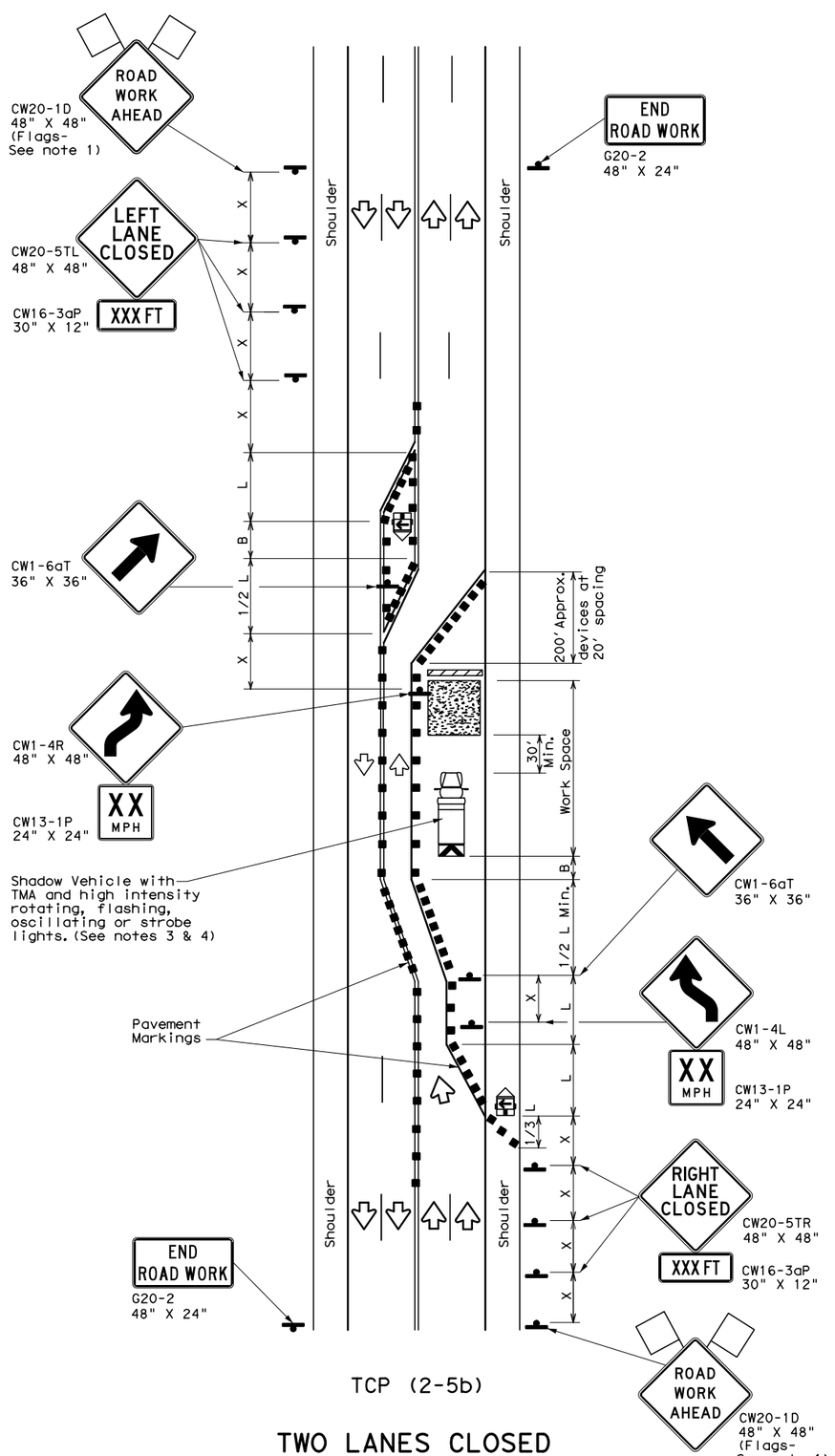


TCP (2-5a)

ONE LANE CLOSED



TCP (2-5b)

TWO LANES CLOSED

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew eposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substitutued for the Shadow Vehicle and TMA.
4. Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.
5. The downstream taper is optional. When used, it should be 100 feet approximately per lane, with channelizing devices spaced at 20 feet.

TCP (2-5a)

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

TCP (2-5b)

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LONG TERM LANE CLOSURES MULTILANE CONVENTIONAL RDS.

TCP(2-5)-18

FILE: tcp2-5-18.dgn	DN:	CK:	DW:	CK:
©TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
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4-98 2-18	LFK	ANGELINA		32

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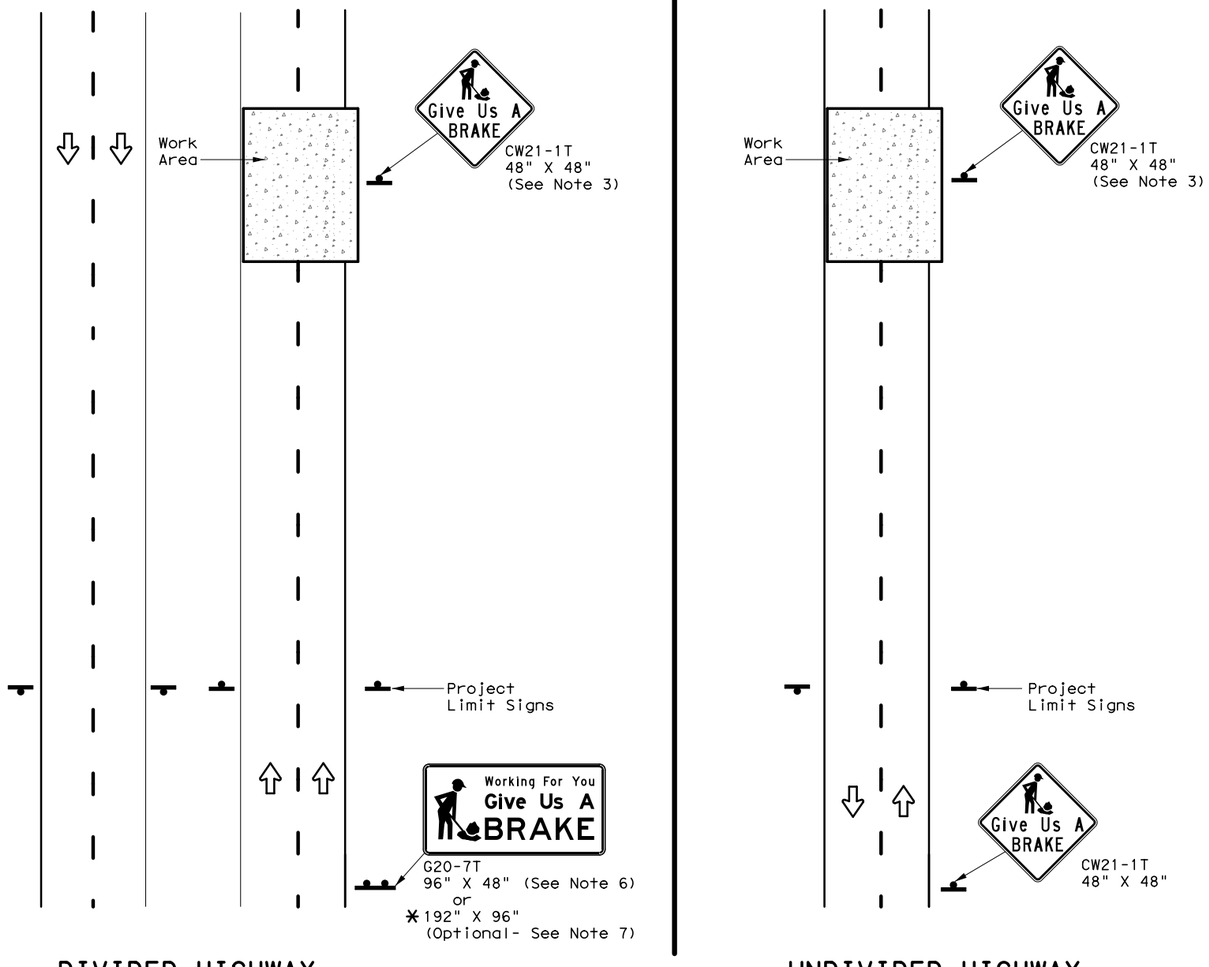

DIVIDED HIGHWAY

UNDIVIDED HIGHWAY

SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL

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

SUMMARY OF LARGE SIGNS

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

▲ See Note 6 Below

LEGEND	
	Sign
	Large Sign
	Traffic Flow

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

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

GENERAL NOTES

1. See BC and SMD sheets for additional sign support details.
2. Sign locations shall be approved by the Engineer.
3. For projects more than two miles in length, Give Us a BRAKE signs should be repeated halfway through the project. The Give Us a Brake (CW21-1T) may be used for this purpose.
4. Work zone speed limits are sometimes used in conjunction with GIVE US A BRAKE signing. See BC(3) for location and spacing of construction speed zone signing when required.
5. Give Us a Brake (CW21-1T) signs and supports shall be considered subsidiary to Item 502, "Barricades, Signs and Traffic Handling."
6. The 96" X 48" Working For You Give Us A BRAKE (G20-7T) may use a 1/2" or 5/8" plywood substrate or 0.125" aluminum sheeting substrate and may be supported by two 4" x 6" wood posts with drilled holes for breakaway as per BC(5) and will be subsidiary to Item 502.
7. The Working For You Give Us A BRAKE (G20-7T) 192" X 96" sign shall be paid for under the following specification items:
   Item 636 - Aluminum Signs
   Item 647 - Large Roadside Sign Supports and Assemblies.
   Item 416 - Drilled Shaft Foundations
8. All signs shall be constructed in accordance with the details found in the "Standard Highway Sign Designs for Texas," latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.

Texas Department of Transportation

Traffic Operations Division Standard

WORK ZONE "GIVE US A BRAKE" SIGNS

WZ(BRK)-13

FILE: wzbrk-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT August 1995	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
6-96 5-98 7-13	DIST	COUNTY		SHEET NO.
8-96 3-03	LFK	ANGELINA		33

116

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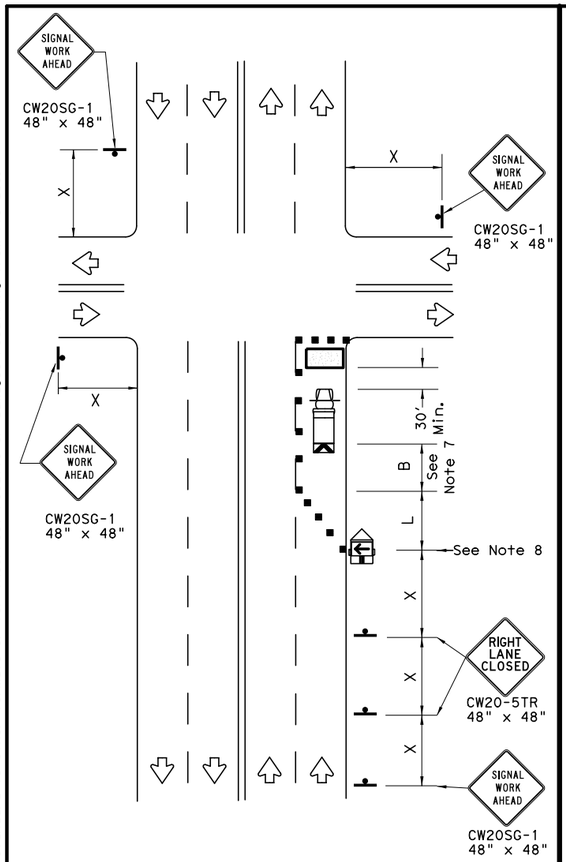
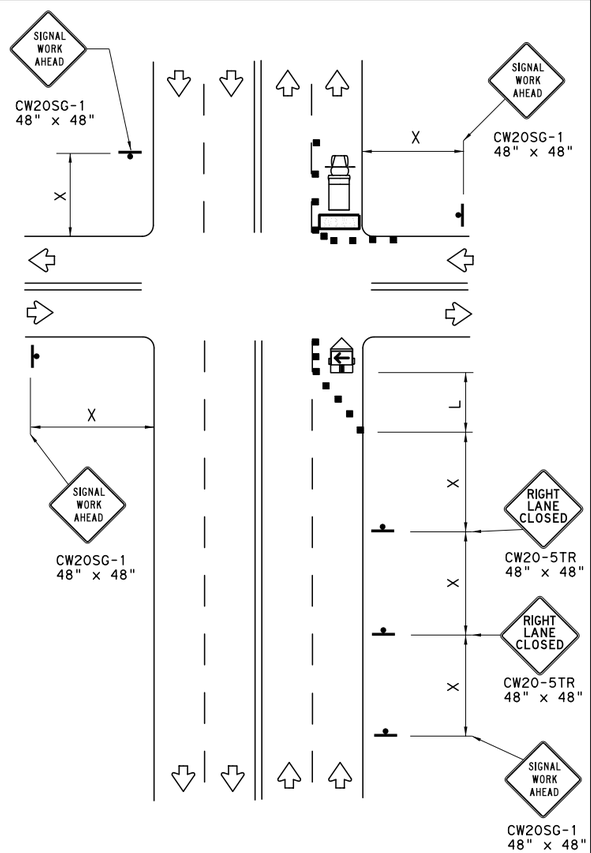


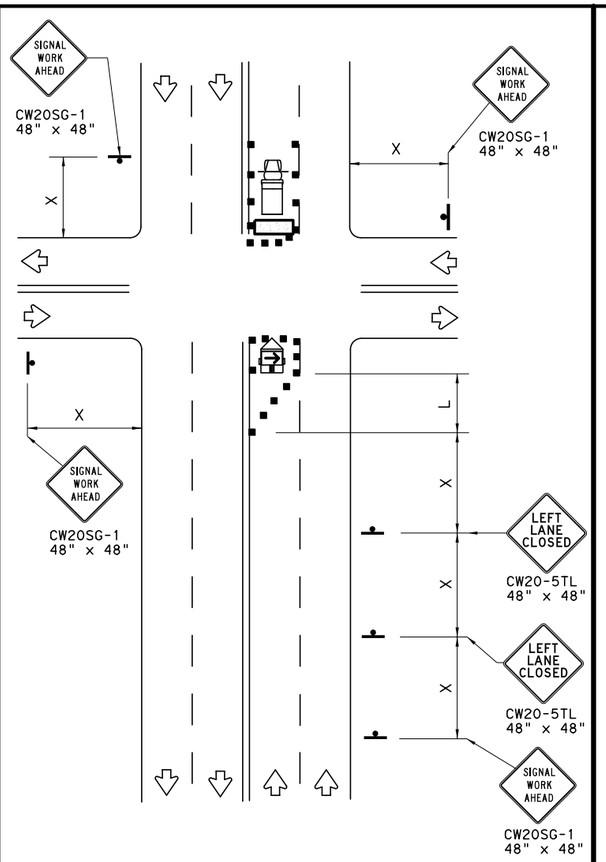
NEAR SIDE LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY



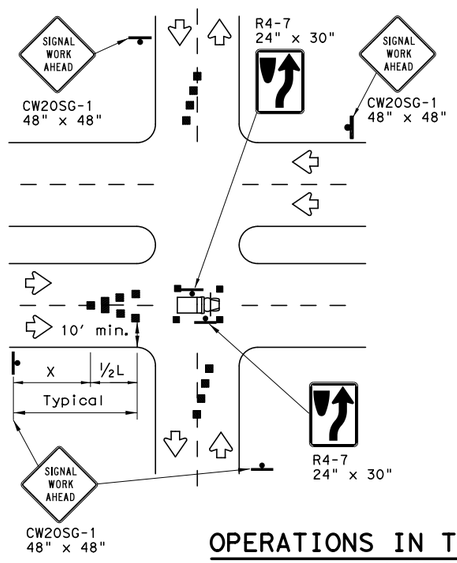
FAR SIDE RIGHT LANE CLOSURE

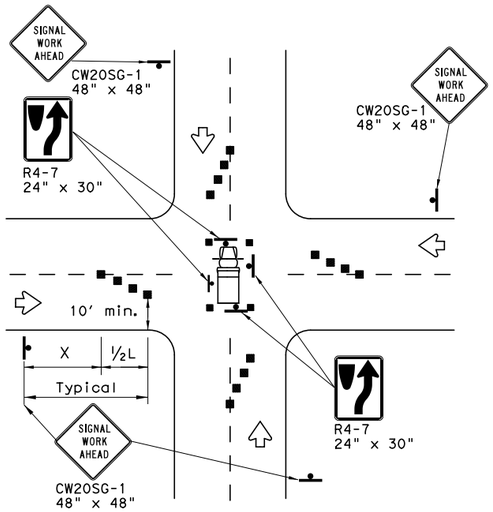
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE LEFT LANE CLOSURE

SHORT DURATION OR SHORT TERM STATIONARY





OPERATIONS IN THE INTERSECTION

SHORT DURATION

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

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

* Conventional Roads Only

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

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

GENERAL NOTES

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

Texas Department of Transportation — Traffic Operations Division Standard

TRAFFIC SIGNAL WORK TYPICAL DETAILS

WZ(BTS-1)-13

FILE: wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
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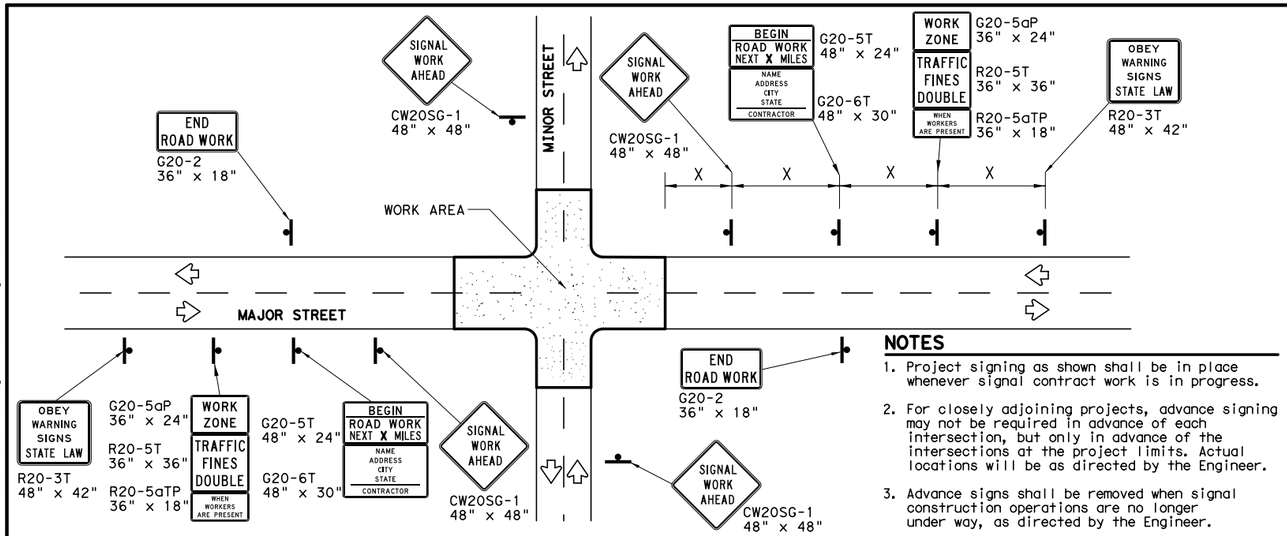
2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	LFK	ANGELINA		34



TYPICAL ADVANCE SIGNAL PROJECT SIGNING

FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

NOTES

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

DURATION OF WORK

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

SIGN MOUNTING HEIGHT

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

REMOVING OR COVERING

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

REFLECTIVE SHEETING

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

SIGN SUPPORT WEIGHTS

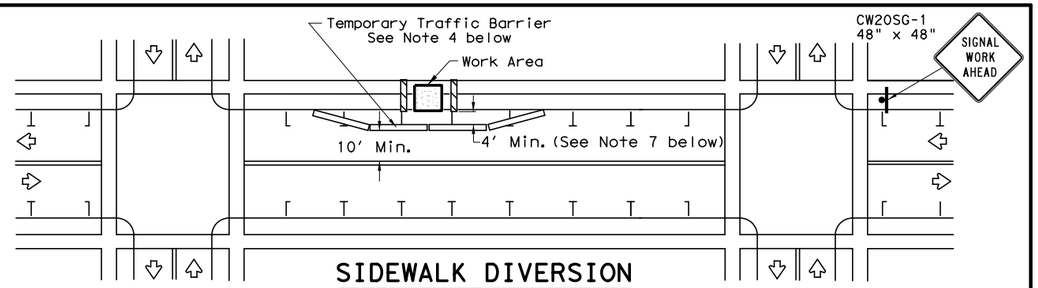
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support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

LEGEND	
	Sign
	Channelizing Devices
	Type 3 Barricade

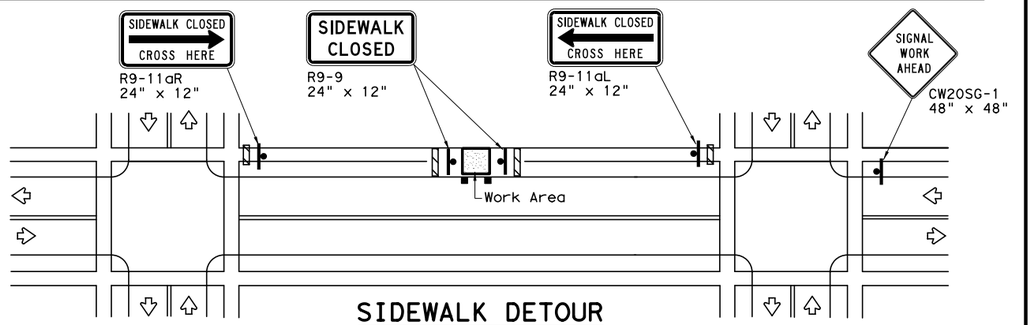
DEPARTMENTAL MATERIAL SPECIFICATIONS	
SIGN FACE MATERIALS	DMS-8300
FLEXIBLE ROLL-UP REFLECTIVE SIGNS	DMS-8310

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

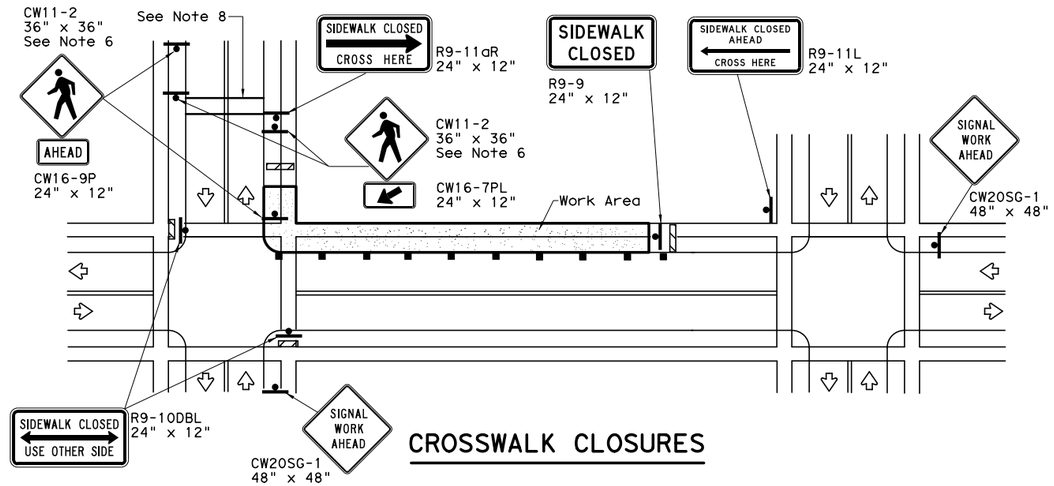
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

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

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC SIGNAL WORK BARRICADES AND SIGNS

WZ(BTS-2)-13

FILE: wzbts-13.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT April 1992	CONT	SECT	JOB	HIGHWAY
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2-98 10-99 7-13	DIST	COUNTY		SHEET NO.
4-98 3-03	LFK	ANGELINA		35

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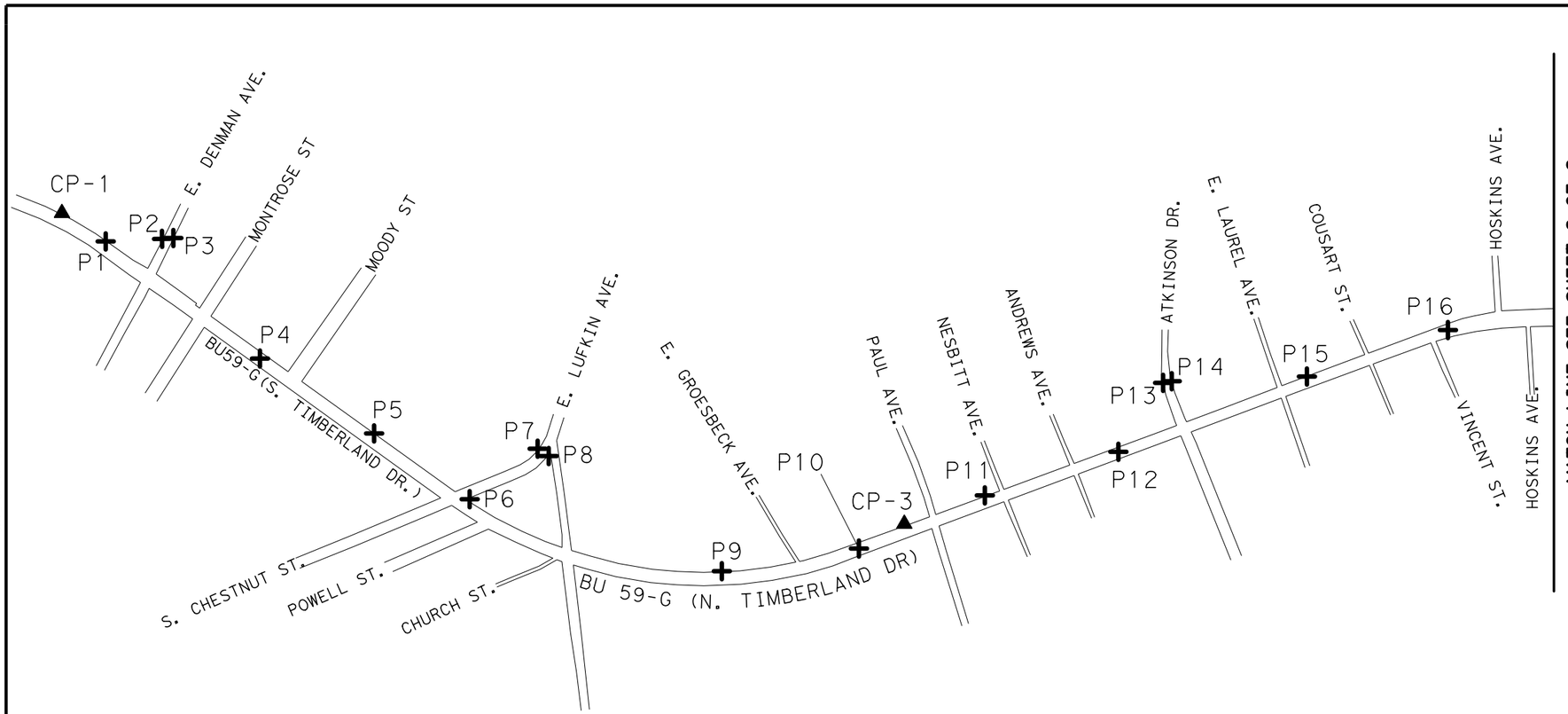

0′ 500′ 1000′ (H)

SCALE IN FEET

N

LEGEND

- ▲ SURVEY CONTROL MONUMENT
- ✚ LiDAR PANEL

NOTES:

1. ALL COORDINATES SHOWN ARE BASED ON NAD 83 (2011 ADJUSTMENT, EPOCH 2010.00), TEXAS COORDINATE SYSTEM, CENTRAL ZONE.
2. COORDINATES AND ELEVATIONS WERE ESTABLISHED UTILIZING REDUNDANT OBSERVATIONS BASED ON THE TxDOT REAL-TIME NETWORK (RTN).
3. ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88), USING GEOID 12A AND ESTABLISHED UTILIZING DIGITAL DIFFERENTIAL LEVELS.
4. ALL COORDINATES SHOWN ARE IN SURFACE VALUES AND MAY BE CONVERTED TO GRID DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00012. ALL MEASUREMENTS ARE IN U.S. SURVEY FEET.
5. CONTROL VALUES MEET THE SPECIFICATIONS FOR LEVEL 3 GPS SURVEYS.

Primary Control Point Name	Observed Information			Monument Description
	N Coord.	E Coord.	Elev.	
CP-1	10,492,622.99	4,047,656.94	275.02′	3-1/4" TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED CP-1
CP-3	10,497,104.33	4,049,308.92	303.63′	3-1/4" TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED CP-3

Mobile LiDAR Panel Name	Observed Information			Monument Description
	N Coord.	E Coord.	Elev.	
P1	10,492,855.93	4,047,807.65	275.48′	MAG NAIL
P2	10,493,155.70	4,047,794.14	277.35′	MAG NAIL
P3	10,493,215.88	4,047,789.70	277.35′	MAG NAIL
P4	10,493,676.61	4,048,430.34	278.40′	MAG NAIL
P5	10,494,283.74	4,048,828.44	280.02′	MAG NAIL
P6	10,494,792.07	4,049,178.06	282.79′	MAG NAIL
P7	10,495,153.78	4,048,909.72	283.97′	MAG NAIL
P8	10,495,212.66	4,048,948.60	283.91′	MAG NAIL
P9	10,496,133.61	4,049,560.67	288.87′	MAG NAIL
P10	10,496,862.83	4,049,440.35	298.85′	MAG NAIL
P11	10,497,532.74	4,049,157.83	304.46′	MAG NAIL
P12	10,498,243.03	4,048,926.16	306.68′	MAG NAIL
P13	10,498,481.05	4,048,559.58	303.38′	MAG NAIL
P14	10,498,527.00	4,048,550.85	302.58′	MAG NAIL
P15	10,499,246.08	4,048,525.95	309.56′	MAG NAIL
P16	10,499,996.17	4,048,278.92	316.27′	MAG NAIL

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED
PROFESSIONAL ENGINEER

DESIGN ENGINEER

WSP USA Inc TBPELS F-02263

THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
REGISTERED
ROBERT M ANGUIANO
6347
PROFESSIONAL
LAND SURVEYOR
05/21/2021

Texas Department of Transportation

VICKREY & ASSOCIATES, LLC.
CONSULTING ENGINEERS
CIVIL • ENVIRONMENTAL • SURVEY
12940 Country Parkway San Antonio, TX 78216
Telephone: (210) 349-3271 TBPELS#10004100 © 2021

Kameron Raburn
05-21-2021

SURVEY CONTROL INDEX SHEET

SHEET 1 OF 2

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	36

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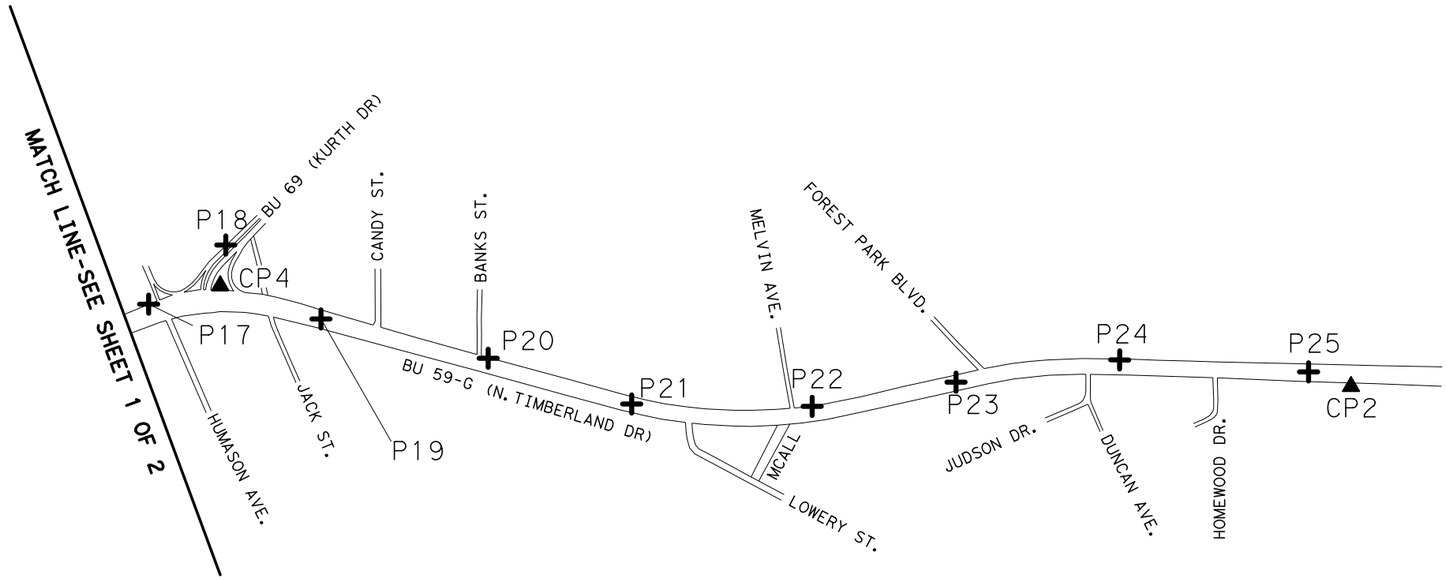

0′ 500′ 1000′ (H)

SCALE IN FEET

N

LEGEND

- ▲ SURVEY CONTROL MONUMENT
- ✚ LiDAR PANEL

NOTES:

1. ALL COORDINATES SHOWN ARE BASED ON NAD 83 (2011 ADJUSTMENT, EPOCH 2010.00), TEXAS COORDINATE SYSTEM, CENTRAL ZONE.
2. COORDINATES AND ELEVATIONS WERE ESTABLISHED UTILIZING REDUNDANT OBSERVATIONS BASED ON THE TxDOT REAL-TIME NETWORK (RTN).
3. ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88), USING GEOID 12A AND ESTABLISHED UTILIZING DIGITAL DIFFERENTIAL LEVELS.
4. ALL COORDINATES SHOWN ARE IN SURFACE VALUES AND MAY BE CONVERTED TO GRID DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00012. ALL MEASUREMENTS ARE IN U.S. SURVEY FEET.
5. CONTROL VALUES MEET THE SPECIFICATIONS FOR LEVEL 3 GPS SURVEYS.

Primary Control Point Name	Observed Information			Monument Description
	N Coord.	E Coord.	Elev.	
CP-2	10,505,861.09	4,050,489.34	293.87′	3-1/4" TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED CP-2
CP-4	10,501,024.51	4,048,194.65	330.74′	3-1/4" TXDOT ALUMINUM CAP SET IN CONCRETE STAMPED CP-4

Mobile LiDAR Panel Name	Observed Information			Monument Description
	N Coord.	E Coord.	Elev.	
P17	10,500,677.66	4,048,159.40	325.73′	MAG NAIL
P18	10,501,115.55	4,048,024.06	322.35′	MAG NAIL
P19	10,501,415.68	4,048,506.64	338.34′	MAG NAIL
P20	10,502,090.97	4,048,953.86	335.34′	MAG NAIL
P21	10,502,650.90	4,049,390.70	323.24′	MAG NAIL
P22	10,503,445.32	4,049,696.25	320.62′	MAG NAIL
P23	10,504,120.97	4,049,824.45	312.73′	MAG NAIL
P24	10,504,881.09	4,049,993.65	306.93′	MAG NAIL
P25	10,505,696.93	4,050,355.39	301.12′	MAG NAIL

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED
PROFESSIONAL ENGINEER

DESIGN ENGINEER

WSP USA Inc TBPELS F-02263

THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
REGISTERED
ROBERT M ANGUIANO
6347
PROFESSIONAL
LAND SURVEYOR
05/21/2021

Texas Department of Transportation

VICKREY & ASSOCIATES, LLC.
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12940 Country Parkway San Antonio, TX 78216
Telephone: (210) 349-3271 TBPELS#10004100 © 2021

Kameron Raburn
05-21-2021

SURVEY CONTROL INDEX SHEET

SHEET 2 OF 2

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	37

SCALE: 1000.00 sf / in.
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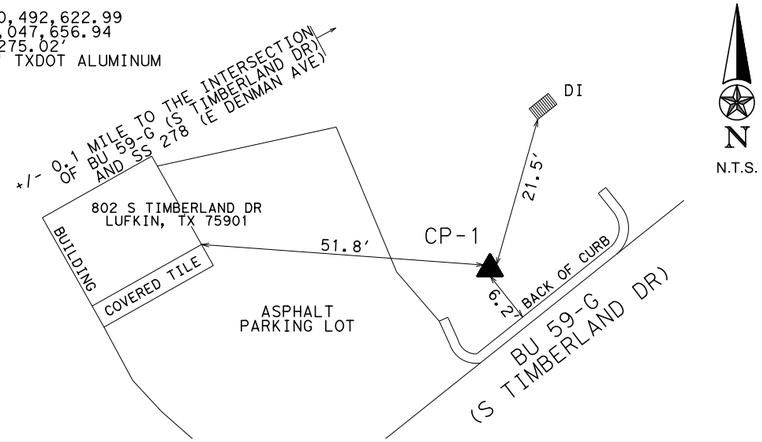
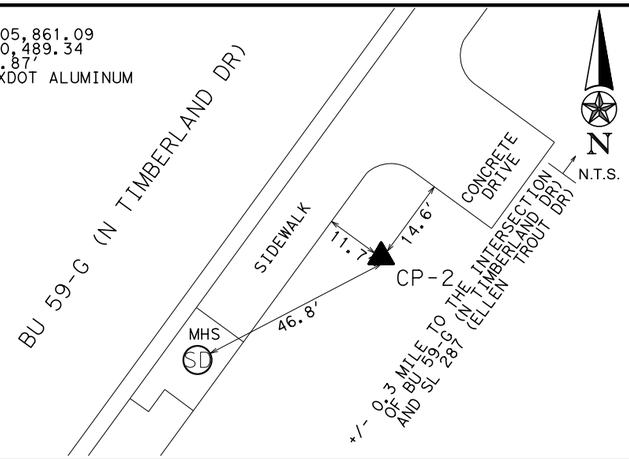
CP 1
N: 10,492,622.99
E: 4,047,656.94
EL: 275.02'
3 1/4" TXDOT ALUMINUM CAP



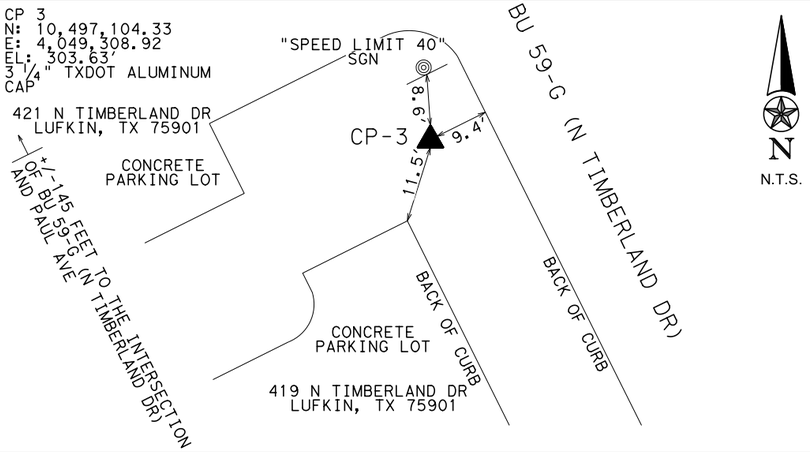
CP-1 is located on the northwest side of BU 59-G (S Timberland Dr), said point being +/- 0.1 mile southwest of the BU 59-G (S Timberland Dr) and SS 278 (E Denman Ave) intersection, 51.8 feet southeast of the east building corner at 802 S Timberland Dr, Lufkin, TX 75901, 21.5 feet southwest of the most southern corner of a drop inlet, and 6.2 feet northwest of and perpendicular to the northwest BU 59 (S Timberland Dr) back of curb.

CP 2
N: 10,505,861.09
E: 4,050,489.34
EL: 293.87'
3 1/4" TXDOT ALUMINUM CAP



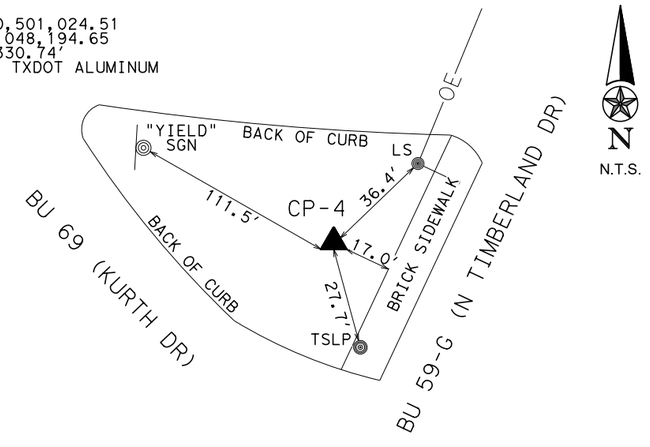
CP-2 is located on the southeast side of BU 59-G (N Timberland Dr), said point being +/- 0.3 mile southwest of the BU 59-G (N Timberland Dr) and SL 287 (Ellen Trout Dr) intersection, 46.8 feet northeast of a storm drain manhole, 14.6 feet southwest of and perpendicular to the southwest side of a concrete driveway, and 11.7 feet southeast of and perpendicular to the southeast side of a concrete sidewalk.

CP 3
N: 10,497,104.33
E: 4,049,308.92
EL: 303.63'
3 1/4" TXDOT ALUMINUM CAP



CP-3 is located on the southwest side of BU 59-G (N Timberland Dr), said point being +/- 145 feet southeast of the BU 59-G (N Timberland Dr) and Paul Ave intersection, 11.5 feet northeast of the most northern corner of the back of corner of a concrete parking lot at 419 N Timberland Dr, Lufkin, TX 75901, 9.4 feet southwest of and perpendicular to the southwest BU 59-G (N Timberland Dr) back of curb, and 8.6 feet south of a "SPEED LIMIT 40" sign.

CP 4
N: 10,501,024.51
E: 4,048,194.65
EL: 330.74'
3 1/4" TXDOT ALUMINUM CAP



CP-4 is located inside a grass median at the intersection of BU 59-G (N Timberland Dr) and BU 69 (Kurth Dr), said point being 111.5 feet southeast of a "YIELD" sign, 36.4 feet southwest of a luminaire standard, 27.7 feet northwest of a traffic signal light pole, and 17.0 feet northwest of and perpendicular to the northwest side of a brick sidewalk.

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED
PROFESSIONAL ENGINEER

DESIGN ENGINEER

WSP USA Inc TBPELS F-02263

THE SURVEY CONTROL INFORMATION HAS BEEN ACCEPTED AND INCORPORATED INTO THIS PS&E

LEGEND

▲ SURVEY CONTROL MONUMENT

NOTES:

1. ALL COORDINATES SHOWN ARE BASED ON NAD 83 (2011 ADJUSTMENT, EPOCH 2010.00), TEXAS COORDINATE SYSTEM, CENTRAL ZONE.
2. COORDINATES AND ELEVATIONS WERE ESTABLISHED UTILIZING REDUNDANT OBSERVATIONS BASED ON THE TxDOT REAL-TIME NETWORK (RTN).
3. ALL ELEVATIONS ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM (NAVD88), USING GEOID 12A AND ESTABLISHED UTILIZING DIGITAL DIFFERENTIAL LEVELS.
4. ALL COORDINATES SHOWN ARE IN SURFACE VALUES AND MAY BE CONVERTED TO GRID DIVIDING BY A SURFACE ADJUSTMENT FACTOR OF 1.00012. ALL MEASUREMENTS ARE IN U.S. SURVEY FEET.
5. CONTROL VALUES MEET THE SPECIFICATIONS FOR LEVEL 3 GPS SURVEYS.

REV	DESCRIPTION	DATE	INIT

THE CONTROL POINTS SHOWN HEREIN WERE DETERMINED BY A SURVEY MADE ON THE GROUND AND UNDER MY SUPERVISION.

STATE OF TEXAS
REGISTERED
ROBERT M ANGUIANO
6347
PROFESSIONAL
LAND SURVEYOR

05/21/2021

Texas Department of Transportation

VICKREY & ASSOCIATES, LLC.
CONSULTING ENGINEERS
CIVIL • ENVIRONMENTAL • SURVEY
12940 Country Parkway San Antonio, TX 78216
Telephone (210) 349-3271 TBPELS#10004100 ©2021

Kameron Raburn
05-21-2021

HORIZONTAL & VERTICAL CONTROL SHEET

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	38

SCALE: 100.00 sf / in.
DATE: 5/20/2021 TIME: 11:22:08 PM
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Beginning chain BL*BU59-G description
==========

Point 374 N 10,493,062.5211 E 4,047,951.9813 Sta 10+00.00

Course from 374 to PC BL*BU59G*3 N 35° 35′ 01.35" E Dist 2,058.0873

	Curve Data				
Curve BL*BU59-G*1					
P.I. Station	42+46.38	N	10,495,702.6924	E	4,049,841.0230
Delta =	55° 59′ 48.79"	(LT)			
Degree =	2° 33′ 48.85"				
Tangent =	1,188.2927				
Length =	2,184.3326				
Radius =	2,235.0000				
External =	296.2575				
Long Chord =	2,098.4306				
Mid. Ord. =	261.5836				
P.C. Station	30+58.09	N	10,494,736.2941	E	4,049,149.5653
P.T. Station	52+42.42	N	10,496,816.3624	E	4,049,426.5612
C.C.		N	10,496,036.8221	E	4,047,331.9152
Back = N	35° 35′ 01.35" E				
Ahead = N	20° 24′ 47.44" W				
Chord Bear = N	7° 35′ 06.95" E				

Course from PT BL*BU59-G*1 to PC BL*BU59-G*2 N 20° 24′ 47.44" W Dist 3,381.1349

	Curve Data				
Curve BL*BU59-G*2					
P.I. Station	88+27.38	N	10,500,176.1973	E	4,048,176.1701
Delta =	18° 27′ 00.54"	(RT)			
Degree =	4° 33′ 55.44"				
Tangent =	203.8293				
Length =	404.1299				
Radius =	1,255.0000				
External =	16.4446				
Long Chord =	402.3861				
Mid. Ord. =	16.2319				
P.C. Station	86+23.55	N	10,499,985.1681	E	4,048,247.2632
P.T. Station	90+27.68	N	10,500,379.9070	E	4,048,169.1880
C.C.		N	10,500,422.8966	E	4,049,423.4515
Back = N	20° 24′ 47.44" W				
Ahead = N	1° 57′ 46.90" W				
Chord Bear = N	11° 11′ 17.17" W				

Course from PT BL*BU59-G*2 to PC BL*BU59-G*3 N 1° 57′ 46.90" W Dist 256.4958

	Curve Data				
Curve BL*BU59-G*3					
P.I. Station	96+24.07	N	10,500,975.9376	E	4,048,148.7592
Delta =	37° 32′ 39.22"	(RT)			
Degree =	5° 43′ 46.48"				
Tangent =	339.8848				
Length =	655.2704				
Radius =	1,000.0000				
External =	56.1826				
Long Chord =	643.6099				
Mid. Ord. =	53.1940				
P.C. Station	92+84.18	N	10,500,636.2523	E	4,048,160.4018
P.T. Station	99+39.45	N	10,501,252.3631	E	4,048,346.5232
C.C.		N	10,500,670.5069	E	4,049,159.8149
Back = N	1° 57′ 46.90" W				
Ahead = N	35° 34′ 52.32" E				
Chord Bear = N	16° 48′ 32.71" E				

Course from PT BL*BU59-G*3 to PC BL*BU59-G*4 N 35° 34′ 52.32" E Dist 1,676.3592

	Curve Data				
Curve BL*BU59-G*4					
P.I. Station	121+77.59	N	10,503,072.6268	E	4,049,648.8009
Delta =	28° 02′ 17.48"	(LT)			
Degree =	2° 32′ 47.32"				
Tangent =	561.7845				
Length =	1,101.0571				
Radius =	2,250.0000				
External =	69.0735				
Long Chord =	1,090.1036				
Mid. Ord. =	67.0161				
P.C. Station	116+15.81	N	10,502,615.7321	E	4,049,321.9231
P.T. Station	127+16.87	N	10,503,629.5500	E	4,049,722.5466
C.C.		N	10,503,924.9084	E	4,047,492.0168
Back = N	35° 34′ 52.32" E				
Ahead = N	7° 32′ 34.84" E				
Chord Bear = N	21° 33′ 43.58" E				

Course from PT BL*BU59-G*4 to PC BL*BU59-G*5 N 7° 32′ 34.84" E Dist 605.7279

	Curve Data				
Curve BL*BU59-G*5					
P.I. Station	136+13.12	N	10,504,518.0514	E	4,049,840.1987
Delta =	14° 23′ 54.99"	(RT)			
Degree =	2° 29′ 28.04"				
Tangent =	290.5292				
Length =	577.9972				
Radius =	2,300.0000				
External =	18.2768				
Long Chord =	576.4774				
Mid. Ord. =	18.1327				
P.C. Station	133+22.60	N	10,504,230.0362	E	4,049,802.0608
P.T. Station	139+00.59	N	10,504,787.5361	E	4,049,948.7583
C.C.		N	10,503,928.1142	E	4,052,082.1579
Back = N	7° 32′ 34.84" E				
Ahead = N	21° 56′ 29.83" E				
Chord Bear = N	14° 44′ 32.34" E				

Course from PT BL*BU59-G*5 to 375 N 21° 56′ 29.83" E Dist 601.2750

Point 375 N 10,505,345.2578 E 4,050,173.4317 Sta 145+01.87

REV	DESCRIPTION	DATE	INIT

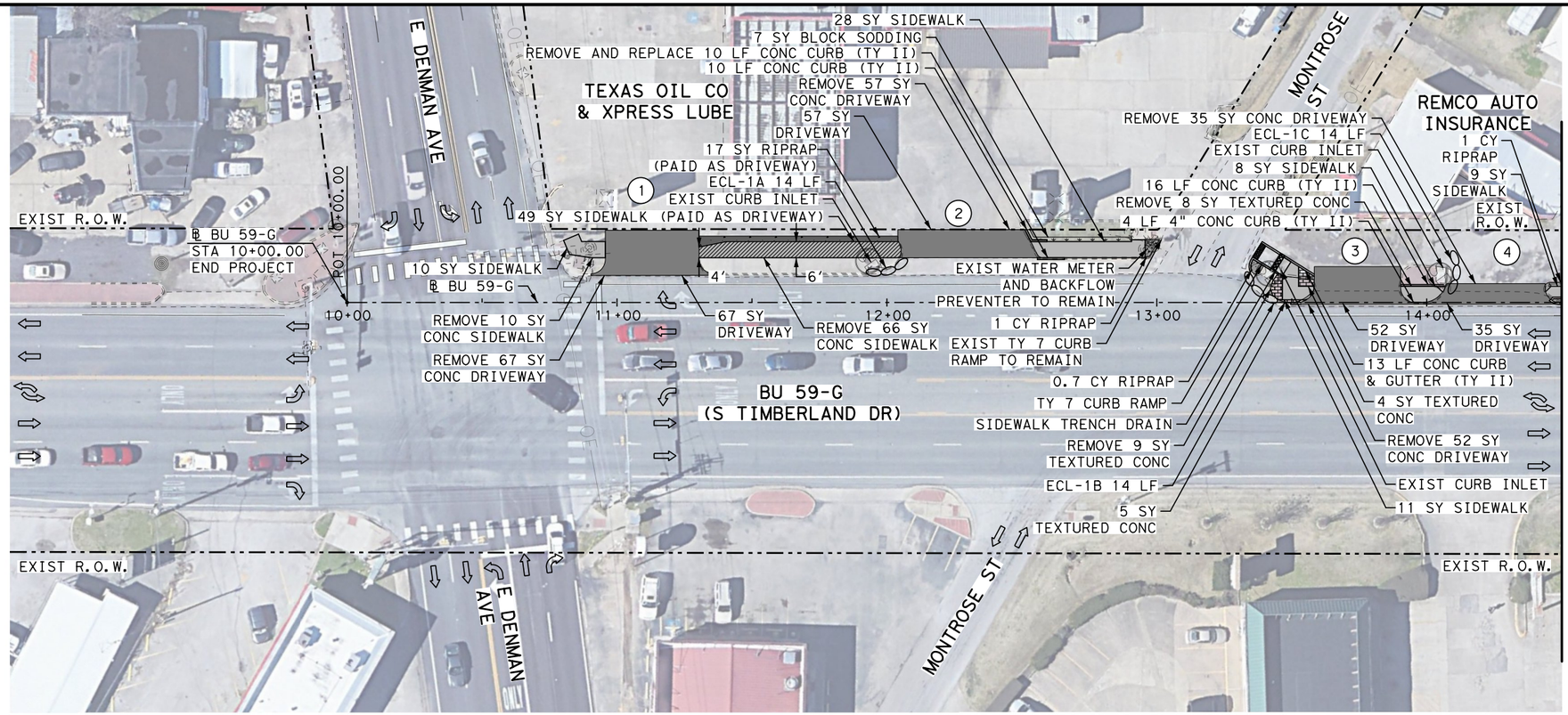
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER
STATE OF TEXAS

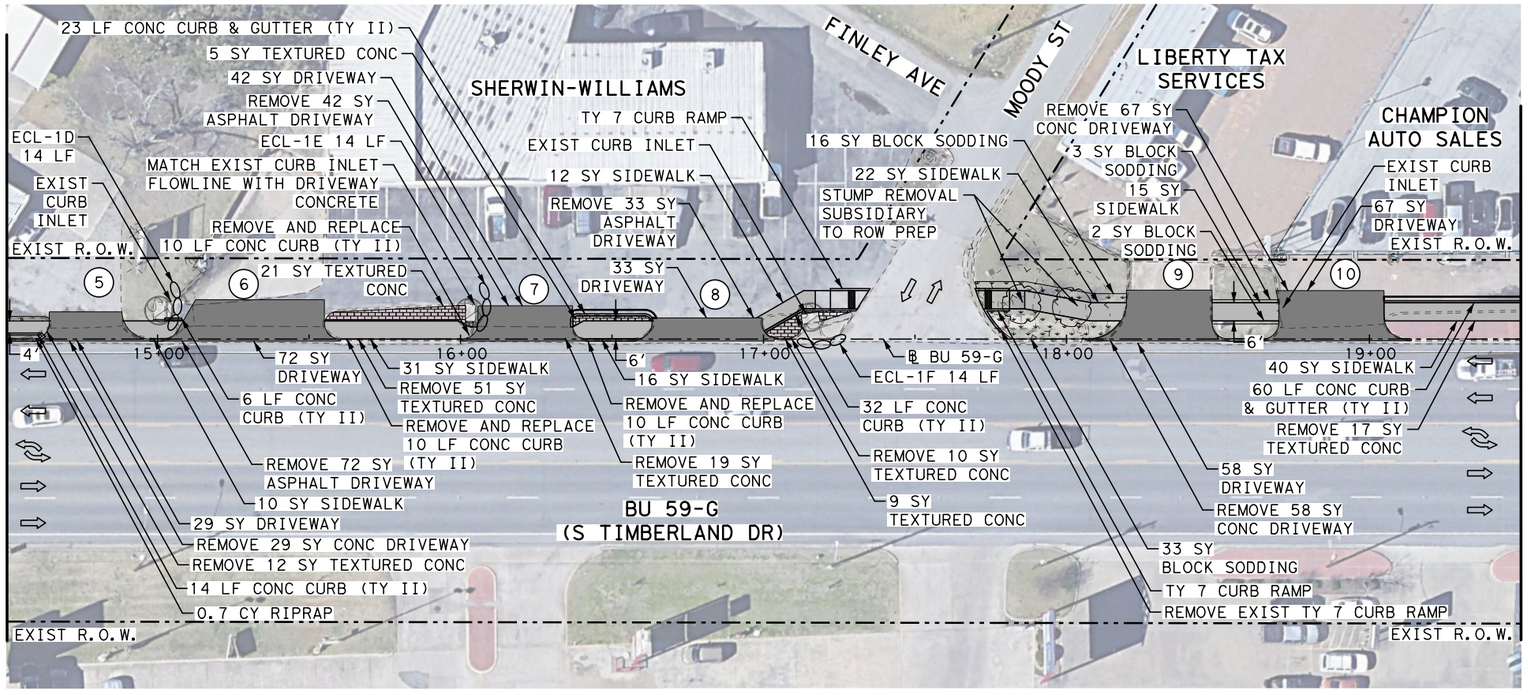
Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

HORIZONTAL ALIGNMENT DATA

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	39





0' 25' 50'(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:

1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

REV	DESCRIPTION	DATE	INIT

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-1A		
ECL-1B		
ECL-1C		
ECL-1D		
ECL-1E		
ECL-1F		

BMP'S SHEET 1 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

PLAN LAYOUT

(END PROJECT TO STA 19+50)

SHEET 1 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	40

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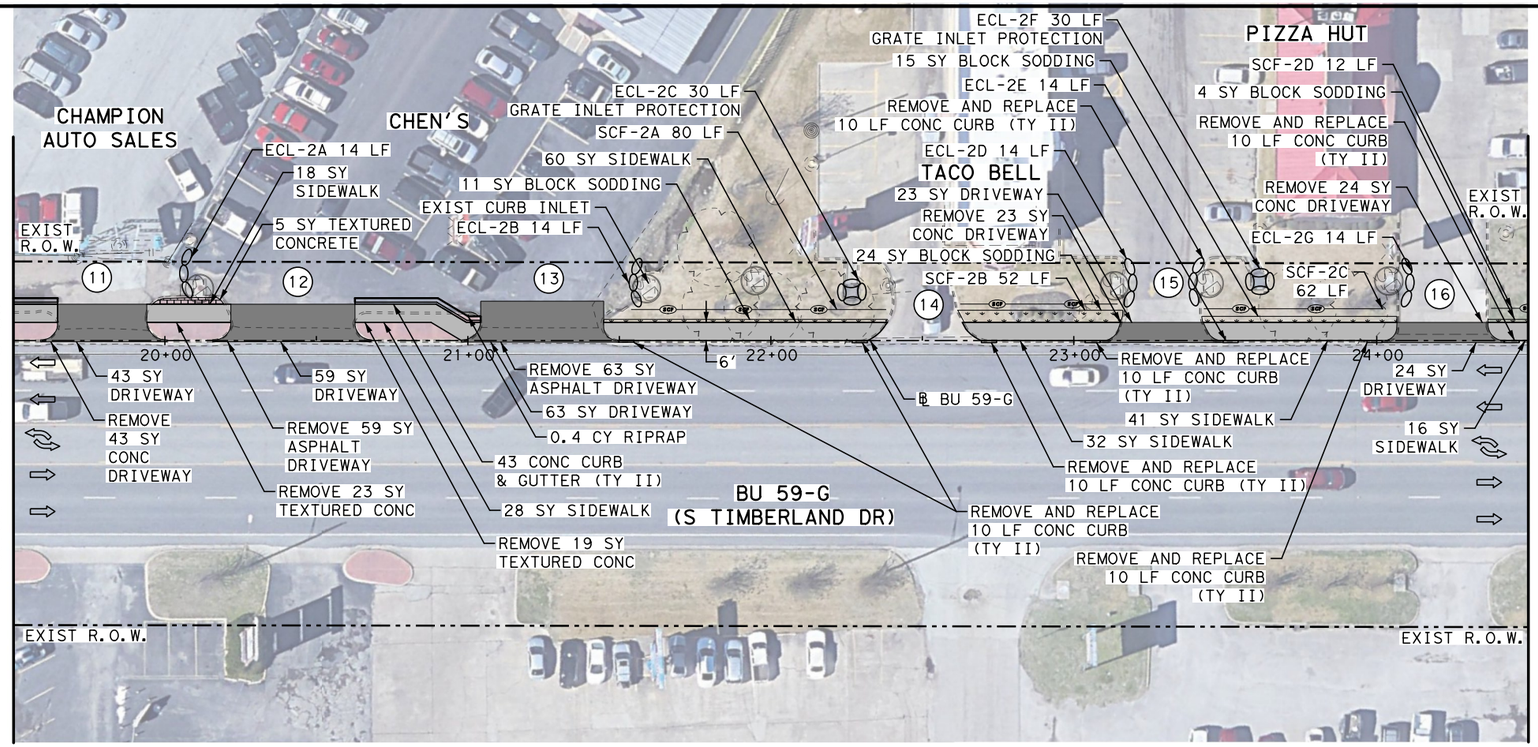

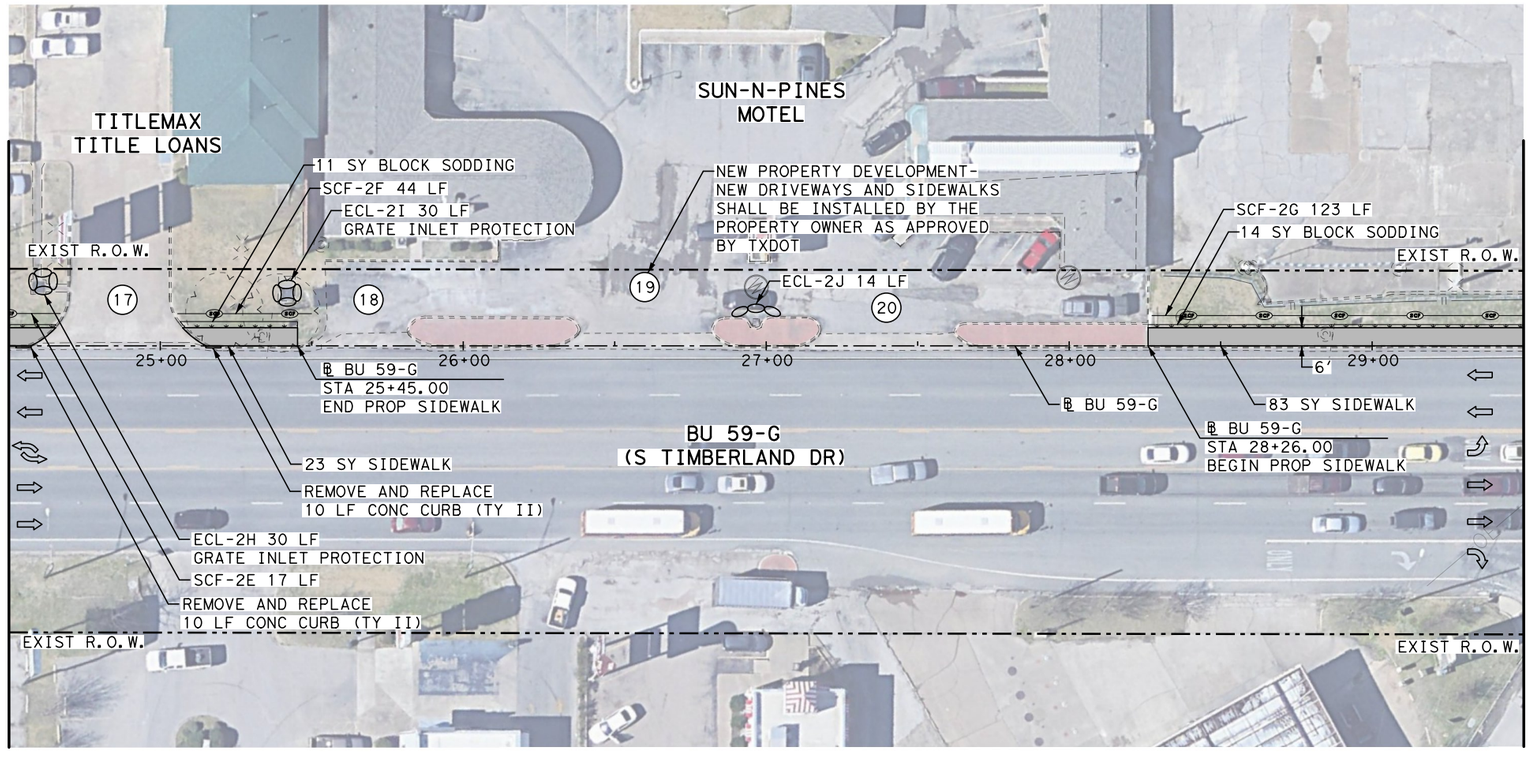

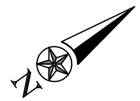

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
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ECL-2B		
ECL-2C		
ECL-2D		
ECL-2E		
ECL-2F		
ECL-2G		
ECL-2H		
ECL-2I		
ECL-2J		
SCF-2A		
SCF-2B		
SCF-2C		
SCF-2D		
SCF-2E		
SCF-2F		
SCF-2G		

BMP'S SHEET 2 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

0' 25' 50'(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:
1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

PLAN LAYOUT

(STA 19+50 TO STA 29+50)

SHEET 2 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	41

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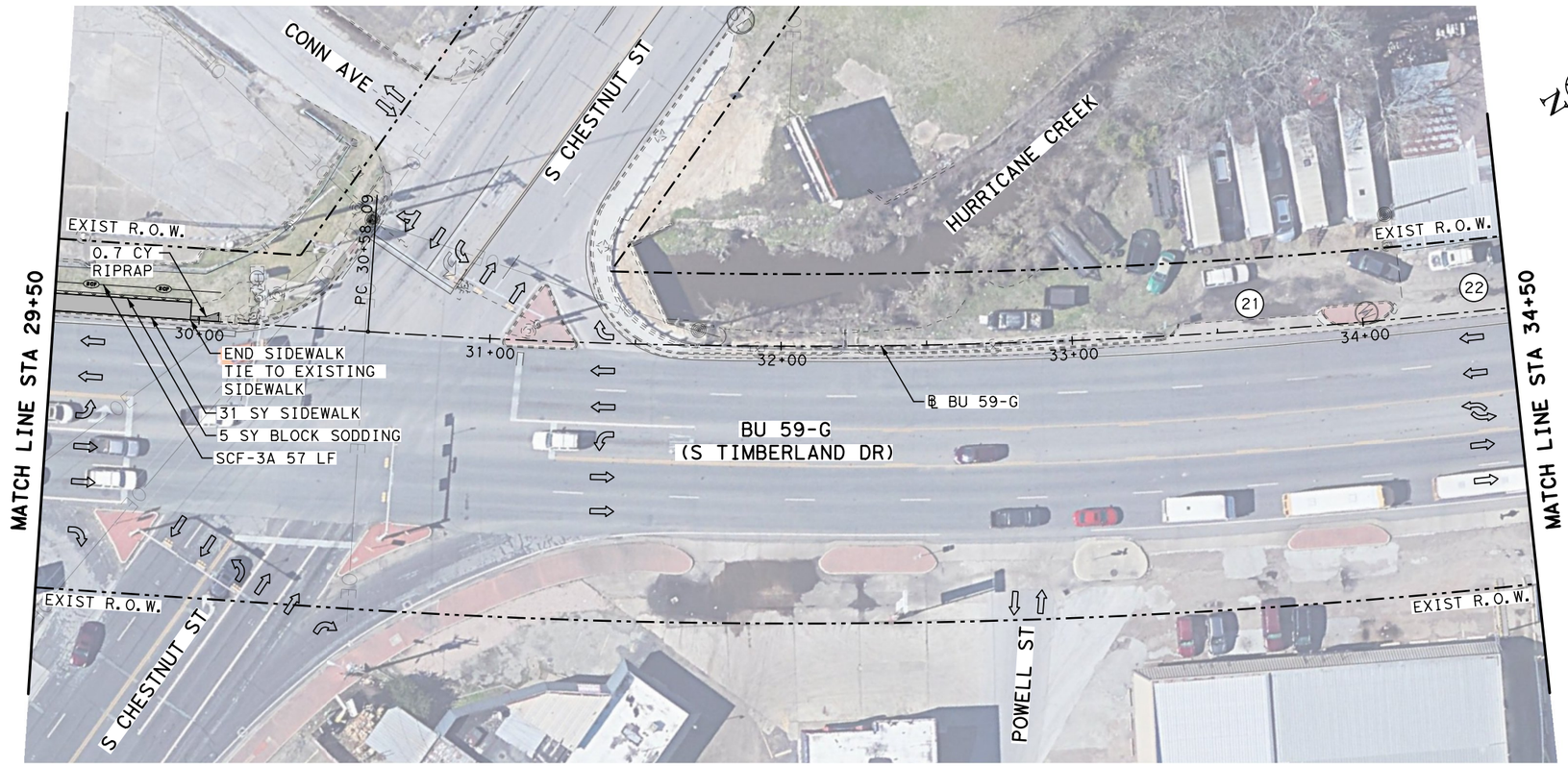

0′ 25′ 50′(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:

1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

REV	DESCRIPTION	DATE	INIT

BMP INSTALL/REMOVE DATES

BMP #	INSTALL DATE	REMOVE DATE
SCF-3A		

BMP'S SHEET 3 OF 14

DATE DISTURBED:_____

DATE STABILIZED:_____

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

PLAN LAYOUT

(STA 29+50 TO STA 39+50)

SHEET 3 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	42

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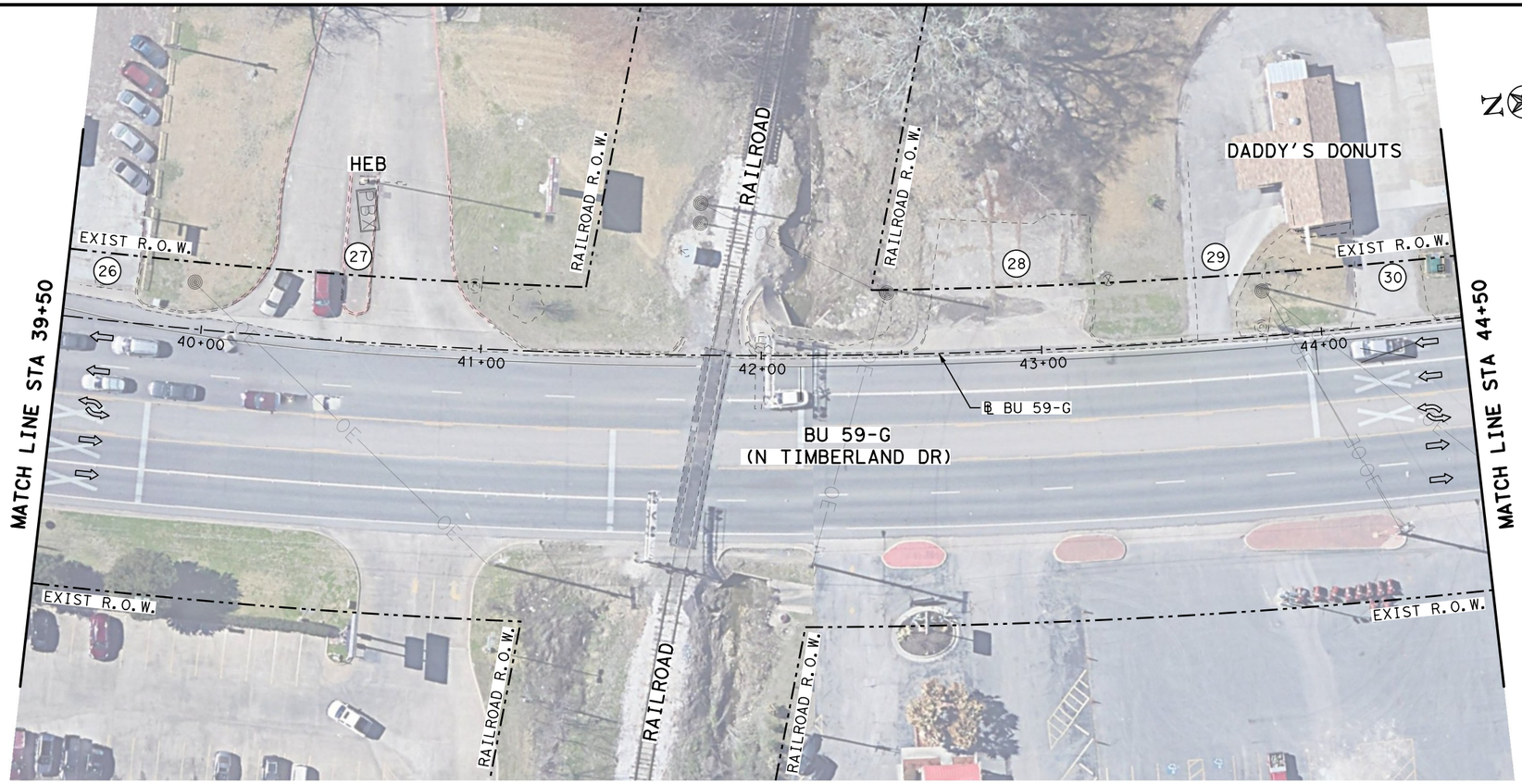

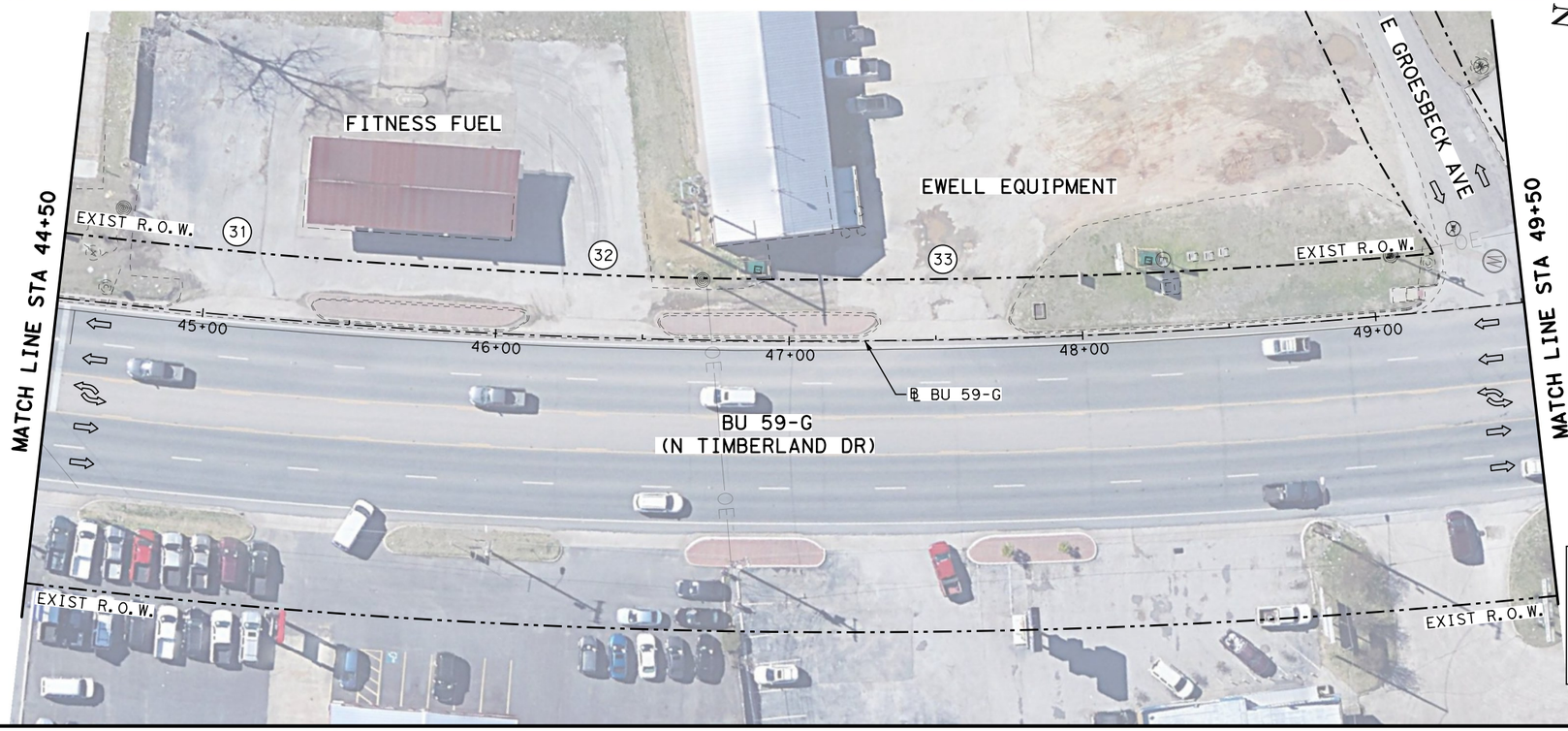

0′ 25′ 50′(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:

1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

REV	DESCRIPTION	DATE	INIT

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE

BMP'S SHEET 4 OF 14

DATE DISTURBED:_____

DATE STABILIZED:_____

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

PLAN LAYOUT

(STA 39+50 TO STA 49+50)

SHEET 4 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	43

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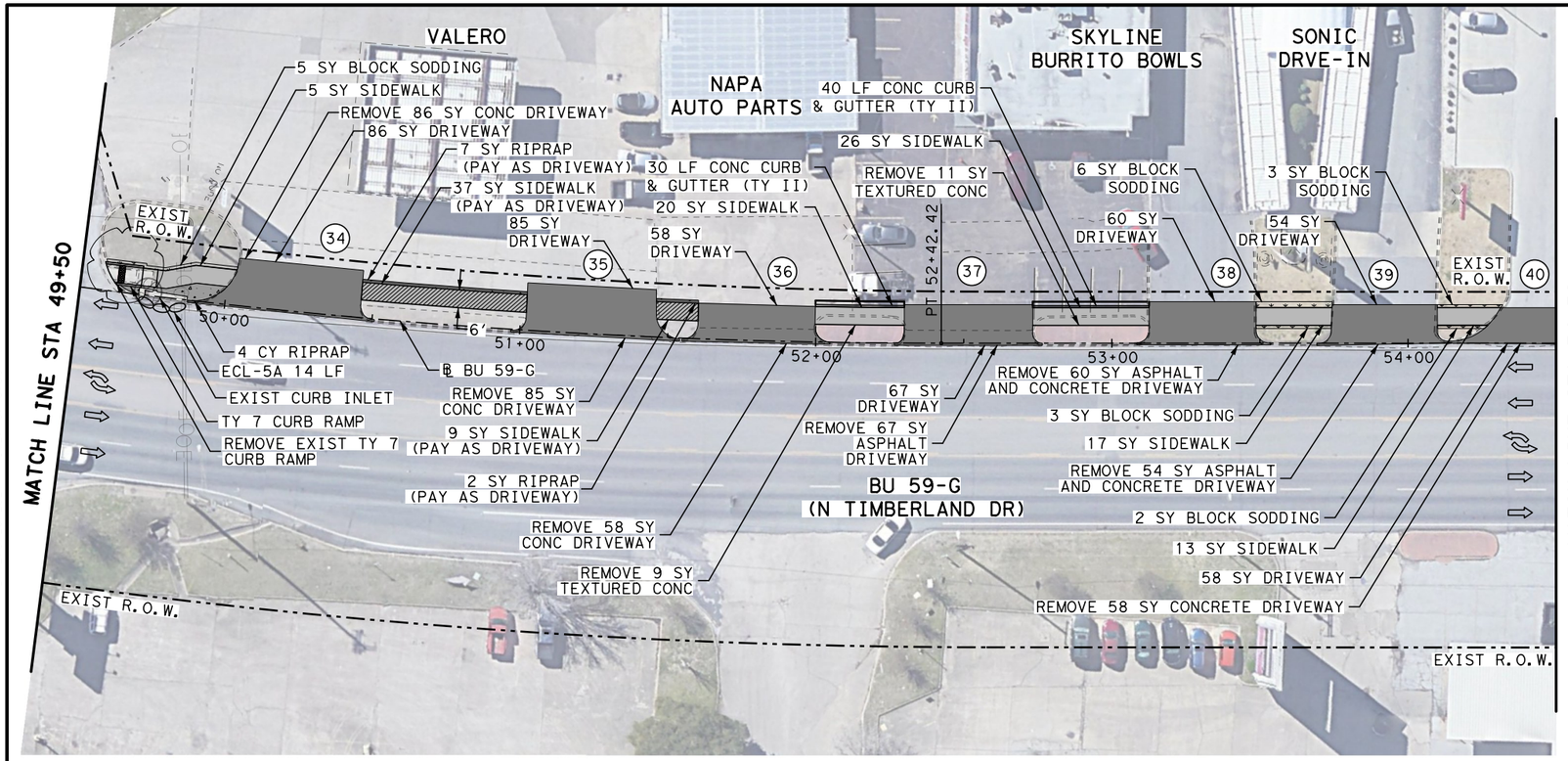

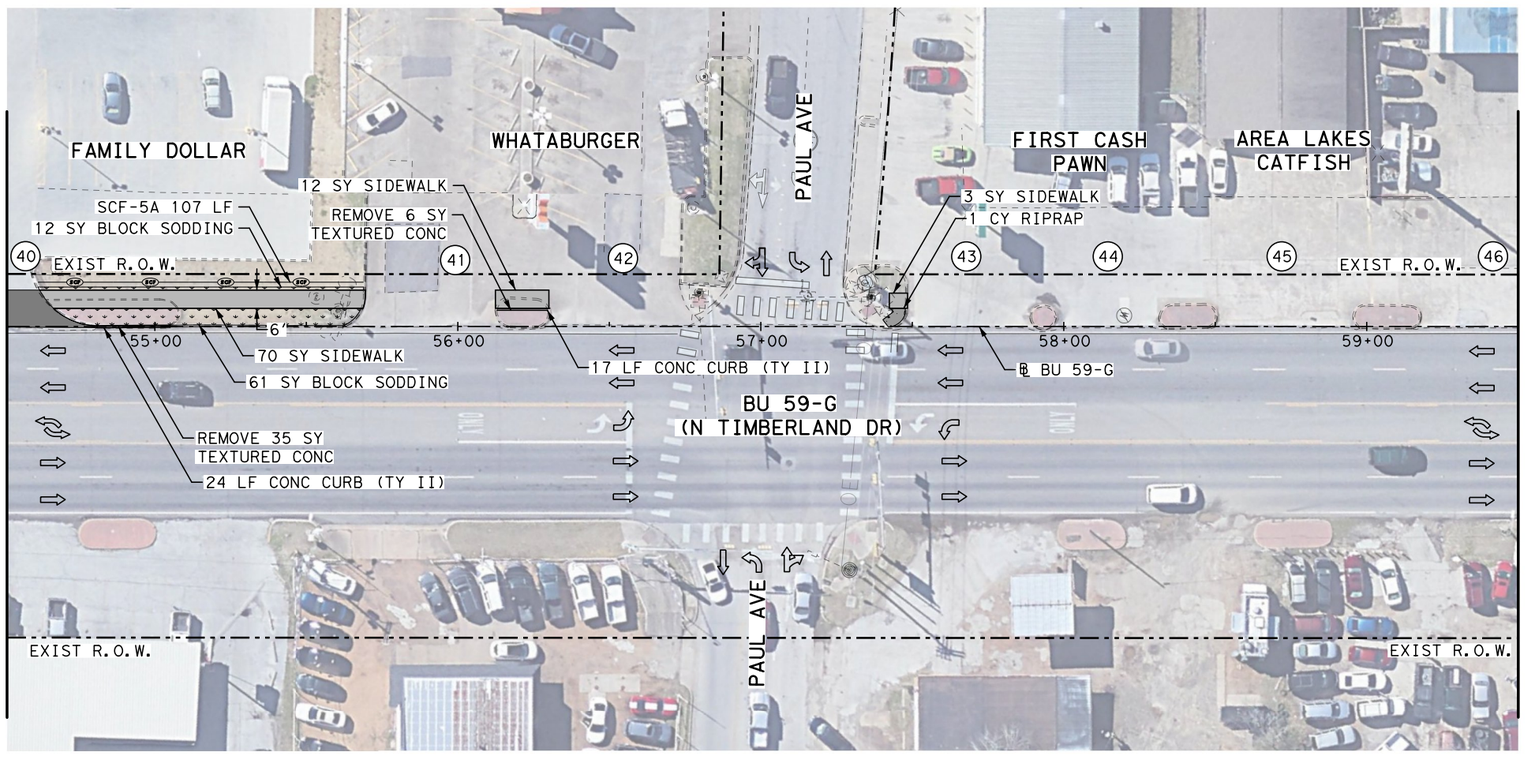

0′ 25′ 50′(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-5A		
SCF-5A		

NOTES:
1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
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6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

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TEL: 214.583.3400
TBPELS F-02263

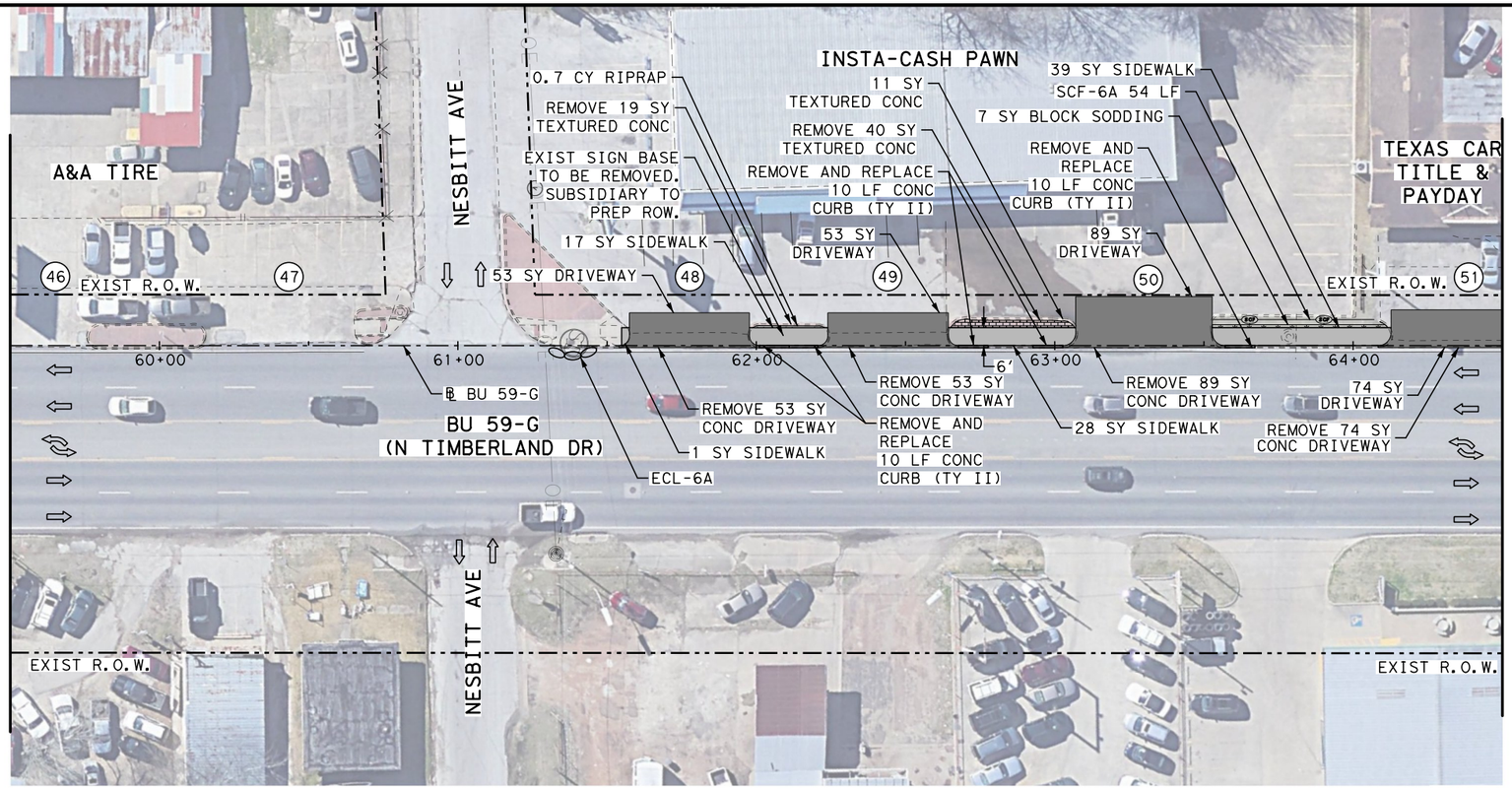
BMP'S SHEET 5 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

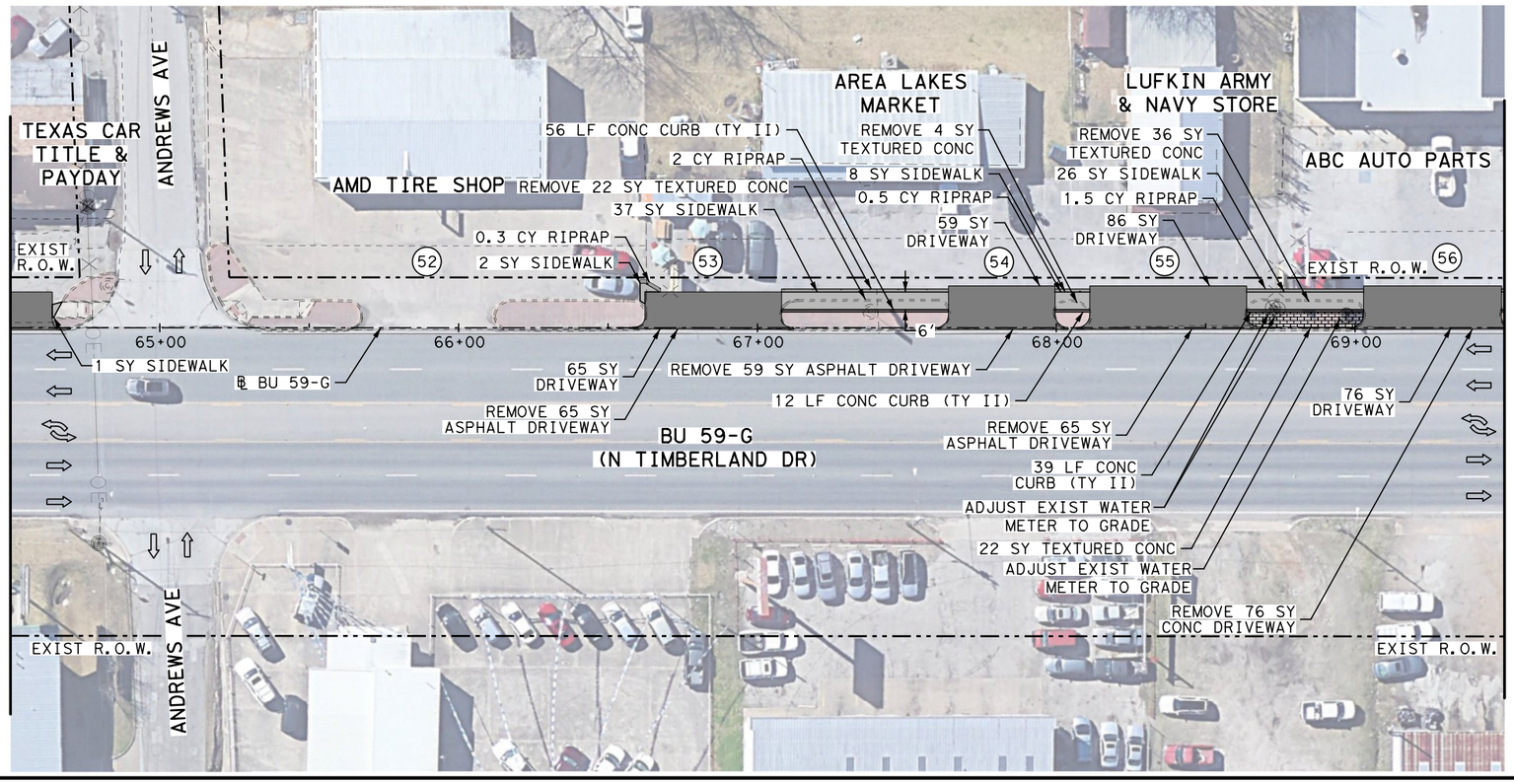
PLAN LAYOUT

(STA 49+50 TO STA 59+50)

SHEET 5 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	44





N

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-6A		
SCF-6A		

0' 25' 50'(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:
1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

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Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

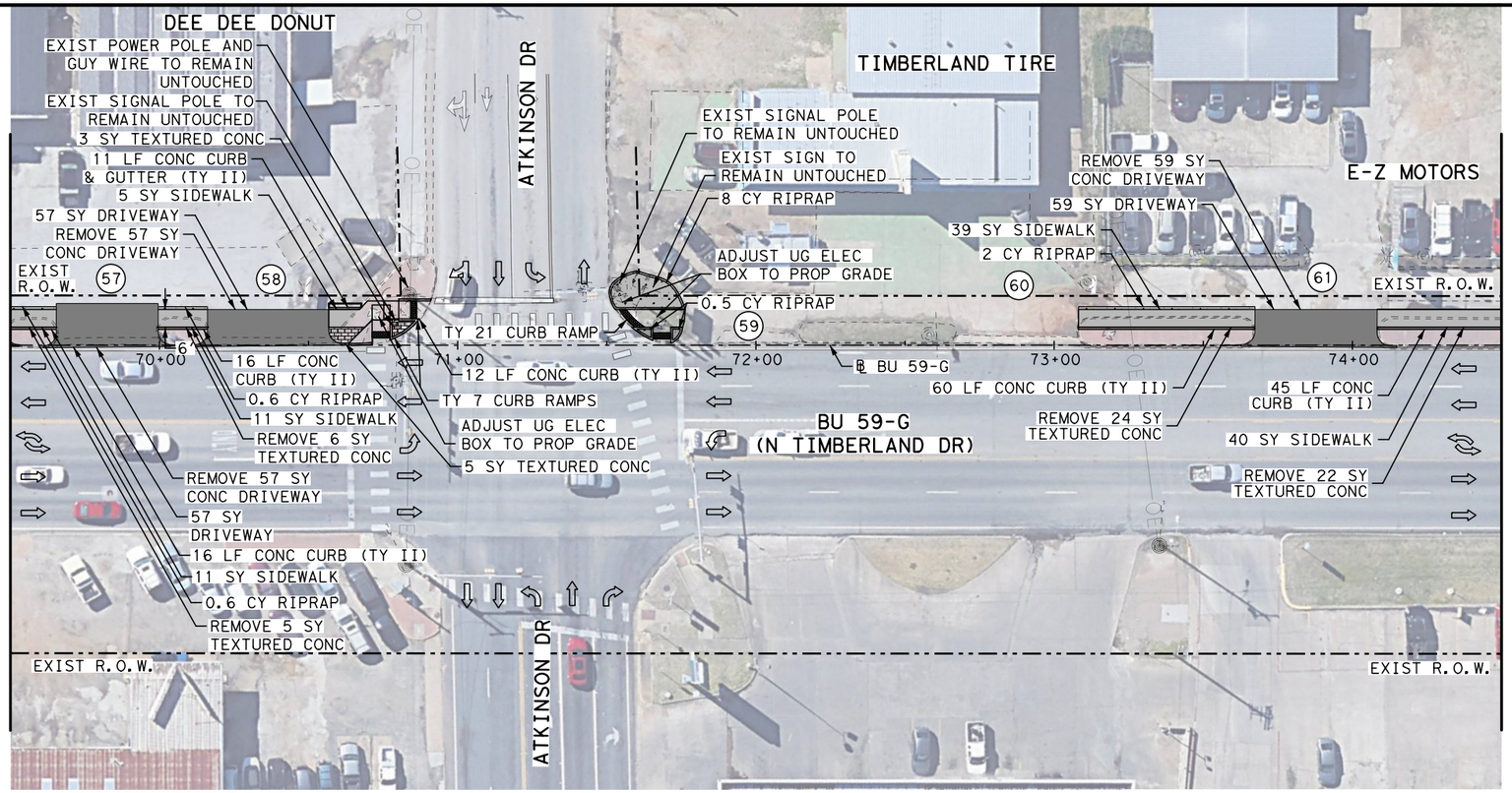
BMP'S SHEET 6 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

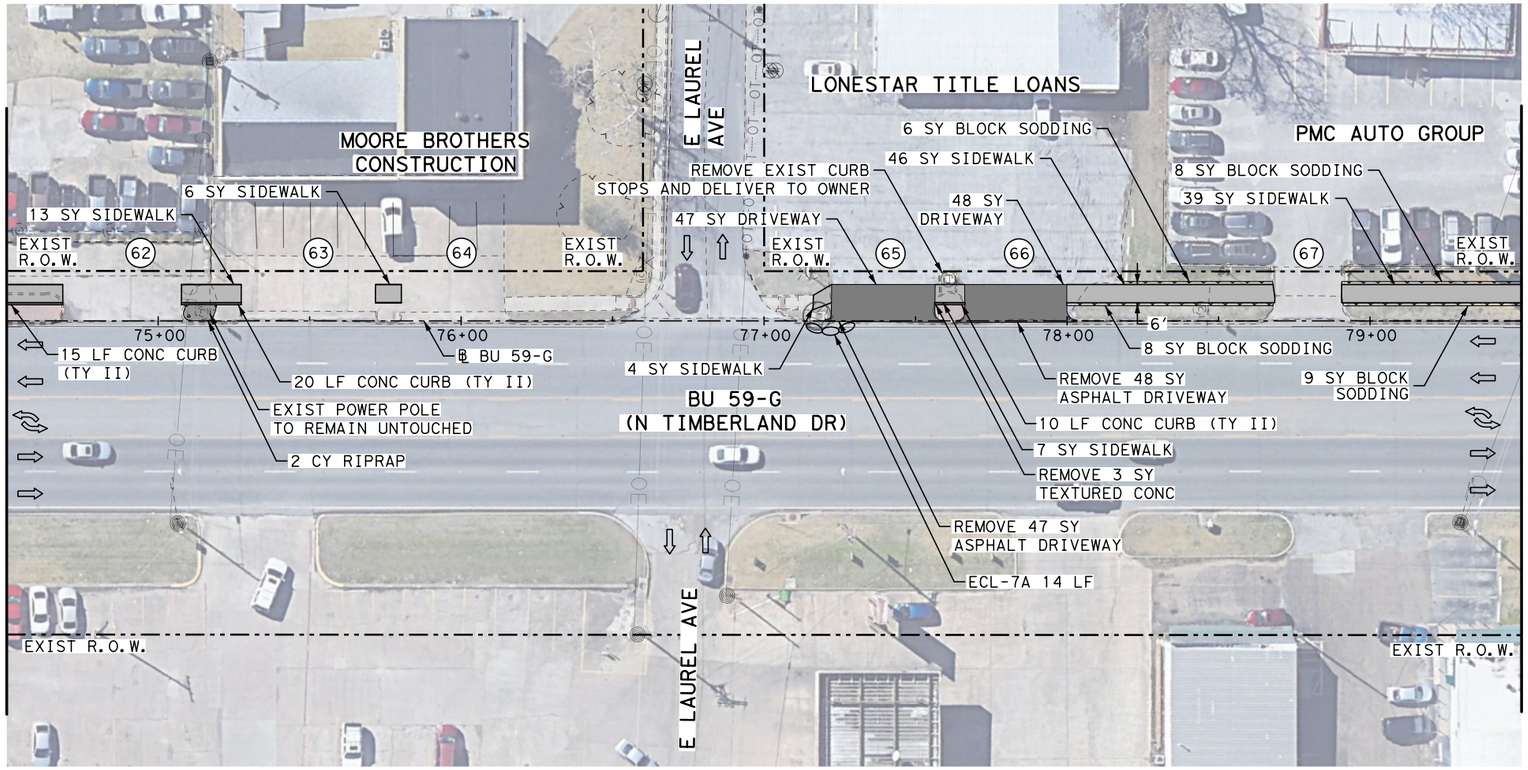
PLAN LAYOUT

(STA 59+50 TO STA 69+50)

SHEET 6 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	45





0' 25' 50'(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- SOF TEMPORARY SILT FENCE

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-7A		

NOTES:
1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

BMP'S SHEET 7 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

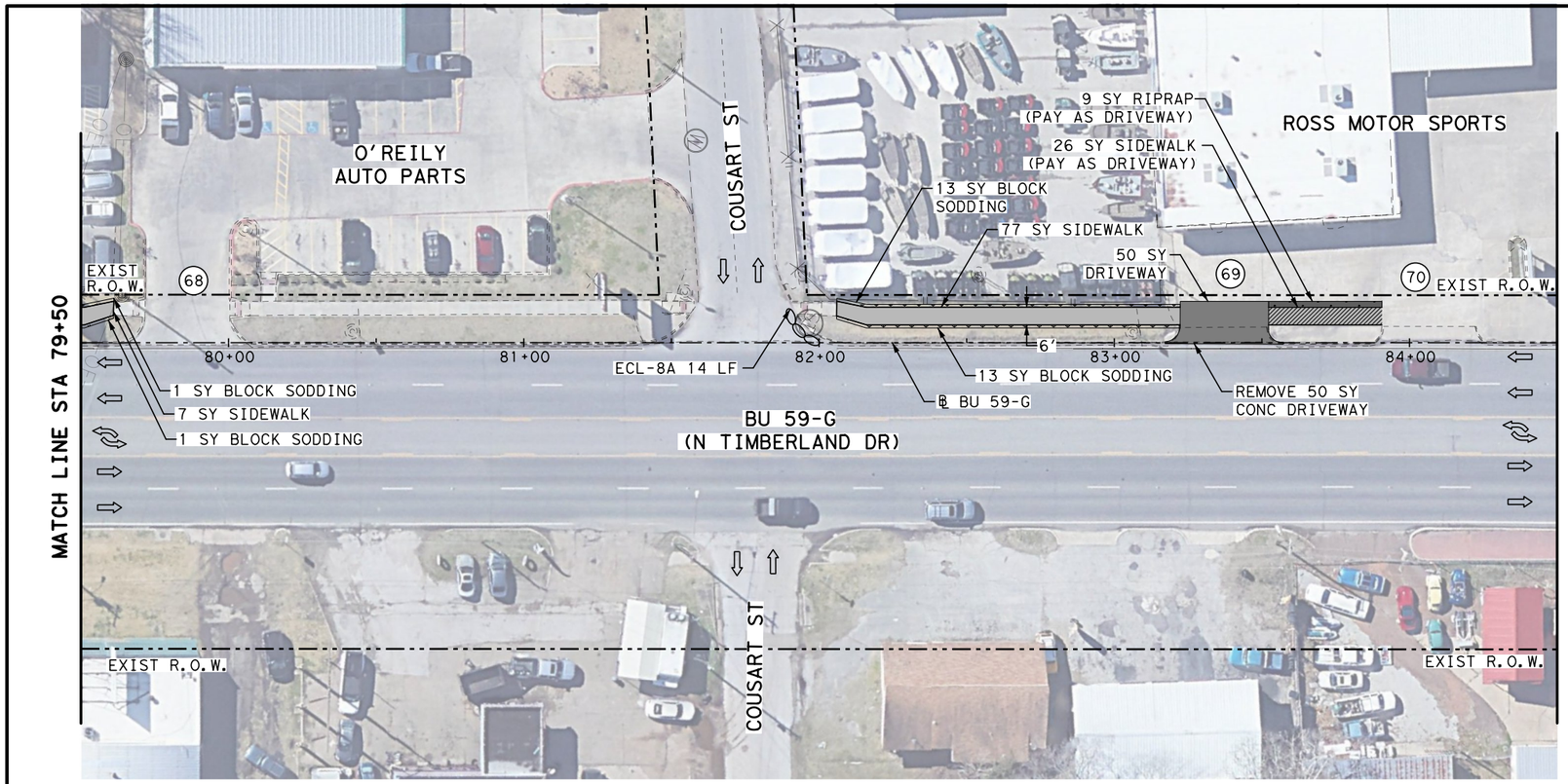
WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

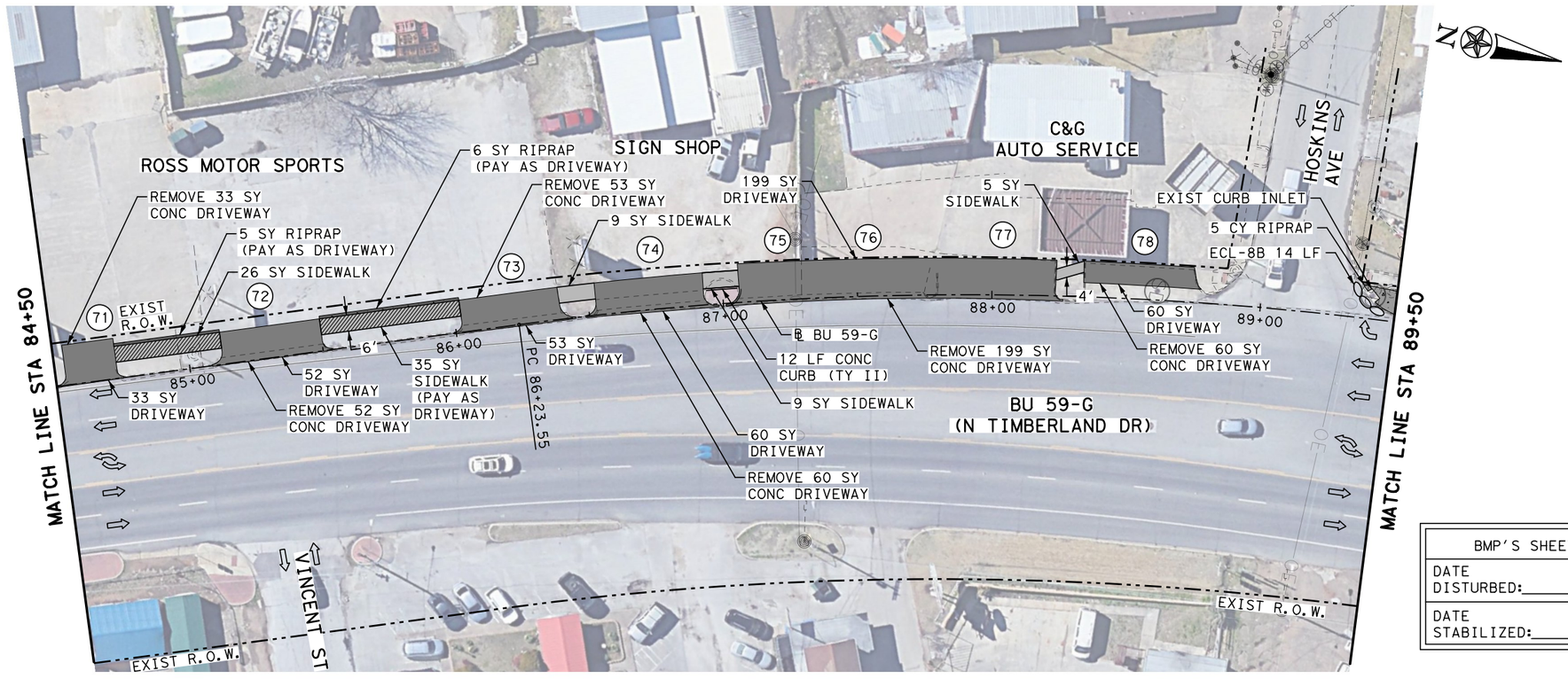
PLAN LAYOUT

(STA 69+50 TO STA 79+50)

SHEET 7 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	46





BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-8A		
ECL-8B		

0' 25' 50'(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:
1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

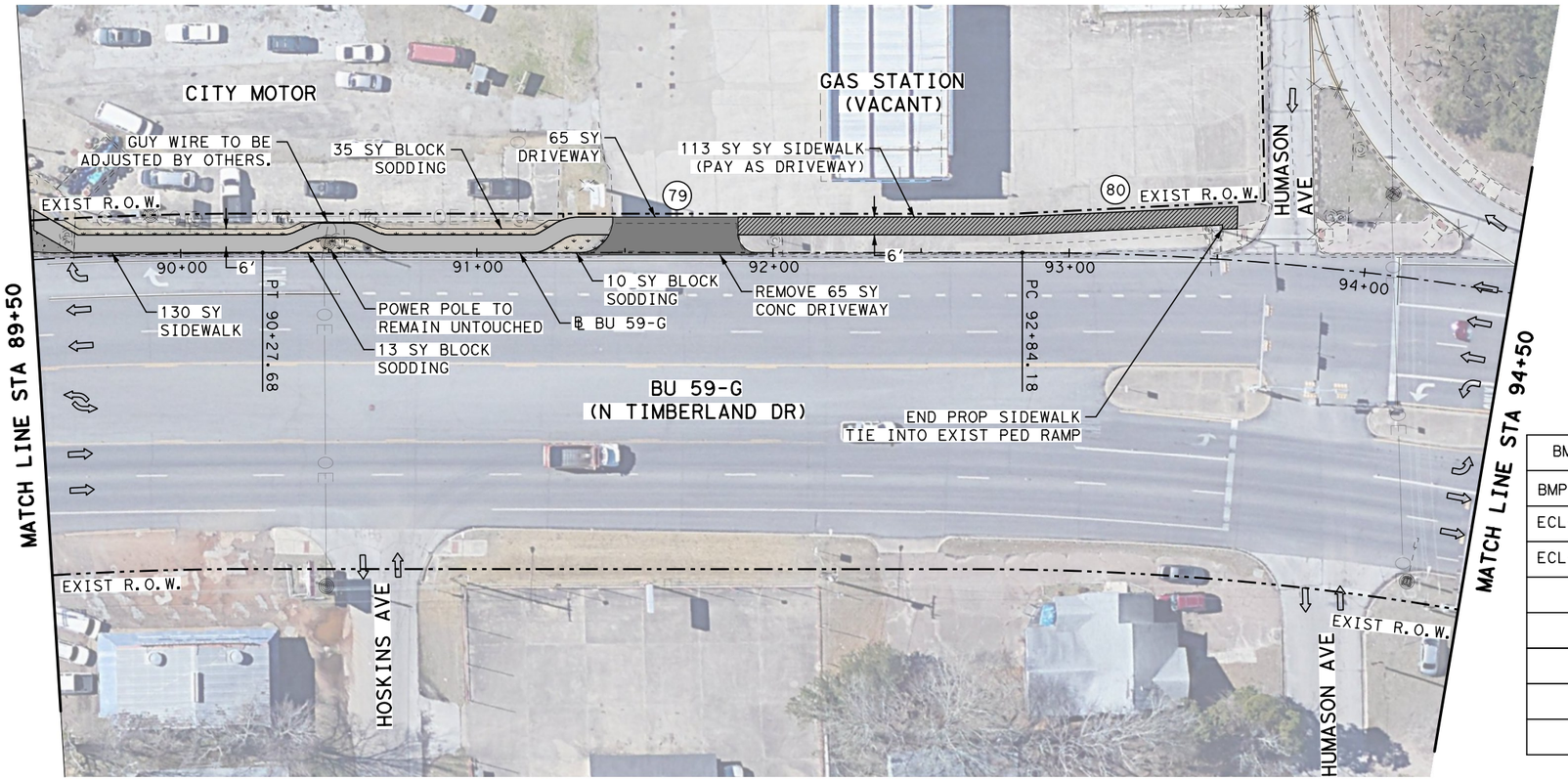
BMP'S SHEET 8 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

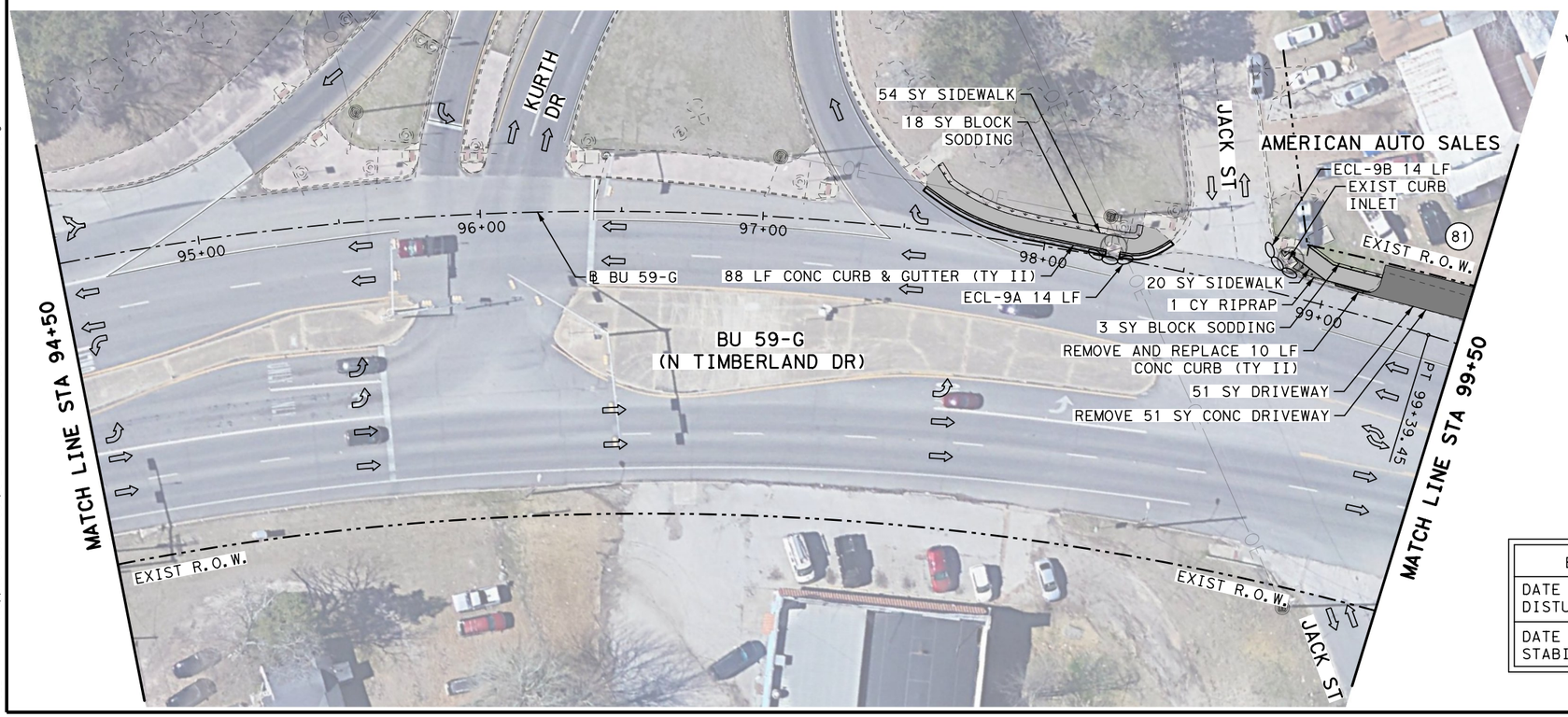
PLAN LAYOUT

(STA 79+50 TO STA 89+50)

SHEET 8 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	47





0' 25' 50'(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:

1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-9A		
ECL-9B		

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

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Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

BMP'S SHEET 9 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

PLAN LAYOUT

(STA 89+50 TO STA 99+50)

SHEET 9 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	48

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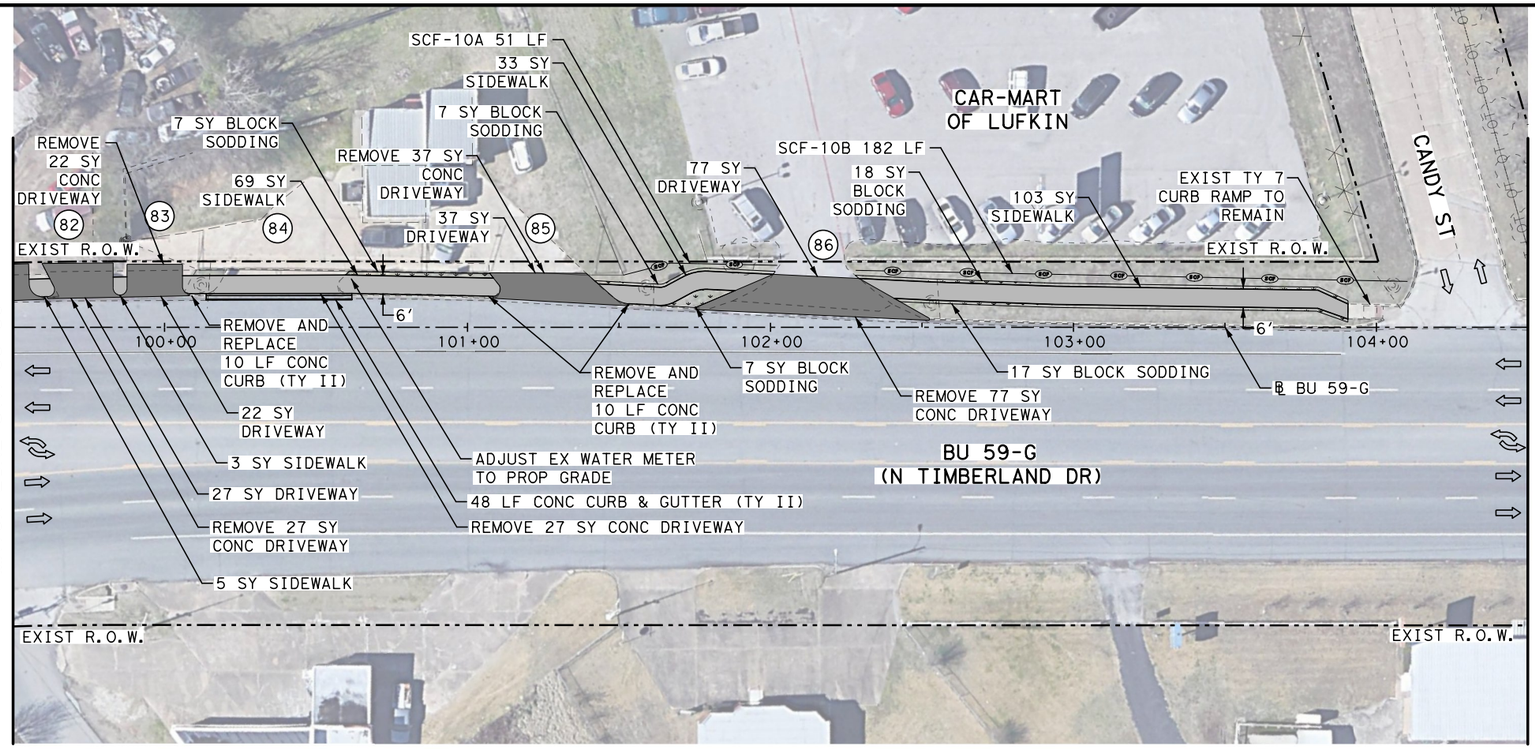

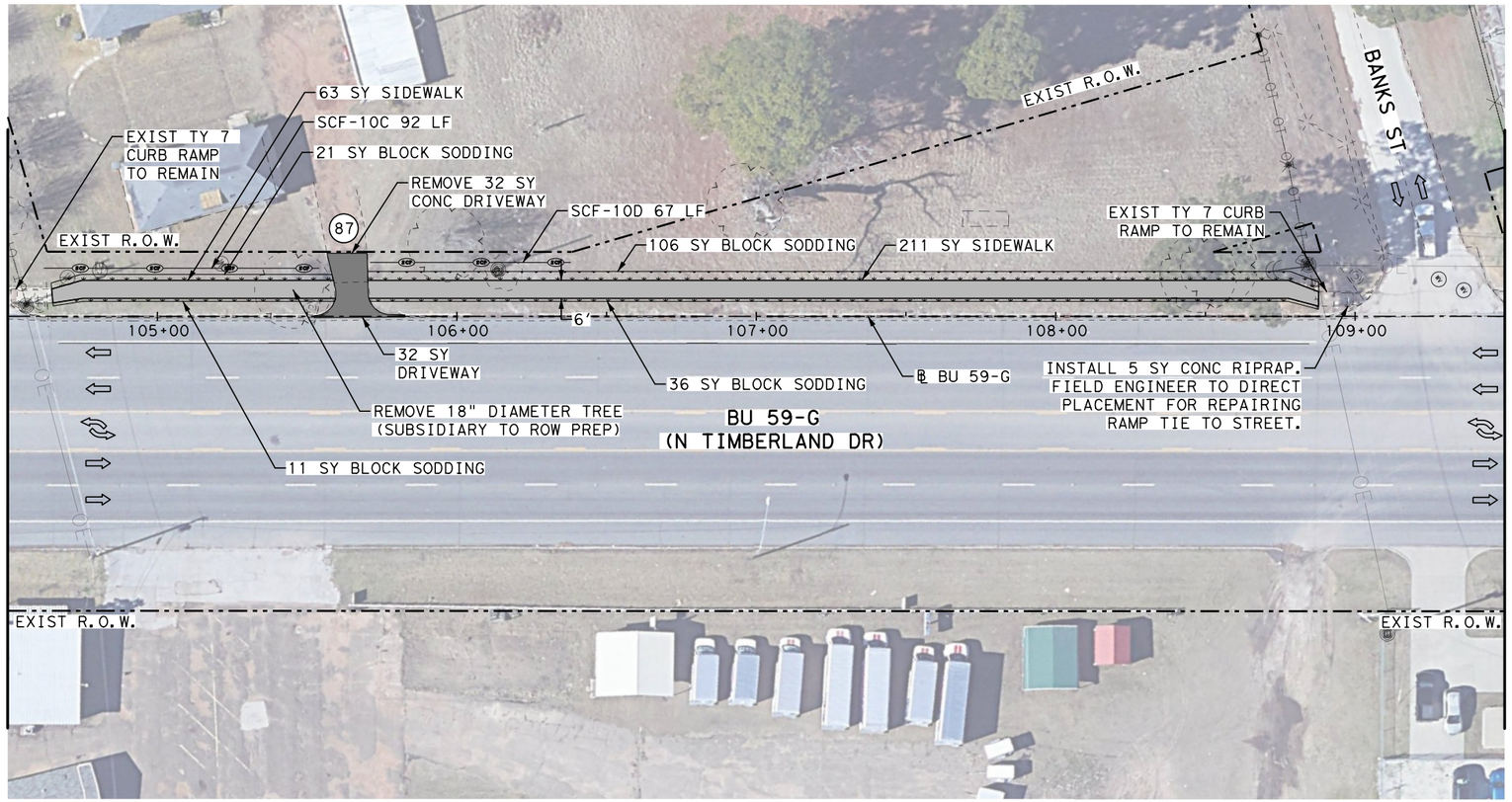

0' 25' 50'(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:
1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
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4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
SCF-10A		
SCF-10B		
SCF-10C		
SCF-10D		

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED
PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

BMP'S SHEET 10 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

PLAN LAYOUT

(STA 99+50 TO STA 109+50)

SHEET 10 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	49

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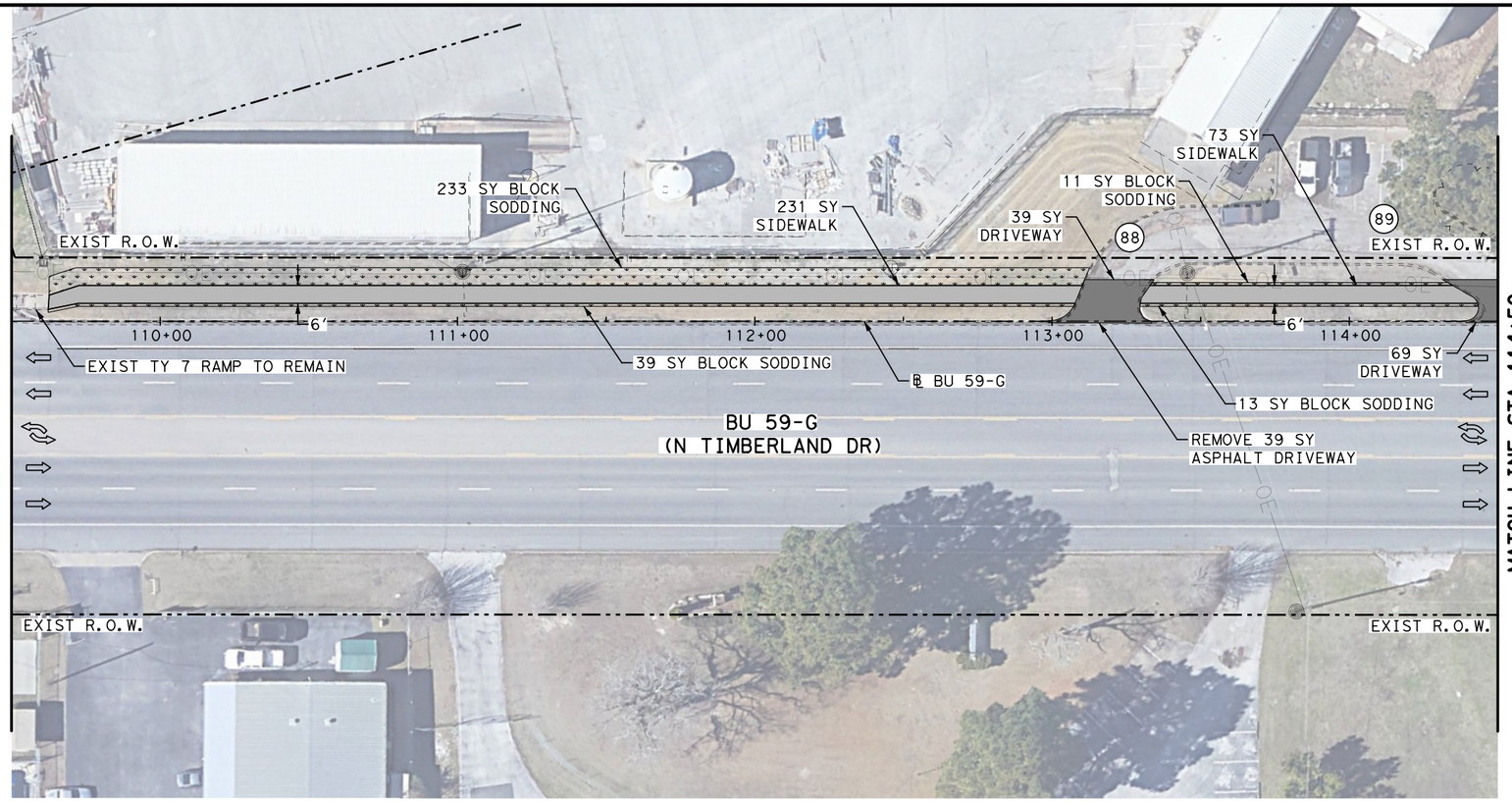

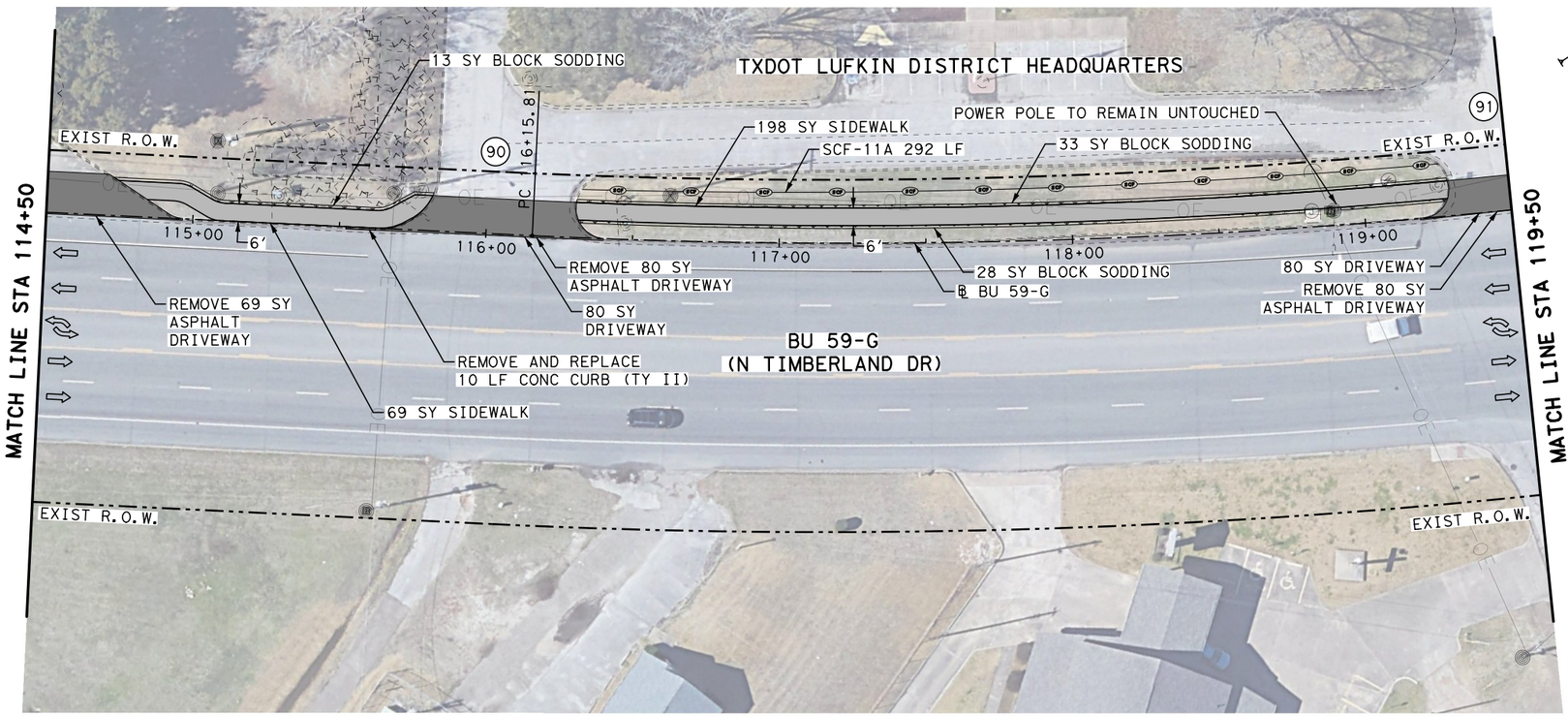

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
SCF-11A		

0' 25' 50'(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:
1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
4. ALL EXISTING UTILITY BOXES SHALL BE ADJUSTED TO MATCH ADA COMPLIANT SIDEWALK AND PAID UNDER ITEM 479.
5. CLEANING OF EXISTING SIDEWALKS AND CURB RAMPS ARE SUBSIDIARY TO ITEM 100 - PREP ROW.
6. "CONC SIDEWALKS (6")" AND "RIPRAP (CONC) (6")" ARE TO BE QUANTIFIED AND PAID UNDER ITEM 530 "DRIVEWAYS (CONC)".
7. IF SIDEWALK CAN BE ADEQUATELY BACKFILLED USING EXISTING SOD AND TOPSOIL, THIS WORK WILL BE PAID BY THE BLOCK SOD ITEM FOR UP TO 12" BEHIND THE SIDEWALK MULTIPLIED BY THE LENGTH OF THE BACKFILL.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
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BMP'S SHEET 11 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

PLAN LAYOUT

(STA 109+50 TO STA 119+50)

SHEET 11 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	50

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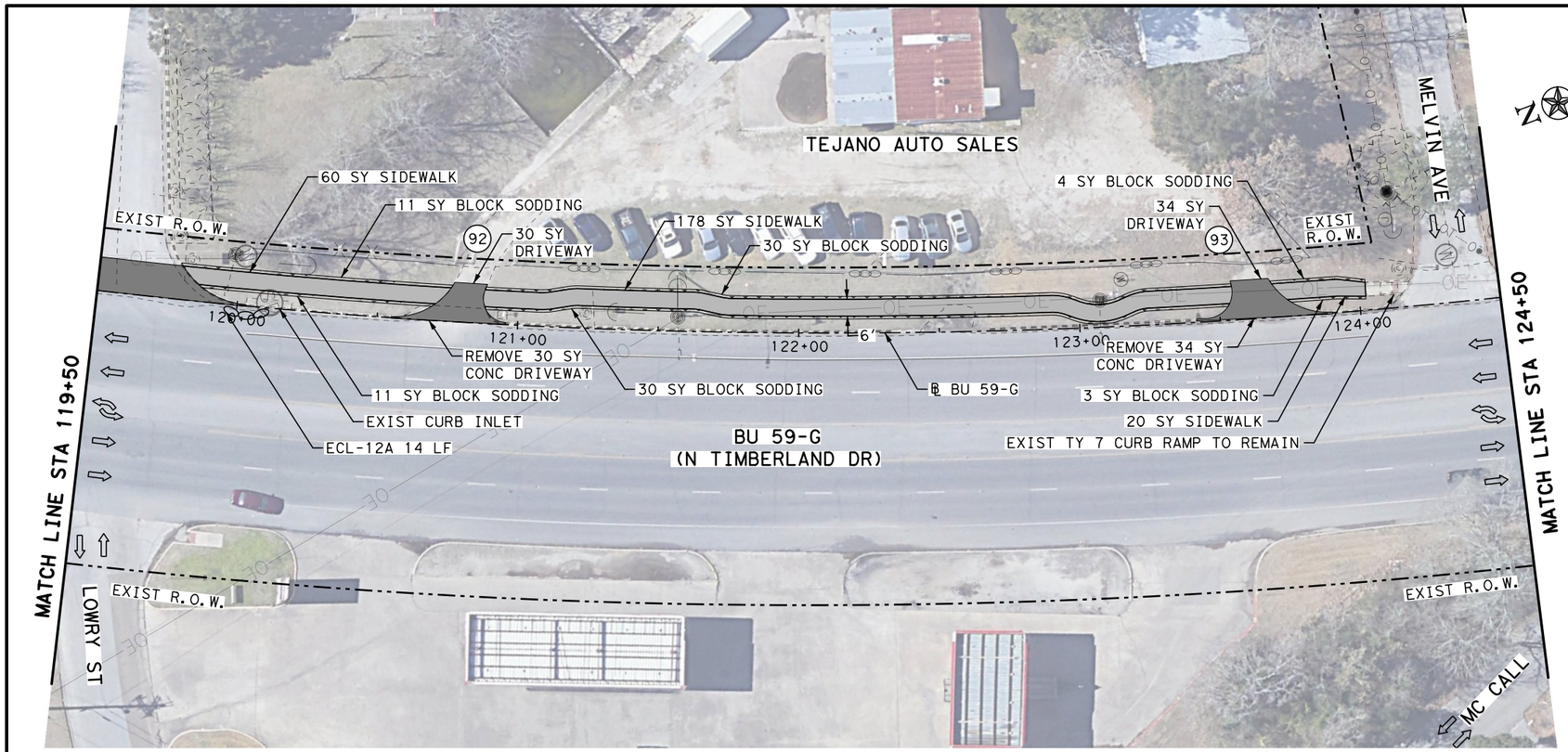

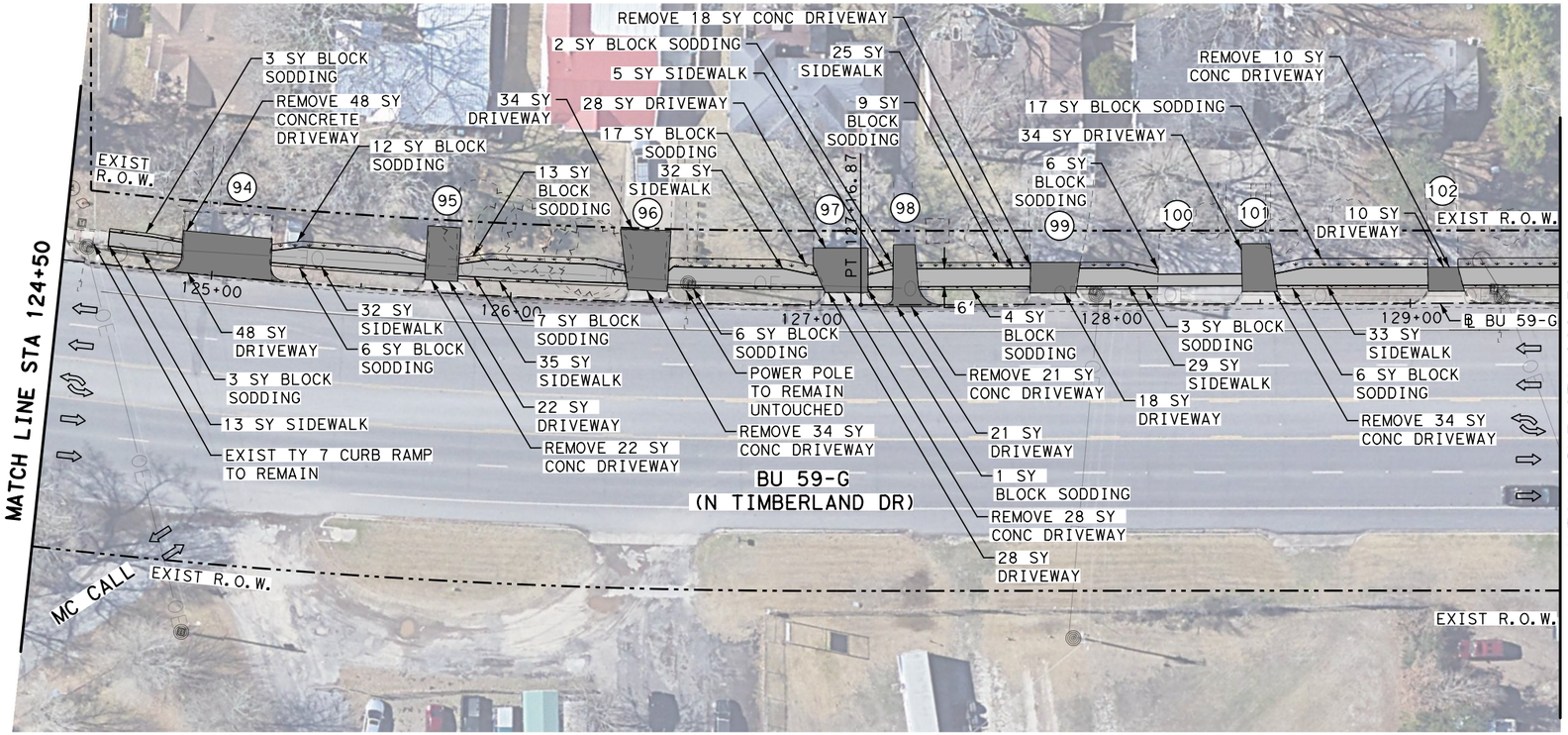

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SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

NOTES:

1. PROP CURB RADIUS ON DRIVEWAYS SHALL MAINTAIN EXISTING CURB RADIUS, UNLESS OTHERWISE NOTED.
2. SAWCUTS REQUIRED TO MATCH EXISTING AND WILL BE SUBSIDIARY TO INSTALLING SIDEWALK/DRIVEWAYS.
3. SIDEWALK PROFILE TO MATCH EXISTING TOP OF CURB PROFILE (SIDEWALK NEXT TO CURB) OR TO MATCH EXISTING GROUND (SIDEWALK WITH SETBACK). GRADES MUST MEET ADA REQUIREMENTS.
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REV	DESCRIPTION	DATE	INIT

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-12A		

BMP'S SHEET 12 OF 14

DATE DISTURBED:_____

DATE STABILIZED:_____

STATE OF TEXAS
KAMERON K. RABURN
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TBPELS F-02263

PLAN LAYOUT

(STA 119+50 TO STA 129+50)

SHEET 12 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	51

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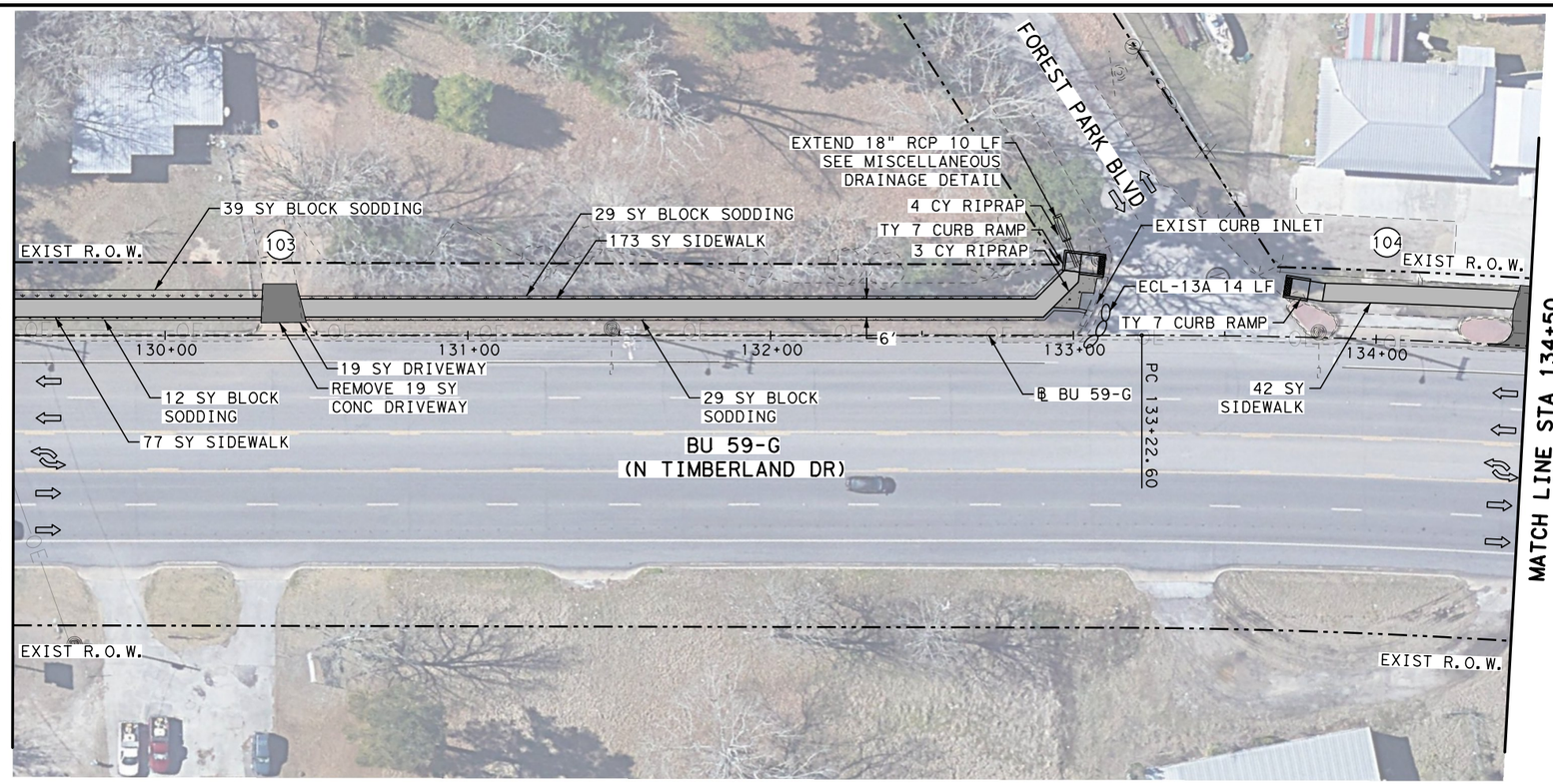

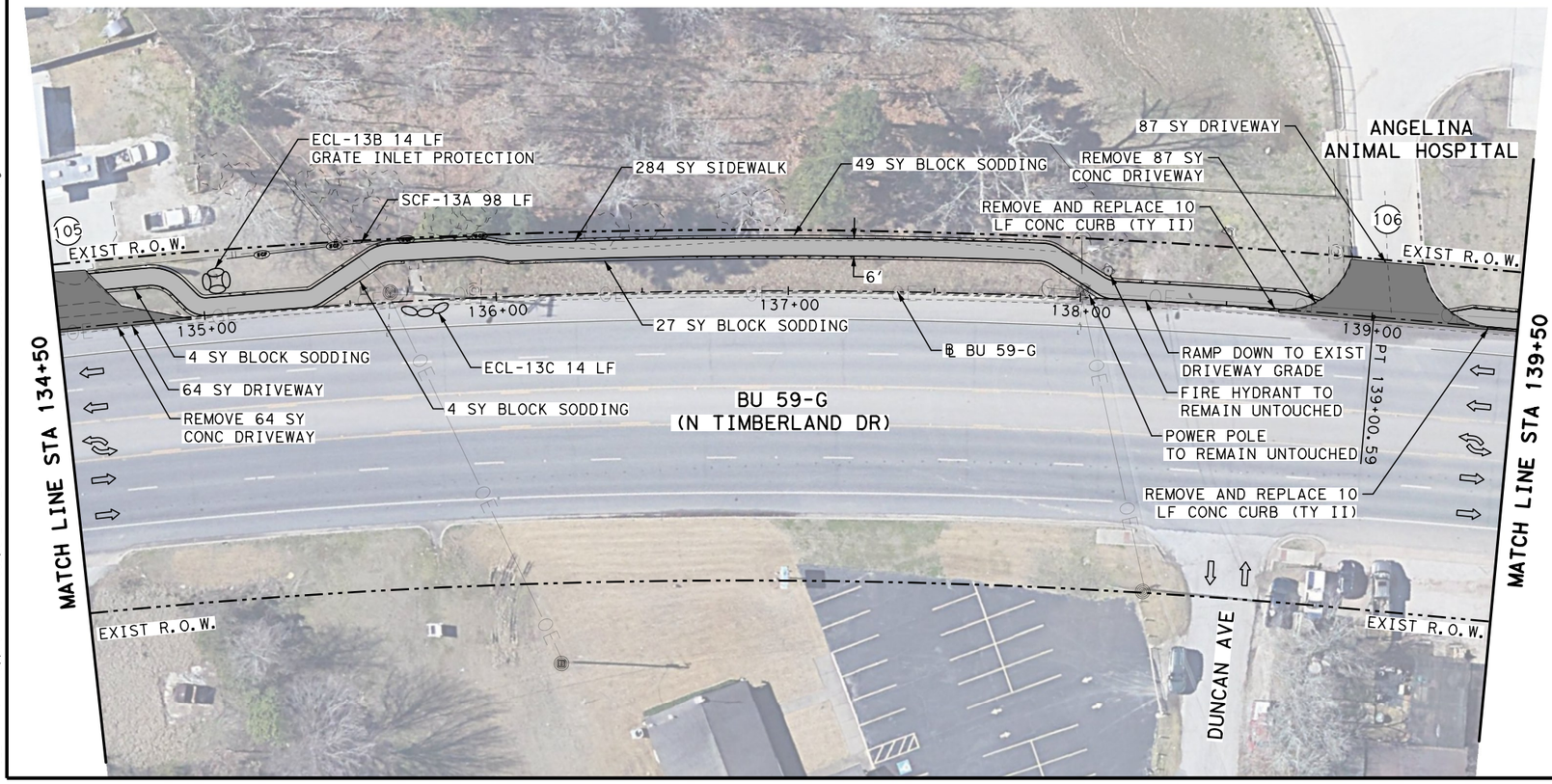

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-13A		
ECL-13B		
ECL-13C		
SCF-13A		

0′ 25′ 50′(H)
SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
- BLOCK SODDING
- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- SF TEMPORARY SILT FENCE

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BMP'S SHEET 13 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

PLAN LAYOUT

(STA 129+50 TO STA 139+50)

SHEET 13 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	52

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SCALE IN FEET

PLAN LAYOUT LEGEND

- (##) DRIVEWAY NUMBER
- DRIVEWAYS
- CONC SIDEWALKS (4")
- CONC SIDEWALKS (6")
- COLORED TEXTURED CONCRETE (4")
- RIPRAP (CONC) (4")
- RIPRAP (CONC) (6")
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- EXIST TRAVEL LANE
- TEMPORARY EROSION CONTROL LOG
- TEMPORARY SILT FENCE

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REV	DESCRIPTION	DATE	INIT

BMP INSTALL/REMOVE DATES		
BMP #	INSTALL DATE	REMOVE DATE
ECL-14A		
ECL-14B		

BMP'S SHEET 14 OF 14
DATE DISTURBED:_____
DATE STABILIZED:_____

STATE OF TEXAS
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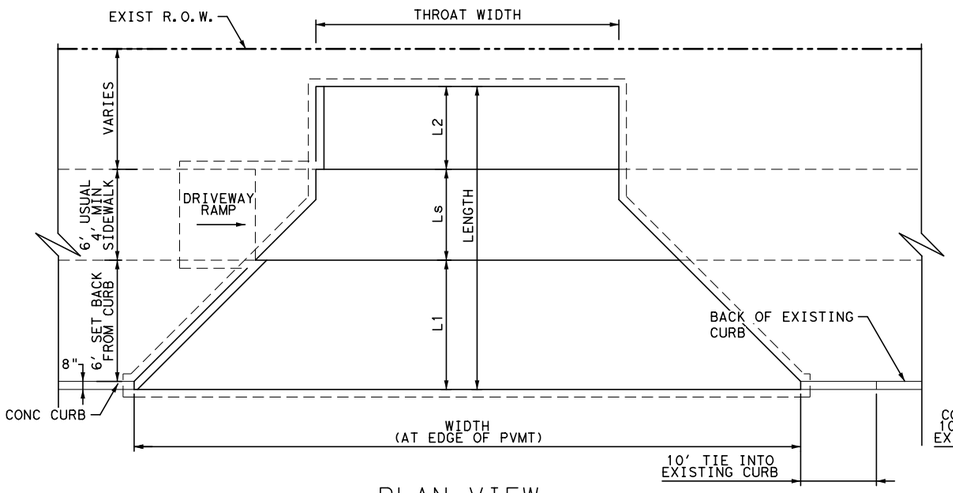
PLAN LAYOUT

(STA 139+50 TO BEGIN PROJECT)

SHEET 14 OF 14

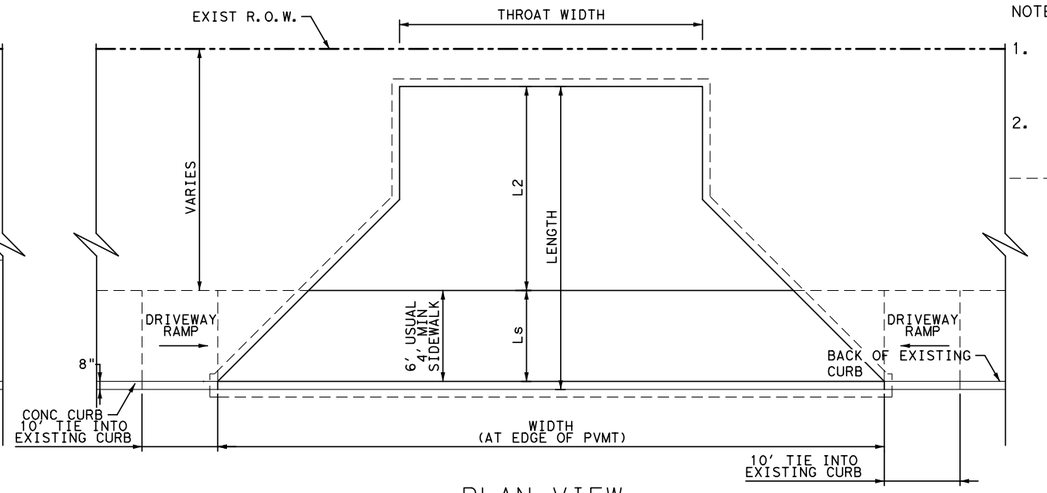
FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	53



PLAN VIEW

FLARED CONCRETE DRIVEWAY WITH SETBACK

N.T.S.



PLAN VIEW

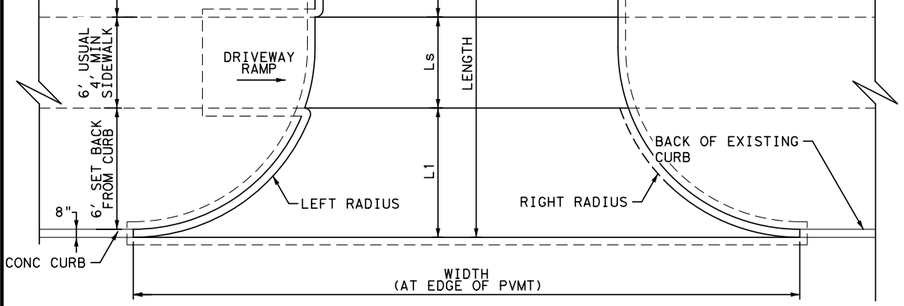
FLARED CONCRETE DRIVEWAY

N.T.S

NOTES:

1. ALL WATER POLLUTION PREVENTION MEASURES SHALL BE PLACED WITHIN THE RIGHT-OF-WAY OF THE PROPOSED ROADWAY DURING CONSTRUCTION.
2. SEE DRIVEWAY TABLE SHEETS FOR PROPOSED MEASUREMENTS.

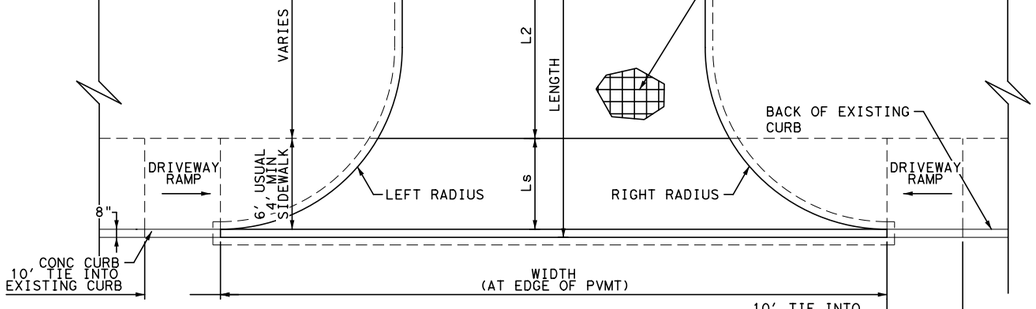
---- LIMITS OF PAY FOR ITEM 530



PLAN VIEW

CONCRETE DRIVEWAY WITH SETBACK

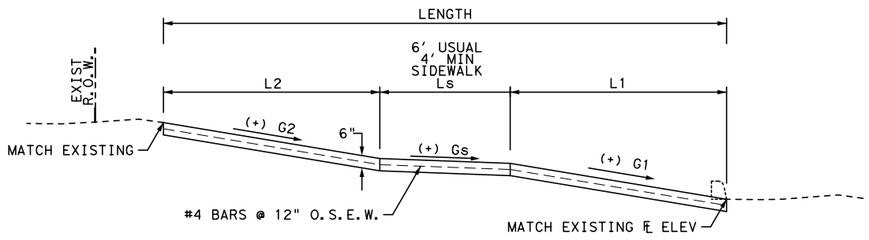
N.T.S.



PLAN VIEW

CONCRETE DRIVEWAY

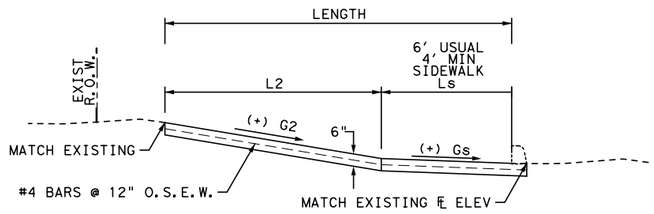
N.T.S.



ELEVATION VIEW

CONCRETE DRIVEWAY WITH SETBACK

N.T.S.



ELEVATION VIEW

CONCRETE DRIVEWAY

N.T.S.

REV	DESCRIPTION	DATE	INIT

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DRIVEWAY DETAILS

N.T.S.

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	54

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SUMMARY OF PROPOSED DRIVEWAYS

DRIVEWAY ID NUMBER	BUSINESS	WIDTH (EDGE OF PAVEMENT)	WIDTH (AT ROW LINE)	LEFT RADIUS	RIGHT RADIUS	LENGTH	MATERIAL	G1	L1	Gs	Ls	G2	L2	SIDEWALK SECTION DETAIL (REFERS TO PREVIOUS SECTION)
		FT	FT	FT	FT	FT		%	FT	%	FT	%	FT	**
1	TEXAS OIL CO & XPRESS LUBE	46	35	6	6	17	CONC	10.917	6.854	1.500	6.000	10.126	6.197	C-4"
2		53	47	7	3	11	CONC	MATCH EXIST	6.000	1.500	6.000	8.000	4.258	C
3	REMCO AUTO INSURANCE	44	32	7	6	13	CONC	N/A	N/A	-1.500	6.000	-2.325	7.332	G/A
4		52	37	10	6	7	CONC	N/A	N/A	-1.500	4.000	-5.075	3.043	I*
5		38	24	6	10	9	CONC	N/A	N/A	-1.500	9.402	N/A	N/A	H*
6	SHERWIN-WILLIAMS	59	43	6	6	13	CONC	N/A	N/A	-1.500	4.000	-8.000	7.035	G*
7		41	31	6	5	11	CONC	N/A	N/A	-1.500	4.000	-4.566	7.250	E
8		46	36	6	5	7	CONC	N/A	N/A	-1.914	6.984	N/A	N/A	F
9	LIBERTY TAX	46	29	13	6	16	CONC	MATCH EXIST	6.000	1.500	6.000	3.621	8.000	D/B
10	CHAMPION AUTO SALES	49	36	6	8	16	CONC	MATCH EXIST	1.937	1.500	6.000	4.715	4.000	D
11		42	29	6	7	12	CONC	-1.456	6.000	-1.500	6.000	N/A	N/A	A
12	CHEN'S	52	41	6	6	12	CONC	-3.821	6.000	-1.500	6.000	N/A	N/A	C*
13		52	41	7	5	15	CONC	N/A	N/A	-1.500	6.000	-8.000	6.780	A
14	TACO BELL	KEEP EXISTING												G*
15		41	28	6	6	6	CONC	N/A	N/A	1.500	6.000	-1.174	7.322	G
16	PIZZA HUT	40	30	5	6	6	CONC	N/A	N/A	0.952	6.000	N/A	N/A	G
17	TITLE MAX LOANS	KEEP EXISTING												G
18	SUN N PINES MOTEL	KEEP EXISTING												G
19		KEEP EXISTING												
20		KEEP EXISTING												
21	HUB CAP & TIRE STORE	KEEP EXISTING												G*
22		KEEP EXISTING												
23		KEEP EXISTING												
24		KEEP EXISTING												
25	ABANDONED LOT	KEEP EXISTING												
26		KEEP EXISTING												
27	HEB	KEEP EXISTING												
28	ABANDONED LOT	KEEP EXISTING												
29	DADDY'S DONUTS	KEEP EXISTING												
30		KEEP EXISTING												
31	FITNESS FUEL	KEEP EXISTING												
32		KEEP EXISTING												
33	EWELL EQUIPMENT	KEEP EXISTING												
34	VALERO	63	42	16	5	16	CONC	5.420	6.000	1.500	6.000	8.000	3.291	B
35		57	43	5	9	16	CONC	7.279	6.000	1.500	6.000	8.000	3.978	C
36	NAPA AUTO PARTS	50	40	6	6	12	CONC	5.097	6.000	1.500	6.000	N/A	N/A	C
37	SKYLINE BURRITO BOWLS	50	43	4	4	13	CONC	6.657	6.000	1.500	6.000	8.000	1.071	A*
38	SONIC DRIVE-IN	45	36	5	5	14	CONC	2.801	6.000	1.500	6.000	8.000	1.506	A*
39		45	36	5	4	13	CONC	2.930	6.000	1.500	6.000	8.000	1.109	B
40	FAMILY DOLLAR	67	31	19	22	12	CONC	2.748	6.000	1.500	6.000	1.500	6.000	B
41	WHATABURGER	KEEP EXISTING												B
42		KEEP EXISTING												D
43	FIRST CASH PAWN	KEEP EXISTING												B
44		KEEP EXISTING												
45	AREA LAKES	KEEP EXISTING												
46	A&A TIRE	KEEP EXISTING												
47		KEEP EXISTING												
48	INSTA-CASH PAWN	46	40	4	4	11	CONC	N/A	N/A	1.500	6.000	2.018	6.000	G
49		47	39	4	4	11	CONC	N/A	N/A	1.500	6.000	1.151	6.000	E*
50		53	44	5	5	16	CONC	0.183	9.564	0.183	6.000	N/A	N/A	E*
51	TEXAS CAR TITLE & PAYDAY	57	51	5	3	13	CONC	1.500	6.000	1.500	6.000	1.500	1.000	G
52	AMD TIRE SHOP	KEEP EXISTING												C
53	AREA LAKES MARKET	54	46	4	4	12	CONC	MATCH EXIST				N/A	N/A	C
54		44	36	5	5	14	CONC	MATCH EXIST	6.000	1.500	6.000	8.000	1.578	D
55	LUFKIN ARMY & NAVY STORE	62	53	5	5	14	CONC	MATCH EXIST	6.000	1.500	6.000	8.000	2.197	D
56	ABC AUTO PARTS	55	46	5	4	14	CONC	MATCH EXIST	6.000	1.500	6.000	8.000	2.158	D

* REVERSE SIDEWALK CROSS SLOPE

** SEE MISCELLANEOUS CURB AND SIDEWALK DETAILS SHEET 2 OF 2

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
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TEL: 214.583.3400
TBPELS F-02263

DRIVEWAY TABLE

SHEET 1 OF 2

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	55

SUMMARY OF PROPOSED DRIVEWAYS

DRIVEWAY ID NUMBER	BUSINESS	WIDTH (EDGE OF PAVEMENT)	WIDTH (AT ROW LINE)	LEFT RADIUS	RIGHT RADIUS	LENGTH	MATERIAL	G1	L1	Gs	Ls	G2	L2	SIDEWALK SECTION DETAIL (REFERS TO PREVIOUS SECTION)
		FT	FT	FT	FT	FT		%	FT	%	FT	%	FT	**
57	DEE DEE DONUT	43	34	5	5	14	CONC	5.617	6.000	1.500	6.000	3.907	2.000	D
58		51	41	5	5	12	CONC	5.197	6.000	1.500	6.000	N/A	N/A	D
59	TIMBERLAND TIRE	KEEP EXISTING												
60		KEEP EXISTING												
61	E-Z MOTORS	52	41	5	5	12	CONC	MATCH EXIST	6.000	1.500	6.000	N/A	N/A	D
62		KEEP EXISTING												D
63	MOORE BROTHERS CONSTRUCTION	KEEP EXISTING												D
64		KEEP EXISTING												C
65	LONESTAR TITLE LOANS	39	34	2	3	12	CONC	1.752	6.000	-1.500	6.000	N/A	N/A	B
66		40	34	3	4	12	CONC	2.894	6.000	-1.500	6.000	N/A	N/A	D
67	PMC AUTO GROUP	KEEP EXISTING												B
68	O'REILY AUTO	KEEP EXISTING												B
69	ROSS MOTOR SPORTS	40	30	6	5	15	CONC	8.000	6.000	1.500	6.000	8.000	0.778	B
70		KEEP EXISTING												C
71		25	20	4	3	15	CONC	8.000	6.000	1.500	6.000	8.000	3.119	C
72		45	38	5	4	12	CONC	MATCH EXIST				N/A	N/A	C
73		46	37	4	6	12	CONC	MATCH EXIST				1.500	6.000	B
74	SIGN SHOP	50	41	5	5	12	CONC	6.959	6.000	1.500	6.000	N/A	N/A	B
75		125	119	6	3	14	CONC	8.000	6.000	1.500	6.000	N/A	N/A	D
76	C&G SERVICE STATION													
77											4.000	8.000	3.488	
78		44	41	0	6	8	CONC	8.514	3.694	1.500	4.000	N/A	N/A	C
79	GAS STATION (VACANT)	60	43	12	7	13	CONC	8.464	6.000	1.500	6.000	8.000	0.944	B
80		KEEP EXISTING												C
81	AMERICAN AUTO SALES	48	38	5	5	11	CONC	N/A	N/A	1.500	6.000	1.690	4.746	G
82		24	24	3	3	11	CONC	N/A	N/A	1.500	6.000	3.650	5.413	G
83	VACANT LOT	23	18	3	3	11	CONC	N/A	N/A	1.500	6.000	9.515	4.833	G
84		KEEP EXISTING												G
85		45	32	3	9	9	CONC	0.808	6.000	1.500	6.000	8.000	3.060	G
86	CAR-MART LUFKIN	77	29	N/A	N/A	13	CONC	0.808	7.853	MATCH EXIST	6.000	N/A	N/A	G/B
87	HOUSE	30	14	8	8	21	CONC	7.409	6.000	1.500	6.000	10.000	8.087	B
88	TXDOT LUFKIN DISTRICT HEADQUARTERS	35	23	10	5	15	CONC	1.767	6.000	1.500	6.000	8.000	1.635	B
89		60	40	5	10	14	CONC	3.436	9.928	1.500	6.000	8.000	1.692	B
90		78	50	20	11	12	CONC	1.476	6.000	MATCH EXIST	6.000	N/A	N/A	G
91		85	51	10	29	12	CONC	2.020	6.000	MATCH EXIST	6.000	N/A	N/A	B
92	TEJANO AUTO SALES	41	12	25	9	14	CONC	8.000	6.000	1.500	6.000	8.000	1.937	B
93		46	13	10	25	14	CONC	MATCH EXIST	6.000	1.500	6.000	8.000	1.817	B
94	HOUSE	39	30	5	5	13	CONC	8.000	6.000	1.500	4.000	9.000	3.400	B
95	HOUSE	11	12	0	0	21	CONC	6.970	6.000	1.500	6.000	8.000	13.569	B
96	HOUSE	13	17	0	0	23	CONC	7.810	6.000	1.500	4.000	8.834	14.021	B
97	HOUSE	15	18	0	0	15	CONC	5.430	6.000	1.500	4.000	8.000	8.628	B
98	HOUSE	19	7	3	8	21	CONC	8.000	6.000	1.500	6.000	8.000	7.602	B
99	HOUSE	16	17	0	0	10	CONC	6.408	6.000	1.500	6.000	5.404	3.162	B
100	HOUSE	KEEP EXISTING												B
101	HOUSE	12	10	0	0	16	CONC	MATCH EXIST	6.000	1.500	4.000	10.000	9.813	B
102	HOUSE	12	10	0	0	8	CONC	9.745	1.982	1.500	6.000	N/A	N/A	B
103	HOUSE	15	12	0	0	13	CONC	MATCH EXIST	6.000	1.500	6.000	10.580	4.972	B
104	TAQUIERA	KEEP EXISTING												B
105		58	15	6	11	21	CONC	MATCH EXIST	6.000	1.500	6.000	11.620	3.880	B
106	ANGELINA ANIMAL HOSPITAL	72	25	24	25	20	CONC	N/A	N/A	1.500	4.000	8.000	15.407	B
107		72	27	23	22	20	CONC	N/A	N/A	1.500	6.000	8.000	11.786	G

** SEE MISCELLANEOUS CURB AND SIDEWALK DETAILS SHEET 2 OF 2

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

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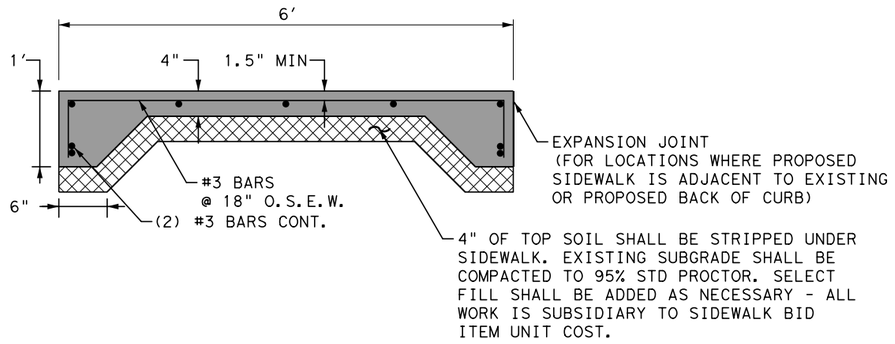
TEL: 214.583.3400
TBPELS F-02263

DRIVEWAY TABLE

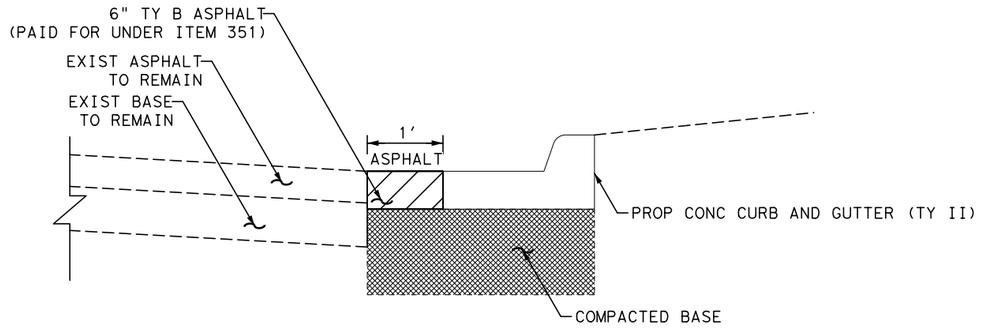
SHEET 2 OF 2

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	56



SIDEWALK REINFORCEMENT DETAIL

N.T.S.



PROPOSED CONC CURB AND GUTTER (TY II) DETAIL

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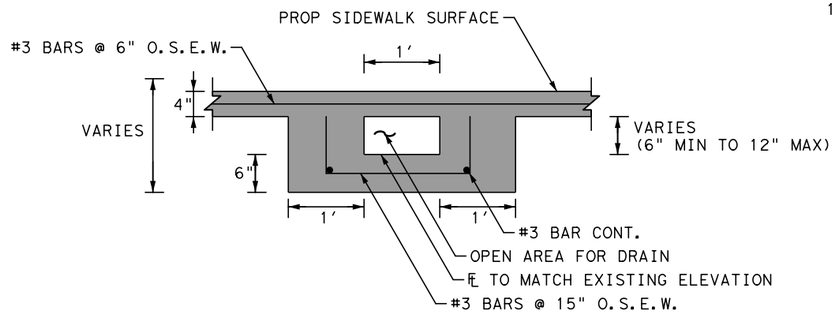
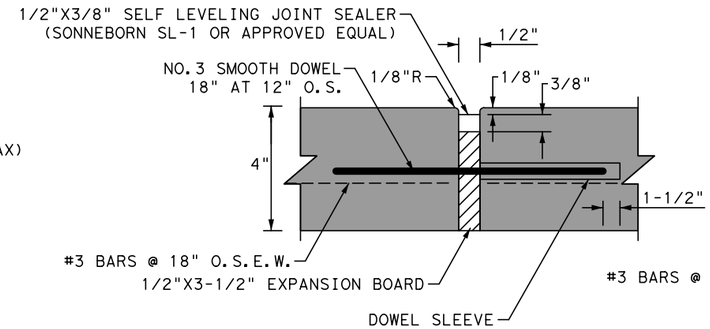


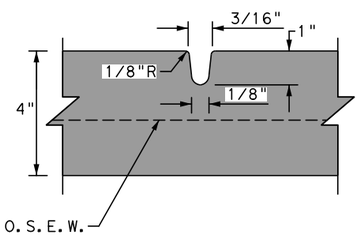
SIDEWALK TRENCH DRAIN

N.T.S.
SEE SHEET 1 OF 14 PLAN LAYOUT
(PAID FOR UNDER ITEM 465)



EXPANSION JOINT

N.T.S.



TOOLED JOINT

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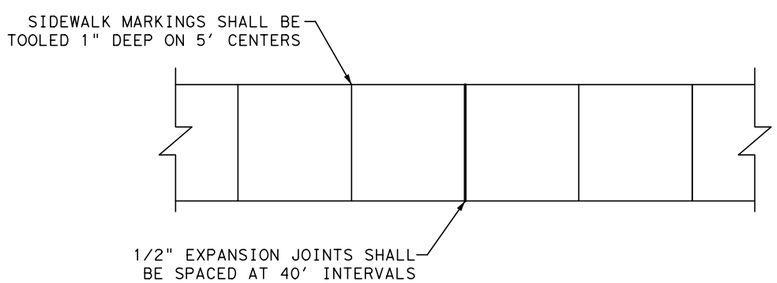

SIDEWALK PLAN

N.T.S.

NOTES:

1. 1/2"X3-1/2" EXPANSION BOARD WILL BE REQ'D BETWEEN BACK OF CURB AND SIDEWALK W/ 1/2"X3/8" SELF LEVELING JOINT SEALER (SONNEBORN SL-1 OR APPROVED EQUIVALENT).
2. SEE PED-18 SHEETS (1, 2, 3, AND 4) FOR RAMP REQUIREMENTS, DRIVEWAY OPTIONS, AND ADDITIONAL SIDEWALK REQUIREMENTS.

REV	DESCRIPTION	DATE	INIT

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MISCELLANEOUS CURB AND SIDEWALK DETAILS

N.T.S. SHEET 1 OF 2

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	57

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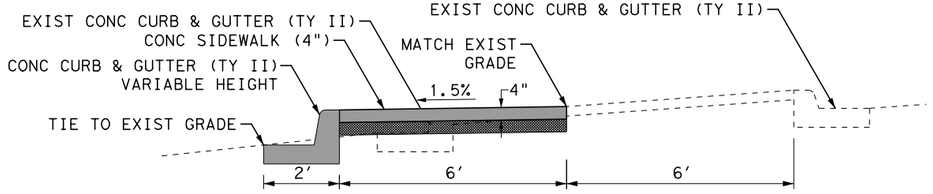
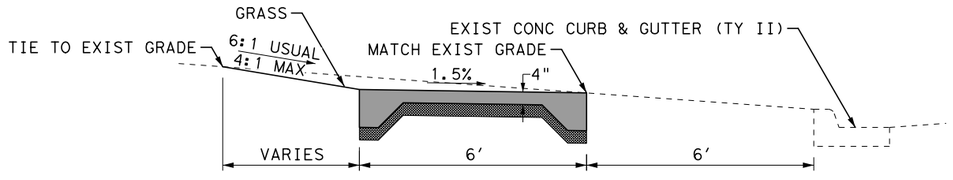


SIDEWALK SECTION DETAIL (A)

N.T.S.



SIDEWALK SECTION DETAIL (B)

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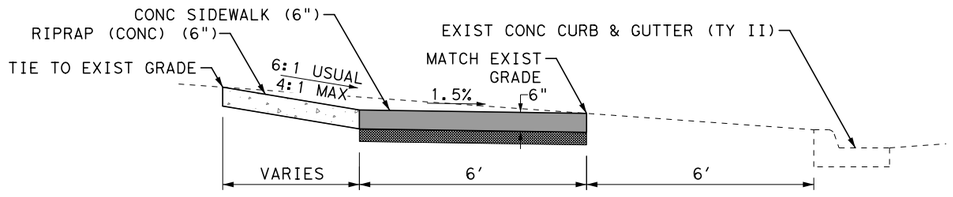
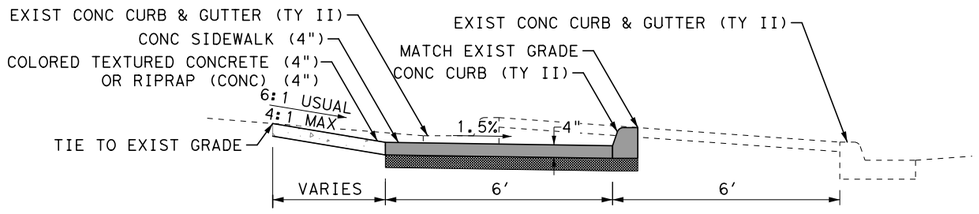


SIDEWALK SECTION DETAIL (C)

N.T.S.



SIDEWALK SECTION DETAIL (D)

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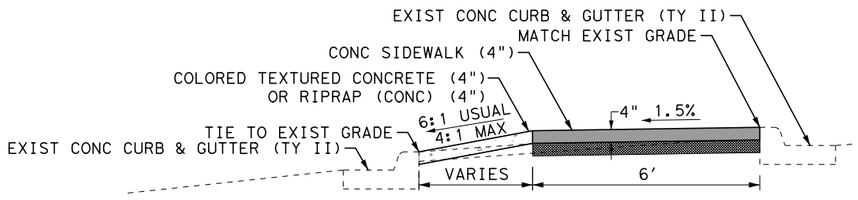

SIDEWALK SECTION DETAIL (E)

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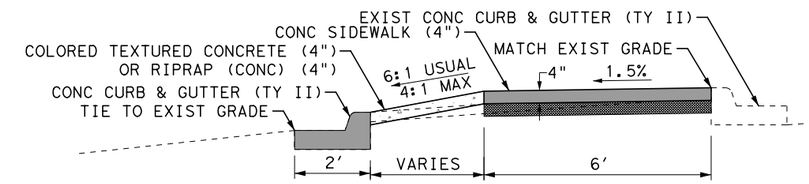
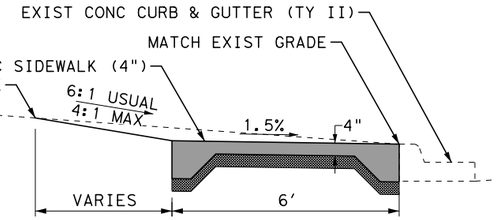


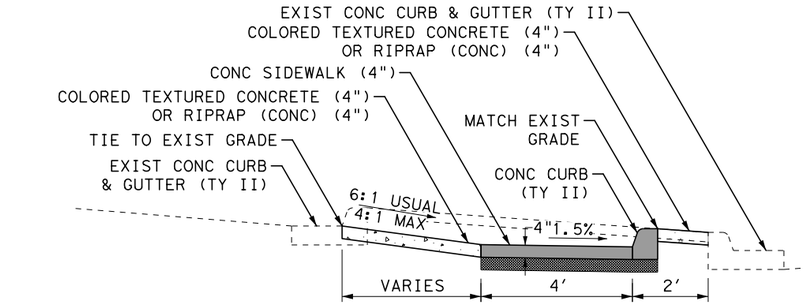
SIDEWALK SECTION DETAIL (F)

N.T.S.



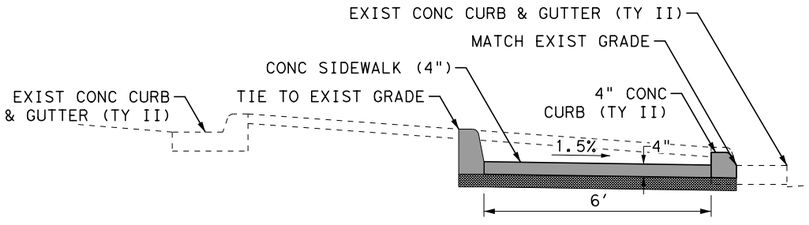
SIDEWALK SECTION DETAIL (G)

N.T.S.



SIDEWALK SECTION DETAIL (H)

N.T.S.



SIDEWALK SECTION DETAIL (I)

N.T.S.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
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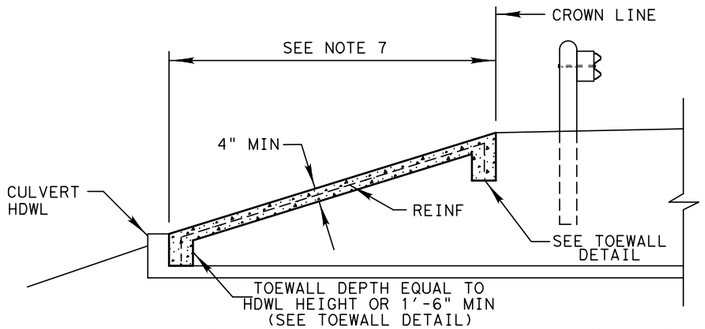
TBPELS F-02263

MISCELLANEOUS CURB AND SIDEWALK DETAILS

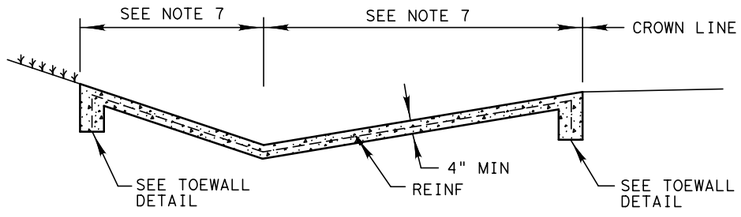
N.T.S. SHEET 2 OF 2

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	58



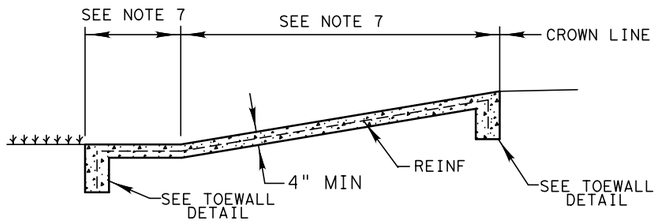
CONCRETE RIPRAP AT CULVERT SECTION

QUANTITY FOR 4" CONC RIPRAP INCLUDES THE QUANTITY FOR THE 6" WIDE TOEWALL AND WILL BE PAID FOR UNDER ITEM 432, RIPRAP (CONC)(4 IN).



CONCRETE RIPRAP AT TYPICAL V-BOTTOM DITCH

QUANTITY FOR 4" CONC RIPRAP INCLUDES THE QUANTITY FOR THE 6" WIDE TOEWALL AND WILL BE PAID FOR UNDER ITEM 432, RIPRAP (CONC)(4 IN).



CONCRETE RIPRAP AT TYPICAL FILL SECTION

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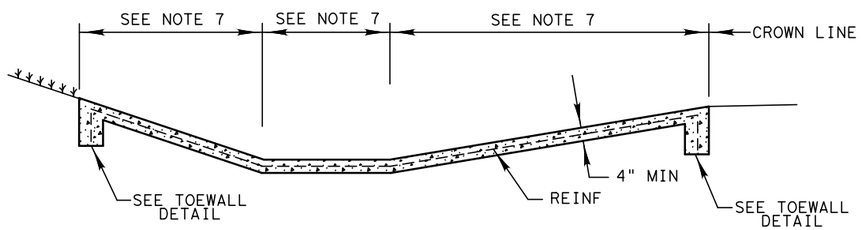

CONCRETE RIPRAP AT TYPICAL FLAT BOTTOM DITCH

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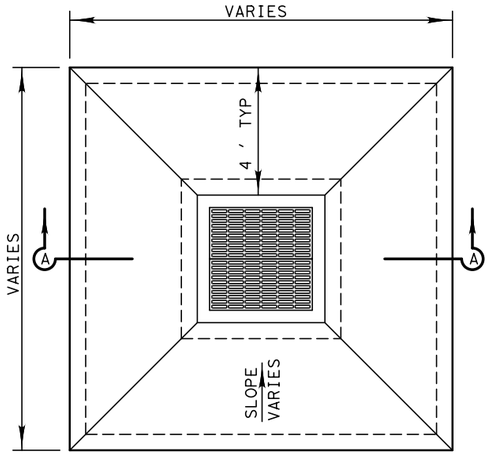
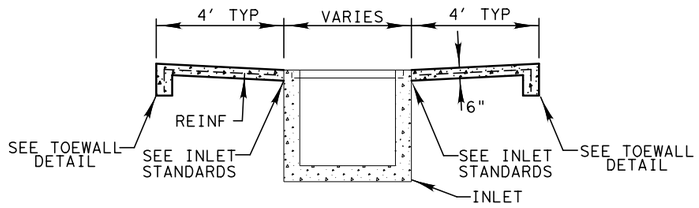
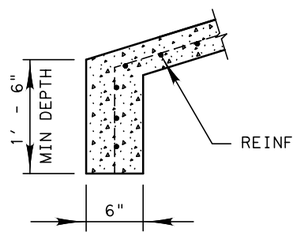


CONCRETE RIPRAP AT INLET



CONCRETE RIPRAP AT INLET RIPRAP APRON DETAILS

SECTION A-A



TOEWALL DETAIL

GENERAL NOTES:

1. USE CL B CONCRETE UNLESS OTHERWISE NOTED IN PLANS. USE CL A CONCRETE FOR RIPRAP APRON AROUND INLETS.
2. PROVIDE CONSTRUCTION JOINTS OR GROOVED JOINTS EXTENDING THE FULL SLANT SLOPE HEIGHT AT INTERVALS OF APPROXIMATELY 20 FEET UNLESS OTHERWISE DIRECTED.
3. PLACE PREMOLDED OR BOARD EXPANSION JOINTS VERTICALLY AND AT RIGHT ANGLES TO THE LONGITUDINAL AXIS OF THE RIPRAP IN SECTIONS NO LESS THAN 8 FEET IN WIDTH OR MORE THAN 40 FEET IN LENGTH.
4. RIPRAP MAY EXTEND BEYOND CROWN LINE, UP TO EDGE OF PAVEMENT.
5. USE NO.3 OR NO.4 BARS @ 12" O.C. IN BOTH DIRECTIONS SUPPORTED ON REINFORCING CHAIRS.
6. SEE QUANTITY SUMMARIES FOR RIPRAP LOCATIONS.
7. CONSTRUCT SLOPES TO THAT OF THE APPROPRIATE TYPICAL SECTION OR CROSS SECTION UNLESS OTHERWISE DIRECTED.

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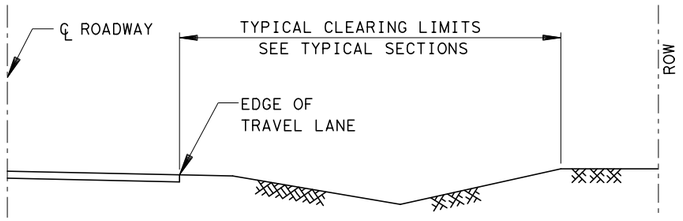
NOT TO SCALE

LUFKIN DISTRICT STANDARD

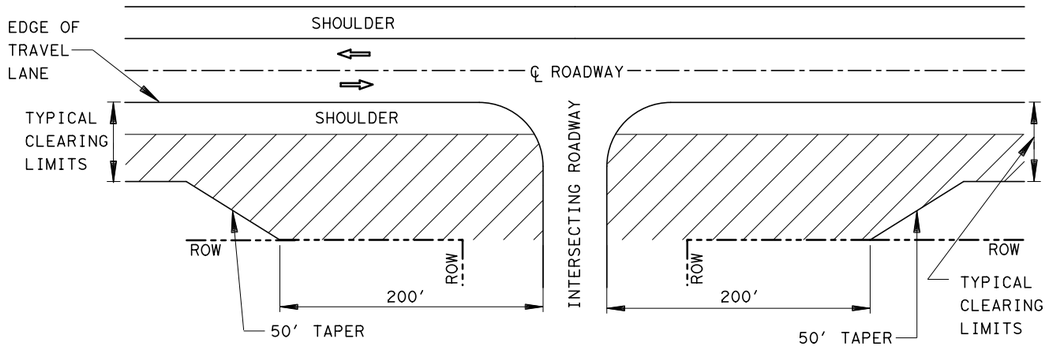
CONCRETE RIPRAP DETAILS

CONT	SECT	JOB	HIGHWAY
0176	02	124	BU 59-G
DIST	COUNTY		SHEET NO.
LFK	ANGELINA		59

ISSUED 01-09
REVISED 03-14
REVISED 10/20/2016: MODIFIED TITLE BLOCK
REVISED 04/03/2017: MODIFIED NOTES FOR PAYMENT



TYPICAL CLEARING SECTION



INTERSECTING ROADWAY CLEARING

NOTES:

1) REMOVE ALL TREE LIMBS EXTENDING INTO THE CLEARING LIMITS TO A MINIMUM HEIGHT OF 60′ ABOVE THE PAVEMENT SURFACE.

2) PERFORM CLEARING OPERATIONS IN ACCORDANCE WITH ITEM 100, "PREPARING RIGHT OF WAY", UNLESS OTHERWISE SHOWN ON THESE DETAILS.

3) REMOVE ALL STUMPS WITHIN THE CLEARING LIMITS BY GRUBBING, EXCEPT AS MODIFIED BY NOTES 4 & 5.

4) WHERE CLEARING IS REQUIRED NEAR EXISTING UNDERGROUND UTILITIES, DO NOT GRUB TREES AND STUMPS. FOR THOSE CONDITIONS, PREPARE RIGHT OF WAY BY CUTTING AND GRINDING STUMPS AND ROOTS AS DIRECTED.

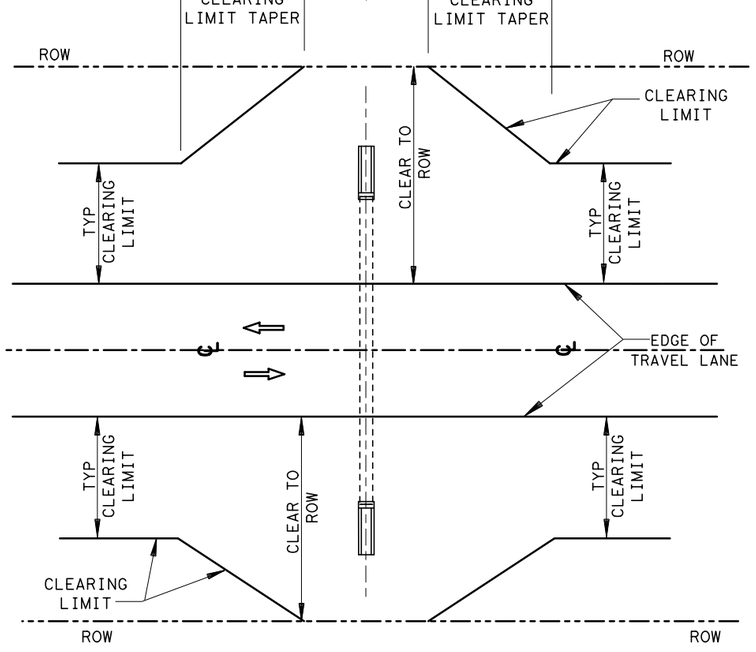
5) ON AREAS TO BE COVERED BY AT LEAST THREE (3) FEET OF EMBANKMENT, EXCEPT UNDER THE ROADWAY, CUT OFF TREES AND STUMPS AS CLOSE TO NATURAL GROUND AS PRACTICABLE.

6) WHERE STEEP SLOPES MAKE GRINDING OPERATIONS INFEASIBLE, AND THE ENGINEER APPROVES, CUT STUMPS OFF EVEN WITH THE GROUND.

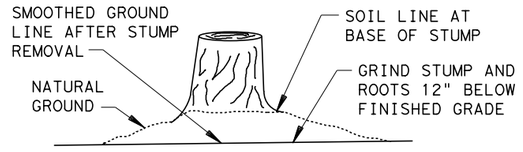
7) AT ALL INTERSECTING ROADWAYS, EXTEND CLEARING TO THE RIGHT OF WAY FOR 200′ EACH DIRECTION, AS SHOWN IN THESE DETAILS.

8) IF DIRECTED EXTEND CLEARING LIMITS 10′ BEYOND TOE OF SLOPE TO PROVIDE A SAFETY RECOVERY ZONE AT FRONT SLOPES STEEPER THAN 4:1.

9) USE "CLEARING DETAIL AT CROSS STRUCTURE" FOR THOSE CROSS STRUCTURES REQUIRING WORK ONLY.



CLEARING DETAIL AT CROSS STRUCTURE



STUMP GRINDING DETAILS

NOT TO SCALE

LUFKIN DISTRICT STANDARD

CLEARING DETAILS

TEXAS DEPARTMENT OF TRANSPORTATION

CONT	SECT	JOB	HIGHWAY
0176	02	124	BU 59-G
DIST	COUNTY		SHEET NO.
LFK	ANGELINA		60

ISSUED 01-09
REVISED 12/1/2015
REVISED 10/20/2016; MODIFIED TITLE BLOCK

07/14/2019 01:13 AM
DOCUMENT NAME

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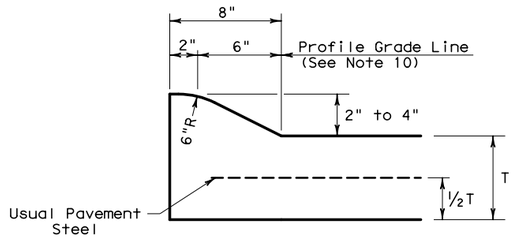
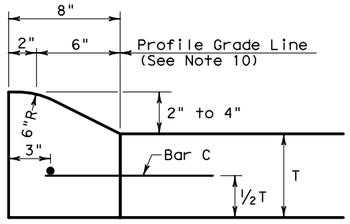
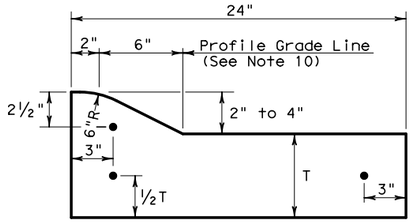


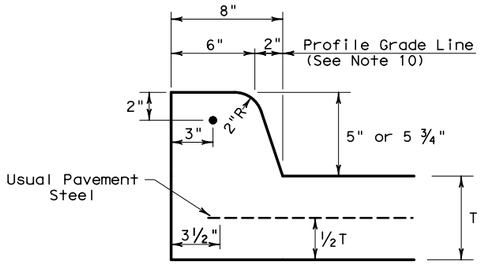
TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT



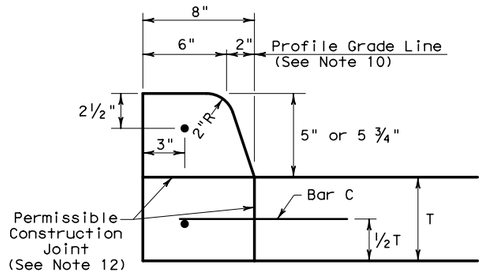
TYPE I CURB
2" - 4" HEIGHT



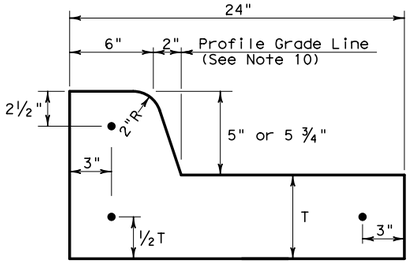
TYPE I CURB AND GUTTER
2" - 4" HEIGHT



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



TYPE II CURB
5" - 5 ¾" HEIGHT



TYPE II CURB AND GUTTER
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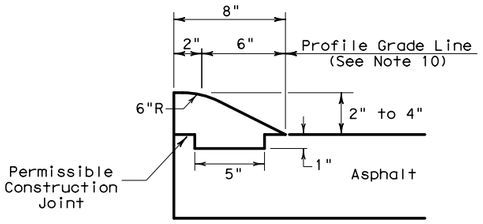
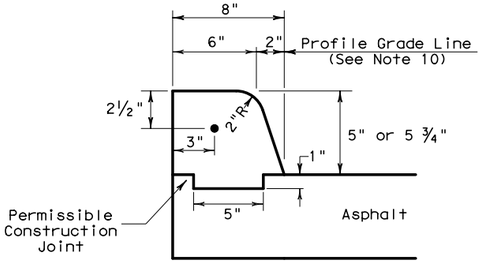
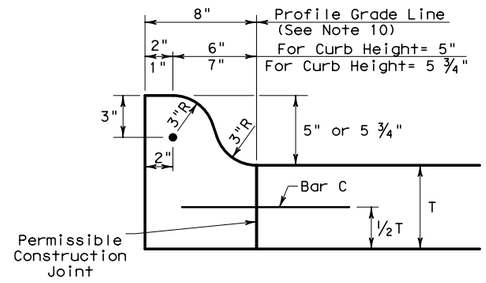


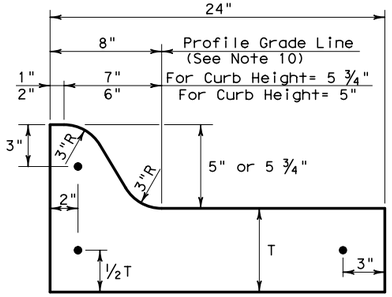
TYPE III CURB (KEYED)
2" - 4" HEIGHT



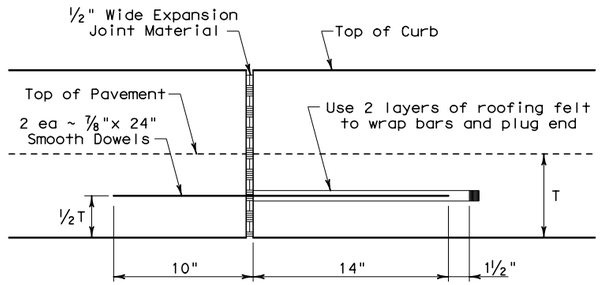
TYPE IV CURB (KEYED)
5" - 5 ¾" HEIGHT



TYPE IIa CURB
5" - 5 ¾" HEIGHT

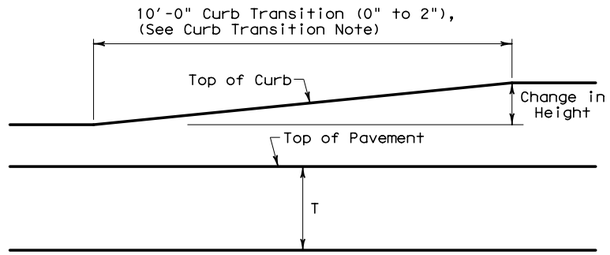


TYPE IIa CURB AND GUTTER
5" - 5 ¾" HEIGHT



EXPANSION JOINT DETAIL

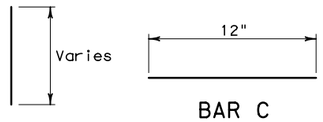
CURB TRANSITION NOTE:
Field conditions may require a longer or shorter transition, and shall be shown elsewhere in the plans, or as directed by the Engineer.



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 the grouted in place, or may be inserted into fresh concrete.
7. Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
8. Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C~C.
9. Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
10. Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
11. One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
12. When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
13. Bar B used as needed to support curb reinforcing steel during concrete placement.



BAR B

BAR C

Texas Department of Transportation

Design Division Standard

CONCRETE CURB AND CURB AND GUTTER

CCCG-21

FILE: cccg21.dgn	DN: TXDOT	CK: AN	DW: SS	CK: KM
©TxDOT: FEBRUARY 2021 REVISIONS	CONT	SECT	JOB	HIGHWAY
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	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		61

DATE: 4/14/2021
FILE: \\wsppw04ics01\ICS_pdf_work_dir\120206\312035_39\BU59G_039_109-PED18.dgn

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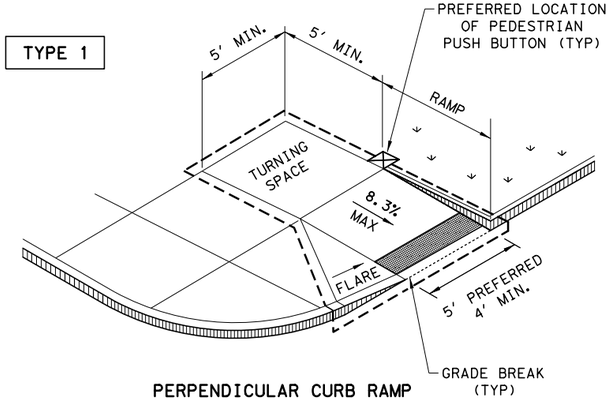
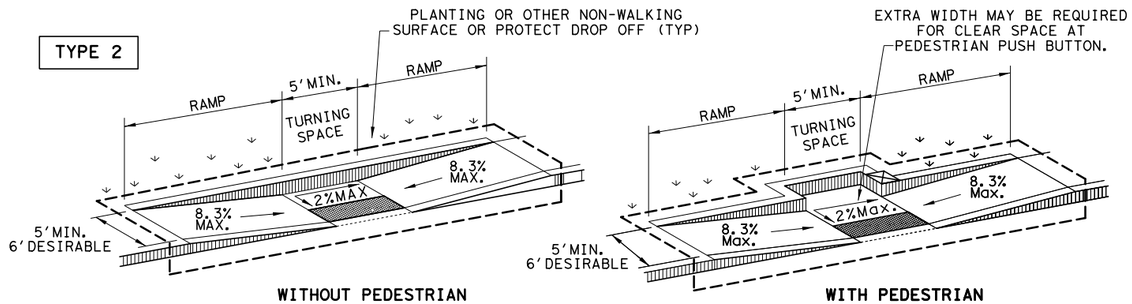


PERPENDICULAR CURB RAMP

TYPE 2

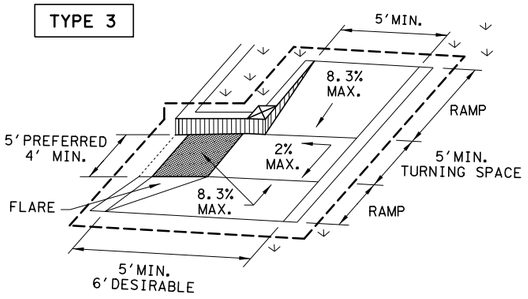


WITHOUT PEDESTRIAN PUSH BUTTON

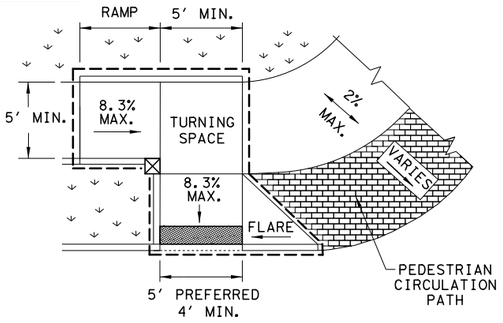
WITH PEDESTRIAN PUSH BUTTON

PARALLEL CURB RAMP

TYPE 3

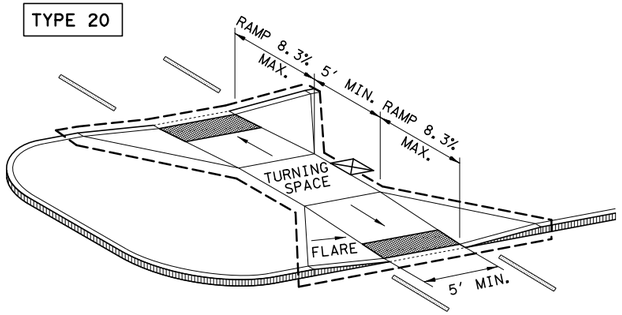


TYPE 6



COMBINATION CURB RAMPS

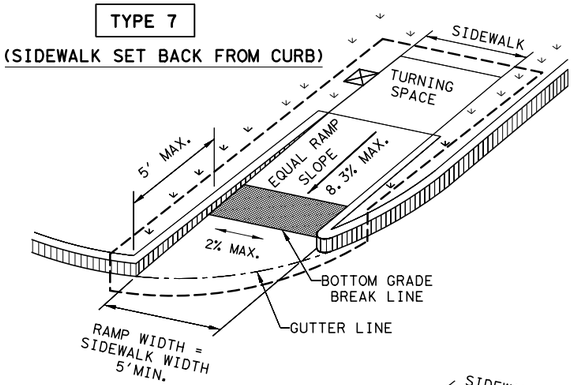
TYPE 20



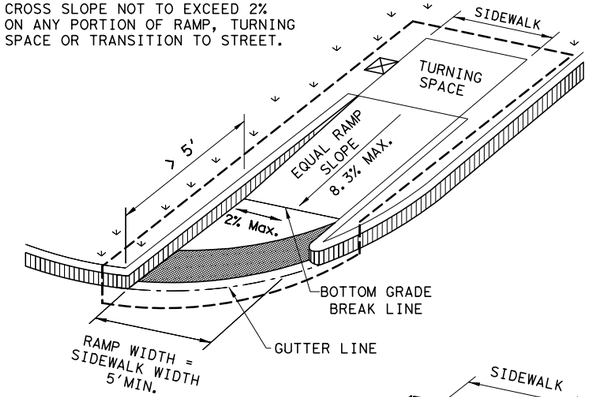
CURB RAMPS AT MEDIAN ISLANDS

TYPE 7

(SIDEWALK SET BACK FROM CURB)

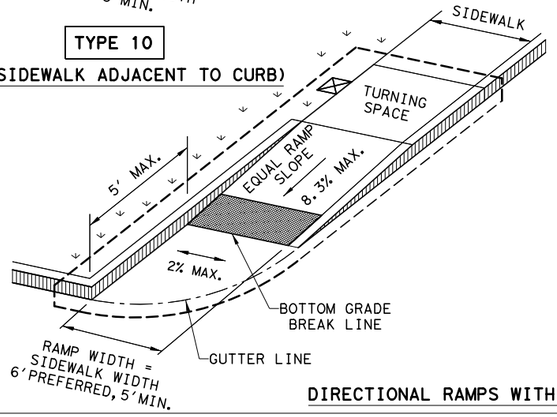


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.

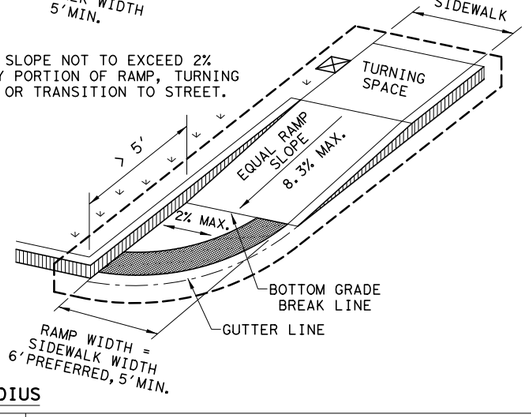


TYPE 10

(SIDEWALK ADJACENT TO CURB)

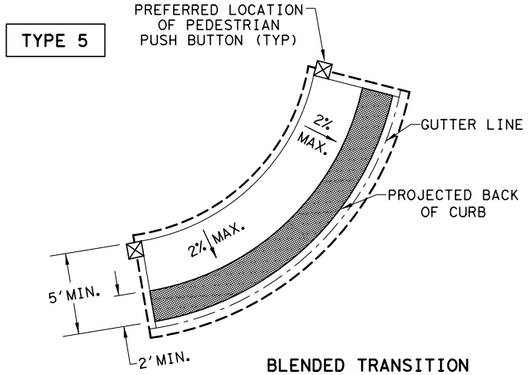


CROSS SLOPE NOT TO EXCEED 2% ON ANY PORTION OF RAMP, TURNING SPACE OR TRANSITION TO STREET.



DIRECTIONAL RAMPS WITHIN RADIUS

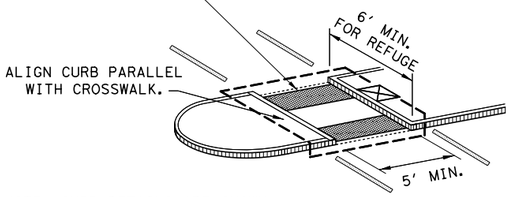
TYPE 5



BLENDED TRANSITION
(FLUSH LANDING)

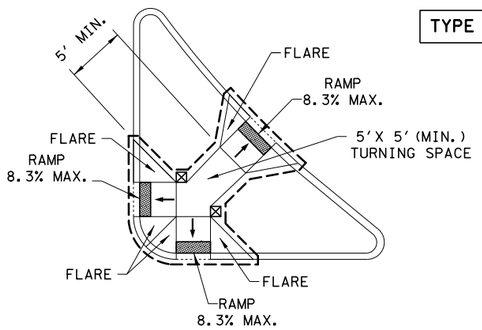
TYPE 21

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



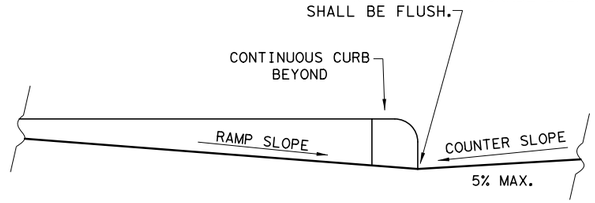
NOTE: CURB DETAILS ARE SHOWN ELSEWHERE IN THE PLANS.

TYPE 22



COMBINATION ISLAND RAMPS

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



TYPICAL SECTION OF PERPENDICULAR CURB RAMP AT CONNECTION TO ROADWAY

NOTES / LEGEND:

SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

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

DETECTABLE WARNING SURFACE

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

GUTTER LINE

GRADE BREAK

RAMP LIMITS OF PAYMENT

SHEET 1 OF 4

Texas Department of Transportation

Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS

PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		62

DATE: 4/14/2021
FILE: \\wsppw04ics01\ICS_pdf_work_dir\120206\312035_40\BU59G_039_110-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

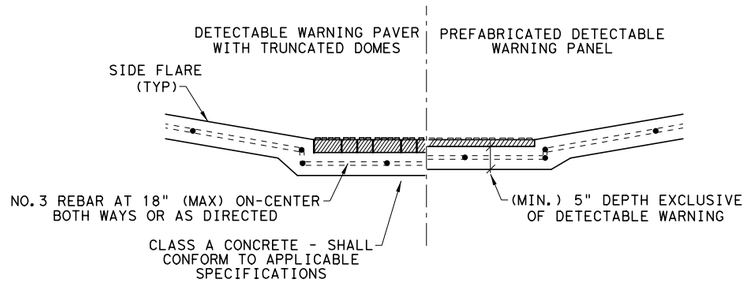
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material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

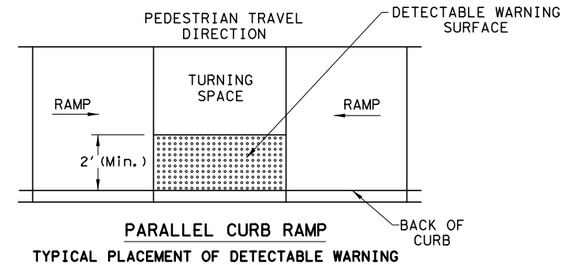
SIDEWALKS

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.

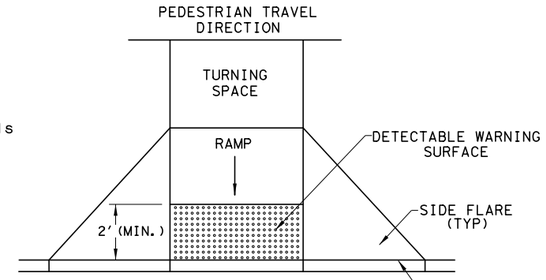


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

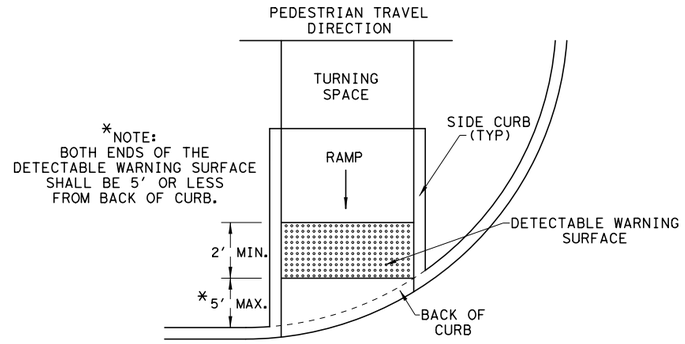
DETECTABLE WARNING SURFACE DETAILS



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

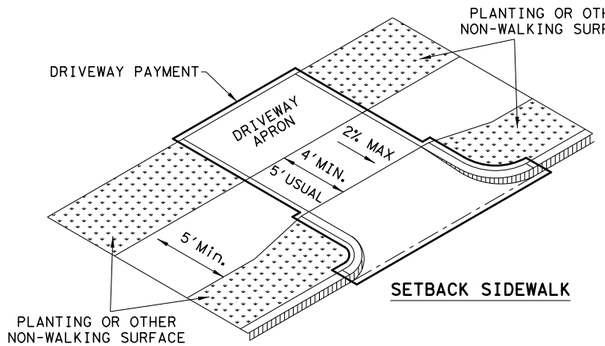
PEDESTRIAN FACILITIES CURB RAMPS

PED-18

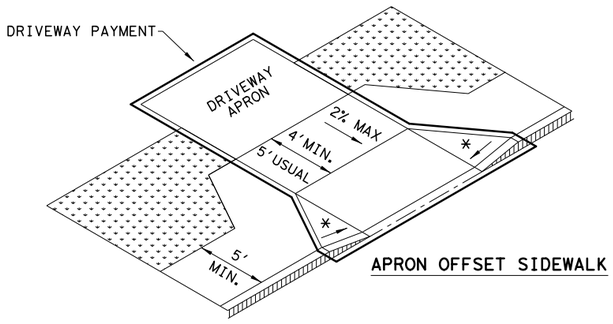
FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG	
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY	
REVISIONS	0176	02	124	BU 59-G	
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.	
	LFK	ANGELINA		63	

DATE: 4/14/2021
FILE: \\wspdw04ics01\ICS_pdf_work_dir\120206\312035_41\BU59G_039_111-PED18.dgn

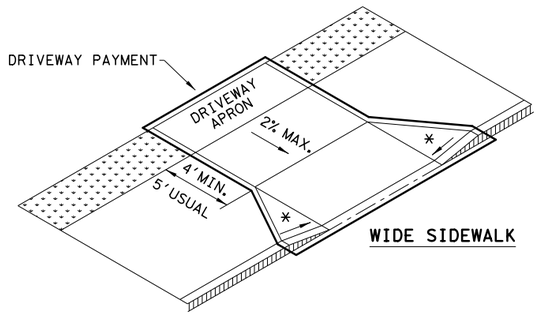
SIDEWALK TREATMENT AT DRIVEWAYS



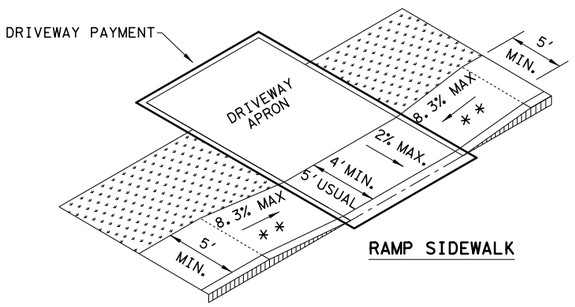
SETBACK SIDEWALK



APRON OFFSET SIDEWALK



WIDE SIDEWALK

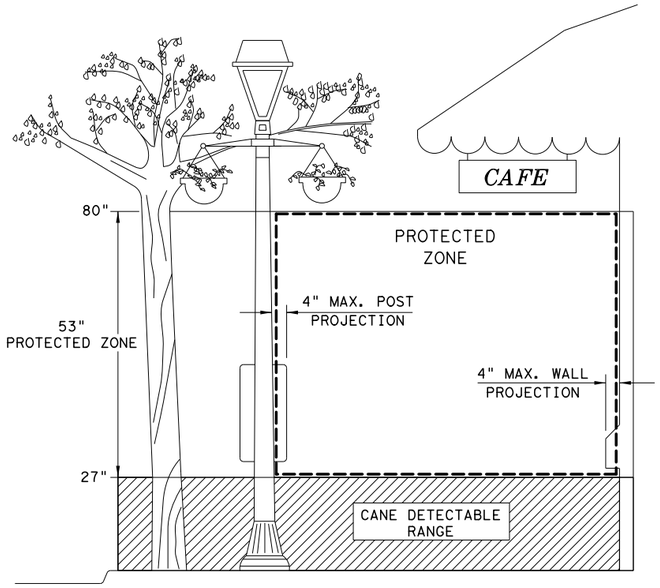


RAMP SIDEWALK

NOTES:

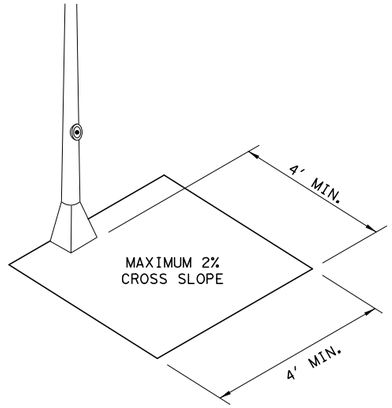
* WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.

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

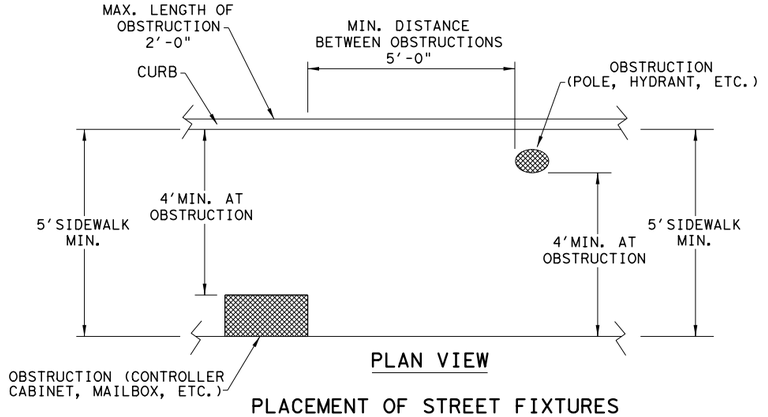


PROTECTED ZONE

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



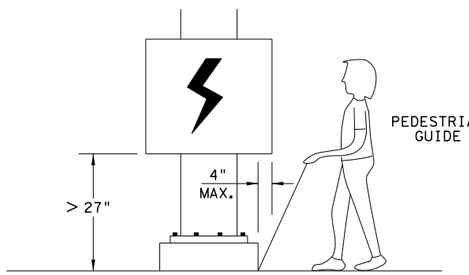
CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



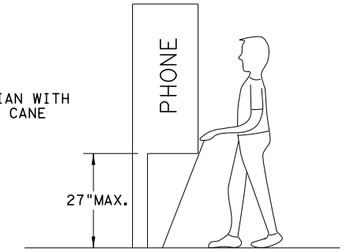
PLAN VIEW

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

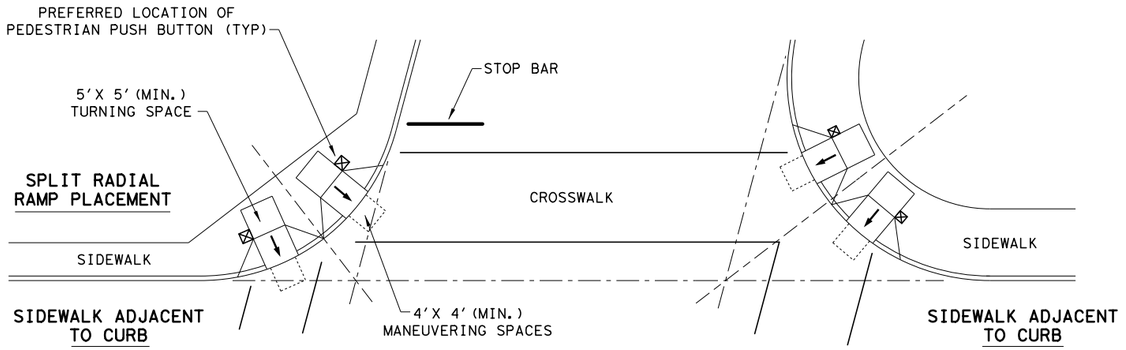
PED-18

FILE: ped18	DN: TxDOT	DW: VP	CK: KM	CK: PK & JG
© TxDOT: MARCH, 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		64

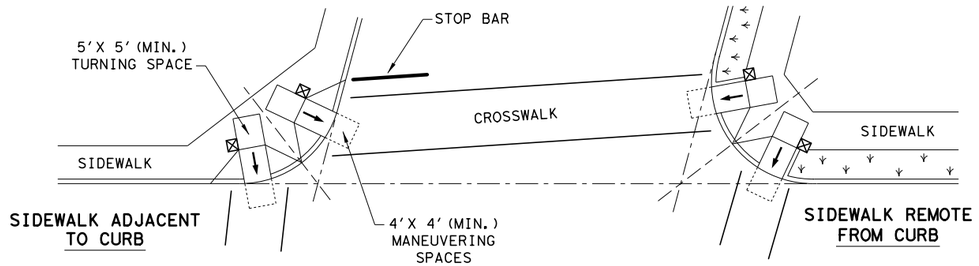
DATE: 4/14/2021
FILE: \\wspdw04\cos01\ICS_pdf_work_dir\120206\312035_42\BU59G_039_112-PED18.dgn

TYPICAL CROSSING LAYOUTS

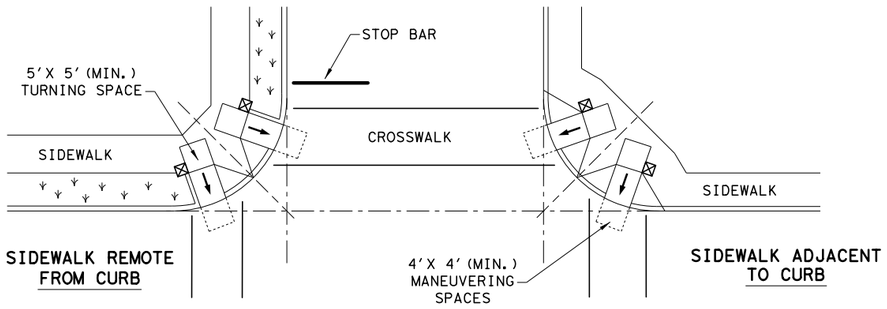
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



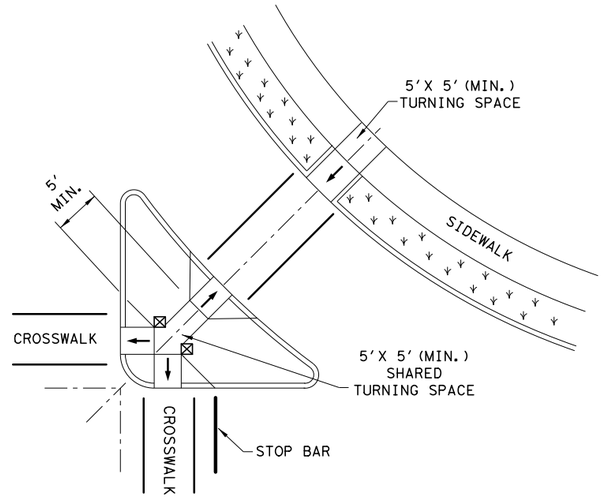
SKEWED INTERSECTION WITH "LARGE" RADIUS



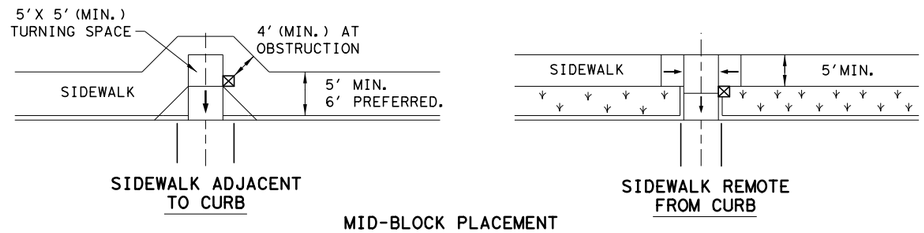
SKEWED INTERSECTION WITH "SMALL" RADIUS



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). ☒

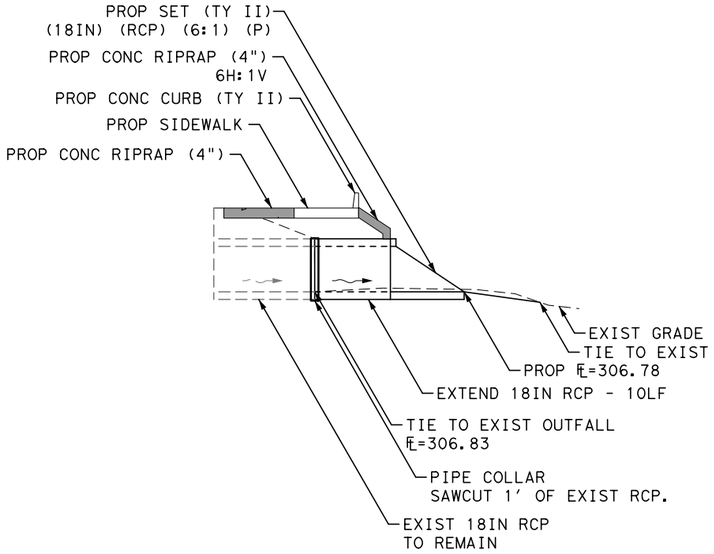
DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

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	0176	02	124	BU 59-G
REVISED 08,2005 REVISED 06,2012 REVISED 01,2018	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		65



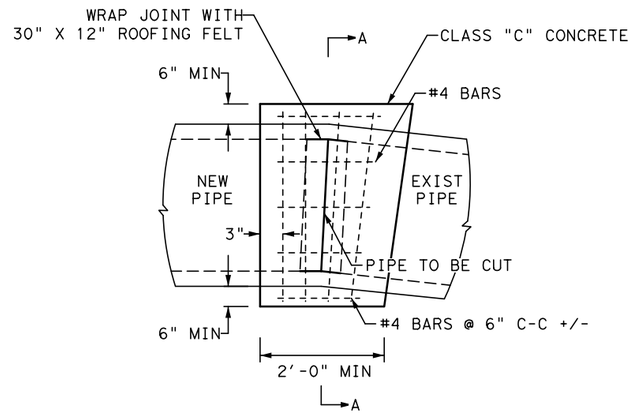
SECTION
N.T.S.

PLAN
℄ BU 59-G STA 133+00 (SHEET 13 OF 14 PLAN LAYOUT)
PROPOSED SET EXTENSION

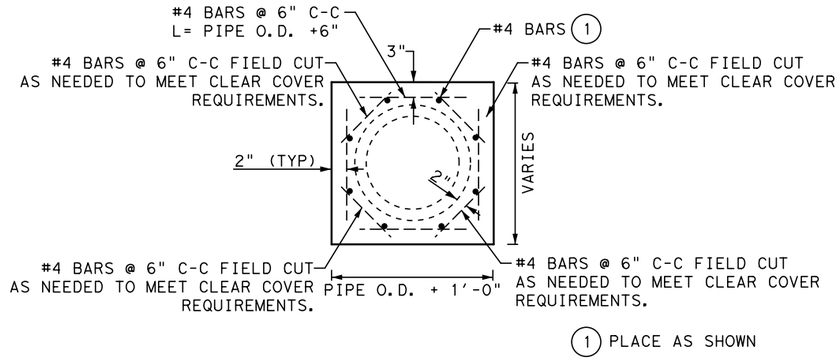
0' 10' 20'(H)

SCALE IN FEET

DRAINAGE LEGEND
FLOW DIRECTION



PLAN/ELEVATION
N.T.S.



(1) PLACE AS SHOWN

SECTION A-A
N.T.S.

PIPE COLLAR DETAIL
N.T.S.

PIPE COLLAR GENERAL NOTES:

1. THE CONTRACTOR SHALL TAKE STEPS TO ENSURE A SMOOTH JOINT ALONG THE INSIDE WALL OF PIPE.
2. ANY SPILLAGE OF CONCRETE THROUGH THE JOINT SHALL BE REMOVED AND THE INSIDE SURFACES SMOOTHED AS DIRECTED BY THE ENGINEER.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED
PROFESSIONAL ENGINEER

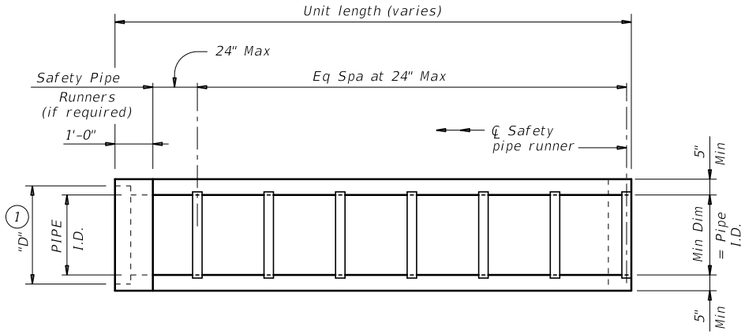
Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

MISCELLANEOUS DRAINAGE DETAILS

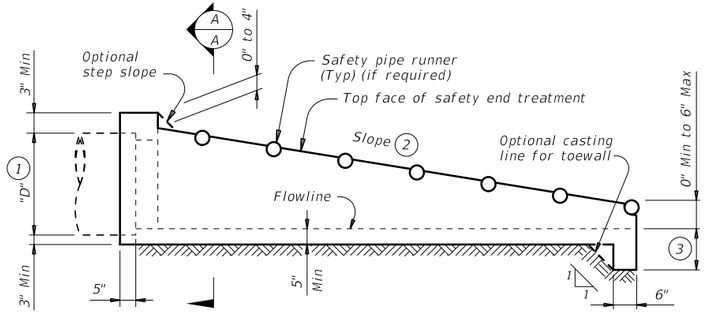
FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	66

DATE: 4/14/2021 12:01:15 AM
FILE: \\wspdw041cos01\CS_pdf_work_dir\120207\312038_2\BU59G_059_201-PSETSPSS-20.dgn



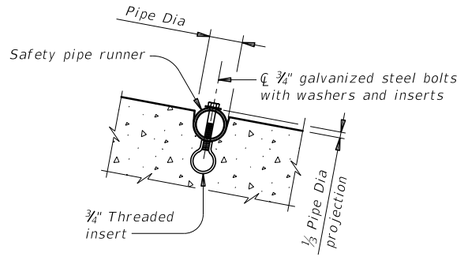
PLAN

(Showing bell end connection.)



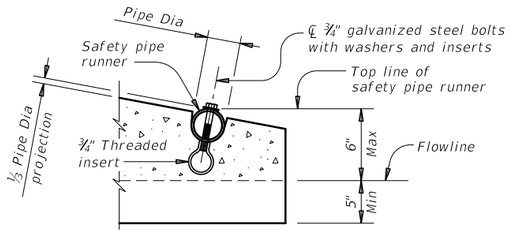
LONGITUDINAL ELEVATION

(Showing bell end connection.)

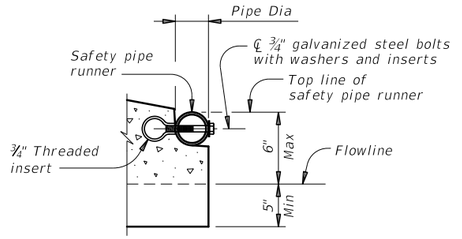


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



OPTION A



OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (7)	"D" (1)	Slope	Min Length	Pipe Runners Required		Required Pipe Runner Size		
						Single Pipe	Multiple Pipe	Nominal Dia.	O.D.	I.D.
12"	2"	1.15"	17.00"	6:1	4' – 9"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
15"	2 ¼"	1.30"	20.50"	6:1	6' – 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 ½"	1.60"	24.00"	6:1	8' – 0"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
24"	3"	1.95"	31.00"	6:1	11' – 3"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
30"	3 ½"	2.65"	38.50"	6:1	14' – 8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	2.75"	45.50"	6:1	17' – 11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 ½"	N/A	52.50"	6:1	21' – 2"	Yes	Yes	4" STD	4.500"	4.026"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment".

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures". Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(7) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

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

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).

B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

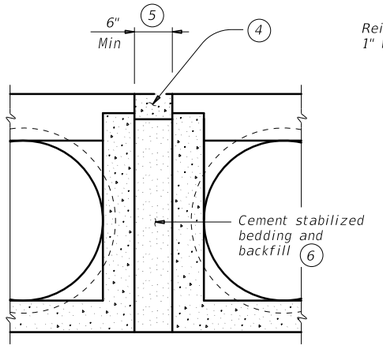
At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

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

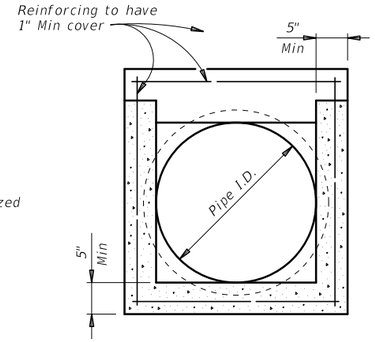
Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

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

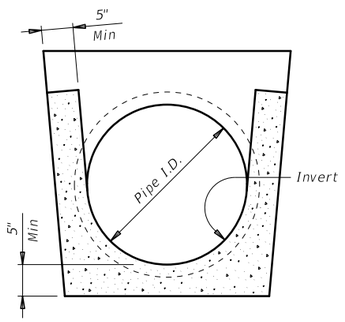
Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe". Connect TP by grouting. See PBGC standard for grouted connections with TP and precast safety end treatment.



MULTIPLE PIPE INSTALLATION

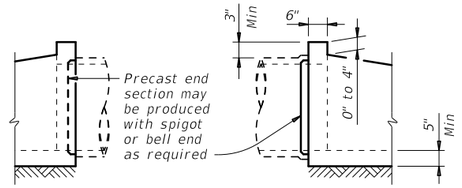


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment.)

Texas Department of Transportation

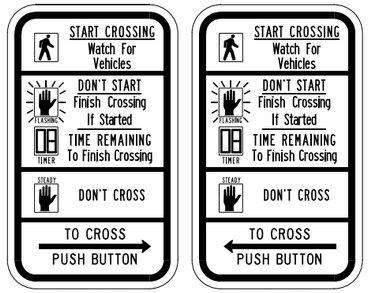
Bridge Division Standard

PRECAST SAFETY END TREATMENT

TYPE II ~ PARALLEL DRAINAGE

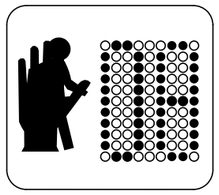
PSET-SP

FILE: psetspss-20.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		67



R10-3ER
S1

R10-3EL
S2



PEDESTRIAN HEAD
1, 2

0′ 25′ 50′(H)

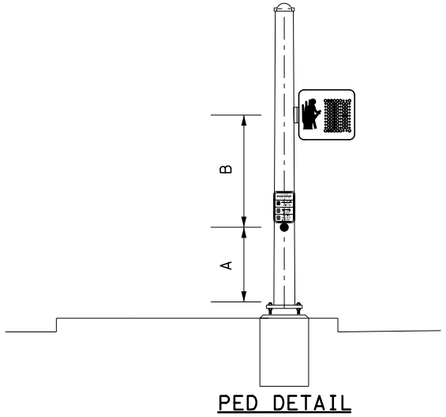
SCALE IN FEET

TRAFFIC SIGNAL LEGEND

- PROP. PED POLE AND PUSH BUTTON
- PROP. CONDUIT (TRENCH)
- PROP. SIG POLE MNT SIGN
- EXIST. SIG POLE/ MAST ARM
- EXIST. GROUND BOX
- EXIST. GROUND BOX W/ APRON
- EXIST. CONDUIT (TRENCH)
- EXIST. CONDUIT (BORED)
- EXIST. CONTROLLER CABINET
- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
1. EXISTING GROUND BOXES AND CONTROLLER CABINET ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY LOCATIONS.
2. EXISTING CONDUIT LOCATION AND LENGTH IS APPROXIMATE. CONTRACTOR TO FIELD VERIFY LENGTHS.
3. REMOVE EXISTING PED HEAD AND PUSH BUTTON. REMOVAL WILL NOT BE MEASURED OR PAID FOR DIRECTLY BUT WILL BE SUBSIDIARY TO ITEM 688.

BU 59-G @ ATKINSON DR PEDESTRIAN SIGNAL POLE CHART										
POLE NO.	FNDN TYPE	LUM-A	ISLN	NO. OF HEADS	APS UNIT	POLE HEIGHT (FT)		SIGNAL POLE/ARM CONDUCTOR QUANTITES (FT)		COMMENTS
						A	B	HEADS	PUSH BUTTON	
								4C#12	2C#12	
1	24-A			2		3	4	14	6	PED POLE W/ PUSH BUTTON PB.01, PB.02



PED DETAIL
N. T. S.

ELECTRICAL SCHEDULE				
RUN NO.	CONDUIT		LF	PED
	2"			4C#12
	E	T		AWG
E1	1		15	2
E2	1		85	2
E3	1		85	2
P1		1	15	2
TOTALS(LF)	185	15		400

NOTES:
1. 'E" = EXISTING; "T" = TRENCHED;
2. TOTALS DO NOT INCLUDE QUANTITIES INSIDE THE SIGNAL POLE.
3. FOR QUANTITIES INSIDE SIGNAL POLE, SEE SIGNAL POLE/ARM CONDUCTOR QUANTITES TABLE.

POLE NO.	BL BU 59-G	
	STA.	OFFSET
1	71+79.5	13.7′ LT

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
DOUGLAS BURNETT JR.
140757
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

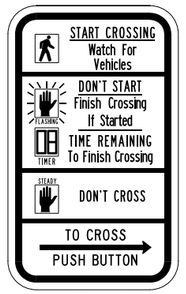
WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

PEDESTRIAN SIGNAL LAYOUT

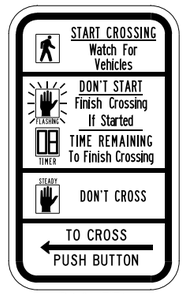
(BU 59-G AT ATKINSON DR)

SHEET 1 OF 2

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	68

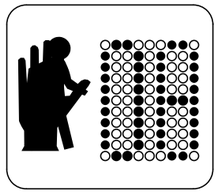


R10-3ER
S1

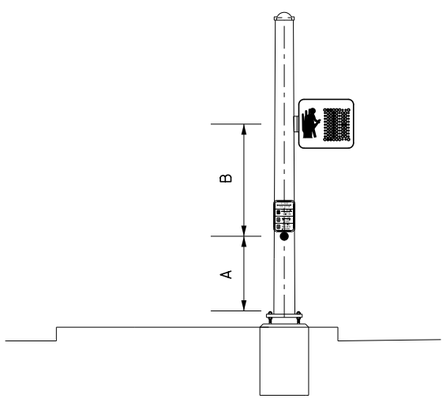


R10-3EL
S2

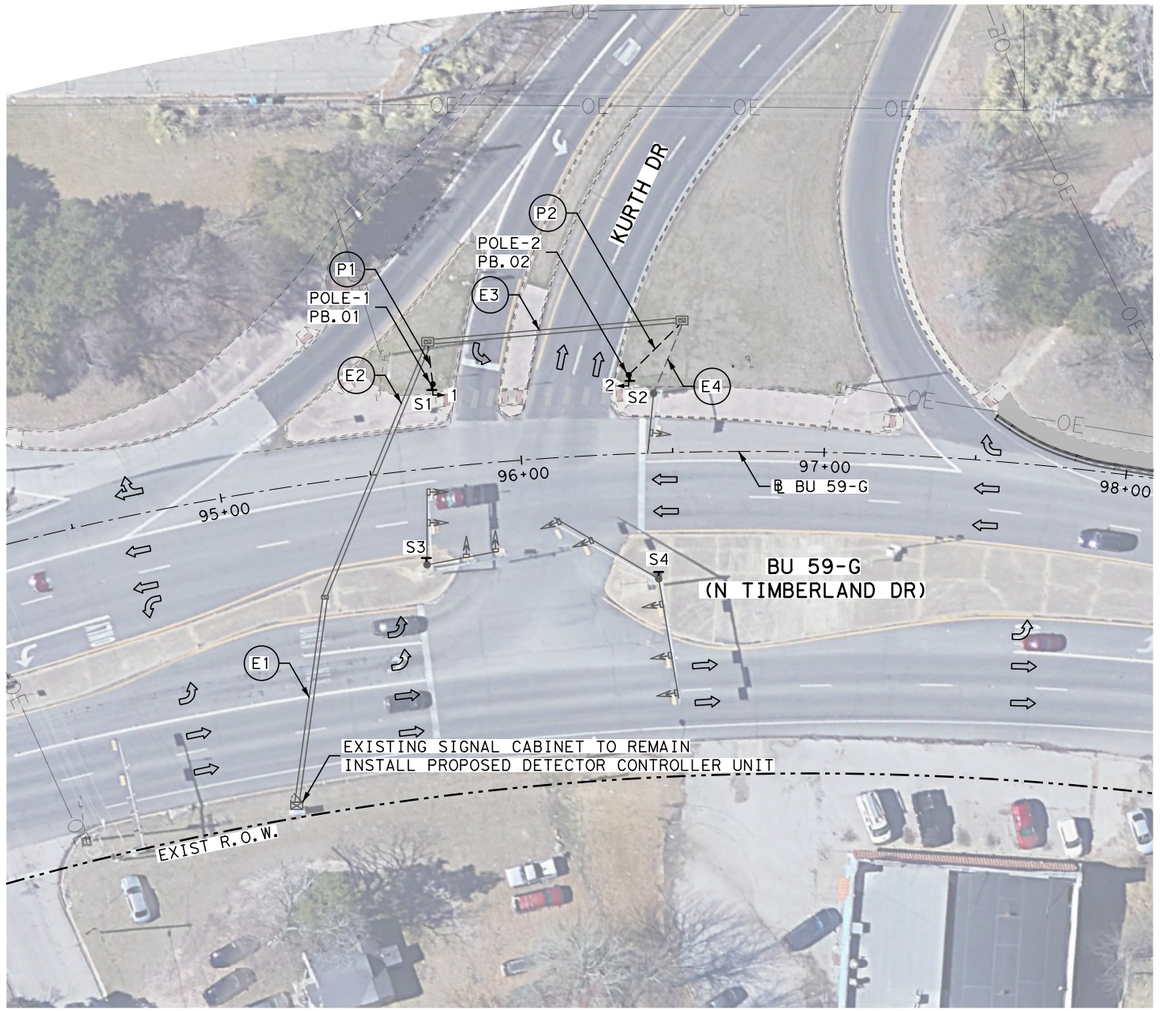
R9-3
24 X 24
S3, S4



PEDESTRIAN HEAD
1, 2



PED DETAIL
N. T. S.



BU 59-G @ KURTH DR PEDESTRIAN SIGNAL POLE CHART										
POLE NO.	FNDN TYPE	LUM-A	ISLN	NO. OF HEADS	APS UNIT	POLE HEIGHT (FT)		SIGNAL POLE/ARM CONDUCTOR QUANTITES (FT)		COMMENTS
						A	B	HEADS 4C#12	PUSH BUTTON 2C#12	
1	24-A			1	1	3	4	7	3	PED POLE W/ PUSH BUTTON PB.01
2	24-A			1	1	3	4	7	3	PED POLE W/ PUSH BUTTON PB.02

ELECTRICAL SCHEDULE					
RUN NO.	CONDUIT 2" E	CONDUIT 2" T	LF	PED 4C#12 AWG	APS 2C#12 AWG
E1	1		70	2	2
E2	1		90	2	2
P1		1	20	1	1
E3	1		90	1	1
P2		1	30	1	1
TOTALS(LF)	250	50		460	460

NOTES:
1. 'E" = EXISTING; "T" = TRENCHED;
2. TOTALS DO NOT INCLUDE QUANTITIES INSIDE THE SIGNAL POLE.
3. FOR QUANTITIES INSIDE SIGNAL POLE, SEE SIGNAL POLE/ARM CONDUCTOR QUANTITIES TABLE.

POLE NO.	BL BU 59-G	
	STA.	OFFSET
1	95+65	47' LT
2	96+27	44' LT

0' 25' 50'(H)

SCALE IN FEET

TRAFFIC SIGNAL LEGEND

- PROP. PED POLE AND PUSH BUTTON
- PROP. CONDUIT (TRENCH)
- PROP. SIG POLE MNT SIGN
- EXIST. SIG POLE/ MAST ARM
- EXIST. GROUND BOX
- EXIST. GROUND BOX W/ APRON
- EXIST. CONDUIT (TRENCH)
- EXIST. CONDUIT (BORED)
- EXIST. CONTROLLER CABINET
- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
1. EXISTING GROUND BOXES AND CONTROLLER CABINET ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY LOCATIONS.
2. EXISTING CONDUIT LOCATION AND LENGTH IS APPROXIMATE. CONTRACTOR TO FIELD VERIFY LENGTHS.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
DOUGLAS BURNETT JR.
140757
LICENSED
PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

PEDESTRIAN SIGNAL LAYOUT

(BU 59-G AT KURTH DR)

SHEET 2 OF 2

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	69

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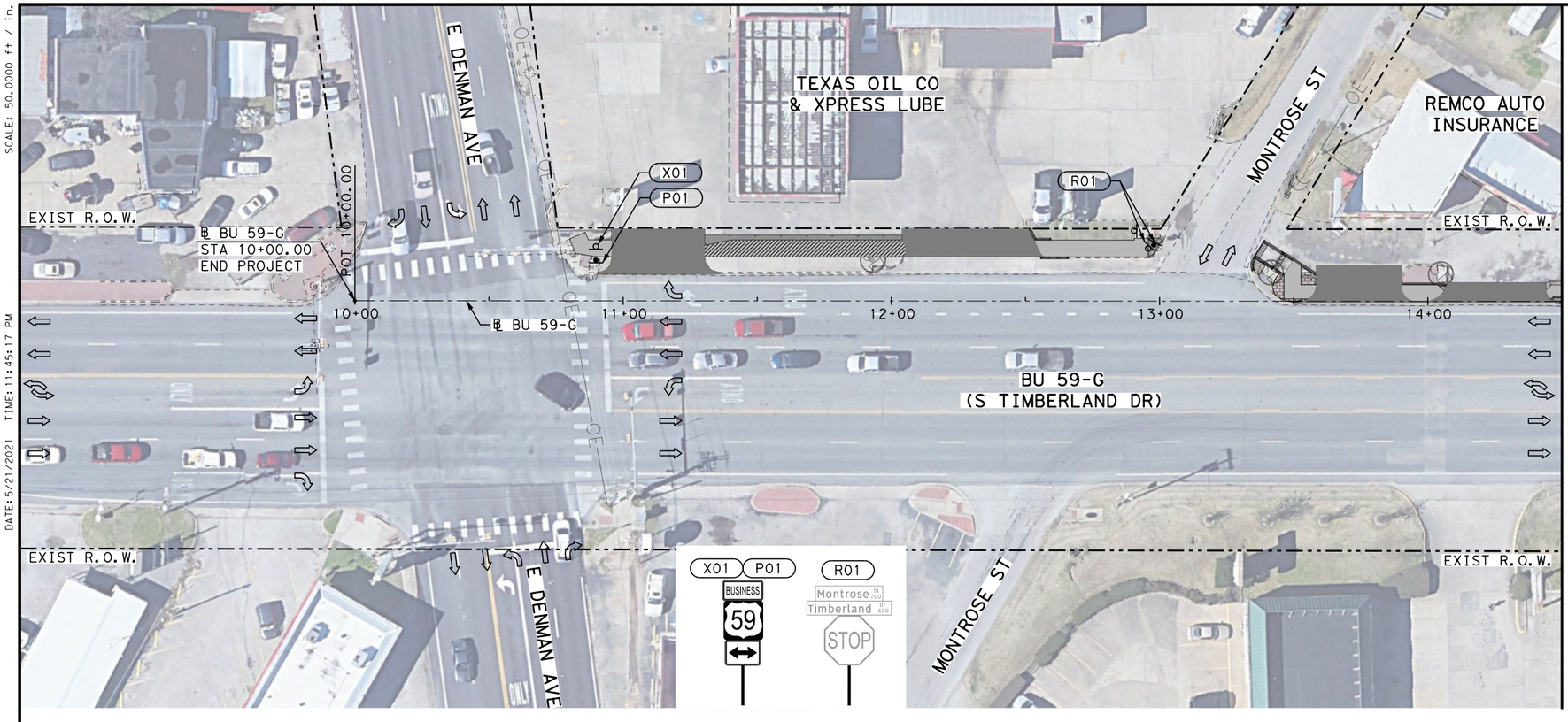
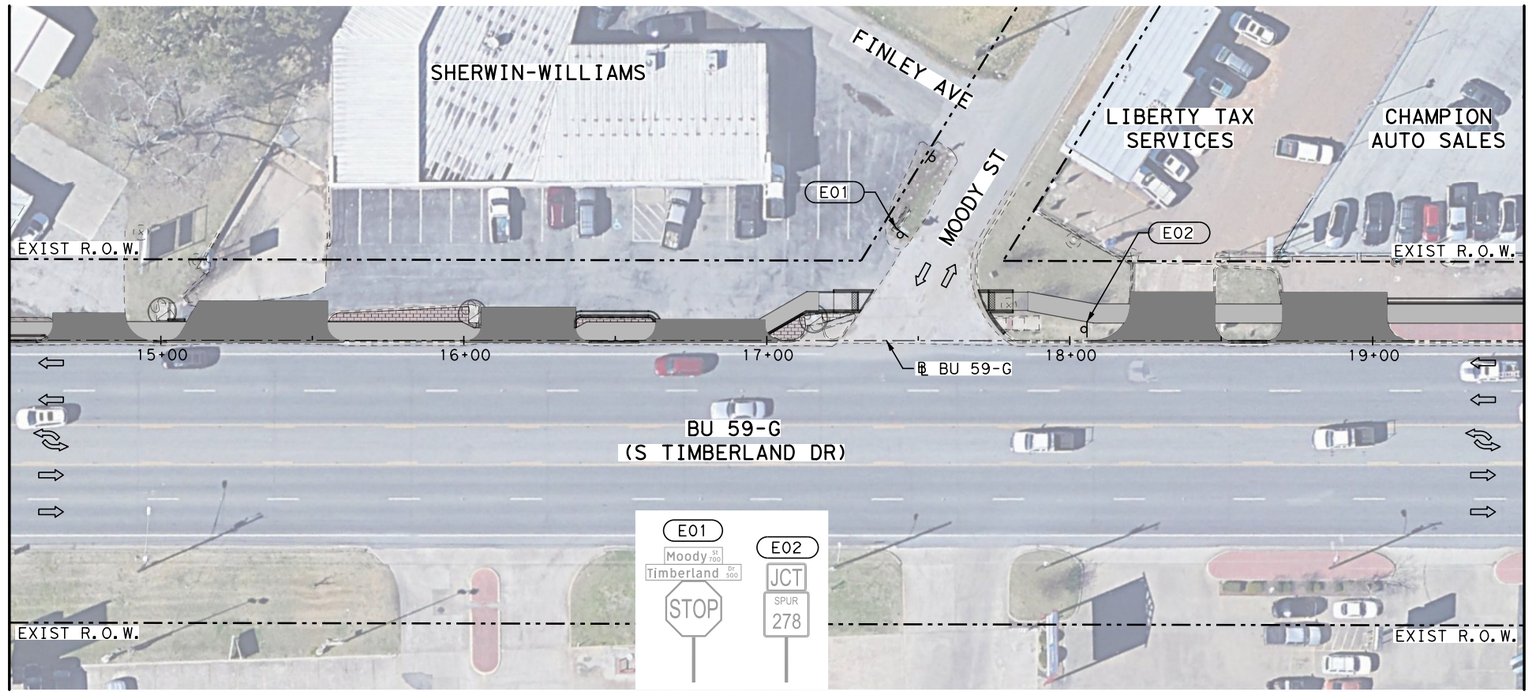


MATCH LINE STA 14+50



MATCH LINE STA 19+50

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
- E## — EXIST. SIGN TO REMAIN ID #
- X## — EXIST. SIGN TO BE REMOVED ID #
- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
1. ALL PAVEMENT MARKINGS ON THIS SHEET TO REMAIN UNLESS STATED OTHERWISE.
2. ADD REFLECTIVE TAPE TO POST FOR R1-1 (STOP) AND R5-1 (DO NOT ENTER) SIGNS. SEE GENERAL NOTES FOR DETAILS.

REV	DESCRIPTION	DATE	INIT

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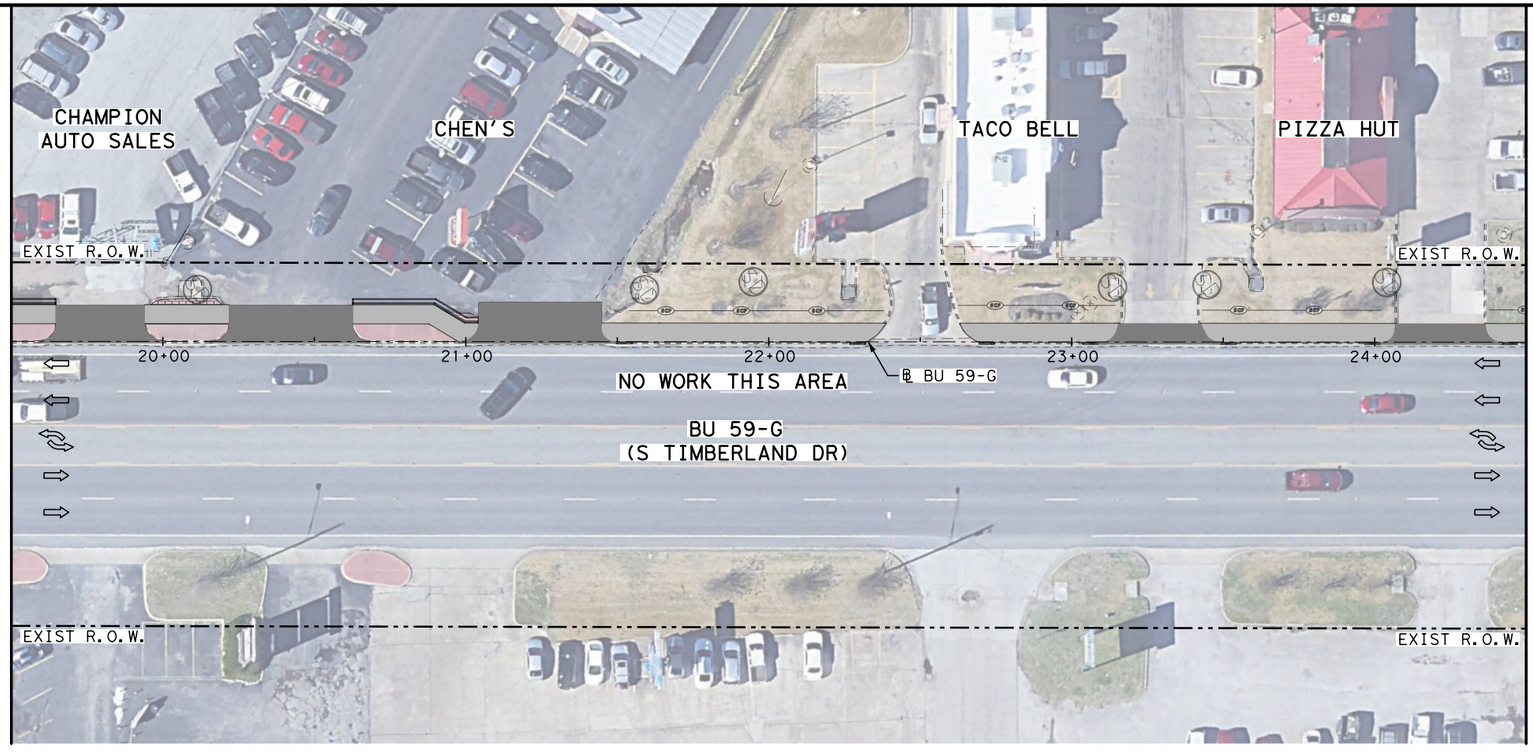
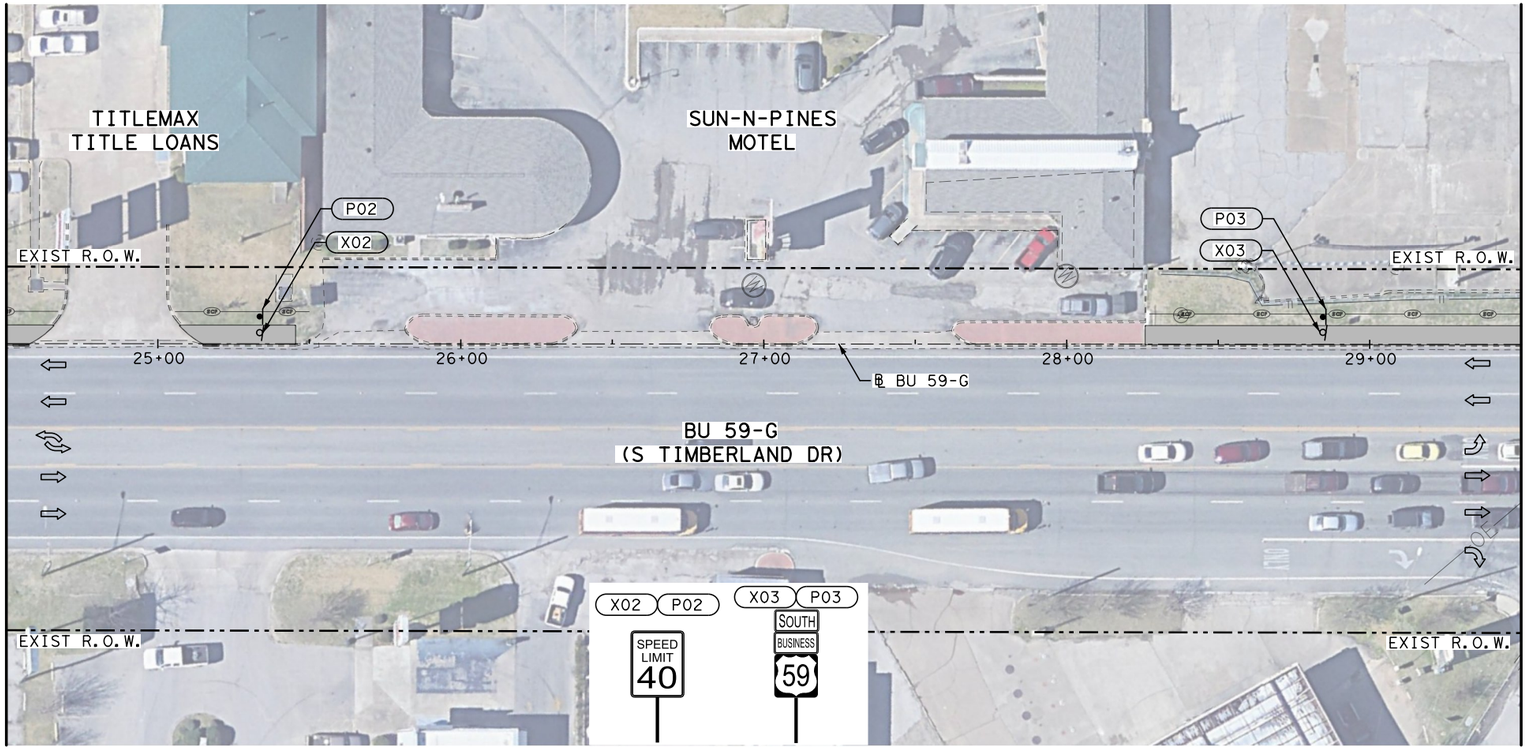
SMALL SIGN AND PAVEMENT MARKING PLAN

(END PROJECT TO STA 19+50)

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	70





0' 25' 50'(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
- E## — EXIST. SIGN TO REMAIN ID #
- X## — EXIST. SIGN TO BE REMOVED ID #
- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
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SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 19+50 TO STA 29+50)

SHEET 2 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	71

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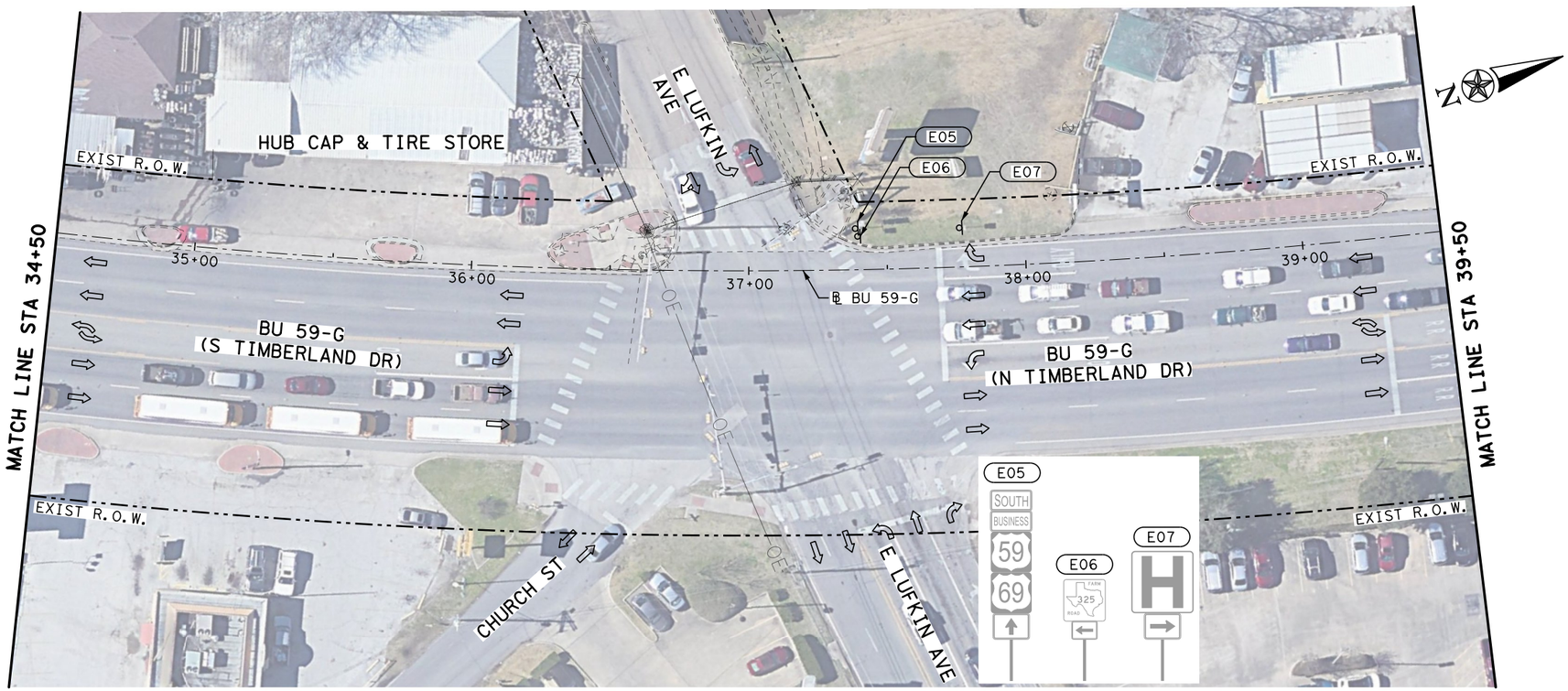

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
- E## — EXIST. SIGN TO REMAIN ID #
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- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
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REV	DESCRIPTION	DATE	INIT

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SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 29+50 TO STA 39+50)

SHEET 3 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	72

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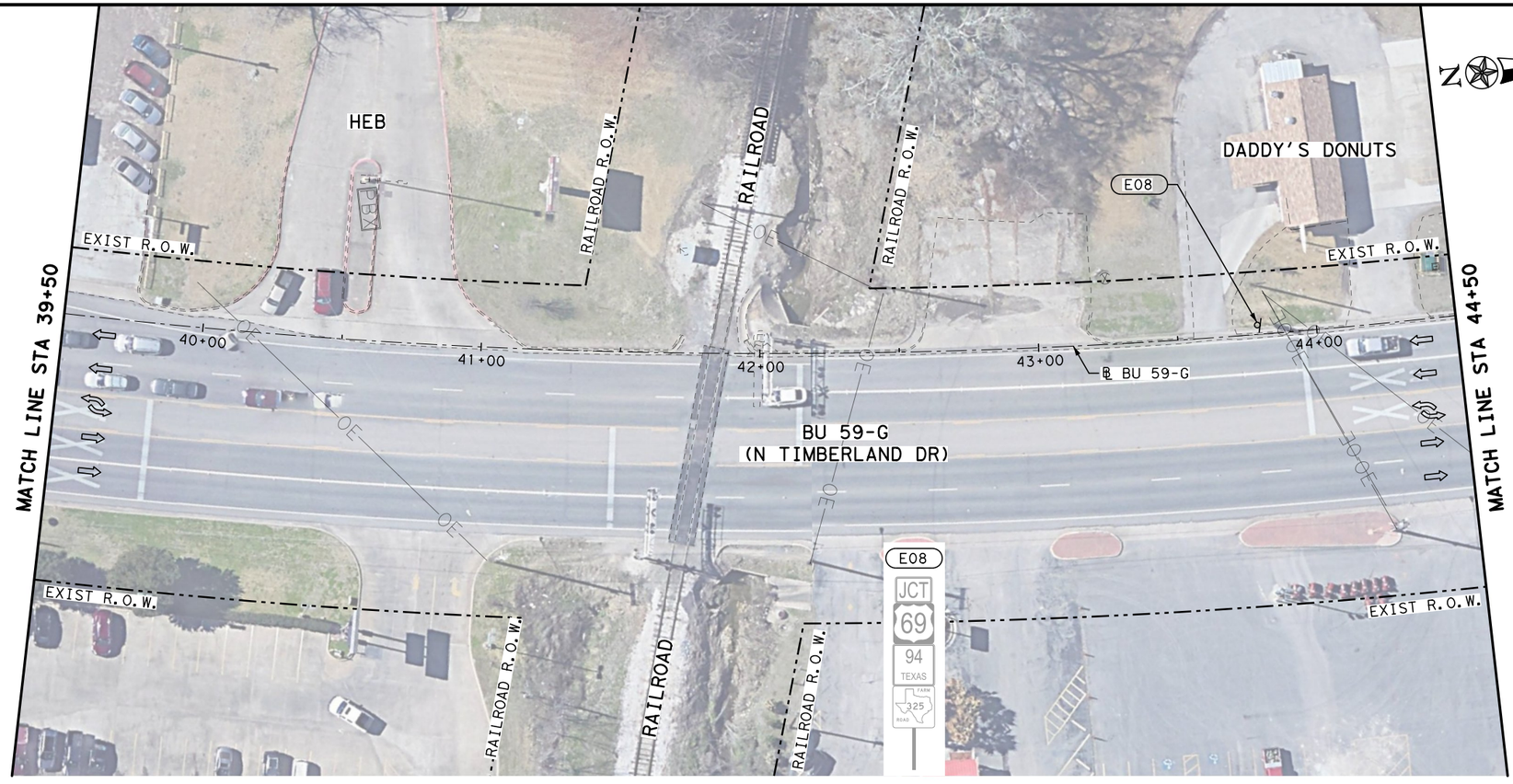

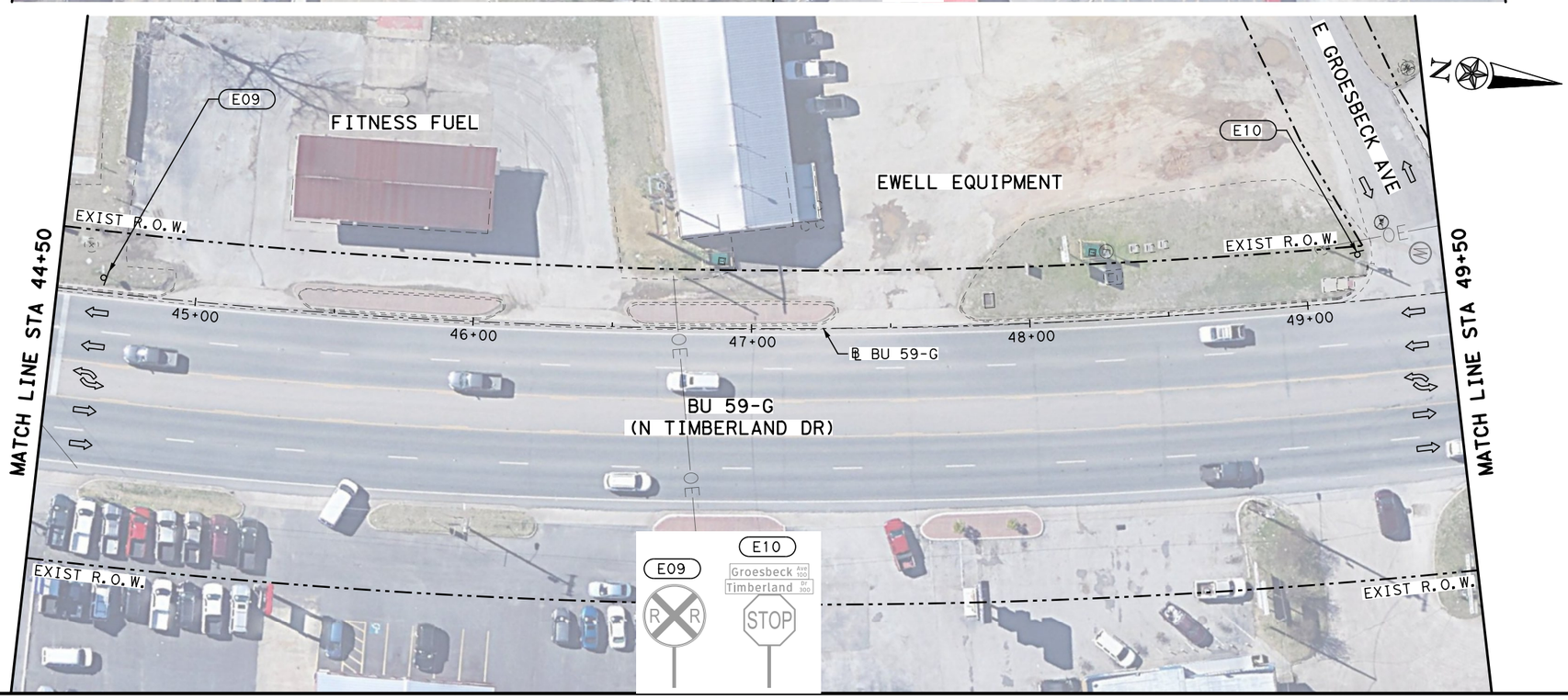

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
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- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
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SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 39+50 TO STA 49+50)

SHEET 4 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	73

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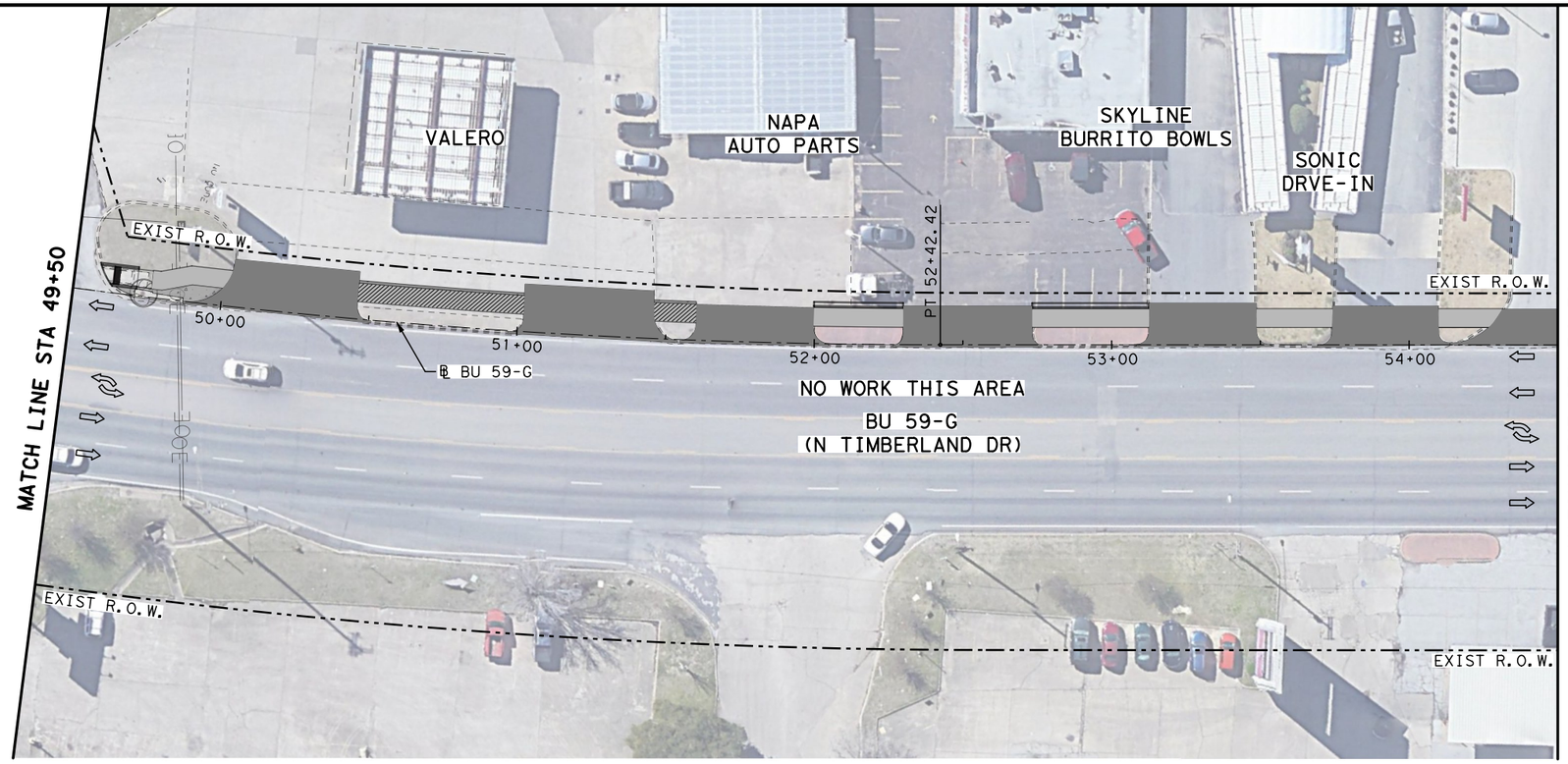

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
- E## — EXIST. SIGN TO REMAIN ID #
- X## — EXIST. SIGN TO BE REMOVED ID #
- TRAFFIC FLOW ARROW (EXIST.)

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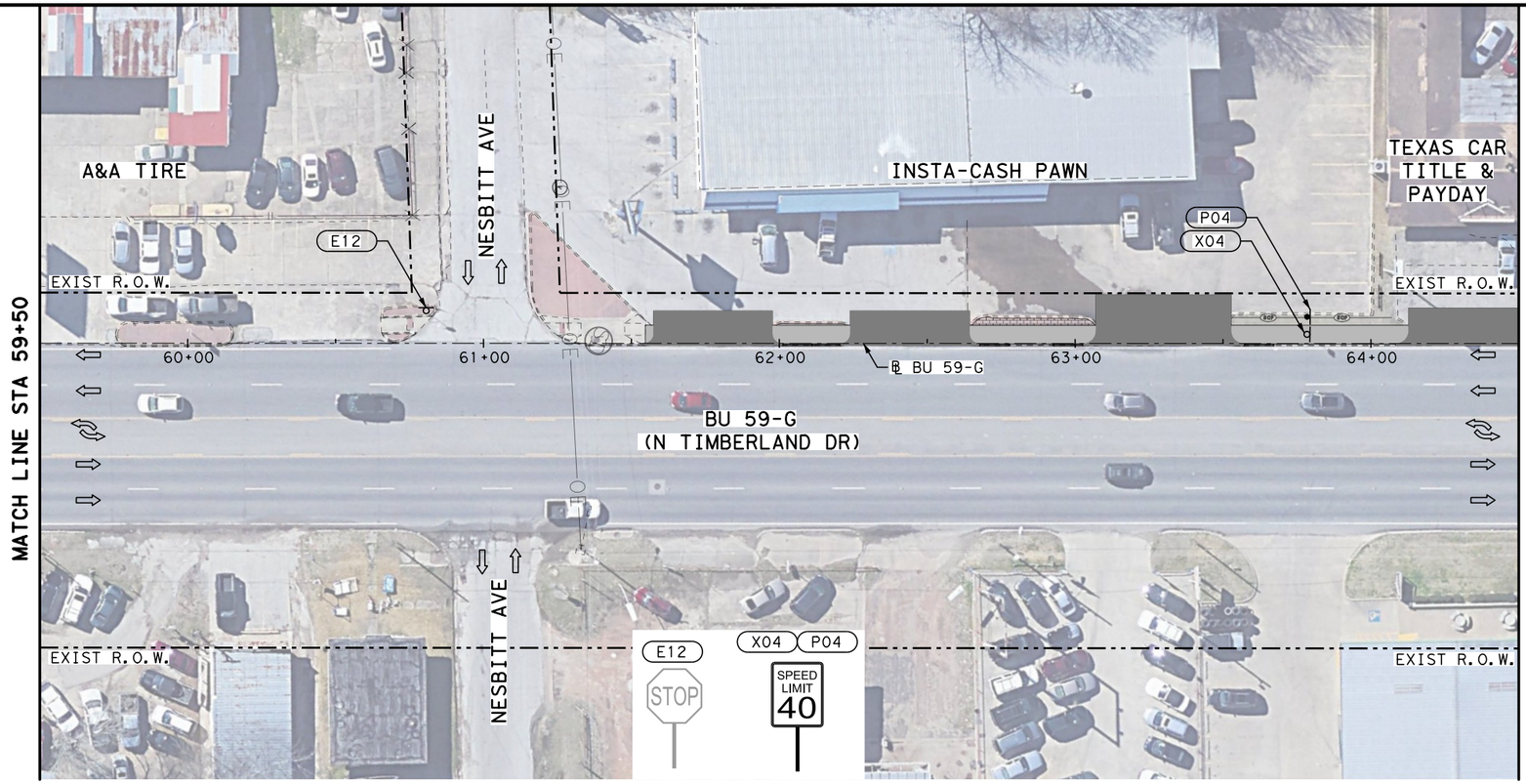
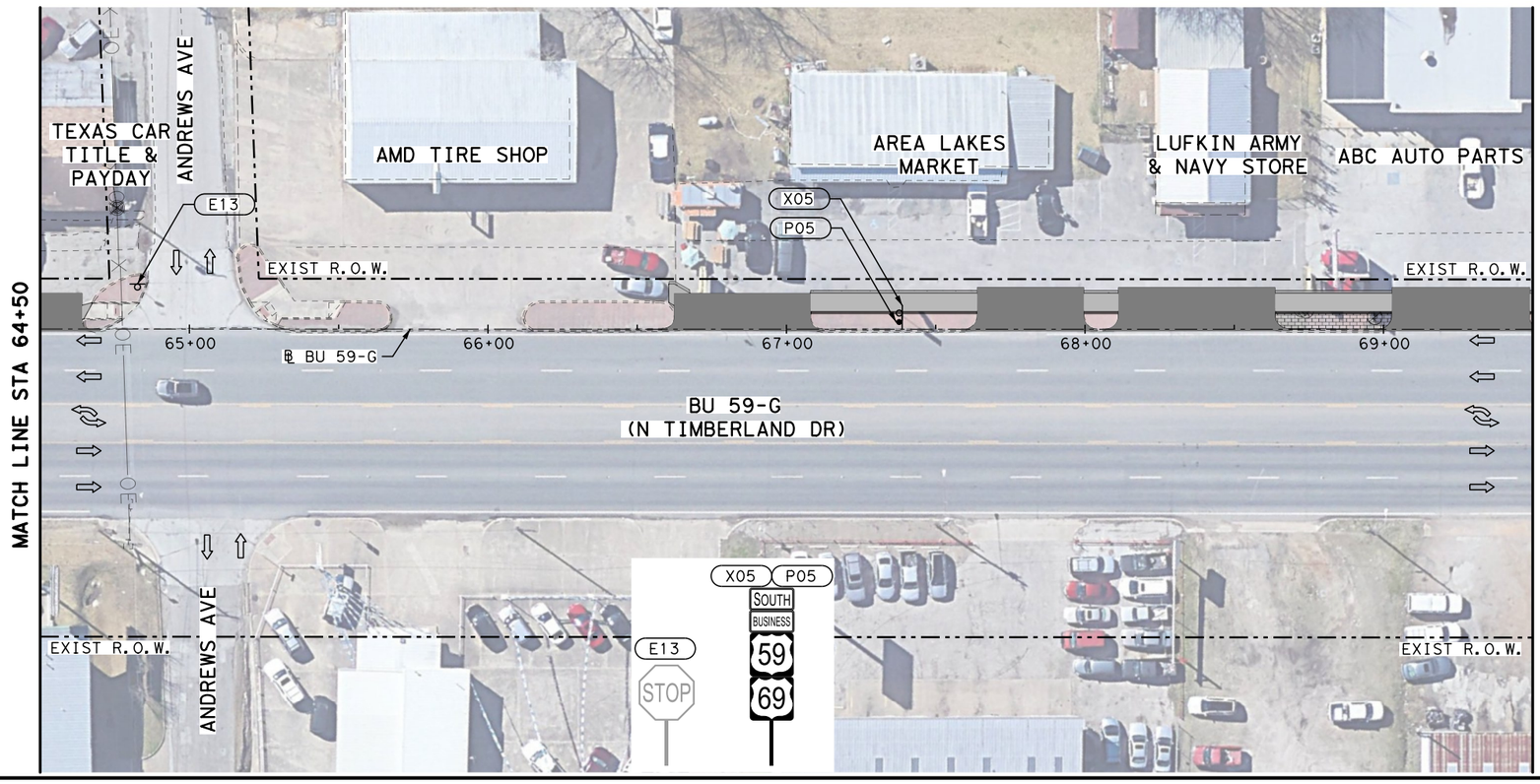
SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 49+50 TO STA 59+50)

SHEET 5 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	74





0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
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- TRAFFIC FLOW ARROW (EXIST.)

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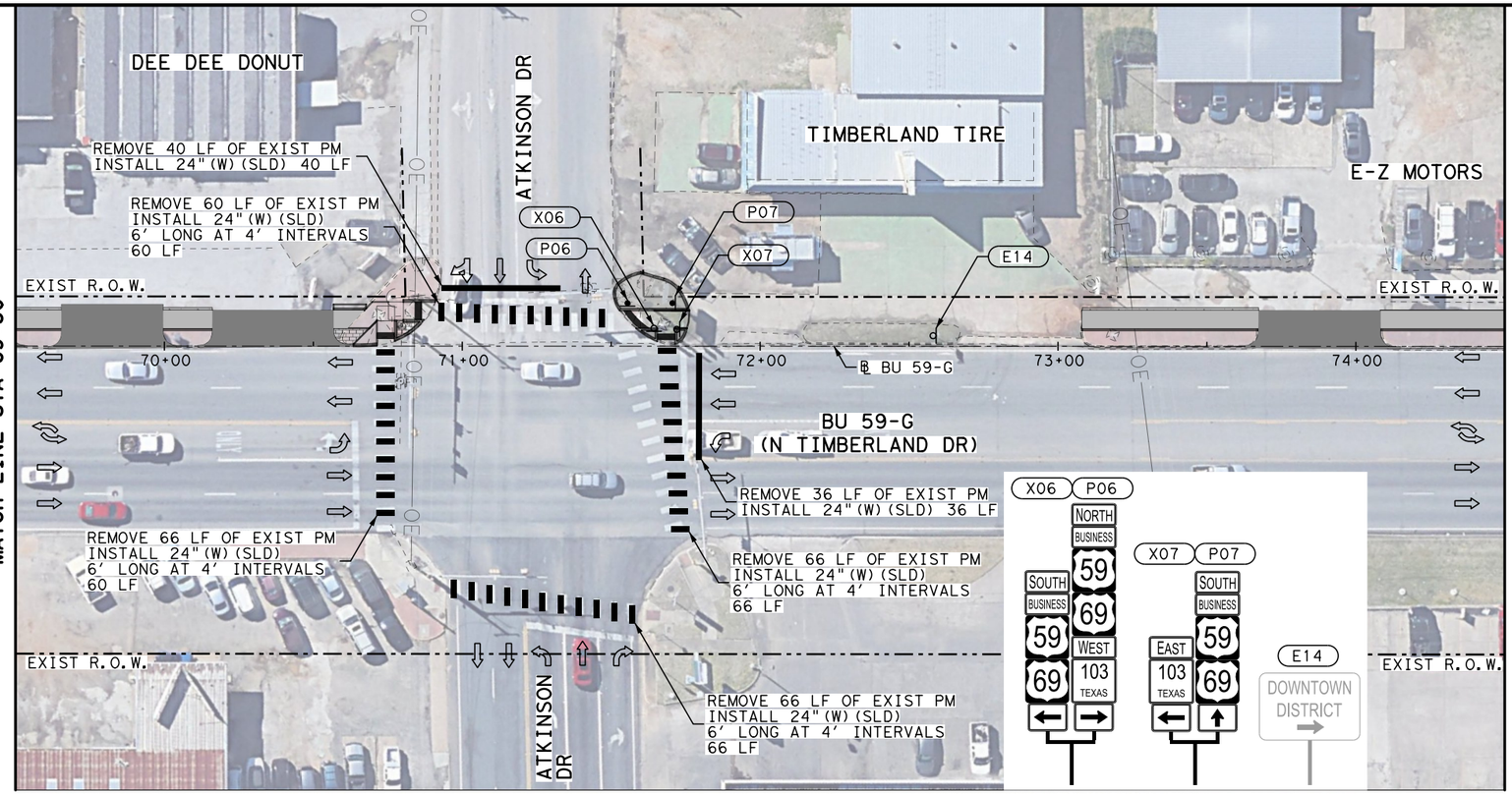
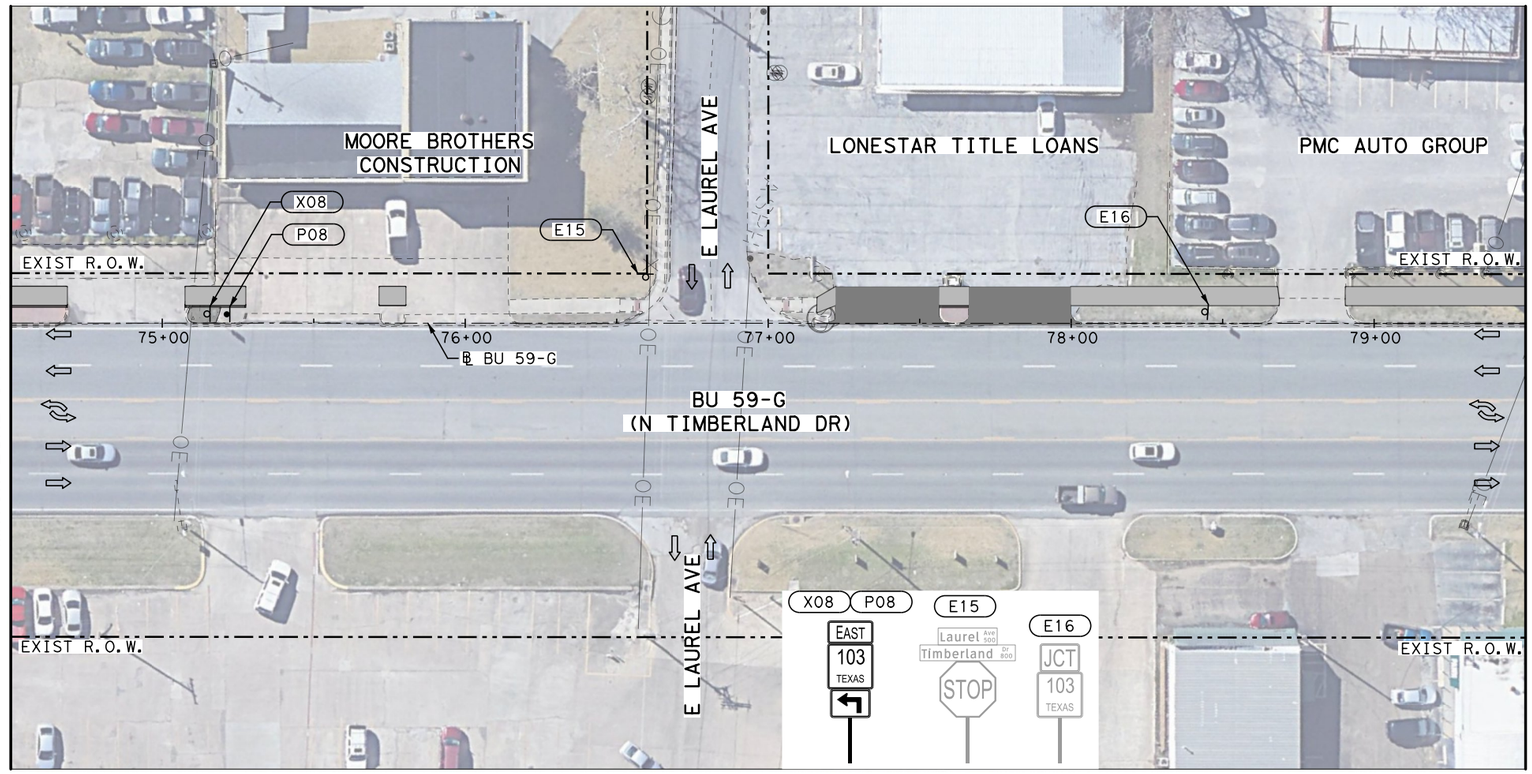
SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 59+50 TO STA 69+50)

SHEET 6 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	75





N

0' 25' 50'(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
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REV	DESCRIPTION	DATE	INIT

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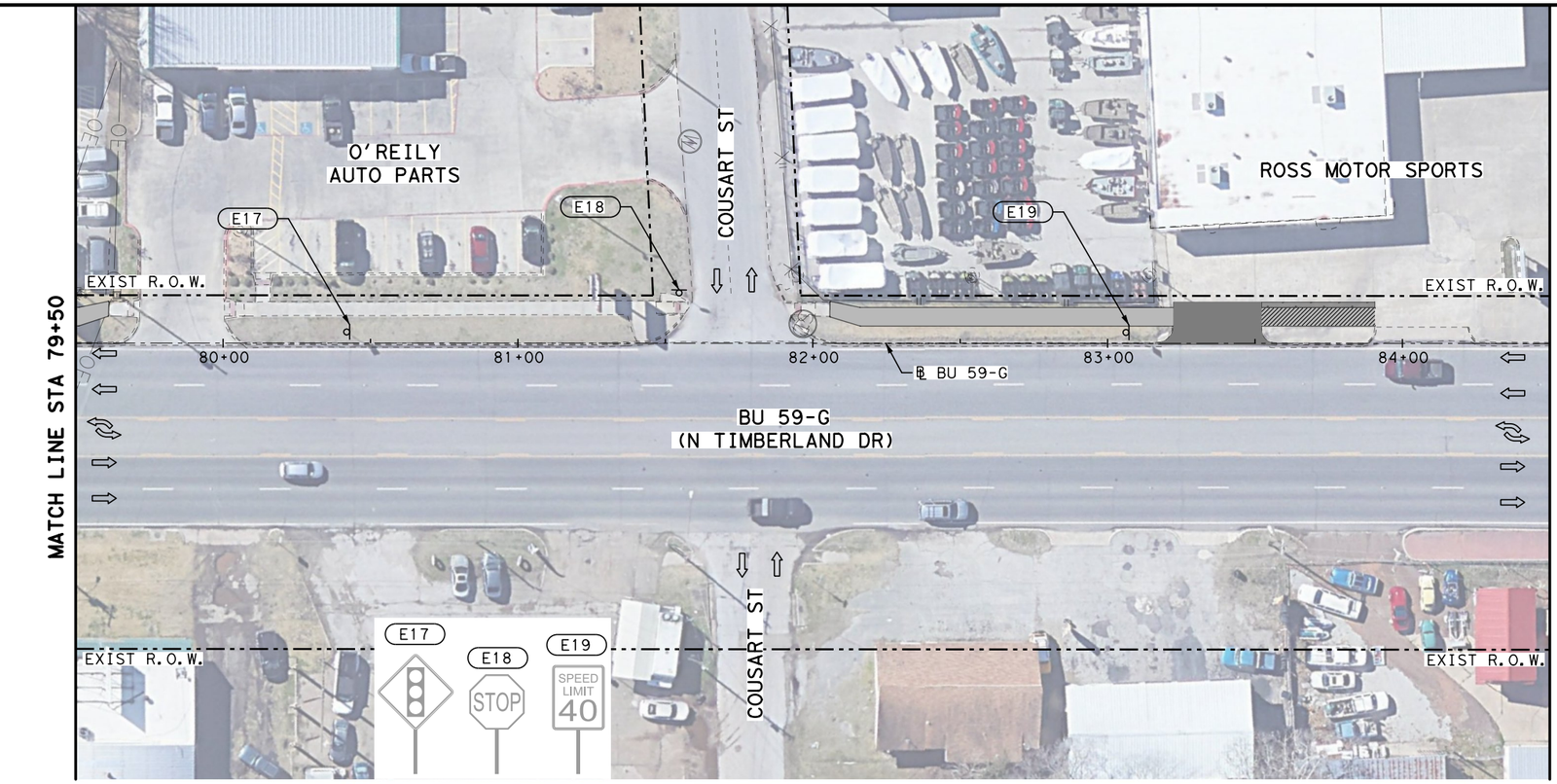
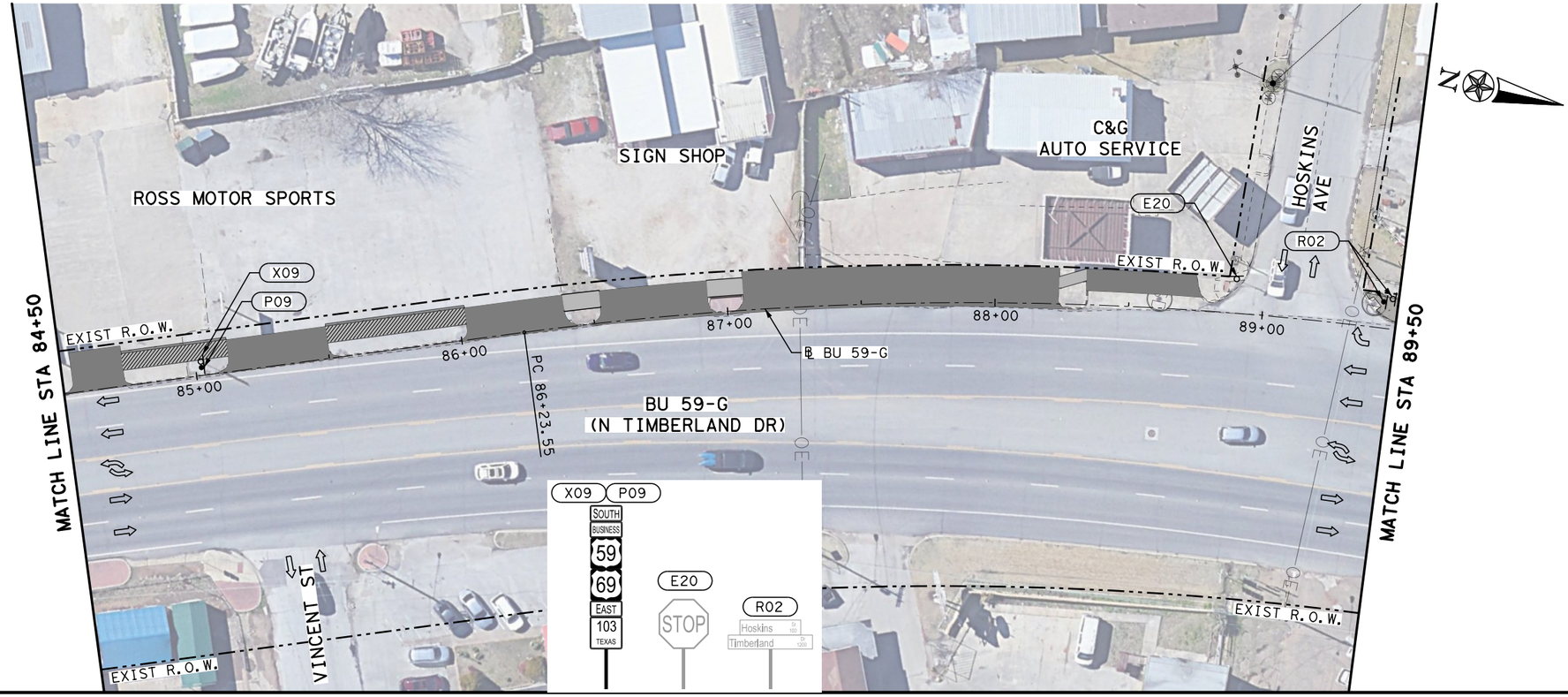
SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 69+50 TO STA 79+50)

SHEET 7 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	76





0' 25' 50'(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
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REV	DESCRIPTION	DATE	INIT

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SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 79+50 TO STA 89+50)

SHEET 8 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	77

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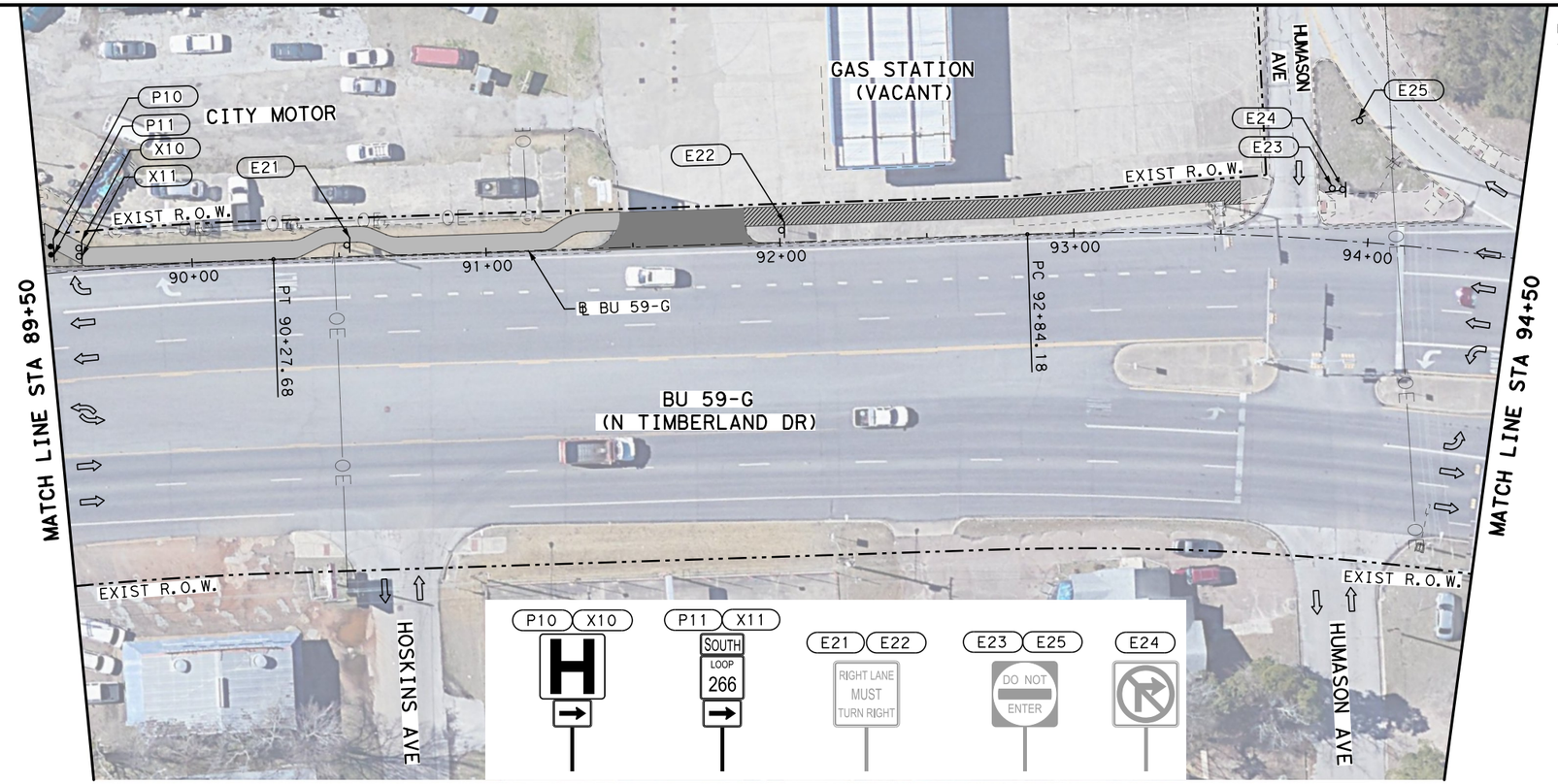

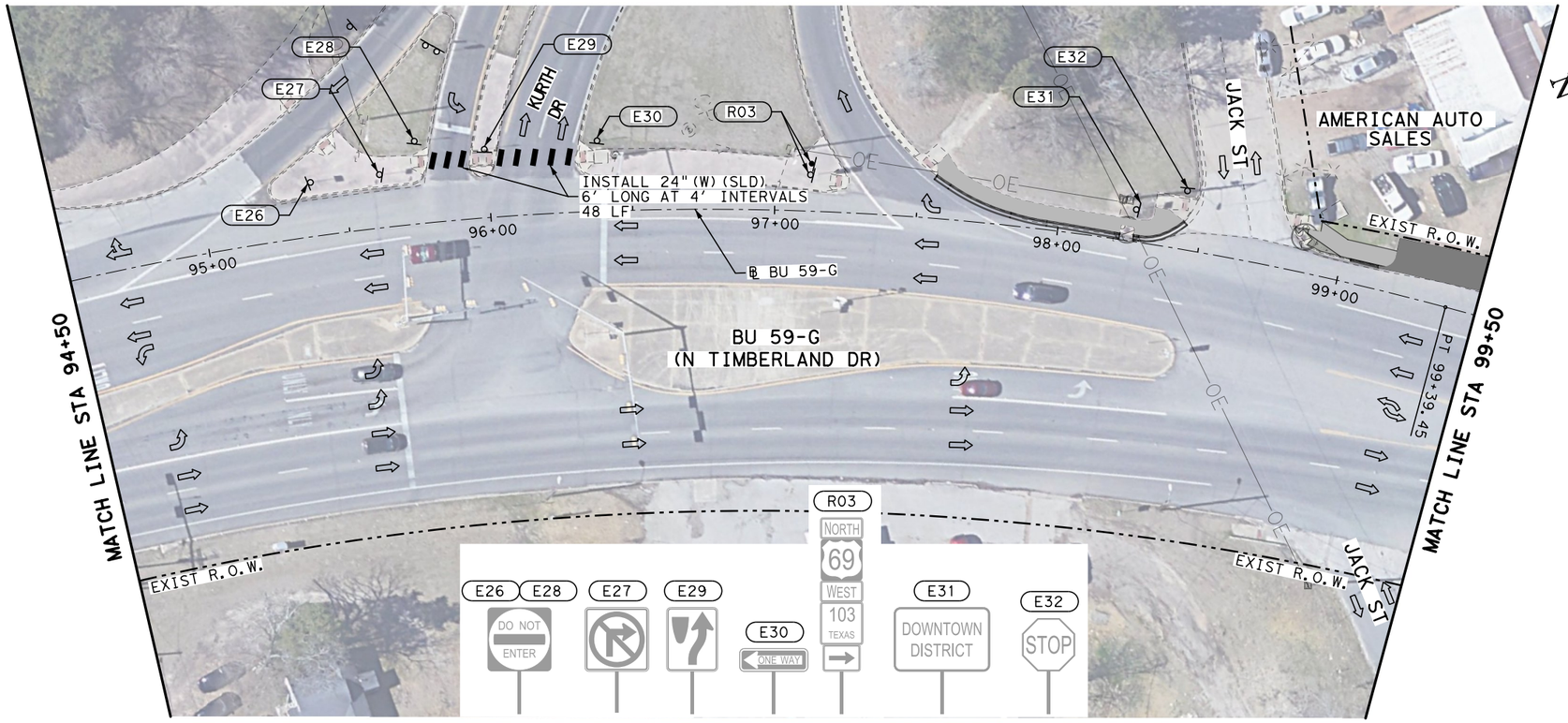

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

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- PROP./RELOCATED SMALL SIGN
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REV	DESCRIPTION	DATE	INIT

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SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 89+50 TO STA 99+50)

SHEET 9 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	78

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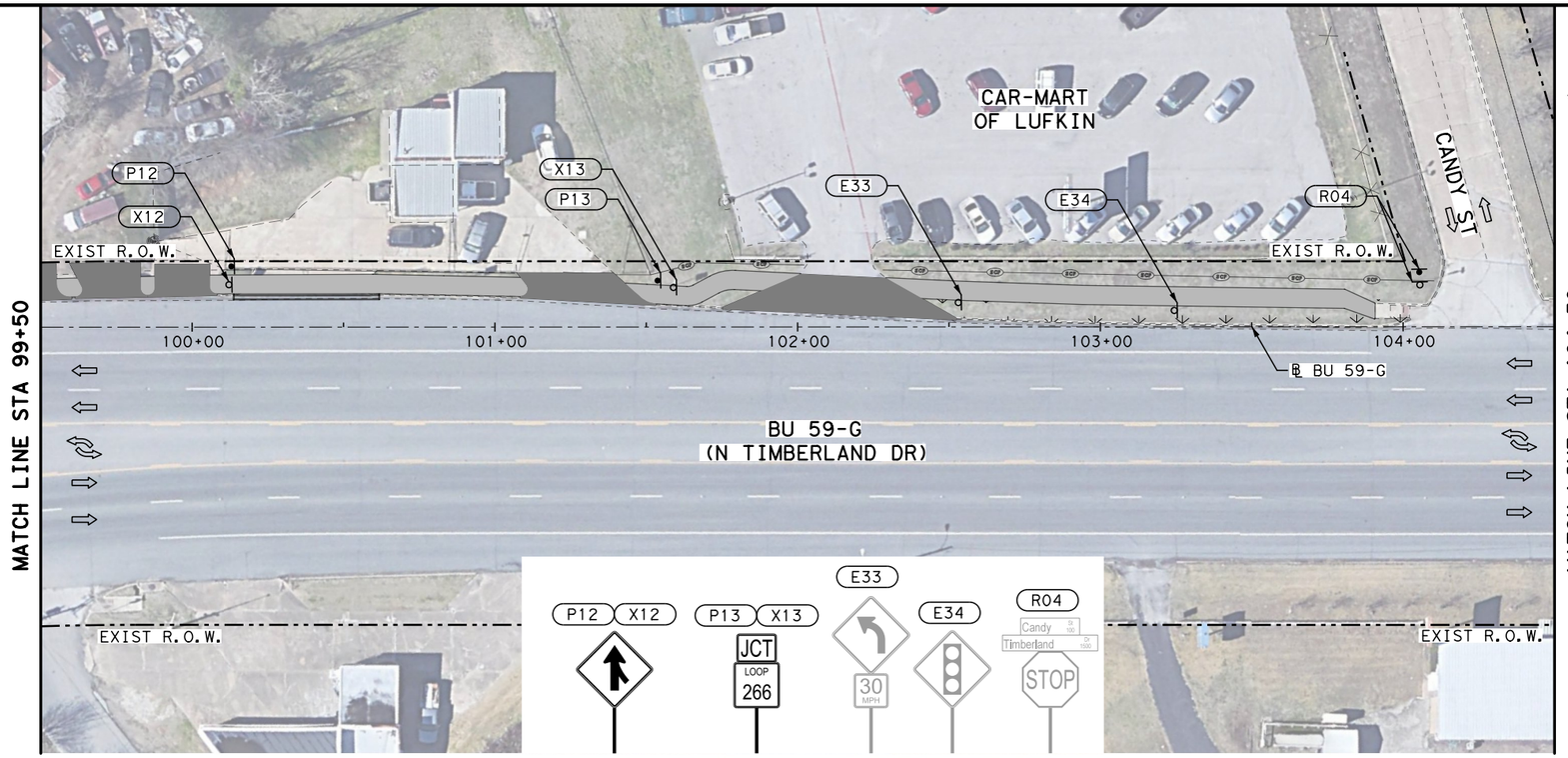

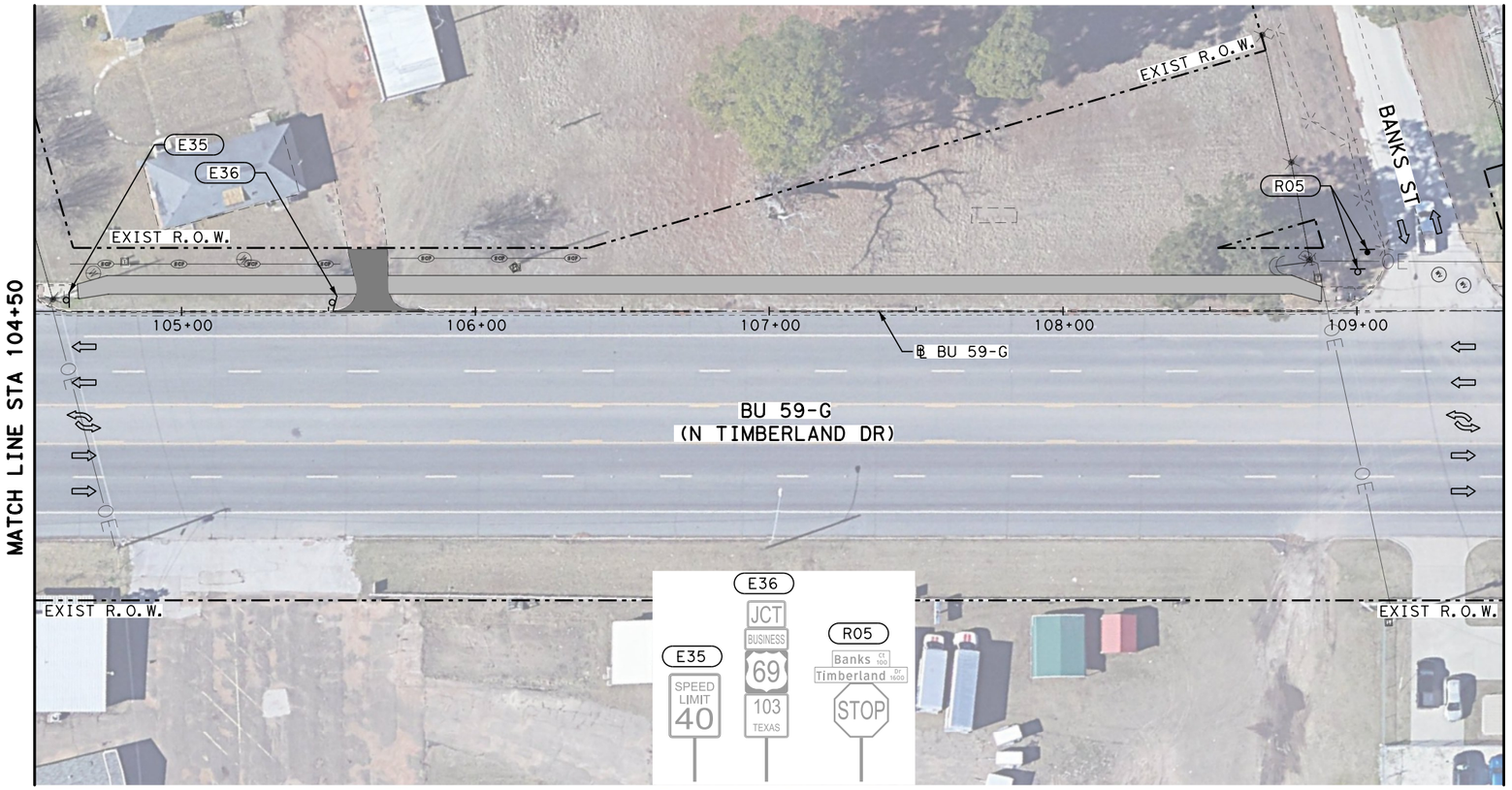

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
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REV	DESCRIPTION	DATE	INIT

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SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 99+50 TO STA 109+50)

SHEET 10 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	79

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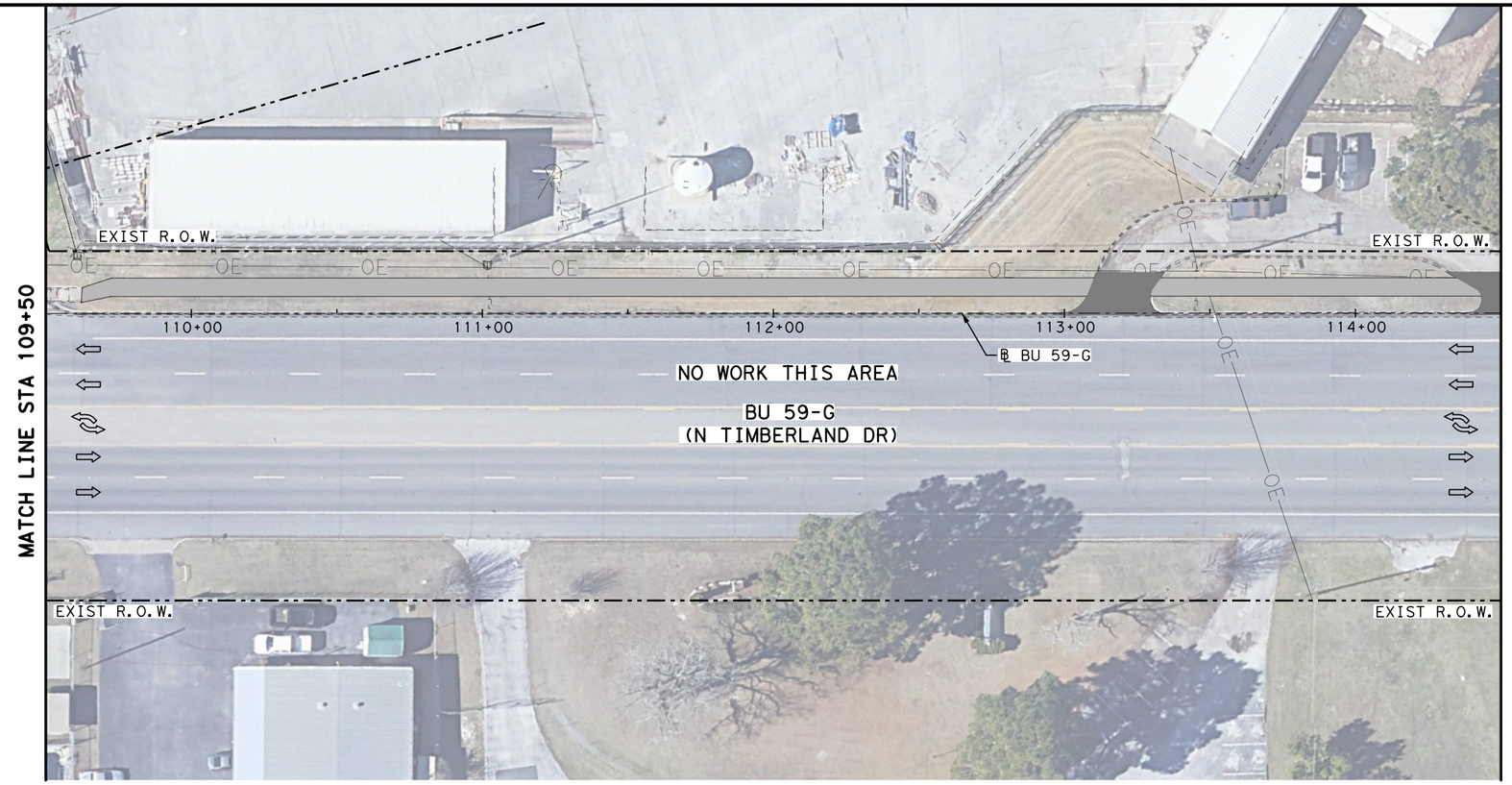

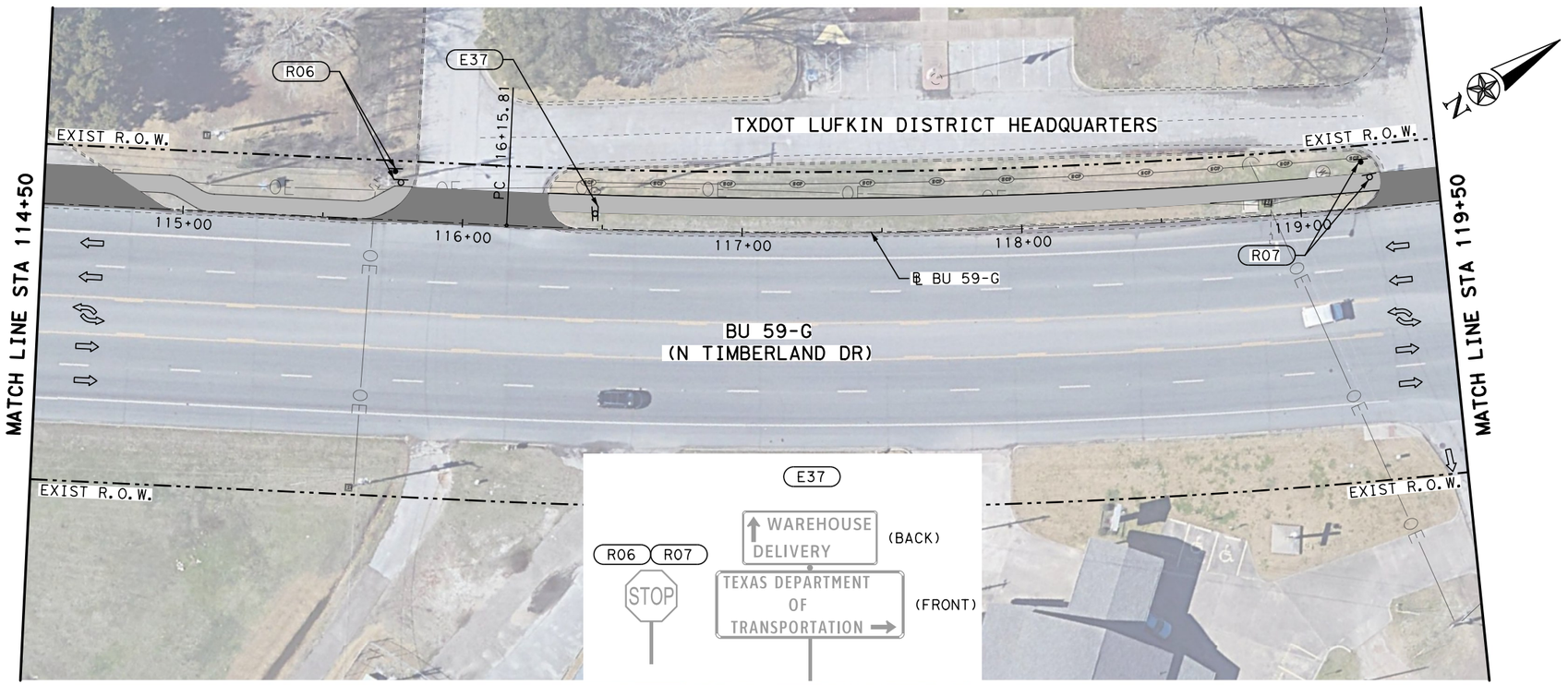

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
- E## — EXIST. SIGN TO REMAIN ID #
- X## — EXIST. SIGN TO BE REMOVED ID #
- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
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2. ADD REFLECTIVE TAPE TO POST FOR R1-1 (STOP) AND R5-1 (DO NOT ENTER) SIGNS. SEE GENERAL NOTES FOR DETAILS.

REV	DESCRIPTION	DATE	INIT

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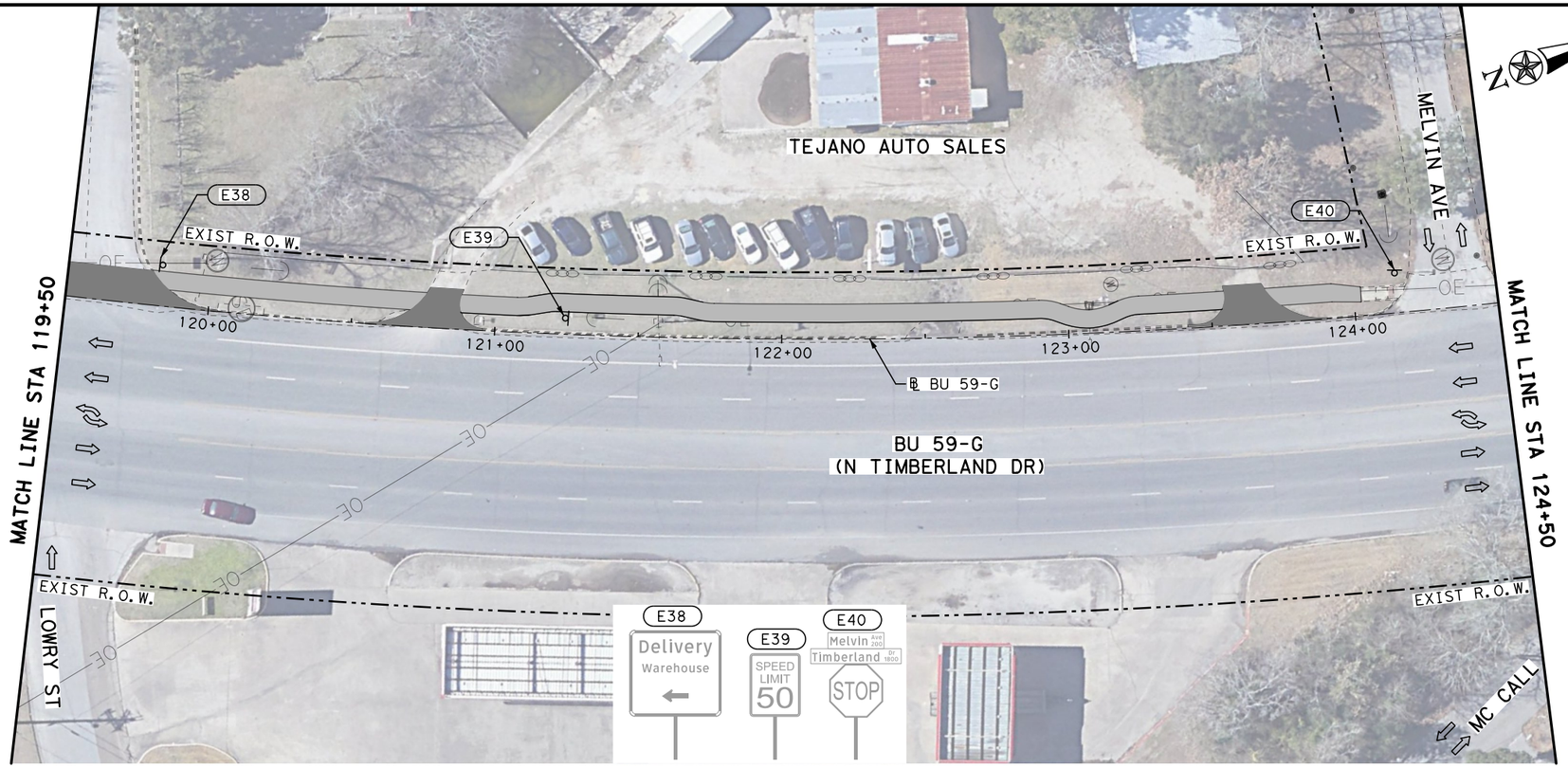
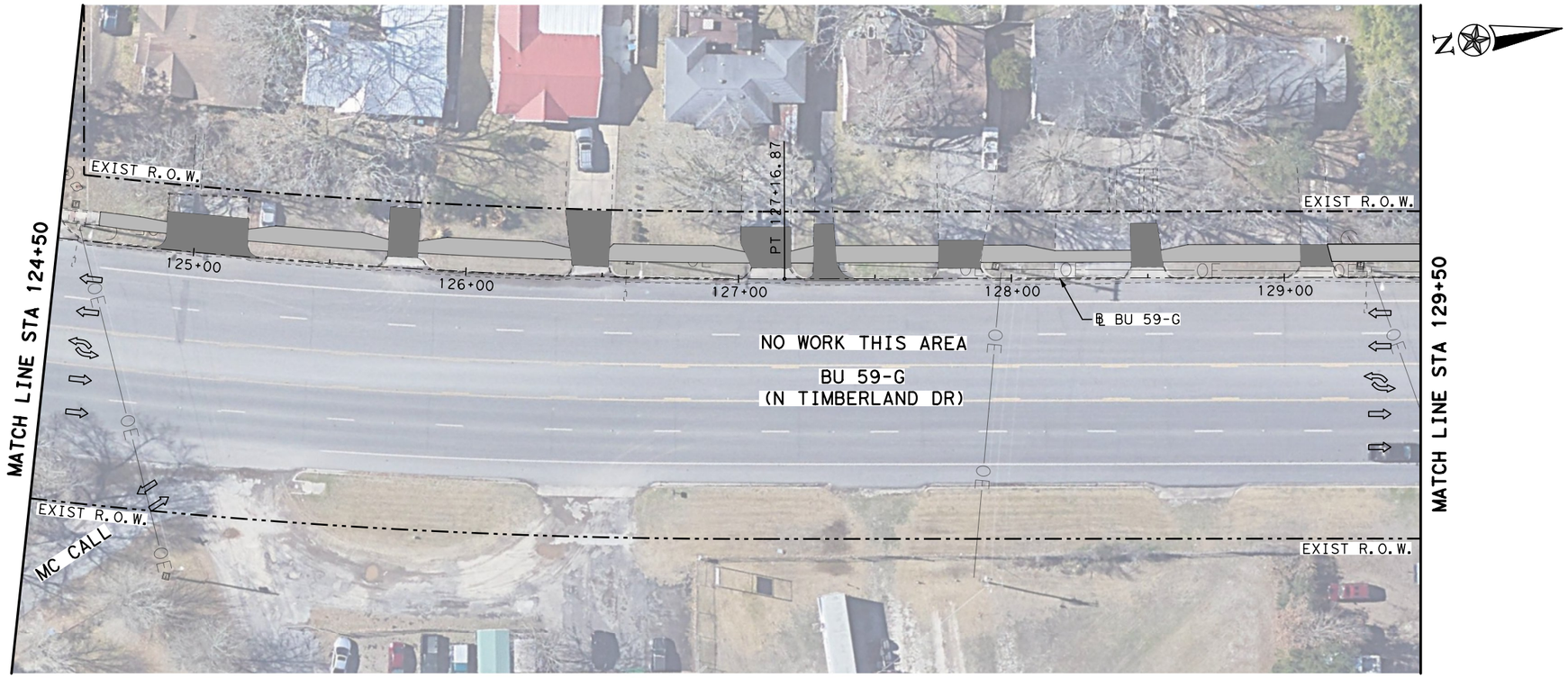
SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 109+50 TO STA 119+50)

SHEET 11 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	80





0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
- E## — EXIST. SIGN TO REMAIN ID #
- X## — EXIST. SIGN TO BE REMOVED ID #
- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
1. ALL PAVEMENT MARKINGS ON THIS SHEET TO REMAIN UNLESS STATED OTHERWISE.
2. ADD REFLECTIVE TAPE TO POST FOR R1-1 (STOP) AND R5-1 (DO NOT ENTER) SIGNS. SEE GENERAL NOTES FOR DETAILS.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
DOUGLAS BURNETT JR.
140757
LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 119+50 TO STA 129+50)

SHEET 12 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	81

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DATE: 5/21/2021 TIME: 11:45:26 PM
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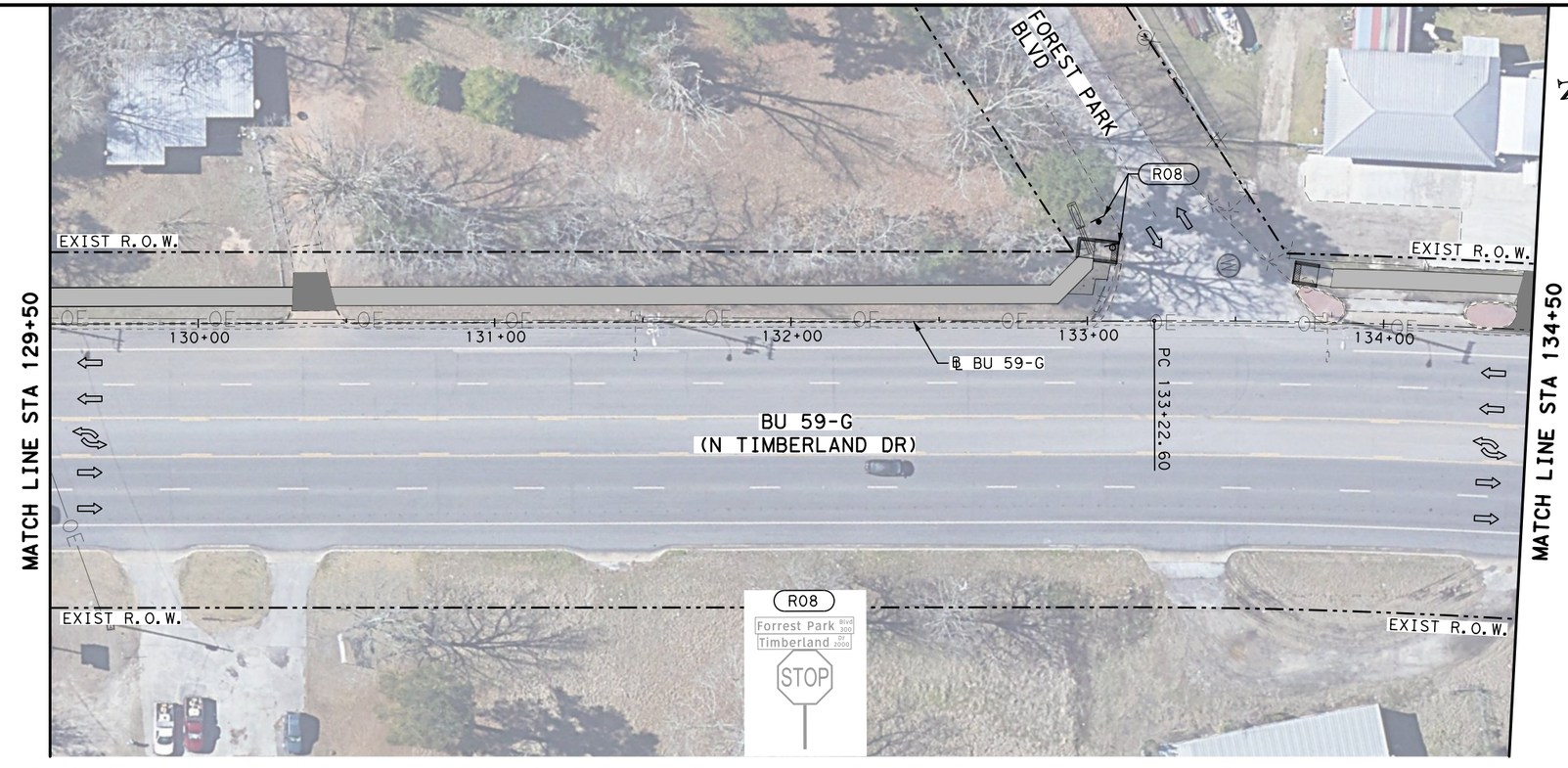

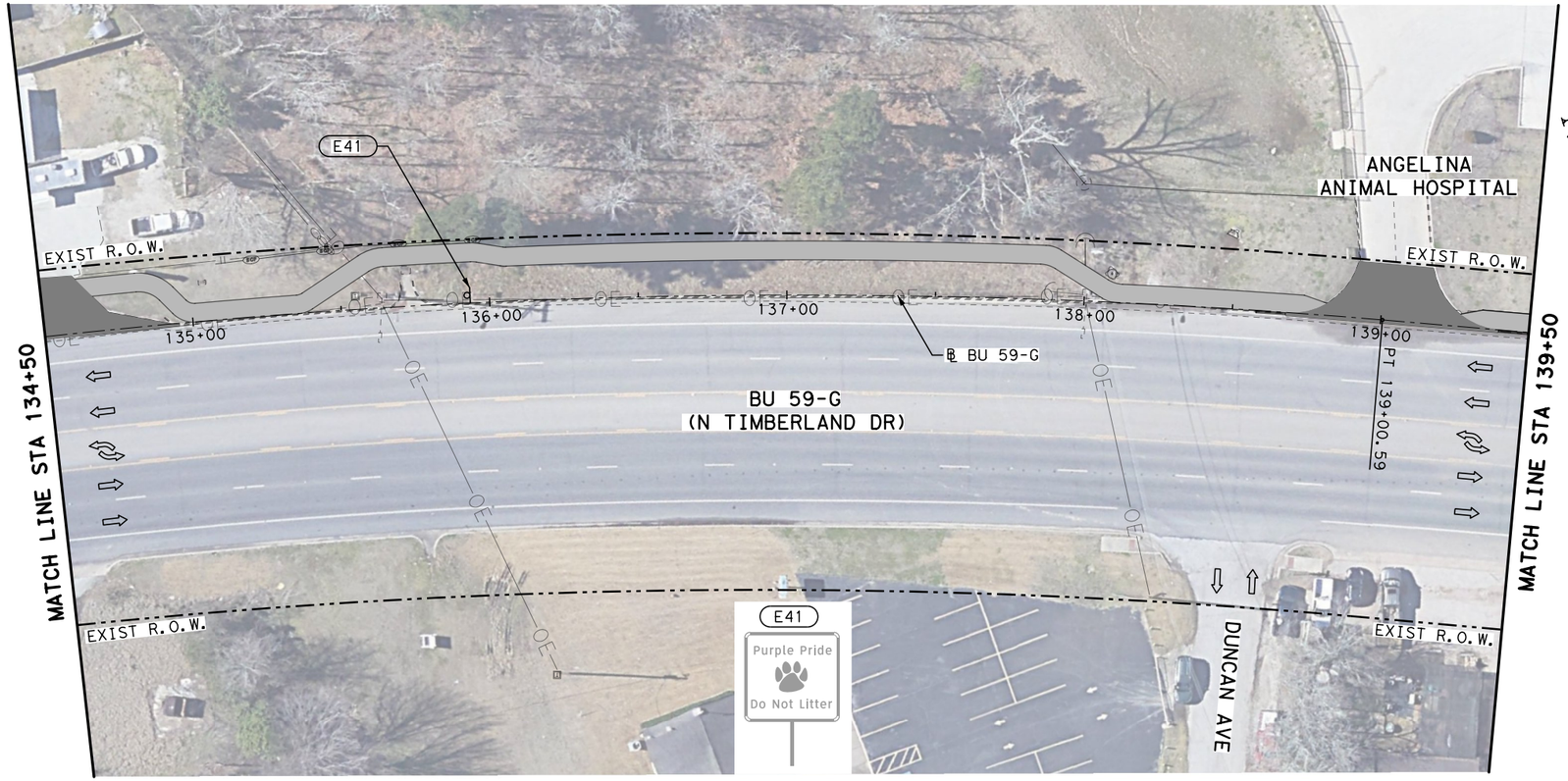

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
- E## — EXIST. SIGN TO REMAIN ID #
- X## — EXIST. SIGN TO BE REMOVED ID #
- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
1. ALL PAVEMENT MARKINGS ON THIS SHEET TO REMAIN UNLESS STATED OTHERWISE.
2. ADD REFLECTIVE TAPE TO POST FOR R1-1 (STOP) AND R5-1 (DO NOT ENTER) SIGNS. SEE GENERAL NOTES FOR DETAILS.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
DOUGLAS BURNETT JR.
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LICENSED PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
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TBPELS F-02263

SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 129+50 TO STA 139+50)

SHEET 13 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	82

0′ 25′ 50′(H)

SCALE IN FEET

SMALL SIGN AND PAVEMENT MARKING LEGEND

- PREFAB PAV MRK (W)(24")(SLD)
- PROP./RELOCATED SMALL SIGN
- EXIST. SMALL SIGN
- P## — PROPOSED SIGN ID #
- R## — RELOCATED SIGN ID #
- E## — EXIST. SIGN TO REMAIN ID #
- X## — EXIST. SIGN TO BE REMOVED ID #
- TRAFFIC FLOW ARROW (EXIST.)

NOTES:
1. ALL PAVEMENT MARKINGS ON THIS SHEET TO REMAIN UNLESS STATED OTHERWISE.
2. ADD REFLECTIVE TAPE TO POST FOR R1-1 (STOP) AND R5-1 (DO NOT ENTER) SIGNS. SEE GENERAL NOTES FOR DETAILS.

REV	DESCRIPTION	DATE	INIT

STATE OF TEXAS
DOUGLAS BURNETT JR.
140757
LICENSED
PROFESSIONAL ENGINEER

Texas Department of Transportation

WSP USA Inc
2777 N Stemmons Freeway, Suite 1600
Dallas, TX 75207
TEL: 214.583.3400
TBPELS F-02263

SMALL SIGN AND PAVEMENT MARKING PLAN

(STA 139+50 TO BEGIN PROJECT)

SHEET 14 OF 14

FED. RD. DIV. NO.	STATE	PROJECT NO.			HIGHWAY NO.
6	TEXAS				BU 59-G
STATE DISTRICT	COUNTY	CONTROL NO.	SECTION NO.	JOB NO.	SHEET NO.
LFK	ANGELINA	0176	02	124	83

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

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

Post Type

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

Number of Posts (1 or 2)

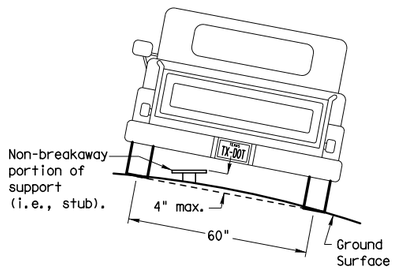
Anchor Type

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

Sign Mounting Designation

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

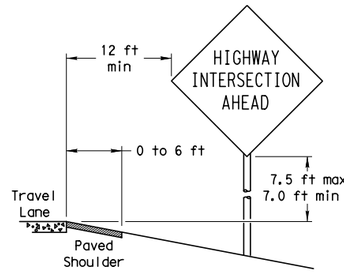
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



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

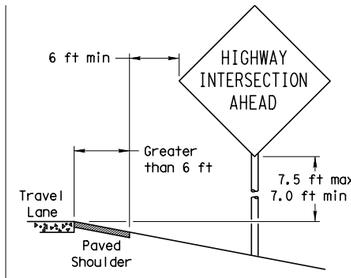
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

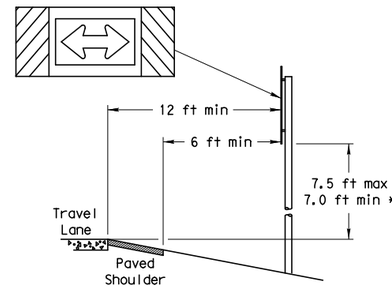
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



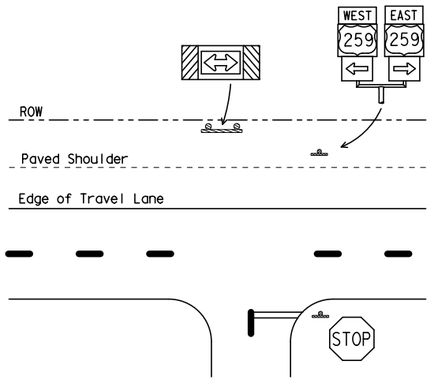
GREATER THAN 6 FT. WIDE

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

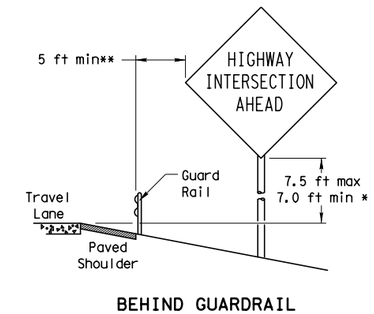
T-INTERSECTION



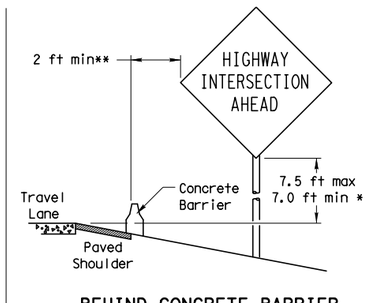
When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



BEHIND BARRIER



BEHIND GUARDRAIL



BEHIND CONCRETE BARRIER

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

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

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

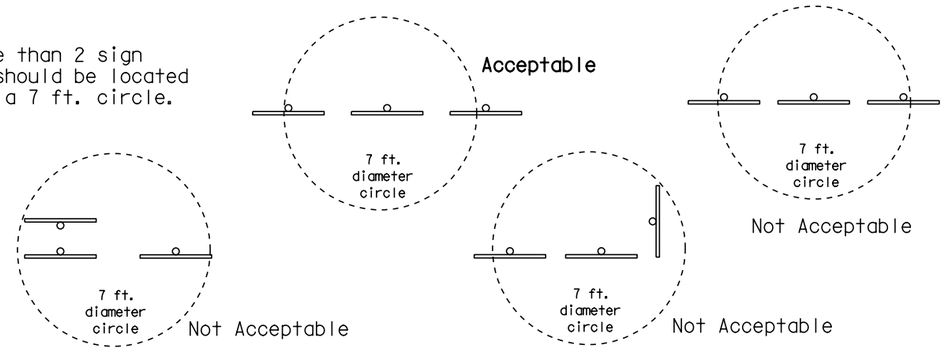
(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

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

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

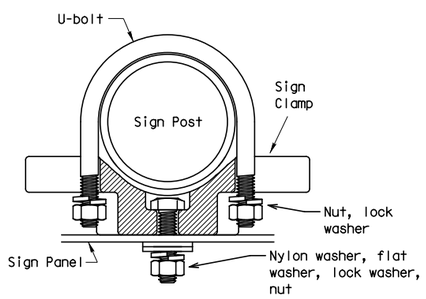
The website address is:
http://www.txdot.gov/publications/traffic.htm

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



TYPICAL SIGN ATTACHMENT DETAIL

Single Signs

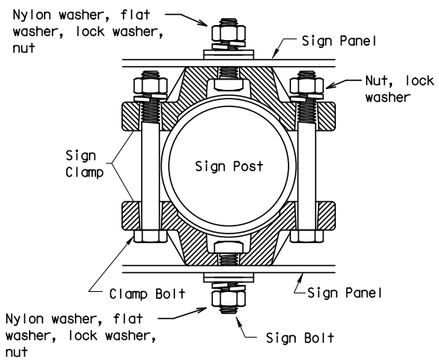


Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

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

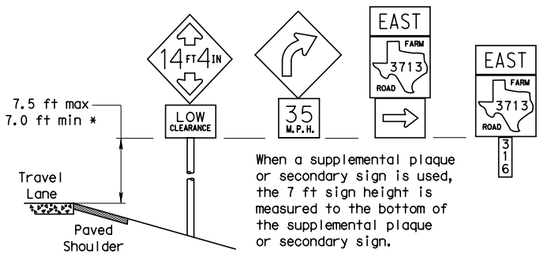
Sign clamps may be either the specific size clamp or the universal clamp.

Back-to-Back Signs



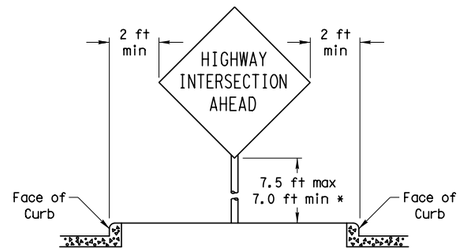
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



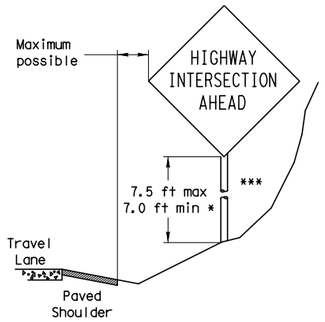
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



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

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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

REVISIONS
9-08

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

CONT	SECT	JOB	HIGHWAY
0176	02	124	BU 59-G

DIST	COUNTY	SHEET NO.
LFK	ANGELINA	84

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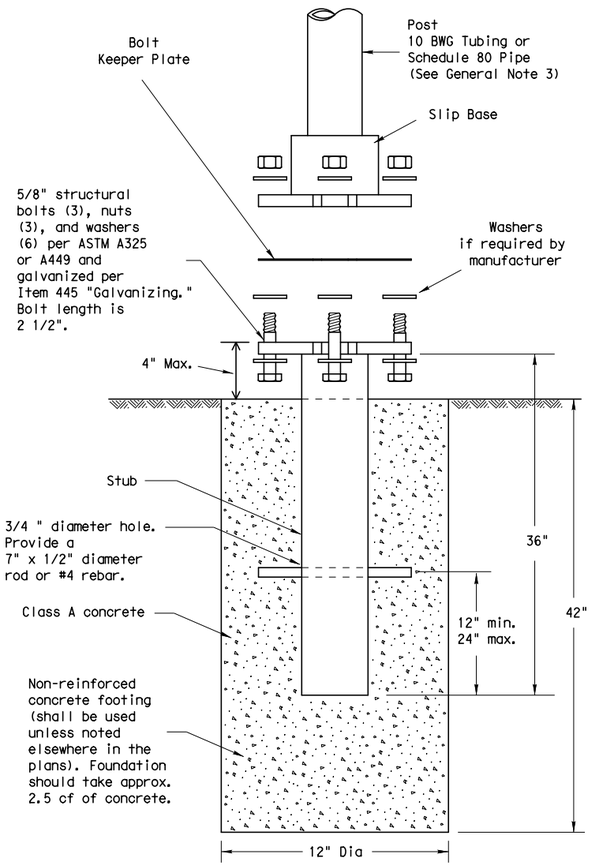
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



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

NOTE

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

GENERAL NOTES:

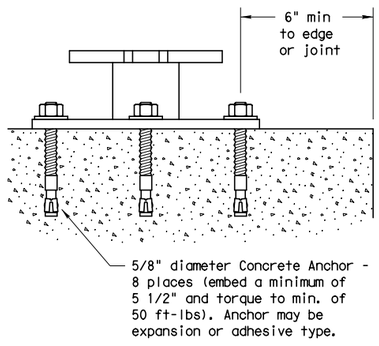
1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   0.134" nominal wall thickness
   Seamless or electric-resistance welded steel tubing or pipe
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   20% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
   Schedule 80 Pipe (2.875" outside diameter)
   0.276" nominal wall thickness
   Steel tubing per ASTM A500 Gr C
   Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
   46,000 PSI minimum yield strength
   62,000 PSI minimum tensile strength
   21% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

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

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

CONCRETE ANCHOR



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

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS
SMALL ROADSIDE SIGNS
TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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

REVISIONS
9-08

CONT	SECT	JOB	HIGHWAY
0176	02	124	BU 59-G

DIST	COUNTY	SHEET NO.
LFK	ANGELINA	85

DATE: 5/3/2021 2:43:54 PM
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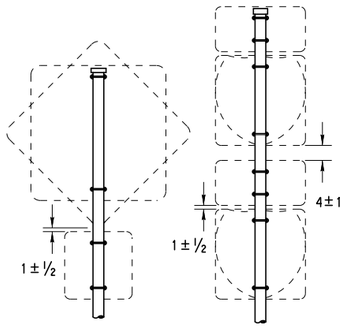
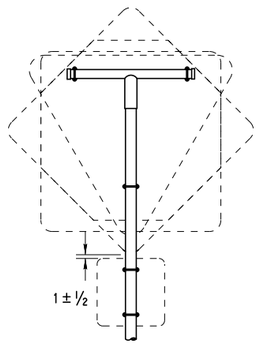
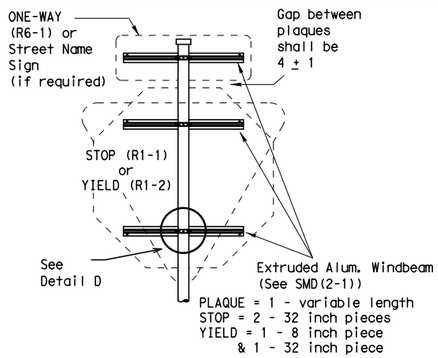


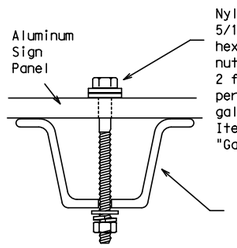
SM RD SGN ASSM TY XXXXX(1)XX(P)



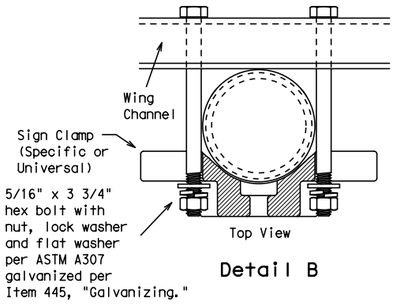
SM RD SGN ASSM TY XXXXX(1)XX(T)



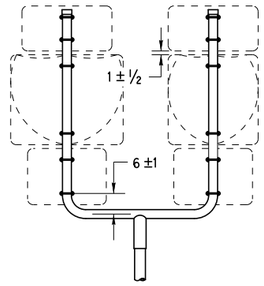
SM RD SGN ASSM TY XXXXX(1)XX(P-BM)



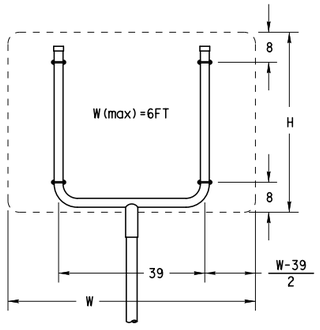
Detail A



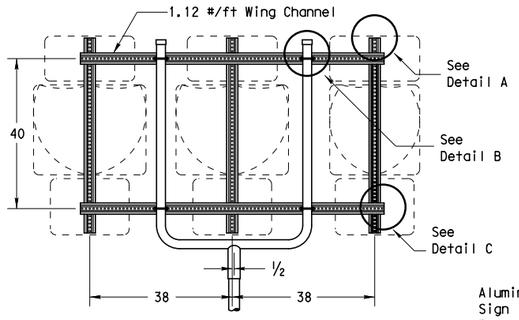
Detail B



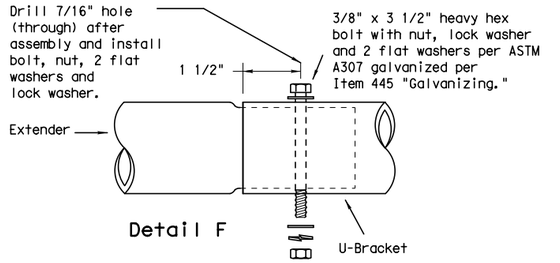
SM RD SGN ASSM TY XXXXX(1)XX(U)



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

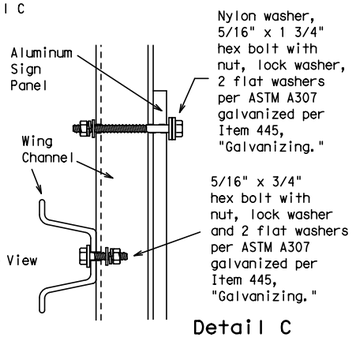


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

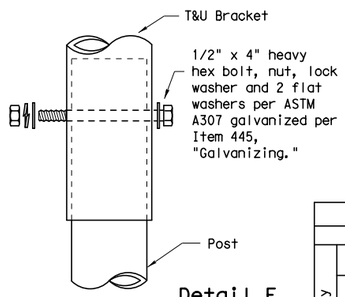


Detail F

Splices shall only be allowed behind the sign substrate.



Detail C



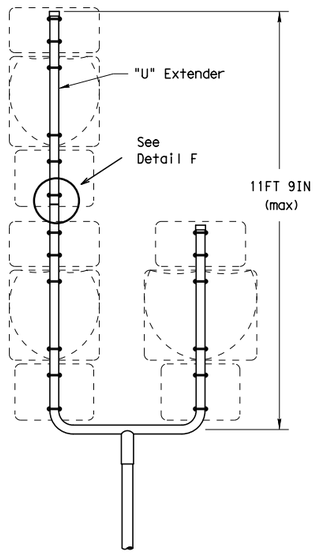
Detail E

GENERAL NOTES:

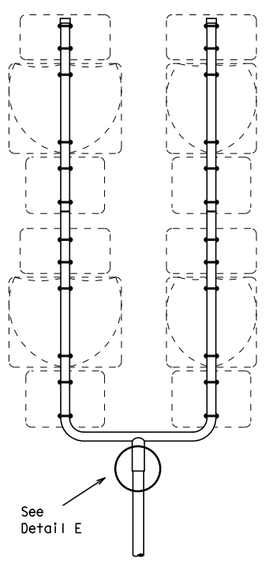
1.

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

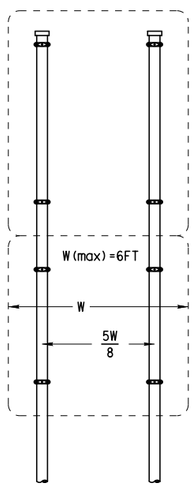
2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material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



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

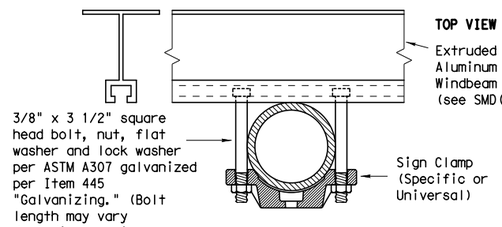


SM RD SGN ASSM TY S80(1)XX(U-2EXT)

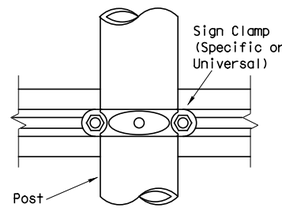


SM RD SGN ASSYM TY XXXXX(2)XX(P)

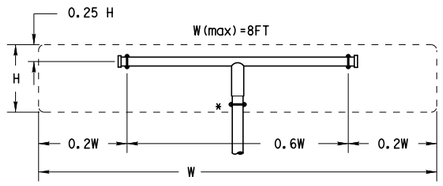
SIDE VIEW



Detail D



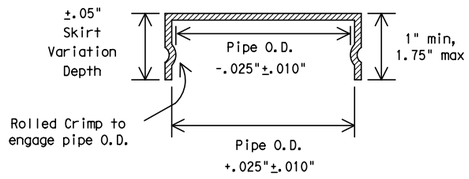
REQUIRED SUPPORT			
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)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

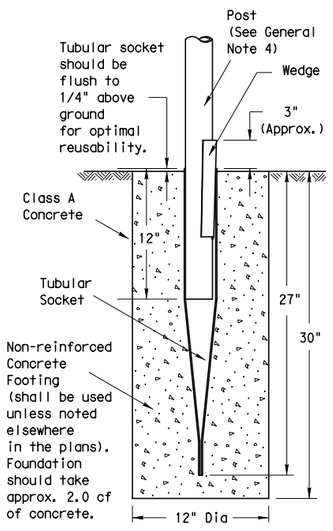
DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT

CONT	SECT	JOB	HIGHWAY
0176	02	124	BU 59-G

DIST	COUNTY	SHEET NO.
LFK	ANGELINA	86

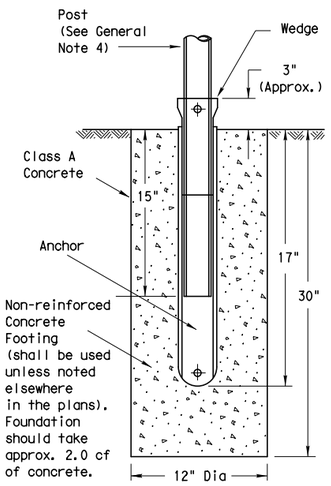
9-08 REVISIONS

Wedge Anchor Steel System



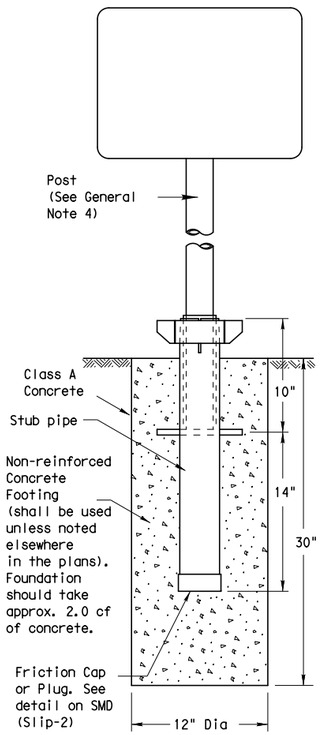
SM RD SGN ASSM TY TWT(X)WS(X)

Wedge Anchor High Density Polyethylene (HDPE) System

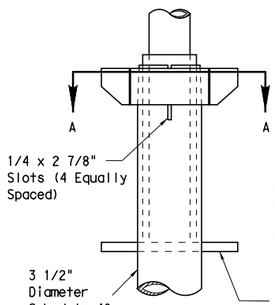


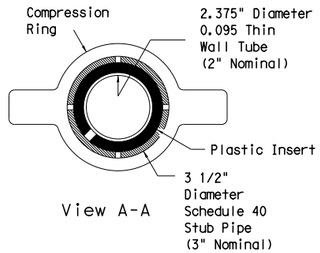
SMD RD SGN ASSM TY TWT(X)WP(X)

Universal Anchor System with Thin-Walled Tubing Post



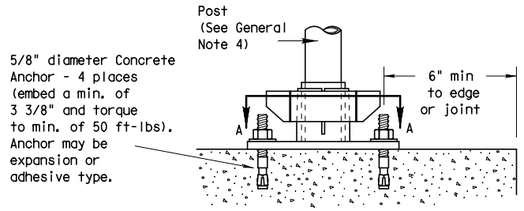
SM RD SGN ASSM TY TWT(X)UA(P)



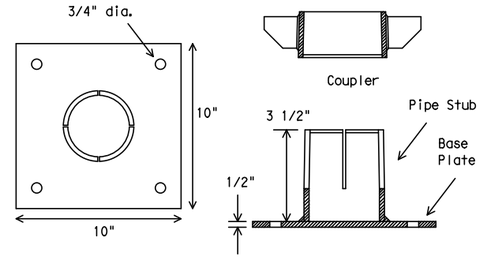


View A-A

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

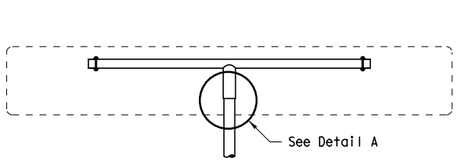


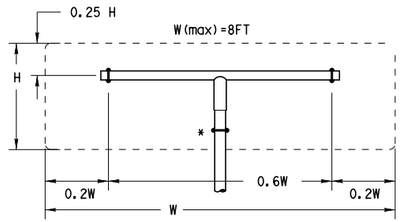
Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. A heavy hex nut per ASTM A563 and hardened washer per ASTM F436. The stud bolt shall have minimum yield and ultimate tensile strengths of 50 and 75 ksi, respectively. Nuts, bolts and washers shall be galvanized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



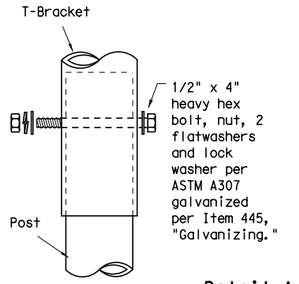
SM RD SGN ASSM TY TWT(X)UB(P)

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





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



Detail A

9/16" hole may need to be drilled through post to accommodate bolt.

NOTE

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

GENERAL NOTES:

1. The Wedge Anchor System and the Universal Anchor System with thin wall tubing post may be used to support up to 10 square feet of sign area.
2. The tubular socket, wedge and prefabricated T-bracket shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to the approval of the TxDOT Traffic Standards Engineer.
3. Except for posts (13 BWG Tubing), clamps, nuts and bolts, all components shall be prequalified. A list of prequalified vendors may be obtained from the Material Producer List web page. The website address is: http://www.txdot.gov/business/producer list.htm
4. Material used as post with this system shall conform to the following specifications:
   13 BWG Tubing (2.375" outside diameter) (TWT)
   0.095" nominal wall thickness
   Seamless or electric-resistance welded steel tubing
   Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   Other steels may be used if they meet the following:
   55,000 PSI minimum yield strength
   70,000 PSI minimum tensile strength
   18% minimum elongation in 2"
   Wall thickness (uncoated) shall be within the range of .083" to .099"
   Outside diameter (uncoated) shall be within the range of 2.369" to 2.381"
   Galvanization per ASTM 123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.
5. Sign blanks shall be the sizes and shapes shown on the plans.
6. Additional sign clamp required on the "T-bracket" post for 24" high signs. Place clamp at least 3" above bottom of sign when possible.
7. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
8. See the Traffic Operations Division website for detailed drawings of sign clamps and Wedge Anchor System components. The website address is: http://www.txdot.gov/publications/traffic.htm

WEDGE ANCHOR SYSTEM INSTALLATION PROCEDURE

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

UNIVERSAL ANCHOR SYSTEM INSTALLATION PROCEDURE

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

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS WEDGE & UNIVERSAL ANCHOR WITH THIN WALL TUBING POST

SMD(TWT)-08

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

9-08 REVISIONS

CONT	SECT	JOB	HIGHWAY
0176	02	124	BU 59-G

DIST	COUNTY	SHEET NO.
LFK	ANGELINA	87

26E

DATE: 5/3/2021 2:42:56 PM
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FOUNDATION DESIGN TABLE

FDN TYPE	DRILLED SHAFT DIA	REINFORCING STEEL		EMBEDDED DRILLED SHAFT LENGTH-ft ④, ⑤, ⑥			ANCHOR BOLT DESIGN ①				FOUNDATION DESIGN LOAD ②		TYPICAL APPLICATION
		VERT BARS	SPIRAL & PITCH	TEXAS CONE PENETROMETER N blows/ft 10	15	40	ANCHOR BOLT DIA	Fy (ksi)	BOLT CIR DIA	ANCHOR TYPE	MOMENT K-ft	SHEAR Kips	
24-A	24"	4- #5	#2 at 12"	5.7	5.3	4.5	¾"	36	12 ¾"	1	10	1	Pedestal pole, pedestal mounted controller.
30-A	30"	8- #9	#3 at 6"	11.3	10.3	8.0	1 ½"	55	17"	2	87	3	Mast arm assembly. (see Selection Table)
36-A	36"	10- #9	#3 at 6"	13.2	12.0	9.4	1 ¾"	55	19"	2	131	5	Mast arm assembly. (see Selection Table) 30' strain pole with or without luminaire.
36-B	36"	12- #9	#3 at 6"	15.2	13.6	10.4	2"	55	21"	2	190	7	Mast arm assembly. (see Selection Table) Strain pole taller than 30' & strain pole with mast arm
42-A	42"	14- #9	#3 at 6"	17.4	15.6	11.9	2 ¼"	55	23"	2	271	9	Mast arm assembly. (see Selection Table)

NOTES:

① Anchor bolt design develops the foundation capacity given under Foundation Design Loads.

② Foundation Design Loads are the allowable moments and shears at the base of the structure.

③ Foundations may be listed separately or grouped according to similarity of location and type. Quantities are for the Contractor's information only.

④ Field Penetrometer readings at a depth of approximately 3 to 5 feet may be used to adjust shaft lengths.

⑤ If rock is encountered, the Drilled Shaft shall extend a minimum of two diameters into solid rock.

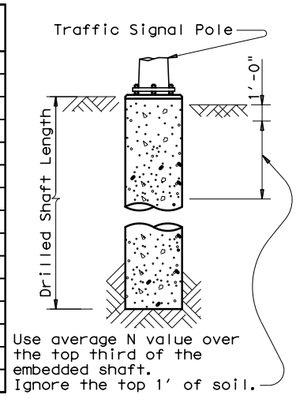
⑥ Decimal lengths in Design Table are to allow interpolation for other penetrometer values. Round to nearest foot for entry into Summary Table.

FOUNDATION SUMMARY TABLE ③

LOCATION IDENTIFICATION BU 59G	AVG. N BLOW /ft.	FDN TYPE	NO. EA	DRILLED SHAFT LENGTH ⑥ (FEET) 24-A	30-A	36-A	36-B	42-A
ATKINSON DR	10	24A	1	6				
KURTH DR	10	24A	2	6				
TOTAL DRILLED SHAFT LENGTHS				18				

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

		FDN 30-A	FDN 36-A	FDN 36-B	FDN 42-A
80 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH	32'	48'		
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS	24' X 24'			
		28' X 28'			
		32' X 28'	32' X 32'		
			36' X 36'		
			40' X 36'		
			44' X 28'	44' X 36'	
100 MPH DESIGN WIND SPEED	MAX SINGLE ARM LENGTH		36'	44'	
	MAXIMUM DOUBLE ARM LENGTH COMBINATIONS		24' X 24'		
			28' X 28'		
			32' X 24'	32' X 32'	
				36' X 36'	
				40' x24'	40' X 36'
					44' x 36'



Use average N value over the top third of the embedded shaft. Ignore the top 1' of soil.

ANCHOR BOLT & TEMPLATE SIZES

BOLT DIA IN.	⑦ BOLT LENGTH	TOP THREAD	BOTTOM THREAD	BOLT CIRCLE	R2	R1
¾"	1'-6"	3"	—	12 ¾"	7 ⅛"	5 ⅝"
1 ½"	3'-4"	6"	4"	17"	10"	7"
1 ¾"	3'-10"	7"	4 ½"	19"	11 ¼"	7 ¾"
2"	4'-3"	8"	5"	21"	12 ½"	8 ½"
2 ¼"	4'-9"	9"	5 ½"	23"	13 ¾"	9 ¼"

⑦ Min dimensions given, longer bolts are acceptable.

GENERAL NOTES:

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

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

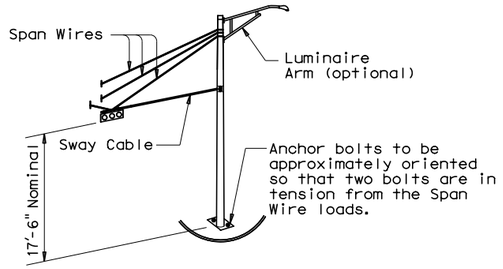
Concrete shall be Class "C".

Threads for anchor bolts and nuts shall be rolled or cut threads of 8UN series up to 2" in diameter or UNC series for all sizes. Bolts and nuts shall have Class 2A and 2B fit tolerances. Galvanized nuts shall be tapped after galvanizing.

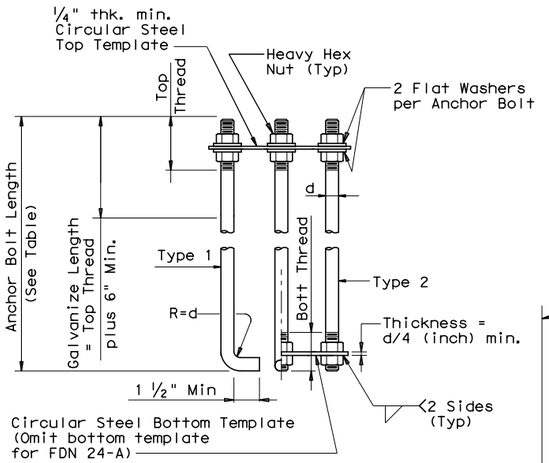
Anchor bolts that are larger than 1" in diameter shall conform to "alloy steel" or "medium-strength mild steel" per Item 449, "Anchor Bolts". Anchor bolts that are 1" in diameter or less shall conform to ASTM A36. Galvanize a minimum of the top end thread length plus 6" for all anchor bolts unless otherwise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

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

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



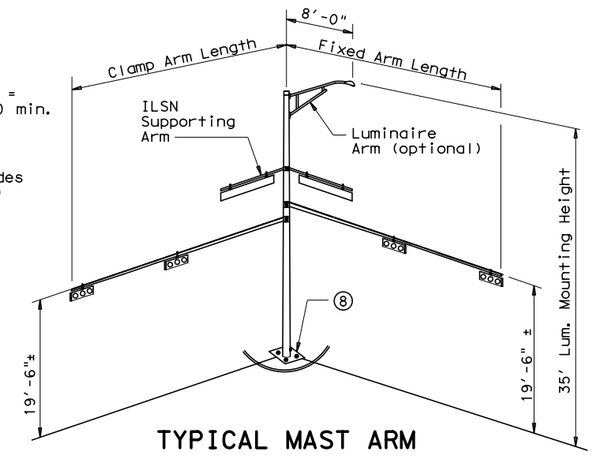
TYPICAL STRAIN POLE ASSEMBLY



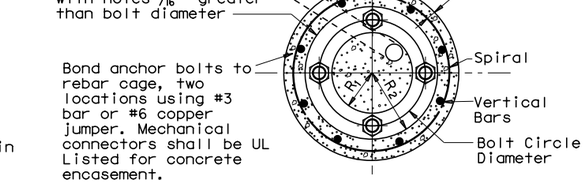
HOOKED ANCHOR (TYPE 1) NUT ANCHOR (TYPE 2)

ANCHOR BOLT ASSEMBLY

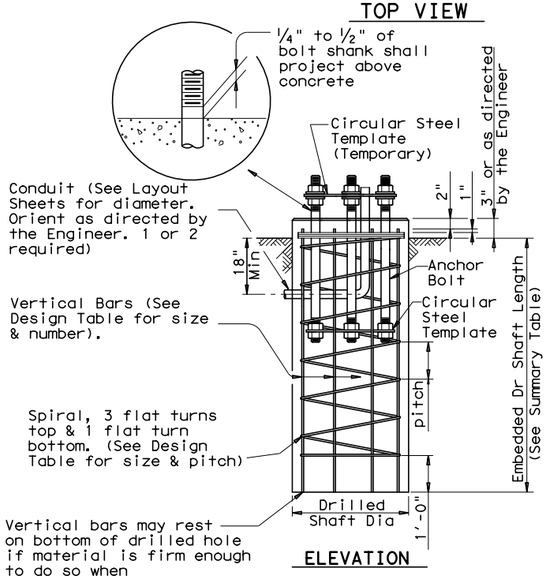
⑧ Orient anchor bolts orthogonal with the fixed arm direction to ensure that two bolts are in tension under dead load.



TYPICAL MAST ARM ASSEMBLY



TOP VIEW



ELEVATION

FOUNDATION DETAILS

STATE OF TEXAS
DOUGLAS BURNETT JR.
140757
LICENSED PROFESSIONAL ENGINEER

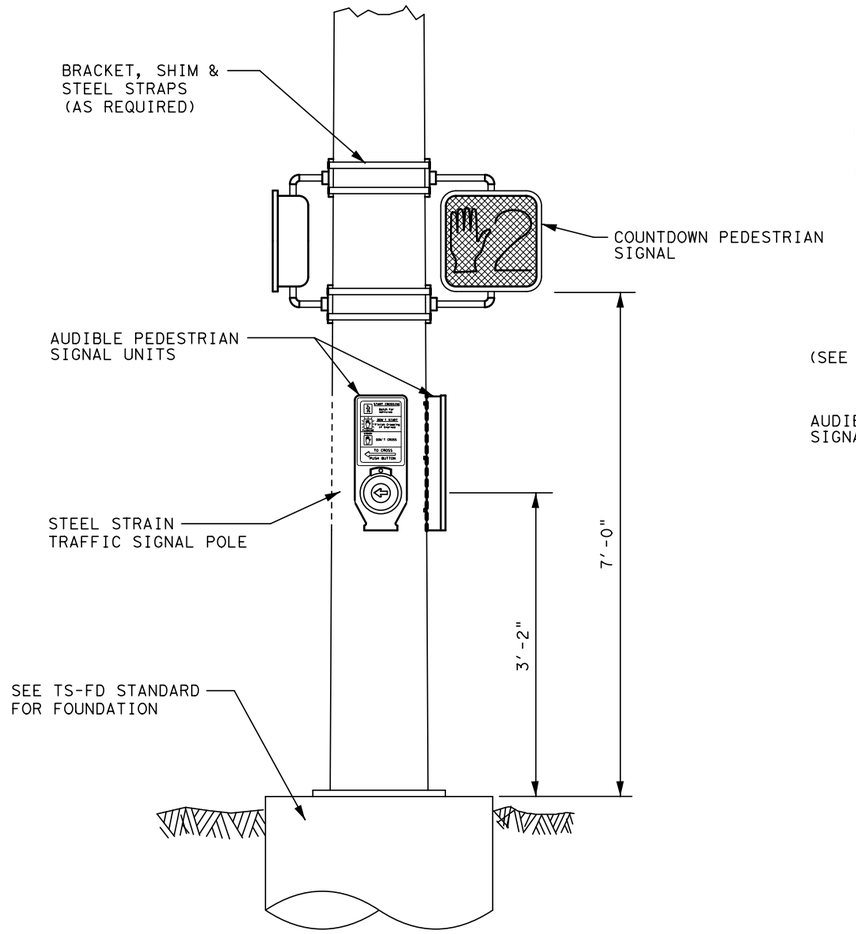
Texas Department of Transportation
Traffic Operations Division

TRAFFIC SIGNAL POLE FOUNDATION

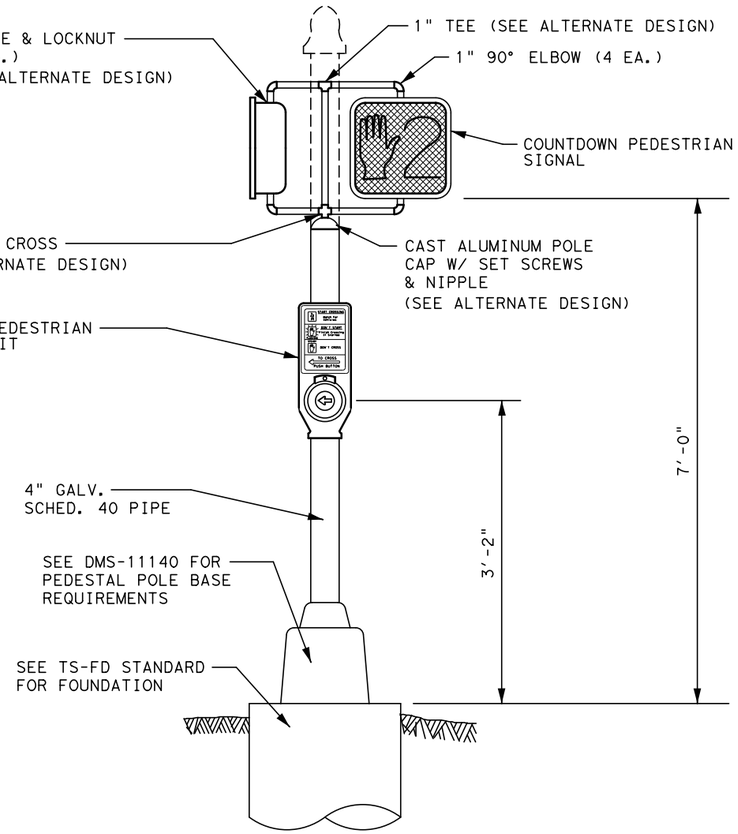
TS-FD-12

DATE: 5-21-2021	CK: JSY	DW: MAO/MMF	CK: JSY/TEB
REVISIONS 5-98 11-98 1-12	CONT	SECT	JOB	HIGHWAY
	176	02	124	BU 59-G
	DIST	COUNTY	SHEET NO.
	LFK	ANGELINA	88

Doug Burnett



TYPICAL PEDESTRIAN SIGNAL ASSEMBLY FOR STEEL STRAIN POLE



TYPICAL PEDESTRIAN SIGNAL POLE

NOTE:
ALL PEDESTRIAN SIGNAL HEADS AND PUSH BUTTONS SHALL MEET ADA STANDARD REQUIREMENTS.

ALTERNATE DESIGN

PEDESTRIAN SIGNAL MAY BE STRAPPED TO PEDESTRIAN SIGNAL POLE SIMILAR TO LARGER POLE ASSEMBLIES WITH AN ACORN CAP FOR TOP.

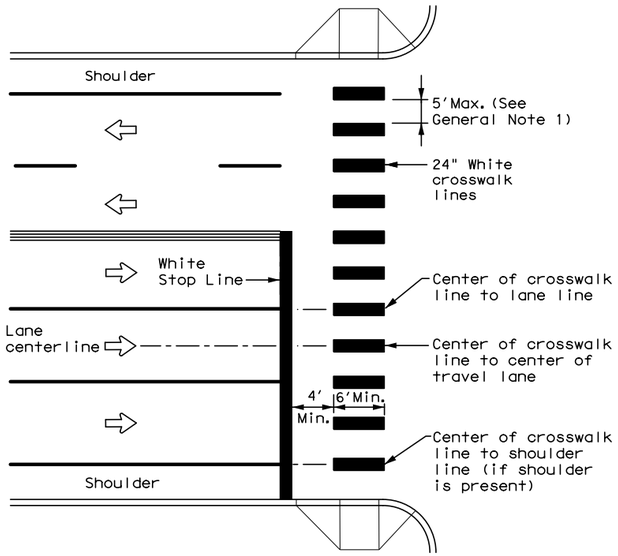
REV. 2-28-14 ADD COUNTDOWN PEDESTRIAN SIGNAL
REV. 5-10-11 ADD AUDIBLE PED SIG UNIT
ISSUED 01-09

Texas Department of Transportation
LUFKIN DISTRICT STANDARD

PEDESTRIAN SIGNAL DETAILS

NOT TO SCALE

FED. NO. DIV. NO:	PROJECT NO.		SHEET NO.
6			89
STATE	DISTRICT	COUNTY	
TEXAS	LFK	ANGELINA	
CONTROL	SECTION	JOB	HIGHWAY NO.
0176	02	124	BU 59-G



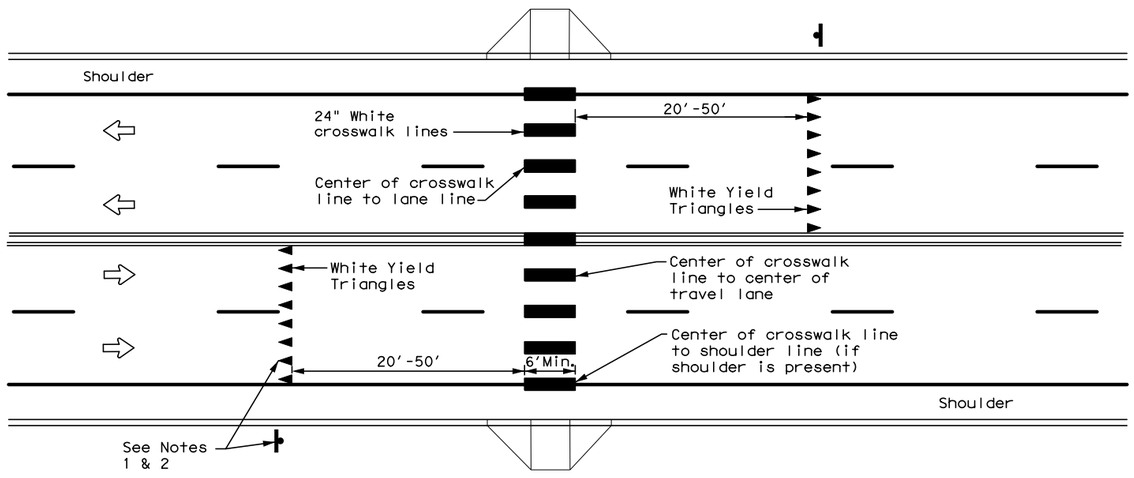
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar/Yield Triangles and Crosswalk shall be approved by the Engineer in the field.

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

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



UNSIGNALIZED MID BLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES

1. Use yield triangles with "Yield Here to Pedestrians" signs at unsignalized mid block crosswalks.
2. Use stop bars with "Stop Here on Red" signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

Texas Department of Transportation

Traffic Safety Division Standard

CROSSWALK PAVEMENT MARKINGS

PM(4)-20

FILE: pm4-20.dgn	DN:	CK:	DW:	CK:
© TxDOT June 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		90

220

5/3/2021 2:43:41 PM
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I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

TPDES TXR 150000: Stormwater Discharge Permit or Construction General Permit required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506.

List MS4 Operator(s) that may receive discharges from this project. They may need to be notified prior to construction activities.

1. N/A

☐ No Action Required ☒ Required Action

Action No.

These projects disturb more than 1 acre of soil

1. Prevent stormwater pollution by controlling erosion and sedimentation in accordance with TPDES Permit TXR 150000
2. Comply with the SWP3 and revise when necessary to control pollution or required by the Engineer.
3. Post Construction Site Notice (CSN) with SWP3 information on or near the site, accessible to the public and TCEQ, EPA or other inspectors.
4. When Contractor project specific locations (PSL's) increase disturbed soil area to 5 acres or more, submit NOI to TCEQ and the Engineer.

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS CLEAN WATER ACT SECTIONS 401 AND 404

USACE Permit required for filling, dredging, excavating or other work in any water bodies, rivers, creeks, streams, wetlands or wet areas.

The Contractor must adhere to all of the terms and conditions associated with the following permit(s):

☒ No Permit Required

☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)

☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)

☐ Individual 404 Permit Required

☐ Other Nationwide Permit Required: NWP# _____

Required Actions: List waters of the US permit applies to, location in project and check Best Management Practices planned to control erosion, sedimentation and post-project TSS.

The elevation of the ordinary high water marks of any areas requiring work to be performed in the waters of the US requiring the use of a nationwide permit can be found on the Bridge Layouts.

Best Management Practices:

Erosion	Sedimentation	Post-Construction TSS
☐ Temporary Vegetation	☐ Silt Fence	☐ Vegetative Filter Strips
☐ Blankets/Matting	☐ Rock Berm	☐ Retention/Irrigation Systems
☐ Mulch	☐ Triangular Filter Dike	☐ Extended Detention Basin
☐ Sodding	☐ Sand Bag Berm	☐ Constructed Wetlands
☐ Interceptor Swale	☐ Straw Bale Dike	☐ Wet Basin
☐ Diversion Dike	☐ Brush Berms	☐ Erosion Control Compost
☐ Erosion Control Compost	☐ Erosion Control Compost	☐ Mulch Filter Berm and Socks
☐ Mulch Filter Berm and Socks	☐ Mulch Filter Berm and Socks	☐ Compost Filter Berm and Socks
☐ Compost Filter Berm and Socks	☐ Compost Filter Berm and Socks	☐ Vegetation Lined Ditches
	☐ Stone Outlet Sediment Traps	☐ Sand Filter Systems
	☐ Sediment Basins	☐ Grassy Swales

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the immediate area and contact the Engineer immediately.

☒ No Action Required ☐ Required Action

Action No.

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical.
Contractor must adhere to Construction Specification Requirements Specs 162, 164, 192, 193, 506, 730, 751, 752 in order to comply with requirements for invasive species, beneficial landscaping, and tree/brush removal commitments.

☒ No Action Required ☐ Required Action

Action No.

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS.

☒ No Action Required ☐ Required Action

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SWP3:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

Comply with the Hazard Communication Act (the Act) for personnel who will be working with hazardous materials by conducting safety meetings prior to beginning construction and making workers aware of potential hazards in the workplace. Ensure that all workers are provided with personal protective equipment appropriate for any hazardous materials used.

Obtain and keep on-site Material Safety Data Sheets (MSDS) for all hazardous products used on the project, which may include, but are not limited to the following categories: Paints, acids, solvents, asphalt products, chemical additives, fuels and concrete curing compounds or additives. Provide protected storage, off bare ground and covered, for products which may be hazardous. Maintain product labelling as required by the Act.

Maintain an adequate supply of on-site spill response materials, as indicated in the MSDS. In the event of a spill, take actions to mitigate the spill as indicated in the MSDS, in accordance with safe work practices, and contact the District Spill Coordinator immediately. The Contractor shall be responsible for the proper containment and cleanup of all product spills.

Contact the Engineer if any of the following are detected:

* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)?

☐ Yes ☒ No

If "No", then no further action is required.
If "Yes", then TxDOT is responsible for completing asbestos assessment/inspection.

Are the results of the asbestos inspection positive (is asbestos present)?

☐ Yes ☐ No

If "Yes", then TxDOT must retain a DSHS licensed asbestos consultant to assist with the notification, develop abatement/mitigation procedures, and perform management activities as necessary. The notification form to DSHS must be postmarked at least 15 working days prior to scheduled demolition.

If "No", then TxDOT is still required to notify DSHS 15 working days prior to any scheduled demolition.

In either case, the Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

Any other evidence indicating possible hazardous materials or contamination discovered on site. Hazardous Materials or Contamination Issues Specific to this Project:

☒ No Action Required ☐ Required Action

VII. OTHER ENVIRONMENTAL ISSUES

(includes regional issues such as Edwards Aquifer District, etc.)

☒ No Action Required ☐ Required Action

Action No.

Texas Department of Transportation — Design Standard

EPIC

(ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS)

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR	
©TxDOT: February 2015	CONT	SECT	JOB	HIGHWAY	
REVISIONS 12-12-2011 (DS) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	0176	02	124	BU 59-G	
	DIST	COUNTY		SHEET NO.	
	LFK	ANGELINA		91	

NOTES:
(1) THE PURPOSE OF THIS SHEET IS TO POINT THE USER TO THE APPROPRIATE LOCATIONS TO FIND THE REQUIRED CONTENT OF THE SWP3.
(2) THE PROJECT LIMITS SHOWN ON THE TITLE SHEET AND LIMITS OF TXDOT RIGHT OF WAY SHALL ALSO BE THE LIMITS OF COVERAGE OF THE SWP3.

PROJECT DESCRIPTION

A. NATURE OF ACTIVITY: CONSTRUCTION OF ADA SIDEWALKS, CURB RAMPS, AND DRIVEWAYS ALONG BU 59-G.

B. POTENTIAL POLLUTANTS AND THEIR SOURCES: POLLUTANT: SEDIMENT, SOURCE: DISTURBED SOIL; POLLUTANT: OIL AND GREASE, SOURCE: VEHICLES

C. INTENDED SEQUENCE OF ACTIVITIES: SEE CONSTRUCTION SCHEDULE FOR ESTIMATED START DATES AND DURATION OF SOIL-DISTURBING ACTIVITIES

D. TOTAL AREA OF SITE: 19 ACRES AREA TO BE DISTURBED: 1.8 ACRES

E. DATA DESCRIBING THE SOIL OR QUALITY OF ANY DISCHARGE FROM THE SITE: Sandy, Sandy Loam, Clay, Sandy Clay Loam

F. GENERAL LOCATION MAP: SEE TITLE SHEET OF THE PROJECT PLANS

G. DETAILED SITE MAP/MAPS INDICATING THE FOLLOWING:
- i. DRAINAGE PATTERNS: SEE SWP3 LAYOUTS
- ii. ANTICIPATED SLOPES AFTER MAJOR GRADING ACTIVITIES: SEE DRIVEWAY DETAILS.
- iii. AREAS WHERE SOIL DISTURBANCE WILL OCCUR: SEE PLAN LAYOUTS
- iv. LOCATIONS OF ALL CONTROLS OR BUFFERS (PLANNED/IN PLACE): SEE PLAN LAYOUTS
- v. LOCATIONS WHERE TEMPORARY OR PERMANENT STABILIZATION PRACTICES ARE EXPECTED TO BE USED: SEE PLAN LAYOUTS
- vi. LOCATION OF CONSTRUCTION SUPPORT ACTIVITIES: SEE PLAN LAYOUTS
- vii. SURFACE WATERS, INCLUDING WETLANDS, AT, ADJACENT, OR IN CLOSE PROXIMITY TO THE SITE (* INDICATES IMPAIRED WATERS): SEE PLAN LAYOUTS
- viii. LOCATIONS WHERE STORMWATER DISCHARGES DIRECTLY TO A SURFACE WATER BODY OR MS4: SEE PLAN LAYOUTS
- ix. VEHICLE WASH AREAS: N/A
- x. DESIGNATED POINTS ON THE SITE WHERE VEHICLES WILL EXIT FROM UNSTABLE DIRT TO PAVED ROAD: N/A

H. LOCATION AND DESCRIPTION OF CONSTRUCTION SUPPORT ACTIVITIES AUTHORIZED UNDER THE PERMITTEE'S NOI: CONSTRUCTION SUPPORT ACTIVITIES ARE NOT COVERED UNDER THIS SWP3 AS IT IS NOT AUTHORIZED UNDER THIS PERMITTEE'S CGP. THE PERMITTEE WILL MAKE REFERENCE TO CONSTRUCTION SUPPORT ACTIVITIES THAT ARE COVERED UNDER THE CONTRACTOR'S SWP3 AND CGP ON PLAN LAYOUTS

I. NAME OF RECEIVING WATER(S) AT OR NEAR SITE: *HURRICANE CREEK AN ASTERISK (*) INDICATES AN IMPAIRED WATER

NEAREST CLASSIFIED SEGMENT NUMBER: 0604

CLASSIFIED SEGMENT NAME: NECHES RIVER

J. COPY OF TPDES GENERAL PERMIT: SEE SWP3 FILE

K. NOI AND ACKNOWLEDGEMENT CERTIFICATE OR SITE NOTICE: SEE SWP3 FILE

L. STORMWATER AND ALLOWABLE NON-STORMWATER DISCHARGE LOCATIONS: SEE PLAN LAYOUTS

M. LOCATIONS OF POLLUTANT GENERATING ACTIVITIES: ACTIVITIES AUTHORIZED UNDER THIS PERMITTEE'S CGP CAN BE FOUND ON PLAN LAYOUTS. THIS SHEET WILL ALSO REFERENCE THE LOCATION OF POLLUTANT GENERATING ACTIVITIES THAT ARE COVERED BY THE CONTRACTOR'S CGP AND SWP3.

DESCRIPTION OF BMPS

A. GENERAL REQUIREMENTS: EROSION AND SEDIMENT CONTROLS SHOWN ON SWP3 LAYOUTS WERE DESIGNED TO RETAIN SEDIMENT ON-SITE TO THE EXTENT PRACTICABLE WITH CONSIDERATION OF LOCAL TOPOGRAPHY, SOIL TYPE, AND RAINFALL. THE EROSION AND SEDIMENT CONTROLS WILL BE INSTALLED AND MAINTAINED ACCORDING TO MANUFACTURER AND TXDOT STORM WATER MANAGEMENT GUIDELINES. CONTROLS TO MINIMIZE THE OFF-SITE TRANSPORT OF LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION MATERIALS INCLUDE: CONSTRUCTION MATERIALS TO BE STORED IN LOCATIONS THAT MINIMIZE THEIR EXPOSURE TO PRECIPITATION & STORM WATER RUNOFF; COLLECTION OF CONSTRUCTION DEBRIS IN RECEPTACLES WITH A SECURE COVER MEETING STATE AND LOCAL SOLID WASTE MANAGEMENT REGULATIONS; HAULING AND EMPTYING RECEPTACLES AT APPROVED LANDFILL SITES; PROHIBITING THE BURIAL OF CONSTRUCTION DEBRIS; COLLECTION OF SANITARY WASTE FROM PORTABLE UNITS AS NECESSARY OR AS REQUIRED BY LOCAL REGULATIONS BY A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR.

B. EROSION CONTROL AND STABILIZATION PRACTICES

T	TEMP/PERM SEEDING		PROTECTION OF TREES AND VEGETATION
	MULCHING (HAY OR STRAW)		GEOTEXTILES
	VEGETATIVE BUFFER STRIPS		SLOPE TEXTURING
	SOD STABILIZATION		TEMP VELOCITY DISSIPATION DEVICES
P	BLOCK SOD		FLOW DIVERSION MECHANISMS
	OTHER		

T = TEMPORARY; P = PERMANENT

DATES:
1. MAJOR GRADING ACTIVITIES: _____
2. WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON A PORTION OF THE SITE: _____
3. WHEN STABILIZATION MEASURES ARE INITIATED: _____

INITIATE EROSION CONTROL AND STABILIZATION MEASURES IMMEDIATELY IN THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. INITIATE STABILIZATION MEASURES THAT PROVIDE A PROTECTIVE COVER IMMEDIATELY IN THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE PERMANENTLY CEASED. "IMMEDIATELY" MEANS NO LATER THAN THE NEXT WORK DAY FOLLOWING THE DAY WHEN THE SOIL-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. STABILIZATION MEASURES MUST BE COMPLETED NO MORE THAN 14 CALENDAR DAYS AFTER INITIATION BEGINS.

THE SCHEDULE OF IMPLEMENTATION OF THESE PRACTICES WILL BE BASED ON THE INTENDED SEQUENCE OF MAJOR SOIL-DISTURBING ACTIVITIES. SEE CONSTRUCTION SCHEDULE

C. SEDIMENT CONTROL PRACTICES

T	SILT FENCE		VEGETATIVE BUFFER STRIPS
T	OTHER (EROSION CONTROL LOGS)		

IF SITE WILL DISTURB 10 OR MORE ACRES WITHIN A COMMON DRAINAGE LOCATION AND A SEDIMENTATION BASIN IS NOT FEASIBLE, PROVIDE REASON:

THE SCHEDULE OF IMPLEMENTATION OF THESE PRACTICES WILL BE BASED ON THE INTENDED SEQUENCE OF MAJOR SOIL-DISTURBING ACTIVITIES. SEE CONSTRUCTION SCHEDULE

DESCRIPTION OF PERMANENT STORM WATER CONTROLS

PROVIDE A DESCRIPTION OF ANY MEASURES THAT WILL BE INSTALLED DURING THE CONSTRUCTION PROCESS TO CONTROL POLLUTANTS IN STORM WATER DISCHARGES THAT MAY OCCUR AFTER CONSTRUCTION OPERATIONS HAVE BEEN COMPLETED: N/A

OTHER REQUIRED CONTROLS AND BMPS

TXDOT WILL UTILIZE ROCK AT CONSTRUCTION ENTRANCES AND SPRINKLING, AS NEEDED, TO MINIMIZE OFF-SITE VEHICLE TRACKING OF SEDIMENTS AND THE GENERATION OF DUST.

SEE SECTION A ABOVE FOR DESCRIPTION OF CONSTRUCTION AND WASTE MATERIALS AND CONTROLS USED FOR THOSE THAT MAY BE STORED ON-SITE.

AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED TO BE HAZARDOUS: PAINTS, ACIDS FOR CLEANING MASONRY SURFACES, CLEANING SOLVENTS, FUELS, MOTOR OIL, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION, OR CONCRETE CURING COMPOUNDS AND ADDITIVES. STORE MATERIAL IN ACCORDANCE WITH APPLICABLE REGULATIONS. CONTACT THE SPILL COORDINATOR IMMEDIATELY IN THE EVENT OF A SPILL WHICH MAY BE HAZARDOUS.

MAINTENANCE REQUIREMENTS

EFFECTIVELY MAINTAIN THE OPERATING CONDITIONS OF ALL EROSION AND SEDIMENT CONTROL AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THE SWP3. IF SITE INSPECTIONS REQUIRED BY THIS PERMIT IDENTIFY BMP'S THAT ARE NOT OPERATING EFFECTIVELY, MAINTENANCE SHALL BE PERFORMED BEFORE THE NEXT ANTICIPATED STORM EVENT, OR AS NECESSARY TO MAINTAIN THE CONTINUED EFFECTIVENESS OF STORM WATER CONTROLS. IF MAINTENANCE PRIOR TO THE NEXT ANTICIPATED STORM EVENT IS UNPRACTICABLE, SCHEDULE AND ACCOMPLISH MAINTENANCE AS SOON AS PRACTICAL. CONTROLS THAT HAVE BEEN INTENTIONALLY DISABLED, RUN-OVER, REMOVED OR OTHERWISE RENDERED INEFFECTIVE MUST BE REPLACED OR CORRECTED IMMEDIATELY UPON DISCOVERY. IF A CONTROL HAS BEEN USED INCORRECTLY, IS PERFORMING INADEQUATELY OR IS DAMAGED, THE OPERATOR SHALL REPLACE OR MODIFY THE CONTROL AS SOON AS PRACTICABLE AFTER THE DISCOVERY.

INSPECTION OF CONTROLS

A) QUALIFIED PERSONNEL SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE, ONCE EVERY 7 CALENDAR DAYS. DISTURBED AREAS THAT ARE EXPOSED TO PRECIPITATION SHALL BE INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM. SEDIMENT AND EROSION CONTROL MEASURES IDENTIFIED ON THE SWP3 SHALL BE OBSERVED TO ENSURE THAT THEY ARE OPERATING CORRECTLY. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE SHALL BE INSPECTED FOR EVIDENCE OF OFF-SITE SEDIMENT TRACKING.

D) THE SWP3 MUST BE MODIFIED BASED ON THE RESULTS OF INSPECTION TO BETTER CONTROL POLLUTANTS IN RUNOFF. REVISIONS TO THE SWP3 MUST BE COMPLETED WITHIN 7 CALENDAR DAYS FOLLOWING THE INSPECTION. IF EXISTING BMPS ARE MODIFIED OR ADDITIONAL BMPS ARE NECESSARY, AN IMPLEMENTATION SCHEDULE MUST BE DESCRIBED IN THE SWP3. IMPLEMENTATION OF CHANGES SHOULD BE DONE PRIOR TO THE NEXT STORM EVENT IF POSSIBLE, OTHERWISE, THEY SHOULD BE DONE AS SOON AS PRACTICABLE.

E) A REPORT SUMMARIZING THE SCOPE, DATE, NAME AND QUALIFICATIONS OF INSPECTOR, AND MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE SWP3 SHALL BE PRODUCED AND RETAINED AS PART OF THE SWP3. MAJOR OBSERVATIONS INCLUDE: LOCATIONS OF DISCHARGES OF SEDIMENT OR OTHER POLLUTANTS FROM THE SITE, LOCATIONS OF BMPS THAT NEED TO BE MAINTAINED, LOCATIONS OF BMPS THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION AND LOCATIONS WHERE BMPS ARE NEEDED. ACTIONS TAKEN AS A RESULT OF INSPECTIONS MUST BE DESCRIBED WITHIN AND RETAINED AS PART OF THE SWP3. REPORTS MUST IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE. WHERE THE REPORT DOES NOT IDENTIFY ANY INCIDENTS OF NON-COMPLIANCE, THE REPORT MUST CONTAIN A CERTIFICATION THAT THE SITE IS IN COMPLIANCE WITH THE SWP3 AND PERMIT.

OTHER SWP3 CONTENT

TXDOT WILL ENSURE THE APPROPRIATE POLLUTION PREVENTION MEASURES (I.E. VEGETATED BUFFER STRIPS, SILT FENCE, ETC.) ARE IDENTIFIED AND IMPLEMENTED FOR ALL ELIGIBLE NON-STORMWATER WATER COMPONENTS OF DISCHARGE SUCH AS WASHING OF VEHICLES, STRUCTURES, AND PAVEMENT WHERE SOAPS AND DETERGENTS ARE NOT USED AND THE PURPOSE IS TO REMOVE DIRT, MUD OR DUST; UNCONTAMINATED WATER USED FOR DUST CONTROL; AND LAWN WATERING AND SIMILAR IRRIGATION DRAINAGE.

CHECKLIST FOR CONTENTS OF AREA OFFICE SWP3 FILE:

- ☐ CONTACT FORM *
- ☐ NOI AND ACKNOWLEDGEMENT CERTIFICATE (IF EQUAL OR GREATER THAN 5 ACRES)
- ☐ APPLICABLE CONSTRUCTION SITE NOTICE *
- ☐ SWP3 CERTIFICATION STATEMENT (SIGNED BY AE)
- ☐ TPDES GENERAL PERMIT
- ☐ SWP3 PLAN
- ☐ INSPECTION AND MAINTENANCE REPORT
- ☐ INSPECTOR QUALIFICATION FORM
- ☐ DELEGATION OF SIGNATURE AUTHORITY (ALL INSPECTORS SIGNING REPORTS)
- ☐ NOTICE OF TERMINATION

STATE OF TEXAS
KAMERON K. RABURN
139952
LICENSED PROFESSIONAL ENGINEER

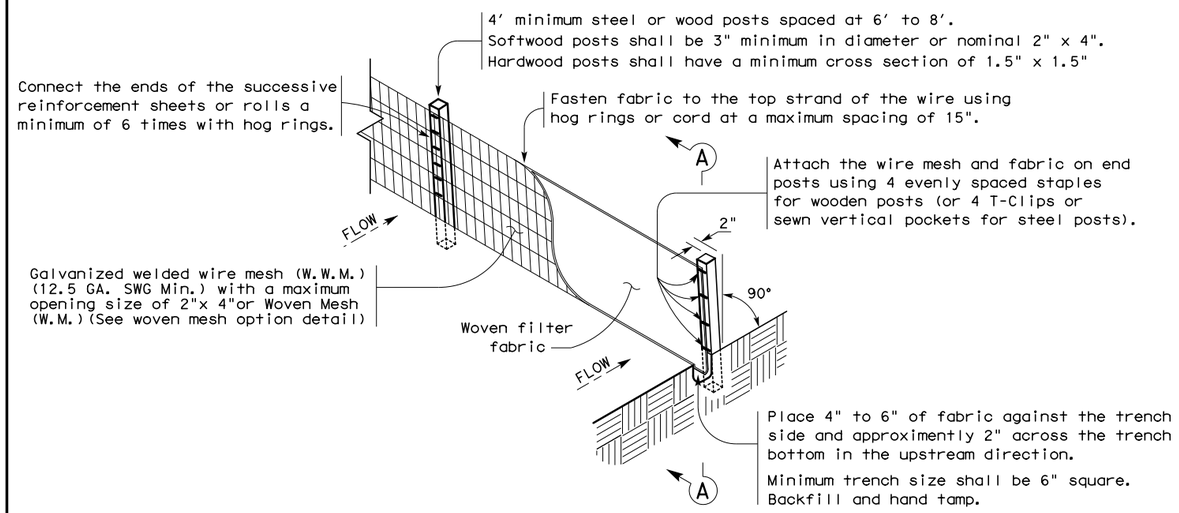
* SYMBOL INDICATES THAT THE INFORMATION SHOULD BE DISPLAYED ON THE PROJECT BULLETIN BOARD

ANY REPORTABLE QUANTITY OF HAZARDOUS MATERIAL RELEASE MUST BE REPORTED TO NATIONAL RESPONSE CENTER AT 1-800-424-8802 AND TO STATE OF TEXAS SPILL-REPORTING HOTLINE AT 1-800-832-8224

TXDOT SWP3 INDEX

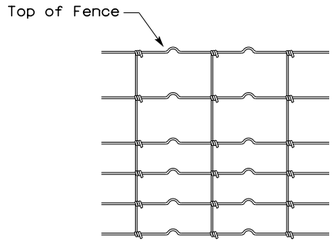
CONT	SECT	JOB	HIGHWAY
0176	02	124	BU 59-G
DIST	COUNTY		SHEET NO.
LFK	ANGELINA		92

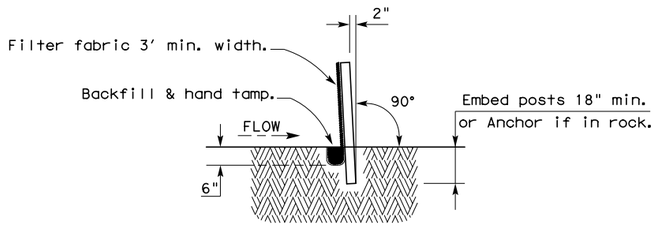
(REVISED OCTOBER 30, 2013)



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.

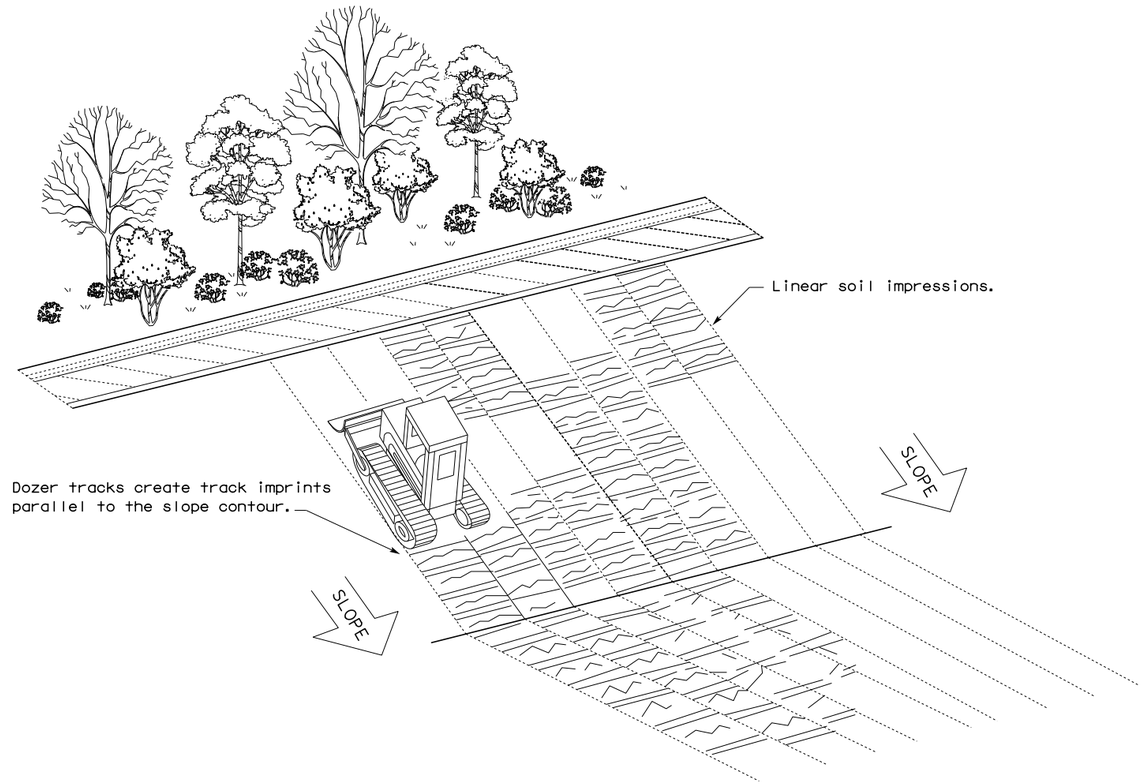
LEGEND

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	0176	02	124		BU 59-G	
	DIST	COUNTY				SHEET NO.
	LFK	ANGELINA				93

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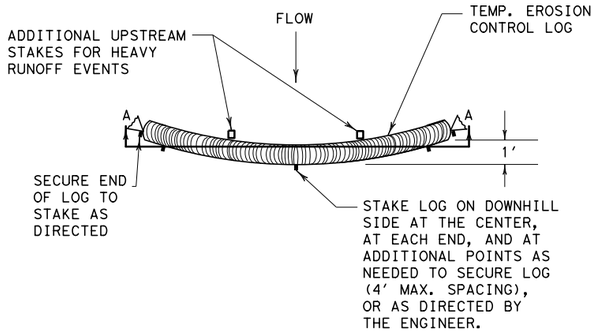
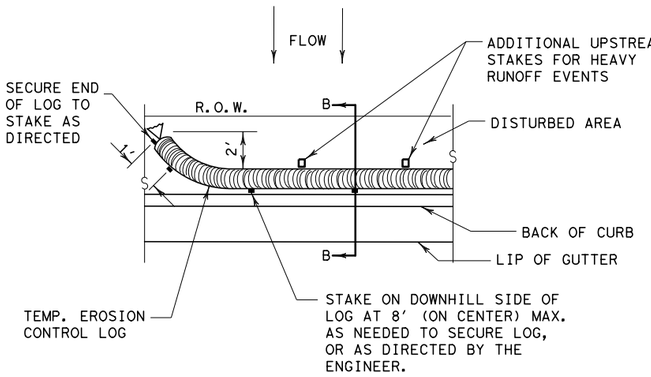


PLAN VIEW



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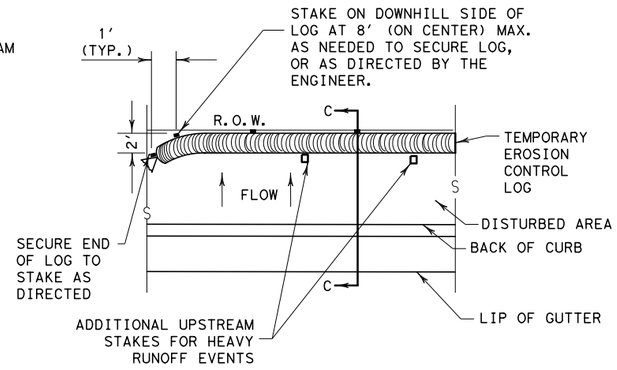

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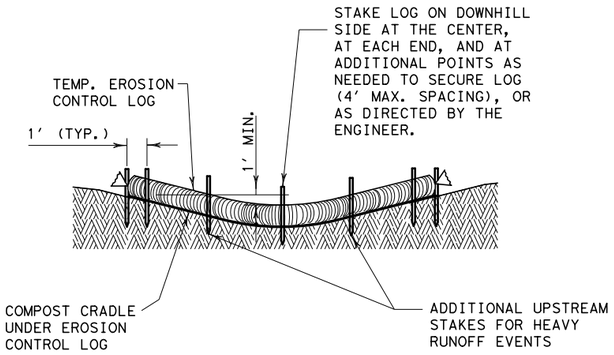
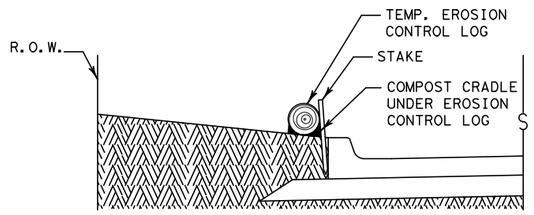


SECTION A-A

EROSION CONTROL LOG DAM

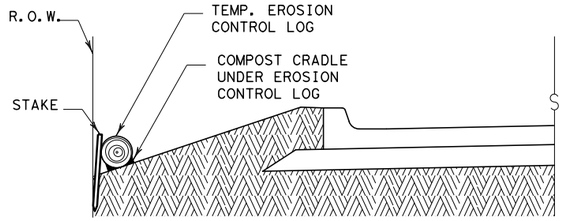
CL-D



SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

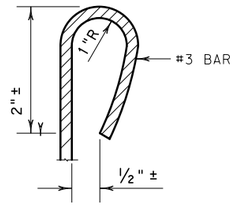
CL-BOC



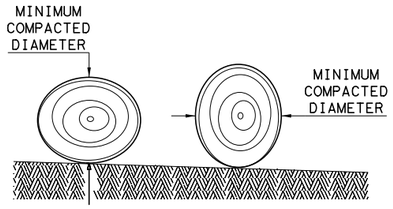
SECTION C-C

EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



REBAR STAKE DETAIL



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

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.

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

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.

SHEET 1 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	0176	02	124	BU 59-G	
	DIST	COUNTY		SHEET NO.	
	LFK	ANGELINA		94	

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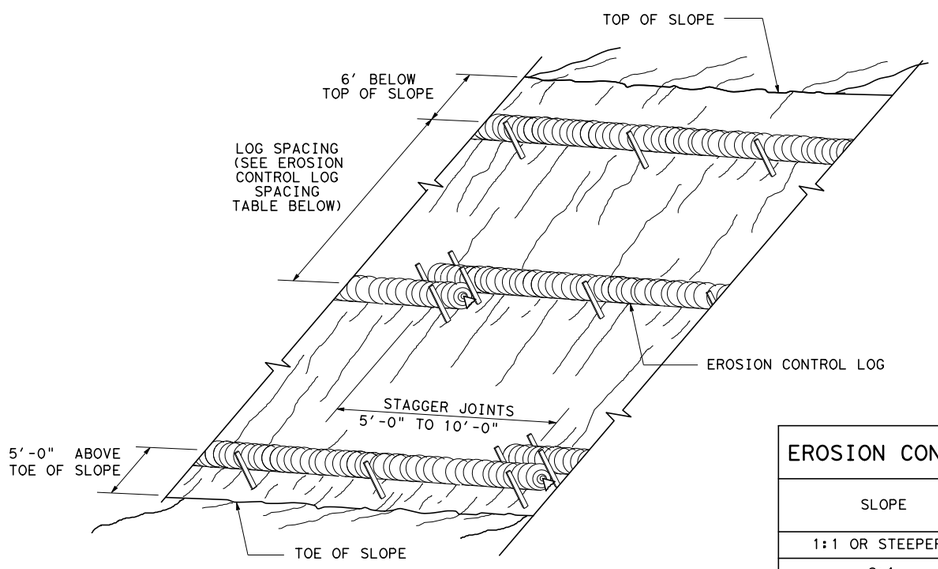
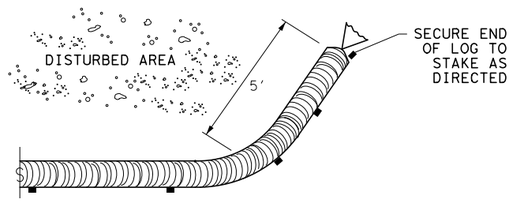


EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING

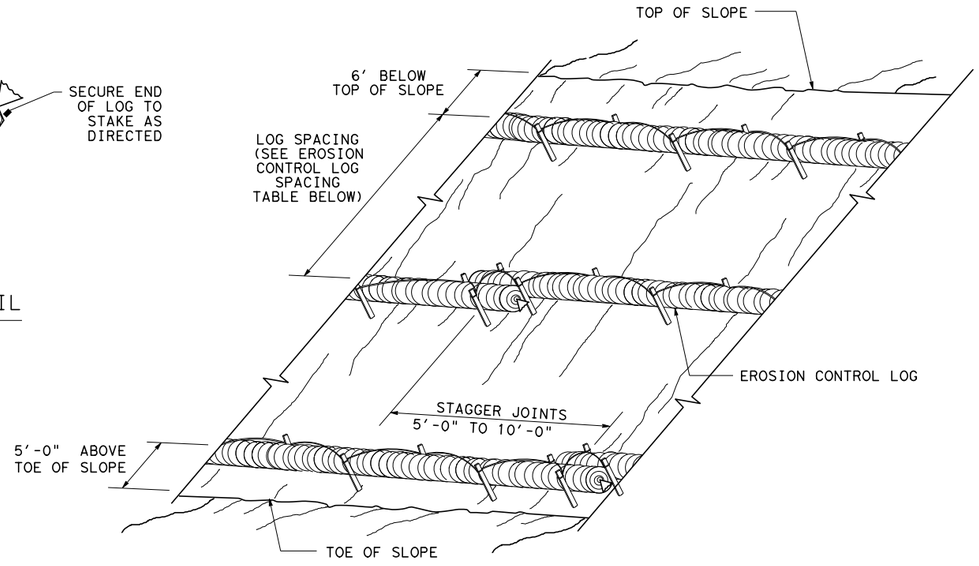
CL-SST



END SECTION RAP DETAIL

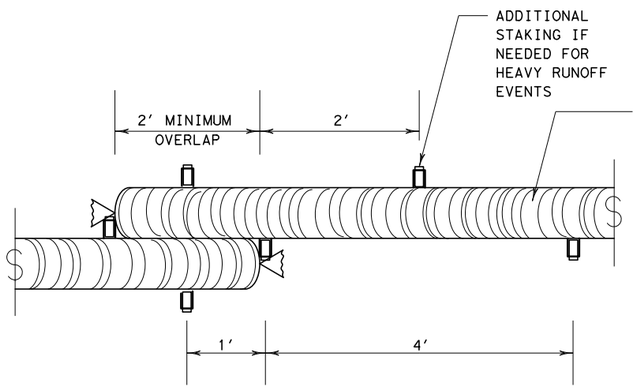
EROSION CONTROL LOG SPACING TABLE				
SLOPE	LOG DIAMETER			
	6"	8"	12"	18"
1:1 OR STEEPER	5′	10′	15′	20′
2:1	10′	20′	30′	40′
3:1	15′	30′	45′	60′
4:1 OR FLATTER	20′	40′	60′	80′

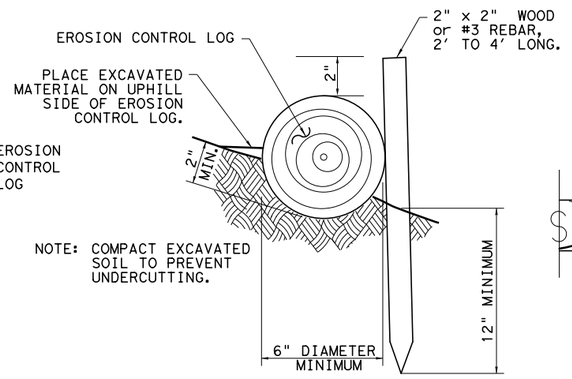
* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING

CL-SSL

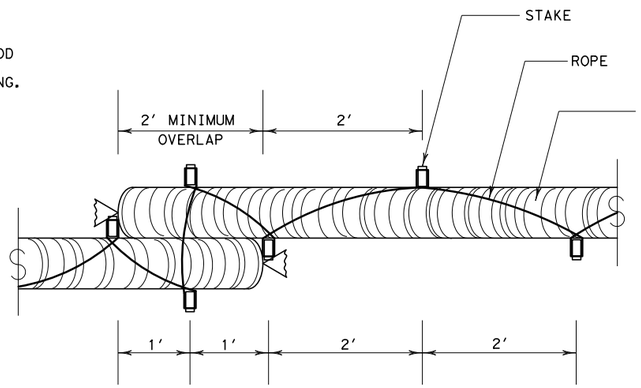


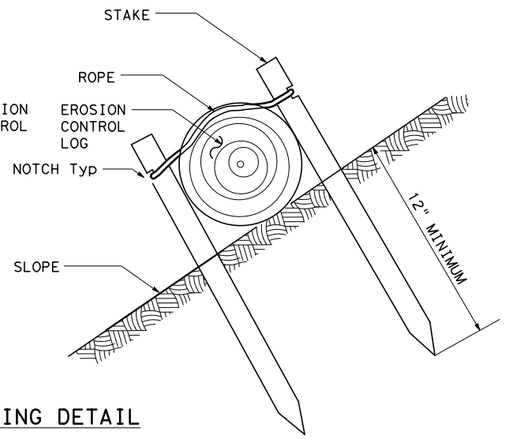


STAKE AND TRENCHING ANCHORING DETAIL

CL-SST

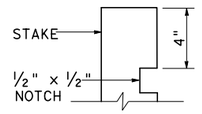
TRENCH DEPTH TABLE	
LOG DIAMETER	DEPTH
6"	2"
8"	3"
12"	4"
18"	5"





STAKE AND LASHING ANCHORING DETAIL

CL-SSL



STAKE NOTCH DETAIL

Texas Department of Transportation

Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

EROSION CONTROL LOG

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FILE: ec116	DN: TxDOT	CK: KM	DW: LS/PT	CK: LS
© TxDOT: JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS	0176	02	124	BU 59-G
	DIST	COUNTY		SHEET NO.
	LFK	ANGELINA		95

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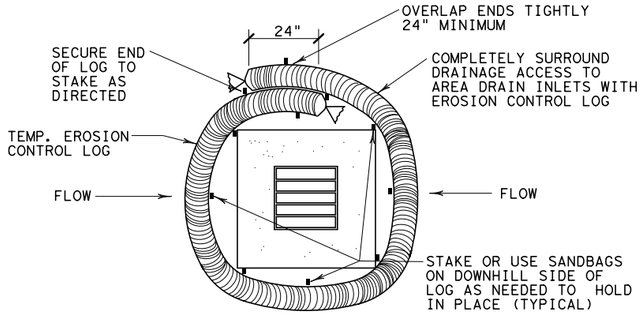
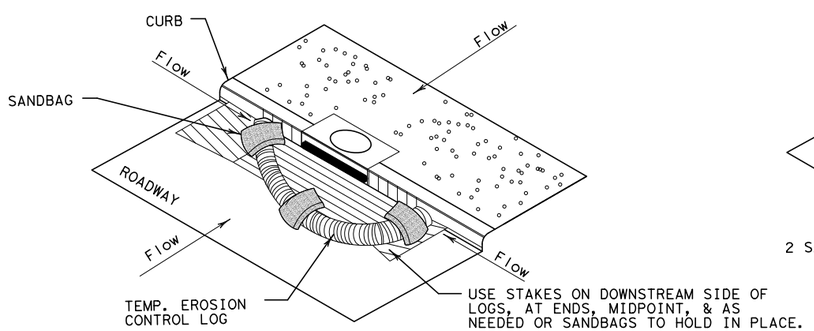


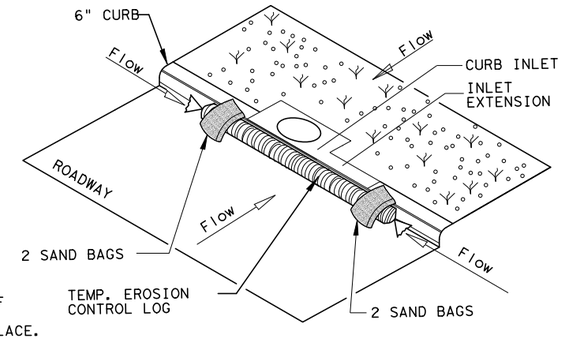
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

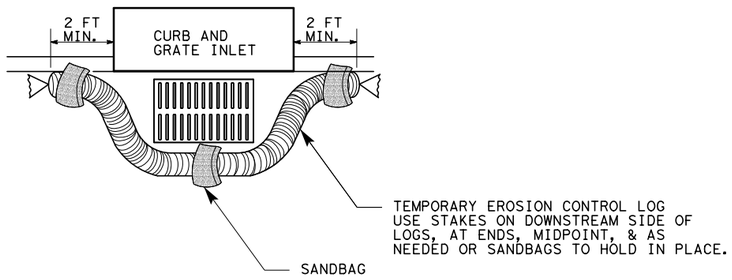
CL-CI



EROSION CONTROL LOG AT CURB INLET

CL-CI

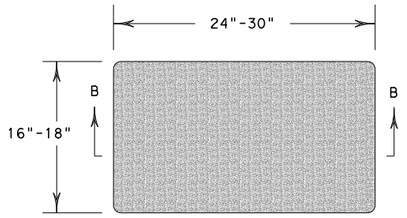
NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



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

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REVISIONS	0176	02	124		BU 59-G	
	DIST	COUNTY			SHEET NO.	
	LFK	ANGELINA			96	