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

DocuSigned by:
Jeremy King, P.E. 6/4/2024
 5135292FE4184A4... DATE

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION NOVEMBER 1, 2014 AND SPECIAL SPECIFICATION ITEMS INCLUDED IN THE CONTRACT SHALL GOVERN ON THIS PROJECT.

**STATE OF TEXAS
 DEPARTMENT OF TRANSPORTATION**

**PLANS OF PROPOSED
 STATE HIGHWAY ROUTINE MAINTENANCE CONTRACT
 TYPE OF WORK:**

MILL & INLAY, OVERLAY & BASE REPAIR (SOUTH)

RMC 6466-35-001

US 59, ETC.

SAN JACINTO, ETC.

LIMITS: VARIOUS LOCATIONS WITHIN THE
 SAN JACINTO, ANGELINA, AND POLK COUNTY MAINTENANCE SECTIONS

SEE SHEETS 2 THRU 3
 FOR LOCATION MAPS

FHWA TEXAS DIVISION		PROJECT NO. RMC 6466-35-001	SHEET NO. 1
STATE	DISTRICT	COUNTY	
TEXAS	LFK	SAN JACINTO, ETC.	
CONTROL	SECTION	JOB	HIGHWAY NO.
6466	35	001	US 59, ETC.

BARRICADES AND WARNING SIGNS

PROJECT LIMIT BARRICADES WILL NOT BE REQUIRED.
 THE CONTRACTOR SHALL PROVIDE AND ERECT WARNING SIGNS IN ACCORDANCE WITH THE BARRICADE & CONSTRUCTION STANDARDS, TCP STANDARDS, THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND AS DIRECTED.



RECOMMENDED FOR LETTING:

DocuSigned by:
Jeremy King, P.E. 6/4/2024
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DISTRICT MAINTENANCE ENGINEER DATE
 APPROVED FOR LETTING:

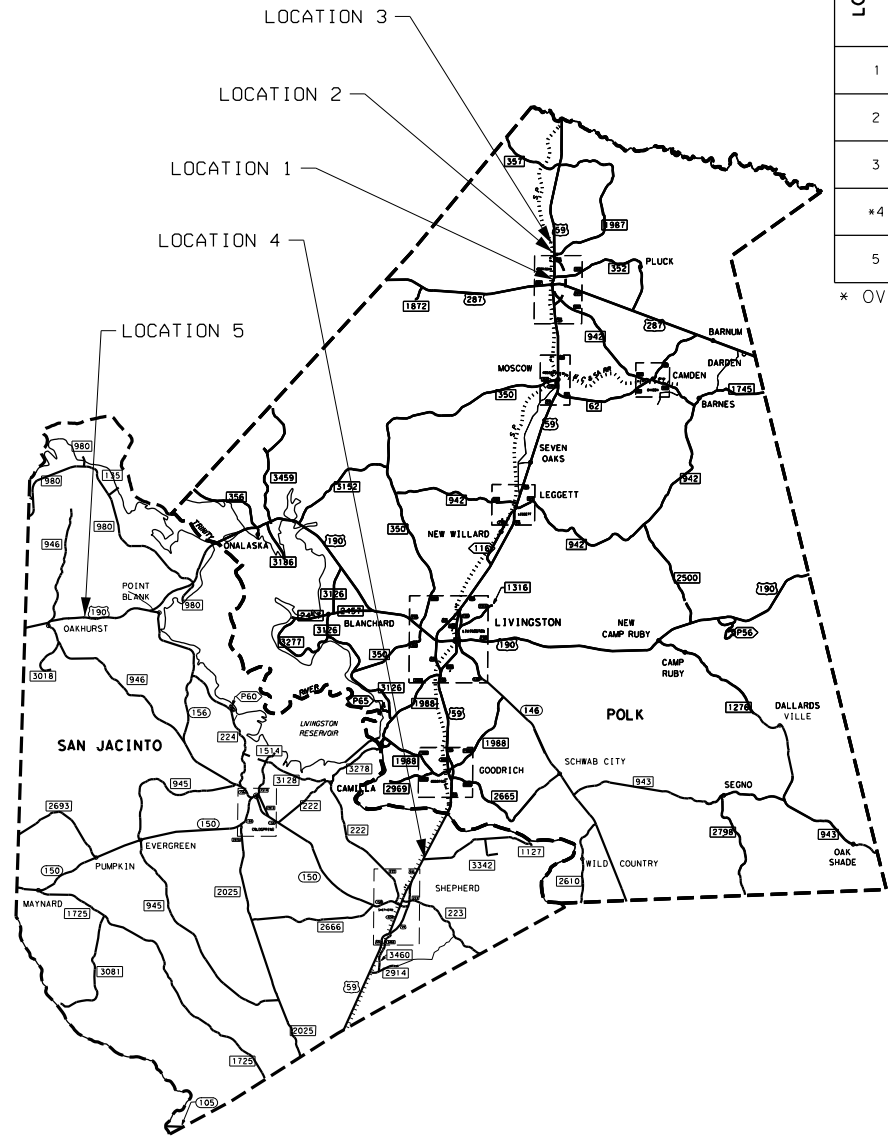
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DIRECTOR OF MAINTENANCE DATE

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LOCATION MAP FOR SAN JACINTO AND POLK COUNTY



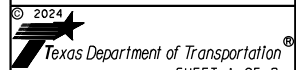
SUMMARY OF LOCATIONS

LOCATION NO.	COUNTY	HIGHWAY	DIRECTION	LIMITS		Reference Markers	
				FROM	TO	FROM	TO
1	POLK	US 59	NB	NEVADA ST	E HOSPITAL ST	412 +0.470	412 + 1.150
2	POLK	US 59	SB	800' N OF FM 1987S	RAGAESHIA LN	410 + 1.55	412 +0.200
3	POLK	US 59	SB	FM 1987	500' S OF RAGAESHIA LN	410 + 1.700	412 + 0.270
*4	SAN JACINTO	FM 1127	NB/SB	INT US 59 AND FM 1172	1250' EAST OF INT	702 +0.000	702 + .250
5	SAN JACINTO	US 190	NB/SB	CENTER HILL RD	4,522' EAST OF BEG	758 + .170	758 + 1.800

* OVERLAY ONLY

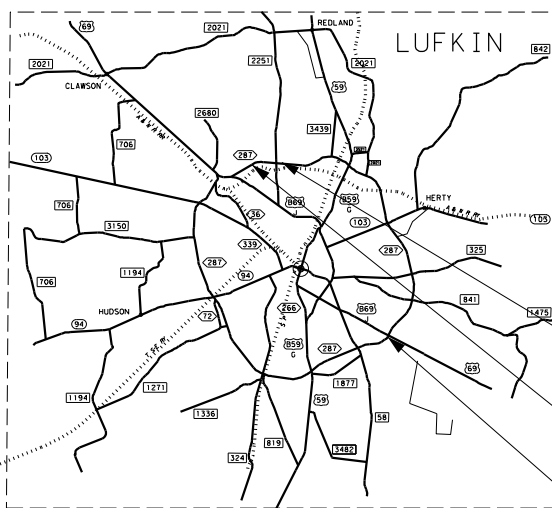
N.T.S.

LOCATION MAPS



CONT	SECT	JOB	HIGHWAY
6466	35	001	US 59, ETC.
DIST		COUNTY	SHEET NO.
LFK		SAN JACINTO, ETC.	2

6/4/2024 8:16:59 AM T:\LFRDM\Maint Contracts\0_RMC - Routine Maintenance Contracts\FY24 Plans\6466-35-001 San Jacinto Mill & Inlay (South)\DGN\LOCATION MAPS 1.dgn

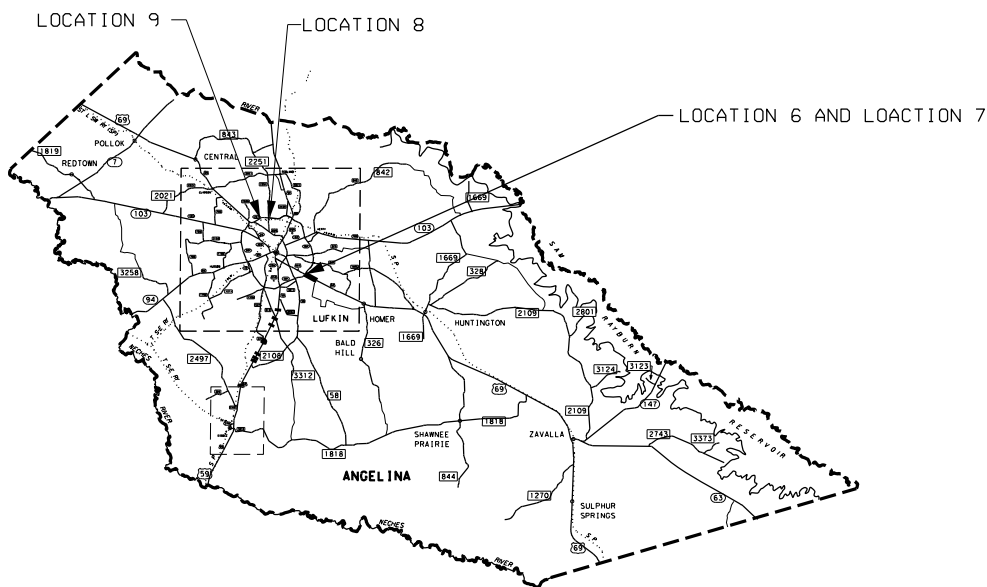


LOCATION 8

LOCATION 9

LOCATION 6 AND LOCATION 7

SUMMARY OF LOCATIONS							
LOCATION NO.	COUNTY	HIGHWAY	DIRECTION	LIMITS		Reference Markers	
				FROM	TO	FROM	TO
6	ANGELINA	BU 69J (INSIDE THE LOOP)	NB/SB	CHANGE OF PAVEMENT	CHANGE OF PAVEMENT	420 + 0.474	420 + 0.493
7	ANGELINA	US 69 (OUTSIDE THE LOOP)	NB/SB	CHANGE OF PAVEMENT	CHANGE OF PAVEMENT	422 - 1.346	422 - 1.253
8	ANGELINA	US 69 OUTSIDE LANE	SB	END OF CONCRETE	2,250'	416 + 0.221	416 + 0.642
9	ANGELINA	US 69 OUTSIDE LANE	NB	US 69 ENTRANCE RAMP	0.332 MILES FROM US 69 ENTRANCE RAMP	418 + 0.558	418 + 0.89



LOCATION MAP FOR ANGELINA COUNTY

N.T.S.

LOCATION MAPS

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 Texas Department of Transportation
 SHEET 2 OF 2

CONT	SECT	JOB	HIGHWAY
6466	35	001	US 59, ETC.
DIST		COUNTY	SHEET NO.
LFK		SAN JACINTO, ETC.	3

Project Number: RMC 6466-35-001

Control: 6466-35-001

County: SAN JACINTO, ETC.

Highway: US 59, ETC.

GENERAL NOTES:

PROJECT DESCRIPTION: This project consists of Mill and Inlay, Overlay & Base Repair of Pavements at various locations within the Lufkin District, which consists of the following counties: Polk, Angelina, and San Jacinto.

TXDOT PROJECT SUPERVISORS: All work on this contract will be scheduled and directed by the Maintenance Section Supervisors listed below. Payment will be made monthly for work completed and accepted according to specifications. All payment requests should be directed to the following Maintenance Section Supervisors listed below.

<u>COUNTY</u>	<u>SUPERVISOR</u>	<u>ADDRESS</u>	<u>CONTACT #</u>
Polk	James Henagan	3161 US Highway 59 Livingston, TX 77351	(936)327-8914
San Jacinto	Chester Dixon	8066 SH 150 West Shepherd, TX 77371	(936)628-3328
Angelina	Steven Harris	1410 Kurth Drive Lufkin, TX 75901	(936) 634-3414

CONTRACT PROSECUTION: Each contract awarded by the Department stands on its own and, as such, is separate from other contracts. A Contractor awarded multiple contracts must be capable and sufficiently staffed to concurrently process any or all contracts at the same time.

Existing regulatory, warning and guide signs within project limits are to always remain visible to the traveling public. 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.

Always provide suitable access to adjacent businesses, private property, and side roads.

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

Minimize vehicles and equipment in construction areas to lessen the impact on existing vegetation. The intent of the plans is to prepare only that portion of the Right of Way necessary for construction.

Project Number: RMC 6466-35-001

Control: 6466-35-001

County: SAN JACINTO, ETC.

Highway: US 59, ETC.

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. Non-compliance with any of these requirements shall be grounds for suspension of work.

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

Jeremy King Jeremy.King@TxDOT.gov
 Tamara Gibson Tamara.Gibson@TxDOT.gov

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:

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

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

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

The contractor's attention is directed to the EPIC sheet(s) included in this plan set for additional information regarding environmental permits, issues, and commitments.

ITEM 2: INSTRUCTIONS TO BIDDERS

View plans on-line or download from the web at:
<https://www.txdot.gov/business/plans-online-bid-lettings.html>

Order plans from any of the plan reproduction companies shown on the web at:
http://www.dot.state.tx.us/business/contractors_consultants/repro_companies.htm

ITEM 5: CONTROL OF THE WORK

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.

ITEM 7: LEGAL RELATIONS AND RESPONSIBILITIES

The proposed work of this project consists of mill and inlay at various roadway locations shown in plans within the Angelina, San Jacinto, and Polk County Maintenance Sections. These activities maintain the original line and grade, hydraulic capacity, and original purpose of the structures. Therefore, this project meets the definition of a routine maintenance activity as

Project Number: RMC 6466-35-001**Control:** 6466-35-001**County:** SAN JACINTO, ETC.**Highway:** US 59, ETC.

defined in the TPDES General Permit No. TXR150000 issues March 5, 2023, and TCEQ's TPDES CGP does not apply.

Equipment storage or stockpiling of materials is not permitted in any pull-off or parking area labelled as a historic marker, or where historic markers are present.

Contractor to repair or replace in kind, at their own expense, any historic materials damaged (buildings, historical markers, etc) while executing work. Contractor is responsible for locating replacement source for historical materials damaged in the course of the work. TxDOT-Environmental Affairs Division is to be informed of proposed repairs to facilitate consultation with Texas Historical Commission prior to the execution of repairs.

ITEM 8: PROSECUTION AND PROGRESS

For this project, 44 working days will be computed and charged in accordance with Item 8, Section 3.1.4, "Standard Workweek".

Time charges shall begin to accrue 7 calendar days after the authorization date to begin work unless otherwise approved by the Engineer. If work commences during the school year, the contractor shall not close any lanes prior to 8:30 AM.

All night work on the project shall be performed between the hours of 8 PM and 6 AM, unless otherwise approved in writing. No work will be allowed on Saturdays or between the hours of 6 AM and 8 PM on Sunday through Friday, unless otherwise approved in writing.

Along outside pavement edges construct a 3:1 maximum taper or backfill the same day as shown on the plans or as directed.

ITEM 9: MEASUREMENT AND PAYMENT

This Contract includes callout work. In accordance with Article 9.2., "Plans Quantity Measurement", plans quantity measurement requirements are not applicable. The quantities shown are for estimates only and payment will be based on the actual quantities placed.

NONCOMPLIANCE PENALTY – A penalty will be assessed for each instance the contractor is in noncompliance. A noncompliance instance is defined by the following:

1. The contractor fails to begin work at the specified time and/or location(s).
2. The contractor does not have all the personnel and pieces of equipment necessary to fulfill of the item(s) called out at the specified time and/or location(s).
3. The contractor does not complete the work continuously, unless approved by the Engineer.
4. The contractor fails to complete any requirements as stated in the general notes.

Project Number: RMC 6466-35-001**Control:** 6466-35-001**County:** SAN JACINTO, ETC.**Highway:** US 59, ETC.

The Noncompliance Penalty will be deducted from any money due or to become due for any completed item(s) of work. The Noncompliance Penalty will be assessed as follows: \$250 per instance, per location, until the contractor returns to a state of compliance or otherwise approved by the engineer.

ITEM 354: PLAINING AND TEXTURING PAVEMENT

All planed areas shall be inlaid with HMA on the same day of the plaining operation.

Complete plaining operations in adjacent lanes and shoulders to the same point at the end of each day.

RAP produced from this project may be used in the HMA mixtures.

All RAP not utilized in the HMA shall be delivered to the appropriate maintenance section as shown below:

- Angelina County Maintenance: Material will be delivered to the Angelina County Maintenance Yard stockpile located at 1410 Kurth Drive Lufkin TX 75901 as directed.
- Polk County Maintenance: Material will be delivered to the Polk County Maintenance Facility stockpile located at 3161 US Highway 59 North Livingston TX 77351 as directed.
- San Jacinto County Maintenance: Material will be delivered to the San Jacinto County Maintenance Facility stockpile located at 10351 SH 150 West Shepherd TX 77371 as directed.

Use an approved ski device to control longitudinal grade.

Where the underlying flexible base is exposed during the plaining operation, prime this area with an asphalt at a rate as directed and patch with an approved HMA material, at the end of the day's operation in which it occurs. These items of work will not be paid for directly but will be subsidiary to Item 354.

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

The Maintenance Section Supervisor and Area Engineer shall decide if the "Maintenance Work Zone Speed Limit Signs" are needed. If needed, these signs will not be paid for directly, but will be considered subsidiary to item 502.

Project Number: RMC 6466-35-001**Control:** 6466-35-001**County:** SAN JACINTO, ETC.**Highway:** US 59, ETC.

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.

Project limit barricades will not be required. Daily lane closure signage with contract description information sign will be required.

Ensure the Contractor's Responsible Person (CRP) for Barricades, Signs and Traffic Handling is always available 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.

Install "No Center Line" (CW8-12) signs as directed.

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.

Limit lane closures for 2 lane roads to 1 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.

No lane closures will be allowed on 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 project to account for not working on Friday afternoons or the afternoon preceding a national holiday.

Provide a flashing arrow panel and a truck-mounted attenuator to supplement required signs and devices for each lane closure.

Install temporary rumble strips in accordance with Work Zone Standards wherever short duration or short-term stationary lane closures are in place and workers are present. Installation of rumble strips will be considered subsidiary to the set up requested.

Provide a pilot car to lead traffic through the work area. The pilot car will not be paid for directly but will be subsidiary to various bid items.

General Notes**Sheet 4B****Project Number:** RMC 6466-35-001**Control:** 6466-35-001**County:** SAN JACINTO, ETC.**Highway:** US 59, ETC.

Provide channelizing devices to restrict traffic from traveling on the shoulders.

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.

When directed use a flashing arrow board in addition to the required signs to warn motorists of flaggers.

Department approved safety vests shall be worn by all contractor's employees and visitors.

Provide adequate flaggers to protect the traveling public. All flaggers shall wear approved hardhats and reflective safety vests while flagging. Safety vests shall be clean and worn fully fastened.

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.

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 on the approach side of each site that is within 30 ft. of the driving lane. Barricade 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.

General Notes**Sheet 4B**

Project Number: RMC 6466-35-001**Control:** 6466-35-001**County:** SAN JACINTO, ETC.**Highway:** US 59, ETC.

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. 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.

ITEM 504: FIELD OFFICE AND LABORATORY

Provide a Type D Structure. Asphalt content will be determined by the ignition method.

ITEM 585: RIDE QUALITY FOR PAVEMENT SURFACES

Use Surface Test Type A.

ITEM 662: WORK ZONE PAVEMENT MARKINGS

Install short term pavement markings (removable) on the finish course of the overlay immediately following final rolling, offset from lane lines so there will be no conflict with permanent stripes.

After placement of permanent striping on the finish course, remove all short-term pavement markings.

ITEM 666: REFLECTORIZED PAVEMENT MARKINGS

Remove loose aggregate immediately prior to placing pavement markings.

Place reflectORIZED pavement markings no sooner than 3 days nor later than 14 days after placement of the surface treatment.

Before construction operations begin, observe, and mark existing passing/no passing zones. Passing/no passing zones shall be verified prior to placement of permanent pavement markings.

Furnish Type II glass beads conforming to DMS-8290, "Glass Traffic Beads", for Type I and II Markings.

When directed, use approved equipment to brush or sweep the roadway of excessive contaminate materials prior to applying pavement markings. This work will not be paid for directly but will be subsidiary to Item 666.

Perform all work during daylight hours and when weather conditions are suitable for the work. Work will be performed on weekdays, Monday thru Friday. No work will be performed on weekends without written permission.

General Notes

Sheet 4C

Project Number: RMC 6466-35-001**Control:** 6466-35-001**County:** SAN JACINTO, ETC.**Highway:** US 59, ETC.

The quantities shown are estimates only. Payment will be based on the actual quantities placed.

ITEM 672: RAISED PAVEMENT MARKERS

Place permanent raised pavement markers after permanent striping has been completed.

ITEM 3076: DENSE-GRADED HOT-MIX ASPHALT (SMALL QUANTITY)

Design the mixture with the Super Gyrotory Compactor (SGC).

Trial batches may be required whenever the design has not been produced in the previous 12 months. Trial batches will be subsidiary to the bid item.

No surface aggregate classification is required.

No Department-owned RAP is available.

Cover each load of mixture with waterproof tarpaulins.

Supply tack coat binder meeting Item 300, SP 300-007 unless otherwise approved by the Engineer.

Operate the spreading and finishing machine at a uniform forward speed consistent with the plant production rate, hauling capability, and roller train capacity to result in a continuous operation. The speed shall be slow enough, so that stopping between trucks is not ordinarily required. If the Engineer determines sporadic delivery of material is adversely affecting the HMA placement, the Engineer may require paving operations to cease until acceptable methods are employed to minimize starting and stopping of the paver.

Add hydrated lime to all HMA mixtures at a minimum rate of 1.0% by weight of the total aggregate, except for those mixtures containing RAP and/or RAS. Mixtures that contain RAP and/or RAS shall be designed at a minimum rate of 0.5 % of lime by weight and the test results will be evaluated by the engineer to determine if lime or a liquid anti-strip additive will be used. The hydrated lime shall meet the requirements of DMS-6350, "Lime and Lime Slurry". The hydrated lime shall be added in accordance with the construction method in Item 301, "Asphalt Antistripping Agents", unless otherwise approved. This lime will be subsidiary to this item.

For HMA placements greater than 2 inches, construct longitudinal joints adjacent to travel ways with a maximum 1-inch vertical edge and an adjacent 3:1 maximum taper.

Along outside pavement edges construct a 3:1 maximum taper or backfill the same day as shown on the plans or as directed.

Remove and properly dispose of any piles of asphaltic concrete and all other debris left on the right of way daily.

ITEM 3077: SUPERPAVE MIXTURES

No Department-owned RAP is available.

General Notes

Sheet 4C

Project Number: RMC 6466-35-001**Control:** 6466-35-001**County:** SAN JACINTO, ETC.**Highway:** US 59, ETC.

A material transfer vehicle (MTV) will be required for all courses of HMA on this project. An MTV is defined as a self-propelled, wheel-mounted vehicle capable of receiving HMA from the haul trucks separate from the paver. The MTV shall have a minimum storage capacity of approximately 25 tons and shall be equipped with a pivoting discharge conveyor and a means of completely remixing the HMA prior to placement. The Engineer may approve an alternative device if it can receive HMA separate from the paver.

Add hydrated lime to all HMA mixtures at a minimum rate of 1.0% by weight of the total aggregate, except for those mixtures containing RAP and/or RAS. Mixtures that contain RAP and/or RAS shall be designed at a minimum rate of 0.5 % of lime by weight and the test results will be evaluated by the engineer to determine if lime or a liquid anti-strip additive will be used. The hydrated lime shall meet the requirements of DMS-6350, "Lime and Lime Slurry". The hydrated lime shall be added in accordance with the construction method in Item 301, "Asphalt Antistripping Agents", unless otherwise approved. This lime will be subsidiary to this item.

Trial batches may be required whenever the design has not been produced in the previous 12 months. Trial batches will be subsidiary to the bid item.

Supply tack coat binder meeting Item 300, SP 300-007, unless otherwise approved by the Engineer.

Cover each load of mixture with waterproof tarpaulins.

Operate the spreading and finishing machine at a uniform forward speed consistent with the plant production rate, hauling capability, and roller train capacity to result in a continuous operation. The speed shall be slow enough so that stopping between trucks is not ordinarily required. If, in the opinion of the Engineer, sporadic delivery of material is adversely affecting the HMA placement, the Engineer may require paving operations to cease until acceptable methods are employed to minimize starting and stopping of the paver.

Remove and properly dispose of any piles of asphaltic concrete and all other debris left on the right of way daily.

On Table 1 under [3077.2.1.3](#), the Sand equivalent, %, Min is void and not replaced. The minimum percent for the sand equivalent shall be 45 for the combined aggregate.

ITEM 3079: PERMEABLE FRICTION COURSE (PFC)

No RAP or RAS allowed.

Furnish a PG 76-22 binder.

Trial batches may be required whenever the design has not been produced in the previous 12 months. Trial batches will be subsidiary to Item 342.

Cover each load of mixture with waterproof tarpaulins.

General Notes

Sheet 4D

Project Number: RMC 6466-35-001**Control:** 6466-35-001**County:** SAN JACINTO, ETC.**Highway:** US 59, ETC.

Provide a tack that meets the requirements of Item 300, Table 3A or Table 10A, unless otherwise approved by the engineer.

Operate the spreading and finishing machine at a uniform forward speed consistent with the plant production rate, hauling capability, and roller train capacity to result in a continuous operation. The speed shall be slow enough so that stopping between trucks is not ordinarily required. If, in the opinion of the Engineer, sporadic delivery of material is adversely affecting the HMA placement, the Engineer may require paving operations to cease until acceptable methods are employed to minimize starting and stopping of the paver.

A material transfer vehicle (MTV) will be required. An MTV is defined as a self-propelled, wheel-mounted vehicle capable of receiving HMA from the haul trucks separate from the paver. The MTV shall have a minimum storage capacity of approximately 25 tons and shall be equipped with a pivoting discharge conveyor and a means of completely remixing the HMA prior to placement.

Use aggregate that meets the SAC requirements of class A materials, no blending is allowed.

Remove and properly dispose of any piles of asphaltic concrete and all other debris left on the right of way daily.

ITEM 6185: TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA)

All crash attenuators shall meet current NCHRP-350 standards.

Truck Mounted Attenuators (TMA's) shall meet the requirements of this item and the Department's Compliant Work Zone Traffic Control Device List.

Truck Mounted Attenuators (TMA's) as shown on the TCP's shall be used. Whether shown on the TCP's or added by the Department, TMAs shall be paid for under Item 6185, "Truck Mounted Attenuator" for the type of operation being performed.

Mobile Operations will require Two (2) TMA's, Mobile Operations for divided highways will require Three (3) TMA's and Stationary Operations will require One (1) TMA on 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.

The TMA/TA used for installation/removal of traffic control for a work area will be subsidiary to the TMA/TA used to perform the work.

General Notes

Sheet 4D



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 6466-35-001

DISTRICT Lufkin
HIGHWAY US0059

COUNTY San Jacinto

CONTROL SECTION JOB				6466-35-001		TOTAL EST.	TOTAL FINAL
PROJECT ID				A00208843			
COUNTY				San Jacinto			
HIGHWAY				US0059			
ALT	BID CODE	DESCRIPTION	UNIT	EST.	FINAL		
	351-6008	FLEXIBLE PAVEMENT STRUCTURE REPAIR(12")	SY	51.000		51.000	
	354-6176	PLANE ASPH CONC PAV (1 1/2" TO 2 1/2")	SY	27,318.000		27,318.000	
	500-6001	MOBILIZATION	LS	1.000		1.000	
	502-6001	BARRICADES, SIGNS AND TRAFFIC HANDLING	MO	4.000		4.000	
	662-6067	WK ZN PAV MRK REMOV (W)6"(SLD)	LF	2,393.000		2,393.000	
	662-6098	WK ZN PAV MRK REMOV (Y)6"(SLD)	LF	1,996.000		1,996.000	
	666-6305	RE PM W/RET REQ TY I (W)6"(BRK)(090MIL)	LF	4,220.000		4,220.000	
	666-6308	RE PM W/RET REQ TY I (W)6"(SLD)(090MIL)	LF	25,767.000		25,767.000	
	666-6317	RE PM W/RET REQ TY I (Y)6"(BRK)(090MIL)	LF	310.000		310.000	
	666-6320	RE PM W/RET REQ TY I (Y)6"(SLD)(090MIL)	LF	17,245.000		17,245.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	340.000		340.000	
	672-6007	REFL PAV MRKR TY I-C	EA	144.000		144.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	112.000		112.000	
	3077-6033	SP MIXES SP-C SAC-A PG76-22	TON	1,757.000		1,757.000	
	3079-6007	PFC-C (PG76 MIX) SAC-A	TON	816.000		816.000	
	3084-6001	BONDING COURSE	GAL	13,660.000		13,660.000	
	6185-6002	TMA (STATIONARY)	DAY	39.000		39.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY	5.000		5.000	

DISTRICT	COUNTY	CCSJ	SHEET
Lufkin	San Jacinto	6466-35-001	5

POLK COUNTY SUMMARY OF MILL & INLAY ITEMS

LOCATION NUMBER	HIGHWAY NO.	CONTROL	SECTION	DIRECTION	LANE (INSIDE, OUTSIDE, BOTH/ALL)	ITEM NO.						354 6176	3079 6007	3084 6001	CONTRACTOR INFORMATION ONLY		
						LIMITS		RM		ROADWAY DIMENSIONS			① ② MILL	① ② INLAY		APPROXIMATE NO. OF TRAFFIC CONTROL SETUPS	
						FROM	TO	FROM	TO	LENGTH	ESTD MILL DEPTH	AVG. SURF WIDTH	PLANE ASP CONC PAV (1 1/2" TO 2 1/2")	PFC-C PG76-22 SAC-A (@ 144 LB/SY)	③ BONDING COURSE (0.05 GAL/SY)		EA
FT	MI	IN	FT	SY	TON	GAL											
1	US 59	0176	04	NB	OUTSIDE	Nevada St	E Hospital St	412 + 0.470	412 + 1.150	3,000	0.568	2	12	4,000	288	2,000	1
2	US 59	0176	04	SB	OUTSIDE	800' N of FM 1987S	Ragoeshia Ln	410 + 1.550	412 + 0.200	2,500	0.474	2	12	3,333	240	1,667	1
3	US 59	0176	04	SB	INSIDE	FM 1987	500' S of Ragoeshia Ln	410 + 1.700	412 + 0.270	3,000	0.568	2	12	4,000	288	2,000	1
POLK COUNTY TOTALS											11,333	816	5,667	3			


SAN JACINTO COUNTY SUMMARY OF MILL & INLAY ITEMS

LOCATION NUMBER	HIGHWAY NO.	CONTROL	SECTION	DIRECTION	LANE (INSIDE, OUTSIDE, BOTH/ALL)	ITEM NO.						354 6176	3077 6033	3084 6001	CONTRACTOR INFORMATION ONLY		
						LIMITS		RM		ROADWAY DIMENSIONS			① ② MILL	① ② INLAY		APPROXIMATE NO. OF TRAFFIC CONTROL SETUPS	
						FROM	TO	FROM	TO	LENGTH	ESTD MILL DEPTH	AVG. SURF WIDTH	PLANE ASP CONC PAV (1 1/2" TO 2 1/2")	SUPERPAVE MIXTURE SP-C SAC-A PG76-22 (@ 220 LB/SY)	③ GAL BONDING COURSE		EA
FT	MI	IN	FT	SY	TON												
* 4	FM 112	1681	01	EB	BOTH	Int US 59 and FM 1172	1250' east of int	702 + 0.000	702 + 0.250	1,250	0.237	2	26	0	0		1
5	US 190	0213	02	EB	OUTSIDE	Center Hill RD	4,522' east of beg	758 + 0.170	758 + 1.800	4,522	0.856	2	13	6,531	718	3,266	1
SAN JACINTO COUNTY TOTALS											6,531	718	3,266	2			

* OVERLAY ONLY

QUANTITY SUMMARIES

- ① MATCH ADJACENT CURB CROSS SECTIONS.
- ② THE ENGINEER WILL MARK THE EXACT AREAS TO BE PLANED. THE MINIMUM LENGTH OF MILL & INLAY WILL BE 1000'. THE CONTRACTOR CAN ONLY MILL WHAT CAN BE REPLACED IN ONE DAY PRODUCTION.
- ③ TACK COAT IS TRACKLESS TACK.

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 Texas Department of Transportation
 SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY
6466	35	001	US 59, ETC.
DIST	COUNTY	SHEET NO.	
LFK	SAN JACINTO, ETC.	6	

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ANGELINA COUNTY SUMMARY IF MILL AND INLAY ITEMS

LOCATION NUMBER	HIGHWAY NO.	CONTROL	SECTION	DIRECTION	LANE (INSIDE, OUTSIDE, BOTH/ALL)	ITEM NO.							3079 6007	3084 6001	3084 6001	CONTRACTOR INFORMATION ONLY	
						LIMITS		RM		ROADWAY DIMENSIONS			① ② MILL	① ② INLAY		APPROXIMATE NO. OF TRAFFIC CONTROL SETUPS	
						FROM	TO	FROM	TO	LENGTH	ESTD MILL DEPTH	AVG. SURF WIDTH	PLANE ASP CONC. PAV (1 1/2" TO 2 1/2")	SUPERPAVE MIXTURE SP-C SAC-A PG76-22 (# 220 LB/SY)	③ BONDING COURSE (0.05 GAL/SY)		EA
6	BU 69 J	0200	01	SB	BOTH	CHANGE OF PAVEMENT	CHANGE OF PAVEMENT	420 + 0.474	420 + 0.493	120	0.023	2	48	640	70	320	1
7	US 69	0200	01	NB	BOTH	CHANGE OF PAVEMENT	CHANGE OF PAVEMENT	422 - 1.346	422 - 1.253	495	0.094	2	48	2,640	290	1,320	1
8	US 69	2553	01	SB	OUTSIDE	END OF CONCRETE	2250' S	416 + 0.221	416 + 0.642	2,250	0.426	2	12	3,000	330	1,500	1
9	US 69	2553	01	NB	OUTSIDE	US 69 ENTRANCE RAMP	0.332 MILES FROM US 69 ENTRANCE RAMP	418 + 0.558	418 + 0.890	2,380	0.451	2	12	3,174	349	1,587	1
ANGELINA COUNTY SUBTOTAL											9,454	1,039	4,727	4			
PROJECT TOTALS											27,318	1,757	13,660	9			

* FLEXIBLE PAVEMENT STRUCTURE REPAIR SUMMARY

LOCATION NUMBER	COUNTY	HIGHWAY	CONTROL	SECTION	DIRECTION	LANE (INSIDE, OUTSIDE, BOTH/ALL)	LIMITS		ITEM NO.	351 6008
							FROM	TO	FLEXIBLE PAVEMENT STRUCTURE REPAIR (12")	
							SY			
1	POLK	US 59	0176	04	NB	OUTSIDE	NEVADA ST	E HOSPITAL ST	17	
2	POLK	US 59	0176	04	SB	OUTSIDE	800' N OF FM 1987S	RAGAESHIRA LN	17	
3	POLK	US 59	0176	04	SB	INSIDE	FM 1987	500' S of RAGAESHIRA LN	17	
PROJECT TOTALS									51	

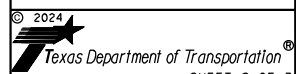
** USE AS DIRECTED

SUMMARY OF TRUCK MOUNTED ATTENUATORS (TMAs)

ITEM NO.	6185 6002		6185 6005	
	TMA (STATIONARY)		TMA (MOBILE OPERATION)	
	DAY	DAY	DAY	DAY
** VARIOUS	39	5		
PROJECT TOTALS FOR ALL COUNTIES	39	5		

** USE AS DIRECTED

QUANTITY SUMMARIES



- ① MATCH ADJACENT CURB CROSS SECTIONS.
- ② THE ENGINEER WILL MARK THE EXACT AREAS TO BE PLANED. THE MINIMUM LENGTH OF MILL & INLAY WILL BE 1000'. THE CONTRACTOR CAN ONLY MILL WHAT CAN BE REPLACED IN ONE DAY PRODUCTION.
- ③ TACK COAT IS TRACKLESS TACK.

CONT	SECT	JOB	HIGHWAY
6466	35	001	US 59, ETC.
DIST	COUNTY	SHEET NO.	
LFK	SAN JACINTO, ETC.	7	

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ANGELINA COUNTY SUMMARY OF PAVEMENT MARKINGS AND MARKERS						
ITEM NO.	662 6067	662 6098	666 6305	666 6308	666 6320	668 6076
LOCATION NUMBER	WK ZN PAV MRK REMOV (W) 6" (SLD)	WK ZN PAV MRK REMOV (Y) 6" (SLD)	RE PM W/RET REQ TY I (090MIL)			PREFAB PVMT MRK
			W (6") BRK	W (6") SLD	Y (6") SLD	TY C (W) (24") (SLD)
	LF	LF	LF	LF	LF	LF
6-9	928	1,855	960	14,245	14,245	340
ANGELINA COUNTY SUBTOTAL	928	1,855	960	14,245	14,245	340

POLK COUNTY SUMMARY OF PAVEMENT MARKINGS AND MARKERS						
ITEM NO.	662 6067	666 6305	666 6308	666 6320	672 6007	672 6009
LOCATION NUMBER	WK ZN PAV MRK REMOV (W) 6" (SLD)	RE PM W/RET REQ TY I (090MIL)			REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A
		W (6") BRK	W (6") SLD	Y (6") SLD		
	LF	LF	LF	LF	EA	EA
1, 2, 3	956	2,130	7,000	3,000	80	80
POLK COUNTY SUBTOTAL	956	2,130	7,000	3,000	80	80

SAN JACINTO COUNTY SUMMARY OF PAVEMENT MARKINGS AND MARKERS									
ITEM NO.	662 6067	662 6098	666 6305	666 6308	666 6317	666 6320	668 6076	672 6007	672 6009
LOCATION NUMBER	WK ZN PAV MRK REMOV (W) 6" (SLD)	WK ZN PAV MRK REMOV (Y) 6" (SLD)	RE PM W/RET REQ TY I (090MIL)				PREFAB PVMT MRK	REFL PAV MRKR TY I-C	REFL PAV MRKR TY II-A-A
			W (6") BRK	W (6") SLD	Y (6") BRK	Y (6") SLD	TY C (W) (24") (SLD)		
	LF	LF	LF	LF	LF	LF	LF	EA	EA
4		141	0	0	310	0	0	0	32
5	509	0	1,130	4,522	0	0	0	144	0
SAN JACINTO COUNTY SUBTOTAL	509	141	1,130	4,522	310	0	0	144	32
PROJECT TOTALS FOR ALL COUNTIES	2,393	1,996	4,220	25,767	310	17,245	340	144	112

QUANTITY SUMMARIES

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SHEET 3 OF 3

CONT	SECT	JOB	HIGHWAY
6466	35	001	US 59, ETC.
DIST		COUNTY	SHEET NO.
LFK		SAN JACINTO, ETC.	8

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act", No warranty of any kind is made by the Texas Department of Transportation for the use of this standard in any project. The use of this standard is not intended to be construed as a contract. The use of this standard is not intended to be construed as a contract. The use of this standard is not intended to be construed as a contract.

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

- 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).
- The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
- Traffic control devices should be in place only while work is actually in progress or a definite need exists.
- The Engineer has the final decision on the location of all traffic control devices.
- Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.

WORKER SAFETY NOTES:



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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

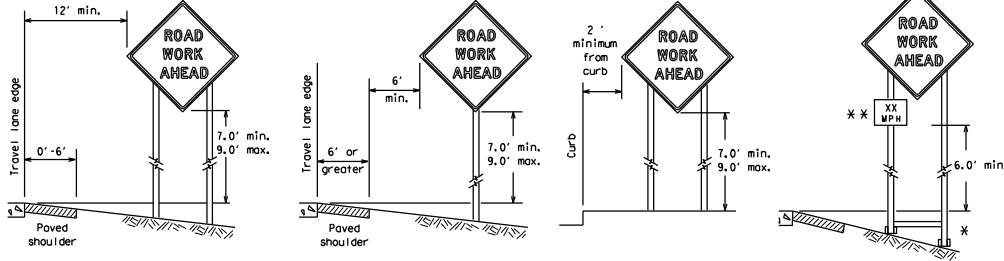
- Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
- Work zone traffic control devices shall be compliant with the Manual for Assessing safety Hardware (MASH).

<p>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov</p>
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

SHEET 1 OF 12

			
<p>BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS</p> <p>BC(1) - 21</p>			
FILE:	bc-21.dgn	DN:	TxDOT
		CR:	TxDOT
		DN:	TxDOT
		CR:	TxDOT
		DN:	TxDOT
		CR:	TxDOT
REV	DATE	BY	REASON
4-03	7-13	6466	35
9-07	8-14	6151	001
5-10	5-21	LFK	001

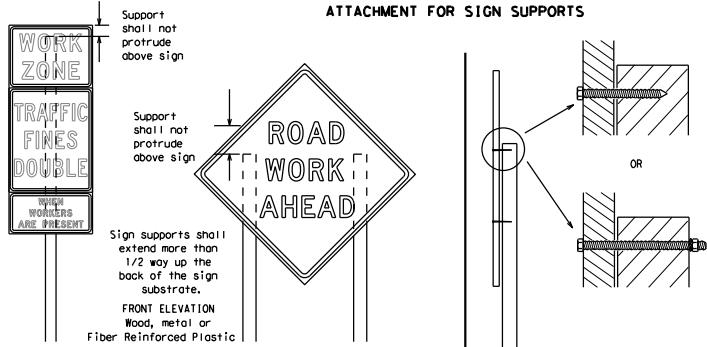
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



* 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 nearest 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

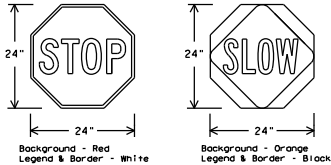
Nails shall NOT be allowed.
Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

SIDE ELEVATION
Wood

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 splice 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

- STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
- STOP/SLOW paddles shall be retroreflective when used at night.
- STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
- 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 TMDOT.



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

- Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (L000), 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.
- When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- 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.
- If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRs standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
- 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

- Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
- Wooden sign posts shall be painted white.
- Barricades shall NOT be used as sign supports.
- 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.
- 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 TMDOT but may have been omitted from the plans. Any changes 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.
- The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
- 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.
- 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.
- 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)

- 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.
 - Long-term stationary - work that occupies a location more than 3 days.
 - 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.
 - Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
 - Short, duration - work that occupies a location up to 1 hour.
 - Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

- 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.
- 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.
- Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
- 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.
- 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

- 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

- 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.
- "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
- 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

- 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).
- White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
- Orange sheeting, meeting the requirements of DMS-8300 Type B_L or Type C_L, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

- 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

- When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
- 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.
- 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.
- 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 shall NOT be used to cover signs.
- Duct tape or other adhesive material shall NOT be affixed to a sign face.
- Signs and anchor studs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

- Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, coarseness sand shall be used and shall be tied shut to keep the sand from spilling and to maintain a constant weight.
- The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign supports.
- 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 fire inner tubes) shall NOT be used.
- Rubber ballast for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber balls may be used when shown on the CWZTCD list.
- 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.
- Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

- 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.



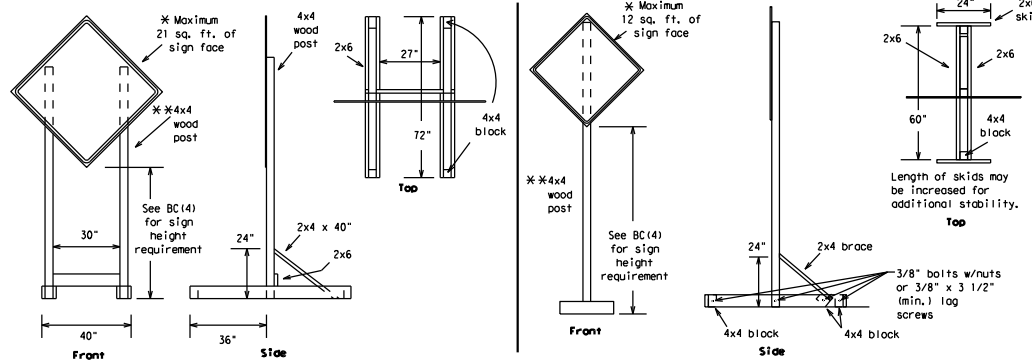
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) - 21

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DATE:	9-07	DATE:	8-14	DATE:	7-13	DATE:	5-21	DATE:	
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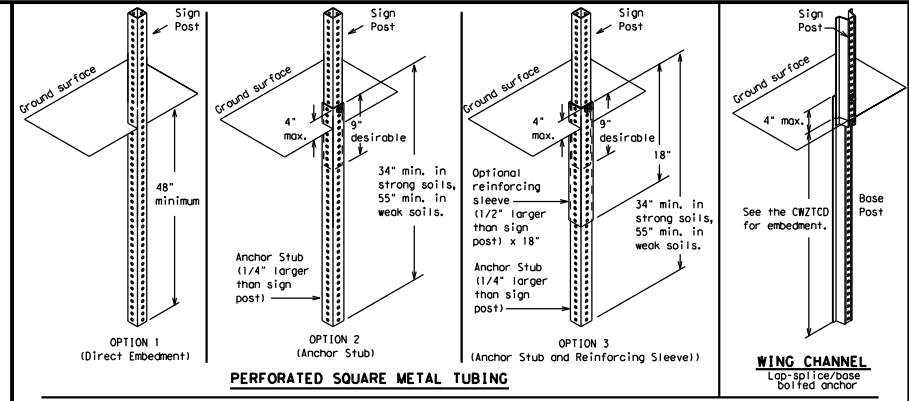
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SKID MOUNTED WOOD SIGN SUPPORTS

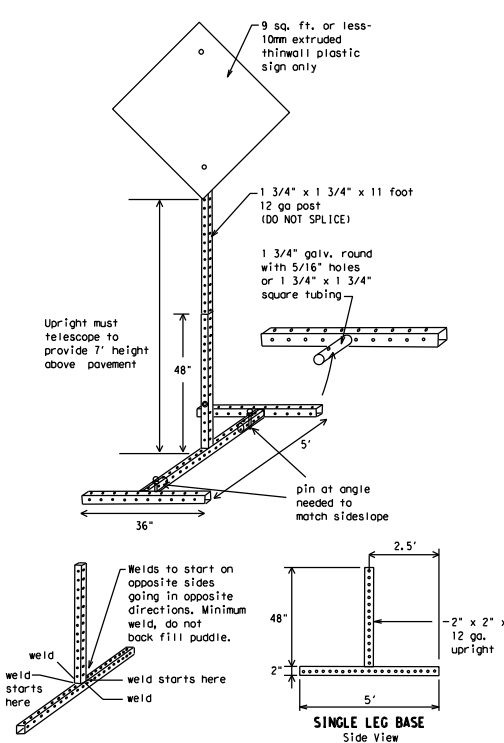
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



PERFORATED SQUARE METAL TUBING

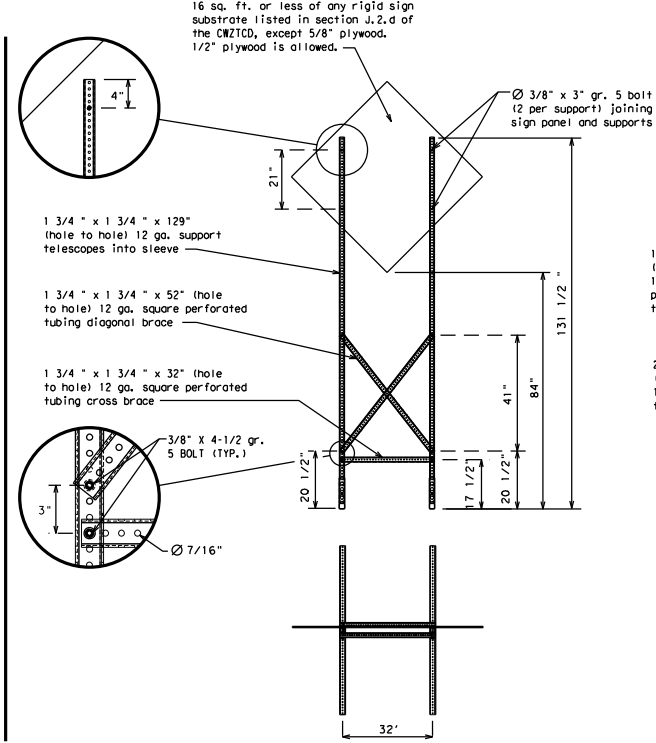
GROUND MOUNTED SIGN SUPPORTS

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.



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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



WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

- 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.
 - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
 - 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



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

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REVISED:	November 2002	CONT:	6466	SECT:	35	JOB:	001	HIGHWAY:	US 59, ETC.
DATE:	9-07	DIST:	8-14	COUNTY:		SHEET NO.:			
	7-13	FILE:	LFK	COUNTY:	SAN JACINTO, ETC.	SHEET NO.:			13

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

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- Messages on PCMS shall contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
- 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.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
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.
- 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. Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- 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.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- 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 table.
- 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.
- Each line of text should be centered on the message board rather than left or right justified.
- 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.

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 CLOSED 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 LANES 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	XXXXXXX TO XXXXXXX	US XXX TO FM XXXX
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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
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**** 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
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** See Application Guidelines Note 6.

APPLICATION GUIDELINES

- Only 1 or 2 phases are to be used on a PCMS.
- The 1st phase (or both) should be selected from the "Road/Lane/Ramp Closure List" and the "Other Condition List".
- A 2nd phase can be selected from the "Action to Take/Effect on Travel, Location, General Warning, or Advance Notice Phase Lists".
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- 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.
- 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

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

PCMS 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

- 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.
- 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.
- 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.
- 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.

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

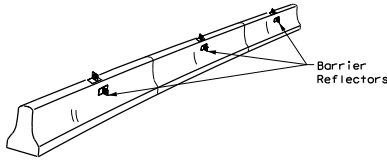
Roadway designation = IH-number, US-number, SH-number, FM-number

<p>BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)</p> <p>BC (6) - 21</p>			
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REV#	November 2002	CR#	TxDOT
DATE	9-07	DR#	TxDOT
TIME	8-14	JOB	US 59, ETC.
BY	7-13	COUNTY	
APP#		SHEET NO.	14
CHK#		LOCATION	SAN JACINTO, ETC.

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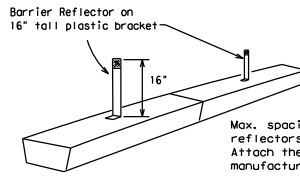
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors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



CONCRETE TRAFFIC BARRIER (CTB)

- 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 cap 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.
- 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.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.

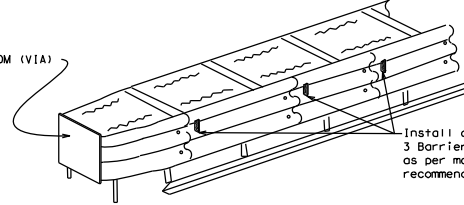


LOW PROFILE CONCRETE BARRIER (LPCB)

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

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



DELINEATION OF END TREATMENTS

END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

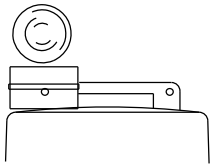
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn or mark a potentially hazardous area. Their use shall be as indicated on this sheet 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 B₁ or C₁ Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- 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".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- 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.
- 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.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

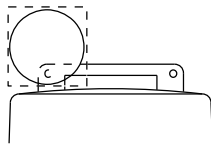
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing 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.
- 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.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- 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

- 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.
- 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 CWZTC.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- 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.
- 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.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.



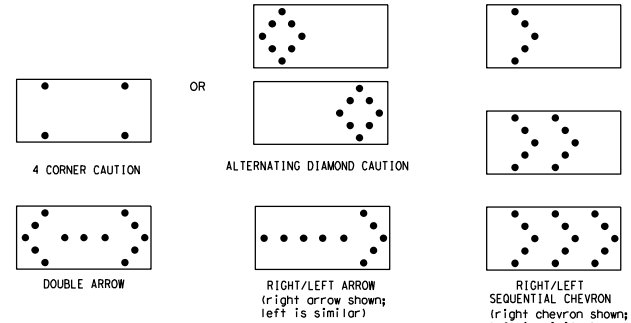
Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.



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

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.

- 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.
- 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.
- 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.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- 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.
- 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.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- A full matrix PMS 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.
- 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

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CWZTC for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CWZTC for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted in the plans.
- 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.
- 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.



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

BC (7) - 21

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REV: 001	DATE: 11/01/2002	BY: 6466	CHK: 35	JOB: 001
9-07	8-14	DIST: 1	COUNTY:	US 59, ETC.
7-13	5-21	LFK	SAN JACINTO, ETC.	SHEET NO. 15

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WORK ZONE PAVEMENT MARKINGS

GENERAL

- 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.
- Color, patterns and dimensions shall be in conformance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
- Additional supplemental pavement marking details may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUTCD and as shown on the plans.
- 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(SIPM).
- 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.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- 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

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

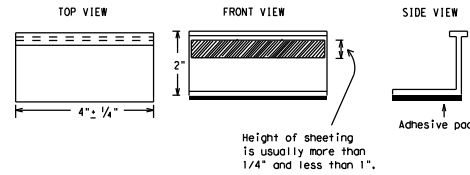
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- 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.
- 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.
- 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

- 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.
- 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.
- 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".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- 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.
- 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**

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- 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.
 - 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.
 - 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.
- Small design variances may be noted between tab manufacturers.
- See Standard Sheet WZ(SIPM) 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

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- 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).

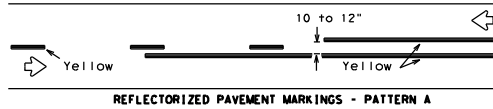
DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY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

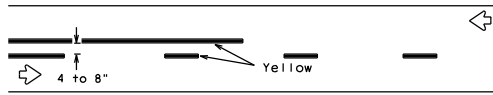
SHEET 11 OF 12

	Traffic Safety Division Standard
<h1 style="margin: 0;">BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS</h1> <h2 style="margin: 0;">BC(11)-21</h2>	
FILE: bc-21.dgn © TxDOT February 1998 2-98 9-07 5-21 1-02 7-13 11-02 8-14	DWS: TxDOT CWS: TxDOT DWS: TxDOT CWS: TxDOT CONT SECT JOB HIGHWAY 6466 35 001 US 59, ETC. DIST COUNTY SHEET NO. LFK SAN JACINTO, ETC. 19

PAVEMENT MARKING PATTERNS

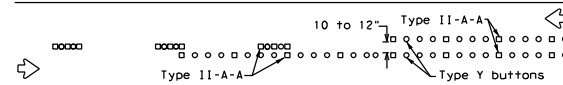


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

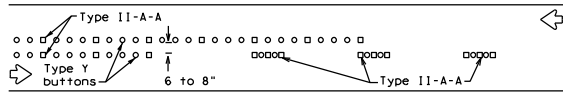


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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.

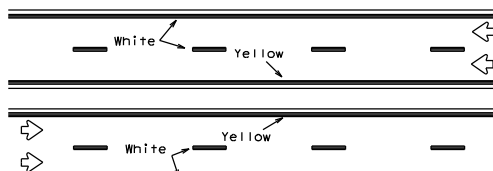


RAISED PAVEMENT MARKERS - PATTERN A



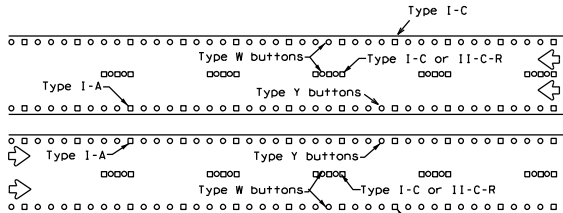
RAISED PAVEMENT MARKERS - PATTERN B

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



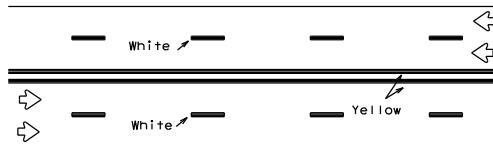
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



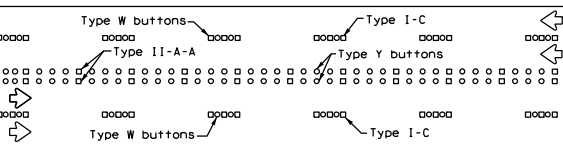
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



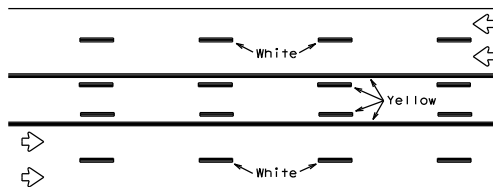
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



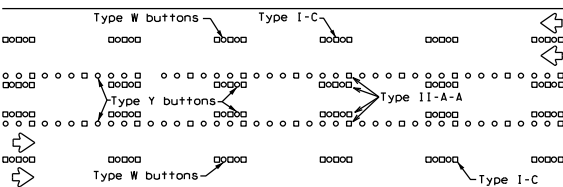
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

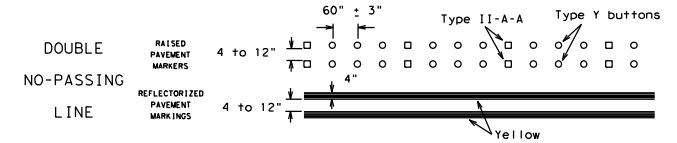
Prefabricated markings may be substituted for reflectORIZED pavement markings.



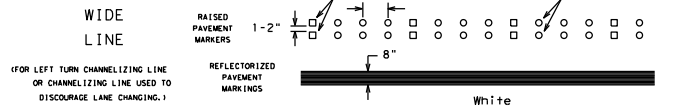
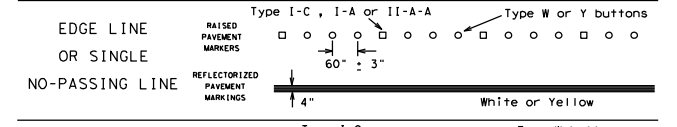
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

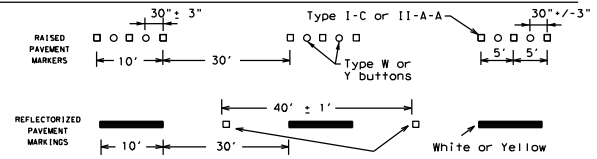


SOLID LINES

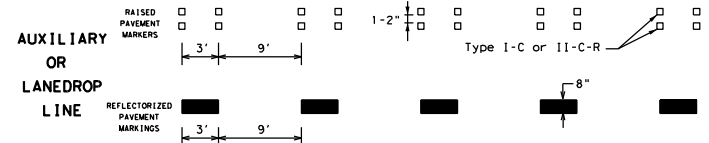


(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

CENTER LINE OR LANE LINE

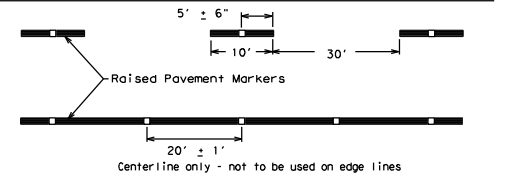


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC (12) - 21

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."

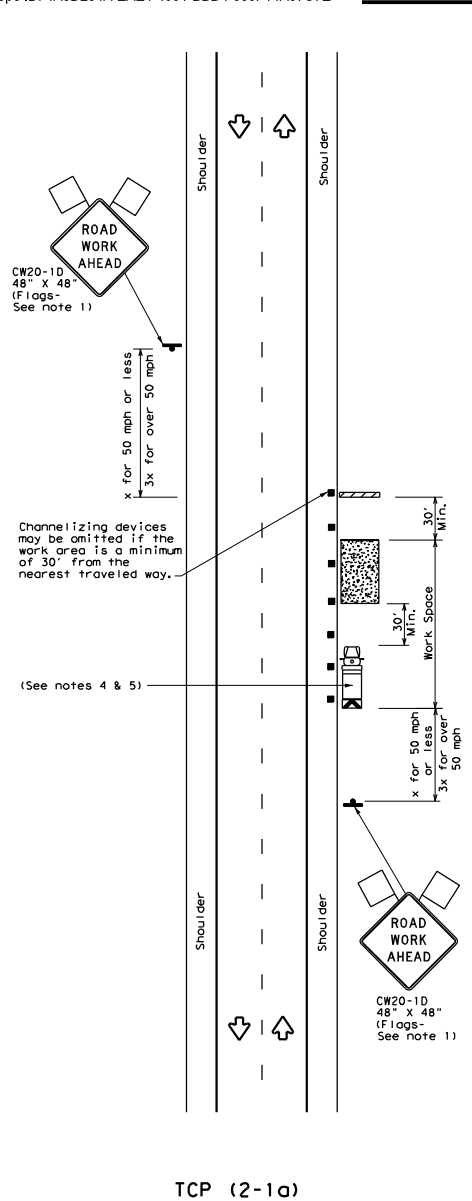
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© TXDOT February 1998	CONT	SECT	JOB	HIGHWAY
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2-98 7-13	DIST	COUNTY	SHEET NO.	
11-02 8-14	LFK	SAN JACINTO, ETC.	20	

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DATE: 5/21/2024 9:44:18 AM
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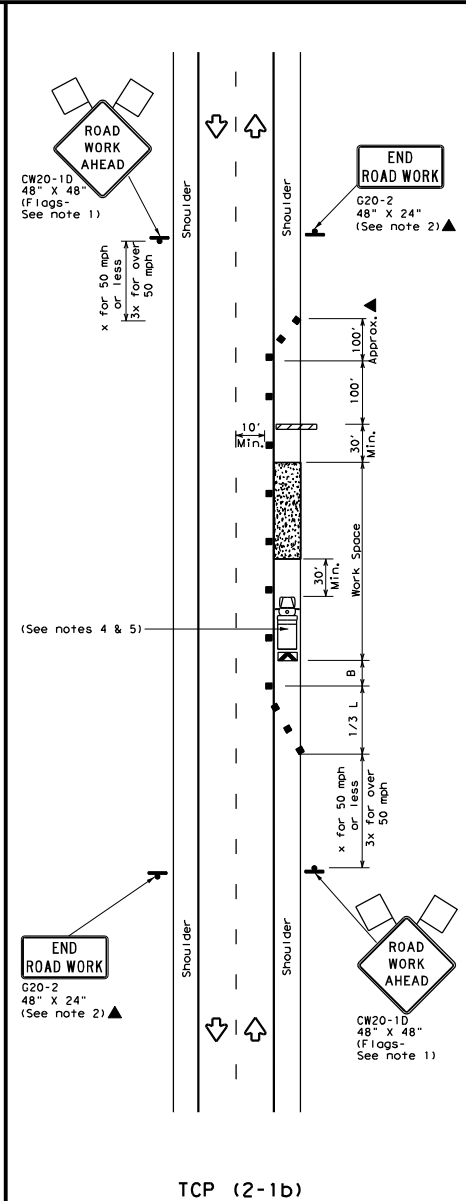
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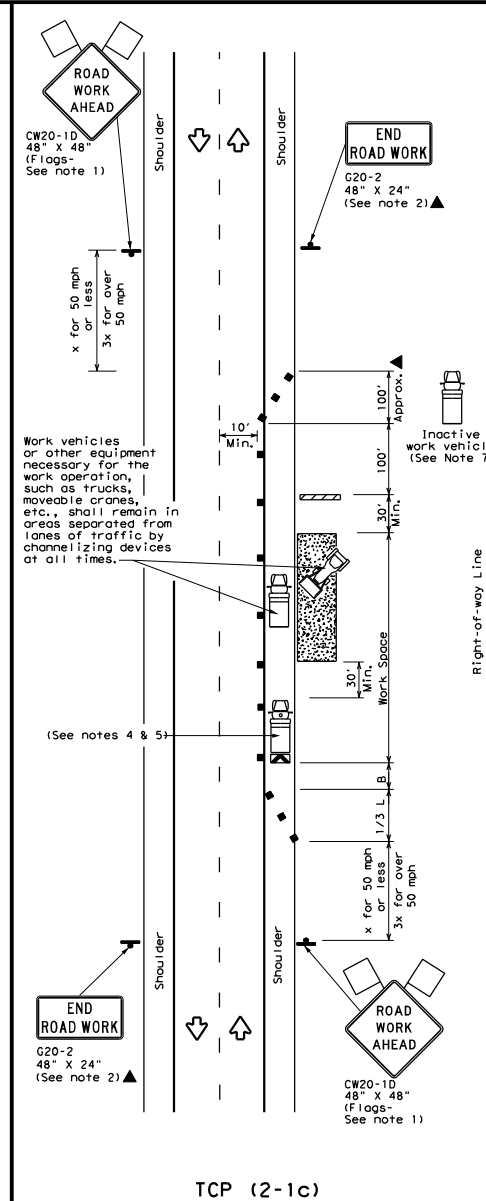
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

* 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
	✓	✓	✓	✓

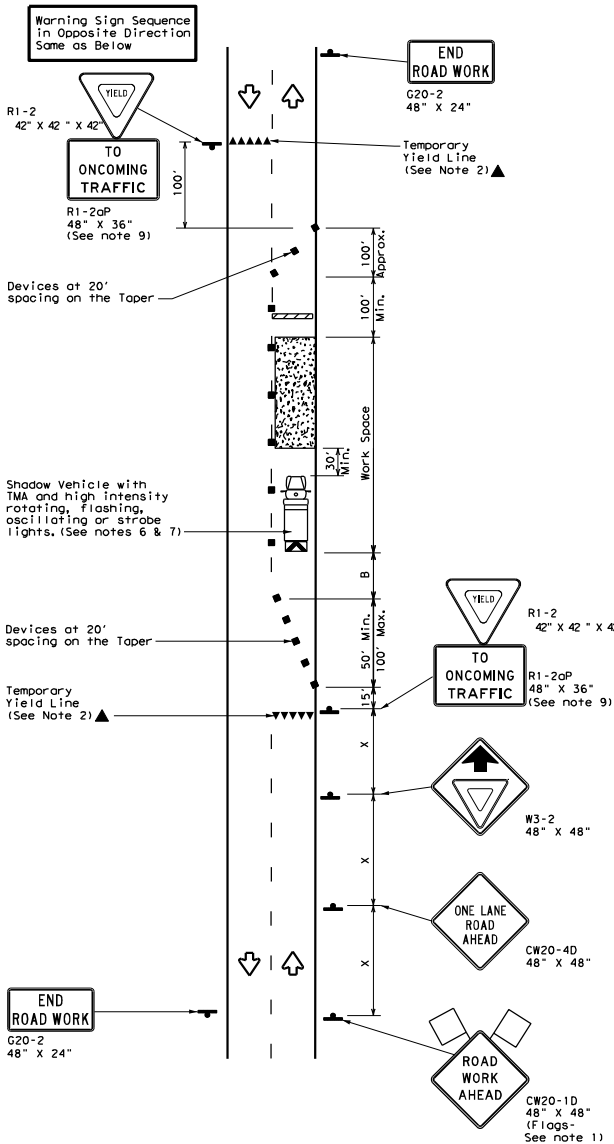
- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
 - Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
 - 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.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
 - See TCP(5-1) for shoulder work on divided highways, expressways and freeways.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK
TCP (2-1) - 18

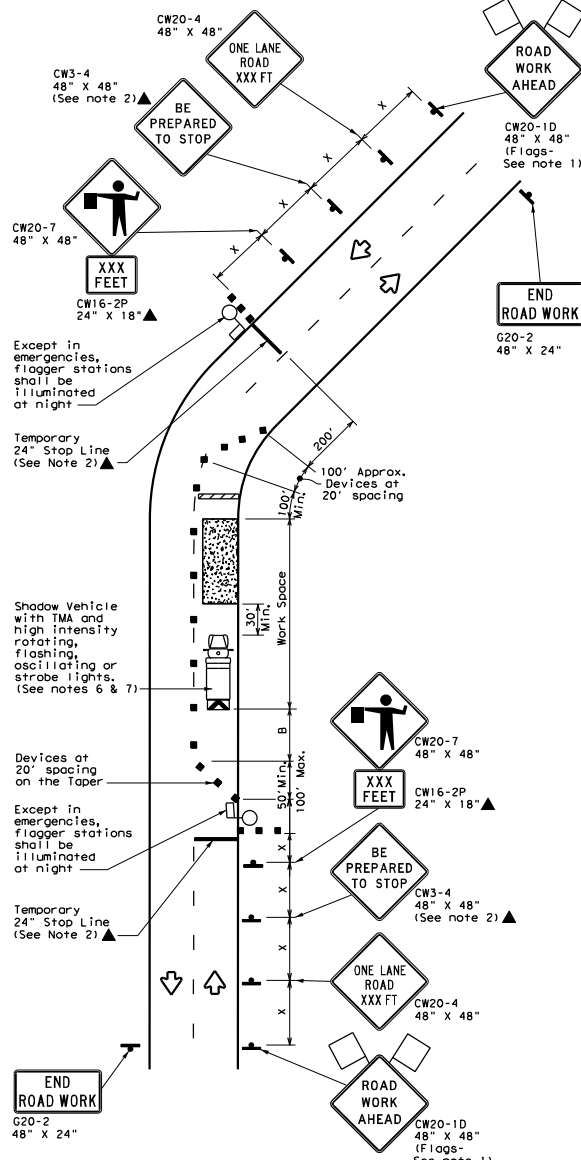
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© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS	6466	35	001	US 59, ETC.
2-94 4-98	B1ST	COUNTY		SHEET NO.
8-95 2-12	LFK	SAN JACINTO, ETC.		21
1-97 2-18				

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DATE: 5/21/2024 9:44:20 AM
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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		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed * *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "b"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	L = WS 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		450'	495'	540'	45'	90'	320'	195'	360'
50	L = WS	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	LONG TERM STATIONARY
	✓	✓	✓

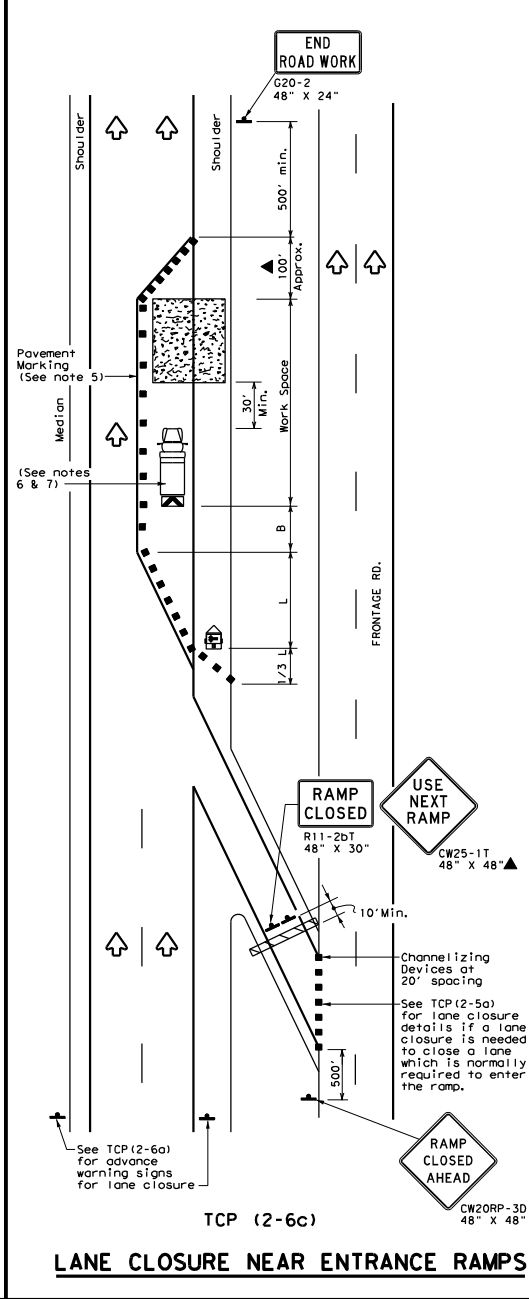
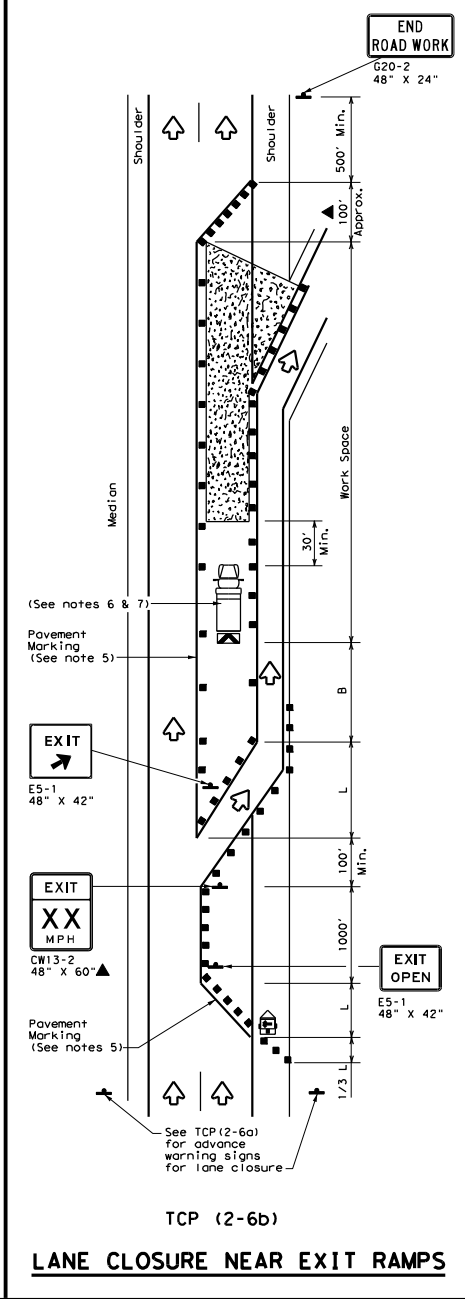
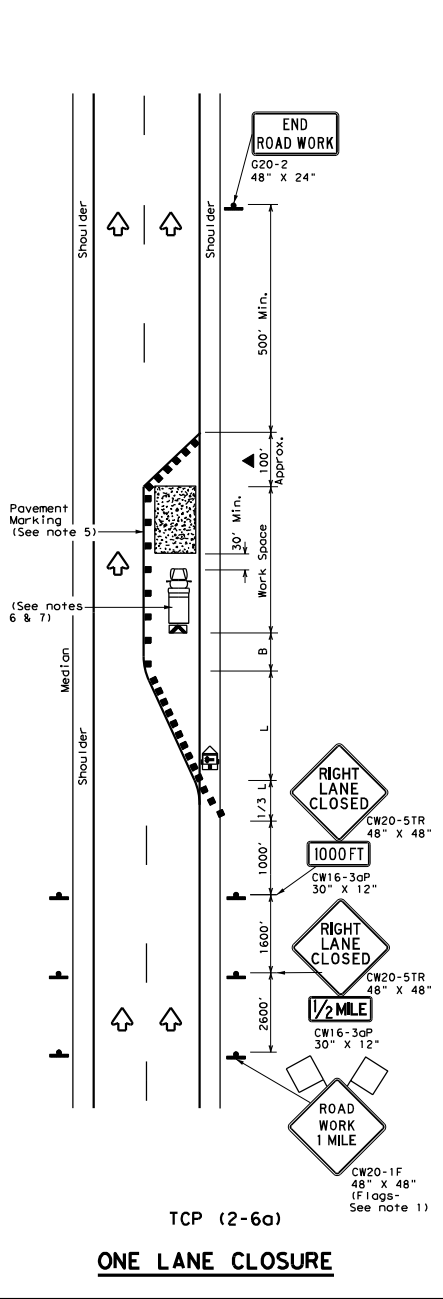
GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
 - Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-2a)**
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
 - The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support of a 7 foot minimum mounting height.
- TCP (2-2b)**
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

		Traffic Operations Division Standard	
TRAFFIC CONTROL PLAN ONE-LANE TWO-WAY TRAFFIC CONTROL			
TCP (2-2) - 18			
FILE: tcp2-2-18.dgn	DATE: December 1985	CNT: 6466	SEC: 35
REVISIONS 8-95 3-03 1-97 2-12 4-98 2-18		JOB: 001 COUNTY: SAN JACINTO, ETC.	HIGHWAY: US 59, ETC. SHEET NO.: 22

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DATE: 5/21/2024 9:44:23 AM
 FILE: TR-1\FKDDMA\mnt\contracts\0-RMC - Routine Maintenance\contracts\1224 of this type\035F14A37C7E.dgn



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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing ** Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = WS / 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	LONG TERM STATIONARY

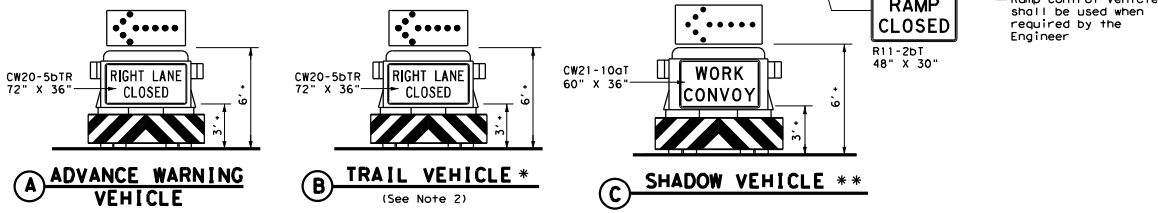
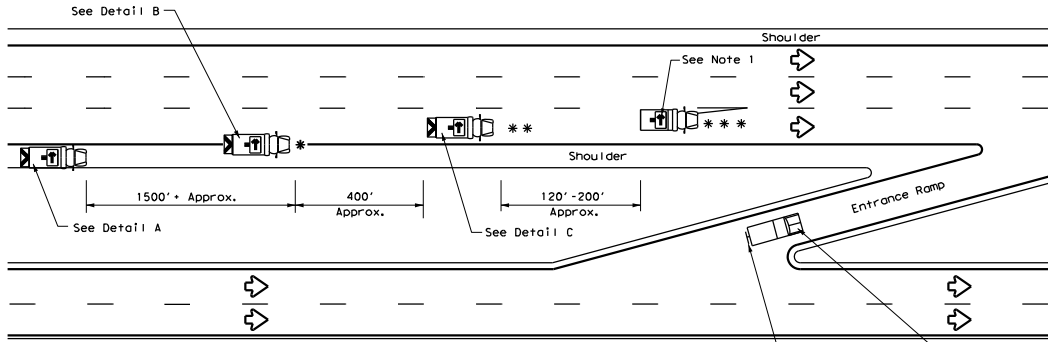
- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
 - Channelizing devices used along the work space or along tangent sections may be supplemented with vertical panels (VP) placed on every other channelizing device. If night time conditions make it difficult to see at least two VPs, the VPs may be placed on each channelizing device.
 - The placement of pavement markings may be omitted on intermediate-term stationary work zones with the approval of the Engineer.
 - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - 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.

TRAFFIC CONTROL PLAN
LANE CLOSURES ON
DIVIDED HIGHWAYS
TCP (2-6) - 18

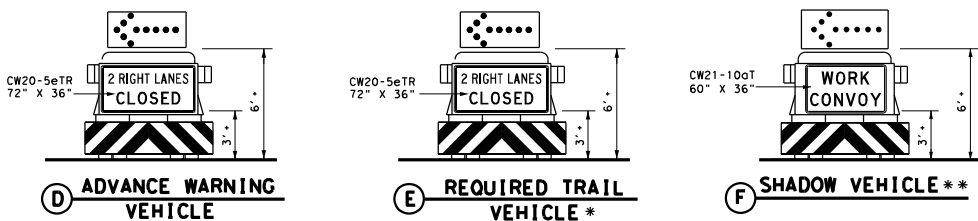
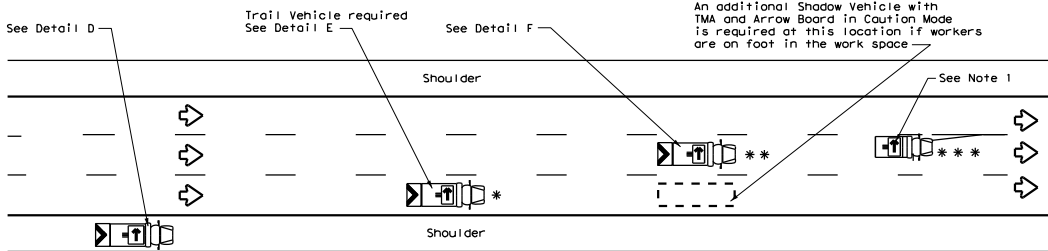
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© TxDOT December 1985		CONT: 6466	SECT: 35	JOB: 001	HIGHWAY: US 59, ETC.
REVISIONS		DATE: 8-95	BY: 2-12	COUNTY: BIST	SHEET NO. 25
1-97		DATE: 2-18	BY: LFK	COUNTY: SAN JACINTO, ETC.	SHEET NO. 25

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RIGHT LANE CLOSURE ON DIVIDED HIGHWAY - TCP(3-2a)



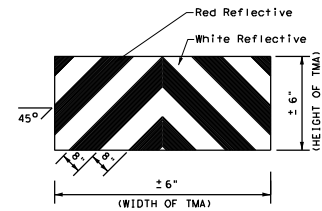
INTERIOR LANE CLOSURE ON MULTI-LANE DIVIDED HIGHWAY - TCP(3-2b)

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

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

GENERAL NOTES

- ADVANCE WARNING, TRAIL and SHADOW vehicles shall be equipped with Type B or Type C flashing arrow boards as per the Barricade and Construction (BC) standards. Arrow boards on WORK vehicles will be optional based on the type of work being performed. The arrow boards shall be operated from inside the vehicle.
- For TCP(3-2a) the Engineer will determine if the TRAIL VEHICLE is required based on prevailing roadway conditions, traffic volume, and sight distance restrictions. All other vehicles shown for both TCP(3-2a) and TCP(3-2b) are required.
- The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
- The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
- Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
- Each vehicle shall have two-way radio communication capability.
- When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
- Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
- Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
- The signs shown should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or a truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board, must be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
- Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
- The principles on this sheet may be used to close lanes from the left side of the roadway considering the number of lanes, shoulder width, sight distance, and ramp frequency.
- Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
- The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.

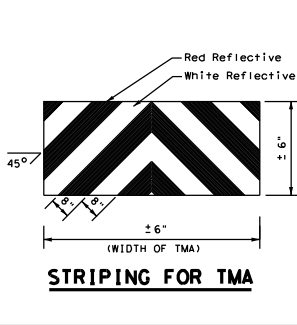
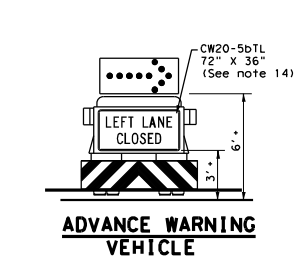
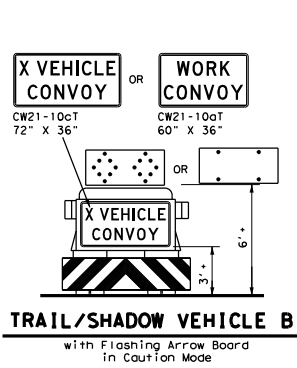
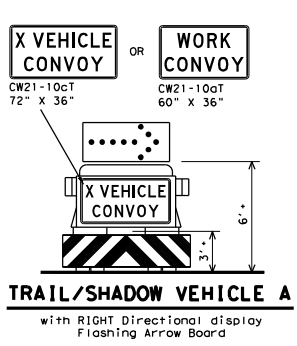
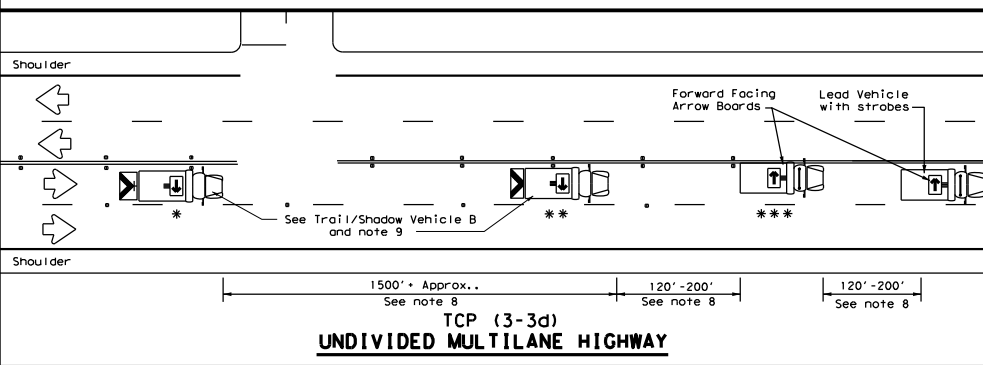
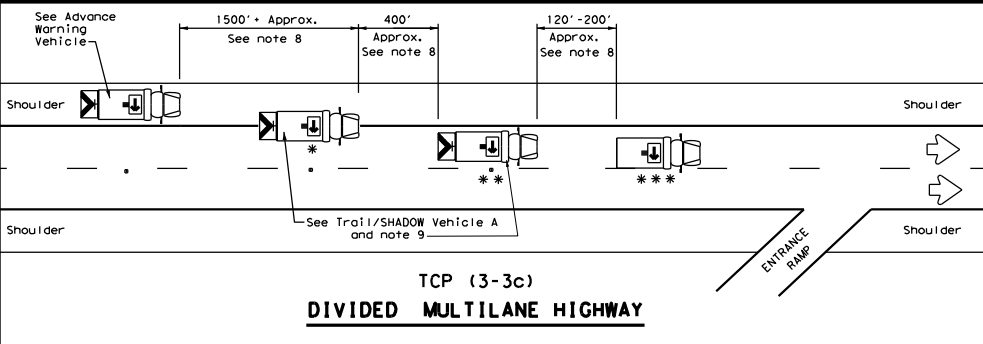
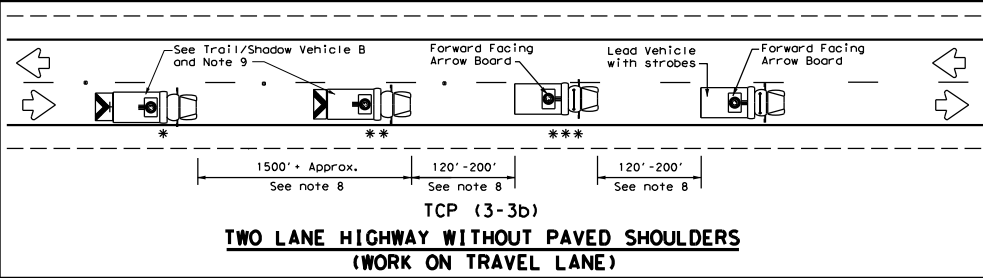
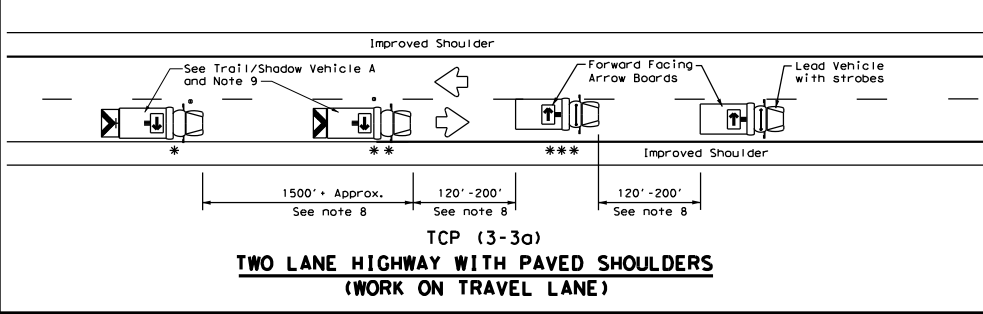


STRIPING FOR TMA

		Traffic Operations Division Standard	
TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS			
TCP(3-2)-13			
FILE: tcp3-2.dgn	DN: TxDOT	CR: TxDOT	DR: TxDOT
© TxDOT December 1985	CONT SECT	JOB	HIGHWAY
2-94 4-91 REVISIONS	6466 35	001	US 59, ETC.
8-95 7-13	DIST	COUNTY	SHEET NO.
1-97	LFK	SAN JACINTO, ETC.	27

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

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

- GENERAL NOTES**
- TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used on two way roads the WORK vehicle must have an arrow board. For divided roadways, the arrow board on the WORK vehicle is optional based on the type of work being performed. The Engineer will determine if the LEAD vehicle and/or TRAIL vehicle are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
 - The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
 - The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
 - Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
 - Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
 - Each vehicle shall have two-way radio communication capability.
 - When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
 - Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions, Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
 - X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
 - For divided highways with two or three lanes in one direction, the appropriate LEFT LANE CLOSED (CW20-5bTL), RIGHT LANE CLOSED (CW20-5bTR), or CENTER LANE CLOSED (CW20-5dTL) sign should be used on the Advance Warning Vehicle. As an option, a portable changeable message sign (PCMS) or truck mounted changeable message sign (TMCMS) with a minimum character height of 12", and displaying the same legend may be substituted for these signs. An appropriate directional arrow display, simulating the size and legibility of the flashing arrow board may be used in the second phase of the PCMS/TMCMS message. When this is done, the arrow board will not be required on the Advance Warning Vehicle.
 - A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
 - For divided highways with three or four lanes in each direction, use TCP(3-2).
 - Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
 - The Advance Warning Vehicle may straddle the edge line when Shoulder width makes it necessary.
 - On two-lane two-way roadways, the work and protection vehicles should pull over periodically to allow motor vehicle traffic to pass. If motorists are not allowed to pass the work convoy, a DO NOT PASS (R4-1) sign should be placed on the back of the rearmost protection vehicle.

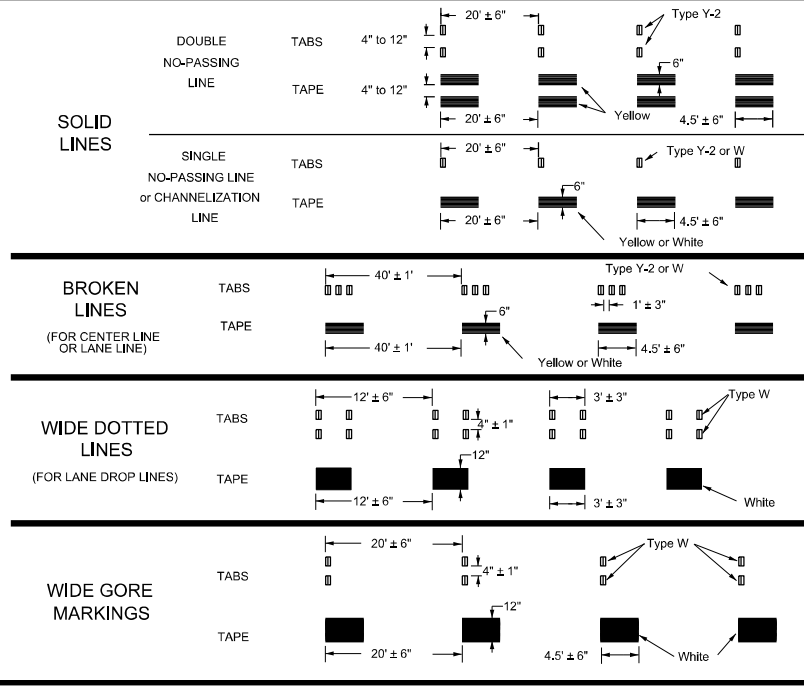
TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
RAISED PAVEMENT
MARKER INSTALLATION/
REMOVAL
TCP (3-3) - 14

FILE:	tcp3-3.dgn	DN:	TxDOT	CK:	TxDOT	DW:	TxDOT	CK:	TxDOT
© TxDOT	September 1987	CONT	SECT	JOB	HIGHWAY				
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8-95	7-13	DIST	COUNTY			SHEET NO.			
1-97	7-14	LPK	SAN JACINTO, ETC.			28			

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WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS

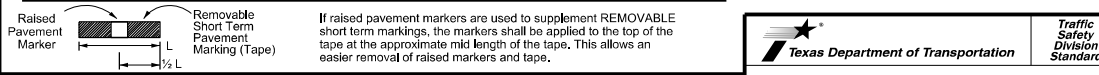
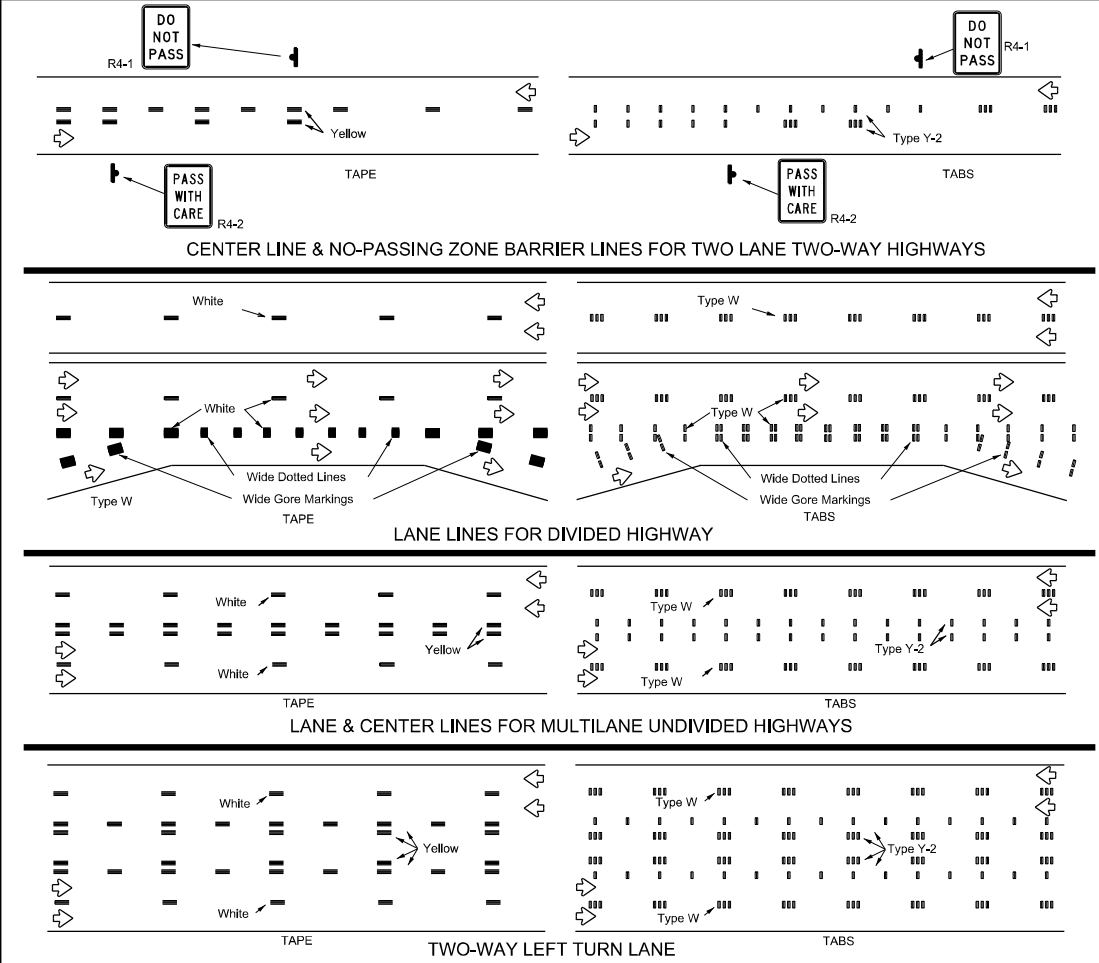


- NOTES:**
- Short term pavement markings may be prefabricated markings (slick down tape) or temporary flexible reflective roadway marker tabs unless otherwise specified elsewhere in plans.
 - Short term pavement markings shall NOT be used to simulate edge lines.
 - Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.
 - Temporary flexible-reflective roadway marker tabs will require normal maintenance replacement when used on roadways with an ADT per lane of up to 7500 vehicles with no more than 10% truck mix. When roadways exceed these values, additional maintenance replacement of devices should be planned.
 - No segment of roadway open to traffic shall remain without permanent pavement markings for a period greater than 14 calendar days. The Contractor will be responsible for maintaining short term pavement markings until permanent pavement markings are in place. When the Contractor is responsible for placement of permanent pavement markings, no segment of roadway shall remain without permanent pavement markings for a period greater than 14 calendar days unless weather conditions prohibit placement. Permanent pavement markings shall be placed as soon as weather permits.
 - For two lane, two-way roadways, DO NOT PASS signs shall be erected to mark the beginning of sections where passing is prohibited and PASS WITH CARE signs shall be erected to mark the beginning of sections where passing is permitted. Signs shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and may be used to indicate the limits of no-passing zones for up to 14 calendar days. Permanent pavement markings should then be placed.
 - For low volume two lane, two-way roadways of 4000 ADT or less, no-passing lines may be omitted when approved by the Engineer. DO NOT PASS and PASS WITH CARE signs shall be erected (see note 6).
 - For exit gores where a lane is being dropped place wide gore markings or retroreflective channelizing devices to guide motorist through the exit. If channelizing devices are to be used it should be noted elsewhere in the plans. One piece cones are not allowed for this purpose.

TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS (TABS)

- Temporary flexible-reflective roadway marker tabs detailed on this sheet will be designated Type Y-2 (two amber reflective surfaces with yellow body); Type Y (one amber reflective surface with yellow body); and Type W (one white or silver reflective surface with white body). Additional details may be found on BC(11).
- Tabs shall meet requirements of Departmental Material Specification DMS-8242.
- When dry, tabs shall be visible for a minimum distance of 200 feet during normal daylight hours and when illuminated by automobile low-beam head light at night, unless sight distance is restricted by roadway geometrics.
- No two consecutive tabs nor four tabs per 1000 feet of line shall be missing or fail to meet the visual performance requirements of Note 3.

WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS



PREFABRICATED PAVEMENT MARKINGS

- Temporary Removable Prefabricated Pavement Markings shall meet the requirements of DMS-8241.
- Non-removable Prefabricated Pavement Markings shall meet the requirements of either DMS-8240 "Permanent Prefabricated Pavement Markings" or DMS-8243 "Temporary Construction-Grade Prefabricated Pavement Markings."

RAISED PAVEMENT MARKERS

- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and DMS-4200.

DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) & MATERIAL PRODUCER LISTS (MPL)

- DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:
http://www.txdot.gov/business/contractors_consultants/material_specifications/default.htm

Texas Department of Transportation
Traffic Safety Division Standard

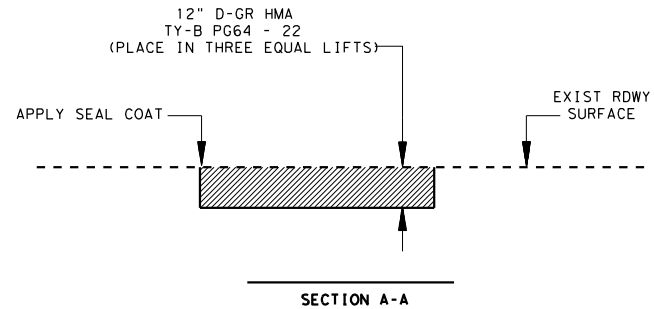
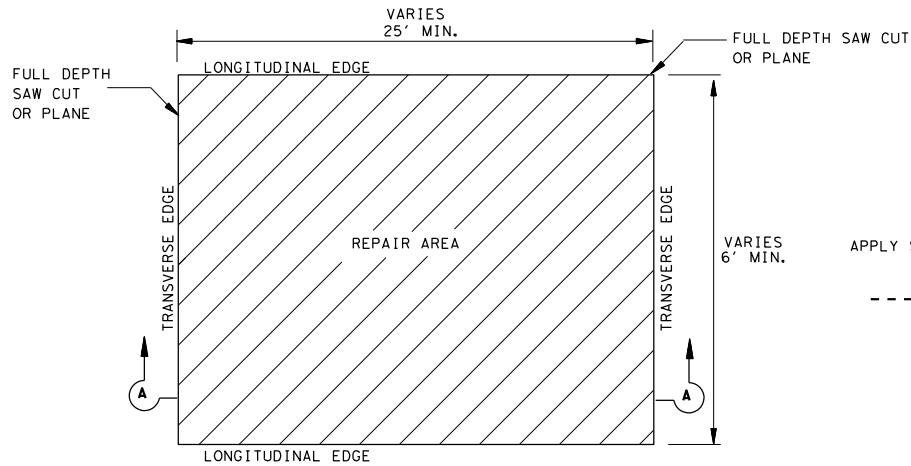
WORK ZONE SHORT TERM PAVEMENT MARKINGS

WZ (STPM) - 23

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1-07 2-03	3-03	LFK	SAN JACINTO, ETC.	31

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- NOTE: 1. FLEXIBLE PAVEMENT STRUCTURE TO BE REPAIRED ON EACH ROAD BEFORE MILL AND INLAY OPERATION BEGINS. LOCATIONS ARE TO BE VERIFIED BY THE ENGINEER.
2. LOCATION, LENGTH, AND LANE POSITION WILL BE MARKED BY THE LOCAL MAINTENANCE OFFICE PRIOR TO WORK BEGINNING ON EACH REFERENCE.
3. SEAL COAT IS SUBSIDIARY TO ITEM 351.

SCALE: NTS



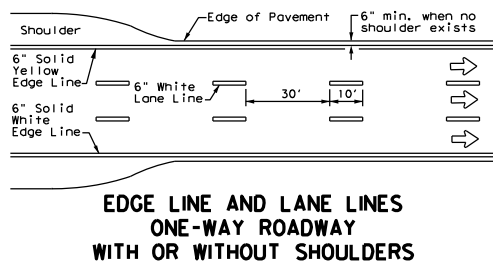
FLEXIBLE PAVEMENT REPAIR DETAILS



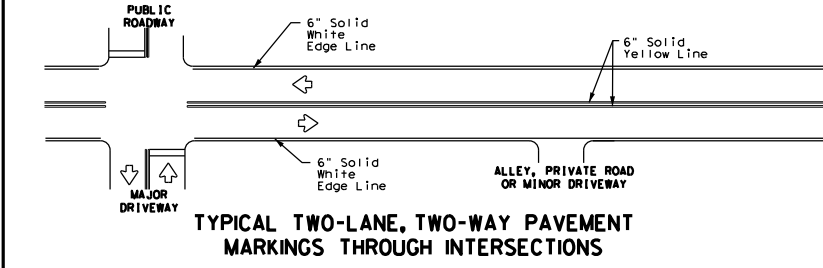
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DIST	COUNTY	SHEET NO.	
LFK	SAN JACINTO, ETC.	32	

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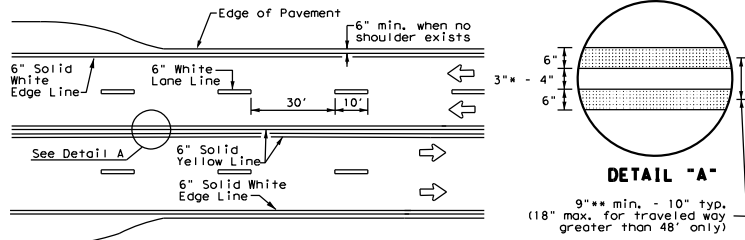
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**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

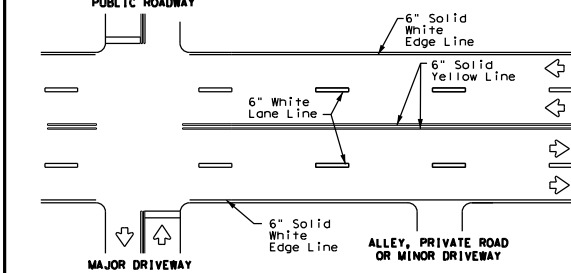


**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**

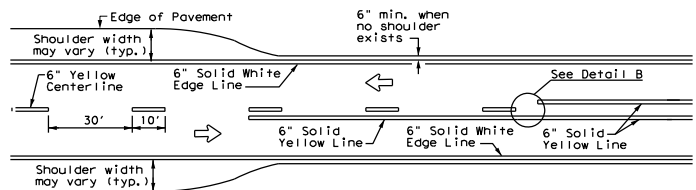


**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

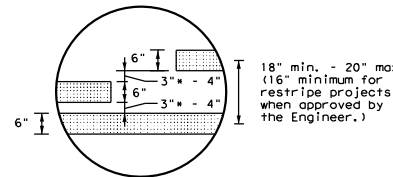
* 2" minimum for restripe projects when approved by the Engineer.
 ** 8" minimum for restripe projects when approved by the Engineer.



**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**

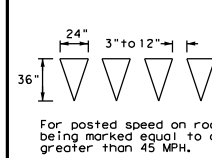


**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

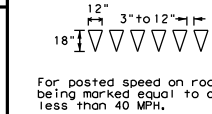


DETAIL "B"

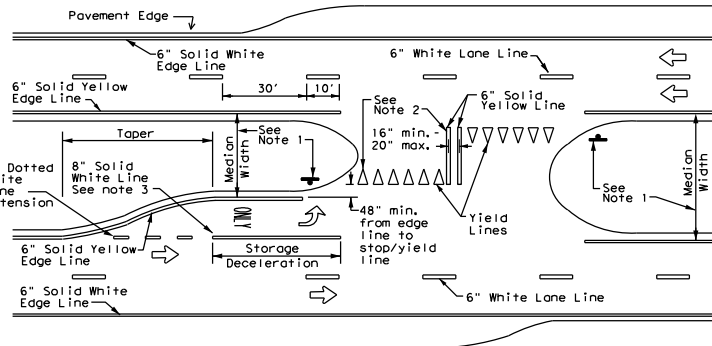
* 2" minimum for restripe projects when approved by the Engineer.



YIELD LINES



For posted speed on road being marked equal to or less than 40 MPH.



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

- Where divided highways are separated by median widths of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

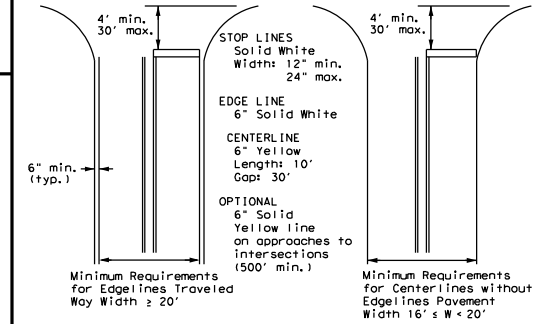
GENERAL NOTES

- Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
- The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

MATERIAL SPECIFICATIONS

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

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



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

**GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE**

Based on Traveled Way and Pavement Widths for Undivided Roadways



Traffic Safety Division Standard

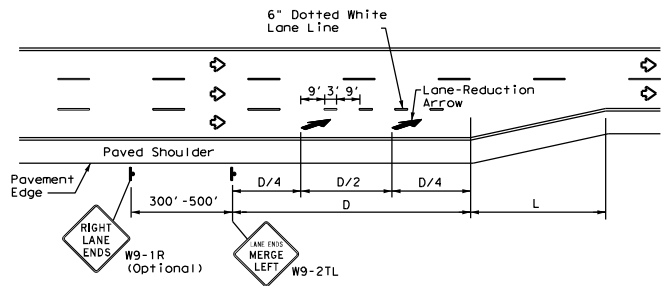
**TYPICAL STANDARD
PAVEMENT MARKINGS**

PM(1) - 22

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11-78 8-00 6-20	REVISIONS:	8-95 3-03 12-22	BIST: COUNTY	SHEET NO.	
5-00 2-12	LFK	SAN JACINTO, ETC.		33	

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LANE REDUCTION

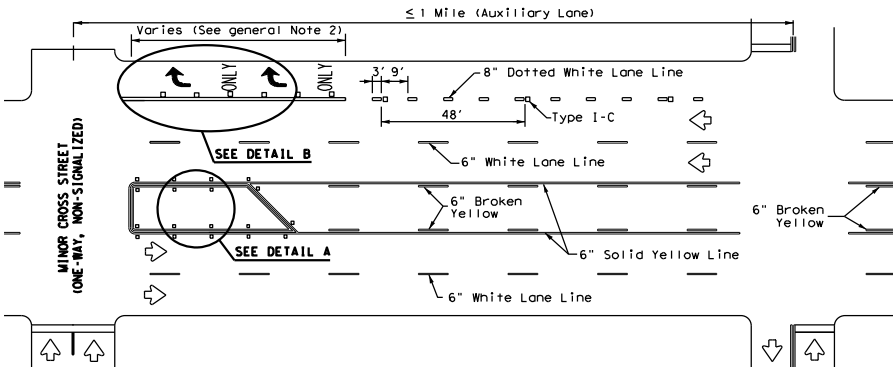
NOTES

- Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see T52(PL) standard sheets.
- On divided highways, an additional RIGHT LANE ENDS (W9-1R) sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
- Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
- For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

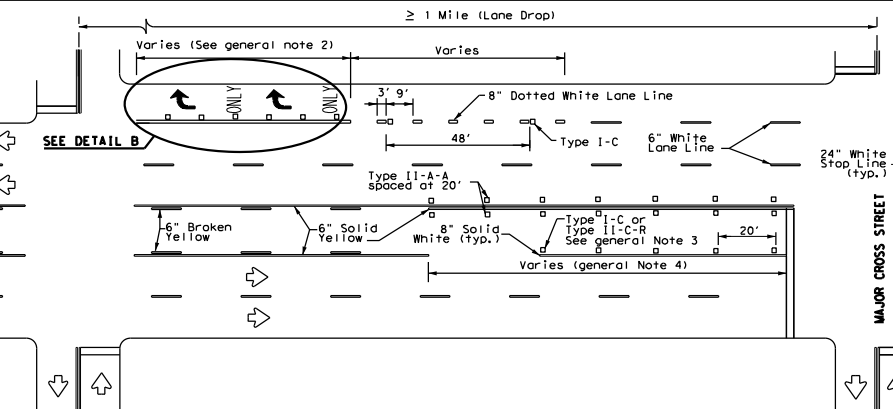
ADVANCED WARNING SIGN DISTANCE (D)		
Posted Speed	D (ft)	L (ft)
30 MPH	460	L = WS ² 60
35 MPH	565	
40 MPH	670	L = WS
45 MPH	775	
50 MPH	885	L = WS
55 MPH	990	
60 MPH	1,100	L = WS
65 MPH	1,200	
70 MPH	1,250	L = WS
75 MPH	1,350	

GENERAL NOTES

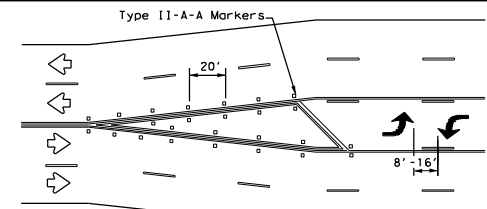
- Lane use word and arrow markings shall be used where through lanes approaching an intersection become mandatory turn lanes. Lane use word and arrow markings should be used in auxiliary lanes of substantial length. Lane use arrow markings or word and arrow markings may be used in other lanes and turn bays for emphasis. Details for words and arrows are as shown in the Standard Highway Sign Designs for Texas.
- When lane-use words and arrow markings are used, two sets of arrows should be used if the length of the bay is greater than 180 feet. When a single lane use arrow or word and arrow marking is used for a short turn lane, it should be located at or near the upstream end of the full-width turn lane.
- Use raised pavement marker Type I-C with undivided highways, flush medians and two way left turn lanes. Use raised pavement marker Type II-C-R with divided highways and raised medians.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer. See Chapter 3 of the Roadway Design Manual for additional information on turning lanes or storage lengths.



TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE

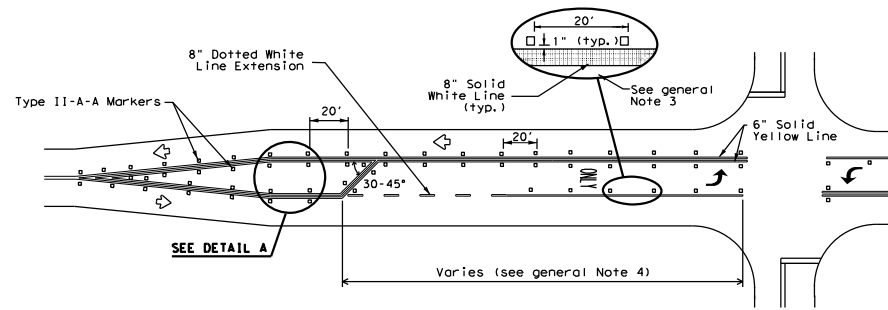


TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP

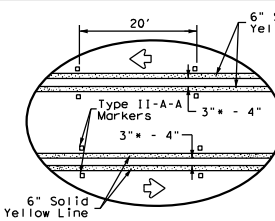


A two-way left-turn (TWLTL) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

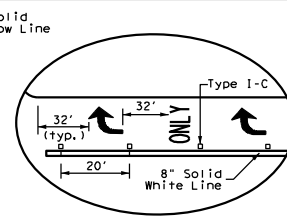
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



TYPICAL TWO-LANE ROADWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A



DETAIL B

* 2" minimum allowed for restripe projects when approved by the Engineer.

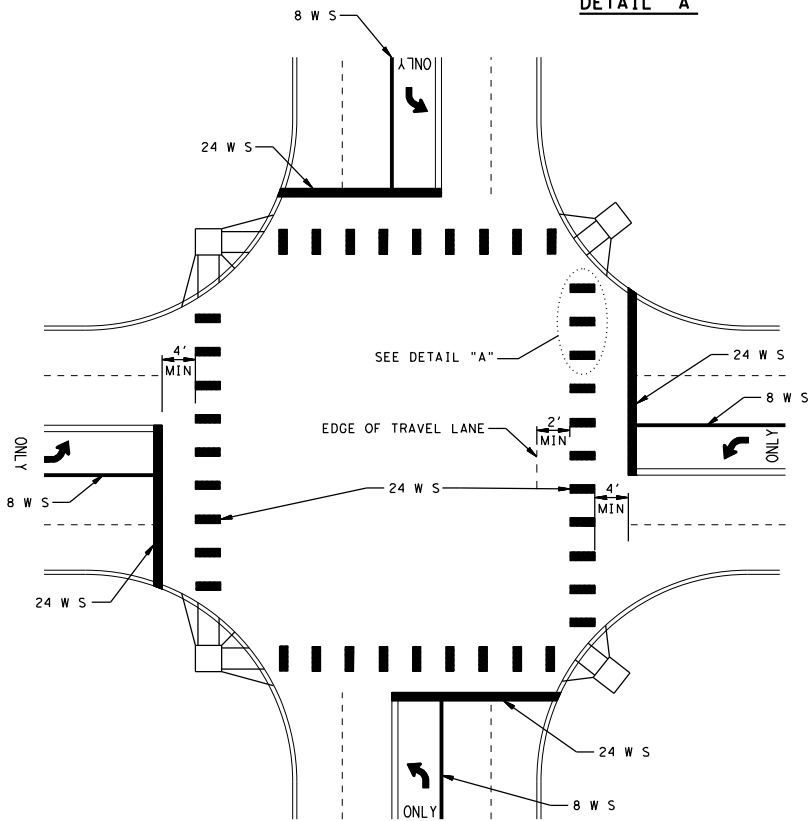
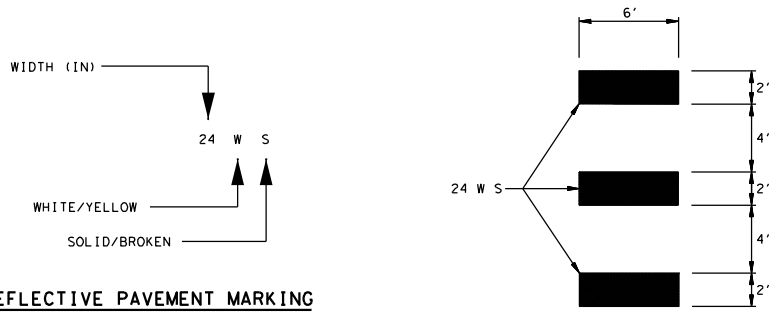
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

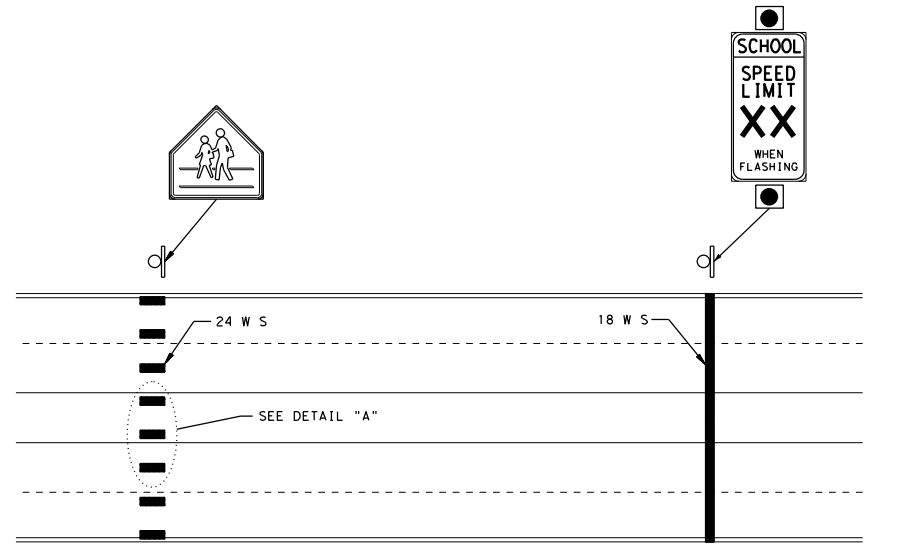
Texas Department of Transportation
 Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-22

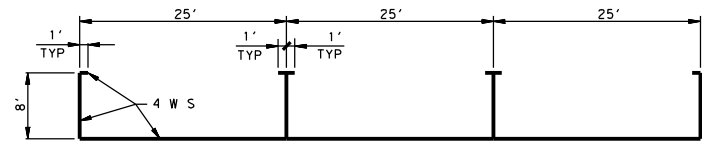
FILE: pm3-22.dgn	DATE: 12/20/2022	BY: 6466	CHK: 35	DATE: 12/20/2022	BY: 6466	CHK: 35
© TxDOT December 2022 4-98 3-03 6-20 5-00 2-10 12-22 8-00 2-12		REVISIONS 6466 35 001 915T COUNTY LFK SAN JACINTO, ETC.		HIGHWAY US 59, ETC. SHEET NO. 35		22C



TYPICAL INTERSECTION ON PAVEMENT MARKING DETAIL

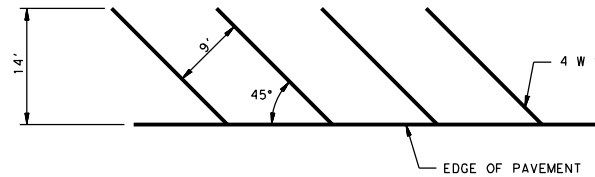


TYPICAL SCHOOL ZONE PAVEMENT MARKING DETAIL



TYPICAL ANGLE PARKING DETAIL*

*DETAILS SHOWN FOR ILLUSTRATION ONLY. STRIPES MAY BE PLACED AT EXISTING LOCATIONS AS DIRECTED BY THE ENGINEER.



DISCLAIMER: THIS DETAIL IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. NO WARRANTY OF ANY KIND IS MADE BY TADOT FOR ANY PURPOSE WHATSOEVER. TADOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS DETAIL TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

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LUFKIN DISTRICT STANDARD
TYPICAL PAVEMENT MARKING DETAILS
NOT TO SCALE

FED. NO. DIV. NO.	PROJECT NO.	SHEET NO.
6	RMC 6466-35-001	36
STATE	DISTRICT	COUNTY
TEXAS	LFK	SAN JACINTO, ETC.
CONTROL SECTION	JOB	HIGHWAY NO.
6466	35	001
		US 59, ETC.

DISCUSSION: The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of units. The user of this standard is advised to verify the accuracy of the information contained herein. DATE: 5/3/2024 8:15:08 AM FILE: I:\FEDMAINT\Contract\035F14A37C7E\035F14A37C7E.dwg

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

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

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

No Action Required Required Action

Action No.

1. The proposed work of this project consists of mill and inlay at various roadway locations shown in plans within the San Jacinto and Polk County Maintenance Sections. These activities maintain the original line and grade, hydraulic capacity, and original purpose of the structures. Therefore, this project meets the definition of a routine maintenance activity as defined in the TPDES General Permit No. TXR150000 issues March 5, 2023 and TCEQ's TPDES CGP does not apply.

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.

Action No.

1. N/A

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
<input type="checkbox"/> Temporary Vegetation	<input type="checkbox"/> Silt Fence	<input type="checkbox"/> Vegetative Filter Strips
<input type="checkbox"/> Blankets/Matting	<input type="checkbox"/> Rock Berm	<input type="checkbox"/> Retention/Irrigation Systems
<input type="checkbox"/> Mulch	<input type="checkbox"/> Triangular Filter Dike	<input type="checkbox"/> Extended Detention Basin
<input type="checkbox"/> Sodding	<input type="checkbox"/> Sand Bag Berm	<input type="checkbox"/> Constructed Wetlands
<input type="checkbox"/> Interceptor Swale	<input type="checkbox"/> Straw Bale Dike	<input type="checkbox"/> Wet Basin
<input type="checkbox"/> Diversion Dike	<input type="checkbox"/> Brush Berms	<input type="checkbox"/> Erosion Control Compost
<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Erosion Control Compost	<input type="checkbox"/> Mulch Filter Berm and Socks
<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Mulch Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks
<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Compost Filter Berm and Socks	<input type="checkbox"/> Vegetation Lined Ditches
	<input type="checkbox"/> Stone Outlet Sediment Traps	<input type="checkbox"/> Sand Filter Systems
	<input type="checkbox"/> Sediment Basins	<input type="checkbox"/> Grassy Swales

III. CULTURAL RESOURCES

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

No Action Required Required Action

Action No.

1. Equipment storage or stockpiling of materials is not permitted in any pulloff or parking area labelled as a historic marker, or where historic markers are present.

2. Contractor to repair or replace in kind, at their own expense, any historic materials damaged (buildings, historical markers, etc) in the course of executing work. Contractor is responsible for locating replacement source for historical materials damaged in the course of the work. TxDOT-Environmental Affairs Division is to be informed of proposed repairs to facilitate consultation with Texas Historical Commission prior to the execution of repairs.

IV. VEGETATION RESOURCES

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

No Action Required Required Action

Action No.

1. N/A

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

No Action Required Required Action

Action No.

1. N/A

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

Action No.

1. N/A


VII. OTHER ENVIRONMENTAL ISSUES

(include other regional issues i.e. Edwards Aquifer...)

No Action Required Required Action

Action No.

1. N/A

 Texas Department of Transportation		Design Division Standard		
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REVISED: February 2015	CONT	SECT	JOB	HIGHWAY
12-12-2011 0551	6466	35	001	US 59, ETC.
05-07-14 ADDED NOTE SECTION IV.	DIST	COUNTY	SHEET NO.	
01-22-2015 SECTION I CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	LFK	SAN JACINTO, ETC.	37	

Certificate Of Completion

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Source Envelope:	
Document Pages: 41	Signatures: 3
Certificate Pages: 5	Initials: 0
AutoNav: Enabled	Envelope Originator:
Envelopeld Stamping: Enabled	Spencer Branske
Time Zone: (UTC-06:00) Central Time (US & Canada)	125 E. 11th Street
	Austin, TX 78701
	Spencer.Branske@txdot.gov
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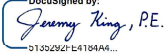
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Storage Appliance Status: Connected	Pool: Texas Department of Transportation	Location: DocuSign

Signer Events

Jeremy King
 Jeremy.King@txdot.gov
 Lufkin District Maintenance Engineer
 Texas Department of Transportation
 Security Level: Email, Account Authentication (Optional)

Signature

DocuSigned by:

 Signature Adoption: Uploaded Signature Image
 Using IP Address: 204.64.21.250

Timestamp

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Electronic Record and Signature Disclosure:
 Not Offered via DocuSign

Kevin Buranakitipinyo, Dir of Construction
 Kevin.Buranakitipinyo@txdot.gov
 Director of Operations
 TxDOT - Lufkin
 Security Level: Email, Account Authentication (Optional)

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Editor Delivery Events **Status** **Timestamp**

Agent Delivery Events **Status** **Timestamp**

Intermediary Delivery Events **Status** **Timestamp**

Certified Delivery Events **Status** **Timestamp**

Carbon Copy Events **Status** **Timestamp**

Tamara Gibson
 Tamara.Gibson@txdot.gov
 Texas Department of Transportation
 Security Level: Email, Account Authentication (Optional)



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Envelope Summary Events	Status	Timestamps
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Certified Delivered	Security Checked	6/4/2024 8:40:20 AM
Signing Complete	Security Checked	6/4/2024 8:41:16 AM
Completed	Security Checked	6/4/2024 8:41:22 AM
Payment Events	Status	Timestamps
Electronic Record and Signature Disclosure		

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- ii. send us an e-mail to kevin.setoda@txdot.gov and in the body of such request you must state your e-mail, full name, IS Postal Address, telephone number, and account number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

Operating Systems:	Windows2000? or WindowsXP?
Browsers (for SENDERS):	Internet Explorer 6.0? or above
Browsers (for SIGNERS):	Internet Explorer 6.0?, Mozilla FireFox 1.0, NetScape 7.2 (or above)
Email:	Access to a valid email account
Screen Resolution:	800 x 600 minimum
Enabled Security Settings:	<ul style="list-style-type: none">• Allow per session cookies

- | | |
|--|---|
| | <ul style="list-style-type: none">• Users accessing the internet behind a Proxy Server must enable HTTP 1.1 settings via proxy connection |
|--|---|

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