INDEX OF SHEETS

SEE SHEET NO 2

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

FEDERAL AID PROJECT NO. F 2022(038), ETC

NET LENGTH OF PROJECT= 632,893.56 FT. = 119.866 MI.

STATE PROJECT NO.			
F 2022(038), ETC			
CONT	SECT	JOB	HIGHWAY
0060	02	034	SH 8
DIST	COUNTY		SHEET NO.
ATL	BOWIE, ETC		1

DESIGN SPEED = N/A

FINAL PLANS

LETTING DATE: _____

DATE CONTRACTOR BEGAN WORK: _____

DATE WORK WAS COMPLETED & ACCEPTED: _____

FINAL CONTRACT COST: $ _____

CONTRACTOR : _____

FOR THE CONSTRUCTION OF SEAL COAT
CONSISTING OF SEAL COAT AND PAVEMENT MARKINGS

THE CONTRACTOR SHALL MAKE HIS OWN INVESTIGATIONS AND ARRANGEMENTS FOR DELIVERY OF MATERIALS.

REQUIRED SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT BARRICADE AND CONSTRUCTION OR BC SHEETS AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

0060-02-034, ETC

SH 8, ETC
BOWIE COUNTY, ETC

THE CONSTRUCTION WORK WAS PREFORMED IN SUBSTANTIAL COMPLIANCE WITH THE CONTRACT.

P.E. _____ DATE _____

NOTE: SEE PROJECT SUMMARY SHEETS
FOR COMPLETE LISTING OF
CSJs, LIMITS, LENGTHS AND EXCEPTIONS.

SEE SHEET 3 FOR PROJECT LOCATION MAP

EQUATIONS: NONE
EXCEPTIONS: SEE PROJECT SUMMARY SHEETS
RAILROAD CROSSINGS: NONE

RECOMMENDED FOR LETTING: 8/4/2021

DocuSigned by:
Deanne Simmons, P.E.
929084EF4AF345A...

DISTRICT DIRECTOR OF TRANSPORTATION
PLANNING AND DEVELOPMENT

APPROVED FOR LETTING: 8/4/2021

DocuSigned by:
0EAA5DC25F0F45E...

DISTRICT ENGINEER

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, MAY 2012)

COUNTY BOWIE, ETC PROJ. NO. F 2022(038), ETC
HWY. NO. VAR LETTING DATE OCTOBER 2021
DATE ACCEPTED _____

DATE: 8/3/2021 4:43:39 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060020344 - DesignMaster Design Files\01 PLANSHEETS\001 TITLE SHEET.dgn

STATE OF TEXAS
GLENN R. YOWELL
92077
LICENSED PROFESSIONAL ENGINEER

Glenn R. Yowell, P.E.

9/2/2021

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE BY A '#' HAVE BEEN ISSUED BY ME AND ARE APPLICABLE TO THIS PROJECT.

INDEX OF SHEETS

 Texas Department of Transportation

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
	F 2022(038)		2
STATE	DISTRICT	COUNTY	
TEXAS	ATL	BOWIE	
CONTROL	SECTION	JOB	HIGHWAY NO.
0060	02	034	SH 8

DATE: 7/14/2021 4:27:13 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT15\Documents\19 - ATL\Design Projects\006002034\4 - Design\Master Design Files\01 PLANSHEETS\003 LOCATION MAP.dgn

LOCATION MAP

CONT	SECT	JOB	HIGHWAY
0060	02	034	SH 8
DIST	COUNTY		SHEET NO.
ATL	BOWIE		3

Texas Department of Transportation

REF	COUNTY	HIGHWAY	CSJ	LIMITS	BEGIN STATION	END STATION	BEGIN REF MRK	END REF MRK	EXCEPTIONS	EQUATIONS	LENGTH FEET	LENGTH MILES	AADT
1	Bowie	SH 8	0060-02-034	FR: IH 30 **TO:** US 82	10+00	65+39.00	208+0.858	208+1.907	NONE	NONE	5,539	1.049	8,020
2	Bowie	SH 8	0061-01-025	FR: US 82 **TO:** FM 1840	10+00	75+89.00	208+1.907	210+1.165	NONE	NONE	6,589	1.247	5,959
3	Bowie	FM 558	0945-02-024	FR: SH 93 **TO:** 5.9 MI. S. OF SH 93	10+00	322+10.00	216-0.075	220+1.908	NONE	NONE	31,210	5.910	2,353
4	Bowie	FM 2878	2878-01-015	FR: FM 559 **TO:** IH 30 FRONTAGE ROAD	10+00	140+20.00	210-0.091	210+2.375	NONE	NONE	13,020	2.465	2,580
5	Bowie	FM 3165	3225-02-007	FR: FM 44 **TO:** 2.3 MI. W OF FM 44	10+00	132+55	704-0.039	704+2.282	NONE	NONE	12,255	2.321	204
State Project Number: C 3225-2-7													
6	Camp	SH 11	0083-08-057	FR: FM 557 **TO:** E. PITTSBURG CITY LIMITS	10+00	86+40.00	716+0.896	718+0.358	NONE	NONE	7,640	1.446	5,349
7	Camp	FM 556	1019-01-032	FR: PITTSBURG CITY LIMITS **TO:** FM 1519	10+00	63+80.00	246+0.839	246+1.858	NONE	NONE	5,380	1.018	2,433
8	Camp	FM 557	1019-02-034	FR: PITTSBURG CITY LIMITS **TO:** UPSHUR COUNTY LINE	10+00	770+32.00	246+0.98	260+1.468	STA 403+40 - 407+90 (450.00)	NONE	76,032	14.400	1,161
9	Camp	FM 557	1019-02-035	FR: US 271 **TO:** E. PITTSBURG CITY LIMITS	10+00	57+26.00	246+0.082	246+0.977	NONE	NONE	4,726	0.895	2,090
10	Cass	SH 8	0062-03-047	FR: 2.5 MILES NORTH OF FM 995 **TO:** SH 77	10+00	137+14.00	232+0.713	234+1.323	NONE	NONE	12,714	2.407	2,200
11	Cass	SH 77	0277-02-055	FR: 3.2 MI. W. OF SH 8 **TO:** 0.3 MI. W. OF FM 994	10+00	263+65.00	724+0.169	728+1.12	NONE	NONE	25,365	4.803	1,653
12	Cass	FM 161	1574-02-024	FR: MORRIS COUNTY LINE **TO:** FM 130	10+00	422+00.00	234+0.095	240+1.897	NONE	NONE	41,200	7.803	1,072
13	Cass	FM 3129	1989-01-015	FR: FM 249W **TO:** SH 77	10+00	249+18.00	242-1.691	244+0.846	NONE	NONE	23,918	4.529	796
14	Harrison	US 80	0096-08-059	FR: FM 968 **TO:** .4 MI E OF FM 450	10+00	411+39.00	794+0.012	800+1.546	NONE	NONE	40,139	7.602	8,083
15	Harrison	SL 281	2642-02-027	FR: IH 20 **TO:** US 80	10+00	172+31.00	724+0.469	726+1.543	NONE	NONE	16,231	3.074	22,256
16	Harrison	SL 281	2642-02-028	FR: US 80 **TO:** GREGG COUNTY LINE	10+00	139+31.00	720+1.798	724+0.466	NONE	NONE	12,931	2.449	23,616
17	Harrison	FM 2879	2880-01-023	FR: SH 154 **TO:** FM 449	10+00	271+94.00	266-0.043	270+0.965	NONE	NONE	26,194	4.960	1,874
18	Morris	US 259	0084-01-093	FR: FM 338 **TO:** US 67	10+00	278+17.00	232+0.928	238+0.346	NONE	NONE	26,817	5.078	2,588
19	Morris	US 259	0392-01-074	FR: LONE STAR NORTH CITY LIMITS **TO:** SH 11	10+00	270+52.00	244+0.769	248+1.702	NONE	NONE	26,052	4.934	11,653
20	Panola	US 59	0063-05-039	FR: FM 999 **TO:** SHELBY C/L	10+00	322+00.00	320+0.996	326+0.925	NONE	NONE	31,200	5.909	10,304
21	Panola	FM 1970	0428-02-025	FR: SH 315 **TO:** FM 2260	10+00	366+51.00	306+0.031	312+0.805	NONE	NONE	35,651	6.752	1,862
22	Panola	FM 1186	0731-02-021	FR: FM 1794W **TO:** US 79	10+00	411+44.00	290+0.135	296+1.899	NONE	NONE	40,144	7.603	818
23	Panola	FM 1251	1388-02-022	FR: FM 124 **TO:** RUSK C/L	10+00	244+80.00	714+1.802	718+2.441	STA 165+85 - 168+60 (275.00)	NONE	23,480	4.446	544
24	Upshur	US 259	0392-02-100	FR: 0.5 MI. S. OF FM 450 **TO:** FM 726	10+00	221+57.00	262+0.381	266+0.557	NONE	NONE	21,157	4.007	9,420
25	Upshur	FM 49	0647-04-005	FR: FM 1002 **TO:** WOOD COUNTY LINE	10+00	49+81.00	686+0.029	686+0.783	NONE	NONE	3,981	0.753	802
26	Upshur	FM 557	1019-03-013	FR: CAMP COUNTY LINE **TO:** US 259	10+00	85+40.00	262+0	262+1.418	NONE	NONE	7,540	1.428	851
27	Upshur	SH 300	1385-01-041	FR: 0.2 MI. SOUTH OF US 271 **TO:** 0.6 MI. NORTH OF FM 3358	10+00	274+21.00	266+0.151	270+1.481	NONE	NONE	26,421	5.003	10,119
28	Upshur	FM 49	2577-01-011	FR: FM 1795 **TO:** FM 1002	10+00	303+67.00	688-0.901	692+0.687	NONE	NONE	29,367	5.561	513
TOTAL											**632,893**	**119.852**	

FILE:
DATE 2:32:06 PM

STATIONING IS FOR CONSTRUCTION PURPOSES ONLY.

PROJECT SUMMARY SHEET

2021

Texas Department of Transportation

CONT	SECT	JOB	HIGHWAY
0060	02	34	SH 8
DISTRICT	COUNTY		SHEET
ATL	BOWIE		4

GENERAL NOTES:

GENERAL:

Schedule the preconstruction meeting prior to making any aggregate deliveries to the roadway. A representative of the contractor and all suppliers, with the authority to enter into contracts and agreements, shall be present.

Contractor questions on this project are to be emailed to the following individuals:

Tommy Bruce, P.E. – Area Engineer
Tommy.Bruce@txdot.gov
Dana Moore, P.E. – Assistant Area Engineer
Dana Moore.@txdot.gov

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

All contractor questions will be reviewed by the Engineer. Once a response is developed, it will be posted to TxDOT's Public FTP at the following Address:

https://ftp.dot.state.tx.us/pub/txdot-info/Pre-Letting%20Responses/

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

ITEM 7:

No significant traffic generator events.

This project is considered a maintenance activity and is exempt from the Construction General Permit (CGP) coverage.

ITEM 8:

Supply the Area Engineer with a sequence of work and a complete list of all proposed stockpile sites by March 6, 2022.

Working days will be charged in accordance with Section 8.3.1.2. "Six-Day Workweek"

ITEM 316:

Asphalt season starts May 1 and ends August 31. Obtain written approval before placing asphaltic materials between August 31 and May 1.

Furnish aggregate material in accordance with the Atlanta District's QA Program for Surface Treatment Aggregates. A copy is included in the plans.

Precoat material with a minimum of 1.0 % of asphalt material or as directed by the Engineer.

Apply anti-stripping agent when using siliceous gravel.

Contact the maintenance supervisor in each county prior to beginning any stockpile activity.

COUNTY	SUPERVISOR	TELEPHONE
Panola	Kyle Weatherford	903-693-6331
Morris/Camp	Carl Peters	903-645-2519
Upshur	Christopher Moore	903-797-3100
Marion	Robert Smith	903-665-2692
Harrison	Michael Smith	903-935-2809
Cass	James Barron	903-756-7118
Titus/Camp	Carl Peters	903-572-8511
Bowie (West)	Carl Peters	903-628-2321
Bowie (East)	Kelly Speer	903-838-8574

Deliver aggregate Monday through Friday during daylight hours only. Deliveries outside of these hours will cause all stockpiled aggregate to be removed from material on hand.

Consolidate the aggregate into a uniform stockpile in a manner that will prevent segregation and/or degradation. It is the intent that stockpiling operations be performed continuously during daily deliveries.

Use the same type of aggregate on each individual project.

Any remaining aggregate from a stockpile shall be used on a subsequent reference.

If any of the remaining aggregate at the end of the project is to be purchased by the State, the aggregate shall be placed in a consolidated stockpile at a central location as approved by the Engineer.

Equip the distributor spray bar so that the asphalt rate over the wheel paths can be set at a rate different than the application rate over the rest of the travel lane.

Seal intersections before sealing the main lanes. Seal all existing roadway surfaces, including extra widths, crossovers, roadside parks, picnic areas, mailbox turnouts, and public road intersections within the limits of each project. Do not seal intersections or driveways surfaced with ACP or constructed of concrete.

Patch, repair, and clean up each individual project, including any stockpile locations, and apply work zone pavement markings to each individual project before conducting further sealing operations.

Final brooming, of the patched or repaired areas, may take place the working day after the individual project is completed.

Strike off all trucks hauling aggregate to the sealing operations or as directed by the Engineer.

Materials remaining on the right of way after final payment has been made will become property of the State.

Remove vegetation and blade pavement edges as directed

ITEM 502:

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.

The Contractor's responsible person (CRP) will be responsible for ensuring that the signs and traffic control devices are in place and functioning properly.

The CRP will inspect and ensure any deficiencies are corrected each and every day throughout the duration of this contract. Notify the Engineer in writing of the name, address, and telephone number of this employee or these employees.

Use strobe lights or rotating beacons on all motorized equipment, operating on or adjacent to the road surface.

Erect signs within forty-eight (48) hours prior to sealing an individual project.

Cover or turn away from traffic the Road Work Ahead, No Center Stripe, and Loose Gravel signs until sealing operations begin.

Remove the Loose Gravel signs immediately after the final brooming and prior to striping. Remove the No Center Stripe and Do Not Pass signs immediately after the centerline stripe is placed.

ITEM 506:

It is the intent of this contract that no disturbance of vegetation occurs as a result of roadway operations. In the event vegetation is disturbed, place erosion or pollution control measures deemed necessary by the Engineer. Work performed for which there is no applicable pay items in the contract will be reimbursed in accordance with Article 7, “Payment for Extra Work and Force Account Method”.

ITEM 666:

Place pavement markings only after the surface treatment has cured to the satisfaction of the Engineer.

Place Type II pavement markings within 14 days after completion of the final surface.

Mark the lateral locations of pavement markings with pilot lines. Obtain approval of the location and alignment of the pilot lines before application of permanent markings.

Record the location of “passing” and “no passing” zones before beginning roadway work in order to re-establish these zones in their original location. Provide a copy of the record to the Engineer.

Use PM(2)-20 for the placement of 6” pavement markings.

ITEM 6185:

The shadow vehicle with truck mounted attenuator (TMA) will not be optional but will be required as shown on the appropriate traffic control plan sheets.

A total of two (2) shadow vehicle with TMA will be required for work. The contractor will be responsible for determining if one or more of these operations will be ongoing at the same time to determine the total number of TMA's needed for the project.

A total of two (2) shadow vehicles with TMA will be required for each Pavement Marking Operations.

BASIS OF ESTIMATE

ITEM	DESCRIPTION	RATE	UNIT	QUANTITY
*210	Rolling (Surface Treatment)	1 hr./1,000 sq. yd.	hr.	

*FOR CONTRACTOR'S INFORMATION ONLY.

Control: 0060-02-34, ETC **Sheet: 5B**

County: BOWIE, ETC **Highway:** SH 8, ETC

Atlanta District QA Program for Surface Treatment Aggregates

The purpose of this program is to ensure quality aggregates are used for construction of seal coats.

The Contractor will perform QC (Quality Control) sampling and testing on surface treatment aggregates. All sampling and testing methods will be in accordance with TxDOT's Manual of Testing Procedures. TxAPA Level IA and AGG 101 certifications are required.

Contractor-performed QC sampling and testing will not be used as part of the acceptance decision.

The Producer is the same as, and has the same definition as, the Contractor (Article 1.3.37 of the Standard Specifications) throughout this document.

Provide aggregates that meet the requirements of TxDOT's:

1) Plans, 2014 Standard Specifications, Special Specifications, and Special Provisions.
2) Bituminous Rated Source Quality Catalog.
3) Atlanta District Quality Assurance Program which includes QC and QA sampling, testing, inspection, material inventory and tracking, documentation, reporting, and material shelf life.
4) Quality Assurance Program for Design-Bid-Build Projects amended as follows:
   a) **3.3 Testing Equipment**, fourth paragraph, first sentence. remove "in making an acceptance decision" and do not replace.
   b) **6.3 Who Must Be Qualified?** first paragraph, first sentence. remove "for acceptance," and do not replace.
   c) remove "statewide" and replace with "local" throughout this document.

General Requirements:

1) All individuals performing testing on seal coat aggregate must have current certification/qualification records filed with Atlanta District Lab.
2) All testing equipment subject to inspection by TxDOT at random,
3) Provide TxDOT Atlanta District a minimum of 2 weeks' notice of the need for inspection or testing.
4) TxDOT reserves the right to prioritize or reschedule any inspection or testing services, and shall not be cause for additional project time.
5) All non-TxDOT laboratories will be responsible for calibration and documentation of testing equipment conforming to the American Association for Laboratory Accreditation (A2LA) ISO17025 certification. AASHTO accreditation will not be required for non-TxDOT laboratories.
6) Testing of seal coat aggregate is limited to sampling, deleterious material, decantation, flakiness index, gradation, crushed faces, asphalt content, and boil test. Project acceptance testing will be performed by the Engineer after a review of the Producer's QC test results by TxDOT.
7) Sample stockpiles at the source with a front end loader following test method Tex-400-A.
8) All accepted stockpiled materials shall be reserved for exclusive use on Texas Department of Transportation Atlanta District construction contracts, maintenance contracts, and materials requisitions. The Producer will obtain written permission from the Engineer to use this accepted material on other TxDOT projects.
9) The stockpiles shall be in a designated area, approved by the Engineer, removed from the main plant operations and roadways to prevent the accumulation, of excessive detrimental dust. However, these areas must be conveniently located for inspection and shipment control. Excessive contamination, in the opinion of the Engineer, will warrant rejection of all or a portion of the stockpile(s).
10) The stockpiles shall be constructed sufficiently apart so that the materials in one stockpile will not blend with that in another. Stockpiles shall be built in a manner acceptable to representatives of the Engineer.
11) All stockpiles intended for TxDOT use shall be adequately marked or signed (stockpile identification, producer, pit identification, quantity, status: QC, QC w/approval to precoat, QC precoated, or Accepted), as approved by the Engineer. No material shall be added to a stockpile once the request to accept or precoat is made to the Engineer. Adding material under these circumstances will be cause for stockpile rejection. The stockpile can be re-tested when requested by the Producer and when deemed desirable by the Department. The Engineer will enact Article 6.2 of the Standard Specifications if warranted.
12) It is the responsibility of the Producer to maintain the stockpiles and the stockpile area in a neat and orderly fashion. Each stockpile shall be properly maintained until depleted.
13) All stockpiles must be accessible to the Department at all times.
14) All costs associated with this QA Program will be the responsibility of the Producer and shall be subsidiary to Item 316.
15) The Producer is expected to make approved materials available to Contractors proposing to use the material on Department projects.

ATLANTA DISRICT
QA PROGRAM FOR
SURFACE TREATMENT
AGGREGATES

SHEET 1 0F 3

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
			5C
STATE	DISTRICT	COUNTY	
TEXAS	ATL	BOWIE	
CONTROL	SECTION	JOB	HIGHWAY NO.
0060	02	034	SH 8

16) A stockpile shall have an acceptance life of three months from the date of testing when stockpiled off of State of Texas property. Seal coat aggregate remaining in stockpile after three months may be resubmitted for testing.

17) The stockpile size shall be 3000 CY with a tolerance of 300 CY. Minimum quantities do not apply when material is left over from stockpiles that have been previously tested and accepted. Smaller project specific stockpiles may be created. Measure the stockpile size in CY with "Stockpile Reports" (www.stockpilereports.com) and report to the Engineer with QC test results prior to Department acceptance testing.

18) When building a stockpile the Producer will perform the following production QC tests:

- Tex-200-F Part I (grad.) once every 3 hours of production per day*
- Tex-217-F Part I (deleterious) once per day of production*
- Tex-224-F (flakiness index) once every 5 hours of production per day*
- Tex-406-A (decantation) once per day of production*
- Tex-460-A Part I (cru. faces) once every 5 hours of production per day*

*minimum testing frequency per stockpile, or fraction thereof.

19) After building the stockpile and prior to precoat the Producer will perform the following QC tests on the stockpile:

- Tex-200-F Part I (grad.) four per stockpile, one per quadrant*
- Tex-217-F Part I (deleterious) once per stockpile*
- Tex-224-F (flakiness index) once per stockpile*
- Tex-406-A (decantation) once per stockpile*
- Tex-460-A Part I (crushed faces) once per stockpile*

*minimum testing frequency per stockpile

20) The Producer will review all QC tests for a stockpile and forward the individual complete QC test reports to the Engineer. The Engineer will determine from the QC test reports if the stockpile is ready for acceptance testing (non-precoat aggregate) or for precoat. The Engineer's receipt of QC stockpile test reports will serve as notification by the Producer that a stockpile is ready for acceptance testing or further processing.

21) The Engineer will perform acceptance sampling and testing on non-precoat (will receive no coating) stockpiles based on Producer QC test results. The Engineer will sample four quadrants of each 3000 CY stockpile. A lesser sampling and testing scheme may be used for smaller stockpiles. The Engineer will afford the Producer the opportunity to take split samples of each quadrant sampled. Acceptance testing frequency shall meet the requirements of TxDOT's Guide Schedule of Sampling and Testing. The Engineer will notify the Contractor and Producer that a stockpile is accepted or rejected based on QA test results. A stockpile that has been accepted may be transported to a TxDOT project.

22) The Engineer will notify the Producer that a stockpile is ready for precoat based on the Producers QC test results. The Producer will perform the following QC tests during the precoat process:

- Tex-236-F (ignition AC) once per stockpile*
- Tex-530-C (boil test) once per day per stockpile*

*minimum testing frequency per stockpile

23) The Producer will review all QC tests for a precoated stockpile and forward the individual complete QC test reports to the Engineer. The Engineer will determine from the QC test reports if the precoated stockpile is ready for acceptance testing. The Engineer's receipt of QC stockpile test reports will serve as notification by the Producer that a stockpile is ready for acceptance testing. The Engineer will perform acceptance (QA) testing on precoated aggregate stockpiles for:

- Tex-200-F Part I (gradation)
- Tex-217-F Part I (deleterious material)
- Tex-224-F (flakiness index)
- Tex-236-F (AC removal by ignition)
- Tex-406-A (decantation)
- Tex-460-A Part I (crushed faces)
- Tex-530-C (boil test)

24) The Engineer will sample four quadrants of each 3000 CY precoated stockpile. A lesser sampling and testing scheme may be used for smaller stockpiles. The Engineer will afford the Producer the opportunity to take split samples of each quadrant sampled. Acceptance testing frequency shall meet the requirements of TxDOT's Guide Schedule of Sampling and Testing. The Engineer will notify the Contractor and Producer that a precoated stockpile is accepted or rejected based on QA test results. A stockpile that has been accepted may be transported to a TxDOT project.

25) Each stockpile transported to a project without acceptance documentation from the Engineer, the Contractor will be assessed $500 to cover the cost of travel, sampling, testing, and reporting. This cost will be deducted from the Contractor's estimate as stated in Article 6.2 of the Standard Specifications. TxDOT may also require the stockpile to be removed. All costs associated with producing, testing, shipping, removing, and disposing of this stockpile shall be the responsibility of the Contractor as stated in Article 5.3.2 of the Standard Specifications.

ATLANTA DISRICT
QA PROGRAM FOR
SURFACE TREATMENT
AGGREGATES

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
			5D
STATE	DISTRICT	COUNTY	
TEXAS	ATL	BOWIE	
CONTROL	SECTION	JOB	HIGHWAY NO.
0060	02	034	SH 8

26) The Producer shall maintain records of all individual truck or rail exports from the source. Each record shall include the following as a minimum and included on the delivery ticket:
    - project CSJ or RMC #
    - material Type (ex: B, PB, L, PL)
    - material Grade (ex: 3, 4, 5)
    - quantity in Tons
    - date of shipment
    - stockpile number, District Lab number, or both
    - producer (ex: MM or Hanson)
    - pit or source (ex: Sawyer or Little River)
    - reference number
27) The Contractor will provide delivery tickets for materials delivered to the project by the following Monday.
28) When in the opinion of the Engineer the Producer's QC operation is consistently producing stockpiles that comply reasonably well with all the requirements set forth above. The Engineer may exclude the requirement for QC Technician qualification, lab equipment calibration, and allow for a QC testing schedule other than the one detailed above.
29) Failure to comply with any of the requirements above or at the Contractor's request, all acceptance sampling and testing will be performed on seal coat aggregate delivered to the roadway.
30) Roadway stockpiles will be constructed as approved by the Engineer. Individual truck piles are unacceptable.

ATLANTA DISRICT
QA PROGRAM FOR
SURFACE TREATMENT
AGGREGATES

SHEET 3 OF 3

FHWA TEXAS DIVISION	FEDERAL AID PROJECT NO.		SHEET NO.
			5E
STATE	DISTRICT	COUNTY	
TEXAS	ATL	BOWIE	
CONTROL	SECTION	JOB	HIGHWAY NO.
0060	02	034	SH 8

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0060-02-034 **DISTRICT** Atlanta **COUNTY** Bowie, Camp, Cass, Harrison, Morris, Panola, Upshur

HIGHWAY FM 1186, FM 1251, FM 161, FM 1970, FM 2878, FM 2879, FM 3129, FM 3165, FM 49, FM 556, FM 557, FM 558, SH 11, SH 300, SH 77, SH 8, SL 281, US 259, US 59, US 80

			CONTROL SECTION JOB		**0060-02-034**		**0061-01-025**		**0062-03-047**		**0063-05-039**		**0083-08-057**		**0084-01-093**	
			PROJECT ID		**A00133415**		**A00133418**		**A00139591**		**A00139587**		**A00133408**		**A00133341**	
			COUNTY		**Bowie**		**Bowie**		**Cass**		**Panola**		**Camp**		**Morris**	
			HIGHWAY		**SH 8**		**SH 8**		**SH 8**		**US 59**		**SH 11**		**US 259**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	69.970		56.060		108.270		503.300		61.280		254.240	
	500-6001	MOBILIZATION	LS	1.000											
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA	28.000											
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	77.000		28.000		26.000		449.000		29.000		211.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	456.000		127.000		400.000		1,596.000		410.000		1,228.000	
	666-6167	REFL PAV MRK TY II (W) 4" (BRK)	LF									1,400.000			
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF									10,958.000			
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF	2,140.000		180.000		2,070.000		16,990.000				13,250.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF	9,238.000		13,476.000		24,620.000		66,932.000				54,423.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	997.000		505.000				4,731.000		224.000		912.000	
	666-6205	REFL PAV MRK TY II (Y) 4" (BRK)	LF												
	666-6207	REFL PAV MRK TY II (Y) 4" (SLD)	LF							80.000		16,412.000			
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF			1,610.000		1,790.000						810.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF	18,246.000		3,460.000		14,224.000		63,760.000				48,299.000	
	668-6074	PREFAB PAV MRK TY C (W) (12") (SLD)	LF												
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	376.000		28.000				22.000		112.000		121.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	20.000		3.000						3.000		4.000	
	668-6084	PREFAB PAV MRK TY C (W) (NUMBER)	EA												
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	5.000		1.000						2.000		6.000	
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA							364.000		6.000		14.000	
	668-6108	PREFAB PAV MRK TY C (Y) (24") (SLD)	LF											281.000	
	672-6007	REFL PAV MRKR TY I-C	EA	77.000		28.000		26.000				29.000		211.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	456.000		127.000		400.000		1,596.000		410.000		1,228.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA							1,140.000				36.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY	4.000											
	6185-6002	TMA (STATIONARY)	DAY	41.000											
	6185-6005	TMA (MOBILE OPERATION)	DAY	55.000											
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS	1.000											
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS	1.000											
1	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	389.000		311.000		601.000		2,619.000		339.000		1,411.000	
1A	316-6512	AGGR (TY-PL GR-4 SAC-A)	TON	228.000		182.000		352.000		1,535.000		199.000		828.000	
2	316-6515	AGGR(TY-PB GR-3 SAC-B)	TON												
2A	316-6517	AGGR(TY-PL GR-3 SAC-B)	TON												

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0060-02-034 **DISTRICT** Atlanta **COUNTY** Bowie, Camp, Cass, Harrison, Morris, Panola, Upshur

HIGHWAY FM 1186, FM 1251, FM 161, FM 1970, FM 2878, FM 2879, FM 3129, FM 3165, FM 49, FM 556, FM 557, FM 558, SH 11, SH 300, SH 77, SH 8, SL 281, US 259, US 59, US 80

			CONTROL SECTION JOB	**0096-08-059**		**0277-02-055**		**0392-01-074**		**0392-02-100**		**0428-02-025**		**0647-04-005**	
			PROJECT ID	**A00133405**		**A00133389**		**A00133335**		**A00133383**		**A00133332**		**A00133382**	
			COUNTY	**Harrison**		**Cass**		**Morris**		**Upshur**		**Panola**		**Upshur**	
			HIGHWAY	**US 80**		**SH 77**		**US 259**		**US 259**		**FM 1970**		**FM 49**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	288.210		234.790		344.450		284.380		238.680		23.770	
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA			207.000		163.000		206.000					
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	614.000		1,109.000		1,638.000		1,183.000		1,369.000		238.000	
	666-6167	REFL PAV MRK TY II (W) 4" (BRK)	LF			9,250.000									
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF	46,625.000		50,568.000						70,049.000		7,842.000	
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF					13,000.000		10,590.000					
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF					41,990.000		42,500.000					
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF			1,823.000				1,480.000					
	666-6205	REFL PAV MRK TY II (Y) 4" (BRK)	LF	2,760.000		1,490.000						3,460.000		450.000	
	666-6207	REFL PAV MRK TY II (Y) 4" (SLD)	LF	21,811.000		42,886.000						51,285.000		9,061.000	
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF					12,880.000		2,050.000					
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF					52,650.000		45,262.000					
	668-6074	PREFAB PAV MRK TY C (W) (12") (SLD)	LF												
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	85.000		30.000		300.000		984.000		90.000			
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA					36.000		8.000					
	668-6084	PREFAB PAV MRK TY C (W) (NUMBER)	EA												
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA							4.000					
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA							17.000					
	668-6108	PREFAB PAV MRK TY C (Y) (24") (SLD)	LF							300.000					
	672-6007	REFL PAV MRKR TY I-C	EA			207.000		163.000							
	672-6009	REFL PAV MRKR TY II-A-A	EA	614.000		1,109.000		1,638.000		1,183.000		1,369.000		238.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA							442.000					
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
1	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	1,601.000		1,304.000		1,913.000		1,643.000		1,326.000			
1A	316-6512	AGGR (TY-PL GR-4 SAC-A)	TON	938.000		764.000		1,121.000		962.000		777.000			
2	316-6515	AGGR(TY-PB GR-3 SAC-B)	TON											117.000	
2A	316-6517	AGGR(TY-PL GR-3 SAC-B)	TON											69.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0060-02-034 **DISTRICT** Atlanta **COUNTY** Bowie, Camp, Cass, Harrison, Morris, Panola, Upshur

HIGHWAY FM 1186, FM 1251, FM 161, FM 1970, FM 2878, FM 2879, FM 3129, FM 3165, FM 49, FM 556, FM 557, FM 558, SH 11, SH 300, SH 77, SH 8, SL 281, US 259, US 59, US 80

			CONTROL SECTION JOB	**0731-02-021**		**0945-02-024**		**1019-01-032**		**1019-02-034**		**1019-02-035**		**1019-03-013**	
			PROJECT ID	**A00133328**		**A00133421**		**A00133380**		**A00133357**		**A00133409**		**A00133359**	
			COUNTY	**Panola**		**Bowie**		**Camp**		**Camp**		**Camp**		**Upshur**	
			HIGHWAY	**FM 1186**		**FM 558**		**FM 556**		**FM 557**		**FM 557**		**FM 557**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	269.910		144.900		28.500		340.710		24.460		50.430	
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA												
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	1,629.000		1,183.000		318.000		2,985.000		219.000		252.000	
	666-6167	REFL PAV MRK TY II (W) 4" (BRK)	LF												
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF	78,671.000		59,252.000		12,504.000		151,200.000		10,100.000		14,962.000	
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF												
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF												
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF												
	666-6205	REFL PAV MRK TY II (Y) 4" (BRK)	LF	3,550.000		3,390.000		600.000		6,600.000		580.000		1,050.000	
	666-6207	REFL PAV MRK TY II (Y) 4" (SLD)	LF	61,628.000		43,913.000		12,100.000		112,780.000		8,176.000		9,027.000	
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF												
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF												
	668-6074	PREFAB PAV MRK TY C (W) (12") (SLD)	LF												
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	48.000		15.000				80.000		12.000		17.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA												
	668-6084	PREFAB PAV MRK TY C (W) (NUMBER)	EA												
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA							2.000					
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA												
	668-6108	PREFAB PAV MRK TY C (Y) (24") (SLD)	LF												
	672-6007	REFL PAV MRKR TY I-C	EA												
	672-6009	REFL PAV MRKR TY II-A-A	EA	1,629.000		1,183.000		318.000		2,985.000		219.000		252.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA												
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
1	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON			804.000		158.000		1,892.000		136.000			
1A	316-6512	AGGR (TY-PL GR-4 SAC-A)	TON			472.000		92.000		1,109.000		80.000			
2	316-6515	AGGR(TY-PB GR-3 SAC-B)	TON	1,323.000										246.000	
2A	316-6517	AGGR(TY-PL GR-3 SAC-B)	TON	813.000										145.000	

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0060-02-034

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Morris, Panola, Upshur

HIGHWAY FM 1186, FM 1251, FM 161, FM 1970, FM 2878, FM 2879, FM 3129, FM 3165, FM 49, FM 556, FM 557, FM 558, SH 11, SH 300, SH 77, SH 8, SL 281, US 259, US 59, US 80

			CONTROL SECTION JOB	**1385-01-041**		**1388-02-022**		**1574-02-024**		**1989-01-015**		**2577-01-011**		**2642-02-027**	
			PROJECT ID	**A00139601**		**A00133330**		**A00133379**		**A00129845**		**A00133381**		**A00133391**	
			COUNTY	**Upshur**		**Panola**		**Cass**		**Cass**		**Upshur**		**Harrison**	
			HIGHWAY	**SH 300**		**FM 1251**		**FM 161**		**FM 3129**		**FM 49**		**SL 281**	
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL
	316-6048	ASPH (AC-20-5TR)	TON	381.580		98.740		17.750		173.360		175.320		226.310	
	500-6001	MOBILIZATION	LS												
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA												
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	165.000										145.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	1,650.000		614.000		1,814.000		736.000		1,106.000		571.000	
	666-6167	REFL PAV MRK TY II (W) 4" (BRK)	LF	13,200.000										5,860.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF	52,326.000		46,625.000		83,544.000		47,678.000		58,022.000		23,426.000	
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF												
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF												
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF											1,441.000	
	666-6205	REFL PAV MRK TY II (Y) 4" (BRK)	LF	13,200.000		2,760.000		3,340.000		4,240.000		3,940.000			
	666-6207	REFL PAV MRK TY II (Y) 4" (SLD)	LF	52,800.000		21,811.000		69,222.000		25,219.000		40,293.000		22,831.000	
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF												
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF												
	668-6074	PREFAB PAV MRK TY C (W) (12") (SLD)	LF												
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	378.000		85.000								37.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	64.000											
	668-6084	PREFAB PAV MRK TY C (W) (NUMBER)	EA												
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA												
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA											132.000	
	668-6108	PREFAB PAV MRK TY C (Y) (24") (SLD)	LF												
	672-6007	REFL PAV MRKR TY I-C	EA	336.000										110.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	1,650.000		614.000		1,814.000		736.000		1,106.000		571.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	442.000										316.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY												
	6185-6002	TMA (STATIONARY)	DAY												
	6185-6005	TMA (MOBILE OPERATION)	DAY												
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS												
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS												
1	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	2,119.000		549.000		99.000						1,256.000	
1A	316-6512	AGGR (TY-PL GR-4 SAC-A)	TON	1,242.000		322.000		58.000						736.000	
2	316-6515	AGGR(TY-PB GR-3 SAC-B)	TON							849.000		860.000			
2A	316-6517	AGGR(TY-PL GR-3 SAC-B)	TON							522.000		505.000			

Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0060-02-034

DISTRICT Atlanta

COUNTY Bowie, Camp, Cass, Harrison, Morris, Panola, Upshur

HIGHWAY FM 1186, FM 1251, FM 161, FM 1970, FM 2878, FM 2879, FM 3129, FM 3165, FM 49, FM 556, FM 557, FM 558, SH 11, SH 300, SH 77, SH 8, SL 281, US 259, US 59, US 80

			CONTROL SECTION JOB	**2642-02-028**		**2878-01-015**		**2880-01-023**		**3225-02-007**		TOTAL EST.	TOTAL FINAL
			PROJECT ID	**A00133392**		**A00139600**		**A00133386**		**A00133411**			
			COUNTY	**Harrison**		**Bowie**		**Harrison**		**Bowie**			
			HIGHWAY	**SL 281**		**FM 2878**		**FM 2879**		**FM 3165**			
ALT	**BID CODE**	**DESCRIPTION**	**UNIT**	EST.	FINAL	EST.	FINAL	EST.	FINAL	EST.	FINAL		
	316-6048	ASPH (AC-20-5TR)	TON	206.210		56.790		123.960		65.860		4,852.190	
	500-6001	MOBILIZATION	LS									1.000	
	502-6025	BARR, SIGNS, TRAFFIC HANDLING	EA									28.000	
	662-6109	WK ZN PAV MRK SHT TERM (TAB)TY W	EA	477.000		30.000						2,213.000	
	662-6111	WK ZN PAV MRK SHT TERM (TAB)TY Y-2	EA	589.000		537.000		957.000		435.000		25,963.000	
	666-6167	REFL PAV MRK TY II (W) 4" (BRK)	LF	23,430.000								53,140.000	
	666-6170	REFL PAV MRK TY II (W) 4" (SLD)	LF	25,867.000		24,478.000		52,388.000		24,390.000		951,475.000	
	666-6171	REFL PAV MRK TY II (W) 6" (BRK)	LF									58,220.000	
	666-6174	REFL PAV MRK TY II (W) 6" (SLD)	LF									253,179.000	
	666-6178	REFL PAV MRK TY II (W) 8" (SLD)	LF	1,441.000		593.000						14,147.000	
	666-6205	REFL PAV MRK TY II (Y) 4" (BRK)	LF			990.000		21,470.000		1,870.000		75,740.000	
	666-6207	REFL PAV MRK TY II (Y) 4" (SLD)	LF	23,562.000		20,472.000		16,797.000		15,515.000		697,681.000	
	666-6208	REFL PAV MRK TY II (Y) 6" (BRK)	LF									19,140.000	
	666-6210	REFL PAV MRK TY II (Y) 6" (SLD)	LF									245,901.000	
	668-6074	PREFAB PAV MRK TY C (W) (12") (SLD)	LF	1,123.000								1,123.000	
	668-6076	PREFAB PAV MRK TY C (W) (24") (SLD)	LF	807.000		271.000						3,898.000	
	668-6077	PREFAB PAV MRK TY C (W) (ARROW)	EA	8.000		4.000						150.000	
	668-6084	PREFAB PAV MRK TY C (W) (NUMBER)	EA					1.000				1.000	
	668-6085	PREFAB PAV MRK TY C (W) (WORD)	EA	16.000		3.000		1.000				40.000	
	668-6092	PREFAB PAV MRK TY C (W) (36")(YLD TRI)	EA	94.000								627.000	
	668-6108	PREFAB PAV MRK TY C (Y) (24") (SLD)	LF									581.000	
	672-6007	REFL PAV MRKR TY I-C	EA	123.000		30.000						1,340.000	
	672-6009	REFL PAV MRKR TY II-A-A	EA	589.000		537.000		957.000		435.000		25,963.000	
	672-6010	REFL PAV MRKR TY II-C-R	EA	354.000								2,730.000	
	6001-6001	PORTABLE CHANGEABLE MESSAGE SIGN	DAY									4.000	
	6185-6002	TMA (STATIONARY)	DAY									41.000	
	6185-6005	TMA (MOBILE OPERATION)	DAY									55.000	
	18	EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART)	LS									1.000	
		SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING)	LS									1.000	
1	316-6510	AGGR (TY-PB GR-4 SAC-A)	TON	1,145.000		316.000		688.000				22,619.000	
1A	316-6512	AGGR (TY-PL GR-4 SAC-A)	TON	671.000		185.000		403.000				13,256.000	
2	316-6515	AGGR(TY-PB GR-3 SAC-B)	TON							322.000		3,717.000	
2A	316-6517	AGGR(TY-PL GR-3 SAC-B)	TON							198.000		2,252.000	

REF	COUNTY	HIGHWAY	CSJ	LIMITS	DESCRIPTION OF WORK	SURFACE AREA	ASPHALT 316 6048 AC-20-5TR FOR GR 4 AGGR 0.36 GAL/SY		ASPHALT 316 6048 AC-20-5TR FOR GR 3 AGGR 0.50 GAL/SY		AGGREGATE GRADE 4 1CY/135SY	AGGREGATE GRADE 3 1CY/110SY	AGGREGATE 316 6510 ALT 1 TY PB GR 4 SAC-A	AGGREGATE 316 6515 ALT 2 TY PB GR 3 SAC-B	AGGREGATE 316 6512 ALT 1A TY PL GR 4 SAC-A	AGGREGATE 316 6517 ALT 2A TY PL GR 3 SAC-B
						[2] SY	[2] GAL	[3] TON	[2] GAL	[3] TON	[2] CY		2,320 LB/CY TON	2,317 LB/CY TON	1,360 LB/CY TON	1,424 LB/CY TON
1	Bowie	SH 8	0060-02-034	FR: IH 30	TRAF LANES	36,790	13,244	56.93			273		317		186	
				TO: US 82	INTERSECTIONS (2)	8,429	3,034	13.04			62		72		42	
					CSJ TOTALS	45,219	16,278	69.97			335		389		228	
2	Bowie	SH 8	0061-01-025	FR: US 82	TRAF LANES	35,386	12,739	54.76			262		304		178	
				TO: FM 1840	INTERSECTIONS (1)	841	303	1.30			6		7		4	
					CSJ TOTALS	36,227	13,042	56.06			268		311		182	
3	Bowie	FM 558	0945-02-024	FR: SH 93	TRAF LANES	92,376	33,255	142.94			684		793		465	
				TO: 5.9 MI. S. OF SH 93	INTERSECTIONS (1)	361	130	0.56			3		3		2	
					EXTRA WIDTH(2)	904	325	1.40			7		8		5	
					CSJ TOTALS	93,641	33,710	144.90			694		804		472	
4	Bowie	FM 2878	2878-01-015	FR: FM 559	TRAF LANES	35,849	12,906	55.47			266		309		181	
				TO: IH 30 FRONTAGE ROAD	INTERSECTIONS (1)	260	94	0.40			2		2		1	
					MAILBOX TURNOUTS (18)	594	214	0.92			4		5		3	
					CSJ TOTALS	36,703	13,214	56.79			272		316		185	
5	Bowie	FM 3165	3225-02-007	FR: FM 44	TRAF LANES	29,810			14,905	64.07		271		314		193
				TO: 2.3 MI. W OF FM 44		832			416	1.79		7		8		5
					CSJ TOTALS	30,642			15,321	65.86		278		322		198
6	Camp	SH 11	0083-08-057	FR: FM 557	TRAF LANES	36,448	13,121	56.40			270		313		184	
				TO: E. PITTSBURG CITY LIMITS	INTERSECTIONS (3)	2,863	1,031	4.43			21		24		14	
					EXTRA WIDTH(1)	289	104	0.45			2		2		1	
					CSJ TOTALS	39,600	14,256	61.28			293		339		199	
7	Camp	FM 556	1019-01-032	FR: PITTSBURG CITY LIMITS	TRAF LANES	18,420	6,631	28.50			136		158		92	
				TO: FM 1519												
					CSJ TOTALS	18,420	6,631	28.50			136		158		92	
8	Camp	FM 557	1019-02-034	FR: PITTSBURG CITY LIMITS	TRAF LANES	219,212	78,916	339.20			1,624		1,884		1104	
				TO: UPSHUR COUNTY LINE	INTERSECTIONS (2)	978	352	1.51			7		8		5	
					CSJ TOTALS	220,190	79,268	340.71			1,631		1,892		1,109	
9	Camp	FM 557	1019-02-035	FR: US 271	TRAF LANES	15,640	5,630	24.20			116		135		79	
				TO: E. PITTSBURG CITY LIMITS	INTERSECTIONS (1)	167	60	0.26			1		1		1	
					CSJ TOTALS	15,807	5,690	24.46			117		136		80	
10	Cass	SH 8	0062-03-047	FR: 2.5 MILES NORTH OF FM 995	TRAF LANES	69,969	25,189	108.27			518		601		352	
				TO: SH 77												
					CSJ TOTALS	69,969	25,189	108.27			518		601		352	
11	Cass	SH 77	0277-02-055	FR: 3.2 MI. W. OF SH 8	TRAF LANES	150,864	54,311	233.45			1,118		1,297		760	
				TO: 0.3 MI. W. OF FM 994	INTERSECTIONS (2)	554	199	1			4		5		3	
					EXTRA WIDTH(1)	222	80	0.34			2		2		1	
					CSJ TOTALS	151,640	54,590	234.79			1,124		1,304		764	
12	Cass	FM 161	1574-02-024	FR: MORRIS COUNTY LINE	TRAF LANES	11,472	4,130	17.75			85		99		58	
				TO: FM 130												
					CSJ TOTALS	11,472	4,130	17.75			85		99		58	
SHEET 1 SUBTOTALS						**769,530**	**265,998**	**1,143.48**	**15,321**	**65.86**	**5,473**	**278**	**6,349**	**322**	**3,721**	**198**

[2] FOR CONTRACTOR'S INFORMATION ONLY
[3] CALCULATED AT 1 TON / 232.65 GAL

Texas Department of Transportation

ROADWAY SUMMARY

SHEET 1 OF 3

CONT	SECT	JOB	HIGHWAY
0060	02	34	SH 8
DISTRICT	COUNTY		SHEET
ATL	BOWIE		7

REF	COUNTY	HIGHWAY	CSJ	LIMITS		DESCRIPTION OF WORK	SURFACE AREA	ASPHALT 316 6048 AC-20-5TR FOR GR 4 AGGR 0.36 GAL/SY		ASPHALT 316 6048 AC-20-5TR FOR GR 3 AGGR 0.50 GAL/SY		AGGREGATE GRADE 4 1CY/135SY	AGGREGATE GRADE 3 1CY/110SY	AGGREGATE 316 6510 ALT 1 TY PB GR 4 SAC-A	AGGREGATE 316 6515 ALT 2 TY PB GR 3 SAC-B	AGGREGATE 316 6512 ALT 1A TY PL GR 4 SAC-A	AGGREGATE 316 6517 ALT 2A TY PL GR 3 SAC-B
							[2] SY	[2] GAL	[3] TON	[2] GAL	[3] TON	[2] CY		2,320 LB/CY TON	2,317 LB/CY TON	1,360 LB/CY TON	1,424 LB/CY TON
13	Cass	FM 3129	1989-01-015	FR:	FM 249W	TRAF LANES	79,463			39,732	170.78		722		836		514
				TO:	SH 77	MAILBOX TURNOUTS (15)	1,200			600	2.58		11		13		8
						CSJ TOTALS	80,663			40,332	173.36		733		849		522
14	Harrison	US 80	0096-08-059	FR:	FM 968	TRAF LANES	185,593	66,813	287.18			1,375		1,595		935	
				TO:	.4 MI E OF FM 450	EXTRA WIDTH (1)	667	240	1.03			5		6		3	
						CSJ TOTALS	186,260	67,053	288.21			1,380		1,601		938	
15	Harrison	SL 281	2642-02-027	FR:	IH 20	TRAF LANES	146,249	52,650	226.31			1,083		1,256		736	
				TO:	US 80												
						CSJ TOTALS	146,249	52,650	226.31			1,083		1,256		736	
16	Harrison	SL 281	2642-02-028	FR:	US 80	TRAF LANES	118,791	42,765	183.82			880		1,021		598	
				TO:	GREGG COUNTY LINE	INTERSECTIONS (2)	993	357	1.53			7		8		5	
						CROSSOVERS (6)	3,920	1,411	6.06			29		34		20	
						EXTRA WIDTH (1)	2,798	1,007	4.33			21		24		14	
						RAMPS (2)	6,765	2,435	10.47			50		58		34	
						CSJ TOTALS	133,267	47,975	206.21			987		1,145		671	
17	Harrison	FM 2879	2880-01-023	FR:	SH 154	TRAF LANES	80,107	28,839	123.96			593		688		403	
				TO:	FM 449												
						CSJ TOTALS	80,107	28,839	123.96			593		688		403	
18	Morris	US 259	0084-01-093	FR:	FM 338	TRAF LANES	159,022	57,248	246.07			1,178		1,366		801	
				TO:	US 67	INTERSECTIONS (2)	4,376	1,575	6.77			32		37		22	
						CROSSOVERS (3)	759	273	1.17			6		7		4	
						EXTRA WIDTH (1)	148	53	0.23			1		1		1	
						CSJ TOTALS	164,305	59,149	254.24			1,217		1,411		828	
19	Morris	US 259	0392-01-074	FR:	LONE STAR NORTH CITY LIN	TRAF LANES	221,984	79,914	343.49			1,644		1,907		1,118	
				TO:	SH 11	INTERSECTIONS (2)	622	224	0.96			5		6		3	
						CSJ TOTALS	222,606	80,138	344.45			1,649		1,913		1,121	
20	Panola	US 59	0063-05-039	FR:	FM 999	TRAF LANES	304,433	109,596	471.08			2,255		2,616		1,533	
				TO:	SHELBY C/L	INTERSECTIONS (1)	339	122	0.52			3		3		2	
						CROSSOVERS (26)	20,488	7,376	31.70								
						CSJ TOTALS	325,260	117,094	503.30			2,258		2,619		1,535	
21	Panola	FM 1970	0428-02-025	FR:	SH 315	TRAF LANES	153,161	55,138	237.00			1,135		1,317		772	
				TO:	FM 2260	INTERSECTIONS (1)	640	230	0.99			5		6		3	
						EXTRA WIDTH (1)	446	161	0.69			3		3		2	
						CSJ TOTALS	154,247	55,529	238.68			1,143		1,326		777	
22	Panola	FM 1186	0731-02-021	FR:	FM 1794W	TRAF LANES	124,207			62,104	266.94		1,129		1,308		804
				TO:	US 79	EXTRA WIDTH (1)	1,380			690	2.97		13		15		9
						CSJ TOTALS	125,587			62,794	269.91		1,142		1,323		813
23	Panola	FM 1251	1388-02-022	FR:	FM 124	TRAF LANES	63,657	22,917	98.50			472		548		321	
				TO:	RUSK C/L	MAILBOX TURNOUTS (34)	154	55	0.24			1		1		1	
						CSJ TOTALS	63,811	22,972	98.74			473		549		322	
SHEET 2 SUBTOTALS							**1,682,362**	**531,399**	**2,284.10**	**103,126**	**443.27**	**10,783**	**1,875**	**12,508**	**2,172**	**7,331**	**1,335**

[2] FOR CONTRACTOR'S INFORMATION ONLY
[3] CALCULATED AT 1 TON / 232.65 GAL

Texas Department of Transportation

ROADWAY SUMMARY

SHEET 2 OF 3

CONT	SECT	JOB	HIGHWAY
0060	02	34	SH 8
DISTRICT	COUNTY		SHEET
ATL	BOWIE		8

REF	COUNTY	HIGHWAY	CSJ	LIMITS		DESCRIPTION OF WORK	SURFACE AREA	ASPHALT 316 6048 AC-20-5TR FOR GR 4 AGGR 0.36 GAL/SY		ASPHALT 316 6048 AC-20-5TR FOR GR 3 AGGR 0.50 GAL/SY		AGGREGATE GRADE 4 1CY/135SY	AGGREGATE GRADE 3 1CY/110SY	AGGREGATE 316 6510 ALT 1 TY PB GR 4 SAC-A	AGGREGATE 316 6515 ALT 2 TY PB GR 3 SAC-B	AGGREGATE 316 6512 ALT 1A TY PL GR 4 SAC-A	AGGREGATE 316 6517 ALT 2A TY PL GR 3 SAC-B
							[2] SY	[2] GAL	[3] TON	[2] GAL	[3] TON	[2] CY		2,320 LB/CY TON	2,317 LB/CY TON	1,360 LB/CY TON	1,424 LB/CY TON
24	Upshur	US 259	0392-02-100	FR:	0.5 MI. S. OF FM 450	TRAF LANES	183,784	66,162	284.38			1,361		1,579		925	
				TO:	FM 726	CROSSOVERS (12)	7,392					55		64		37	
						TOTAL	191,176	66,162	284.38			1,416		1,643		962	
25	Upshur	FM 49	0647-04-005	FR:	FM 1002	TRAF LANES	11,058			5,529	23.77		101		117		69
				TO:	WOOD COUNTY LINE												
						TOTAL	11,058			5,529	23.77		101		117		69
26	Upshur	FM 557	1019-03-013	FR:	CAMP COUNTY LINE	TRAF LANES	22,462			11,231	48.27		204		236		139
				TO:	US 259	INTERSECTIONS (1)	1,006			503	2.16		9		10		6
						TOTAL	23,468			11,734	50.43		213		246		145
27	Upshur	SH 300	1385-01-041	FR:	0.2 MI. SOUTH OF US 271	TRAF LANES	246,596	88,775	381.58			1,827		2,119		1242	
				TO:	0.6 MI. NORTH OF FM 3358												
						TOTAL	246,596	88,775	381.58			1,827		2,119		1,242	
28	Upshur	FM 49	2577-01-011	FR:	FM 1795	TRAF LANES	81,575			40,788	175.32		742		860		505
				TO:	FM 1002												
						TOTAL	81,575			40,788	175.32		742		860		505
SHEET 3 SUBTOTALS							**553,873**	**154,937**	**665.96**	**58,051**	**249.52**	**3,243**	**1,056**	**3,762**	**1,223**	**2,204**	**719**
SHEET 1 SUBTOTALS							**769,530**	**265,998**	**1,143.48**	**15,321**	**65.86**	**5,473**	**278**	**6,349**	**322**	**3,721**	**198**
SHEET 2 SUBTOTALS							**1,682,362**	**531,399**	**2,284.10**	**103,126**	**443.27**	**10,783**	**1,875**	**12,508**	**2,172**	**7,331**	**1,335**
PROJECT TOTALS							**3,005,765**	**952,334**	**4,093.54**	**176,498**	**758.65**	**19,499**	**3,209**	**22,619**	**3,717**	**13,256**	**2,252**

[2] FOR CONTRACTOR'S INFORMATION ONLY
[3] CALCULATED AT 1 TON / 232.65 GAL

Texas Department of Transportation

ROADWAY SUMMARY

SHEET 3 OF 3

CONT	SECT	JOB	HIGHWAY
0060	02	34	SH 8
DISTRICT	COUNTY		SHEET
ATL	BOWIE		9

FILE: c:\txdot\pw_online\txdot5\chad.heldt\d0540510\[0060-02-034_M(AutoRecovered).xlsx]ROADWAY SUMMARY (3)
DATE: ##########

REF	COUNTY	HIGHWAY	CSJ	LIMITS	SHORT TERM 662		REF PAV MRK TY II 666								
					6109	6111	6167	6170	6171	6174	6178	6205	6207	6208	6210
					TAB TY W	TAB TY Y-2	(W) 4 IN (BRK)	(W) 4 IN (SLD)	(W) 6 IN (BRK)	(W) 6 IN (SLD)	(W) 8 IN (SLD)	(Y) 4 IN (BRK)	(Y) 4 IN (SLD)	(Y) 6 IN (BRK)	(Y) 6 IN (SLD)
					EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF
1	Bowie	SH 8	0060-02-034	FR: IH 30 TO: US 82	77	456			2,140	9,238	997				18,246
2	Bowie	SH 8	0061-01-025	FR: US 82 TO: FM 1840	28	127			180	13,476	505			1,610	3,460
3	Bowie	FM 558	0945-02-024	FR: SH 93 TO: 5.9 MI. S. OF SH 93		1,183		59,252				3,390	43,913		
4	Bowie	FM 2878	2878-01-015	FR: FM 559 TO: IH 30 FRONTAGE ROAD	30	537		24,478			593	990	20,472		
5	Bowie	FM 3165	3225-02-007	FR: FM 44 TO: 2.3 MI. W OF FM 44		435		24,390				1,870	15,515		
6	Camp	SH 11	0083-08-057	FR: FM 557 TO: E. PITTSBURG CITY LIMITS	29	410	1,400	10,958			224		16,412		
7	Camp	FM 556	1019-01-032	FR: PITTSBURG CITY LIMITS TO: FM 1519		318		12,504				600	12,100		
8	Camp	FM 557	1019-02-034	FR: PITTSBURG CITY LIMITS TO: UPSHUR COUNTY LINE		2,985		151,200				6,600	112,780		
9	Camp	FM 557	1019-02-035	FR: US 271 TO: E. PITTSBURG CITY LIMITS		219		10,100				580	8,176		
10	Cass	SH 8	0062-03-047	FR: 2.5 MILES NORTH OF FM 995 TO: SH 77	26	400			2,070	24,620				1,790	14,224
11	Cass	SH 77	0277-02-055	FR: 3.2 MI. W. OF SH 8 TO: 0.3 MI. W. OF FM 994	207	1,109	9,250	50,568			1,823	1,490	42,886		
12	Cass	FM 161	1574-02-024	FR: MORRIS COUNTY LINE TO: FM 130		1,814		83,544				3,340	69,222		
13	Cass	FM 3129	1989-01-015	FR: FM 249W TO: SH 77		736		47,678				4,240	25,219		
14	Harrison	US 80	0096-08-059	FR: FM 968 TO: .4 MI E OF FM 450		614		46,625				2,760	21,811		
15	Harrison	SL 281	2642-02-027	FR: IH 20 TO: US 80	145	571	5,860	23,426			1,441		22,831		
16	Harrison	SL 281	2642-02-028	FR: US 80 TO: GREGG COUNTY LINE	477	589	23,430	25,867			1,441		23,562		
17	Harrison	FM 2879	2880-01-023	FR: SH 154 TO: FM 449		957		52,388				21,470	16,797		
18	Morris	US 259	0084-01-093	FR: FM 338 TO: US 67	211	1,228			13,250	54,423	912			810	48,299
19	Morris	US 259	0392-01-074	FR: LONE STAR NORTH CITY LIMITS TO: SH 11	163	1,638			13,000	41,990				12,880	52,650
20	Panola	US 59	0063-05-039	FR: FM 999 TO: SHELBY C/L	449	1,596			16,990	66,932	4,731		80		63,760
21	Panola	FM 1970	0428-02-025	FR: SH 315 TO: FM 2260		1,369		70,049				3,460	51,285		
22	Panola	FM 1186	0731-02-021	FR: FM 1794W TO: US 79		1,629		78,671				3,550	61,628		
23	Panola	FM 1251	1388-02-022	FR: FM 124 TO: RUSK C/L		614		46,625				2,760	21,811		
SHEET 1 SUBTOTALS					**1,842**	**21,534**	**39,940**	**818,323**	**47,630**	**210,679**	**12,667**	**57,100**	**586,500**	**17,090**	**200,639**

Texas Department of Transportation

PAVEMENT MARKING SUMMARY

SHEET 1 OF 4

CONT	SECT	JOB	HIGHWAY
0060	02	34	SH 8
DISTRICT		COUNTY	SHEET
ATL		BOWIE	10

FILE: c:\txdot\pw_onlinetxdot5\chad.heldt\d0540510\[0060-02-034_M(AutoRecovered).xlsx]PAVEMENT MRK SUMMARY (1)

DATE: 2:32:06 PM

REF	COUNTY	HIGHWAY	CSJ	LIMITS		SHORT TERM 662		REF PAV MRK TY II 666								
						6109	6111	6167	6170	6171	6174	6178	6205	6207	6208	6210
						TAB TY W	TAB TY Y-2	(W) 4 IN (BRK)	(W) 4 IN (SLD)	(W) 6 IN (BRK)	(W) 6 IN (SLD)	(W) 8 IN (SLD)	(Y) 4 IN (BRK)	(Y) 4 IN (SLD)	(Y) 6 IN (BRK)	(Y) 6 IN (SLD)
						EA	EA	LF	LF	LF	LF	LF	LF	LF	LF	LF
24	Upshur	US 259	0392-02-100	FR:	0.5 MI. S. OF FM 450	206	1,183			10,590	42,500	1,480			2,050	45262
				TO:	FM 726											
25	Upshur	FM 49	0647-04-005	FR:	FM 1002		238		7,842				450	9,061		
				TO:	WOOD COUNTY LINE											
26	Upshur	FM 557	1019-03-013	FR:	CAMP COUNTY LINE		252		14,962				1,050	9,027		
				TO:	US 259											
27	Upshur	SH 300	1385-01-041	FR:	0.2 MI. SOUTH OF US 271	165	1,650	13,200	52,326				13,200	52,800		
				TO:	0.6 MI. NORTH OF FM 3358											
28	Upshur	FM 49	2577-01-011	FR:	FM 1795		1,106		58,022				3,940	40,293		
				TO:	FM 1002											
SHEET 2 PROJECT SUBTOTALS						**371**	**4,429**	**13,200**	**133,152**	**10,590**	**42,500**	**1,480**	**18,640**	**111,181**	**2,050**	**45,262**
SHEET 1 PROJECT SUBTOTALS						**1,842**	**21,534**	**39,940**	**818,323**	**47,630**	**210,679**	**12,667**	**57,100**	**586,500**	**17,090**	**200,639**
PROJECT TOTALS						**2,213**	**25,963**	**53,140**	**951,475**	**58,220**	**253,179**	**14,147**	**75,740**	**697,681**	**19,140**	**245,901**

FILE: c:\txdot\pw_online\txdot5\chad.heldt\d0540510\[0060-02-034_M(AutoRecovered).xlsx]PAVEMENT MRK SUMMARY (2)
DATE: 2:32:06 PM

Texas Department of Transportation

PAVEMENT MARKING SUMMARY

SHEET 2 OF 4

CONT	SECT	JOB	HIGHWAY
0060	02	34	SH 8
DISTRICT		COUNTY	SHEET
ATL		BOWIE	11

REF	COUNTY	HIGHWAY	CSJ	LIMITS	PREFAB PAV MRK TY C 668 6074 (W) 12 IN (SLD) LF	6076 (W) 24 IN (SLD) LF	6077 (W) (ARROW) EA	6084 (W) (NUMBER) EA	6085 (W) (WORD) EA	6092 (W) (36") (YLD TRI) EA	6108 (Y) 24 IN (SLD) LF	RAISED REFL PAV MRKR 672 6007 TY I-C EA	6009 TY II A-A EA	6010 TY II C-R EA
1	Bowie	SH 8	0060-02-034	FR: IH 30										
				TO: US 82		376	20		5			77	456	
2	Bowie	SH 8	0061-01-025	FR: US 82										
				TO: FM 1840		28	3		1			28	127	
3	Bowie	FM 558	0945-02-024	FR: SH 93										
				TO: 5.9 MI. S. OF SH 93		15							1,183	
4	Bowie	FM 2878	2878-01-015	FR: FM 559										
				TO: IH 30 FRONTAGE ROAD		271	4		3			30	537	
5	Bowie	FM 3165	3225-02-007	FR: FM 44										
				TO: 2.3 MI. W OF FM 44									435	
6	Camp	SH 11	0083-08-057	FR: FM 557										
				TO: E. PITTSBURG CITY LIMITS		112	3		2	6		29	410	
7	Camp	FM 556	1019-01-032	FR: PITTSBURG CITY LIMITS										
				TO: FM 1519									318	
8	Camp	FM 557	1019-02-034	FR: PITTSBURG CITY LIMITS										
				TO: UPSHUR COUNTY LINE		80			2				2,985	
9	Camp	FM 557	1019-02-035	FR: US 271										
				TO: E. PITTSBURG CITY LIMITS		12							219	
10	Cass	SH 8	0062-03-047	FR: 2.5 MILES NORTH OF FM 995										
				TO: SH 77								26	400	
11	Cass	SH 77	0277-02-055	FR: 3.2 MI. W. OF SH 8										
				TO: 0.3 MI. W. OF FM 994		30						207	1,109	
12	Cass	FM 161	1574-02-024	FR: MORRIS COUNTY LINE										
				TO: FM 130									1,814	
13	Cass	FM 3129	1989-01-015	FR: FM 249W										
				TO: SH 77									736	
14	Harrison	US 80	0096-08-059	FR: FM 968										
				TO: .4 MI E OF FM 450		85							614	
15	Harrison	SL 281	2642-02-027	FR: IH 20										
				TO: US 80		37				132		110	571	316
16	Harrison	SL 281	2642-02-028	FR: US 80										
				TO: GREGG COUNTY LINE	1,123	807	8		16	94		123	589	354
17	Harrison	FM 2879	2880-01-023	FR: SH 154										
				TO: FM 449				1	1				957	
18	Morris	US 259	0084-01-093	FR: FM 338										
				TO: US 67		121	4		6	14	281	211	1,228	36
19	Morris	US 259	0392-01-074	FR: LONE STAR NORTH CITY LIMITS										
				TO: SH 11		300	36					163	1,638	
20	Panola	US 59	0063-05-039	FR: FM 999										
				TO: SHELBY C/L		22				364			1,596	1,140
21	Panola	FM 1970	0428-02-025	FR: SH 315										
				TO: FM 2260		90							1,369	
22	Panola	FM 1186	0731-02-021	FR: FM 1794W										
				TO: US 79		48							1,629	
23	Panola	FM 1251	1388-02-022	FR: FM 124										
				TO: RUSK C/L		85							614	
SHEET 3 PROJECT SUBTOTALS					**1,123**	**2,519**	**78**	**1**	**36**	**610**	**281**	**1,004**	**21,534**	**1,846**

Texas Department of Transportation

PAVEMENT MARKING SUMMARY

SHEET 3 OF 4

CONT	SECT	JOB	HIGHWAY
0060	02	34	SH 8
DISTRICT		COUNTY	SHEET
ATL		BOWIE	12

FILE: c:\txdot\pw_onlineltxdot5\chad.held\td0540510\[0060-02-034_M(AutoRecovered).xlsx]PAVEMENT MRK SUMMARY (3)

DATE: 2:32:06 PM

REF	COUNTY	HIGHWAY	CSJ	LIMITS		PREFAB PAV MRK TY C							RAISED REFL PAV MRKR		
						668							672		
						6074	6076	6077	6084	6085	6092	6108	6007	6009	6010
						(W) 12 IN (SLD)	(W) 24 IN (SLD)	(W) (ARROW)	(W) (NUMBER)	(W) (WORD)	(W) (36") (YLD TRI)	(Y) 24 IN (SLD)	TY I-C	TY II A-A	TY II C-R
						LF	LF	EA	EA	EA	EA	LF	EA	EA	EA
24	Upshur	US 259	0392-02-100	FR:	0.5 MI. S. OF FM 450		984	8		4	17	300		1,183	442
				TO:	FM 726										
25	Upshur	FM 49	0647-04-005	FR:	FM 1002									238	
				TO:	WOOD COUNTY LINE										
26	Upshur	FM 557	1019-03-013	FR:	CAMP COUNTY LINE		17							252	
				TO:	US 259										
27	Upshur	SH 300	1385-01-041	FR:	0.2 MI. SOUTH OF US 271		378	64					336	1,650	442
				TO:	0.6 MI. NORTH OF FM 3358										
28	Upshur	FM 49	2577-01-011	FR:	FM 1795									1,106	
				TO:	FM 1002										
SHEET 4 PROJECT SUBTOTALS						**0**	**1,379**	**72**	**0**	**4**	**17**	**300**	**336**	**4,429**	**884**
SHEET 3 PROJECT SUBTOTALS						**1,123**	**2,519**	**78**	**1**	**36**	**610**	**281**	**1,004**	**21,534**	**1,846**
PROJECT TOTALS						**1,123**	**3,898**	**150**	**1**	**40**	**627**	**581**	**1,340**	**25,963**	**2,730**

TRAFFIC CONTROL SUMMARY		
6001 6001	6185 6002	6185 6005
[1] PORTABLE CHANGEABLE MESSAGE SIGN	TMA (STATIONARY)	TMA (MOBILE OPERATION)
DAY	DAY	DAY
4	41	55

[1] TO BE USED AS DIRECTED BY THE ENGINEER

Texas Department of Transportation

PAVEMENT MARKING SUMMARY

SHEET 4 OF 4

CONT	SECT	JOB	HIGHWAY
0060	02	34	SH 8
DISTRICT		COUNTY	SHEET
ATL		BOWIE	13

FILE: c:\txdot\pw_online\txdot5\chad.heldt\d0540510\[0060-02-034_M(AutoRecovered).xlsx]PAVEMENT MRK SUMMARY (4)

DATE: 2:32:06 PM

DATE: 7/14/2021 4:28:44 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060020344 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

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

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

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

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

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

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

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

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

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

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

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

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

WORKER SAFETY NOTES:

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

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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

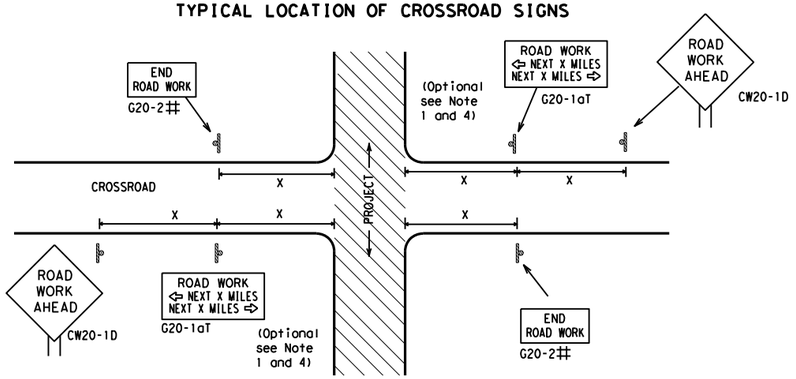
BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS

BC(1)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
4-03 7-13	DIST	COUNTY		SHEET NO.
9-07 8-14	ATL	BOWIE		14
5-10 5-21				

DATE: 7/14/2021 4:28:46 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060020340 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

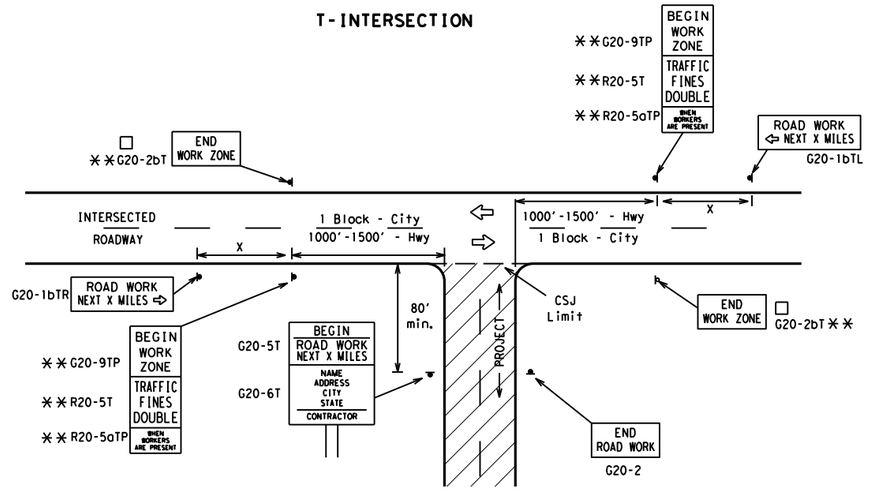
TYPICAL LOCATION OF CROSSROAD SIGNS



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

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

T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

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

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

SIZE

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

SPACING

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

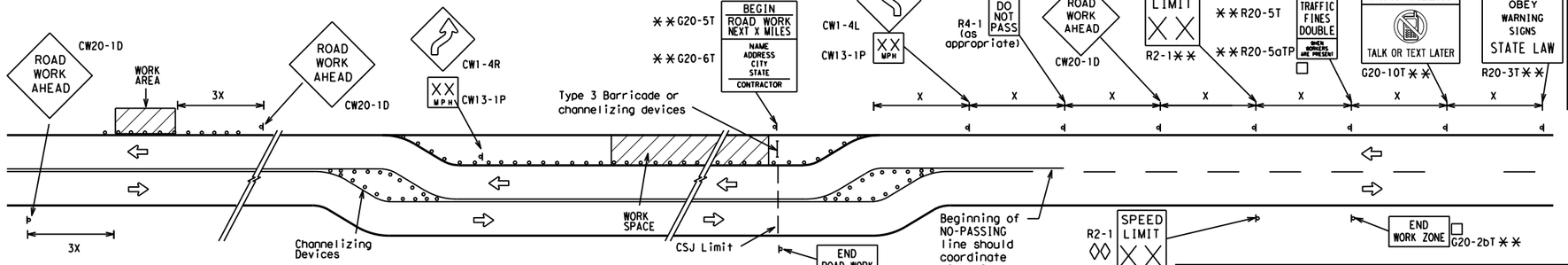
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

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

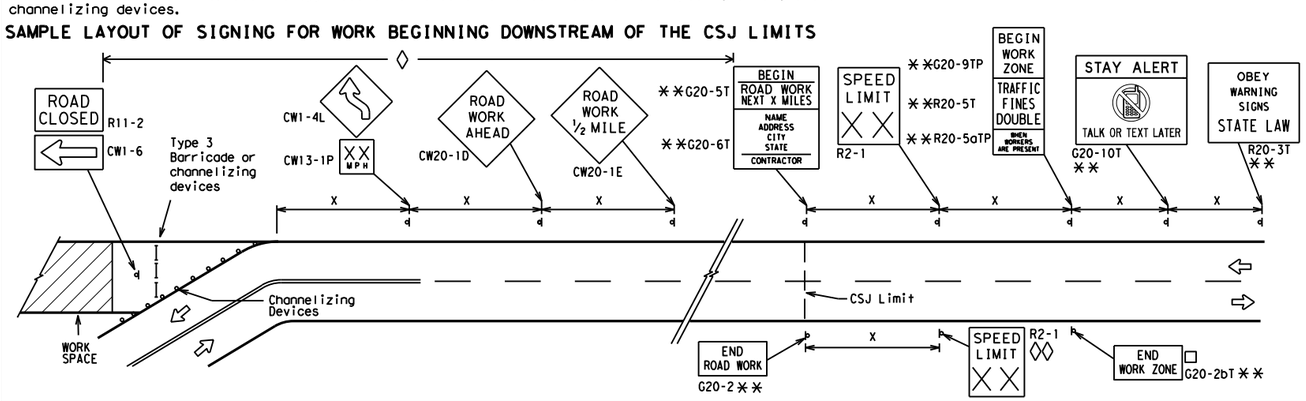
WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



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

SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS

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



NOTES

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

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

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

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

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

LEGEND

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		15

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

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

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

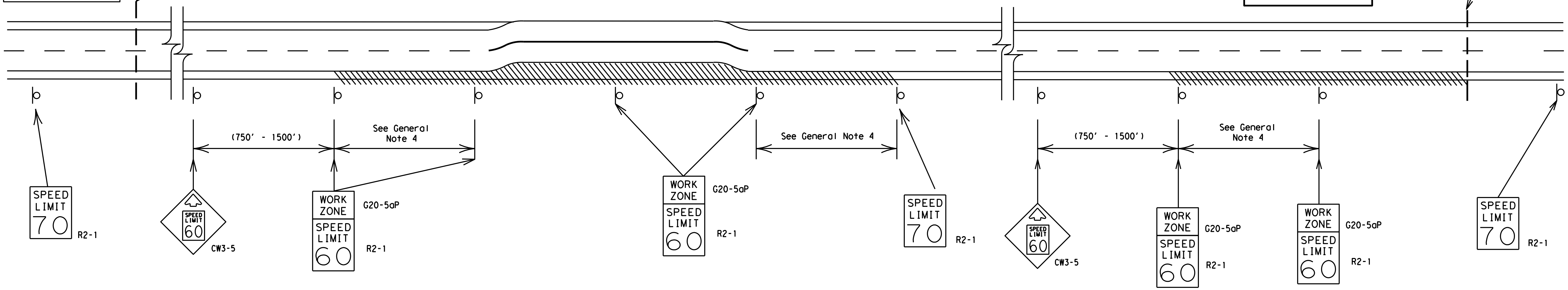
Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.

Signing shown for one direction only. See BC(2) for additional advance signing.

CSJ LIMITS

Signing shown for one direction only. See BC(2) for additional advance signing.

CSJ LIMITS



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

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

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

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

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

SHORT TERM WORK ZONE SPEED LIMITS

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

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

GENERAL NOTES

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

DATE: 7/14/2021 4:28:47 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060020341\4 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

Texas Department of Transportation — Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

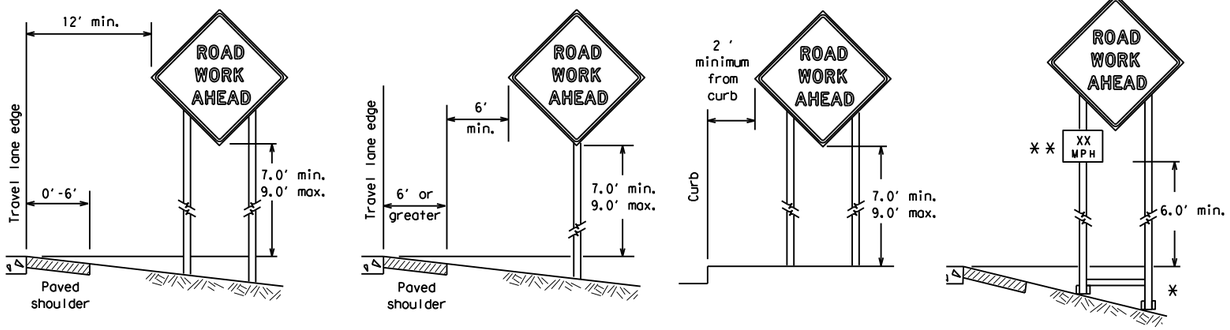
BC(3)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
9-07 8-14	DIST		COUNTY	SHEET NO.
7-13 5-21	ATL		BOWIE	16

97

DATE: 7/14/2021 4:28:48 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\006002034\4 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

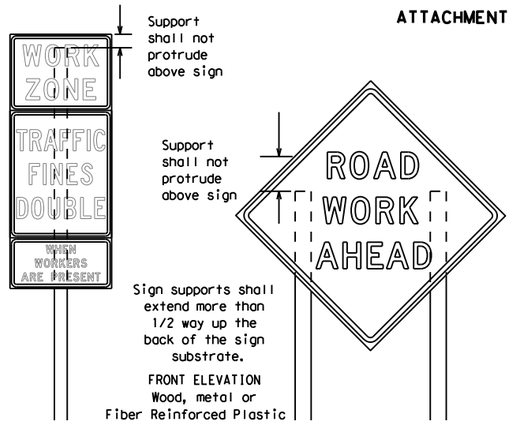
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

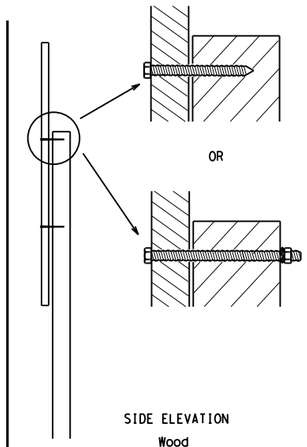


* When placing skid supports on unlevel ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall NOT be placed under skids as a means of leveling.

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

ATTACHMENT FOR SIGN SUPPORTS





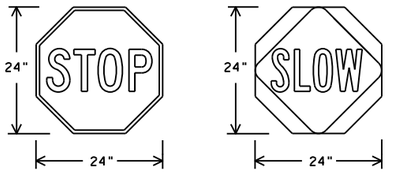
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

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

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

STOP/SLOW PADDLES

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



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

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

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

GENERAL NOTES FOR WORK ZONE SIGNS

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

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

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

SIGN MOUNTING HEIGHT

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

SIZE OF SIGNS

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

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

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

SIGN LETTERS

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

REMOVING OR COVERING

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

SIGN SUPPORT WEIGHTS

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

FLAGS ON SIGNS

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

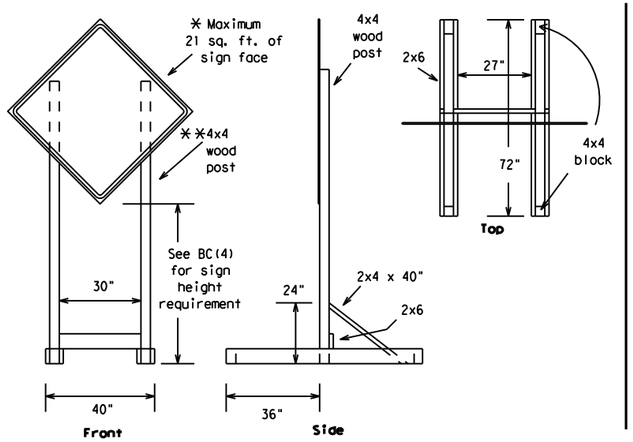
Texas Department of Transportation | Traffic Safety Division Standard

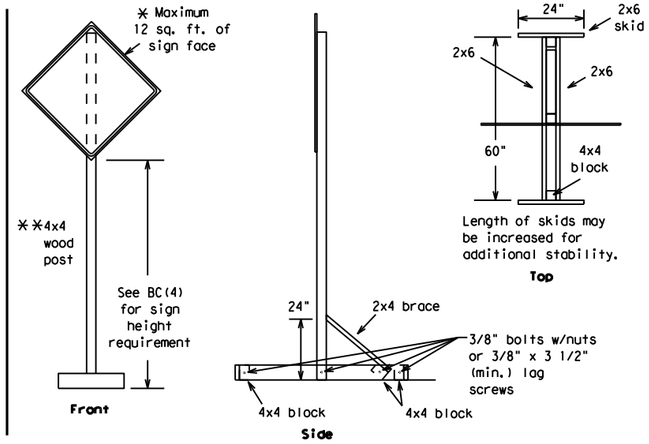
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC(4)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		17

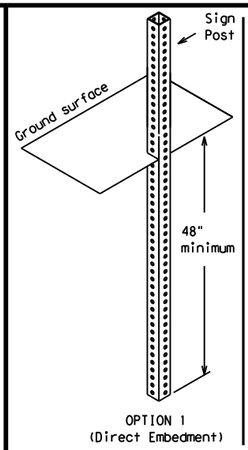
DATE: 7/14/2021 4:28:49 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060203414 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

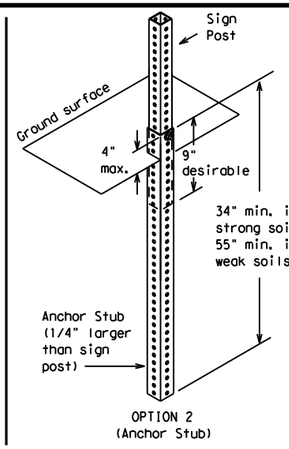


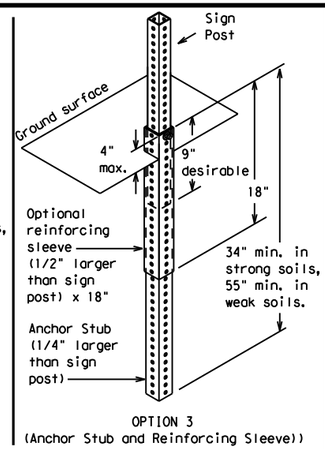


SKID MOUNTED WOOD SIGN SUPPORTS

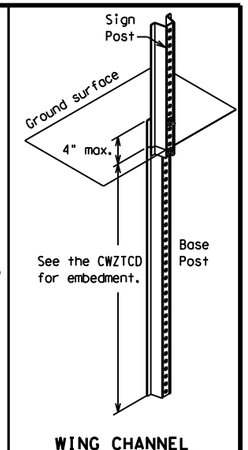
* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS







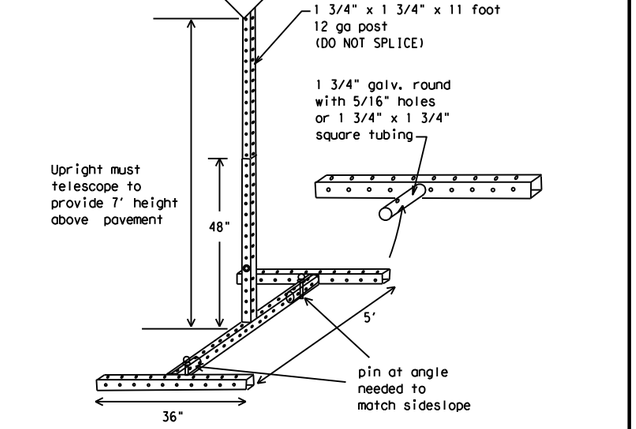
PERFORATED SQUARE METAL TUBING

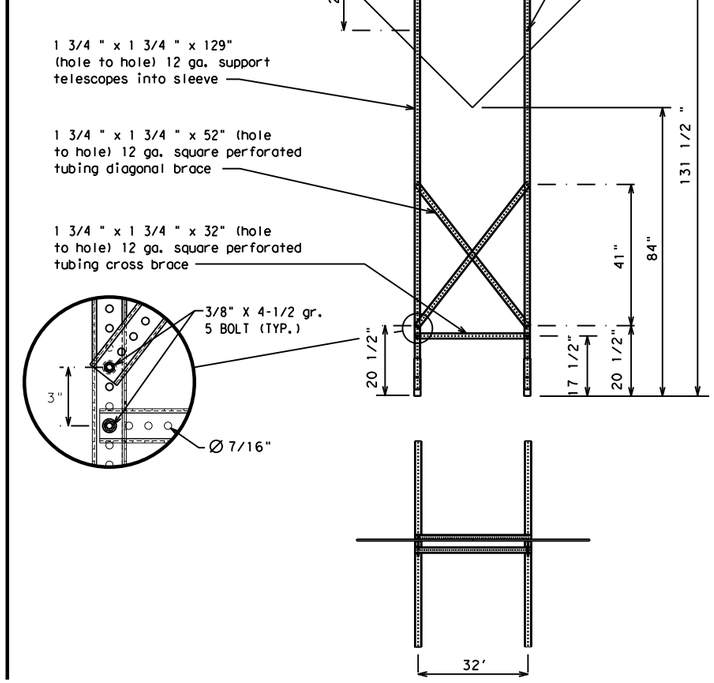


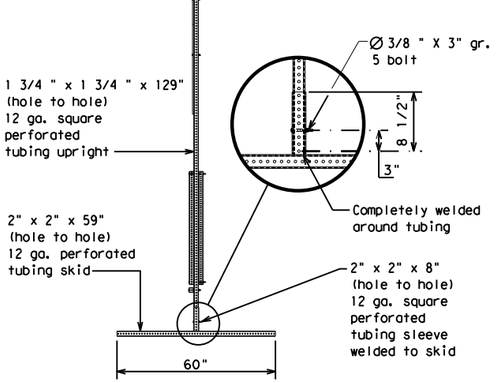
WING CHANNEL
Lap-splice/base bolted anchor

GROUND MOUNTED SIGN SUPPORTS

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







SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

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

WEDGE ANCHORS

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

OTHER DESIGNS

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

GENERAL NOTES

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

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

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

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

SHEET 5 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		18

DATE: 7/14/2021 4:28:50 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\006002034\4 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

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

PORTABLE CHANGEABLE MESSAGE SIGNS

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

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

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

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

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

Phase 1: Condition Lists

Road/Lane/Ramp Closure List		Other Condition List	
FREEWAY CLOSED X MILE	FRONTAGE ROAD CLOSED	ROADWORK XXX FT	ROAD REPAIRS XXXX FT
ROAD CLOSED AT SH XXX	SHOULDER CLOSED XXX FT	FLAGGER XXXX FT	LANE NARROWS XXXX FT
ROAD CLSD AT FM XXXX	RIGHT LN CLOSED XXX FT	RIGHT LN NARROWS XXXX FT	TWO-WAY TRAFFIC XX MILE
RIGHT X LANES CLOSED	RIGHT X LANES OPEN	MERGING TRAFFIC XXXX FT	CONST TRAFFIC XXX FT
CENTER LANE CLOSED	DAYTIME LANE CLOSURES	LOOSE GRAVEL XXXX FT	UNEVEN LANES XXXX FT
NIGHT LANE CLOSURES	I-XX SOUTH EXIT CLOSED	DETOUR X MILE	ROUGH ROAD XXXX FT
VARIOUS LANES CLOSED	EXIT XXX CLOSED X MILE	ROADWORK PAST SH XXXX	ROADWORK NEXT FRI-SUN
EXIT CLOSED	RIGHT LN TO BE CLOSED	BUMP XXXX FT	US XXX EXIT X MILES
MALL DRIVEWAY CLOSED	X LANES CLOSED TUE - FRI	TRAFFIC SIGNAL XXXX FT	LANES SHIFT *
XXXXXXXX BLVD CLOSED			

* 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		Location List	Warning List	**Advance Notice List
MERGE RIGHT	FORM X LINES RIGHT	AT FM XXXX	SPEED LIMIT XX MPH	TUE-FRI XX AM- X PM
DETOUR NEXT X EXITS	USE XXXXX RD EXIT	BEFORE RAILROAD CROSSING	MAXIMUM SPEED XX MPH	APR XX-XX X PM-X AM
USE EXIT XXX	USE EXIT I-XX NORTH	NEXT X MILES	MINIMUM SPEED XX MPH	BEGINS MONDAY
STAY ON US XXX SOUTH	USE I-XX E TO I-XX N	PAST US XXX EXIT	ADVISORY SPEED XX MPH	BEGINS MAY XX
TRUCKS USE US XXX N	WATCH FOR TRUCKS	XXXXXXX TO XXXXXXX	RIGHT LANE EXIT	MAY X-X XX PM - XX AM
WATCH FOR TRUCKS	EXPECT DELAYS	US XXX TO FM XXXX	USE CAUTION	NEXT FRI-SUN
EXPECT DELAYS	PREPARE TO STOP		DRIVE SAFELY	XX AM TO XX PM
REDUCE SPEED XXX FT	END SHOULDER USE		DRIVE WITH CARE	NEXT TUE AUG XX
USE OTHER ROUTES	WATCH FOR WORKERS			TONIGHT XX PM- XX AM
STAY IN LANE *				

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

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

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

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

FULL MATRIX PCMS SIGNS

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

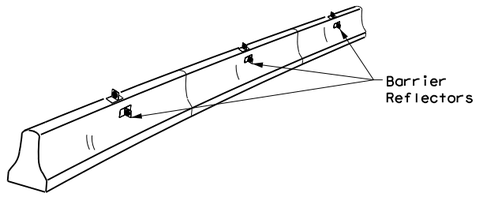
BC(6)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		19

100

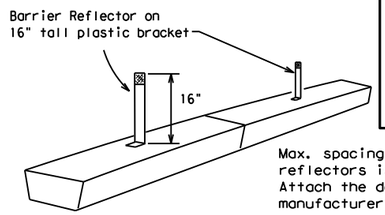
DATE: 7/14/2021 4:28:52 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\006002034\4 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

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



CONCRETE TRAFFIC BARRIER (CTB)

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

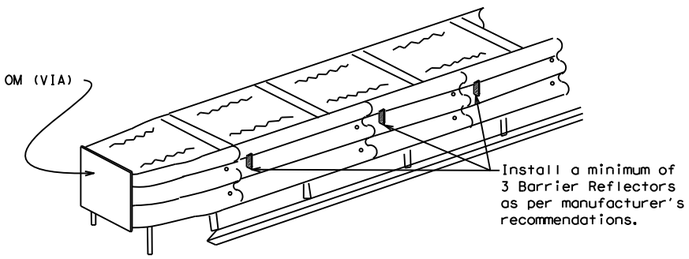


Max. spacing of barrier reflectors is 20 feet. Attach the delineators as per manufacturer's recommendations.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

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

LOW PROFILE CONCRETE BARRIER (LPCB)

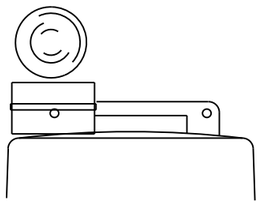


DELINEATION OF END TREATMENTS

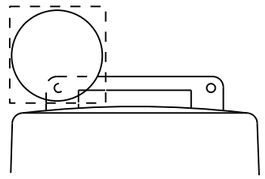
END TREATMENTS FOR CTB'S USED IN WORK ZONES

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

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS



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



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

WARNING LIGHTS

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

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

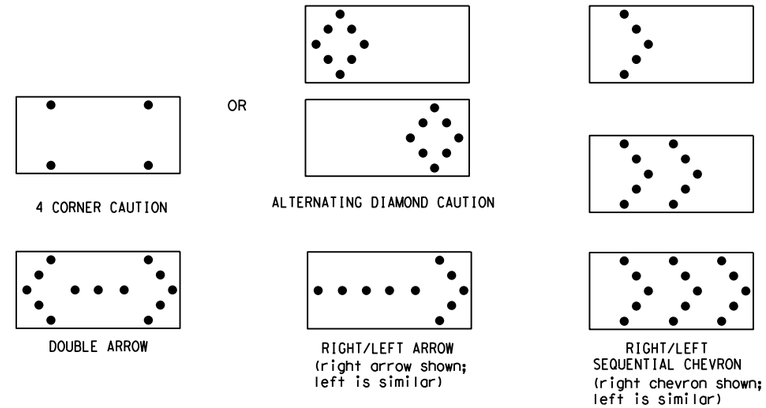
1. Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
2. Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
3. A series of sequential flashing warning lights placed on channelizing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

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

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

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

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



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

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

ATTENTION

Flashing Arrow Boards shall be equipped with automatic dimming devices.

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

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

Texas Department of Transportation

Traffic Safety Division Standard

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

BC(7)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		20

101

DATE: 7/14/2021 4:28:53 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\006002034\4 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

GENERAL NOTES

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

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

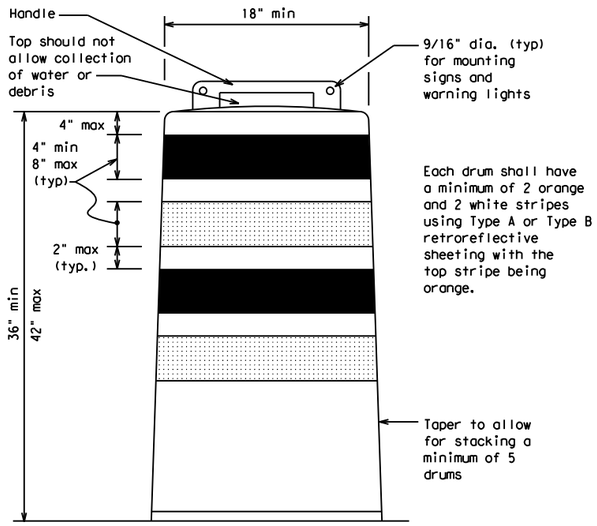
1. Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
2. The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents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

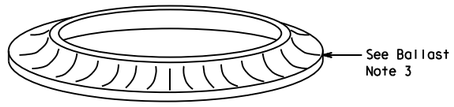
RETROREFLECTIVE SHEETING

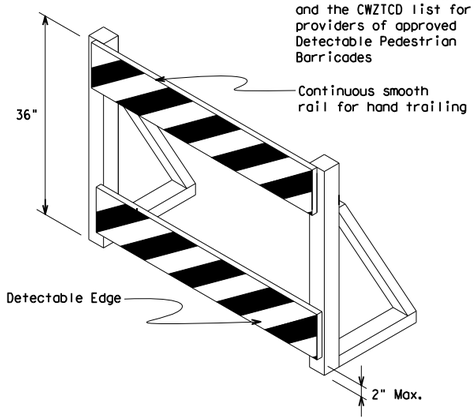
1. The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
2. The sheeting shall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

BALLAST

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

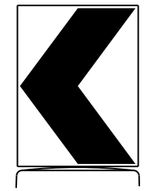




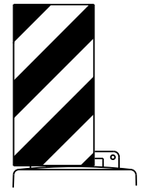


DETECTABLE PEDESTRIAN BARRICADES

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



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



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

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

Texas Department of Transportation | Traffic Safety Division Standard

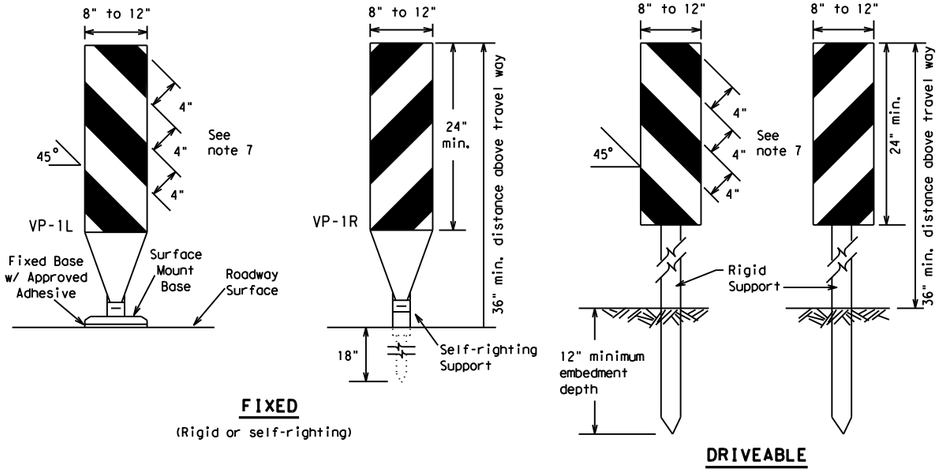
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(8)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
4-03 8-14	DIST	COUNTY		SHEET NO.
9-07 5-21	ATL	BOWIE		21
7-13				

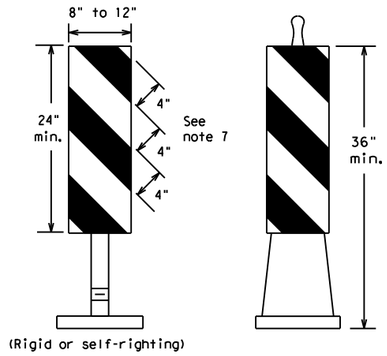
102

DATE: 7/14/2021 4:28:54 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060020344 - DesignMaster Design Files\04 STANDARDS\000 BC(1)-21.dgn



FIXED
(Rigid or self-righting)

DRIVEABLE

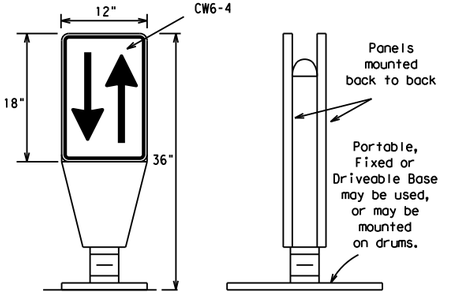


(Rigid or self-righting)

PORTABLE

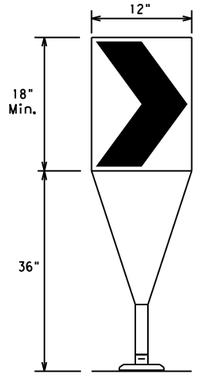
VERTICAL PANELS (VPs)

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



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

OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



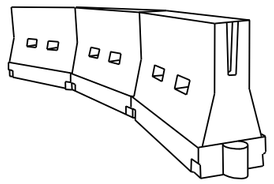
Fixed Base w/ Approved Adhesive (Driveable Base, or Flexible Support can be used)

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

CHEVRONS

GENERAL NOTES

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



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

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

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

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

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

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12

Texas Department of Transportation | Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(9)-21

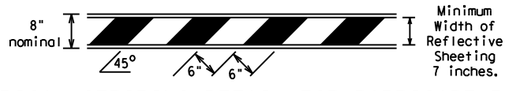
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		22

DATE: 7/14/2021 4:28:55 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\006002034\4 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

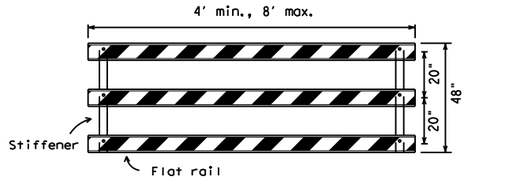
TYPE 3 BARRICADES

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

Barricades shall NOT be used as a sign support.



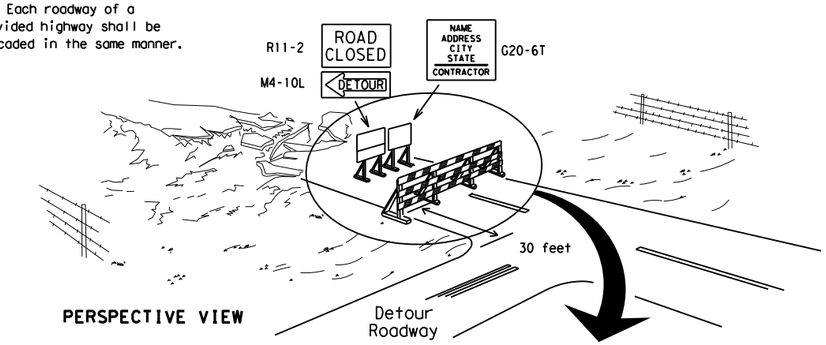
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



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

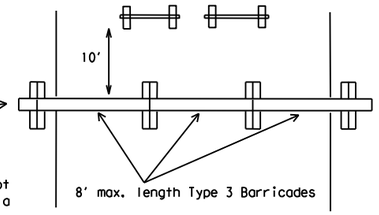
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

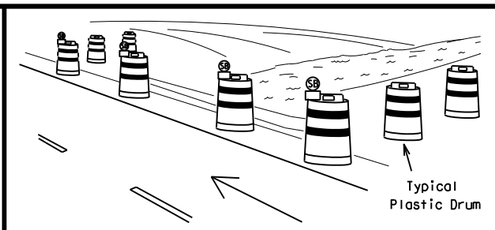
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic.
Barricade striping should slant downward in the direction of detour.



PLAN VIEW

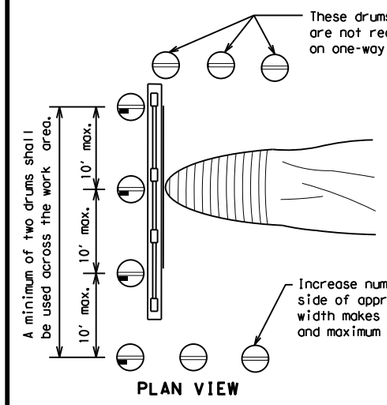
1. Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
2. Advance signing shall be as specified elsewhere in the plans.

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

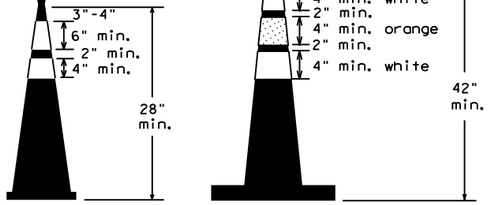
1. Where positive redirectional capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder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



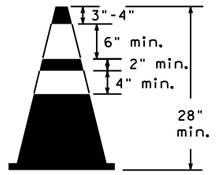
LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
SB	Steady burn warning light or yellow warning reflector

PLAN VIEW

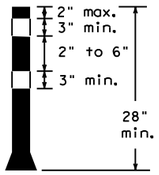
CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



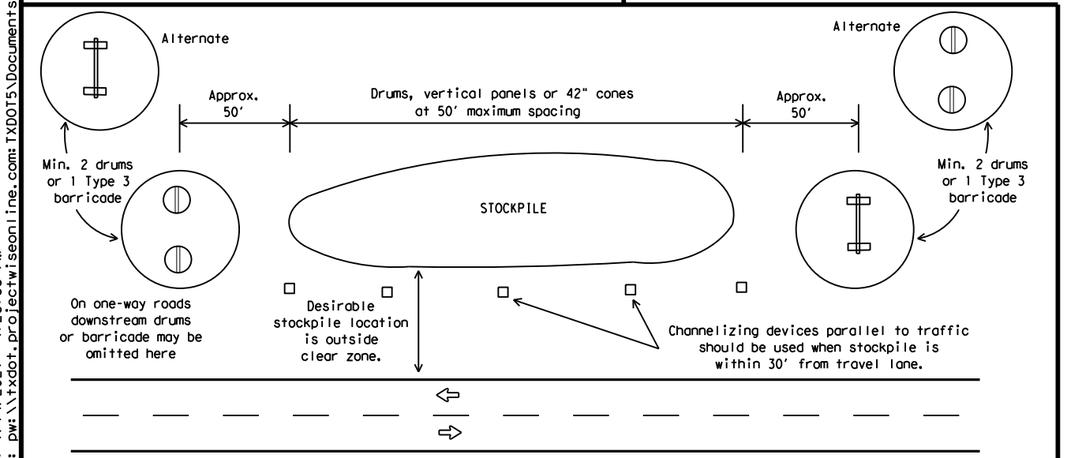
One-Piece cones



Tubular Marker

28" Cones shall have a minimum weight of 9 1/2 lbs.
42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

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



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

SHEET 10 OF 12

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC(10)-21

FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT November 2002	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
9-07 8-14	DIST	COUNTY		SHEET NO.
7-13 5-21	ATL	BOWIE		23

104

WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

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

PREFABRICATED PAVEMENT MARKINGS

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

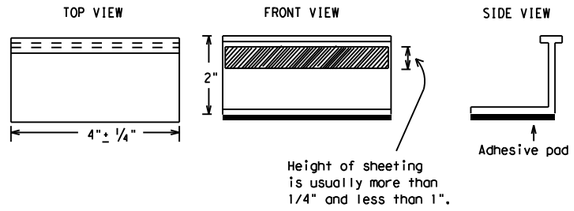
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

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

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

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

Texas Department of Transportation

Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

BC(11)-21

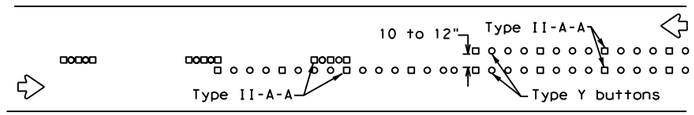
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
2-98 9-07 5-21	DIST	COUNTY		SHEET NO.
1-02 7-13	ATL	BOWIE		24
11-02 8-14				

105

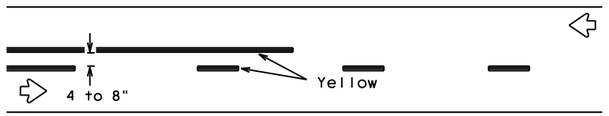
DATE: 7/14/2021 4:28:58 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060203414 - Design\Master Design Files\04 STANDARDS\000 BC(1)-21.dgn

PAVEMENT MARKING PATTERNS

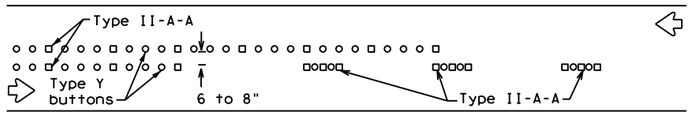
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



RAISED PAVEMENT MARKERS - PATTERN A



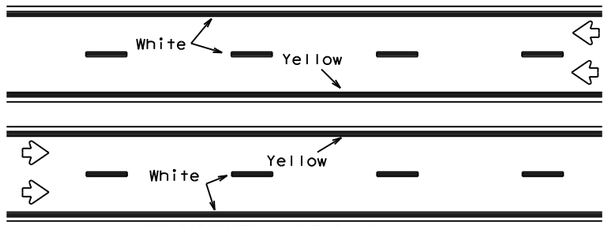
REFLECTORIZED PAVEMENT MARKINGS - PATTERN B



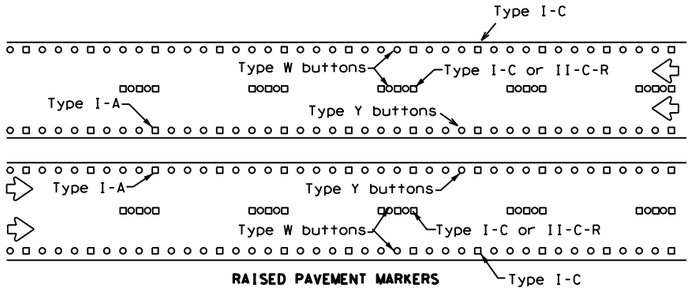
RAISED PAVEMENT MARKERS - PATTERN B

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

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



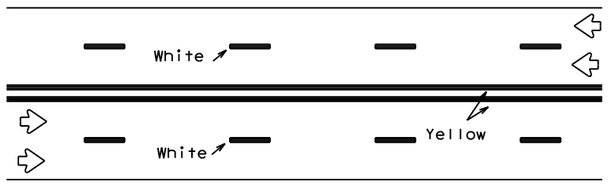
REFLECTORIZED PAVEMENT MARKINGS



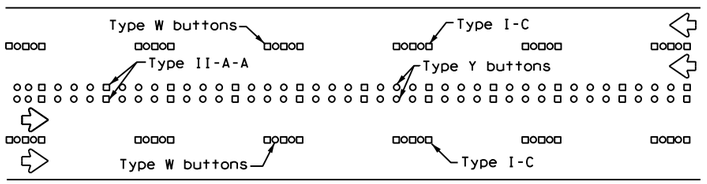
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY



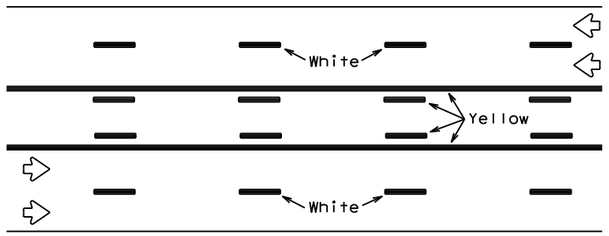
REFLECTORIZED PAVEMENT MARKINGS



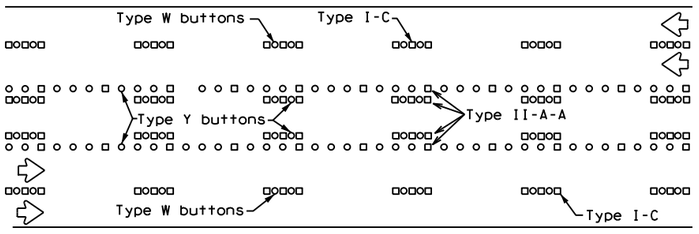
RAISED PAVEMENT MARKERS

Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS



RAISED PAVEMENT MARKERS

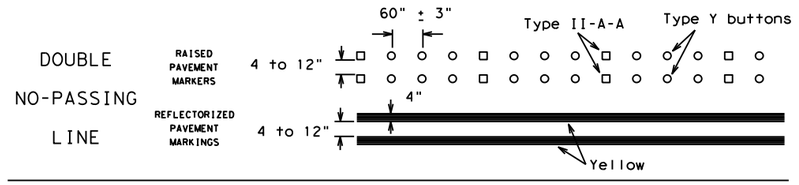
Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

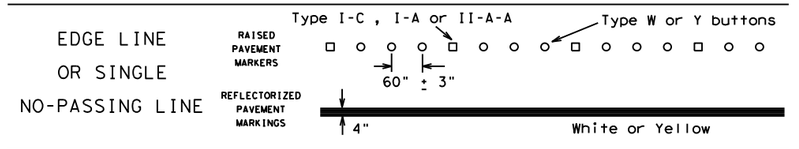
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS

SOLID LINES

DOUBLE NO-PASSING LINE

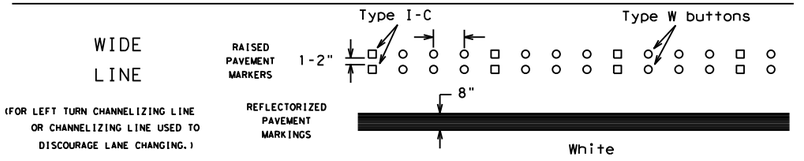


EDGE LINE OR SINGLE NO-PASSING LINE



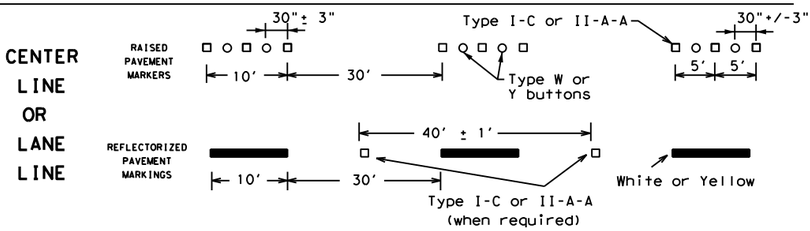
WIDE LINE

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

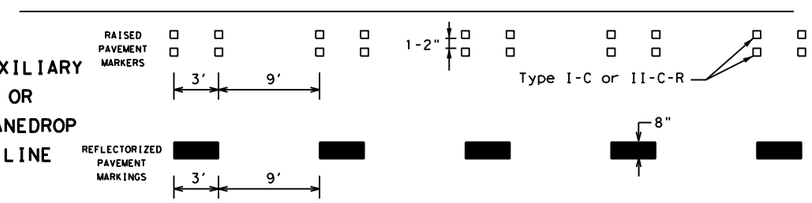


BROKEN LINES

CENTER LINE OR LANE LINE

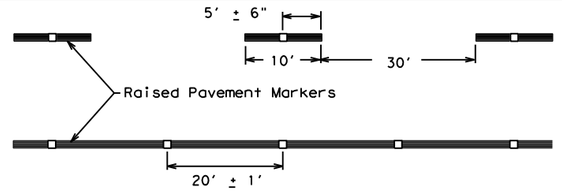


AUXILIARY OR LANEDROP LINE



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

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



Centerline only - not to be used on edge lines

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

Texas Department of Transportation

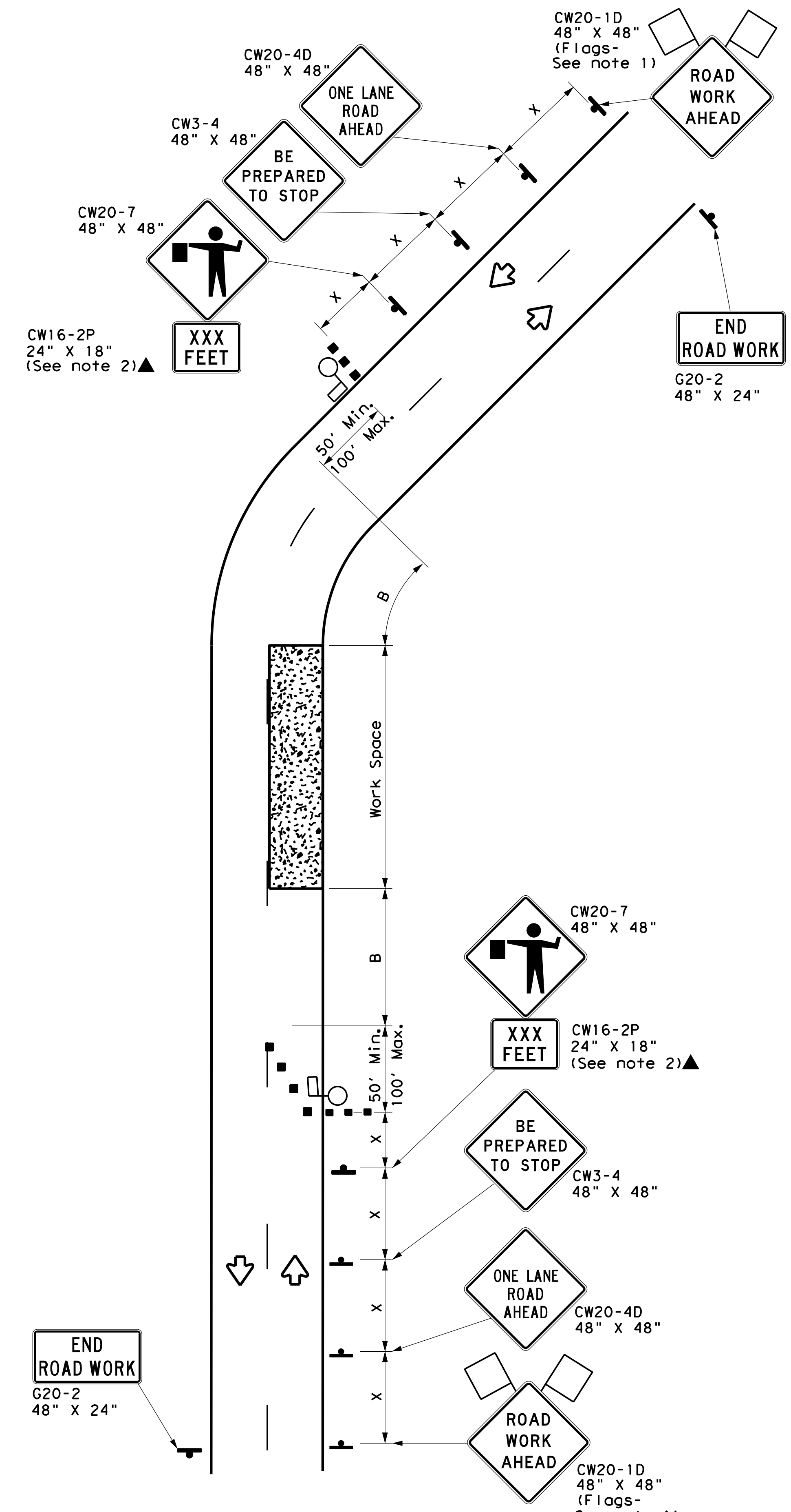
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC(12)-21

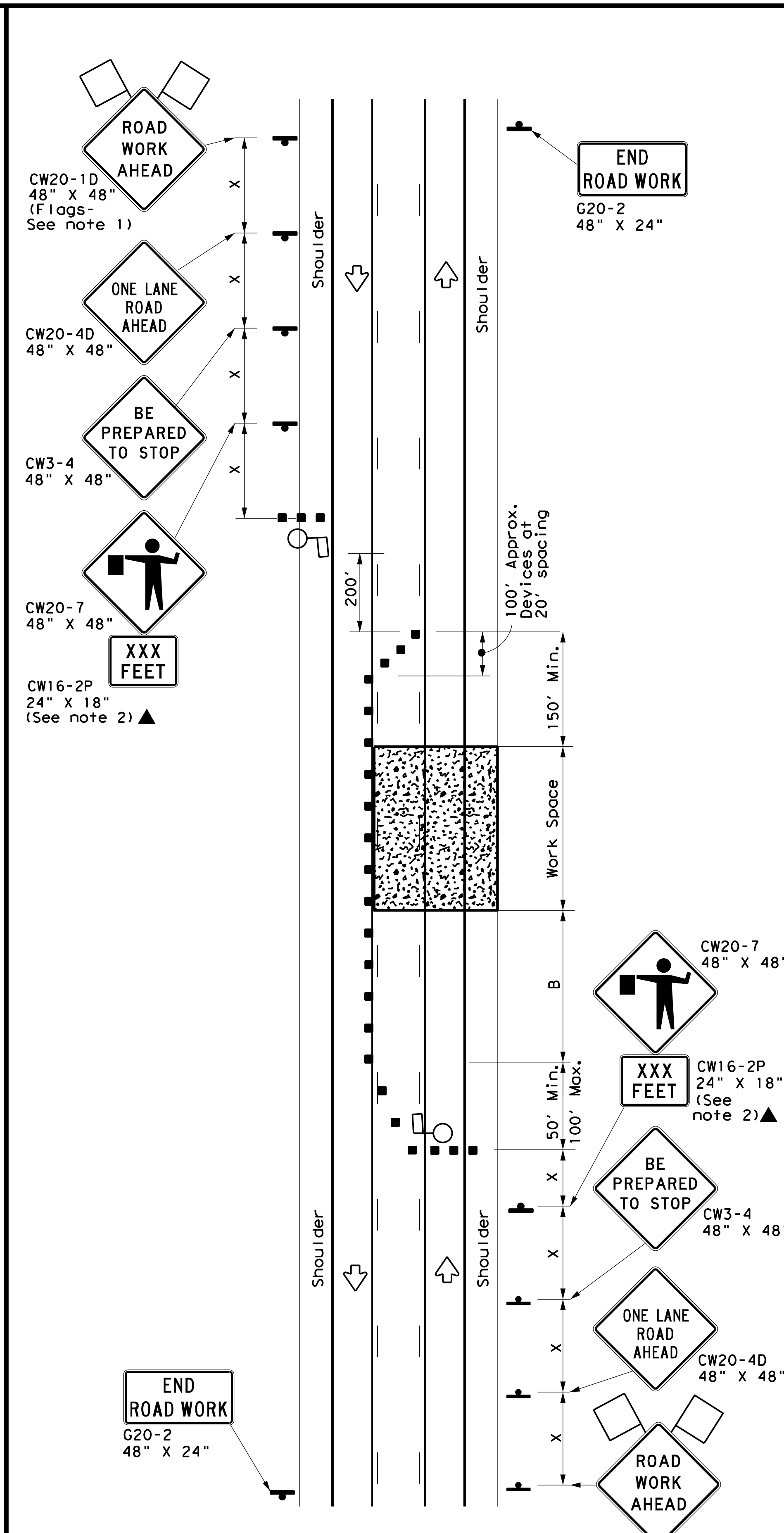
FILE: bc-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 1-97 9-07 5-21 2-98 7-13 11-02 8-14	0060	02	034	SH 8
	DIST	COUNTY		SHEET NO.
	ATL	BOWIE		25

DATE: 7/14/2021 4:29:04 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\...



TCP(SC-1a)

ONE LANE TWO-WAY (2 LANES) CONTROL WITH PILOT VEHICLE



TCP(SC-1b)

ONE LANE TWO-WAY (3 LANES) CONTROL WITH PILOT VEHICLE AND CHANNELIZING DEVICES

LEGEND

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

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			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	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L=WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only

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

TYPICAL USAGE

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Sign spacing may be increased or an additional CW20-1D "ROAD WORK AHEAD" sign may be used if advance warning ahead of the flagger sign is less than 1500 feet.
5. Flaggers should use two-way radios or other methods of communication at all times to control traffic.
6. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.
7. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
8. If the seal coat operation crosses intersections, traffic in these areas must be controlled, Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning other member of the traffic control crew at the intersection.
9. Temporary rumble strips are not required on seal coat operations.
10. Pilot car is used to guide vehicles through traffic control zone, vehicle shall have an identification name displayed and "PILOT CAR, FOLLOW ME" (G20-4) sign or message board mounted in a conspicuous position on rear.

TCP (SC-1a)

1. Channelizing devices on the center-line may be omitted when a pilot car is leading traffic.

Texas Department of Transportation

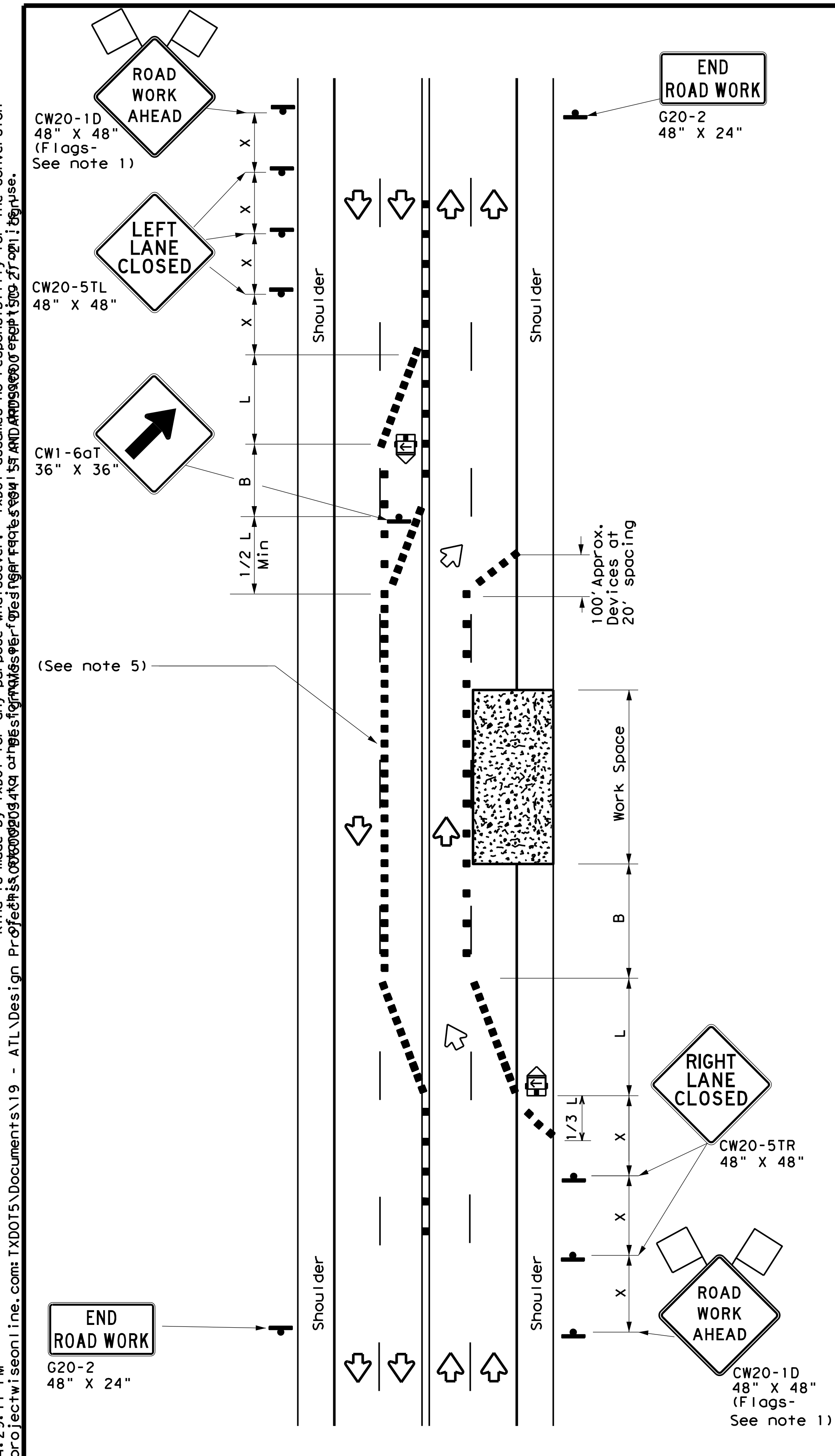
Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS

TCP(SC-1)-21

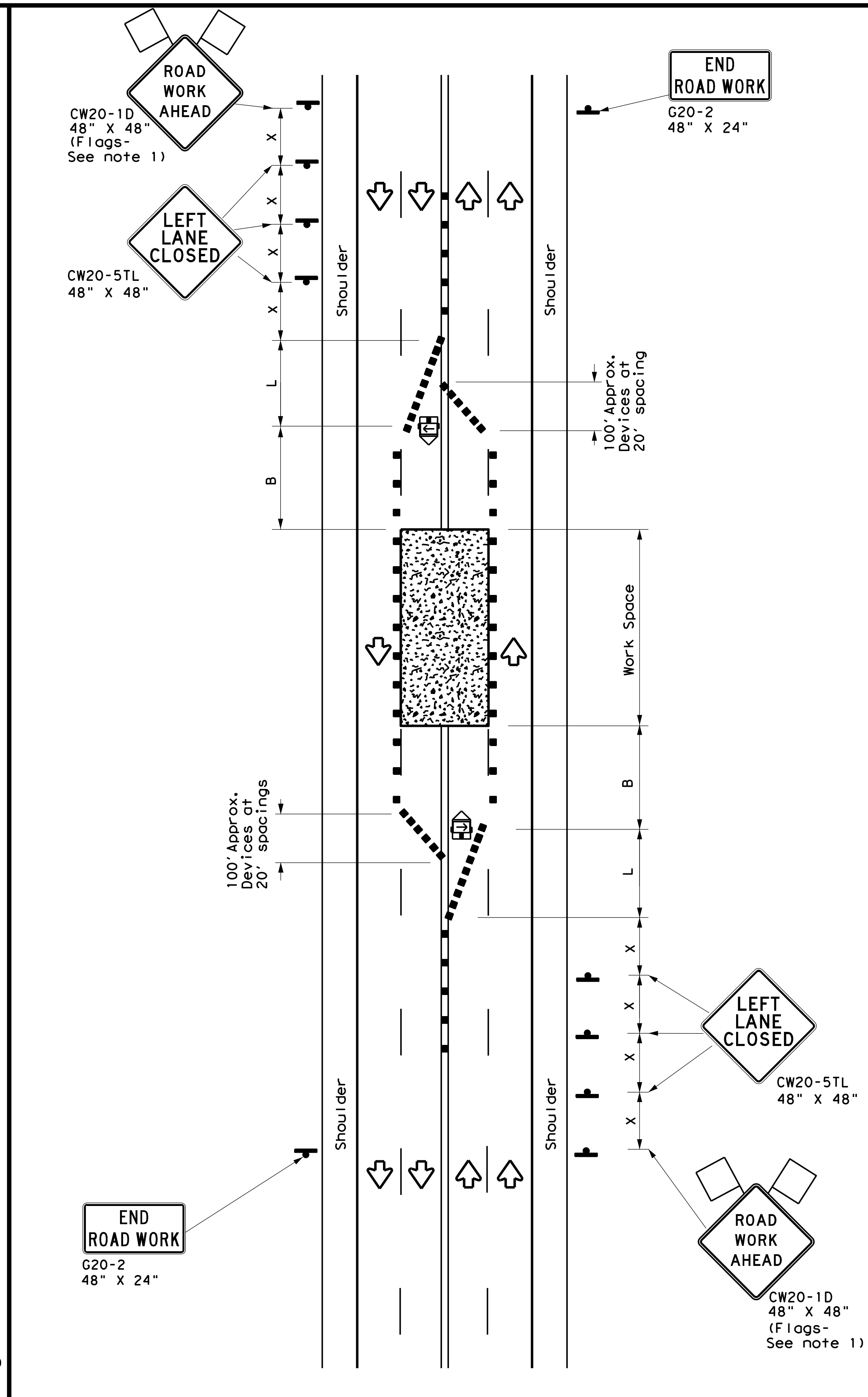
FILE: tcpsc-1-21.dgn	DN:	CK:	DW:	CK:
© TxDOT April 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	26

217



TCP (SC-2a)

ONE LANE CLOSED EACH DIRECTION CONTROL WITH CHANNELIZING DEVICES



TCP (SC-2b)

CENTER LANES CLOSED CONTROL WITH CHANNELIZING DEVICES

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"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

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

TYPICAL USAGE

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. The CW20-1D "ROAD WORK AHEAD" sign may be repeated if the visibility of the work zone is less than 1500 feet.
4. If the seal coat operation crosses intersections, traffic in these areas must be controlled, Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning other member of the traffic control crew at the intersection.
5. Temporary rumble strips are not required on seal coat operations.

TCP (SC-2a)

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

Texas Department of Transportation — Traffic Operations Division Standard

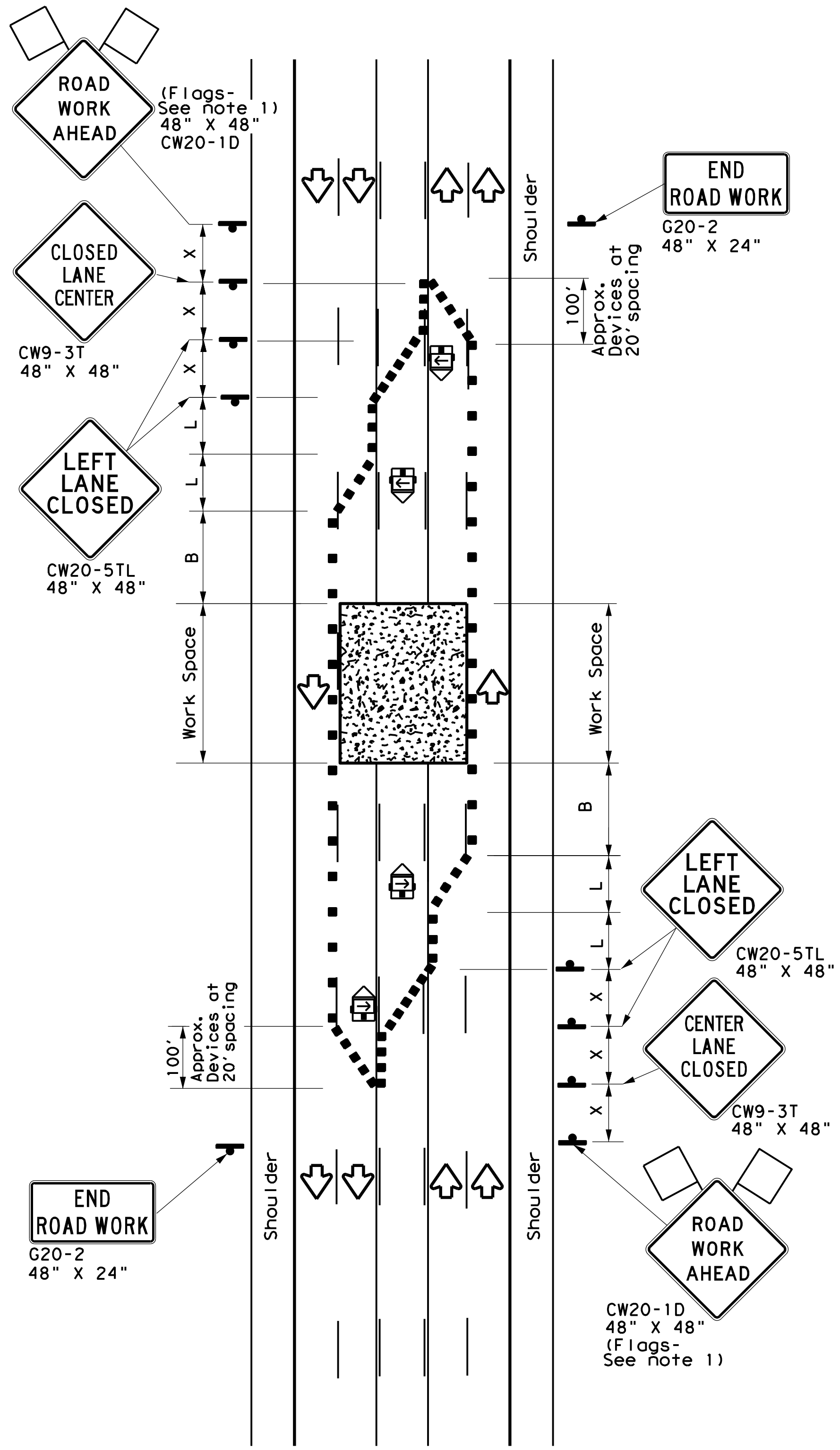
TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(SC-2)-21

FILE: tcpsc-2-21.dgn	DN:	CK:	DW:	CK:
© TxDOT April 2021	CONT 0060	SECT 02	JOB 034	HIGHWAY SH 8
REVISIONS	DIST ATL		COUNTY BOWIE	SHEET NO. 27

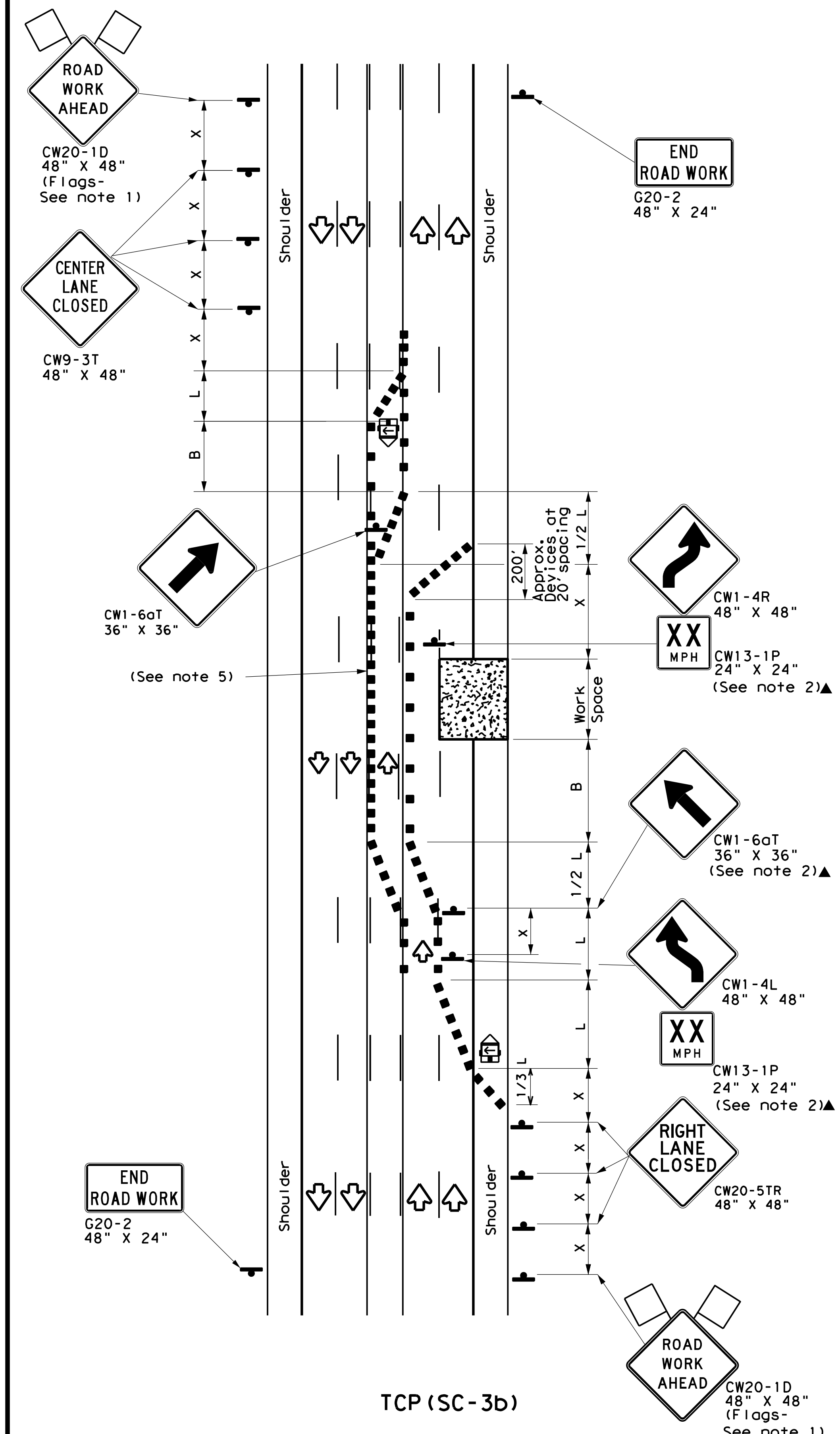
218

DATE: 7/14/2021 4:29:11 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\...



TCP(SC-3a)

CENTER LANES CLOSED
CONTROL WITH CHANNELIZING DEVICES



TCP(SC-3b)

ONE LANES CLOSED
CONTROL WITH CHANNELIZING DEVICES

LEGEND

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

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

* Conventional Roads Only

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

TYPICAL USAGE

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work when approved by the Engineer.
3. If the seal coat operation crosses intersections, traffic in these areas must be controlled. Care must be taken to prevent vehicles from crossing the asphalt before the aggregate is placed. This may require positioning other members of the traffic control crew at the intersection.
4. Temporary rumble strips are not required on seal coat operations.

TCP (SC-3b)

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

Texas Department of Transportation

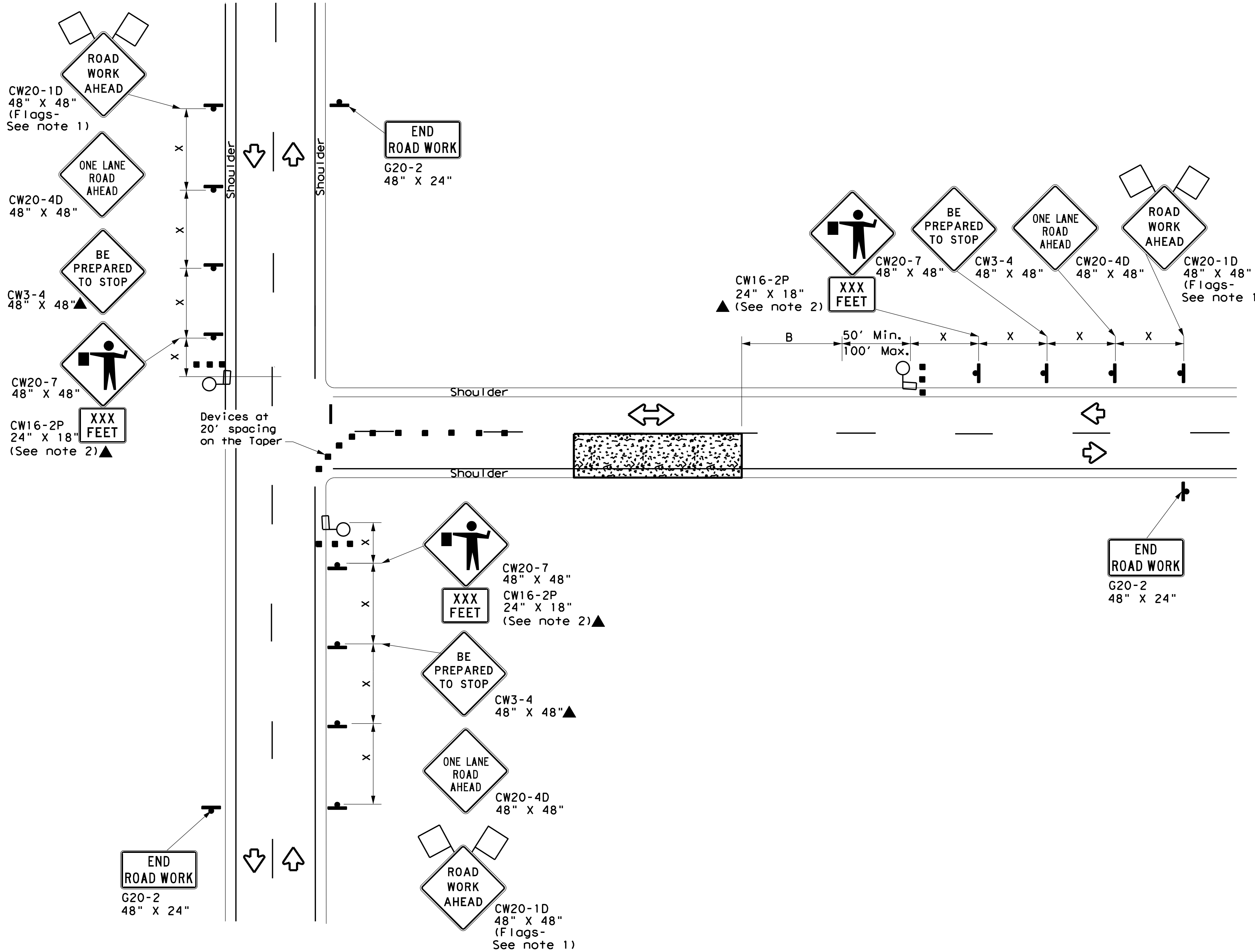
Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS

TCP(SC-3)-21

FILE: tcpsc-3-21.dgn	DN:	CK:	DW:	CK:
© TxDOT April 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	28

DATE: 7/14/2021 4:29:23 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\



ONE LANE TWO-WAY (T-INTERSECTION) CONTROL WITH PILOT VEHICLE

LEGEND

Symbol	Description	Symbol	Description
	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	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only

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

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

GENERAL NOTES

1. Flags attached to signs where shown are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work when approved by the Engineer.
3. The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4D "ONE LANE ROAD AHEAD" sign, but proper sign spacing shall be maintained.
4. Flaggers should use two-way radios or other methods of communication at all times to control traffic.
5. Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.
6. If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain adequate stopping sight distance to the flagger and a queue of stopped vehicles (see table above).
7. Temporary rumble strips are not required on seal coat operations.
8. Pilot car is used to guide vehicles through traffic control zone, vehicle shall have an identification name displayed and "PILOT CAR, FOLLOW ME" (G20-4) sign or message board mounted in a conspicuous position on rear.

Texas Department of Transportation

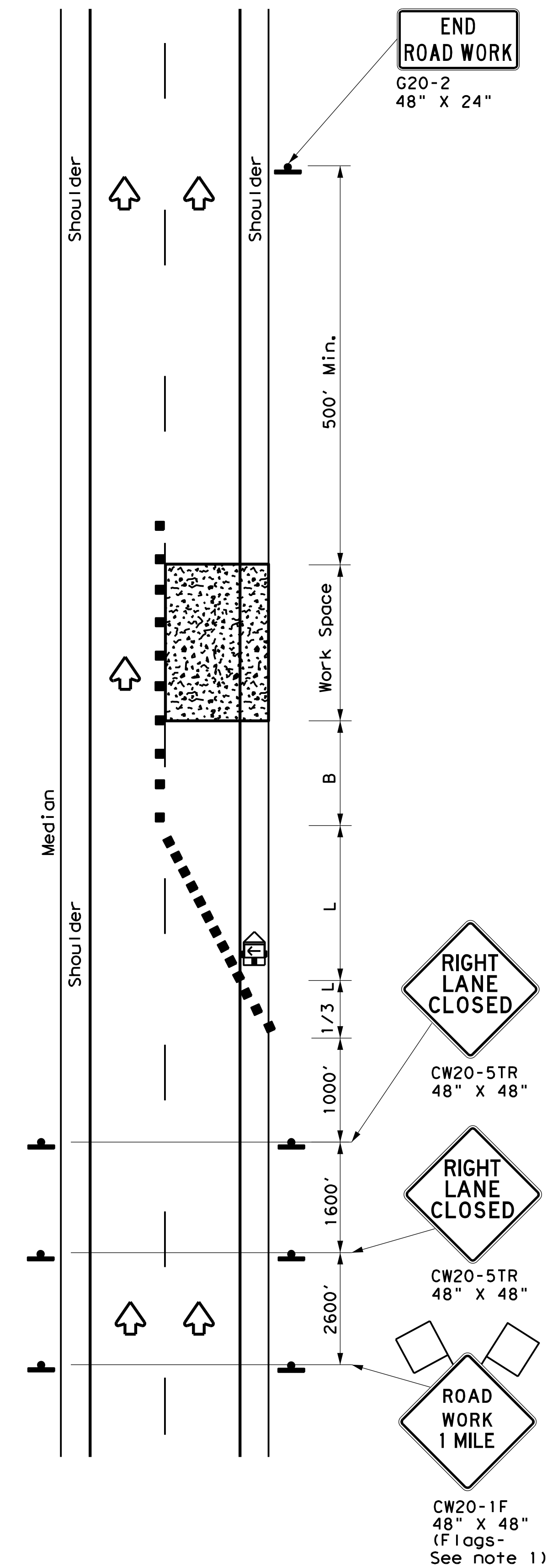
Traffic Safety Division Standard

TRAFFIC CONTROL PLAN SEAL COAT OPERATIONS

TCP(SC-4)-21

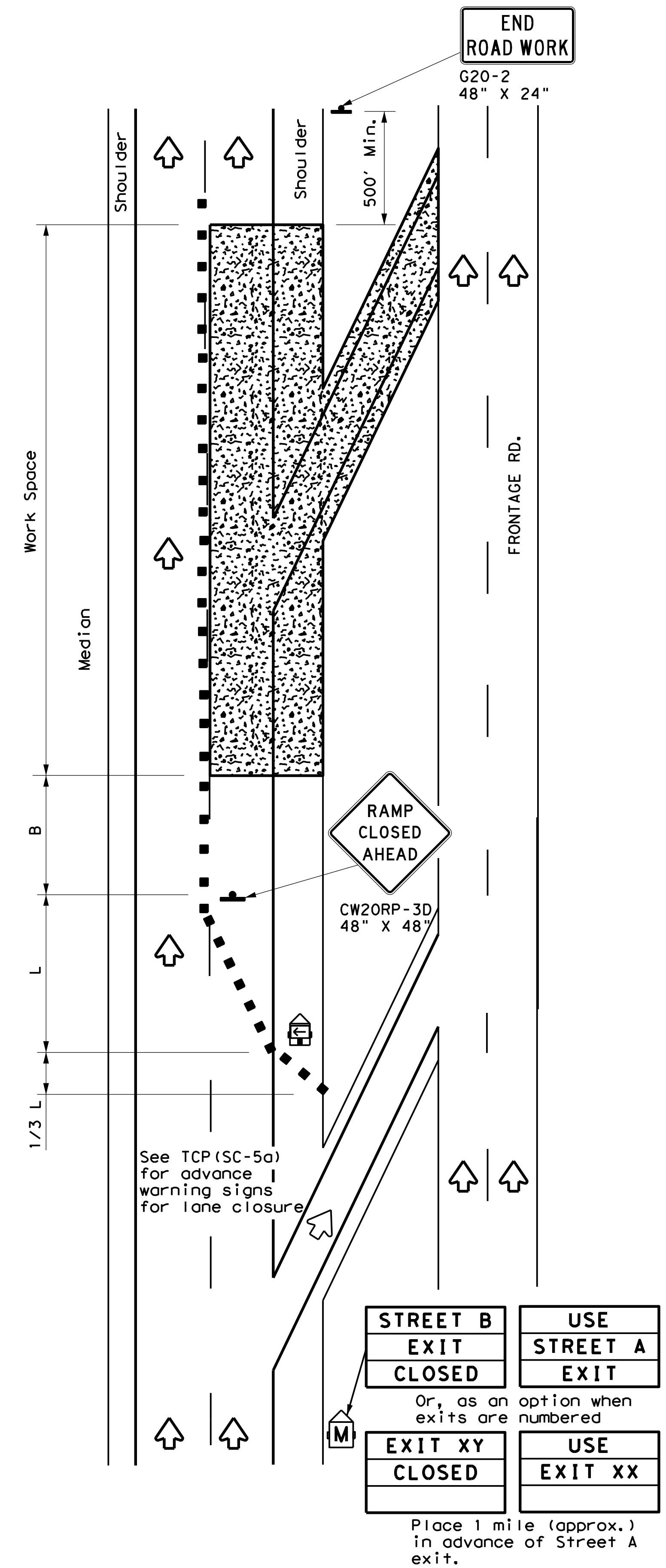
FILE: tcpsc-4-21.dgn	DN:	CK:	DW:	CK:
© TxDOT April 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	29

DATE: 7/14/2021 4:29:29 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060-02-034



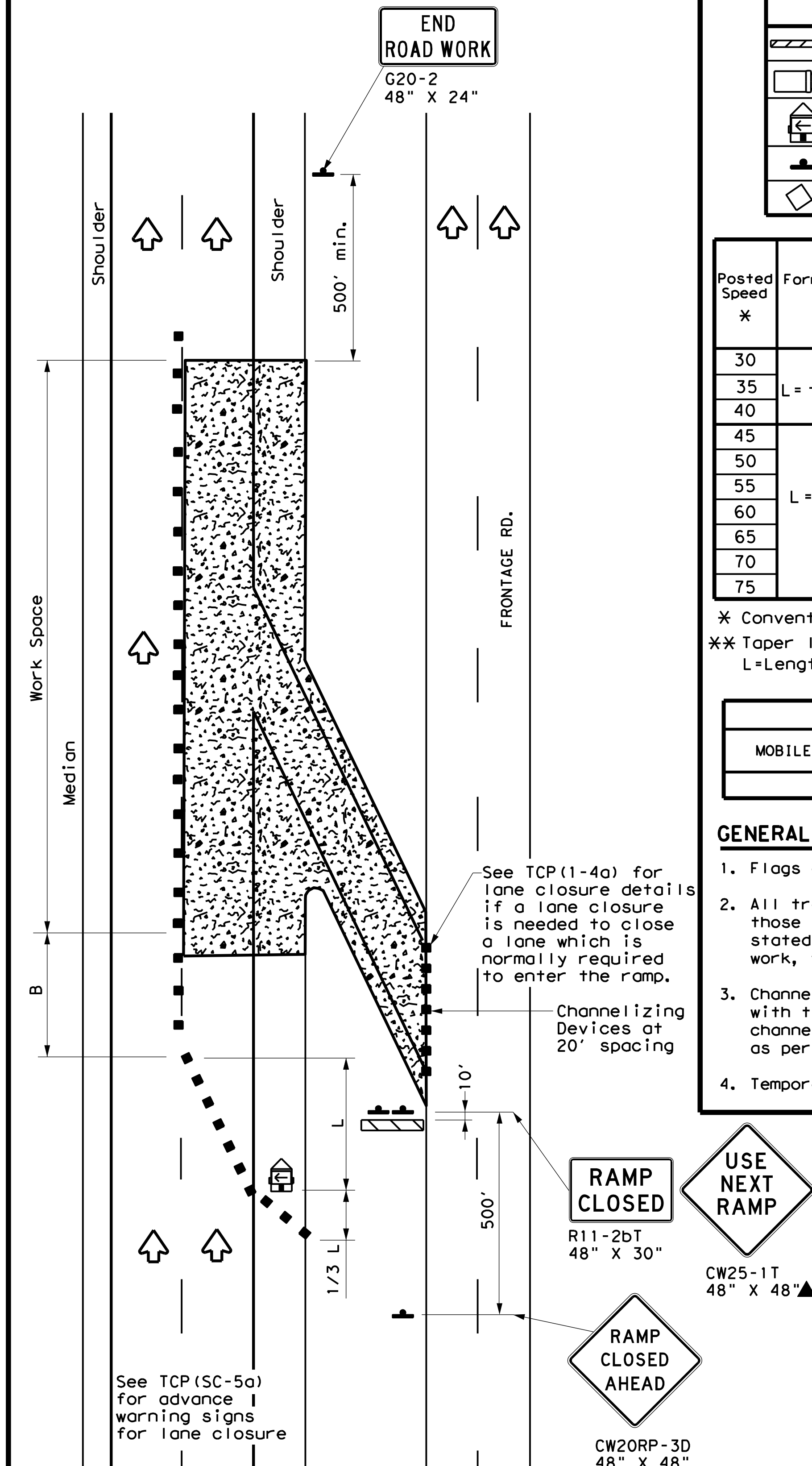
TCP (SC-5a)

ONE LANE CLOSURE



TCP (SC-5b)

LANE AND RAMP CLOSURE AT EXIT RAMPS



TCP (SC-5c)

LANE AND RAMP CLOSURE AT ENTRANCE RAMPS

LEGEND

Symbol	Description	Symbol	Description
	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"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45	L = WS	450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65		650'	715'	780'	65'	130'	700'	410'
70		700'	770'	840'	70'	140'	800'	475'
75		750'	825'	900'	75'	150'	900'	540'

* Conventional Roads Only

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

TYPICAL USAGE

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

GENERAL NOTES

1. Flags attached to signs where shown, are REQUIRED.
2. All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
3. Channelizing devices used to close lanes may be supplemented with the Chevron Alignment Sign placed on every other channelizing device. Chevrons may be attached to plastic drums as per BC Standards.
4. Temporary rumble strips are not required on seal coat operations.

Texas Department of Transportation

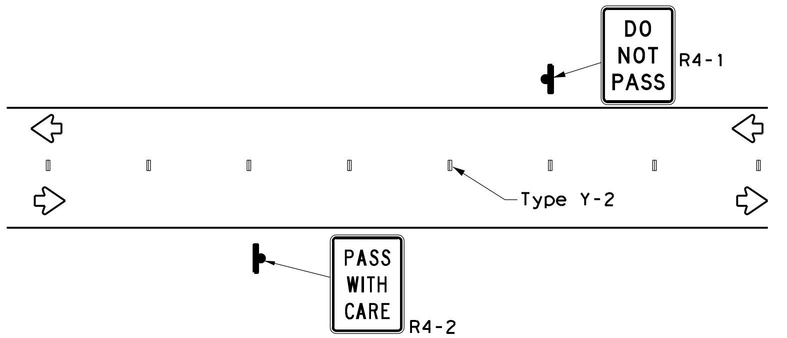
Traffic Safety Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES FOR DIVIDED HIGHWAYS

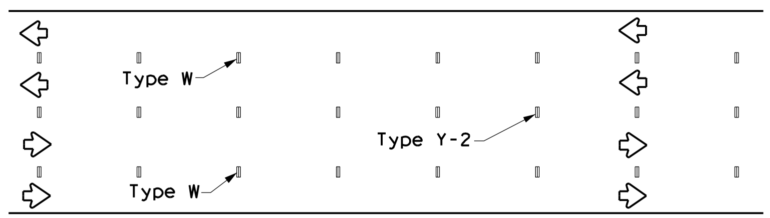
TCP(SC-5)-21

FILE: tcpsc-5-21.dgn	DN:	CK:	DW:	CK:
©TxDOT April 2021	CONT 0060	SECT 02	JOB 034	HIGHWAY SH 8
REVISIONS	DIST ATL		COUNTY BOWIE	SHEET NO. 30

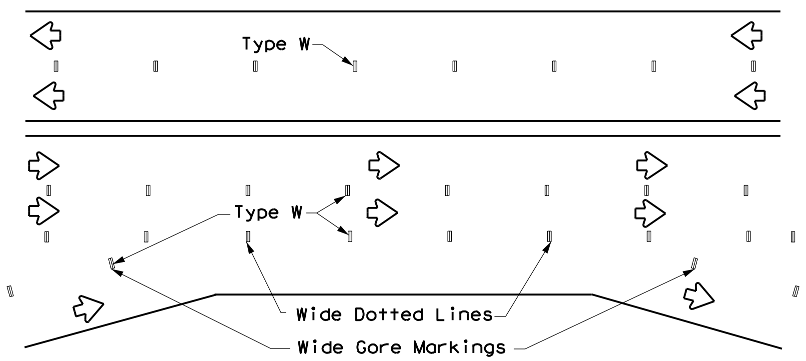
WORK ZONE SHORT TERM PAVEMENT MARKINGS PATTERNS (TABS)



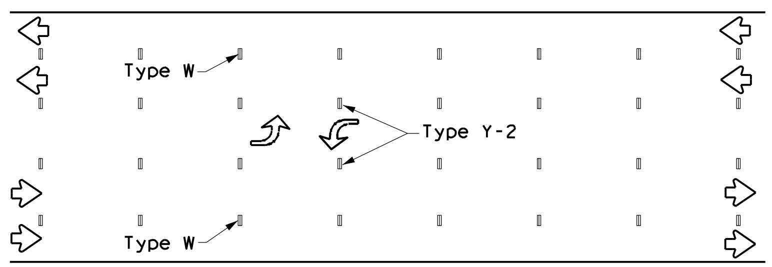
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS

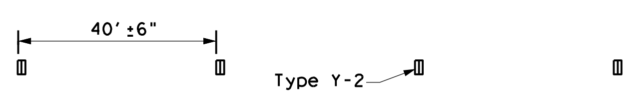


LANE LINES FOR DIVIDED HIGHWAY



TWO-WAY LEFT TURN LANE

WORK ZONE SHORT TERM PAVEMENT MARKINGS DETAILS (TABS)

SOLID LINES	DOUBLE NO-PASSING LINE	
SOLID LINES	SINGLE NO-PASSING LINE or CHANNELIZATION LINE	
BROKEN LINES (FOR CENTER LINE OR LANE LINE)		
WIDE DOTTED LINES (FOR LANE DROP LINES)		
WIDE GORE MARKINGS		

NOTES:

1. Short term pavement markings shall be temporary flexible-reflective roadway marker tabs with protective cover unless otherwise specified elsewhere in plans.
2. Short term pavement markings shall NOT be used to simulate edge lines.
3. 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.
4. 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.
5. 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.
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)

1. 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).
2. Tabs shall meet requirements of Departmental Material Specification DMS-8242.
3. 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.
4. 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.

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

1. DMSs referenced above can be found along with embedded links to their respective MPLs at the following website:

http://www.txdot.gov

7/14/2021
pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\...

SHEET 6 OF 7

Texas Department of Transportation
Traffic Safety Division Standard

WORK ZONE SHORT TERM PAVEMENT MARKINGS FOR SEAL COAT OPERATIONS

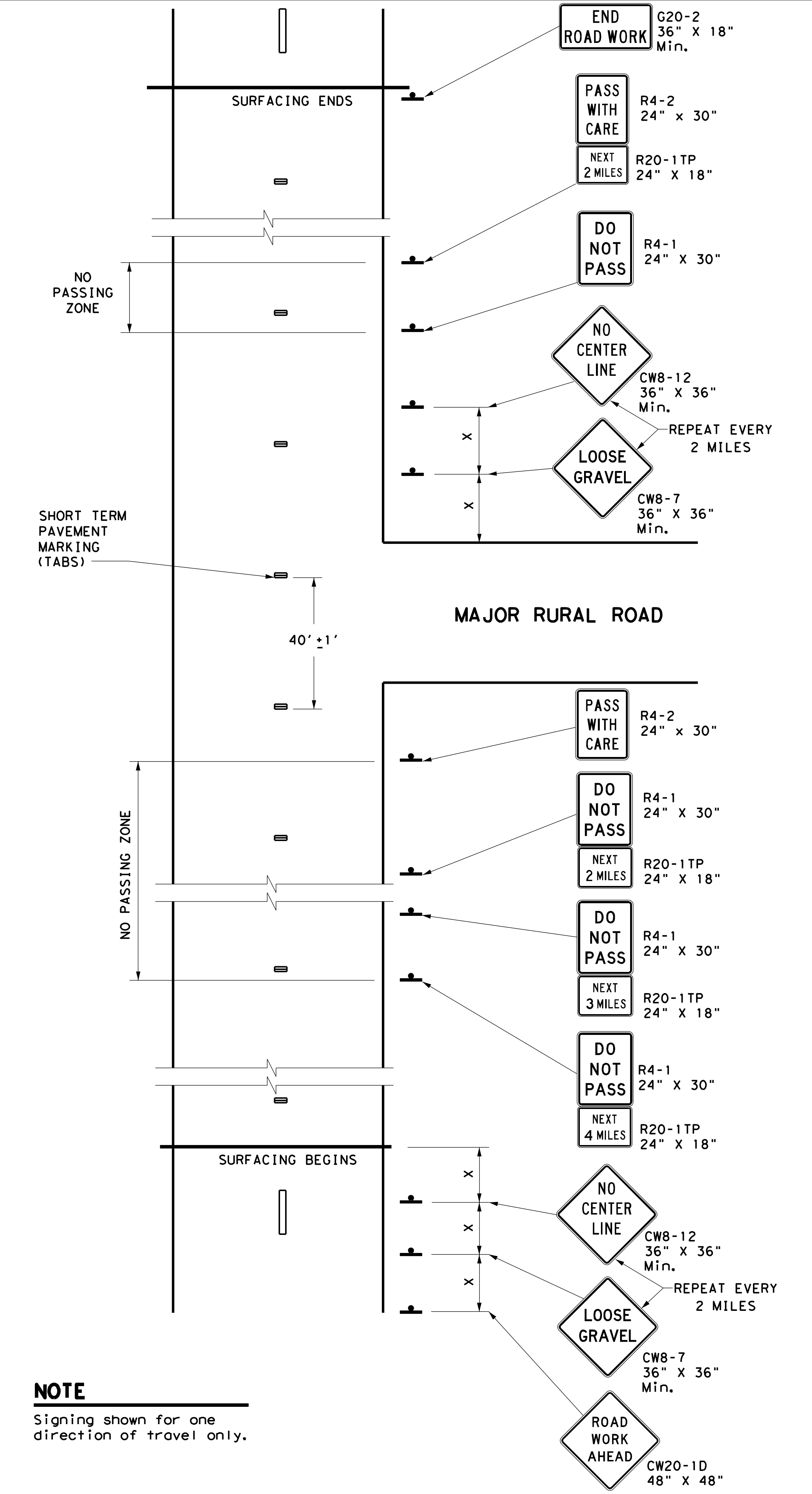
TCP(SC-6)-21

FILE: tcpsc-6-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 2021	CONT 0060	SECT 02	JOB 034	HIGHWAY SH 8
REVISIONS	DIST ATL	COUNTY BOWIE		SHEET NO. 31

222

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

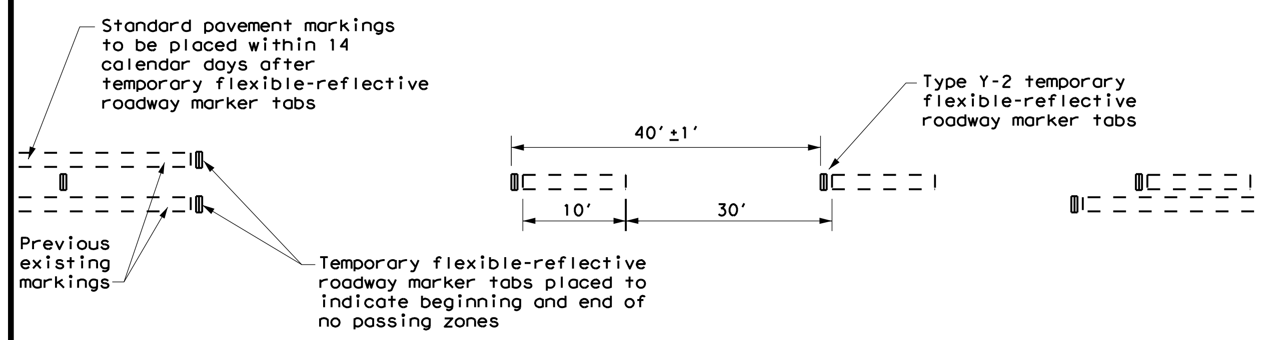
DATE: 7/14/2021 4:29:42 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\006002034\...



NOTE

Signing shown for one direction of travel only.

NO PASSING ZONES ON TWO-LANE TWO-WAY ROADS



TABS ON CENTERLINES OF TWO-LANE TWO-WAY ROADS

For seal coat operations

"DO NOT PASS" SIGN (R4-1) and NO-PASSING ZONES

A. Prior to the beginning of construction, all currently striped no-passing zones shall be signed with the DO NOT PASS (R4-1) signs and PASS WITH CARE (R4-2) signs placed at the beginning and end of each zone for each direction of travel except as otherwise provided herein. Signs marking these individual no-passing zones need not be covered prior to construction if the signs supplement the existing pavement markings.

B. At the discretion of the Engineer, in areas of numerous no-passing zones, several zones may be combined as a single zone. If passing is to be prohibited over one or more lengthy sections, a DO NOT PASS sign and a NEXT XX MILES (R20-1TP) plaque may be used at the beginning of such zones. The DO NOT PASS sign and the NEXT XX MILES plaque should be repeated every mile to the end of the no-passing zone. In areas where there is considerable distance between no-passing zones, the end of the no-passing zone may be signed with a PASS WITH CARE sign and a NEXT XX MILES plaque.

C. Depending on traffic volumes and length of sections, it may be desirable to prohibit passing throughout the project to prevent damage to windshield and lights. The DO NOT PASS sign and NEXT XX MILES plaque should be used and repeated as often as necessary for this purpose. Where several existing zones are to be combined into one individual no-passing zone, the sign at the beginning of the zone should be covered until the surfacing operation has passed this location so as not to have the DO NOT PASS sign conflict with the existing pavement markings. Also, unless one days operation completes the entire length of such combined zones, appropriate DO NOT PASS and PASS WITH CARE signs should be placed at the beginning and end of the no-passing zones where the surfacing operation has stopped for the day.

D. R4-1 and R4-2 are to remain in place until standard pavement markings are installed.

"NO CENTER LINE" SIGN (CW8-12)

A. Center line markings are yellow pavement markings that delineate the separation of travel lanes that have opposite directions of travel on a roadway. Divided highways do not typically have center line markings.

B. At the time construction activity obliterates the existing center line markings(low volume roads may not have an existing centerline), a NO CENTER LINE (CW8-12) sign should be erected at the beginning of the work area, at approximately 2 mile intervals within the work area, beyond major intersections and other locations deemed necessary by the Engineer.

C. The NO CENTER LINE signs are to remain in place until standard pavement markings are installed.

"LOOSE GRAVEL" SIGN (CW8-7)

A. When construction begins, a LOOSE GRAVEL (CW8-7) sign should be erected at each end of the work area and repeated at intervals of approximately 2 miles in rural areas and closer in urban areas.

B. The LOOSE GRAVEL signs are to remain in place until the condition no longer exists.

PAVEMENT MARKINGS

A. Temporary markings for surfacing projects shall be Temporary Flexible-reflective Roadway Marker Tabs unless otherwise approved by the Engineer. Tabs are to be installed to provide true alignment for striping crews or as directed by the Engineer. Tabs will be placed at the spacing indicated. Tabs should be applied to the pavement
no more than two (2) days before the surfacing is applied. After the surfacing is rolled and swept, the cover over the reflective strip shall be removed.

B. Tabs shall not be used to simulate edge lines.

COORDINATION OF SIGN LOCATIONS

A. The location of warning signs at the beginning and end of a work area are to be coordinated with other signing typically shown on the Barricade and Construction Standards for project limits to ensure adequate sign spacing.

B. Where possible the ROAD WORK AHEAD (CW20-1D), LOOSE GRAVEL (CW8-7), and NO CENTER LINE (CW8-12) signs should be placed in the sequence shown following the OBEY WARNING SIGNS STATE LAW (R20-3T) and the TRAFFIC FINES DOUBLE (R20-5T) sign, and one "X" sign spacing prior to the CONTRACTOR (G20-6T)sign typically located at or near the limits of surfacing. LOOSE GRAVEL and NO CENTER LINE signs will then be repeated as described above.

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

* Conventional Roads Only

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

GENERAL NOTES

1. The traffic control devices detailed on this sheet will be furnished and erected as directed by the Engineer on sections of roadway where tabs must be placed prior to the surfacing operation which will cover or obliterate the existing pavement markings.

2. The devices shown on this sheet are to be used to supplement those required by the BC Standards or others required elsewhere in the plans.

3. Signs shall be erected as detailed on the BC Standards or the Compliant Work Zone Traffic Control Devices List (CWZTCD) on supports approved for Short Duration / Short Term Stantionary Work Zone Sign Supports.

4. When surfacing operations take place on divided highways, freeways or expressways, the size of diamond shaped construction warning signs shall be 48" x 48".

5. Signs on divided highways, freeways and expressways will be placed on both right and left sides of the roadway based on roadway conditions as directed by the Engineer.

SHEET 7 OF 7

Texas Department of Transportation

Traffic Safety Division Standard

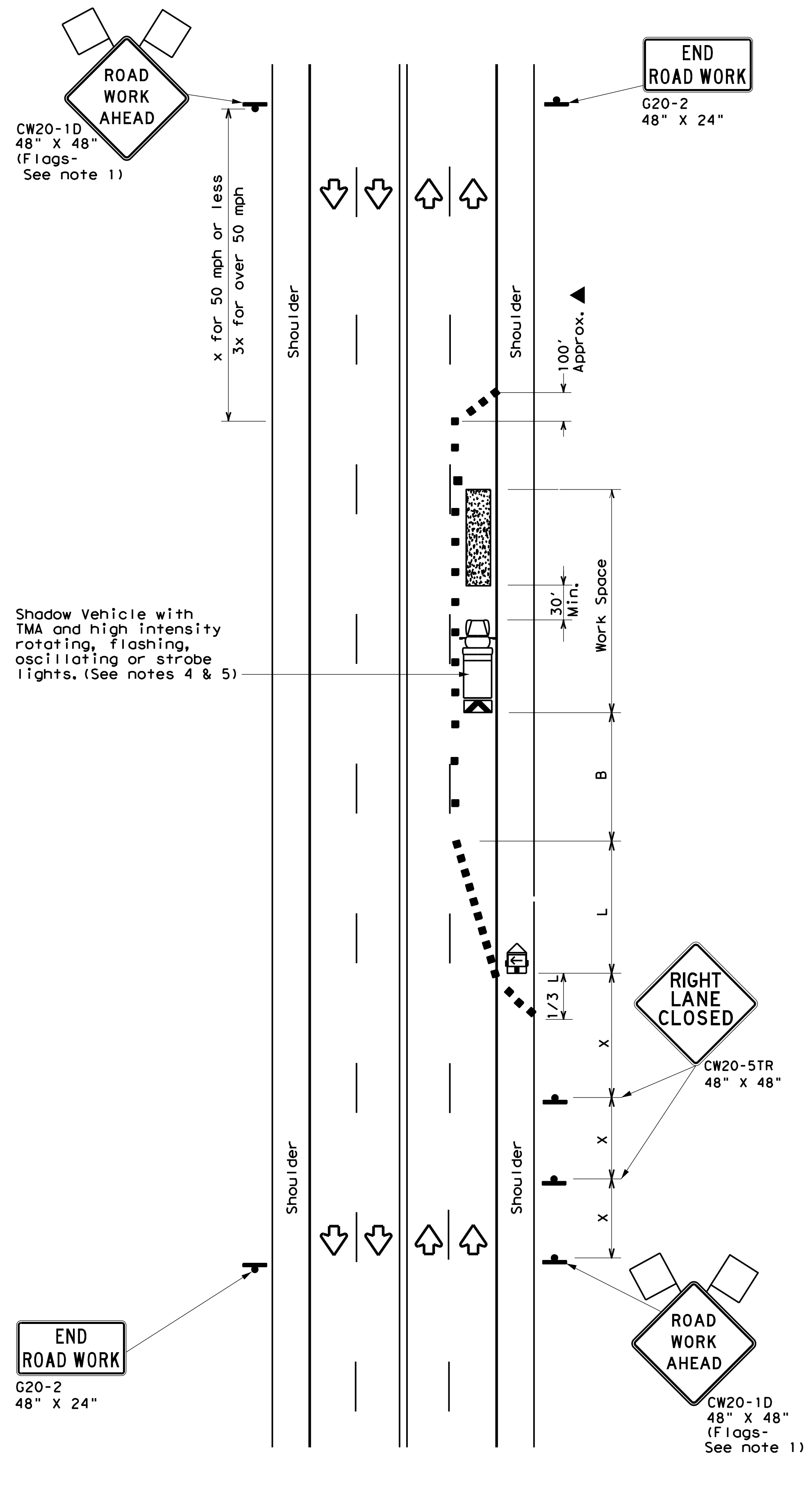
TRAFFIC CONTROL DETAILS FOR SEAL COAT OPERATIONS

TCP(SC-7)-21

FILE: tcpsc-7-21.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT April 2021	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	32

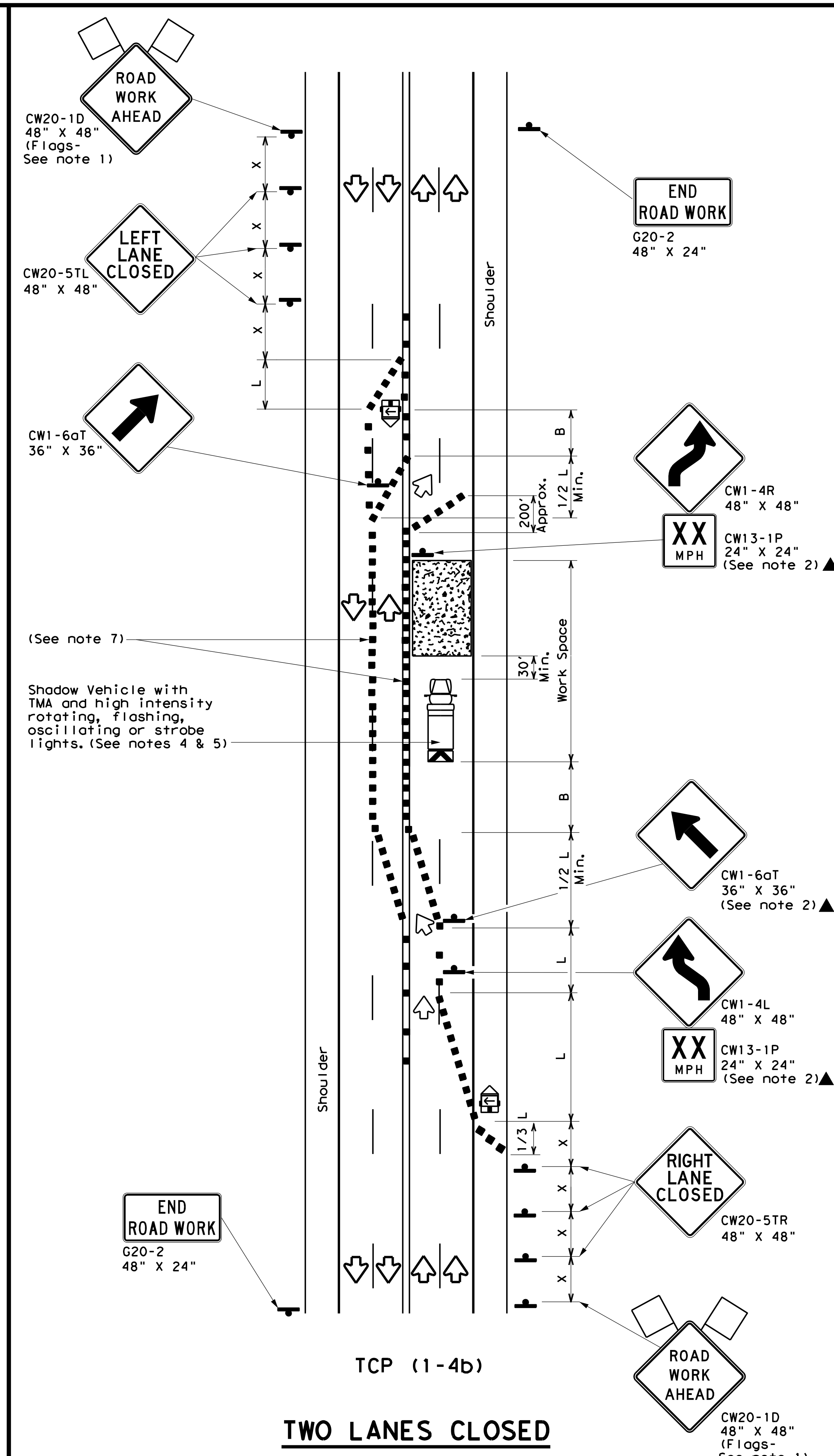
223

DATE: 7/14/2021 4:29:49 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\...



TCP (1-4a)

ONE LANE CLOSED



TCP (1-4b)

TWO LANES CLOSED

LEGEND

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

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

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

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

GENERAL NOTES

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

TCP (1-4a)

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

TCP (1-4b)

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

Texas Department of Transportation

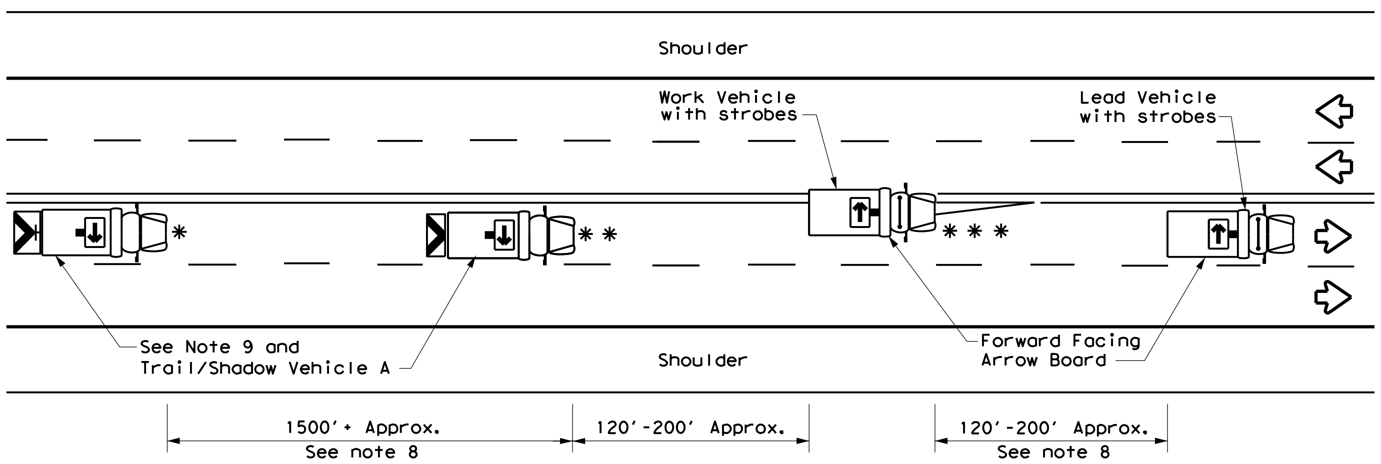
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN LANE CLOSURES ON MULTILANE CONVENTIONAL ROADS

TCP(1-4)-18

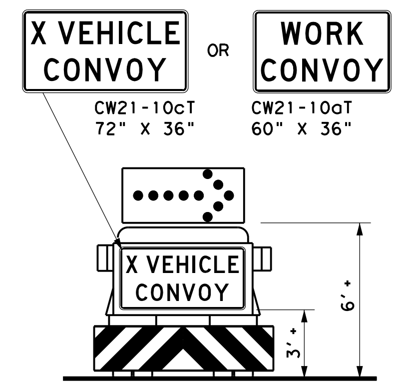
FILE: tcp1-4-18.dgn	DN:	CK:	DW:	CK:
© TxDOT December 1985	CONT 0060	SECT 02	JOB 034	HIGHWAY SH 8
REVISIONS 2-94 4-98 8-95 2-12 1-97 2-18	DIST ATL		COUNTY BOWIE	SHEET NO. 33

154



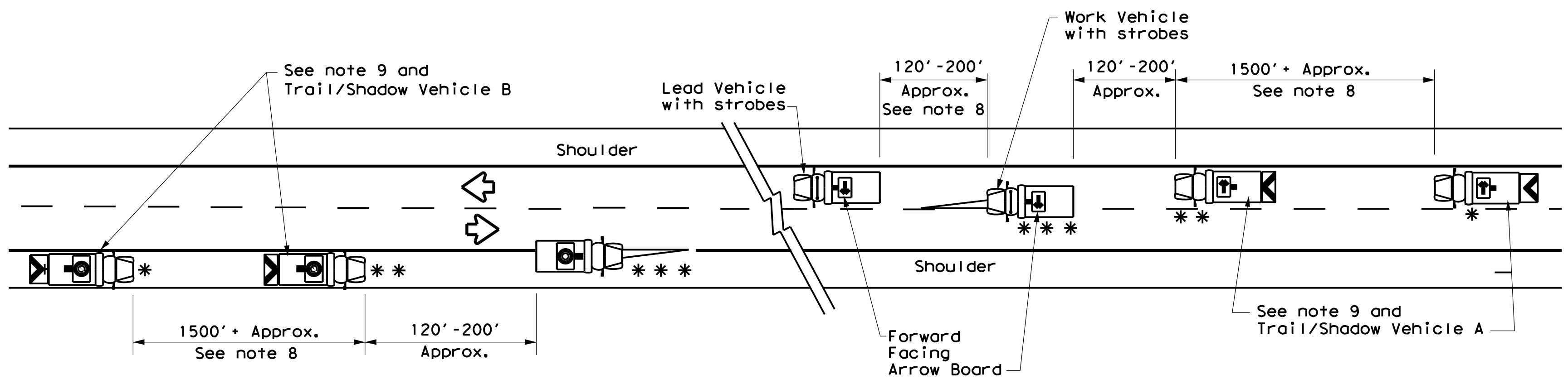
TCP (3-1a)

UNDIVIDED MULTILANE ROADWAY



TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

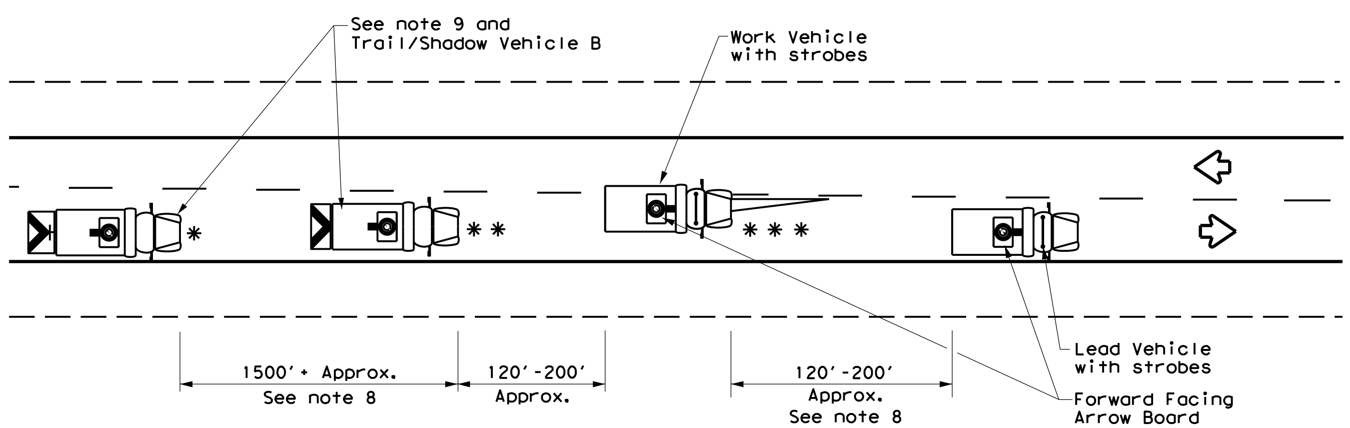


WORK ON SHOULDER

WORK ON TRAVEL LANE

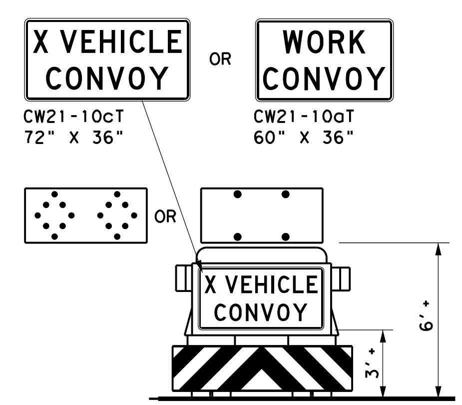
TCP (3-1b)

TWO-WAY ROADWAY WITH PAVED SHOULDERS



TCP (3-1c)

TWO-WAY ROADWAY WITHOUT PAVED SHOULDERS



TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in CAUTION display

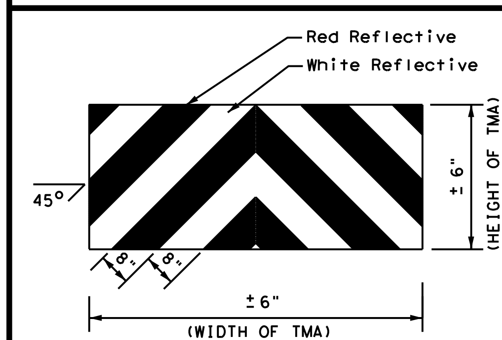
LEGEND

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

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

GENERAL NOTES

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



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

TRAFFIC CONTROL PLAN MOBILE OPERATIONS UNDIVIDED HIGHWAYS

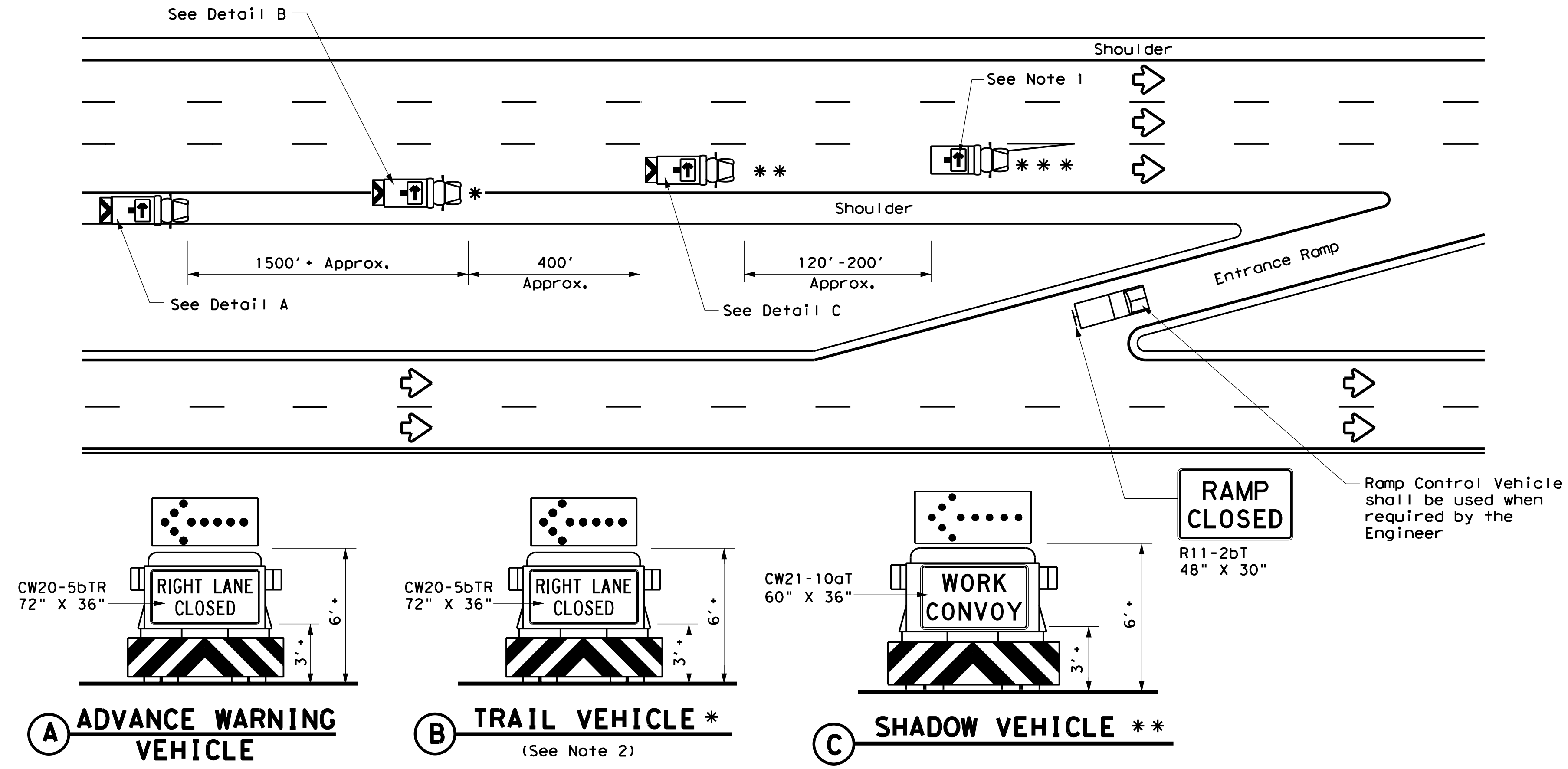
TCP(3-1)-13

FILE: tcp3-1.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
© TxDOT December 1985	CONT	SECT	JOB	HIGHWAY
REVISIONS 2-94 4-98 8-95 7-13 1-97	0060	02	034	SH 8
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	34

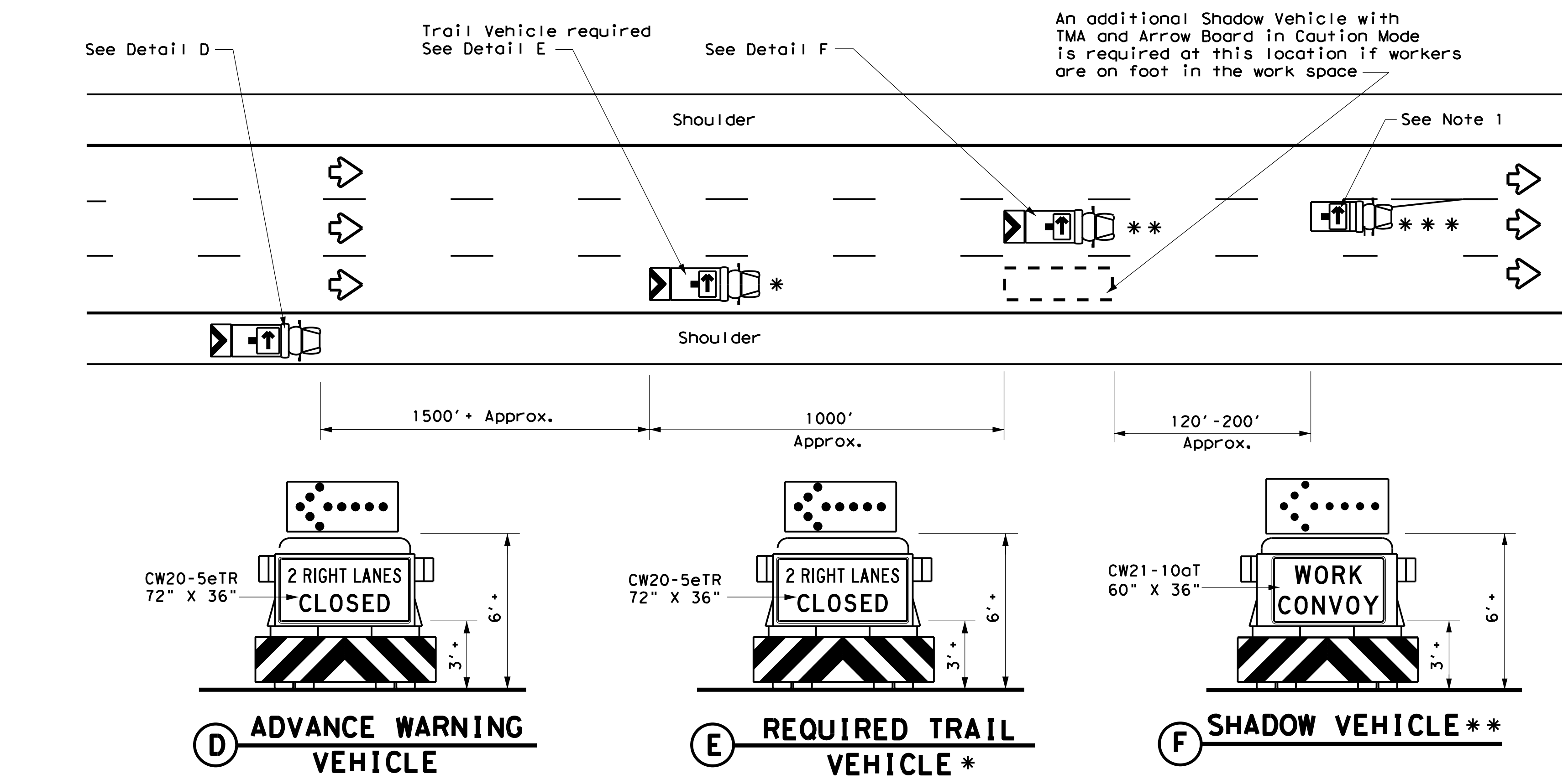
175

DATE: 7/14/2021 4:29:57 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\

DATE: 7/14/2021 4:30:04 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\...



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



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

LEGEND

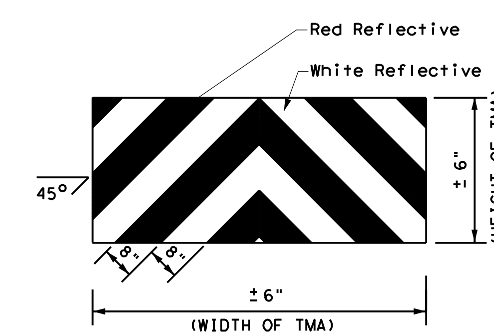
Symbol	Description	Arrow Board Display	
*	Trail Vehicle	ARROW BOARD DISPLAY	
**	Shadow Vehicle		
***	Work Vehicle		RIGHT Directional
	Heavy Work Vehicle		LEFT Directional
	Truck Mounted Attenuator (TMA)		Double Arrow
	Traffic Flow		CAUTION (Alternating Diamond or 4 Corner Flash)

TYPICAL USAGE

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

GENERAL NOTES

1. 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.
2. 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.
3. 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.
4. The use of truck mounted attenuators (TMA) on the ADVANCE WARNING, SHADOW, and TRAIL vehicles are required.
5. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DMS 8300, Type A.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the work convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE may vary according to terrain, work activity and other factors.
9. Standard 48" X 48" diamond shaped warning signs with the same message as those shown may be used where adequate mounting space exists.
10. 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.
11. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
12. 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.
13. Signs and flashing arrow board modes shall be appropriately altered when implementing left lane closures or interior closures which close the left lanes.
14. The Advance Warning Vehicle may straddle the edgeline when shoulder width makes it necessary.



STRIPING FOR TMA

Texas Department of Transportation

Traffic Operations Division Standard

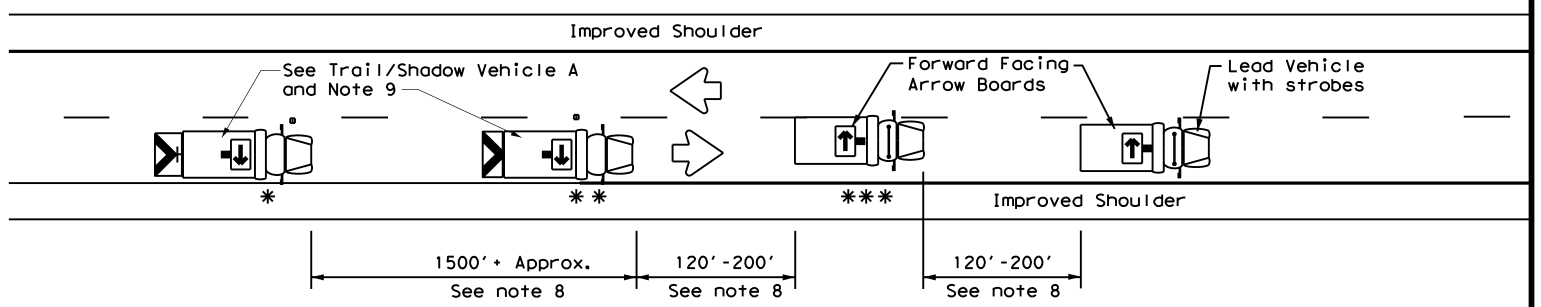
TRAFFIC CONTROL PLAN MOBILE OPERATIONS DIVIDED HIGHWAYS

TCP(3-2)-13

FILE: tcp3-2.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT December 1985	CONT 0060	SECT 02	JOB 034	HIGHWAY SH 8
REVISIONS 2-94 4-98 8-95 7-13 1-97	DIST ATL		COUNTY BOWIE	SHEET NO. 35

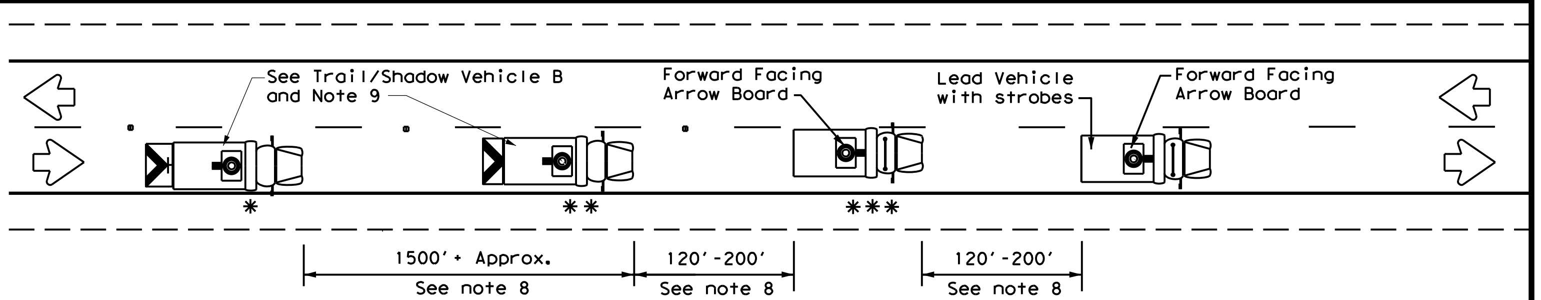
176

DATE: 7/14/2021 4:30:10 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\



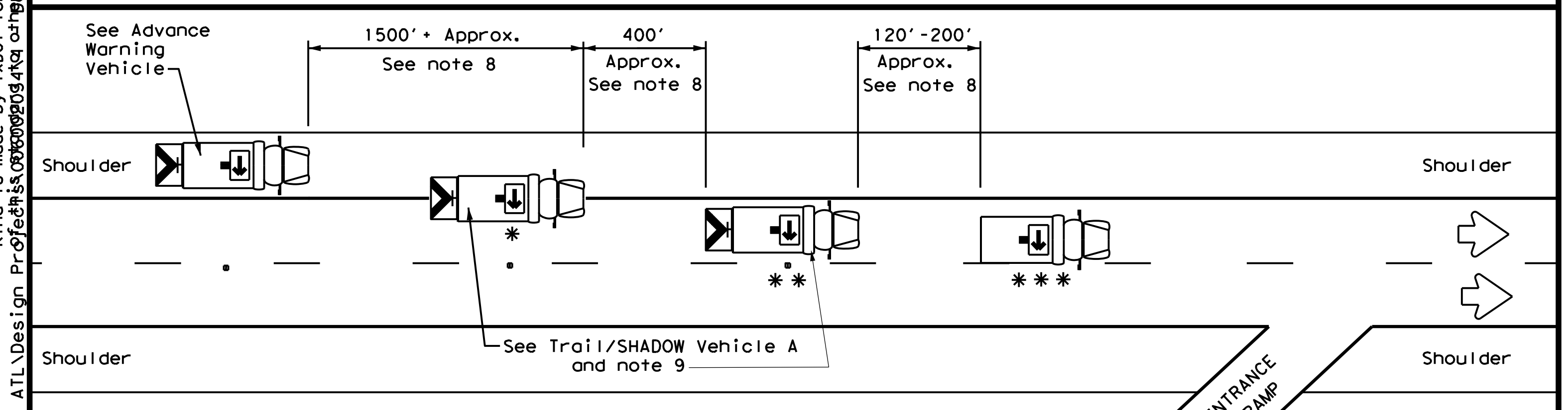
TCP (3-3a)

TWO LANE HIGHWAY WITH PAVED SHOULDERS
(WORK ON TRAVEL LANE)



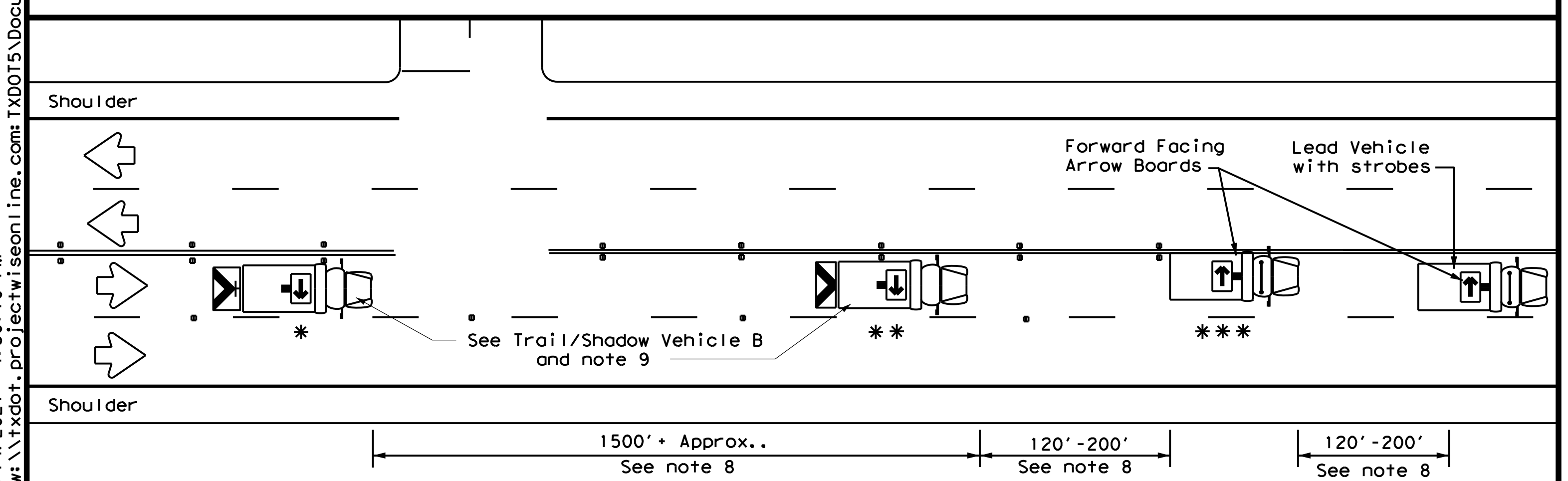
TCP (3-3b)

TWO LANE HIGHWAY WITHOUT PAVED SHOULDERS
(WORK ON TRAVEL LANE)



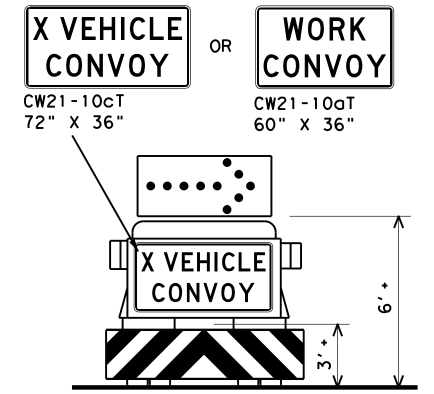
TCP (3-3c)

DIVIDED MULTILANE HIGHWAY



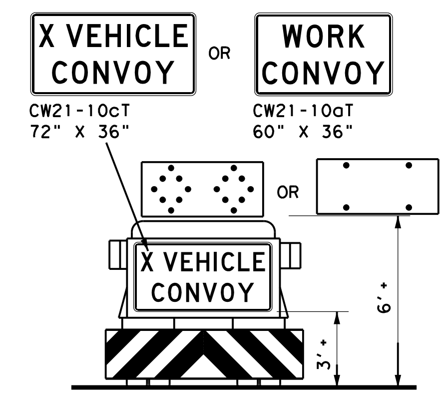
TCP (3-3d)

UNDIVIDED MULTILANE HIGHWAY



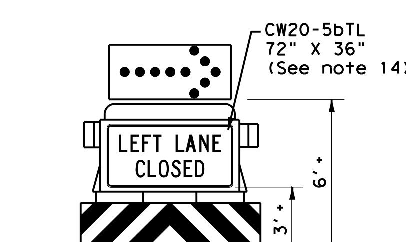
TRAIL/SHADOW VEHICLE A

with RIGHT Directional display Flashing Arrow Board

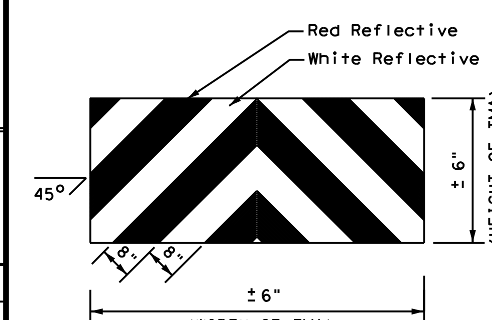


TRAIL/SHADOW VEHICLE B

with Flashing Arrow Board in Caution Mode



ADVANCE WARNING VEHICLE



STRIPING FOR TMA

LEGEND

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

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

GENERAL NOTES

1. TRAIL, SHADOW, and LEAD vehicles shall be equipped with arrow boards as illustrated. When a LEAD vehicle is not used 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.
2. The use of amber high intensity rotating, flashing, oscillating, or strobe lights on vehicles are required. Blue high intensity rotating, flashing, oscillating, or strobe lights when mounted on the driver's side of the vehicle may be operated simultaneously with the amber beacons or strobe lights.
3. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE, ADVANCE WARNING and TRAIL VEHICLE are required.
4. Reflective sheeting on the rear of the TMA shall meet or exceed the reflectivity and color requirements of DEPARTMENTAL MATERIAL SPECIFICATION DMS 8300, Type A.
5. Flashing arrow boards shall be Type B or Type C as per the Barricade and Construction (BC) standards. The board shall be controlled from inside the vehicle.
6. Each vehicle shall have two-way radio communication capability.
7. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
8. Vehicle spacing between the TRAIL VEHICLE and the SHADOW VEHICLE will vary depending on sight distance restrictions. Motorists approaching the convoy should be able to see the TRAIL VEHICLE in time to slow down and/or change lanes as they approach the TRAIL VEHICLE. Vehicle spacing between the WORK VEHICLE and SHADOW VEHICLE and vehicle spacing between WORK VEHICLE and LEAD VEHICLE may vary according to terrain, work activity and other factors.
9. X VEHICLE CONVOY (CW21-10cT) or WORK CONVOY (CW21-10aT) signs shall be used on TRAIL VEHICLES and SHADOW VEHICLES as shown. As an option 48" x 48" diamond shaped WORK CONVOY (CW21-10T) or X VEHICLE CONVOY (CW21-10bT) signs may be used where adequate mounting space exists. When used, the X VEHICLE CONVOY sign shall have the number of the convoy vehicles displayed on the sign in the number designation "X" location. The X VEHICLE CONVOY sign shall not be used on the SHADOW VEHICLE if a TRAIL VEHICLE is used.
10. 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 (CW20-5dT) 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.
11. A double arrow shall not be displayed on the arrow board on the Advance Warning Vehicle.
12. For divided highways with three or four lanes in each direction, use TCP(3-2).
13. Standard diamond shape versions of the CW20-5 series signs may be used as an option if the rectangular signs shown are not available.
14. The Advance Warning Vehicle may straddle the edgeline when Shoulder width makes it necessary.
15. 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.

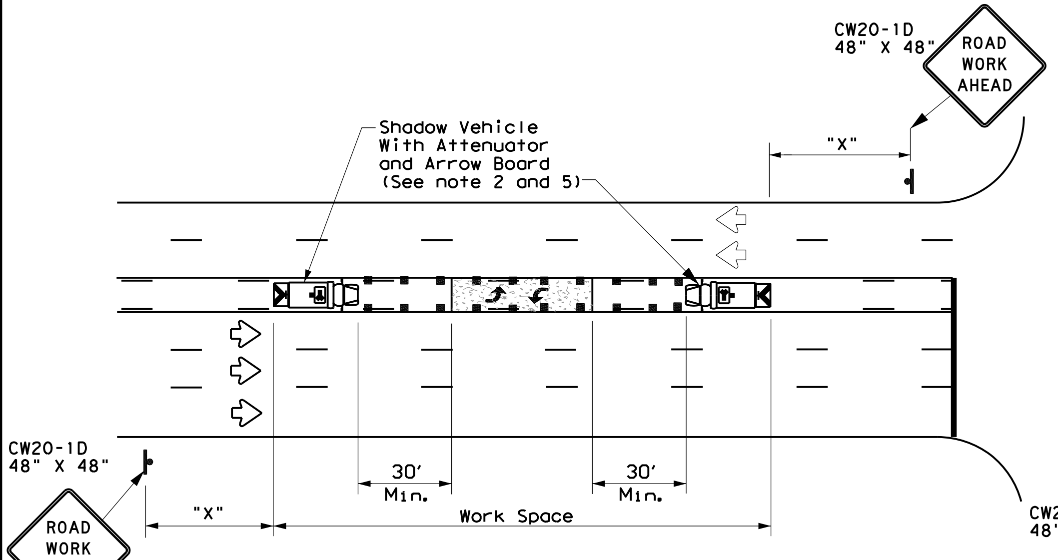
Texas Department of Transportation

Traffic Operations Division Standard

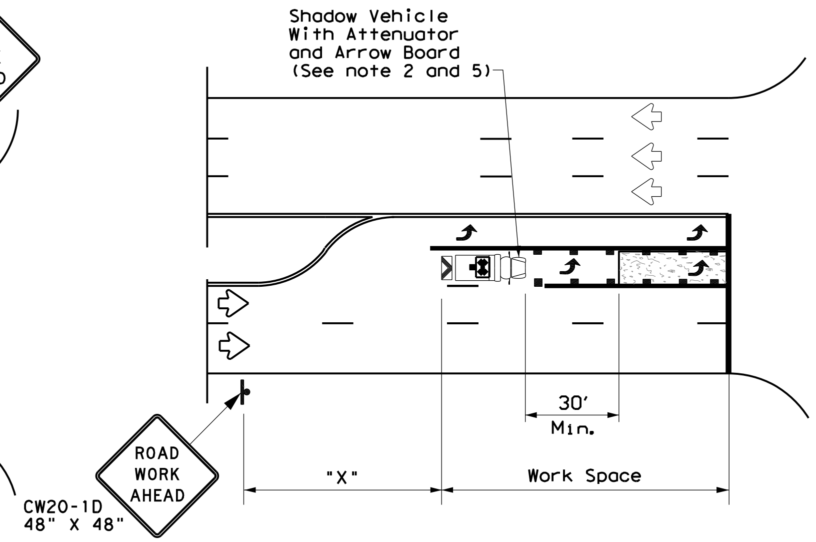
TRAFFIC CONTROL PLAN MOBILE OPERATIONS RAISED PAVEMENT MARKER INSTALLATION/ REMOVAL

TCP(3-3)-14

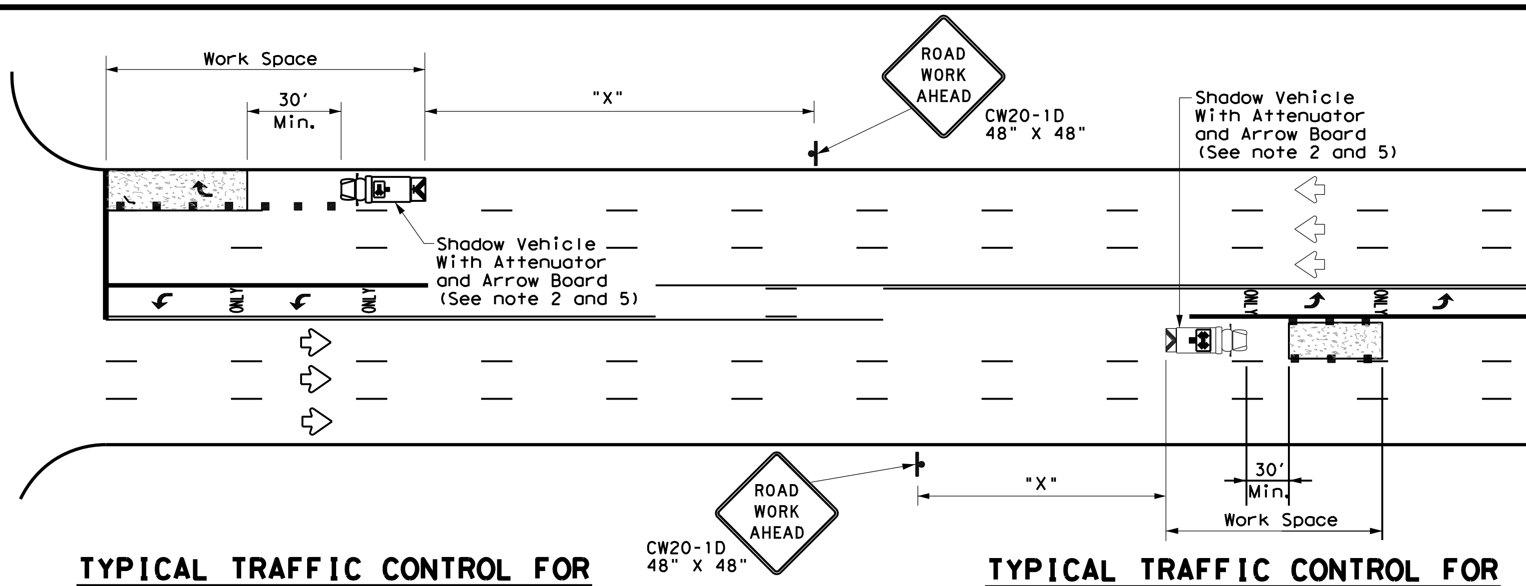
FILE: tcp3-3.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT		CK: TxDOT
© TxDOT September 1987	CONT	SECT	JOB		HIGHWAY
REVISIONS	0060	02	034		SH 8
2-94 4-98	DIST		COUNTY		SHEET NO.
8-95 7-13 1-97 7-14	ATL		BOWIE		36



TYPICAL TRAFFIC CONTROL FOR
CONTINUOUS LEFT TURN LANE SYMBOL MARKINGS

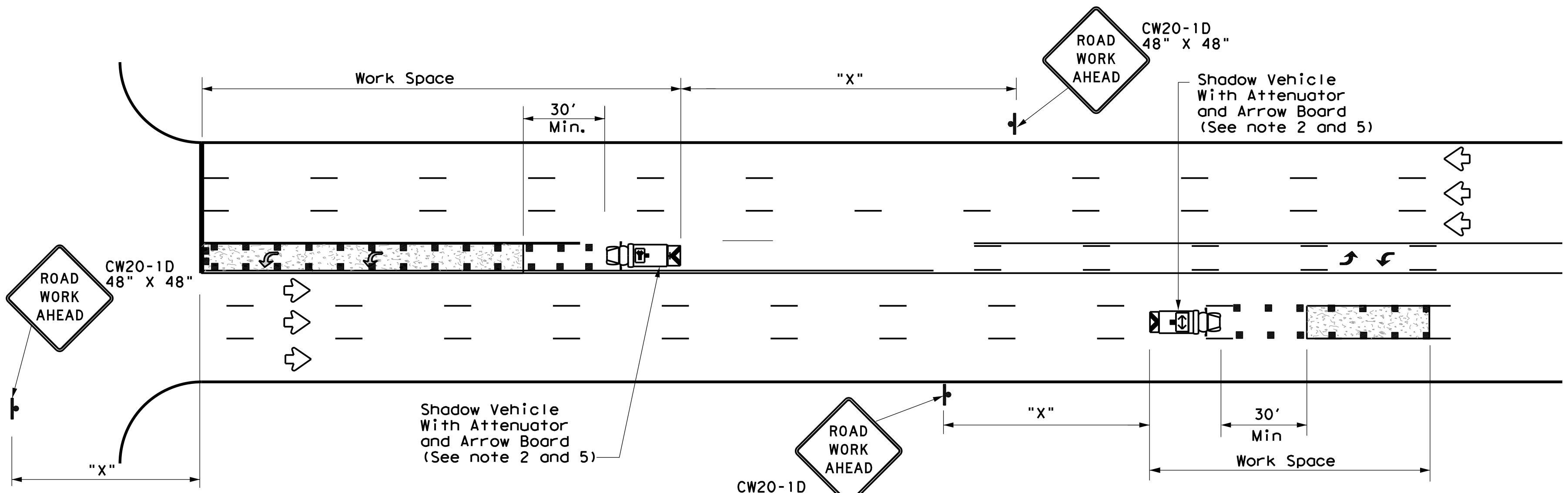


TYPICAL TRAFFIC CONTROL FOR
OUTSIDE DUAL LEFT TURN LANE SYMBOL MARKINGS



TYPICAL TRAFFIC CONTROL FOR
OUTSIDE LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
INSIDE LANE MARKINGS



TYPICAL TRAFFIC CONTROL FOR
LEFT TURN LANE MARKINGS

TYPICAL TRAFFIC CONTROL FOR
CENTER LANE MARKINGS

LEGEND

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

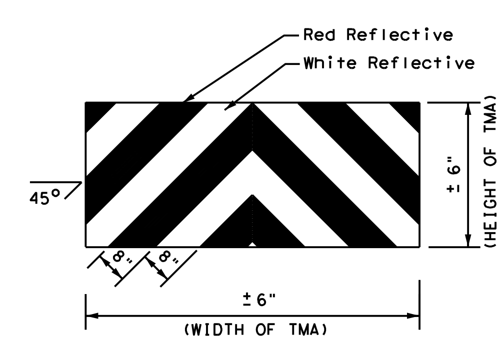
Posted Speed *	Formula	Minimum Desirable Taper Lengths ** 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing of Channelizing Devices On a Taper	On a Tangent	Minimum Sign Spacing "X" Distance	Suggested Longitudinal Buffer Space "B"
30	$L=\frac{WS^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'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

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

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

GENERAL NOTES

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



STRIPING FOR TMA

Texas Department of Transportation
Traffic Operations Division Standard

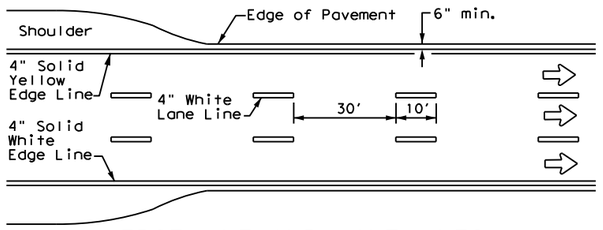
TRAFFIC CONTROL PLAN MOBILE OPERATIONS FOR ISOLATED WORK AREAS UNDIVIDED HIGHWAYS

TCP(3-4)-13

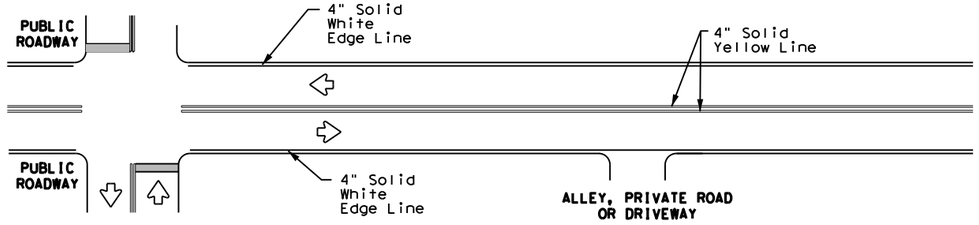
FILE: tcp3-4.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT July, 2013	CONT	SECT	JOB	HIGHWAY
REVISIONS	0060	02	034	SH 8
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	37

178

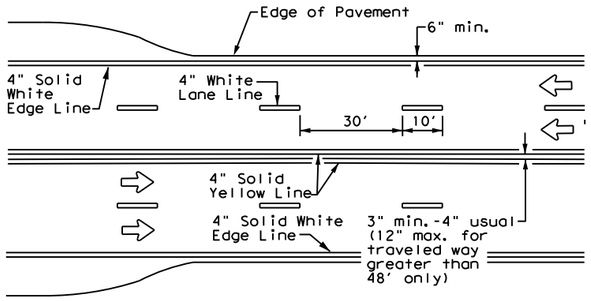
DATE: 7/14/2021 4:30:22 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060-02-034 STANDARDS\pm1-20.dgn



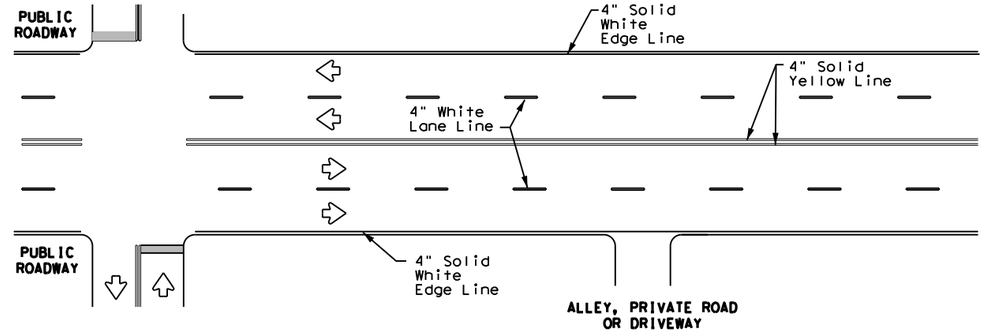
EDGE LINE AND LANE LINES ONE-WAY ROADWAY WITH OR WITHOUT SHOULDERS



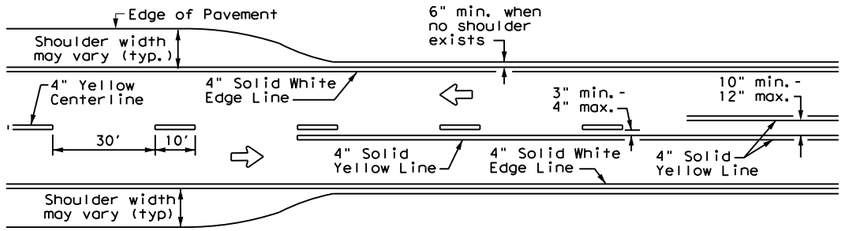
TYPICAL TWO-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



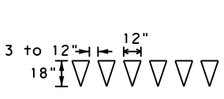
CENTERLINE AND LANE LINES FOUR LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS



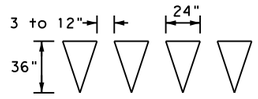
TYPICAL MULTI-LANE, TWO-WAY PAVEMENT MARKINGS THROUGH INTERSECTIONS



TWO LANE TWO-WAY ROADWAY WITH OR WITHOUT SHOULDERS

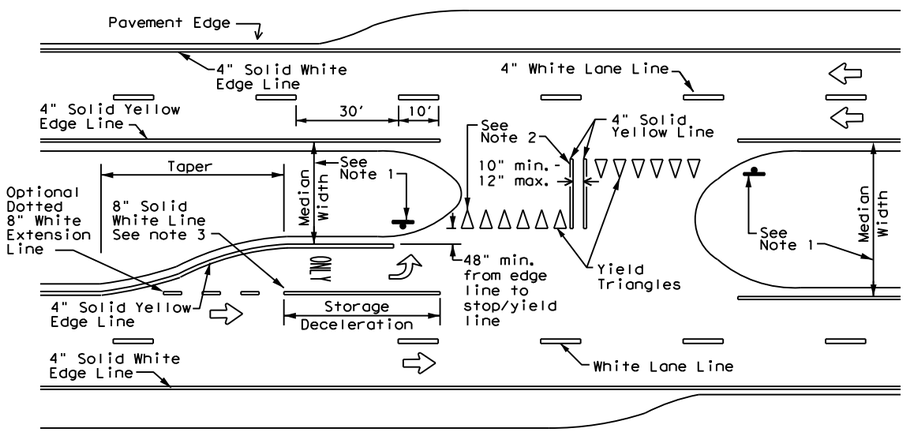


For posted speed on road being marked equal to or less than 40 MPH.



For posted speed on road being marked equal to or greater than 45 MPH.

YIELD LINES



FOUR LANE DIVIDED ROADWAY CROSSOVERS

NOTES

1. Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs are optional as determined by the Engineer.

2. Install median striping (double yellow centerlines and stop bars/yield triangles) when a 50' or greater median centerline can be placed. Stop bars shall only be used with stop signs. Yield traingles shall only be used with yield signs.

3. Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

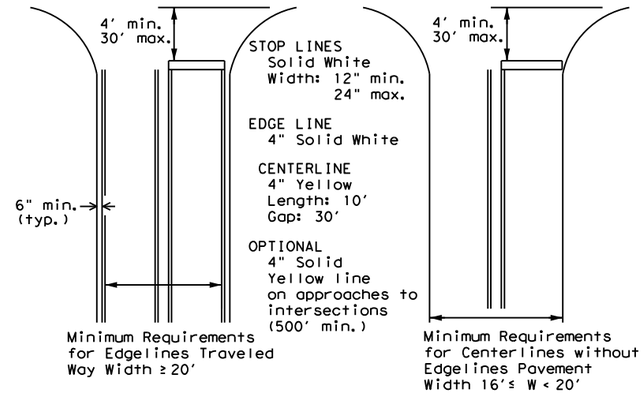
GENERAL NOTES

1. Edgeline striping shall be as shown in the plans or as directed by the Engineer. The edgeline should not be placed less less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edgelines are not required in curb and gutter sections of roadways.

2. The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the inside of edgeline to the inside of edgeline of a two lane roadway.

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

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



GUIDE FOR PLACEMENT OF STOP LINES, EDGE LINE & CENTERLINE

Based on Traveled Way and Pavement Widths for Undivided Highways

Texas Department of Transportation

Traffic Safety Division Standard

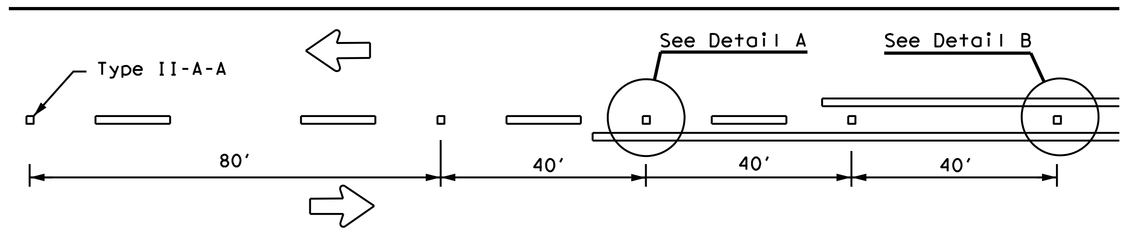
TYPICAL STANDARD PAVEMENT MARKINGS

PM(1)-20

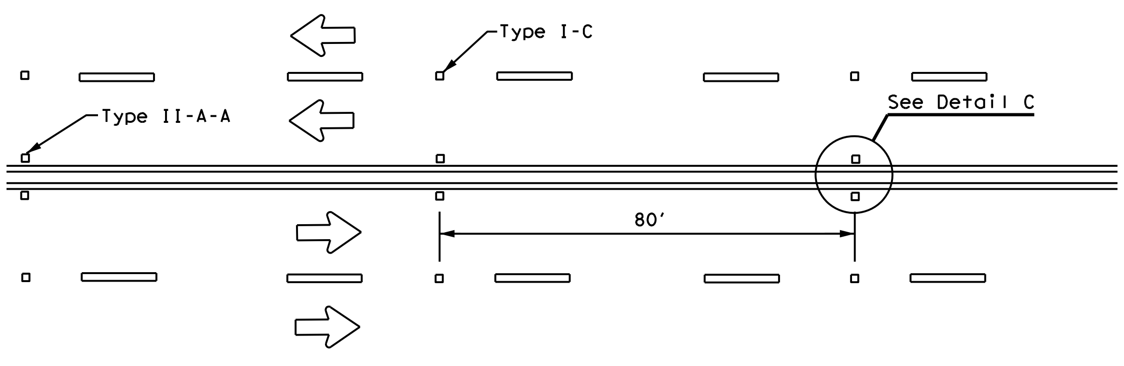
FILE: pm1-20.dgn	DN:	CK:	DW:	CK:
© TxDOT November 1978	CONT	SECT	JOB	HIGHWAY
REVISIONS 8-95 3-03	0060	02	034	SH 8
5-00 2-12	DIST	COUNTY		SHEET NO.
8-00 6-20	ATL	BOWIE		38

22A

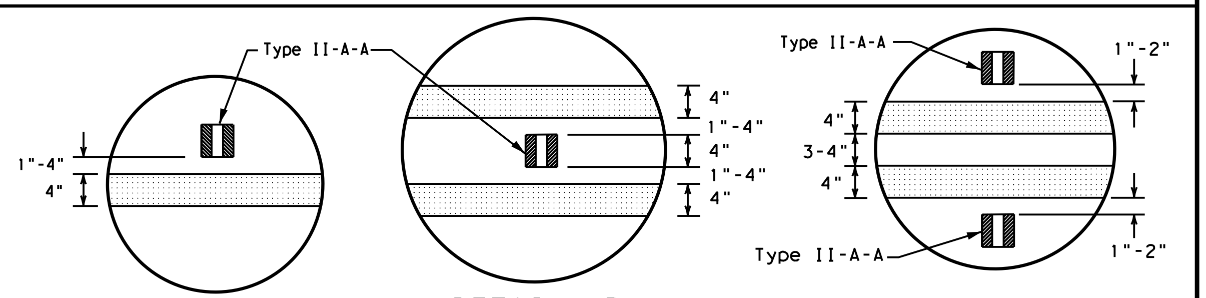
REFLECTIVE RAISED PAVEMENT MARKERS FOR VEHICLE POSITIONING GUIDANCE



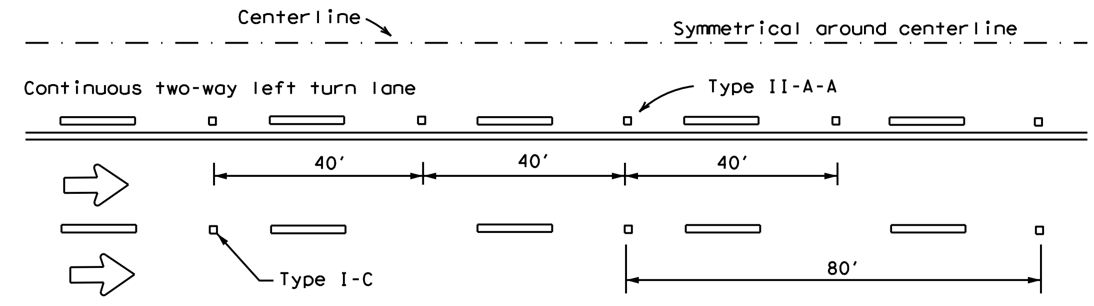
CENTERLINE FOR ALL TWO LANE ROADWAYS



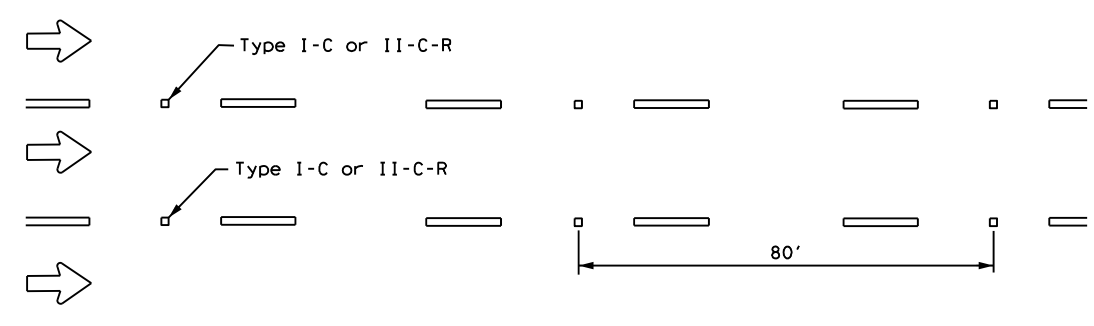
CENTERLINE & LANE LINES FOR FOUR LANE TWO-WAY HIGHWAYS



DETAIL "A" DETAIL "B" DETAIL "C"

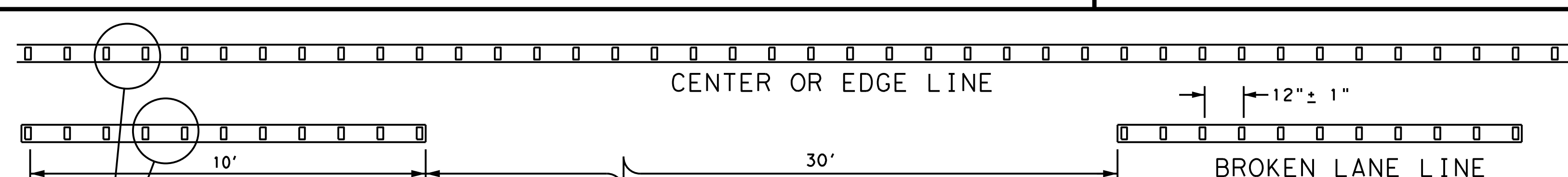


CENTERLINE AND LANE LINES FOR TWO-WAY LEFT TURN LANE



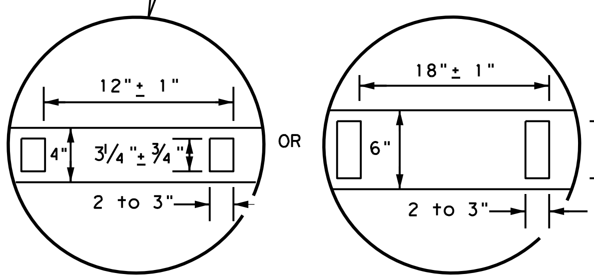
LANE LINES FOR ONE-WAY ROADWAY (NON-FREEWAY FACILITIES)

Raised pavement markers Type II-C-R shall have clear face toward normal traffic and red face toward wrong-way traffic.



REFLECTORIZED PROFILE PATTERN DETAIL

USING REFLECTIVE PROFILE PAVEMENT MARKINGS



4" EDGE LINE, CENTER LINE OR LANE LINE

OPTIONAL 6" EDGE LINE, CENTER LINE OR LANE LINE

A quick field check for the thickness of base line and profile marking is approximately equal to a stack of 5 quarters to a maximum height of 7 quarters.

NOTE

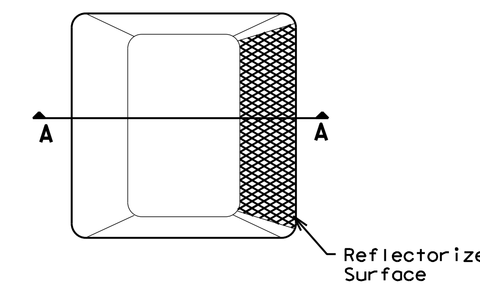
Profile markings shall not be placed on roadways with a posted speed limit of 45 MPH or less.

GENERAL NOTES

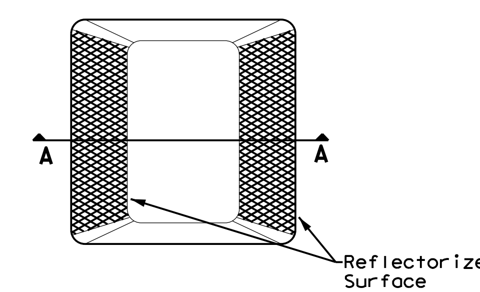
1. All raised pavement markers placed in broken lines shall be placed in line with and midway between the stripes.
2. On concrete pavements the raised pavement markers should be placed to one side of the longitudinal joints.

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

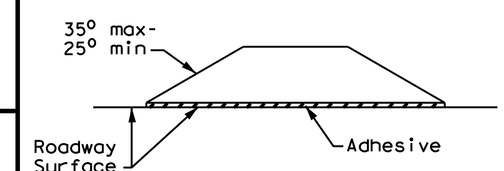
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



Type I (Top View)



Type II (Top View)



SECTION A

RAISED PAVEMENT MARKERS

Texas Department of Transportation

Traffic Safety Division Standard

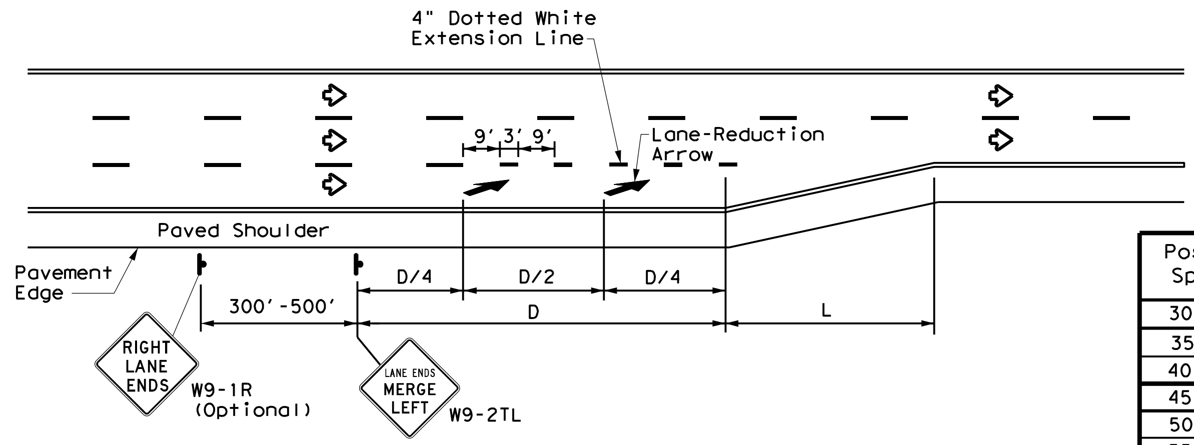
POSITION GUIDANCE USING RAISED MARKERS RELECTORIZED PROFILE MARKINGS PM(2)-20

FILE: pm2-20.dgn	DN:	CK:	DW:	CK:
©TxDOT April 1977	CONT	SECT	JOB	HIGHWAY
REVISIONS 4-92 2-10 5-00 2-12 8-00 6-20	0060	02	034	SH 8
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	39

228

DATE: 7/14/2021 4:30:28 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOTS\Documents\19 - ATL\Design Projects\0060020...

DATE: 7/14/2021 4:30:34 PM
FILE: pw:\\txdot.projectwiseonline.com:TXDOTS\Documents\19 - ATL\Design Projects\...



LANE REDUCTION

Posted Speed	D (ft)	L (ft)
30 MPH	460	$L = \frac{WS^2}{60}$
35 MPH	565	
40 MPH	670	
45 MPH	775	L=WS
50 MPH	885	
55 MPH	990	
60 MPH	1,100	
65 MPH	1,200	
70 MPH	1,250	
75 MPH	1,350	

NOTES

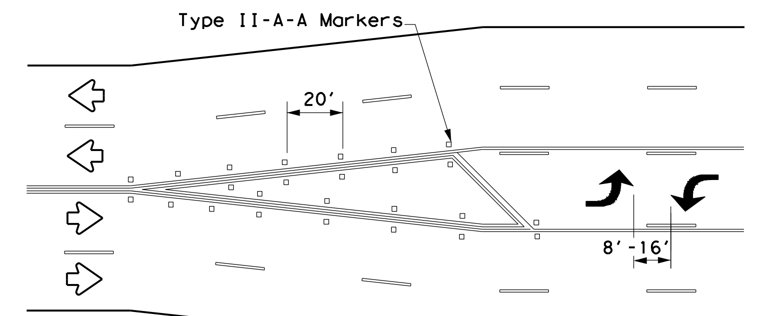
1. Lane reduction pavement markings are used where the number of through lanes is reduced because of narrowing of the roadway or because of a section of on-street parking in what would otherwise be a through lane. For Texas Super 2 Passing Lanes, see TS2(PL) standard sheets.
2. On divided highways, an additional W9-1R "RIGHT LANE ENDS" sign may be installed in the median aligned with the W9-1R sign on the right side of the highway.
3. Lane reduction arrows are required for speeds of 45 mph or greater. An optional third lane reduction arrow may be added based on engineering judgement. If used, the optional third lane reduction arrow should be centered between the first and last lane reduction arrows.
4. For lane reductions on Freeways and Expressways, signing shall conform to the TxDOT Freeway Signing Handbook.

GENERAL NOTES

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

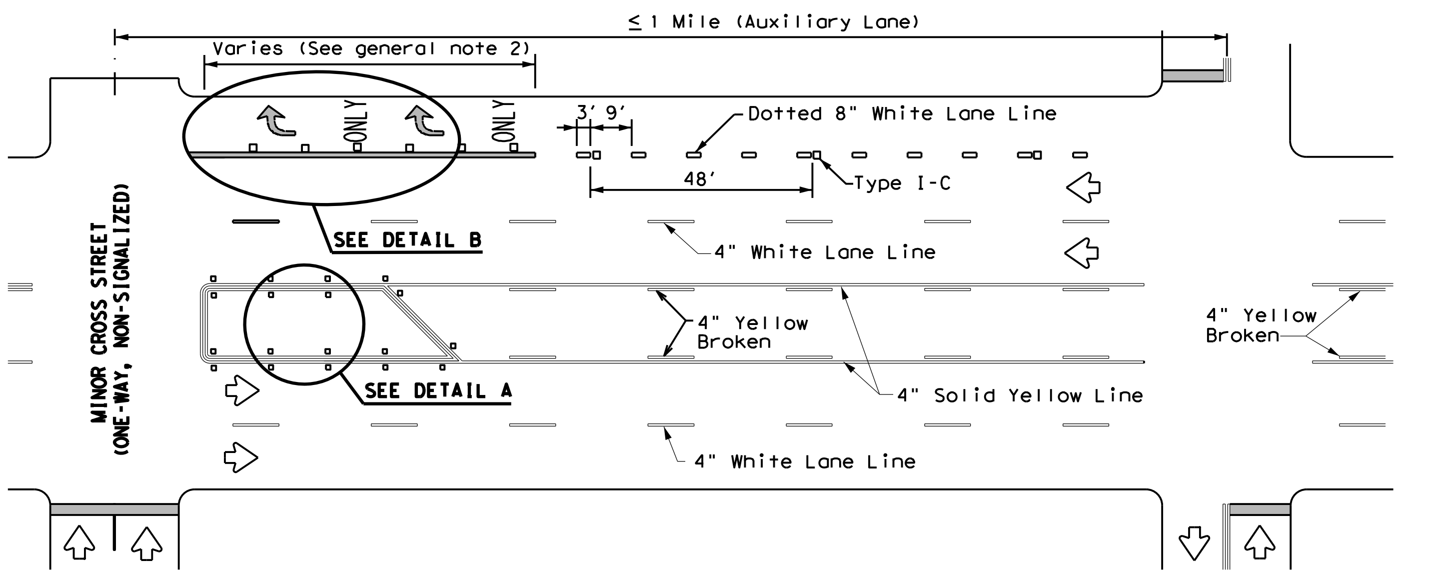
MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
TRAFFIC PAINT	DMS-8200
HOT APPLIED THERMOPLASTIC	DMS-8220
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240

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

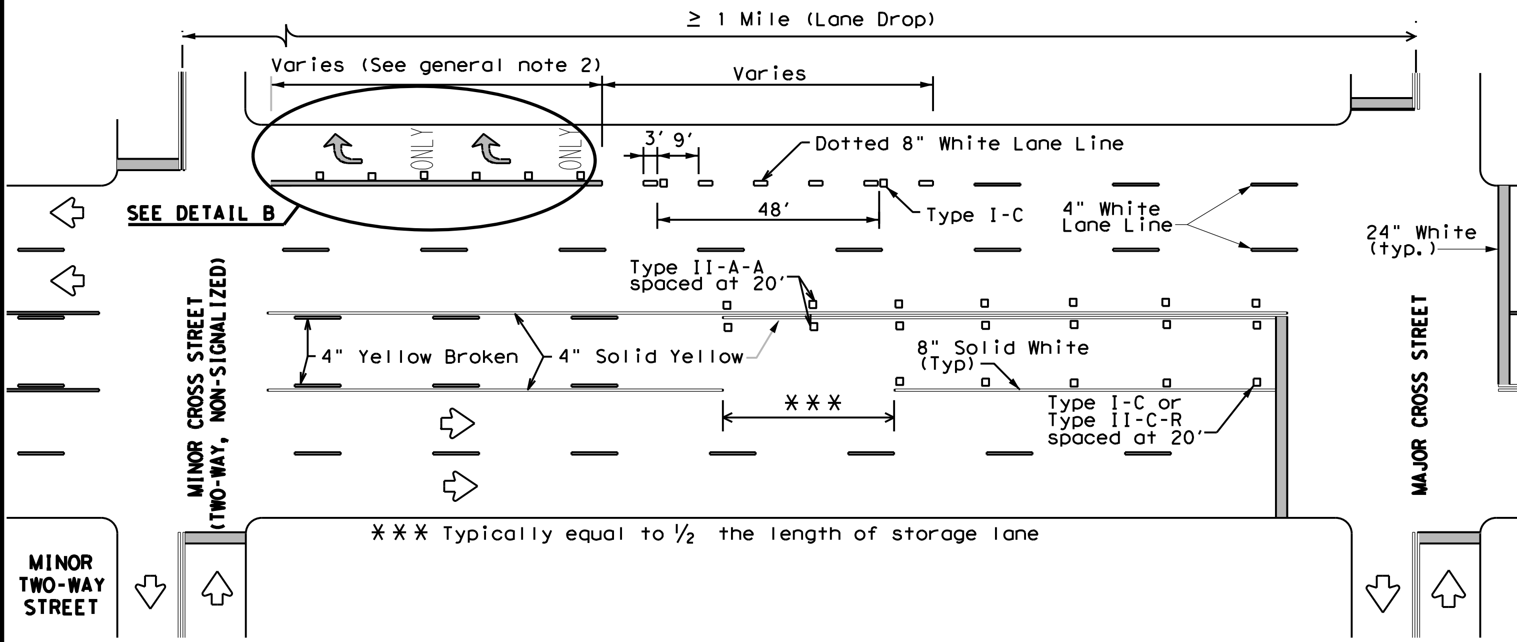


A two-way left-turn (TWLT) lane-use arrow pavement marking should be used at or just downstream from the beginning of a two-way left-turn lane within a corridor. Repeating the marking after each intersection or dedicated turn bay is not required unless stated elsewhere in the plans.

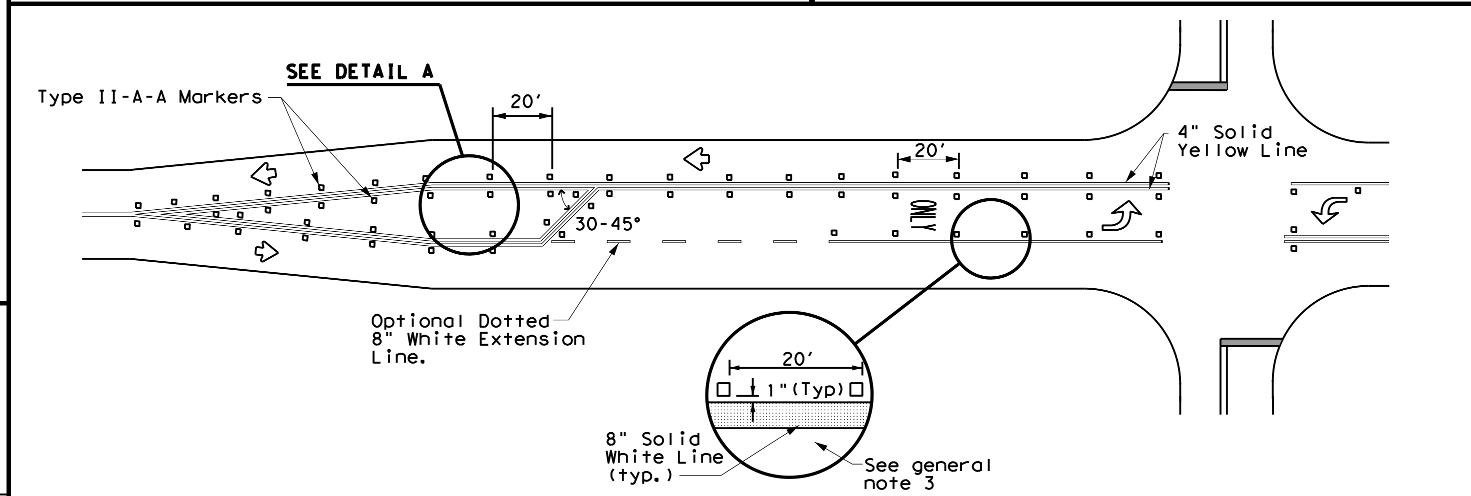
TYPICAL TRANSITION FOR TWLTL AND DIVIDED HIGHWAY



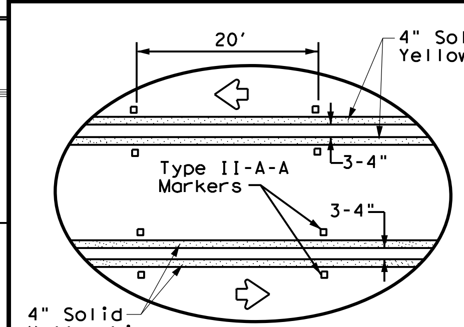
TYPICAL TWLTL AT ONE-WAY STREET AND RIGHT TURN AUXILIARY LANE



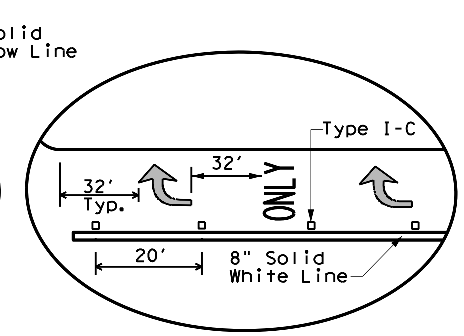
TYPICAL TWLTL AT TWO-WAY CROSS STREET AND RIGHT TURN LANE DROP



TYPICAL TWO-LANE HIGHWAY INTERSECTION WITH LEFT TURN BAYS



DETAIL A



DETAIL B

Texas Department of Transportation — Traffic Safety Division Standard

TWO-WAY LEFT TURN LANES, RURAL LEFT TURN BAYS, AND LANE REDUCTION PAVEMENT MARKINGS PM(3)-20

FILE: pm3-20.dgn	DN:	CK:	DW:	CK:
© TxDOT April 1998	CONT	SECT	JOB	HIGHWAY
REVISIONS 5-00 2-10, 8-00 2-12, 3-03 6-20	0060	02	034	SH 8
	DIST		COUNTY	SHEET NO.
	ATL		BOWIE	40

22C

SITE DESCRIPTION

PROJECT LIMITS: VARIOUS

PROJECT DESCRIPTION: SEAL COAT

MAJOR SOIL DISTURBING ACTIVITIES: NONE, THIS PROJECT IS CONSIDERED A MAINTENANCE ACTIVITY

TOTAL PROJECT AREA: 0.0 ACRES

TOTAL AREA TO BE DISTURBED: 0.0 ACRES

EXISTING CONDITION OF SOIL & VEGETATIVE COVER AND % OF EXISTING VEGETATIVE COVER: N/A

NAME OF RECEIVING WATERS: N/A

ANTICIPATED EFFECT OF STORM WATER ON THREATENED AND ENDANGERED SPECIES AND WILDLIFE HABITAT: *REFER TO EPIC SHEET*

NARRATIVE - SEQUENCE OF CONSTRUCTION (STORM WATER MANAGEMENT) ACTIVITIES: N/A

STORM WATER MANAGEMENT: N/A

DETAILED SITE MAP OR LAYOUT INDICATING THE FOLLOWING: (SEE SWP3 SITE MAP OR LAYOUT) N/A

EROSION AND SEDIMENT CONTROLS

SOIL STABILIZATION PRACTICES:

- ____ PERMANENT PLANTING, SODDING, OR SEEDING
- ____ TEMPORARY SEEDING
- ____ MULCHING
- ____ SOIL RETENTION BLANKET
- ____ BUFFER ZONES
- ____ PRESERVATION OF NATURAL RESOURCES
- ____ SLOPE TEXTURING

N/A

STRUCTURAL PRACTICES:

- ____ SILT FENCES
- ____ HAY BALES
- ____ ROCK BERMS
- ____ PAVED FLUMES
- ____ CHANNEL LINERS
- ____ SEDIMENT TRAPS
- ____ FILTER DAMS
- ____ CURBS AND GUTTERS
- ____ STORM SEWERS
- ____ ROCK BEDDING AT CONSTRUCTION EXIT
- ____ TIMBER MATTING AT CONSTRUCTION EXIT
- ____ DIVERSION, INTERCEPTOR, OR PERIMETER DIKES
- ____ DIVERSION, INTERCEPTOR, OR PERIMETER SWALES
- ____ DIVERSION DIKE AND SWALE COMBINATIONS
- ____ STORM INLET SEDIMENT TRAP
- ____ VELOCITY CONTROL DEVICES
- ____ EROSION CONTROL LOGS

OTHER:

MAINTENANCE: *N/A*

INSPECTION: ITEM 506 *N/A*

OFFSITE VEHICLE TRACKING: *N/A*

CONCRETE TRUCK WASHOUT AREAS: *N/A*

WASTE MATERIALS

HAZARDOUS WASTE (INCLUDING SPILL REPORTING): *AT A MINIMUM, ANY PRODUCTS IN THE FOLLOWING CATEGORIES ARE CONSIDERED TO BE HAZARDOUS: PAINTS, ACIDS FOR CLEANING MASONRY SURFACES, CLEANING SOLVENTS, ASPHALT PRODUCTS, CHEMICAL ADDITIVES FOR SOIL STABILIZATION, CONCRETE CURING COMPOUNDS AND ADDITIVES OR MOTOR OIL. MATERIALS SHALL BE STORED IN ACCORDANCE WITH APPLICABLE REGULATIONS. IN THE EVENT OF A SPILL WHICH MAY BE HAZARDOUS, IMMEDIATELY REPORT SPILL IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.*

WASTE MATERIALS: *THE BURYING OF CONSTRUCTION WASTE MATERIAL ON SITE WILL NOT BE PERMITTED. DISPOSAL OF WASTE MATERIALS SHALL MEET ALL STATE AND LOCAL SOLID WASTE MANAGMENT REGULATIONS. WASTE MATERIALS STORED ON SITE SHALL BE COLLECTED IN A METAL DUMPSTER WITH A LOCKING, SECURE COVER AND A DRAIN PLUG IN PLACE.*

SANITARY WASTE: *ALL SANITARY WASTE WILL BE DISPOSED OF IN ACCORDANCE WITH ALL STATE AND LOCAL REGULATIONS. SPECIFIC LOCATIONS OF PORTABLE UNITS MUST BE SHOWN ON THE SWP3 SITE MAP OR LAYOUT.*

REMARKS: *DISPOSAL AREAS, STOCKPILES, AND HAUL ROADS SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE AND CONTROL THE AMOUNT OF SEDIMENT THAT MAY ENTER RECEIVING WATERS. DISPOSAL AREAS SHALL NOT BE LOCATED IN ANY WETLAND, WATERBODY OR STREAMBED.*
CONSTRUCTION STAGING AREAS AND VEHICLE MAINTENANCE AREAS SHALL BE CONSTRUCTED BY THE CONTRACTOR IN A MANNER TO MINIMIZE THE RUNOFF OF POLLUTANTS.
ALL WATERWAYS SHALL BE CLEARED AS SOON AS PRACTICAL OF TEMPORARY EMBANKMENT, TEMPORARY BRIDGES, MATTING FALSEWORK, PILING, DEBRIS OR OTHER OBSTRUCTIONS PLACED DURING CONSTRUCTION OPERATIONS THAT ARE NOT A PART OF THE FINISHED WORK.

NOTES: *THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL SUBCONTRACTORS ARE AWARE OF AND COMPLY WITH ALL COMPONENTS OF THE SWP3.*

STATE OF TEXAS
GLENN R. YOWELL
92077
LICENSED
PROFESSIONAL ENGINEER

Glenn R. Yowell, P.E.
8/4/2021

Texas Department of Transportation

TxDOT STORM WATER POLLUTION PREVENTION PLAN

(LESS THAN ONE ACRE)

SWP3

FILE: swp3less1acre.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
Revisions	CONT	SECT	JOB	HIGHWAY
May 2017	0060	02	034	SH 8
	DIST	COUNTY		SHEET NO.
	ATL	BOWIE		41

DATE: 7/14/2021
FILE: pw:\\txdot.projectwiseonline.com:TXDOT5\Documents\19 - ATL\Design Projects\0060020341\4 - Design\Master Design Files\01 PLANSHEETS\041 EPIC.dgn

I. STORMWATER POLLUTION PREVENTION-CLEAN WATER ACT SECTION 402

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

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

1. N/A

☐ No Action Required ☒ Required Action

Action No.

1. This project is considered a maintenance activity and is exempt from the requirements of TPDES TX 150000.

Commitment No.

1. Refer to the SWP# Plan Sheet, BMPs, and Detail. It will address sweeping, chemical storage, sanitary waste, and all other management practices.

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

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

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

☒ No Permit Required
☐ Nationwide Permit 14 - PCN not Required (less than 1/10th acre waters or wetlands affected)
☐ Nationwide Permit 14 - PCN Required (1/10 to <1/2 acre, 1/3 in tidal waters)
☐ Individual 404 Permit Required
☐ Other Nationwide Permit Required: NWP# _____

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

1.

2.

3.

4.

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

Best Management Practices:

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

III. CULTURAL RESOURCES

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

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

IV. VEGETATION RESOURCES

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

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

4.

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.

2.

3.

4.

If any of the listed species are observed, cease work in the immediate area, do not disturb species or habitat and contact the Engineer immediately. The work may not remove active nests from bridges and other structures during nesting season of the birds associated with the nests. If caves or sinkholes are discovered, cease work in the immediate area, and contact the Engineer immediately.

LIST OF ABBREVIATIONS

BMP:	Best Management Practice	SPCC:	Spill Prevention Control and Countermeasure
CGP:	Construction General Permit	SW3P:	Storm Water Pollution Prevention Plan
DSHS:	Texas Department of State Health Services	PCN:	Pre-Construction Notification
FHWA:	Federal Highway Administration	PSL:	Project Specific Location
MOA:	Memorandum of Agreement	TCEQ:	Texas Commission on Environmental Quality
MOU:	Memorandum of Understanding	TPDES:	Texas Pollutant Discharge Elimination System
MS4:	Municipal Separate Stormwater Sewer System	TPWD:	Texas Parks and Wildlife Department
MBTA:	Migratory Bird Treaty Act	TxDOT:	Texas Department of Transportation
NOT:	Notice of Termination	T&E:	Threatened and Endangered Species
NWP:	Nationwide Permit	USACE:	U.S. Army Corps of Engineers
NOI:	Notice of Intent	USFWS:	U.S. Fish and Wildlife Service

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

General (applies to all projects):

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

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

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

Contact the Engineer if any of the following are detected:
* Dead or distressed vegetation (not identified as normal)
* Trash piles, drums, canister, barrels, etc.
* Undesirable smells or odors
* Evidence of leaching or seepage of substances

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

☐ Yes ☒ No

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

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

☐ Yes ☐ No

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

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

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

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

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

VII. OTHER ENVIRONMENTAL ISSUES

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

☒ No Action Required ☐ Required Action

Action No.

1.

2.

3.

Texas Department of Transportation — Design Division Standard

ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS

EPIC

FILE: epic.dgn	DN: TxDOT	CK: RG	DW: VP	CK: AR	
	CONT	SECT	JOB	HIGHWAY	
REVISIONS 12-12-2011 (DS) 05-07-14 ADDED NOTE SECTION IV. 01-23-2015 SECTION I (CHANGED ITEM 1122 TO ITEM 506, ADDED GRASSY SWALES.	0060	02	034	SH 8	
	DIST	COUNTY		SHEET NO.	
	ATL	BOWIE		42	