

DALLAS NH 2003 (146)

FINAL PLANS

NAME OF CONTRACTOR: Pen Hall Company

DATE OF LETTING: December 5, 2002

DATE WORK BEGAN: January 22, 2003

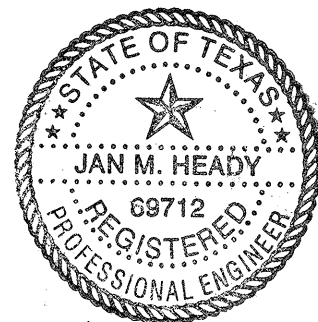
DATE WORK COMPLETED: April 10, 2003

DATE WORK ACCEPTED: May 1, 2003

SUMMARY OF CHANGE ORDERS:

C.O. 1. Adds a Cellular
Phone To the
Contract.

FINAL PLANS



The seal appearing on
this document was
authorized by
C. Anthony May
P.E. 85517, on
9/9/2002

C. Anthony May, P.E.

WORK WAS COMPLETED ACCORDING
TO THE PLANS AND CONTRACT.

Jan M. Heady P.E. 5/27/03
Signature of Registrant & Date

STATE OF TEXAS
DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED
STATE HIGHWAY IMPROVEMENT

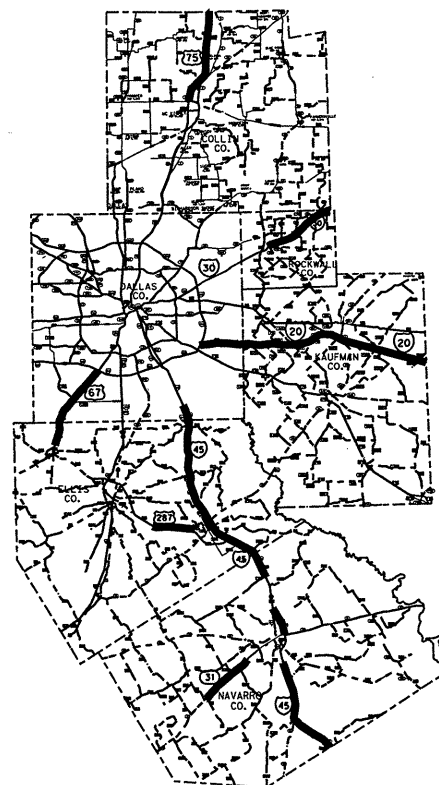
CSJ: 0918-00-082

US 75, IH 20, ETC.
KAUFMAN, ETC.

LIMITS: FROM IH 635
TO VAN ZANDT COUNTY LINE

TOTAL LENGTH OF PROJECT = 2,321,594.00 FT. = 439.696 MI.

TYPE: FOR THE CONSTRUCTION OF MISCELLANEOUS WORK
CONSISTING OF: TEXTURIZED SHOULDERS (MILLED)



NOT TO SCALE
DALLAS DISTRICT

NO EQUATIONS
NO EXCEPTIONS
NO RAILROADS

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	NH 2003 (146)		IH 20, ETC.
CHECK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DALLAS	KAUFMAN ETC.	1
	CONTROL	SECTION	JOB	
	0918	00	082	

NOTE:

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION,
MARCH 1, 1993, AND THE CONTRACT PROVISIONS LISTED AND DATED AS
FOLLOWS SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS
FOR ALL FEDERAL-AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, DECEMBER,
1993)

TEXAS DEPARTMENT OF TRANSPORTATION

SUBMITTED
FOR LETTING 9/9/2002

C. Anthony May, P.E.
DESIGN ENGINEER

RECOMMENDED
FOR LETTING 9/9/2002

Jan M. Heady, P.E.
AREA ENGINEER

RECOMMENDED
FOR LETTING 9-11/2002

Charles R. Tucker, P.E.
DIRECTOR OF TRANSPORTATION
PLANNING & DEVELOPMENT

RECOMMENDED
FOR LETTING 9/11/2002

Jay Nelson, P.E.
DISTRICT ENGINEER

APPROVED
FOR LETTING 20

, P.E.

APPROVED
FOR LETTING 20

, P.E.
DIRECTOR, DESIGN DIVISION

INDEX OF SHEETS

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2	INDEX OF SHEETS
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6	ESTIMATE AND QUANTITY SHEET
7-9	SUMMARY SHEETS

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13	BC (4) -99
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NO WALL DETAILS	

SHEET	DESCRIPTION
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NO DRAINAGE DETAILS	

<u>VI. UTILITIES</u>	
NO UTILITIES	

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NO BRIDGES	

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NO TRAFFIC ITEMS	

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NO MISCELLANEOUS ITEMS	



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9/9/2002
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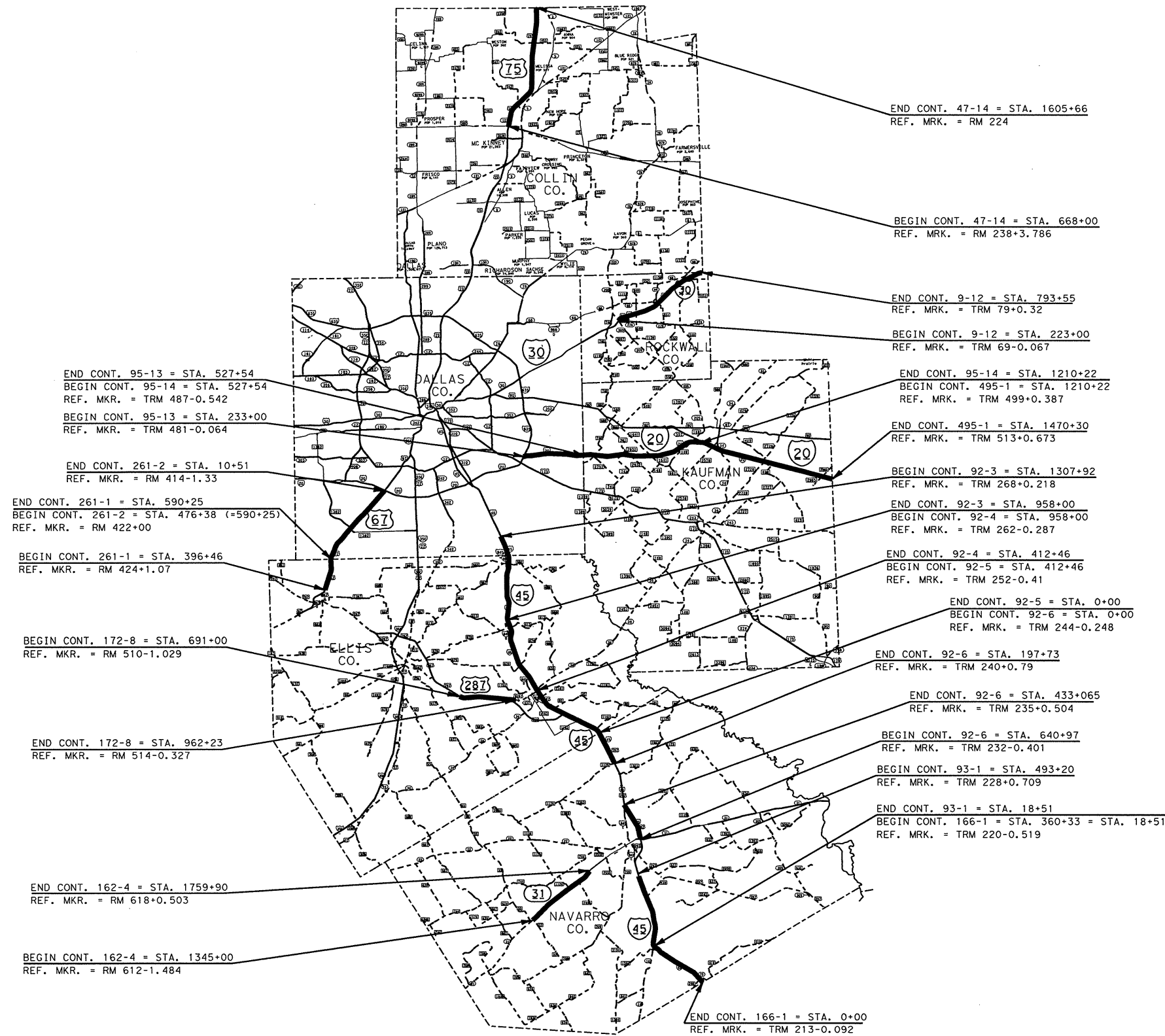
THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN
SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING
APPLICABLE TO THIS PROJECT.

C. Anthony May, P.E. 9/9/2002
Signature of Registrant & Date

Texas Department of Transportation © 2002			
INDEX OF SHEETS			
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
GRAPHICS	6	NH 2003 (146)	IH 20, ETC.
CHECK	STATE	DISTRICT	COUNTY
CHECK	TEXAS	DALLAS	KAUFMAN, ETC.
CHECK	CONTROL	SECTION	JOB
	0918	00	082
			2

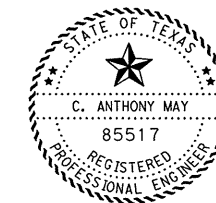
DALLAS, COLLIN, ELLIS, KAUFMAN, NAVARRO, AND ROCKWALL COUNTIES

IH 20, IH 30, IH 45, SH 31, US 67, US 75, AND US 287



NET LENGTH OF PROJECT FOR THE DALLAS DISTRICT (IH 20, etc)

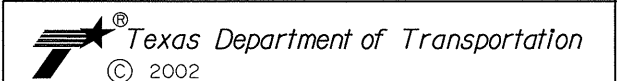
CONT. 95-14	=	235,148 FT.	=	44.535 MI.
CONT. 495-01	=	263,795 FT.	=	49.961 MI.
CONT. 9-12	=	199,311 FT.	=	37.748 MI.
CONT. 47-14	=	310,030 FT.	=	58.718 MI.
CONT. 95-13	=	94,523 FT.	=	17.902 MI.
CONT. 261-02	=	143,191 FT.	=	27.119 MI.
CONT. 92-03	=	108,100 FT.	=	20.473 MI.
CONT. 92-04	=	182,853 FT.	=	34.631 MI.
CONT. 92-05	=	68,034 FT.	=	12.885 MI.
CONT. 172-08	=	94,293 FT.	=	17.859 MI.
CONT. 261-01	=	65,736 FT.	=	12.450 MI.
CONT. 92-06	=	28,609 FT.	=	5.418 MI.
CONT. 92-06	=	72,534 FT.	=	13.738 MI.
CONT. 93-01	=	132,821 FT.	=	25.155 MI.
CONT. 166-01	=	193,555 FT.	=	36.658 MI.
CONT. 162-04	=	129,061 FT.	=	24.443 MI.
TOTAL	=	2,321,594 FT.	=	439.70 MI.



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9/9/2002

C. Anthony May, P.E.

C. Anthony May, P.E. 9/9/2002
Signature of Registrant & Date



PROJECT LAYOUT IH 20, IH 30, IH 45 SH 31, US 67, US 75, US 287

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
GRAPHICS	6	NH 2003 (146)	IH 20, ETC
CHECK	STATE	DISTRICT	COUNTY
CHECK	TEXAS	DALLAS	KAUFMAN, ETC
CHECK	CONTROL	SECTION	JOB
	0918	00	082

Project Number: NH 2003(146)

Sheet A 4

County: Kaufman, etc.

Control: 0918-00-082

Highway: US 75, IH 20, etc.

GENERAL NOTES:

GENERAL:

THE FOLLOWING DATA FILES WILL BE AVAILABLE AT THE DISTRICT OFFICE FOR THE PURPOSE OF MAKING COPIES FOR PROSPECTIVE BIDDERS, AT NO CHARGE:

- OVERALL PROJECT LAYOUT
- PROJECT LAYOUT FOR EACH COUNTY

THIS DATA IS FOR NON-CONSTRUCTION PURPOSES ONLY AND IT IS THE RESPONSIBILITY OF THE PROSPECTIVE BIDDER TO VALIDATE THE ENCLOSED DATA WITH APPROPRIATE PLANS, SPECIFICATIONS AND ESTIMATE FOR THE PROJECT (S).

THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THIS PROPOSED PROJECT WILL BE CONSISTENT WITH THE STATE IMPLEMENTATION PLAN AS PREPARED BY THE TEXAS NATURAL RESOURCES CONSERVATION COMMISSION.

ALL RIGHT-OF-WAY AREAS SHALL REMAIN UNDISTURBED UNLESS ACTUAL CONSTRUCTION IS TO BE PERFORMED IN THE SAID AREAS.

STATIONING SHALL BE ESTABLISHED BY THE CONTRACTOR FOR THE BASE LINE OF THE ROADWAY AT 100 LINEAR FOOT INTERVALS AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

ANY OBSTRUCTIONS TO EXISTING DRAINAGE DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE REMOVED BY THE CONTRACTOR AS REQUIRED BY THE ENGINEER AT THE CONTRACTOR'S ENTIRE EXPENSE.

THE CONTRACTOR'S ATTENTION IS CALLED TO THE FACT THAT ALL ADJOINING PAVEMENT SECTIONS SHALL BE PROTECTED DURING ALL PHASES OF CONSTRUCTION AND ANY DAMAGES INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED AND/OR REPLACED AT THE CONTRACTOR'S EXPENSE.

IF AT ANY TIME DURING THE CONSTRUCTION OF THIS PROJECT THE CONTRACTOR FALLS MORE THAN 30 DAYS BEHIND HIS SCHEDULE SUBMITTED UNDER PROVISIONS OF ARTICLE 8.2, HE SHALL FURNISH THE ENGINEER WITH AN UPDATED REALISTIC CONSTRUCTION SCHEDULE.

General Notes

Sheet A

Project Number: NH 2003(146)

Sheet B 4

County: Kaufman, etc.

Control: 0918-00-082

Highway: US 75, IH 20, etc.

ALL CONSTRUCTION EQUIPMENT INVOLVED IN ROADWAY WORK SHALL BE EQUIPPED WITH A PERMANENTLY MOUNTED, APPROVED 360 DEGREE REVOLVING OR STROBE WARNING LIGHT WITH AMBER LENS. THIS LIGHT SHALL HAVE A MINIMUM LENS HEIGHT OF 5 INCHES AND A DIAMETER OF 5 INCHES. THIS LIGHT SHALL HAVE A MOUNTING HEIGHT OF NOT LESS THAN SIX FEET ABOVE THE ROADWAY SURFACE AND SHALL BE VISIBLE FROM ALL SIDES. THIS EQUIPMENT SHALL ALSO HAVE ATTACHED AT EACH SIDE OF THE REAR END OF THE VEHICLE AN APPROVED ORANGE WARNING FLAG MOUNTED NOT LESS THAN SIX FEET ABOVE THE ROADWAY SURFACE.

ALL SHOP DRAWINGS, WORKING DRAWINGS OR OTHER DOCUMENTS WHICH REQUIRE REVIEW BY THE ENGINEER SHALL BE SUBMITTED BY THE CONTRACTOR SUFFICIENTLY IN ADVANCE OF SCHEDULED CONSTRUCTION TO ALLOW NO LESS THAN THIRTY (30) CALENDAR DAYS FOR REVIEW AND RESPONSE BY THE ENGINEER.

METHOD OF OPERATION

DEPARTMENT APPROVED SAFETY HATS AND SAFETY VESTS SHALL BE WORN BY ALL CONTRACTOR EMPLOYEES AND VISITORS:

1. OUTSIDE VEHICLES AT ALL OUTDOOR WORK SITES.
THIS INCLUDES ANYONE WHO OCCASIONALLY VISITS WORK SITES EITHER ON THE HIGHWAY OR WITHIN THE HIGHWAY RIGHT OF WAY.
2. WHERE DANGER EXISTS OF HEAD INJURY
FROM IMPACT, FALLING OR FLYING OBJECTS, AND
ELECTRICAL SHOCK OR BURNS.

NON-COMPLIANCE WITH THIS SAFETY REQUIREMENT SHALL BE REASON FOR SUSPENSION OF WORK.

FOR THIS PROJECT, ALL WORK SHALL BE DONE BETWEEN MONDAY THROUGH FRIDAY, A MINIMUM OF EIGHT (8) HOURS PER DAY (WEATHER PERMITTING), UNTIL THE WORK IS COMPLETED. NO WORK SHALL BE PERFORMED ON SATURDAYS OR SUNDAYS UNLESS OTHERWISE APPROVED BY THE ENGINEER.

WORK ON MAIN LANES OR LANE CLOSURES FOR THIS CONTRACT SHALL NOT BE ALLOWED ON THE MAIN LANES ON CERTAIN HOLIDAY AND HIGH TRAFFIC VOLUME PERIODS. THE HOLIDAYS AND PERIODS ARE AS FOLLOWS:

General Notes

Sheet B

Project Number: NH 2003(146)

Sheet C 5

County: Kaufman, etc.

Control: 0918-00-082

Highway: US 75, IH 20, etc.

- NEW YEAR'S EVE AND NEW YEAR'S DAY
- EASTER HOLIDAY WEEKEND (FRIDAY THROUGH SUNDAY)
- MEMORIAL DAY WEEKEND (FRIDAY THROUGH MONDAY)
- LABOR DAY WEEKEND (FRIDAY THROUGH MONDAY)
- THANKSGIVING HOLIDAY (WEDNESDAY THROUGH SUNDAY)
- TEXAS VS OKLAHOMA FOOTBALL GAME WEEKEND (FRIDAY THROUGH SUNDAY)
- CHRISTMAS HOLIDAY (DECEMBER 23 THROUGH 26)
- OTHER DAYS DEEMED HIGH TRAFFIC VOLUME DAY(S) BY THE ENGINEER

LANE CLOSURES FOR ROUTINE MAINTENANCE SHALL NOT BE ALLOWED FROM FRIDAY 12:00 NOON THROUGH SUNDAY 10:00 PM.

THE CONTRACTOR SHALL NOT BEGIN WORK ON THE ROADWAY UNTIL 30 MINUTES AFTER SUNRISE AND ALL MACHINES SHALL BE OFF THE ROAD BY 30 MINUTES BEFORE SUNSET.

CLEAN-UP:

THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM ALL WORK AREAS ALL LOOSE MATERIAL RESULTING FROM THE CONTRACT OPERATIONS EACH DAY BEFORE WORK IS SUSPENDED. NO LOOSE MATERIAL SHALL REMAIN AT THE WORK SITE OVERNIGHT. DITCH SECTION AREAS SHALL BE CLEANED WITH A ROTARY BROOM. ALL CURB AND GUTTER AND CONCRETE BARRIER SECTIONS SHALL BE CLEANED WITH A SUCTION-TYPE STREET SWEEPER. THIS WORK WILL NOT BE PAID FOR DIRECTLY, BUT WILL BE CONSIDERED SUBSIDIARY TO THE VARIOUS BID ITEMS.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LEAVING THE PROJECT SITE CLEAN AND NEAT IN APPEARANCE UPON COMPLETION AND BEFORE FINAL ACCEPTANCE BY THE ENGINEER.

PRE-CONSTRUCTION CONFERENCE

PRIOR TO BEGINNING WORK ON THE PROJECT AND SOON AFTER THE AWARD OF THE CONTRACT, A CONFERENCE WILL BE HELD BETWEEN THE REPRESENTATIVES OF THE ENGINEER, THE CONTRACTOR, AND ANY SUB-CONTRACTOR THAT WILL BE INVOLVED IN THE WORK. AT THIS TIME THE CONTRACTOR SHALL SUBMIT CHARTS OR BRIEFS, OUTLINING THE MANNER OF EXECUTION OF THE WORK THAT IS INTENDED IN ORDER TO COMPLETE THE

General Notes

Sheet C

Project Number: NH 2003(146)

Sheet D 5

County: Kaufman, etc.

Control: 0918-00-082

Highway: US 75, IH 20, etc.

SPECIFIED WORK WITHIN THE ALLOTTED TIME. THIS CONFERENCE WILL MORE COMPLETELY ESTABLISH THE SEQUENCE OF WORK TO BE FOLLOWED AND ESTABLISH THE ESTIMATED PROGRESS SCHEDULE FOR COMPLETION OF THE VARIOUS TASKS.

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLING, BUILDING, AND MAINTAINING ALL SIGNS, SIGN MOUNTS, TRAFFIC CONES, BARRICADES, SAFETY FLAGS, AND TRAFFIC CONTROL DEVICES NECESSARY TO PROVIDE FOR TRAFFIC SAFETY IN AND AROUND THE WORK ZONE. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO STANDARDS BC (1)-99 THROUGH BC (9C)-98, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.

TYPICAL WORK LOCATION TRAFFIC CONTROL IS SHOWN ON THE STANDARD SHEET TCP (3-2)-98.

CONTROL PLAN SHEETS SHALL BE IN ACCORDANCE WITH THE MANUAL ON TRAFFIC CONTROL DEVICES (MUTCD) PART VI.

FOR THIS CONTRACT, PROJECT IDENTIFICATION BARRICADES SHALL BE OMITTED.

ITEM 677: ELIM EXT PAV MRK & MRKR (RAIS PAV MRKR)

ALL THE EXISTING PAVEMENT MARKERS & MARKINGS ON SHOULDERS SHALL BE REMOVED PRIOR TO MILLING OPERATION. EXSITING MARKERS & MARKINGS ON BRIDGE SHOULDERS SHALL REMAIN.

ALL QUANTITIES SHOWN ON PLANS ARE FOR INFORMATION PURPOSES ONLY AND PAYMENT WILL BE MADE FOR ACTUAL QUANTITIES PLACED. NO ADJUSTMENTS IN BID PRICES WILL BE MADE FOR OVERRUNS OR UNDERRUNS.

ITEM 5004: TEMPORARY EROSION, SEDIMENTATION AND WATER POLLUTION PREVENTION AND CONTROL

THE SW3P (STORM WATER POLLUTION PREVENTION PLAN) FOR THIS PROJECT SHALL CONSIST OF USING THE FOLLOWING ITEMS AS DIRECTED BY THE ENGINEER:

General Notes

Sheet D

Project Number: NH 2003(146)

Sheet E **SA**

County: Kaufman, etc.

Control: 0918-00-082

Highway: US 75, IH 20, etc.

♦ TEMPORARY SEDIMENT CONTROL FENCE
THIS WORK SHALL BE PAID FOR UNDER THE RESPECTIVE BID ITEMS.

ITEM 5404: MILLED SHOULDER TEXTURING

THE SHOULDER TEXTURING SHALL MAINTAIN DIMENSIONS AND OFFSETS FROM
EDGE OF ROADWAY AS SHOWN ON STANDARD. IF VARIANCES ARE REQUIRED
DUE TO FIELD CONDITIONS, THEY WILL BE ALLOWED WITH PERMISSION FROM
THE ENGINEER.

THERE SHALL BE NO TEXTURING OF SHOULDERS ON BRIDGE DECKS THAT ARE
CONCRETE ONLY.


THE ENGINEER, PRIOR TO STARTING OF THE MILLING OPERATION, SHALL
APPROVE THE LIMITS OF WORK.

ALL QUANTITIES SHOWN ON PLANS ARE FOR INFORMATION PURPOSES ONLY
AND PAYMENT WILL BE MADE FOR ACTUAL QUANTITIES PLACED. NO
ADJUSTMENTS IN BID PRICES WILL BE MADE FOR OVERRUNS OR UNDERRUNS.



ITEM 315: EMULSION ASPHALT SEAL

THE FOLLOWING RATE SHALL BE USED 0.1 GAL/SY. UNLESS OTHERWISE
DIRECTED BY THE ENGINEER.

 REVISED 11/27/02 RA

ESTIMATE SUMMARY

[illegible]


① REVISED 11/27/02 RIA

ESTIMATE & QUANTITY SHEET

STATE DIST. NO.	COUNTY	PROJECT NO.	SHEET NO.
18	KAUFMAN	NH 2003 (146)	6

COUNTY	CONTROL SECTION	HIGHWAY	BEGIN MILEPOINT	END MILEPOINT	EXCEPTIONS (BOTH DIRECTIONS) ENTRANCE/EXIT RAMPS, CROSSOVERS, AND INTERSECTIONS	ITEM 315	ITEM 5404	ITEM 5404	ITEM 677	TOTAL LENGTH (- EXCEPTIONS)
						EMULS ASPH SEAL (SS-1) GAL.	MILL EXIST. PVMT. ASPH. LF.	MILL EXIST. PVMT. CONC. LF.	ELIM. EXT. PAV. MARK & MRKR. (RAIS. PAV. MRKR.) LF.	
DALLAS	95-13	IH 20	00.827	06.405	18 TOTAL 5 EXIT RAMPS, 5 ON RAMPS, 8 BRIDGES	△ 1,178	53,012	41,512	5,801	94,523
CLLIN	47-14	US 75	17.759	00.000	57 TOTAL 24 EXIT RAMPS, 24 ON RAMPS, 7 BRIDGES, 2 PICNIC AREAS.	△ 6,890	310,030			310,030
DALLAS	261-2	US 67	10.000	18.807	37 TOTAL 14 EXIT RAMPS, 16 ON RAMPS, 7 BRIDGES	△ 1,310	58,971	84,220		143,191
ROCKWALL	9-12	IH 30	05.124	16.020	28 TOTAL 11 EXIT RAMPS, 11 ON RAMPS, 6 BRIDGES			199,311	4,776	199,311
KAUFMAN	95-14	IH 20	00.000	12.930	33 TOTAL 11 EXIT RAMPS, 11 ON RAMPS, 11 BRIDGES	△ 2,894	130,224	104,924	104,924	235,148
KAUFMAN	495-1	IH 20	04.369	18.415	34 TOTAL 12 EXIT RAMPS, 11 ON RAMPS, 9 BRIDGES, 2 REST AREAS	△ 5,826	262,182	1,613		263,795

△ REVISED 11/27/02 RA

 Texas Department of Transportation © 2002				
SUMMARY SHEET				
SCALE: SHEET 1 OF 3				
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	NH 2003 (146)		IH 20, ETC.
	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DALLAS	KAUFMAN, ETC.	7
CHECK	CONTROL	SECTION	JOB	
	0918	00	082	

COUNTY	CONTROL SECTION	HIGHWAY	BEGIN MILEPOINT	END MILEPOINT	EXCEPTIONS (BOTH DIRECTIONS) ENTRANCE/EXIT RAMPS, CROSSOVERS, AND INTERSECTIONS	ITEM 315	ITEM 5404	ITEM 5404	ITEM 677	TOTAL LENGTH (- EXCEPTIONS)
						EMULS. ASPH. SEAL (SS-1) GAL.	MILL EXIST. PVMT. ASPH. LF.	MILL EXIST. PVMT. CONC. LF.	ELIM. EXT. PAV. MARK & MRKR. (RAIS. PAV. MRKR.) LF.	
ELLIS	92-3	IH 45	24.500	17.893	29 TOTAL 11 EXIT RAMPS, 10 ON RAMPS, 8 BRIDGES			108,100		108,100
ELLIS	92-4	IH 45	17.893	07.810	29 TOTAL 11 EXIT RAMPS, 11 ON RAMPS, 7 BRIDGES			182,853		182,853
ELLIS	92-5	IH 45	07.810	00.000	14 TOTAL 6 EXIT RAMPS, 6 ON RAMPS, 2 BRIDGES			68,034		68,034
ELLIS	172-8	US 287	00.000	05.137	9 TOTAL 7 CROSS OVERS, 3 INTERSECTIONS, 20 DRIVEWAYS, 2 BRIDGES	⚠ 2,095	94,293			94,293
ELLIS	261-1	US 67	03.613	05.000	0 TOTAL			65,736		65,736

⚠ REVISED 11/27/02 RIA

SUMMARY SHEET

SCALE:		SHEET 2 OF 3		
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
GRAPHICS	6	NH 2003 (146)		IH 20, ETC.
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CHECK	TEXAS	DALLAS	KAUFMAN, ETC.	8
	CONTROL	SECTION	JOB	
	0918	00	082	

COUNTY	CONTROL SECTION	HIGHWAY	BEGIN MILEPOINT	END MILEPOINT	ENTRANCE/EXIT RAMPS, CROSSOVERS, AND INTERSECTIONS	ITEM 315	ITEM 5404	ITEM 5404	ITEM 677	TOTAL LENGTH (- EXCEPTIONS)
						EMULS. ASPH. SEAL (SS-1) GAL.	MILL EXIST. PVMT. ASPH. LF.	MILL EXIST. PVMT. CONC. LF.	ELIM. EXT. PAV. MRK. & MRKR. (RAIS. PAV. MRKR.) LF.	
NAVARRO	92-6	IH 45	33.566	29.853	9 TOTAL	△ 636	28,609			28,609
					4 EXIT RAMPS, 5 ON RAMPS					
NAVARRO	92-6	IH 45	25.364	21.459	9 TOTAL			72,534		72,534
					4 EXIT RAMPS, 4 ON RAMPS, 1 BRIDGES					
NAVARRO	93-1	IH 45	15.581	06.591	19 TOTAL	△ 439	19,747	113,074		132,821
					8 EXIT RAMPS, 8 ON RAMPS, 3 BRIDGES					
NAVARRO	166-1	IH 45	06.591	00.000	14 TOTAL	△ 1,530	68,861	124,694		193,555
					4 EXIT RAMPS, 5 ON RAMPS, 3 BRIDGES, 2 REST AREAS					
NAVARRO	162-4	SH 31	10.196	18.058	91 TOTAL	△ 1,530	68,870	60,191		129,061
					12 INTERSECTIONS, 13 CROSS OVERS 60 DRIVEWAYS, 6 BRIDGES					

△ REVISED 11/27/02 RA

SUMMARY SHEET

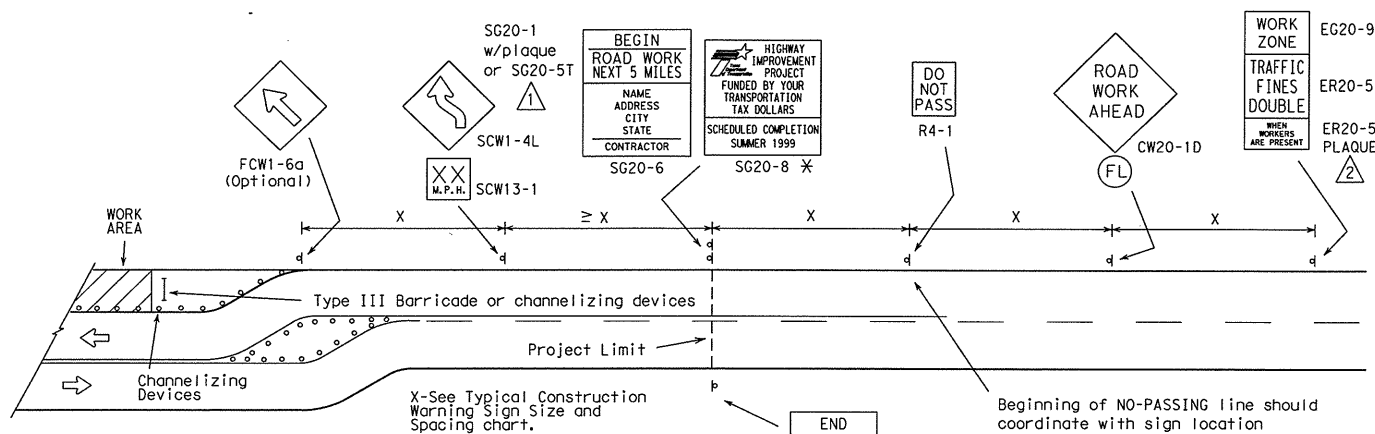
SCALE: SHEET 3 OF 3

DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.		HIGHWAY NO.
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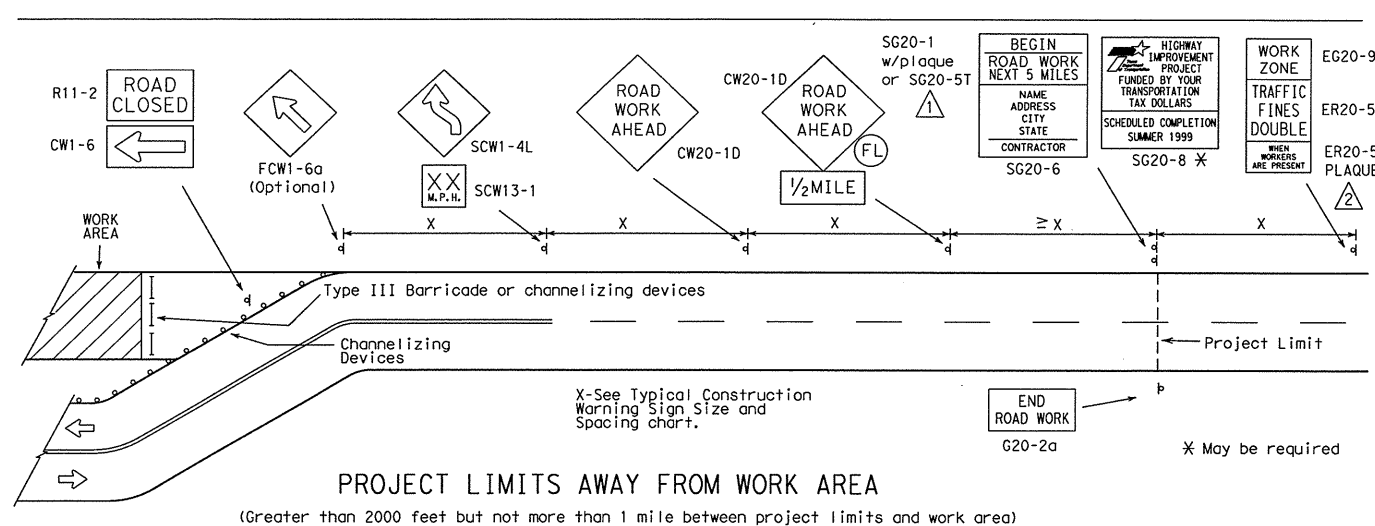
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DW: 3
CK: 4
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LEVELS DISPLAYED: 6
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FILE: 51
ACC: 52
171 819 202 122 22 32 42 52 62 72 82 92 102 112 122 132 142 152 162 172 182 192 202 212 222 232 242 252 262 272 282 292 302 312 322 332 342 352 362 372 382 392 402 412 422 432 442 452 462 472 482 492 502

PROJECT LIMIT TRAFFIC CONTROL DEVICES



PROJECT LIMITS ADJACENT TO WORK AREA (Less than 2000 feet between project limits and work area)

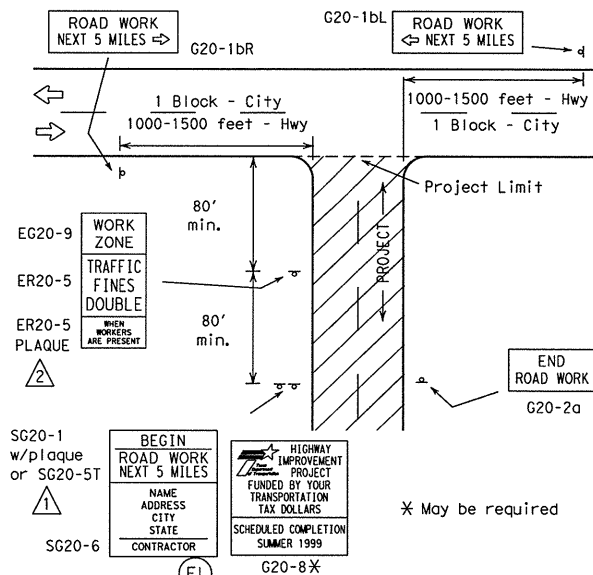


PROJECT LIMITS AWAY FROM WORK AREA (Greater than 2000 feet but not more than 1 mile between project limits and work area)

PROJECT LIMIT GENERAL NOTES

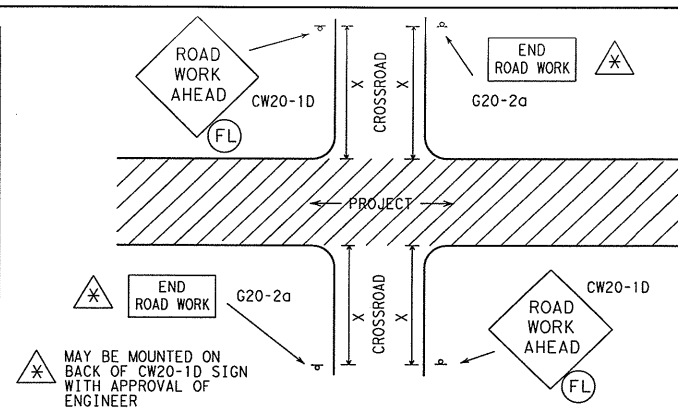
SIGNS AND WARNING LIGHTS

- When specified on this sheet or other sheets in the plans, warning lights for a sign shall be installed and maintained by the contractor. Warning lights shall be attached to the sign support using a 1/2" bolt (minimum) of sufficient length for three washers, lock washer and a nut.
- Warning lights shall be maintained as directed by the Engineer.
- Appropriate standard traffic control devices shall be used as required by the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the contractor's responsible person.
- As a general rule, additional traffic control devices in advance of the project limits should only be used in those cases where a work area, a detour, or a potentially hazardous location is less than 2000 feet inside the project limits.
- The traffic control devices used in the above illustrations are examples only. Field conditions and engineering judgement should dictate the most appropriate traffic control devices to be used. Any variation in the plans shall be documented by written agreement between the Engineer and the contractor's responsible person.
- As detailed above, the BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the project limits and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the project limits. These signs should be adjusted to provide adequate spacing to other signs. The OBSERVE WARNING SIGNS STATE LAW sign shall be installed when required elsewhere in the plans.
- With the agreement of an adjacent project Engineer, the Engineer(s) may allow the omission of 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 will 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.
- Duplicate construction warning signs should be erected on the median side of divided highways where median width will permit and traffic volumes justifies the signing.
- Except for devices required by Note 6, traffic control devices should be in place only while work is actually in progress or a definite need exists.
- Sign size should be based on the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" (TMUTCD).
- The Special Public Information sign (SG20-8) shall be installed at the project limits when required elsewhere in the plans. Refer to SMD Standards for approved mounting details.

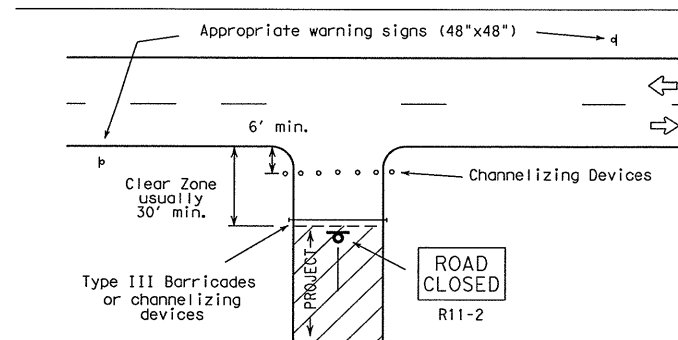


PROJECT LIMITS AT T-INTERSECTION

- The ROAD WORK NEXT X MILES sign should be erected on the intersected highway as detailed above.
- On the intersected roadway, additional traffic control devices, such as a flagger and accompanying signs or other signs, should be used when work is being performed at or near the intersection.

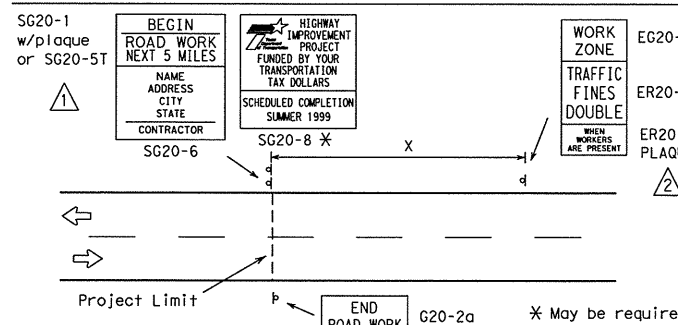


CROSSROAD SIGNING AND BARRICADING



PROJECT LIMITS FOR CLOSED ROADWAY

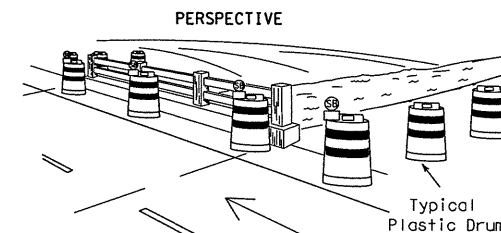
Barricades or channelizing devices shall be erected completely across roadway. Channelizing Devices may be drums, vertical panels or cones as specified in the plans.



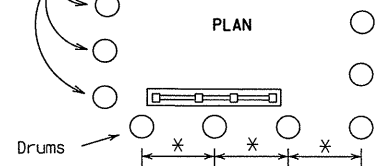
PROJECT LIMITS AWAY FROM WORK AREA

(Greater than 1 mile between project limits and work area)

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



These drums are not required on one-way roadway



* Approx. 8' to 10' (maximum) spacing between drums.

- Where positive redirection capability is provided, drums may be omitted.
- Plastic construction fencing may be used with drums for safety as required in the plans.
- Vertical Panel on flexible support may be substituted for drums when shoulder width is less than 4'.
- When shoulder width is greater than 12', steady-burn lights may be omitted, if drums are used.

10/99 Revision

- Added "BEGIN" to "ROADWORK NEXT XX MILES" sign
- Added "WHEN WORKERS ARE PRESENT" plaque

CROSSROAD SIGNING AND BARRICADING

1. Except as noted elsewhere in plans, the usual minimum signing on a crossroad approach should be one CW20-1D ROAD WORK AHEAD sign and G20-2a END ROAD WORK sign. Where speeds and volumes are relatively low, a smaller ROAD WORK AHEAD sign may be used.

When approved by the Engineer, on low volume crossroads, advance warning signs may be the reduced size 36" x 36" ROAD WORK AHEAD (MCW20-1D) sign mounted back to back with the reduced size 36" x 18" END ROAD WORK (SG20-2a) sign. See the "STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS" manual and BC(9) thru BC(9C) for sign design details. On low volume crossroads, advance signing may be omitted if approved by the Engineer.

Additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs may be required. When additional signs are required, such signs will be considered part of the minimum requirements.

2. The G20-1a sign shall be required on major crossroads to advise motorists of the length of construction in either direction from the intersection.

3. On higher volume crossroads additional traffic control devices may be noted elsewhere in the plans.

4. When work occurs in the intersection area, appropriate traffic control devices shall be in place.

WARNING LIGHTS

Warning lights shall meet the requirements of the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways."

Warning lights shall NOT be installed on barricades.

Type A-Low Intensity Flashing Warning Lights are commonly used with signs. They are intended to warn of an approaching potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "(FL)".

Type-C 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)".

TYPICAL CONSTRUCTION WARNING SIGN SIZE^{1,5,6} AND SPACING

Roadway Classification	Posted Speed	Sign ^Δ Spacing "x"	Long-term Or Intermediate-term Stationary Approach Warning Signs CW20 Series And CW22-1 Sign		Short-term Stationary Or Short Duration Approach Warning Signs CW21 Series		Other Warning Signs
			Standard inches	Minimum ⁴ inches	Standard inches ⁷	Minimum ⁷ inches ⁷	
Conven. ↓	30	120	48 x 48 ↓	36 x 36 ↓ Use Standard Size	30 x 30 or 36 x 36	24 x 24 or 30 x 30	30 x 30 or 36 x 36
	35	160			↓ 48 x 48 ↓	↓ Use Standard Size ↓	↓ 48 x 48 ↓
	40	240					
	45	320					
	50	400					
	55	500 ²					
	60	600 ²					
	65	700 ²					
	70	800 ²					
Exp. or Frwy	*	* ³	↓	↓	**	**	**

* For typical sign spacings on expressways and freeways, see TMUTCD typical application diagrams or TCP Standard Sheets.

Δ Minimum distance from work area to 1st Advance Warning sign and/or distance between each additional sign.

** Smaller sign sizes may be used where sign designs have been included in the "Standard Highway Sign Designs for Texas" manual.

General Notes:

- Special or larger size signs may be used as may be necessary.
- Distance between signs should be increased as required to have 1500 feet advance warning.
- Distance between signs should be increased as required to have 1/2 mile or more advance warning.
- For use only on secondary roads or city streets where speeds are low.
- Only diamond shaped warning sign sizes are indicated.
- See sign size listing in TMUTCD, Appendix A for complete list of all available sign design sizes.
- Where two sizes are listed, see sign size listing in TMUTCD, Appendix A for proper size.

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:
Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

STANDARD PLANS TEXAS DEPARTMENT OF TRANSPORTATION Traffic Operations Division

BARRICADE AND CONSTRUCTION STANDARDS

ADVANCE SIGNING CROSSROAD SIGNING WARNING LIGHTS

BC(1)-99

© TxDOT February 1998	DN: LR	CK: DTN	DN: DN	CK: GB	NEG NO.:
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
10-99	DALLAS	6	NH 2003 (146)		10
COUNTY		CONTROL	SECTION	JOB	HIGHWAY
KAUFMAN, ETC.		0918	00	082	IH 20, ETC.

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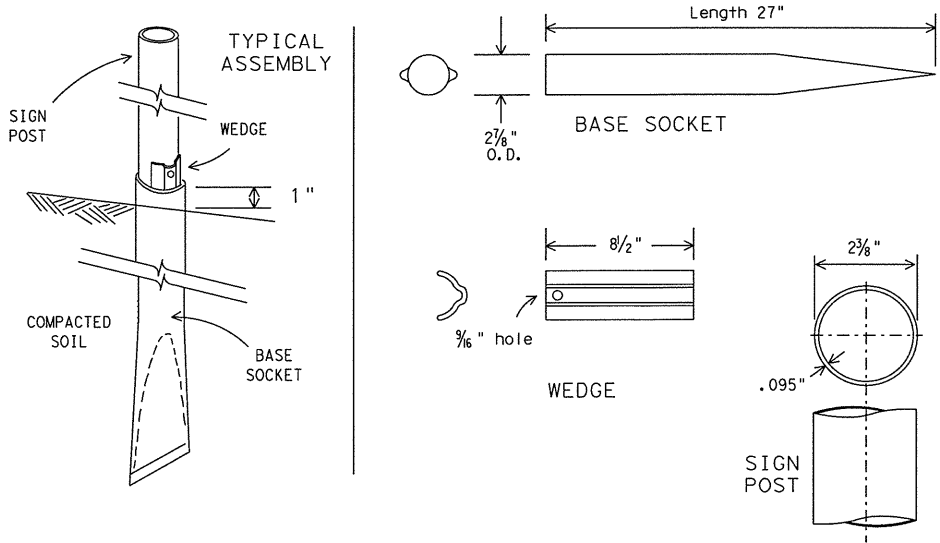
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CK:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

LEVELS DISPLAYED
DATE: 01/11/2011
ACC: 01/11/2011
FILE: 01/11/2011

TYPE III BARRICADE (POST TYPE)

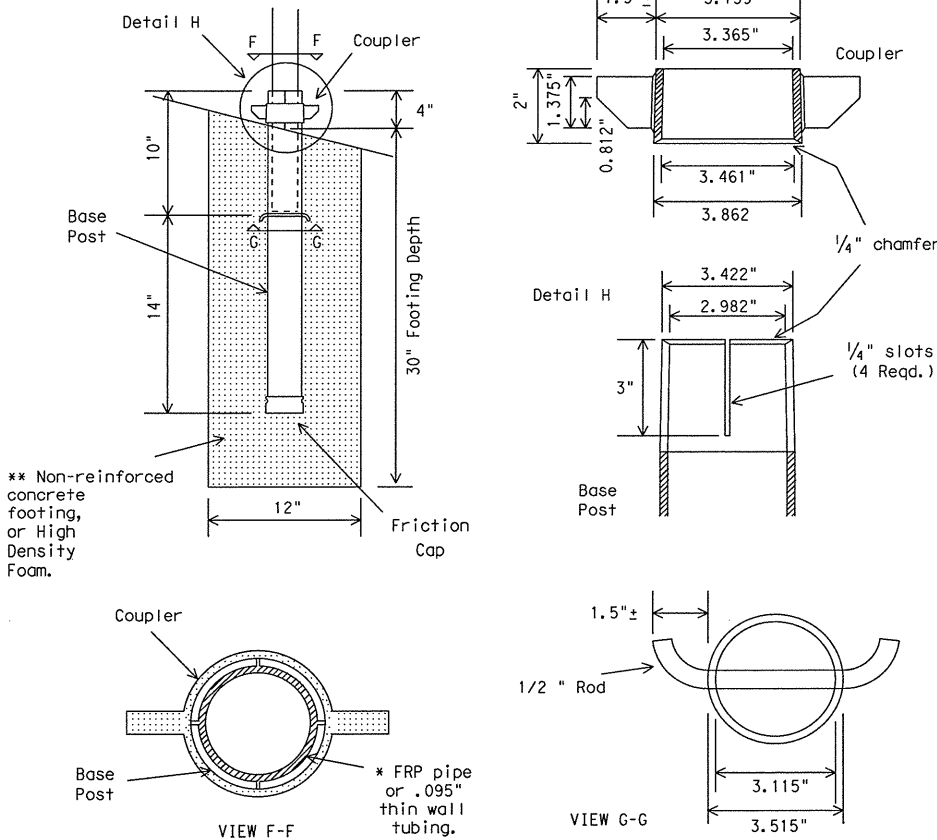
POZ-LOC
(Driveable)



GENERAL NOTES FOR THIN WALL TUBE TYPE SIGN SUPPORT:

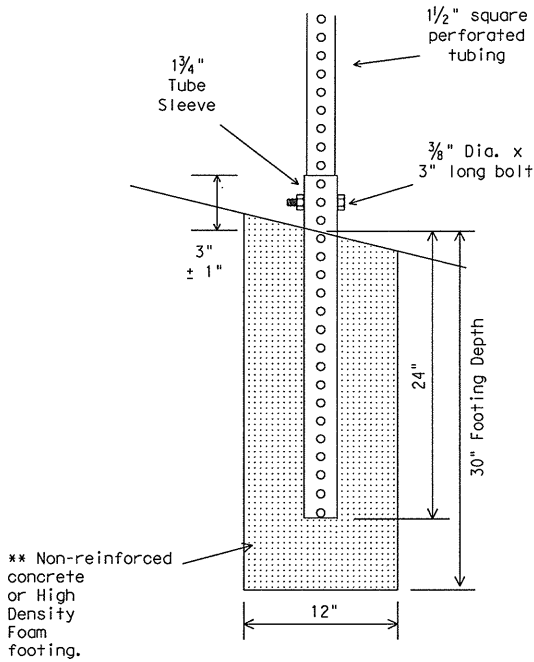
1. The BASE SOCKET is formed from 2 7/8" O.D. x 12 gauge galvanized pipe.
2. The WEDGE is formed from 11 gauge steel galvanized per ASTM A525.
3. The SIGN POST is 2.375" O.D. x 0.095" thin wall steel tubing.
4. Steel Supports shall be made from new material and shall be corrosion resistant. Steel supports shall be galvanized in accordance with ASTM Designations A123 or A525 (G-90 or better).
5. Supports shall be straight within 1/4" per 5 feet of length and shall have a smooth, uniform finish free from defects affecting strength or appearance. Any bolt holes and sheared ends shall be free from burrs. Bases of multisection supports shall not extend more than 5 inches above ground when installed.
6. Bolts, nuts, screws, washers and other miscellaneous hardware shall be galvanized in accordance to ASTM Designation: A153 Class C or D, or B695 Class 50.
7. Barricade supports systems used on this sheet may be suitable for only certain soil types. The contractor is responsible for selecting the appropriate support system for soil conditions on each project.

UNIVERSAL ANCHOR SYSTEM



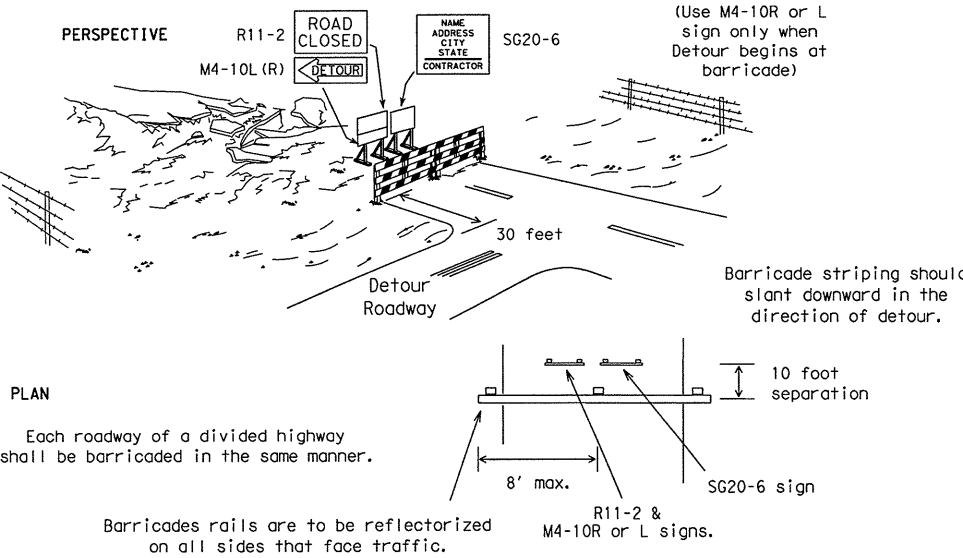
- * Plastic insert must be used with 1/16" thin wall tubing.
- ** Footing shall be removed and backfilled when barricade is removed.

SQUARE TUBING



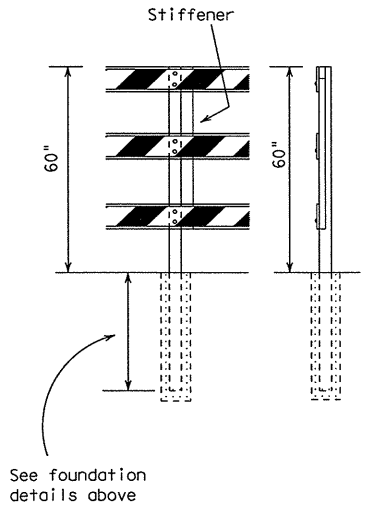
Barricades shall NOT be used as a sign support.

TYPE III BARRICADE (POST TYPE) TYPICAL APPLICATION

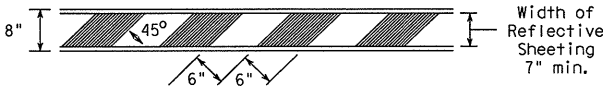


- 1). R11-2 and M4-10 signs should be mounted on independent supports at 7 foot mounting height in center of roadway.
- 2). Advance signing, including construction warning signs, and detour signing shall be as specified elsewhere in the plans.

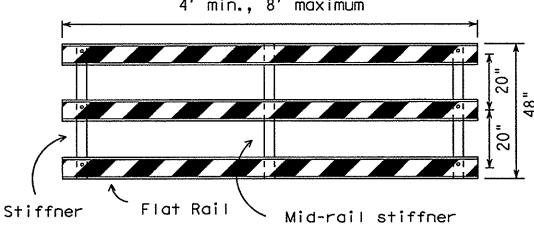
TYPE III BARRICADE (POST)



TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES



* For dimensions of components refer to TxDOT approved products list.

Barricades shall be made using pre-qualified materials. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION STANDARDS

BARRICADES
(POST TYPE)

BC (3) - 98

© TxDOT February 1998	DN: LR	CE: DTN	DN: DN	CE: GB	NEG NO.:
REVISIONS	STATE	FEDERAL	FEDERAL AID PROJECT	SHEET	
	DALLAS	6	NH 2003 (146)	12	
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	KAUFMAN, ETC.	0918	00	082	IH 20, ETC.

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CK:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

GENERAL NOTES:

- Sign Supports detailed on this sheet have been crash tested and are approved breakaway systems. TxDOT acceptance of these breakaway systems does not cover the structural features of the sign support systems.
- Sign support systems approved by FHWA may be used as approved fixed sign supports, as long as they meet TxDOT minimum sign height requirements. The contractor shall provide documentation from FHWA approving sign support systems not shown on this sheet.
- Sign support systems listed on this sheet may be suitable for only certain soil types. The contractor is responsible for selecting appropriate sign support systems for soil conditions on each project.
- Barricades shall NOT be used as sign supports.

WORK ZONE SIGNS

GENERAL

Standard signs shall be used as required by the BC Standard sheets, the plans, or as directed by the Engineer to regulate, warn, and guide traffic. All sign usage and erection shall be in strict accordance with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways" (TMUTCD). The Contractor shall maintain each sign as directed by the Engineer.

The Contractor may use either the sign designs shown on the BC Standard Sheets, or those sign designs shown in the "Standard Highway Sign Designs for Texas" (SHSD). All work zone signs provided for in the TMUTCD but not detailed in the plans may be used when directed by the Engineer.

SIZE OF SIGNS

On secondary roads or city streets where speeds are low, smaller size construction warning signs may be used with the written approval of the Engineer and if the sign size is in accordance with the "Typical Construction Warning Sign Size and Spacing Chart" shown on page 6C-11 of the TMUTCD, Part VI.

SPLICES

All wooden sign panels fabricated from 2 or more pieces shall have one or more plywood cleats, 1/2 inch thick by 6 inches wide, fastened to the back of the sign and extending fully across the sign.

Wood Sign posts shall not be spliced.

REFLECTIVE SHEETING

Reflectorized signs shall be constructed of retroreflective sheeting meeting the color and reflectivity requirements of TxDOT Material Specification DMS 8300 or DMS 8310. Day only is defined as a device that is used only during daylight hours.

Type A, B or C sheeting may be used for all day only applications. Type A sheeting should be used for all white background regulatory signs. Type C sheeting shall be used for all other applications. The above applications of sheeting grades to different type signs will apply unless otherwise specified in the plans.

TYPE A = Engineer Grade, TYPE B = Super Engineer Grade, TYPE C = High Specific Intensity

SIGN LETTERS

All sign lettering shall be clear, open rounded type capital letters as approved by and as published by the Federal Highway Administration (FHWA). Signs and lettering shall be of first class workmanship equivalent to that of the Department standard signs.

WORK DURATION TERMINOLOGY-(as defined by the "Texas Manual on Uniform Traffic Control Devices" Part VI)

Long-term Stationary = occupies a location 3 or more days;

Intermediate-term Stationary = occupies a location from overnight to 3 days;

Short-term Stationary = daylight work that occupies a location from 1 to 12 hours;

Short Duration = occupies a location up to 1 hour.

SUPPORTS AND MOUNTING HEIGHT

The bottom of Long-term / Intermediate-term signs shall be at least 7 feet above the paved surface. The bottom of any supplementary plaques shall be at least 6 feet above the paved surface.

The bottom of Short-term / Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground. Long-term / Intermediate-term Signs may be used in lieu of Short-term / Short Duration signing. Short-term / Short Duration signs shall be used only during daylight and removed at the end of the workday.

Regulatory signs shall be mounted at least 7 feet above the paved surface regardless of work duration.

Wood sign supports shall be painted white.

SIGN SUPPORT WEIGHTS

Where sign supports require the use of weights to keep from turning over, the use of some type of sandbag is recommended. The use of pieces of rock, concrete, iron, steel or other solid objects will not be permitted.

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.

REMOVING OR COVERING

When sign messages may be confusing or no longer apply, the signs shall be removed or completely covered. When signs are covered the material used shall be opaque, such as heavy mil black plastic. Burlap shall not be used to cover signs. Signs shall be removed upon completion of the work.

Duct tape or other adhesive material shall not be affixed to sign face.

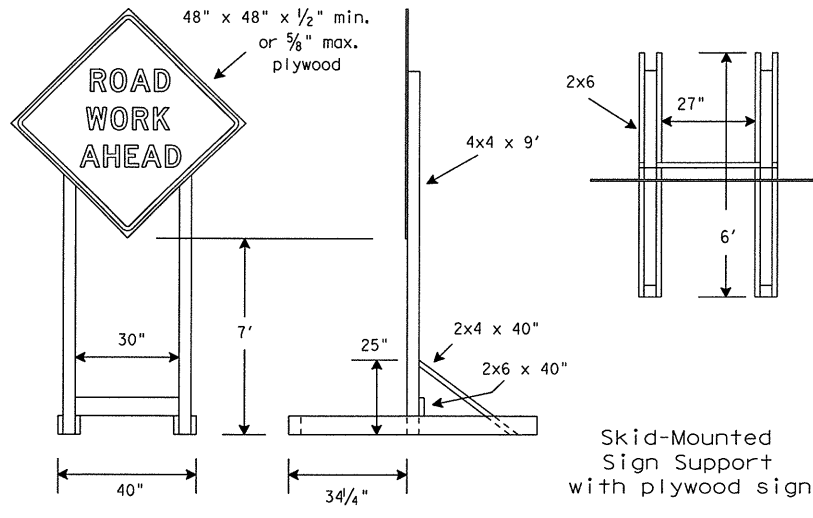
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Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

LONG/INTERMEDIATE TERM STATIONARY PORTABLE SIGN SUPPORTS

7 Foot Mounting Height

(SKID MOUNTED)



(POST TYPE)

Refer to acceptable products list.

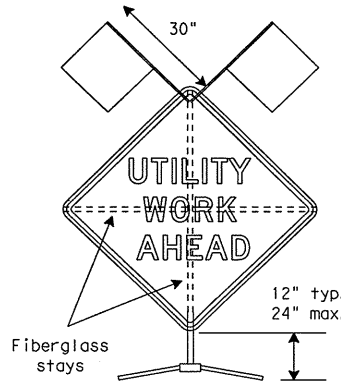
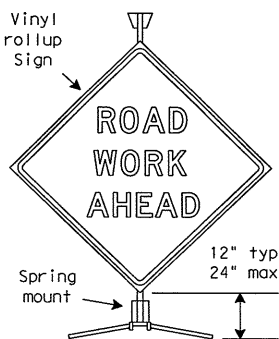
WHEELED PORTABLE SIGN SUPPORT

with plywood sign
(Minimum thickness 1/2 inch)
TxDOT Design

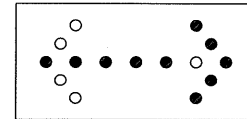


SHORT TERM STATIONARY/SHORT DURATION PORTABLE SIGN SUPPORTS

1 Foot Mounting Height



TYPICAL FLASHING ARROW PANEL



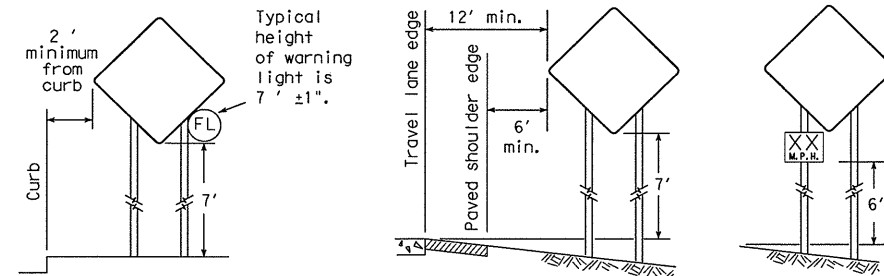
For traffic
to move right.

ATTENTION: Arrow panels
shall be equipped with
automatic dimming devices.

- The Advance Warning Flashing Arrow Panel should be used for all lane closures (multilane roadway), or slow moving maintenance or construction activities on the traveled way. Arrow panels should not be used on two-lane roadways, detours, diversions or work on shoulders unless the CAUTION mode is used.
- Necessary signs, barricades or other traffic control devices should be used in conjunction with the Advance Warning Arrow Panel.
- The Arrow panel should have the capability of the following display selections: LEFT ARROW, RIGHT ARROW, LEFT and RIGHT ARROW and CAUTION. The CAUTION mode consists of four corner lamps flashing simultaneously.
- The Arrow panel shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 times per minute nor more than 40 flashes per minute. The Advance Warning Flashing Arrow Panel shall be mounted on a vehicle, trailer or other suitable support.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and 25 percent for the sequential chevron.
- The TxDOT standard is the flashing arrow, however, the sequential chevron may be used during daylight operations. The sequential arrow should NOT be used.

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

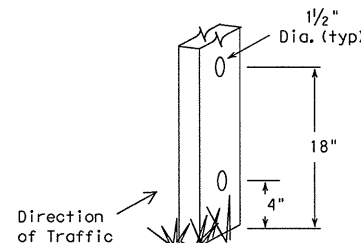
TYPICAL MINIMUM CLEARANCES FOR LONG/INTERMEDIATE TERM SIGNS



It is the intent of these plans to provide positive guidance to motorists throughout the project limits by the use of signs, pavement markings, delineation devices and/or channelizing devices. All traffic control devices shall conform with the "Texas Manual on Uniform Traffic Control Devices for Streets and Highways."

WOOD POST SYSTEM FOR FIXED SIGN SUPPORTS

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



STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION STANDARDS

SIGN SUPPORTS

BC (4) - 99

© TxDOT February 1998	DN: LR	CK: DTN	DN: DN	CK: GB	REG NO.:
REVISIONS 10-99	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET	
	DALLAS	6	NH 2003 (146)	13	
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	KAUFMAN, ETC.	0918	00	082	IH 20, ETC.

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DW: 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200
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DATE: 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800
ACC: 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900
FILE: 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

GENERAL NOTES:

SELF-RIGHTING SUPPORTS

- Channelizing devices on self-righting supports may be a vertical panel, opposing lane divider or chevron.
- Channelizing devices on self-righting supports shall be used at locations detailed elsewhere in the plans. These devices shall conform to the "Texas Manual on Uniform Traffic Control Devices". Type of base will be as directed by the Engineer.
- Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles. 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. Devices should not be placed within 12 inches of the traveled way. Spacing and placement shall be uniform and in accordance with the "Texas MUTCD".
- The contractor shall maintain devices in a clean condition and replace damaged, non-reflective, faded, or broken devices and bases as necessary.
- Devices shall be erected by method shown on this sheet and as approved by the Engineer.
- Portable bases shall be fabricated from virgin and/or recycled rubber. Approximate weight of portable bases shall be 35 lbs.
- Pavement surfaces shall be prepared in a manner that will ensure proper bonding of adhesives and fixed mount bases to the pavement surfaces when required. Adhesives shall be prepared and applied as per manufacturers recommendations.
- Application and removal of 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. All application and removal procedures of fixed bases shall be approved by the Engineer.
- These devices shall not be paid for directly but shall be considered subsidiary to the Item "Barriacades, Signs, and Traffic Handling."

CONES

- Traffic cones and tubular markers shall be a minimum of 28 inches in height when used on freeways or used at nighttime. Orange shall be the predominant color of cones and tubular markers. They should be kept clean and bright for maximum visibility. Cones shall have a minimum weight of 9½ lbs.
- For nighttime use, cones shall be reflectorized. Reflectorized material shall have a smooth, sealed outer surface which will display the same approximate color day and night. When used at night, appropriate personnel shall be present at all times to ensure cones and tubular markers remain in their proper location and in an upright position.
- Reflectorization of cones shall be a minimum 6 inch band placed at least 3 inches but not more than 4 inches from the top, supplemented by a minimum 4 inch band spaced a minimum of 2 inches below the 6 inch band. Reflectorization of tubular markers shall be a minimum of two 3 inch bands placed a maximum of 2 inches from the top with a maximum of 6 inches between bands.
- One-piece cones or tubular markers are generally suitable for temporary usage (up to 8 hours) with other channelization devices such as vertical panels, drums or two-piece cones for long term usage. Care should be taken to ensure that they remain in their proper location and in an upright position.
- *-SPRAF (stacking/placement/removal assistance feature) may be designed as a handle, hook or other shape, fabricated from non-rigid materials similar to the cone material, and may extend up to a maximum of 8 inches above the top of cone. The length of the SPRAF shall not be considered with regard to the 28 inch minimum height.

DRUMS

Refer to BC(5).

SPECIFICATION REFERENCE TABLE
MATERIALS AND TEST SPECIFICATIONS (D-9)

FLAT SURFACE REFLECTIVE SHEETING, TYPE C
(HIGH SPECIFIC INTENSITY)

D-9-8300

Only pre-qualified products shall be used. A List of compliant products and their sources may be obtained by writing, calling or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation (TxDOT)
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3120
Fax (512) 416-3161
E-mail TRF-STANDARD @ mailgw.dot.state.tx.us

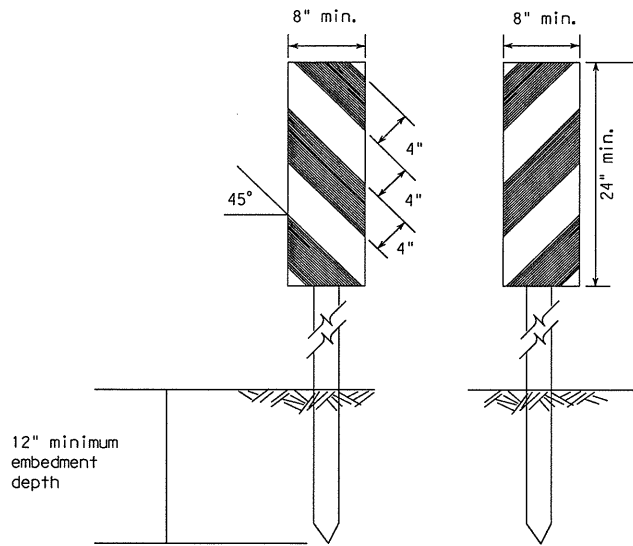
Posted Speed *S	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Device		Minimum Sign Spacing X Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent	
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60' - 75'	120'
35		205'	225'	245'	35'	70' - 90'	160'
40		265'	295'	320'	40'	80' - 100'	240'
45	L=WS	450'	495'	540'	45'	90' - 110'	320'
50		500'	550'	600'	50'	100' - 125'	400'
55		550'	605'	660'	55'	110' - 140'	500'
60		600'	660'	720'	60'	120' - 150'	* 600'
65		650'	715'	780'	65'	130' - 165'	* 700'
70		700'	770'	840'	70'	140' - 175'	* 800'

* Conventional Roads Only

** Taper lengths have been rounded off.

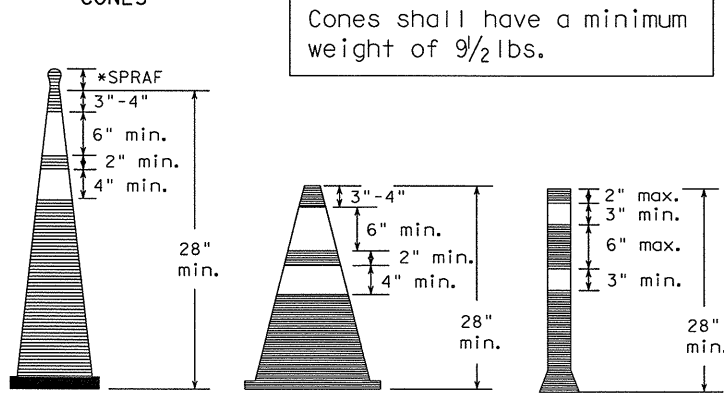
L=Length of Taper (FT.) W=Width of Offset (FT.) S=Posted Speed (MPH)

DRIVEABLE RIGID VERTICAL PANEL



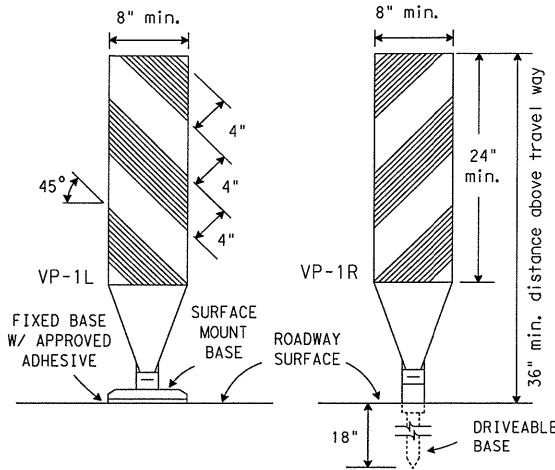
See Compliant Products List for supports and panel substrates

CONES



Cones shall have a minimum weight of 9½ lbs.

SELF-RIGHTING SUPPORTS



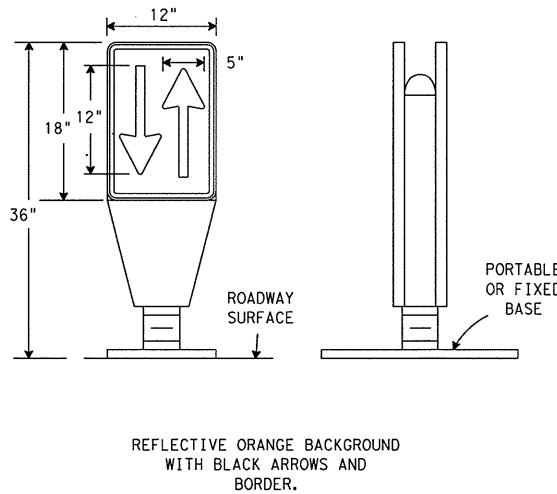
VERTICAL PANELS

Vertical Panels are normally used as channelizing devices to indicate tangent or nearly tangent roadway alignment where good target value of a device is needed in daytime as well as nighttime. In addition, vertical panels should be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation may be required. Vertical panels 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 traveled way. Vertical Panels used on expressways, freeways, and other high speed roadways shall have a minimum of 2 square feet of retroreflective area facing traffic.

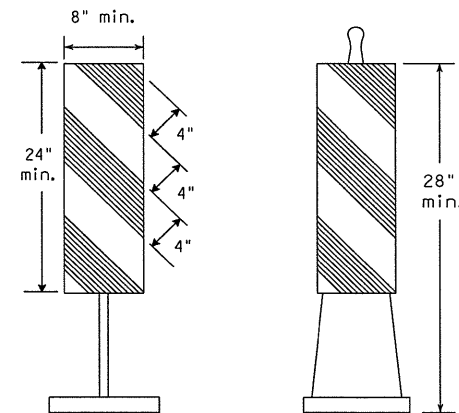
Self-righting supports are available with portable base. See Compliant Products List.

OPPOSING LANE DIVIDER

with Portable or Fixed Base Support



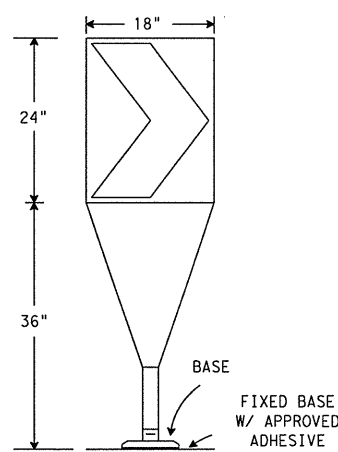
PORTABLE RIGID VERTICAL PANEL



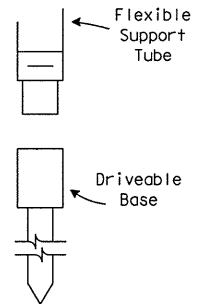
See Compliant Products List for alternate designs.

CHEVRON

with Flexible Support



DRIVEABLE BASE



Driveable Support for Vertical Panel VP(F)-1 or Chevron CW1-8(F).

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION STANDARDS

CHANNELIZING DEVICES
CONES

BC(6)-98

© TxDOT February 1998		DN - LR	CK - DTN	DN - DN	CK - GB	NEG NO.:
REVISIONS	STATE	FEDERAL	FEDERAL AID PROJECT			SHEET
	DALLAS	6	NH 2003 (146)			15
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY	
	KAUFMAN, ETC.	0918	00	082	IH 20, ETC.	

WORK ZONE PAVEMENT MARKINGS

GENERAL

The Contractor shall be responsible for maintaining work zone and existing pavement markings on all roadways open to traffic within the projects limits unless otherwise stated in the plans. Color, patterns, and dimensions shall be in conformance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD). Additional supplemental pavement marking details may be found in the plans or specifications.

Work zone pavement markings shall consist of guidemarks, short term markings and/or standard pavement markings. Unless otherwise shown in the plans, materials used for work zone pavement markings shall be thermoplastic, raised pavement markers, prefabricated pavement marking material, temporary flexible-reflective roadway marker tabs or other materials approved by the Engineer. Thermoplastic shall not be used for removable markings.

All roadways to be opened to traffic shall be marked with short term markings or standard markings as shown in the plans, at the end of each day's operation. Unless otherwise shown in the plans or approved in writing by the Engineer, all concrete surfaces shall have standard markings in place prior to opening to traffic.

Standard pavement markings shall be installed in accordance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD) and as shown on the plans. When short term markings are required on the plans, short term markings shall conform with the TMUTCD, the plans and details as shown on the Standard WZ(STPM).

All asphaltic surfaces which are to be opened to traffic shall be marked with guidemarks immediately following placement and final rolling of any course. Guidemarks shall consist of a single temporary flexible-reflective roadway marker tab or a single temporary construction raised pavement marker at 40 foot spacing.

Guidemarks shall be placed in proper alignment with the final location of future pavement markings. Any guidemarks not in alignment with pavement markings shall be removed by the Contractor at the Contractor's expense. Guidemarks shall not be used to simulate edgelines.

When inclement weather prohibits the application of short term markings or standard markings as called for on the plans, upon approval of the Engineer, guidemarks may be considered as temporary short term markings for asphaltic surfaces. The placement of pavement markings as shown on the plans may be delayed until such time that weather permits application of pavement markings.

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 shall be erected to mark the beginning of the sections where passing is permitted.

RAISED PAVEMENT MARKERS

Raised pavement markers are to be placed according to the patterns on BC(8). Raised pavement markers used as standard pavement markings or to supplement removable markings shall meet the requirements of Item "RAISED PAVEMENT MARKERS".

Unless otherwise shown on the plans, raised pavement markers will not be allowed for words, symbols, and shapes, diagonal or transverse lines.

PREFABRICATED PAVEMENT MARKINGS

Removable prefabricated pavement markings shall be a material of manufacture and product code or designation shown on the list of approved materials covered by the Department Materials Specification D-9-8241.

Non-removable prefabricated pavement markings (foil back) shall be a material of manufacture and product code or designation shown on the list of approved materials covered by the Specification TxDOT 550-74-01.

The lists of approved prefabricated work zone pavement marking materials may be obtained from TxDOT General Services Division.

MAINTENANCE

The Contractor will be responsible for maintaining work zone pavement markings within the project limits. Work Zone Pavement Markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections. The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 165 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics. Markings failing to meet this criteria shall be replaced as required by the Engineer.

REMOVAL OF PAVEMENT MARKINGS

Removal of pavement markings includes centerline, channelizing lines, lane lines, edge lines, words, arrows, symbols and raised pavement markers.

Pavement markings that are no longer applicable and which may create confusion or direct a motorist toward or into the closed portion of the roadway, shall be removed or obliterated before the roadway is open to traffic. The above shall not apply to detours of a short duration of a few hours, where flaggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route and the detour is not to be maintained during nighttime.

Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernible marking, by any method that does not materially damage the surface or texture of the pavement. The removal of pavement markings may require resurfacing or seal coating portions of the roadway, normally full lane widths. Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used. Blast cleaning may be used but will not be required unless specifically shown in the plans. Over-painting of the markings SHALL NOT BE permitted. Removal of raised pavement markers shall be as directed by the Engineer.

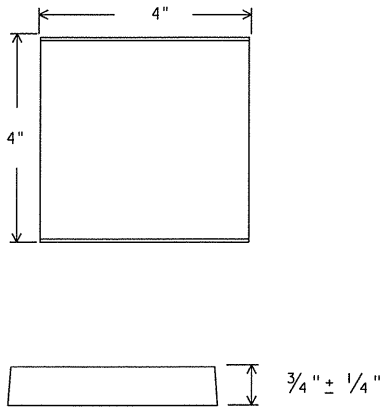
Removal of existing pavement markings and markers will be paid for directly in accordance with the Item "ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS" unless otherwise stated elsewhere in the plans.

SPECIFICATION REFERENCE TABLE	
MATERIALS AND TESTS DIVISION SPECIFICATIONS	
JIGGLE BAR TILE	D-9-4100
PAVEMENT MARKERS (REFLECTORIZED)	D-9-4200
TRAFFIC BUTTONS	D-9-4300
EPOXY	D-9-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	D-9-6130
PREFABRICATED PAVEMENT MARKINGS - REMOVABLE	D-9-8241
TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS	D-9-8242

PREQUALIFICATION PROCEDURES MAY BE OBTAINED BY WRITING:

GENERAL SERVICES DIVISION
TEXAS DEPARTMENT OF TRANSPORTATION (TxDOT)
125 EAST 11th STREET
AUSTIN, TX 78701-2483

Temporary Construction
Raised Pavement Markers
used as Guidemarks:



The above temporary construction raised pavement marker is shown for illustration purposes only and not intended to specify any particular product.

Temporary construction raised pavement markers used as guidemarks shall be of design and manufacture approved by the Engineer.

All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.

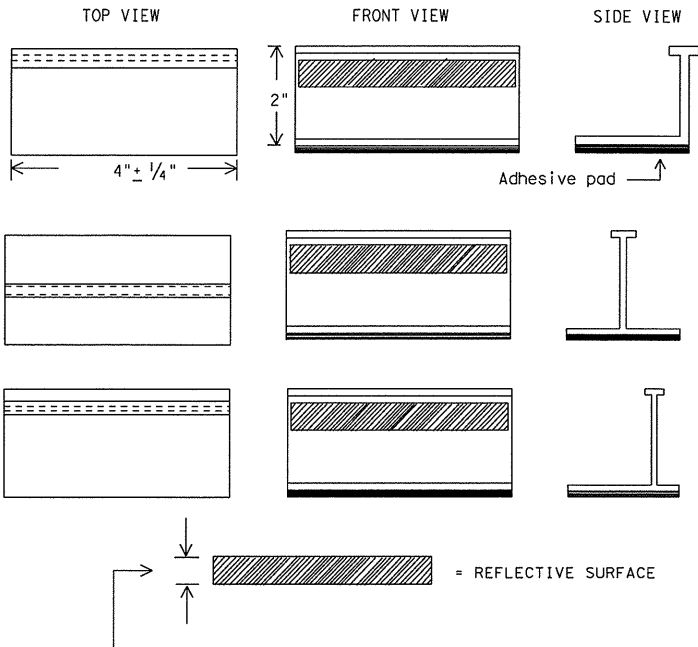
Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be designated as:

YELLOW - (two amber reflective surfaces with yellow body).
WHITE - (one silver reflective surface with white body).

Dimensions indicated on this sheet are typical and approximate. Variations in size and height may occur between markers or devices made by manufacturers, by as much as 1/4 inch, unless otherwise noted.

Temporary Flexible-Reflective
Roadway Marker Tabs



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

Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of Departmental Material Specification D-9-8242.

Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.

- A) Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Tests section to determine specification compliance.
- B) Select five (5) tabs and submit to 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 front and rear wheels at a speed of 35 to 40 miles per hour, four times in each direction. No more than one (1) out of five reflective surfaces shall be lost or displaced as a result of this test.



STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION
STANDARDS

PAVEMENT MARKINGS

BC (7) - 98

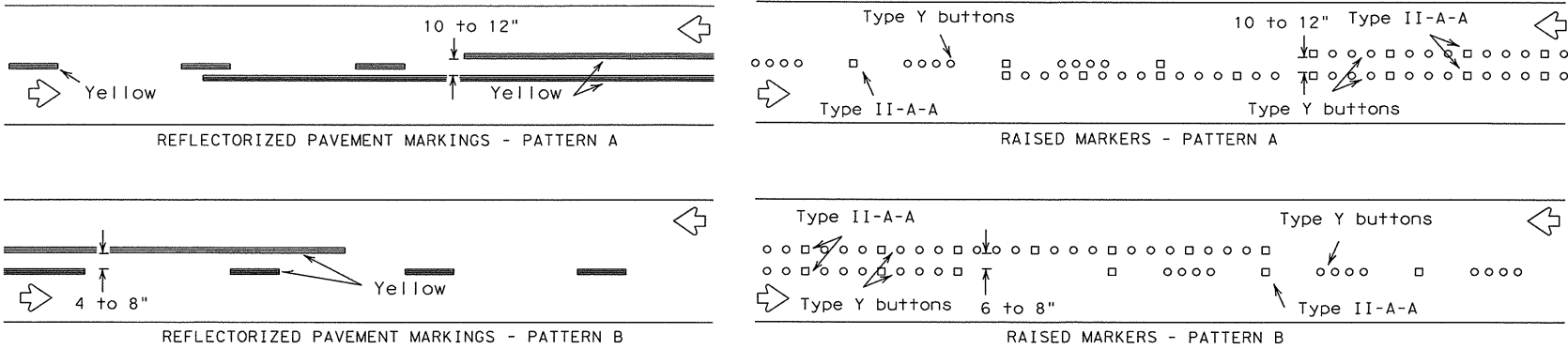
© TxDOT April 1992		DN: - LR	CK: - DTN	DN: - DN	CK: - GB	NEG NO. 1
REVISIONS 2-94 1-97 2-98	STATE	FEDERAL	FEDERAL AID PROJECT			SHEET
	DALLAS	6	NH 2003 (146)			16
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY	
KAUFMAN, ETC.		0918	00	082	IH 20, ETC.	

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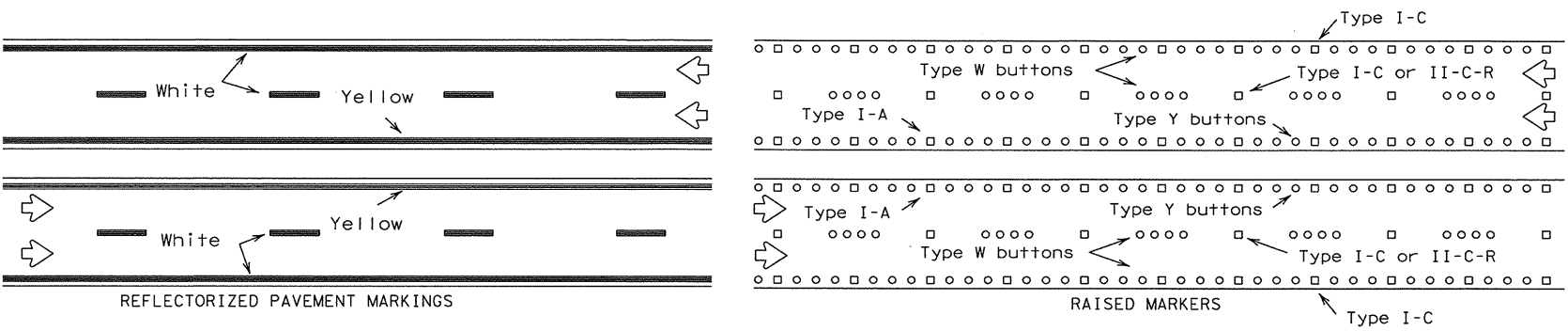
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9	10	11	12
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17	18	19	20
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25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
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89	90	91	92
93	94	95	96
97	98	99	100

PAVEMENT MARKING PATTERNS

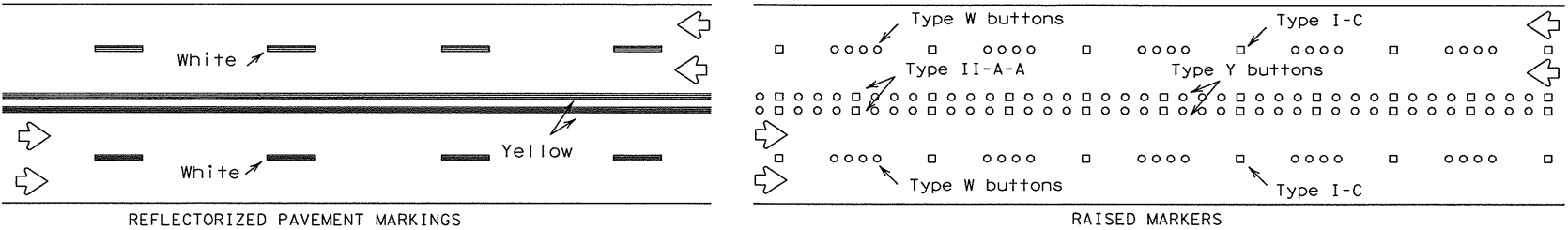
CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO LANE TWO-WAY HIGHWAYS



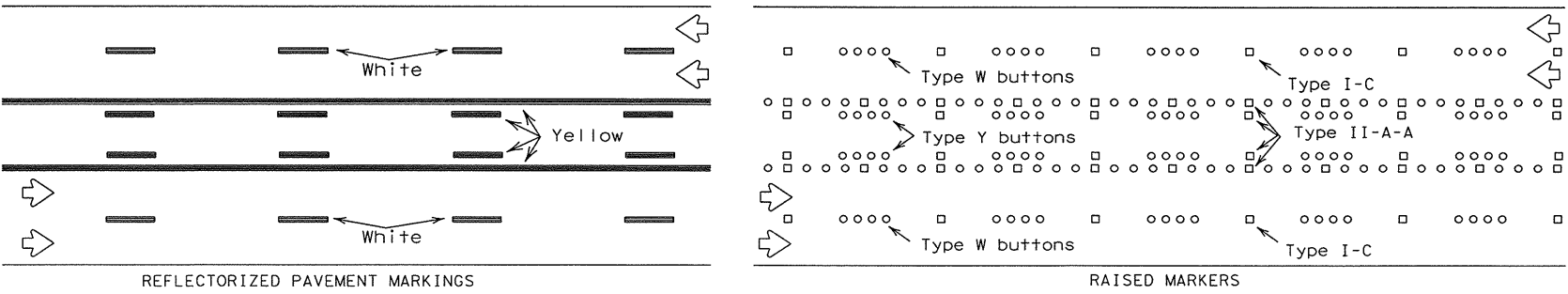
EDGE & LANE LINES FOR DIVIDED HIGHWAY



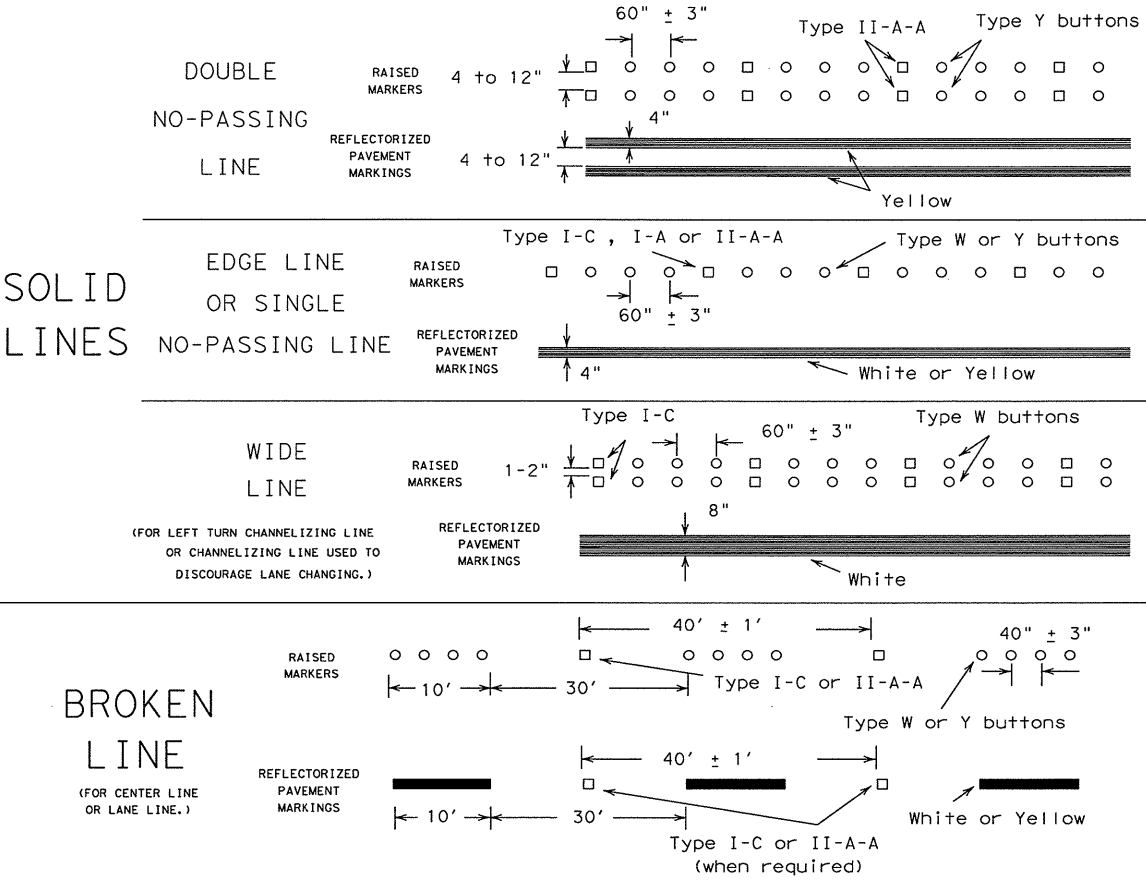
LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



TWO-WAY LEFT TURN LANE

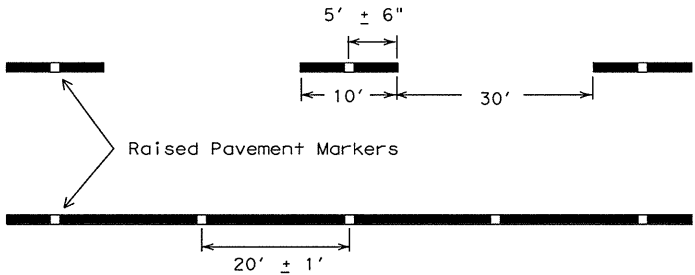


STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS




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 and at approximately 20 foot spacing for solid lines. This allows an easier removal of raised markers and tape.



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

Raised pavement markers used as standard pavement markings shall meet the requirements of items "RAISED PAVEMENT MARKERS" and "EPOXY AND ADHESIVES."



STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION
STANDARDS

PAVEMENT MARKINGSBC(8)-98

©TxDOT April 1992	DN:-LR	CK:-DTN	DN:-DN	CK:-GB	NEG NO.:
REVISIONS	STATE	FEDERAL	FEDERAL AID PROJECT		
2-94	DALLAS	6	NH 2003 (146)		
1-97	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
2-98	KAUFMAN, ETC.	0918	00	082	IH 20, ETC.

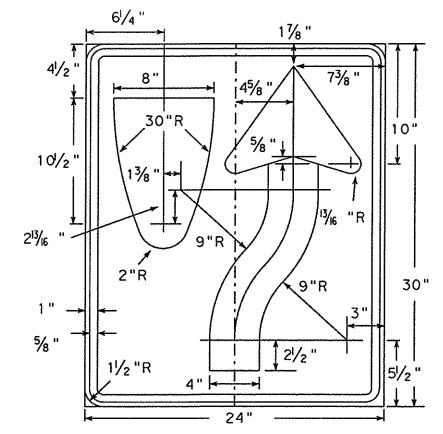
108

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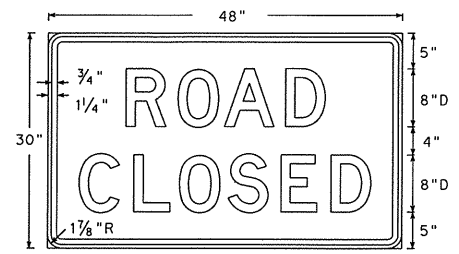
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CK: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

DATE: 1/1/01
ACC: 1/1/01
FILE: 1/1/01

LEVELS DISPLAYED
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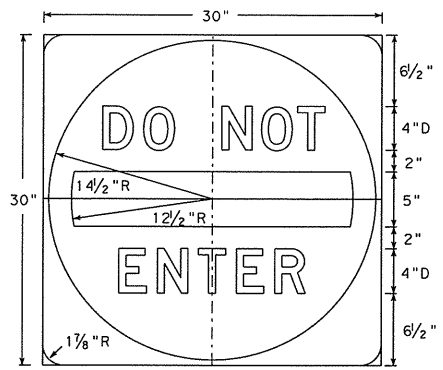


R4-7
(R4-8)
24" X 30"
Symbol - Black
Border - Black
Background - White Refl.

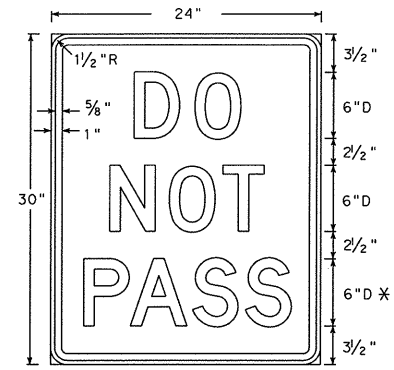


R11-2
48" X 30"
Letters - Black
Border - Black
Background - White Refl.

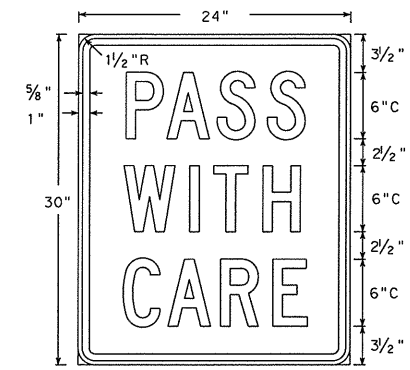
Alternate 1st line legend
STREET R11-2S
RAMPI R11-2R
BRIDGE R11-2B



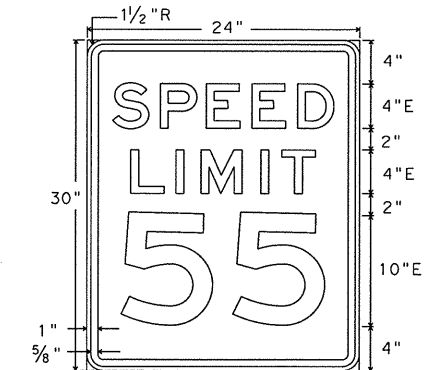
R5-1
30" X 30"
Letters - White Refl.
Bar - White Refl.
Border - White Refl.
Background - Red Refl.



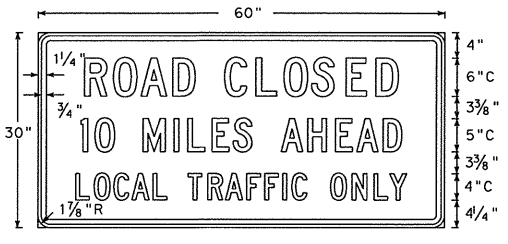
R4-1
24" X 30"
Letters - Black
Border - Black
Background - White Refl.



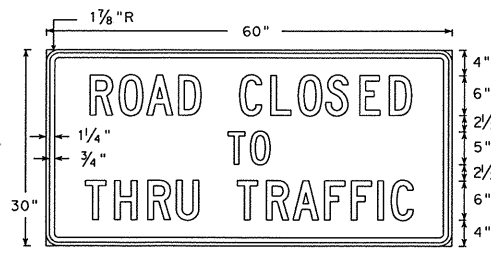
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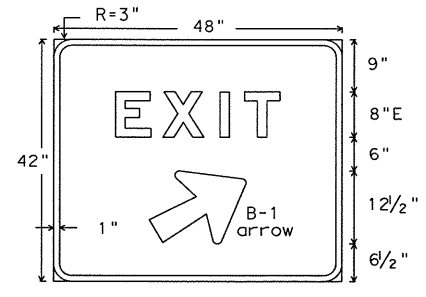
R2-1
24" X 30"
Letters - Black
Border - Black
Background - White Refl.



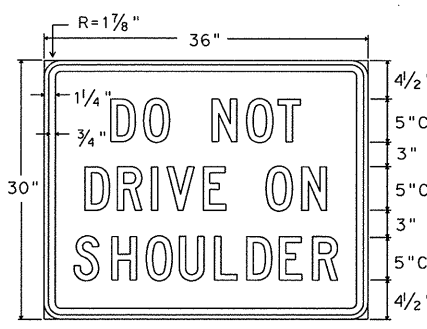
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Numerals - Black
Border - Black
Background - White Refl.



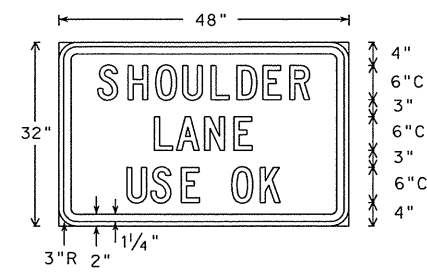
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Border - Black
Background - White Refl.



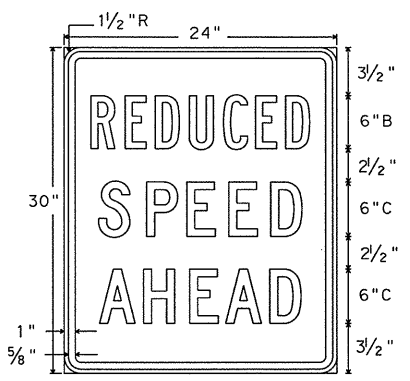
E5-1a
48" X 42"
Letters - White Refl.
Numerals - White Refl.
Symbol - White Refl.
Background - Green Refl.



R4-3a
36" X 30"
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Border - Black
Background - White Refl.

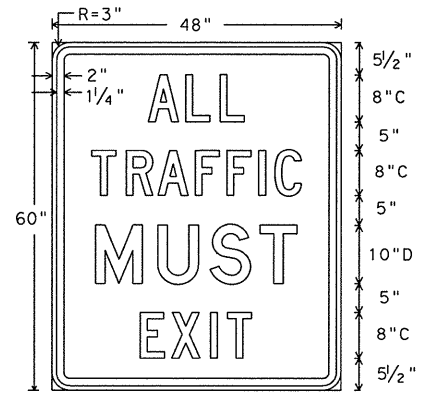


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Border - Black
Background - White Refl.

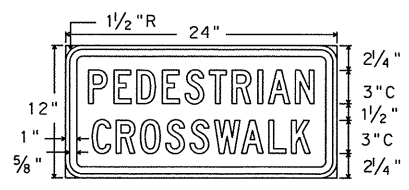


R2-5a
24" X 30"
Letters - Black
Border - Black
Background - White Refl.

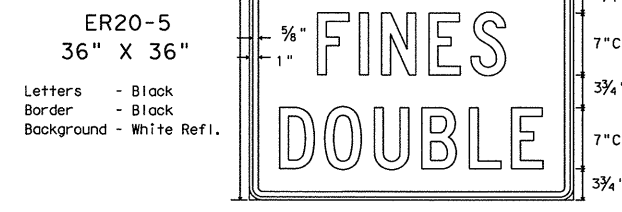
Alternate 1st line legend
BRIDGE OUT R11-3b



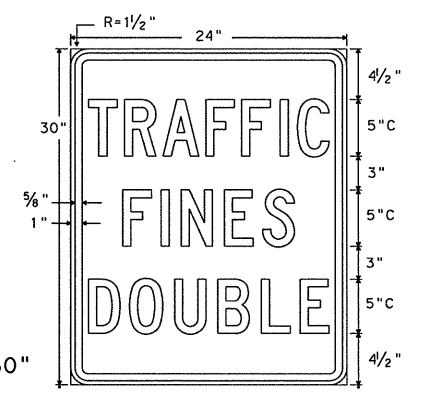
R3-22
48" X 60"
Letters - Black
Border - Black
Background - White Refl.



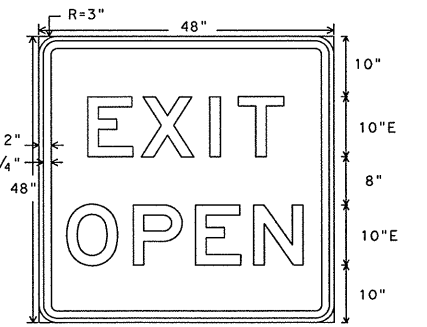
R5-7
24" X 12"
Letters - Black
Border - Black
Background - White Refl.



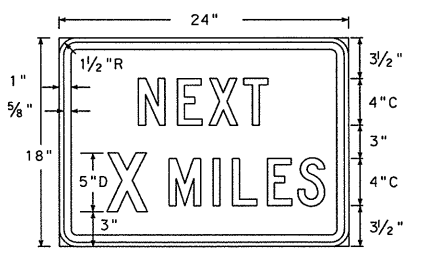
ER20-5
36" X 36"
Letters - Black
Border - Black
Background - White Refl.



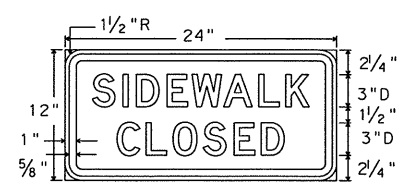
R20-5
24" X 30"
Letters - Black
Border - Black
Background - White Refl.



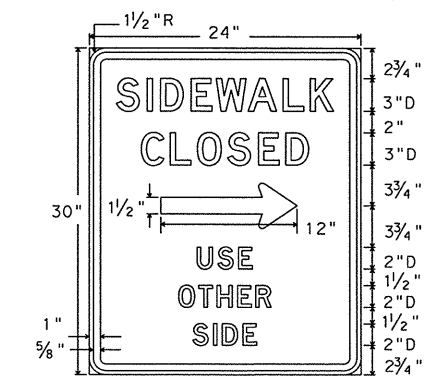
E5-2
48" X 48"
Letters - Black
Border - Black
Background - Orange Refl.



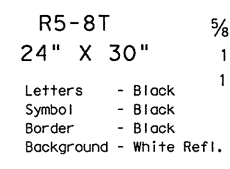
R20-1
24" X 18"
Letters - Black
Border - Black
Background - White Refl.



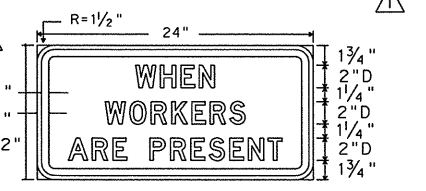
R5-8
24" X 12"
Letters - Black
Border - Black
Background - White Refl.



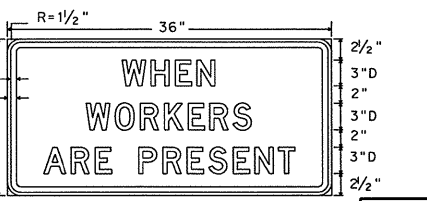
R5-8T
24" X 30"
Letters - Black
Symbol - Black
Border - Black
Background - White Refl.



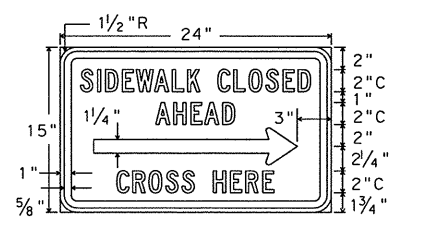
R5-8T
24" X 30"
Letters - Black
Symbol - Black
Border - Black
Background - White Refl.



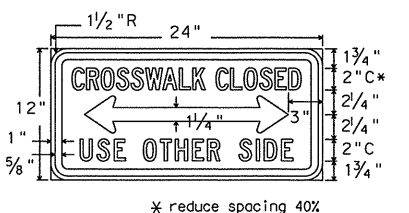
R20-5
24" X 12"
Letters - Black
Border - Black
Background - White Refl.



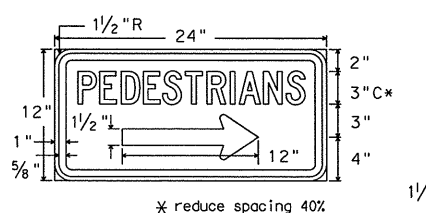
ER20-5
36" X 18"
Letters - Black
Border - Black
Background - White Refl.



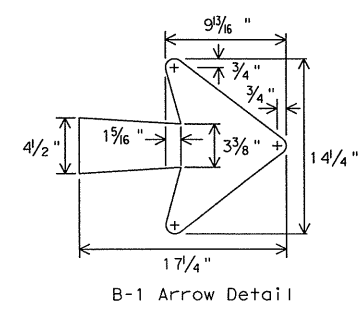
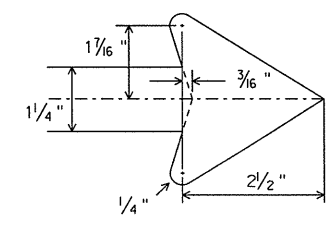
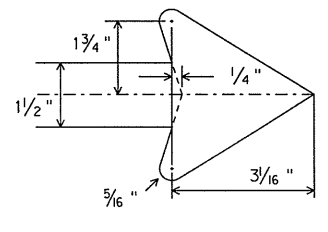
R5-9a
24" X 15"
Letters - Black
Symbol - Black
Border - Black
Background - White Refl.



R5-9
24" X 12"
Letters - Black
Symbol - Black
Border - Black
Background - White Refl.



R5-7T
24" X 12"
Letters - Black
Symbol - Black
Border - Black
Background - White Refl.



STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION
STANDARDS

REGULATORY AND GUIDE SIGNS

BC (9) - 99

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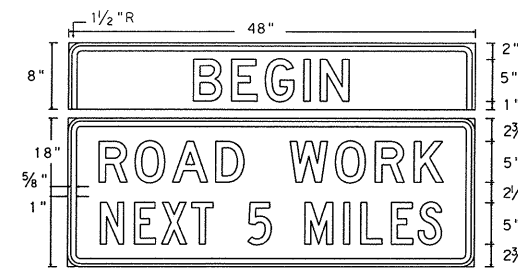
REVISIONS	DATE	BY	CHK	DESCRIPTION	SHEET
10-99	10-99	10-99	10-99	10-99	18

COUNTY	CONTROL	SECTION	JOB	HIGHWAY
KAUFMAN, ETC.	0918	00	082	IH 20, ETC.

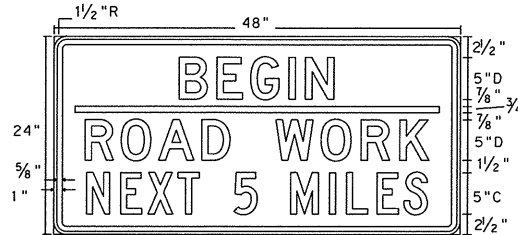
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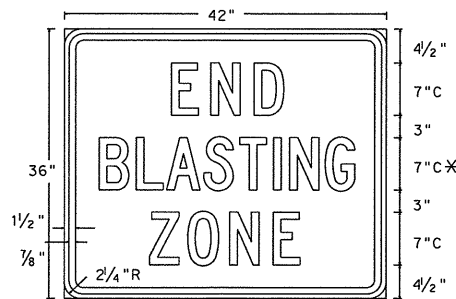
DN: -
CW: -
DW: -
CK: -
DATE: 11/11/11
ACC: 11/11/11
FILE: 11/11/11



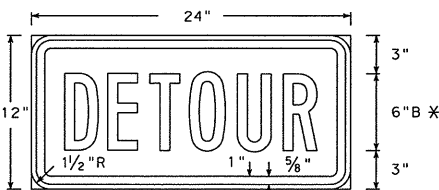
SG20-1 w/plaque
48" X 26"



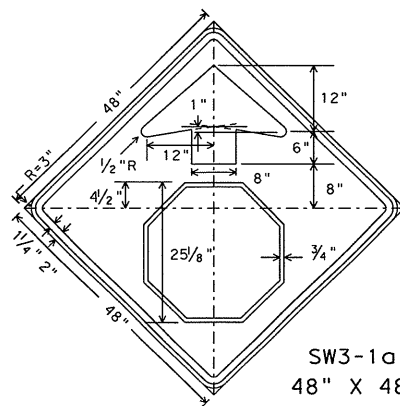
SG20-5T
48" X 24"



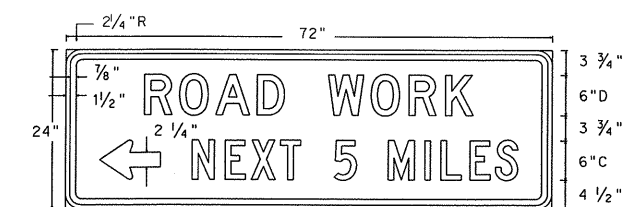
CW22-3
42" X 36"



M4-8
24" X 12"

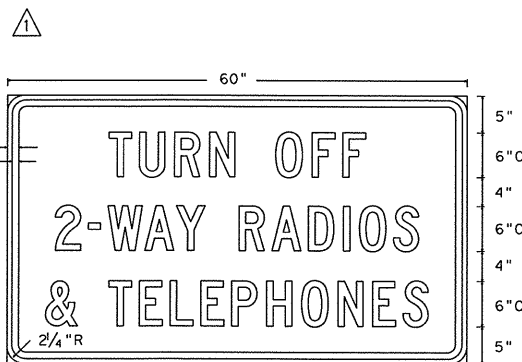


SW3-1a
48" X 48"

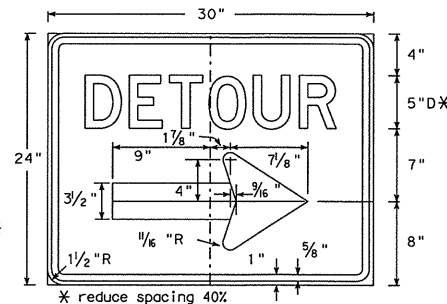


G20-1bL (R)
72" X 24"

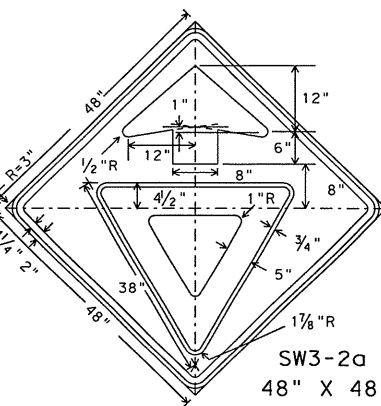
NOTE:
G20-1 Series signs shall show distances rounded to nearest whole mile. Fractions and decimal miles will not be used.



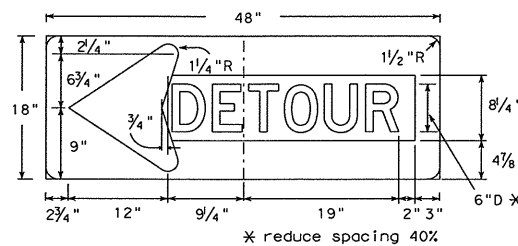
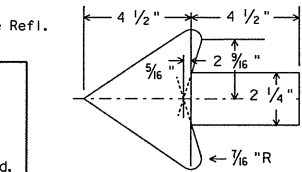
CW22-2a
60" X 36"



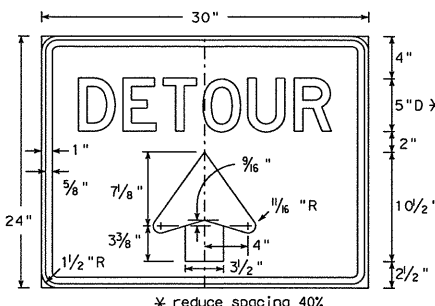
M4-9R (L)
30" X 24"



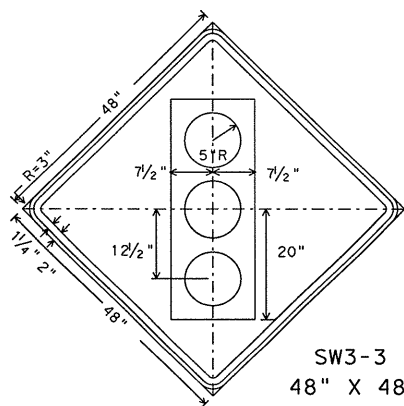
SW3-2a
48" X 48"



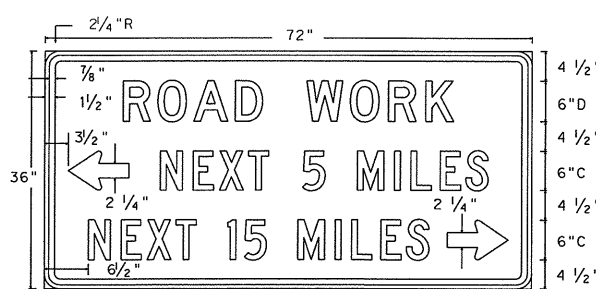
M4-10L (R)
48" X 18"



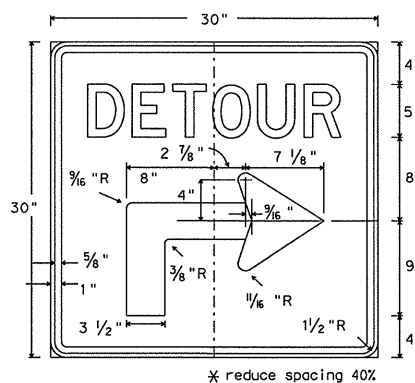
M4-9S
30" X 24"



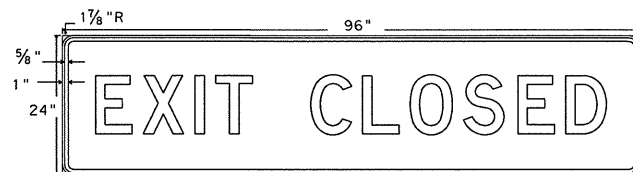
SW3-3
48" X 48"



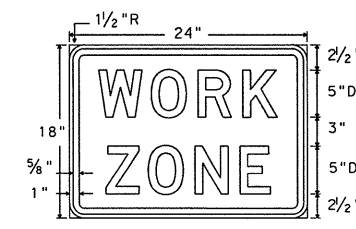
G20-1a
72" X 36"



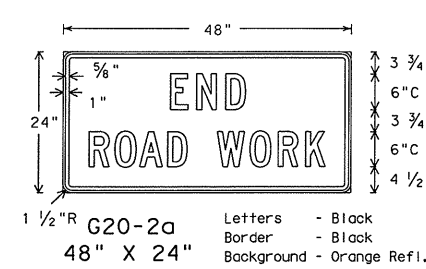
M4-9AR (L)
30" X 30"



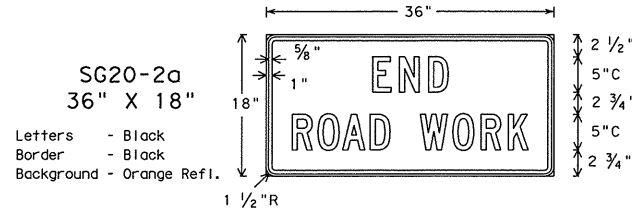
CW26-1T
96" X 24"



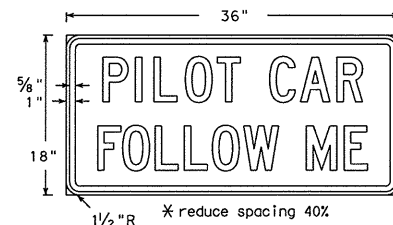
G20-9
24" X 18"



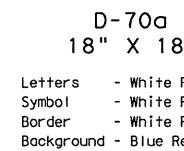
G20-2a
48" X 24"



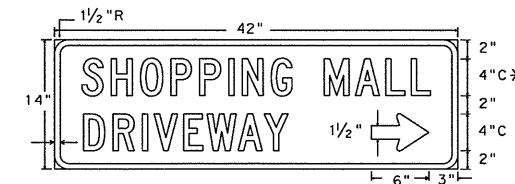
SG20-2a
36" X 18"



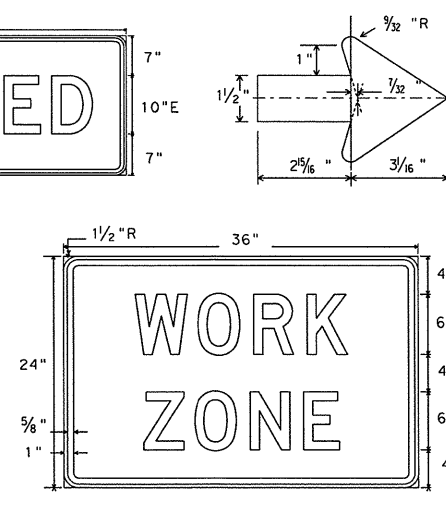
G20-4
36" X 18"



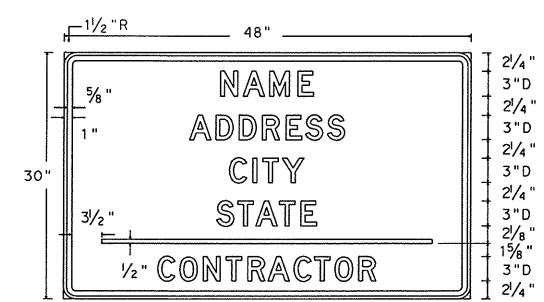
D-70a
18" X 18"



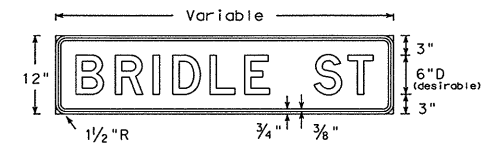
D-70S
42" X 14"



EG20-9
36" X 24"



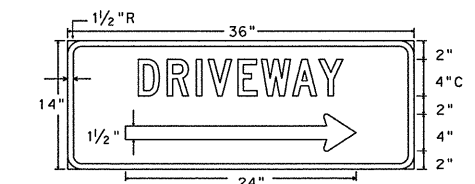
SG20-6
48" X 30"



M4-9N
Variable X 12"

The M4-9R, L or S sign is to be used to detour local streets or roads that are not a State or Federal numbered highway; however, it should not be used in lieu of the M4-10 sign at the beginning of the detour or to detour State or Federal numbered routes. Also, when the M4-9R, L or S sign is used, a sign (M4-9N) with the name of the street being detoured may be mounted above it.

* Alternate first line legend for D-70S
RESTAURANT | D70R
BUSINESS | D70B
MOTEL | D70M
GAS | D70G



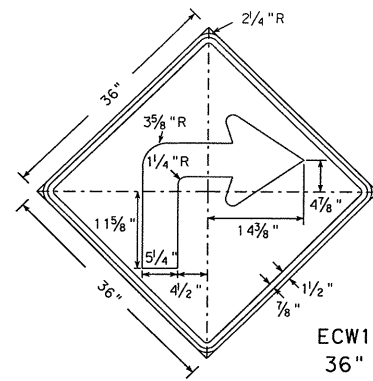
D-70
36" X 14"

10/99 Revision
Added new sign

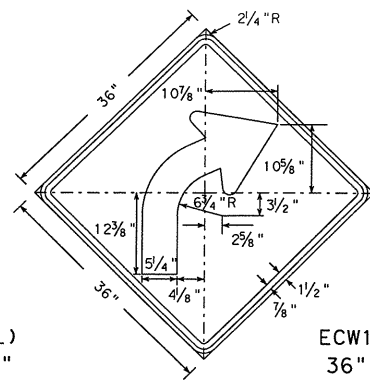
STANDARD PLANS TEXAS DEPARTMENT OF TRANSPORTATION Traffic Operations Division									
BARRICADE AND CONSTRUCTION STANDARDS									
CONTRACTOR INFORMATION, DETOURS & WARNING SIGNS									
BC (9A) - 99									
© TxDOT February 1998									
REVISED	STATE	FEDERAL	FEDERAL AID PROJECT				SHEET		
10-99	DALLAS	6	NH 2003 (146)				19		
COUNTY	CONTROL	SECTION	JOB		HIGHWAY				
KAUFMAN, ETC.	0918	00	082		1H 20, ETC.				

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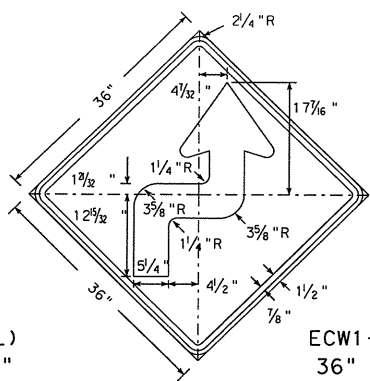
DN	CK	DW	CK
1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100



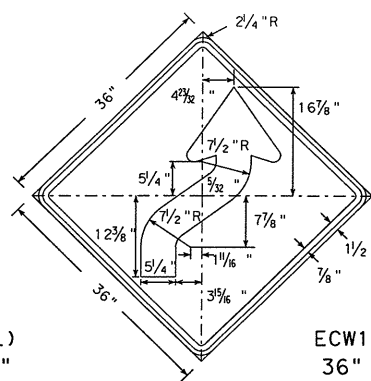
ECW1-1R(L)
36" X 36"



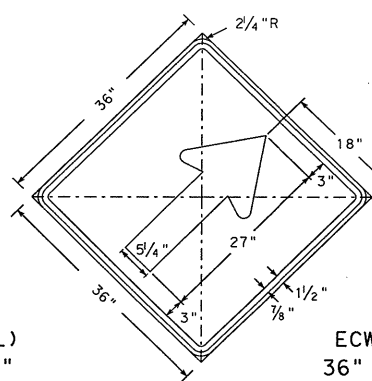
ECW1-2R(L)
36" X 36"



ECW1-3R(L)
36" X 36"

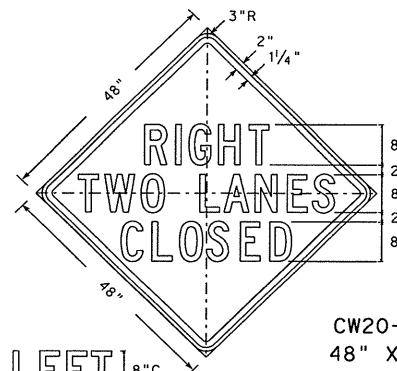
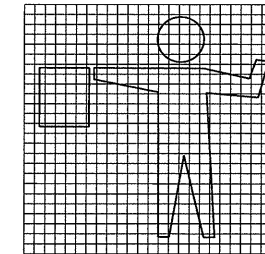


ECW1-4R(L)
36" X 36"

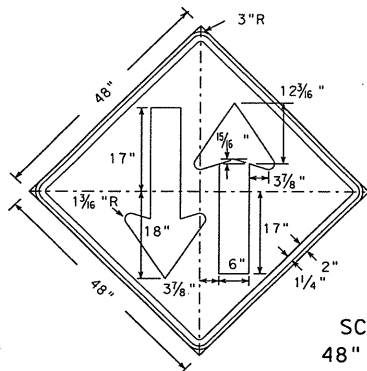


ECW1-6a
36" X 36"

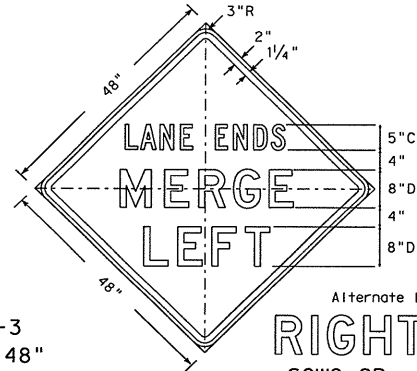
ARROW DETAIL FOR
ECW1-1, ECW1-2, ECW1-3,
ECW1-4 AND ECW1-6a.



CW20-5aL
48" X 48"



SCW6-3
48" X 48"



SCW9-2L
48" X 48"

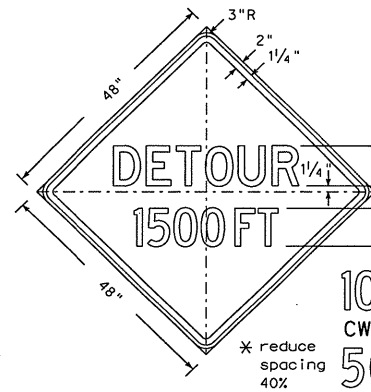
Alternate legend
RIGHT
SCW9-2R

Alternate
1st line
legend

SIGN
CW20SN-1
LIGHTING
CW20LT-1
BRIDGE
CW20BR-1
RAMP
CW20RP-1
STREET
CW20ST-1

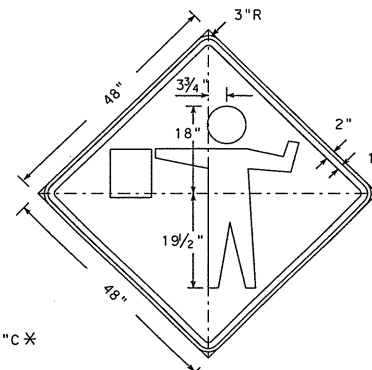
1500FT
CW20-1A
1000FT
CW20-1B
500FT
CW20-1C

1500FT
CW20-1A
1000FT
CW20-1B
500FT
CW20-1C

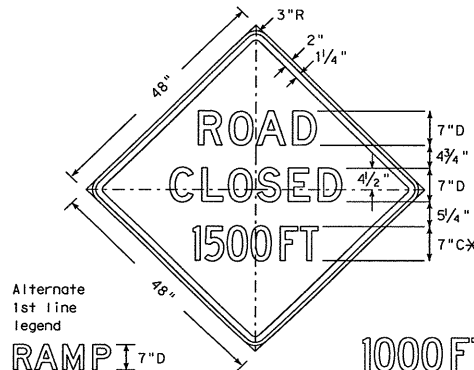


CW20-2A
48" X 48"

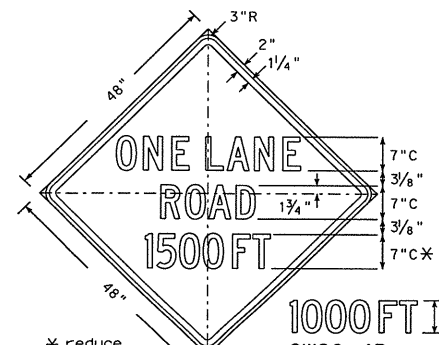
1000FT
CW20-2B
500FT
CW20-2C
AHEAD
CW20-2D



FCW20-7a
48" X 48"

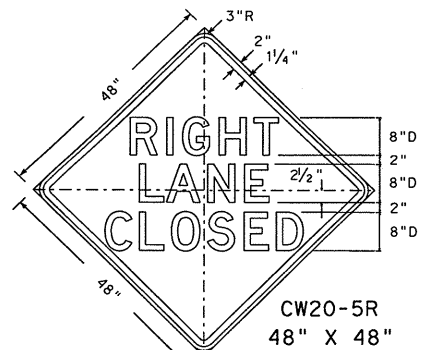


Alternate
1st line
legend
RAMP
CW20RP-3
FRWY
CW20FY-3
STREET
CW20ST-3
1000FT
CW20-3B
500FT
CW20-3C
AHEAD
CW20-3D

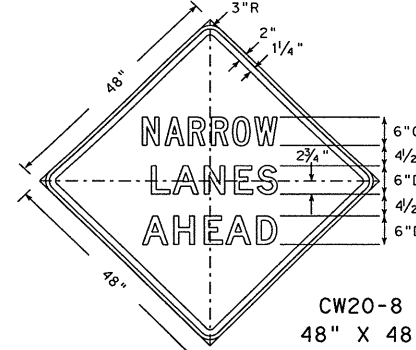


CW20-4A
48" X 48"

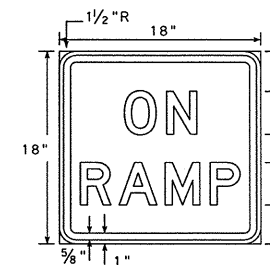
1000FT
CW20-4B
500FT
CW20-4C
AHEAD
CW20-4D



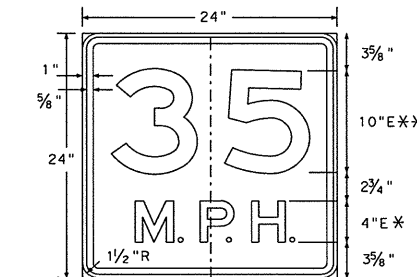
CW20-5R
48" X 48"



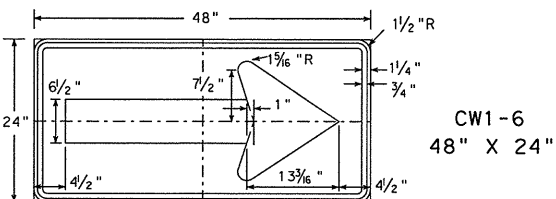
CW20-8
48" X 48"



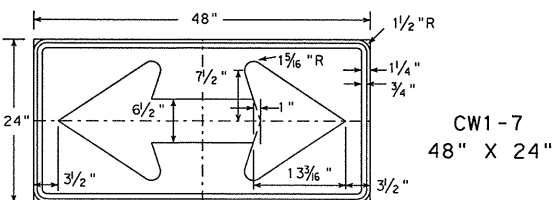
CW13-4
18" X 18"



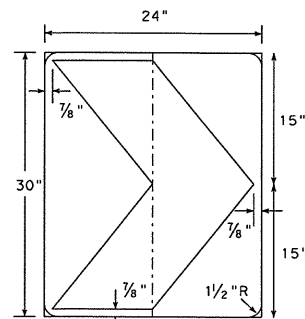
Speed value to be determined at the site by the Engineer.



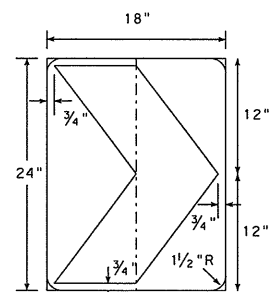
CW1-6
48" X 24"



CW1-7
48" X 24"

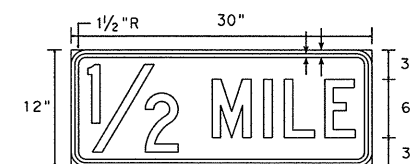


SCW1-8
24" X 30"



CW1-8
18" X 24"

GENERAL NOTES:
All signs detailed on this sheet shall have Black border, legend and/or symbol on an orange Type C reflective background.



Distance Plaque
30" X 12"

Alternate legends

1 MILE
1500 FT
1000 FT
500 FT

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

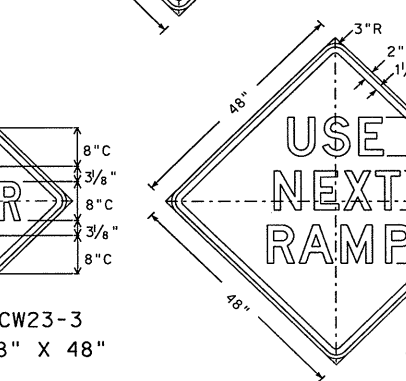
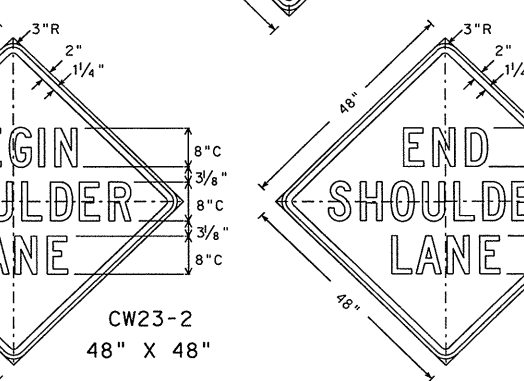
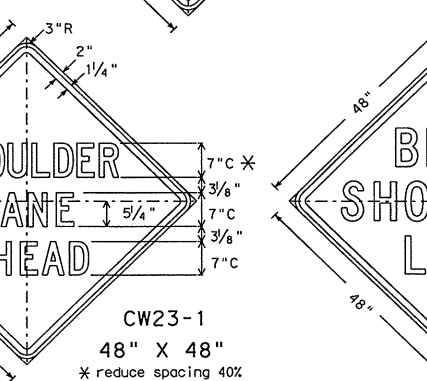
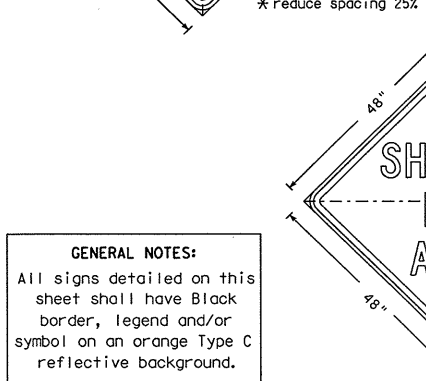
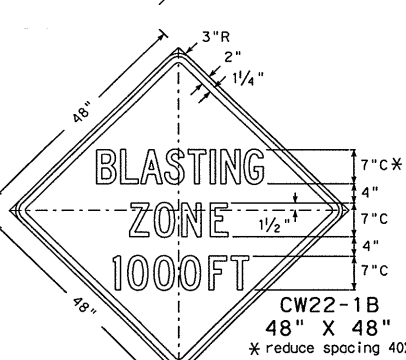
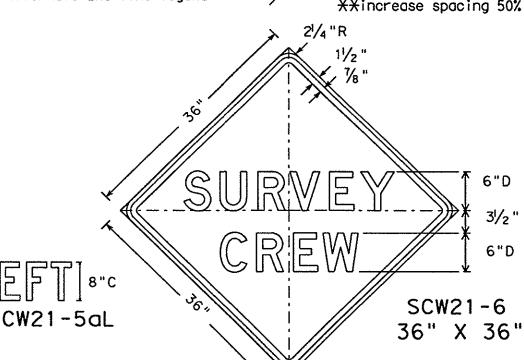
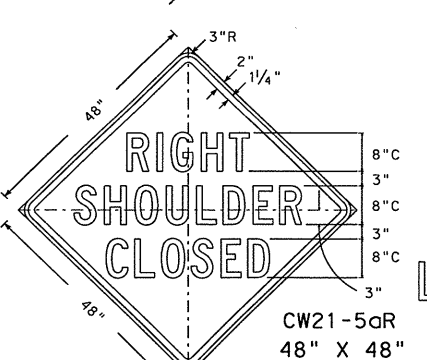
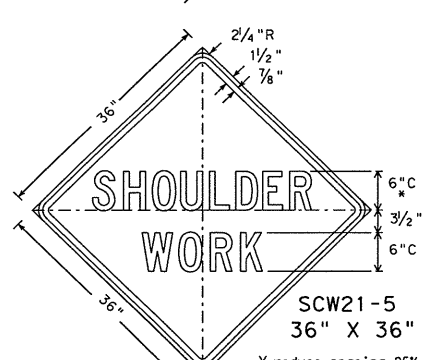
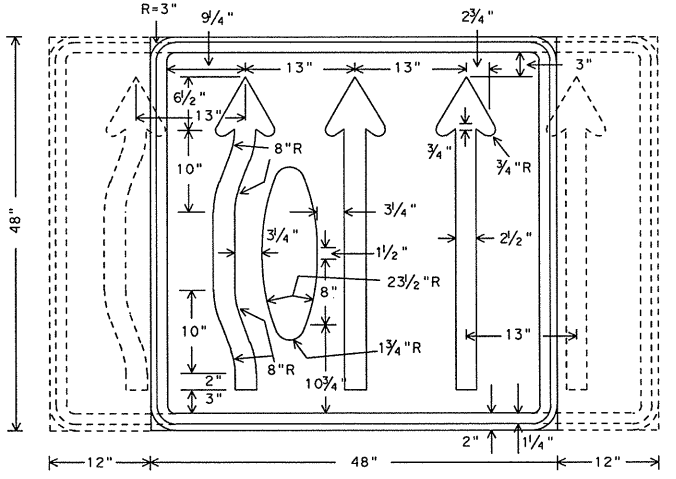
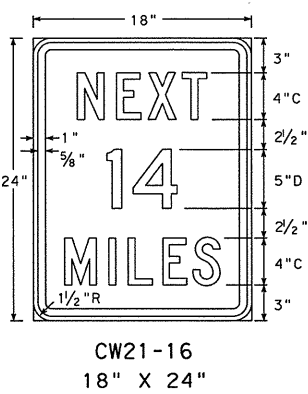
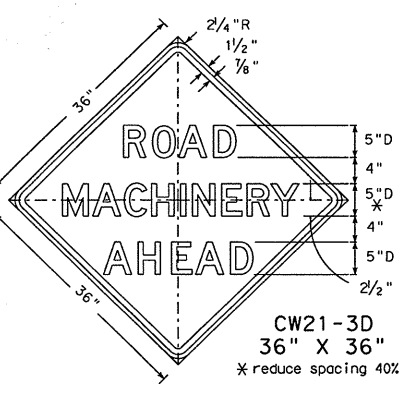
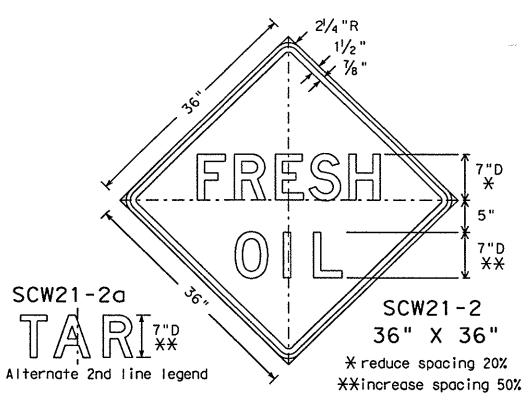
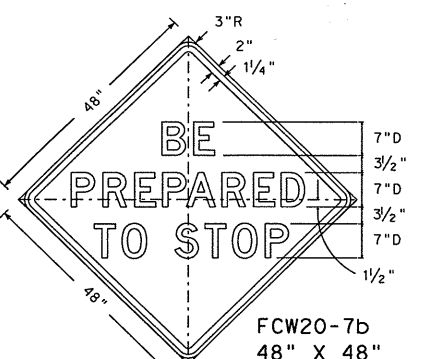
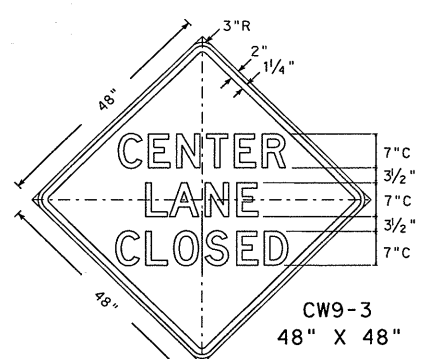
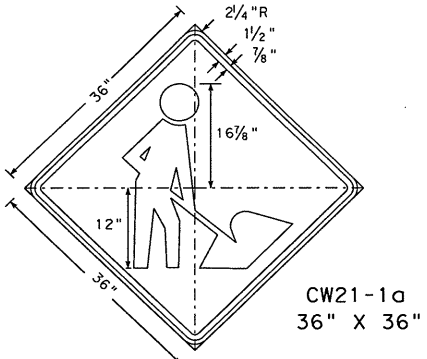
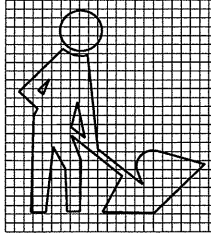
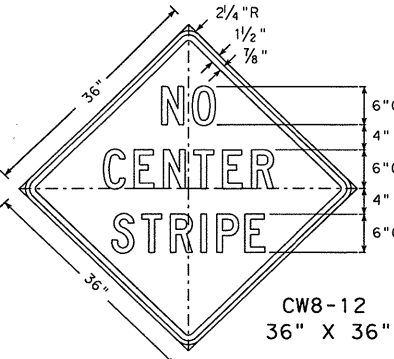
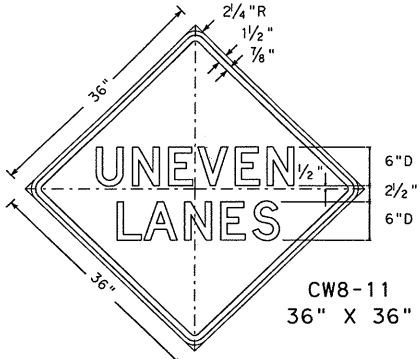
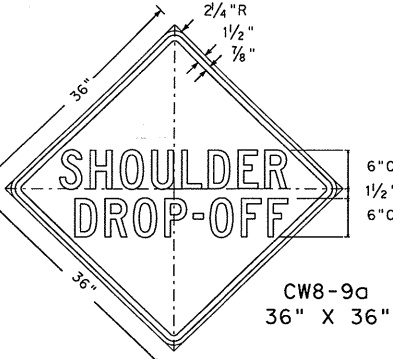
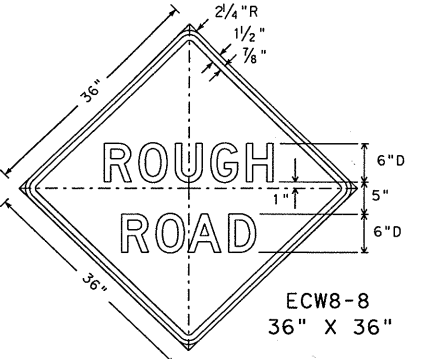
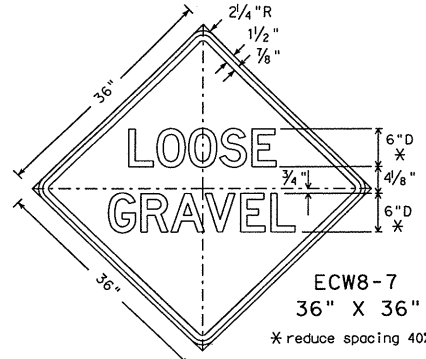
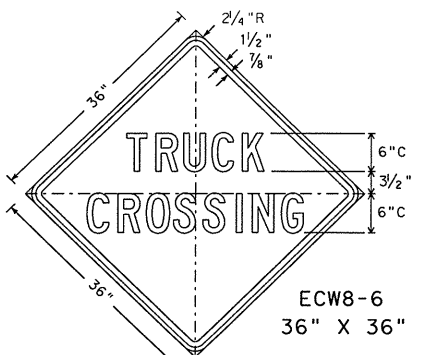
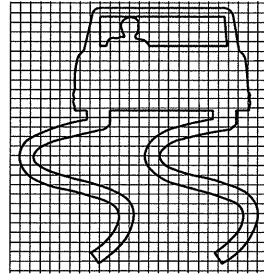
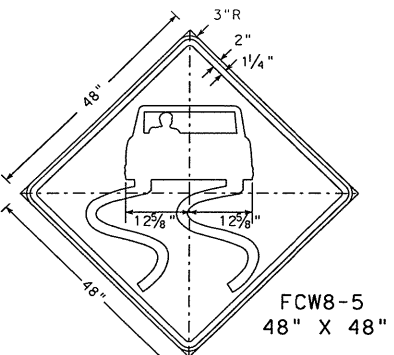
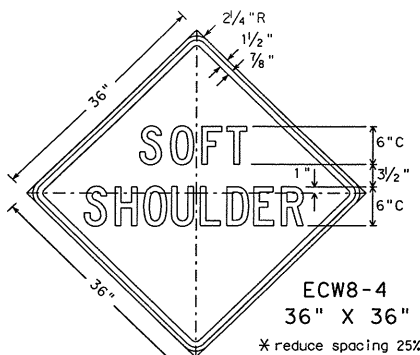
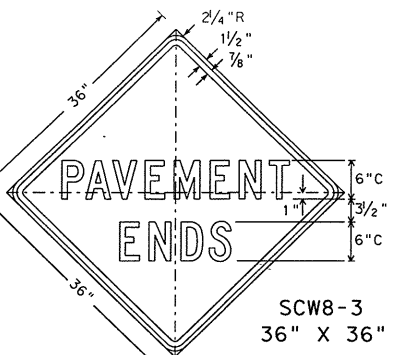
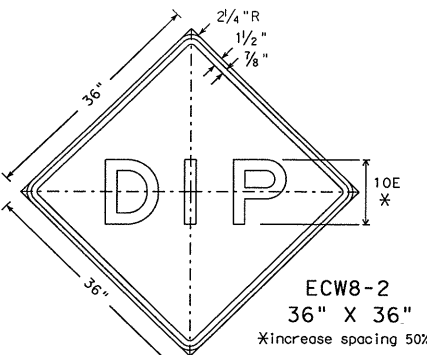
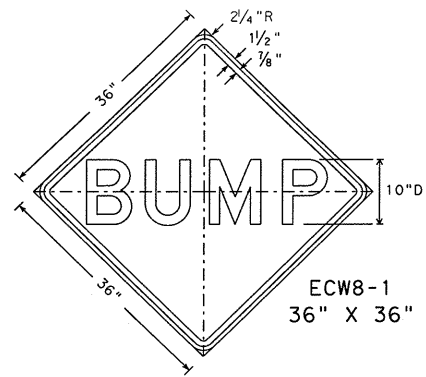
BARRICADE AND CONSTRUCTION STANDARDS

CONSTRUCTION WARNING SIGNS BC(9B)-98

© TxDOT February 1998	DN: GB	CK: DTN	DN: DN	CK: GB	NEG NO.:
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT	SHEET	
	DALLAS	6	NH 2003 (146)	20	
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
	KAUFMAN, ETC.	0918	00	082	IH 20, ETC.

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GENERAL NOTES:
All signs detailed on this sheet shall have Black border, legend and/or symbol on an orange Type C reflective background.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

BARRICADE AND CONSTRUCTION
STANDARDS

CONSTRUCTION WARNING SIGNS BC(9C)-98

© TxDOT February 1998		DN: GB	CK: DTN	DW: DN	CE: GB	NEG NO. 1
STATE	DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
DALLAS	6		NH 2003 (146)			21
COUNTY	CONTROL	SECTION	JOB		HIGHWAY	
KAUFMAN, ETC.	0918	00	082		IH 20, ETC	

109C

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GENERAL NOTES

1. Additional details may be provided in the plans concerning sign size, type of channelization devices, sequence of work details, and required measures needed to control traffic during changes in the sequence of work.
2. All traffic control devices shall conform with the Texas "Manual on Uniform Traffic Control Devices for Streets and Highways" (TMUTCD), and shall be maintained as directed by the Engineer. Additional guidelines for traffic control devices may be found in the TMUTCD.
3. All distance and spacing shown on the TCP Standards are approximate.
4. All traffic control devices used during nighttime shall be reflectorized, illuminated from within or externally illuminated.
5. Additional information for fabrication, erection and usage of the following traffic control devices is found in the (TMUTCD) and Barricade and Construction (BC) Standards:
- | | |
|---------------------|--|
| BARRICADES | BC(2) and BC(3) |
| CONES | BC(6) |
| BARRIER DELINEATION | WZ(BD) |
| DRUMS | BC(5) |
| PAVEMENT MARKINGS | BC(5), BC(7) and BC(8) |
| SIGNS | WZ(STPM) or TCP(7-1) if applicable
BC(1), BC(2), BC(3), BC(4), BC(9), BC(9A), BC(9B) and BC(9C) |
6. Work area operations are defined as follows:
Long-term stationary - Work that occupies a location more than 3 days.
Intermediate-term stationary - Work that occupies a location overnight to 3 days.
Short-term stationary - Daytime work that occupies a location from 1 to 12 hours.
Short Duration - Work that occupies a location up to 1 hour.
Mobile - Work that moves intermittently or continuously.

SIGNS

1. Selection of sign size should be based on Table 1.
2. Flashing warning lights, channelizing devices and/or flags may be required to call attention to the advance warning signs.
3. The words UTILITY, SIGNAL, BRIDGE, LIGHTING, SIGN, STREET or RAMP may be substituted for ROAD in all signs where applicable.
4. Advisory speed plaques, if used in conjunction with warning signs, speeds shall be determined in the field by the Engineer.
5. Regulatory signs shall be mounted at 7 foot minimum mounting height.
6. Warning signs may be mounted on the approved types of supports at the minimum mounting heights as stated on BC(4):

CHANNELIZING DEVICES

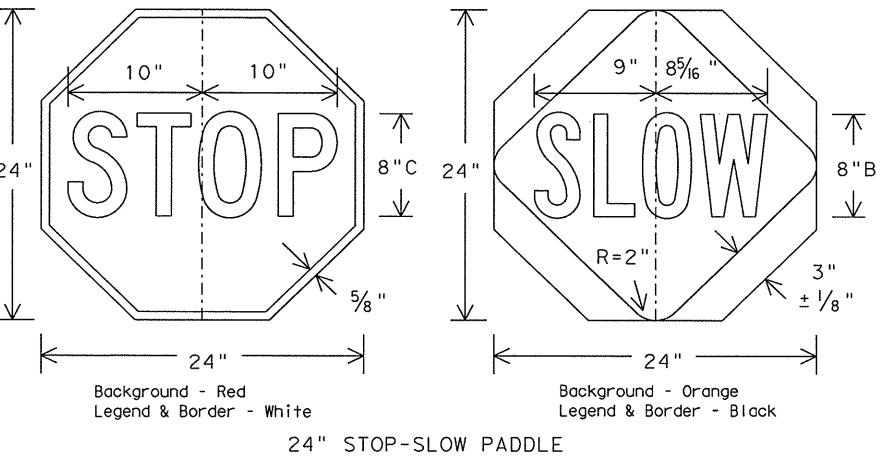
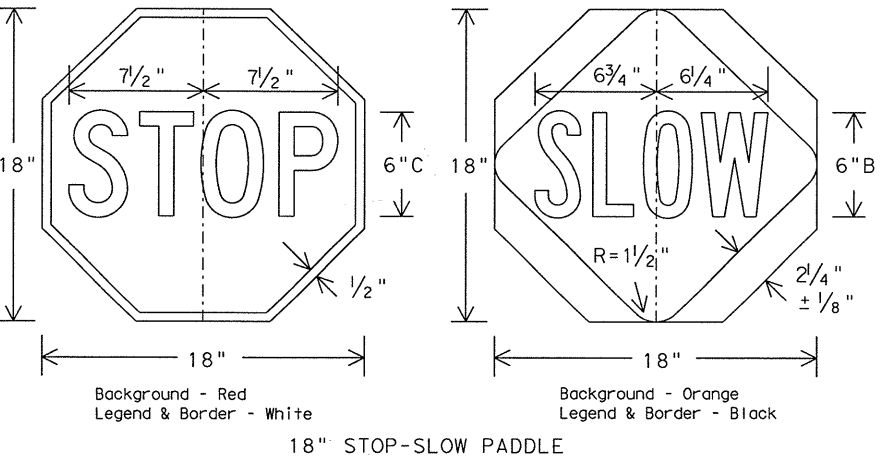
1. The maximum spacing between channelizing devices in a taper should be approximately equal in feet to the speed limit (S).
2. For intermediate term situations, when it is not feasible to remove and restore pavement markings, the channelization must be made dominant by using a very close spacing. This is especially important in locations of conflicting information, such as where traffic is directed over a double yellow centerline. In such locations a maximum channelizing device spacing of 10 feet is recommended. The 10 foot channelizing device spacing recommendation is intended for the area of conflicting information and not the entire work zone.
3. Channelizing device spacing should be reduced when placed on curves, hills or next to potential hazards. At least three channelizing devices should be in view at all times.
4. MERGING taper (lane closure with merging traffic) =L
SHIFTING taper (traffic diverted to adjacent lane) =1/2 L
SHOULDER taper (shoulder closed to traffic) =1/3 L
5. DOWNSTREAM taper usage is optional. When used it should be 100 foot minimum length per lane. Devices should be spaced at approximately 20 foot intervals.
6. ONE LANE, TWO-WAY taper is intended for a portion of the road controlled by STOP, YIELD traffic signals or flagger and used alternately by traffic in each direction. It should be 50-100 foot length with devices spaced at approximately 20 foot intervals.
7. Arrow panels used on two-way, two-lane roadways should flash in the four corner CAUTION display.

WORKER SAFETY

1. Workers exposed to traffic should wear orange safety vests.
2. Work vehicles within 30 feet of the traveled way should have strobe lights or rotating beacons in use.
3. When work vehicles are used to shadow the work area, the vehicle should be parked 30 feet or more from the work area, transmission in gear (or set in PARK), emergency brake set on, and front wheels turned away from work area. Shadow vehicles shall be equipped with truck mounted attenuators.
4. Inactive work vehicles, including workers' private vehicles, should be parked away from the work area and as close to the right-of-way line as possible.

FLAGGER CONTROL

1. Flagger shall wear orange safety vests. Flaggers should wear safety hats to provide a professional image to the motorist and to protect the head from flying objects.
2. STOP/SLOW paddles shall be used as the primary method to control traffic by flaggers. The STOP/SLOW paddle minimum size is 18" x 18". Paddles may be attached to a 60 inch staff for easier handling. The larger size (24" x 24") should be attached to a 60 inch staff.
3. The 24" paddle should be used when the posted speed is 45 MPH or greater.
4. Flags are only used to control traffic for emergency situations and the STOP/SLOW paddles are not available. Flags shall be 24" square and securely fastened to a staff approximately 3 feet long.
5. Flaggers may carry hand held air horns to alert workers of an emergency condition.
6. For one lane two-way traffic control, one or more flaggers should be used where traffic density, road conditions or motorists' sight distance justify their use. If flaggers are used, the taper should be reduced to 50-100 feet. When flaggers are used to control traffic, the FLAGGER symbol sign (FCW20-7a) shall be used. When flaggers are used, the BE PREPARED TO STOP sign (CW20-7b) should be used. Proper spacing between signs should be maintained.
7. When flaggers are used to draw attention to traffic control devices, the FLAGGER symbol sign should be used. Proper spacing should be maintained.
8. When more than one flagger is used, a chief flagger should be assigned the responsibility of making decisions concerning traffic control.
9. The contractor has the option to use a flashing Stop/Slow Paddle conforming to Departmental Materials Specification D-9-8620.



Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

Table 1

TYPICAL CONSTRUCTION WARNING SIGN SIZE ^{1,5,6}
AND SPACING

Roadway Classification	Posted Speed	Sign Spacing "X"	Long-term Stationary Or Intermediate-term Stationary Approach Warning Signs CW20 Series And CW22-1 Sign		Short-term Stationary Or Short Duration Approach Warning Signs CW21 Series		Other Warning Signs
			Standard Inches	Minimum ⁴ Inches	Standard Inches ⁷	Minimum ⁴ Inches ⁷	
Conven. ↓	30	120	48X48 ↓	36X36 ↓	30X30 or 36x36 ↓	24X24 or 30x30 ↓	30X30 or 36x36 ↓
	35	160		Use Standard Size			
	40	240					
	45	320					
	50	400			48x48 ↓	Use Standard Size	
	55	500 ²					
	60	600 ²					
	65	700 ²					
70	800 ²			48x48 ↓			
Exp or Frwy	*	* ³	↓		**	**	**

* For typical sign spacings on expressways and freeways, see TMUTCD typical application diagrams or TCP Standard Sheets.

▲ Minimum distance from work area to 1st Advance Warning sign and/or distance between each additional sign.

** Smaller sign sizes may be used where sign designs have not been included in the "Standard Highway Sign Design for Texas" manual.

General Notes:

1. Special or larger size signs may be used as may be necessary.
2. Distance between signs should be increased as required to have 1500' advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. For use only on secondary roads or city streets where speeds are low.
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in TMUTCD, Appendix A for complete list of all available sign design sizes.
7. Where two sizes are listed, see sign size listing in TMUTCD, Appendix A for proper size.

STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

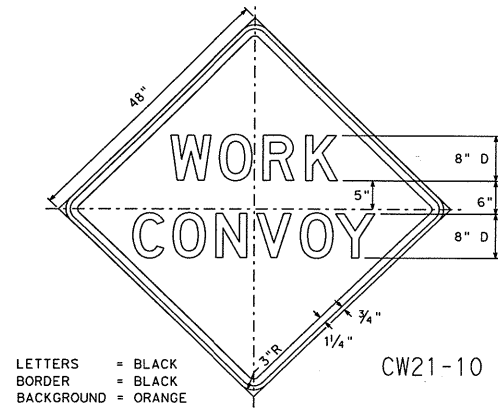
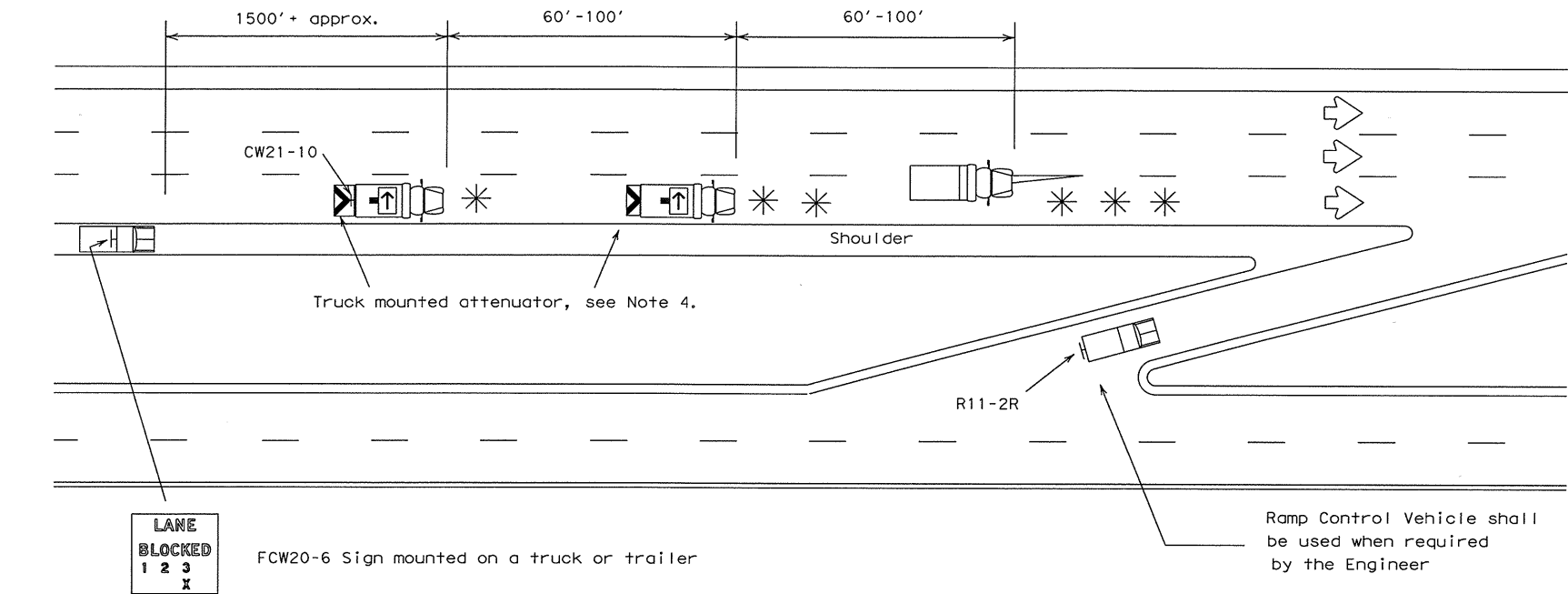
TRAFFIC CONTROL PLAN

TCP NOTES-98

© TxDOT February 1994		DN-MT	CK-	DN-DN	CK-DM	NEG NO. 1
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT			SHEET
8-95	DALLAS	6	NH 2003 (146)			22
1-97	COUNTY		CONTROL	SECTION	JOB	HIGHWAY
4-98	KAUFMAN, ETC		0918	00	082	TH 20, ETC.

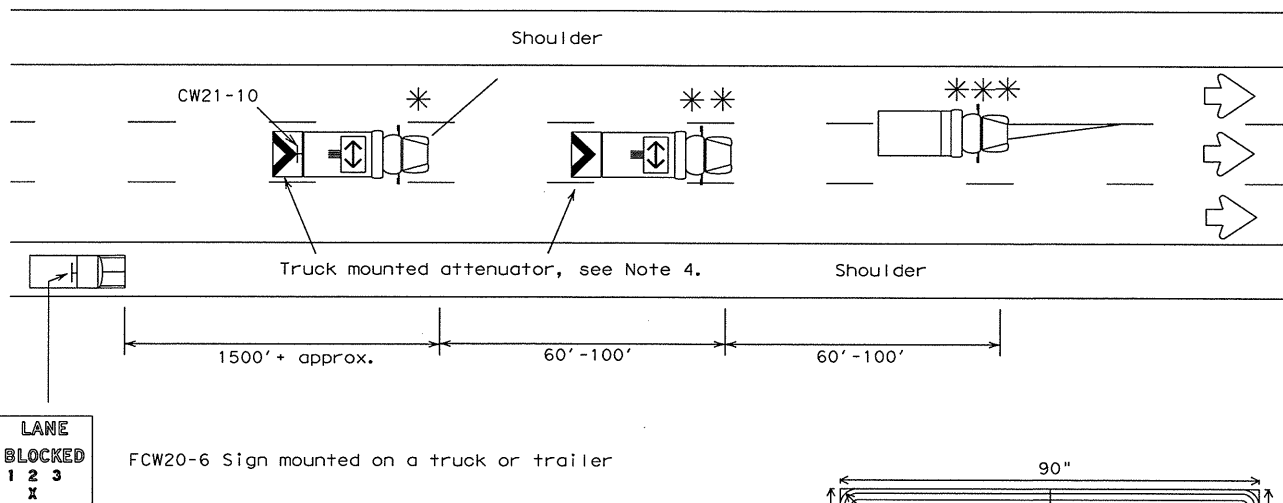
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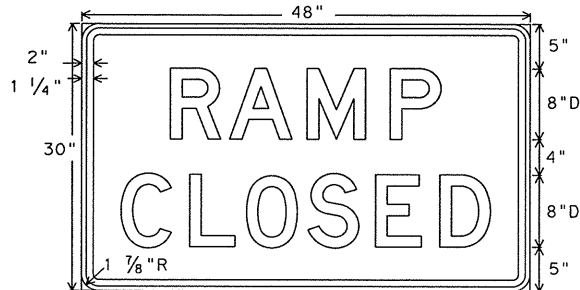


GENERAL NOTES:

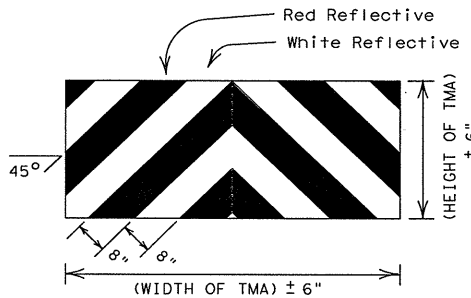
1. TRAIL, SHADOW, LEAD, and work vehicles shall be equipped with arrow panels as illustrated. The Engineer will determine if the LEAD VEHICLE and/or TRAIL VEHICLE are required based on prevailing roadway conditions, traffic volume, and sight distance restrictions.
2. All traffic control devices shall be in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD), latest edition.
3. The use of yellow rotating beacons or strobe lights on vehicles are required unless otherwise stated elsewhere in the plans.
4. The use of truck mounted attenuators (TMA) on the SHADOW VEHICLE and the TRAIL VEHICLE are required.
5. Optional 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 D-9-8300, TYPE C.
6. Flashing Arrow Panels shall be Type B or Type C as per BC Standards. The panel operation shall be controlled from inside the vehicle.
7. Each vehicle shall have two-way radio communication capability.
8. When work convoys must change lanes, the TRAIL VEHICLE should change lanes first to shadow the other convoy vehicles.
9. Vehicle spacing between TRAIL VEHICLE and 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.
10. The LANE BLOCKED sign (FCW20-6) shall be used on divided highways and may be mounted on a truck or trailer. For divided highways with two lanes in each direction, the RIGHT or LEFT LANE CLOSED sign (CW20-5, 48" x 48") may be substituted for the LANE BLOCKED sign (FCW20-6).



Shadow and trail vehicle shall be equipped with Truck Mounted Attenuator.

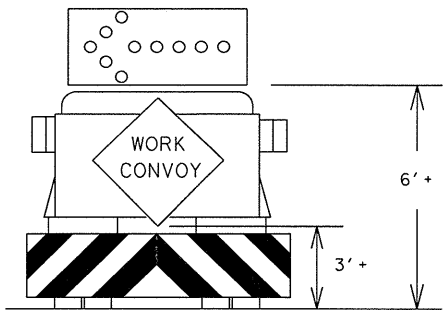


R11-2R
LETTERS = BLACK
BORDER = BLACK
BACKGROUND = WHITE

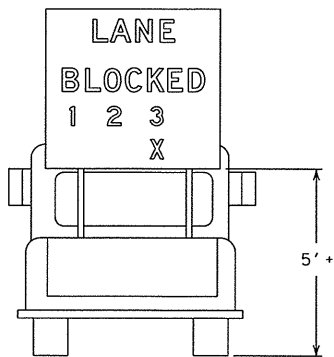


OPTIONAL STRIPING FOR TMA

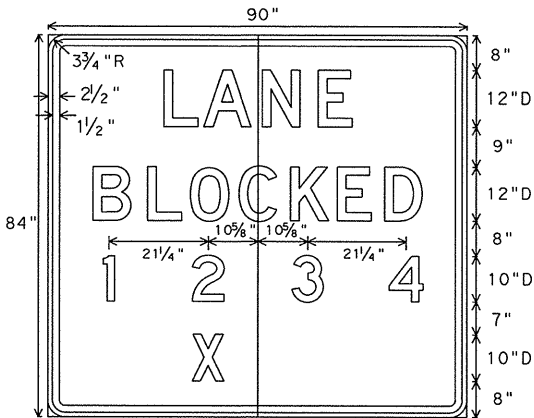
STRIPING FOR TMA WILL BE REQUIRED ON ALL PROJECTS AWARDED AFTER JANUARY 1, 2000



Typical Trail Vehicle with LEFT Directional display Flashing Arrow Panel



Typical Advance Warning Vehicle



FCW20-6
LETTERS = BLACK
BORDER = BLACK
BACKGROUND = ORANGE

Only pre-qualified products shall be used. A list of compliant products and their sources may be obtained by writing or faxing:

Standards Engineer
Traffic Operations Division - TE
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701-2483
Phone (512) 416-3335
Fax (512) 416-3161
E-mail TRF-STANDARD@mailgw.dot.state.tx.us

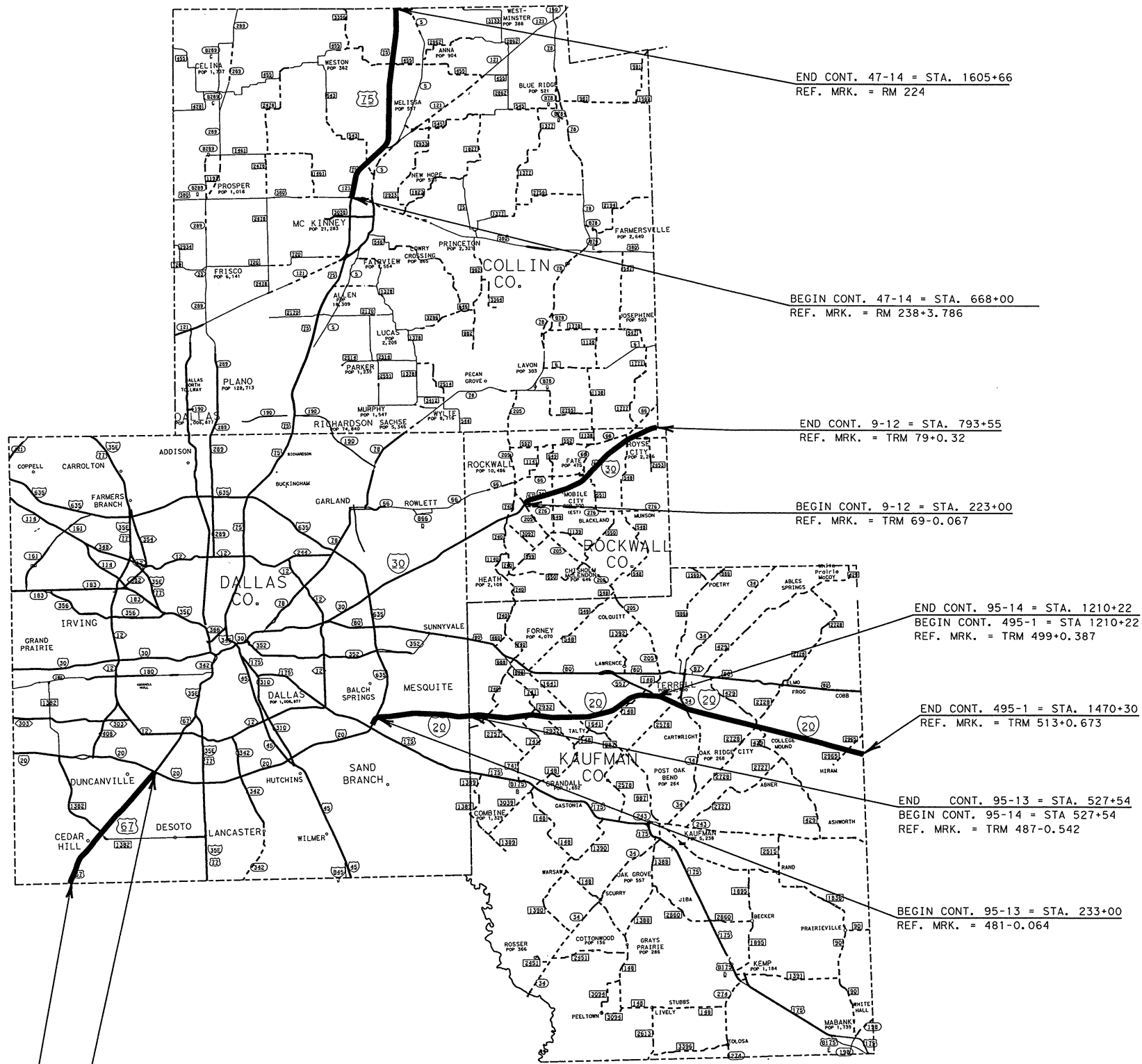
STANDARD PLANS
TEXAS DEPARTMENT OF TRANSPORTATION
Traffic Operations Division

TRAFFIC CONTROL PLAN
MOBILE OPERATIONS
DIVIDED HIGHWAYS

TCP (3-2) - 98

© TxDOT December 1985	DN: LR	CK: -	DN: DN	CK: DM	NEG NO. 1
REVISIONS	STATE DISTRICT	FEDERAL REGION	FEDERAL AID PROJECT		SHEET
2-94	DALLAS	6	NH 2003 (146)		23
8-95					
1-97	COUNTY	CONTROL	SECTION	JOB	HIGHWAY
4-98	KAUFMAN, ETC.	0918	00	082	TH 20, ETC.

DALLAS, COLLIN, ROCKWALL, KAUFMAN COUNTIES
IH 20, IH 30, US 75, AND US 67



END CONT. 47-14 = STA. 1605+66
REF. MRK. = RM 224

BEGIN CONT. 47-14 = STA. 668+00
REF. MRK. = RM 238+3.786

END CONT. 9-12 = STA. 793+55
REF. MRK. = TRM 79+0.32

BEGIN CONT. 9-12 = STA. 223+00
REF. MRK. = TRM 69+0.067

END CONT. 95-14 = STA. 1210+22
BEGIN CONT. 495-1 = STA 1210+22
REF. MRK. = TRM 499+0.387

END CONT. 495-1 = STA. 1470+30
REF. MRK. = TRM 513+0.673

END CONT. 95-13 = STA. 527+54
BEGIN CONT. 95-14 = STA 527+54
REF. MRK. = TRM 487+0.542

BEGIN CONT. 95-13 = STA. 233+00
REF. MRK. = 481+0.064

END CONT. 261-2 = STA. 10+51
REF. MRK. = RM 414+1.33

BEGIN CONT. 261-2 = STA. 476+38
REF. MRK. = RM 422+00

NET LENGHT OF PROJECT FOR THE DALLAS DISTRICT
(IH 20, IH 30, US 67)

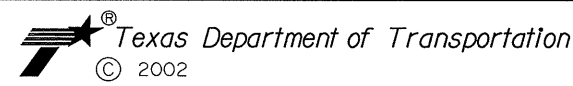
CONT.	47-14	=	310,030 LF.	=	58.718 MI.
CONT.	9-12	=	199,311 LF.	=	37.748 MI.
CONT.	95-13	=	94,523 LF.	=	17.902 MI.
CONT.	95-14	=	235,148 LF.	=	44.535 MI.
CONT.	261-02	=	143,191 LF.	=	27.119 MI.
CONT.	495-01	=	263,795 LF.	=	49.961 MI.
TOTAL		=	1,245,998 LF.	=	235.984 MI.



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C. Anthony May, P.E. 8/9/2002
Signature of Registrant & Date



SHOULDER TEXTURE LAYOUT
(IH 20, IH 30, US 67, US 75)

SCALE:		SHEET 1 OF 3	
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
GRAPHICS	6	NH 2003 (146)	IH 20, ETC
CHECK	STATE	DISTRICT	COUNTY
CHECK	TEXAS	DALLAS	KAUFMAN, ETC
CHECK	CONTROL	SECTION	JOB
	0918	00	082
			24

ELLIS COUNTY

IH 45, US 67, AND US 287

BEGIN CONT. 261-1 = STA. 396+46
REF. MKR. = TRM 424+1.07

END CONT. 261-1 = STA. 590+25
REF. MKR. = RM 422+00

BEGIN CONT. 92-3 = STA. 1307+92
REF. MKR. = TRM 268+.0218

END CONT. 92-3 = STA. 958+00
BEGIN CONT. 92-4 = STA. 958+00
REF. MKR. = TRM 262-0.287

END CONT. 92-4 = STA. 412+46
BEGIN CONT. 92-5 = STA. 412+46
REF. MKR. = TRM 252-0.41

END CONT. 92-5 = STA. 0+00
REF. MKR. = TRM 244-0.248

END CONT. 172-8 = STA. 962+23
REF. MKR. = RM 514-0.327

BEGIN CONT. 172-8 = STA. 751+03
REF. MKR. = RM 510+0.108

NET LENGTH OF PROJECT FOR THE DALLAS DISTRICT
(IH 45, US 287, US 67)

CONT. 92-03 = 108,100 LF. = 20.473 MI.
CONT. 92-04 = 182,853 LF. = 34.631 MI.
CONT. 92-05 = 68,034 LF. = 12.885 MI.
CONT. 172-08 = 94,293 LF. = 17.859 MI.
CONT. 261-01 = 65,736 LF. = 12.450 MI.
TOTAL = 519,016 LF. = 96.298 MI.



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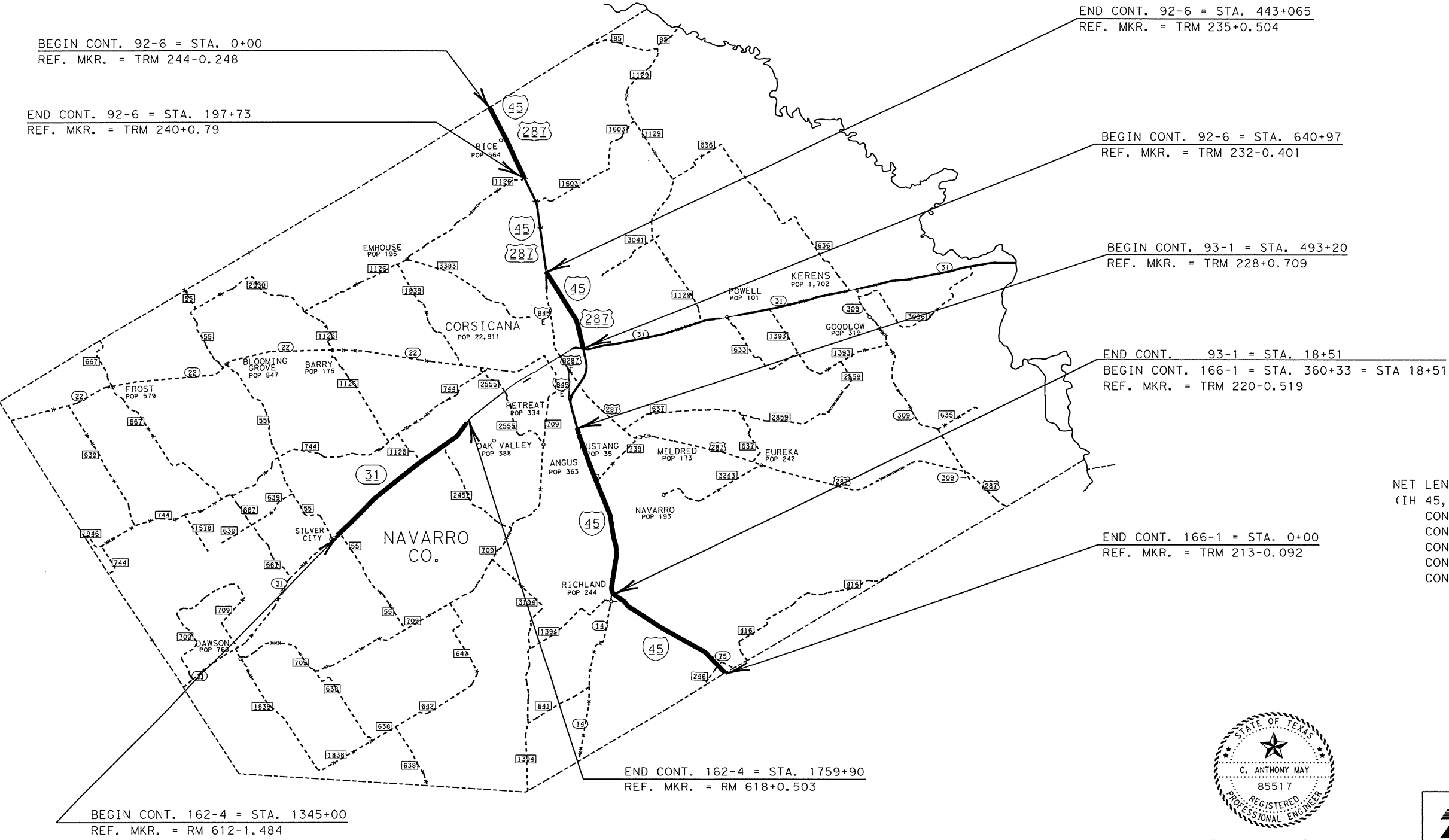
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Texas Department of Transportation
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SHOULDER TEXTURE LAYOUT (IH 45, US 67, US 287)

SCALE:			SHEET 2 OF 3	
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.	
GRAPHICS	6	NH 2003 (146)	IH 20, ETC.	
CHECK	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DALLAS	KAUFMAN, ETC.	25
CHECK	CONTROL	SECTION	JOB	
	0918	00	082	

NAVARRO COUNTY
IH 45, SH 31



NET LENGTH OF PROJECT FOR THE DALLAS DISTRICT
(IH 45, SH 31)

CONT. 92-06 =	28,609 LF. =	5.418 MI.
CONT. 92-06 =	72,534 LF. =	13.736 MI.
CONT. 93-01 =	138,821 LF. =	25.155 MI.
CONT. 166-01 =	193,555 LF. =	36.658 MI.
CONT. 162-04 =	129,061 LF. =	24.443 MI.
TOTAL	= 556,580 LF. =	105.413 MI.



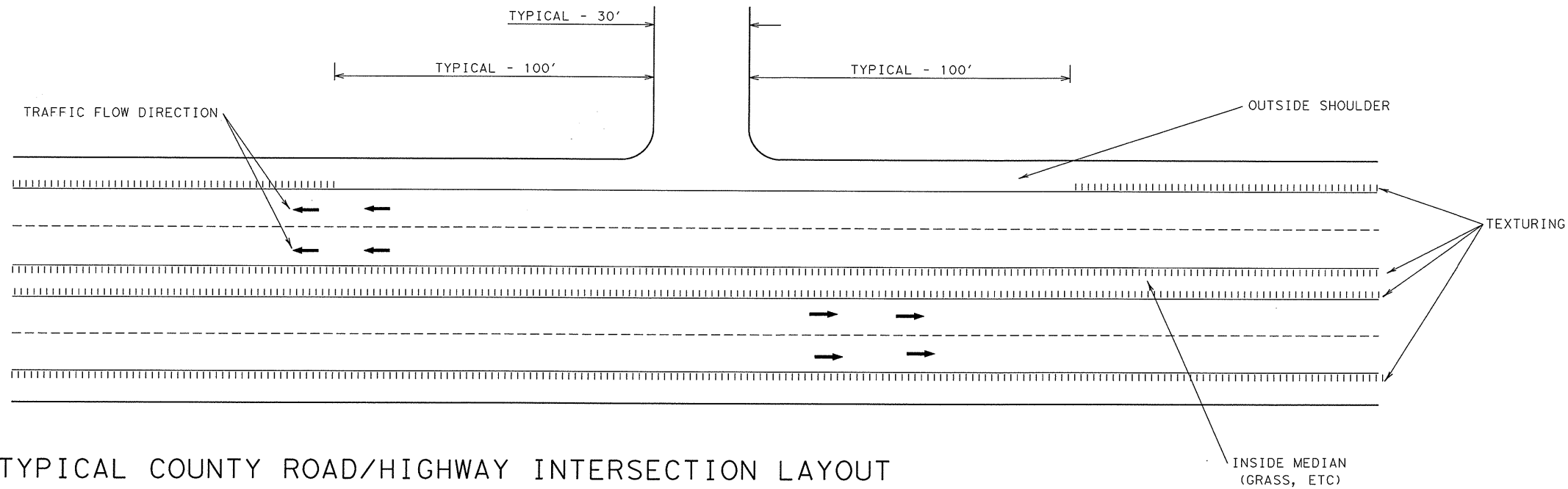
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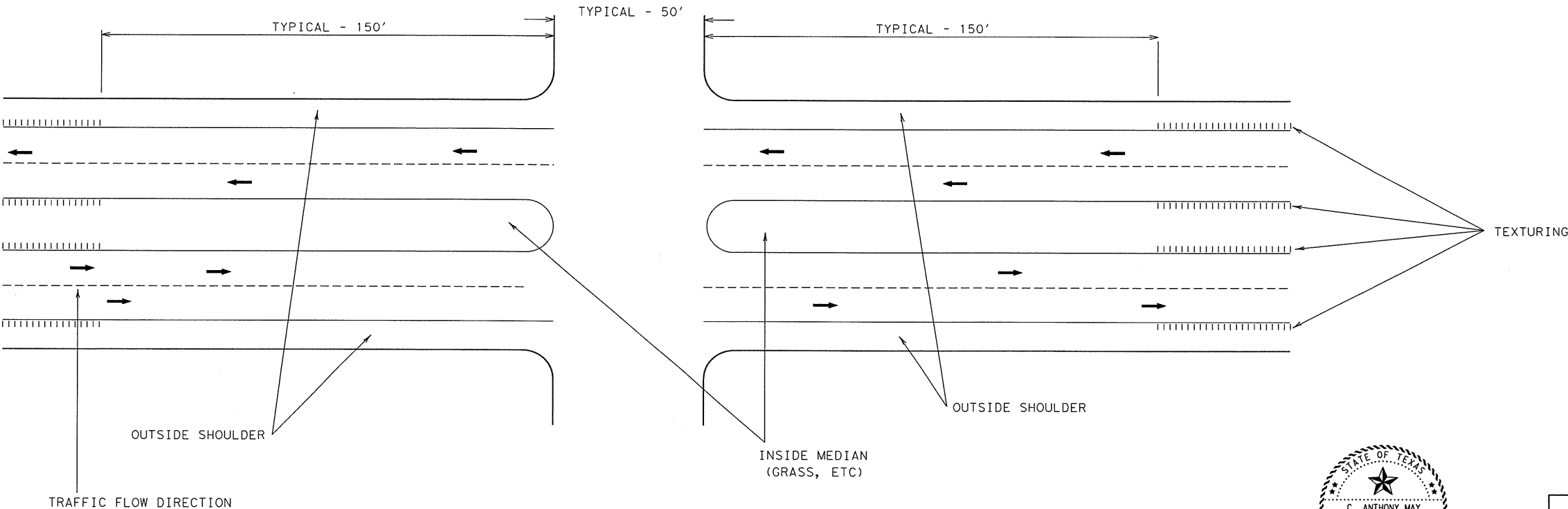


SHOULDER TEXTURE LAYOUT (IH 45, AND SH 31)			
SCALE:			SHEET 3 OF 3
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
GRAPHICS	6	NH 2003 (146)	IH 20, ETC
CHECK	STATE	DISTRICT	COUNTY
CHECK	CONTROL	SECTION	JOB
	0918	00	082
			26

TYPICAL DRIVEWAY INTERSECTION LAYOUT



TYPICAL COUNTY ROAD/HIGHWAY INTERSECTION LAYOUT



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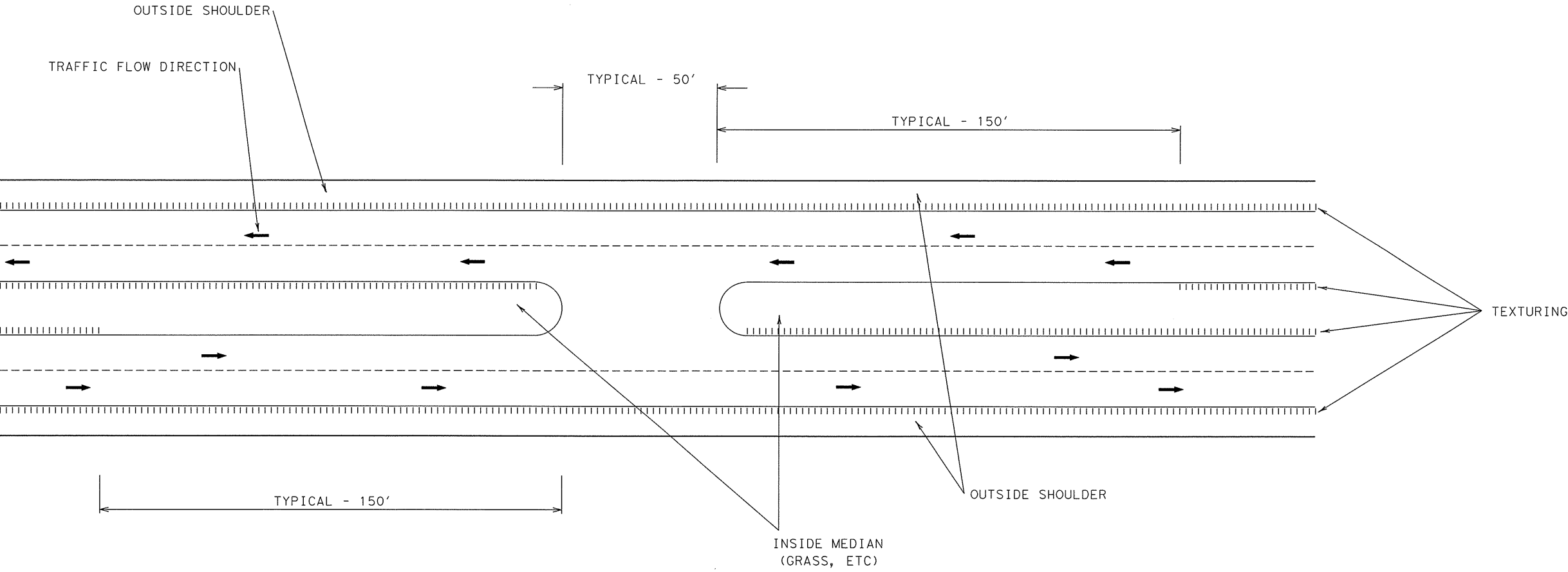
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TYPICAL INTERSECTION LAYOUT

SCALE:		SHEET 1 OF 2	
DESIGN	FED. RD. DIV. NO.	FEDERAL AID PROJECT NO.	HIGHWAY NO.
GRAPHICS	6	NH 2003 (146)	IH 20, ETC.
CHECK	STATE	DISTRICT	COUNTY
CHECK	CONTROL	SECTION	JOB
	0918	00	082
			27


TYPICAL CROSS OVER LAYOUT



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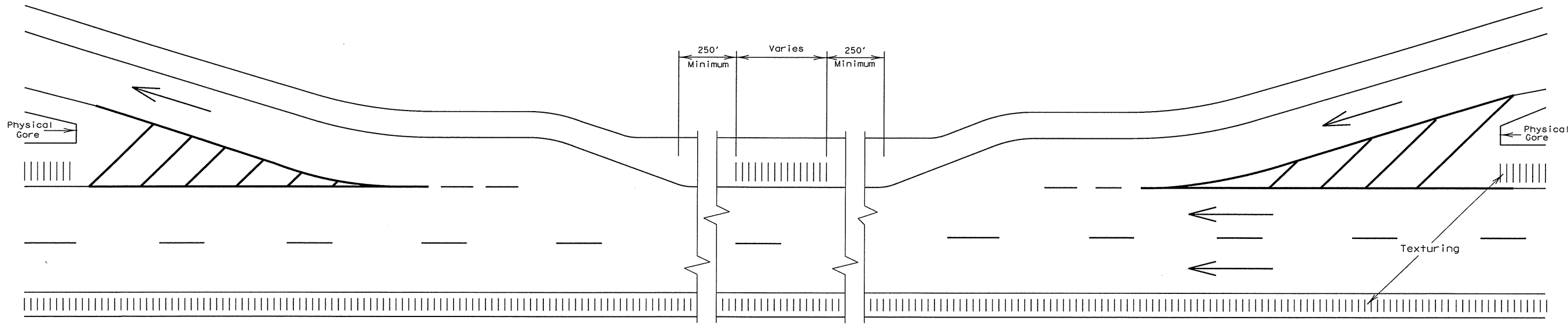
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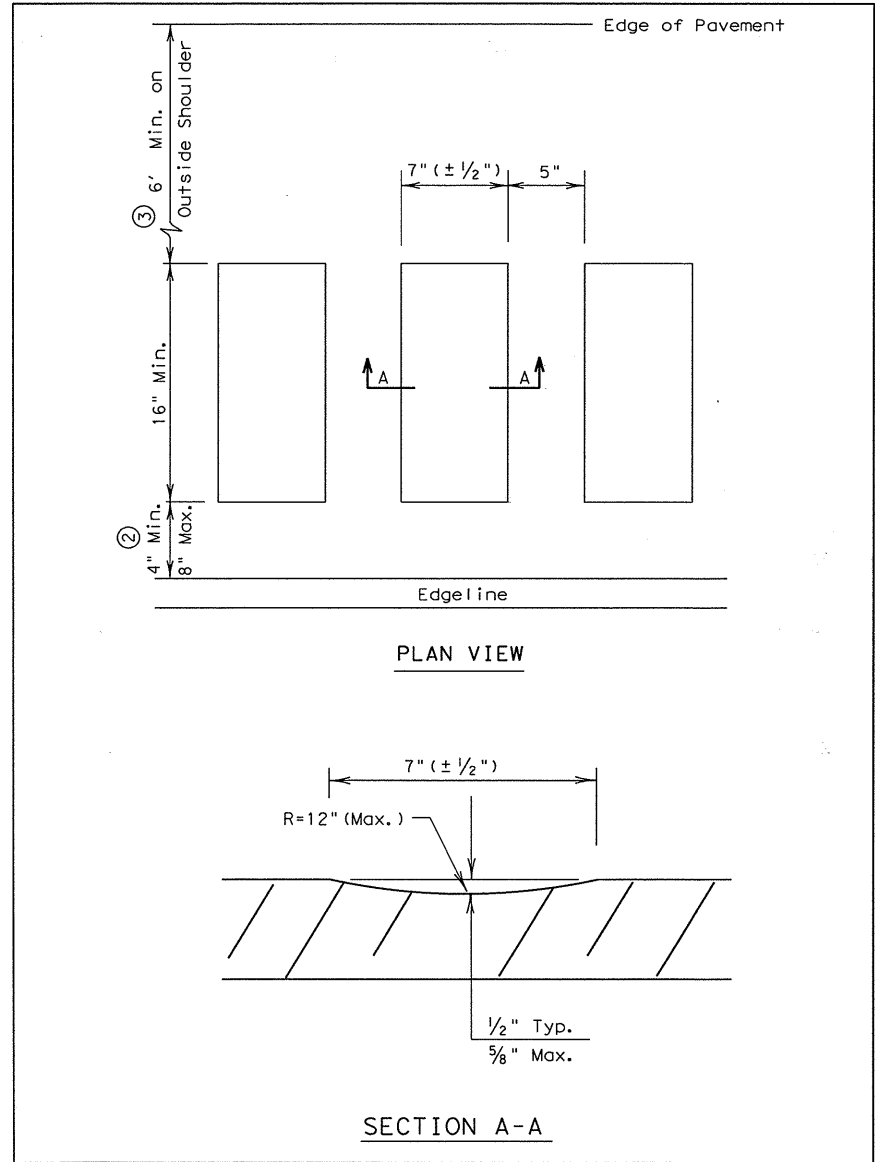
 Texas Department of Transportation © 2002				
TYPICAL INTERSECTION LAYOUT				
SCALE:				SHEET 2 OF 2
DESIGN	FED. RD. DIV. NO. 6	FEDERAL AID PROJECT NO. NH 2003 (146)		HIGHWAY NO. TH 20, ETC.
GRAPHICS	STATE	DISTRICT	COUNTY	SHEET NO.
CHECK	TEXAS	DALLAS	KAUFMAN, ETC.	28
CHECK	CONTROL	SECTION	JOB	
	0918	00	082	

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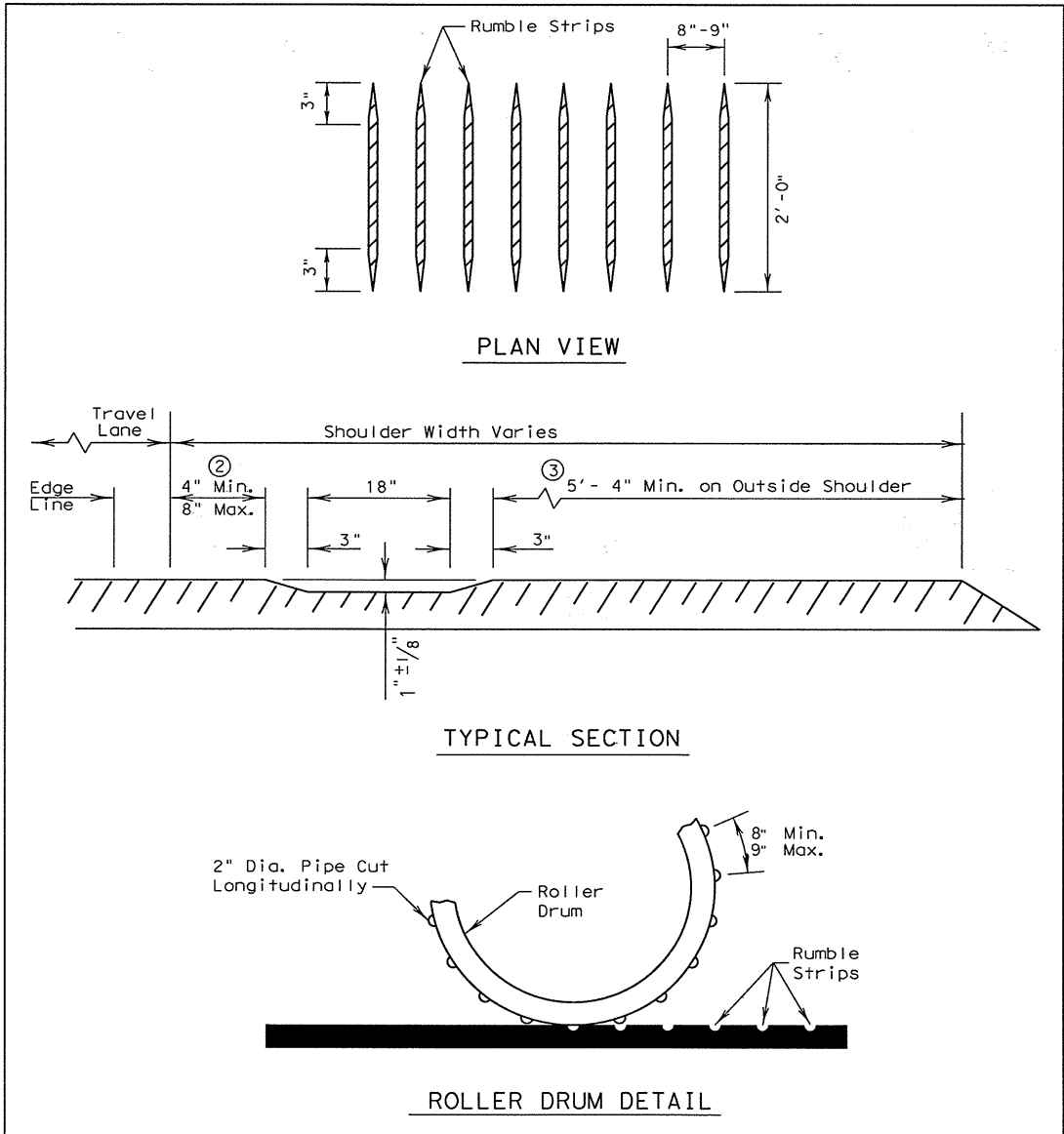
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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64



TYPICAL TEXTURING PLACEMENT AT EXIT AND ENTRANCE RAMP



OPTION 1: CONTINUOUS MILLED DEPRESSIONS



OPTION 2: CONTINUOUS ROLLED DEPRESSIONS

GENERAL NOTES

- ① Extreme caution shall be taken at all times to avoid texturing at locations other than those designated on the plans. Texturing shall not be placed across intersecting streets, ramps, acceleration and deceleration lanes, crossovers, gore areas, or bridge decks.
- ② The minimum distance between the edgeline and the texturing should be used if the shoulder is less than 8 feet in width.
- ③ The minimum width on the outside shoulder between the rumble strip and the edge of the pavement may be reduced in special situations, such as narrower shoulders, only as directed by the Engineer.

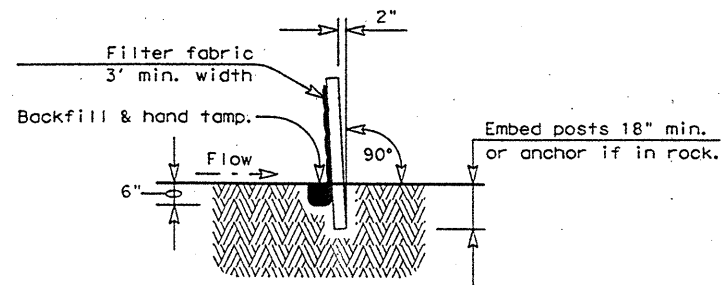
Texas Department of Transportation
Design Division (Pavement)

DEPRESSED SHOULDER
TEXTURING

ST(1)-99

R = Radius
D = Diameter

FILE: ST199.DGN	DN: CCH	CK: MAM	DW:	CK:	NEG:
© TxDOT JANUARY 1994	DIST	FED REG	NH 2003 (146)	SHEET	
REVISIONS	DALLAS	6		29	
COUNTY	CONTROL	SECT	JOB	HIGHWAY	
KAUFMAN, ETC.	0918	00	082	HW 20, ETC.	



SECTION A-A

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

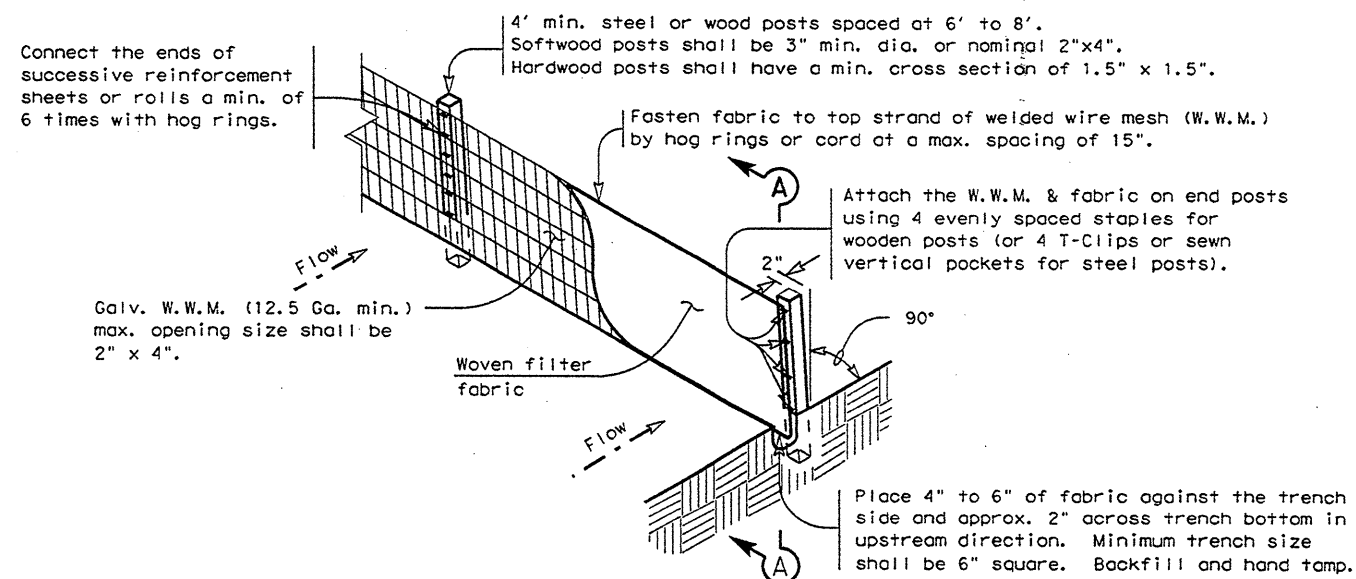
Sediment control fence should be sized to filter a max. flow through rate of 100 GPM/FT². Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

PLAN SHEET LEGEND

Sediment Control Fence — SCF —

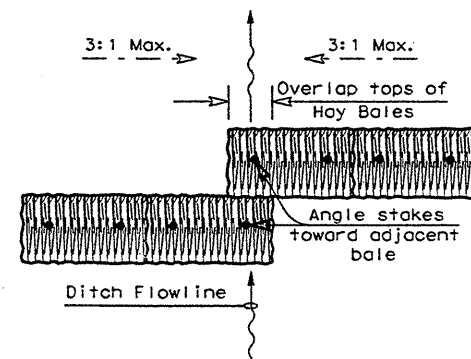
GENERAL NOTES

- The guidelines shown hereon are suggestions only and may be modified by the Engineer.

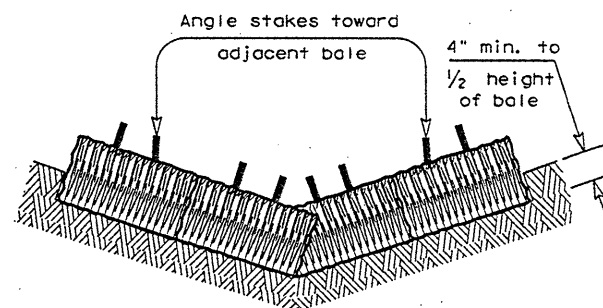


TEMPORARY SEDIMENT CONTROL FENCE

SCF



PLAN VIEW



PROFILE VIEW

PLANS SHEET LEGEND

Baled Hay — BH —

BALED HAY USAGE GUIDELINES

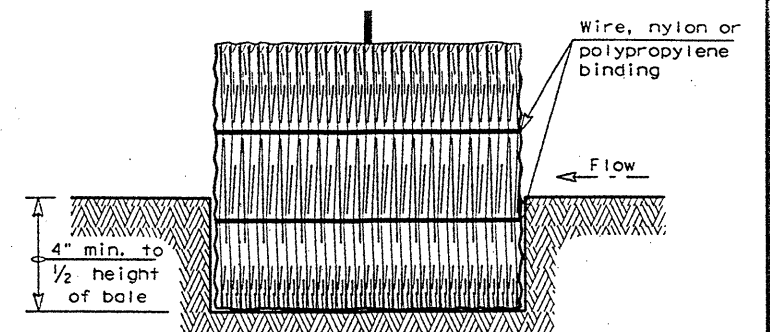
A Baled Hay installation may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A two year storm frequency may be used to calculate the flow rate to be filtered. The installation should be sized to filter a maximum flow thru rate of 5 GPM/FT² of cross sectional area. Baled hay may be used at the following locations:

- Where the runoff approaching the baled hay flows over disturbed soil for less than 100'. If the slope of the disturbed soil exceeds 10%, the length of slope upstream the baled hay should be less than 50'.
- Where the installation will be required for less than 3 months.
- Where the contributing drainage area is less than 1/2 acre.

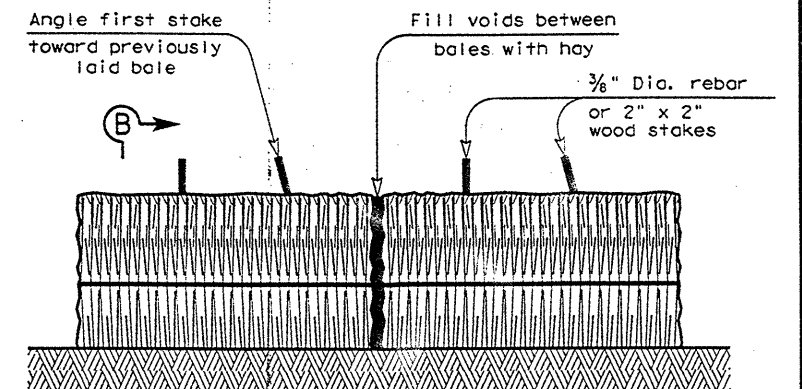
For Baled Hay installations in small ditches, the additional following considerations apply:

- The ditch sideslopes should be graded as flat as possible to maximize the drainage flowrate thru the hay.
- The ditch should be graded large enough to contain the overtopping drainage when sediment has filled to the top of the baled hay.

Bales should be replaced usually every 2 months or more often during wet weather when loss of structural integrity is accelerated.



SECTION B-B



BALED HAY FOR EROSION CONTROL

BH

GENERAL NOTES

- Hay bales shall be a minimum of 30" in length and weigh a minimum of 50 Lbs.
- Hay bales shall be bound by either wire or nylon or polypropylene string. The bales shall be composed entirely of vegetable matter.
- Hay bales shall be embedded in the soil a minimum of 4" and where possible 1/2 the height of the bale.
- Hay bales shall be placed in a row with ends tightly abutting the adjacent bales. The bales shall be placed with bindings parallel to the ground.
- Hay bales shall be securely anchored in place with 3/8" Dia. rebar or 2" x 2" wood stakes, driven through the bales. The first stake shall be angled towards the previously laid bale to force the bales together.
- The guidelines shown hereon are suggestions only and may be modified by the Engineer.



TEXAS DEPARTMENT OF TRANSPORTATION TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES FENCE & BALED HAY EC(1)-93

© TxDOT 1993	FED. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	SHEET NO.
MODIFICATIONS	6	TEXAS	NH 2003 (146)	30
	STATE DIST. NO.	COUNTY	CONTRACT	SECTION
	18	KAUFMAN	01000	002
				1420