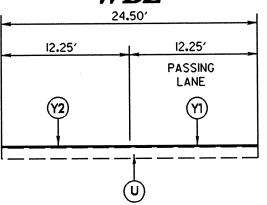


PROJECT NO.	SHEET NO.	TOTAL SHEETS
13CR.10811.9 & 13CR.20811.9	5	
15CM:10011:5 & 15CM:20011:5		

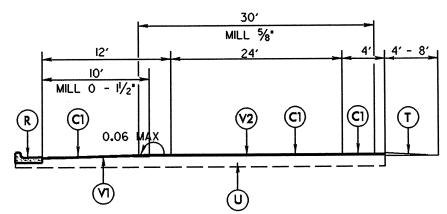
WBL



US 74 **MEDIAN**

TYPICAL SECTION NO. 1

RAMP

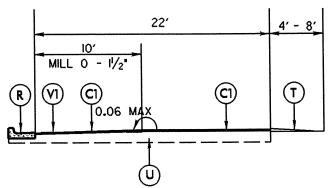


TYPICAL SECTION NO. 2

RAMP 10' MILL 0 - 11/2"

TYPICAL SECTION NO. 3

RAMP

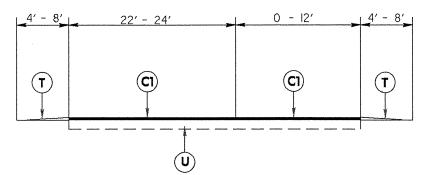


TYPICAL SECTION NO. 4

PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE \$9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.		
R	EXISTING CONCRETE CURB OR CONCRETE ISLAND		
Т	SHOULDER RECONSTRUCTION		
U	EXISTING PAVEMENT		
V1	MILL 0 - 1½"		
V2	MILL 5⁄8"		
Y1	PROP. APPROX. ½" GENERIC PAVING ITEM LATEX MODIFIED MICRO-SURFACING, TYPE C, IN EACH OF TWO LAYERS		
Y2	PROP. APPROX. 14" GENERIC PAVING ITEM LATEX MODIFIED MICRO-SURFACING, TYPE C		

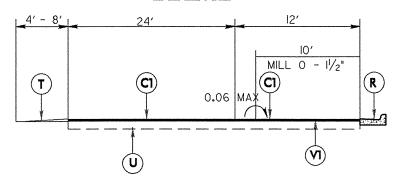
PROJECT NO.	SHEET NO.	TOTAL SHEETS
12CD 10011 0 C. 12CD 20011 0	Q	
3CR.10811.9 & 13CR.20811.9		

RAMP

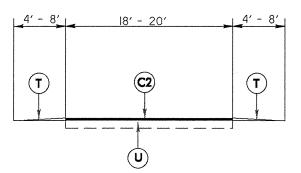


TYPICAL SECTION NO. 5

RAMP



TYPICAL SECTION NO. 6



TYPICAL SECTION NO. 7

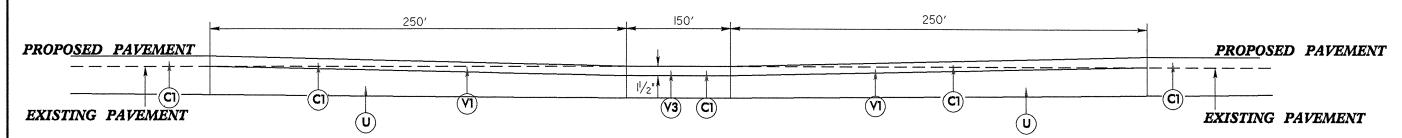
	RAMP	
4' - 8'	20' - 21'	4' - 8'
1'		'
	(C2)	$\left \begin{array}{c} \mathbf{T} \\ \mathbf{T} \end{array}\right $
		
(E1)	(U)	(E 1)

TYPICAL SECTION NO. 8

	PAVEMENT SCHEDULE
C1	PROP. APPROX. $1lau2^n$ asphalt concrete surface course, type s9.5b, at an average rate of 168 LBS. Per Sq. yd.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
E1	PROP. APPROX. 6" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
R	EXISTING CONCRETE CURB OR CONCRETE ISLAND
Т	SHOULDER RECONSTRUCTION
U	EXISTING PAVEMENT
V1	MILL 0 - 11/2"

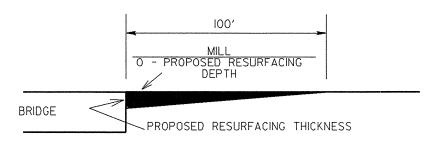
PROJECT NO.	SHEET NO.	TOTAL SHEETS
13CR.10811.9 & 13CR.20811.9	7	
15011.10011.9 @ 15011.20011.9		

BRIDGE #633 & #634 **OVERPASS**



BRIDGE OVERPASS MILLING DETAIL

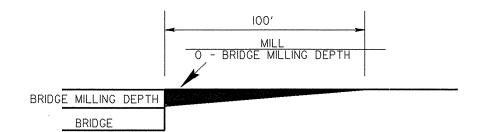
MILL 0 - 1 1/2" AND MILL 1 1/2" MILL LANES AND SHOULDERS UNDER BRIDGES OVERPASS FOR BRIDGE #633 & #634 OVERPASS ONLY SEE MAPS FOR BRIDGE #633 & #634 LOCATION MILLING DETAIL FOR MAP 3 AND MAP 4



MILLING DETAIL AT BRIDGE APPROACHES WHERE BRIDGES WILL NOT BE RESURFACED COST OF MILLING IS INCIDENTAL TO OTHER ITEMS

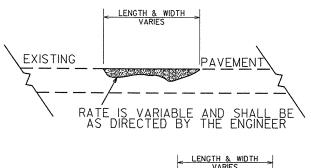
	PAVEMENT SCHEDULE
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE 89.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
U	EXISTING PAVEMENT
V1	MILL 0 - 1½"
٧3	MILL 11/2"

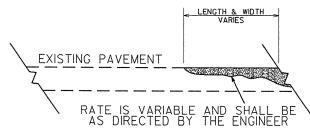
PROJECT NO.	SHEET NO.	TOTAL SHEETS
13CR.10811.9 & 13CR.20811.9	8	
13024.10011.9 © 13014.20011.9		



MILLING DETAIL AT BRIDGE APPROACHES

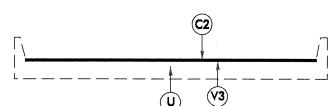
WHERE BRIDGES WILL BE MILLED THEN RESURFACED COST OF MILLING IS INCIDENTAL TO OTHER ITEMS





DETAIL SHOWING METHOD OF WEDGING

BRIDGE

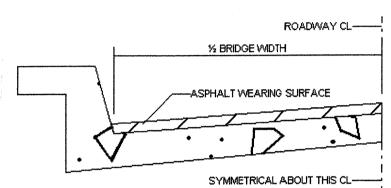


BRIDGE DETAIL

BRIDGE # 220 MAP 5 MILL I_2^{l} " OFF EXISTING PAVEMENT SEE MAPS FOR BRIDGE LOCATION

	PAVEMENT SCHEDULE		
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.		
U	EXISTING PAVEMENT		
V3	MILL 11/2"		

PROJECT NO.	SHEET NO.	TOTAL SHEETS
13CR.10811.9 & 13CR.20811.9	CR 20811 0	
15014.10011.9 & 15014.20011.9		



BRIDGE HALF TYPICAL SECTION

FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN

THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH PROPOSED WEARING SURFACE. THE MINIMUM THIS PRESSON ALL DEPEND ON PAVEMENT TYPE AS FOLLOWS: \$4.55A 107, \$9.55A 1.07, \$9.55A

NOTES

ALL UNPAVED ROADS TO BE RESURFACED SO FROM EDGE OF PAVEMENT OF MAIN PROJECT.

ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADIL, OR AS DIRECTED BY THE ENGINEER

EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF

QUANTITIES.
SHOULDERS AND DITCHES ARE TO BECONSTRUCTED BY OTHERS UNLESS OTHERWISE INDICATED.
BRIDGES ARE TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

	DEPTH, LENGTH & WIDTH VARIES	
	AS DIRECTED BY THE ENGINEER	
7		
	ACBC OR ACSC AS DIRECTED BY THE ENGINEER	

PATCHING EXISTING PAVEMENT

PROJECT NO.	SHEET NO.	TOTAL NO.
13CR.10811.9, 13CR.20811.9	16	
l I		

SUMMARY OF QUANTITIES

PROJECT	COUNTY	MAP	ROUTE	DESCRIPTION	ТҮР	FINAL SURFACE TESTING REQUIRED	LENGTH	WIDTH	SEALING EXISTING PAVEMENT CRACKS	INCIDENTAL STONE BASE	SHOULDER RECONSTRUCTION	5/8" MILLING	1½" MILLING	0" TO 1½" MILLING	ASPHALT CONC BASE COURSE, TYPE B25.0B	ASPHALT CONC SURFACE COURSE, TYPE S9.5B	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A	ASPHALT BINDER FOR PLANT MIX	PATCHING EXISTING PAVEMENT	GENERIC PAVING ITEM LATEX MODIFIED MICRO- SURFACING, TYPE C
NO		NO			NO		MI	FT	LB	TON	SMI	SY	SY	SY	TON	TON	TON	TON	TON	SY
NO		NO		FROM POLK CO. MP 16.86 TO US	110	 	1711	l												<u> </u>
13CR.10811.9	Rutherford	1	US 74	221 MP 11.39	1	NO	5.25	24.5	10,000.0									1		113,200.00
ISCHILOUZIS	- Trucking in	 -		EXIT 181 WB OFF RAMP MP 0.068 TO					·											
	Rutherford	2	US 74 RAMP	US 74A MP 0.478	2,3	NO	0.42	40		21.00	0.42	1,333		2,464		914		55	800	
				EXIT 181 EB OFF RAMP MP 0.05 TO US																
	Rutherford	3	US 74 RAMP	74A MP 0.63	4,5	NO	0.58	22-36		29.00	0.58		400	2,900		696		42	300	
		1		EXIT 181 EB ON RAMP MP 30.167 TO																
	Rutherford	4	US 74 RAMP	US 74 MP 30.923	5,6	NO	0.76	30-36		38.00	1.52	,	600	2,333		1,241		74	1,000	
TOTAL	OR PROJ NO	. 13CR.	10811.9				7.01	<u> </u>	10,000.0	88.00	2.52	1,333	1,000	7,697	1	2,851		171	2,100	113,200.00
							·	·	γ	·	T		Ţ	r				1		
				FROM SR 1602 MP 3.014 TO SR 1514			1											.		
13CR.20811.9	Rutherford	5	SR 1504	MP 4.011	7	NO	0.99	18		49.50	1.98		180				955	64	580	
				FROM SR 1794 MP 2.04 TO SR 1713													965	65	575	
	Rutherford	6	SR 1769	MP 3.04	7	NO	1 1	18	ļ	50.00	2.00						905	65	5/5	
				FROM US 221 MP 0.0 TO SR 2193 MP											1		1.361	91	730	
	Rutherford	7	SR 2194	1.28	7	NO	1.27	20		63.50	2.54		 				1,361	91	730	
				FROM US 221A MP 0.0 TO SR 2113	_					420.00	5.20				1,304		2.786	244	2,800	
	Rutherford	8	SR 2117	MP 2.63	8	NO	2.6	20		130.00	5.20		 		1,304		2,700	244	2,800	
				FROM SR 2125 MP 3.51 TO SR 2274	_			24		44.00	1.76				441		990	86	588	
	Rutherford		SR 2117	MP 4.39	8	NO	0.88 6.74	21	 	337.00	13.48		180		1,745	 	7,057	550	5,273	
TOTAL	OR PROJ NO). 13CR.	20811.9				6.74	L	L	337.00	13.46	L	1 400	L	1 2,743		7,037	1 330 1	3,273	
		~~~		1		<del></del>	13.75	Т	10,000.0	425.00	16.00	1,333	1,180	7,697	1,745	2.851	7.057	721	7.373	113,200.00
	GRAND TO	UIAL		1			13.73		10,000.0	1 723.00	1 20.00			.,,,,,			.,,	·		

#### THERMOPLASTIC AND PAINT QUANTITIES

														40////			·		,	,	·			
		ПП					468500	00000-E	4686000000-E	469	95000000-E			0000-E		4725000000-E	4810000			4835000000-E		4860000000-E		5255000000-1
PROJECT	COUNTY	MAP	ROUTE	DESCRIPTION	LENGTH	WIDTH	4" X 90 M	4" X 90 M	4" X 120 M	8" X 90 M	8" X 90 M YELLOW	THERMOPLASTIC	THERMOPLASTIC	THERMOPLASTIC	THERMOPLASTIC	THERMOPLASTIC	PAINT	PAINT	PAINT	PAINT	REMOVAL OF	REMOVAL OF	SNOWPLOWABLE	PORTABLE
							WHITE	YELLOW	WHITE THERMO	WHITE	THERMO	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	LIGHTING
							THERMO	THERMO		THERMO		MARKING	MARKING	MARKING	MARKING	MARKING	MARKING LINES	MARKING	MARKING LINES	MARKING	MARKING	MARKING	MARKERS	
1												CHARACTER (120	CHARACTER (120	CHARACTER (120	CHARACTER (120	SYMBOL (90 MILS,	(4") WHITE	LINES (4")	(8") WHITE	LINES (24")	LINES (4")	LINES (8")		
1		1 1					ł	l				MILS, LANE)	MILS, AHEAD)	MILS, ENDS)	MILS, 1000 FT)	MERGE ARROW)		YELLOW		WHITE				
		1 1					*								•	1	1							
NO		NO					LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	LF	LF	LF	LF	LF	LF	EA	LS
		1		FROM MP 16.86 (POLK CO.) TO MP																				
.3CR.10811.9	Rutherford	1	US 74	11.39 (US 221)	5.25	24.5	27,800	27,800	7,000	700							34,600	27,800	700		62,400	700	350	
				EXIT 181 WB OFF RAMP MP 0.068 TO																				
	Rutherford	2	US 74 RAMP	US 74A MP 0.478	0.42	40	2,218	2,218	555	160													39	11
				EXIT 181 EB OFF RAMP MP 0.05 TO US							1													
-	Rutherford	3	US 74 RAMP	74A MP 0.63	0.58	22	3,062	3,062		300													14	
				EXIT 181 EB ON RAMP MP 30.167 TO																				
	Rutherford	4	US 74 RAMP	US 74 MP 30.923	0.76	30	4,013	5,013	1,003		840	4	5	4	6	4		<u> </u>					185	
			2244 2		7.01		37,093	38,093	8,558	1,160	840	4	5	4	6	4	34,600	27,800	700		62,400	700	588	1
TUTAL FU	TOTAL FOR PROJ NO. 13CR.10811.9		.0811.9				75,186			2,000		19			62,400		<u> </u>	<u> </u>	L	<u> </u>	<u> </u>			
				FROM SR 1602 MP 3.014 TO SR 1514		Г	Τ	T			T	T	1	1	I	1	1	T	I	<u> </u>	T	T	I	+
			an 4504	MP 4.011	0.99	18		1									20,909	20,909						
L3CR.20811.9	Rutherford	5	SR 1504	FROM SR 1794 MP 2.04 TO SR 1713	0.99	10	<del></del>							<del> </del>		<u> </u>	1 20,555	1 20,555				l		<del></del>
			CD 47C0	MP 3.04		18											21,120	21.120						
	Rutherford	6	SR 1769			10	<del> </del>	<del> </del>			<del> </del>	<del> </del>	<del> </del>	<del> </del>			1 22,220	1,			<b>†</b>			
1				FROM US 221 MP 0.0 TO SR 2193 MP													26,822	26.822		12				
	Rutherford	7	SR 2194	1.28	1.27	20	+	<b>-</b>						<del>                                     </del>			20,022	20,022		12	<del> </del>			-
ł				FROM US 221A MP 0.0 TO SR 2113				ŀ									54,912	54,912						
	Rutherford	8	SR 2117	MP 2.63	2.6	20	<del> </del>	<del> </del>	<del> </del>	<b></b>			-		<del> </del>	+	34,312	34,312	<del> </del>		<del> </del>	<del> </del>		
1				FROM SR 2125 MP 3.51 TO SR 2274								1					18,586	18,586						
1	Rutherford	1 9	SR 2117	MP 4.39	0.88	21	<u> </u>	-			<del> </del>					<del> </del>	142,349	142,349		12	<del> </del>			<del> </del>
TOTAL FO	TOTAL FOR PROJ NO. 13CR.20811.9		20811.9		6.74								<u> </u>	1,		<del> </del>	284.		<del> </del>	122	<del> </del>	<del> </del>		
				L	L	<u> </u>				L		L				<u> </u>	204,	0.00		1	L	L	<u></u>	<del>- </del>
				1	13.75	T	37,093	38,093	8,558	1,160	840	4	5	4	6	4	176,949	170,149	700	12	62,400	700	588	1
	GRAND TOTAL			L.	75,186						2,000	19			<del></del>		098	<del></del>			1			

PROJECT REFERENCE NO. SHEET NO.

ASPHALT OVERLAY

SHOULDER WEDGE

SHOULDER WEDGE

SHOULDER WEDGE

SHOULDER WEDGE

SHOULDER WEDGE

A SHOULDER WEDGE

EXISTING UNIMPROVED SHOULDER

PROPOSED OR

EXISTING PAVEMENT

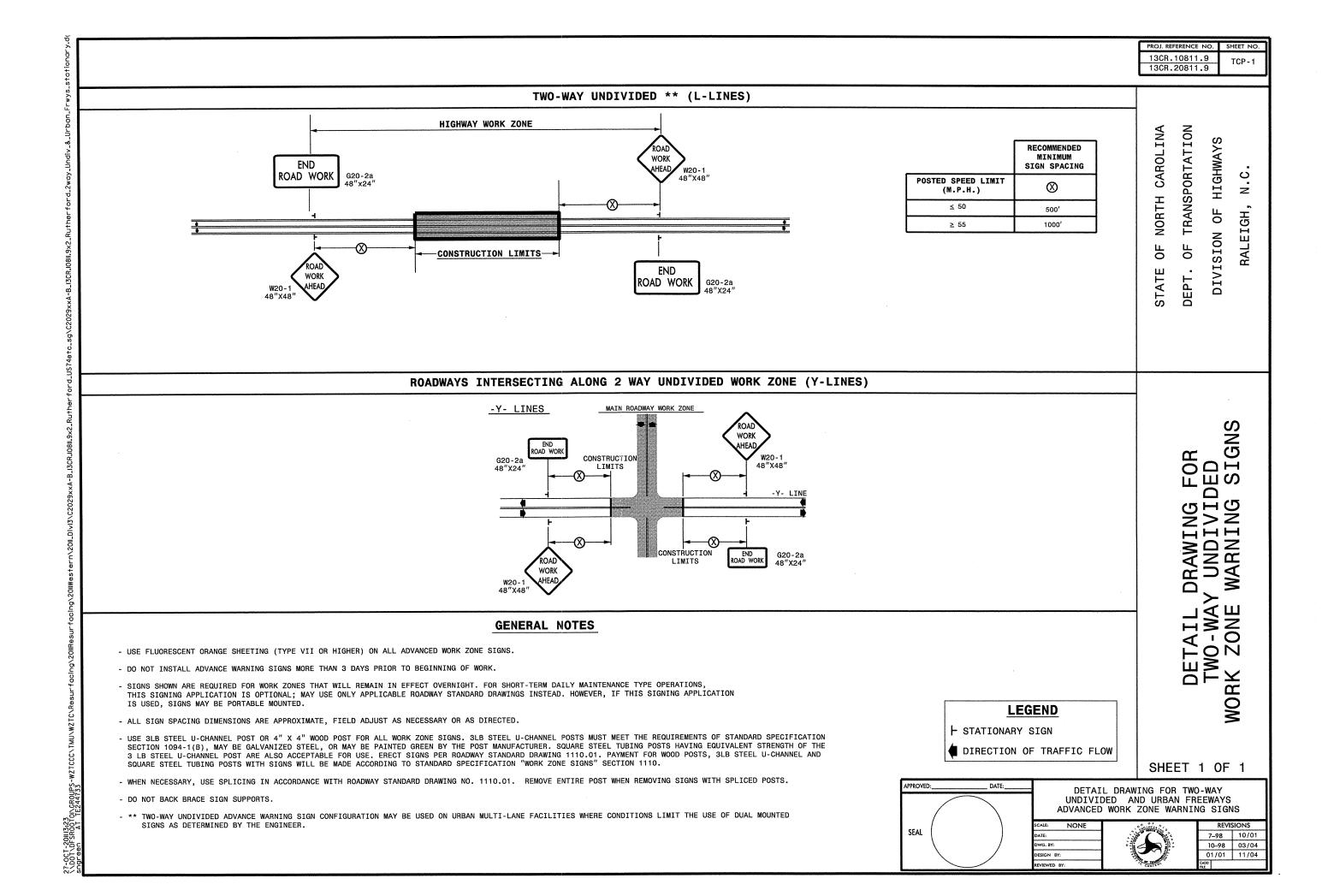
A - SHOULDER WEDGE ANGLE

# SHOULDER WEDGE DETAIL

CONTRACT STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119

# SHOULDER WEDGE DETAIL

ORIGINAL BY:	T.SPELL DATE: 7-19-11
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.: s:us	r/details/stand/shoulderwedgedetail.dgn



#### ADVANCED WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

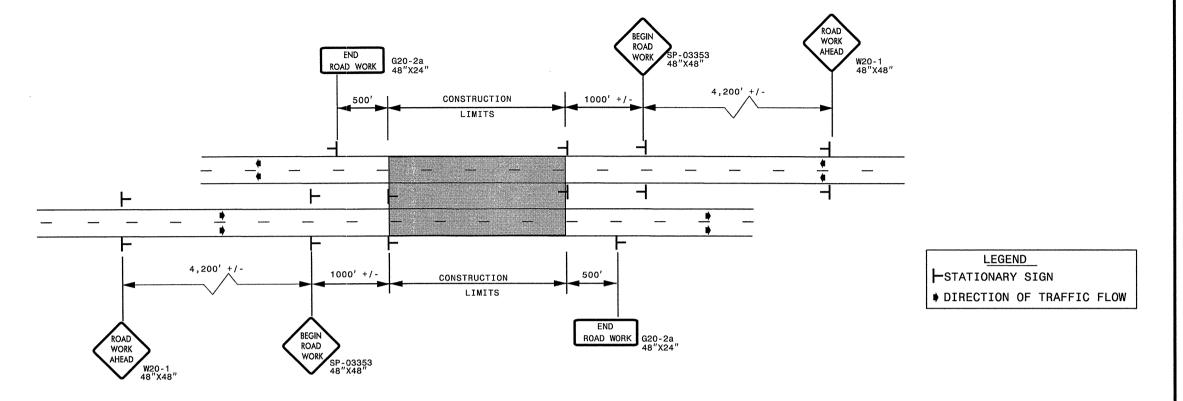
PROJ. REFERENCE NO. SHEET NO.

13CR.10811.9

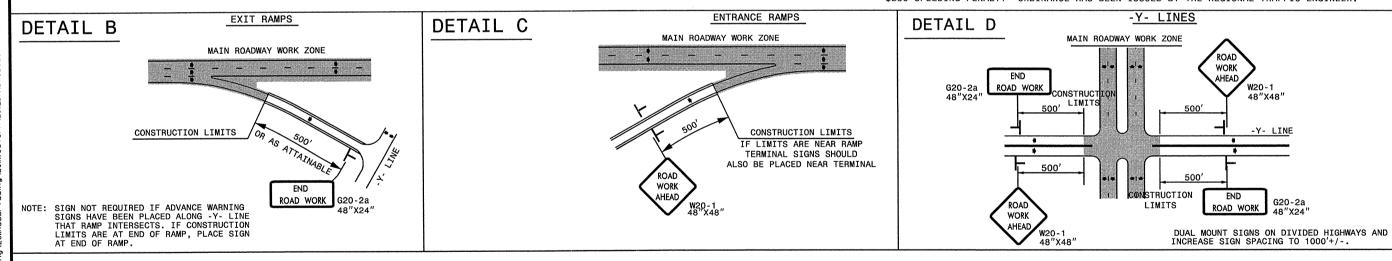
13CR.20811.9

TCP-2

#### DETAIL A

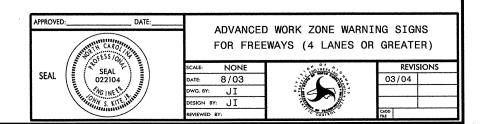


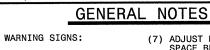
★ USE THE "\$250 SPEEDING PENALTY" SIGN, SPEED LIMIT SIGN, AND ORANGE PANEL; ONLY WHEN A "\$250 SPEEDING PENALTY" ORDINANCE HAS BEEN ISSUED BY THE REGIONAL TRAFFIC ENGINEER.



#### GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCED WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- SIGNS SHOWN ARE REQUIRED FOR WORK ZONES THAT WILL REMAIN IN EFFECT OVERNIGHT. FOR SHORT-TERM DAILY MAINTENANCE TYPE OPERATIONS, THIS SIGNING APPLICATION IS OPTIONAL; MAY USE ONLY APPLICABLE ROADWAY STANDARD DRAWINGS INSTEAD. HOWEVER, IF THIS SIGNING APPLICATION IS USED, SIGNS MAY BE PORTABLE MOUNTED.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE 3LB STEEL U-CHANNEL POST OR 4" X 4" WOOD POST FOR ALL WORK ZONE SIGNS. 3LB STEEL U-CHANNEL POSTS MUST MEET THE REQUIREMENTS OF STANDARD SPECIFICATION SECTION 1094-1(B), MAY BE GALVANIZED STEEL, OR MAY BE PAINTED GREEN BY THE POST MANUFACTURER. SQUARE STEEL TUBING POSTS HAVING EQUIVALENT STRENGTH OF THE 3 LB STEEL U-CHANNEL POST ARE ALSO ACCEPTABLE FOR USE. ERECT SIGNS PER ROADWAY STANDARD DRAWING 1110.01. PAYMENT FOR WOOD POSTS, 3LB STEEL U-CHANNEL AND SQUARE STEEL TUBING POSTS WITH SIGNS WILL BE MADE ACCORDING TO STANDARD SPECIFICATION "WORK ZONE SIGNS" SECTION 1110.
- WHEN NECESSARY, USE SPLICING IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1110.01. REMOVE ENTIRE POST WHEN REMOVING SIGNS WITH SPLICED POSTS.
- DO NOT BACK BRACE SIGN SUPPORTS.





- (1) THE FOLLOWING OPTIONS MAY BE USED FOR ADVANCE WARNING SIGNS:
  - A. TRUCK MOUNTED SIGNS
    B. TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
  - C. GROUND MOUNTED ADVANCE WARNING SIGNS (MUST CIRCLE TO PICK UP SIGNS)
  - D. GROUND MOUNTED CHANGEABLE MESSAGE SIGN (CMS) (MUST USE CIRCLE TO PICK UP SIGNS)
- (2) ALL ADVANCE WARNING SIGNS MUST BE 48" X 48" WITH FLUORESCENT ORANGE TYPE VII, VIII OR IX SHEETING. IF SPACE LIMITATIONS ON SHOULDER PROHIBIT A 48" X 48" SIGN, A SMALLER SIGN CAN BE USED WITH APPROVAL FROM ENGINEER.
- (3) SIGNS ON VEHICLES SHOULD BE MOUNTED A MINIMUM OF ONE (1) FOOT FROM THE GROUND AND SHOULD NOT BLOCK THE MOTORIST'S SIGHT OF THE FLASHING ARROW PANEL AND/OR LIGHTBAR.
- (4) GROUND MOUNTED ADVANCED WARNING SIGNS SHOULD BE MOUNTED A MINIMUM OF ONE (1) FOOT FROM THE GROUND TO
- (5) SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.
- (6) ADDITIONAL VEHICLES SHOULD BE USED IN WORK CARAVAN TO FACILITATE DRYING OF PAVEMENT MARKING MATERIAL (TMIA'S ARE OPTIONAL ON THESE ADDITIONAL VEHICLES). HOWEVER, THE FIRST VEHICLE MOTORISTS SEE IN THE TRAVEL LANE SHALL HAVE A TMIA.

(1)(2)(3)(4)(8)

W26-1CSP

- (7) ADJUST DISTANCE AS NEEDED TO PREVENT MOTORISTS FROM ENTERING SPACE BETWEEN THE APPLICATION AND PROTECTION VEHICLE. DISTANCE CAN BE LENGTHENED TO ACCOMODATE SIGHT DISTANCE NEEDS.
- (8) ROUND UP MILEAGE TO NEXT WHOLE MILE. WORK ZONE SHOULD NOT EXCEED FIVE (5) MILES IN LENGTH.
- (9) RADIO COMMUNICATION BETWEEN VEHICLES IS REQUIRED.
- (10) USE OF A LIGHT BAR ON ALL VEHICLES IS PREFERRED, BUT A ROTATING BEACON MAY BE USED INSTEAD.
- (11) IF WORK IS PERFORMED AT NIGHT, THE WORK AREA MUST BE ILLUMINATED WITH MACHINE AND/OR TOWER LIGHTS AS APPROVED BY THE ENGINEER.
- (12) ALL TRAFFIC CONTROL DEVICES WILL BE CONSIDERED INCIDENTAL TO THE PAY ITEMS FOR PAVEMENT MARKING AND MARKERS.
- (13) INFORMATIONAL SIGNS SHOULD BE ACTIVITY SPECIFIC, i.e.
  "PAINT CREW IN ROAD". SIGNS MAY BE RECTANGULAR OR DIAMOND SHAPE.
  SIGN SIZE SHOULD BE BASED ON THE MOTORIST ABILITY TO RECOGNIZE
  SIGN WHEN TRAVELING FIVE (5) MILES ABOVE POSTED SPEED LIMIT.
- (14) IF A LEAD VEHICLE IS ADDED TO OPERATION, IT SHOULD HAVE THE SAME ADVANCE WARNING SIGNS AS THE APPLICATION VEHICLE SHOWN BELOW.

#### LEGEND

PORTABLE SIGN. SIGNS MUST BE NCHRP-350 AND NCDOT APPROVED.



DIRECTION OF TRAFFIC FLOW



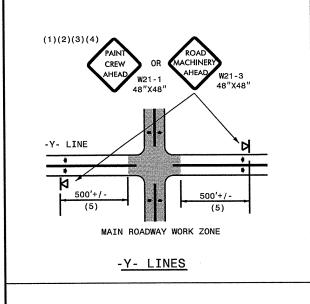
APPLICATION VEHICLE WITH LIGHT BAR

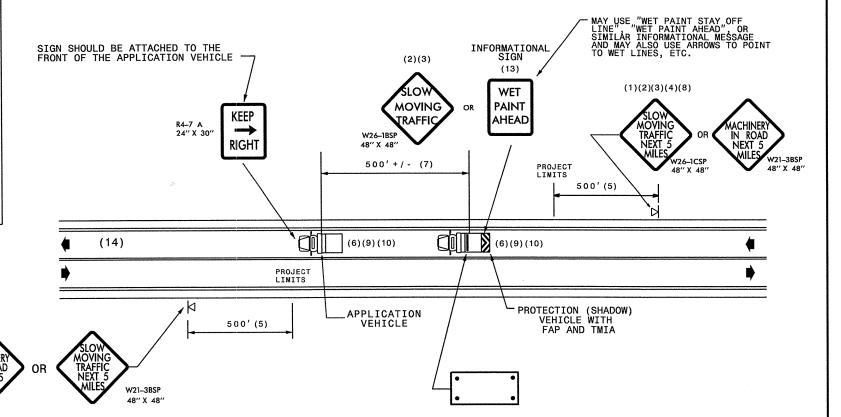


PROTECTION VEHICLE WITH TRUCK MOUNTED IMPACT ATTENUATOR (TMIA) AND LIGHT BAR (SEE ROADWAY STANDARD NO. 1165.01). TMIA MUST BE NCHRP-350 TEST LEVEL 3 (60+MPH)



FLASHING ARROW PANEL, TYPE "B" (60"X30" MIN.), "CAUTION MODE"





# MOVING OPERATION CARAVAN

(OPERATIONS TRAVELING 3 MPH OR FASTER) PLACING PAVEMENT MARKING OR MARKERS ON TWO-LANE TWO-WAY ROADWAYS

DRAWING NUMBER 6 IMPLEMENTATION DATE: 07/01/97 REVISED: 11/03/04

#### GENERAL NOTES

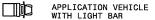
- (1) THE FOLLOWING OPTIONS MAY BE USED FOR ADVANCE WARNING SIGNS:
  - A. TRUCK MOUNTED SIGNS
  - B. TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
    C. GROUND MOUNTED ADVANCE WARNING SIGNS
  - (MUST CIRCLE TO PICK UP SIGNS)
  - D. GROUND MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
    (MUST USE CIRCLE TO PICK UP SIGNS)
- (2) ALL ADVANCE WARNING SIGNS MUST BE 48" X 48" WITH FLUORESCENT ORANGE TYPE VII, VIII OR IX SHEETING. IF SPACE LIMITATIONS ON SHOULDER PROHIBIT A 48" X 48" SIGN, A SMALLER SIGN CAN BE USED WITH APPROVAL FROM ENGINEER.
- (3) SIGNS ON VEHICLES SHOULD BE MOUNTED A MINIMUM OF ONE (1) FOOT FROM THE GROUND AND SHOULD NOT BLOCK THE MOTORIST'S SIGHT OF THE FLASHING ARROW PANEL AND/OR LIGHTBAR.
- (4) GROUND MOUNTED ADVANCED WARNING SIGNS SHOULD BE MOUNTED A MINIMUM OF FIVE (5) FEET FROM THE GROUND TO BOTTOM OF SIGN.
- (5) SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.

- (6) ADDITIONAL VEHICLES SHOULD BE USED IN WORK CARAVAN TO FACILITATE DRYING OF PAVEMENT MARKING MATERIAL (TMIA'S ARE OPTIONAL ON THESE ADDITIONAL VEHICLES). HOWEVER, THE FIRST VEHICLE MOTORISTS SEE IN THE TRAVEL LANE SHALL HAVE A TMIA.
- (7) ADJUST DISTANCE AS NEEDED TO PREVENT MOTORISTS FROM ENTERING SPACE BETWEEN THE APPLICATION AND PROTECTION VEHICLE. DISTANCE CAN BE LENGTHENED TO ACCOMODATE SIGHT DISTANCE NEEDS.
- (8) ROUND UP MILEAGE TO NEXT WHOLE MILE. WORK ZONE SHOULD NOT EXCEED FIVE (5) MILES IN LENGTH.
- (9) RADIO COMMUNICATION BETWEEN VEHICLES IS REQUIRED.
- (10) USE OF A LIGHT BAR ON ALL VEHICLES IS PREFERRED, BUT A ROTATING BEACON MAY BE USED INSTEAD.
- (11) IF WORK IS PERFORMED AT NIGHT, THE WORK AREA MUST BE ILLUMINATED WITH MACHINE AND/OR TOWER LIGHTS AS APPROVED BY THE ENGINEER.
- (12) ALL TRAFFIC CONTROL DEVICES WILL BE CONSIDERED INCIDENTAL TO THE PAY ITEMS FOR PAVEMENT MARKING AND MARKERS.

#### LEGEND

PORTABLE SIGN. SIGNS MUST BE NCHRP-350 AND NCDOT APPROVED.

DIRECTION OF TRAFFIC FLOW

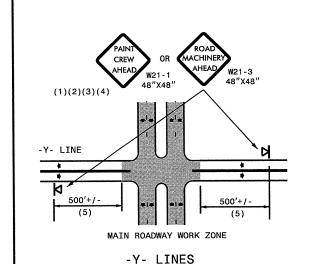


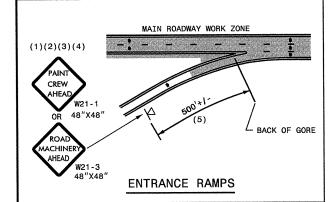
PROTECTION VEHICLE WITH TRUCK
MOUNTED IMPACT ATTENUATOR (TMIA)
AND LIGHT BAR (SEE ROADWAY
STANDARD NO. 1165.01). TMIA MUST
BE NCHRP-350 TEST LEVEL 3 (60+MPH)

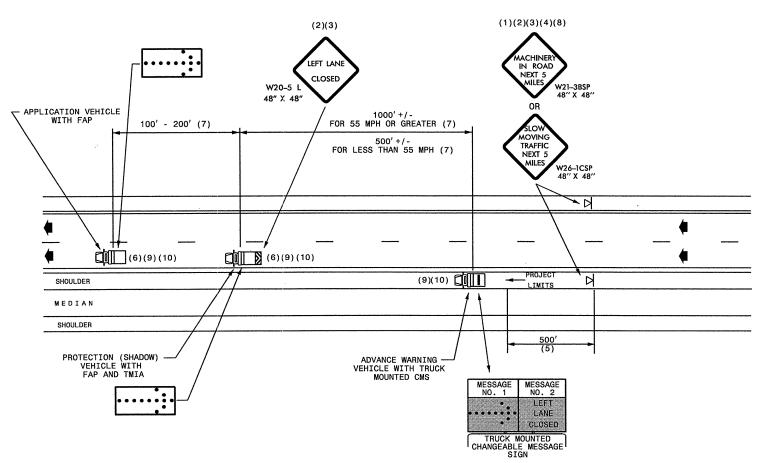
ADVANCE WARNING VEHICLE WITH TRUCK MOUNTED CHANGEBLE MESSAGE SIGN (CMS) AND LIGHT BAR.
MESSAGE SIGN LETTER HEIGHT SHOULD BE A MINIMUM OF 10 INCHES.

FLASHING ARROW PANEL,
TYPE "B" (60"X30" MIN.),
APPROPRIATE DIRECTION INDICATED

CHANGEABLE MESSAGE SIGN







## MOVING OPERATION CARAVAN

(OPERATIONS TRAVELING 3 MPH OR FASTER)
PLACING PAVEMENT MARKING OR MARKERS
ON NON-INTERSTATE MULTILANE DIVIDED ROADWAYS

DRAWING NUMBER 7
IMPLEMENTATION DATE: 07/01/97
REVISED: 11/03/04