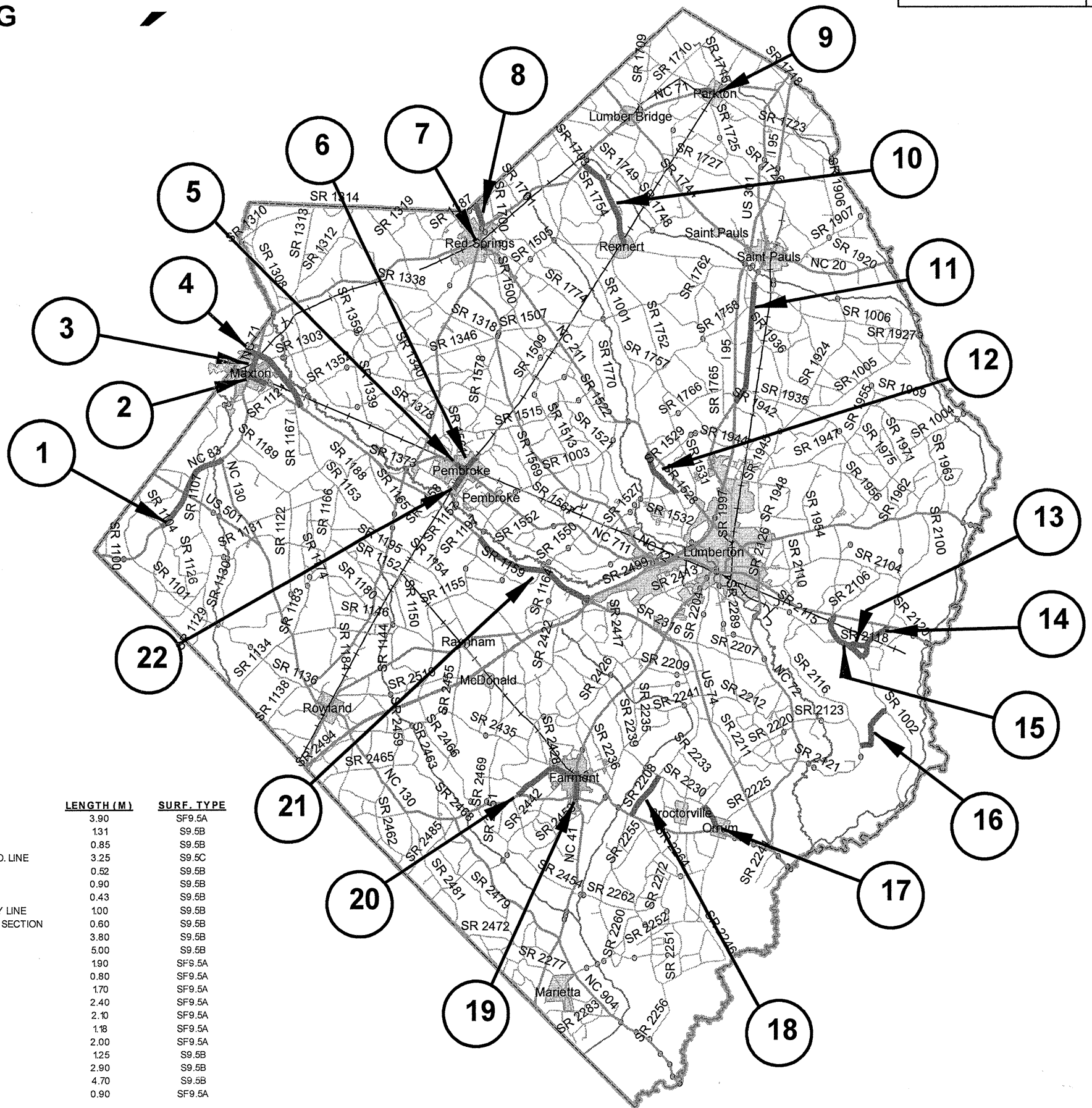
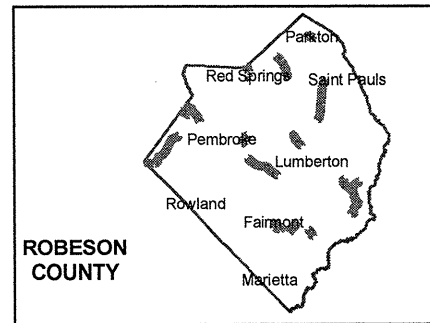
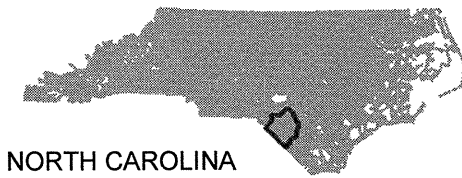
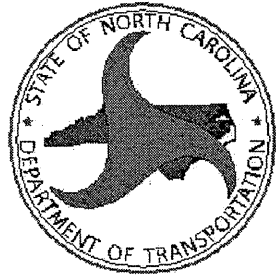


Legend

- 1 NC 83
 - 2 US 74B
 - 3 NC 71 (1)
 - 4 I-74 E/W
 - 5 NC 711
 - 6 SR 1563
 - 7 NC 211 (1)
 - 8 NC 211 (2)
 - 9 NC 71 (2)
 - 10 S R 1752
 - 11 U S 301
 - 12 S R 1528
 - 13 S R 2118
 - 14 S R 2100
 - 15 S R 1002
 - 16 S R 2121
 - 17 S R 2230
 - 18 S R 2208
 - 19 S R 2238
 - 20 N C 130B
 - 21 U S 74ALT
 - 22 S R 1555
-
- Primary Roads
 - Secondary Roads
 - Railroad
 - Major Drainageways
 - Bridges
 - Robeson County
 - Municipal Boundaries

2011-2012 RESURFACING for ROBESON COUNTY

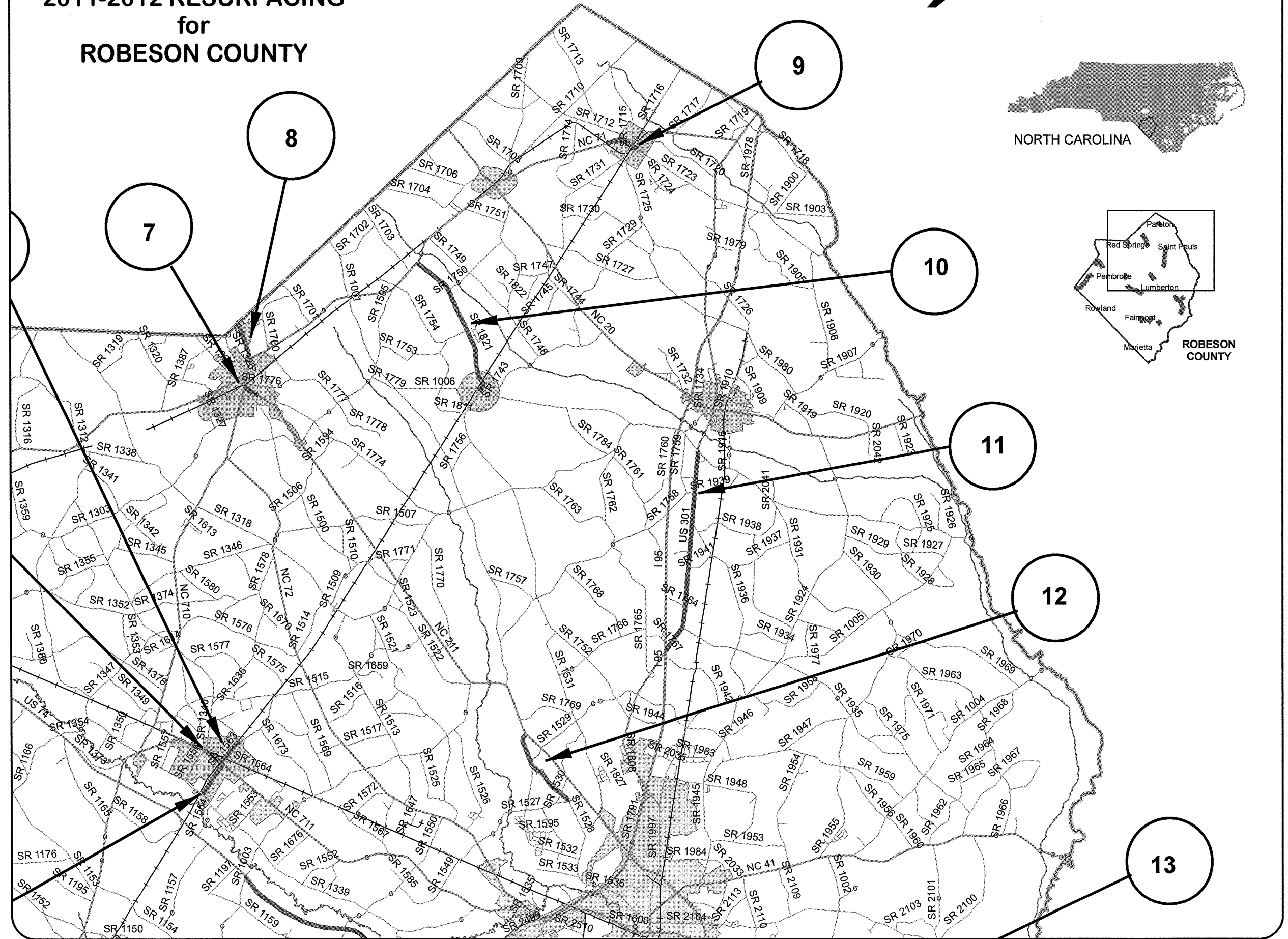


MAP NO.	ROUTE	FROM	TO	LENGTH (M)	SURF. TYPE
1	NC 83	SR 104	NC 130	3.90	SF9.5A
2	US 74B	SCOTLAND CO. LINE	ECL MAXTON	1.31	S9.5B
3	NC 71(1)	US 74 BUS.	US 74	0.85	S9.5B
4	I-74 E/W	US 74 ALT.	SCOTLAND CO. LINE	3.25	S9.5C
5	NC 711	SR 1340	SR 1555	0.52	S9.5B
6	SR 1563	NCL PEM BROKE	NC 711	0.90	S9.5B
7	NC 211(1)	SARATOGA ST.	CJ AT NC 72	0.43	S9.5B
8	NC 211(2)	CJ AT NC 71	HOKE COUNTY LINE	1.00	S9.5B
9	NC 71(2)	WCL PARKTON	CJ AT 3-LANE SECTION	0.60	S9.5B
10	SR 1752	NC 71	SR 1006	3.80	S9.5B
11	US 301	SR 1006	SR 1942	5.00	S9.5B
12	SR 1528	SR 1527	NC 211	1.90	SF9.5A
13	SR 2118	SR 1002	SR 2100	0.80	SF9.5A
14	SR 2100	SR 1002	NC 211	1.70	SF9.5A
15	SR 1002	NC 211	SR 2100	2.40	SF9.5A
16	SR 2121	SR 1002	SR 2116	2.10	SF9.5A
17	SR 2230	SR 2220	SR 2225	1.18	SF9.5A
18	SR 2208	SR 2230	NC 130	2.00	SF9.5A
19	SR 2238	NC 41	NC 41	1.25	S9.5B
20	NC 130B	NC 41	NC 130	2.90	S9.5B
21	US 74 ALT.	I-95	SR 1003	4.70	S9.5B
22	SR 1555	SR 1339	NC 711	0.90	SF9.5A

Legend

- 1 NC 83
- 2 US 74B
- 3 NC 71 (1)
- 4 I 7 4 EW
- 5 NC 711
- 6 SR 1563
- 7 NC 211 (1)
- 8 NC 211 (2)
- 9 NC 71 (2)
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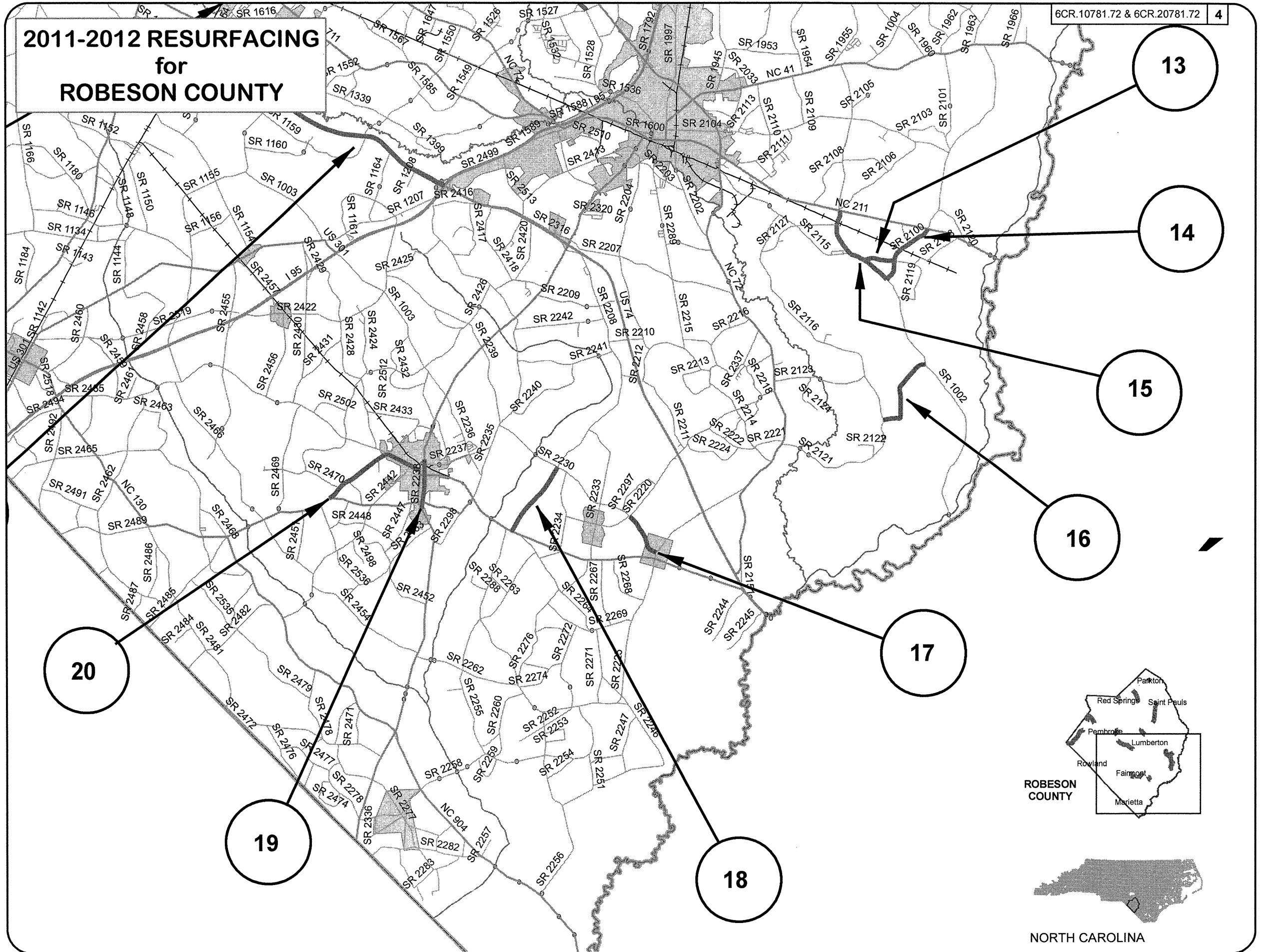
2011-2012 RESURFACING for ROBESON COUNTY


























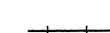

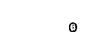



Legend

- 1 NC 83
- 2 US 74B
- 3 NC 71 (1)
- 4 I7 4 E/W
- 5 NC 711
- 6 SR 1563
- 7 NC 211 (1)
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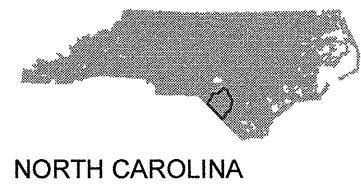
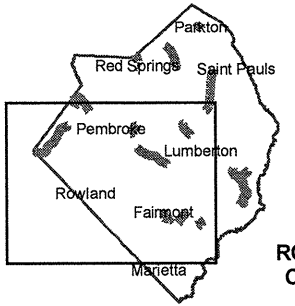
2011-2012 RESURFACING for ROBESON COUNTY



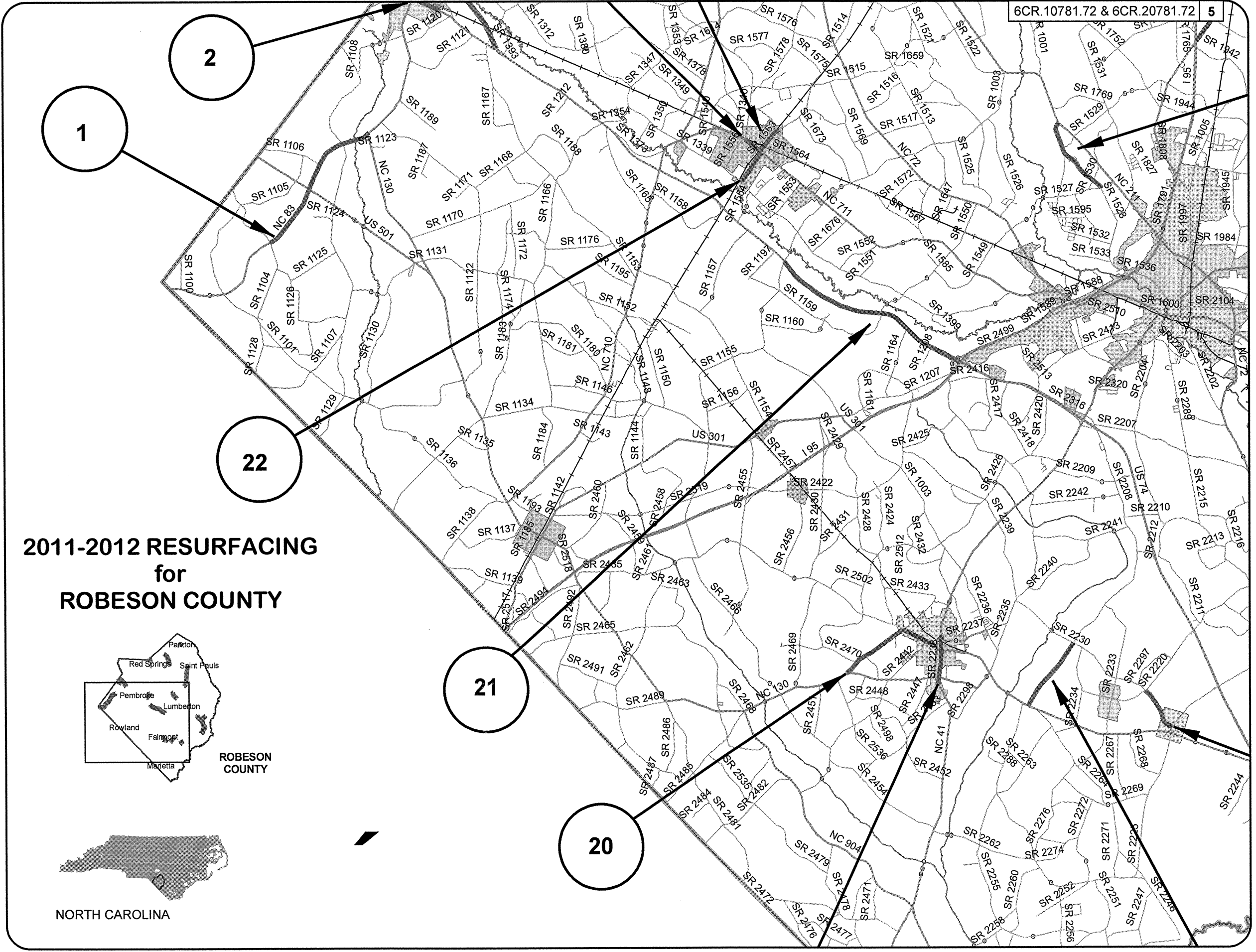
Legend

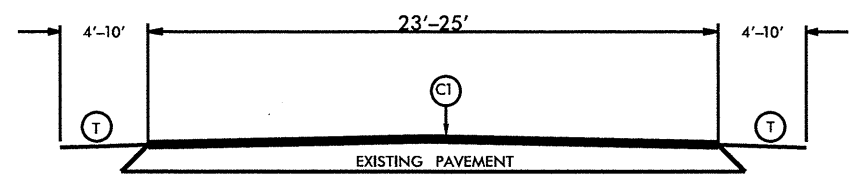
-  1 NC 83
-  2 US 74B
-  3 NC 71 (1)
-  4 I7 4 EW
-  5 NC 711
-  6 SR 1563
-  7 NC 211 (1)
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-  Railroad
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-  Bridges
-  Robeson County
-  Municipal Boundaries

2011-2012 RESURFACING for ROBESON COUNTY

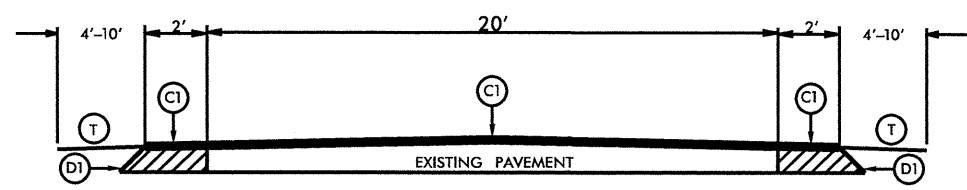


NORTH CAROLINA



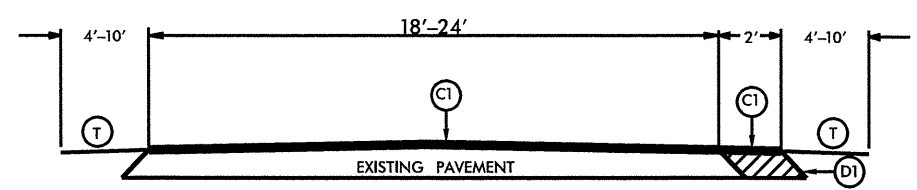


TYPICAL SECTION NO. 1



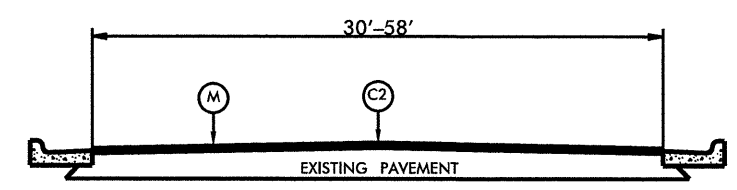
TYPICAL SECTION NO. 4

NOTE: MILLING SHALL BE PERFORMED AT BRIDGE DECKS AS DIRECTED BY THE ENGINEER.



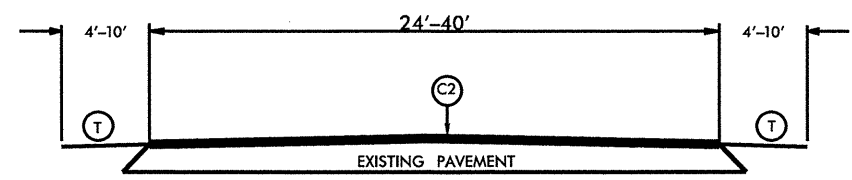
TYPICAL SECTION NO. 2

NOTE: INCLUDES 2 FT. WIDENING OF THE INSIDE RADIUS OF ALL CURVES, OR AS DIRECTED BY THE ENGINEER. SEE INSIDE CURVE WIDENING DETAIL.

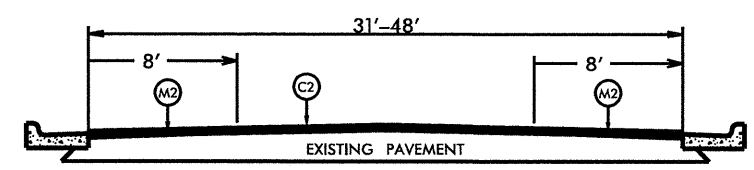


TYPICAL SECTION NO. 5

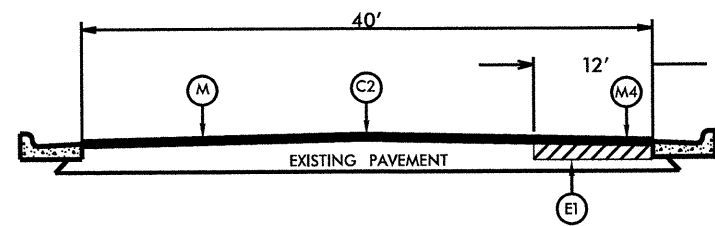
NOTE: MILL GUTTER LINE AS NEEDED ON MAP 9



TYPICAL SECTION NO. 3

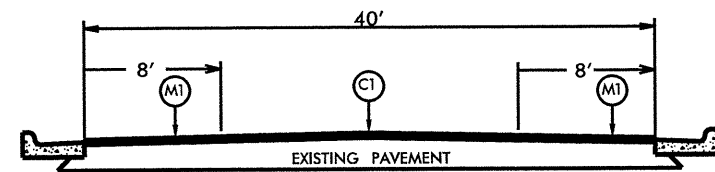


TYPICAL SECTION NO. 6

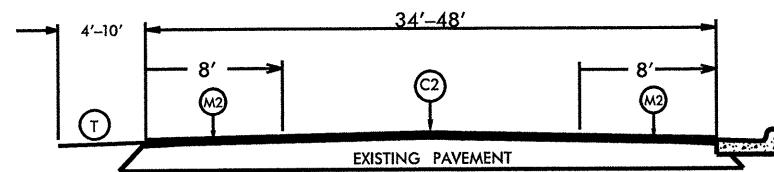


TYPICAL SECTION NO. 7

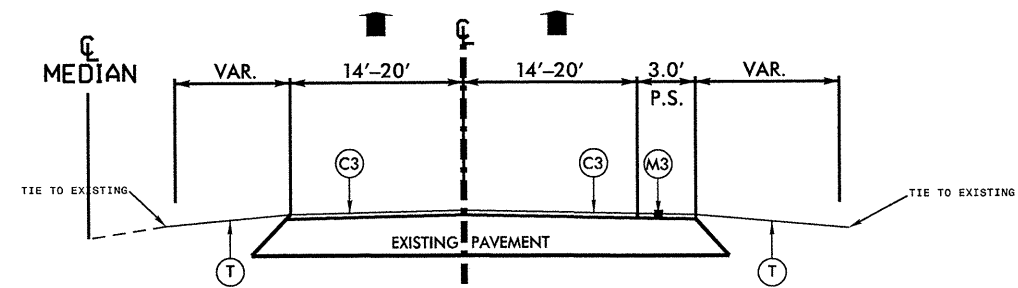
NOTE: 5 INCH MILLING SHALL BEGIN AT A POINT 0.17 MILE WEST OF SR 1555 AND PROCEED 0.17 MILE WESTWARD.



TYPICAL SECTION NO. 8

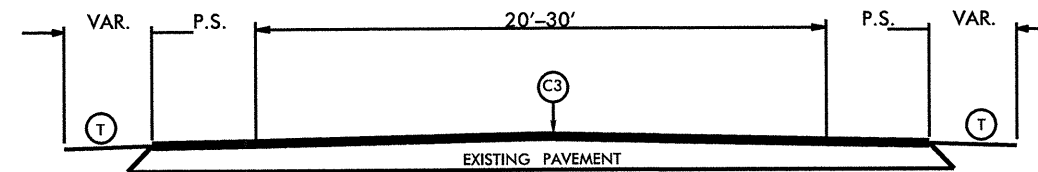


TYPICAL SECTION NO. 9



TYPICAL SECTION NO. 10

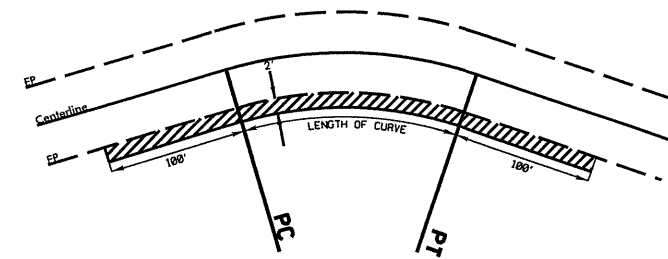
NOTE: INCLUDES MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE-INS AND BRIDGE APPROACHES AS DIRECTED BY THE ENGINEER. SEE DETAILS 2 AND 3.



TYPICAL SECTION NO. 11

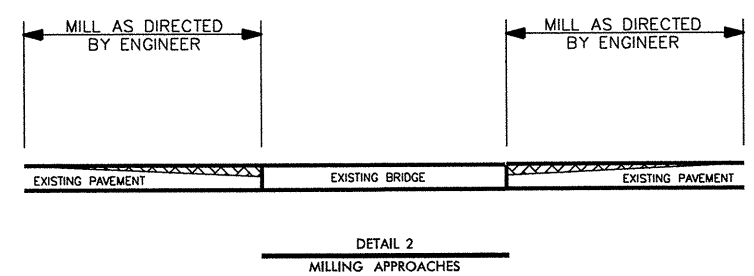
RAMPS

NOTE: ENTIRE LENGTH SHALL BE RESURFACED.

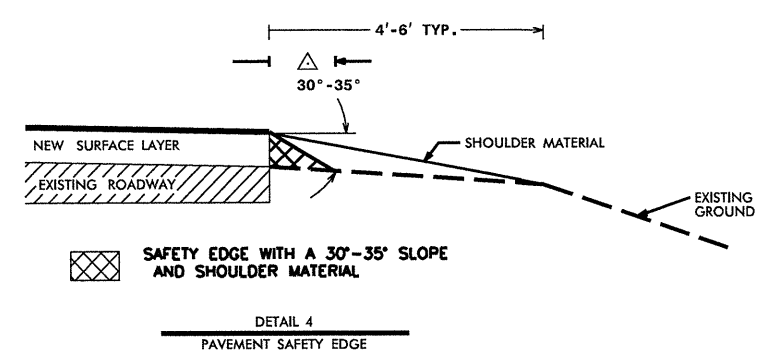


DETAIL 1
INSIDE CURVE WIDENING

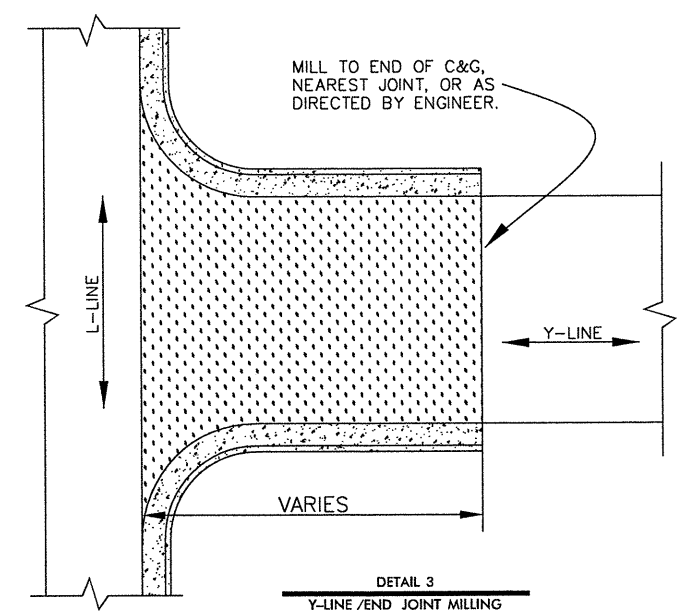
NOTE: 2 FEET WIDENING OF INSIDE RADIUS OF CURVES, AS DIRECTED BY THE ENGINEER.



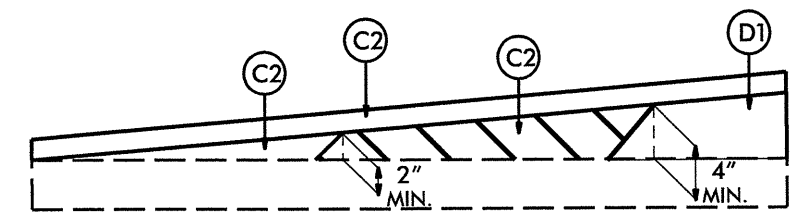
NOTE: MILLING SHALL BE PERFORMED AT BRIDGES AND RAILROAD APPROACHES AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH DETAIL 2.



- GENERAL NOTES**
- 1 THE SAFETY EDGE WILL BE CONSTRUCTED AS PART OF THE ROADWAY PAVEMENT. A SHOULDER WEDGE DEVICE WILL BE ADDED TO THE SCREED OF THE PAVING MACHINE.
 - 2 SAFETY EDGE IS TO BE USED ON THE SURFACE LAYER ONLY.
 - 3 SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS AND TURNOUTS.
 - 4 SITE PREPARATION AND ADDITIONAL EARTHWORK REQUIRED TO CONSTRUCT THE SAFETY EDGE WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.



NOTE: INCLUDES INCIDENTAL MILLING AT THE ENDS OF SECTIONS FOR SMOOTH TIE-INS, CURB RADII, AND STREET INTERSECTIONS, AS NEEDED, OR AS DIRECTED BY THE ENGINEER. SEE DETAIL 3.



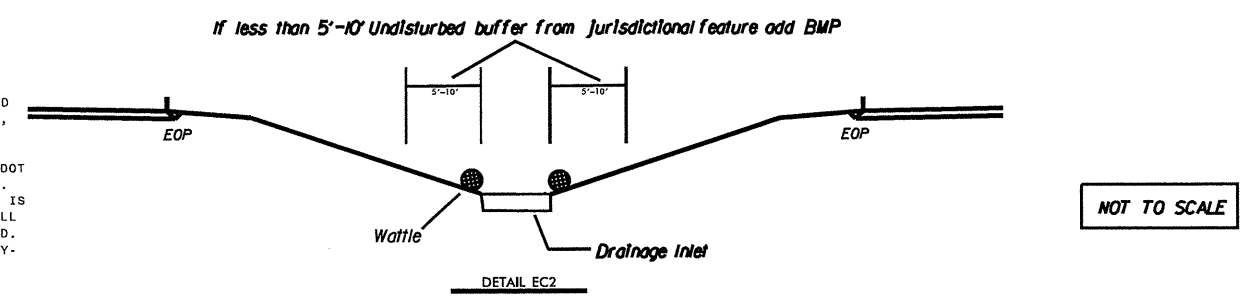
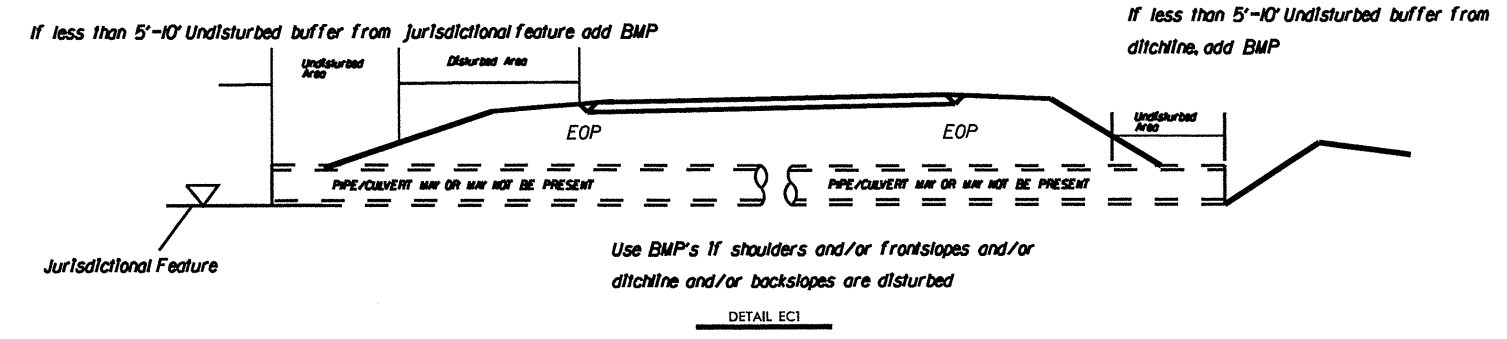
Wedging Detail For Resurfacing

PAVEMENT SCHEDULE			
C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 138 LBS. PER SQ. YD.	M1	MILLING BITUMINOUS PAVEMENT. 0-1¼" DEPTH. 8' WIDTH.
C2	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	M2	MILLING BITUMINOUS PAVEMENT. 0-1½" DEPTH. 8' WIDTH.
C3	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.	M3	MILLING OF PROP. RUMBLE STRIPS IN ACCORDANCE WITH STD. DRW. 665.01.
D1	PROP. APPROX. 5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	M4	MILLING BITUMINOUS PAVEMENT. 5" DEPTH. 12' WIDTH.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	T	SHOULDER RECONSTRUCTION.
M	MILLING BITUMINOUS PAVEMENT. 1½" DEPTH. FULL WIDTH.		

EROSION CONTROL DETAILS

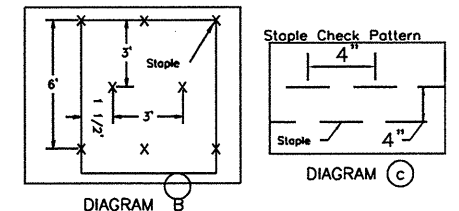
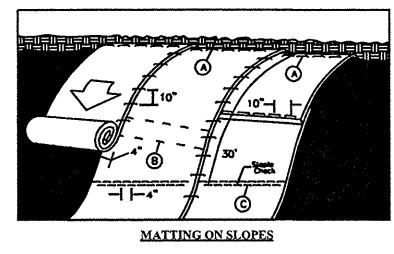
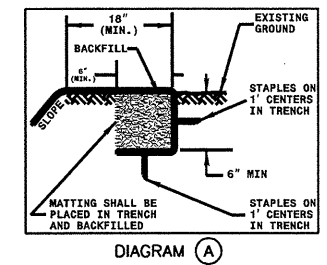
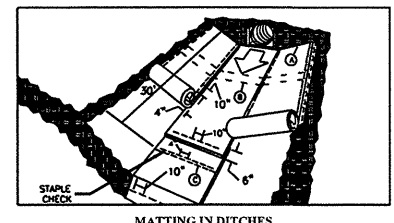
PROJECT REFERENCE NO. 6CR.10781.72 & 6CR.20781.72	SHEET NO. 9
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ROBESON COUNTY
RESURFACING



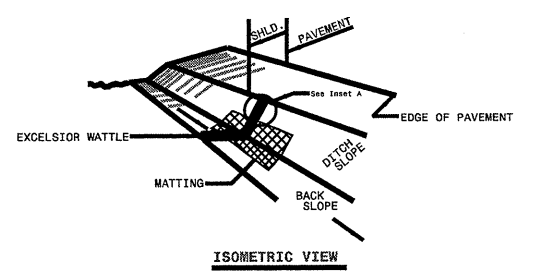
- NOTES:
- IF A 5'-10' VEGETATED, UNDISTURBED BUFFER FROM R/W, DITCHLINE, WATER FEATURE, OR DRAINAGE INLET CAN BE MAINTAINED, THEN NO BMPs NEEDED.
 - IF LESS THAN A 5'-10' VEGETATED, UNDISTURBED BUFFER FROM R/W, DITCHLINE, WATER FEATURE, OR DRAINAGE INLET, THEN ADD BMPs.
 - BMP OPTIONS:
 - MATTING MAY BE APPLIED AS SHOWN IN NCDOT STD. DWG. 1631.01 TO ESTABLISH BUFFER.
 - IF MATTING IS NOT PRACTICAL, OR THERE IS NOT ENOUGH SHOULDER WIDTH, THEN INSTALL TEMP. SILT FENCE AS SHOWN IN NCDOT STD. DWG. 1605.01 AND WATTLES WITH POLYACRYLAMIDE (PAM) WHERE APPLICABLE.

MATTING INSTALLATION DETAIL

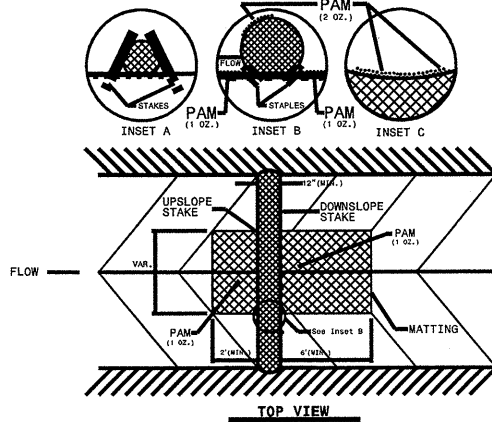
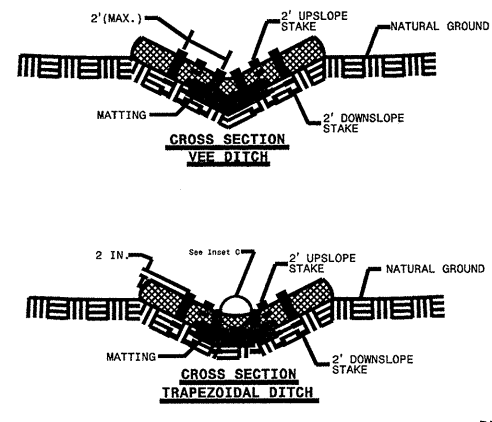


- NOTES:
- THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION.
- STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1 INCH AND NOT LESS THAN 6 INCHES IN LENGTH.

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



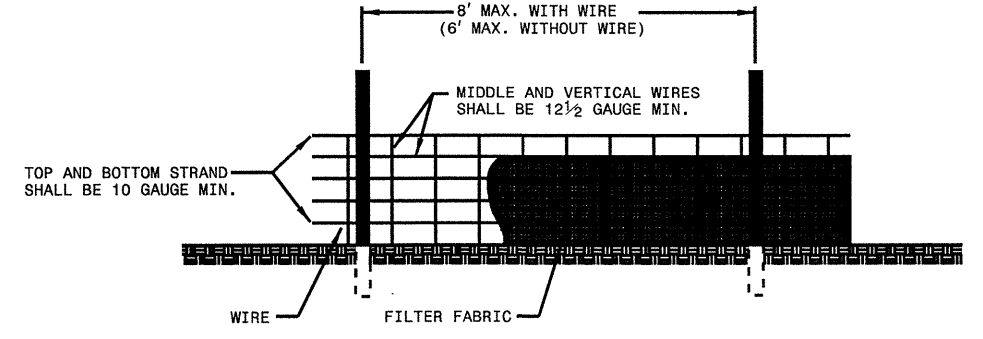
- NOTES:
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
- PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
- INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



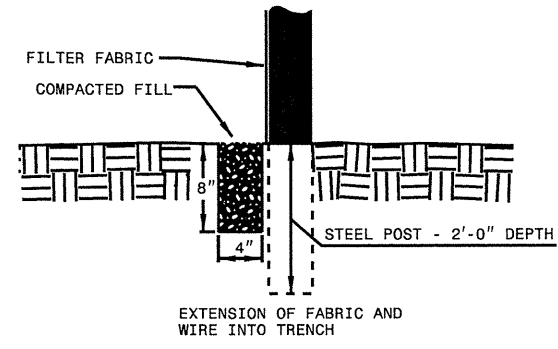
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N. C.

ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE

SHEET 1 OF 1
1605.01



- NOTES:
- USE WIRE A MINIMUM OF 32" IN WIDTH AND WITH A MINIMUM OF 6 LINE WIRES WITH 12" STAY SPACING.
- USE FILTER FABRIC A MINIMUM OF 36" IN WIDTH AND FASTEN ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER.
- PROVIDE 5'-0" STEEL POST OF THE SELF-FASTENER ANGLE STEEL TYPE.



STATE OF NORTH CAROLINA
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RALEIGH, N. C.

ENGLISH STANDARD DRAWING FOR
TEMPORARY SILT FENCE

SHEET 1 OF 1
1605.01

PROJECT NO.	SHEET NO.	TOTAL NO.
6CR.10781.72, 6CR.20781.72	10	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	BORROW EXCAVATION CY	1 1/2" MILLING SY	5" MILLING SY	0" TO 1.5" MILLING SY	MILLING ASPHALT PAVEMENT, 0" TO 1.25" DEPTH SY	INCIDENTAL MILLING SY	INTERMEDIATE COURSE, 119.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, TYPE S9.5B (LEVELING COURSE) TON	SURFACE COURSE, S9.5C TONS	SURFACE COURSE, SF9.5A TONS	BASE COURSE, S25.0B TONS	ASPHALT BINDER FOR PLANT MIX TONS	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE) LF
6CR.10781.72	Robeson	1	NC 83	FROM SR 1104 TO NC 130	4	NO	3.9	24	94	7.80	156						1,408						383	
		2	US 74 BUS	FROM SCOTLAND CO LINE TO ECL OF MAXTON	3,5	NO	1.31	30	5	0.40	8	20,017						2,097					126	
		3	NC 71	FROM US74 BUS TO US 74	3 & 5	NO	0.8	40	5	0.40	8	14,080		704				1,665					100	
		4	I-74 WBL	FROM US 74 ALT TO SCOTLAND CO LINE	10 & 11	NO	3.25	28		6.50	130			3,285					5,298				313	17,160
		"	"	FROM SCOTLAND CO LINE TO US 74 ALT	10&11	NO	3.25	28		6.50	130			3,285					5,298				313	17,160
		5	NC 711	FROM SR 1340 TO SR 1555	7	NO	0.52	40				12,203	1,197					1,075				350	82	
		7	NC 211	FROM SARATOGA ST TO CONST JT @ NC 72	5	NO	0.43	33				8,073						788	95				53	
		8	NC 211	FROM CONST JT @ NC 71 TO HOKE CO LINE	3	NO	1	27	24	2.00	40							1,534					92	
		9	NC 71	FROM WCL PARKTON TO CONST JT @ 3-LANE SECTION	3 & 5	NO	0.6	45-58	7	0.60	12			8,390	320			1,112					67	
		11	US 301	FROM SR 1006 TO CONST JT BETWEEN SR 1942 & BRIDGE	3	NO	5	27	120	10.00	200							6,716					403	
		20	NC 130 BUS	FROM NC 41 TO NC 130	3 & 6	NO	2.8	28	53	4.40	88			5,632				4,091					245	
		21	US 74 ALT	FROM I-95 TO SR 1003	3	NO	4.7	26	112	9.40	68							6,487					389	
TOTAL FOR PROJ NO. 6CR.10781.72																								
							27.56		420	48.00	840	54,373	1,197	21,296	1,408	320	2,608	25,565	95	10,596	3,851	350	2,566	34,320

6CR.20781.72	Robeson	6	SR 1563	FROM NCL PEMBROKE TO NC 711	5, 6 & 9	NO	0.9	48	13	0.56	12	3,379		7,322				1,818	341				131	
		10	SR 1752	FROM NC 71 TO SR 1006	3	NO	3.8	24	91	7.60	152							4,545					273	
		12	SR 1528	FROM SR 1527 TO CONST JT 0.31 MILE SOUTH OF NC 211	1	NO	1.9	25	46	3.80	76									1,975			132	
		13	SR 2118	FROM SR 1002 TO SR 2100	2	NO	0.8	19	19	1.60	32						84			615			45	
		14	SR 2100	FROM SR 1002 TO NC 211	2	NO	1.7	20	41	3.40	68						100			1,407			99	
		15	SR 1002	FROM NC 211 TO SR 2100	2	NO	2.4	24	58	4.80	90				352			84			2,207			152
		16	SR 2121	FROM SR 1002 TO SR 2116	2	NO	2.1	18	50	4.20	84							70			1,530			106
		17	SR 2230	FROM SR 2220 TO SR 2225	1	NO	1.18	23	28	2.36	47										1,099			74
		18	SR 2208	FROM SR 2230 TO NC 130	1	NO	2	23	48	4.00	80										1,862			125
		19	SR 2238	FROM NC 41 TO NC 41	3 & 6	NO	1.21	27	18	1.50	30			4,318				1,940					116	
		22	SR 1555	FROM SR 1339 TO NC 711	1 & 8	NO	0.9	40	12	1.00	20			3,755	3,755						1,155			77
TOTAL FOR PROJ NO. 6CR.20781.72																								
							18.89		424	34.82	691	3,379		15,395	4,107		338	8,303	341		11,850		1,330	

GRAND TOTAL							46.45		844	82.82	1,218	57,752	1,197	36,691	5,515	320	2,946	33,868	436	10,596	15,701	350	3,896	34,320
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PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	CONC. CURB RAMPS	ADJ. OF MANHOLES	ADJ. OF METER OR VALVE BOX	TEMPORARY SILT FENCE	TEMPORARY MULCHING	MATTING FOR EROSION CONTROL	WATTLE	POLYACRYLAMIDE (PAM)	SEEDING & MULCHING	PAVED TRENCHING (1 CONDUIT, 2")	UNPAVED TRENCHING (1 CONDUIT, 2")	JUNCTION BOX (STANDARD)	JUNCTION BOX (OVER-SIZED, HEAVY DUTY)	2" RISER WITH WEATHERHEAD	INDUCTIVE LOOP SAWCUT	LEAD-IN CABLE (14-2)			
NO		NO			NO	N	EA	EA	LF	ACR	SY	LF	LB	ACR	LF	LF	EA	EA	EA	LF	LF			
6CR.10781.72	Robeson	1	NC 83	FROM SR 1104 TO NC 130	4				585		156	281	12	9										
		2	US 74 BUS	FROM SCOTLAND CO LINE TO ECL OF MAXTON	3,5				30		8	14	1	0	10	100	1	1	1	1,615	100			
		3	NC 71	FROM US74 BUS TO US 74	3 & 5				13	30	8	14	1	0	20	200	2	2	2	1,080	200			
		4	I-74 WBL	FROM US 74 ALT TO SCOTLAND CO LINE	10 & 11						130	234	10	9										
		"	"	FROM SCOTLAND CO LINE TO US 74 ALT	10&11						130	234	10	9										
		5	NC 711	FROM SR 1340 TO SR 1555	7		8	5							30	300	3	3	3	2,555	300			
		7	NC 211	FROM SARATOGA ST TO CONST JT @ NC 72	5		13	10							10	100	1	1	1	665	100			
		8	NC 211	FROM CONST JT @ NC 71 TO HOKE CO LINE	3				150		40	72	3	2										
		9	NC 71	FROM WCL PARKTON TO CONST JT @ 3-LANE SECTION	3 & 5									1										
		11	US 301	FROM SR 1006 TO CONST JT BETWEEN SR 1942 & BRIDGE	3				705		200	360	15	12										
		20	NC 130 BUS	FROM NC 41 TO NC 130	3 & 6		9	1	330		88	158	7	5										
		21	US 74 ALT	FROM I-95 TO SR 1003	3				705		188	338	14	11										
TOTAL FOR PROJ NO. 6CR.10781.72																								
						72	28		3,481	30	948	1,705	72	59	70	700	7	7	7	5,915	700			

6CR.20781.72	Robeson	6	SR 1563	FROM NCL PEMBROKE TO NC 711	5, 6 & 9	1	12	1						1										
		10	SR 1752	FROM NC 71 TO SR 1006	3				570		152	274	11	9										
		12	SR 1528	FROM SR 1527 TO CONST JT 0.31 MILE SOUTH OF NC 211	1			2	285		76	137	6	5										
		13	SR 2118	FROM SR 1002 TO SR 2100	2				120		32	58	2	2										
		14	SR 2100	FROM SR 1002 TO NC 211	2				255		68	122	5	4										
		15	SR 1002	FROM NC 211 TO SR 2100	2				360		96	173	7	6										
		16	SR 2121	FROM SR 1002 TO SR 2116	2				315		84	151	6	5										
		17	SR 2230	FROM SR 2220 TO SR 2225	1				177		47	85	4	3										
		18	SR 2208	FROM SR 2230 TO NC 130	1				300		80	144	6	5										
		19	SR 2238	FROM NC 41 TO NC 41	3 & 6		10	6	113		30	54	2	2	30	300	3	3	3	1,990	300			
		22	SR 1555	FROM SR 1339 TO NC 711	1 & 8		4		75		20	36	2	1										
TOTAL FOR PROJ NO. 6CR.20781.72																								
						1	26	9	2,570	30	685	1,234	51	43	30	300	3	3	3	1,990	300			

GRAND TOTAL							1	98	37	6,051	30	1,633	2,939	123	100	1,000	10	10	10	7,905	1,000
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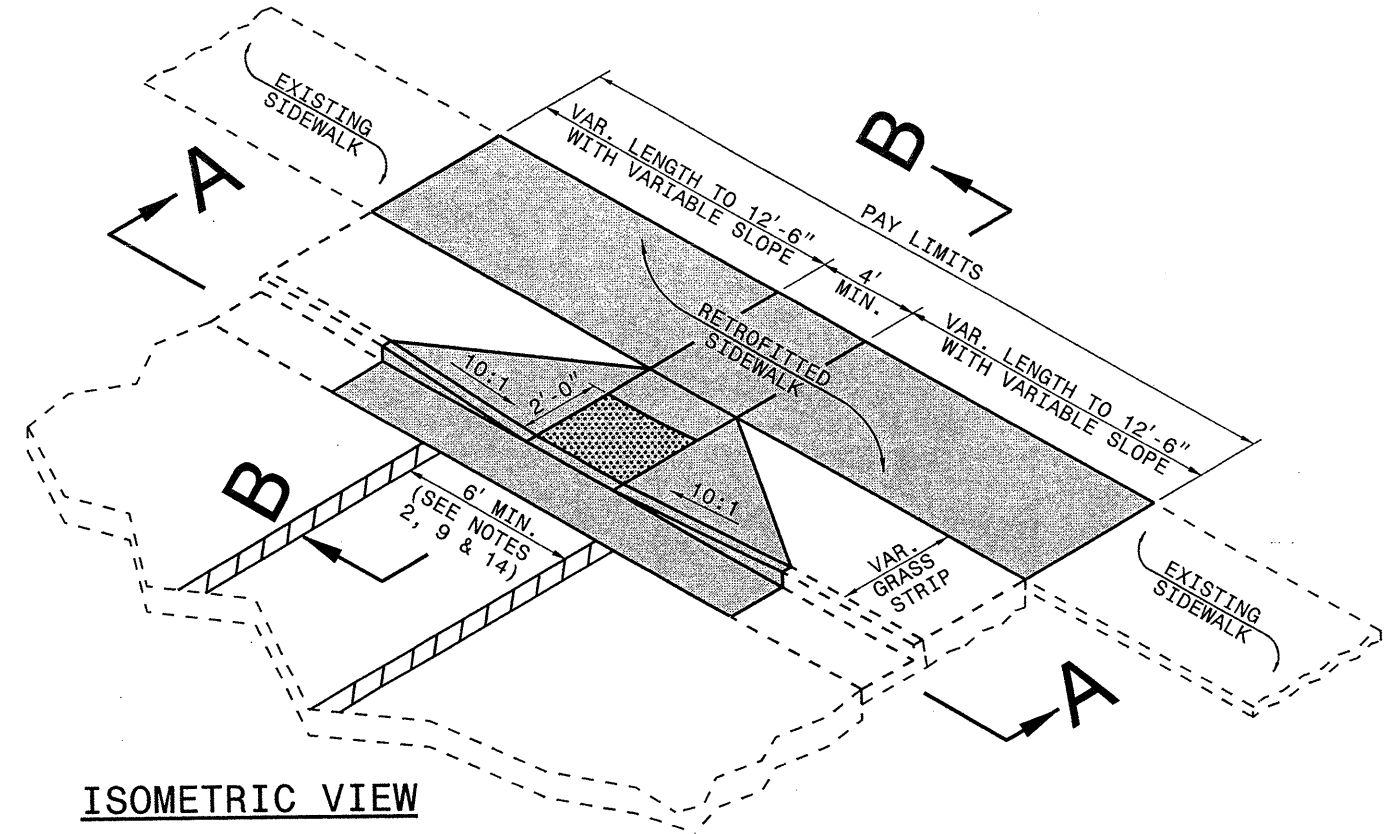
PROJECT NO.	SHEET NO.	TOTAL NO.
6CR.10781.72, 6CR.20781.72	11	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4685000000-E		4686000000-E		4695000000-E		4697000000-E		4705000000-E		4710000000-E		4715000000-E		4721000000-E		4721000000-E		4721000000-E		4589000000-N		
							4" X 90 M WHITE THERMO	4" X 90 M YELLOW THERMO	4" X 120 M YELLOW THERMO	4" X 120 M WHITE THERMO	8" X 90 M WHITE THERMO	8" X 120 M WHITE THERMO	8" X 120 M YELLOW THERMO	16" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMOPLASTIC RUMBLE STRIP (4"X240 MILS) LF	THERMO RXR 120 M EA	THERMO MSG ONLY 120 M EA	THERMO MSG SCHOOL 120 M EA	TRAFFIC CONTROL LS									
6CR.10781.72	Robeson	1	NC 83	FROM SR 1104 TO NC 130	3.9	24	40,200		34,170																				1
		2	US 74 BUS	FROM SCOTLAND CO LINE TO ECL OF MAXTON	1.31	30	2,000		14,000	300			150				60												*
		3	NC 71	FROM US74 BUS TO US 74	0.8	40	2,000		8,900	175					70	200	230				8								*
		4	I-74 WBL	FROM US 74 ALT TO SCOTLAND CO LINE	3.25	28	18,000	18,000		6,800	1,100																		*
		"	"	FROM SCOTLAND CO LINE TO US 74 ALT	3.25	28	18,000	18,000		6,800	1,100																		*
		5	NC 711	FROM SR 1340 TO SR 1555	0.52	40			5,625	1,525				150			245				6		8						*
		7	NC 211	FROM SARATOGA ST TO CONST JT @ NC 72	0.43	33	150		5,515	725	280		150																*
		8	NC 211	FROM CONST JT @ NC 71 TO HOKE CO LINE	1	27	10,100		11,600	600						935													*
		9	NC 71	FROM WCL PARKTON TO CONST JT @ 3-LANE SECTION	0.6	45	3,250		6,600				240			100	100				4								*
		11	US 301	FROM SR 1006 TO CONST JT BETWEEN SR 1942 & BRIDGE	5	27	54,000		45,900																				*
		20	NC 130 BUS	FROM NC 41 TO NC 130	2.8	28	23,000		26,150				200																*
		21	US 74 ALT	FROM I-95 TO SR 1003	4.7	26	57,050		57,625	1,500						2,520													*
TOTAL FOR PROJ NO. 6CR.10781.72							27.56		227,750	36,000	216,085	18,425	2,480	740		3,525	450	750			18		8	12					1
									263,750		234,510		4,265								38		38						
6CR.20781.72	Robeson	6	SR 1563	FROM NCL PEMBROKE TO NC 711	0.9	48	3,000		9,000						200	90					8								
		10	SR 1752	FROM NC 71 TO SR 1006	3.8	24									100	140	240				4								12
		12	SR 1528	FROM SR 1527 TO CONST JT 0.31 MILE SOUTH OF NC 211	1.9	25																							
		13	SR 2118	FROM SR 1002 TO SR 2100	0.8	19																							
		14	SR 2100	FROM SR 1002 TO NC 211	1.7	20									100	60					2								
		15	SR 1002	FROM NC 211 TO SR 2100	2.4	24	26,000		22,350						150	80					6								
		16	SR 2121	FROM SR 1002 TO SR 2116	2.1	18																							
		17	SR 2230	FROM SR 2220 TO SR 2225	1.18	23																							
		18	SR 2208	FROM SR 2230 TO NC 130	2	23																							
		19	SR 2238	FROM NC 41 TO NC 41	1.21	27	9,500		12,975		725						210												12
		22	SR 1555	FROM SR 1339 TO NC 711	0.9	40										150													24
TOTAL FOR PROJ NO. 6CR.20781.72							18.89		38,500		44,325	725			550	730	240				20								44
GRAND TOTAL							46.45		266,250	36,000	260,410	18,425	3,205	740		3,525	1,000	1,480	240			38		8	36				1
									302,250					4,265							82								

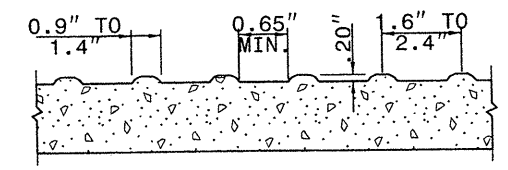
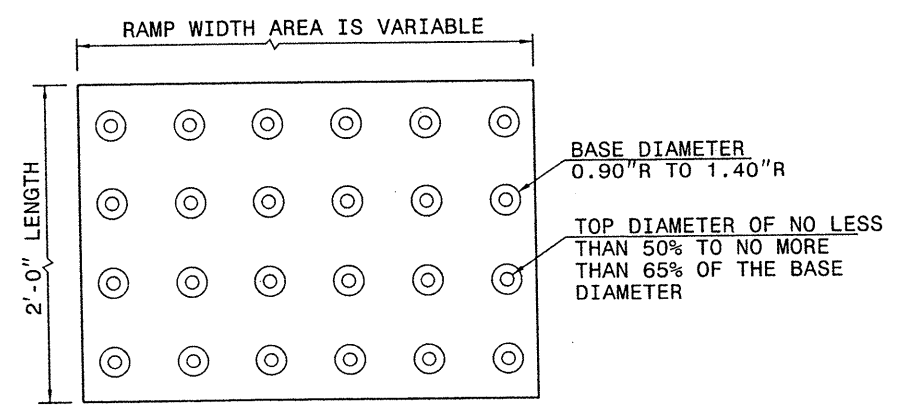
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4725000000-E		4810000000-E		4820000000-E		4830000000-E		4835000000-E		4840000000-N		4900000000-N											
							THERMO STR & RT ARROW 90 M EA	THERMO LT ARROW 90 M EA	THERMO STR ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO STR & LT ARROW 90 M EA	4" WHITE PAINT LF	4" YELLOW PAINT LF	8" WHITE PAINT LF	8" YELLOW PAINT LF	16" WHITE PAINT LF	24" WHITE PAINT LF	PAINT MSG RXR EA	YELLOW & YELLOW MARKERS EA	CRYSTAL & RED MARKERS EA										
6CR.10781.72	Robeson	1	NC 83	FROM SR 1104 TO NC 130	3.9	24																								
		2	US 74 BUS	FROM SCOTLAND CO LINE TO ECL OF MAXTON	1.31	30	2	2				300	14,000	150																10
		3	NC 71	FROM US74 BUS TO US 74	0.8	40	1	4				175	7,500																4	
		4	I-74 WBL	FROM US 74 ALT TO SCOTLAND CO LINE	3.25	28			3																					300
		"	"	FROM SCOTLAND CO LINE TO US 74 ALT	3.25	28			3																					300
		5	NC 711	FROM SR 1340 TO SR 1555	0.52	40	1	9	3	4	1	1,525	5,625		150	75	6												113	
		7	NC 211	FROM SARATOGA ST TO CONST JT @ NC 72	0.43	33	6	17				725	5,515	280															25	
		8	NC 211	FROM CONST JT @ NC 71 TO HOKE CO LINE	1	27		2																					25	
		9	NC 71	FROM WCL PARKTON TO CONST JT @ 3-LANE SECTION	0.6	45-58											3,350													
		11	US 301	FROM SR 1006 TO CONST JT BETWEEN SR 1942 & BRIDGE	5	27																								
		20	NC 130 BUS	FROM NC 41 TO NC 130	2.8	28																								350
		21	US 74 ALT	FROM I-95 TO SR 1003	4.7	26	5	13	10	8	1	2,725	35,990	430															195	
TOTAL FOR PROJ NO. 6CR.10781.72							27.56		15	47	19	12	1	2,725	35,990	430		250	175	10		1,717		465	90			867		
									94		94			38,715	35,990	430		250	175	10		1,717		465	90		867	2,584		
6cr.20781.72	Robeson	6	SR 1563	FROM NCL PEMBROKE TO NC 711	0.9	48																								70
		10	SR 1752	FROM NC 71 TO SR 1006	3.8	24						80,000	68,000																	275
		12	SR 1528	FROM SR 1527 TO CONST JT 0.31 MILE SOUTH OF NC 211	1.9	25						46,000	39,100																	135
		13	SR 2118	FROM SR 1002 TO SR 2100	0.8	19						18,000	15,300																	165
		14	SR 2100	FROM SR 1002 TO NC 211	1.7	20						38,000	32,300																	165
		15	SR 1002	FROM NC 211 TO SR 2100	2.4	24						44,000	37,400																	140
		16	SR 2121	FROM SR 1002 TO SR 2116	2.1	18						26,000	22,100																	140
		17	SR 2230	FROM SR 2220 TO SR 2225	1.18	23						42,000	35,700																	134
		18	SR 2208	FROM SR 2230 TO NC 130	2	23																								134
		19	SR 2238	FROM NC 41 TO NC 41	1.21	27	12	18				2	2	2	2	2	12,770	20,200												34
		22	SR 1555	FROM SR 1339 TO NC 711	0.9	40		7				2	2	2	2	306,770	270,100													104
TOTAL FOR PROJ NO. 6CR.20781.72</																														

CURB RAMP AND EXISTING SIDEWALK WITH GRASS STRIP



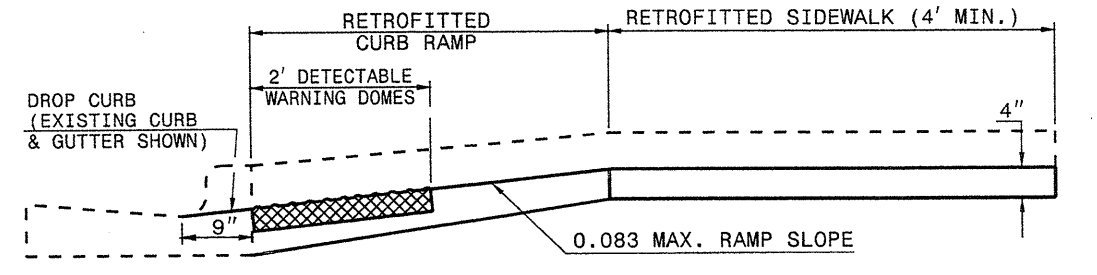
ISOMETRIC VIEW

PAY LIMITS OF RETROFIT CURB RAMP

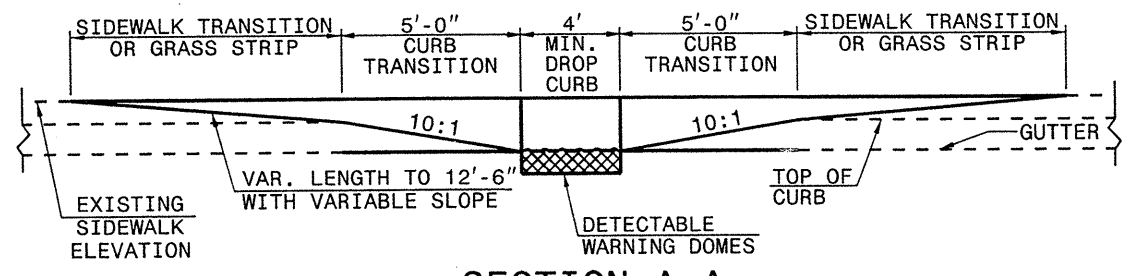


DETECTABLE WARNING DOMES

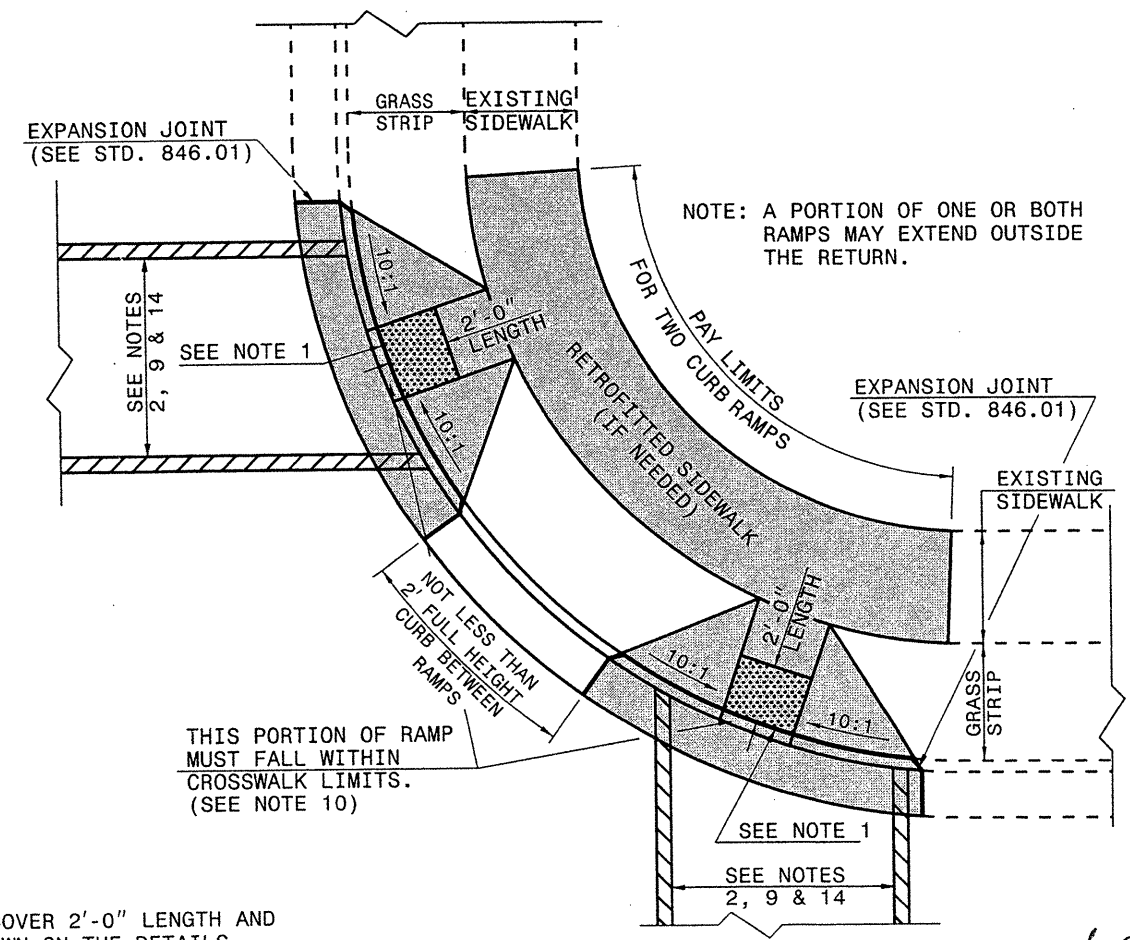
- NOTES:
1. PLACE DETECTABLE WARNING DOMES TO COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN IN THE DETAILS.
 2. OBTAIN VISIBLE CONTRAST WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



SECTION B-B



SECTION A-A

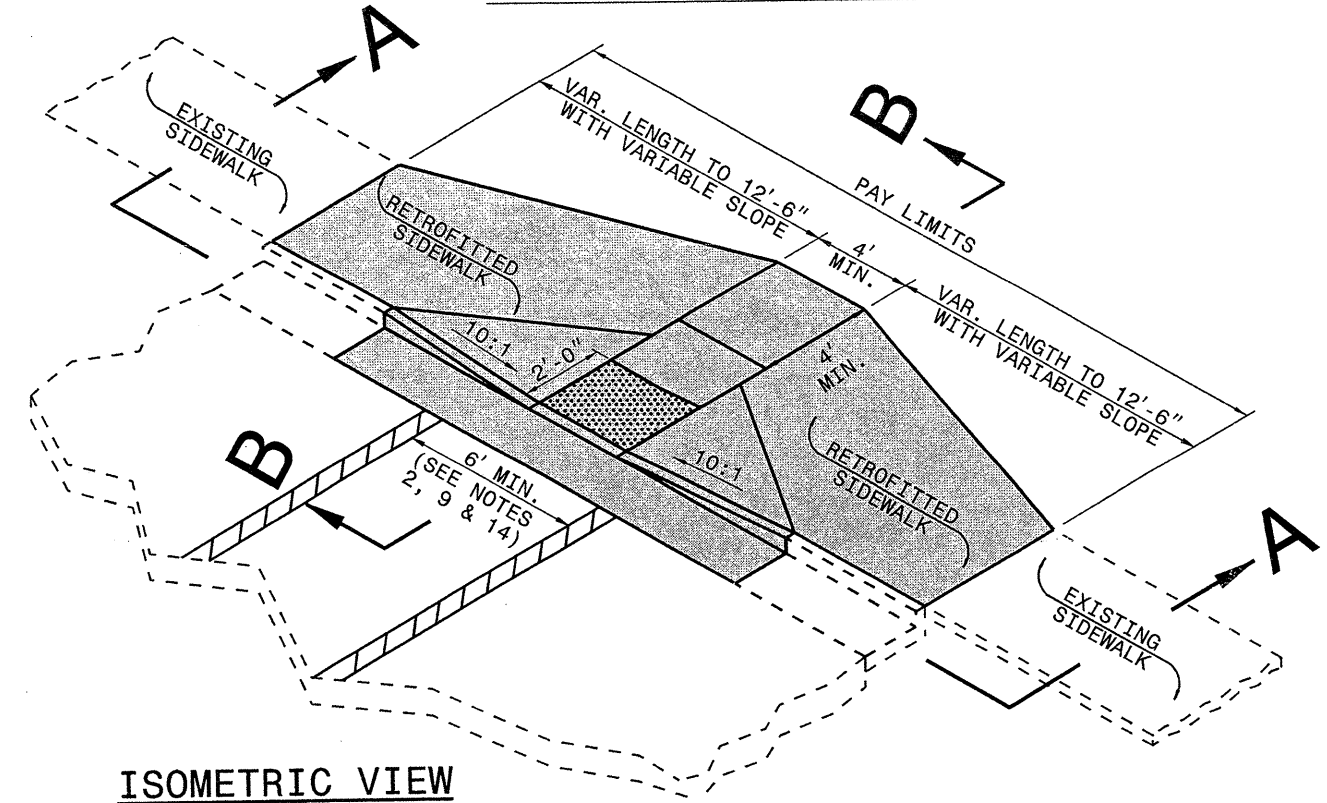


PLAN VIEW

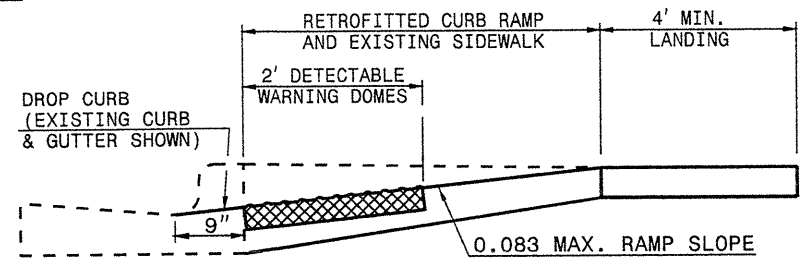
DUAL RAMPS
ANY RADII
(40" MIN. FLOOR WIDTH)

602.10781.72
602.20781.72
Sht. 12

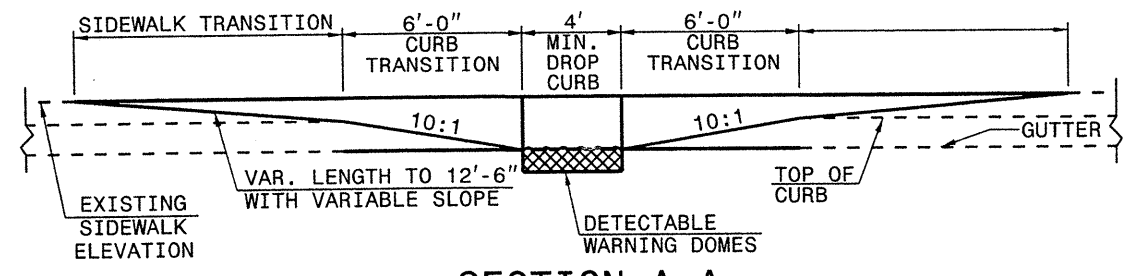
CURB RAMPS AND EXISTING SIDEWALK ADJACENT TO CURB



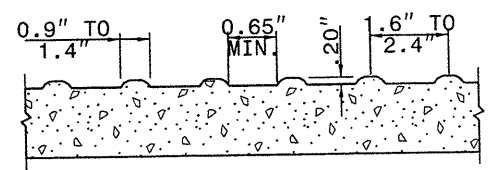
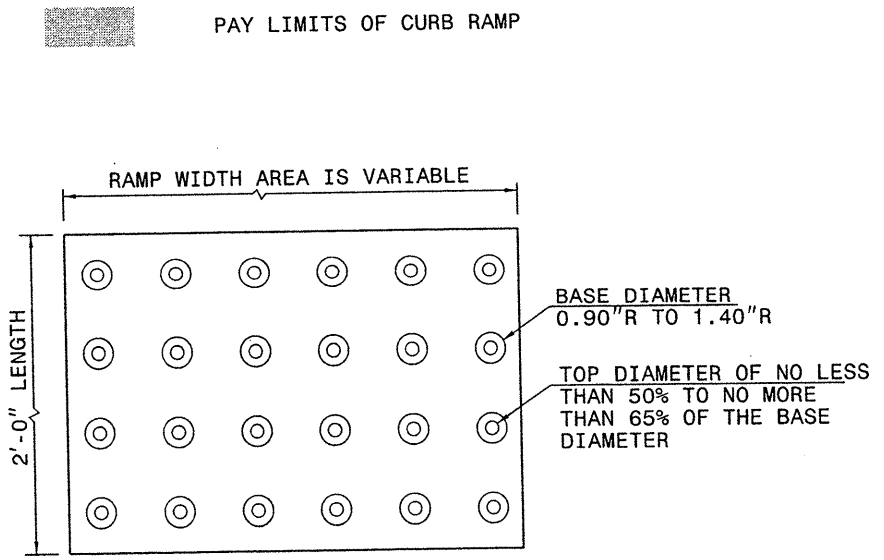
ISOMETRIC VIEW



SECTION B-B

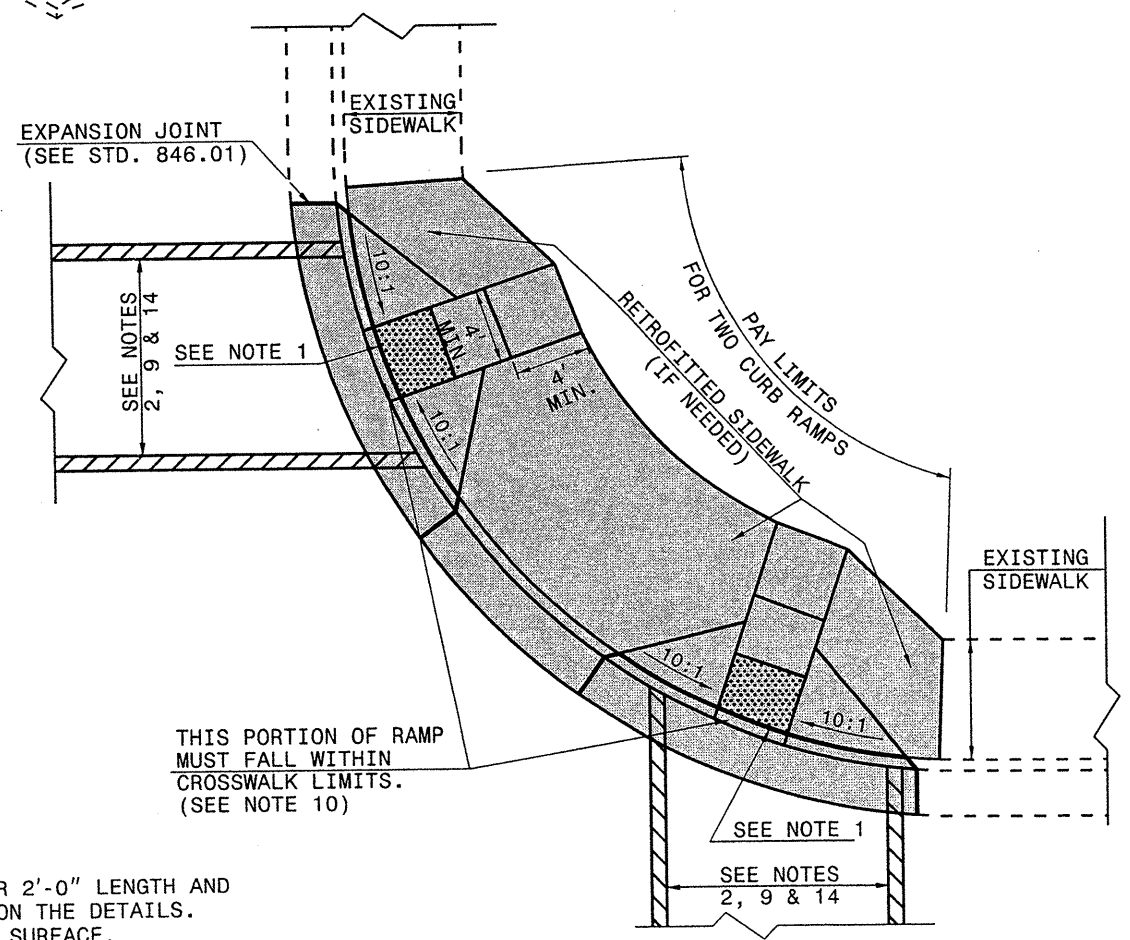


SECTION A-A



DETECTABLE WARNING DOMES

- NOTES:
1. PLACE DETECTABLE WARNING DOMES TO COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
 2. OBTAIN VISIBLE CONTRAST WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.

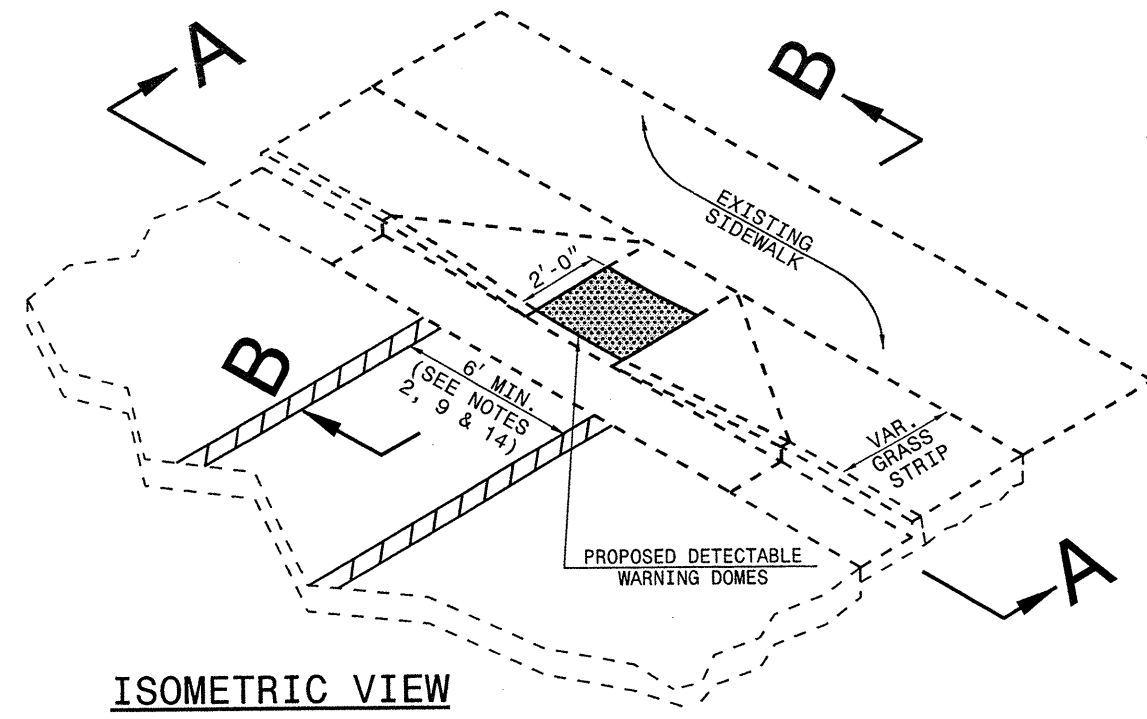


PLAN VIEW

DUAL RAMPS
ANY RADII
(40" MIN. FLOOR WIDTH)

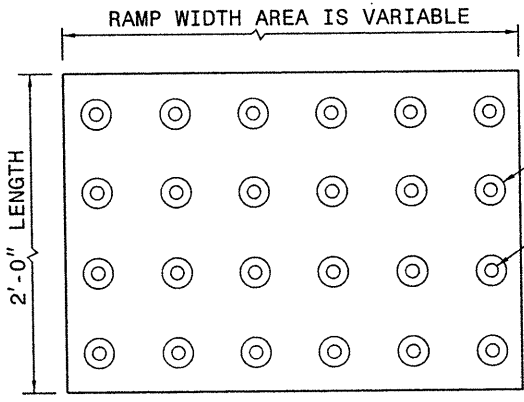
6CR.10781.72
6CR.20781.72
SHT. 13

RETROFITTING DETECTABLE WARNING DOMES ONTO EXISTING CURB RAMP

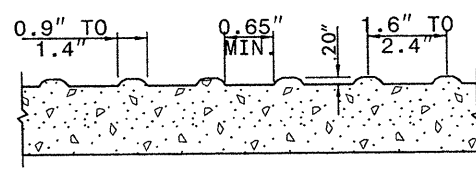


ISOMETRIC VIEW

PAY LIMITS OF RETROFIT CURB RAMP

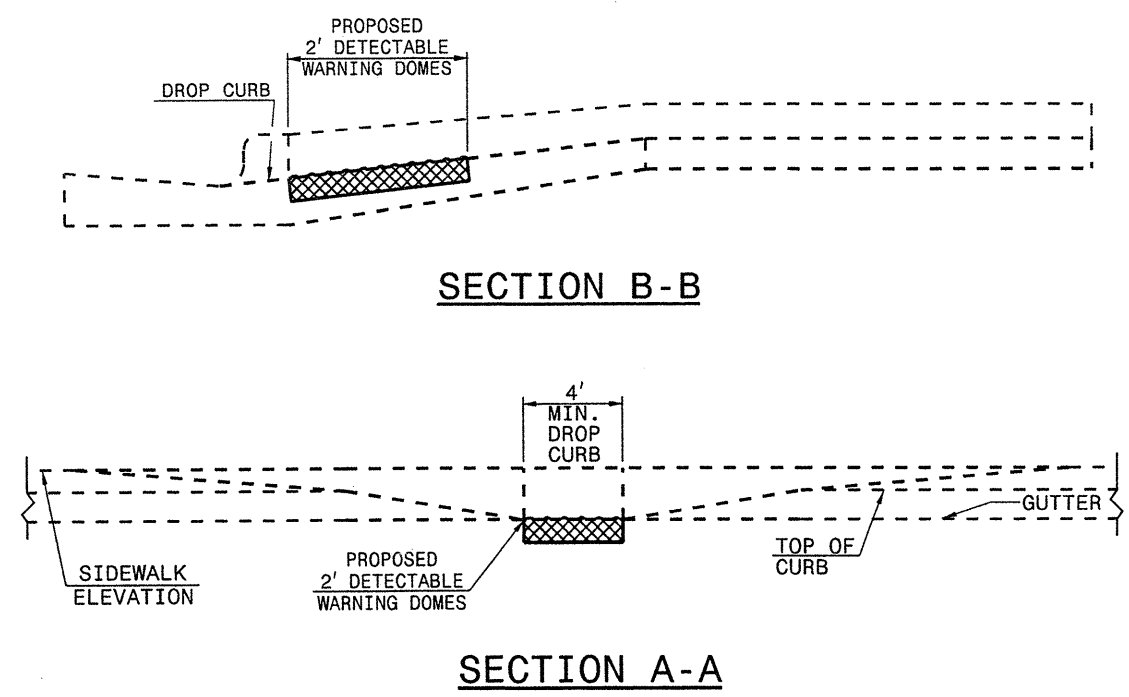


BASE DIAMETER
0.90"R TO 1.40"R
TOP DIAMETER OF NO LESS
THAN 50% TO NO MORE
THAN 65% OF THE BASE
DIAMETER



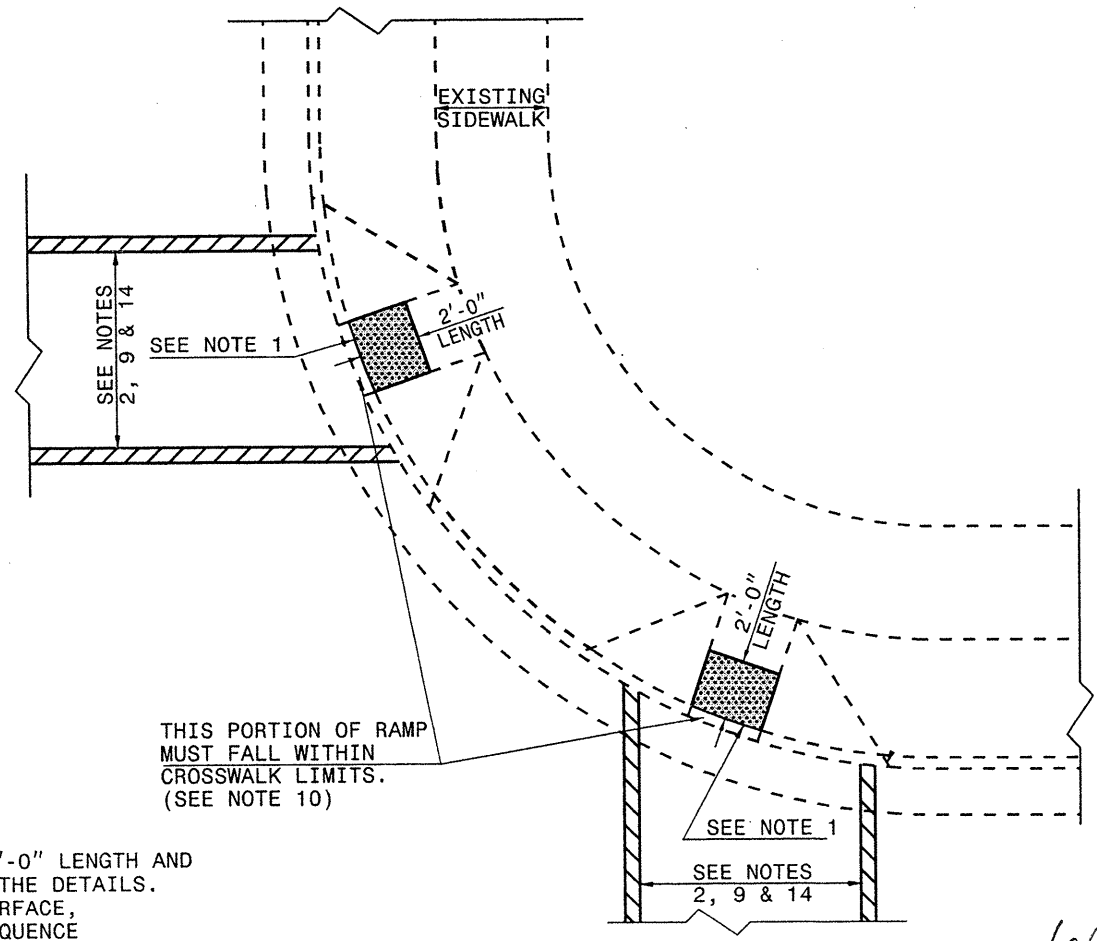
DETECTABLE WARNING DOMES

- NOTES:
1. PLACE DETECTABLE WARNING DOMES TO COVER 2'-0" LENGTH AND FULL WIDTH OF THE RAMP FLOOR AS SHOWN ON THE DETAILS.
2. OBTAIN VISIBLE CONTRAST WITH ADJOINING SURFACE, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT SEQUENCE COVERING THE ENTIRE RAMP.



SECTION B-B

SECTION A-A



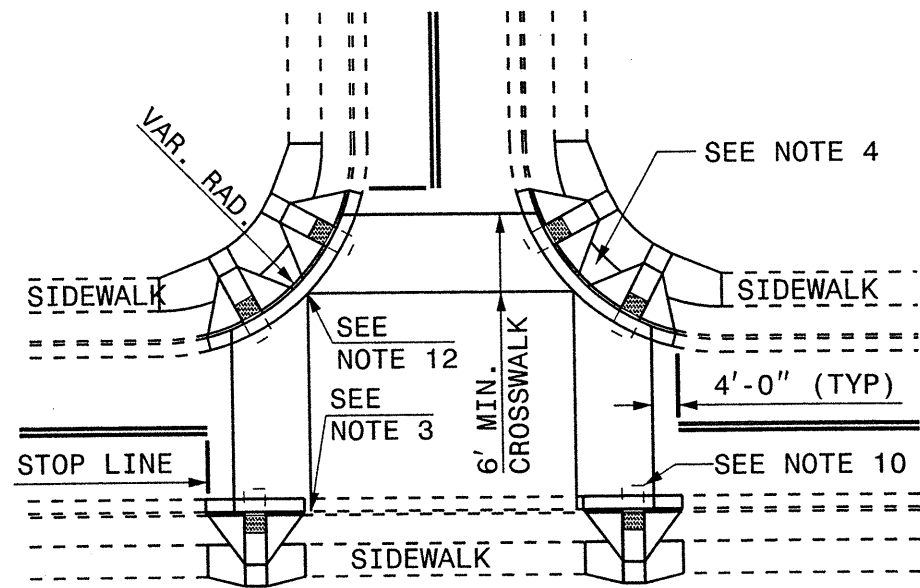
PLAN VIEW

DUAL RAMPS
ANY RADII
(40" MIN. FLOOR WIDTH)

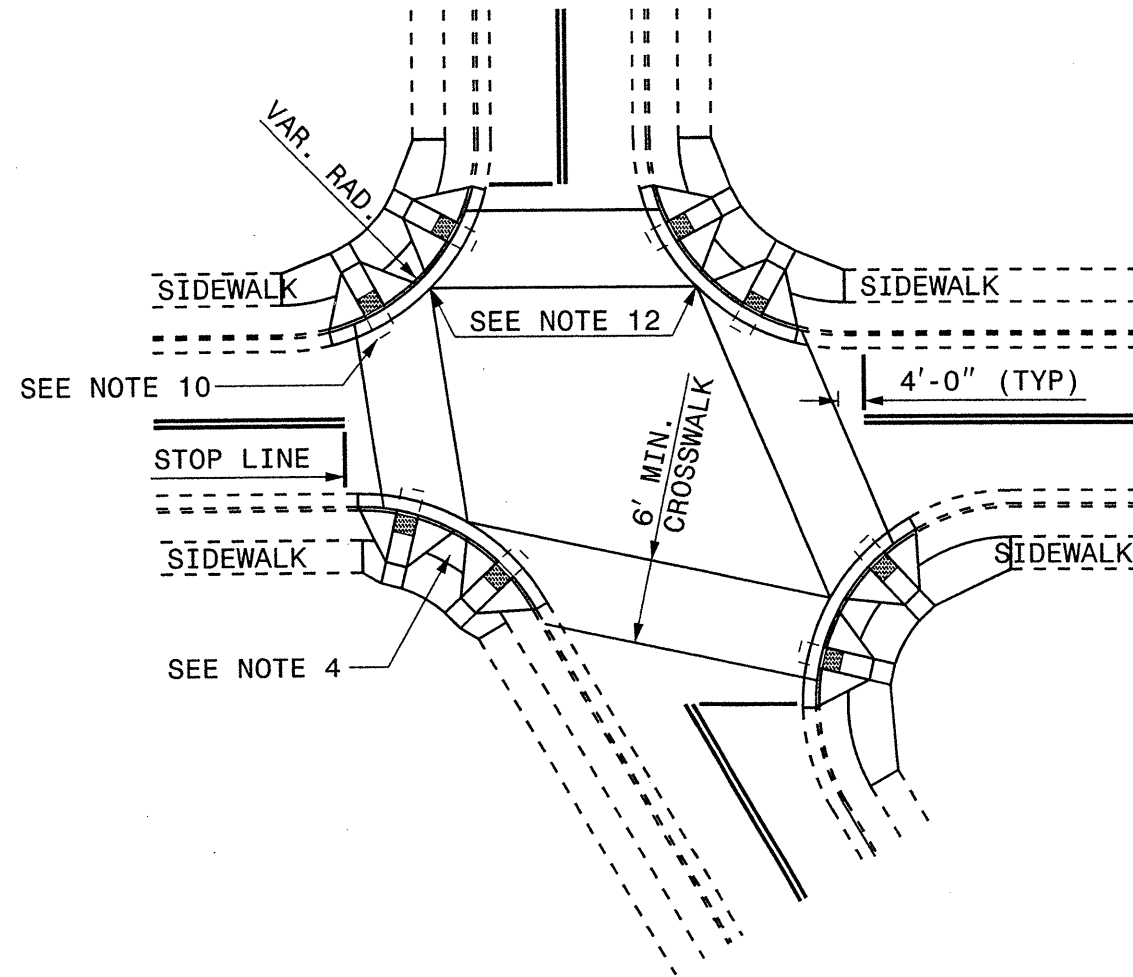
6CR.10781.72
6CR.20781.72

Sht. 14

CURB RAMPS AND EXISTING SIDEWALK

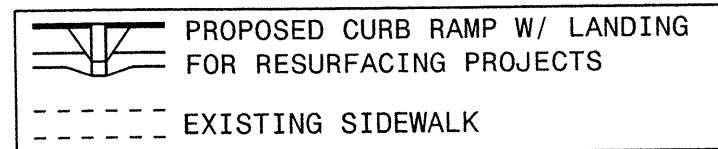


DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES FOR TEE INTERSECTIONS



DETAIL SHOWING TYPICAL LOCATION OF CURB RAMPS, PEDESTRIAN CROSSWALKS AND STOP LINES

RESURFACING PROJECTS



ALLOWABLE LOCATIONS

DUAL RAMP RADII.....ANY

6CL 10781.72
6CL 20781.72 SHT. 15

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CURB RAMP
EXISTING CURB AND GUTTER

CURB RAMP AND EXISTING SIDEWALK

NOTES:

1. CONSTRUCT THE RAMP SURFACE TO BE STABLE, FIRM, AND SLIP RESISTANT. CONSTRUCT THE CURB RAMP TYPE AS SHOWN IN THE PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER.
2. LOCATE CURB RAMPS AND PLACE PEDESTRIAN CROSSWALK MARKINGS AS SHOWN IN THE PAVEMENT MARKING PLANS. WHEN FIELD ADJUSTMENTS REQUIRE MOVING CURB RAMPS OR MARKINGS AS SHOWN, CONTACT THE SIGNING AND DELINEATION UNIT OR LOCATE AS DIRECTED BY THE ENGINEER.
3. COORDINATE THE CURB RAMP AND THE PEDESTRIAN CROSSWALK MARKINGS SO A 4'x4' CLEAR SPACE AT THE BASE OF THE CURB RAMP WILL FALL WITHIN THE PEDESTRIAN CROSSWALK LINES.
4. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL LANE IS 4' MINIMUM.
5. REFER TO THE PAVEMENT MARKING PLANS FOR STOP BAR LOCATIONS AT SIGNALIZED INTERSECTIONS. IF A PAVEMENT MARKING PLAN IS NOT PROVIDED, CONTACT THE SIGNAL DESIGN SECTION FOR THE STOP BAR LOCATIONS OR LOCATE AS DIRECTED BY THE ENGINEER.
6. TERMINATE PARKING A MINIMUM OF 20' BACK OF A PEDESTRIAN CROSSWALK.
7. CONSTRUCT CURB RAMPS A MINIMUM OF 4' WIDE.
8. CONSTRUCT THE RUNNING SLOPE OF THE RAMP 8.33% MAXIMUM.
9. ALLOWABLE CROSS SLOPE ON SIDEWALKS AND CURB RAMPS WILL BE 2% MAXIMUM.
10. CONSTRUCT THE SIDE FLARE SLOPE A MAXIMUM OF 10% MEASURED ALONG THE CURB LINE.
11. CONSTRUCT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE BASE OF THE CURB RAMP A MAXIMUM OF 5% AND MAINTAIN A SMOOTH TRANSITION.
12. CONSTRUCT LANDINGS FOR SIDEWALK A MINIMUM OF 4'x4' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. CONSTRUCT LANDINGS FOR MEDIAN ISLANDS A MINIMUM OF 5'x5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
13. TO USE A MEDIAN ISLAND AS A PEDESTRIAN REFUGE AREA, MEDIAN ISLANDS WILL BE A MINIMUM OF 6' WIDE. CONSTRUCT MEDIAN ISLANDS TO PROVIDE PASSAGE OVER OR THROUGH THE ISLAND.
14. SMALL CHANNELIZATION ISLANDS THAT CAN NOT PROVIDE A 5'x5' LANDING AT THE TOP OF A RAMPS, WILL BE CUT THROUGH LEVEL WITH THE SURFACE STREET.
15. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. THE ADJACENT SURFACE IS PLANTING OR OTHER NON-WALKING SURFACE OR THE SIDE APPROACH IS SUBSTANTIALLY OBSTRUCTED.
16. PLACE A 1/2" EXPANSION JOINT WHERE THE CONCRETE CURB RAMP JOINS THE CURB AS SHOWN IN ROADWAY STANDARD DRAWING 848.01
17. PLACE ALL PEDESTRIAN PUSH BUTTON ACTUATORS AND CROSSING SIGNALS AS SHOWN IN THE PLANS OR AS SHOWN IN THE MUTCD.
18. CURB RAMPS THROUGH MEDIAN ISLANDS, SINGLE RAMPS AT DUAL CROSSWALKS OR LIMITED R/W SITUATIONS, WILL BE HANDLED BY SPECIAL DETAILS. CONTACT THE CONTRACT STANDARDS AND DEVELOPMENT UNIT FOR THE DETAILS OR FOR A SPECIAL DESIGN.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CURB RAMP
EXISTING CURB AND GUTTER

SHEET 5 OF 5

848D06

602.10781.72

602.20781.72

Sht. 16

SHEET 5 OF 5

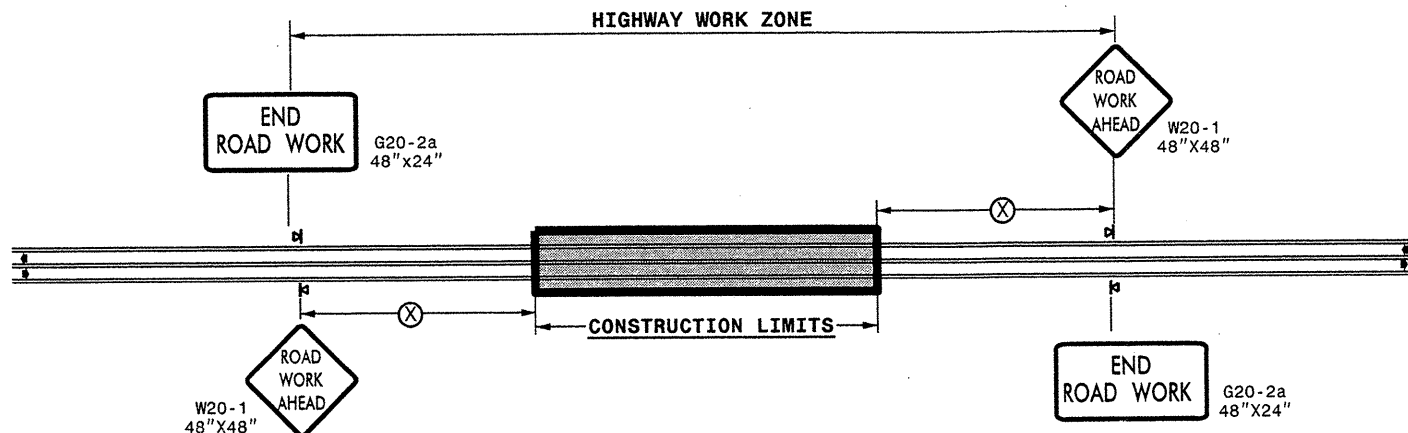
848D06

26-AUG-2011 5:13
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WBS ELEMENTS: 6CR.10781.72 & 6CR.20781.72

PROJ. REFERENCE NO. SEE TO THE LEFT	SHEET NO. TCP-1
--	--------------------

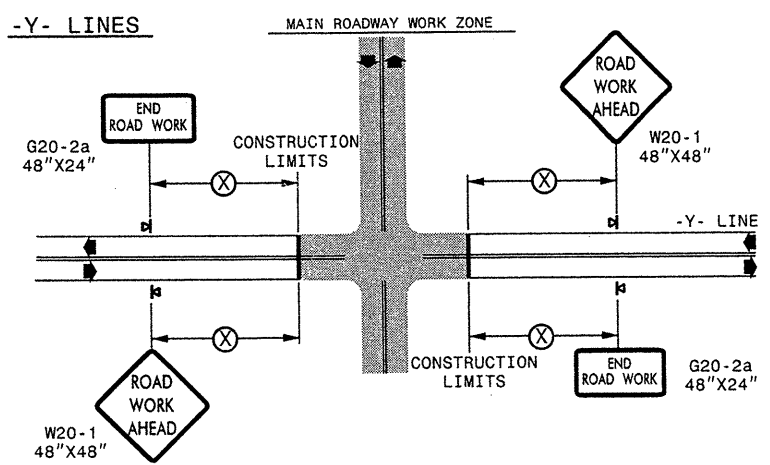
TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING
≤ 50	500'
≥ 55	1000'

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



DETAIL DRAWING
 FOR TWO-WAY UNDIVIDED
 WORK ZONE WARNING SIGNS

GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCE WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON URBAN MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

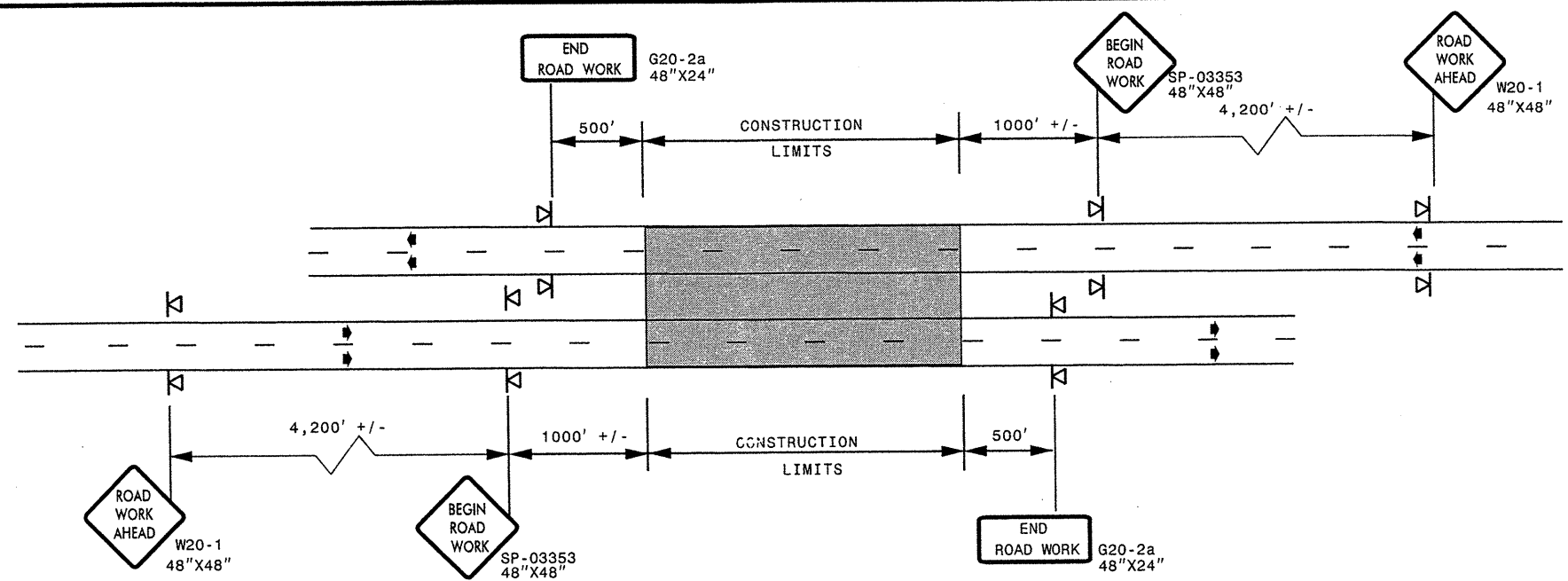
LEGEND	
◀	PORTABLE SIGN
▶	DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: _____ DATE: _____	DETAIL DRAWING FOR TWO-WAY UNDIVIDED ADVANCED WORK ZONE WARNING SIGNS	
SEAL 	SCALE: NONE	REVISIONS
	DATE: 08/11	
	DESIGN BY:	
	REVIEWED BY:	

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

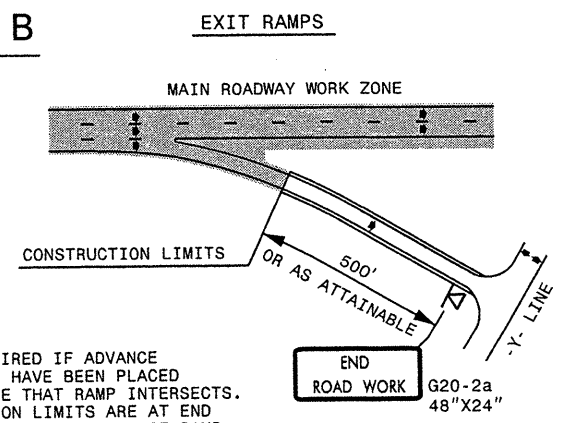
DETAIL A



STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

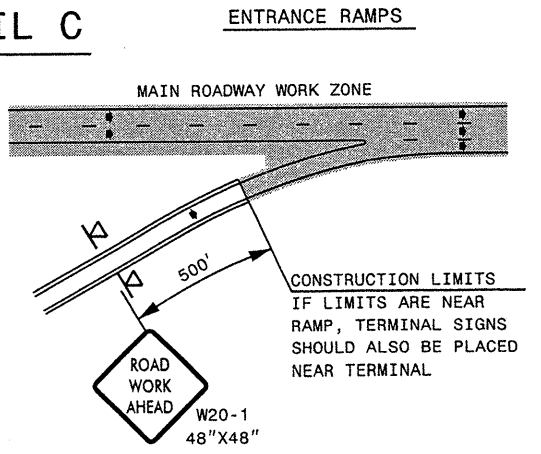
ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B



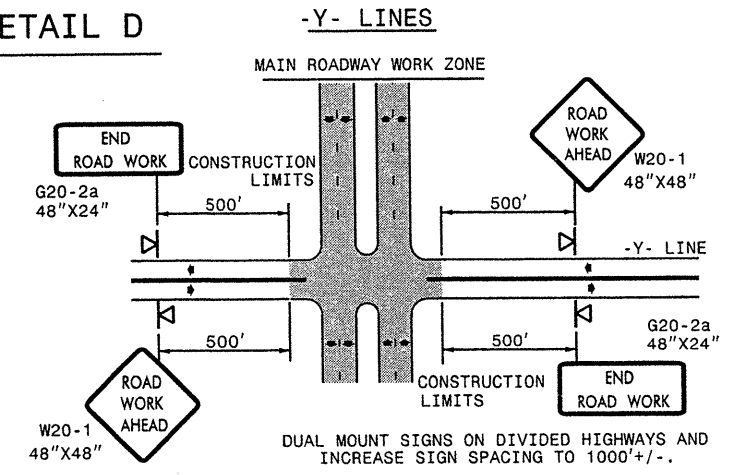
NOTE:
SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C



CONSTRUCTION LIMITS IF LIMITS ARE NEAR RAMP, TERMINAL SIGNS SHOULD ALSO BE PLACED NEAR TERMINAL

DETAIL D



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000'+/-.

DETAIL DRAWING
FOR FREEWAYS
WORK ZONE WARNING SIGNS
(SHORT-DURATION LANE CLOSURES)

GENERAL NOTES

- USE FLUORESCENT ORANGE SHEETING (TYPE VII OR HIGHER) ON ALL ADVANCE WORK ZONE SIGNS.
- DO NOT INSTALL ADVANCE WARNING SIGNS MORE THAN 3 DAYS PRIOR TO BEGINNING OF WORK.
- ALL SIGN SPACING DIMENSIONS ARE APPROXIMATE, FIELD ADJUST AS NECESSARY OR AS DIRECTED.
- USE PORTABLE WORK ZONE SIGNS ONLY WITH PORTABLE WORK ZONE SIGN STANDS SPECIFICALLY DESIGNED FOR ONE ANOTHER. PORTABLE WORK ZONE SIGNS MAY BE ROLL UP OR APPROVED COMPOSITE.
- PROVIDE PORTABLE WORK ZONE SIGN STANDS, PORTABLE SIGNS AND SIGN SHEETING WHICH ARE LISTED ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S APPROVED PRODUCT LIST OR ACCEPTED AS TRAFFIC QUALIFIED BY THE TRAFFIC CONTROL UNIT.
- ** TWO-WAY UNDIVIDED ADVANCE WARNING SIGN CONFIGURATION MAY BE USED ON MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

▣ PORTABLE SIGN

➔ DIRECTION OF TRAFFIC FLOW






APPROVED: _____ DATE: _____	DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS	
SEAL	SCALE: NONE	REVISIONS
	DATE: 08/11	7-98 10/01
	DWG. BY: _____	10-98 03/04
	DESIGN BY: _____	01/01 11/04
REVIEWED BY: _____		

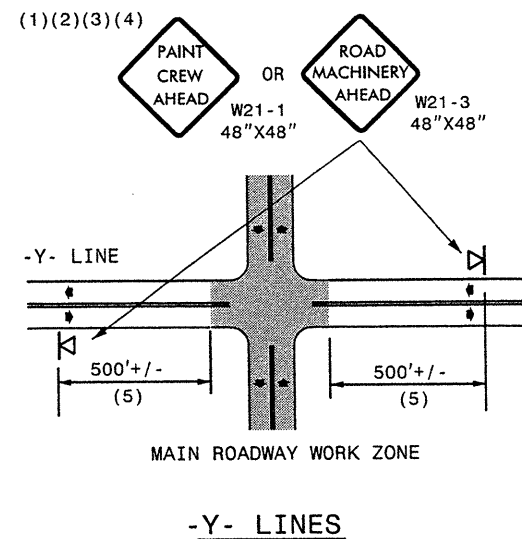
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GENERAL NOTES

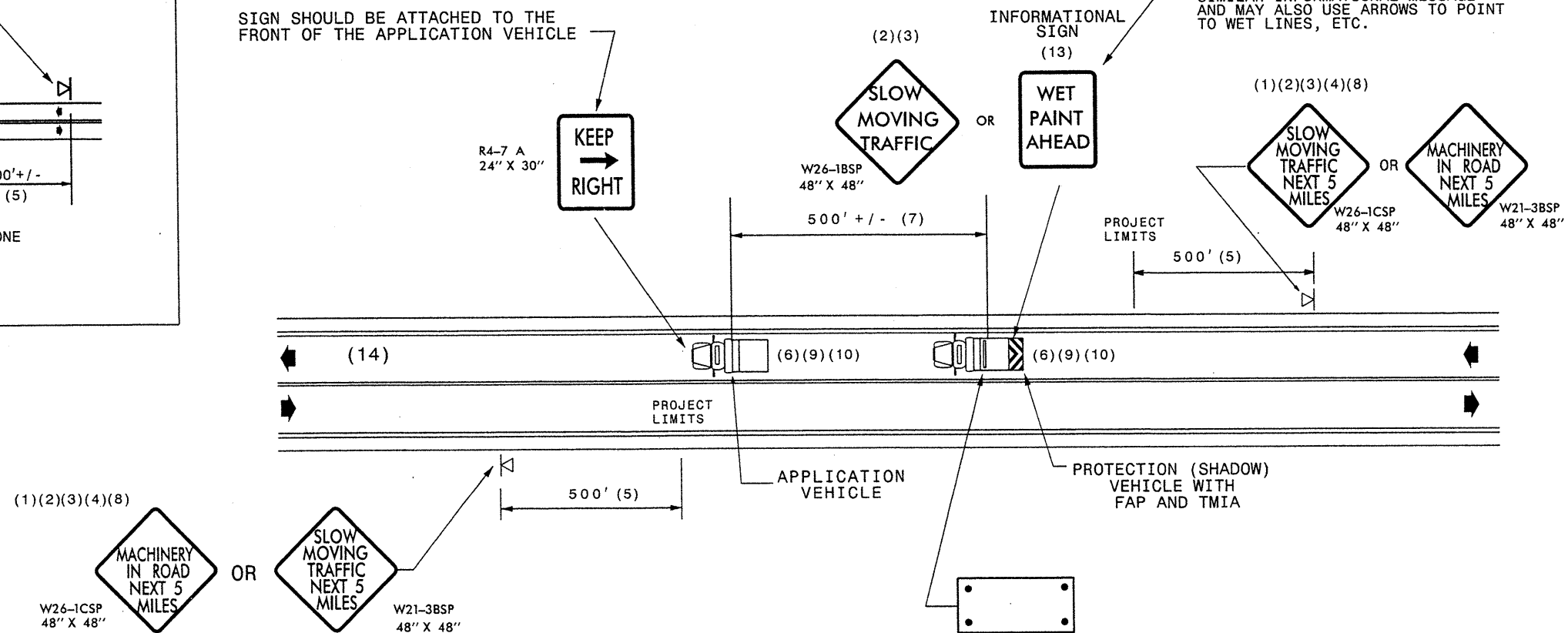
- (1) THE FOLLOWING OPTIONS MAY BE USED FOR ADVANCE WARNING SIGNS:
 - A. TRUCK MOUNTED SIGNS
 - B. TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
 - C. GROUND MOUNTED ADVANCE WARNING SIGNS (MUST CIRCLE TO PICK UP SIGNS)
 - D. GROUND MOUNTED CHANGEABLE MESSAGE SIGN (CMS) (MUST USE CIRCLE TO PICK UP SIGNS)
- (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 ONE (1) FOOT 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 ACCOMMODATE 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) APPROVED.
-  FLASHING ARROW PANEL, TYPE "B" (60"X30" MIN.), "CAUTION MODE"



SIGN SHOULD BE ATTACHED TO THE FRONT OF THE APPLICATION VEHICLE



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

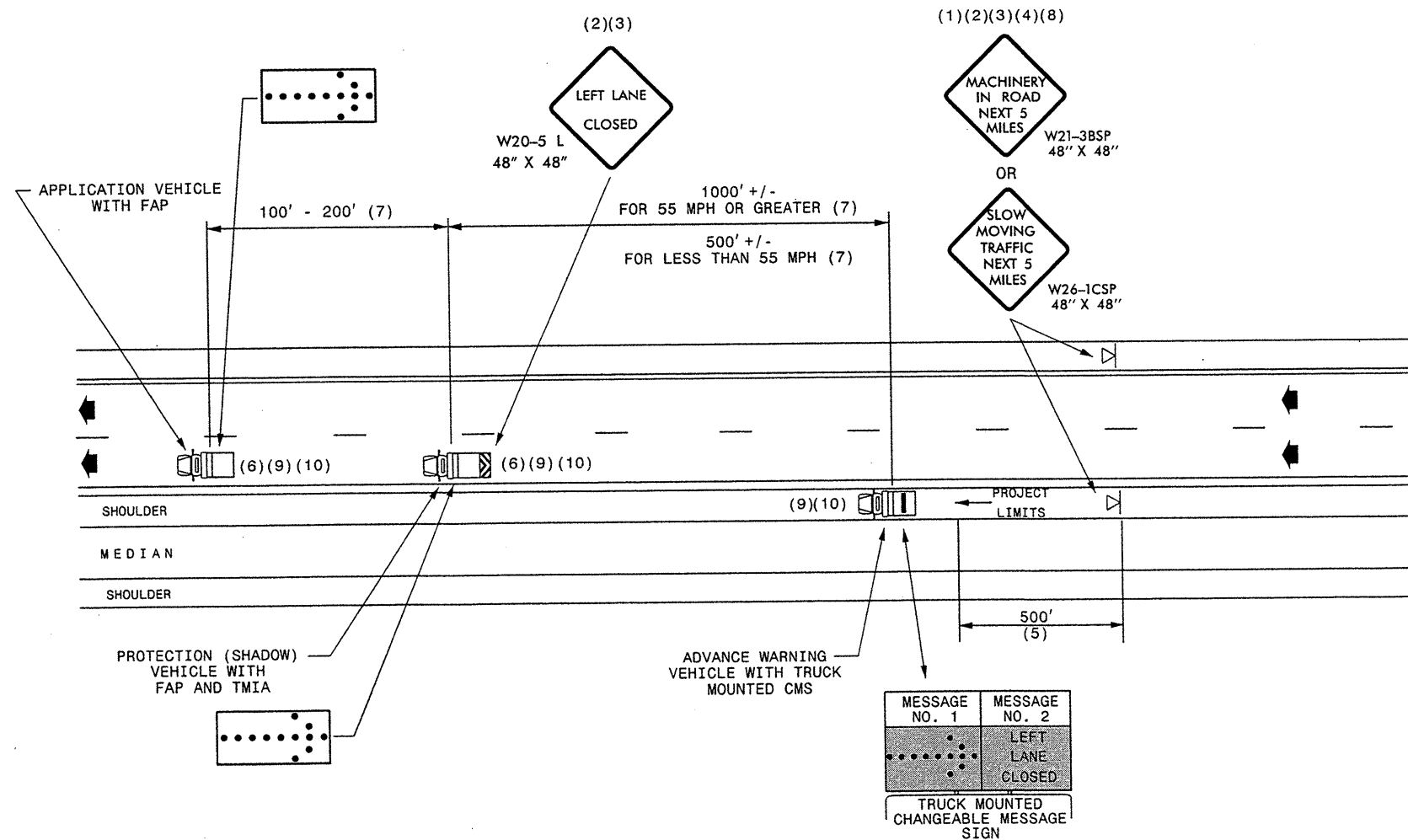
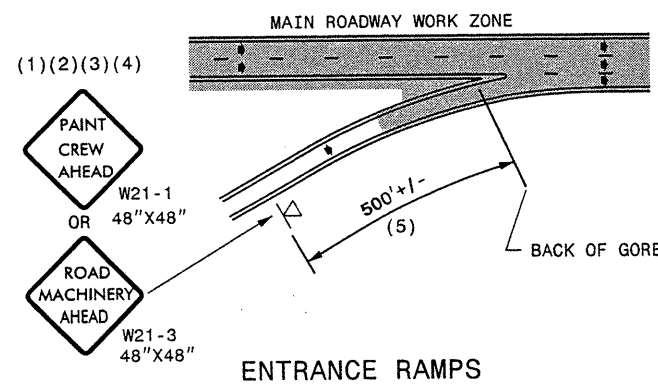
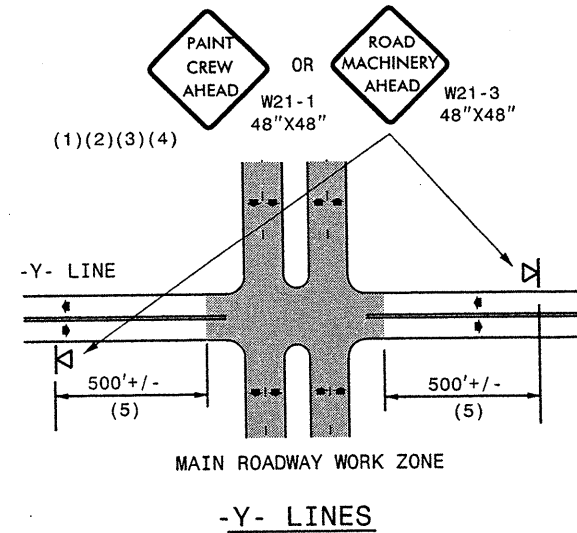
GENERAL NOTES

- (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 ACCOMMODATE 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
-  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) APPROVED.
-  ADVANCE WARNING VEHICLE WITH TRUCK MOUNTED CHANGEABLE 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

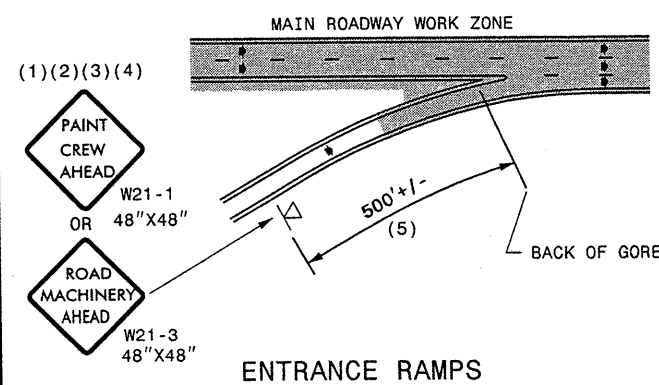
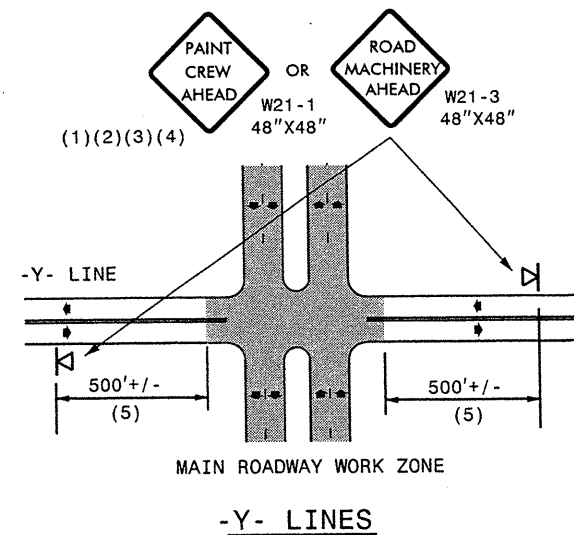
GENERAL NOTES

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 - B. TRUCK MOUNTED CHANGEABLE MESSAGE SIGN (CMS)
 - C. GROUND MOUNTED ADVANCE WARNING SIGNS (MUST CIRCLE TO PICK UP SIGNS)
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- (5) SIGN SPACING SHOULD BE ADJUSTED FOR HORIZONTAL AND VERTICAL CURVES, ETC. TO IMPROVE SIGHT DISTANCES.

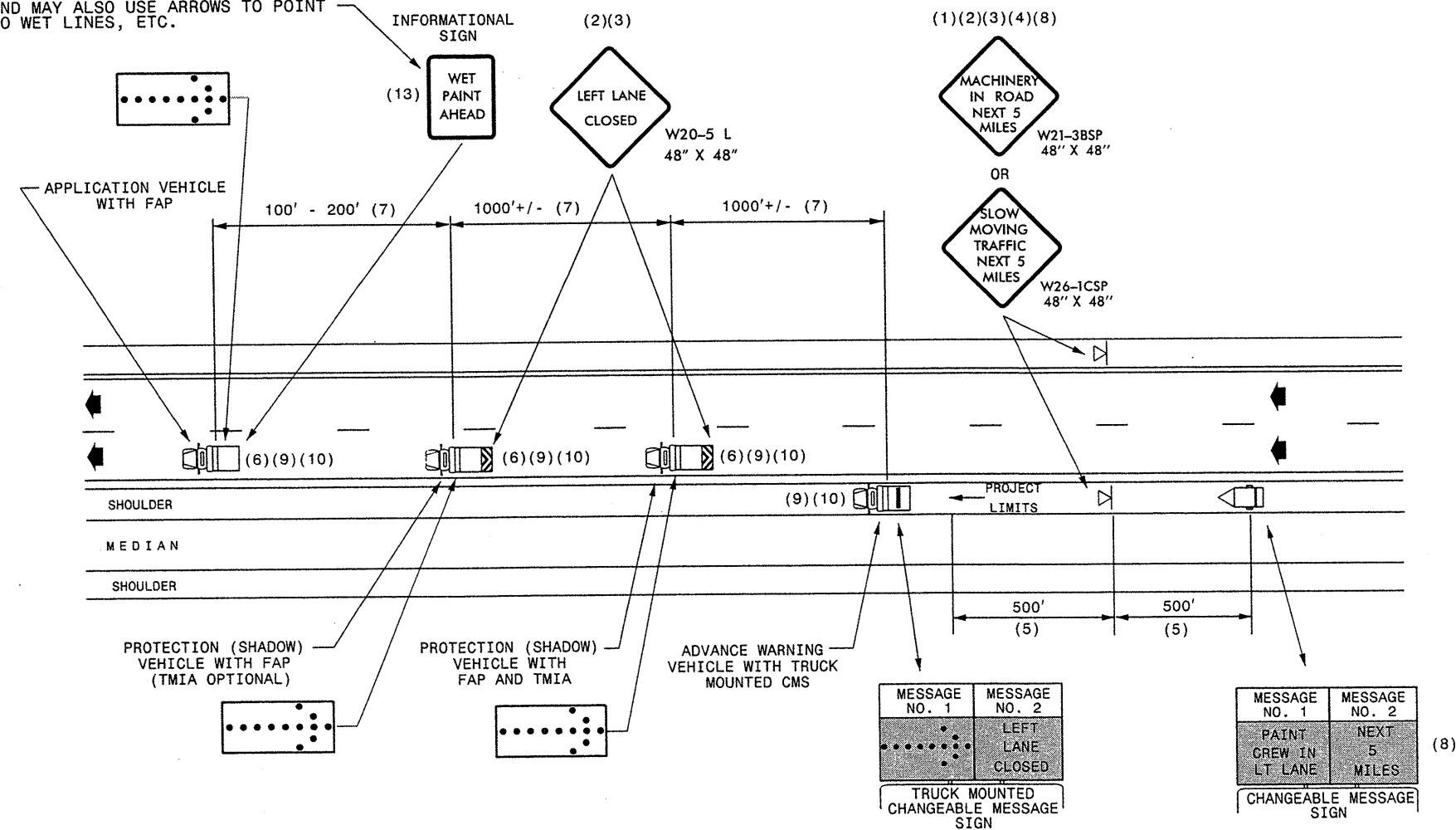
- (6) ADDITIONAL VEHICLES SHOULD BE USED IN WORK CARAVAN TO FACILITATE DRYING OF PAVEMENT MARKING MATERIAL (TMIA'S ARE OPTIONAL ON THESE ADDITIONAL VEHICLES). HOWEVER, THE FIRST VEHICLE MOTORISTS SEE IN THE TRAVEL LANE SHALL HAVE A TMIA.
- (7) ADJUST DISTANCE AS NEEDED TO PREVENT MOTORISTS FROM ENTERING 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.
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- (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.

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) APPROVED.
-  ADVANCE WARNING VEHICLE WITH TRUCK MOUNTED CHANGEABLE 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



MAY USE "WET PAINT STAY OFF LINE", "WET PAINT AHEAD" OR SIMILAR INFORMATIONAL MESSAGE AND MAY ALSO USE ARROWS TO POINT TO WET LINES, ETC.



MOVING OPERATION CARAVAN

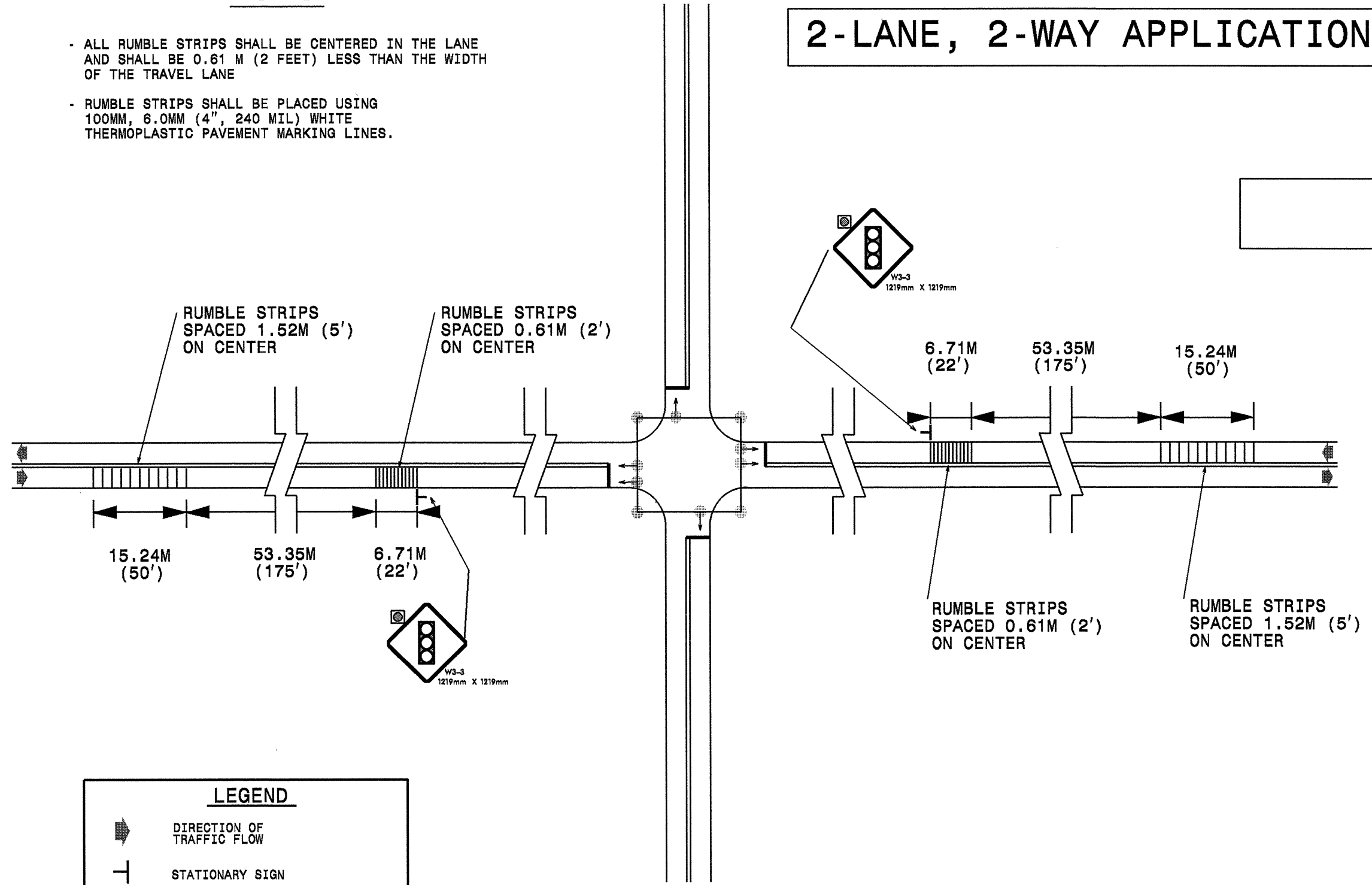
(OPERATIONS TRAVELING 3 MPH OR FASTER)
PLACING PAVEMENT MARKING OR MARKERS
ON INTERSTATE ROADWAYS

DRAWING NUMBER 8
IMPLEMENTATION DATE: 11/03/04
REVISED:

NOTES

- ALL RUMBLE STRIPS SHALL BE CENTERED IN THE LANE AND SHALL BE 0.61 M (2 FEET) LESS THAN THE WIDTH OF THE TRAVEL LANE
- RUMBLE STRIPS SHALL BE PLACED USING 100MM, 6.0MM (4", 240 MIL) WHITE THERMOPLASTIC PAVEMENT MARKING LINES.

2-LANE, 2-WAY APPLICATION

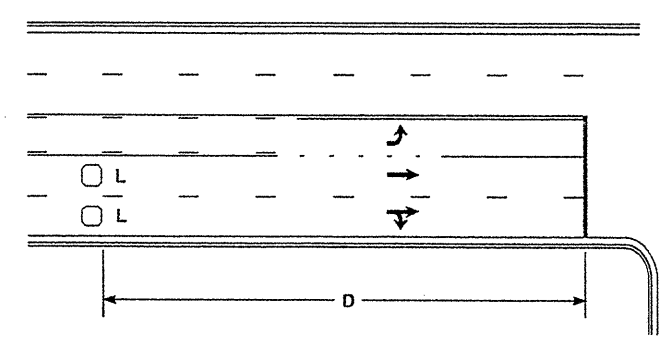


LEGEND

- DIRECTION OF TRAFFIC FLOW
- STATIONARY SIGN
- WHITE RUMBLE STRIPS 100MM, 6.0MM (4" WIDE, 240 MILS) THERMOPLASTIC
- SIGNAL POLE
- SIGNAL HEAD

APPROVED: _____	DATE: _____	THERMOPLASTIC RUMBLE STRIP PLACEMENT	
SCALE: NONE			REVISIONS
DATE: 04-23-98			
DWG. BY: MMM			
DESIGN BY: MMM			
REVIEWED BY: GLG			

High Speed Detection [≥40 mph (64 km/hr)]

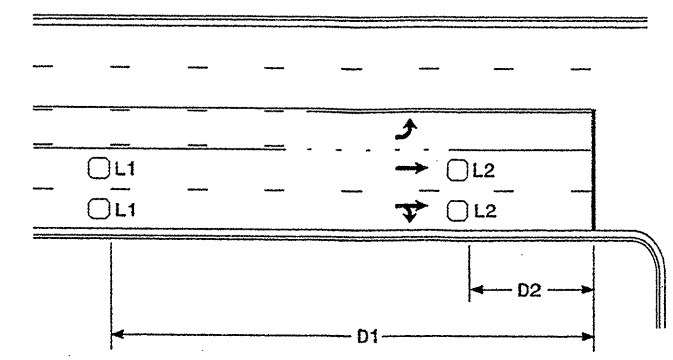


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

L = 6ft X 6ft (1.8m X 1.8m)
Wired in series for TS1
Controllers
Wired separately for TS2,
170, and 2070L Controllers

Volume Density Operation

OR

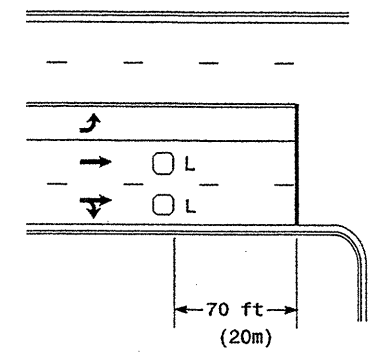


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

L1 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series
L2 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series

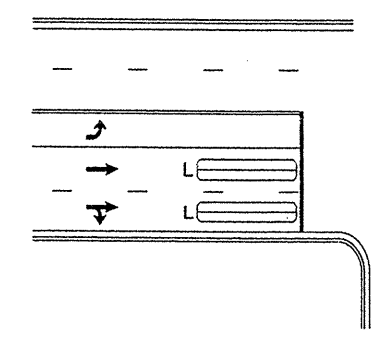
"Stretch" Operation

Low Speed Detection [≤35 mph (56 km/hr)]



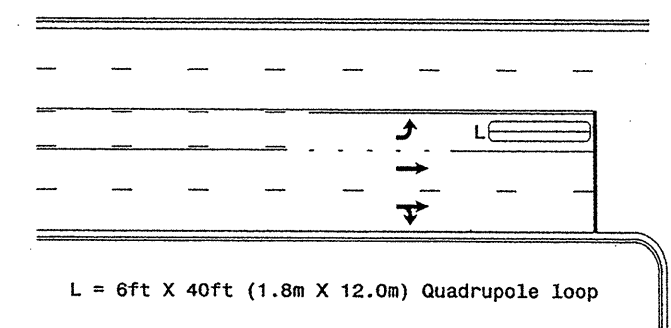
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop, wired separately

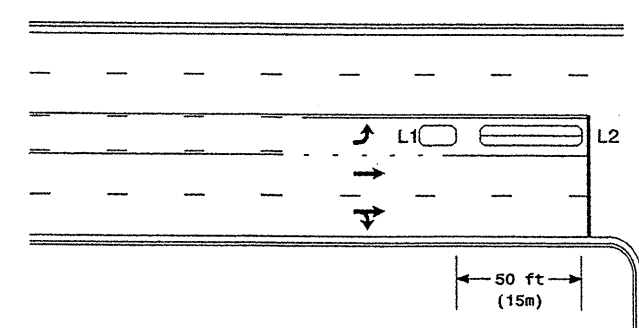
Left Turn Lane Detection



L = 6ft X 40ft (1.8m X 12.0m) Quadrupole Loop

Presence Loop Detection

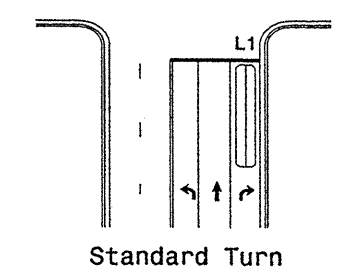
OR



L1 = 6ft X 15ft (1.8m X 4.6m) Queue detector
L2 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

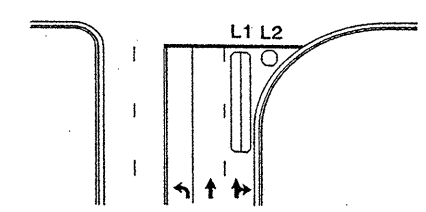
Queue Loop Detection

Right Turn Lane Detection

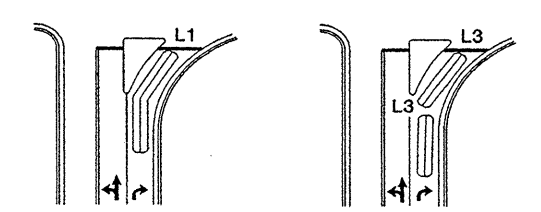


Standard Turn

L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

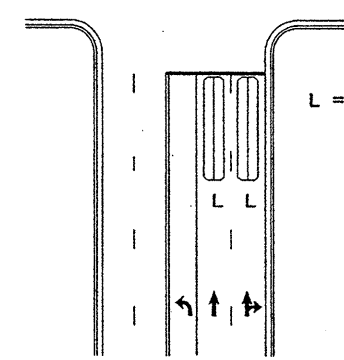


Wide Radius Turn



Channelized Turn

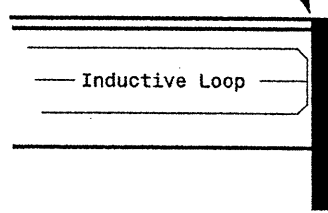
Side Street Detection



L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop
Wired to separate
detectors/channels

Presence Loop Placement at Stop Lines

Locate loop slightly
behind leading
edge of stop line



Note:
Loop may be located in advance
of stop line when stop line is
greater than 15' (4.5m) from edge
of intersecting roadway; or, when
loop detects a permissive or
protected/permissive left turn.

Recommended Number of Turns

Single 6' X 6' (1.8m X 1.8m)
loop (wired separately):

Length of Lead-in ft (m)	Number of Turns
< 250 (75)	3
250-375 (75-115)	4
375-525 (115-160)	5
> 525 (160)	6

Quadrupole loops: Use 2-4-2 turns
6' X 15' (1.8m X 4.6m) Loops:
Lead-in < 150' (45 m), use 2 turns
Lead-in > 150' (45 m), use 3 turns

19-DEC-2006 14:29 554115 slgpc01sh1b turn_inmmslcopyplc012006.dgn p01alexander

Typical Loop Locations

PLAN DATE: JUNE 2006	REVIEWED BY:
PREPARED BY: P L Alexander	REVIEWED BY:
REVISIONS	INIT. DATE
✓ Revise pavement markings	ae 12/15/06
SIGNATURE	DATE

SCALE
N/A

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INDUCTIVE DETECTION LOOPS
ENGLISH DETAIL DRAWING FOR

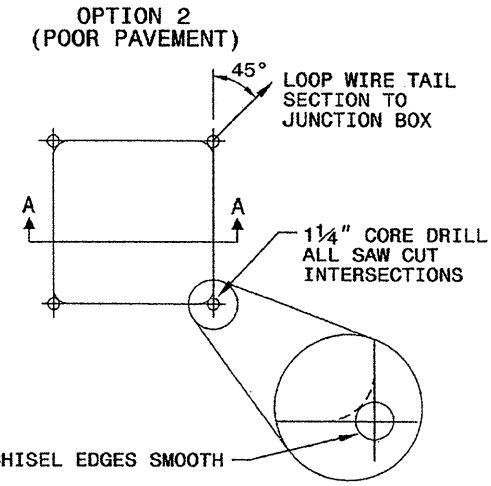
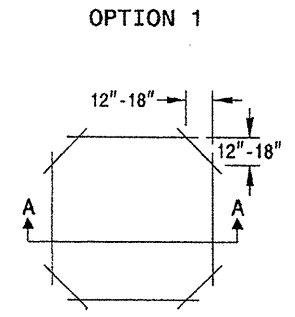
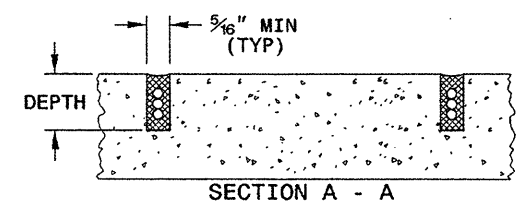
SHEET 1 OF 3
1725D01

CONVENTIONAL 4-SIDED LOOP

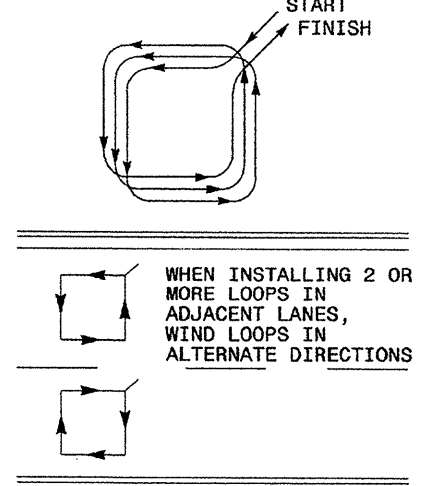
SAW CUT OPTIONS

SAW SLOT DEPTH CHART

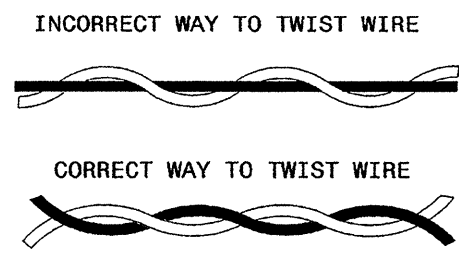
DEPTH (IN)	NO. OF WIRE TURNS				
	2	3	4	5	6
CONCRETE	2.0	2.0	2.5	2.5	3.0
ASPHALT	2.0	2.5	3.0	3.0	3.0



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

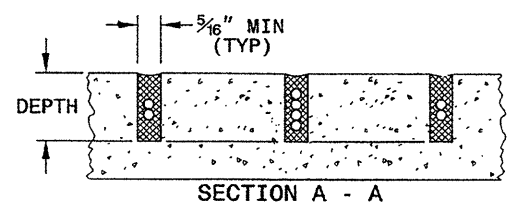
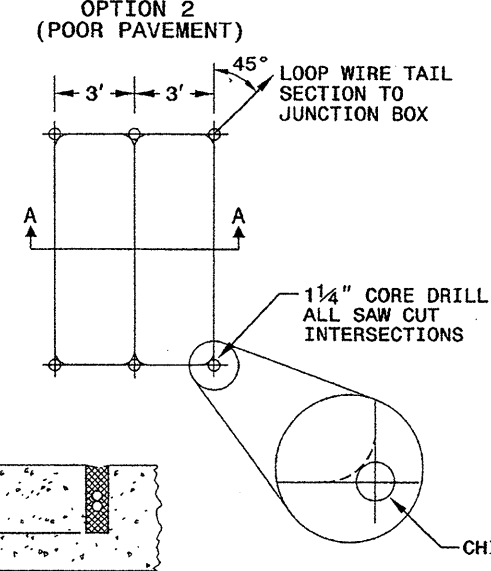
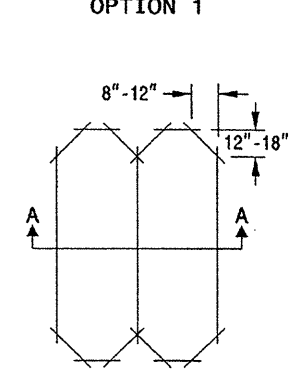


NOTES

1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

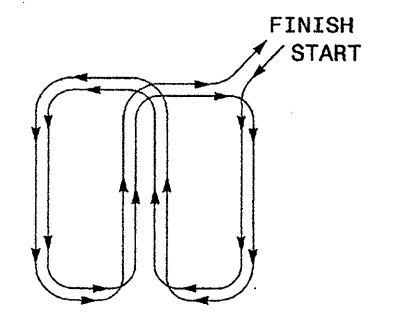
QUADRUPOLE LOOP

SAW CUT OPTIONS



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



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INDUCTIVE DETECTION LOOPS
ENGLISH DETAIL DRAWING FOR

SHEET 1 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

Wilton I. Dean
16286
ENGINEER

Wilton I. Dean 4/24/08
SIGNATURE DATE

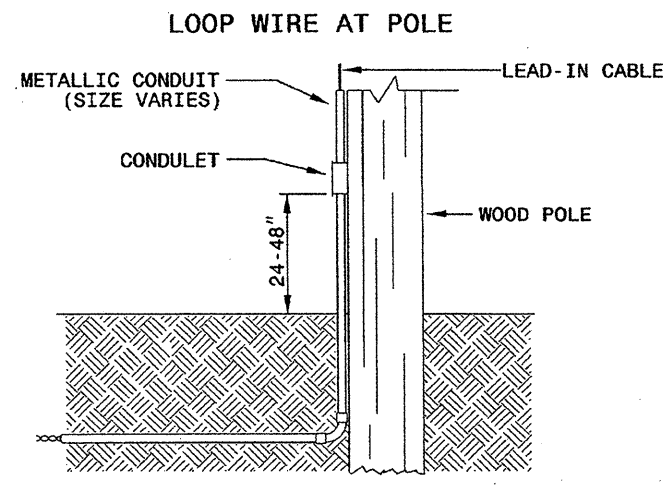
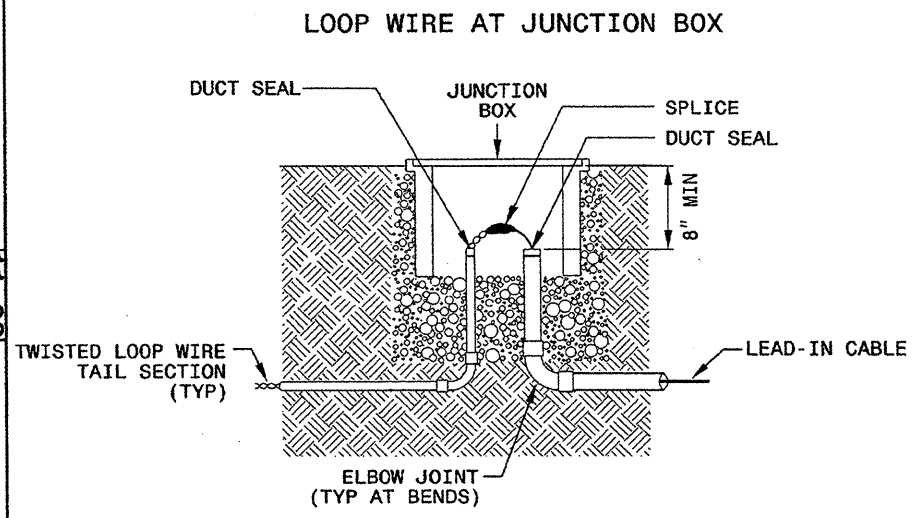
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STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

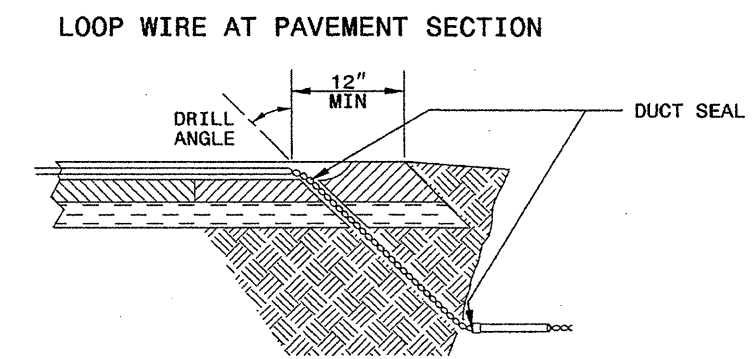
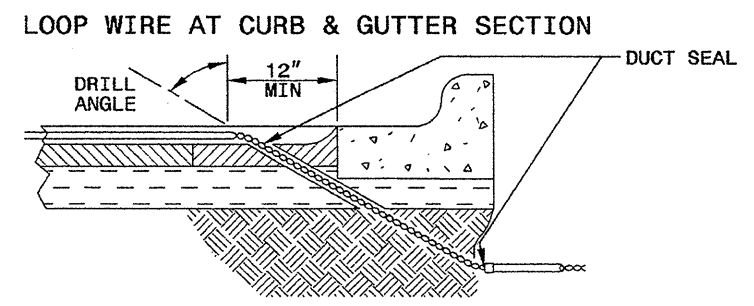
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS



NOTE
 SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS



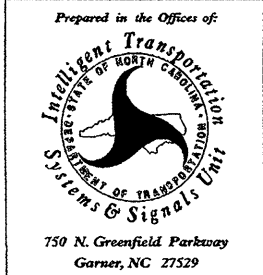
- NOTES**
- DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
 - TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
 - BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT AND AT ENTRANCE OF CONDUIT TO JUNCTION BOX.

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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title



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Milton J. Dean 11/24/08
 SIGNATURE DATE

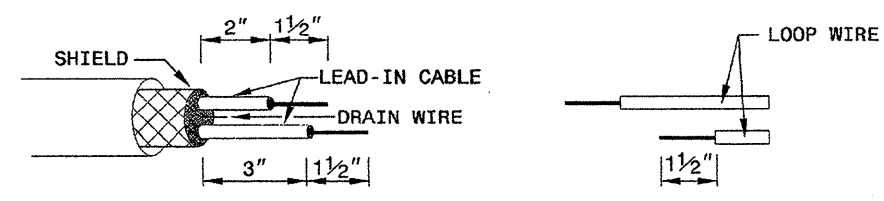
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 RALEIGH, N.C.

11-08

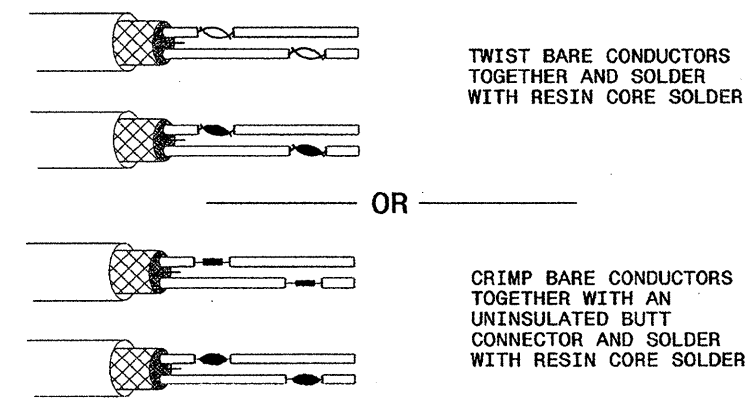
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
 1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

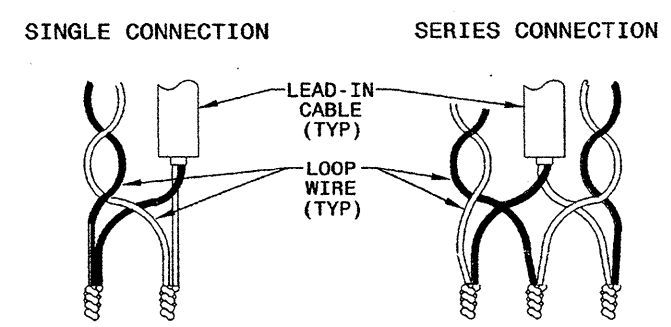


STEP 2. CONNECT AND SOLDER

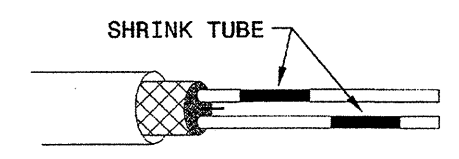


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

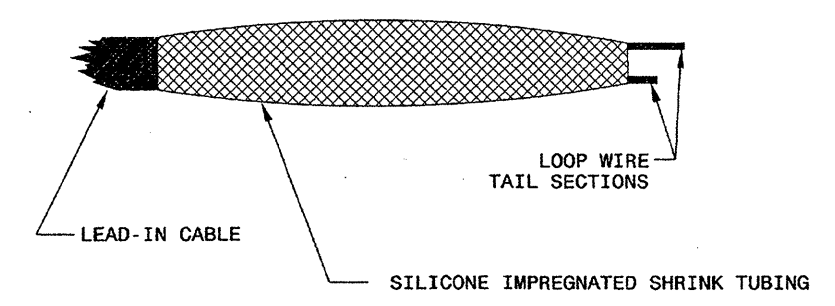
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
 SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
 1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
 Garner, NC 27529

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Milton I. Dean 11/24/08
 SIGNATURE DATE

24-NOV-2008 08:35
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