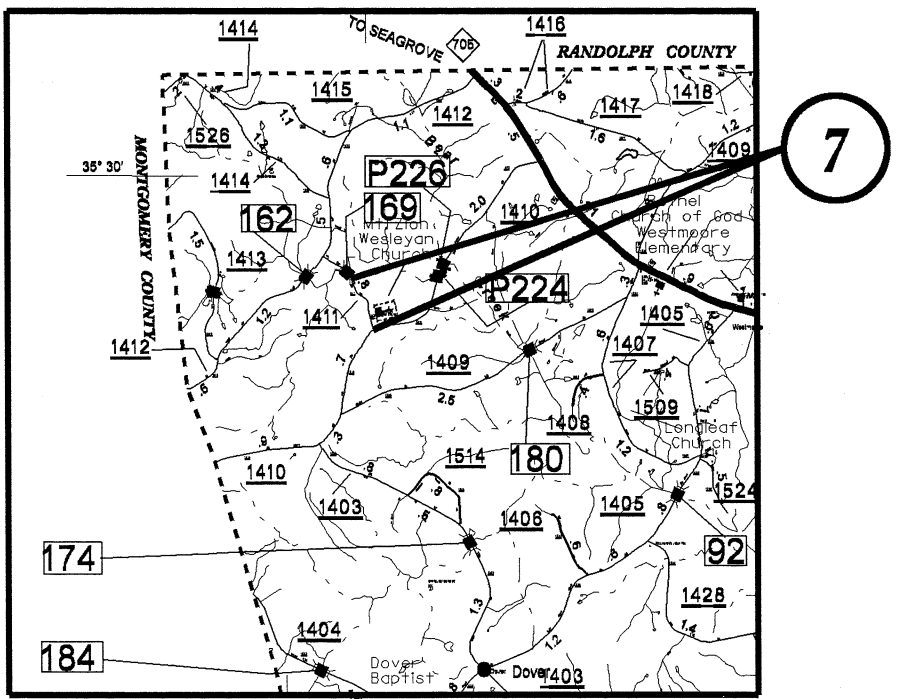
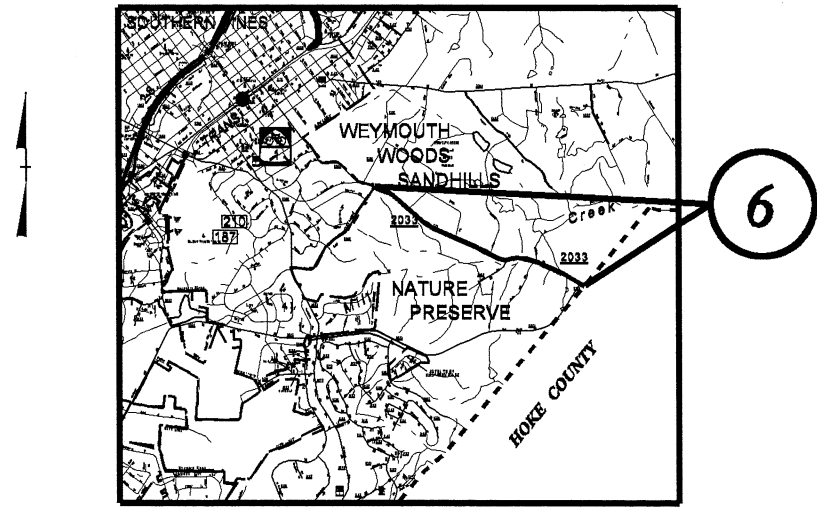
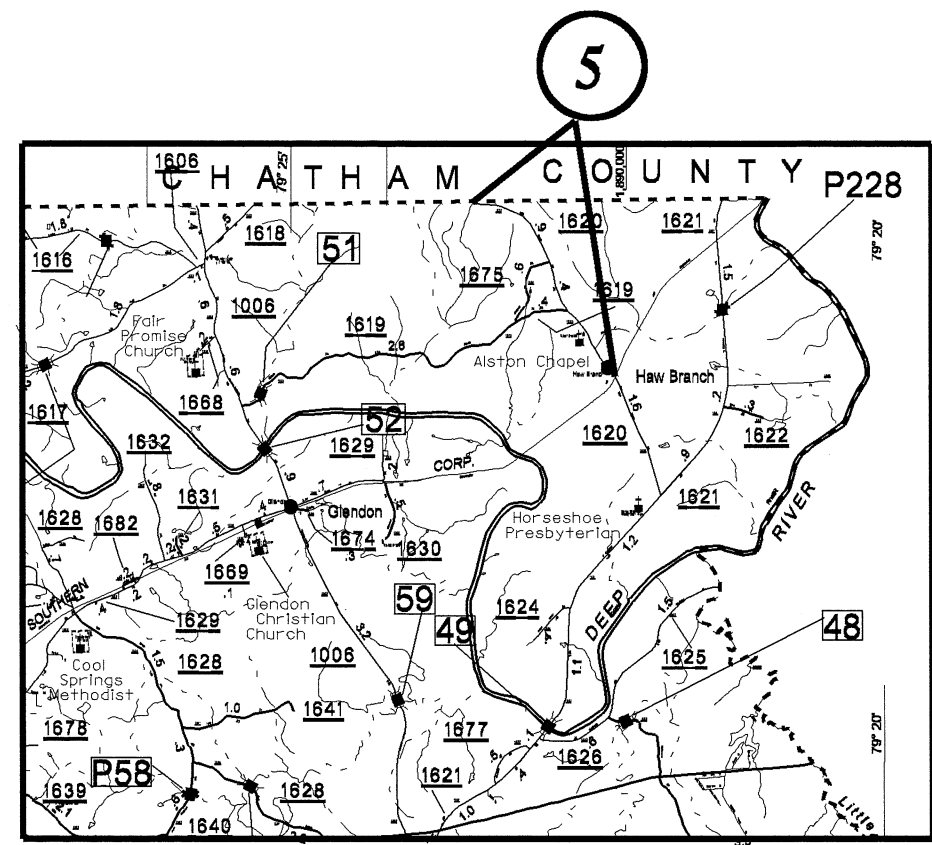
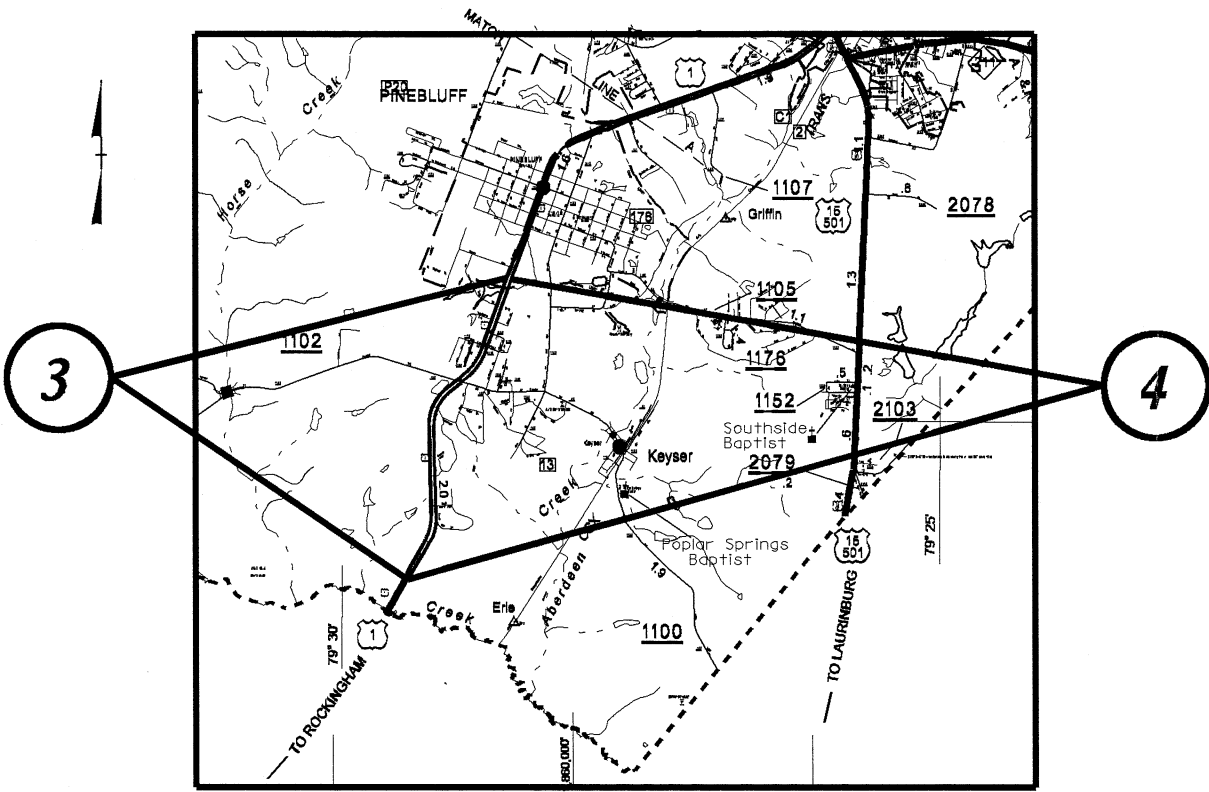


MONTGOMERY COUNTY

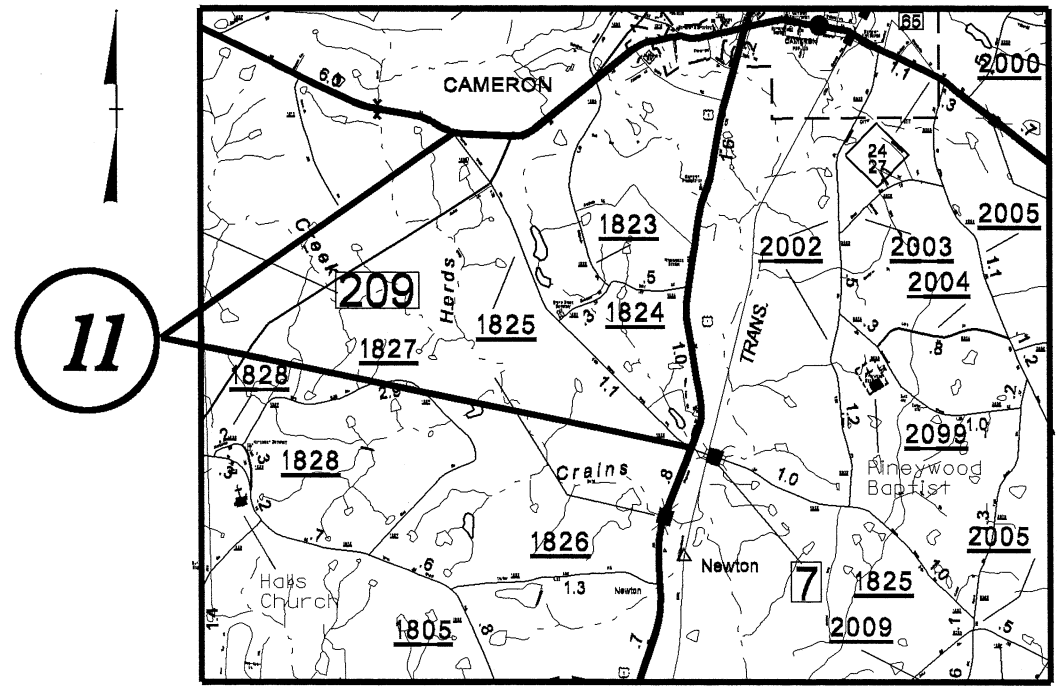
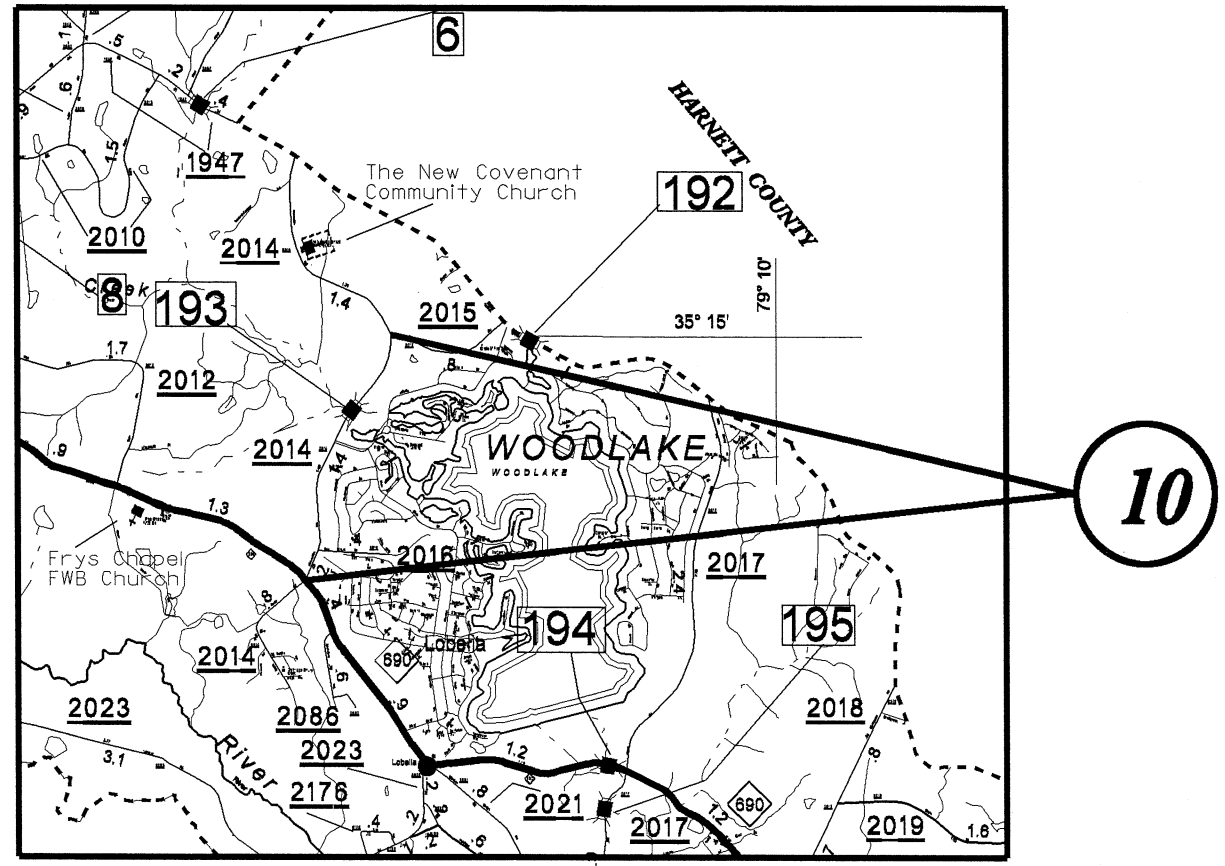
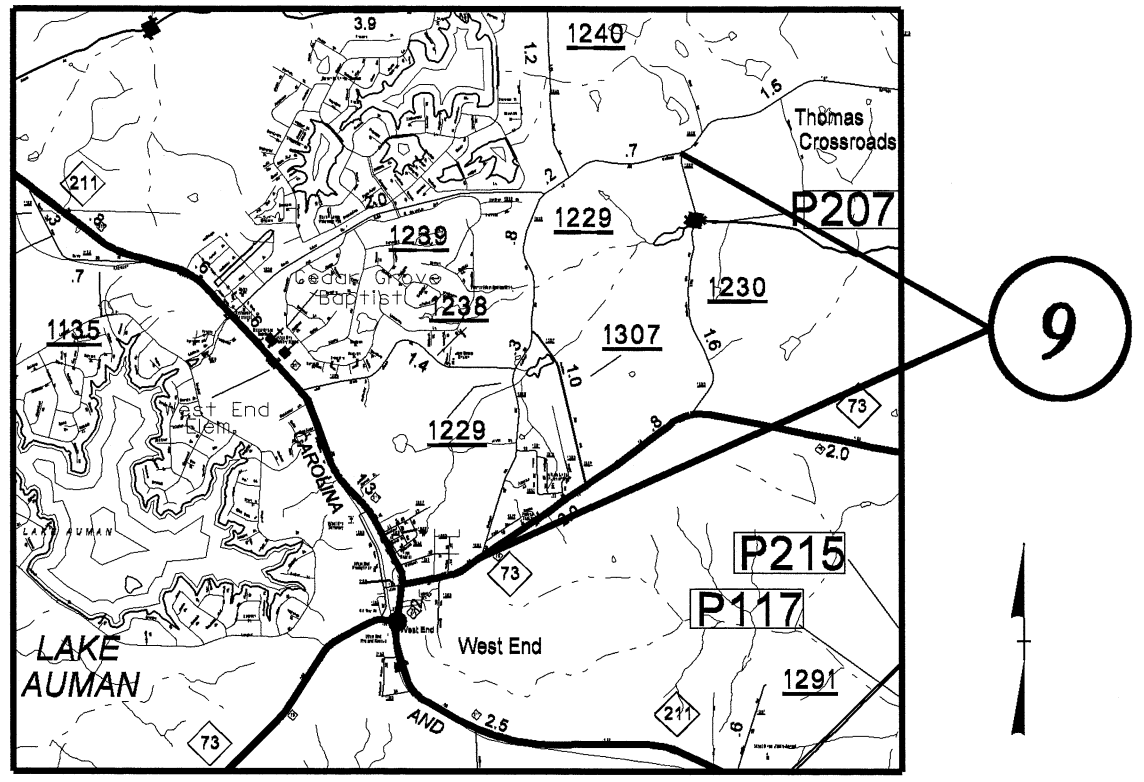
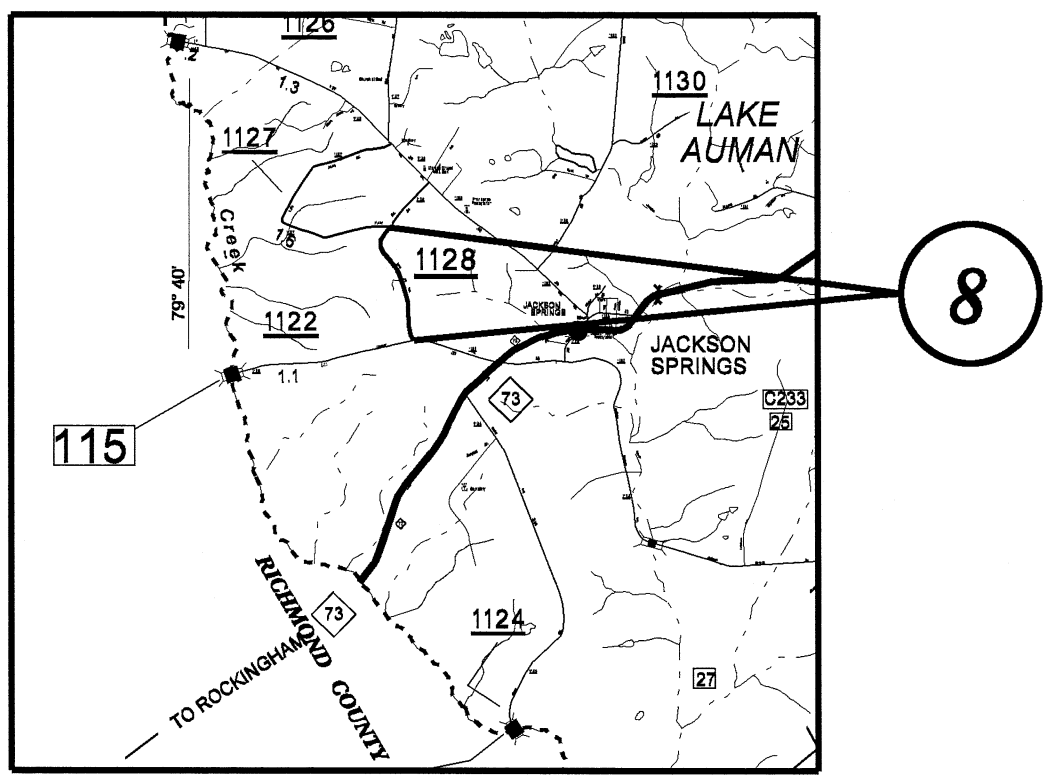


MOORE COUNTY

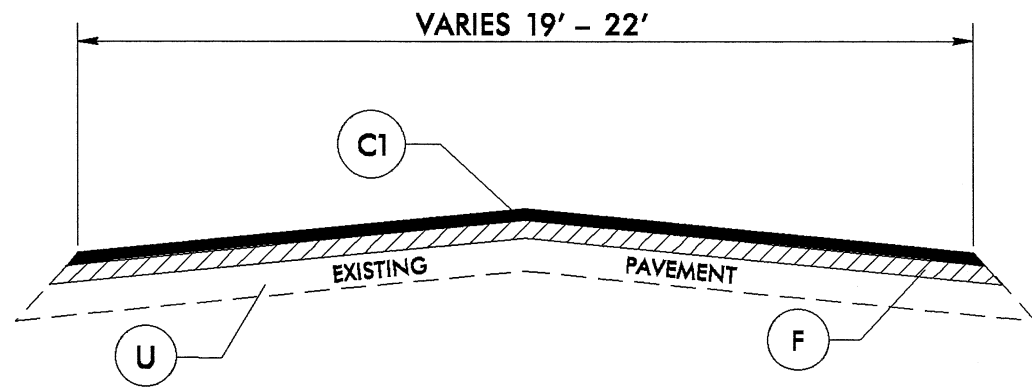
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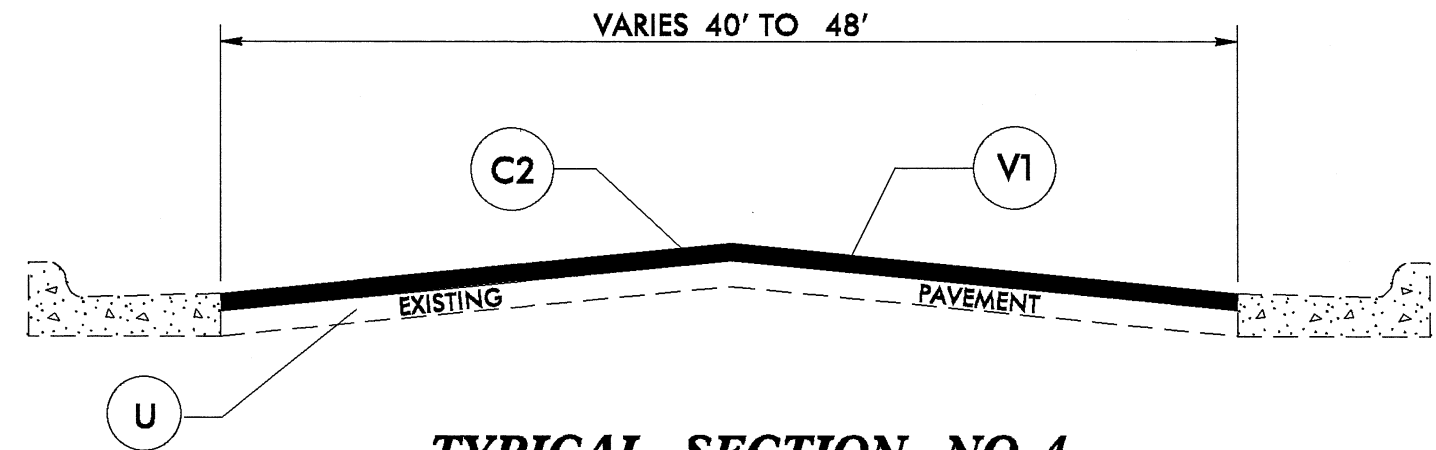
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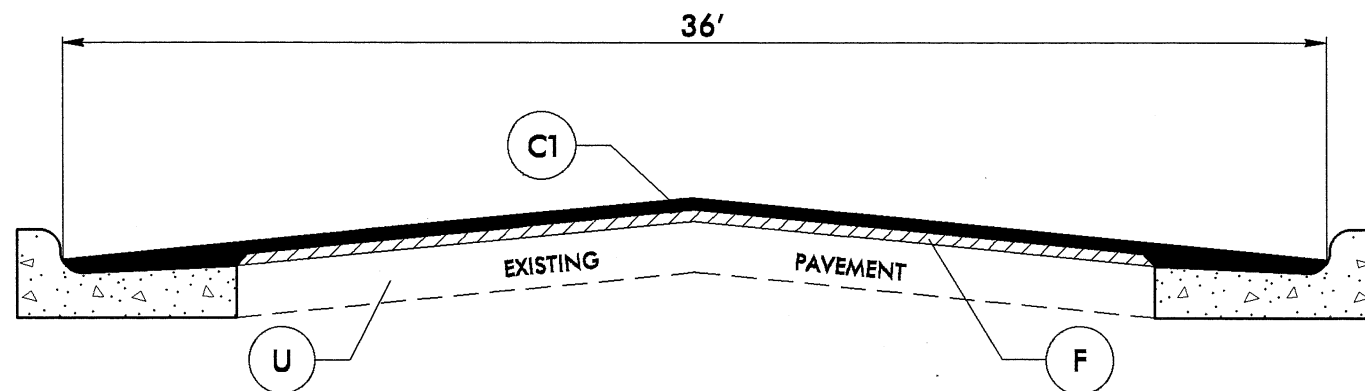
TYPICAL SECTIONS FOR MONTGOMERY CO.



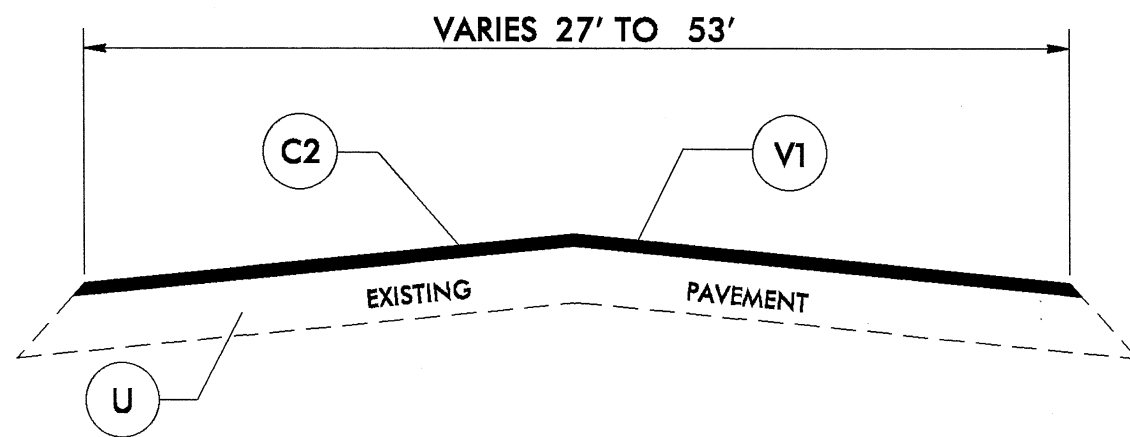
TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 4



TYPICAL SECTION NO. 2

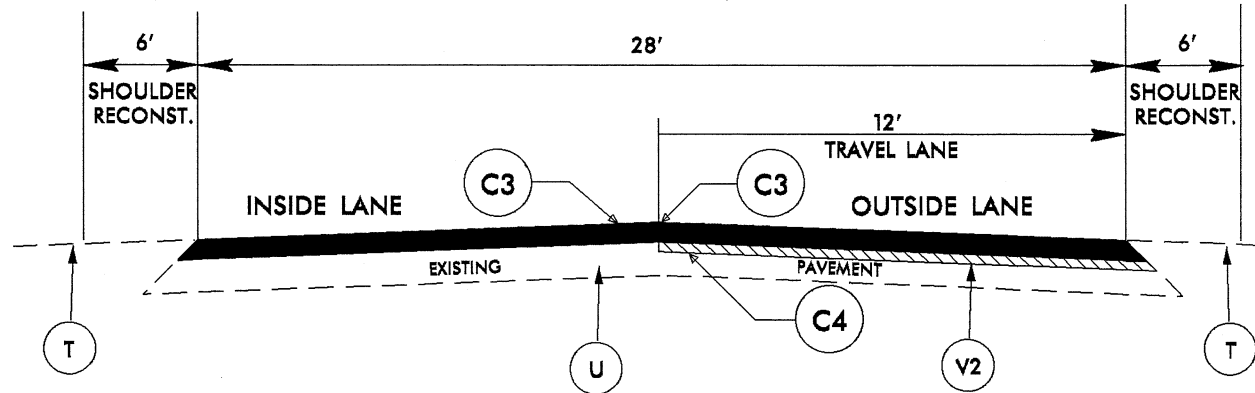


TYPICAL SECTION NO. 3

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
F	ASPHALT SURFACE TREATMENT, STRAIGHT SEAL ONE LAYER 78M.
U	EXISTING PAVEMENT
V1	MILLING 1.5" IN DEPTH.

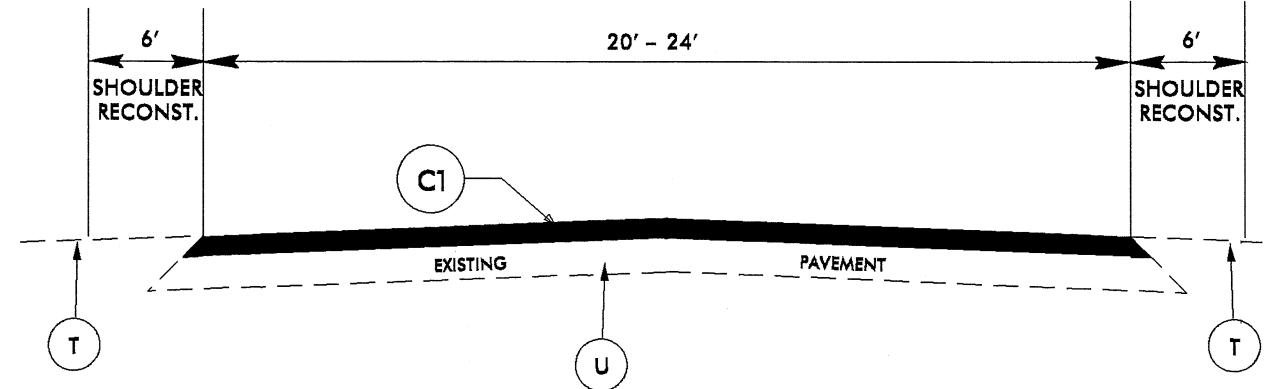
SHOULDER RECONSTRUCTION TO BE COMPLETED BY NCDOT ON MAPS #1 & #2 ONLY



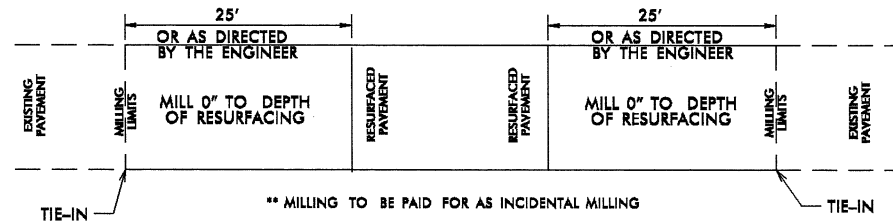
TYPICAL SECTION NO. 5

NOTE: US 1 SOUTHBOUND, MILL FULL WIDTH OF OUTSIDE LANE 2" REPLACE WITH 2" AND OVERLAY WITH 1.5" S9.5C

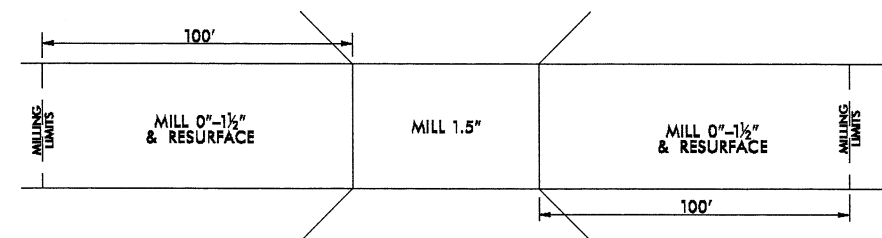
NOTE: US 1 NORTHBOUND, MILL FULL WIDTH OF OUTSIDE LANE 2" REPLACE WITH 2" AND OVERLAY WITH 1.5" S9.5C



TYPICAL SECTION NO. 6



PAVEMENT TIE-IN DETAIL



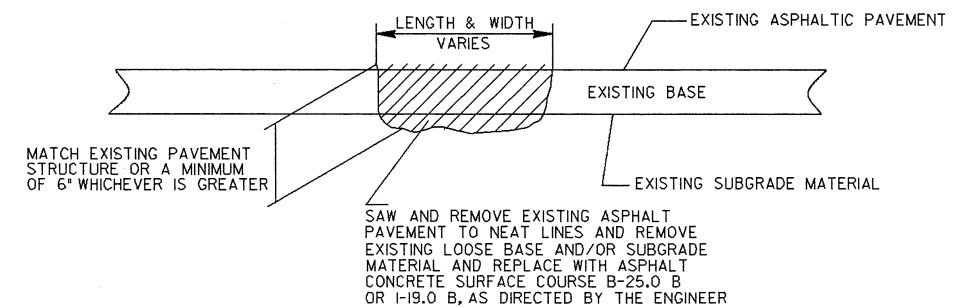
BRIDGE DRAWING FOR SR 2014 (BRIDGE NO 193)

** MILLING ON BRIDGE APPROACHES AND ON BRIDGE TO BE PAID FOR AS 0" TO 1.5" MILLING

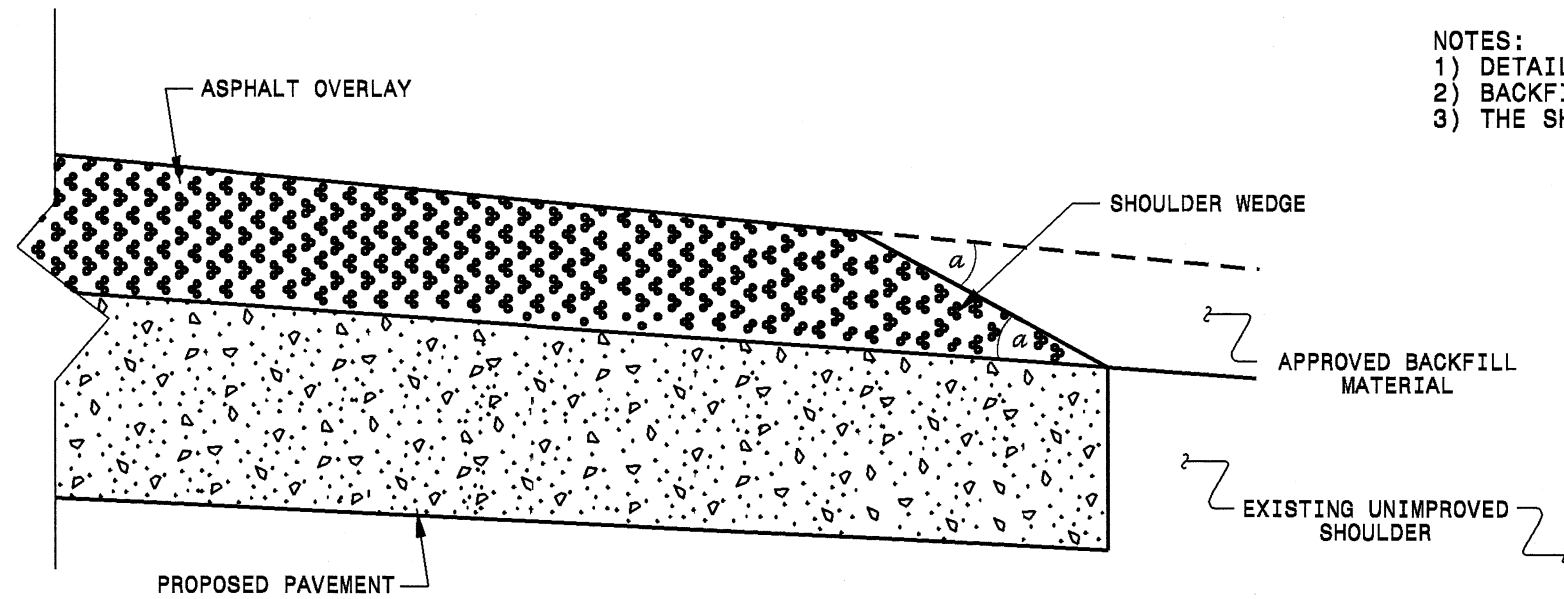
TYPICAL SECTIONS FOR MONTGOMERY CO.

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C3	PROP. APPROX. 1.5 " ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C4	PROP. APPROX. 2.0 " ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V2	2" MILLING

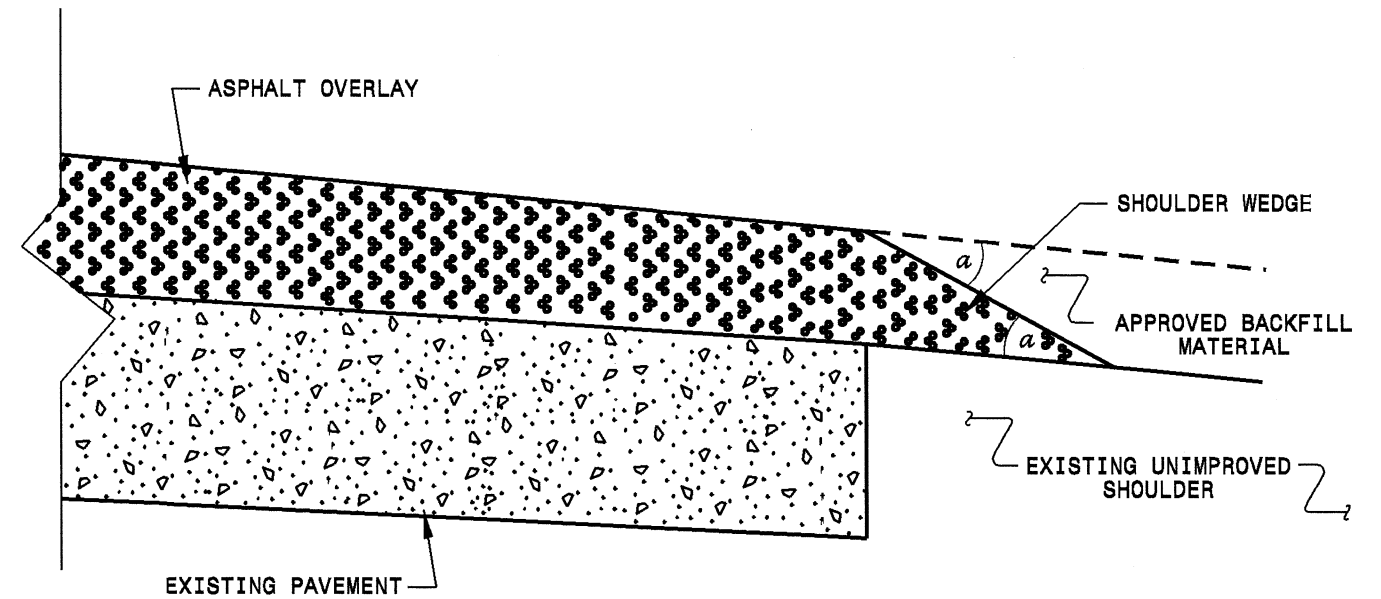
DETAILS OF PATCHING EXISTING PAVEMENT PRIOR TO RESURFACING DETAIL



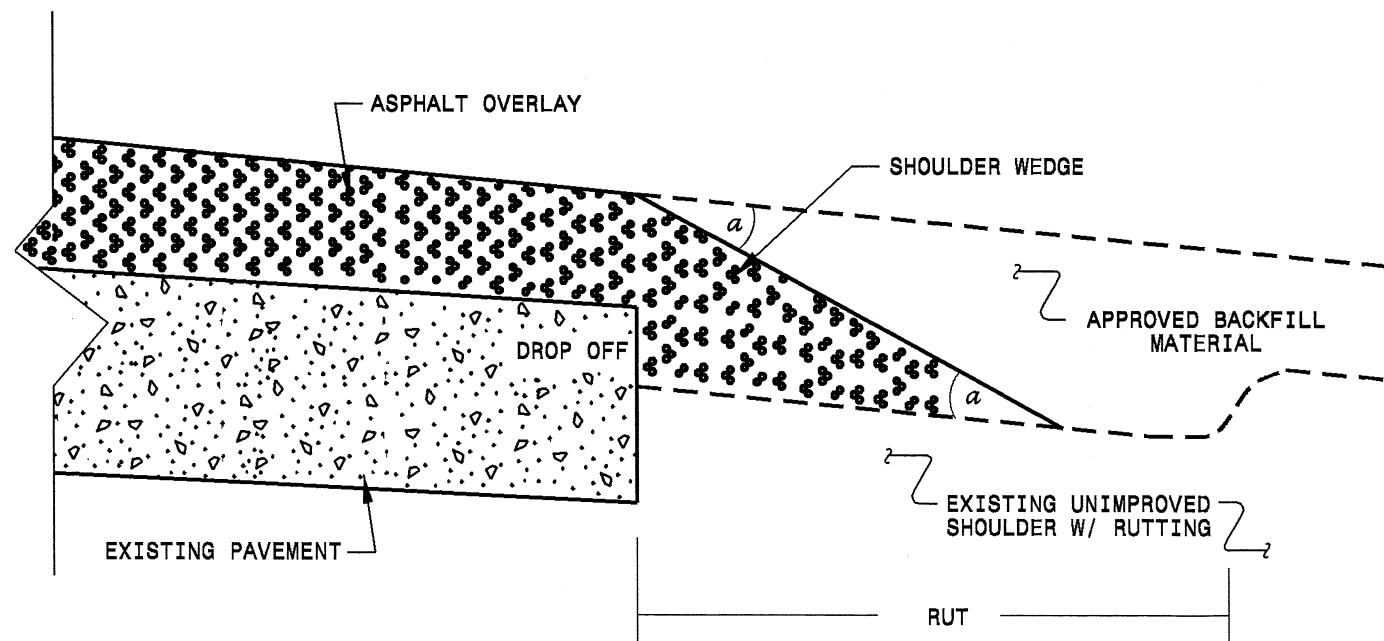
- NOTES:
 1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS AND SIDE STREETS.



SHOULDER WEDGE DETAIL
 (Resurfacing Projects w/ Widening or
 with Existing Paved Shoulder having no dropoffs)



SHOULDER WEDGE DETAIL
 (Resurfacing Projects w/ NO Widening)



SHOULDER WEDGE DETAIL
 (Resurfacing Adjacent to
 Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

CONTRACT STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950		FAX 919-250-4119	
SHOULDER WEDGE DETAILS			
ORIGINAL BY:	T.SPELL	DATE:	7-19-11
MODIFIED BY:		DATE:	10/16/12
CHECKED BY:		DATE:	
FILE SPEC.:	s:\un\details\stand\shoulderwedgedetail.dgn		

PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.10621.24, 8CR.20621.24 8CR.10631.24, ETC.	8	9

SUMMARY OF QUANTITIES

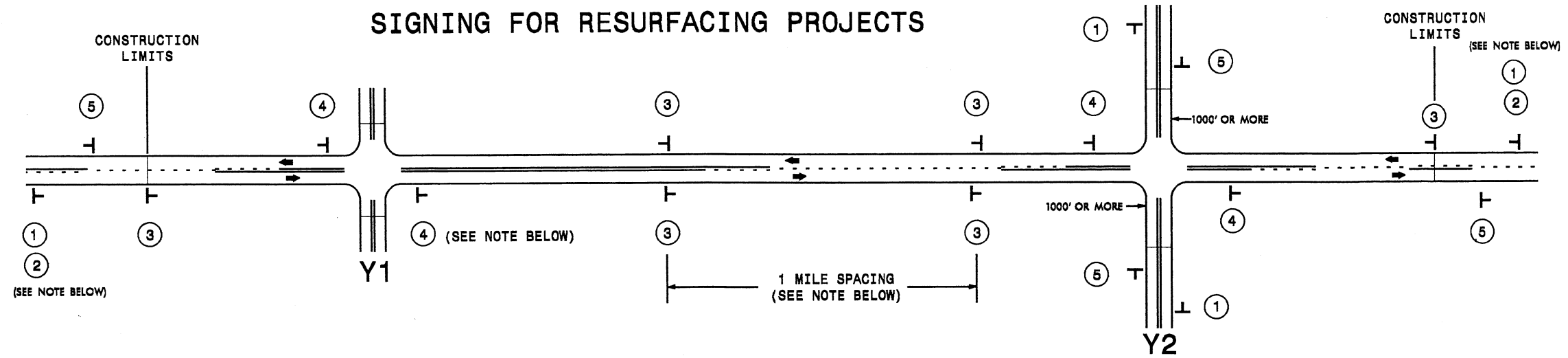
PROJECT NO.	COUNTY	MAP NO.	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	BORROW EXCAVATION CY	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	1.5" MILLING SY	2" MILLING SY	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	SURFACE COURSE, \$9.5B TONS	SURFACE COURSE, \$9.5C TONS	SURFACE COURSE, \$9.5A TON	ASPHALT BINDER FOR PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	ASPHALT SURFACE TREATMENT, STRAIGHT SEAL SY	ADJUST MANHOLES EA	ADJUST METER OR VALVE BOX EA	TEMPORARY SILT FENCE LF	WATTLE LF	SEED & MULCHING AC	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2 PAIR) LF	
8CR.10621.24	Montgomery	1	NC 211	FROM MOORE CO LINE TO US 220 ALT.		3,4	2	MU	NO	NO	2.11	40			52,000			3,046	4,625		278			3	2				200	50		
TOTAL FOR MAP NO. 1										2.11					52,000			3,046	4,625		278			3	2				200	50		
TOTAL FOR PROJ NO. 8CR.10621.24										2.11					52,000			3,046	4,625		278			3	2				200	50		
8CR.20621.24	Montgomery	2	SR 1139 (WARNER/VESTAO RD)	FROM NC 24 TO SR 1134 (MT CARMEL CH RD)		1,2	2	2WU	NO	NO	3.51	22						100		3,860	259											
TOTAL FOR MAP NO. 2										3.51								100		3,860	259											
TOTAL FOR PROJ NO. 8CR.20621.24										3.51								100		3,860	259											
8CR.10631.24	Moore	3	US 1 (SBL)	FROM CONST. JT NORTH OF PINEBLUFF CL TO CONST. JT NORTH OF BRIDGE		5	2	MD	NO	NO	2.292	28	330	25	4.60		19,000			5,195		307	25					460	1,150	3.50		
TOTAL FOR MAP NO. 3										2.292			330	25	4.60		19,000			5,195		307	25					460	1,150	3.50		
8CR.10631.24	Moore	4	US 1 (NBL)	FROM CONST. JT NORTH OF PINEBLUFF CL TO CONST. JT NORTH OF BRIDGE		5	2	MD	NO	NO	2.538	28	745	30	5.10		21,000			5,733		338	200					510	1,280	3.70		
TOTAL FOR MAP NO. 4										2.538			745	30	5.10		21,000			5,733		338	200					510	1,280	3.70		
TOTAL FOR PROJ NO. 8CR.10631.24										4.83			1,075	55	9.70		40,000			10,928		645	225					970	2,430	7.20		
8CR.20631.24	Moore	5	SR 1620 (HAW BRANCH RD)	FROM CHATHAM CO LINE TO RR TRACKS		6	2	2WU	NO	NO	1.95	20	300	145	3.90			80		2,105	141	335						280	700	2.80		
TOTAL FOR MAP NO. 5										1.95			300	145	3.90			80		2,105	141	335						280	700	2.80		
8CR.20631.24	Moore	6	SR 2033 (CONNECTICUT AVE)	FROM SR 2042 (BETHESDA RD) TO FT BRAGG FENCE		6	2	2WU	NO	NO	1.913	22	280	75	3.85			245		2,405	161	100				1		280	700	2.80		
TOTAL FOR MAP NO. 6										1.913			280	75	3.85			245		2,405	161	100				1		280	700	2.80		
8CR.20631.24	Moore	7	SR 1411(MT ZION CHURCH RD)	FROM SR 1410 (ADAMS RD) TO SR 1412 (UPPER RD) PAVE TO CONST. JTS AT BRIDGE EACH END		6	2	2WU	NO	NO	0.61	20	90	70	1.22			90		654	44	65						90	220	0.88		
TOTAL FOR MAP NO. 7										0.61			90	70	1.22			90		654	44	65						90	220	0.88		
8CR.20631.24	Moore	8	SR 1128 (IVAN RD)	FROM SR 1122 (JACKSON SPRINGS RD) TO CONST JT AT SR 1127 (HURLEY RD)		6	2	2WU	NO	NO	0.701	20	105	90	1.40			90		755	51	25						100	250	1.00		
TOTAL FOR MAP NO. 8										0.701			105	90	1.40			90		755	51	25						100	250	1.00		
8CR.20631.24	Moore	9	SR 1229 (CARTHAGE RD)	FROM NC 73 TO SR 1230 (CANDY RD)		6	2	2WU	NO	NO	3.15	22	470	190	6.26			400		3,825	256	750						455	1,140	4.56		
TOTAL FOR MAP NO. 9										3.15			470	190	6.26			400		3,825	256	750						455	1,140	4.56		
8CR.20631.24	Moore	10	SR 2014 (MCLAUGHLIN RD)	FROM NC 690 TO SR 2015 (MURDOCK C RD)		6	2	2WU	NO	NO	1.591	24	250	20	3.18		320	215		2,145	144	80						230	580	2.31		
TOTAL FOR MAP NO. 10										1.591			250	20	3.18		320	215		2,145	144	80						230	580	2.31		
8CR.20631.24	Moore	11	SR 1825 (CRANES CREEK RD)	FROM NC 24/27 TO BRIDGE 107		6	2	2WU	NO	NO	2.331	18	340	230	4.70			60		2,300	154	110						340	850	3.40		
TOTAL FOR MAP NO. 11										2.331			340	230	4.70			60		2,300	154	110						340	850	3.40		
TOTAL FOR PROJ NO. 8CR.20631.24										12.246			1,835	820	24.51		320	1,180		14,189	951	1,465				1		1,775	4,440	17.75		
GRAND TOTAL										22.696			2,910	875	34.21	52,000	40,000	320	4,516	4,625	10,928	18,049	2,133	1,690	45,310.00	4	2	2,745	6,870	24.95	200	50

PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.10621.24, 8CR.20621.24 8CR.10631.24, ETC.	9	9

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	LANES	LANE TYPE	LENGTH	WIDTH	4413000000-E	4457000000-N	4510000000-N	4685000000-E		4686000000-E		4695000000-E	4705000000-E	4710000000-E	4721000000-E		4725000000-E					4810000000-E		4900000000-N		4905000000-N					
										WORK ZONE ADVANCE/GENERAL WARNING SIGNING	TEMPORARY TRAFFIC CONTROL	LAW ENFORCEMENT	4" X 90 M WHITE THERMO	4" X 90 M YELLOW THERMO	4" X 120 M WHITE THERMO	4" X 120 M YELLOW THERMO	8" X 90 M YELLOW THERMO	16" X 120 M WHITE THERMO	24" X 120 M WHITE THERMO	THERMO RXR 120 M	THERMO MSG ONLY 120 M	THERMO LT ARROW 90 M	THERMO STR ARROW 90 M	THERMO STR & RT ARROW 90 M	THERMO STR & LT ARROW 90 M	THERMO MERGE ARROW 90 M	4" WHITE PAINT	4" YELLOW PAINT	CRYSTAL & RED MARKERS	YELLOW & YELLOW MARKERS	SNOW PLOWABLE MARKERS C & R					
8CR.10621.24	Montgomery	1	NC 211	FROM MOORE CO LINE TO US 220 ALT.		3,4	2	MU	2.11	40	126		40	18,901		3,196	23,530	290	100	72	4	8	16	10	2	2	3			240	302					
TOTAL FOR MAP NO. 1									2.11		126		40	18,901		3,196	23,530	290	100	72	4	8	16	10	2	2	3			240	302					
TOTAL FOR PROJ NO. 8CR.10621.24									2.11		126		40	18,901		3,196	23,530	290	100	72	4	8	16	10	2	2	3			240	302					
														18,901		26,726						12								240	302					
8CR.20621.24	Montgomery	2	SR 1139 (WARNER/VESTAO RD)	FROM NC 24 TO SR 1134 (MT CARMEL CH RD)		1,2	2	ZWU	3.51	22	394	*						100	70	4																
TOTAL FOR MAP NO. 2									3.51		394							100	70	4																
TOTAL FOR PROJ NO. 8CR.20621.24									3.51		394							100	70	4																
8CR.10631.24	Moore	3	US 1 (SBL)	FROM CONST. JT NORTH OF PINEBLUFF CL TO CONST. JT NORTH OF BRIDGE		5	2	MD	2.292	28	130	*		12,100	12,100	3,015																				
TOTAL FOR MAP NO. 3									2.292		130			12,100	12,100	3,015																				
8CR.10631.24	Moore	4	US 1 (NBL)	FROM CONST. JT NORTH OF PINEBLUFF CL TO CONST. JT NORTH OF BRIDGE		5	2	MD	2.538	28	130	*		13,400	13,400	3,350																				
TOTAL FOR MAP NO. 4									2.538		130			13,400	13,400	3,350																				
TOTAL FOR PROJ NO. 8CR.10631.24									4.83		260			25,500	25,500	6,365																				
														51,000	51,000	6,365																				
8CR.20631.24	Moore	5	SR 1620 (HAW BRANCH RD)	FROM CHATHAM CO LINE TO RR TRACKS		6	2	ZWU	1.95	20	220	*						50	25	2																
TOTAL FOR MAP NO. 5									1.95		220							50	25	2																
8CR.20631.24	Moore	6	SR 2033 (CONNECTICUT AVE)	FROM SR 2042 (BETHESDA RD) TO FT BRAGG FENCE		6	2	ZWU	1.913	22	215	*																								
TOTAL FOR MAP NO. 6									1.913		215																									
8CR.20631.24	Moore	7	SR 1411 (MT ZION CHURCH RD)	FROM SR 1410 (ADAMS RD) TO SR 1412 (UPPER RD) PAVE TO CONST. JTS AT BRIDGE EACH END		6	2	ZWU	0.61	20	70	*																								
TOTAL FOR MAP NO. 7									0.61		70																									
8CR.20631.24	Moore	8	SR 1128 (IVAN RD)	FROM SR 1122 (JACKSON SPRINGS RD) TO CONST JT AT SR 1127 (HURLEY RD)		6	2	ZWU	0.701	20	80	*																								
TOTAL FOR MAP NO. 8									0.701		80																									
8CR.20631.24	Moore	9	SR 1229 (CARTHAGE RD)	FROM NC 73 TO SR 1230 (CANDY RD)		6	2	ZWU	3.15	22	355	*																								
TOTAL FOR MAP NO. 9									3.15		355																									
8CR.20631.24	Moore	10	SR 2014 (MCLAUGHLIN RD)	FROM NC 690 TO SR 2015 (MURDOCK C RD)		6	2	ZWU	1.591	24	180	*																								
TOTAL FOR MAP NO. 10									1.591		180																									
8CR.20631.24	Moore	11	SR 1825 (CRANES CREEK RD)	FROM NC 24/27 TO BRIDGE 107		6	2	ZWU	2.331	18	260	*						50	40	2																
TOTAL FOR MAP NO. 11									2.331		260							50	40	2																
TOTAL FOR PROJ NO. 8CR.20631.24									12.246		1,380							100	65	4																
GRAND TOTAL									22.696		2,160	1	40	44,401	25,500	9,561	23,530	290	300	207	12	8	16	10	2	2	3			334,835	253,055	240	302	322		
														69,901		33,091					20				33				587,890		542					

SIGNING FOR RESURFACING PROJECTS



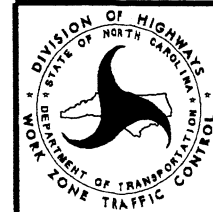
LEGEND
 T STATIONARY SIGN
 ← DIRECTION OF TRAFFIC FLOW

MAINLINE (-L-) SIGNING

-Y- LINE SIGNING

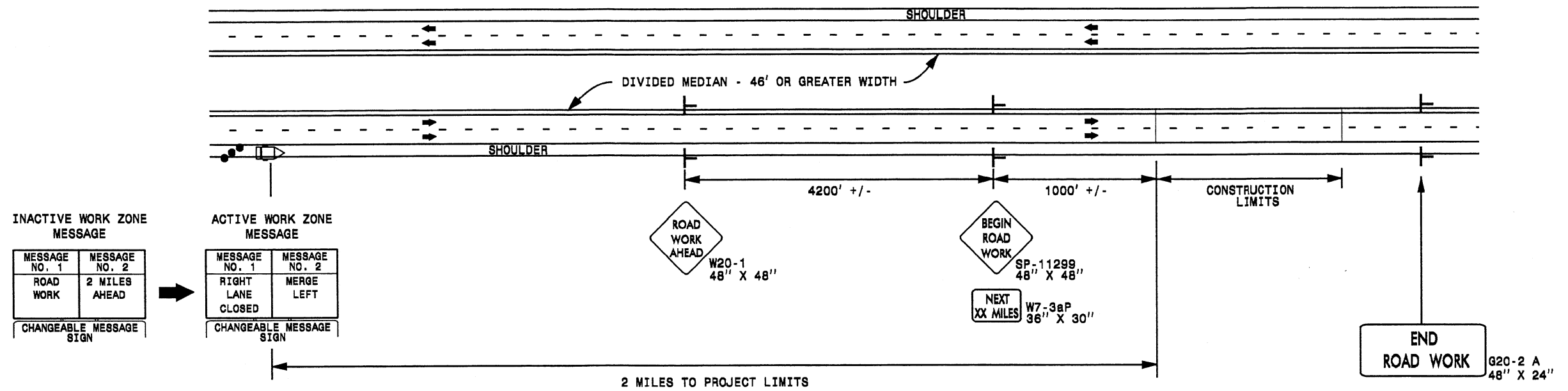
SIGNING NOTES AND PLACEMENT PER DIRECTION	①	 W20-1 48" X 48"	PLACE 1000' PRIOR TO BEGINNING OF CONSTRUCTION LIMITS. ONLY USED ON -Y- LINES IF RESURFACING LIMITS EXTEND 1000' ALONG -Y- LINE.	<p>NO REQUIRED STATIONARY SIGNING FOR THE FOLLOWING -Y- LINE CONDITIONS:</p> <ol style="list-style-type: none"> 1) LESS THAN 1000' OF RESURFACING ALONG -Y- LINE 2) SUBDIVISION ROADS 3) DEAD END ROADS <p>WHEN PAVING/CONSTRUCTION ACTIVITIES PROCEED ACROSS AN UNSIGNED -Y- LINE, ADVANCE WARNING PORTABLE SIGNS SHALL BE USED ALONG THE -Y- LINE AS SHOWN BELOW. REMOVE UPON COMPLETION OF WORK.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> W20-1 48" X 48" </div> <div style="text-align: center;"> W20-7 A 48" X 48" </div> </div> <p>PLACED 500' IN ADVANCE OF FLAGGER. PLACED 250' IN ADVANCE OF FLAGGER.</p>
	②	 W7-3aP 24" X 18"	#2 SIGN ONLY USED WHEN RESURFACING LIMITS ARE 2 OR MORE MILES IN LENGTH. ROUND UP TO NEXT WHOLE NUMBER. (NO FRACTIONAL OR DECIMAL NUMBERS)	
	③	 SP 13107 48" X 48"	PLACE INITIALLY AT THE CONSTRUCTION LIMITS AND SPACED 1 MILE APART THEREAFTER. IF NO -Y- LINES EXIST, PLACE 2ND SET 1/2 MILE FROM THE CONSTRUCTION LIMITS AND THEN SPACE 1 MILE THEREAFTER.	
	④	 SP 13106 48" X 48"	THESE ARE FOR -Y- LINES THAT ARE "THROUGH" ROADWAYS. DEAD END AND SUBDIVISION ROADS ARE NOT "THROUGH" ROADWAYS. INSTALL 500' +/- FROM EACH -Y- LINE APPROACH AS SHOWN ABOVE. FOR MULTIPLE -Y- LINES THAT ARE SEPARATED BY 0.25 MILES OR LESS, TREAT AS A SINGLE UNIT AND INSTALL WITHIN 500' OF EACH APPROACH. A MAXIMUM OF 2 SIGN SETS PER MILE. DO NOT INSTALL WHEN -Y- LINES ARE WITHIN 0.5 MILES FROM "END ROAD WORK" SIGN.	
	⑤	 G20-2 A 48" X 24"	PLACE 500' FOLLOWING THE END OF CONSTRUCTION LIMITS.	

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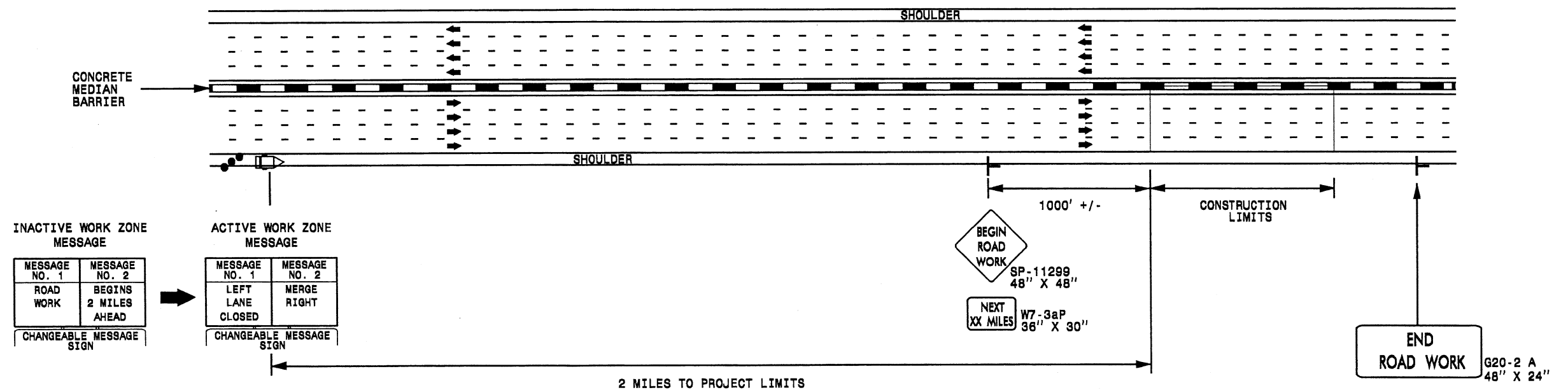


RESURFACING ADVANCE WARNING SIGNS FOR RURAL AND SUBURBAN 2 LANE ROADWAYS

DIVIDED MEDIANS WITH WIDTHS 46' OR GREATER



DIVIDED MEDIANS WITH WIDTHS LESS THAN 46' OR WITH PERMANENT MEDIAN BARRIER

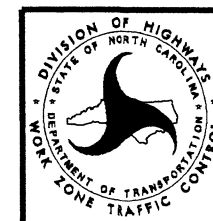


NOTES:

- 1) LATERAL CLEARANCE AT ALL SIGN LOCATIONS SHALL BE 6' AS MEASURED FROM THE EDGE OF PAVEMENT.
- 2) MOUNT SIGNS THAT ARE LARGER THAN 10 SQUARE FEET IN AREA ON TWO OR MORE WOOD OR U-CHANNEL SUPPORTS. PERFORATED SQUARE TUBING SUPPORT SYSTEMS MAY SUPPORT LARGER AREAS ON A SINGLE SUPPORT. FOLLOW MANUFACTURER'S RECOMMENDATIONS. THESE SYSTEMS SHALL BE NCHRP 350 COMPLIANT AND NCDOT APPROVED.
- 3) FOR MEDIAN WIDTHS LESS THAN 46' (MEASURED EDGELINE TO EDGELINE) USE THE BOTTOM DRAWING.
- 4) IF STATIONARY GENERAL WARNING SIGNS ARE USED, THEY WILL BE PAID FOR PER SECTION 104 OF THE NCDOT STANDARD SPECIFICATIONS AS EXTRA WORK.
- 5) INSTALL "ROAD WORK AHEAD" (W20-1) ALONG ENTRANCE RAMP 500' PRIOR TO RAMP TERMINAL, AND "END ROAD WORK" (G20-2a) AT THE END OF EXIT RAMP WITHIN THE WORK ZONE.
- 6) IF MILLED AREAS ARE NOT PAVED BACK BY THE END OF THE WORK DAY, PORTABLE SIGNS SHALL BE USED TO WARN DRIVERS OF THE PRESENT CONDITIONS. THESE ARE TO INCLUDE, BUT NOT LIMITED TO "ROUGH ROAD" W8-8, "UNEVEN LANES" W8-11, "GROOVED PAVEMENT" W8-15 w/MOTORCYCLE PLAQUE MOUNTED BELOW. THESE ARE TO BE DOUBLE INDICATED ON MULTI-LANE ROADWAYS WITH SPEED LIMITS 45 MPH AND GREATER AND WITH DIVIDED MEDIANS OF 46' OR GREATER. THESE PORTABLE SIGNS ARE INCIDENTAL TO THE OTHER ITEMS OF WORK INCLUDED IN THE TEMPORARY TRAFFIC CONTROL (LUMP SUM) PAY ITEM.

LEGEND

- CHANGEABLE MESSAGE SIGN (CMS)
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- TRAFFIC DRUM

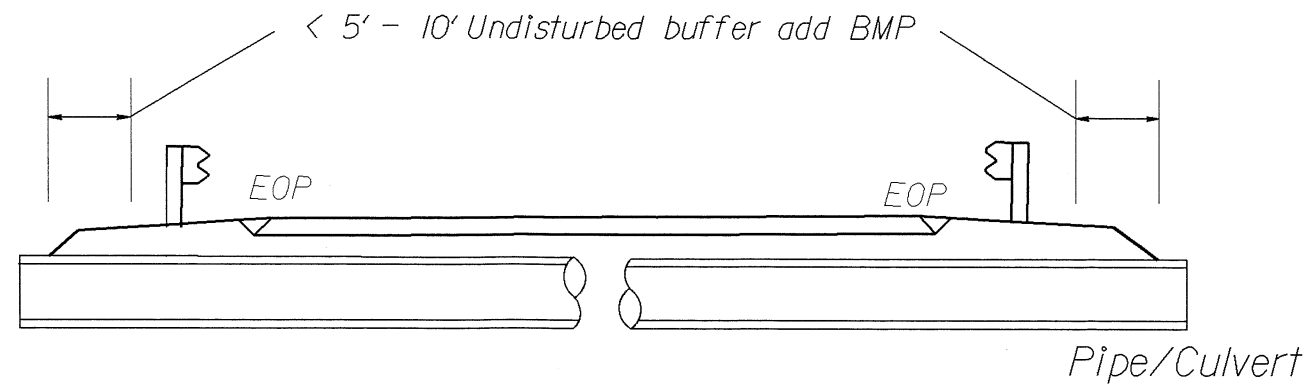


**RESURFACING ADVANCE
WARNING SIGNS FOR
HIGH SPEED FACILITIES
≥ 60 MPH**

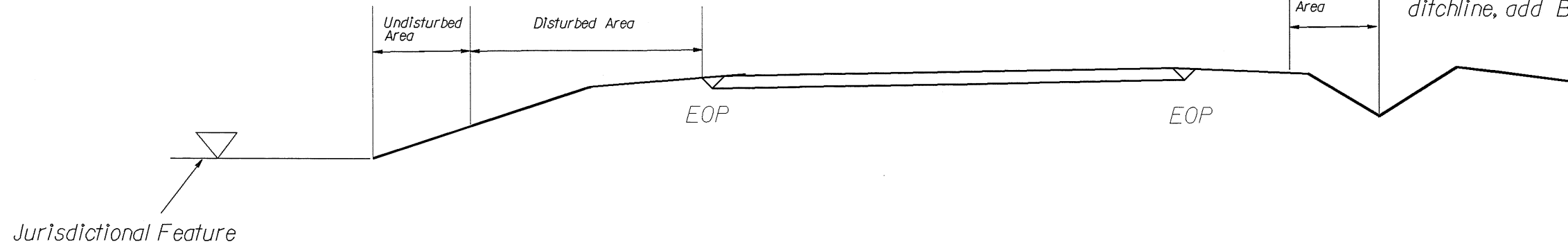
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

EROSION CONTROL DETAIL

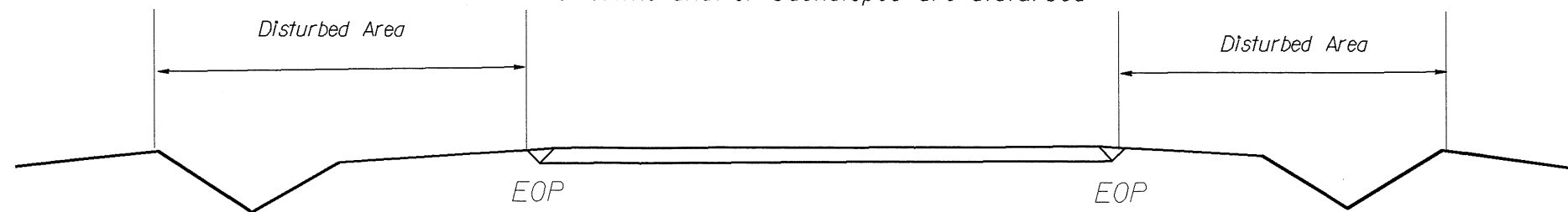
BMP Options: Wattle or Silt Fence



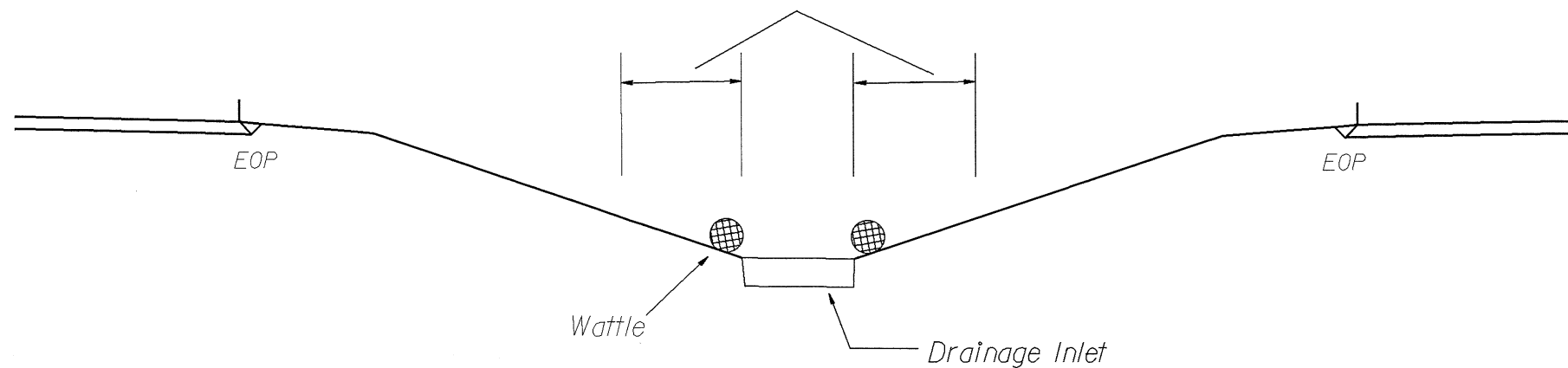
< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP



Use BMP's if shoulders and/or front slopes and/or ditchline and/or backslopes are disturbed

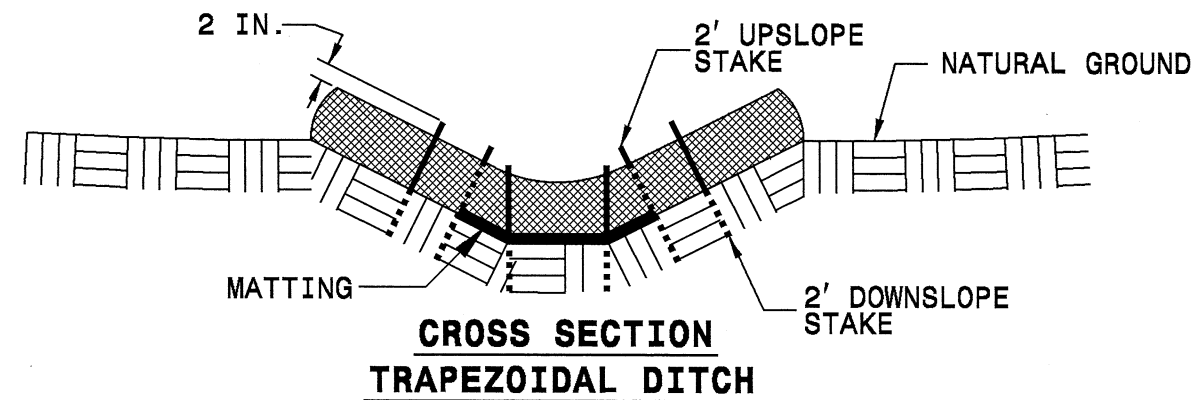
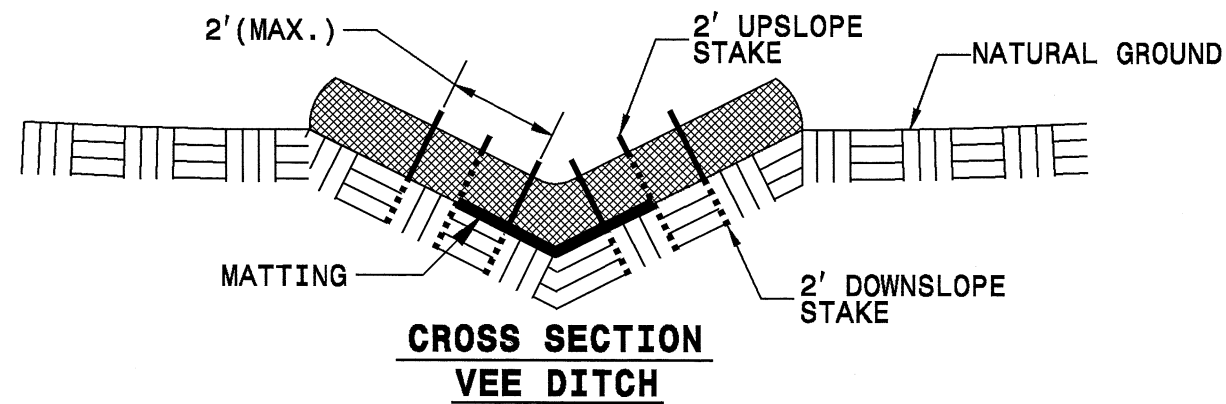
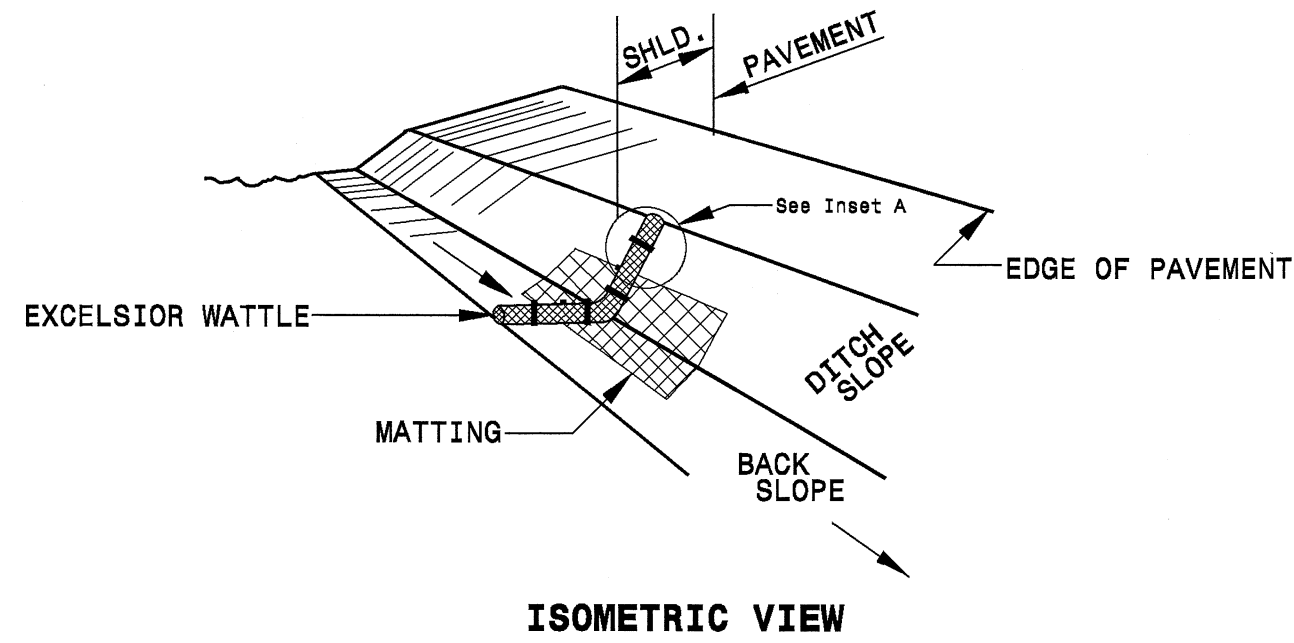


< 5' - 10' Undisturbed buffer from inlet, add wattle



NOT TO SCALE

WATTLE DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

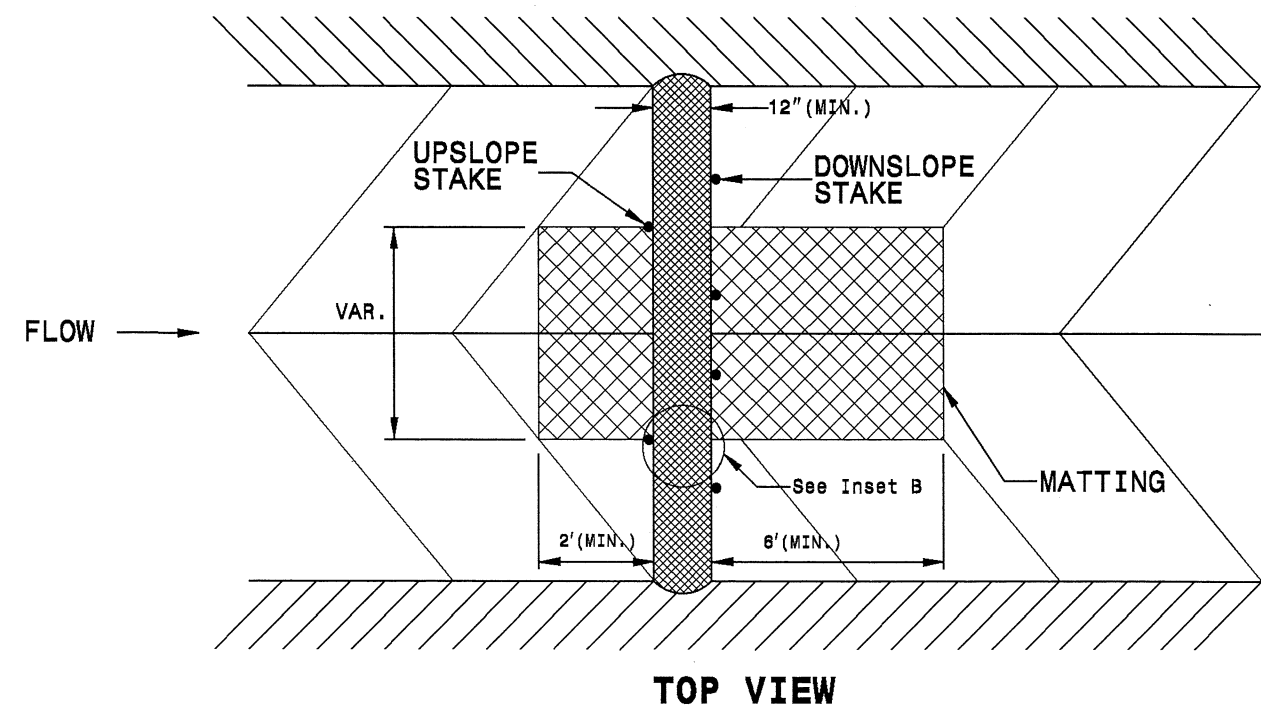
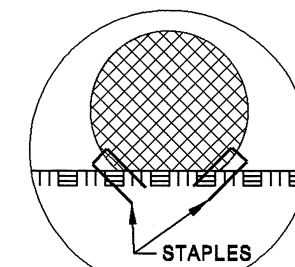
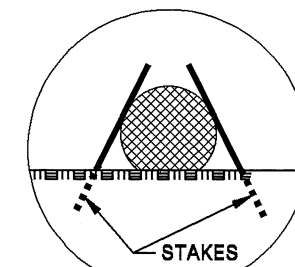
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

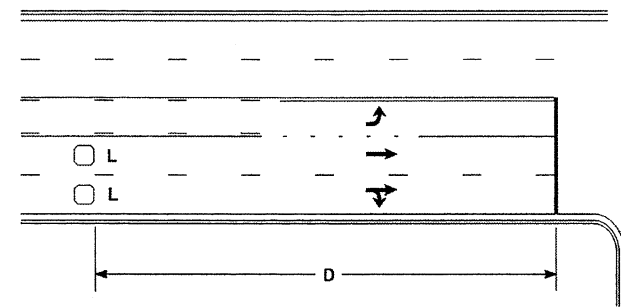
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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.



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

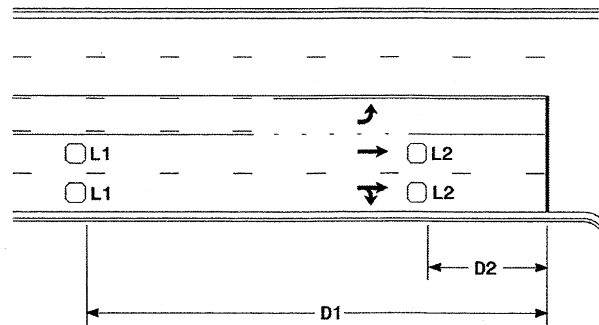


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

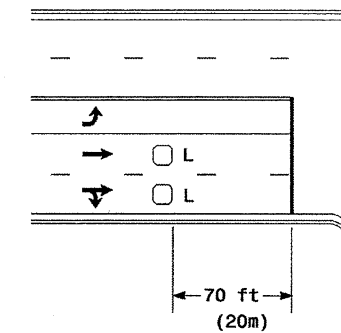


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

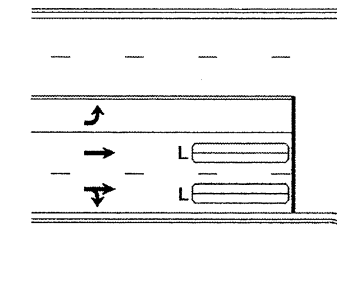
"Stretch" Operation

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



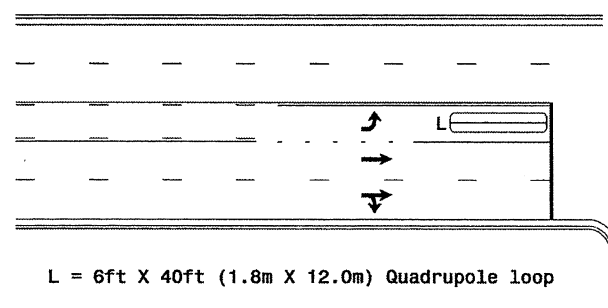
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

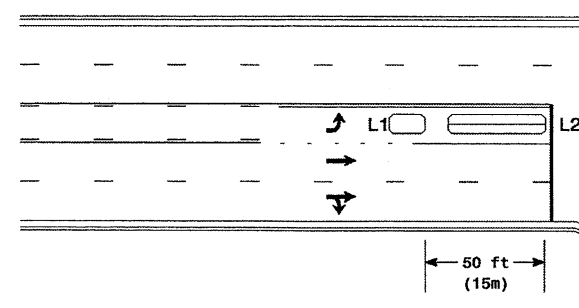
Left Turn Lane Detection



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

Presence Loop Detection

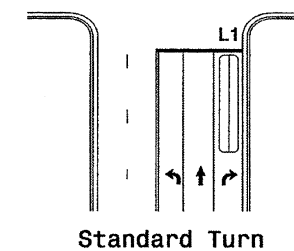
OR



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

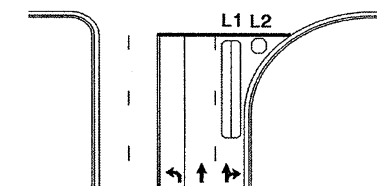
Queue Loop Detection

Right Turn Lane Detection

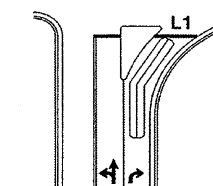


Standard Turn

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

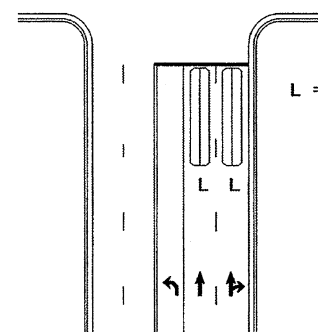


Wide Radius Turn



Channelized Turn

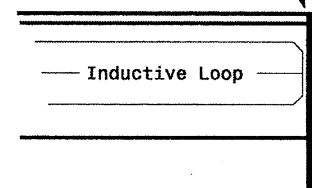
Side Street Detection



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

	Typical Loop Locations		
	PLAN DATE: June 2006 PREPARED BY: P. L. Alexander	REVIEWED BY: REVIEWED BY:	
REVISIONS 1. Revise pavement markings		INIT. DATE 12/19/05	SIGNATURE DATE