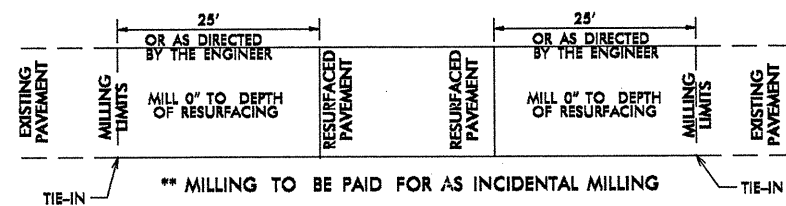
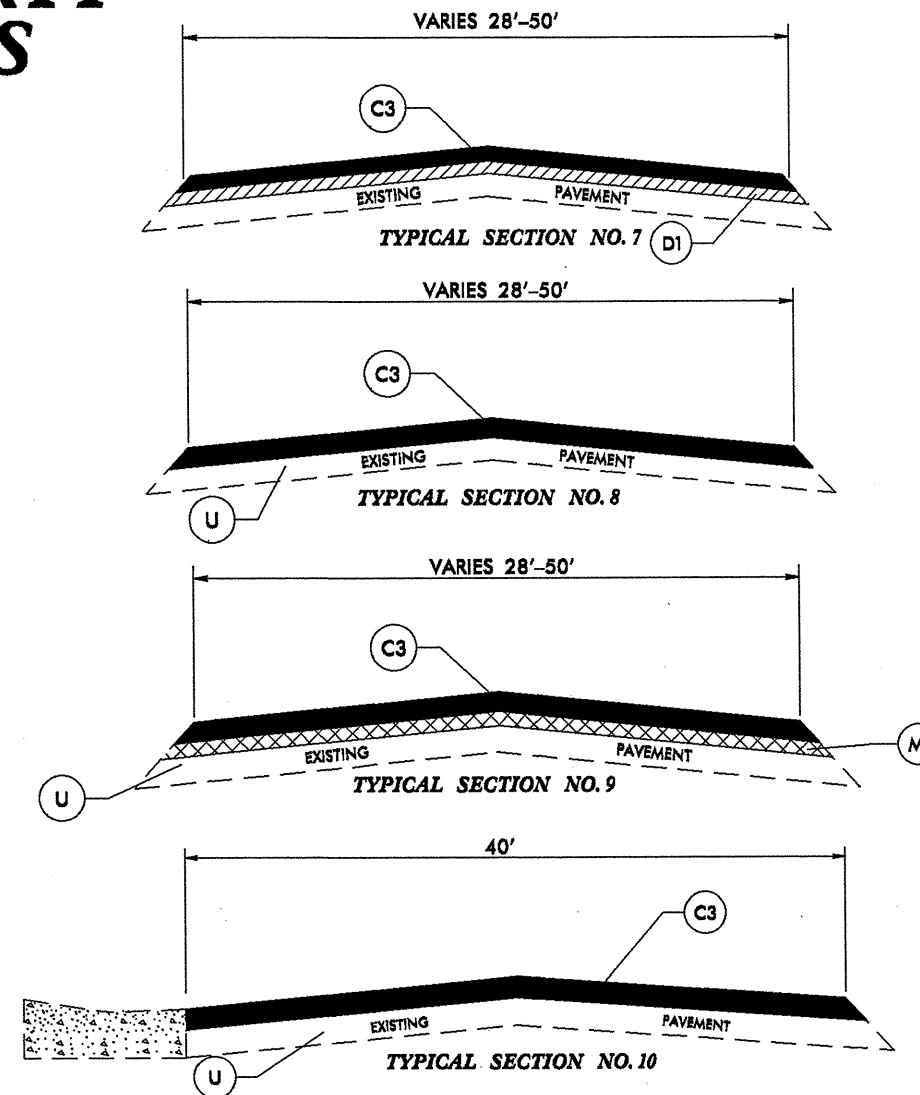
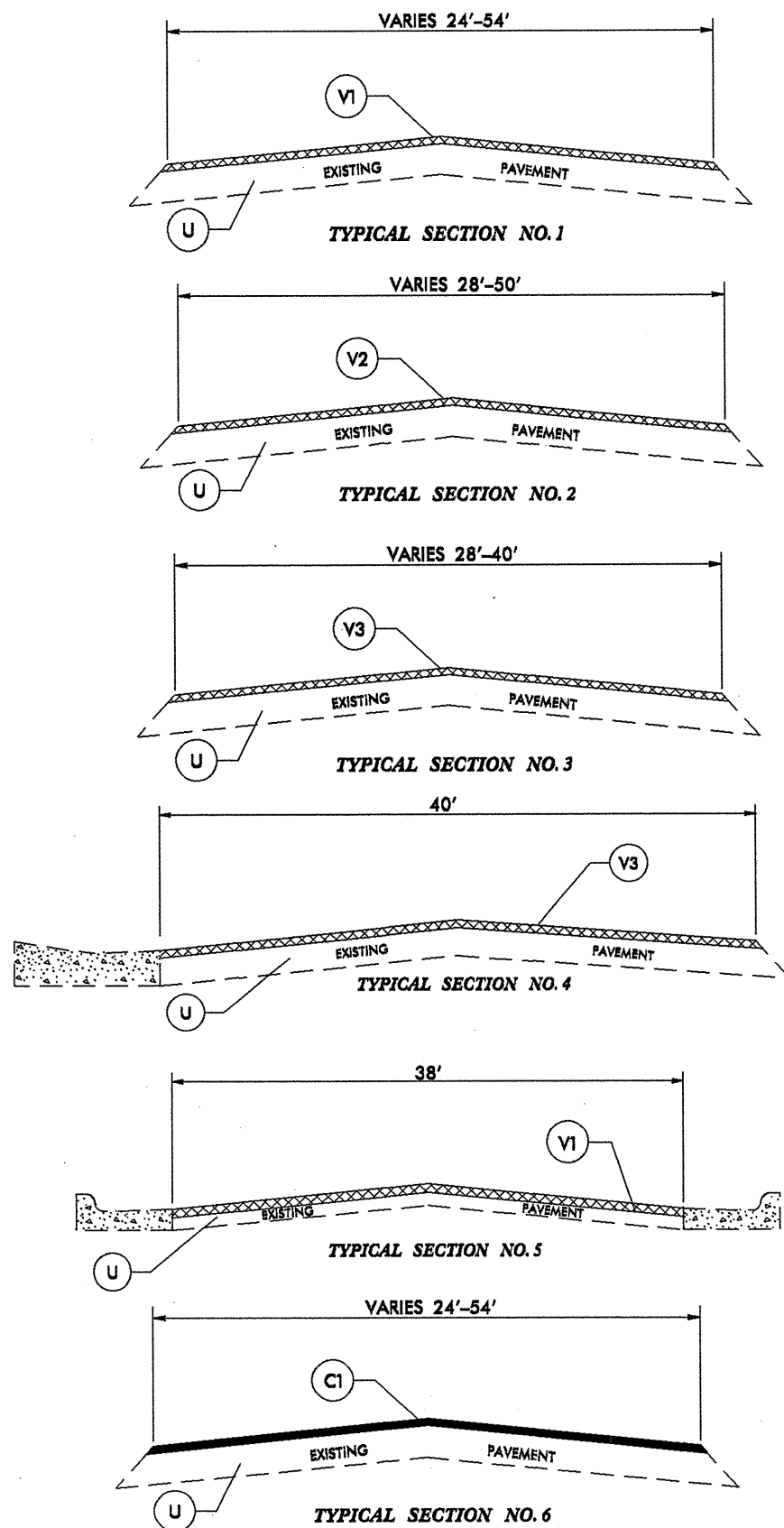


MONTGOMERY COUNTY

NOTE: ALL SHOULDER RECONSTRUCTION
WILL BE PERFORMED BY STATE FORCES.

MONTGOMERY COUNTY TYPICAL SECTIONS



PAVEMENT TIE-IN DETAIL

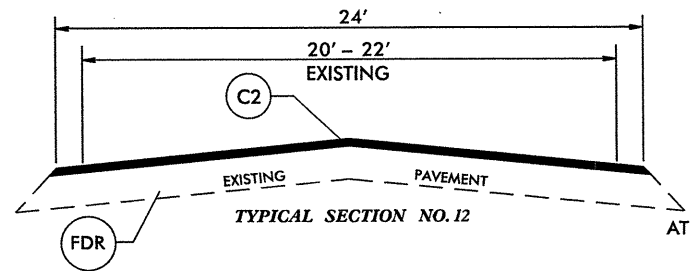
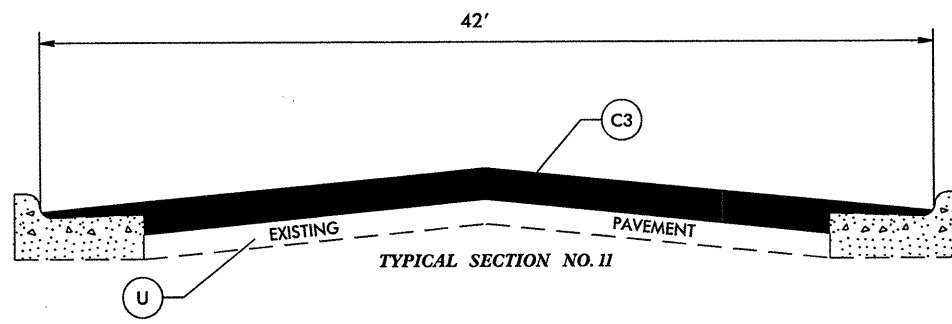
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO (2) LAYERS.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
FDR	FULL DEPTH RECLAMATION WITH CEMENT
M1	ASPHALT SURFACE TREATMENT, MATCOAT #6MSTONE
U	EXISTING PAVEMENT.
V1	MILLING 1 1/2" IN DEPTH.
V2	MILLING 2 1/2" IN DEPTH.
V3	MILLING 3" IN DEPTH.

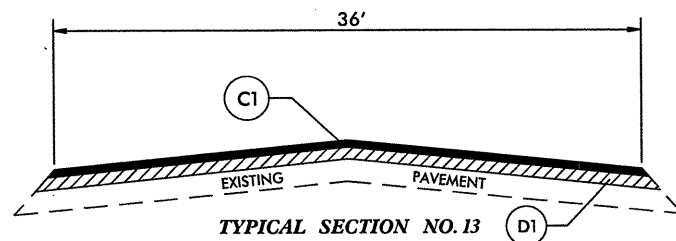
** - MILLING WILL BE AT LOCATIONS AS DETERMINED BY THE ENGINEER.

NOTE: ALL SHOULDER RECONSTRUCTION
WILL BE PERFORMED BY STATE FORCES.

MONTGOMERY COUNTY TYPICAL SECTIONS



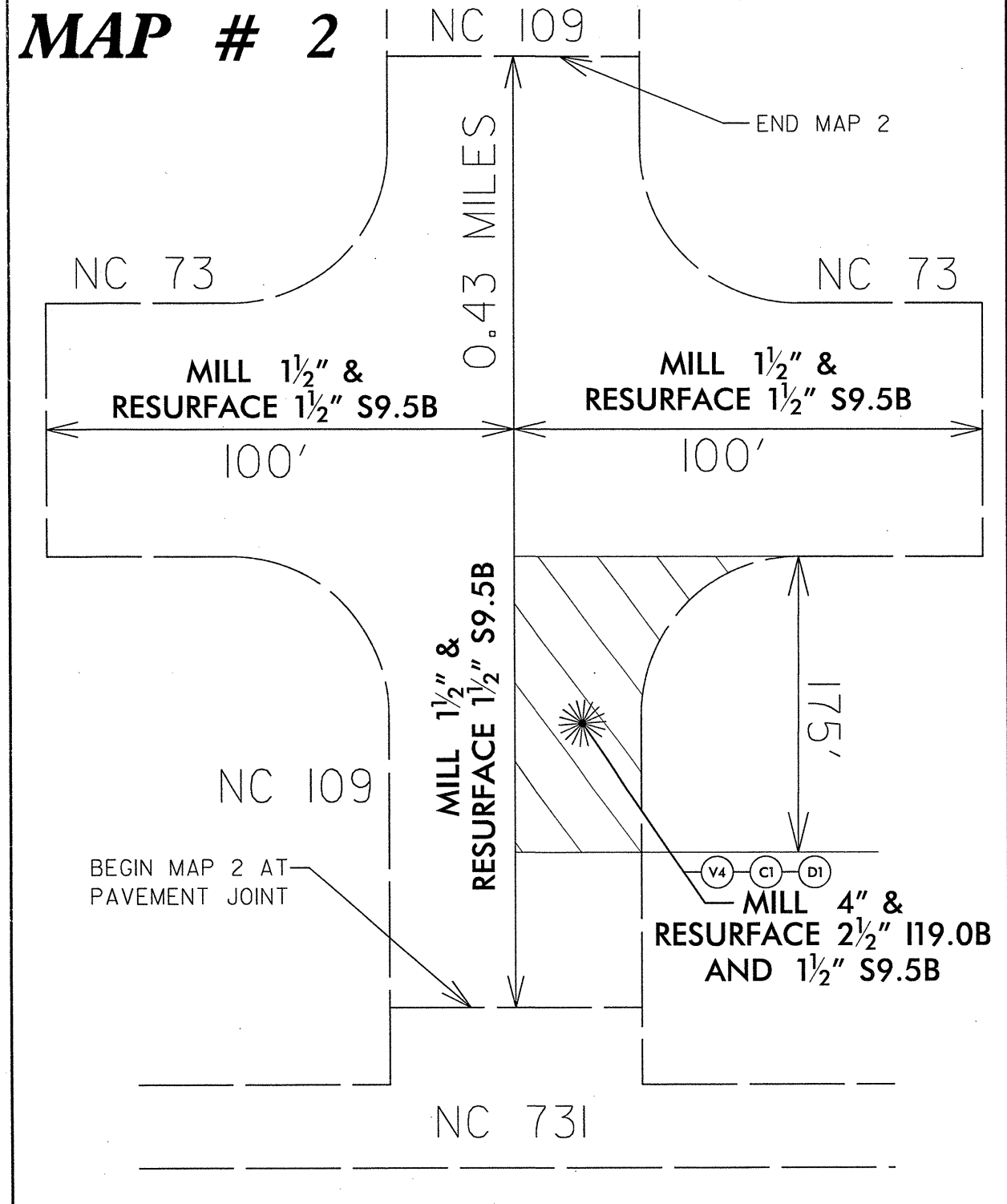
NOTE: FDR WIDTH SHALL BE
AT LEAST 1' WIDER THAN PAVEMENT TYPICAL WIDTH.



** - MILLING WILL BE AT LOCATIONS AS DETERMINED BY THE ENGINEER.

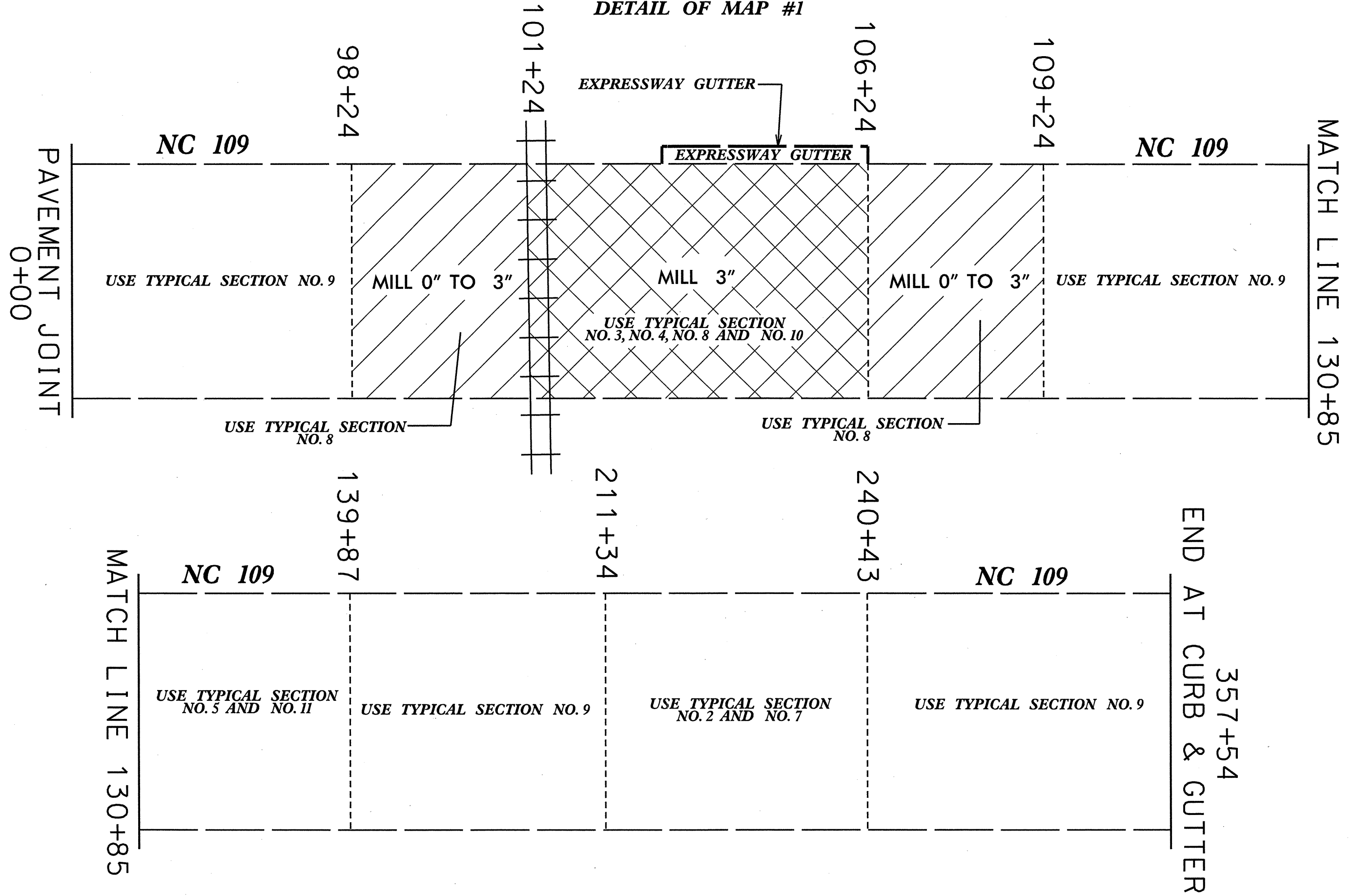
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B. AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 2 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A. AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO (2) LAYERS.
C3	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B. AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
D1	PROP. APPROX. 2 1/2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
FDR	FULL DEPTH RECLAMATION (12") WITH CEMENT
M1	ASPHALT SURFACE TREATMENT, MATCOAT #6 STONE
U	EXISTING PAVEMENT.
V1	MILLING 1 1/2" IN DEPTH.
V2	MILLING 2 1/2" IN DEPTH.
V3	MILLING 3" IN DEPTH.
V4	MILLING 4" IN DEPTH.

DETAIL MAP # 2



MONTGOMERY COUNTY NC 109 MAP # 1

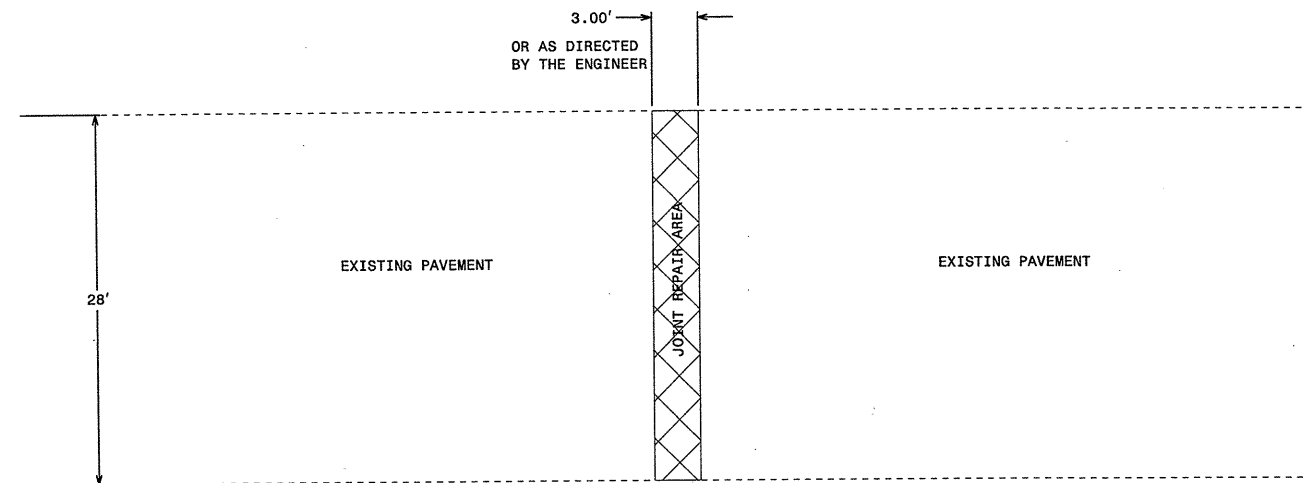
DETAIL OF MAP #1



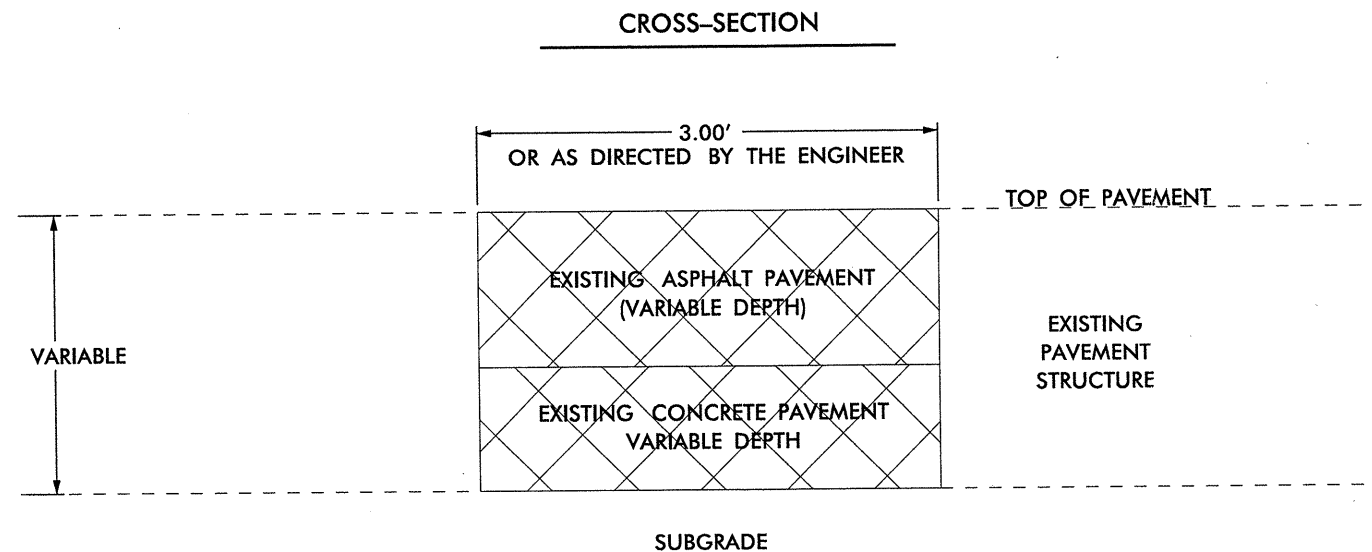
 SYSTEMS

JOINT REPAIR DETAIL

JOINT SCHEDULE	
MAP	# JOINTS
1	18

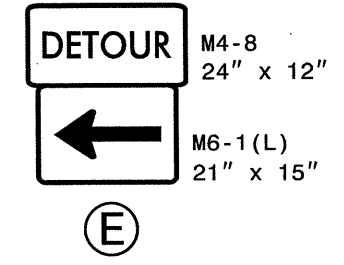
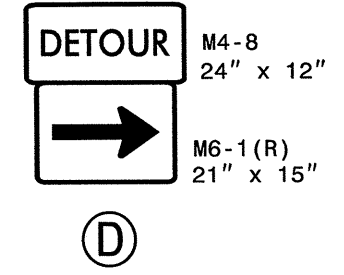
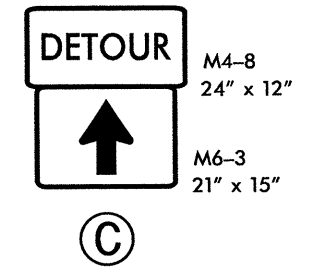
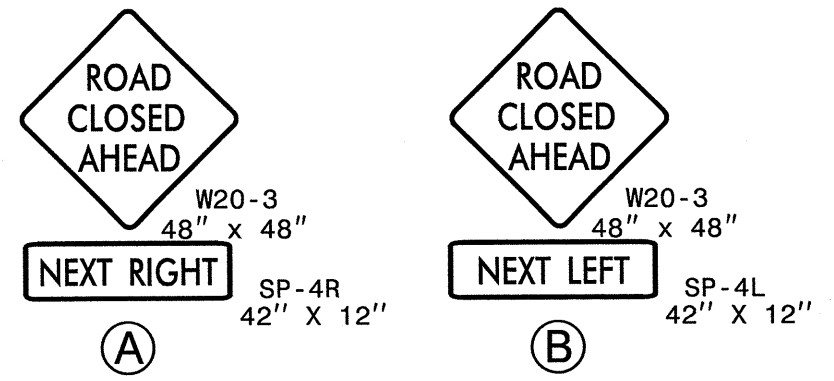


CONTRACTOR SHALL COORDINATE WITH RESIDENT ENGINEER'S OFFICE FOR LOCATION OF JOINTS TO BE REPAIRED.

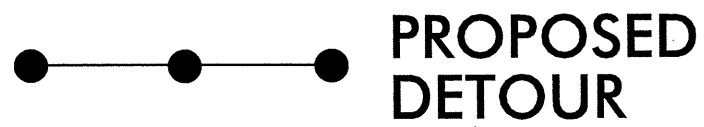


NOTE:
 REMOVE ASPHALT AND CONCRETE AT JOINT LOCATIONS AS DIRECTED BY THE ENGINEER (BY SAWING CLEAN JOINTS).
 REMOVE A TOTAL WIDTH OF 3' (APPROX. 1.5' EACH SIDE OF JOINT).
 REMOVE AND REPLACE WITH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B.
 THERE WILL BE NO DIRECT PAY FOR THIS WORK AS IT WILL BE CONSIDERED INCIDENTAL TO TO THE LINE ITEM, JOINT REPAIR (TONNAGE)

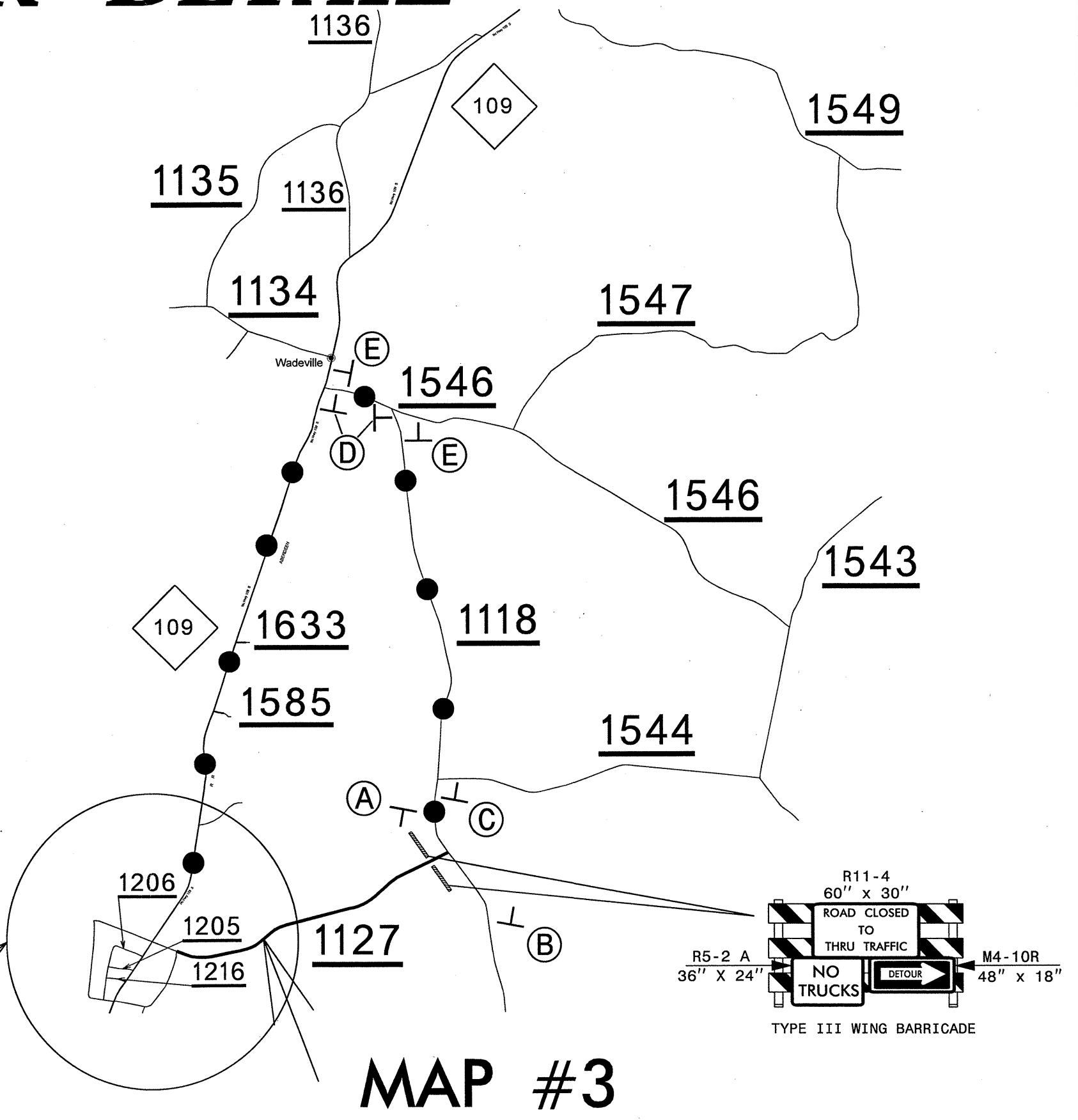
MAP #3 DETOUR DETAIL



Using RSD 1101.03, Sheets #1 and #2 of 9, install a road closure at the work area using Type III barricades and portable signs, or as directed by the Engineer. Contractor should establish work area daily to allow access to residences within the road closure, while maintaining road closure to through traffic.*



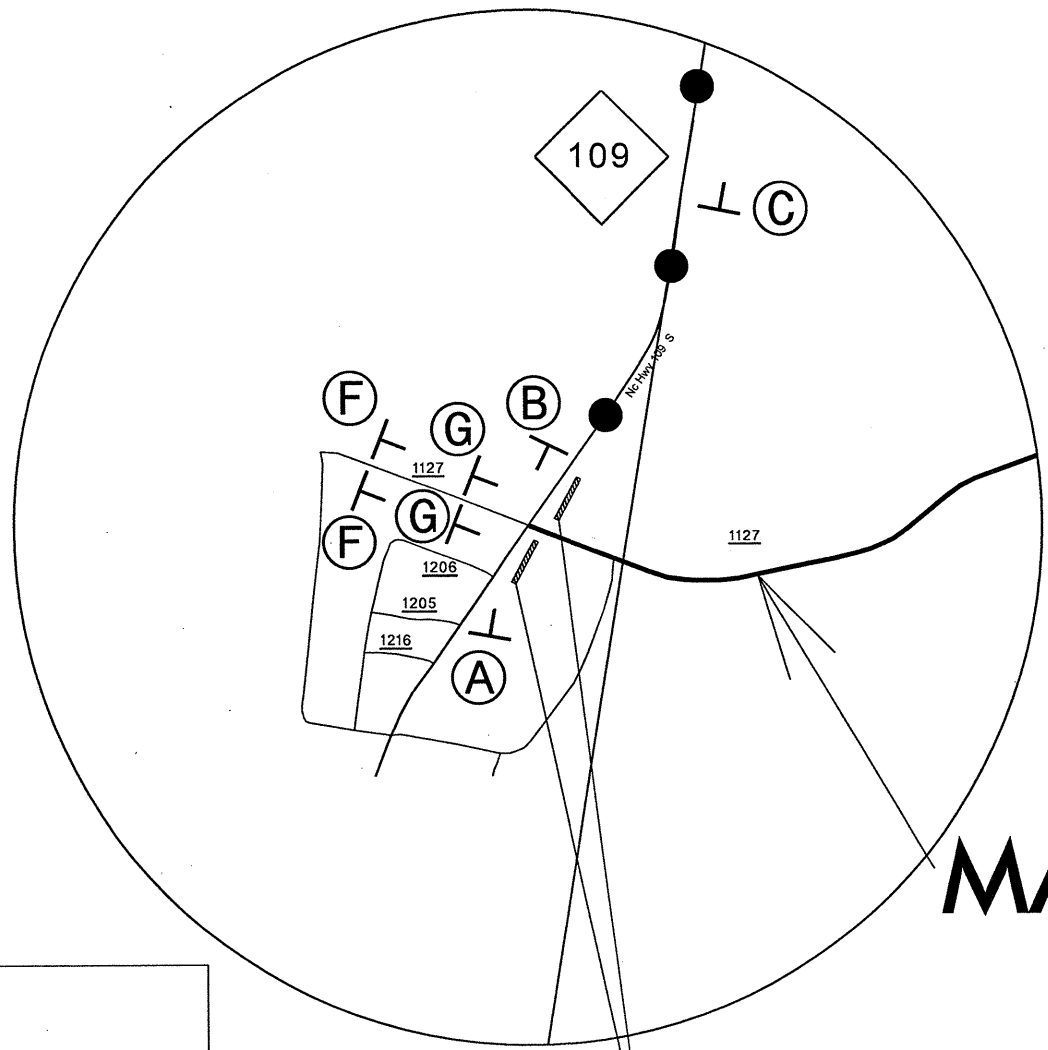
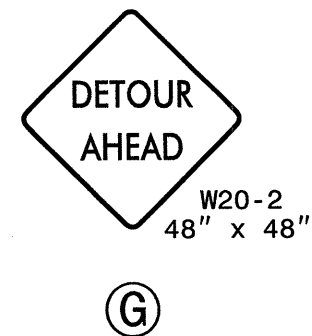
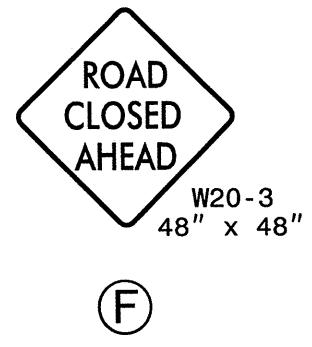
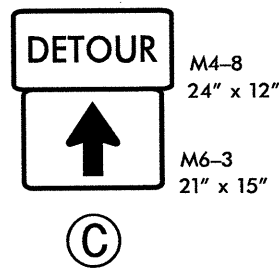
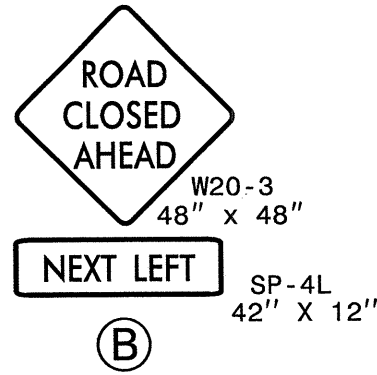
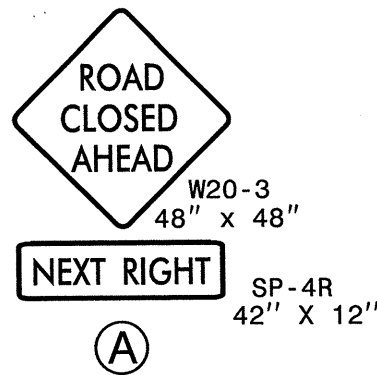
SEE SHEET 7



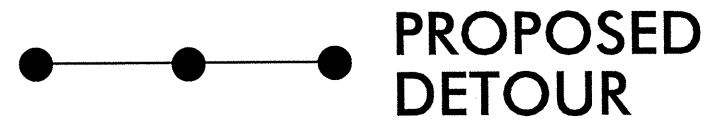
MAP #3

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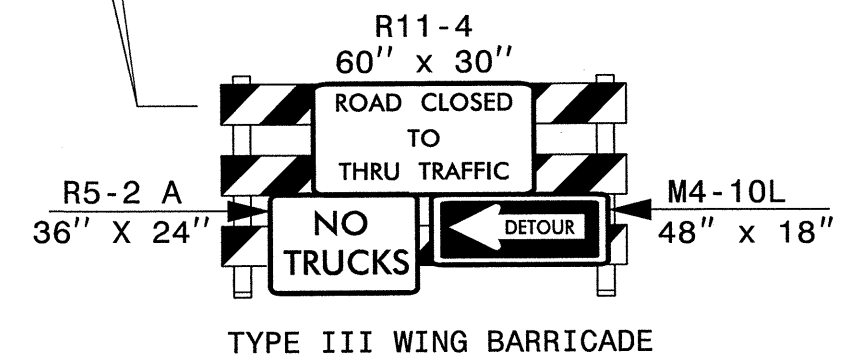
MAP #3 DETOUR DETAIL



MAP #3



Using RSD 1101.03, Sheets #1 and #2 of 9, install a road closure at the work area using Type III barricades and portable signs, or as directed by the Engineer. Contractor should establish work area daily to allow access to residences within the road closure, while maintaining road closure to through traffic.*



PROJECT NO.	SHEET NO.	TOTAL NO.
8CR.10621.19, ETC	8	

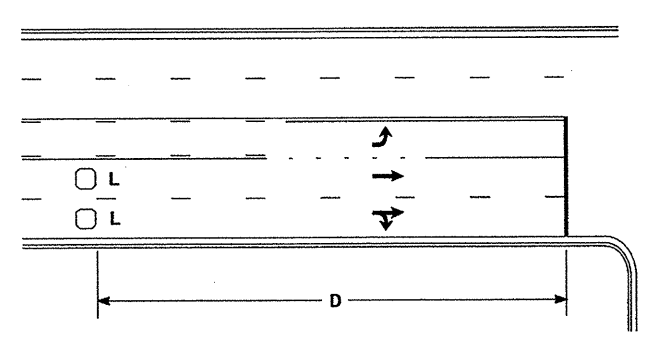
SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	LENGTH MI	WIDTH FT	2.5" MILLING SY	3" MILLING SY	1.5" MILLING SY	4" MILLING SY	0" TO 3" MILLING SY	INCIDENTAL MILLING SY	INTERMEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TONS	ASPHALT SURFACE TREATMENT, MATCOAT, #6M STONE SY	JOINT REPAIR TONS	FLEXIBLE PAVEMENT RECLAMATION (12") SY	ADJ. OF MAN-HOLES EA	ADJ. OF METER OR VALVE BOX EA	INDUCTIVE LOOP SAWCUT LF	LEAD-IN CABLE (14-2 PAIR) LF	
8C.062016	Montgomery	3	SR 1127	FROM NC 109 TO SR 1118	12	NO	NO	1.66	24																		
TOTAL FOR PROJ NO. 8C.062016								1.66															23,373				
8CR.10621.19	Montgomery	1	NC 109	PAVEMENT JOINT TO BEGIN C&G IN MT. GILEAD	2,3,4,5,7,8,9,10,11	NO	NO	6.77	38	12,604	2,225			2,270	650	1,830	21,690		1,389	120,275	230						
		2	NC 109	NC 73 TO NC 731	1,6	NO	NO	0.43	24			6,579	312		1,254	50	690		44				1	5	1,600	150	
TOTAL FOR PROJ NO. 8CR.10621.19								7.2		12,604	2,225	6,579	312	2,270	1,904	1,880	22,380		1,433	120,275	230			1	6	1,600	150
8CR.20621.19	Montgomery	3	SR 1127	NC 109 TO SR 1118	12	NO	NO	1.66	24									3,405	228								
		4	SR 1585	NC 109 TO GATE	6	NO	NO	0.032	40								75		5								
		5	SR 1633	NC 109 TO GATE	13	NO	NO	0.12	36							385	225		32								
TOTAL FOR PROJ NO. 8CR.20621.19								1.812								385	300	3,405	265								
GRAND TOTAL								10.672		12,604	2,225	6,579	312	2,270	1,904	2,265	22,680	3,405	1,698	120,275	230		23,373	1	6	1,600	150

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4589000000-N	4685000000-N	4686000000-E	4695000000-E	4705000000-E	4710000000-E	4721000000-E	4725000000-E	4810000000-E	4900000000-N							
							TEMPORARY TRAFFIC CONTROL LS	4" X 90 M WHITE THERMO LF	4" X 120 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	8" X 90 M YELLOW THERMO LF	8" X 90 M WHITE THERMO LF	16" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO MSG SCHOOL 120 M EA	THERMO RXR 120 M EA	THERMO LT ARROW 90 M EA	THERMO RT ARROW 90 M EA	4" WHITE PAINT LF	4" YELLOW PAINT LF	YELLOW & YELLOW MARKERS EA	CRYSTAL & RED MARKERS EA	
8C.062016	Montgomery	3	SR 1127	FROM NC 109 TO SR 1118	1.66	24	1																
TOTAL FOR PROJ NO. 8C.062016								1															
8CR.10621.19	Montgomery	1	NC 109	PAVEMENT JOINT TO BEGIN C&G IN MT. GILEAD	6.77	38		76,900	1,750	73,500	3,800	600		182	12	23	1	80,000	80,000	821	100		
		2	NC 109	NC 73 TO NC 731	0.43	24		4,450	120	4,950				100		2		4,600	4,600	28	6		
TOTAL FOR PROJ NO. 8CR.10621.19								*	81,350	1,870	78,450	3,800	600		282	12	25	1	84,600	84,600	849	106	
TOTAL FOR PROJ NO. 8CR.10621.19									80,320	1,870	78,450	3,800	600		282	12	25	1	84,600	84,600	849	106	
8CR.20621.19	Montgomery	3	SR 1127	NC 109 TO SR 1118	1.66	24						100	70		4			36,000	22,000				
		4	SR 1585	NC 109 TO GATE	0.032	40												700	700				
		5	SR 1633	NC 109 TO GATE	0.12	36						50	60		2			1,200	1,200				
TOTAL FOR PROJ NO. 8CR.20621.19								*						150	130		6			37,900	23,900		
TOTAL FOR PROJ NO. 8CR.20621.19														150	130		6			37,900	23,900		
GRAND TOTAL								1	81,350	1,870	78,450	3,800	600	150	412	12	6	25	1	122,500	108,500	849	106
GRAND TOTAL									80,320	1,870	78,450	3,800	600		412	12	6	25	1	122,500	108,500	849	106

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

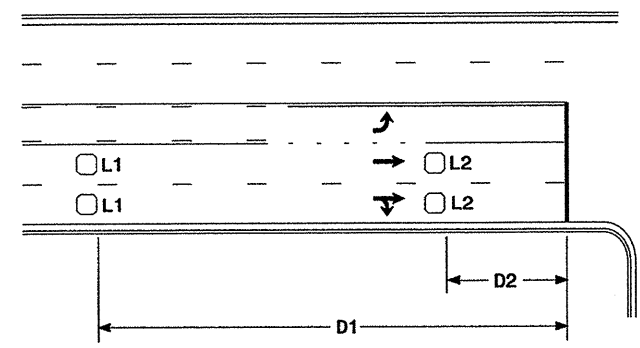


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

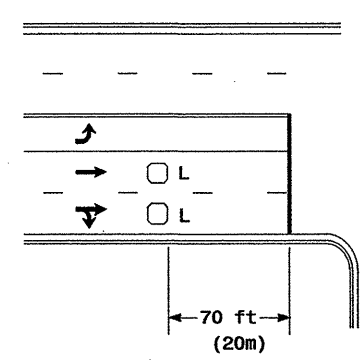


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

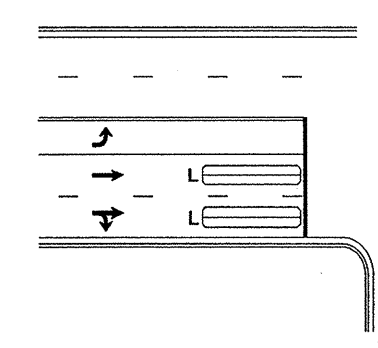
"Stretch" Operation

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



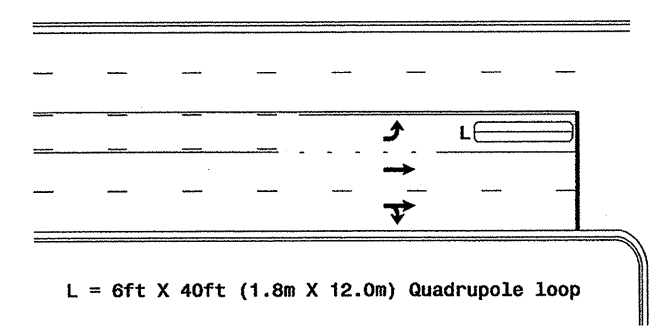
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

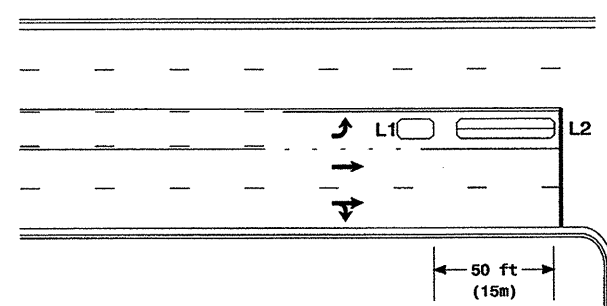
Left Turn Lane Detection



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

Presence Loop Detection

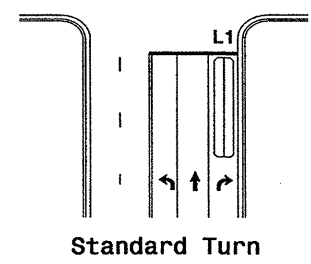
OR



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

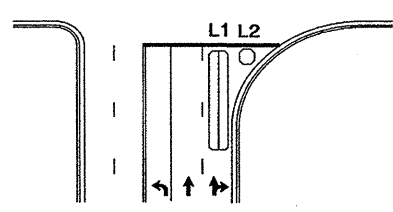
Queue Loop Detection

Right Turn Lane Detection

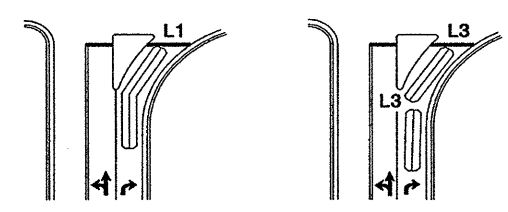


Standard Turn

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

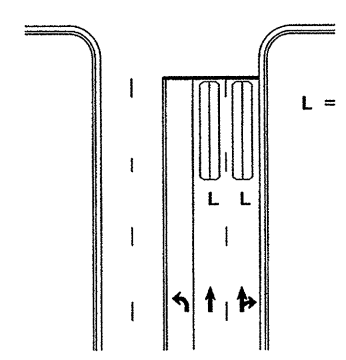


Wide Radius Turn



Channelized Turn

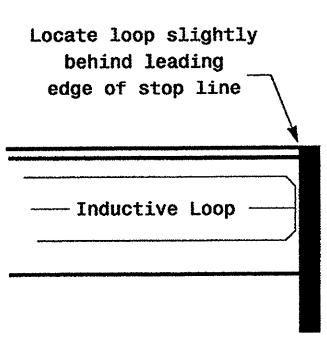
Side Street Detection



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

Presence Loop Detection

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:	
122 N. McDowell St., Raleigh, NC 27603			SIGNATURE: P. L. Alexander DATE: 12/1/06 SIG. INVENTORY NO.

19-DEC-2006 14:25 Turn Inm1sect\copy\pic12006.dgn
P. L. Alexander