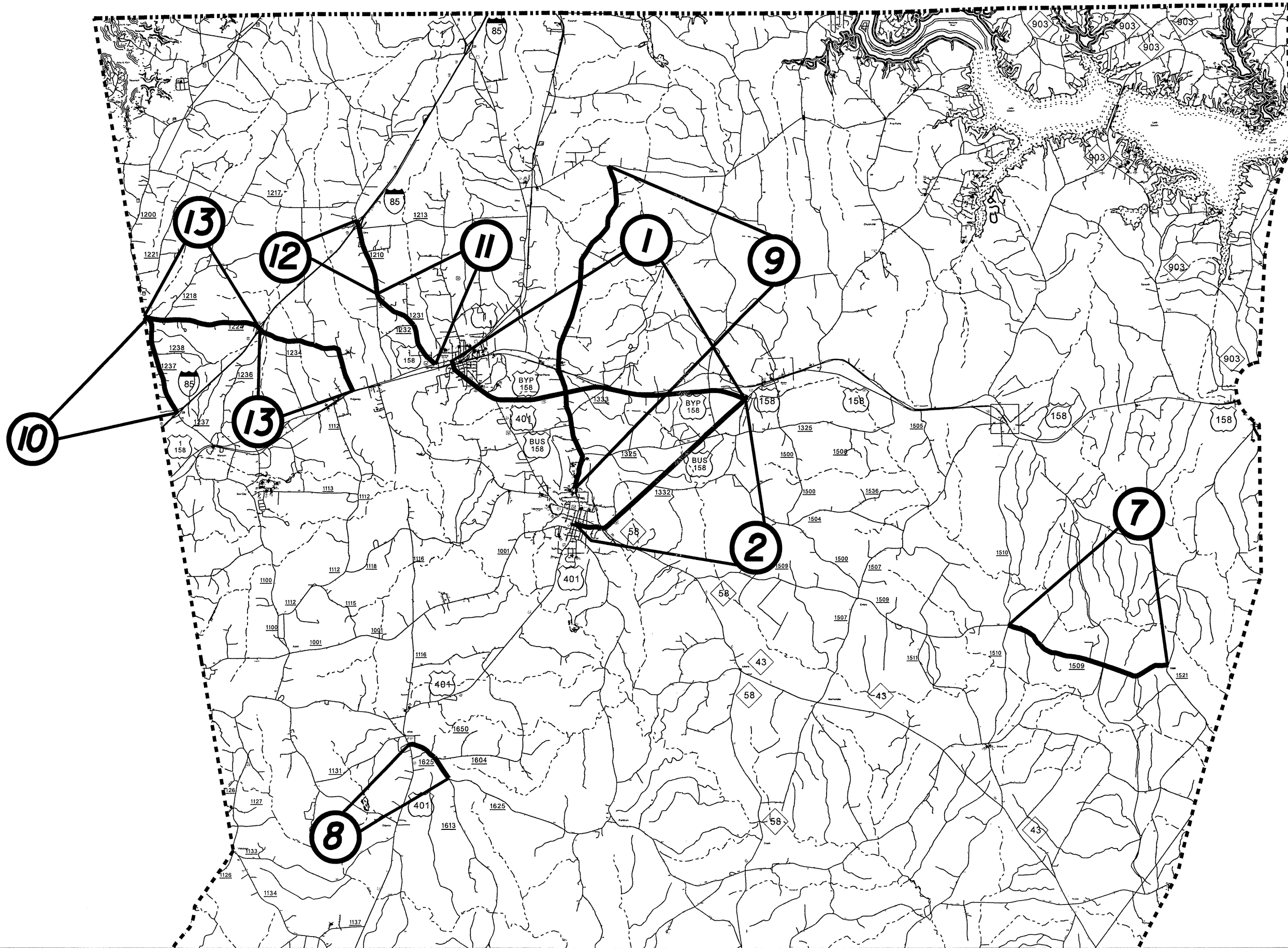


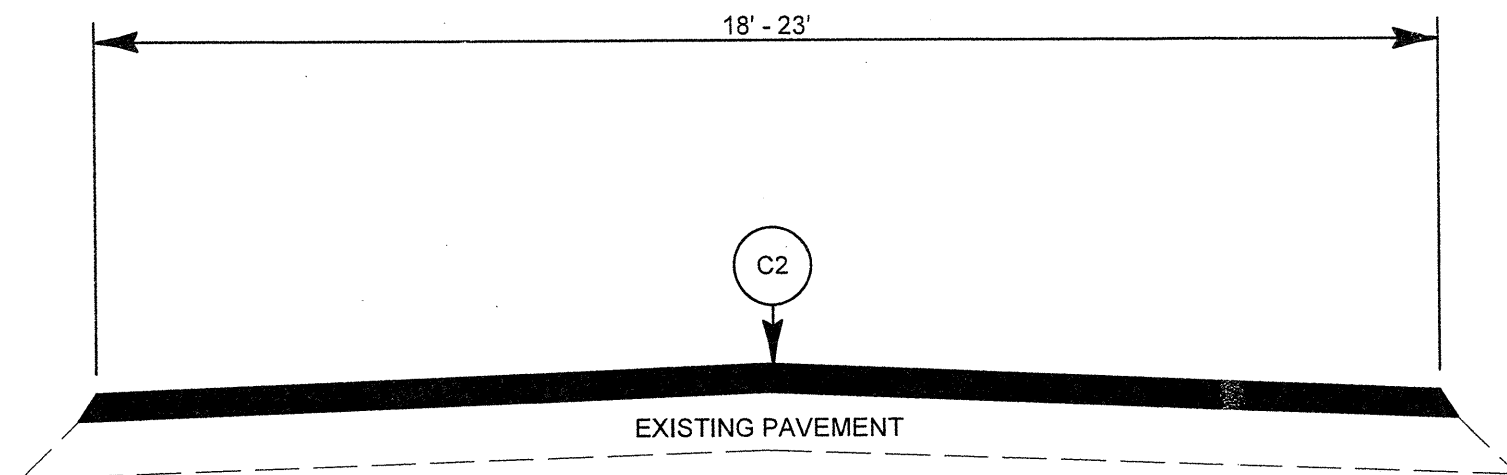
2013 WARREN COUNTY RESURFACING

PROJECT REFERENCE NO.
5CR10931J2, 5CR20911J2, etc

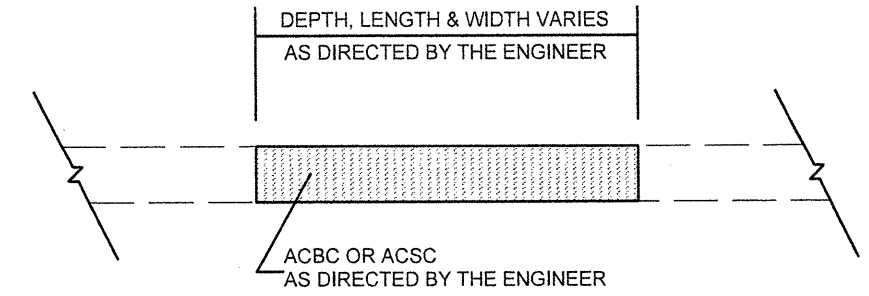
SHEET NO.
2



PROJECT NO.	SHEET NO.	TOTAL SHEETS
5CR.10931.12, 5CR.20911.12, 5CR.20931.12,	3	

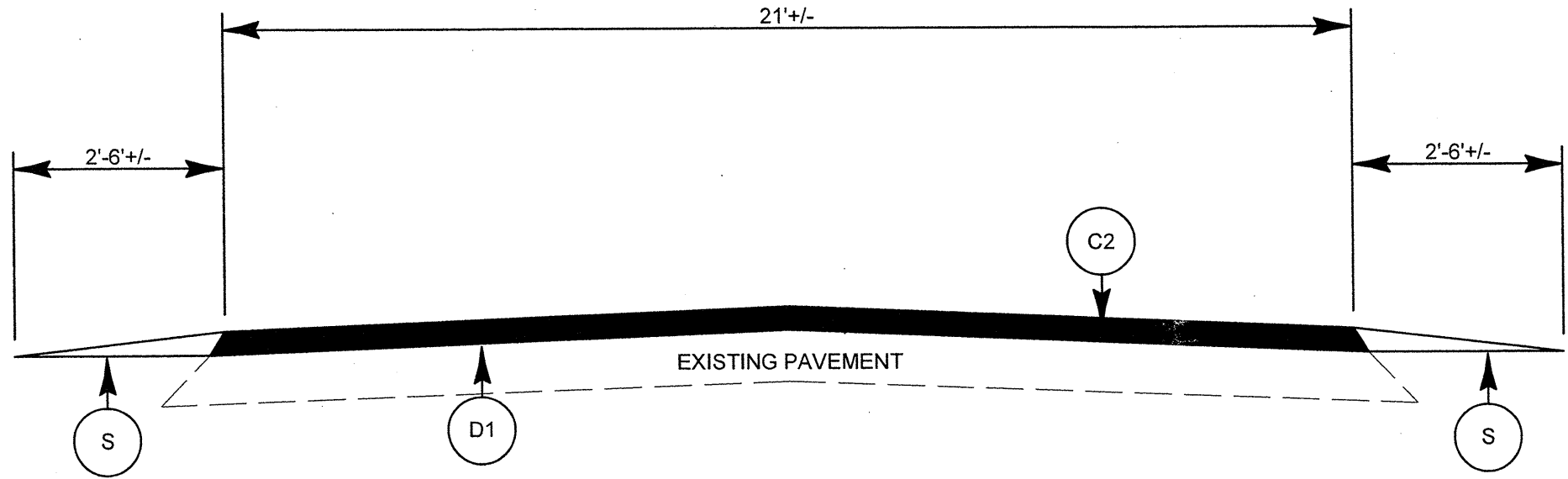


TYPICAL SECTION NO. 1



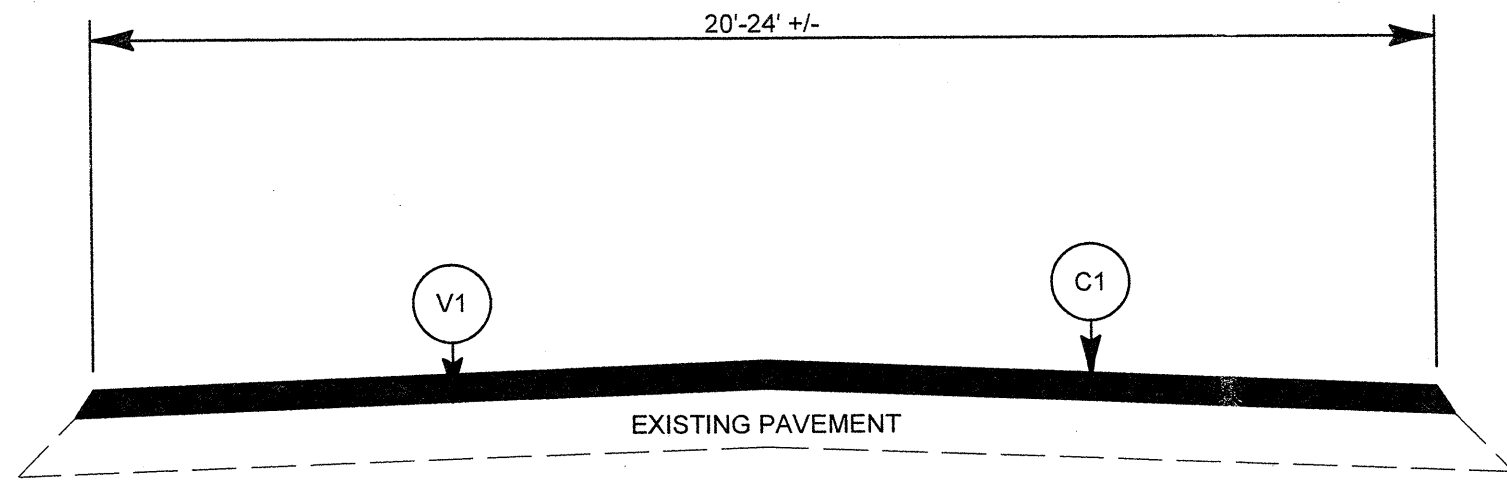
PATCHING EXISTING PAVEMENT

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" OF ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 1.25" OF ASPHALT SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 138 LBS. PER. SQ. YD.
C3	PROP. APPROX. 1.5" OF ASPHALT SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
E1	PROP. APPROX. 7" ASPHALT CONCRETE BASE COURSE WIDENING, TYPE B25.0B, AT AN AVERAGE RATE OF 399 LBS PER SQ. YD IN EACH OF TWO LAYERS TO PROVIDE 2' WIDENING AS DIRECTED BY THE ENGINEER
S	SHOULDER RECONSTRUCTION/SEEDING AND MULCHING/BORROW AS DIRECTED BY THE ENGINEER
V1	MILL 1.5"
V2	MILL 4"

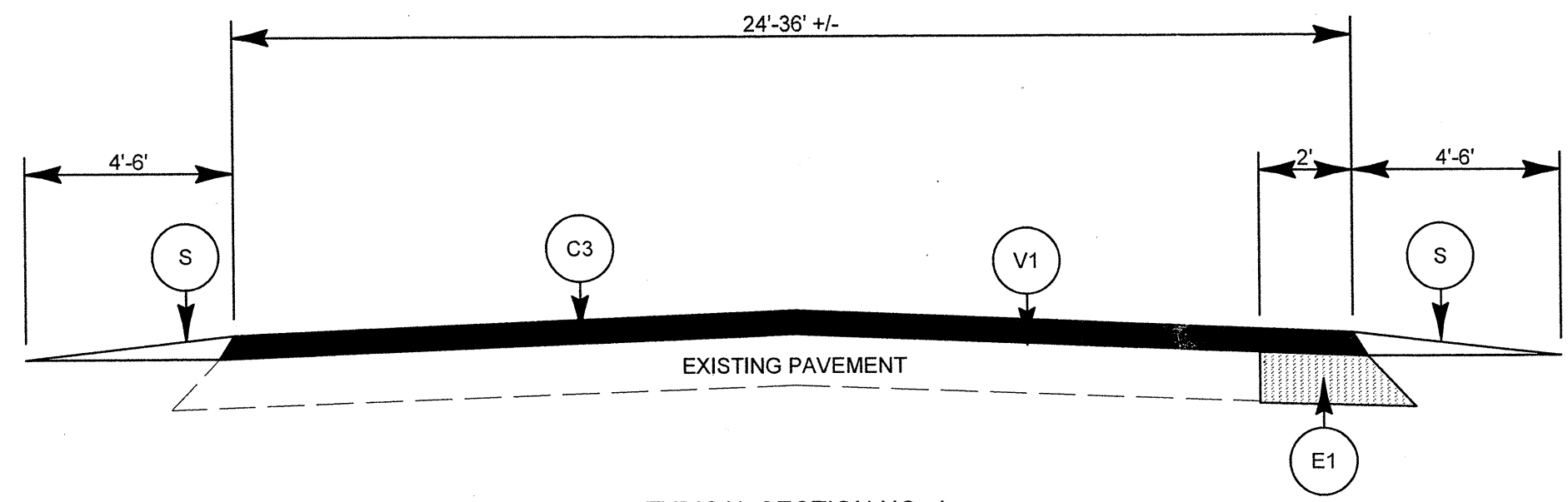


TYPICAL SECTION NO. 2

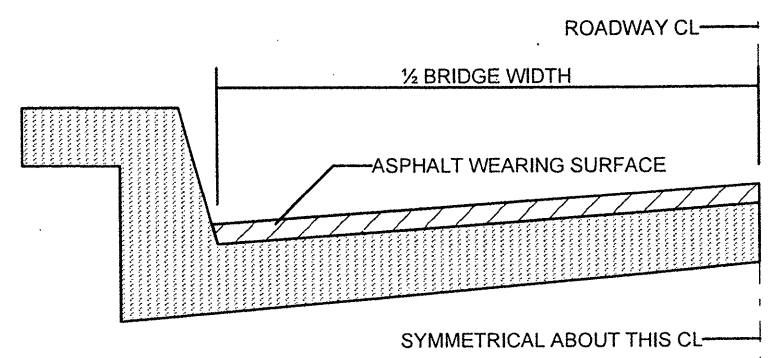
PROJECT NO.	SHEET NO.	TOTAL SHEETS
5CR.10931.12, 5CR.20911.12, 5CR.20931.12,	4	



TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4



BRIDGE HALF TYPICAL SECTION

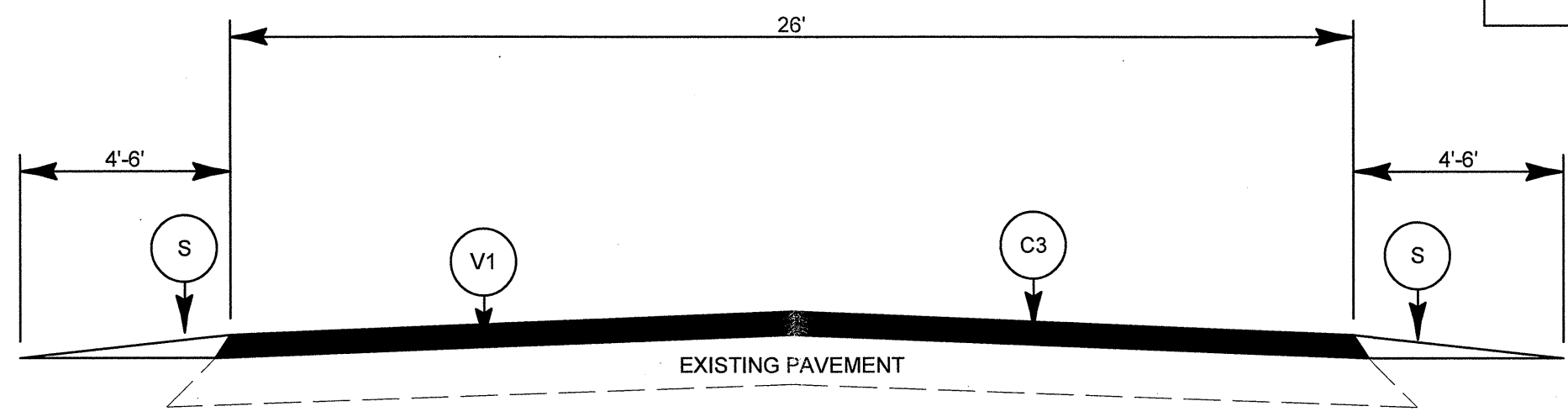
FOR BRIDGES WITH FLOOR DRAINS, CARE SHALL BE EXERCISED IN PLACING THE WEARING SURFACE AROUND FLOOR DRAINS SO AS NOT TO HINDER EFFECTIVE DRAINAGE. ALL DRAINS SHALL BE LEFT OPEN

THE PROPOSED WEARING SURFACE SHALL VARY IN THICKNESS AS NECESSARY TO PROVIDE A SMOOTH RIDING SURFACE. THE MINIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1/2", SF9.5A 1.0", S9.5X 1.5", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 3/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2". THE MAXIMUM THICKNESS SHOULD DEPEND ON PAVEMENT TYPE AS FOLLOWS: S4.75A 1.0", SF9.5A 1.5", S9.5X 2.0", S12.5X 2.0", ULTRATHIN HOT MIX ASPHALT-TYPE A 1/2", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 3/4".

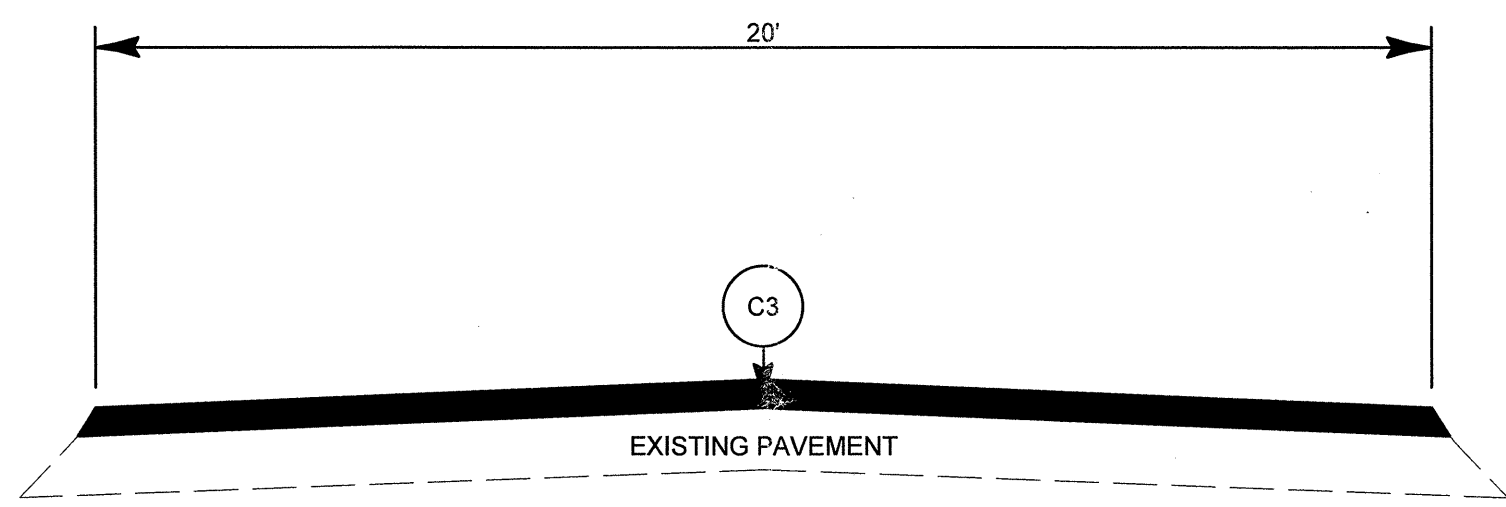
NOTES

ALL PAVED S.R. ROADS TO BE RESURFACED TO THE ENDS OF THE RADII, OR AS DIRECTED BY THE ENGINEER.
EDGES, PAVEMENT WIDENING, INTERSECTIONS AND BRIDGE FLARES ARE INCLUDED IN THE TABLE OF QUANTITIES.
SHOULDERS AND DITCHES ARE TO BE CONSTRUCTED BY OTHERS UNLESS OTHERWISE INDICATED.
BRIDGES ARE TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

PROJECT NO.	SHEET NO.	TOTAL SHEETS
5CR.10931.12, 5CR.20911.12, 5CR.20931.12,	5	

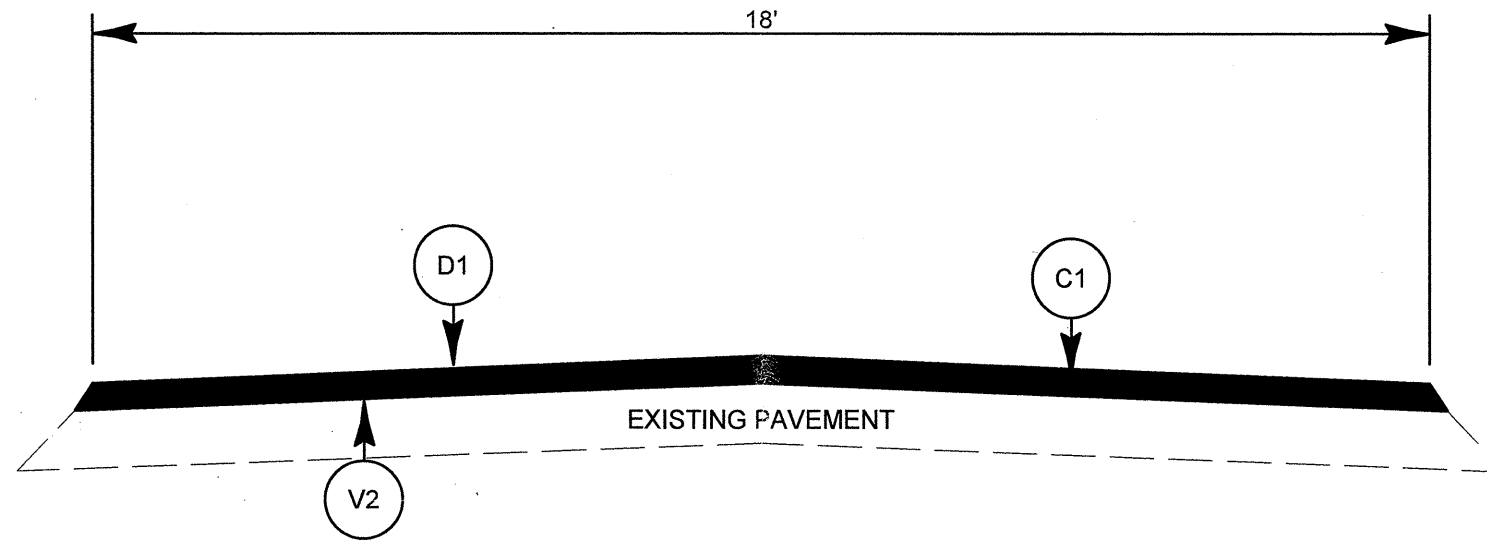


TYPICAL SECTION NO. 5

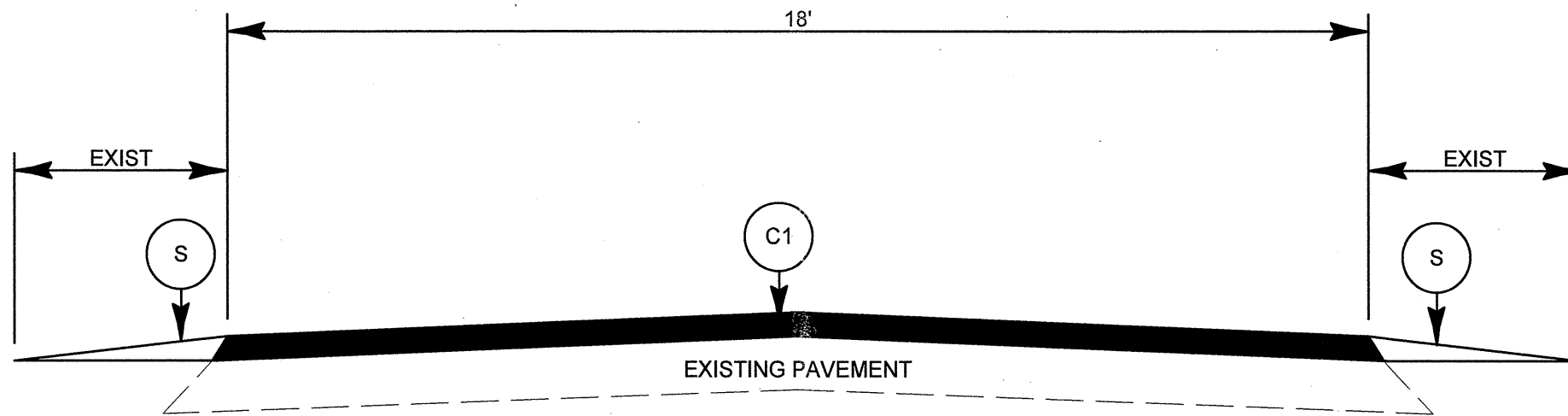


TYPICAL SECTION NO. 6

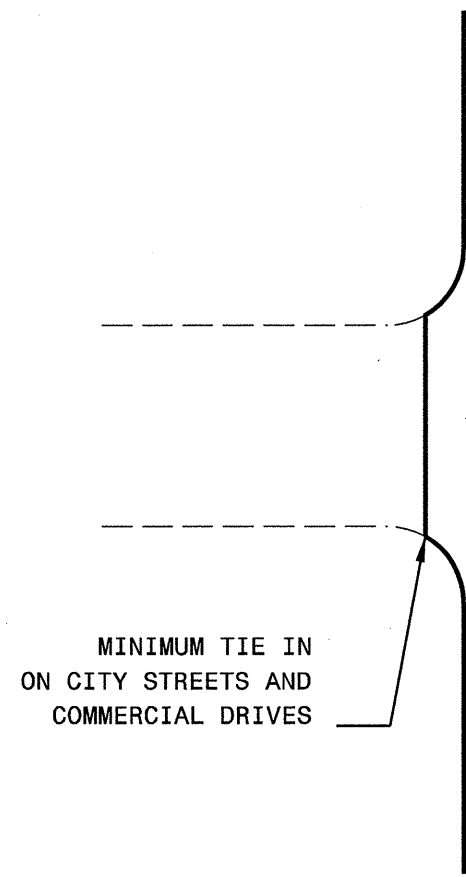
PROJECT NO.	SHEET NO.	TOTAL SHEETS
5CR.10931.12, 5CR.20911.12, 5CR.20931.12,	6	



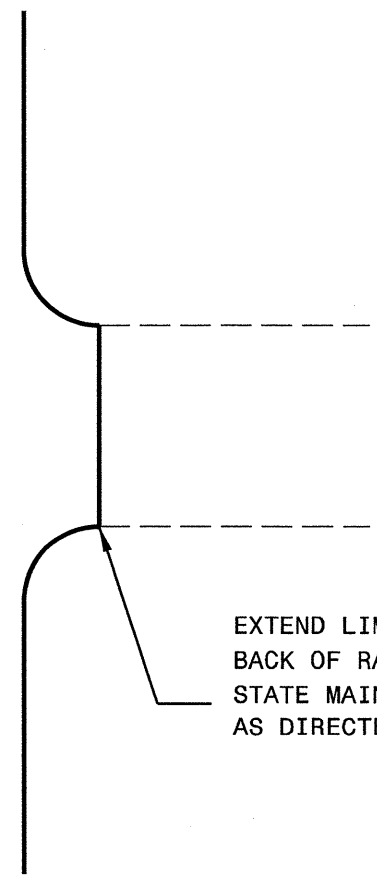
TYPICAL SECTION NO. 7



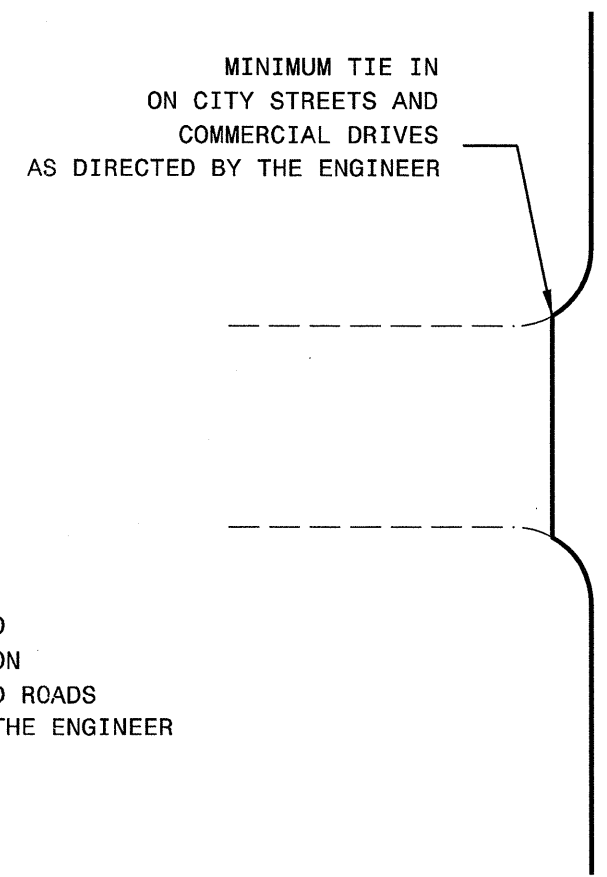
TYPICAL SECTION NO. 8



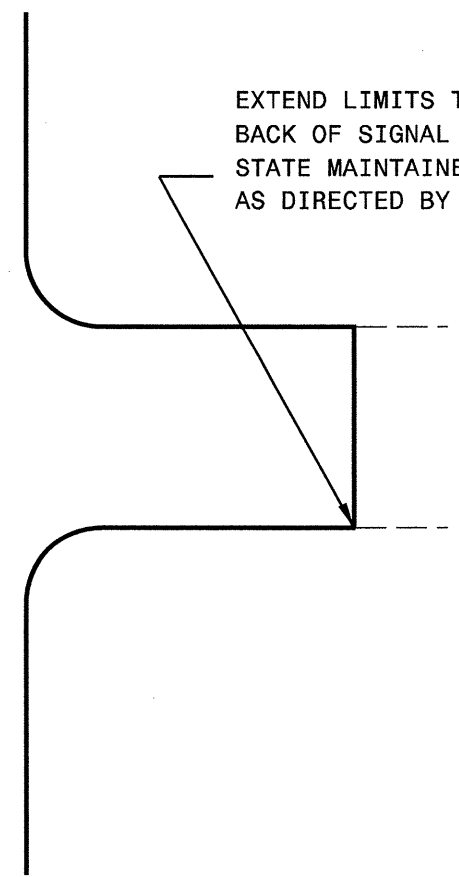
MINIMUM TIE IN
ON CITY STREETS AND
COMMERCIAL DRIVES



EXTEND LIMITS TO
BACK OF RADIUS ON
STATE MAINTAINED ROADS
AS DIRECTED BY THE ENGINEER



MINIMUM TIE IN
ON CITY STREETS AND
COMMERCIAL DRIVES
AS DIRECTED BY THE ENGINEER



EXTEND LIMITS TO
BACK OF SIGNAL LOOPS ON
STATE MAINTAINED ROADS
AS DIRECTED BY THE ENGINEER

DETAIL OF PROJECT LIMITS AT
UNSIGNALIZED Y LINES

DETAIL OF PROJECT LIMITS AT
SIGNALIZED Y LINES

PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.10931.12, 5CR.20911.12, 5CR.20931.12	8	

SUMMARY OF QUANTITIES

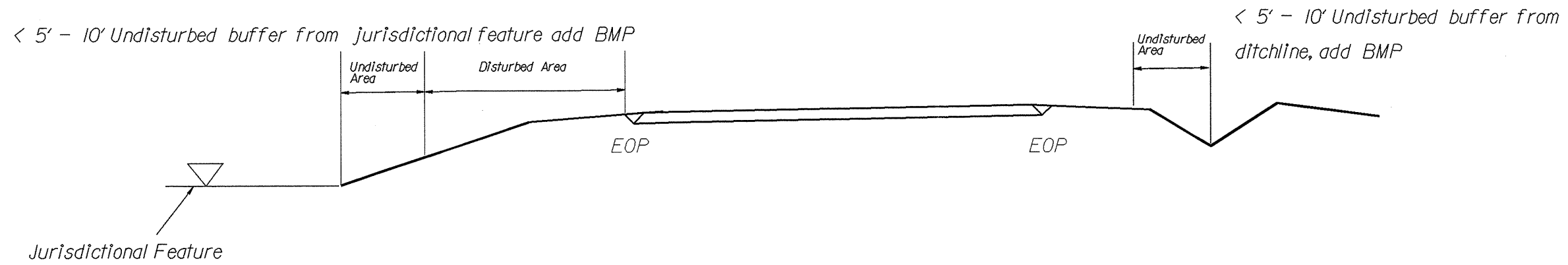
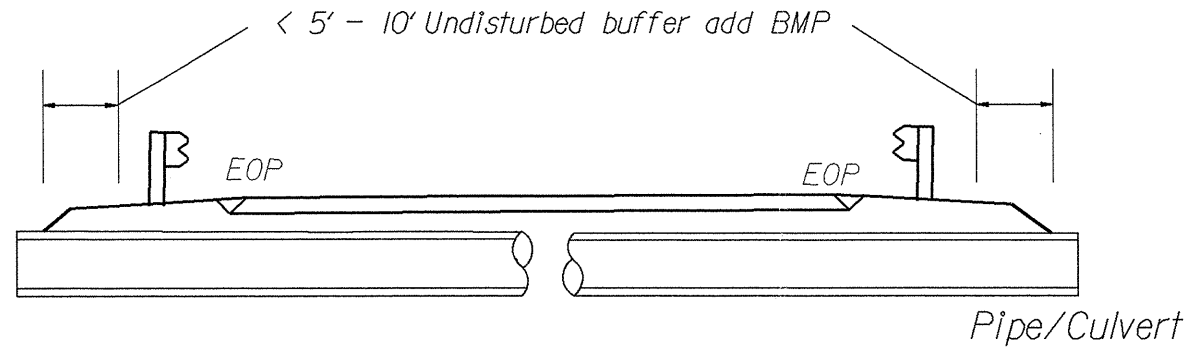
PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	FINAL SURFACE TESTING REQUIRED	WARM MIX ASPHALT REQUIRED	AGGREGATE SHOULDER BORROW ALLOWED	LENGTH MI	WIDTH FT	BORROW CY	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	1 1/2" MILLING SY	4" MILLING SY	0" TO 4" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	INTER-MEDIATE COURSE, I19.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, SF9.5A TON	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT TONS	ADI. OF MANHOLES EA	TEMPORARY SILT FENCE LF	SEED & MULCHING AC	INDUCTIVE LOOP LF	LEAD-IN CABLE (14-2) LF	
5CR.10931.12	Warren	1	US 158 BUS & BYPASS	FROM US 1 TO US 158 BUS (EXCLUDE NEW TECH HIGH SCHOOL AREA)	4	NO	YES	YES	6.1	27	1,000	73	12.0	96,624				800		8,399		539	100		200		6,000	200	
		2	US 158 BUS	FROM US 401 TO US 158 BYPASS	5	NO	YES	YES	4.4	26	200	53	4.4	67,115						5,835		350	100		800		120	100	
TOTAL FOR PROJ NO. 5CR.10931.12									10.5		1,200	126	16.4	163,739				800		14,234		889	200		1,000		6,120	300	
5CR.20911.12	Vance	3	SR 1505 (CARVER SCHOOL RD)	FROM SR 1507 (BROOKSTON RD) TO SR 1501(ALLISON COOPER RD)	8	NO	NO	YES	1.2	18	240	58	2.4				150				1,084	73	500				1.80		
		4	SR 1303 (HICKSBORO RD)	FROM SR 1308 (GLEBE RD) TO SR 1342 (MORGAN RD)	1	NO	NO	NO	8.63	18		207					1,540				6,491	435	150						
		5	SR 1138 (WELCOME AVE./KING STREET)	FROM US-1 BUSINESS TO SR 1148 (OLD EPSOM ROAD)	6	NO	NO	NO	0.95	20		23					840			970		58	50				150	100	
		6	SR 1342 (MORGAN ROAD)	FROM GRANVILLE COUNTY LINE TO NC 39	7	NO	NO	NO	4.37	18		210			46,447				6,719		3,949	587							
TOTAL FOR PROJ NO. 5CR.20911.12									15.15		240	498	2.4		46,447		2,530		6,719	970	11,524	1,153	700				1.80	150	100
5CR.20931.12	Warren	7	SR 1509 (EMBRO-ODELL ROAD)	FROM SR 1510 (HARDY CEMETARY RD) TO SR 1521(ODELL-ARCOLA RD)	2	NO	NO	YES	3.5	21	1,300	84	7.0				500		6,206		3,069	503	100				5.10		
		8	SR 1625 (PARKTOWN ROAD)	FROM US-401 TO TO SR 1613 (SHOCCO SPRINGS ROAD)	3	NO	NO	NO	1.1	21		26		13,552							1,158	78	50						
		9	SR 1305 (WARREN PLAINS ROAD)	FROM SR 1306 (WISE-FIVE FORKS RD) TO NORTH WARRENTON CITY LIMITS	1	NO	NO	NO	6.9	21		150					2,500				6,336	425	50	1					
		10	SR 1237 (MANSON-DREWRY ROAD)	FROM SR 1224 (RIDGWAY DREWRY RD) TO I-85	1	NO	NO	NO	2	23		48				1,400	490				1,920	129	50						
		11	SR 1231 (OINE ROAD)	FROM SR 1210 (ST. TAMMANY ROAD) TO US-1	3	NO	NO	NO	1.88	24		45		26,470							2,261	151	25						
		12	SR 1210 (OINE ROAD)	FROM SR 1231 (ST TAMMANY ROAD) TO NORTH OF I-85 INTERCHANGE	3	NO	NO	NO	1.6	23		38		21,589		1,400					1,845	124	20						
		13	SR 1224 (RIDGWAY-DREWRY ROAD)	FROM VANCE COUNTY LINE TO I-85	3	NO	NO	NO	2.4	20		58		28,160		700					2,408	161	10						
		"	"	FROM I-85 TO US-1	1	NO	NO	NO	2.52	20		60				700	590				2,105	141	50						
TOTAL FOR PROJ NO. 5CR.20931.12									21.9		1,300	509	7.0	89,771		4,200	4,080		6,206		21,102	1,712	355	1			5.10		
GRAND TOTAL									47.55		2,740	1,133	25.8	253,510	46,447	4,200	6,610	800	12,925	15,204	32,626	3,754	1,255	1	1,000	6.90	6,270	400	

PROJECT REFERENCE NO.	SHEET NO.
5CRJ0931J2, ETC	EC-1

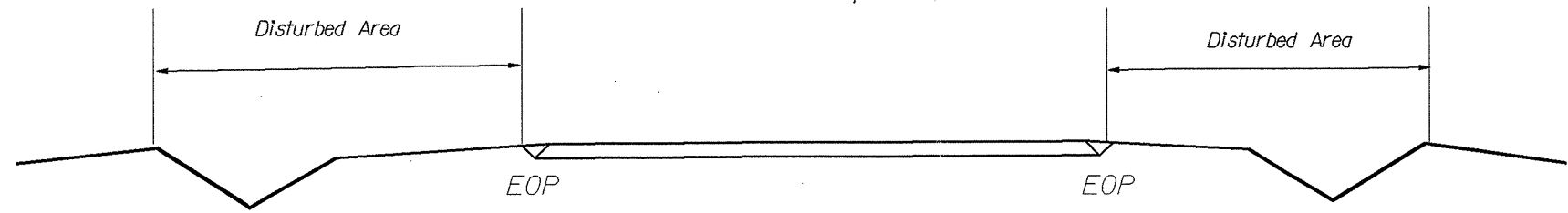
NOTES: Less than 5' - 10' undisturbed buffer from ROW, ditchline, water feature, or drainage inlet, add BMP.

BMP Options: Wattle, Silt Fence, or Hardened Aggregate.

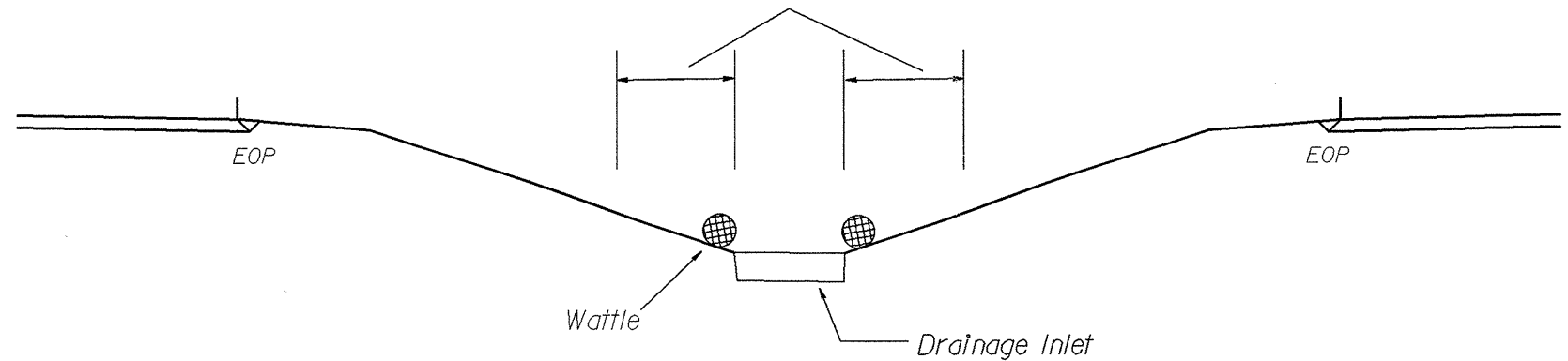
EROSION CONTROL DETAIL



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



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



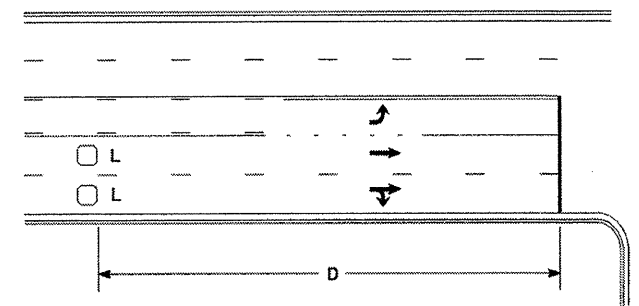
NOT TO SCALE

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

SOIL STABILIZATION TIMEFRAMES

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HOW ZONES.

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

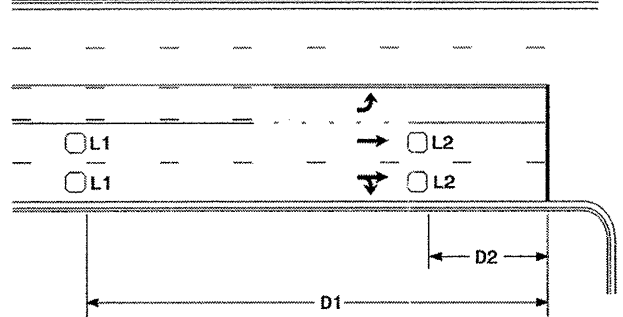


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

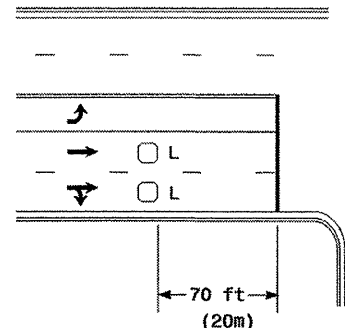


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

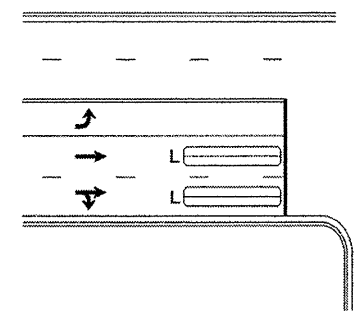
"Stretch" Operation

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



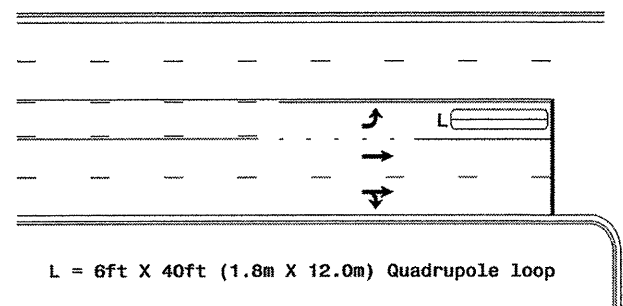
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

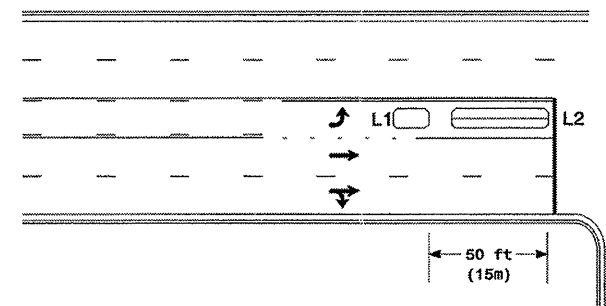
Left Turn Lane Detection



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

Presence Loop Detection

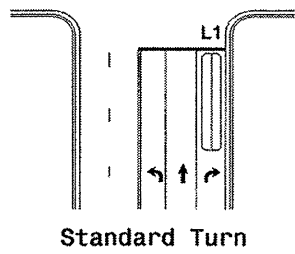
OR



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

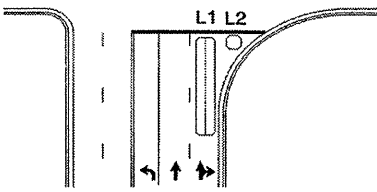
Queue Loop Detection

Right Turn Lane Detection

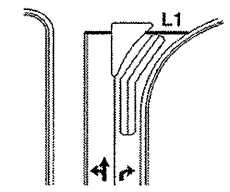


Standard Turn

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

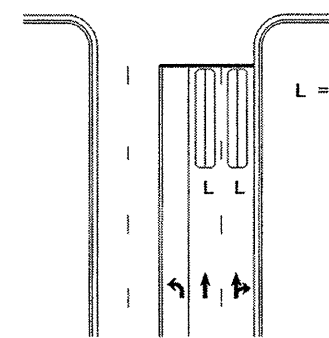


Wide Radius Turn



Channelized Turn

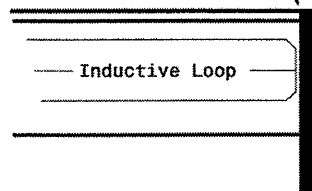
Side Street Detection



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:	
REVISIONS: <i>Revise pavement markings</i>		INT. DATE:	SIGNATURE: <i>[Signature]</i>
222 N. McDowell St., Raleigh, NC 27603		DATE:	SIG. INVENTORY NO.: