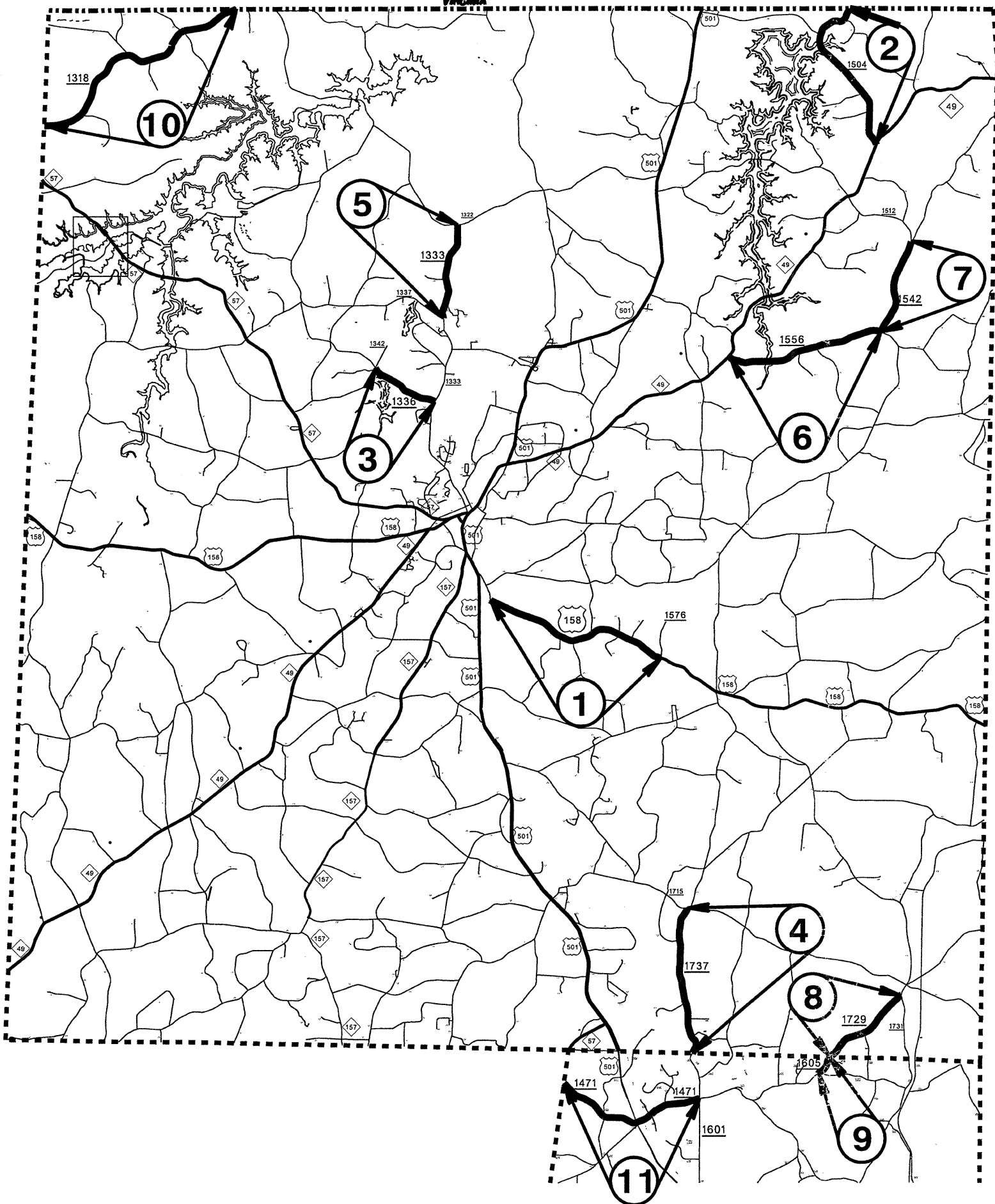


PROJECT REFERENCE NO.	SHEET NO.
5CRJ073112, 5CR.20321, 24, etc.	1



2013 PERSON & DURHAM COUNTIES RESURFACING

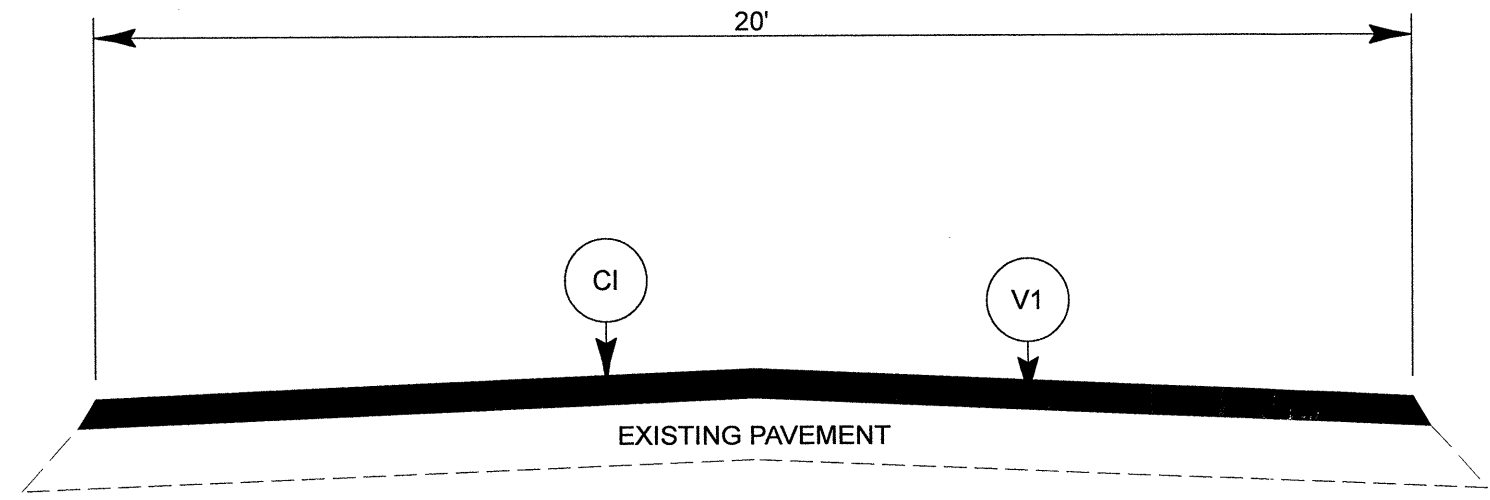
PERSON COUNTY

- Map #1 – US 158 (Oxford Road) from Old Durham Road to SR 1576
- Map #2 – SR 1504 (High Plains Road) from NC 49 to the Virginia State Line
- Map #3 – SR 1336 (City Lake Road) from SR 1333 to SR 1342
- Map #4 – SR 1737 (Moore's Mill Road) from SR 1715 to the Durham County Line
- Map #5 – SR 1333 (Country Club Road) from SR 1322 to SR 1337
- Map #6 – SR 1556 (Lawson Chapel Church Road) from NC 49 to SR 1542
- Map #7 – SR 1542 (Dirgie Mine Road) from SR 1556 to SR 1512
- Map #8 – SR 1729 (Rougemont Road) from SR 1731 to the Durham County Line
- Map #10 – SR 1318 (Cunningham Road) from Caswell County Line to Virginia State Line

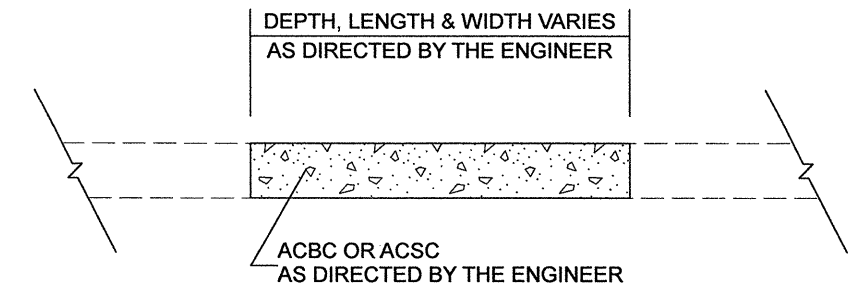
DURHAM COUNTY

- Map #9 – SR 1605 (Moriah Road) from Durham County Line to SR 1471
- Map #11 – SR 1471 (Red Mountain Road) from US 501 to SR 1601 and SR 1471 (Bacon Road) from Orange County Line to US 501

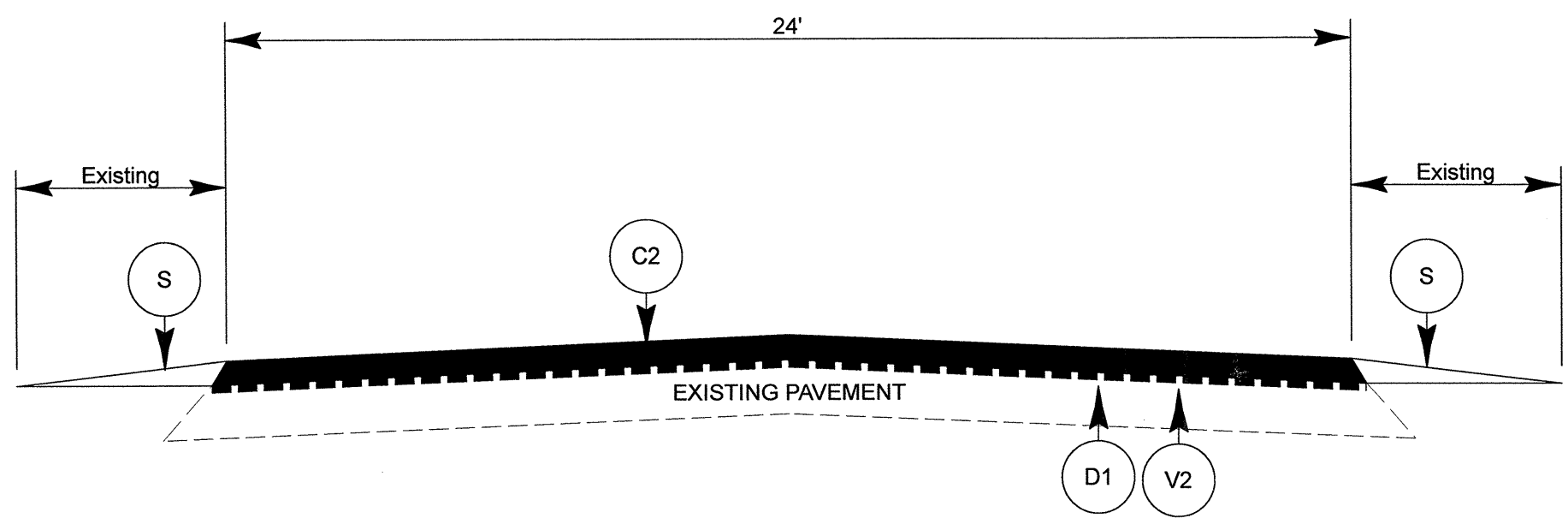
PROJECT NO. 5CR.10731.12, 5CR.20321.24, 5CR.20731.12,	SHEET NO. 2	TOTAL SHEETS
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TYPICAL SECTION NO. 1



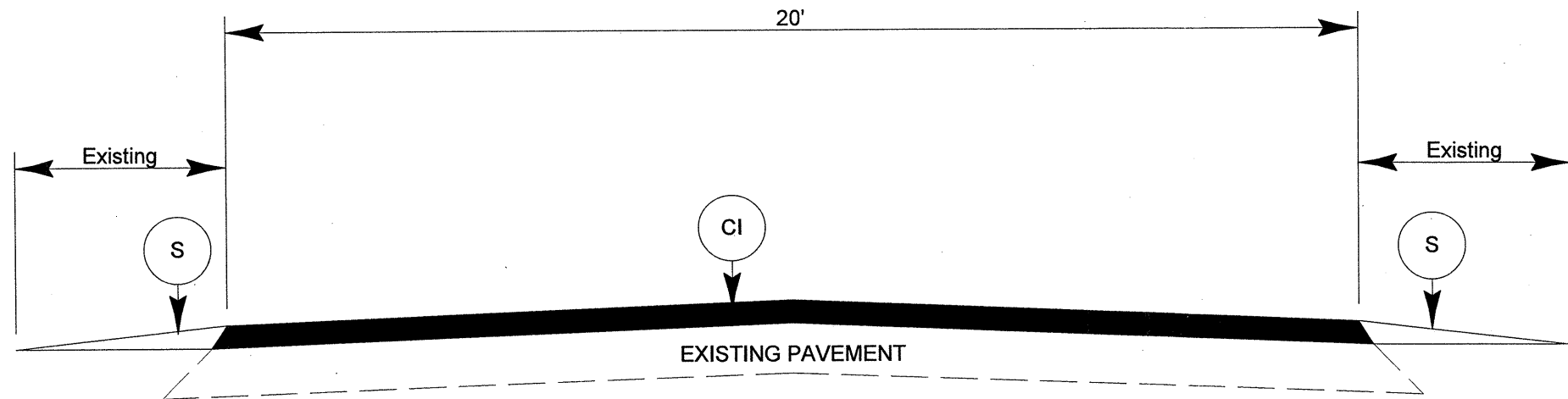
PATCHING EXISTING PAVEMENT



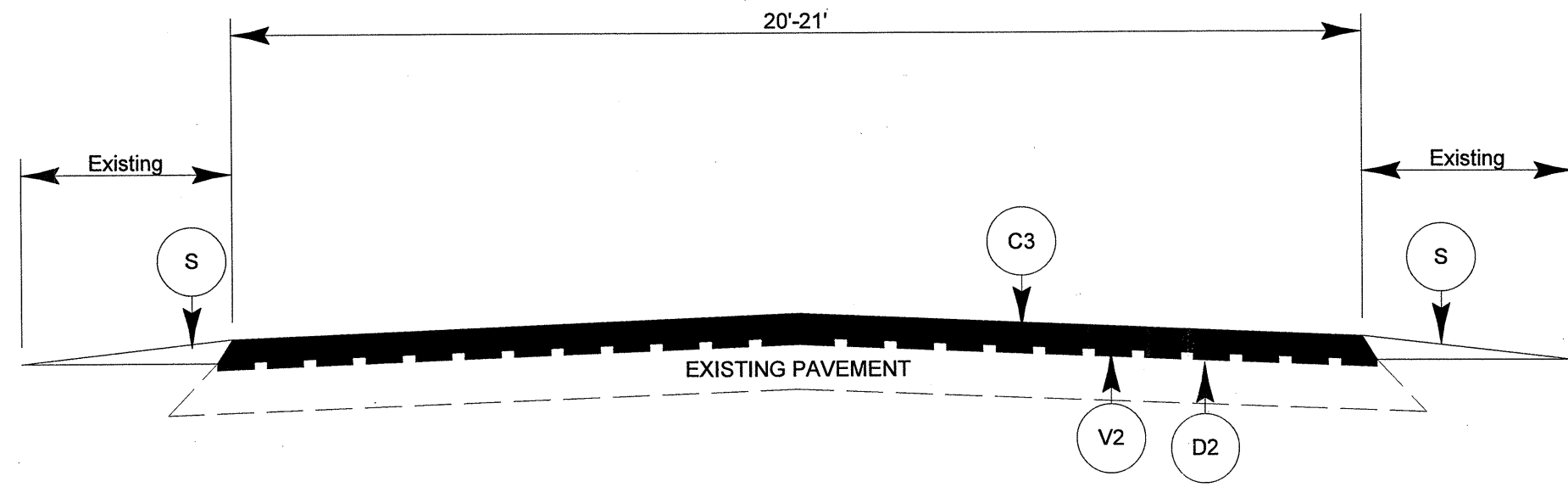
TYPICAL SECTION NO. 2

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 165 LBS PER SY
C2	PROP. APPROX. 1.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS PER SY
C3	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS PER SY
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS PER SY
D2	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS PER SY
S	SHOULDER RECONSTRUCTION
V1	PROP. 1.5" MILLING EXISTING PAVEMENT
V2	PROP. 2.5" MILLING EXISTING PAVEMENT

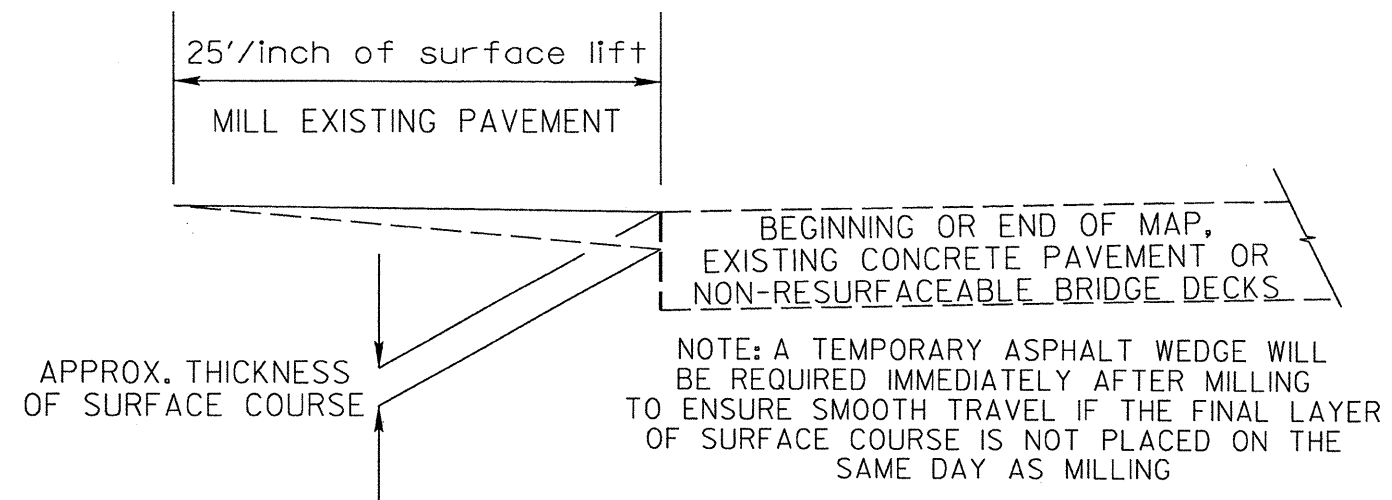
PROJECT NO.	SHEET NO.	TOTAL SHEETS
5CR.10731.12, 5CR.20321.24, 5CR.20731.12,	3	



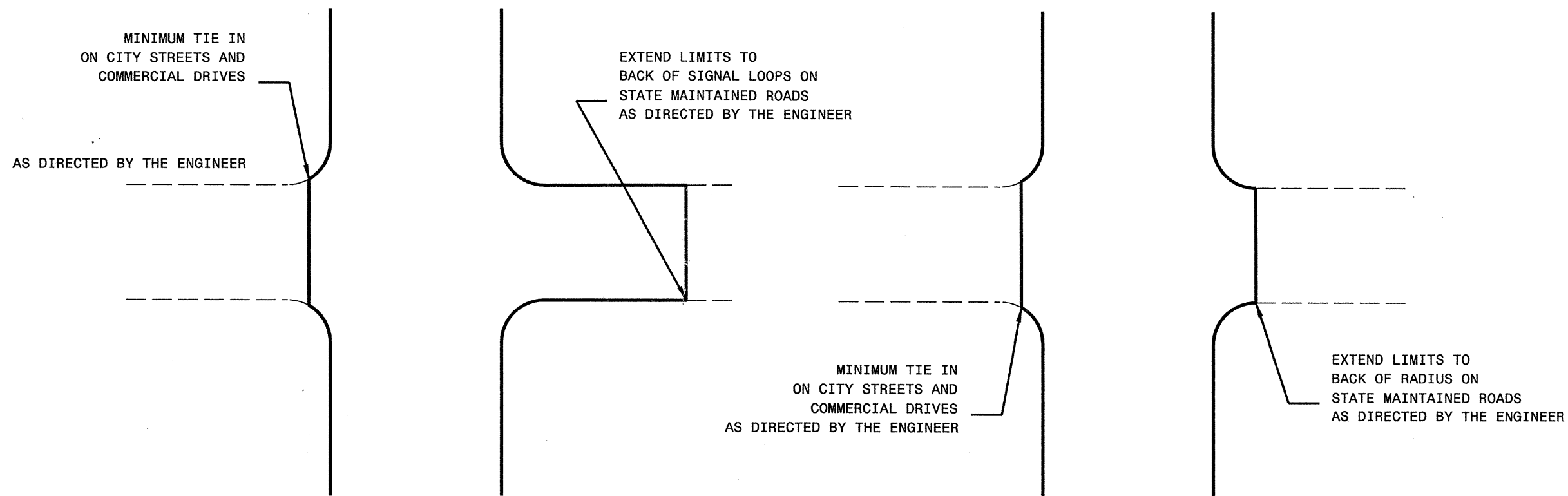
TYPICAL SECTION NO. 3



TYPICAL SECTION NO. 4



DETAIL OF INCIDENTAL MILLING



DETAIL OF PROJECT LIMITS AT SIGNALIZED Y LINES

DETAIL OF PROJECT LIMITS AT UNSIGNALIZED Y LINES

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

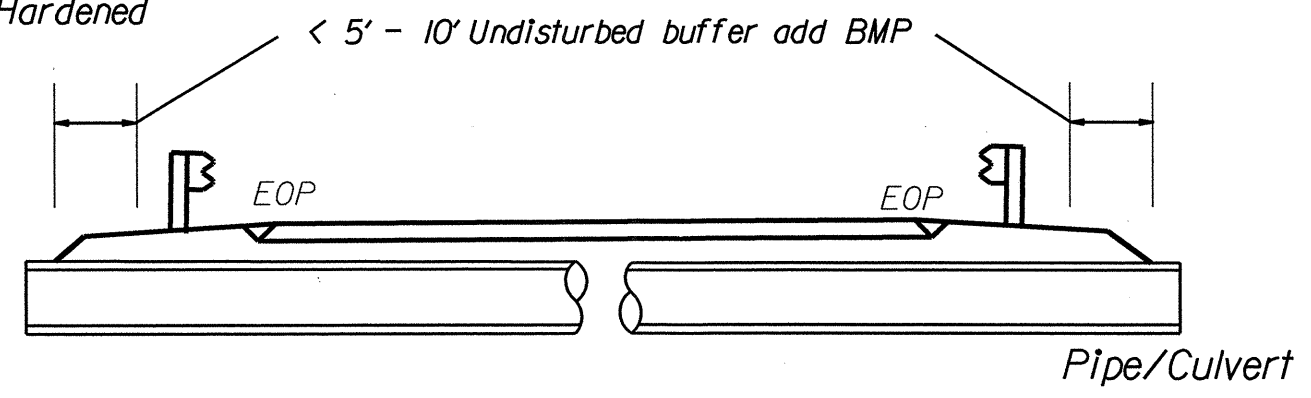
SOIL STABILIZATION TIMEFRAMES

<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.

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

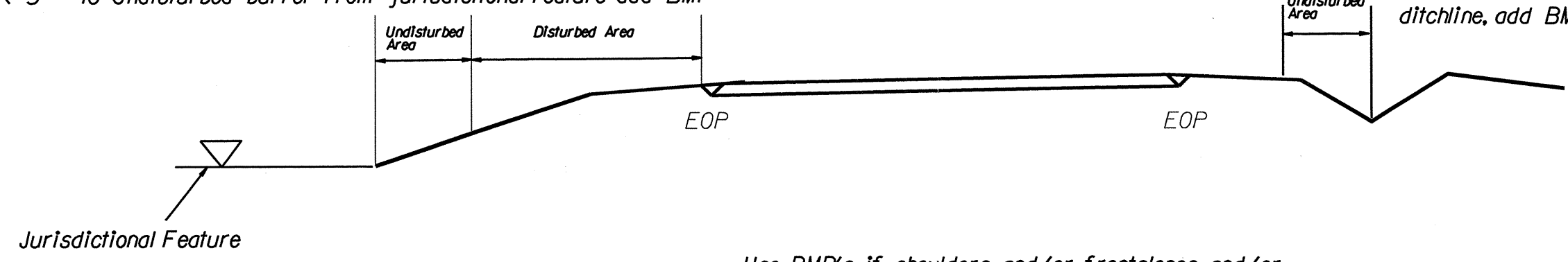
BMP Options: Wattle, Silt Fence or Hardened Aggregate.

EROSION CONTROL DETAIL

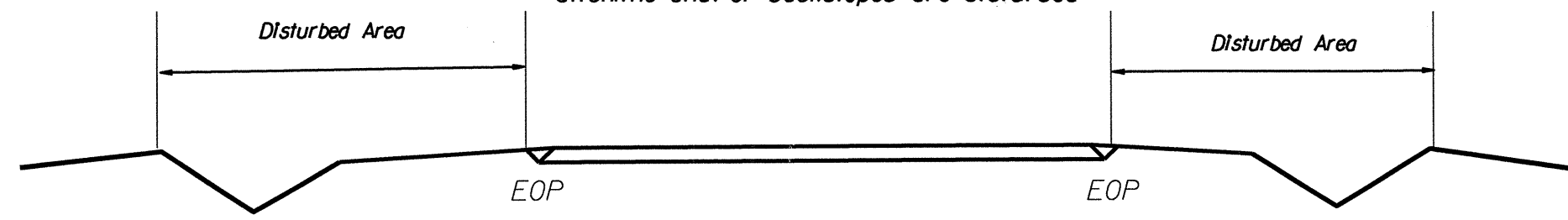


< 5' - 10' Undisturbed buffer from jurisdictional feature add BMP

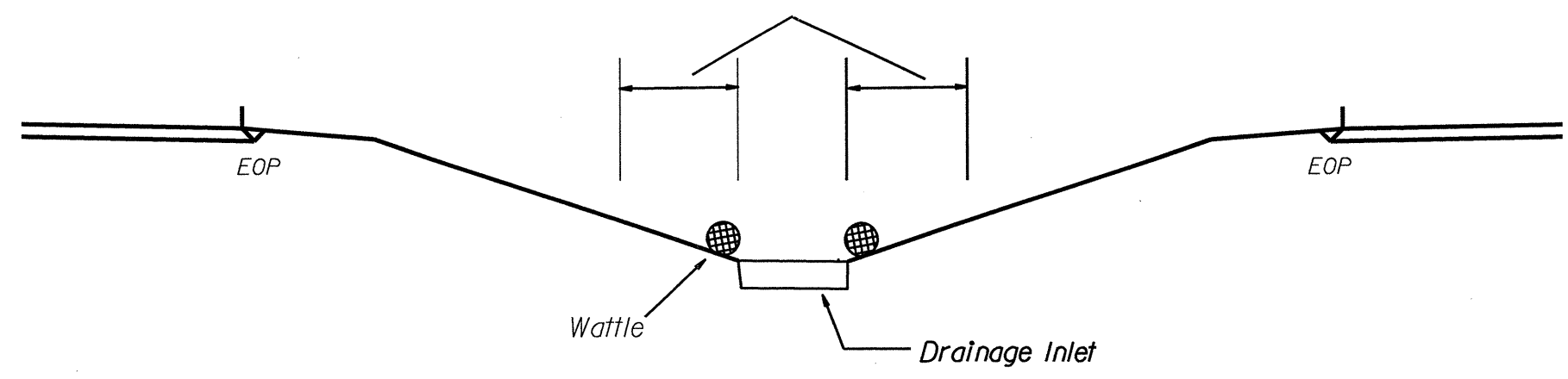
< 5' - 10' Undisturbed buffer from ditchline, add BMP



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

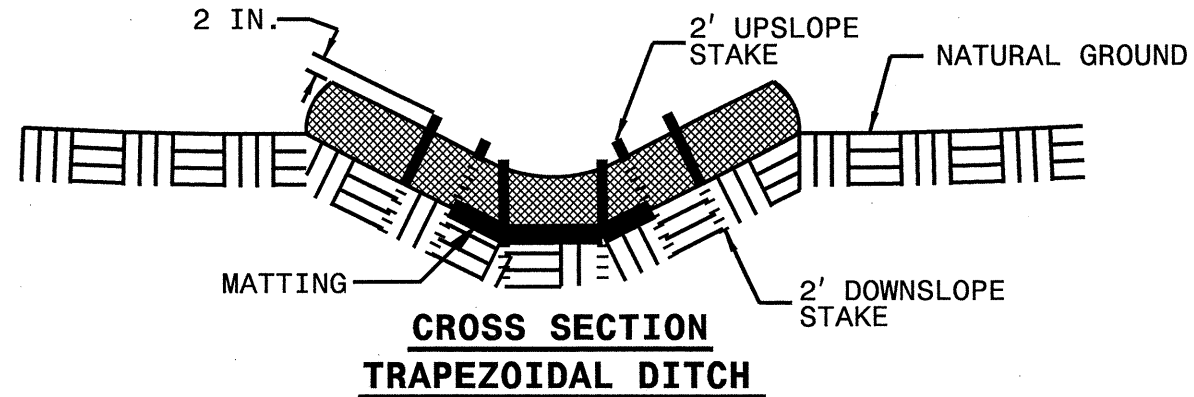
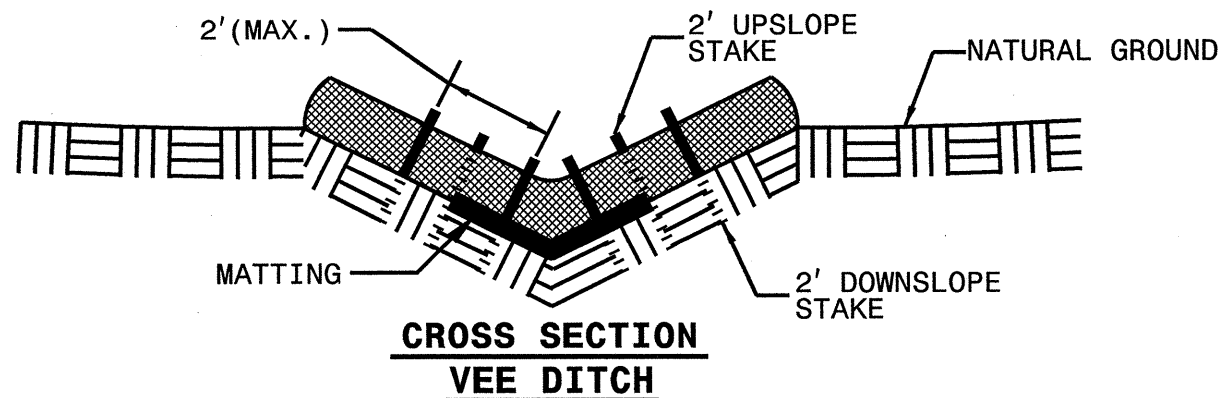
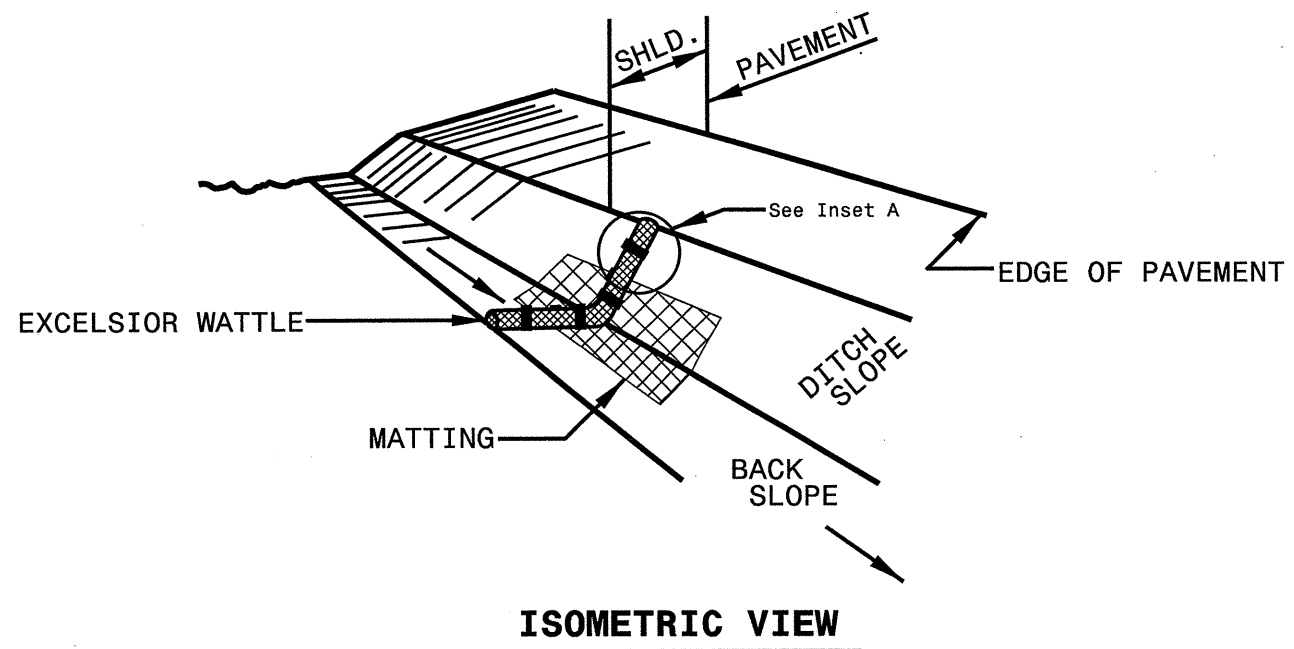


< 5' - 10' Undisturbed buffer from inlet, add wattle



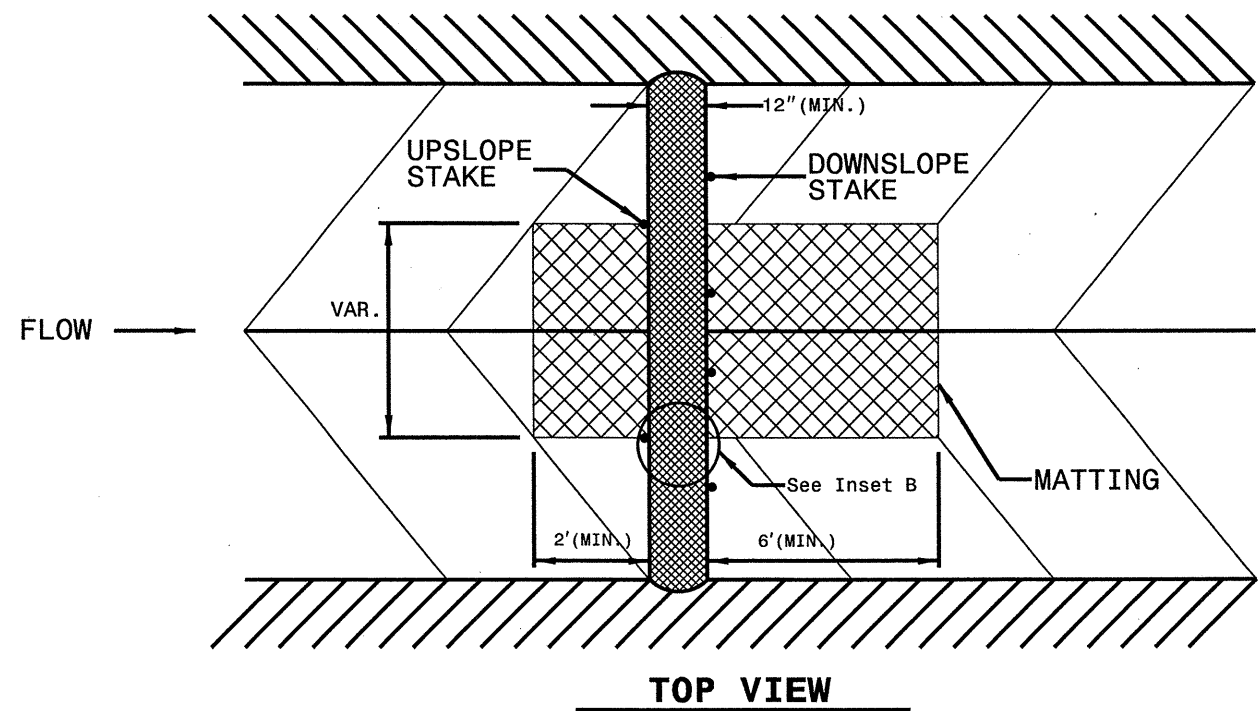
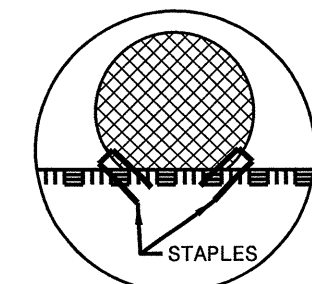
NOT TO SCALE

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.



PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.10731.12, 5CR.20321.24	8	
5CR.20731.12,		

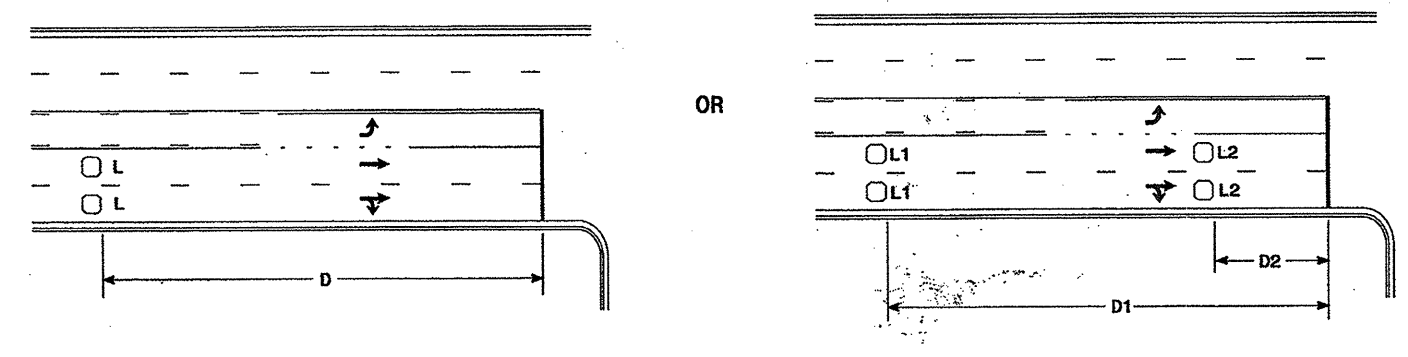
SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	BORROW CY	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	2.5" MILLING SY	1.5" MILLING SY	INCIDENTAL MILLING SY	INTERMEDIATE COURSE, I19.0B TONS	INTERMEDIATE COURSE, I19.0C TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, S9.5C TONS	SURFACE COURSE, SF9.5A TONS	ASPHALT BINDER FOR PLANT MIX TON	PATCHING EXISTING PAVEMENT TONS	TEMPORARY SILT FENCE LF	WATTLE LF	SEED & MULCHING AC	INDUCTIVE LOOP LF
5CR.10731.12	Person	1	US 158 (OXFORD RD.)	FROM OLD DURHAM ROAD TO SR 1576	2	YES	4.5	24	605	200	9.00	63,360		550		9,029		5,322		747	50	300	250	2.20	
TOTAL FOR PROJ NO. 5CR.10731.12							4.5		605	200	9.00	63,360		550		9,029		5,322		747	50	300	250	2.20	
5CR.20321.24	Durham	9	SR 1605 MORIAH RD.	FROM DURHAM CL TO SR 1471 RED MOUNTAIN RD.	1	NO	0.35	20		25			4,107					351	24						
		11	SR 1471 - RED MOUNTAIN ROAD / BACON ROAD	US 501 TO SR 1601	4	NO	1.36	21	136	136	2.72	16,755		335	2,532		1,487			211	136	150	100	1.97	200
		"	"	ORANGE COUNTY LINE TO US 501	4	NO	1.74	20	348	174	3.48	20,416		275	3,087		1,812			257	174	150	150	2.52	192
TOTAL FOR PROJ NO. 5CR.20321.24							3.45		484	335	6.20	37,171	4,107	610	5,619		3,299		351	492	310	300	250	4.49	392
5CR.20731.12	Person	2	SR 1504 HIGH PLAINS RD.	FROM NC 49 TO THE VA STATE LINE	1	NO	3.5	20		100			41,067					3,511	235	30					
		3	SR 1336 CITY LAKE RD.	FROM SR 1333 TO SR 1342	1	NO	1.36	20		50			15,957					1,364	91						
		4	SR 1737 MOORE'S MILL RD	FROM SR 1715 TO THE DURHAM CO. LINE	1	NO	2.9	20		50			34,027					2,909	195						
		5	SR 1333 COUNTRY CLUB RD	FROM SR 1322 TO SR 1337	1	NO	2.3	20		50			26,987					2,308	155						
		6	SR 1556 LAWSON CHAPEL CHURCH RD.	FROM NC 49 TO SR 1542	1	NO	3.3	20		75			38,720					3,311	222	30					
		7	SR 1542 DIRGIE MINE RD.	FROM SR 1556 TO SR 1512	3	NO	1.9	20	180	75	3.80			250				1,906	128	570	100			1.00	
		8	SR 1729 ROUGEMONT RD	FROM SR 1731 TO THE DURHAM CO. LINE	1	NO	1.9	20		50			22,293					1,906	128						
		10	SR 1318 CUNNINGHAM RD.	FROM CATAWBA CO. LINE TO VA STATE LINE	1	NO	5.1	20		50			59,840					5,117	343	70					
TOTAL FOR PROJ NO. 5CR.20731.12							22.26		180	500	3.80		238,891	250					22,332	1,497	700	100		1.00	
GRAND TOTAL							30.21		1,269	1,035	19.00	100,531	242,998	1,410	5,619	9,029	3,299	5,322	22,683	2,736	1,060	700	500	7.69	392

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	LENGTH	WIDTH	4685000000-E	4686000000-E	4695000000-E	4702000000-E	4710000000-E	4725000000-E	4810000000-E		4820000000-E	4900000000-N	4905000000-N		
							4" X 90 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	8" X 90 M YELLOW THERMO LF	12" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO LT ARROW 90 M EA	4" WHITE PAINT LF	4" YELLOW PAINT LF	8" YELLOW PAINT LF	YELLOW & YELLOW MARKERS EA	SNOW PLOWABLE MARKERS EA		
5CR.10731.12	Person	1	US 158 (OXFORD RD.)	FROM OLD DURHAM ROAD TO SR 1576	4.5	24	48,420	29,700	50			2	48,420	29,700	50		297		
TOTAL FOR PROJ NO. 5CR.10731.12							4.5		48,420	29,700	50		2	48,420	29,700	50		297	
													78,120						
5CR.20321.24	Durham	9	SR 1605 MORIAH RD.	FROM DURHAM CL TO SR 1471 RED MOUNTAIN RD.	0.35	20	3,766	2,310											
		11	SR 1471 - RED MOUNTAIN ROAD / BACON ROAD	US 501 TO SR 1601	1.36	21	14,634	8,976			20		14,634	8,976		90			
		"	"	ORANGE COUNTY LINE TO US 501	1.74	20	18,722	11,484			20		18,722	11,484		115			
TOTAL FOR PROJ NO. 5CR.20321.24							3.45		37,122	22,770		40	33,356	20,460		205			
													53,816						
5CR.20731.12	Person	2	SR 1504 HIGH PLAINS RD.	FROM NC 49 TO THE VA STATE LINE	3.5	20	37,660	23,100											
		3	SR 1336 CITY LAKE RD.	FROM SR 1333 TO SR 1342	1.36	20	14,634	8,976											
		4	SR 1737 MOORE'S MILL RD	FROM SR 1715 TO THE DURHAM CO. LINE	2.9	20	31,204	19,140											
		5	SR 1333 COUNTRY CLUB RD	FROM SR 1322 TO SR 1337	2.3	20	24,748	15,180		80									
		6	SR 1556 LAWSON CHAPEL CHURCH RD.	FROM NC 49 TO SR 1542	3.3	20	35,508	21,780											
		7	SR 1542 DIRGIE MINE RD.	FROM SR 1556 TO SR 1512	1.9	20	20,444	12,540											
		8	SR 1729 ROUGEMONT RD	FROM SR 1731 TO THE DURHAM CO. LINE	1.9	20	20,444	12,540											
		10	SR 1318 CUNNINGHAM RD.	FROM CATAWBA CO. LINE TO VA STATE LINE	5.1	20	54,876	33,660		80									
TOTAL FOR PROJ NO. 5CR.20731.12							22.26		239,518	146,916	80								
GRAND TOTAL							30.21		325,060	199,386	50	80	40	2	81,776	50,160	50	205	297
													131,936						

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

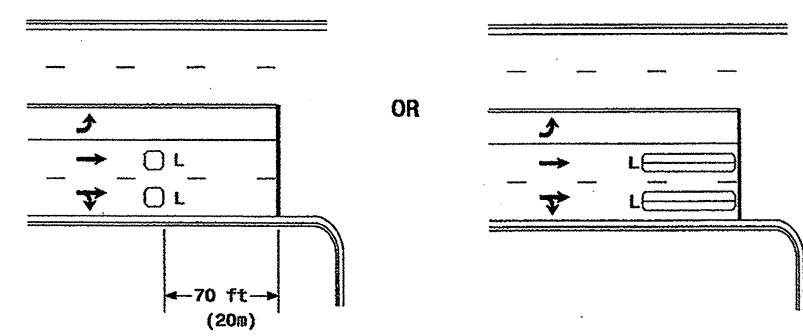
Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

Volume Density Operation

"Stretch" Operation

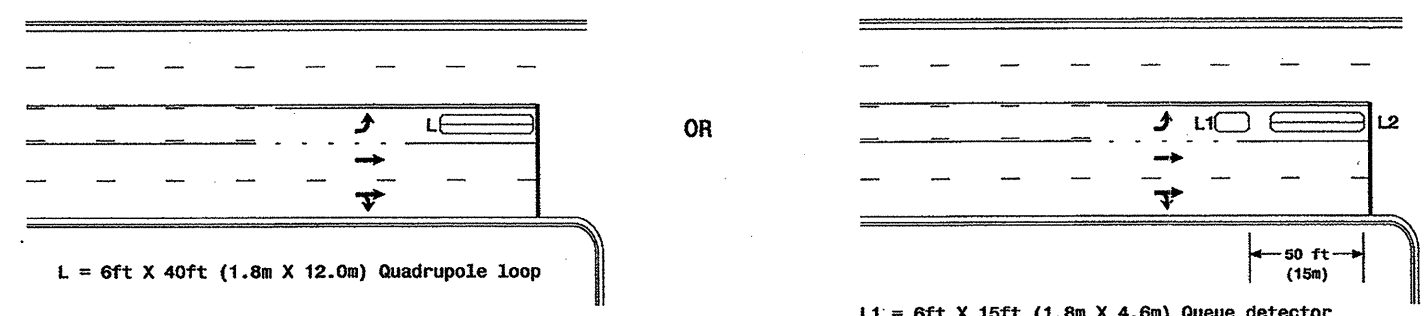
Low Speed Detection [≤35 mph (56 km/hr)]



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

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

Left Turn Lane Detection



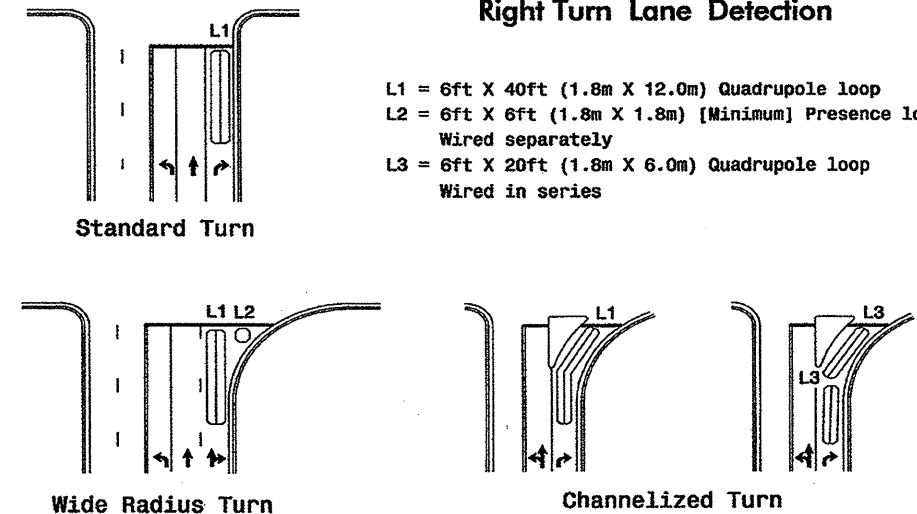
L = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop

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

Presence Loop Detection

Queue Loop Detection

Right Turn Lane Detection



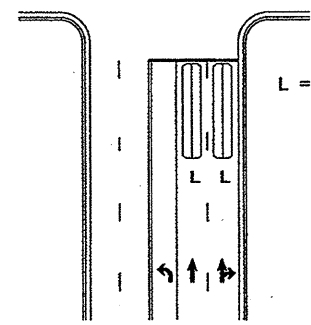
L1 = 6ft X 40ft (1.8m X 12.0m) Quadrupole loop
L2 = 6ft X 6ft (1.8m X 1.8m) [Minimum] Presence loop
Wired separately
L3 = 6ft X 20ft (1.8m X 6.0m) Quadrupole loop
Wired in series

Standard Turn

Wide Radius Turn

Channelized Turn

Side Street Detection

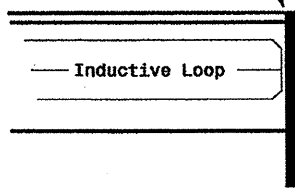


L = 6ft X 40ft (1.8m X 12.0m)
Quadrupole loop
Wired to separate
detectors/channels

Side Street 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.

Presence Loop Placement at Stop Lines

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

	<p>Typical Loop Locations</p>		
	<p>PLAN DATE: June 2008</p> <p>PREPARED BY: P. L. Alexander</p> <p>SCALE: N/A</p>	<p>REVIEWED BY:</p> <p>REVISIONS</p> <p>INIT. DATE</p> <p>SIGNATURE: [Signature]</p>	

19-DEC-2006 14:23
D:\projects\10_turn_infil\scd\loop\lcal2006.dgn