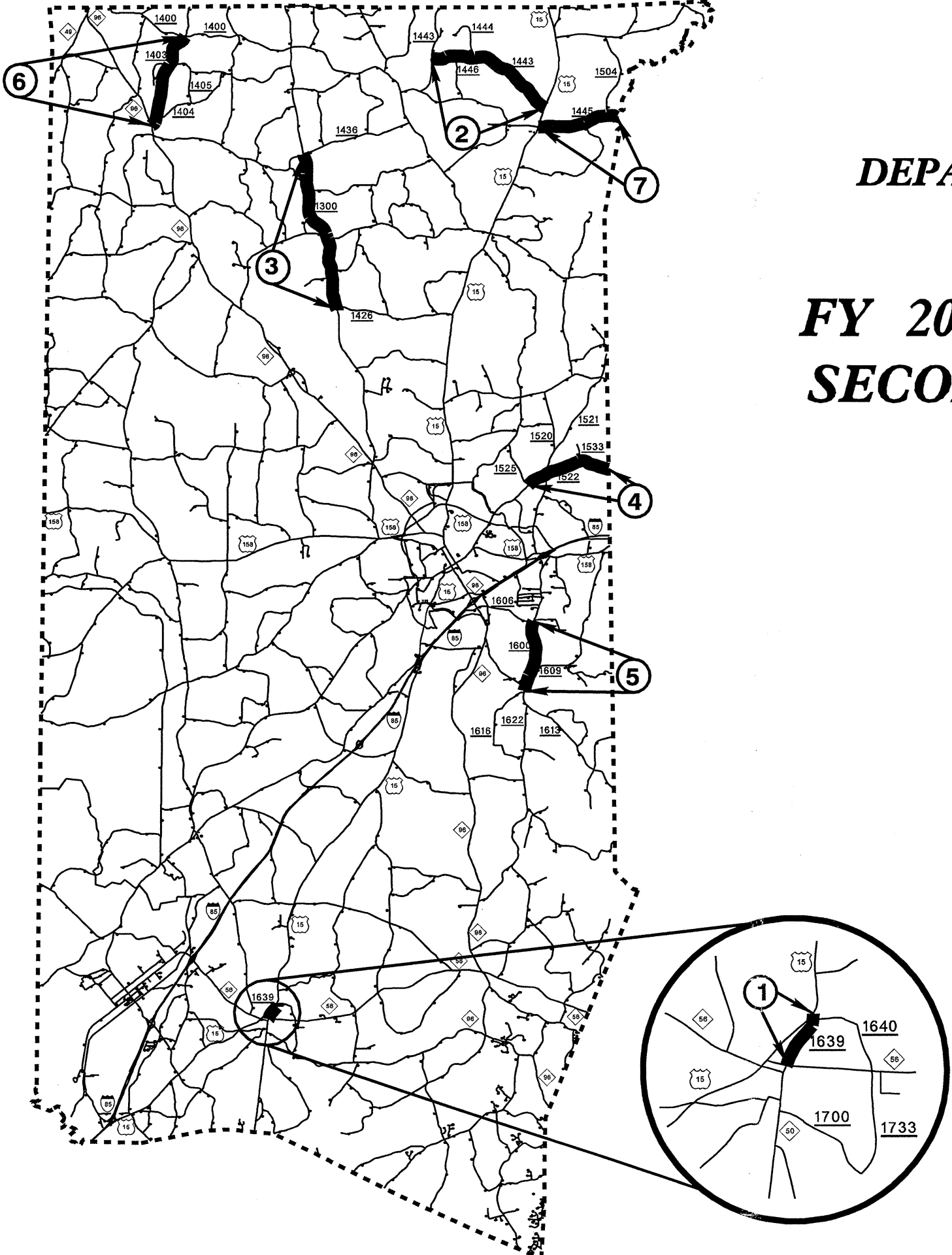
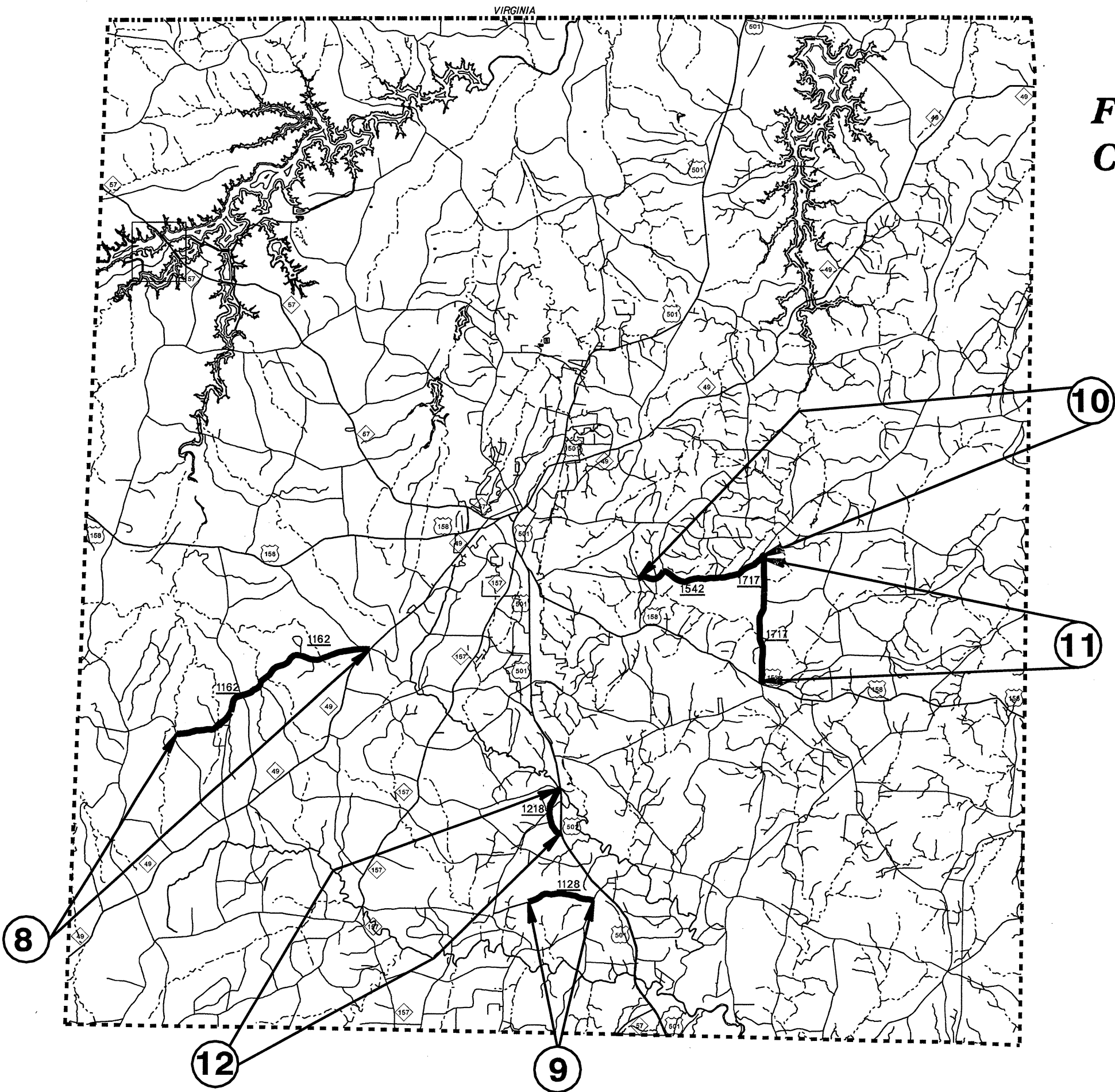


**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

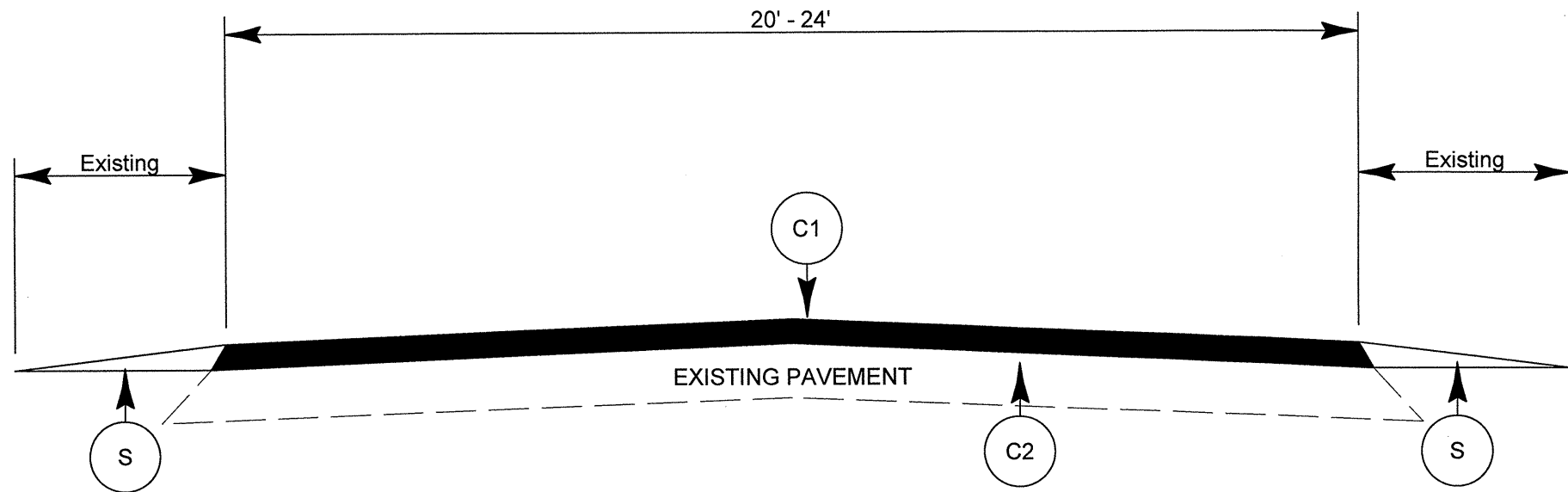
**FY 2010 GRANVILLE COUNTY
SECONDARY RESURFACING**



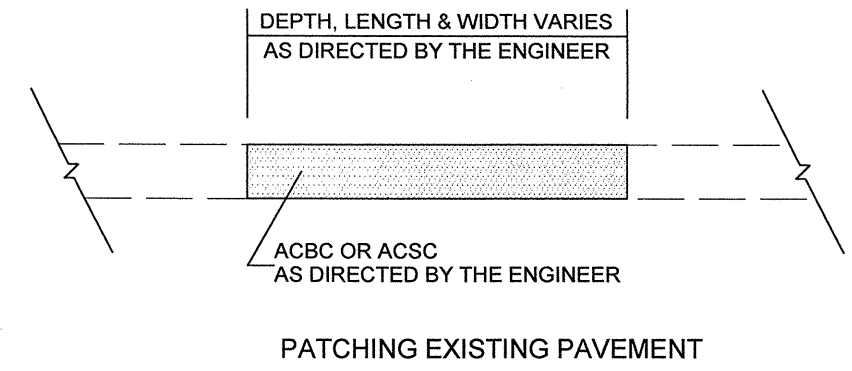
FY 2010 PERSON COUNTY RESURFACING



PROJECT NO.	SHEET NO.	TOTAL SHEETS
5CR.20391.8, 5CR.20731.7	3	5

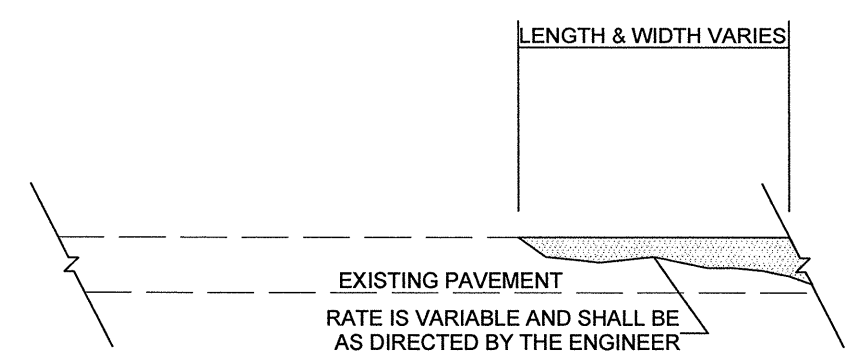
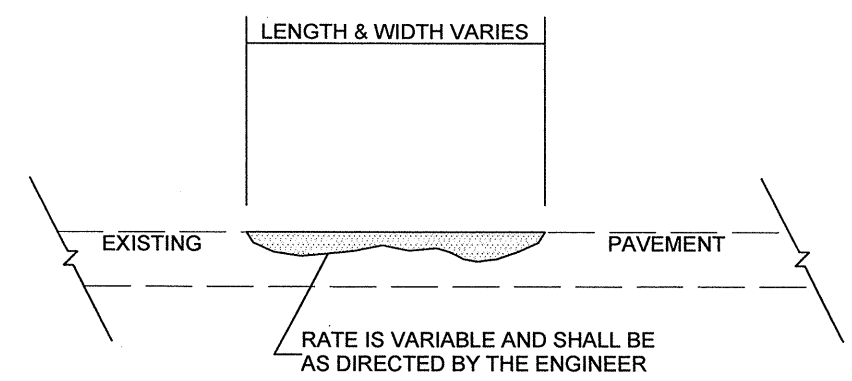


TYPICAL SECTION NO. 1

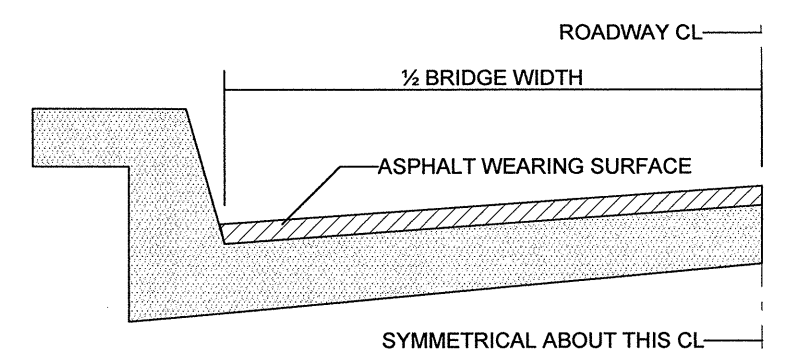


PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT A RATE OF 165 LBS/SY
C2	ASPHALT LEVELING COURSE, TYPE SF9.5A, AT A RATE OF 110 LBS. PER SQ. YD. PER INCH OF DEPTH
S	PROP. SHOULDER RECONSTRUCTION BY CONTRACTOR

PROJECT NO. 5CR.20391.8, 5CR.20731.7	SHEET NO. 4	TOTAL SHEETS 5
---	----------------	-------------------



**ASPHALT CONCRETE SURFACE COURSE
(LEVELING COURSE)**



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 1/4", 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 1/4", ULTRATHIN HOT MIX ASPHALT-TYPE B 5/8", ULTRATHIN HOT MIX ASPHALT-TYPE C 1/2".

NOTES

ALL UNPAVED ROADS TO BE RESURFACED 50' FROM EDGE OF PAVEMENT OF MAIN PROJECT.
 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 NO.
5CR.20391.8, 5CR.20731.7	5	5

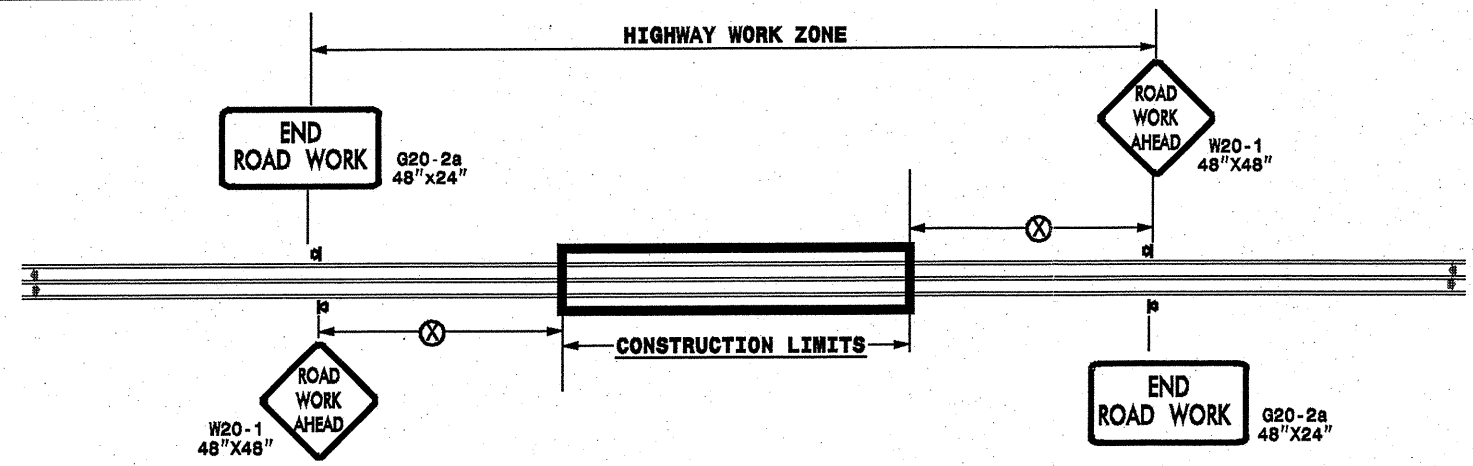
SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	INCIDENTAL STONE BASE TONS	SHOULDER RECONSTRUCTION SMI	INCIDENTAL MILLING SY	SURFACE COURSE, SF9.5A TONS	LEVELING COURSE, TYPE SF9.5A TONS	PG 64-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	SEED & MULCHING AC	INDUCTIVE LOOP LF
5CR.20391.8	Granville	1	SR 1639 (MAIN ST)	FROM US 15 TO NC 56	1	NO	0.6	20	36	1.2	155	729	200	61	300	0.87	175
		2	SR 1443 (DAVIS RD)	FROM US 15 TO SR 1445 (FAUCETTE RD)	1	NO	3.9	22	234	7.8		4,385	200	298	250	5.65	
		3	SR 1300 (CORNWALL RD)	FROM SR 1426 (GELA RD) TO SR 1436 (DALTON MILL RD)	1	NO	4.7	20	282	9.4		4,807	300	332	400	6.82	
		4	SR 1522 (SALEM RD)	FROM SR 1525 (PERRY RD) TO VANCE CO LINE	1	NO	2.6	20	156	5.2		2,659	200	186	250	3.77	
		5	SR 1600 (ANTIOCH RD)	FROM SR 1606 (W ANTIOCH DR) TO SR 1613 (FAIRPORT RD)	1	NO	2	22	120	4		2,147	300	160	200	2.90	
		6	SR 1403 (AMIS CHAPEL RD)	FROM NC 96 TO SR 1400 (GRASSY CREEK)	1	NO	3	20	180	6		3,068	150	210	250	4.35	
		7	SR 1445 (FAUCETTE RD)	FROM US 15 TO VANCE CO LINE	1	NO	2.3	20	184	4.6		2,352	200	166	250	3.33	
TOTAL FOR PROJ NO. 5CR.20391.8							19.1		1,192	38.2	155	20,147	1,550	1,413	1,900	27.69	175
5CR.20731.7	Person	8	SR 1162 (HESTER'S STORE RD)	FROM SR 1171 (HESTER RD) TO NC 49	1	NO	4.8	20	120	9.6	361	4,816	25	315	365	6.72	
		9	SR 1128 (TOM OAKLEY RD)	FROM SR 1123 (HOLLIMAN RD) TO NEW PAVE.	1	NO	1.4	20	70	2.8	116	1,405	40	94	80	2.03	
		10	SR 1542 (OLD ALLENSVILLE RD)	FROM SR 1543 (OAKLEY RD) TO SR 1717 (MT TIRZAH RD)	1	NO	2.86	20	108	5.7	111	2,869	40	190	190	4.00	
		11	SR 1717 (MOLLIE MOONIE RD)	FROM SR 1542 (OLD ALLENSVILLE) TO NC 158	1	NO	3.4	20	96	6.8	725	3,411	60	226	115	9.80	
		12	SR 1218 (ROBY BARTON)	FROM US 501 TO US 501	1	NO	1	24	45	2	172	1,203	50	82	35	1.51	
TOTAL FOR PROJ NO. 5CR.20731.7							13.46		439	26.9	1,485	13,704	215	907	785	24.06	
GRAND TOTAL							32.56		1,631	65.1	1,640	33,851	1,765	2,320	2,685	51.75	175

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E		4686000000-E		4710000000-E		4725000000-E	
					4" X 90 M WHITE THERMO LF	4" X 120 M YELLOW THERMO LF	4" X 120 M WHITE THERMO LF	24" X 120 M WHITE THERMO LF	THERMO LT ARROW 90 M EA	THERMO STR & RT ARROW 90 M EA		
5CR.20391.8	Granville	1	SR 1639 (MAIN ST)	FROM US 15 TO NC 56	6,456	6,336	500				1	1
		2	SR 1443 (DAVIS RD)	FROM US 15 TO SR 1445 (FAUCETTE RD)	41,964	25,740						
		3	SR 1300 (CORNWALL RD)	FROM SR 1426 (GELA RD) TO SR 1436 (DALTON MILL RD)	50,572	62,040						
		4	SR 1522 (SALEM RD)	FROM SR 1525 (PERRY RD) TO VANCE CO LINE	27,976	17,160						
		5	SR 1600 (ANTIOCH RD)	FROM SR 1606 (W ANTIOCH DR) TO SR 1613 (FAIRPORT RD)	21,520	13,200						
		6	SR 1403 (AMIS CHAPEL RD)	FROM NC 96 TO SR 1400 (GRASSY CREEK)	32,280	19,800						
		7	SR 1445 (FAUCETTE RD)	FROM US 15 TO VANCE CO LINE	24,748	15,180						
TOTAL FOR PROJ NO. 5CR.20391.8					205,516	159,456	500			1	1	
					159,956				2			
5CR.20731.7	Person	8	SR 1162 (HESTER'S STORE RD)	FROM SR 1171 (HESTER RD) TO NC 49	51,648	31,680			192			
		9	SR 1128 (TOM OAKLEY RD)	FROM SR 1123 (HOLLIMAN RD) TO NEW PAVE.	15,064	9,240						
		10	SR 1542 (OLD ALLENSVILLE RD)	FROM SR 1543 (OAKLEY RD) TO SR 1717 (MT TIRZAH RD)	30,774	18,876						
		11	SR 1717 (MOLLIE MOONIE RD)	FROM SR 1542 (OLD ALLENSVILLE) TO NC 158	36,584	22,440						
		12	SR 1218 (ROBY BARTON)	FROM US 501 TO US 501	11,190	6,864						
TOTAL FOR PROJ NO. 5CR.20731.7					145,260	89,100			192			
					89,100				192			
GRAND TOTAL					350,776	248,556	500		192	1	1	
					249,056				2			

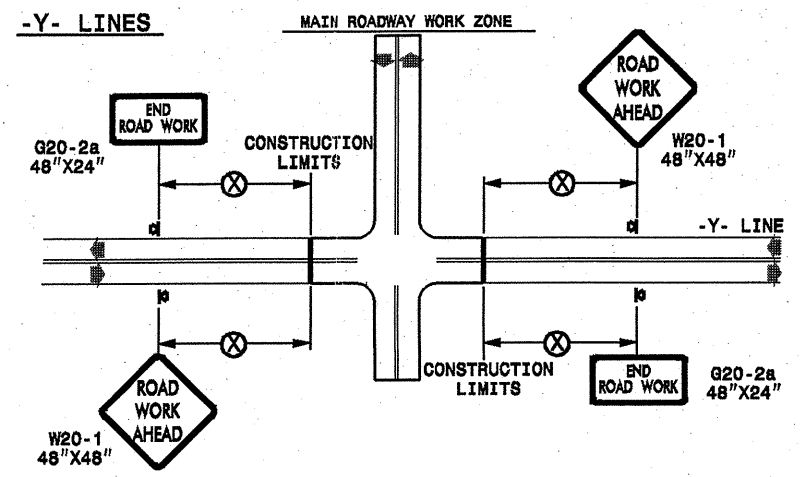
TWO-WAY UNDIVIDED ** (L-LINES)



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)



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.

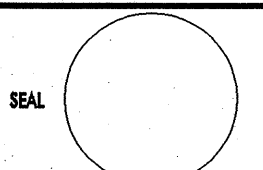

LEGEND

☒ PORTABLE SIGN

➔ DIRECTION OF TRAFFIC FLOW

DETAIL DRAWING
FOR TWO-WAY UNDIVIDED
WORK ZONE WARNING SIGNS

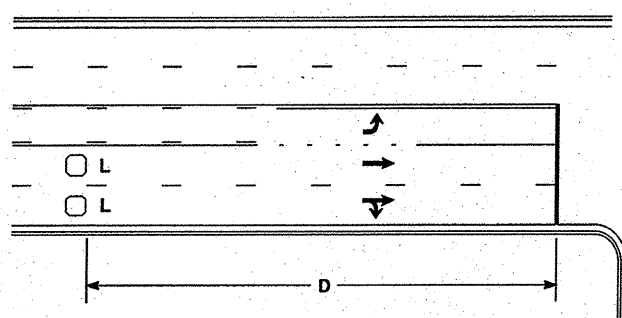
SHEET 1 OF 1

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

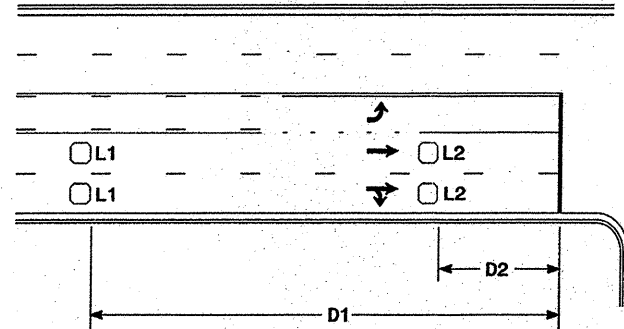
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 jschleich AT TE22653

5CR.20391.8 & 5CR.20731.7

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



OR



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

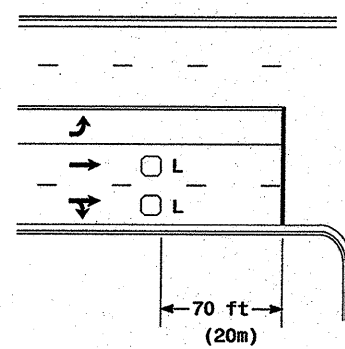
Volume Density Operation

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)

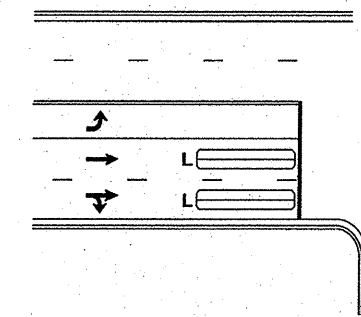
L1 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series
L2 = 6ft X 6ft
(1.8m X 1.8m)
Wired in series

"Stretch" Operation

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



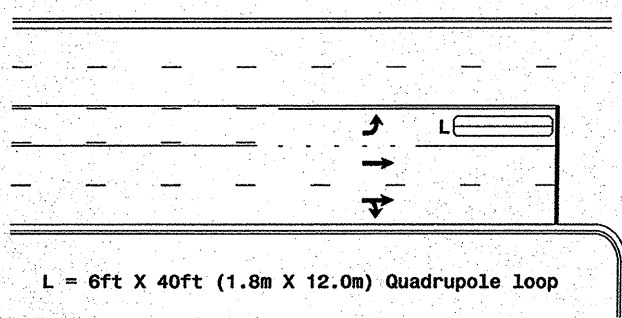
OR



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

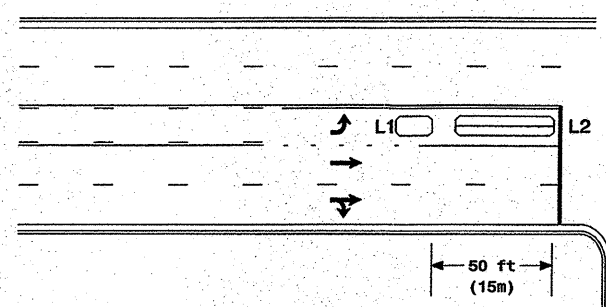
Left Turn Lane Detection



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

Presence Loop Detection

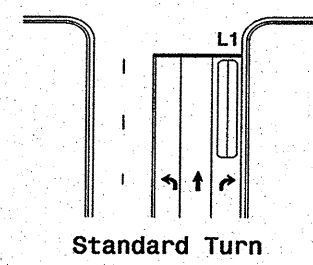
OR



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

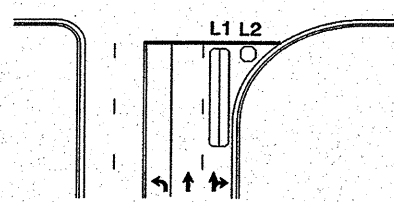
Queue Loop Detection

Right Turn Lane Detection

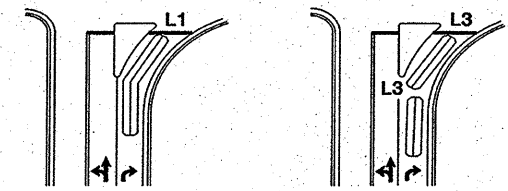


Standard Turn

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

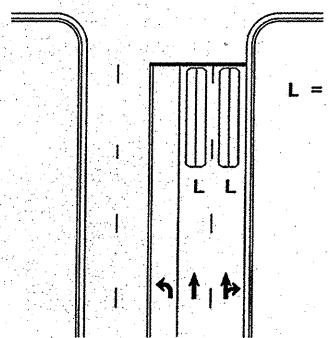


Wide Radius Turn



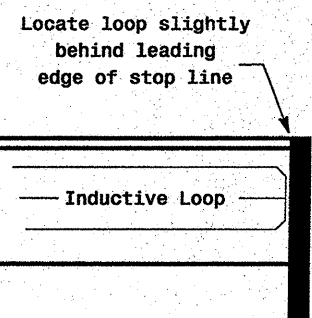
Channelized Turn

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



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

	<p>Typical Loop Locations</p>		
	<p>PLAN DATE: June 2006</p> <p>PREPARED BY: P. L. Alexander</p>	<p>REVIEWED BY:</p> <p>REVIEWED BY:</p>	
<p>SCALE</p> <p>N/A</p>	<p>SIG. INVENTORY NO.</p>		<p>DATE</p>

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

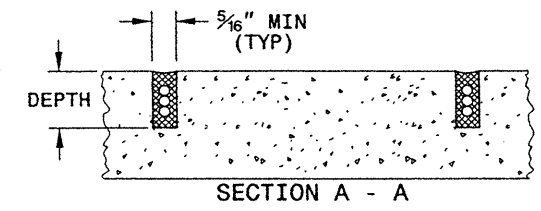
5-07

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

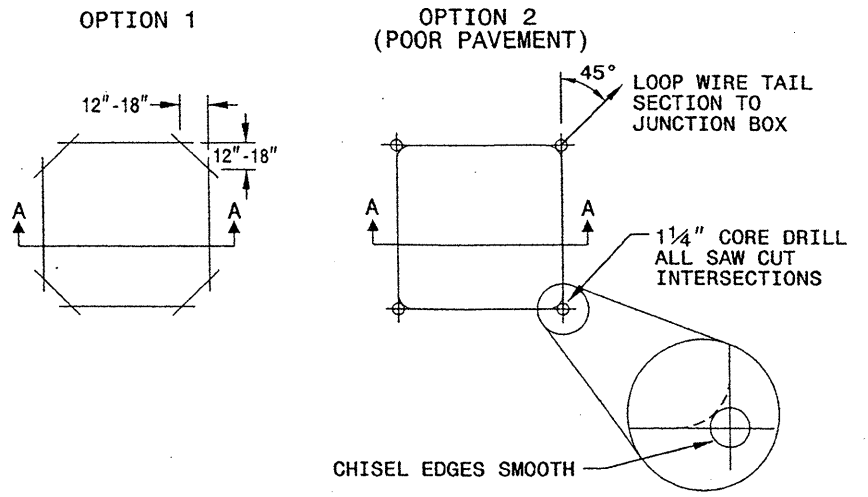
SAW SLOT DEPTH CHART

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	

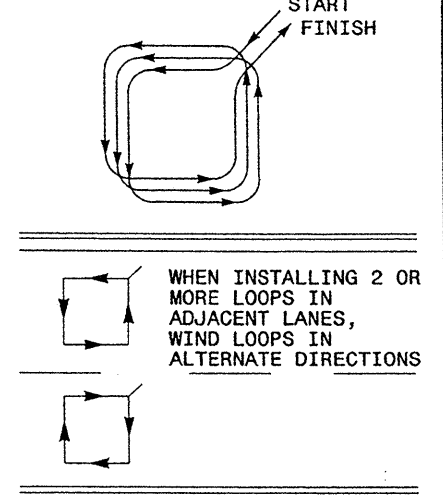


CONVENTIONAL 4-SIDED LOOP

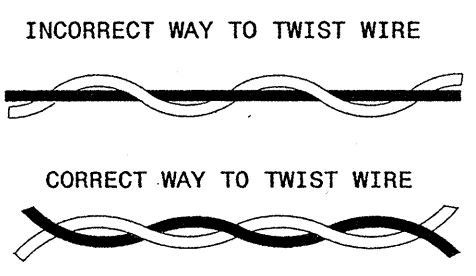
SAW CUT OPTIONS



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

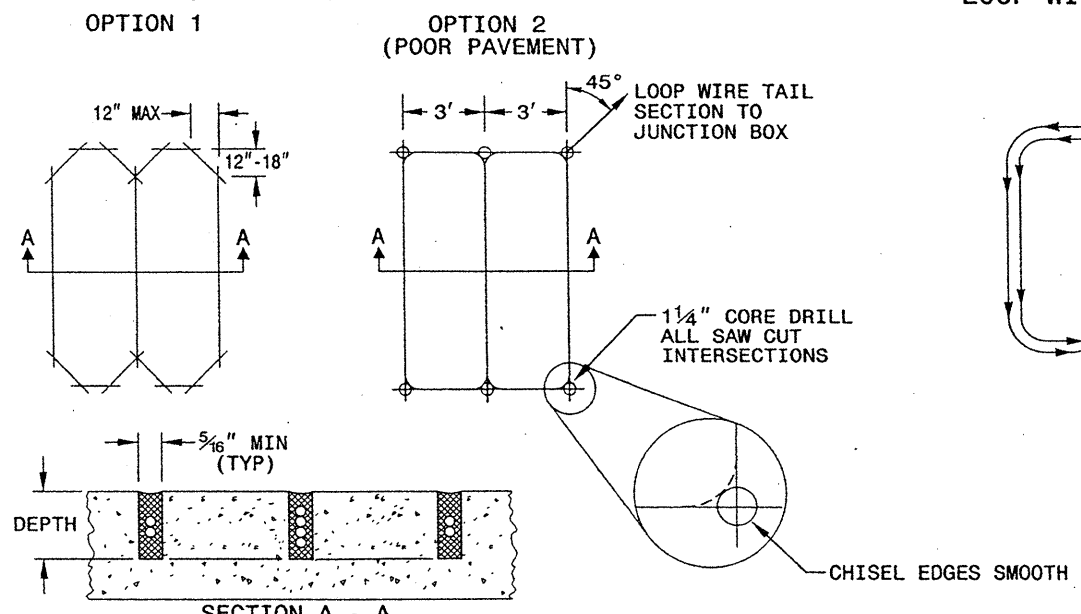


NOTES

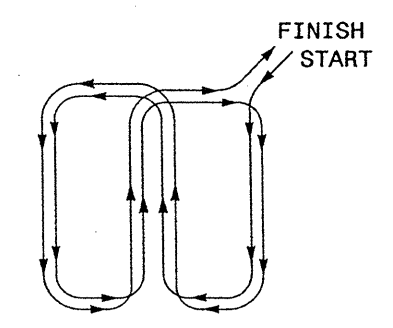
1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

QUADRUPOLE LOOP

SAW CUT OPTIONS



LOOP WINDING METHOD



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

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

5-07

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

Milton I. Dean 9/5/07
SIGNATURE DATE

05-SEP-2007 14:00 c:\documents and settings\ezml111e_dot\work\1725D01\1725D01.dwg 2/11/11

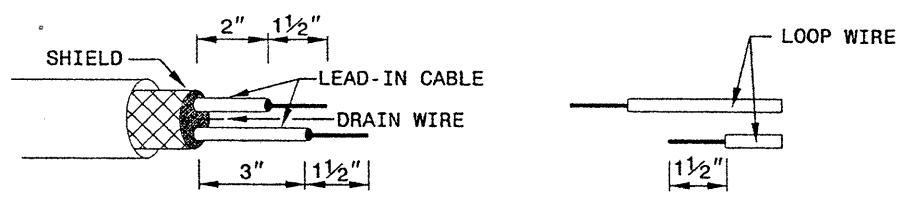
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

5-07

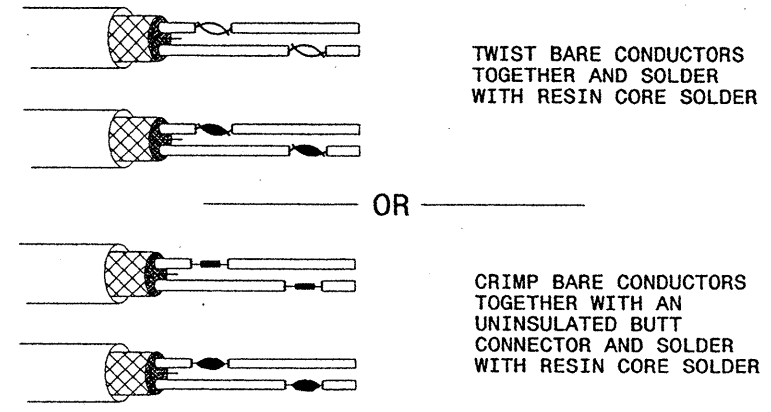
ENGLISH DETAIL DRAWING FOR
INDUCTION DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

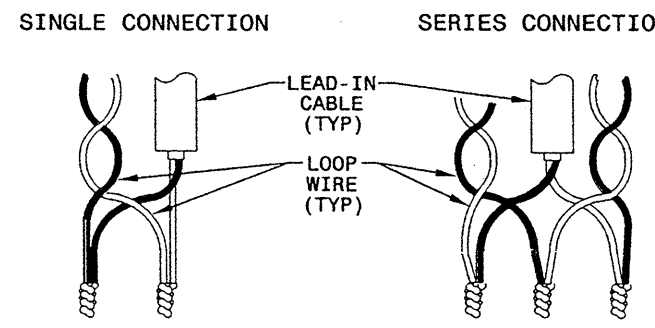


STEP 2. CONNECT AND SOLDER

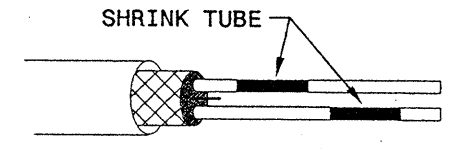


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

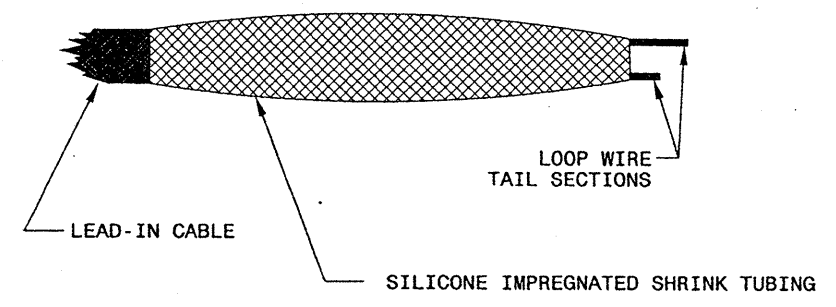
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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

5-07

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

SEAL

ENGINEER
MILTON I. DEAN

Milton I. Dean 9/5/07
SIGNATURE DATE

06-SEP-2007 14:01
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1116