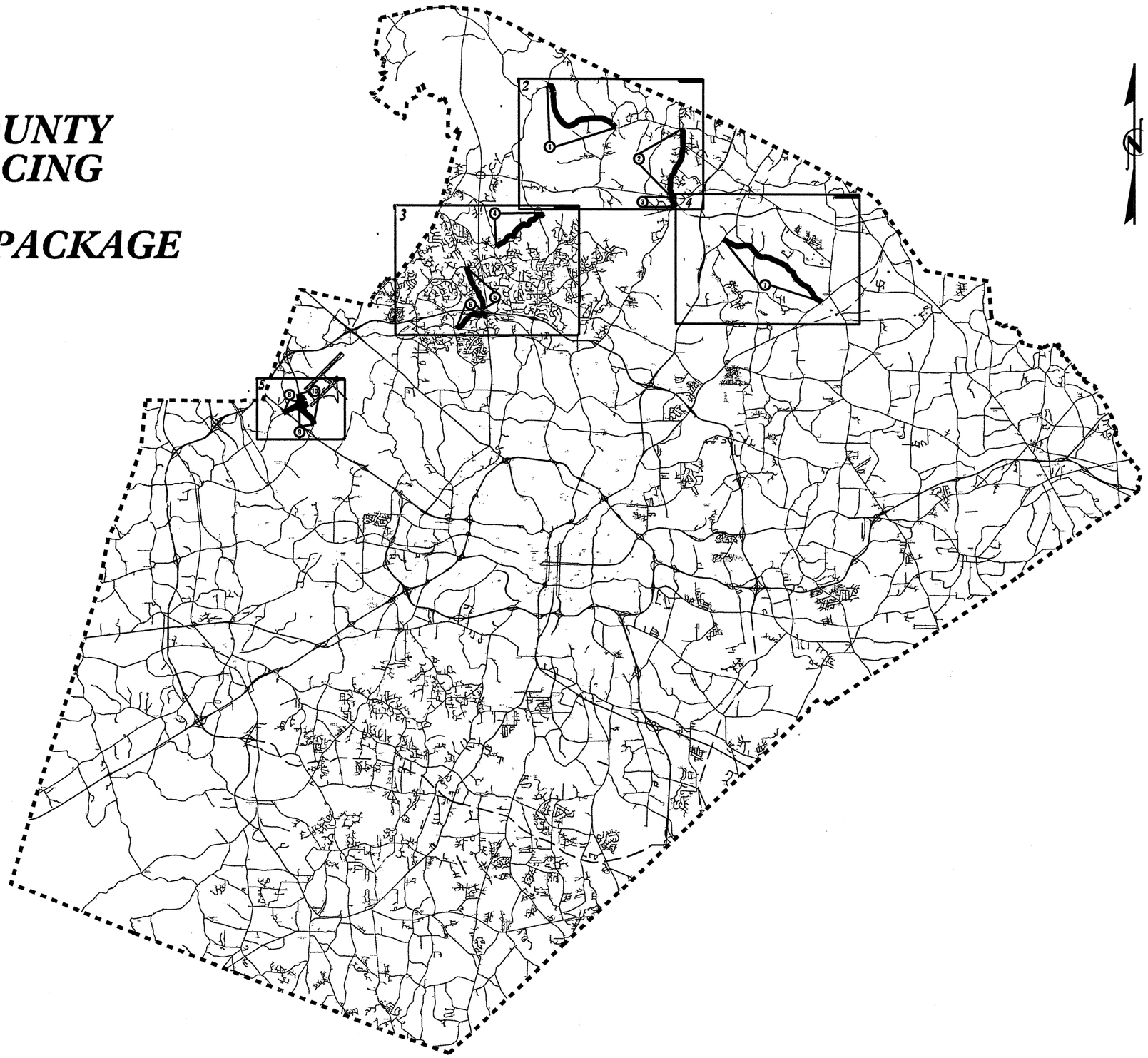
6/2/99

PROJECT REFERENCE NO.	SHEET NO.
5CR.20921.28	1

WAKE COUNTY RESURFACING 2011 NORTHERN PACKAGE



PROJECT REFERENCE NO.	SHEET NO.
5CR.20921.28	2

6/2/99

2

1

2

3

PROJECT REFERENCE NO.	SHEET NO.
5CR2092128	3

3

4

5

6

Pleasant Union Elem. Sch.

Brassfield Elem. Sch.

Leesville

Wildwood Green G.C.

PROPOSED/UNDER CONSTRUCTION

1. Chambersbury Rd. .08
2. Greylyn Rd. .27
3. Wessex Ct. .03
4. Charlton Ct. .04

PROJECT REFERENCE NO. 5CR.20921.28 | SHEET NO. 4

6-2-9

4

7

Forestville

Wake Forest Elem. Sch.

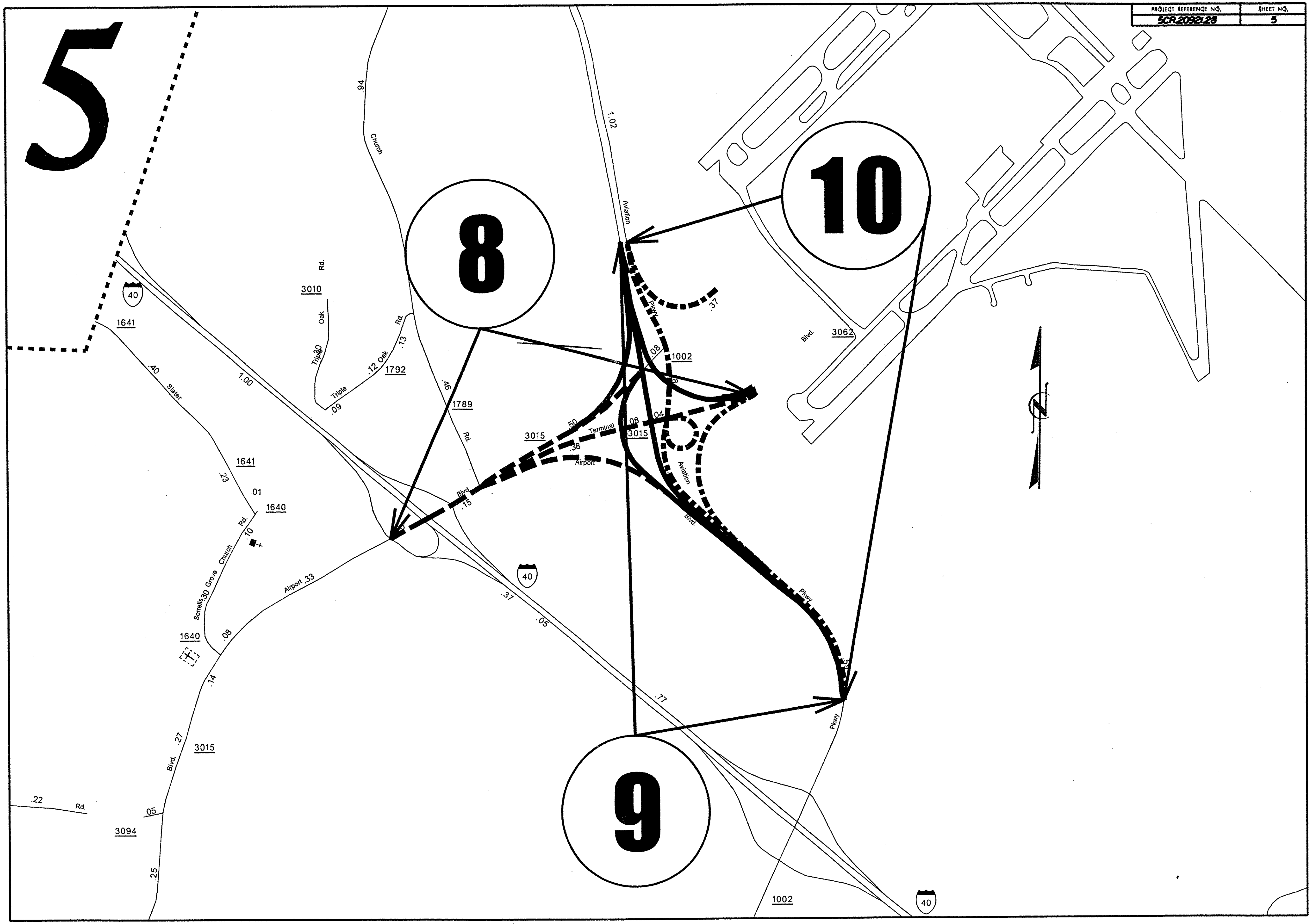
Wake Forest Rolesville Middle Sch.

Wyatt

ROLESVILLE
POP. 1,742

Rolesville Elem Sch.

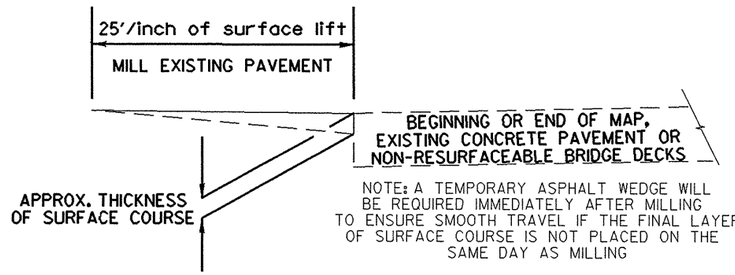
PROPOSED UNDER CONSTRUCTION


PROJECT REFERENCE NO. 5CR.2092128
SHEET NO. 5
5
8
9
10
Aviation Pkwy
1.02
Church
.94
Rd.
3010
Oak
Triple
1792
.12
.13
.09
.46
1789
1641
.40
Slater
1.00
40
1641
.23
.01
1640
.10
Sorrells Grove Church
.30
1640
.08
.14
Airport .33
3015
.50
Terminal
.08
3015
.04
.38
Airport
Blvd.
.15
1002
.08
.37
Blvd.
3062
Aviation
Blvd.
Pkwy
.37
.05
.77
Pkwy
.27
3015
Blvd.
.22
Rd.
.05
3094
.25
1002
40

PROJECT REFERENCE NO.	SHEET NO.
5CR.20921.28	6

PAVEMENT SCHEDULE

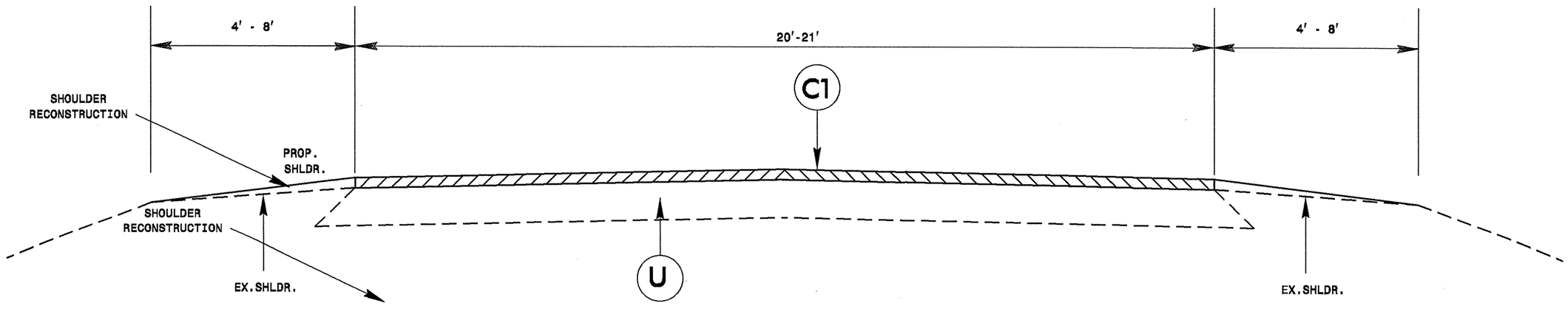
C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
E	5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
U	EXISTING PAVEMENT
V	1½" MILLING



DETAIL FOR INCIDENTAL MILLING

NOTES

ALL UNPAVED S.R. 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.
BRIDGES TO BE RESURFACED AT LOCATIONS AND TO DEPTH AS DIRECTED BY THE ENGINEER.

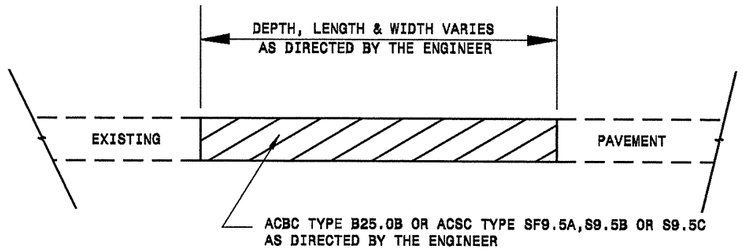


TYPICAL SECTION NO. 1

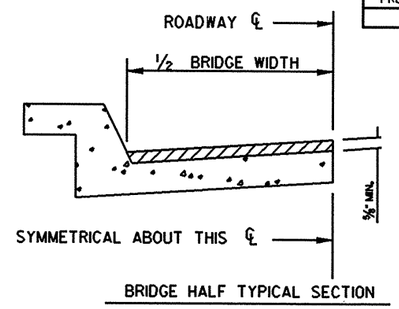
PROJECT REFERENCE NO.	SHEET NO.
5CR.2092128	7

PAVEMENT SCHEDULE

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
E	5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
U	EXISTING PAVEMENT
V	1½" MILLING

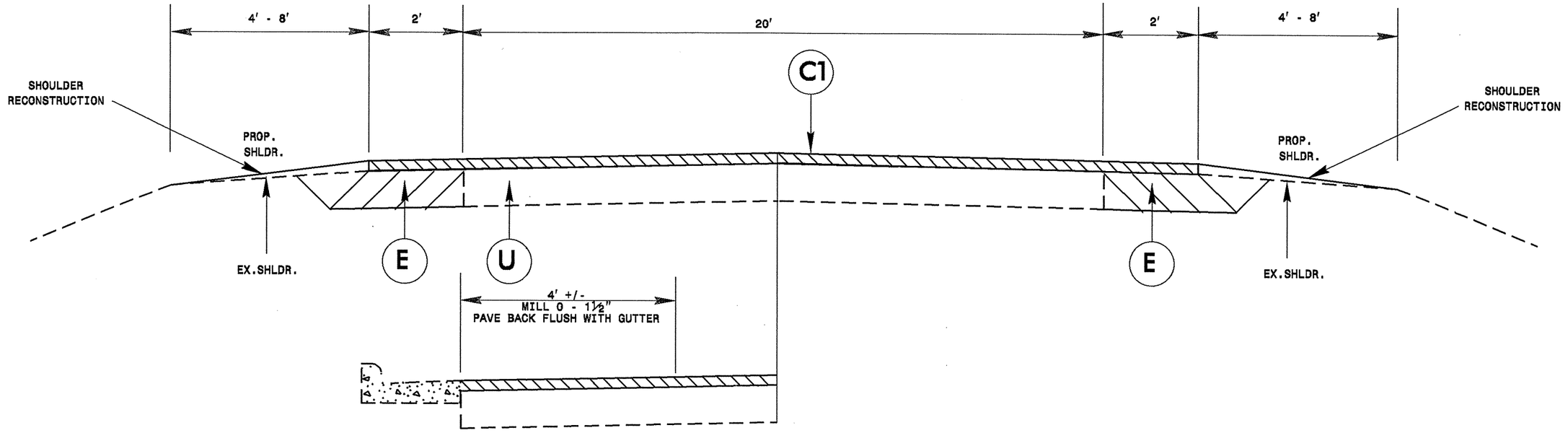


PATCHING EXISTING PAVEMENT

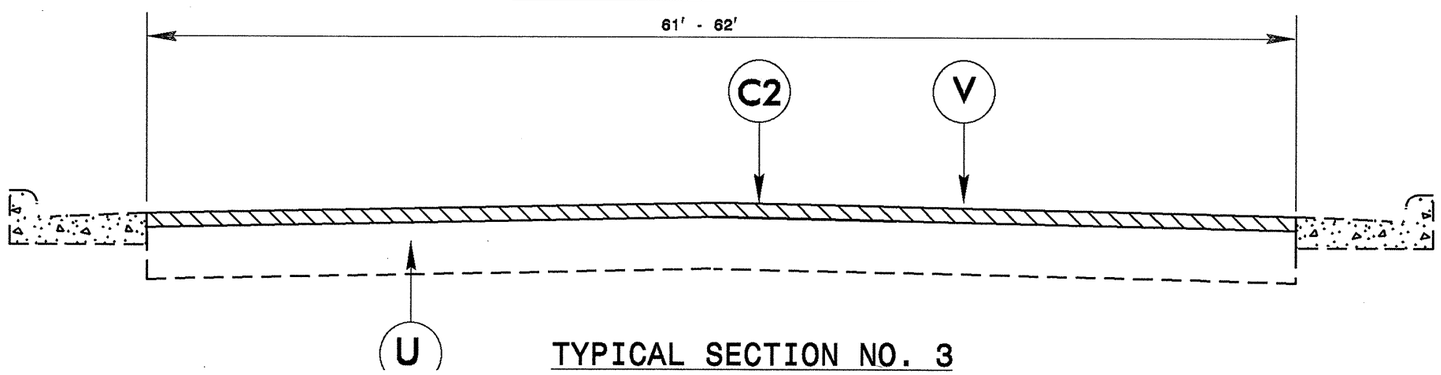


BRIDGE HALF TYPICAL SECTION

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. A THICKNESS OF NOT LESS THAN ⅝" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1 ½" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.



TYPICAL SECTION NO. 2

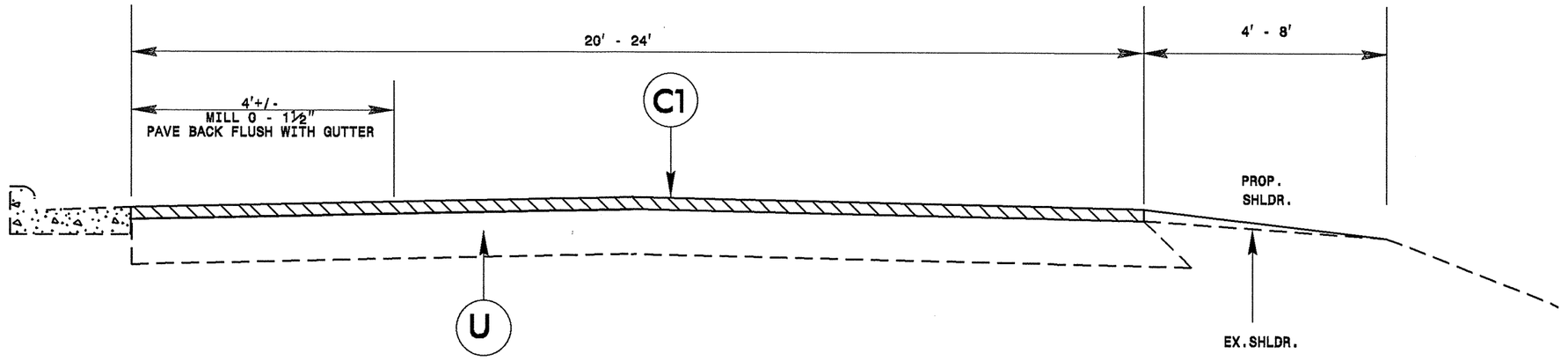


TYPICAL SECTION NO. 3

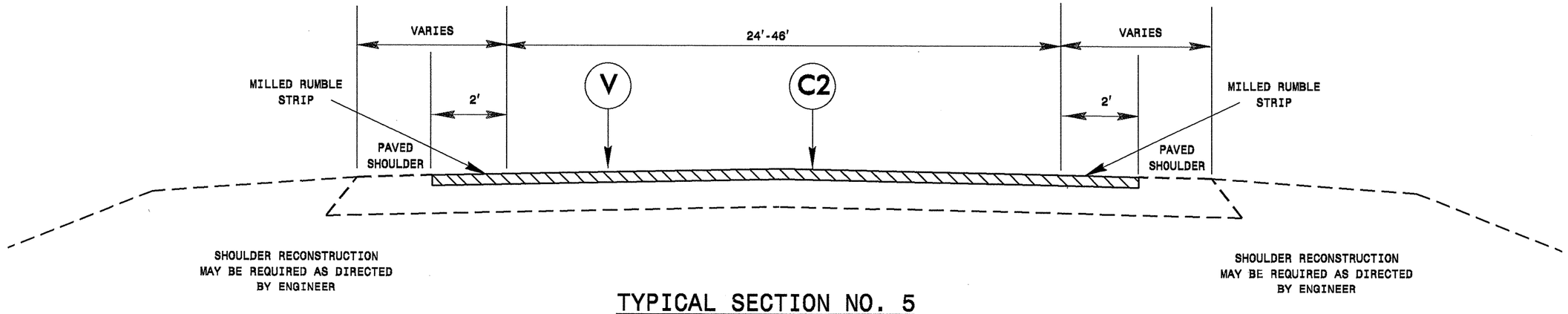
PROJECT REFERENCE NO.	SHEET NO.
5CR.20921.28	8

PAVEMENT SCHEDULE

C1	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
E	5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
U	EXISTING PAVEMENT
V	1½" MILLING



TYPICAL SECTION NO. 4



TYPICAL SECTION NO. 5

* IF PAVED SHOULDER IS > 4' WIDE, MILL ONLY 2' BEYOND EDGE LINES
* IF PAVED SHOULDER IS < 4' WIDE, MILL TO THE EDGE OF PAVEMENT

PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.20921.28	9	

SUMMARY OF QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	TYP NO	FINAL SURFACE TESTING REQUIRED	LENGTH MI	WIDTH FT	BORROW CY	INCIDENTAL STONE BASE TONS	SHOULDER RECON-STRUCTION SMI	1½" MILLING SY	0" TO 1.5" MILLING SY	INCIDENTAL MILLING SY	BASE COURSE, B25.0B TONS	SURFACE COURSE, S9.5B TONS	SURFACE COURSE, S9.5C TONS	PG 64-22 PLANT MIX TONS	PG 70-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	MILLED RUMBLE STRIPS (ASPHALT CEMENT CONCRETE) LF	ADJUST METER OR VALVE BOX EA	SEED & MULCHING AC	INDUCTIVE LOOP LF
5CR.20921.28	Wake	1	SR 1909 - PURNELL RD	SR 1907 - NEW LIGHT RD TO SR 1917 - STONY HILL RD	2	NO	3.73	24		187	7.46			530	3,211	3,867		370		1,850			5.41	
TOTAL FOR MAP NO. 1							**3.73**			**187**	**7.46**			**530**	**3,211**	**3,867**		**370**		**1,850**			**5.41**	
		2	SR 1923 - THOMPSON MILL RD	NC 98 TO SR 1909 - PURNELL RD	1	NO	2.65	20	106	133	5.30			520		3,022		181		2,640			3.84	408
TOTAL FOR MAP NO. 2							**2.65**		**106**	**133**	**5.30**			**520**		**3,022**		**181**		**2,640**			**3.84**	**408**
		3	SR 1923 - THOMPSON MILL RD	SR 1967 TO CUL DE SAC	1	NO	0.36	20	16	20	0.72			440		413		25		380			0.52	408
TOTAL FOR MAP NO. 3							**0.36**		**16**	**20**	**0.72**			**440**		**413**		**25**		**380**			**0.52**	**408**
		4	SR 1847 - PLEASANT UNION CH RD	SR 1844 - MT VERNON CH RD TO EOM	1	NO	2.33	20	94	117	4.66			445		2,679		161		2,340			3.38	
TOTAL FOR MAP NO. 4							**2.33**		**94**	**117**	**4.66**			**445**		**2,679**		**161**		**2,340**			**3.38**	
		5	SR 1831 - OLD CREEDMORE RD	SR 1834 - NORWOOD RD. TO BEECHNUT TRL	2	NO	1.76	24		88	3.52		960	725	1,529	2,373		208		1,232			2.55	
TOTAL FOR MAP NO. 5							**1.76**			**88**	**3.52**		**960**	**725**	**1,529**	**2,373**		**208**		**1,232**			**2.55**	
		6	SR 1830 - BAILYWICK RD	SR 1829 - STRICKLAND RD. TO NC 50 - CREEDMOOR RD	1	NO	1.34	21	54	67	2.68			54		1,738		104		1,330			1.94	408
TOTAL FOR MAP NO. 6							**1.34**		**54**	**67**	**2.68**			**54**		**1,738**		**104**		**1,330**			**1.94**	**408**
		7	SR 2052 - ROGERS RD.	US1A TO US 401	4	NO	4.54	24	141	175	7.02		4,834	1,498		9,058		544		2,270		2	5.11	2,634
TOTAL FOR MAP NO. 7							**4.54**		**141**	**175**	**7.02**		**4,834**	**1,498**		**9,058**		**544**		**2,270**		**2**	**5.11**	**2,634**
		8	SR 3015 - AIRPORT BLVD AND RAMPS	JUST EAST OF 40 INTERCHANGE RAMPS NORTH TO EOM	5	NO	0.29	46	24	100	1.10	36,867					3,254		195	363			0.86	1,315
TOTAL FOR MAP NO. 8							**0.29**		**24**	**100**	**1.10**	**36,867**					**3,254**		**195**	**363**			**0.86**	**1,315**
		9	SR 1002 - AVIATION PKWY SB AND RAMPS	JT NORTH OF 40 TO JT NEAR AIRPORT BLVD	3,5	NO	1.33	22	16	100	0.79	46,307					4,093		246	245	8,325		0.58	300
TOTAL FOR MAP NO. 9							**1.33**		**16**	**100**	**0.79**	**46,307**					**4,093**		**246**	**245**	**8,325**		**0.58**	**300**
		10	SR 1002 - AVIATION PKWY NB AND RAMPS	JT. NORTH OF 40 TO JT NEAR AIRPORT BLVD.	3,5	NO	1.39	22	17	100	0.85	33,486					2,962		178	140	7,388		0.62	300
TOTAL FOR MAP NO. 10							**1.39**		**17**	**100**	**0.85**	**33,486**					**2,962**		**178**	**140**	**7,388**		**0.62**	**300**
TOTAL FOR PROJ NO. 5CR.20921.28							**19.72**		**468**	**1,087**	**34.10**	**116,660**	**5,794**	**4,212**	**4,740**	**23,150**	**10,309**	**1,593**	**619**	**12,790**	**15,713**	**2**	**24.81**	**5,773**
GRAND TOTAL							**19.72**		**468**	**1,087**	**34.10**	**116,660**	**5,794**	**4,212**	**4,740**	**23,150**	**10,309**	**1,593**	**619**	**12,790**	**15,713**	**2**	**24.81**	**5,773**

PROJECT NO.	SHEET NO.	TOTAL NO.
5CR.20921.28	10	

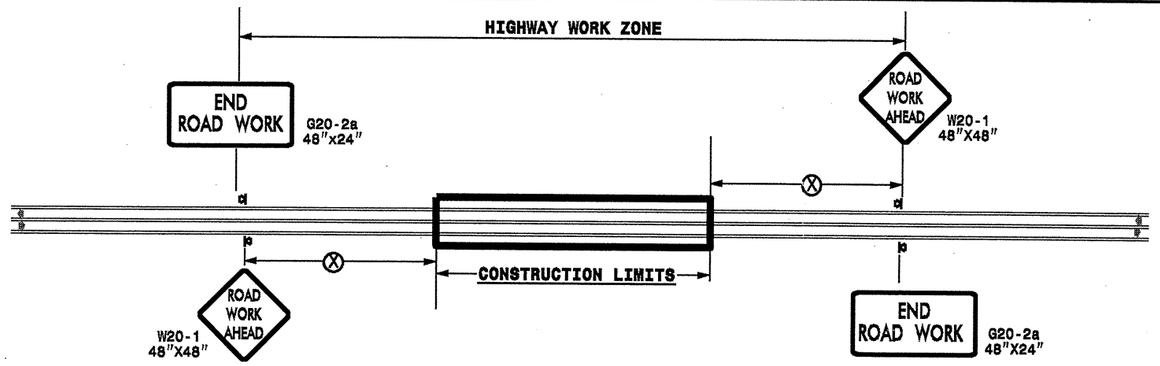
THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4685000000-E 4" X 90 M WHITE THERMO LF	4685000000-E 4" X 90 M YELLOW THERMO LF	4686000000-E 4" X 120 M YELLOW THERMO LF	4686000000-E 4" X 120 M WHITE THERMO LF	4695000000-E 8" X 90 M WHITE THERMO LF	4697000000-E 8" X 120 M YELLOW THERMO LF	4705000000-E 16" X 120 M WHITE THERMO LF	4710000000-E 24" X 120 M WHITE THERMO LF	4721000000-E THERMO MSG SCHOOL 120 M EA	4721000000-E THERMO RXR 120 M EA	4721000000-E THERMO MSG ONLY 120 M EA	4725000000-E THERMO LT ARROW 90 M EA	4725000000-E THERMO STR ARROW 90 M EA	4725000000-E THERMO RT ARROW 90 M EA	4725000000-E THERMO STR & RT ARROW 90 M EA	4725000000-E THERMO STR & LT ARROW 90 M EA
5CR.20921.28	Wake	1	SR 1909 - PURNELL RD	SR 1907 - NEW LIGHT RD TO SR 1917 - STONY HILL RD	39,072		39,072													
TOTAL FOR MAP NO. 1					39,072		39,072													
		2	SR 1923 - THOMPSON MILL RD	NC 98 TO SR 1909 - PURNELL RD	27,880		27,880	305		420		100				2	1	1		
TOTAL FOR MAP NO. 2					27,880		27,880	305		420		100				2	1	1		
		3	SR 1923 - THOMPSON MILL RD	SR 1967 TO CUL DE SAC	4,014		4,014	88				68							1	
TOTAL FOR MAP NO. 3					4,014		4,014	88				68							1	
		4	SR 1847 - PLEASANT UNION CH RD	SR 1844 - MT VERNON CH RD TO EOM	24,711		24,711	150				100	6					4		
TOTAL FOR MAP NO. 4					24,711		24,711	150				100	6					4		
		5	SR 1831 - OLD CREEDMORE RD	SR 1834 - NORWOOD RD. TO BEECHNUT TRL	18,375		18,375													
TOTAL FOR MAP NO. 5					18,375		18,375													
		6	SR 1830 - BAILYWICK RD	SR 1829 - STRICKLAND RD. TO NC 50 - CREEDMOOR RD	14,044		14,845	280		110		214	12			3	4	1	1	
TOTAL FOR MAP NO. 6					14,044		14,845	280		110		214	12			3	4	1	1	
		7	SR 2052 - ROGERS RD.	US1A TO US 401	37,595		48,790	4,867		220	100	415	12	4	36	53	8	29	5	2
TOTAL FOR MAP NO. 7					37,595		48,790	4,867		220	100	415	12	4	36	53	8	29	5	2
		8	SR 3015 - AIRPORT BLVD AND RAMPS	JUST EAST OF 40 INTERCHANGE RAMPS NORTH TO EOM	11,076		10,248	4,205	3,352			269				4	18	4	4	
TOTAL FOR MAP NO. 8					11,076		10,248	4,205	3,352			269				4	18	4	4	
		9	SR 1002 - AVIATION PKWY SB AND RAMPS	JT NORTH OF 40 TO JT NEAR AIRPORT BLVD	11,770	11,640		3,845	7,650			42				3	19			
TOTAL FOR MAP NO. 9					11,770	11,640		3,845	7,650			42				3	19			
		10	SR 1002 - AVIATION PKWY NB AND RAMPS	JT. NORTH OF 40 TO JT NEAR AIRPORT BLVD.	10,570	10,190		1,970	3,250			38				1	4		1	
TOTAL FOR MAP NO. 10					10,570	10,190		1,970	3,250			38				1	4		1	
TOTAL FOR PROJ NO. 5CR.20921.28					199,107	21,830	187,935	15,710	14,252	750	100	1,246	30	4	36	66	54	39	12	2
					220,937		203,645							70		173				
GRAND TOTAL					199,107	21,830	187,935	15,710	14,252	750	100	1,246	30	4	36	66	54	39	12	2
					220,937		203,645							70		173				

PROJECT NO	COUNTY	MAP NO	ROUTE	DESCRIPTION	4770000000-E 4" WHITE COLD APPLIED PLASTIC, TYPE III LF	4770000000-E 4" YELLOW COLD APPLIED PLASTIC, TYPE III LF	4810000000-E 4" WHITE PAINT LF	4810000000-E 4" YELLOW PAINT LF	4820000000-E 8" WHITE PAINT LF	4835000000-E 24" WHITE PAINT LF	4845000000-N PAINT LT ARROW EA	4845000000-N PAINT RT ARROW EA	4845000000-N PAINT STR ARROW EA	4845000000-N PAINT STR & RT ARROW EA	4850000000-E 4" LINE REMOVAL LF	4860000000-E 8" LINE REMOVAL LF	4870000000-E 24" LINE REMOVAL LF	4875000000-N REML OF PVMT MRKG SYMBOLS & CHARACTERS EA	4900000000-N YELLOW & YELLOW MARKERS EA	4900000000-N CRYSTAL & RED MARKERS EA
5CR.20921.28	Wake	1	SR 1909 - PURNELL RD	SR 1907 - NEW LIGHT RD TO SR 1917 - STONY HILL RD	225	225									450				246	
TOTAL FOR MAP NO. 1					225	225									450				246	
		2	SR 1923 - THOMPSON MILL RD	NC 98 TO SR 1909 - PURNELL RD															175	32
TOTAL FOR MAP NO. 2																			175	32
		3	SR 1923 - THOMPSON MILL RD	SR 1967 TO CUL DE SAC															26	8
TOTAL FOR MAP NO. 3																			26	8
		4	SR 1847 - PLEASANT UNION CH RD	SR 1844 - MT VERNON CH RD TO EOM															154	16
TOTAL FOR MAP NO. 4																			154	16
		5	SR 1831 - OLD CREEDMORE RD	SR 1834 - NORWOOD RD. TO BEECHNUT TRL	210	210									420				116	4
TOTAL FOR MAP NO. 5					210	210									420				116	4
		6	SR 1830 - BAILYWICK RD	SR 1829 - STRICKLAND RD. TO NC 50 - CREEDMOOR RD															120	25
TOTAL FOR MAP NO. 6																			120	25
		7	SR 2052 - ROGERS RD.	US1A TO US 401															375	312
TOTAL FOR MAP NO. 7																			375	312
		8	SR 3015 - AIRPORT BLVD AND RAMPS	JUST EAST OF 40 INTERCHANGE RAMPS NORTH TO EOM	750	600	45,843	30,744	8,745	807	12	12	54	12	26,879	2,915	269	30	40	361
TOTAL FOR MAP NO. 8					750	600	45,843	30,744	8,745	807	12	12	54	12	26,879	2,915	269	30	40	361
		9	SR 1002 - AVIATION PKWY SB AND RAMPS	JT NORTH OF 40 TO JT NEAR AIRPORT BLVD			46,842	34,920	22,950	126	9		57		27,254	7,650	42	22	4	545
TOTAL FOR MAP NO. 9							46,842	34,920	22,950	126	9		57		27,254	7,650	42	22	4	545
		10	SR 1002 - AVIATION PKWY NB AND RAMPS	JT. NORTH OF 40 TO JT NEAR AIRPORT BLVD.	590	390	37,620	30,570	8,964	114	3		12	3	23,710	2,988	38	6	4	286
TOTAL FOR MAP NO. 10					590	390	37,620	30,570	8,964	114	3		12	3	23,710	2,988	38	6	4	286
TOTAL FOR PROJ NO. 5CR.20921.28					1,775	1,425	130,305	96,234	40,659	1,047	24	12	123	15	78,713	13,553	349	58	1,260	1,589
					3,200		226,539				174									
GRAND TOTAL					1,775	1,425	130,305	96,234	40,659	1,047	24	12	123	15	78,713	13,553	349	58	1,260	1,589
					3,200		226,539				174									

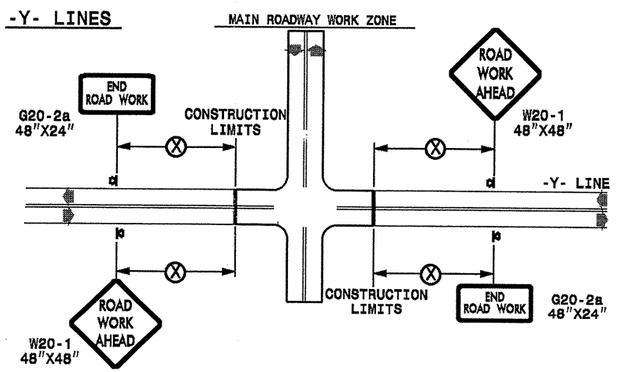
PROJ. REFERENCE NO.	SHEET NO.
5CR.20921.28	TCP-1

TWO-WAY UNDIVIDED ** (L-LINES)



POSTED SPEED LIMIT (M.P.H.)	RECOMMENDED MINIMUM SIGN SPACING (X)
≤ 50	500'
≥ 55	1000'

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

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

DETAIL DRAWING FOR TWO-WAY UNDIVIDED WORK ZONE WARNING SIGNS

SHEET 1 OF 1

APPROVED:_____ DATE:_____

SEAL

DETAIL DRAWING
FOR TWO-WAY UNDIVIDED
ADVANCED WORK ZONE WARNING SIGNS

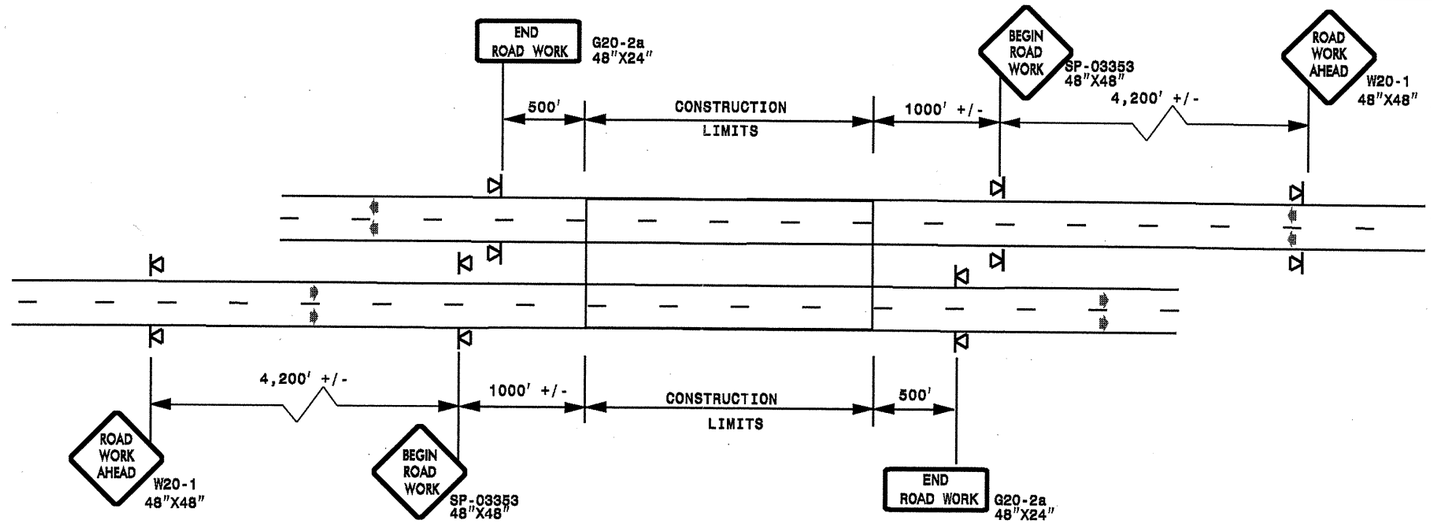
SCALE: NONE	REVISIONS	
DATE:	7-98	10/01
DWG. BY:	10-98	03/04
DESIGN BY:	01/01	11/04
REVIEWED BY:	CADD FILE	

30-JUN-2010 17:55
S:\Signing\resurfacing_030509\Resurfacing2010\Div05\C202612.5CR.20921.28.Wake.IISRs\C202612.5CR.20921.28.2wayundivurbfrwysJuly2006.portable.dgn
pseymore AT WITC237502

PROJ. REFERENCE NO.	SHEET NO.
5CR.20921.28	TCP-2

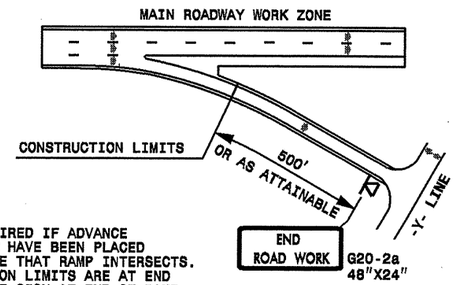
ADVANCE WORK ZONE WARNING SIGNING FOR FREEWAYS (4 LANES OR GREATER)

DETAIL A



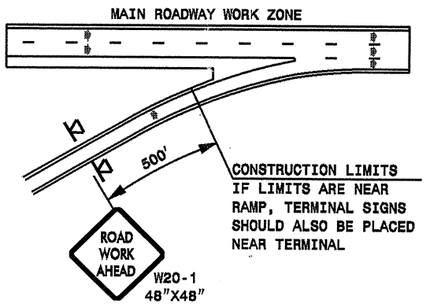
ROADWAYS INTERSECTING ALONG FREEWAY WORK ZONE (Y-LINES)

DETAIL B — EXIT RAMPS

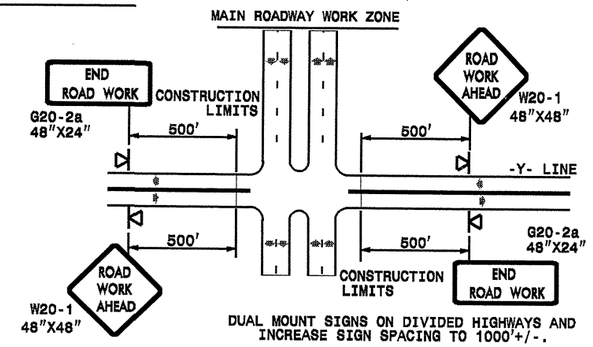


NOTE:
SIGN NOT REQUIRED IF ADVANCE WARNING SIGNS HAVE BEEN PLACED ALONG -Y- LINE THAT RAMP INTERSECTS. IF CONSTRUCTION LIMITS ARE AT END OF RAMP, PLACE SIGN AT END OF RAMP.

DETAIL C — ENTRANCE RAMPS



DETAIL D — -Y- LINES



DUAL MOUNT SIGNS ON DIVIDED HIGHWAYS AND INCREASE SIGN SPACING TO 1000'+/-.

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 MULTI-LANE FACILITIES WHERE CONDITIONS LIMIT THE USE OF DUAL MOUNTED SIGNS AS DETERMINED BY THE ENGINEER.

LEGEND

- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

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

DETAIL DRAWING FOR FREEWAYS WORK ZONE WARNING SIGNS (SHORT-DURATION LANE CLOSURES)

SHEET 1 OF 1

APPROVED:_____ DATE:_____

SEAL

DETAIL DRAWING
FOR FREEWAYS
WORK ZONE WARNING SIGNS

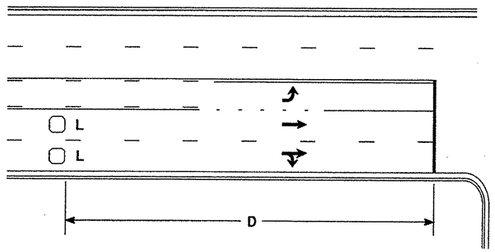
SCALE:	NONE
DATE:	
DWG. BY:	
DESIGN BY:	
REVIEWED BY:	

REVISIONS	
7-98	10/01
10-98	03/04
01/01	11/04
CADD FILE	

30-JUN-2010 18:29
S:\Signing\resurfacing_030509\Resurfacing2010\Div05\C202612.5CR.20921.28.Wake.ISRs\C202612.5CR.20921.28.freeonesgreot
pseymore AT WITC237502

PROJECT REFERENCE NO.	SHEET NO.
5CR.20921.28	SIG 1

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



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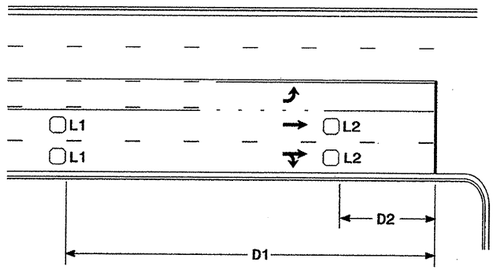


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

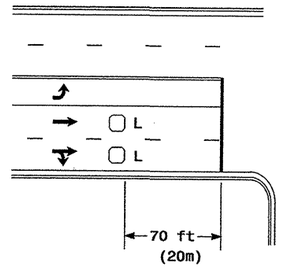
Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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)]



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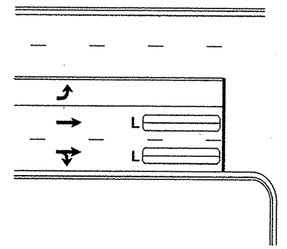
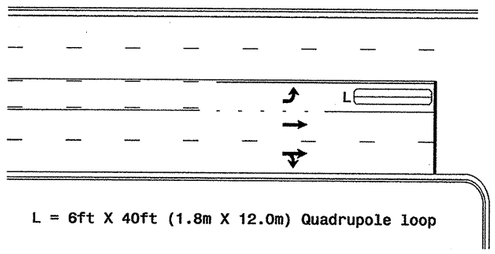


L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

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

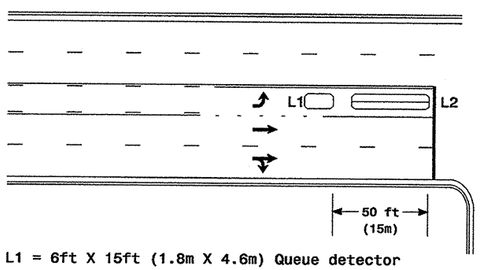
Left Turn Lane Detection



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

Presence Loop Detection

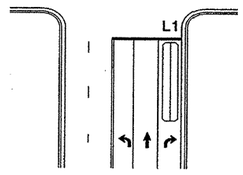
OR



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

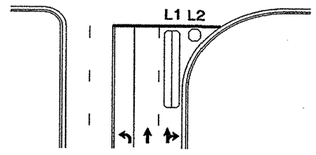
Queue Loop Detection

Right Turn Lane Detection

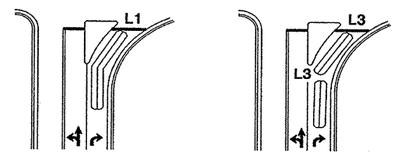


Standard Turn

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

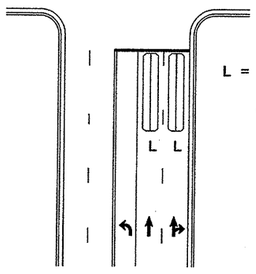


Wide Radius Turn



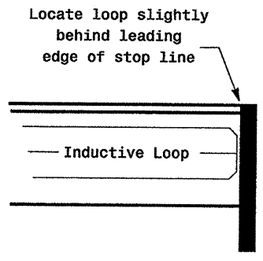
Channelized Turn

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

Prepared in the Offices of: North Carolina Department of Transportation, Traffic Engineering and Safety Systems Branch, Signals and Geometrics Section
122 N. McDowell St., Raleigh, NC 27603

Typical Loop Locations

PLAN DATE:	June 2006	REVIEWED BY:	
PREPARED BY:	P L Alexander	REVIEWED BY:	

SCALE	REVISIONS	INIT.	DATE
N/A	Revise pavement markings	pa	12/19/06

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 23486 ENGINEER PAUL L. ALEXANDER
SIGNATURE 06/06 DATE
SIG. INVENTORY NO.

19-DEC-2006 14:29
s:\traffic signals\sig loop turn lanes\loop typical2006.dgn
palexander

PROJECT REFERENCE NO.	SHEET NO.
SCR, 20921.28	Sig. 2

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

11-08

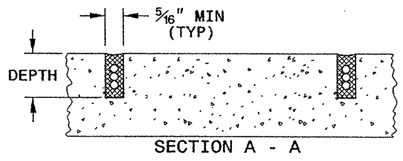
ENGLISH DETAIL DRAWING FOR

INDUCTIVE DETECTION LOOPS

CONVENTIONAL 4-SIDED LOOP

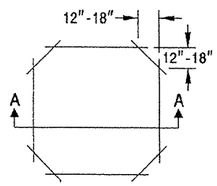
SAW SLOT DEPTH CHART

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

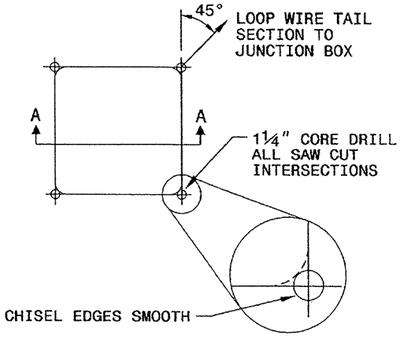


SAW CUT OPTIONS

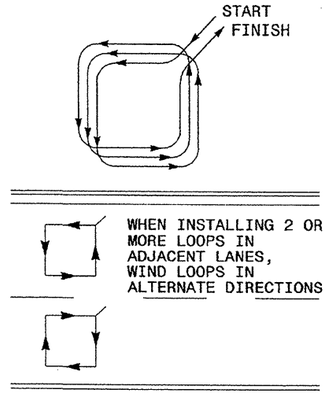
OPTION 1



OPTION 2 (POOR PAVEMENT)

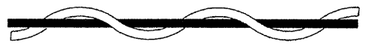


LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

INCORRECT WAY TO TWIST WIRE



CORRECT WAY TO TWIST WIRE

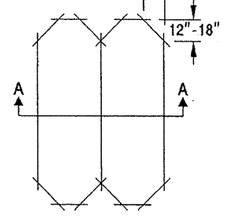
NOTES

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.

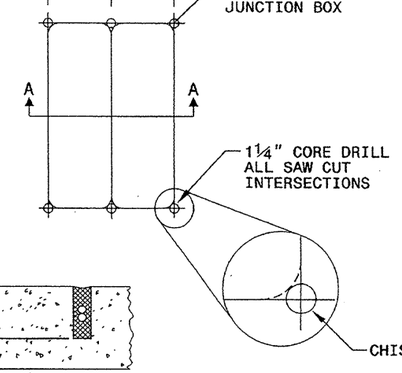
QUADRUPOLE LOOP

SAW CUT OPTIONS

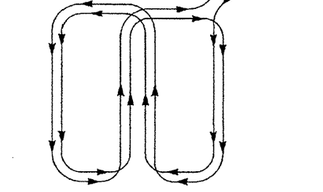
OPTION 1

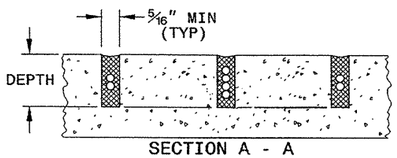


OPTION 2 (POOR PAVEMENT)



LOOP WINDING METHOD





DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

SHEET 1 OF 3
1725D01

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

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

See Plate for Title

Prepared in the Offices of:
Intelligent Transportation Systems & Signals Unit
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
750 N. Greenfield Parkway
Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 16286 ENGINEER HILTON T DEAN

SIGNATURE

11/24/08
DATE

24-NOV-2008 09:28
d:\work_files\40-standard plans sheets\1725101.dgn
jmiller

PROJECT REFERENCE NO.	SHEET NO.
SCR.20921,28	Sig. 3

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

11-08

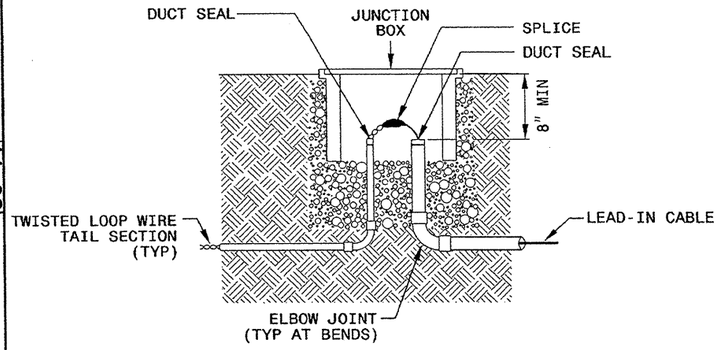
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

SHEET 2 OF 3

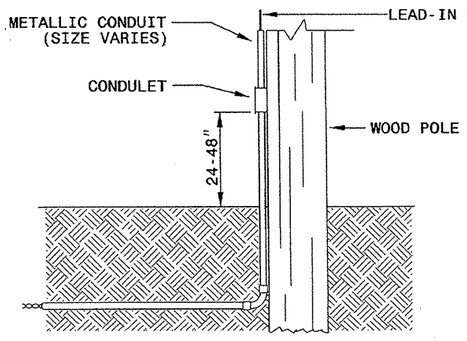
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

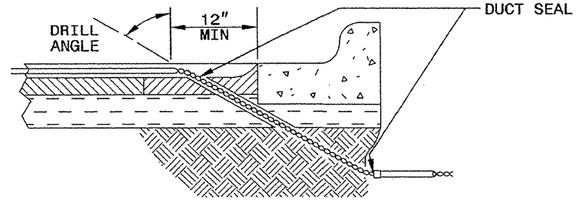


NOTE

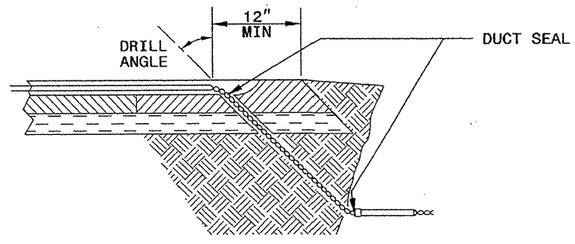
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

LOOP WIRE PAVEMENT EDGE DETAILS

LOOP WIRE AT CURB & GUTTER SECTION



LOOP WIRE AT PAVEMENT SECTION



NOTES

1. DO NOT EXCAVATE UNDER CURB AND GUTTER SECTIONS FOR CONDUIT INSTALLATION.
2. TWIST LOOP WIRE TAIL SECTIONS FROM WHERE LOOP WIRE TAIL LEAVES SAW CUT TO JUNCTION BOX, INCLUDING THROUGH CONDUIT.
3. BEFORE SEALING LOOPS, INSTALL DUCT SEAL WHERE LOOP WIRE TAIL SECTION LEAVES SAW CUT IN PAVEMENT AND AT ENTRANCE OF CONDUIT TO JUNCTION BOX.

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

11-08

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

SHEET 2 OF 3

1725D01

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zmiller

See Plate for Title

Prepared in the Offices of:

Intelligent Transportation Systems & Signals Unit
NC DEPARTMENT OF TRANSPORTATION · STATE OF NORTH CAROLINA

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16286 ENGINEER MILTON L. DEAN

Milton L. Dean 11/24/08
SIGNATURE DATE

PROJECT REFERENCE NO.	SHEET NO.
5CR.20921.28	Sig.4

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

11-08

ENGLISH DETAIL DRAWING FOR

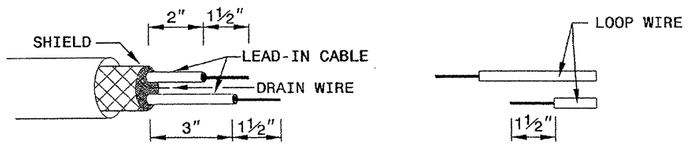
INDUCTIVE DETECTION LOOPS

SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

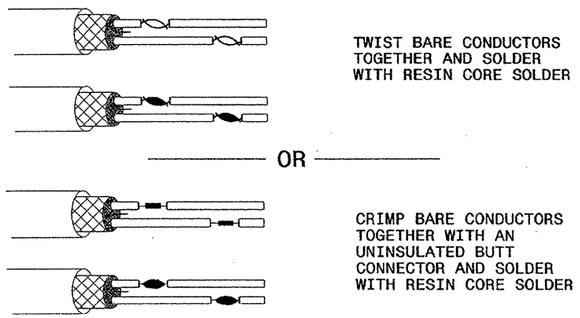
SHEET 3 OF 3

1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE



STEP 2. CONNECT AND SOLDER



TWIST BARE CONDUCTORS TOGETHER AND SOLDER WITH RESIN CORE SOLDER

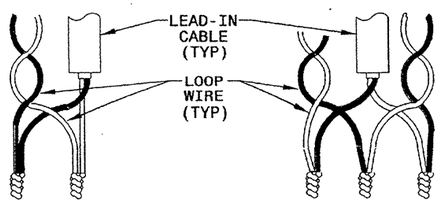
OR

CRIMP BARE CONDUCTORS TOGETHER WITH AN UNINSULATED BUTT CONNECTOR AND SOLDER WITH RESIN CORE SOLDER

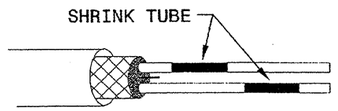
BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS

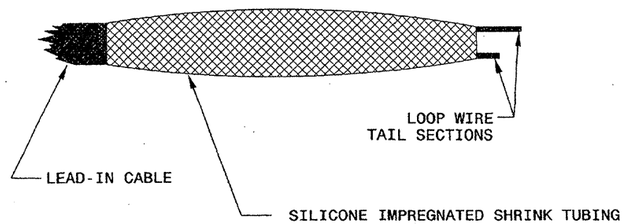
SINGLE CONNECTION SERIES CONNECTION



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.

11-08

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:
Intelligent Transportation Systems & Signals Unit
750 N. Greenfield Parkway
Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 16286 ENGINEER MILTON I. DEAN

Milton I. Dean 11/24/08
SIGNATURE DATE

24-NOV-2008 09:36
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zmiller