

BEGIN PROJECT R-5169A

MAP 1

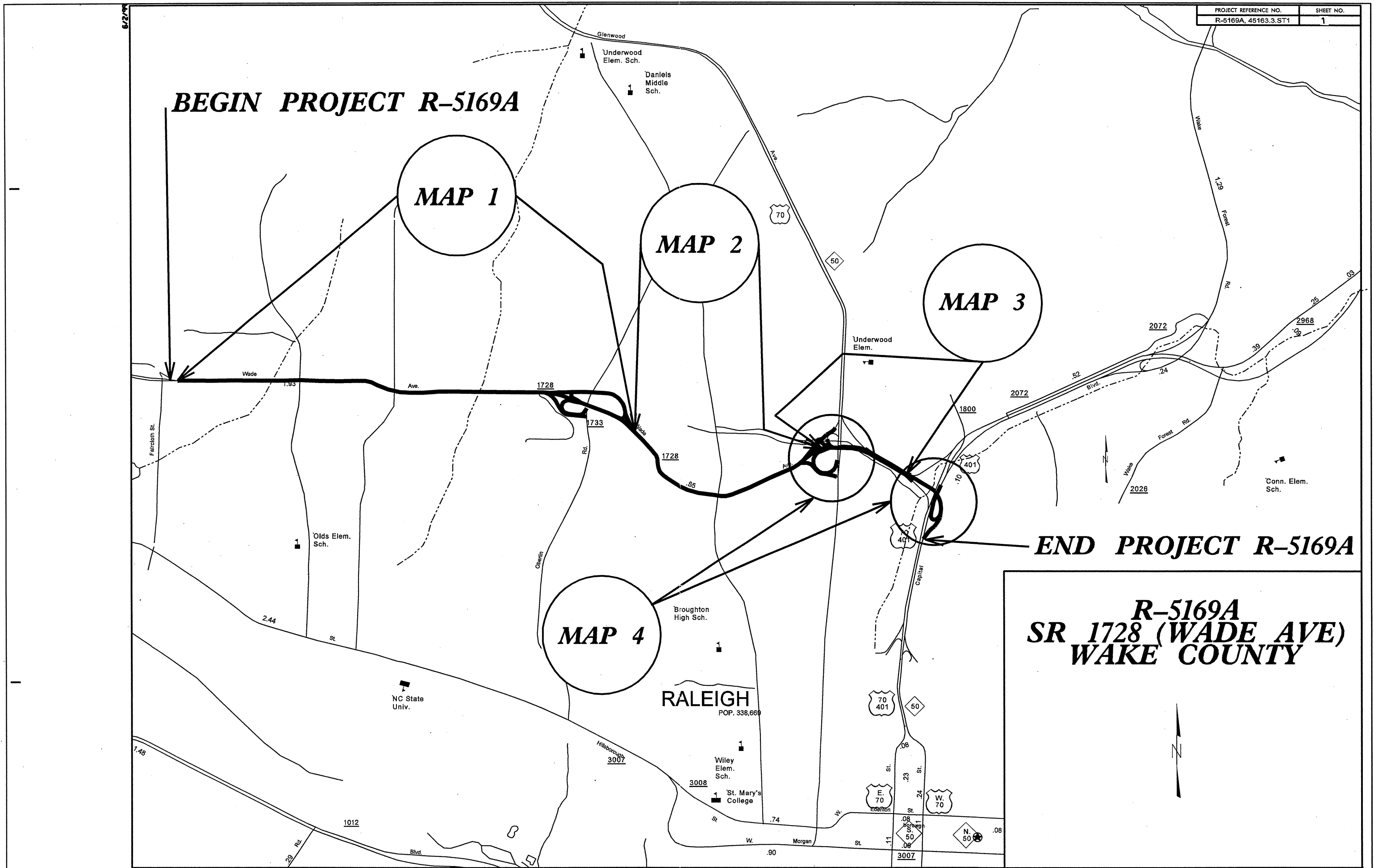
MAP 2

MAP 3

MAP 4

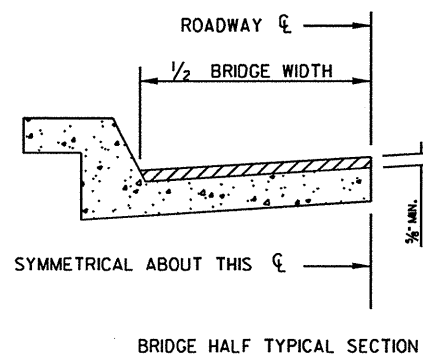
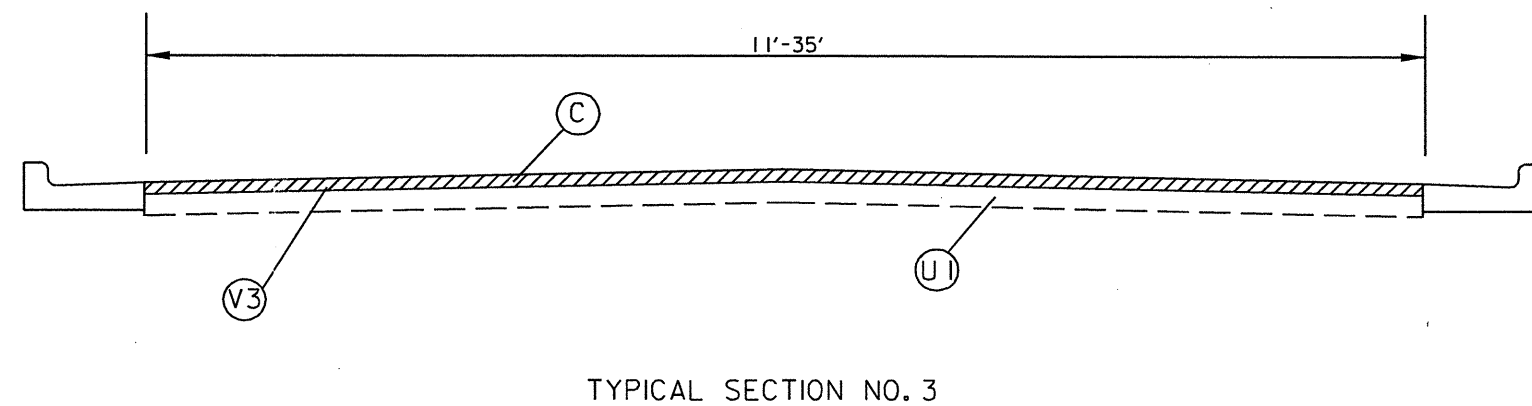
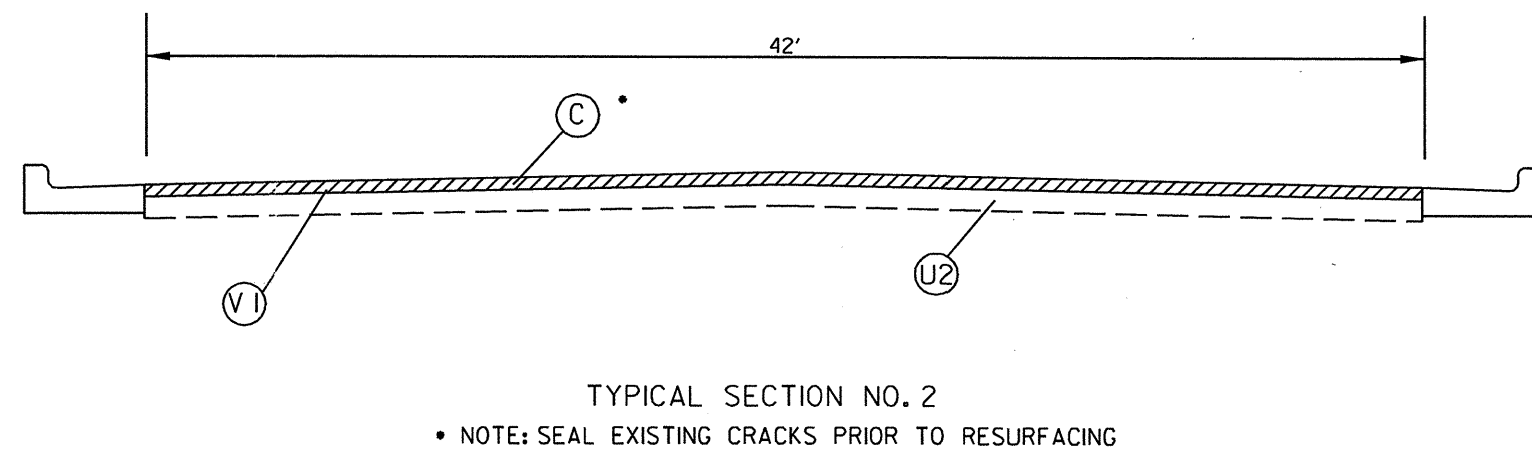
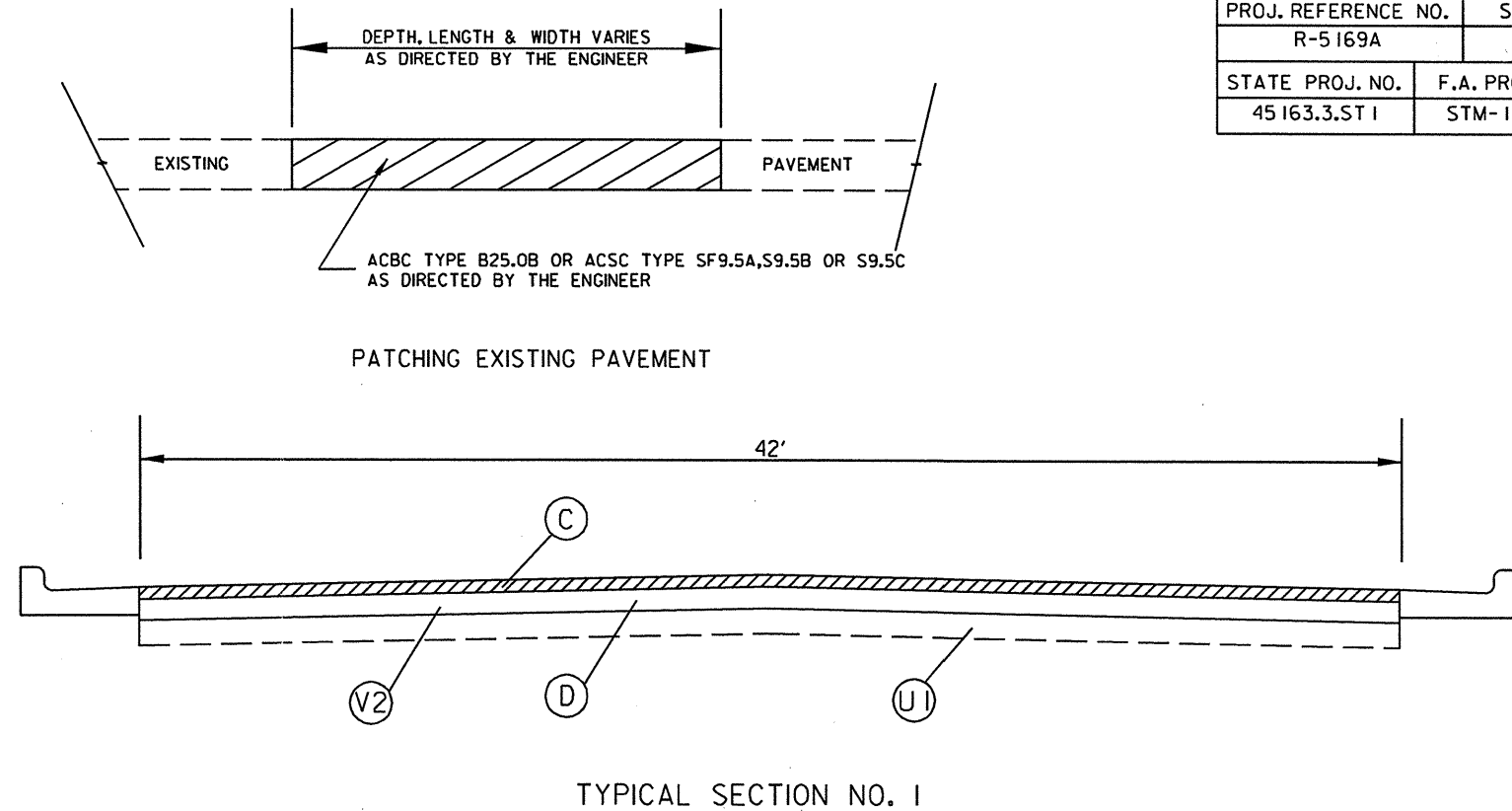
END PROJECT R-5169A

**R-5169A
SR 1728 (WADE AVE)
WAKE COUNTY**



PROJ. REFERENCE NO. R-5 169A	SHEET NO. 2	TOTAL SHEETS
STATE PROJ. NO. 45 163.3.ST 1	F.A. PROJ. NO. STM-1728(4)	DESCRIPTION WADE AVE.

PAVEMENT SCHEDULE	
(C)	PROP. APPROX. 1-1/2" ASPH. CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(D)	PROP. APPROX. 2 1/2" ASPH. CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
(V1)	PROP. 1" TO 2" MILLING TO REMOVE ASPHALT OVERLAY (EXPOSE EXISTING CONCRETE SLABS)
(V2)	MILL 4.0" IN DEPTH
(V3)	MILL 1 1/2" IN DEPTH
(U1)	EXISTING ASPHALT PAVEMENT
(U2)	EXISTING CONCRETE PAVEMENT



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 3/8" SHALL BE PROVIDED. THE MAXIMUM THICKNESS SHALL PREFERABLY BE 1 1/2" UNLESS IT IS IMPRACTICAL TO PROVIDE A SMOOTH RIDING SURFACE OTHERWISE.

PROJECT NO.	SHEET NO.	TOTAL NO.
R-5169A 45163.3.ST1	3	

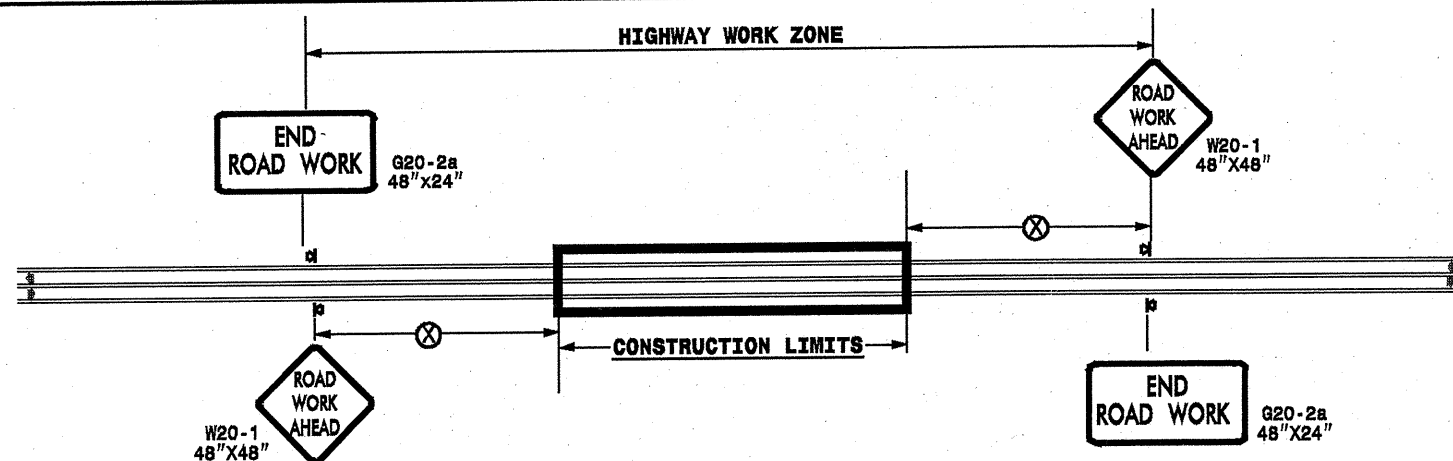
SUMMARY OF QUANTITIES

PROJECT NO.	COUNTY	MAP NO.	ROUTE	DESCRIPTION	TYP NO.	FINAL SURFACE TESTING REQUIRED	LENGTH MI.	WIDTH FT.	SEALING EXIST. PVMT. CRACKS LB.	4" MILLING SY.	1 1/2" MILLING SY.	1" TO 2" MILLING SY.	INTER-MEDIATE COURSE, 119.0C TONS	SURFACE COURSE, S8.5C TONS	PG 64-22 PLANT MIX TONS	PG 70-22 PLANT MIX TONS	PATCHING EXISTING PAVEMENT TONS	INDUCTIVE LOOP LF	ADJ. OF MANHOLES EA	ADJ. OF METER OR VALVES BOXES EA	
R-5169A 45163.3.ST1	Wake	1	SR 1728 (WADE AVE)	FROM JOINT EAST OF FAIRCLOTH ST TO JOINT EAST OF SR 1733 (OBERLIN RD)	1	NO	1.28	42		33024			4965	2,921	233	175		1,500	27	25	
TOTAL FOR MAP NO. 1							1.28			33024			4965	2,921	233	175		1,500	27	25	
		2	SR 1728 (WADE AVE) AND RAMPS AT OBERLIN RD	FROM JOINT EAST OF SR 1733 (OBERLIN RD) TO JOINT 100 YDS WEST OF GLENWOOD AVE	1	NO	0.93	42		34031			5115	3,011	240	181	500	2,154	22	20	
TOTAL FOR MAP NO. 2							0.93			34031			5115	3,011	240	181	500	2,154	22	20	
		3	SR 1728 (WADE AVE)	JOINT 100 YDS WEST OF GLENWOOD AVE TO CAPITAL BLVD RAMPS	2	NO	0.3	42	17340			7392				39					
TOTAL FOR MAP NO. 3							0.3		17340	0		7392	0			39					
		4	SR 1728 (WADE AVE) RAMPS AND LOOPS	GLENWOOD AVE. AND CAPITAL BLVD	3	NO	1.2	20			12571			887		53	185	296			
TOTAL FOR MAP NO. 4							1.2		0	0	12571	0	0	887		53	185	296			
TOTAL FOR PROJ NO. 45163.3.ST1 (R-5169A)							3.71		17340	67055	12571	7392	10080	7,473	473	448	685	3,950	49	45	
GRAND TOTAL							3.71		17340	67055	12571	7392	10080	7,473	473	448	685	3,950	49	45	

THERMOPLASTIC AND PAINT QUANTITIES

PROJECT NO.	COUNTY	MAP NO.	ROUTE	DESCRIPTION	4589000000-N		4686000000-E		4697000000-E		4710000000-E		4725000000-E			4810000000-E		4820000000-E		4835000000-E		4845000000-N			4900000000-N	
					TRAFFIC CONTROL LS	4" X 120 M YELLOW THERMO LF	4" X 120 M WHITE THERMO LF	8" X 120 M WHITE THERMO LF	8" X 120 M YELLOW THERMO LF	24" X 120 M WHITE THERMO LF	THERMO LT ARROW 90 M EA	THERMO STR ARROW 90 M EA	THERMO RT ARROW 90 M EA	THERMO STR & RT ARROW 90 M EA	THERMO STR & LT ARROW 90 M EA	4" WHITE PAINT LF	4" YELLOW PAINT LF	8" WHITE PAINT LF	24" WHITE PAINT LF	PAINT LT ARROW EA	PAINT STR ARROW EA	PAINT RT ARROW EA	PAINT STR & RT ARROW EA	PAINT STR & LT ARROW EA	YELLOW & YELLOW MARKERS EA	CRYSTAL & RED MARKERS EA
R-5169A 45163.3.ST1	Wake	1	SR 1728 (WADE AVE)	FROM JOINT EAST OF FAIRCLOTH ST TO JOINT EAST OF SR 1733 (OBERLIN RD)	*	13,517	4,368	500		260	7	10	2	12	4	8,736	27,034	500	260	7	10	2	12	4	88	193
TOTAL FOR MAP NO. 1					1	13,517	4,368	500		260	7	10	2	12	4	8,736	27,034	500	260	7	10	2	12	4	88	193
		2	SR 1728 (WADE AVE) AND RAMPS AT OBERLIN	FROM JOINT EAST OF SR 1733 (OBERLIN RD) TO JOINT 100 YDS WEST OF GLENWOOD AVE		10,226	3,136	970		190	10	16	3	8		6,272	20,452		190	10	16	3	8		65	140
TOTAL FOR MAP NO. 2						10,226	3,136	970		190	10	16	3	8		6,272	20,452		190	10	16	3	8		65	140
		3	SR 1728 (WADE AVE)	JOINT 100 YDS WEST OF GLENWOOD AVE TO CAPITAL BLVD RAMPS			788	600	3,172			1				788	3,172								40	45
TOTAL FOR MAP NO. 3							788	600	3,172			1				788	3,172								40	45
		4	SR 1728 (WADE AVE) RAMPS AND LOOPS	GLENWOOD AVE. AND CAPITAL BLVD.		1,860	100	230		20			2		2	100	1,860		20						46	15
TOTAL FOR MAP NO. 4						1,860	100	230		20			2		2	100	1,860		20						46	15
TOTAL FOR PROJ NO. 45163.3.ST1 (R-5169A)					1	25,603	8,392	2,300	3,172	470	17	27	7	20	6	15,896	52,518	500	470	17	26	5	20	4	239	393
GRAND TOTAL					1	25,603	8,392	2,300	3,172	470	17	27	7	20	6	15,896	52,518	500	470	17	26	5	20	4	239	393
GRAND TOTAL						33,995		5,472					77			68,414					72				632	

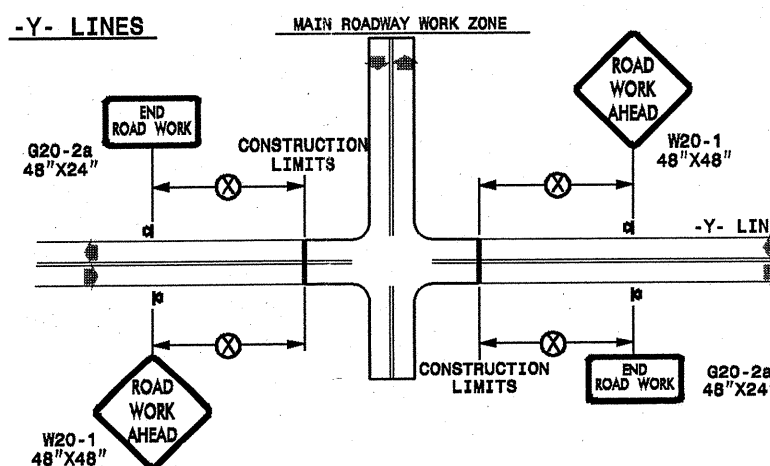
TWO-WAY UNDIVIDED ** (L-LINES)



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

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAYS INTERSECTING ALONG 2 WAY UNDIVIDED WORK ZONE (Y-LINES)



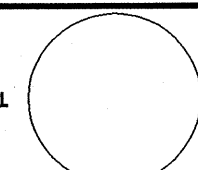
DETAIL DRAWING
FOR TWO-WAY UNDIVIDED
WORK ZONE WARNING SIGNS

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.

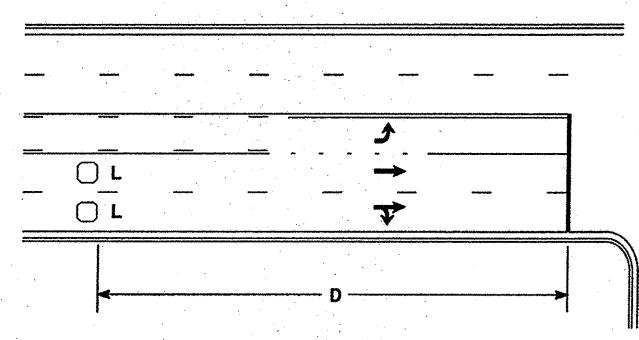
LEGEND	
◀	PORTABLE SIGN
➔	DIRECTION OF TRAFFIC FLOW

SHEET 1 OF 1

APPROVED: _____	DATE: _____	DETAIL DRAWING FOR TWO-WAY UNDIVIDED ADVANCED 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
SEAL 				

29-JUN-2009 14:59
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 psey@more AT WZTC237502

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

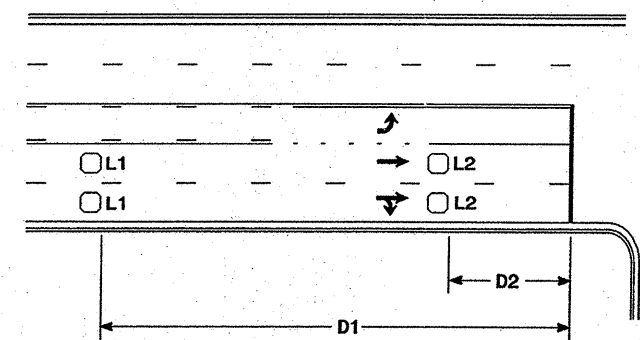


Speed Limit mph (km/hr)	D ft (m)
40 (64)	250 (75)
45 (72)	300 (90)
50 (80)	355 (110)
55 (88)	420 (130)

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

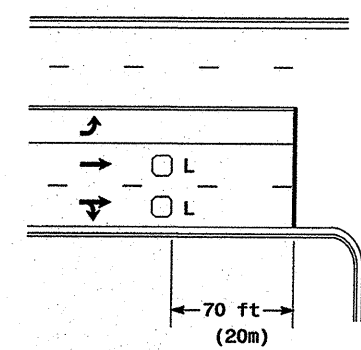


Speed Limit mph (km/hr)	D1 ft (m)	D2 ft (m)
40 (64)	250 (75)	80 (25)
45 (72)	300 (90)	90 (27)
50 (80)	355 (110)	100 (30)
55 (88)	420 (130)	110 (35)

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

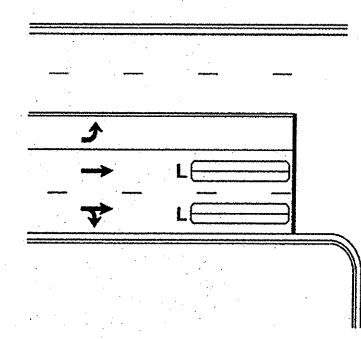
"Stretch" Operation

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



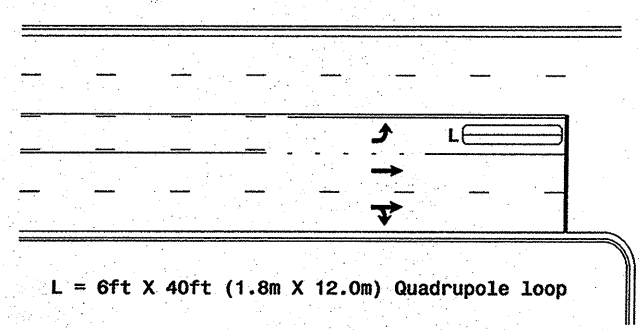
L = 6ft X 6ft (1.8m X 1.8m)
Wired in series

OR



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

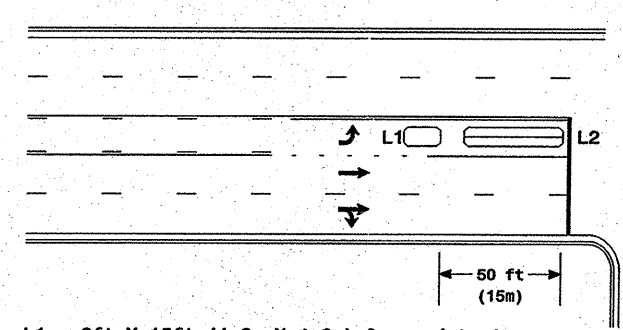
Left Turn Lane Detection



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

Presence Loop Detection

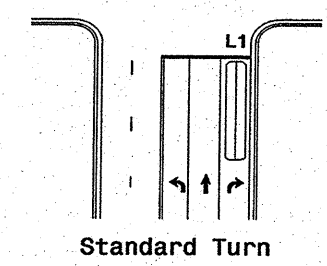
OR



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

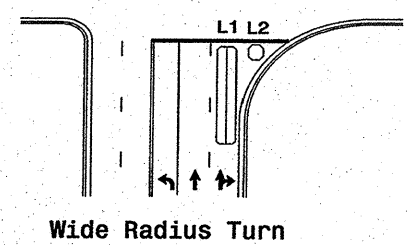
Queue Loop Detection

Right Turn Lane Detection

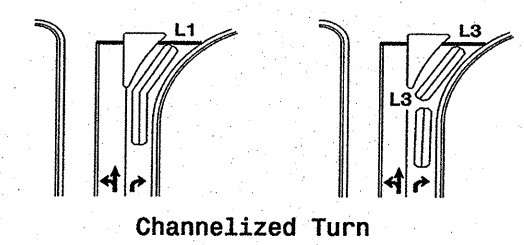


Standard Turn

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

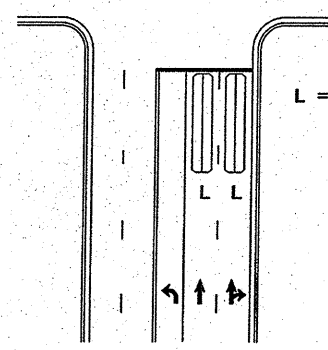


Wide Radius Turn



Channelized Turn

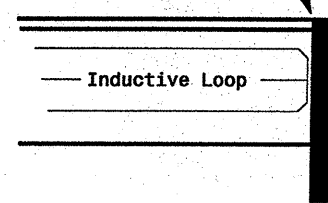
Side Street Detection



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:	
SCALE: N/A	INIT.: [Signature]	DATE: 11/21/06	SIGNATURE: [Signature] DATE: 11/21/06

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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
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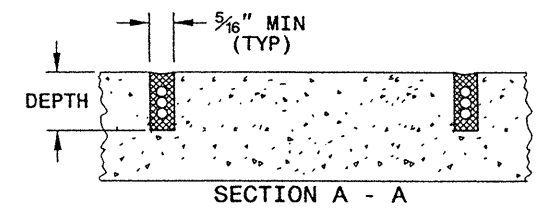
5-07

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

SHEET 1 OF 3
1725D01

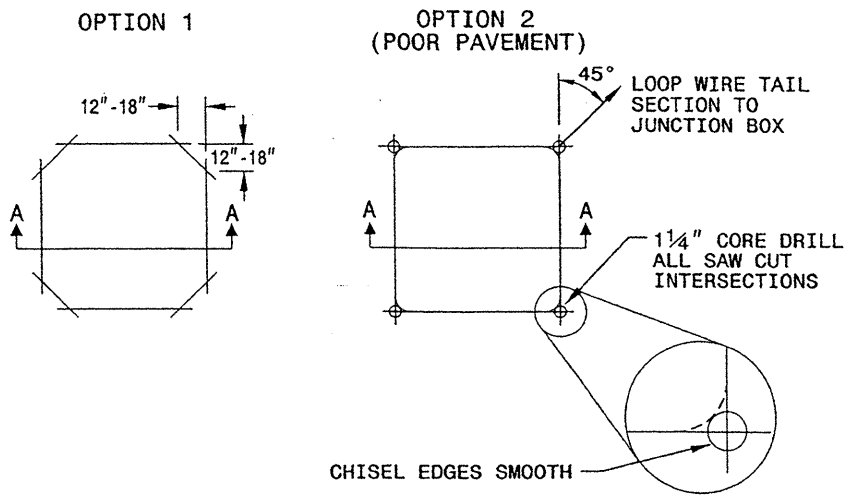
SAW SLOT DEPTH CHART

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

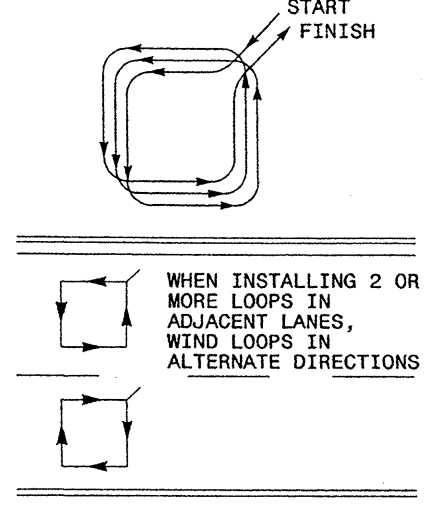


CONVENTIONAL 4-SIDED LOOP

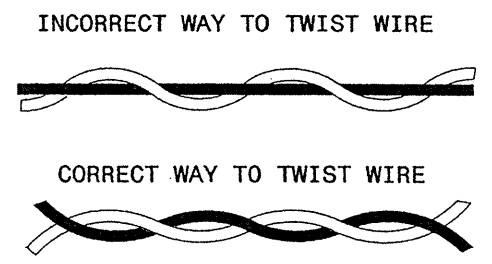
SAW CUT OPTIONS



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

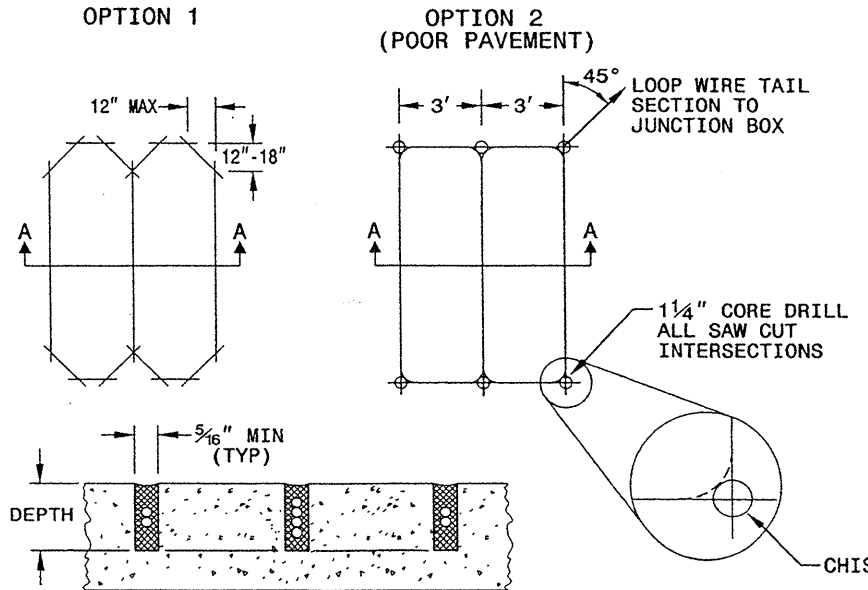


NOTES

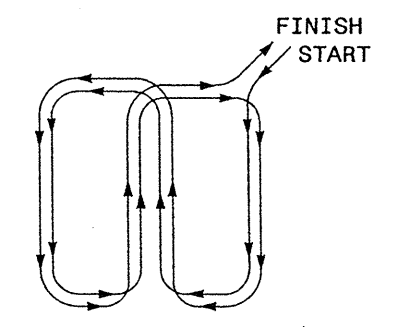
1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

QUADRUPOLE LOOP

SAW CUT OPTIONS



LOOP WINDING METHOD



SECTION A - A
DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

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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:

SEAL

05-SEP-2007 14:00
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dwgplotter\plotter.dwt
milton.i.dean

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

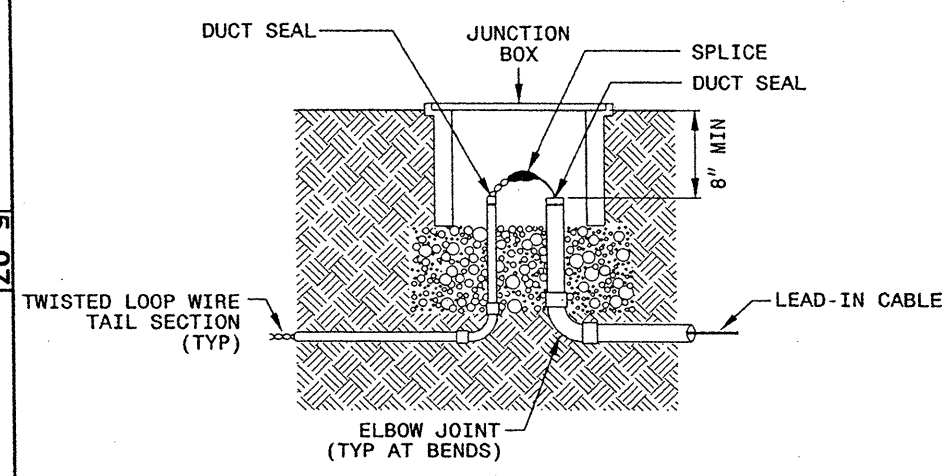
5-07

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

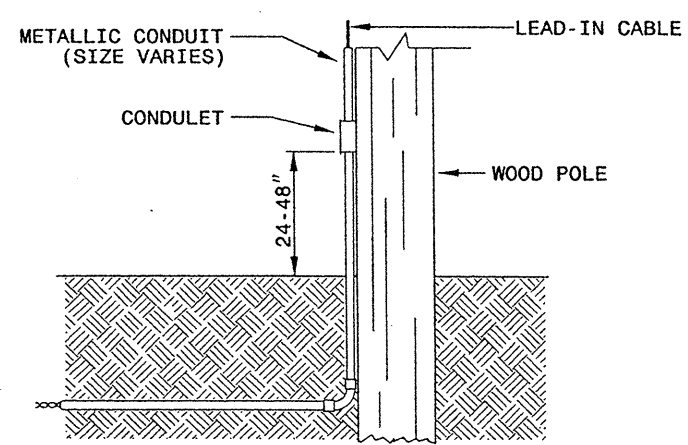
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

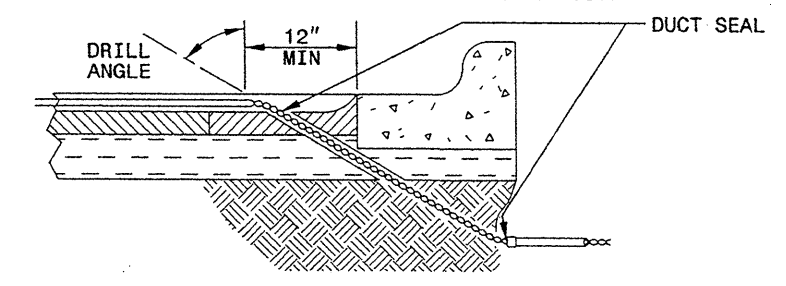


NOTE

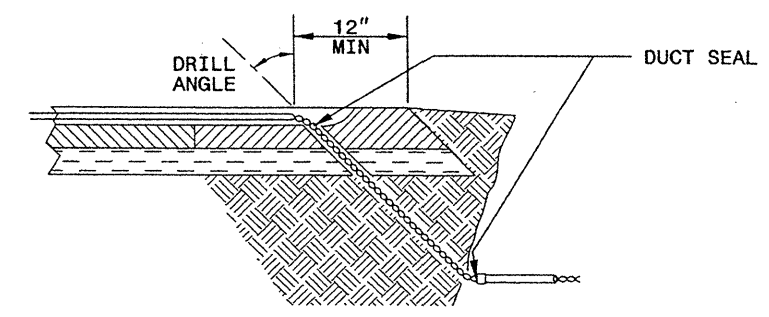
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

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.

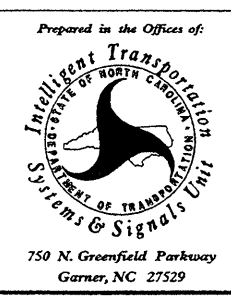
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DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

5-07

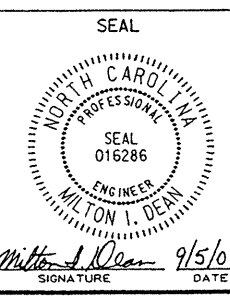
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title



750 N. Greenfield Parkway
Garner, NC 27529



Milton I. Dean 9/5/07
SIGNATURE DATE

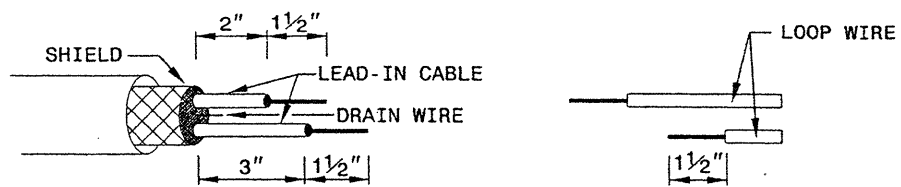
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DIVISION OF HIGHWAYS
RALEIGH, N.C.

5-07

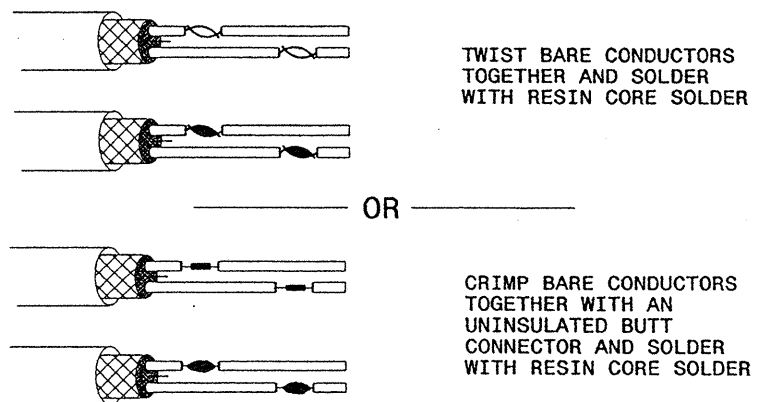
ENGLISH DETAIL DRAWING FOR
INDUCTION DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

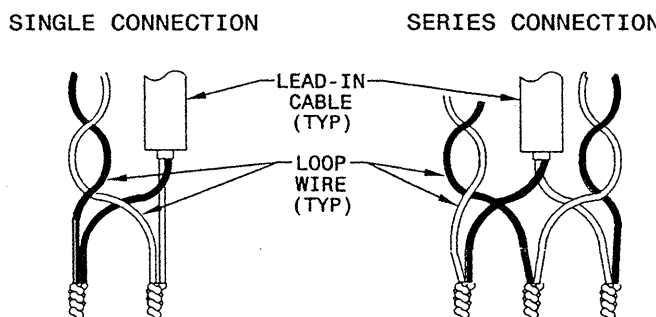


STEP 2. CONNECT AND SOLDER

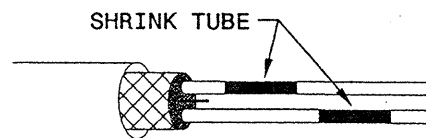


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

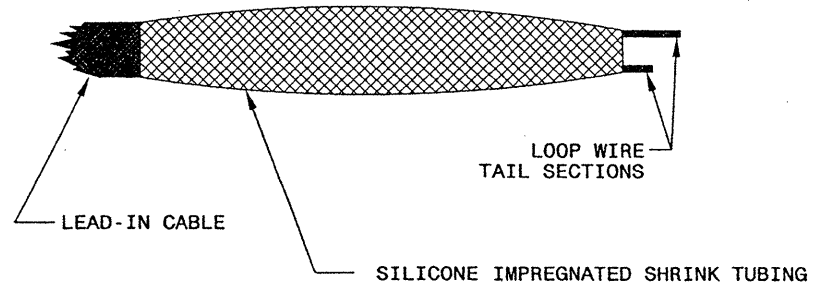
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



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

Wilton I. Dean 9/5/07
SIGNATURE DATE

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