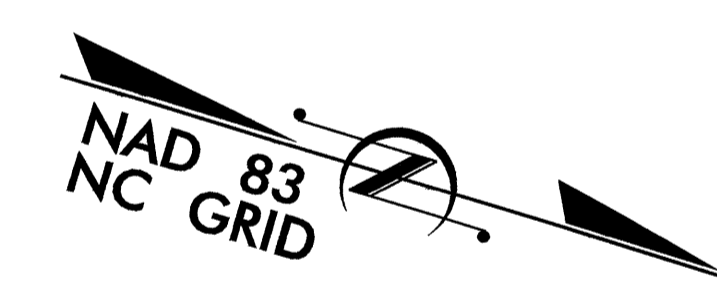
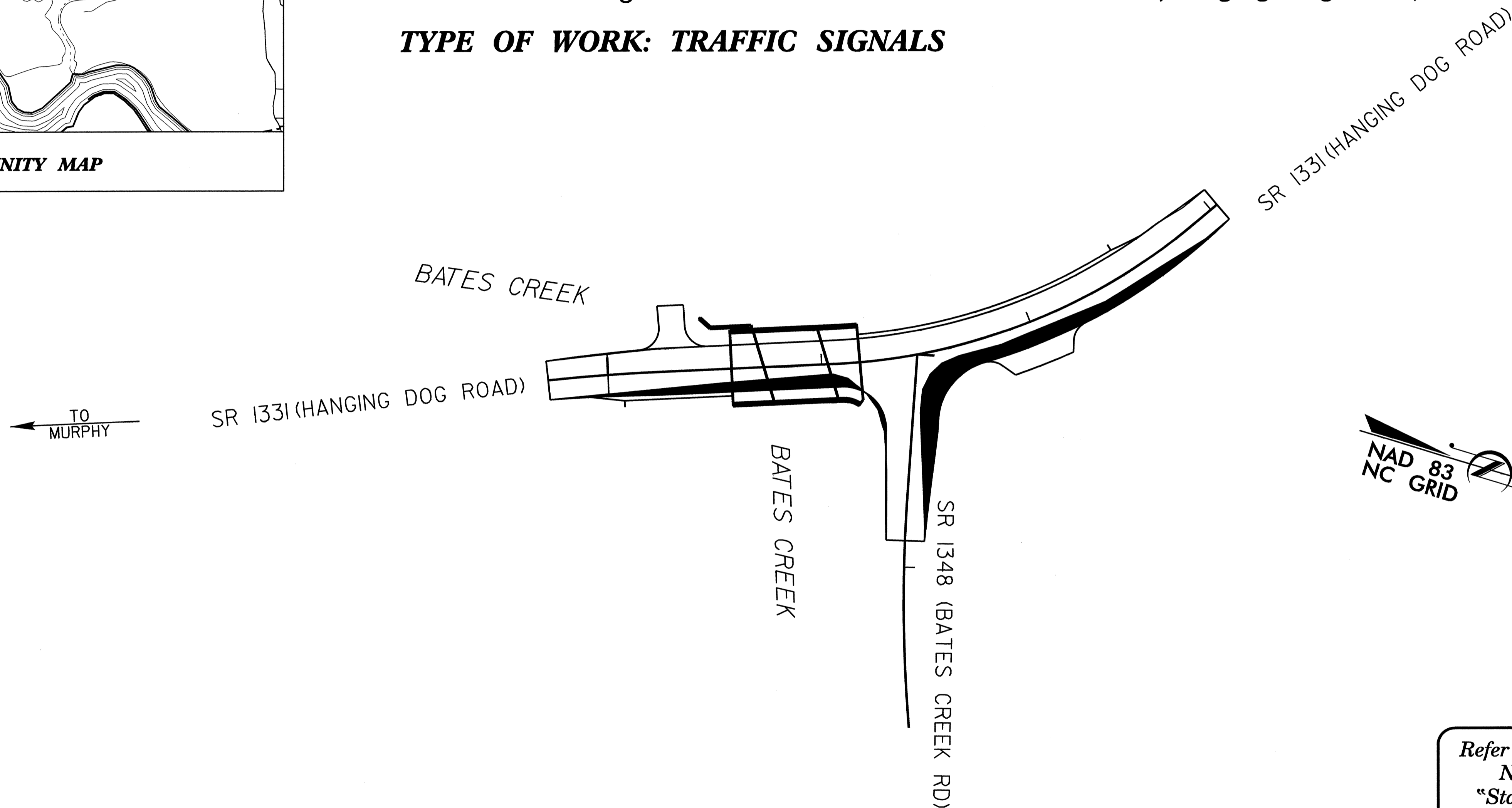
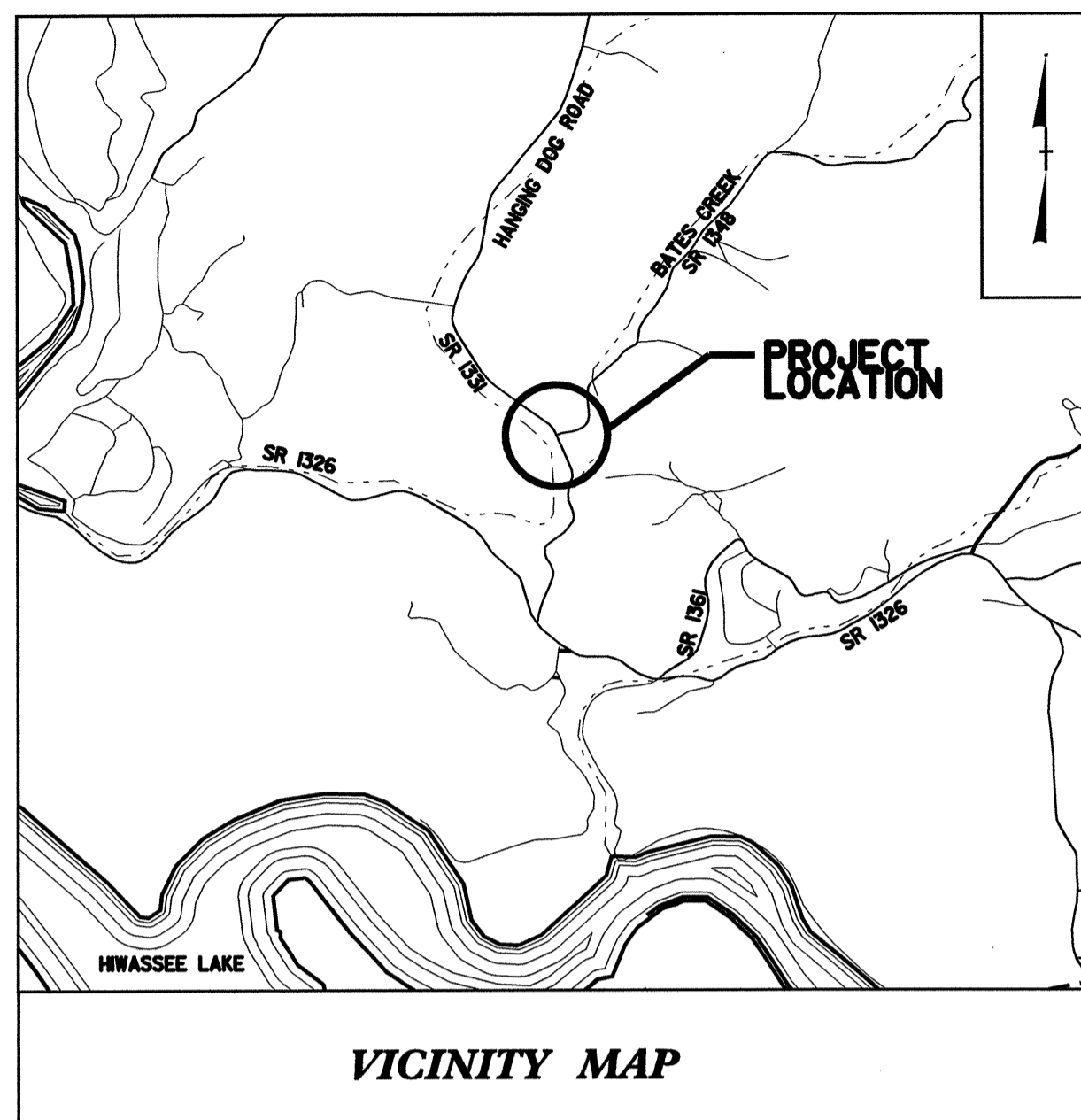


STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS  
**CHEROKEE COUNTY**

**LOCATION: Bridge No. 166 Over Bates Creek on SR 1331 (Hanging Dog Road)**

**TYPE OF WORK: TRAFFIC SIGNALS**



Refer to "Roadway Standard Drawings  
 NCDOT" dated July 2006 and  
 "Standard Specifications for Roads  
 and Structures" dated July 2006.

**PROJECT: B-3826**

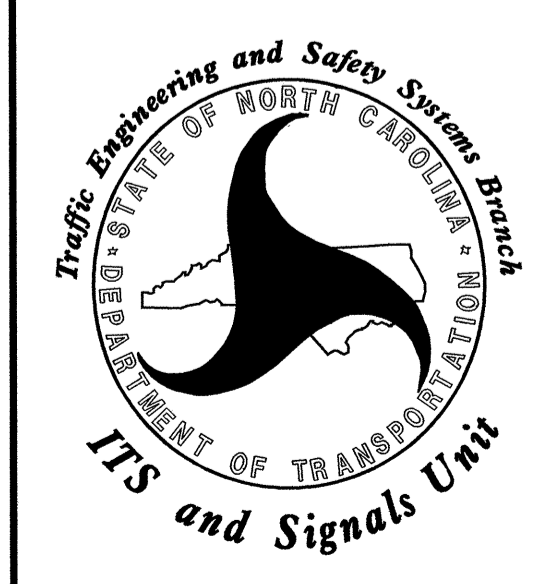
*Index of Plans*

Sheet Number	Signal Inventory Number	Location/Description
Sig. 1	-----	Title Sheet
Sig. 2-4	14-1198	SR 1331 (Hanging Dog Road) at Bridge #166/SR 1348
Sig. 5-7	N/A	Inductive Detective Loops Details

**INTELLIGENT TRANSPORTATION SYSTEMS AND SIGNALS UNIT**

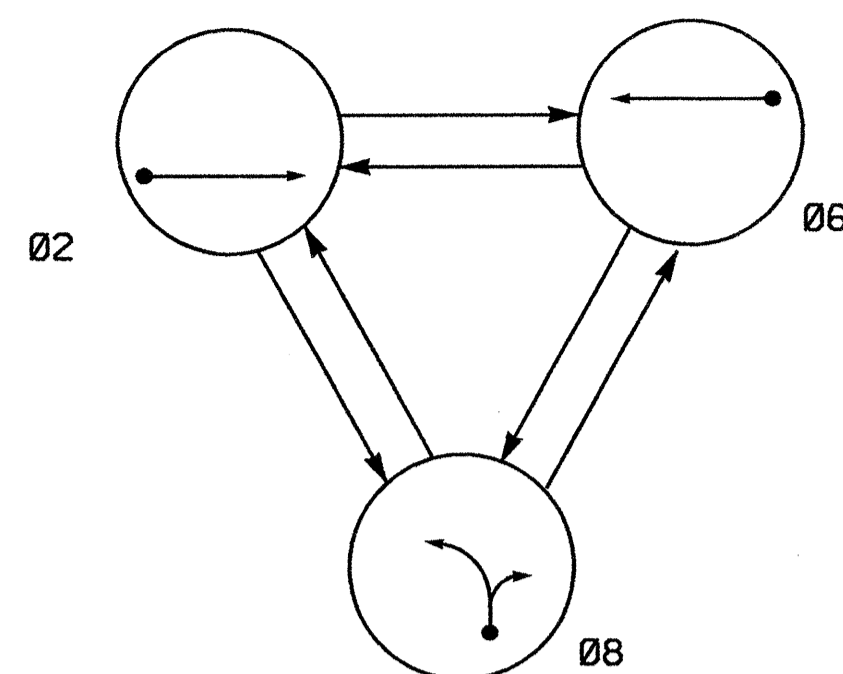
Contacts:

TIMOTHY J. WILLIAMS, PE - S & G CONTRACTS & PEF SUPPORT ENGINEER  
 JOHN T. ROWE, Jr., PE - SIGNAL EQUIPMENT DESIGN ENGINEER





**PHASING DIAGRAM**



**PHASING DIAGRAM DETECTION LEGEND**

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

**TABLE OF OPERATION**

SIGNAL FACE	PHASE			
	Ø 2	Ø 6	Ø 8	FLASH
21, 22	G	R	R	R
61, 62	R	G	R	R
81, 82	R	R	G	R

**2070L LOOP & DETECTOR INSTALLATION**

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6x40	0	2-4-2	-	2	Y	Y	-	-	-	-	-
6A	6x40	0	2-4-2	-	6	Y	Y	-	-	-	-	-
8A	6x40	0	2-4-2	-	8	Y	Y	-	-	-	-	-

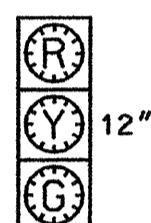
3 Phase Fully Actuated (Isolated)

**NOTES**

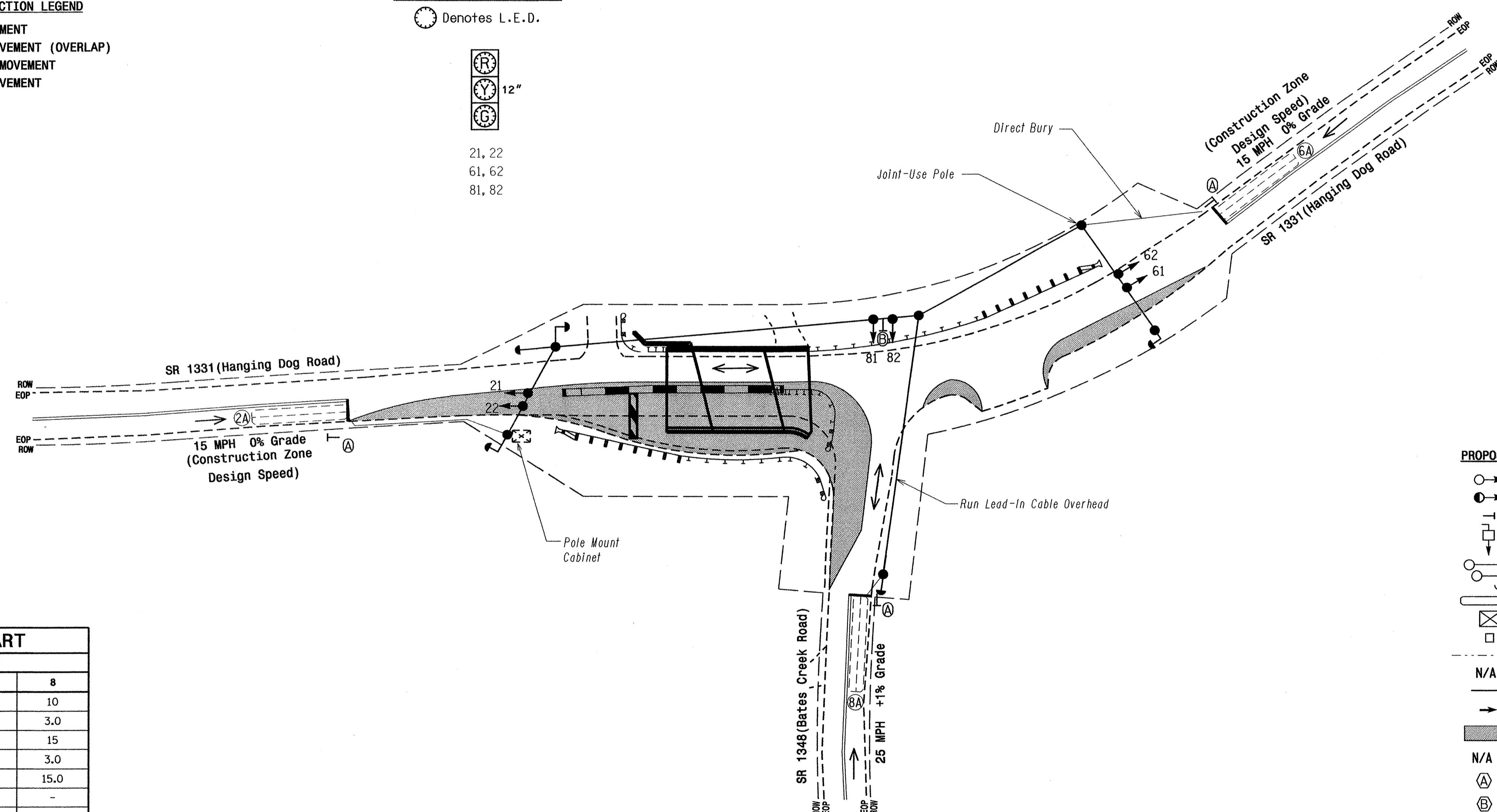
- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Program controller to start-up in Phase 8 red clearance.
- Program all phases for "Red Rest".

**SIGNAL FACE I.D.**

Denotes L.E.D.



21, 22  
61, 62  
81, 82



**2070L TIMING CHART**

FEATURE	PHASE		
	2	6	8
Min Green 1 *	10	10	10
Extension 1 *	3.0	3.0	3.0
Max Green 1 *	30	30	15
Yellow Clearance	3.0	3.0	3.0
Red Clearance	20.0	20.0	15.0
Walk 1 *	-	-	-
Don't Walk 1	-	-	-
Seconds Per Actuation *	-	-	-
Max Variable Initial *	-	-	-
Time Before Reduction *	-	-	-
Time To Reduce *	-	-	-
Minimum Gap	-	-	-
Recall Mode	-	-	-
Vehicle Call Memory	-	-	-
Dual Entry	-	-	-
Simultaneous Gap	ON	ON	ON

\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

**LEGEND**

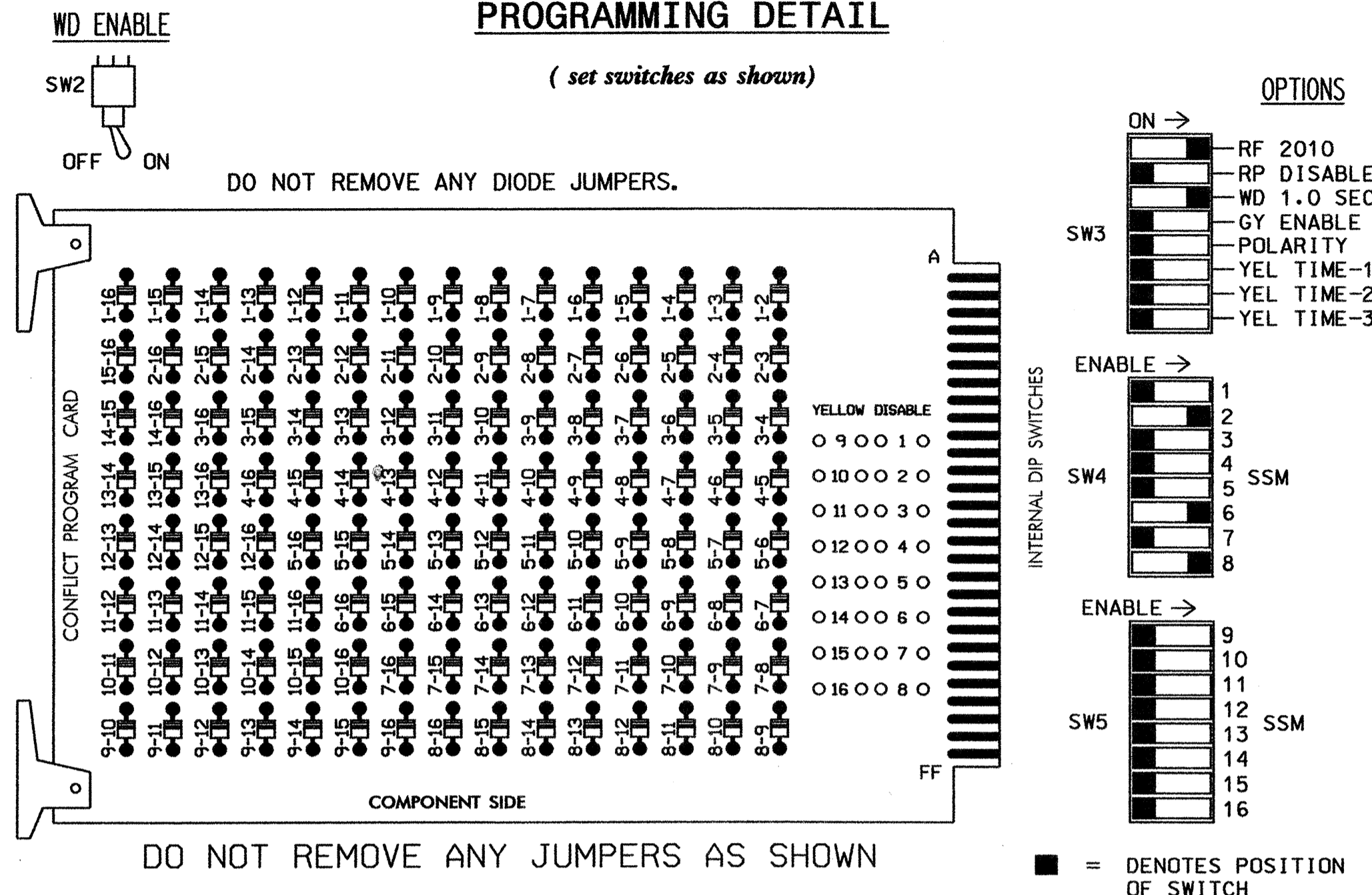
PROPOSED	EXISTING
	N/A
N/A	
N/A	

**New Installation (Temporary Signal 2 - TCP Phase III)**

	<p><b>SR 1331 (Hanging Dog Road) at Bridge #166/SR 1348</b></p>		
	<p>Division 14 Cherokee County</p>	<p>Murphy</p>	
<p>PLANNING DATE: May 2007</p>		<p>REVIEWED BY: TJ Williams</p>	
<p>SCALE: 1" = 30'</p>		<p>REVISIONS: _____</p>	
<p>DATE: 5/17/07</p>		<p>DATE: _____</p>	
<p>SIG. INVENTORY NO. 14-1198 T2</p>			

**EDI MODEL 2010ECL CONFLICT MONITOR**

**PROGRAMMING DETAIL**



**NOTES:**

- CARD IS PROVIDED WITH ALL DIODE JUMPERS IN PLACE. REMOVAL OF ANY JUMPER ALLOWS ITS CHANNELS TO RUN CONCURRENTLY.
- MAKE SURE JUMPERS SEL1-SEL5 ARE PRESENT ON THE MONITOR BOARD.

**NOTES**

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,3,4, 5,7,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phases 2, 6 and 8, on the controller unit, for Red Rest.
- Program phase 8, on the controller unit, for Start Up in Red Clearance.
- Enable Simultaneous Gap-Out, on the controller unit, for all phases.

**EQUIPMENT INFORMATION**

CONTROLLER.....CONTRACTOR SUPPLIED 2070L  
 CABINET.....CONTRACTOR SUPPLIED 336  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....POLE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S2,S6,S8  
 PHASES USED.....2,6,8  
 OVERLAPS.....NONE

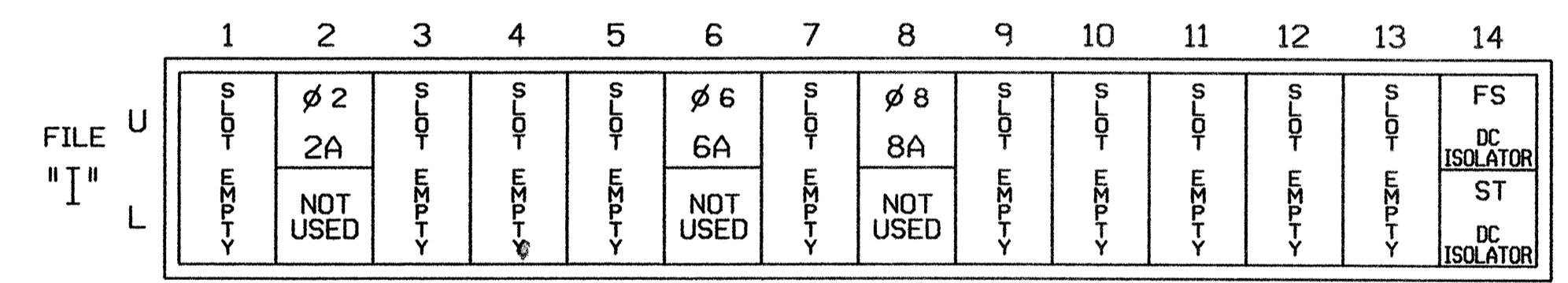
**SIGNAL HEAD HOOK-UP CHART**

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	NU	61,62	NU	NU	81,82	NU
RED		128						134			107	
YELLOW		129						135			108	
GREEN		130						136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

NU = Not Used

**INPUT FILE POSITION LAYOUT**

(front view)

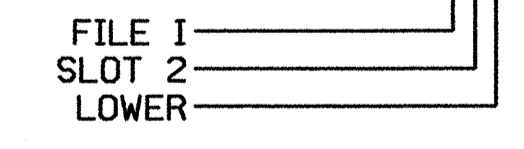


FS = FLASH SENSE  
 ST = STOP TIME

**INPUT FILE CONNECTION & PROGRAMMING CHART**

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB21-3,4	I2U	39	1	2	2	Y	Y			
6A	TB21-11,12	I6U	40	2	6	6	Y	Y			
8A	TB22-1,2	I8U	42	4	8	8	Y	Y			

**INPUT FILE POSITION LEGEND: I2L**



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-1198 T1 and 14-1198 T2  
 DESIGNED: May 2007  
 SEALED: 05-17-07  
 REVISED: N/A

New Installation - Temporary 1 and 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1331 (Hanging Dog Road) at Bridge #166/SR 1348

Division 14 Cherokee County Murphy

PLAN DATE: \_\_\_\_\_ REVIEWED BY: \_\_\_\_\_

PREPARED BY: \_\_\_\_\_ REVIEWED BY: \_\_\_\_\_

REVISIONS: \_\_\_\_\_ INIT. DATE

122 N. McDowell St., Raleigh, NC 27603

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 008453 JOHN T. ROWE

Signature: John T. Rowe DATE: 5-21-07

SIG. INVENTORY NO. 14-1198 T1&T2

18-MAY-2007 08:47 s:\118 s:\proj\swkr\krc\outs\sig mon\peter\scm\11188\_sml\_e.le.xxx.dgn

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

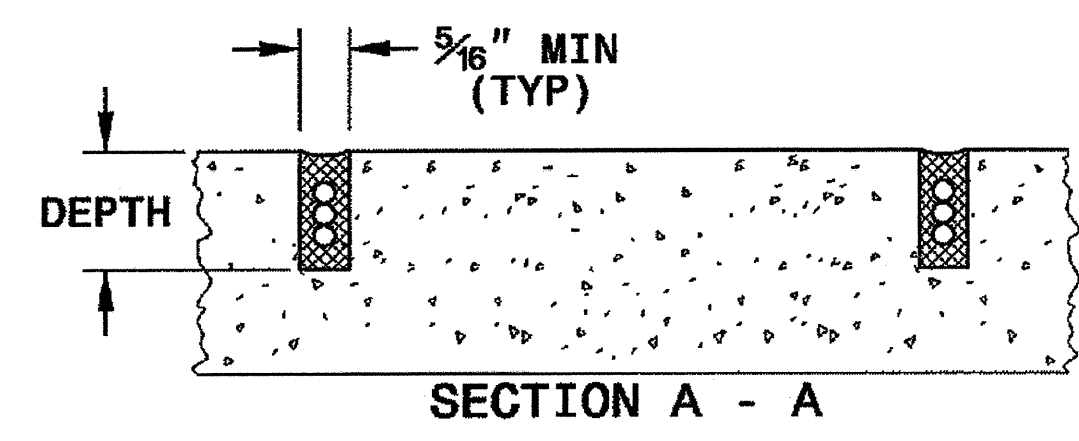
5-07

INDUCTIVE DETECTION LOOPS  
ENGLISH DETAIL DRAWING FOR

SHEET 1 OF 3  
1725D01

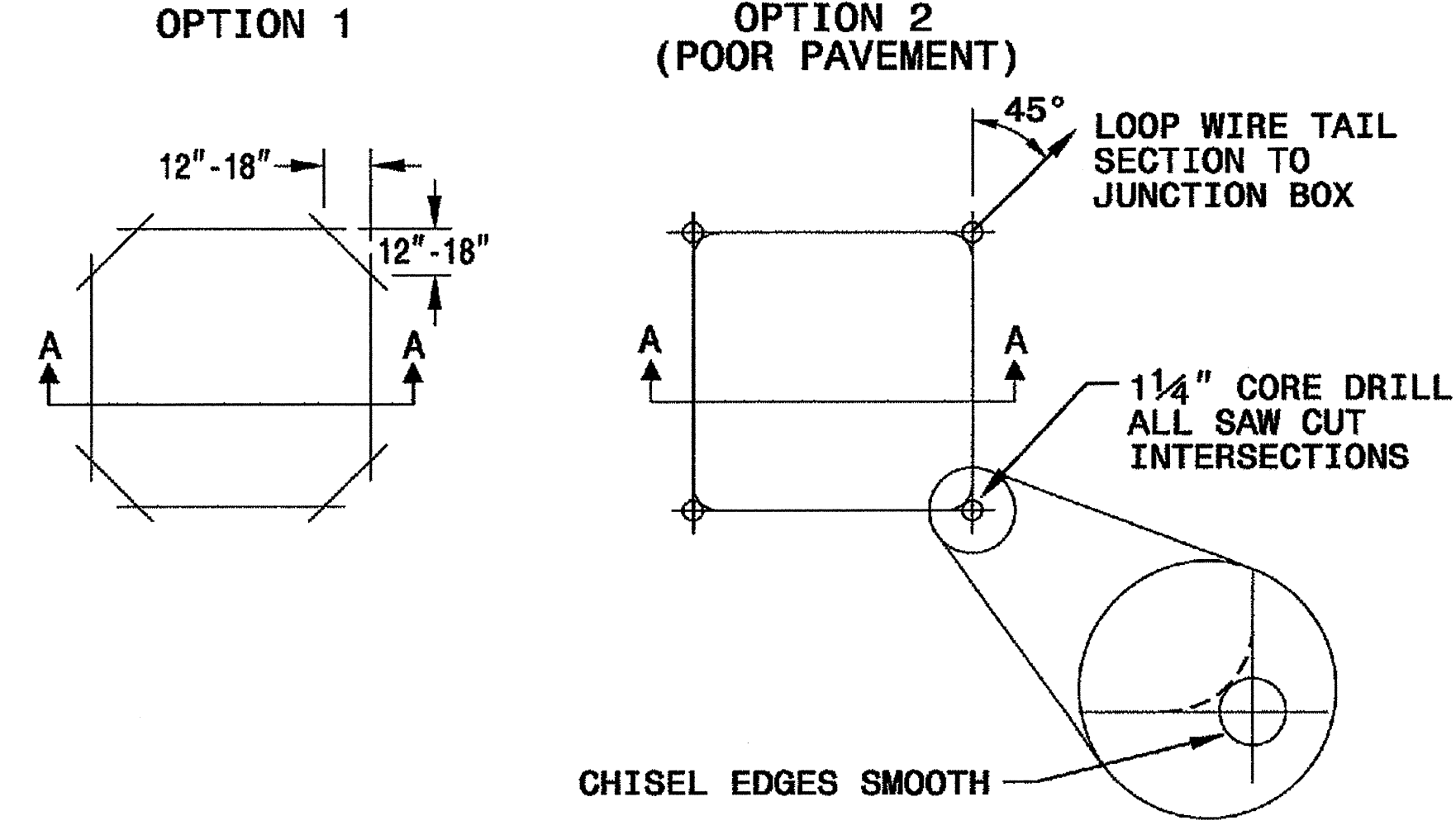
**SAW SLOT DEPTH CHART**

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

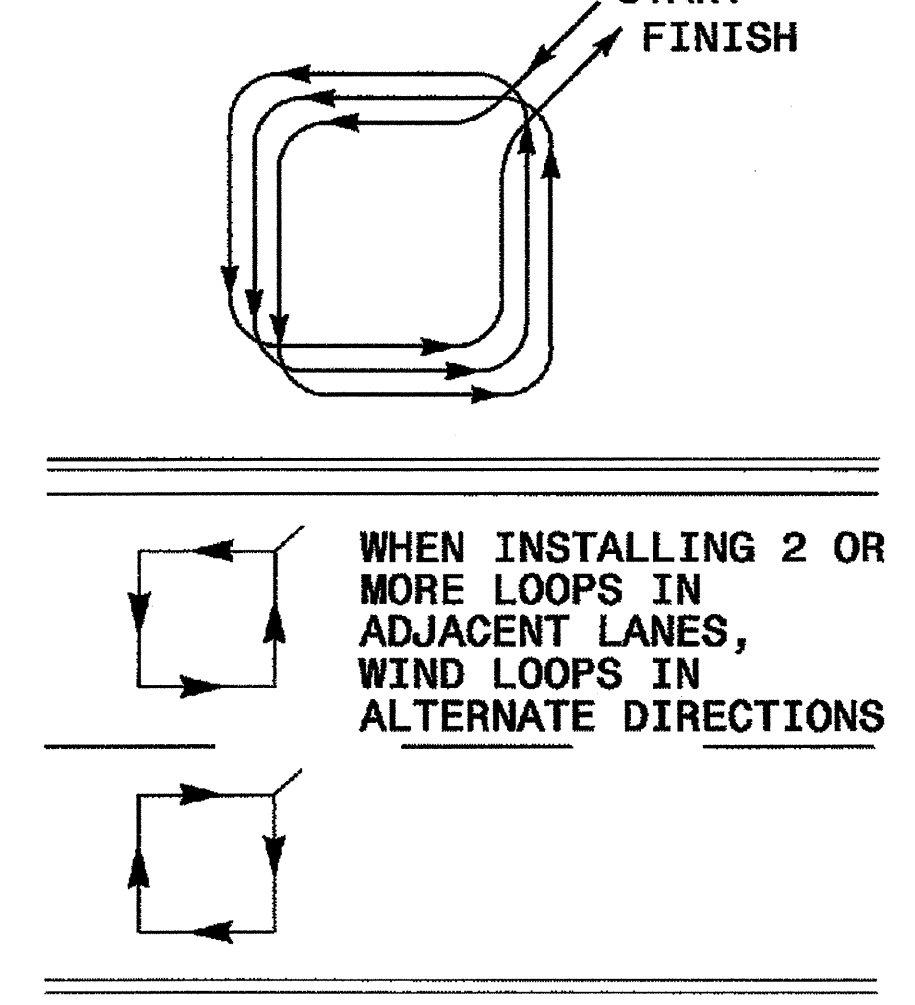


**CONVENTIONAL 4-SIDED LOOP**

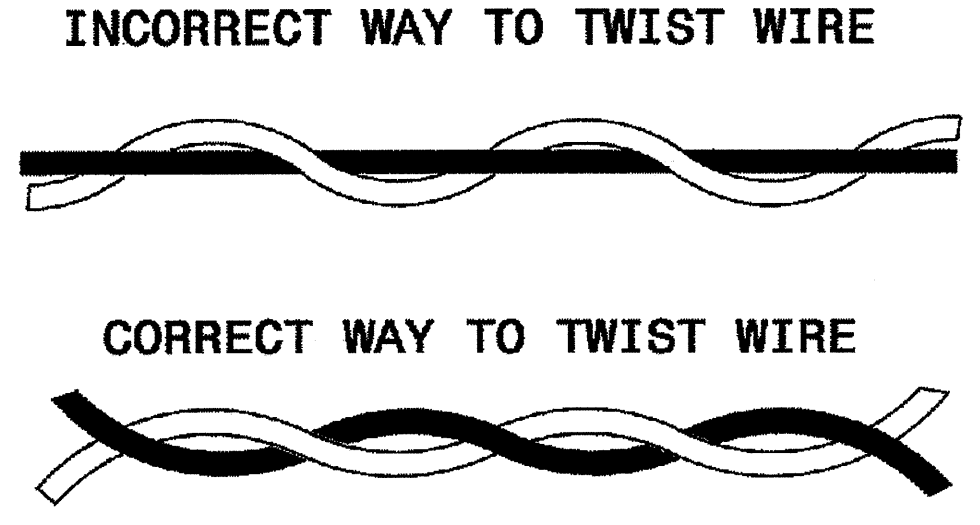
**SAW CUT OPTIONS**



**LOOP WINDING METHOD**



**LOOP WIRE TWISTING METHOD**

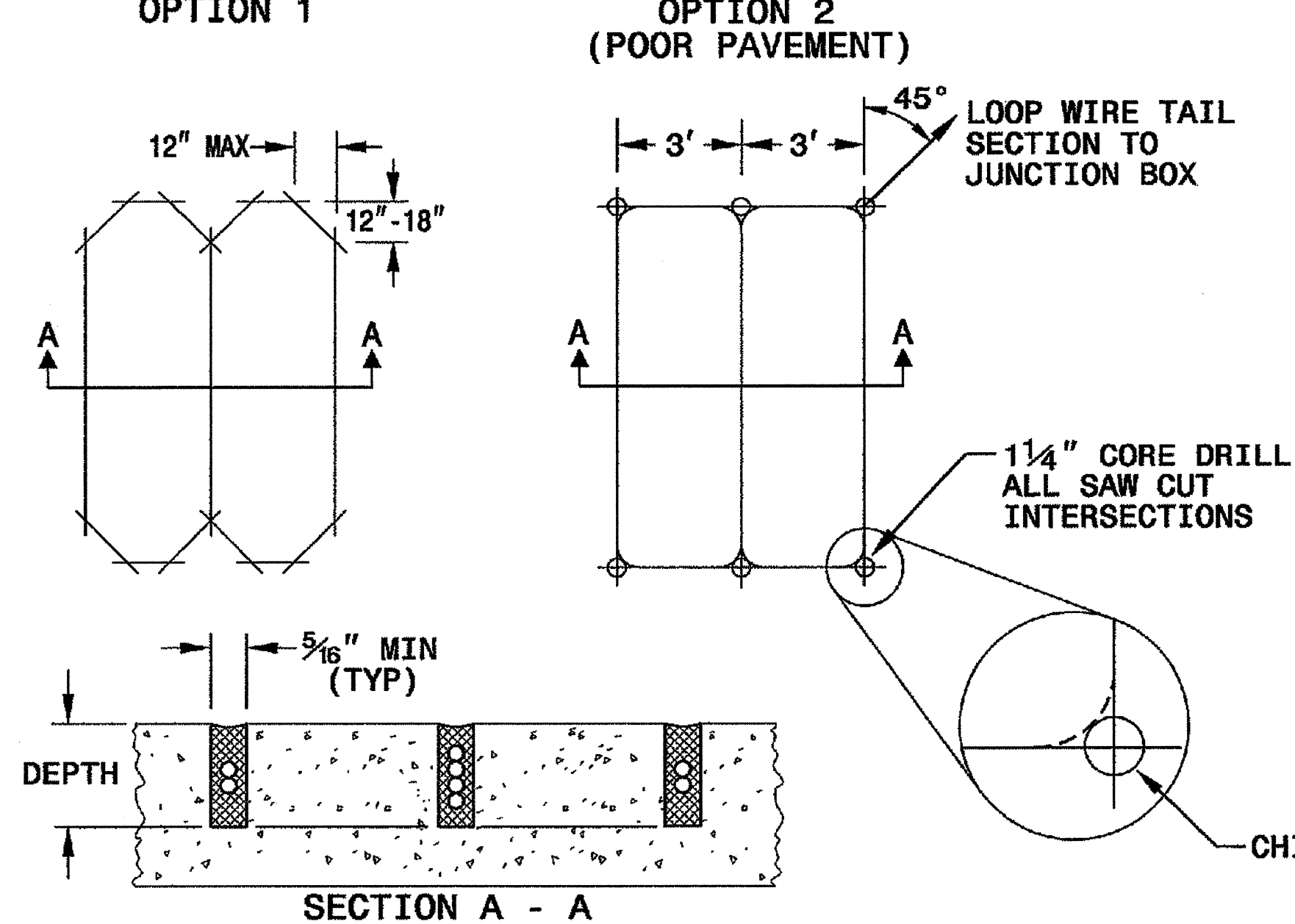


**NOTES**

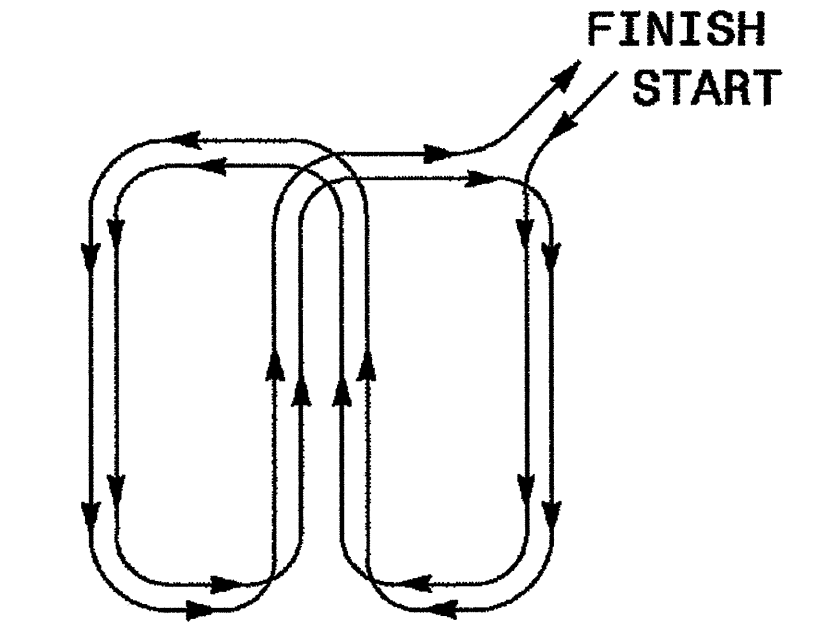
1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

**QUADRUPOLE LOOP**

**SAW CUT OPTIONS**



**LOOP WINDING METHOD**



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

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DIVISION OF HIGHWAYS  
RALEIGH, N.C.

5-07

INDUCTIVE DETECTION LOOPS  
ENGLISH DETAIL DRAWING FOR

SHEET 1 OF 3  
1725D01

See Plate for Title

Prepared in the Offices of:

750 N. Greenfield Parkway  
Garner, NC 27529

SEAL

Milton I. Deann 9/5/07  
SIGNATURE DATE

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

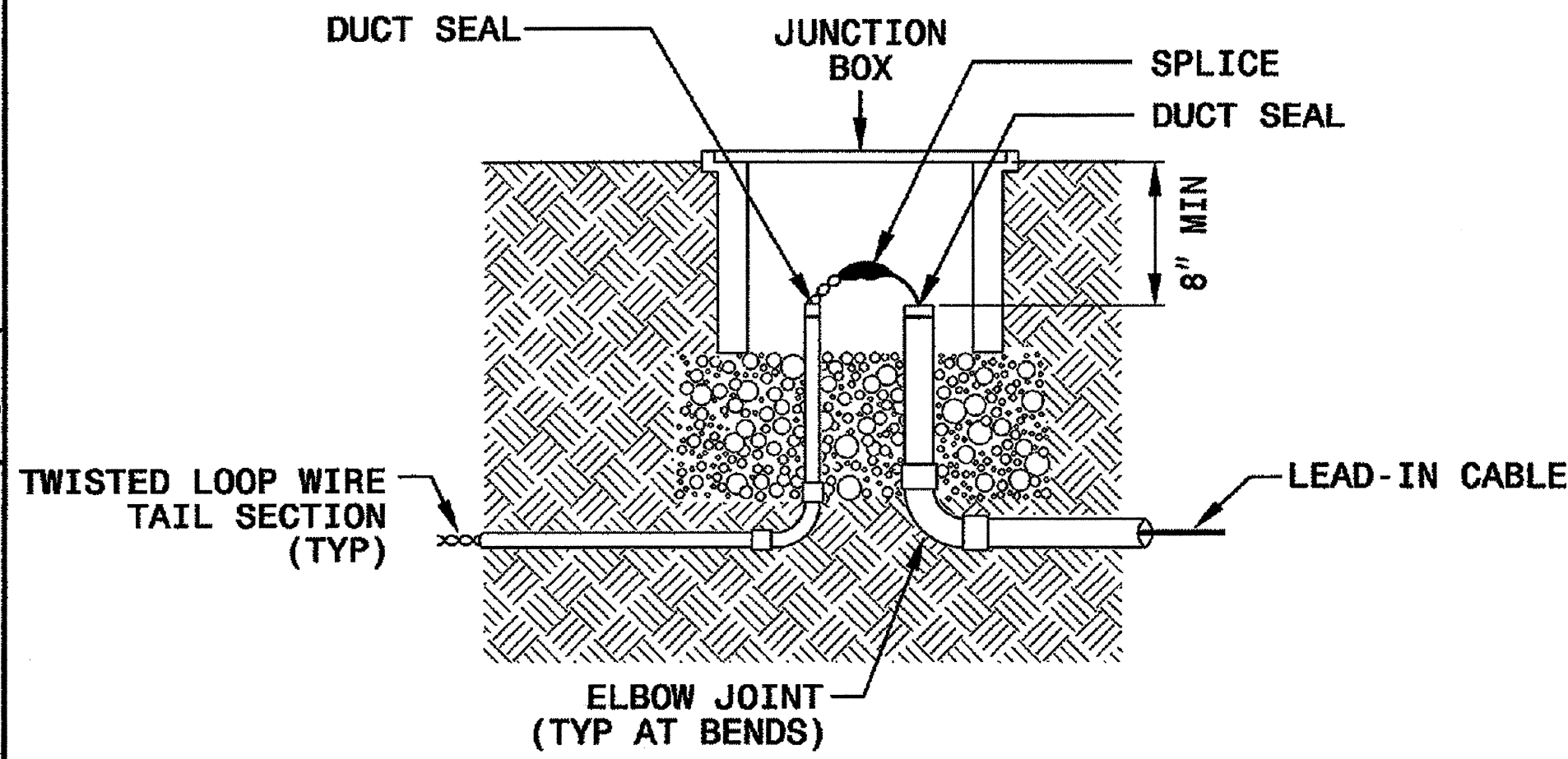
5-07

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
 LOOP WIRE DETAILS

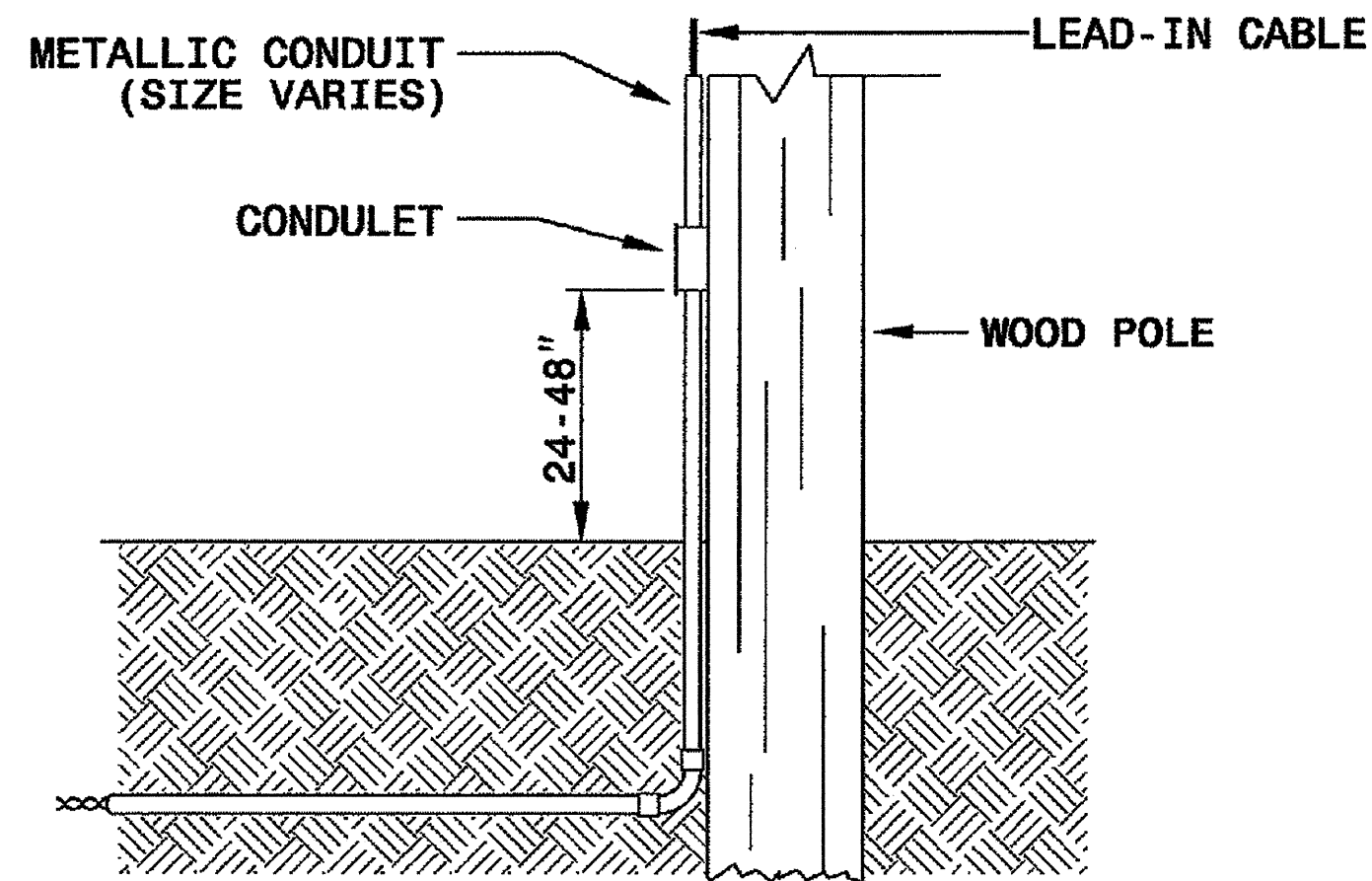
SHEET 2 OF 3  
**1725D01**

**LOOP WIRE SPLICE POINT DETAILS**

**LOOP WIRE AT JUNCTION BOX**



**LOOP WIRE AT POLE**

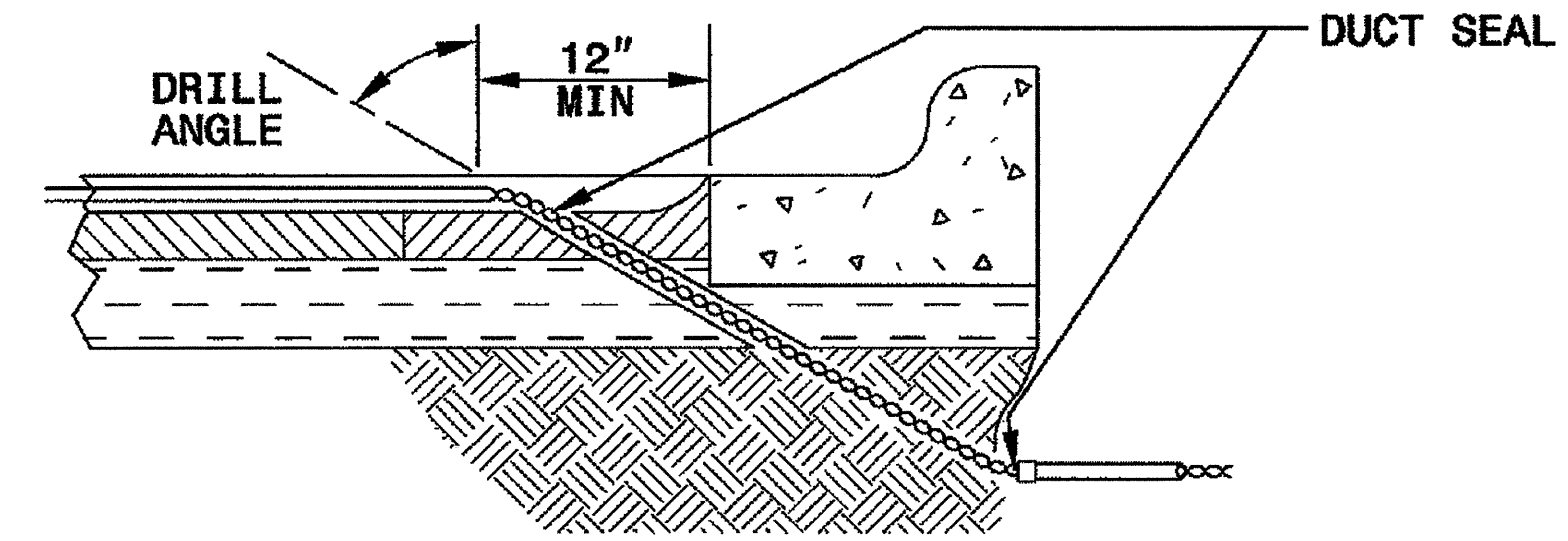


**NOTE**

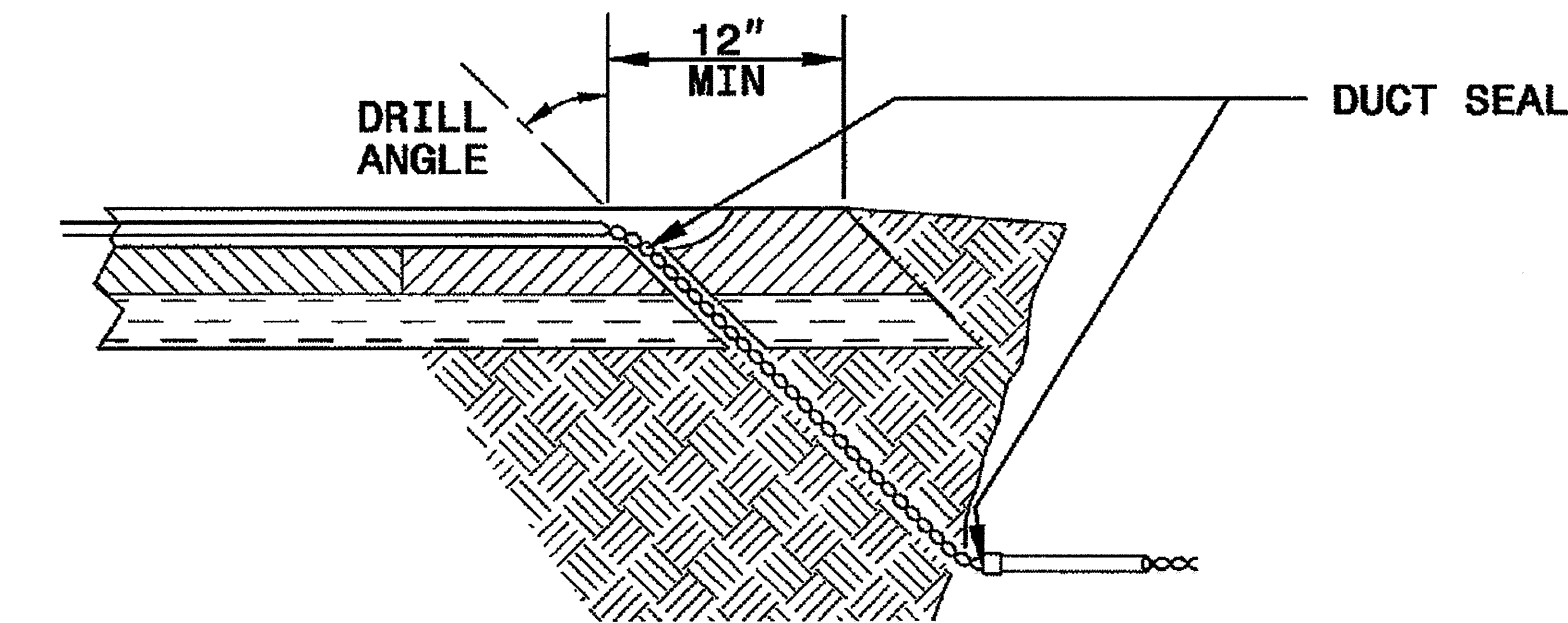
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

**LOOP WIRE PAVEMENT EDGE DETAILS**

**LOOP WIRE AT CURB & GUTTER SECTION**



**LOOP WIRE AT PAVEMENT SECTION**



**NOTES**

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

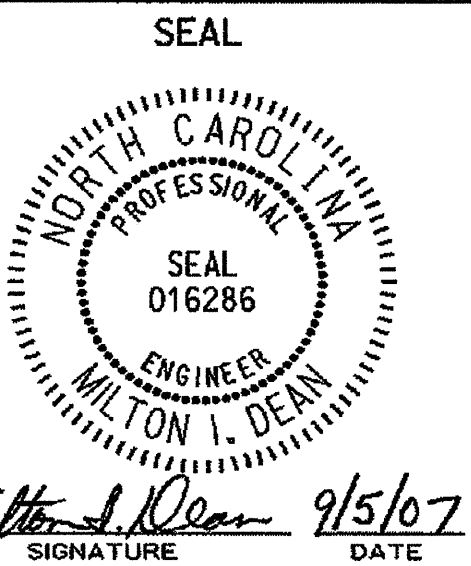
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 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

5-07

ENGLISH DETAIL DRAWING FOR  
**INDUCTIVE DETECTION LOOPS**  
 LOOP WIRE DETAILS

SHEET 2 OF 3  
**1725D01**

See Plate for Title



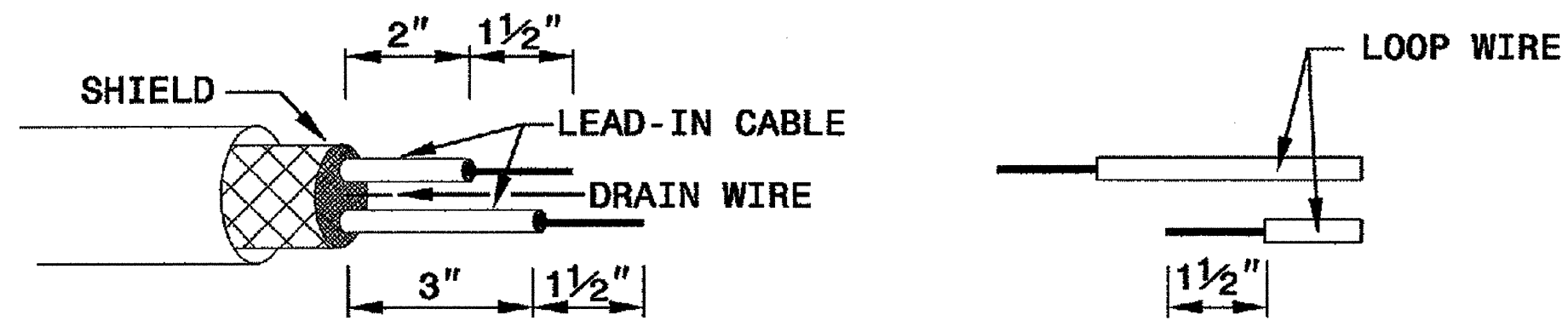
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 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

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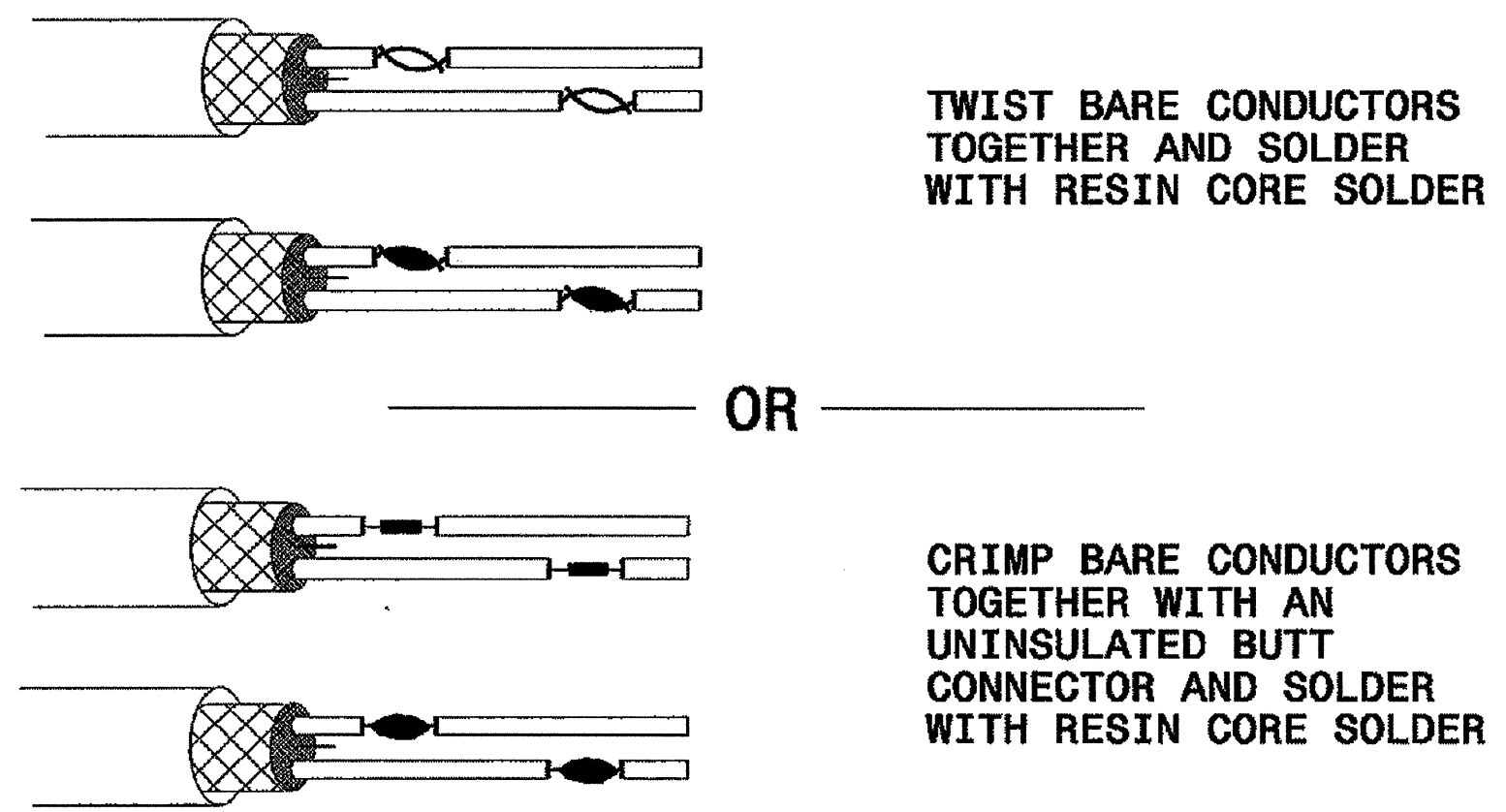
ENGLISH DETAIL DRAWING FOR  
**INDUCTION DETECTION LOOPS**  
 SPLICING FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3  
**1725D01**

**STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE**

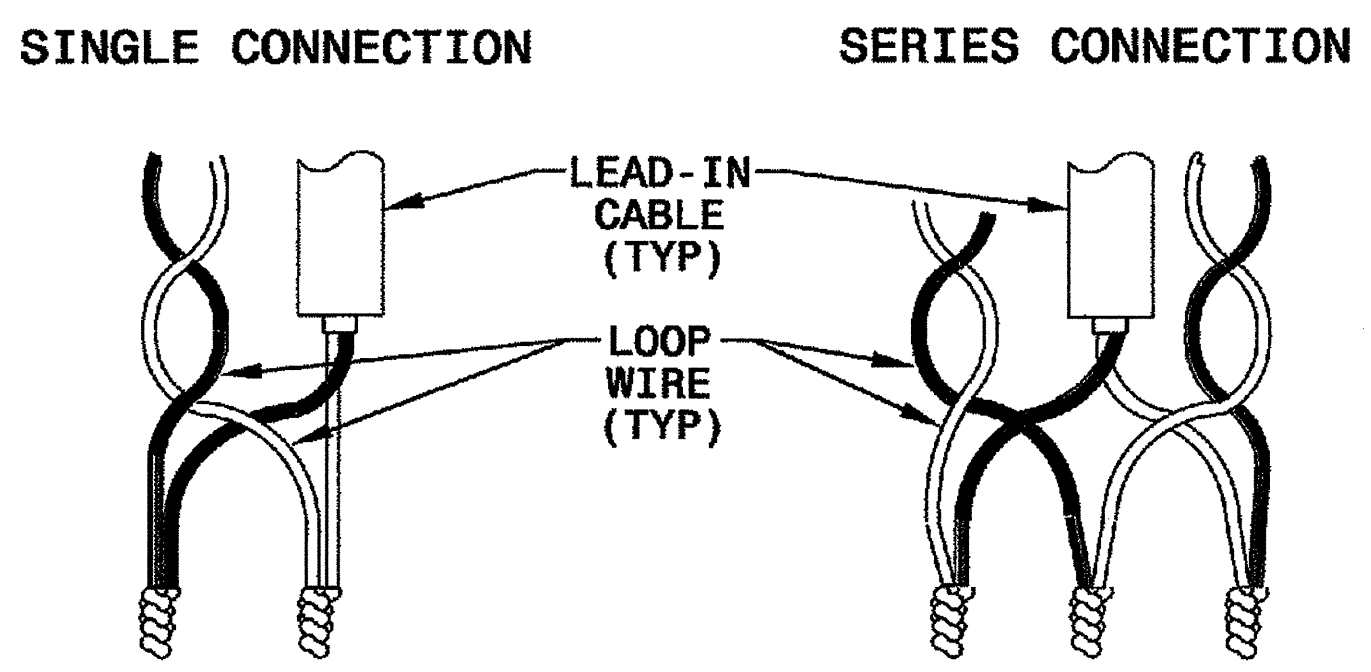


**STEP 2. CONNECT AND SOLDER**

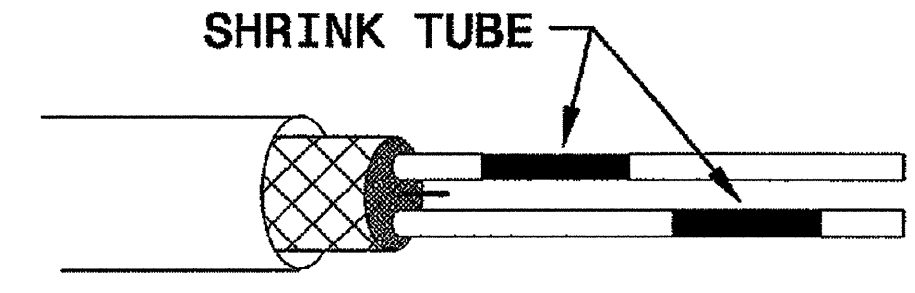


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

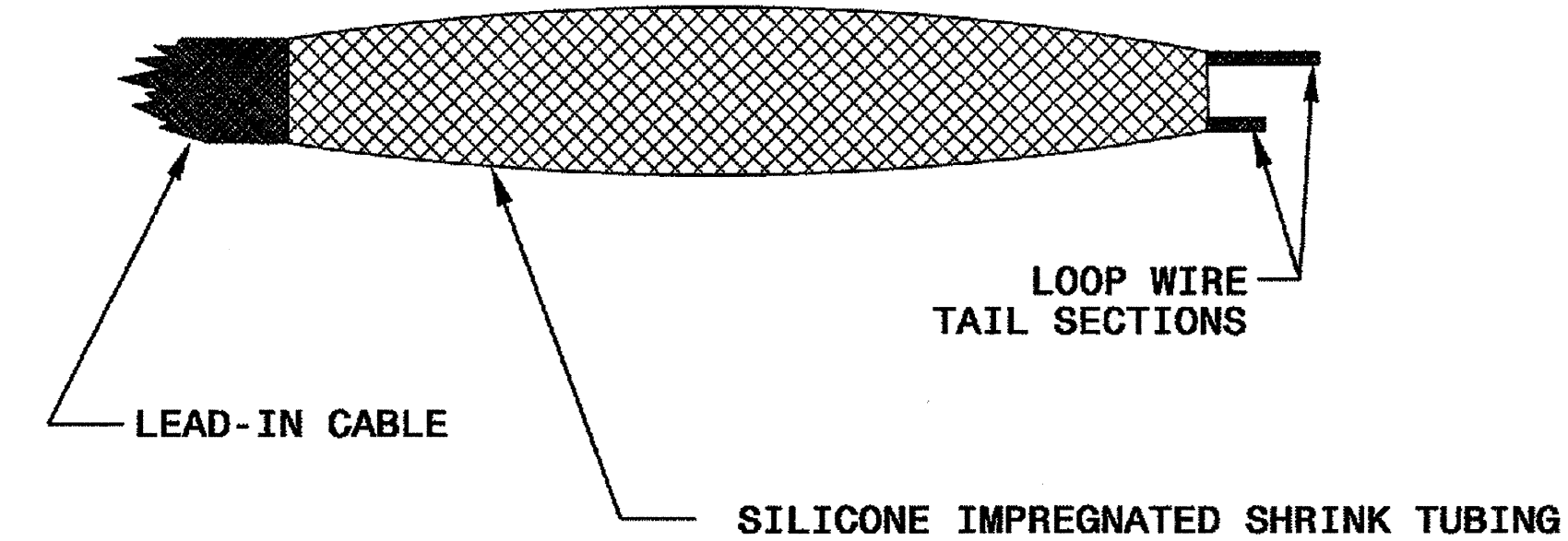
**LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS**



**STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY**



**STEP 4. ENVIRONMENTALLY PROTECT SPLICE**



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 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

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Milton I. Dean 9/5/07  
 SIGNATURE DATE

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