

Project: B-4012

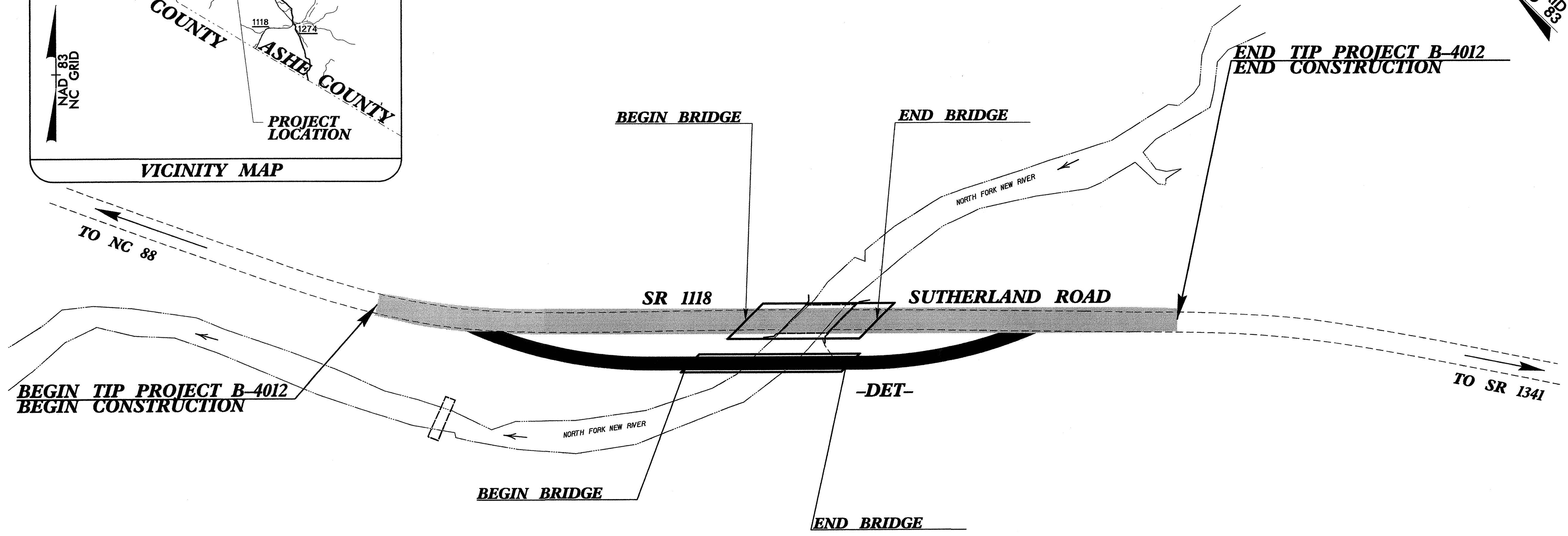
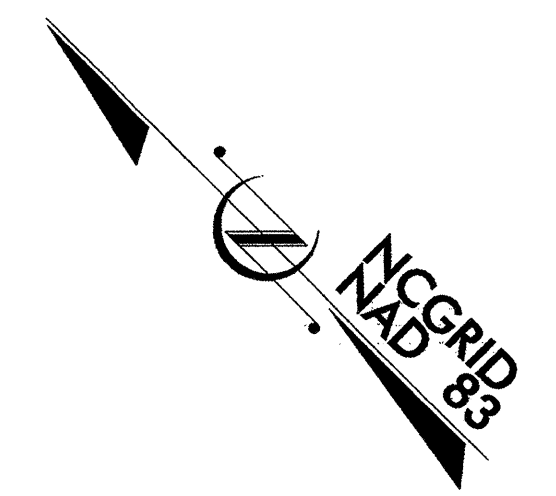
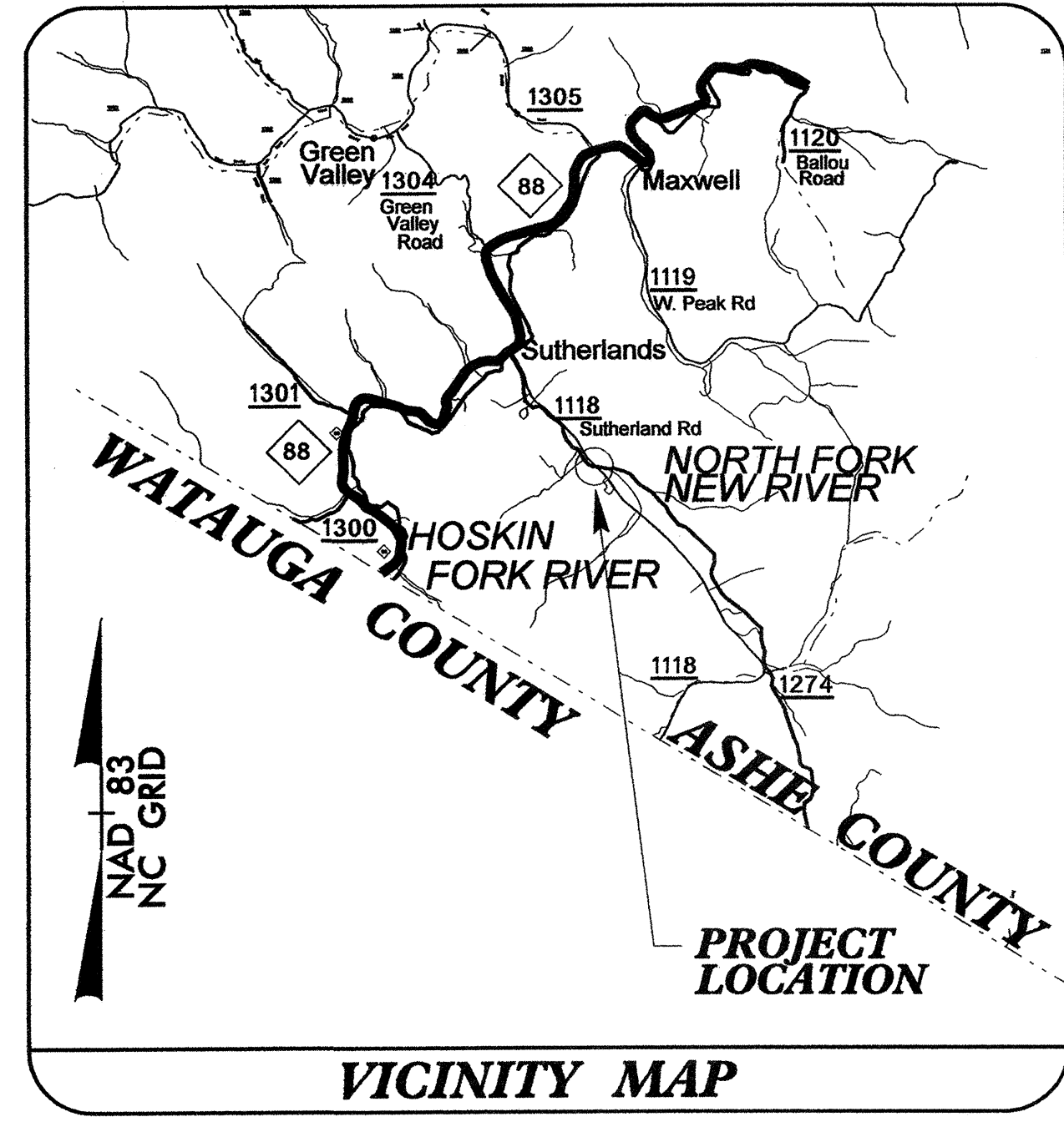
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Project No. B-4012	Sheet No. Sig. 1
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ASHE COUNTY

**LOCATION: BRIDGE NO. 117 OVER NORTH FORK NEW RIVER
ON SR 1118 (SUTHERLAND ROAD)**

TYPE OF WORK: TEMPORARY TRAFFIC SIGNAL



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

Index of Plans

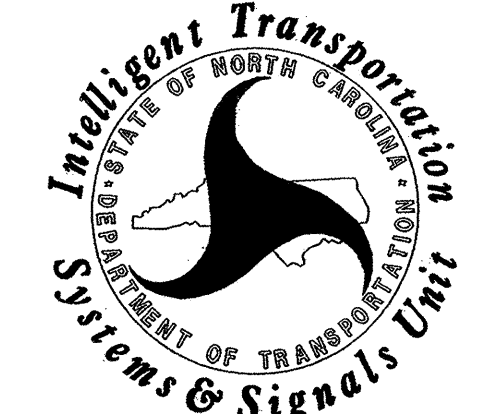
Sheet #	Reference #	Location/Description
Sig. 1		Title Sheet
Sig. 2-3	11-1403	Bridge No. 117 over North Fork New River on SR 1118 (Sutherland Road)
Sig. 4-6	N/A	Inductive Detection Loops Details

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

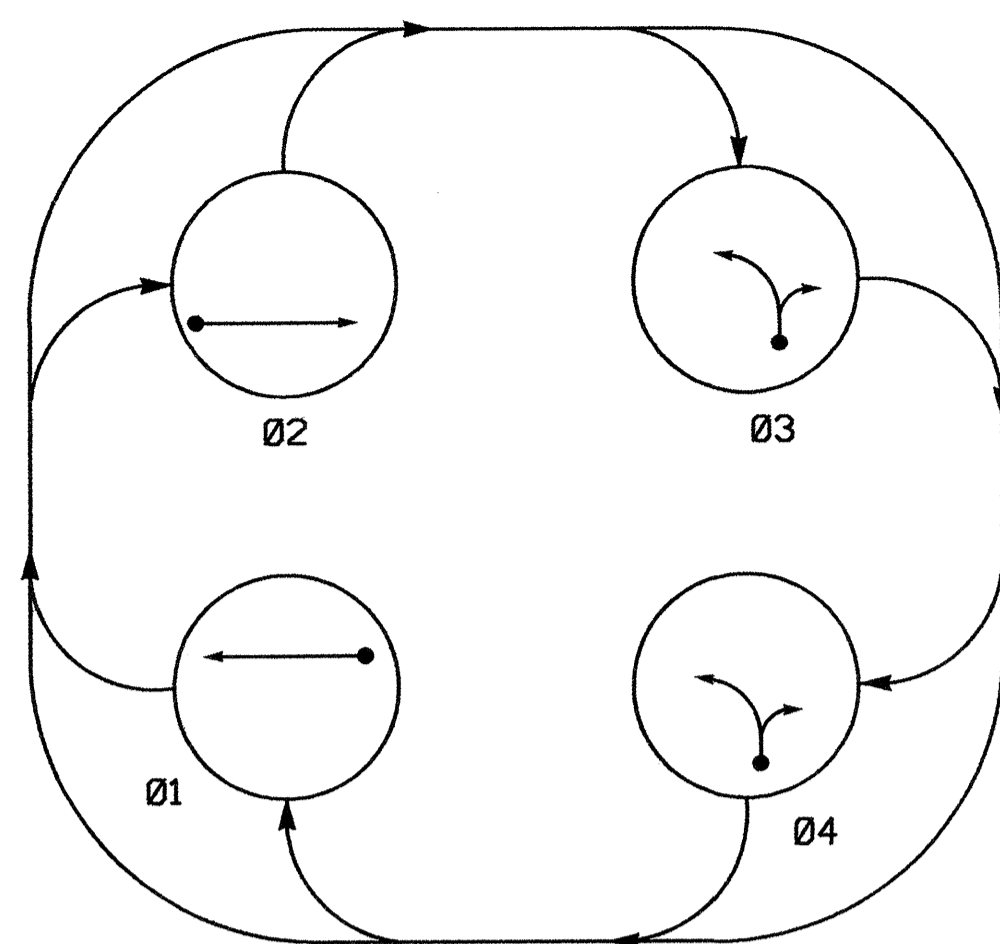
 Timothy J. Williams, PE - S&G Contracts Engineer
 John T. Rowe Jr., PE - Signal Equipment Design Engineer

Prepared In the Office of:
DIVISION OF HIGHWAYS
TRAFFIC ENGINEERING AND SAFETY SYSTEMS
BRANCH



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PHASING DIAGRAM

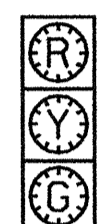


PHASING DIAGRAM DETECTION LEGEND
 ● DETECTED MOVEMENT
 ◀ UNDETECTED MOVEMENT (OVERLAP)
 - - - UNSIGNALIZED MOVEMENT
 - - - PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE				FLASH
	Ø 1	Ø 2	Ø 3	Ø 4	
11, 12	G	R	R	R	R
21, 22	R	G	R	R	R
31, 32	R	R	G	R	R
41, 42	R	R	R	G	R

SIGNAL FACE I.D.

⊙ Denotes L.E.D.



11, 12
21, 22
31, 32
41, 42

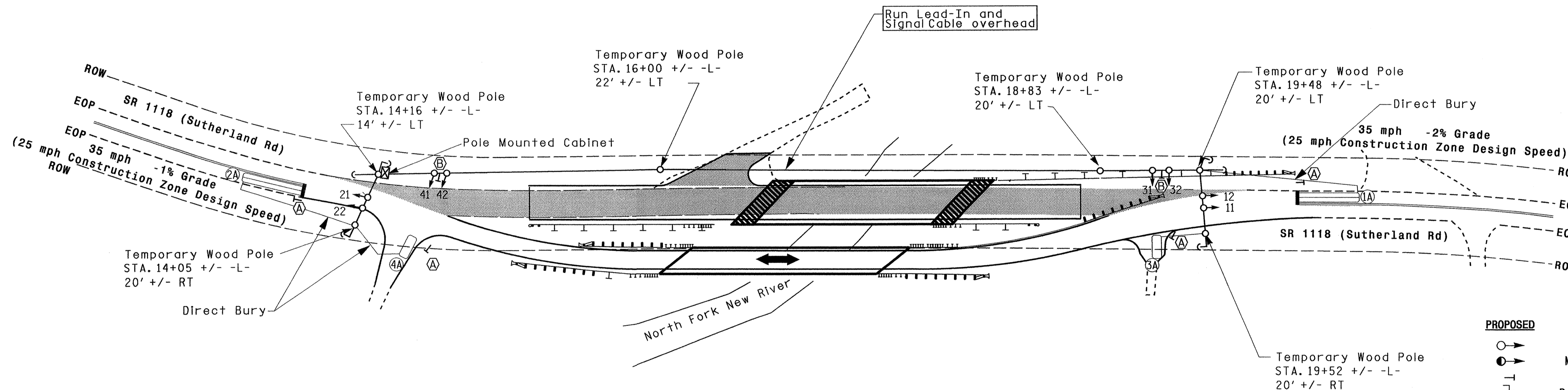
2070L LOOP & DETECTOR INSTALLATION

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING						
					PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x40	0	2-4-2	Y	1	Y	Y	-	-	-	Y
2A	6x40	0	2-4-2	Y	2	Y	Y	-	-	-	Y
3A	6x15	0	4	Y	3	Y	Y	-	-	-	Y
4A	6x15	0	4	Y	4	Y	Y	-	-	-	Y

4 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.
- Program controller to start-up in Phase 2 red clearance.
- Program all phases for "Red Rest".
- Set all detector units to presence mode.



FEATURE	PHASE			
	1	2	3	4
Min Green 1 *	10	10	10	10
Extension 1 *	2.0	2.0	2.0	2.0
Max Green 1 *	45	45	20	20
Yellow Clearance	4.6	4.4	4.6	4.4
Red Clearance	20.0	20.0	15.0	20.0
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	ON

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

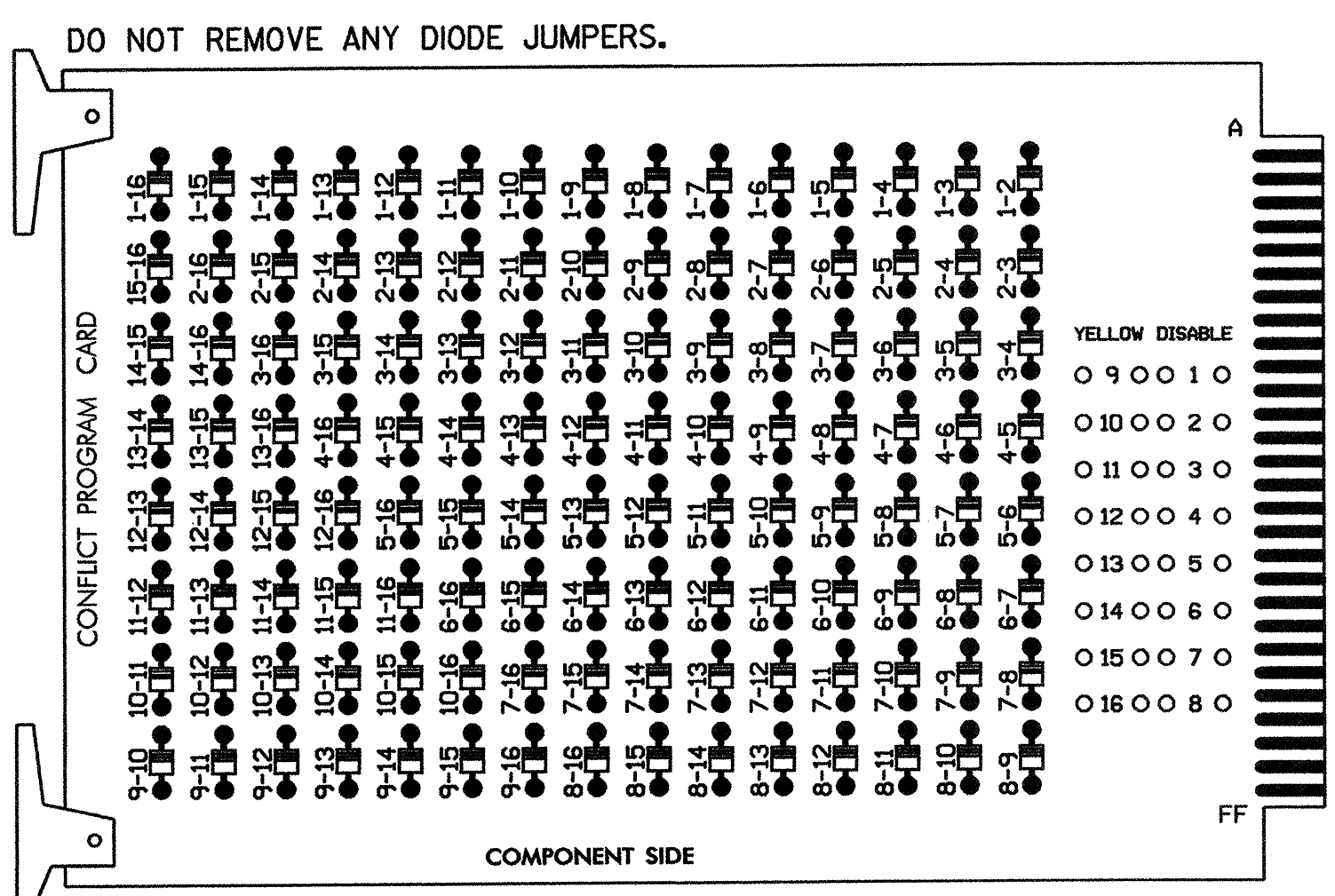
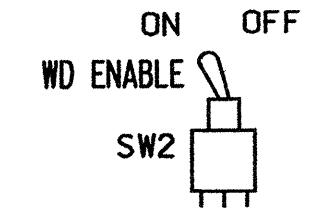
PROPOSED	EXISTING
○ → Traffic Signal Head	● → Traffic Signal Head
● → Modified Signal Head	N/A
⊥ → Pedestrian Signal Head	⊥ → Pedestrian Signal Head
⊥ → Pedestrian Signal Head With Push Button & Sign	⊥ → Pedestrian Signal Head With Push Button & Sign
⊥ → Signal Pole with Guy	⊥ → Signal Pole with Guy
⊥ → Signal Pole with Sidewalk Guy	⊥ → Signal Pole with Sidewalk Guy
⊥ → Inductive Loop Detector	⊥ → Inductive Loop Detector
⊥ → Controller & Cabinet	⊥ → Controller & Cabinet
⊥ → Junction Box	⊥ → Junction Box
⊥ → 2-in Underground Conduit	⊥ → 2-in Underground Conduit
N/A → Right of Way	→ Right of Way
→ Directional Arrow	→ Directional Arrow
→ Pavement Marking Arrow	→ Pavement Marking Arrow
Construction Zone	Construction Zone
(A) "STOP HERE ON RED" Sign (R10-6)	(A) "STOP HERE ON RED" Sign (R10-6)
(B) "NO TURN ON RED" Sign (R10-11a)	(B) "NO TURN ON RED" Sign (R10-11a)

Temporary Signal Design - TCP Phase II

	Bridge # 117 on SR 1118 (Sutherland Rd.) over North Fork New River		SEAL
	Division 11 Ashe County Sutherland	Division 11 Ashe County Sutherland	
Prepared in the Office of: 	PLAN DATE: October 2007 PREPARED BY: C. E. Pierce	REVIEWED BY: T. S. Thigpen	SCALE: 1"=40' REVISIONS: _____ INIT. DATE: _____
750 N. Greenfield Place, Garner, NC 27529	SIGNATURE: <i>T. S. Thigpen</i> DATE: 11/1/07	SIGNATURE: _____ DATE: _____	SIG. INVENTORY NO. 11-1403

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(set switches as shown)



- DO NOT REMOVE ANY JUMPERS AS SHOWN
- NOTES:
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - Make sure jumpers SEL2-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 5,6,7, 8,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phase 2, on the controller unit, for Start up in Red Clearance.
- Program phases 1, 2, 3 and 4 for "Red Rest".
- Enable Simultaneous Gap-Out, on the controller unit, for all phases.

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.	11,12	21,22	NU	31,32	41,42	NU	NU	NU	NU	NU	NU	NU
RED	125	128		116	101							
YELLOW	126	129		117	102							
GREEN	127	130		118	103							
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

NU = NOT USED

EQUIPMENT INFORMATION

CONTROLLER.....CONTRACTOR SUPPLIED 2070L
 CABINETCONTRACTOR SUPPLIED 336
 SOFTWAREECONOLITE OASIS
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S1,S2,S3,S4
 PHASES USED.....1,2,3,4
 OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

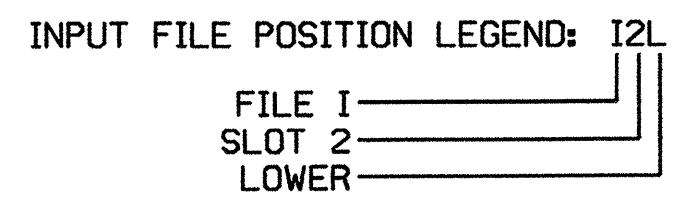
(front view)

FILE "I" L	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1	∅ 2	∅ 3	∅ 4	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
L	1A	2A	3A	4A	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
	NOT USED	NOT USED	NOT USED	NOT USED	ST	ST	ST	ST	ST	ST	ST	ST	ST	ST

EX. : 1A, 2A, ETC. = LOOP NO.'S
 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
1A	TB21-1,2	I1U	56	18	1	1	Y	Y			
2A	TB21-3,4	I2U	39	1	2	2	Y	Y			
3A	TB21-5,6	I3U	58	20	3	3	Y	Y			
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 11-1403
 DESIGNED: October 2007
 SEALED: 11-01-07
 REVISED: N/A

Temporary Signal Design

BRIDGE # 117
 ON
 SR 1118 (Sutherland Rd.)
 over North Fork New River
 Ashe County Sutherland

Division 11

PLAN DATE: October 2007 REVIEWED BY: JTR
 PREPARED BY: James Peterson REVIEWED BY:

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 008453
 JOHN T. ROWE, JR.
 11-2-07

750 N. Greenfield Pkwy, Garner, NC 27529

SIG. INVENTORY NO. 11-1403

01-10V-2007.14-06
 S:*15 Signal\work\proustes\g\manipeter\son\11403_sm.e\l.xxx.dgn
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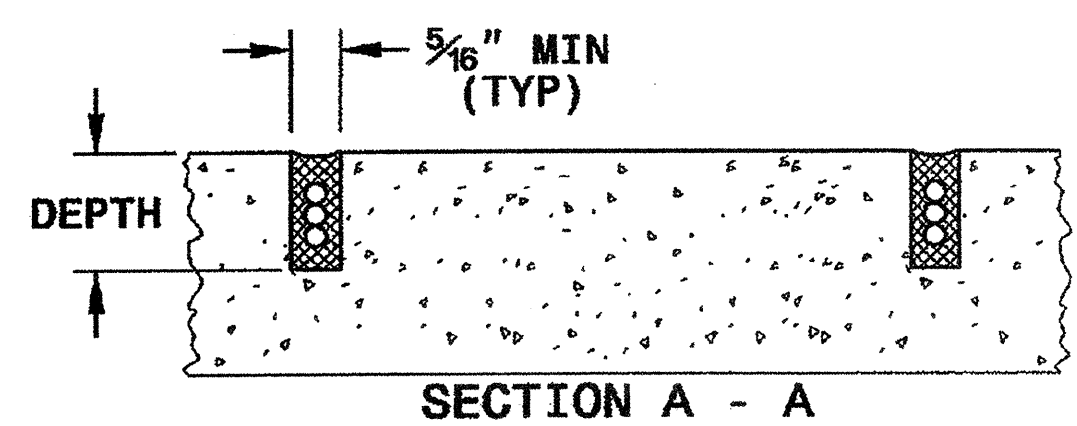
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

5-07

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

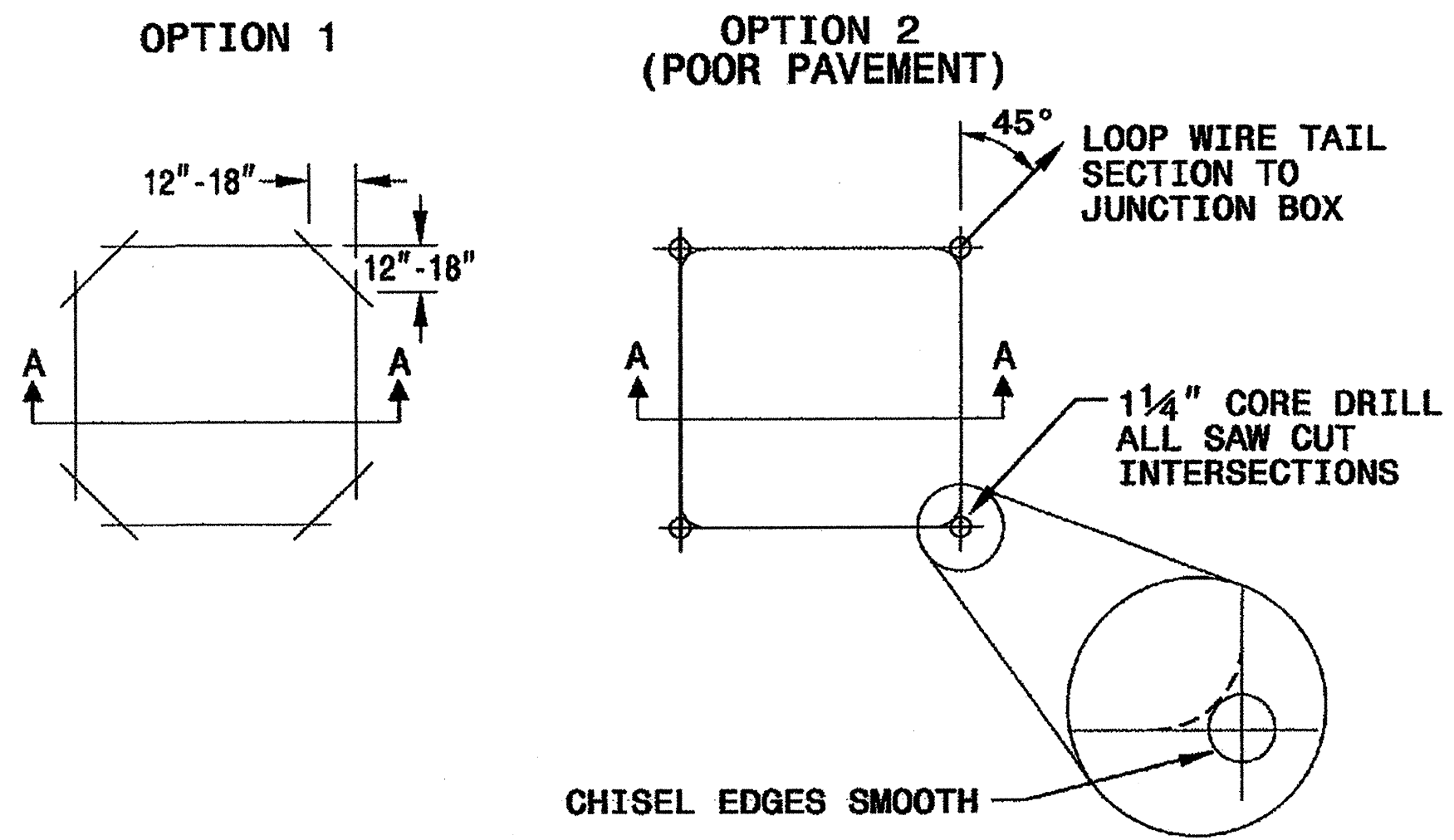
SAW SLOT DEPTH CHART

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

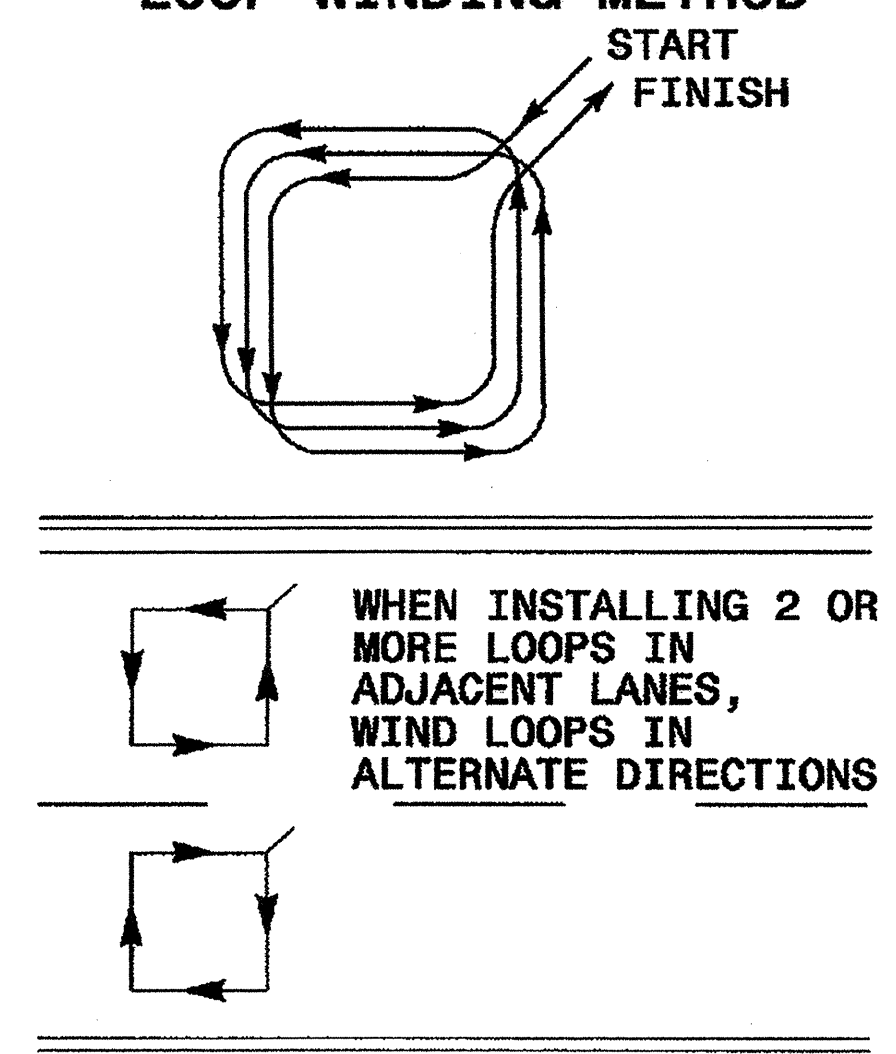


CONVENTIONAL 4-SIDED LOOP

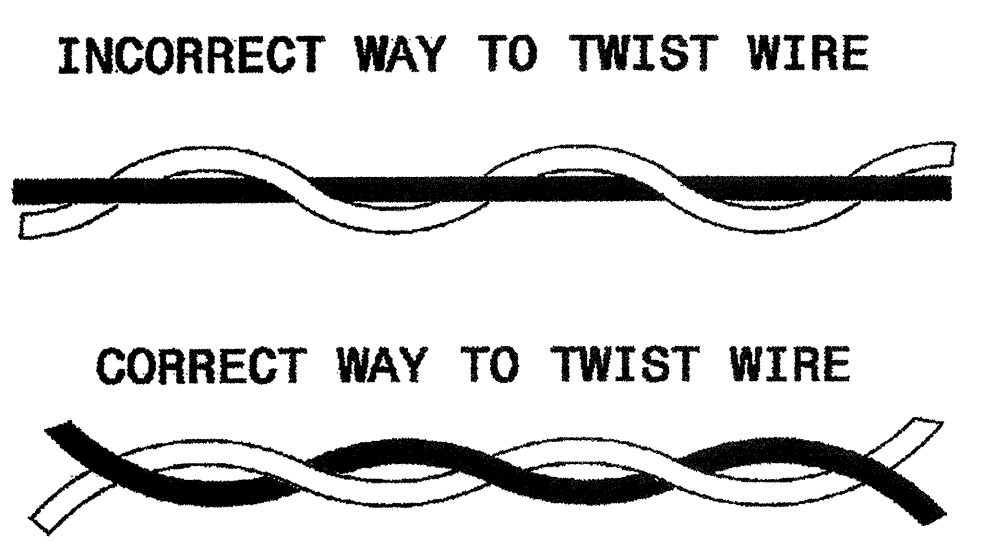
SAW CUT OPTIONS



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

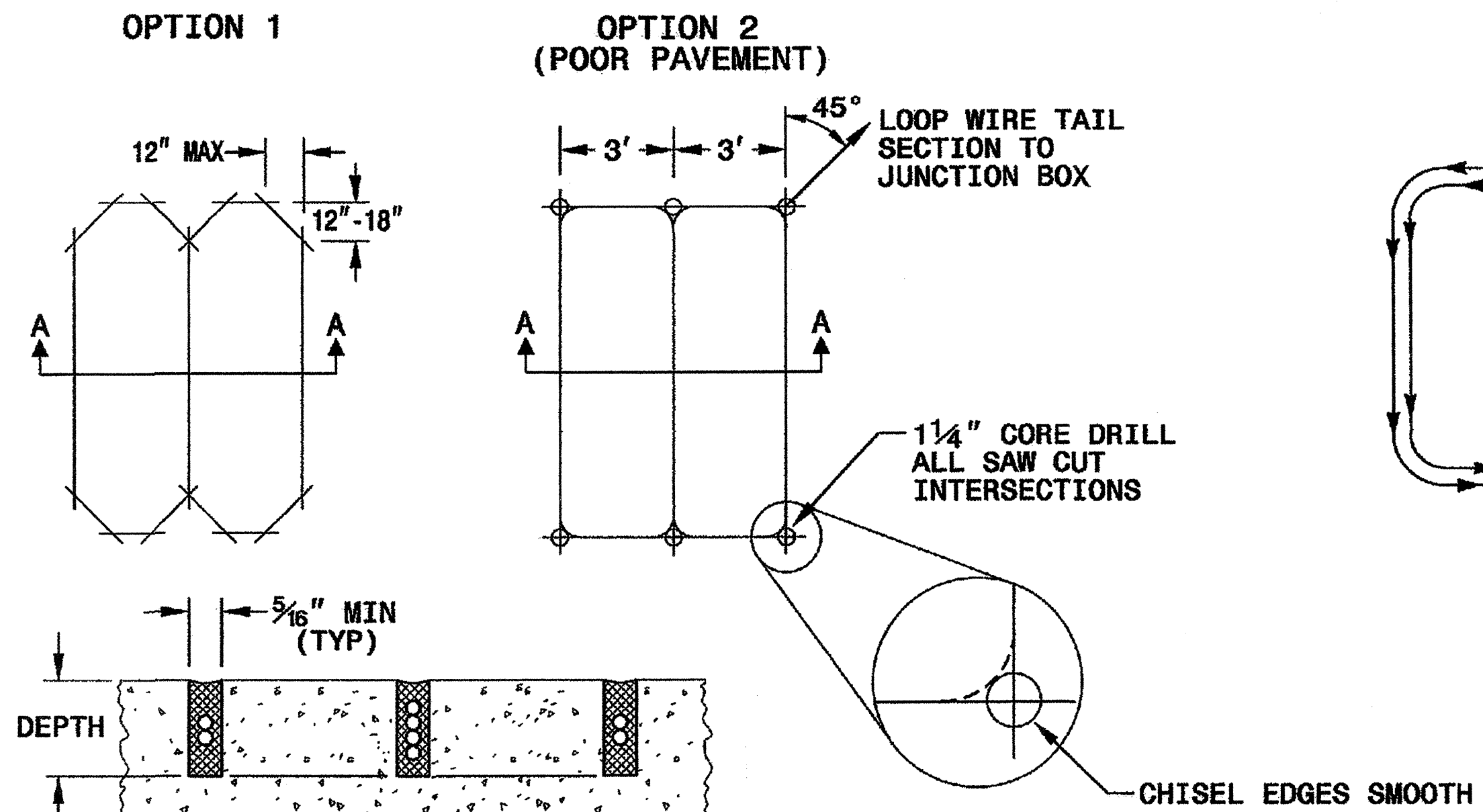


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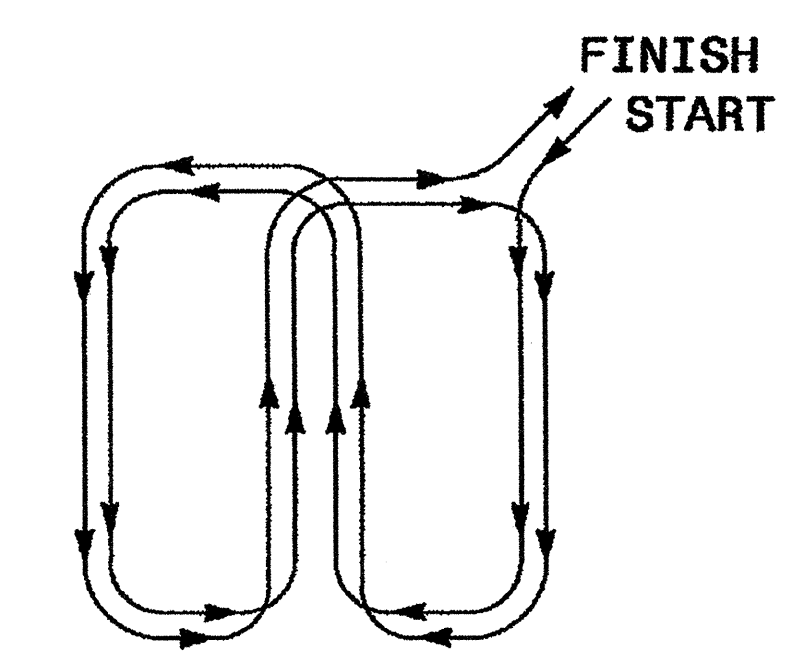
1. OVERLAP SAW CUTS AT CORNERS AND INTERSECTION POINTS TO ENSURE UNIFORM SAW SLOT DEPTH.
2. MAINTAIN 12" SPACING BETWEEN LOOP WIRE TAIL SECTIONS.
3. WIRE LOOPS CONNECTED TO THE SAME DETECTOR CHANNEL IN SERIES.
4. LOCATE LOOPS IN CENTER OF LANES UNLESS OTHERWISE SHOWN ON PLANS OR APPROVED BY ENGINEER.

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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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

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DIVISION OF HIGHWAYS
RALEIGH, N.C.

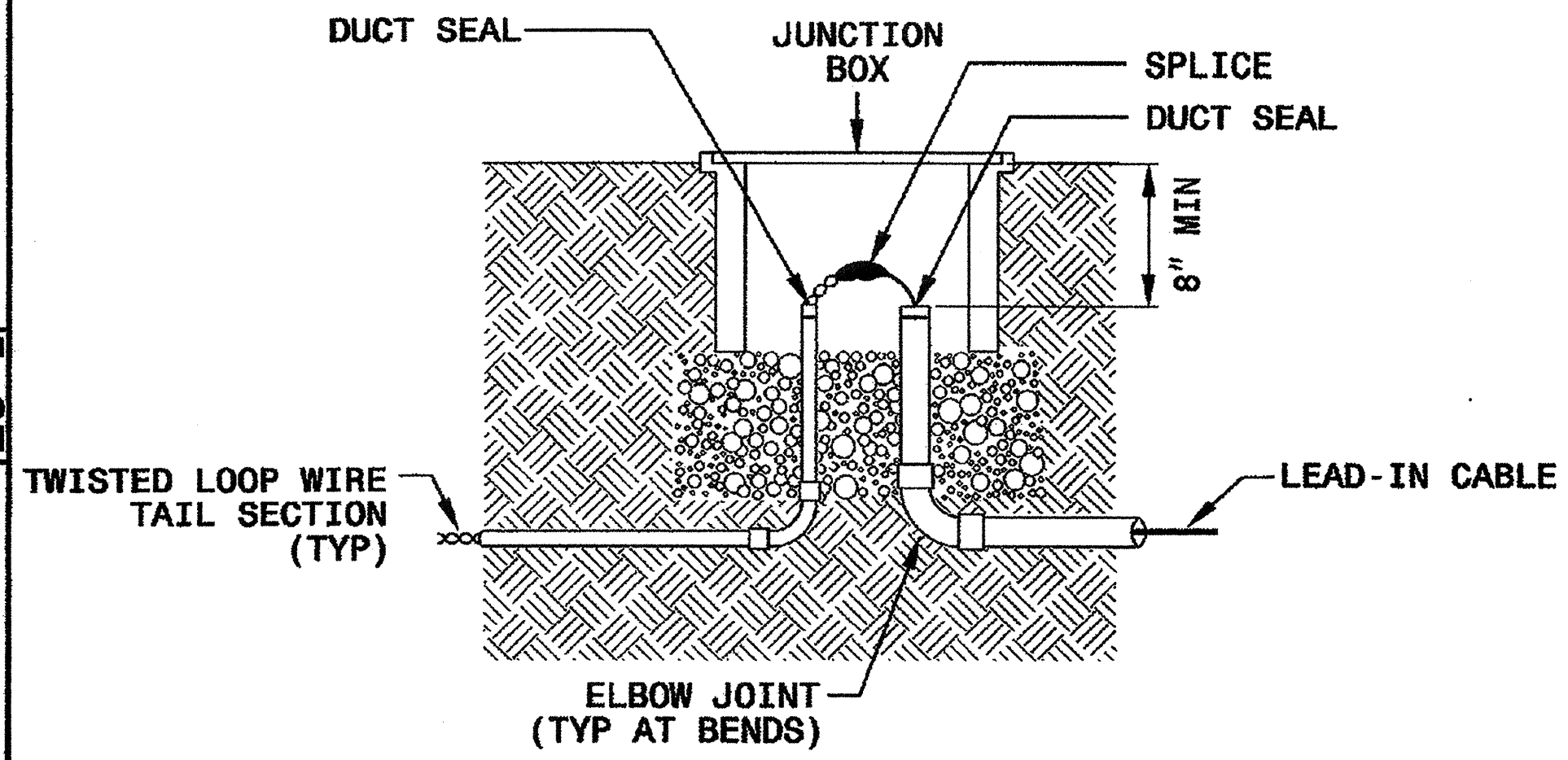
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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

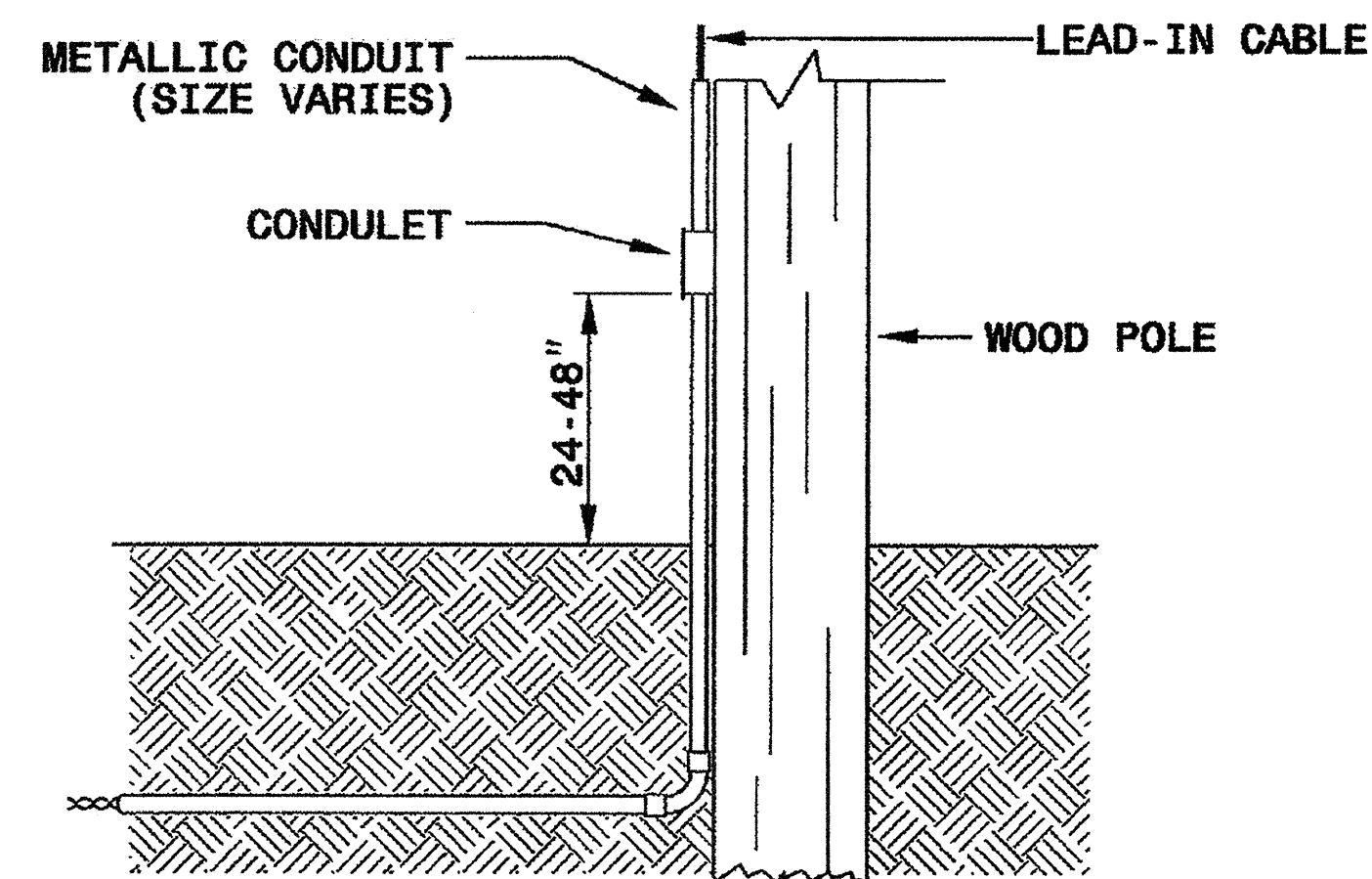
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS

LOOP WIRE AT JUNCTION BOX



LOOP WIRE AT POLE

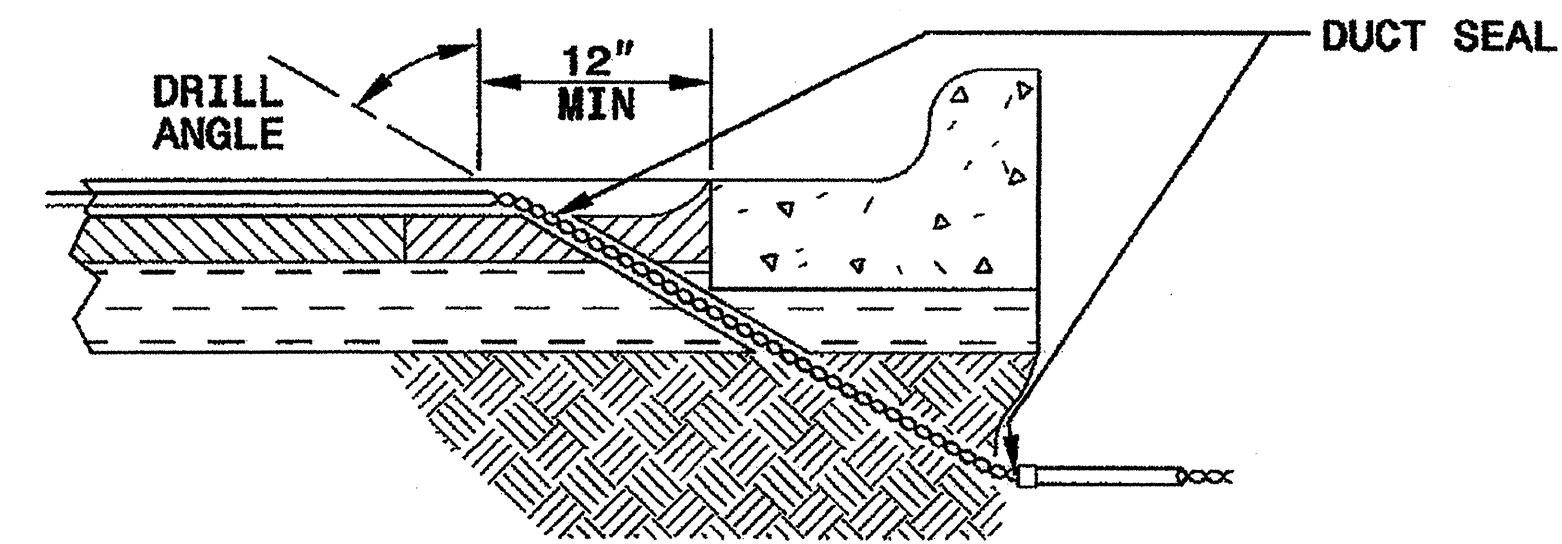


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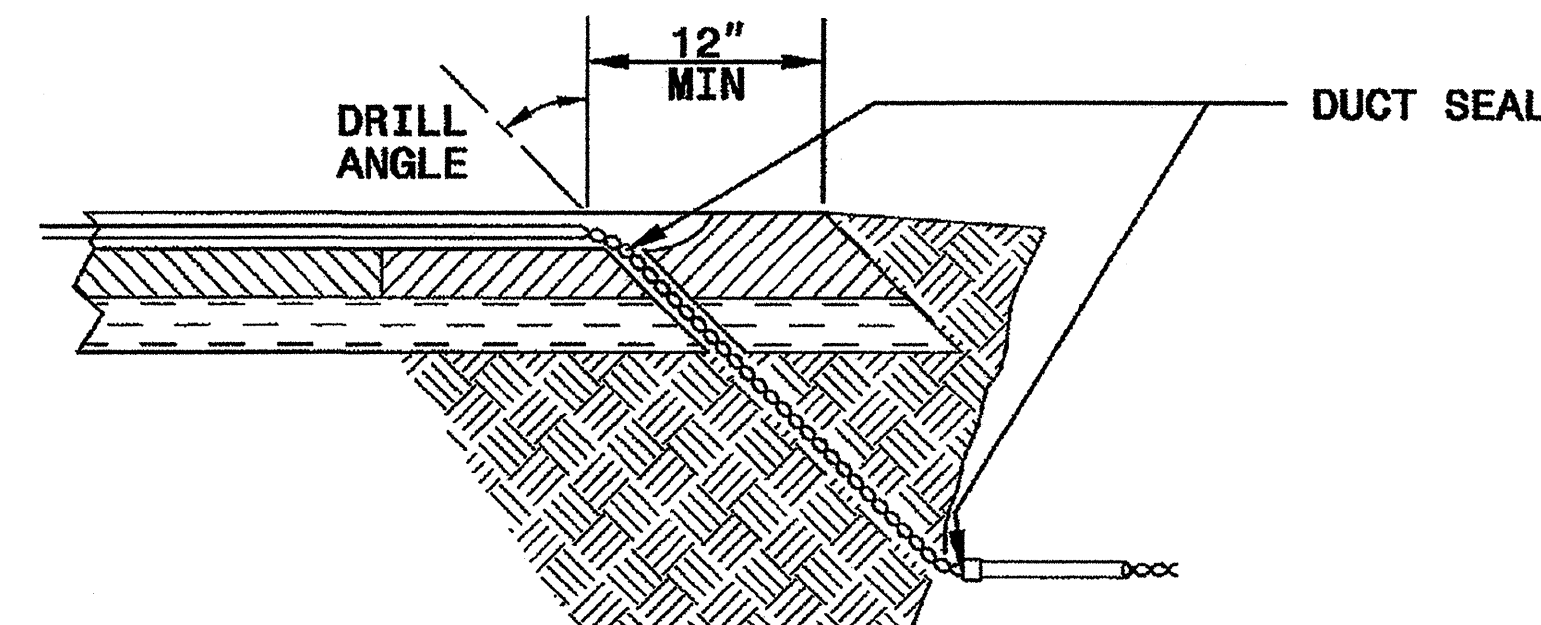
SPLICE ALL LOOP WIRE TAIL SECTIONS/LEAD-IN CABLE IN JUNCTION BOXES OR APPROVED CONDULETS.

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.

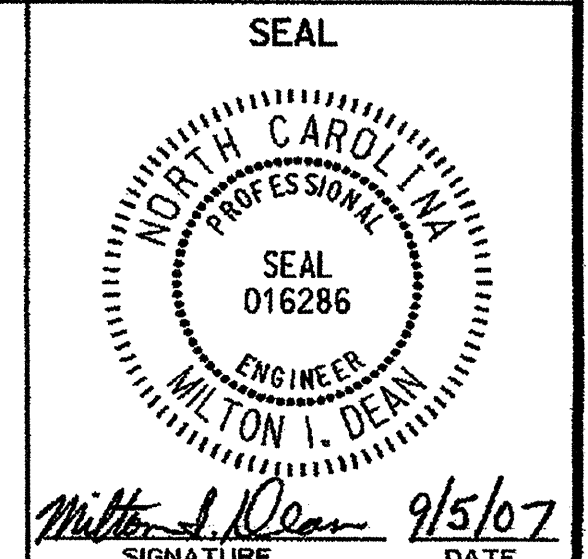
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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title



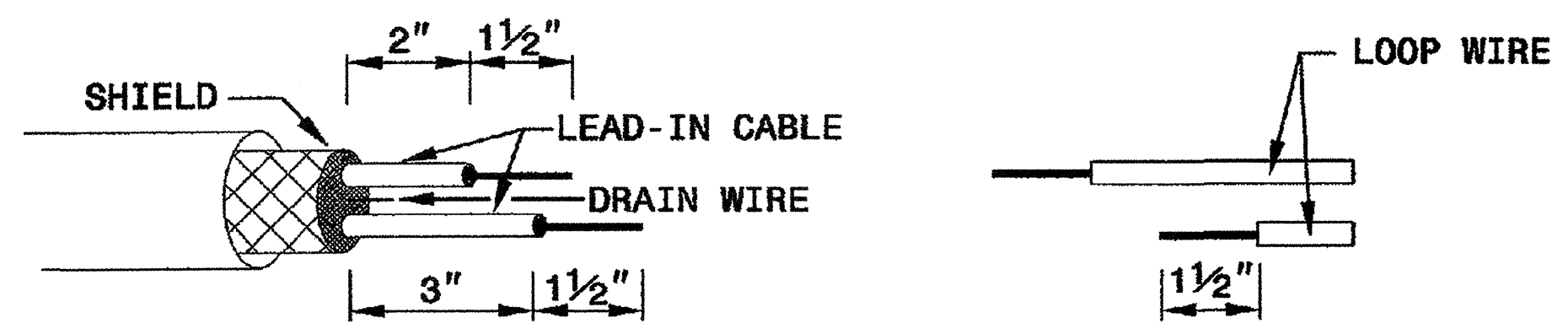
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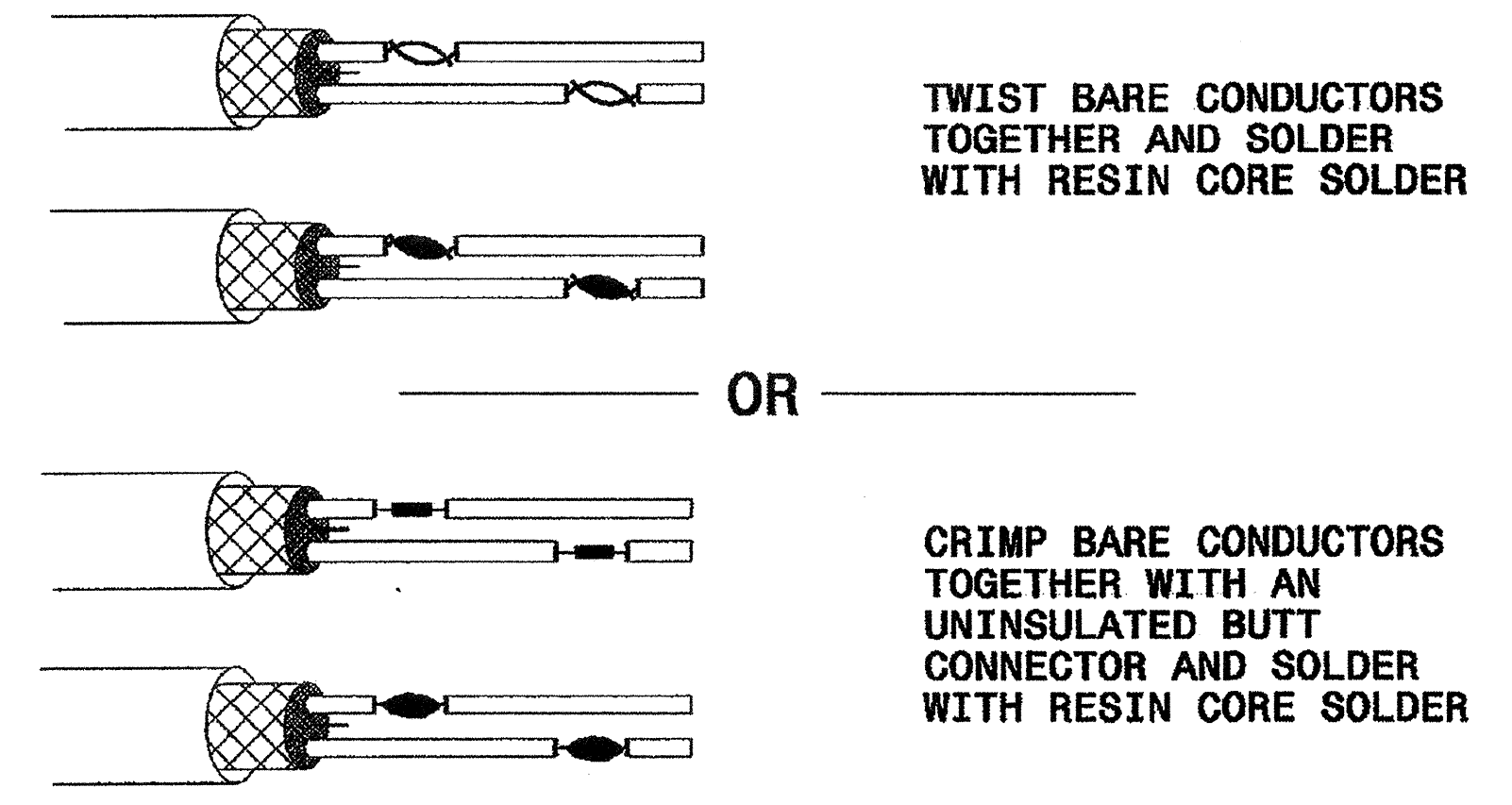
ENGLISH DETAIL DRAWING FOR
INDUCTION DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

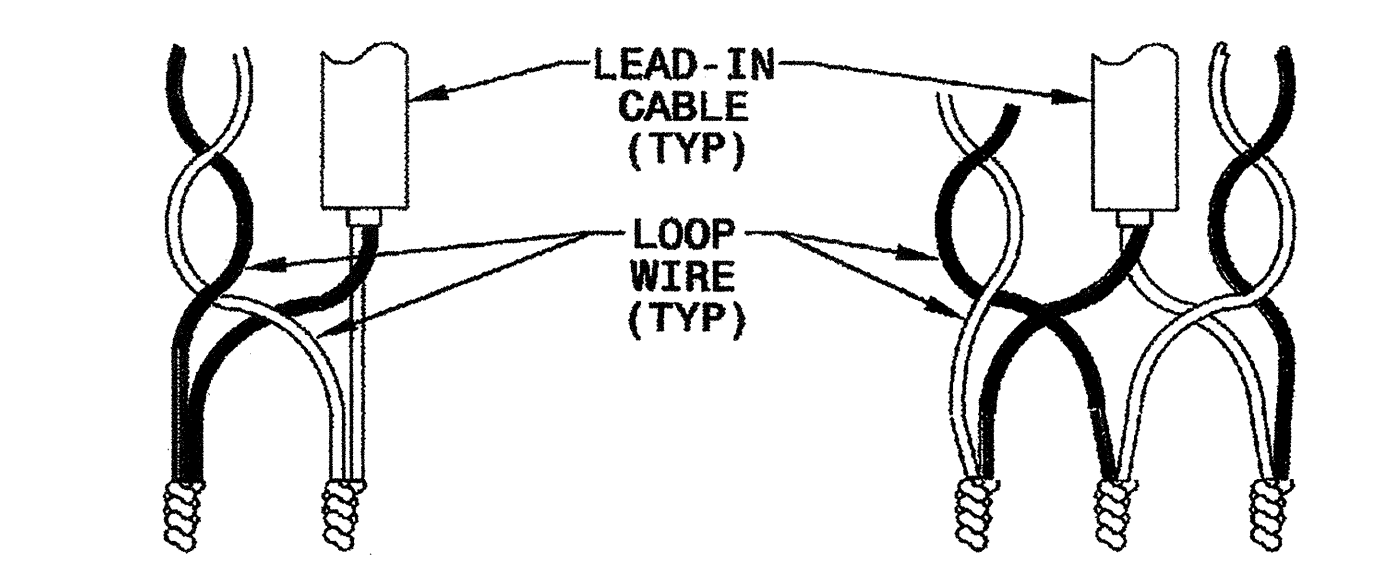


STEP 2. CONNECT AND SOLDER

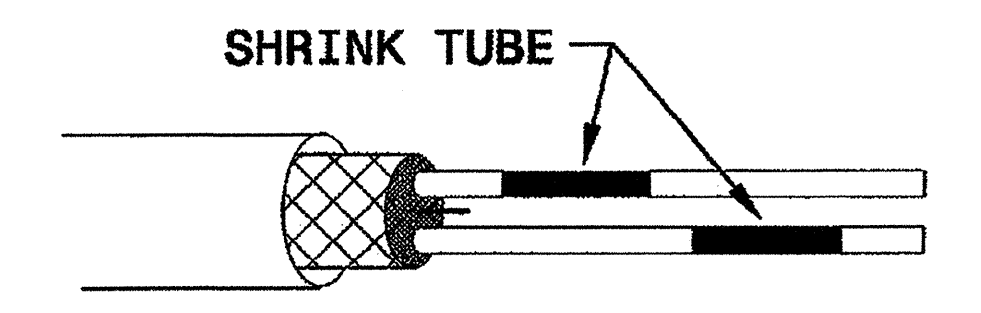


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

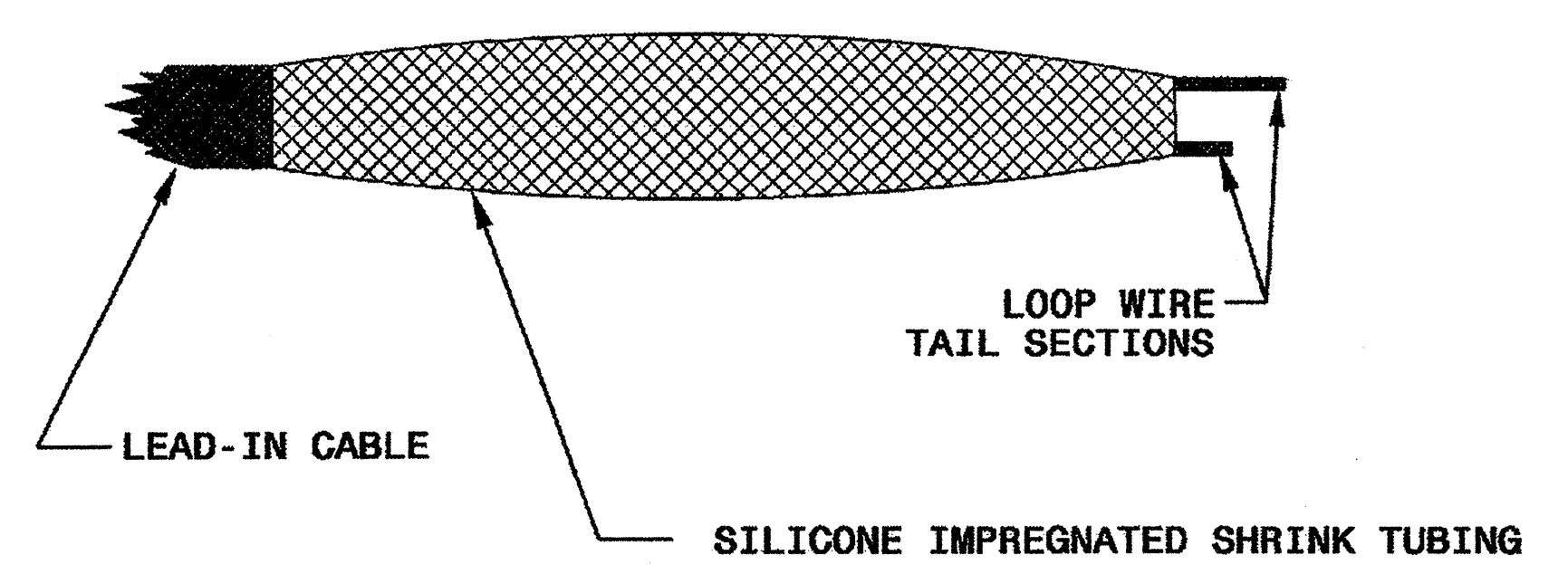
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



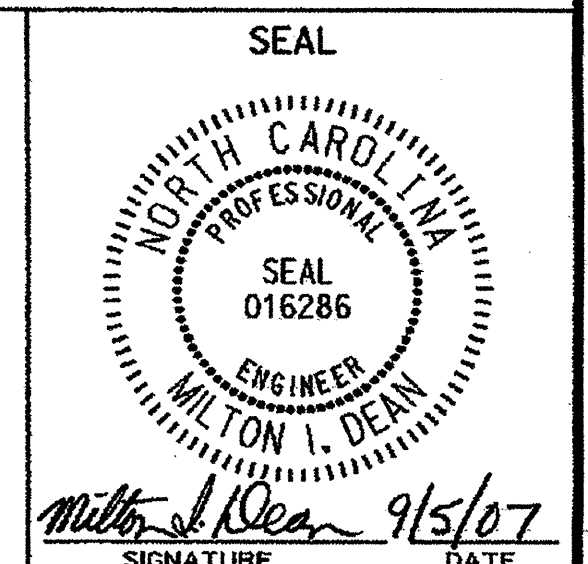
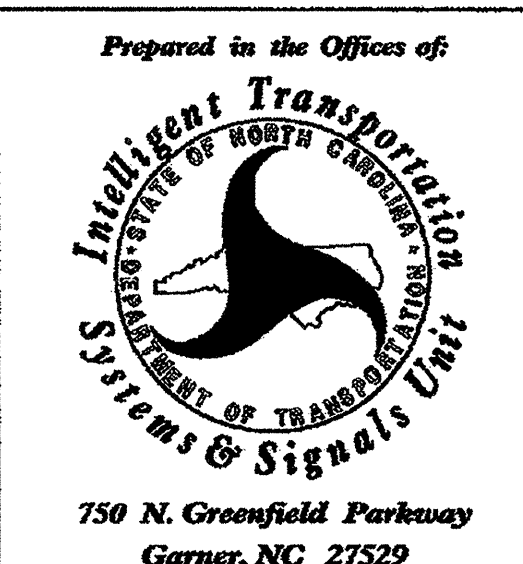
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ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

See Plate for Title



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