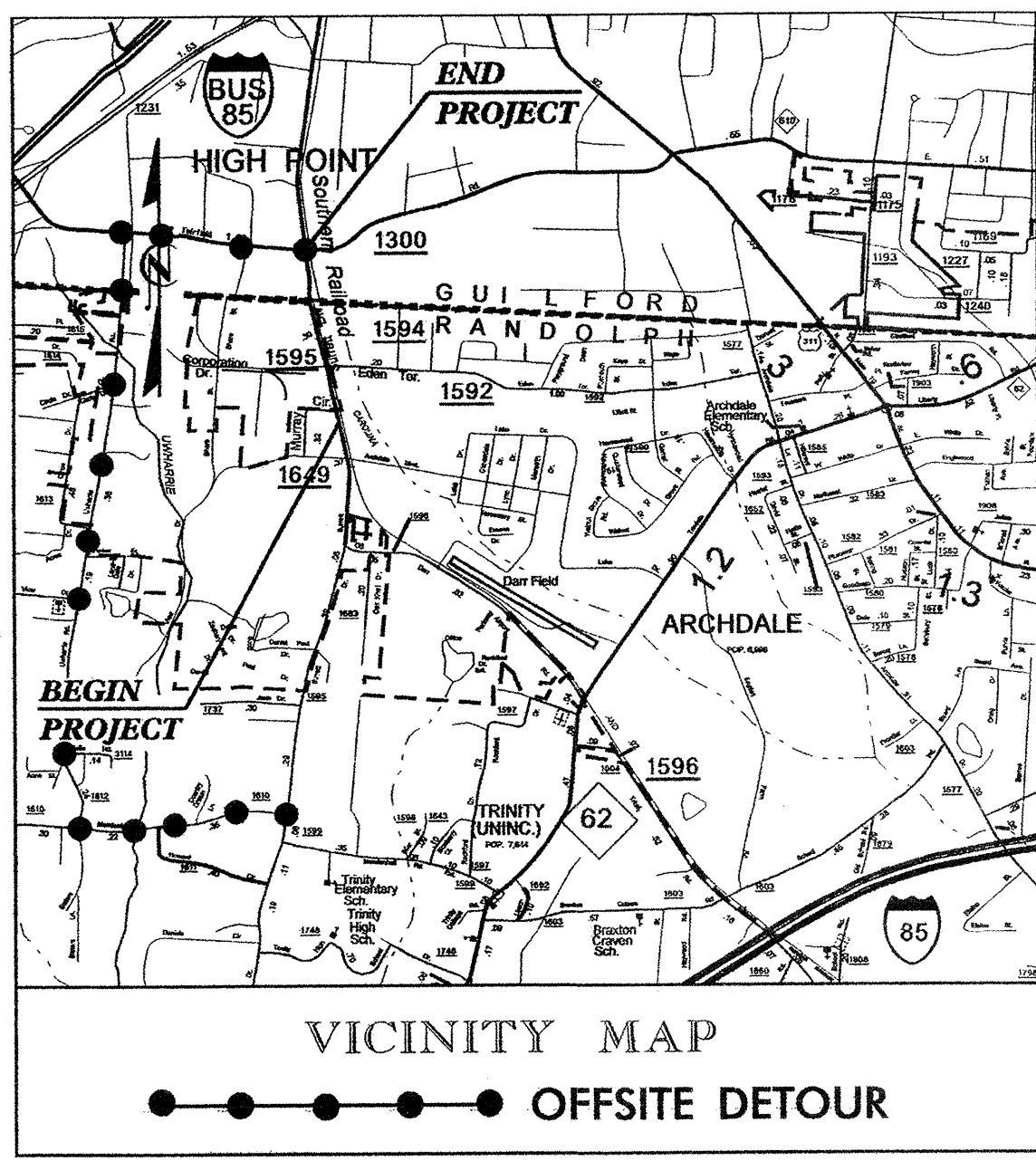


PROJECT: U-2702

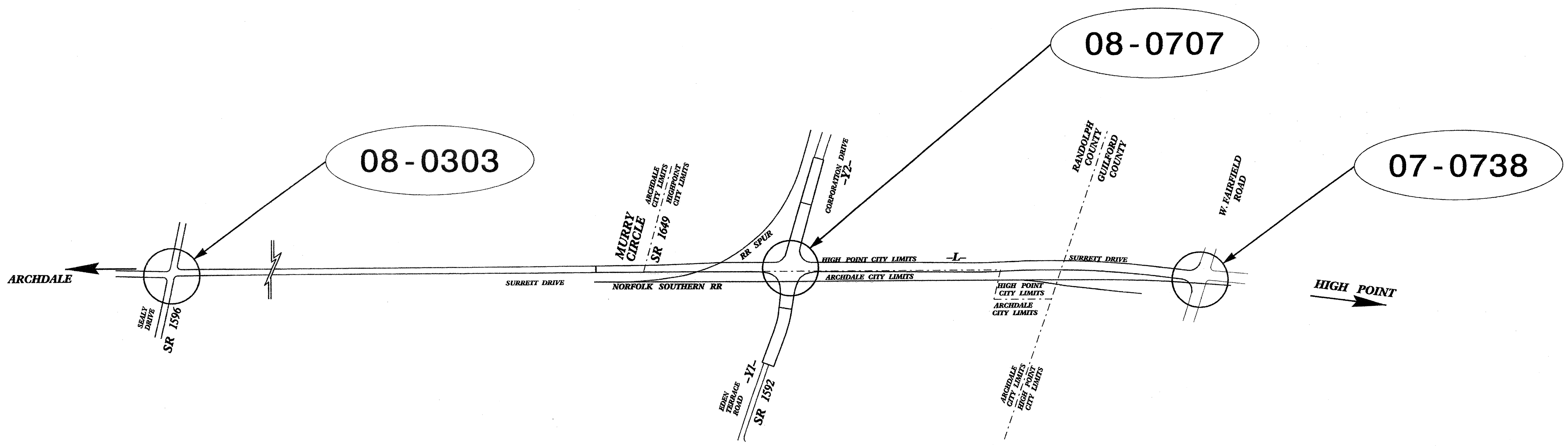
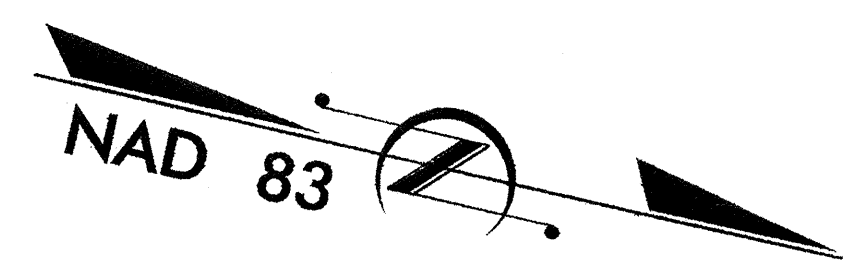
STATE	PROJECT NO.	SHEET NO.
N.C.	U-2702	Sig. 1
F.A. PROJ. NO.		
PROJECT ID. NO.		



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH/GUILFORD COUNTIES

LOCATION: ARCHDALE-HIGH POINT INTERSECTION OF SR 1592 (EDEN TERRACE) AND SR 1595 (SURRETT DR.)
TYPE OF WORK: TRAFFIC SIGNALS



INDEX OF PLANS

SHEET NO.	SIGNAL INVENTORY NO.	LOCATION /DESCRIPTION
SIG. 1	N/A	Title Sheet
SIG. 2-3	08-0303	SR 1595 (Surrett Drive) At SR 1596 (Sealy Drive)
SIG. 4-11	08-0707	SR 1595 (Surrett Drive) At SR 1592 (Eden Terrace)Corporation Drive
SIG. 12-15	07-0738	SR 1300 (W. Fairfield Road) At SR 1216 (Surrett Drive)
SIG. 16-20	N/A	Standard Drawings for Metal Poles
SIG. 21-26	N/A	Communications Cable and Conduit Routing Plans
SIG. 27-29	N/A	Inductive Detection Loops Details

LEGEND

##-#### SIGNAL INVENTORY NUMBER

NC DOT CONTACTS:
INTELLIGENT TRANSPORTATION SYSTEMS & SIGNALS UNIT

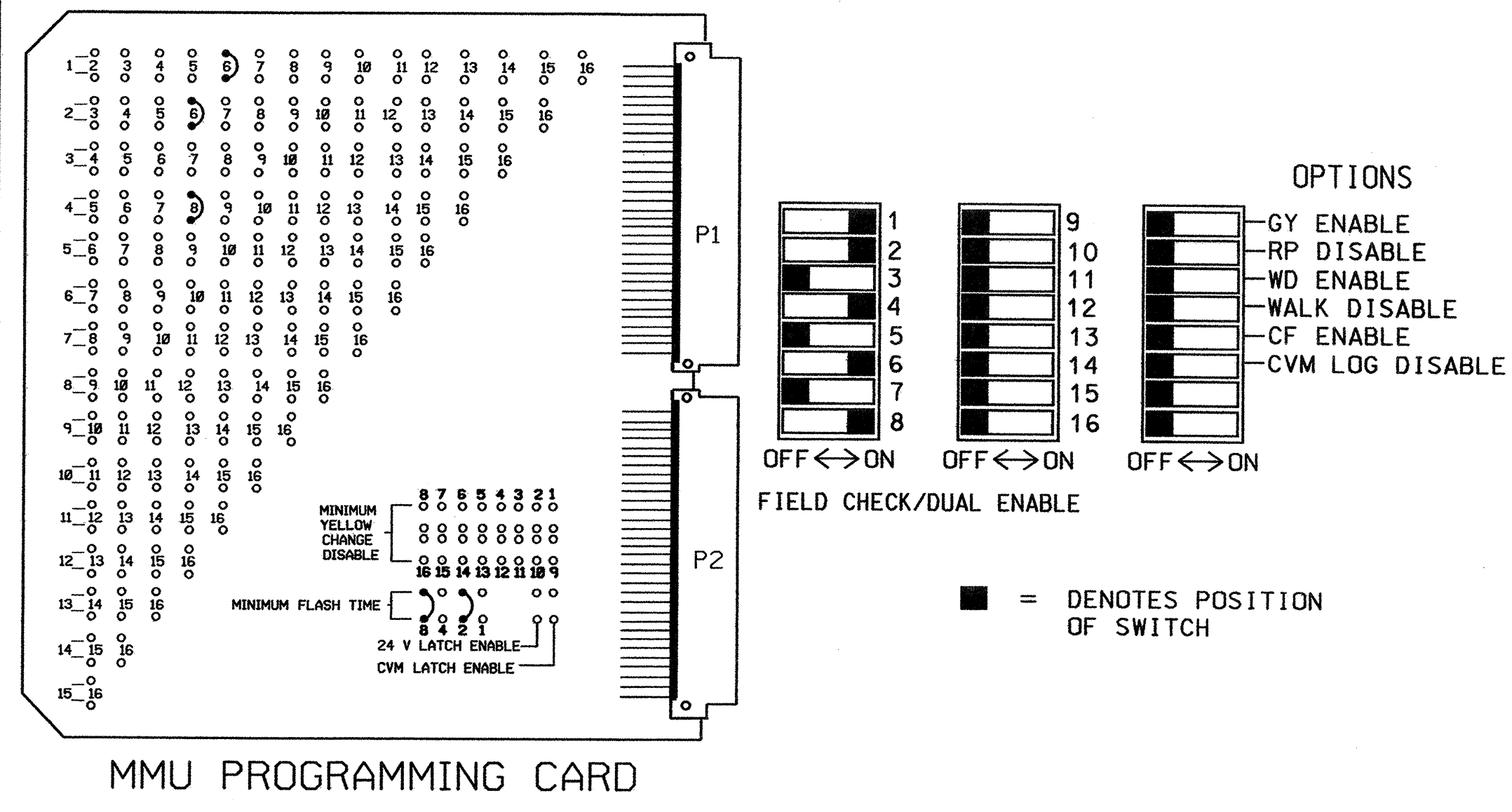
Timothy J. Williams, PE - S&G Contracts Engineer
John T. Rowe Jr., PE - Signal Equipment Design Engineer
G. G. Murr, Jr., PE - ITS Engineer

Prepared in the Offices of:

750 N. Greenfield Parkway, Garner, NC 27529

**EDI MODEL MMU-16E
MALFUNCTION MANAGEMENT UNIT
PROGRAMMING DETAIL**

(program card and set switches as shown below)



NOTES

- TO PREVENT "FLASH-CONFLICT" PROBLEMS, WIRE ALL UNUSED LOAD SWITCHES TO FLASH RED. VERIFY THAT SIGNAL HEADS FLASH IN ACCORDANCE WITH THE SIGNAL PLANS.
- TO PREVENT RED FAILURES ON UNUSED MONITOR CHANNELS, TIE UNUSED LOAD SWITCH RED OUTPUTS: 3, 5, 7, 9, 10, 11, & 12 TO LOAD SWITCH AC+ BY INSERTING A JUMPER PLUG IN THE UNUSED LOAD SWITCH SOCKET FROM PIN 1 (LS AC+) TO PIN 3 (RED OUT). MAKE SURE ALL FLASH TRANSFER RELAYS ARE IN PLACE.
- PROGRAM THE CONTROLLER TO START UP IN PHASES 2 AND 6 GREEN.
- SET POWER-UP FLASH TIME TO 10 SECONDS AND IMPLEMENT ON THE MALFUNCTION MANAGEMENT UNIT. SET CONTROLLER POWER-UP FLASH TIME TO 0 SECONDS.
- ENABLE SIMULTANEOUS GAP-OUT FEATURE, ON CONTROLLER UNIT, FOR ALL PHASES.
- PROGRAM PHASES 4 AND 8, ON CONTROLLER UNIT, FOR DUAL ENTRY.
- SET ALL DETECTOR CARD CHANNELS TO 'PRESENCE' MODE.
- UNLESS OTHERWISE SPECIFIED, PROGRAM DETECTOR CALL DELAY AND EXTENSION TIMING ON THE CONTROLLER.
- THIS CONTROLLER AND CABINET ARE TO BE PROGRAMMED AND WIRED AS A PART OF THE HIGH POINT CITY SIGNAL SYSTEM.

SIGNAL HEAD HOOK-UP CHART

PHASE	1	2	3	4	5	6	7	8	2 PED	4 PED	6 PED	8 PED
SIGNAL HEAD NO.	6I,82	2I,22	NU	4I,42	NU	6I,62	NU	8I,82	NU	NU	NU	NU
RED	*	2R		4R		6R		8R				
YELLOW		2Y		4Y		6Y		8Y				
GREEN		2G		4G		6G		8G				
RED ARROW												
YELLOW ARROW	1Y											
GREEN ARROW	1G											

NU = NOT USED

* DENOTES INSTALL LOAD RESISTOR. SEE LOAD RESISTOR INSTALLATION DETAIL BELOW.

LOAD RESISTOR INSTALLATION DETAIL

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

PH.1 RED FIELD TERMINAL (1R)

THE PURPOSE OF THIS RESISTOR IS TO LOAD THE CHANNEL RED MONITOR INPUT IN ORDER FOR THE MALFUNCTION MANAGEMENT UNIT TO USE THE FULL SIGNAL SEQUENCE MONITORING CAPABILITY ON THIS CHANNEL, WHICH DOES NOT USE THE RED DISPLAY IN THE FIELD.

DETECTOR RACK SET-UP DETAIL

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

BIU	CH1	CH1	CH1	CH1	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	37-PIN (LOOPS)
	L3	L1	L7	L5							
	∅1	∅1	∅6	∅4							
CH2	CH2	CH2	CH2	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	
L4	L2	L8	L6								
	∅2	∅6	∅8	∅4							

EQUIPMENT INFORMATION

CONTROLLER.....PEEK TRAFFIC 3000*
 CABINET.....EAGLE TF5012TNC01 [TS2-1]
 CABINET MOUNT.....BASE
 LOADBAY POSITIONS.....12
 LOAD SWITCHES USED.....1, 2, 4, 6, 8
 PHASES USED.....1, 2, 4, 6, 8
 OVERLAPS.....NONE

* CONTRACTOR TO REMOVE EXISTING EAGLE CONTROLLER AND INSTALL, RE-PROGRAM & RE-CONNECT PEEK 3000 CONTROLLER FOR COMPATIBILITY WITH HIGH POINT SIGNAL SYSTEM.

**PEEK TRAFFIC 3000 SERIES CONTROLLER
SPECIAL BACK-UP PROTECTION PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA), THEN PRESS '1' (CONTROLLER), THEN PRESS '9' (ENHANCED OPTIONS), THEN PRESS '1' (DYNAMIC OMIT/RCL), THEN PRESS '1' (DYNAMIC OMIT/RCL):

DYNAMIC OMIT GRP 1 (1 OF 8) VALUE(YES/NO)

ENABLE:	Y	1	1	1	1	1	1	1	1	1
FUNC/PH	1	2	3	4	5	6	7	8	9	0
OMIT PHS	X									
IF PH ON	X									
OR										
IF O/L	A	B	C	D	E	F	G	H	I	J
GRN										

FROM CONTROLLER MENU PRESS '4' (DETECTORS), THEN PRESS '6' (SWITCH & COPY):

DET SWITCH/COPY ENABLES VALUE(YES/NO)

ENABLE:	Y	1	1	1	1	1	1	1	1	1
DETECTOR SWITCHING	ENABLE:	N								
DETECTOR COPY GROUP 1	ENABLE:	Y								
DETECTOR COPY GROUP 2	INPUT ENABLE:	N								

DET COPY GRP 2 PLANS 1-16 USED INSTEAD OF GRP 1 IF ENABLE = Y AND INPUT ACTIVE.
 --PGDN FOR DET SW & COPY PATTERNS 1-16--

return to Controller menu

DET SW & COPY 1 OF 64

PH GRNS	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
SWITCH																
G1 COPY	X															
G2 COPY																
SW OR COPY PER	→	{	PH'S	SWTCH	G1C	G2C										
WHEN ABOVE ARE GRN	;	FROM	PH:	0	1	0										
(PGDN FOR MORE)	;	TO	PH:	0	4	0										

end of programming

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

ADD JUMPERS FROM: L1A TO L2A, AND L1B TO L2B

LOOP NO.	LOOP PANEL TERMINALS
1A	L1A, L1B
	L2A, L2B
1B	L3A, L3B
2A	L4A, L4B
4A	L5A, L5B
4B	L6A, L6B
6A	L7A, L7B
8A	L8A, L8B
	L9A, L9B
	L10A, L10B
	L11A, L11B
	L12A, L12B
	L13A, L13B
	L14A, L14B
	L15A, L15B
	L16A, L16B

NOTE
BE SURE TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN ON THE SIGNAL PLANS.

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME (SEC)
1	∅1	DELAY	15
2	∅6		
3	∅1	DELAY	15
4	∅2		
5	∅4	DELAY	3
6	∅4	DELAY	15
7	∅6		
8	∅8	DELAY	3
9			
10			
11			
12			
13			
14			
15			
16			

LOAD SWITCH ASSIGNMENT DETAIL
(program controller according to schedule in chart below)

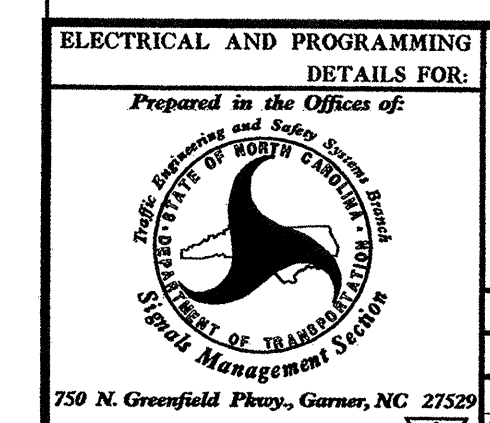
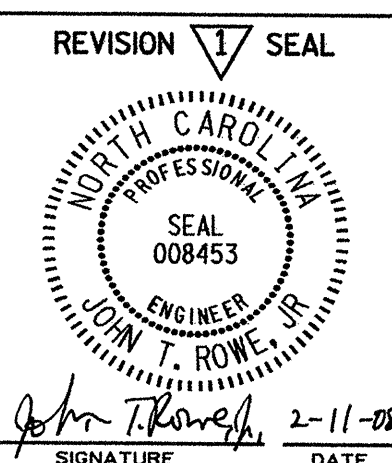
LOAD SWITCH NUMBER	FUNCTION
1	∅1
2	∅2
3	
4	∅4
5	
6	∅6
7	
8	∅8
9	
10	
11	
12	

DISABLE UNUSED LOAD SWITCH/MMU CHANNELS IN CONTROLLER PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 08-0303
 DESIGNED: JANUARY 2008
 SEALED: 2/4/08
 REVISED: N/A

TS-2 TYPE 1 CABINET

CLOSED LOOP SYSTEM DATA :
 SYSTEM I.D. 03-07



**SR 1595 (Surrett Drive)
at
SR 1596 (Sealy Drive)**

Division 08 Randolph County Archdale

PLAN DATE: 3-15-01 REVIEWED BY: D.T. Joyce

PREPARED BY: D.H. Spaulding REVIEWED BY:

REVISIONS

NO.	DESCRIPTION	INIT.	DATE
1	REVISD PER T.I.P. PROJECT UPGRADE TO REPLACE CONTROLLER WITH PEEK FOR SYSTEM COMPATIBILITY. FER 1-24-08 MHA	JTR	2-11-08

Not a certified document as to the Original Document but Only as to the Revisions - This document originally Issued and sealed by George C. Brown, #022013 on 3/21/01
 This document is only certified as to the Revisions.

SIGNATURE DATE

SIG. INVENTORY NO. 08-0303

5 Phase Fully Actuated w/ RR Preemption (High Point City Signal System) NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
- Omit phase 1 during phase 2 on.
- Omit phase 5 during phase 6 on.
- Program controller to clear from phase 2+6 to phase 1 and/or 5 by progressing through phase 4+8 (see Electrical Details).
- Program phase 4 and phase 8 for dual entry.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Ensure flashing operation does not alter operation of blankout signs.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Omit phases 3 and 7 during normal operation.
- Closed loop system data: System ID#03-06.

TABLE OF OPERATION

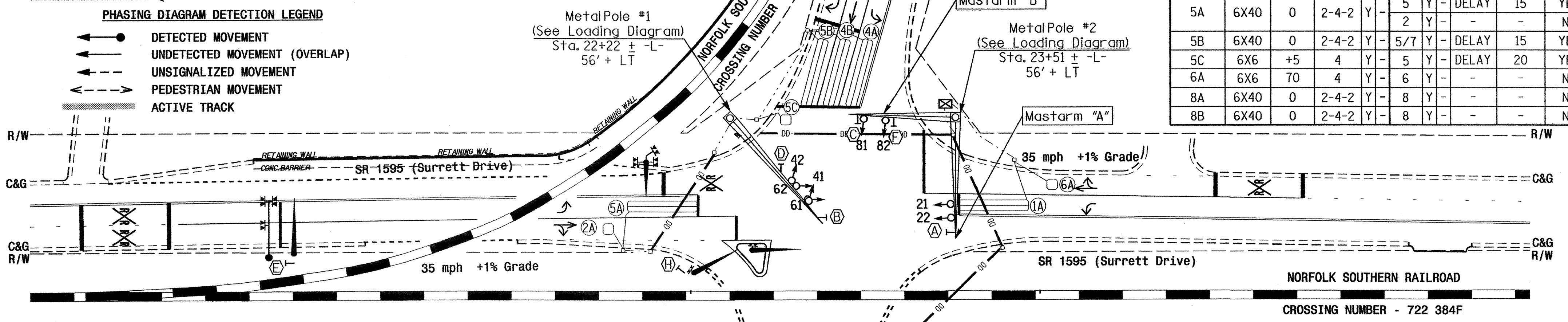
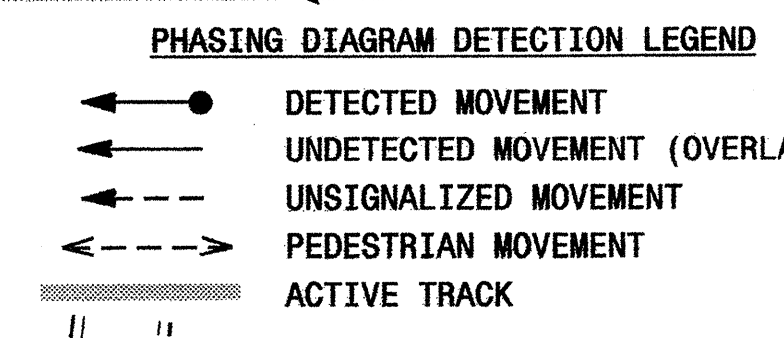
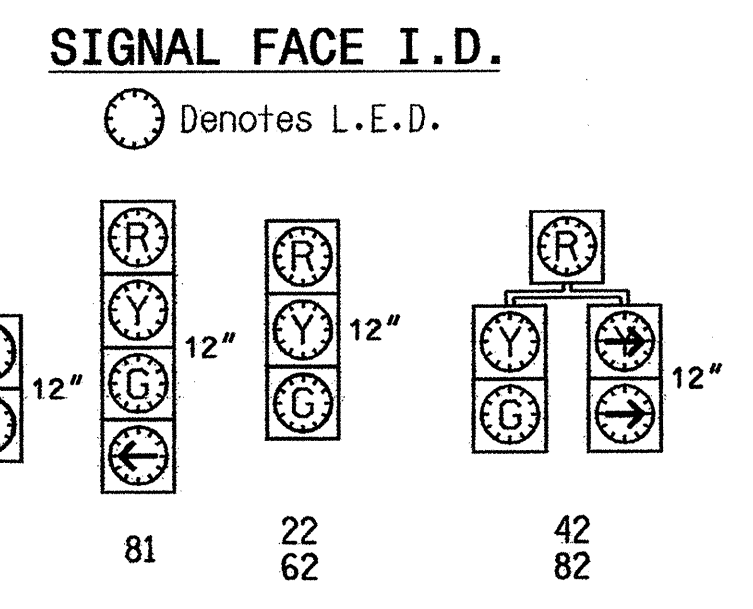
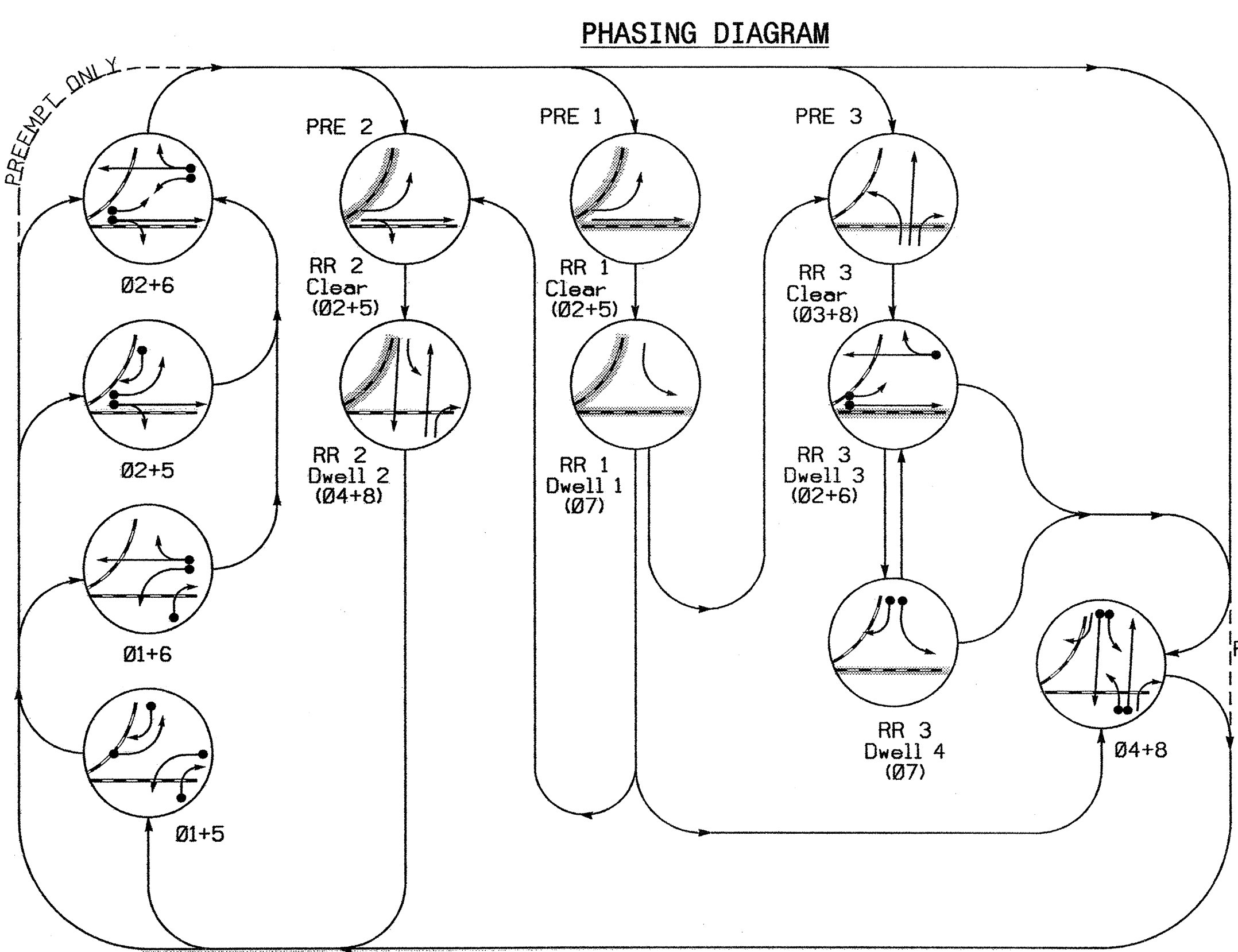
SIGNAL FACE	PHASE															
	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø11	Ø12	Ø13	Ø14	Ø15	Ø16
21	R	R	G	G	R	G	R	G	R	R	G	R	R	G	R	R
22	R	R	G	G	R	G	R	G	R	R	G	R	R	G	R	R
41	R	R	R	R	G	R	R	R	G	R	R	R	R	R	R	Y
42	R	R	R	R	G	R	R	R	G	R	R	R	R	R	R	Y
61	R	R	R	R	G	R	R	R	G	R	R	R	R	R	R	Y
62	R	R	R	R	G	R	R	R	G	R	R	R	R	R	R	Y
81	R	R	R	R	G	R	R	R	G	R	R	R	R	R	R	Y
82	R	R	R	R	G	R	R	R	G	R	R	R	R	R	R	Y
Sign A	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	ON	ON	ON	ON	ON	*
Sign B	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	ON	ON	ON	ON	ON	*
Sign C	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	*
Sign D	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	*

* See Note 9.

NEMA LOOP & DETECTOR INSTALLATION CHART

PEEK TS-2 CONTROLLER AND CABINET

LOOP NO.	SIZE (ft)	DIST. FROM STOPBAR (ft)	TURNS	NEW EXISTING	NEMA PHASE		TIMING		INHIBIT DELAY DURING GREEN?	
					NEW	EXISTING	FEATURE	TIME		
1A	6X40	0	2-4-2	Y	-	1	Y	DELAY	15	YES
1B	6X40	0	2-4-2	Y	-	1	Y	DELAY	15	YES
2A	6X6	70	4	Y	-	2	Y	-	-	NO
4A	6X40	0	2-4-2	Y	-	4/7	Y	DELAY	3	YES
4B	6X40	0	2-4-2	Y	-	4	Y	-	-	NO
5A	6X40	0	2-4-2	Y	-	5	Y	DELAY	15	YES
5B	6X40	0	2-4-2	Y	-	5/7	Y	DELAY	15	YES
5C	6X6	+5	4	Y	-	5	Y	DELAY	20	YES
6A	6X6	70	4	Y	-	6	Y	-	-	NO
8A	6X40	0	2-4-2	Y	-	8	Y	-	-	NO
8B	6X40	0	2-4-2	Y	-	8	Y	-	-	NO



TIMING CHART

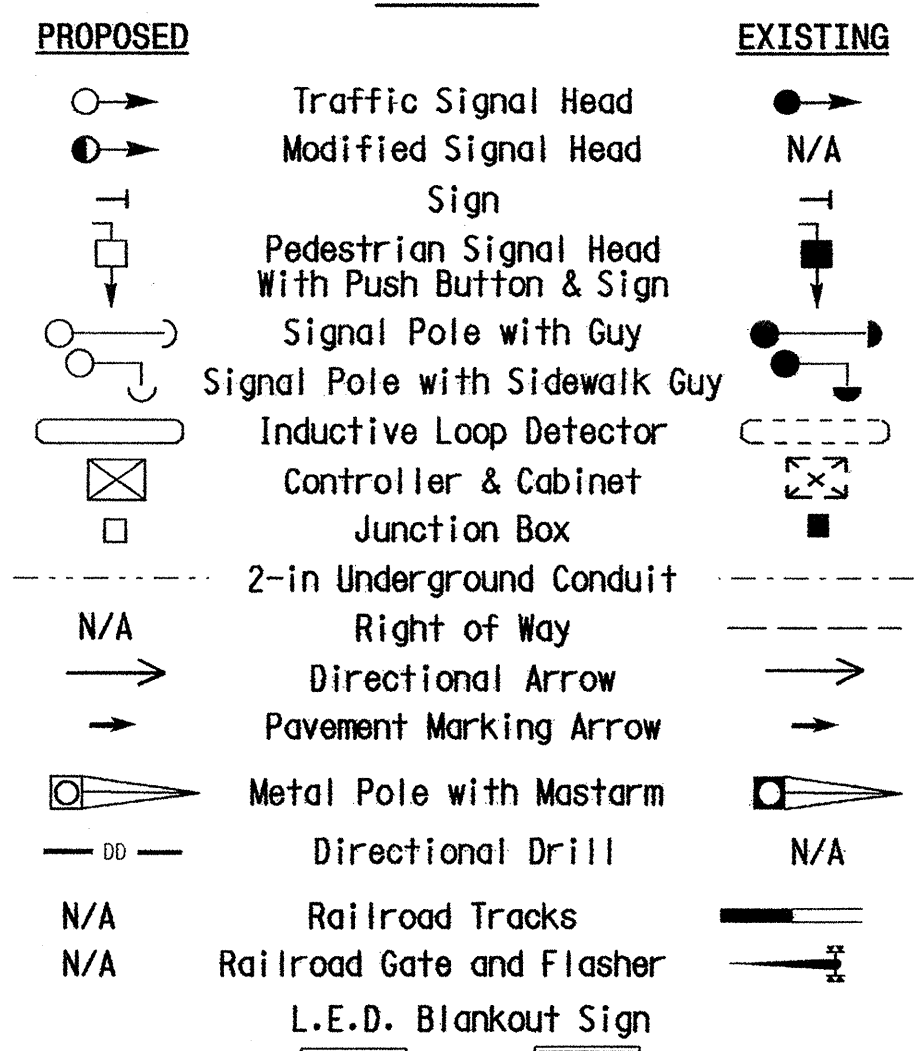
PEEK TS-2 CONTROLLER AND CABINET

PHASE	Ø1	Ø2	Ø4	Ø5	Ø6	Ø7 (PREEMPT ONLY)	Ø8
MINIMUM GREEN	7 SEC.	10 SEC.	7 SEC.	7 SEC.	10 SEC.	7 SEC.	7 SEC.
PASSAGE GAP	2.0 SEC.	3.0 SEC.	2.0 SEC.	2.0 SEC.	3.0 SEC.	2.0 SEC.	2.0 SEC.
YELLOW CHANGE INT.	3.0 SEC.	3.8 SEC.	3.7 SEC.	3.0 SEC.	3.8 SEC.	3.0 SEC.	3.5 SEC.
RED CLEARANCE	3.3 SEC.	2.5 SEC.	1.7 SEC.	3.3 SEC.	2.5 SEC.	2.4 SEC.	2.8 SEC.
MAX. 1	30 SEC.	90 SEC.	30 SEC.	30 SEC.	90 SEC.	30 SEC.	30 SEC.
RECALL POSITION	NONE	MIN. RECALL	NONE	NONE	MIN. RECALL	NONE	NONE
VEH. CALL MEMORY	NONLOCK	LOCK	NONLOCK	NONLOCK	LOCK	NONLOCK	NONLOCK
WALK	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.
VOLUME DENSITY	OFF	OFF	OFF	OFF	OFF	OFF	OFF

PEEK TS-2 RAIL PREEMPTION

FUNCTION	PRE 1 SECONDS	PRE 2 SECONDS	PRE 3 SECONDS
DELAY BEFORE PREEMPT	0	0	0
PED. CLEAR BEFORE PREEMPT	0	0	0
MIN. GREEN BEFORE PREEMPT	1.0	1.0	1.0
YELLOW CLEAR BEFORE PREEMPT	3.8	3.8	3.8
RED CLEAR BEFORE PREEMPT	3.3	3.3	3.3
TRACK CLEARANCE GREEN	32	32	10
TRACK CLEARANCE YELLOW	3.8	3.8	3.5
TRACK CLEARANCE RED	2.5	2.5	2.8
DURATION	10	10	10
NEMA PRIORITY	YES	YES	YES

NOTE: YELLOW AND RED CLEAR AFTER PREEMPT TIMINGS ARE DERIVED FROM NORMAL PHASE TIMING



New Installation

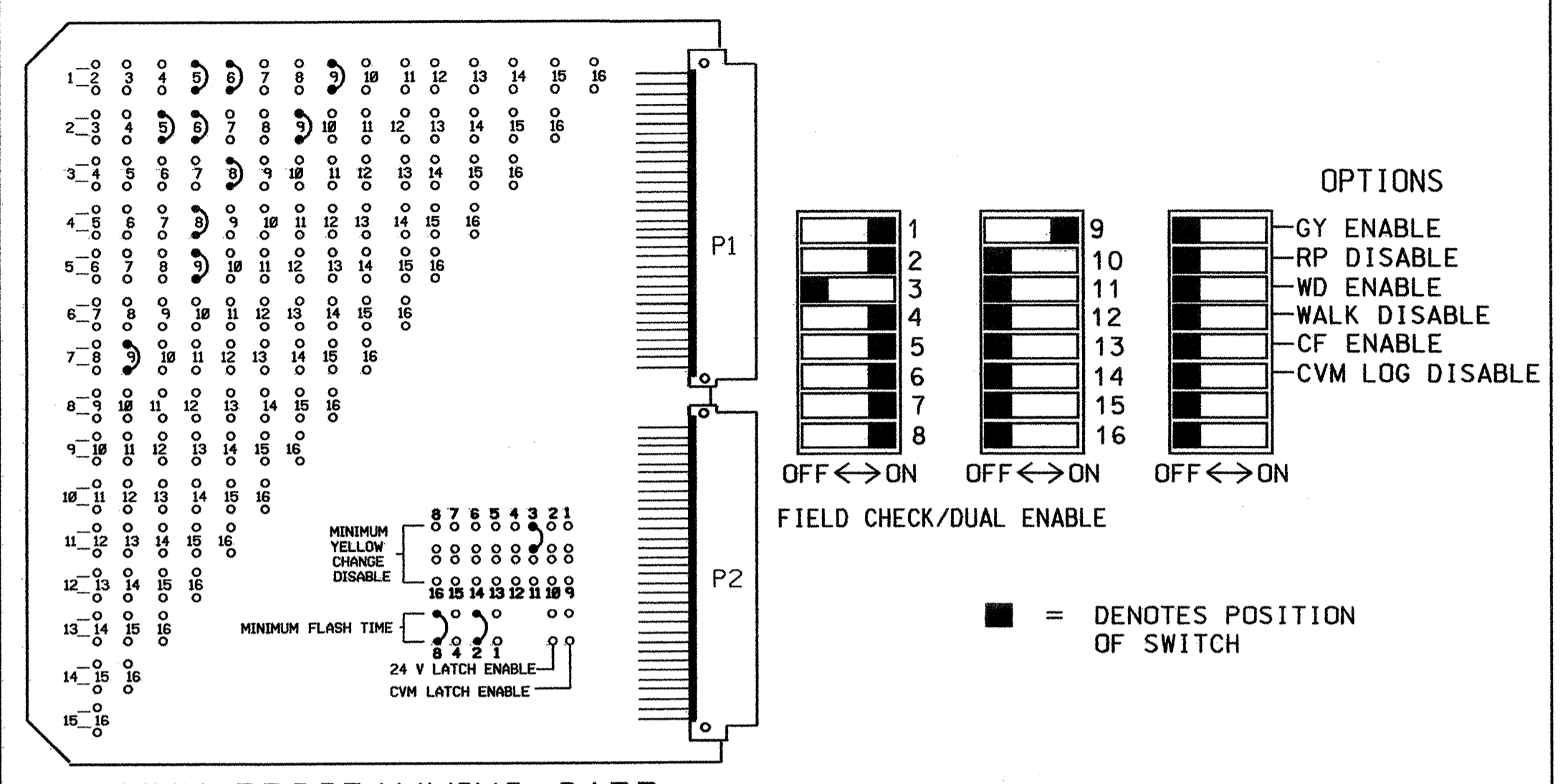
Prepared in the Offices of:

SR 1595 (Surrett Drive) At SR 1592 (Eden Terrace) / Corporation Drive
 Division 8 Randolph County Archdale
 PLAN DATE: December 2007 REVIEWED BY:
 PREPARED BY: I. O. Umozurike REVIEWED BY:
 REVISIONS: INIT. DATE
 SCALE: 1" = 40'
 SIGNATURE: J. O. Umozurike DATE: 2/4/08
 SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 24393
 SIGNATURE: J. O. Umozurike DATE: 2/4/08
 SIG. INVENTORY NO. 08-0707

14-EE-2008 07-55
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 14-EE-2008 07-55
 s:\14-EE-2008\14-EE-2008-07-55.dgn
 14-EE-2008 07-55
 s:\14-EE-2008\14-EE-2008-07-55.dgn

**EDI MODEL MMU-16E
MALFUNCTION MANAGEMENT UNIT
PROGRAMMING DETAIL**

(program card and set switches as shown below)



NOTES

- TO PREVENT "FLASH-CONFLICT" PROBLEMS, WIRE ALL UNUSED LOAD SWITCHES TO FLASH RED. VERIFY THAT SIGNAL HEADS FLASH IN ACCORDANCE WITH THE SIGNAL PLANS.
- TO PREVENT RED FAILURES ON UNUSED MONITOR CHANNELS, TIE UNUSED LOAD SWITCH RED OUTPUTS: 10, 11, 12, 13, 14 15 & 16 TO LOAD SWITCH AC+ BY INSERTING A JUMPER PLUG IN THE UNUSED LOAD SWITCH SOCKET FROM PIN 1 (LS AC+) TO PIN 3 (RED OUT). MAKE SURE ALL FLASH TRANSFER RELAYS ARE IN PLACE.
- PROGRAM THE CONTROLLER TO START UP IN PHASES 2 AND 6 GREEN.
- SET POWER-UP FLASH TIME TO 10 SECONDS AND IMPLEMENT ON THE MALFUNCTION MANAGEMENT UNIT. SET CONTROLLER POWER-UP FLASH TIME TO 0 SECONDS.
- ENABLE SIMULTANEOUS GAP-OUT FEATURE, ON CONTROLLER UNIT, FOR ALL PHASES.
- PROGRAM PHASES 4 AND 8, ON CONTROLLER UNIT, FOR DUAL ENTRY.
- SET ALL DETECTOR CARD UNITS TO 'PRESENCE' MODE.
- EXCEPT WHERE SPECIFIED, PROGRAM DETECTOR CALL DELAY AND EXTENSION TIMING ON THE CONTROLLER.
- THIS CONTROLLER AND CABINET ARE TO BE PROGRAMMED AND WIRED AS A PART OF THE HIGH POINT CITY SIGNAL SYSTEM.

SIGNAL HEAD HOOK-UP CHART

PHASE	1	2	3	4	5	6	7	8	OLA	OLB	OLC	OLD	2 PED	4 PED	6 PED	8 PED
SIGNAL HEAD NO.	61,82	21,22	81	41,42	21	61,62	41	81,82	42	NU	NU	NU	NU	NU	NU	NU
RED	*	2R	*	4R	*	6R	*	8R	*							
YELLOW		2Y	*	4Y		6Y		8Y								
GREEN		2G		4G		6G		8G								
RED ARROW																
YELLOW ARROW	1Y				5Y		7Y		9Y							
GREEN ARROW	1G		3G		5G		7G		9G							

NU = NOT USED

* DENOTES INSTALL LOAD RESISTOR. SEE LOAD RESISTOR INSTALLATION DETAIL BELOW.

DETECTOR RACK SET-UP DETAIL

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

BIU	CH1	CH1	CH1	CH1	CH1	CH1	SLOT	CH1	POWER SUPPLY AREA
	L3 ø1	L1 ø1	L7 ø5	L5 ø4/7	L11 ø6	L9 ø5/7		L13 ø8	
							EMPTY		
	CH2	CH2	CH2	CH2	CH2	CH2		CH2	
	L4 ø2	L2 ø6	L8 ø2	L6 ø4	L12 ø8	L10 ø5		L14 NOT USED	

EQUIPMENT INFORMATION

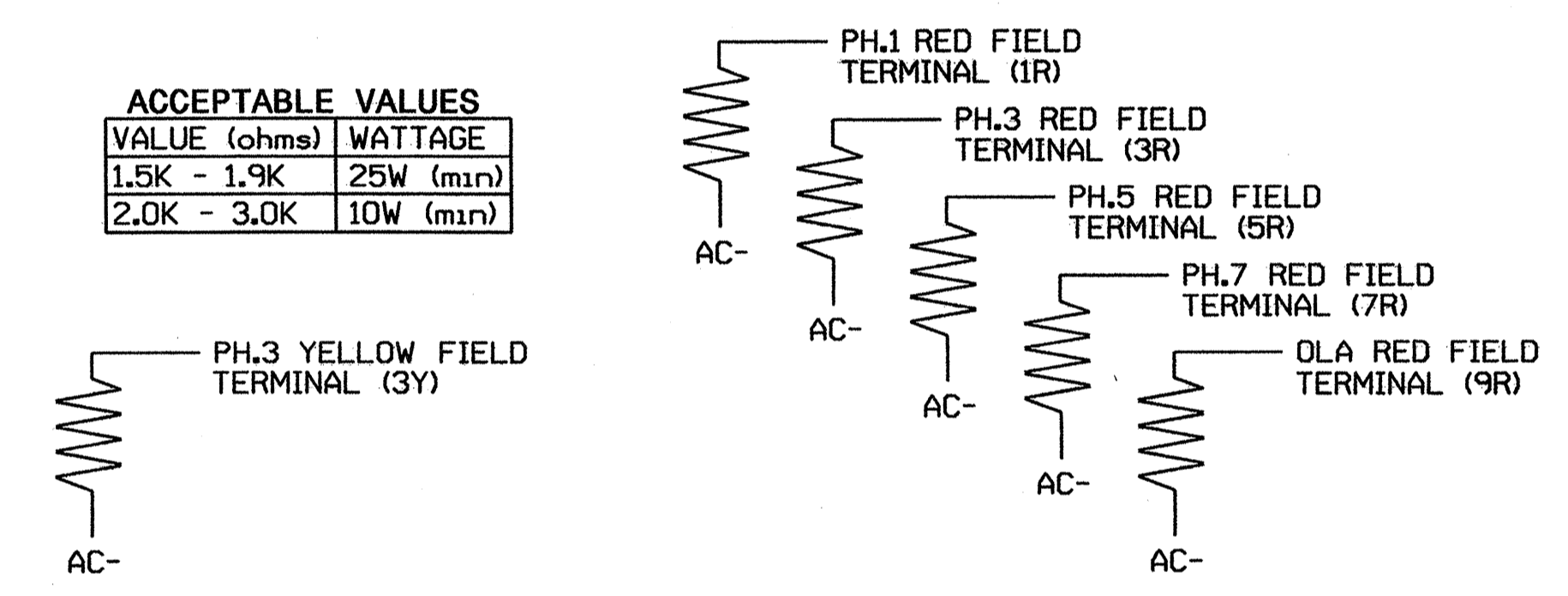
CONTROLLER.....PEEK TRAFFIC 3000**
 CABINET.....PEEK TRAFFIC TS2 PER CITY OF HIGH POINT SPEC., NC-8 CONFIG.
 CABINET MOUNT.....BASE
 LOADBAY POSITIONS.....16
 LOAD SWITCHES USED.....1, 2, 3, 4, 5, 6, 7, 8, 9
 PHASES USED.....1, 2, 3*, 4, 5, 6, 7*, 8
 OVERLAPS.....OLA=5+7
 BIU'S REQUIRED.....1, 2, 3

* USED ONLY IN RR PREEMPTION
 ** CONTRACTOR SUPPLIED & INSTALLED

LOAD RESISTOR INSTALLATION DETAILS

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



NOTE: THE PURPOSE OF THIS RESISTOR IS TO LOAD THE CHANNEL YELLOW MONITOR INPUT IN ORDER TO PREVENT THE MALFUNCTION MANAGEMENT UNIT FROM DETECTING ANY POSSIBLE 'PHANTOM' (OR FALSE) CONFLICT, AS THIS CHANNEL HAS NO YELLOW FIELD DISPLAY.

NOTE: THE PURPOSE OF THESE RESISTORS IS TO LOAD THE CHANNEL RED MONITOR INPUTS IN ORDER FOR THE MALFUNCTION MANAGEMENT UNIT TO USE THE FULL SIGNAL SEQUENCE MONITORING CAPABILITY ON CHANNELS THAT DO NOT USE THE RED DISPLAY IN THE FIELD.

LOAD SWITCH ASSIGNMENT DETAIL

(program controller according to schedule in chart below)

LOAD SWITCH NUMBER	FUNCTION	TIMING	
		FEATURE	TIME (SEC)
1	ø 1	DELAY	15
2	ø 6	---	---
3	ø 1	DELAY	15
4	ø 2	---	---
5	ø 4/7	DELAY	3
6	ø 4	---	---
7	ø 5	DELAY	15
8	ø 2	---	---
9	ø 5/7	DELAY	15
10	ø 5	DELAY	20
11	ø 6	---	---
12	ø 8	---	---
13	ø 8	---	---
14	---	---	---
15	---	---	---
16	---	---	---

DISABLE UNUSED LOAD SWITCH/MMU CHANNELS IN CONTROLLER PROGRAMMING

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
1A	L1A, L1B L2A, L2B
1B	L3A, L3B
2A	L4A, L4B
4A	L5A, L5B
4B	L6A, L6B
5A	L7A, L7B L8A, L8B
5B	L9A, L9B
5C	L10A, L10B
6A	L11A, L11B
8A	L12A, L12B
8B	L13A, L13B
---	L14A, L14B
---	L15A, L15B
---	L16A, L16B

NOTE
BE SURE TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN ON THE SIGNAL PLANS.

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME (SEC)
1	ø 1	DELAY	15
2	ø 6	---	---
3	ø 1	DELAY	15
4	ø 2	---	---
5	ø 4/7	DELAY	3
6	ø 4	---	---
7	ø 5	DELAY	15
8	ø 2	---	---
9	ø 5/7	DELAY	15
10	ø 5	DELAY	20
11	ø 6	---	---
12	ø 8	---	---
13	ø 8	---	---
14	---	---	---
15	---	---	---
16	---	---	---

NOTE: DETECTOR CHANNELS 17 THRU 32 (DETECTOR RACK #2) ARE NOT USED.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 08-0707
 DESIGNED: DECEMBER 2007
 SEALED: 2/4/08
 REVISED: N/A

TS-2 TYPE 1 CABINET

CLOSED LOOP SYSTEM DATA :

SYSTEM I.D.	03-06
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SEE SHEETS 2, 3 AND 4 FOR PROGRAMMING OF RAILROAD PREEMPTIONS 1, 2 AND 3 AND SHEET 5 FOR WIRING OF SPECIAL PREEMPT PANEL AND OPERATION OF BLANKOUT SIGNS

ELECTRICAL DETAIL - SHEET 1 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

SR 1595 (Surrett Drive)
 at
 SR 1592 (Eden Terrace)/
 Corporation Drive

Division 08 Randolph County Archdale

PLAN DATE: February 2008 REVIEWED BY: *F.E. Russ*

PREPARED BY: F.E. Russ REVIEWED BY: *F.E. Russ*

REVISIONS: _____ INIT. DATE

Signature: *F.E. Russ* 2-13-08
 DATE: _____
 SIG. INVENTORY NO. 08-0707

**PEEK TRAFFIC 3000 SERIES CONTROLLER
RAILROAD PREEMPTION 1 PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA):

PROGRAM MENU (PRESS 9 FOR INDEX)	
1. CONTROLLER	5. COMM/SYSTEM SETUP
2. COORDINATION	6. UNIT CONFIG/SEC. CODE
3. TIME OF DAY	7. I/O STEERING
4. PREEMPTION	8. UTILITIES

> SHIFT-CLEAR FROM DATA SCREEN TO INDEX <

TO VIEW/PROG PREEMPTION RUN ENTER 1-6: 1
TO ERASE ONE PREEMPTION RUN ENTER 1-6: .
TO ERASE ALL PREEMPTION RUNS ENTER 99: .
TO LOAD DEFAULT VALUES ENTER 1-6: .

PREEMPTION RUN 1 MENU

1. PER RUN DATA
2. INTERVAL DATA
3. FLASH PLAN FOR RUN 1 INTERVALS
4. QUICK SETUP PROCEDURES

WHEN CHANGING RUN DATA, 1ST DISABLE RUN

PER RUN 1 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	5. EXIT CONTROLS

RUN 1 ENABLE,RR,LOCK,PRIORITY VALUE(YES/NO)	RUN ENABLE: N*	RAILROAD: N	PE INPUT LOCK: N	EARLY PE OUT: N	MAX INTERVALS: 4	VALUE(0-32)	OVERRIDE FLASH: N	GO TO HIGHER PE: N	NEMA PRIORITY: Y	USER PRIORITY: 1	VALUE(1-6)
---	----------------	-------------	------------------	-----------------	------------------	-------------	-------------------	--------------------	------------------	------------------	------------

PER RUN 1 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	5. EXIT CONTROLS

RUN 1 DURATION, RESERVICE, PE DELAY		
DURATION	PREEMPT DELAY	RESERVICE
10	0	0
(0-255 SECS)	(0-255 SECS)	(0-255 SECS)
DURATION TIMER USED AS GAP TIMER: N		

continued at top right

NOTE:
THERE IS NO PROGRAMMING REQUIRED FOR 'OVERLAPS' OR 'PE OUTS' FOR ANY INTERVAL

cont'd. from bottom left

PER RUN 1 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	5. EXIT CONTROLS

RUN 1 MINIMUM ENTRY TIMES				
INHIBIT DOUBLE CLR O/L ENTERING PE: N				
GREEN	YELLOW	RED	PED CLR	O/L YEL
1.0	3.8	3.3	0	0.0
(0-----25.5 SECS)		(0-255 SECS)		(0-25.5 SECS)

PER RUN 1 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	5. EXIT CONTROLS

RUN 1 PER INTERVAL DATA		VALUE(YES/NO)
PGDN FOR MORE		
FCN/IVL	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1 1 1
VALID	X X X X	
DWELL	. . . X	
FIXED	X X X	
TENTH	. X X	

SHIFT - RT->TO SEE-ENTER INTERVALS 17-32

RUN 1 PER INTERVAL DATA		VALUE(YES/NO)
FCN/IVL		1 1 1 1 1 1 1 1 1
EXIT		. . . X
PC->YEL		. . . . .

SHIFT - RT->TO SEE-ENTER INTERVALS 17-32

PER RUN 1 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	5. EXIT CONTROLS

RUN 1 EXIT CONTROLS	
EXIT MODE: 0 (0= GO TO EXIT PHASES, 1= GO TO NEXT DEMAND, 2= RESUME INTERRUPTED SEQ, 3= EXIT TO COORDINATION)	
VALUE(YES/NO)	
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASES	. . . X . . . X
CALLS	

PREEMPTION RUN 1 MENU

1. PER RUN DATA
2. INTERVAL DATA
3. FLASH PLAN FOR RUN 1 INTERVALS
4. QUICK SETUP PROCEDURES

WHEN CHANGING RUN DATA, 1ST DISABLE RUN

RUN 1 INTERVAL 1		VALID: X	DWELL: .
TENTHS: .		PC->YEL: .	EXIT: .
TIME: 32		PH FLASH: .	PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)			
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1 1 1	
COLOR	. G . . G		
PED COL			

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 1 INTERVAL 2		VALID: X	DWELL: .
TENTHS: X		PC->YEL: .	EXIT: .
TIME: 3.8		PH FLASH: .	PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)			
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1 1 1	
COLOR	. Y . . Y		
PED COL			

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 1 INTERVAL 3		VALID: X	DWELL: .
TENTHS: X		PC->YEL: .	EXIT: .
TIME: 2.5		PH FLASH: .	PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)			
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1 1 1	
COLOR	. R . . R		
PED COL			

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 1 INTERVAL 4		VALID: X	DWELL: X
TENTHS: .		PC->YEL: .	EXIT: X
TIME: 0		PH FLASH: .	PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)			
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1 1 1	
COLOR	. . . . . G		
PED COL			

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

return to Preemption Run 1 menu

FROM PREEMPTION RUN 1 MENU PRESS '1' (PER RUN DATA), THEN PRESS '1' (RUN ENABLE,RR,MAX IVLS,LOCK, PRIORITY,OVR UCF):

RUN 1 ENABLE,RR,LOCK,PRIORITY VALUE(YES/NO)	
RUN ENABLE: Y*	OVERRIDE FLASH: N
RAILROAD: N	GO TO HIGHER PE: N
PE INPUT LOCK: N	NEMA PRIORITY: Y
EARLY PE OUT: N	USER PRIORITY: 1
MAX INTERVALS: 4	VALUE(1-6)
VALUE(0-32)	

*RE-SET 'RUN ENABLE' FROM "N" TO "Y".

end of programming

**PEEK TRAFFIC 3000 SERIES
CONTROLLER SPECIAL BACK-UP
PROTECTION PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA), THEN PRESS '1' (CONTROLLER), THEN PRESS '9' (ENHANCED OPTIONS), THEN PRESS '1' (DYNAMIC OMIT/RCL), THEN PRESS '1' (DYNAMIC OMITS):

DYNAMIC OMIT GRP 1 (1 OF 8)		VALUE(YES/NO)
ENABLE: Y		1 1 1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	
OMIT PHS	X	
IF PH ON	. X	
OR		
IF O/L	A B C D E F G H I J K L M N O P	
GRN	. . . . .

DYNAMIC OMIT GRP 1 (2 OF 8)		VALUE(YES/NO)
ENABLE: Y		1 1 1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	
OMIT PHS	. . . . X	
IF PH ON	. . . . X	
OR		
IF O/L	A B C D E F G H I J K L M N O P	
GRN	. . . . .

return to Controller menu

FROM CONTROLLER MENU PRESS '4' (DETECTORS), THEN PRESS '6' (SWITCH & COPY):

DET SWITCH/COPY ENABLES		VALUE(YES/NO)
DETECTOR SWITCHING ENABLE: N		
DETECTOR COPY GROUP 1 ENABLE: Y		
DETECTOR COPY GROUP 2 INPUT ENABLE: N		
DET COPY GRP 2 PLANS 1-16 USED INSTEAD OF GRP 1 IF ENABLE = Y AND INPUT ACTIVE. --PGDN FOR DET SW & COPY PATTERNS 1-16--		

DET SW & COPY		1 OF 64	1 1 1 1 1 1 1 1 1
PH GRNS	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6		
SWITCH			
G1 COPY	. X . . . X		
G2 COPY	. . . . .	
SW OR COPY PER ->	;(PH'S) SWTCH G1C G2C		
WHEN ABOVE ARE GRN	FROM PH: 0 1 0		
(PGDN FOR MORE)	TO PH: 0 4 0		

DET SW & COPY		2 OF 64	1 1 1 1 1 1 1 1 1
PH GRNS	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6		
SWITCH			
G1 COPY	. X . . . X		
G2 COPY	. . . . .	
SW OR COPY PER ->	;(PH'S) SWTCH G1C G2C		
WHEN ABOVE ARE GRN	FROM PH: 0 5 0		
(PGDN FOR MORE)	TO PH: 0 4 0		

end of programming

**PEEK TRAFFIC 3000 SERIES
CONTROLLER SPECIAL PHASE
SEQUENCE PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA), THEN PRESS '1' (CONTROLLER), THEN PRESS '1' (SEQUENCE/STARTUP):

SEQ/STARTUP		VALUE(YES/NO)	1 1 1 1 1 1 1 1 1
STARTUP	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6		
PHASES	. X . . . X		
INTERVAL	: 2	(0=RED, 1=YEL, 2=GRN)	
FLASH	: 0	(0-255 SECS)	
RED	: 0.0	(0-25.5 SECS)	
SEQUENCE	: 3	(2=SR,3=DR..SEE HELP)	

PGDN FOR SEQ. CONFIG & PHASE ENABLES

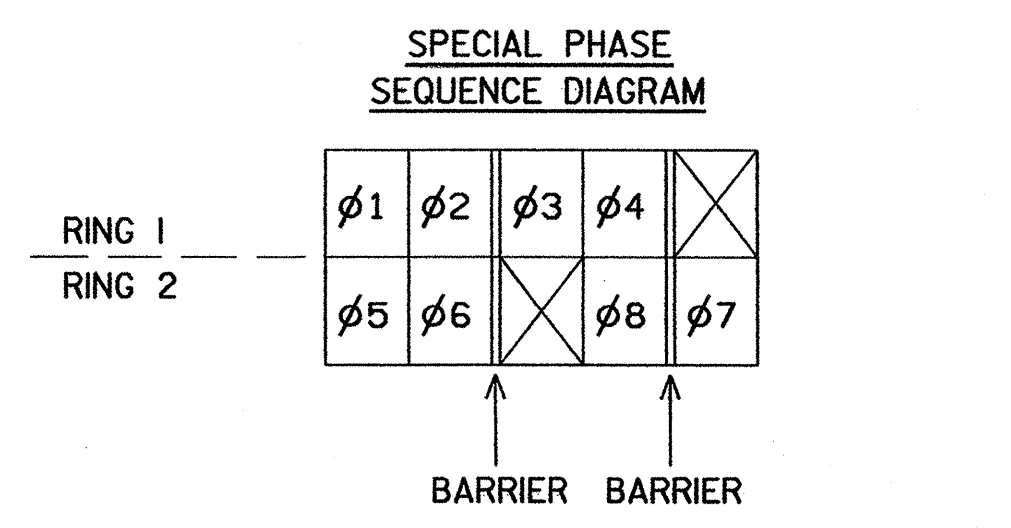
SEQUENCE CONFIGURATION		VALUE(YES/NO)	1 1 1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6		
RING 1	X X X X		
RING 2	. . . . X X X		
RING 3	. . . . .	
RING 4	. . . . .	

PGDN FOR CO-PHASES/XPED

SEQUENCE CONFIGURATION		VALUE(YES/NO) RINGS(0-4)	1 1 1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6		
RINGS	1 1 1 1 2 2 2 2		
CO PH 1	X X . . X X		
CO PH 2	. . X X . . . X		
CO PH 3	. . . . . X		
CO PH 4	. . . . .	

end of programming

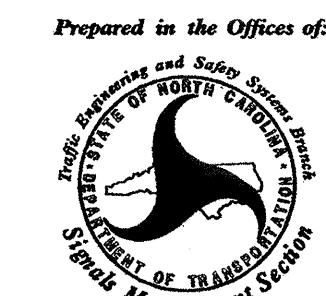
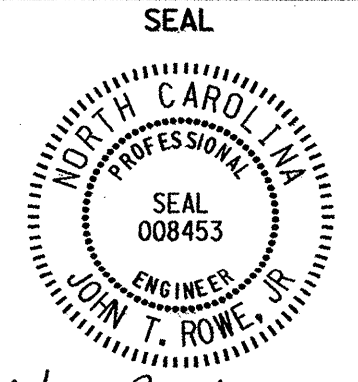
THE ABOVE PROGRAMMING PRODUCES THE SPECIAL PHASE SEQUENCE SHOWN BELOW:



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 08-0707
DESIGNED: DECEMBER 2007
SEALED: 2/4/08
REVISED: N/A

TS-2 TYPE 1 CABINET

ELECTRICAL DETAIL - SHEET 2 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1595 (Surrett Drive) at SR 1592 (Eden Terrace)/ Corporation Drive		SEAL
Prepared in the Offices of: 		Division 08 Randolph County Archdale		
PLAN DATE: February 2008		REVIEWED BY: <i>MWR</i>		
PREPARED BY: F.E. Russ		REVIEWED BY:		
REVISIONS	INIT.	DATE		

SIGNATURE: *F.E. Russ* DATE: 2-13-08
SIG. INVENTORY NO. 08-0707

**PEEK TRAFFIC 3000 SERIES CONTROLLER
RAILROAD PREEMPTION 2 PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA):

PROGRAM MENU (PRESS 9 FOR INDEX)	
1. CONTROLLER	5. COMM/SYSTEM SETUP
2. COORDINATION	6. UNIT CONFIG/SEC. CODE
3. TIME OF DAY	7. I/O STEERING
4. PREEMPTION	8. UTILITIES
> SHIFT-CLEAR FROM DATA SCREEN TO INDEX <	

TO VIEW/PROG PREEMPTION RUN ENTER 1-6: 2
TO ERASE ONE PREEMPTION RUN ENTER 1-6: .
TO ERASE ALL PREEMPTION RUNS ENTER 99: .
TO LOAD DEFAULT VALUES ENTER 1-6: .

PREEMPTION RUN 2 MENU	
1. PER RUN DATA	
2. INTERVAL DATA	
3. FLASH PLAN FOR RUN 2 INTERVALS	
4. QUICK SETUP PROCEDURES	
WHEN CHANGING RUN DATA, 1ST DISABLE RUN	

PER RUN 2 MENU	
1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID,FIXED, TENTHS,PC->YEL, EXIT,DWELL IVLS
5. EXIT CONTROLS	

RUN 2 ENABLE,RR,LOCK,PRIORITY VALUE(YES/NO)	
RUN ENABLE: N*	OVERRIDE FLASH: N
RAILROAD: N	GO TO HIGHER PE: Y
PE INPUT LOCK: N	NEMA PRIORITY: Y
EARLY PE OUT: N	USER PRIORITY: 2
MAX INTERVALS: 4	VALUE(1-6)
VALUE(0-32)	

PER RUN 2 MENU	
1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID,FIXED, TENTHS,PC->YEL, EXIT,DWELL IVLS
5. EXIT CONTROLS	

RUN 2 DURATION, RESERVICE, PE DELAY		
DURATION	PREEMPT DELAY	RESERVICE
10	0	0
(0-255 SECS)	(0-255 SECS)	(0-255 SECS)
DURATION TIMER USED AS GAP TIMER: N		

continued at top right

NOTE :
THERE IS NO PROGRAMMING REQUIRED FOR 'OVERLAPS' OR 'PE OUTS' FOR ANY INTERVAL

cont'd. from bottom left

PER RUN 2 MENU	
1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID,FIXED, TENTHS,PC->YEL, EXIT,DWELL IVLS
5. EXIT CONTROLS	

RUN 2 MINIMUM ENTRY TIMES INHIBIT DOUBLE CLR O/L ENTERING PE: N				
GREEN	YELLOW	RED	PED CLR	O/L YEL
1.0	3.8	3.3	0	0.0
(0-----25.5 SECS) (0-255 SECS) (0-25.5 SECS)				

PER RUN 2 MENU	
1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID,FIXED, TENTHS,PC->YEL, EXIT,DWELL IVLS
5. EXIT CONTROLS	

RUN 2 PER INTERVAL DATA PGDN FOR MORE	
FCN/IVL	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
VALID	X X X X
DWELL	. . . X
FIXED	X X X
TENTH	. X X
SHIFT - RT->TO SEE-ENTER INTERVALS 17-32	

RUN 2 PER INTERVAL DATA VALUE(YES/NO)	
FCN/IVL	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
EXIT	. . . X
PC->YEL	. . . . .
SHIFT - RT->TO SEE-ENTER INTERVALS 17-32	

PER RUN 2 MENU	
1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID,FIXED, TENTHS,PC->YEL, EXIT,DWELL IVLS
5. EXIT CONTROLS	

RUN 2 EXIT CONTROLS	
EXIT MODE: 1	(0= GO TO EXIT PHASES, 1= GO TO NEXT DEMAND, 2= RESUME INTERRUPTED SEQ, 3= EXIT TO COORDINATION)
VALUE(YES/NO)	1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASES	. . . . .
CALLS	. . . . .

PREEMPTION RUN 2 MENU	
1. PER RUN DATA	
2. INTERVAL DATA	
3. FLASH PLAN FOR RUN 2 INTERVALS	
4. QUICK SETUP PROCEDURES	
WHEN CHANGING RUN DATA, 1ST DISABLE RUN	

RUN 2 INTERVAL 1	VALID: X	DWELL: .
TENTHS: .	PC->YEL: .	EXIT: .
TIME: 32	PH FLASH: .	PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)		
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1
COLOR	. G . . G	
PED COL	. . . . .
PGDN FOR OVERLAPS		

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 2 INTERVAL 2	VALID: X	DWELL: .
TENTHS: X	PC->YEL: .	EXIT: .
TIME: 3.8	PH FLASH: .	PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)		
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1
COLOR	. Y . . Y	
PED COL	. . . . .
PGDN FOR OVERLAPS		

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 2 INTERVAL 3	VALID: X	DWELL: .
TENTHS: X	PC->YEL: .	EXIT: .
TIME: 2.5	PH FLASH: .	PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)		
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1
COLOR	. R . . R	
PED COL	. . . . .
PGDN FOR OVERLAPS		

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 2 INTERVAL 4	VALID: X	DWELL: X
TENTHS: .	PC->YEL: .	EXIT: X
TIME: 0	PH FLASH: .	PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)		
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	1 1 1 1 1 1 1
COLOR	. . . G . . . G	
PED COL	. . . . .
PGDN FOR OVERLAPS		

PGDN FOR PE OUTS

return to Preemption Run 2 menu

FROM PREEMPTION RUN 2 MENU PRESS '1' (PER RUN DATA), THEN PRESS '1' (RUN ENABLE,RR,MAX IVLS,LOCK, PRIORITY,OVR UCF):

RUN 2 ENABLE,RR,LOCK,PRIORITY VALUE(YES/NO)	
RUN ENABLE: Y*	OVERRIDE FLASH: N
RAILROAD: N	GO TO HIGHER PE: Y
PE INPUT LOCK: N	NEMA PRIORITY: Y
EARLY PE OUT: N	USER PRIORITY: 2
MAX INTERVALS: 4	VALUE(1-6)
VALUE(0-32)	

*RE-SET 'RUN ENABLE' FROM "N" TO "Y".

end of programming

**PEEK TRAFFIC 3000 SERIES CONTROLLER
PHASE FUNCTION PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA), THEN PRESS '1' (CONTROLLER), THEN PRESS '2' (PHASE RECALLS/MODES), THEN PRESS '1' (RCL,OMIT,NON-LOCK,MAXII,ETC.):

PHASE FUNCTIONS VALUE(YES/NO)	
TIMING PLAN: 1	1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
MIN RCL	. X . . . X
MAX RCL	. . . . .
PED RCL	. . . . .
SOFT RCL	. . . . .
NON-LOCK	X . X X X . X X

PHASE FUNCTIONS VALUE(YES/NO)	
TIMING PLAN: 1	1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
VEH OMIT	. . . . .
PED OMIT	. . . . .
WALK REST	. . . . .
MAX II	. . . . .
RED REST	. . . . .

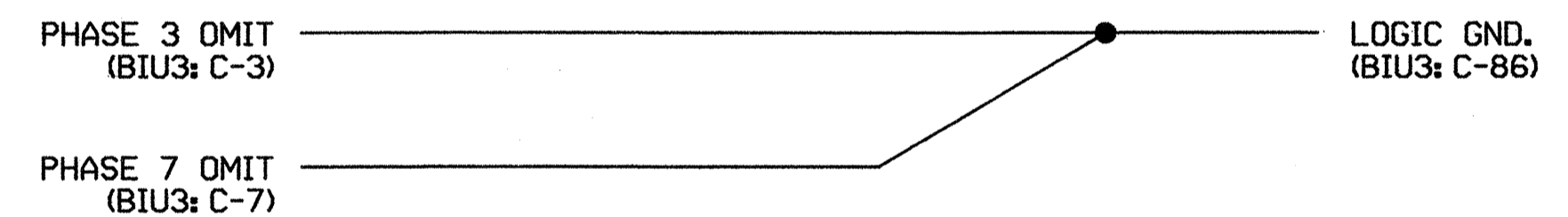
NOTE!

DO NOT PROGRAM PHASES 3 AND 7 IN 'VEH OMIT'. SEE 'EXTERNAL OMITTS WIRING DETAIL' BELOW.

PHASE FUNCTIONS VALUE(YES/NO)	
TIMING PLAN: 1	1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
NO SKIP	. . . . .

end of programming

EXTERNAL OMITTS WIRING DETAIL
(install jumpers as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 08-0707
DESIGNED: DECEMBER 2007
SEALED: 2/4/08
REVISED: N/A

TS-2 TYPE 1 CABINET

ELECTRICAL DETAIL - SHEET 3 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR: 	SR 1595 (Surrett Drive) at SR 1592 (Eden Terrace)/ Corporation Drive		SEAL
	Division 08 PLAN DATE: February 2008 PREPARED BY: F.E. RUSS	Randolph County Archdale REVIEWED BY: <i>[Signature]</i> REVIEWED BY:		DATE: 2-13-08 SIGNATURE: [Signature] DATE:

**PEEK TRAFFIC 3000 SERIES CONTROLLER
RAILROAD PREEMPTION 3 PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA):

PROGRAM MENU (PRESS 9 FOR INDEX)

1. CONTROLLER	5. COMM/SYSTEM SETUP
2. COORDINATION	6. UNIT CONFIG/SEC. CODE
3. TIME OF DAY	7. I/O STEERING
4. PREEMPTION	8. UTILITIES

> SHIFT-CLEAR FROM DATA SCREEN TO INDEX <

TO VIEW/PROG PREEMPTION RUN ENTER 1-6: 3

TO ERASE ONE PREEMPTION RUN ENTER 1-6: .

TO ERASE ALL PREEMPTION RUNS ENTER 99: .

TO LOAD DEFAULT VALUES ENTER 1-6: .

PREEMPTION RUN 3 MENU

1. PER RUN DATA

2. INTERVAL DATA

3. FLASH PLAN FOR RUN 3 INTERVALS

4. QUICK SETUP PROCEDURES

WHEN CHANGING RUN DATA, 1ST DISABLE RUN

PER RUN 3 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
5. EXIT CONTROLS	

RUN 3 ENABLE,RR,LOCK,PRIORITY VALUE(YES/NO)

RUN ENABLE: N *	OVERWRITE FLASH: N
RAILROAD: N	GO TO HIGHER PE: Y
PE INPUT LOCK: N	NEMA PRIORITY: Y
EARLY PE OUT: N	USER PRIORITY: 2
MAX INTERVALS: 5	VALUE(1-6)
VALUE(0-32)	

PER RUN 3 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
5. EXIT CONTROLS	

RUN 3 DURATION, RESERVICE, PE DELAY

DURATION	PREEMPT DELAY	RESERVICE
10	0	0
(0-255 SECS)	(0-255 SECS)	(0-255 SECS)

DURATION TIMER USED AS GAP TIMER: N

continued at top right

cont'd. from bottom left

PER RUN 3 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
5. EXIT CONTROLS	

RUN 3 MINIMUM ENTRY TIMES INHIBIT DOUBLE CLR O/L ENTERING PE: N

GREEN	YELLOW	RED	PED CLR	O/L YEL
1.0	3.8	3.3	0	0.0
(0-25.5 SECS)		(0-255 SECS)		(0-25.5 SECS)

PER RUN 3 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
5. EXIT CONTROLS	

RUN 3 PER INTERVAL DATA VALUE(YES/NO)

FCN/IVL	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
VALID	X	X	X	X	X											
DWELL																
FIXED	X	X	X													
TENTH	X	X														

SHIFT - RT->TO SEE-ENTER INTERVALS 17-32

RUN 3 PER INTERVAL DATA VALUE(YES/NO)

FCN/IVL	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
EXIT			X	X												
PC->YEL																

SHIFT - RT->TO SEE-ENTER INTERVALS 17-32

PER RUN 3 MENU

1. RUN ENABLE,RR, MAX IVLS,LOCK, PRIORITY,OVR UCF	3. MIN ENTRY TIMES, INH DOUBLE CLR O/L
2. TIME BEFORE PE, RUN RESERVICE, RUN DURATION	4. VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
5. EXIT CONTROLS	

RUN 3 EXIT CONTROLS

EXIT MODE: 0 (0= GO TO EXIT PHASES, 1= GO TO NEXT DEMAND, 2= RESUME INTERRUPTED SEQ, 3= EXIT TO COORDINATION)

VALUE(YES/NO)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
PHASES			X				X									
CALLS																

PREEMPTION RUN 3 MENU

1. PER RUN DATA

2. INTERVAL DATA

3. FLASH PLAN FOR RUN 3 INTERVALS

4. QUICK SETUP PROCEDURES

WHEN CHANGING RUN DATA, 1ST DISABLE RUN

RUN 3 INTERVAL 1 VALID: X DWELL: .

TENTHS: . PC->YEL: . EXIT: . FIXED: X

TIME: 10 PH FLASH: . PED FLASH: .

VALUE(0 = R/D, 1 = Y/P, 2 = G/W)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
COLOR			G					G								
PED COL																

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 3 INTERVAL 2 VALID: X DWELL: .

TENTHS: X PC->YEL: . EXIT: . FIXED: X

TIME: 3.5 PH FLASH: . PED FLASH: .

VALUE(0 = R/D, 1 = Y/P, 2 = G/W)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
COLOR			Y					Y								
PED COL																

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 3 INTERVAL 3 VALID: X DWELL: .

TENTHS: X PC->YEL: . EXIT: . FIXED: X

TIME: 2.8 PH FLASH: . PED FLASH: .

VALUE(0 = R/D, 1 = Y/P, 2 = G/W)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
COLOR			R					R								
PED COL																

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 3 INTERVAL 4 VALID: X DWELL: .

TENTHS: . PC->YEL: . EXIT: X FIXED: .

TIME: 0 PH FLASH: . PED FLASH: .

VALUE(0 = R/D, 1 = Y/P, 2 = G/W)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
COLOR					G											
PED COL																

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 3 INTERVAL 5 VALID: X DWELL: .

TENTHS: . PC->YEL: . EXIT: X FIXED: .

TIME: 0 PH FLASH: . PED FLASH: .

VALUE(0 = R/D, 1 = Y/P, 2 = G/W)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
COLOR						G										
PED COL																

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 3 INTERVAL 5 VALID: X DWELL: .

TENTHS: . PC->YEL: . EXIT: X FIXED: .

TIME: 0 OL FLASH: . PED FLASH: .

VALUE(0 = R/D, 1 = Y/P, 2 = G/W)

FUNC/OL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
COLOR	G															
PED COL																

PGDN FOR PE OUTS

return to Preemption Run 3 menu

FROM PREEMPTION RUN 3 MENU PRESS '1' (PER RUN DATA), THEN PRESS '1' (RUN ENABLE,RR,MAX IVLS,LOCK, PRIORITY,OVR UCF):

RUN 3 ENABLE,RR,LOCK,PRIORITY VALUE(YES/NO)

RUN ENABLE: Y *	OVERWRITE FLASH: N
RAILROAD: N	GO TO HIGHER PE: Y
PE INPUT LOCK: N	NEMA PRIORITY: Y
EARLY PE OUT: N	USER PRIORITY: 2
MAX INTERVALS: 5	VALUE(1-6)
VALUE(0-32)	

* RE-SET 'RUN ENABLE' FROM 'N' TO 'Y'.

end of programming

NOTE :

THERE IS NO PROGRAMMING REQUIRED FOR 'OVERLAPS' OR 'PE OUTS' FOR ANY INTERVAL

EXCEPTION: INTERVAL 5 UNDER PREEMPT 3 HAS 'OVERLAP' PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 08-0707

DESIGNED: DECEMBER 2007

SEALED: 2/4/08

REVISED: N/A

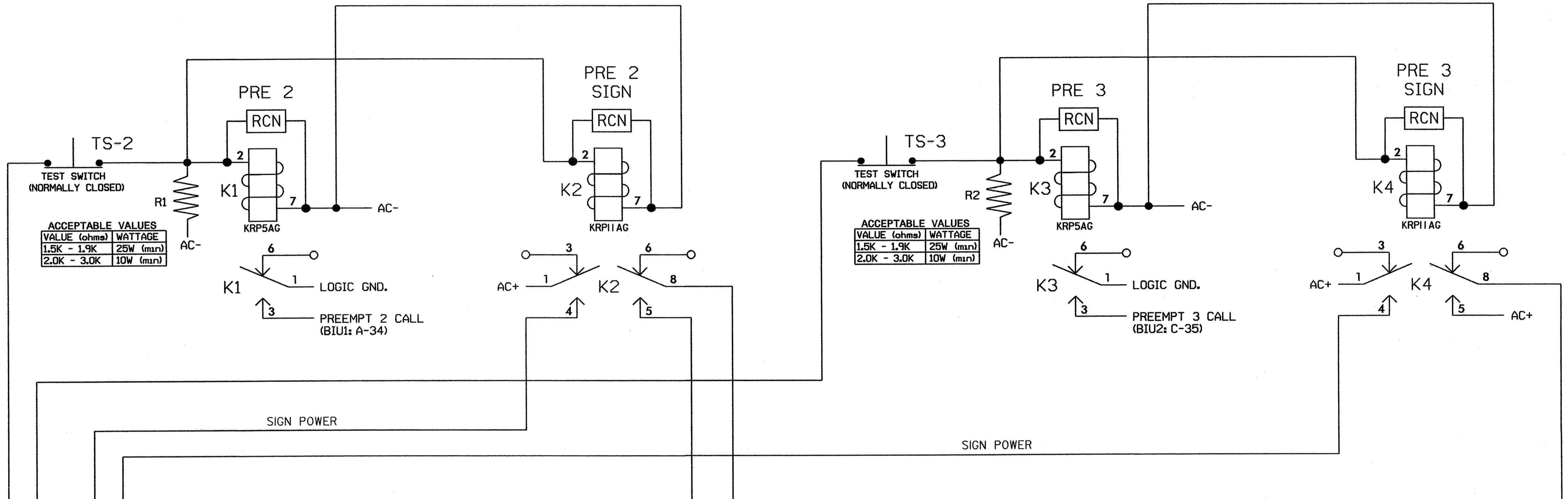
TS-2 TYPE 1 CABINET

ELECTRICAL DETAIL - SHEET 4 of 5

<p>ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p>Prepared in the Offices of:</p> <p>Signal Management Systems, Inc. 750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SR 1595 (Surrett Drive) at SR 1592 (Eden Terrace)/ Corporation Drive</p> <p>Division 08 Randolph County Archdale</p> <p>PLAN DATE: February 2008 REVIEWED BY: YLW</p> <p>PREPARED BY: F.E. RUSS REVIEWED BY:</p>	<p>SEAL</p> <p>JOHN T. ROWE, JR. ENGINEER</p> <p>2-13-08</p>					
	<p>REVISIONS</p> <table border="1"> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISIONS	INIT.	DATE			
REVISIONS	INIT.	DATE					

RAILROAD PREEMPTION PANEL WIRING DIAGRAM

(WIRE AS SHOWN)

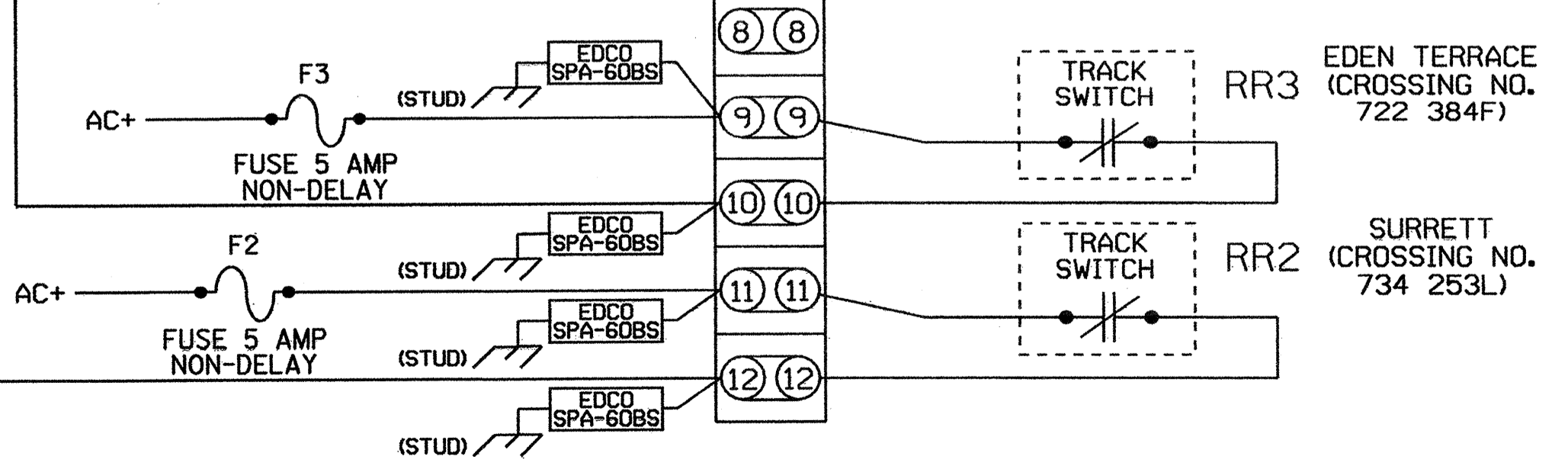
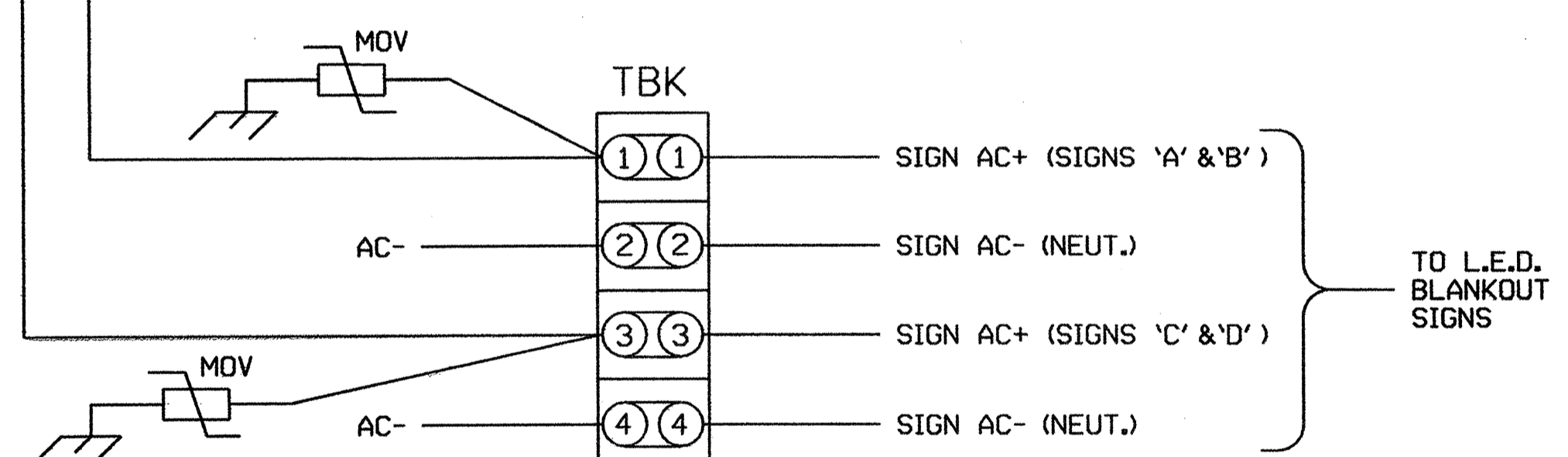


ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

ACCEPTABLE VALUES

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



NOTES

- RELAYS K1, K3 & K5 ARE SPDT WITH 120V AC COILS. (POTTER & BRUMFIELD *KRPSAG OR APPROVED EQUAL)
- RELAYS K2 & K4 ARE DPDT WITH 120V AC COILS. (POTTER & BRUMFIELD *KRPIAG OR APPROVED EQUAL)
- THE RC NETWORK ACROSS RELAY COILS IS VALUED AT 0.1 MICRO FARAD, 100 OHM. (1TW *I04M06QC100 OR APPROVED EQUAL)
- MOV'S ARE GE V150LA20A OR APPROVED EQUAL.
- RESISTORS R1 & R2 VALUES ARE TO BE AS SHOWN IN ACCEPTABLE VALUES CHARTS.
- SURGE PROTECTORS ARE EDCO *SPA-60BS OR APPROVED EQUAL.
- ALL POWER SUPPLIES (AC+ & AC-) SHOWN ON THIS SHEET MUST BE DERIVED FROM UNFILTERED SOURCES.
- IF BOTH CROSSINGS (PRE 2 & PRE 3) ARE ACTIVE, THEN PREEMPT 1 (PRE 1) WILL BE CALLED.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 08-0707
 DESIGNED: DECEMBER 2007
 SEALED: 2/4/08
 REVISED: N/A

TS-2 TYPE 1 CABINET

ELECTRICAL DETAIL - SHEET 5 of 5

	SR 1595 (Surrett Drive) at SR 1592 (Eden Terrace)/ Corporation Drive Division 08 Randolph County Archdale	SEAL
	PLAN DATE: February 2008 REVIEWED BY: <i>[Signature]</i>	PREPARED BY: F.E. RUSS REVIEWED BY:
	REVISIONS: INIT. DATE	
	750 N. Greenfield Place, Garner, NC 27529	SIGNATURE: <i>John T. Rowe</i> DATE: 2-13-08 SIG. INVENTORY NO. 08-0707

SPECIAL NOTE
 The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

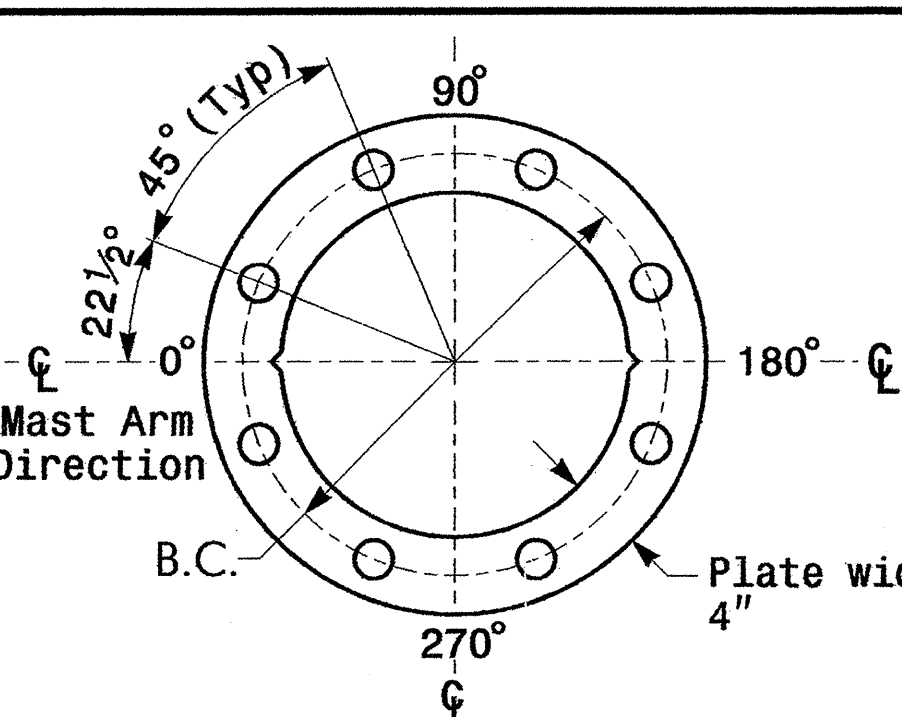
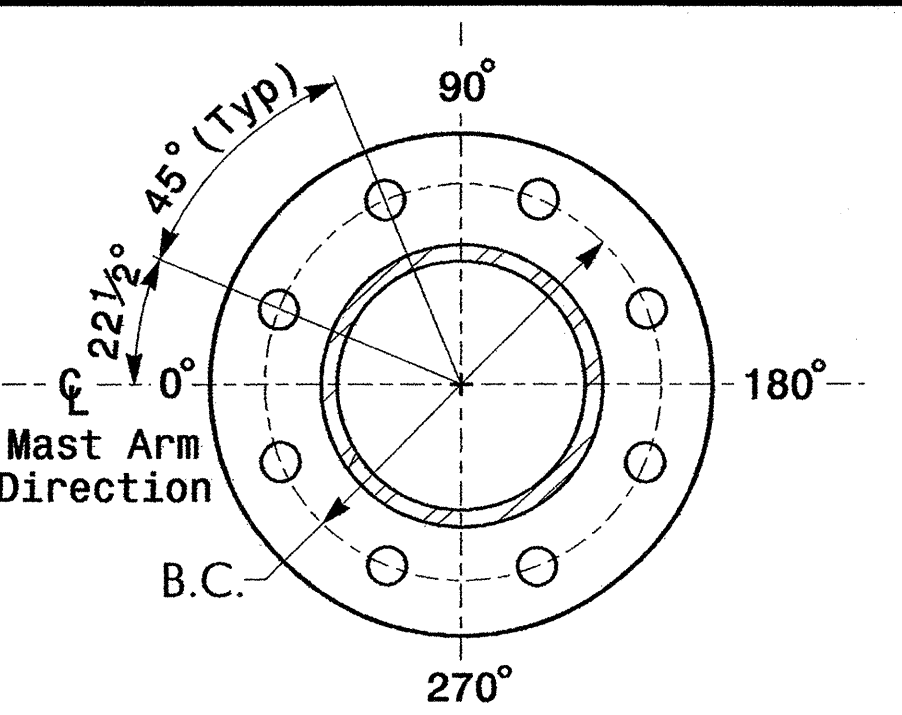
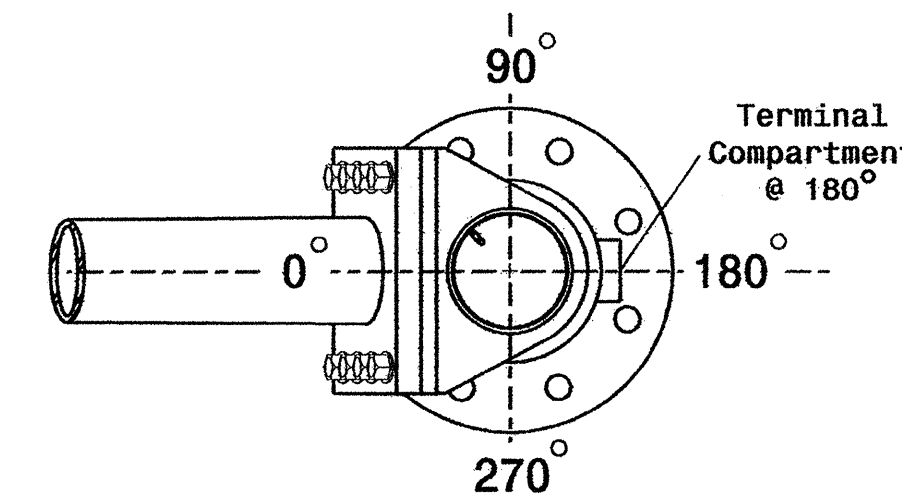
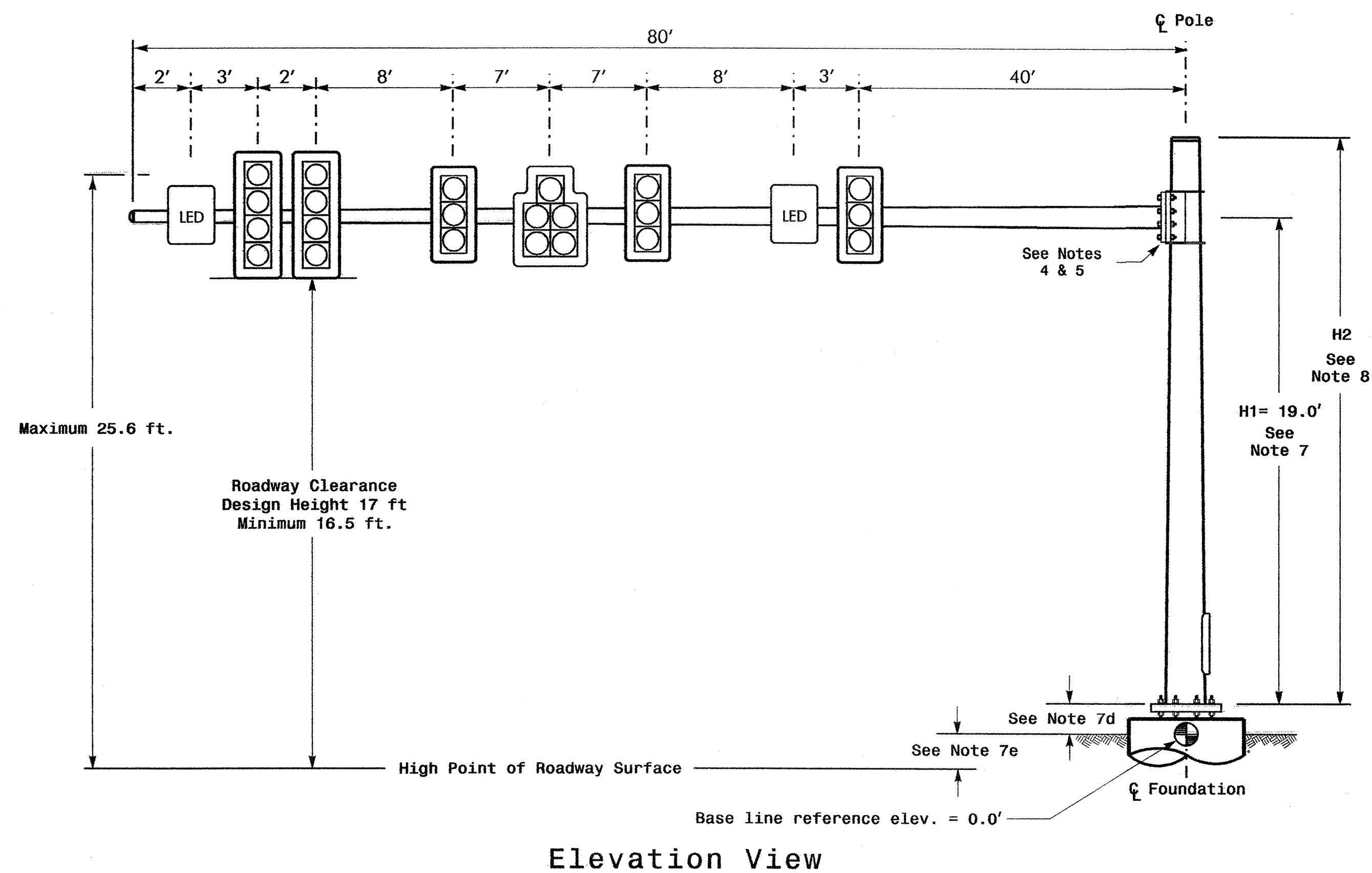
Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1
Baseline reference point at ϕ Foundation @ ground level	0.0 ft.
Elevation difference at High point of roadway surface	0.0 ft.
Elevation difference at Edge of travelway or face of curb	N/A

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	SIGNAL HEAD 12"-5 SECTION-WITH BACKPLATE AND ASTRO-BRAC	16.3 S.F.	42.0" W X 56.0" L	103 LBS
	SIGNAL HEAD 12"-4 SECTION (VERTICAL)-WITH BACKPLATE AND ASTRO-BRAC	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE AND ASTRO-BRAC	9.3 S.F.	25.5" W X 52.5" L	60 LBS
	SIGN. L.E.D. BLANKOUT WITH HANGER	5.0 S.F.	24.0" W X 36.0" L	110 LBS

Design Loading for METAL POLE NO. 1



NOTES

Design Reference Material

- Design the traffic signal structure and foundation in accordance with:
 - The 4th Edition 2001 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
 - The 2006 NCDOT "Standard Specifications for Roads and Structures". The latest addenda to these specifications can be found in the traffic signal project special provisions.
 - The 2006 NCDOT Roadway Standard Drawings.
 - The traffic signal project plans and special provisions.

Design Requirements

- Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "Design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
- Design all signal supports using stress ratios that do not exceed 0.9.
- The camber design for mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
- A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
- Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- The mast arm attachment height (H1) shown is based on the following design assumptions:
 - Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
 - Signal heads attached to the mast arm are rigid mounted and vertically centered on the arm.
 - The roadway clearance height for design is as shown in the elevation views.
 - The top of the pole base plate is .75 feet above the ground elevation.
 - Refer to the Elevation Data chart for elevation differences between the proposed foundation ground level and the high point on the roadway.
- The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
 - Mast arm attachment height (H1) plus 2 feet, or
 - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- If pole location adjustments are required, the contractor must gain approval from the engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signals & Geometrics Structural Engineer for assistance at (919) 773-2800.
- The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NCDOT Wind Zone 4 (90 mph)

	SR 1595 (Surrett Drive) At SR 1592 (Eden Terrace)/ Corporation Drive	SEAL
	Division 8 Randolph County Archdale PLAN DATE: January 2008 REVIEWED BY: PREPARED BY: I.O. Umozurike REVIEWED BY:	
SCALE 0 N/A N/A	REVISIONS INIT. DATE	SIGNATURE DATE: 2/5/08 SIG. INVENTORY NO. 08-0707

8 Phase Fully Actuated W/ RR Preemption (High Point City Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- Begin preemption sequence immediately after track call.
- This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
- Omit phase 1 during phase 2 on.
- Omit phase 5 during phase 6 on.
- Omit phase 3 during phase 4 on.
- Omit phase 7 during phase 8 on.
- Program controller to clear from phase 2+6 to phase 1 and/or 5 by progressing through phase 4+8 (see Electrical Details).
- Program phase 4 and phase 8 for dual entry.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- Ensure flashing operation does not alter operation of blankout signs.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: System ID#03-05.
- Return existing controller and cabinet to city of High Point, Traffic signal office (336)883-3236

NEMA LOOP & DETECTOR INSTALLATION CHART
PEEK TS-2 CONTROLLER AND CABINET

LOOP NO.	SIZE (ft)	DIST. FROM STOPBAR (ft)	TURNS	NEW EXISTING	NEMA PHASE		TIMING		INHIBIT DELAY DURING GREEN#		
					NEW	EXISTING	FEATURE	TIME			
1A	6X15	50	3	-	Y	1	-	Y	DELAY	5	YES
2A, 2B	6X6	300	4	-	Y	2	-	Y	STRETCH	1.6	NO
2C, 2D	6X6	90	4	-	Y	2	-	Y	-	-	NO
3A	6X15	50	3	-	Y	3	-	Y	DELAY	5	YES
4A	6X40	+5	2-4-2	-	Y	4	-	Y	DELAY	3	YES
4B	6X40	+5	2-4-2	-	Y	4	-	Y	DELAY	10	YES
5A	6X15	50	3	-	Y	5	-	Y	DELAY	5	YES
6A, 6B	6X6	300	5	-	Y	6	-	Y	STRETCH	1.6	NO
6C, 6D	6X6	90	4	-	Y	6	-	Y	-	-	NO
7A	6X15	50	3	-	Y	7	-	Y	DELAY	5	YES
8A	6X40	+5	2-4-2	-	Y	8	-	Y	DELAY	3	YES
8B	6X60	+5	2-4-2	-	Y	8	-	Y	DELAY	10	YES

PEEK TS-2 RAIL PREEMPTION

FUNCTION	SECONDS
DELAY BEFORE PREEMPT	0
PED. CLEAR BEFORE PREEMPT	0
MIN. GREEN BEFORE PREEMPT	1.0
YELLOW CLEAR BEFORE PREEMPT	4.7
RED CLEAR BEFORE PREEMPT	3.3
TRACK CLEARANCE GREEN	-
TRACK CLEARANCE YELLOW	-
TRACK CLEARANCE RED	-
DURATION	10

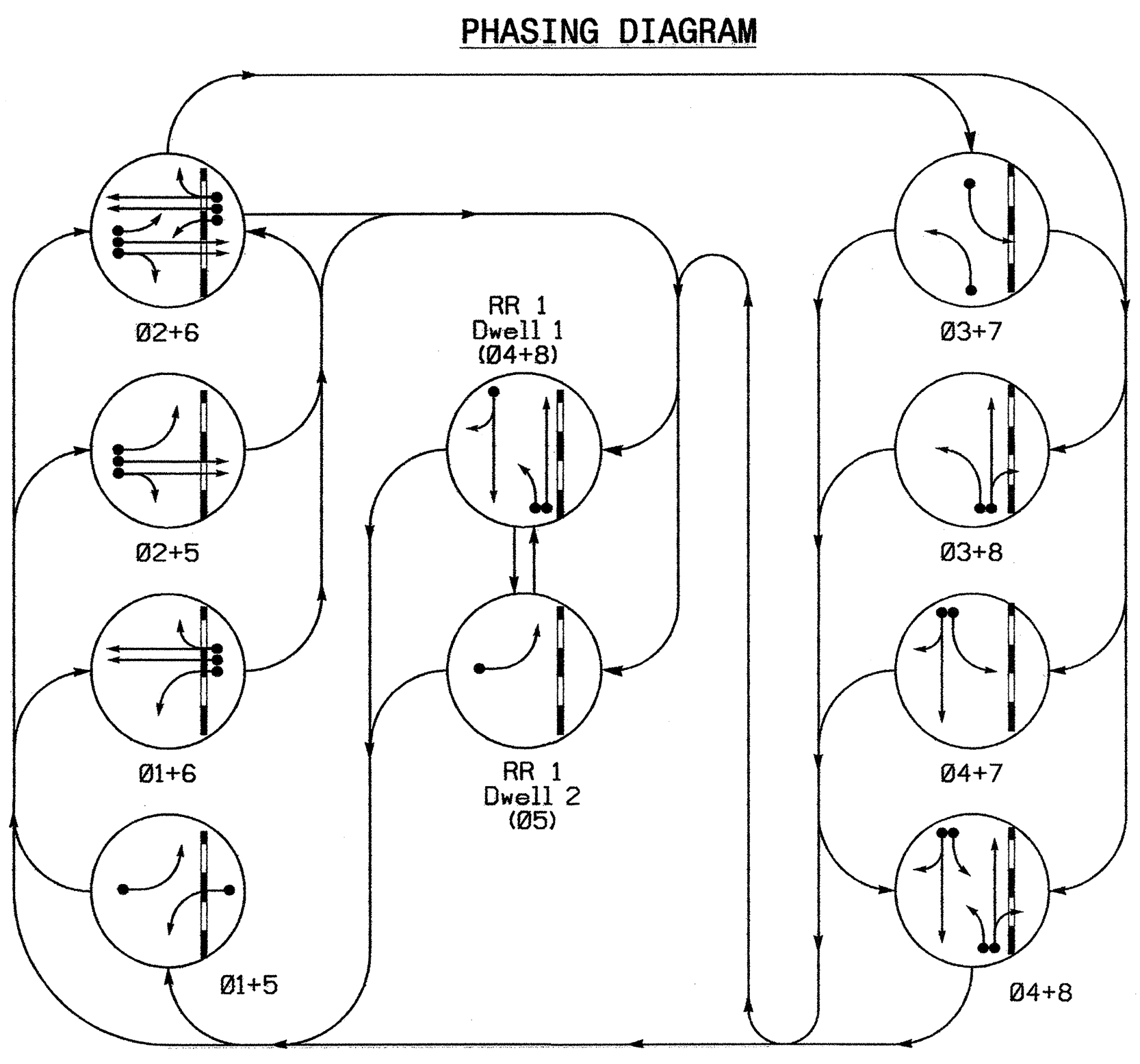
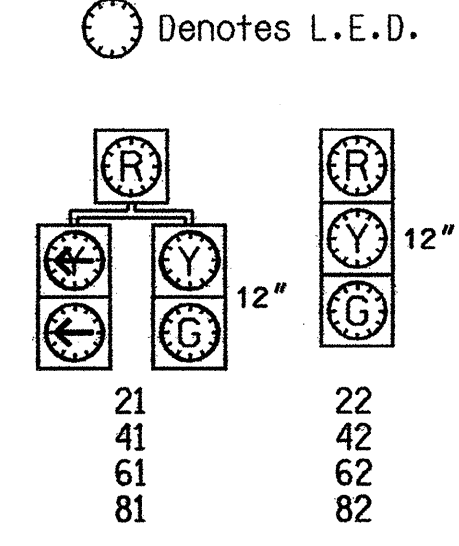
NOTE: YELLOW AND RED CLEAR AFTER PREEMPT TIMINGS ARE DERIVED FROM NORMAL PHASE TIMING

TABLE OF OPERATION

SIGNAL FACE	PHASE							
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8
21	R	R	G	G	R	R	R	R
22	R	R	G	G	R	R	R	R
41	R	R	R	R	R	R	R	R
42	R	R	R	R	R	R	R	R
61	R	R	R	R	R	R	R	R
62	R	R	R	R	R	R	R	R
81	R	R	R	R	R	R	R	R
82	R	R	R	R	R	R	R	R
SIGN (A)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
SIGN (B)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

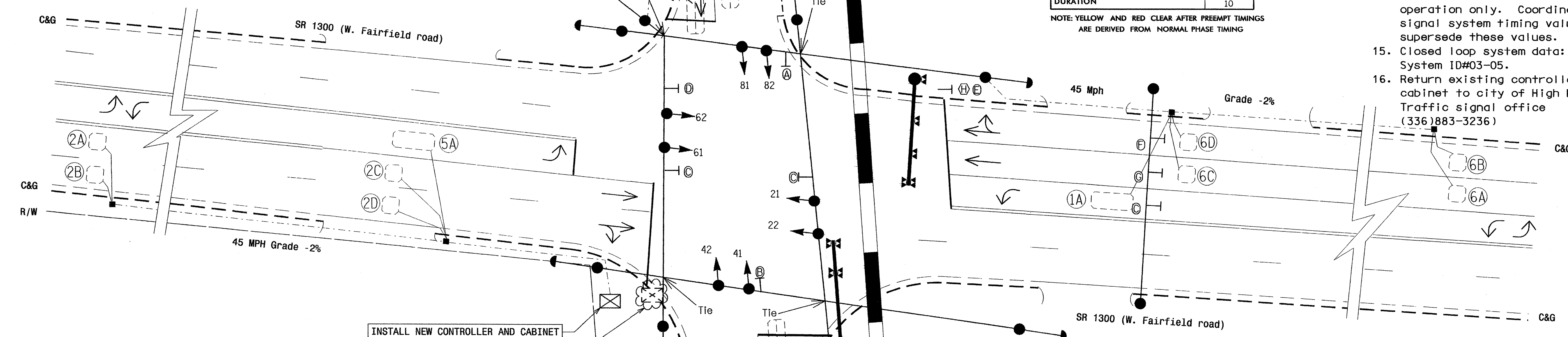
*SEE NOTE 13

SIGNAL FACE I.D.



PHASING DIAGRAM DETECTION LEGEND

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



TIMING CHART
PEEK TS-2 CONTROLLER AND CABINET

PHASE	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
MINIMUM GREEN	7 SEC.	12 SEC.	7 SEC.	7 SEC.	7 SEC.	12 SEC.	7 SEC.	7 SEC.
PASSAGE/GAP	2.0 SEC.	2.0 SEC.	2.0 SEC.	1.0 SEC.	2.0 SEC.	2.0 SEC.	2.0 SEC.	1.0 SEC.
YELLOW CHANGE INT.	3.0 SEC.	4.7 SEC.	3.0 SEC.	3.8 SEC.	3.0 SEC.	4.7 SEC.	3.0 SEC.	3.8 SEC.
RED CLEARANCE	2.9 SEC.	1.2 SEC.	3.3 SEC.	2.3 SEC.	2.9 SEC.	1.8 SEC.	3.1 SEC.	2.5 SEC.
MAX. I	30 SEC.	90 SEC.	30 SEC.	30 SEC.	30 SEC.	90 SEC.	30 SEC.	30 SEC.
RECALL POSITION	NONE	MIN. RECALL	NONE	NONE	NONE	MIN. RECALL	NONE	NONE
VEH. CALL MEMORY	NONLOCK	LOCK	NONLOCK	NONLOCK	NONLOCK	LOCK	NONLOCK	NONLOCK
WALK	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.
FLASHING DON'T WALK	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.	- SEC.
VOLUME DENSITY	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

- LEGEND**
- PROPOSED: Traffic Signal Head, Modified Signal Head, Pedestrian Signal Head, Signal Pole with Guy, Inductive Loop Detector, Junction Box, 2-in Underground Conduit, Right of Way with Marker, Pavement Marking Arrow, Railroad Tracks, Railroad Gate and Flasher.
 - EXISTING: N/A, Signal Upgrade.

LEGEND (continued)

- L.E.D. Blankout Sign: NO RIGHT TURN TRAIN, NO LEFT TURN TRAIN.
- Signs: (C) Left Arrow "ONLY" Sign (R3-5L), (D) "NO TURN ON RED" Sign (R10-11), (E) "STOP HERE ON RED" Sign (R10-6), (F) Combined Through and Right Arrow Sign (R3-6R), (G) Through Arrow "ONLY" Sign (R3-5A), (H) "DO NOT STOP ON TRACKS" Sign (R8-8).

Signal Upgrade

Prepared in the Offices of: **TRAFFIC ENGINEERING AND SIGNAL SYSTEMS, INC.**
750 N. Greenfield Pkwy, Garner, NC 27529

SR 1300 (W. Fairfield) Road at SR 1216 (Surrett Drive)

Division 07 Guilford County High Point
PLAN DATE: January 2008 REVIEWED BY:
PREPARED BY: I. O. Umzurike REVIEWED BY:

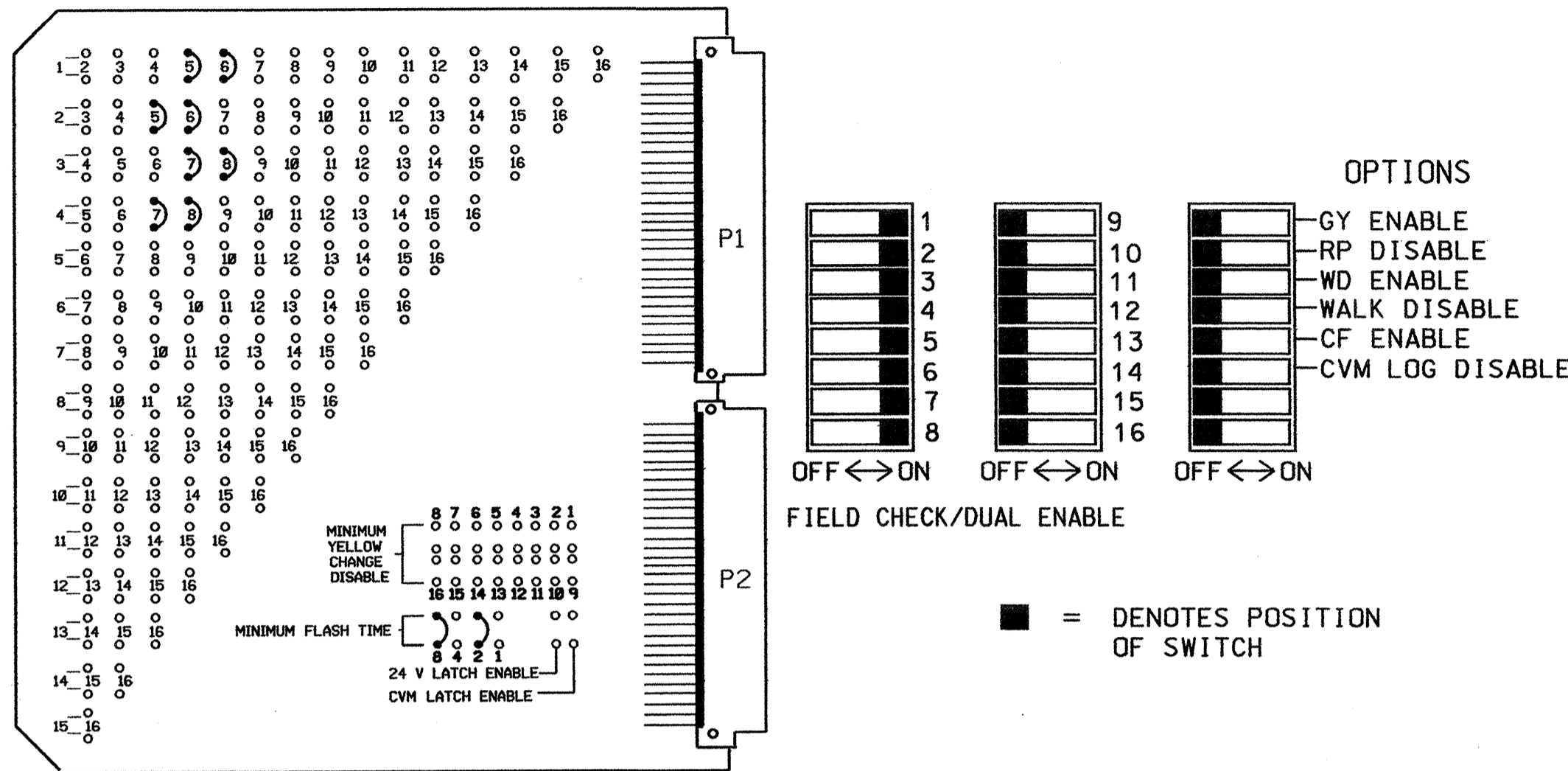
SCALE: 1"=20'

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER 24393
TIMOTHY WILLIAMS
DATE: 2/14/08
SIG. INVENTORY NO. 07-0738

14-FEB-2008 09:18 C:\projects\2702\sig\plan\sig\plan.dgn (p01) (s07) (07035.s14_csn_2008med.dgn)

**EDI MODEL MMU-16E
MALFUNCTION MANAGEMENT UNIT
PROGRAMMING DETAIL**

(program card and set switches as shown below)



MMU PROGRAMMING CARD

NOTES

- TO PREVENT "FLASH-CONFLICT" PROBLEMS, WIRE ALL UNUSED LOAD SWITCHES TO FLASH RED. VERIFY THAT SIGNAL HEADS FLASH IN ACCORDANCE WITH THE SIGNAL PLANS.
- TO PREVENT RED FAILURES ON UNUSED MONITOR CHANNELS, TIE UNUSED LOAD SWITCH RED OUTPUTS: 9, 10, 11, 12, 13, 14, 15 & 16 TO LOAD SWITCH AC+ BY INSERTING A JUMPER PLUG IN THE UNUSED LOAD SWITCH SOCKET FROM PIN 1 (LS AC+) TO PIN 3 (RED OUT). MAKE SURE ALL FLASH TRANSFER RELAYS ARE IN PLACE.
- PROGRAM THE CONTROLLER TO START UP IN PHASES 2 AND 6 GREEN.
- SET POWER-UP FLASH TIME TO 10 SECONDS AND IMPLEMENT ON THE MALFUNCTION MANAGEMENT UNIT. SET CONTROLLER POWER-UP FLASH TIME TO 0 SECONDS.
- ENABLE SIMULTANEOUS GAP-OUT FEATURE, ON CONTROLLER UNIT, FOR ALL PHASES.
- PROGRAM PHASES 4 AND 8, ON CONTROLLER UNIT, FOR DUAL ENTRY.
- SET ALL DETECTOR CARD CHANNELS TO 'PRESENCE' MODE.
- EXCEPT WHERE SPECIFIED, PROGRAM DETECTOR CALL DELAY AND EXTENSION TIMING ON THE CONTROLLER.
- THIS CONTROLLER AND CABINET ARE TO BE PROGRAMMED AND WIRED AS A PART OF THE HIGH POINT CITY SIGNAL SYSTEM.

SIGNAL HEAD HOOK-UP CHART

PHASE	1	2	3	4	5	6	7	8	OLA	OLB	OLC	OLD	2 PED	4 PED	6 PED	8 PED
SIGNAL HEAD NO.	6I	2I,22	8I	4I,42	2I	6I,62	4I	8I,82	NU	NU	NU	NU	NU	NU	NU	NU
GREEN		2G		4G		6G		8G								
YELLOW		2Y		4Y		6Y		8Y								
RED	*	2R	*	4R	*	6R	*	8R								
RED ARROW																
YELLOW ARROW	1Y		3Y		5Y		7Y									
GREEN ARROW	1G		3G		5G		7G									

NU = NOT USED

* DENOTES INSTALL LOAD RESISTOR. SEE LOAD RESISTOR INSTALLATION DETAIL THIS SHEET.

EQUIPMENT INFORMATION

CONTROLLER.....PEEK TRAFFIC 3000*
 CABINET.....PEEK TRAFFIC TS2 PER CITY OF HIGH POINT SPEC., NC-6 CONFIG.*
 CABINET MOUNT.....BASE
 LOADBAY POSITIONS.....16
 LOAD SWITCHES USED.....1, 2, 3, 4, 5, 6, 7, 8
 PHASES USED.....1, 2, 3, 4, 5, 6, 7, 8
 OVERLAPS.....NONE

* CONTRACTOR SUPPLIED & INSTALLED

DETECTOR RACK NO.1 SET-UP DETAIL

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

BIU	CH1	CH1	CH1	CH1	CH1	CH1	SLOT	SLOT	POWER SUPPLY AREA
	L3	L1	L7	L5	L11	L9			
	ø2	ø1	ø5	ø4	ø8	ø6			
	CH2	CH2	CH2	CH2	CH2	CH2	EMPTY	EMPTY	
	L4	L2	L8	L6	L12	L10			
	ø3	ø2	ø6	ø4	ø8	ø7			

DETECTOR RACK NO.2 SET-UP DETAIL

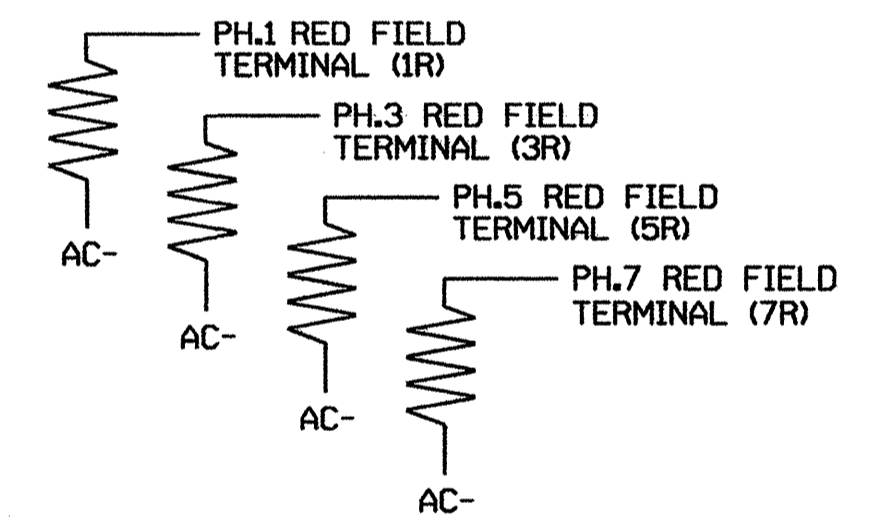
INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

BIU	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	CH1	CH1	SLOT	SLOT	SLOT
	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	L31	L29				
							* SYS. DET.	* SYS. DET.			
							CH2	CH2			
							* SYS. DET.	* SYS. DET.			

LOAD RESISTOR INSTALLATION DETAIL

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

NOTE: THE PURPOSE OF THESE RESISTORS IS TO LOAD THE CHANNEL RED MONITOR INPUTS IN ORDER FOR THE MALFUNCTION MANAGEMENT UNIT TO USE THE FULL SIGNAL SEQUENCE MONITORING CAPABILITY ON CHANNELS THAT DO NOT USE THE RED DISPLAY IN THE FIELD.



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0738
 DESIGNED: JANUARY 2008
 SEALED: 2/14/08
 REVISED: N/A

TS-2 TYPE 1 CABINET

CLOSED LOOP SYSTEM DATA :
 SYSTEM I.D. 03-05

SEE SHEET 2 FOR RAILROAD PREEMPTION PROGRAMMING & LOAD SWITCH ASSIGNMENT DETAIL, AND SHEET 3 FOR FOR SPECIAL BACK-UP PROTECTION PROGRAMMING AND PREEMPT PANEL WIRING & OPERATION OF BANKOUT SIGNS

ELECTRICAL DETAIL - SHEET 1 of 3

	SR 1300 (W. Fairfield Road) at SR 1216 (Surrett Drive)		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 008453 JOHN T. ROWE
	Division 07 Guilford County High Point PLAN DATE: February 2008 PREPARED BY: F.E. RUSS	REVIEWED BY: [Signature] REVIEWED BY: [Signature]		DATE: 2-14-08 DATE: [ ]

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
1A	L1A, L1B
2A,2B	L2A, L2B
2C,2D	L3A, L3B
3A	L4A, L4B
4A	L5A, L5B
4B	L6A, L6B
5A	L7A, L7B
6A,6B	L8A, L8B
6C,6D	L9A, L9B
7A	L10A, L10B
8A	L11A, L11B
8B	L12A, L12B
	L13A, L13B
	L14A, L14B
	L15A, L15B
	L16A, L16B

NOTE
 BE SURE TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN ON THE SIGNAL PLANS.

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME (SEC)
1	ø 1	DELAY	5
2	ø 2	STRETCH	1.6
3	ø 2		
4	ø 3	DELAY	5
5	ø 4	DELAY	3
6	ø 4	DELAY	10
7	ø 5	DELAY	5
8	ø 6	STRETCH	1.6
9	ø 6		
10	ø 7	DELAY	5
11	ø 8	DELAY	3
12	ø 8	DELAY	10
13			
14			
15			
16			

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
	L17A, L17B
	L18A, L18B
	L19A, L19B
	L20A, L20B
	L21A, L21B
	L22A, L22B
	L23A, L23B
	L24A, L24B
	L25A, L25B
	L26A, L26B
	L27A, L27B
	L28A, L28B
* SYS.	L29A, L29B
* SYS.	L30A, L30B
* SYS.	L31A, L31B
* SYS.	L32A, L32B

NOTE
 BE SURE TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN ON THE SIGNAL PLANS.

ASSIGN CONTROLLER SYSTEM DETECTORS TO LOCAL CONT. DET. NUMBERS AS SHOWN IN CHART BELOW

CONTROLLER SYS. DET. NO.	LOCAL CONT. DETECTOR NO.
1	29
2	30
3	31
4	32
5	
6	
7	
8	

* FOR EXISTING SYSTEM LOOPS

**PEEK TRAFFIC 3000 SERIES CONTROLLER
RAILROAD PREEMPTION PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA):

PROGRAM MENU (PRESS 9 FOR INDEX)

1. CONTROLLER	5. COMM/SYSTEM SETUP
2. COORDINATION	6. UNIT CONFIG/SEC. CODE
3. TIME OF DAY	7. I/O STEERING
4. PREEMPTION	8. UTILITIES

> SHIFT-CLEAR FROM DATA SCREEN TO INDEX <

TO VIEW/PROG PREEMPTION RUN ENTER 1-6: 1
TO ERASE ONE PREEMPTION RUN ENTER 1-6: .
TO ERASE ALL PREEMPTION RUNS ENTER 99: .
TO LOAD DEFAULT VALUES ENTER 1-6: .

PREEMPTION RUN 1 MENU

- PER RUN DATA
- INTERVAL DATA
- FLASH PLAN FOR RUN 1 INTERVALS
- QUICK SETUP PROCEDURES

WHEN CHANGING RUN DATA, 1ST DISABLE RUN

PER RUN 1 MENU

- RUN ENABLE, RR, MAX IVLS, LOCK, PRIORITY, OVR UCF
- TIME BEFORE PE, RUN RESERVICE, RUN DURATION
- MIN ENTRY TIMES, INH DOUBLE CLR O/L
- VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
- EXIT CONTROLS

RUN 1 ENABLE, RR, LOCK, PRIORITY VALUE(YES/NO)

RUN ENABLE: N*	OVERVERRIDE FLASH: N
RAILROAD: N	GO TO HIGHER PE: N
PE INPUT LOCK: N	NEMA PRIORITY: Y
EARLY PE OUT: N	USER PRIORITY: 1
MAX INTERVALS: 2	VALUE(1-6)
VALUE(0-32)	

PER RUN 1 MENU

- RUN ENABLE, RR, MAX IVLS, LOCK, PRIORITY, OVR UCF
- TIME BEFORE PE, RUN RESERVICE, RUN DURATION
- MIN ENTRY TIMES, INH DOUBLE CLR O/L
- VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
- EXIT CONTROLS

RUN 1 DURATION, RESERVICE, PE DELAY

DURATION	PREEMPT DELAY	RESERVICE
10	0	0
(0-255 SECS)	(0-255 SECS)	(0-255 SECS)

DURATION TIMER USED AS GAP TIMER: N

continued at top right

cont'd. from bottom left

PER RUN 1 MENU

- RUN ENABLE, RR, MAX IVLS, LOCK, PRIORITY, OVR UCF
- TIME BEFORE PE, RUN RESERVICE, RUN DURATION
- MIN ENTRY TIMES, INH DOUBLE CLR O/L
- VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
- EXIT CONTROLS

RUN 1 MINIMUM ENTRY TIMES
INHIBIT DOUBLE CLR O/L ENTERING PE: N

GREEN	YELLOW	RED	PE CLER	O/L YEL
1.0	4.7	3.3	0	0.0
(0-----25.5 SECS)		(0-255 SECS)		(0-25.5 SECS)

PER RUN 1 MENU

- RUN ENABLE, RR, MAX IVLS, LOCK, PRIORITY, OVR UCF
- TIME BEFORE PE, RUN RESERVICE, RUN DURATION
- MIN ENTRY TIMES, INH DOUBLE CLR O/L
- VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
- EXIT CONTROLS

RUN 1 PER INTERVAL DATA VALUE(YES/NO)
PGDN FOR MORE

FCN/IVL	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
VALID	X	X														
DWELL																
FIXED																
TENTH																

SHIFT - RT->TO SEE-ENTER INTERVALS 17-32

RUN 1 PER INTERVAL DATA VALUE(YES/NO)

FCN/IVL	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
EXIT	X	X														
PC->YEL																

SHIFT - RT->TO SEE-ENTER INTERVALS 17-32

PER RUN 1 MENU

- RUN ENABLE, RR, MAX IVLS, LOCK, PRIORITY, OVR UCF
- TIME BEFORE PE, RUN RESERVICE, RUN DURATION
- MIN ENTRY TIMES, INH DOUBLE CLR O/L
- VALID, FIXED, TENTHS, PC->YEL, EXIT, DWELL IVLS
- EXIT CONTROLS

RUN 1 EXIT CONTROLS

EXIT MODE: 1 (0= GO TO EXIT PHASES, 1= GO TO NEXT DEMAND, 2= RESUME INTERRUPTED SEQ, 3= EXIT TO COORDINATION)

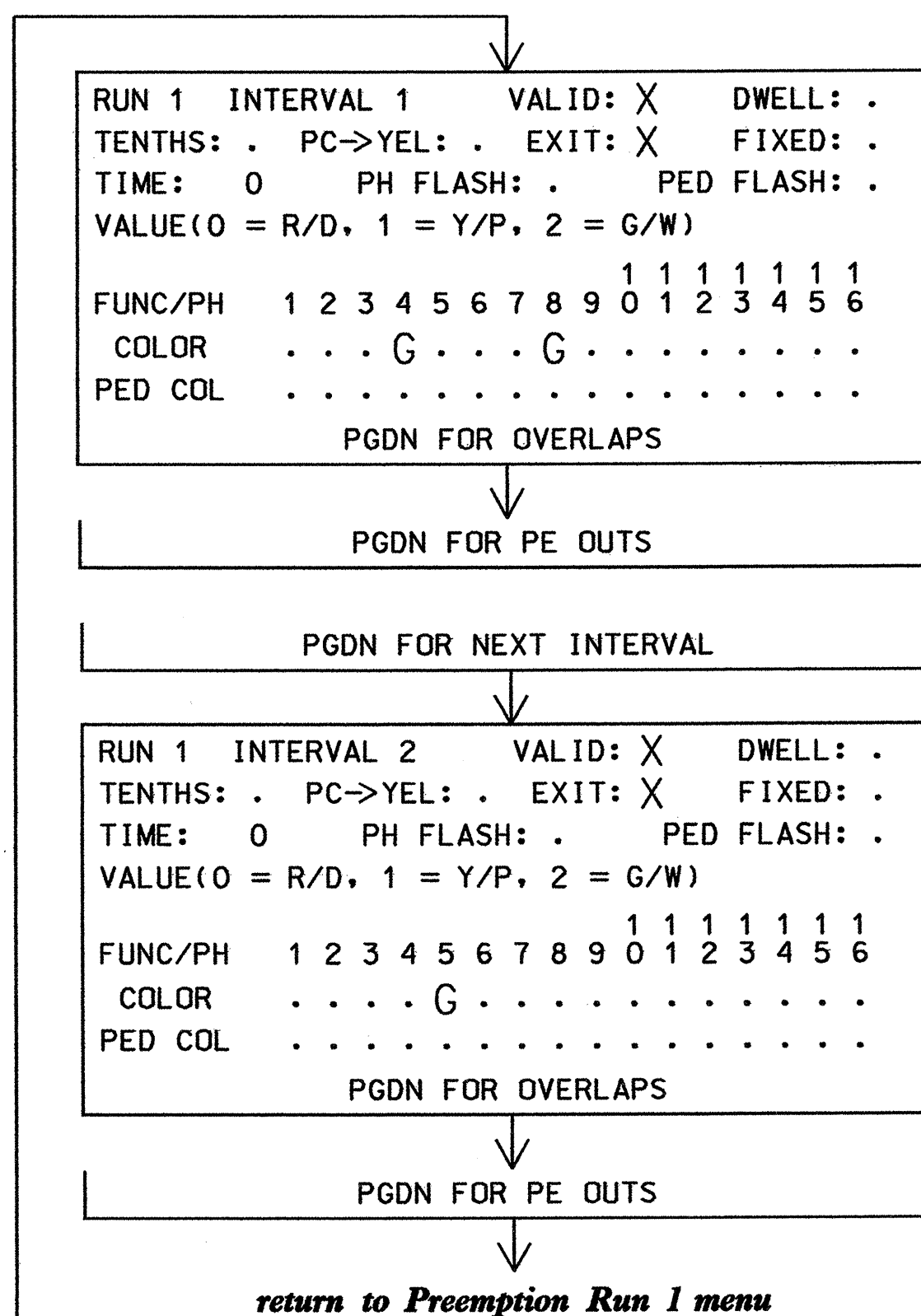
VALUE(YES/NO)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
PHASES																
CALLS																

PREEMPTION RUN 1 MENU

- PER RUN DATA
- INTERVAL DATA
- FLASH PLAN FOR RUN 1 INTERVALS
- QUICK SETUP PROCEDURES

WHEN CHANGING RUN DATA, 1ST DISABLE RUN



RUN 1 INTERVAL 1 VALID: X DWELL: .
TENTHS: . PC->YEL: . EXIT: X FIXED: .
TIME: 0 PH FLASH: . PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
COLOR				G				G								
PED COL																

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

PGDN FOR NEXT INTERVAL

RUN 1 INTERVAL 2 VALID: X DWELL: .
TENTHS: . PC->YEL: . EXIT: X FIXED: .
TIME: 0 PH FLASH: . PED FLASH: .
VALUE(0 = R/D, 1 = Y/P, 2 = G/W)

FUNC/PH	1	2	3	4	5	6	7	8	9	0	1	1	1	1	1	1
COLOR								G								
PED COL																

PGDN FOR OVERLAPS

PGDN FOR PE OUTS

return to Preemption Run 1 menu

FROM PREEMPTION RUN 1 MENU PRESS '1' (PER RUN DATA).
THEN PRESS '1' (RUN ENABLE, RR, MAX IVLS, LOCK, PRIORITY, OVR UCF):

RUN 1 ENABLE, RR, LOCK, PRIORITY VALUE(YES/NO)

RUN ENABLE: Y*	OVERVERRIDE FLASH: N
RAILROAD: N	GO TO HIGHER PE: N
PE INPUT LOCK: N	NEMA PRIORITY: Y
EARLY PE OUT: N	USER PRIORITY: 1
MAX INTERVALS: 2	VALUE(1-6)
VALUE(0-32)	

*RE-SET 'RUN ENABLE' FROM "N" TO "Y".

end of programming

NOTE:

THERE IS NO PROGRAMMING REQUIRED FOR 'OVERLAPS' OR 'PE OUTS' FOR ANY INTERVAL.

LOAD SWITCH ASSIGNMENT DETAIL
(program controller according to schedule in chart below)

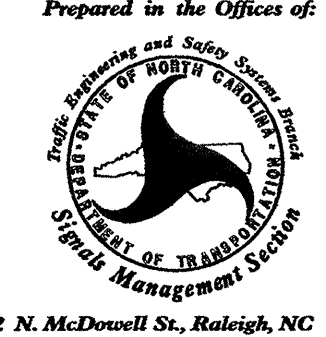
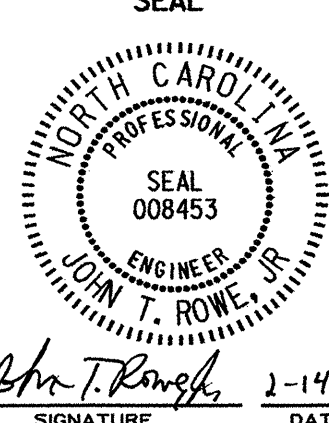
LOAD SWITCH NUMBER	FUNCTION
1	ø 1
2	ø 2
3	ø 3
4	ø 4
5	ø 5
6	ø 6
7	ø 7
8	ø 8
9	---
10	---
11	---
12	---
13	---
14	---
15	---
16	---

DISABLE UNUSED LOAD SWITCH/MMU CHANNELS IN CONTROLLER PROGRAMMING

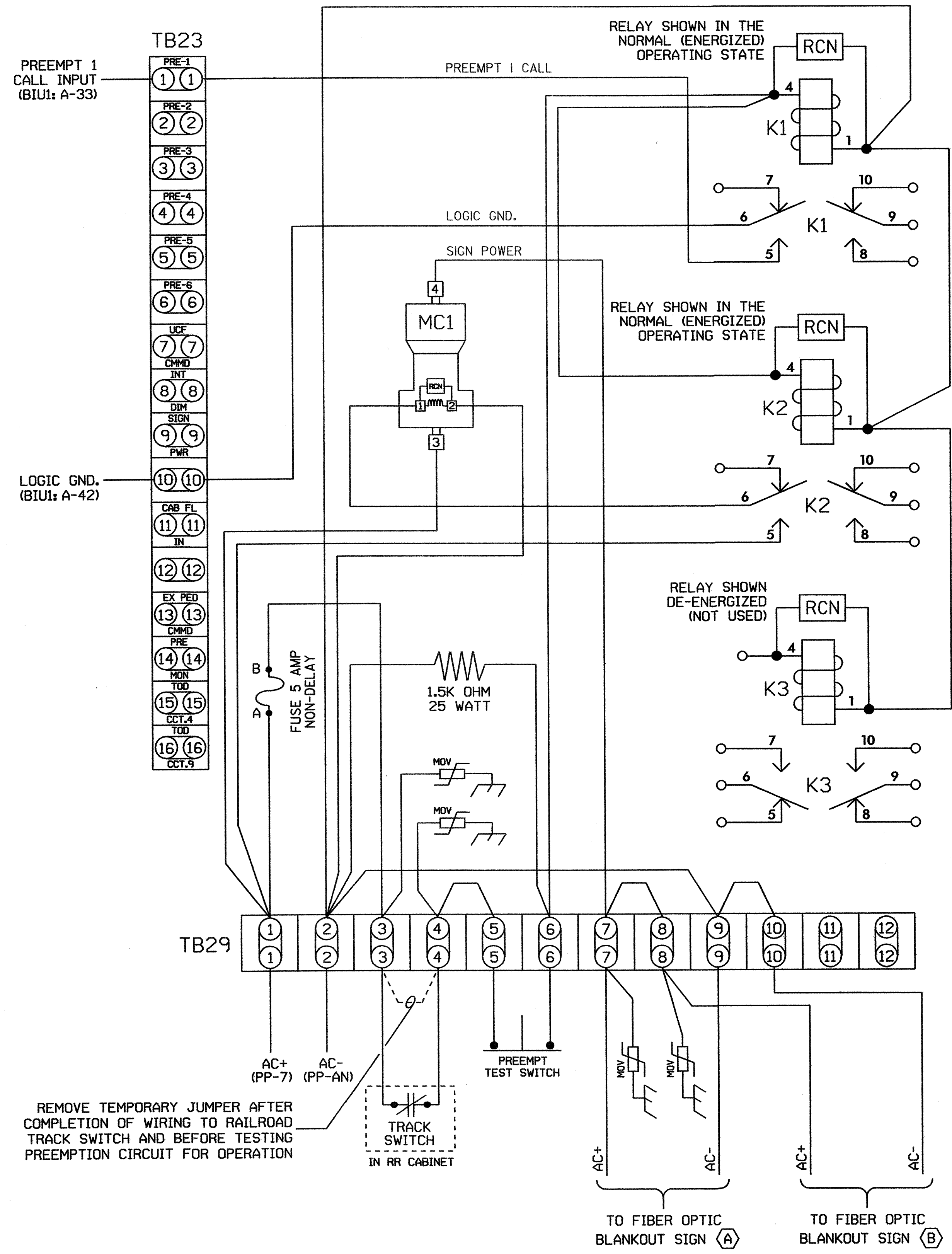
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0738
DESIGNED: JANUARY 2008
SEALED: 2/14/08
REVISED: N/A

TS-2 TYPE 1 CABINET

ELECTRICAL DETAIL - SHEET 2 of 3

	ELECTRICAL AND PROGRAMMING DETAILS FOR: SR 1300 (W. Fairfield Road) at SR 1216 (Surrett Drive)		SEAL 
	Division 07 Guilford County High Point PLAN DATE: February 2008 REVIEWED BY: <i>[Signature]</i> PREPARED BY: F.E. Russ REVIEWED BY:	REVISIONS INIT. DATE		SIGNATURE: [Signature] 2-14-08 DATE SIG. INVENTORY NO. 07-0738

PEEK RAILROAD PREEMPTION PANEL WIRING DETAIL
(wire as shown)



REMOVE TEMPORARY JUMPER AFTER COMPLETION OF WIRING TO RAILROAD TRACK SWITCH AND BEFORE TESTING PREEMPTION CIRCUIT FOR OPERATION

**PEEK TRAFFIC 3000 SERIES CONTROLLER
SPECIAL BACK-UP PROTECTION PROGRAMMING**
(program controller as shown below)

FROM MAIN MENU PRESS '3' (CHANGE DATA), THEN PRESS '1' (CONTROLLER), THEN PRESS '9' (ENHANCED OPTIONS), THEN PRESS '1' (DYNAMIC OMIT/RCL), THEN PRESS '1' (DYNAMIC OMIT):

DYNAMIC OMIT GRP 1 (1 OF 8)	VALUE(YES/NO)
ENABLE: Y	1 1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OMIT PHS	X
IF PH ON	. X
OR	
IF O/L	A B C D E F G H I J K L M N O P
GRN	. . . . .

DYNAMIC OMIT GRP 2 (2 OF 8)	VALUE(YES/NO)
ENABLE: Y	1 1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OMIT PHS	. . . . X
IF PH ON	. . . . X
OR	
IF O/L	A B C D E F G H I J K L M N O P
GRN	. . . . .

DYNAMIC OMIT GRP 3 (3 OF 8)	VALUE(YES/NO)
ENABLE: Y	1 1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OMIT PHS	. . X
IF PH ON	. . . X
OR	
IF O/L	A B C D E F G H I J K L M N O P
GRN	. . . . .

DYNAMIC OMIT GRP 4 (4 OF 8)	VALUE(YES/NO)
ENABLE: Y	1 1 1 1 1 1 1 1
FUNC/PH	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OMIT PHS	. . . . . X
IF PH ON	. . . . . X
OR	
IF O/L	A B C D E F G H I J K L M N O P
GRN	. . . . .

return to Controller menu

FROM CONTROLLER MENU PRESS '4' (DETECTORS), THEN PRESS '6' (SWITCH & COPY):

DET SWITCH/COPY ENABLES	VALUE(YES/NO)
DETECTOR SWITCHING ENABLE:	N
DETECTOR COPY GROUP 1 ENABLE:	Y
DETECTOR COPY GROUP 2 INPUT ENABLE:	N
DET COPY GRP 2 PLANS 1-16 USED INSTEAD OF GRP 1 IF ENABLE = Y AND INPUT ACTIVE.	
--PGDN FOR DET SW & COPY PATTERNS 1-16--	

DET SW & COPY	1 OF 64	1 1 1 1 1 1 1 1
PH GRNS	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	
SWITCH		
G1 COPY	. X . . . X	
G2 COPY	. . . . .
SW OR COPY PER	→ (PH'S) SWITCH G1C G2C	
WHEN ABOVE ARE GRN	FROM PH: 0 1 0	
(PGDN FOR MORE)	TO PH: 0 4 0	

DET SW & COPY	2 OF 64	1 1 1 1 1 1 1 1
PH GRNS	1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	
SWITCH		
G1 COPY	. X . . . X	
G2 COPY	. . . . .
SW OR COPY PER	→ (PH'S) SWITCH G1C G2C	
WHEN ABOVE ARE GRN	FROM PH: 0 5 0	
(PGDN FOR MORE)	TO PH: 0 4 0	

end of programming

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-0738
DESIGNED: JANUARY 2008
SEALED: 2/14/08
REVISED: N/A

TS-2 TYPE 1 CABINET

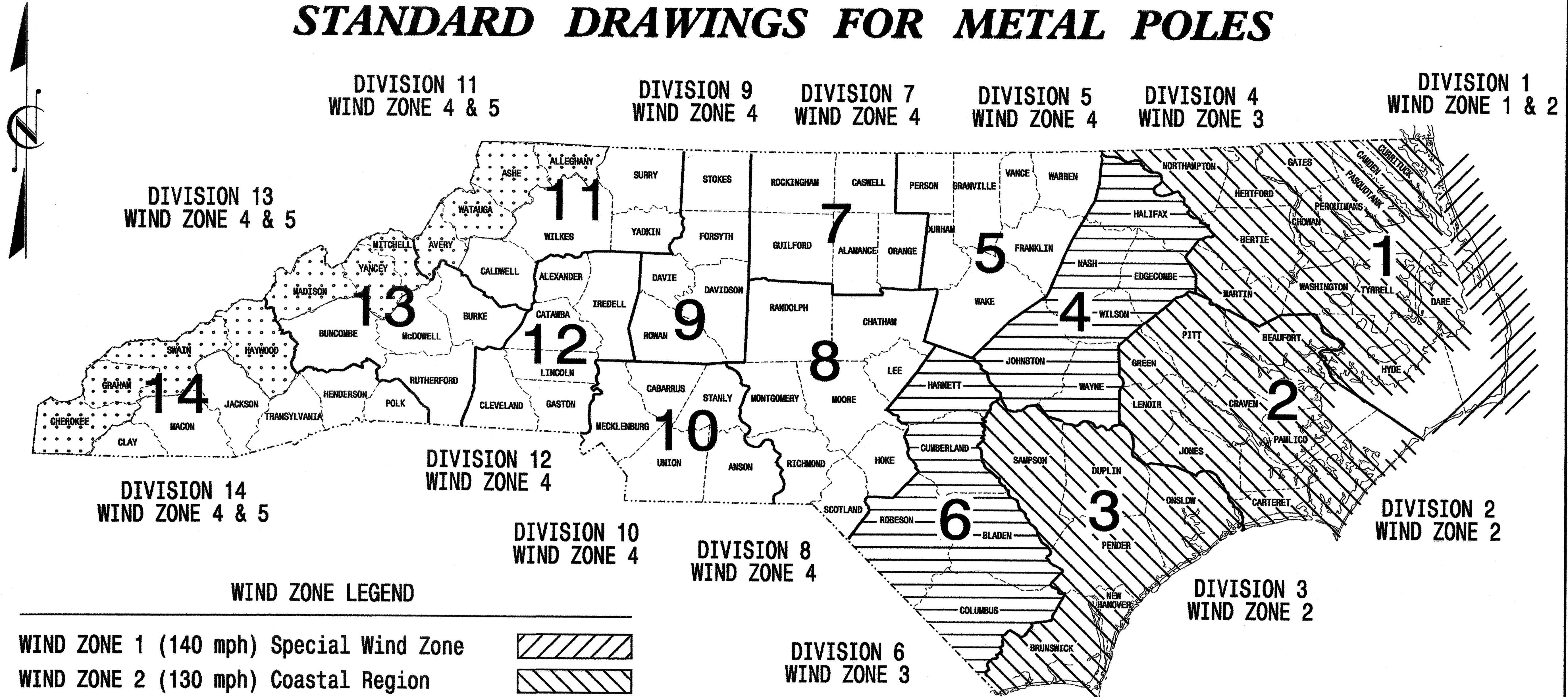
ELECTRICAL DETAIL - SHEET 3 of 3

	SR 1300 (W. Fairfield Road) at SR 1216 (Surrett Drive)		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JOHN T. ROWE, JR. SEAL 008453
	Division 07 Guilford County High Point	PLAN DATE: February 2008 REVIEWED BY: <i>FWR</i>	
PREPARED BY: F.E. RUSS	REVIEWED BY:	REVISIONS	DATE
Signature: <i>F.E. Russ</i> 2-14-08		DATE	
122 N. McDowell St., Raleigh, NC 27603		SIG. INVENTORY NO. 07-0738	

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STATE	PROJECT NO.	SHEET NO.
N.C.	U-2702	Sig. 16
F. A. PROJ. NO.	M 1	
PROJECT ID. NO.		

STANDARD DRAWINGS FOR METAL POLES



WIND ZONE LEGEND

WIND ZONE 1 (140 mph) Special Wind Zone		
WIND ZONE 2 (130 mph) Coastal Region		
WIND ZONE 3 (110 mph) Eastern Region		
WIND ZONE 4 (90 mph) Central & Mtn. Region		
WIND ZONE 5 (120 mph) Special Wind Zone		

<http://www.ncdot.org/doh/preconstruct/traffic/tmssu/ws/default.htm>

Prepared in the Offices of:

122 N. McDowell St., Raleigh, NC 27603

Designed in conformance with the 2002 Interim to the 4th Edition 2001

AASHTO

Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals

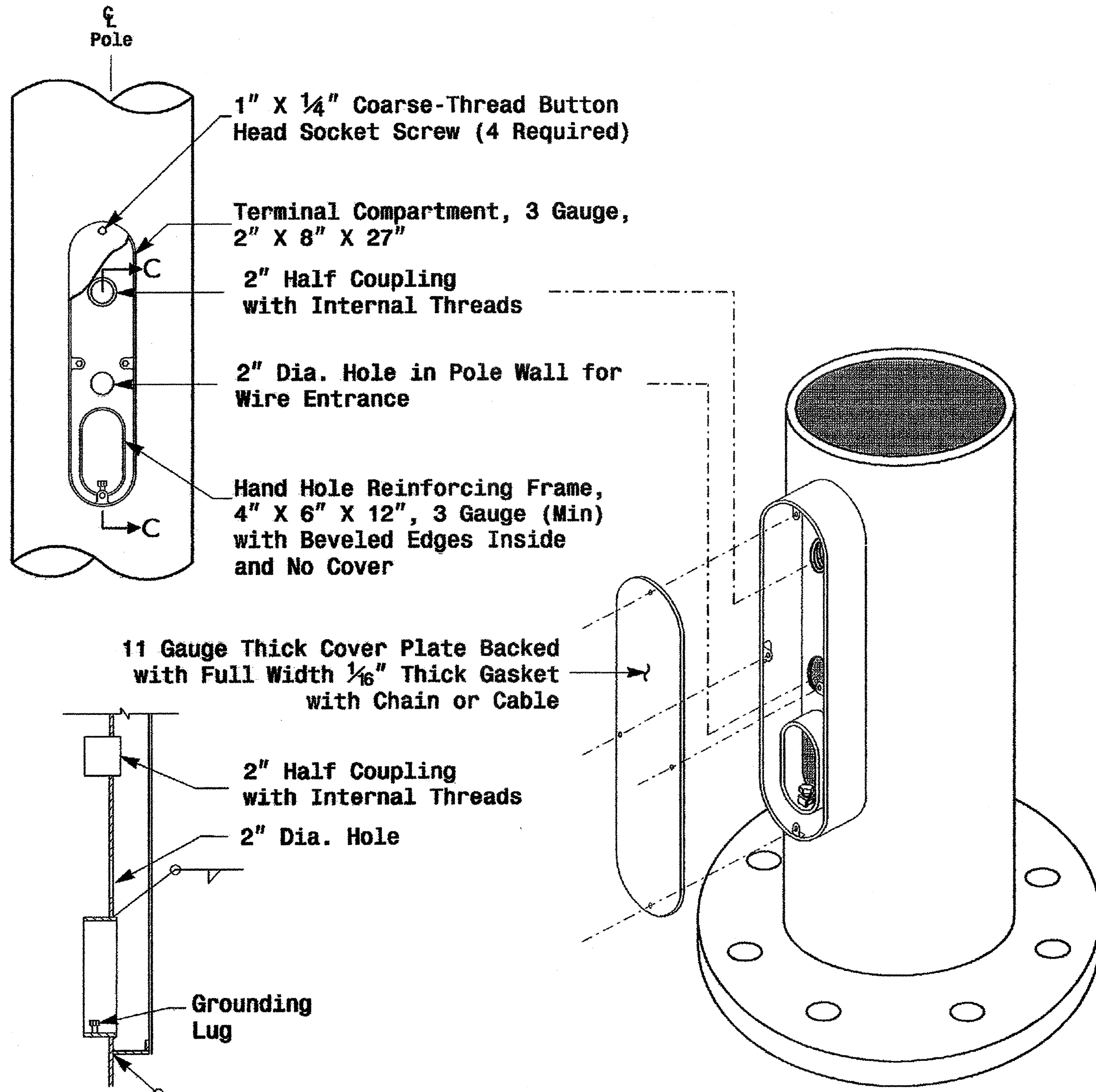
DRAWING NUMBER	DESCRIPTION
M 1	Title Sheet
M 2	Fabrication Details - All Poles
M 3	Fabrication Details - Strain Poles
M 4,5	Fabrication Details - Mast Arm Poles
M 6	Construction Details - Strain Poles
M 7	Construction Details - Foundations
M 8	Standard Strain Poles

NC DOT CONTACTS:
TRAFFIC ENGINEERING AND SAFETY SYSTEMS BRANCH

G. A. Fuller, P.E. - State ITS and Signals Engineer
 R. E. Mullinax, P.E. - Signals and Geometrics Engineer
 P. L. Alexander, P.E. - Signals and Geometrics Special Projects Engineer
 D. C. Sarkar, P.E. - Signals and Geometrics Structural Engineer
 A. M. Esposito, P.E. - Signals and Geometrics Project Engineer
 C. F. Andrews, Jr. - Signals and Geometrics Project Engineer

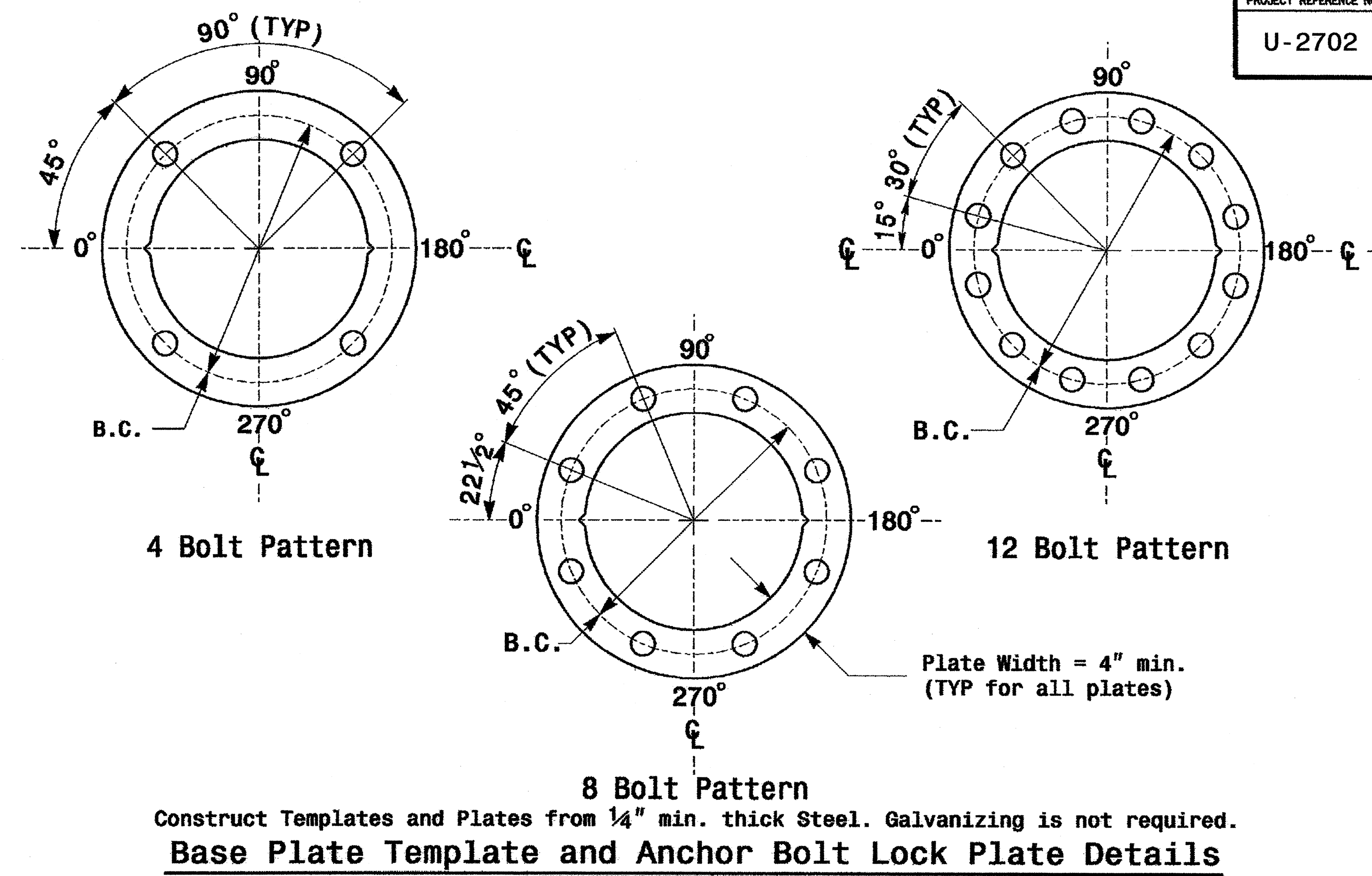
SEAL

9.2.2005
DATE

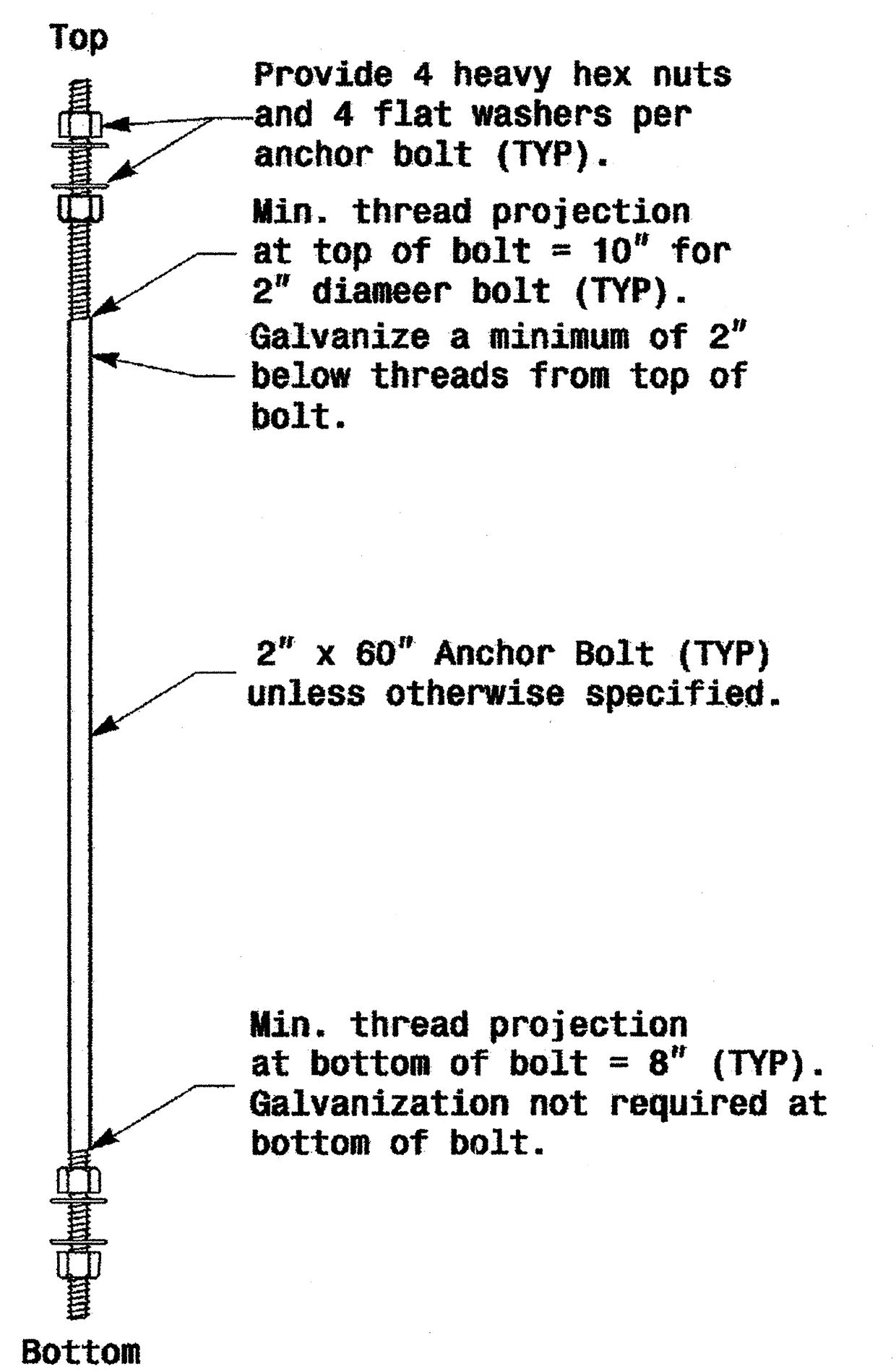


Section C-C Note: Unless otherwise specified, locate Terminal Compartment 1 foot above the pole base plate at 180 degrees on the pole's radial index.

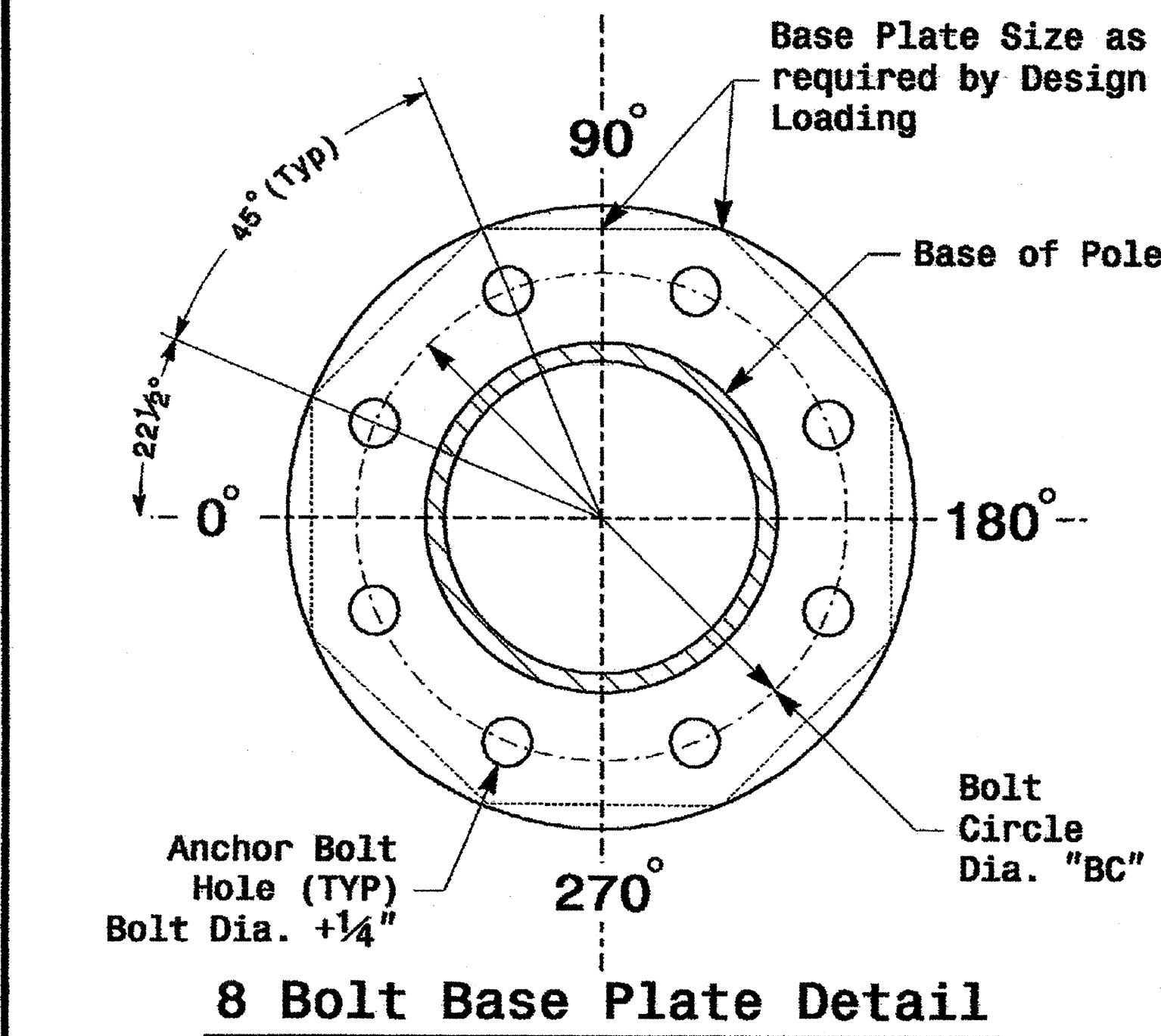
Terminal Compartment Detail



Note: See Strain Pole drawing M3 and Mast arm drawing M4 for base plate weld details.



Anchor Bolt Detail



8 Bolt Base Plate Detail

Shaft I.D. Tag (Provide on Strain Poles and Mast Arm Poles)

MFG	_____	MFG. DATE: MM/YY
SHAFT D/T/L/Y	_____	_____
ARM-A D/T/L/Y	_____	_____
ARM-B D/T/L/Y	_____	_____
A.B. DIA./B.C./L/Y	_____	_____
NCDOT STANDARD	_____	_____

Arm I.D. Tag (Provide on each section of a multi-section mast arm)

MFG	_____	MFG. DATE: MM/YY
SECTION D/T/L/Y	_____	_____
NCDOT STANDARD	_____	_____

- Notes:
- 1) D= Diameter, T= Thickness, L= Length, Y= Yield Strength
 - 2) A.B. = Anchor Bolt
 - 3) B.C. = Bolt Circle of Anchor Bolts
 - 4) If Custom Design, use "NCDOT STANDARD" line for plan pole I.D.
 - 5) See drawing M4 for mounting positions of I.D. tags.

Identification Tag Details

Prepared in the Office of:

Typical Fabrication Details Common To All Metal Poles

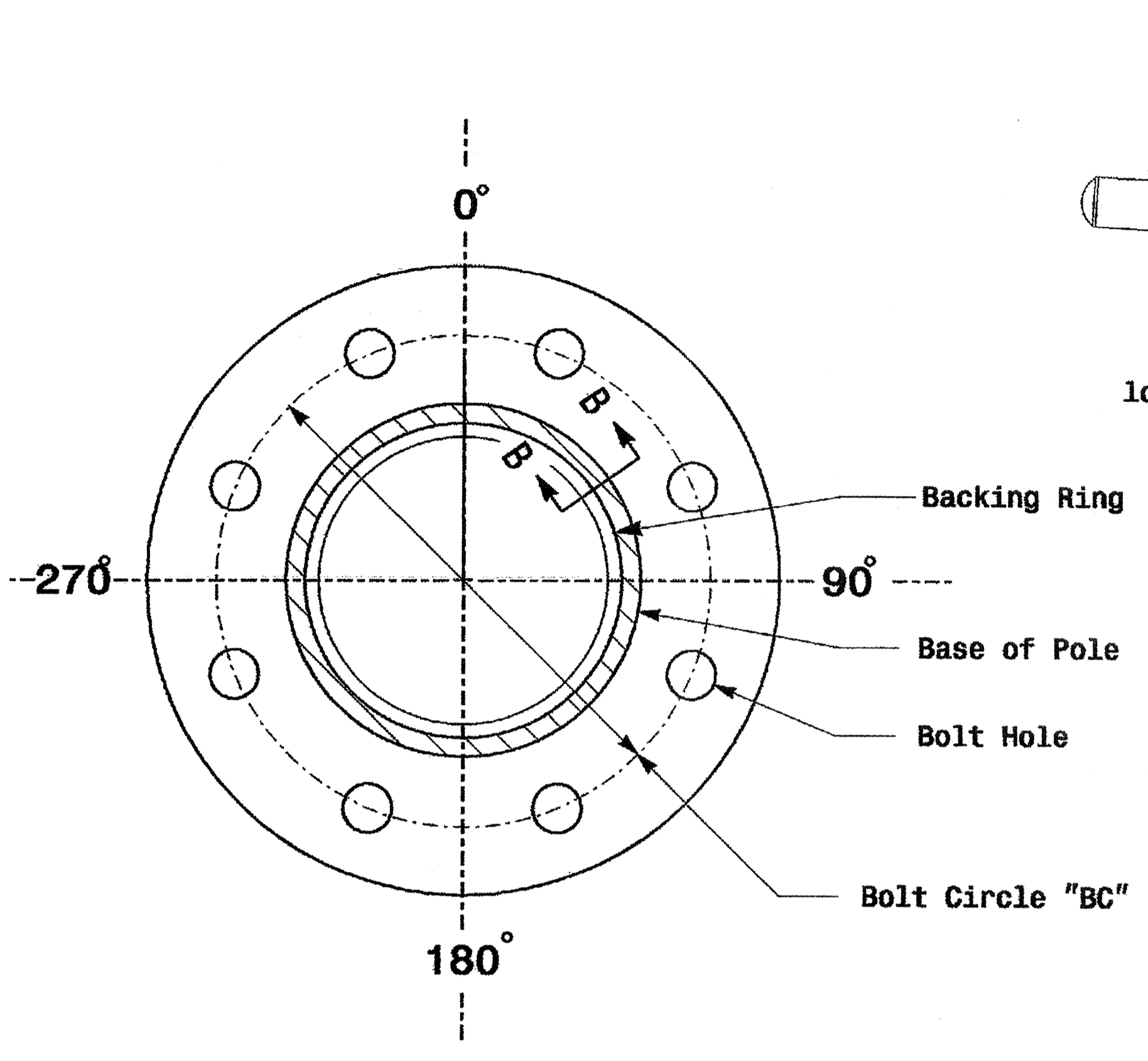
PLAN DATE: May 2005	REVIEWED BY: C.F. Andrews
PREPARED BY: P.L. Alexander	REVIEWED BY: A.W. Esposito
REVISIONS	INIT. DATE

SCALE: 0 NA NONE

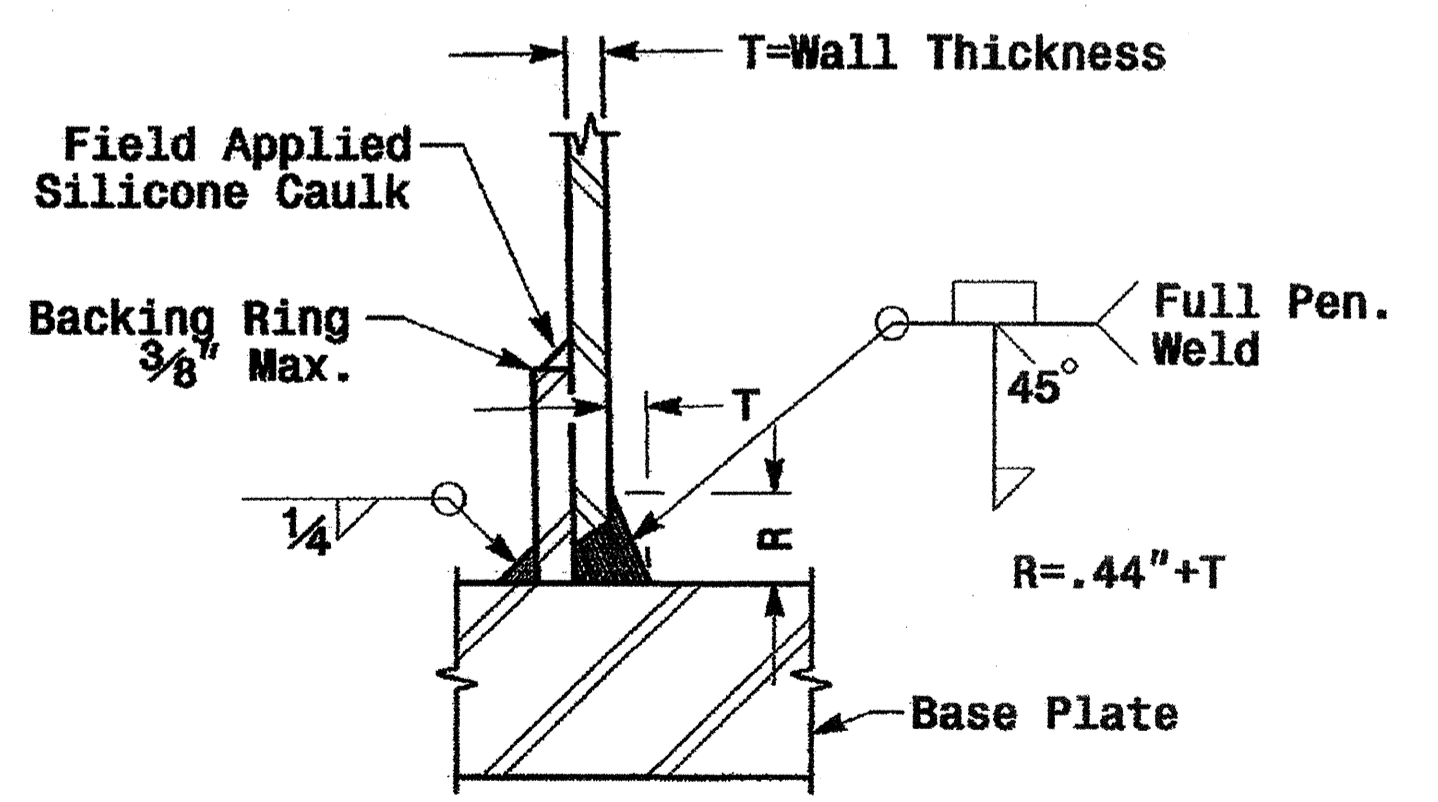
Signature: *D. Sarker* 9.2.2005
DATE: 9.2.2005
SIG. INVENTORY NO.:

Fabrication Details - All Poles

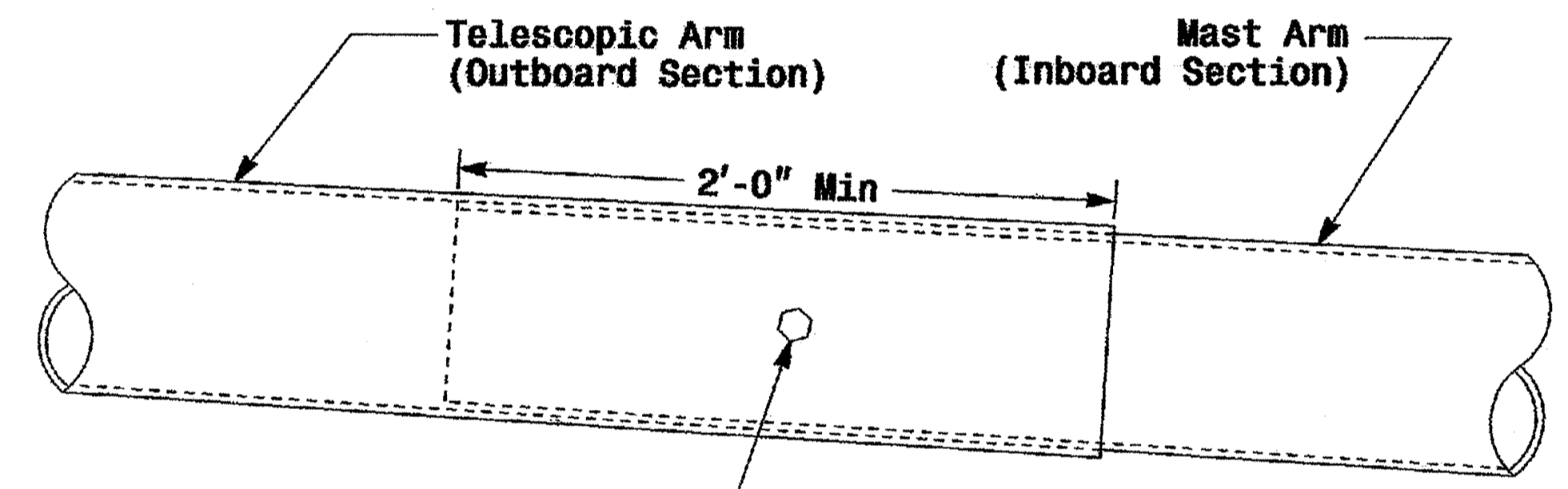
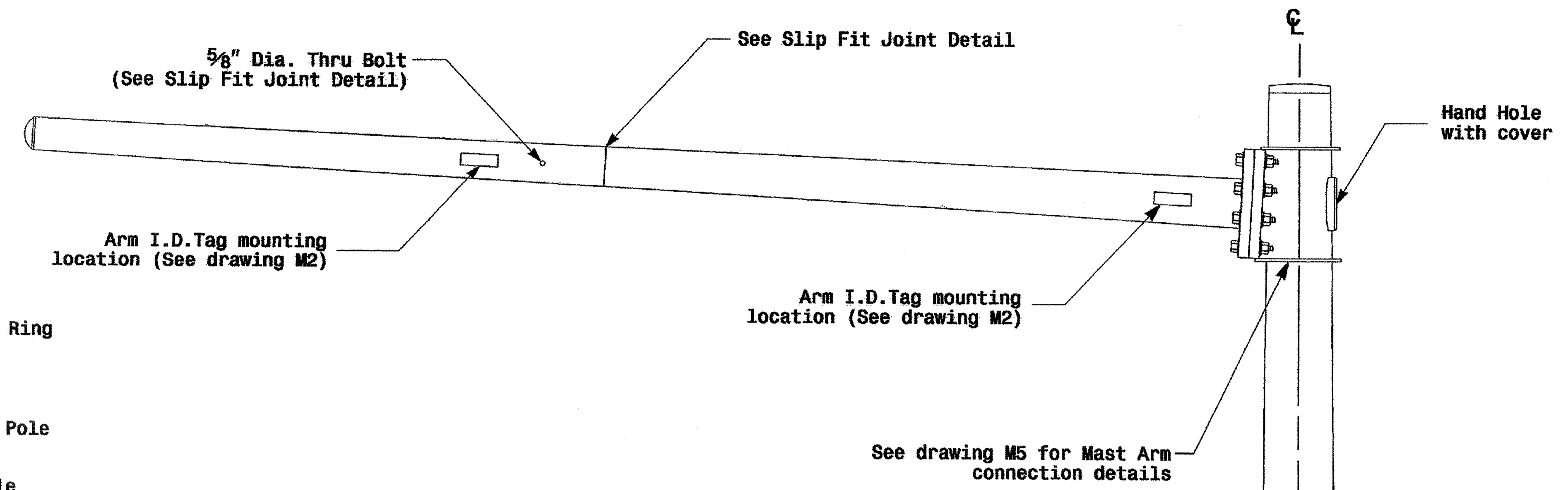
01-SEP-2005 10:22 C:\ncdot\lib\p01\p016 Stender-dwg004.rvt thrcu.mls.dgn



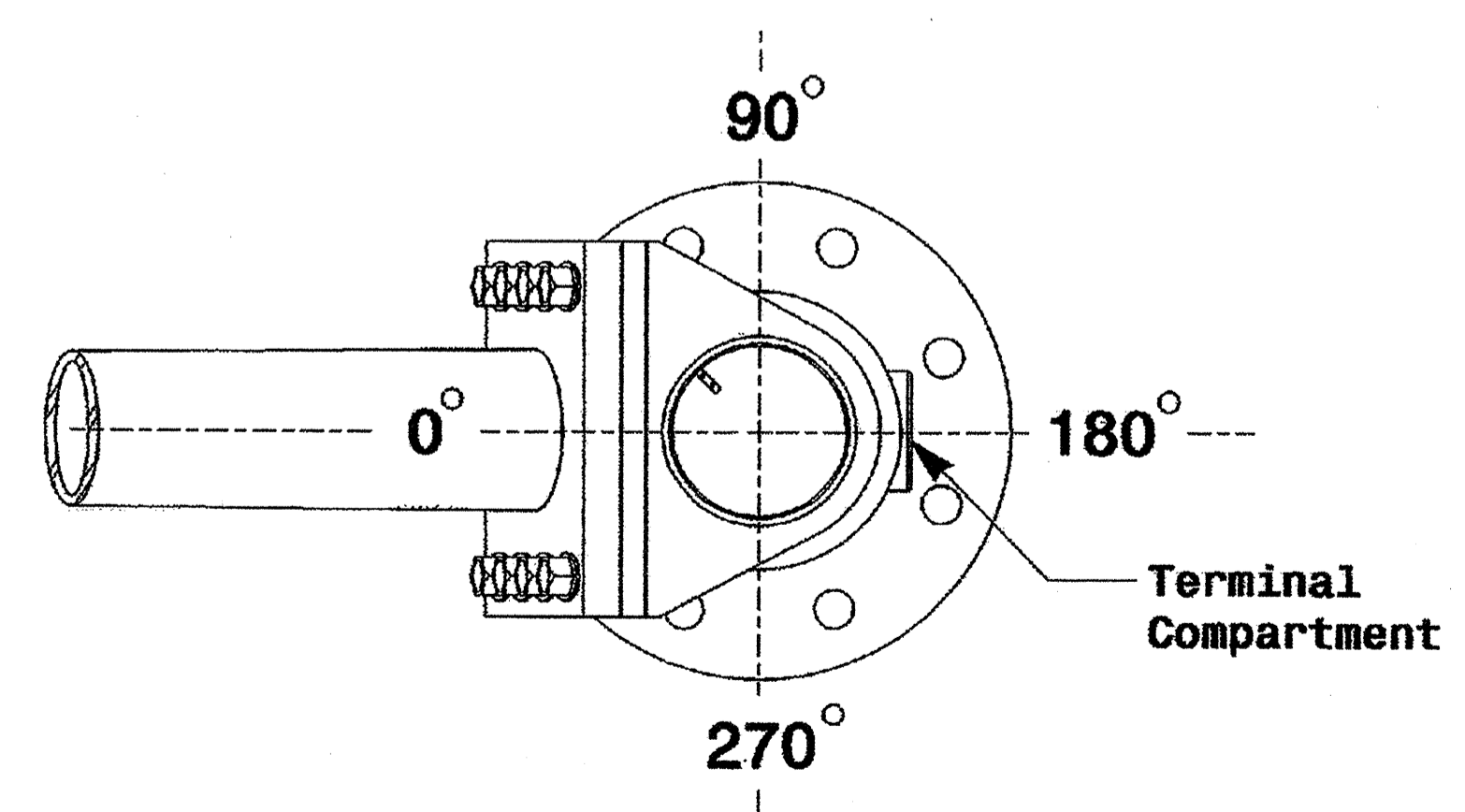
Section A-A
(See drawing M 2)
Pole Base Plate



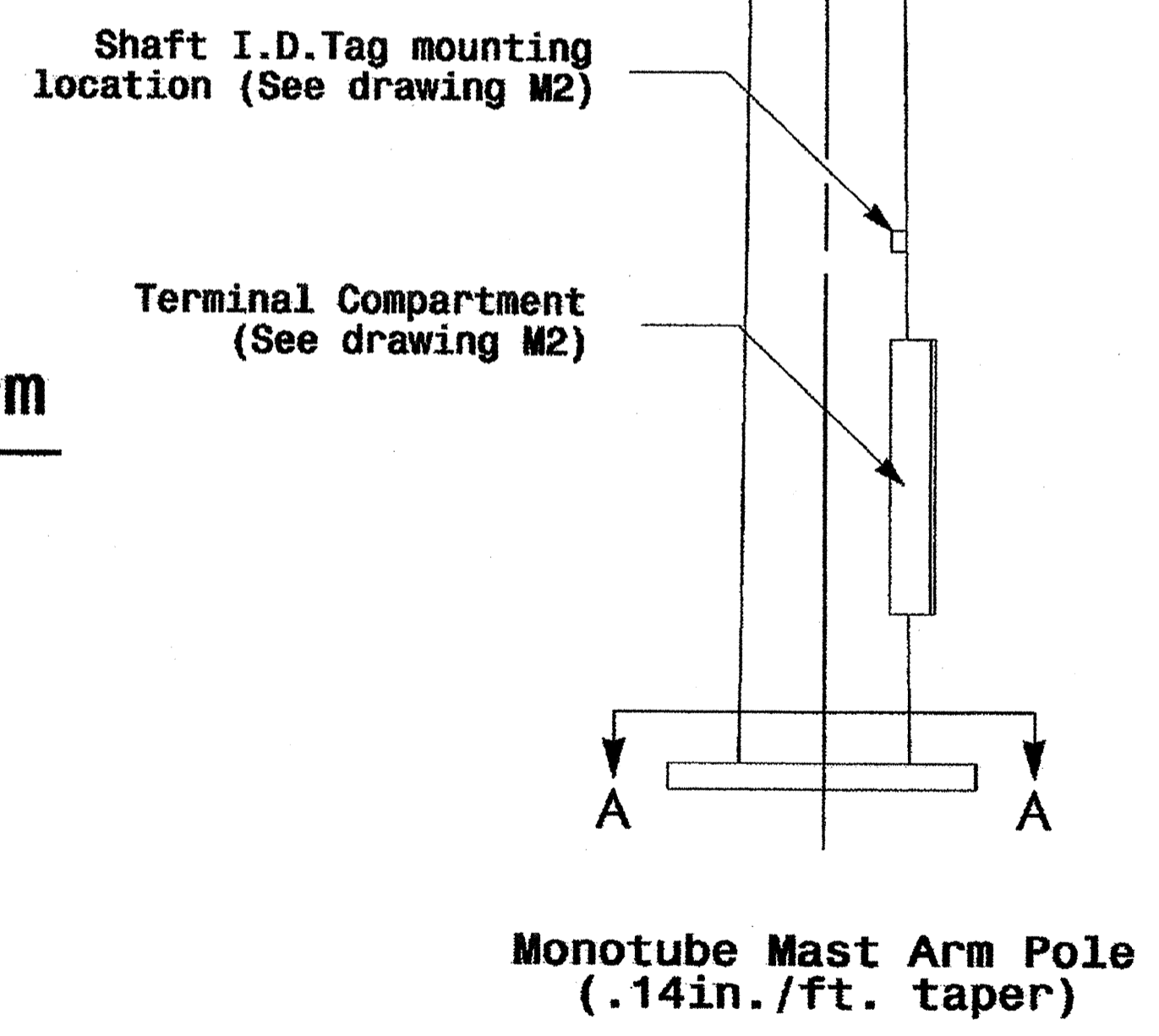
Section B-B
(Pole Attachment to Base Plate)
Full-Penetration Groove Weld Detail



3/4" Factory Drilled Hole in Outboard Tube.
Field Drill Inboard Tube.
5/8" Galvanized Thru Stud with (2) Hex. Locknuts Ea.
Slip Fit Joint Detail for Mast Arm



Mast Arm Radial Orientation



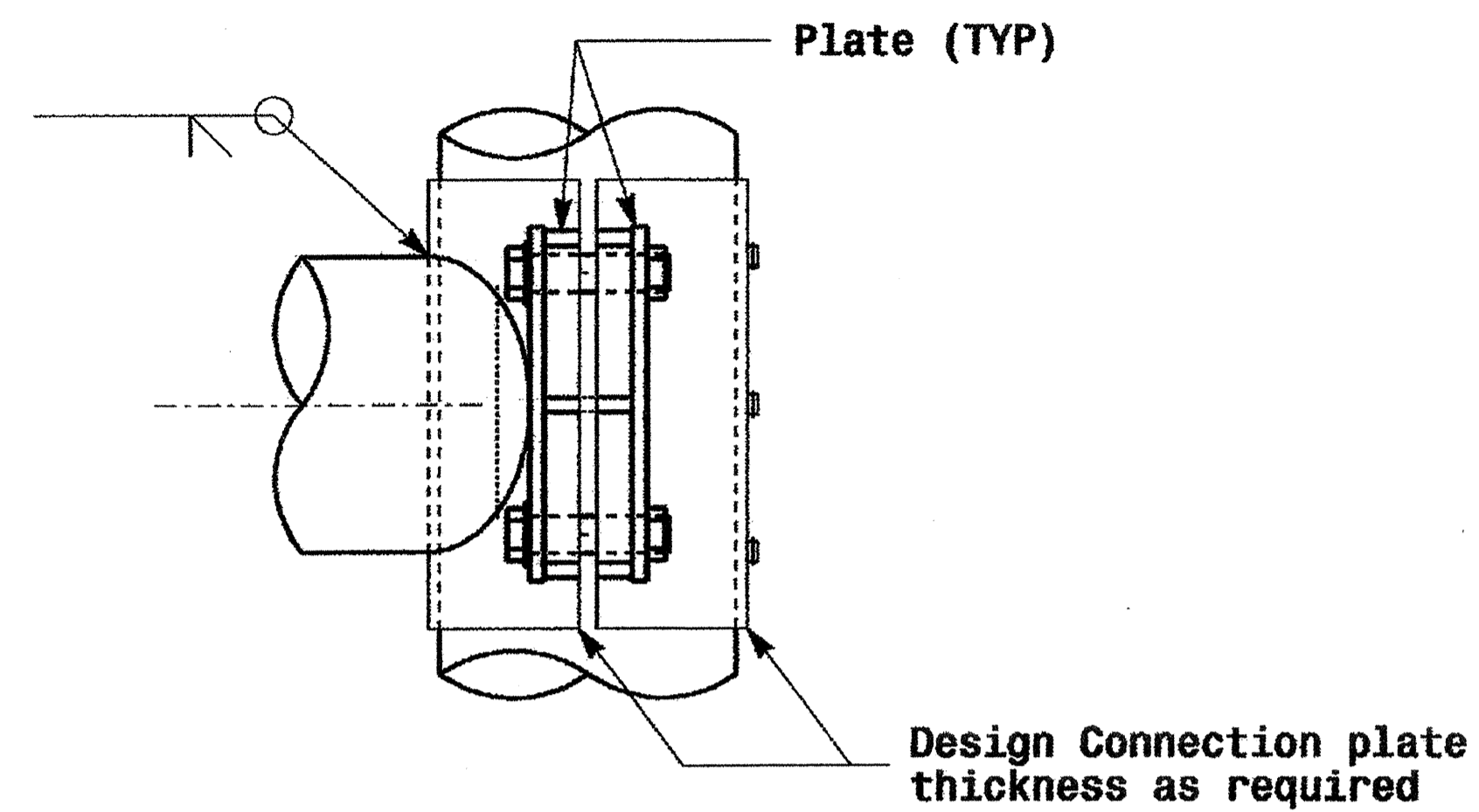
Monotube Mast Arm Pole
(.14in./ft. taper)

Fabrication Details - Mast Arm Poles

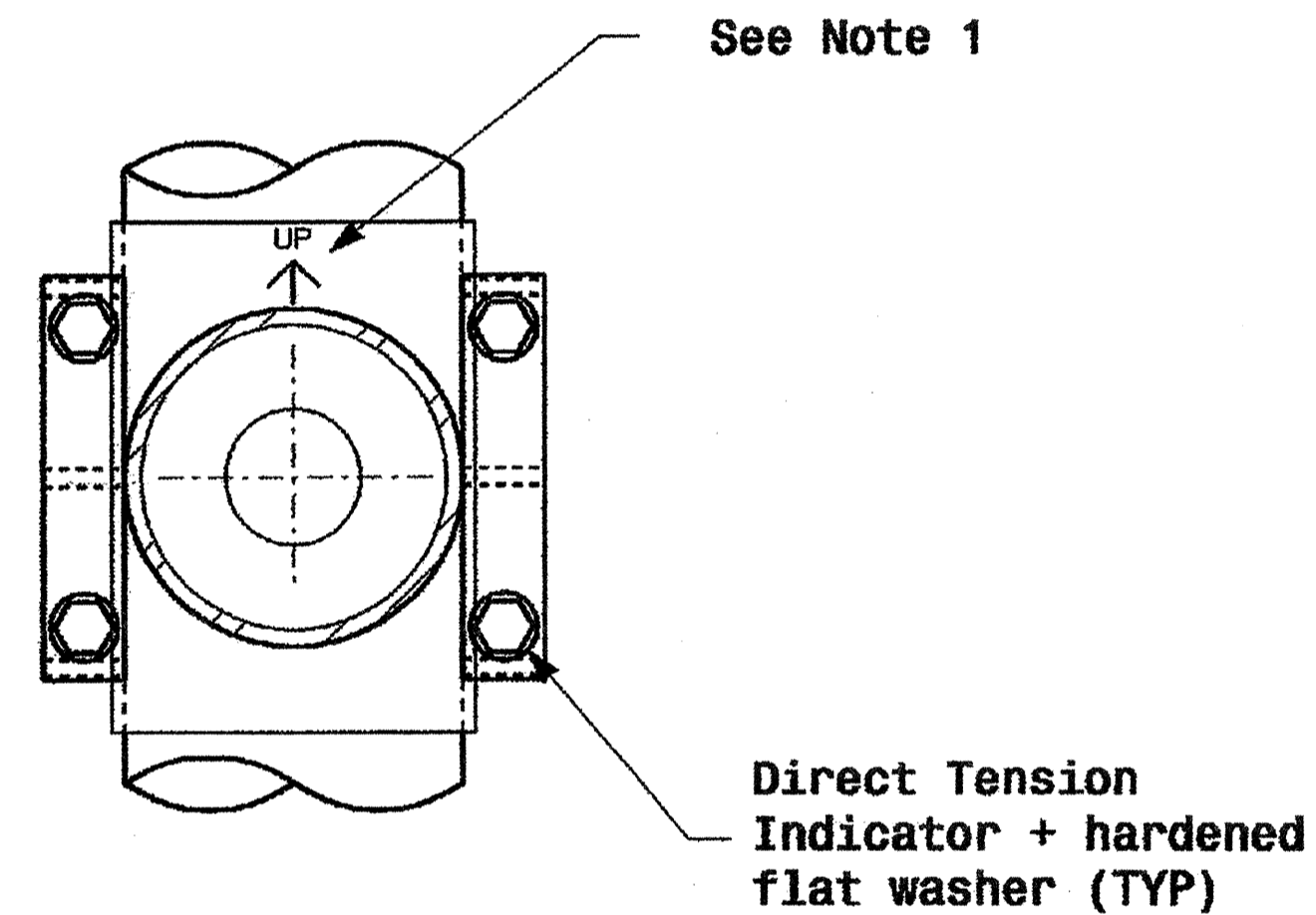
01-SEP-2005 14:08 C:\p1\mfg\kgr\p2004\m101 pole standard\2004 m1.dgn

	Typical Fabrication Details for Mast Arm Poles		
	PLAN DATE: May 2005 PREPARED BY: P.L. Alexander	REVIEWED BY: C.F. Andrews REVIEWED BY: A.M. Esposito		SCALE: NA NONE
REVISIONS:		INIT. DATE	SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028094 A. M. Esposito 9.2.2005 SIGNATURE DATE SIG. INVENTORY NO.

Adjustable Clamp Type Bolted Mast Arm Connection

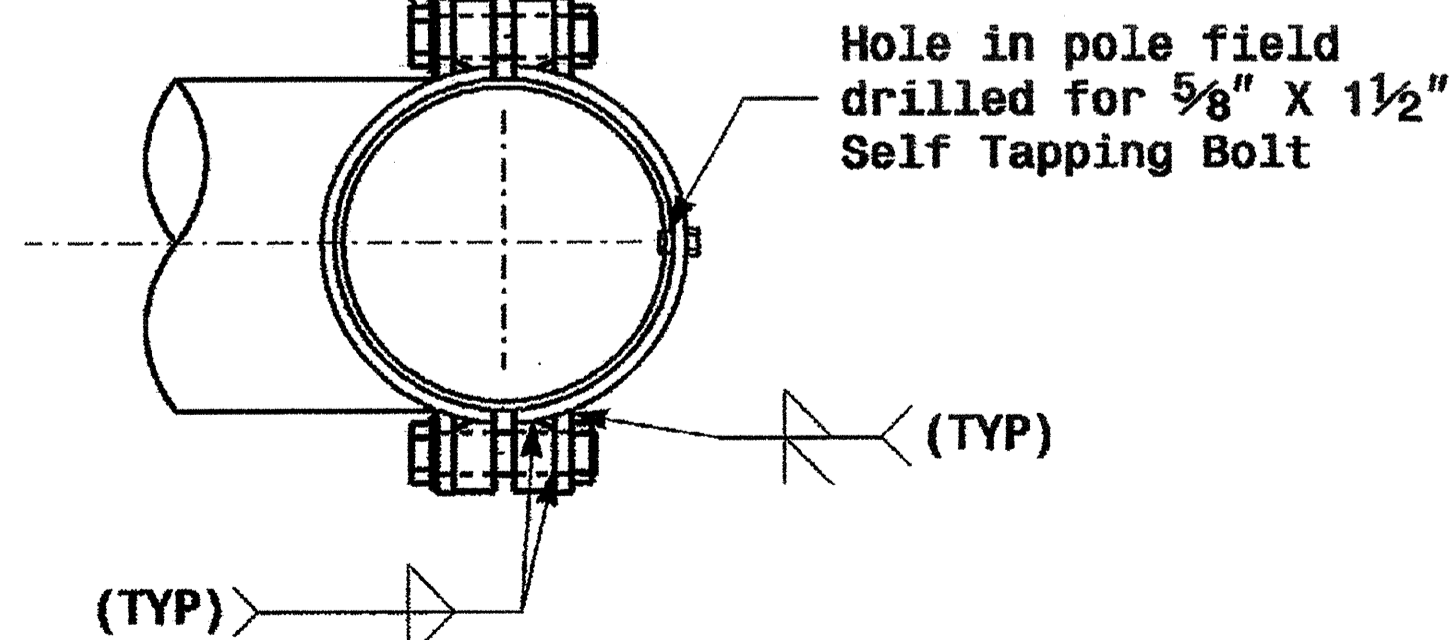


Side Elevation View



Front Elevation View

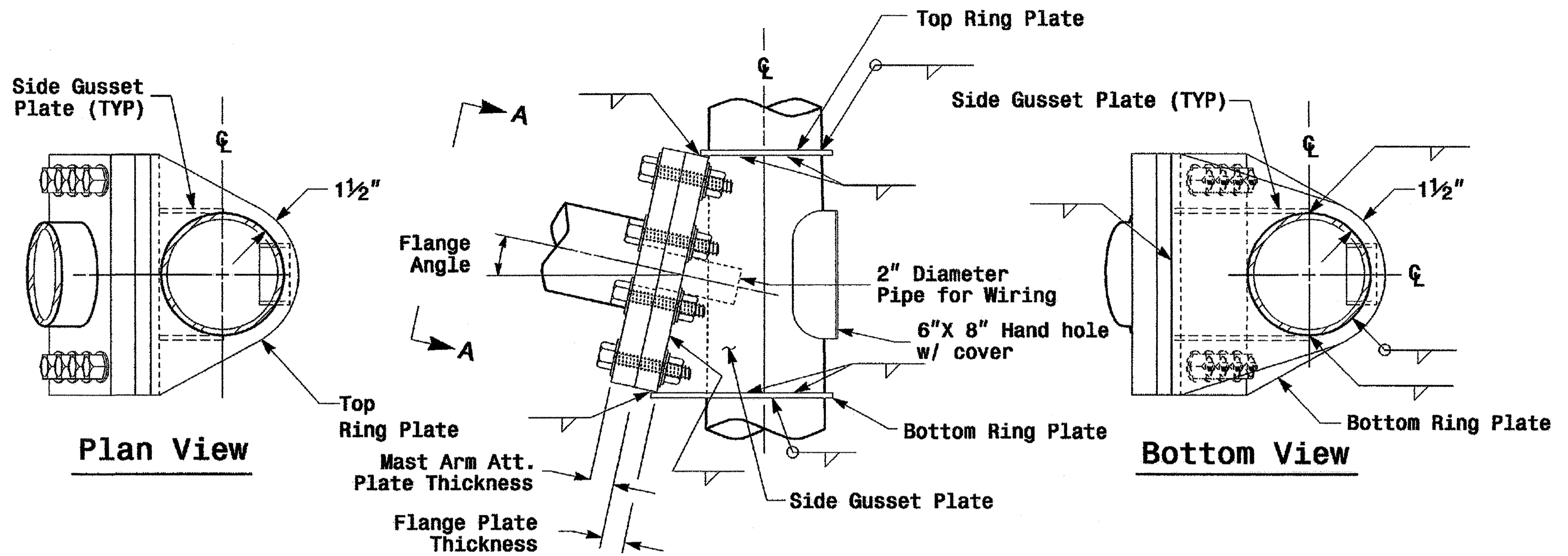
(4) - Size "E" Hex Head Bolts with (1) Hex Nuts & Washers



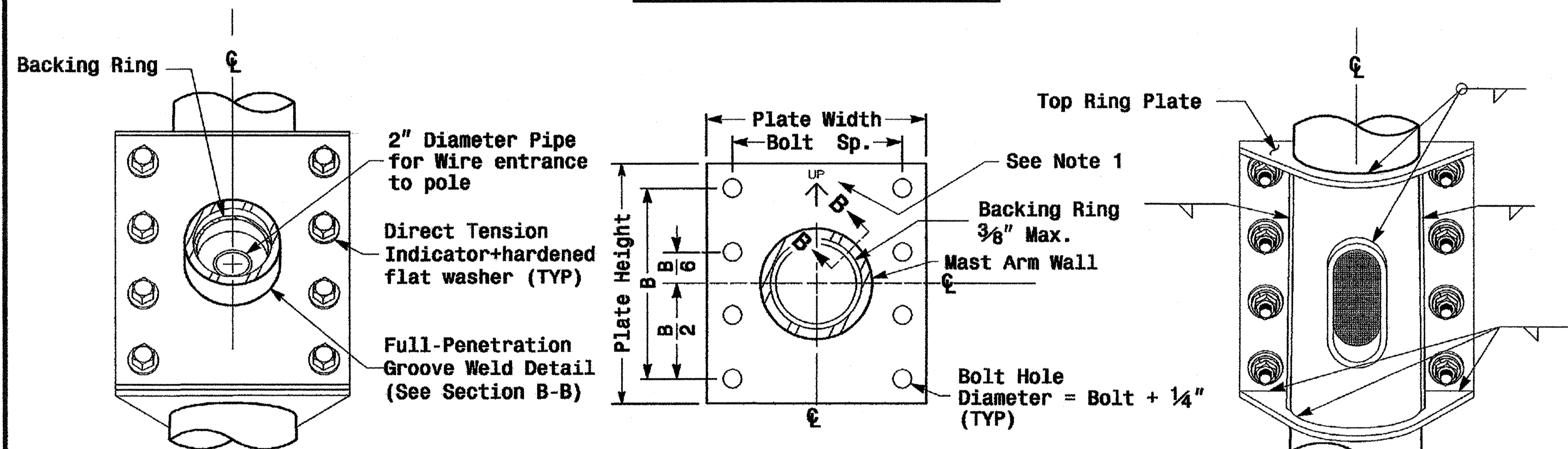
Plan View

Welded Ring Stiffened Mast Arm Connection

PROJECT REFERENCE NO. U-2702 SHEET NO. Sig.19 M 5



Side Elevation View

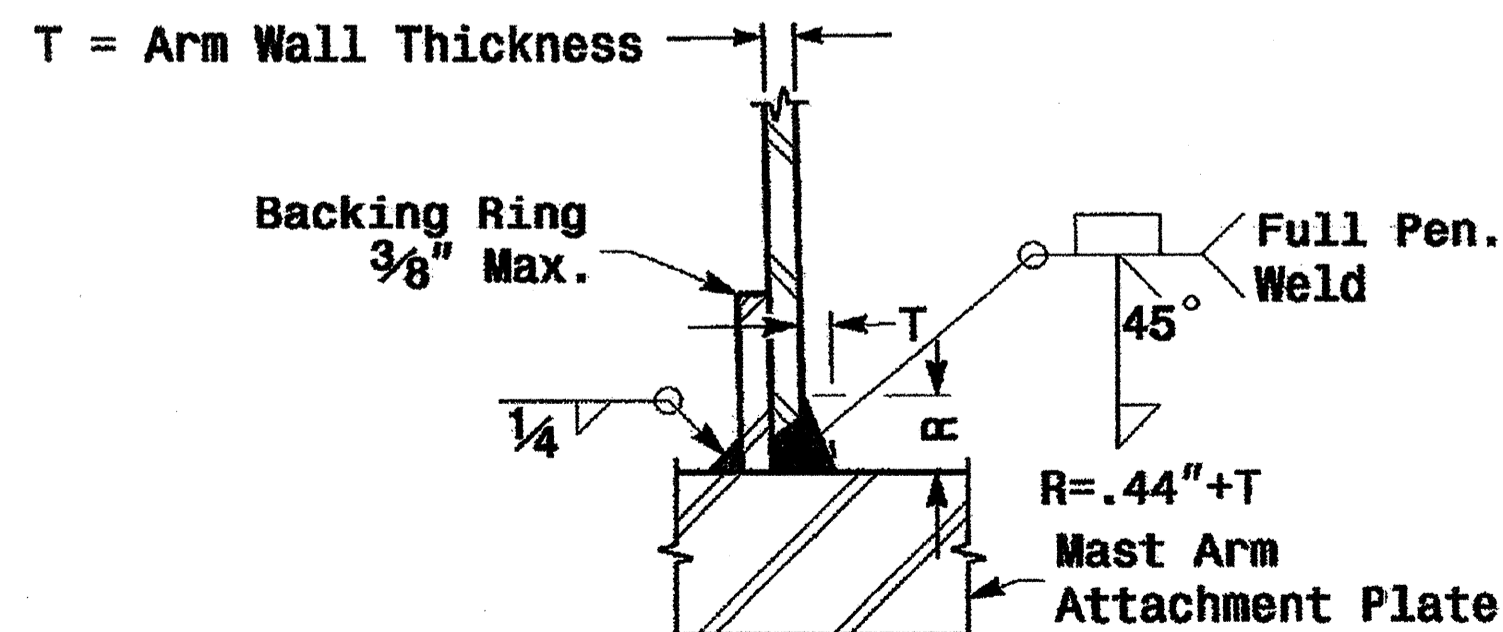


Front Elevation View

Section View A-A

Mast Arm Attachment Plate

Back Elevation View



Section B-B

Full-Penetration Groove Weld Detail

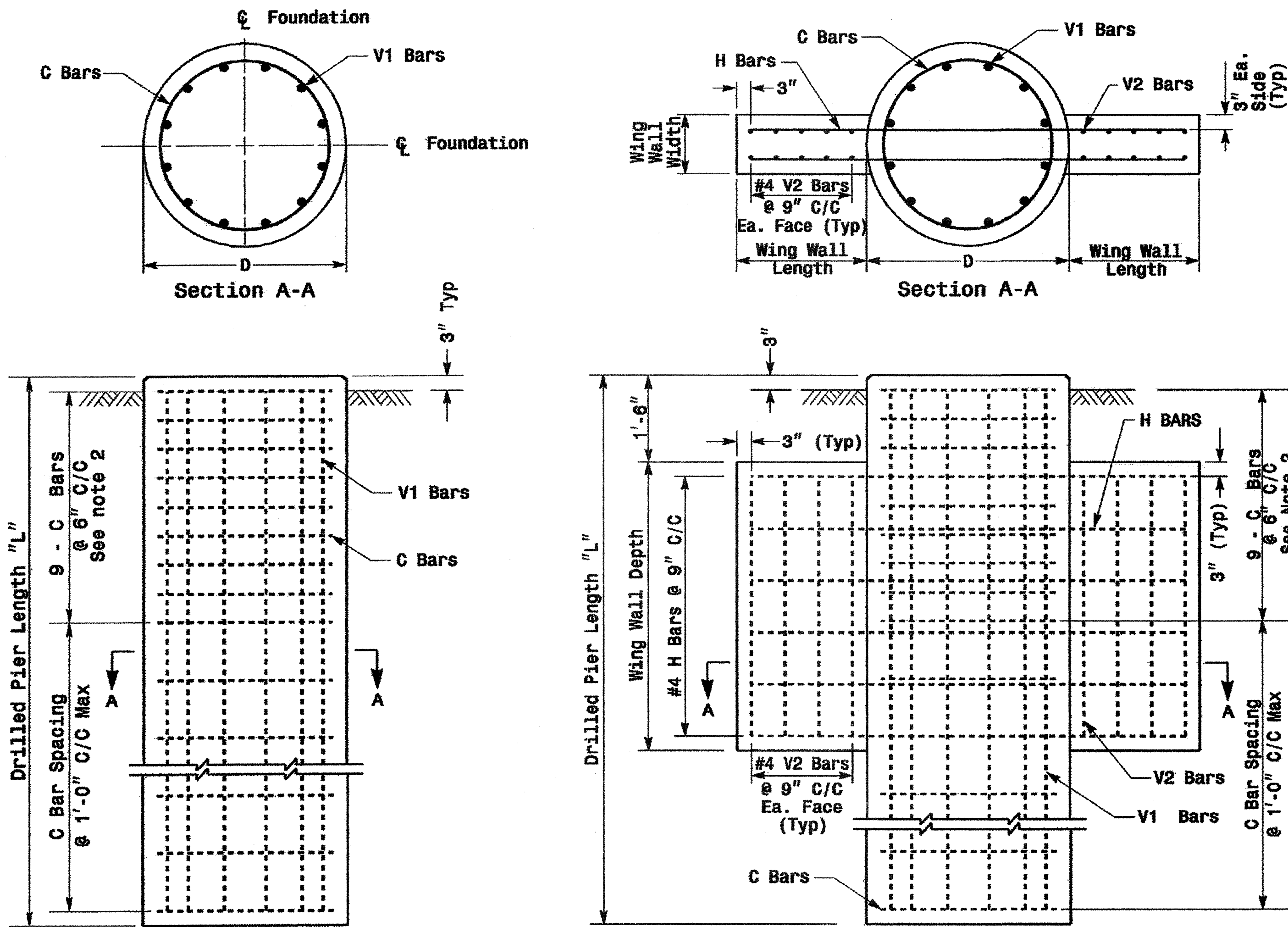
Notes:

1. Provide a permanent means of identification above the mast arm to indicate proper attachment orientation of the mast arm.
2. Designer will determine the size of all structural components, plates, fasteners, and welds shown unless they are already specified.
3. Designer is responsible for providing appropriate drainage points.

	Fabrication Details For Mast Arm Connection To Pole		
	PLAN DATE: May 2005	REVIEWED BY: C.F. Andrews		SIGNATURE: D. Sarker
PREPARED BY: P.L. Alexander	REVIEWED BY: A.M. Esposito	DATE: 9.2.2005	SIG. INVENTORY NO.
SCALE: 0 NA NONE	REVISIONS:	INIT. DATE:	DATE:

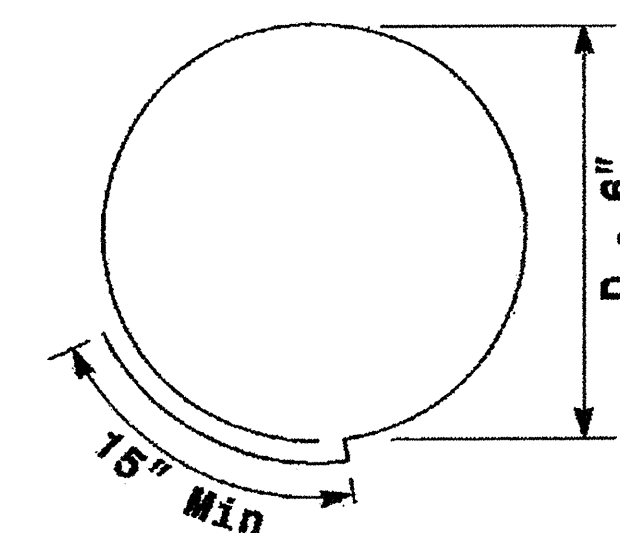
Fabrication Details - Mast Arm Poles

Reinforcing Steel Bars



REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (42" & 48" DIAMETER)						
Shaft Dia. (in.)	Conc. Volume (cu. yds.)	Bar Name	No.	Size	Type	Length
42"	.356 x L	V1	9	#8	STR.	**
		C	*	#4	CIR.	10'-9"
48"	.465 x L	V1	12	#8	STR.	**
		C	*	#4	CIR.	12'-6"

* See Note No. 1
** See Note No. 3



Typical "C" Bars

REINFORCING STEEL TABLE FOR STANDARD 42" and 48" DRILL PIER SHAFT WITH TYPE 1 AND TYPE 2 WING WALLS							
Wing Wall Type	Drill Pier Shaft Dia. (in.)	Reinforcing Steel					
		Bar Name	No.	Size	Type	Length	
TYPE 1	42"	V1	9	#8	STR.	**	
		V2	12	#4	STR.	2'-6"	
		H	8	#4	STR.	6'-0"	
		C	*	#4	CIR.	10'-9"	
TYPE 2	42"	V1	9	#8	STR.	**	
		V2	16	#4	STR.	4'-6"	
		H	12	#4	STR.	9'-0"	
		C	*	#4	CIR.	10'-9"	
TYPE 2	48"	V1	12	#8	STR.	**	
		V2	16	#4	STR.	4'-6"	
		H	12	#4	STR.	9'-6"	
		C	*	#4	CIR.	12'-6"	

* See Note No. 1
** See Note No. 3

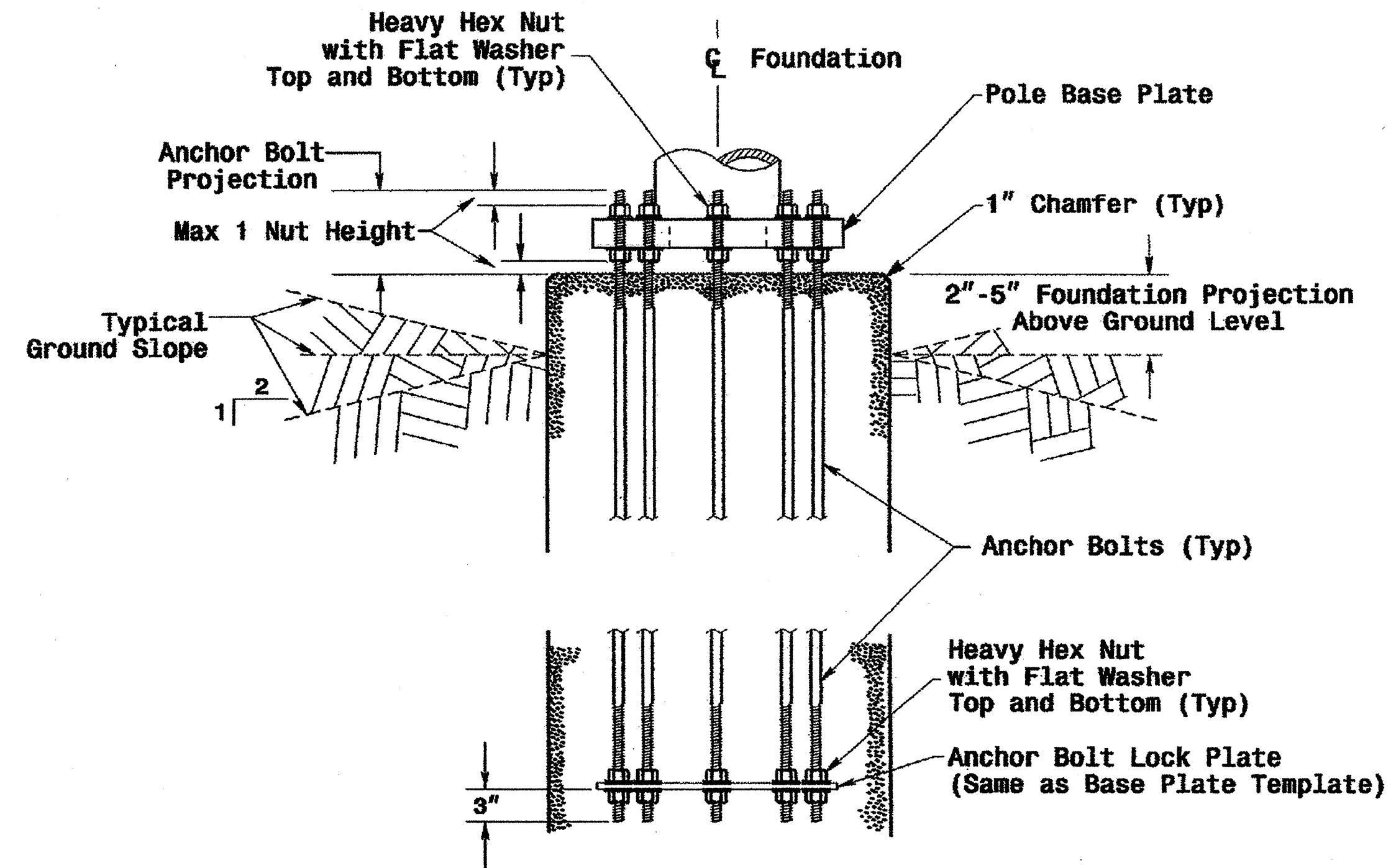
WING WALL DETAILS				
Wing Wall Type	Wing Wall Length (Ft.)	Wing Wall Width (Ft.)	Wing Wall Depth (Ft.)	Concrete Volume (Cu. Yds.)
TYPE 1	1'-6"	1'-0"	3'-0"	.4
TYPE 2	3'-0"	1'-0"	5'-0"	1.2

See Note No. 4

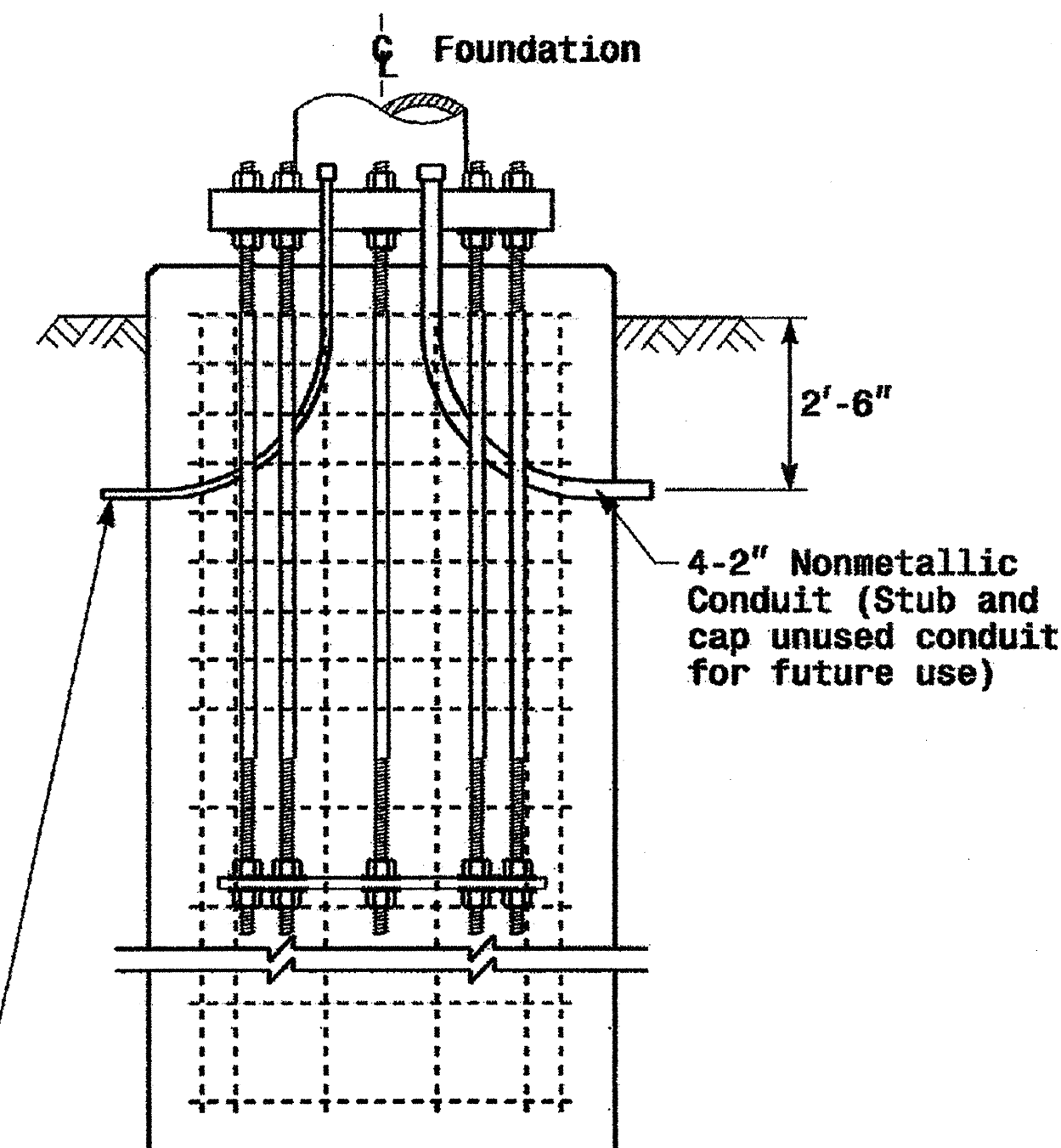
Typical Foundation Anchor Bolt Details

(Reinforcing Cage Not Shown for Clarity)

PROJECT REFERENCE NO. U-2702
SHEET NO. Sig.20 M 7



Typical Foundation Conduit Details



Notes

- The number of C-bars is based on foundation depth. For standard foundations, see sheet M 8.
- Circular tie reinforcing rings may be vertically adjusted by +/- 3" at a depth between 2'-0" and 3'-0" to facilitate the installation of electrical conduit entering in the cage.
- The length of V1-bars is based on foundation depth. For standard foundations, see sheet M 8.
- The quantities for steel and concrete shown in the Wing Wall Details Chart reflect the amount of material for 1 pair of wing walls (2 wing walls per drilled pier shaft.)

Construction Details - Foundations

Prepared in the Office of:

 122 N. McDowell St., Raleigh, NC 27603

Construction Details Foundations

PLAN DATE: May 2005
 PREPARED BY: C.F. ANDREWS
 SCALE: 0 NA NONE

REVIEWED BY: P.L. ALEXANDER
 REVIEWED BY: A.W. ESPOSITO
 REVISIONS: _____

SEAL

 D. Sarkar 9.2.2005
 SIGNATURE DATE
 SIG. INVENTORY NO.

- 1 INSTALL REA, PE - 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL REA, PE - 38, (FIGURE 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 3 INSTALL REA, PE - 39, (UNDERGROUND) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL MMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 9 INSTALL PVC CONDUIT
- 10 INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12 INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 27 INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPlice CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPlice ENCLOSURE
- 30 INSTALL AERIAL SPlice ENCLOSURE
- 31 INSTALL POLE MOUNTED SPlice CABINET
- 32 INSTALL BASE MOUNTED SPlice CABINET
- 33 REMOVE EXISTING SPlice CABINET

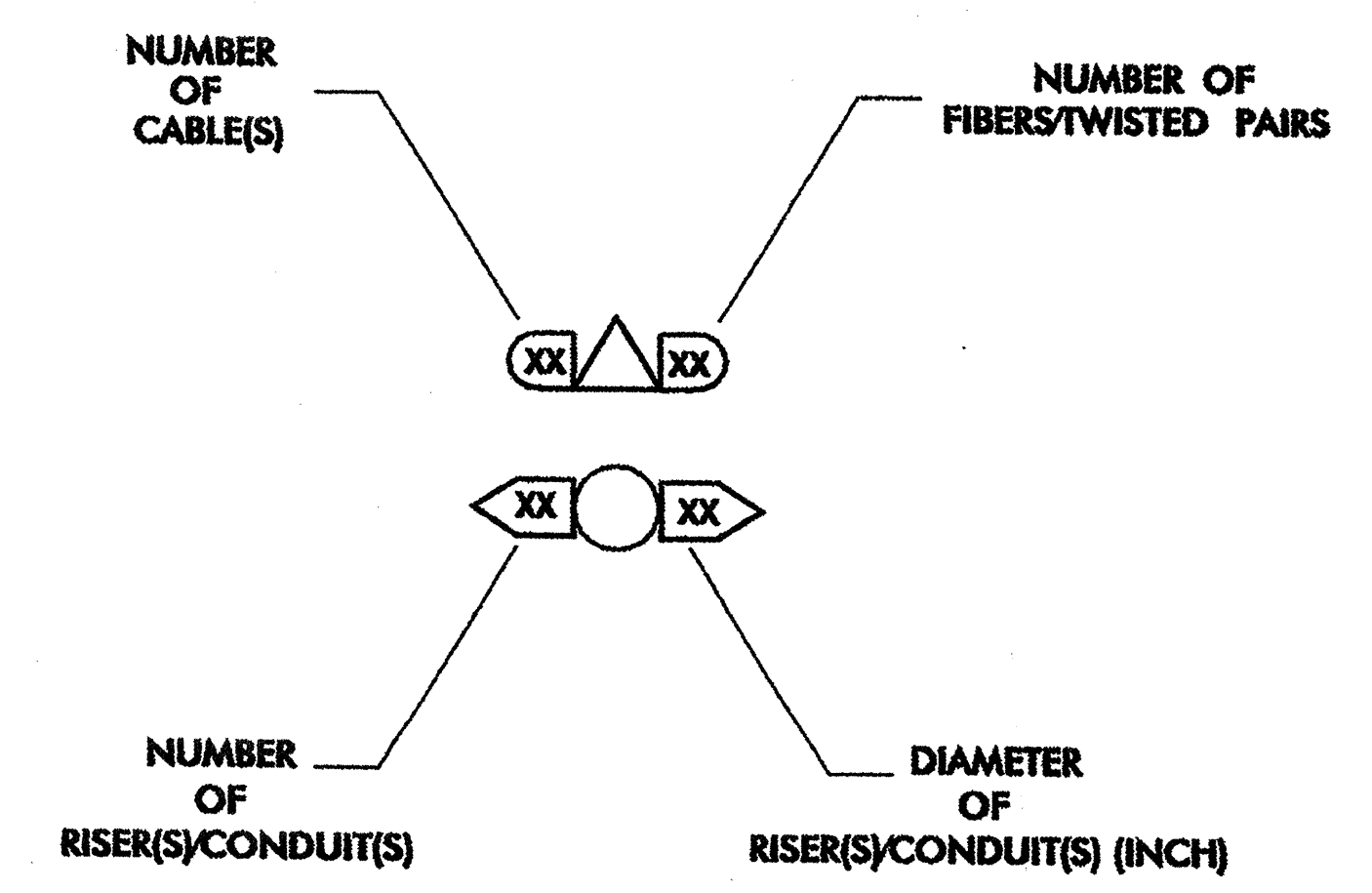
- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 49 REMOVE EXISTING MESSENGER CABLE
- 50 INSTALL TELEPHONE SERVICE
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 20 FEET OF COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE

LEGEND

- FO NEW FIBER OPTIC COMMUNICATIONS CABLE
- TWIST PR NEW TWISTED PAIR COMMUNICATIONS CABLE
- EXI EXISTING COMMUNICATIONS CABLE
- REM EXISTING COMMUNICATIONS CABLE TO BE REMOVED
- NEW AERIAL GUY ASSEMBLY
- NEW CONDUIT
- EXISTING CONDUIT
- DD NEW DIRECTIONAL DRILLED CONDUIT
- B&J NEW BORED AND JACKED CONDUIT
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- AERIAL SPlice ENCLOSURE
- NEW METAL POLE
- EXISTING METAL POLE
- NEW CCTV ASSEMBLY
- NEW STANDARD GUY ASSEMBLY
- NEW SIDEWALK GUY ASSEMBLY
- NEW CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CONTROLLER AND CABINET
- EXISTING SPlice CABINET
- NEW SPlice CABINET
- SP SIGNAL POLE
- XX-XXXX SIGNAL INVENTORY NUMBER

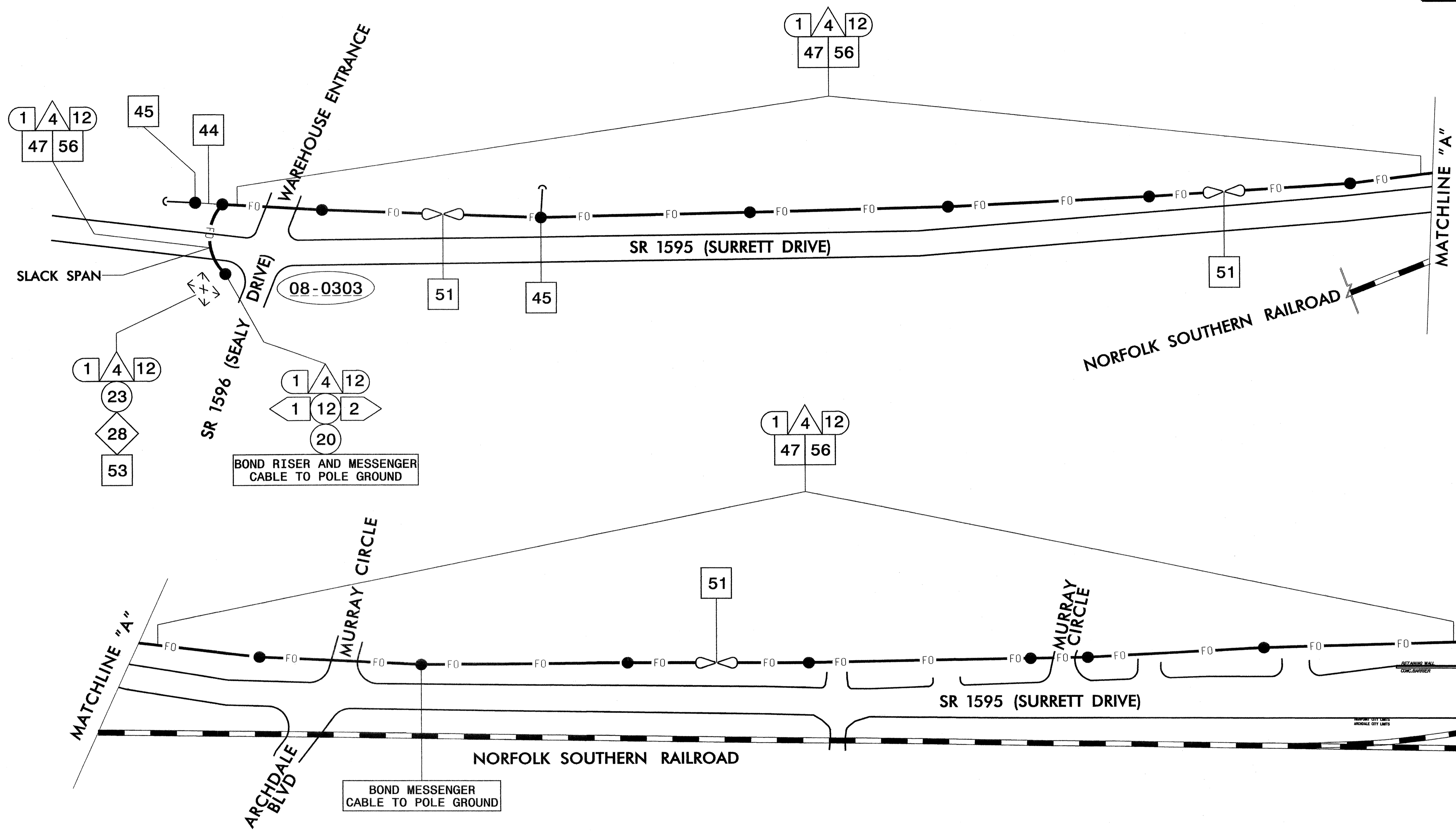
CONSTRUCTION NOTE SYMBOLOGY KEY

- XX INDICATES NUMBER OF CABLES, LOOPS, ETC.
- XX INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- XX INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- XX INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)



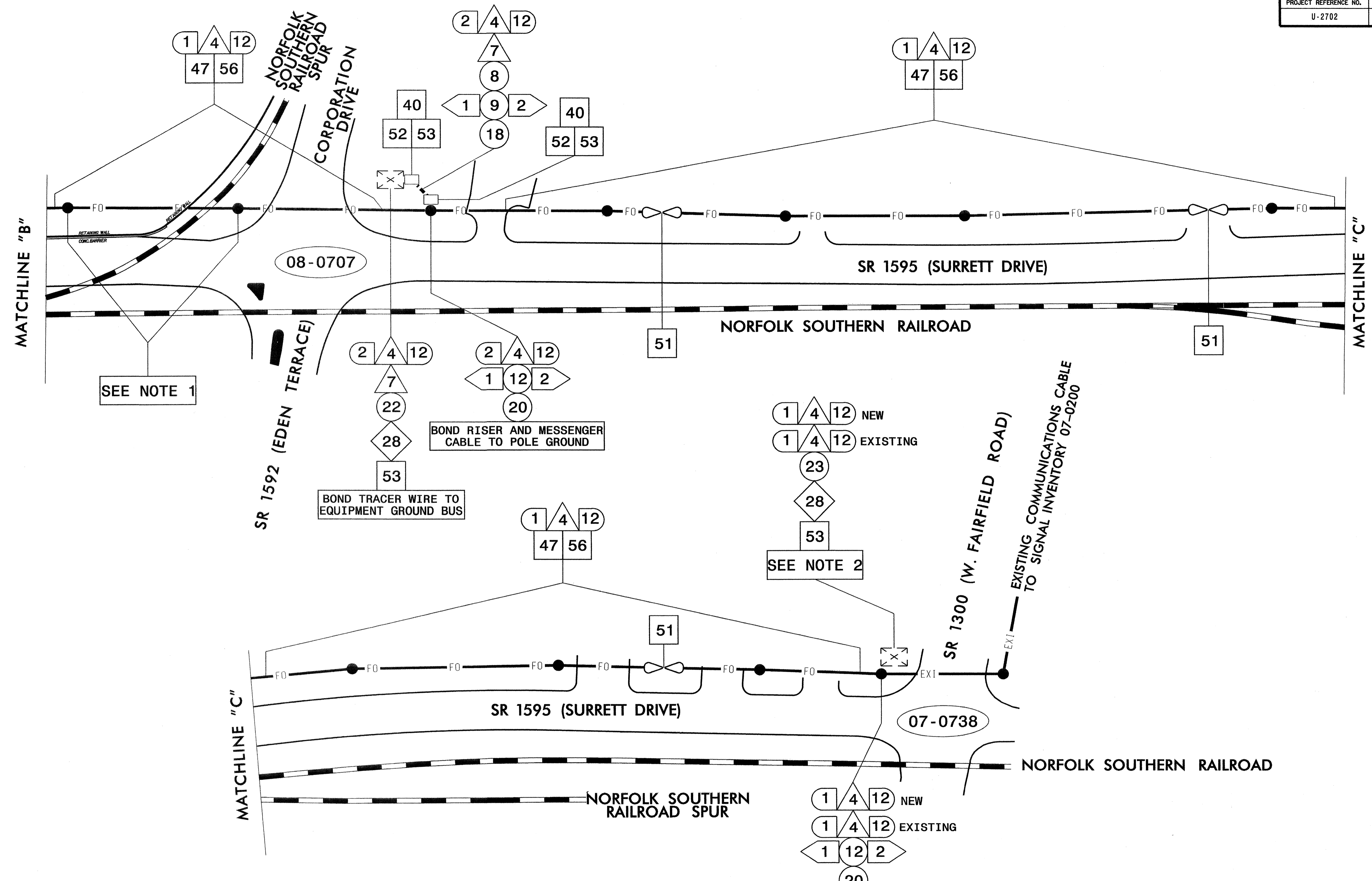
<p>222 N. McDowell St., Raleigh, NC 27603</p>	CONSTRUCTION NOTES		SEAL 							
	PLAN DATE: _____ PREPARED BY: _____ SCALE: _____	REVIEWED BY: _____ REVIEWED BY: G. A. FULLER DATE: _____		REVISIONS <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	INIT.	DATE		
NO.	DATE	INIT.	DATE							

10/31/02
 DATE
 CADD FILED



ALL NCDOT ATTACHMENT POINTS ARE 12" BELOW PHONE, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG SR 1595 (SURRETT DR.) DIV. 08 RANDOLPH/GUILFORD CO. ARCHDALE/HIGH POINT		
	PLAN DATE: FEBRUARY 2008 PREPARED BY: S.C. WARDLE SCALE: 0	REVIEWED BY: I.N. AVERY REVIEWED BY: G.G. MURR, JR.	



NOTES:

1. ENSURE THAT 30 FEET OF CLEARANCE IS MAINTAINED OVER RAILROAD SPUR.
2. REMOVE EXISTING FIBER FROM EXISTING SIGNAL CABINET AND REINSTALL IN NEW SIGNAL CABINET. INSTALL NEW 12 FIBER CABLE AND NEW TRANSCEIVER.

ALL NCDOT ATTACHMENT POINTS ARE 12" BELOW PHONE, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

SEE NOTE 2
BOND RISER AND MESSENGER CABLE TO POLE GROUND

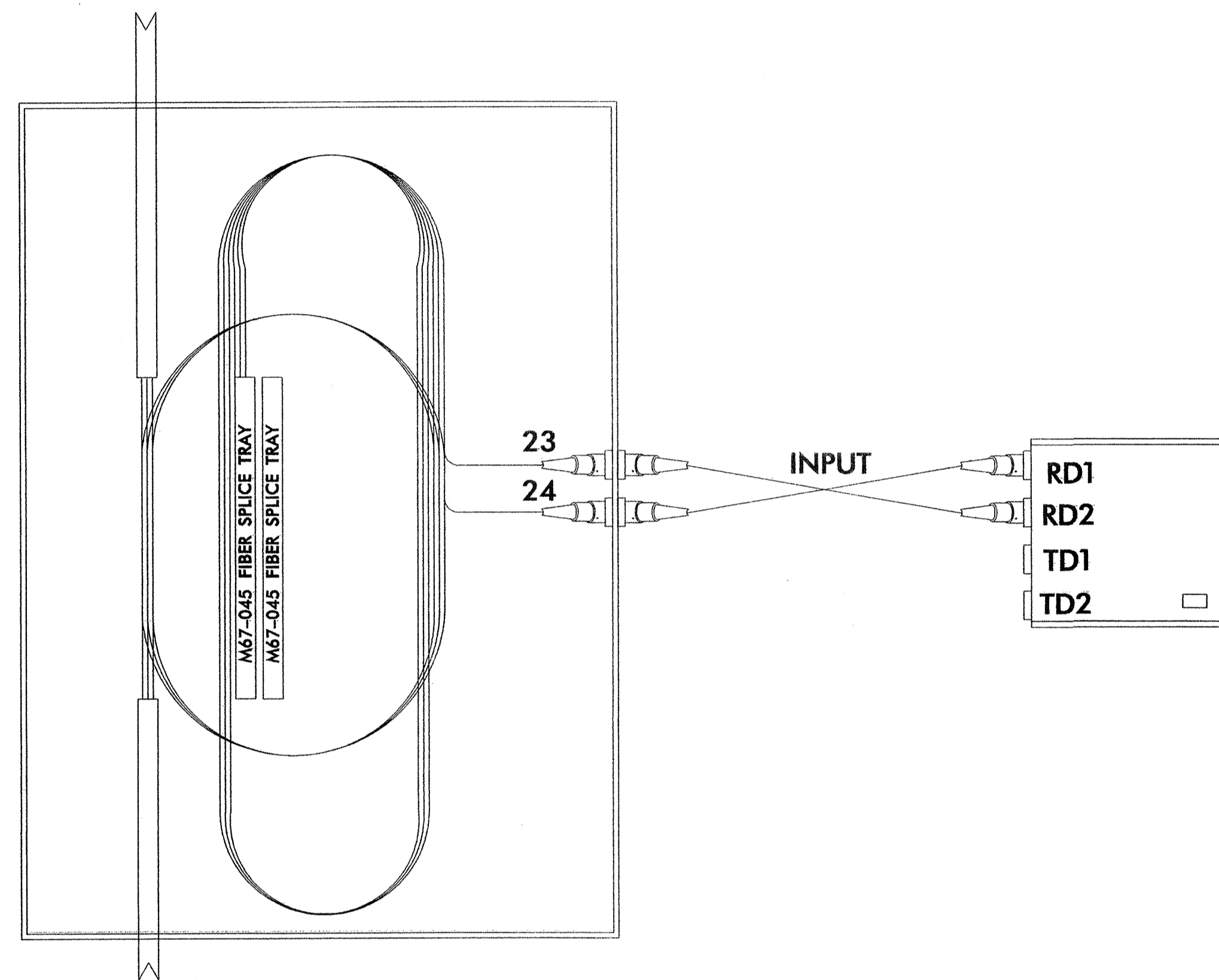
	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG SR 1595 (SURRETT DR.)		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER GENE G. MURR, JR. 14543 2-4-08
	DIV. 08 RANDOLPH/GUILFORD CO. ARCHDALE/HIGH POINT PLAN DATE: FEBRUARY 2008 REVIEWED BY: I. N. AVERY PREPARED BY: S. G. WARDLE REVIEWED BY: G. G. MURR, JR.	REVISIONS INIT. DATE	

SYSTEM ID # 03-07
 SR 1595 (SURRETT DRIVE) AT
 SR 1596 (SEALEY DRIVE)
 SIG. INV. # 08-0303

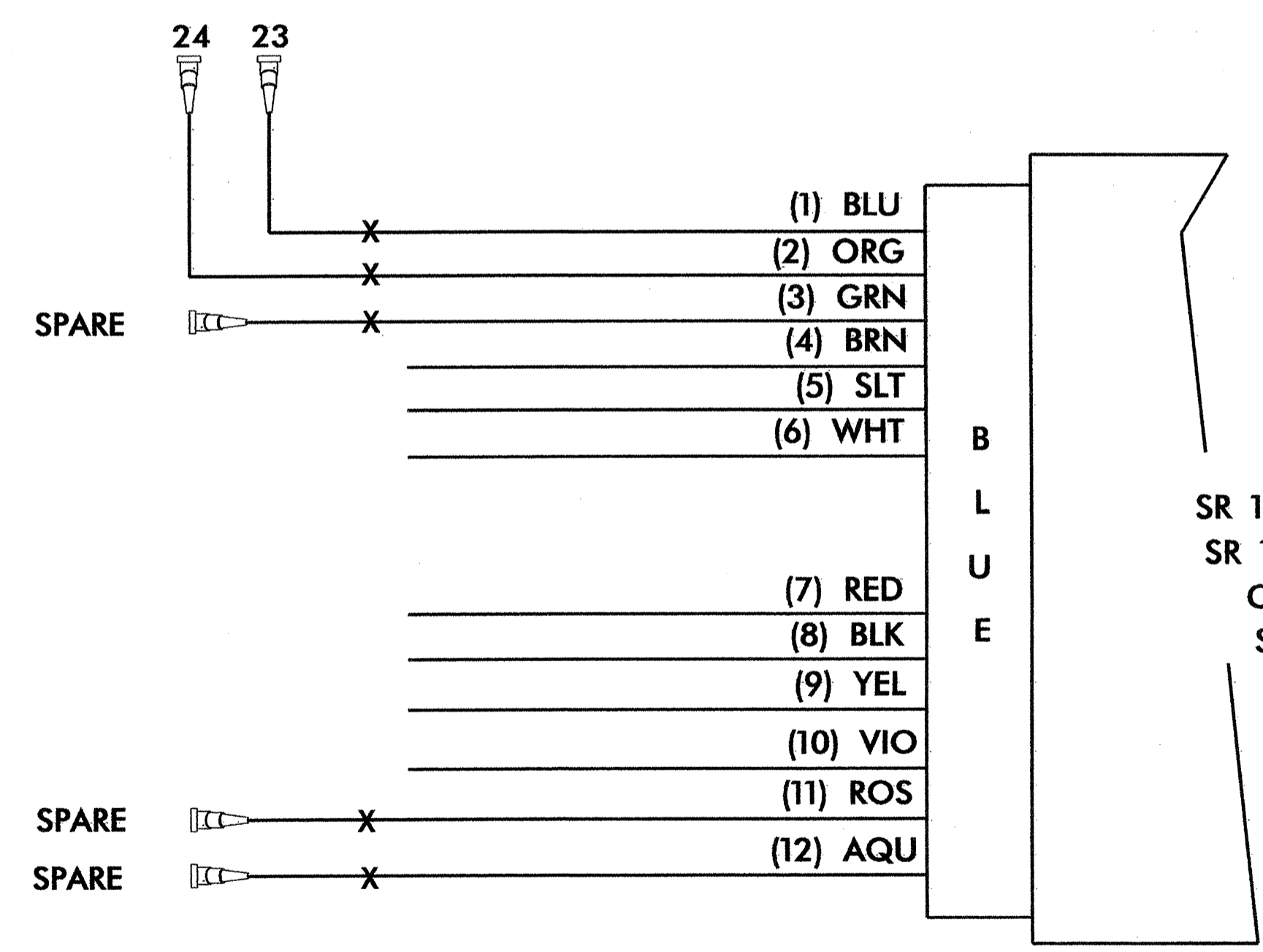
LEGEND
 X = FUSION SPLICE

COLOR CODE
 TIA/EIA 598-A

- (1) BLUE
- (2) ORANGE
- (3) GREEN
- (4) BROWN
- (5) SLATE
- (6) WHITE
- (7) RED
- (8) BLACK
- (9) YELLOW
- (10) VIOLET
- (11) ROSE
- (12) AQUA



SPLICE TO BULKHEAD



TO
 SR 1595 (SURRETT DRIVE) AT
 SR 1595 (EDEN TERRACE)/
 CORPORATION DRIVE
 SIG. INV. # 08-0707
 SYSTEM I.D. #03-06

FURNISH NEW OPTELECOM FIBER OPTIC MODEM,
 PART NUMBER 4132A-LD-ST PS (POWER
 SUPPLY), OR AN APPROVED EQUIVALENT FOR
 SYSTEM COMPATIBILITY.

TRANSCIVER TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATIONS.

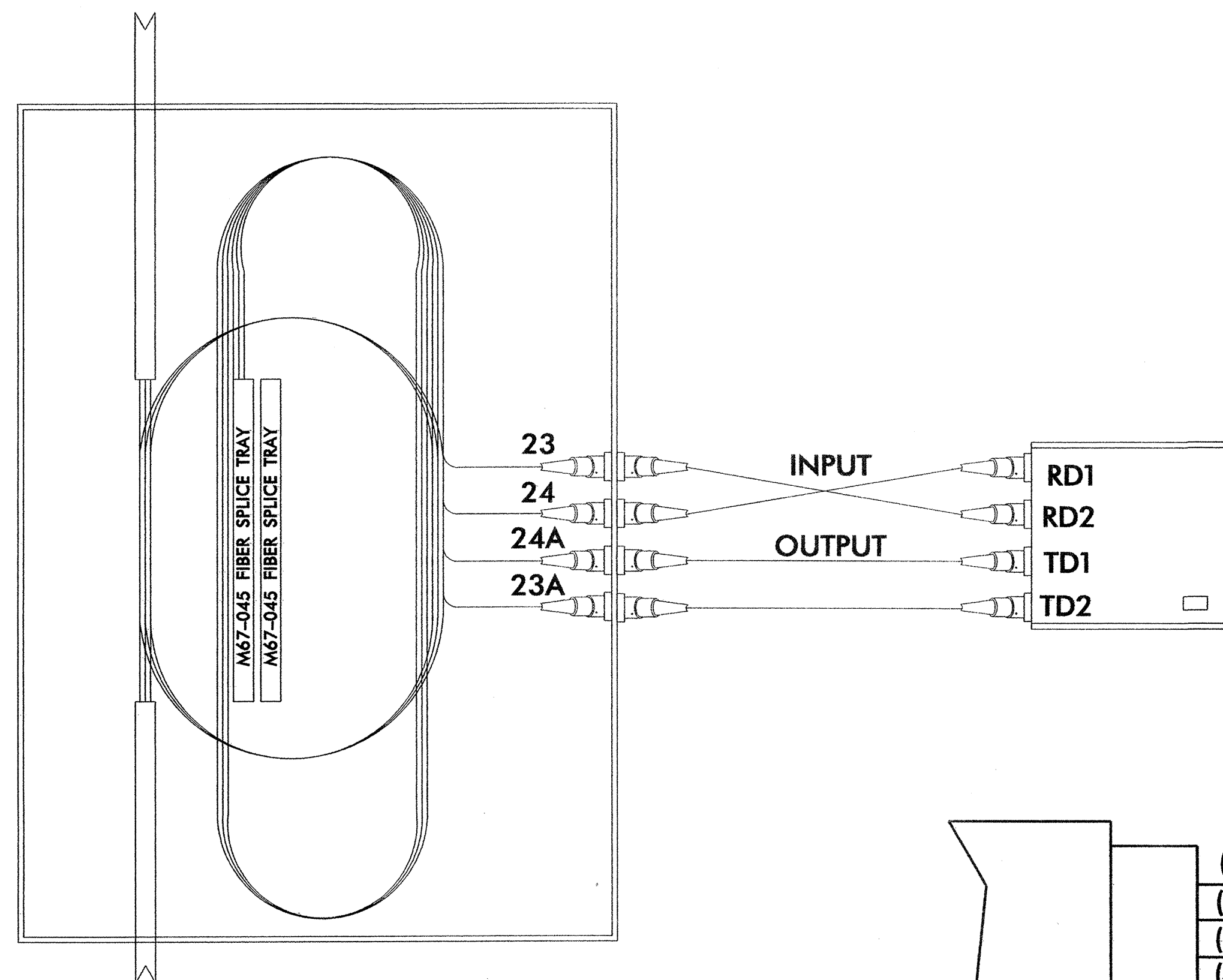
	SPLICE PLAN		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER GENE G. MURR, JR. 14543 2-4-08
	DIV. 08 RANDOLPH/GUILFORD CO. ARCHDALE/HIGH POINT PLAN DATE: FEBRUARY 2008 PREPARED BY: S.C. WARDLE REVISIONS:	REVIEWED BY: I.N. AVERY REVIEWED BY: G.G. MURR, JR. INIT. DATE		SCALE: 0

SYSTEM ID # 03-06
 SR 1595 (SURRETT DRIVE) AT
 SR 1592 (EDEN TERRACE)/
 CORPORATION DRIVE
 SIG. INV. # 08-0707

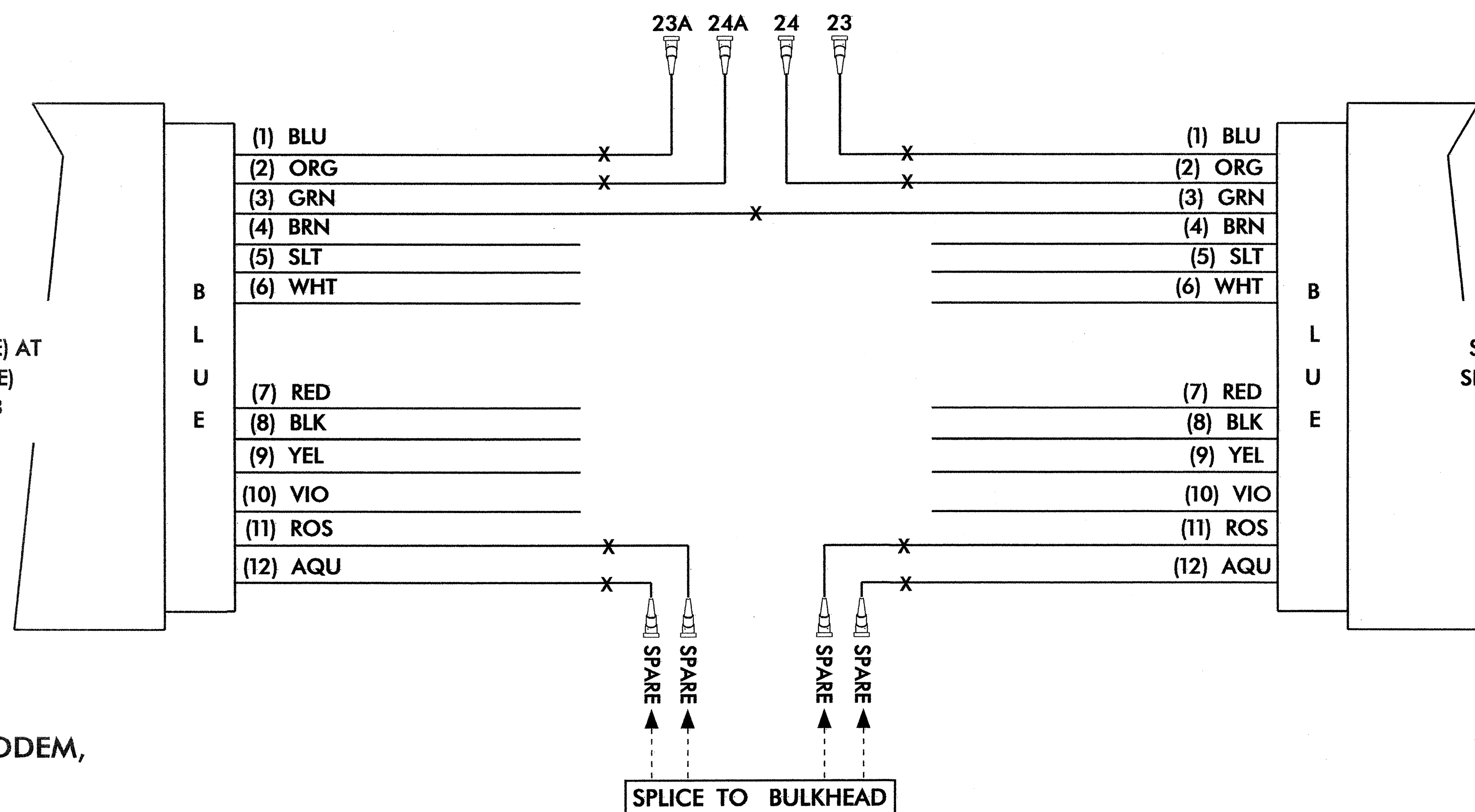
LEGEND
 X = FUSION SPLICE

COLOR CODE
 TIA/EIA 598-A

- (1) BLUE
- (2) ORANGE
- (3) GREEN
- (4) BROWN
- (5) SLATE
- (6) WHITE
- (7) RED
- (8) BLACK
- (9) YELLOW
- (10) VIOLET
- (11) ROSE
- (12) AQUA



TO
 SR 1595 (SURRETT DRIVE) AT
 SR 1596 (SEALY DRIVE)
 SIG. INV. # 08-0303
 SYSTEM I.D. #03-07



TO
 SR 1595 (SURRETT DRIVE) AT
 SR 1300 (W. FAIRFIELD DRIVE)
 SIG. INV. # 07-0738
 SYSTEM I.D. #03-05

FURNISH NEW OPTELECOM FIBER OPTIC MODEM,
 PART NUMBER 4132A-LD-ST PS (POWER
 SUPPLY), OR AN APPROVED EQUIVALENT FOR
 SYSTEM COMPATIBILITY.

TRANSCEIVER TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATIONS.

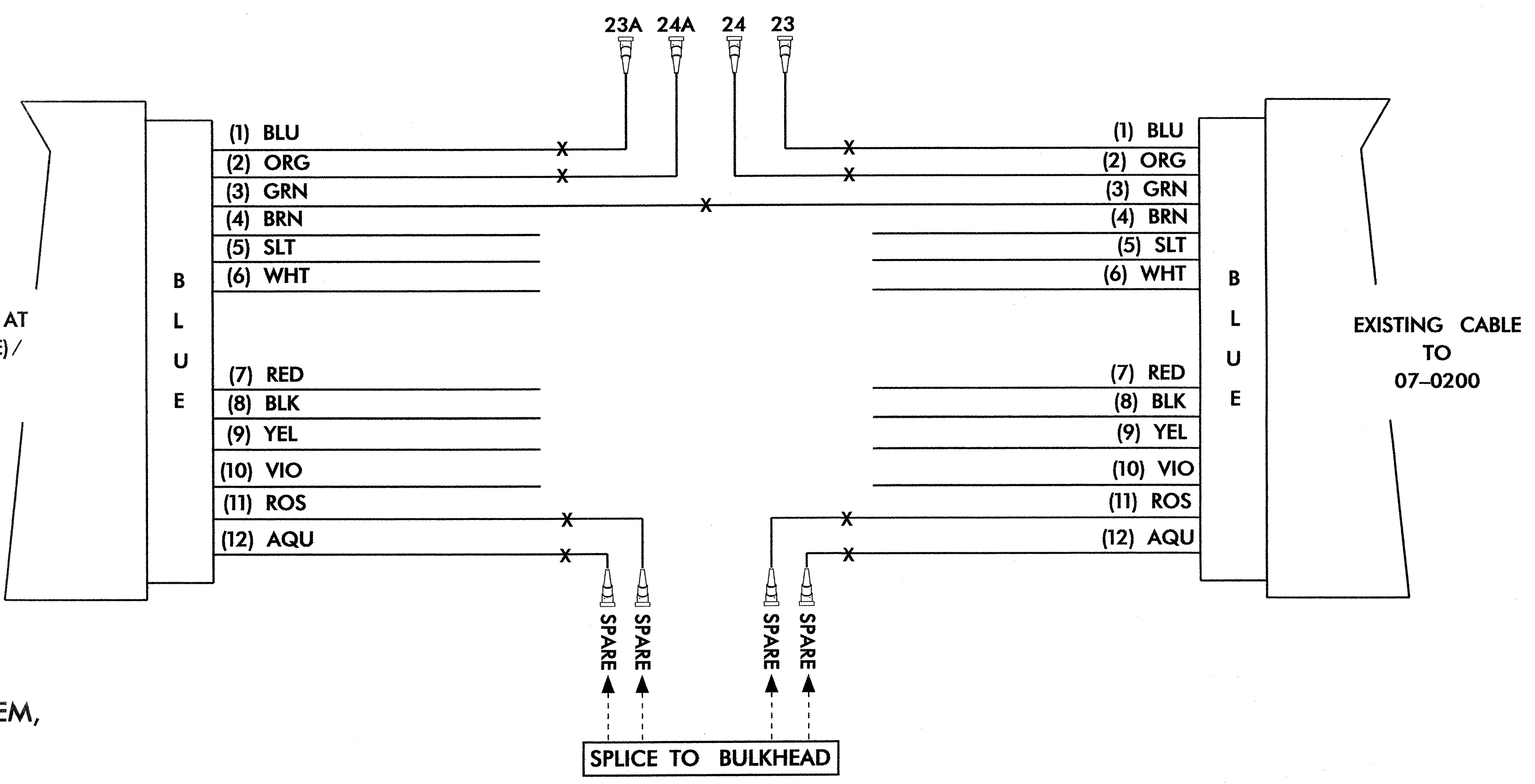
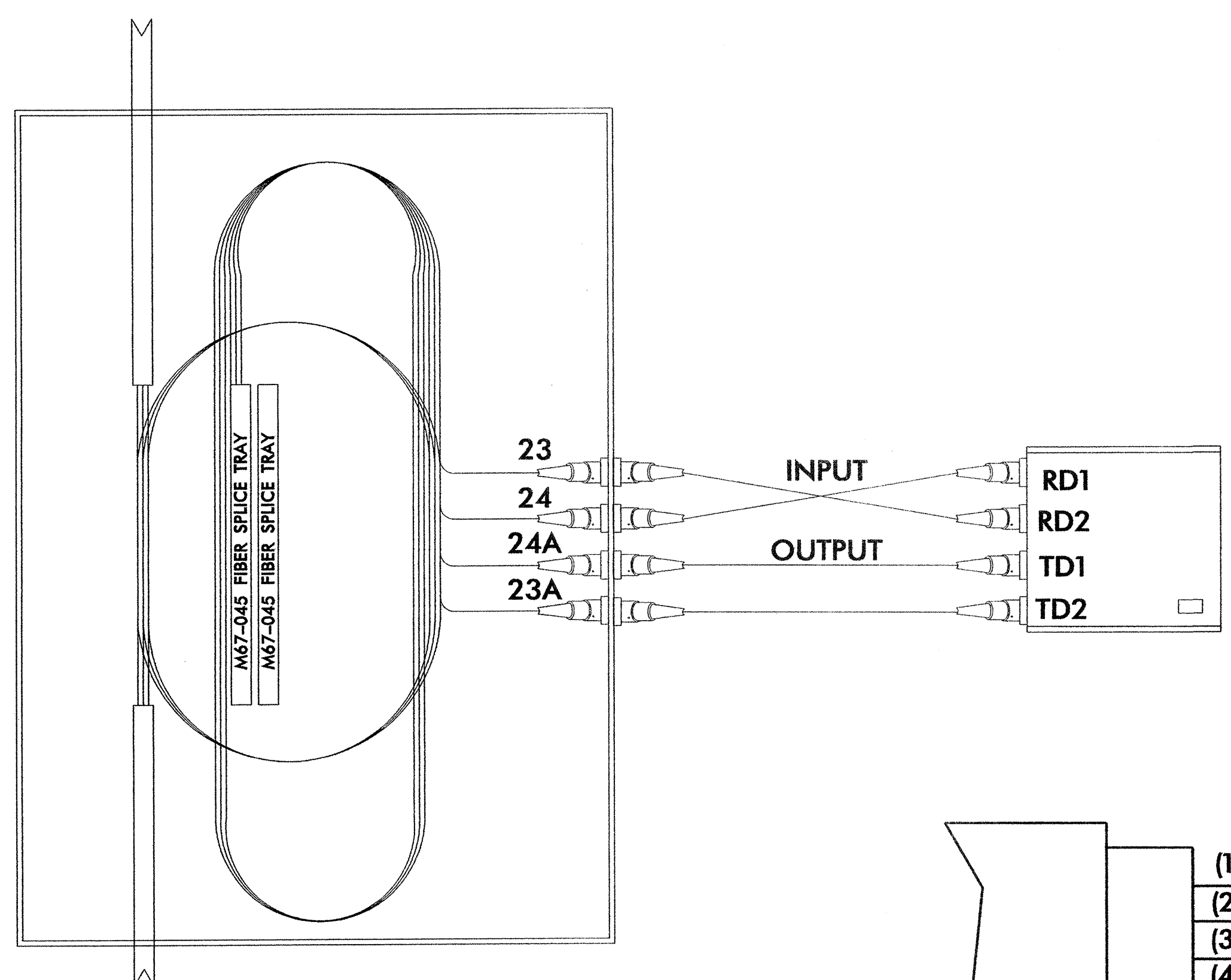
	SPLICE PLAN		SEAL 14543 GENE G. MURR, JR. ENGINEER
	DIV. 08 RANDOLPH/GUILFORD CO. ARCHDALE/HIGH POINT PLAN DATE: FEBRUARY 2008 REVIEWED BY: I.N. AVERY PREPARED BY: S.C. WARDLE REVIEWED BY: G.G. MURR, JR.			REVISIONS INIT. DATE SIGNATURE DATE
Prepared in the Offices of: 		SCALE 	CADD File name:

SYSTEM ID # 03-05
 SR 1595 (SURRETT DRIVE) AT
 SR 1300 (W. FAIRFIELD DRIVE)
 SIG. INV. # 07-0738

LEGEND
 X = FUSION SPLICE

COLOR CODE
 TIA/EIA 598-A

- (1) BLUE
- (2) ORANGE
- (3) GREEN
- (4) BROWN
- (5) SLATE
- (6) WHITE
- (7) RED
- (8) BLACK
- (9) YELLOW
- (10) VIOLET
- (11) ROSE
- (12) AQUA



TO
 SR 1595 (SURRETT DRIVE) AT
 SR 1592 (EDEN TERRACE) /
 CORPORATION DRIVE
 SIG. INV. # 08-0707
 SYSTEM I.D. #03-06

FURNISH NEW OPTELECOM FIBER OPTIC MODEM,
 PART NUMBER 4132A-LD-ST PS (POWER
 SUPPLY), OR AN APPROVED EQUIVALENT FOR
 SYSTEM COMPATIBILITY.

TRANSCIVER TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATIONS.

	SPLICE PLAN		
	DIV. 08 RANDOLPH/GUILFORD CO. ARCHDALE/HIGH POINT PLAN DATE: FEBRUARY 2008 REVIEWED BY: I.N. AVERY PREPARED BY: S.C. WARDLE REVIEWED BY: G.G. MURR, JR.		
750 N. Greenfield Pkwy., Garner, NC 27529 SCALE: 0	REVISIONS:	INIT. DATE:	SIGNATURE: <i>[Signature]</i> DATE: 2-4-08 CADD File Name:

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

5-07

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS

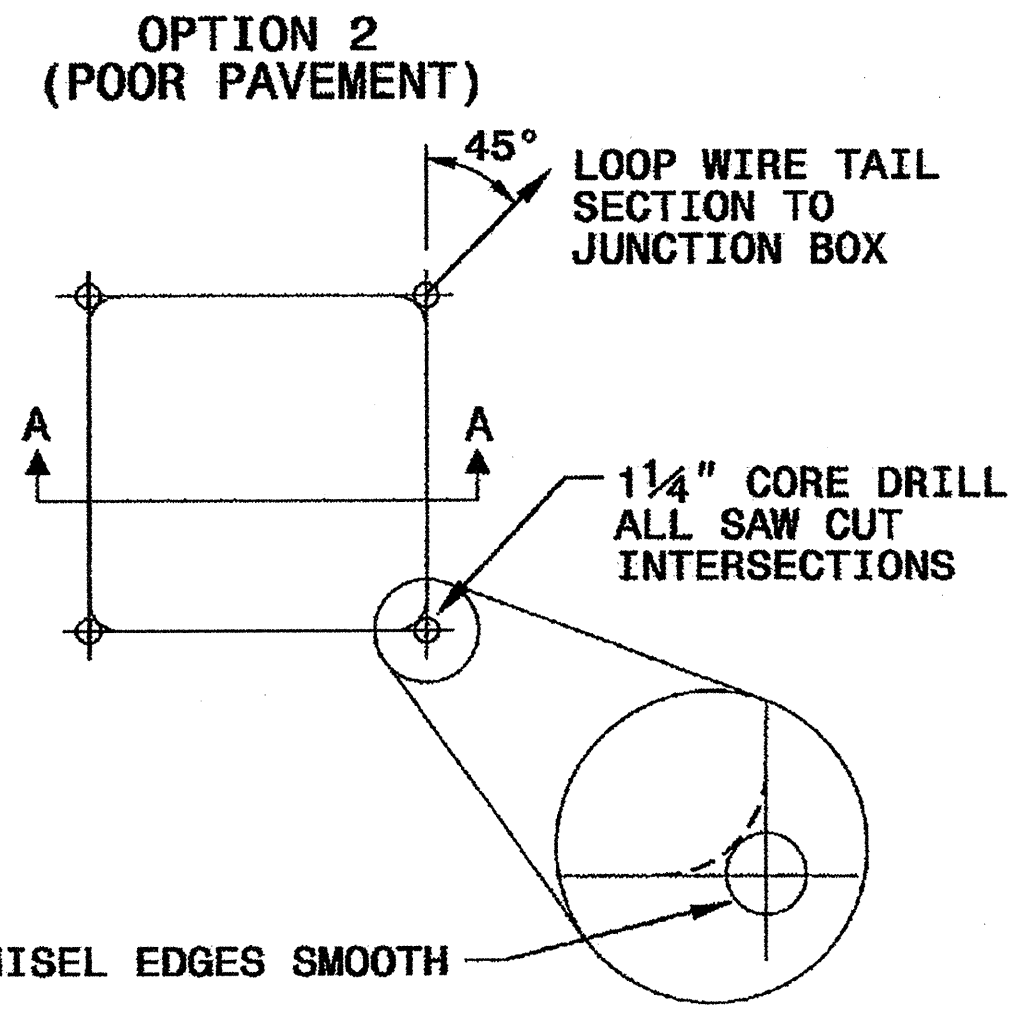
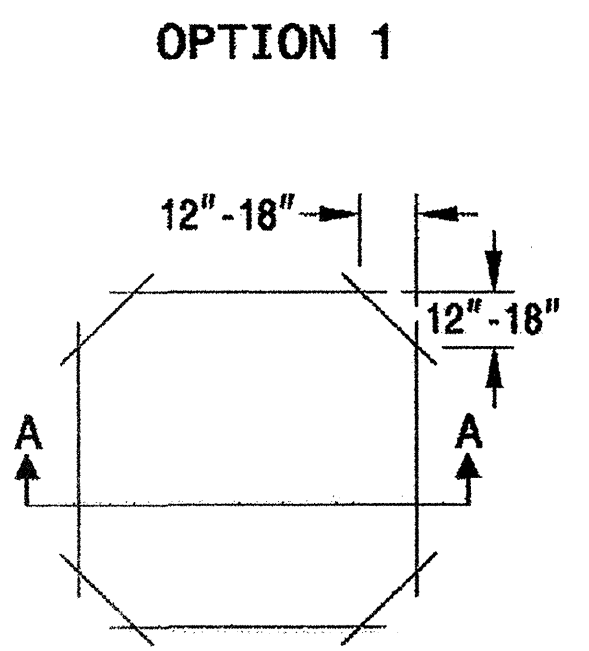
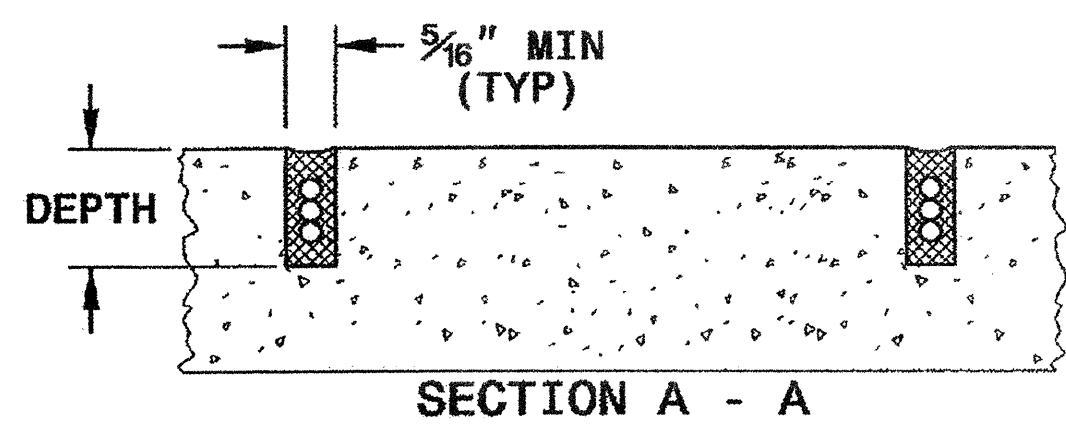
SHEET 1 OF 3
1725D01

CONVENTIONAL 4-SIDED LOOP

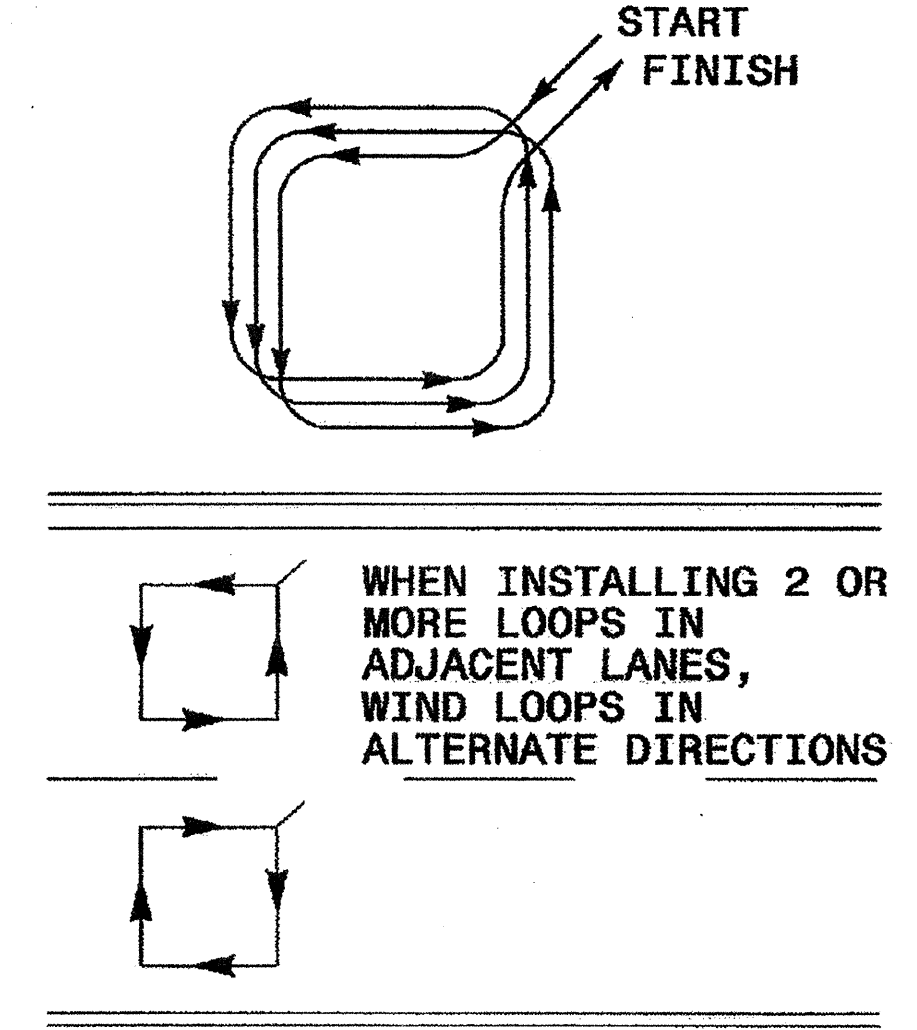
SAW CUT OPTIONS

SAW SLOT DEPTH CHART

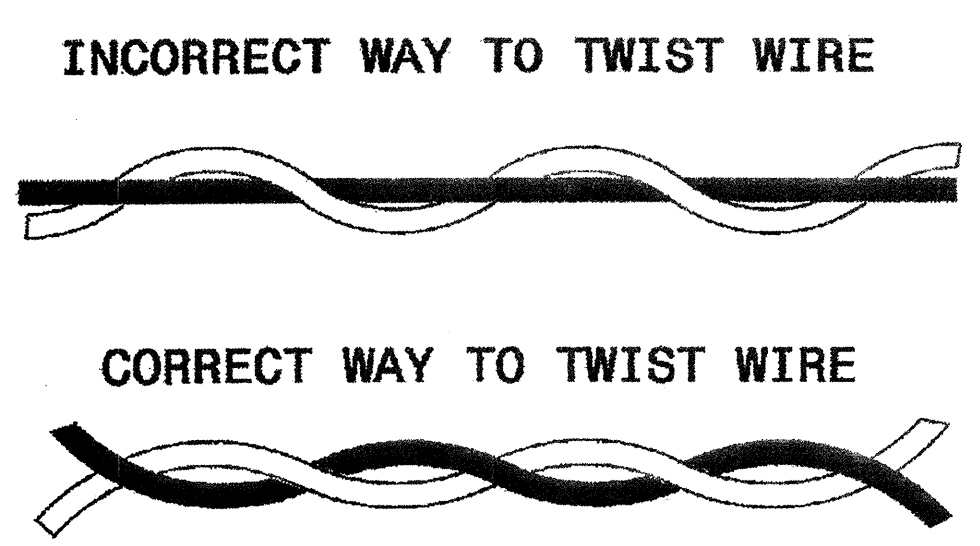
DEPTH (IN)	NO. OF WIRE TURNS				
	2	3	4	5	6
CONCRETE	2.0	2.0	2.5	2.5	3.0
ASPHALT	2.0	2.5	3.0	3.0	3.0



LOOP WINDING METHOD



LOOP WIRE TWISTING METHOD

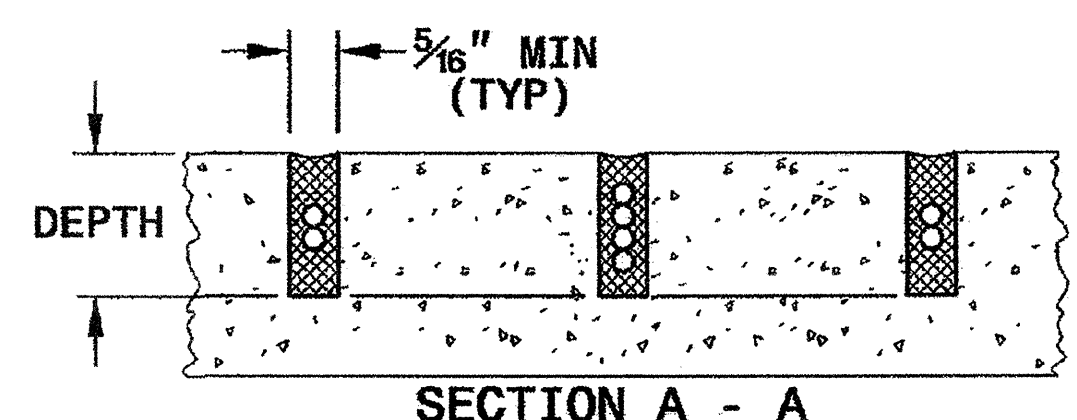
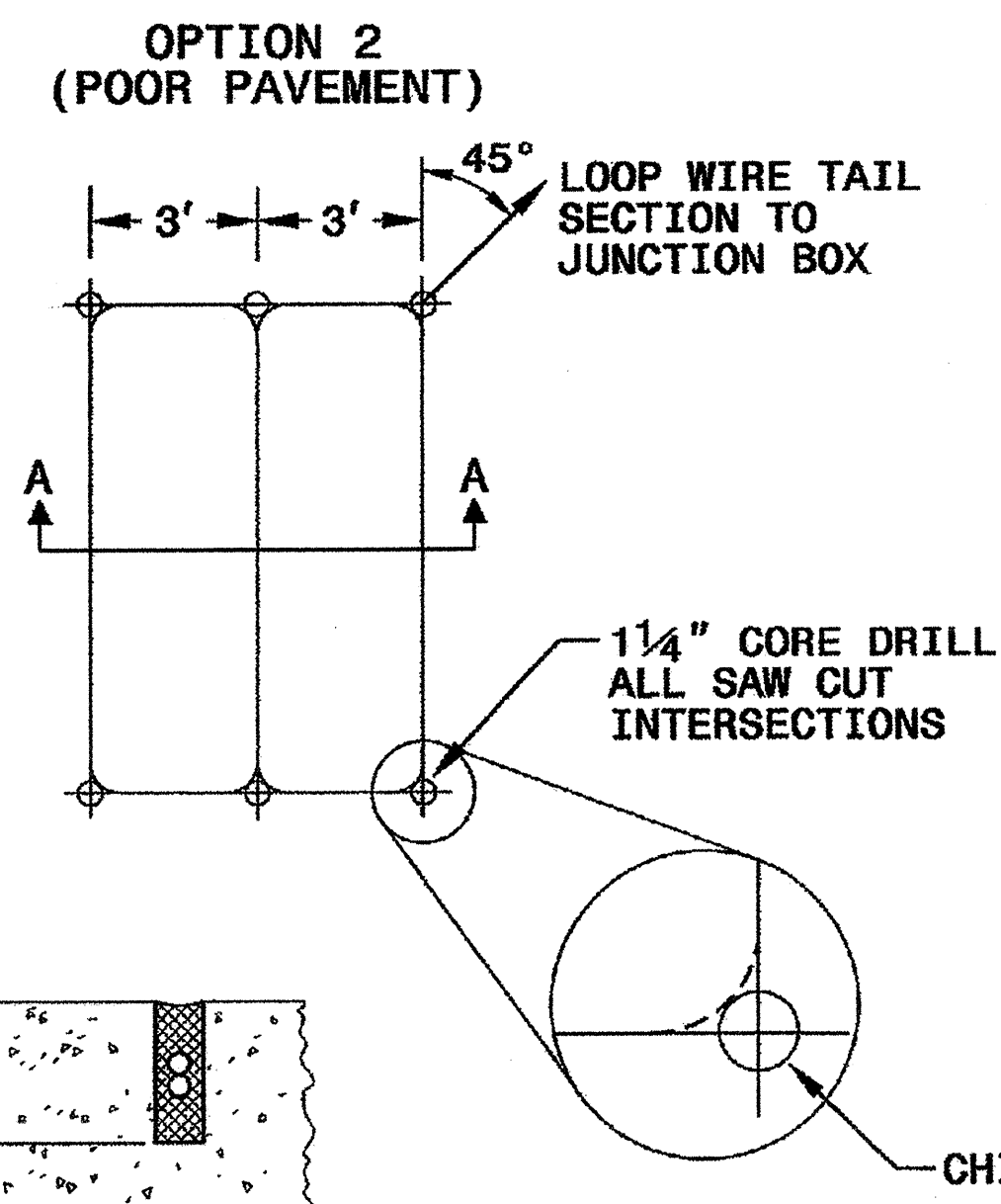
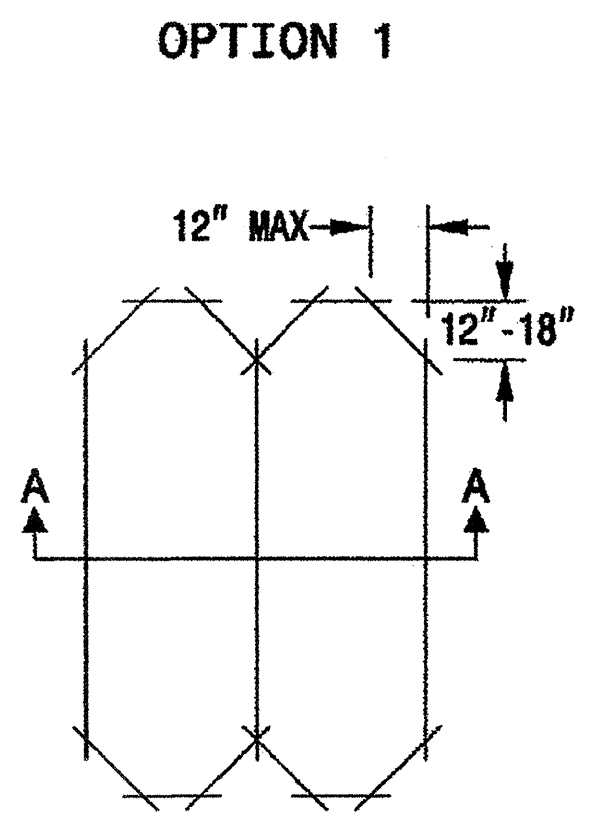


NOTES

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.

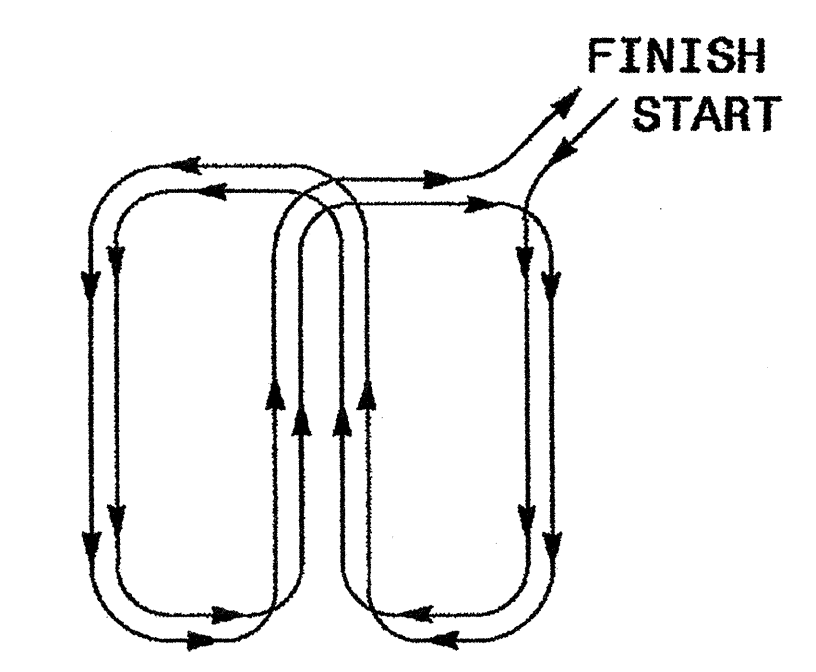
QUADRUPOLE LOOP

SAW CUT OPTIONS



DEPTH IS 2.5" FOR CONCRETE AND 3.0" FOR ASPHALT

LOOP WINDING METHOD



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 14:06 c:\p1\work\1725d01\1725d01.dwg sheet1725D01.dwg 2/11/11

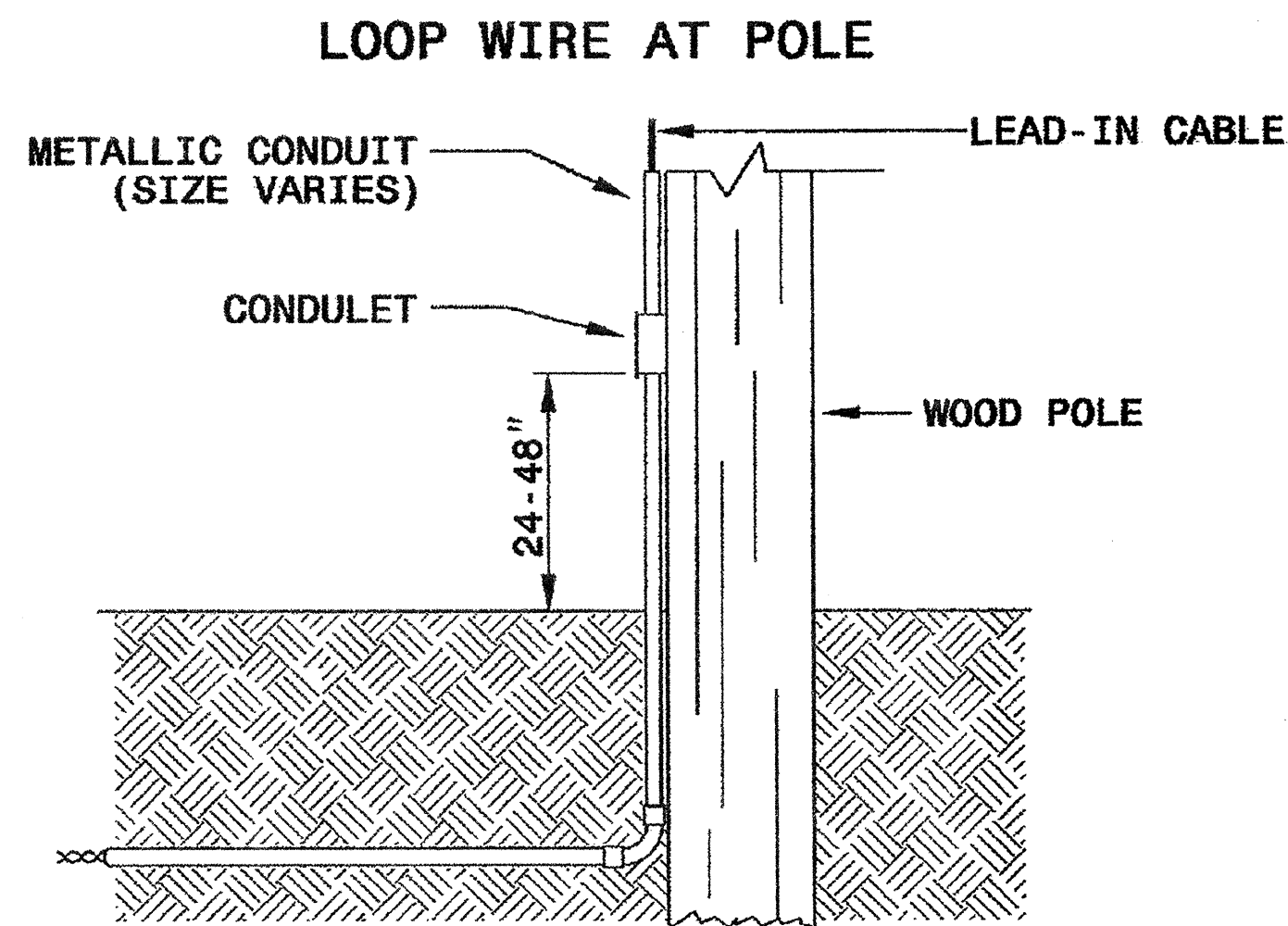
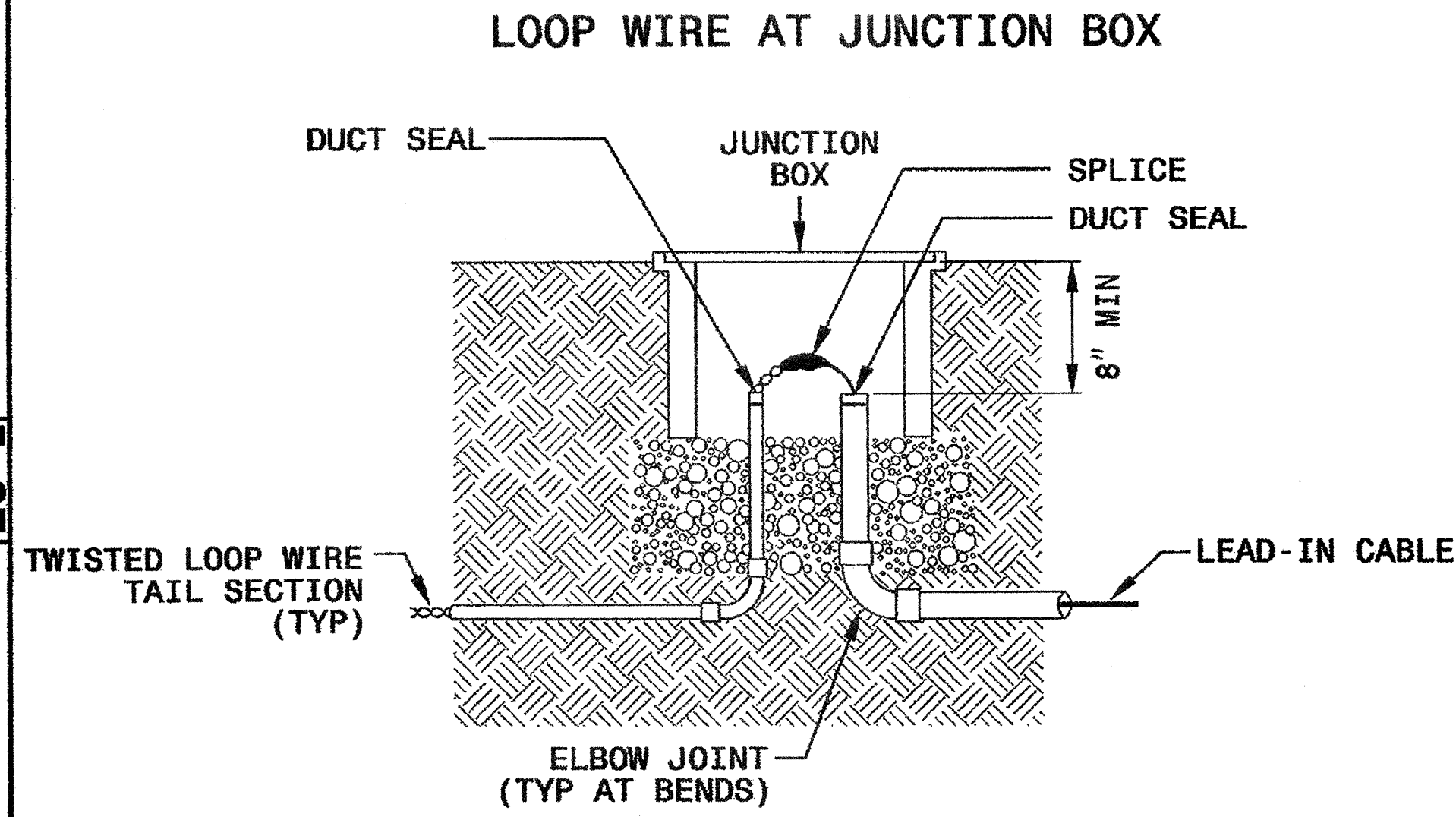
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

5-07

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

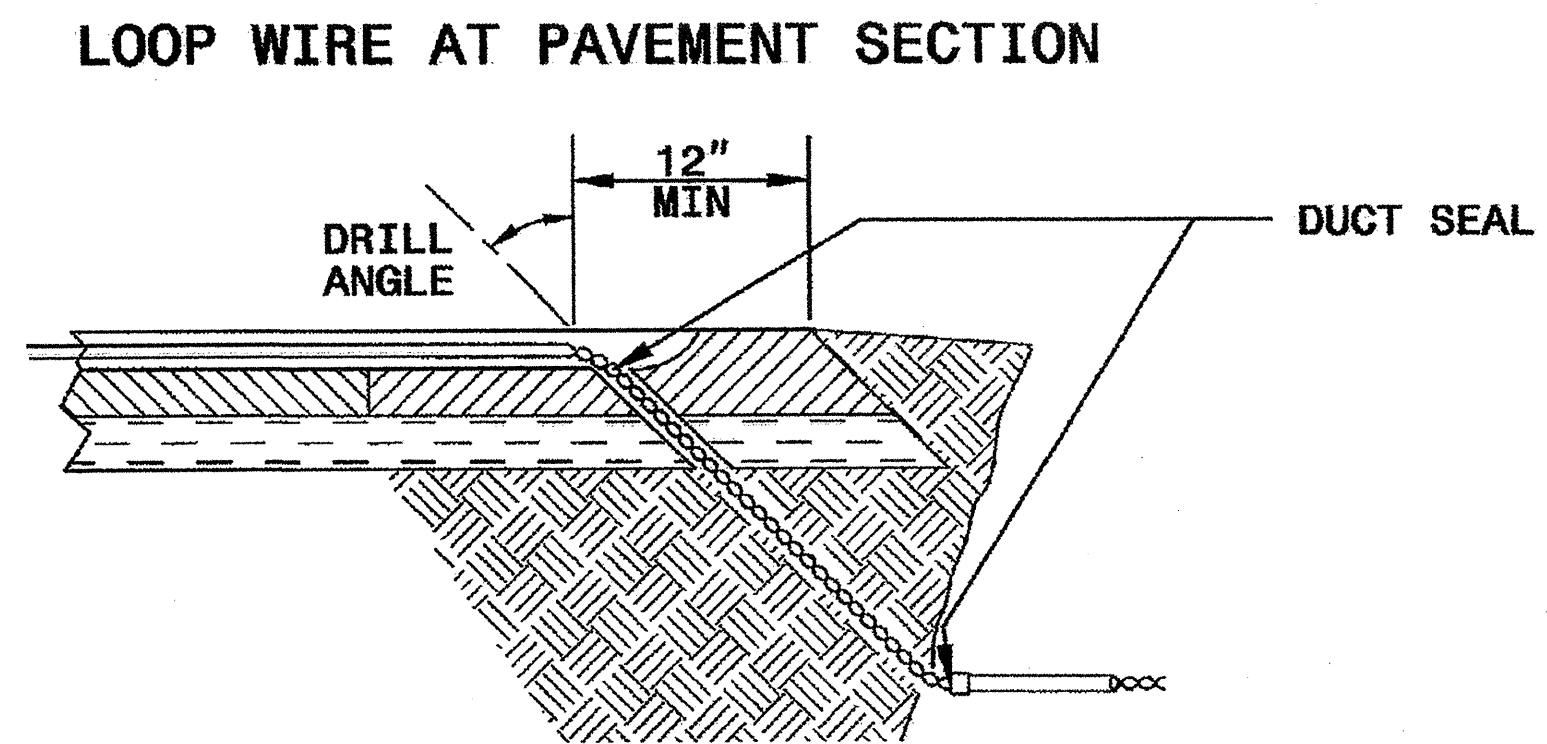
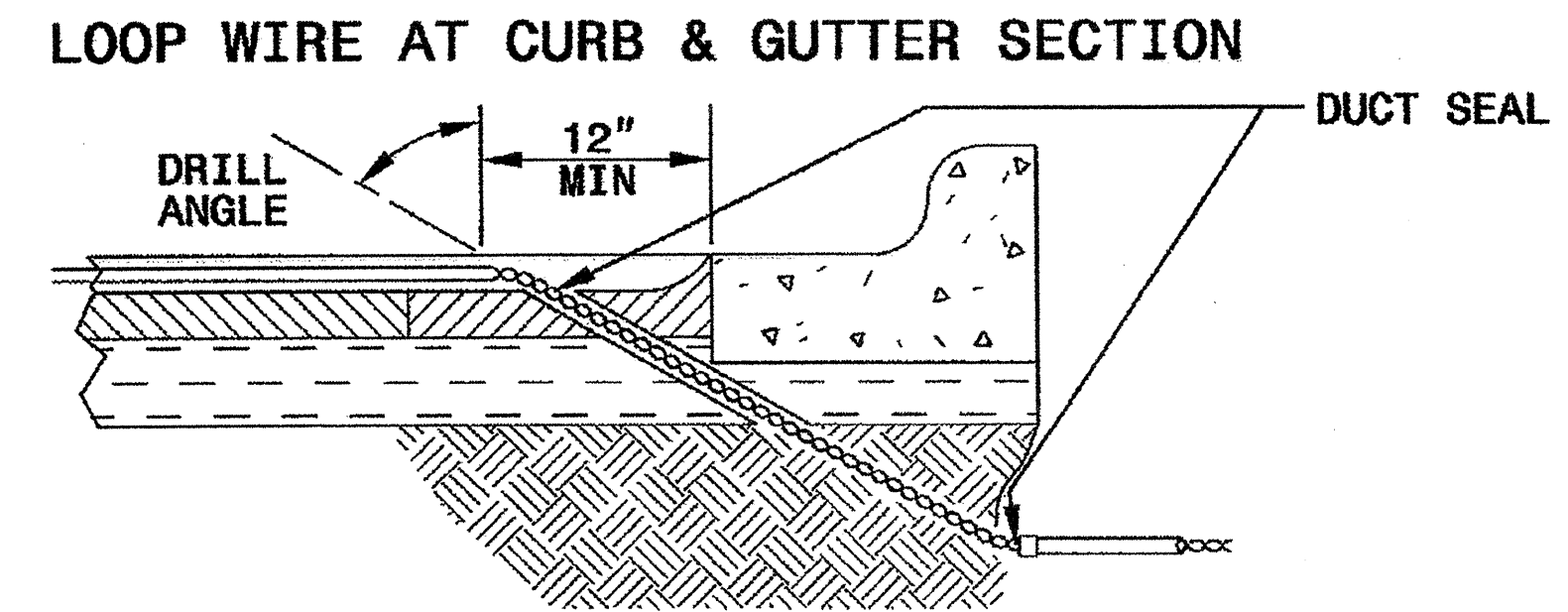
SHEET 2 OF 3
1725D01

LOOP WIRE SPLICE POINT DETAILS



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

LOOP WIRE PAVEMENT EDGE DETAILS



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.

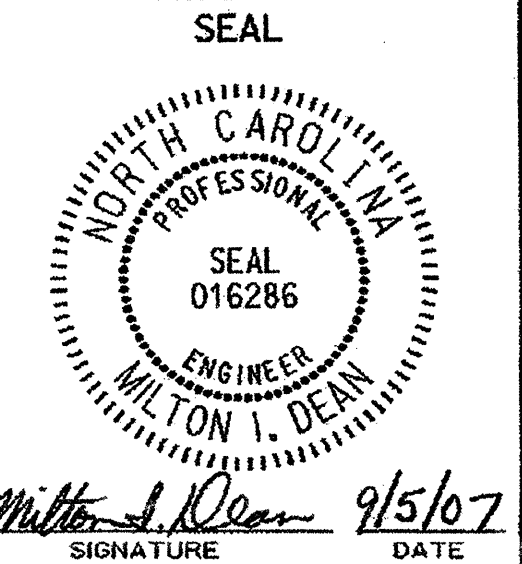
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

5-07

ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
LOOP WIRE DETAILS

SHEET 2 OF 3
1725D01

See Plate for Title

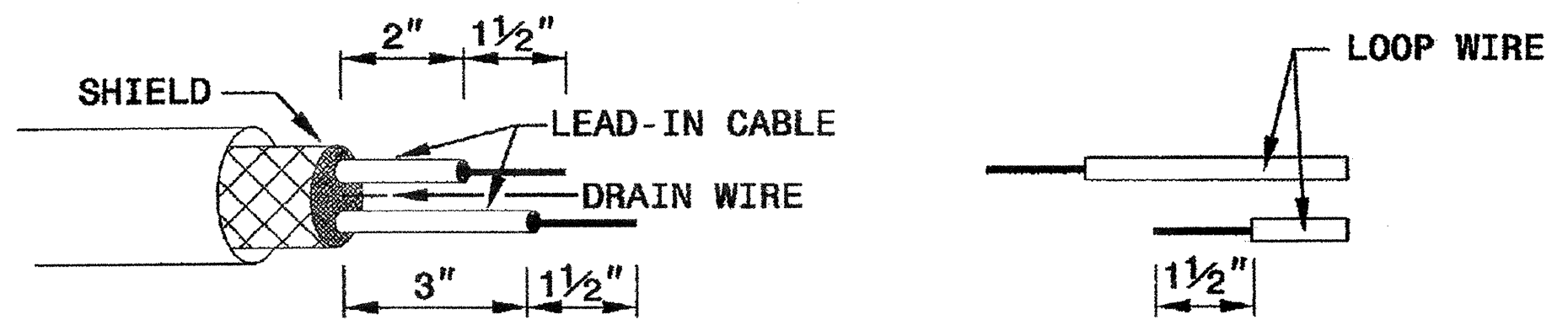


STATE OF NORTH CAROLINA
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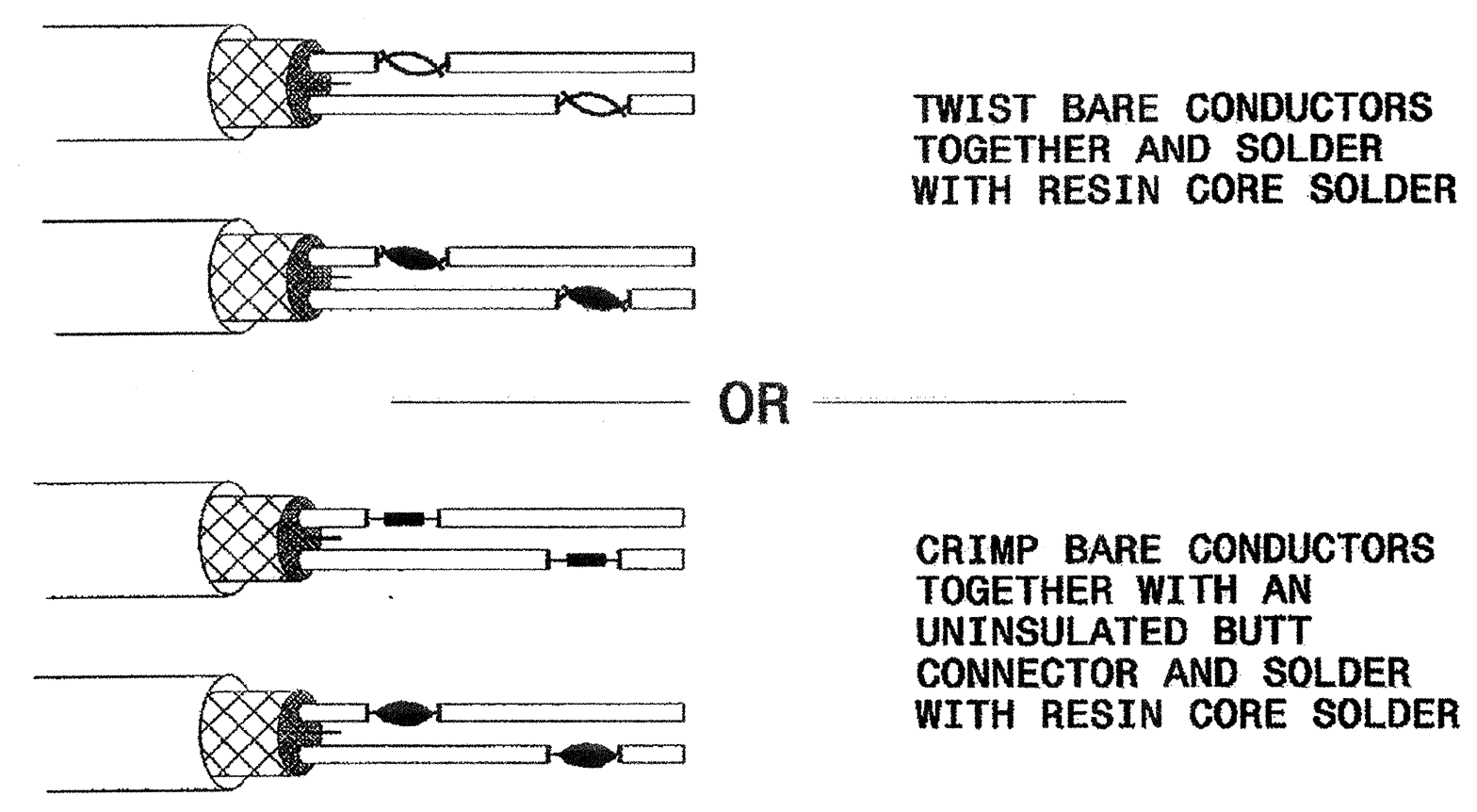
5-07
ENGLISH DETAIL DRAWING FOR
INDUCTIVE DETECTION LOOPS
SPlicing FOR LEAD-IN CABLE AND LOOP WIRE

SHEET 3 OF 3
1725D01

STEP 1. STRIP LOOP WIRE AND LEAD-IN CABLE

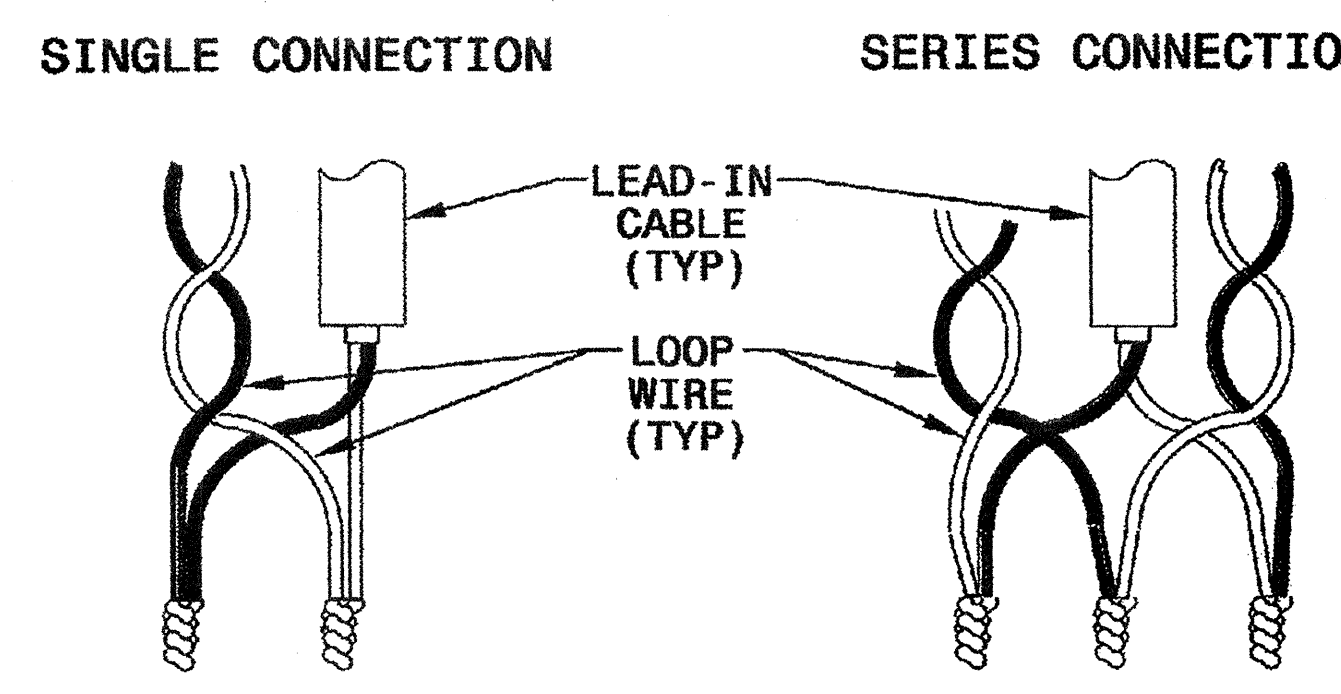


STEP 2. CONNECT AND SOLDER

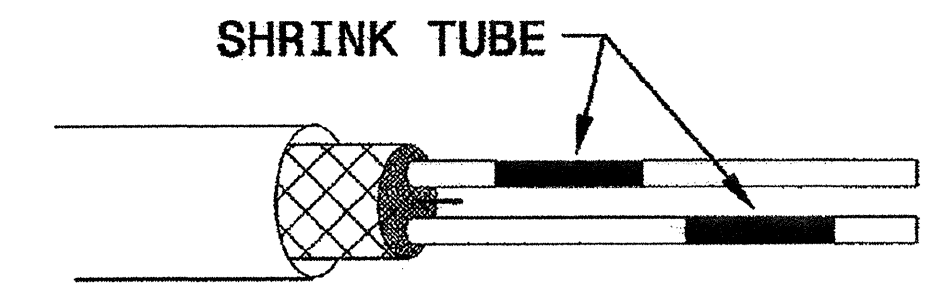


BOND SHIELD DRAIN WIRE AT SPLICE SECTIONS (DO NOT GROUND)

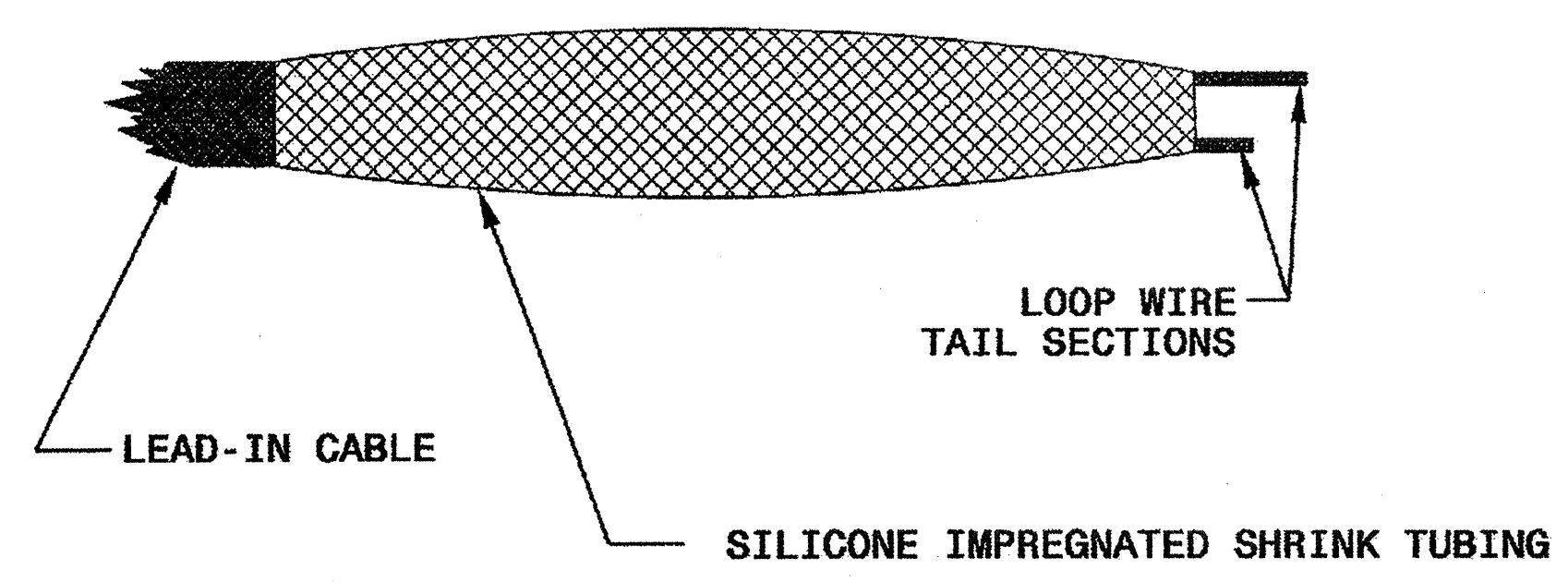
LOOP WIRE AND LEAD-IN CABLE CONNECTION DETAILS



STEP 3. INSULATE EACH SOLDER JOINT SEPARATELY



STEP 4. ENVIRONMENTALLY PROTECT SPLICE



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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

Milton I. Dean 9/5/07
SIGNATURE DATE

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