

FW 04.0170 - Engineering Sent - Order# T08-0114 724842Y.txt
From: Stead, Mike
Sent: Friday, November 14, 2008 1:11 PM
To: Bergeron, Rodney
Cc: Leka, Kathy
Subject: FW: 04.0170 - Engineering Sent - Order#: T08-0114 724842Y
Attachments: 04.0170 Est Mat List & Plans.pdf

From: Logan, Roger D. [mailto:roger.logan@nscorp.com]
Sent: Friday, November 14, 2008 1:04 PM
To: mneikirk@neikirkengineering.com
Cc: Toliver, Aaron; Kazmierczak, James R.; Stead, Mike; Ambler, Thomas W.;
Shindelar, Thomas
L.; @ Flynn, Neil
Subject: 04.0170 - Engineering Sent - Order#: T08-0114

File #: CX0104810-G

Project #: 04.0170
Road: EMPIRE ST.
City: MT. CARMEL
State: IL
DOT:
MilePost: 148.85 W

This is to notify you that our plans and estimate for modification of grade crossing warning devices at the above referenced location are attached. After you have received this material, please return this email as acknowledgement.

DOCKETED

NOV 25 2008

AT
05



Detailed Estimate for Grade Crossing Warning Devices

City/State: MT. CARMEL, IL
MilePost: 148.85-W
State Proj. No.:
S&E Proj. No.: 04.0170
Man Days: 160

Road: EMPIRE ST.
DOT/AAR:
County: WABASH
AFE: F11078
File Number:

Purchases - Others	
Meals and Lodging:	\$20,505.60
Rental of Equipment:	\$36,312.00
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 40 Days)	
Construction Supervision Vehicle:	\$12,675.02
Purchases - Other Total:	\$69,492.62
Material And Additives	
Material Cost:	\$102,762.00
Sales and Use Tax:	\$5,138.00
Material Handling Freight:	\$5,138.11
Material Total:	\$113,038.11
Labor And Additives	
Labor Cost:	\$42,720.00
(4 man crew at \$1,068.00 a day for: 40 days)	
Payroll Tax & Overheads:	\$56,749.25
Preliminary Engineering:	\$12,802.43
Construction Supervision:	\$23,931.74
Labor Total:	\$136,203.42
Project Cost:	\$318,734.15
Scrap / Salvage Credit:	\$0.00
Project Total:	\$318,734.15

Estimated on: 11-Nov-08

Estimated by: ndney

Estimate valid for 1 year from date of estimate



Norfolk Southern Railway



Highway Crossing Signalization Program - Material List

Do not substitute items without permission from S & E Engineering

City:	MT. CARMEL
Road:	EMPIRE ST.
Mile Post:	148.85-W
Drawing Number:	CS0999P
State ProjectNumber:	
County:	WABASH
A A R Number:	
Project Number:	04.0170
File Number:	
New File Number:	CX0104810-G
A F E Number:	F11078
Store Number:	08370
Supervisor:	J.E. BROWNE
Tax Code:	1200
Vendor to supply the following copies after pricing: 1 Set - Material Management with original Invoice 2 Sets - with plans shipped in car with material 1 Set - S&E Gen. Supt. Construction w/copy of invoice	

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
							Date Quan.	Date Quan.	Date Quan.		
3	670-360693-4	EA	\$5.28	\$15.84	AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY S'TRAN.						
1	165-006505-4	EA	\$1,051.54	\$1,051.54	AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE						
4	670-119241-4	EA	\$32.90	\$131.60	ARRESTOR, LIGHTNING HEAVY DUTY CLEAR VIEW SAFETRAN 022585-1X						
19	105-871901-4	EA	\$183.96	\$3,495.24	BATTERY,GNB 265AH MODEL 50A11 SINGLE CELL 2.25 VOLTS						
2	670-980689-4	EA	\$71.71	\$143.42	BRACKET HIGH WIND, (RIGID 3'), WIG- 191036, WALRUS TUSK TYPE						
2	670-561375-4	EA	\$1,197.90	\$2,395.80	BRACKET, GATE SAVER, NEG385102GS, SPRING LOADED SWING AWAY ADAPTER FOR FIBERGLASS/ALUMINUM GATES, USE WITH GATE 38' AND LESS						
1	670-356949-4	EA	\$63.77	\$63.77	CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524. FEMALE CONNECTOR						
600	465-292862-4	LF	\$1.34	\$804.00	CABLE, U-2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR						
750	465-292945-4	LF	\$1.48	\$1,110.00	CABLE, U-5-14, S-54 OKONITE 206-14-6885						
300	465-292929-4	LF	\$4.08	\$1,224.00	CABLE, U.G. 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL						
300	465-939422-4	LF	\$2.83	\$849.00	CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL						
900	465-791835-4	FT	\$3.39	\$3,051.00	CABLE, UG AC ENTRANCE 3C#6-7X OKONITE FMPF-L 094-078 TR W/G 1 X 8 7X W010 BRZ TAPE 600V PRODUCT CODE 206-11-6070						
120	165-544477-4	FT	\$3.41	\$409.20	CONDUIT, 4"x10' PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4						
4	670-090450-4	EA	\$60.25	\$241.00	CONNECTOR, WELDED FAR RAIL HARMON A1000-2W						
4	670-486646-4	EA	\$51.70	\$206.80	CONNECTOR, WELDED NEAR RAIL HARMON A1000-1W						
2	670-793404-4	EA	\$865.17	\$1,730.34	COUNTERWEIGHT PKAGE, 17-24'GATE S'TRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS						
2	670-205073-4	EA	\$651.05	\$1,302.10	COUPLER 285HZ TUNABLE INS. JT. BYPASS, SAFETRAN 62785						

APPROVED BY STATE

APPROVED BY RAILROAD

CAR NUMBER

SEAL NUMBER

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
							Date Quan.	Date Quan.	Date Quan.		
4	670-760012-4	EA	\$40.02	\$160.08	COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. =====TO COVER 2 LAMPS=====						
1	670-986650-4	EA	\$380.95	\$380.95	DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER						
1	670-000004-4	EA	\$700.00	\$700.00	FCC LICENSE FOR MONITOR/RADIO						
8	670-000003-4	EA	\$255.85	\$2,046.80	FILL/STONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST						
2	670-015231-4	EA	\$561.00	\$1,122.00	FOUNDATION,DIXIE,S-2 GATE 2'6"X2'6"X5'6" ASSEMBLED						
2	670-001321-4	EA	\$329.19	\$658.38	GATE, ARM FIBERGLASS-ALUMINUM 17-24 FT., L&W OR US&S OR SAFETRAN 076600-240017 OR						
1	670-210597-4	EA	\$15,694.75	\$15,694.75	GCP 4000 1 TRK, NON-REDUNDANT, (5TRK CHASSIS), WIRED RACK FOR 6X6 FARADAY, 1 EA 20 AMP CRAIG CHARGER, REMOTE LOCATION, 2 RELAY RACKS, SAFETRAN T18806						
1	670-976662-4	EA	\$30,470.74	\$30,470.74	GCP 4000 1 TRK, REDUNDANT, (2TRK CHASSIS), WIRED RACK FOR 6X6 FARADAY, 2 EA SSCIII, 2 EA 20 AMP CRAIG CHARGER, WITH SEAR III, 2 RELAY RACKS, SAFETRAN T18807						
1	670-730154-4	EA	\$44.23	\$44.23	INDUCTOR, SIMULATED TRACK SAFETRAN 8V617-2000						
1	670-477991-4	EA	\$317.90	\$317.90	KIT, GROUNDING ASSY FOR AL I/S INCLUDES 8 GRD RDS,200'#4WIRE,12 4 WIRE ONE-SHOTS. ERICO SBK206						
1	670-123298-4	EA	\$287.93	\$287.93	KIT, HARDWARE SUPPLIES REQUIRED X'ING P'CKAGES. WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS,P'GUM PAINT,SLEEVES,TAGS,GLUE, 100 EA WHITE TAGS,)NE CAN BLUE MARKING PAINT ETC...						
2	670-764166-4	EA	\$929.56	\$1,859.12	LAMP ASSY, 5" MAST MTG. 2W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-487XNS						
6	165-643547-4	EA	\$5.86	\$35.16	LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE						
4	670-440826-4	EA	\$1.52	\$6.08	LINK, SAFETRAN 024620-1X INSL TESTING COMP 1 IN CENTER SIGNAL CIRCUITS CR 02-286662						
6	255-590880-4	EA	\$17.08	\$102.48	LOCK, AMERICAN LOCK MODEL H-10KA KEYED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"						

APPROVED BY STATE

APPROVED BY RAILROAD

CAR NUMBER

SEAL NUMBER

Location: MT. CARMEL

IL

S&E Proj. No.: 04.0170

AFE No.: F11078

Drawing No.: CS0999P

Store No.: 08370

P.O.Number:

Date Required:

Date Shipped:

Vendor: UNKNOWN

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
							Date Quan.	Date Quan.	Date Quan.		
2	670-637778-4	EA	\$1,060.01	\$2,120.02	MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. S'TRAN P# 070519-11AX.						
2	670-850933-4	EA	\$3,401.21	\$6,802.42	MECHANISM, GATE MODEL S-60, WITH DEFROSTER AND MINI TRACKSIDE SENSOR S'TRAN # 0740007-X002B3						
4	670-001347-4	EA	\$64.15	\$256.60	PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR						
1	255-646807-4	EA	\$21.84	\$21.84	PADLOCK, SAFETRAN PART NO. 030399-29X SCREW TYPE FOR CIR CONTROLLER AND BTY. BOX						
1	670-514605-4	EA	\$8.49	\$8.49	PINNACLE, W-C SECT 1-11, 4"& 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X						
2	670-555609-4	EA	\$44.84	\$89.68	PLUGBOARD, TYPE B-1 GRS A62-506 OR HARMON @7062-506 OR						
2	165-902002-4	EA	\$308.00	\$616.00	PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL						
5	465-002899-4	EA	\$30.56	\$152.80	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES						
2	670-707995-4	EA	\$318.39	\$636.78	RELAY, TYPE B1, NEV LINE, 900 OHMS,.008 AMPERES GRS A62-308 OR SAFETRAN @400003						
2	435-805560-4	EA	\$6.25	\$12.50	SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER						
1	670-027556-4	EA	\$2,907.01	\$2,907.01	SEARIII ACCESSORY PACKAGE, W/2-ILOD, 1-E-BELL, 2-GTS, 1-GFT, 1-VHFC, WITHOUT MTSS/SEAR UNIT						
2	670-281280-4	EA	\$7,268.52	\$14,537.04	SHELTER BARE 6X6, ALUMN, FARADAY, W/CABLE CHUTES BEHIND TERMINAL BOARD, W/GEN. CONN. W/ADJUSTABLE PIERS, ,SAFTETRAN P/N 058400-66-78A						
5	670-586967-4	EA	\$40.45	\$202.25	SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT						
3	670-652773-4	EA	\$475.66	\$1,426.98	SHUNT, MULTI-FREQ. #62775-1543 SAFETRAN NARROW BAND						
2	670-393331-4	EA	\$37.43	\$74.86	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215						
2	670-806648-4	EA	\$57.15	\$114.30	SIGN, X-BUCK, LESS HARDWARE, SAFETRAN 035200-X CR 02-490546						
2	670-751511-4	EA	\$36.24	\$72.48	SIGN, "1" TRACK, LESS HARDWARE SAFETRAN# 035207-1X						

APPROVED BY STATE

APPROVED BY RAILROAD

CAR NUMBER

SEAL NUMBER

Location: MT. CARMEL

IL

S&E Proj. No.: 04.0170

AFE No.: F11078

Drawing No.: CS0999P

Store No.: 08370

P.O.Number:

Date Required:

Date Shipped:

Vendor: UNKNOWN

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
							Date Quan.	Date Quan.	Date Quan.		
2	670-006438-4	EA	\$11.26	\$22.52	TAPE, 4" X 96" REFLECTIVE APPLY TO BACK OF X-BUCK SIGN. ONLY IN IA., IN., IL., AL. 035200-555X						
1	670-330382-4	RL	\$15.68	\$15.68	TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING STOP DIGGING"						
10	670-478560-4	EA	\$21.21	\$212.10	TERMINAL BLOCK, ERICO 4 POST P/N B2700A2C1WH W/HARDWARE LESS LIGHTNING ARRESTOR						
2	610-065626-4	EA	\$18.18	\$36.36	ULTRA-TECH 15206-01 CONNECTIVITY BLOCK FOR GRS B1 RELAY						
2	670-007238-4	EA	\$130.11	\$260.22	UNIT, THE INSTALLATION AND WIRING OF A DEVICE WHICH REQUIRE A MINIMUM OF FOUR WIRE CONNECT-						
2	450-986008-4	EA	\$25.98	\$51.96	WRENCH, TEST POST TYPE B DWG 55393-3, GR.1						

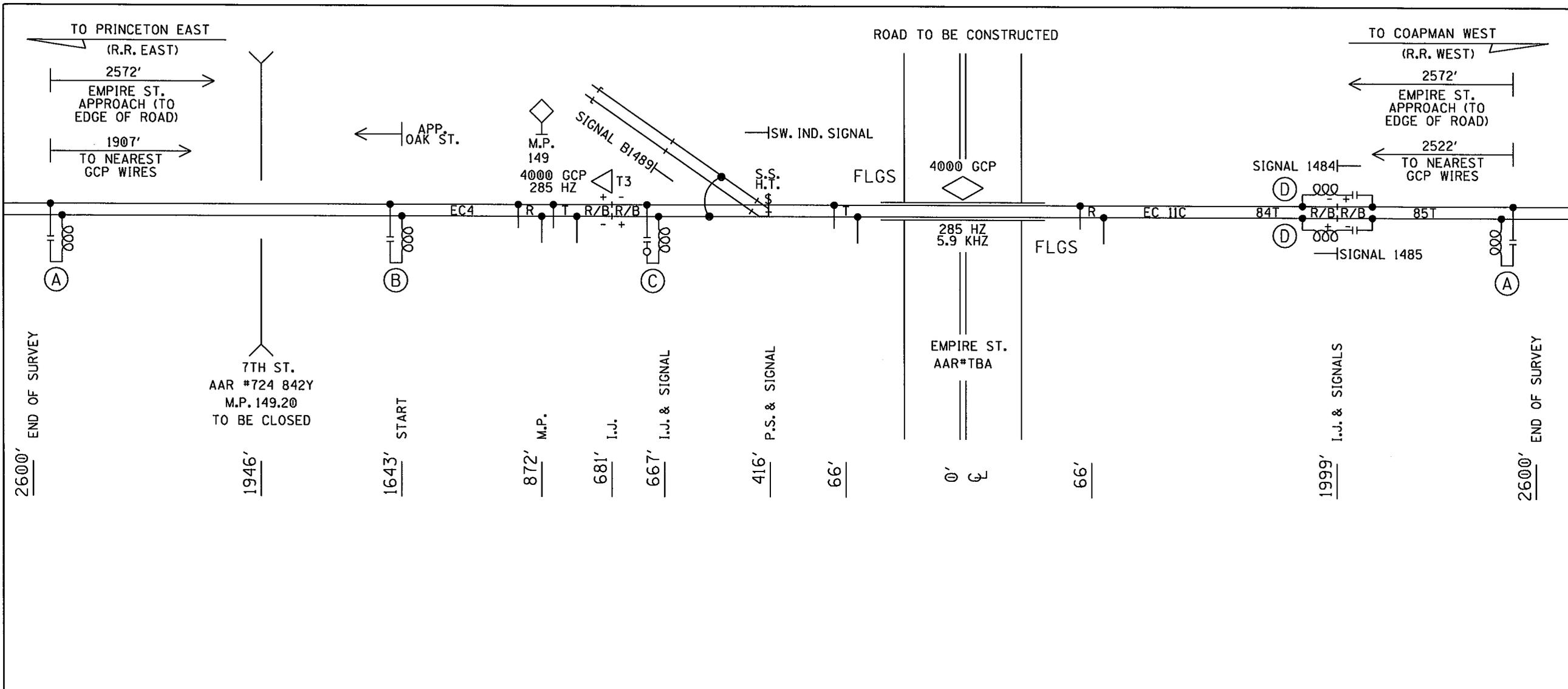
Total Material: \$102,762.14

APPROVED BY STATE

APPROVED BY RAILROAD

CAR NUMBER

SEAL NUMBER



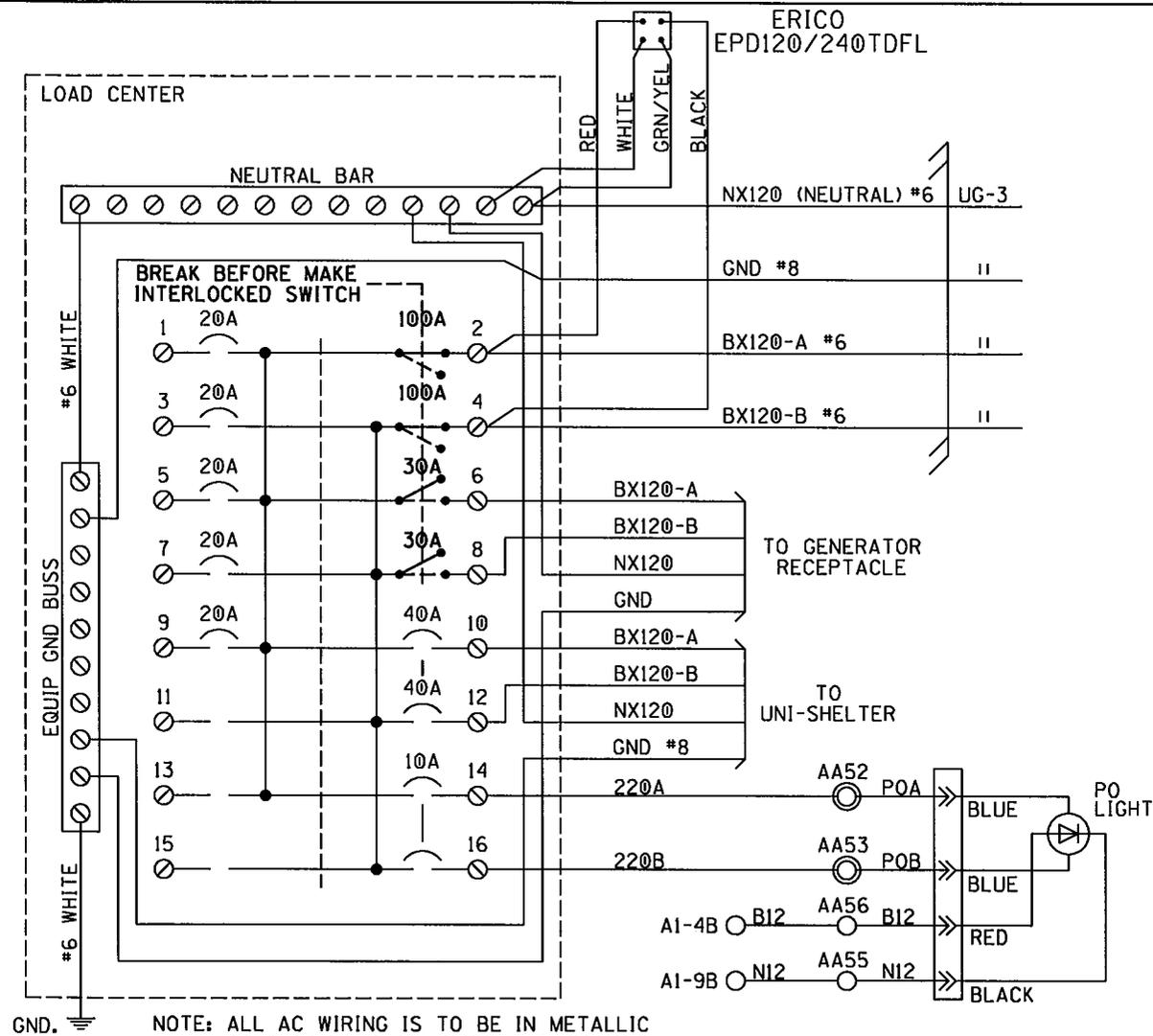
- (A) - MF-NBS 62775-1543 (285HZ)
- (B) - MF-NBS 62775-1543 (348HZ)
- (C) - MF-NBS 62775-1543 (285HZ)
W/INDUCTOR 8V617-2000
- (D) - SAFE. 62785-285HZ

PROFILE

DESIGNED BY:	DBS	10-30-08	NS NORFOLK SOUTHERN
DRAWN BY:	IRE	10-30-08	
CHECKED BY:	JFK	10-31-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: 148.85-W
IN SERVICE:	-	-	MT. CARMEL, IL FLGS AT EMPIRE ST.
			SOUTHERN-WEST DISTRICT
			FILE No. R-
			CADD or DWG. No. CS0999P.02
			SHEET No. 2 of 33

REVISION INITIALS																				
-------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

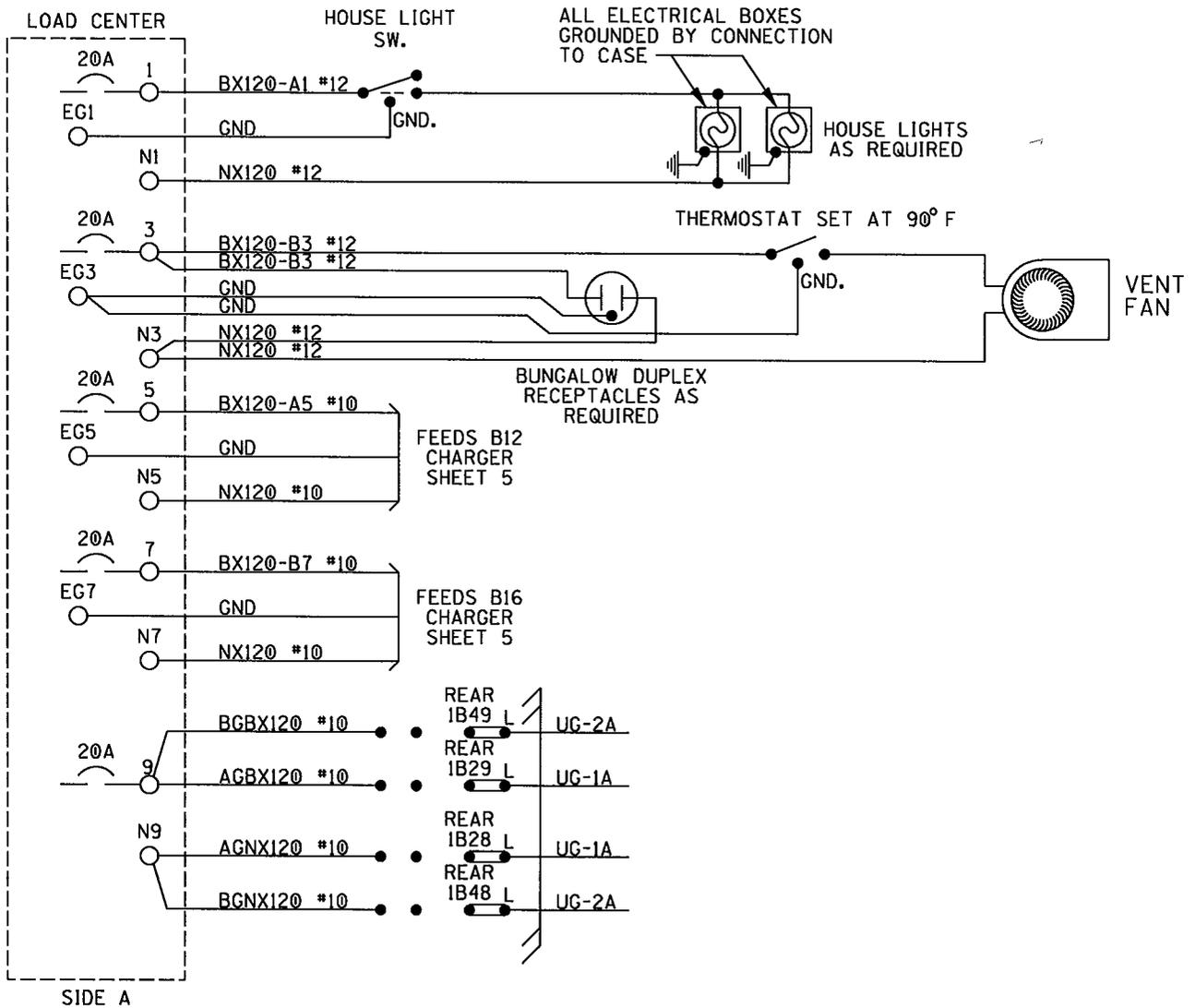


NOTE: ALL AC WIRING IS TO BE IN METALLIC CONDUIT WITH NO EXPOSED TERMINALS. ALL AC 120V AND 240V EQUIPMENT IS TO BE PROPERLY GROUNDED.

SQUARE "D" PART NUMBERS:

- LOAD CENTER — Q0116L125G
- 10A 1P CIR BKR — Q0110
- 10A 2P CIR BKR — Q0210
- 20A 1P CIR BKR — Q0120
- 30A 1P CIR BKR — Q0130
- 30A 2P CIR BKR — Q0230
- 60A 2P CIR BKR — Q0260
- 100A 2P CIR BKR — Q02100
- MECH INTERLOCK — PK4DTIM4LA

GENERATOR RECEPTACLE:
MALE CONNECTOR - NEMA L1430-F1

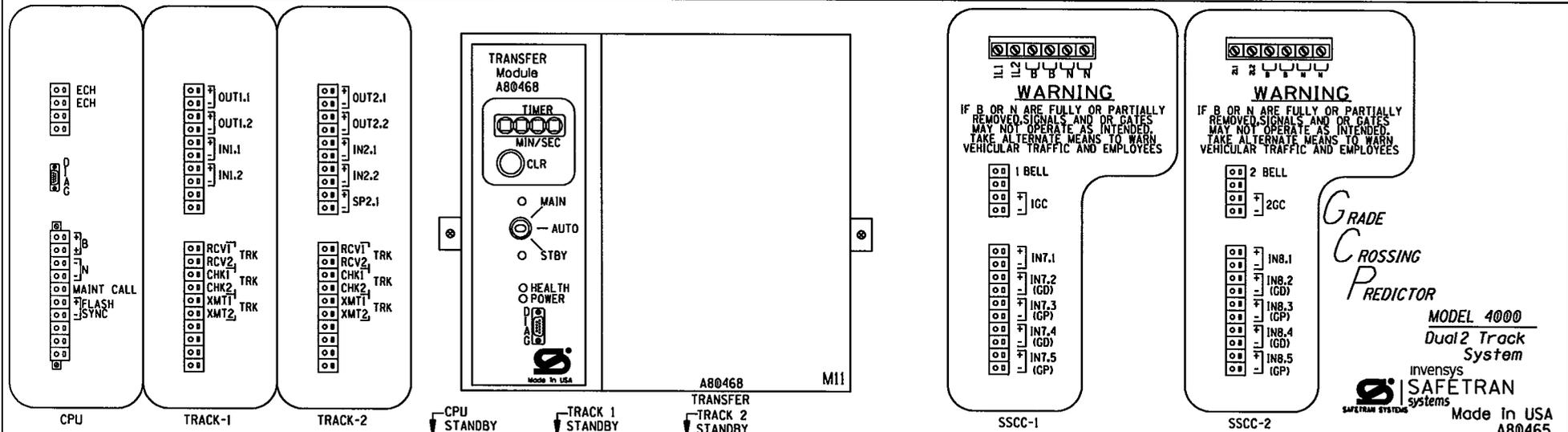


LOAD CENTER WIRING

DESIGNED BY: DBS 10-30-08	NS NORFOLK SOUTHERN	
DRAWN BY: IRE 10-30-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: 148.85-W
CHECKED BY: JFK 10-31-08	MT. CARMEL, IL FLGS AT EMPIRE ST.	
IN SERVICE: - -	SOUTHERN-WEST DISTRICT	FILE No. R-
	CADD or DWG. No. CS0999P.04	SHEET No. 4 of 33

REVISION
INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.



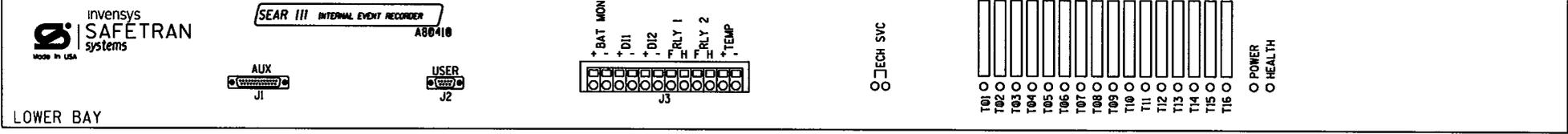
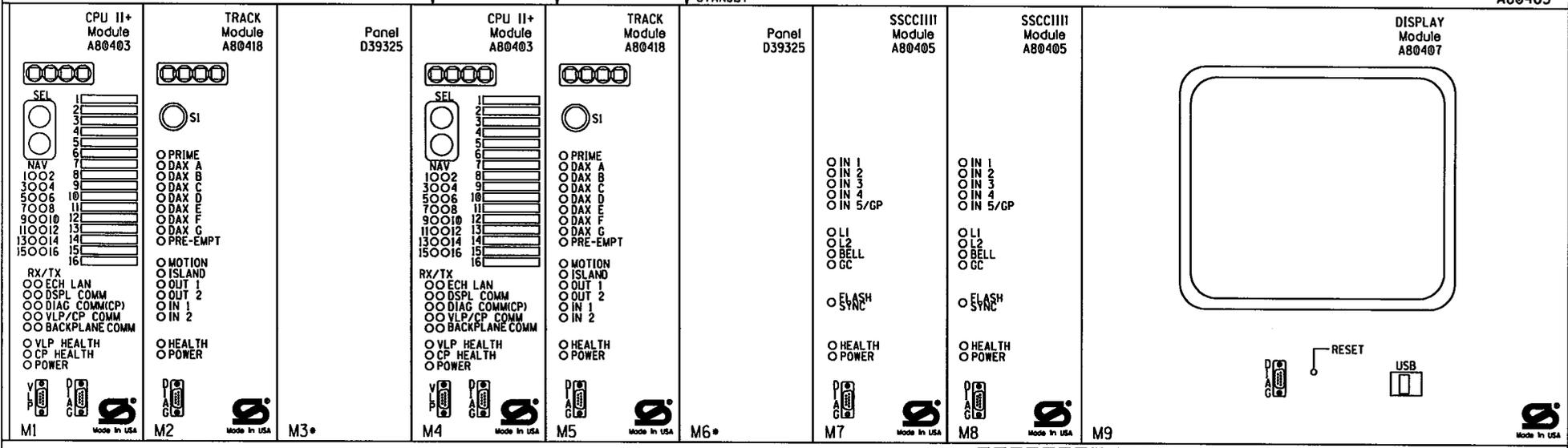
WARNING
REMOVAL OF THE SSSCIII MODULE WILL CAUSE THE GATE(S) TO DROP BUT THE LIGHTS WILL NOT ACTIVATE

CAUTION
ASSURE CORRECT POLARITY OF THE SSSCIII MODULE OR SEVERE DAMAGE WILL OCCUR.

ATTENTION!
ENSURE THE DISPLAY MODULE HEATER IS DISABLED. LEAVING THE DISPLAY HEATER ENABLED WILL REDUCE THE AMOUNT OF BATTERY STANDBY TIME IN THE EVENT OF AN AC POWER FAILURE.

HEATER FUNCTION IS JUMPER SELECTABLE ON THE DISPLAY MODULE BOARD. THREE OPTIONS ARE AVAILABLE:
NORMAL LCD HTR (DEFAULT)
HI CURRENT
NO JUMPER (HEATER DISABLED)

** MAIN AND STANDBY MAY USE RIO IN TRACK 2 SLOTS (M3 AND M6)



PANEL "A2" 4000 GCP REDUNDANT 2-TK CHASSIS AND MODULE LAYOUT

DESIGNED BY: DBS 10-30-08	
DRAWN BY: IRE 10-30-08	
CHECKED BY: JFK 10-31-08	
IN SERVICE: -	
PROPERTY NORFOLK SOUTHERN RAILWAY CO.	

OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: 148.85-W
MT. CARMEL, IL FLGS AT EMPIRE ST.		
SOUTHERN-WEST DISTRICT		FILE R-
CADD or DWG. No. CS0999P.06	SHEET 6 of 33	

Minimum Program Steps Report

Location and SIN

DOT Number: 123123X
 Milepost Number: 148.85-W
 Site Name: EMPIRE STREET

SIN: 755053303816 *

* Parameter is part of office check number calculation.

MCF and Template Selection

MCF Name: GCP-T6X-02-1.mcf
 MCF Revision: 021
 MCF CRC: 6076E435

Template = 1A:6 Trk BI *

* Parameter is part of office check number calculation.

Minimum Program Steps

TEMPLATE: track 1-BI, Island
 Track 1: GCP Frequency = 285 Hz
 Track 1: Approach Distance = 2569 ft
 Track 1: Prime Warning Time = 30 sec
 Track 1: Prime UAX = IP *
 Track 1: GCP Transmit Level = High
 Track 1: Isl Frequency = 5.9 kHz

TEMPLATE: AND 1 XR
 AND 1 Enable Used = Yes *

TEMPLATE: SSCC
 SSCC 1: Lamp Neutral Test = On
 SSCC 2: Lamp Neutral Test = On

TEMPLATE: OOS
 OOS Control = Display+OOS IPs *

TEMPLATE: IP assignment 1
 IN 1.1 = 1 Prime UAX *

TEMPLATE: IP assignment SSCC
 IN 8.2 = Out Of Service IP 1 *
 IN 8.4 = AND 1 XR Enable *

GCP: track 1
 Track 1: Island Distance = 132 ft *

ADVANCED: site options
 Daylight Savings = On *

SSCC: 1
 SSCC 1: Flash Rate = 40 *

SSCC: 2
 SSCC 2: Flash Rate = 40 *

SEAR
 DI 1 = Gnd Fit Tester 1 *
 Rly 1 = Ground Fault Test *
 Rly 2 = AC Control *

SEAR: slot 7-8 inputs
 IN 7.1 = TSS 1 *
 IN 8.1 = TSS 2 *
 IN 8.3 = POK 2 *

* Parameter is part of office check number calculation.

Check Numbers

Office Check No. (DT 4.6.0): 3610E8FD
 Office Check Number: 3610E8FD
 Config. Check Number: 06B8C6DF
 (Based on MCF Revision 021)

Parameters not part of office check number calculation:

Track 1: GCP Frequency = 285 Hz
 Track 1: Approach Distance = 2569 ft
 Track 1: Prime Warning Time = 30 sec
 Track 1: GCP Transmit Level = High
 Track 1: Isl Frequency = 5.9 kHz
 SSCC 1: Lamp Neutral Test = On
 SSCC 2: Lamp Neutral Test = On

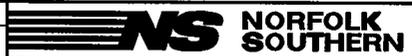
Comments

<none>

Configuration Package File

Filename: Config-123123X.pac

4000 GCP PROGRAMMING SETUP

DESIGNED BY:	DBS 10-30-08	
DRAWN BY:	IRE 10-30-08	
CHECKED BY:	JFK 10-31-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: 148.85-W
IN SERVICE:	- -	MT. CARMEL, IL FLGS AT EMPIRE ST.
		SOUTHERN-WEST DISTRICT
		CADD or DWG. No. CS0999P.06
		FILE No. R- SHEET 7 of 33

REVISION
INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

TO CONFIGURE SEAR III PRESS SITE SETUP KEY.
USE ARROW KEYS TO MAKE SELECTION,
PRESS ENTER AFTER SELECTION HAS BEEN MADE.

SITE SET UP PROCEDURE	
FUNCTION	LED DISPLAY
DATE/TIME	
AUTOMATIC DST ADJUSTMENT	YES
TIME ZONE	EST
SITE NAME	EMPIRE STREET
MILEPOST	148.85-W
DOT #	123 123X
TESTER TYPE	CROSSING
DATE FORMAT	MM-DD-YYYY
TEMP FORMAT	FAHRENHEIT
INDICATE HOLD (SEC)	0
INDICATE REFRESH (SEC)	60
SITE ATCS	7.550.533.038.03.01
SITE TYPE	NO COMMUNICATION
*** OFFICE ATCS ADDRESS	2.550.00.0000
*** PRIMARY HOP ADDR	7.RRR.LLL.GGG.XX.XX
*** BACKUP HOP ADDR 1	7.RRR.LLL.GGG.XX.XX
*** BACKUP HOP ADDR 2	7.RRR.LLL.GGG.XX.XX
*** POLL ID	1
*** MODE	GEN/ATCS
*** WAMS XID	DISABLED
*** OFFICE COMM DEVICE	MCM (ECHELON)
*** RADIO ATCS ADDR	7.RRR.LLL.GGG.01.01
*** PHONE #	(OFFICE NUMBER)
*** INIT STRING	
*** FIELD COMM	NONE
**** USER PORT	BAUD 57600, N, 8, 1, NONE
**** AUX PORT	BAUD 9600, N, 8, 1, NONE

VERIFY NUMBER OF BULBS: SENSOR #1	
CURR 1: LAMP SET UP	4 BULBS
CURR 2: LAMP SET UP	4 BULBS

VERIFY NUMBER OF BULBS: SENSOR #2	
CURR 1: LAMP SET UP	4 BULBS
CURR 2: LAMP SET UP	4 BULBS

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS	
THE QUESTION	SELECT FROM MENU OPTION
RESET NAMES AND MODULES?	YES
RAILROAD NUMBER	550
CROSSING CONFIGURATION	NORMAL
AND 1 USED AS XR?	YES
AND 2 USED AS XR?	NO
AND 3 USED AS XR?	NO
AND 4 USED AS XR?	NO
AND 5 USED AS XR?	NO
AND 6 USED AS XR?	NO
AND 7 USED AS XR?	NO
AND 8 USED AS XR?	NO
* XR CONTROLLED BY FOREIGN RR	
ENTRANCE GATES	2
* GATES CONTROLLED BY FOREIGN RR	
GATE POSITION FAIL TIME (SECONDS)	20
BATTERY BANKS	2
BATTERY MON USED	YES
INTERNAL CROSSING CONTROLLERS	2
EXTERNAL CROSSING CONTROLLERS	0
VHF COMMUNICATOR	YES
DTMF ACTIVATION	YES --
***** ACTIVATION CODE	123
ACTIVATION TIMEOUT (SECONDS)	60
ILOD MODULES	2
ANY LED BULBS USED	NO
AUTO INSPECTIONS	NO
BELL SENSORS	1
** BELL SENSOR TSS1	YES
** BELL SENSOR TSS2	NO
** BELL SENSOR TSS3	NO
** BELL SENSOR TSS4	NO
** BELL SENSOR TSS5	NO
** BELL SENSOR TSS6	NO
** BELL SENSOR TSS7	NO
** BELL SENSOR TSS8	NO

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS (CONT.)	
BELL ON	GATES LOWERING
GFT'S	YES
BATTERIES ON GFT1	2
GATE TIP SENSORS	YES
RTU	NO
VHF VOICE CHANNEL	161.475 MHZ
VHF DATA CHANNEL	NONE
USE CELL MODEM NON-CRITICAL FEATURE	NO
FULL APPROACH MOVES ALARM	ACTIVATE

PROGRAM MENU QUESTIONS	PROGRAM
EDIT DIGITAL INPUTS	NO
EDIT BATTERIES	NO
EDIT RELAYS	NO
EDIT INDICATOR LEDES	NO
EDIT TEST LEDES	NO
EDIT ILOD SENSORS	NO
EDIT VHF SETTINGS	NO
GCP4K ATCS SUBNODE	16

NOTES:

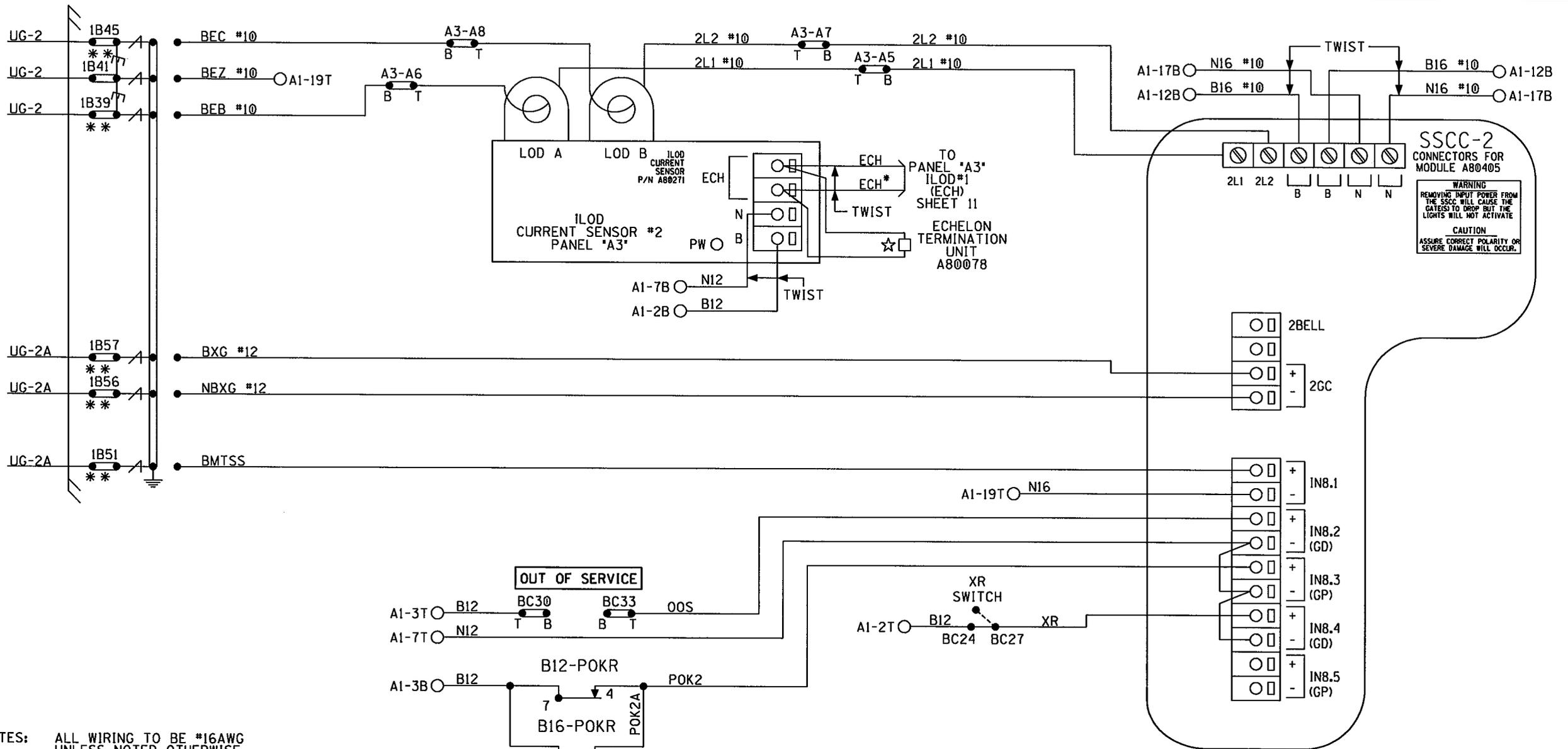
- * = DISPLAYED IF CROSSING CONFIGURATION IS SPLIT GATE
- ** = OPTIONS: IF BELL SENSOR = 0, THEN BELL FIELDS ARE NOT USED.
- *** = IF SITE TYPE = NO COMMUNICATION, THEN THESE OPTIONS ARE NOT DISPLAYED
- **** = THESE SETTINGS SHOULD BE LEFT AT THE DEFAULT SETTING.
- ***** = USE LAST 3 NUMBERS FROM DOT NUMBER

SEAR III PROGRAMMING SETUP

DESIGNED BY: DBS 10-30-08	
DRAWN BY: IRE 10-30-08	
CHECKED BY: JFK 10-31-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: 148.85-W
IN SERVICE: - -	MT. CARMEL, IL FLGS AT EMPIRE ST.
	SOUTHERN-WEST DISTRICT FILE NO. R-
	CADD or DWG. No. CS0999P.10 SHEET No. 10 of 33

REVISION
INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.



SSCC-2
CONNECTORS FOR
MODULE A80405

WARNING
REMOVING INPUT POWER FROM
THE SSCC WILL CAUSE THE
GATES TO DROP BUT THE
LIGHTS WILL NOT ACTIVATE

CAUTION
ASSURE CORRECT POLARITY OR
SEVERE DAMAGE WILL OCCUR.

NOTES: ALL WIRING TO BE #16AWG
UNLESS NOTED OTHERWISE.

* = ECHELON CONNECTIONS NOT TO EXCEED 53' IN LENGTH
AND TOTAL LENGTH NOT TO EXCEED 430' WITH A MAXIMUM
OF 8 NODES, RECOMMEND USE BELDEN WIRE CABLE #8461 OR EQUIVALENT.

** = TEST LINKS MUST BE OPENED TEMPORARILY FOR NEW
COLD START OF NEW OR REPLACEMENT SSCC MODULE
AND CAN ONLY BE CLOSED IN SEQUENCE WITH MFR.
INSTRUCTIONS: SECTION 8.8 OF THE GCP 4000 REFERENCE MANUAL.

☆ = A80078 ECHELON TERMINATION UNIT
TO TERMINATE ECHELON NETWORK.

PANEL "A2" CONNECTORS FOR SSCC#2 MODULE (A80405)
PANEL "A3" ILOD#2 (A80217) HOOK-UP

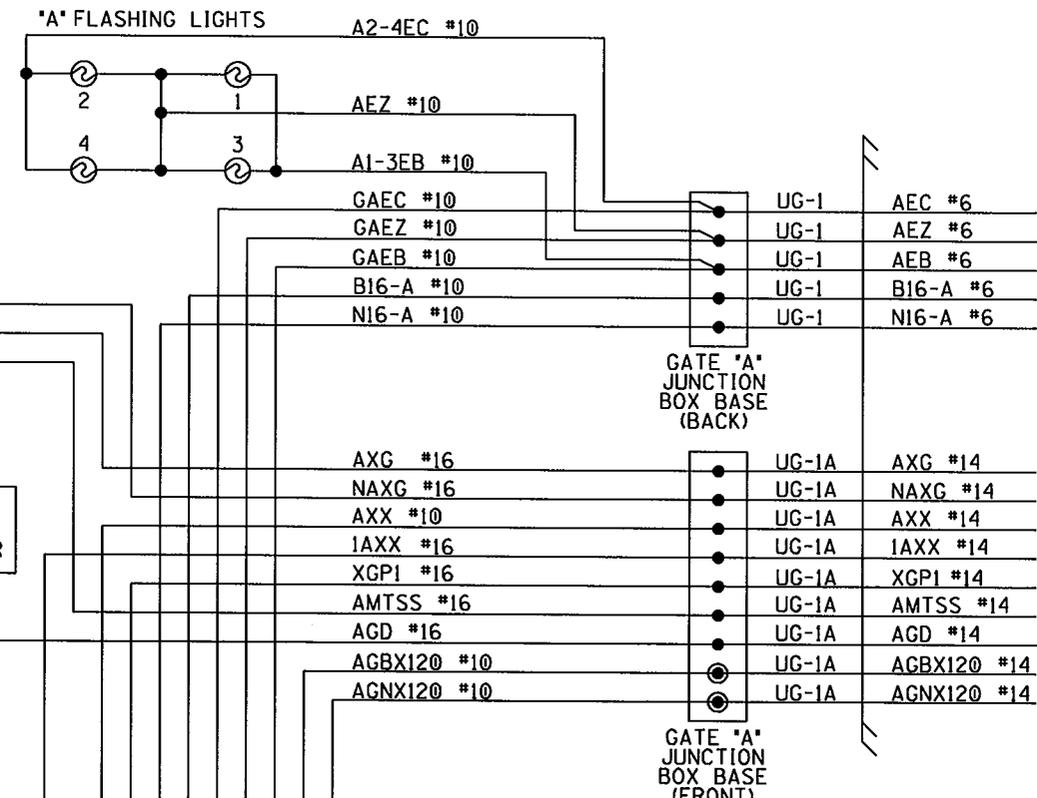
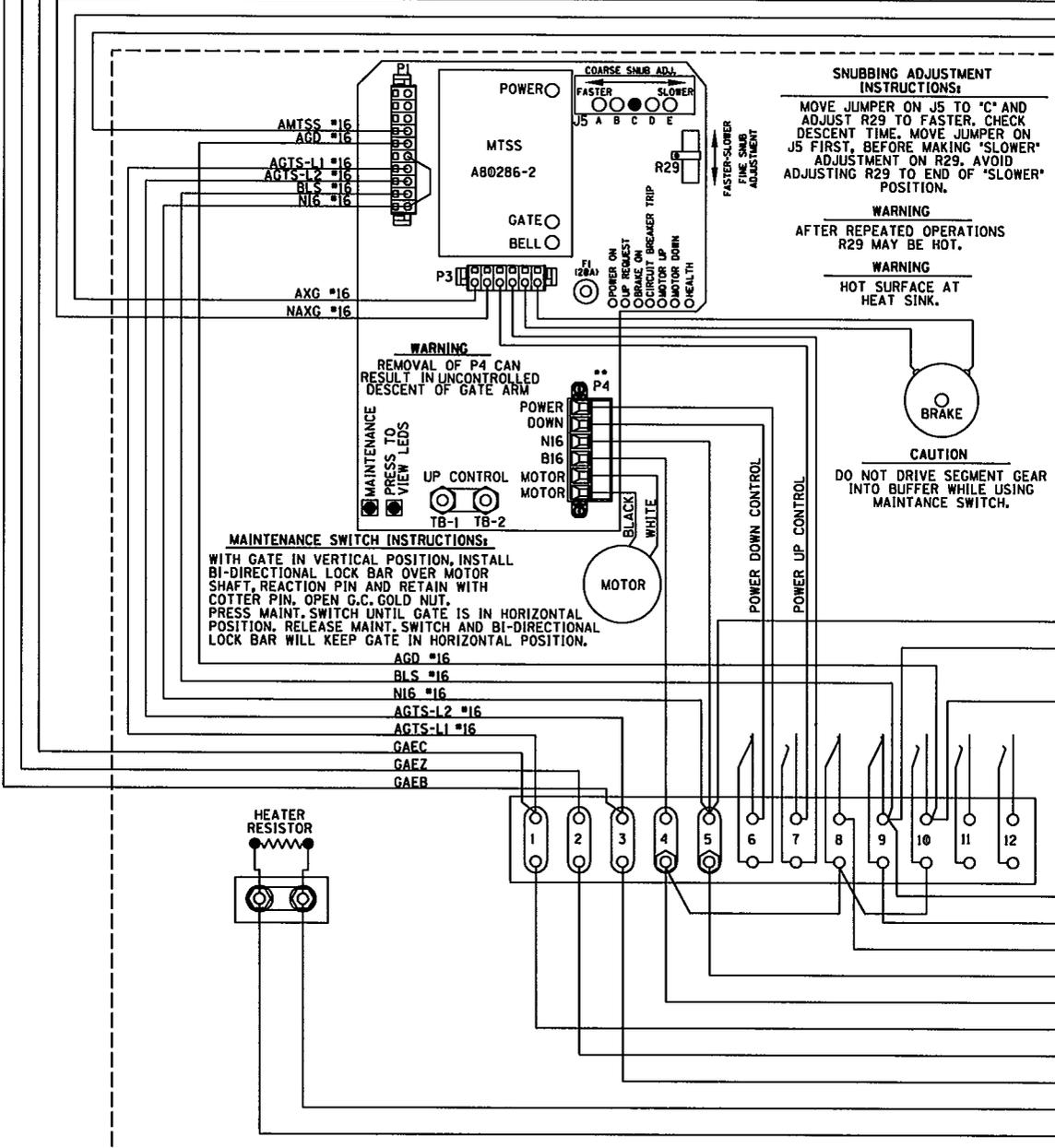
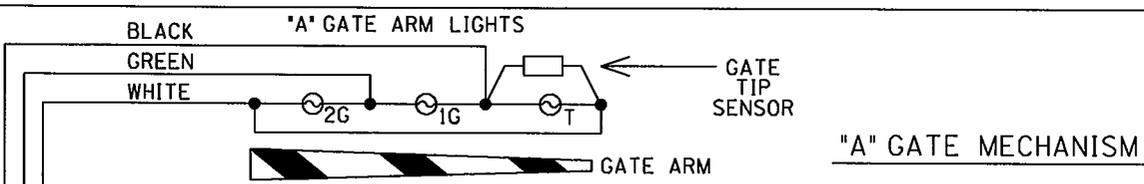
DESIGNED BY: DBS 10-30-08	NS NORFOLK SOUTHERN	
DRAWN BY: IRE 10-30-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: 148.85-W
CHECKED BY: JFK 10-31-08	MT. CARMEL, IL FLGS AT EMPIRE ST.	
IN SERVICE: -	SOUTHERN-WEST DISTRICT	FILE R-
	CADD or DWG. No. CS0999P.12	SHEET 12 of 33

REVISION
INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

SAFETRAN MODEL "S60" GATE

CONTACT SPACE	CONTACT CLOSED AT	FUNCTION OF CONTACT
6	70° - 90°	POWER DOWN CONTROL
7	0° - 89°	POWER UP CONTROL
8	83° - 90°	FLASHING LGT. CONTROL
9	5° - 90°	BELL CONTROL
10	0° - 5°	GATE DOWN INDICATION
11		SPARE
12		SPARE



"A" FLASHER AND GATE LIGHTS WITH GATE TIP SENSOR & MODEL "S60" GATE MECHANISM WITH MINI TRACKSIDE SENSOR

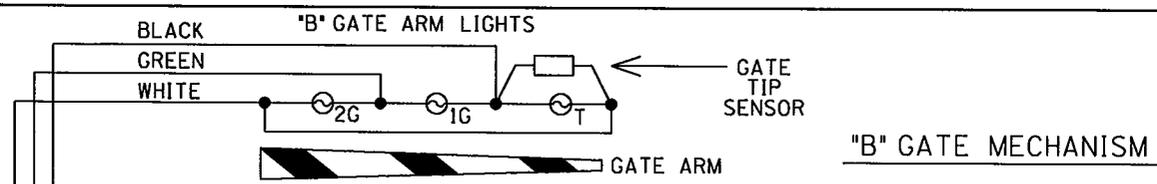
DESIGNED BY: DBS 10-30-08	NS NORFOLK SOUTHERN
DRAWN BY: IRE 10-30-08	
CHECKED BY: JFK 10-31-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: 148.85-W
IN SERVICE: -	MT. CARMEL, IL FLGS AT EMPIRE ST.
	SOUTHERN-WEST DISTRICT
	CADD or DWG. No. CS0999P.13
	FILE No. R- SHEET 13 of 33

REVISION INITIALS

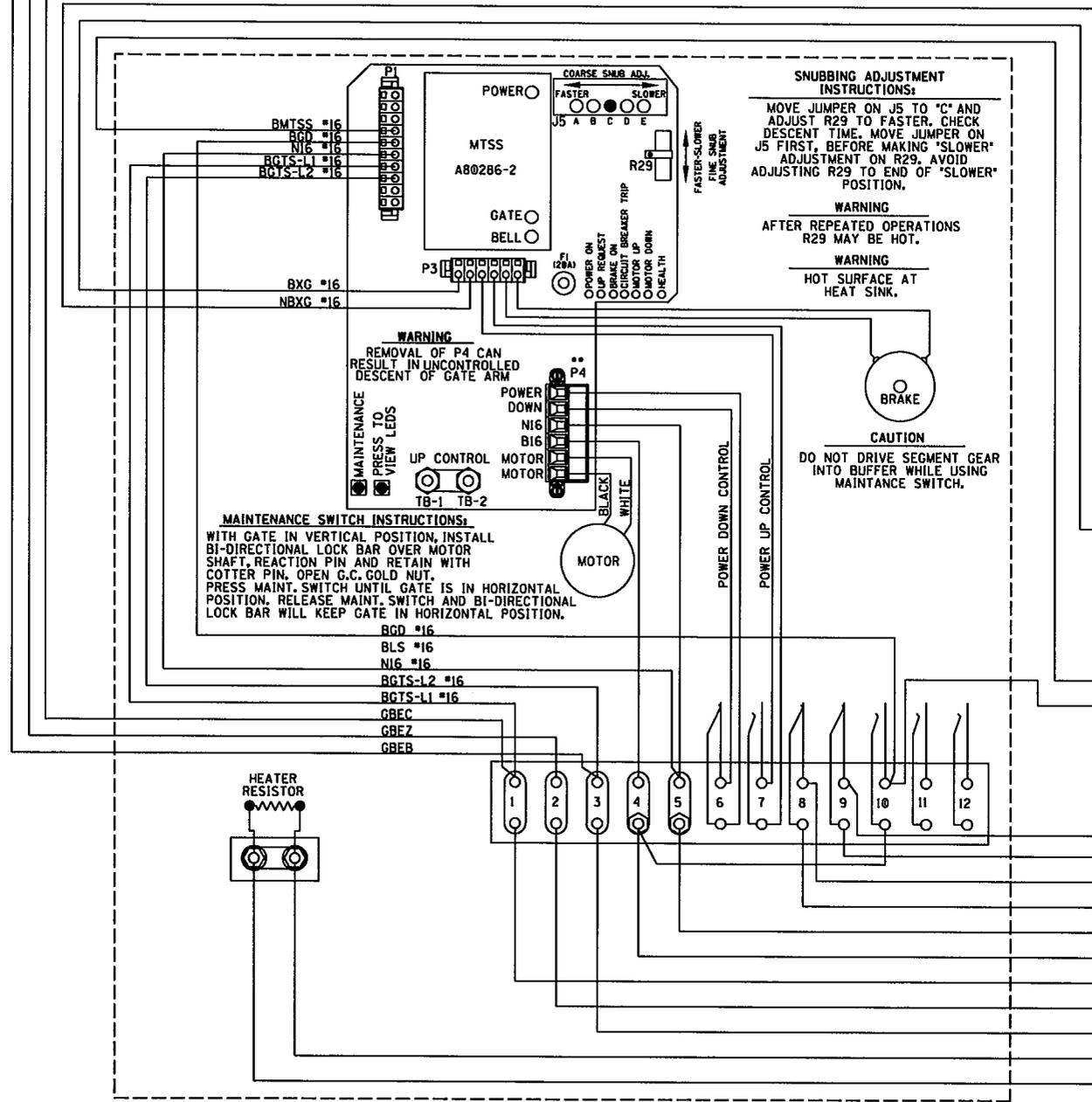
PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

SAFETRAN MODEL "S60" GATE

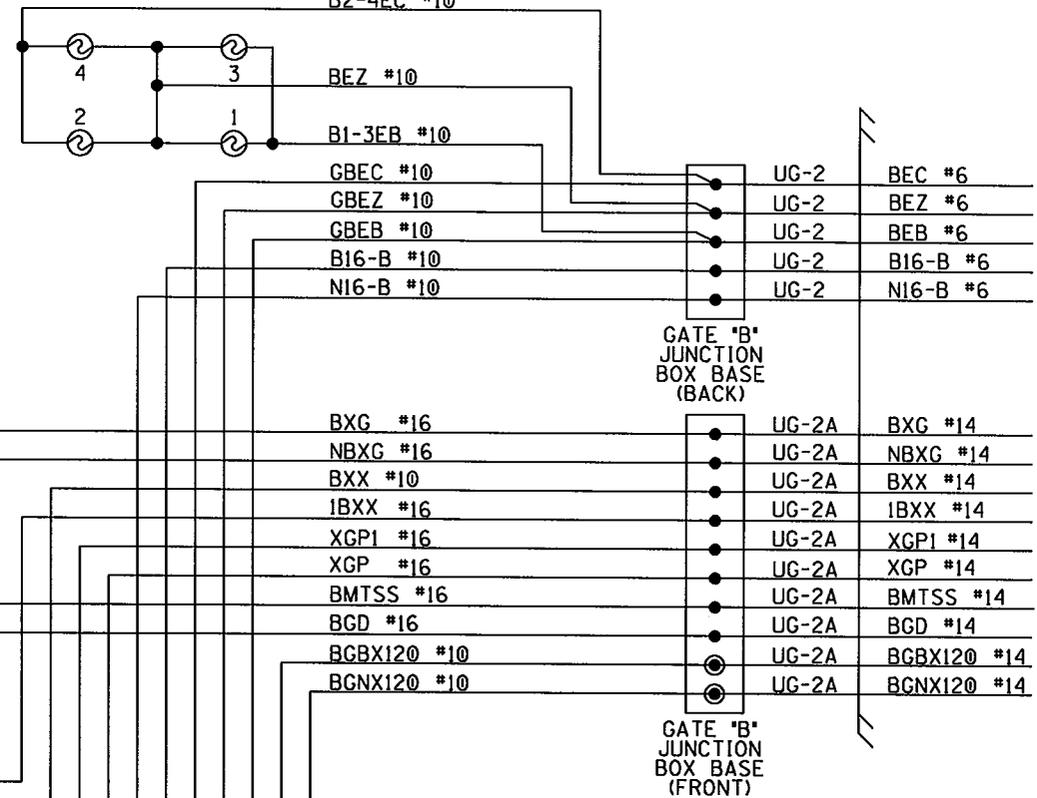
CONTACT SPACE	CONTACT CLOSED AT	FUNCTION OF CONTACT
6	70° - 90°	POWER DOWN CONTROL
7	0° - 89°	POWER UP CONTROL
8	83° - 90°	FLASHING LGT. CONTROL
9	5° - 90°	BELL CONTROL
10	0° - 5°	GATE DOWN INDICATION
11		SPARE
12		SPARE



"B" GATE MECHANISM



"B" FLASHING LIGHTS



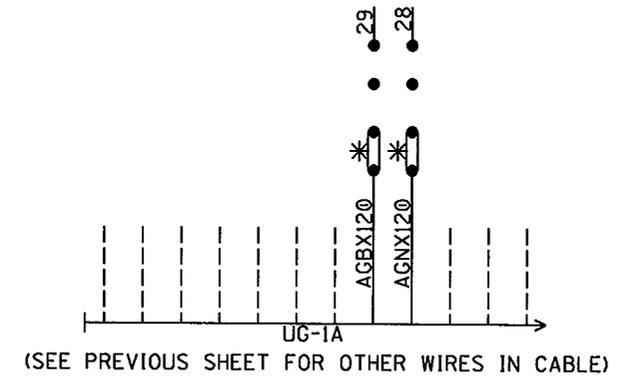
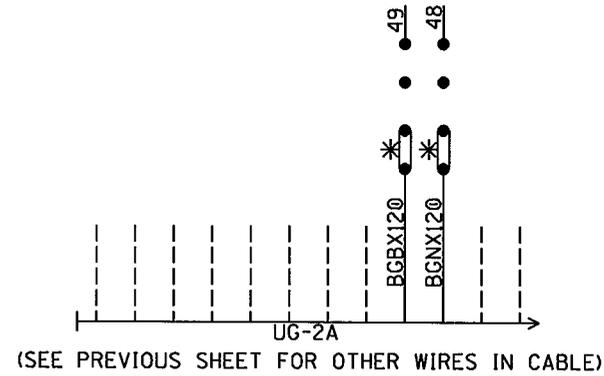
"B" FLASHER AND GATE LIGHTS WITH GATE TIP SENSOR & MODEL "S60" GATE MECHANISM WITH MINI TRACKSIDE SENSOR

DESIGNED BY: DBS 10-30-08	NS NORFOLK SOUTHERN	
DRAWN BY: IRE 10-30-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: 148.85-W
CHECKED BY: JFK 10-31-08	MT. CARMEL, IL FLGS AT EMPIRE ST.	
IN SERVICE:	SOUTHERN-WEST DISTRICT	FILE No. R-
	CADD or DWG. No. CS0999P.14	SHEET 14 of 33

REVISION INITIALS

PROPERTY NORFOLK SOUTHERN RAILWAY CO.

REAR VIEW OF LEFT TWO ROWS TERMINAL BOARD 1
"1A"
"1B"



NOTE: ALL 120VAC AND ABOVE WILL BE WIRED TO THE REAR OF FARADAY BACKBOARD. INSULATED NUTS MUST BE USED ON ALL TERMINALS.

* = CLOSED DURING WINTER MONTHS

REAR OF FARADAY BACKBOARD
REAR BACKBOARD DETAIL - 1A & 1B

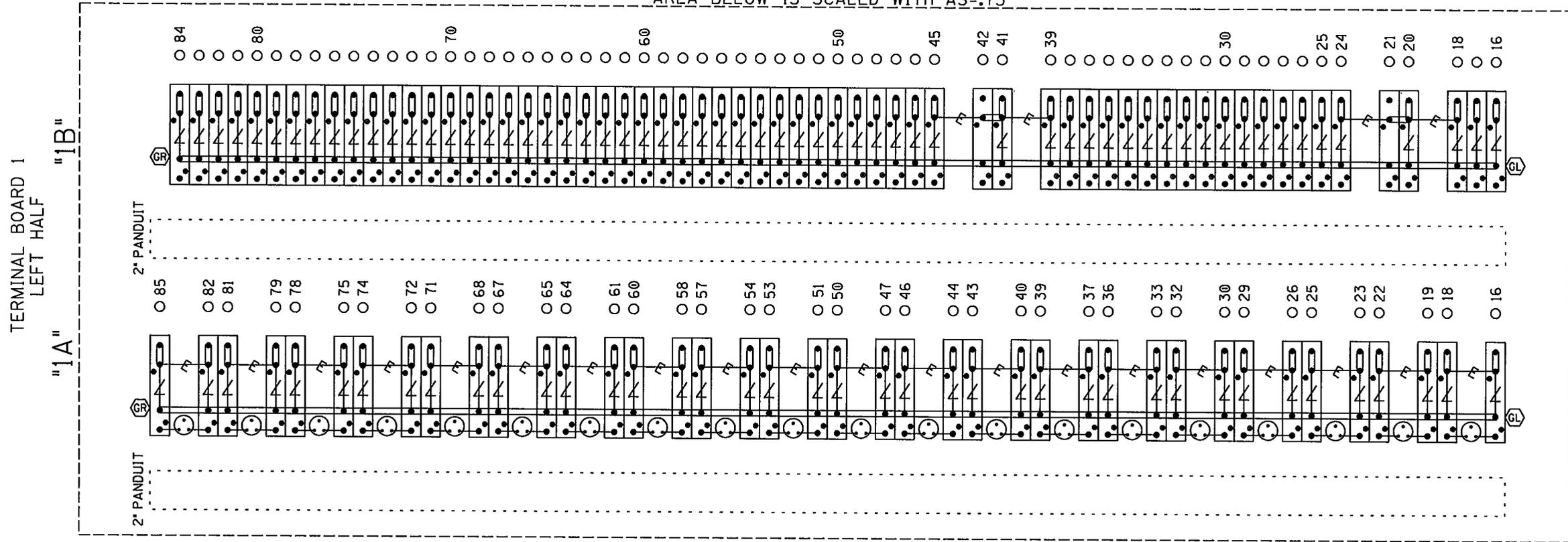
DESIGNED BY:	NS NORFOLK SOUTHERN	
DBS 10-30-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: 148.85-W
DRAWN BY:	MT. CARMEL, IL FLGS AT EMPIRE ST.	
IRE 10-30-08	SOUTHERN-WEST DISTRICT	
CHECKED BY:	FILE No. R-	
JFK 10-31-08	SHEET 16 of 33	
IN SERVICE:	CADD or DWG. No. CS0999P.16	

REVISION
INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

NOTE: IF THE FARADAY SHIELD WOULD EVER NEED TO BE DRILLED IN THE FIELD, PROPER PRECAUTIONS MUST BE TAKEN TO INSURE METAL SHAVINGS DO NOT GET INTO EXISTING TERMINALS/WIRES.

AREA BELOW IS SCALED WITH AS=.75



E = Heavy Duty Equalizer (022700-1X)

Z = Clearview Lightning Arrester (022585-1X)

⊙ = LPC-10560-51

GR = TERMINALS GROUNDED TO SHIELD. 4 POST BLOCKS USE EITHER - GR - SERMMI PART NO. 61278 GL - SERMMI PART NO. 61278-1.

TERMINAL BOARD 1
LEFT TWO ROWS
FARADAY SHIELD DETAIL - 1A & 1B

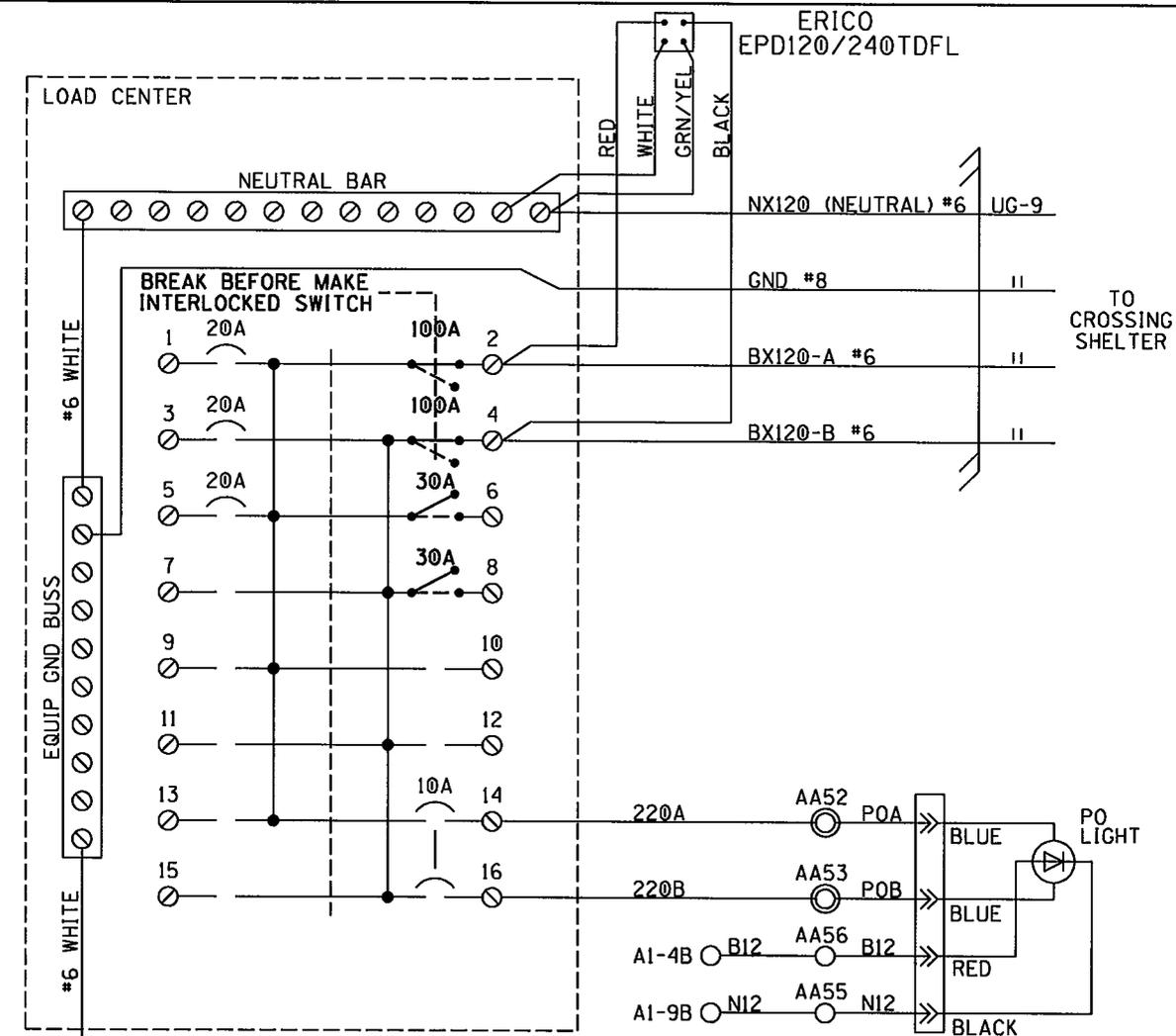
= INDICATES PLACEMENT OF PANDUIT

THIS SHEET IS FOR REFERENCE ONLY, TO REFLECT HOW THE FARADAY SHIELD IS PREDRILLED. ONLY INSTALL AND USE THE TERMINALS NEEDED.

DESIGNED BY: DBS 10-30-08	NS NORFOLK SOUTHERN
DRAWN BY: IRE 10-30-08	
CHECKED BY: JFK 10-31-08	MT. CARMEL, IL FLGS AT EMPIRE ST.
IN SERVICE: - -	SOUTHERN-WEST DISTRICT FILE No. R- CADD or DWG. No. CS0999P.17 SHEET No. 17 of 33

REVISION INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

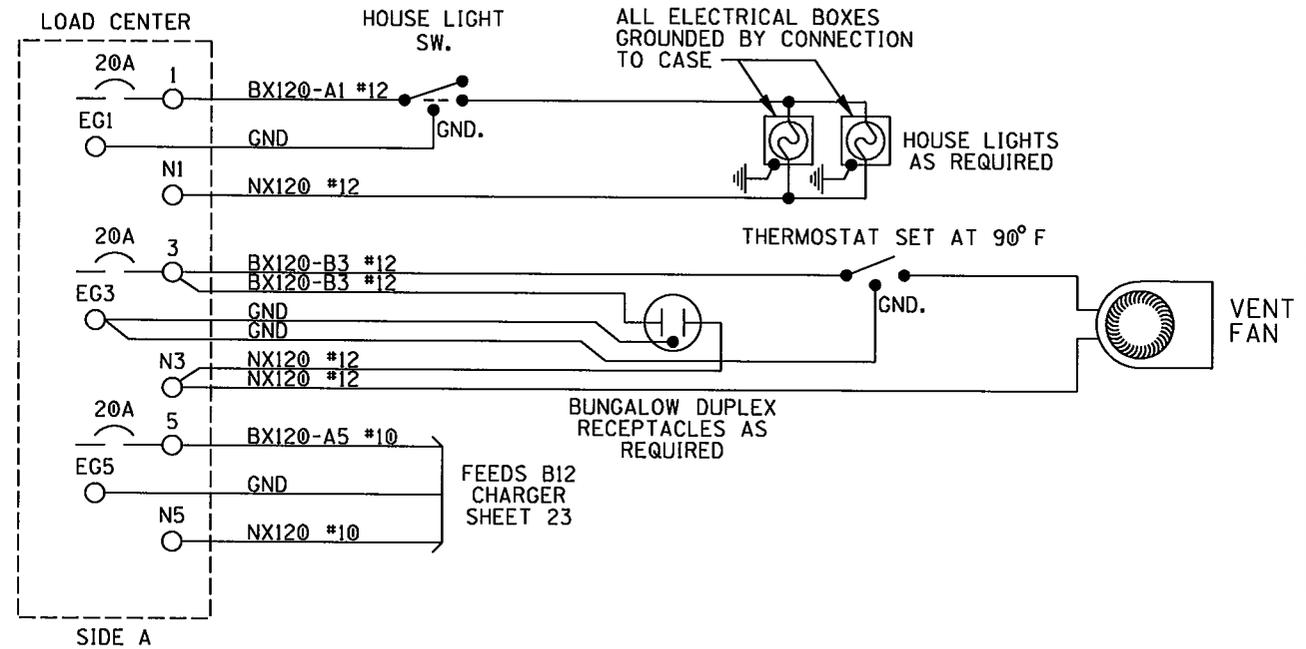


NOTE: ALL AC WIRING IS TO BE IN METALLIC CONDUIT WITH NO EXPOSED TERMINALS. ALL AC 120V AND 240V EQUIPMENT IS TO BE PROPERLY GROUNDED.

SQUARE "D" PART NUMBERS:

- LOAD CENTER — Q0116L125C
- 10A 1P CIR BKR — Q0110
- 10A 2P CIR BKR — Q0210
- 20A 1P CIR BKR — Q0120
- 30A 1P CIR BKR — Q0130
- 30A 2P CIR BKR — Q0230
- 60A 2P CIR BKR — Q0260
- 100A 2P CIR BKR — Q02100
- MECH INTERLOCK — PK4DTIM4LA

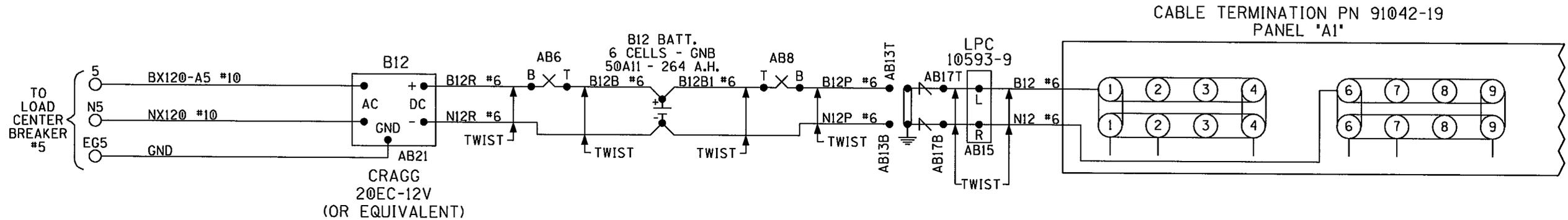
GENERATOR RECEPTACLE:
MALE CONNECTOR - NEMA L1430-FI



UNI-SHELTER
LOAD CENTER WIRING

DESIGNED BY:	DBS	10-30-08	NS NORFOLK SOUTHERN
DRAWN BY:	IRE	10-30-08	
CHECKED BY:	JFK	10-31-08	MT. CARMEL, IL FLGS AT EMPIRE ST.
IN SERVICE:	-	-	SOUTHERN-WEST DISTRICT FILE No. R-
PROPERTY NORFOLK SOUTHERN RAILWAY CO.			CADD or DWG. No. CS0999P.22 SHEET 22 of 33

REVISION
INITIALS

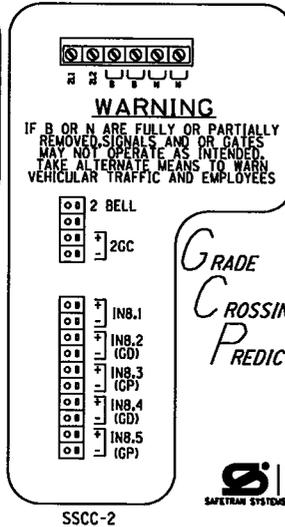
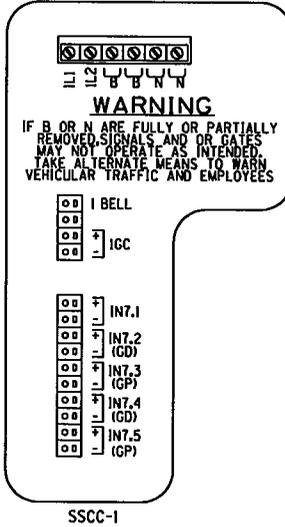
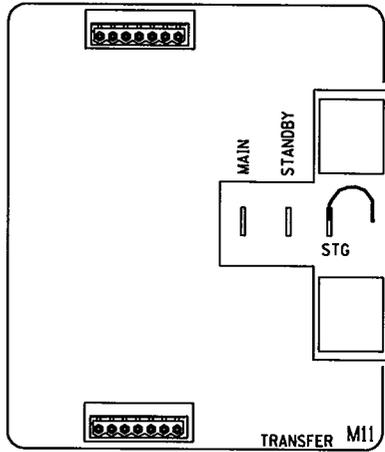
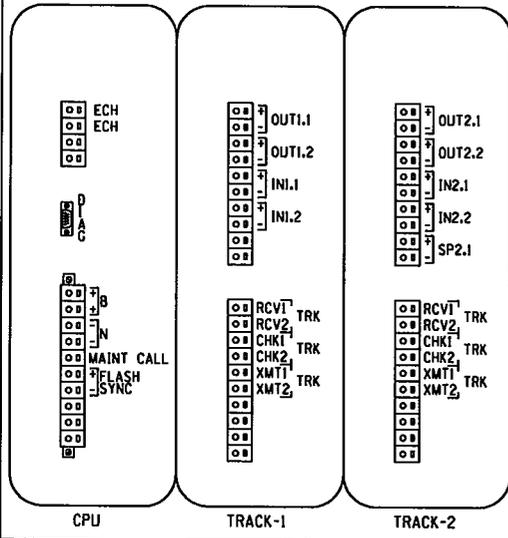


UNI-SHELTER
PANEL 'A1' CABLE TERMINATION PANEL
B12 RECTIFIER HOOK-UP

DESIGNED BY:		
DBS	10-30-08	
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: 148.85-W
IRE	10-30-08	
CHECKED BY:		MT. CARMEL, IL FLGS AT EMPIRE ST.
JFK	10-31-08	
IN SERVICE:		SOUTHERN-WEST DISTRICT
-		FILE No. R-
-		CADD or DWG. No. CS0999P.23
-		SHEET No. 23 of 33

REVISION																				
INITIALS																				

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.



GRADE CROSSING PREDICTOR

MODEL 4000
Dual 2 Track System

invensys SAFETRAN systems

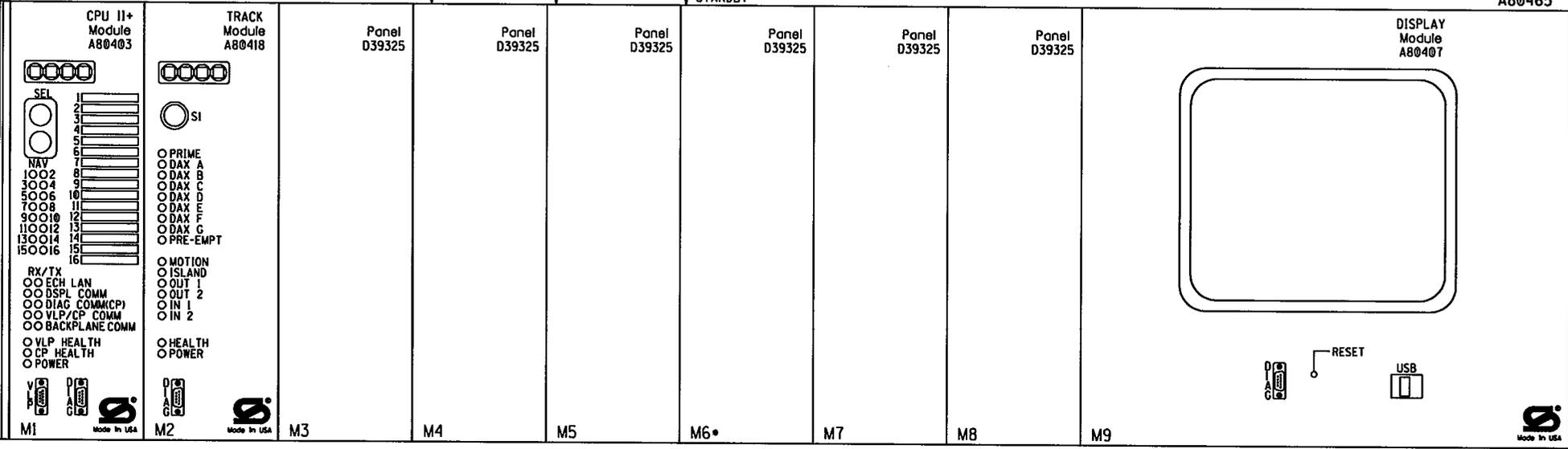
Made in USA A80465

WARNING

REMOVAL OF THE SSCCIII MODULE WILL CAUSE THE GATE(S) TO DROP BUT THE LIGHTS WILL NOT ACTIVATE

CAUTION

ASSURE CORRECT POLARITY OF THE SSCCIII MODULE OR SEVERE DAMAGE WILL OCCUR.



ATTENTION!

ENSURE THE DISPLAY MODULE HEATER IS DISABLED. LEAVING THE DISPLAY HEATER ENABLED WILL REDUCE THE AMOUNT OF BATTERY STANDBY TIME IN THE EVENT OF AN AC POWER FAILURE.

HEATER FUNCTION IS JUMPER SELECTABLE ON THE DISPLAY MODULE BOARD. THREE OPTIONS ARE AVAILABLE:

- NORMAL LCD HTR (DEFAULT)
- HI CURRENT
- NO JUMPER (HEATER DISABLED)

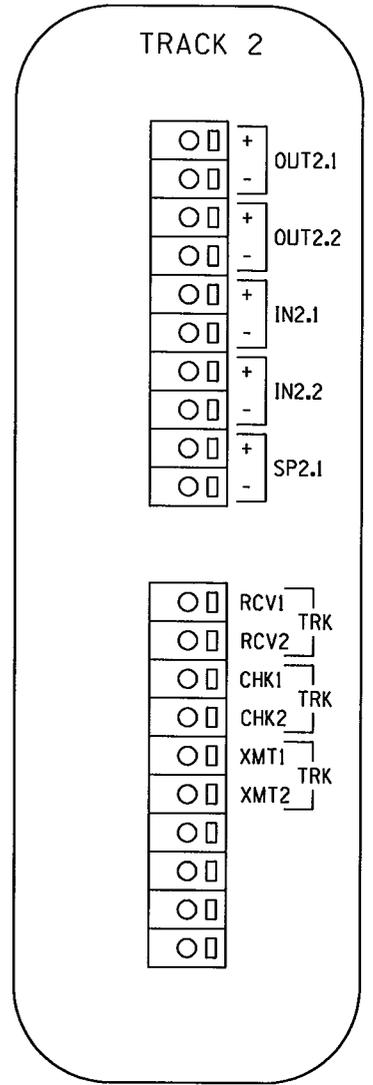
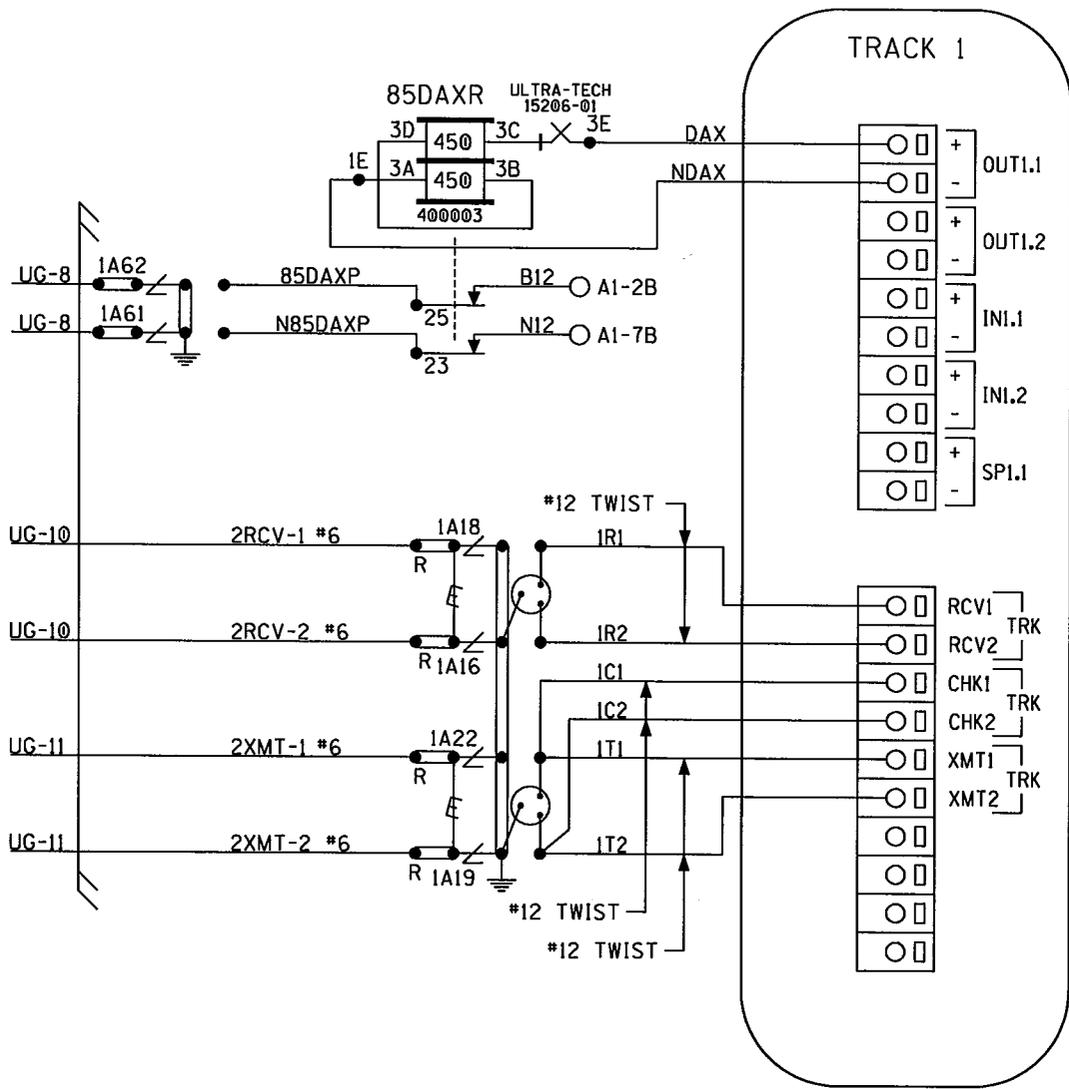
** MAIN AND STANDBY MAY USE RIO IN TRACK 2 SLOTS (M3 AND M6)

UNI-SHELTER
PANEL "A2" 4000 GCP
2-TK CHASSIS AND MODULE LAYOUT

DESIGNED BY:	DBS 10-30-08	NS NORFOLK SOUTHERN
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
CHECKED BY:	JFK 10-31-08	MT. CARMEL IL FLGS AT EMPIRE ST.
IN SERVICE:	- -	SOUTHERN-WEST DISTRICT
PROPERTY	NORFOLK SOUTHERN RAILWAY CO.	FILE No. R-
REVISION INITIALS		CADD or DWG. No. CS0999P.24
		SHEET No. 24 of 33

REVISION INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.



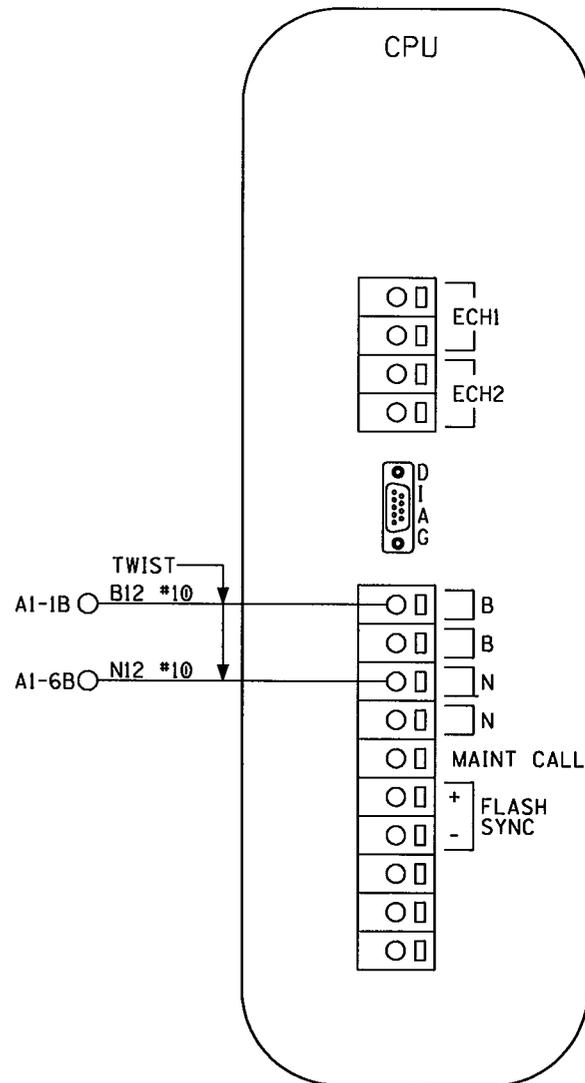
NOTE:
ALL WIRING TO BE #16AWG
UNLESS NOTED OTHERWISE.

UNI- SHELTER
PANEL "A2" CONNECTORS FOR MODULES (A80418)

DESIGNED BY: DBS 10-30-08	
DRAWN BY: IRE 10-30-08	
CHECKED BY: JFK 10-31-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: 148.85-W
IN SERVICE: - -	MT. CARMEL, IL FLGS AT EMPIRE ST.
	SOUTHERN-WEST DISTRICT
	CADD or DWG. No. CS0999P.26
	FILE No. R- SHEET No. 26 of 33

REVISION
INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.



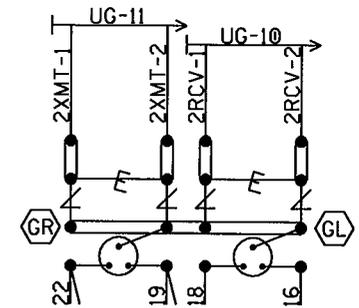
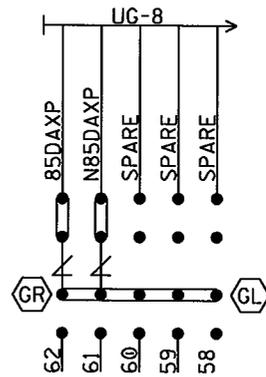
UNI-SHELTER
 PANEL "A2" CONNECTORS FOR MODULE A80403

DESIGNED BY:	NS NORFOLK SOUTHERN	
DBS 10-30-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: 148.85-W
DRAWN BY:	MT. CARMEL, IL FLGS AT EMPIRE ST.	
IRE 10-30-08	SOUTHERN-WEST DISTRICT	
CHECKED BY:	FILE No. R-	
JFK 10-31-08	CADD or DWG. No. CS0999P.27	
IN SERVICE:	SHEET No. 27 of 33	

REVISION
INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

LEFT TWO ROWS TERMINAL BOARD 1 "1A" "1B"



NOTE: INSTALL TEST LINKS ON ALL TRACK WIRES AND ON ALL LOW VOLTAGE UNDERGROUND CABLE TERMINATIONS.

SEE FARADAY SHIELD DETAILS - 1A & 1B FOR HOW THIS PORTION OF THE FARADAY SHIELD IS PREDRILLED. ONLY INSTALL AND USE THE TERMINALS NEEDED.

= Heavy Duty Equalizer (022700-1X)

= Clearview Lightning Arrester (022585-1X)

= LPC-10560-51

= TERMINALS GROUNDED TO SHIELD.
 4 POST BLOCKS USE EITHER -
 GR - SERMMI PART NO. 61278
 GL - SERMMI PART NO. 61278-1.

UNI-SHELTER BACKBOARD DETAIL - 1A & 1B

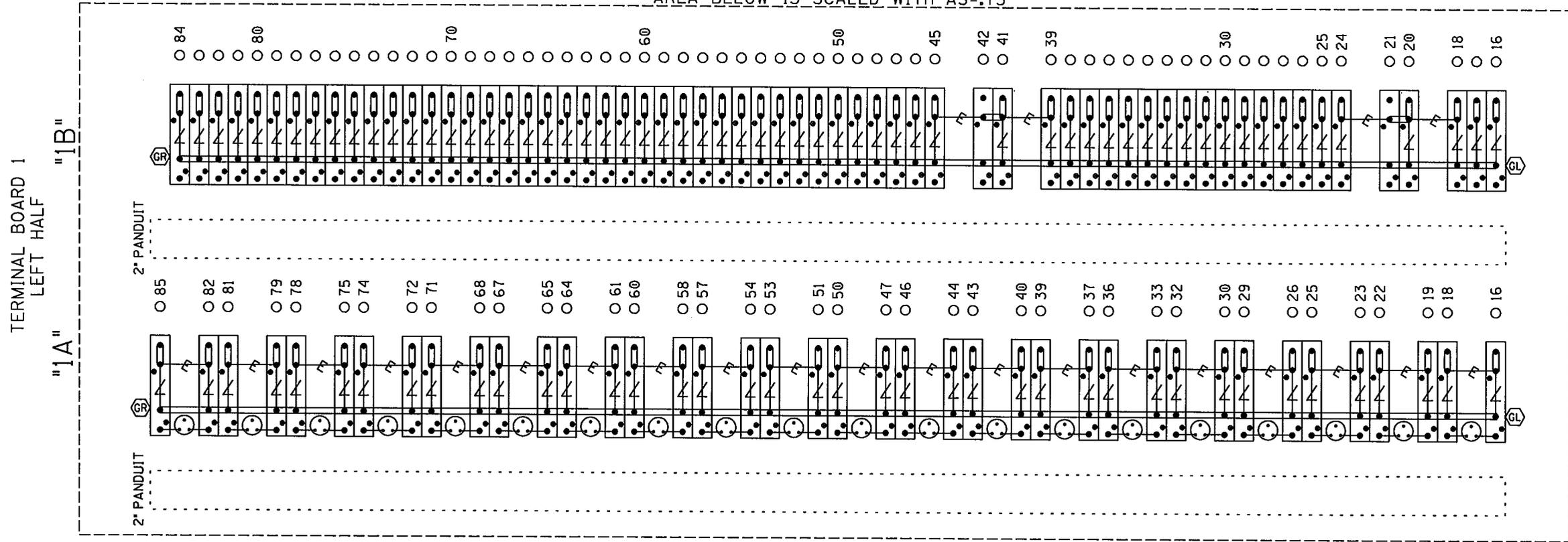
DESIGNED BY:	DBS	10-30-08	
DRAWN BY:	IRE	10-30-08	
CHECKED BY:	JFK	10-31-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: 148.85-W
IN SERVICE:	-	-	MT. CARMEL, IL FLGS AT EMPIRE ST.
			SOUTHERN-WEST DISTRICT
			FILE No. R-
			SHEET No. 28 of 33
			CADD or DWG. No. CS0999P.28

REVISION INITIALS																			
-------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

PROPERTY NORFOLK SOUTHERN RAILWAY CO.

NOTE: IF THE FARADAY SHIELD WOULD EVER NEED TO BE DRILLED IN THE FIELD, PROPER PRECAUTIONS MUST BE TAKEN TO INSURE METAL SHAVINGS DO NOT GET INTO EXISTING TERMINALS/WIRES.

AREA BELOW IS SCALED WITH AS=.75



E = Heavy Duty Equalizer (022700-1X)

Z = Clearview Lightning Arrester (022585-1X)

(•) = LPC-10560-51

GR = TERMINALS GROUNDED TO SHIELD. 4 POST BLOCKS USE EITHER - GR - SERMMI PART NO. 61278 GL - SERMMI PART NO. 61278-1.

UNI-SHELTER
 TERMINAL BOARD 1
 LEFT TWO ROWS
 FARADAY SHIELD DETAIL - 1A & 1B
 LOAD CENTER WIRING

= INDICATES PLACEMENT OF PANDUIT

THIS SHEET IS FOR REFERENCE ONLY, TO REFLECT HOW THE FARADAY SHIELD IS PREDRILLED. ONLY INSTALL AND USE THE TERMINALS NEEDED.

DESIGNED BY: DBS 10-30-08	NS NORFOLK SOUTHERN
DRAWN BY: IRE 10-30-08	
CHECKED BY: JFK 10-31-08	MT. CARMEL, IL FLGS AT EMPIRE ST.
IN SERVICE: - -	SOUTHERN-WEST DISTRICT FILE No. R- CADD or DWG. No. CS0999P.29 SHEET No. 29 of 33

REVISION INITIALS

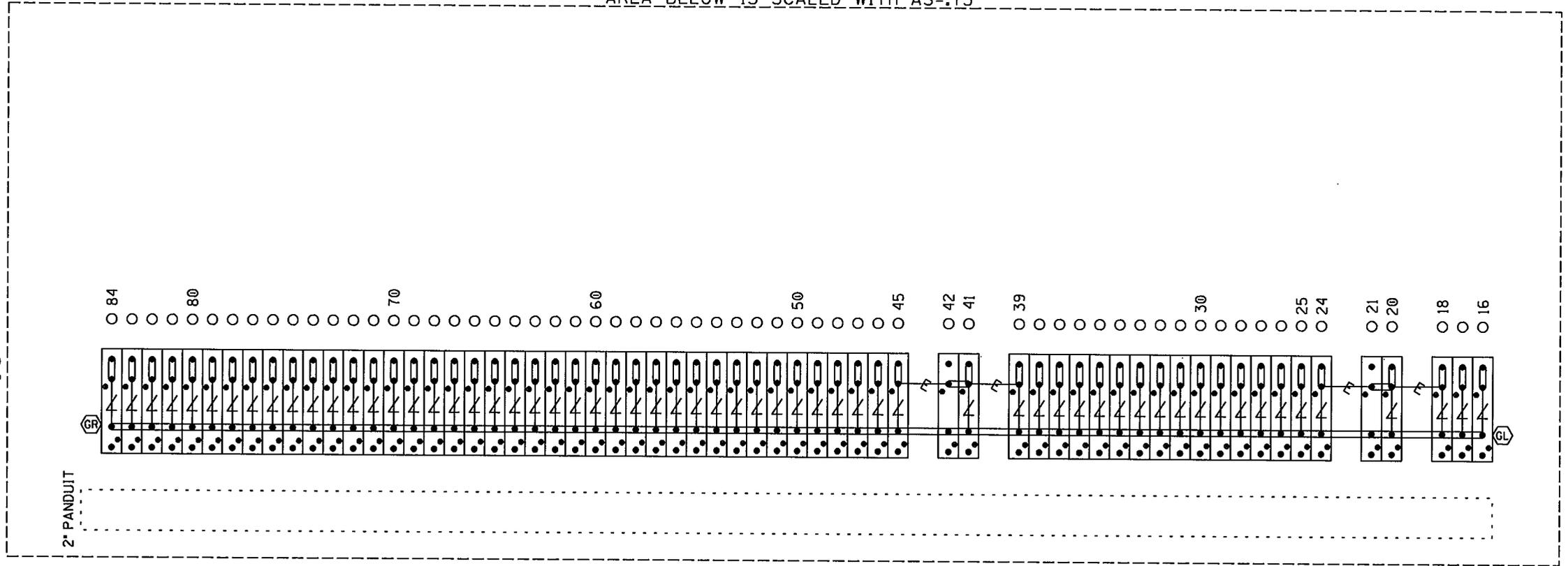
PROPERTY
 NORFOLK SOUTHERN RAILWAY CO.

NOTE: IF THE FARADAY SHIELD WOULD EVER NEED TO BE DRILLED IN THE FIELD, PROPER PRECAUTIONS MUST BE TAKEN TO INSURE METAL SHAVINGS DO NOT GET INTO EXISTING TERMINALS/WIRES.

AREA BELOW IS SCALED WITH AS=.75

TERMINAL BOARD 1
RIGHT HALF

"1C"



= Heavy Duty Equalizer
(022700-1X)

= Clearview
Lightning Arrester
(022585-1X)

= LPC-10560-51

= TERMINALS GROUNDED TO SHIELD.
4 POST BLOCKS USE EITHER -
GR - SERMMI PART NO. 61278
GL - SERMMI PART NO. 61278-1.

UNI-SHELTER
TERMINAL BOARD 1
RIGHT ROW
FARADAY SHIELD DETAIL - 1C

= INDICATES PLACEMENT
OF PANDUIT

THIS SHEET IS FOR REFERENCE ONLY,
TO REFLECT HOW THE FARADAY SHIELD
IS PREDRILLED. ONLY INSTALL AND USE
THE TERMINALS NEEDED.

DESIGNED BY:	NORFOLK SOUTHERN	
DBS 10-30-08	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: 148.85-W
DRAWN BY:	MT. CARMEL, IL FLGS AT EMPIRE ST.	
IRE 10-30-08	SOUTHERN-WEST DISTRICT	
CHECKED BY:	FILE No. R-	
JFK 10-31-08	SHEET	
IN SERVICE:	No. 30 of 33	
	CADD or DWG. No. CS0999P.30	

REVISION
INITIALS

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

