

FILE

30



RECEIVED-DOCKETING DIV

Norfolk Southern Corporation
Communications and Signal Department
1200 Peachtree Street, N.E., Box 123
Atlanta, Georgia 30309

2007 JAN 19 AM 8:50

B. L. Sykes
Chief Engineer
C&S Engineering
404/529-2105

PUCO

January 15, 2007

061-10.0610

06-1273-RR-FED

Docketing Division
180 East Broad Street - 13th Floor
Columbus, Ohio 43215

Dear Ms. Johrendt:

**Re: The modification of crossing warning devices at Dueber Avenue in Canton,
Stark County, Ohio, DOT: 502-713V, Milepost PC-102.76.**

Attached for your review and approval is a copy each of the detailed cost estimate, material list and engineering plans for this crossing.

Although we cannot give you an exact date of installation at this time we can provide our average installation time, which is 9.1 months after authorization from the state. After this project is authorized, we will order material and schedule for installation once we have received approvals from ODOT's District Office.

Please date stamp a copy of this letter and forward to Mr. R. S. Noe, Assistant General Attorney, Norfolk Southern Corporation, Three Commercial Place, Norfolk, Virginia 23510.

If you have any questions, please call John A. Beauford at 404-582-6412.

Sincerely,

B. L. Sykes

B. L. Sykes

Enclosure

BLS/rhr/gbb/jab/rjs

E/cy.: Mr. R. S. Noe, NS Corporation, Norfolk, VA
Ms. Susan Kirkland - ORDC (w/plans, estimate and material list)
Ms. Susan Arduini-ORDC (w/plans, estimate and material list)
Mr. G. Martin - PUCO (w/plans, estimate and material list)
Mr. M. Forte - ORDC (w/plans, estimate and material list)

This is to certify that the images appearing are an accurate and complete reproduction of a case file document delivered in the regular course of business.
Technician *76* Date Processed 1-19-07



15-Jan-07

Detailed Estimate for Grade Crossing Warning Devices

City/State: CANTON, OH
MilePost: PC-102.76
State Proj. No.:
S&E Proj. No.: 10.0007
Man Days: 136

Road: DUEBER AVE
DOT/AAR: 502713V
County: STARK
AFE: F10078
File Number: 061-10.0610

Purchases - Others	
Meals and Lodging:	\$12,796.19
Rental of Equipment:	\$27,975.20
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 34 Days)	
Construction Supervision Vehicle:	\$2,238.02
Purchases - Other Total:	\$43,009.41
Material And Additives	
Material Cost:	\$92,653.00
Sales and Use Tax:	\$0.00
Material Handling Freight:	\$4,632.67
Material Total:	\$97,285.67
Labor And Additives	
Labor Cost:	\$32,912.00
(4 man crew at \$968.00 a day for: 34 days)	
Payroll Tax & Overheads:	\$32,467.69
Preliminary Engineering:	\$11,049.76
Construction Supervision:	\$9,291.06
Labor Total:	\$85,720.51
Project Cost:	\$226,015.59
Scrap / Salvage Credit:	\$0.00
Project Total:	\$226,015.59

Estimated on: 15-Jan-07

Estimated by: enjab

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:	CANTON
Road:	DUEBER AVE
Mile Post:	PC-102.76
Drawing Number:	2402-1028
State Project Number:	
County:	STARK
A A R Number:	502713V
Project Number:	10.0007
File Number:	061-10.0610
New File Number:	
A F E Number:	F10078
Store Number:	
Supervisor:	C.A. EWING
Tax Code:	3500
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 Date Quan.	Quantity Returned (Credit)	Special Instructions
3	670-360693-4	EA	\$5.04	\$15.12	AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY S'TRAN.				
4	670-119241-4	EA	\$32.80	\$131.20	ARRESTOR, LIGHTNING HEAVY DUTY CLEAR VIEW SAFETRAN 022585-1X				
1	670-003301-4	EA	\$266.99	\$266.99	BARRICADE, ARMCO STEEL 10033-17 METAL 72 IN CIRCULAR				
13	105-871901-4	EA	\$161.57	\$2,100.41	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 28" AND LESS				
1	670-356949-4	EA	\$97.00	\$97.00	CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524, FEMALE CONNECTOR				
500	465-292862-4	LF	\$1.04	\$520.00	CABLE, U-2-6 TWISTED, S-23 OKONITE 113-12-3833 SOLID TINNED CONDUCTOR				
400	465-292929-4	LF	\$3.05	\$1,220.00	CABLE, U.G. 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL				
400	465-939422-4	LF	\$2.55	\$1,020.00	CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL				
300	465-791835-4	FT	\$2.22	\$666.00	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	\$2.55	\$306.00	CONDUIT, 4"x10' PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4				
6	670-090450-4	EA	\$50.38	\$302.28	CONNECTOR, WELDED FAR RAIL HARMON A1000-2W				
6	670-486646-4	EA	\$41.62	\$249.72	CONNECTOR, WELDED NEAR RAIL HARMON A1000-1W				
2	670-793404-4	EA	\$838.37	\$1,676.74	COUNTERWEIGHT PKAGE, 17-24 GATE S'TRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS				
5	670-760012-4	EA	\$40.02	\$200.10	COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. ====TO COVER 2 LAMPS====				
1	670-986650-4	EA	\$375.69	\$375.69	DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER				

APPROVED BY STATE APPROVED BY RAILROAD CAR NUMBER SEAL NUMBER

Location: CANTON		OH	S&E Proj. No.: 10.0007	A/E No.: F10078	Drawing No.: 2402-1028	Vendor: Safetran Systems Corp.			
Store No.:		P.O. Number:		Date Required:	Date Shipped:				
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Quantity Returned (Credit)	Special Instructions
1	670-000004-4	EA	\$700.00	\$700.00	FCC LICENSE FOR MONITOR/RADIO				
2	670-000003-4	EA	\$255.85	\$511.70	FILL/STONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST				
2	670-015231-4	EA	\$423.50	\$847.00	FOUNDATION, DIXIE, S-2 GATE 56" ASSEMBLED				
2	670-270444-4	EA	\$500.17	\$1,000.34	GATE, ARM NEG ALUMI-LITE (HIGH WIND) 27'-33' ARM ASSEMBLY WITH '3" NEG 2018 LIGHTS. INCLUDES GATE GUARD FOR GATE LIGHT CABLE, NEG P/N 8006A-334N/CG				
1	640-547363-4	EA	\$286.11	\$286.11	JOINT, INSL 130RE 6H 1 1/8IN BOLT POLY DRLD 6-7-5 1/4-7-6 IRJ 6259				
1	670-477991-4	EA	\$317.90	\$317.90	KIT, GROUNDING ASSY FOR ALI/S INCLUDES 8 GRD RDS, 200' #4 WIRE, 12 4 WIRE ONE-SHOTS. ERICO SBK206				
1	670-123298-4	EA	\$256.93	\$256.93	KIT, HARDWARE SUPPLIES REQUIRED XING PCKAGES. WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS, P'GUM PAINT, SLEEVES, TAGS, GLUE, 100 EA WHITE TAGS,)NE CAN BLUE MARKING PAINT ETC...				
1	670-015294-4	EA	\$630.41	\$630.41	LAMP ASSY, 5" MAST MTG. 1W IND. SPECIAL POINTED RT. USED OVER 2W #042003-001538 USE W/MAST 0890 R 670-011651-4				
2	670-764166-4	EA	\$907.65	\$1,815.30	LAMP ASSY, 5" MAST MTG. 2W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-487XNS				
6	165-643547-4	EA	\$4.30	\$25.80	LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/ISC CLEAR RWY SIGNAL UJ-71463 GE				
4	670-442062-4	EA	\$1.17	\$4.68	LINK, TEST SAFETRAN 024620-4X COMP FOR MTG ON AAR TERM 2-3/8" CENTER W/SPECIAL NUT & CLAMP NUT				
4	255-590880-4	EA	\$16.12	\$64.48	LOCK, AMERICAN LOCK MODEL H-10KA KEYS ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"				
1	610-150566-4	EA	\$1,287.36	\$1,287.36	MAST, 5" ALUMINUM (0&90) RIGHT FOR LIGHT UNITS RIGHT OR LEFT W/DBL. JCT. BOX BASE SAFETRAN #070519-47X				
1	670-637778-4	EA	\$1,031.41	\$1,031.41	MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. S'TRAN P# 070519-11AX.				
2	670-850933-4	EA	\$3,352.65	\$6,705.30	MECHANISM, GATE MODEL S-60, WITH DEFROSTER AND MINI TRACKSIDE SENSOR S'TRAN # 0740007-X002B3				
APPROVED BY STATE		APPROVED BY RAILROAD				CAR NUMBER		SEAL NUMBER	

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 Date Quan.	Quantity Returned (Credit)	Special Instructions
1	670-000007-4	EA	\$307.02	\$307.02	MISC. EXPENSE FOR TRACK WORK (I.E. INS JTS, RODS, ETC.)				
1	670-000001-4	EA	\$316.23	\$316.23	MISC. MATERIAL				
2	670-700469-4	EA	\$1,240.83	\$2,481.66	MODULE, MULTI FREQUENCY ISLAND SAFETRAN #80211 FOR 3000GCP				
1	670-001007-4	EA	\$0.00	\$0.00	MODULE, RELAY ADAPTER FOR INTERFACE BETWEEN GCP3000 OUTPUT AND UAXENABLE TERMINALS. SAFETRAN P/N 8000-80170-001				
4	670-001347-4	EA	\$63.27	\$253.08	PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR				
1	255-646807-4	EA	\$10.38	\$10.38	PADLOCK, SAFETRAN PART NO. 030399-29X SCREW TYPE FOR CIR CONTROLLER AND BTY. BOX				
1	670-275866-4	EA	\$1,505.42	\$1,505.42	PANEL, SAFETRAN 80049 DC SHUNTING ENHANCER PANEL				
1	670-514605-4	EA	\$8.45	\$8.45	PINNACLE, W-C SECT 1-11, 4"X 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X				
1	670-535383-4	EA	\$11,754.00	\$11,754.00	PREDICTOR, DUAL FREQ, GRADE CROSSING 3000D2 1 TRACK, SAFETRAN #80110-101-0 DUAL UNIT, NO ISLAND				
2	165-103293-4	EA	\$62.43	\$124.86	PROTECTOR, LIGHTNING & SURGE LPC 10560-51, 3 ELECTRODE WITH SPADE TERMINAL				
1	165-902002-4	EA	\$308.00	\$308.00	PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL				
4	465-002899-4	EA	\$22.06	\$88.24	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES				
2	670-215166-4	EA	\$21.98	\$43.96	RELAY, (AC INTERRUPT FOR SEARII) POTTER & BRUMFIELD 120V AC KUMP-14A18-120 SAFETRAN P/N T18354				
2	670-218934-4	EA	\$20.62	\$41.24	RELAY, (AC INTERRUPT FOR SEARII) POTTER & BRUMFIELD 12V DC KUMP-14D18-12 SAFETRAN P/N T18353				
2	435-805560-4	EA	\$6.25	\$12.50	SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER				
1	670-816502-4	EA	\$4,903.75	\$4,903.75	SEARII AUTOMATED INSPECTOR SYSTEM KIT, w/ 1-LOD, 1-eBELL, 2-GTS, WITHOUT MTSS, 1-GFT, 1-VHFC, 2- RECORDER INTERFACE MODULE, 1-ECHOLON CONNECTOR				
1	670-306005-4	EA	\$1,094.78	\$1,094.78	SEARII I/O PANEL UNIT, SAFETRAN P/N A80258				

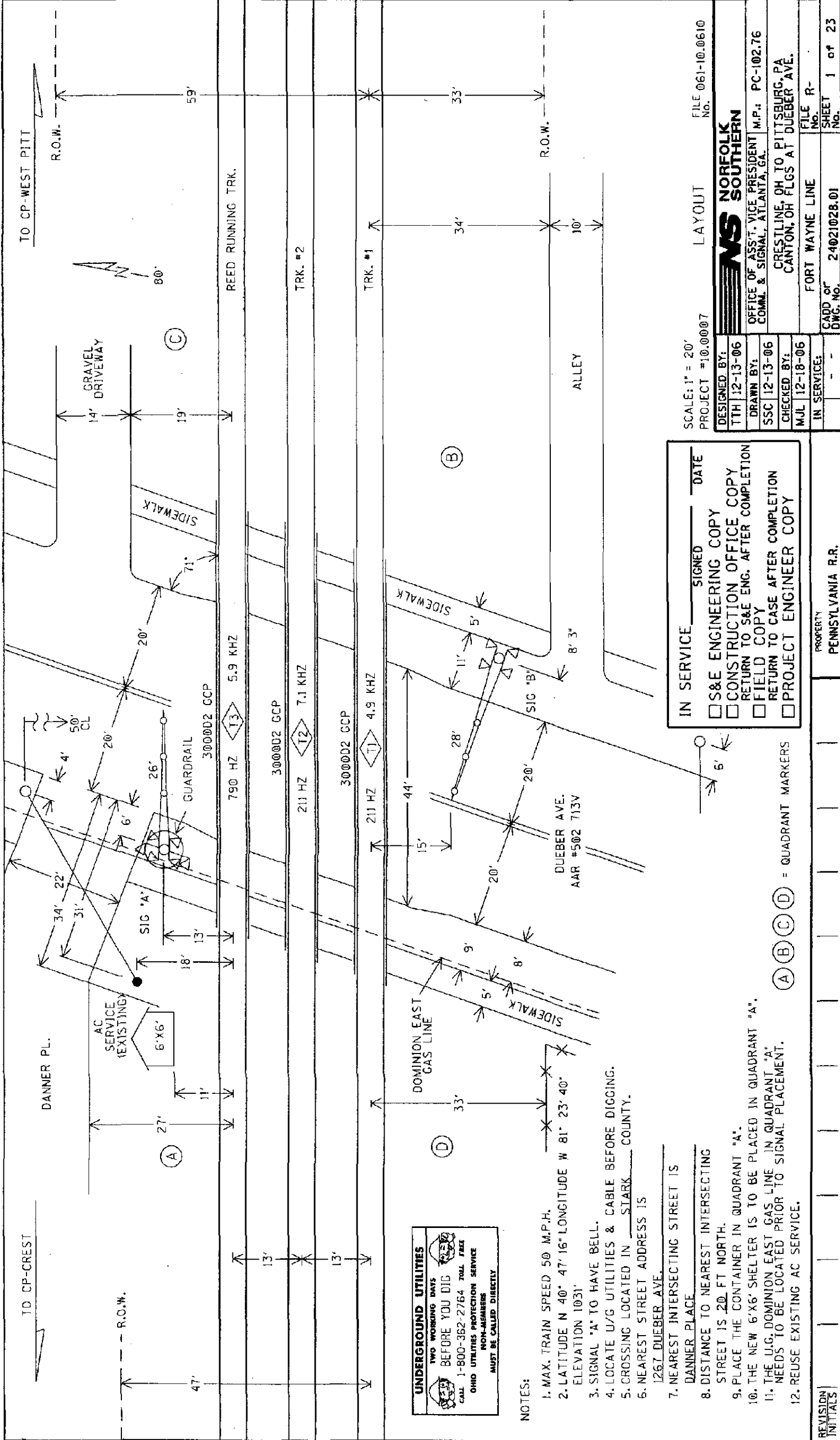
APPROVED BY STATE APPROVED BY RAILROAD CAR NUMBER SEAL NUMBER

Location: CANTON
 Store No.: OH S&E Proj. No.: 10.0007 AFE No.: F10078 Drawing No.: 2402-1028
 P.O. Number: Date Required: Date Shipped: Vendor: Safetran Systems Corp.

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Quantity Returned (Credit)	Special Instructions
1	670-281280-4	EA	\$7,006.00	\$7,006.00	SHELTER BARE 6X6, ALUMN, FARADAY, W/CABLE CHUTES BEHIND TERMINAL BOARD, W/GEN. CONN. W/ADJUSTABLE PIERS, SAFETRAN P/N 058400-66-78A				
6	670-586967-4	EA	\$37.68	\$226.08	SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT				
2	670-688850-4	EA	\$370.27	\$740.54	SHUNT, MULTI-FREQ. #62775-3497 SAFETRAN NARROW BAND				
4	670-645460-4	EA	\$596.03	\$2,384.12	SHUNT, MULTI-FREQ. #62775-8621 SAFETRAN NARROW BAND				
2	670-393331-4	EA	\$37.43	\$74.86	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215				
2	670-806848-4	EA	\$56.42	\$112.84	SIGN, X-BUCK, LESS HARDWARE, SAFETRAN 035200-X CR 02-490546				
2	670-803355-4	EA	\$32.01	\$64.02	SIGN, "3" TRACK, LESS HARDWARE POWER PARTS				
1	670-330382-4	RL	\$15.68	\$15.68	TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING STOP DIGGING"				
4	670-478560-4	EA	\$19.47	\$77.88	TERMINAL BLOCK, ERICO 4 POST P/N B2700A2C1WH W/HARDWARE LESS LIGHTNING ARRESTOR				
1	670-007238-4	EA	\$64.73	\$64.73	UNIT, THE INSTALLATION AND WIRING OF A DEVICE WHICH REQUIRE A MINIMUM OF FOUR WIRE CONNECT.				
100	465-999111-4	LF	\$0.29	\$29.00	WIRE, NO.10, 1 CONDUCTOR, CASE, FLEXIBLE 37 STRAND, 3/64 IN. INSULATION-ORDER EXT. AMT. NEEDED CR 02-620502				
1	670-262739-4	EA	\$31,408.11	\$31,408.11	WIRED RACK, 6X6 FARADAY, 20AMP DOUBLE TRK SSCCIIIA, GCP3000D2, 2 CRAGG CHARGER, 2 RELAY RACKS, SAFETRAN P/N 20A 2TRK, USE WITH I/S 670-281280-4 W/CABLE CHUTES BEHIND THE FARADAY SHIELD				
1	450-986008-4	EA	\$24.84	\$24.84	WRENCH, TEST POST TYPE B DWG 55393-3, GR.1				

Total Material: \$92,653.46

APPROVED BY STATE APPROVED BY RAILROAD CAR NUMBER SEAL NUMBER



UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL 1-800-362-2764 TOLL FREE
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

NOTES:

1. MAX. TRAIN SPEED 50 M.P.H.
2. LATITUDE N 40° 47' 16" LONGITUDE W 81° 23' 40" ELEVATION 1031'
3. SIGNAL "A" TO HAVE BELL.
4. LOCATE U/G UTILITIES & CABLE BEFORE DIGGING.
5. CROSSING LOCATED IN STARK COUNTY.
6. NEAREST STREET ADDRESS IS 1267 DUEBER AVE.
7. NEAREST INTERSECTING STREET IS DANNER PLACE
8. DISTANCE TO NEAREST INTERSECTING STREET IS 20 FT NORTH.
9. PLACE THE CONTAINER IN QUADRANT "A".
10. THE NEW 6'x6' SHELTER IS TO BE PLACED IN QUADRANT "A".
11. THE U.G. DOMINION EAST GAS LINE IN QUADRANT "A" NEEDS TO BE LOCATED PRIOR TO SIGNAL PLACEMENT.
12. REUSE EXISTING AC SERVICE.

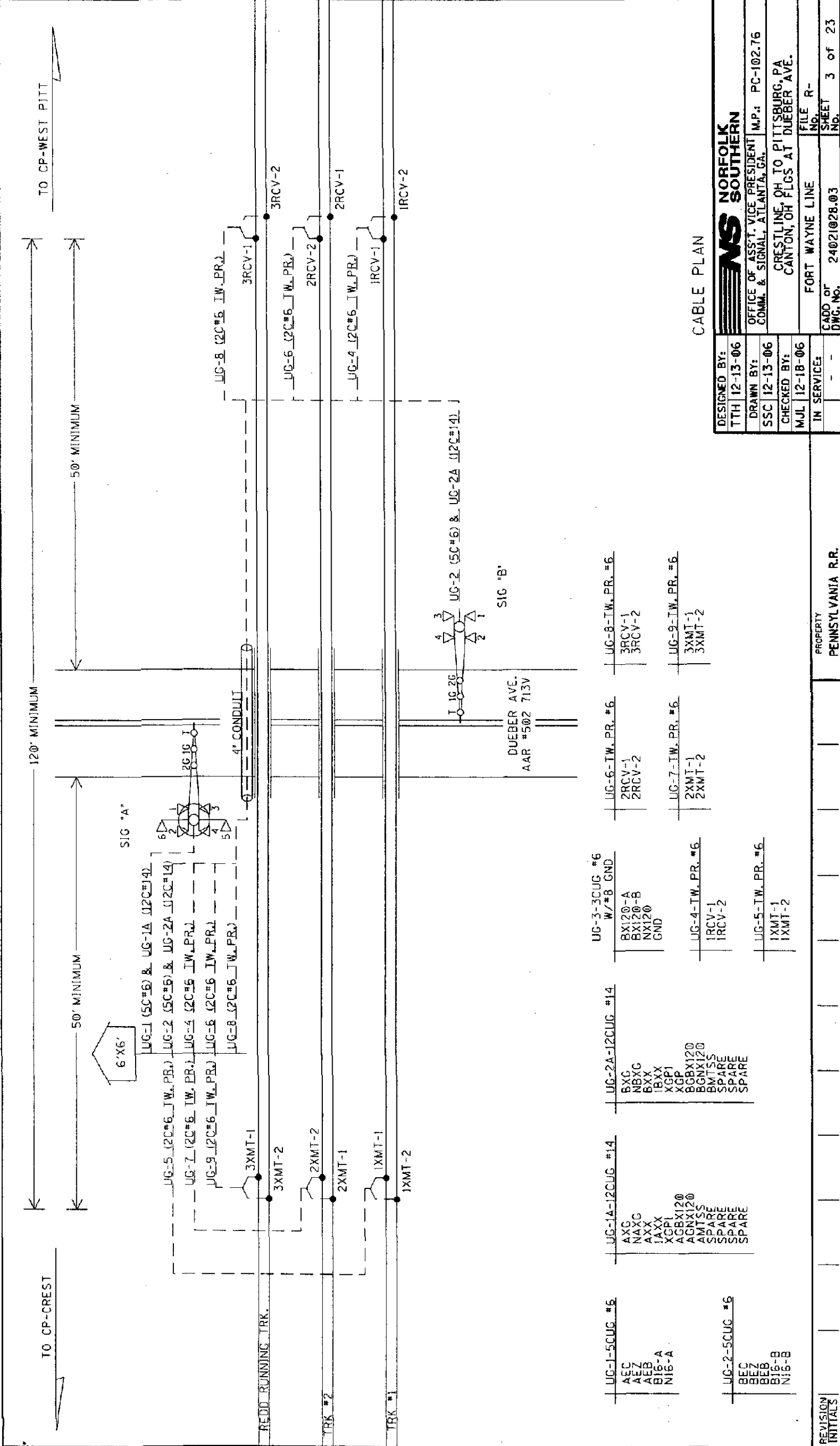
IN SERVICE _____ SIGNED _____ DATE _____

☐ S&E ENGINEERING COPY
☐ CONSTRUCTION OFFICE COPY
RETURN TO S&E ENG. AFTER COMPLETION
☐ FIELD COPY
RETURN TO CASE AFTER COMPLETION
☐ PROJECT ENGINEER COPY

SCALE: 1" = 20'
PROJECT #10.0007
LAYOUT
FILE 061-10.0610

DESIGNED BY: TTH 12-13-06	NORFOLK SOUTHERN	
DRAWN BY: SSC 12-13-06	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: PC-102.76
CHECKED BY: MJL 12-18-06	CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.	
IN SERVICE:	FORT WAYNE LINE	FILE R-
REVISION INITIALS	CADD OF DWG. No.	SHEET 1 of 23

PROPERTY
PENNSYLVANIA R.R.



CABLE PLAN

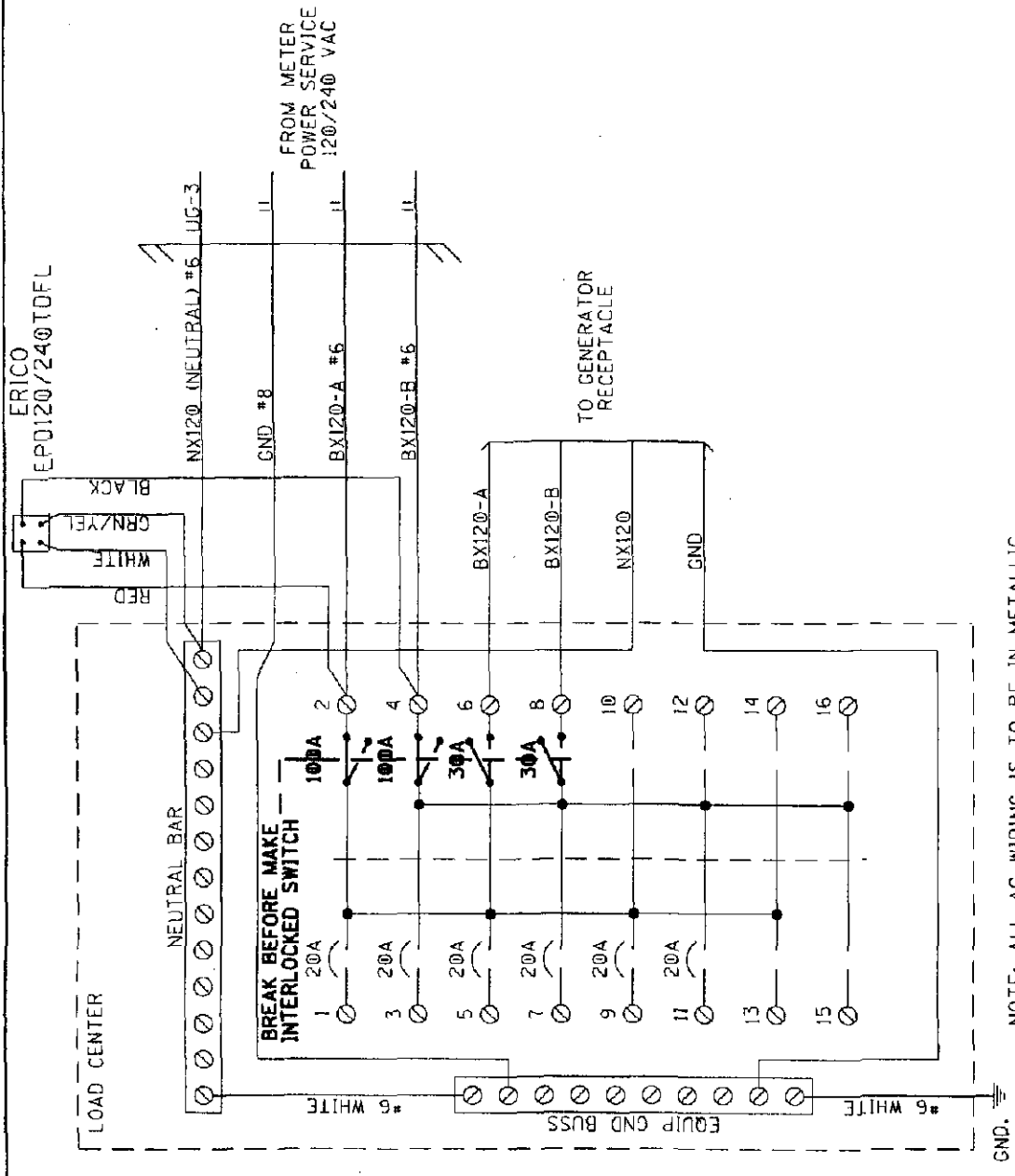
DESIGNED BY:	TTH 12-13-06
DRAWN BY:	SSC 12-13-06
CHECKED BY:	MJL 12-18-06
IN SERVICE:	- -
FILE NO.	24021028.03
SHEET NO.	3 of 23



OFFICE OF ASST. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA.
M.P.: PC-102.76
CRESTLINE, OH TO PITTSBURG, PA
CANTON, OH FLGS AT DUEBER AVE.

PROPERTY
PENNSYLVANIA R.R.

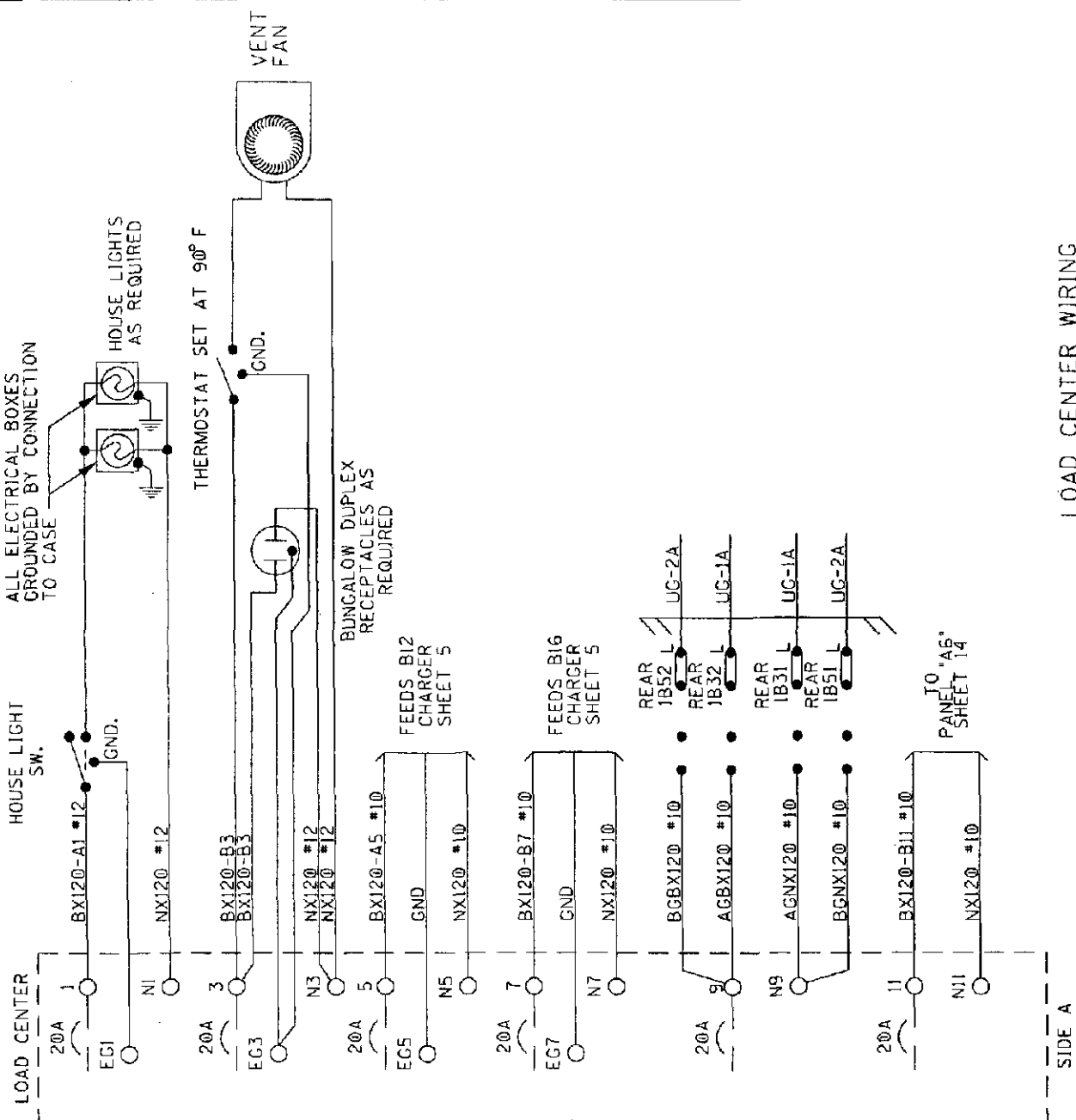
REVISION
INITIALS



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
 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:	TTH 12-13-06
DRAWN BY:	SSC 12-13-06
CHECKED BY:	MUL 12-18-06
IN SERVICE:	- -
FILE No.	R-
CADD No.	24021028.04
SHEET No.	4 of 23

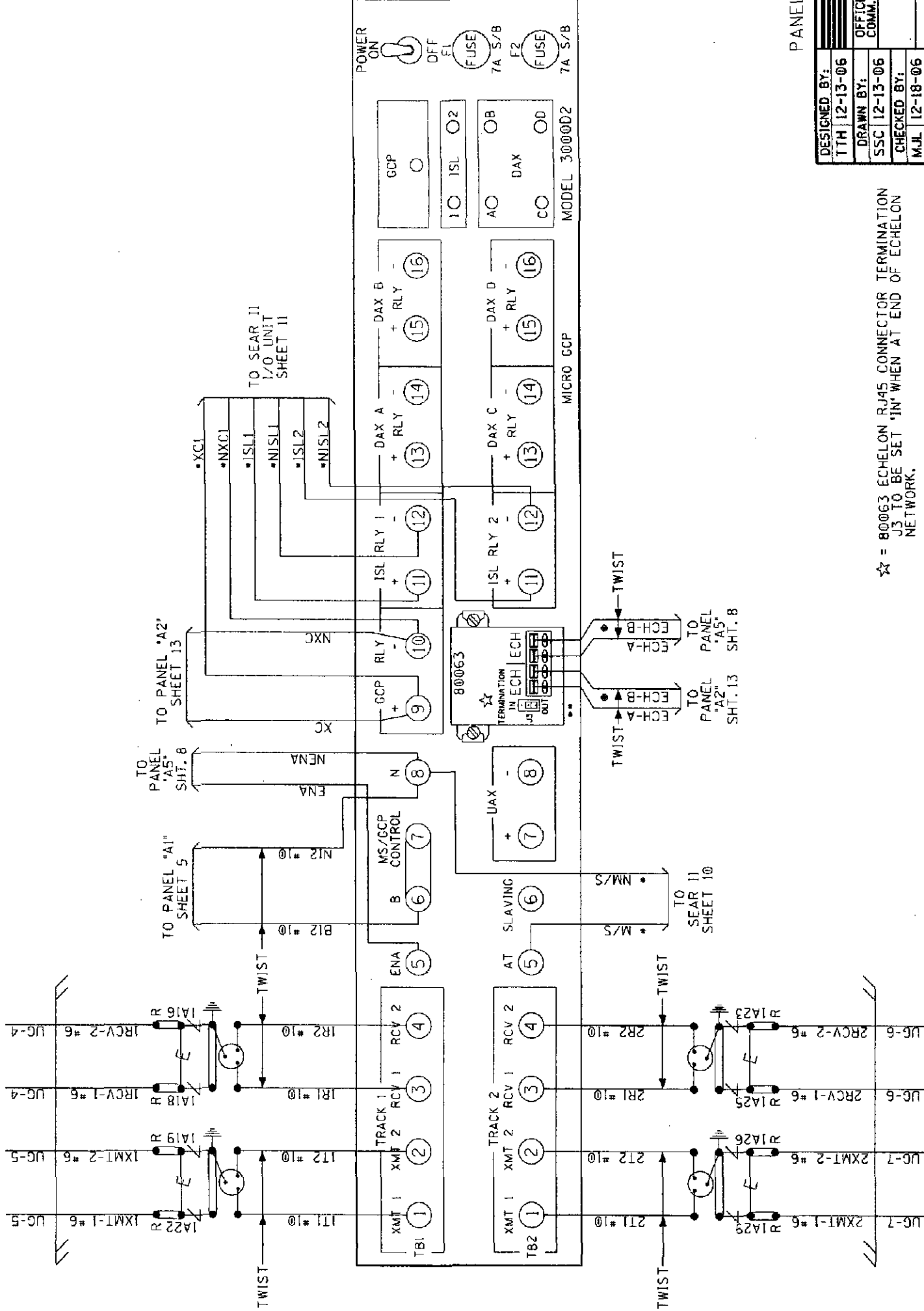
OFFICE OF ASST. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA. M.P.: PC-102.76

CRESTLINE, OH TO PITTSBURG, PA.
CANTON, OH FLGS AT DUEBER AVE.

FORT WAYNE LINE

PROPERTY

PENNSYLVANIA R.R.



NO. 1
3000D2 GCP 'A3'

T1 IF = 4.9 KHZ
T2 IF = 7.1 KHZ

- NOTES:
- ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE.
 - * = CABLE PROVIDED WITH SEAR II
 - ** = 80063 ADAPTER CARD AND E-LEVEL OR LATER SOFTWARE NEEDED FOR SEAR II / ECHELON CAPABILITIES.
 - = 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.

PANEL 'A3' NO. 1 3000D2 GCP HOOK-UP

DESIGNED BY:	TTH 12-13-06
DRAWN BY:	SSC 12-13-06
CHECKED BY:	MJL 12-18-06
IN SERVICES:	-
CADD OF:	24021028.05
DWG. No.	24021028.05
SHEET	6 of 23



OFFICE OF ASS'T. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA.

CRESTLINE, OH TO PITTSBURG, PA
CANTON, OH FLGS AT DUEBER AVE.

FORT WAYNE LINE

FILE R-

☆ = 80063 ECHELON RJ45 CONNECTOR TERMINATION J3 TO BE SET 'IN' WHEN AT END OF ECHELON NETWORK.

PROPERTY
PENNSYLVANIA R.R.

EXPANDED PROGRAMMING

T1: SWITCH TO MS (ENTER EZ VALUE)	10 %	
T2: SWITCH TO MS (ENTER EZ VALUE)	10 %	
T1: TRANSFER DELAY MS TO GCP (0 = OFF)	0 Sec	
T2: TRANSFER DELAY MS TO GCP (0 = OFF)	0 Sec	
T1: TRANSFER MS TO GCP PRIME (ON/OFF)	---	(1)
T2: TRANSFER MS TO GCP PRIME (ON/OFF)	---	(1)
T1: TRANSFER MS TO GCP DAX A (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP DAX A (ON/OFF)	---	(2)
T1: TRANSFER MS TO GCP DAX B (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP DAX B (ON/OFF)	---	(2)
T1: TRANSFER MS TO GCP DAX C (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP DAX C (ON/OFF)	---	(2)
T1: TRANSFER MS TO GCP DAX D (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP DAX D (ON/OFF)	---	(2)
T1: PRIME PREDICTION OFFSET (0 = OFF)	0 Ft	
T2: PRIME PREDICTION OFFSET (0 = OFF)	0 Ft	
PICKUP DELAY PRIME	15 Sec	
PICKUP DELAY DAX A	-- Sec	(3)
PICKUP DELAY DAX B	-- Sec	(3)
PICKUP DELAY DAX C	-- Sec	(3)
PICKUP DELAY DAX D	-- Sec	
T1: ENHANCED DETECTION (ON/OFF)	OFF	
T2: ENHANCED DETECTION (ON/OFF)	OFF	
BACK-TO-BACK T1 AND T2 (NO/YES)	---	
T1: STATION STOP TIMER	10 Sec	
T2: STATION STOP TIMER	10 Sec	
T1: NUMBER OF TRACK WIRES (4/6)	4	
T2: NUMBER OF TRACK WIRES (4/6)	4	
T1: LOW EX ADJUSTMENT	0	
T2: LOW EX ADJUSTMENT	0	
T1: LOW EZ DETECTION	OFF	
T2: LOW EZ DETECTION	OFF	
T1: LOW EZ DETECTION TIMER (ON/OFF)	10 Min	(4)
T2: LOW EZ DETECTION TIMER (ON/OFF)	10 Min	(4)
T1: POSITIVE START (EZ LEVEL) (0 = OFF)	0	
T2: POSITIVE START (EZ LEVEL) (0 = OFF)	0	
T1: POSITIVE START TIMEOUT (0 = NONE)	-- Min	(5)
T2: POSITIVE START TIMEOUT (0 = NONE)	-- Min	(5)
SET AT OPERATION (NORMAL/DIAGNOSTIC)	NORMAL	
DIAGNOSTIC MESSAGES (ON/OFF)	ON	
DAX MESSAGES (ON/OFF)	ON	
ADVANCE PREEMPT TIMER (0 = OFF)	0	
T1: MOTION SENSING LEVEL (0 = NORMAL)	0 %	
T2: MOTION SENSING LEVEL (0 = NORMAL)	0 %	

3000D2 PROGRAMMING CHART (LEVEL: J)	
NUMBER OF TRACK TRANSCEIVERS	2
T1: FREQUENCY	211Hz
T2: FREQUENCY	211Hz
T1: UNIDIRECTIONAL/BIDIRECTIONAL	B
T2: UNIDIRECTIONAL/BIDIRECTIONAL	B
T1: XMIT LEVEL (MAX/MED)	MED
T2: XMIT LEVEL (MAX/MED)	MED
T1: PREDICTOR/MOTION SENSOR	PRED
T2: PREDICTOR/MOTION SENSOR	PRED
T1: WARNING TIME	30 Sec
T2: WARNING TIME	30 Sec
T1: APPROACH DISTANCE	2523 Ft
T2: APPROACH DISTANCE	2523 Ft
UAX1 PICKUP DELAY (UAX) (0 = OFF)	0 Sec
ENA/UAX2 DELAY (0 = ENA)	0 Sec
T1: ISLAND DISTANCE	144 Ft
T2: ISLAND DISTANCE	144 Ft
NUMBER OF DAX'S	0 Eq
DAX A TRACK ASSIGNMENT (T1/T2)	---
DAX A DISTANCE (0 = PREEMPT)	Ft
DAX A WARNING TIME	Sec
DAX B TRACK ASSIGNMENT (T1/T2)	---
DAX B DISTANCE (0 = PREEMPT)	Ft
DAX B WARNING TIME	Sec
DAX C TRACK ASSIGNMENT (T1/T2)	---
DAX C DISTANCE (0 = PREEMPT)	Ft
DAX C WARNING TIME	Sec
DAX D TRACK ASSIGNMENT (T1/T2)	---
DAX D DISTANCE (0 = PREEMPT)	Ft
DAX D WARNING TIME	Sec
SLAVING (MASTER/SLAVE)	MASTER
PASSWORD ENABLED	NO
RECORDER INSTALLED	NO

3000D2 PROGRAMMING NOTES:

- 1) AVAILABLE WHEN "TRANSFER DELAY MS TO GCP" AND "PRIME PREDICTION OFFSET" IS ON
- 2) AVAILABLE WHEN "TRANSFER DELAY MS TO GCP" AND DAX DISTANCE IS GREATER THAN ZERO
- 3) AVAILABLE WHEN "ENHANCED DETECTION" IS ON
- 4) AVAILABLE WHEN "LOW EZ DETECTION" IS ON
- 5) AVAILABLE WHEN "POSITIVE START" IS ON

* = 1ST SLOT AT LEFT END OF BAY

MODEL 3000D2 GCP MODULE ASSEMBLIES

UPPER BAY												LOWER BAY										
MODULES POSITION		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21
MODULE NUMBERS		80211-F(1) * ISL	80211-F(2) ISL	80012 T/R 1	80012 T/R 2	80013 RLY DRV	80214 PROCS	80255 REC-INTF	80016 (1) DAX	80016 (2) DAX	80020 +80017	80211-F(1) * ISL	80211-F(2) ISL	80012 T/R 1	80012 T/R 2	80013 RLY DRV	80214 PROCS	80255 REC-INTF	80016 (1) DAX	80016 (2) DAX	80020 +80017	80028 XFRIMR
		x	x	x	x	x	x	x	x			x	x	x	x	x	x	x	x		x	x
MODULES USED		x	x	x	x	x	x	x			x	x	x	x	x	x	x	x	x		x	x

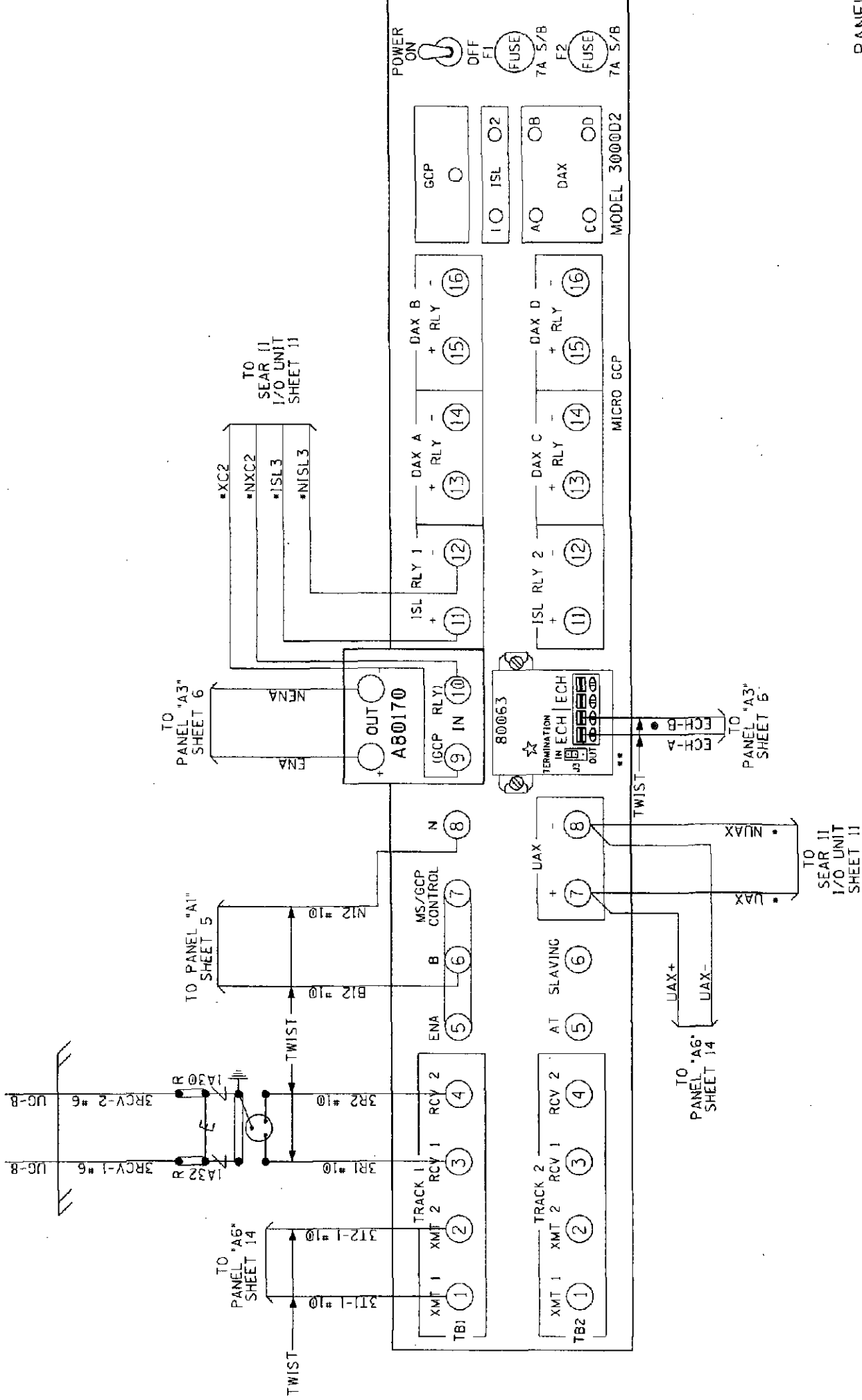
NOTES:

- 1 - SEE IP1 INSTRUCTION AND INSTALLATION MANUAL FOR 80211 ISLAND CALIBRATION PROCEDURE.
 - 2 - TOGGLE SWITCH ON MOTHER BOARD:
UP = DUAL FREQ.
DOWN = SINGLE FREQ.
- ** = 80214 & 80255 (WITH JUMPER) CARDS AND E-LEVEL OR LATER SOFTWARE NEEDED FOR SEAR II / ECHELON CAPABILITIES.

PANEL "A3" NO.1 3000D2 GCP SET-UP

DESIGNED BY:	TTH 12-13-06	 NORFOLK SOUTHERN
DRAWN BY:	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
SSC 12-13-06	M.P.: PC-102.76	
CHECKED BY:	CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.	
MJL 12-18-06	FILE R-	
IN SERVICE:	FORT WAYNE LINE	
CADD or DWG. No.	24021028.07	
SHEET	7 of 23	

PROPERTY
PENNSYLVANIA R.R.



NO.2
3000D2 GCP "A5"
T1 IF = 5.9 KHZ

- NOTES:
- ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE.
 - = CABLE PROVIDED WITH SEAR II
 - = 80063 ADAPTER CARD AND E-LEVEL OR LATER SOFTWARE NEEDED FOR SEAR II / ECHELON CAPABILITIES.
 - = 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.

PANEL "A5" NO.2 3000D2 GCP HOOK-UP

DESIGNED BY:	TTH 12-13-06
DRAWN BY:	SSC 12-13-06
CHECKED BY:	MJL 12-18-06
IN SERVICE:	- -
FILE NO.	PC-102.76
COMM. & SIGNAL, ATLANTA, GA.	CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.
FORT WAYNE LINE	FILE R-
CADD or DWG. No.	24021028.08
SHEET No.	8 of 23



☆ = 80063 ECHELON RJ45 CONNECTOR TERMINATION J3 TO BE SET "IN" WHEN AT END OF ECHELON NETWORK.

PROPERTY
PENNSYLVANIA R.R.

EXPANDED PROGRAMMING

T1: SWITCH TO MS CENTER EZ VALUE	10 %	(1)
T2: SWITCH TO MS CENTER EZ VALUE	-- %	(1)
T1: TRANSFER DELAY MS TO GCP (0 = OFF)	0 Sec	(2)
T2: TRANSFER DELAY MS TO GCP (0 = OFF)	-- Sec	(2)
T1: TRANSFER MS TO GCP PRIME (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP PRIME (ON/OFF)	---	(2)
T1: TRANSFER MS TO GCP DAX A (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP DAX A (ON/OFF)	---	(2)
T1: TRANSFER MS TO GCP DAX B (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP DAX B (ON/OFF)	---	(2)
T1: TRANSFER MS TO GCP DAX C (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP DAX C (ON/OFF)	---	(2)
T1: TRANSFER MS TO GCP DAX D (ON/OFF)	---	(2)
T2: TRANSFER MS TO GCP DAX D (ON/OFF)	---	(2)
T1: PRIME PREDICTION OFFSET (0 = OFF)	0 Ft	(3)
T2: PRIME PREDICTION OFFSET (0 = OFF)	-- Ft	(3)
PICKUP DELAY PRIME	15 Sec	(3)
PICKUP DELAY DAX A	-- Sec	(3)
PICKUP DELAY DAX B	-- Sec	(3)
PICKUP DELAY DAX C	-- Sec	(3)
PICKUP DELAY DAX D	-- Sec	(3)
T1: ENHANCED DETECTION (ON/OFF)	OFF	(3)
T2: ENHANCED DETECTION (ON/OFF)	---	(3)
BACK-TO-BACK T1 AND T2 (NO/YES)	---	(3)
T1: STATION STOP TIMER	10 Sec	(3)
T2: STATION STOP TIMER	-- Sec	(3)
T1: NUMBER OF TRACK WIRES (4/6)	4	(3)
T2: NUMBER OF TRACK WIRES (4/6)	-	(3)
T1: LOW EX ADJUSTMENT	0	(3)
T2: LOW EX ADJUSTMENT	---	(3)
T1: LOW EZ DETECTION	OFF	(3)
T2: LOW EZ DETECTION	---	(3)
T1: LOW EZ DETECTION TIMER (ON/OFF)	10 Min	(4)
T2: LOW EZ DETECTION TIMER (ON/OFF)	-- Min	(4)
T1: POSITIVE START (EZ LEVEL) (0 = OFF)	0	(5)
T2: POSITIVE START (EZ LEVEL) (0 = OFF)	---	(5)
T1: POSITIVE START TIMEOUT (0 = NONE)	-- Min	(5)
T2: POSITIVE START TIMEOUT (0 = NONE)	-- Min	(5)
SET AT OPERATION (NORMAL/DIAGNOSTIC)	NORMAL	(5)
DIAGNOSTIC MESSAGES (ON/OFF)	ON	(5)
DAX MESSAGES (ON/OFF)	ON	(5)
ADVANCE PREEMPT TIMER (0 = OFF)	0	(5)
T1: MOTION SENSING LEVEL (0 = NORMAL)	0 %	(5)
T2: MOTION SENSING LEVEL (0 = NORMAL)	-- %	(5)

3000D2 PROGRAMMING CHART (LEVEL: J)	
NUMBER OF TRACK TRANSCIEVERS	1
T1: FREQUENCY	790Hz
T2: FREQUENCY	---Hz
T1: UNIDIRECTIONAL/BIDIRECTIONAL	BI
T2: UNIDIRECTIONAL/BIDIRECTIONAL	---
T1: XM1 LEVEL (MAX/MED)	MED
T2: XM1 LEVEL (MAX/MED)	---
T1: PREDICTOR/MOTION SENSOR	PRED
T2: PREDICTOR/MOTION SENSOR	---
T1: WARNING TIME	30 Sec
T2: WARNING TIME	-- Sec
T1: APPROACH DISTANCE	722 Ft
T2: APPROACH DISTANCE	--- Ft
UAX PICKUP DELAY (UAX) (0 = OFF)	5 Sec
ENAX/UAX2 DELAY (0 = ENA)	-- Sec
T1: ISLAND DISTANCE	144 Ft
T2: ISLAND DISTANCE	--- Ft
NUMBER OF DAX'S	0 Ea
DAX A TRACK ASSIGNMENT (T1/T2)	---
DAX A DISTANCE (0 = PREEMPT)	Ft
DAX A WARNING TIME	Sec
DAX B TRACK ASSIGNMENT (T1/T2)	---
DAX B DISTANCE (0 = PREEMPT)	Ft
DAX B WARNING TIME	Sec
DAX C TRACK ASSIGNMENT (T1/T2)	---
DAX C DISTANCE (0 = PREEMPT)	Ft
DAX C WARNING TIME	Sec
DAX D TRACK ASSIGNMENT (T1/T2)	---
DAX D DISTANCE (0 = PREEMPT)	Ft
DAX D WARNING TIME	Sec
SLAVING (MASTER/SLAVE)	MASTER
PASSWORD ENABLED	NO
RECORDER INSTALLED	NO

3000D2 PROGRAMMING NOTES:

- 1) AVAILABLE WHEN 'TRANSFER DELAY MS TO GCP' AND 'PRIME PREDICTION OFFSET' IS ON
- 2) AVAILABLE WHEN 'TRANSFER DELAY MS TO GCP' AND DAX DISTANCE IS GREATER THAN ZERO
- 3) AVAILABLE WHEN 'ENHANCED DETECTION' IS ON
- 4) AVAILABLE WHEN 'LOW EZ DETECTION' IS ON
- 5) AVAILABLE WHEN 'POSITIVE START' IS ON

* = 1ST SLOT AT LEFT END OF BAY

MODEL 3000D2 GCP MODULE ASSEMBLIES																					
UPPER BAY											LOWER BAY										
MODULES POSITION	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21
MODULE NUMBERS	80211-(1) * ISL	80211-(2) ISL	80012 T/R 1	80012 T/R 2	80013 RLY DRV	80214 PROCS	80255 REC-INTF	80016 (1) DAX	80016 (2) DAX	80020 +80017	80211-(1) * ISL	80211-(2) ISL	80012 T/R 1	80012 T/R 2	80013 RLY DRV	80214 PROCS	80255 REC-INTF	80016 (1) DAX	80016 (2) DAX	80020 +80017	80028 XFRTR
	x		x		x	x	x	x		x	x		x		x	x	x	x		x	
MODULES USED	x		x		x	x	x	x		x	x		x		x	x	x	x		x	

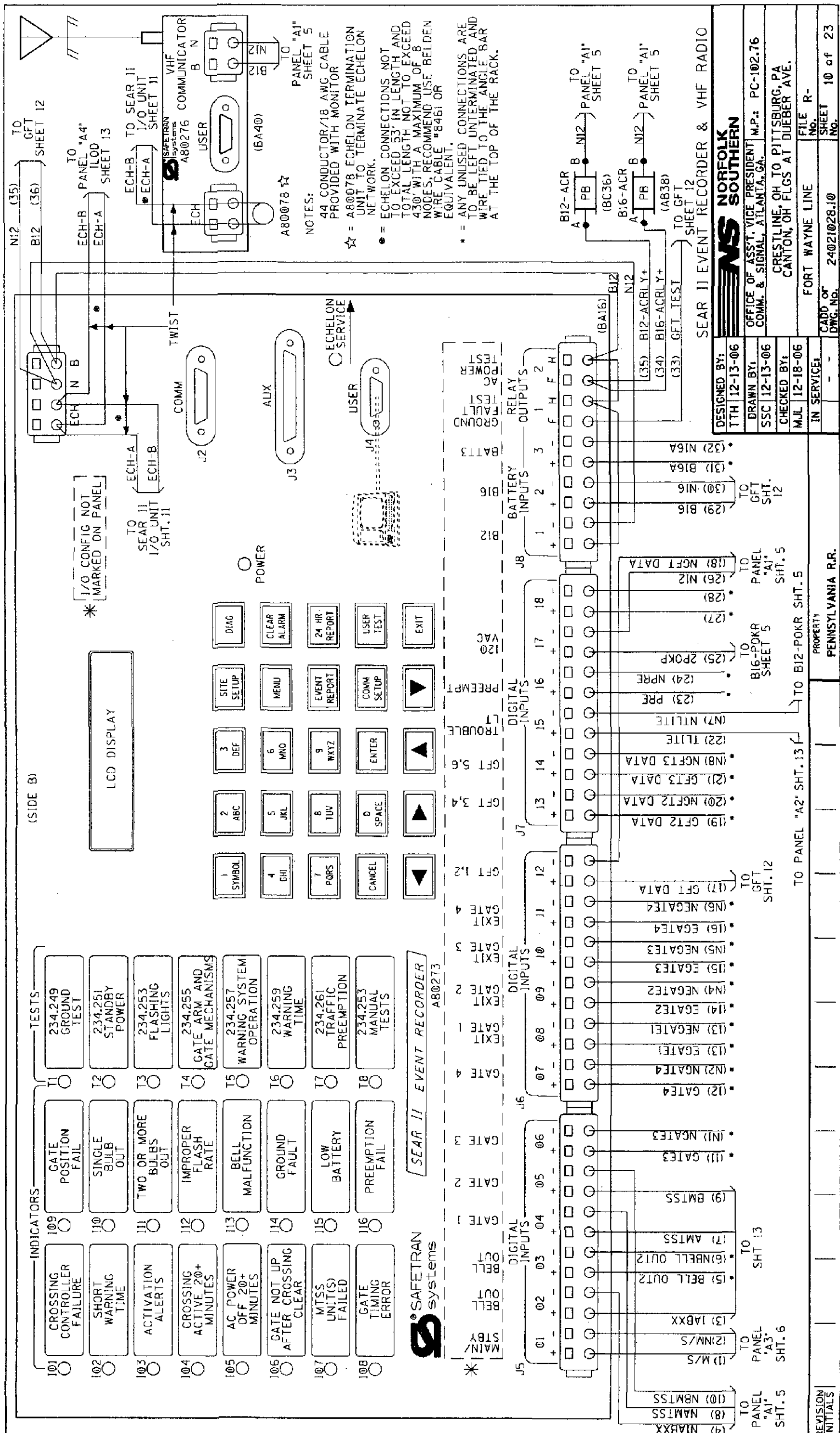
NOTES:

- 1 - SEE IPI INSTRUCTION AND INSTALLATION MANUAL FOR 80211 ISLAND CALIBRATION PROCEDURE.
 - 2 - TOGGLE SWITCH ON MOTHER BOARD:
UP = DUAL FREQ.
DOWN = SINGLE FREQ.
- ** = 80214 & 80255 (WITH JUMPER) CARDS AND E-LEVEL OR LATER SOFTWARE NEEDED FOR SEAR T1 / ECHELON CAPABILITIES.

PANEL "A5" NO. 2 3000D2 GCP SET-UP

DESIGNED BY:	TTH 12-13-06	NORFOLK SOUTHERN	
DRAWN BY:	SSC 12-13-06	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: PC-102.76
CHECKED BY:	MJL 12-18-06	CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.	
IN SERVICE:	- - -	FORT WAYNE LINE	FILE R-
CADD or DWG. No.	24021028.09	SHEET	9 of 23

PROPERTY
PENNSYLVANIA R.R.



NOTES:

- 44 CONDUCTOR/18 AWG CABLE PROVIDED WITH MONITOR
- ☆ = A80078 ECHOLON TERMINATION UNIT TO TERMINATE ECHOLON NETWORK.
- = ECHOLON 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.
- * = ANY UNUSED CONNECTIONS ARE TO BE LEFT UNTERMINATED AND WIRE TIED TO THE ANGLE BAR AT THE TOP OF THE RACK.

DESIGNED BY: TTH 12-13-06	
DRAWN BY: SSC 12-13-06	
CHECKED BY: MJL 12-18-06	
IN SERVICE: -	
PROPERTY PENNSYLVANIA R.R.	
REVISION INITIALS	FILE NO. 24021028.10
SHEET 10 of 23	

DESIGNED BY: TTH 12-13-06	
DRAWN BY: SSC 12-13-06	
CHECKED BY: MJL 12-18-06	
IN SERVICE: -	
PROPERTY PENNSYLVANIA R.R.	
REVISION INITIALS	FILE NO. 24021028.10
SHEET 10 of 23	

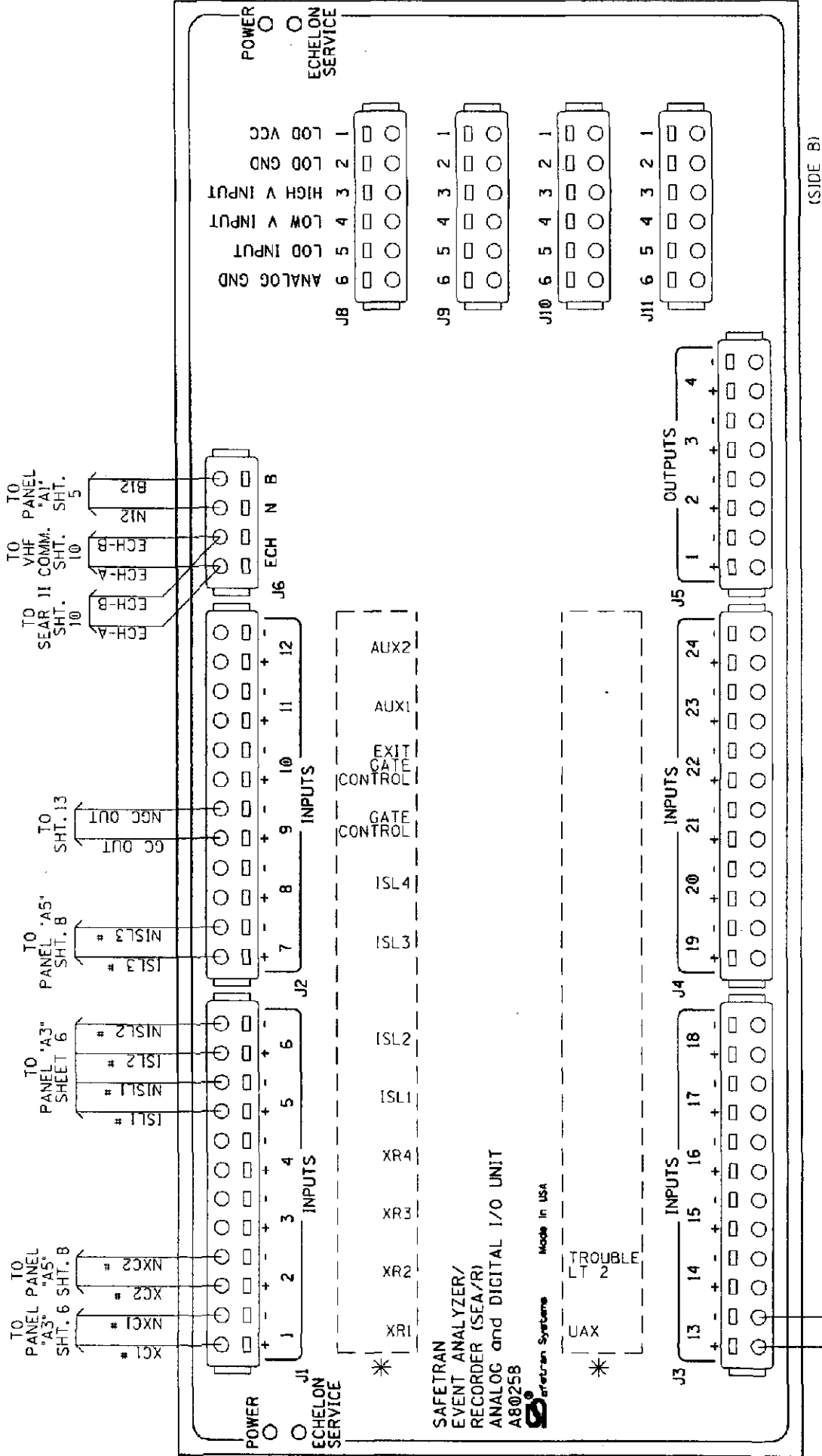
SEAR II EVENT RECORDER & VHF RADIO

NORFOLK SOUTHERN

OFFICE OF ASST. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA. M.P.: PC-102.76

CRESTLINE, OH TO PITTSBURG, PA
CANTON, OH FLGS AT DUEBER AVE.

FORT WAYNE LINE
FILE NO. R-
CADD or
DWG. No. 24021028.10



NOTES:

1. ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE
2. * = ECHOLON 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.
2. # = CABLE PROVIDED WITH SEAR II

* I/O CONFIG NOT MARKED ON PANEL

SEAR ANALOG AND DIGITAL I/O UNIT A80258

DESIGNED BY:	TTH 12-13-06
DRAWN BY:	SSC 12-13-06
CHECKED BY:	MJL 12-18-06
IN SERVICE:	- -
FILE R- No.	24021028.11
CADD or DWG. No.	24021028.11
SHEET No.	11 of 23

NORFOLK SOUTHERN

OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: PC-102.76

CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.

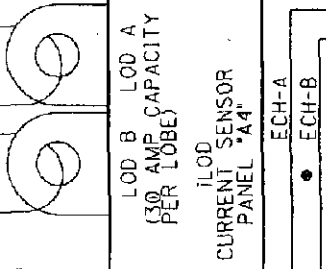
FORT WAYNE LINE

PROPERTY PENNSYLVANIA R.R.

REVISION INITIALS

TO SEAR II
SHEET 10

TO PANEL "A1"
SHEET 5

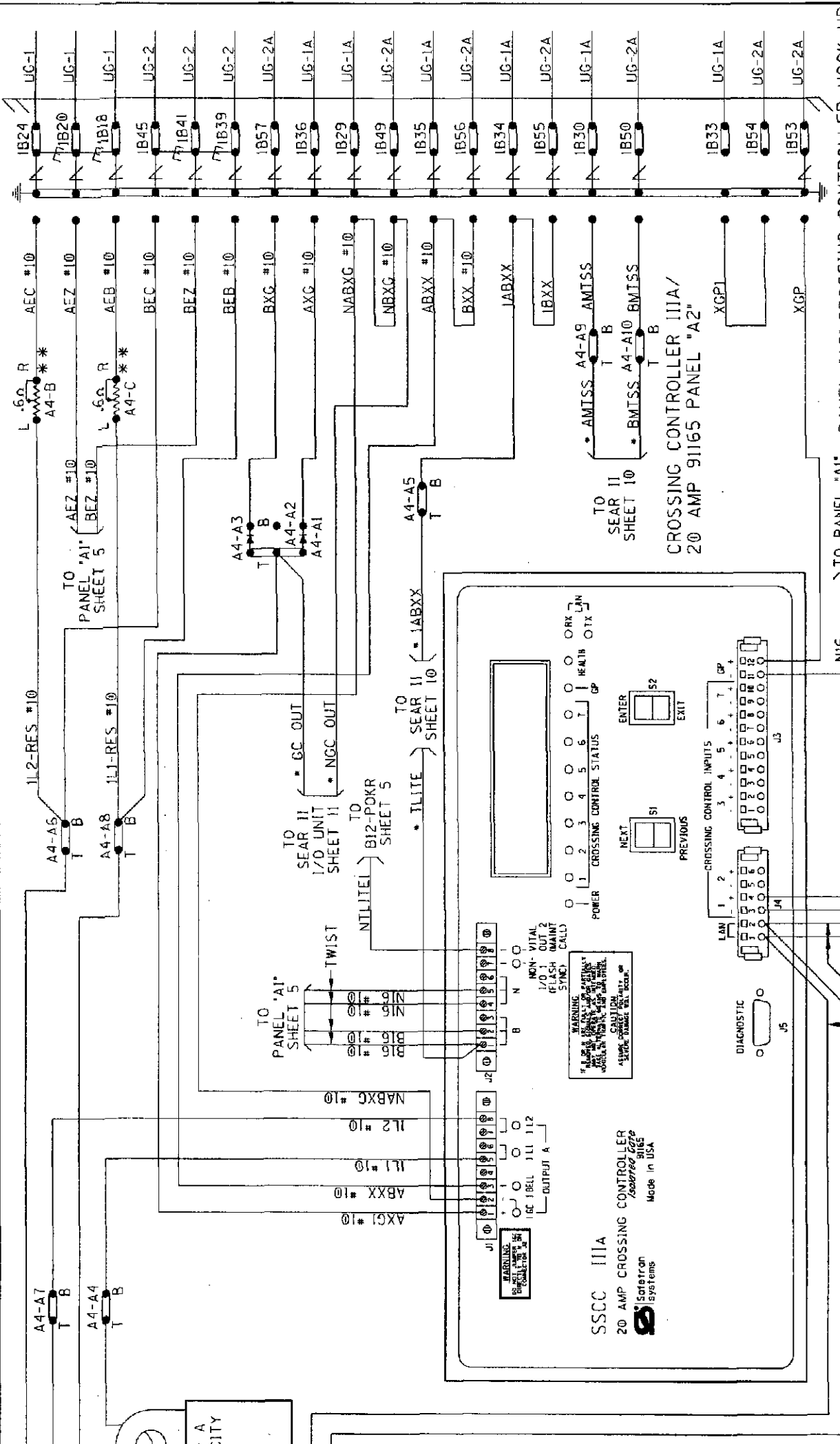


PROGRAM	
FLASHER RATE	40
IGC DELAY	4 SEC.
BELL-ON GATE RISING OFF	
MIN ACTIVATION TIME	0 SEC.
ENABLE INPUTS	1 THRU 1
TIME	
DATE	
DAYLIGHT SAVINGS	ON
PASSWORD	DISABLED
SET TO DEFAULT	SKIP

SETUP LAMP VOLTAGE	
SETUP OUTPUT 1L1 XX.X VOLTS	
SETUP OUTPUT 1L2 XX.X VOLTS	

CONFIGURE	
1: 0 SEC.	
2: 0 SEC.	
3: 0 SEC.	
4: 0 SEC.	
5: 0 SEC.	
6: 0 SEC.	
7: 0 SEC.	
ATCS ADDRESS	755048200707
LOW BATTERY	DISABLED
AUX I/O	NV OUTPUT

TEST CONFIGURE	
LAMP TEST CANCEL TIMER	5 MIN.
LAMP TEST DELAY TIMER	30 SEC.
LAMP TEST ON TIMER	15 SEC.



PANEL "A2" CROSSING CONTROLLER HOOK-UP
PANEL "A4" CURRENT SENSOR HOOK-UP

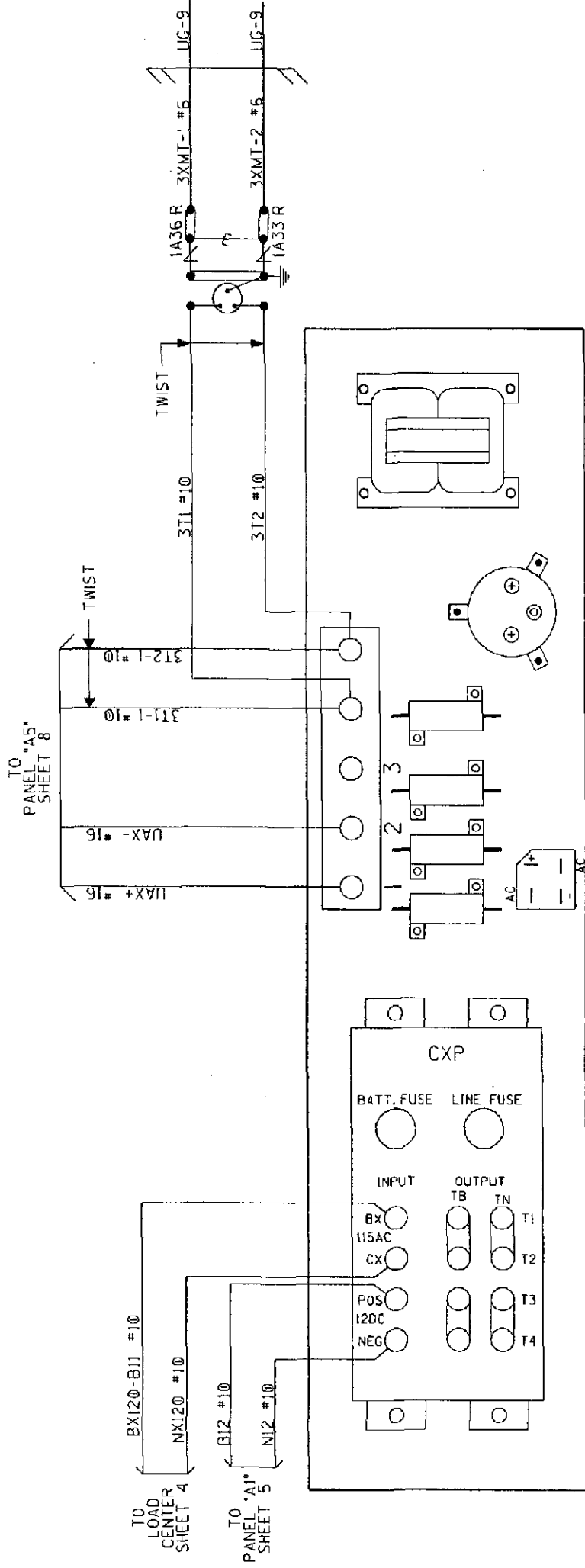
DESIGNED BY: TTH 12-13-06
DRAWN BY: SSC 12-13-06
CHECKED BY: MJL 12-18-06
IN SERVICE: - -

NORFOLK SOUTHERN
OFFICE OF ASST. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA. M.P. PC-102.76
CRESTLINE, OH TO PITTSBURG, PA
CANTON, OH FLGS AT DUBER AVE.
FORT WAYNE LINE
FILE R-
CADD OF
DWG. No. 24021028.13
SHEET 13 of 23

NOTES:
ALL WIRING TO BE #16AWG
UNLESS NOTED OTHERWISE.
- = CABLE PROVIDED WITH SEAR II
- = DIODE SAFETRAN PN 8A299
- = RESISTORS TO BE INSTALLED TO
LAMP WITH SHORTEST CABLE RUN

• = ECHOLON 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.

PROPERTY
PENNSYLVANIA R.R.



PANEL "A6" DC SHUNTING ENHANCER PANEL HOOK-UP

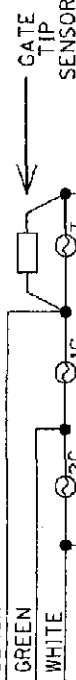
DESIGNED BY:	TTH 12-13-06	NORFOLK SOUTHERN
DRAWN BY:	SSC 12-13-06	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	MJL 12-18-06	M.P.: PC-102.76
IN SERVICE:	- -	CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.
FILE R-		
CADD or Dwg. No.	24021028.14	
SHEET	14	of 23

PROPERTY
PENNSYLVANIA R.R.

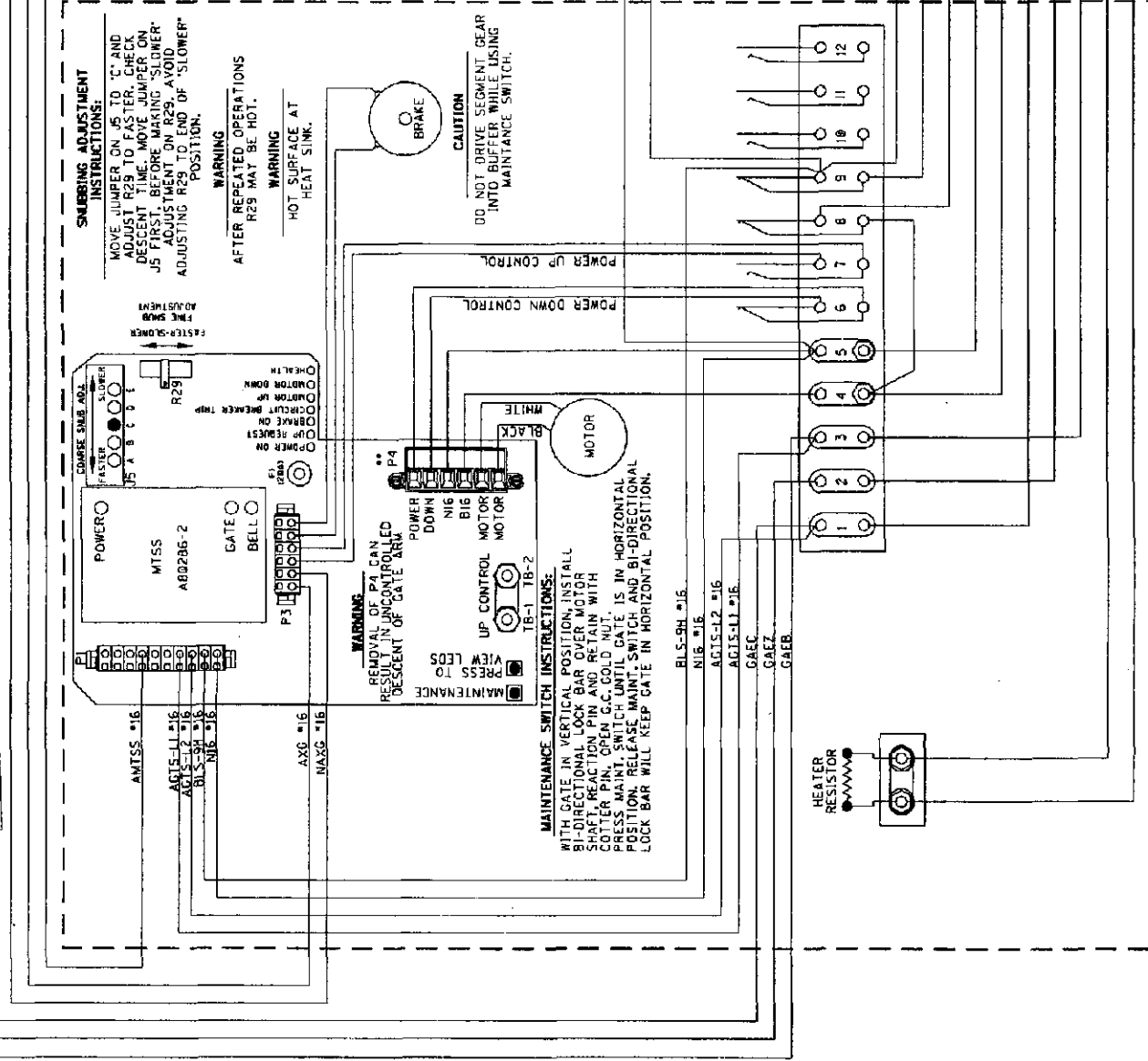
REVISION
INITIALS

BLACK
GREEN
WHITE

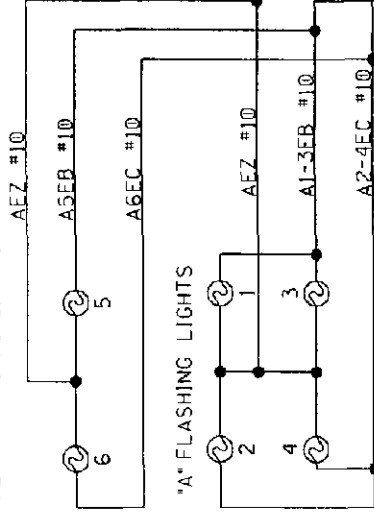
"A" GATE ARM LIGHTS



"A" GATE MECHANISM

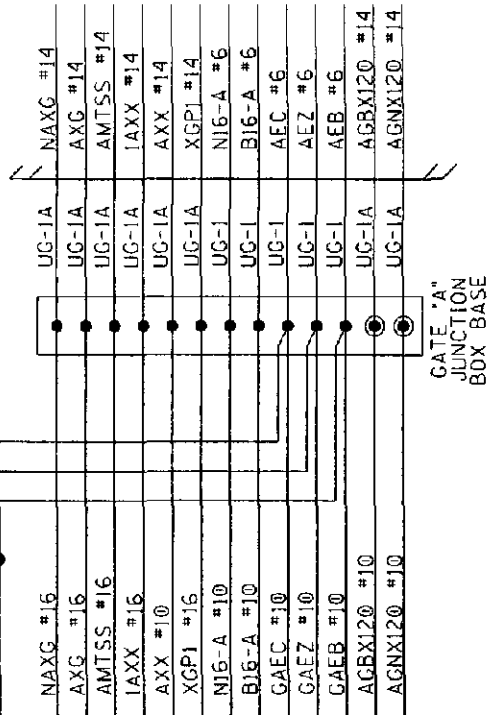


"A" FLASHING SIDE LIGHTS



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		SPARE
11		SPARE
12		SPARE



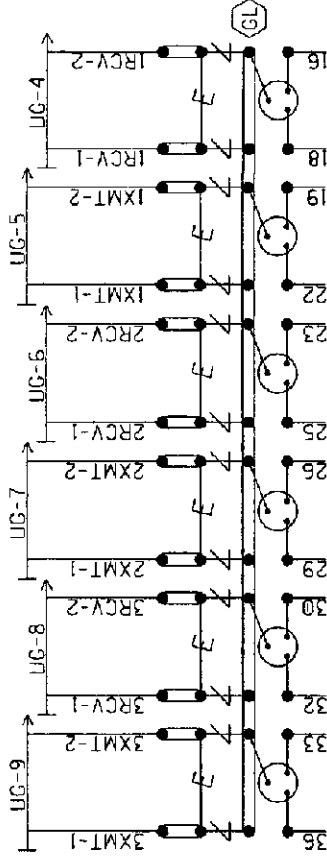
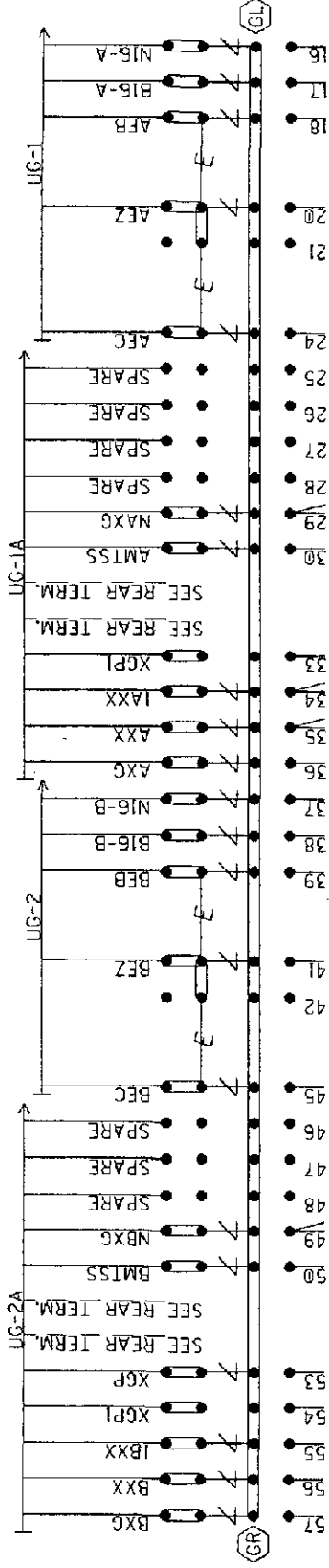
"A" FLASHER AND GATE LIGHTS WITH
GATE TIP SENSOR & MODEL "S60"
GATE MECHANISM WITH MINI
TRACKSIDE SENSOR

DESIGNED BY:	TTH 12-13-06
DRAWN BY:	SSC 12-13-06
CHECKED BY:	MJL 12-18-06
IN SERVICE:	- -
PROPERTY	PENNSYLVANIA R.R.
REVISION/INITIALS	
CADD or DWG. No.	24021028.15
FILE R-	
SHEET	15 of 23

NORFOLK SOUTHERN	
OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: PC-102.76
CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.	
FORT WAYNE LINE	
CADD or DWG. No.	24021028.15
FILE R-	
SHEET	15 of 23

"1B"

"1A"



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

⎓ = Heavy Duty Equalizer
(022700-1X)

⌞ = Lightning Arrester
Clearview
(022585-1X)

⊕ = LPC-10560-51

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

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

BACKBOARD DETAIL - 1A & 1B

DESIGNED BY:	TTH 12-13-06
DRAWN BY:	SSC 12-13-06
CHECKED BY:	MJL 12-18-06
IN SERVICE:	-
FILE NO.	24021028.17
SHEET	17 of 23

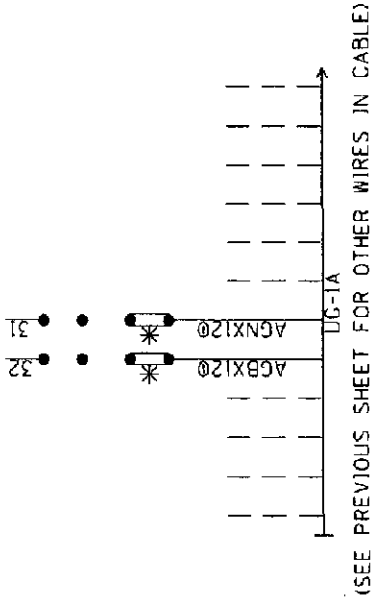
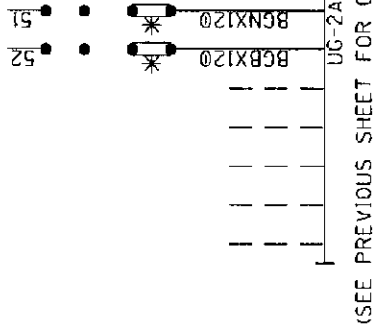
**NORFOLK SOUTHERN**

OFFICE OF ASST. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA. M.P.: PC-102.76

CRESTLINE, OH TO PITTSBURG, PA
CANTON, OH FLGS AT DUEBER AVE.

FORT WAYNE LINE

PROPERTY
PENNSYLVANIA R.R.



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

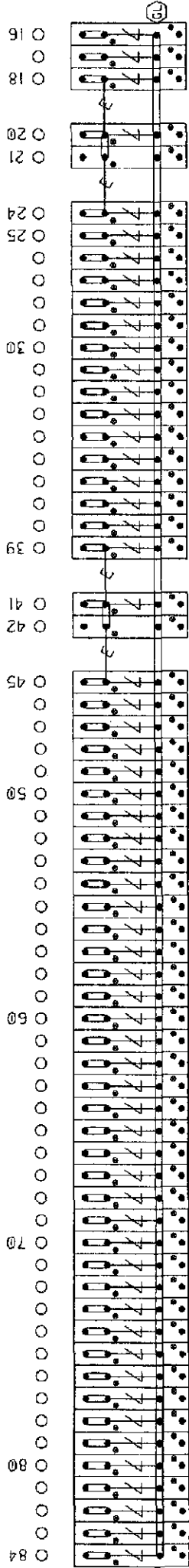
REAR OF FARADAY BACKBOARD
REAR BACKBOARD DETAIL - 1A & 1B

DESIGNED BY:	TTH 12-13-06	NORFOLK SOUTHERN	
DRAWN BY:	SSC 12-13-06	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: PC-102.76
CHECKED BY:	MJL 12-18-06	CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.	
IN SERVICE:	- -	FORT WAYNE LINE	FILE R-
REVISION INITIALS		CADD OF DWG. No.	SHEET No.
		24021028.18	18 of 23

PROPERTY
PENNSYLVANIA R.R.

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



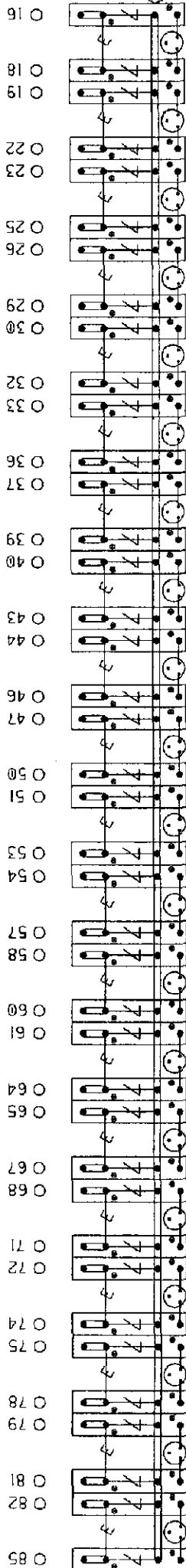
TERMINAL BOARD 1
LEFT HALF

"1B"

"1A"

2" PANDUIT

2" PANDUIT



—E— = Heavy Duty Equalizer
(022700-1X)

Clear view
Z = Lightning Arrester
(022585-1X)

⊖ = LPC-10560-51

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

= INDICATES PLACEMENT
OF PANDUIT

TERMINAL BOARD 1
LEFT TWO ROWS

FARADAY SHIELD DETAIL - 1A & 1B

DESIGNED BY:	TTH 12-13-06	NORFOLK SOUTHERN				
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: PC-102.76			
CHECKED BY:	SSC 12-13-06		CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.			
MJL 12-18-06	FILE		R-			
IN SERVICE:	-	FORT WAYNE LINE	CADD or DWG. No.	24021028.19	SHEET No.	19 of 23

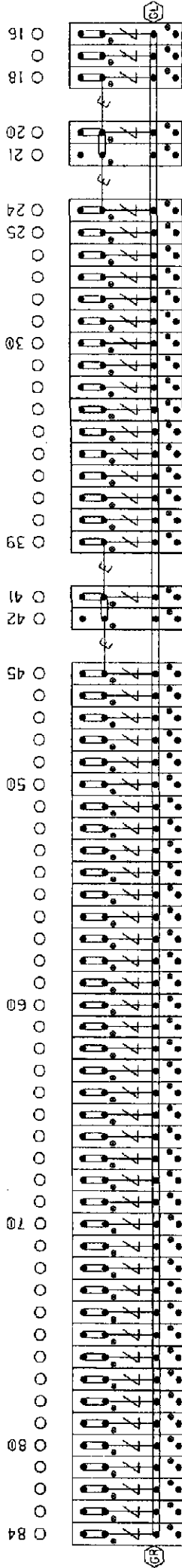
PROPERTY
PENNSYLVANIA R.R.

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

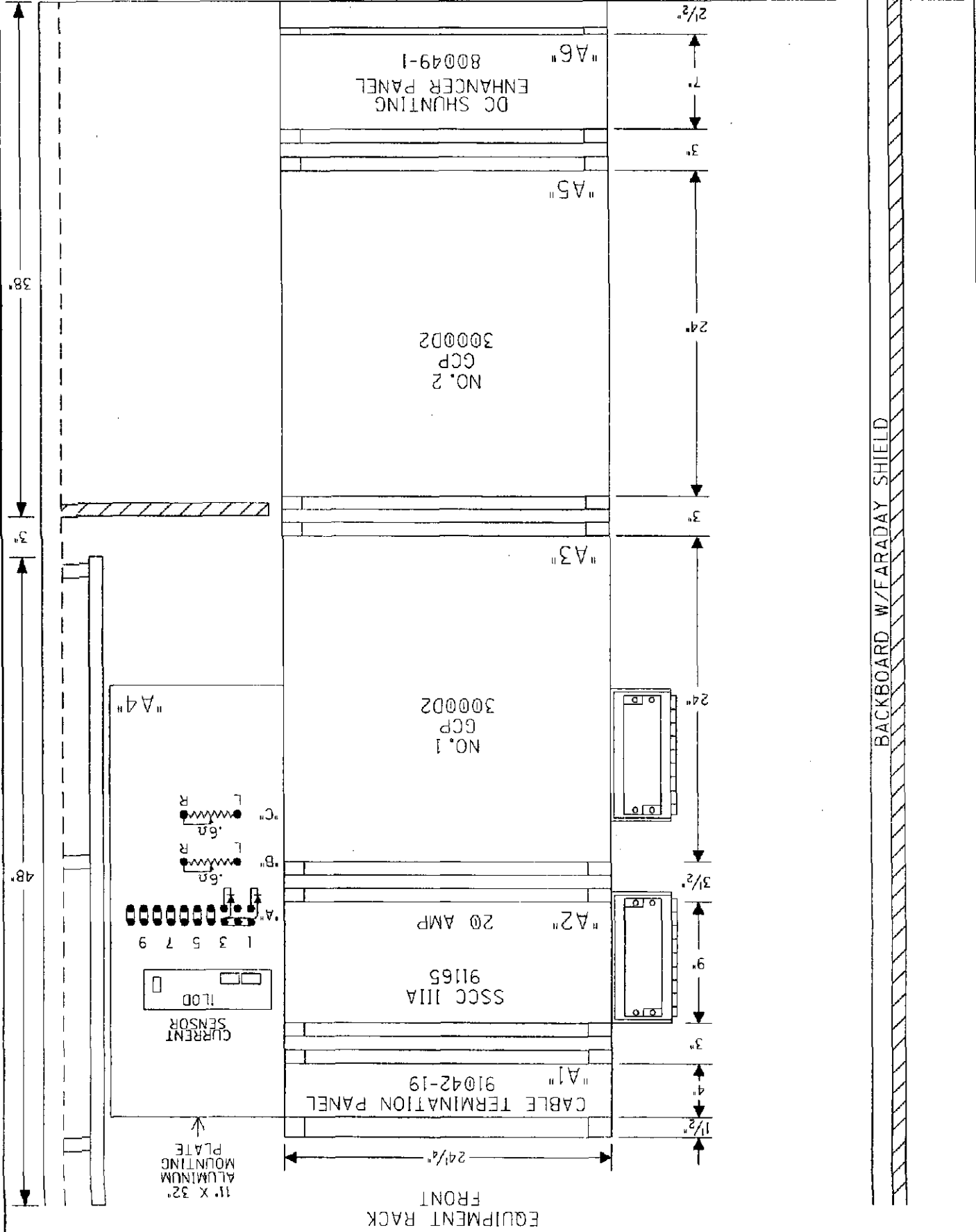
THIS SHEET IS FOR REFERENCE ONLY.
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THE TERMINALS NEEDED.

= INDICATES PLACEMENT
OF PANDUIT

TERMINAL BOARD 1
RIGHT ROW
FARADAY SHIELD DETAIL - 1C

DESIGNED BY:	TTH 12-13-06	NORFOLK SOUTHERN
DRAWN BY:	SSC 12-13-06	
CHECKED BY:	MJL 12-18-06	
IN SERVICE:	- -	
OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: PC-102.76
CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.		FILE R-
FORT WAYNE LINE		CADD OF DNG. NO. 24021028.20
SHEET		20 of 23

PROPERTY
PENNSYLVANIA R.R.

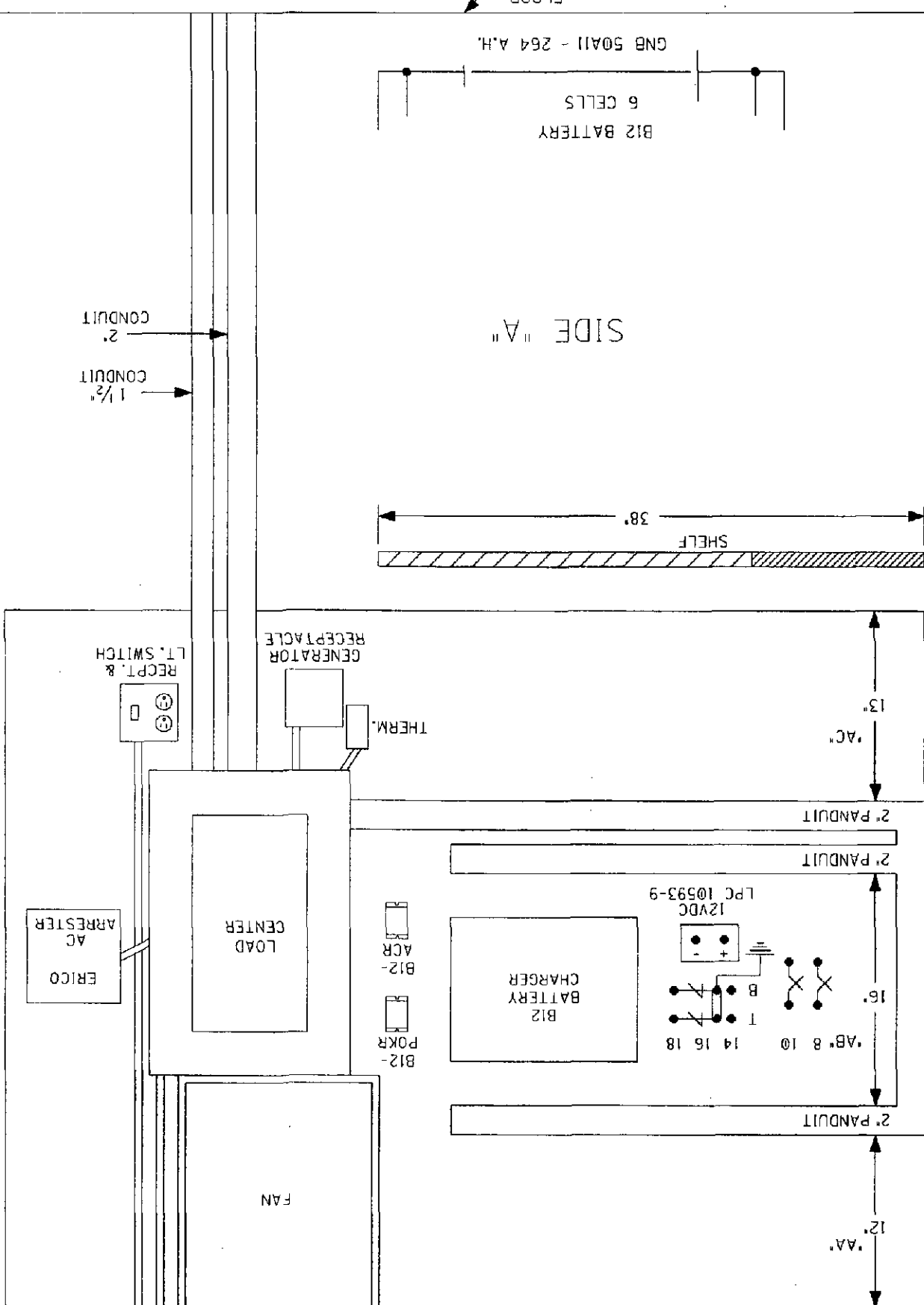


SIDE "C"

RACK PLACEMENT
6' X 6' HOUSE - SIDE "C"

DESIGNED BY:	TTH 12-13-06	NORFOLK SOUTHERN
DRAWN BY:	SSC 12-13-06	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	MJL 12-18-06	M.P.: PC-102.76
IN SERVICES:	-	CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.
FILE NO.	24021028.21	FORT WAYNE LINE
SHEET NO.	21 of 23	

REVISION	INITIALS	PROPERTY	PENNSYLVANIA R.R.
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6' X 6' HOUSE - SIDE "A"

DESIGNED BY:	TTH 12-13-06
DRAWN BY:	SSC 12-13-06
CHECKED BY:	MJL 12-18-06
IN SERVICE:	- -
CADD or DWG. No.	24021028.22
SHEET No.	22 of 23
FILE R-	
FORT WAYNE LINE	
CRESTLINE, OH TO PITTSBURG, PA	
CANTON, OH, FLCS AT DUEBER AVE.	
OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: PC-102.76
NORFOLK SOUTHERN	

PROPERTY
PENNSYLVANIA R.R.

REVISION
INITIALS

TOP VIEW *

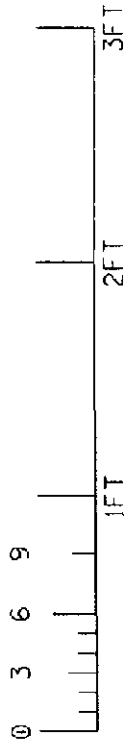
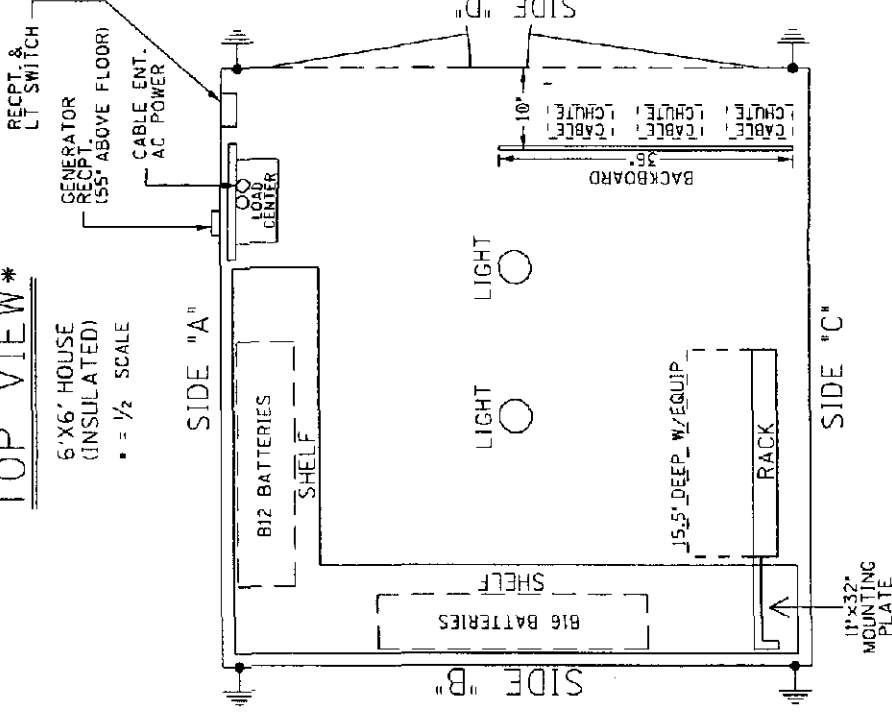
6' X 6' HOUSE
(INSULATED)
• = 1/2 SCALE

SIDE "A"

SIDE "B"

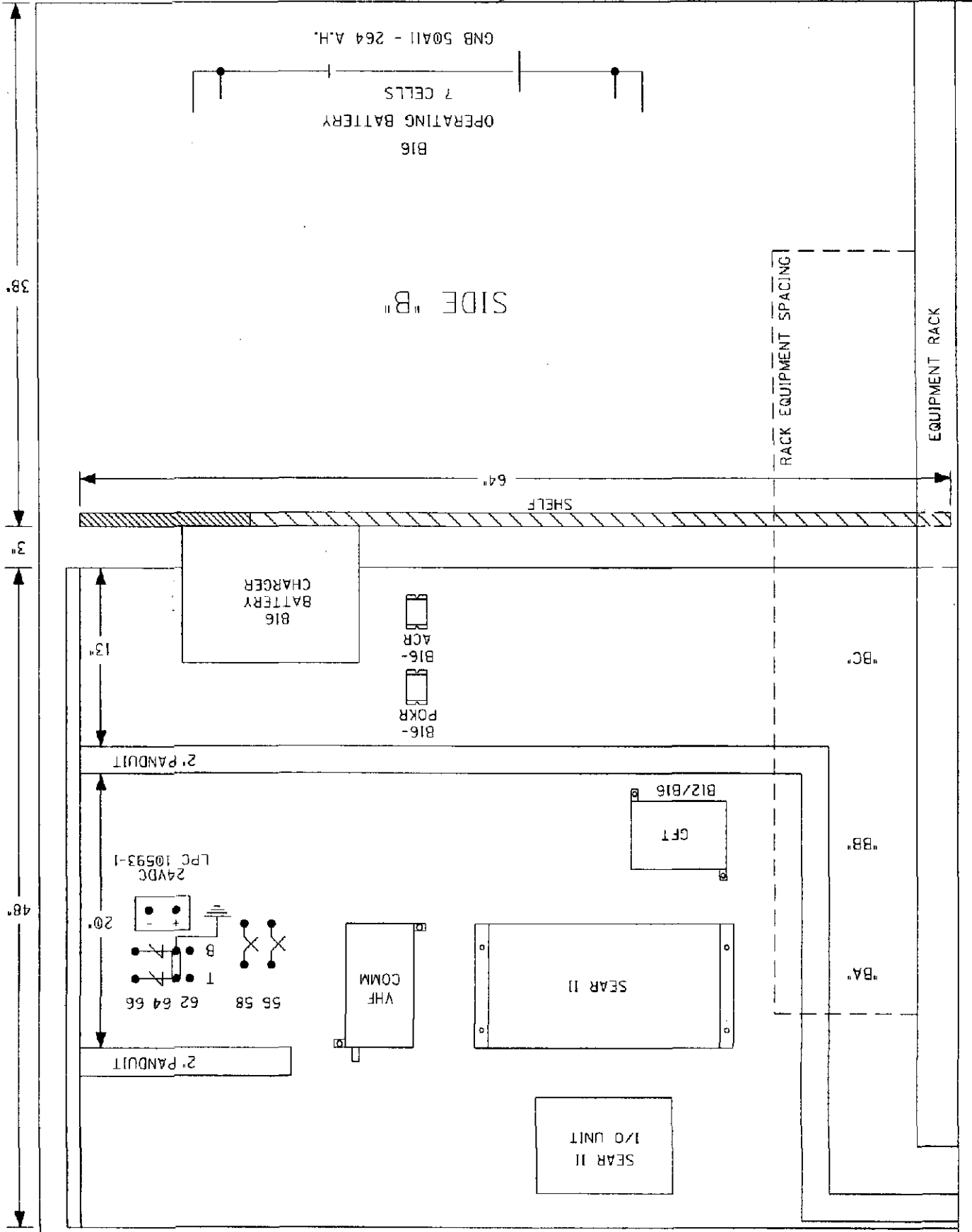
SIDE "C"

SIDE "D"



6' X 6' HOUSE (SIDE "B" & TOP VIEW)

DESIGNED BY:	TTH 12-13-06	NORFOLK SOUTHERN
DRAWN BY:	SSC 12-13-06	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	MJL 12-18-06	M.P.: PC-102.76
IN SERVICE:	- - -	CRESTLINE, OH TO PITTSBURG, PA CANTON, OH FLGS AT DUEBER AVE.
FILE NO.	FORT WAYNE LINE	
CADD or DWG. NO.	24021028.23	
SHEET NO.	23 of 23	



PROPERTY
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