

RECEIVED-DOCKETING DIV

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

2007 MAR 13 AM 9:24

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

PUCO

March 5, 2007
061-10.1045

Ms. Susan Kirkland
Ohio DOT
1980 W. Broad St.
Columbus, OH 43223

06-1326-RR-FED

RE: In the Matter of the Implementation of the Norfolk Southern Corridor Safety Project
"CJ" Line from Columbus, OH to Cincinnati, OH

Dear Ms. Kirkland:

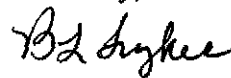
Per the ORDC letter dated November 1, 2007, regarding the above case for the upgrade of automatic grade crossing warning devices at Western Avenue in Springfield, Clark County, Ohio, DOT: 523 500T, Milepost CJ-184.16.

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.

An extra copy of this letter is included with the enclosures. Please date stamp this extra copy and forward to Mr. R. S. Noe, Assistant General Attorney, Norfolk Southern Corporation, Three Commercial Place, Norfolk, Virginia, 23510.

Upon receipt of this revised material, please initial, date and confirm via fax to 404-527-2901.

Sincerely,



B. L. Sykes

Enclosure(s)

BLS/rhr/cp/rjs

Cc: Mr. R. S. Noe, NS Corporation, Norfolk, VA
Ms. Bonnie Johrendt, PUCO (w/plans, estimate and material list)
Mr. Tim Perkins (w/plans, estimate and material list)
✓ Docketing Division (w/plans, estimate and material list)
Ms. P. A. Gray, NS Corporation, Roanoke, VA (w/estimate)

This is to certify that the images appearing are an accurate and complete reproduction of a case file document delivered to the regular course of business technician Date Processed 3.13.07

RAIL DIVISION

RECEIVED
PUCO DIVISION
MARCH 13 11 06 50



02-Mar-07

Detailed Estimate for Grade Crossing Warning Devices

City/State: SPRINGFIELD, OH
MilePost: CJ-184.16
State Proj. No.:
S&E Proj. No.: 10.1201
Man Days: 144

Road: WESTERN AVE.
DOT/AAR: 523500T
County: CLARK
AFE: F10122
File Number: 061-10.1045

Purchases - Others	
Meals and Lodging:	\$13,548.90
Rental of Equipment:	\$29,620.80
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 36 Days)	
Construction Supervision Vehicle:	\$2,369.66
Purchases - Other Total:	\$45,539.36
Material And Additives	
Material Cost:	\$107,056.00
Sales and Use Tax:	\$0.00
Material Handling Freight:	\$5,352.81
Material Total:	\$112,408.81
Labor And Additives	
Labor Cost:	\$34,848.00
(4 man crew at \$968.00 a day for: 36 days)	
Payroll Tax & Overheads:	\$34,377.55
Preliminary Engineering:	\$12,487.57
Construction Supervision:	\$9,837.59
Labor Total:	\$91,550.71
Project Cost:	\$249,498.88
Scrap / Salvage Credit:	\$0.00
Project Total:	\$249,498.88

Estimated on: 02-Mar-07

Estimated by: ndr3j

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:	SPRINGFIELD
Road:	WESTERN AVE.
Mile Post:	CJ-184.16
Drawing Number:	82111842
State ProjectNumber:	
County:	CLARK
A A R Number:	523500T
Project Number:	10.1201
File Number:	061-10.1045
New File Number:	
A F E Number:	F10122
Store Number:	07865
Supervisor:	D.M. FRANCIS
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.				
1	165-006505-4	EA	\$1,051.54	\$1,051.54	AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE				
2	165-021636-4	EA	\$17.85	\$35.70	ARRESTER, LIGHTNING 3 POST PORCELAIN BASE SSC#022485-33X				
18	670-119241-4	EA	\$32.80	\$590.40	ARRESTOR, LIGHTNING HEAVY DUTY CLEAR VIEW SAFETRAN 022585-1X				
19	105-871901-4	EA	\$161.57	\$3,069.83	BATTERY, GNB 265AH MODEL 50A11 SINGLE CELL 2.25 VOLTS				
4	670-005125-4	EA	\$2.54	\$10.16	BLOCK, TERMINAL BAKELITE FOR MOUNTING LIGHTING ARRESTOR EQUALIZER OR RESISTANCE UNIT				
2	670-052960-4	EA	\$7.14	\$14.28	BLOCK, TERMINAL MULTIUNIT OF 6 WITH CONNECTORS (HARMON 0250094-000				
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	670-015819-4	EA	\$33.68	\$33.68	BRACKET, RELAY FOR WALL MTG. TWO ST1 OR B1 PLUG-IN RELAYS SAFETRAN# 420000-52X				
1	670-356949-4	EA	\$97.00	\$97.00	CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524. FEMALE CONNECTOR				
600	465-292862-4	LF	\$1.04	\$624.00	CABLE, U-2-6 TWISTED, S-23 OKONITE 113-12-3833 SOLID TINNED CONDUCTOR				
600	465-292929-4	LF	\$3.05	\$1,830.00	CABLE, U.G. 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL				
1500	465-938422-4	LF	\$2.55	\$3,825.00	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 FMF-L 094-078 TR W/G 1 X 8 7X W010 BRZ TAPE 600V PRODUCT CODE 206-11-6070				
1	670-477629-4	EA	\$552.20	\$552.20	CHARGER, BATTERY CRAGG MODEL 20 EC-12V 20 AMP TEMP COMPENSATED				

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
140	165-544477-4	FT	\$2.55	\$357.00	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	\$50.38	\$201.52	CONNECTOR, WELDED FAR RAIL HARMON A1000-2W				
4	670-486646-4	EA	\$41.62	\$166.48	CONNECTOR, WELDED NEAR RAIL HARMON A1000-1W				
1	670-793404-4	EA	\$838.37	\$838.37	COUNTERWEIGHT PKAGE, 17-24 GATE STRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS				
1	670-794453-4	EA	\$854.03	\$854.03	COUNTERWEIGHT PKAGE, 25-31 GATE STAN S- MECH ONLY, STAINLESS TO INCLUDE HUB, SUPPORT ARMS				
8	670-760012-4	EA	\$40.02	\$320.16	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				
1	670-000004-4	EA	\$700.00	\$700.00	FCC LICENSE FOR MONITOR/RADIO				
5	670-000003-4	EA	\$255.85	\$1,279.25	FILL/STONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST				
1	670-013706-4	EA	\$298.96	\$298.96	FILTER, ELECTRO CODE 114HZ REJECTION PART # TF-114				
1	670-012724-4	EA	\$289.30	\$289.30	FILTER, ELECTRO CODE 156HZ REJECTION PART # TF-156				
2	670-012732-4	EA	\$289.30	\$578.60	FILTER, ELECTRO CODE 211HZ REJECTION PART# TF-211				
1	670-011669-4	EA	\$279.36	\$279.36	FILTER, ELECTRO CODE 86HZ REJECTION PART# TF-86				
1	670-257031-4	EA	\$297.88	\$297.88	GATE, ARM FIBERGLASS-ALUMINUM 17-24 FT., INCLUDES GATE GUARD FOR GATE LIGHT CABLE, NEG P/N 8002-24NFS/CG				
1	670-263738-4	EA	\$331.87	\$331.87	GATE, ARM FIBERGLASS-ALUMINUM 25-31 FT. INCLUDES GATE GUARD FOR GATE LIGHT CABLE, 076600-320017, NEG P/N 8002-4NFS/CG				
2	670-996717-4	EA	\$43.57	\$87.14	INDUCTOR, SIMULATED TRACK SAFETRAN 8V617-2600				
1	670-477991-4	EA	\$317.90	\$317.90	KIT, GROUNDING ASSY FOR AL I/S INCLUDES 8 GRD RDS, 200#4 WIRE, 12 4 WIRE ONE SHOTS. ERICO SBK206				

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Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Quantity Returned (Credit)	Special Instructions
2	670-123298-4	EA	\$256.93	\$513.86	KIT, HARDWARE SUPPLIES REQUIRED X'ING PKGAGES. WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS,P/GUM PAINT,SLEEVES,TAGS,GLUE, 100 EA WHITE TAGS, JNE CAN BLUE MARKING PAINT ETC...				
2	670-142763-4	EA	\$849.42	\$1,698.84	LAMP ASSY, 12" LIGHT, 2 WAY IND. FOR MTG ON THE TIP OF W/F CANTILEVER ARM, SAFETRAN P/N 042003-488XNS				
2	670-816589-4	EA	\$551.10	\$1,102.20	LAMP ASSY, 5" MAST MTG. 1W IND. 20" BKGRD, (BACK) LTS.FLX -12W/BULB S'TRAN # 042003-001493				
2	670-499171-4	EA	\$470.76	\$941.52	LAMP ASSY, 10"12"LINCLN MAST MTG. 1W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-001509				
6	165-643547-4	EA	\$4.30	\$25.80	LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE				
16	670-440826-4	EA	\$1.01	\$16.16	LINK, SAFETRAN 024620-1X INSL TESTING COMP 1 IN CENTER SIGNAL CIRCUITS CR 02-286662				
2	670-442062-4	EA	\$1.17	\$2.34	LINK, TEST SAFETRAN 024620-4X COMP FOR MTG ON AAR TERM 2-3/8" CENTER W/SPECIAL NUT & CLAMP NUT				
6	255-590880-4	EA	\$16.12	\$96.72	LOCK, AMERICAN LOCK MODEL H-10KA KEYED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"				
2	670-637778-4	EA	\$1,031.41	\$2,062.82	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				
1	000-000000-4	EA	\$5,000.00	\$5,000.00	MIS. UNDERGROUND BORING				
5	670-000001-4	EA	\$316.23	\$1,581.15	MISC. MATERIAL				
5	670-014233-4	EA	\$981.85	\$4,909.25	MODULE, DAX FOR 3000 GCP SAFETRAN #80016				
1	255-646807-4	EA	\$10.38	\$10.38	PADLOCK, SAFETRAN PART NO. 030399-29X SCREW TYPE FOR CIR CONTROLLER AND BTY. BOX				
1	670-514605-4	EA	\$8.45	\$8.45	PINNACLE, W-C SECT 1-11, 4"x 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X				
6	670-555609-4	EA	\$45.12	\$270.72	PLUGBOARD, TYPE B-1 GRS A62-506 OR HARMON @7062-506 OR				

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	670-427136-4	EA	\$93.49	\$93.49	POWER OFF LAMP INDICATOR FOR SHELTER, SAFETRAN P/N 051958-5				
1	670-723237-4	EA	\$6,235.58	\$6,235.58	PREDICTOR, DUAL FREQ. 3000 1 TRACK, SAFETRAN #80200-101-0 NO ISLAND, W/PROCESSOR 80214				
1	165-018451-4	EA	\$148.50	\$148.50	PROTECTOR, 12VDC, AAR MOUNT LPC 10593-9 LIGHTNING PROTECTION CORP.				
1	165-902002-4	EA	\$308.00	\$308.00	PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL				
5	465-002899-4	EA	\$22.06	\$110.30	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES				
1	670-742096-4	EA	\$41.80	\$41.80	RELAY INTERFACE PROBE, ULTRATECH PN 16031-00				
2	670-456936-4	EA	\$150.00	\$300.00	RELAY RACK, SWING, FARADAY SHELTER FOR ONE RELAY, SSFETRAN P/N T15331				
6	670-707995-4	EA	\$313.67	\$1,882.02	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	670-816502-4	EA	\$4,903.75	\$4,903.75	SEARII AUTOMATED INSPECTOR SYSTEM KIT, W/ 1-ILOD, 1-eBELL, 2-GTS, WITHOUT MTSS, 1-GFT, 1-VHFC, 2- RECORDER INTERFACE MODULE, 1-ECHOLON CONNECTOR				
1	670-085658-4	EA	\$373.00	\$373.00	SEARII, (iLOD) - INTELLIGENT LAMP OUT DETECTOR, SAFETRAN P/N A80271, 1 / 20 AMP SSCC, 2 / 40 AMP SSCC				
1	670-119882-4	EA	\$70.51	\$70.51	SEARII, ECHOLON CONNECTOR, SAFETRAN P/N A80063, 1/ GCP UNIT				
1	670-118145-4	EA	\$139.53	\$139.53	SEARII, GCP DATA RECORDER MODULES, SAFETRAN P/N A80255, 1/ NON REDUNDANT GCP, 2 / REDUNDANT GCP				
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, ,SAFTETRAN P/N 058400-66-78A				
1	670-471572-4	EA	\$3.00	\$3.00	SHIELD, GROUND SERRMI P/N 61278 FOR GROUNDING A RH 4 POST				
1	670-472200-4	EA	\$3.00	\$3.00	SHIELD, GROUND SERRMI PART NO. 61278 FOR GROUNDING A LH 4 POST				
					TERMINAL BLOCK DIRECTLY TO FARADAY SHIELD				

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
4	670-586967-4	EA	\$37.68	\$150.72	SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT				
4	670-776912-4	EA	\$572.18	\$2,288.72	SHUNT, MULTI-FREQ. #62780-8621 SAFETRAN NARROW BAND-LOW LOADING				
2	670-397239-4	EA	\$40.23	\$80.46	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 12" MAST, SAFETRAN #T17216				
1	670-330382-4	RL	\$15.68	\$15.68	TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING STOP DIGGING"				
31	670-478560-4	EA	\$19.47	\$603.57	TERMINAL BLOCK, ERICO 4 POST P/N B2700A2C1WH W/HARDWARE LESS LIGHTNING ARRESTOR				
6	165-917984-4	EA	\$4.84	\$29.04	TERMINAL, TEST, TYPE B GRS A62-515 OR HARMON @32118-001 OR				
6	610-065626-4	EA	\$17.55	\$105.30	ULTRA-TECH 15206-01 CONNECTIVITY BLOCK FOR GRS B1 RELAY				
10	670-007238-4	EA	\$129.46	\$1,294.60	UNIT, THE INSTALLATION AND WIRING OF A DEVICE WHICH REQUIRE A MINIMUM OF FOUR WIRE CONNECT-				
500	465-999111-4	LF	\$0.29	\$145.00	WIRE, NO.10, 1 CONDUCTOR, CASE, FLEXIBLE 37 STRAND, 3/64 IN. INSULATION-ORDER EXT.AMT. NEEDED CR 02-620502				
500	465-999161-4	LF	\$0.18	\$90.00	WIRE, NO.16, 1 CONDUCTOR, CASE, FLEXIBLE, 19 STRAND, 2/64 IN. INSULATION CR 02-620254				
1	670-255598-4	EA	\$33,124.18	\$33,124.18	WIRED RACK, 6X6 FARADAY, 40AMP DOUBLE TRK SSCCIIIA, GCP 3000D2, 2 CRAGG CHARGER, 2 RELAY RACKS, SAFTRAN P/N 40A 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: \$107,056.24

APPROVED BY STATE _____ APPROVED BY RAILROAD _____
 CAR NUMBER _____ SEAL NUMBER _____

TO COLUMBUS

TWO WORKING DAYS

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

12

4

1. MAX. TRAIN SPEED 50 M.P.H.
2. LATITUDE N 39° 55' 31" LONGITUDE W 83° 49' 41" ELEVATION 973'
3. SIGNAL "A" TO HAVE BELL.
4. LOCATE U/G UTILITIES & CABLE BEFORE DIGGING.
5. CROSSING LOCATED IN CLARK COUNTY.
6. NEAREST STREET ADDRESS IS 9 WESTERN AVE.
7. NEAREST INTERSECTING STREET IS W. MAIN ST.
8. DISTANCE TO NEAREST INTERSECTING STREET IS 80 FT.
9. UPGRADE WITH 12" LAMPS AND REUSE EXISTING CANTILEVERS.
10. WAYSIDE HORN SYSTEM TO BE INSTALLED AND MAINTAINED BY ROADWAY AUTHORITY.
11. POWER OFF LIGHT TO BE INSTALLED ON TRACK SIDE OF SHELTER.

(A) (B) (C) (D) = QUADRANT MARKERS

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 #10.12

LAYOUT

MS NORFOLK SOUTHERN

OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL. ATLANTA, GA.	M.P.: CJ-184.16
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SPRINGFIELD, OH
CEIGS AT S. WESTERN AVE.

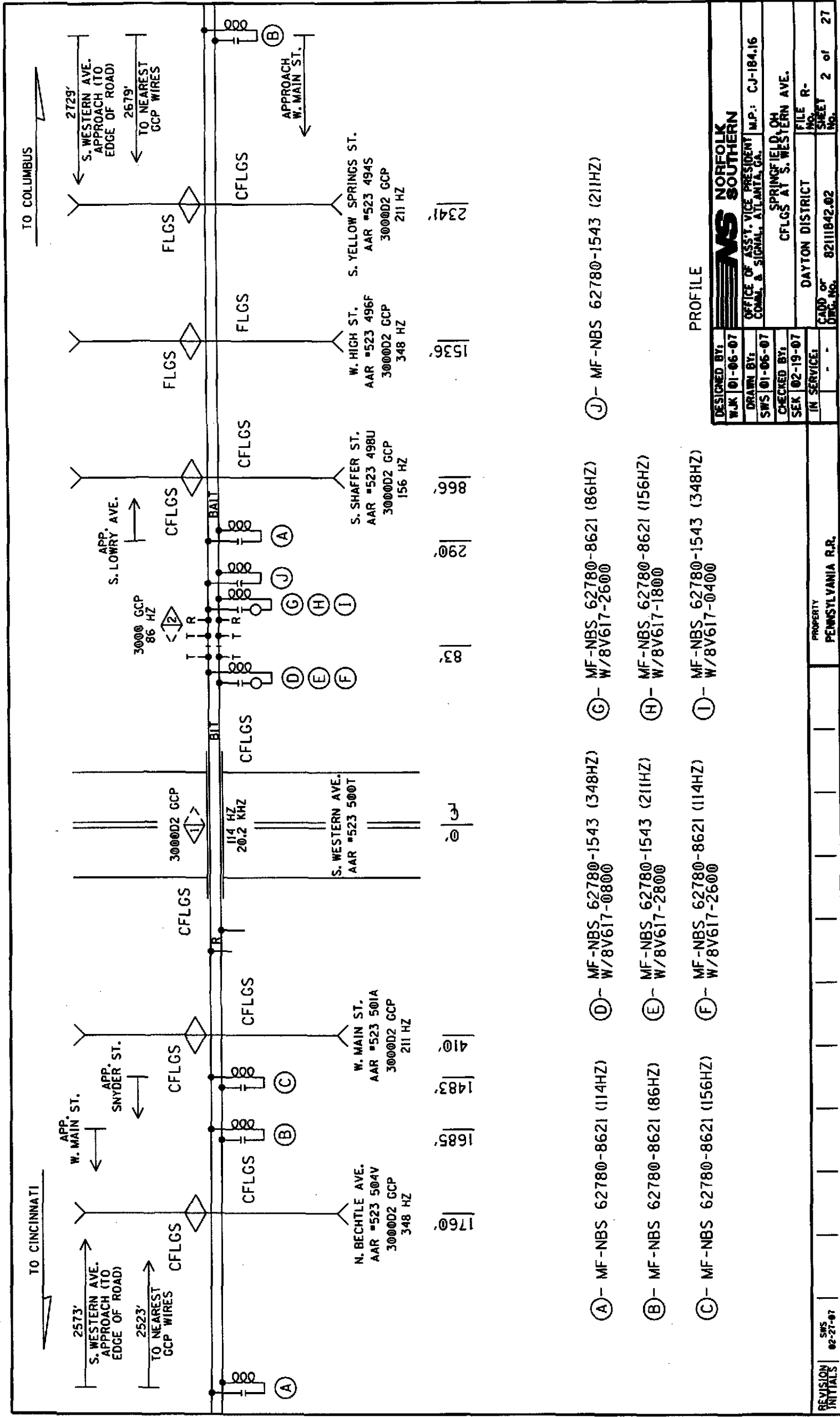
DAYTON DISTRICT	FILE R- No.
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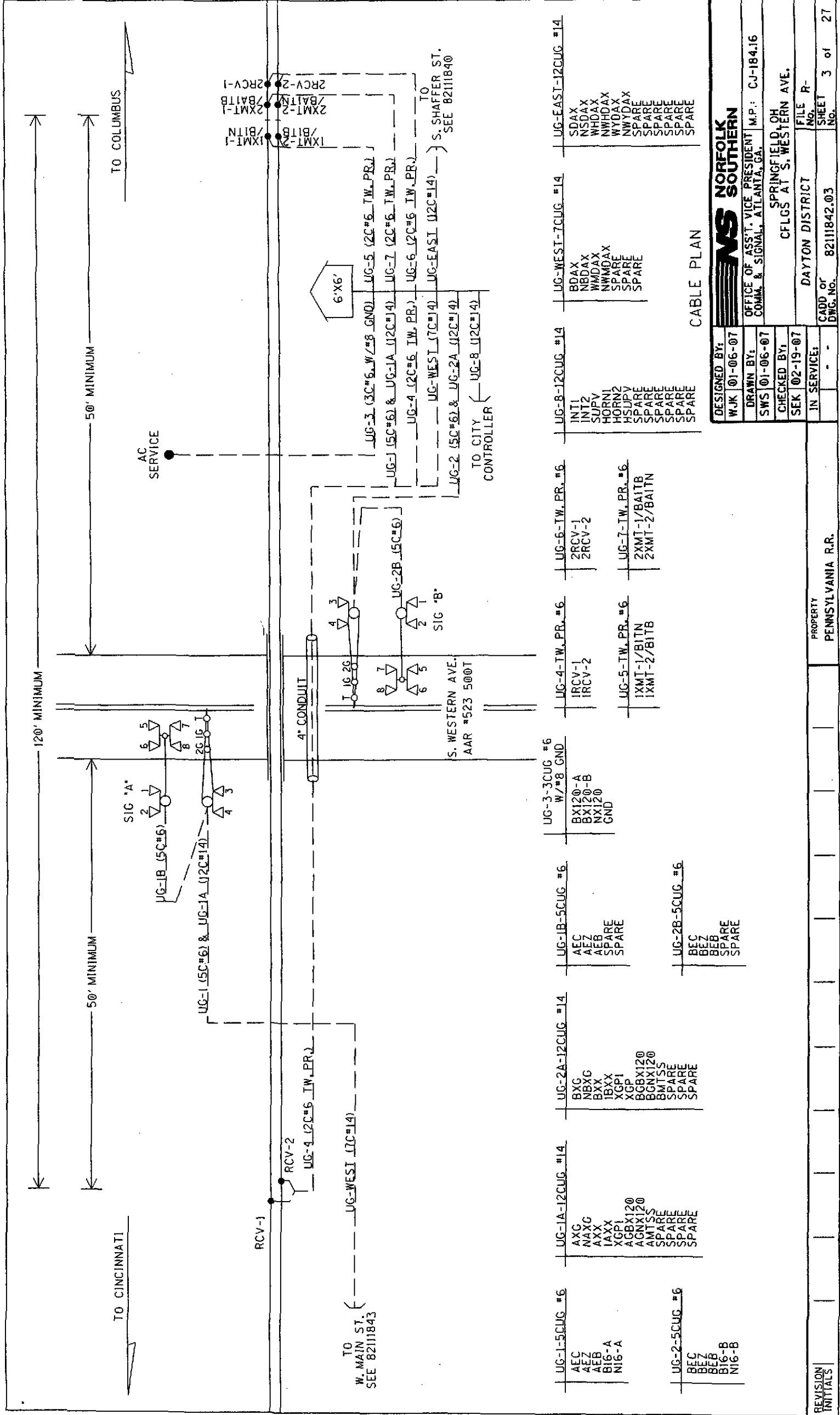
CADD or DWG. No.	82111842.01	SHEET No.	1 of 27
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PROPERTY
PENNSYLVANIA R.R.

REVISION
INITIALS

$\phi = \text{IN}$
 $\phi = \text{OUT}$
3.2.01

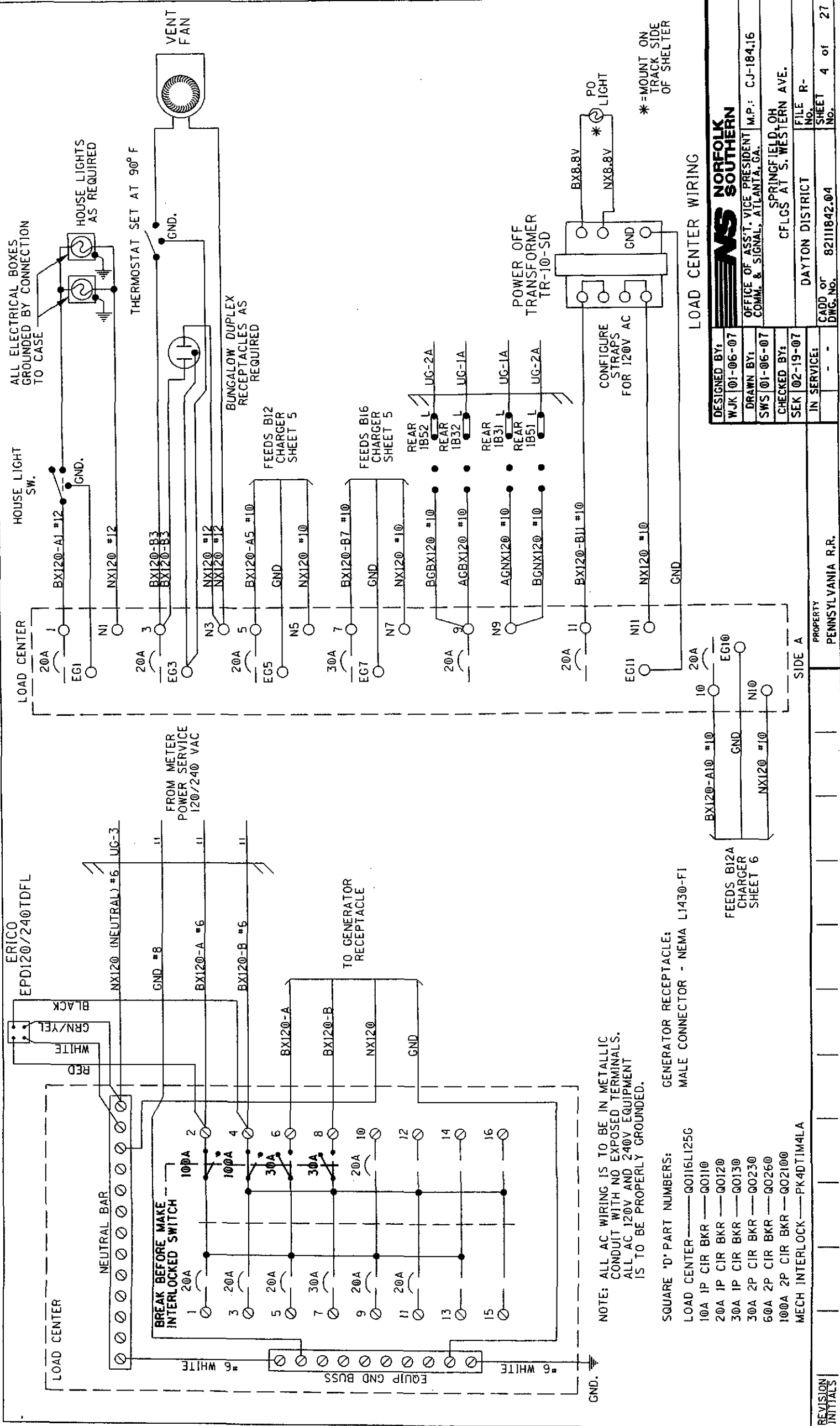




CABLE PLAN

DESIGNED BY:		NORFOLK SOUTHERN	
WJK	01-06-07	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
DRAWN BY:		M.P.: CJ-184.16	
SWS	01-06-07	SPRINGFIELD OH	
CHECKED BY:		CFLGS AT S. WESTERN AVE.	
SEK	02-19-07	DAYTON DISTRICT	
IN SERVICE:		FILE R-	
		CADD or DWG. No. 82111842.03	
		SHEET 3 of 27	

PROPERTY
PENNSYLVANIA R.R.



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 — PK4DTM4LA

FEEDS B12A CHARGER SHEET 6

LOAD CENTER WIRING

DESIGNED BY:	WJK 01-06-07
DRAWN BY:	SWS 01-06-07
CHECKED BY:	SEK 02-19-07
IN SERVICE:	- - -
CADD OF DWG. No.	82111842.04
SHEET	4 of 27

NORFOLK SOUTHERN

OFFICE OF ASST. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA.

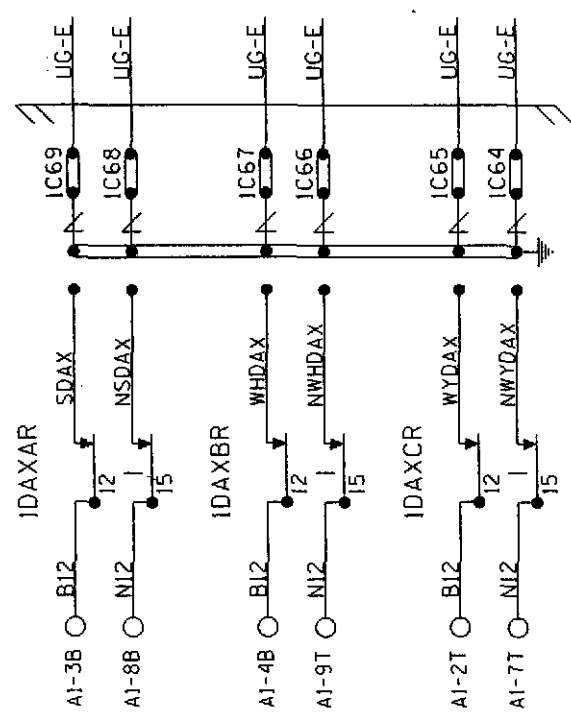
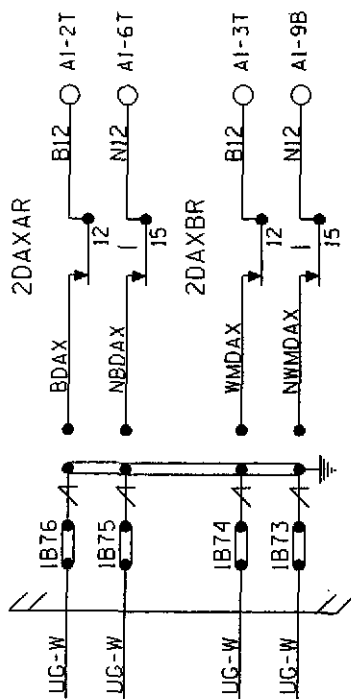
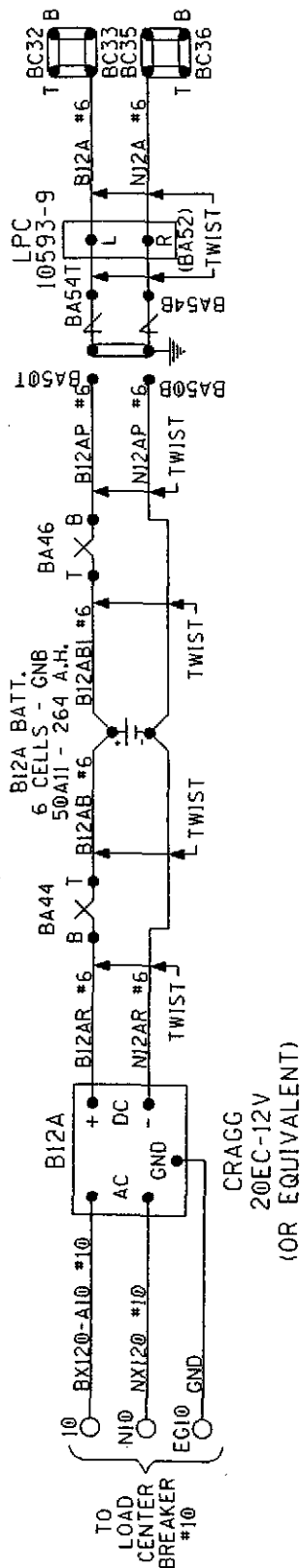
M.P.: CJ-184.16

SPRINGFIELD, OH

CFLGS AT S. WESTERN AVE.

DAYTON DISTRICT

FILE R-



B12A RECTIFIER HOOK-UP
DAX CIRCUITS

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

DESIGNED BY:	WJK 01-06-07
DRAWN BY:	SWS 01-06-07
CHECKED BY:	SEK 02-19-07
IN SERVICE:	- -
FILE NO.	DAYTON DISTRICT
FILE R-	CFLGS AT S. WESTERN AVE.
NO.	SPRINGFIELD, OH
SHEET	8211842.06
6 of 27	



OFFICE OF ASS'T. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA.
M.P.: CJ-184.16

EXPANDED PROGRAMMING

T1: SWITCH TO MS (ENTER EZ VALUE)	10 %	---
T2: SWITCH TO MS (ENTER EZ VALUE)	---	---
T1: TRANSFER DELAY MS TO GCP (0 = OFF)	0 Sec	---
T2: TRANSFER DELAY MS TO GCP (0 = OFF)	---	---
T1: TRANSFER MS TO GCP PRIME (ON/OFF)	---	---
T2: TRANSFER MS TO GCP PRIME (ON/OFF)	---	---
T1: TRANSFER MS TO GCP DAX A (ON/OFF)	---	---
T2: TRANSFER MS TO GCP DAX A (ON/OFF)	---	---
T1: TRANSFER MS TO GCP DAX B (ON/OFF)	---	---
T2: TRANSFER MS TO GCP DAX B (ON/OFF)	---	---
T1: TRANSFER MS TO GCP DAX C (ON/OFF)	---	---
T2: TRANSFER MS TO GCP DAX C (ON/OFF)	---	---
T1: TRANSFER MS TO GCP DAX D (ON/OFF)	---	---
T2: TRANSFER MS TO GCP DAX D (ON/OFF)	---	---
T1: PRIME PREDICTION OFFSET (0 = OFF)	0 Ft	---
T2: PRIME PREDICTION OFFSET (0 = OFF)	---	---
PICKUP DELAY PRIME	15 Sec	---
PICKUP DELAY DAX A	15 Sec	---
PICKUP DELAY DAX B	15 Sec	---
PICKUP DELAY DAX C	15 Sec	---
PICKUP DELAY DAX D	---	---
T1: ENHANCED DETECTION (ON/OFF)	OFF	---
T2: ENHANCED DETECTION (ON/OFF)	---	---
BACK-TO-BACK T1 AND T2 (NO/YES)	---	---
T1: STATION STOP TIMER	---	---
T2: STATION STOP TIMER	---	---
T1: NUMBER OF TRACK WIRES (4/6)	4	---
T2: NUMBER OF TRACK WIRES (4/6)	---	---
T1: LOW EX ADJUSTMENT	0	---
T2: LOW EX ADJUSTMENT	---	---
T1: LOW EZ DETECTION	OFF	---
T2: LOW EZ DETECTION	---	---
T1: LOW EZ DETECTION TIMER (ON/OFF)	---	---
T2: LOW EZ DETECTION TIMER (ON/OFF)	---	---
T1: POSITIVE START (EZ LEVEL) (0 = OFF)	0	---
T2: POSITIVE START (EZ LEVEL) (0 = OFF)	---	---
T1: POSITIVE START TIMEOUT (0 = NONE)	---	---
T2: POSITIVE START TIMEOUT (0 = NONE)	---	---
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)	---	---

3000D2 PROGRAMMING CHART (LEVEL: J)	NUMBER OF TRACK TRANSCIVERS	LEVEL: J
T1: FREQUENCY	114Hz	---
T2: FREQUENCY	---	---
T1: UNIDIRECTIONAL/BIDIRECTIONAL	BI	---
T2: UNIDIRECTIONAL/BIDIRECTIONAL	---	---
T1: XMIT LEVEL (MAX/MED)	MAX	---
T2: XMIT LEVEL (MAX/MED)	---	---
T1: PREDICTOR/MOTION SENSOR	PRED	---
T2: PREDICTOR/MOTION SENSOR	---	---
T1: WARNING TIME	30 Sec	---
T2: WARNING TIME	---	---
T1: APPROACH DISTANCE	2523 Ft	---
T2: APPROACH DISTANCE	---	---
UAX1 PICKUP DELAY (UAX) (0 = OFF)	0 Sec	---
ENA/UAX2 DELAY (0 = ENA)	0 Sec	---
T1: ISLAND DISTANCE	166 Ft	---
T2: ISLAND DISTANCE	---	---
NUMBER OF DAX'S	3 Ed	---
DAX A TRACK ASSIGNMENT (T1/T2)	T1	---
DAX A DISTANCE (0 = PREEMPT)	859 Ft	---
DAX A WARNING TIME	30 Sec	---
DAX B TRACK ASSIGNMENT (T1/T2)	T1	---
DAX B DISTANCE (0 = PREEMPT)	1417 Ft	---
DAX B WARNING TIME	49 Sec	---
DAX C TRACK ASSIGNMENT (T1/T2)	T1	---
DAX C DISTANCE (0 = PREEMPT)	2338 Ft	---
DAX C WARNING TIME	30 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
MODULE NUMBERS	80211-(+)* 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-(+)* 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-(+)* 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-(+)* 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-(+)* 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-(+)* 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-(+)* 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-(+)* 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
MODULES USED	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

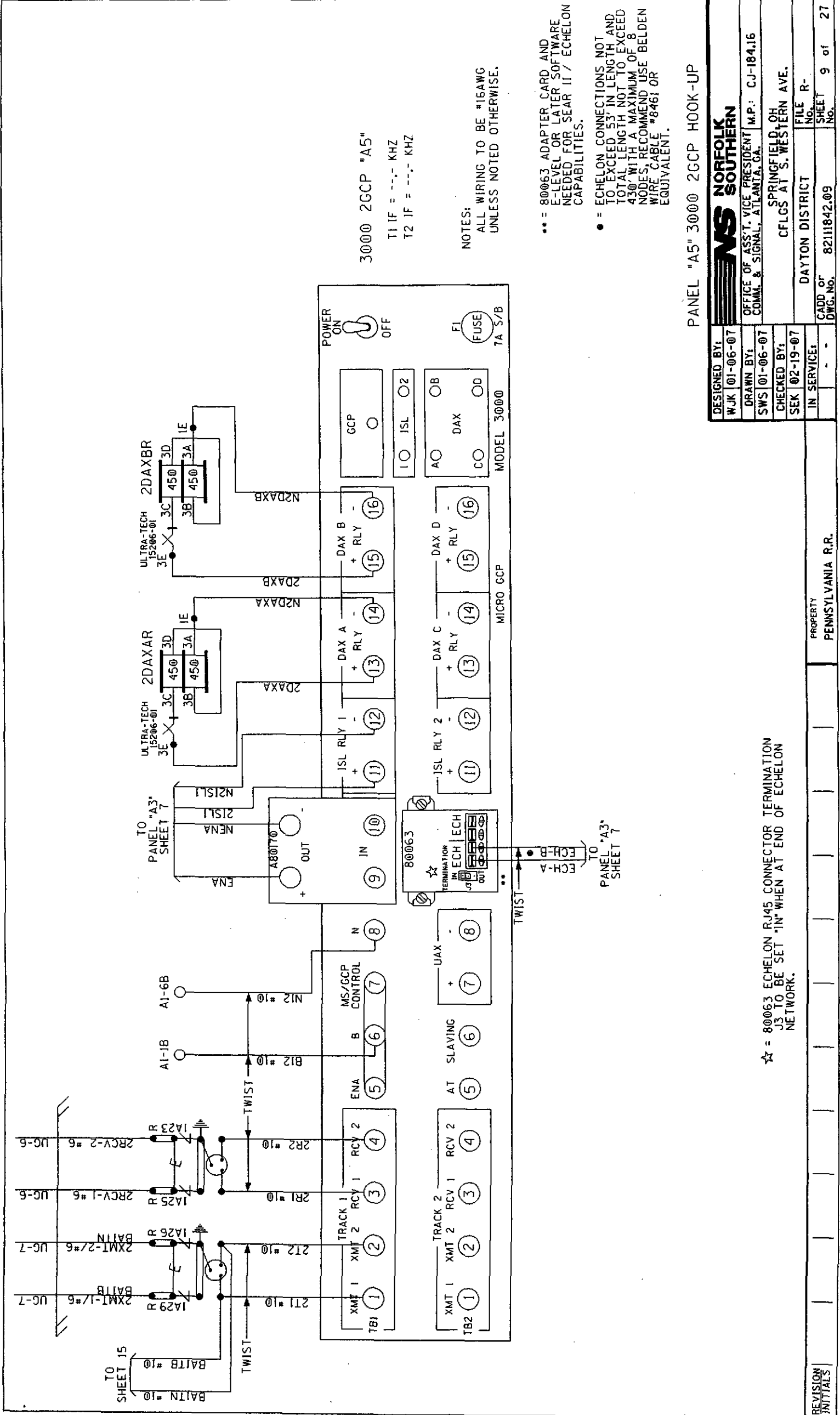
NOTES:

- 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 II / ECHELON CAPABILITIES.

PANEL "A3" 3000D2 IGCP SET-UP

DESIGNED BY:		NORFOLK SOUTHERN	
WJK	01-06-07	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-184.16
DRAWN BY:		CHECKED BY:	
SWS	01-06-07	SPRINGFIELD, OH	CFLGS AT S. WESTERN AVE.
IN SERVICE:		DAYTON DISTRICT	FILE R-
CADD OF DWG. No.	8211842.08	SHEET	8 of 27

PROPERTY
PENNSYLVANIA R.R.



3000 2GCP "A5"

T1 IF = --,-- KHZ

T2 IF = --,-- KHZ

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

** = 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" 3000 2GCP HOOK-UP

DESIGNED BY:	WJK 01-06-07
DRAWN BY:	SWS 01-06-07
CHECKED BY:	SEK 02-19-07
IN SERVICE:	- -
CADD or DWG. No.	8211842.09
SHEET No.	9 of 27

NORFOLK SOUTHERN

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

MP: CJ-184.16

SPRINGFIELD, OH
CFLGS AT S. WESTERN AVE.

DAYTON DISTRICT

FILE R-

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

PROPERTY
PENNSYLVANIA R.R.

EXPANDED PROGRAMMING

3000 PROGRAMMING CHART		(LEVEL: J)
NUMBER OF TRACK TRANSCEIVERS		
T1: FREQUENCY		I 86Hz
T2: FREQUENCY		---Hz
T1: UNIDIRECTIONAL/BIDIRECTIONAL		B
T2: UNIDIRECTIONAL/BIDIRECTIONAL		---
T1: XMIT LEVEL (MAX/MED)		MAX
T2: XMIT LEVEL (MAX/MED)		---
T1: PREDICTOR/MOTION SENSOR		PRED
T2: PREDICTOR/MOTION SENSOR		----
T1: WARNING TIME		30 Sec
T2: WARNING TIME		-- Sec
T1: APPROACH DISTANCE		2679 Ft
T2: APPROACH DISTANCE		---- Ft
UAX1 PICKUP DELAY (UAX) (0 = OFF)		0 Sec
ENA/UAX2 DELAY (0 = ENA)		-- Sec
T1: ISLAND DISTANCE		Ft
T2: ISLAND DISTANCE		--- Ft
NUMBER OF DAX'S		2 Ea
DAX A TRACK ASSIGNMENT (T1/T2)		T1
DAX A DISTANCE (0 = PREEMPT)		1753 Ft
DAX A WARNING TIME		30 Sec
DAX B TRACK ASSIGNMENT (T1/T2)		T1
DAX B DISTANCE (0 = PREEMPT)		285 Ft
DAX B WARNING TIME		36 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

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

* = 1ST SLOT AT LEFT END OF BAY

MODEL 3000 GCP MODULE ASSEMBLIES											
		MODULE BAY									
MODULES POSITION		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
MODULE NUMBERS		80211-(f1) * 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
MODULES USED				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.

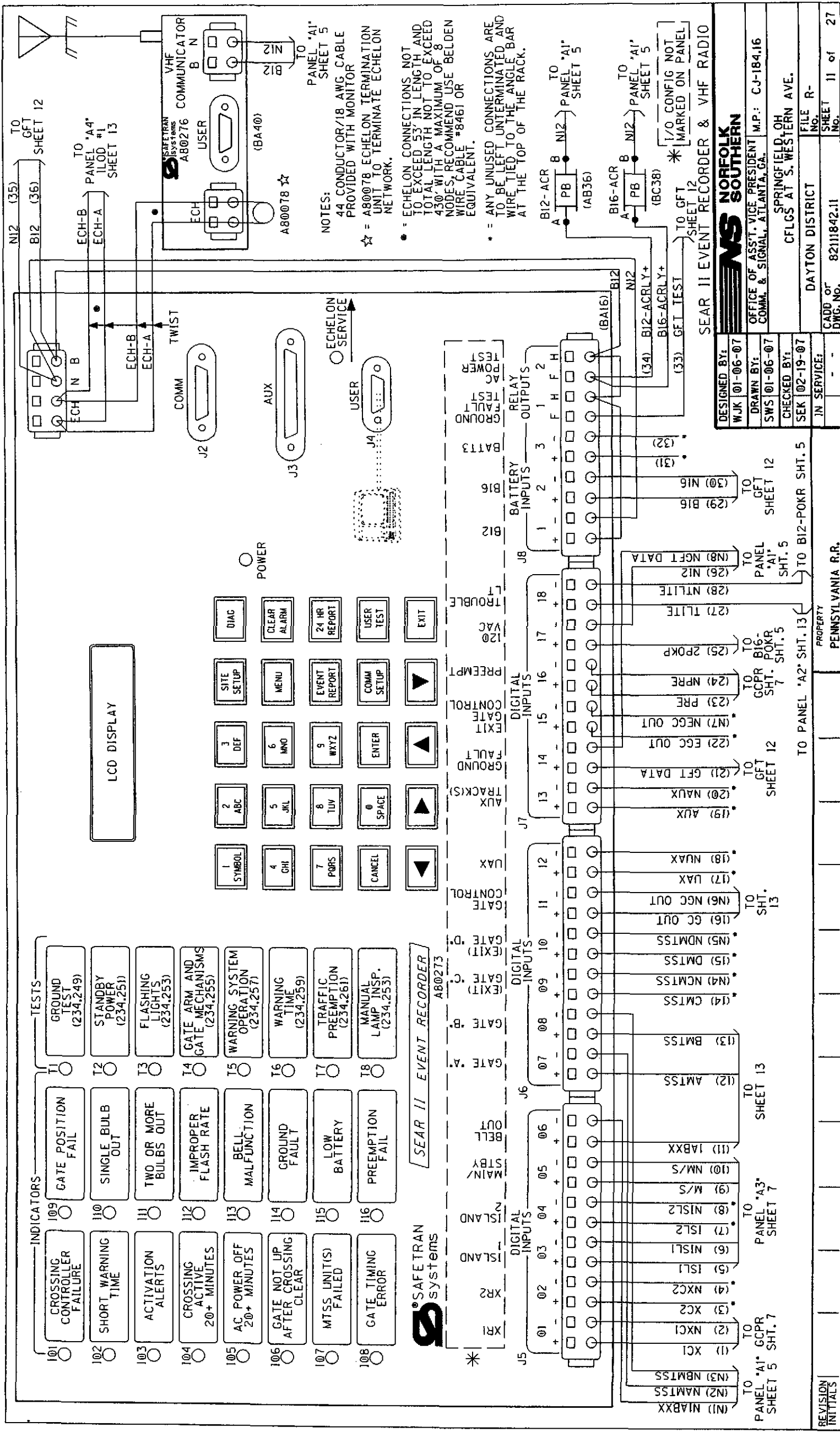
•• = 80214 & 80255 (WITH JUMPER)
CARDS AND E-LEVEL OR LATER
SOFTWARE NEEDED FOR SEAR II /
ECHELON CAPABILITIES.

PANEL "A5" 3000 2GCP SET-UP

DESIGNED BY:	NS NORFOLK SOUTHERN		
WJK 01-06-07			
DRAWN BY:	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		
SWS 01-06-07	M.P.: CJ-1B4.16		
CHECKED BY:	SPRINGFIELD, OH		
SEK 02-19-07	CFLCS AT S. WESTERN AVE.		
IN SERVICE:	DAYTON DISTRICT	FILE NO.	R-
- -	CADD OR DWG. NO.	82111842.10	SHEET 10 of 27

3000 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

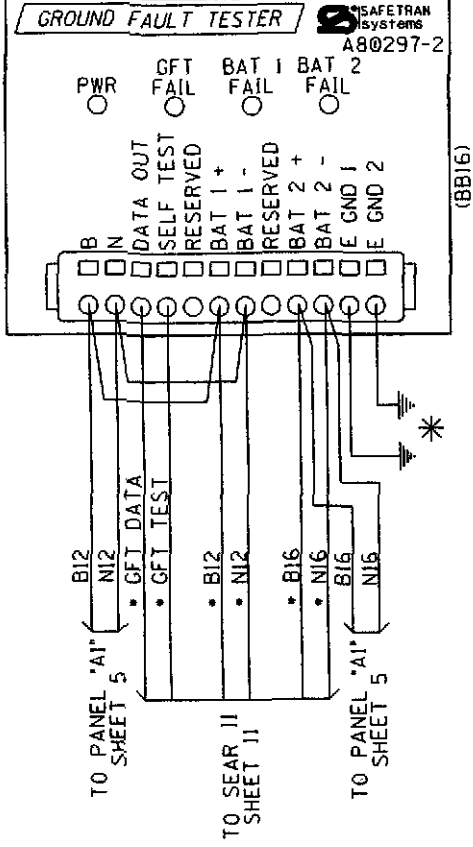


SITE SET UP PROCEDURE		
FUNCTION	LED DISPLAY	
DATE	- -	
TIME	:	
DAYLIGHT SAVINGS TIME	YES	
TIME ZONE	EST	
SITE NAME	S. WESTERN AVE.	
DOT NUMBER	523 500T	
MILEPOST	CJ-184.16	
TESTER TYPE	CROSSING	
DATE FORMAT	MM-DD-YYYY	
TEMP FORMAT	FAHRENHEIT	
SITE TYPE	NO COMMUNICATION	
SITE ATCS	7.RRR.LLL.CGG.03.01	
OFFICE ATCS ADDRESS	2.550.01.9100	
POLL ID	1	
OFFICE FB/F9	YES	
OFFICE COMM DEVICE	SPREAD SPECTRUM RADIO	
DIAL MODEM PORT	AUX/COMM	
PHONE NUMBER	(OFFICE NUMBER)	
INIT STRING	(LEAVE BLANK)	
BACKUP SITE ADDRESS 1		
BACKUP SITE ADDRESS 2		
FIELD COMM		
USER PORT	BAUD 57600, N, 8, 1, NONE	
AUX PORT	BAUD 9600, N, 8, 1, NONE	
COMM PORT	BAUD 9600, N, 8, 1, NONE	

VERIFY NUMBER OF BULBS: SENSOR #1	
CURR 1: LAMP SET UP	6 BULBS
CURR 2: LAMP SET UP	6 BULBS

VERIFY NUMBER OF BULBS: SENSOR #2	
CURR 1: LAMP SET UP	6 BULBS
CURR 2: LAMP SET UP	6 BULBS

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS		
THE QUESTION	SELECT FROM MENU OPTION	
RESET NAMES AND MODULES?	YES	
NUMBER OF TRACKS?	1	
NUMBER OF XR INPUTS?	1	
CONSTANT WARNING DEVICE	GCP	
CROSSING CONTROLLER?	SSCC III (A, PLUS)	
MAIN / STANDBY	YES	
AUXILIARY TRACKS?	NO	
AUX TRACK	(SET IF AUX TRACKS = YES)	
GATES?	2	
EXIT GATES?	0	
UAX?	NOT INSTALLED	
BATTERY BANKS?	2	
PREEMPTION?	YES	
ILOD MODULES?	2	
LAMP TYPE?	NORMAL	
AUTO INSPECTIONS?	YES	
BELL SENSOR?	** 1	
BELL SENSOR INPUT 7	** YES	
BELL SENSOR INPUT 8	** NO	
BELL SENSOR INPUT 9	** NO	
BELL SENSOR INPUT 10	** NO	
BELL ON?	GATES LOWERING	
GATE TIP SENSORS?	YES	
GROUND FAULT DETECTORS?	YES	
CHANNEL 1	161.475 MHZ	
CHANNEL 2	NONE	
FULL APPROACH MOVE ALARMS	ACTIVATE	
SSCC ATCS ADDRESS	7.RRR.LLL.CGG.07.01	



VERIFY THE BATTERY SUPPLY VOLTAGES	
BI2 BATTERY VOLTAGE AT INPUT DC1	VOLT 1: .
BI6 BATTERY VOLTAGE AT INPUT DC2	VOLT 2: .

NOTES:

- ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE
- * = CABLE PROVIDED WITH SEAR II
- ** = 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.
- * = CONNECT 'E GND 1' AND 'E GND 2' TO INDEPENDENT GROUND POINTS ON SIDE A AND SIDE B.

SEAR II SET UP CHART
& GROUND FAULT TESTER

NS NORFOLK SOUTHERN	
DESIGNED BY: WJK 01-06-07	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
DRAWN BY: SWS 01-06-07	M.P.: CJ-184.16
CHECKED BY: SEK 02-19-07	CFLGS AT S. WESTERN AVE.
IN SERVICE: - -	DAYTON DISTRICT
CADD or DWG. No. 82111842.12	FILE R-
REVISION INITIALS	SHEET 12 of 27

PROPERTY
PENNSYLVANIA R.R.

PROGRAM	
FLASHER RATE	40
1 GC DELAY	4 SEC.
2 GC DELAY	4 SEC.
BELL-ON GATE RISING	OFF
MIN ACTIVATION TIME	0 SEC.
ENABLE INPUTS	1 THRU 1
ENABLE OUTPUTS	A AND B
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
SETUP OUTPUT 2L1 XX.X VOLTS
SETUP OUTPUT 2L2 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.
LOS TIMERS
ATCS ADDRESS 7RRLLGGG07
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.

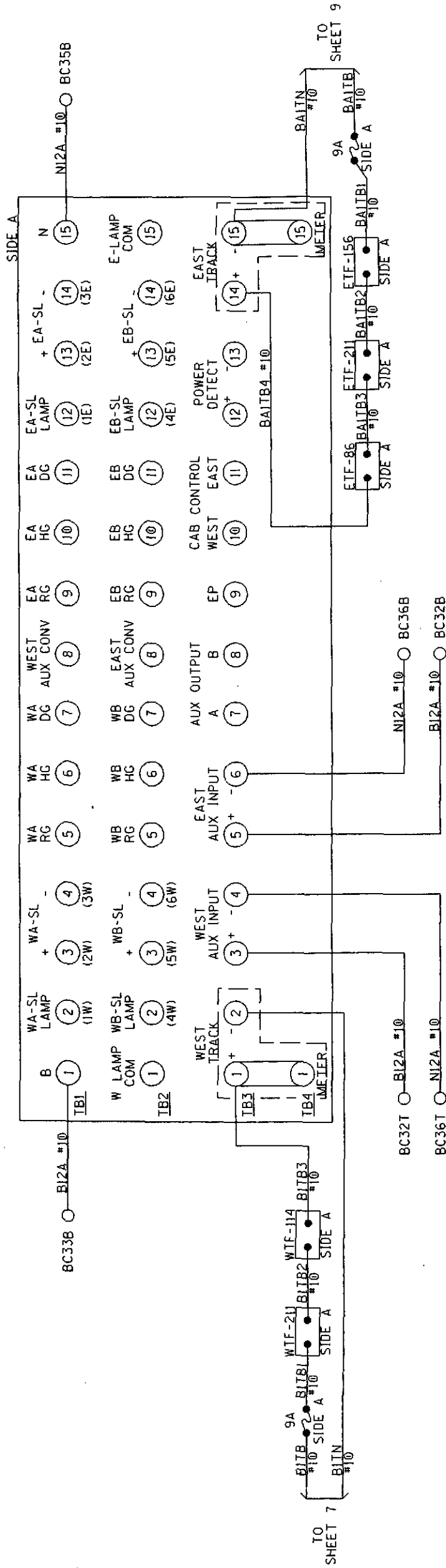
PANEL "A2" CROSSING CONTROLLER
SET-UP CHART

DESIGNED BY:	WJK 01-06-07	 NORFOLK SOUTHERN
DRAWN BY:	SWS 01-06-07	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	SEK 02-19-07	SPRINGFIELD, OH CFLGS AT S. WESTERN AVE.
IN SERVICE:	- -	DAYTON DISTRICT FILE R-
REVISION INITIALS		CADD of DWG. No. 8211842.14 SHEET 14 of 27

PROPERTY
PENNSYLVANIA R.R.

ELECTRO CODE 4 PLUS REPEATER

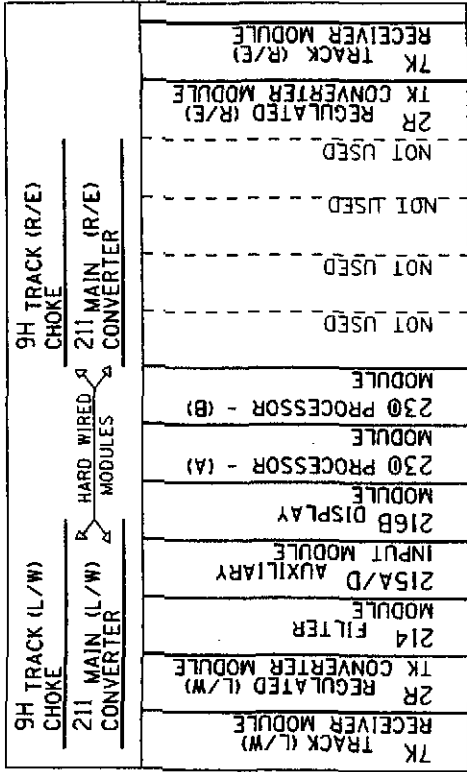
ALL CODES RECEIVED FROM THE EAST TO BE REPEATED TO THE WEST AND ALL CODES RECEIVED FROM THE WEST TO BE REPEATED TO THE EAST.
ABSENCE OF AUX INPUT TO DISABLE ALL CODES FOR RESPECTIVE DIRECTIONS.



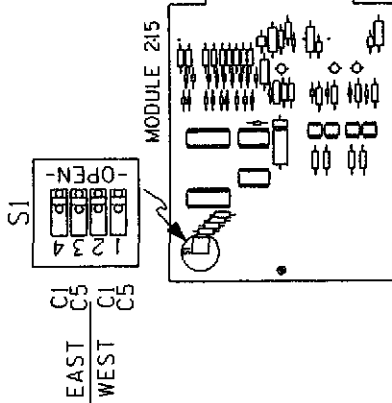
EC4R PLUS UNIT

DESIGNED BY:	WJK 01-06-07	NORFOLK SOUTHERN
DRAWN BY:	SWS 01-06-07	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	SEK 02-19-07	SPRINGFIELD, OH
IN SERVICE:	- -	CFLGS AT S. WESTERN AVE.
DAYTON DISTRICT	FILE R-	NO. 15 of 27
CADD OF DWG. NO.	82111842.15	SHEET

PROPERTY
PENNSYLVANIA R.R.

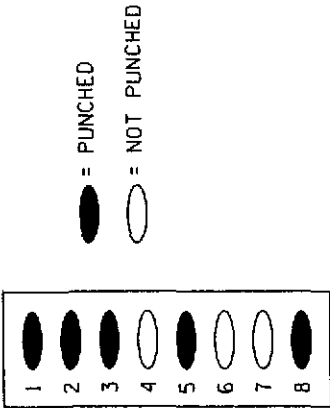


ELECTRO CODE MODEL 4R PLUS
CONFIGURATION "R" (REGENERATIVE REPEATER)



CHASSIS ID
(LOCATED ON THE MOTHER
BOARD BETWEEN THE 230
PROCESSOR MODULES.)

PROGRAM "RRCQ-A5"



215 MODULE

THE 215 MODULE CONTROLS AUXILIARY INPUTS AND CODE 5 OPERATION. PROVISION FOR FLASHING YELLOW ASPECTS IS PROVIDED ONLY WHEN A 215B MODULE IS USED OR WHEN A 215D MODULE IS USED AND IT IS CONFIGURED TO OPERATE AS A 215B MODULE. (ALL JUMPERS SOLDERED IN PLACE EXCEPT "B" JUMPER)

IF FLASHING YELLOW ASPECTS ARE NOT DESIRED, EITHER A 215A, 215B, OR A 215D MODULE MAY BE USED. A 215D MODULE MAY BE CONFIGURED TO OPERATE AS A 215A BY CONNECTING ONLY JUMPER "B". NOTE: OPERATING RULE #306 (APPROACH SLOW)

CODE 5 SELECTION

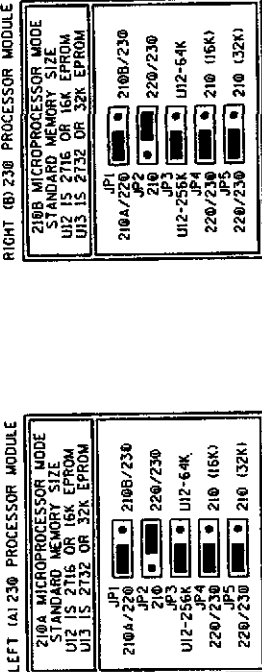
CODE 5 OPERATION IS PROGRAMMED BY SETTING SWITCHES ON THE 215 MODULE AS FOLLOWS:

EAST C1	EAST C5	TRANSMIT CODE 5 EAST WHEN:
OPEN	OPEN	NEVER
OPEN	CLOSED	WEST CODE 5 RECEIVED
CLOSED	OPEN	WEST CODE 1 RECEIVED
CLOSED	CLOSED	ALWAYS

WEST C1	WEST C5	TRANSMIT CODE 5 WEST WHEN:
OPEN	OPEN	NEVER
OPEN	CLOSED	EAST CODE 5 RECEIVED
CLOSED	OPEN	EAST CODE 1 RECEIVED
CLOSED	CLOSED	ALWAYS

CODE 5 WILL NOT BE TRANSMITTED "OUT" TO ANY TRACK CIRCUIT UNLESS CODE 1 IS RECEIVED "IN" FROM THE SAME TRACK CIRCUIT

230 MODULE EMULATION
JUMPER SETTINGS FOR
THIS LOCATION.



RRCQ-A5 EPROM Location

MODULE (A or B)	EPROM Socket	EPROM Number
A	U12	1
A	U13	2
B	U12	3
B	U13	4

ELECTRO CODE (EC4R PLUS)

DESIGNED BY: WJK 01-06-07

DRAWN BY: SWS 01-06-07

CHECKED BY: SEK 02-19-07

IN SERVICE: - -

FILE NO. DAYTON DISTRICT

8211842.16

8211842.16

16 of 27

NORFOLK SOUTHERN

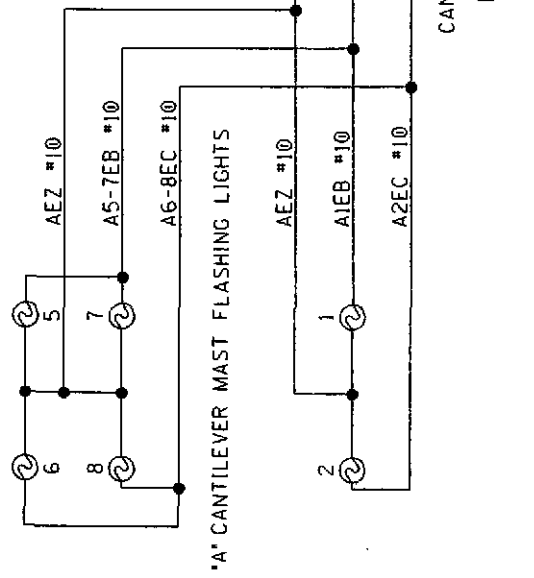
OFFICE OF ASST. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA.

M.P.: CJ-184.16

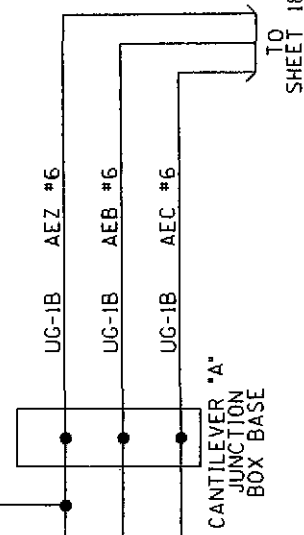
SPRINGFIELD, OH

CFLGS AT S. WESTERN AVE.

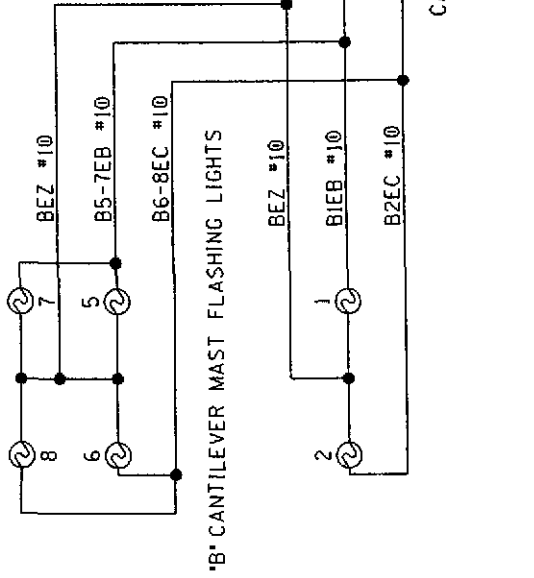
"A" TIP FLASHING LIGHTS



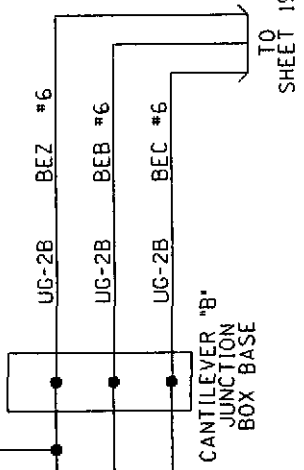
"A" CANTILEVER MAST FLASHING LIGHTS



"B" TIP FLASHING LIGHTS



"B" CANTILEVER MAST FLASHING LIGHTS

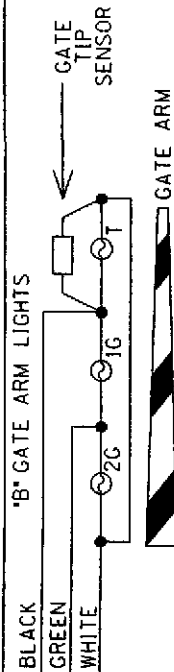


CANTILEVER FLASHER LIGHTS

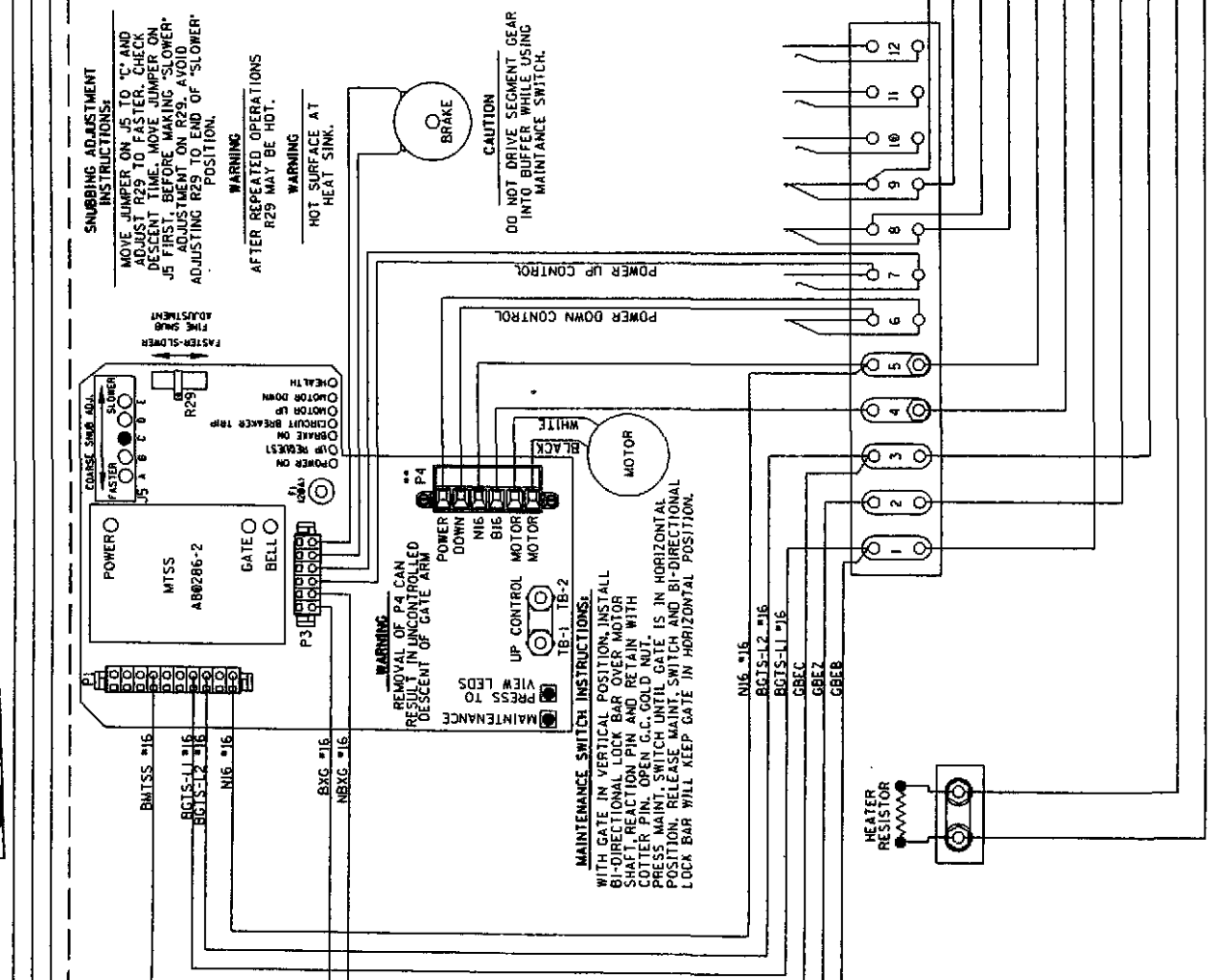
DESIGNED BY:	WJK 01-06-07	NORFOLK SOUTHERN OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-184.16 SPRINGFIELD, OH CFLGS AT S. WESTERN AVE. DAYTON DISTRICT FILE R- CADD OR DWG. NO. 82111842.17 SHEET 17 of 27
DRAWN BY:	SWS 01-06-07	
CHECKED BY:	SEK 02-19-07	
IN SERVICE:	- -	

PROPERTY
PENNSYLVANIA R.R.

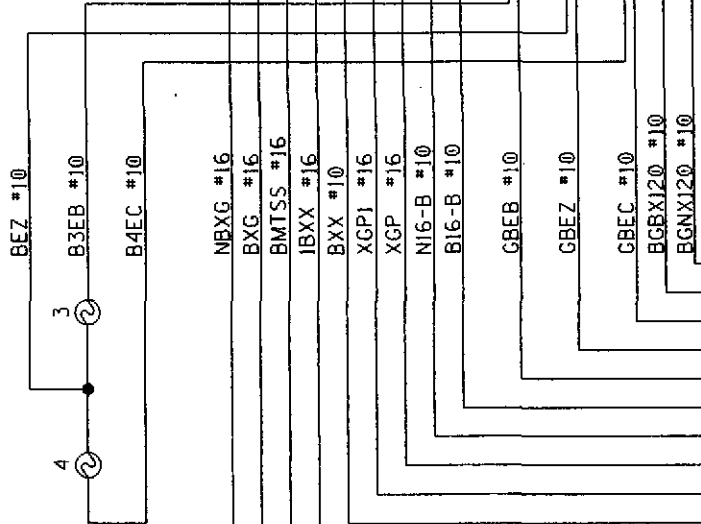
BLACK
GREEN
WHITE



"B" GATE MECHANISM



"B" GATE MAST FLASHING LIGHTS



GATE "B"
JUNCTION
BOX BASE

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

SAFETRAN MODEL "S60" GATE

CONTACT SPACE	CONTACT CLOSED AT	FUNCTION OF CONTACT
6	70°-90°	POWER DOWN CONTROL
7	85°-90°	POWER UP CONTROL
8	85°-90°	FLASHING LGT. CONTROL
9	5°-90°	BELL CONTROL
10		SPARE
11		SPARE
12		SPARE

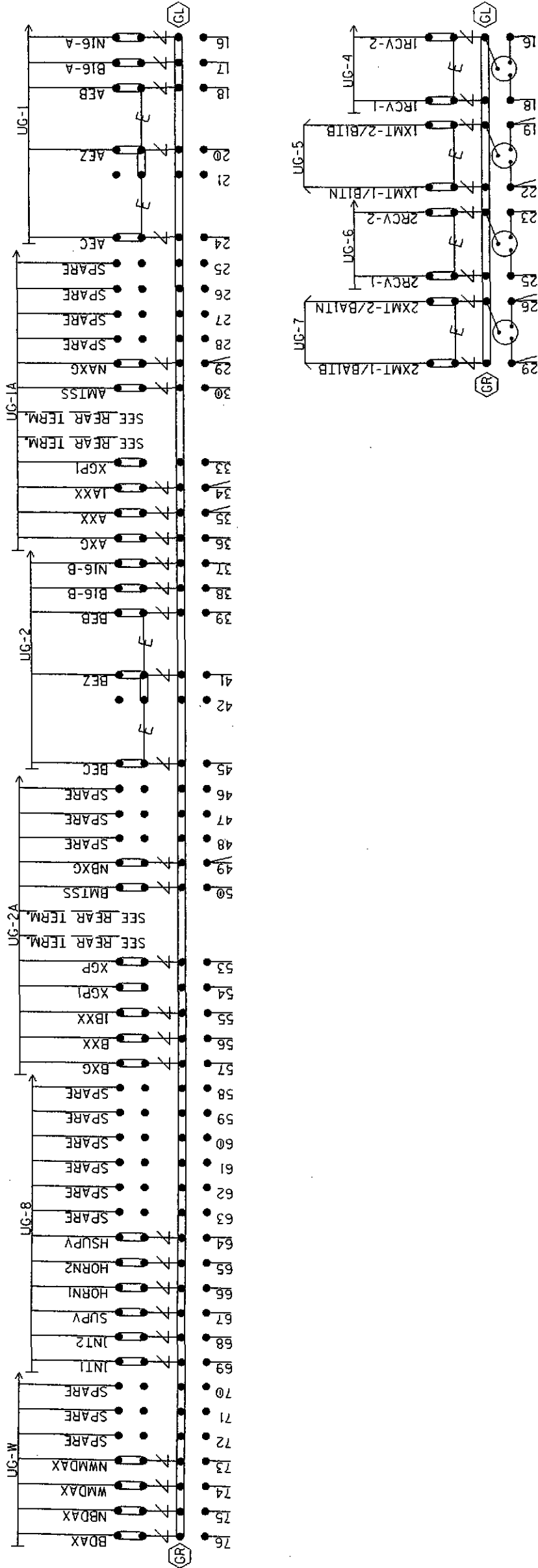
TO SHEET 17

DESIGNED BY:	WJK 01-06-07
DRAWN BY:	SWS 01-06-07
CHECKED BY:	SEK 02-19-07
IN SERVICE:	

NORFOLK SOUTHERN	
OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
M.P.: CJ-184.16	
SPRINGFIELD, OH	
CFLGS AT S. WESTERN AVE.	
DAYTON DISTRICT	FILE R-
CADD or DWG. No.	8211842.19
SHEET	19 of 27

PROPERTY
PENNSYLVANIA R.R.

REVISION
INITIALS



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.

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:	WJK 01-06-07
DRAWN BY:	SWS 01-06-07
CHECKED BY:	SEK 02-19-07
IN SERVICE:	- -
FILE NO.	DAYTON DISTRICT
SHEET No.	82111842.20
20 of 27	

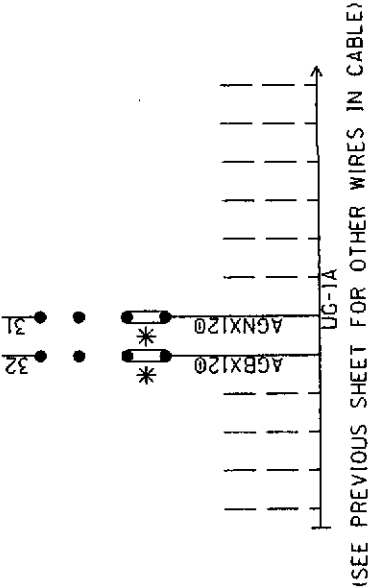
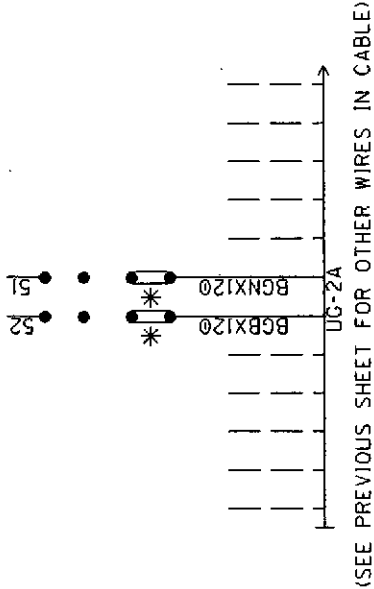
TERMINALS GROUNDED TO SHIELD.
4 POST BLOCKS USE EITHER -
GR - SERMMI PART NO. 61278
GL - SERMMI PART NO. 61278-1.

GR = Heavy Duty Equalizer (022700-1X)
GL = Clearview Lightning Arrestor (022585-1X)
LPC = LPC-10560-51

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

REVISION INITIALS

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.

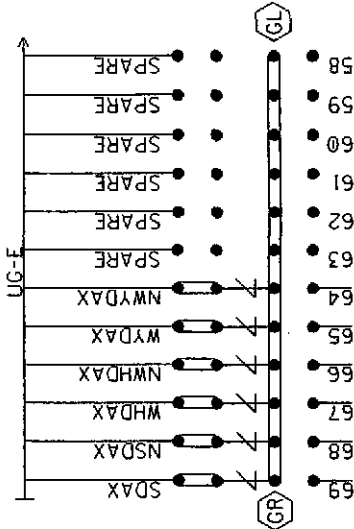
* = CLOSED DURING WINTER MONTHS

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

DESIGNED BY:	WJK 01-06-07		NORFOLK SOUTHERN
DRAWN BY:	SWS 01-06-07	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-184.16
CHECKED BY:	SEK 02-19-07	SPRINGFIELD, OH	
IN SERVICE:	- -	CFLCS AT S. WESTERN AVE.	
		DAYTON DISTRICT	FILE R-
		CADD OF DWG. No.	8211842.21
		SHEET	21 of 27

PROPERTY
PENNSYLVANIA R.R.

REVISION
INITIALS



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

SEE FARADAY SHIELD DETAILS - 1C 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.

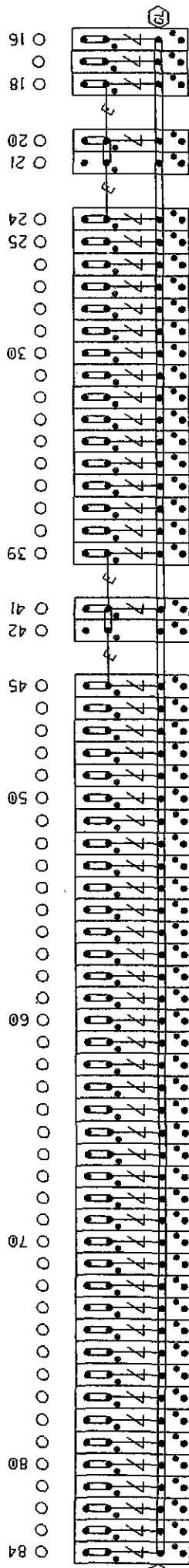
BACKBOARD DETAIL - 1C

DESIGNED BY:	WJK 01-06-07	NORFOLK SOUTHERN
DRAWN BY:	SWS 01-06-07	
CHECKED BY:	SEK 02-19-07	
IN SERVICE:	- - -	
FILE NO.	DAYTON DISTRICT	FILE NO.
CADD OR DWG. NO.	82111842.22	SHEET NO.
		22 of 27

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.

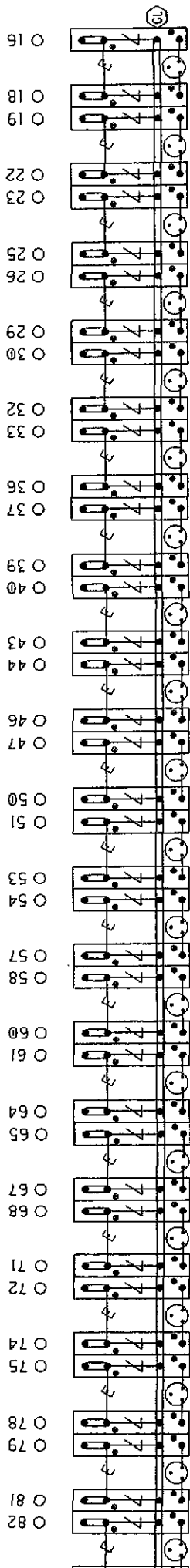
AREA BELOW IS SCALED WITH AS=75



TERMINAL BOARD 1
LEFT HALF

"1B"

2" PANDUIT



"1A"

2" PANDUIT

⊥ = Heavy Duty Equalizer
(022700-1X)

∠ = Clearview
Lightning Arrestor
(022585-1X)

⊙ = LPC-10560-5J

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

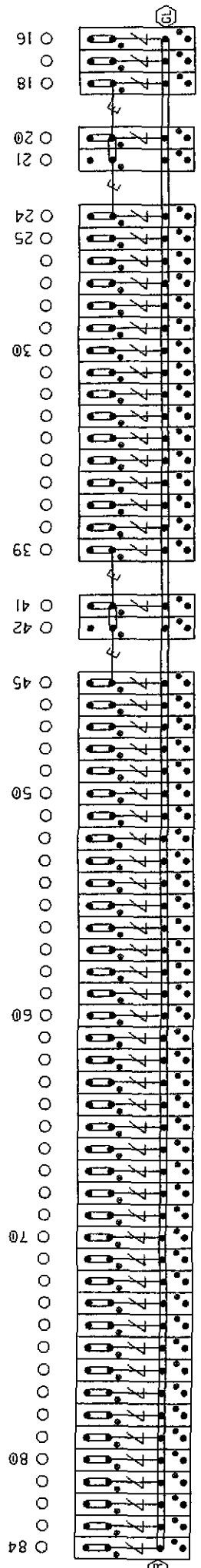
DESIGNED BY:	WJK 101-06-07	NORFOLK SOUTHERN
DRAWN BY:	SWS 101-06-07	
CHECKED BY:	SEK 102-19-07	
IN SERVICE:	- -	
OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		IMP: CJ-184.16
CFLGS AT S. WESTERN AVE.		SPRINGFIELD, OH
DAYTON DISTRICT		FILE R-
CADD OF DWG. NO. 82111842.23		SHEET 23 of 27

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



2" PANDUIT

- ⎓ = Heavy Duty Equalizer (022700-1X)
- ⌄ = Clearview Lightning Arrester (022585-1X)
- ⊖ = LPC-10S60-51

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

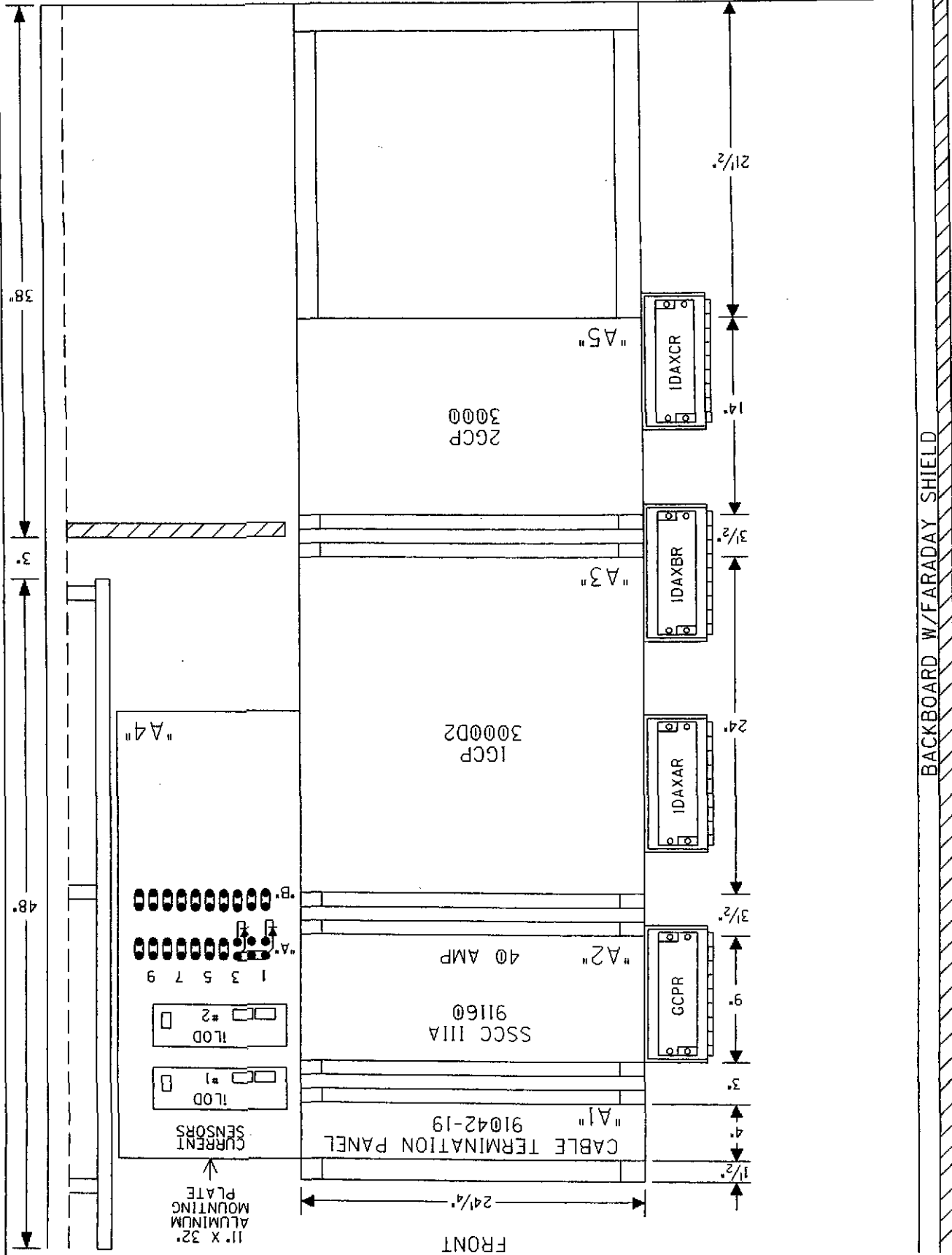
= INDICATES PLACEMENT OF PANDUIT

TERMINAL BOARD 1
RIGHT ROW
FARADAY SHIELD DETAIL - 1C

DESIGNED BY:	WJK 01-06-07	NORFOLK SOUTHERN
DRAWN BY:	SWS 01-06-07	
CHECKED BY:	SEK 02-19-07	
IN SERVICE:	- -	
OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: CJ-184.16
CFLGS AT S. WESTERN AVE.		
DAYTON DISTRICT		FILE R-
CADD or DWG. No. 82111842-24		SHEET 24 of 27

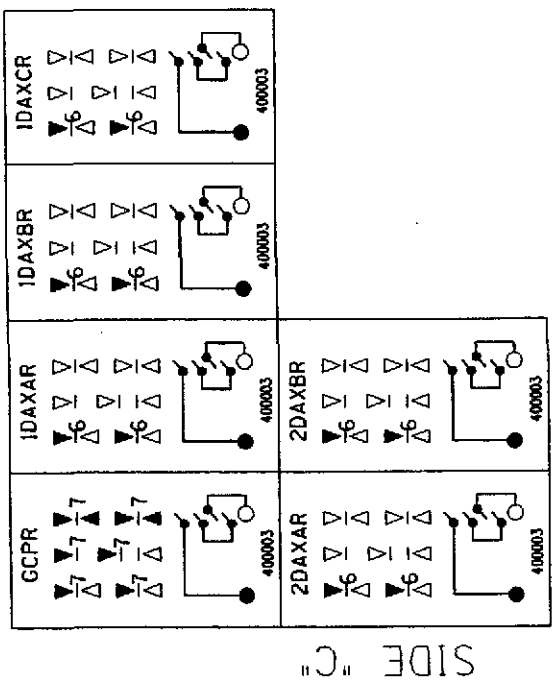
PROPERTY
PENNSYLVANIA R.R.

EQUIPMENT BACK FRONT

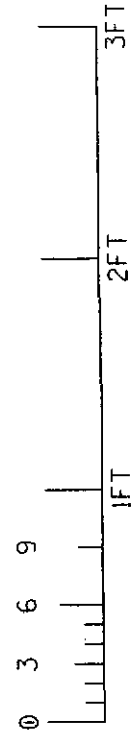


SAFETRAN, ALSTOM(IGRS) RELAY
CROSS REFERENCE LIST

SAFETRAN	ALSTOM(IGRS)
4000003	- A62-308

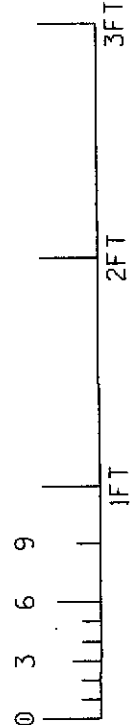
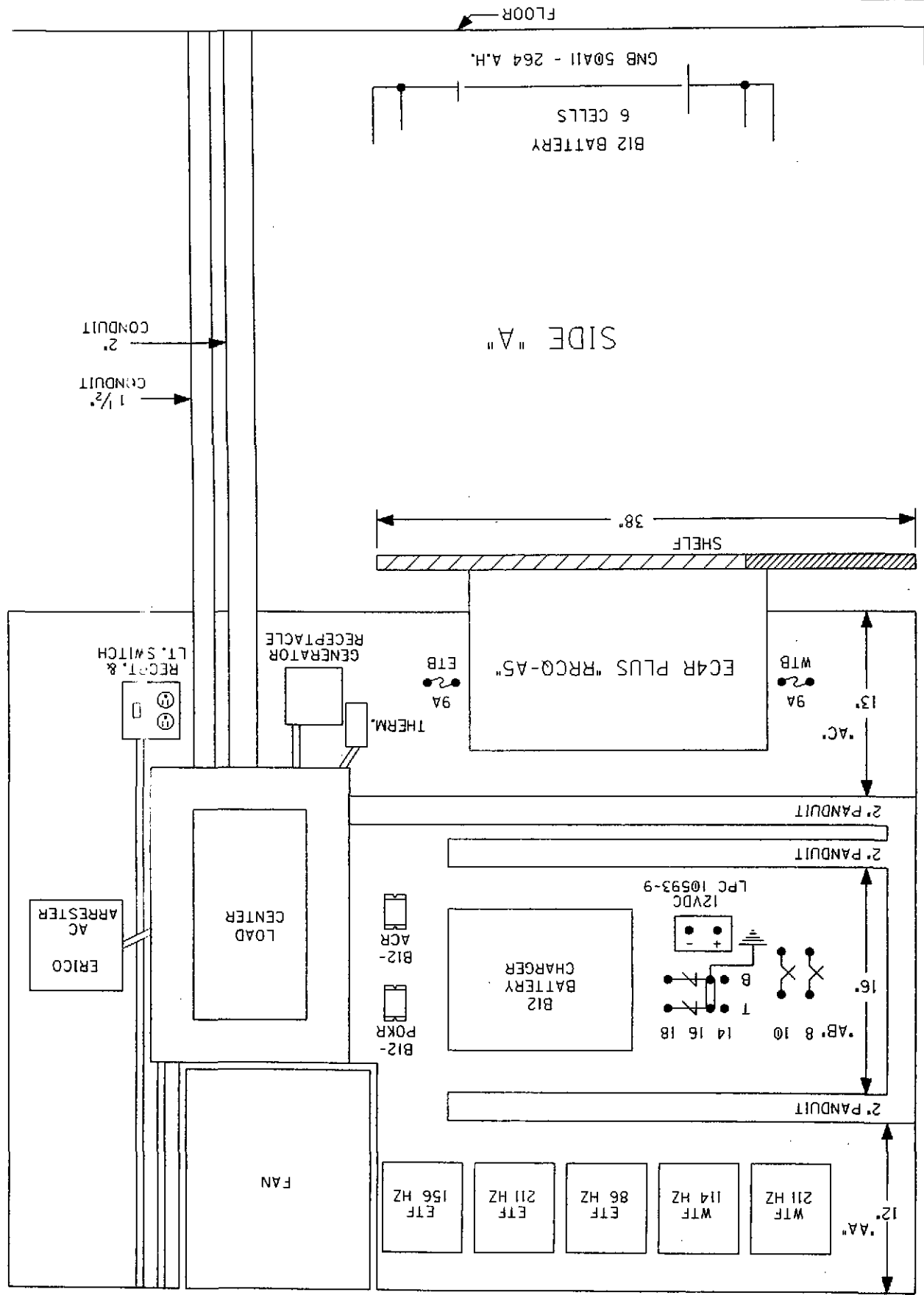


SIDE "C"



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

DESIGNED BY:	NS NORFOLK SOUTHERN		
WJK 01-06-07			
DRAWN BY:	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		
SWS 01-06-07	M.P.: CJ-184.16		
CHECKED BY:	SPRINGFIELD, OH		
SEK 02-19-07	CFLGS AT S. WESTERN AVE.		
IN SERVICE:	DAYTON DISTRICT	FILE NO.	R-
- -	CADD or DWG. No.	SHEET	25 of 27
	82111842.25	No.	



6' X 6' HOUSE - SIDE "A"

DESIGNED BY:	WJK 01-06-07	NORFOLK SOUTHERN
DRAWN BY:	SWS 01-06-07	
CHECKED BY:	SEK 02-19-07	
IN SERVICE:	- - -	
CADD OR DWG. NO.	82111842.26	
FILE NO.	DAYTON DISTRICT	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
SHEET NO.	26 of 27	SPRINGFIELD, OH
		CFLGS AT S. WESTERN AVE.

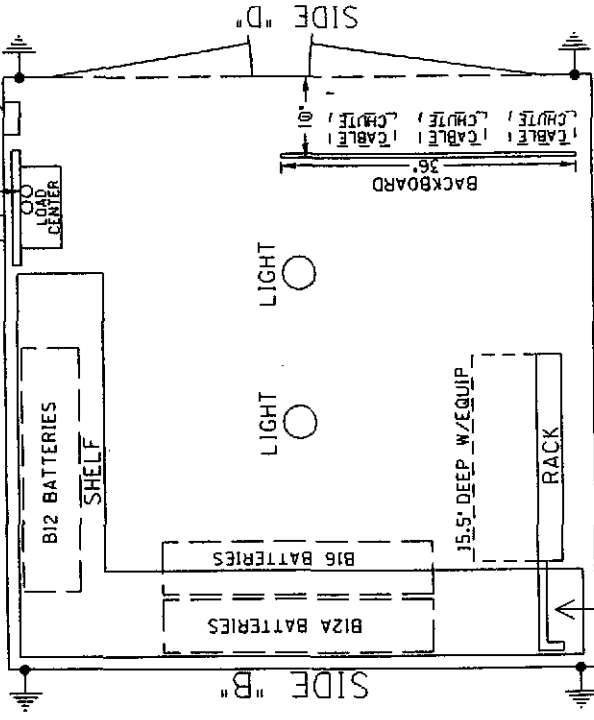
PROPERTY
PENNSYLVANIA R.R.

REVISION
INITIALS

TOP VIEW *

6'X6' HOUSE
(INSULATED)
" = 1/2" SCALE

SIDE "A"

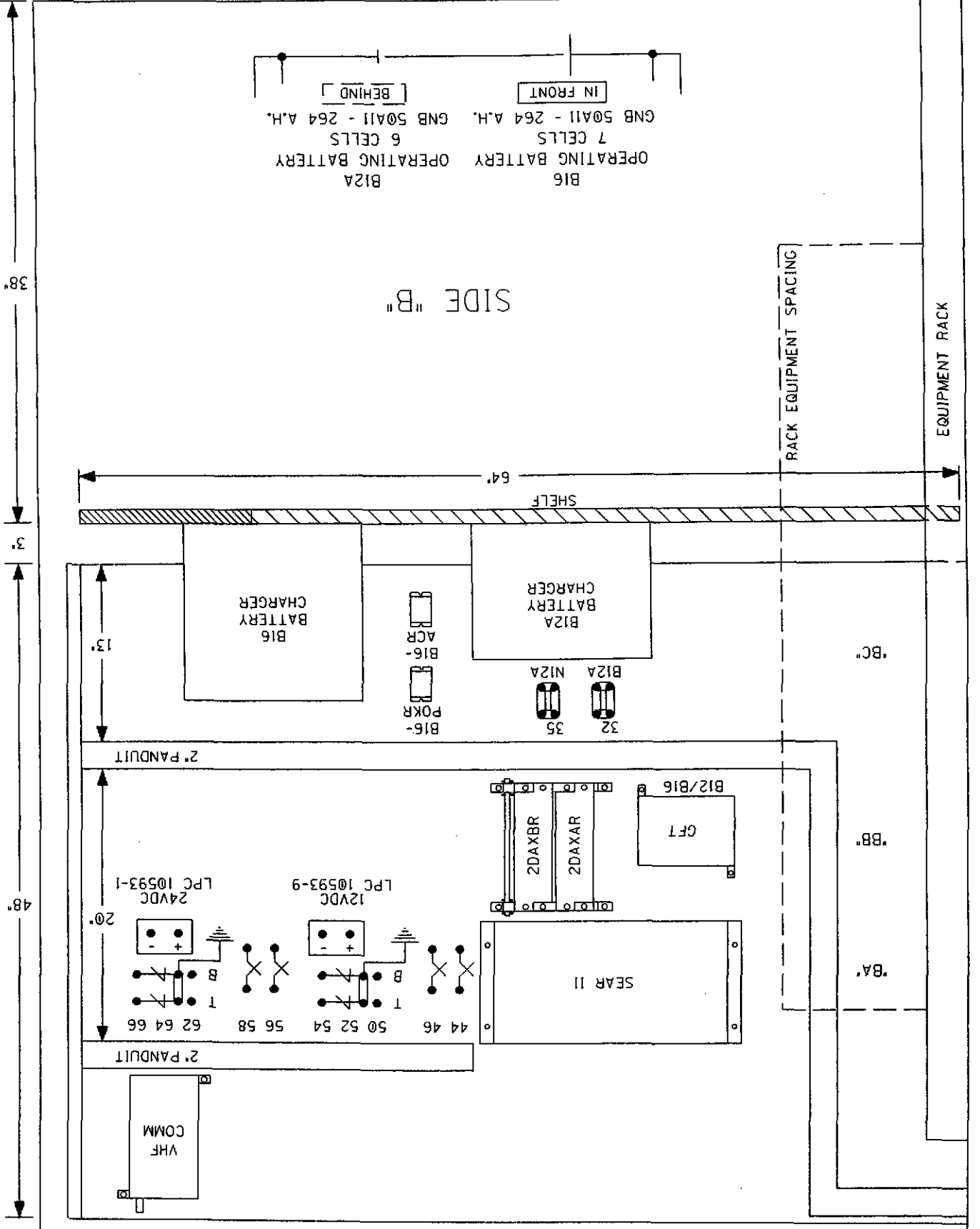


FIELD TO PROVIDE
LOCATION OF POWER OFF
LIGHT & TRANSFORMER
FOR AS-IN-SERVICE.



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

DESIGNED BY: WJK 01-06-07	NORFOLK SOUTHERN
DRAWN BY: SWS 01-06-07	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY: SEK 02-19-07	MP: CJ-184.16
IN SERVICE:	SPRINGFIELD, OH CFGLS AT S. WESTERN AVE.
	DAYTON DISTRICT
	FILE R-
	CADD OF DWG. No.
	82111842.27
	SHEET
	27 of 27



PROPERTY
PENNSYLVANIA R.R.

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