



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

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

April 5, 2007
CX0118219

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

06-1326-RR-FED

RE: Norfolk Southern's Cincinnati Line Regarding the Modification of Automatic Grade Crossing Warning Devices at Limestone Street in Clark County, Ohio, DOT: 527 967G, Milepost CJ-183.15

Dear Ms. Kirkland:

Attached for our review and approval are copies 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.

If you have any questions, please call Mike Rappatta at 404-582-6377.

Sincerely,

B. L. Sykes

Enclosure(s)

BLS/rhr/gbb/mlr/rjs

e/cy: Mr. R. S. Noe, NS Corporation
Ms. Susan Arduini, ORDC
Mr. Tim Perkins, ORDC
Ms. Bonnie Johrendt, PUCO
Mr. George Martin, PUCO
Ms. P. A. Gray, NS Corporation

Cy: Docketing Division (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 BTM Date Processed 4/13/07
Operating Subsidiary: Norfolk Southern Railway Company

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2007 APR 13 AM 11:28
PUCO



05-Apr-07

Detailed Estimate for Grade Crossing Warning Devices

City/State: SPRINGFIELD, OH
MilePost: CJ-183.15
State Proj. No.:
S&E Proj. No.: 10.1217
Man Days: 152

Road: LIMESTONE ST.
DOT/AAR: 527967G
County: CLARK
AFE: F10088
File Number: 061-10.1037

Purchases - Others	
Meals and Lodging:	\$14,301.62
Rental of Equipment:	\$31,266.40
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 38 Days)	
Construction Supervision Vehicle:	\$2,501.31
Purchases - Other Total:	\$48,069.33
Material And Additives	
Material Cost:	\$315,729.00
Sales and Use Tax:	\$0.00
Material Handling Freight:	\$15,786.44
Material Total:	\$331,515.44
Labor And Additives	
Labor Cost:	\$36,784.00
(4 man crew at \$968.00 a day for: 38 days)	
Payroll Tax & Overheads:	\$36,287.42
Preliminary Engineering:	\$31,021.13
Construction Supervision:	\$10,384.12
Labor Total:	\$114,476.67
Project Cost:	\$494,061.44
Scrap / Salvage Credit:	\$0.00
Project Total:	\$494,061.44

Estimated on: 05-Apr-07

Estimated by: n5s2v

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:	LIMESTONE ST.
Mile Post:	CJ-183.15
Drawing Number:	82111831
State Project Number:	
County:	CLARK
A A R Number:	527967G
Project Number:	10.1217
File Number:	061-10.1037
New File Number:	CX0118219
A F E Number:	F10088
Store Number:	
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	

Location: SPRINGFIELD

OH

S&E Proj. No.: 10.1217

AFE No.: F10088

Drawing No.: 82111831

Store No.:

P.O. Number:

Date Required:

Date Shipped:

Vendor: SW Signal Engineering Company

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Date	Quantity Date	Quantity Date	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 STRAN.						
1	165-006505-4	EA	\$1,051.54	\$1,051.54	AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30 POLE						
2	165-021628-4	EA	\$7.91	\$15.82	ARRESTER, LIGHTNING CLEARVIEW W/O BASE USS PART N451552-0201 SAFETRAN PART @022485-28X CR02-025565						
2	165-021636-4	EA	\$17.85	\$35.70	ARRESTER, LIGHTNING 3 POST PORCELAIN BASE SSC#022485-33X						
61	670-119241-4	EA	\$32.80	\$2,000.80	ARRESTOR, LIGHTNING HEAVY DUTY CLEAR VIEW SAFETRAN 022585-1X						
26	105-871901-4	EA	\$161.57	\$4,200.82	BATTERY, GNB 265AH MODEL 50A11 SINGLE CELL 2.25 VOLTS						
10	670-006125-4	EA	\$2.54	\$25.40	BLOCK, TERMINAL BAKELITE FOR MOUNTING LIGHTING ARRESTOR EQUALIZER OR RESISTANCE UNIT						
2	670-052960-4	EA	\$7.14	\$14.28	BLOCK, TERMINAL MULTUNIT OF 6 WITH CONNECTORS HARMON 0250094-000						
3	670-012675-4	EA	\$67.10	\$201.30	BRACKET CASTING, BREAKAWAY FOR ALUM/FIB ARM, NEG 385102ADP/6. GOES WITH 670-012659-4 FOR GATES >28"						
4	670-980689-4	EA	\$71.71	\$286.84	BRACKET HIGH WIND, (RIGID 3), WIG- 191036, WALRUS TUSK TYPE						
3	670-012659-4	EA	\$134.14	\$402.42	BRACKET, ALSO ORDER 670-012675-4 NEG 385102-175 FIB.-ALUM. GATE ARM CONVER. ASSM INC. ADAPT. CASTING. FOR GATES > 28".						
1	670-561375-4	EA	\$1,197.90	\$1,197.90	BRACKET, GATE SAVER, NEG385102GS, SPRING LOADED SWING AWAY ADAPTER FOR FIBERGLASS/ALUMINUM GATES, USE WITH GATE 28" AND LESS						
1	670-015827-4	EA	\$37.07	\$37.07	BRACKET, RELAY FOR WALL MTG. FOUR ST1 OR B1 RELAYS SAFETRAN# 420000-53X						
1	670-015819-4	EA	\$33.68	\$33.68	BRACKET, RELAY FOR WALL MTG. TWO ST1 OR B1 PLUG-IN RELAYS SAFETRAN# 420000-52X						
2	670-356949-4	EA	\$97.00	\$194.00	CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524, FEMALE CONNECTOR						
800	465-292862-4	LF	\$1.04	\$832.00	CABLE, U-2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR						

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Location: SPRINGFIELD

OH

S&E Proj. No.: 10.1217

AFE No.: F10088

Drawing No.: 82111831

Store No.:

P.O. Number:

Date Required:

Date Shipped:

Vendor: SW Signal Engineering Company

Qty.	Class-Item-CD	UJ	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Date	Quantity Installed Date	Quantity Returned Date	Special Instructions
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					
3000	465-939422-4	LF	\$2.55	\$7,650.00	CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL					
500	465-791835-4	FT	\$2.22	\$1,110.00	CABLE, UG AC ENTRANCE 3C#6-7X OKONITE FMPE-L 094-078 TR W/G 1 X 8 7X W010 BRZ TAPE 600V PRODUCT CODE 206-11-6070					
12	670-644461-4	EA	\$13,267.00	\$159,204.00	CANTILEVER, COMBO, 40" LINCOLN WITH MAST/MIND 0 BRACKET/DEFLECTOR BRACKET/JCT BOX, P/N 59091040, NO GATE MECH.					
1	670-155602-4	EA	\$704.00	\$704.00	CHARGER, BATTERY CRAAG MODEL 40 EC-12V 40 AMP TEMP COMPENSATED					
1	670-001454-4	EA	\$2.81	\$2.81	CLIP, CADWELD TRACK CIRCUIT RETAINER PART NO. SBA206 1/2 DIA 50 CLIPS PER PACKAGE, CR 02-729208					
240	165-544477-4	FT	\$2.55	\$612.00	CONDUIT, 4"x10" PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4					
4	670-918555-4	EA	\$3.70	\$14.80	CONNECTOR, WEB TRACK 1IN X 4IN LONG, FOR SHUNT CONN TO RAIL, INCLUDES WELD METAL & MOLDS (ERICO #SBTB4A)					
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					
1	670-356626-4	EA	\$2,727.29	\$2,727.29	CONTROLLER, S.S.C. IIIA 40A SOLID STATE STRAN PART #9000-91160-0001					
1	670-794453-4	EA	\$854.03	\$854.03	COUNTERWEIGHT PKAGE, 25-31 GATE STAN S- MECH ONLY, STAINLESS TO INCLUDE HUB, SUPPORT ARMS					
3	670-689122-4	EA	\$1,118.58	\$3,355.74	COUNTERWEIGHT PKAGE, 32-41 GATE STRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS					
12	670-760012-4	EA	\$40.02	\$480.24	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 XING EQUIPMENT CONTAINER					
4	670-228165-4	EA	\$10.73	\$42.92	EQUALIZER, SAFETRAN 022700-1X LESS BASE, MODERN NO. 700-1 SHUNT ARRESTER TRACK CIRCUITS CR 02-197950					

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Location: SPRINGFIELD

OH

S&E Proj. No.: 10.1217

AFE No.: F10088

Drawing No.: 82111831

Store No.:

P.O. Number:

Date Required:

Date Shipped:

Vendor: SW Signal Engineering Company

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Date Quan.	Quantity Date Installed Quan.	Quantity Date Returned (Credit)	Special Instructions
1	670-001488-4	EA	\$44.88	\$44.88	EXTENSION, GATE ARM FIBERGLASS-ALUMINUM 8 FT. SAFETAN 076262-8X					
1	670-000004-4	EA	\$700.00	\$700.00	FCC LICENSE FOR MONITOR/RADIO					
4	670-000003-4	EA	\$255.85	\$1,023.40	FILL/STONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST					
4	670-016231-4	EA	\$423.50	\$1,694.00	FOUNDATION, DIXIE, S-2 GATE 6'6" ASSEMBLED					
4	670-470146-4	EA	\$140.24	\$560.96	GATE GUARD, FLEX TIP, MARCUM MODEL PAC-230RFX					
4	670-263738-4	EA	\$331.87	\$1,327.48	GATE, ARM FIBERGLASS-ALUMINUM 25-31 FT. INCLUDES GATE GUARD FOR GATE LIGHT CABLE, 076600-320017, NEG P/N 8002- 4NFS/CG					
1	670-722298-4	EA	\$43.57	\$43.57	INDUCTOR, SIMULATED TRACK SAFETAN 8V617-1500					
1	670-730154-4	EA	\$43.57	\$43.57	INDUCTOR, SIMULATED TRACK SAFETAN 8V617-2000					
1	670-001863-4	EA	\$43.57	\$43.57	INDUCTOR, SIMULATED TRACK SAFETAN 8V617-2800					
2	670-477991-4	EA	\$317.90	\$635.80	KIT, GROUNDING ASSY FOR AL 1/8 INCLUDES 8 GRD RDS, 200#4WIRE, 12 4 WIRE ONE SHOTS, ERICO SBK206					
2	670-123298-4	EA	\$256.93	\$513.86	KIT, HARDWARE SUPPLIES REQUIRED X'ING PACKAGES, WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS, P/GUM PAINT, SLEEVES, TAGS, GLUE, 100 EA WHITE TAGS,)NE CAN BLUE MARKING PAINT ETC...					
2	670-142763-4	EA	\$848.42	\$1,698.84	LAMP ASSY, 12" LIGHT, 2 WAY IND. FOR MTG ON THE TIP OF WTF/ CANTILEVER ARM, SAFETAN 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 STRAN # 042003-001493					
2	670-764166-4	EA	\$907.65	\$1,815.30	LAMP ASSY, 5" MAST MTG, 2W IND, 20" BKGRD, FLX-12 W/BULB STRAN #042003-487XNS					
2	670-499171-4	EA	\$470.76	\$941.52	LAMP ASSY, 10"/12" LINCLN MAST MTG, 1W IND, 20" BKGRD, FLX- 12 W/BULB STRAN #042003-001509					
64	670-440826-4	EA	\$1.01	\$64.64	LINK, SAFETAN 024620-1X INSL TESTING COMP 1 IN CENTER SIGNAL CIRCUITS CR 02-286662					

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Location: SPRINGFIELD

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AFE No.: F10088

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Store No.:

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Vendor: SW Signal Engineering Company

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Date	Quantity Installed Date	Quantity Returned Date	Special Instructions
9	255-590880-4	EA	\$16.12	\$145.08	LOCK, AMERICAN LOCK MODEL H-10KA KEYPED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"					
4	670-637778-4	EA	\$1,031.41	\$4,125.64	MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. STRAN P# 070619-11AX.					
4	670-850933-4	EA	\$3,352.65	\$13,410.60	MECHANISM, GATE MODEL S-60, WITH DEFROSTER AND MINI TRACKSIDE SENSOR STRAN # 0740007-X002B3					
3	670-014233-4	EA	\$981.85	\$2,945.55	MODULE, DAX FOR 3000 GCP SAFETRAN #80016					
2	670-589021-4	EA	\$64.32	\$128.64	PACKAGE, HARDWARE SIGN 10 IN. MOUNTING, STRAN # 071367-40X					
2	670-001947-4	EA	\$63.27	\$126.54	PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERMMI 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	670-644144-4	EA	\$201.40	\$201.40	PANEL, SAFETRAN# 91042-19 CABLE TERMINATION PANEL WITH 19 STRAPPED AAR TERMINALS					
3	670-514605-4	EA	\$8.45	\$25.35	PINNACLE, W-C SECT 1-11, 4"x 5" REF KI 110-8 OR SAFETRAN NO. @035045-503X					
14	670-555809-4	EA	\$45.12	\$631.68	PLUGBOARD, TYPE B-1 GRS A62-506 OR HARMON @7082-506 OR					
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	165-018469-4	EA	\$148.50	\$148.50	PROTECTOR, 28VDC LPC 10593-1					
2	165-902002-4	EA	\$308.00	\$616.00	PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL					
6	465-002899-4	EA	\$22.06	\$132.36	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES					
2	670-742096-4	EA	\$41.80	\$83.60	RELAY INTERFACE PROBE, ULTRATECH PN 16031-00					
4	670-458936-4	EA	\$150.00	\$600.00	RELAY RACK, SWING, FARADAY SHELTER FOR ONE RELAY, SSFETRAN P/N T15331					
14	670-707995-4	EA	\$313.67	\$4,391.38	RELAY, TYPE B1, NEW LINE, 900 OHMS, .008 AMPERES GRS A62-308 OR SAFETRAN @400003					

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Location: SPRINGFIELD

OH

S&E Proj. No.: 10.1217

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Drawing No.: 82111831

Store No.:

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Vendor: SW Signal Engineering Company

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Date Quan.	Quantity Date Installed Quan.	Quantity Date Returned (Credit)	Special Instructions
1	670-215166-4	EA	\$21.98	\$21.98	RELAY (AC INTERRUPT FOR SEARII) POTTER & BRUMFIELD 120V AC KUMP-14A18-120 SAFETRAP P/N T18354					
1	670-218934-4	EA	\$20.62	\$20.62	RELAY (AC INTERRUPT FOR SEARII) POTTER & BRUMFIELD 12V DC KUMP-14D18-12 SAFETRAP P/N T18353					
2	670-790627-4	EA	\$23.45	\$46.90	RESISTOR ADJUSTABLE 0.63 OHM MINIMUM RESIST 0.068- OHM, ITEM 248 S-500 SAFETRAP P/N 029602-1X					
4	435-805560-4	EA	\$6.25	\$25.00	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-IL0D, 1- ABELL, 2-GTS, WITHOUT MTS, 1-GFT, 1-VHFC, 2- RECORDER INTERFACE MODULE, 1-ECHOLON CONNECTOR					
1	670-308005-4	EA	\$1,094.78	\$1,094.78	SEARII I/O PANEL UNIT, SAFETRAP P/N A80258					
1	670-111783-4	EA	\$516.00	\$516.00	SEARII, (GFT) - GROUND FAULT DETECTOR, SAFETRAP P/N A80297, 1 PER TWO SETS OF BATTERY					
2	670-108211-4	EA	\$50.50	\$101.00	SEARII, (GTS) - GATE TIP SENSOR, SAFETRAP P/N A80281, 1 / GATE TIP					
1	670-085658-4	EA	\$373.00	\$373.00	SEARII, (I/O) - INTELLIGENT LAMP OUT DETECTOR, SAFETRAP P/N A80271, 1 / 20 AMP SSCC, 2 / 40 AMP SSCC					
2	670-281280-4	EA	\$7,006.00	\$14,012.00	SHELTER BARE 6X6, ALUMN, FARADAY, W/CABLE CHUTES BEHIND TERMINAL BOARD, W/GEN. CONN. W/ADJUSTABLE PIERS, SAFETRAP P/N 058400-66-78A					
2	670-471572-4	EA	\$3.00	\$6.00	SHIELD, GROUND SERRMI P/N 61278 FOR GROUNDING A RH 4 POST					
2	670-472200-4	EA	\$3.00	\$6.00	SHIELD, GROUND SERRMI PART NO. 61278 FOR GROUNDING A LH 4 POST					
6	670-586967-4	EA	\$37.68	\$226.08	TERMINAL BLOCK DIRECTLY TO FARADAY SHIELD TERMINAL BLOCK DIRECTLY TO FARADAY SHIELD					
4	670-775391-4	EA	\$438.32	\$1,753.28	SHUNT COVER W/LAG SCREWS, 19"x19", SERRMI #40271, ORDER 1 PER SHUNT					
2	670-776912-4	EA	\$572.18	\$1,144.36	SHUNT, MULTI-FREQ. #62780-1543 SAFETRAP NARROW BAND- LOW LOADING					

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Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Date	Quantity Installed Date	Quantity Returned Date	Quantity Returned (Credit)	Special Instructions
2	670-397239-4	EA	\$40.23	\$80.46	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 12" MAST, SAFETRAN #T17216						
2	670-393331-4	EA	\$37.43	\$74.86	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215						
4	670-806648-4	EA	\$56.42	\$225.68	SIGN, X-BUCK, LESS HARDWARE, SAFETRAN 035200-X CR 02-490546						
2	670-506709-4	EA	\$32.77	\$65.54	STRIP BUSS, 48" COPPER, ERICO P/N B2700HC48						
2	670-330382-4	RL	\$15.68	\$31.36	TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS, "WARNING STOP DIGGING"						
80	670-478560-4	EA	\$19.47	\$1,557.60	TERMINAL BLOCK, ERICO 4 POST P/N B2700A2C1WH W/HARDWARE LESS LIGHTNING ARRESTOR						
14	165-917984-4	EA	\$4.84	\$67.76	TERMINAL, TEST, TYPE B GRS A62-515 OR HARMON @32118-001 OR						
14	610-065626-4	EA	\$17.55	\$245.70	ULTRA-TECH 15206-01 CONNECTIVITY BLOCK FOR GRS B1 RELAY						
23	670-007238-4	EA	\$129.46	\$2,977.58	UNIT, THE INSTALLATION AND WIRING OF A DEVICE WHICH REQUIRE A MINIMUM OF FOUR WIRE CONNECT-						
50	465-989111-4	LF	\$0.29	\$14.50	WIRE, NO.10, 1 CONDUCTOR, CASE, FLEXIBLE 37 STRAND, 3/64 IN. INSULATION-ORDER EXT.AMT. NEEDED CR 02-620502						
50	465-999161-4	LF	\$0.18	\$9.00	WIRE, NO.16, 1 CONDUCTOR, CASE, FLEXIBLE, 19 STRAND, 2/64 IN. INSULATION						
1	670-284866-4	EA	\$22,018.66	\$22,018.66	WIRED RACK, 6X6 FARADAY, 20AMP DOUBLE TRK (NO CONTROLLER), GCP3000, 1CRAGG CHARGER, 2 RELAY RACKS, SAFTRAN P/N 20A UNI 2TRK. USE WITH I/S 670-281280-4 W/CABLE CHUTES BEHIND THE FARADAY SHIELD						
1	670-255408-4	EA	\$27,694.19	\$27,694.19	WIRED RACK, 6X6 FARADAY, 40AMP SINGLE TRK SSCCIIA, GCP 3000D2, 2 CRAGG CHARGER, 2 RELAY RACKS, SAFTRAN P/N 40A 1TRK. USE WITH I/S 670-281280-4 W/CABLE CHUTES BEHIND THE FARADAY SHIELD						
2	450-986008-4	EA	\$24.84	\$49.68	WRENCH, TEST POST TYPE B DWG 56393-3, GR.1						

Total Material: \$315,728.89

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PARKING LOT
(ASPHALT) _____ TO COLUMBUS

BEFORE YOU DIG

OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

MUST BE CALLED DIRECT

MINIMUM FROM
NEAREST RAIL
(IF ADEQUATE
RT-OFF-WAY) → 25'

FIBER OPTIC CA
FIBER OPTIC CA

FIBER OPTIC CABLE

3000002 GCF 1

30 HZ  15.2 KHZ

15

不

1

1

100

U.S. WATER LINE

NOTES:

1. MAX. TRAIN SPEED 50 M.P.H.
2. LATITUDE N 39° 55' 16" LONGITUDE W 83° 48' 28"
ELEVATION 1018'
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 300 LIMESTONE ST.
7. NEAREST INTERSECTING STREET IS E. WASHINGTON ST.
8. DISTANCE TO NEAREST INTERSECTING STREET IS 100 FT.
9. REUSE EXISTING CANTILEVERS, REPLACE B'LAMPS WITH 12' LAMPS.
10. AVOID U.G. FIBER WHEN INSTALLING SIGNAL 'C'.
11. SIDEWALK TO BE RELOCATED AROUND NEW GATE 'D'.
12. WAYSIDE HORN SYSTEM AND LOOP DETECTORS TO BE INSTALLED AND MAINTAINED BY ROADWAY AUTHORITY.
13. POWER OFF LIGHT TO BE INSTALLED ON TRACK SIDE OF SHELTER.
14. FIELD FORCES TO ADJUST BOTTOM OF GATE ARMS TO THE MAXIMUM ALLOWABLE MUTED HEIGHT OF 4.5 FEET ABOVE CROWN OF ROADWAY.
- (A) (B) (C) (D) = QUADRANT MARKERS
-
- Diagram illustrating the crossing layout and components:
- U.G. POWER POLE
 - SIDEWALK (ASPHALT)
 - U.G. LINE MARKER
 - SIG. 'D'
 - PARKING LOT (ASPHALT)

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

FILE 061-10.1037
No.

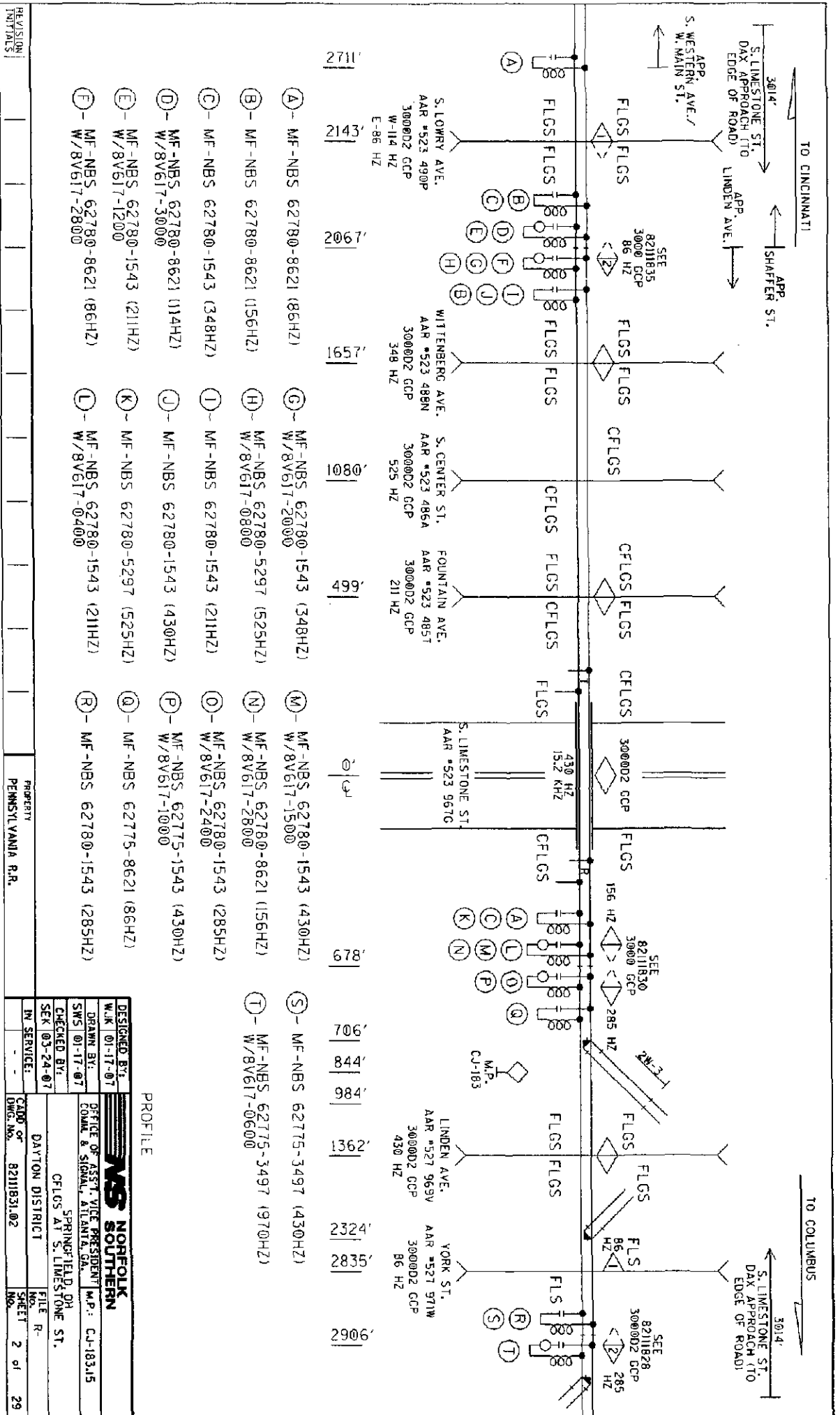
REVISION
INITIALS

PENNSYLVANIA R.R.

IN SERVICE	1	1
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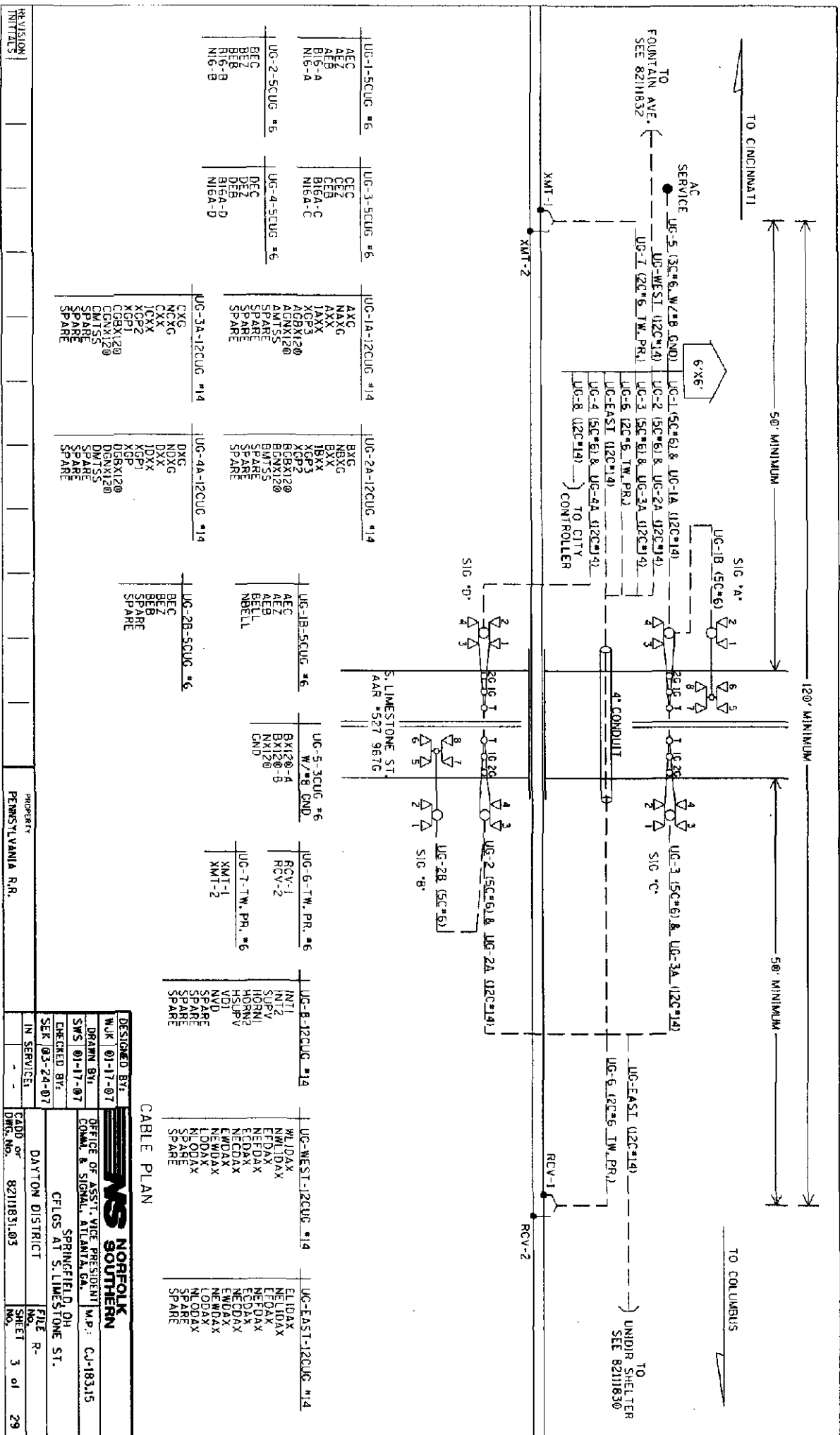
CADD or DWG. No.	02111831.01	SHEET	1 of 2
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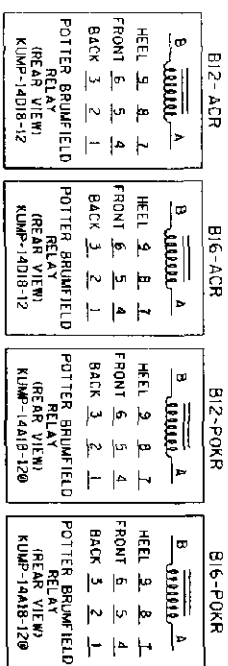
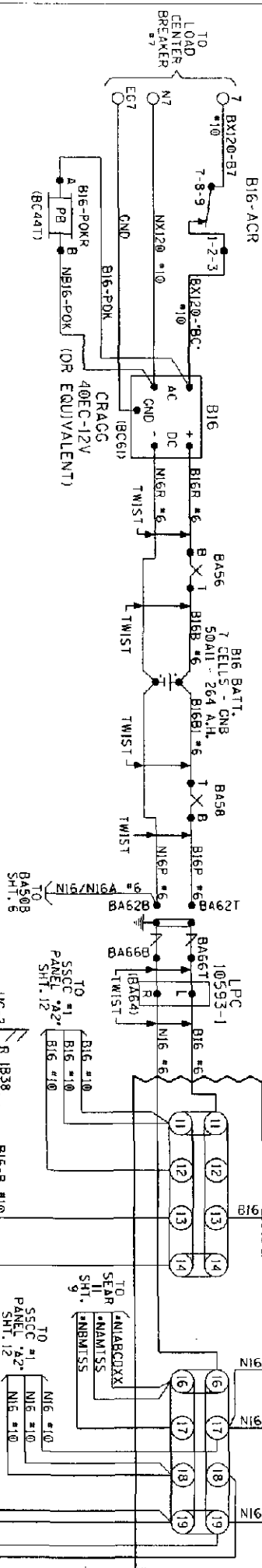
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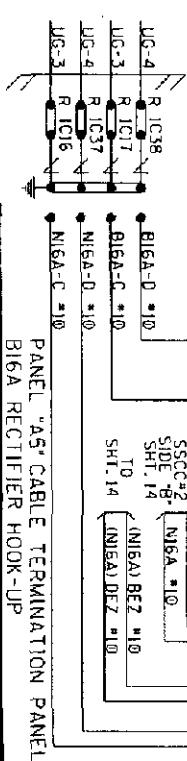
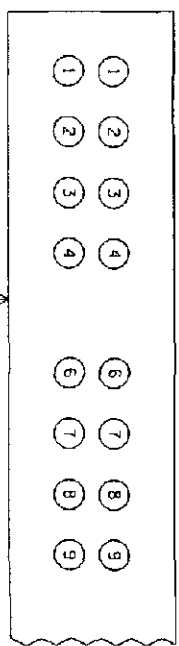
PROFILE

DESIGNED BY:	W.K. 01-17-07	DRAWN BY:	SWS 01-17-07	CHECKED BY:	SEK 03-24-07	IN SERVICE:	-
NORFOLK SOUTHERN		OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		SPRINGFIELD, OH CFLGS AT S. LIMESTONE ST.		DAYTON DISTRICT	
W.P.: CJ-183.15		FILE NO. R-		CADD OF DWG. NO. 82111831.02		SHEET 2 of 29	



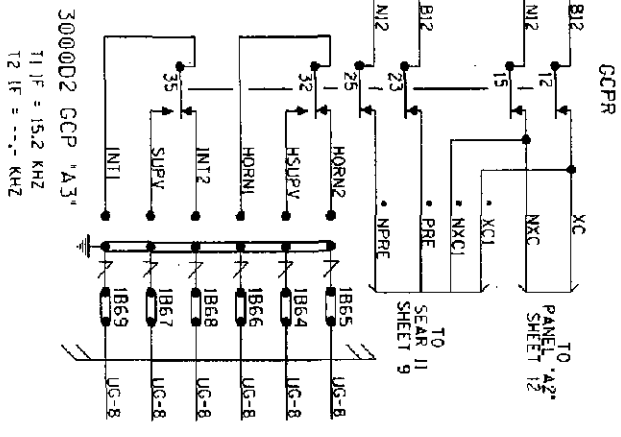
[illegible]

DESIGNED BY:	NS NORFOLK SOUTHERN		
WUK: 01-17-07	OFFICE OF ASST. VICE PRESIDENT	M.P.:	CJ-1B3.15
DRAWN BY:	COMM. & SIGNAL, ATLANTA, GA.		
SWG: 01-17-07	SPRINGFIELD, OH		
CHECKED BY:	CLEGS AT S. Limestone ST.		
SEN: 03-24-07	DAYTON DISTRICT		
IN SERVICE:	FILE R-	NO.	
	SHEET	5 of	25
	DWG. NO.	82111B3.1.05	

[illegible]

NOTES:
ALL WIRING TO BE #16AWG
UNLESS NOTED OTHERWISE.
• = CABLE PROVIDED WITH SEAR (1)

[illegible]



```

* = CABLE PROVIDED WITH SEAR II
** = B0065 ADAPTER CARD AND
    E-LEVEL OR LATER SOFTWARE
    NEEDED FOR SEAR II / ECHELON
    CAPABILITIES.

* ECHELON CONNECTIONS NOT
  TO EXCEED 55 IN LENGTH AND
  TOTAL LENGTH NOT TO EXCEED
  400' WITH A MAXIMUM OF 8
  NODES. RECOMMEND USE BELDEN
  WIRE CABLE #8461 OR
  EQUIVALENT.

```

NVS NORFOLK SOUTHERN

 NORFOLK SOUTHERN		MP: CJ-183,15
OFFICE OF ASST. VICE PRESIDENT CONRA & SIGMA, ATLANTA, GA.		
SPRINGFIELD, OH CPLOS AT S. LIMESTONE ST.		
DAYTON DISTRICT		FILE R-
CARD OF DWG. NO.	82711831.07	SHEET 7 of 29

EXPANDED PROGRAMMING

300002 PROGRAMMING CHART	LEVEL: 0
NUMBER OF TRACK TRANSCEIVERS	1
T1: FREQUENCY	430Hz
T2: FREQUENCY	---Hz
T1: UNIDIRECTIONAL/BIDIRECTIONAL	B1
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	36 Sec
T2: WARNING TIME	---
T1: APPROACH DISTANCE	1982 ft
T2: APPROACH DISTANCE	---
T1: PICKUP DELAY (MAX) (0 = OFF)	25 Sec
T2: PICKUP DELAY (MAX) (0 = OFF)	---
T1: ISLAND DELAY (0 = ENA)	170 ft
T2: ISLAND DELAY (0 = ENA)	---
T1: ISLAND DISTANCE	0 ft
T2: ISLAND DISTANCE	---
T1: NUMBER OF DAX'S	0
T2: NUMBER OF DAX'S	---
T1: DAX A DISTANCE (0 = PREEMPT)	---
T2: DAX A DISTANCE (0 = PREEMPT)	---
T1: DAX B TRACK ASSIGNMENT (T1/T2)	---
T2: DAX B TRACK ASSIGNMENT (T1/T2)	---
T1: DAX B DISTANCE (0 = PREEMPT)	---
T2: DAX B DISTANCE (0 = PREEMPT)	---
T1: DAX C TRACK ASSIGNMENT (T1/T2)	---
T2: DAX C TRACK ASSIGNMENT (T1/T2)	---
T1: DAX C DISTANCE (0 = PREEMPT)	---
T2: DAX C DISTANCE (0 = PREEMPT)	---
T1: DAX D TRACK ASSIGNMENT (T1/T2)	---
T2: DAX D TRACK ASSIGNMENT (T1/T2)	---
T1: DAX D DISTANCE (0 = PREEMPT)	---
T2: DAX D DISTANCE (0 = PREEMPT)	---
T1: SLAVING (MASTER/SLAVE)	MASTER
T2: SLAVING (MASTER/SLAVE)	---
T1: PASSWORD ENABLED	NO
T2: PASSWORD ENABLED	---
T1: RECORDER INSTALLED	NO
T2: RECORDER INSTALLED	---

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 DELAY MS TO GCP (0 = OFF)	---
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: 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)	---
T1: PICKUP DELAY DAX A	15 Sec
T2: PICKUP DELAY DAX A	---
T1: PICKUP DELAY DAX B	---
T2: PICKUP DELAY DAX B	---
T1: PICKUP DELAY DAX C	---
T2: PICKUP DELAY DAX C	---
T1: PICKUP DELAY DAX D	---
T2: PICKUP DELAY DAX D	---
T1: ENHANCED DETECTION (ON/OFF)	OFF
T2: ENHANCED DETECTION (ON/OFF)	---
T1: BACK-TO-BACK T1 AND T2 (NO/YES)	---
T2: 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)	---
T1: SET AT OPERATION (NORMAL/DIAGNOSTIC)	NORMAL
T2: SET AT OPERATION (NORMAL/DIAGNOSTIC)	---
T1: DAX MESSAGES (ON/OFF)	ON
T2: DAX MESSAGES (ON/OFF)	---
T1: ADVANCE PREEMPT TIMER (0 = OFF)	0 %
T2: ADVANCE PREEMPT TIMER (0 = OFF)	---
T1: MOTION SENSING LEVEL (0 = NORMAL)	0 %
T2: MOTION SENSING LEVEL (0 = NORMAL)	---

* = 1ST SLOT AT LEFT END OF BAY

MODEL 300002 GCP MODULE ASSEMBLIES

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

NOTES:

1 - SEE IP1 INSTRUCTION AND INSTALLATION MANUAL FOR BELL ISLAND CALIBRATION PROCEDURE.

2 - TOGGLE SWITCH ON MOTHER BOARD:
UP = DUAL FREQ.
DOWN = SINGLE FREQ.

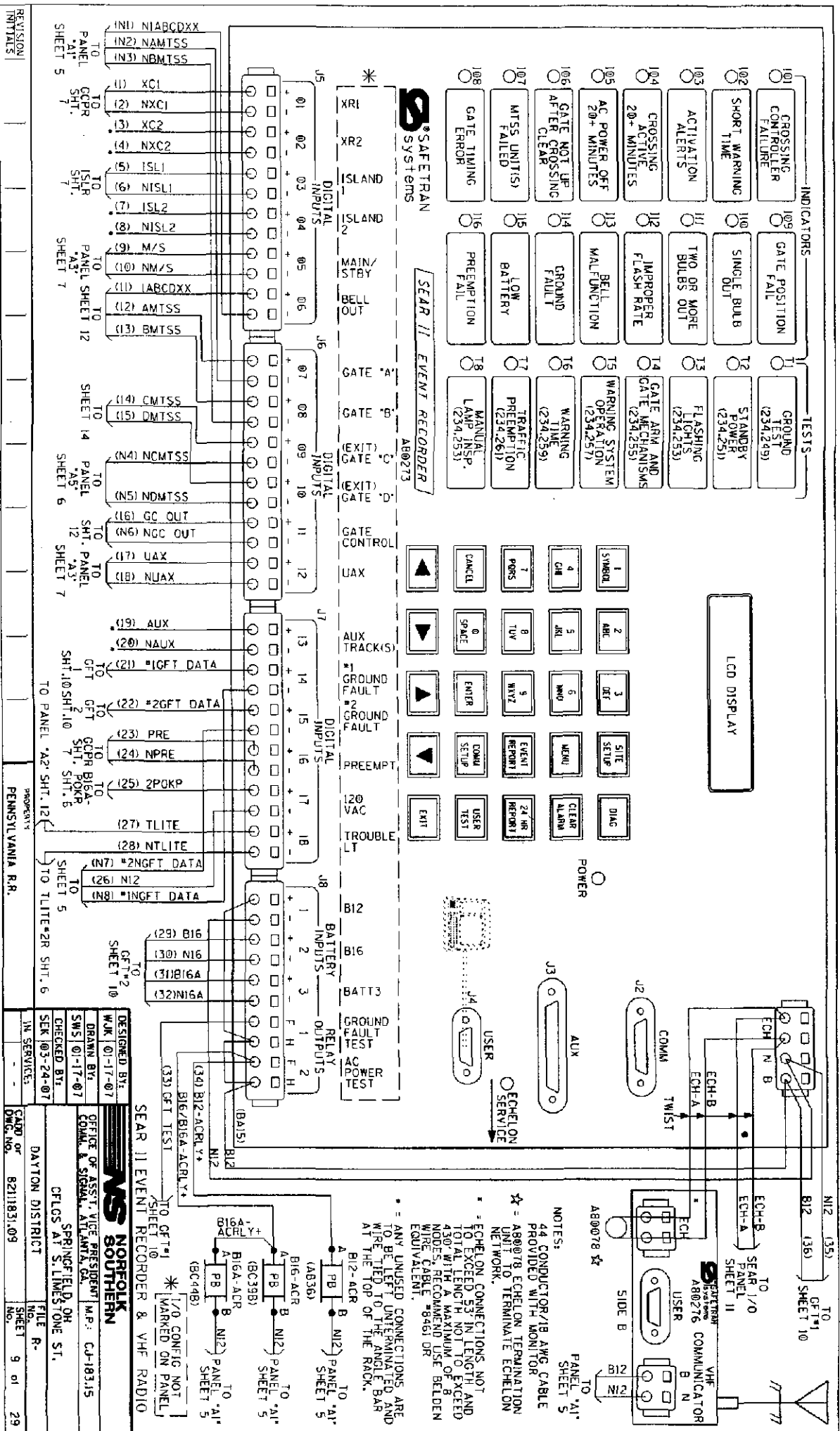
** = 80214 & 80255 WITH JUMPER CARDS AND LEVER OR AFTER SOFTWARE NEEDED FOR SCAR II / ECHOLON CAPABILITIES.

PANEL 'A3' 300002 GCP SET-UP

- 300002 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

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY: WJK 01-17-07	OFFICE OF ASST. VICE PRESIDENT	FILE NO. R-183.15
DRAWN BY: SWS 01-17-07	COMM. & SIGNAL, ATLANTA, GA.	SPRINGFIELD, OH
CHECKED BY: SEK 03-24-07	DAYTON DISTRICT	FILE NO. R-183.15
IN SERVICE: -	DWG. NO. 8211831.06	SHEET 8 of 29



SITE SET UP PROCEDURE	
FUNCTION	LED DISPLAY
DATE	-
TIME	1
DATILIGHT SAVING TIME	YES
TIME ZONE	EST
SITE NAME	S. LIMESTONE ST.
DOT NUMBER	527 9670
MILEPOST	CJ-183.15
TESTER TYPE	CROSSING
DATE FORMAT	MM-DD-YYYY
TEMP FORMAT	FAHRENHEIT
SITE TYPE	NO COMMUNICATION
SITE ATCS	7.RRR.LLL.GCC.03.01
OFFICE ATCS ADDRESS	2.550.01.9100
POLL ID	1
OFFICE F8/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

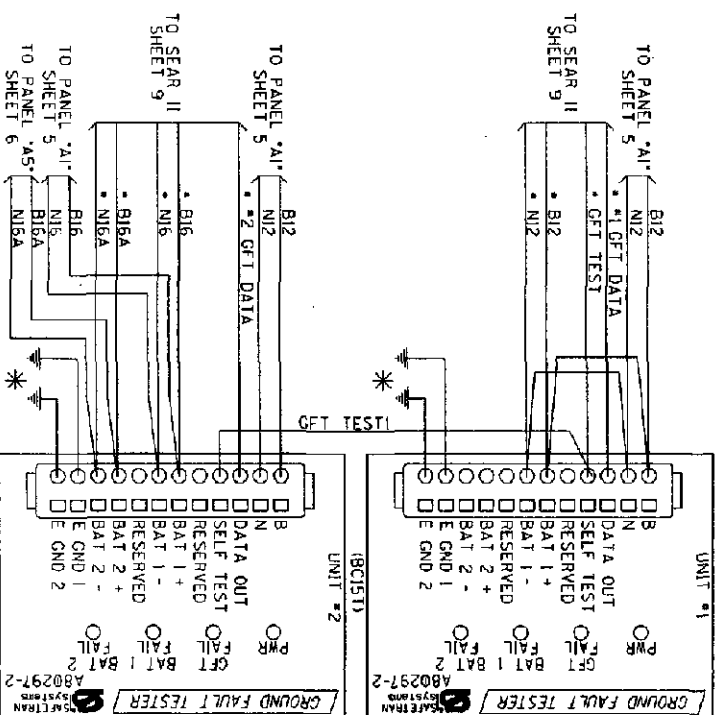
VERIFY NUMBER OF BULBS: SENSOR *1	
CURR 1: LAMP SET UP	10 BULBS
CURR 2: LAMP SET UP	10 BULBS
VERIFY NUMBER OF BULBS: SENSOR *2	
CURR 1: LAMP SET UP	10 BULBS
CURR 2: LAMP SET UP	10 BULBS

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?	0
AUX TRACK	(SET IF AUX TRACKS = YES)
GATES?	2
EXIT GATES?	2
UAX?	1
BATTERY BANKS?	3
PREEMPTION?	NORMAL
ILUD 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.GCC.07.01

VERIFY THE BATTERY SUPPLY VOLTAGES	
B12 BATTERY VOLTAGE AT INPUT DC1	VOLT 1: .
B16 BATTERY VOLTAGE AT INPUT DC2	VOLT 2: .
B18A BATTERY VOLTAGE AT INPUT DC3	VOLT 3: .

* = CONNECT "E" GND "I" AND "E" GND "2" TO INDEPENDENT GROUND POINTS ON SIDE A AND SIDE B.

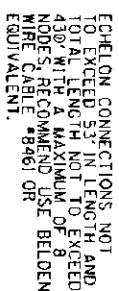
PROPERTY
PENNSYLVANIA R.R.



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.

SEAR II SET UP CHART
& GROUND FAULT TESTERS

DESIGNED BY:	W.K. 01-17-07
DRAWN BY:	SWI 01-17-07
CHECKED BY:	SEK 03-24-07
IN SERVICE:	
DATE OF	821183.10
FILE NO.	10 of 29
NORFOLK SOUTHERN OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. SPRINGFIELD, OH CFCGS AT S. LIMESTONE ST. DAYTON DISTRICT	



SEAR ANALOG AND DIGITAL
I/O UNIT A80258

51.31	SHEET NO.	11 of 2
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PROGRAM	
FLASHER RATE	40
1 CC DELAY	4 SEC.
2 CC 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 IL1 XXX VOLTS	
SETUP OUTPUT IL2 XXX VOLTS	
SETUP OUTPUT 2L1 XXX VOLTS	
SETUP OUTPUT 2L2 XXX 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	TRRL1LGG07
LOW BATTERY	DISABLED
AUX I/O	FLASH SYNC OUT

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

PANEL "A2" CROSSING CONTROLLER #1 SET-UP CHART

DESIGNED BY: WJK 01-17-07	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	FILE NO. CU-183.15
DRAWN BY: SWS 01-17-07	SPRINGFIELD, OH CFLGS AT S. LIMESTONE ST.	FILE R- SHEET 13 of 29
CHECKED BY: SEK 03-24-07	DAYTON DISTRICT	
IN SERVICE:		
PROPERTY PENNSYLVANIA R.R.		
REVISION INITIALS		

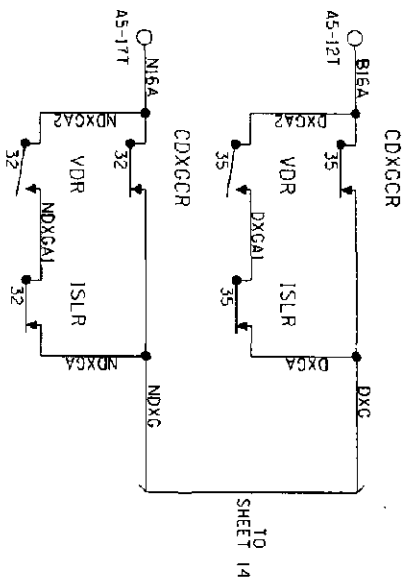

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SETUP LAMP VOLTAGE
SETUP OUTPUT 1L1 XX.X VOLTS
SETUP OUTPUT 1L2 XX.X VOLTS
SETUP OUTPUT 2L1 XX.X VOLTS
SETUP OUTPUT 2L2 XX.X VOLTS

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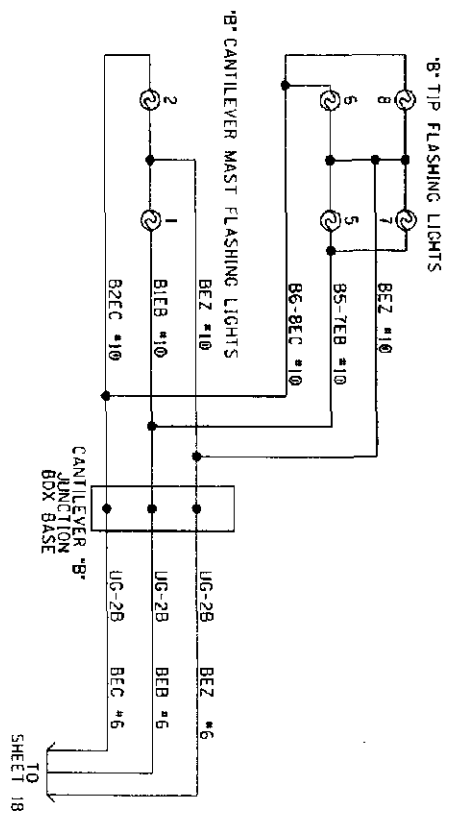
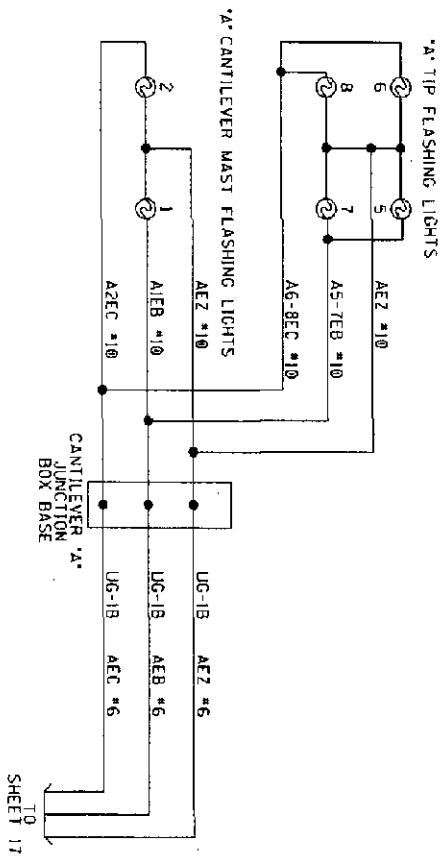
CONFIGURE	
1.	0 SEC.
2.	0 SEC.
3.	0 SEC.
4.	0 SEC.
5.	0 SEC.
6.	0 SEC.
7.	0 SEC.
LOS TIMERS	
ATCS ADDRESS	
LOW BATTERY	DISABLED
AUX I/O	FLASH SYNC IN

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



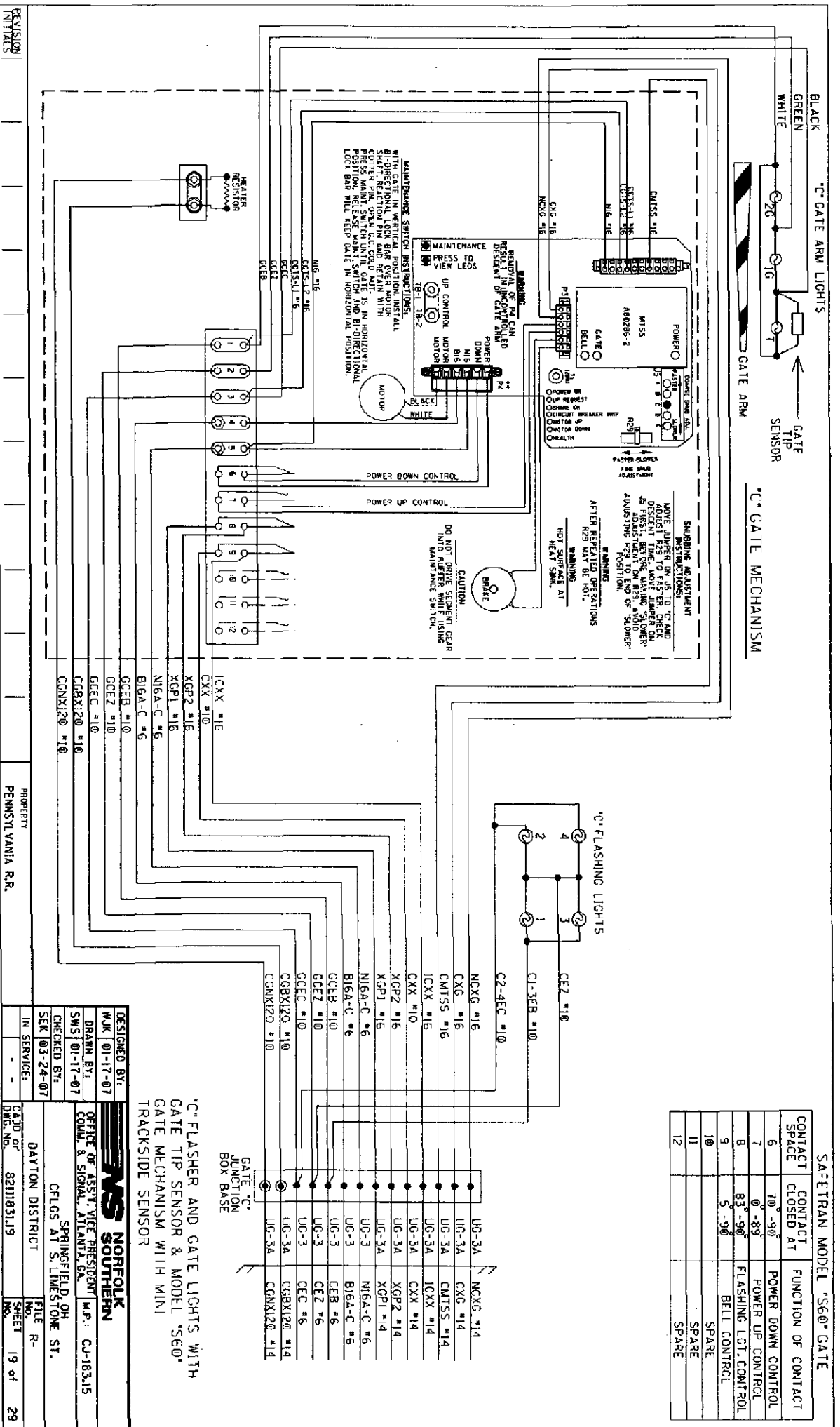
NOTES:
ALL WIRING TO BE #16AWG
UNLESS NOTED OTHERWISE.

[illegible]



CANTILEVER FLASHER LIGHTS

DESIGNED BY:		NORFOLK SOUTHERN	
WJK	01-17-07	OFFICE OF ASST. VICE PRESIDENT	
DRAWN BY:		COMM. & SIGNAL, ATLANTA, GA.	
SWS	01-17-07	SPRINGFIELD, OH	
CHECKED BY:		CFLGS AT S. Limestone St.	
SEK	03-24-07	DAYTON DISTRICT	
IN SERVICE:		FILE R-	
CADD OR	821183.16	SHEET 16 of 29	
PROPERT	PENNSYLVANIA R.R.		
REVISION			
INITIALS			

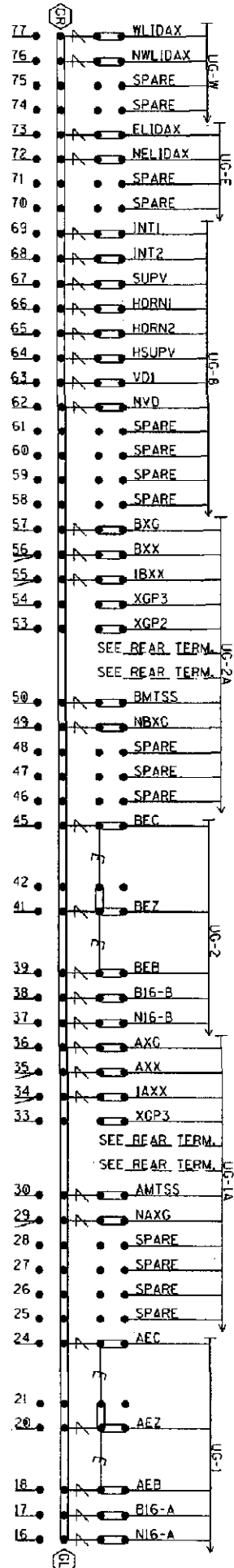


LEFT TWO ROWS TERMINAL BOARD I

"1A"

"1B"

(SEE NEXT SHEET FOR
OTHER WIRES IN CABLES)



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

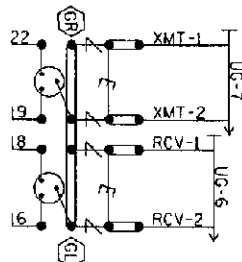
SEE FARADAY SHIELD DETAILS - 1A & 1B
FOR HOW THIS PORTION OF THE FARADAY
SHIELD IS PREDRILLED. ONLY INSTALL AND
USE THE TERMINALS NEEDED.

⚡ = Heavy Duty Equalizer
(022700-1X)

⚡ = Lightning Arrestor
(022585-1X)

⚡ = LPC-10560-51

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



BACKBOARD DETAIL - 1A & 1B

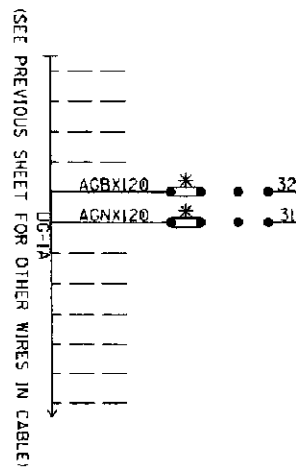
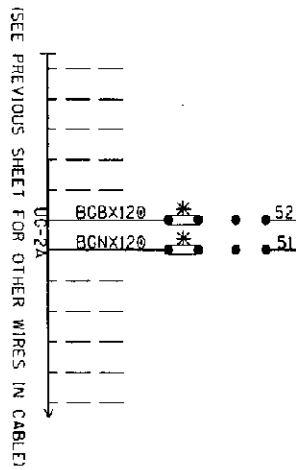
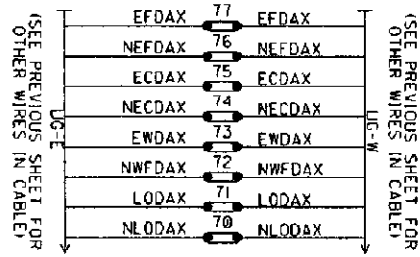
REVISION	INITIALS	PROPERTY	DATE	FILE NO.	SHEET NO.	TOTAL SHEETS
		PENNSYLVANIA R.R.			21 of 29	

DESIGNED BY:	WUK 01-17-07	NO. 183.15
DRAWN BY:	SWS 01-17-07	COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	SEK 03-24-07	SPRINGFIELD, OH
IN SERVICE:		CFLS AT ST. LESTONE ST.
CAD OF:	DAYTON DISTRICT	
DWG. NO.	8211831.21	

REAR VIEW OF LEFT TWO ROWS TERMINAL BOARD 1

"1B"

"1A"



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

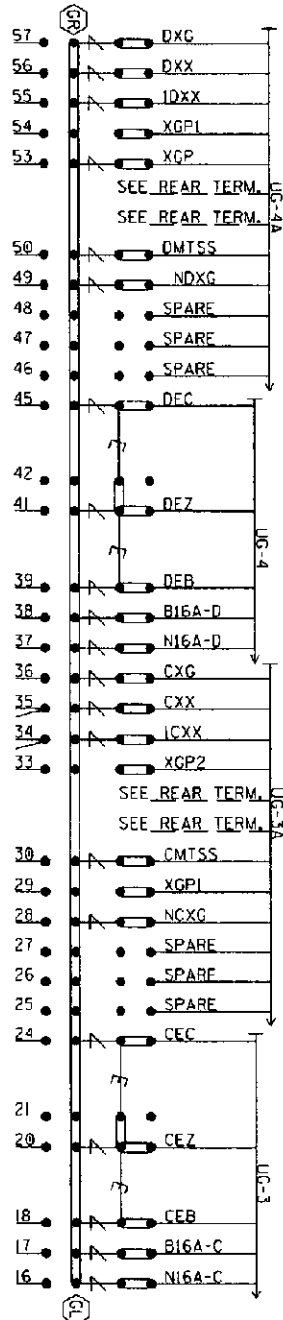
* = CLOSED DURING WINTER MONTHS

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

DESIGNED BY:	WJK 01-17-07	OFFICE OF ASS'T. VICE PRESIDENT	W.P. CJ-183.15
DRAWN BY:	SWS 01-17-07	COMM. & SIGNAL, ATLANTA, GA.	
CHECKED BY:	SEK 03-24-07	CFLGS AT S. LIMESTONE ST.	
IN SERVICE:		DAYTON DISTRICT	FILE R-
CAO of	DWG. NO. 8211831.22		SHEET 22 of 29

REVISION INITIALS

"1C"



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)
 ⊥ = Lightning Arrestor (022585-1X)
 ⊥ = LPC-10560-51

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

REVISION	INITIALS	PROPERTY	DESIGNED BY	WJK 01-17-07	OFFICE OF ASST. VICE PRESIDENT	COMM. & SIGNAL, ATLANTA, GA.	FILE NO.	8211B3.23	SHEET	23 of 29
			DRAWN BY	SWS 01-17-07						
			CHECKED BY	SEK 03-24-07						
			IN SERVICE							
			DATE OF	DAYTON DISTRICT						
			NO.							

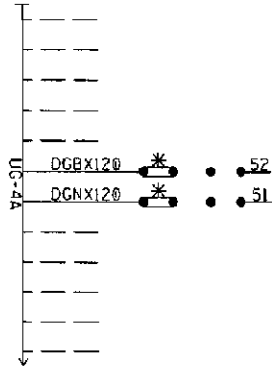
BACKBOARD DETAIL - 1C

NS NORFOLK SOUTHERN

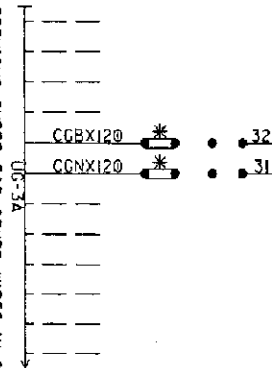
SPRINGFIELD, OH
 CLOS AT S. LIMESTONE ST.

"1C"

(SEE PREVIOUS SHEET FOR OTHER WIRES IN CABLE)



(SEE PREVIOUS SHEET FOR OTHER WIRES IN CABLE)



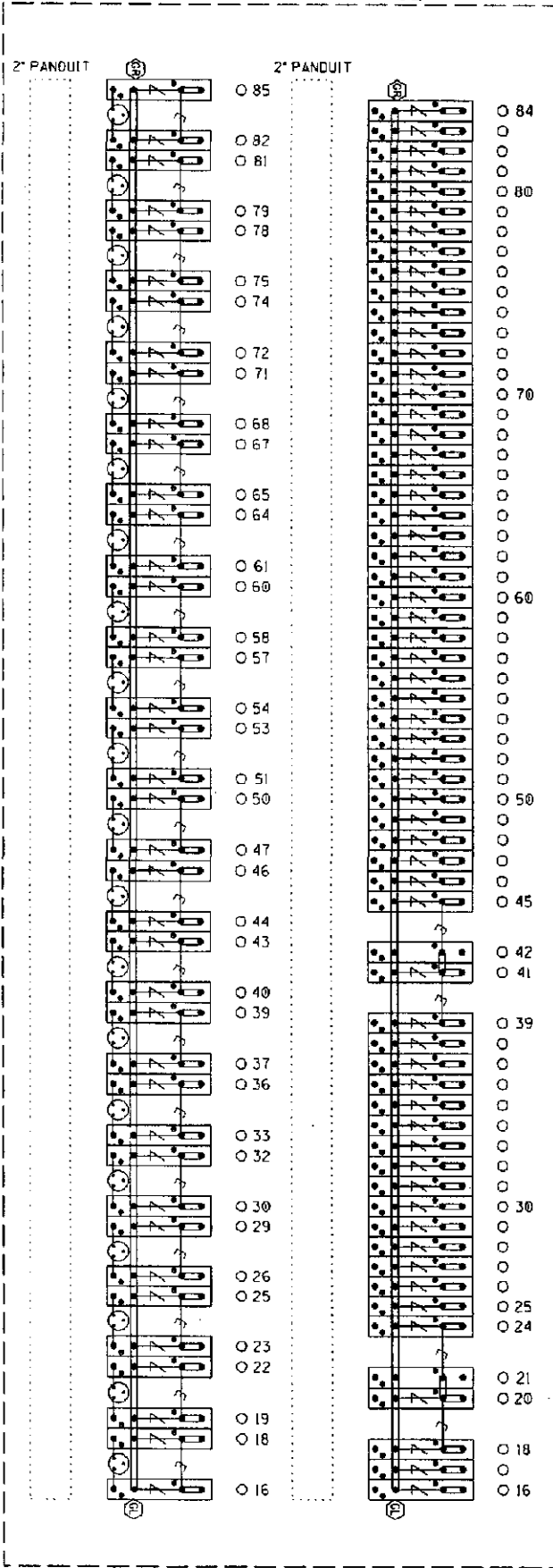
NOTE: ALL 120VAC AND ABOVE WILL BE WIRED TO THE REAR OF FARADAY BACKBOARD. INSULATED NUTS MUST BE USED ON ALL TERMINALS.

* = CLOSED DURING WINTER MONTHS

REAR OF FARADAY BACKBOARD
REAR BACKBOARD DETAIL - 1C

DESIGNED BY: WJK 01-17-07	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	FILE NO. CJ-18315
DRAWN BY: SWS 01-17-07	SPRINGFIELD, OH CFGS AT S. LIMESTONE ST.	SHEET 24 of 29
CHECKED BY: SEK 03-24-07	DAYTON DISTRICT	
IN SERVICE:		
PROPERTY PENNSYLVANIA R.R.		
REVISION INITIALS		

"1B"



AREA BELOW IS SCALED WITH AS=.75

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

  = TERMINALS DRILLED TO SHIELD.
4 POST BLOCKS USE EITHER -
CR - SERMI PART NO. 61278
OL - SERMI PART NO. 61278-1.

= TERMINALS GROUNDED TO SHIELD.
4 POST BLOCKS USE EITHER .

~~F~~ = Heavy Duty Equalizer
 (022700-1X)
 Clearview
 L = Lightning Arrestor
 (022585-1X)
 ☺ = LPC-10560-51

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

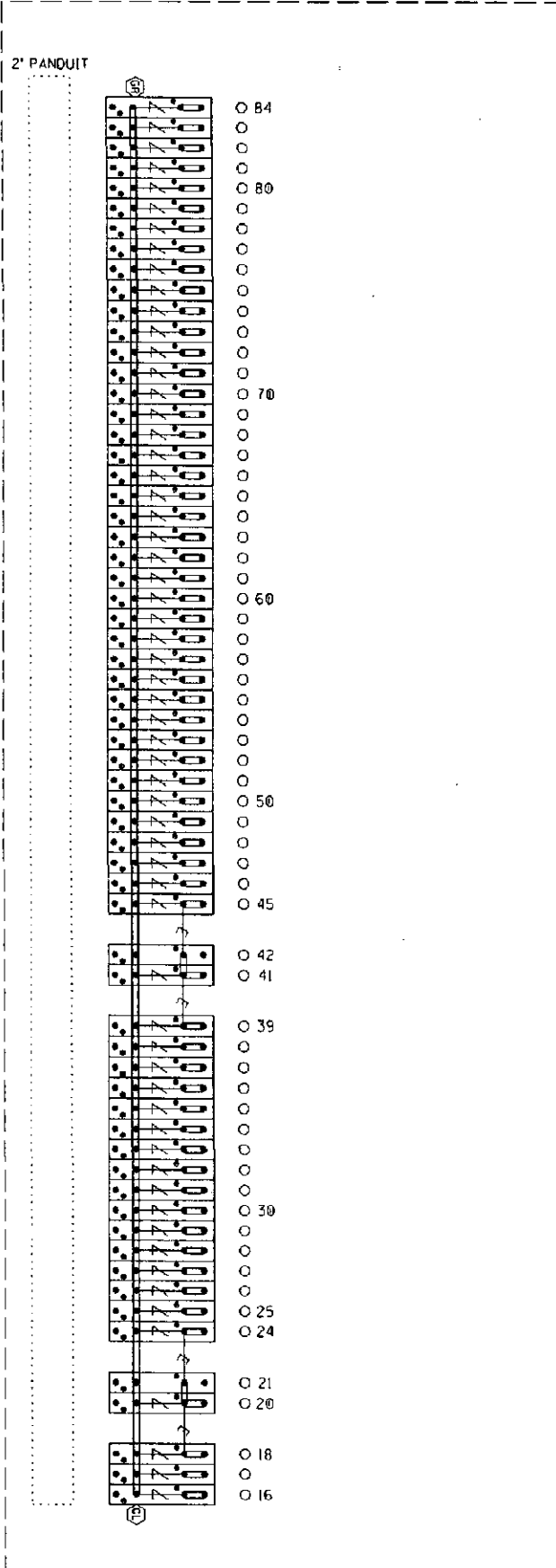
= INDICATES PLACEMENT OF PANDUIT										THIS SHEET IS FOR REFERENCE ONLY, TO REFLECT HOW THE FARADAY SHIELD IS PEDRILLED. ONLY INSTALL AND USE THE TERMINALS NEEDED.										= TERMINALS GROUNDED TO SHIELD. A POST BLOCKS USE EITHER - CR - SERMMI PART NO. 61278- CL - SERMMI PART NO. 61278-1.										DESIGNED BY: WJK 01-17-07 DRAWN BY: SWJ 01-17-07 CHECKED BY: SEK 03-24-07 IN SERVICE: - -										NVS NORFOLK SOUTHERN OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. SPRINGFIELD, OH CLGS AT S. LIMESTONE ST. DAYTON DISTRICT FILE NO. R- SHEET 25 of 29									
REVISION										INITIALS										PROPERTY										PENNSYLVANIA R.R.																			

TERMINAL BOARD 1
RIGHT HALF

"1C"

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



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

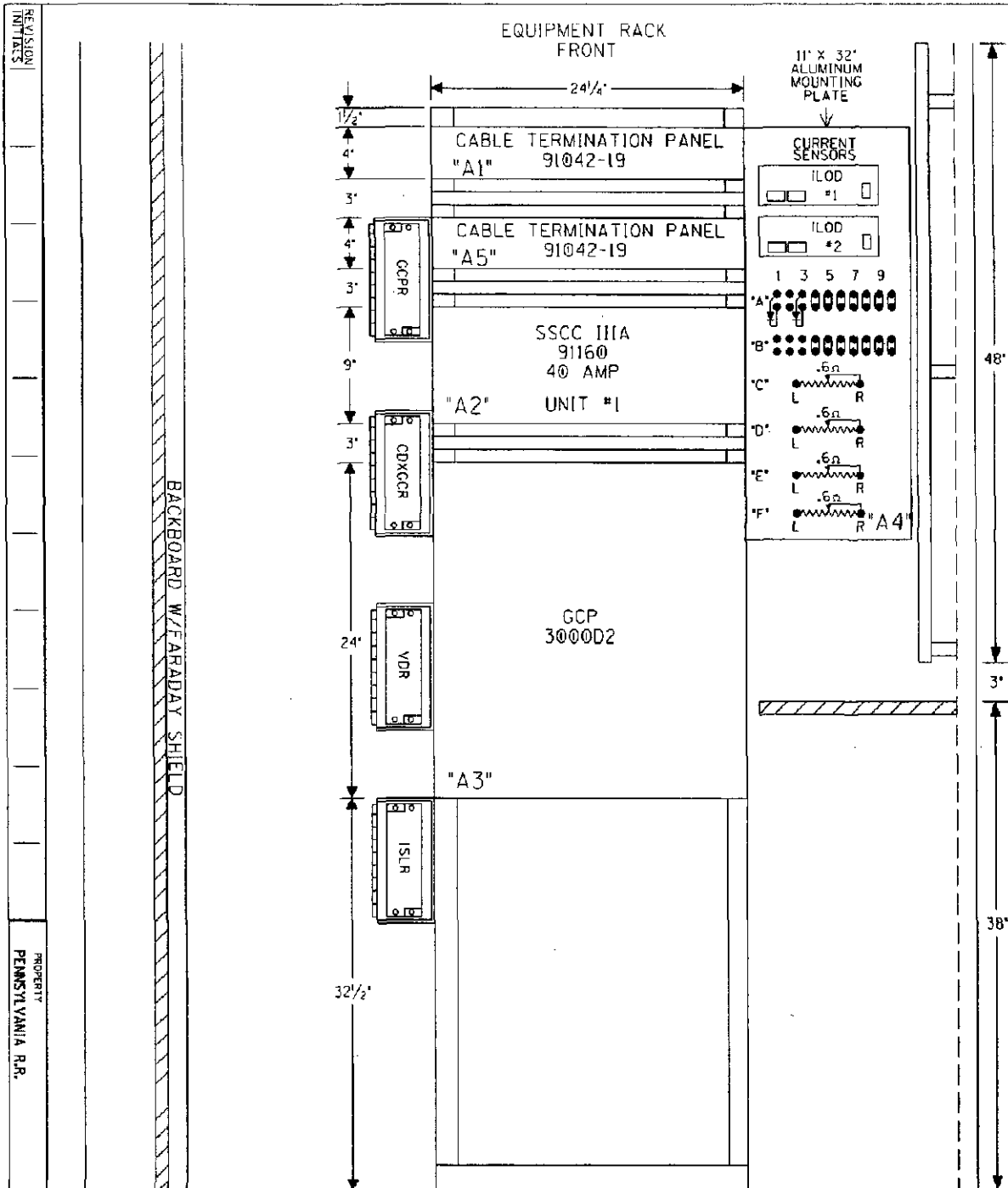
CR = TERMINALS GROUNDED TO SHIELD.
4 POST BLOCKS USE EITHER -
CR - SERMM PART NO. 61278
CL - SERMM PART NO. 61278-1.

CR = Heavy Duty Equalizer
(022100-1X)
L = Lightning Arrestor
(022385-1X)
CL = LPC-10560-51

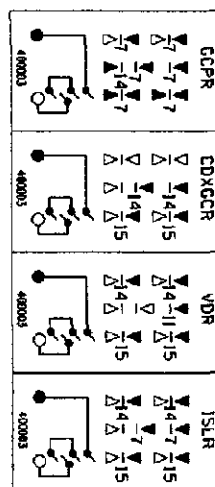
REVISION	INITIALS	PROPERTY	DESIGNED BY	WAK 01-17-07	OFFICE OF ASST. VICE PRESIDENT	MPJ CJ-183.15
		PENNSYLVANIA R.R.	DRAWN BY	SWS 01-17-07	COMM. & SIGNAL, ATLANTA, GA.	
			CHECKED BY	SEK 03-24-07	SPRINGFIELD, OH	
			IN SERVICE		CFLOS AT S. LIMESTONE ST.	
			CAD OF	DAYTON DISTRICT	FILE R-	
			DWG. NO.	8211831.26	SHEET	26 of 29

TERMINAL BOARD 1
RIGHT ROW
FARADAY SHIELD DETAIL - 1C

NSS NORFOLK SOUTHERN



SIDE "C"



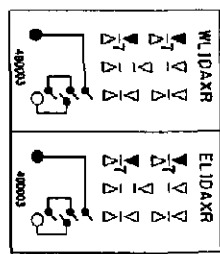
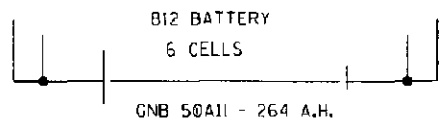
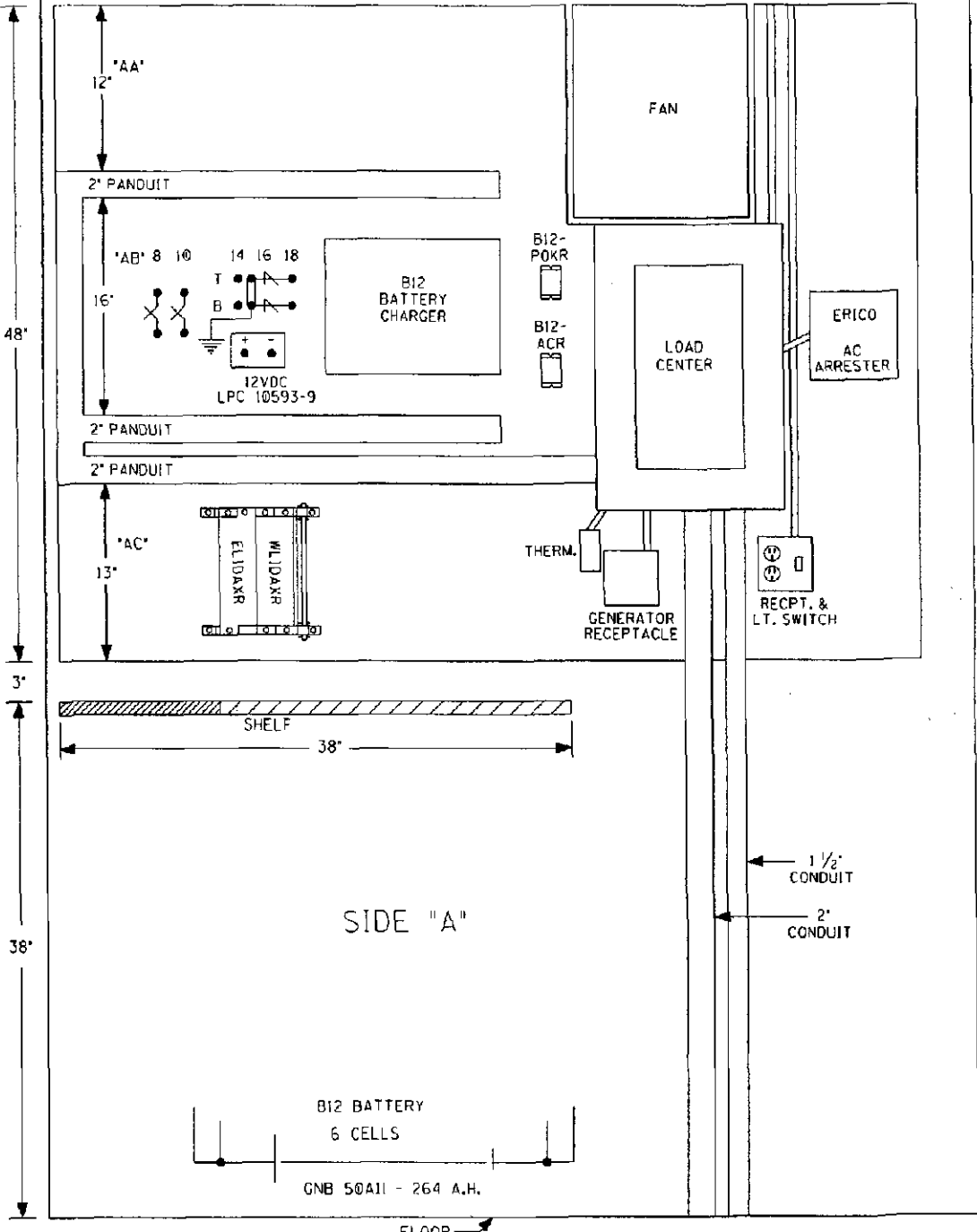
SAFETRAN, ALSTOM(GRS) RELAY
CROSS REFERENCE LIST
SAFETRAN ALSTOM(GRS)
400003 - A62-308



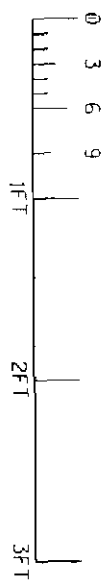
DESIGNED BY: WJK 01-17-07	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-183.15
DRAWN BY: SWS 01-17-07	SPRINGFIELD, OH	FILE R-
CHECKED BY: SER 03-24-07	DAYTON DISTRICT	SHEET 27 of 29
IN SERVICE:	CADD OF: B211831.27	

REVISION INITIALS

PROPERTY PENNSYLVANIA R.R.

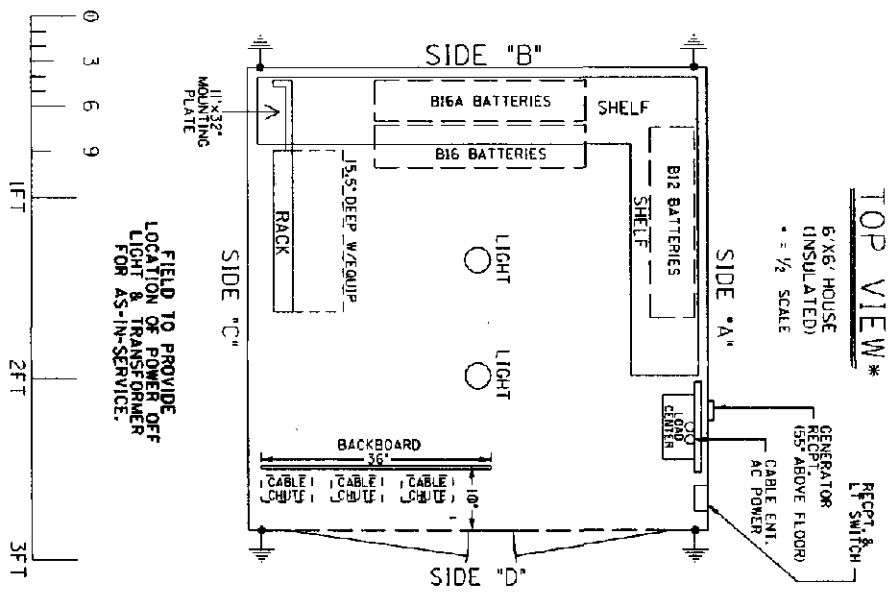
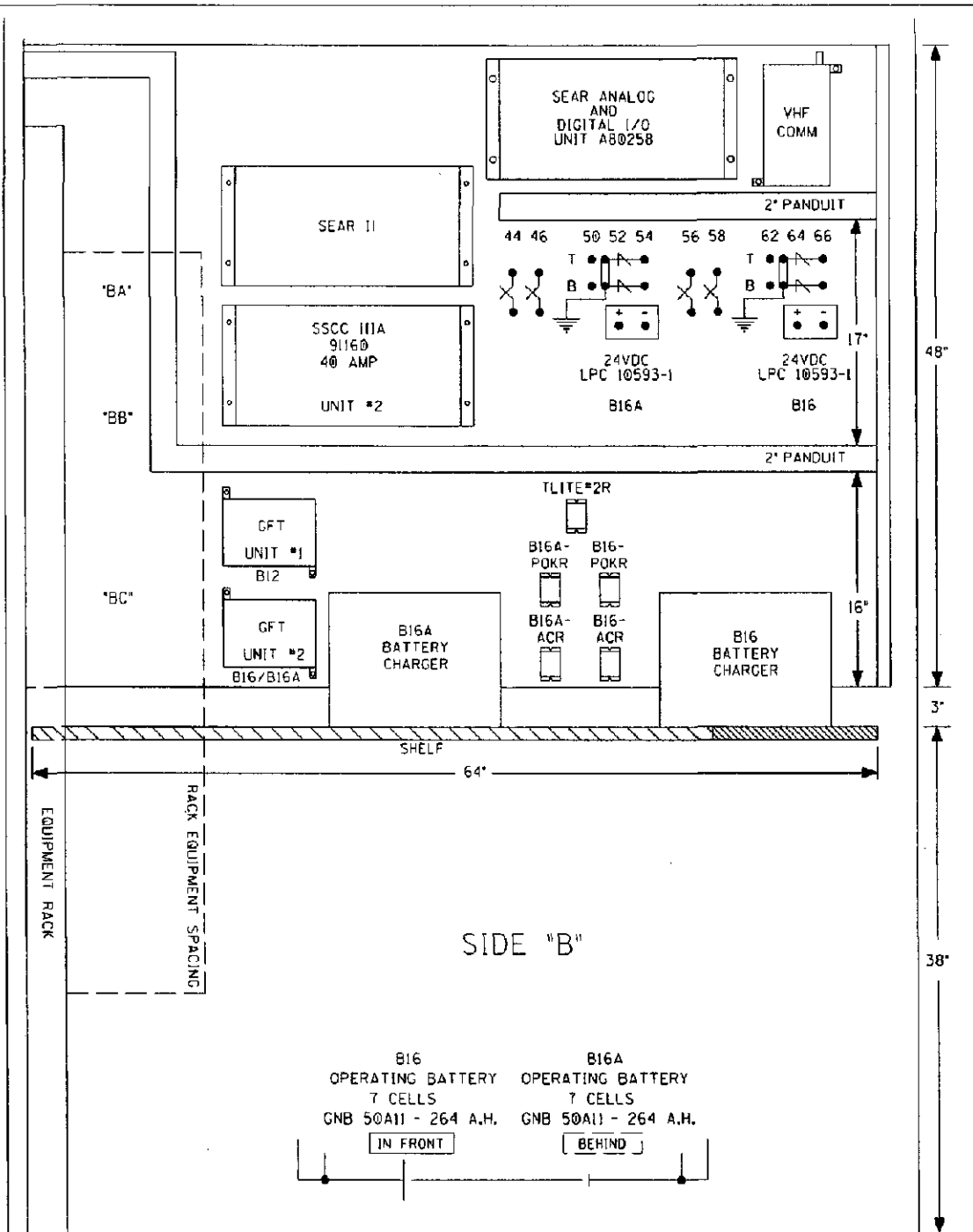


SAFETRAN, ALSTOM(GRS) RELAY
CROSS REFERENCE LIST
SAFETRAN ALSTOM(GRS)
400003 - A62-308



6' X 6' HOUSE - SIDE "A"

DESIGNED BY:	WJK 01-17-07	NORFOLK SOUTHERN
DRAWN BY:	SMS 01-17-07	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	SEK 03-24-07	SPRINGFIELD, OH
IN SERVICE:		CFLGS AT S. LIMESTONE ST.
CAD OF:	DAYTON DISTRICT	FILE R-
DWG. NO.	821183.28	SHEET 28 of 29



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