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**Public Utilities
Commission of Ohio**

RECEIVED-DOCKETING DIV

2012 JUN -1 PM 12:14

PUCO

Memo

To: Docketing Division *Old*
From: George Martin, Grade Crossing Planner, Rail Division
Re: In the matter of the authorization of Norfolk Southern Railway to install an active grade crossing warning device in Seneca County
Date: June 1, 2012

The Ohio Rail Development Commission (ORDC) has authorized funding for Norfolk Southern Railway (NS) to install new mast mounted flashing lights and roadway gates at Seneca County, near Reedtown, CR 24, DOT# 481621W. The crossing was surveyed on January 26, 2012, and was found to warrant the upgrade.

This project will be paid for with federal funds, and is actual cost. As the plans and estimates have already been submitted and approved, staff requests an Entry with completion of the project in nine months. Construction may commence at once. Staff requests that the following language be incorporated in the Entry:

It is expected that all work necessary for FHWA acceptance of the warning devices will be completed by the in-service due date and that the railroad will be responsible for this work. This work includes, but is not limited to:

Any ancillary work to make the warning devices function as designed and visible to the roadway user, and

MUTCD compliance, including minor roadway work if necessary.

A suggested case coding and heading would be:

PUCO Case No. 12- *1728* -RR-FED In the matter of the authorization of Norfolk Southern Railway to install an active grade crossing warning device in Seneca County

C: Legal Department

Please serve the following parties of record

Ms Susan Kirkland

Ohio Rail Development Commission

1980 West Broad St, 2nd Floor

Columbus, Oh 43223

Ms Cayela Wimberly

Norfolk Southern Railway

1200 Peachtree St, Box 123

Atlanta, Ga 30309

Seneca County Engineer

Mr. David Lin

111 Madison St

Tiffin, Oh 44883

North Central Electric Co-op., Inc.

**OHIO RAIL DEVELOPMENT COMMISSION
INTER-OFFICE COMMUNICATION**

TO: Rob Marvin, Director of Transportation, PUCO
Leah Thomas-Dalton, Deputy Chief, PUCO

FROM: Susan Kirkland, Manager, Safety Section, ORDC

BY: Tod Darfus, Project Manager, ORDC

SUBJECT: Seneca County, Norfolk Southern
County Road- 24 AAR # 481 621 W, PID 92904

DATE: May 30, 2012

The Public Utilities Commission of Ohio (PUCO) established a diagnostic survey at the subject location on January 26, 2012. The Ohio Rail Development Commission (ORDC) attended the review. The Diagnostic Team recommended the improvement of warning devices to flashing lights and roadway gates plus cantilevers. A copy of the diagnostic review form is attached.

PE has already been provided by the railroad. ORDC approves the site plans and estimates as provided. Please issue a construction-only order for the project outlined above. This construction authorization is made with the stipulation and understanding that any field work needs prior approval before the work begins. This authorization is made with the stipulation and understanding that an approved estimate may contain entries for items or activities that may be cited and found to be ineligible for federal participation during the project audit.

It is expected that all work necessary for FHWA acceptance of the warning devices will be completed by the in-service due date and that the railroad will be responsible for this work. This work includes, but is not limited to:

- any ancillary work to make warning devices function as designed and visible to the roadway user, and
- MUTCD compliance – including minor roadway work if necessary.

Thank you for your assistance with these matters.

Attachment: Diagnostic Review
Plan & Estimate

c: George Martin, PUCO
T.Darfus (file)



Diagnostic Review Team Survey

Date: 1/26/2012

Location Data

Street or Road Name:

Route/Road Number
(i.e. Twp., Co., SR or US) CR 24

US DOT No: 481621W

County: Seneca (SEN)

Township:

City:
(In or Near) Reedtown

Railroad
Name: NS

Railroad
Division: LAKE

Branch/Line
Name: SANDUSKY

Nearest RR
Timetable Station: Frank

RR Milepost: 88.42

On-Site Review Team

(Include: Name - Organization - Phone Number - Email)

1. Tod Darfus - ORDC - 614.374.9298 - tod.darfus@dot.state.oh.us

2. George Martin - PUCO - 614.752.9107 - George.Martin@puc.state.oh.us

3. A.J. Pearce - Norfolk Southern

4. David L. Kin - Seneca Cnty. Engineers Office

5. RAND PATTERSON - PUCO - RAILROAD SECTION

6. _____
7. _____
8. _____
9. _____

Existing Traffic Control Devices

Type of Warning Devices	Installed?		Quantity/Comments
Advance Warning Signs (condition?)	☒ Yes	☐ No	2 good
'Stop' Signs	☐ Yes	☒ No	
'Stop Ahead' Signs	☐ Yes	☒ No	
Pavement Markings (condition?)	☒ Yes	☐ No	2 Fair
Crossbucks	☒ Yes	☐ No	2 New
Number of Tracks Signs	☒ Yes	☐ No	2 Track
Inventory Tags	☒ Yes	☒ No	2
Interconnected Highway Traffic Signal	☐ Yes	☒ No	
Mast-Mounted Flashing Lights	☐ Yes	☒ No	
Cantilever Flashing Lights	☐ Yes	☒ No	Number: Length:
Side Lights	☐ Yes	☒ No	
Automatic Gates	☐ Yes	☒ No	Number: Length:
Bells	☐ Yes	☒ No	Number:
Sidewalk Gate Arms	☐ Yes	☒ No	
'No Turn' Signs	☐ Yes	☒ No	
Illumination	☐ Yes	☒ No	
Is crossing flagged by train crew?	☐ Yes	☒ No	
Other	☐ Yes	☒ No	

Safety Data (Obtain crash reports, if possible, prior to review)

	Initial Information (from database)	Revised
Number & dates of crashes in previous 5 years	0	0
Hazard Ranking	311 Date Run: 1/9/2012	311

Railroad Data

Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	28	28
< 1 per day		
Day thru trains	14	14
Night thru trains	14	14
Daytime switching movements	0	0
Nighttime switching movements	0	0
Total number of tracks		
Number of main tracks	2	2
Number of other tracks	1	1
Maximum train speed	60	60
Typical train speed		
Amtrak		NO

If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☒ Yes ☐ NoIf multiple tracks, can two trains occupy crossing at the same time? ☒ Yes ☐ NoCan one train block the motorists' view of another train at crossing? ☒ Yes (Explain below) ☐ NoCan one or more tracks be eliminated through the crossing? ☐ Yes ☒ NoAre there other track(s) crossing this same roadway within 100 ft of this crossing? ☐ Yes ☒ No

If yes, Crossing DOT #(if different) _____

If yes, distance _____ (take measurement between track centerlines at closest point along roadway)

Roadway Data

Local Highway Authority: Seneca County

Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	153 (2008)	153 - 200 Ave
Highway paved	☒ Yes ☐ No	☒ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: 24 ft.		
Number of highway lanes	2	2
Urban or Rural	Rural	Rural
Vehicle Speed: 55 MPH		
School Bus Operation: ☒ No ☒ Yes _____ Amount		eman
Hazardous Materials Trucks: ☐ No ☒ Yes _____ Amount		
Shoulders: ☒ No ☐ Yes		
Is the shoulder surfaced? ☒ No ☐ Yes		
Is there existing guardrail along roadway in crossing vicinity? ☒ No ☐ Yes		
Is stopping site distance adequate? (See Table 2) ☒ Yes ☐ No If no, deficient approach(es) _____		

Quadrant <u>NE</u> Curb and Gutter: ☐ Functional (Curb height = 4" or more) ☐ Non-functional (Curb height = Less than 4") ☒ None	Quadrant <u>SW</u> Curb and Gutter: ☐ Functional (Curb height = 4" or more) ☐ Non-functional (Curb height = Less than 4") ☒ None
Pedestrians: ☒ No ☐ Yes	
Is sidewalk present? ☒ No ☐ Yes	
Is there a nearby intersection that could cause queuing over the crossing? ☒ No ☐ Yes If yes, Distance _____	
Is this intersection signalized? ☒ No ☐ Yes	
Are the signals currently interconnected with the existing crossing warning devices? ☒ No ☐ Yes	
Is there a 'Do not Stop on Track' sign? ☒ No ☐ Yes	
Is a roadway improvement project (e.g. widening, turn lanes, nearby new or upgraded traffic signal, sidewalk) planned at or near this location in the foreseeable future? ☒ No ☐ Yes If yes, Improvement type _____ Lead Agency _____ Timeline/completion _____	
Is it the consensus of the Diagnostic Review Team that this is a potential closure project? ☒ No ☐ Yes Explain reasons: _____	
Type of Development	
☒ Open Space ☐ Industrial ☐ Residential	☐ Institutional ☐ Commercial Location of nearby schools: _____
Utility Information	
Is commercial power available? ☐ No ☒ Yes	
Utility Provider (Company Name) _____ Phone Number _____	
Nearest Available Power Source <u>Q crossing</u> <u>Frontier</u>	
What other utilities are present? <u>(First Energy)</u> <u>North Central CO op</u> (add locations to sketch)	
Is(are) there potential utility conflict(s) ☐ Yes ☐ No ☒ Unknown	
Comments: _____	

Potential Red Flags / Project Challenges

Traffic Signal Preemption (include traffic signal intersection name and LHA with jurisdiction over traffic signal, if known):

NA

Crossing Consolidation or Closure:

NA

Real Estate or ROW:

County 60 Norfolk Southern } 100' 50/50

Culverts / Drainage / Ballast Conditions:

NA

Roadway and/or Sidewalks:

NA

Circuitry (e.g. reaches out to other crossings, specific needs, etc.):

Overlap with Reedtown Rd

Environmental:

NA

Other:

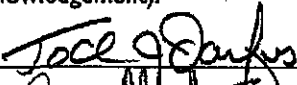
Diagnostic Team Recommendations

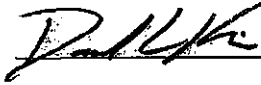
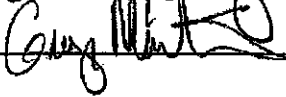
	Quadrants Needed
☒ Install/upgrade active devices	
☐ Automatic Flashing Lights (AFLS)	
☐ AFLS / Cants	
☒ AFLS / Gates	
☐ AFLS / Gates / Cants	
☒ Bells / number	2 2 Track
☐ Upgrade circuitry / type	
☐ Sidelights	
☐ Guardrail Needed	
☐ Install/Replace curb	
☒ Bungalow placement & offset from rail & highway	25 x 50
☐ Other (define)	

Comments: PUCO yes Norfolk South yes Power on site
County yes OZDC yes Need wing walls A115
Place new foundations 10' from edge of road due to form equip

☐ Install/upgrade traffic signal preemption	
☐ No improvements needed	
☐ Other (define)	

Acknowledgement of Recommendations (each entity represented at the diagnostic must have at least one signature acknowledgement):



Field Dimensions

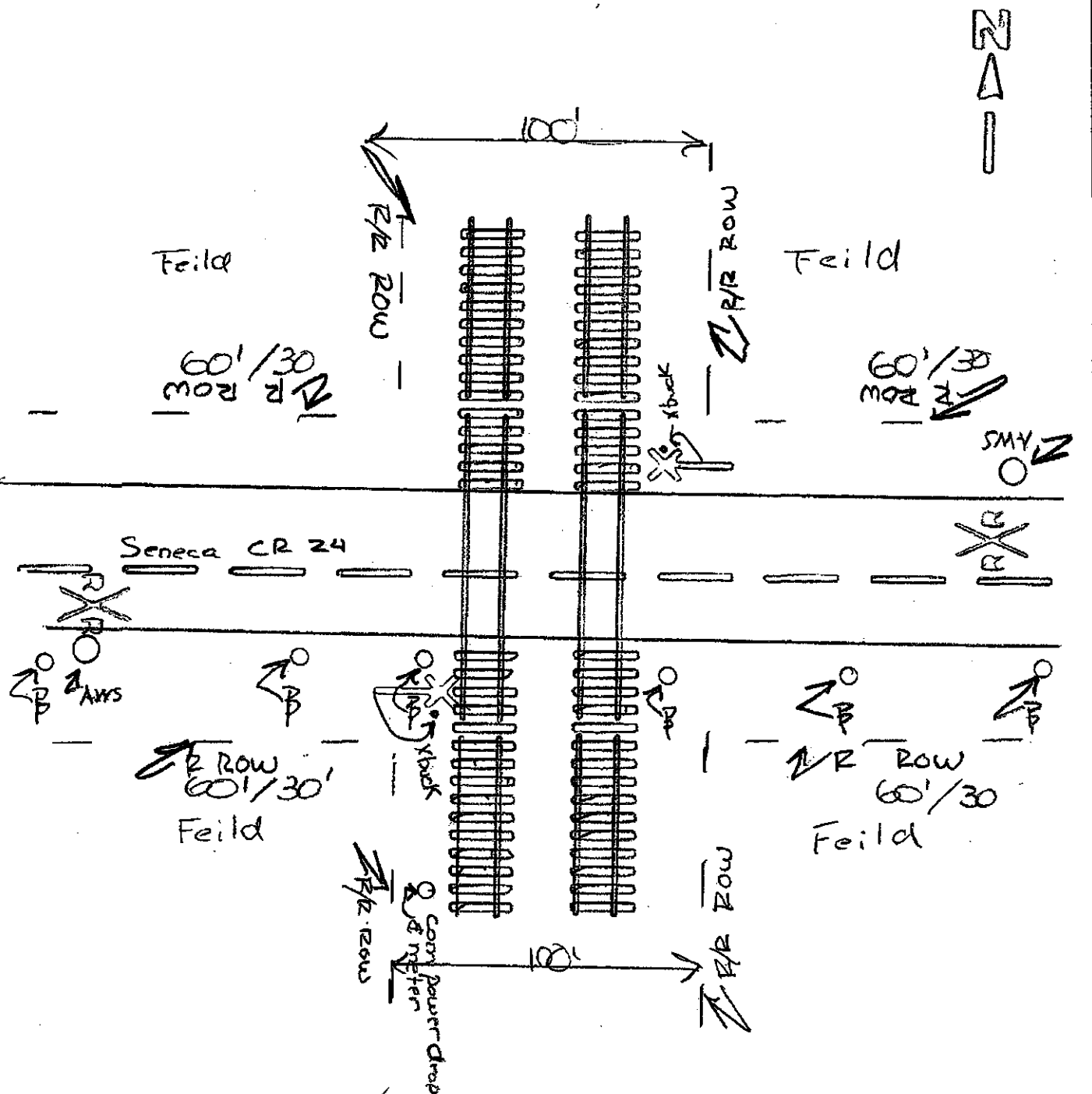
The diagram shows a cross-section of a street with a central vertical axis. On the left side, from top to bottom, the labels are: Sidewalk, Parkway, Roadway, Roadway, Parkway, and Sidewalk. On the right side, from top to bottom, the labels are: Sidewalk, Parkway, Roadway, Roadway, Parkway, and Sidewalk. Dashed vertical lines with arrows indicate measurement points for each section. A box labeled "Show North Direction" is located in the top right corner.

Crossing Angle ☐ 0-29° ☐ 30-59° ☐ 60-90° Measured in _____ Quadrant?

Measurements by: _____

Field Sketch

Include utilities as marked by OUPS and LHA; include ROW boundaries as indicated by railroad and LHA.



Crossing Angle ☐ 0-29° ☐ 30-59° ☒ 60-90° Measured in _____ Quadrant?

Sketch by: 102

TABLE 1**Clearing Sight Distances**

Maximum Authorized Train Speed	Distance (dT) Along Railroad from Crossing (ft)
1 - 10	240
15	360
20	480
25	600
30	720
35	840
40	960
45	1080
50	1200
55	1320
60	1440
65	1560
70	1680
75	1800
80	1920
85	2040
90	2160

Source: R-H Grade Crossing Handbook Table 36 (pp. 132-133)

Notes:

All calculated distances are rounded up to the next higher 5-foot increment.

Distances indicated are for 65-ft double bottom semi-tractor trailers and level single track 90 degree crossings; and may need to be adjusted for multiple tracks, skewed crossings or approaches on grades.

Clearing Sight Distance is to be measured in each vehicle travel direction at non-gated crossings as viewed from a point 25 feet from centerline of nearest track in the center of whichever travel lane is nearest the direction along track being measured.

Table 2**Stopping Sight Distances**

Highway Vehicle Speed	Distance (dH) Along Roadway from Crossing (ft)
0	n/a
5	50
10	70
15	105
20	135
25	180
30	225
35	280
40	340
45	410
50	490
55	570
60	660
65	760
70	865

Source: R-H Grade Crossing Handbook Table 36 (pp. 132-133)

Notes:

All calculated distances are rounded up to the next higher 5-foot increment.

Distances indicated are for 65-ft double bottom semi-tractor trailers on dry level pavements.

Stopping Sight Distance is to be measured on each roadway approach to crossing from stop bar.



Norfolk Southern Corporation
Communications and Signal Department
1200 Peachtree Street, N.E.
Atlanta, Georgia 30309-3579
404/529-1216

May 17, 2012
CX0128732

Re: Norfolk Southern's Sandusky District, regarding the installation of automatic grade crossing warning devices at CR 27 in Seneca County, Bellevue, Ohio, DOT: 481-621W, Milepost S-088.42. PID 92904

Susan Kirkland, Supervisor
Ohio Rail Development Commission
50 West Broad Street, Room 1520
Columbus, Ohio 43215

Attention: Susan Arduini

Dear Ms. Kirkland:

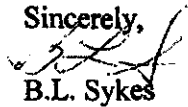
Attached for your review and approval are electronic copies of the detailed cost estimate, material list and engineering plans for this crossing.

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.

Please have the responsible governmental entity (state, county or city) make the necessary adjustments as noted on page one of our plans, (note 10) to the culverts, prior to the arrival of our construction gang for the installation of this project.

In order to protect state and railroad personnel the following is required: If state, city or county personnel and equipment will be within 25 feet of any track, prior notification to the railroad must be given before any work by these forces or their contractor can commence. To coordinate your work, please contact Division Engineer, Mr. Richard Klinkbeil at 260-493-5346.

If you have any questions or concerns, please contact Mike Rappatta at 404-582-6377 or mike.rappatta@nscorp.com.

Sincerely,

B.L. Sykes
(mrs)



17-May-12

Detailed Estimate for Grade Crossing Warning Devices

City/State: BELLEVUE, OH

Road: CR 24

MilePost: S-88.42

DOT/AAR: 481621W

State Proj. No.:

County: HURON

S&E Proj. No.: 10.1364

File Number:

Man Days: 92

Purchases - Others	
Meals and Lodging:	\$12,364.80
Rental of Equipment:	\$12,880.00
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 23 Days)	
Construction Supervision Vehicle:	\$2,301.60
Purchases - Other Total:	\$27,546.40
Material And Additives	
Material Cost:	\$95,657.00
Sales and Use Tax:	\$0.00
Material Handling Freight:	\$4,782.85
Material Total:	\$100,439.85
Labor And Additives	
Labor Cost:	\$25,760.00
(4 man crew at \$1,120.00 a day for: 23 days)	
Payroll Tax & Overheads:	\$34,219.58
Preliminary Engineering:	\$10,684.69
Construction Supervision:	\$7,272.05
Labor Total:	\$77,936.32
Project Cost:	\$205,922.57
Scrap / Salvage Credit:	\$0.00
Project Total:	\$205,923.00

Estimated on: 17-May-12

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:	BELLEVUE
Road:	CR 24
Mile Post:	S-88.42
Drawing Number:	SNCS08842
State ProjectNumber:	
County:	HURON
A A R Number:	481621W
Project Number:	10.1364
File Number:	
New File Number:	CX0128732
A F E Number:	F-00101
Store Number:	
Supervisor:	A.J. PEASE
Tax Code:	
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&EGen. Supt. Construction w/copy of invoice	

Location: BELLEVUE			OH	S&E Proj. No.: 10.1364	A/E No.: F-00101	Drawing No.: SNCS08842	Vendor: Interrail Engineering, INC		
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
3	670-360693-4	EA	\$5.55	\$16.65	AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY STRAN.				
1	165-006505-4	EA	\$1,075.23	\$1,075.23	AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE				
13	105-288384-4	EA	\$271.16	\$3,525.08	BATTERY,GNB 368AH MODEL 50G15 SINGLE CELL 2.25 VOLTS, FOR USE WITH CROSSINGS DESIGNED AFTER 09/09				
1	001-000011-4	EA	\$5,000.00	\$5,000.00	BERM WALL				
2	670-980689-4	EA	\$75.48	\$150.96	BRACKET HIGH WIND, (RIGID 3'), WIG- 191036, WALRUS TUSK TYPE				
2	670-561375-4	EA	\$1,208.79	\$2,417.58	BRACKET, GATE SAVER, NEG385102GS, SPRING LOADED SWING AWAY ADAPTER FOR FIBERGLASS/ALUMINUM GATES, USE WITH GATE 38' AND LESS				
1	670-356949-4	EA	\$90.00	\$90.00	CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524, FEMALE CONNECTOR				
700	465-939422-4	LF	\$2.92	\$2,044.00	CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL				
350	465-292862-4	LF	\$1.36	\$476.00	CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR				
700	465-292929-4	LF	\$4.13	\$2,891.00	CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL				
350	465-791835-4	FT	\$3.54	\$1,239.00	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				
80	165-544477-4	FT	\$2.61	\$208.80	CONDUIT, 4"x10' PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4				
4	670-664917-4	EA	\$87.64	\$350.56	CONNECTOR KIT, WELDED FAR RAIL, CONSISTING OF RUBBER HOSE PROPERLY DRILLED, BONDSTRAND, 1 SPLICING SLEEVE, 1 REDUCING SLEEVE, 3 CLAMPS, 1 TRACK CLIP, 1 WEB WELDED TRACK CONNECTOR, 1 WELD METAL, SAFETRAN 111359-2X				
4	670-632520-4	EA	\$79.69	\$318.76	CONNECTOR KIT, WELDED NEAR RAIL, CONSISTING OF RUBBER HOSE PROPERLY DRILLED, BONDSTRAND, SPLICING SLEEVE, 1 REDUCING SLEEVE, 5 CLAMPS, 1 TRACK CLIP, 1 WEB WELDED TRACK CONNECTOR, 1 WELD METAL, SAFETRAN 111359-1X				

APPROVED BY STATE

APPROVED BY RAILROAD

CAR NUMBER

SEAL NUMBER

Location: BELLEVUE			OH	S&E Proj. No.: 10.1364	A/E No.: F-00101	Drawing No.: SNCS08842	Vendor: Interrail Engineering, INC		
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
2	670-793404-4	EA	\$1,159.00	\$2,318.00	COUNTERWEIGHT PKAGE, 17-24'GATE S'TRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS				
4	670-760012-4	EA	\$44.32	\$177.28	COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. =====TO COVER 2 LAMPS=====				
1	670-986650-4	EA	\$354.27	\$354.27	DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER				
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				
2	670-015231-4	EA	\$599.40	\$1,198.80	FOUNDATION, DIXIE, S-2 GATE 26"X26"X56" ASSEMBLED				
2	670-257031-4	EA	\$422.36	\$844.72	GATE ARM, FIBERGLASS-ALUMINUM, 17-24 FT. INCLUDES GATE GUARD FOR GATE LIGHT CABLE. HIGH INTENSITY VERTICAL STRIPES. NEG P/N 8003-244NFS/CG, SSC T18115				
1	670-696894-4	EA	\$34,574.48	\$34,574.48	GCP4000 - 2 TRK (2TC) - REDUNDANT - 40/40 AMP WIRED RACK EQUIP. FOR 6X8 XING SHELTER, (INCL. 2 TRK CHASSIS A80465, 4 TRK MODS. A80418, 2-SSCC A80405, 2 CPU A80403, 1 SEAR A80410, 1 DISPLAY A80407, , 2-40 AMP CHARGERS) IPN: 003131-4X				
1	670-477991-4	EA	\$410.00	\$410.00	KIT, GROUNDING ASSY FOR AL I/S INCLUDES 8 GRD RDS,200#4WIRE,12 4 WIRE ONE-SHOTS. ERICO SBK206				
1	670-123298-4	EA	\$345.97	\$345.97	KIT, HARDWARE SUPPLIES REQUIRED X'ING P'CKAGES. WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS,P'GUM PAINT SLEEVES,TAGS,GLUE, 100 EA WHITE TAGS, JNE CAN BLUE MARKING PAINT ETC...				
2	670-764166-4	EA	\$1,240.19	\$2,480.38	LAMP ASSY, 5" MAST MTG. 2W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-487XNS				
6	165-643547-4	EA	\$5.97	\$35.82	LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE				
4	255-590880-4	EA	\$16.72	\$66.88	LOCK, AMERICAN LOCK MODEL H-10KA KEYPED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"				
2	670-637778-4	EA	\$1,325.00	\$2,650.00	MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. S'TRAN P# 070519-11AX.				
2	670-850933-4	EA	\$3,925.01	\$7,850.02	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
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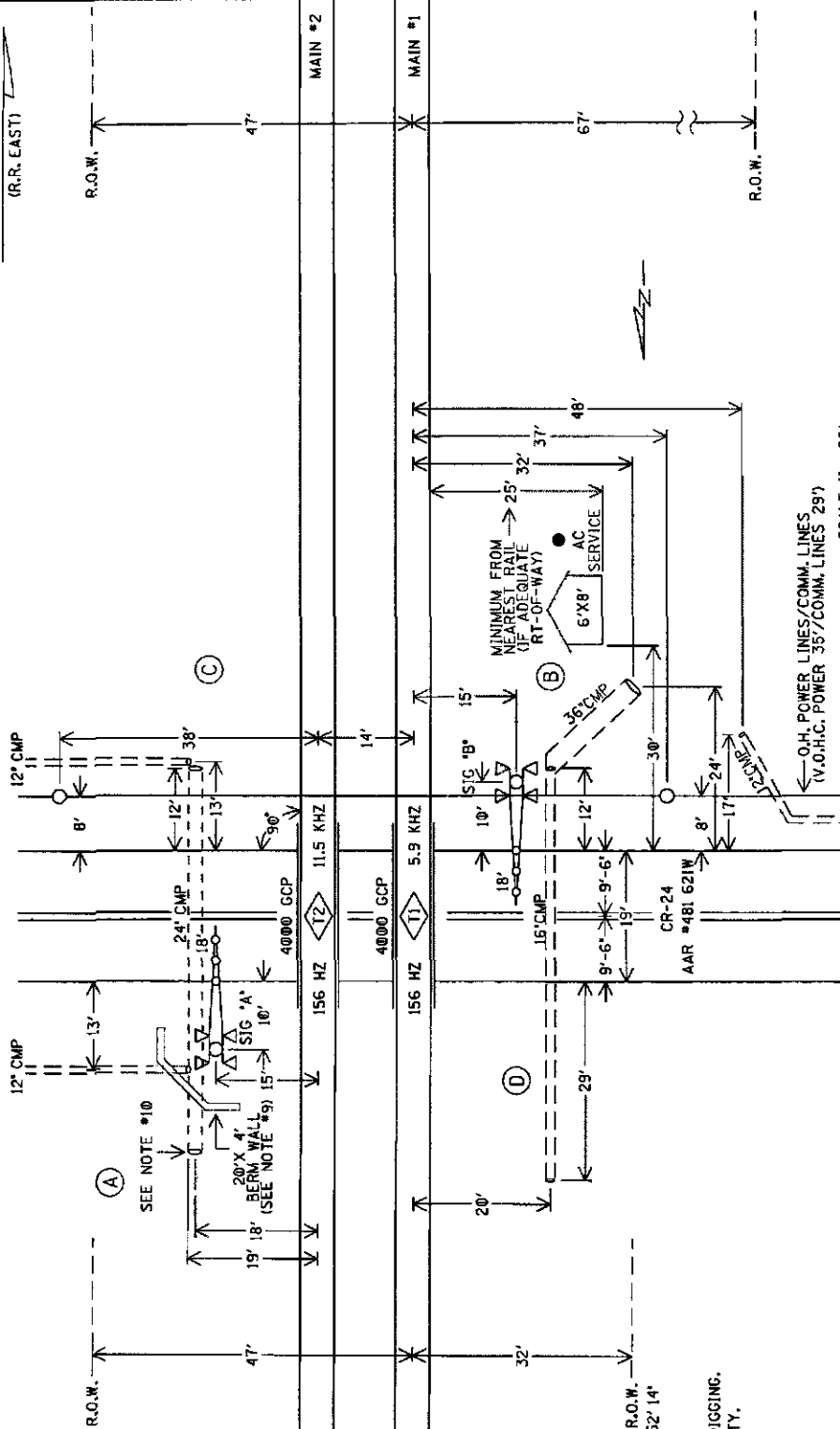
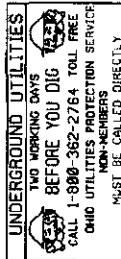
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Quantity Returned (Credit)	Special Instructions
1	000-000000-4	EA	\$5,000.00	\$5,000.00	MISC. EXPENSE, UNDERGROUND BORING				
4	670-001347-4	EA	\$57.10	\$228.40	PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR				
1	255-646807-4	EA	\$31.19	\$31.19	PADLOCK, SAFETRAN PART NO. 030399-29X SCREW TYPE FOR CIR CONTROLLER AND BTY. BOX				
1	165-902002-4	EA	\$303.43	\$303.43	PROTECTOR, SURGE 120/240VAC, ERICO PIN EPD120/240TDFL				
4	465-002899-4	EA	\$40.24	\$160.96	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES				
2	435-805560-4	EA	\$2.78	\$5.56	SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER				
1	670-102061-4	EA	\$362.51	\$362.51	SEARIII, (EBELL) - CROSSING BELL INCLUDES BELL SENSOR FOR SEAR MONITORING SAFETRAN 8000-80301-0002				
1	670-027556-4	EA	\$2,629.77	\$2,629.77	SEARIII, ACCESSORY PACKAGE, W/2-ILOD, 1-E-BELL, 2-GTS, 1-GFT, 1-VHFC, WITHOUT MTSS/SEAR UNIT				
1	670-749325-4	EA	\$226.97	\$226.97	SHELF, FOLDING, FOR LAPTOP USE IN FARADAY 6X8 SHELTER, SAFETRAN 052852-128X				
1	670-755523-4	EA	\$9,325.16	\$9,325.16	SHELTER, 6'X8' ALUMINUM FARADAY W/CABLE CHUTES BEHIND TERMINAL BOARD, W/1EA EQUIPMENT RACK, W/GEN RECEPTICAL, BREAKER BOX GFI OUTLET FOR LAPTOP SHELF SAFETRAN 058400-68-85				
4	670-586967-4	EA	\$42.98	\$171.92	SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT				
4	670-652773-4	EA	\$460.98	\$1,843.92	SHUNT, MULTI-FREQ. #62775-1543 SAFETRAN NARROW BAND				
2	670-393331-4	EA	\$37.43	\$74.86	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215				
2	670-554843-4	EA	\$77.05	\$154.10	SIGN, 2 TRACK SIGN, HIGH INTENSITY, SAFETRAN #035207-2HX				
2	670-016346-4	EA	\$143.23	\$286.46	SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR ALL STATES, SAFETRAN# 035200-91X				
1	670-330382-4	RL	\$18.06	\$18.06	TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING STOP DIGGING"				

Total Material: \$95,656.91

APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
-------------------	----------------------	------------	-------------

TO BAYSIDE
(R.R. WEST)

TO CW TOWER
(R.R. EAST)



NOTES:

1. MAX. TRAIN SPEED 60 M.P.H.
2. LATITUDE N 41° 09' 39" LONGITUDE W 82° 52' 14" ELEVATION 864'
3. SIGNALS 'A' AND 'B' TO HAVE BELL.
4. LOCATE U/G UTILITIES & CABLE BEFORE DIGGING.
5. CROSSING LOCATED IN SENECA COUNTY.
6. NEAREST STREET ADDRESS IS 15729 CR-24
7. NEAREST INTERSECTING STREET IS CR-25
8. DISTANCE TO NEAREST INTERSECTING STREET IS 2700 FT.
9. THE INSTALLATION OF A 20'X4' BERM WALL IS REQUIRED FOR SIGNAL 'A' ALONG WITH 10 CUBIC YARDS OF FILL DUE TO DRAINAGE.
10. THE 24" U.G. CMP IN QUADRANT 'A' IS TO BE EXTENDED 10' AS SHOWN ABOVE.

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

SCALE: 1" = 20'

PROJECT #10-1364

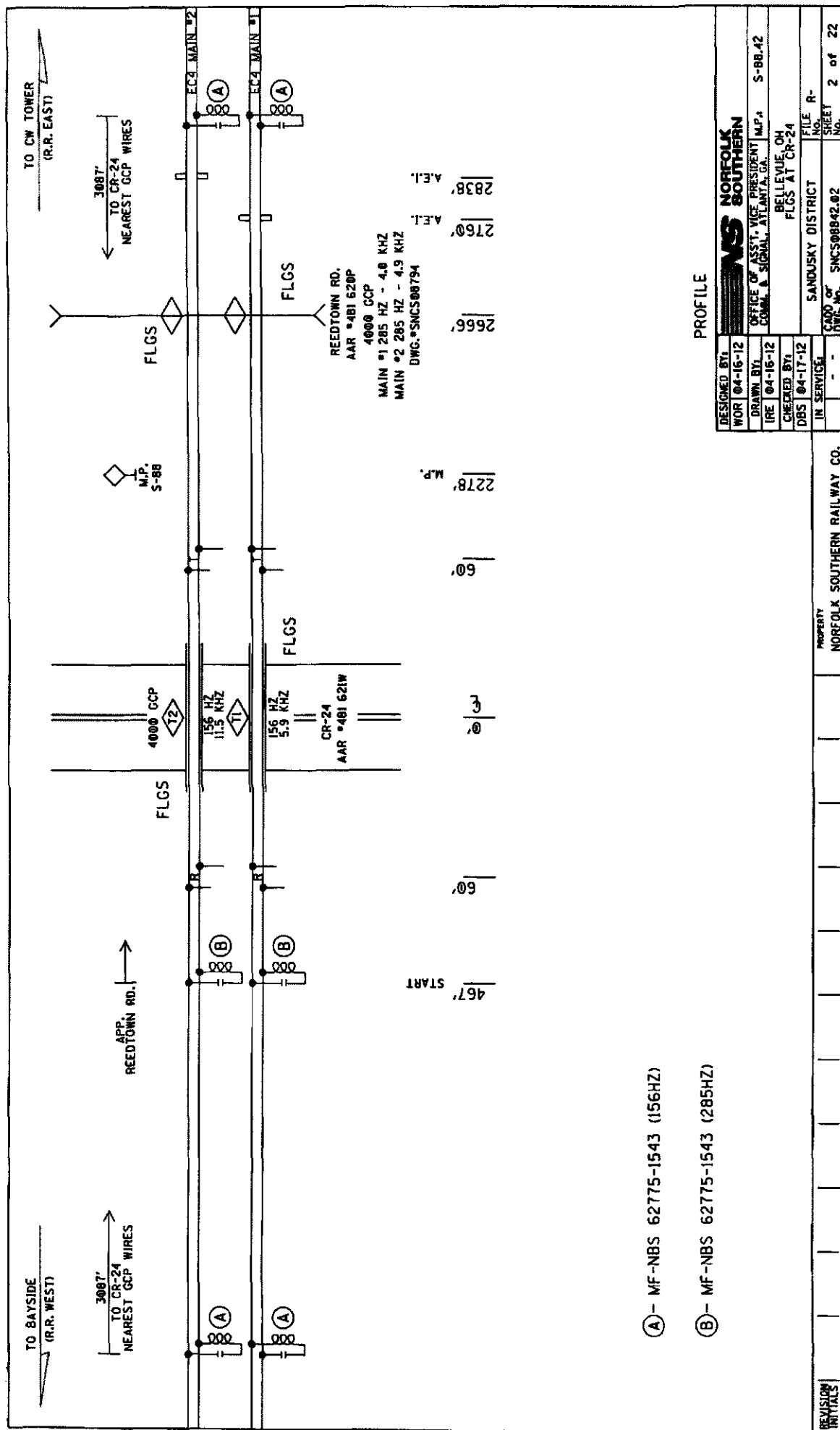
LAYOUT

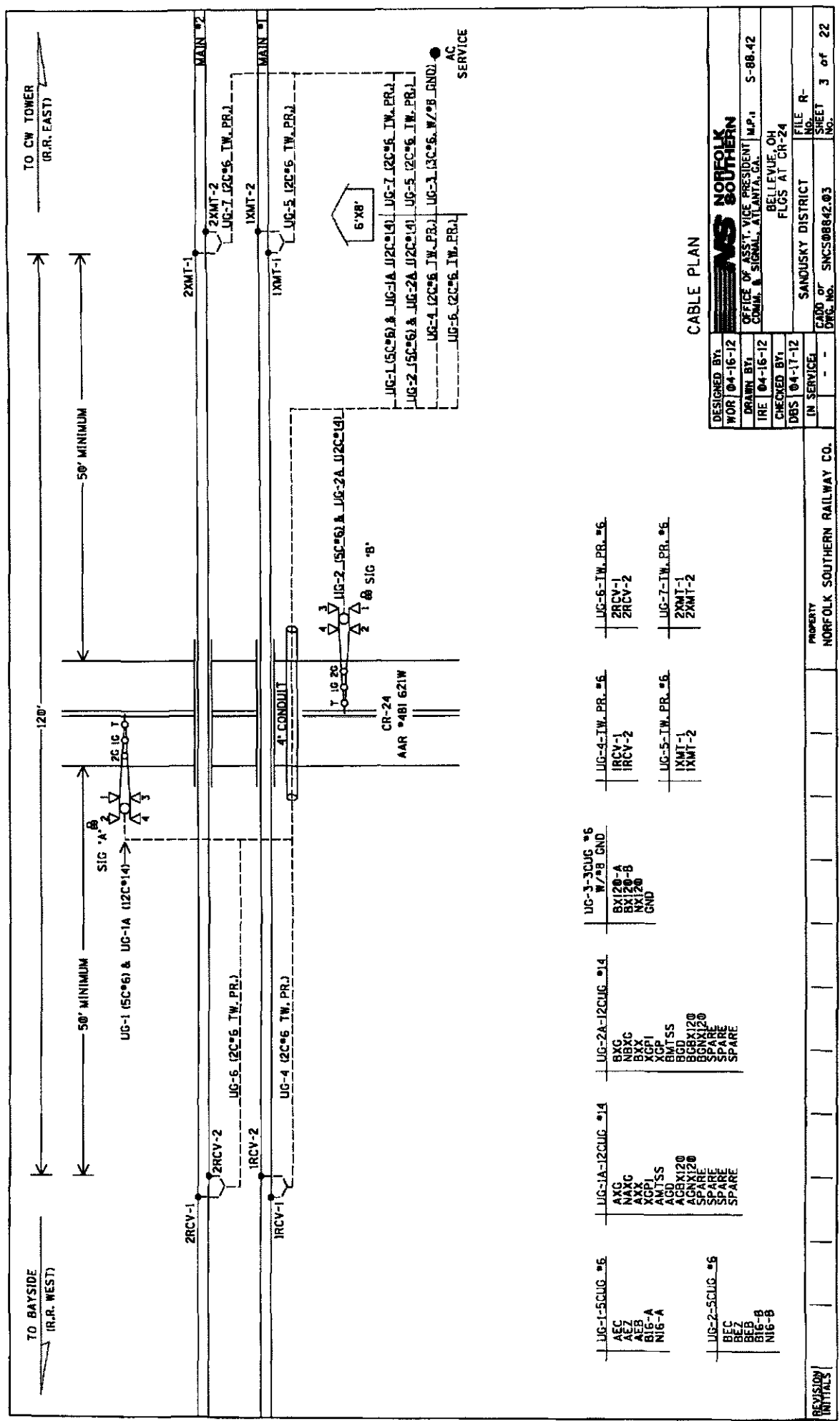
FILE CX0128732



DESIGNED BY:	WOR 04-16-12
DRAWN BY:	IRE 04-16-12
CHECKED BY:	DBS 04-17-12
IN SERVICE:	-
FILE R-:	SANDUSKY DISTRICT
CADD NO.:	SNCS08842.01
SHEET	1 of 22

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.



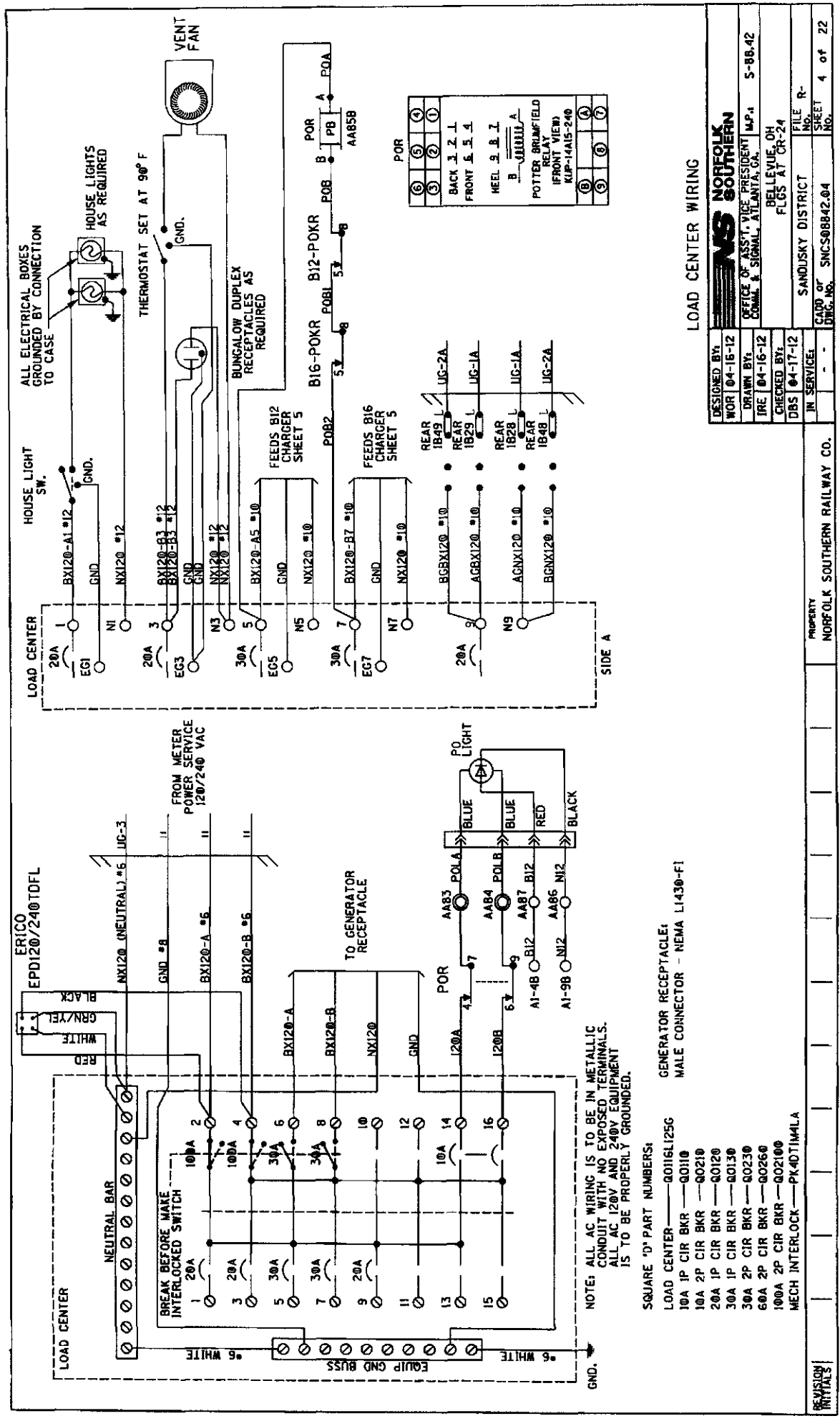


CABLE PLAN

DESIGNED BY:	WDR 04-16-12
DRAWN BY:	IRE 04-16-12
CHECKED BY:	DGS 04-17-12
IN SERVICE:	
FILE NO.:	
FILE R.:	
NO.:	
SHEET:	3 of 22

PROPERTY	NORFOLK SOUTHERN RAILWAY CO.
NO.:	
FILE R.:	
NO.:	
SHEET:	3 of 22

REVISION/INITIALS	
-------------------	--



LEGEND

⑥	⑤	④	③	②	①
BACK 3, 2, 1					
FRONT 5, 4					
HEEL 3, 2, 1					
B - JUNCTION					
POTTER BRIMFIELD RELAY					
IF FRONT VIEW					
KIP-14A15-240					
⑥	⑤	④	③	②	①

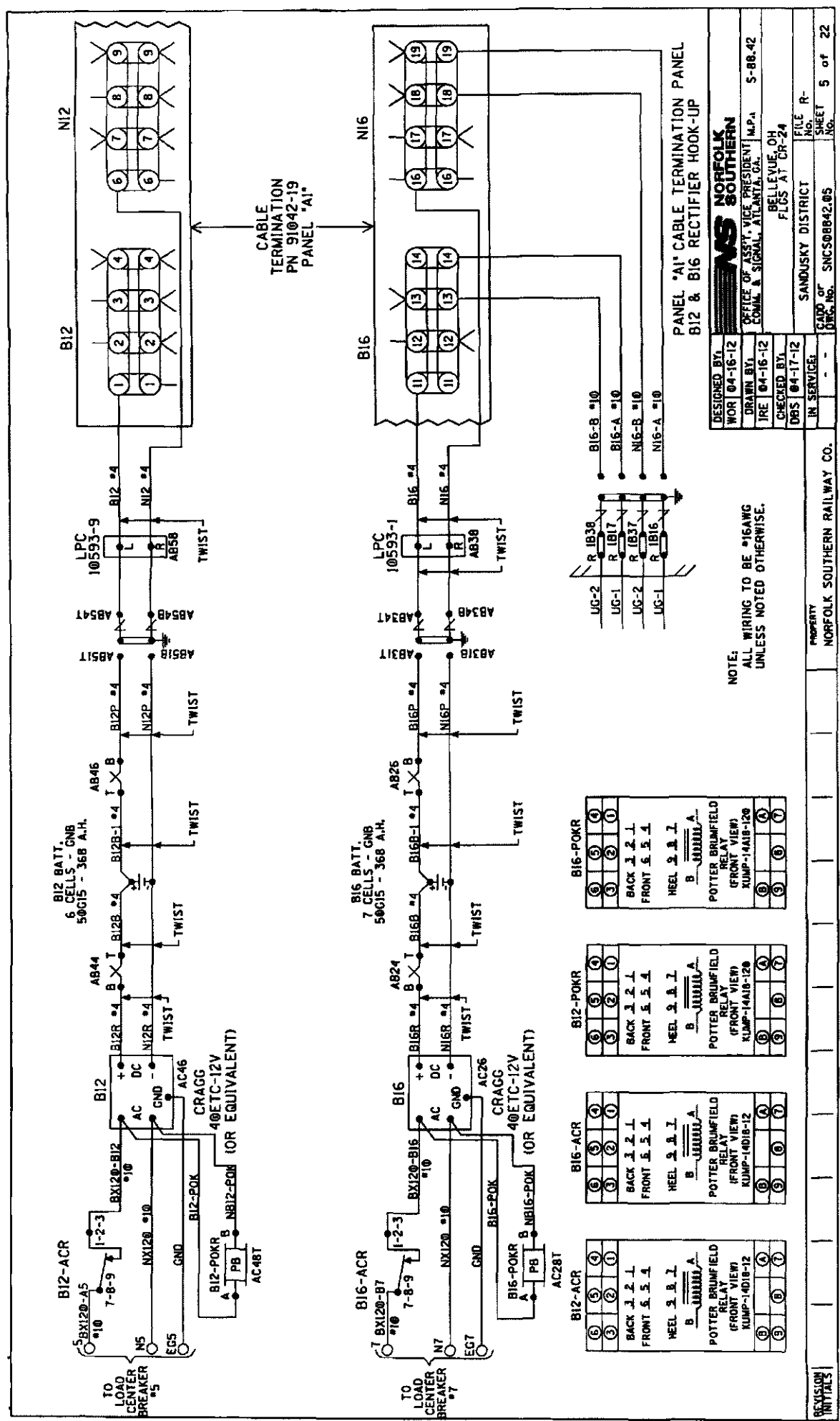
LOAD CENTER WIRING

DESIGNED BY	WOR	04-16-12		OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. S-88.42
DRAWN BY	IRE	04-16-12		
CHECKED BY	DBS	04-17-12		
IN SERVICE				
PROPERTY			NORFOLK SOUTHERN RAILWAY CO.	
REVISION			INITIALS	
SHEET			4 of 22	

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

- SQUARE "D" PART NUMBERS:
- LOAD CENTER — Q0116L125G
 - 10A 1P CIR BKR — Q0110
 - 10A 2P CIR BKR — Q0210
 - 20A 1P CIR BKR — Q0120
 - 30A 1P CIR BKR — Q0130
 - 30A 2P CIR BKR — Q0230
 - 60A 2P CIR BKR — Q0260
 - 100A 2P CIR BKR — Q02100
 - MECH INTERLOCK — PK40T1M4LA

GENERATOR RECEPTACLE:
MALE CONNECTOR — NEMA L1430-F1



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

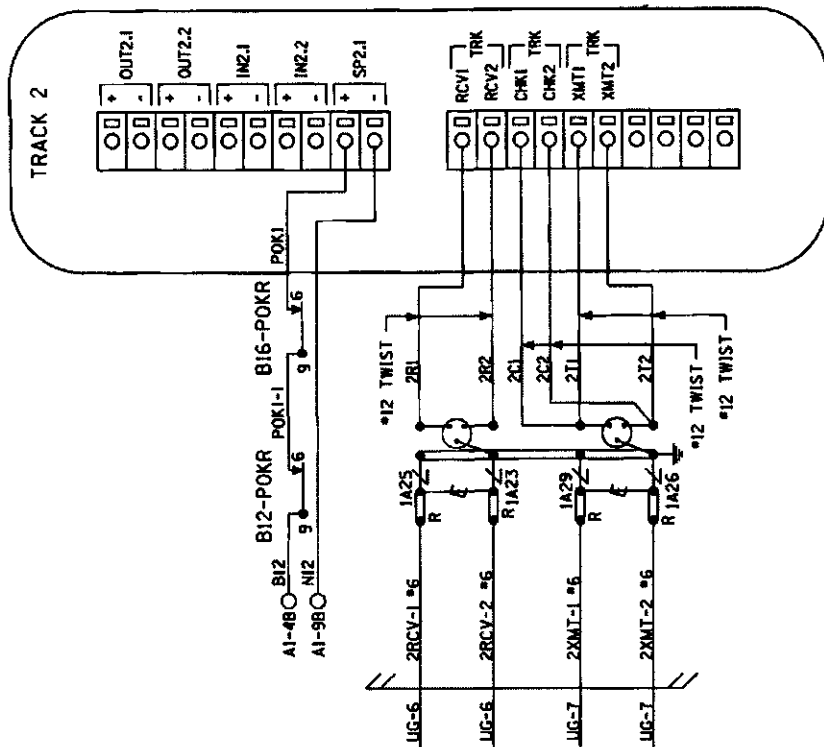
B12-ACR 5 BX120-A5 7-8-9 1-2-3 10 NS EG5 TO LOAD CENTER BREAKER #5	B12-PKR 5 BX120-B12 10 DC AC GND AC46 CRAGG 40ETC-12V 40ETC-12V (OR EQUIVALENT)	B12-BATT 6 CELLS - GNB 50C15 - 368 A.H. B12B-1 4 B12B-2 4 B12B-3 4 B12B-4 4 B12B-5 4 B12B-6 4 B12B-7 4 B12B-8 4 B12B-9 4 B12B-10 4 B12B-11 4 B12B-12 4 B12B-13 4 B12B-14 4 B12B-15 4 B12B-16 4 B12B-17 4 B12B-18 4 B12B-19 4 B12B-20 4 B12B-21 4 B12B-22 4 B12B-23 4 B12B-24 4 B12B-25 4 B12B-26 4 B12B-27 4 B12B-28 4 B12B-29 4 B12B-30 4 B12B-31 4 B12B-32 4 B12B-33 4 B12B-34 4 B12B-35 4 B12B-36 4 B12B-37 4 B12B-38 4 B12B-39 4 B12B-40 4 B12B-41 4 B12B-42 4 B12B-43 4 B12B-44 4 B12B-45 4 B12B-46 4 B12B-47 4 B12B-48 4 B12B-49 4 B12B-50 4 B12B-51 4 B12B-52 4 B12B-53 4 B12B-54 4 B12B-55 4 B12B-56 4 B12B-57 4 B12B-58 4 B12B-59 4 B12B-60 4 B12B-61 4 B12B-62 4 B12B-63 4 B12B-64 4 B12B-65 4 B12B-66 4 B12B-67 4 B12B-68 4 B12B-69 4 B12B-70 4 B12B-71 4 B12B-72 4 B12B-73 4 B12B-74 4 B12B-75 4 B12B-76 4 B12B-77 4 B12B-78 4 B12B-79 4 B12B-80 4 B12B-81 4 B12B-82 4 B12B-83 4 B12B-84 4 B12B-85 4 B12B-86 4 B12B-87 4 B12B-88 4 B12B-89 4 B12B-90 4 B12B-91 4 B12B-92 4 B12B-93 4 B12B-94 4 B12B-95 4 B12B-96 4 B12B-97 4 B12B-98 4 B12B-99 4 B12B-100 4 B12B-101 4 B12B-102 4 B12B-103 4 B12B-104 4 B12B-105 4 B12B-106 4 B12B-107 4 B12B-108 4 B12B-109 4 B12B-110 4 B12B-111 4 B12B-112 4 B12B-113 4 B12B-114 4 B12B-115 4 B12B-116 4 B12B-117 4 B12B-118 4 B12B-119 4 B12B-120 4 B12B-121 4 B12B-122 4 B12B-123 4 B12B-124 4 B12B-125 4 B12B-126 4 B12B-127 4 B12B-128 4 B12B-129 4 B12B-130 4 B12B-131 4 B12B-132 4 B12B-133 4 B12B-134 4 B12B-135 4 B12B-136 4 B12B-137 4 B12B-138 4 B12B-139 4 B12B-140 4 B12B-141 4 B12B-142 4 B12B-143 4 B12B-144 4 B12B-145 4 B12B-146 4 B12B-147 4 B12B-148 4 B12B-149 4 B12B-150 4 B12B-151 4 B12B-152 4 B12B-153 4 B12B-154 4 B12B-155 4 B12B-156 4 B12B-157 4 B12B-158 4 B12B-159 4 B12B-160 4 B12B-161 4 B12B-162 4 B12B-163 4 B12B-164 4 B12B-165 4 B12B-166 4 B12B-167 4 B12B-168 4 B12B-169 4 B12B-170 4 B12B-171 4 B12B-172 4 B12B-173 4 B12B-174 4 B12B-175 4 B12B-176 4 B12B-177 4 B12B-178 4 B12B-179 4 B12B-180 4 B12B-181 4 B12B-182 4 B12B-183 4 B12B-184 4 B12B-185 4 B12B-186 4 B12B-187 4 B12B-188 4 B12B-189 4 B12B-190 4 B12B-191 4 B12B-192 4 B12B-193 4 B12B-194 4 B12B-195 4 B12B-196 4 B12B-197 4 B12B-198 4 B12B-199 4 B12B-200 4 B12B-201 4 B12B-202 4 B12B-203 4 B12B-204 4 B12B-205 4 B12B-206 4 B12B-207 4 B12B-208 4 B12B-209 4 B12B-210 4 B12B-211 4 B12B-212 4 B12B-213 4 B12B-214 4 B12B-215 4 B12B-216 4 B12B-217 4 B12B-218 4 B12B-219 4 B12B-220 4 B12B-221 4 B12B-222 4 B12B-223 4 B12B-224 4 B12B-225 4 B12B-226 4 B12B-227 4 B12B-228 4 B12B-229 4 B12B-230 4 B12B-231 4 B12B-232 4 B12B-233 4 B12B-234 4 B12B-235 4 B12B-236 4 B12B-237 4 B12B-238 4 B12B-239 4 B12B-240 4 B12B-241 4 B12B-242 4 B12B-243 4 B12B-244 4 B12B-245 4 B12B-246 4 B12B-247 4 B12B-248 4 B12B-249 4 B12B-250 4 B12B-251 4 B12B-252 4 B12B-253 4 B12B-254 4 B12B-255 4 B12B-256 4 B12B-257 4 B12B-258 4 B12B-259 4 B12B-260 4 B12B-261 4 B12B-262 4 B12B-263 4 B12B-264 4 B12B-265 4 B12B-266 4 B12B-267 4 B12B-268 4 B12B-269 4 B12B-270 4 B12B-271 4 B12B-272 4 B12B-273 4 B12B-274 4 B12B-275 4 B12B-276 4 B12B-277 4 B12B-278 4 B12B-279 4 B12B-280 4 B12B-281 4 B12B-282 4 B12B-283 4 B12B-284 4 B12B-285 4 B12B-286 4 B12B-287 4 B12B-288 4 B12B-289 4 B12B-290 4 B12B-291 4 B12B-292 4 B12B-293 4 B12B-294 4 B12B-295 4 B12B-296 4 B12B-297 4 B12B-298 4 B12B-299 4 B12B-300 4 B12B-301 4 B12B-302 4 B12B-303 4 B12B-304 4 B12B-305 4 B12B-306 4 B12B-307 4 B12B-308 4 B12B-309 4 B12B-310 4 B12B-311 4 B12B-312 4 B12B-313 4 B12B-314 4 B12B-315 4 B12B-316 4 B12B-317 4 B12B-318 4 B12B-319 4 B12B-320 4 B12B-321 4 B12B-322 4 B12B-323 4 B12B-324 4 B12B-325 4 B12B-326 4 B12B-327 4 B12B-328 4 B12B-329 4 B12B-330 4 B12B-331 4 B12B-332 4 B12B-333 4 B12B-334 4 B12B-335 4 B12B-336 4 B12B-337 4 B12B-338 4 B12B-339 4 B12B-340 4 B12B-341 4 B12B-342 4 B12B-343 4 B12B-344 4 B12B-345 4 B12B-346 4 B12B-347 4 B12B-348 4 B12B-349 4 B12B-350 4 B12B-351 4 B12B-352 4 B12B-353 4 B12B-354 4 B12B-355 4 B12B-356 4 B12B-357 4 B12B-358 4 B12B-359 4 B12B-360 4 B12B-361 4 B12B-362 4 B12B-363 4 B12B-364 4 B12B-365 4 B12B-366 4 B12B-367 4 B12B-368 4 B12B-369 4 B12B-370 4 B12B-371 4 B12B-372 4 B12B-373 4 B12B-374 4 B12B-375 4 B12B-376 4 B12B-377 4 B12B-378 4 B12B-379 4 B12B-380 4 B12B-381 4 B12B-382 4 B12B-383 4 B12B-384 4 B12B-385 4 B12B-386 4 B12B-387 4 B12B-388 4 B12B-389 4 B12B-390 4 B12B-391 4 B12B-392 4 B12B-393 4 B12B-394 4 B12B-395 4 B12B-396 4 B12B-397 4 B12B-398 4 B12B-399 4 B12B-400 4 B12B-401 4 B12B-402 4 B12B-403 4 B12B-404 4 B12B-405 4 B12B-406 4 B12B-407 4 B12B-408 4 B12B-409 4 B12B-410 4 B12B-411 4 B12B-412 4 B12B-413 4 B12B-414 4 B12B-415 4 B12B-416 4 B12B-417 4 B12B-418 4 B12B-419 4 B12B-420 4 B12B-421 4 B12B-422 4 B12B-423 4 B12B-424 4 B12B-425 4 B12B-426 4 B12B-427 4 B12B-428 4 B12B-429 4 B12B-430 4 B12B-431 4 B12B-432 4 B12B-433 4 B12B-434 4 B12B-435 4 B12B-436 4 B12B-437 4 B12B-438 4 B12B-439 4 B12B-440 4 B12B-441 4 B12B-442 4 B12B-443 4 B12B-444 4 B12B-445 4 B12B-446 4 B12B-447 4 B12B-448 4 B12B-449 4 B12B-450 4 B12B-451 4 B12B-452 4 B12B-453 4 B12B-454 4 B12B-455 4 B12B-456 4 B12B-457 4 B12B-458 4 B12B-459 4 B12B-460 4 B12B-461 4 B12B-462 4 B12B-463 4 B12B-464 4 B12B-465 4 B12B-466 4 B12B-467 4 B12B-468 4 B12B-469 4 B12B-470 4 B12B-471 4 B12B-472 4 B12B-473 4 B12B-474 4 B12B-475 4 B12B-476 4 B12B-477 4 B12B-478 4 B12B-479 4 B12B-480 4 B12B-481 4 B12B-482 4 B12B-483 4 B12B-484 4 B12B-485 4 B12B-486 4 B12B-487 4 B12B-488 4 B12B-489 4 B12B-490 4 B12B-491 4 B12B-492 4 B12B-493 4 B12B-494 4 B12B-495 4 B12B-496 4 B12B-497 4 B12B-498 4 B12B-499 4 B12B-500 4 B12B-501 4 B12B-502 4 B12B-503 4 B12B-504 4 B12B-505 4 B12B-506 4 B12B-507 4 B12B-508 4 B12B-509 4 B12B-510 4 B12B-511 4 B12B-512 4 B12B-513 4 B12B-514 4 B12B-515 4 B12B-516 4 B12B-517 4 B12B-518 4 B12B-519 4 B12B-520 4 B12B-521 4 B12B-522 4 B12B-523 4 B12B-524 4 B12B-525 4 B12B-526 4 B12B-527 4 B12B-528 4 B12B-529 4 B12B-530 4 B12B-531 4 B12B-532 4 B12B-533 4 B12B-534 4 B12B-535 4 B12B-536 4 B12B-537 4 B12B-538 4 B12B-539 4 B12B-540 4 B12B-541 4 B12B-542 4 B12B-543 4 B12B-544 4 B12B-545 4 B12B-546 4 B12B-547 4 B12B-548 4 B12B-549 4 B12B-550 4 B12B-551 4 B12B-552 4 B12B-553 4 B12B-554 4 B12B-555 4 B12B-556 4 B12B-557 4 B12B-558 4 B12B-559 4 B12B-560 4 B12B-561 4 B12B-562 4 B12B-563 4 B12B-564 4 B12B-565 4 B12B-566 4 B12B-567 4 B12B-568 4 B12B-569 4 B12B-570 4 B12B-571 4 B12B-572 4 B12B-573 4 B12B-574 4 B12B-575 4 B12B-576 4 B12B-577 4 B12B-578 4 B12B-579 4 B12B-580 4 B12B-581 4 B12B-582 4 B12B-583 4 B12B-584 4 B12B-585 4 B12B-586 4 B12B-587 4 B12B-588 4 B12B-589 4 B12B-590 4 B12B-591 4 B12B-592 4 B12B-593 4 B12B-594 4 B12B-595 4 B12B-596 4 B12B-597 4 B12B-598 4 B12B-599 4 B12B-600 4 B12B-601 4 B12B-602 4 B12B-603 4 B12B-604 4 B12B-605 4 B12B-606 4 B12B-607 4 B12B-608 4 B12B-609 4 B12B-610 4 B12B-611 4 B12B-612 4 B12B-613 4 B12B-614 4 B12B-615 4 B12B-616 4 B12B-617 4 B12B-618 4 B12B-619 4 B12B-620 4 B12B-621 4 B12B-622 4 B12B-623 4 B12B-624 4 B12B-625 4 B12B-626 4 B12B-627 4 B12B-628 4 B12B-629 4 B12B-630 4 B12B-631 4 B12B-632 4 B12B-633 4 B12B-634 4 B12B-635 4 B12B-636 4 B12B-637 4 B12B-638 4 B12B-639 4 B12B-640 4 B12B-641 4 B12B-642 4 B12B-643 4 B12B-644 4 B12B-645 4 B12B-646 4 B12B-647 4 B12B-648 4 B12B-649 4 B
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[illegible]

DESIGNED BY:	NBS NORFOLK SOUTHERN		
WOR 04-16-12			
DRAWN BY:	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		
PRE 04-16-12	M.P.1 S-88.42		
CHECKED BY:	BELLVIEW, OH		
DBS 04-17-12	FLGS AT CR-24		
IN SERVICE:	SANDUSKY DISTRICT	FILE NO.	R-
-	GAID OF	SHEET	8 of 22
-	SNC508842.08	NO.	

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.



PANEL "A2" CONNECTORS FOR MODULES (AB0418)

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

NOTE: ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE.	REVISION REVISIONS	PROPERTY NORFOLK SOUTHERN RAILWAY CO.	DESIGNED BY:	WDR 04-16-12
			DRAWN BY:	IRE 04-16-12
			CHECKED BY:	DBS 04-17-12
			IN SERVICE FILE R-	
			T-100 or CAR NO. SMC508842.09 SHEET NO. 9 of 22	
 NORFOLK SOUTHERN OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. BELLEVUE, OH FLOCS AT CR-24				

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

SITE SET UP PROCEDURE	
FUNCTION	LED DISPLAY
DATE/TIME	
AUTOMATIC DST ADJUSTMENT	YES
TIME ZONE	EST
SITE NAME	CR-24
MILEPOST	S-88.42
DOT *	481 621W
TESTER TYPE	CROSSING
DATE FORMAT	MM-DD-YYYY
TEMP FORMAT	FAHRENHEIT
INDICATE HOLD (SEC)	0
INDICATE REFRESH (SEC)	60
SITE ATCS	7.550.237.012.03.01
SITE TYPE	NO COMMUNICATION
OFFICE ATCS ADDRESS	2.550.00.0000
PRIMARY HOP ADDR	7.RRR.LLL.GGG.XX.XX
BACKUP HOP ADDR 1	7.RRR.LLL.GGG.XX.XX
BACKUP HOP ADDR 2	7.RRR.LLL.GGG.XX.XX
POLL ID	1
MODE	GEN/ATCS
WAMS XID	DISABLED
OFFICE COMM DEVICE	MCM (EHELON)
RADIO ATCS ADDR	7.RRR.LLL.GGG.01.01
PHONE *	(OFFICE NUMBER)
INIT STRING	
FIELD COMM	NONE
USER PORT	BAUD 57600, N, 8, 1, NONE
AUX PORT	BAUD 9600, N, 8, 1, NONE

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

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

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS

THE QUESTION	SELECT FROM MENU OPTION
RESET NAMES AND MODULES?	YES
RAILROAD NUMBER	550
CROSSING CONFIGURATION	NORMAL
AND 1 USED AS XR?	YES
AND 2 USED AS XR?	NO
AND 3 USED AS XR?	NO
AND 4 USED AS XR?	NO
AND 5 USED AS XR?	NO
AND 6 USED AS XR?	NO
AND 7 USED AS XR?	NO
AND 8 USED AS XR?	NO
XR CONTROLLED BY FOREIGN RR	
ENTRANCE GATES	2
GATES CONTROLLED BY FOREIGN RR	
GATE POSITION FAIL TIME (SECONDS)	20
BATTERY BANKS	2
BATTERY MON USED	YES
INTERNAL CROSSING CONTROLLERS	2
EXTERNAL CROSSING CONTROLLERS	0
VHF COMMUNICATOR	YES
DTMF ACTIVATION	YES
ACTIVATION CODE	621
ACTIVATION TIMEOUT (SECONDS)	60
ILOD MODULES	2
ANY LED BULBS USED	NO
AUTO INSPECTIONS	NO
BELL SENSORS	2
BELL SENSOR TSS1	YES
BELL SENSOR TSS2	YES
BELL SENSOR TSS3	NO
BELL SENSOR TSS4	NO
BELL SENSOR TSS5	NO
BELL SENSOR TSS6	NO
BELL SENSOR TSS7	NO
BELL SENSOR TSS8	NO

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS (CONT.)

BELL ON	GATES LOWERING
GFT'S	YES
BATTERIES ON GFTI	2
GATE TIP SENSORS	YES
RTU	NO
VHF VOICE CHANNEL	2
VHF DATA CHANNEL	2
USE CELL MODEM	
NON-CRITICAL FEATURE	NO
FULL APPROACH MOVES ALARM	ACTIVATE

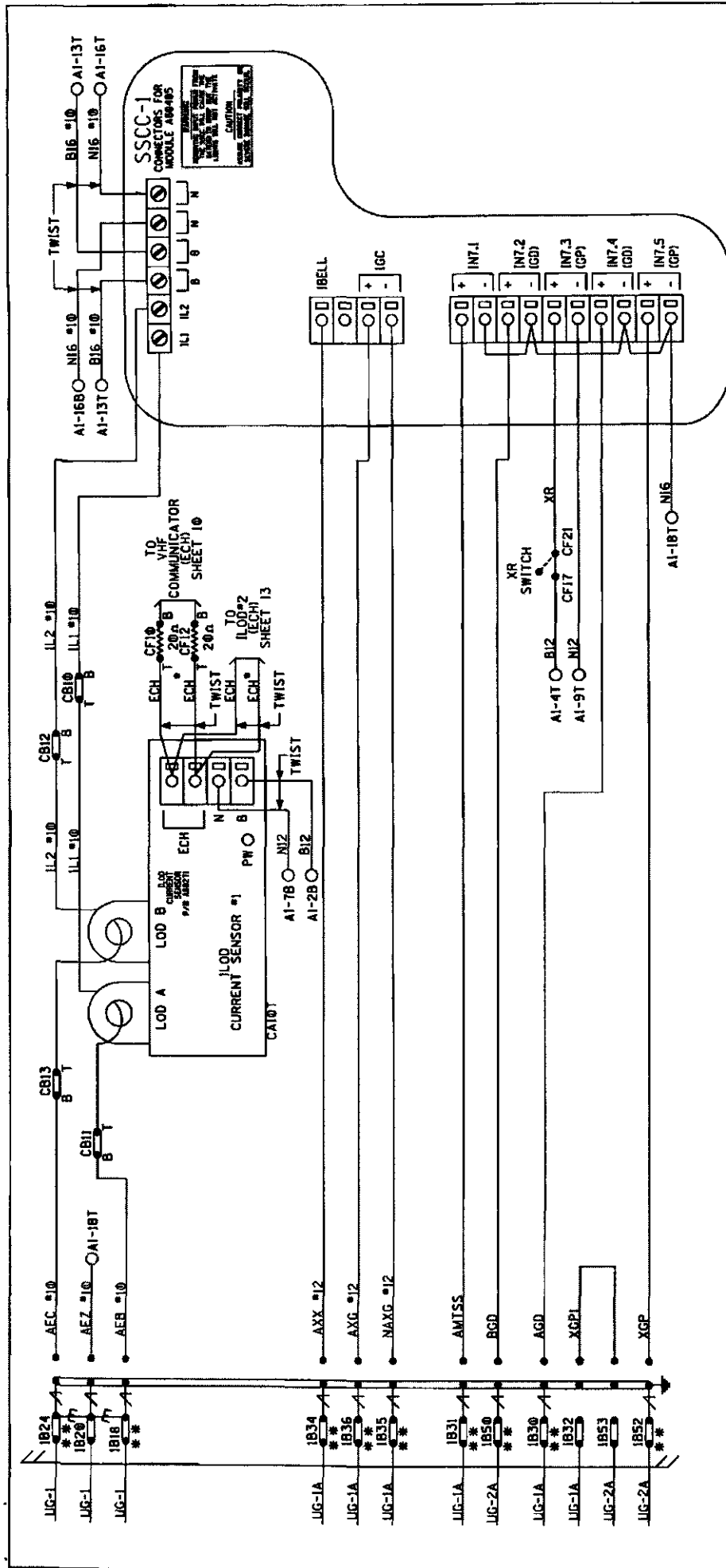
PROGRAM	MENU QUESTIONS	PROGRAM
EDIT DIGITAL INPUTS		NO
EDIT BATTERIES		NO
EDIT RELAYS		NO
EDIT INDICATOR LEDS		NO
EDIT TEST LEDS		NO
EDIT ILLOD SENSORS		NO
EDIT VHF SETTINGS		NO
CPM ATCS SUBMODE		16

NOTES:

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

SEAR III PROGRAMMING SETUP

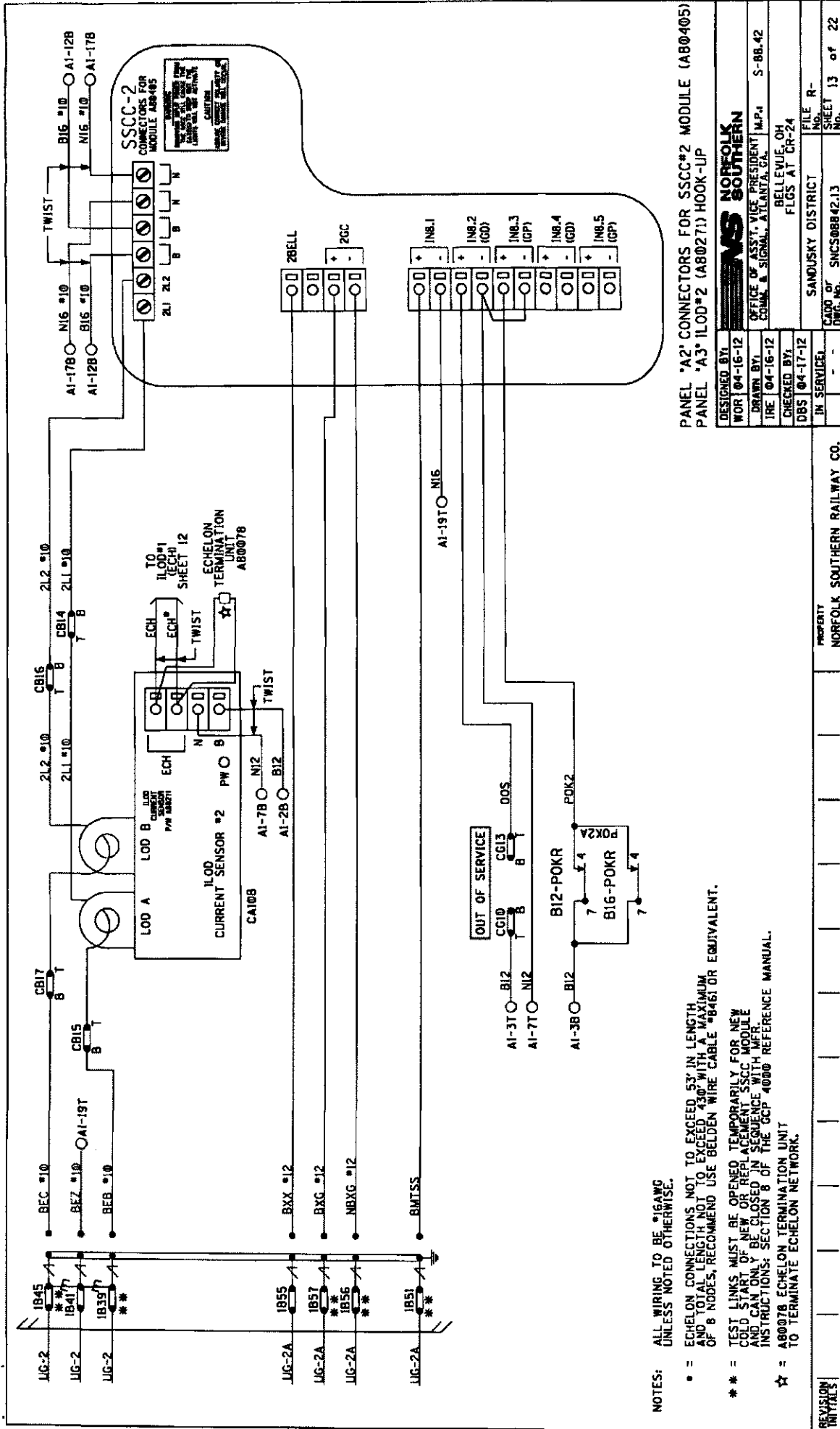
DESIGNED BY: WOR 04-16-12	NORFOLK SOUTHERN
DRAWN BY: DBS 04-16-12	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY: DBS 04-17-12	BELEVUE, OH FLGS AT CR-24
IN SERVICE: - - -	SANDUSKY DISTRICT
FILE NO. - - -	FILE R- - -
SHEET NO. 11	SHEET 11
OF 22	OF 22



PANEL 'A2' CONNECTORS FOR SSC#1 MODULE (A80405)
ILOD#1 (A80271) HOOK-UP

DESIGNED BY:	WOR 04-16-12	NORFOLK SOUTHERN
DRAWN BY:	IRE 04-16-12	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	DBS 04-17-12	BELLEVUE, OH FLOS AT CR-24
IN SERVICE:	-	SANDUSKY DISTRICT
PROPERTY:	NORFOLK SOUTHERN RAILWAY CO.	FILE R-
REVISION:	INITIALS	SHEET 12 of 22

- * = 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.
- ** = TEST LINKS MUST BE OPENED TEMPORARILY FOR NEW COLD START OF NEW OR REPLACEMENT SSC#1 MODULE AND CAN ONLY BE CLOSED IN SEQUENCE WITH REFER. INSTRUCTIONS: SECTION 8 OF THE GCP 40000 REFERENCE MANUAL.



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

* = 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.

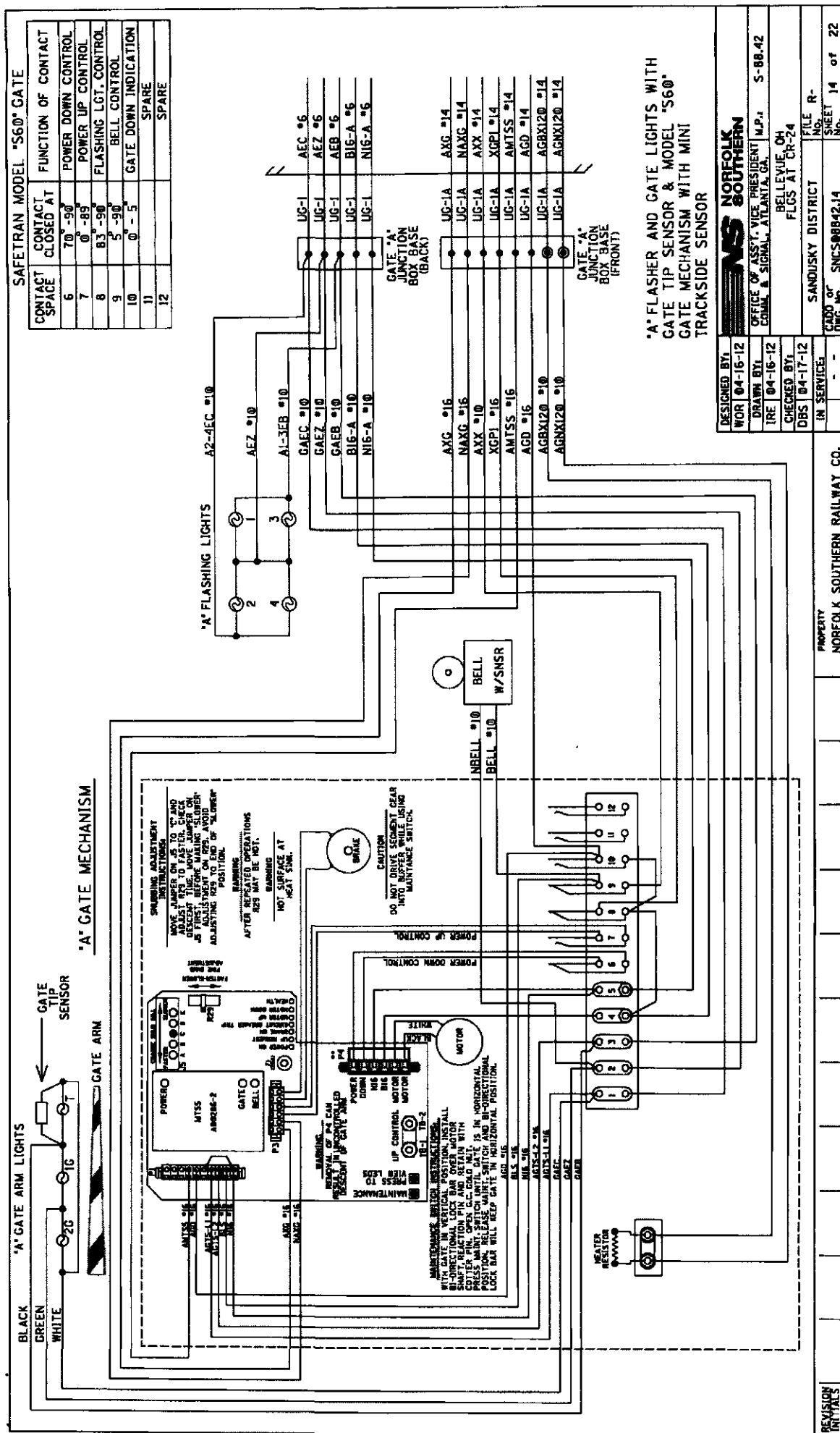
** = TEST LINKS MUST BE OPENED TEMPORARILY FOR NEW COLD START OF NEW OR REPLACEMENT SSCC MODULE AND CAN ONLY BE CLOSED IN SEQUENCE WITH MFR. INSTRUCTIONS: SECTION 8 OF THE GCP 40000 REFERENCE MANUAL.

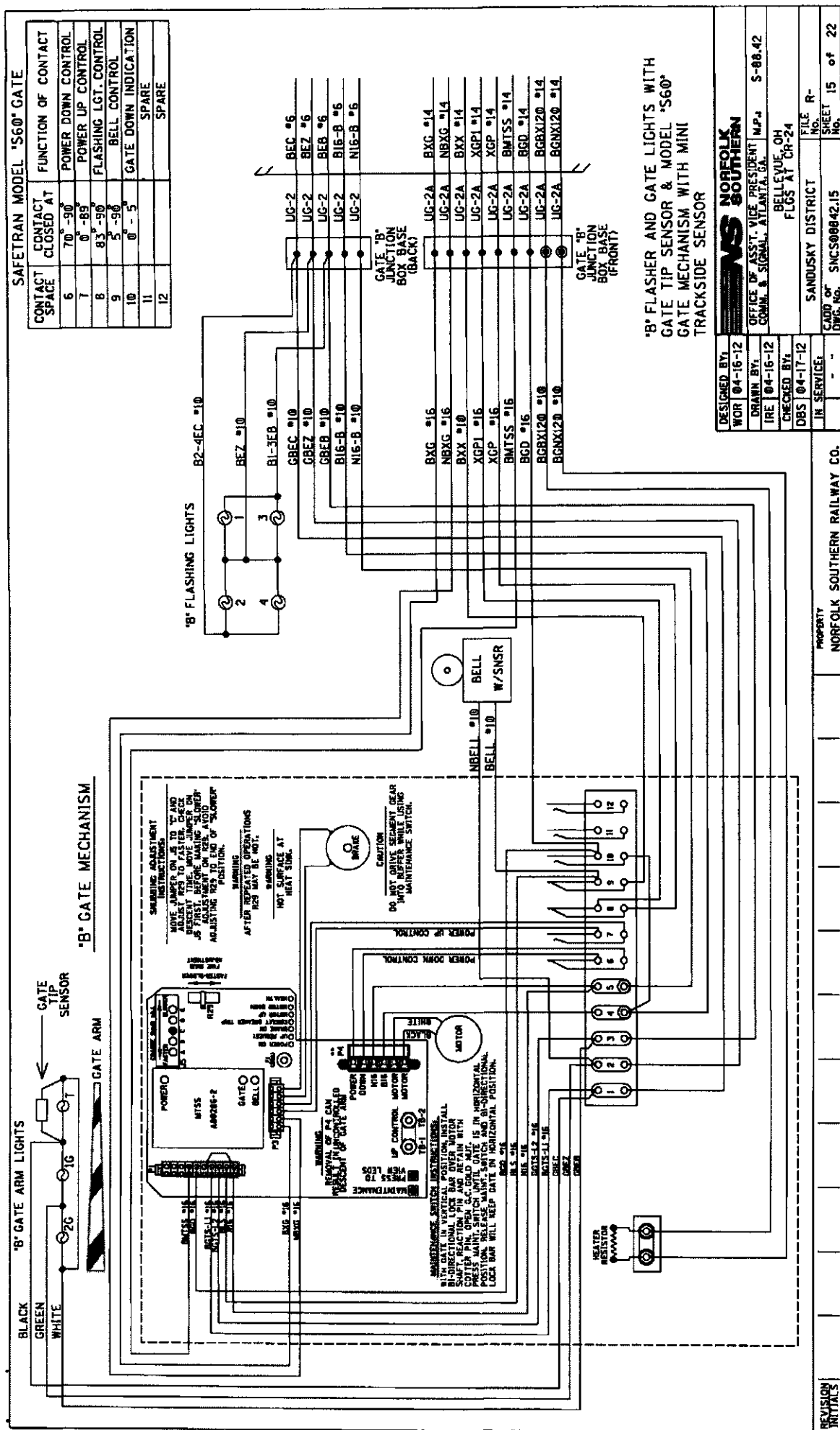
☆ = A80078 ECHOLON TERMINATION UNIT TO TERMINATE ECHOLON NETWORK.

PANEL 'A2' CONNECTORS FOR SSCC#2 MODULE (A80405)
PANEL 'A3' ILOD#2 (A80271) HOOK-UP

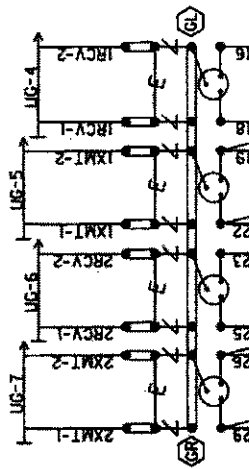
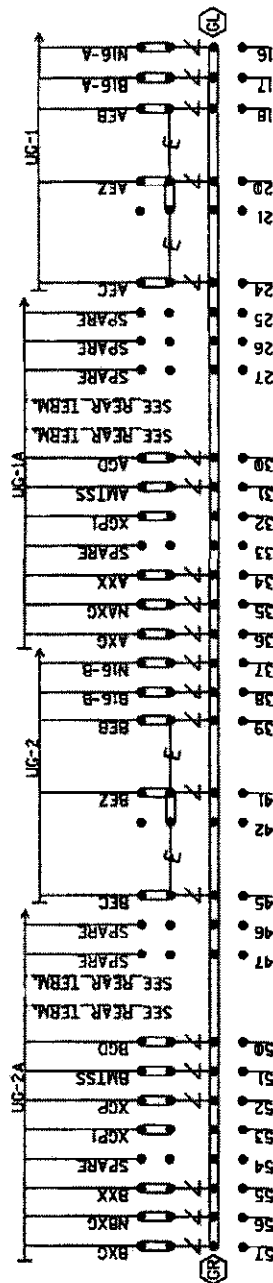
DESIGNED BY	WOR 04-16-12
DRAWN BY	IRE 04-16-12
CHECKED BY	DBS 04-17-12
IN SERVICE	- - -
FILE NO.	SANDUSKY DISTRICT
SHEET	13 of 22
NO.	13
DATE	04-16-12
BY	DBS
FOR	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
PROJECT	NORFOLK SOUTHERN
LOCATION	BELLEVUE, OH
DESCRIPTION	FLGS AT CR-24

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.





"18"



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

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

Clearview
 Z = Lightning Arrester
 (022585-1X)

Q = LPC-10560-51
(00585-1X)

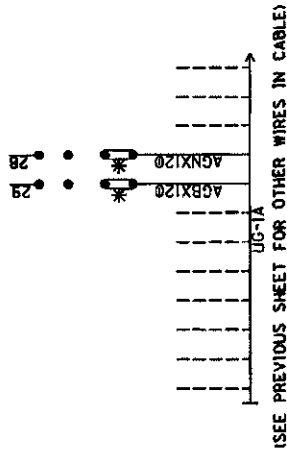
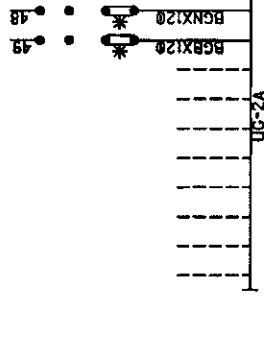
SEE FARADAY SHIELD DETAILS - 1A & 1B
FOR HOW THIS PORTION OF THE FARADAY
SHIELD IS PREDRILLED, ONLY INSTALL AND
USE THE TERMINALS NEEDED.

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

BACKBOARD DETAIL - 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.	DESIGNED BY:	WOR 104-16-12	 NORFOLK SOUTHERN OFFICE OF ASSY. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. BELLEVUE, OH FLCS AT CR-24	
			DRAWN BY:	IRE 104-16-12		
			CHECKED BY:	DBS 104-17-12		
			IN SERVICE:			
			PROPERTY			
REVISION						SANDUSKY DISTRICT FILE R- CARD NO. SMC308842-16 SHEET 16 of 22

REAR VIEW OF LEFT TWO ROWS TERMINAL BOARD 1



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

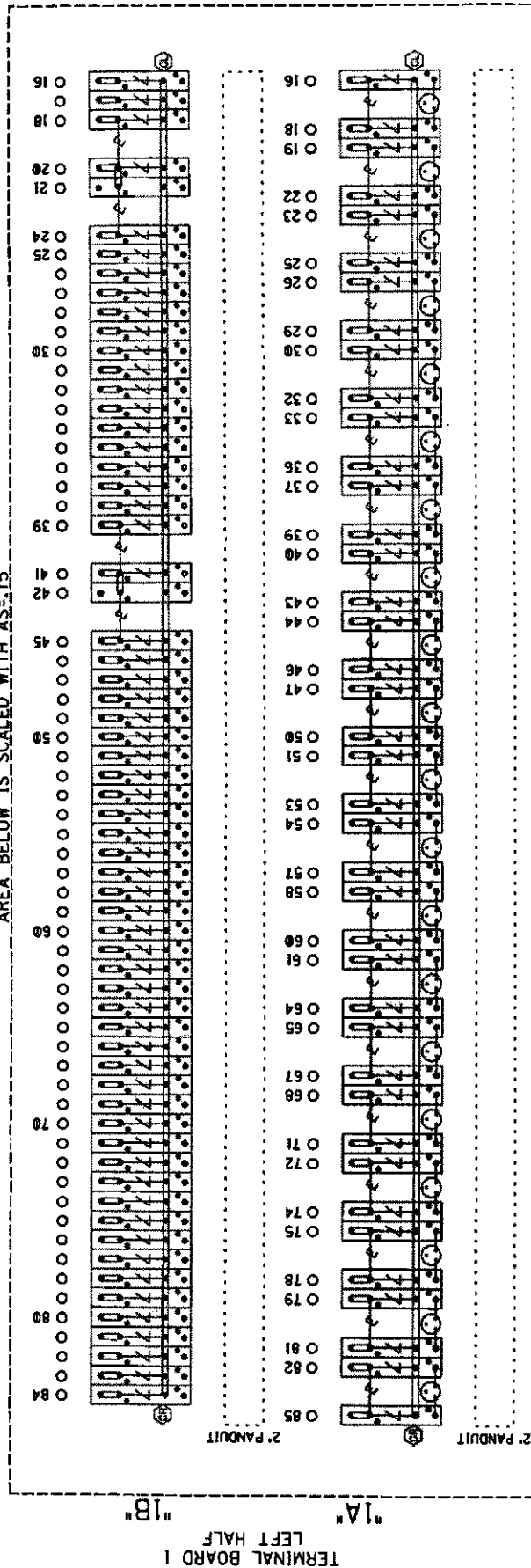
* = CLOSED DURING WINTER MONTHS

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

DESIGNED BY:	WDR 04-16-12	NORFOLK SOUTHERN OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. BELLEVUE, OH FLGS AT CR-24	FILE NO.	SHEET 17 of 22
DRAWN BY:	IRE 04-16-12		NO.	
CHECKED BY:	DBS 04-17-12		NO.	
IN SERVICE:	-		NO.	
PROPERTY		SANDUSKY DISTRICT		
NORFOLK SOUTHERN RAILWAY CO.		CADD OF SACS08842.17		

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



⊖ = Heavy Duty Equalizer
(022700-1X)

⊗ = Clearview
Lighting Arrestor
(022505-1X)

⊙ = LPC-10560-51

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

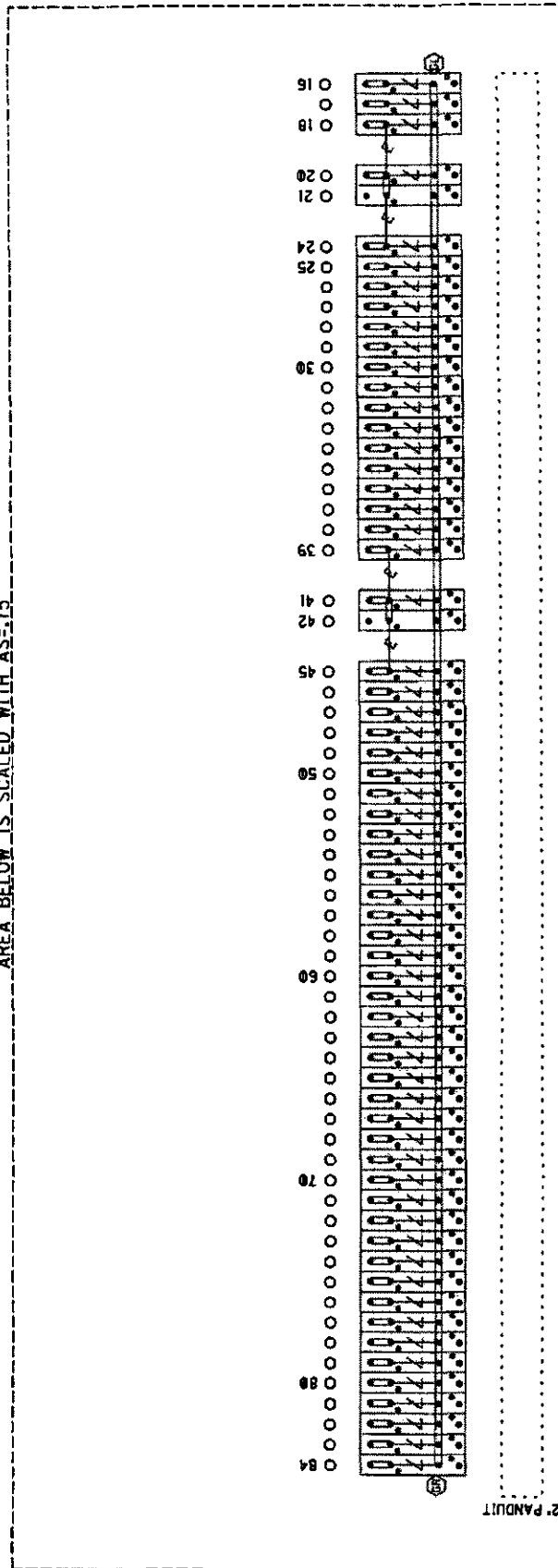
⊖ INDICATES PLACEMENT OF PANDUIT

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

DESIGNED BY:	WOR 04-16-12	NORFOLK SOUTHERN OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. BELLEVUE, OH FLGS AT CR-24
DRAWN BY:	IRE 04-16-12	
CHECKED BY:	DBS 04-17-12	
IN SERVICES:	-	
FILE NO.	SANDUSKY DISTRICT	FILE R-
CADD OR DWG. NO.	SNC508842.18	SHEET 18 of 22

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

AREA BELOW IS SCALED WITH AS=.75



~~E~~ = Heavy Duty Equalizer (D2700-1X)

Clearview
Z = Lightning Arrester
(022585-1X)

Q = LPC-10560-51

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

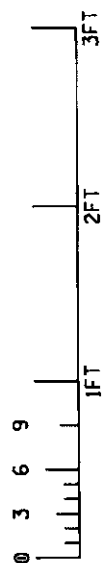
THIS SHEET IS FOR REFERENCE ONLY,
TO REFLECT HOW THE FARADAY SHIELD
IS PREDRILLED. ONLY INSTALL AND USE
THE TERMINALS NEEDED.

= INDICATES PLACEMENT OF PANDUIT

TERMINAL BOARD :
RIGHT ROW
FARADAY SHIELD :

DESIGNED BY:	NS NORFOLK SOUTHERN		
WOR 04-16-12	OFFICE OF ASST. VICE PRESIDENT		
DRAWN BY:	COMM. & SIGNAL, ATLANTA, GA.		
PRE 04-16-12	M.P.A. S-88.42		
CHECKED BY:	BELLEVUE, OH		
DBS 04-17-12	FLGS AT CR-24		
IN SERVICES		FILE R-	
-	CADD or	SANDUSKY DISTRICT	NOE
-	SNC	08842.19	19 of 22

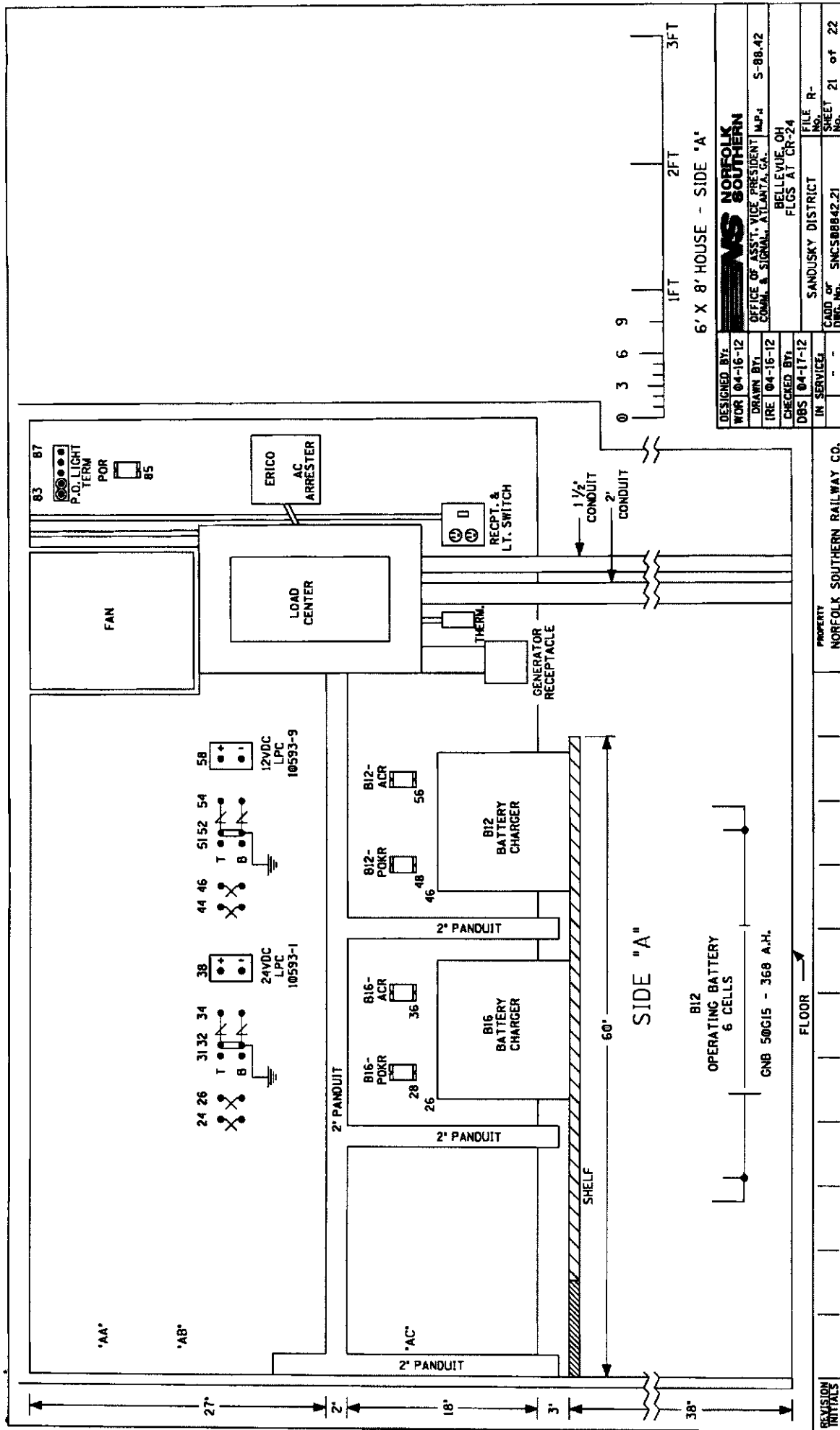
REVISION INITIALS	PROPERTY
	NOTRE DAME SOUTHERN RAILWAY CO.



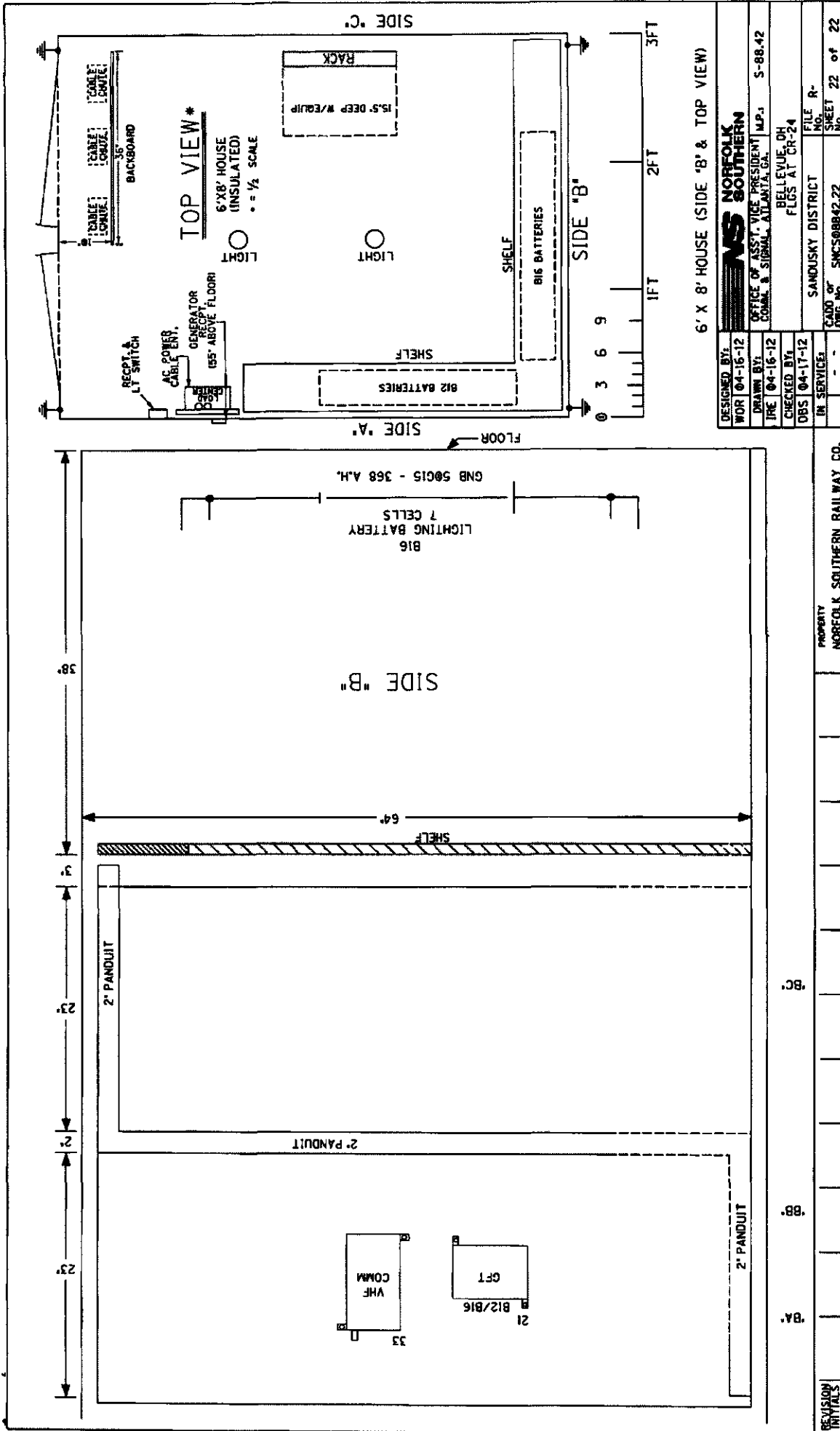
RACK PLACEMENT
6' X 8' HOUSE - SIDE 'C'

DESIGNED BY: WOR	04-16-12	 NORFOLK SOUTHERN OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. BELLEVUE, OH FLGS AT CR-24 SANDUSKY DISTRICT FILE NO. R- DATE OF ORIGIN SNCS080842.20 SHEET NO. 28 of 22
DRAWN BY: IRE	04-16-12	
CHECKED BY: CDBS	04-17-12	
IN SERVICE:		

REVISION INITIALS								PROPERTY
								NORFOLK SOUTHERN RAILWAY CO.



DESIGNED BY:	WDR 04-16-12	NORFOLK SOUTHERN
DRAWN BY:	IRE 04-16-12	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	DBS 04-17-12	FILE NO. R-
IN SERVICE:	- - -	SHEET 21 of 22
PROJECT:	NORFOLK SOUTHERN RAILWAY CO.	
NO.:	SANDUSKY DISTRICT	
DATE:	NOV 21 1988	



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5	RECTIFIER & BATTERY
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7	4000 GCP PROGRAMMING SETUP
8	4000 GCP PROGRAMMING SETUP
9	CONNECTORS FOR TRACK MODULES
10	CPU MODULE, SEAR III, GFT & VHF HOOK-UPS
11	SEAR III PROGRAMMING SETUP
12	SSCC#1 MODULE, ILOD#1 HOOK-UP
13	SSCC#2 MODULE, ILOD#2 HOOK-UP
14	FLASHER AND GATE LIGHTS - A
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20	HOUSE SIDE C LAYOUT
21	HOUSE SIDE A LAYOUT
22	HOUSE SIDE B & TOP VIEW LAYOUT

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

INDEX SHEET 1

DESIGNED BY: WOR 04-16-12	NORFOLK SOUTHERN
DRAWN BY: IRE 04-16-12	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY: DBS 04-17-12	BELLEVUE, OH FLGS AT CR-24
IN SERVICES: - -	SANDUSKY DISTRICT
PROPERTY: NORFOLK SOUTHERN RAILWAY CO.	FILE R- SHEET 1 of 1
REVISION INITIALS	CARD OF FILE NO. SNC508842.NXI