

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

TO: Randall Schumacher, Supervisor, Rail Division, PUCO

FROM: Cathy Stout, Manager, Safety Section, ORDC

BY: Greg Gronbach, Project Manager, Safety Section, ORDC

SUBJECT: Montgomery County – C.J. Corridor; PID # 101711
Findlay St, DOT # 527819M

DATE: June 12, 2017

The Public Utilities Commission of Ohio (PUCO) established a diagnostic survey at the subject location on May 3, 2011. The Ohio Rail Development Commission (ORDC) attended the review. The Diagnostic Team recommended the improvement of warning devices to flashing lights and roadway gates. Copies of the diagnostic review form and the plan and estimate are 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 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: Jill Henry, PUCO
Cathy Stout, ORDC
Susan Arduni, ORDC
ORDC Project Manager (file)



OHIO RAIL DEVELOPMENT COMMISSION

Mail Stop #3140, 1980 West Broad Street, Columbus OH 43223

John R. Kasich, Governor • Mark Policinski, ORDC Chairman

June 12, 2017

Mr. Stephen Klinger
Public Projects Engineer
Norfolk Southern Railway Company
1200 Peachtree Street
Atlanta, GA 30309-3597

RE: Grade Crossing Warning Device Improvements
Montgomery County – C.J. Corridor; PID # 101711
Findlay St, DOT # 527819M

Dear Mr. Klinger:

The plan and estimate dated May 5, 2017, for the referenced project has been reviewed and is acceptable. Norfolk Southern Railway Company may proceed with the construction of the proposed grade crossing warning system in accordance with the abbreviated plan. This authorization is made with the stipulation and understanding that the 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. Reimbursement of eligible actual cost is limited to \$392,179.00. Additional costs must be approved in writing by the Ohio Rail Development Commission (ORDC) prior to being incurred. Emergency verbal authorizations by ORDC may be permitted and will be confirmed by ORDC in writing within ten (10) business days of the verbal approval.

This authorization is contingent upon Norfolk Southern Railway Company accepting the following instructions:

1. Norfolk Southern Railway Company's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to Greg Gronbach, ORDC, email Greg.Gronbach@dot.ohio.gov, and to the Public Utilities Commission of Ohio at Jill.Henry@puc.state.oh.us. Norfolk Southern Railway Company's project foreman will also notify the same of any stops and re-starts of the work activity and of the date work was completed for the project.
2. Norfolk Southern Railway Company will arrange for utilities to be located at the project site by the Ohio Utilities Protection Service (OUPS) prior to any construction activities at the site. Utilities that are not participating members of the service must be contacted directly by Norfolk Southern Railway Company.
3. Norfolk Southern Railway Company's project foremen will notify Greg Gronbach at 614-395-1824 (telephone) or Greg.Gronbach@dot.ohio.gov (email) of any changes in the



www.rail.ohio.gov

phone: 614.644.0306

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scope of work, cost overruns, material changes, etc. which are not included in the approved plan and estimate and secure approval of same before the work is performed.

4. Open cut of roadways is *not permitted* except in unusual circumstances and must be coordinated with the local highway authority and preapproved by ORDC.
5. Norfolk Southern Railway Company will furnish two (2) copies of each partial bill to ORDC. Please find the enclosed ODOT Purchase Order to reference when billing.
6. Norfolk Southern Railway Company will furnish two (2) copies of the final all-inclusive bill to ORDC stating the exact dates of starting and completing work, the initial and final dates of construction and location where the accounts may be audited.
7. This installation will include any ancillary work to make the warning devices function as designed and meet MUTCD.
8. Norfolk Southern Railway Company to not remove any CSX Railway Equipment and all interconnect circuitry to stay in place, until CSX removes its equipment.
9. All warning device foundations must be placed 4' 3" from face of curbs.
10. Norfolk Southern Railway Company to send an approved plan with PE stamp prior to final billing of completed project.

This project is authorized for construction under the master agreement between Ohio Rail Development Commission, Public Utilities Commission of Ohio and Norfolk Southern executed on December 19, 2012.

Thank you for your assistance with these matters.

Sincerely,



Greg Gronbach
Project Manager

C: Randall Schumacher, Rail Division Supervisor, PUCO
Jill Henry, Rail Specialist, PUCO
Susan Arduini, ORDC
Cathy Stout, ORDC
ORDC (file)



05-May-17

Detailed Estimate for Grade Crossing Warning Devices

City/State: DAYTON, OH
MilePost: CJ-205.92
State Proj. No.: PID: 101711
S&E Proj. No.: 10.2131
Man Days: 204

Road: FINDLAY ST
DOT/AAR: 527819M
County: MONTGOMERY
File Number:

Purchases - Others	
Meals and Lodging:	\$27,904.26
Rental of Equipment:	\$38,145.02
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 34 Days)	
Construction Supervision Vehicle:	\$5,834.91
Purchases - Other Total:	\$71,884.19
Material And Additives	
Material Cost:	\$134,254.00
Sales and Use Tax:	\$10,740.00
Material Handling Freight:	\$13,425.39
Material Total:	\$158,419.39
Labor And Additives	
Labor Cost:	\$65,688.00
(6 man crew at \$1,932.00 a day for: 34 days)	
Payroll Tax & Overheads:	\$56,005.59
Preliminary Engineering:	\$20,993.90
Construction Supervision:	\$19,187.46
Labor Total:	\$161,874.95
Project Cost:	\$392,178.53
Scrap / Salvage Credit:	\$0.00
Project Total:	\$392,179.00

Estimated on: 05-May-17

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:	DAYTON
Road:	FINDLAY ST
Mile Post:	CJ-205.92
Drawing Number:	82112059
State ProjectNumber:	PID: 101711
County:	MONTGOMERY
A A R Number:	527819M
Project Number:	10.2131
File Number:	
New File Number:	CX0130011
WBS:	F-03650
Store Number:	S805
Supervisor:	A.D. BELL
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&EGen. 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	\$5.55	\$16.65	AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY S'TRAN.				
1	165-006505-4	EA	\$1,075.23	\$1,075.23	AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE				
13	670-119241-4	EA	\$25.01	\$325.13	ARRESTOR, LIGHTNING HEAVY DUTY CLEAR VIEW SAFETRAN 022585-1X				
20	105-002620-4	EA	\$302.42	\$6,048.40	BATTERY, NICAD 340AH, MODEL SPL340				
1	670-503047-4	EA	\$181.50	\$181.50	BELL, CROSSING ELECTRONIC GENERL SIGNAL, EB-3-360-5 CR 02-044350				
1	670-004937-4	EA	\$272.93	\$272.93	BOX, JCT TERMINAL BOX COMPLETE W/12 TERMINALS,THREADED ENTRANCE & AIR HOSE SSC# 091428-261AX				
2	670-980689-4	EA	\$75.48	\$150.96	BRACKET HIGH WIND, (RIGID 3'), WIG- 191036, WALRUS TUSK TYPE				
2	670-561375-4	EA	\$1,197.90	\$2,395.80	BRACKET, GATE SAVER, NEG385102GS, SPRING LOADED SWING AWAY ADAPTER FOR FIBERGLASS/ALUMINUM GATES, USE WITH GATE 38' AND LESS				
1	670-356949-4	EA	\$94.05	\$94.05	CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524. FEMALE CONNECTOR				
600	465-939422-4	LF	\$2.93	\$1,758.00	CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL				
400	465-292862-4	LF	\$1.36	\$544.00	CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR				
500	465-292929-4	LF	\$4.12	\$2,060.00	CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL				
300	465-954727-4	LF	\$1.96	\$588.00	CABLE, UG 7 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL FLAT				
300	465-791835-4	FT	\$3.54	\$1,062.00	CABLE, UG AC ENTRANCE 3C#6-7X OKONITE FMPF-L 094-078 TR W/G 1 X 8 7X W010 BRZ TAPE 600V PRODUCT CODE 206-11-6070				
1	670-739076-4	EA	\$2,788.52	\$2,788.52	CANTILEVER, WT/F ARM 16' W/WALKWAY KIT SAFTRAN #071294-16NS1				
1	670-995189-4	EA	\$3,089.90	\$3,089.90	CANTILEVER, WT/F ARM 18' W/WALKWAY KIT SAFTRAN #071294-18NS1				

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Quantity Returned (Credit)	Special Instructions
1	670-010671-4	EA	\$738.15	\$738.15	CHARGER, BATTERY CRAGG MODEL 40 DTC-12V, 40 AMP, P/N 520940				
1	670-010672-4	EA	\$960.15	\$960.15	CHARGER, BATTERY CRAGG MODEL 60 DTC-12V, 60 AMP, P/N 520960				
3	670-664917-4	EA	\$87.64	\$262.92	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				
3	670-632520-4	EA	\$79.69	\$239.07	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				
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				
8	670-760012-4	EA	\$9.95	\$79.60	COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. ===== TO COVER 2 LAMPS=====				
1	670-986650-4	EA	\$370.21	\$370.21	DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER				
1	670-007684-4	EA	\$813.63	\$813.63	DRIVER, TRACK, MODEL TD-4 ELECTRO PNEUMATIC CORP. FOUR OUTPUTS				
1	670-228165-4	EA	\$12.25	\$12.25	EQUALIZER, SAFETRAN 022700-1X LESS BASE, MODERN NO. 700-1 SHUNT ARRESTER TRACK CIRCUITS CR 02-197950				
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				
2	670-744631-4	EA	\$3,172.00	\$6,344.00	FOUNDATION, CFLS FOR SAFETRAN MODEL "WT/F" ARMS 12' TO 30' SINGLE MAST, DIXIE# DP4B-SM12-26-4, 5'10" CR 02-205902				
2	670-015231-4	EA	\$599.40	\$1,198.80	FOUNDATION, DIXIE, S-2 GATE 26"X2'6"X5'6" ASSEMBLED				
2	670-005377-4	EA	\$338.00	\$676.00	GATE ARM, ALUMINUM, 17-24 FT, ARM ASSEMBLY, INCLUDES GATE GUARD FOR GATE LIGHT CABLE. HIGH INTENSITY VERTICAL STRIPES.				

APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
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Location: DAYTON			OH	S&E Proj. No.: 10.2131	AFE No.: F-03650	Drawing No.: 82112059	Vendor: Interrail Engineering, INC		
Store No.: S805			P.O.Number:		Date Required:	Date Shipped:			
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Quantity Returned (Credit)	Special Instructions
1	670-674402-4	EA	\$30,498.41	\$30,498.41	GCP4000 - 1 TRK (2TC) - REDUNDANT - 40/60 AMP WIRED RACK EQUIP. FOR 6X8 XING SHELTER, (INCL. 2 TRK CHASSIS A80465, 2 TRK MODS. A80418, 2-SSCC A80405, 2 CPU A80403, 1 SEAR A80410, 1 DISPLAY A80407, 1 TRANS MOD. A80468, 1-40 & 1-60 AMP CHARGER) IPN: 003131-				
2	670-075133-4	EA	\$1,084.80	\$2,169.60	GCP4000/GEO - MODULE - RIO MODULE - IPN: A80413				
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	\$361.54	\$361.54	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	670-092155-4	EA	\$160.00	\$320.00	LAMP ASSY, LED GATE ARM KIT (INCLUDES 3 LAMPS COMPLETE WITH CABLES AND MTG. HARDWARE) REC #: 9298-1120				
2	670-005054-4	EA	\$921.25	\$1,842.50	LAMP ASSY, LED, 12" MAST 1 WAY FRONT LIGHTS (IPN: 042003-L489XNS)				
4	670-005057-4	EA	\$952.05	\$3,808.20	LAMP ASSY, LED, 4" CANT JURY ARM MAST (FRONT OR BACK) (IPN: 042003-L001534)				
2	670-005066-4	EA	\$959.37	\$1,918.74	LAMP ASSY, LED, 5" MAST 1 WAY BACK LIGHTS (IPN: 042003-L001493)				
21	670-440826-4	EA	\$2.22	\$46.62	LINK, SAFETRAN 024620-1X INSL TESTING COMP 1 IN CENTER SIGNAL CIRCUITS CR 02-286662				
6	255-590880-4	EA	\$17.52	\$105.12	LOCK, AMERICAN LOCK MODEL H-10KA KEYED ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"				
2	670-179911-4	EA	\$4,436.00	\$8,872.00	MAST, 12" CANTILEVER, FOR 12'-20' WT/F ARMS, INCL. LADDER KIT (IPN: 071271-20NS)				
2	670-637778-4	EA	\$1,325.00	\$2,650.00	MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. STRAN P# 070519-11AX.				
2	670-521147-4	EA	\$3,715.27	\$7,430.54	MECHANISM, GATE MODEL S-40, WITH CONTACT HEATER, COMPLETE W/RELAY STRAN # 074000-W00090				
2	670-000001-4	EA	\$726.23	\$1,452.46	MISC. EXPENSE, MATERAIL/FILL				
1	000-000000-4	EA	\$5,000.00	\$5,000.00	MISC. EXPENSE, UNDERGROUND BORING				

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
6	670-000016-4	EA	\$1,500.00	\$9,000.00	MISC. EXPENSE, UTILITY RELOCATION				
4	670-001355-4	EA	\$74.00	\$296.00	PACKAGE, HARDWARE SIGN 12 IN. (USE WITHWT/F MAST) MOUNTING, SERRMI A1250-8, HARMON @180004/0007,				
1	255-646807-4	EA	\$32.59	\$32.59	PADLOCK, SAFETRAN PART NO. 030399-29X SCREW TYPE FOR CIR CONTROLLER AND BTY. BOX				
1	610-719870-4	EA	\$152.36	\$152.36	PEDESTAL ASSEMBLY, ARMORCAST P/N P6001205-NS, YELLOW 10"X11"X29"				
2	670-514605-4	EA	\$12.84	\$25.68	POLYETHYLENE INCL 45" WITH TERMINAL BLOCK				
6	670-259211-4	EA	\$47.25	\$283.50	PINNACLE, W-C SECT 1-11, 4"& 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X				
1	165-103293-4	EA	\$75.42	\$75.42	PLUG BOARD KIT, TYPE B-1 & VOLTAGE TEST TERMINAL, SAFETRAN 420000-75X				
1	165-902002-4	EA	\$297.48	\$297.48	PROTECTOR, LIGHTNING & SURGE LPC 10560-51, 3 ELECTRODE WITH SPADE TERMINAL				
1	670-602559-4	EA	\$132.09	\$132.09	PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL				
6	465-002899-4	EA	\$22.24	\$133.44	RECTIFIER, ELECTRO-PNEUMATIC TRACK MODEL NO RING-10 TYPE C TRACK CIRCUIT				
1	670-024861-4	EA	\$424.00	\$424.00	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES				
5	670-707995-4	EA	\$510.12	\$2,550.60	RELAY RACK, SWING, FARADAY SHELTER FOR EIGHT B1 RELAYS, SAFETRAN P/N 057883-1X				
1	670-708282-4	EA	\$524.43	\$524.43	RELAY, TYPE B1, NEV LINE, 900 OHMS., 008 AMPERES GRS A62-308 OR SAFETRAN @400003				
1	180-000029-4	EA	\$27.17	\$27.17	RELAY, TYPE B1, TRACK 4 OHM .85A GRS A62-276, S'TRAN 400011				
1	180-239123-4	EA	\$30.74	\$30.74	RESISTOR UNIT, 2 OHM ADJUSTABLE SAFETRAN NO. 029602-6X FOR TRACK CIRCUITS				
2	435-805560-4	EA	\$2.78	\$5.56	CR 02-425807				
1	670-113448-4	EA	\$910.23	\$910.23	RESISTOR, ADJUSTABLE 5 OHM SAFETRAN NO. 029603-2X FOR TRACK CIRCUITS				
					SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER				
					SEARIII, (VHFC w/ANTENNA) - VHF COMMUNICATOR, SAFETRAN P/N A80276, 1/ PER CROSSING				

Location: DAYTON			OH	S&E Proj. No.: 10.2131	AFE No.: F-03650	Drawing No.: 82112059		Vendor: Interrail Engineering, INC		
Store No.: S805			P.O.Number:			Date Required:	Date Shipped:			
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Quantity Returned (Credit)	Special Instructions	
1	670-749325-4	EA	\$226.97	\$226.97	SHELF, FOLDING, FOR LAPTOP USE IN FARADAY 6X8 SHELTER, SAFETRAN 052852-128X					
1	670-756057-4	EA	\$9,808.80	\$9,808.80	SHELTER, 6'X8' ALUMN FARADAY W/2EA EQUIPMENT RACKS, W/CABLE CHUTES BEHIND TERMINAL BOARD, W/GEN RECEPTICAL, BREAKER BOX, GFI OUTLET FOR LAPTOP SHELF SAFETRAN 058400-68-86					
1	670-471572-4	EA	\$3.48	\$3.48	SHIELD, GROUND SERRMI P/N 61278 FOR GROUNDING A RH 4 POST TERMINAL BLOCK DIRECTLY TO FARADAY SHIELD					
1	670-472200-4	EA	\$3.48	\$3.48	SHIELD, GROUND SERRMI PART NO. 61278 FOR GROUNDING A LH 4 POST TERMINAL BLOCK DIRECTLY TO FARADAY SHIELD					
3	670-586967-4	EA	\$42.98	\$128.94	SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT					
2	670-645460-4	EA	\$575.56	\$1,151.12	SHUNT, MULTI-FREQ. #62775-8621 SAFETRAN NARROW BAND					
2	670-554843-4	EA	\$77.05	\$154.10	SIGN, 2 TRACK SIGN, HIGH INTENSITY, SAFETRAN #035207-2HX					
2	670-016346-4	EA	\$149.68	\$299.36	SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR ALL STATES, SAFETRAN# 035200-91X					
2	670-397239-4	EA	\$40.23	\$80.46	SIGN, CROSSING ENS MALFUNCTION ASSEMBLY FOR 12" MAST, SAFETRAN #T17216					
1	670-330382-4	RL	\$18.06	\$18.06	TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS. "WARNING STOP DIGGING"					
15	670-478560-4	EA	\$20.56	\$308.40	TERMINAL BLOCK, ERICO 4 POST P/N B2700A2C1WH W/HARDWARE LESS LIGHTNING ARRESTOR					
12	670-007238-4	EA	\$118.65	\$1,423.80	UNIT, THE INSTALLATION AND WIRING OF A DEVICE WHICH REQUIRE A MINIMUM OF FOUR WIRE CONNECT-					
1	450-986008-4	EA	\$30.45	\$30.45	WRENCH, TEST POST TYPE B DWG 55393-3, GR.1					
120	165-544477-4	FT	\$3.22	\$386.40	Z-DNO-CONDUIT, 4"x10' PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4					

Total Material: \$134,253.94

APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
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SH. NO.	CONTENTS
NX1	INDEX SHEET
1	LAYOUT
2	PROFILE
3	CABLE PLAN
4	LOAD CENTER
5	B12 & B16 CHARGERS & BATTERIES
6	4000 GCP 2-TK CHASSIS & MODULE LAYOUT
7	4000 GCP PROGRAMMING SETUP
8	4000 GCP PROGRAMMING SETUP
9	CONNECTORS FOR TRACK MODULES
10	CPU MODULE, SEAR III & VHF HOOK-UPS
11	SEAR III PROGRAMMING SETUP
12	SSCC#1 MODULE HOOK-UP
13	SSCC#2 MODULE HOOK-UP
14	STYLE "C" CIRCUITS
15	CANTILEVER & FLASHER LIGHTS
16	SIGNAL "A" S40 GATE & FLASHER CIRCUITS
17	SIGNAL "B" S40 GATE & FLASHER CIRCUITS
18	PREEMPTION INTERCONNECT CIRCUITRY
19	BACKBOARD 1A & 1B
20	REAR BACKBOARD 1A & 1B
21	FARADAY SHIELD 1A & 1B
22	FARADAY SHIELD 1C
23	HOUSE SIDE C LAYOUT & RACK PLACEMENT
24	HOUSE SIDE A LAYOUT
25	HOUSE SIDE B LAYOUT & TOP VIEW

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

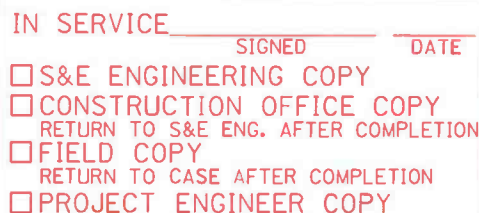
☐ PROJECT ENGINEER COPY

INDEX SHEET

REVISION	JWB/IRE	SAN/IRE									PROPERTY
INITIALS	12-12-16	04-21-17									PENNSYLVANIA R.R.

DESIGNED BY:	JWB 11-04-16	 NORFOLK SOUTHERN
DRAWN BY:	IRE 11-04-16	
CHECKED BY:	DBS 11-05-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-205.92
IN SERVICE:	- -	DAYTON, OH CFLGS AT FINDLAY ST.
		DAYTON DISTRICT
		CADD or DWG. No. 82112059.NX1
		FILE No. R- SHEET No. 1 of 1

1. MAX. TRAIN SPEED MAIN: 50 M.P.H., SIDING: 10 M.P.H.
2. LATITUDE N 39°46'17" LONGITUDE W 84°09'33"
ELEVATION 740"
3. SIGNAL "A" TO HAVE BELL.
4. LOCATE U/G UTILITIES & CABLE BEFORE DIGGING.
5. CROSSING LOCATED IN MONTGOMERY COUNTY.
6. NEAREST STREET ADDRESS IS
405 N. FINDLAY ST.
7. NEAREST INTERSECTING STREET IS
PRUDEN AVE.
8. DISTANCE TO NEAREST INTERSECTING
STREET IS 460 FT.
9. PLACE SIGNALS "A" AND "B" TO AVOID U.G. UTILITIES.
HAND DIGGING MAY BE REQUIRED.



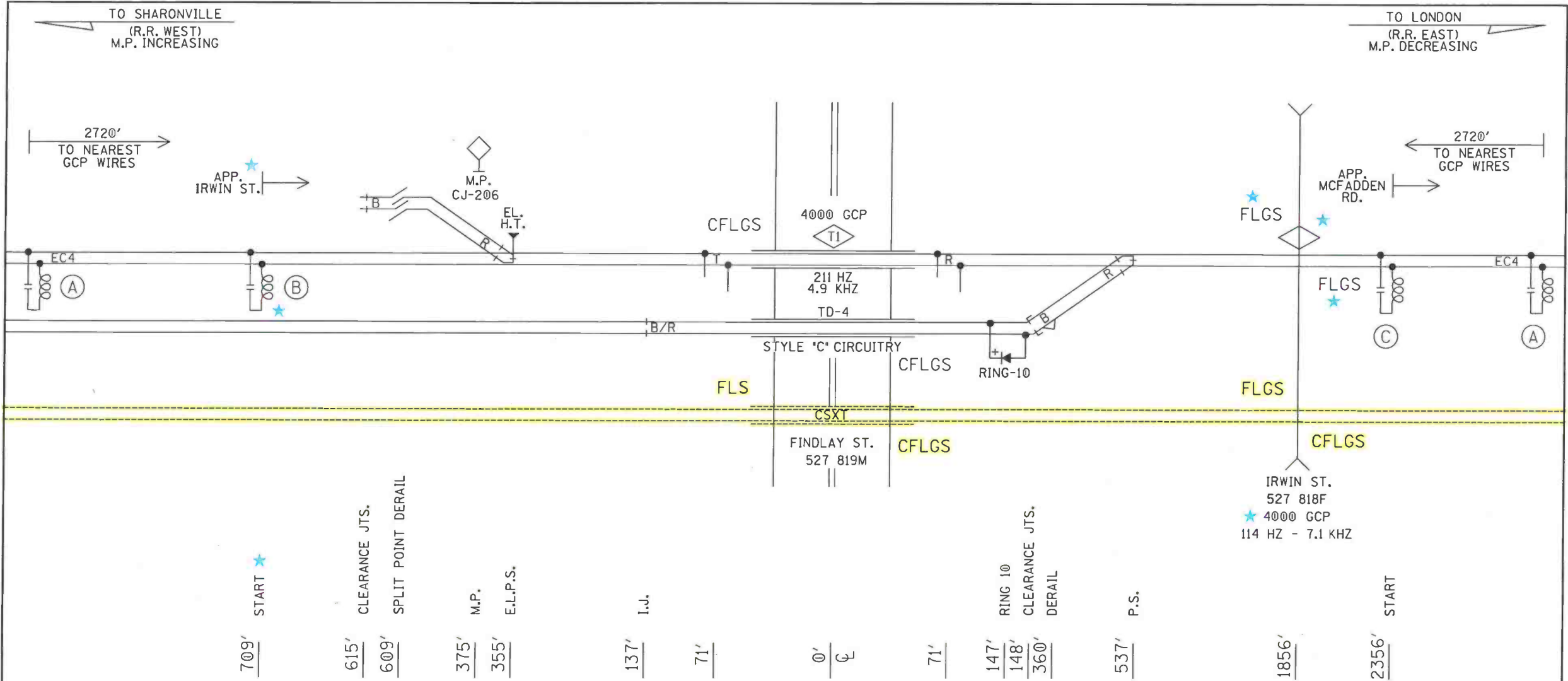
10. OVERHEAD CABLES IN QUADS "A" AND "B" ARE OBSTRUCTIONS AND WILL NEED TO BE RAISED OR RELOCATED.
11. 2 SECONDS OF ADVANCED PREEMPTION IS REQUIRED AT THIS LOCATION.
12. STATE MAY CONSIDER CENTER LANE PAVEMENT MARKINGS OVER CROSSING SURFACE.

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

REVISION	JWB/IRE	SAN/IRE
INITIALS	12-12-16	04-21-17

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY: JWB 11-04-16	 NORFOLK SOUTHERN	
DRAWN BY: IRE 11-04-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-205.92
CHECKED BY: DBS 11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.	
IN SERVICE:	DAYTON DISTRICT	FILE No. R-
- -	CADD or DWG. No. 82112059.01	SHEET No. 1 of 25



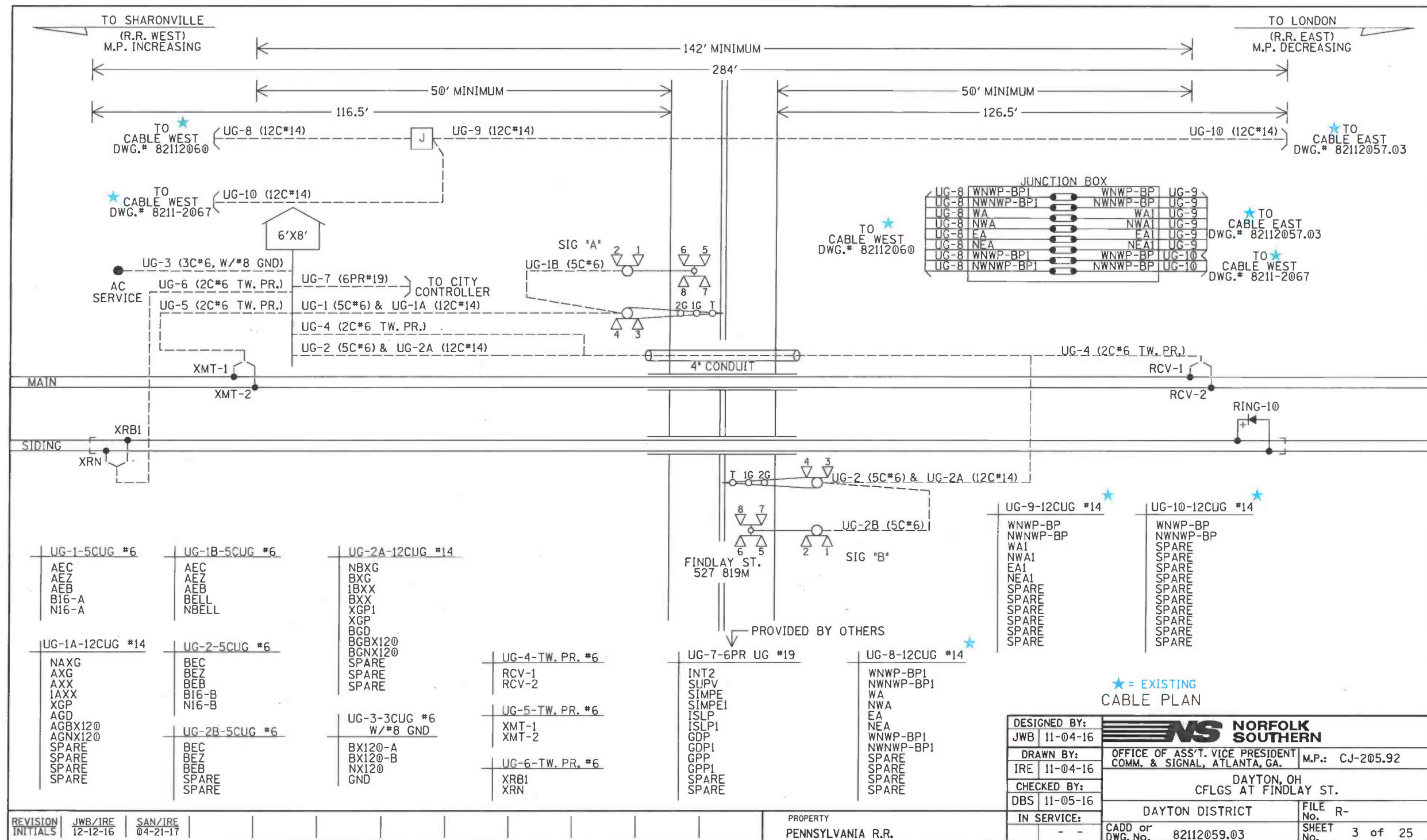
- (A) - MF-NBS 62775-1543 (211HZ)
- (B) - MF-NBS 62775-8621 (114HZ)
- (C) - MF-NBS 62775-1543 (285HZ)

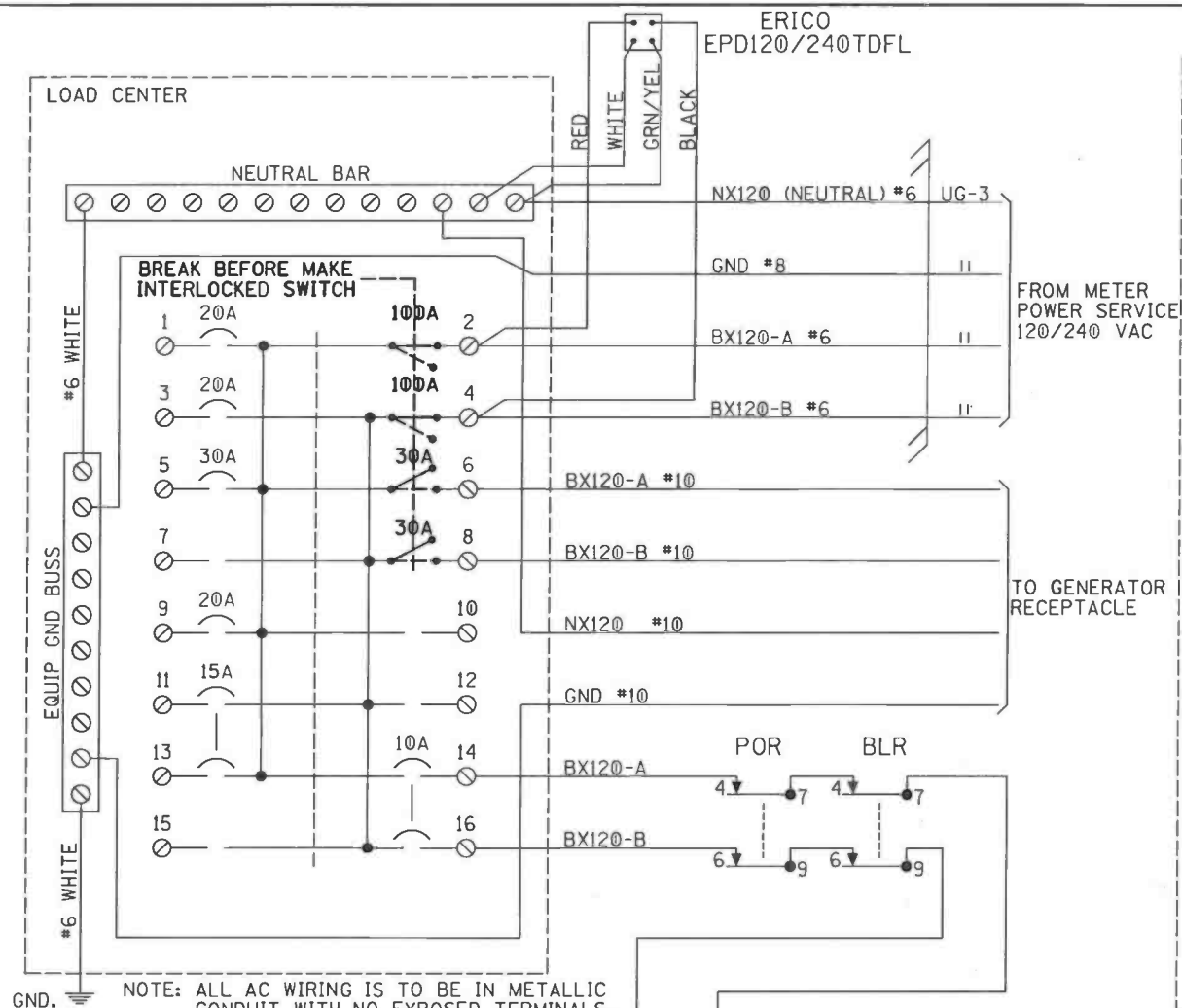
★ = ALL EQUIPMENT TO BE INSTALLED ON PRJ.# 10.2130

PROFILE

REVISION	JWB/IRE	SAN/IRE									PROPERTY
INITIALS	12-12-16	04-21-17									PENNSYLVANIA R.R.

DESIGNED BY:	JWB 11-04-16	NORFOLK SOUTHERN OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. DAYTON, OH CFLGS AT FINDLAY ST. DAYTON DISTRICT CADD or DWG. No. 82112059.02	FILE No.	R-
DRAWN BY:	IRE 11-04-16		SHEET No.	2 of 25
CHECKED BY:	DBS 11-05-16			
IN SERVICE:	- -			





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

15A 2P CIR BKR—Q0215

20A 1P CIR BKR—Q0120

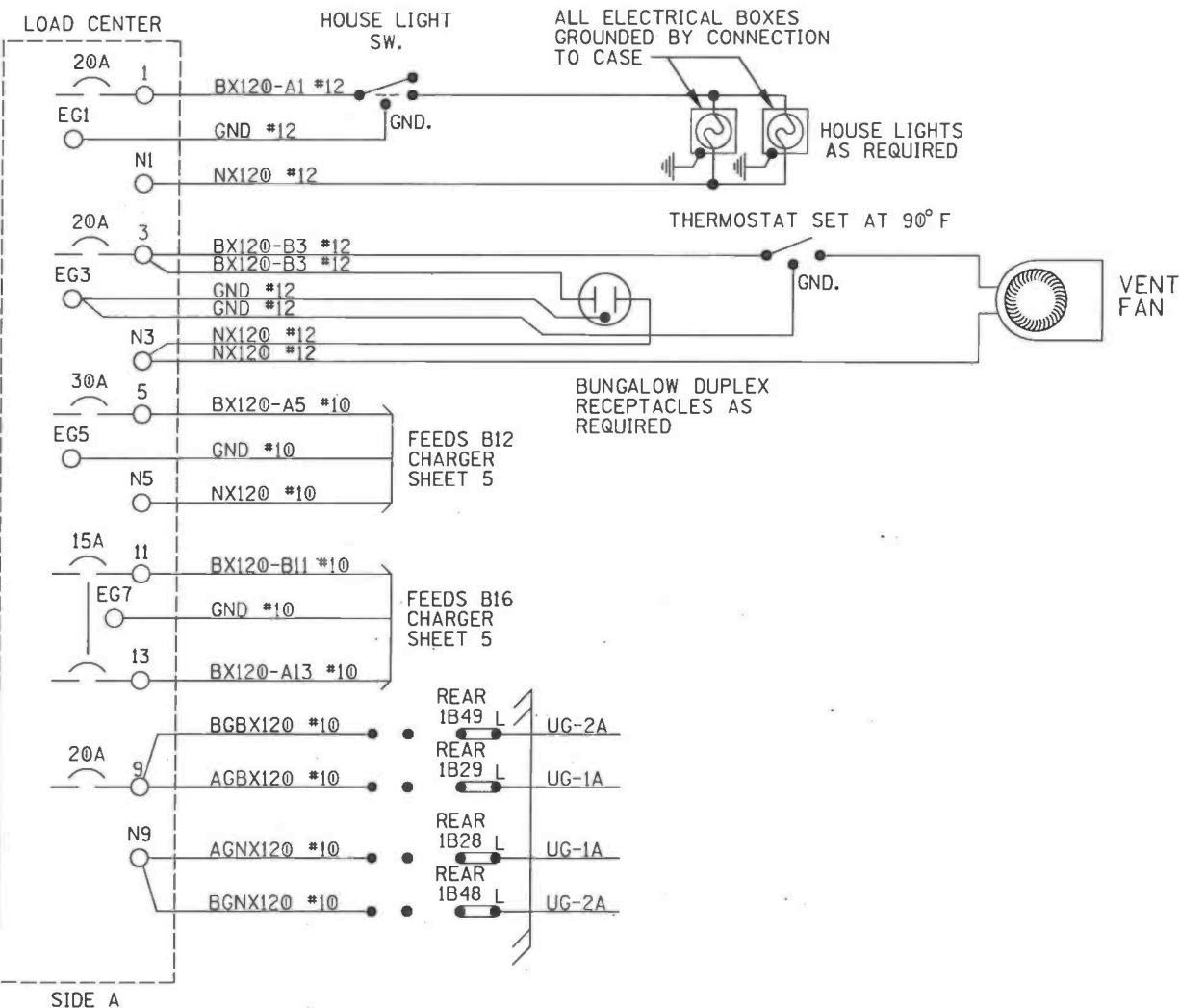
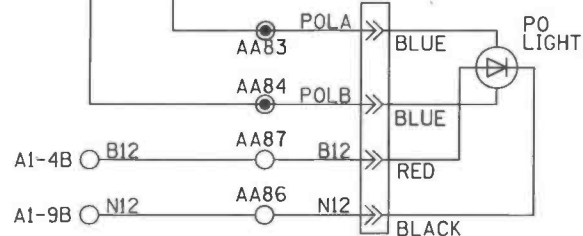
30A 1P CIR BKR—Q0130

30A 2P CIR BKR—Q0230

40A 2P CIR BKR—Q0240

100A 2P CIR BKR—Q02100

MECH INTERLOCK—PK4DTIM4LA



NOTE:

ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE.

GENERATOR RECEPTACLE:

MALE CONNECTOR - NEMA L1430-FI

LOAD CENTER

DESIGNED BY:	JWB 11-04-16	NORFOLK SOUTHERN	
DRAWN BY:	IRE 11-04-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-205.92
CHECKED BY:	DBS 11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.	
IN SERVICE:	- -	DAYTON DISTRICT	FILE No. R-
		CADD or DWG. No. 82112059.04	SHEET No. 4 of 25

REVISION INITIALS JWB/IRE 12-12-16 SAN/IRE 04-21-17

PROPERTY PENNSYLVANIA R.R.

Program Report

Location and SIN

DOT Number: 527819M
Milepost Number: CJ-205.92
Site Name: FINDLAY ST

SIN: 755023409516

MCF and Template Selection

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

Template = 1A:6 Trk BI

Check Numbers

Office Check No. (DT 4.6.0): 59C74E55
Office Check Number: 59C74E55
Config. Check Number: 63D96115
(Based on MCF Revision 021)

Program

BASIC: module configuration
Track 1 Slot = Track
Track 2/RIO 1 Slot = RIO
Track 3 Slot = Not Used
Track 4 Slot = Not Used
Track 5/RIO 2 Slot = Not Used
Track 6/RIO 3 Slot = Not Used
SSCC-1 Slot = SSCC3I
SSCC-2 Slot = SSCC3I
SEAR Used = Yes

BASIC: MS/GCP operation
Track 1: MS/GCP Operation = Yes

BASIC: Island operation
Track 1: Island Used = Internal

BASIC: preemption
Preempt Logic = Advnce
Adv Preempt Delay = 2 sec
Preempt Hlth IP Used = No
Adv Preempt IP Used = No
Traffic Sys Hlth IP Used = No
Gate Down Logic Used = Yes
Second Trn Logic Used = Yes

BASIC: radio Dax links
Radio DAX link A Used = No
Radio DAX link B Used = No

BASIC: Vital Comms links
Vital Comms link 1 Used = No
Vital Comms link 2 Used = No

PREDICTORS: track 1
Track 1: Prime Used = Yes
Track 1: Dax A Used = No
Track 1: Dax B Used = No
Track 1: Dax C Used = No
Track 1: Dax D Used = No
Track 1: Dax E Used = No
Track 1: Dax F Used = No
Track 1: Dax G Used = No
Track 1: Prmpt Used = Yes

GCP: track 1
Track 1: GCP Freq Category = Standard
Track 1: GCP Frequency = 211 Hz
Track 1: Approach Distance = 2720 ft
Track 1: Unl/Bi/Sim-Bidirnl = Bidirnl
Track 1: GCP Transmlt Level = High
Track 1: Island Connection = Isl1
Track 1: Island Distance = 142 ft
Track 1: Computed Distance = 9999 ft
Track 1: Linearization Steps = 100

GCP: track 1 enhanced det
Track 1: Inbound PS Sensitivity = Off
Track 1: Speed Limiting Used = Yes
Track 1: Outbound False Act Lvl = Normal
Track 1: Outbound PS Timer = 20 sec
Track 1: Trailing Switch Logic = On
Track 1: Post Joint Detn Time = 15 sec
Track 1: Adv Appr Predn = No
Track 1: Cancel Pickup Delay = This Isl

GCP: track 1 prime
Track 1: Prime Warning Time = 30 sec
Track 1: Prime Offset Distance = 0 ft
Track 1: Switch MS EZ Level = 10
Track 1: Prime MS/GCP Mode = Pred
Track 1: Prime Pickup Delay = 15 sec
Track 1: Prime UAX = Not Used

GCP: track 1 preempt
Track 1: Prmpt Warning Time = 32 sec
Track 1: Prmpt Offset Distance = 0 ft
Track 1: Switch MS EZ Level = 10
Track 1: Prmpt MS/GCP Mode = Pred
Track 1: Prmpt Pickup Delay = 15 sec
Track 1: Prmpt Enable = Not Used

GCP: track 1 pos start
Track 1: Positive Start = Off
Track 1: Sudden Shnt Det Used = No
Track 1: Low EZ Detection Used = No

GCP: track 1 MS Control
Track 1: MS/GCP CtrlIP Used = No
Track 1: MS Sensitivity Level = 0
Track 1: Compensation Level = 1300
Track 1: Warn Time-Ballast Comp = High
Track 1: Low EX Adjustment = 39
Track 1: Bidlrn Dax Passthru = No
Track 1: False Act on Train Stop = No
Track 1: EX Limiting Used = Yes
Track 1: EZ Correction Used = Yes

ISLAND: track 1
Track 1: Isl Frequency = 4.9 kHz
Track 1: Pickup Delay (2s +) = 0 sec
Track 1: Isl Enable IP Used = No

AND: track Anding
AND 1 XR Used = Yes
AND 2 Used = No
AND 3 Used = No
AND 4 Used = No
AND 5 Used = No
AND 6 Used = No
AND 7 Used = No
AND 8 Used = No

AND: AND 1 XR
AND 1 XR Track 1 = Prime
AND 1 Enable Used = Yes
And 1 Enable Pickup = 5 sec
AND 1 Enable Drop = 0 sec
AND 1 Wrap Used = No

ADVANCED: MS restart
MS/GCP Restart Used = No

4000 GCP PROGRAMMING SETUP

DESIGNED BY:	JWB 11-04-16	 NORFOLK SOUTHERN	
DRAWN BY:	IRE 11-04-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-205.92
CHECKED BY:	DBS 11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.	
IN SERVICE:	- -	DAYTON DISTRICT	FILE R- No.
		CADD or DWG. No. 82112059.07	SHEET 7 of 25 No.

ADVANCED: out of service
OOS Control = Display+OOS IPs
OOS Timeout = Yes
OOS Timeout = 1 hrs

ADVANCED: out of service 2
TI OOS Control = OOS Input 1

ADVANCED: track wrap circuits
Wrap LOS Timer = 5 sec
Track 1 Wrap Used = No

ADVANCED: trk 1 overrides
Track 1: All Predictors Override Used = No

ADVANCED: OR logic
OR 1 Used = No
OR 2 Used = No
OR 3 Used = No
OR 4 Used = No

ADVANCED: Internal I/O 1
Pass Thrus = No
Int.1 Sets = Not Used
Int.1 Set by = Not Used
Int.2 Sets = Not Used
Int.2 Set by = Not Used
Int.3 Sets = Not Used
Int.3 Set by = Not Used
Int.4 Sets = Not Used
Int.4 Set by = Not Used

ADVANCED: Internal I/O 2
Int.5 Sets = Not Used
Int.5 Set by = Not Used
Int.6 Sets = Not Used
Int.6 Set by = Not Used
Int.7 Sets = Not Used
Int.7 Set by = Not Used
Int.8 Sets = Not Used
Int.8 Set by = Not Used

ADVANCED: Internal I/O 3
Int.9 Sets = Not Used
Int.9 Set by = Not Used
Int.10 Sets = Not Used
Int.10 Set by = Not Used
Int.11 Sets = Not Used
Int.11 Set by = Not Used
Int.12 Sets = Not Used
Int.12 Set by = Not Used

ADVANCED: Internal I/O 4
Int.13 Sets = Not Used
Int.13 Set by = Not Used
Int.14 Sets = Not Used
Int.14 Set by = Not Used
Int.15 Sets = Not Used
Int.15 Set by = Not Used
Int.16 Sets = Not Used
Int.16 Set by = Not Used

ADVANCED: site options
Daylight Savings = On
Units = Standard
Maint Call Rpt IP Used = No
Emergency Activate IP = No
EZ/EX Logging = Change
EZ/EX Point Change = 3

SSCC
Gates Used = Yes
SSCC1+2 GPs Coupled = Yes
Min Activation = 0 sec
Rmt Activation Cancel = 2 min
Bell On Gate Rising = No
Mute Bell On Gate Down = No
SSCCIV Controller Used = No

SSCC: 1
SSCC-1 Activation = AND 1 XR
SSCC-1 Gate Delay = 6 sec
SSCC-1 Number of GPs = 1
SSCC-1 Number of GDs = 2
SSCC 1: Flash Rate = 40
SSCC 1: Low Battery Detection = No
SSCC 1: Flash Sync = master
SSCC 1: Invert Gate Output = No
SSCC 1: Lamp Neutral Test = Off
Aux-1 Xng Ctrl Used = No

SSCC: 2
SSCC-2 Activation = AND 1 XR
SSCC-2 Gate Delay = 6 sec
SSCC-2 Number of GPs = 0
SSCC-2 Number of GDs = 0
SSCC 2: Flash Rate = 40
SSCC 2: Low Battery Detection = No
SSCC 2: Flash Sync = slave
SSCC 2: Invert Gate Output = No
SSCC 2: Lamp Neutral Test = Off
Aux-2 Xng Ctrl Used = No

OUTPUT: assignment page 1
OUT 1.1 = Adv Preempt
OUT 1.2 = AND 1 XR
OUT 2.1 = Gate Dwn Indication
OUT 2.2 = TI Island
OUT 2.3 = Not Used
OUT 2.4 = Not Used

INPUT: assignment page 1
IN 1.1 = AND 1 XR Enable
IN 1.2 = Not Used
IN 2.1 = Not Used
IN 2.2 = Not Used
IN 2.3 = Not Used
IN 2.4 = Not Used

IO: assignment SSCC
OUT GC 1 = Gate Output 1
OUT GC 2 = Gate Output 2
IN 7.1 = Not Used
IN 7.2 = GD 1.2
IN 7.3 = AND 1 XR Enable
IN 7.4 = GD 1.1
IN 7.5 = GP 1.1
IN 8.1 = Out Of Service IP 1
IN 8.2 = Not Used
IN 8.3 = Not Used
IN 8.4 = Not Used
IN 8.5 = Not Used

SEAR
SEAR Subnode = 3
DI 1 = Not Used
DI 2 = Not Used
Rly 1 = General 1
Rly 2 = Not Used

SEAR: Inputs
SP 3.1 = Not Used
SP 4.1 = Not Used
SP 5.1 = Not Used
SP 6.1 = Not Used

SEAR: slot 1-4 Inputs
IN 1.2 = Not Used
IN 2.1 = POK 1
IN 2.2 = Not Used
IN 2.3 = Not Used
IN 2.4 = Not Used
IN 3.1 = Not Used
IN 3.2 = Not Used
IN 4.1 = Not Used
IN 4.2 = Not Used

SEAR: Inputs slot 5
IN 5.1 = Not Used
IN 5.2 = Not Used

SEAR: Inputs slot 6
IN 6.1 = Not Used
IN 6.2 = Not Used

SEAR: slot 7-8 Inputs
IN 7.1 = Not Used
IN 8.2 = Not Used
IN 8.3 = Not Used
IN 8.4 = Not Used
IN 8.5 = Not Used

SITE: programming
Radio Subnode = 1
Field Password = Off
Low Battery Enabled = Off

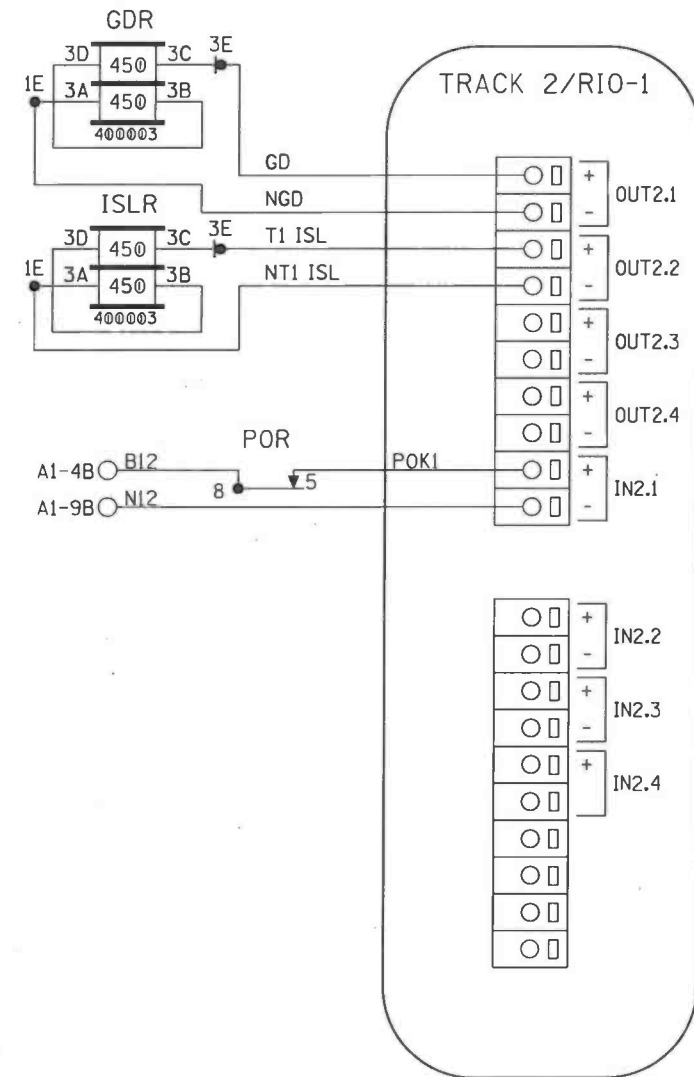
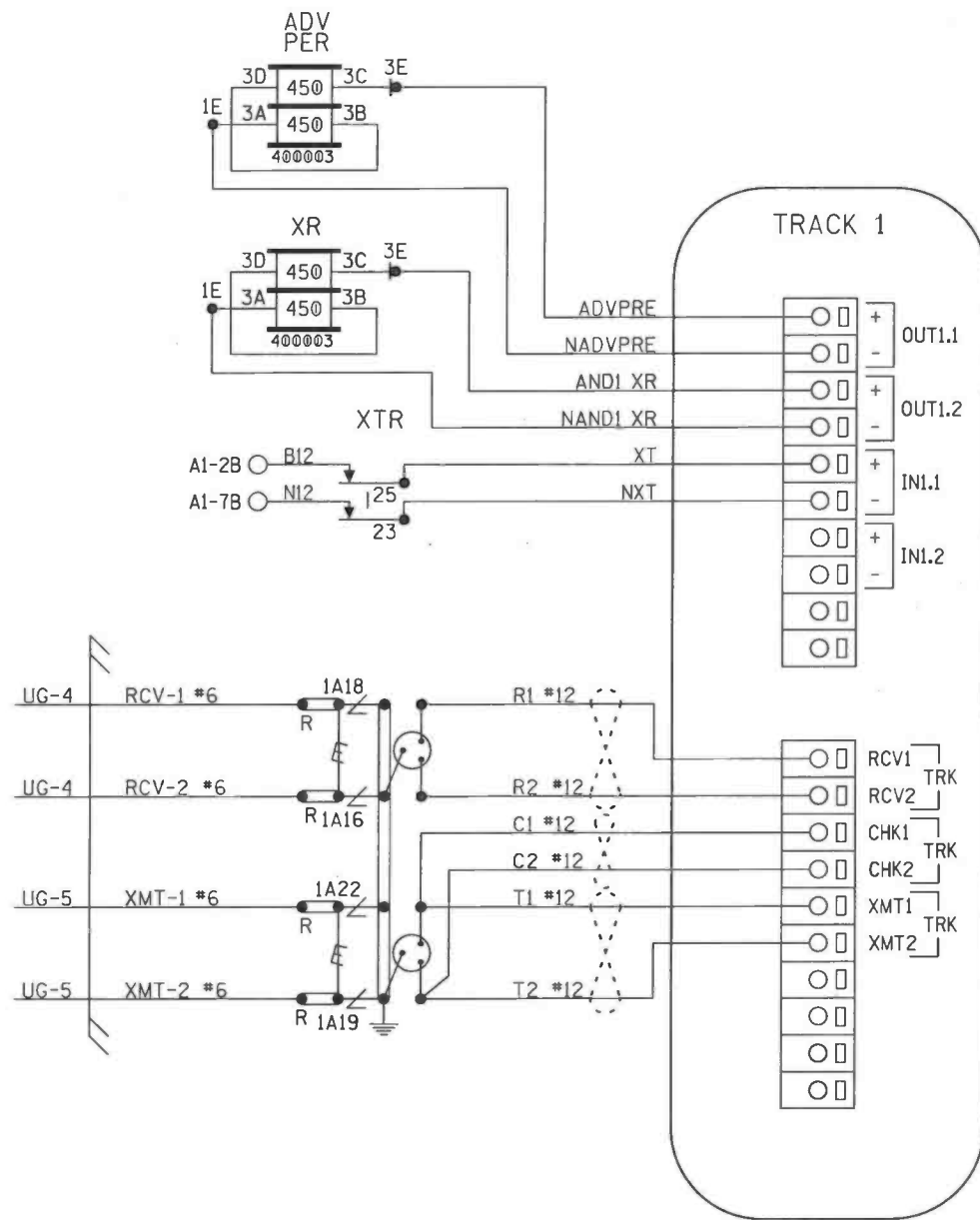
Configuration Package File

Filename: 82112059.pac

4000 GCP PROGRAMMING SETUP

REVISION	JWB/IRE	SAN/IRE									PROPERTY
INITIALS	12-12-16	04-21-17									PENNSYLVANIA R.R.

DESIGNED BY:	JWB 11-04-16	 NORFOLK SOUTHERN
DRAWN BY:	IRE 11-04-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-205.92
CHECKED BY:	DBS 11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.
IN SERVICE:	- -	DAYTON DISTRICT CADD or DWG. No. 82112059.08 FILE No. R- SHEET 8 of 25



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

⋈ = TWIST

CONNECTORS FOR TRACK MODULES

DESIGNED BY:	JWB 11-04-16	NS NORFOLK SOUTHERN	
DRAWN BY:	IRE 11-04-16		
CHECKED BY:	DBS 11-05-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
IN SERVICE:	- -	M.P.: CJ-205.92	
		DAYTON, OH CFLGS AT FINDLAY ST.	
		DAYTON DISTRICT	FILE R-
		CADD or DWG. No. 82112059.09	SHEET 9 of 25

REVISION
INITIALS

JWB/IRE
12-12-16

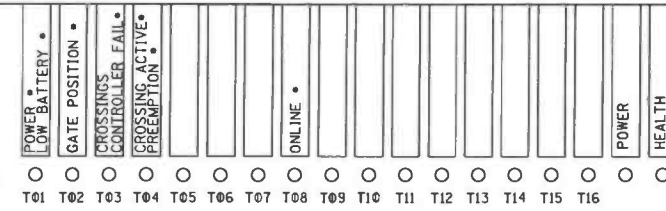
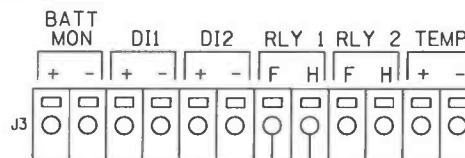
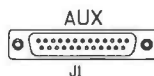
SAN/IRE
04-21-17

PROPERTY
PENNSYLVANIA R.R.



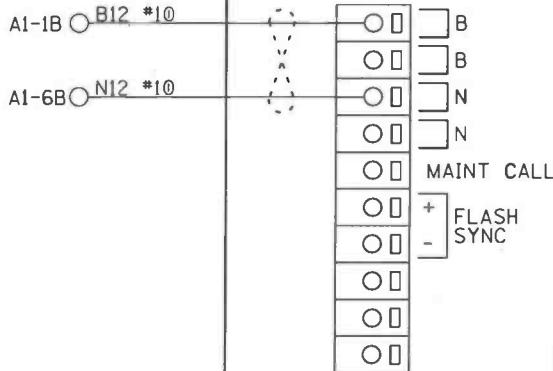
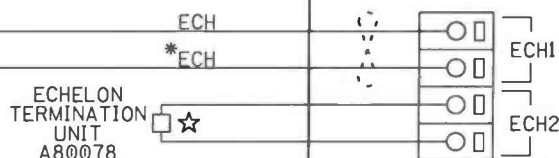
SEAR III INTERNAL EVENT RECORDER

A80410



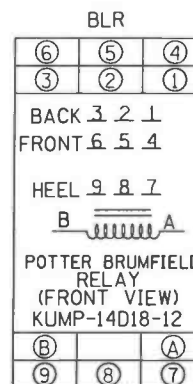
LOWER BAY

CPU



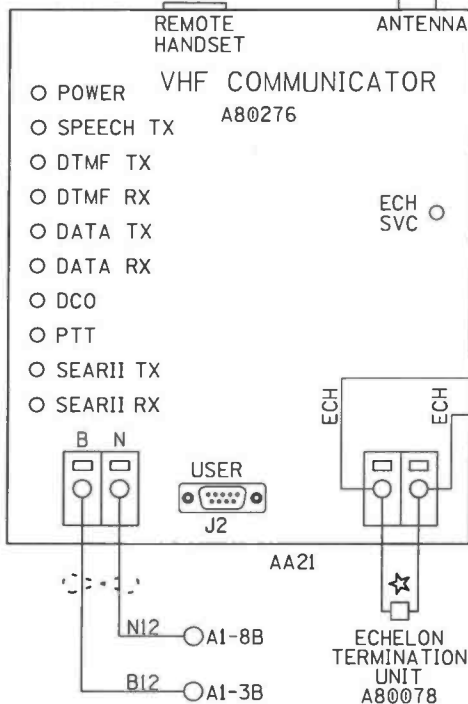
NOTES:

- ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE.
- * = ECHELON CONNECTIONS NOT TO EXCEED 53' IN LENGTH AND TOTAL LENGTH NOT TO EXCEED 430' WITH A MAXIMUM OF 8 NODES. RECOMMEND USE BELDEN WIRE CABLE #8461 OR EQUIVALENT.
- ☆ = A80078 ECHELON TERMINATION UNIT TO TERMINATE ECHELON NETWORK.
- = TWIST



CPU MODULE, SEAR III & VHF HOOK-UPS

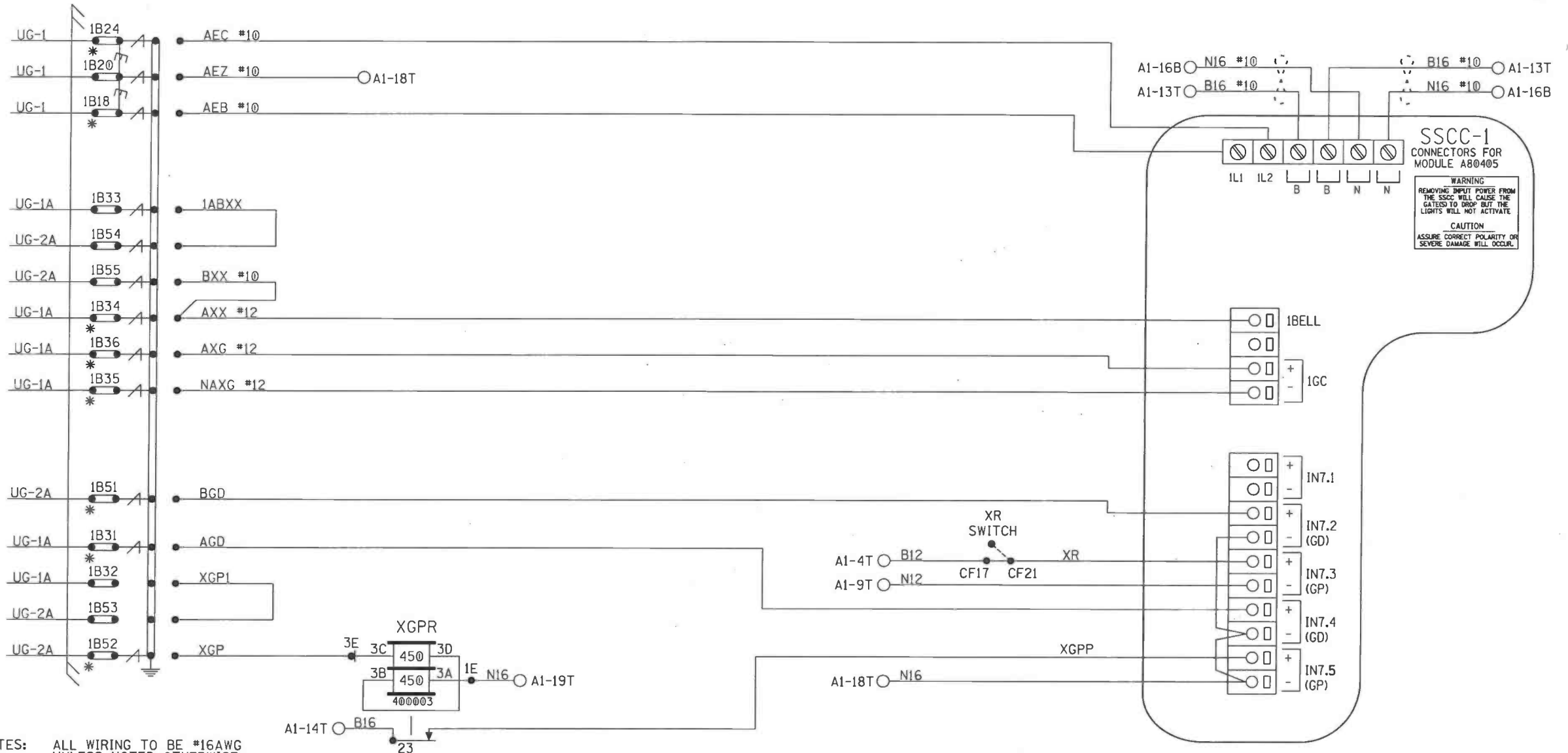
DESIGNED BY:	JWB 11-04-16		
DRAWN BY:	IRE 11-04-16		
CHECKED BY:	DBS 11-05-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: CJ-205.92	
IN SERVICE:	- -	DAYTON, OH CFLGS AT FINDLAY ST.	
		DAYTON DISTRICT	FILE No. R-
		CADD or DWG. No. 82112059.10	SHEET 10 of 25



GCP PROGRAMMING FOR VHF RADIO

REMOTE DTMF CROSSING ACTIVATION
(ACTIVATES ENTIRE CROSSING)
TO ACTIVATE PRESS: 819*
TO DE-ACTIVATE PRESS: 819*
(ACTIVATION WILL TIME OUT AFTER 60 SEC.)

REMOTE DTMF LIGHTING ACTIVATION
(ACTIVATES FLASHING LIGHTS ONLY)
TO ACTIVATE PRESS: 8191*
TO DE-ACTIVATE PRESS: 8191*
(ACTIVATION WILL TIME OUT AFTER 60 SEC.)



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

* = 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 4000 REFERENCE MANUAL.

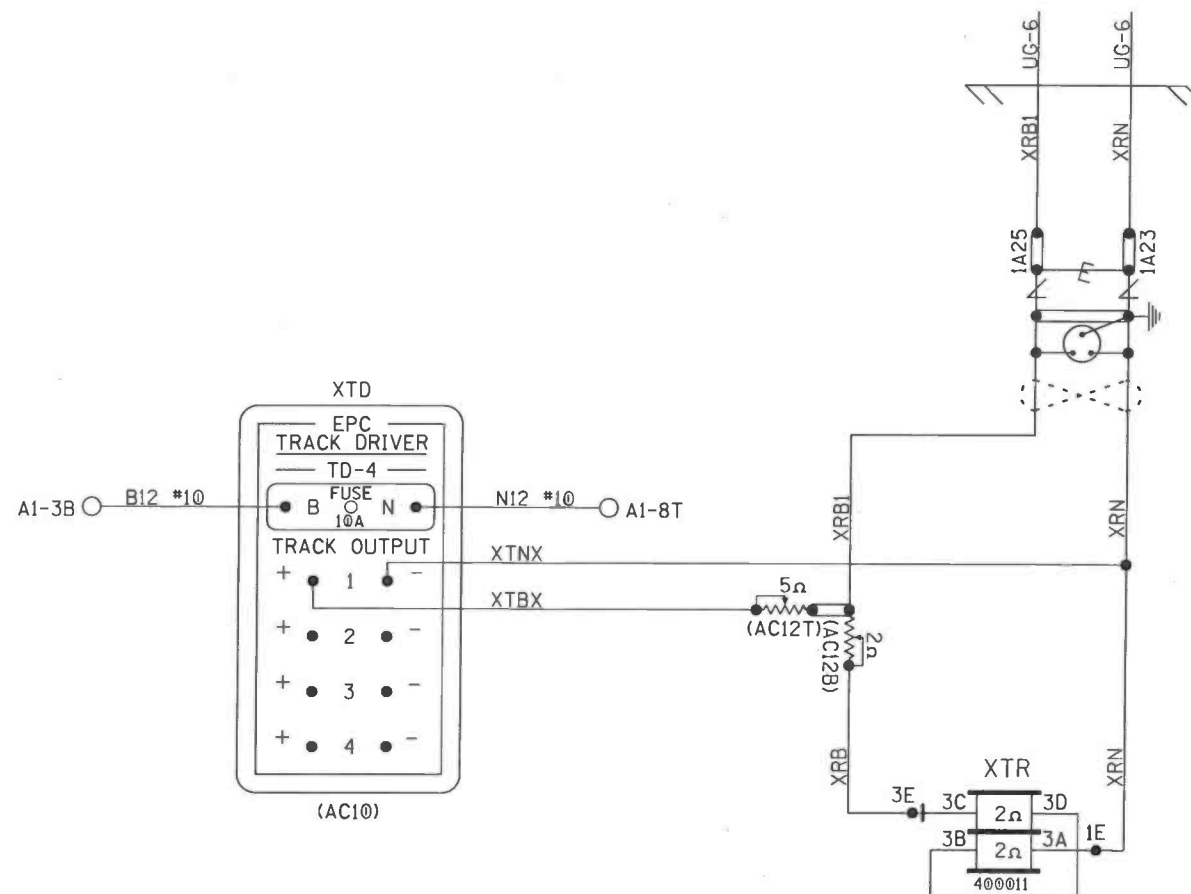
• = TWIST

SSCC#1 MODULE HOOK-UP

DESIGNED BY:	JWB 11-04-16	NORFOLK SOUTHERN	
DRAWN BY:	IRE 11-04-16		
CHECKED BY:	DBS 11-05-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
IN SERVICE:	- -	DAYTON, OH CFLGS AT FINDLAY ST.	
		DAYTON DISTRICT	FILE No. R-
		CADD or DWG. No. 82112059.12	SHEET No. 12 of 25

REVISION INITIALS JWB/IRE 12-12-16 SAN/IRE 04-21-17

PROPERTY PENNSYLVANIA R.R.



NOTES:
ALL WIRING TO BE #10
UNLESS NOTED OTHERWISE.

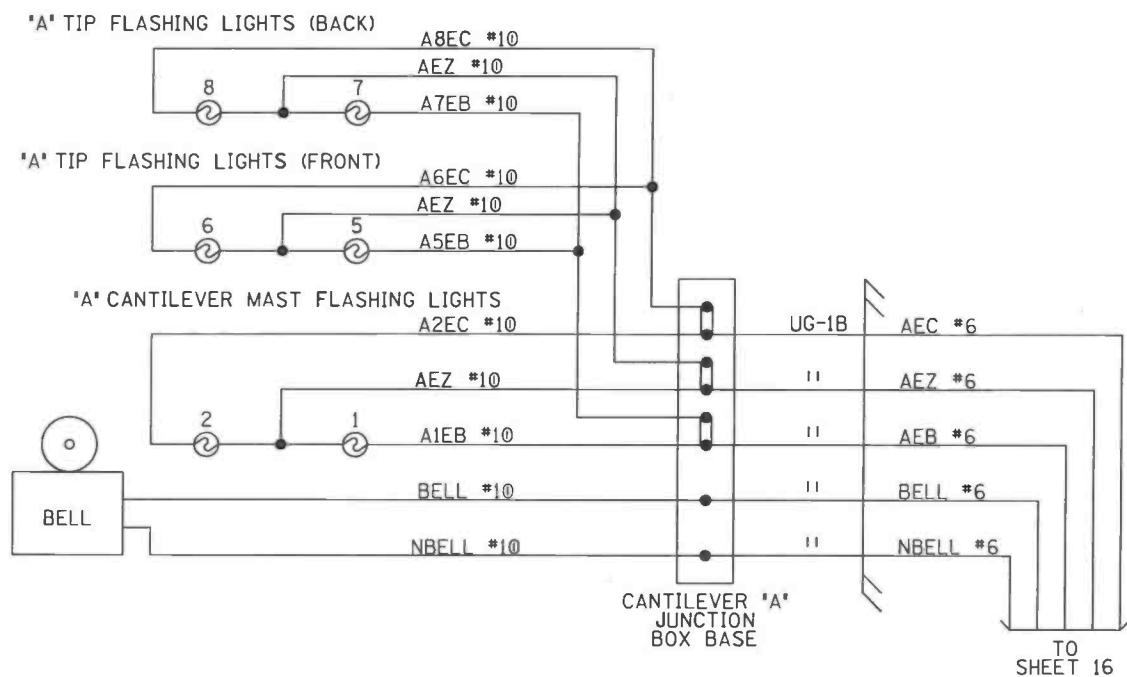
⋯ = TWIST

STYLE "C" CIRCUITS

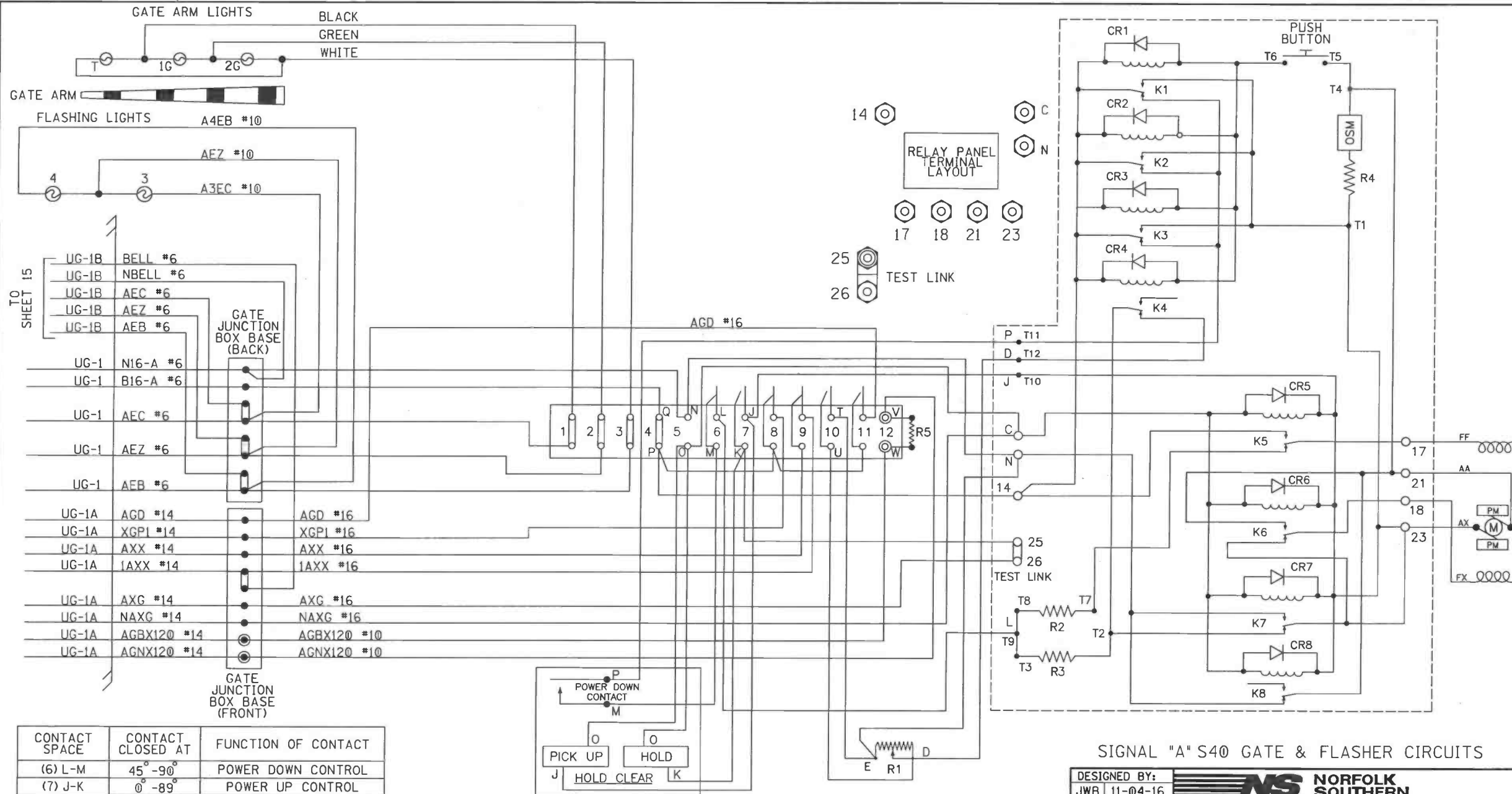
REVISION	JWB/IRE	SAN/IRE
INITIALS	12-12-16	04-21-17

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY:	JWB	11-04-16	NS NORFOLK SOUTHERN
DRAWN BY:	IRE	11-04-16	
CHECKED BY:	DBS	11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.
IN SERVICE:	-	-	DAYTON DISTRICT
			CADD or DWG. No. 82112059.14
			FILE No. R- SHEET 14 of 25



CANTILEVER & FLASHER LIGHTS



CONTACT SPACE	CONTACT CLOSED AT	FUNCTION OF CONTACT
(6) L-M	45°-90°	POWER DOWN CONTROL
(7) J-K	0°-89°	POWER UP CONTROL
(8)	83°-90°	FLASHING LGT. CONTROL
(9)	5°-90°	BELL CONTROL
(10) T-U	0°-5°	HORIZONTAL SNUB
(11)	0°-5°	GATE DOWN INDICATION

R1 - DOWN SNUB RESISTOR, ADJ.
R2 - POWER DOWN RATE RESISTOR
R3 - POWER DOWN LIMIT RESISTOR

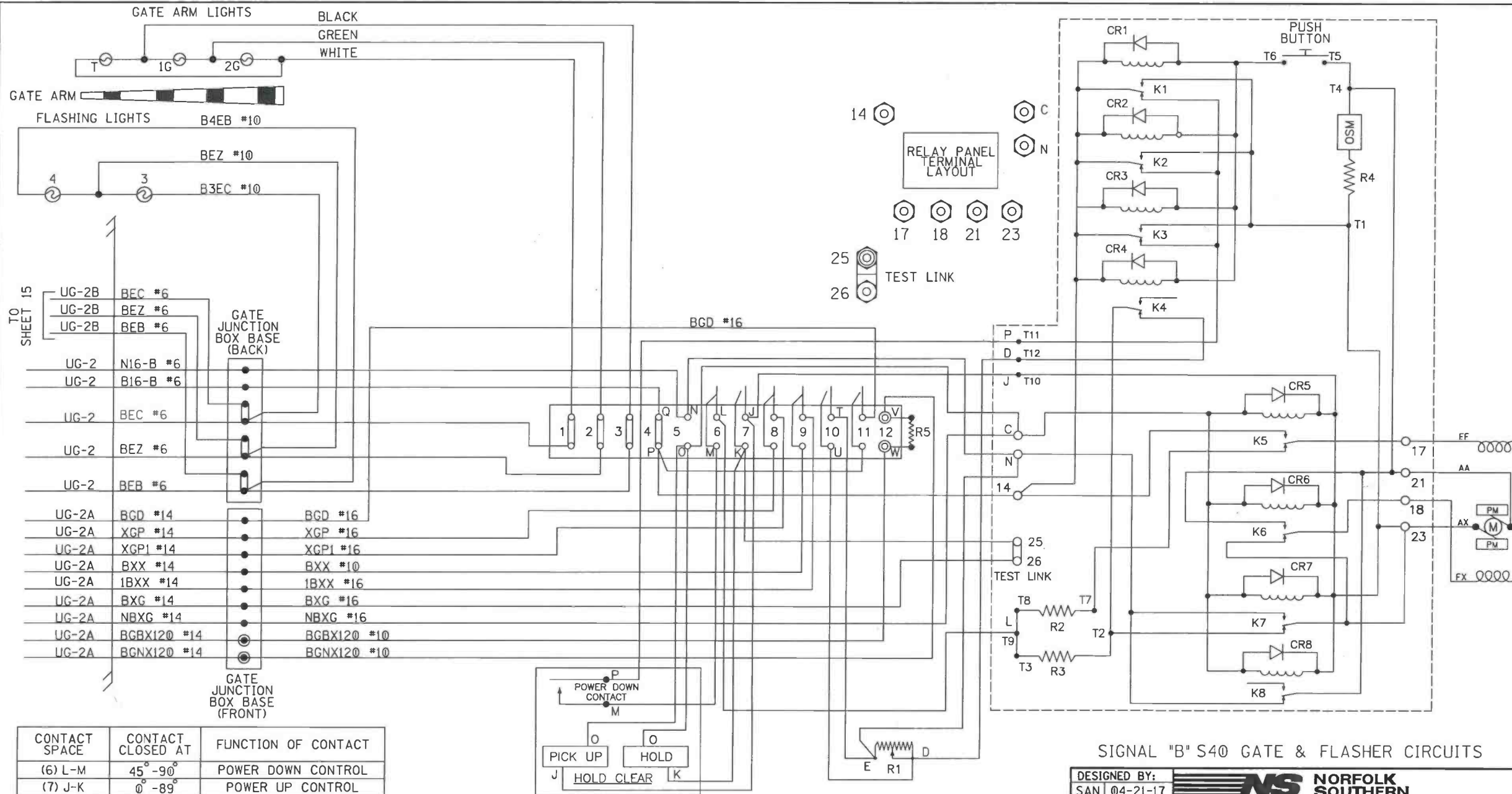
R4 - OSM SNUB RESISTOR
R5 - DEFROSTER
K1-8 - GATE & MAINT. RELAYS
OSM - OVERSPEED MODULE

SIGNAL "A" S40 GATE & FLASHER CIRCUITS

DESIGNED BY:	JWB 11-04-16	NORFOLK SOUTHERN
DRAWN BY:	IRE 11-04-16	
CHECKED BY:	DBS 11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.
IN SERVICE:	- -	DAYTON DISTRICT
		FILE No. R-
		CADD or DWG. No. 82112059.16
		SHEET 16 of 25

REVISION INITIALS JWB/IRE 12-12-16 SAN/IRE 04-21-17

PROPERTY PENNSYLVANIA R.R.



R1 - DOWN SNUB RESISTOR, ADJ.
R2 - POWER DOWN RATE RESISTOR
R3 - POWER DOWN LIMIT RESISTOR

R4 - OSM SNUB RESISTOR
R5 - DEFROSTER
K1-8 - GATE & MAINT. RELAYS
OSM - OVERSPEED MODULE

SIGNAL "B" S40 GATE & FLASHER CIRCUITS

DESIGNED BY:	SAN 04-21-17	NORFOLK SOUTHERN
DRAWN BY:	IRE 04-21-17	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.
CHECKED BY:	DBS 04-21-17	DAYTON, OH CFLGS AT FINDLAY ST.
IN SERVICE:	--	DAYTON DISTRICT
		CADD or DWG. No. 82112059.17
		FILE No. R-
		SHEET 17 of 25

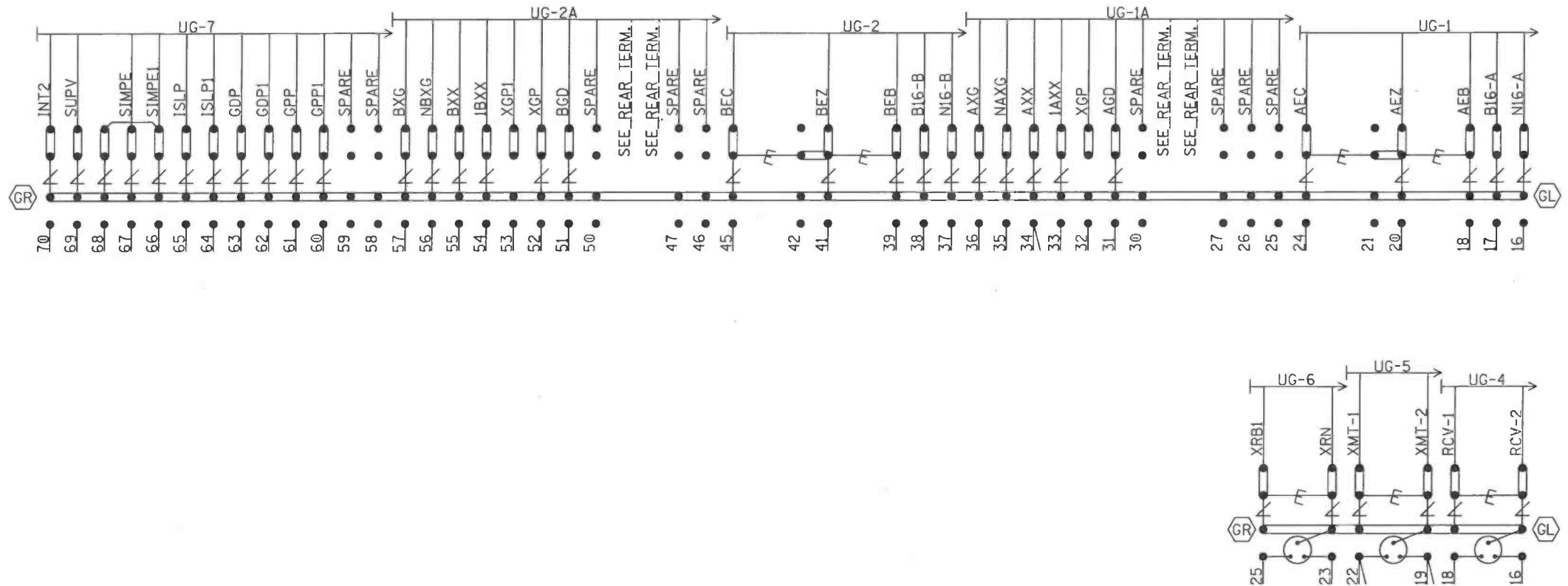


DESIGNED BY:		 NORFOLK SOUTHERN	
JWB	11-04-16		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-205.92
IRE	11-04-16	DAYTON, OH CFLGS AT FINDLAY ST.	
CHECKED BY:			
DBS	11-05-16		
IN SERVICE:		DAYTON DISTRICT	FILE No. R-
	- -	CADD or DWG. No. 82112059.18	SHEET 18 of 25

REVISION	JWB/IRE	SAN/IRE
INITIALS	12-12-16	04-21-17

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

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



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

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

- = Heavy Duty Equalizer (022700-1X)
- = Clearview Lightning Arrestor (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 1A & 1B

DESIGNED BY:	JWB 11-04-16	NORFOLK SOUTHERN	
DRAWN BY:	IRE 11-04-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-205.92
CHECKED BY:	DBS 11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.	
IN SERVICE:	- -	DAYTON DISTRICT	FILE R-
		CADD or DWG. No. 82112059.19	SHEET 19 of 25

REVISION	JWB/IRE	SAN/IRE											
INITIALS	12-12-16	04-21-17											

PROPERTY
PENNSYLVANIA R.R.

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 BACKBOARD 1A & 1B

[illegible]

AREA BELOW IS SCALED WITH AS=.75



Clearview
 ∠ = Lightning Arrestor
 (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.

DESIGNED BY:		 NORFOLK SOUTHERN	
JWB	11-04-16		
DRAWN BY:		OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-205.92
IRE	11-04-16	DAYTON, OH CFLGS AT FINDLAY ST.	
CHECKED BY:			
DBS	11-05-16		
IN SERVICE:		DAYTON DISTRICT	FILE No. R-
	- -	CADD or DWG. No. 82112059.21	SHEET No. 21 of 25

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

REVISION	JWB/IRE	SAN/IRE
INITIALS	12-12-16	04-21-17

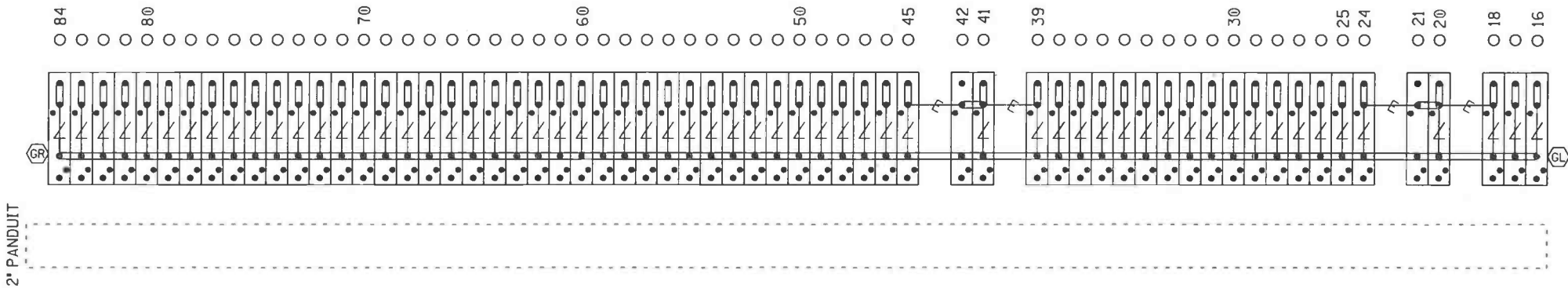
PROPERTY
PENNSYLVANIA R.R.

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

AREA BELOW IS SCALED WITH AS=.75

TERMINAL BOARD 1
RIGHT HALF

"1C"



⚡ = Heavy Duty Equalizer
(022700-1X)

⚡ = Clearview
Lightning Arrester
(022585-1X)

⚡ = LPC-10560-51

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

FARADAY SHIELD 1C

= INDICATES PLACEMENT
OF PANDUIT

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

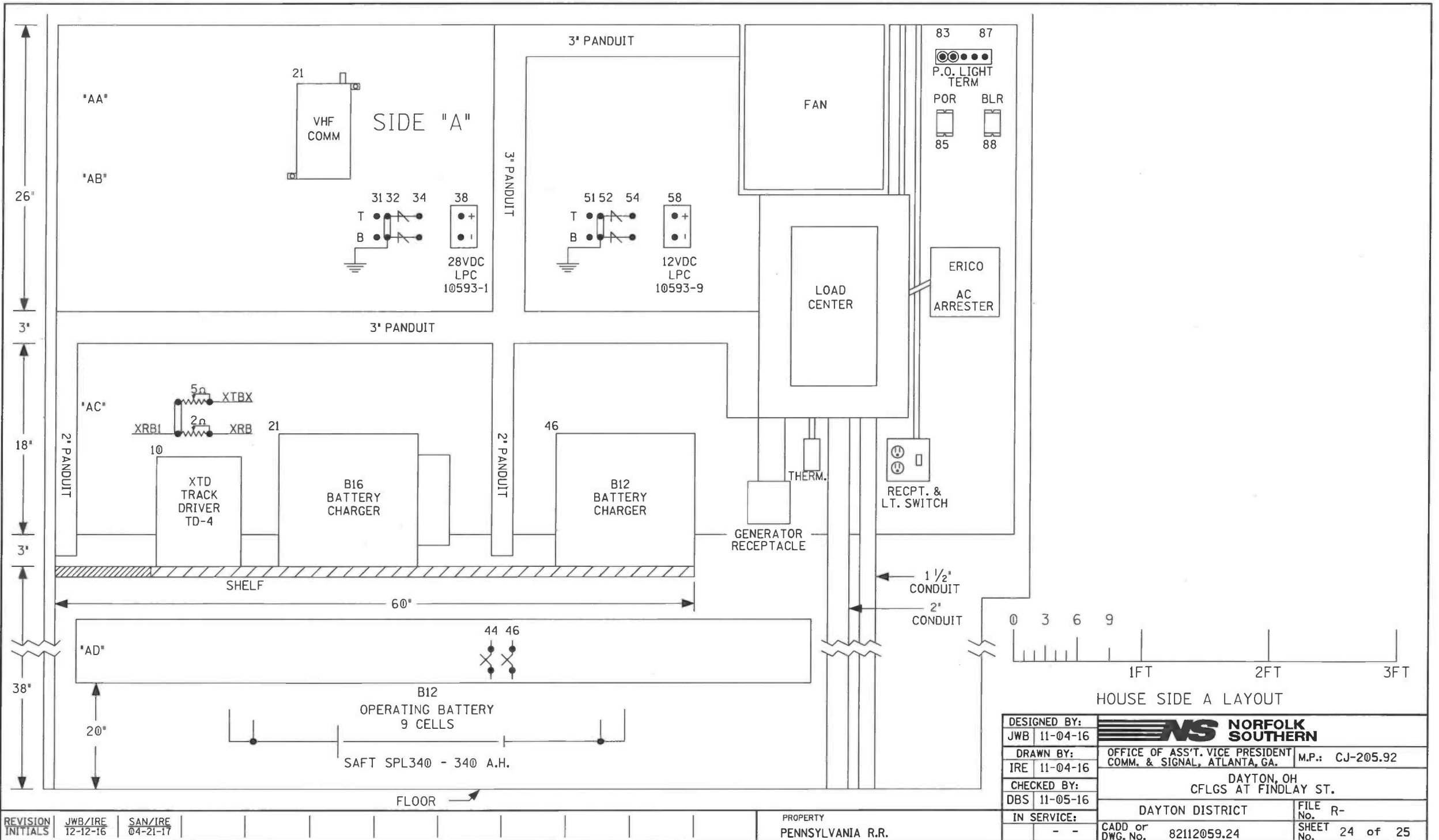
REVISION
INITIALS

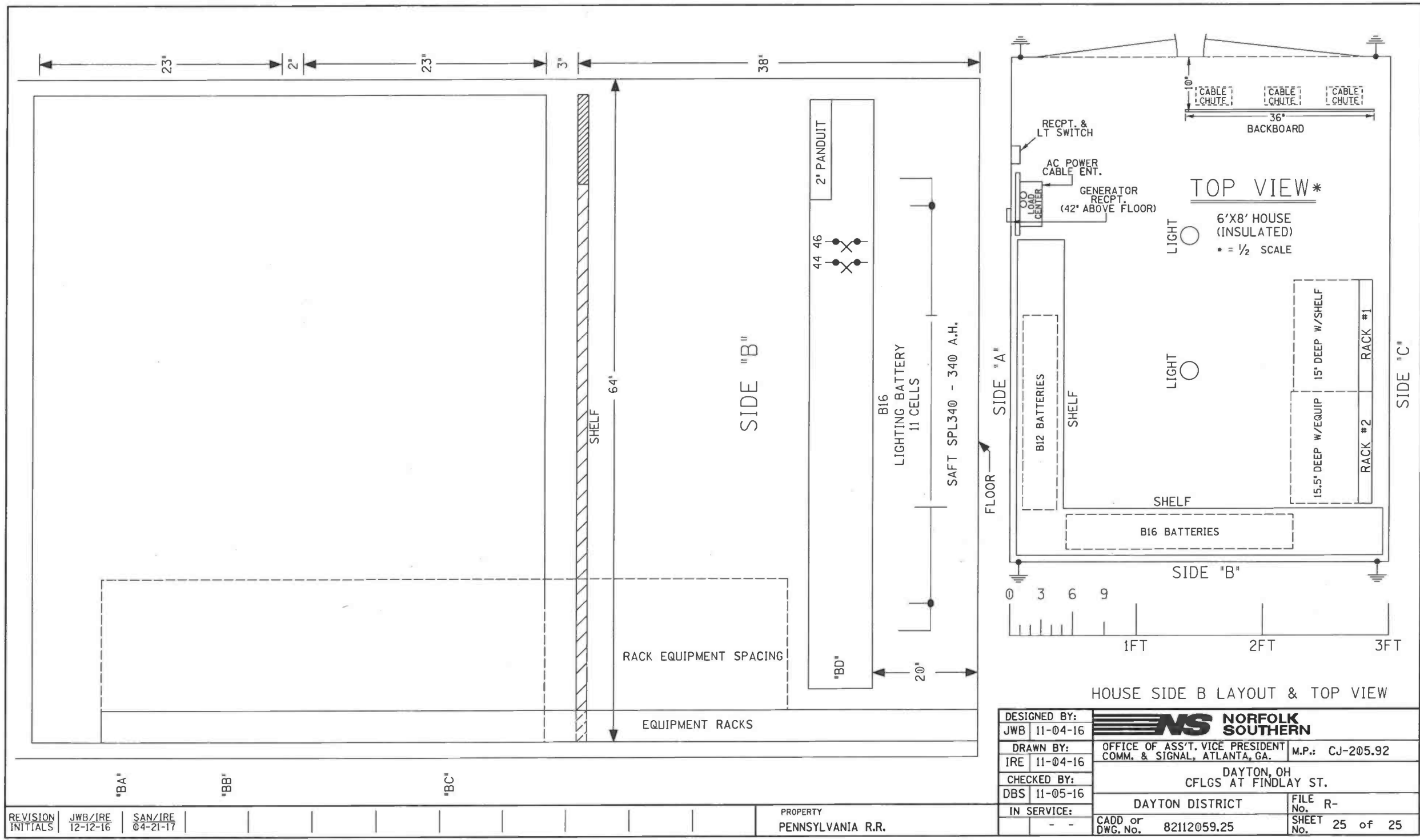
JWB/IRE
12-12-16

SAN/IRE
04-21-17

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY:	JWB 11-04-16	NS NORFOLK SOUTHERN	
DRAWN BY:	IRE 11-04-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-205.92
CHECKED BY:	DBS 11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.	
IN SERVICE:	- -	DAYTON DISTRICT	FILE No. R-
		CADD or DWG. No. 82112059.22	SHEET No. 22 of 25





REVISION	JWB/IRE	SAN/IRE
INITIALS	12-12-16	04-21-17

PROPERTY
PENNSYLVANIA R.R.

DESIGNED BY:	JWB 11-04-16	NS NORFOLK SOUTHERN	
DRAWN BY:	IRE 11-04-16	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: CJ-205.92
CHECKED BY:	DBS 11-05-16	DAYTON, OH CFLGS AT FINDLAY ST.	
IN SERVICE:	- -	DAYTON DISTRICT	FILE R-
		CADD or DWG. No. 82112059.25	SHEET 25 of 25



OHIO RAIL DEVELOPMENT COMMISSION

Mail Stop #3140, 1980 West Broad Street, Columbus OH 43223

John R. Kasich, Governor • Mark Policinski, ORDC Chairman

October 5, 2015

Mr. Stephen Klinger
Norfolk Southern Railway
Public Projects Engineer
1200 Peachtree Street, Box 123
Atlanta, Ga. 30309

RE: Grade Crossing Warning Device Improvements
Montgomery County – C.J. Corridor; PID # 101711
Irwin St, DOT # 527818F,
Findlay St, DOT # 527819M
Washington St, DOT # 524622B
Stewart St, DOT # 524628S
Albany St, DOT # 524626D
Miami Chapel, DOT # 524629Y

Dear Mr. Klinger:

The above grade crossings were identified for improvements in the CJ Corridor Agreement, Agreement number 13595, dated October 13, 2005.

Norfolk Southern Corporation (NS) is authorized to proceed with the site plans and cost estimates (PE) for this project. Existing equipment should be incorporated into the modernization of the warning devices unless it does not support the improved circuitry and/or meeting current engineering standards. This authorization is made with the stipulation and understanding that any field work needs prior approval before 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.

The ORDC is not requesting that the PUCO issue an Order at this time. When the ORDC receives the PE it will be evaluated and a construction-only Order requested from PUCO. Please submit the PE to ORDC within 90 days of receipt of this letter.

The diagnostic review form is attached. Please note any recommendations (page 3), if any, made by the team with regard to requirements for this location. Any minor roadway work necessary for MUTCD compliance should be incorporated into the PE and such costs will flow through the railroad reimbursement process.

The Project Manager for this project is Greg Gronbach. Greg Gronbach can be reached at (614)-395-1824, or Greg.Gronbach@dot.ohio.gov, if you have any questions.

Sincerely,


Greg Gronbach
Project Manager, Safety Programs



www.rail.ohio.gov

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

C: Randall Schumacher, Supervisor, Rail Division, PUCO
 George Martin, PUCO, Grade Crossing Planner
 Susan Arduini, ORDC
 Project Manager, ORDC



OHIO RAIL DEVELOPMENT COMMISSION

Mail Stop #3140, 1980 West Broad Street, Columbus OH 43223

John R. Kasich, Governor • Mark Policinski, ORDC Chairman

September 21, 2015

Norfolk Southern Railway Company
Mr. Stephen Klinger
Administrator Highway Grade Crossing Improvements
1200 Peachtree Street
Atlanta, GA 30309-3597

Subject: Grade Crossing Warning Device Improvements
Montgomery County—C. J. Corridor; PID # 101711
Irwin Street, DOT # 527818F,
Findlay Street, DOT # 527819M,
Washington Street, DOT # 524622B,
Stewart Street, DOT # 524628S,
Albany Street, DOT # 524626D,
Miami Chapel, DOT # 524629Y.

Dear Mr. Klinger:

The above grade crossings were identified for improvements in the C.J. Corridor Agreement, Agreement number 13595, dated October 13, 2005, and diagnostic reviews were conducted on May 3, 2011. As a result of the reviews, the railroad warning devices will be modernized.

This project shall be completed in compliance with Agreement No. 17450, dated December 19, 2012, entered into by the State of Ohio and Norfolk Southern Railway Company (NS) and incorporated as if fully rewritten herein. This construction shall also meet the general terms and conditions under the Moving Ahead for Progress in the 21st Century Act (MAP-21) and subsequent amendments and the State of Ohio's Federally Funded Warning Device Program.

Preliminary engineering (PE) and construction costs shall be borne Seventy-Five percent (75%) by ORDC and Twenty-Five percent (25%) by NS. Reimbursable costs will be limited by the ORDC based on approved estimates and bid tabulations, if applicable. These limits will be quantified by the ORDC in its construction authorization to NS and may be amended by the ORDC based on revised estimates and bid tabulations.

This Letter Agreement and the approved plans constitute the scope of the project. NS shall notify ORDC in writing of any changes in the scope of work which are not in the approved plans and estimates and secure approval in writing of same before the work is performed.

PE will not be commenced by NS prior to ORDC issuing a PE authorization. PE will be submitted by NS to ORDC within ninety (90) days or other time specified by ORDC in the PE authorization. Construction will not be commenced by NS prior to ORDC issuing a construction authorization. Construction will be completed by NS within nine (9) months or other time specified in the time specified by ORDC in the construction authorization.



www.rail.ohio.gov

phone: 614.644.0306

IMPROVING RAIL TODAY FOR TOMORROW'S ECONOMY

September 21, 2015

Page 2

Please indicate your acceptance of the terms and conditions of this Letter Agreement by signing and returning one (1) copy to me at the address listed above and retain a copy for your files. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be a duplicate original, but all of which taken together shall be deemed to constitute a single Agreement.

Sincerely,



Matthew R. Dietrich
Executive Director

Norfolk Southern:

By: 

Title: Administrator Grade Crossing Program

Date: September 22, 2015

MOT Dayton CJ Corridor PID 101711NS.docx



Diagnostic Review Team Survey

Date: 5.3.11

Location Data			
Street or Road Name: <u>N. IRWIN AVE.</u>			
Route/Road Number (i.e. Twp., Co., SR or US)		(Include SLM if State or US route)	
AAR-DOT No.: <u>527 818 F</u>			
County: <u>MDT</u>	Township:	City: (In or Near) <u>DAYTON</u>	
Railroad Name: <u>NORFOLK SOUTHERN</u>	Railroad Division: <u>DEARBORN LAKE</u>	Branch/Line Name: <u>CT</u>	
Nearest RR Timetable Station: <u>MORAINÉ</u>		RR Milepost: <u>205.57</u>	

On-Site Review Team			
(Include: Name - Organization - Phone Number)			
1.	<u>TIM PERKINS</u>	<u>ORDC</u>	<u>614.644.0284</u>
2.	<u>ROBERT P COUSER</u>	<u>NS</u>	<u>937-581-5255</u>
3.	<u>Matthew R Couser</u>	<u>NS</u>	<u>937-470-9591</u>
4.	<u>W.L. BORRINGER</u>	<u>NS</u>	<u>404-582-5295</u>
5.	<u>GEORGE MARTIN</u>	<u>PUCO</u>	<u>614-752-9107</u>
6.	<u>Steve Fink</u>	<u>City of Dayton</u>	<u>937-333-3839</u>
7.	<u>Joe Brzozowski</u>	<u>City of Dayton</u>	<u>937-333-4088</u>
8.			
9.			

Existing Traffic Control Devices			
Type of Warning Devices	Installed?		Quantity/Comments
Advance Warning Signs	☒ Yes	☐ No	
'Stop' Signs	☐ Yes	☒ No	
'Stop Ahead' Signs	☐ Yes	☒ No	
Pavement Markings	☒ Yes	☐ No	<u>GOING WEST</u>
Crossbucks	☒ Yes	☐ No	
Number of Tracks Signs	☐ Yes	☐ No	
Inventory Tags	☒ Yes	☐ No	
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	
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		
Hazard Ranking	161	Date Run:
Railroad Data		
Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	24	
< 1 per day		
Day thru trains	10	
Night thru trains		
Daytime switching movements		
Nighttime switching movements		
Total number of tracks	2	
Number of main tracks	1	
Number of other tracks	1	
Maximum train speed	50	
Typical train speed		
Amtrak		
If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☐ Yes ☐ No		
If multiple tracks, can two trains occupy crossing at the same time? ☐ Yes ☒ No		
Can one train block the motorists' view of another train at crossing? ☐ Yes (Explain below) ☐ No		
Are 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:		
Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	4187	1070
Highway paved	☒ Yes ☐ No	☐ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: 34 ft.		
Number of highway lanes	2	
Urban or Rural	URBAN	
Vehicle Speed: 25 MPH		
School Bus Operation: ☒ No ☐ Yes _____ Amount		
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 _____ Curb and Gutter: ☐ Functional (Curb height = 4" or more) ☐ Non-functional (Curb height = Less than 4") ☒ None	Quadrant _____ 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 it the consensus of the Diagnostic Review Team that this is a potential closure project? ☐ No ☐ Yes

Explain reasons:

Type of Development

- ☐ Open Space ☐ Institutional
- ☒ Industrial ☒ Commercial
- ☐ Residential

Location of nearby schools:

Utility Information

Is commercial power available? ☐ No ☒ Yes

Utility Provider (Company Name) DP&L

Phone Number _____

Nearest Available Power Source _____

What other utilities are present? _____

Is there potential utility conflict(s) ☐ Yes ☐ No ☐ Unknown

Diagnostic Team Recommendations

Quadrants Needed

- ☐ Install/upgrade active devices
- ☐ Automatic Flashing Lights (AFLS)
- ☐ AFLS / Cants
- ☐ AFLS / Gates
- ☐ AFLS / Gates / Cants
- ☐ Upgrade circuitry
- ☐ Sidelights
- ☐ Guardrail Needed
- ☐ Install/Replace curb
- ☐ Other (define)

Comments:

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

Field Dimensions

Show North
Direction

Sidewalk

Parkway

Roadway

Roadway

Parkway

Sidewalk

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

Measurements by: _____

Field Sketch

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

Sketch by: _____

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.



Diagnostic Review Team Survey

Date: 5.3.11

Location Data			
Street or Road Name: <u>FINDLAY AVE.</u>			
Route/Road Number (i.e. Twp., Co., SR or US)		(include SLM if State or US route)	
AAR-DOT No.: <u>527 819 M</u>			
County: <u>MOT</u>	Township:	City: (In or Near) <u>DAYTON</u>	
Railroad Name: <u>NORFOLK SOUTHERN</u>	Railroad Division: <u>DEARBORN LAKE</u>	Branch/Line Name:	
Nearest RR Timetable Station:		RR Milepost: <u>205.92</u>	

On-Site Review Team			
(Include: Name - Organization - Phone Number)			
1.	<u>TIM PERKINS</u>	<u>ORDC</u>	<u>614.644.0284</u>
2.	<u>GLORIA MARIN</u>	<u>PUCO</u>	<u>614.752.9107</u>
3.	<u>W.F. Basmaga</u>	<u>NS</u>	<u>417.512.5295</u>
4.	<u>Matthew R Couser</u>	<u>NS</u>	<u>937-470-9591</u>
5.	<u>Steve Finke</u>	<u>City of Dayton</u>	<u>937-333-3839</u>
6.	<u>Jim Brzezinski</u>	<u>City of Dayton</u>	<u>937-333-4088</u>
7.	<u>Robert P Couser</u>	<u>NS</u>	<u>937.581.5255</u>
8.			
9.			

Existing Traffic Control Devices			
Type of Warning Devices	Installed?		Quantity/Comments
Advance Warning Signs	☒ Yes	☐ No	
'Stop' Signs	☐ Yes	☒ No	
'Stop Ahead' Signs	☐ Yes	☒ No	
Pavement Markings	☐ Yes	☒ No	
Crossbucks	☒ Yes	☐ No	
Number of Tracks Signs	☒ Yes	☐ No	
Inventory Tags	☐ Yes	☐ No	
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	
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		
Hazard Ranking	780	Date Run: 4.28.11
Railroad Data		
Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	18	
< 1 per day		
Day thru trains	6	
Night thru trains		
Daytime switching movements		
Nighttime switching movements		
Total number of tracks		
Number of main tracks	2	1 main + siding NS
Number of other tracks	2	1 CSX
Maximum train speed	50	
Typical train speed		
Amtrak		
If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☐ Yes ☐ No		
If multiple tracks, can two trains occupy crossing at the same time? ☐ Yes ☐ No		
Can one train block the motorists' view of another train at crossing? ☐ Yes (Explain below) ☐ No		
Are 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 <u>75</u> (take measurement between track centerlines at closest point along roadway)		
Roadway Data		
Local Highway Authority:		
Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	16628 (2004)	13449 4/2011
Highway paved	☒ Yes ☐ No	☐ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: <u>41</u> ft.		
Number of highway lanes	2 w/CENTER TURN	
Urban or Rural	URBAN	
Vehicle Speed: <u>35</u> MPH		
School Bus Operation: ☐ No ☒ Yes _____ Amount		
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 _____ Curb and Gutter:	Quadrant _____ Curb and Gutter:	
☐ Functional (Curb height = 4" or more)	☐ Functional (Curb height = 4" or more)	
☐ Non-functional (Curb height = Less than 4")	☐ Non-functional (Curb height = Less than 4")	
☒ None	☒ 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 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 _____	
What other utilities are present? _____	
Is there potential utility conflict(s) ☐ Yes ☐ No ☐ Unknown	
Diagnostic Team Recommendations	
	Quadrants Needed
☐ Install/upgrade active devices	
☐ Automatic Flashing Lights (AFLS)	
☐ AFLS / Cants	
☐ AFLS / Gates	
☐ AFLS / Gates / Cants	
☐ Upgrade circuitry	
☐ Sidelights	
☐ Guardrail Needed	
☐ Install/Replace curb	
☐ Other (define)	
Comments: <i>Entire new system</i>	
☐ Install/upgrade traffic signal preemption	
☐ No improvements needed	
☐ Other (define)	
Field Dimensions	

The diagram shows a cross-section of a street with a central vertical line representing the centerline. On the left side, from top to bottom, are the labels: Sidewalk, Parkway, and Roadway. On the right side, from top to bottom, are the labels: Roadway, Parkway, and Sidewalk. Dashed vertical lines with arrows at both ends indicate the boundaries between these zones. A box on the right side is labeled "Show North Direction".

Field Sketch

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

Sketch by: _____

TABLE I**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.



Ohio Rail Development Commission
1980 W. Broad Street, 2nd Floor
Columbus, OH 43223

Diagnostic Review Team Survey

Date: 5.3.11

Location Data			
Street or Road Name: <u>STEWART STREET</u>			
Route/Road Number (i.e. Twp., Co., SR or US)		(Include SLM if State or US route)	
AAR-DOT No.: <u>524 628 S</u>			
County: <u>MOT</u>	Township:	City: (In or Near) <u>DAYTON</u>	
Railroad Name: <u>NORFOLK SOUTHERN</u>	Railroad Division: <u>DEARBORN LAKE</u>	Branch/Line Name:	
Nearest RR Timetable Station:		RR Milepost: <u>209.5</u>	

On-Site Review Team			
(Include: Name - Organization - Phone Number)			
1.	<u>TIM PERKINS</u>	<u>ORDC</u>	<u>614.644.0284</u>
2.	<u>ROBERT P COUSER</u>	<u>NS</u>	<u>937-581-5255</u>
3.	<u>Matthew R Couser</u>	<u>NS</u>	<u>937-470-9591</u>
4.	<u>W. R. Burman</u>	<u>NS</u>	<u>404 582 5251</u>
5.	<u>GEORGE MARTIN</u>	<u>PUCO</u>	<u>614-752-9107</u>
6.			
7.			
8.			
9.			

Existing Traffic Control Devices		
Type of Warning Devices	Installed?	Quantity/Comments
Advance Warning Signs	☒ Yes ☐ No	
'Stop' Signs	☐ Yes ☒ No	
'Stop Ahead' Signs	☐ Yes ☒ No	
Pavement Markings	☐ Yes ☒ No	
Crossbucks	☒ Yes ☐ No	
Number of Tracks Signs	☐ Yes ☒ No	
Inventory Tags	☒ Yes ☐ No	
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	
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		
Hazard Ranking	1929	Date Run: 4.28.11
Railroad Data		
Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	18	
< 1 per day		
Day thru trains	6	
Night thru trains		
Daytime switching movements	2	
Nighttime switching movements		
Total number of tracks		
Number of main tracks	1	
Number of other tracks		
Maximum train speed		
Typical train speed	30	
Amtrak		
If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☐ Yes ☐ No		
If multiple tracks, can two trains occupy crossing at the same time? ☐ Yes ☐ No		
Can one train block the motorists' view of another train at crossing? ☐ Yes (Explain below) ☐ No		
Are 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:		
Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	4232 (1998)	
Highway paved	☒ Yes ☐ No	☐ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: 32.6 ft.		
Number of highway lanes	2	
Urban or Rural	URBAN	
Vehicle Speed: 30 MPH		
School Bus Operation: ☐ No ☒ Yes _____ Amount		
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 _____ Curb and Gutter:	Quadrant _____ Curb and Gutter:	
☐ Functional (Curb height = 4" or more)	☐ Functional (Curb height = 4" or more)	
☐ Non-functional (Curb height = Less than 4")	☐ Non-functional (Curb height = Less than 4")	
☒ None	☒ 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 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 _____	
What other utilities are present? _____	
Is there potential utility conflict(s) ☐ Yes ☐ No ☐ Unknown	
Diagnostic Team Recommendations	
	Quadrants Needed
☐ Install/upgrade active devices	
☐ Automatic Flashing Lights (AFLS)	
☐ AFLS / Cants	
☐ AFLS / Gates	
☐ AFLS / Gates / Cants	
☐ Upgrade circuitry	
☐ Sidelights	
☐ Guardrail Needed	
☐ Install/Replace curb	
☐ Other (define)	
Comments: <i>Complete new system, city to relocate curb approx 3 feet</i>	
☐ Install/upgrade traffic signal preemption	
☐ No improvements needed	
☐ Other (define)	
Field Dimensions	

Sidewalk

Parkway

Roadway

Roadway

Parkway

Sidewalk

Sidewalk

Parkway

Roadway

Roadway

Parkway

Sidewalk

Show North
Direction

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

Measurements by: _____

UPDATED (12/2006)

4

Field Sketch

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

Sketch by: _____

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.



Diagnostic Review Team Survey

Date: 5.3.11

Location Data

Street or Road Name: MIAMI CHAPEL ROAD		
Route/Road Number (i.e. Twp., Co., SR or US) (include SLM if State or US route)		AAR-DOT No.: 524 629 4
County: NOT	Township:	City: (In or Near) DAYTON
Railroad Name: NORFOLK SOUTHERN	Railroad Division: DEARBORN LAKE	Branch/Line Name:
Nearest RR Timetable Station:		RR Milepost: 209.8

On-Site Review Team

(Include: Name - Organization - Phone Number)

- | | | | |
|----|-------------------------|-----------------------|-----------------------|
| 1. | TIM PERKINS | ORDC | 614. 644. 0284 |
| 2. | ROBERT P COUSER | NS | 937- 581 -5255 |
| 3. | Matthew R Couser | NS | 937-470-9891 |
| 4. | W R Bannister | NS | 404 582-5295 |
| 5. | Joe Brzezowski | City of Dayton | 937-333-4088 |
| 6. | GEORGE MARTIN | PUCO | 614-752-9107 |
| 7. | | | |
| 8. | | | |
| 9. | | | |

Existing Traffic Control Devices

Type of Warning Devices	Installed?		Quantity/Comments	
Advance Warning Signs	☒ Yes	☐ No		
'Stop' Signs	☐ Yes	☒ No		
'Stop Ahead' Signs	☐ Yes	☒ No		
Pavement Markings	☐ Yes	☒ No		
Crossbucks	☒ Yes	☐ No		
Number of Tracks Signs	☐ Yes	☒ No		
Inventory Tags	☒ Yes	☐ No		
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		
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		
Hazard Ranking	2513	Date Run: 4.28.11
Railroad Data		
Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day		
< 1 per day		
Day thru trains		
Night thru trains		
Daytime switching movements		
Nighttime switching movements		
Total number of tracks	1	
Number of main tracks	1	
Number of other tracks		
Maximum train speed		
Typical train speed		
Amtrak		
If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☐ Yes ☐ No		
If multiple tracks, can two trains occupy crossing at the same time? ☐ Yes ☐ No		
Can one train block the motorists' view of another train at crossing? ☐ Yes (Explain below) ☐ No		
Are 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:		
Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	2270	
Highway paved	☒ Yes ☐ No	☐ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: 36 ft.		
Number of highway lanes	2	
Urban or Rural	URBAN	
Vehicle Speed: 30 MPH		
School Bus Operation: ☐ No ☒ Yes _____ Amount		
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 _____ Curb and Gutter:	Quadrant _____ Curb and Gutter:	
☐ Functional (Curb height = 4" or more)	☐ Functional (Curb height = 4" or more)	
☐ Non-functional (Curb height = Less than 4")	☐ Non-functional (Curb height = Less than 4")	
☒ None	☒ 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 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 _____	
What other utilities are present? _____	
Is there potential utility conflict(s) ☐ Yes ☐ No ☐ Unknown	
Diagnostic Team Recommendations	
	Quadrants Needed
☐ Install/upgrade active devices	
☐ Automatic Flashing Lights (AFLS)	
☐ AFLS / Cants	
☐ AFLS / Gates	
☐ AFLS / Gates / Cants	
☐ Upgrade circuitry	
☐ Sidelights	
☐ Guardrail Needed	
☐ Install/Replace curb	
☐ Other (define)	
Comments:	
☐ Install/upgrade traffic signal preemption	
☐ No improvements needed	
☐ Other (define)	
Field Dimensions	

		Show North Direction
Sidewalk Parkway Roadway		Roadway Parkway Sidewalk
Crossing Angle ☐ 0-29° ☐ 30-59° ☐ 60-90° Measured in _____ Quadrant?		
Measurements by: _____		

Field Sketch

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

Sketch by: _____

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.

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

6/26/2017 2:11:41 PM

in

Case No(s). 17-1508-RR-FED

Summary: Application In the Matter of a Request for the Installation of New Active Warning Devices at Norfolk Southern Railway Grade Crossings, Stewart Street (DOT# 524-628S), Irwin Street (DOT#527-818F), Miami Chapel Road (DOT#524-629Y), & Findlay Street (DOT#527-819M), in Montgomery County, Ohio.(Part 2 of 2) electronically filed by Mrs. Jill A Henry on behalf of PUCO/Rail Division