

Memo

To: Docketing Division

From: Thomas Persinger, Rail Project Specialist, Rail Division

Cc: PUCO Legal Department

Date: 11-9-2022

Re: PUCO Case No. 22-1005-RR-FED In the Matter of a Request for the Installation of Active Warning Devices at the Norfolk Southern Railway Grade Crossing, DOT# 481-562W at Oakwood Avenue in Crawford County, Ohio.

On June 13, 2022, the Ohio Rail Development Commission (ORDC) authorized funding for Norfolk Southern Railway (NS) to install lights and gates at Oakwood Avenue (DOT#481-562W) in Crawford County, Ohio. The crossing was surveyed, on May 10, 2018, and was found to warrant the upgrade. The electric utility provider for this crossing is AEP-Ohio.

The project will be paid for with federal funds and is actual cost. The plans and estimates for the project in the amount of \$403,179.00 have been approved. Construction may commence at once. **Staff requests a Finding & Order with completion of the project in nine months.** Staff requests that the following language be incorporated in the Finding & Order:

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.**

Please serve the following parties of record:

Norfolk Southern Railway
Kurt Young
Administrator, Highway Grade Crossings
650 West Peachtree Street, NW Box 41
Atlanta, GA 30308

Norfolk Southern Railway
Cayela J. Wimberly
Grade Crossing Engineering Director
650 West Peachtree Street, NW Box 41
Atlanta, GA 30308

Eastman and Smith
Casey Talbott
One Seagate 24th Floor
P.O. Box 10032
Toledo, OH 43699-0032

Ohio Rail Development Commission
Alan Bell
Manager, Grade Crossing Programs
1980 West Broad Street
Mail Stop #3140
Columbus, OH 43223

City of Bucyrus
Jeffrey Wagner
Safety Service Director
500 S. Sandusky Avenue
Bucyrus, OH 44820

AEP-Ohio

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

TO: John Williams, Transportation Director, PUCO

FROM: Allen Bell, Manager, Safety Section, ORDC

BY: James Tucker, Project Manager, ORDC J.T.

SUBJECT: Crawford County, East Oakwood Ave. Norfolk Southern Railway
DOT #481-562W, PID 116478

DATE: October 21, 2022

The Public Utilities Commission of Ohio (PUCO) established a diagnostic survey at the subject location on May 10, 2018. 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 for nine months. 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
PE Authorization
Plan & Estimate
Letter Agreement

c: Jill Henry, Rail Division Chief, PUCO
ORDC Project Manager (file)



Rail Development Commission

Mike DeWine, Governor
Jon Husted, Lt. Governor

Scott Corbitt, Chair

October 21, 2022

Mr. Kurt Young
Public Projects Engineer
1200 Peach Street NE, Box 123
Atlanta, Ga. 30309

RE: Warning Device Improvements
Crawford County, East Oakwood Ave, DOT#481-562W
PID#116478, RR Ref #10.3459

Dear Mr. Young:

The plan dated August 16, 2022, and estimate dated September 13, 2022, for the referenced project has been reviewed and is acceptable. **Please note that the railroad must provide ORDC with a plan stamped by a professional engineer licensed in the State of Ohio prior to acceptance and close out of the project.** Norfolk Southern (NS) 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 from ORDC is limited to \$403,179.00. 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 NS accepting the following instructions:

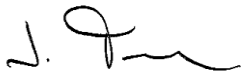
1. NS's project foreman will furnish written notification five (5) working days prior to the date work will start at the project site to James Tucker, ORDC, email james.tucker@dot.ohio.gov and to the Public Utilities Commission of Ohio at thomas.persinger@puco.ohio.gov. NS's project foreman will also notify the same of any stops and re-starts of the work activity and of the date work was completed for the project.
2. NS 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 NS.



3. NS's project foremen will notify James Tucker at 614-398-6897 (telephone) or james.tucker@dot.ohio.gov (email) of any changes in the 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. NS shall send copies of each partial bill to ORDC.Invoice@dot.ohio.gov. Please find the enclosed ODOT Purchase Order to reference when billing.
6. NS 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.

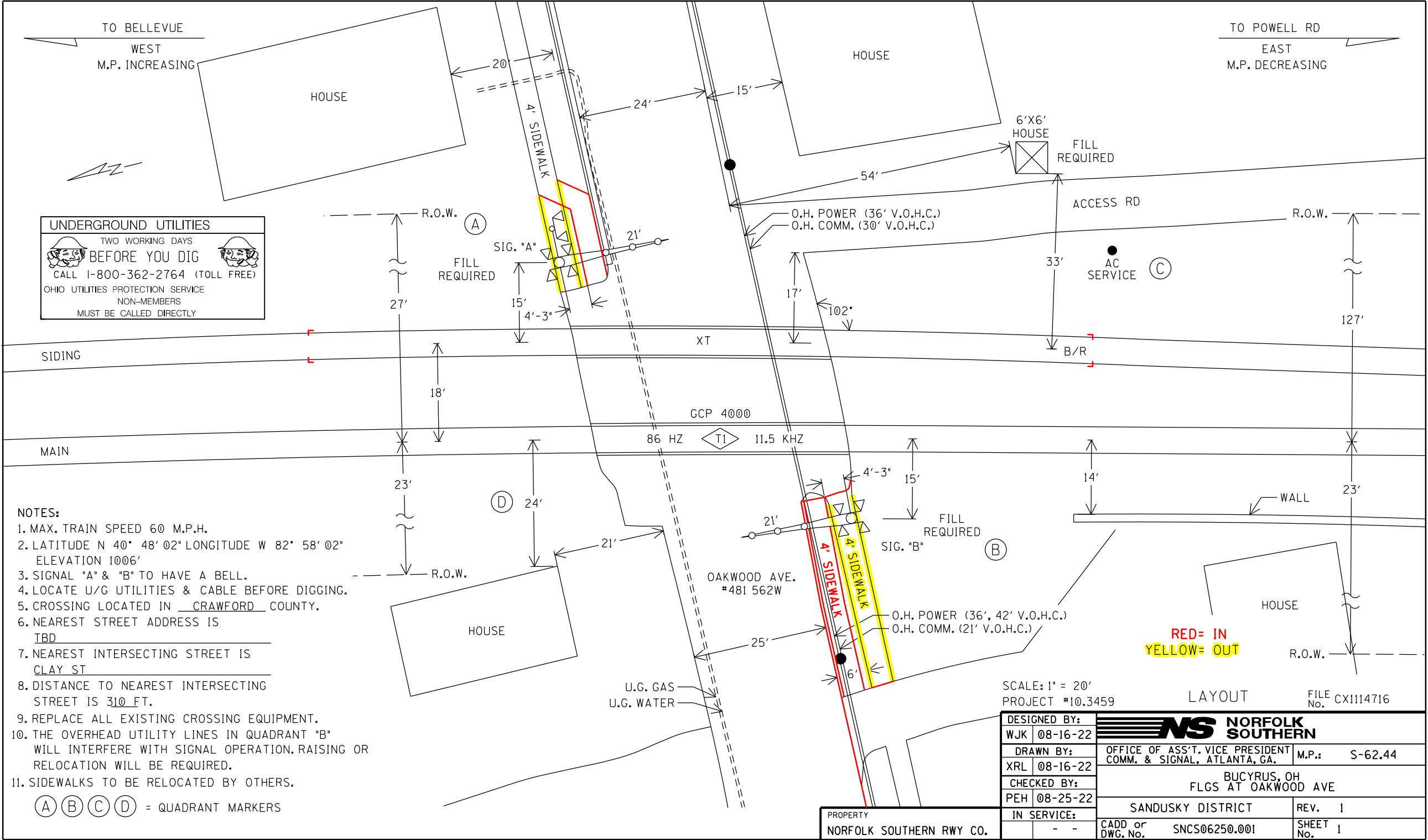
Thank you for your assistance with these matters.

Sincerely,



James Tucker
Project Manager

C: John Williams, Director, Transportation Department, PUCO
Jill Henry, Rail Division Chief, PUCO
Thomas Persinger, Rail Specialist, PUCO
Heather Hamilton, ORDC
ORDC (file)



UNDERGROUND UTILITIES

TWO WORKING DAYS

BEFORE YOU DIG

CALL 1-800-362-2764 (TOLL FREE)

OHIO UTILITIES PROTECTION SERVICE

NON-MEMBERS

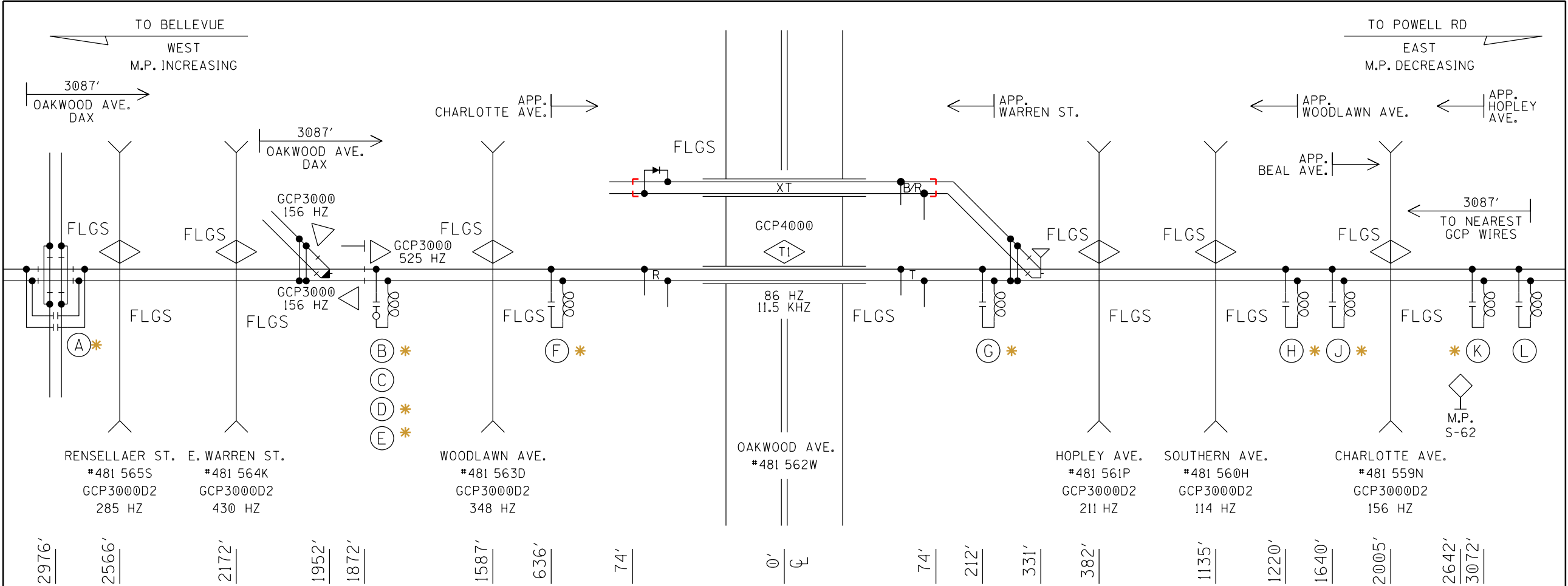
MUST BE CALLED DIRECTLY

- NOTES:
1. MAX. TRAIN SPEED 60 M.P.H.
 2. LATITUDE N 40° 48' 02" LONGITUDE W 82° 58' 02" ELEVATION 1006'
 3. SIGNAL "A" & "B" TO HAVE A BELL.
 4. LOCATE U/G UTILITIES & CABLE BEFORE DIGGING.
 5. CROSSING LOCATED IN CRAWFORD COUNTY.
 6. NEAREST STREET ADDRESS IS TBD
 7. NEAREST INTERSECTING STREET IS CLAY ST
 8. DISTANCE TO NEAREST INTERSECTING STREET IS 310 FT.
 9. REPLACE ALL EXISTING CROSSING EQUIPMENT.
 10. THE OVERHEAD UTILITY LINES IN QUADRANT "B" WILL INTERFERE WITH SIGNAL OPERATION. RAISING OR RELOCATION WILL BE REQUIRED.
 11. SIDEWALKS TO BE RELOCATED BY OTHERS.

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

SCALE: 1" = 20'
PROJECT #10.3459
LAYOUT
FILE NO. CX1114716

DESIGNED BY:	WJK 08-16-22	NORFOLK SOUTHERN	
DRAWN BY:	XRL 08-16-22		
CHECKED BY:	PEH 08-25-22	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
IN SERVICE:	- -	M.P.: S-62.44 BUCYRUS, OH FLGS AT OAKWOOD AVE	
PROPERTY NORFOLK SOUTHERN RY. CO.		SANDUSKY DISTRICT	REV. 1
		CADD or DWG. No. SNCS06250.001	SHEET 1



- (A) - DWBS 8A077A

(B) - NBS 62775-1543 (348HZ)
W/8V617-(2400)

(C) - MF-NBS FSS-2A 250850-000 (86HZ)
W/ INDUCTOR 227032-005 (1500')

(D) - NBS 62775-1543 (211HZ)
W/8V617-(4400)

(E) - NBS 62775-8621 (114HZ)
- (F) - NBS 62775-1543 (156HZ)

(G) - NBS 62775-3497 (525HZ)

(H) - NBS 62775-1543 (348HZ)


(J) - NBS 62775-1543 (430HZ)

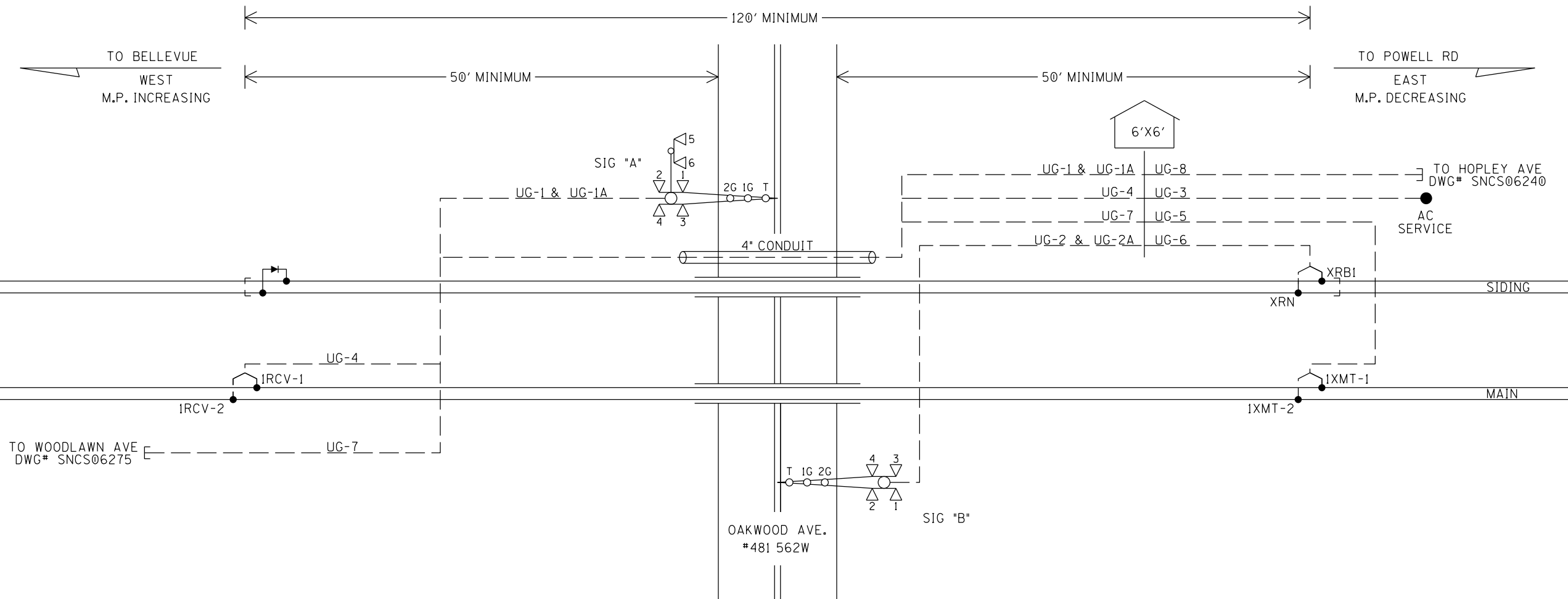
(K) - NBS 62775-1543 (211HZ)
- (L) - MF-NBS FSS-1A 250849-000 (86HZ)

* = EXISTING

PROFILE


* = EXISTING

DESIGNED BY:		 NORFOLK SOUTHERN		
WJK 08-16-22				
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44	
XRL 08-16-22				
CHECKED BY:		BUCYRUS, OH FLGS AT OAKWOOD AVE		
PEH 08-25-22				
IN SERVICE:		SANDUSKY DISTRICT	REV. 1	
PROPERTY NORFOLK SOUTHERN RWY CO.		CADD or DWG. No. SNCS06250.002	SHEET No. 2	




UG-1-5CUG #6	UG-1A-12CUG #14	UG-2A-12CUG #14	UG-3-3CUG #6 W/#8 GND	UG-4-TW. PR. #6	UG-6-TW. PR. #6	UG-7-5CUG #14	UG-8-7CUG #14
AEC AEZ AEB B16-A N16-A	AXG NAXG AXX 1AXX AGD XGPI AGBX120 AGNX120 SPARE SPARE SPARE SPARE	BXG NBXG BXX 1BXX BGD XGPI XGP BGBX120 BGNX120 SPARE SPARE SPARE SPARE	BX120-A BX120-B NX120 GND	IRCV-1 IRCV-2	XRB1 XRN	OAK-1WDAXP (OAKDAX) NOAK-1WDAXP (NOAKDAX) HOPDAX NHOPDAX SPARE	HOPDAX NHOPDAX SPARE SPARE SPARE SPARE
UG-2-5CUG #6				UG-5-TW. PR. #6			
BEC BEZ BEB B16-B N16-B				1XMT-1 1XMT-2			

CABLE PLAN

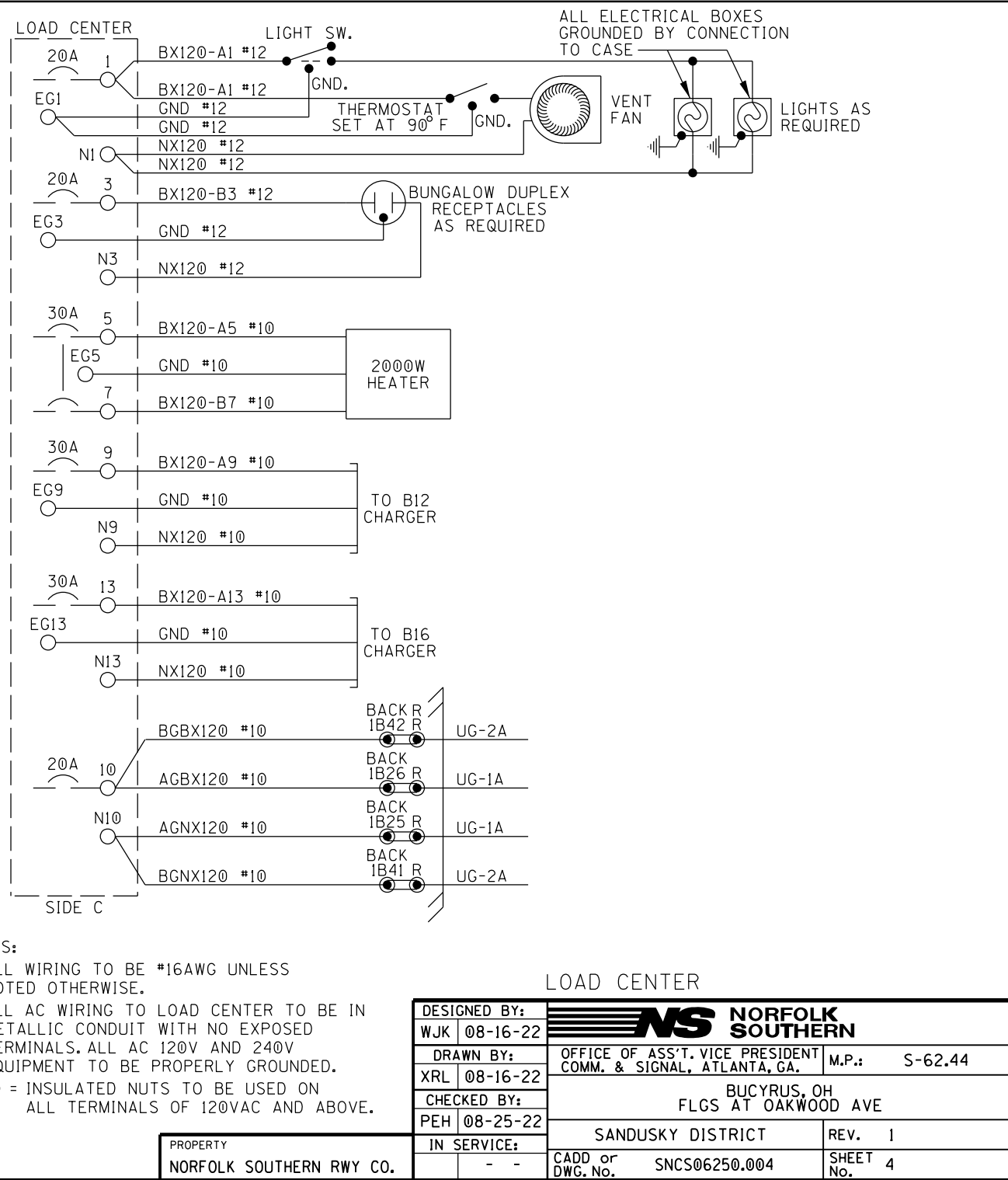
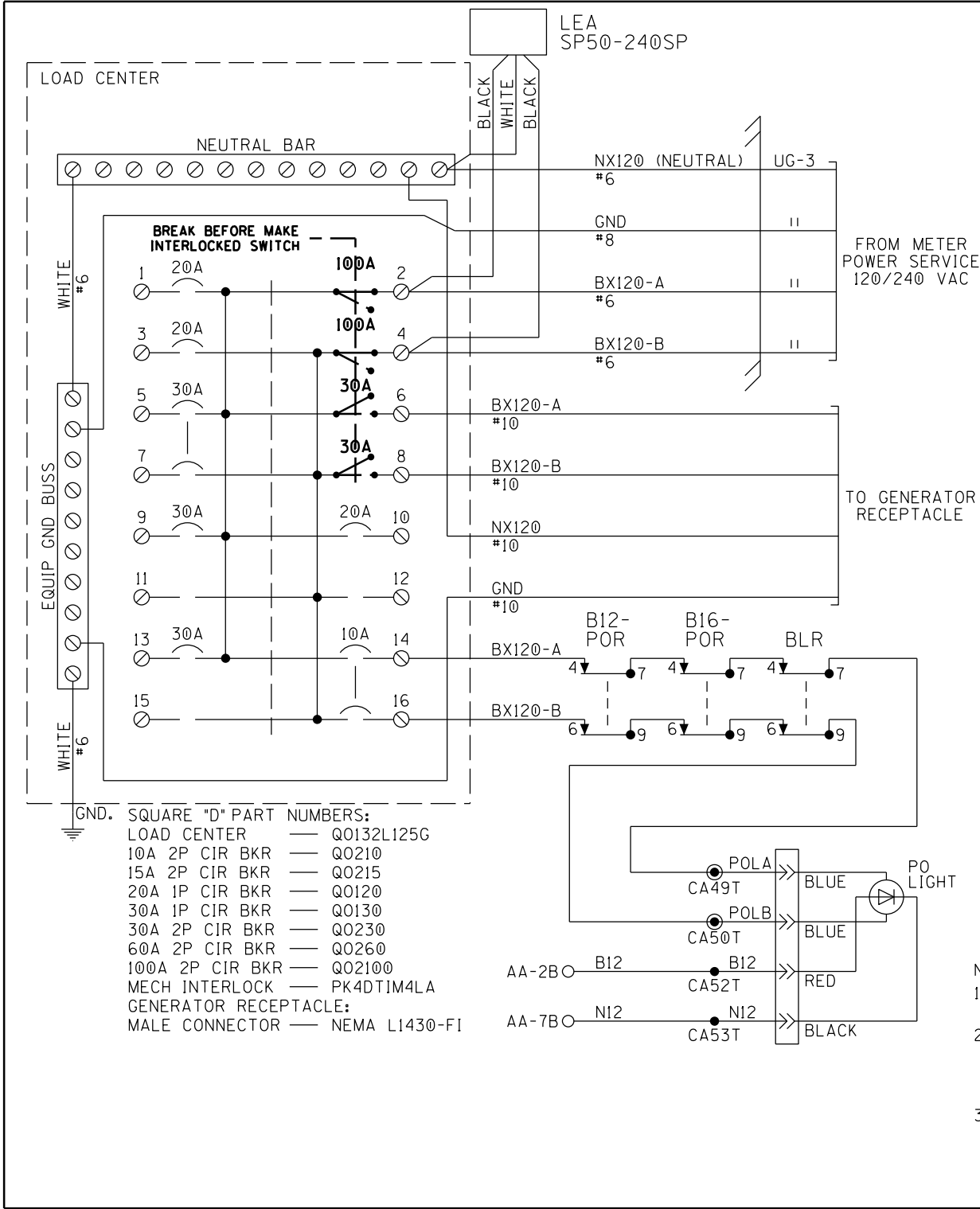
DESIGNED BY:	
WJK 08-16-22	
DRAWN BY:	

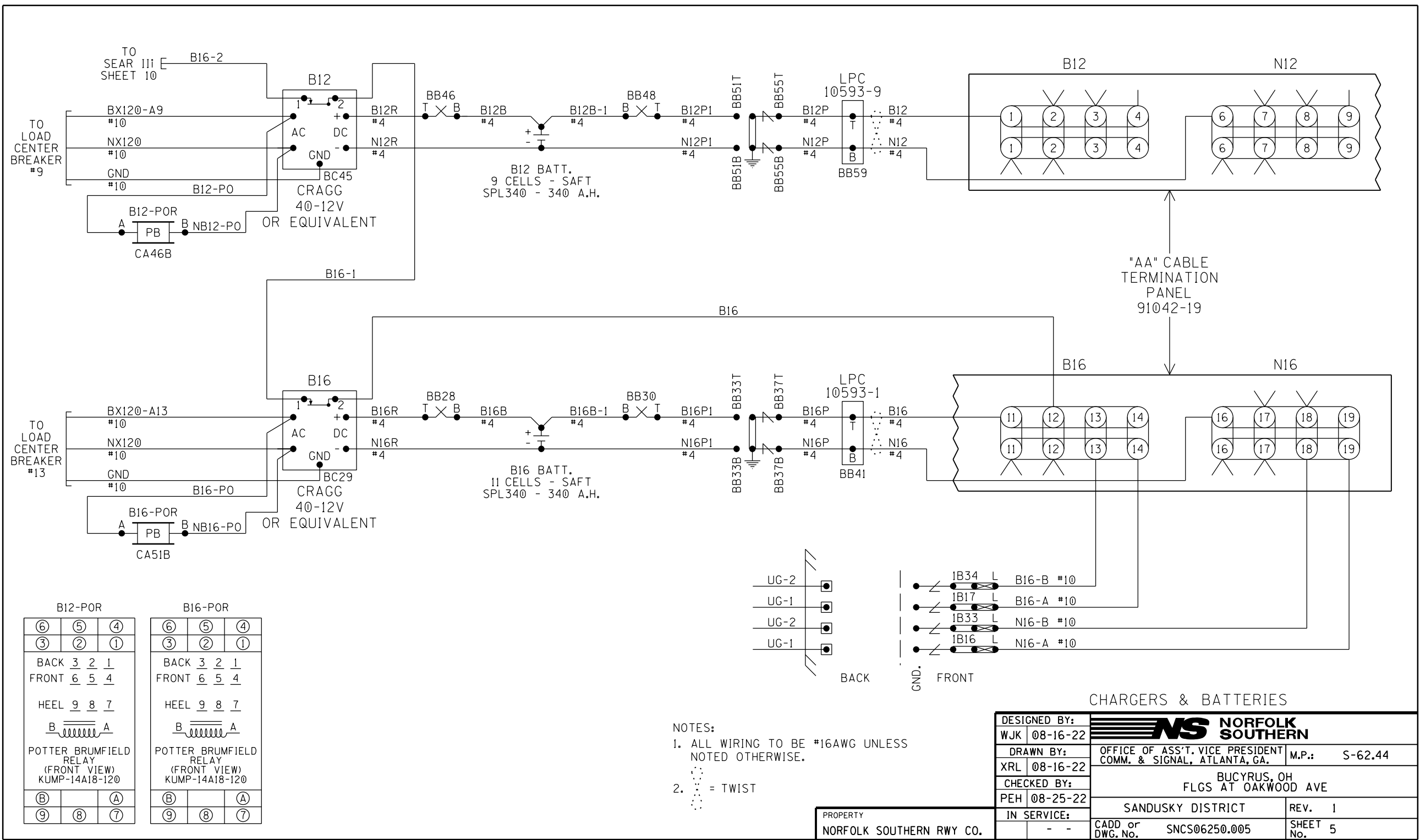
OFFICE OF ASS'T. VICE F.
COMM. & SIGNAL DIV.

CABLE PLAN


DESIGNED BY:		 NORFOLK SOUTHERN	
WJK	08-16-22		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
XRL	08-16-22	BUCYRUS, OH FLGS AT OAKWOOD AVE	
CHECKED BY:			
PEH	08-25-22		
IN SERVICE:		SANDUSKY DISTRICT	REV. 1
	- -	CADD or DWG. No. SNCS06250.003	SHEET 3 No.


PROPERTY
NORFOLK SOUTHERN Rwy CO.





CHARGERS & BATTERIES

DESIGNED BY: WJK 08-16-22		 NORFOLK SOUTHERN	
DRAWN BY: XRL 08-16-22		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
CHECKED BY: PEH 08-25-22		BUCYRUS, OH FLGS AT OAKWOOD AVE	
IN SERVICE: - -		SANDUSKY DISTRICT	REV. 1
PROPERTY NORFOLK SOUTHERN Rwy CO.		CADD or DWG. No. SNCS06250.005	SHEET No. 5

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

* = MAIN & STANDBY MAY USE RIO
IN TRACK 2 SLOTS (M3 & M6)

Program Report

Location and SIN

DOT Number: 481562W
Milepost Number: S-62.44
Site Name: OAKWOOD AVE

SIN: 755029025316

MCF and Template Selection

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

Template = 1A:6 Trk B1

Check Numbers

Office Check No. (DT 4,6,0): 76F89857
Office Check Number: 76F89857
Config. Check Number: 33CF954E
(Based on MCF Revision 021)

Comments

Program

BASIC: module configuration
Track 1 Slot = Track
Track 2/RIO 1 Slot = Not Used
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 = SSCC31
SSCC-2 Slot = SSCC31
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 = No

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

BASIC: VitalComms links
VitalComms link 1 Used = No
VitalComms 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

GCP: track 1
Track 1: GCP Freq Category = Standard
Track 1: GCP Frequency = 86 Hz
Track 1: Approach Distance = 3087 ft
Track 1: Uni/BI/Sim-Bidirnl = Bidirnl
Track 1: GCP Transmit Level = High
Track 1: Island Connection = Isl1
Track 1: Island Distance = 148 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: CancelPickup 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 = IP
Track 1: Prime UAX Pickup = 5 sec

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 Ctrl IP 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: Bidirnl 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: IslFrequency = 11.5 kHz
Track 1: Pickup Delay (2s +) = 0 sec
Track 1: IslEnable 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

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

ADVANCED: out of service 2
T1 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: AllPredictors 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 CallRpt IP Used = No
Emergency Activate IP = No
EZ/EX Logging = Change
EZ/EX Point Change = 3

GCP4000 PROGRAMMING

DESIGNED BY:	 NORFOLK SOUTHERN		
WJK 08-16-22			
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT	M.P.:	S-62.44
XRL 08-16-22	COMM. & SIGNAL, ATLANTA, GA.		
CHECKED BY:	BUCYRUS, OH		
PEH 08-25-22	FLGS AT OAKWOOD AVE		
IN SERVICE:	SANDUSKY DISTRICT	REV.	1
- -	CADD or SNCS06250.007	SHEET	7
	DWG. No.	No.	

PROPERTY
NORFOLK SOUTHERN RWY CO.

SSCC
Gates Used = Yes
SSCCI+2 GPs Coupled = Yes
Min Activation = 0 sec
Rmt Activation Cancel= 2 min
BellOn Gate Rising = No
Mute BellOn 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 NeutralTest = Off
Aux-1 Xng CtrlUsed = 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 NeutralTest = Off
Aux-2 Xng CtrlUsed = No

OUTPUT: assignment page 1
OUT 1.1 = Not Used
OUT 1.2 = Not Used

INPUT: assignment page 1
IN 1.1 = AND 1 XR Enable
IN 1.2 = T1 Prime UAX

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 = General1
Rly 2 = Not Used

SEAR: inputs
SP 2.1 = POK 1
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 2.1 = Not Used
IN 2.2 = 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

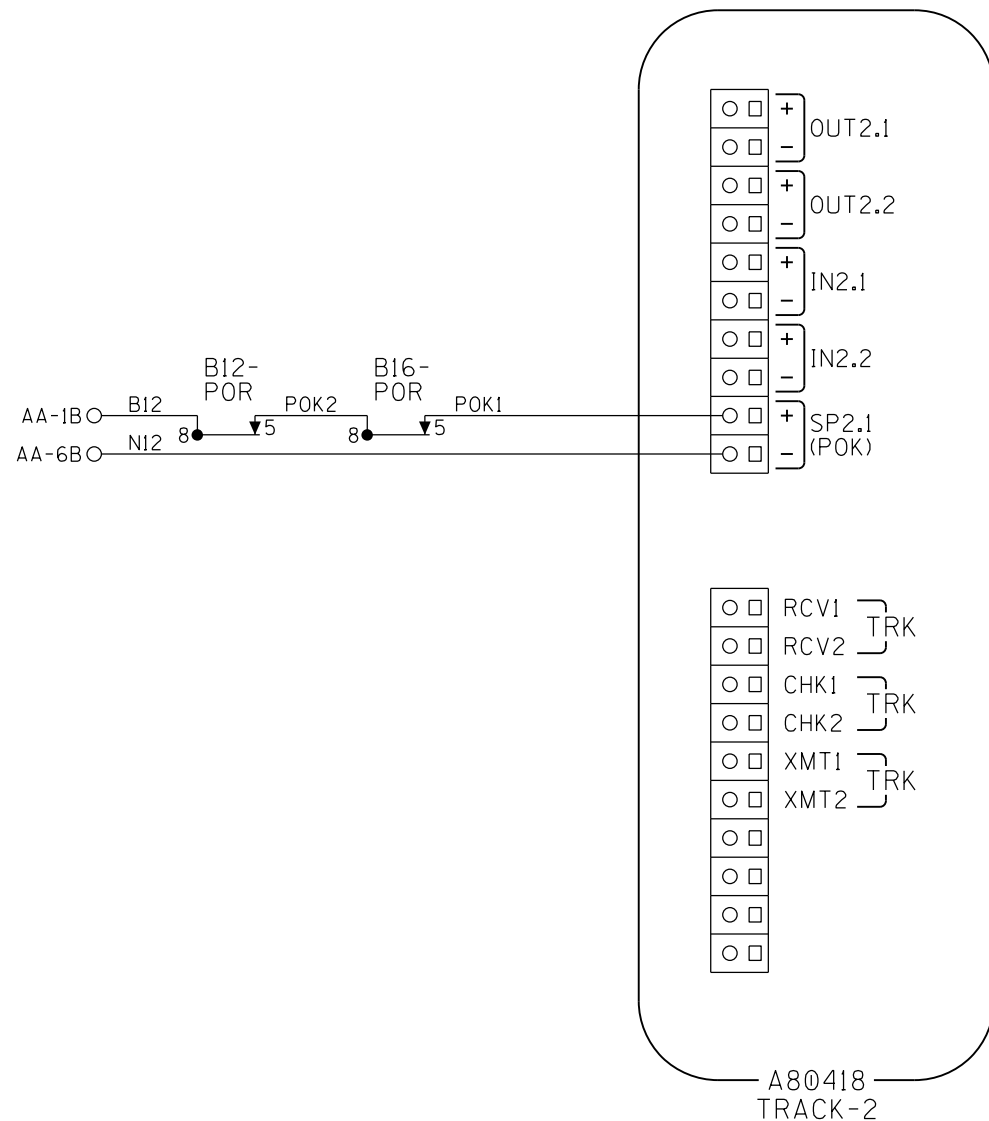
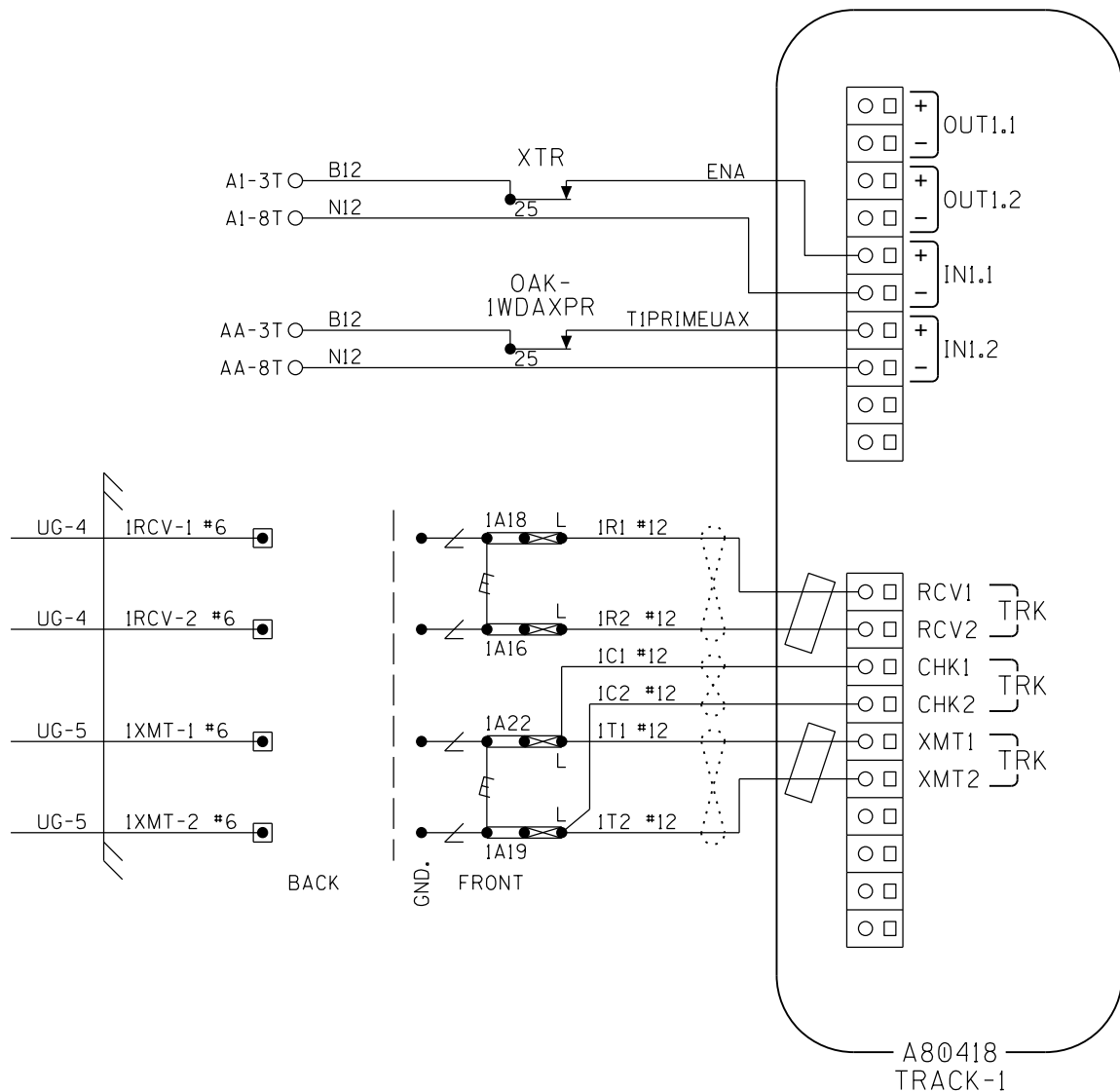
SITE: programming
Radio Subnode = 1
Field Password = Off
Low Battery Enabled = Off



Configuration Package File

Filename: sncs06250.pac


GCP4000 PROGRAMMING

DESIGNED BY:		 NORFOLK SOUTHERN	
WJK	08-16-22		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
XRL	08-16-22	BUCYRUS, OH FLGS AT OAKWOOD AVE	
CHECKED BY:			
PEH	08-25-22	SANDUSKY DISTRICT	
IN SERVICE:		CADD or DWG. No.	REV. 1
PROPERTY		SNCS06250.008	SHEET No. 8
NORFOLK SOUTHERN Rwy CO.			



- NOTES:
1. ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE.
 2.  = TWIST
 3.  = FERRITE BEAD

CONNECTORS FOR TRACK MODULES

DESIGNED BY:	 NORFOLK SOUTHERN		
WJK 08-16-22	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: S-62.44
DRAWN BY:	BUCYRUS, OH FLGS AT OAKWOOD AVE		
XRL 08-16-22	SANDUSKY DISTRICT		REV. 1
CHECKED BY:			
PEH 08-25-22	CADD or DWG. No. SNCS06250.009		SHEET 9
IN SERVICE:			
- -			

PROPERTY
NORFOLK SOUTHERN RY. CO.

SITE SET UP PROCEDURE	
FUNCTION	LED DISPLAY
DATE/TIME	
AUTOMATIC DST ADJUSTMENT	NO
TIMEZONE	OTHER (USER SET)
GMT OFFSET	+00:00
SITE NAME	OAKWOOD AVE.
MILEPOST	S-62.44
DOT#	481 562W
TESTER TYPE	CROSSING
DATE FORMAT	MM-DD-YYYY
TEMP. FORMAT	FARENHEIT
INDICATE HOLD (SEC)	0
INDICATE REFRESH (SEC)	60
GEO CTL PERIOD (SEC)	0
SITE ATCS ADDRESS	7.550.290.253.03.01
SITE TYPE	COLLECTOR
# OFFICE ATCS ADDRESS	2.550.01.3876
# POLL ID	1
# MODE	GEN/ATCS
# WAMS XID	DISABLED
# OFFICE COMM DEVICE	RAILLOGIC
# RAILLOGIC PORT	AUX
# OUR RADIO ID	REMEDY STATES REMOTE RADIO ID
# DEST RADIO ID	REMEDY STATES RADIO ID
# MAX RETRIES	3
# RETRY WAIT	5
# NXT PKT DELAY	3
# MUTE TIMER	10
★ USER PORT BAUD	57600
★ USER PORT DATA BITS	8
★ USER PORT PARITY	NONE
★ USER PORT STOP BITS	1
★ USER PORT FLOW CONTROL	NONE
AUX PORT BAUD	19200
★ AUX PORT DATA BITS	8
★ AUX PORT PARITY	NONE
★ AUX PORT STOP BITS	1
★ AUX PORT FLOW CONTROL	NONE

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS	
THE QUESTION	SELECT FROM MENU OPTION
RESET NAMES AND MODULES?	YES
RAILROAD NUMBER?	550
CROSSING CONFIGURATION?	NORMAL
AND1 USED AS XR?	YES
AND2 USED AS XR?	NO
AND3 USED AS XR?	NO
AND4 USED AS XR?	NO
AND5 USED AS XR?	NO
AND6 USED AS XR?	NO
AND7 USED AS XR?	NO
AND8 USED AS XR?	NO
* XR CONTROLLED BY FOREIGN RR?	NO
ENTRANCE GATES?	2
85% VOLTAGE RELAY OUT?	YES
BATTERY BANKS?	2
BATT MON USED?	NO
** LOW BATTERY 1 PERCENTAGE?	85%
** LOW BATTERY 2 PERCENTAGE?	85%
** LOW BATTERY 3 PERCENTAGE?	85%
PREEMPTION?	NO
INTERNAL CROSSING CONTROLLERS?	2
EXTERNAL CROSSING CONTROLLERS?	0
VHF COMMUNICATOR?	NO
DTMF ACTIVATION?	NO
*** ACTIVATION CODE?	(1-999)
*** ACTIVATION TIMEOUT?(SECONDS)	(30-600)
ILOD MODULES?	0
**** VHF VOICE CHANNEL?	(1-8)
**** VHF DATA CHANNEL?	(1-8)
USE CELL MODEM NON-CRITICAL FEATURE?	1
CROSSING ACTIVE ALARM TIME?(MIN)	(0-60)
POWER OFF ALARM TIME?(MIN)	(0-60)

- NOTES:
1. # = NOT DISPLAYED IF SITE TYPE = NO COMMUNICATION
 2. ★ = USE DEFAULT SETTINGS
 3. * = ONLY DISPLAYED IF CROSSING CONFIGURATION = SPLIT GATE
 4. ** = ONLY DISPLAYED IF BATTERY BANKS = 1,2 OR 3
 5. *** = ONLY DISPLAYED IF VHF COMMUNICATOR = YES
 6. **** = ONLY DISPLAYED IF DTMF

PROGRAM MENU QUESTIONS	PROGRAM
EDIT DIGITAL INPUTS	NO
EDIT BATTERIES	NO
EDIT RELAYS	NO
EDIT TEST LEDS	NO
EDIT VHF SETTINGS	NO
GCP4K ATCS SUBNODE	16

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

PROPERTY		NORFOLK SOUTHERN RWY CO.	
DESIGNED BY:		WJK 08-16-22	
DRAWN BY:		XRL 08-16-22	
CHECKED BY:		PEH 08-25-22	
IN SERVICE:		- -	
CADD or DWG. No.		SNCS06250.011	
OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: S-62.44	
BUCYRUS, OH FLGS AT OAKWOOD AVE		SANDUSKY DISTRICT	
REV. 1		SHEET 11	

SEAR III PROGRAMMING

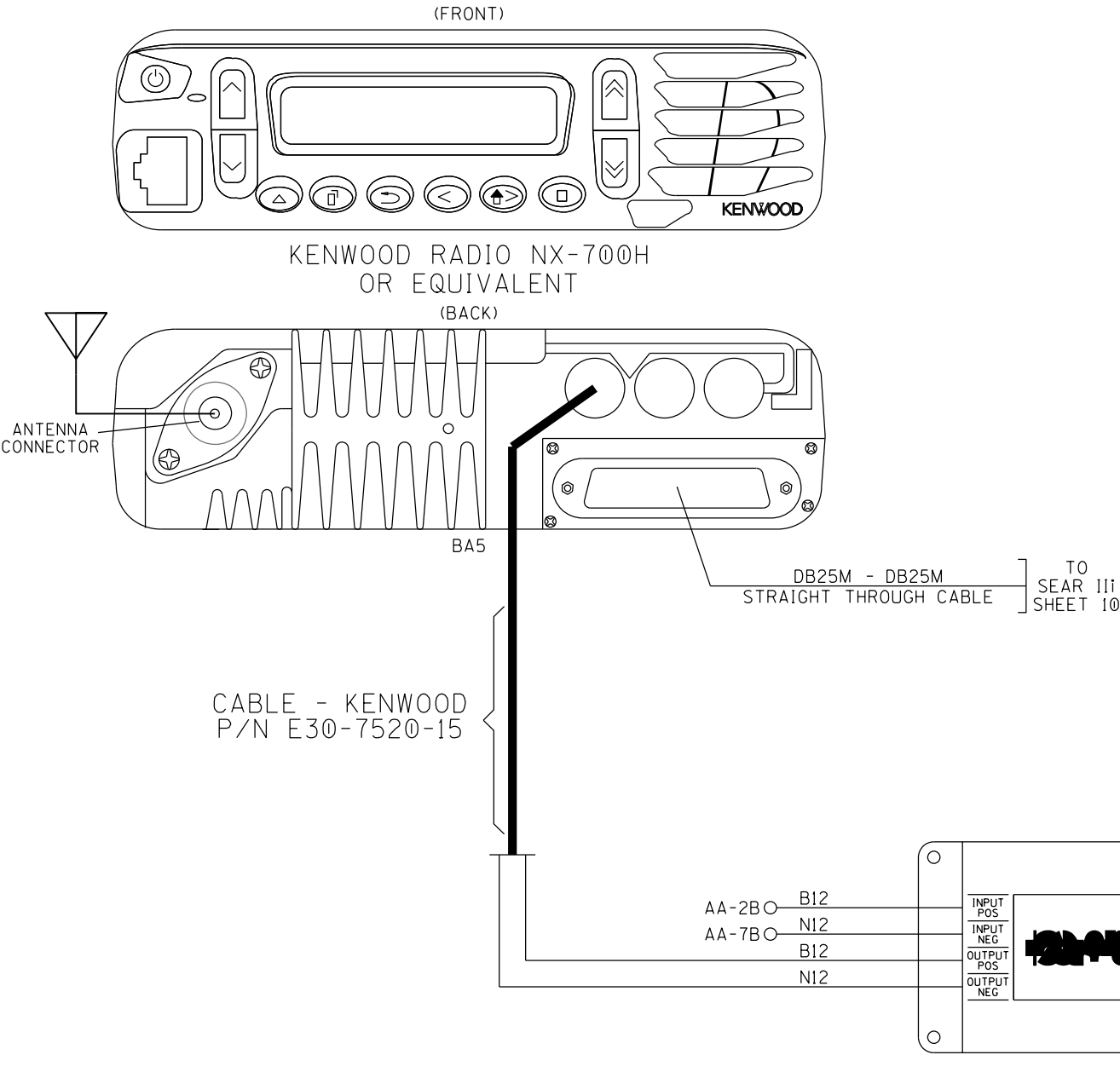


OFFICE OF ASS'T. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA.

BUCYRUS, OH
FLGS AT OAKWOOD AVE

SANDUSKY DISTRICT


REV. 1
SHEET 11

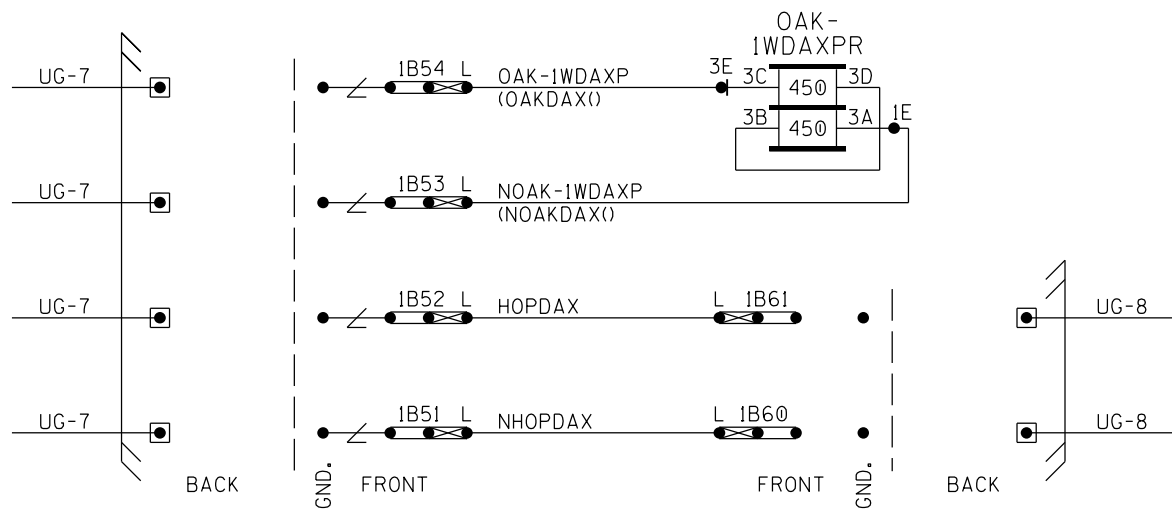


NOTE:
1. ALL WIRING TO BE #10AWG UNLESS
NOTED OTHERWISE.

PROPERTY
NORFOLK SOUTHERN Rwy CO.


BACKHAUL EQUIPMENT

DESIGNED BY:		 NORFOLK SOUTHERN	
WJK	08-16-22		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	
XRL	08-16-22	M.P.: S-62.44	
CHECKED BY:		BUCYRUS, OH FLGS AT OAKWOOD AVE	
PEH	08-25-22	SANDUSKY DISTRICT	
IN SERVICE:		REV. 1	
	- -	CADD or DWG. No. SNCS06250.012	
		SHEET 12 No.	

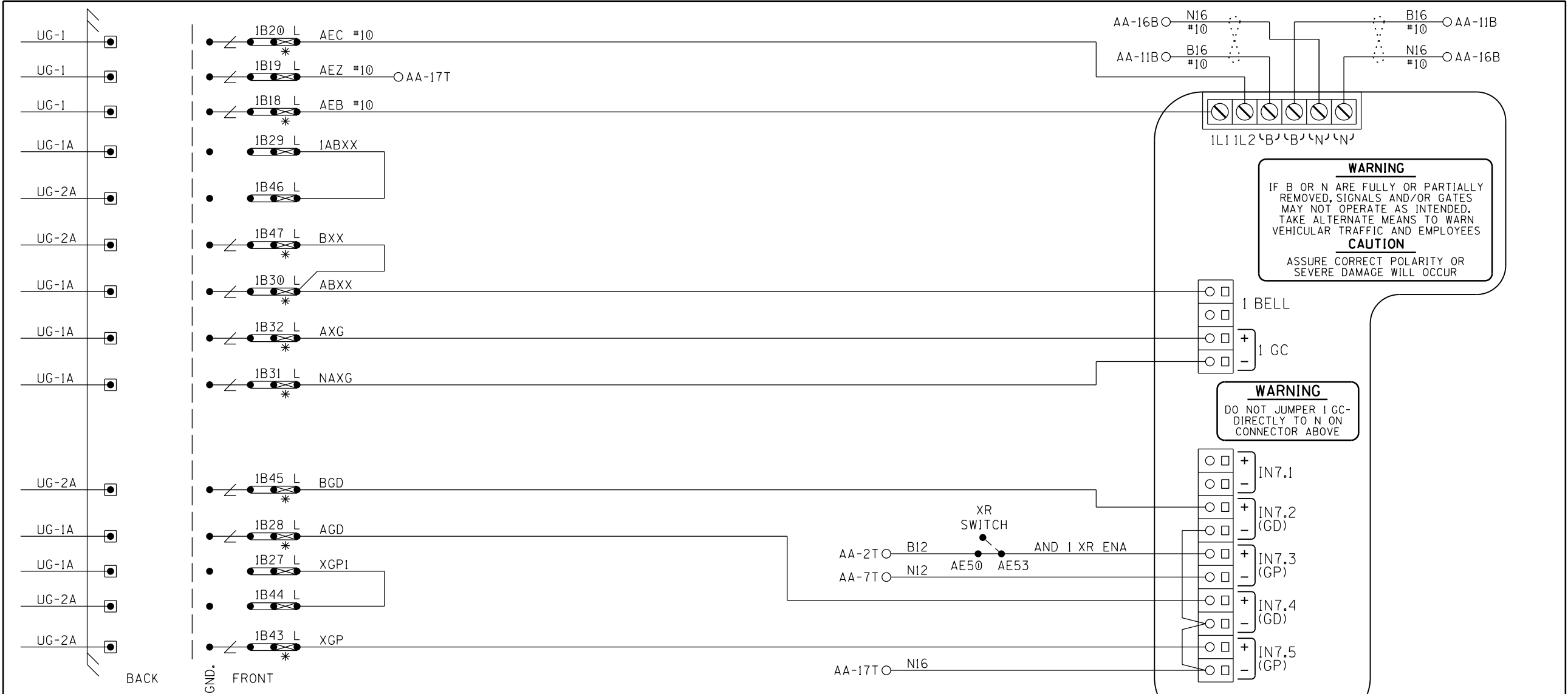


NOTE:
1. ALL WIRING TO BE *16AWG UNLESS NOTED OTHERWISE.

DAX CIRCUITS

DESIGNED BY:		 NORFOLK SOUTHERN	
WJK	08-16-22		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
XRL	08-16-22	BUCYRUS, OH FLGS AT OAKWOOD AVE	
CHECKED BY:			
PEH	08-25-22	SANDUSKY DISTRICT	
IN SERVICE:			
	- -	CADD or DWG. No. SNCS06250.013	REV. 1 SHEET No. 13

PROPERTY
NORFOLK SOUTHERN Rwy CO.

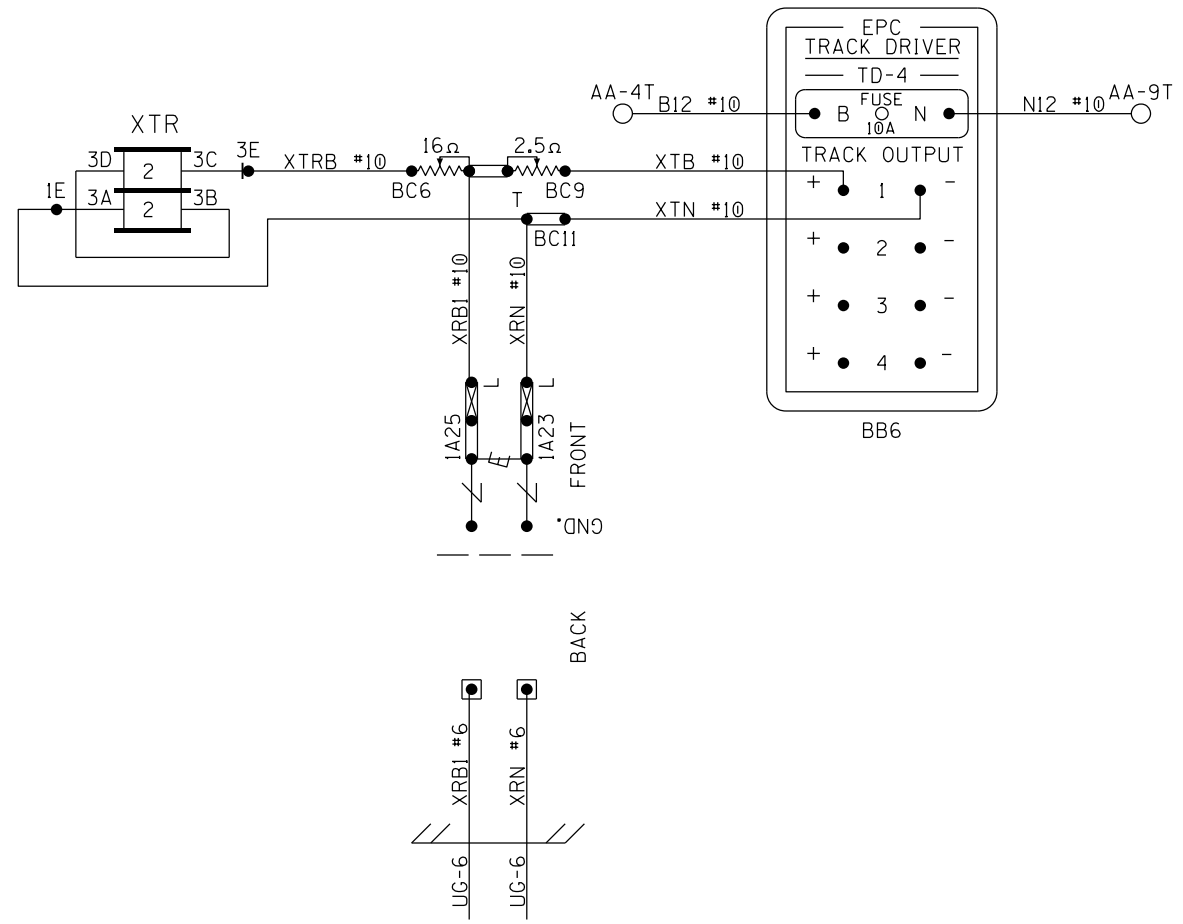


- NOTES:
- 1. ALL WIRING TO BE #16AWG UNLESS NOTED OTHERWISE.
 - 2. * = TEST LINKS MUST BE OPENED TEMPORARILY FOR COLD START OF NEW OR REPLACEMENT SSSC MODULE AND CAN ONLY BE CLOSED IN SEQUENCE WITH MFR. INSTRUCTION: APPENDIX C OF GCP 4000 REFERENCE MANUAL.


3. = TWIST

PROPERTY
NORFOLK SOUTHERN Rwy CO.

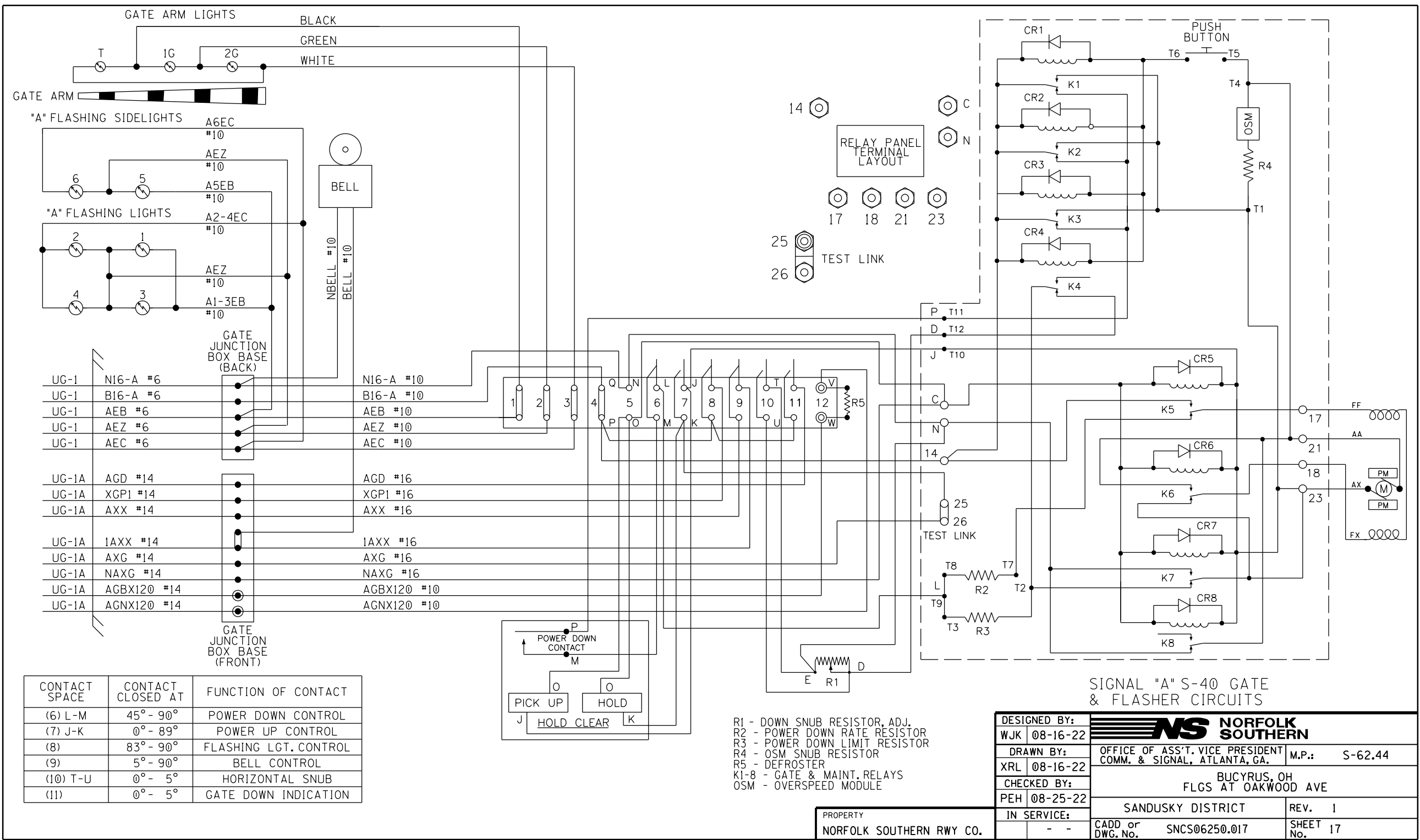
DESIGNED BY: WJK 08-16-22		NORFOLK SOUTHERN	
DRAWN BY: XRL 08-16-22		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
CHECKED BY: PEH 08-25-22		BUCYRUS, OH FLGS AT OAKWOOD AVE	
IN SERVICE: - -		SANDUSKY DISTRICT	REV. 1
		CADD or DWG. No. SNCS06250.014	SHEET No. 14



TD-4, XTR

DESIGNED BY:	 NORFOLK SOUTHERN		
WJK 08-16-22			
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: S-62.44
XRL 08-16-22			
CHECKED BY:	BUCYRUS, OH FLGS AT OAKWOOD AVE		
PEH 08-25-22			
IN SERVICE:	SANDUSKY DISTRICT		REV. 1
	CADD or DWG. No. SNCS06250.016		SHEET 16 No.

PROPERTY
NORFOLK SOUTHERN Rwy CO.

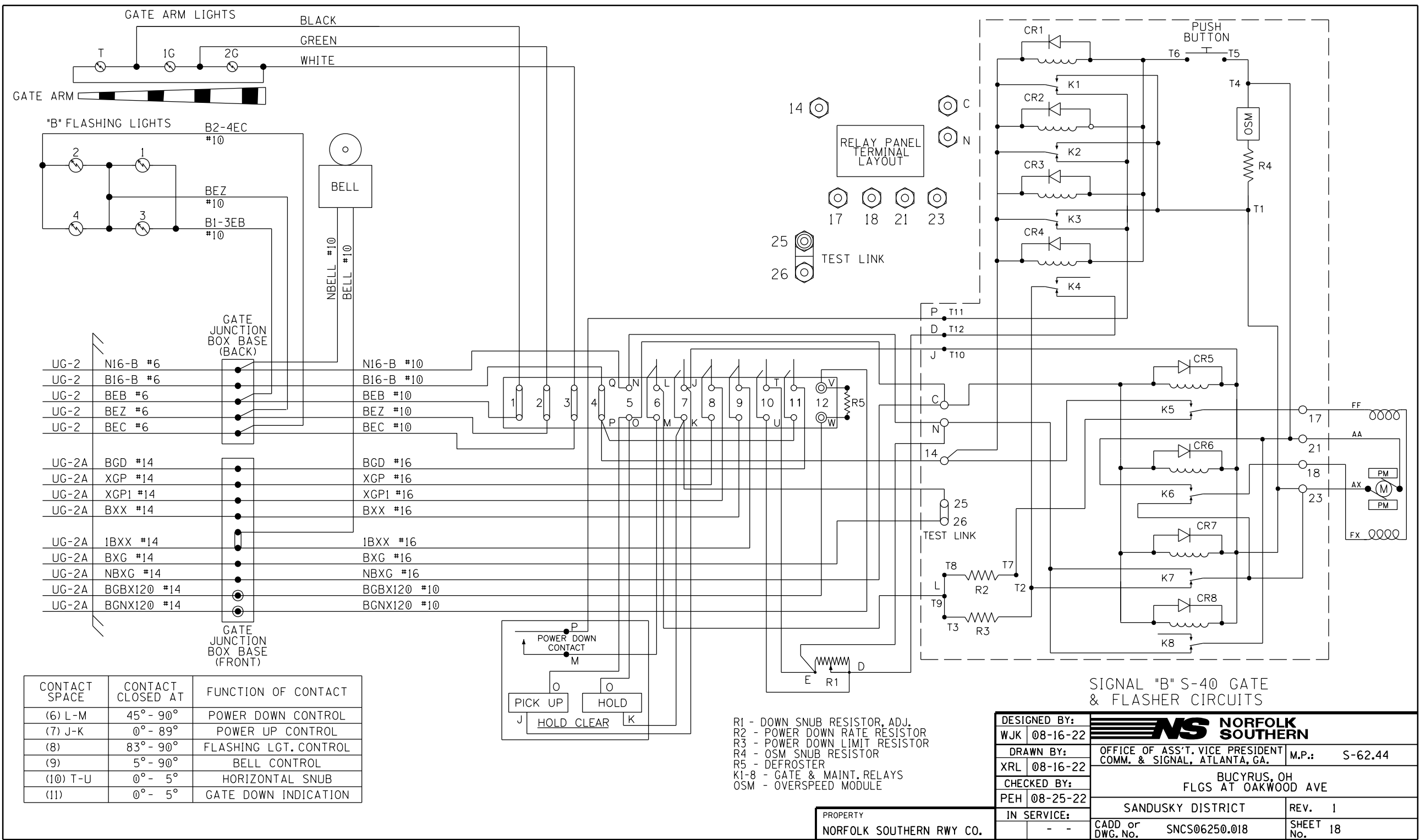


CONTACT SPACE	CONTACT CLOSED AT	FUNCTION OF CONTACT
(6) L-M	45° - 90°	POWER DOWN CONTROL
(7) J-K	0° - 89°	POWER UP CONTROL
(8)	83° - 90°	FLASHING LGT. CONTROL
(9)	5° - 90°	BELL CONTROL
(10) T-U	0° - 5°	HORIZONTAL SNUB
(11)	0° - 5°	GATE DOWN INDICATION

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

DESIGNED BY: WJK 08-16-22	NS NORFOLK SOUTHERN	
DRAWN BY: XRL 08-16-22	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
CHECKED BY: PEH 08-25-22	BUCYRUS, OH FLGS AT OAKWOOD AVE	
IN SERVICE: - -	SANDUSKY DISTRICT	REV. 1
	CADD or DWG. No. SNCS06250.017	SHEET 17

PROPERTY
NORFOLK SOUTHERN Rwy CO.



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

DESIGNED BY: WJK 08-16-22	NS NORFOLK SOUTHERN	
DRAWN BY: XRL 08-16-22	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
CHECKED BY: PEH 08-25-22	BUCYRUS, OH FLGS AT OAKWOOD AVE	
IN SERVICE: - -	SANDUSKY DISTRICT	REV. 1
	CADD or DWG. No. SNCS06250.018	SHEET 18

PROPERTY
NORFOLK SOUTHERN Rwy CO.


"1A"

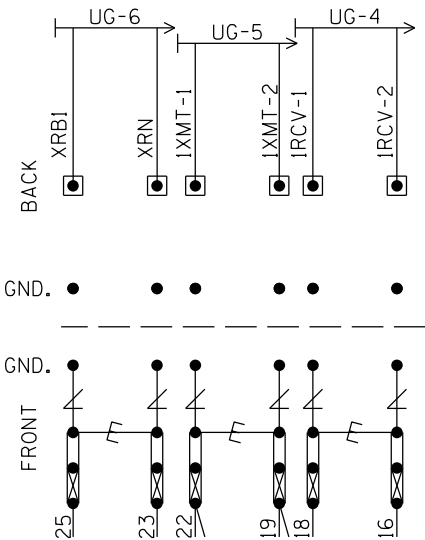
SEE FARADAY SHIELD SHOP DRAWING DETAIL FOR HOW THIS PORTION OF THE FARADAY SHIELD IS PREDRILLED. ONLY INSTALL AND USE THE TERMINALS NEEDED.

- NOTES:
- 1.  = HEAVY DUTY EQUALIZER (022700-1X)
 - 2.  = ERICO LIGHTNING ARRESTER (EPD2050F)
 - 3. GND. ● = THROUGH GROUND POST ON EACH TERMINAL BLOCK TO FARADAY SHIELD
 - 4.  = TEST LINK
 - 5. INSTALL TEST LINKS ON ALL TRACK WIRES AND ON ALL LOW VOLTAGE UNDERGROUND CABLE TERMINATIONS.

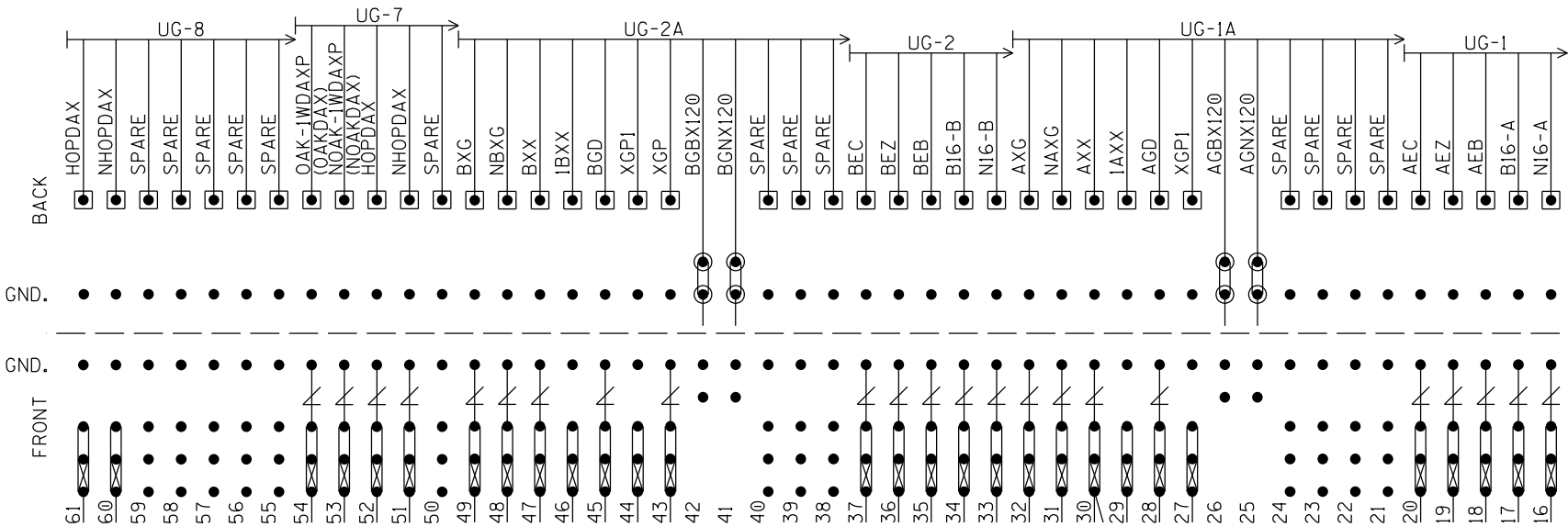
PROPERTY
NORFOLK SOUTHERN Rwy CO.

BACKBOARD 1A

DESIGNED BY:		 NORFOLK SOUTHERN	
WJK	08-16-22		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT	
XRL	08-16-22	COMM. & SIGNAL, ATLANTA, GA.	
CHECKED BY:		M.P.: S-62.44	
PEH	08-25-22	BUCYRUS, OH	
IN SERVICE:		FLGS AT OAKWOOD AVE	
		SANDUSKY DISTRICT	REV. 1
		CADD or DWG. No. SNCS06250.019	SHEET No. 19



"1B"




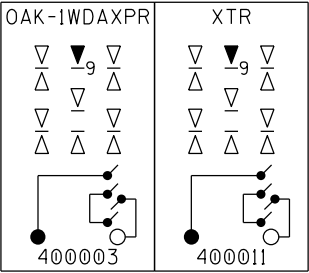
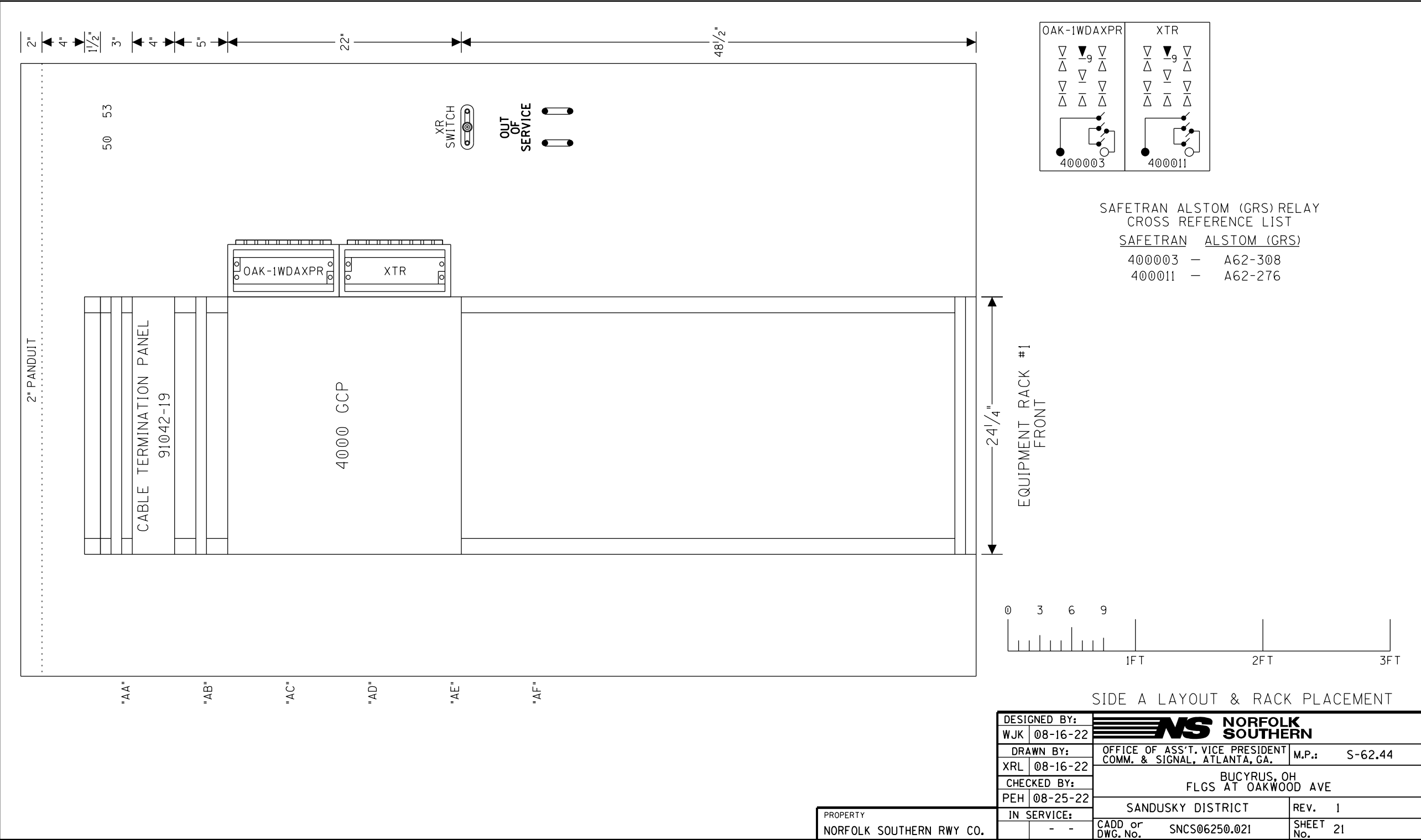
SEE FARADAY SHIELD SHOP DRAWING DETAIL FOR HOW THIS PORTION OF THE FARADAY SHIELD IS PREDRILLED. ONLY INSTALL AND USE THE TERMINALS NEEDED.

- NOTES:
1. GND. ● = THROUGH GROUND POST ON EACH TERMINAL BLOCK TO FARADAY SHIELD
 2. * = TEST LINKS MUST BE OPENED
 3. ● = INSULATED NUTS TO BE USED ON ALL 120VAC AND ABOVE TERMINALS

PROPERTY
NORFOLK SOUTHERN Rwy CO.

BACKBOARD 1B


DESIGNED BY:	 NORFOLK SOUTHERN		
WJK 08-16-22			
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: S-62.44
XRL 08-16-22	BUCYRUS, OH FLGS AT OAKWOOD AVE		
CHECKED BY:			REV. 1
PEH 08-25-22	SANDUSKY DISTRICT		SHEET No. 20
IN SERVICE:	CADD or DWG. No. SNCS06250.020		
- -			



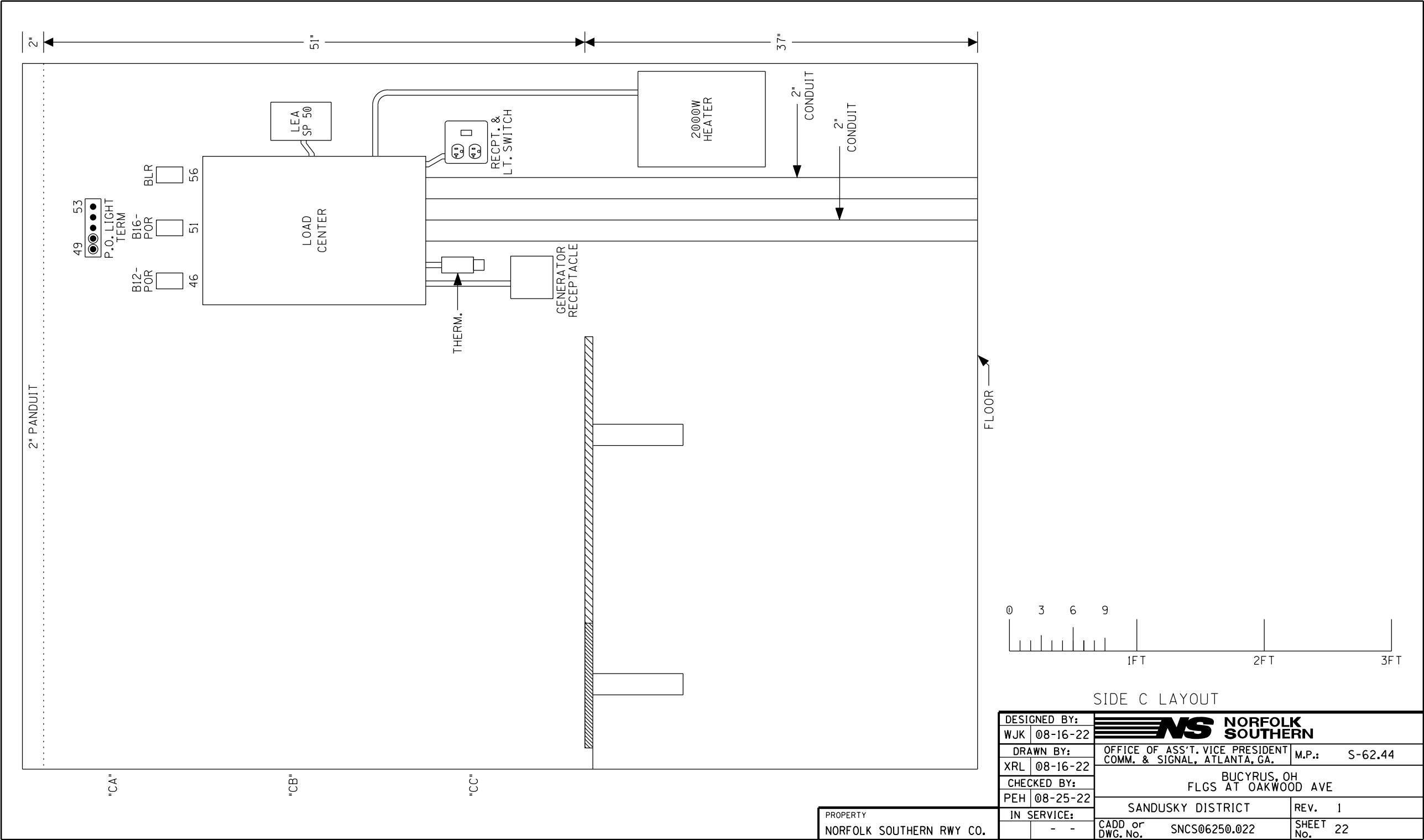
SAFETRAN ALSTOM (GRS) RELAY
CROSS REFERENCE LIST

SAFETRAN	ALSTOM (GRS)
400003	— A62-308
400011	— A62-276


SIDE A LAYOUT & RACK PLACEMENT

DESIGNED BY:	 NORFOLK SOUTHERN		
WJK 08-16-22			
DRAWN BY:	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.		M.P.: S-62.44
XRL 08-16-22			
CHECKED BY:	BUCYRUS, OH FLGS AT OAKWOOD AVE		
PEH 08-25-22			
IN SERVICE:	SANDUSKY DISTRICT		REV. 1
	CADD or SNCS06250.021		SHEET No. 21
	- -		

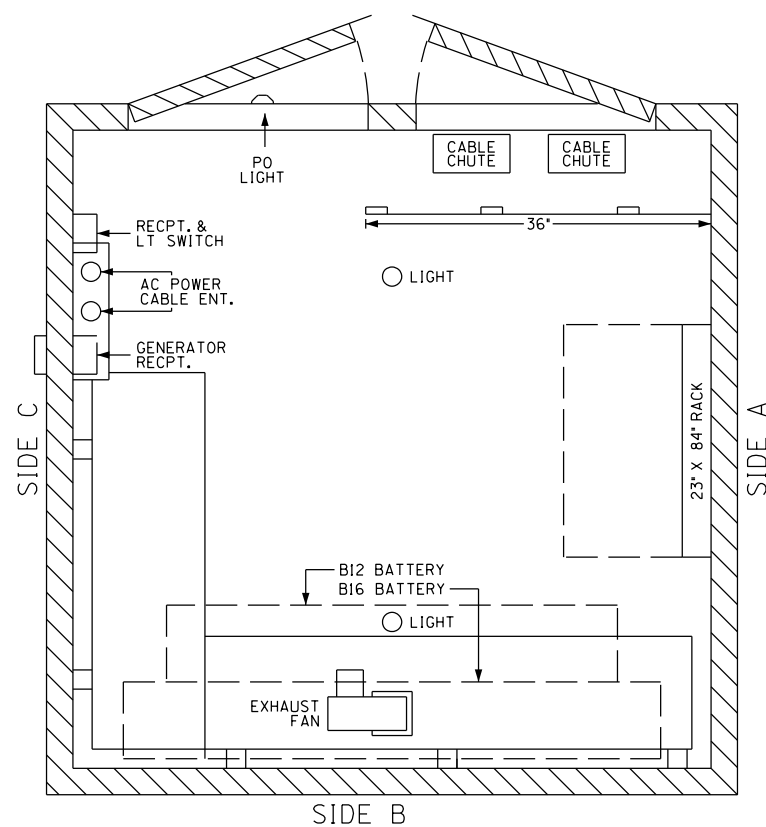
PROPERTY
NORFOLK SOUTHERN RYW CO.




SIDE C LAYOUT

DESIGNED BY:	 NORFOLK SOUTHERN		
WJK	08-16-22	OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
DRAWN BY:		BUCYRUS, OH	
XRL	08-16-22	FLGS AT OAKWOOD AVE	
CHECKED BY:			
PEH	08-25-22		
IN SERVICE:		SANDUSKY DISTRICT	REV. 1
	- -	CADD or DWG. No. SNCS06250.022	SHEET No. 22

PROPERTY
NORFOLK SOUTHERN Rwy CO.



DESIGNED BY:		 NORFOLK SOUTHERN	
WJK	08-16-22		
DRAWN BY:		OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: S-62.44
XRL	08-16-22	BUCYRUS, OH FLGS AT OAKWOOD AVE	
CHECKED BY:			
PEH	08-25-22	SANDUSKY DISTRICT REV. 1	
IN SERVICE:			
	- -	CADD or DWG. No. SNCS06250.023	SHEET No. 23

PROPERTY
NORFOLK SOUTHERN Rwy CO.

Detailed Estimate for Grade Crossing Warning Devices

City/State: BUCYRUS, OH

Road: OAKWOOD AVENUE

MilePost: S-62.44

DOT/AAR: 481562W

State Proj. No.: PID 116478

County: CRAWFORD

S&E Proj. No.: 10.3459

File Number:

Man Days: 216

Purchases - Others		
Meals and Lodging:	\$32,390.15	
Rental of Equipment:	\$44,277.21	
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 36 Days)		
Construction Supervision Vehicle:	\$6,772.93	
Purchases - Other Total:		\$83,440.29
Material And Additives		
Material Cost:	\$115,333.00	
Sales and Use Tax:	\$9,227.00	
Material Handling Freight:	\$11,533.33	
Material Total:		\$136,093.33
Labor And Additives		
Labor Cost:	\$76,248.00	
(6 man crew at \$2,118.00 a day for: 36 days)		
Payroll Tax & Overheads:	\$65,009.04	
Preliminary Engineering:	\$20,116.03	
Construction Supervision:	\$22,272.04	
Labor Total:		\$183,645.11
	Project Cost:	\$403,178.73
	Scrap / Salvage Credit:	\$0.00
	Project Total:	\$403,179.00

Estimated on: 13-Sep-22

Estimated by: Q2SUJ

Estimate valid for 1 year from date of estimate



Highway Crossing Signalization Program - Material List

Do not substitute items without permission from S & E Engineering

City:	BUCYRUS
Road:	OAKWOOD AVENUE
Mile Post:	S-62.44
Drawing Number:	SNCS06250
State ProjectNumber:	PID 116478
County:	CRAWFORD
A A R Number:	481562W
Project Number:	10.3459
File Number:	
New File Number:	CX1114716
WBS:	F-08048
Store Number:	
Supervisor:	UNKNOWN
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&E Gen. Supt. Construction w/copy of invoice	

Location: BUCYRUS					OH	S&E Proj. No.: 10.3459	AFE No.: F-08048	Drawing No.: SNCS06250			
Store No.:					P.O.Number:		Date Required:	Date Shipped:		Vendor: Xorail	
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Date Date Quan. Quan. Quan.			Quantity Returned (Credit)	Special Instructions
3	670-360693-4	EA	\$6.05	\$18.15	AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY S'TRAN.						
1	165-006505-4	EA	\$1,410.25	\$1,410.25	AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE						
33	670-001196-4	EA	\$47.30	\$1,560.90	ARRESTER, LIGHTNING SOLID STATE ERICO P/N EPD2050F						
20	105-002620-4	EA	\$248.79	\$4,975.80	BATTERY, NICAD 340AH, MODEL SPL340						
2	670-503047-4	EA	\$214.50	\$429.00	BELL, CROSSING ELECTRONIC GENERL SIGNAL, EB-3-360-5 CR 02-044350						
2	670-980689-4	EA	\$74.80	\$149.60	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						
500	465-939422-4	LF	\$3.01	\$1,505.00	CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL						
450	465-292862-4	LF	\$1.36	\$612.00	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						
2200	465-292945-4	LF	\$1.59	\$3,498.00	CABLE, UG 5-14, S-54 OKONITE 206-14-6885						
600	465-954727-4	LF	\$1.89	\$1,134.00	CABLE, UG 7 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL FLAT						
350	465-791835-4	FT	\$3.84	\$1,344.00	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						
2	670-010671-4	EA	\$731.50	\$1,463.00	CHARGER, BATTERY CRAGG MODEL 40 DTC-12V, 40 AMP, P/N 520940						
3	670-664917-4	EA	\$71.49	\$214.47	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						

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

Location: BUCYRUS				OH	S&E Proj. No.: 10.3459	AFE No.: F-08048	Drawing No.: SNCS06250				
Store No.:				P.O.Number:		Date Required:	Date Shipped:	Vendor: Xorail			
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
3	670-632520-4	EA	\$57.38	\$172.14	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	\$1,245.20	\$2,490.40	COUNTERWEIGHT PKAGE, 17-24'GATE S'TRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS						
5	670-760012-4	EA	\$41.80	\$209.00	COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. ====TO COVER 2 LAMPS=====						
1	670-986650-4	EA	\$355.00	\$355.00	DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER						
1	670-007684-4	EA	\$830.49	\$830.49	DRIVER, TRACK, MODEL TD-4 ELECTRO PHEUMATIC CORP. FOUR OUTPUTS						
3	670-228165-4	EA	\$13.71	\$41.13	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						
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	\$613.80	\$1,227.60	FOUNDATION, DIXIE,S-2 GATE 2'6"X2'6"X5'6" ASSEMBLED						
2	670-005377-4	EA	\$328.35	\$656.70	GATE ARM, ALUMINUM, 17-24 FT, ARM ASSEMBLY, INCLUDES GATE GUARD FOR GATE LIGHT CABLE. HIGH INTENSITY VERTICAL STRIPES.						
1	670-275809-4	EA	\$22,278.77	\$22,278.77	GCP4000 - 1 TRK (2TC) - REDUNDANT (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	670-016301-4	EA	\$88.55	\$88.55	INDUCTOR, SIMULATED TRACK HARMON 227032-005 (1500')						
4	640-280449-4	EA	\$676.23	\$2,704.92	JOINT, INSL GLUED 132# 16' 4" LONG PLUG						
1	670-018333-4	KT	\$1,107.52	\$1,107.52	KIT, FOREMAN CROSSING SIGNAL (INCLUDES 10-757356, 10-841068, 2-899801, 2-904890, 50-917900, 32-840003, 1-003360, 1-809007, 2-754202, 55-938285, 2-204244, 2-656656 , 50-917869, 1-005458, 2-810339, 1-447991, 2-805560, 1-330382, 1-986008, 100 WHITE TAGS AND						

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

Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed			Quantity Returned (Credit)	Special Instructions
1	670-123298-4	EA	\$498.85	\$498.85	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,)NE CAN BLUE MARKING PAINT ETC...		Date Quan.	Date Quan.	Date Quan.		
2	670-835853-4	EA	\$45.50	\$91.00	KIT, SPLICING SCOTCHAST #72-N2 FOR SPLICING 2C #9, 2C #14, 7C #14 UG OR AERIAL						
2	670-092155-4	EA	\$176.00	\$352.00	LAMP ASSY, LED GATE ARM KIT (INCLUDES 3 LAMPS COMPLETE WITH CABLES AND MTG. HARDWARE) RECO #: 9298-1120						
1	670-005066-4	EA	\$1,019.80	\$1,019.80	LAMP ASSY, LED, 5" MAST 1 WAY BACK LIGHTS (IPN: 042003-L001493)						
2	670-005058-4	EA	\$1,892.88	\$3,785.76	LAMP ASSY, LED, 5" MAST BACK TO BACK LIGHTS (IPN: 042003-L487XNS)						
2	670-637778-4	EA	\$1,424.91	\$2,849.82	MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. S'TRAN P# 070519-11AX.						
0	670-000985-4	EA	#Error	\$0.00	MAST, SIDELIGHT BRACKET F/5"MT. HARMON @225834-XXX, SAFETRAN 041442-26X,						
2	670-521147-4	EA	\$3,850.87	\$7,701.74	MECHANISM, GATE MODEL S-40, WITH CONTACT HEATER, COMPLETE W/RELAY S'TRAN # 074000-W00090						
4	670-000001-4	EA	\$726.23	\$2,904.92	MISC. EXPENSE, MATERAIL/FILL						
4	670-000007-4	EA	\$307.02	\$1,228.08	MISC. EXPENSE, TRACK WORK (I.E. INS JTS, RODS, ETC.)						
1	000-000000-4	EA	\$7,000.00	\$7,000.00	MISC. EXPENSE, UNDERGROUND BORING						
4	670-001347-4	EA	\$72.38	\$289.52	PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @200965-000, OR						
3	670-018542-4	EA	\$47.30	\$141.90	PADLOCK, ABLOY 5/16" X 1" SHACKLE CLEARANCE KEYED FOR C&S DEPT USE; INCLUDES ETCHING;						
1	255-646807-4	EA	\$32.92	\$32.92	PADLOCK, SAFETRAN PART NO. 030399-29X SCREW TYPE FOR CIR CONTROLLER AND BTY. BOX						
1	670-514605-4	EA	\$13.56	\$13.56	PINNACLE, W-C SECT 1-11, 4"& 5" REF K1 110-8 OR SAFETRAN NO. @035045-503X						
2	670-259211-4	EA	\$62.85	\$125.70	PLUG BOARD KIT, TYPE B-1 & VOLTAGE TEST TERMINAL, SAFETRAN 420000-75X						
4	465-002899-4	EA	\$46.37	\$185.48	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES						

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			Quantity Returned (Credit)	Special Instructions
1	670-707995-4	EA	\$557.26	\$557.26	RELAY, TYPE B1, NEV LINE, 900 OHMS,.008 AMPERES GRS A62-308 OR SAFETRAN @400003		Date Quan.	Date Quan.	Date Quan.		
1	670-708282-4	EA	\$587.20	\$587.20	RELAY, TYPE B1, TRACK 4 OHM .85A GRS A62-276, S'TRAN 400011						
1	670-507443-4	EA	\$42.99	\$42.99	RESISTOR, ADJUSTABLE 029603-7X, 1.53 OHM - 16 OHM INVENSYS						
1	180-662001-4	EA	\$166.82	\$166.82	RESISTOR, SAFETRAN 029258-50-A2X SEALED TAP TYPE 2.5 OHMS 4.47 MAXIMUM AMPS (LIGHTING)						
1	670-024229-4	EA	\$24,613.41	\$24,613.41	SHELTER, 6X6 ALUMN FARADAY SHIELD PTMW 91000779A, 2000W HEATER, NO AC. WITH HEAVY DUTY HASP, ADJUSTABLE PIERS, 1 EQUIPMENT RACK, 2 SHELVES AND						
2	670-586967-4	EA	\$29.68	\$59.36	SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT						
2	670-868658-4	EA	\$796.95	\$1,593.90	SHUNT, MULTI-FREQ. #250849-000 FSS-1A ALSTOM NARROW BAND (86, 114, 151, 210, 267)						
2	670-554843-4	EA	\$82.69	\$165.38	SIGN, 2 TRACK SIGN, HIGH INTENSITY, SAFETRAN #035207-2HX						
2	670-016346-4	EA	\$154.53	\$309.06	SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR ALL STATES, SAFETRAN# 035200-91X						
2	670-393331-4	EA	\$30.58	\$61.16	SIGN, CROSSING ENS MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215						
46	670-018188-4	EA	\$42.35	\$1,948.10	TERMINAL BLOCK, THRU POST WITH HARDWARE LESS LIGHTNING ARRESTER. SIEMENS P/N NYK: 023275-17X.						
2	670-007238-4	EA	\$175.99	\$351.98	UNIT, THE INSTALLATION AND WIRING OF A DEVICE WHICH REQUIRE A MINIMUM OF FOUR WIRE CONNECT-						

Total Material: \$115,333.26

APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
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Rail Development Commission

Mike DeWine, Governor
Jon Husted, Lt. Governor

Scott Corbitt, Chair

June 13, 2022

Mr. Kurt Young
Norfolk Southern
Administrator Grade Crossing Program
1200 Peachtree Street NE, Box 123
Atlanta, Ga. 30324

RE: Grade Crossing Warning Device Improvements
Crawford County, Oakwood Ave, DOT# 481-562W, PID# 116478.

Dear Mr. Young:

A diagnostic review was held at the above grade crossing on May 10, 2018. As a result of the review, the crossing will be upgraded to flashing lights and roadway gates.

Norfolk Southern (NS) is authorized to proceed with the site plans and cost estimates (PE) or bid package for this project. 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 diagnostic review form is attached. Please note any recommendations (page 6), if any, made by the team regarding 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 James Tucker. James can be reached at (614) 398-6897, or james.tucker@dot.ohio.gov, if you have any questions.

Sincerely,

Project Manager

C: John Williams, Director, Transportation Department, PUCO
Jill Henry, Rail Division Chief, PUCO
Tom Persinger, Rail Specialist, PUCO
Heather Hamilton, ORDC





Public Utilities Commission

Mike DeWine, Governor
Jenifer French, Chair

Commissioners

M. Beth Trombold
Lawrence K. Friedeman
Dennis P. Deters
Daniel R. Conway

February 10, 2022

Norfolk Southern Railway
Mr. Kurt Young
Administrator Highway Grade Crossing Improvements
1200 Peachtree Street
Atlanta, GA 30309-3597

RE: Oakwood Ave, DOT#481-562W
Crawford County
Hereinafter referred to as the "Projects"

Dear Mr. Young:

The Public Utilities Commission of Ohio (PUCO) has identified and the Ohio Rail Development Commission (ORDC) surveyed, on May 10, 2018, the above mentioned grade crossing for warning device upgrades. The location has been approved for lights and gates.

The Projects shall comply with Agreement No. 17450, dated December 19, 2012, entered into by the State of Ohio and Norfolk Southern Railway Company (RAILROAD). Furthermore, the RAILROAD shall comply with all applicable state and federal laws governing grade crossing safety programs.

Preliminary engineering (PE) and construction costs shall be borne one hundred percent (100%) by ORDC. Reimbursable costs will be limited by ORDC based upon approved estimates and bid tabulations, if applicable. These limits will be quantified by the ORDC in its construction authorization to the RAILROAD and may be amended by the ORDC based upon revised estimates and bid tabulations. Additional costs must be approved in writing by the ORDC prior to being incurred. Emergency verbal authorizations by ORDC may be permitted but must be confirmed in writing within ten (10) business days of the verbal approval.

The RAILROAD shall complete plans and estimates for the Projects within ninety (90) days after the RAILROAD is notified of authorization to proceed unless otherwise agreed by ORDC/PUCO and the RAILROAD.

The RAILROAD shall not commence construction prior to PUCO's Order and ORDC's construction authorization. The RAILROAD shall provide written notification of the construction start date to PUCO and ORDC no later than five (5) business days prior to such date.

Page 2 of 2
Oakwood Ave
Crawford County
Norfolk Southern Railway

Please indicate your acceptance of the terms and conditions of this Letter of Agreement by signing and returning one (1) copy to Ms. Jill Henry, Chief, Rail Division, Public Utilities Commission of Ohio, 180 E. Broad Street, Columbus, Ohio 43215-3793 or by email at jill.henry@puco.ohio.gov .

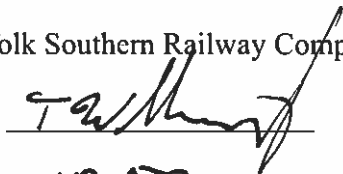
Sincerely,



John Williams
Director of Transportation
Public Utilities Commission of Ohio

Norfolk Southern Railway Company

By



Title

VP ATC

Date

2/22/2022

Matthew Dietrich
Executive Director
Ohio Rail Development Commission

Date

Please indicate your acceptance of the terms and conditions of this Letter of Agreement by signing and returning one (1) copy to Ms. Jill Henry, Chief, Rail Division, Public Utilities Commission of Ohio, 180 E. Broad Street, Columbus, Ohio 43215-3793 or by email at jill.henry@puco.ohio.gov .

Sincerely,



John Williams
Director of Transportation
Public Utilities Commission of Ohio



Norfolk Southern Railway Company

By _____

Title _____

Date _____

Matthew Dietrich
Executive Director
Ohio Rail Development Commission

Date February 14, 2022



Reason for Survey:
(e.g. formula, accident, constituent, etc.)

Date: 5/10/2018

Location Data

Street or Road Name: E. Oakwood Ave.

Route/Road Number (i.e. Twp., Co., SR or US) US DOT No.: 481562W

County: CRA Township: City: (In or Near) City of Bucyrus

Railroad Name: Norfolk Southern Railroad Division: Lake Branch/Line Name: Sandusky

Nearest RR Timetable Station: Bucyrus RR Milepost: 62.5

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

	Initial Information (from database)	Revised
Number & dates of vehicle crashes in previous 5 years	1 (10/23/17)	
Number & dates of pedestrian/bicycle crashes in previous 5 years	0	
Hazard Ranking	303 Date Run: 3/31/2018	243 5/15/18

On-Site Review Team

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

1. Cathy Stout ORDC 614 644 0313 catherine.stout@dot.ohio.gov
2. Stephen Klinger 404 617 5450 stephen.klinger@nscorp.com
3. Jeff Dunn 419-561-1619 CITY SERVICE GARAGE.
4. Jeff Reser 419-834-2021 Mayor
5. Jeff Wagner 419-834-2010 SSD
6. Phil Walker 419-971-6129
7. STEVE HARER 419 834 0059
8. John Kostash 419 562 6767 zone@cityofbucyrusoh.us
9. Ben Perry 419-564-8341 Benjamin.Perry@nscorp.com

Existing Traffic Control Devices		
Type of Warning Devices	Installed?	Quantity/Comments
HIGHWAY		
Advance Warning Signs (condition?)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
'Stop' Signs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
'Stop Ahead' Signs	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Pavement Markings (condition?)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Dynamic Envelope Markings (condition?)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Illumination	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	SW quad
'No Turn' Signs (highway/passive)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Barriers/fencing (pedestrian/bicycle)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
LOOK Sign	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Do Not Stop On Track Sign		
RAILROAD		
Crossbucks – stand alone	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Crossbucks – assembly with Stop	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Crossbucks – assembly with Yield	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Mast-Mounted Flashing Lights	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4 pr
Cantilever Flashing Lights	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number: Length:
Side Lights	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Automatic Gates	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number: Length:
Bells	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number:
Sidewalk/Pedestrian Gate Arms	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Number: Length:
'No Turn' Signs (railroad/active)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Is crossing flagged by train crew?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
OTHER	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ENS; # track

Railroad Data		
Type of Service: <input checked="" type="checkbox"/> Freight <input type="checkbox"/> Passenger/Amtrak <input type="checkbox"/> Light Rail <input type="checkbox"/> Trolley or Streetcar <input type="checkbox"/> Commuter Rail		
Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	31	60-70
< 1 per day		3
Day thru trains	20	30
Night thru trains	8	30
Daytime switching movements	3	10
Nighttime switching movements		
Total number of tracks	2	
Number of main tracks	2	1
Number of other tracks	1	1
Maximum train speed	60	
Typical train speed	35	60
Amtrak		
If multiple tracks, can two trains occupy crossing at the same time? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Can one train block the motorists' view of another train at crossing? <input checked="" type="checkbox"/> Yes (Explain below) <input type="checkbox"/> No Can one or more tracks be eliminated through the crossing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		

Are there other track(s) crossing this same roadway within 100 ft of this crossing? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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:		City of Bucyrus
Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	205 (2014)	
Highway paved	X Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
Roadway Surface: <input type="checkbox"/> Blacktop <input type="checkbox"/> Gravel <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____		
Roadway width (paved/travelled way): _____ ft.		
Number of highway lanes	2	
Urban or Rural	Urban	
Vehicle Speed: _____ MPH	25	
School Bus Operation: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes _____ Amount		
Hazardous Materials Trucks: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes _____ Amount <i>possible</i>		
Shoulders: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		
Is the shoulder surfaced? <input type="checkbox"/> No <input type="checkbox"/> Yes Shoulder width: _____ ft.		
Is there existing guardrail along roadway in crossing vicinity? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		
Quadrant _____ Curb and Gutter: <input type="checkbox"/> Functional (Curb height = 4" or more) <input type="checkbox"/> Non-functional (Curb height = Less than 4") <input checked="" type="checkbox"/> None	Quadrant _____ Curb and Gutter: <input type="checkbox"/> Functional (Curb height = 4" or more) <input type="checkbox"/> Non-functional (Curb height = Less than 4") <input checked="" type="checkbox"/> None	
Is there a nearby intersection that could cause queuing over the crossing? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		
If yes, Distance _____		
Is this intersection signalized? <input type="checkbox"/> No <input type="checkbox"/> Yes		
Are the signals currently interconnected with the existing crossing warning devices? <input type="checkbox"/> No <input type="checkbox"/> Yes		
Is there a 'Do not Stop on Track' sign? <input type="checkbox"/> No <input type="checkbox"/> 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? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		
If yes, Improvement type _____ Lead Agency _____ Timeline/completion _____		

Pedestrian & Bicycle Data		
Regular pedestrian usage:	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Volumes: <i>Residents / low volume</i>
Is sidewalk present?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	Quadrants: <i>NE, NW, SW</i>
Does crossing surface accommodate pedestrians?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	If no, which side is paved? _____
Both sides of roadway?	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	
Pedestrian generators in close proximity (e.g. schools, sports/entertainment venues)? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		
Comments:		
Regular bicycle usage:	<input type="checkbox"/> No <input checked="" type="checkbox"/> Yes	
<input checked="" type="checkbox"/> Roadway <input type="checkbox"/> Dedicated Lane (on street) <input type="checkbox"/> Dedicated Path (off street) <input type="checkbox"/> Shared Use (pedestrian/bicycle) Path		

Type of Development

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

Location of nearby schools:

*1/2 mile NW***Utility Information**Is commercial power available? ☐ No ☒ YesUtility Provider (Company Name) *AEP*

Phone Number _____

Nearest Available Power Source _____

What other utilities are present? ☐ Gas ☐ Cable ☐ Telephone ☐ Fiber Optic Cable
 (add locations to sketch) ☐ Petroleum ☐ Water ☐ Sanitary Sewer
☐ Other _____

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

Comments:

*possible gas - sign refers to unmarked gas ~~sign~~,
 overheads - high, unlikely conflict.*

Sight Preview

REFER TO THE TABLES ATTACHED

If non-gated crossing, is clearing sight distance adequate in all quadrants? (See Table 1) ☒ Yes ☐ NoIs stopping sight distance adequate? (See Table 2) ☒ Yes ☐ No If no, deficient approach(es) _____

When considering recommendations for bicycle treatments:

Bicycle sight distance adequate? ☐ Yes ☐ No If no, deficient approach(es) _____

When considering recommendations for pedestrian treatments:

Pedestrian sight distance adequate? ☐ Yes ☐ No If no, deficient approach(es) _____☐ Bikes must use sidewalkFuture plans/transportation plans for pedestrian or bicycle routes? ☐ No ☐ Yes

Comments:

Potential Red Flags / Project Challenges

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

N/A

Crossing Consolidation or Closure:

N/A

Real Estate or ROW:

N/A

Culverts / Drainage / Ballast Conditions:

N/A

Roadway and/or Sidewalks:

N/A

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

crossings + wayside signals

Environmental:

N/A

Other:

N/A

SurfaceSurface review form completed: ☒ No ☐ Yes**Additional Comments**

Use this space as needed for additional comments and/or observations:

Surface removed for maintenance

Combination curve & superelevation- constantly having to work on the surface. Closed in October & now. Every 4-6 months

Potential ClosureIs it the consensus of the Diagnostic Review Team that this is a potential closure project: ☒ No ☐ Yes

Explain reasons:

Not likely - would consider if
 Nearby businesses - semis delivery use this for egress as alt route is available.
 Fire truck & school buses would have to back out.

Diagnostic Team Recommendations

Quadrants Needed

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

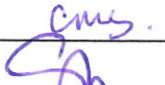

Comments:

Put temporary surface in while discussing closure.
 If not closed upgrade to L&G.

☐ Install/upgrade traffic signal preemption☐ **No improvements needed**☐ Other (define)**PEDESTRIAN/BICYCLE Treatments (additional, not included above)**☐ Crossing Surface (specify)☐ Sidewalk (specify)☐ Detectable warning surfaces☐ LOOK Sign (R15-8)☐ Stop lines☐ Illumination☐ Dynamic envelop markings☐ Channelization☐ Path delineation☐ Fencing/barriers☐ Other

Comments:

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

  _____

Field Dimensions

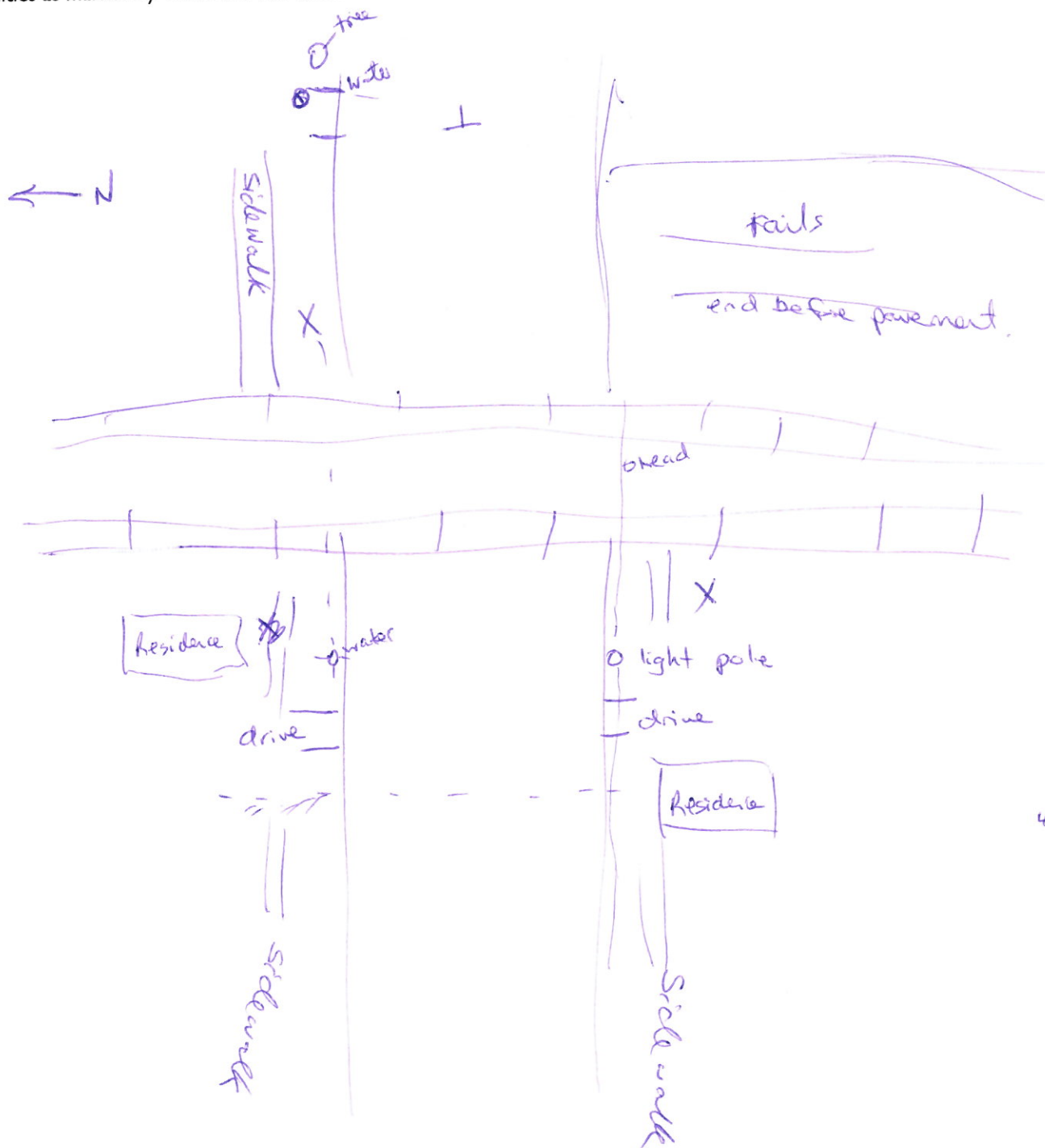
The diagram illustrates a cross-section of a road with various zones and measurement points. A central vertical line represents the centerline. To the left of the centerline, the zones are labeled from top to bottom: Sidewalk, Parkway, Roadway, Roadway, Parkway, and Sidewalk. To the right of the centerline, the zones are labeled from top to bottom: Sidewalk, Parkway, Roadway, Parkway, and Sidewalk. Dashed vertical lines with arrows indicate measurement points for each zone. 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: CMS

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**

11/14/2022 2:17:43 PM

in

Case No(s). 22-1005-RR-FED

Summary: Application In the Matter of a Request for the Installation of Active Warning Devices at the Norfolk Southern Railway Grade Crossing, DOT# 481-562W at Oakwood Avenue in Crawford County, Ohio. electronically filed by Mr. Thomas Persinger on behalf of PUCO/Rail Division