

FILE

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**Public Utilities
Commission of Ohio**

Memo

To: Docketing Division
From: George Martin, Grade Crossing Planner, Rail Division
Re: In the matter of the authorization of Norfolk Southern Railway to install an active grade crossing warning device in Lucas County, City of Toledo
Date: February 6, 2012

The Ohio Rail Development Commission (ORDC) has secured funding and approved the plan and estimate for the installation of flashing lights and roadway gates at Greenwood Ave, City of Toledo, Lucas County, DOT# 473874J. The crossing was surveyed on March 9, 2011, under the Commission's hazard elimination program, and was found to warrant the upgrade.

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

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

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

MUTCD compliance, including minor roadway work if necessary.

A suggested case coding and heading would be:

PUCO Case No. 12- **0545** -RR-FED In the matter of the authorization of Norfolk Southern Railway to install an active grade crossing warning device in Lucas County, City of Toledo

C: Legal Department

Please serve the following parties of record

RECEIVED-DOCKETING DIV
2012 FEB -6 AM 9:07
PUCO

Ms Susan Kirkland
Ohio Rail Development Commission
1980 West Broad St, 2nd Floor
Columbus, Oh 43223

Ms Cayela Wimberly
Norfolk Southern Railway
1200 Peachtree St, Box 123
Atlanta, Ga 30309

Toledo Edison
76 S Main St
Akron, Oh 44308

Mr Gary Stookey
Department of Public Service
Division of Transportation
110 N Westwood Ave
Toledo, Ave 43607

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

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

FROM: Susan Kirkland, Manager, Safety Section, ORDC

BY: Tod Darfus, Project Manager, ORDC

SUBJECT: Lucas County, Norfolk Southern
Greenwood AVE., 473 874 J, PID 90648

DATE: February 3, 2012

The Public Utilities Commission of Ohio (PUCO) established a diagnostic survey at the subject location on March 9, 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 plus cantilevers. A copy of the diagnostic review form is attached.

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

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

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

Thank you for your assistance with these matters.

Attachment: Diagnostic Review
Plan & Estimate

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



The Public Utilities
Commission of Ohio

Rail Division
180 East Broad Street
Columbus, OH 43215

Diagnostic Review Team Survey

Date: 3/9/11 1130 AM

Location Data

Street or Road Name: <u>GREENWOOD AVE</u>		
Route/Road Number (i.e. Twp., Co., SR or US) (Include SLM if State or US route)		AAR-DOT No.: <u>4738745</u>
County: <u>LUCAS</u>	Township:	City (In or Near): <u>TOLEDO</u>
Railroad Name: <u>NS</u>	Railroad Division: <u>DEARBORN</u>	Branch/Line Name: <u>TOLEDO DIST</u>
Nearest RR Timetable Station: <u>IRONVILLE</u>		RR Milepost: <u>2.68</u>

On-Site Review Team

(Include: Name - Organization - Phone Number)

1. GEORGE MARTIN PUCO 614-752-9107
2. JOE DODDS CRD 614-374-9298
3. EVERETT CHISM NS 574-349-8498
4. KARL HUSS CITY OF TOLEDO 419 245-1073
5. GARY STOKLEY " " " 419 245-1306
6. _____
7. _____
8. _____
9. _____
10. _____

Existing Traffic Control Devices

Type of Warning Devices	Installed?		Quantity/Comments
Advance Warning Signs	☒ Yes	☐ No	<u>2</u>
'Stop' Signs	☐ Yes	☒ No	
'Stop Ahead' Signs	☐ Yes	☒ No	
Pavement Markings	☒ Yes	☐ No	<u>2</u>
Crossbucks	☒ Yes	☐ No	<u>2</u> <u>BUCKEYE</u>
Number of Tracks Signs	☐ Yes	☒ No	
Inventory Tags	☒ Yes	☐ No	<u>2</u>
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	<u>2</u>
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	1 - 12/18/10	
Hazard Ranking	252	245 3/21/11
	Date Run: 2/7/11	

Railroad Data

Railroad Characteristics	Initial Information (from database)	Revised
Total trains per day	2 (2/4/11)	
< 1 per day		
Day thru trains		
Night thru trains	2	
Daytime switching movements		
Nighttime switching movements		
Total number of tracks	1	
Number of main tracks	1	
Number of other tracks		
Maximum train speed	10	
Typical train speed		
Amtrak		

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

If yes, Crossing DOT # (if different) _____

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

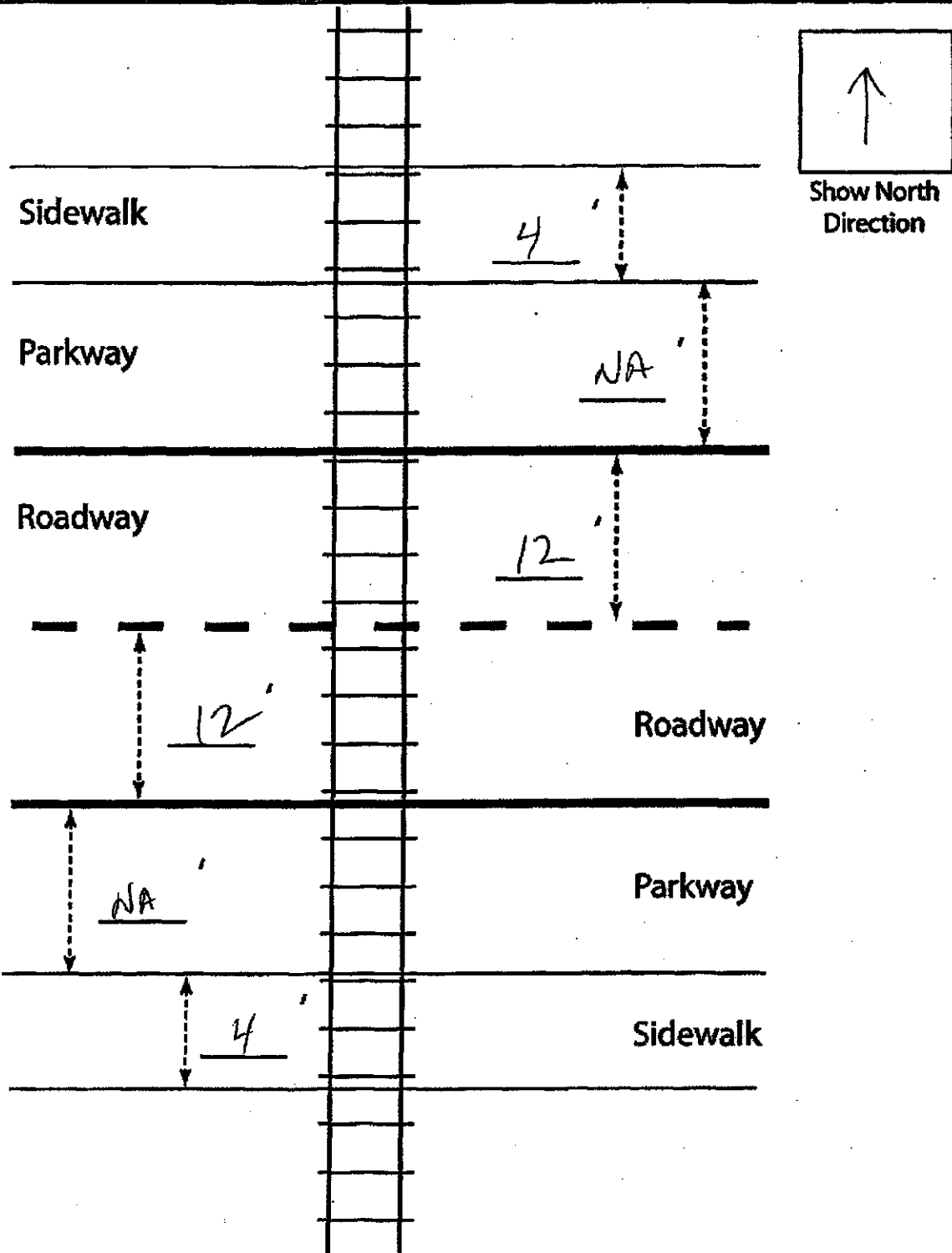
Roadway DataLocal Highway Authority:
(Who maintains this roadway?)

CITY OF TOLEDO

Roadway Characteristics	Initial Information (from database)	Revised
Average daily traffic	727 (2008)	1500
Highway paved	☒ Yes ☐ No	☒ Yes ☐ No
Roadway Surface: ☒ Blacktop ☐ Gravel ☐ Concrete ☐ Other _____		
Roadway width: 24 ft.		
Number of highway lanes	2	2
Urban or Rural?	URBAN	URBAN
Vehicle Speed: 25 MPH		
School Bus Operation: ☐ No ☒ Yes 6 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 N/A	
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: WITHIN 1/2 MILE
Utility Information	
Is commercial power available? ☐ No ☒ Yes	
Utility Provider (Company Name) <u>TORONTO EDISON</u> Phone Number _____	
Nearest Available Power Source <u>AT KING</u>	
What other utilities are present? <u>BURIED</u>	
Is there potential utility conflict(s) ☐ Yes ☐ No ☒ Unknown	
Diagnostic Team Recommendations	
☒ 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)	Quadrants Needed MAY NEED CANTILEVER
Comments: _____	
☐ Install/upgrade traffic signal preemption ☐ No improvements needed ☐ Other (define)	

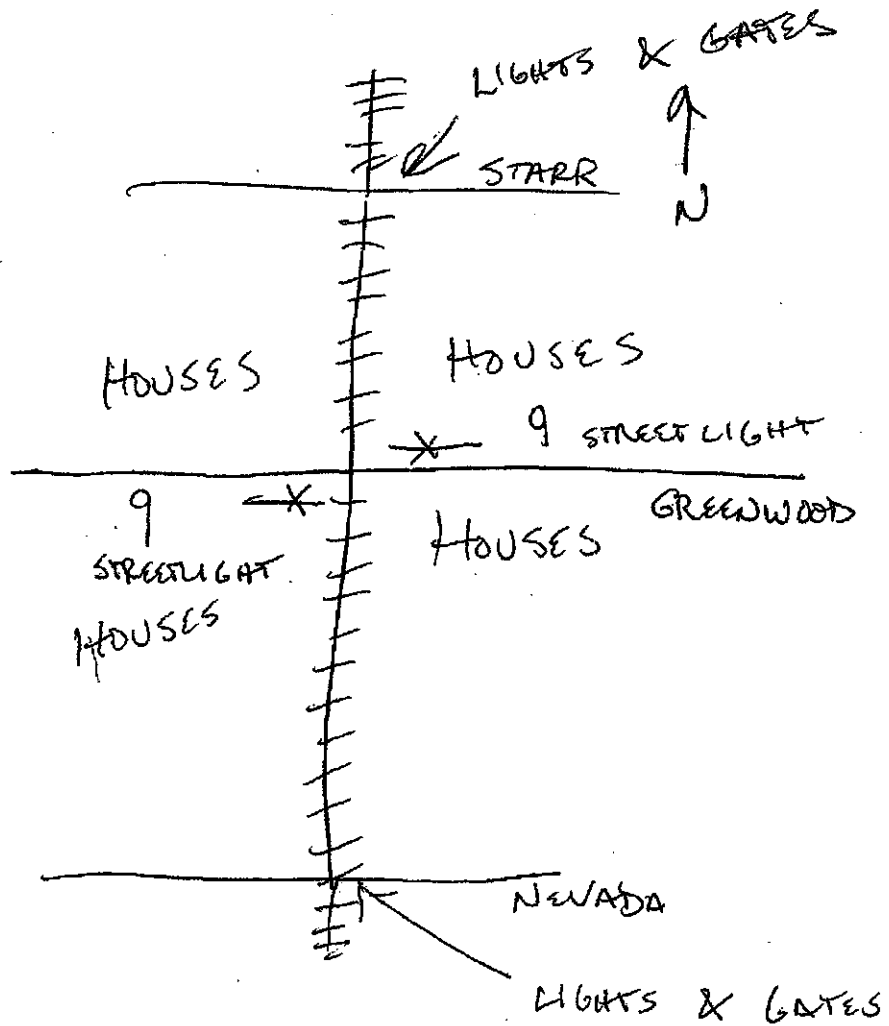
Field Dimensions



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

Measurements by: Bm

Field Sketch



Crossing Angle ☐ 0-29° ☐ 30-59° ☒ 60-90° Measured In SW Quadrant?

Sketch by: [Signature]

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.

NS, LUCAS, GREENWOOD AVE, 4738745

TRAFFIC CRASH REPORT

OH-1 (Rev. 06/09)



LOCAL REPORT # *	CRASH SEVERITY	PRIVATE PROPERTY	Hwy/Slip	PHOTOS TAKEN	OH-2	OH-3	OH-1P	OTHER
201010083	3 1 FATAL, 3 PDO 2 INJURY 4 UNKNOWN	☐	1 Not Hit/Skip 2 Solved 3 Unsolved	☐	☐	☐	☐	☐
N.C.I.C. # *	REPORTING AGENCY *	# UNITS	UNIT ENCL	DATE OF CRASH *				
04807	TOLUO POLICE	02	01	12182010				

1st. of Crash	Day of Week	City *	Village *	TWP *	NAME (OF CITY, VILLAGE OR TOWNSHIP) *	County # *	LATITUDE	LONGITUDE
1215	SAT	X			TOLUO	48		

CRASH OCCURRED BY	TYPE LOG	TYPE LOCATION POINT USED	RURAL INFORMATION
GREENWOOD	1	1 NAMED STREET 3 NUMBERED ROUTE 2 NUMBERED STREET	2
AT REFERENCE	REF POINT	REFERENCE POINT USED	04 HOUSE NUMBER
01 REFERENCE DR	04	01 STATE LINE 02 INTERSECTION 2 STREETS 03 COUNTY LINE	05 TOWNSHIP BOUNDARY 06 MILE POST 07 CORPORATION LIMIT
02 REFERENCE			08 PLACE NAME W/O REFERENCE 09 DRIVEWAY 10 STREET OR ROUTE W/O REFERENCE

Unit #	Name (Last, First, Middle)	Address (Street, City, State, ZIP Code)
A 0101	BREWER, CRAIG E.	311 DANBERRY TOLUO, OH 43609

DL State	DL #	LP State	LP #	INJURED TAKEN BY	TRANSPORTED BY	INJURED TAKEN TO
OH	RM564730	OH	EMF9354	1 3 NONE 4 OTHER 2 EMS 5 UNKNOWN 3 POLICE		
OWNER NAME (IF SAME, WRITE "SAME")				ADDRESS (STREET, CITY, STATE, ZIP CODE)		
SAME						

Year	Make	Model	Color	Insurance Company	Towing Service	Owner Phone #
2006	CHEVY	MONTICARLO SEL	BLU	PROGRESSIVE	N/A	(419) 410-4640
Offense Charged	Offense Description	House Phone #	Work Phone #			
331.37 AS	OPERATION AT R.R. CROSSING	(419) 376-2651	(800) 453-2530			

Unit #	Name (Last, First, Middle)	Address (Street, City, State, ZIP Code)
B 0202		

DL State	DL #	LP State	LP #	INJURED TAKEN BY	TRANSPORTED BY	INJURED TAKEN TO
				1 3 NONE 4 OTHER 2 EMS 5 UNKNOWN 3 POLICE		
OWNER NAME (IF SAME, WRITE "SAME")				ADDRESS (STREET, CITY, STATE, ZIP CODE)		
NORFOLK SOUTHERN CORP.				2101 HILL AVE. TOLUO, OH 43614		

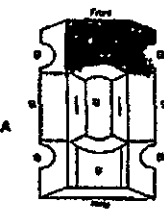
Year	Make	Model	Color	Insurance Company	Towing Service	Owner Phone #
			BLU			(800) 453-2530
Offense Charged	Offense Description					

Unit #	Name (Last, First, Middle)	House Phone #	Work Phone #			
Address (Street, City, State, ZIP Code)		INJURED TAKEN BY	TRANSPORTED BY	INJURED TAKEN TO		
		1 3 NONE 4 OTHER 2 EMS 5 UNKNOWN 3 POLICE				

Unit #	Name (Last, First, Middle)	House Phone #	Work Phone #			
Address (Street, City, State, ZIP Code)		INJURED TAKEN BY	TRANSPORTED BY	INJURED TAKEN TO		
		1 3 NONE 4 OTHER 2 EMS 5 UNKNOWN 3 POLICE				

SEATING POSITION	SURVIVAL EQUIPMENT	AIR BAG	AIR BAG SWITCH	EJECTION	TRAPPED	DONORS
01A Front - Left (MC Driver)	04A None Used	1A Not Deployed	4A Not Present	1A Not Ejected	1A Not Trapped	1A No Injury
02 Front - Middle	07B Shoulder Belt Only	2 Deployed-Front	2 In On Position	2 TOTALLY EJECTED	2 EJECTED BY MECHANICAL MEANS	2 POSSIBLE
03 Front - Right	05 Lap Belt Only	3 Deployed-Side	3 In Off Position	3 PARTIALLY EJECTED	3 FAKED BY NON-MECHANICAL MEANS	3 NON-INCAPACITATING
04 Second - Left (MC Pass)	06 Child Safety Seat	4 Deployed Beta	4 Unknown	4 Not Applicable	4 UNKNOWN	4 INCAPACITATING
05 Second - Middle	07 Use Unknown	5 Not Applicable		5 UNKNOWN		5 FATAL INJURY
06 Second - Right	08 None Used	6 UNKNOWN				6 UNKNOWN
07 Third - Left	09 HELMET USED					
08 Third - Middle	10 PROTECTIVE PADS					
09 Third - Right	11 REFLECTIVE CLOTHING					
10 Sleeper Section Of Cab	12 LIGHTING					
11 Enclosed Cargo Area	13 OTHER					
12 Unenclosed Cargo Area	14 UNKNOWN					
13 TRAILING UNIT						
14 EXTERIOR						
15 OTHER						
16 Non-Motorist						
17 UNKNOWN						

Motorist/Non-Motorist
Occupant

UNIT NUMBERS 01 02 Non-Motorist Location A B 01 MARKED CROSSWALK AT INTERSECTION 02 INTERSECTION NO CROSSWALK 03 NON-INTERSECTION CROSSWALK 04 DRIVEWAY ACCESS CROSSWALK 05 IN ROADWAY 06 NOT IN ROADWAY 07 MEDIAN (BUT NOT SHOULDER) 08 ISLAND 09 SHOULDER 10 SIDEWALK 11 WITHIN 10 FEET OF ROADWAY (NOT SHOULDER, MEDIAN, SIDEWALK, ISLAND) 12 BEYOND 10 FEET OF ROADWAY (WITHIN TRAFFICWAY) 13 OUTSIDE TRAFFICWAY 14 SHARED USE PATHS OR TRAILS 15 UNKNOWN	DAMAGE AREA  MOST DAMAGED AREA 03 01 01 NONE 02 CENTER FRONT 03 RIGHT FRONT 04 RIGHT SIDE 05 RIGHT REAR 06 REAR CENTER 07 LEFT REAR 08 LEFT SIDE 09 LEFT FRONT 10 TOP AND WINDOWS 11 UNDERCHASSIS 12 TOTAL (ALL AREAS) 13 OTHER 14 UNKNOWN	PRE-CRASH ACTIONS 01 01 MOTORIST 01 MOVEMENTS ESSENTIALLY STRAIGHT AHEAD 02 BACKING 03 CHANGING LANES 04 OVERTAKING/PASSING 05 TURNING RIGHT 06 TURNING LEFT 07 MAKING U-TURN 08 ENTERING TRAFFIC LANE 09 LEAVING TRAFFIC LANE 10 PARKED 11 SLOWING/STOPPED IN TRAFFIC 12 DRIVE/SLIDING 13 OTHER 14 UNKNOWN Non-Motorist 15 ENTERING/CROSSING IN SPECIFIED LOCATION 16 WALKING, RUNNING, JOGGING, PLAYING, CYCLING 17 WORKING 18 PUSHING VEHICLE 19 ASSISTING/LEAVING VEHICLE 20 PLAYING/WORKING ON VEHICLE 21 STANDING 22 OTHER 23 UNKNOWN	SEQUENCE OF EVENTS A B 16 20 Non-Collision 01 OVERTURN/ROLLOVER 02 FIRE/EXPLOSION 03 IMMOBILIZED 04 JACKKNIFE 05 CANCELLATION/LOSS/SHIFT OF EQUIPMENT 06 EQUIPMENT FAILURE 07 SEPARATION OF UNITS 08 RAN OFF ROAD LEFT 09 RAN OFF ROAD RIGHT 10 CROSS MEDIAN/COUNTERSIDE 11 DOWNHILL RUMBLE 12 OTHER NON-COLLISION 13 UNKNOWN NON-COLLISION 14 COLLISION WITH PERSON, VEHICLE, OR OBJECT NOT FROM 15 PEDESTRIAN 16 RAILWAY VEHICLE 17 ANIMAL - FARM 18 ANIMAL - DEER 19 ANIMAL - OTHER 20 MOTOR VEHICLE IN TRANSPORT 21 PARKED MOTOR VEHICLE 22 WORK ZONE MAINTENANCE EQUIPMENT 23 OTHER MOVABLE OBJECT 24 UNKNOWN MOVABLE OBJECT 25 IMPACT ATTENUATOR/CRASH CUSHION 26 BRIDGE OVERHEAD STRUCTURE 27 BRIDGE PIER OR ABUTMENT 28 BRIDGE PARAPET 29 BRIDGE RAIL 30 GUARDRAIL FENCE 31 GUARDRAIL END 32 MEDIAN BARRIER 33 HIGHWAY TRAFFIC SIGN POST 34 OVERHEAD SIGN POST 35 LIGHT/LUMINARIES SUPPORT 36 UTILITY POLE 37 OTHER POST, POLE OR SUPPORT 38 CURB/POST 39 CURB 40 DITCH 41 EMBANKMENT 42 FENCE 43 MAILBOX 44 TREE 45 OTHER FIXED OBJECT 46 WORK ZONE MAINTENANCE EQUIPMENT 47 UNKNOWN FIXED OBJECT 48 OTHER 49 UNKNOWN	POSTED SPEED 25 TRAFFIC CONTROL 07 01 01 NO CONTROLS 02 STOP SIGN 03 YIELD SIGN 04 TRAFFIC SIGNAL 05 TRAFFIC FLASHERS 06 SCHOOL ZONE 07 RAILROAD CROSSING 08 RAILROAD FLASHERS 09 RAILROAD GATES 10 CONSTRUCTION BARRICADE 11 POLICE OFFICER 12 PAVEMENT MARKINGS 13 CROSSWALK LINES 14 WALK/DON'T WALK SIGNAL 15 TRAFFIC CONTROL DEVICE IMPROPERLY, MISUSED, OBSCURED 16 OTHER	Drug Test Status 1 1 1 NONE 2 TEST REFUSED 3 TEST GIVEN, CONTAMINATED SAMPLE/UNUSABLE 4 TEST GIVEN, RESULTS KNOWN 5 TEST GIVEN, RESULTS UNKNOWN 6 UNKNOWN Drug Test Type 1 1 1 NONE 2 BLOOD 3 URINE 4 OTHER Drug Test 1&2 Result 1 1 1 NONE 2 MARIJUANA 3 COCAINE 4 GHADES 5 AMPHETAMINES 6 PCP 7 OTHER 8 UNKNOWN AT TIME OF REPORTING
TYPE OF UNIT 03 29 MOTORIST 01 SUB-COMPACT 02 COMPACT 03 MID SIZE 04 FULL SIZE 05 MINIVAN 06 SPORT UTILITY VEHICLE 07 PICKUP 08 PANEL/VAN 09 SINGLE UNIT TRUCK 2 AXLES, 6 TIRES 10 SINGLE UNIT TRUCK 3+ AXLES 11 TRUCK/TRAILER 12 TRUCK TRAILER (BORTAL) 13 TRUCK/SEMI-TRAILER 14 TRUCK/DOUBLE SHIRT 15 TRUCK/DOUBLE LONG 16 FIFTH WHEEL OR CONVENTIONAL DOLLY 17 TRUCK/TRAILER 18 MOTORCYCLE 19 MOPORIZED BICYCLE 20 SCHOOL BUS 21 CHURCH BUS 22 PUBLIC BUS 23 OTHER BUS 24 POLICE VEHICLE 25 FIRE TRUCK 26 AMBULANCE/RESCUE 27 TAXI 28 MOTOR HOME 29 TRAIN 30 FARM VEHICLE 31 FARM EQUIPMENT 32 SNOWMOBILE 33 CONSTRUCTION EQUIPMENT 34 ALL OTHERS Non-Motorist 35 ANIMAL W/RIDER 36 ANIMAL W/DISNEY 37 BICYCLE 38 PEDESTRIAN 39 PEDALCYCLIST 40 SKATER 41 OTHER-NON MOTORIST 42 UNKNOWN	POINT OF IMPACT 03 08 01 NONE 02 CENTER FRONT 03 RIGHT FRONT 04 RIGHT SIDE 05 RIGHT REAR 06 REAR CENTER 07 LEFT REAR 08 LEFT SIDE 09 LEFT FRONT 10 TOP AND WINDOWS 11 UNDERCHASSIS 12 TOTAL (ALL AREAS) 13 OTHER 14 UNKNOWN	CONTRIBUTING CIRCUMSTANCES 02 01 MOTORIST 01 NONE 02 FAILURE TO YIELD 03 RAN RED LIGHT, OR STOP SIGN 04 EXCEEDED SPEED LIMIT 05 UNSAFE SPEED 06 IMPROPER TURN 07 LEFT OF CENTER 08 FOLLOWED TOO CLOSELY/ACDA 09 IMPROPER LANE CHANGE/ 10 IMPROPER BACKING 11 IMPROPER START FROM PARKED POSITION 12 STOPPED OR PARKED ILLEGALLY 13 OPERATING VEHICLE IN ERRATIC, RECKLESS, CARELESS, NEGLIGENT OR AGGRESSIVE MANNER 14 SWERVING TO AVOID (DUE TO WIND, SLIPPERY SURFACE, VEHICLE, OBJECT, NON-MOTORIST IN ROADWAY, ETC.) 15 FAILURE TO CONTROL 16 VISION OBSTRUCTION 17 DRIVER DISTRACTION 18 FATIGUE/ASLEEP 19 OPERATING DEFECTIVE EQUIPMENT 20 LOAD SHIFTING/FALLING/SPILLING 21 OTHER IMPROPER ACTION 22 UNKNOWN Non-Motorist 23 NONE 24 IMPROPER CROSSING 25 DRIVING 26 LYING AND/OR ILLEGALLY IN ROADWAY 27 FAILURE TO YIELD RIGHT OF WAY 28 NOT VISIBLE (DARK CLOTHING) 29 INATTENTIVE 30 FAILURE TO OBEY TRAFFIC SIGNAL, SIGNALS, OR OFFICER 31 WRONG SIDE OF THE ROAD 32 OTHER 33 UNKNOWN	First Harmful Event 1 1 OF THE SEQUENCE OF EVENTS - WHICH ONE IS THE FIRST HARMFUL EVENT (1-4) Most Harmful Event 1 1 OF THE SEQUENCE OF EVENTS - WHICH ONE IS THE MOST HARMFUL EVENT (1-4) Speed Detected 1 1 1 STATED 2 ESTIMATED SPEED Speed 027 013	Direction 43 21 1 NORTH 2 SOUTH 3 EAST 4 WEST 5 NORTHEAST 6 NORTHWEST 7 SOUTHEAST 8 SOUTHWEST 9 UNKNOWN Condition 1 1 1 APPARENTLY NORMAL 2 PHYSICAL IMPAIRMENT 3 EMOTIONAL 4 ILLNESS 5 FELL ASLEEP, FAINTED, FATIGUED, ETC. 6 UNDER THE INFLUENCE OF MEDICATIONS/DRUGS/ALCOHOL 7 OTHER 8 UNKNOWN Alcohol/Drug Suspected 1 1 1 NONE 2 YES - ALCOHOL SUSPECTED 3 YES - HBD NOT INJURED 4 YES - DRUGS SUSPECTED 5 YES - ALCOHOL / DRUGS SUSPECTED 6 UNKNOWN Alcohol Test Status 1 1 1 NONE 2 TEST REFUSED 3 TEST GIVEN, CONTAMINATED SAMPLE/UNUSABLE 4 TEST GIVEN, RESULTS KNOWN 5 TEST GIVEN, RESULTS UNKNOWN 6 UNKNOWN Alcohol Test Type 1 1 1 NONE 2 BLOOD 3 URINE 4 BREATH 5 OTHER Alcohol Test Result 1 1	Type of Intersection 11 01 NOT AN INTERSECTION 02 FOUR-WAY INTERSECTION 03 T-INTERSECTION 04 Y-INTERSECTION 05 TRAFFIC CIRCLE/ROUNDABOUT 06 FIVE-POINT, OR MORE 07 ON RAMP 08 OFF RAMP 09 DIVERGENT 10 CONVERGENT/ACCESS 11 RAILROAD GROUND CROSSING 12 SHARED-USE PATHS OR TRAILS 13 UNKNOWN Occurrence 1 1 ON ROADWAY 2 ON SHOULDER 3 IN MEDIAN 4 ON ROADSIDE 5 ON GORE 6 OUTSIDE TRAFFICWAY 7 UNKNOWN Road Contour 2 1 STRAIGHT LEVEL 2 STRAIGHT GRADE 3 CURVE LEVEL 4 CURVE GRADE Road Conditions 04 03 01 DRY 02 WET 03 SNOW 04 ICE 05 SAND, MUD, DIRT, GR, GRAVEL 06 WATER (STANDING, MOVING) 07 SLUSH 08 DEBRIS ** 09 RUT, HOLES, BUMPS, UNEVEN PAVEMENT ** 10 OTHER 11 UNKNOWN ** SECONDARY ROAD CONDITIONS
In Emergency Response 1 1 1 NO 2 YES 3 UNKNOWN DAMAGE SCALE 3 1 1 NONE 2 NON-FUNCTIONAL DAMAGE 3 FUNCTIONAL DAMAGE 4 DISABLING DAMAGE 5 SEVERE 6 UNKNOWN	Striking Vehicle: 1 1 1 NO UNDERRIDE OR OVERRIDE 2 UNDERRIDE, COMPARTMENT INTERUSION 3 UNDERRIDE, NO COMPARTMENT INTERUSION 4 UNDERRIDE, COMPARTMENT INTERUSION, MOTOR VEHICLE IN TRANSPORT 5 OVERRIDE, MOTOR VEHICLE IN TRANSPORT 6 OVERRIDE, OTHER VEHICLE 7 UNKNOWN	Vehicle Deputy 1 1 01 TURN SIGNALS 02 HEAD LAMPS 03 TAIL LAMPS 04 BRAKES 05 STEERING 06 TIRE BLOWOUT 07 WORN OR SLICK TIRES 08 TRAILER EQUIPMENT DEFECTIVE 09 MOTOR TROUBLE 10 DISABLED FROM PREVIOUS CRASH 11 OTHER DEFECTS	Speed 027 013	Alcohol Test Result 1 1	Road Conditions 04 03

Narrative UNIT #1 SAID HE WAS E/B IN THE 1700 BLOCK OF GREENWOOD, APPROACHING A RAILROAD CROSSING. THE CROSSING HAS ONLY CROSSBUCKS. UNIT #1 SAID THAT PRIOR TO CROSSING THE TRACKS HE REALIZED UNIT #2 WAS APPROACHING N/B. HE CLAIMED HE DID NOT HEAR A HORN. UNIT #1 SAID HE TRIED TO STOP, BUT SLED ON THE SLICK PAVEMENT AND COLLIDED WITH THE SIDE OF UNIT #2. UNIT #2 WAS TRAIN # 344 AND CONSISTED OF NINETY CARS. THE ENGINEER OF UNIT #2 SAID HE DID SOUND THE HORN AS REQUIRED.

MANOR OF COLLISION OR IMPACT ☒ 10 1 NOT COLLISION BETWEEN TWO VEHICLES IN TRANSPORT 2 REAR-END 3 HEAD-ON 4 REAR-TO-REAR 5 BACKING 6 ANGLE 7 SIDEWIPES, SAME DIRECTION 8 SIDEWIPES, OPPOSITE DIRECTION 9 UNKNOWN	SCHOOL BUS RELATED ☐ 1 1 NO 2 YES, DIRECTLY INVOLVED 3 YES, INDIRECTLY INVOLVED 4 UNKNOWN	Diagram 	Write an "N" on the compass diagram to indicate the direction of north.
WEATHER ☐ 01 01 CLEAR 02 CLOUDY 03 FOG, SMOG, SMOKE 04 RAIN 05 SLUSH, HAIL (FREEZING RAIN DRIZZLE) 06 SNOW 07 SEVERE CROSSWINDS 08 BLOWING SAND, SOOT, DIRT, SNOW 09 OTHER 10 UNKNOWN	WORK ZONE RELATED ☐ 1 1 NO 2 YES 3 UNKNOWN		
LIGHT CONDITIONS ☐ 1 ☐ 2 1 DAYLIGHT 2 DAWN 3 DUSK 4 DARK - LIGHTED ROADWAY 5 DARK - NOT LIGHTED 6 DARK - UNKNOWN LIGHTING 7 GLARE 8 OTHER 9 UNKNOWN	TYPE OF WORK ZONE ☐ 1 1 LANE CLOSURE 2 LANE SHIFT/CHANGEOVER 3 WORK ON SHOULDER OR MEDIAN 4 INTERMITTENT/ MOVING WORK 5 OTHER		
LOCATION OF CRASH IN WORK ZONE ☐ 1 1 BEFORE FIRST WORK ZONE WARNING SIGN 2 ADVANCE WARNING AREA 3 TRANSITION AREA 4 ACTIVITY AREA	WORKERS PRESENT ☐ 1 1 NO 2 YES 3 UNKNOWN		

Truck/Bus UNIT # ☐ 1 ☐ 2	THE CRASH INVOLVED ONE OR MORE OF THE FOLLOWING: A TRUCK (ORIGIN VEHICLE) WITH A GVWR MORE THAN 10,000 POUNDS; A TRUCK (ORIGIN VEHICLE) WITH A HAZARDOUS MATERIAL PLACARD; OR A BUS DESIGNED FOR AT LEAST 8 PERSONS, INCLUDING DRIVER.	A D THE CRASH RESULTED IN ONE OR MORE OF THE FOLLOWING: A FATALITY OR AN INJURY REQUIRING TRANSPORTATION FOR IMMEDIATE MEDICAL TREATMENT; OR AT LEAST ONE VEHICLE WAS TOWED DUE TO DISABLING DAMAGE OR REQUIRED INTERVENING ASSISTANCE BEFORE PROCEEDING UNDER ITS OWN POWER.
COMPANY (FROM SHIPPING PAPERS) ☐ 1 ☐ 2		COMPANY PHONE ☐ 1 ☐ 2
ADDRESS (STREET, CITY, ST, ZIP CODE) ☐ 1 ☐ 2		

US DOT	ICC	PUCD	TRAILER LP ST.	TRAILER LP YEAR	TRAILER LP #	PLACARD #	# DR.
CARD BODY TYPE ☐ 01 ☐ 02 ☐ 03 ☐ 04	☐ 05 ☐ 06 ☐ 07 ☐ 08	☐ 09 ☐ 10 ☐ 11 ☐ 12 ☐ 13	Weight (GVWR) ☐ 1 ☐ 2 ☐ 3	CDL Class ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5	Hazardous Materials Placard ☐ 1 ☐ 2 ☐ 3	Hazardous Material Released ☐ 1 ☐ 2 ☐ 3 ☐ 4	

Police Action DATE CRASH REPORTED 12/18/2010	TIME REC CALL 12:22	DISPATCH 12:25	ARRIVED 12:33	CLEARED 1:15	OTHER ☐ 1 ☐ 2 ☐ 3	TOTAL MINUTES 0050
OFFICER'S NAME NACHTRAB / PRIOR	BADGE # 1892	CHECKED BY RZ228	DATE REPORT FILED 12/18/2010	REPORT TAKEN BY ☐ 1 POLICE AGENCY ☐ 2 MOTORIST	REPORT TAKEN AT ☐ 1 SCENE ☐ 2 STATION ☐ 3 OTHER	SEP. 11.11 2010/10/08/3



28-Oct-11

Detailed Estimate for Grade Crossing Warning Devices

City/State: OREGON, OH
MilePost: TB-2.68
State Proj. No.:
S&E Proj. No.: 10.1336
Man Days: 100

Road: GREENWOOD AVE
DOT/AAR: 473874J
County: LUCAS
File Number:

Purchases - Others		
Meals and Lodging:	\$13,440.00	
Rental of Equipment:	\$14,000.00	
(2 Trucks, 1 Backhoe w/ Trailer and 1 Pipe-Pusher for 25 Days)		
Construction Supervision Vehicle:	\$2,501.74	
Purchases - Other Total:		\$29,941.74
Material And Additives		
Material Cost:	\$95,670.00	
Sales and Use Tax:	\$0.00	
Material Handling Freight:	\$4,783.48	
Material Total:		\$100,453.48
Labor And Additives		
Labor Cost:	\$28,000.00	
(4 man crew at \$1,120.00 a day for: 25 days)		
Payroll Tax & Overheads:	\$37,195.20	
Preliminary Engineering:	\$10,882.92	
Construction Supervision:	\$7,904.40	
Labor Total:		\$83,982.52
	Project Cost:	\$214,377.74
	Scrap / Salvage Credit:	\$0.00
	Project Total:	\$214,378.00

Estimated on: 28-Oct-11

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:	OREGON
Road:	GREENWOOD AVE
Mile Post:	TB-2.68
Drawing Number:	TOTB00268
State Project Number:	
County:	LUCAS
A A R Number:	473874J
Project Number:	10.1336
File Number:	
New File Number:	CX0124180
A F E Number:	F33355
Store Number:	09167
Supervisor:	E.G. CHISM
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: OREGON				OH	S&E Proj. No.: 10.1336	AFE No.: F33355	Drawing No.: TOTB00268		
Store No.: 09167				P.O.Number:	Date Required:	Date Shipped:	Vendor: Railroad Signal Design		
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	\$5.52	\$16.56	AAR/DOT NUMBER PLATE/DECAL, ORDER 3 PER PROJECT. 60 DAY LEAD TIME. SUPPLIED BY STRAN.				
1	165-006505-4	EA	\$1,075.23	\$1,075.23	AC SERVICE, COMPLETE LESS METER BASE, ASSEMBLED ON 30' POLE				
13	105-288384-4	EA	\$276.34	\$3,592.42	BATTERY GNB 368AH MODEL 50G15 SINGLE CELL 2.25 VOLTS, FOR USE WITH CROSSINGS DESIGNED AFTER 09/09				
2	670-980689-4	EA	\$75.48	\$150.96	BRACKET HIGH WIND, (RIGID 3'), WIG- 191036, WALRUS TUSK TYPE				
2	670-561375-4	EA	\$1,208.79	\$2,417.58	BRACKET, GATE SAVER, NEG385102GS, SPRING LOADED SWING AWAY ADAPTER FOR FIBERGLASS/ALUMINUM GATES, USE WITH GATE 36' AND LESS				
1	670-356949-4	EA	\$90.00	\$90.00	CABLE, 10' GENERATOR HOOK UP, SERRMI P/N 40524. FEMALE CONNECTOR				
500	465-939422-4	LF	\$3.17	\$1,585.00	CABLE, UG 12 CONDUCTOR NO 14 AWG SOLID EACH CONDUCTOR WITH 5/64 IN INSULATION 10 MIL				
350	465-292862-4	LF	\$1.54	\$539.00	CABLE, UG 2-6 TWISTED, S-23 OKONITE 113-12-3933 SOLID TINNED CONDUCTOR				
500	465-292929-4	LF	\$4.64	\$2,320.00	CABLE, UG 5 COND. NO. 6 AWG SOLID COPPER CABLE TO MEET NS CORP. SPEC. FOR SIGNAL				
350	465-791835-4	FT	\$3.93	\$1,375.50	CABLE, UG AC ENTRANCE 3C#6-7X OKONITE FMPP-L 094-078 TR W/G 1 X 8 7X W010 BRZ TAPE 600V PRODUCT CODE 206-11-6070				
1	670-995189-4	EA	\$3,089.90	\$3,089.90	CANTILEVER, WT/F ARM 18' WWALKWAY KIT SAFETAN #071294-18NS1				
80	165-544477-4	FT	\$2.11	\$168.80	CONDUIT, 4"x10' PVC, SCHEDULE 80 BELL CONNECTOR AT ONE END, 1/2 PT. GLUE IN KIT 670-123298-4				
2	670-664917-4	EA	\$80.28	\$160.56	CONNECTOR KIT, WELDED FAR RAIL, CONSISTING OF RUBBER HOSE PROPERLY DRILLED, BONDSTRAND, 1 SPLICING SLEEVE, 1 REDUCING SLEEVE, 3 CLAMPS, 1 TRACK CLIP, 1 WEB WELDED TRACK CONNECTOR, 1 WELD METAL, SAFETAN 111359-2X				
2	670-632520-4	EA	\$70.94	\$141.88	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, SAFETAN 111359-1X				

APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
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Location: OREGON			OH	S&E Proj. No.: 10.1336	AFE No.: F33355	Drawing No.: TOTB00268	Vendor: Railroad Signal Design			
Store No.: 09167			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	670-793404-4	EA	\$1,159.00	\$1,159.00	COUNTERWEIGHT PKAGE, 17-24'GATE S'TRAN S- MECH ONLY, STAINLESS, TO INCLUDE HUB, SUPPORT ARMS					
1	670-794453-4	EA	\$1,253.03	\$1,253.03	COUNTERWEIGHT PKAGE, 25-31'GATE STAN S- MECH ONLY, STAINLESS TO INCLUDE HUB, SUPPORT ARMS					
6	670-760012-4	EA	\$40.40	\$242.40	COVER, FOR 1 WAY FLASHING LIGHT ASSY. 18 OZ. BLACK VINYL COATED NYLON. ===TO COVER 2 LAMPS===					
1	670-986650-4	EA	\$341.80	\$341.80	DISPOSAL, CONSTRUCTION DEBRIS AND CLEANING X'ING EQUIPMENT CONTAINER					
1	670-000004-4	EA	\$700.00	\$700.00	FCC LICENSE FOR MONITOR/RADIO					
3	670-000003-4	EA	\$255.85	\$767.55	FILL/STONE #57, QUANTITY IS BASED ON TRUCK LOAD PLUS DELIVERY COST					
1	670-744631-4	EA	\$3,158.86	\$3,158.86	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	\$594.49	\$1,188.98	FOUNDATION, DIXIE,S-2 GATE 2'6"x2'6"x5'6" ASSEMBLED					
1	670-257031-4	EA	\$421.88	\$421.88	GATE ARM, FIBERGLASS-ALUMINUM, 17-24 FT, INCLUDES GATE GUARD FOR GATE LIGHT CABLE. HIGH INTENSITY VERTICAL STRIPES. NEG P/N 8003-244NFS/CG, SSC T18115					
1	670-263738-4	EA	\$458.43	\$458.43	GATE ARM, FIBERGLASS-ALUMINUM, 25-31 FT, INCLUDES GATE GUARD FOR GATE LIGHT CABLE. HIGH INTENSITY VERTICAL STRIPES. NEG P/N 8003-324NFS/CG, SSC					
1	670-674402-4	EA	\$30,498.41	\$30,498.41	GCP4000 - 1 TRK (2TC) - REDUNDANT - 40/60 AMP WIRED RACK EQUIP. FOR 6'X8 X'ING 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-					
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	\$336.04	\$336.04	KIT, HARDWARE SUPPLIES REQUIRED X'ING PKGAGES. WEB CONNECTORS FOR SHUNT(8EA) TAPE, AMPS,P'GUM PAINT,SLEEVES,TAGS,GLUE, 100 EA WHITE TAGS,)NE CAN BLUE MARKING PAINT ETC...					

APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
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Location: OREGON				OH	S&E Proj. No.: 10.1336	AFE No.: F33355	Drawing No.: TOTB00268				
Store No.: 09167				P.O. Number:		Date Required:	Date Shipped:	Vendor: Railroad Signal Design			
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date	Quantity Returned (Credit)	Special Instructions		
2	670-441677-4	EA	\$676.56	\$1,353.12	LAMP ASSY, 4" JURY ARM TIP & LANE LIGHT, USE WITH WT/F CANT ARM, 1W (BACK) OR 1W (FRONT) IND. 20" BKGRD, FLX-12" W/BULB. ORDER 2 FOR 2W APPLICATION. SAFETRAN P/N 042003-001534						
1	670-816589-4	EA	\$683.57	\$683.57	LAMP ASSY, 5" MAST MTG. 1W IND. 20" BKGRD, (BACK) LTS.FLX -12W/BULB S'TRAN # 042003-001493						
1	670-764166-4	EA	\$1,240.19	\$1,240.19	LAMP ASSY, 5" MAST MTG. 2W IND. 20" BKGRD, FLX-12 W/BULB S'TRAN #042003-487XNS						
1	670-167654-4	EA	\$647.05	\$647.05	LAMP ASSY, FLX 12" LIGHT UNIT, USE WITH W & WT/F MAST, 1W (FRONT) INDICATION FOR WT/F CANTILEVER MAIN MAST, SAFETRAN P/N 042003-489XNS						
6	165-643547-4	EA	\$5.75	\$34.50	LAMP, 18 WATT 10 VOLT S-11 SC BAY 18S11/1SC CLEAR RWY SIGNAL UJ-71463 GE						
5	255-590880-4	EA	\$17.57	\$87.85	LOCK, AMERICAN LOCK MODEL H-10KA KEYS ALIKE TO PRIVATE KEYWAY D456 AND STAMPED "NS SIG"						
1	670-179911-4	EA	\$4,250.00	\$4,250.00	MAST, 12" CANTILEVER, FOR 12'-20' WT/F ARMS, INCL. LADDER KIT (IPN: 071271-20NS)						
2	670-637778-4	EA	\$1,265.30	\$2,530.60	MAST, 5" ALUMINUM 13'10" WITH DOUBLE JCT. BOX BASE. S'TRAN P# 070619-11AX.						
2	670-850933-4	EA	\$3,925.06	\$7,850.12	MECHANISM, GATE MODEL S-60, WITH DEFROSTER AND MINI TRACKSIDE SENSOR S'TRAN # 0740007-X002B3						
1	000-000000-4	EA	\$5,000.00	\$5,000.00	MISC. EXPENSE, UNDERGROUND BORING						
2	210-863404-4	EA	\$4.38	\$8.76	NUT, RACO 408-1 SAFETRAN PART NO. 023408-1X INSULATED CR 02-316121						
1	670-001355-4	EA	\$74.00	\$74.00	PACKAGE, HARDWARE SIGN 12 IN. (USE WITH WT/F MAST) MOUNTING, SERRMI A1250-8, HARMON @ 180004/0007,						
1	670-001347-4	EA	\$57.10	\$57.10	PACKAGE, HARDWARE SIGN 5 IN. MOUNTING, SERRMI A1250-5, HARMON @ 200965-000, OR						
1	255-646807-4	EA	\$31.19	\$31.19	PADLOCK, SAFETRAN PART NO. 030399-29X SCREW TYPE FOR C/R CONTROLLER AND BTY. BOX						
2	670-514605-4	EA	\$11.11	\$22.22	PINNACLE, W-C SECT 1-11, 4" & 5" REF K1 110-8 OR SAFETRAN NO. @ 035045-503X						
1	165-902002-4	EA	\$303.43	\$303.43	PROTECTOR, SURGE 120/240VAC, ERICO P/N EPD120/240TDFL						
4	465-002899-4	EA	\$39.71	\$158.84	REEL, CABLE DISPOSABLE FOR CROSSING SIGNAL PACKAGES						

APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
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Location: OREGON			OH	S&E Proj. No.: 10.1336	AFE No.: F33355	Drawing No.: TOTB00268				
Store No.: 09167			P.O. Number:		Date Required:	Date Shipped:	Vendor: Railroad Signal Design			
Qty.	Class-Item-CD	UI	Price per Item	Total Price	Item Description	Quantity Shipped	Quantity Installed Date Quan.	Quantity Returned (Credit)	Special Instructions	
2	435-805560-4	EA	\$2.83	\$5.66	SAND, 25LB BAG FOR CABLE ENTRANCE INTO THE SHELTER					
1	670-027556-4	EA	\$2,629.77	\$2,629.77	SEARIII, ACCESSORY PACKAGE, W/2-ILOD, 1-E-BELL, 2-GTS, 1-GFT, 1-VHFC, WITHOUT MTSS/SEAR UNIT					
1	670-749325-4	EA	\$226.97	\$226.97	SHELF, FOLDING, FOR LAPTOP USE IN FARADAY 6X8 SHELTER, SAFETRAN 052862-128X					
1	670-755523-4	EA	\$9,383.92	\$9,383.92	SHELTER, 6'X8' ALUMIN FARADAY W/CABLE CHUTES BEHIND TERMINAL BOARD, W/1EA EQUIPMENT RACK, W/GEN RECEPTICAL, BREAKER BOX GFI OUTLET FOR LAPTOP SHELF SAFETRAN 058400-68-85					
2	670-586967-4	EA	\$41.70	\$83.40	SHUNT COVER W/LAG SCREWS, 19"X19", SERRMI #40271, ORDER 1 PER SHUNT					
2	670-652773-4	EA	\$460.98	\$921.96	SHUNT, MULTI-FREQ. #62775-1543 SAFETRAN NARROW BAND					
1	670-397239-4	EA	\$40.23	\$40.23	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 12" MAST, SAFETRAN #T17216					
2	670-393331-4	EA	\$37.43	\$74.86	SIGN CROSSING MALFUNCTION ASSEMBLY FOR 4" AND 5" MAST, SAFETRAN #T17215					
2	670-016346-4	EA	\$146.32	\$292.64	SIGN, X-BUCK, HI-INTENSIVE REFLECTIVE FRT. & BACK FOR ALL STATES, SAFETRAN# 035200-91X					
1	670-330382-4	RL	\$17.81	\$17.81	TAPE, THOR 3" DURATEC, ORANGE 1000' LENGTHS, "WARNING STOP DIGGING"					

Total Material: \$95,669.53

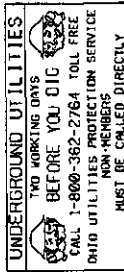
APPROVED BY STATE	APPROVED BY RAILROAD	CAR NUMBER	SEAL NUMBER
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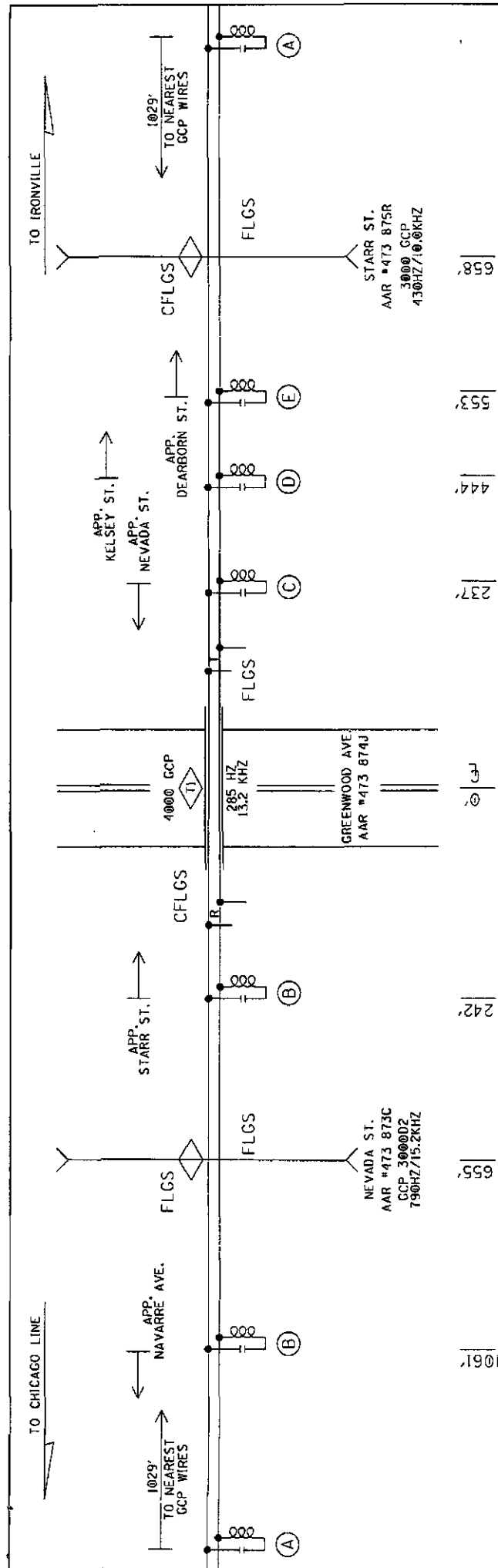
SH. NO.	CONTENTS
NXI	INDEX SHEET
1	LAYOUT
2	PROFILE
3	CABLE PLAN
4	LOAD CENTER
5	RECTIFIER & BATTERY
6	4000 GCP 2-TK CHASSIS & MODULE LAYOUT
7	4000 GCP PROGRAMMING SETUP
8	4000 GCP PROGRAMMING SETUP
9	CONNECTORS FOR TRACK MODULES
10	CPU MODULE, SEAR III, GFT & VHF HOOK-UPS
11	SEAR III PROGRAMMING SETUP
12	SSCC#1 MODULE, ILOD#1 HOOK-UP
13	SSCC#2 MODULE, ILOD#2 HOOK-UP
14	CANTILEVER FLASHER LIGHTS
15	FLASHER AND GATE LIGHTS - A
16	FLASHER AND GATE LIGHTS - B
17	BACKBOARD 1A & 1B
18	REAR BACKBOARD 1A & 1B
19	FARADAY SHIELD 1A & 1B
20	FARADAY SHIELD 1C
21	HOUSE SIDE C LAYOUT
22	HOUSE SIDE A LAYOUT
23	HOUSE SIDE B & TOP VIEW LAYOUT

IN SERVICE	SIGNED	DATE
☐ S&E ENGINEERING COPY		
☐ CONSTRUCTION OFFICE COPY		
☐ RETURN TO S&E ENG. AFTER COMPLETION		
☐ FIELD COPY		
☐ RETURN TO CASE AFTER COMPLETION		
☐ PROJECT ENGINEER COPY		

INDEX SHEET 1

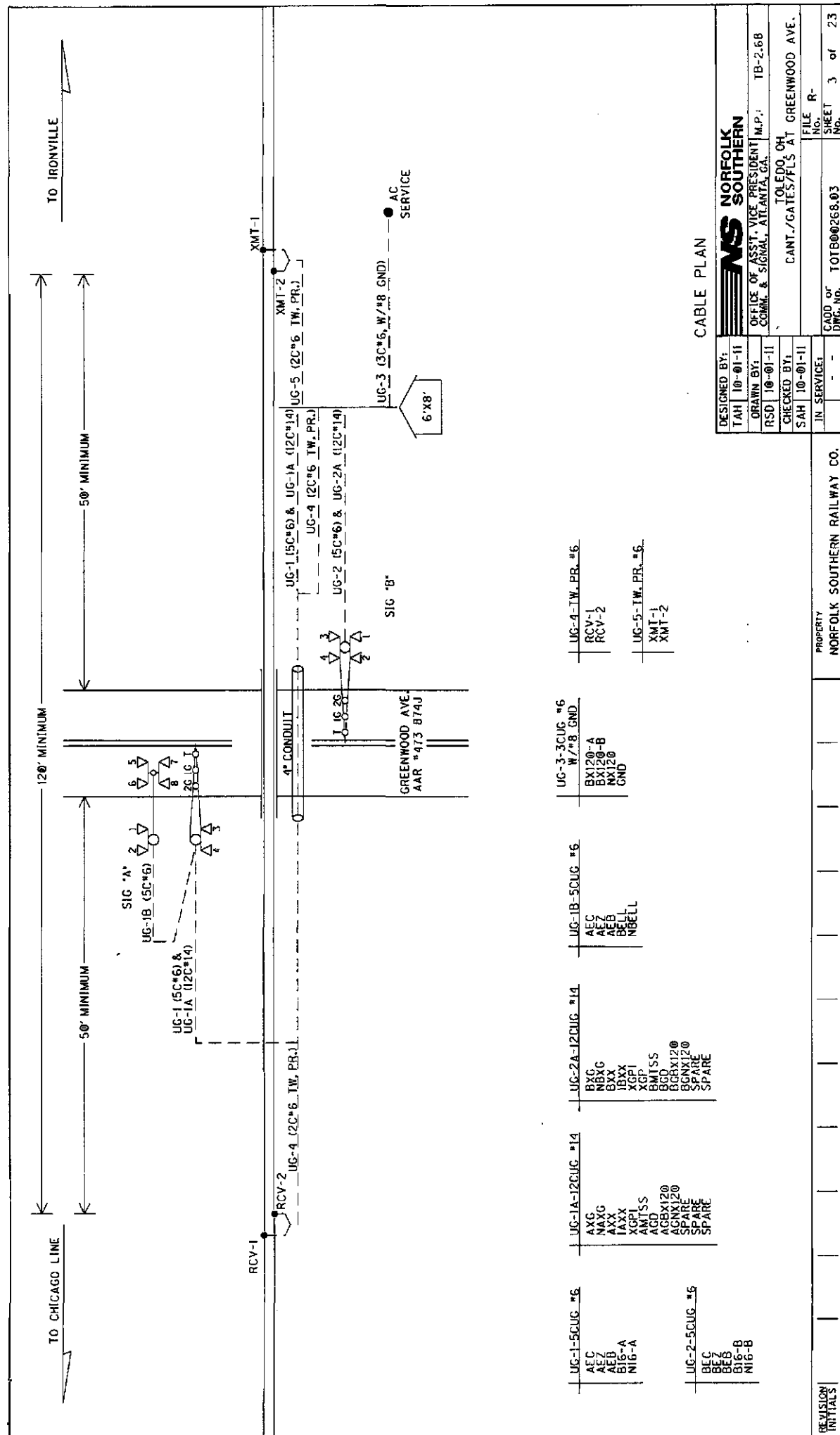
DESIGNED BY: TAH 10-01-11	 NORFOLK SOUTHERN OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: TB-2.68
DRAWN BY: RSD 10-01-11		TOLEDO, OH
CHECKED BY: SAH 10-01-11		CANT./GATES/FLS AT GREENWOOD AVE.
IN SERVICE:		FILE R- No. 1 of 1
PROPERTY NORFOLK SOUTHERN RAILWAY CO.		



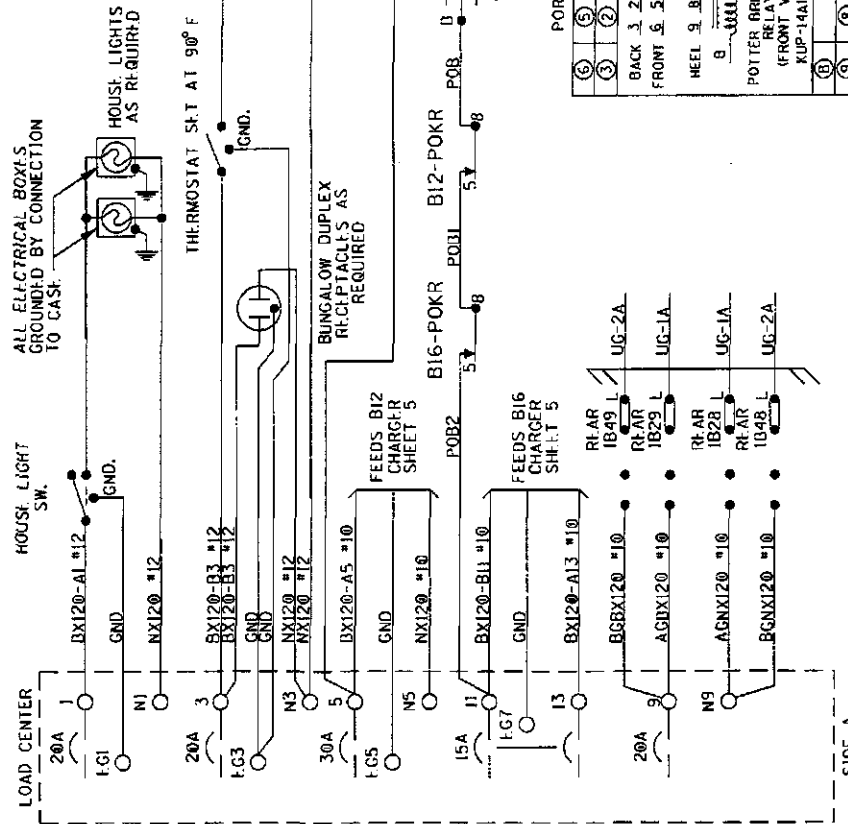


PROFILE

DESIGNED BY: TAH 10-01-11	© NBS 62775-790HZ © NBS 62775-790HZ © NBS 62775-790HZ PROPERTY NORFOLK SOUTHERN RAILWAY CO.									
DRAWN BY: RSD 10-01-11										
CHECKED BY: SAH 10-01-11										
IN SERVICE: - -										
OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. TOLEDO, OH CANT./GATES/FLS AT GREENWOOD AVE. NS NORFOLK SOUTHERN										
FILE NO. CADD OR DWG. NO. SHEET NO. 2 of 23										



CABLE PLAN



6	5	4
3	2	1

BACK 3 2 1
 FRONT 6 5 4
 WHEEL 9 8 7
 8 WHEEL A
 POTTER GRIMFIELD
 RELAY
 (FRONT VIEW)
 KUP-14A15-248

8	6	4
9	7	5

LOAD CENTER WIRING



**NORFOLK
SOUTHERN**

OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: TB-2.68
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TOLLEDO, OH
CANT./GATHS/FLS AT GREENWOOD AVE.

CADD or DWG No.	FILE No.	SHEET No.	4 of 23
TOTB00268.04			

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

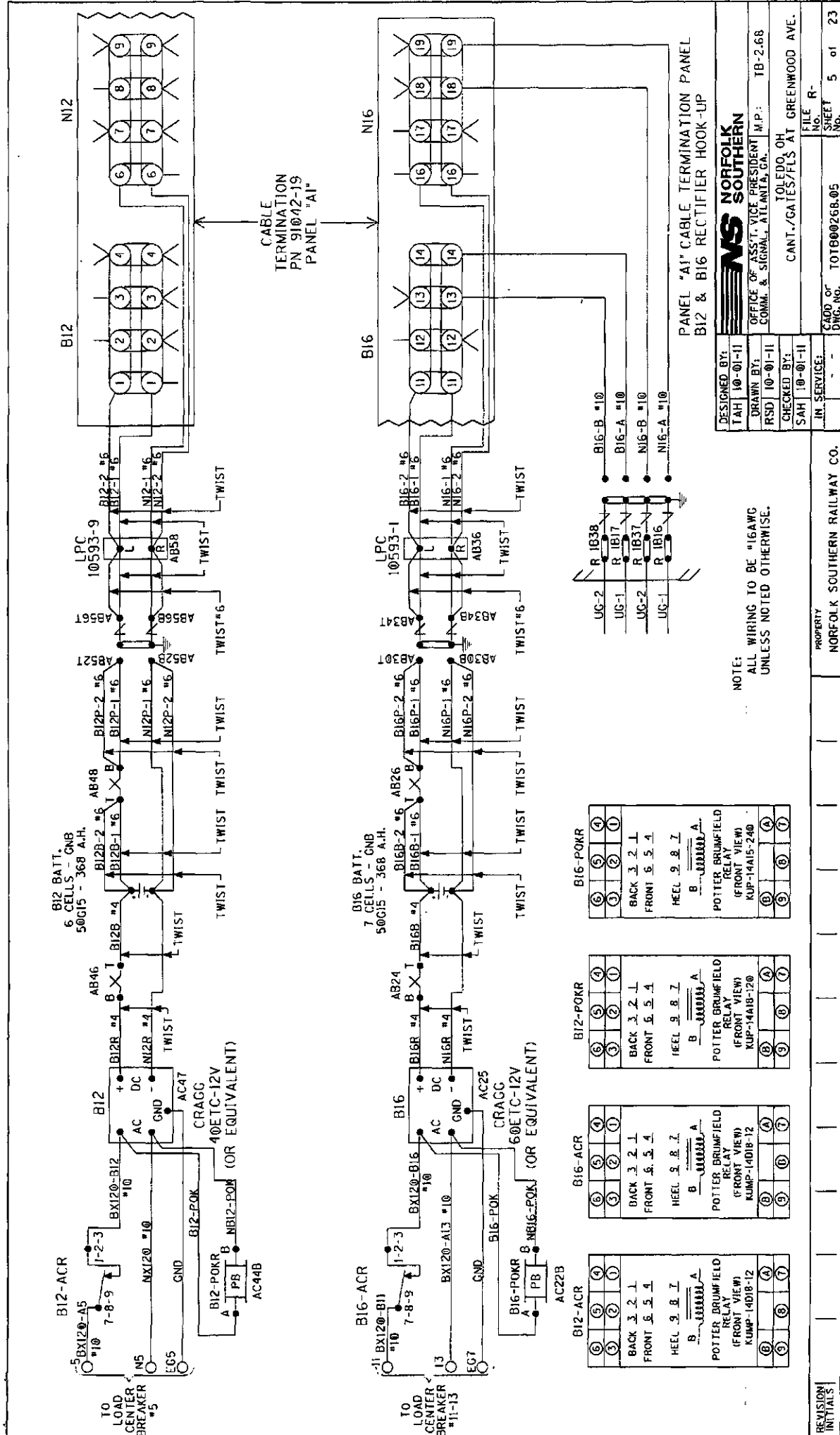
REVISION
INITIALS:

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

SQUART. "D" PART NUMBERS:

LOAD CENTER---Q0116L1256
100A 1P CIR BKR---Q0110
100A 2P CIR BKR---Q0210
100A 2P CIR BKR---Q0215
220A 1P CIR BKR---Q0120
330A 1P CIR BKR---Q0130
400A 2P CIR BKR---Q0230
400A 2P CIR BKR---Q0240
1000A 2P CIR BKR---Q02100
ME-CH INT-LOCK---PK4DT1M4LA

GENERATOR RECEPTACLE:
MATE. CONNECTOR - NEMA L1430-F1



WARNING

REMOVAL OF THE SSCCHH MODULE WILL CAUSE THE CATES) TO DROP BUT THE LIGHTS WILL NOT ACTIVATE

CAUTION

ASSURE CORRECT POLARITY OF THE SSCCHH MODULE OR SEVERE DAMAGE WILL OCCUR.

ATTENTION!

ENSURE THE DISPLAY MODULE HEATER IS DISABLED LEAVING THE DISPLAY HEATER ENABLED WILL REDUCE THE AMOUNT OF BATTERY STANDBY TIME IN THE EVENT OF AN AC POWER FAILURE.

HEATER FUNCTION IS JUMPER SELECTABLE ON THE DISPLAY MODULE BOARD.
THREE OPTIONS ARE AVAILABLE:
NORMAL LCD HTR (DEFAULT)
HI CURRENT
NO JUMPER (HEATER DISABLED)

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

PANEL "A2" 4000 CCP REDUNDANT 2-TK CHASSIS AND MODULE LAYOUT

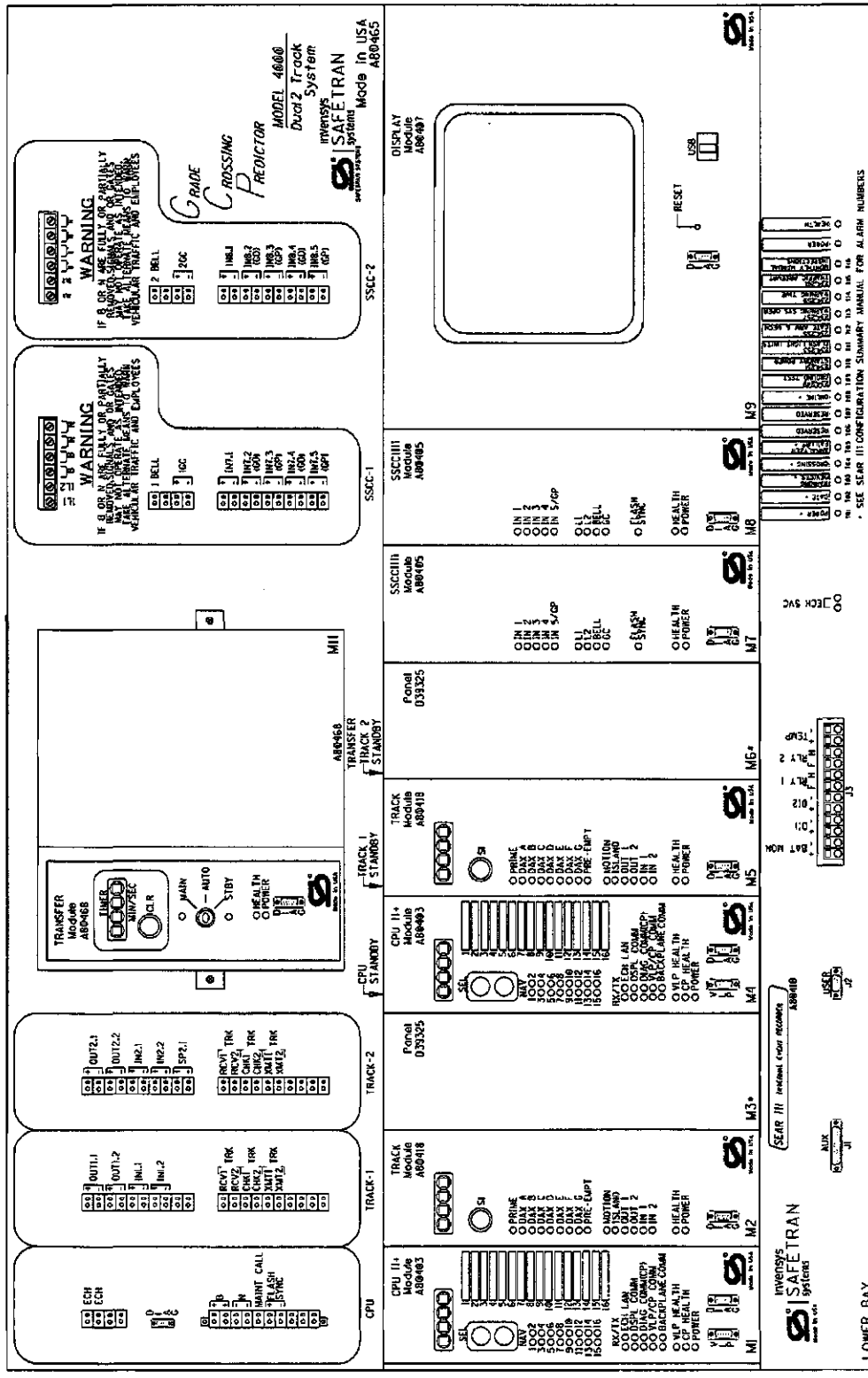
NORFOLK SOUTHERN

OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: TB-2.68

TOLEDO, OH
CANT./CATES/FLS AT GREENWOOD AVE.

FILE NO. R-
CADD OR DWG. NO. TOTB000268.06

SHEET 6 of 23



DESIGNED BY:

TAH 10-01-11

DRAWN BY:

RSD 10-01-11

CHECKED BY:

SAH 10-01-11

IN SERVICE:

- -

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

REVISION
INITIALS

LOWER BAY

Program Report

Location and SIN

DOT Number: 473874J
Milepost Number: TB-2.68
Site Name: GREENWOOD AVE
SIN: 755018603816

MCF and Template Selection

MCF Name: GCP-1A-02-1.mcf
MCF Revision: 021
MCF CHC: 6076L435

Template = 1A:6 Trk B1

Check Numbers

Office Check No. (DT 4.6.0): TB8456EA
Office Check Number: TB8456EA
Contig. Check Number: 2FC415F
(Based on MCF Revision 021)

Program

BASIC: module configuration

Track 1 Slot = track
Track 2 Slot = Not Used
Track 3 Slot = Not Used
Track 4 Slot = Not Used
Track 5 Slot = Not Used
Track 6 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 = No

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

GCP: track 1
Track 1: GCP Frequency = Standard
Track 1: GCP Frequency = 285 Hz
Track 1: Approach Distance = 1029 ft
Track 1: Uni/Bi/Sim-Bidir = Bidir
Track 1: GCP Transm Level = Medium
Track 1: Island Connection = Is1
Track 1: Island Distance = 149 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 = Off
Track 1: Past Joint Detn Time = 15 sec
Track 1: Adv Appr Predn = No
Track 1: Cancel Pickup Delay = This Is1

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 MAX = 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 CtrlP Used = No
Track 1: MS Sensitivity Level = 0
Track 1: Compensation Level = 1300
Track 1: Warn Time-Balast Comp = High
Track 1: Low EX Adjustment = 39
Track 1: Bidir Dax PosStru = 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: Is1 Frequency = 13.2 kHz
Track 1: Pickup Delay (28 * 1) = 0 sec
Track 1: Is1 Enable (P 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 Lds 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/0 1
Poss 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/0 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/0 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

4000 GCP PROGRAMMING SETUP



NORFOLK SOUTHERN

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

TOLEDO, OH
CANT./GATES/FLS AT GREENWOOD AVE.

FILE R-
No. 7 of 23

CADD OF
DWC. No. TOTB00268.07

IN SERVICE: - - -

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

REVISION
INITIALS

ADVANCED: internal I/O 4
Int13 Set by = Not Used
Int14 Set by = Not Used
Int15 Set by = Not Used
Int16 Set by = Not Used
Int17 Set by = Not Used
Int18 Set by = Not Used
ADVANCED: site options
Daylight Savings = On
Units = Standard
Mount Callout IP Used = No
Emergency Activate IP = No
EZ/EX Loading = Change
EZ/EX Point Change = 3

SSCC
Gates Used = Yes
SSCC1+2 GPs Coupled = Yes
Min Activation = 0 sec
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 = 4 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 = On
Aux-1 Xng Ctrl Used = No

SSCC: 2
SSCC-2 Activation = AND 1 XR
SSCC-2 Gate Delay = 4 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 = On
Aux-2 Xng Ctrl Used = No

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

INPUT: assignment page 1
IN 1.1 = Not Used
IN 1.2 = 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 XR Enable
IN 7.3 = AND 1 XR Enable
IN 7.4 = GD 1,1
IN 7.5 = GP 1,1
IN 8.1 = Not Used
IN 8.2 = Out Of Service IP 1
IN 8.3 = Not Used
IN 8.4 = Not Used
IN 8.5 = Not Used

SEAR Subnode = 3
SEAR: Inputs
DI 1 = Not Used
DI 2 = Not Used
RIY 1 = Ground Fault Test
RIY 2 = AC Control

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

SFAR: slot 1-4 inputs
IN 1.1 = Not Used
IN 1.2 = Not Used
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
SFAR: inputs slot 6
IN 6.1 = Not Used
IN 6.2 = Not Used

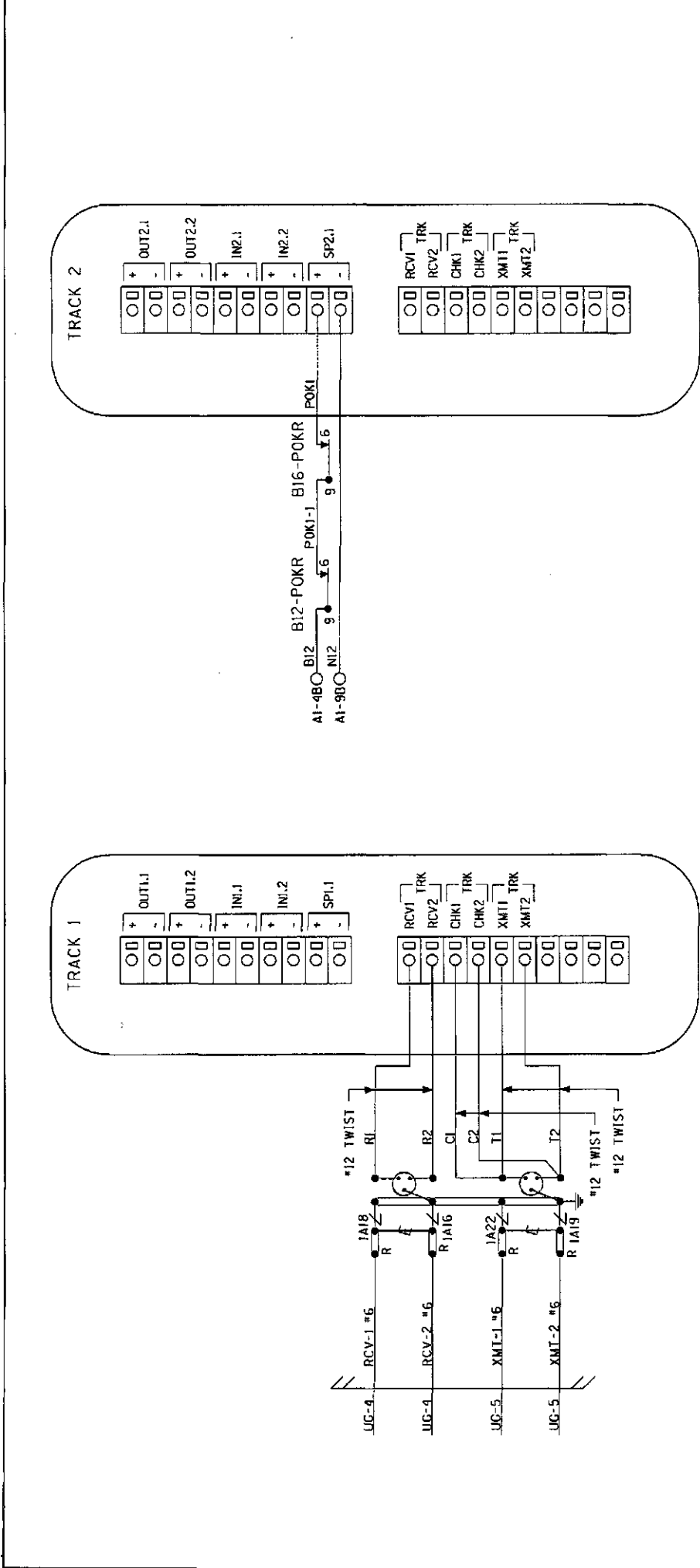
SFAR: slot 7-8 inputs
IN 7.1 = TSS 1
IN 8.1 = TSS 2
IN 8.3 = POK 2
IN 8.4 = Not Used
IN 8.5 = Not Used

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

Configuration Package File
Filename: TOTB00268.doc

4000 CCP PROGRAMMING SETUP

DESIGNED BY:	TAH 10-01-11		OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNALS, ATLANTA, GA.	M.P. 1	TB-2-68
DRAWN BY:	RSD 10-01-11				
CHECKED BY:	SAH 10-01-11				
IN SERVICE:	- - -				
CADD OF			FILE R-		
DWC No.			No.		
TOTB00268.08			SHEET 8 of 23		



PANEL "A2" CONNECTORS FOR MODULES (A80418)

DESIGNED BY:	TAH 10-01-11		FILE NO.	R-
DRAWN BY:	RSD 10-01-11		CADD or Dwg. No.	101B00268.09
CHECKED BY:	SAH 10-01-11		SHEET	9 of 23
IN SERVICE:	- - -			
NOTE:		ALL WIRING TO BE "IGAWG UNLESS NOTED OTHERWISE."		
PROPERTY		NORFOLK SOUTHERN RAILWAY CO.		

OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.:	TB-2-68
TOLEDO, OH		
CANT./GATES/FLS AT GREENWOOD AVE.		

SITE SET UP PROCEDURE		LED DISPLAY
FUNCTION		
DATE/TIME		
AUTOMATIC DST ADJUSTMENT		YES
TIME ZONE		EST
SITE NAME		GREENWOOD AVE.
MILEPOST		TB-2.68
DOT #		473874J
TESTER TYPE		CROSSING
DATE FORMAT		MM-DD-YYYY
TEMP FORMAT		FAHRENHEIT
INDICATE HOLD (SEC)		0
INDICATE REFRESH (SEC)		60
SITE ATCS		7.550.186.038.03.01
SITE TYPE		NO COMMUNICATION
OFFICE ATCS ADDRESS		2.550.01.9100
PRIMARY HOP ADDR		7.RRR.LLL.CGG.XX.XX
BACKUP HOP ADDR 1		7.RRR.LLL.CGG.XX.XX
BACKUP HOP ADDR 2		7.RRR.LLL.CGG.XX.XX
POLL ID		1
MODE		GEN/ATCS
WAMS XID		DISABLED
OFFICE COMM DEVICE		MCM (EHELON)
RADIO ATCS ADDR		7.RRR.LLL.CGG.01.01
PHONE #		(OFFICE NUMBER)
INIT STRING		
FIELD COMM		NONE
USER PORT		BAUD 57600, N, 8, 1, NONE
AUX PORT		BAUD 9600, N, 8, 1, NONE

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

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS		
THE QUESTION	SELECT FROM MENU	OPTION
RESET NAMES AND MODULES?	YES	
RAILROAD NUMBER	550	
CROSSING CONFIGURATION	NORMAL	
AND 1 USED AS XR?	YES	
AND 2 USED AS XR?	NO	
AND 3 USED AS XR?	NO	
AND 4 USED AS XR?	NO	
AND 5 USED AS XR?	NO	
AND 6 USED AS XR?	NO	
AND 7 USED AS XR?	NO	
AND 8 USED AS XR?	NO	
XR CONTROLLED BY FOREIGN RR		
ENTRANCE GATES	2	
GATES CONTROLLED BY FOREIGN RR		
GATE POSITION FAIL TIME (SECONDS)	20	
BATTERY BANKS	2	
BATTERY MON USED	YES	
INTERNAL CROSSING CONTROLLERS	2	
EXTERNAL CROSSING CONTROLLERS	0	
VHF COMMUNICATOR	YES	
DTMF ACTIVATION	YES	
ACTIVATION CODE	874	
ACTIVATION TIMEOUT (SECONDS)	60	
IL00 MODULES	2	
ANY LED BULBS USED	NO	
AUTO INSPECTIONS	NO	
BELL SENSORS	1	
BELL SENSOR TSS1	YES	
BELL SENSOR TSS2	NO	
BELL SENSOR TSS3	NO	
BELL SENSOR TSS4	NO	
BELL SENSOR TSS5	NO	
BELL SENSOR TSS6	NO	
BELL SENSOR TSS7	NO	
BELL SENSOR TSS8	NO	

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

CONTROL SYSTEM CONFIGURATION MENU QUESTIONS (CONT.)	
BELL ON	GATES LOWERING
GFT'S	YES
BATTERIES ON GFTI	2
GATE TIP SENSORS	YES
RTU	NO
VHF VOICE CHANNEL	2
VHF DATA CHANNEL	2
USE CELL MODEM	
NON-CRITICAL FEATURE	NO
FULL APPROACH MOVES ALARM	ACTIVATE

PROGRAM	PROGRAM MENU QUESTIONS	PROGRAM
NO	EDIT DIGITAL INPUTS	NO
NO	EDIT BATTERIES	NO
NO	EDIT RELAYS	NO
NO	EDIT INDICATOR LEDS	NO
NO	EDIT TEST LEDS	NO
NO	EDIT I/O SENSORS	NO
NO	EDIT WIRE SETTINGS	NO
16	DEPROGRAM ALL SENSORS	16

NOTES:

- * = DISPLAYED IF CROSSING CONFIGURATION IS SPLIT GATE

** = OPTIONS: IF BELL SENSOR = 0,
THEN BELL FIELDS ARE NOT USED.

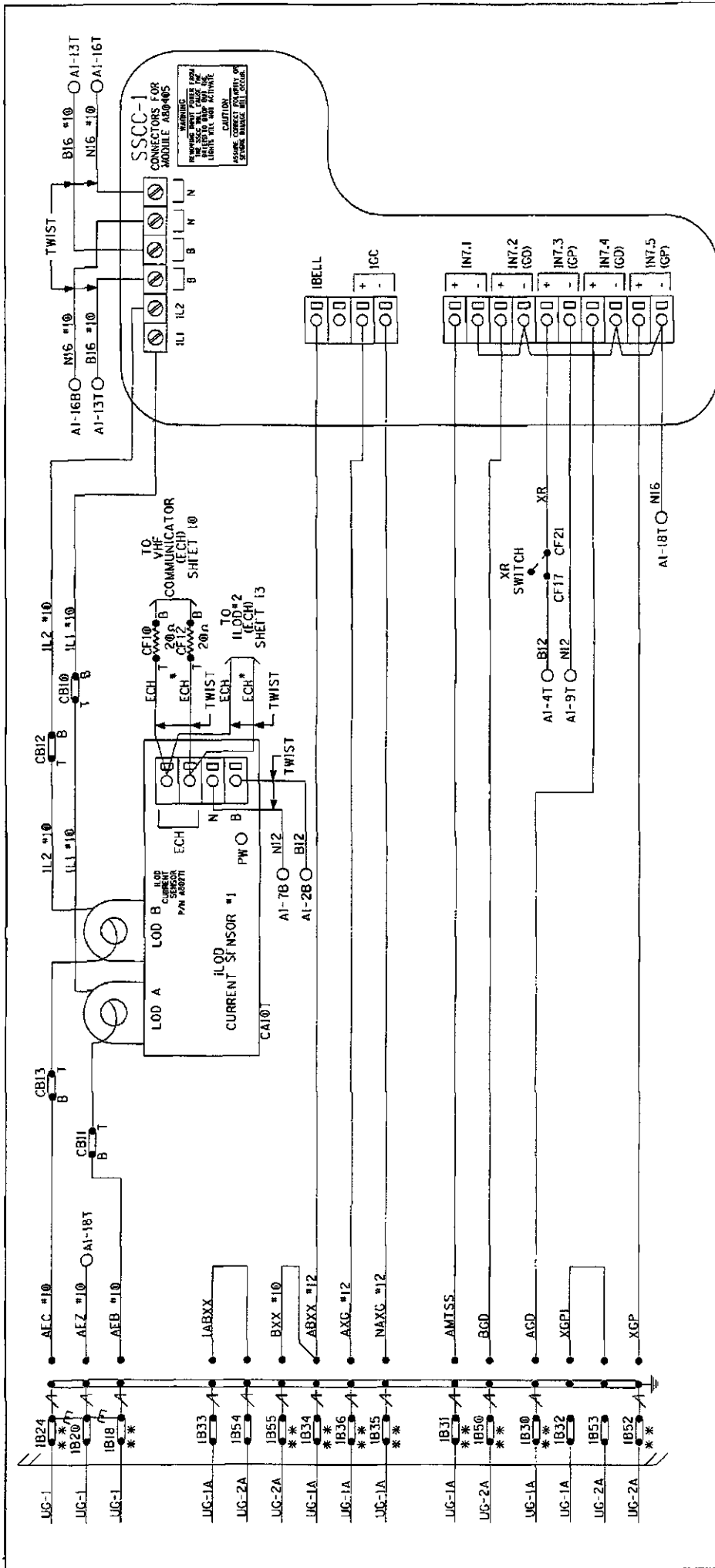
*** = IF SITE TYPE = NO COMMUNICATION,
THEN THESE OPTIONS ARE NOT
DISPLAYED

*** = THESE SETTINGS SHOULD BE LEFT
AT THE DEFAULT SETTING.

***** = USE LAST 3 NUMBERS FROM DOT NUMBER

SEAR II: PROGRAMMING SETUP

DESIGNED BY:		NORFOLK SOUTHERN	
TAH	10-01-11		
DRAWN BY:		OFFICE OF ASST. VICE PRESIDENT COMM'L, ATLANTA, GA.	
RSD	10-01-11	M.P.: TB-2.68	
CHECKED BY:		TOLDO, OH	
SAH	10-01-11	CANT./GATES/FLS AT GREENWOOD AVE.	
IN SERVICE:		FILE R- NO.	
		CADD. OF DWG. NO.	
		TOTB00268.11	
		SHEET 11 of 23	

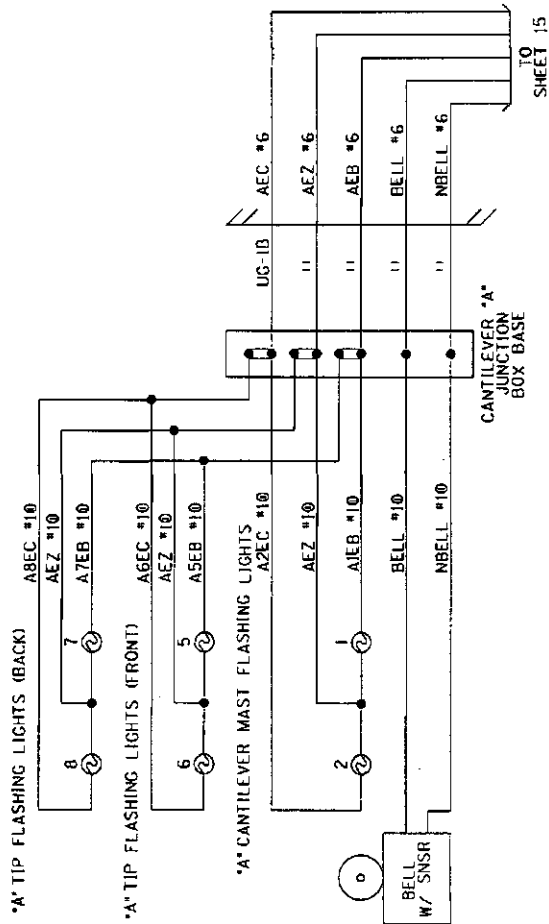


PANEL "A2" CONNECTORS FOR SSCC#1 MODULE (A80405)
TLOD#1 (A80271) HOOK-UP

DESIGNED BY:	TAH 10-01-11		 NORFOLK SOUTHERN OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. MP.: TB-2.68 TOLEDO, OH CANT./GATTS/FLS AT GREENWOOD AVE. FILE R-
DRAWN BY:	RSD 10-01-11		
CHECKED BY:	SAH 10-01-11		
IN SERVICE:	-		
CADD OR DING. No.	101B00268.12		
SHEET No.	12 of 23		

[illegible]



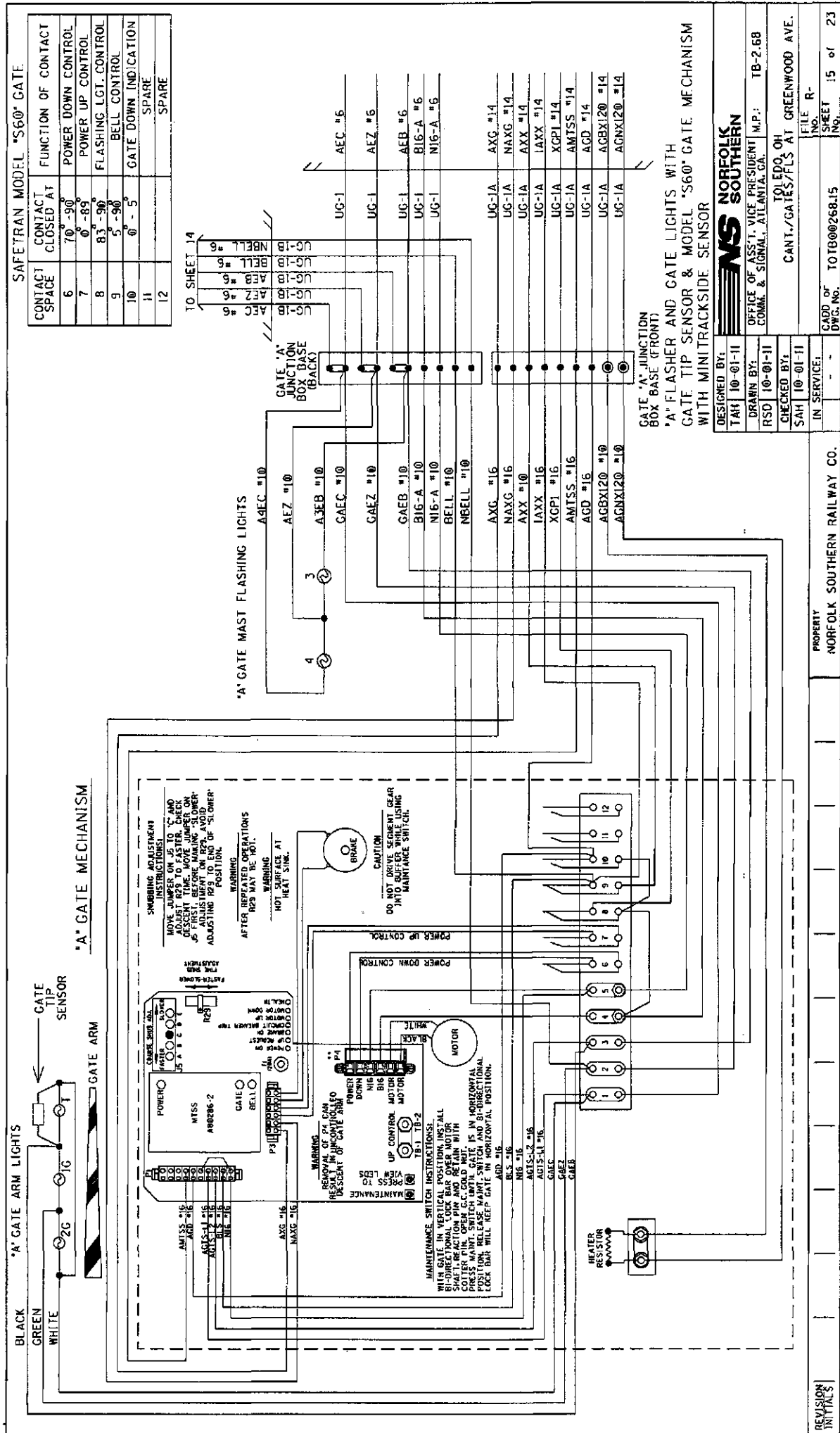


CANTILEVER FLASHER LIGHTS

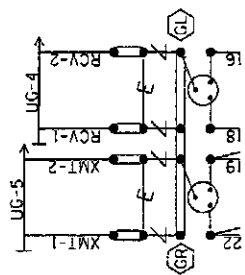
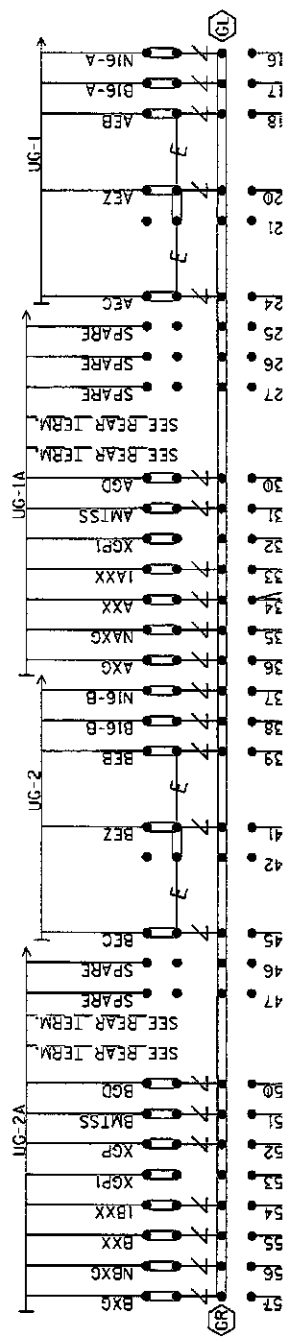
DESIGNED BY:		 NORFOLK SOUTHERN	OFFICE OF ASST. VICE PRESIDENT CONV. & SIGNAL, ATLANTA, GA.		M.P.:
TAH 10-01-11			TOLEDO, OH		TB-2.68
DRAWN BY:			CANT./GATES/FLS AT GREENWOOD AVE.		
RSD 10-01-11			FILE R-		
CHECKED BY:					
SAH 10-01-11					
IN SERVICE:					
- - -		CADD OR DWG. No.	T01B00268.14	SHEET No.	14 of 23

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

REVISION
INITIALS



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



⎓ = Heavy Duty Equalizer
(022700-1X)
Clearview
⌋ = Lightning Arrestor
(022585-1X)
⦿ = LPC-10560-51

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

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

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

BACKBOARD DETAIL - 1A & 1B

DESIGNED BY:	TAH 10-01-11
DRAWN BY:	RSD 10-01-11
CHECKED BY:	SAH 10-01-11
IN SERVICE:	
FILE NO.:	R-
SHEET NO.:	17 of 23
PROJECT NO.:	TOTB00268.17
PROPERTY:	NORFOLK SOUTHERN RAILWAY CO.

NORFOLK SOUTHERN

OFFICE OF ASS'T. VICE PRESIDENT
COMM. & SIGNAL, ATLANTA, GA. M.P.: 1B-2.68

TOLEDO, OH
CANT./GATES/FLS AT GREENWOOD AVE.

REAR VIEW OF LEFT TWO ROWS TERMINAL BOARD 1

"1A"

"1B"



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

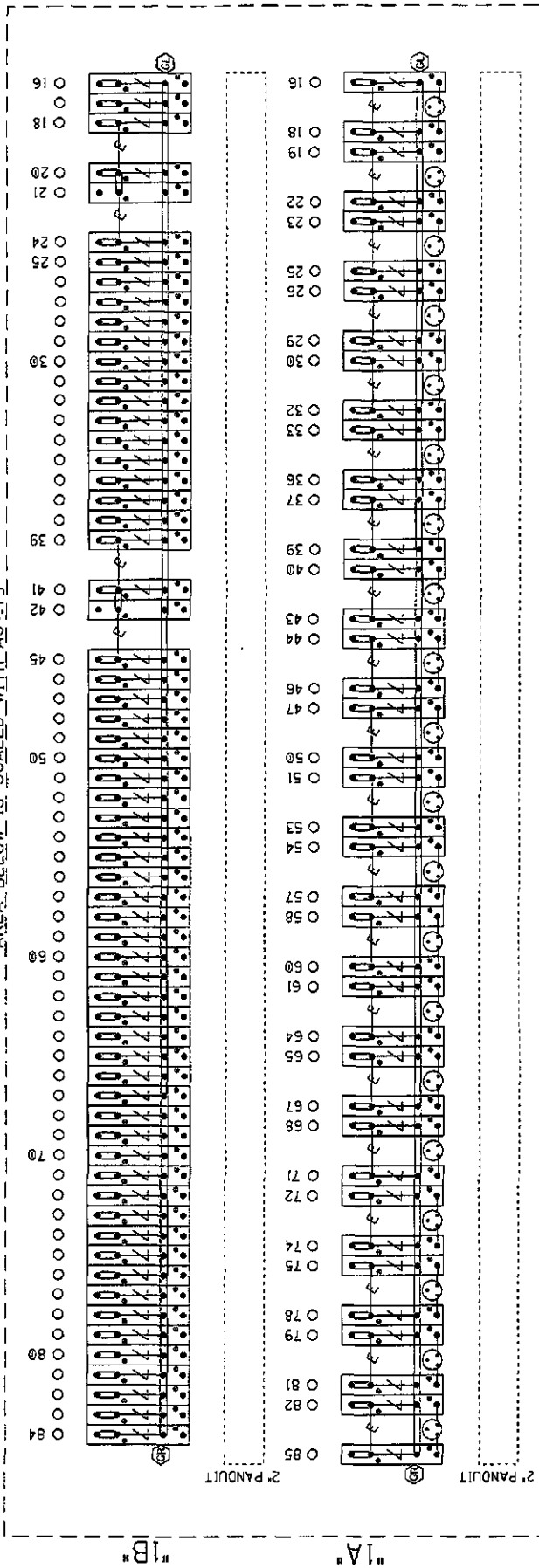
* = CLOSED DURING WINTER MONTHS

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

DESIGNED BY: TAH 10-01-11	NORFOLK SOUTHERN
DRAWN BY: RSD 10-01-11	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: TB-2.68
CHECKED BY: SAH 10-01-11	TOLEDO, OH CANT./GATES/F.L.S. AT GREENWOOD AVE.
IN SERVICE:	FILE R- CADD or DWG. NO. T01000268.18
REVISION INITIALS	PROPERTY NORFOLK SOUTHERN RAILWAY CO.
	SHEET 18 of 23

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

AREA BELOW IS SCALED WITH AS=75



⌋ = Heavy Duty Equalizer
(022700-1X)

Clear view
Z = Lightning Arrestor
(022585-1X)

⊙ = LPC-10560-51

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

INDICATES PLACEMENT
OF PANDUIT

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

DESIGNED BY: TAH 10-01-11	NORFOLK SOUTHERN OFFICE OF ASST. VICE PRESIDENT M.P.: TB-2.68 COMM. & SIGNAL, ATLANTA, GA. TOLEDO, OH CANT./GATES/FLS AT GREENWOOD AVE.
DRAWN BY: RSD 10-01-11	
CHECKED BY: SAH 10-01-11	
IN SERVICE:	
FILE NO.	CADD OF DWG. No.
SHEET 19 of 23	

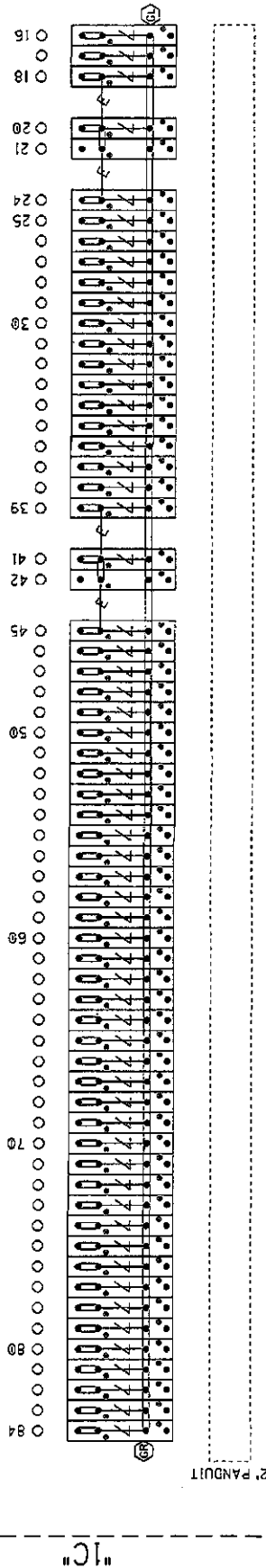
PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

REVISION
INITIALS

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



⊥ = Heavy Duty Equalizer
(022700-1X)
Clearview
Z = Lightning Arrestor
(022585-1X)
⊙ = LPC-10560-51

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

INDICATES PLACEMENT
OF PANDUIT

TERMINAL BOARD 1
RIGHT ROW
FARADAY SHIELD DETAIL - IC

DESIGNED BY:	TAH 10-01-11		FILE NO.	FILE R-
DRAWN BY:	RSD 10-01-11		NO.	NO.
CHECKED BY:	SAH 10-01-11		CANT./GATES/FLS AT GREENWOOD AVE.	
IN SERVICE:	-			

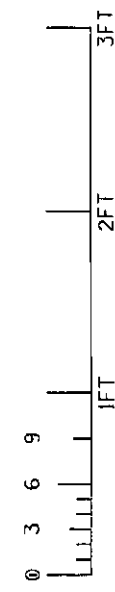
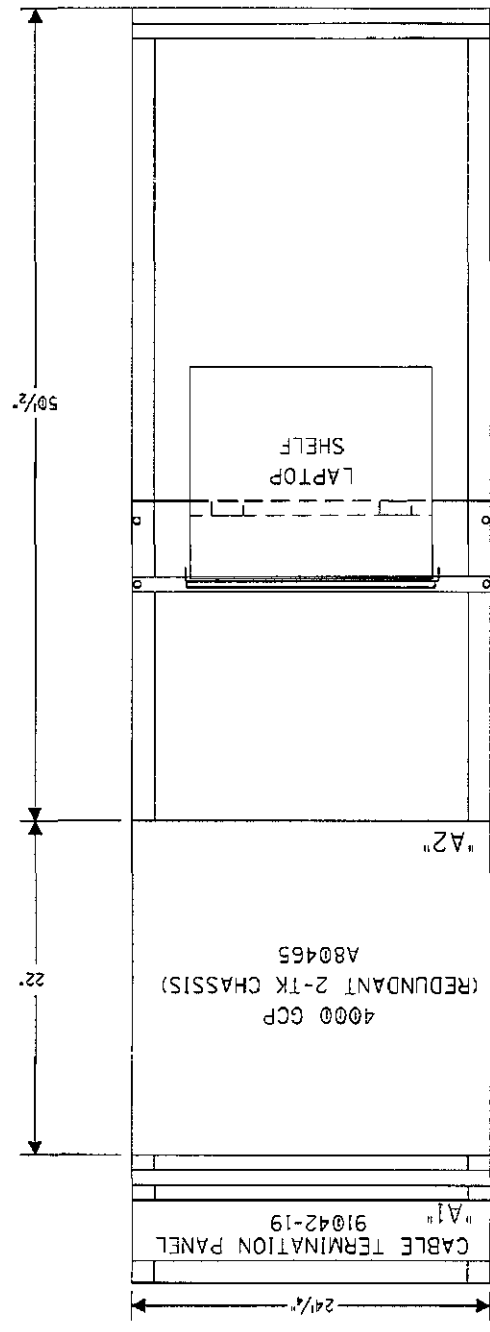
PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

REVISION
INITIALS

CADD OR
DWG. NO. TOT800268.20

SHEET 20 of 23

SIDE "C"



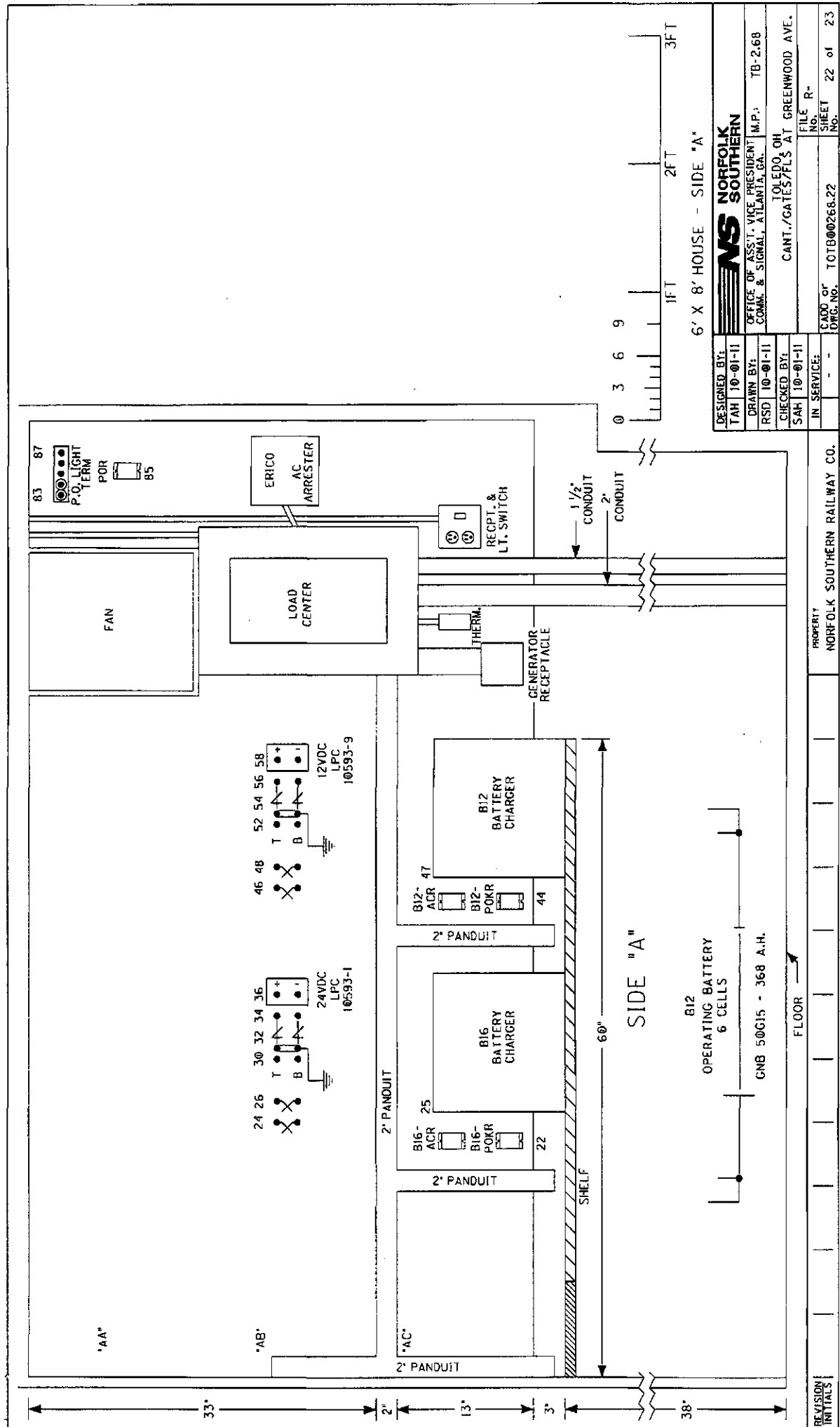
RACK PLACEMENT
6' X 8' HOUSE - SIDE "C"

DESIGNED BY:	TAH 10-01-11	NORFOLK SOUTHERN	OFFICE OF ASST. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA.	M.P.: TB-268	TOLEDO OH CANT./GATES/PLS AT GREENWOOD AVE.	FILE NO. R- SHEET 21 of 23
DRAWN BY:	RSD 10-01-11					
CHECKED BY:	SAH 10-01-11					
IN SERVICE:	-					
CADD OF TOTB00268.21						

PROPERTY
NORFOLK SOUTHERN RAILWAY CO.

REVISION
INITIALS

EQUIPMENT RACK #1
FRONT



DESIGNED BY: TAH 10-01-11	 NORFOLK SOUTHERN OFFICE OF ASS'T. VICE PRESIDENT COMM. & SIGNAL, ATLANTA, GA. M.P.: TB-2.68 TOLEDO, OH CANT./GATES/FLS AT GREENWOOD AVE. FILE NO. R- SHEET 22 of 23 CADD OF T0TB00268.22 DFG. NO.
DRAWN BY: RSD 10-01-11	
CHECKED BY: SAH 10-01-11	
IN SERVICE:	
- -	

