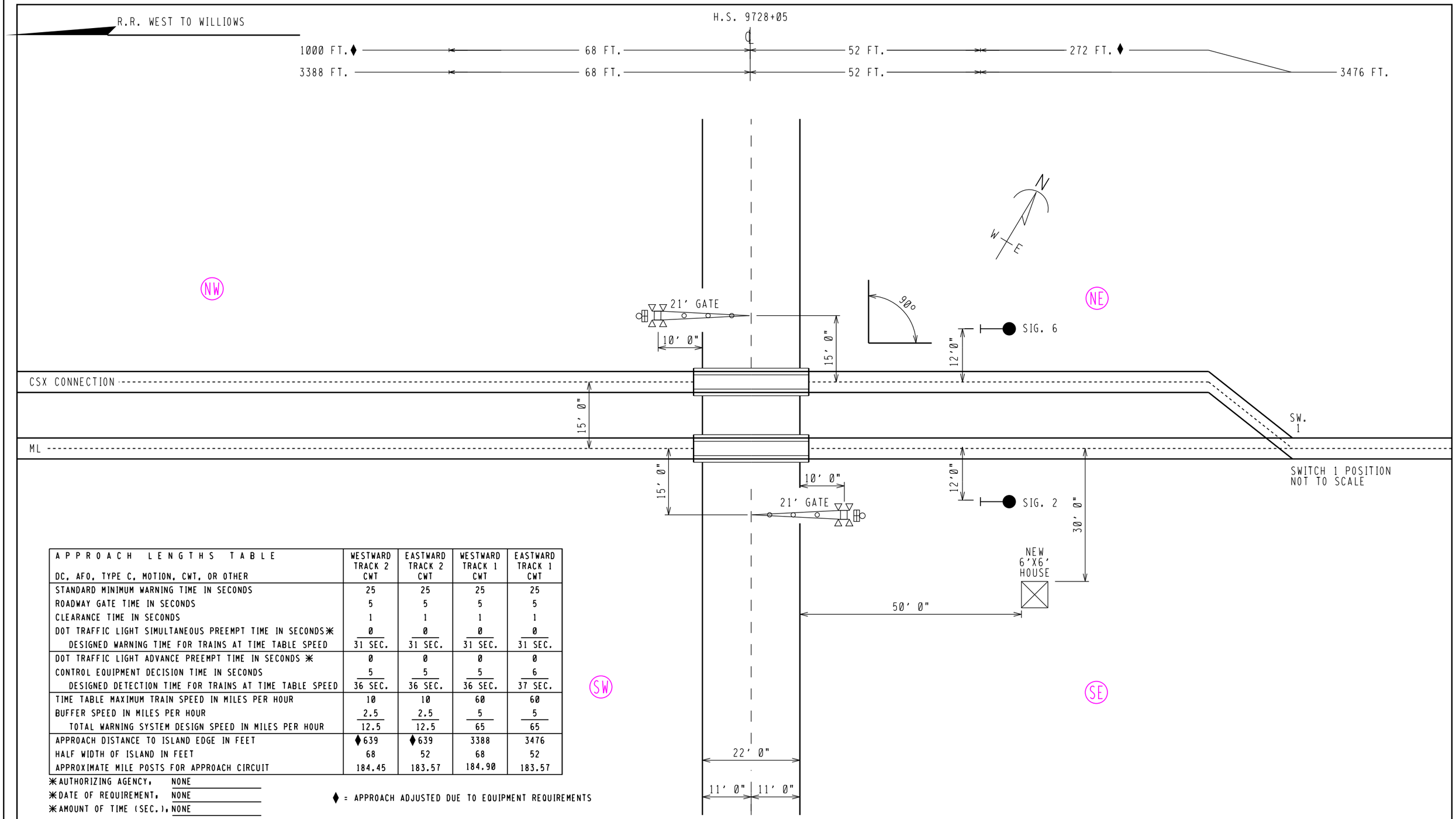

APPROACH LENGTHS TABLE DC, AFO, TYPE C, MOTION, CWT, OR OTHER	WESTWARD TRACK 2 CWT	EASTWARD TRACK 2 CWT	WESTWARD TRACK 1 CWT	EASTWARD TRACK 1 CWT
STANDARD MINIMUM WARNING TIME IN SECONDS	25	25	25	25
ROADWAY GATE TIME IN SECONDS	5	5	5	5
CLEARANCE TIME IN SECONDS	1	1	1	1
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS ✳	0	0	0	0
DESIGNED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	31 SEC.	31 SEC.	31 SEC.	31 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS ✳	0	0	0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS	5	5	5	6
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	36 SEC.	36 SEC.	36 SEC.	37 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	10	10	60	60
BUFFER SPEED IN MILES PER HOUR	2.5	2.5	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	12.5	12.5	65	65
APPROACH DISTANCE TO ISLAND EDGE IN FEET	♦639	♦639	3388	3476
HALF WIDTH OF ISLAND IN FEET	68	52	68	52
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	184.45	183.57	184.90	183.57

✳ AUTHORIZING AGENCY, NONE
✳ DATE OF REQUIREMENT, NONE
✳ AMOUNT OF TIME (SEC.), NONE

♦ = APPROACH ADJUSTED DUE TO EQUIPMENT REQUIREMENTS

PRODUCED FOR,
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

PRODUCED BY,
Xorail
A Wabtec Company

LEGEND			
CSX ROW	GUARD RAIL	METER SERVICE	Ⓜ
R/R POLELINE	O.H. POWER	POLE	Ⓟ
GAS	FENCE	FIRE PLUG	Ⓕ
FIBER OPTIC	WATER	SEWER CAP	Ⓢ
	SEWER	GAS VENT	Ⓥ

GPS COORDINATES	REVISION DATES
38°54'38" N	- -
89°18'27" W	- -
ELEV. 577'	- -

FILE NAME: QS18424.H01
DATE DRAWN: 9/30/2014
DRAWN BY: XRL
CHECKED BY: XRL
XRL #: CWM1435882A

STREET NAME: PROP. RELOCATED KING ROAD PUBLIC CROSSING
CITY & STATE: SMITHBORO, IL M.P. QS-184.24
DOT:
PROJECT #: IL2014024A
OP #:

PROPOSED CROSSING LAYOUT
SCALE = 20:1

INDEX

SH. NO.	CONTENTS	REVISION NO. 1	2	3	4	5	6	7	8	9
I01	TITLE, NOTES, INDEX & REVISIONS	╱								
I02	TITLE, NOTES, INDEX & REVISIONS	╱								
S01	TRACK & SIGNAL PLAN	╱								
S02	TRACK & SIGNAL PLAN	╱								
P01	ELECTROLOGIXS PROGRAM (CP 184)	╱								
P02	MINIMUM PROGRAM STEPS REPORT CWE-24	╱								
E01	POWER DISTRIBUTION (8'X10' CP 184 HOUSE)	╱								
E02	RELAY DETAIL & TRACK CIRCUITS (8'X10' CP 184 HOUSE)	╱								
E03	RACK 1 LAYOUT (8'X10' CP 184 HOUSE)	╱								
E04	ELECTROLOGIXS MODULE CONFIGURATION (8'X10' CP 184 HOUSE)	╱								
E05	POWER DISTRIBUTION (6'X6' CROSSING HOUSE)	╱								
C01	ELECTROLOGIXS CIRCUITS (8'X10' CP 184 HOUSE)	╱								
C02	OFFICE COMMUNICATION CIRCUITS (8'X10' CP 184 HOUSE)	╱								
C03	ELECTROLOGIXS TRACK CIRCUITS (8'X10' CP 184 HOUSE)	╱								
C04	SIGNAL 4 LIGHTING CIRCUITS (8'X10' CP 184 HOUSE)	╱								
C05	SIGNALS 2 & 6 LIGHTING CIRCUITS (8'X10' CP 184 HOUSE)	╱								
C06	ELECTROLOGIXS I/O CIRCUITS (8'X10' CP 184 HOUSE)	╱								

╱ = PLANS SENT TO FIELD (DISTRIBUTED)

╳ = PLANS AS-IN-SERVICED (UP TO DATE)

REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	IL2014024	10-13-14		

TO BE COMPLETED ON A.I.S.

FIELD TO PROVIDE DOT NUMBER ON A.I.S.

= NOTE

NEW WORK

CWM1435882 IL2014024

10-13-14 XRL/JM/

xorail

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &

KING ROAD (XXXXXXX) & SW. 184.26

TITLE, NOTES, INDEX & REVISIONS

SMITHBORO, IL M.P. OS-184.16

4000GCP.101
REV. 03-31-06

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	OS18416	I01

INDEX

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C07	SWITCH 1 CIRCUITS (8'X10' CP 184 HOUSE)	/								
C08	WAGO TERMINAL BOARDS (8'X10' CP 184 HOUSE)	/								
C09	LOCAL CONTROL PANEL LAYOUT (8'X10' CP 184 HOUSE)	/								
C10	LOCAL CONTROL & EXPANSION PANELS (8'X10' CP 184 HOUSE)	/								
C11	LOCAL CONTROL & EXPANSION PANEL I/O CARDS (8'X10' CP 184 HOUSE)	/								
C12	CROSSING DETECTION CIRCUITRY 16CWU (8'X10' CP 184 HOUSE)	/								
C13	DETECTION DEVICE PROGRAM 16CWU (8'X10' CP 184 HOUSE)	/								
C14	DETECTION DEVICE CONSIST CWE-24 (6'X6' CROSSING HOUSE)	/								
C15	DETECTION DEVICE CONSIST CWE-24 (6'X6' CROSSING HOUSE)	/								
C16	DETECTION CIRCUITRY CWE-24 (6'X6' CROSSING HOUSE)	/								
C17	DETECTION CIRCUITRY CWE-24 (6'X6' CROSSING HOUSE)	/								
C18	GATE CONTROL CIRCUITRY CWE-24 (6'X6' CROSSING HOUSE)	/								
C19	CROSSING WARNING DEVICE GATE CIRCUITRY (6'X6' CROSSING HOUSE)	/								
C20	CROSSING WARNING DEVICE LIGHT CIRCUITRY (6'X6' CROSSING HOUSE)	/								
C21	CROSSING WARNING DEVICE CIRCUITRY (6'X6' CROSSING HOUSE)	/								
C22	SEAR II1 CONFIGURATION & FUNCTIONS (6'X6' CROSSING HOUSE)	/								

/ = PLANS SENT TO FIELD (DISTRIBUTED)

X = PLANS AS-IN-SERVICED (UP TO DATE)

= NOTE

NEW WORK

CWM1435882 IL2014024

10-13-14 XRL/JM/

xorail

4000GCP.101
REV. 03-31-06

REVISIONS

REV. NO.	PROJECT NO.	DESIGN DATE	IN SERVICE DATE	REVISION DATE
1	IL2014024	10-13-14		

TO BE COMPLETED ON A.I.S.

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &

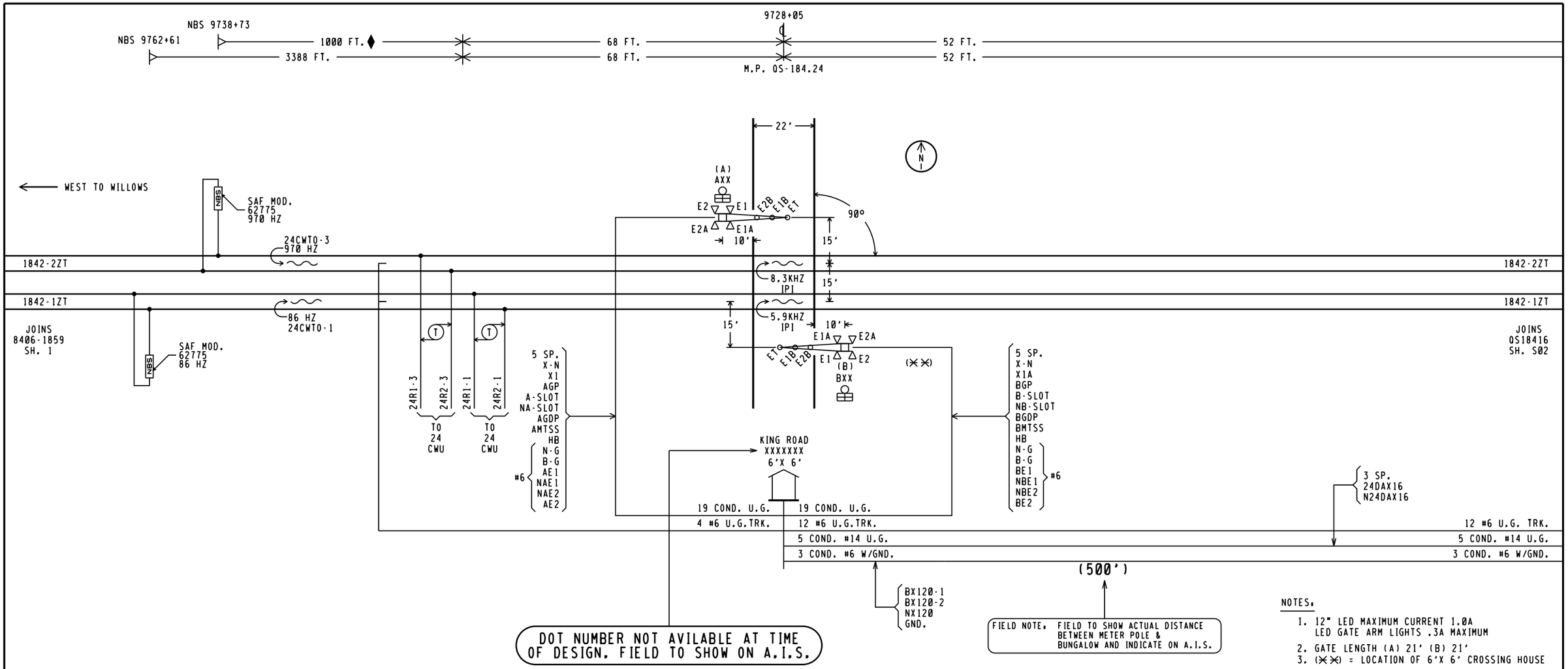
KING ROAD (XXXXXXX) & SW. 184.26

TITLE, NOTES, INDEX & REVISIONS

SMITHBORO, IL M.P. OS-184.16

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	OS18416	102



DOT NUMBER NOT AVILABLE AT TIME OF DESIGN. FIELD TO SHOW ON A.I.S.

FIELD NOTE, FIELD TO SHOW ACTUAL DISTANCE BETWEEN METER POLE & BUNGALOW AND INDICATE ON A.I.S.

NOTES,

1. 12" LED MAXIMUM CURRENT 1.0A LED GATE ARM LIGHTS .3A MAXIMUM
2. GATE LENGTH (A) 21' (B) 21'
3. (✳✳) = LOCATION OF 6'X 6' CROSSING HOUSE
4. (N) = APPROXIMATE COMPASS NORTH.
5. TRANSMITTER LEADS FOR MOTION OR PREDICTOR EQUIPMENT SHOULD BE CONNECTED ON THE BUNGALOW OR SHORT LEAD SIDE OF THE CROSSING.
6. ISLAND TRACK LEADS SHOULD BE CONNECTED 50 FEET FROM ROAD EDGE BUT ON NARROW ROADS (20' OR LESS) ISLAND LENGTH SHALL BE 120 FEET.
7. WARNING SYSTEM APPROACH CIRCUIT DISTANCES ARE TO BE MEASURED FROM THE ISLAND TRACK CONNECTIONS.

REMOVE ON AS IN SERVICE

FOR AMPERAGES OF 11 AMPS OR LESS PER LEG USE THE FOLLOWING POWER CABLE DESIGN GUIDELINES

3 COND. #6 W/GND. (5% VD) X ≤ 549'
3 COND. #4 W/GND. (5% VD) 550' < X ≤ 845'
* 3 COND. #2 W/GND. (10% VD) 846' < X ≤ 2,536'

* GREATER THAN 2,536' CABLE RUN CALCULATE ACTUAL CABLE SIZE REQUIREMENTS PER SS360.

APPROACH LENGTHS TABLE DC, AFO, TYPE C, MOTION, CWT, OR OTHER	WESTWARD TRACK 2 CWT	EASTWARD TRACK 2 CWT	WESTWARD TRACK 1 CWT	EASTWARD TRACK 1 CWT
STANDARD MINIMUM WARNING TIME IN SECONDS	25	25	25	25
ROADWAY GATE TIME IN SECONDS	5	5	5	5
CLEARANCE TIME IN SECONDS	1	1	1	1
DOT TRAFFIC LIGHT SIMULTANEOUS PREEMPT TIME IN SECONDS ✳	0	0	0	0
DESIGNED WARNING TIME FOR TRAINS AT TIME TABLE SPEED	31 SEC.	31 SEC.	31 SEC.	31 SEC.
DOT TRAFFIC LIGHT ADVANCE PREEMPT TIME IN SECONDS ✳	0	0	0	0
CONTROL EQUIPMENT DECISION TIME IN SECONDS	5	5	5	6
DESIGNED DETECTION TIME FOR TRAINS AT TIME TABLE SPEED	36 SEC.	36 SEC.	36 SEC.	37 SEC.
TIME TABLE MAXIMUM TRAIN SPEED IN MILES PER HOUR	10	10	60	60
BUFFER SPEED IN MILES PER HOUR	2.5	2.5	5	5
TOTAL WARNING SYSTEM DESIGN SPEED IN MILES PER HOUR	12.5	12.5	65	65
APPROACH DISTANCE TO ISLAND EDGE IN FEET	♦ 639	♦ 639	3388	3476
HALF WIDTH OF ISLAND IN FEET	68	52	68	52
APPROXIMATE MILE POSTS FOR APPROACH CIRCUIT	184.45	183.57	184.90	183.57

✳AUTHORIZING AGENCY, NONE
✳DATE OF REQUIREMENT, NONE
✳AMOUNT OF TIME (SEC.), NONE

♦ = APPROACH ADJUSTED DUE TO EQUIPMENT REQUIREMENTS

= NOTE

NEW WORK
CWM1435882 IL2014024
10-13-14 XRL/JM/
xorail

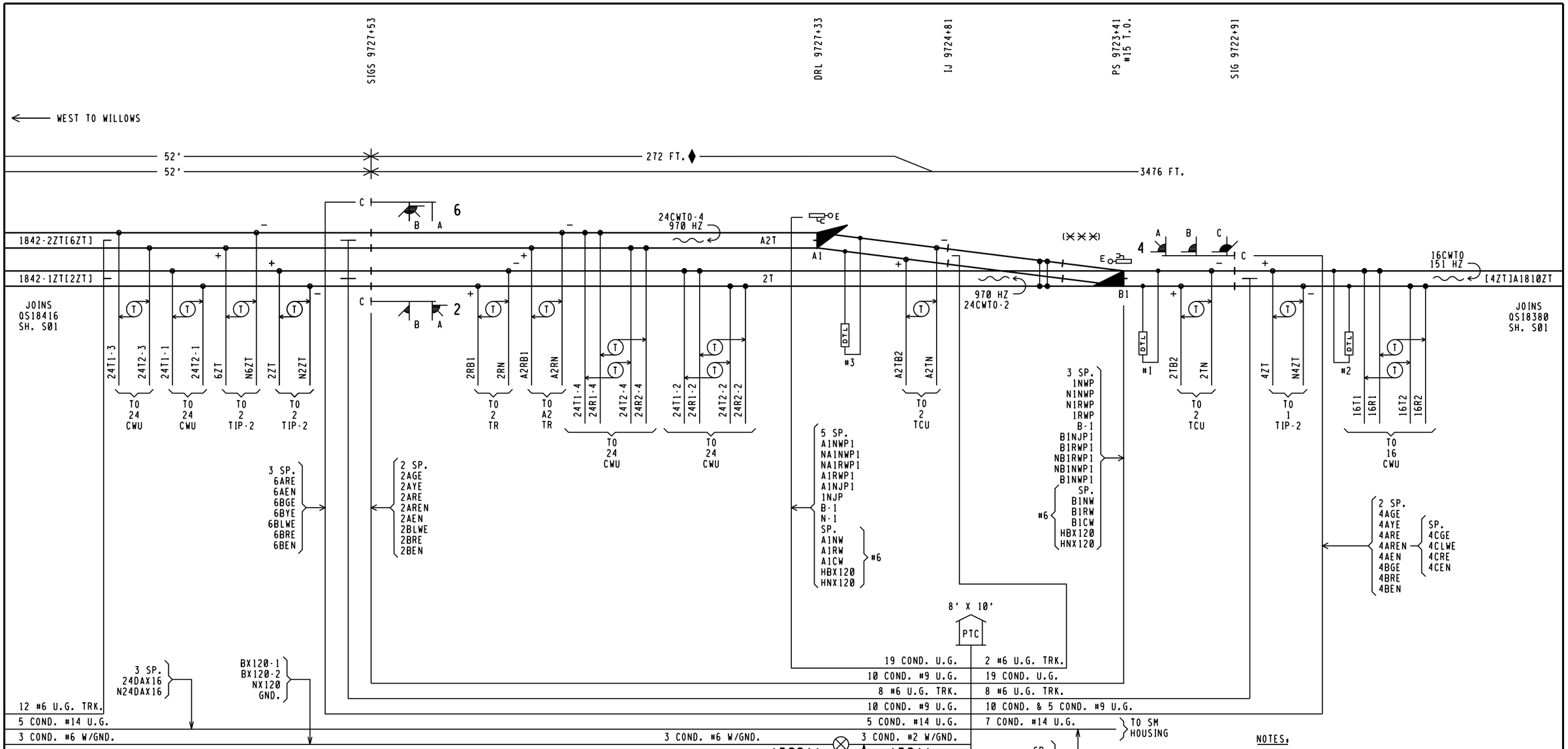
4000GCP.S01
REV. 11-30-08

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &
KING ROAD (XXXXXXX) & SW. 184.26
TRACK & SIGNAL PLAN
SMITHBORO, IL M.P. OS-184.16

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	OS18416	S01



NOTES:

1. (XXXX) = LOCATION OF 8'X 10' HOUSE
2. [ ] = TAGGING PURPOSE ONLY
3. FLASHING ASPECTS ARE NOT SHOWN ON S02, SHOWN ONLY ON ASPECT CHART AND PROFILE.

SHUNT CASE

DTL

NBS

DTL #1
SAF. 62775-3497 970 HZ MULTI FREQ. NBS
SAF. #8V617-600'

SHUNT CASE

DTL

NBS

DTL #2
HARMON FSS-1A 86 HZ MULTI FREQ. NBS
HPN 250849-000
HARMON FSS LOAD 3000'
HPN 227032-011

SHUNT CASE

DTL

NBS

DTL #3
SAF. 62775-3497 970 HZ MULTI FREQ. NBS
SAF. #8V617-800'

REMOVE ON AS IN SERVICE

FOR AMPERAGES OF 40 AMPS OR LESS PER LEG USE THE FOLLOWING POWER CABLE DESIGN GUIDELINES

* 3 COND. #2 W/GND. (10% VD) X ≤ 700'
* GREATER THAN 700' CABLE RUN CALCULATE ACTUAL CABLE SIZE REQUIREMENTS PER SS360.

REMOVE ON AS IN SERVICE

MAXIMUM WIRE LENGTH FROM IXS TO SIGNAL LAMP (1-WAY) FOR VLD-R16S			
10V BULB OPERATED AT 9.5V			
WIRE SIZE	18W BULB	20W BULB	25W BULB
#6 AWG	2640 FT	2200 FT	1760 FT
#9 AWG	1320 FT	1100 FT	870 FT

= NOTE

NEW WORK

CWM1435882 IL2014024

10-13-14 XRL/JM/

xorail

SEEOSELX3.S01A
REV. 06-20-14

CSX TRANSPORTATION

RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &

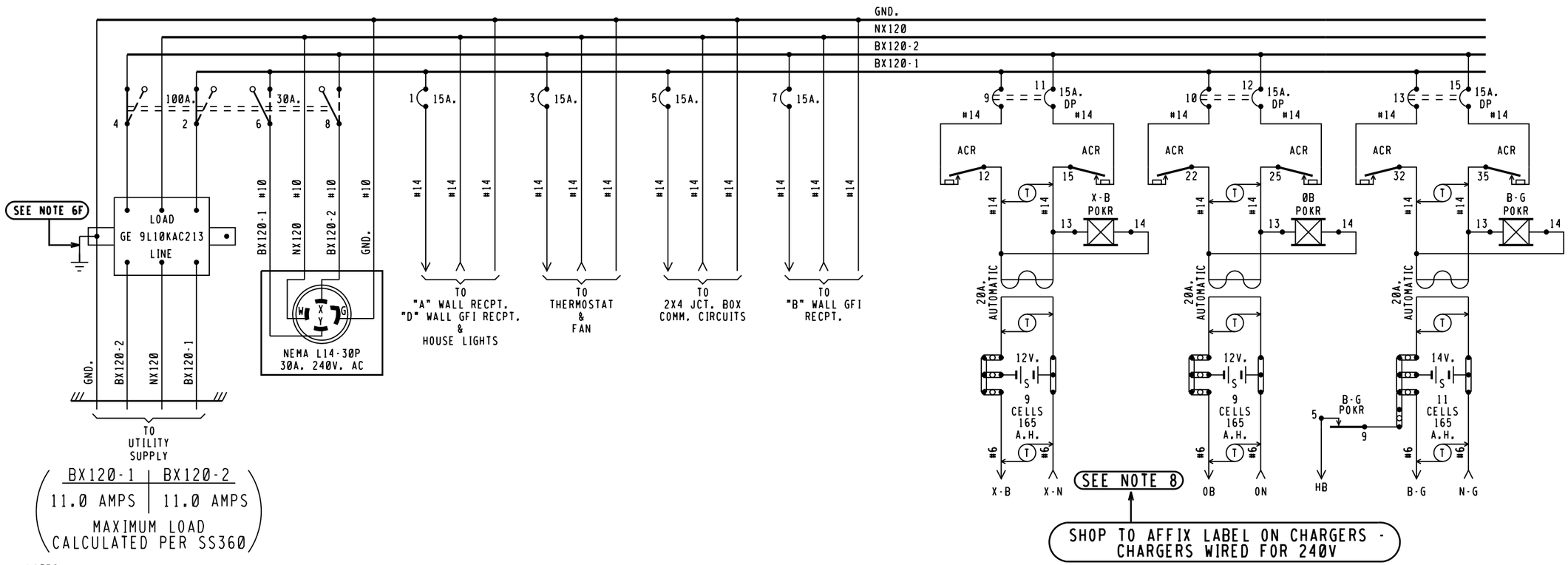
KING ROAD (XXXXXXX) & SW. 184.26
TRACK & SIGNAL PLAN
SMITHBORO, IL M.P. OS-184.16

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	OS18416	S02

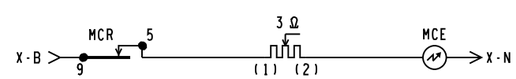
TOP ROW

ACR			X-B POKR			MCR			24DAXR		
12	B	B77	9	11 F	N68	9 F	11	N41	12 F		B8
15	B	C30	10 F	12	C48	10	12	C48	15 F		C30
22	B				C49			C49	22		
25	B		OB POKR			B-G POKR			23		
32	B		9	11 F	N68	9 F	11 F	N68	25		
35	B		10 F	12	C48	10 F	12	C48	32		
									35		



NOTES:

1 - REFERENCES ARE PER SCMS-13.
2 - ARRESTERS ARE PER SS382.
3 - SHELF RELAY PLACEMENT ON CONSIST CHART HAS NO SIGNIFICANCE.
4 - PLUG-IN RELAYS ARE VIEWED FROM THE FRONT OF RACK.
5 - BATTERY A.H. CAPACITY SHOWN IS THE MINIMUM REQUIREMENT.
6 - WIRING
  A - FEED TO ALL BUSSES, LIGHT CIRCUITS,MOTOR CIRCUITS TO BE #10 FLEX.
  B - 120-VOLT FEED FROM ENTRANCE TO POWER BUSS TO BE #10 FLEX.
  C - ALL TRACK WIRES TO BE #10 FLEX.
  D - ALL OTHERS TO BE #16 FLEX UNLESS NOTED.
  E - ALL BATTERY OUTPUTS TO BE #6 PER SS360.
  F - GROUND WIRE NOT NECESSARY WHEN GE ARRESTER IS MOUNTED ON GROUND PLANE OR METAL ENCLOSURE AFFIXED DIRECTLY TO BUNGALOW METALLIC STRUCTURAL MEMBER.
7 - CIRCUIT INTERRUPTERS 2 & 4 ARE MECHANICALLY INTERLOCKED WITH CIRCUIT INTERRUPTERS 6 & 8.
8 - CHARGERS WIRED FOR 240VAC
9 - CIRCUIT BREAKERS PANEL- 00124L125G (24 SPACES)



= NOTE

NEW WORK
CWM1435882 IL2014024
10-13-14 XRL/JM/
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4000GCP.E01
REV. 01-23-15

CROSSING
6'X 6' PTC RELAY HOUSE

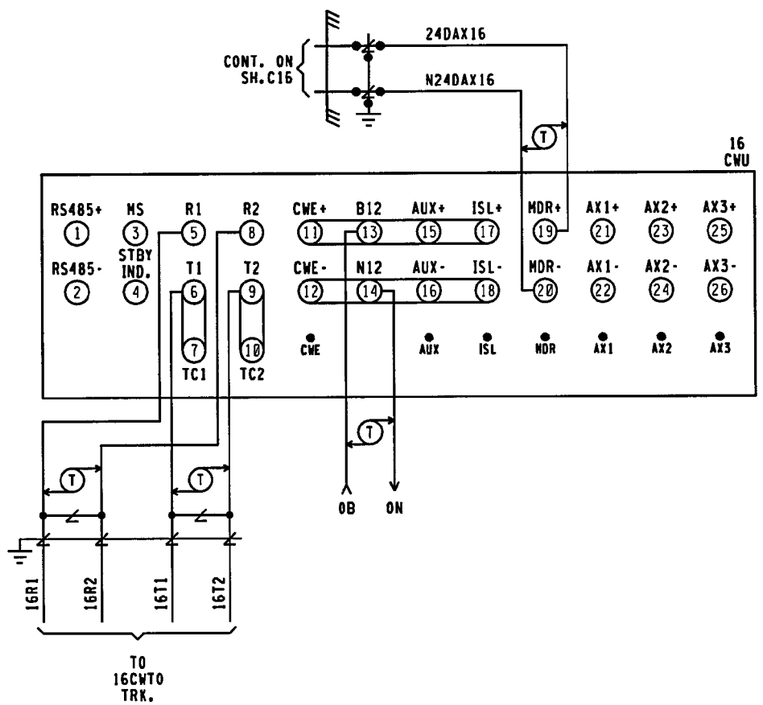
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &

KING ROAD (XXXXXXX) & SW. 184.26
POWER DISTRIBUTION
SMITHBORO, IL M.P. OS-184.16

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	OS18416	E05



16 CWU HXP-3R MODULES REQUIRED

(NOT INSTALLED)
RMM MODULE (RECORDER MEMORY)
SIM MODULE (SERIAL INTERFACE)
SIM MODULE (SERIAL INTERFACE)
TRM MODULE (TRANSCEIVER)
TRM MODULE (TRANSCEIVER)
(NOT INSTALLED) RSI MODULE (ISLAND)
(NOT INSTALLED) RSI MODULE (ISLAND)
RYD MODULE (RELAY DRIVE)
RYD MODULE (RELAY DRIVE)
CPU MODULE (CENTRAL PROCESSOR UNIT)
CPU MODULE (CENTRAL PROCESSOR UNIT)
TLM MODULE (TRANSFER LOGIC)
(NOT INSTALLED) AXD MODULE
(NOT INSTALLED) AXD MODULE

FRONT VIEW

16 CWU

CABINET SWITCHES

THESE SWITCHES ARE LOCATED ON MOTHERBOARD

MASTER/SLAVE

MASTER — SLAVE

S1

SYSTEM CONFIGURATION				
S6 & S7 DIP SWITCH POSITIONS				
SWITCH	1	2	3	4
SWITCH POSITION	ON	OFF	OFF	OFF
APPROACH.	NORMAL		(NOT USED)	

	FREQUENCY SELECT					
NORMAL	S2 & S3 DIP SWITCH POSITIONS 151 HZ					
	SWITCH	1	2	3	4	5
	SWITCH POSITION	ON	ON	OFF	OFF	OFF
STANDBY	S4 & S5 DIP SWITCH POSITIONS 151 HZ					
	SWITCH	1	2	3	4	5
	SWITCH POSITION	ON	ON	OFF	OFF	OFF

TLM MODULE JUMPERS AND SWITCHES

(TOGGLE MODE)

STANDBY ONLY — W1 — 3 2 1 (*)

(DISABLE MODE)

ISL 1 DISABLE — W2 — 3 2 1 (*)

(DISABLE MODE)

ISL 2 DISABLE — W3 — 3 2 1 (*)

NOTE:
PIN 1 IS IDENTIFIED BY ASTERICK BELOW IT.
(☆) = MAY BE SET PER FIELD CONDITIONS.

MINUTE TIMEOUT SWITCH

SETTING (☆) 9 MINUTES S1

S2 — STANDBY / AUTO / NORMAL

8'X 10' PTC RELAY HOUSE

NEW WORK
CWM1435882 IL2014024
10-13-14 XRL/JM/EAP
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CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &

KING ROAD (XXXXXXX) & SW. 184.26
CROSSING DETECTION CIRCUITRY (16CWU)
SMITHBORO, IL M.P. OS-184.16

ITRKHXP3R.C01
REV. 07-03-13

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	----	-----	OS18416	C12

16CWU

HXP-3R APPLICATION DESIGN CARD

OPTION 90 (CABINET #)	CABINET #

PASSWORD(_ _*_ _)(SEE MANUAL 100052-001 AA0 1-27	TRACK 1	TRACK 2	DEFAULT
APPROACH LENGTH ADJUSTMENT	3014'	N/A	9,999 FT.
WARNING TIME ADJUSTMENT	32 SEC.	N/A	99 SEC.
LUMPED IMPEDANCE ADJUSTMENT (LIA)	*	N/A	0
TRANSMITTER CHECK ADJUSTMENT (TC)	*	N/A	0
MOTION DETECT RESTART (MD RESTART)	0 ☆	N/A	99%
OPTION 1 TRACK ENABLE (TK-ENA)	UP	N/A	UP (ALWAYS ENABLED)
OPTION 2 TRACK FREQUENCY (TK FO)	STRAP ◇	N/A	0 HZ
OPTION 3 CONSTANT WARNING/MOTION (CW/MD)	C	N/A	d (Motion)
OPTION 4 UNI/BIDIRECTIONAL (UNI-BI)	b	N/A	b (bi)
OPTION 5 NARROW BAND COMPENSATION (NBS-C)	⊗	N/A	9,999 FT.
OPTION 6 CWE WARNING TIME (CWEWT)	80 SEC.	N/A	80 SEC.
OPTION 7 LOSS OF SHUNT TIME (LOS)	16 SEC.	N/A	16 SEC.
OPTION 8 LOS W/JOINTS NEAR ISLAND (IJ-LOS)	5 SEC. **	N/A	5 SEC.
OPTION 9 BALLAST COMPENSATION (BC)	*	N/A	FREQUENCY DEPENDANT ◎
OPTION 10 PHASE COMPENSATION ADJUSTMENT (P-COMP)	~~***~~	N/A	0°

	AX OPTIONS △	OPTION 11 AX DRIVE #1	OPTION 12 AX DRIVE #2	OPTION 13 AX DRIVE #3	DEFAULT
ITEM 1	TRACK ASSIGNMENT (TK-ASN)	N/A	N/A	N/A	1
ITEM 2	OFFSET DISTANCE TRACK 1 (OF-TK1)	0000'	0000'	0000'	0 FT.
ITEM 3	OFFSET DISTANCE TRACK 2 (OF-TK2)	N/A	N/A	N/A	N/A
ITEM 4	WARNING TIME (WT)	99 SEC.	99 SEC.	99 SEC.	99 SEC.
ITEM 5	MOTION DETECT RESTART (MD-RST)	99 %	99 %	99 %	99 %
ITEM 6	CONSTANT WARNING/MOTION (CW/MD)	d	d	d	d (Motion)
ITEM 7	CLEAR JOINTS LOS (CJ LOS)	00 SEC.	00 SEC.	00 SEC.	0 SEC.
ITEM 8	POST JOINT DETECTION (PJ-DET)	15 SEC.	15 SEC.	15 SEC.	15 SEC.
ITEM 9	POST JOINT RX (PJ-RX)	15	15	15	15
ITEM 10	POSITIVE START	dn	dn	dn	dn

	TRACK 1	TRACK 2	DEFAULT
OPTION 17 MDR DRIVE OR AX RELAY DRIVE SELECTION (MDR-AX)	◎	N/A	dn (STATUS ONLY) ◎
OPTION 17 SUB-MENU	TRACK 1	TRACK 2	DEFAULT
ITEM 1 MDR-AX OFFSET DISTANCE TRK. 1(OF-TK1) & TRK. 2(OF-TK2)	462'	N/A	0 FT.= CONFIGURED AS MDR
ITEM 2 MDR-AX CLEAR JOINT LOS TIME (CJ-LOS)	00 SEC.	N/A	0 SEC.
ITEM 3 MDR-AX POST JOINT DETECTION TIME (PJ-DET)	15 SEC.	N/A	15 SEC.
ITEM 4 POST JOINT RX (PJ-RX)	15	N/A	15 (0 = DISABLE)
OPTION 18 MOTION DETECTOR TIMER (MD-TMR)	10 MIN.	N/A	10 MIN. (0 = DISABLE)
OPTION 19 MINIMUM WARNING TIME WITH ADVANCED PREEMPTION (MIN-WT)	00 SEC.	N/A	00 SEC. (0 = DISABLE)
OPTION 20 FALSE SHUNT TIMER ADJUSTMENT (FS-TMR)			
ITEM 1 FALSE SHUNT RX (FS-RX)	0	N/A	0, 0 = DISABLE
ITEM 2 FALSE SHUNT TIMER ADJUSTMENT (FS-TM)	10	N/A	10
OPTION 21 POSITIVE START RX & TIMER ADJUSTMENT (POS-ST)			
ITEM 1 POSITIVE START RX (POS-RX)	0	N/A	0, 0 = DISABLE
ITEM 2 POSITIVE START TIMER (POS-TM)	10	N/A	10
OPTION 22 APPROACH RELEASE RX (AR-TM)			
ITEM 1 APPROACH RELEASE RX (AR-RX)	0	N/A	0, 0 = DISABLE
ITEM 2 APPROACH RELEASE TIMER (AR-TM)	10	N/A	10
OPTION 47 AUTO RX ADJUSTMENT (ATO-RX)	dn	N/A	dn = DISABLE
OPTION 48 PREDICTIVE FILTER ENABLE/DISABLE (PF-ENA)	dn	N/A	dn = DISABLE
OPTION 49 RESET LOCAL PARAMETERS TO DEFAULT SETTINGS (RESET)			PAGE 3-14 & 3-41
OPTION 50 RECORDER PRINTER CONTROL (PRNTR)	✧		PAGE 1-47 & 3-41
OPTION 51 CLOCK ADJUSTMENT (CLOCK)	⊕		PAGE 3-32
OPTION 70 LOCAL SERIAL I/O PORT ADJUSTMENT (LSP)			
ITEM 1 BAUD RATE	38.4	✧	PAGE 1-47 & 3-42
ITEM 2 DBITS (DATA BITS)	8	✧	PAGE 1-47 & 3-42
ITEM 3 PA (PARITY)	NO(-=NO PARITY)	✧	PAGE 1-47 & 3-42
OPTION 90 CABINET NUMBER DISPLAY (CAB)	*		PAGE 1-47 & 3-41
OPTION 91 HXP-3 OPERATING PROGRAM VERSION NUMBER (VERS)	*		VERSION 35.0
OPTION 99 RESET PASSWORD TIMER (TIMER)	✧		PAGE 3-30

NOTE:

* = ENTRY TO BE DONE ON AS-IN-SERVICE.

☆ = NORMALLY SET AT "0" SEE MANUAL 100052-001 AA0 PG. 1-46 & 3-41.

◇ = THE WORD STRAP IS DISPLAYED WHEN FREQUENCY SELECT DIP SWITCHES USED TO SELECT A STANDARD FREQUENCY.

⊗ = ADJUSTMENT NECESSARY ONLY WHEN AX RELAY DRIVE MODULE USED.

** = ADJUSTMENT NECESSARY IF INSULATED JOINTS ARE LOCATED NEAR ISLAND CIRCUIT.

~~***~~ = ADJUSTMENT NECESSARY ONLY IF VERY POOR BALLAST CONDITIONS NEED TO BE COMPENSATED.

◎ = OPTION 17 SUB-MENU USED ONLY WHEN AX RELAY DRIVE OPERATION IS SELECTED. ENTERING AN OFFSET DISTANCE VALUE OTHER THAN ZERO ASSIGNS A MDR AS AN AX DRIVE.

△ 1. WHEN AXD MODULES ARE NOT INSTALLED, THEIR ASSOCIATED OPTIONS AND ADJUSTMENTS ARE NOT DISPLAYED.
2. PROGRAM UNUSED AX OPTION(S) SAME AS OPTION 11. IF AX OPTION 12 OR 13 IS USED IN FUTURE THEN REPROGRAM AS APPLICABLE.

◎ = FREQUENCY DEPENDANT, RANGE BETWEEN 50-250 TO BE SUPPLIED ON AS-IN-SERVICE.

✧ = OPTIONS 50-99 ARE NON-VITAL AND NOT REQUIRED FOR INITIAL SETUP. SEE MANUAL 100052-001 AA0. FOR OPTIONS 49 TO 99 SEE PAGES AS LISTED IN DEFAULT COLUMN.

⊕ = SET CORRECT LOCAL TIME AND DATE. TIME OF DAY SHOULD BE SYNCRONIZED WITH TIME SHOWN BY EXTERNAL EVENT RECORDER.

8'X 10' PTC RELAY HOUSE

NEW WORK
CWM1435882 IL2014024
10-13-14 XRL/JM/AAP
xorail

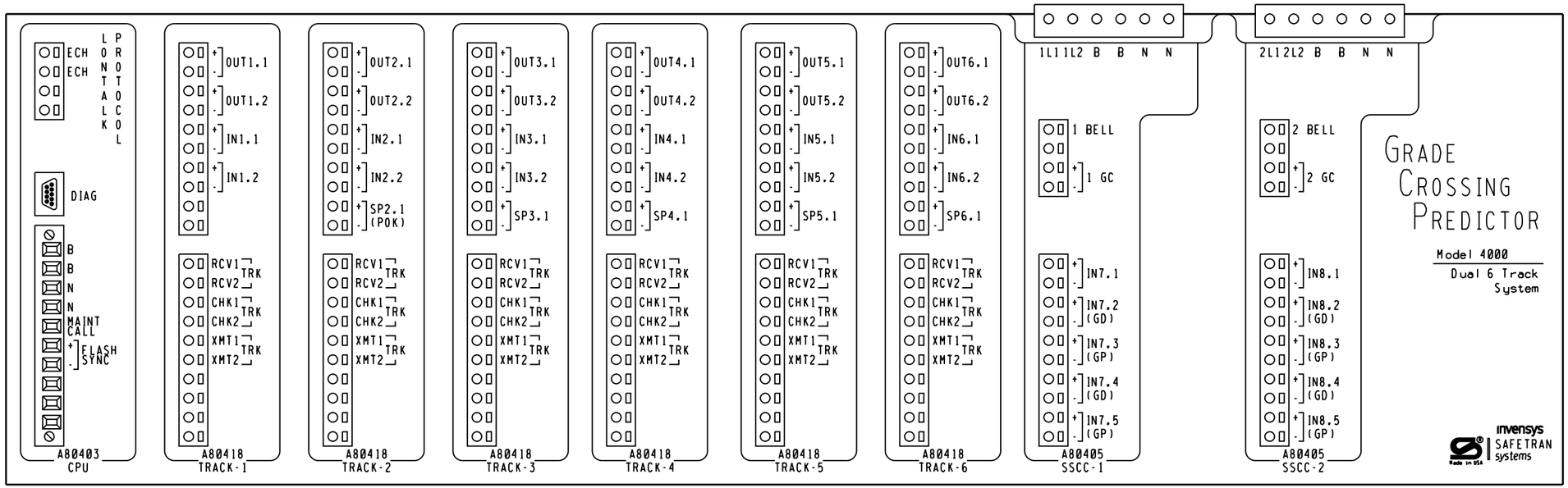
1TRKHXP3R.C02
REV. 07-03-13

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &
KING ROAD (XXXXXXX) & SW. 184.26
DETECTION DEVICE PROGRAM (16CWU)
SMITHBORO, IL M.P. OS-184.16

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	OS18416	C13



CROSSING
6'X 6' PTC RELAY HOUSE

NEW WORK
CWM1435882 IL2014024
10-13-14 XRL/JM /
xorail

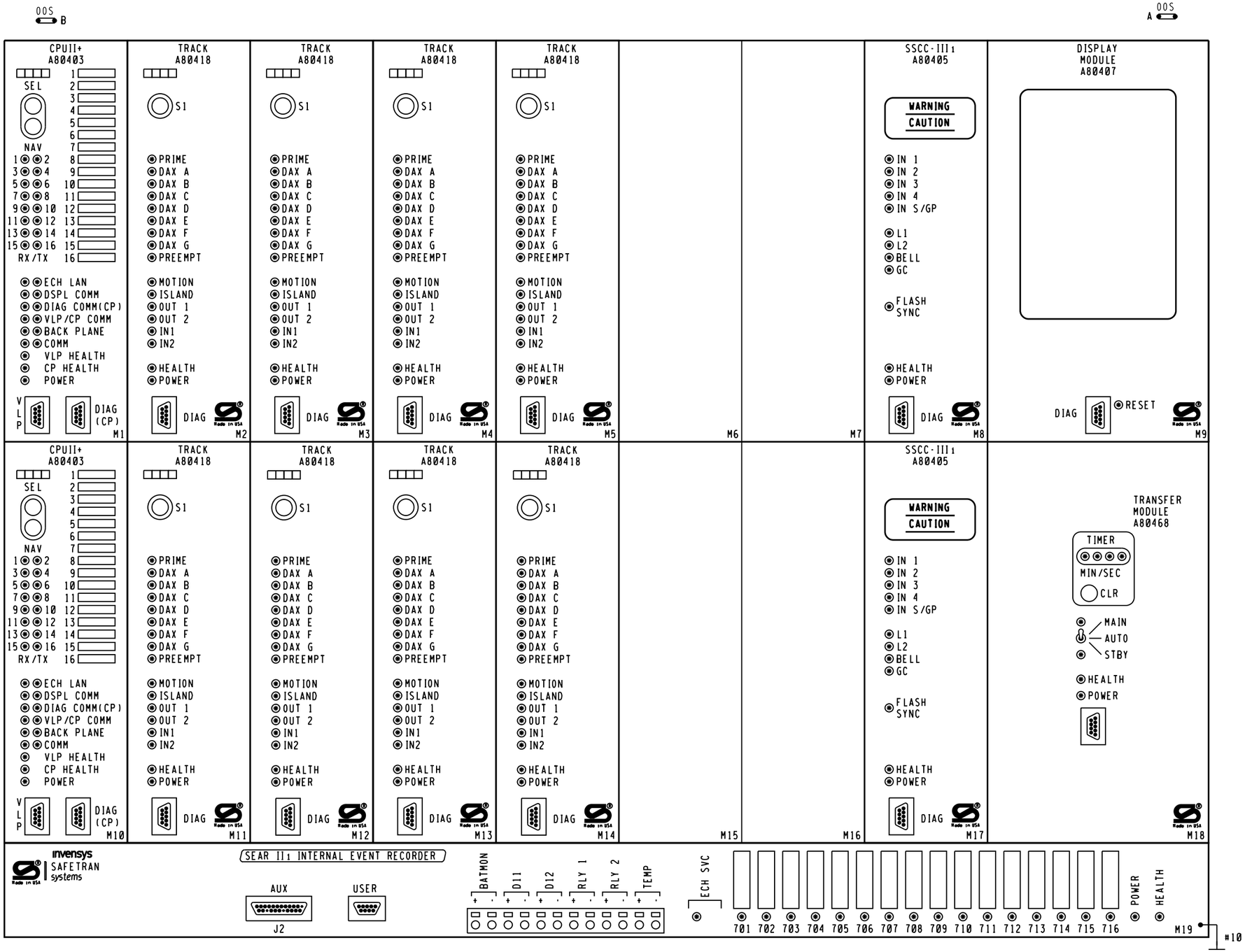
CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &

KING ROAD (XXXXXXX) & SW. 184.26
DETECTION DEVICE CONSIST CWE-24
SMITHBORO, IL M.P. OS-184.16

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	OS18416	C14



GCP 4000 APPLICATION NOTES.

1. THE GRADE CROSSING PREDICTOR (GCP) IS A MODULAR MICROPROCESSOR CONTROLLED SYSTEM THAT IS DEPLOYED TO CONTINUALLY MONITOR THE APPROACHES TO RAILROAD GRADE CROSSINGS AND TO CONTROL THE LAMPS, GATES AND BELLS ASSOCIATED WITH THOSE CROSSINGS. WHEN EQUIPPED WITH THE SEAR II1 MODULE THE GCP 4000 WILL RECORD EVENTS AND REPORT ALARMS WHEN CONNECTED TO AN OFFICE SYSTEM.

2. THE GCP 4000 GCP (A80460) IS A SIX TRACK REDUNDANT UNIT CAPABLE OF DRIVING 4 INDEPENDENT FLASHER AND GATE SIGNALS AND RECORDING EVENTS AND REPORTING ALARMS. THE STANDARD A80460 INCLUDES THE FOLLOWING MODULES.

SLOT	MODULE	FUNCTION	PART NO.
M1	CPU-II+	MAIN	A80403
M2	TRACK-1	MAIN	A80418
M3	TRACK-2	MAIN	A80418
M4	TRACK-3	MAIN	A80418
M5	TRACK-4	MAIN	A80418
M6	PANEL	NONE	D39325
M7	PANEL	NONE	D39325
M8	SSCC-III1	1L	A80405
M9	DISPLAY MODULE		A80407
M10	CPU-II+	STANDBY	A80403
M11	TRACK-1	STANDBY	A80418
M12	TRACK-2	STANDBY	A80418
M13	TRACK-3	STANDBY	A80418
M14	TRACK-4	STANDBY	A80418
M15	PANEL	NONE	D39325
M16	PANEL	NONE	D39325
M17	SSCC-III1	2L	A80405
M18	TRANSFER UNIT		A80406
M19	SEAR II1	RECORDER	A80410

OPTIONAL MODULES.
RIO MODULE A80413

3. EACH TRACK MODULE HAS TWO PROGRAMMABLE INPUTS AND TWO PROGRAMABLE OUTPUTS.

4. THE SEAR II1 INTERNAL EVENT RECORDER HAS INPUTS FOR ONE BATTERY MONITOR, TWO NON-VITAL INPUTS AND TWO PROGRAMMABLE RELAY DRIVES (HEEL/FRONT).

5. LOCATED ON THE FRONT OF EACH MODULE THERE ARE LED LIGHTS TO INDICATE THE ACTIVITY OF CERTAIN FUNCTIONS OCCURRING INSIDE THE GCP.

6. BETWEEN SLOT 1 & 2 THERE IS A CHASSIS IDENTIFICATION CHIP (CIC) SOCKET AND A ECD CONNECTOR (DB-25 FEMALE).

7. UPON THE FAILURE OF A MODULE IN SLOTS M1-M7 THE AUTOMATIC TRANSFER UNIT SWITCHES TO THE STANDBY MODULES IN SLOTS M10-M16.

NEW WORK
CWM1435882 IL2014024
10-13-14 XRL/JM /
xorail

CROSSING
6'X 6' PTC RELAY HOUSE

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &

KING ROAD (XXXXXXX) & SW. 184.26
DETECTION DEVICE CONSIST CWE-24
SMITHBORO, IL M.P. OS-184.16

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	OS18416	C15

Minimum Program Steps Report

Location and SIN

DOT Number: 1111111
Milepost Number: QS-184.24
Site Name: KING RD

SIN: 712541201016 *

* Parameter is part of office check number calculation.

MCF and Template Selection

MCF Name: GCP-T6X-02-6.mcf
MCF Revision: 26
MCFCRC: 494D2656

Template = 1D,3 Uni pairs (OCCN) *

* Parameter is part of office check number calculation.

Minimum Program Steps

TEMPLATE: module configuration
Track 3/PS0 2 Slot = Track (OCCN) *
Track 4/PS0 3 Slot = Track (OCCN) *

TEMPLATE: track 1-Uni, Island
Track 1 , GCP Frequency = 86 Hz (OCCN) *
Track 1 , Approach Distance = 3388 ft (OCCN) *
Track 1 , Prime Warning Time = 31 sec (OCCN) *
Track 1 , GCP Transmit Level = High (Set in Field,TCN)
Track 1 , Isl Frequency = 5.9 kHz (OCCN) *
Track 1 , Island Distance = 120 ft (Set in Field,TCN)

TEMPLATE: track 2-Uni,No Island
Track 2 , GCP Frequency = 970 Hz (OCCN) *
Track 2 , Approach Distance = 462 ft (OCCN) *
Track 2 , Prime Warning Time = 31 sec (OCCN) *
Track 2 , GCP Transmit Level = Medium (Set in Field,TCN)

TEMPLATE: track 3-Uni, Island
Track 3 , GCP Frequency = 970 Hz (OCCN) *
Track 3 , Approach Distance = 1000 ft (OCCN) *
Track 3 , Prime Warning Time = 31 sec (OCCN) *
Track 3 , GCP Transmit Level = Medium (Set in Field,TCN)
Track 3 , Isl Frequency = 8.3 kHz (OCCN) *
Track 3 , Island Distance = 120 ft (Set in Field,TCN)

TEMPLATE: track 4-Uni,No Island
Track 4 , GCP Frequency = 970 Hz (OCCN) *
Track 4 , Approach Distance = 272 ft (OCCN) *
Track 4 , Prime Warning Time = 31 sec (OCCN) *
Track 4 , GCP Transmit Level = Medium (Set in Field,TCN)

TEMPLATE: AND 1 XR
AND 1 Enable Used = Yes (OCCN) *
And 1 Enable Pickup = 3 sec (OCCN) *

TEMPLATE: SSCC
SSCC-1 Number of GDs = 1 (OCCN) *
SSCC-2 Number of GPs = 1 (OCCN) *
SSCC-2 Number of GDs = 1 (OCCN) *

TEMPLATE: OOS
OOS Control = Display+OOS IPs (OCCN) *
OOS Timeout = 1 hrs (Set in Field)
T2 OOS Control = OOS Input 1 (OCCN) *
T3 OOS Control = OOS Input 1 (OCCN) *
T4 OOS Control = OOS Input 1 (OCCN) *

TEMPLATE: IP assignment 1
IN 2.1 = AND 1 XR Enable (OCCN) *

TEMPLATE: IP assignment SSCC
IN 7.2 = Not Used (OCCN) *
IN 8.2 = Out Of Service IP 1 (OCCN) *
IN 8.4 = GD 2.1 (OCCN) *
IN 8.5 = GP 2.1 (OCCN) *

MS4000 configuration
Track 1 , GCP Frequency = 86 Hz (OCCN,TCN) (Hidden) *
Track 1 , Isl Frequency = 5.9 kHz (OCCN) (Hidden) *

MS4000 Predictor
Track 1 , Prime Warning Time = 31 sec (OCCN) (Hidden) *

ADVANCED: site options
Daylight Savings = On (Set in Field)

SSCC: 1
SSCC-1 Gate Delay = 5 sec (OCCN) *
SSCC 1 , Flash Rate = 55 (OCCN) *

SSCC: 2
SSCC-2 Gate Delay = 5 sec (OCCN) *
SSCC 2 , Flash Rate = 55 (OCCN) *

SEAR
DI 1 = Gnd Flt Tester 1 (OCCN) *
DI 2 = Gnd Flt Tester 2 (OCCN) *
Rly 1 = Ground Fault Test (OCCN) *
Rly 2 = AC Control (OCCN) *

SEAR: slot 7-8 inputs
IN 7.1 = TSS 1 (OCCN) *
IN 8.1 = TSS 2 (OCCN) *
IN 8.3 = POK 2 (OCCN) *

Express: MS4000 configuration
Track 1 , GCP Frequency = 86 Hz (OCCN,TCN) (Hidden) *

Express: MS4000 Predictor
Track 1 , Prime Warning Time = 31 sec (OCCN) (Hidden) *

* Parameter is part of office check number calculation.

Check Numbers

Office Check Number: 389080EA
Config. Check Number: 22768952
(Based on MCF Revision 26)

Parameters not part of office check number calculation:

Track 1 , GCP Transmit Level = High (Set in Field)
Track 1 , Island Distance = 120 ft (Set in Field)
Track 2 , GCP Transmit Level = Medium (Set in Field)
Track 3 , GCP Transmit Level = Medium (Set in Field)
Track 3 , Island Distance = 120 ft (Set in Field)
Track 4 , GCP Transmit Level = Medium (Set in Field)
OOS Timeout = 1 hrs (Set in Field)
Daylight Savings = On (Set in Field)

Comments

<none>

Configuration Package File

Filename: Config-1111111.pac
Path: C:ZZSafetranZZDTZZtempZZ
Date/Time: 3/19/2015 13:45:51
DT Version: 5.2.1

NEW WORK
CWM1435882 IL2014024
10-13-14 XRL/JM/
xorail

CROSSING
6'X 6' PTC RELAY HOUSE

CSX TRANSPORTATION
RAIL TRANSPORT GROUP ENGINEERING
COMMUNICATIONS AND SIGNALS

CP 184 &

KING ROAD (XXXXXXX) & SW. 184.26
MINIMUM PROGRAM STEPS REPORT CWE-24
SMITHBORO, IL M.P. QS-184.16

4000GCP.P01
REV. 06-30-09

DESIGNED	DIGITIZED	CHECKED	DATE
XRL	XRL	XRL	10-13-14

DESIGN DATE	REV. NO.	DRAWING	SHEET NO	FILE	SHEET
10-13-14	1	-----	-----	QS18416	P02