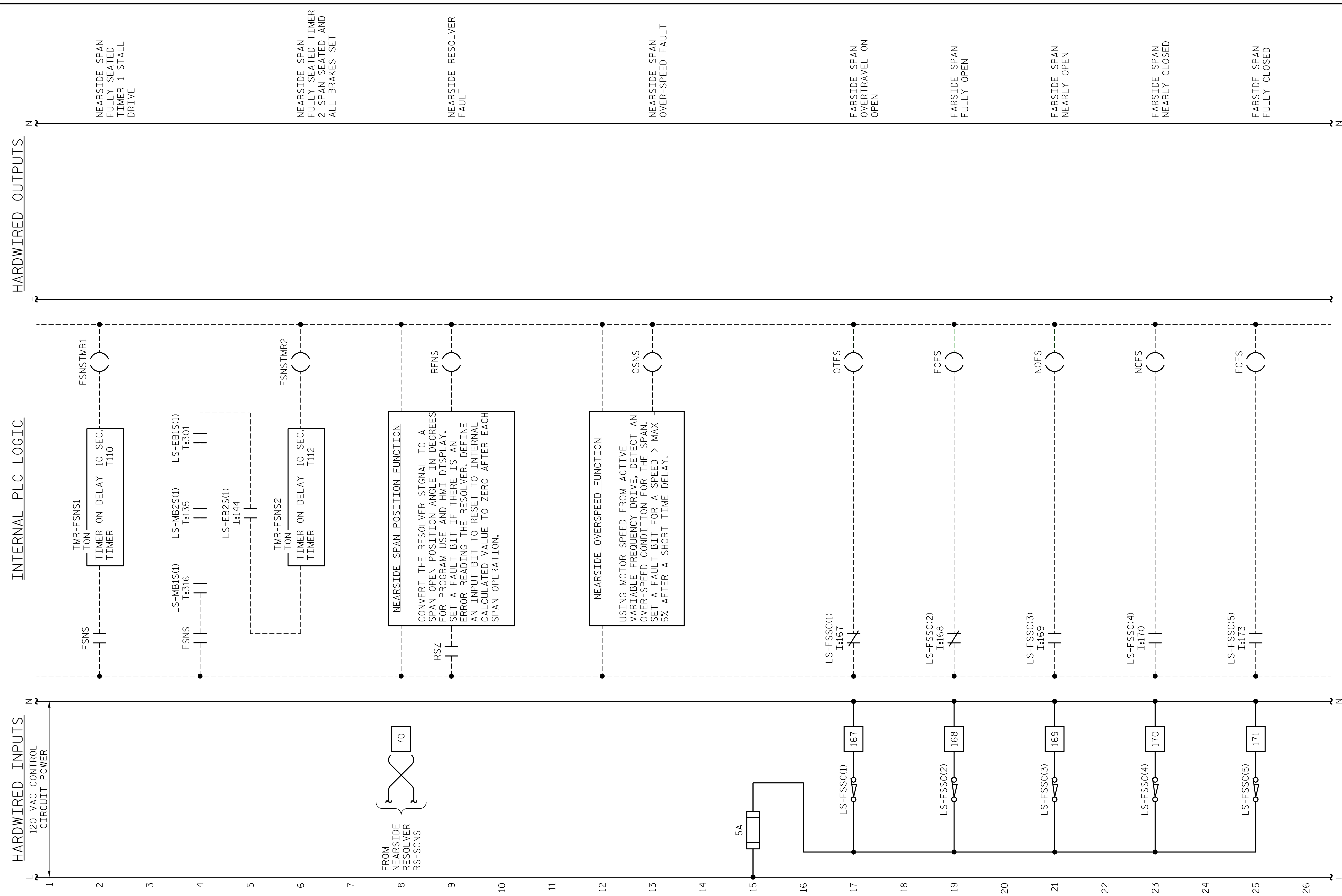


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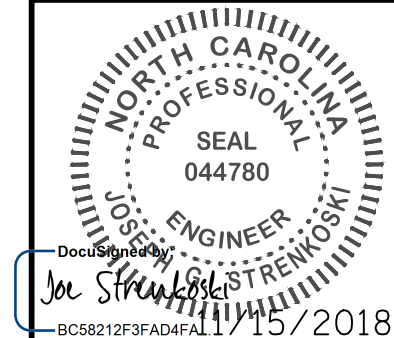


NOTES:

1. PROVIDE ADJUSTABLE DE-BOUNCE TIMERS FOR ALL SPAN POSITION LIMIT SWITCH INPUTS.
2. ACTUAL VALUES AND RANGES FOR ROTARY CAM SWITCHES SHALL BE ADJUSTED IN THE FIELD.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

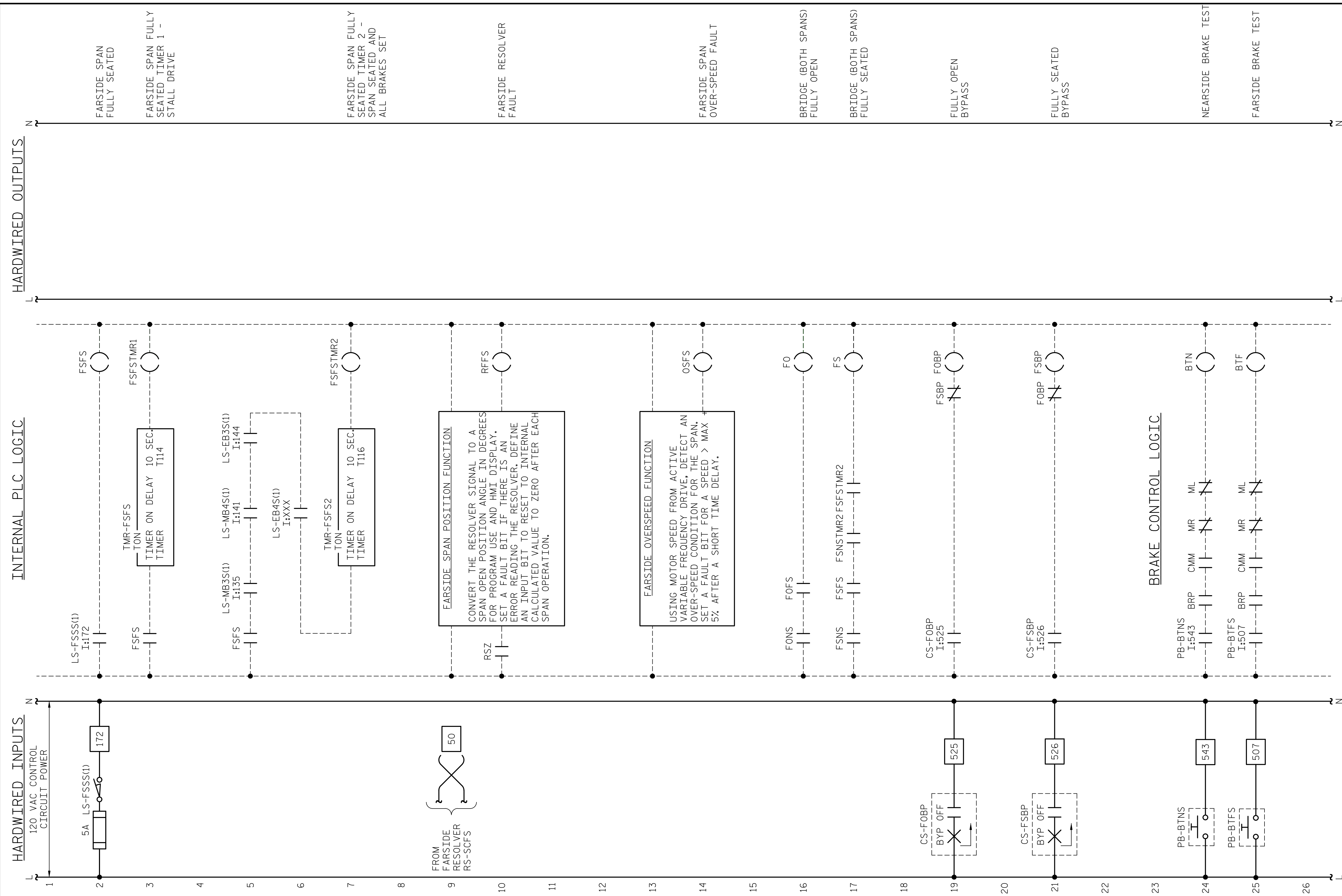
DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



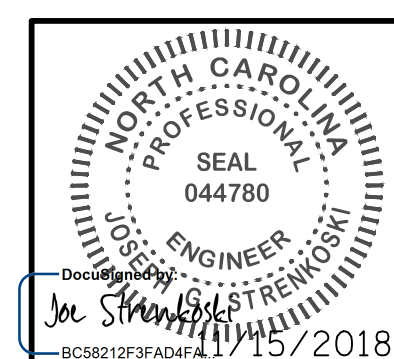
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STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 11					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. E-60					TOTAL SHEETS 213

LAST SAVED 11/15/2018 11:39 AM BY AMBROSDSKY... LAST PLOTTED 11/15/2018 12:50 PM... FILE: \\mmcd101\p\proj\fs_3682\03\CADD\Electrical\04\121_15BPR14_SMU\EL1_640011



DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

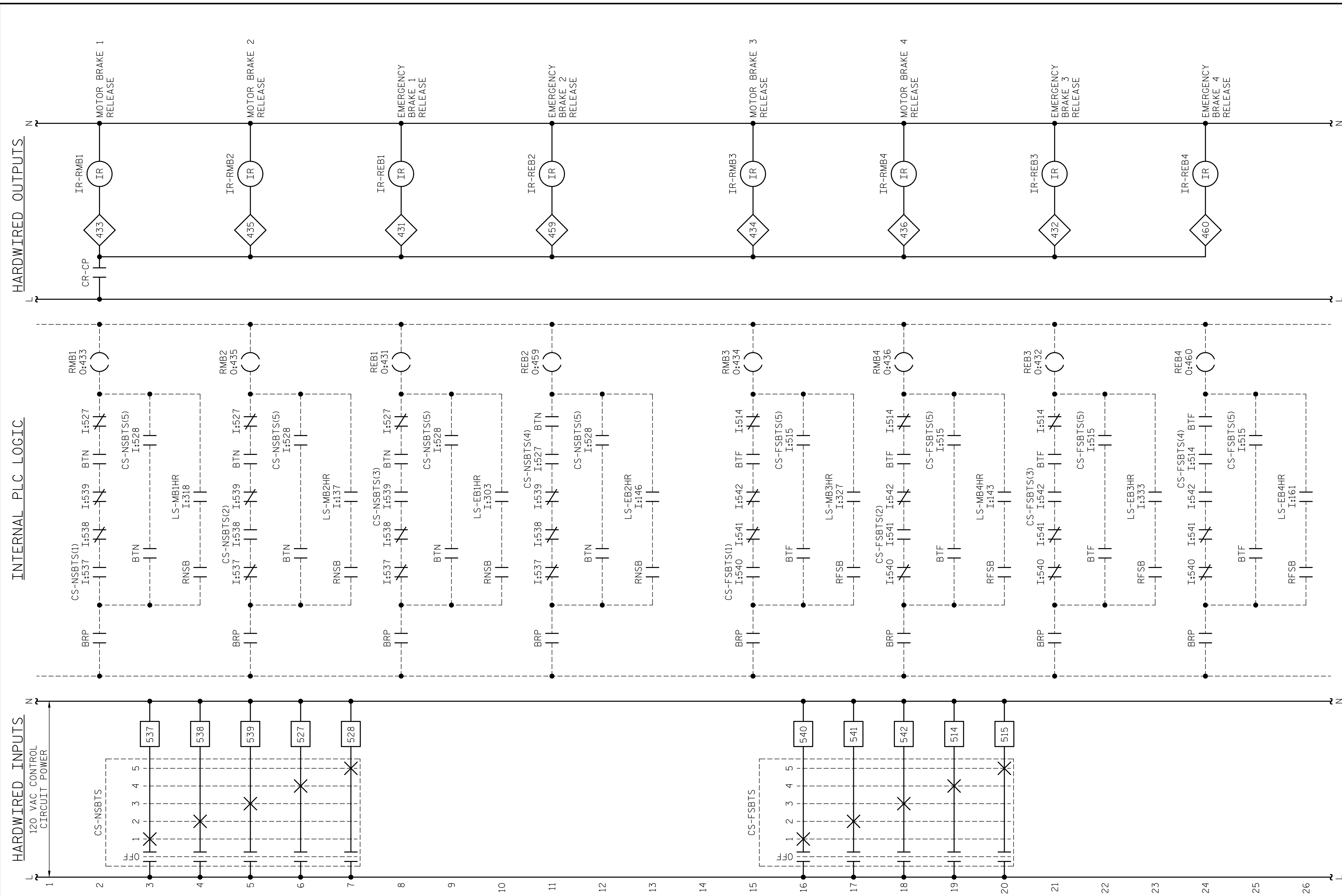


PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 12					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-61
					TOTAL SHEETS 213

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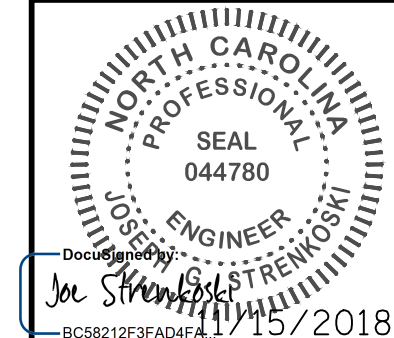


NOTES:

1. BRAKES SHALL BE PROGRAMMED TO RELEASE WHEN A MAIN DRIVE IS COMMANDED TO RUN AND THE FEEDBACK DRIVING SIGNAL IS RECEIVED.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

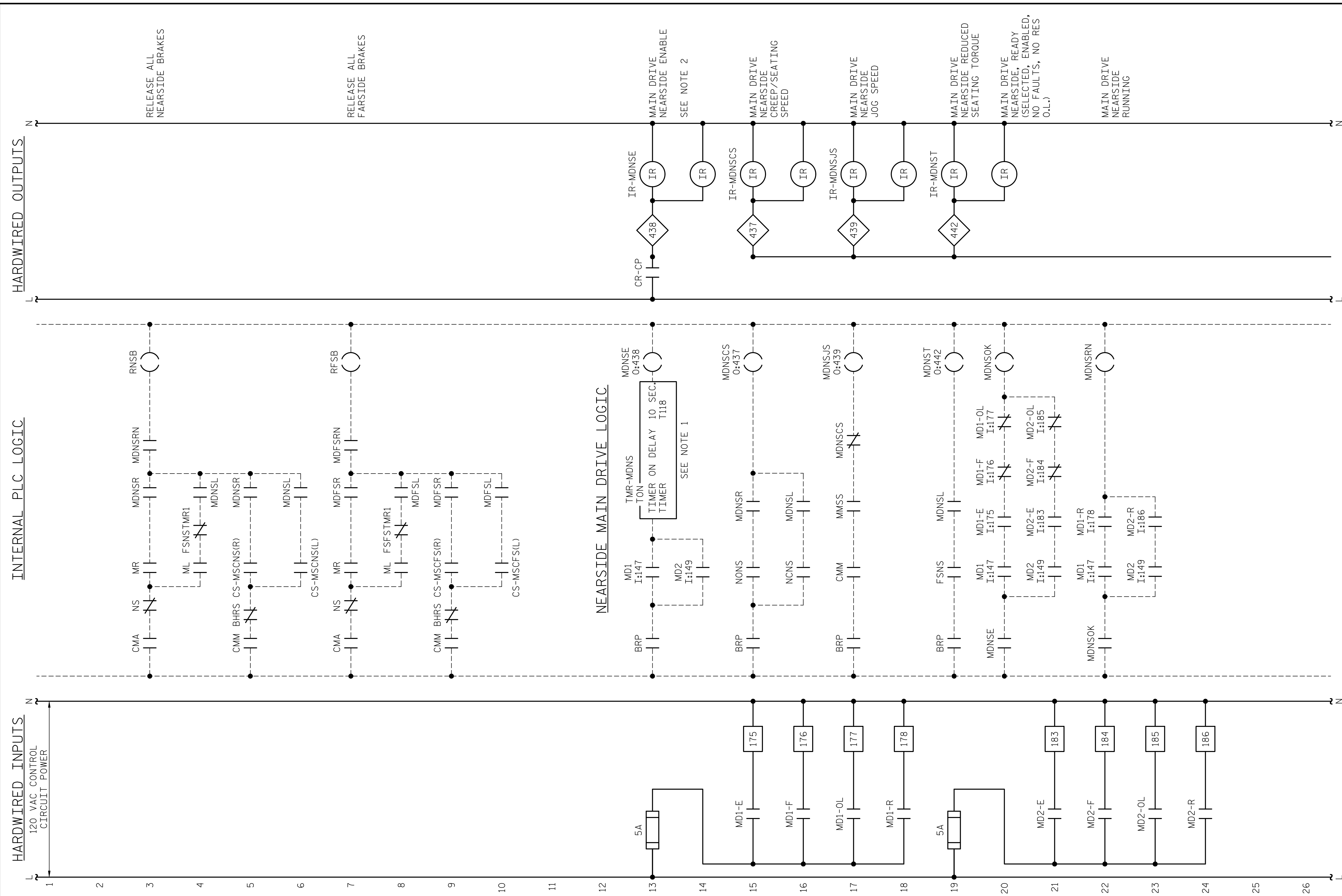
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 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 13					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
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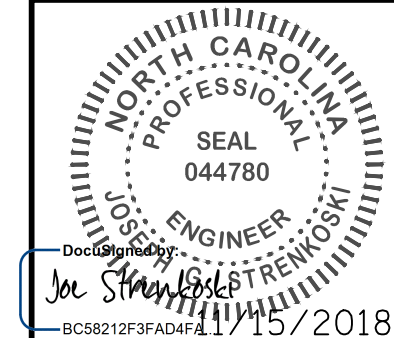


NEARSIDE MAIN DRIVE LOGIC

- NOTES:**
- ENABLE LOGIC AND/OR TIMERS SHALL BE FIELD ADJUSTED AS REQUIRED. INTENT IS TO ALLOW THE DRIVES TIME TO POWER UP BEFORE ANY COMMANDS ARE SENT TO IT IN ORDER TO PREVENT ANY FALSE DRIVE FAULTS.
 - IR RELAYS ARE DUPLICATED IN DRIVE PANELS 'MSD1 AND 'MD2'.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

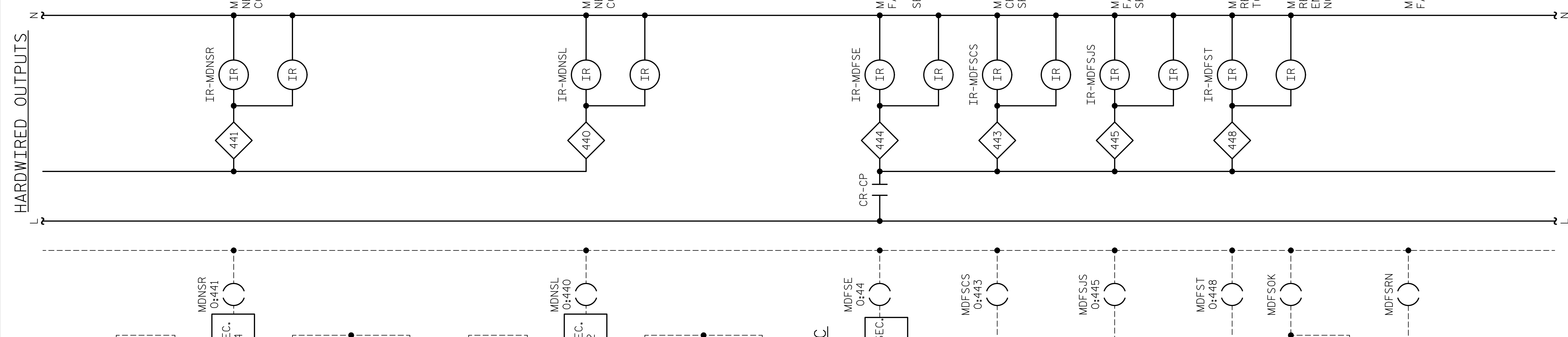
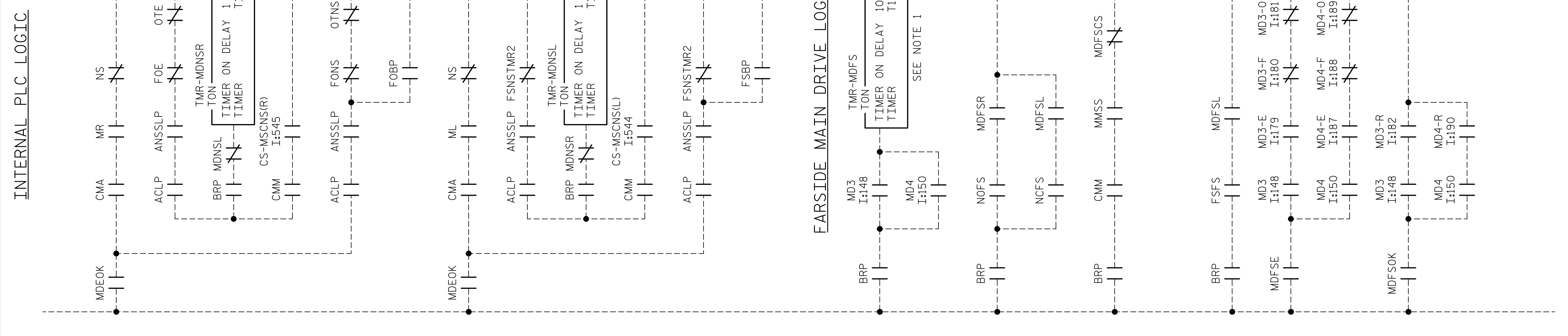
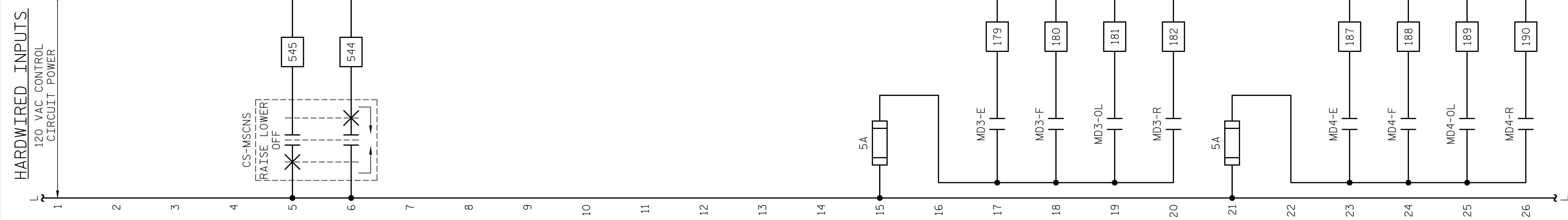
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 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



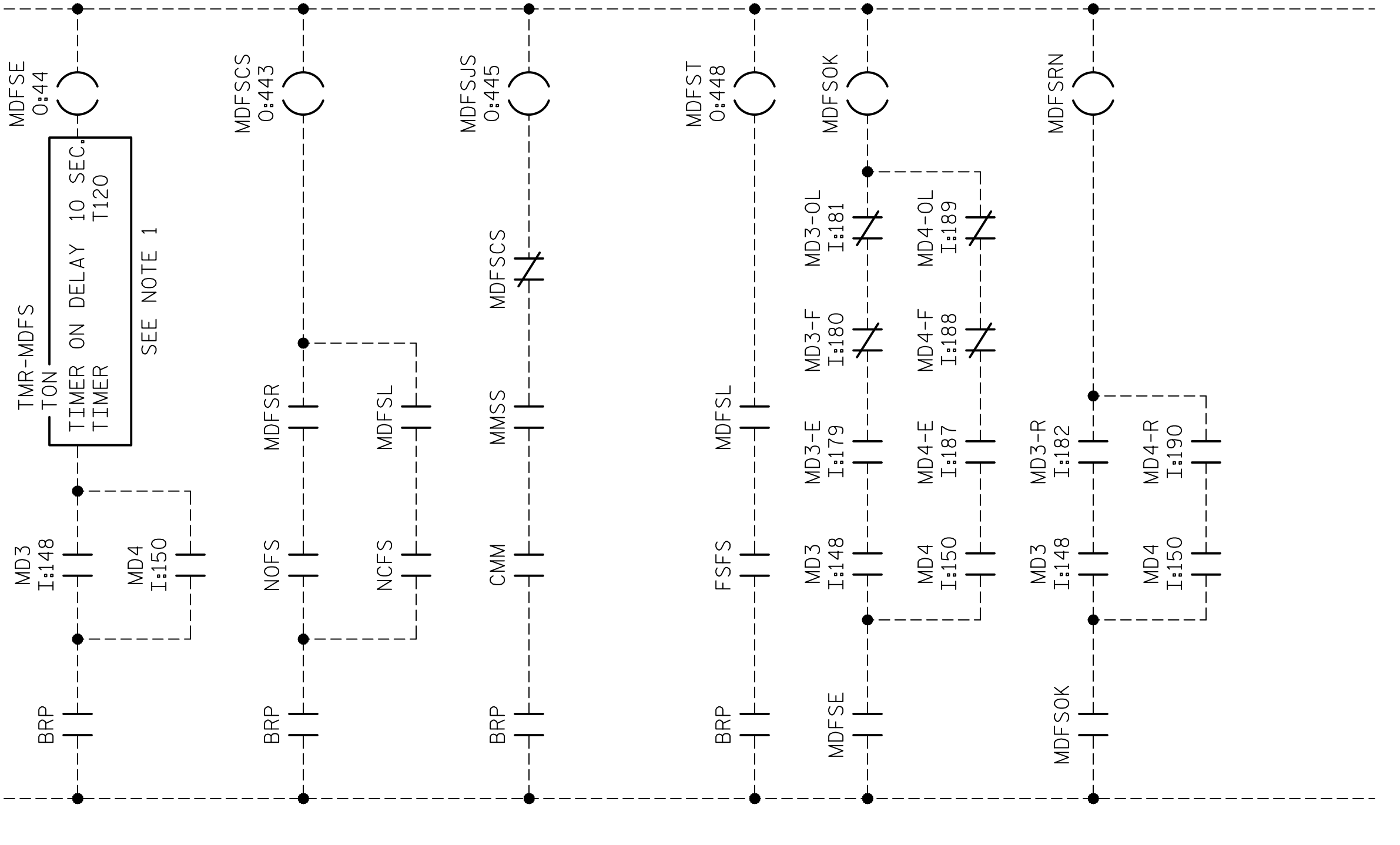
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 14					
SHEET NO. E-63					
TOTAL SHEETS 213					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

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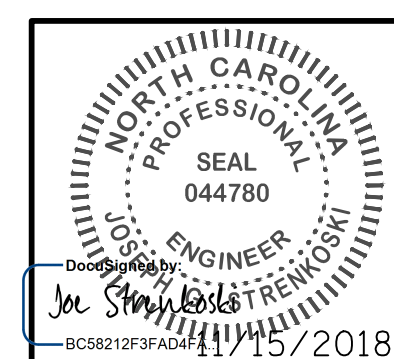
FARSIDE MAIN DRIVE LOGIC



- NOTES:**
- ENABLE LOGIC AND/OR TIMERS SHALL BE FIELD ADJUSTED AS REQUIRED. INTENT IS TO ALLOW THE DRIVES TIME TO POWER UP BEFORE ANY COMMANDS ARE SENT TO IT IN ORDER TO PREVENT ANY FALSE DRIVE FAULTS.
 - IR RELAYS ARE DUPLICATED IN DRIVE PANELS 'MD3' AND 'MD4'.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

DESIGNED BY:	N. K. BHINGE	DATE :	08/03/18
DRAWN BY:	R. L. REED	DATE :	08/07/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



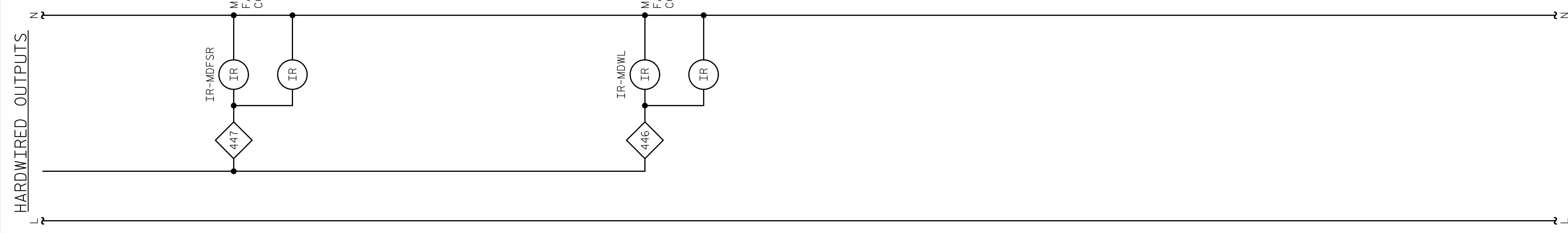
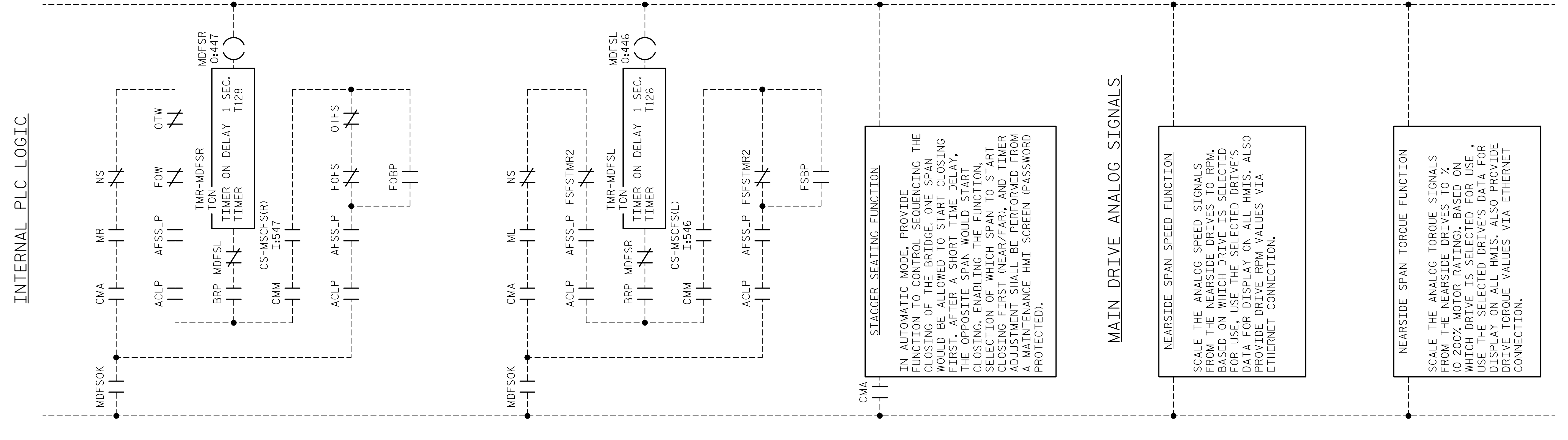
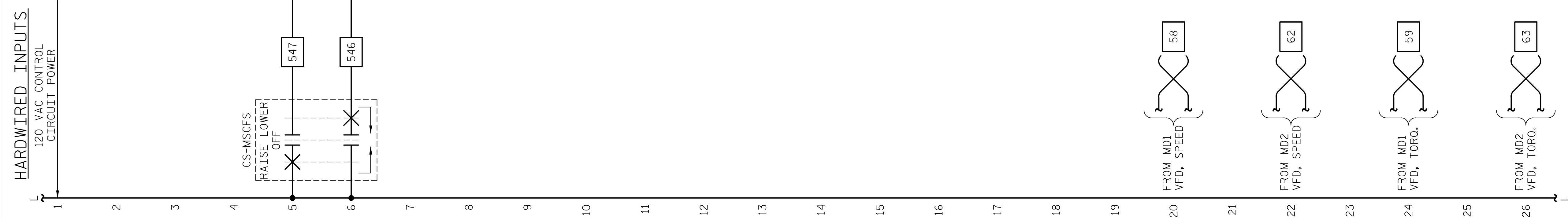
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
CONTROL CIRCUIT - 15

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
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SHEET NO.	E-64
TOTAL SHEETS	213

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STAGGER SEATING FUNCTION

IN AUTOMATIC MODE, PROVIDE FUNCTION TO CONTROL SEQUENCING THE CLOSING OF THE BRIDGE. ONE SPAN WOULD BE ALLOWED TO START CLOSING FIRST. AFTER A SHORT TIME DELAY, THE OPPOSITE SPAN WOULD START CLOSING, ENABLING THE FUNCTION. SELECTION OF WHICH SPAN TO START CLOSING FIRST (NEAR/FAR), AND TIMER ADJUSTMENT SHALL BE PERFORMED FROM A MAINTENANCE HMI SCREEN (PASSWORD PROTECTED).

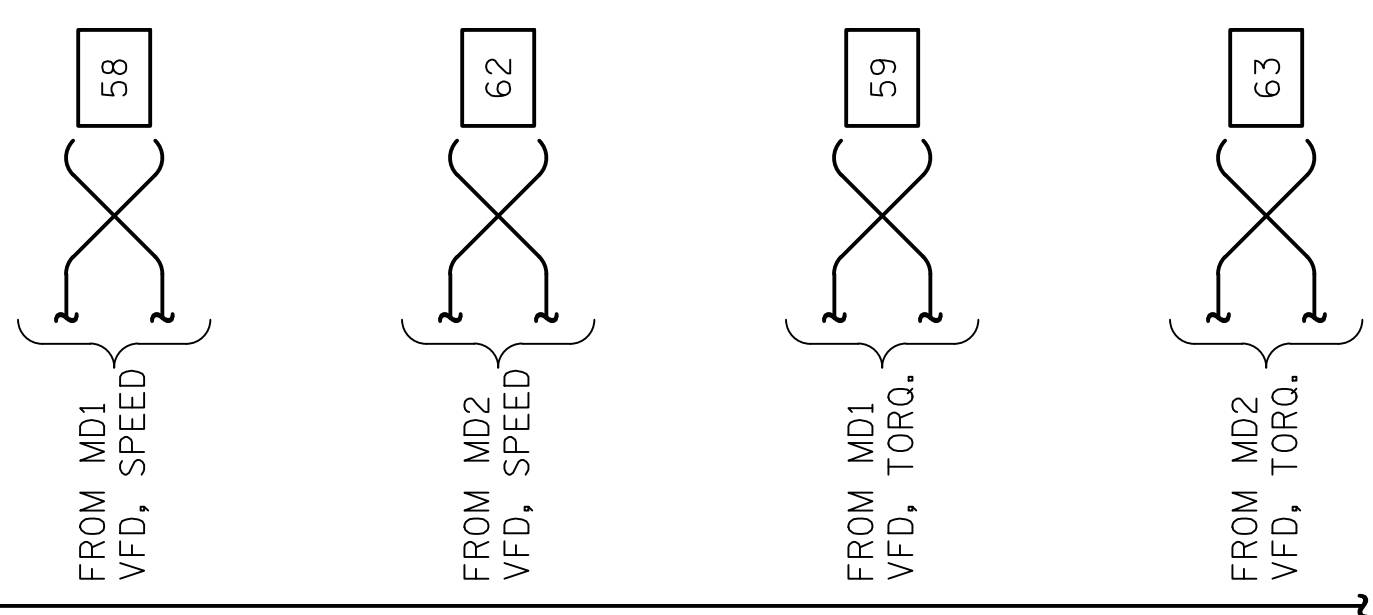
MAIN DRIVE ANALOG SIGNALS

NEARSIDE SPAN SPEED FUNCTION

SCALE THE ANALOG SPEED SIGNALS FROM THE NEARSIDE DRIVES TO RPM. BASED ON WHICH DRIVE IS SELECTED FOR USE, USE THE SELECTED DRIVE'S DATA FOR DISPLAY ON ALL HMIs. ALSO PROVIDE DRIVE RPM VALUES VIA ETHERNET CONNECTION.

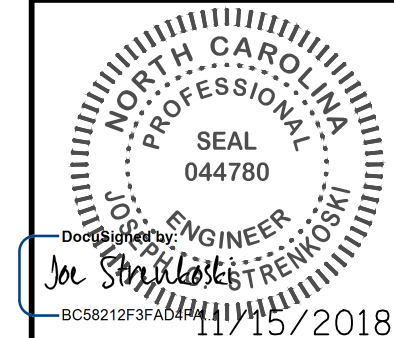
NEARSIDE SPAN TORQUE FUNCTION

SCALE THE ANALOG TORQUE SIGNALS FROM THE NEARSIDE DRIVES TO % (0-200% MOTOR RATING). BASED ON WHICH DRIVE IS SELECTED FOR USE, USE THE SELECTED DRIVE'S DATA FOR DISPLAY ON ALL HMIs. ALSO PROVIDE DRIVE TORQUE VALUES VIA ETHERNET CONNECTION.



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/07/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



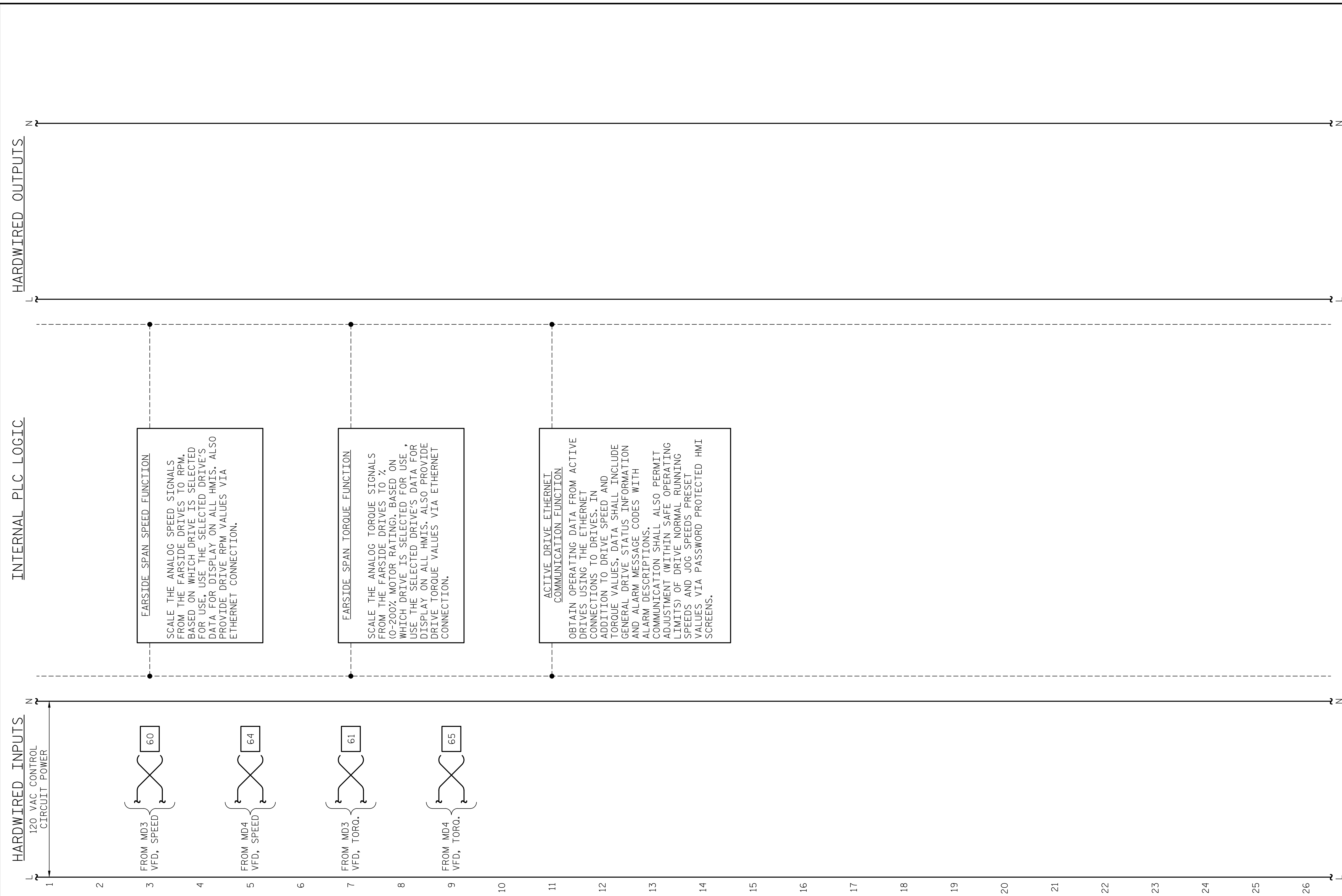
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 16

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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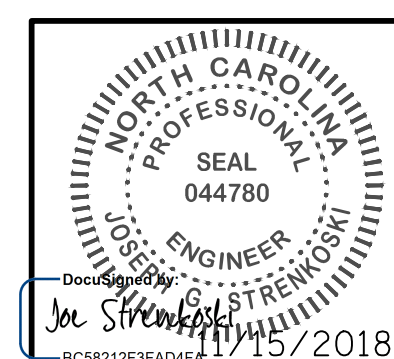
SHEET NO. **E-65**
 TOTAL SHEETS 213

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 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 17

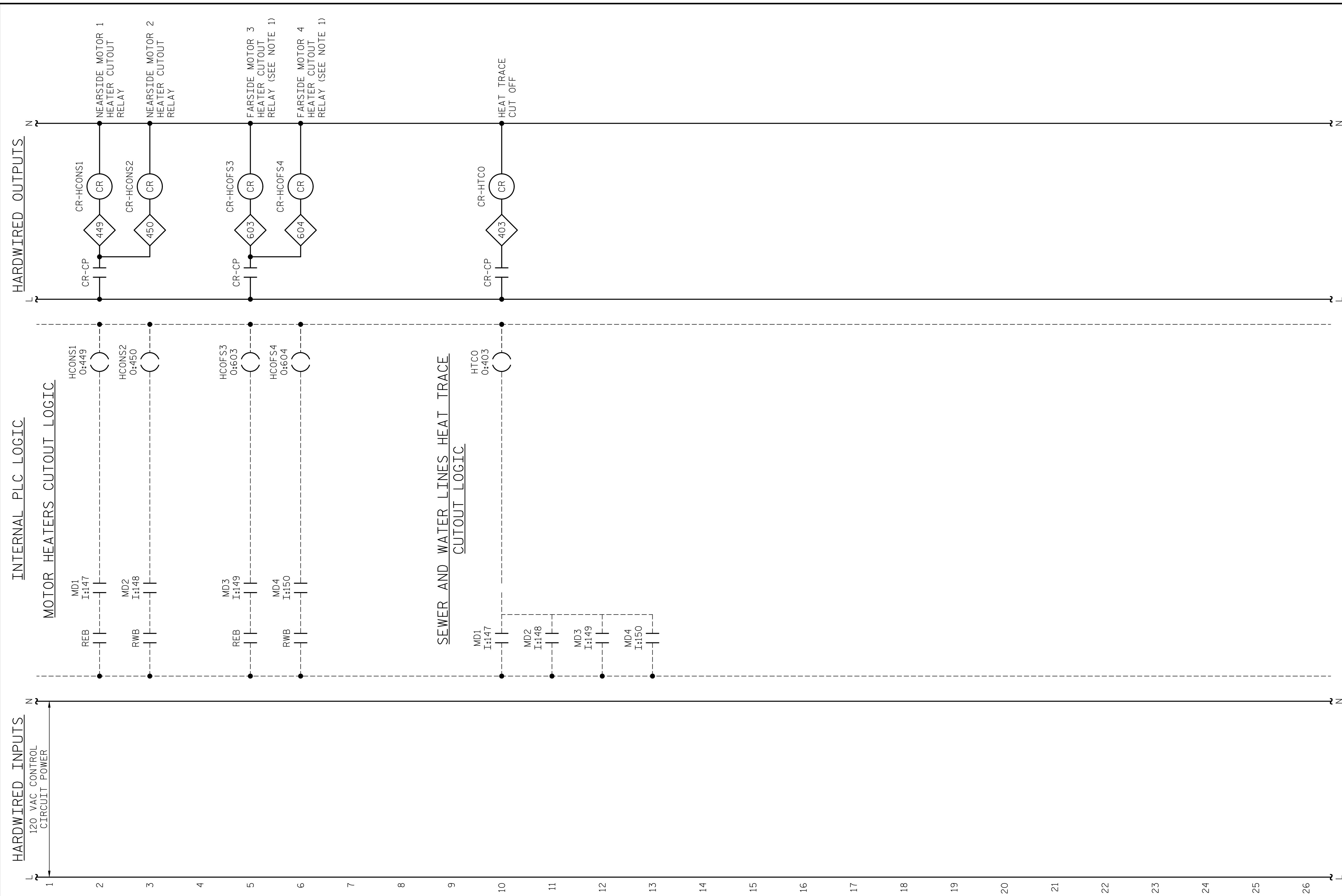
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-66
1			3			TOTAL SHEETS
2			4			213

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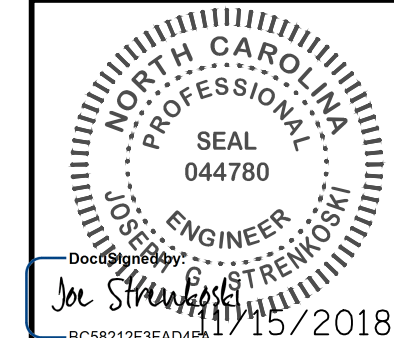
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FILE: \\mmcd101\p\objects\3682\03\CADD\Electrical\04\133\15BPR14_SWU\EG7_640011



NOTES:
 1. FARSIDE MOTOR ANTI-CONDENSATE HEATER CUTOUT RELAYS LOCATED IN FARSIDE REMOTE I/O CABINET.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE : 08/03/18
 DRAWN BY: R. L. REED DATE : 08/08/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 18

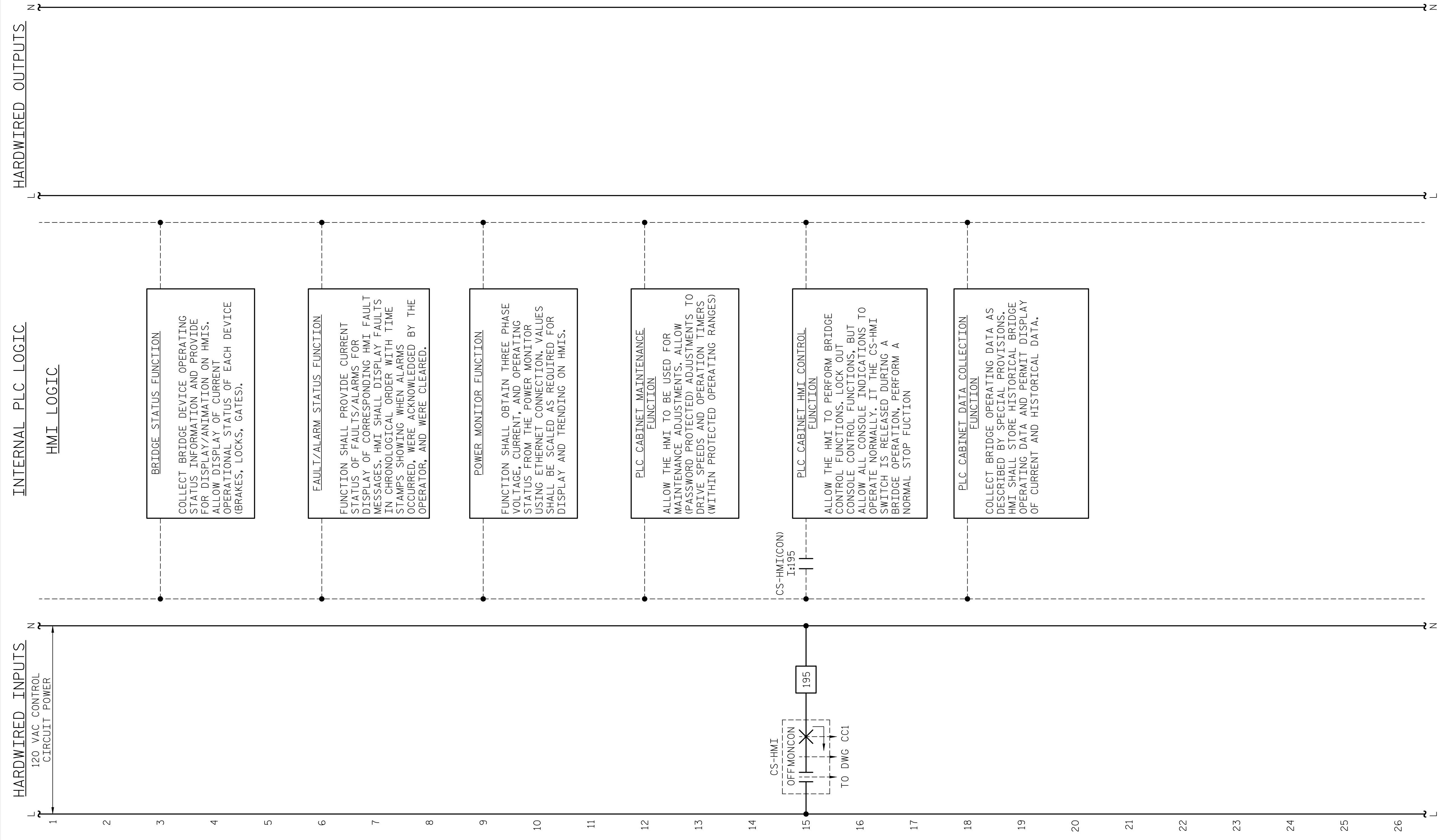
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-67
1			3			TOTAL SHEETS
2			4			213

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INTERNAL PLC LOGIC

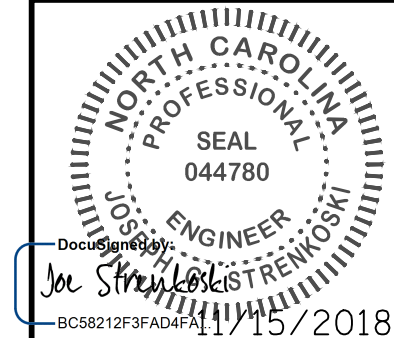
HMI LOGIC

HARDWIRED INPUTS

120 VAC CONTROL CIRCUIT POWER

HARDWIRED OUTPUTS

DESIGNED BY: N. K. BHINGE DATE: 08/03/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



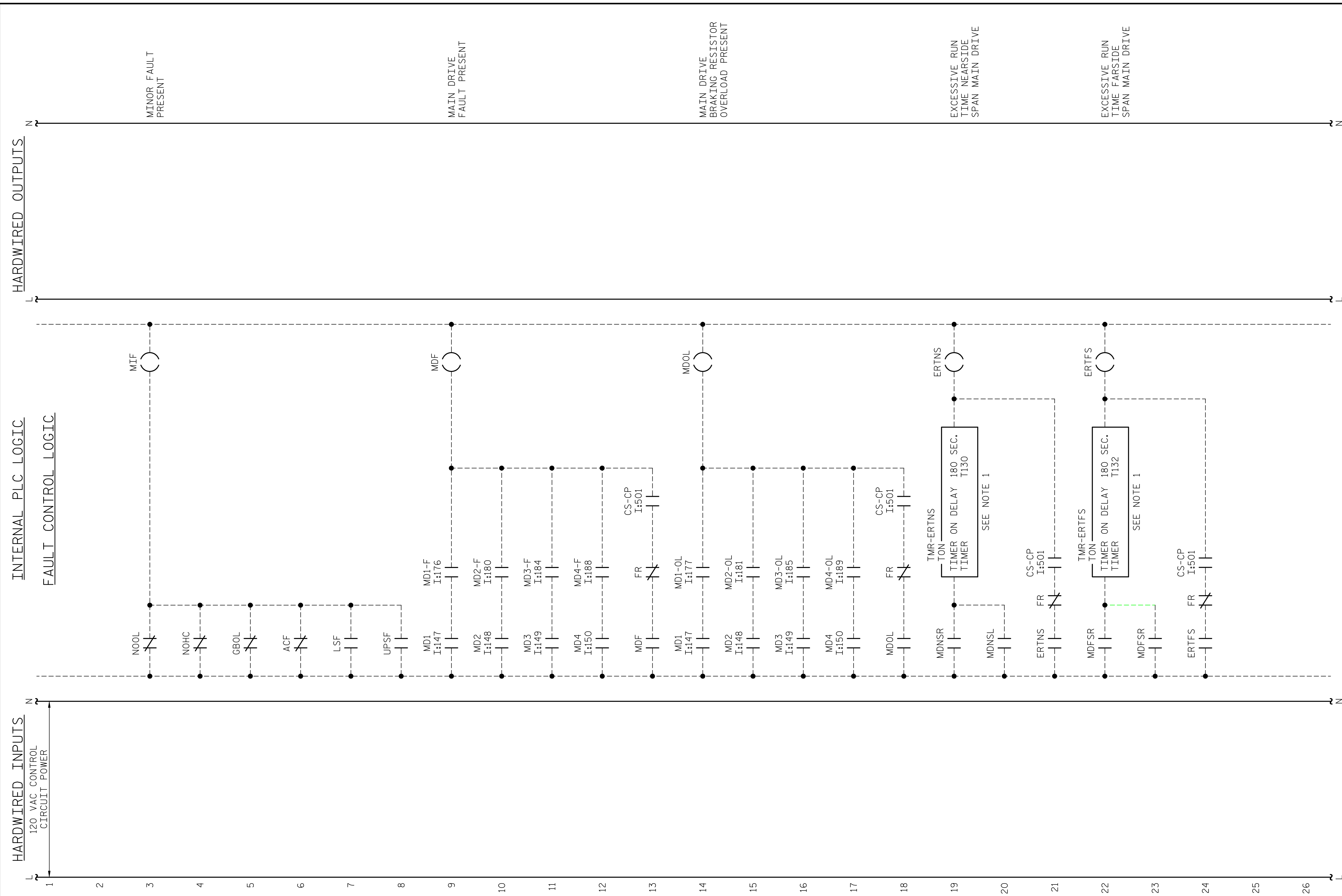
PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONTROL CIRCUIT - 19

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NO.	BY:	DATE:	NO.	BY:	DATE:	E-68
1			3			TOTAL SHEETS
2			4			213

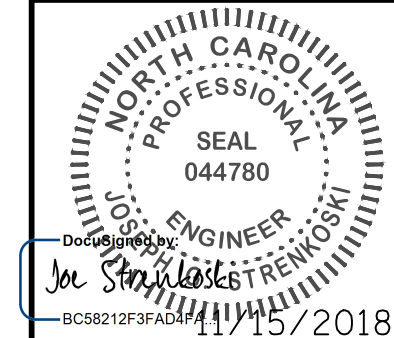
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NOTES:
1. TIMERS SHALL BE ADJUSTED IN THE FIELD AS REQUIRED.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

DESIGNED BY:	N. K. BHINGE	DATE :	08/03/18
DRAWN BY:	R. L. REED	DATE :	08/08/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
CONTROL CIRCUIT - 20

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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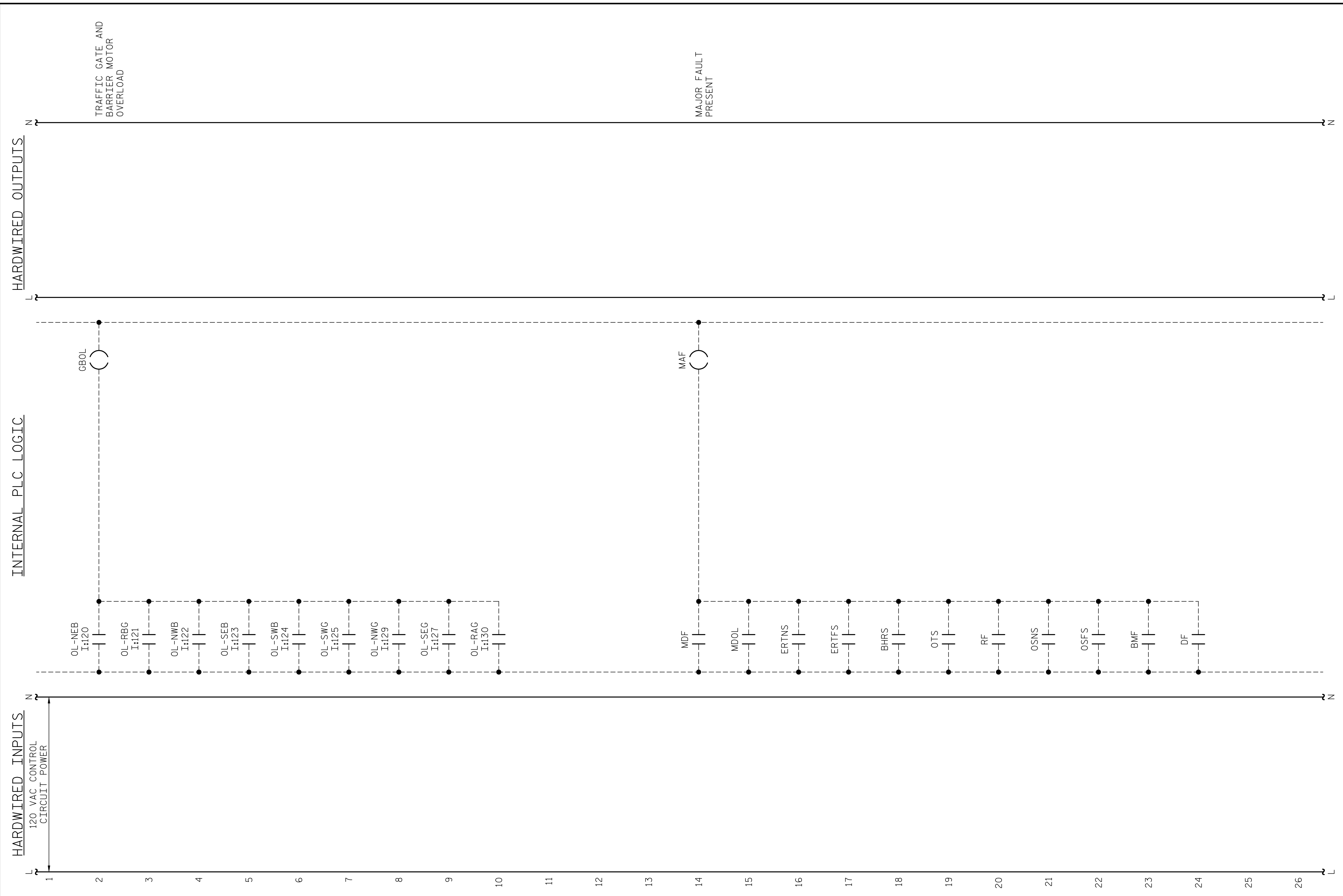
SHEET NO.		E-69
TOTAL SHEETS		213

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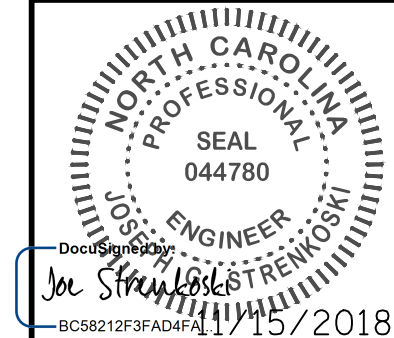
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PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE : 08/06/18
 DRAWN BY: R. L. REED DATE : 08/08/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18

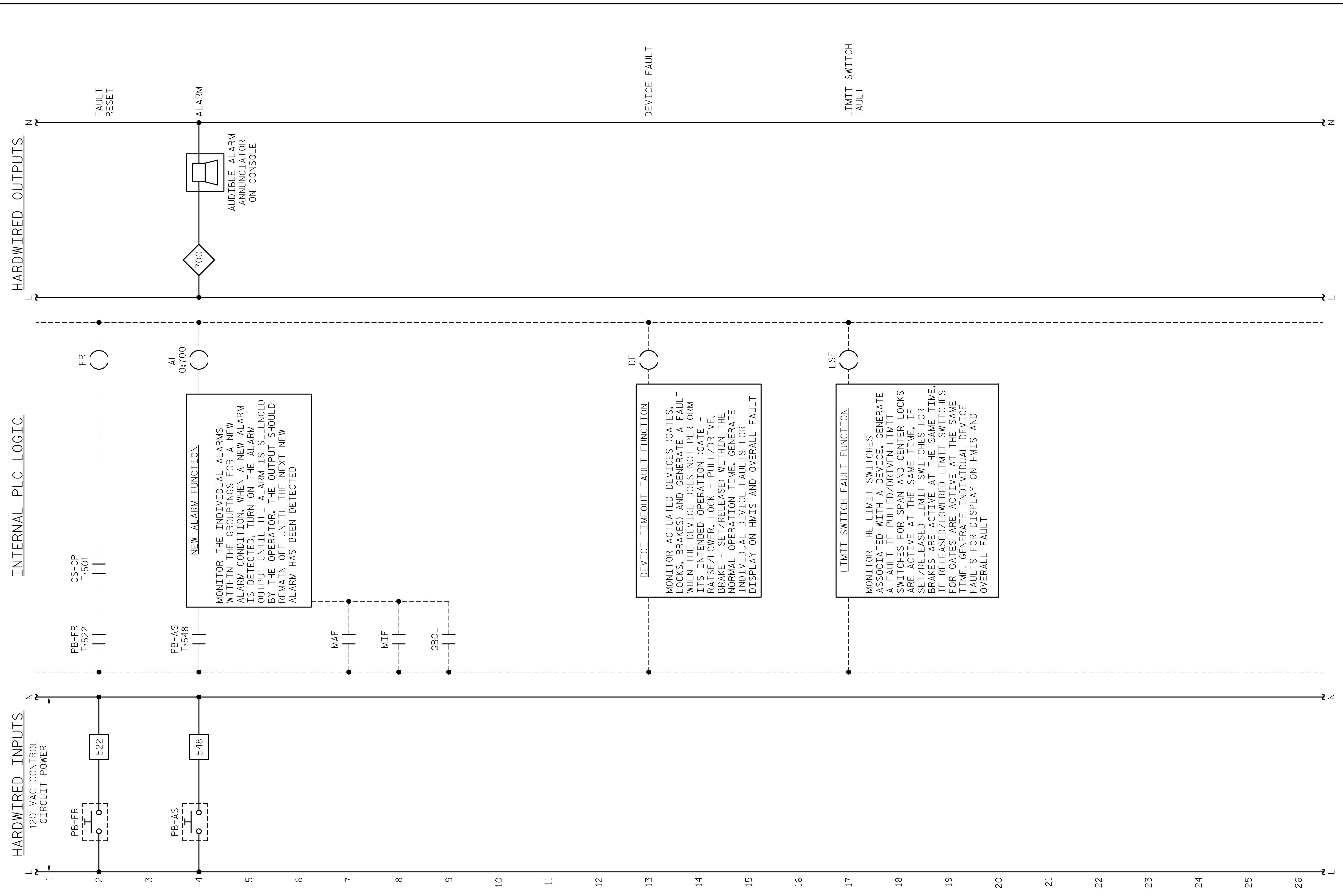


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 22

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NO.	BY:	DATE:	NO.	BY:	DATE:	E-71
1			3			TOTAL SHEETS
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HARDWIRED INPUTS
120 VAC CONTROL CIRCUIT POWER

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS

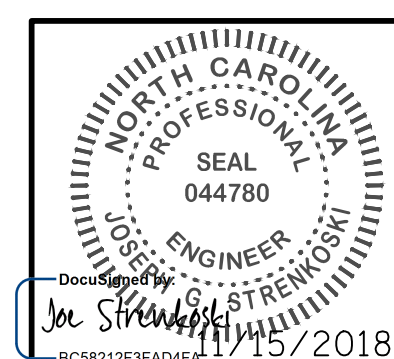
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

NEW_ALARM_FUNCTION
MONITOR THE INDIVIDUAL ALARMS WITHIN THE GROUPINGS FOR A NEW ALARM CONDITION. WHEN A NEW ALARM IS DETECTED, TURN ON THE ALARM OUTPUT UNTIL THE ALARM IS SILENCED BY THE OPERATOR. THE OUTPUT SHOULD REMAIN OFF UNTIL THE NEXT NEW ALARM HAS BEEN DETECTED

DEVICE_TIMEOUT_FAULT_FUNCTION
MONITOR ACTUATED DEVICES (GATES, LOCKS, BRAKES) AND GENERATE A FAULT WHEN THE DEVICE DOES NOT PERFORM ITS INTENDED OPERATION (GATE - RAISE/LOWER, LOCK - PULL/DRIVE, BRAKE - SET/RELEASE) WITHIN THE NORMAL OPERATION TIME. GENERATE INDIVIDUAL DEVICE FAULTS FOR DISPLAY ON HMIS AND OVERALL FAULT

LIMIT_SWITCH_FAULT_FUNCTION
MONITOR THE LIMIT SWITCHES ASSOCIATED WITH A DEVICE. GENERATE A FAULT IF PULLED/DRIVEN LIMIT SWITCHES FOR SPAN AND CENTER LOCKS ARE ACTIVE AT THE SAME TIME. IF SET/RELEASED LIMIT SWITCHES FOR BRAKES ARE ACTIVE AT THE SAME TIME, IF RELEASED/LOWERED LIMIT SWITCHES FOR GATES ARE ACTIVE AT THE SAME TIME. GENERATE INDIVIDUAL DEVICE FAULTS FOR DISPLAY ON HMIS AND OVERALL FAULT

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
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 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



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 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONTROL CIRCUIT - 23

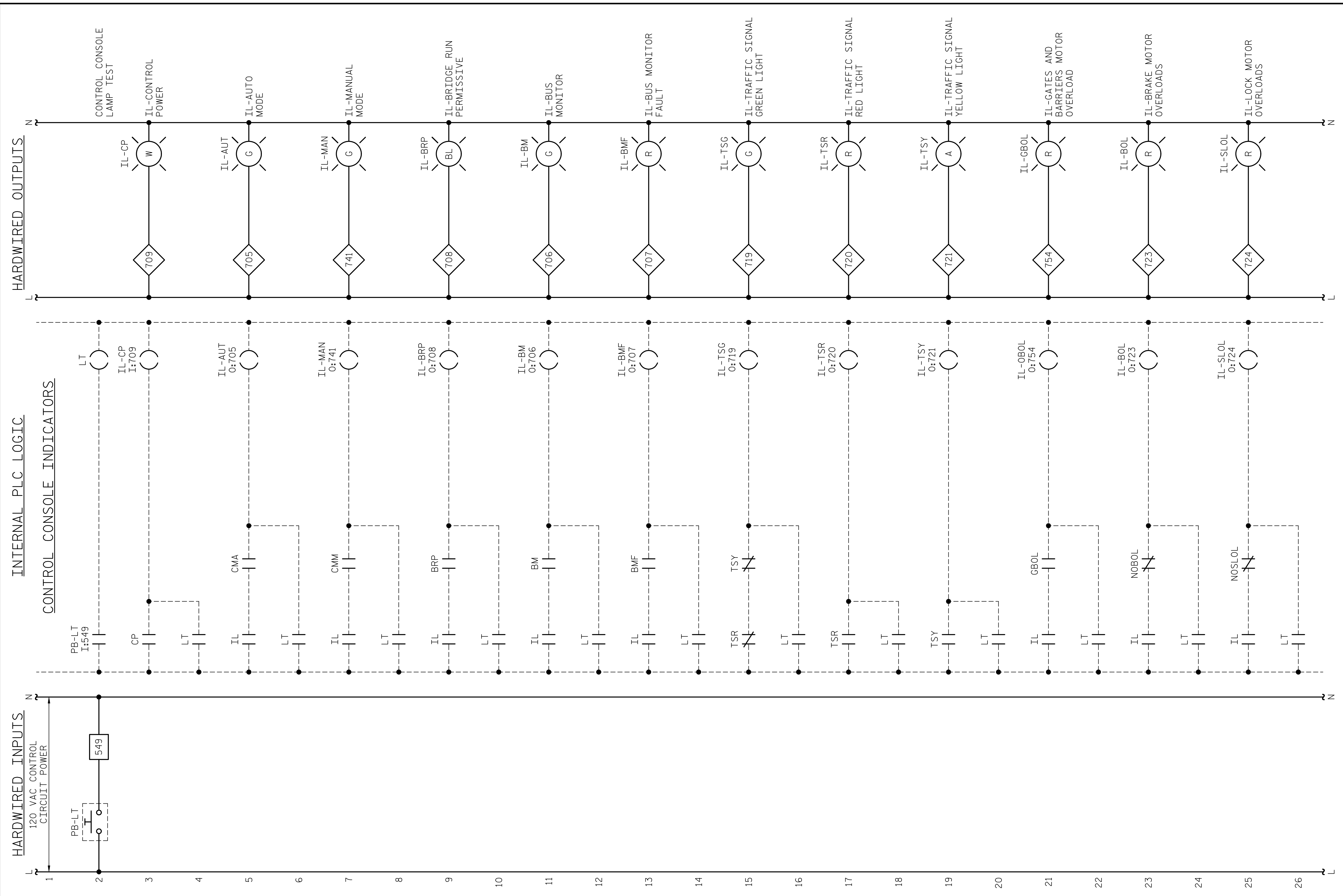
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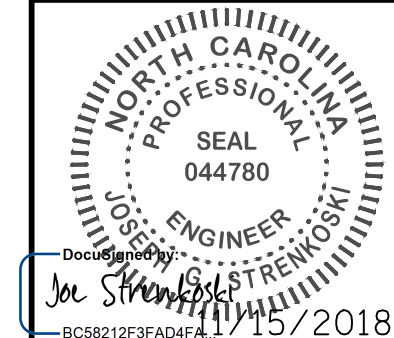
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NOTES:
 1. TRAFFIC SIGNAL INDICATOR LIGHTS SHALL BE KEPT ACTIVE WITH CONTROL POWER OFF.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 24

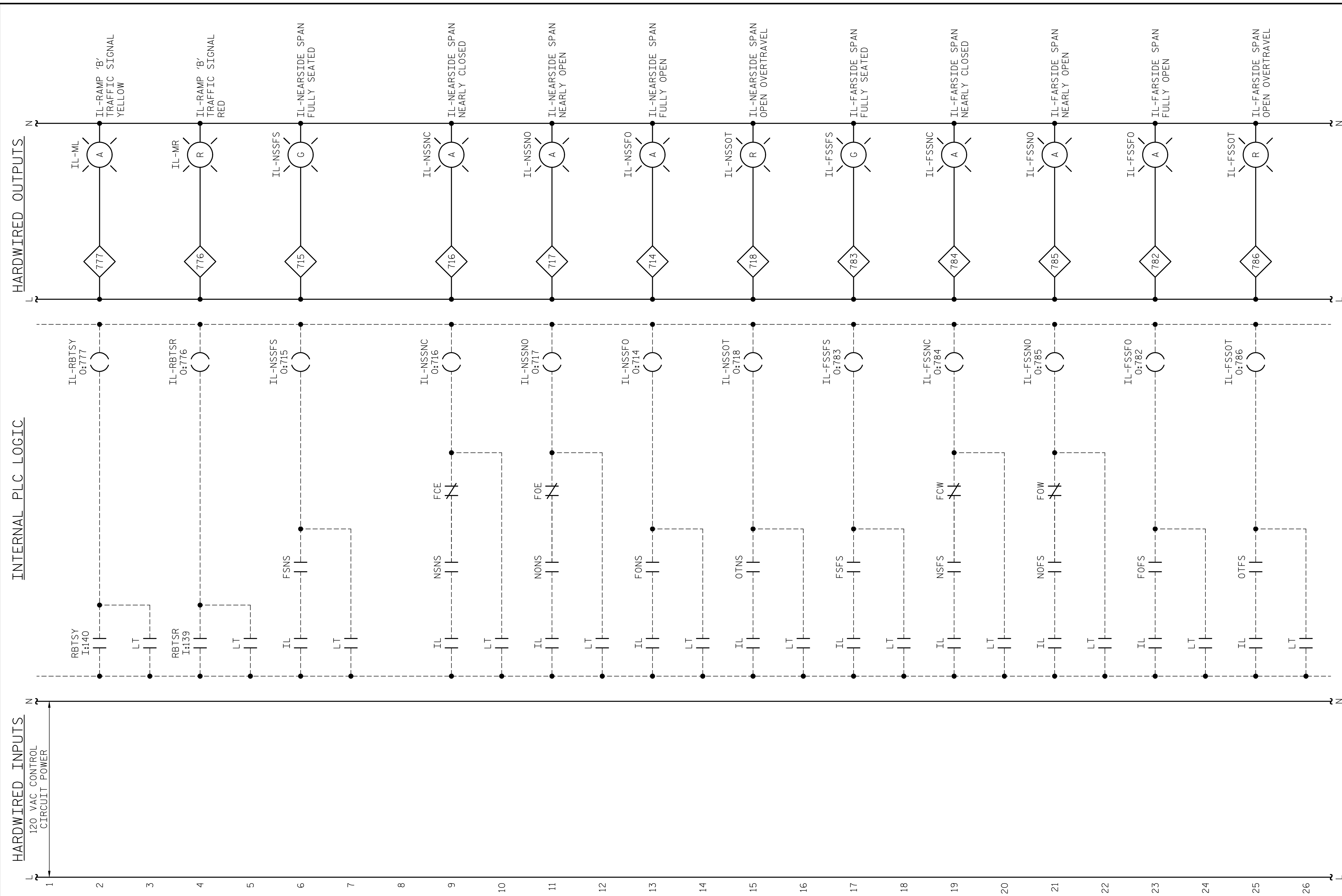
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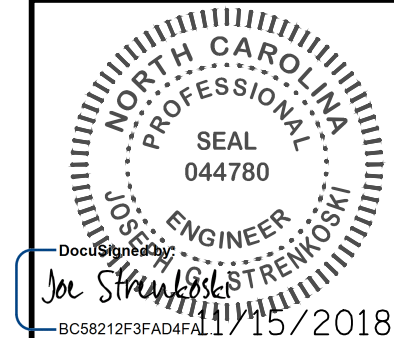


NOTES:

- TRAFFIC SIGNAL INDICATOR LIGHTS SHALL BE KEPT ACTIVE WITH CONTROL POWER OFF.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



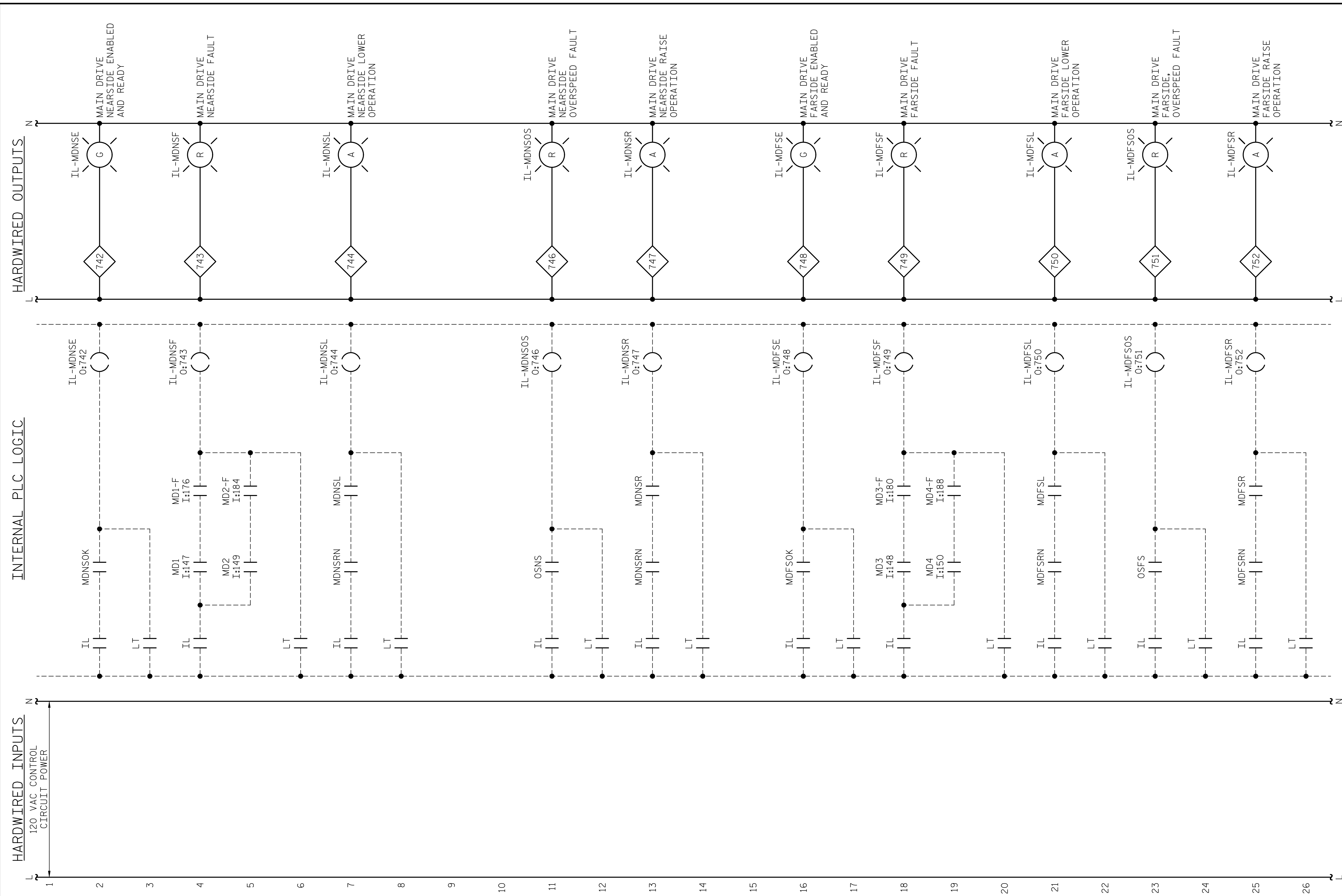
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 26					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-75 TOTAL SHEETS 213

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HARDWIRED OUTPUTS

INTERNAL PLC LOGIC

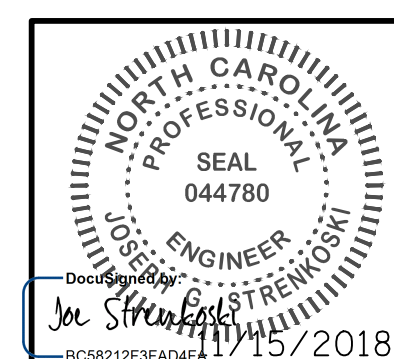
HARDWIRED INPUTS

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

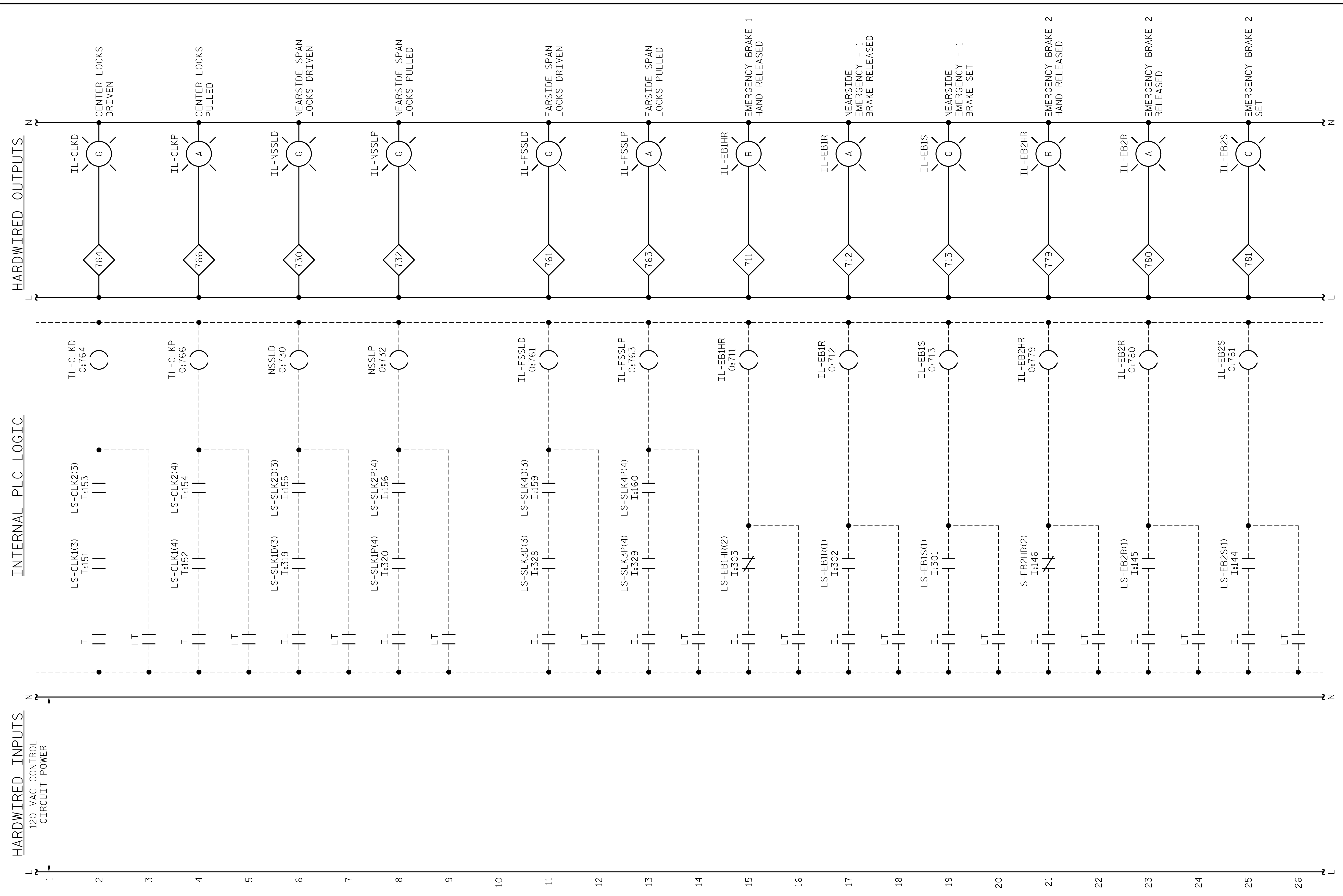
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

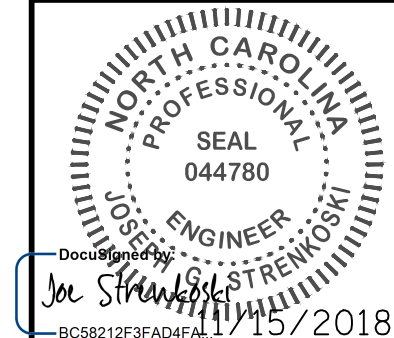
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
ELECTRICAL CONTROL CIRCUIT - 27					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-76
					TOTAL SHEETS 213

LAST SAVED 11/15/2018 11:42 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:52 PM.
 FILE: \\mmcd101\p\projects\3682\3\CADD\Electrical\04_153_15BPR14_SML177_640011



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



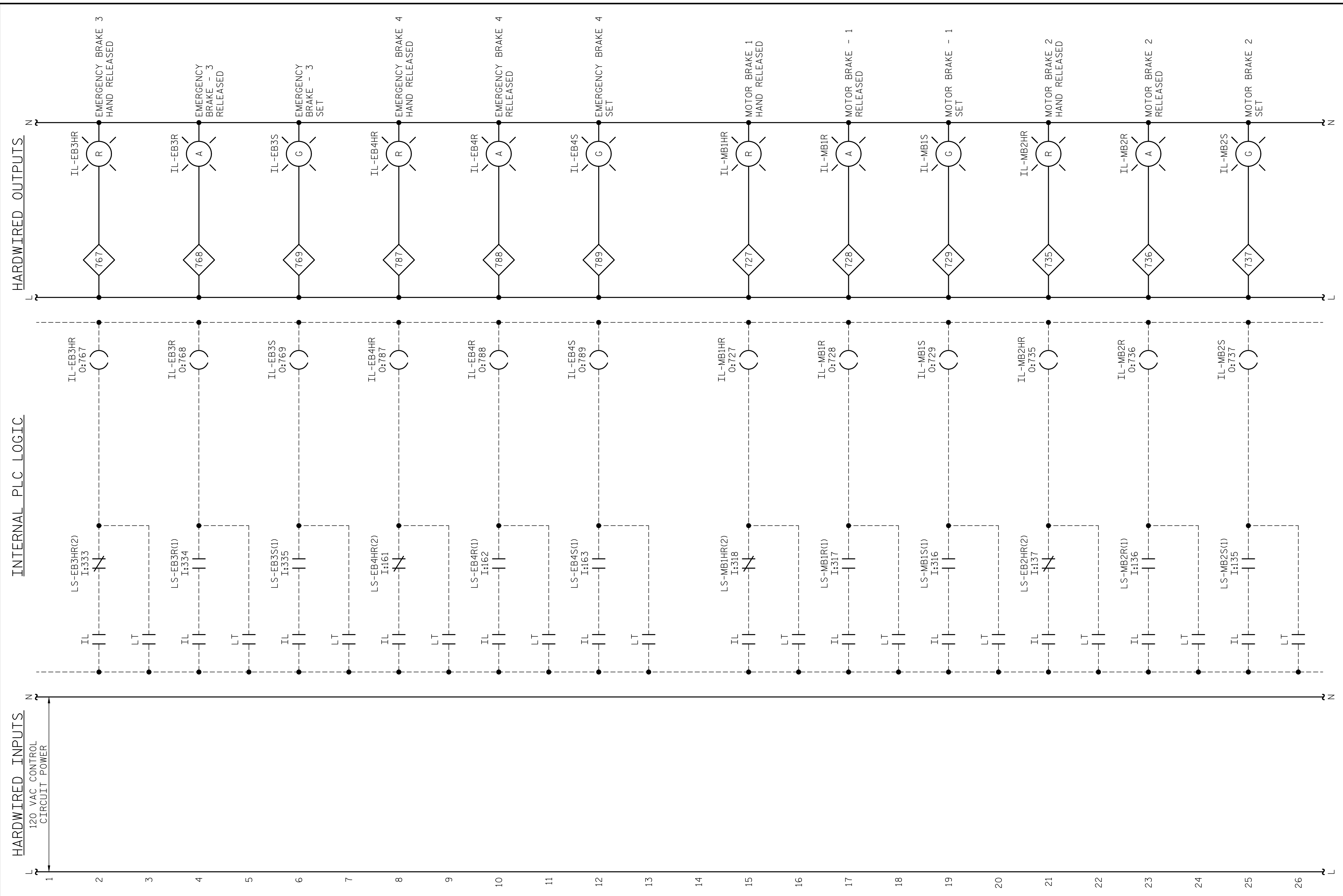
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 28

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

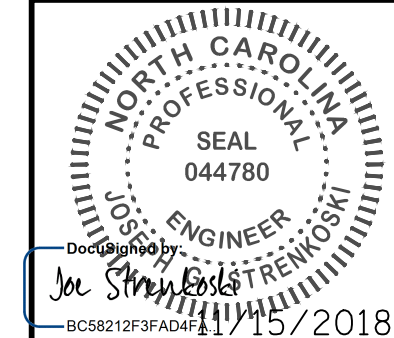
SHEET NO. E-77
 TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LAST SAVED 11/15/2018 11:43 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:52 PM... FILE: \\mmodc10\p\projects\3682\3\CADD\Electrical\04_155_15BPR14_SWLLE78_640011



DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

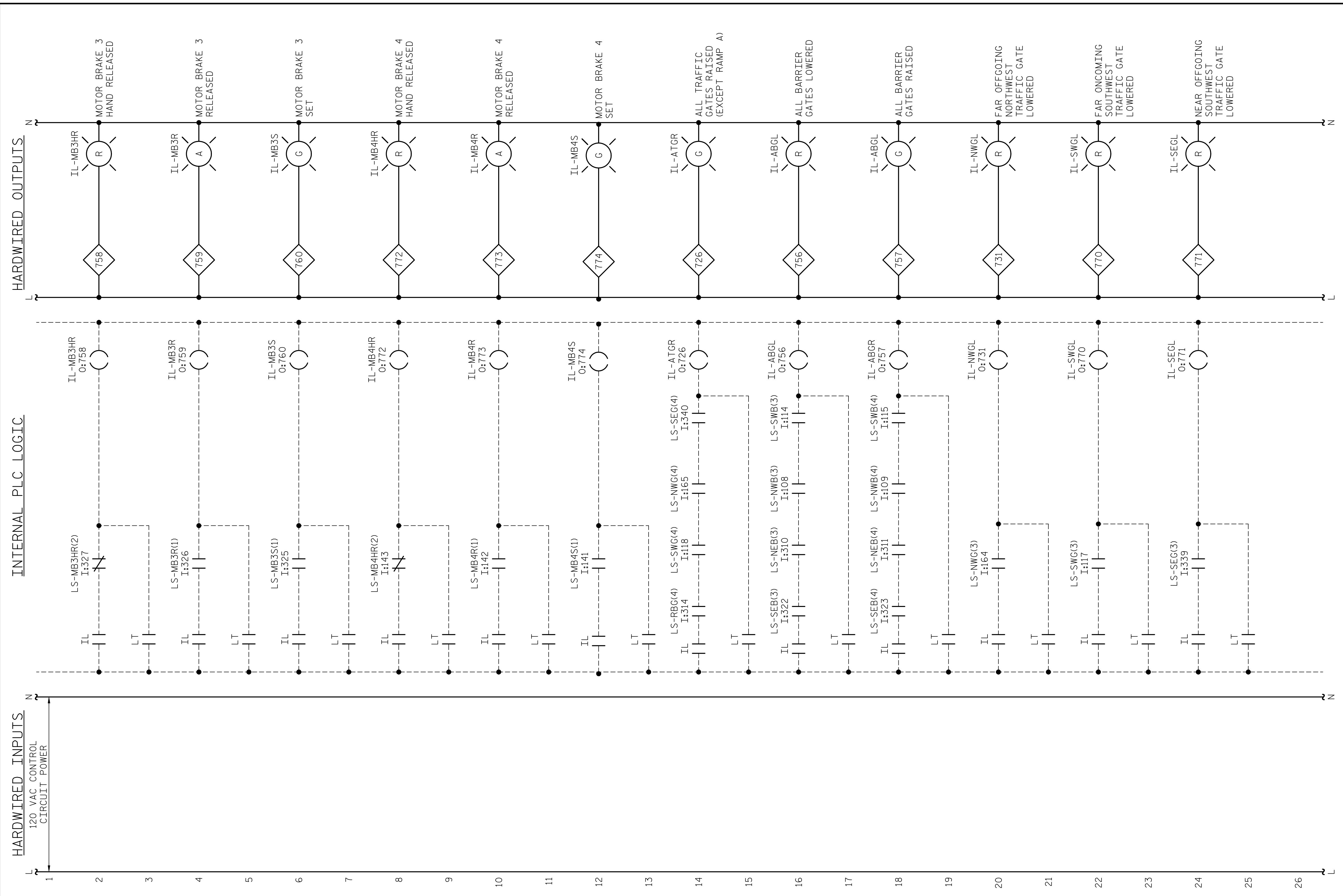


PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 29					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-78 TOTAL SHEETS 213

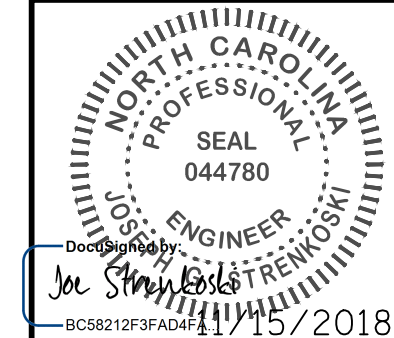
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

LAST SAVED 11/15/2018 11:43 AM BY AMBROSKI, LAST PLOTTED 11/15/2018 12:52 PM, FILE: \\mmcg10\p\projects\3682\3\CADD\Electrical\15BPR14_SML\179_640011



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

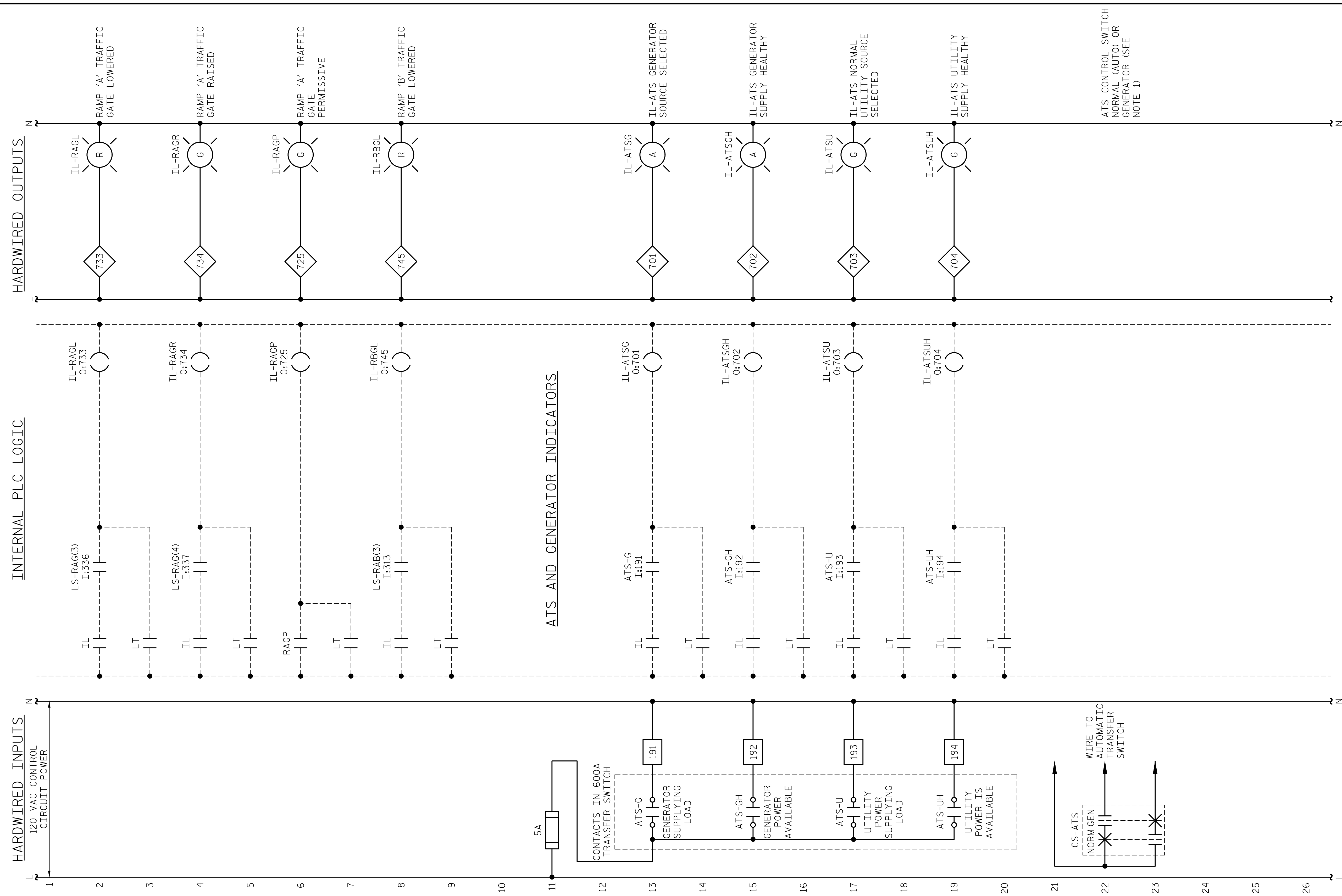


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONTROL CIRCUIT - 30

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-79
1			3			TOTAL SHEETS
2			4			213

LAST SAVED 11/15/2018 11:43 AM BY AMBRODOKS... LAST PLOTTED 11/15/2018 12:52 PM... FILE: \\mmcd101\projects\3682\3\CADD\Electrical\15BPR14_SMLER0_640011

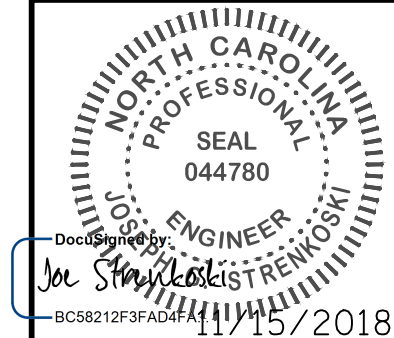


ATS CONTROL SWITCH NORMAL (AUTO) OR GENERATOR (SEE NOTE 1)

NOTES:
1. THE CS-ATS SWITCH IS LOCATED ON THE CONTROL CONSOLE.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION:

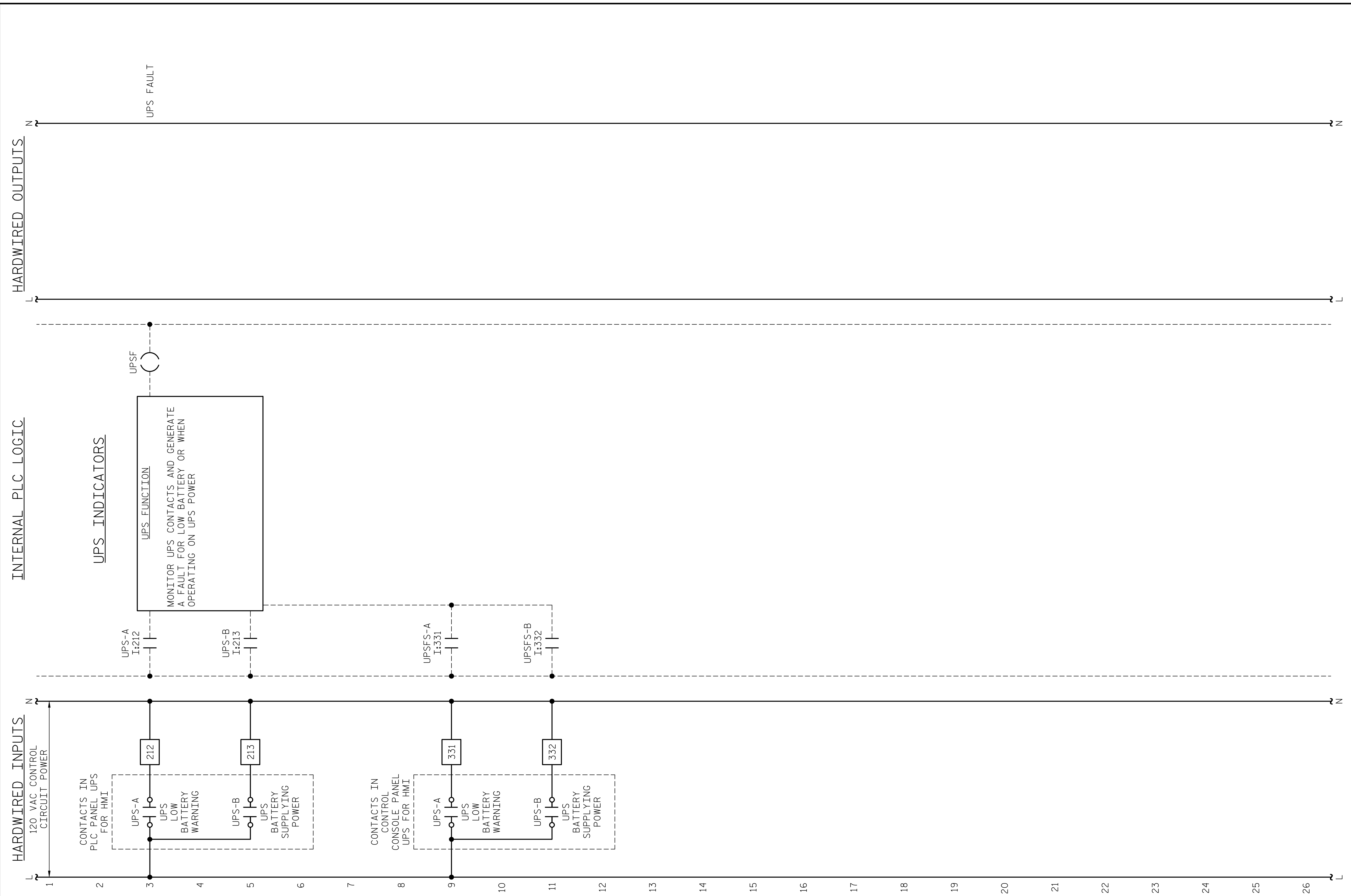
DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 31					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-80
					TOTAL SHEETS 213

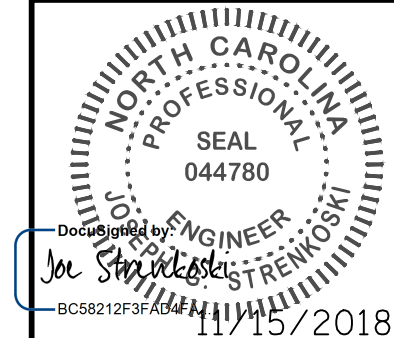
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LAST SAVED 11/15/2018 11:43 AM BY AMBRODOKS... LAST PLOTTED 11/15/2018 12:53 PM.
 FILE: \\mmdc10\p\projects\3682\3\CADD\Electrical\15BPR14_SML\EBL14-0011



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY:	N. K. BHINGE	DATE :	08/06/18
DRAWN BY:	R. L. REED	DATE :	08/08/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 32

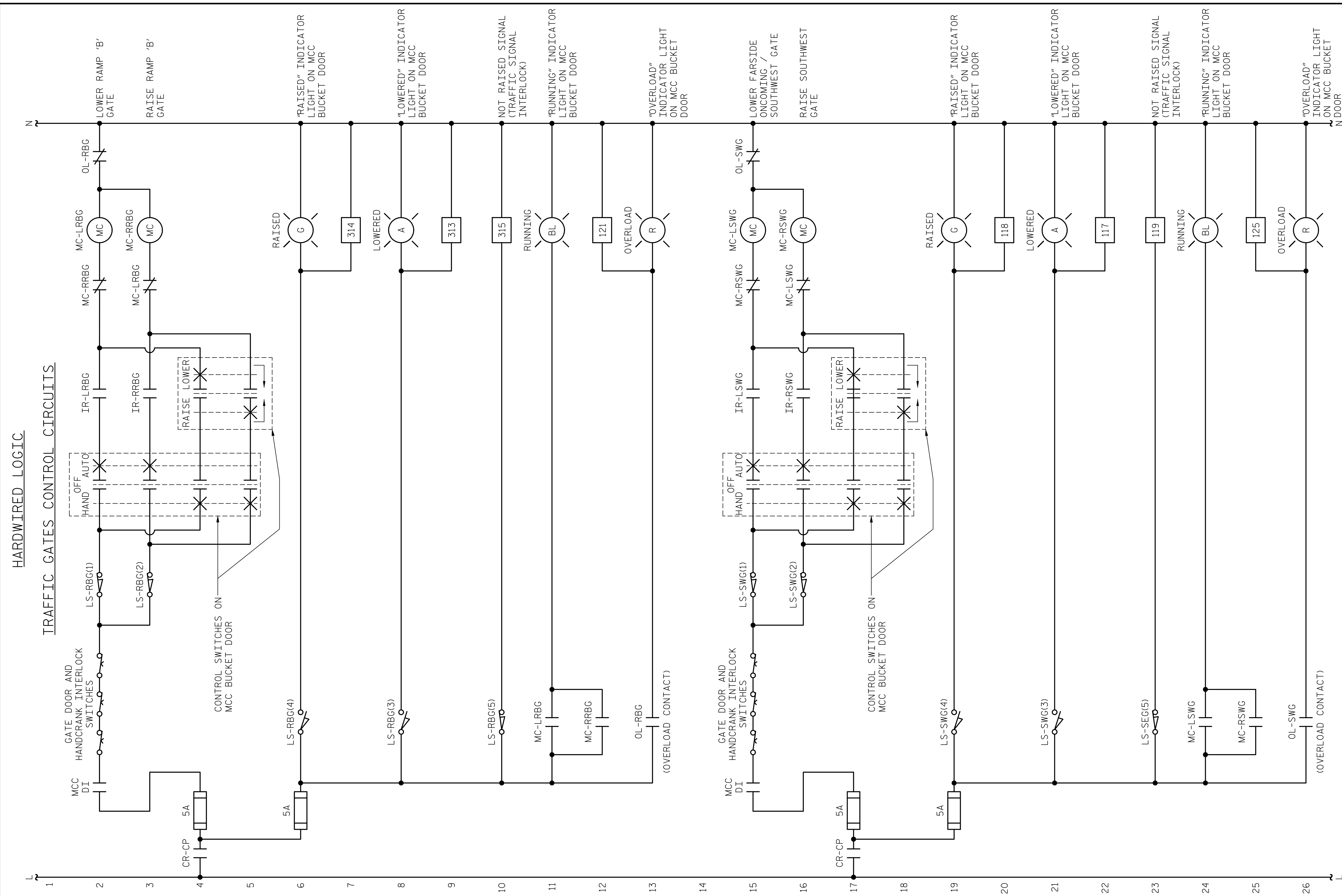
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-81
1			3			TOTAL SHEETS
2			4			213

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LAST SAVED 11/15/2018 11:44 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:53 PM... FILE: \\mcc10\p\projects\3682\3\CADD\Electrical\04_15BPR14_SWL\ER2_640011

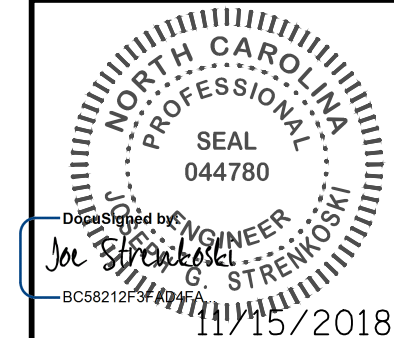


NOTES:

- INSTALL LABELS ON MCC COMPARTMENT DOORS WARNING THAT INDICATOR LIGHT 120VAC POWER COULD STILL BE ENERGIZED WITH DISCONNECT SWITCHED OFF.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



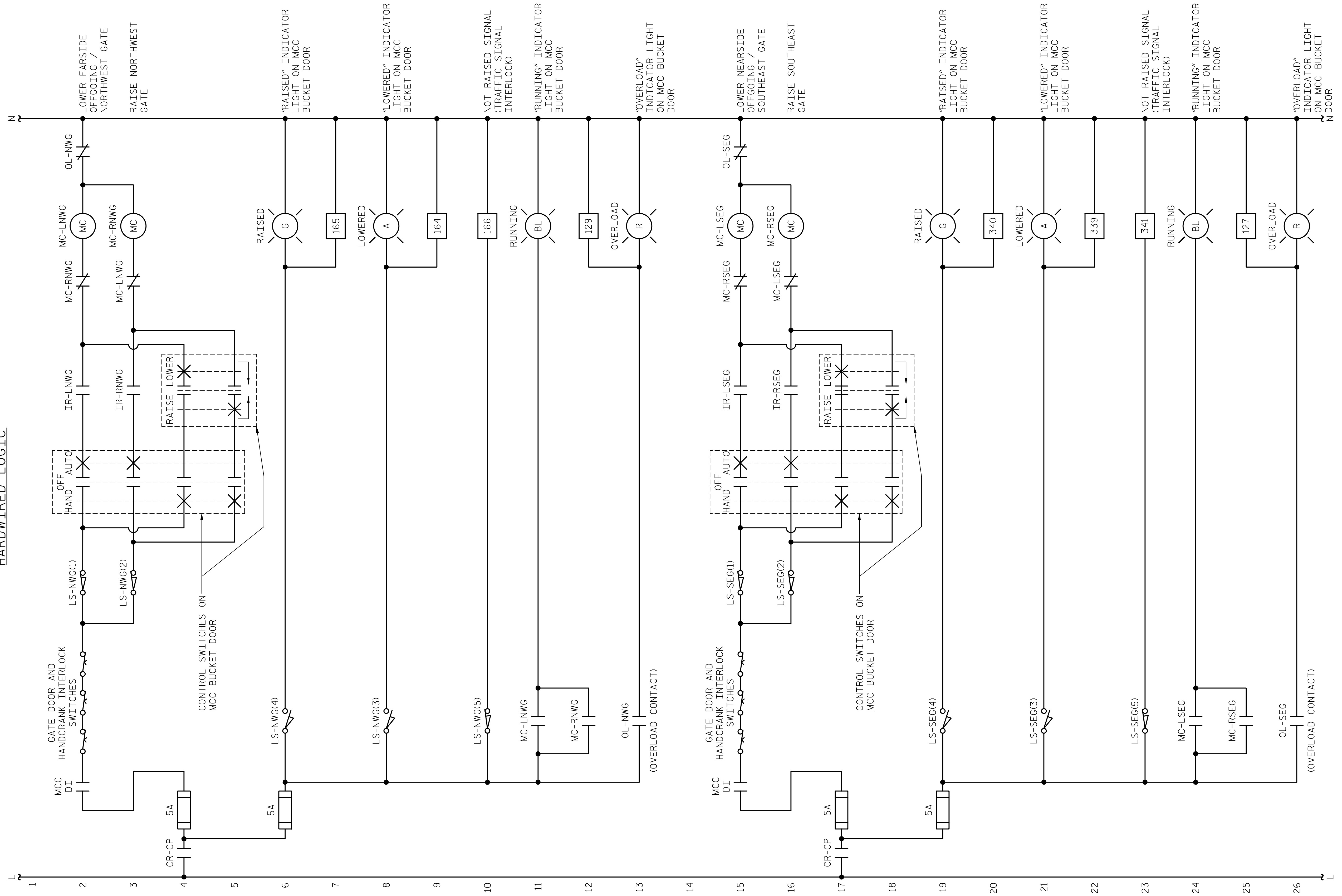
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 33					
NO.		BY:		DATE:	
1					
2					
NO.		BY:		DATE:	
3					
4					
REVISIONS					SHEET NO.
					E-82
					TOTAL SHEETS
					213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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HARDWIRED LOGIC



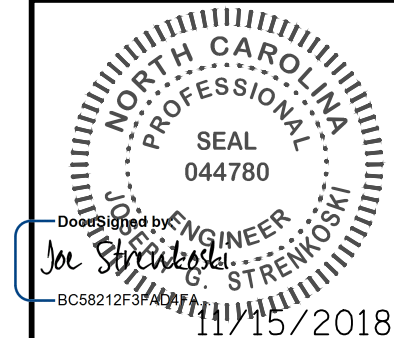
NOTES:

- INSTALL LABELS ON MCC COMPARTMENT DOORS WARNING THAT INDICATOR LIGHT 120VAC POWER COULD STILL BE ENERGIZED WITH DISCONNECT SWITCHED OFF.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:44 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:53 PM.
 FILE: \\mcc101\p\proj\15\3682\3\CADD\Electrical\104_165_15BPR14_SWULEB3_640011

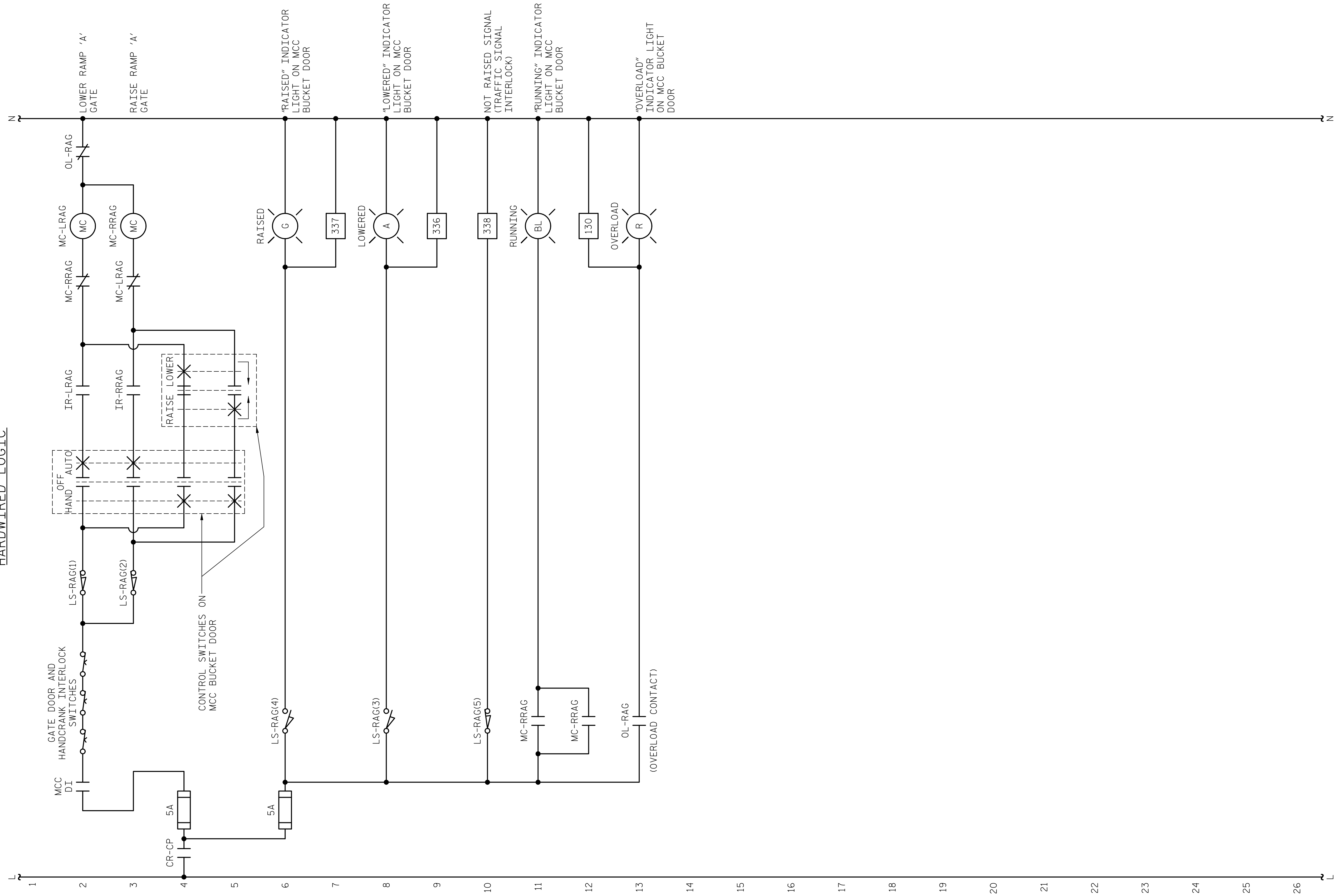
DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 34					
REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

HARDWIRED LOGIC

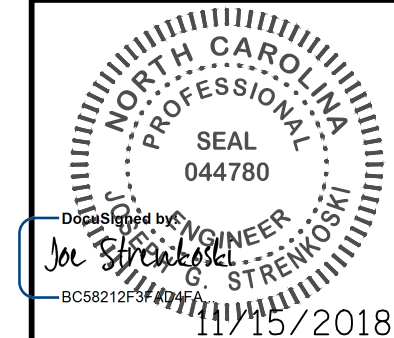


NOTES:
 1. INSTALL LABELS ON MCC COMPARTMENT DOORS WARNING THAT INDICATOR LIGHT 120VAC POWER COULD STILL BE ENERGIZED WITH DISCONNECT SWITCHED OFF.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:44 AM BY AMBROSKI, J. LAST PLOTTED 11/15/2018 12:53 PM.
 FILE: \\mmdc10\p\projects\3682\3\CADD\Electrical\15BPR14_SWLEB4_640011

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

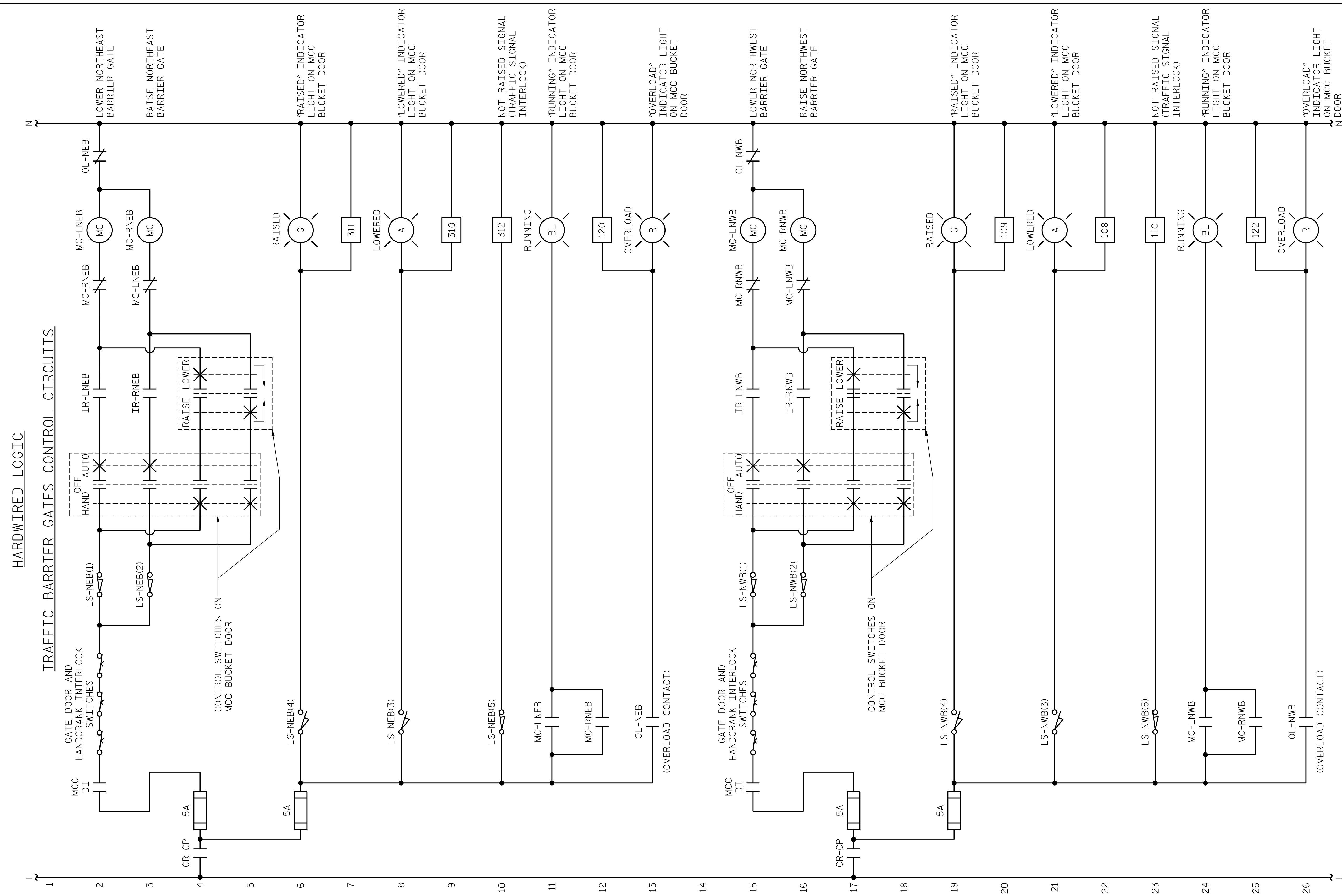


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 35

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-84
1			3			TOTAL SHEETS
2			4			213

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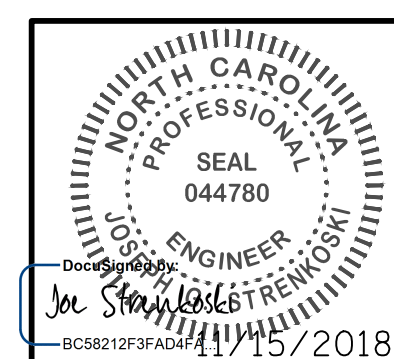
NOTES:

- INSTALL LABELS ON MCC COMPARTMENT DOORS WARNING THAT INDICATOR LIGHT 120VAC POWER COULD STILL BE ENERGIZED WITH DISCONNECT SWITCHED OFF.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

MODJESKI and MASTERS
 Experience great bridges.
 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



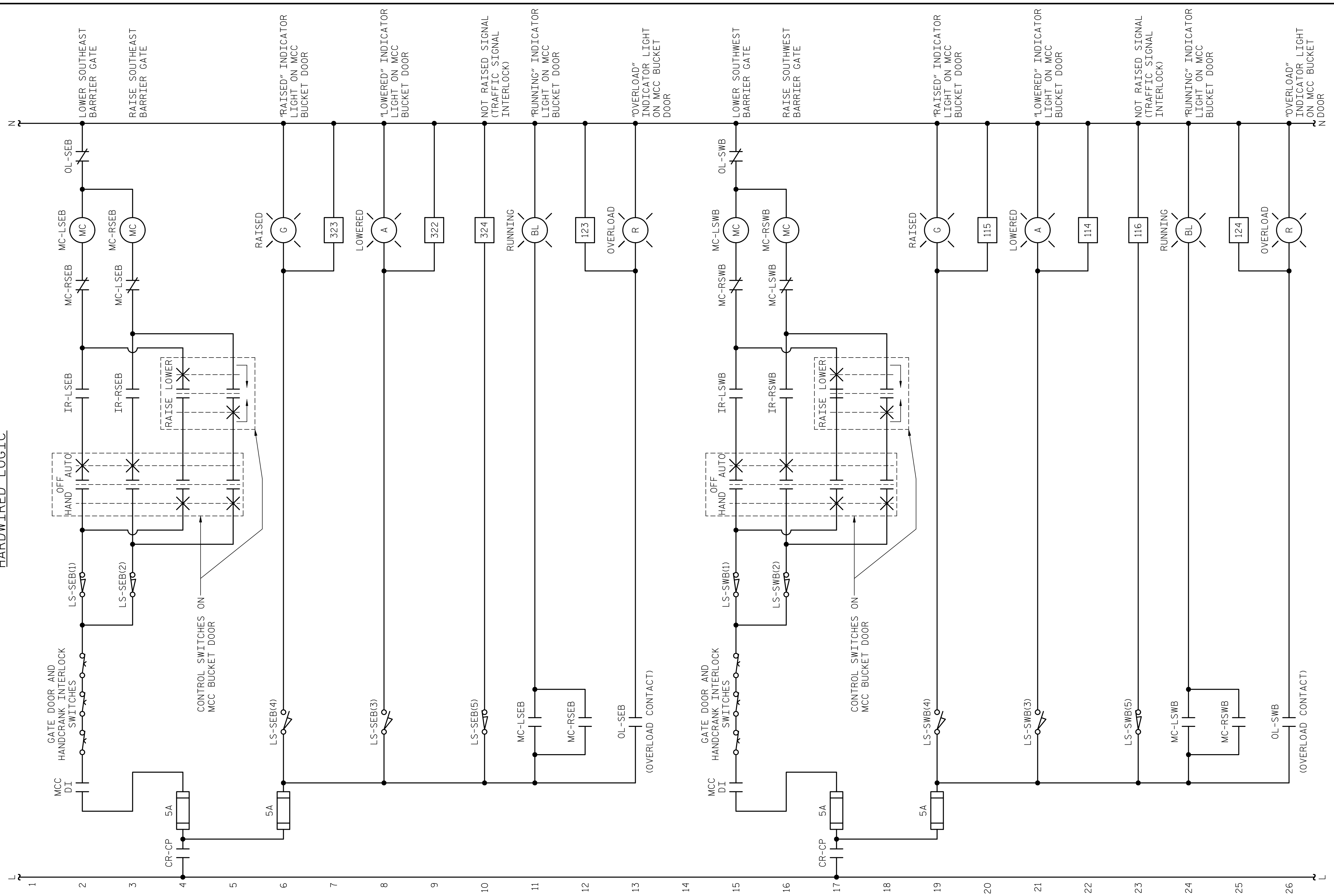
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 36					
REVISIONS			SHEET NO.		
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					E-85
213					

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

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HARDWIRED LOGIC



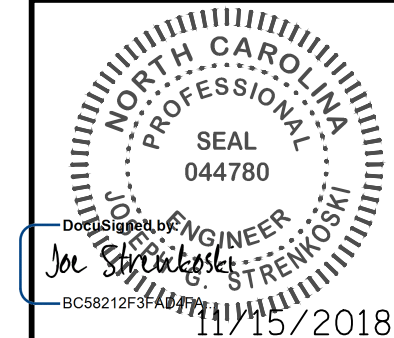
NOTES:

1. INSTALL LABELS ON MCC COMPARTMENT DOORS WARNING THAT INDICATOR LIGHT 120VAC POWER COULD STILL BE ENERGIZED WITH DISCONNECT SWITCHED OFF.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:45 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:53 PM.
 FILE: \\mcc10\p\projects\3682\3\CADD\Electrical\04\171_15BPR14_SML\EB6_640011

DESIGNED BY: N. K. BHINGE DATE: 08/06/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 37

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

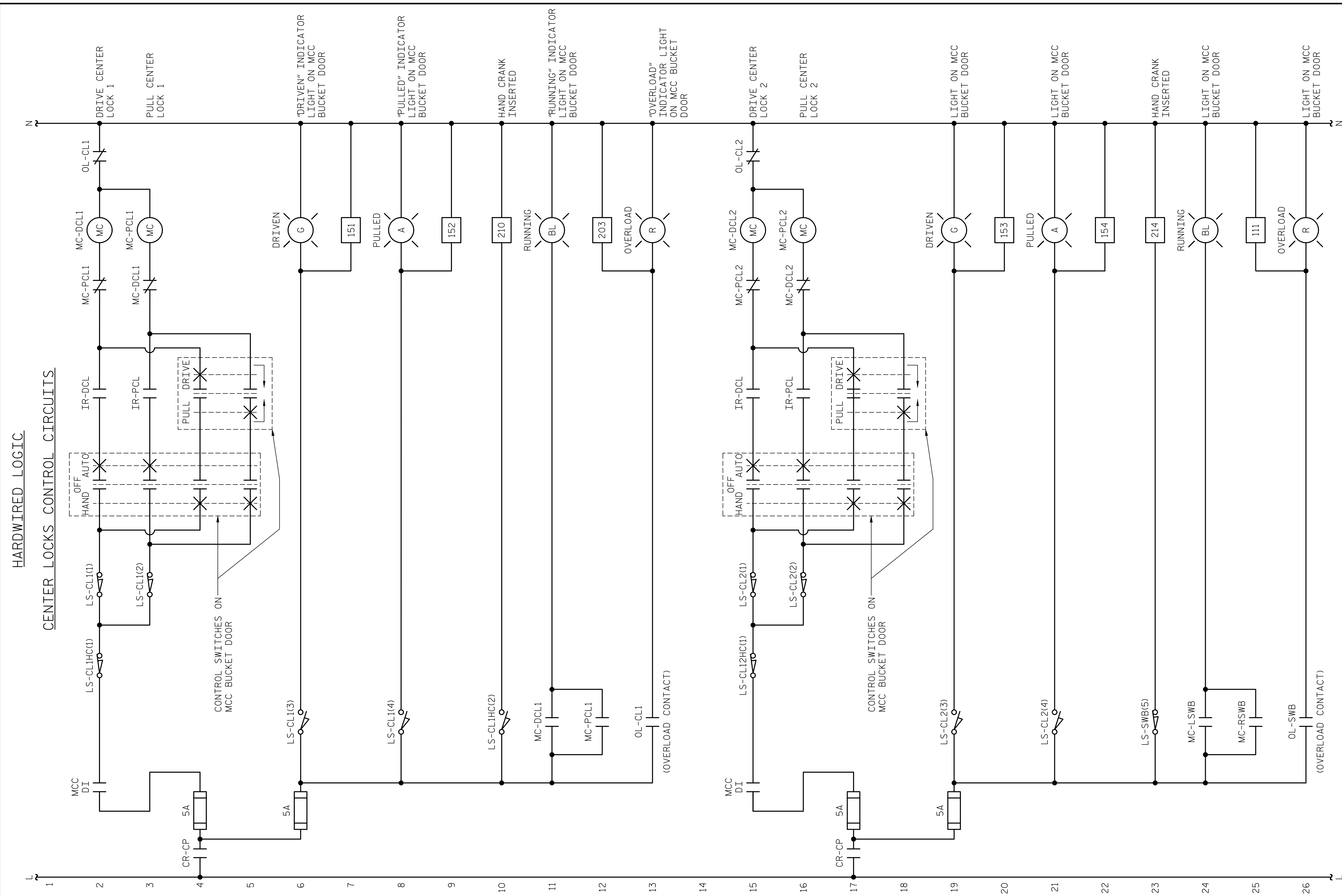
SHEET NO. **E-86**
 TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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LAST SAVED 11/15/2018 11:45 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:54 PM... FILE: \\mmcd101\p\projects\3682\3\CADD\Electrical\04\173\15BPR14_SWL\ER7_640011

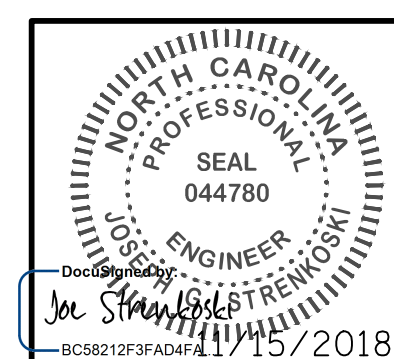


HARDWIRED LOGIC
CENTER LOCKS CONTROL CIRCUITS

NOTES:
1. INSTALL LABELS ON MCC COMPARTMENT DOORS WARNING THAT INDICATOR LIGHT 120VAC POWER COULD STILL BE ENERGIZED WITH DISCONNECT SWITCHED OFF.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION:

DESIGNED BY:	N. K. BHINGE	DATE:	08/06/18
DRAWN BY:	R. L. REED	DATE:	08/08/18
CHECKED BY:	L. V. BORDEN	DATE:	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/15/18



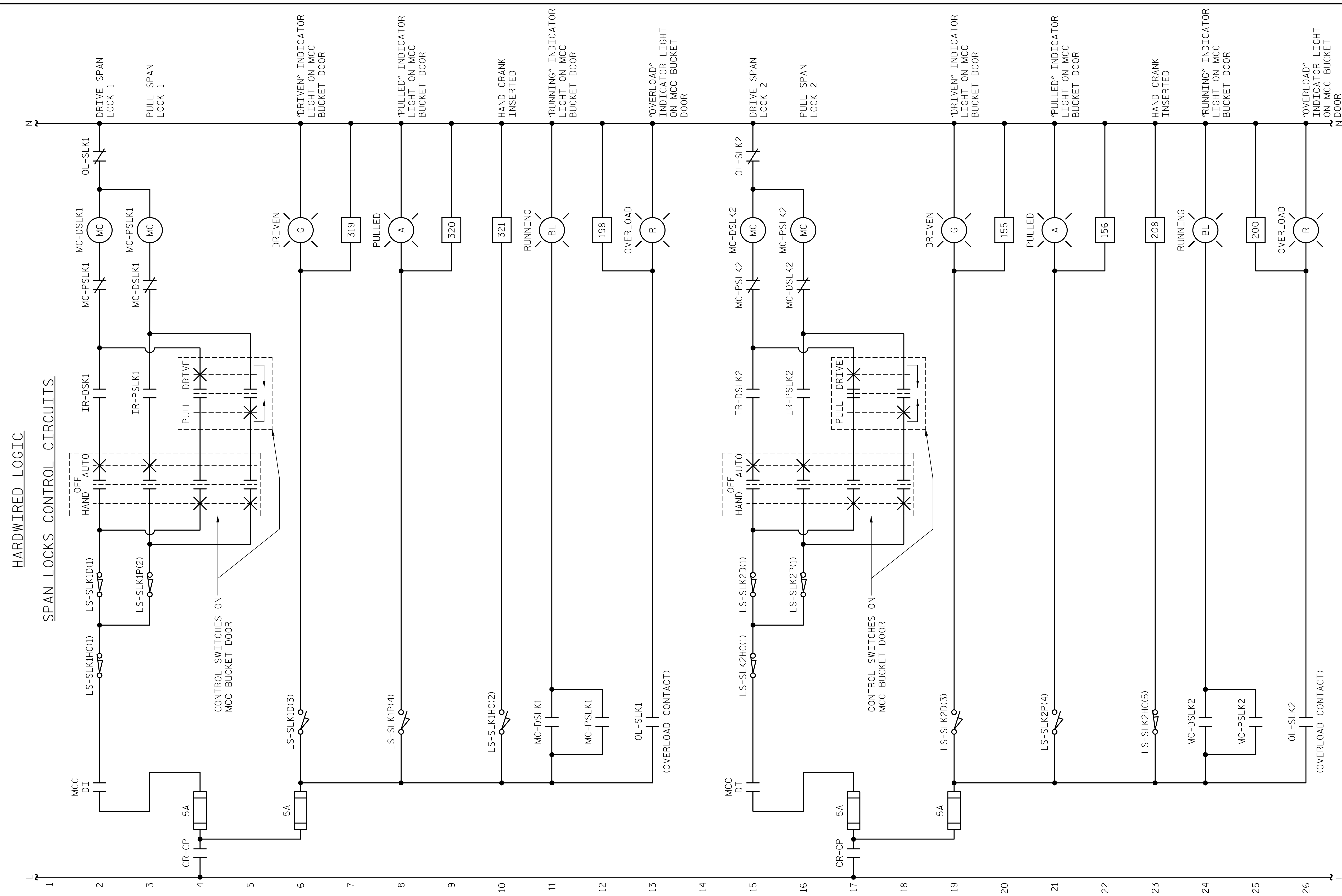
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 38					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-87
					TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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LAST SAVED 11/15/2018 11:46 AM BY AMBRODSKY... LAST PLOTTED 11/15/2018 12:54 PM... FILE: \\mcc\10\Projects\3682\3\CADD\Electrical\404\175\15BPR14_SMULE88_640011

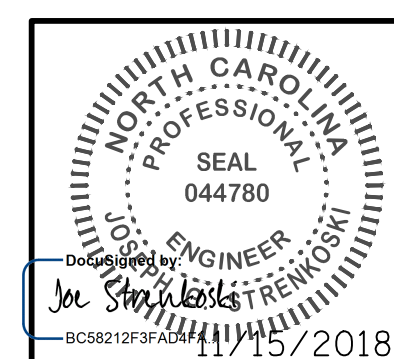


NOTES:

- INSTALL LABELS ON MCC COMPARTMENT DOORS WARNING THAT INDICATOR LIGHT 120VAC POWER COULD STILL BE ENERGIZED WITH DISCONNECT SWITCHED OFF.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/07/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



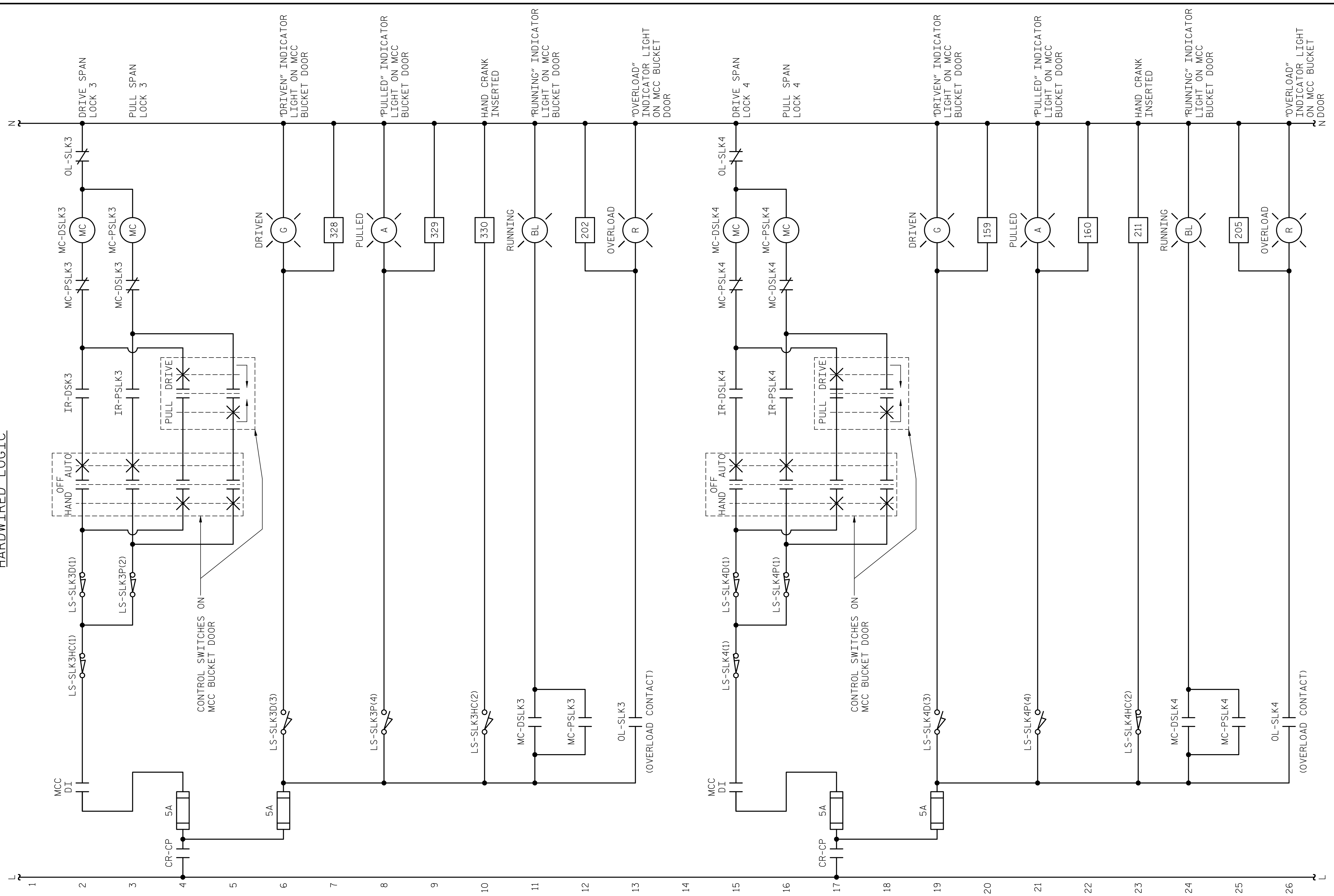
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 39					
SHEET NO. E-88					
TOTAL SHEETS 213					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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HARDWIRED LOGIC



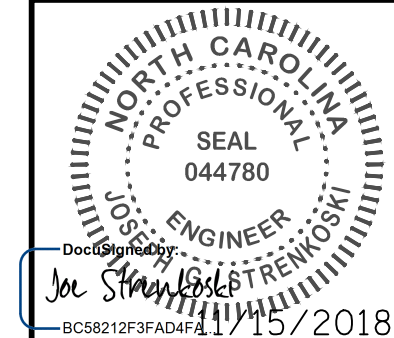
NOTES:

- INSTALL LABELS ON MCC COMPARTMENT DOORS WARNING THAT INDICATOR LIGHT 120VAC POWER COULD STILL BE ENERGIZED WITH DISCONNECT SWITCHED OFF.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 11:46 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 12:54 PM.
 FILE: \\mcc101\projects\3682\3\CADD\Electrical\04\17_15BPR14_SMULE99_640011

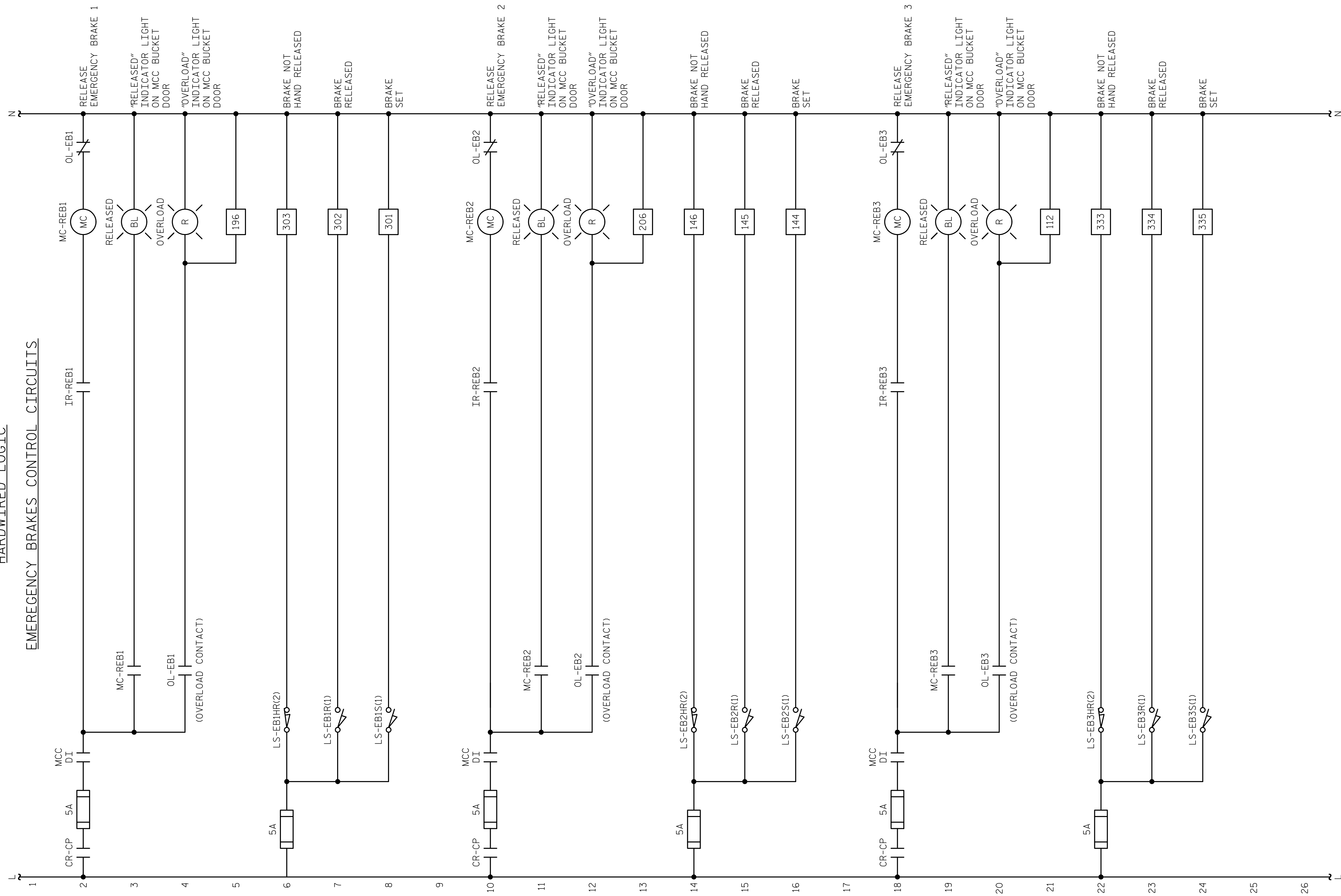
DESIGNED BY: N. K. BHINGE DATE: 08/07/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 40					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. E-89					TOTAL SHEETS 213

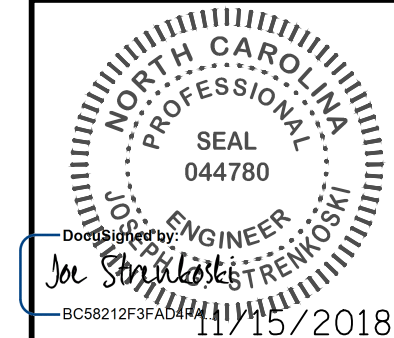
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HARDWIRED LOGIC
EMERGENCY BRAKES CONTROL CIRCUITS



LAST SAVED 11/15/2018 11:46 AM BY AMBROSKY... LAST PLOTTED 11/15/2018 12:54 PM... FILE: \\mcc101\p\projects\3682\3\CADD\Electrical\404\179_15BPR14_SWULE90_640011

DESIGNED BY: N. K. BHINGE DATE: 08/07/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 41					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-90 TOTAL SHEETS 213

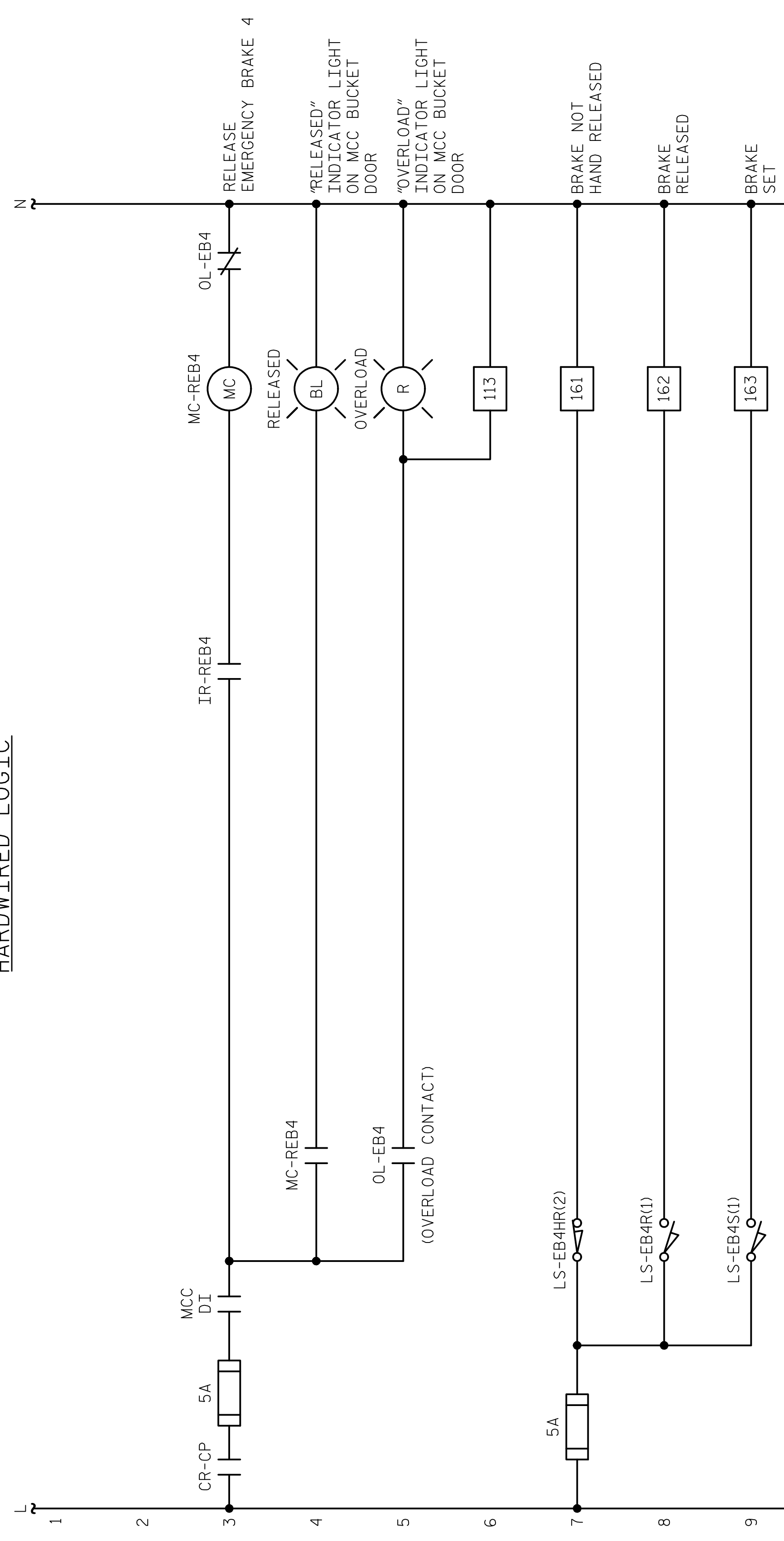
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UNLESS ALL SIGNATURES COMPLETED**

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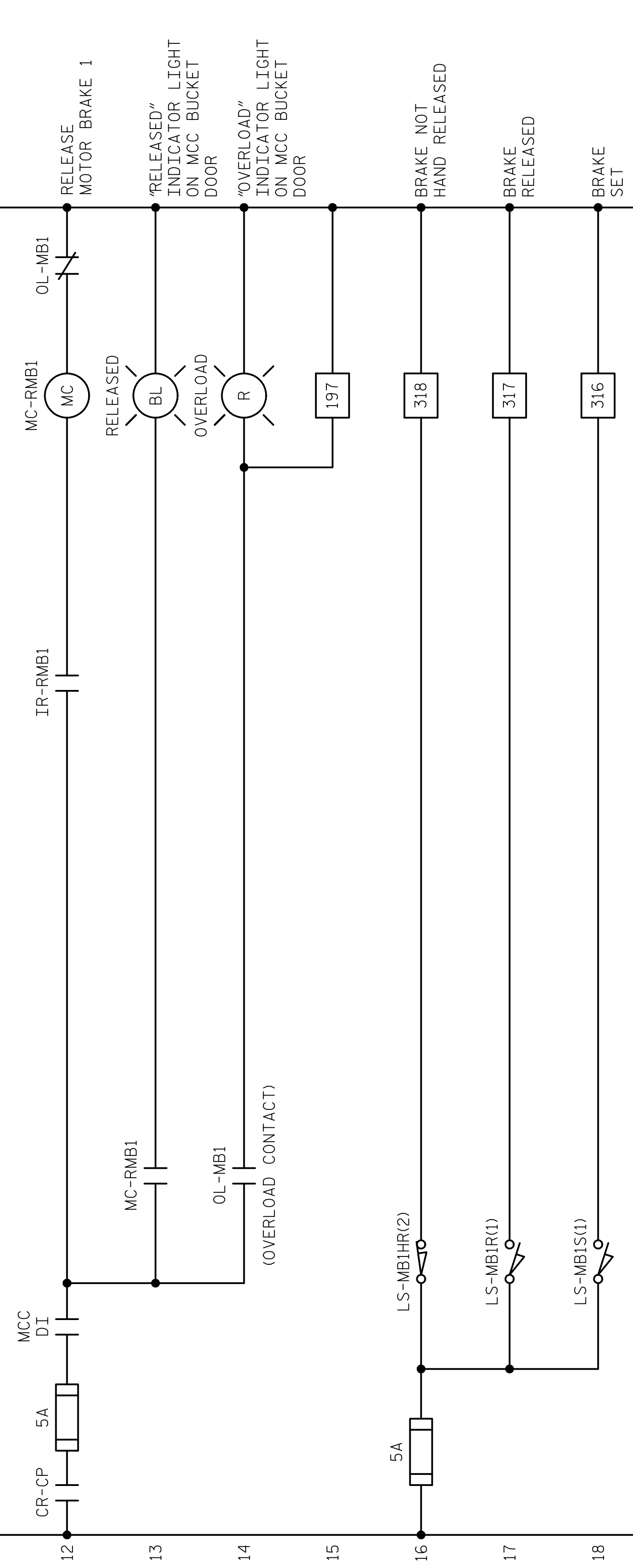
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HARDWIRED LOGIC

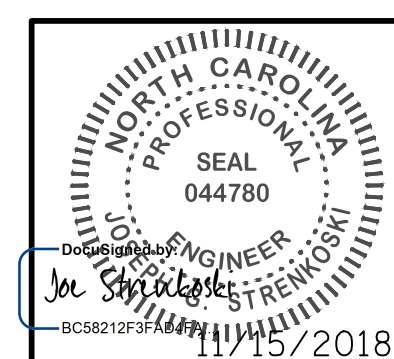


MOTOR BRAKES CONTROL CIRCUITS



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

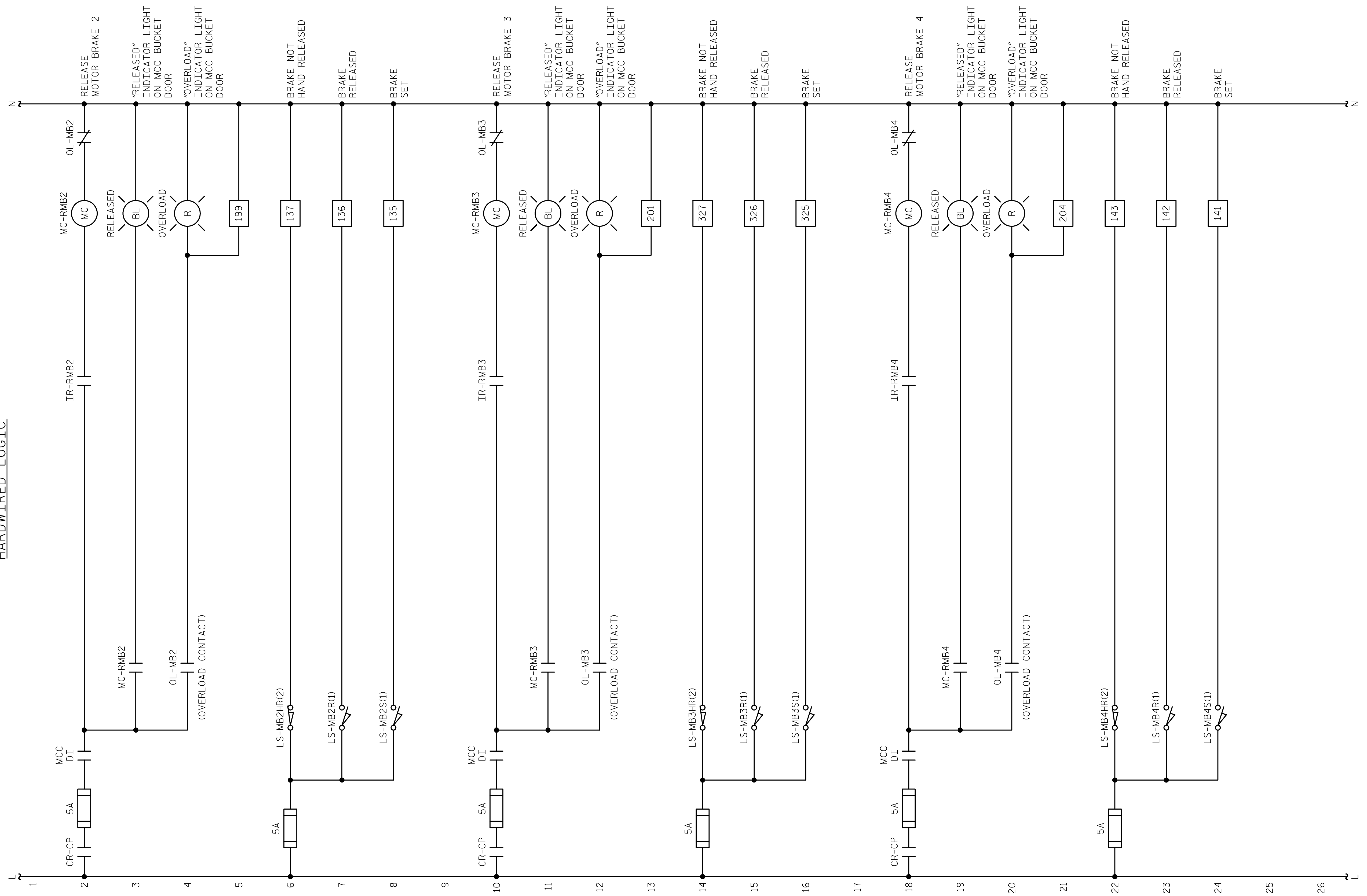
DESIGNED BY: N. K. BHINGE DATE : 08/07/18
 DRAWN BY: R. L. REED DATE : 08/08/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER
 OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 42					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-91 TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

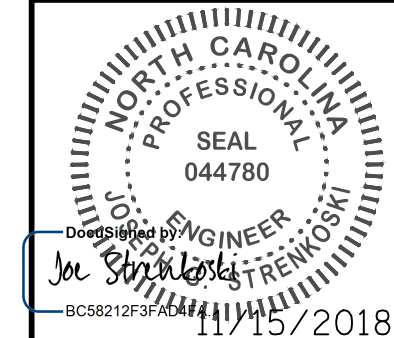
HARDWIRED LOGIC



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

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DESIGNED BY: N. K. BHINGE DATE : 08/07/18
 DRAWN BY: R. L. REED DATE : 08/08/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 43

**DOCUMENT NOT CONSIDERED FINAL
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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-92
1			3			TOTAL SHEETS
2			4			213

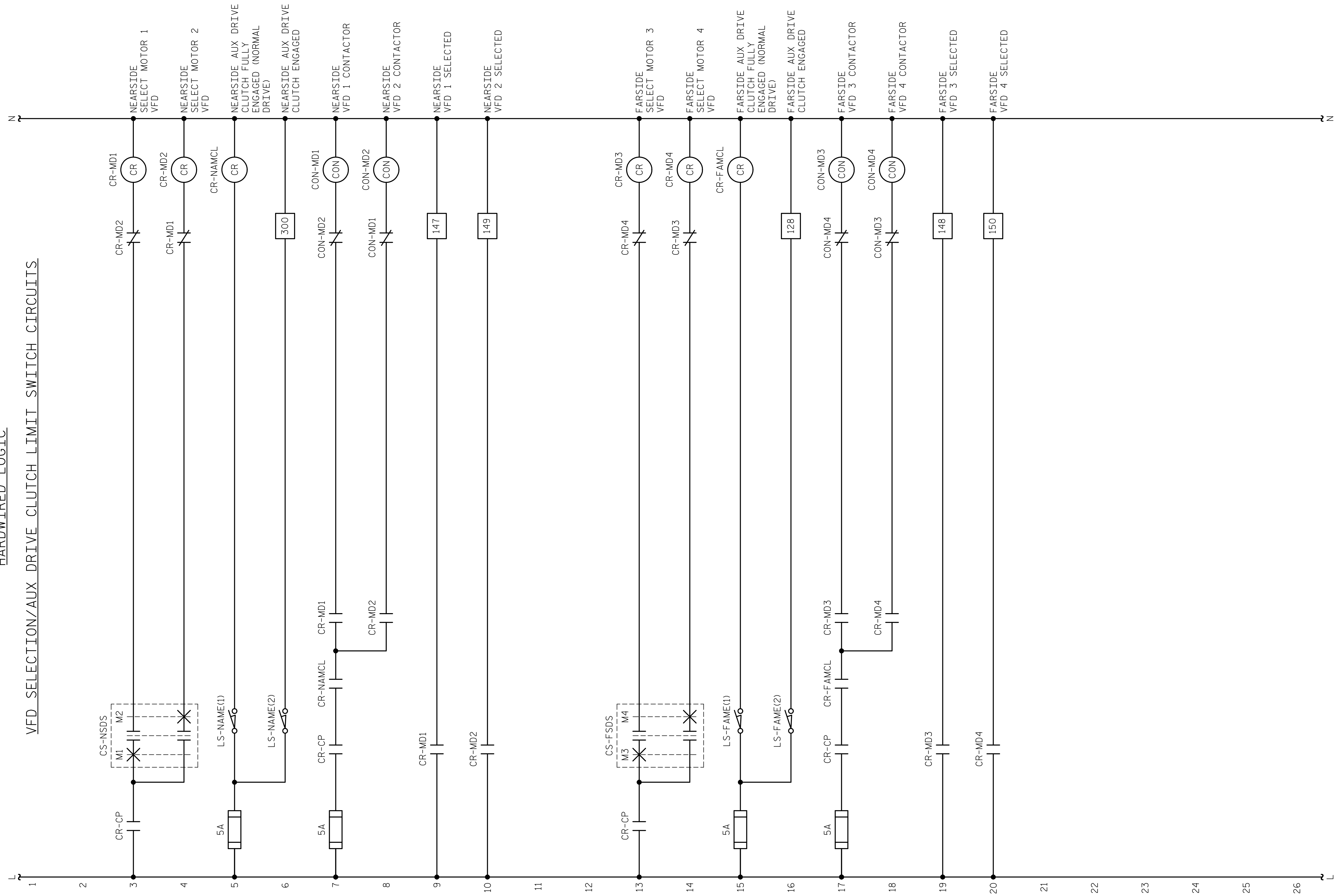
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LAST SAVED 11/15/2018 11:47 AM BY AMBROSKIY... LAST PLOTTED 11/15/2018 12:55 PM.
FILE: \\mmcd101\p\objects\3682\3\CADD\Electrical\404_185_15BPR14_SWULE93_64001

HARDWIRED LOGIC

VFD SELECTION/AUX DRIVE CLUTCH LIMIT SWITCH CIRCUITS

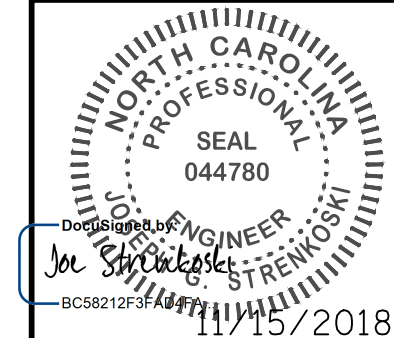


NOTES:

- VFD SELECTION CONTACTORS SHALL BE MECHANICALLY AND ELECTRICALLY INTERLOCKED SO THAT ONLY ONE DRIVE ON EACH LEAF CAN BE SELECTED AT A TIME.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY:	N. K. BHINGE	DATE :	08/07/18
DRAWN BY:	R. L. REED	DATE :	08/08/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 44					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-93
					TOTAL SHEETS 213

**DOCUMENT NOT CONSIDERED FINAL
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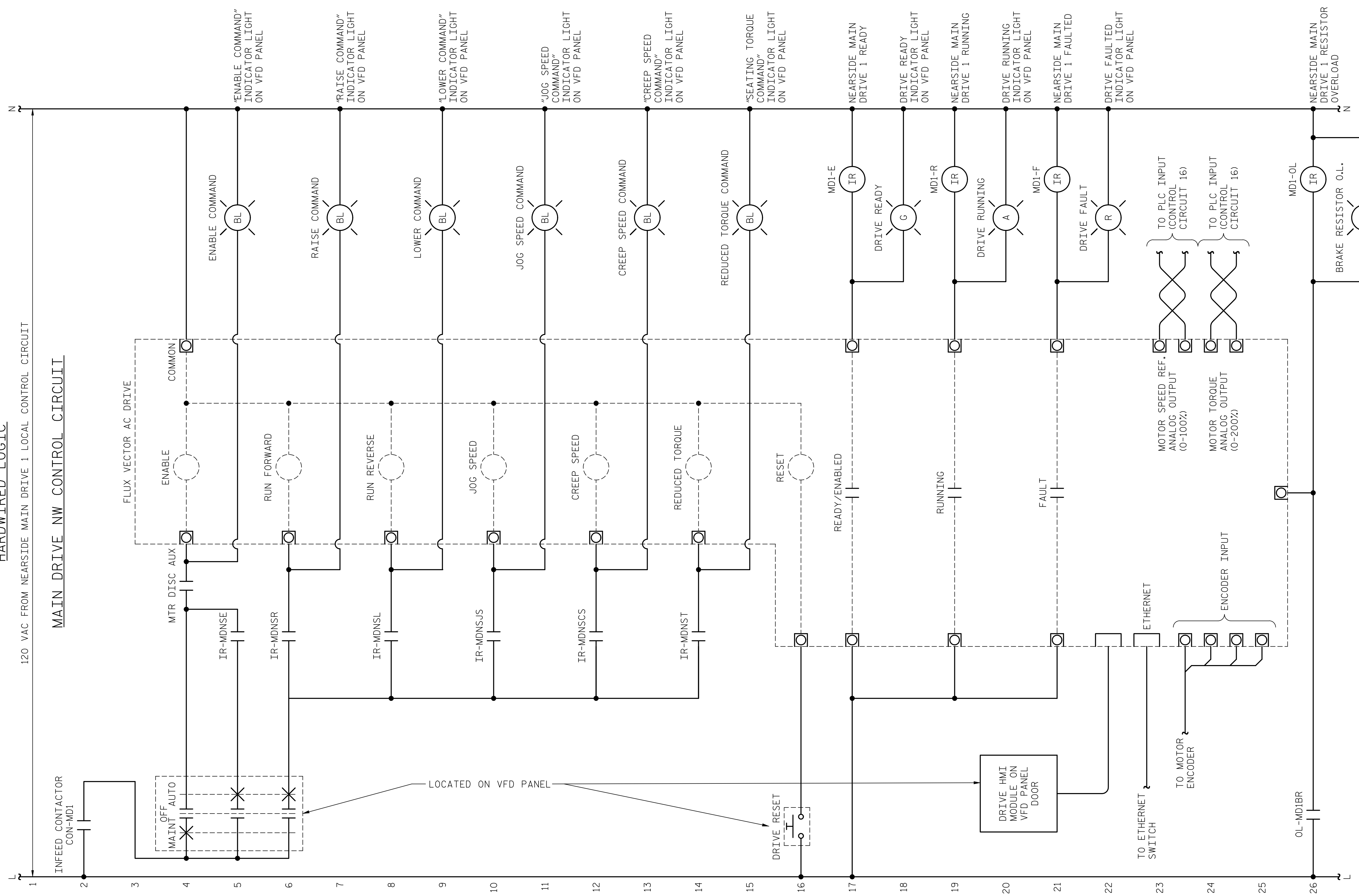
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HARDWIRED LOGIC

120 VAC FROM NEARSIDE MAIN DRIVE 1 LOCAL CONTROL CIRCUIT

MAIN DRIVE NW CONTROL CIRCUIT



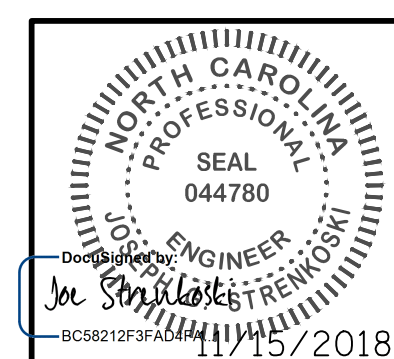
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

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DESIGNED BY: N. K. BHINGE DATE: 08/07/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONTROL CIRCUIT - 45

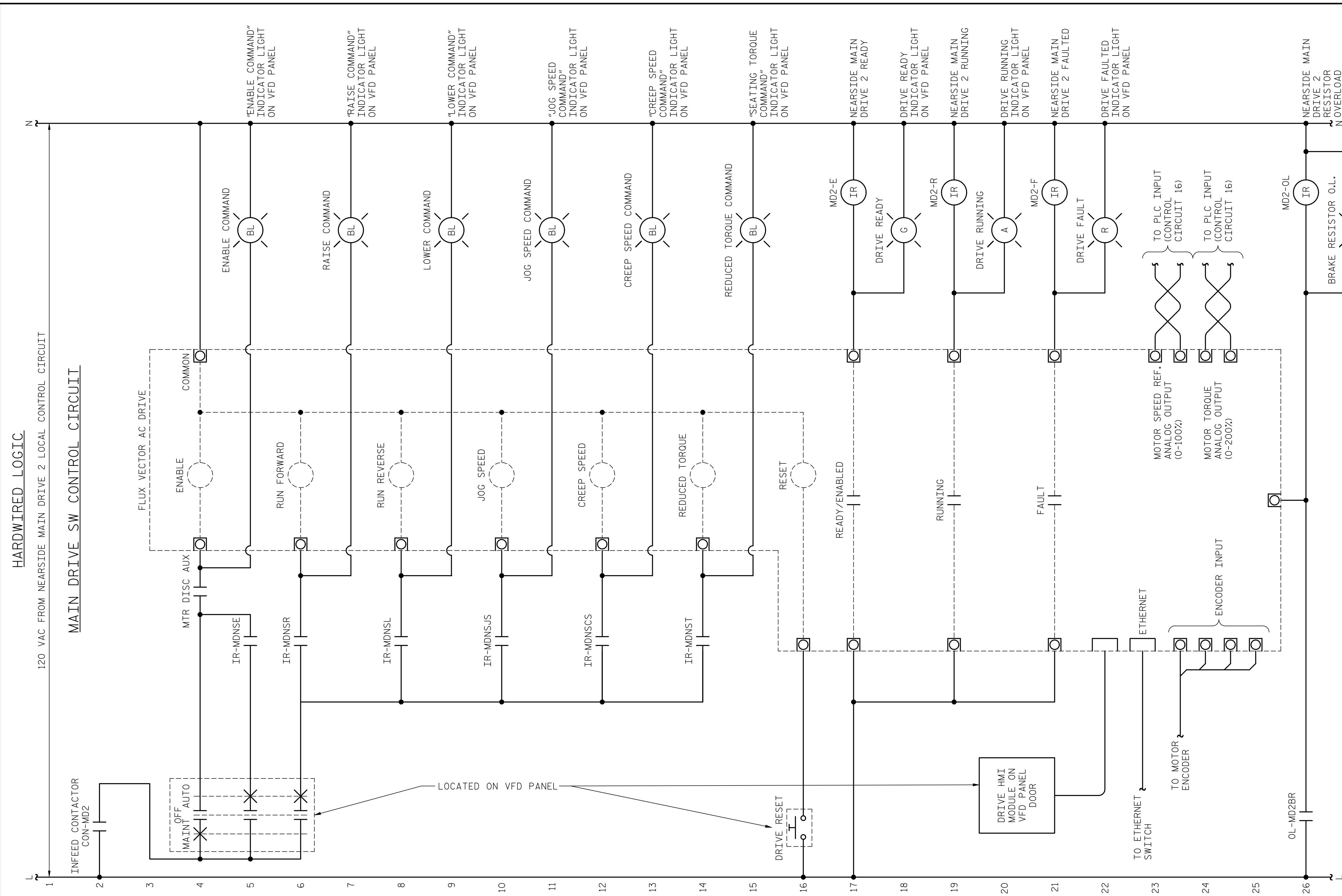
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 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	E-94	
1			3			TOTAL SHEETS	
2			4			213	

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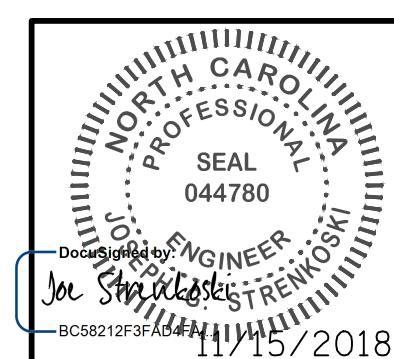
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PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE: 08/07/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 46					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
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2			4		
SHEET NO. E-95					TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

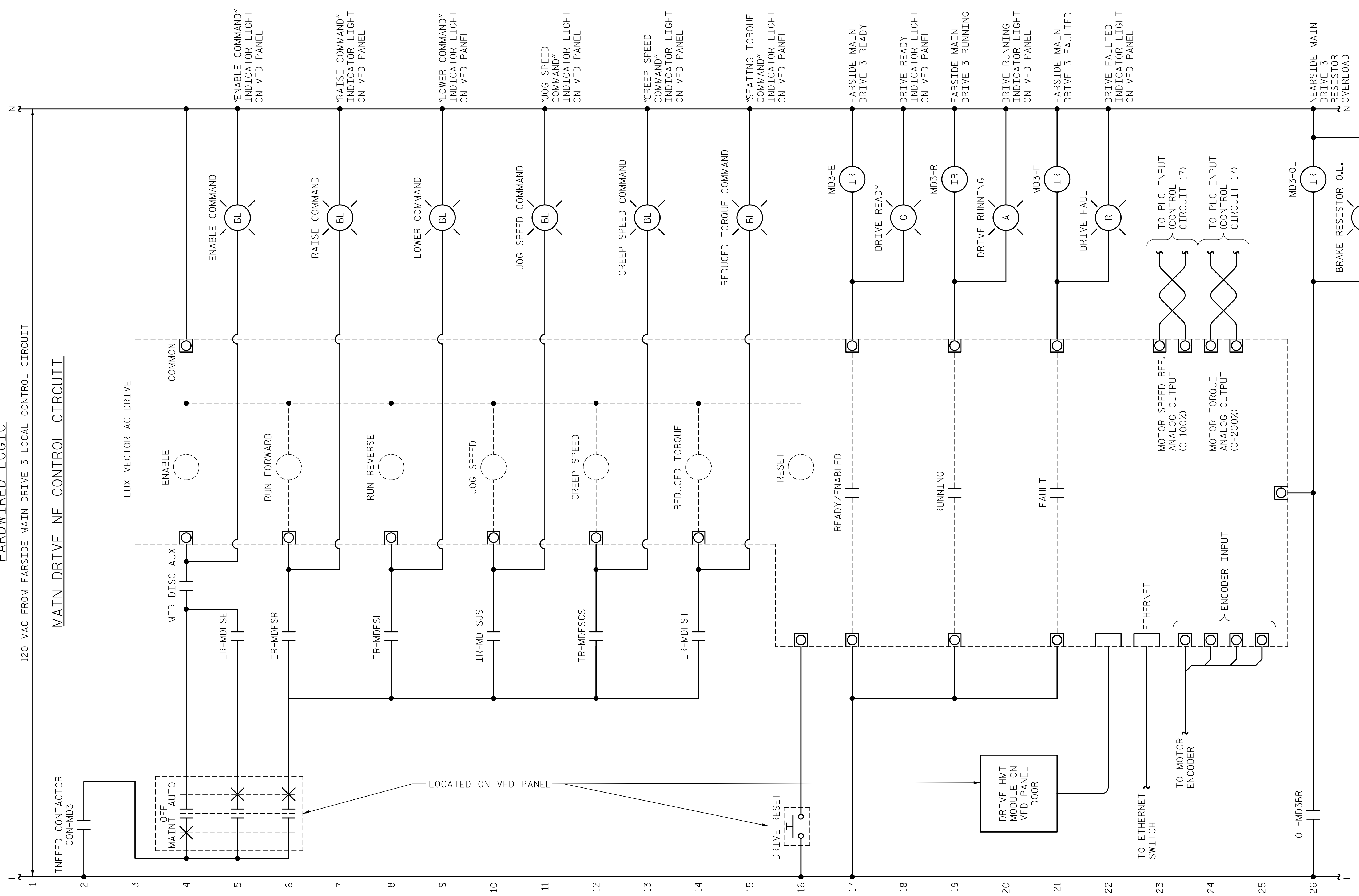
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HARDWIRED LOGIC

120 VAC FROM FARMSIDE MAIN DRIVE 3 LOCAL CONTROL CIRCUIT

MAIN DRIVE NE CONTROL CIRCUIT



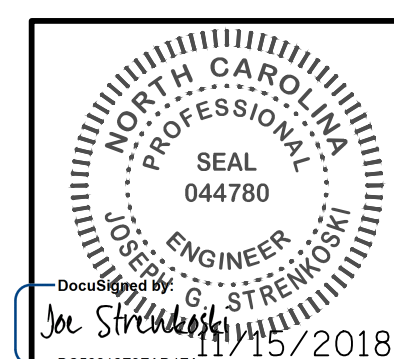
PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

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DESIGNED BY: N. K. BHINGE DATE: 08/07/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



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 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONTROL CIRCUIT - 47

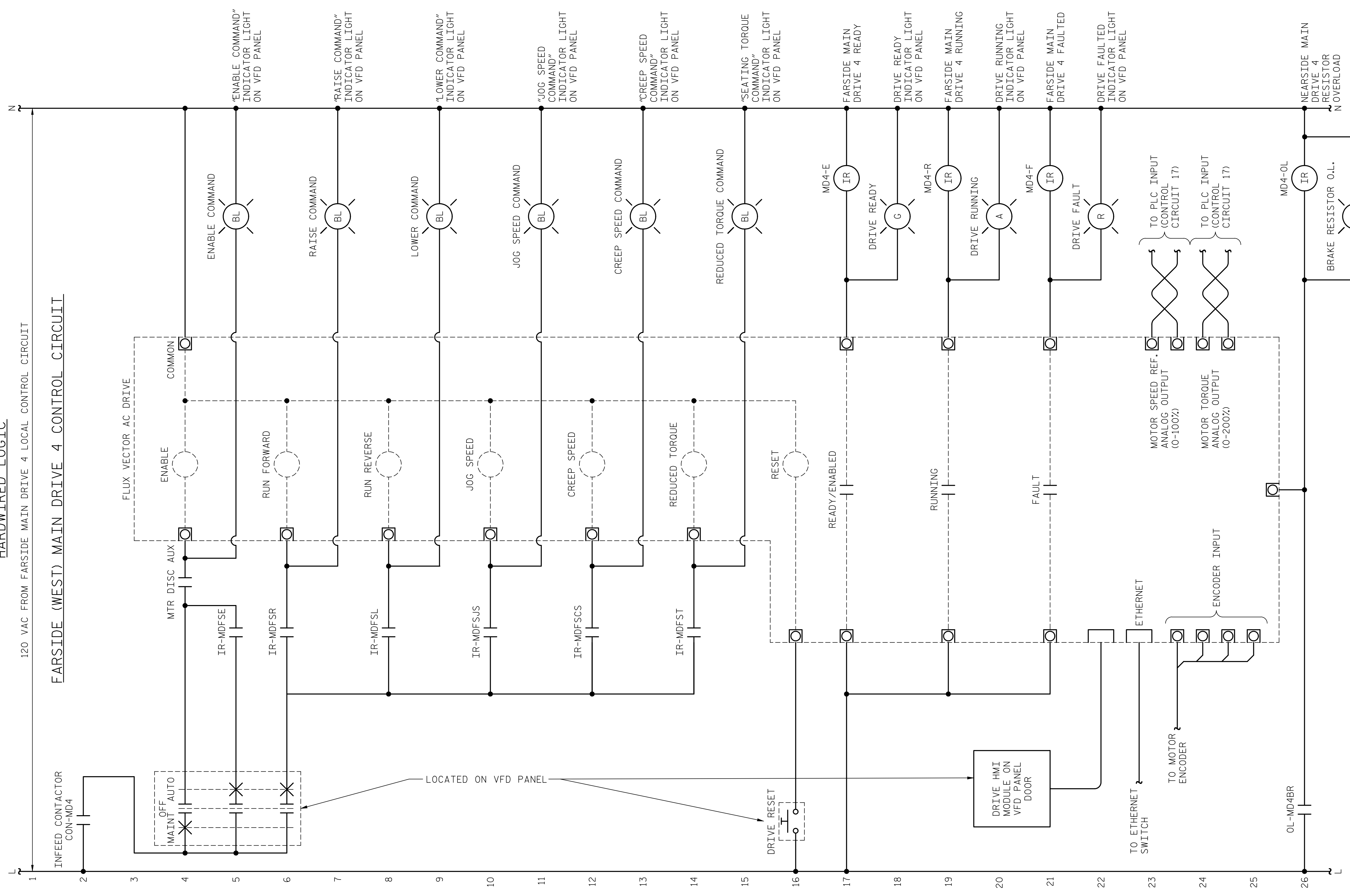
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 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	E-96	
1			3			TOTAL SHEETS	
2			4			213	

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+

HARDWIRED LOGIC



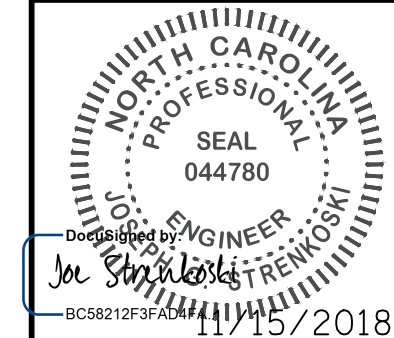
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DESIGNED BY: N. K. BHINGE DATE: 08/07/18
 DRAWN BY: R. L. REED DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



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 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

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PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 48					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. E-97					TOTAL SHEETS 213

HARDWIRED LOGIC

MAIN DRIVE SETTINGS AND NOTES (TYP FOR ALL)

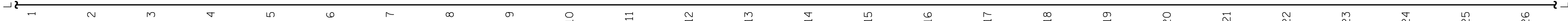
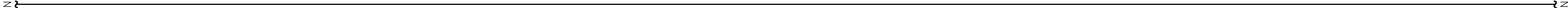
DRIVE SETTINGS

ACCELERATION TIME	10 SECONDS
DECELERATION TIME	10 SECONDS
STOP MODE	COAST
AUTO START	FALSE
AUTO RESTART	FALSE
MOTOR STALL TIME	20 SECONDS
MAXIMUM TORQUE LIMIT	150% MOTOR RATED

NOTE: ALL SETTINGS WILL REQUIRE ADJUSTMENT IN THE FIELD.

NOTES:

1. INDICATOR LIGHTS SHALL BE MOUNTED ON THE VFD PANEL AND SHALL BE PUSH-TO-TEST TYPE. (R)
2. MAINTENANCE MODE IS INTENDED TO BE USED FOR SETUP AND TESTING WITH THE DRIVE HMI UNIT.
3. SPEED SETTINGS FOR NORMAL, JOG, AND CREEP SHALL BE PROGRAMMED INTO THE DRIVE. THE DRIVE SHALL BE PROGRAMMED OR CONFIGURED TO FAULT IF THE ENCODER FEEDBACK IS LOST DURING OPERATION.
4. THE DRIVE ETHERNET CONNECTION IS INTENDED TO ALLOW THE PLC TO ACCESS DRIVE FAULT MESSAGES, DRIVE DATA, AND DRIVE OPERATING CONDITIONS. NO CONTROL OPERATIONS SHALL BE PERFORMED USING THIS CONNECTION.



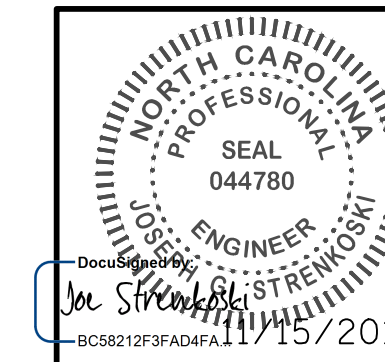
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE : 08/07/18
 DRAWN BY: R. L. REED DATE : 08/08/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



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 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

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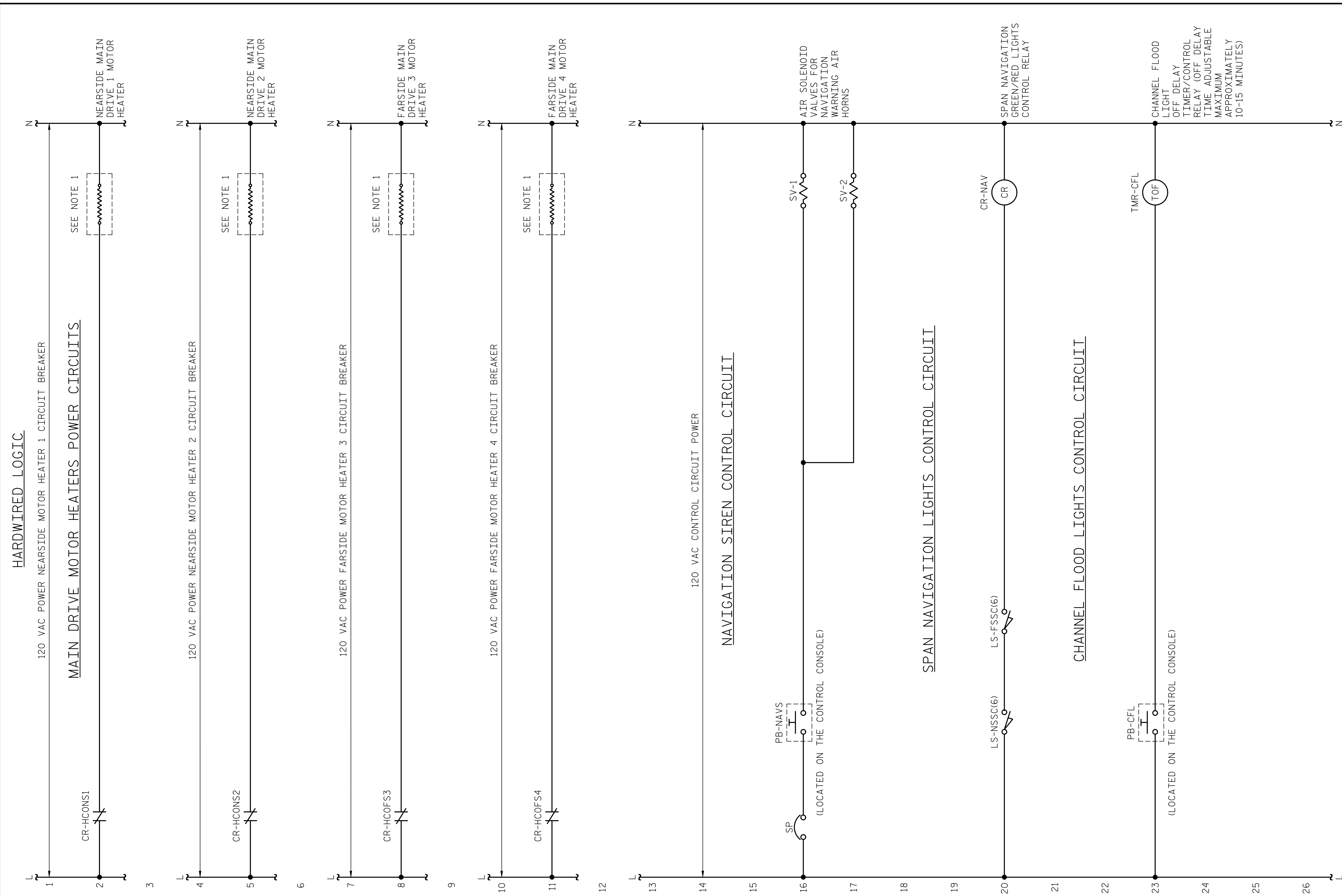
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONTROL CIRCUIT - 49

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-98
1			3			TOTAL SHEETS
2			4			213

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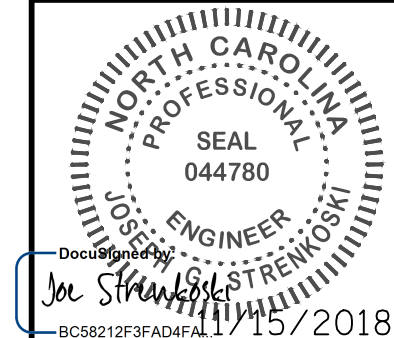


NOTES:

1. A LABEL SHALL BE PLACED AT EACH MOTOR TO INDICATE THAT THE MOTOR HEATER CIRCUIT MAY STILL BE ENERGIZED WHEN THE POWER TO THE MOTOR IS SWITCHED OFF. THE PANEL NAME AND THE HEATER CIRCUIT NUMBER SHALL APPEAR ON THE LABEL.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: N. K. BHINGE DATE : 08/07/18
 DRAWN BY: R. L. REED DATE : 08/08/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



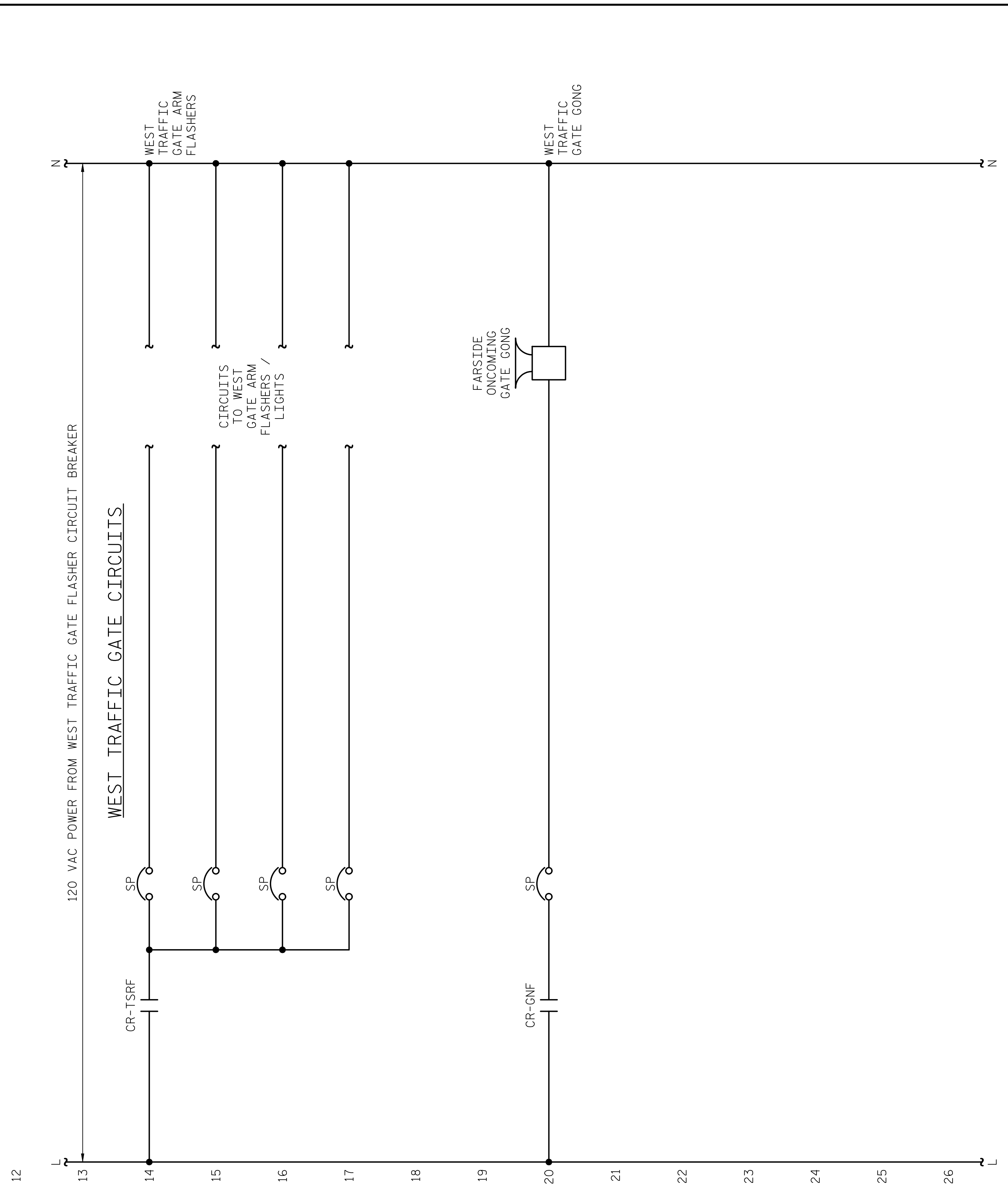
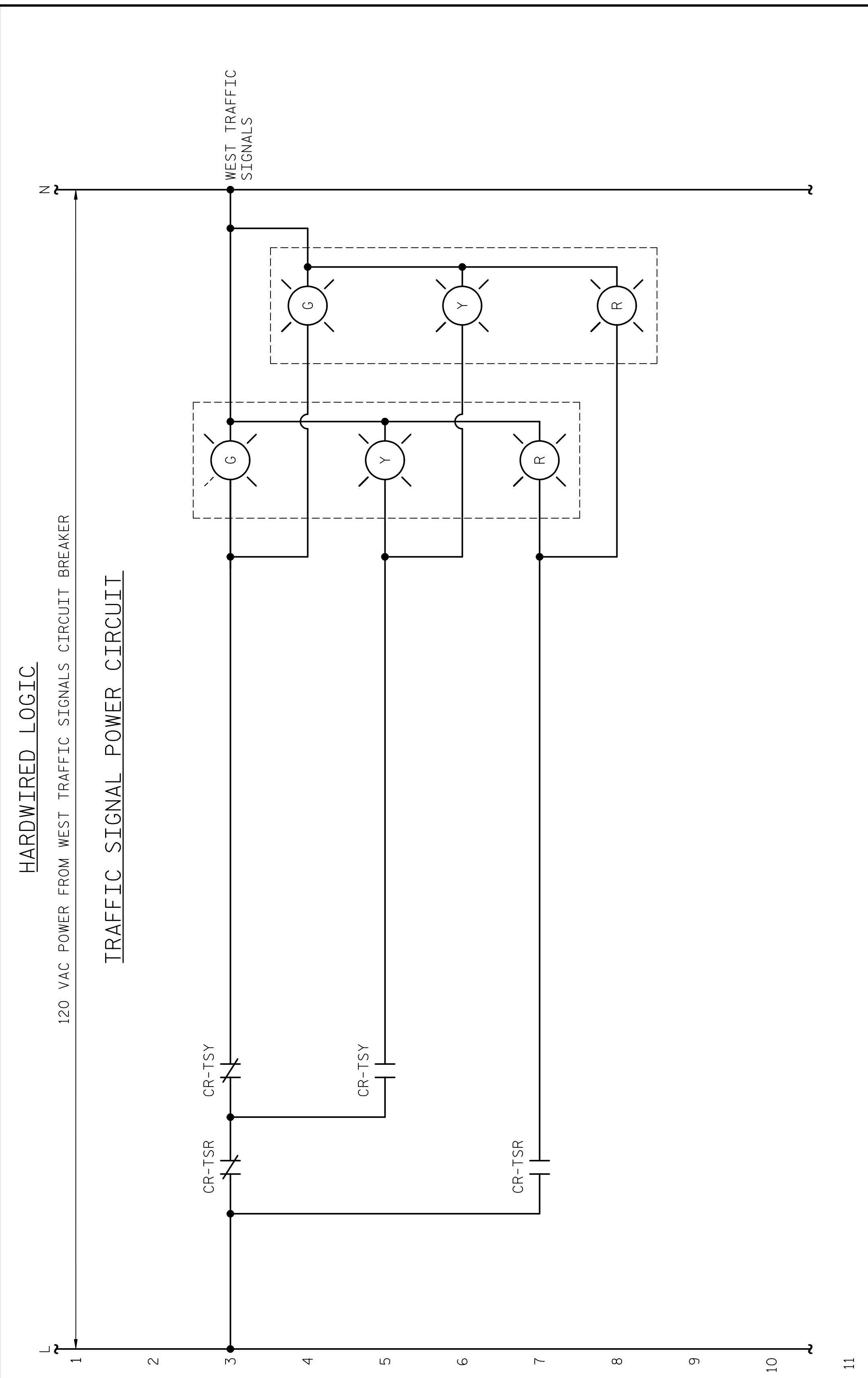
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 50					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. <u>E-99</u>					TOTAL SHEETS <u>213</u>

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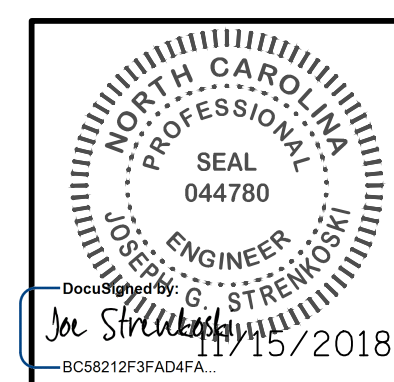
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PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY:	N. K. BHINGE	DATE :	08/07/18
DRAWN BY:	R. L. REED	DATE :	08/08/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



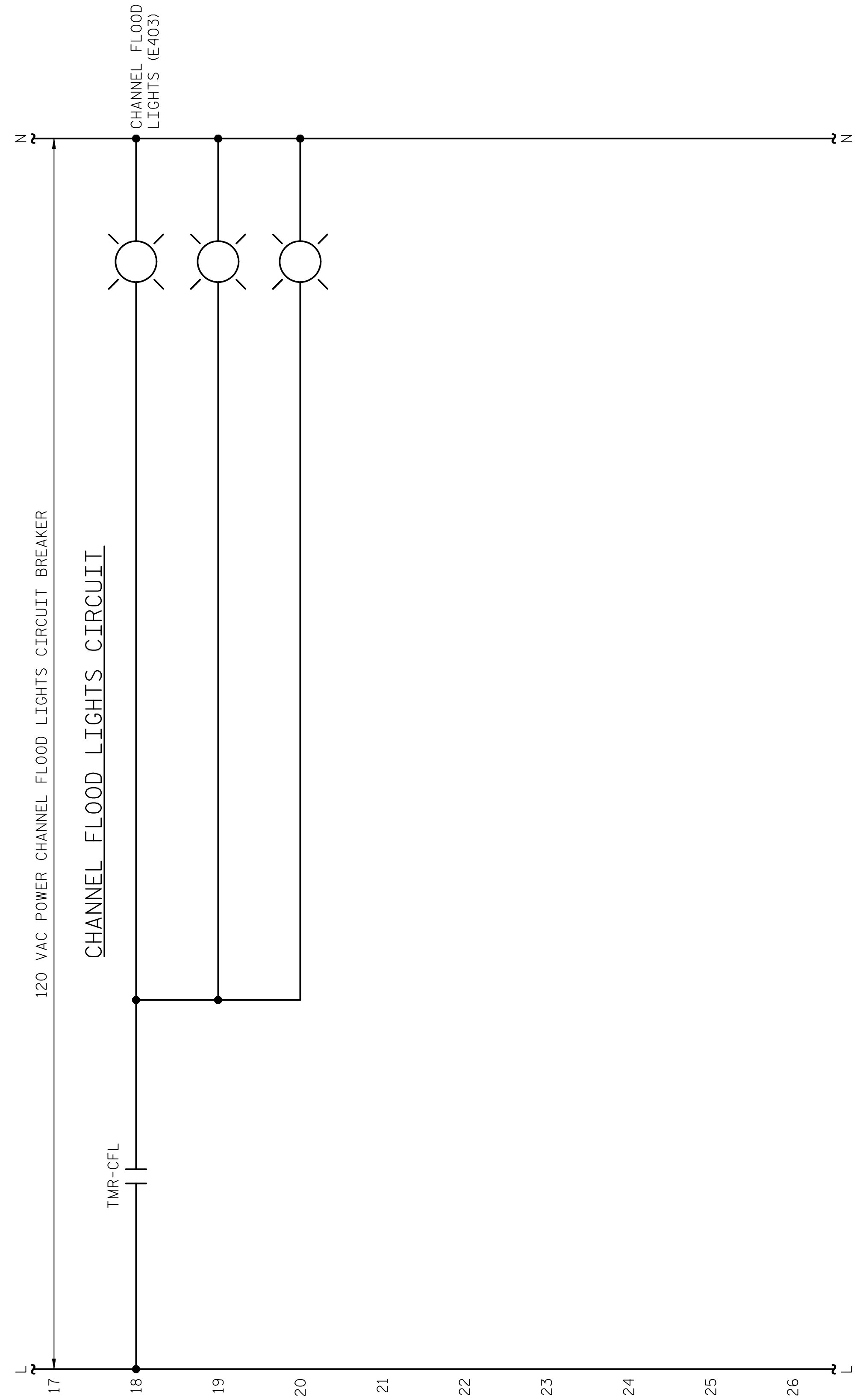
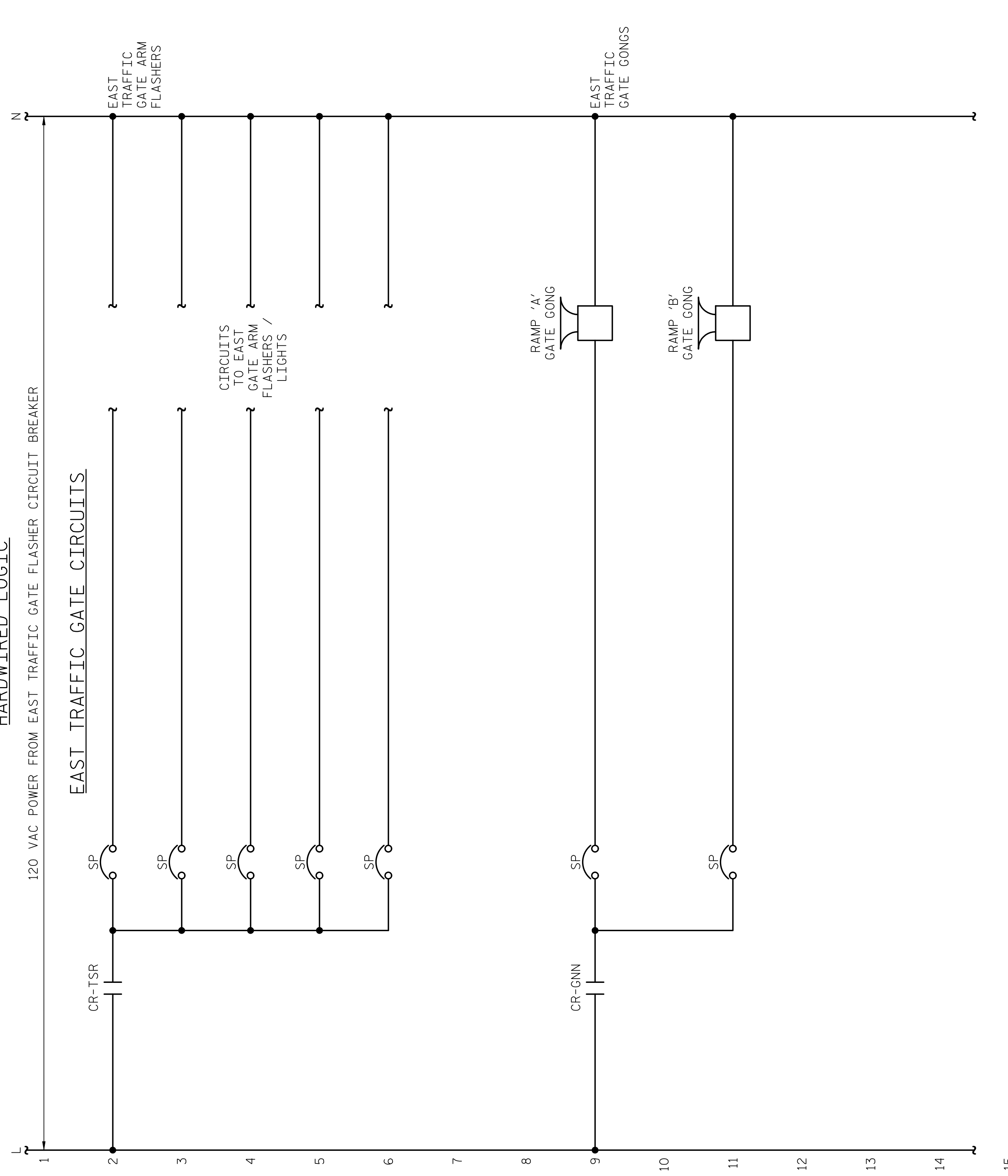
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL CIRCUIT - 51

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

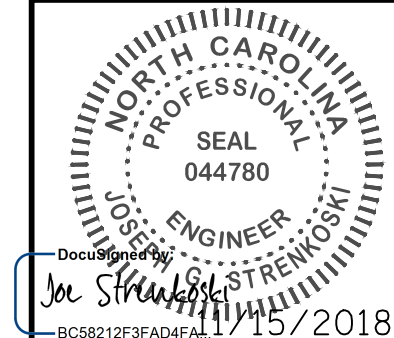
SHEET NO.	E-100
TOTAL SHEETS	213

HARDWIRED LOGIC



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DESIGNED BY: N. K. BHINGE DATE : 08/07/18
 DRAWN BY: R. L. REED DATE : 08/08/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONTROL CIRCUIT - 52					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
TOTAL SHEETS					E-101
					213

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 UNLESS ALL SIGNATURES COMPLETED**

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HARDWIRED LOGIC

THIS SHEET IS INTENTIONALLY LEFT BLANK

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 L

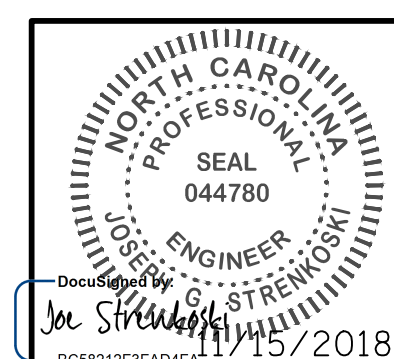
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

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DESIGNED BY: N. K. BHINGE DATE : 08/07/18
DRAWN BY: R. L. REED DATE : 08/08/18
CHECKED BY: L. V. BORDEN DATE : 11/15/18
DESIGN ENGINEER
OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979

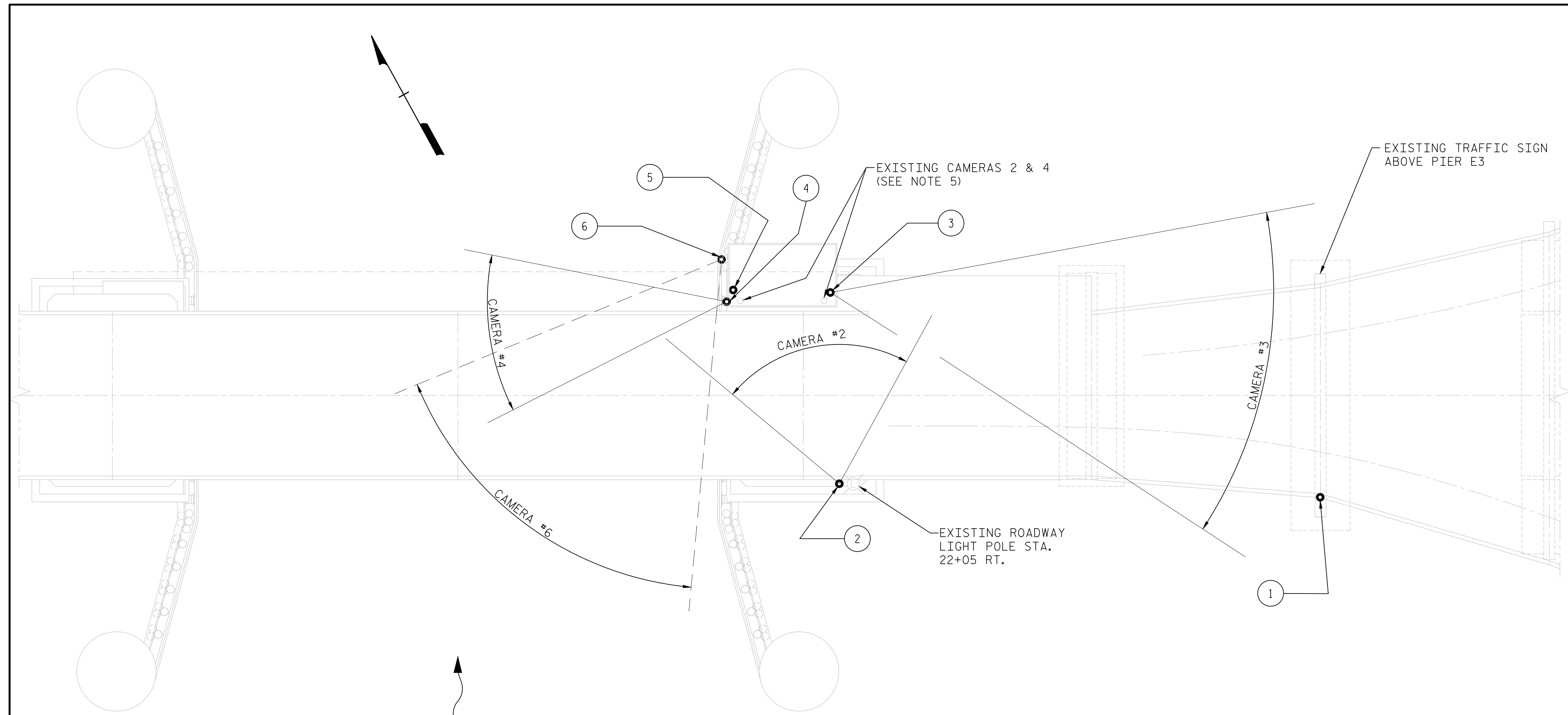


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
CONTROL CIRCUIT - 54

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UNLESS ALL SIGNATURES COMPLETED**

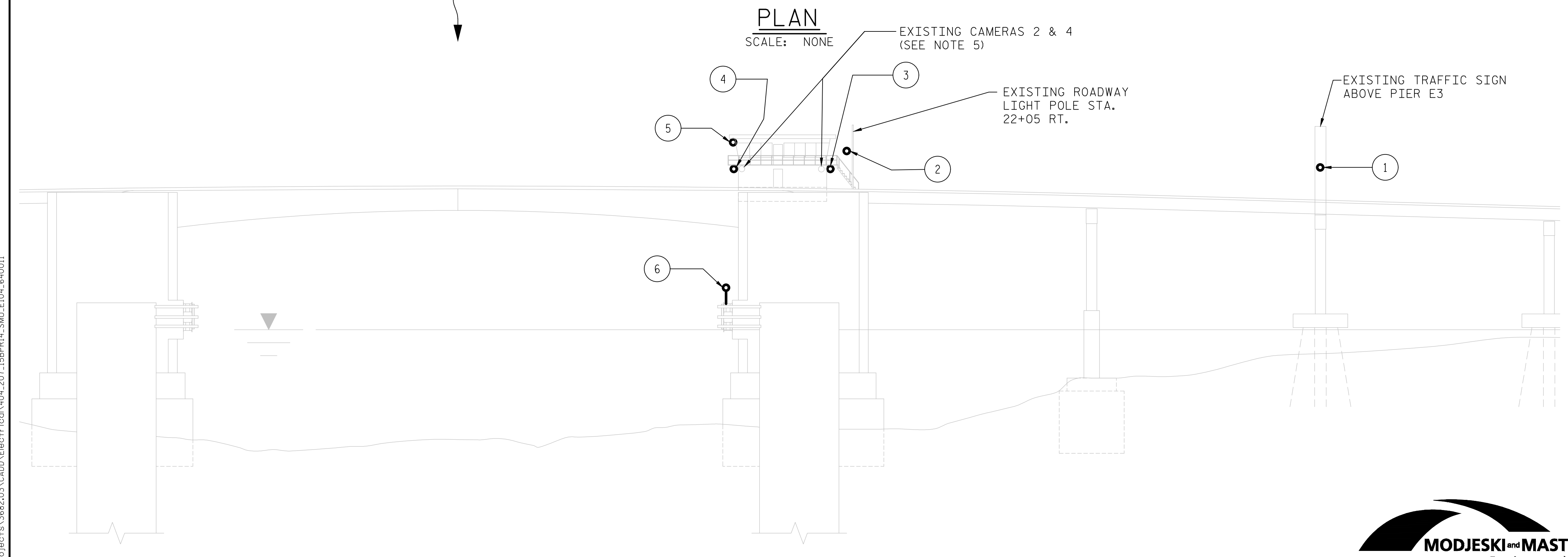
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			213
2			4			

E-103



- CAMERA DESCRIPTIONS:**
- ① EXISTING FIXED CAMERA #1 ATTACHED TO SOUTH TRAFFIC SIGN POLE ON EAST APPROACH TO BE REPLACED WITH PAN, TILT, ZOOM (PTZ) CAMERA (E407C), MINIMUM OF 16 FT. ABOVE ROADWAY LEVEL.
 - ② NEW FIXED CAMERA #2 (E407A) ATTACHED TO SOUTH ROADWAY LIGHT POLE, MINIMUM OF 16 FT. ABOVE ROADWAY LEVEL.
 - ③ EXISTING FIXED CAMERA #3 ATTACHED TO EAST OPERATOR HOUSE LOWER LEVEL WALL TO BE REPLACED WITH FIXED DOME CAMERA (E407A).
 - ④ EXISTING FIXED CAMERA #4 ATTACHED TO SOUTH OPERATOR HOUSE LOWER LEVEL WALL TO BE REPLACED WITH FIXED DOME CAMERA (E407A) AND RELOCATED TO SOUTH-WEST CORNER OF OPERATOR HOUSE, OUTSIDE OF NEW SECURITY FENCE (SEE NOTE 4)
 - ⑤ NEW (PTZ) CAMERA #5 (E407C) ATTACHED TO WEST OPERATOR HOUSE WALL, UPPER LEVEL, FROM ROOF (SEE NOTE 2).
 - ⑥ NEW FIXED DOME CAMERA #6 (E407A) ATTACHED TO NORTH-EAST PIER ON 5' POLE (SEE NOTE 2).

- NOTES:**
1. ALL EXISTING CAMERAS ARE TO BE REPLACED WITH NEW UNITS.
 2. REFER TO SHEET E-105 FOR CAMERA MOUNTING DETAILS.
 3. REFER TO SHEET E-106 FOR CAMERA EQUIPMENT SCHEDULE AND BLOCK DIAGRAM.
 4. FIELD OF VIEW (FOV) LINES ARE TO ILLUSTRATE APPROXIMATE VIEW ANGLES. ADDITIONAL FIELD ADJUSTMENTS MAY BE REQUIRED TO ACHIEVE OPTIMAL VIEWING ANGLES.
 5. NEW CONTROL HOUSE SECURITY FENCE (SEE SHEET E-107 FOR DETAILS) WILL BLOCK VIEWS OF EXISTING CAMERAS 2 & 4 LOCATED ON THE SOUTH WALL OF THE CONTROL HOUSE. BOTH CAMERAS WILL BE RELOCATED AND REPLACED, AS PER PLANS, TO MAINTAIN DESIRED VIEWING ANGLES FROM EXISTING CAMERA VIEWS.



- LEGEND:**
- CCTV CAMERA, STRUCTURE MOUNTED
 - CCTV CAMERA, POLE MOUNTED
 - ⓧ CAMERA NUMBER
 - ∠ FIELD OF VIEW (FOV)
 - ∠ FOV UNDER BRIDGE

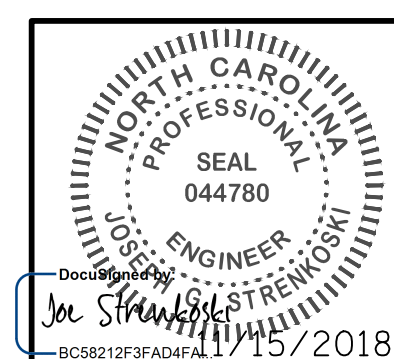
PLAN
SCALE: NONE

ELEVATION
SCALE: NONE

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

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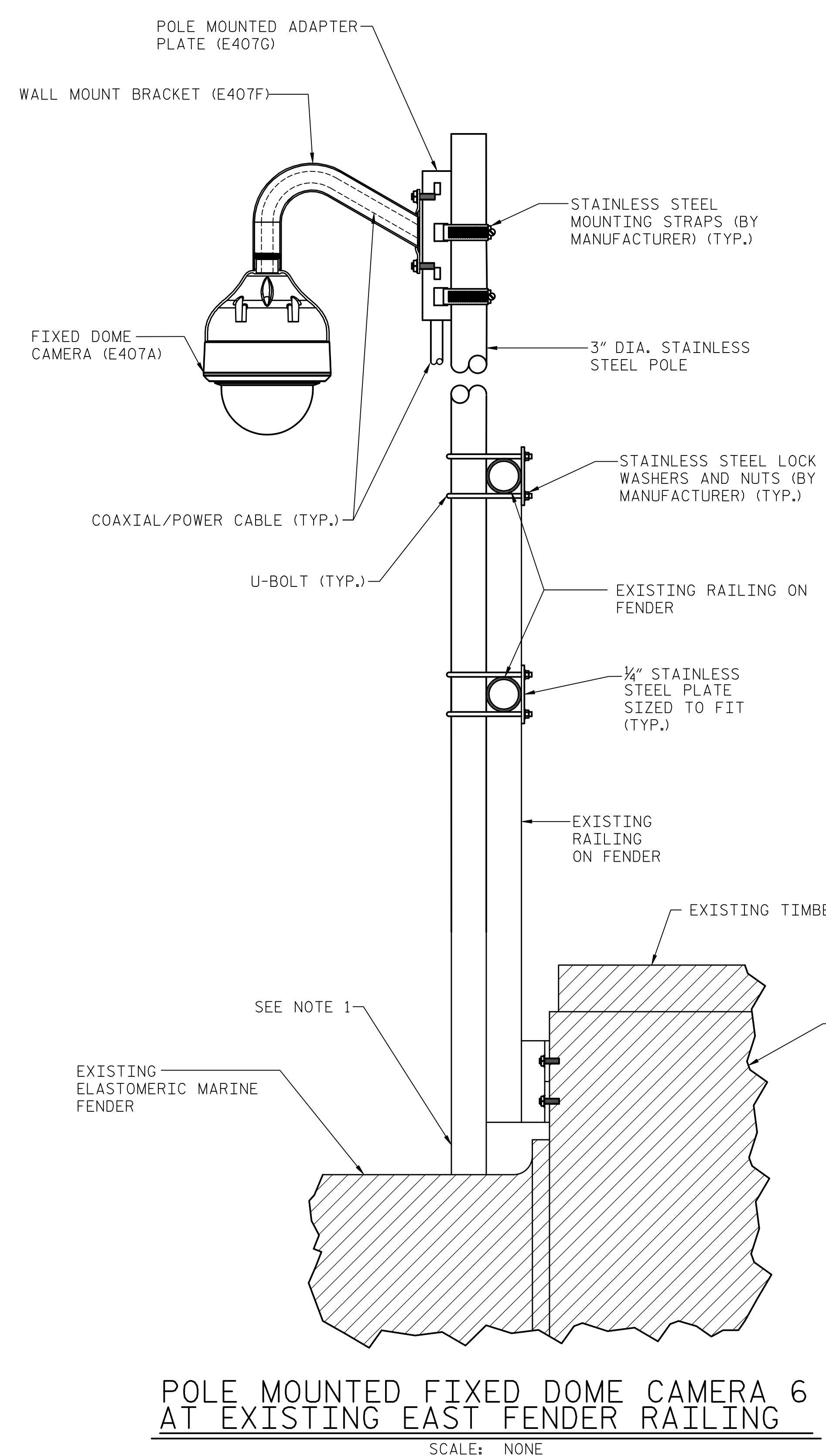
DESIGNED BY: J. C. RINEHART DATE : 06/19/18
 DRAWN BY: J. C. RINEHART DATE : 06/19/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



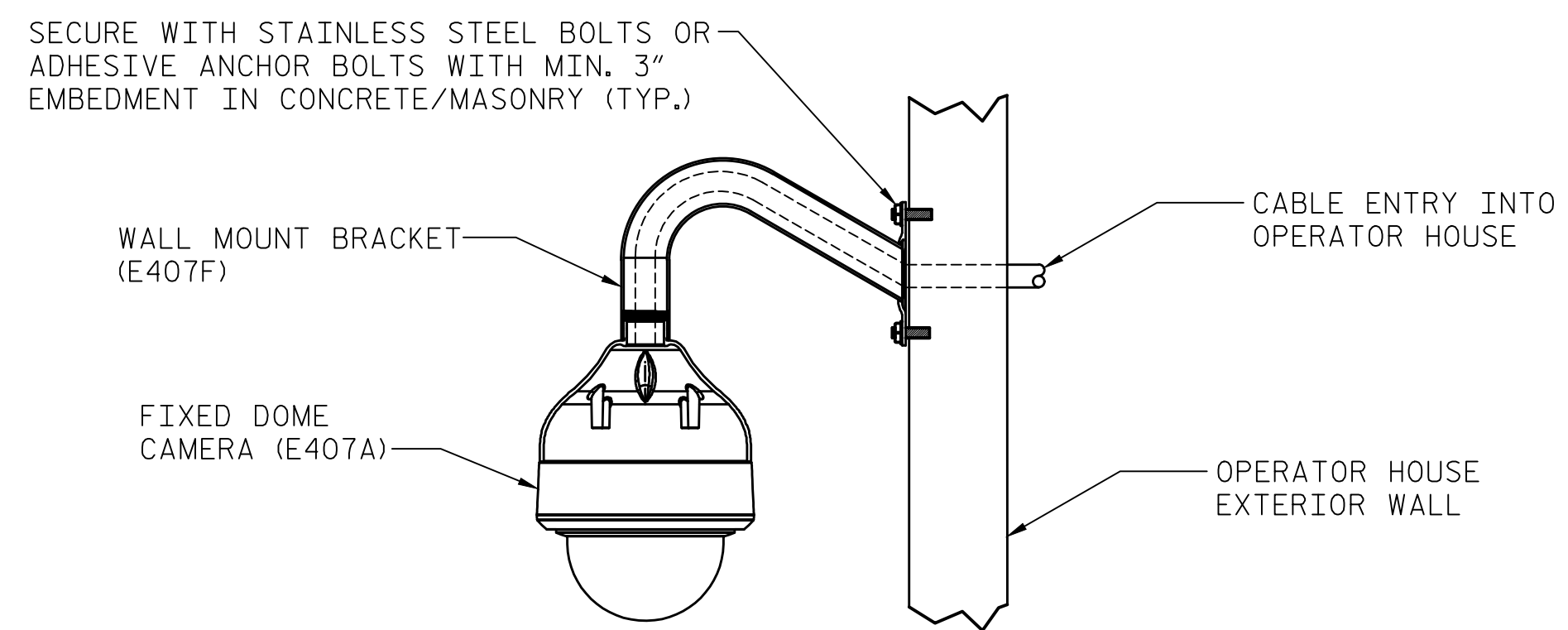
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CCTV CAMERA PLAN & ELEVATION

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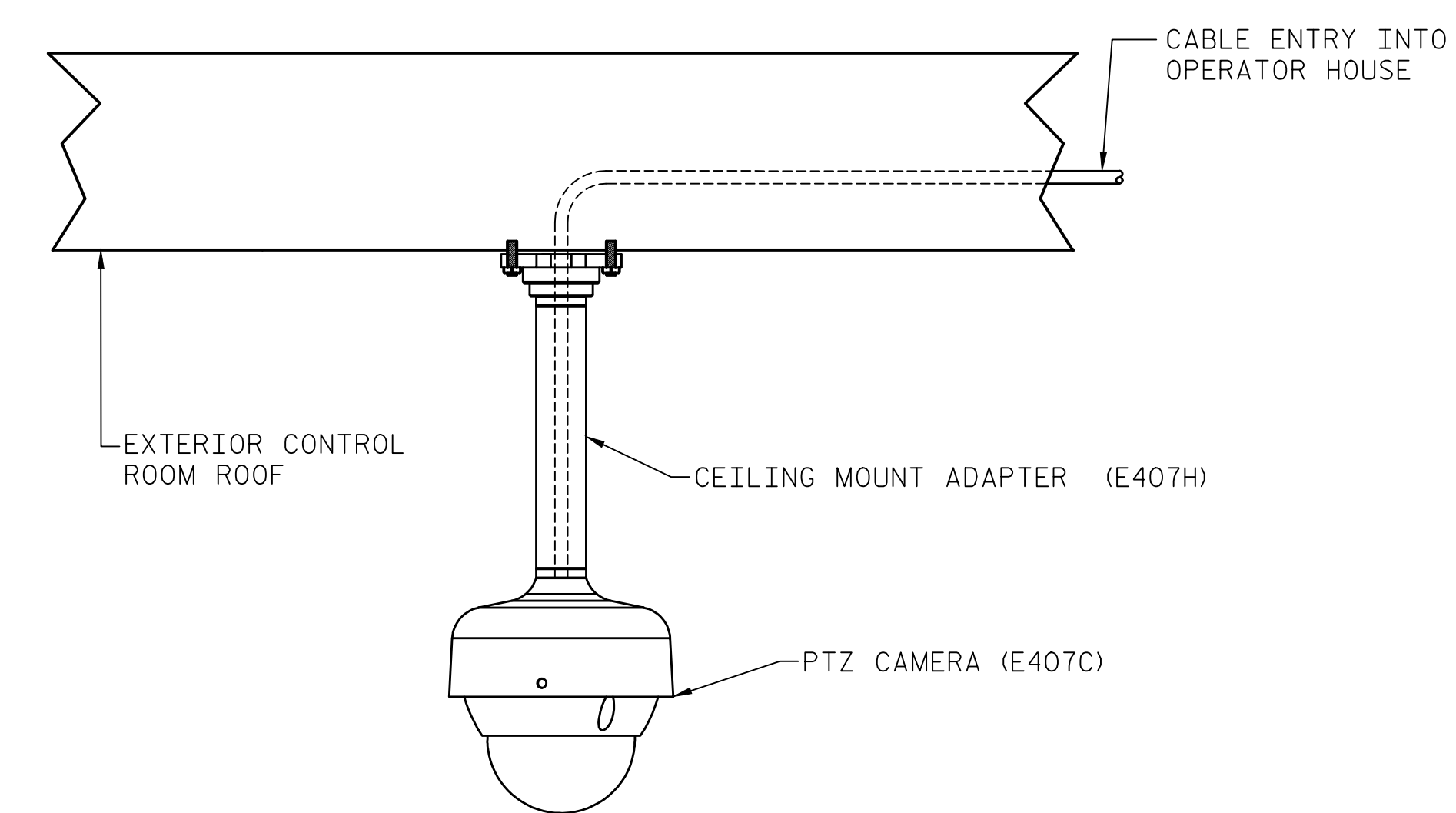
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-104
1			3			TOTAL SHEETS
2			4			213



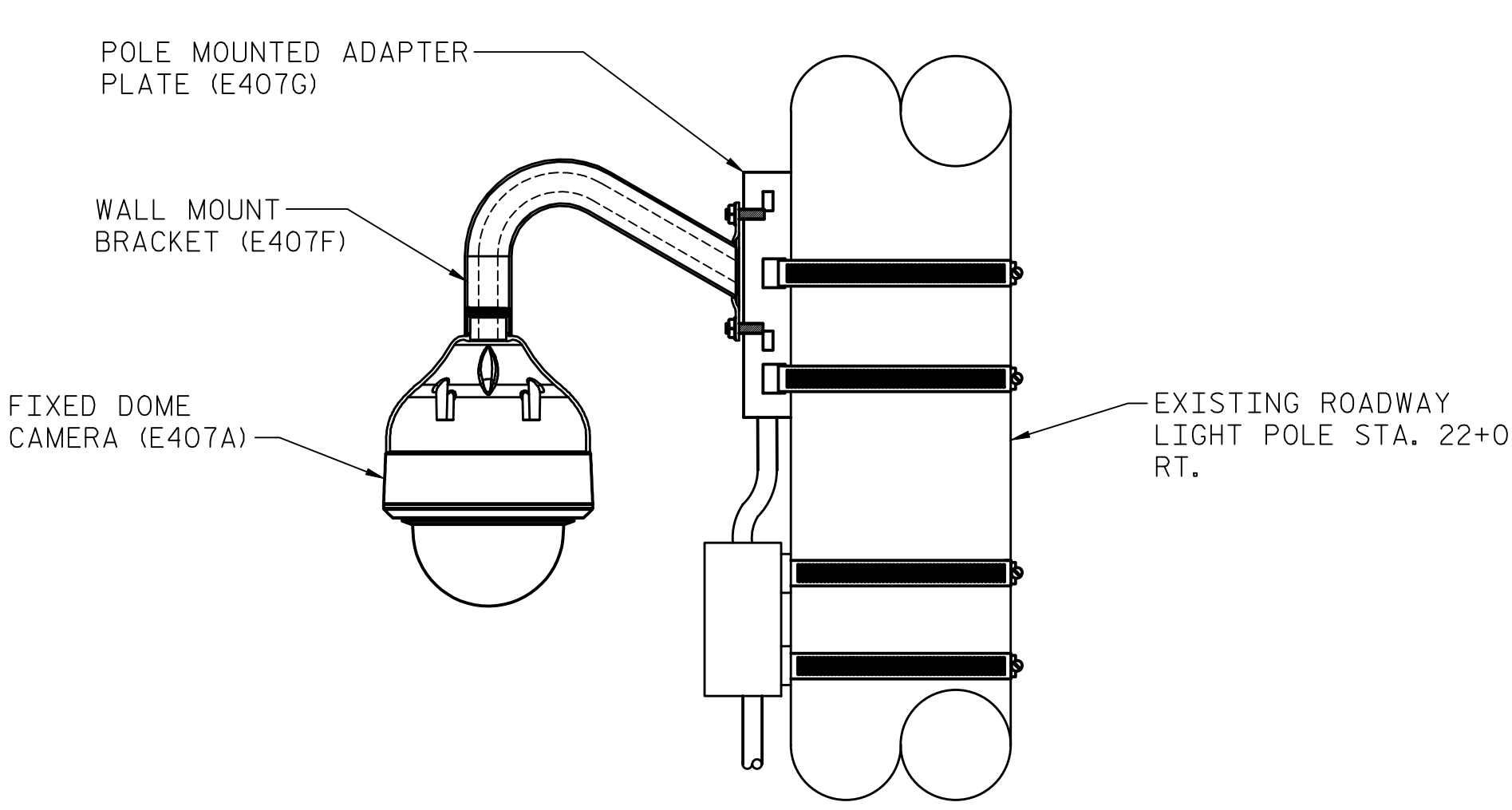
POLE MOUNTED FIXED DOME CAMERA 6 AT EXISTING EAST FENDER RAILING
SCALE: NONE



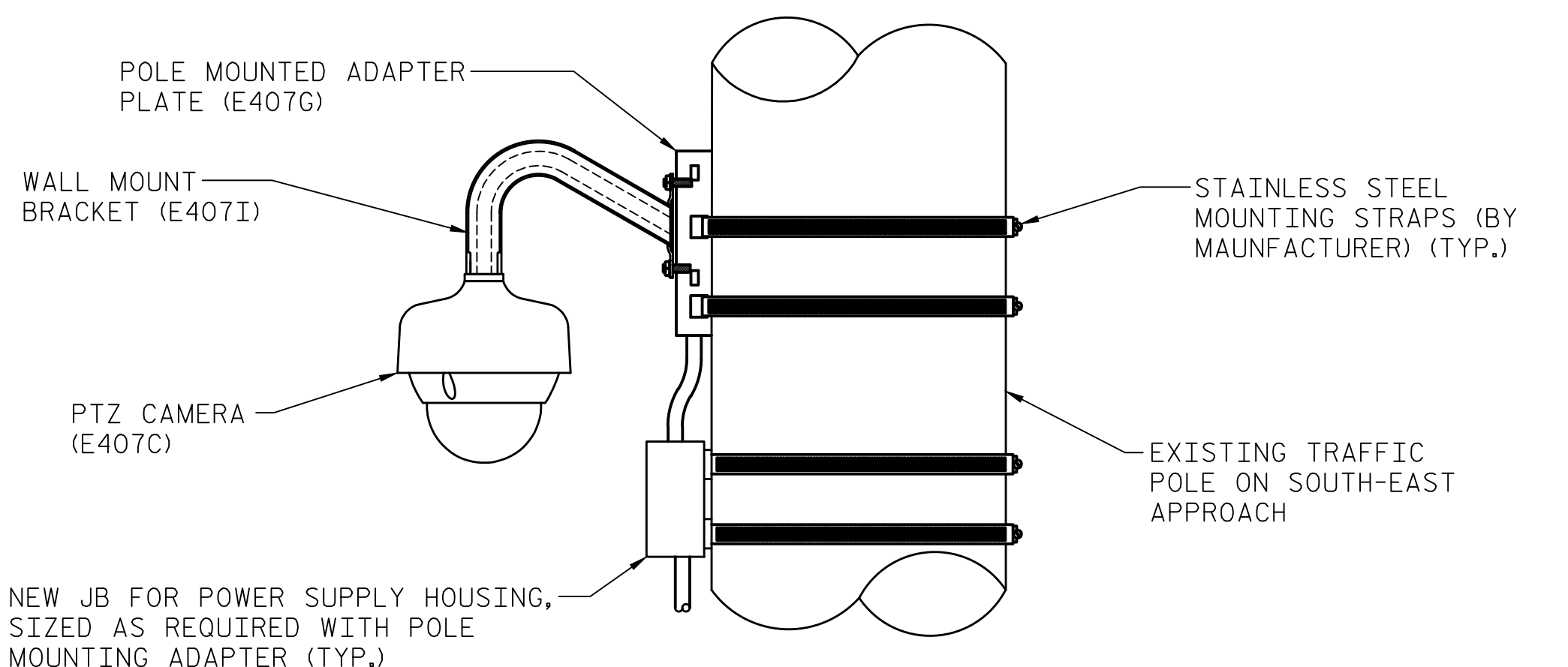
WALL MOUNTED FIXED DOME CAMERA 3 AND 4
SCALE: NONE



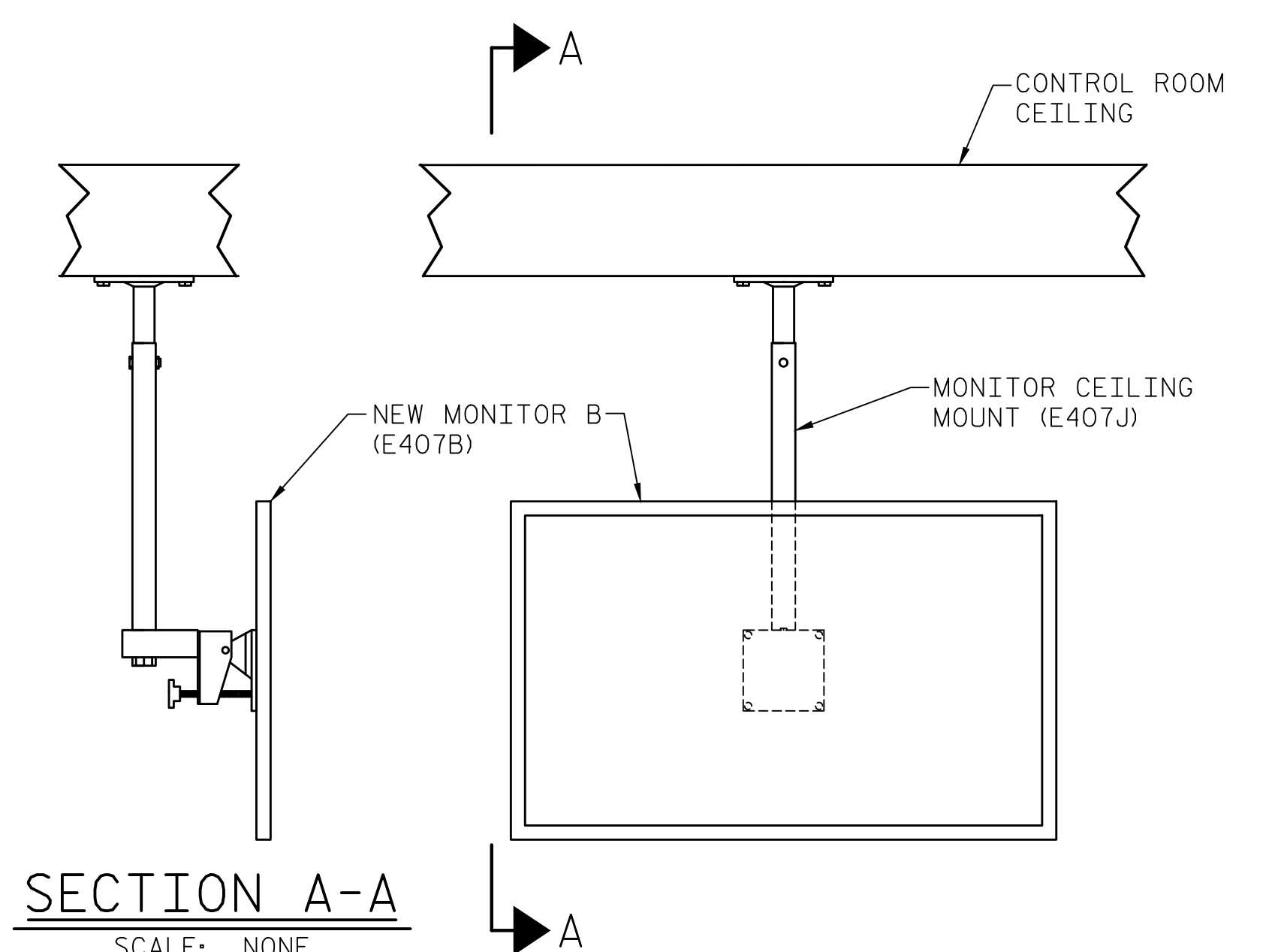
CEILING MOUNTED PTZ CAMERA 5
SCALE: NONE



ROADWAY LIGHT POLE MOUNTED FIXED DOME CAMERA 2
SCALE: NONE



TRAFFIC SIGN POLE MOUNTED PTZ CAMERA 1
SCALE: NONE



SECTION A-A
SCALE: NONE
CEILING MOUNTED MONITOR B
SCALE: NONE

- NOTES:**
- CAMERA POLE IS TO BE MOUNTED DIRECTLY OVER ELASTOMERIC MARINE FENDER (SEE SHEET E-25 FOR LOCATION).

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

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333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979

Professional Engineer Seal for J. G. Strenkoski, License No. 044780, State of North Carolina, dated 11/15/2018.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
CCTV MOUNTING
DETAILS

DESIGNED BY:	J. C. RINEHART	DATE:	06/19/18
DRAWN BY:	J. C. RINEHART	DATE:	06/19/18
CHECKED BY:	L. V. BORDEN	DATE:	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/15/18

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 213

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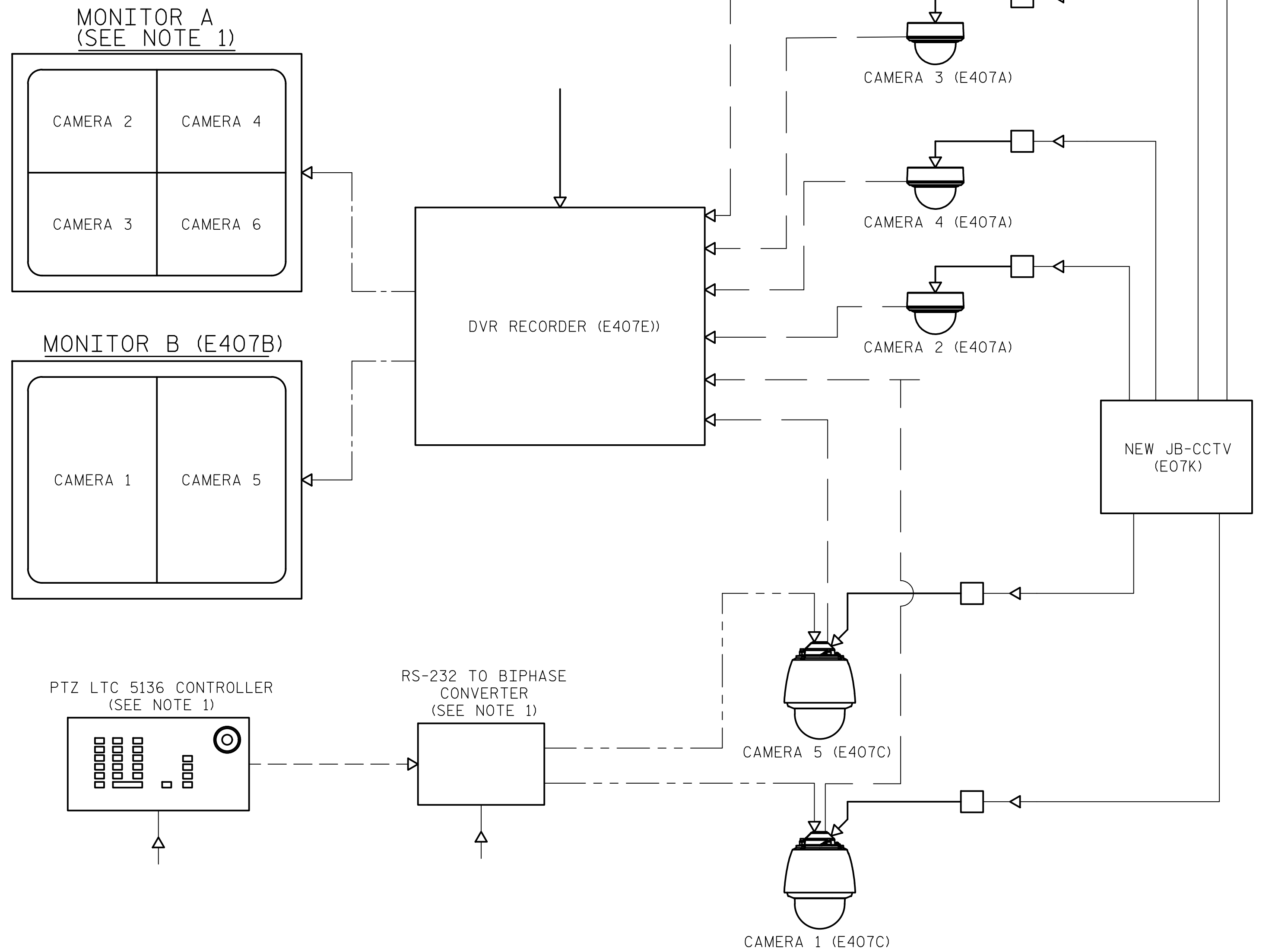
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CCTV SYSTEM PARTS LIST (ITEM E407)

ITEM NO.	QUANTITY	ITEM NAME	MANUFACTURER OR SUPPLIER	CATALOG NUMBER/MODEL	DESCRIPTION
E407A	4	FIXED DOME CAMERA	BOSCH	VDI-244V03-1	FLEXIDOME AN OUTDOOR 4000 IR ANALOG CAMERA, 960H 1/3" DS CCD IMAGE SENSOR, VIDEO OUTPUT: COMPOSITE: 1 Vpp 75 OHM, 18 ON-BOARD IR LEDS, 2X, 3X, 4X, 6X, 8X, 16X DIGITAL ZOOM, LENS TYPE: VARIFOCAL DC IRIS F=2.8 TO 12MM, SUPPLY VOLTAGE: 24VAC OR 12VDC, POWER CONSUMPTION: 6W MAX/ 0.5A (NO HEATER), OPERATING TEMP.: -10 33/64 C TO +50 33/64 C
E407B	1	32" LCD MONITOR	LG	32LJ500B	HD(1,366x768) RESOLUTION, INPUTS: 2xHDMI, 1xUSB, 1xCOMPOSITE IN, 120VAC 60HZ POWER SUPPLY, 100MM X 100MM WALL VESA WALL MOUNT, WEIGHT: 10.8 LBS WITHOUT STAND
E407C	2	PTZ CAMERA	BOSCH	VEZ-413-ECCS	AUTODOME 4000 MINI PTZ DOME 30X PAL CAMERA, WHITE, CLEAR BUBBLE, 1/4" DOUBLE SCAN SUPER HAD CCD 11 IMAGER, 30X EFFECTIVE OPTICAL ZOOM, 10X DIGITAL ZOOM, 2.46 33/64 (TELE) TO 69.5 33/64 (WIDE) FIELD OF VIEW, AUTOMATIC FOCUS WITH MANUAL OVERRIDE, MINIMUM ILLUMINATION OF 0.2 LUX, 0 33/64 TO 180 33/64 PAN RANGE, POWER CONSUMPTION: 24VAC, 2A/45W, IP66 RATING, -40 33/64 C TO +50 33/64 C OPERATING TEMPERATURE.
E407D	6	PTZ & FIXED DOME POWER SUPPLY	BOSCH	UPA-2450-60	120VAC 60 HZ IN, 24VAC, 50 VA OUT
E407E	1	DVR	BOSCH	DRH-5532-400N00	DIVAR HYBRID 5000 RECORDER. 16 BNC CONNECTIONS FOR 16 TOTAL ANALOG CAMERAS. 16 IP CAMERAS CAPABLE, 2xHDMI VIDEO OUTPUTS,
E407F	4	FIXED DOME WALL MOUNT	BOSCH	VDA-WMT-AODOME	STURDY OUTDOOR WALL MOUNT BRACKET FOR DOME CAMERAS
E407G	3	PTZ AND FIXED DOME POLE ADAPTER PLATE	BOSCH	LTC 9213/01	POLE MOUNT ADAPTER WITH STAINLESS STEEL STRAPS, LIGHT GRAY FINISH
E407H	1	PTZ CEILING MOUNT	BOSCH	VEZ-A4-PW	AUTODOME 4000 PIPE MOUNT, WHITE
E407I	1	PTZ WALL MOUNT	BOSCH	VEZ-A4-WW	AUTODOME 4000 WALL MOUNT, WHITE
E407J	1	LCD MONITOR CEILING MOUNT	VMP	LCD-2537C SMALL PLATE	-5 33/64 TO +20 33/64 TILT RANGE,
E407K	1	JB-CCTV	CROUSE-HINDS	CH20168-4	16" TALL x 12" WIDE x 8" DEEP, STEEL, CONTINUOUS HINGE, WALL MOUNT, SEAMLESS DOOR GASKET, NEMA TYPE 12 ENCLOSURE WITH INTERIOR PANEL AND MOUNTING HARDWARE



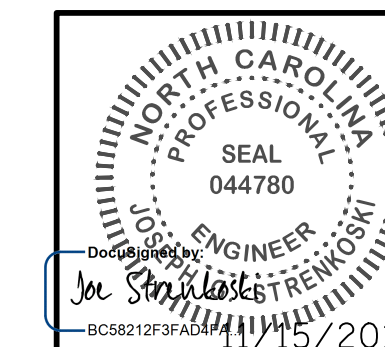
LEGEND

- HDMI CABLE
- RS-232 CONNECTION (SEE NOTE 1)
- RS-485 2-WIRE TWISTED PAIR
- COAXIAL CABLE WITH BNC CONNECTION
- ← INPUT 120VAC
- POWER SUPPLY (E407D)

NOTES:

1. EXISTING LTC 5136 CONTROLLER, LTC 8786 RS-232 TO BIPHASE CONVERTER, AND RS-232 CONNECTION TO REMAIN FOR USE WITH NEW PTZ CAMERAS. EXISTING MONITOR A TO REMAIN.
2. SEE SHEET E-104 FOR CCTV PLAN & ELEVATION.
3. POWER AND COAXIAL CABLE FOR NEW CAMERAS 3 & 4 SHALL PENETRATE CONTROL HOUSE WALL USING EXISTING CAMERA ENTRANCES. CONTRACTOR SHALL DETERMINE OPTIMAL LOCATION FOR POWER SUPPLIES AND POWER/COAX/RS-485 (PTZ ONLY) CABLE ROUTING FOR CAMERAS 3, 4, & 5.
4. SEE SHEET E-25 FOR CAMERA 6 CONDUIT ROUTING DETAILS.
5. SEE SHEET E-120 FOR CAMERAS 1 & 2 MESSENGER CABLE DETAILS.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

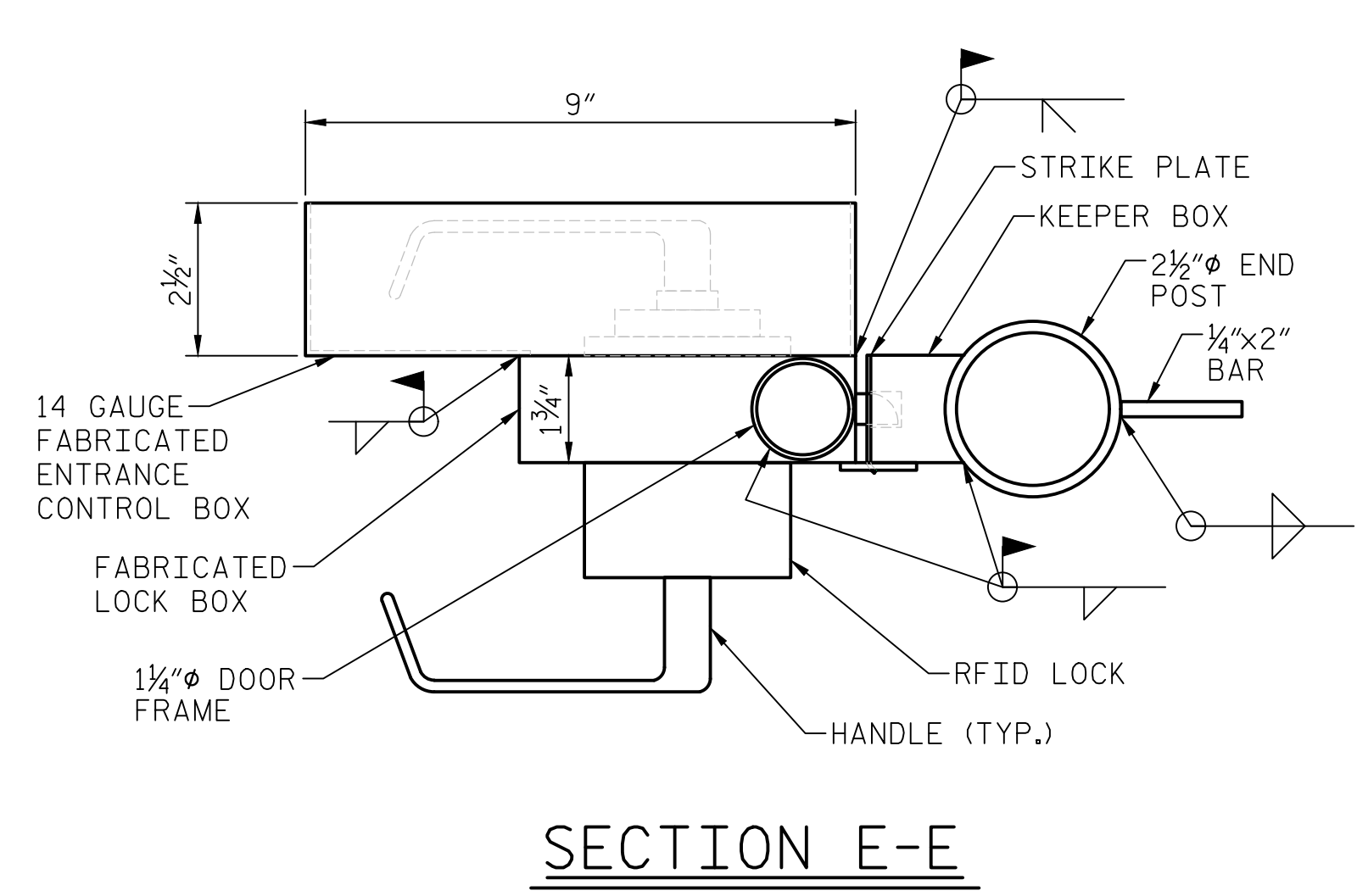
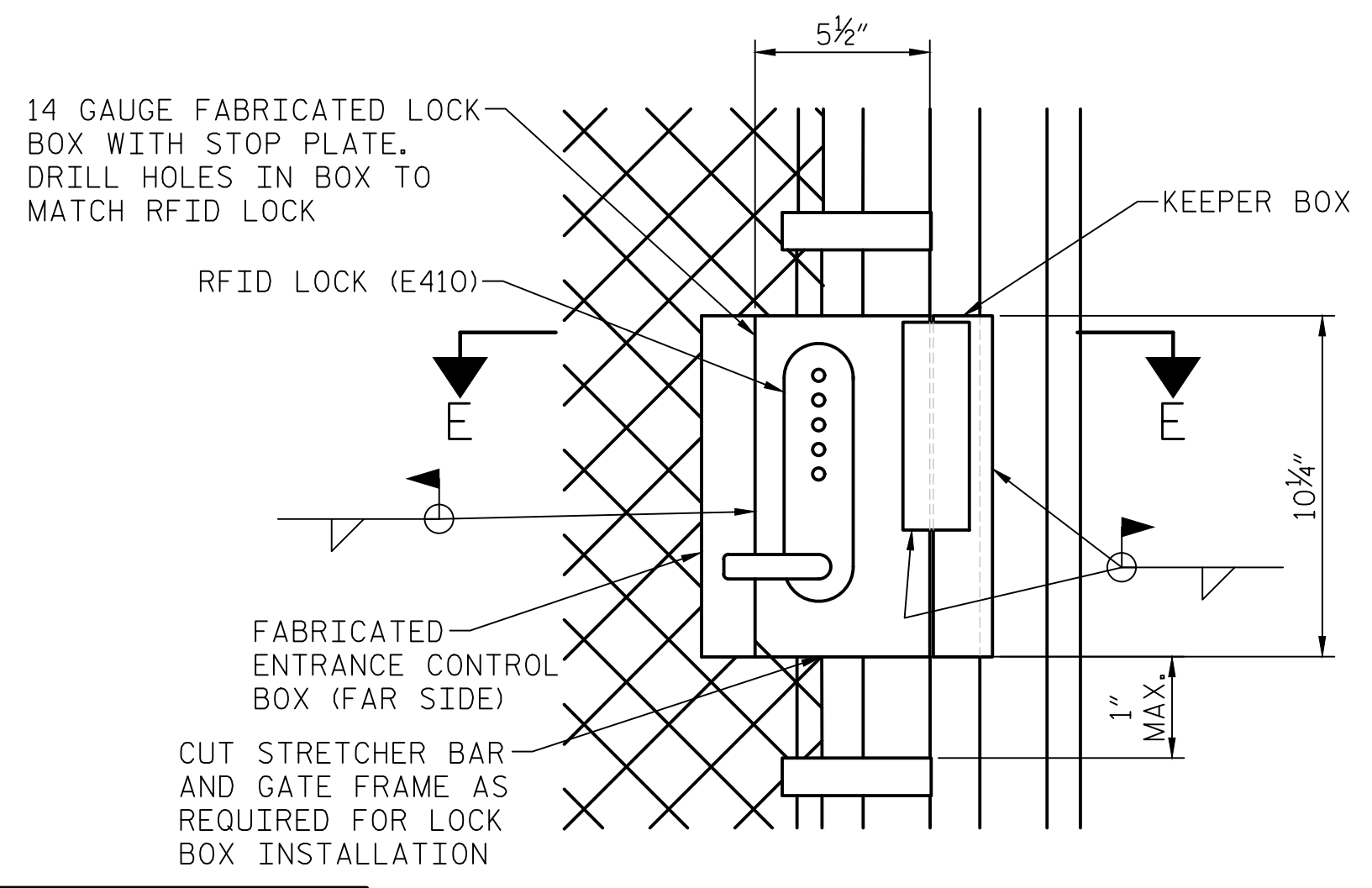
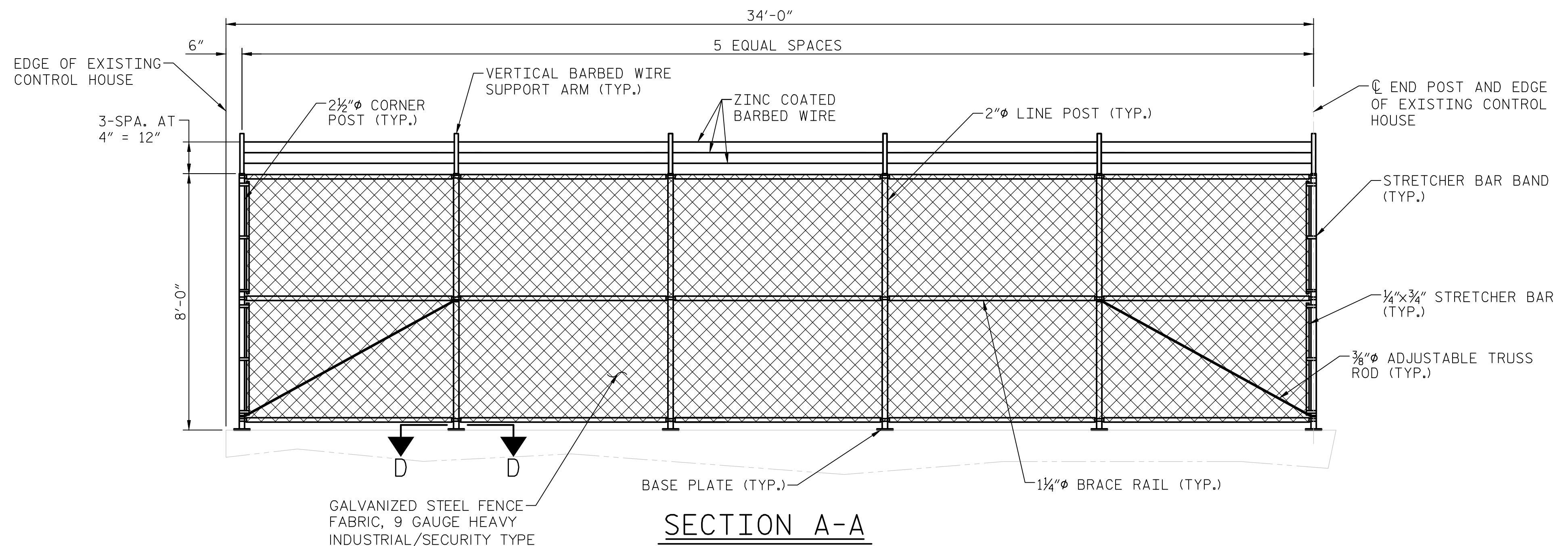
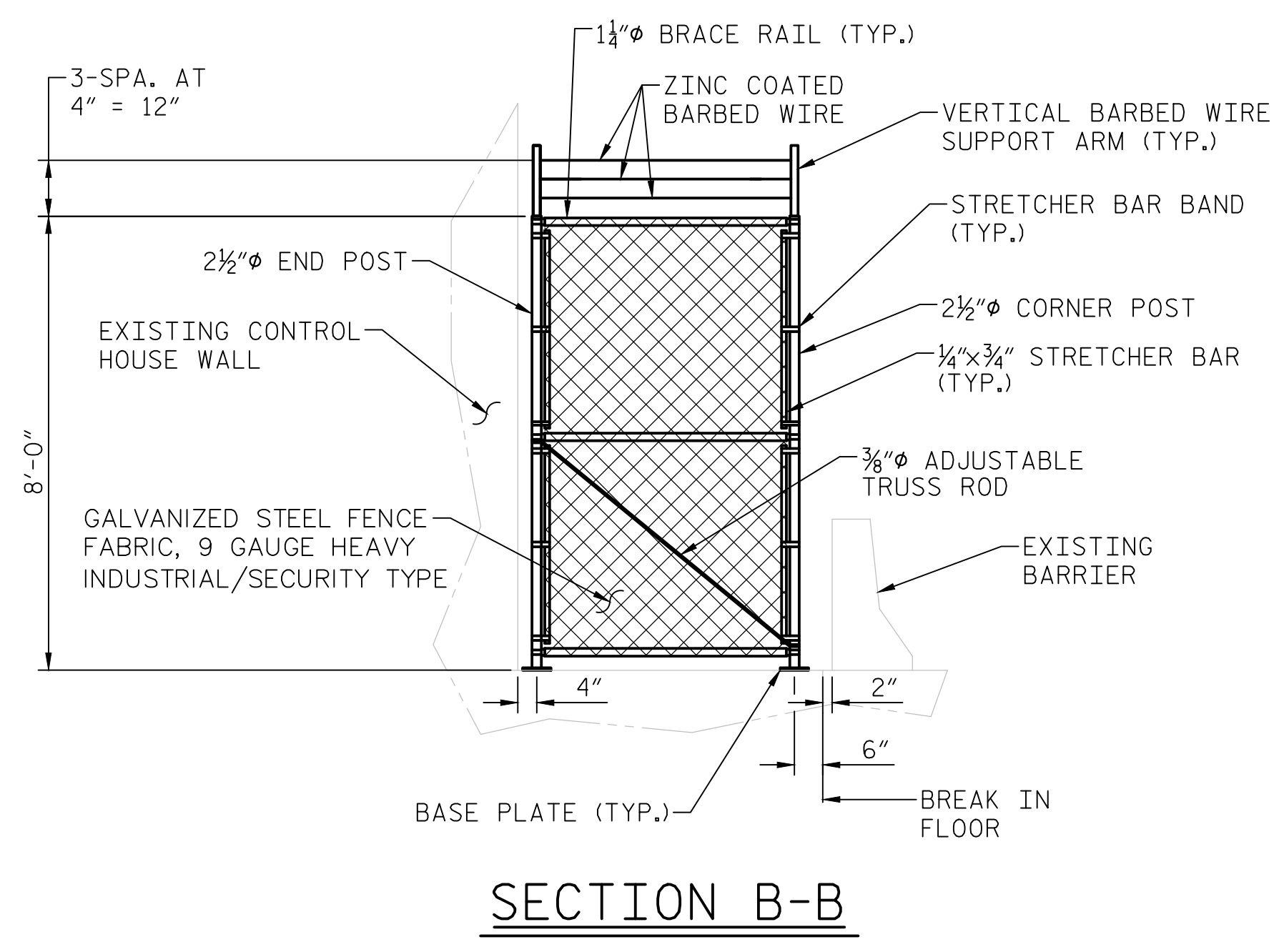
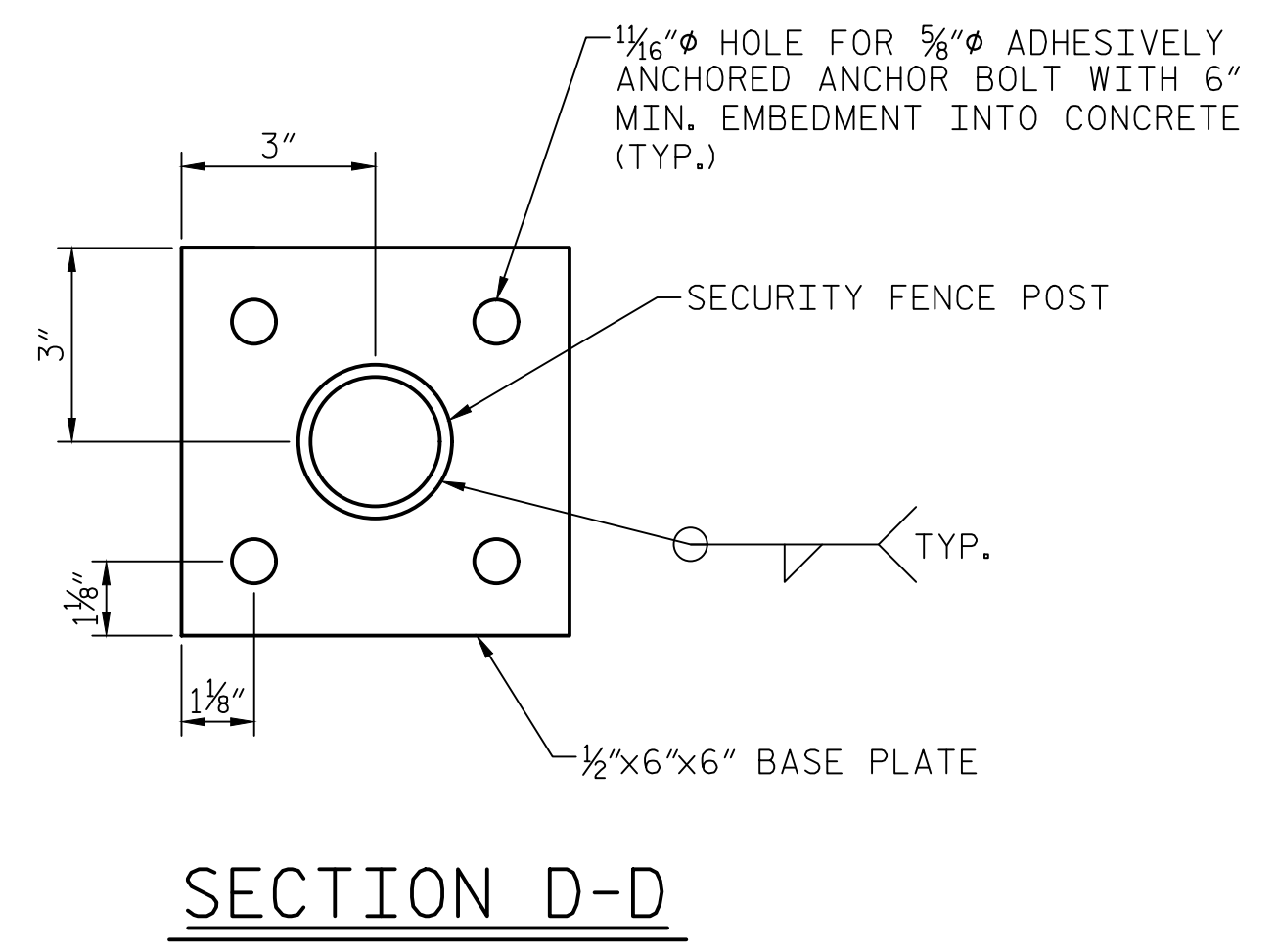
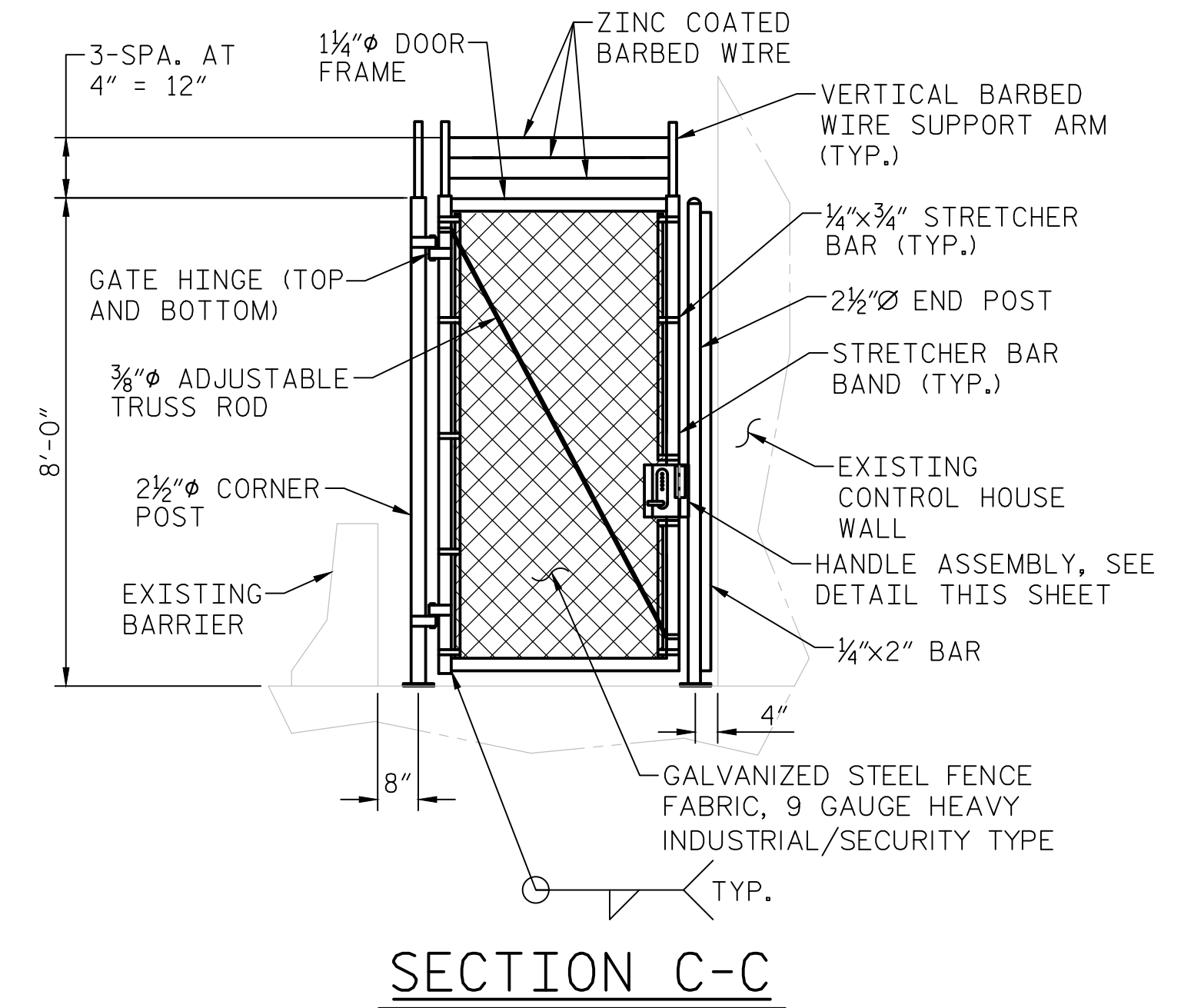
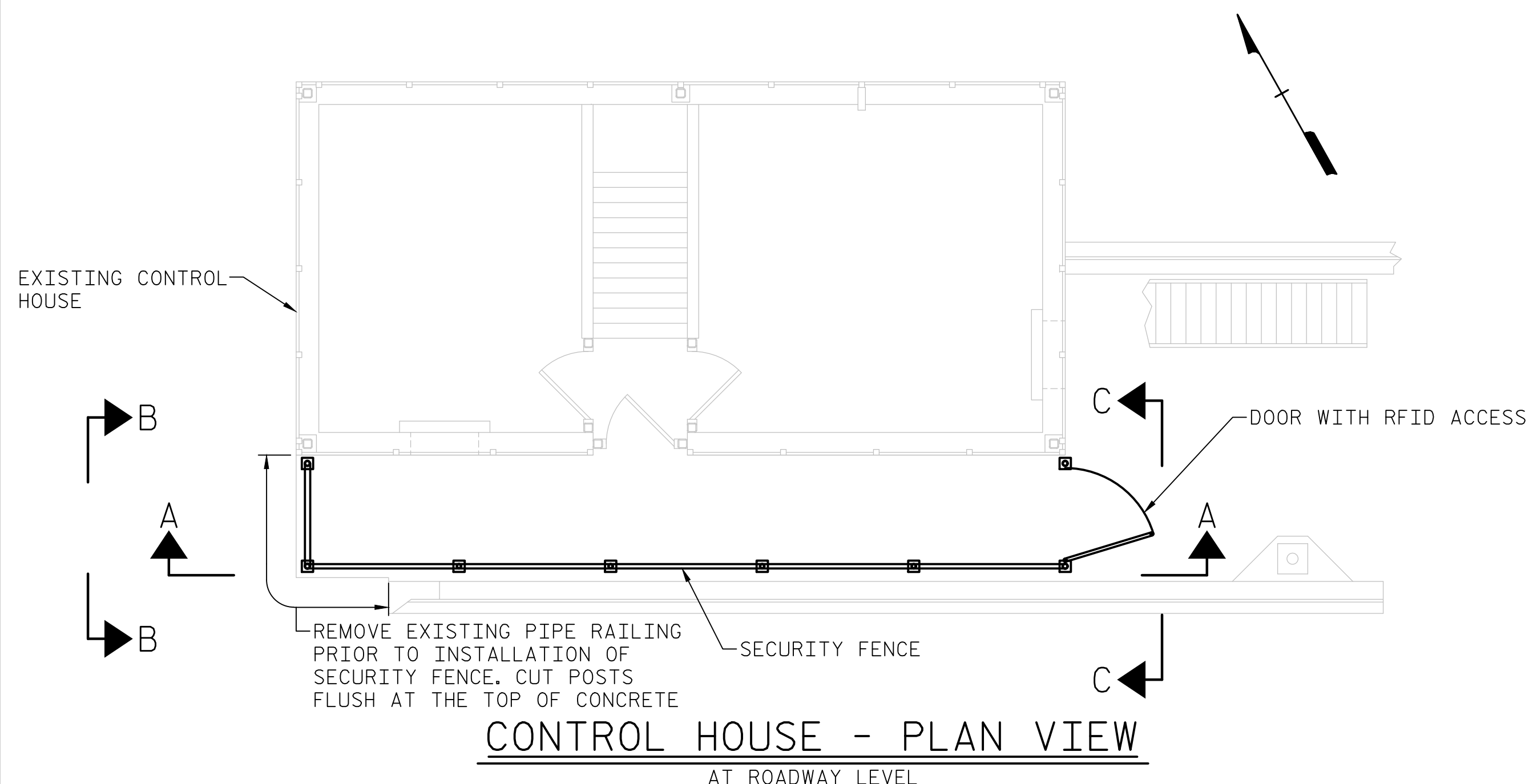


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
ELECTRICAL CCTV BLOCK DIAGRAM & EQUIPMENT SCHEDULE					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-106 TOTAL SHEETS 213

DESIGNED BY: J. C. RINEHART DATE: 06/21/18
 DRAWN BY: J. C. RINEHART DATE: 06/21/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

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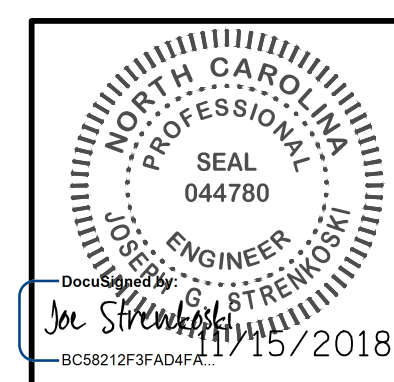


NOTES:

- FENCE FABRIC SHALL BE FASTENED TO THE POSTS AND RAILS USING METAL BANDS OR WIRES SPACED NO MORE THAN 1'-0" APART. THE WIRE SHALL BE NO LESS THAN 6-GAUGE.
- ADJUSTABLE TRUSS RODS SHALL BE PROVIDED WITH A TURNBUCKLE WITH 7" MINIMUM THREAD LENGTH.
- PROVIDE CAPS FOR PIPE POSTS.
- CENTERLINE OF LOCK HANDLE SHALL BE 3'-3" ABOVE GROUND LINE.
- ENTRANCE CONTROL BOX CONSISTS OF A BACK AND 4 SIDES. IT IS TO PREVENT USAGE OF 'OUTGOING' HANDLE TO OBTAIN ACCESS FROM LOCKED SIDE OF GATE. VERIFY REQUIRED HANDLE CLEARANCE PRIOR TO ENTRANCE CONTROL BOX FABRICATION.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

MODJESKI and MASTERS
 Experience great bridges.
 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



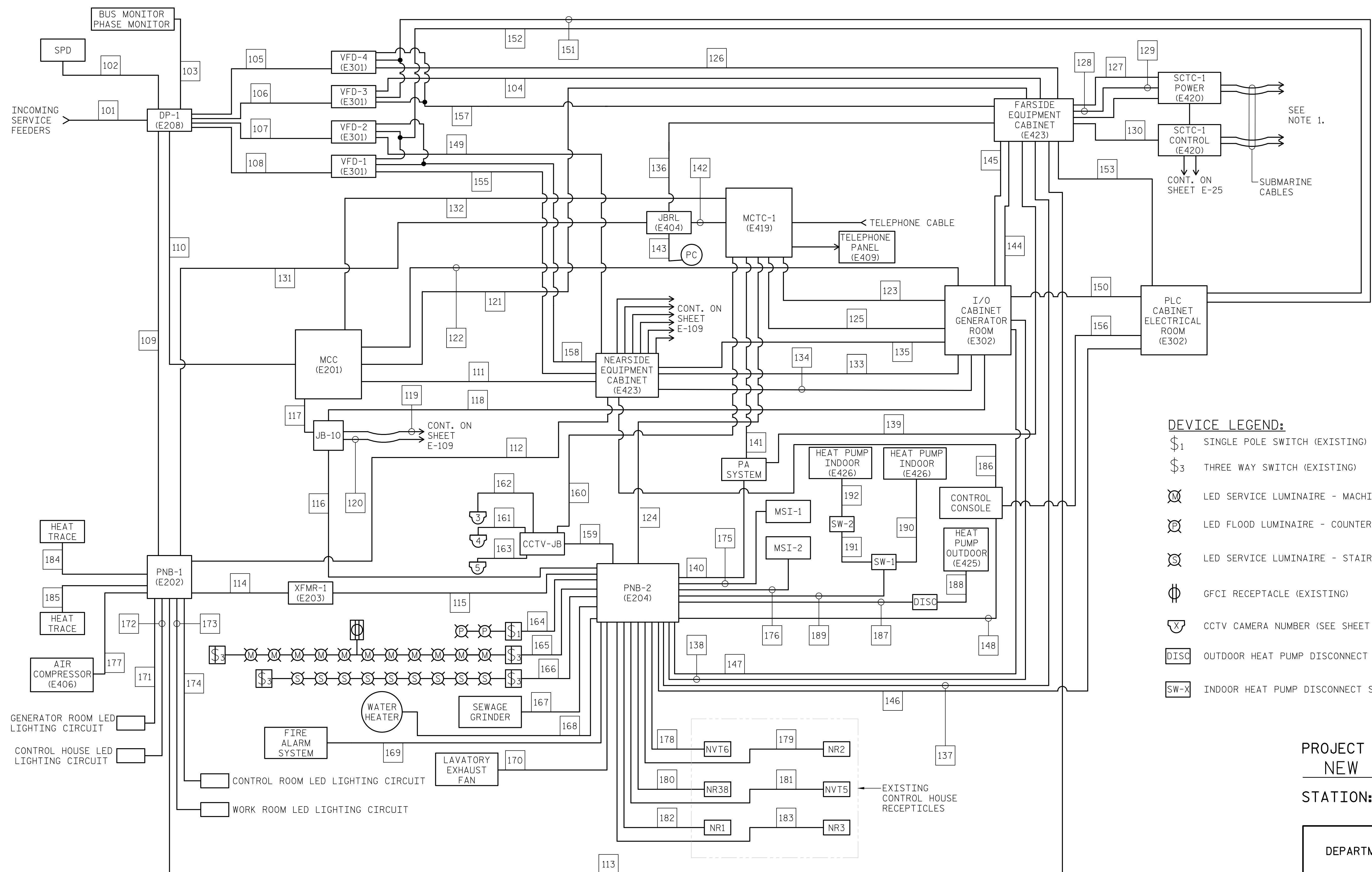
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONTROL HOUSE SECURITY FENCE

DESIGNED BY: T. J. STEPHENS DATE: 08/08/18
 DRAWN BY: T. J. STEPHENS DATE: 08/08/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-107
1			3			TOTAL SHEETS 213
2			4			

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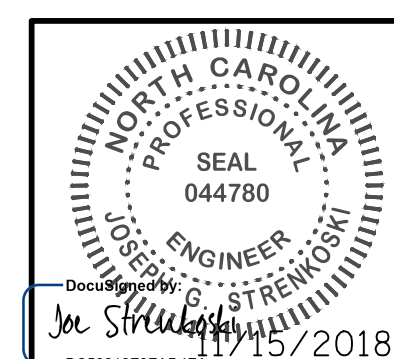
DEVICE LEGEND:

- \$1 SINGLE POLE SWITCH (EXISTING)
- \$3 THREE WAY SWITCH (EXISTING)
- M LED SERVICE LUMINAIRE - MACHINERY PLATFORM (E401)
- P LED FLOOD LUMINAIRE - COUNTERWEIGHT PIT (E403)
- S LED SERVICE LUMINAIRE - STAIRWAY (E401)
- ⊕ GFCI RECEPTACLE (EXISTING)
- X CCTV CAMERA NUMBER (SEE SHEET E-104)
- DISC OUTDOOR HEAT PUMP DISCONNECT SWITCH (E428)
- SW-X INDOOR HEAT PUMP DISCONNECT SWITCH (E427)

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

- NOTES:**
- FOR SUBMARINE CABLE MAKEUP, SEE SHEET E-41. FOR SCTC-2 ASSOCIATED CONDUIT LAYOUT-3, SEE SHEET E-110
 - SEE SHEET E-111 FOR CONDUIT SCHEDULE-1 AND SHEET E-112 FOR CONDUIT SCHEDULE-2
 - THIS LAYOUT PORTRAYS GENERAL INTENT ONLY AND IS NOT INTENDED TO ILLUSTRATE THE EXACT PHYSICAL LOCATIONS OF EQUIPMENT OR RACEWAY ROUTING.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A COMPLETE WIRING AND CONDUIT TABULATION OF ALL CONDUCTORS. THE TABULATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
 - CONTRACTOR SHALL VERIFY NEW CONDUIT SIZES PRIOR TO BIDDING BASED ON HIS OWN ESTIMATES OF CONDUIT FILL FOR EACH CONDUIT RUN.

DESIGNED BY: J.C. RINEHART DATE: 11/01/18
 DRAWN BY: R. L. REED DATE: 11/02/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

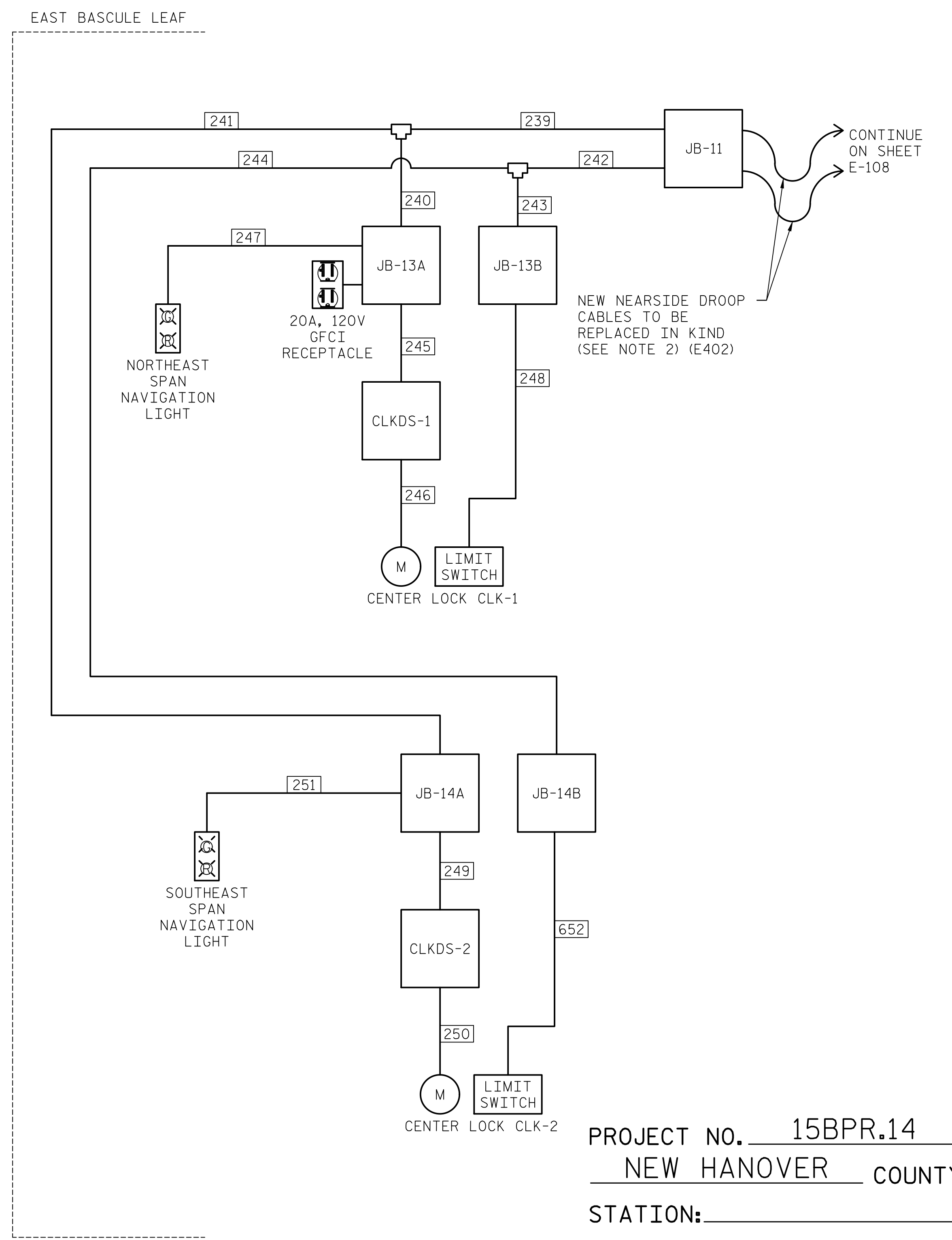
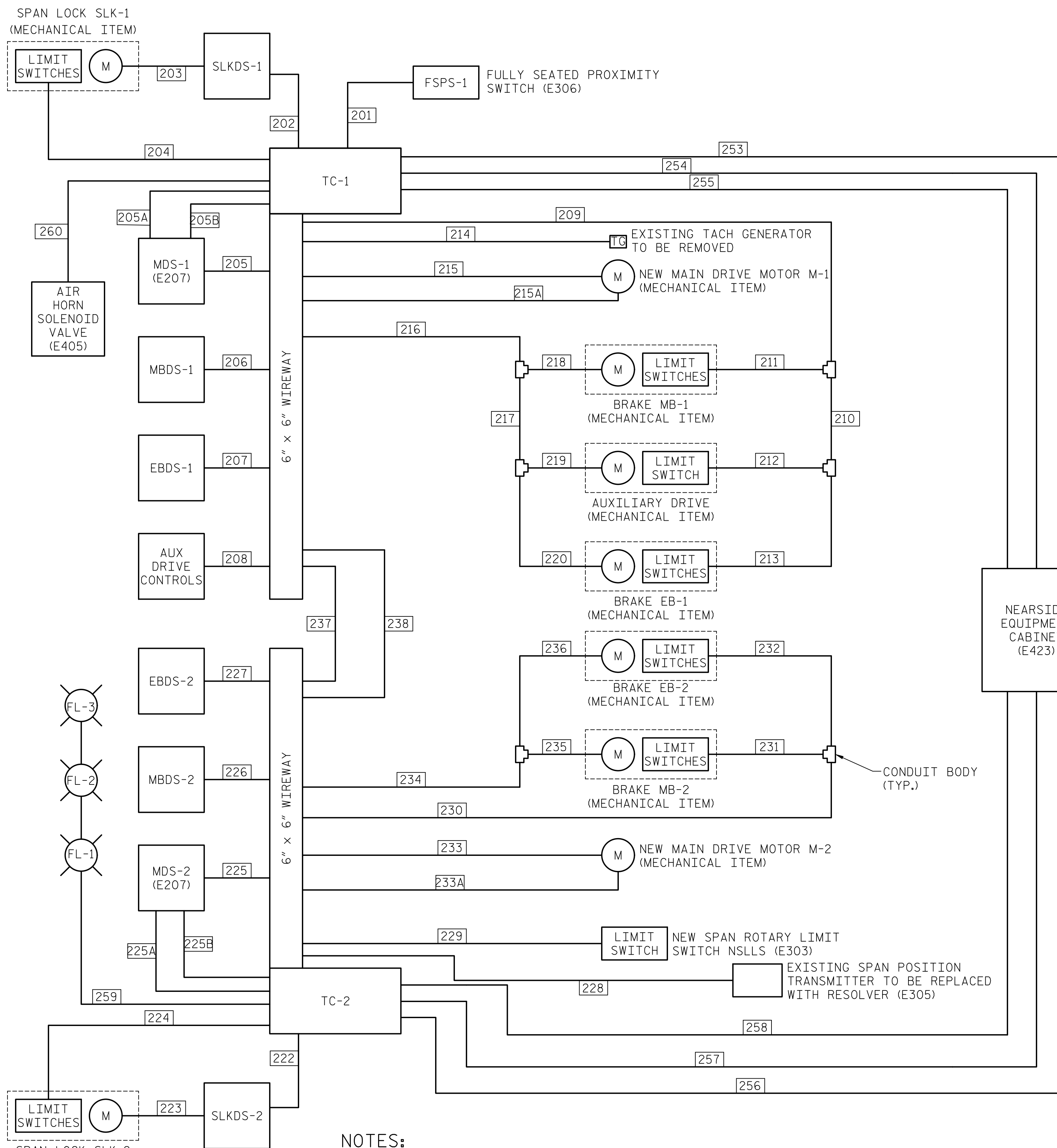


STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 CONDUIT LAYOUT - 1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-108
1			3			TOTAL SHEETS 213
2			4			

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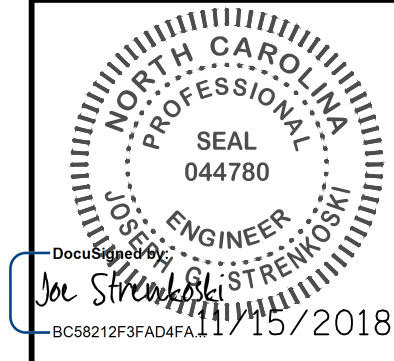
NOTES:

- UNLESS NOTED ON DRAWING, EQUIPMENT, CONDUIT, AND WIRING INSTALLED DURING THE 2011 REHAB IS TO REMAIN. REFER TO SHEET E-113 FOR CONDUIT SCHEDULE. ACTUAL CONDUIT AND CONDUCTOR SIZE SHALL BE FIELD VERIFIED BEFORE ENERGIZING EQUIPMENT.
- CONTRACTOR SHALL FIELD VERIFY SIZE AND CONDUCTOR COUNT OF EXISTING DROOP CABLES AND REPLACE IN KIND.
- THIS LAYOUT PORTRAYS GENERAL INTENT ONLY AND IS NOT INTENDED TO ILLUSTRATE THE EXACT PHYSICAL LOCATIONS OF EQUIPMENT OR RACEWAY ROUTING.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A COMPLETE WIRING AND CONDUIT TABULATION OF ALL CONDUCTORS. THE TABULATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- CONTRACTOR SHALL VERIFY NEW CONDUIT SIZES PRIOR TO BIDDING BASED ON HIS OWN ESTIMATES OF CONDUIT FILL FOR EACH CONDUIT RUN.

DEVICE LEGEND:



MODJESKI and MASTERS
Experience great bridges.
333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979



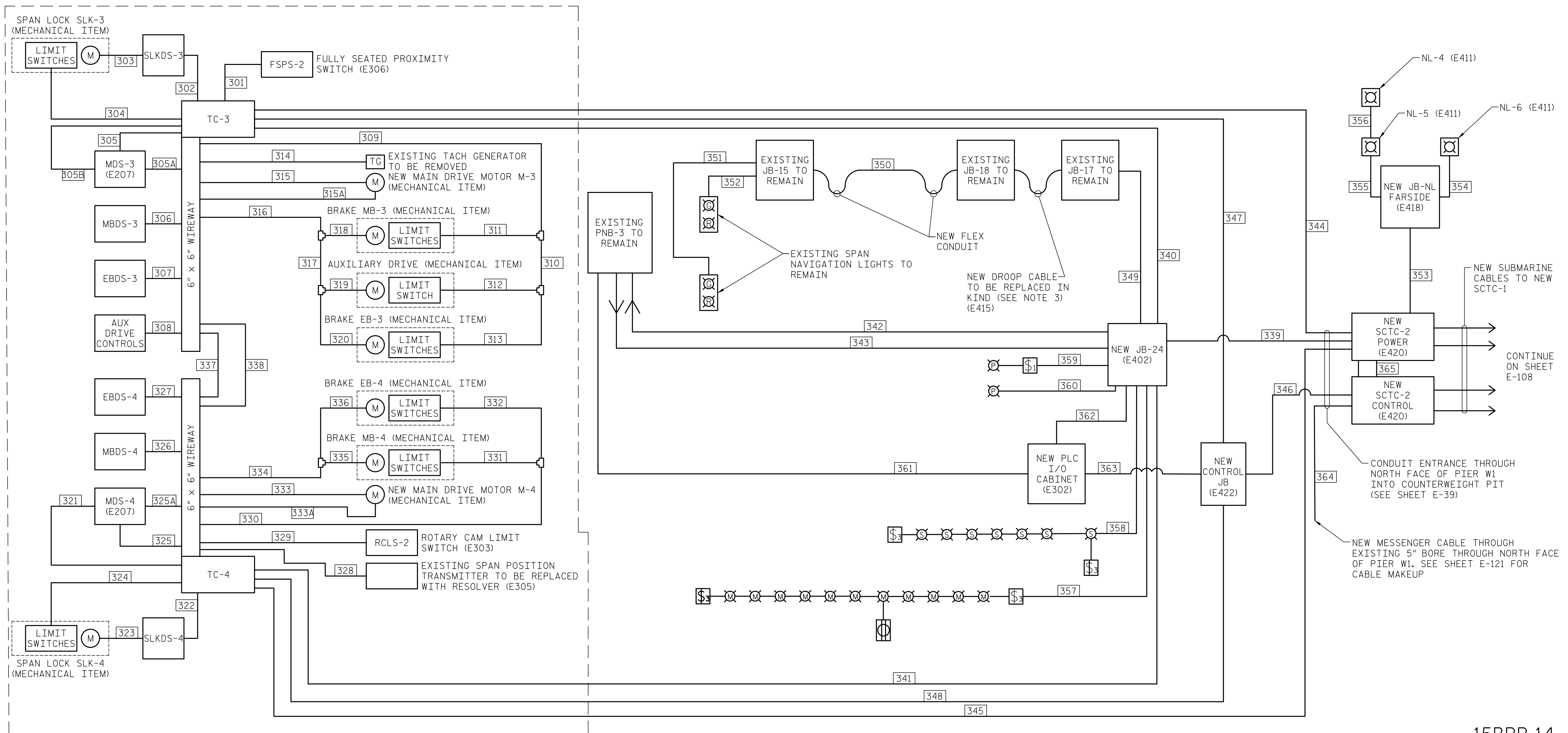
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONDUIT LAYOUT - 2					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					SHEET NO. E-109
					TOTAL SHEETS 213

DESIGNED BY: J. C. RINEHART DATE: 11/01/18
DRAWN BY: J. C. RINEHART DATE: 11/01/18
CHECKED BY: L. V. BORDEN DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

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NOTES:

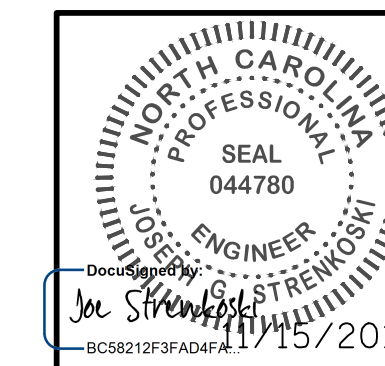
1. THIS LAYOUT PORTRAYS GENERAL INTENT ONLY AND IS NOT INTENDED TO SHOW CONDUIT AND/OR EQUIPMENT IN THEIR EXACT PHYSICAL LOCATIONS OR RELATIONSHIPS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVELOPING A COMPLETE WIRING AND CONDUIT TABULATION OF ALL CONDUCTORS. THE TABULATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
3. UNLESS NOTED ON DRAWING, EQUIPMENT, CONDUIT, AND WIRING IN DOTTED LINE INSTALLED DURING THE 2011 REHAB IS TO REMAIN. REFER TO SHEET E-114 FOR CONDUIT SCHEDULE 4. ACTUAL CONDUIT AND CONDUCTOR SIZE SHALL BE FIELD VERIFIED BEFORE ENERGIZING EQUIPMENT.
4. CONTRACTOR SHALL FIELD VERIFY SIZE AND CONDUCTOR COUNT OF EXISTING DROOP CABLES AND REPLACE IN KIND.
5. CONTRACTOR SHALL VERIFY NEW CONDUIT SIZES PRIOR TO BIDDING BASED ON HIS OWN ESTIMATES OF CONDUIT FILL FOR EACH CONDUIT RUN.

DEVICE LEGEND:

- ⌘₁ SINGLE POLE SWITCH (EXISTING)
- ⌘₃ THREE WAY SWITCH (EXISTING)
- Ⓜ LED SERVICE LUMINAIRE - MACHINERY PLATFORM (E401)
- Ⓧ LED FLOOD LUMINAIRE - COUNTERWEIGHT PIT (E403)
- Ⓢ LED SERVICE LUMINAIRE - STAIRWAY (E401)
- Ⓢ GFCI RECEPTACLE (EXISTING)

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY: J. C. RINEHART DATE: 08/03/18
 DRAWN BY: J. C. RINEHART DATE: 08/03/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONDUIT LAYOUT - 3					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. E-110					TOTAL SHEETS 213

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CONDUIT SCHEDULE - 1

RUN NUMBER	CONDUIT TRADE SIZE	FROM	TO	WIRE	GND	NOTES
101	-	ATS	DP-1	4-(5) 500 KCMIL CABLE		MESSENGER CABLE
102	¾	DP-1	SPD	AS REQUIRED		SURGE PROTECTION DEVICE
103	¾	DP-1	POWER AND PHASE MONITOR	(11) 12 AWG	12 AWG	
104	2½	VFD-3	FAR SIDE EQUIPMENT CABINET	(1) 2/0 VFD CABLE		MAIN MOTOR M-3
105	2	DP-1	VFD-4	(3) 3/0	3/0	VFD CABLE
106	2	DP-1	VFD-3	(3) 3/0	3/0	VFD CABLE
107	2	DP-1	VFD-2	(3) 3/0	3/0	VFD CABLE
108	2	DP-1	VFD-1	(3) 3/0	3/0	VFD CABLE
109	3	DP-1	PNB-1	(4) 250 KCMIL	250 KCMIL	
110	2½	DP-1	MCC	(4) 3/0	3/0	
111	1½	MCC	NEAR SIDE EQUIPMENT CABINET	(6) 10 AWG	10 AWG	SLK-1, 2
				(6) 10 AWG		EB-1, 2
				(6) 10 AWG		MB-1, 2
112	¾	PNB-1	NEAR SIDE EQUIPMENT CABINET	(3) 10 AWG	10 AWG	AUX DRIVE-1
113	1¼	PNB-1	FAR SIDE EQUIPMENT CABINET	(3) 10 AWG	4 AWG	AUX DRIVE-2
				(3) 4 AWG		PNB-3
114	1½	PNB-1	XFMR-1	(3) 1 AWG	1 AWG	
115	2	XFMR-1	PNB-2	(4) 3/0 AWG	3/0 AWG	
116	1	PNB-2	JB-10	(3) 10 AWG	10 AWG	SPAN NAVIGATION LIGHTS
				(2) 10 AWG		JB-14A RECEPTACLE
				(6) 10 AWG		SPARE
117	¾	MCC	JB-10	(3) 10 AWG	10 AWG	CLKDS-1
				(3) 10 AWG		CLKDS-2
118	2	I/O CABINET GEN ROOM	JB-10	(40) 12 AWG	12 AWG	CLK-1, 2 CONTROL
119	1¼	JB-10	JB-11	(3) 10 AWG	10 AWG	SPAN NAVIGATION LIGHTS
				(2) 10 AWG		JB-14A RECEPTACLE
				(6) 10 AWG		SPARE
				(6) 10 AWG		CLKDS-1, 2
120	2	JB-10	JB-11	(40) 12 AWG	12 AWG	CLK-1, 2 CONTROL
121	1½	MCC	FAR SIDE EQUIPMENT CABINET	(6) 10 AWG	10 AWG	SLK-3, 4
				(6) 10 AWG		MB-3, 4
				(6) 10 AWG		EB-3, 4
				(12) 10 AWG		FAR SIDE WARNING AND BARRIER GATES
122	3½	PLC I/O CABINET GEN ROOM	MCC	(20) 10 AWG	10 AWG	SLK-1, 2, 3, 4
				(10) 10 AWG		CLK-1, 2
				(20) 10 AWG		MB-1, 2, 3, 4
				(4) 10 AWG		EB-1, 2, 3, 4
				(20) 10 AWG		FAR SIDE WARNING AND BARRIER GATES
				(25) 10 AWG		NEAR SIDE WARNING AND BARRIER GATES
123	¾	I/O CABINET GEN ROOM	MCTC-1	(2) 10 AWG	10 AWG	GATE FLASHERS
124	¾	PNB-2	MCTC-1	(2) 10 AWG	10 AWG	EAST WARNING/BARRIER GATE RECEPTACLE
				(2) 10 AWG		EAST TRAFFIC SIGNAL POWER
125	2½	I/O CABINET GEN ROOM	MCTC-1	(35) 10 AWG	10 AWG	NEAR SIDE WARNING AND BARRIER GATES
				(12) 10 AWG		EAST TRAFFIC SIGNALS COMM

NOTES:

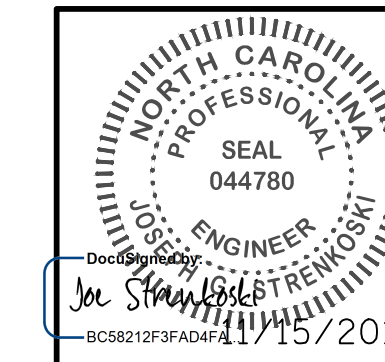
- CONDUIT RUN NUMBERS ON THIS SCHEDULE ARE SHOWN ON SHEET E-108

DESIGNED BY:	J. C. RINEHART	DATE:	08/03/18
DRAWN BY:	J. C. RINEHART	DATE:	08/03/18
CHECKED BY:	L. V. BORDEN	DATE:	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/15/18

CONDUIT SCHEDULE - 1 (CONTINUED)

RUN NUMBER	CONDUIT TRADE SIZE	FROM	TO	WIRE	GND	NOTES
126	2½	VFD-4	FAR SIDE EQUIPMENT CABINET	(1) 2/0 VFD CABLE		MAIN MOTOR M-4
127	3½	FAR SIDE EQUIPMENT CABINET	SCTC-1	(2) 2/0 VFD CABLE		FAR SIDE MAIN MOTORS M-3, M-4
128	2	FAR SIDE EQUIPMENT CABINET	SCTC-1	(3) 10 AWG	4 AWG	ROADWAY LIGHTS
				(3) 4 AWG		PNB-3
				(2) 10 AWG		JB-20 CCTV RECEPTACLE
				(3) 8 AWG		SPAN NAVIGATION LIGHTS
				(2) 8 AWG		FENDER NAVIGATION LIGHTS
129	2	FAR SIDE EQUIPMENT CABINET	SCTC-1	(4) 8 AWG	10	TRAFFIC LIGHTS
				(6) 10 AWG		SL-3, 4
				(6) 10 AWG		MB-3, 4
				(6) 10 AWG		EB-3, 4
				(12) 10 AWG		FAR SIDE WARNING AND BARRIER GATES
130	4	FAR SIDE EQUIPMENT CABINET	SCTC-1	(3) 10 AWG	10 AWG	AUX DRIVE
				(85) 10 AWG		CONTROL WIRES/CABLES
				(3) 3-PAIR		
				(3) CAT-5		
				(1) 12-FIBER		
131	1	PNB-1	JBRL	(4) 8 AWG	8 AWG	
				(3) 8 AWG		FAR SIDE ROADWAY LIGHTS
132	1¼	MCC	MCTC-1	(15) 10 AWG	10 AWG	NEAR SIDE WARNING AND BARRIER GATES
133	2	I/O CABINET GEN ROOM	NEAR SIDE EQUIPMENT CABINET	(8) 10 AWG	10 AWG	SLKLS-1
				(4) 10 AWG		MBLS-1
				(4) 10 AWG		EBLS-1
				(5) 10 AWG		AUX CLUTCH
				(2) 10 AWG		FSPS-1
134	2	I/O CABINET GEN ROOM	NEAR SIDE EQUIPMENT CABINET	3-PAIR	10 AWG	RESOLVER-1
				(8) 10 AWG		SLKLS-2
				(4) 10 AWG		MBLS-2
				(4) 10 AWG		EBLS-2
				(8) 10 AWG		RCLS-1

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH ELECTRICAL CONDUIT SCHEDULE - 1					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. E-111					TOTAL SHEETS 213

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONDUIT SCHEDULE - 2

RUN NUMBER	CONDUIT TRADE SIZE	FROM	TO	WIRE	GND	NOTES
135	¾	I/O CABINET GEN ROOM	NEARSHIDE EQUIPMENT CABINET	(4) 10 AWG	10 AWG	MOTOR HEATER-1, 2
136	¾	JBRL	FARSHIDE EQUIPMENT CABINET	(3) 10 AWG	10 AWG	ROADWAY LIGHTS
137	1	PNB-2	FARSHIDE EQUIPMENT CABINET	(2) 8 AWG (2) 10 AWG	8 AWG	FENDER NAVIGATION LIGHTS CCTV CAMERA #6
138	1½	PNB-2	PLC CABINET UTILITY (I/O)	(2) 8 AWG	8 AWG	SPAN NAVIGATION LIGHTS
				(2) 8 AWG		CABINET UTILITY
				(4) 10 AWG		MOTOR HEATER-1, 2
				(2) 10 AWG		EAST TRAFFIC GATE FLASHERS
				(2) 8 AWG		WEST TRAFFIC SIGNALS
139	¾	PA SYSTEM	FARSHIDE EQUIPMENT CABINET	PA SYSTEM CABLE		FARSHIDE SPEAKERS
140	¾	PNB-2	PA SYSTEM	(2) 10 AWG	10 AWG	PA SYSTEM POWER
141	¾	PA SYSTEM	MCTC-1	PA SYSTEM CABLE		NEARSHIDE SPEAKERS
142	¾	JBRL	MCTC-1	(4) 10 AWG	10 AWG	NEARSHIDE ROADWAY LIGHTS
143	¾	JBRL	PHOTOCELL	(3) 10 AWG	10 AWG	
144	3	I/O CABINET GEN ROOM	FARSHIDE EQUIPMENT CABINET	(2) 3-PAIR	10 AWG	ENCODER-3, 4
				(28) 10AWG		FARSHIDE WARNING AND BARRIER GATES
				(16) 10 AWG		SLKLS-3, 4
				(5) 10 AWG		AUX DRIVE CLUTCH
145	¾	I/O CABINET GEN ROOM	FARSHIDE EQUIPMENT CABINET (POWER)	(3) 8 AWG	8 AWG	SPAN NAVIGATION LIGHTS
146	¾	PNB-2	PLC CABINET ELECTRICAL ROOM	(2) 10 AWG	10 AWG	CONTROL CIRCUITS
				(2) 10 AWG		CABINET UTILITY
147	¾	PNB-2	I/O CABINET GENERATOR ROOM	(2) 10 AWG	10 AWG	CABINET UTILITY
				(2) 10 AWG		CONTROL CIRCUITS
148	¾	PNB-2	CONTROL CONSOLE	(2) 10 AWG	10 AWG	CONTROL CONSOLE UTILITY
				(2) 10 AWG		CHANNEL FLOODLIGHTS
				(2) 10 AWG		CONTROL CONSOLE CIRCUITS
149	2½	VFD-2	NEARSHIDE EQUIPMENT CABINET	(1) 2/0 VFD CABLE		MAIN MOTOR M-2
150	¾	I/O CABINET GEN ROOM	PLC CABINET ELECTRICAL ROOM	3-PAIR	10 AWG	COMMUNICATION
151	¾	PLC CABINET ELECTRICAL ROOM	VFD-3	3-PAIR	10 AWG	COMMUNICATION
			VFD-4	3-PAIR		
152	¾	PLC CABINET ELECTRICAL ROOM	VFD-1	3-PAIR	10 AWG	COMMUNICATION
			VFD-2	3-PAIR		
153	¾	PLC CABINET ELECTRICAL ROOM	FARSHIDE EQUIPMENT CABINET	12-FIBER	10 AWG	FARSHIDE I/O CABINET
154	NOT USED					
155	2½	VFD-1	NEARSHIDE EQUIPMENT CABINET	(1) 2/0 VFD CABLE		MAIN MOTOR M-1
156	¾	PLC CABINET ELECTRICAL ROOM	CONTROL CONSOLE	3-PAIR	10 AWG	COMMUNICATION
157	1½	VFD-3	FARSHIDE EQUIPMENT CABINET	(4) 10 AWG	10 AWG	M-3 DISCONNECT & THERMAL
				3- PAIR		M-3 ENCODER
				(4) 10 AWG		M-4 DISCONNECT & THERMAL
				3- PAIR		M-4 ENCODER
158	1½	VFD-1	NEARSHIDE EQUIPMENT CABINET	(4) 10 AWG	10 AWG	M-1 DISCONNECT & THERMAL
				3- PAIR		M-1 ENCODER
				(4) 10 AWG		M-2 DISCONNECT & THERMAL
				3- PAIR		M-2 ENCODER
159	¾	PNB-2	CCTV JB	(2) 10 AWG	10 AWG	CAMERAS #1-5
160	¾	CCTV JB	MCTC-1	(2) 10 AWG	10 AWG	CAMERA #1 AND #2

DESIGNED BY: J. C. RINEHART DATE: 11/12/18
 DRAWN BY: J. C. RINEHART DATE: 11/12/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

CONDUIT SCHEDULE - 2 (CONTINUED)

RUN NUMBER	CONDUIT TRADE SIZE	FROM	TO	WIRE	GND	NOTES
161	¾	CCTV JB	CAMERA #4	(2) 10 AWG	10 AWG	
162	¾	CCTV JB	CAMERA #3	(2) 10 AWG	10 AWG	
163	¾	CCTV JB	CAMERA #5	(2) 10 AWG	10 AWG	
164	¾	PNB-2	COUNTERWEIGHT PIT LED FLOODLIGHTS	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
165	¾	PNB-2	MACHINERY AREA LED LIGHTS AND RECEPTCLE	(4) 10 AWG	10 AWG	EXISTING CIRCUIT
166	¾	PNB-2	STAIRWAY LED SERVICE LIGHTS	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
167	¾	PNB-2	SEWAGE GRINDER	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
168	¾	PNB-2	WATER HEATER	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
169	¾	PNB-2	FIRE ALARM SYSTEM	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
170	¾	PNB-2	LAVATORY EXHAUST FAN	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
171	¾	PNB-1	GENERATOR ROOM LED LIGHTING CIRCUIT	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
172	¾	PNB-1	CONTROL HOUSE LED LIGHTING CIRCUIT	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
173	¾	PNB-1	WORK ROOM LED LIGHTING CIRCUIT	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
174	¾	PNB-1	CONTROL ROOM LED LIGHTING CIRCUIT	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
175	¾	PNB-1	MSI-1	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
176	¾	PNB-1	MSI-2	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
177	¾	PNB-1	AIR COMPRESSOR	(3) 10 AWG	10 AWG	
178	¾	PNB-2	NVT6 VAPOR LIGHTS GEN & WORK	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
179	¾	PNB-2	NR2 RECEPT WORK ROOM & FAN	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
180	¾	PNB-2	NR38 RECEPT GEN & CONTR ROOM	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
181	¾	PNB-2	NVT5 FUEL ROOM LIGHTS	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
182	¾	PNB-2	NR1 RECEPT SUB CABINET & MACHINERY	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
183	¾	PNB-2	NR3 RECEPT GEN & CONTR ROOM	(2) 10 AWG	10 AWG	EXISTING CIRCUIT
184	AS REQ.	PNB-1	HEAT TRACE	AS REQUIRED		
185	AS REQ.	PNB-1	HEAT TRACE	AS REQUIRED		
186	¾	CONTROL CONSOLE	NEARSHIDE EQUIPMENT CABINET	(2) 10 AWG	10 AWG	CHANNEL FLOOD LIGHTS
187	¾	PNB-2	OUTDOOR HEAT PUMP DISC.	(2) 10 AWG	10 AWG	
188	¾	OUTDOOR DISC.	OUTDOOR HEAT PUMP	(2) 10 AWG	10 AWG	
189	¾	PNB-2	INDOOR HEAT PUMP SW-1	(4) 10 AWG	10 AWG	
190	¾	INDOOR SWITCH-1	INDOOR HEAT PUMP-1	(2) 10 AWG	10 AWG	
191	¾	INDOOR SWITCH-1	INDOOR SWITCH-2	(2) 10 AWG	10 AWG	
192	¾	INDOOR SWITCH-2	INDOOR HEAT PUMP-2	(2) 10 AWG	10 AWG	

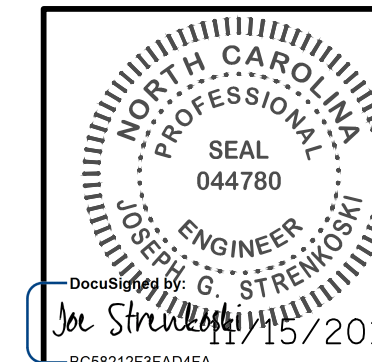
NOTES:

- CONDUIT RUN NUMBERS ON THIS SCHEDULE ARE SHOWN ON SHEET E-108
- CONTRACTOR SHALL BE PERMITTED TO REUSE CONDUIT AND WIRING FOR EXISTING CIRCUITS IN CONTROL HOUSE WHERE DEEMED EFFICIENT FOR INSTALLATION OF NEW EQUIPMENT. CONTRACTOR SHALL FIELD VERIFY CONDITION OF EXISTING CONDUIT AND WIRING BEFORE REUSE.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONDUIT SCHEDULE - 2

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS				SHEET NO.			
NO.	BY:	DATE:	NO.	BY:	DATE:	E-112	
1			3			TOTAL SHEETS 213	
2			4				

CONDUIT SCHEDULE - 3

RUN NUMBER	CONDUIT TRADE SIZE	CONDUCTORS		SERVING
		WIRE	GND	
201*	3/4	(4) 12 AWG	12 AWG	FULLY SEATED PROXIMITY SWITCH - 1
202*	3/4	(3) 10 AWG	10 AWG	SWITCH SLKDS-1
203*	3/4	(3) 10 AWG	10 AWG	SPAN LOCK SLK-1 MOTOR
204*	1 1/4	(30) 12 AWG	12 AWG	SPAN LOCK SLK-1 LIMIT SWITCHES
205	2 1/2	(1) 2/O VFD CABLE		SWITCH MDS-1
205A	2 1/2	(1) 2/O VFD CABLE		MOTOR M-1
205B	3/4	(2) 10 AWG	10 AWG	MOTOR DISCONNECT SWITCH M-1
206*	3/4	(3) 12 AWG	12 AWG	SWITCH MBDS-1
		(3) 12 AWG		BRAKE MB-1
207*	3/4	(3) 12 AWG	12 AWG	SWITCH EBDS-1
		(3) 12 AWG		BRAKE EB-1
208*	1	(3) 10 AWG	10 AWG	AUXILIARY DRIVE CONTROLS
		(3) 10 AWG		AUXILIARY DRIVEN OTOR
209*	1 1/4	(6) 12 AWG	12 AWG	BRAKE MB-1 LIMIT SWITCHES
		(6) 12 AWG		BRAKE EB-1 LIMIT SWITCHES
		(4) 12 AWG		AUX DRIVE COUPLING LIMIT SWITHCES
210*	1 1/4	(6) 12 AWG	12 AWG	BRAKE EB-1 LIMIT SWITCHES
		(4) 12 AWG		AUX DRIVE COUPLING LIMIT SWITHCES
211*	3/4	(6) 12 AWG	12 AWG	BRAKE MB-1 LIMIT SWITCHES
212*	3/4	(4) 12 AWG	12 AWG	AUX DRIVE COUPLING LIMIT SWITHCES
213*	3/4	(6) 12 AWG	12 AWG	BRAKE EB-1 LIMIT SWITCHES
214*	1	TO BE REMOVED		
215	3	(1) 2/O VFD CABLE		MOTOR M-1
		(2) 10 AWG	10 AWG	M-1 MOTOR WINDING HEATERS
215A	3/4	3-PAIR	10 AWG	M-1 ENCODER
		(2) 10 AWG		M-1 THERMAL
216*	1	(3) 12 AWG	12 AWG	BRAKE MB-1
		(3) 10 AWG		AUXILIARY DRIVE
		(3) 12 AWG		BRAKE EB-1
217*	1	(3) 10 AWG	10 AWG	AUXILIARY DRIVE
		(3) 12 AWG		BRAKE EB-1
218*	3/4	(3) 12 AWG	12 AWG	BRAKE MB-1
219*	3/4	(3) 10 AWG	10 AWG	AUXILIARY DRIVE
220*	3/4	(3) 12 AWG	12 AWG	BRAKE EB-1
221		NOT USED		
222*	3/4	(3) 10 AWG	10 AWG	SWITCH SLKDS-2
223*	3/4	(3) 10 AWG	10 AWG	SPAN LOCK SLK-2 MOTOR
224*	1 1/4	(30) 12 AWG	12 AWG	SPAN LOCK SLK-2 LIMIT SWITCHES
225	2 1/2	(1) 2/O VFD CABLE		SWITCH MDS-2
225A	2 1/2	(1) 2/O VFD CABLE		MOTOR M-2
225B	3/4	(2) 10 AWG	10 AWG	MOTOR DISCONNECT SWITCH M-2
226*	3/4	(3) 12 AWG	12 AWG	SWITCH MBDS-2
		(3) 12 AWG		BRAKE MB-2
227*	3/4	(3) 12 AWG	12 AWG	SWITCH EBDS-2
		(3) 12 AWG		BRAKE EB-2
228*	3/4	(1) 3-PAIR	10 AWG	RESOLVER

CONDUIT SCHEDULE - 3 (CONTINUED)

RUN NUMBER	CONDUIT TRADE SIZE	CONDUCTORS		SERVING
		WIRE	GND	
230*	1	(6) 12 AWG	12 AWG	BRAKE MB-2 LIMIT SWITHCES
		(6) 12 AWG	12 AWG	BRAKE EB-2 LIMIT SWITCHES
231*	3/4	(6) 12 AWG	12 AWG	BRAKE MB-2 LIMIT SWITHCES
232*	3/4	(6) 12 AWG	12 AWG	BRAKE EB-2 LIMIT SWITCHES
233	3	(1) 2/O VFD CABLE		MOTOR M-2
		(2) 10 AWG	10 AWG	M-2 MOTOR WINDING HEATERS
233A	3/4	3-PAIR	10 AWG	M-2 ENCODER
		(2) 10 AWG		M-2 THERMAL
234*	3/4	(3) 12 AWG	12 AWG	BRAKE MB-2
		(3) 12 AWG		BRAKE EB-2
235*	3/4	(3) 12 AWG	12 AWG	BRAKE MB-2
236*	3/4	(3) 12 AWG	12 AWG	BRAKE EB-2
237*	1 1/2	(9) 10 AWG	10 AWG	POWER INTERCONNECTIONS AS REQUIRED
238*	1 1/2	(20) 12 AWG	12 AWG	CONTROL INTERCONNECTIONS AS REQUIRED
239	1 1/4	(3) 10 AWG	10 AWG	SWITCH CLKDS-1
		(3) 10 AWG		SWITCH CLKDS-2
		(3) 10 AWG		SPAN NAVIGATION LIGHTS
		(2) 10 AWG		JB-13A RECEPTACLE
		(3) 10 AWG		SPARE
240*	1 1/4	(3) 10 AWG	10 AWG	SWITCH CLKDS-1
		(6) 10 AWG		SPAN NAVIGATION LIGHTS
		(2) 10 AWG		JB-13A RECEPTACLE
		(3) 10 AWG		SPARE
241*	1	(3) 10 AWG	10 AWG	SWITCH CLKDS-2
		(3) 10 AWG		SPAN NAVIGATION LIGHTS
		(3) 10 AWG		SPARE
242*	2	(20) 12 AWG	12 AWG	CENTER LOCK CLK-1 CONTROL
		(20) 12 AWG		CENTER LOCK CLK-2 CONTROL
243*	2	(20) 12 AWG	12 AWG	CENTER LOCK CLK-1 CONTROL
		(20) 12 AWG		CENTER LOCK CLK-2 CONTROL (JB-11 TO JB-14B)
		(20) 12 AWG		CENTER LOCK CLK-2 CONTROL (JB-13B TO JB-14B)
244*	1 1/4	(20) 12 AWG	12 AWG	CENTER LOCK CLK-2 CONTROL
245*	3/4	(3) 10 AWG	10 AWG	SWITCH CLKDS-1
246*	3/4	(3) 10 AWG	10 AWG	CENTER LOCK CLK-1 MOTOR
247*	3/4	(3) 10 AWG	10 AWG	NORTHEAST SPAN NAVIGATION LIGHTS
248*	1 1/4	(16) 12 AWG	12 AWG	CENTER LOCK CLK-1 LIMIT SWITCH
249*	3/4	(3) 10 AWG	10 AWG	SWITCH CLKDS-2
250*	3/4	(3) 10 AWG	10 AWG	CENTER LOCK CLK-2 MOTOR
251*	3/4	(3) 10 AWG	10 AWG	SOUTHEAST SPAN NAVIGATION LIGHTS
252*	1 1/4	(16) 12 AWG	12 AWG	CENTER LOCK CLK-2 LIMIT SWITCH

NOTES:

1. RUN NUMBERS WITH "*" INDICATE EXISTING RUN NUMBER FROM 2011 REHAB TO REMAIN FOR USE. CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDUIT SIZE AND CONDUCTORS PRESENT FOR RUN.
2. CONDUIT RUN NUMBERS ON THIS SCHEDULE CAN BE SHOWN ON SHEET E-109

CONDUIT SCHEDULE - 3 (CONTINUED)

RUN NUMBER	CONDUIT TRADE SIZE	CONDUCTORS		SERVING
		WIRE	GND	
253	2	(8) 10 AWG	10 AWG	SPAN LOCK SKL-1 LIMIT SWITCHES
		(6) 10 AWG		MOTOR BRAKE MB-1 LIMIT SWITCHES
		(6) 10 AWG		EMERGENCY BRAKE EB-1 LIMIT SWITCHES
		(5) 10 AWG		AUXILIARY DRIVE CLUTCH
		(2) 10 AWG		FULLY SEATED PROXIMITY SWITCH - 1
		(2) 10 AWG		SWITCH MDS-1
		(1) 3-PAIR		M-1 ENCODER
		(2) 10 AWG		AIR HORN CONTROL
254	1 1/4	(3) 10 AWG	10 AWG	AUXILIARY DRIVE
		(3) 10 AWG		MB-1
		(3) 10 AWG		EB-1
		(3) 10 AWG		SL-1
255	2 1/2	(1) 2/O VFD CABLE		M-1
256	2 1/2	(8) 10 AWG	10 AWG	SPAN LOCK SLK-2 LIMIT SWITCHES
		(6) 10 AWG		MOTOR BRAKE MB-2 LIMIT SWITCHES
		(6) 10 AWG		EMERGENCY BRAKE EB-2 LIMIT SWITCHES
		(2) 10 AWG		SWITCH MDS-2
		(1) 3-PAIR		M-2 ENCODER
		(2) 10 AWG		M-2 THERMAL
		(8) 10 AWG		ROTARY CAM LIMIT SWITCH-1
257	1	(3) 10 AWG	10 AWG	MB-2
		(3) 10 AWG		EB-2
		(3) 10 AWG		SL-2
258	2 1/2	(1) 2/O VFD CABLE		M-2
259	3/4	(2) 10 AWG	10 AWG	FLOOD LIGHTS 1, 2, 3
260	3/4	(2) 10 AWG	10 AWG	AIR HORN SOLENOID VALVE

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

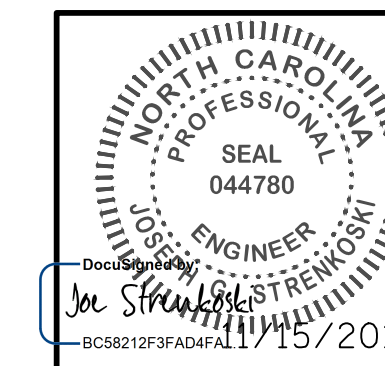
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
CONDUIT SCHEDULE - 3

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. **E-113**
 TOTAL SHEETS 213

MODJESKI and MASTERS
 Experience great bridges.
 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



DESIGNED BY: J.C. RINEHART DATE: 11/01/18
 DRAWN BY: J.C. RINEHART DATE: 11/01/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

CONDUIT SCHEDULE - 4

RUN NUMBER	CONDUIT TRADE SIZE	CONDUCTORS		SERVING
		CIRCUIT	GROUND	
301*	3/4	(4) 12 AWG	12 AWG	FULLY SEATED PROXIMTY SWITCH FSPS-2
302*	3/4	(3) 10 AWG	10 AWG	SWITCH SLKDS-3
303*	3/4	(3) 10 AWG	10 AWG	SPAN LOCK SLK-3 MOTOR
304*	1 1/4	(30) 12 AWG	12 AWG	SPAN LOCK SLK-3 LIMIT SWITCHES
305	2 1/2	(1) 2/0 VFD CABLE		SWITCH MDS-3
305A	2 1/2	(1) 2/0 VFD CABLE		MOTOR M-3
305B	3/4	(2) 10 AWG	10 AWG	MOTOR DISCONNECT SWITCH M-3
306*	3/4	(3) 12 AWG	12 AWG	SWITCH MBDS-3
		(3) 12 AWG	12 AWG	BRAKE MB-3
307*	3/4	(3) 12 AWG	12 AWG	SWITCH EBDS-3
		(3) 12 AWG	12 AWG	BRAKE EB-3
308*	1	(5) 10 AWG	10 AWG	AUXILIARY DRIVE CONTROLS
		(3) 10 AWG	10 AWG	AUXILIARY DRIVE MOTOR
309*	1 1/4	(6) 12 AWG	12 AWG	BRAKE MB-3 LIMIT SWITCHES
		(6) 12 AWG	12 AWG	BRAKE EB-3 LIMIT SWITCHES
		(5) 10 AWG	12 AWG	AUXILIARY DRIVE COUPLING LIMIT SWITCH
310*	1 1/4	(6) 12 AWG	12 AWG	BRAKE EB-3 LIMIT SWITCHES
		(5) 10 AWG	12 AWG	AUXILIARY DRIVE COUPLING LIMIT SWITCH
311*	3/4	(6) 12 AWG	12 AWG	BRAKE MB-3 LIMIT SWITCHES
312*	3/4	(5) 10 AWG	10 AWG	AUXILIARY DRIVE COUPLING LIMIT SWITCH
313*	3/4	(6) 12 AWG	12 AWG	BRAKE EB-3 LIMIT SWITCHES
314	1	TACHOMETER GENERATOR - TO BE REMOVED		
315	3	(1) 2/0 VFD CABLE		MOTOR M-3
		(2) 10 AWG	10 AWG	MOTOR WINDING HEATERS M-3
315A	3/4	3-PAIR	10 AWG	M-3 ENCODER
		(2) 10 AWG	10 AWG	M-3 THERMAL
316*	1	(3) 12 AWG	12 AWG	BRAKE MB-3
		(3) 12 AWG	12 AWG	BRAKE EB-3
		(3) 10 AWG	10 AWG	AUXILIARY DRIVE MOTOR
317*	1	(3) 12 AWG	12 AWG	BRAKE EB-3
		(3) 10 AWG	10 AWG	AUXILIARY DRIVE MOTOR
318*	3/4	(3) 12 AWG	12 AWG	BRAKE MB-3
319*	3/4	(3) 10 AWG	10 AWG	AUXILIARY DRIVE MOTOR
320*	3/4	(3) 12 AWG	12 AWG	BRAKE EB-3
321	3/4	(2) 10 AWG	10 AWG	MOTOR M-4 DISCONNECT
322*	3/4	(3) 10 AWG	10 AWG	SWITCH SLKDS-4
323*	3/4	(3) 10 AWG	10 AWG	SPAN LOCK SLK-4 MOTOR
324*	1 1/4	(30) 12 AWG	12 AWG	SPAN LOCK SLK-4 LIMIT SWITCHES
325	2 1/2	(1) 2/0 VFD CABLE		SWITCH MDS-4
325A	2 1/2	(1) 2/0 VFD CABLE		MOTOR M-4
326*	3/4	(3) 12 AWG	12 AWG	SWITCH MBDS-4
		(3) 12 AWG	12 AWG	BRAKE MB-4
327*	3/4	(3) 12 AWG	12 AWG	SWITCH EBDS-4
		(3) 12 AWG	12 AWG	BRAKE EB-4
328	3/4	(1) 3-PAIR	10 AWG	RESOLVER
329*	1 1/4	(24) 12 AWG	12 AWG	ROTARY CAM LIMIT SWITCH-2
330*	1	(6) 12 AWG	12 AWG	BRAKE MB-4 LIMIT SWITCHES
		(6) 12 AWG	12 AWG	BRAKE EB-4 LIMIT SWITCHES
331*	3/4	(6) 12 AWG	12 AWG	BRAKE MB-4 LIMIT SWITCHES
332*	3/4	(6) 12 AWG	12 AWG	BRAKE EB-4 LIMIT SWITCHES

CONDUIT SCHEDULE - 4 (CONTINUED)

RUN NUMBER	CONDUIT TRADE SIZE	CONDUCTORS		SERVING
		CIRCUIT	GROUND	
333	3	(1) 2/0 VFD CABLE		MOTOR M-4
		(2) 10 AWG	10 AWG	MOTOR WINDING HEATERS M-4
333A	3/4	3-PAIR	10 AWG	M-4 ENCODER
		(2) 10 AWG		M-4 THERMAL
334*	3/4	(3) 12 AWG	12 AWG	BRAKE MB-4
		(3) 12 AWG	12 AWG	BRAKE EB-4
335*	3/4	(3) 12 AWG	12 AWG	BRAKE MB-4
336*	3/4	(3) 12 AWG	12 AWG	BRAKE EB-4
337*	1 1/2	(9) 10 AWG	10 AWG	POWER INTERCONNECTIONS AS REQ'D
338*	1 1/2	(20) 12 AWG	12 AWG	CONTROL INTERCONNECTIONS AS REQ'D
339	2 1/2	(12) 10 AWG	3 AWG	MB-3, MB-4, EB-3, EB-4
		(6) 10 AWG		SL-3, SL-4
		(3) 8 AWG		AUX DRIVE
		(2) 8 AWG		FENDER NAVIGATION LIGHTS
		(3) 8 AWG		SPAN NAVIGATION LIGHTS
		(3) 3 AWG		PNB-3
		(2) 8 AWG		BARRIER & WARNING GATE RECEPTACLES
340	1 1/4	(3) 10 AWG	8 AWG	MB-3
		(3) 10 AWG		EB-3
		(3) 8 AWG		AUX DRIVE
		(3) 10 AWG		SLK-3
		(2) 10 AWG		M-3 MOTOR HEATER WINDINGS
		(3) 10 AWG		MB-4
		(3) 10 AWG		EB-4
341	1	(3) 10 AWG	10 AWG	SLK-4
		(3) 10 AWG		M-4 MOTOR HEATER WINDINGS
		(2) 10 AWG		
342	1 1/4	(3) 3 AWG	3 AWG	FEED TO PNB-3
		(2) 8 AWG		FENDER NAVIGATION LIGHTS
		(2) 10 AWG		LED PIT FLOODLIGHTS
		(2) 10 AWG		STAIRWAY LIGHTS
		(2) 10 AWG		RECEPTACLE ON MACHINERY PLATFORM
343	1 1/4	(2) 10 AWG	8 AWG	MACHINERY PLATFORM LIGHTS
		(2) 10 AWG		
		(2) 10 AWG		
		(2) 10 AWG		
		(2) 10 AWG		
344	2 1/2	(1) 2/0 VFD CABLE		SCTC-2 TO TC-3 VFD CABLE
345	2 1/2	(1) 2/0 VFD CABLE		SCTC-3 TO TC-4 VFD CABLE
346	3	(44) 10 AWG	10 AWG	SCTC-2 TO NEW CONTROL JB
		(3) 3-PAIR		
		(1) 12-FIBER		
347	2	(8) 10 AWG	10 AWG	SLK-3 LIMIT SWITCHES
		(6) 10 AWG		MB-3 LIMIT SWITCHES
		(6) 10 AWG		EB-3 LIMIT SWITCHES
		(5) 10 AWG		AUXILIARY DRIVE CLUTCH
		(2) 10 AWG		FULLY SEATED PROXIMITY SWITCH FSPS-2
		(2) 10 AWG		MOTOR DISCONNECT SWITCH M-3
		(1) 3-PAIR		M-3 ENCODER
(2) 10 AWG	M-3 THERMAL			

NOTES:

- RUN NUMBERS WITH * INDICATE EXISTING RUN NUMBER FROM 2011 REHAB TO REMAIN FOR USE. CONTRACTOR IS TO FIELD VERIFY ACTUAL CONDUIT SIZE AND CONDUCTORS PRESENT FOR RUN.
- RUN NUMBER 365 DESIGNATED FOR INTERCONNECTION BETWEEN SCTC-2, POWER AND CONTROL AND FUTURE INSTALLATION OF CONDUCTORS THROUGH HDPE DUCT
- CONDUIT RUN NUMBERS ON THIS SCHEDULE ARE SHOWN ON SHEET E-110

CONDUIT SCHEDULE - 4 (CONTINUED)

RUN NUMBER	CONDUIT TRADE SIZE	CONDUCTORS		SERVING
		CIRCUIT	GROUND	
348	2	(8) 10 AWG	10 AWG	SLK-4 LIMIT SWITCHES
		(6) 10 AWG		MB-4 LIMIT SWITCHES
		(6) 10 AWG		EB-4 LIMIT SWITCHES
		(8) 10 AWG		ROTARY CAM LIMIT SWITCH - 2
		(2) 10 AWG		MOTOR DISCONNECT SWITCH M-4
		(1) 3-PAIR		M-4 ENCODER
		(1) 3-PAIR		RESOLVER
		(2) 10 AWG		M-4 THERMAL
349	3/4	(3) 10 AWG	10 AWG	SPAN NAVIGATION LIGHTS
350	1	(3) 10 AWG	10 AWG	SPAN NAVIGATION LIGHTS
		(3) 10 AWG		SPARE
351*	3/4	(3) 10 AWG	10 AWG	NORTHWEST SPAN NAVIGATION LIGHT
352*	3/4	(3) 10 AWG	10 AWG	SOUTHWEST SPAN NAVIGATION LIGHT
353	3/4	(2) 10 AWG	10 AWG	FENDER NAVIGATION LIGHTS 4, 5, 6
354	3/4	(2) 10 AWG	10 AWG	FENDER NAVIGATION LIGHTS 6
355	3/4	(2) 10 AWG	10 AWG	FENDER NAVIGATION LIGHTS 5, 4
356	3/4	(2) 10 AWG	10 AWG	FENDER NAVIGATION LIGHT 4
357	3/4	(3) 10 AWG	10 AWG	MACHINERY PLATFORM LED LUMINAIRES
		(2) 10 AWG		MACHINERY PLATFORM EXISTING GFCI
358	3/4	(2) 10 AWG	10 AWG	STAIRWAY LED LUMINAIRES
359	3/4	(2) 10 AWG	10 AWG	NORTH COUNTERWEIGHT PIT LED FLOOD LIGHT
360	3/4	(2) 10 AWG	10 AWG	SOUTH COUNTERWEIGHT PIT LED FLOOD LIGHT
361	1 1/2	(2) 10 AWG	8 AWG	PLC I/O CABINET 120VAC POWER
		(2) 10 AWG		PLC I/O CABINET UTILITY
		(2) 10 AWG		MOTOR WINDING HEATERS M-3
		(2) 10 AWG		MOTOR WINDING HEATERS M-4
		(2) 8 AWG		WARNING & BARRIER GATE FLASHERS
		(2) 8 AWG		WARNING & BARRIER GATE RECEPTACLES
362	1 1/4	(2) 10 AWG	8 AWG	MOTOR WINDING HEATERS M-3
		(2) 10 AWG		MOTOR WINDING HEATERS M-4
		(2) 8 AWG		WARNING & BARRIER GATE FLASHERS
		(2) 8 AWG		WARNING & BARRIER GATE RECEPTACLES
363	2	12-FIBER	10 AWG	PLC I/O COMMUNICATION
		(24) 10 AWG		MB-3, MB-4, EB-3, EB-4 LIMIT SWITCHES
364	5	FARSIDE GENERAL WIRING MESSENGER CABLE BUNDLE. SEE SHEET E-121 FOR MESSENGER CABLE DETAILS		
365	SEE NOTE 2			

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
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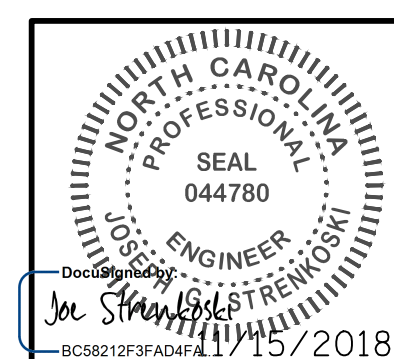
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SHEET NO. **E-114**
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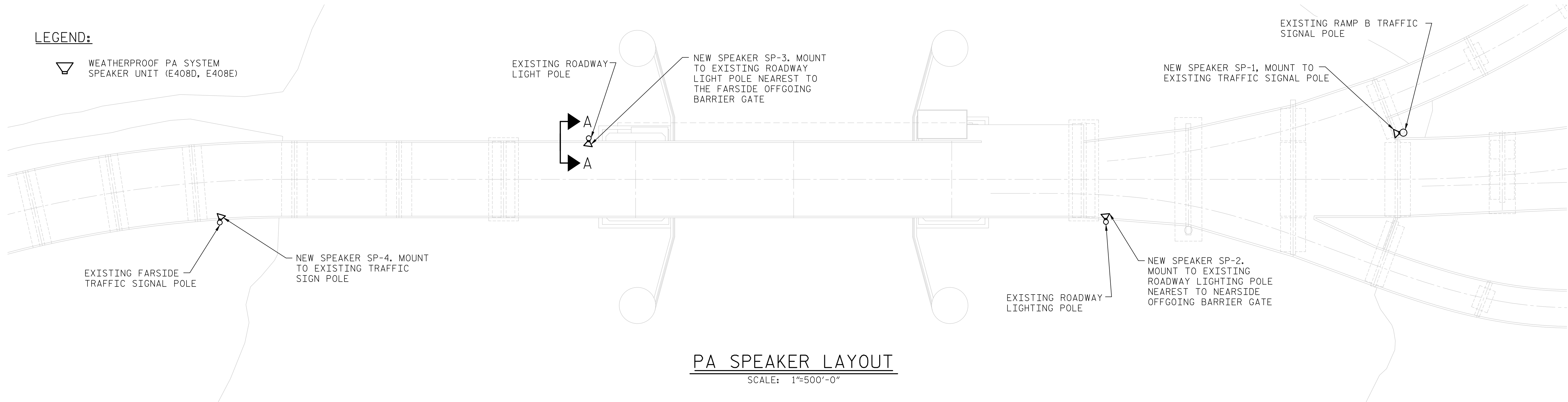


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DESIGNED BY: J.C. RINEHART DATE: 11/01/18
 DRAWN BY: J.C. RINEHART DATE: 11/01/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

LEGEND:

▽ WEATHERPROOF PA SYSTEM SPEAKER UNIT (E408D, E408E)

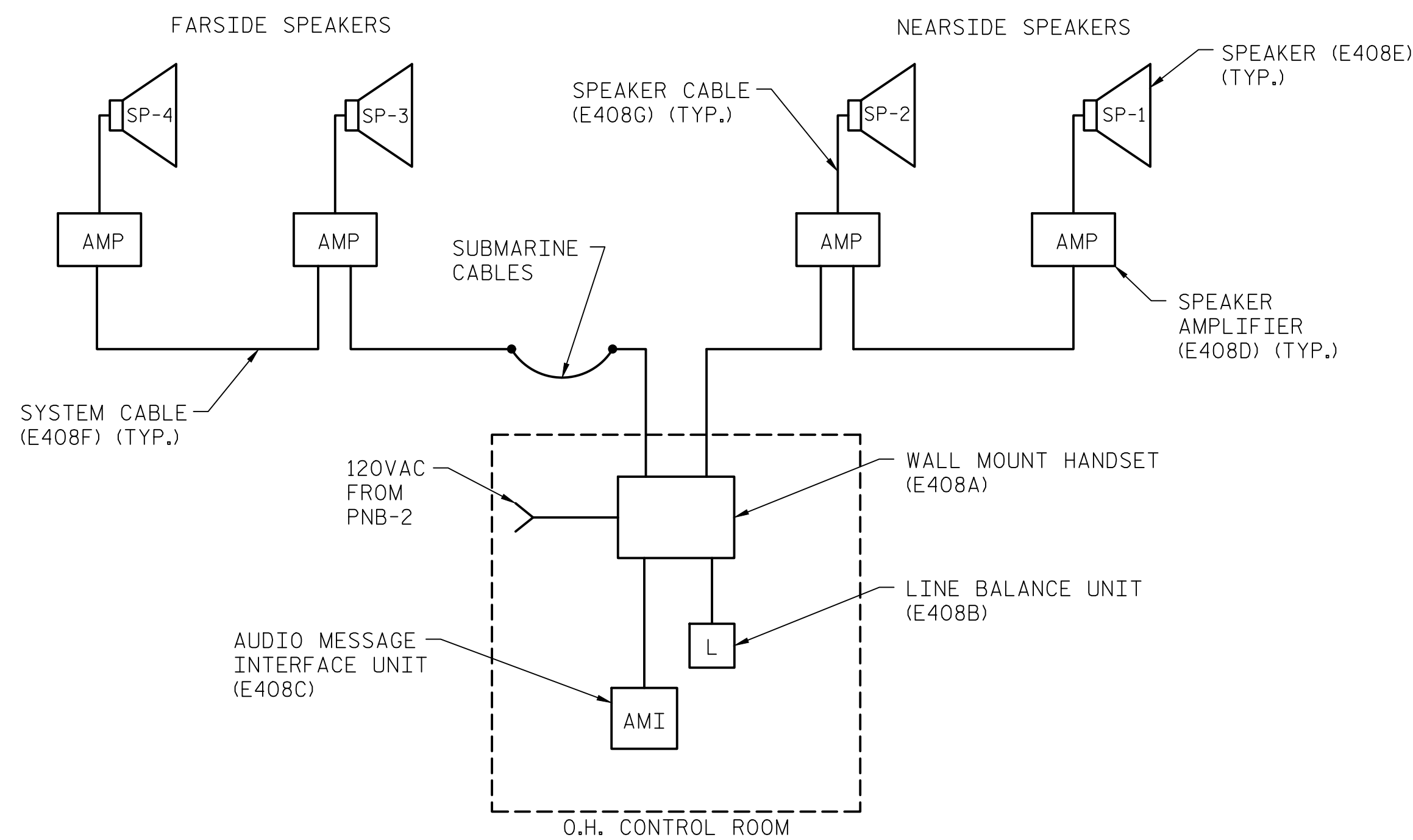


PA SPEAKER LAYOUT

SCALE: 1"=500'-0"

NOTES:

1. MOUNT SPEAKERS TO EXISTING LIGHT POLES PER MANUFACTURER MOUNTING INSTRUCTIONS. SEE SHEET E-116 FOR TYPICAL MOUNTING DETAILS.
2. PA SYSTEM DESIGNED USING GAI-TRONICS PAGE PARTY SYSTEM AS A REFERENCE. VARIATIONS IN COMPONENTS RESULTING FROM USE OF AN APPROVED EQUAL SYSTEM BY A DIFFERENT MANUFACTURER SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
3. SPEAKER LOCATIONS SHOWN ON THIS SHEET DO NOT REPRESENT EXACT FIELD LOCATIONS AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
4. ITEM DESIGNATORS (E408X) CORRESPOND TO ITEMS IN PUBLIC ADDRESS SYSTEM PARTS LIST ON SHEET E-116.
5. SEE SHEET E-116 FOR SECTION A-A.
6. POWER CABLES FOR NEW PA SYSTEM SPEAKERS TO BE RUN IN NEW GENERAL WIRING MESSENGER CABLE BUNDLE. SEE SHEETS E-120, E-121, AND E-122 FOR DETAILS.



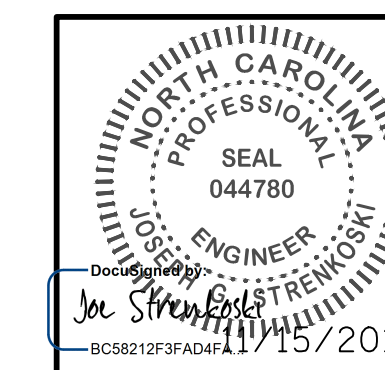
PA SYSTEM DIAGRAM

PROJECT NO. 15BPR.14
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STATE OF NORTH CAROLINA
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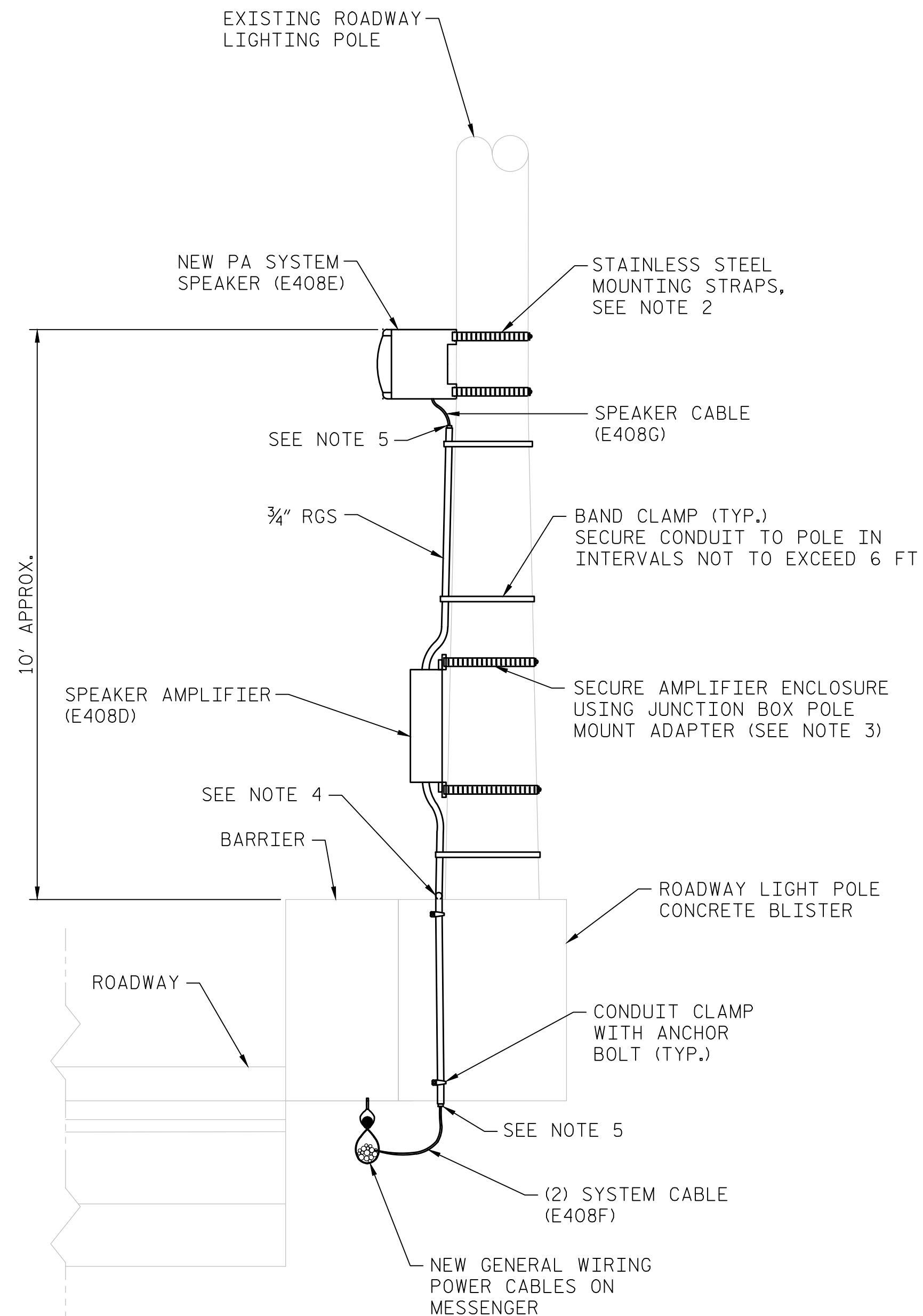


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 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18



TYPICAL PA SYSTEM SPEAKER MOUNTING DETAIL SECTION A-A

SCALE: NONE

ROADWAY LIGHT POLE MOUNTING SHOWN (TYPICAL FOR 3 LOCATIONS), TRAFFIC SIGNAL POLE MOUNTING SIMILAR (TYPICAL FOR 1 LOCATION)

PUBLIC ADDRESS SYSTEM PARTS LIST (ITEM E408)						
ITEM NO.	QUANTITY	UNIT	ITEM NAME	MANUFACTURER	CATALOG NUMBER/MODEL	DESCRIPTION
E408A	1	EA.	HANDSET	GAI-TRONICS	700-102	120VAC, 60HZ, WALL MOUNT INDOOR STATION WITH HANDSET, SINGLE PARTY, NEMA 1 RATED 16-GAUGE STEEL ENCLOSURE
E408B	1	EA.	LINE BALANCE UNIT	GAI-TRONICS	305-001	LINE BALANCE ASSEMBLY IN CAST ALUMINUM 2-GANG OUTLET BOX WITH DUST-TIGHT COVER
E408C	1	EA.	AUDIO MESSENGER INTERFACE (AMI)	GAI-TRONICS	10959-201	WALL MOUNT AUDIO MESSAGE INTERFACE UNIT WITH BUILT IN FEEDBACK ELIMINATOR AND MEMORY CARD FOR USER RECORDED MESSAGE STORAGE. COMPATIBLE WITH ITEM E408A
E408D	4	EA.	SPEAKER AMPLIFIER	GAI-TRONICS	760-003	WEATHERPROOF SPEAKER AMPLIFIER UNIT RATED FOR OUTDOOR USE, ANALOG, 12W, 8/16 OHM OUTPUT
E408E	4	EA.	SPEAKER	GAI-TRONICS	13350	INTEGRAL LOUDSPEAKER WITH BUILT IN DRIVER, DIRECT RADIATING HORN TYPE, UV RESISTANT WEATHERPROOF ENCLOSURE WITH INTEGRAL TERMINAL BLOCKS AND CONDUIT ENTRY OPENINGS, 16W, 8 OHM IMPEDANCE, 90 DEGREE DISPERSION NOMINAL, 117 dB @ 12W
E408F	AS REQ.	LIN. FT	SYSTEM CABLE	GAI-TRONICS	60038-101	EIGHT CONDUCTOR COMMUNICATION AND POWER CABLE WITH (1) 14AWG TWISTED PAIR, (1) 18AWG TWISTED PAIR, (1) 14AWG CONDUCTOR AND (1) 18AWG CONDUCTOR. PVC INSULATION AND JACKET, TYPE TC, UL-LISTED FOR OUTDOOR USE AS AERIAL CABLE SUPPORTED BY MESSENGER
E408G	80	LIN. FT	SPEAKER CABLE	GAI-TRONICS	60028-101	THREE CONDUCTOR CABLE CONSISTING OF (1) 18AWG TWISTED TRIPLET LOUDSPEAKER CABLE COMPATIBLE WITH E408D. PVC INSULATION WITH PVC JACKET RATED FOR USE AS AN AERIAL CABLE SUPPORTED BY MESSENGER

NOTES:

- SEE SHEET E-115 FOR LOCATIONS OF PUBLIC ADDRESS SYSTEM COMPONENTS.
- USE SCREWS TO SECURE MOUNTING STRAPS TO SPEAKER AT ALL FOUR MOUNTING SCREW LOCATIONS ON SPEAKER HOUSING.
- ATTACH SPEAKER AMPLIFIER ENCLOSURE TO POLE USING POLE MOUNT ADAPTER KIT WITH ADAPTER PLATES AND STAINLESS STEEL STRAPS. MOUNTING DEVICE SHALL BE SIMILAR TO AMPOLEMOUNT AS MANUFACTURED BY ALLIED MOULDED PRODUCTS.
- AT BOTTOM OF POLE TRANSITION TO RUN CONDUIT ACROSS TOP OF BLISTER AND DOWN THE FACE OF THE BLISTER STOPPING AT THE BOTTOM OF THE BLISTER FACE. CONDUIT ATTACHED TO CONCRETE SHALL BE SECURED USING CONDUIT CLAMPS WITH ANCHOR BOLTS AT INTERVALS NOT TO EXCEED 6 FT.
- PROVIDE CONDUIT TO CABLE FITTINGS WHERE CABLES ENTER AND EXIT RGS CONDUIT.

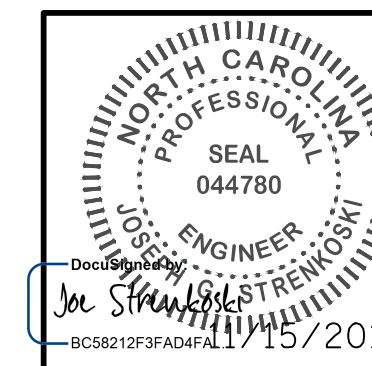
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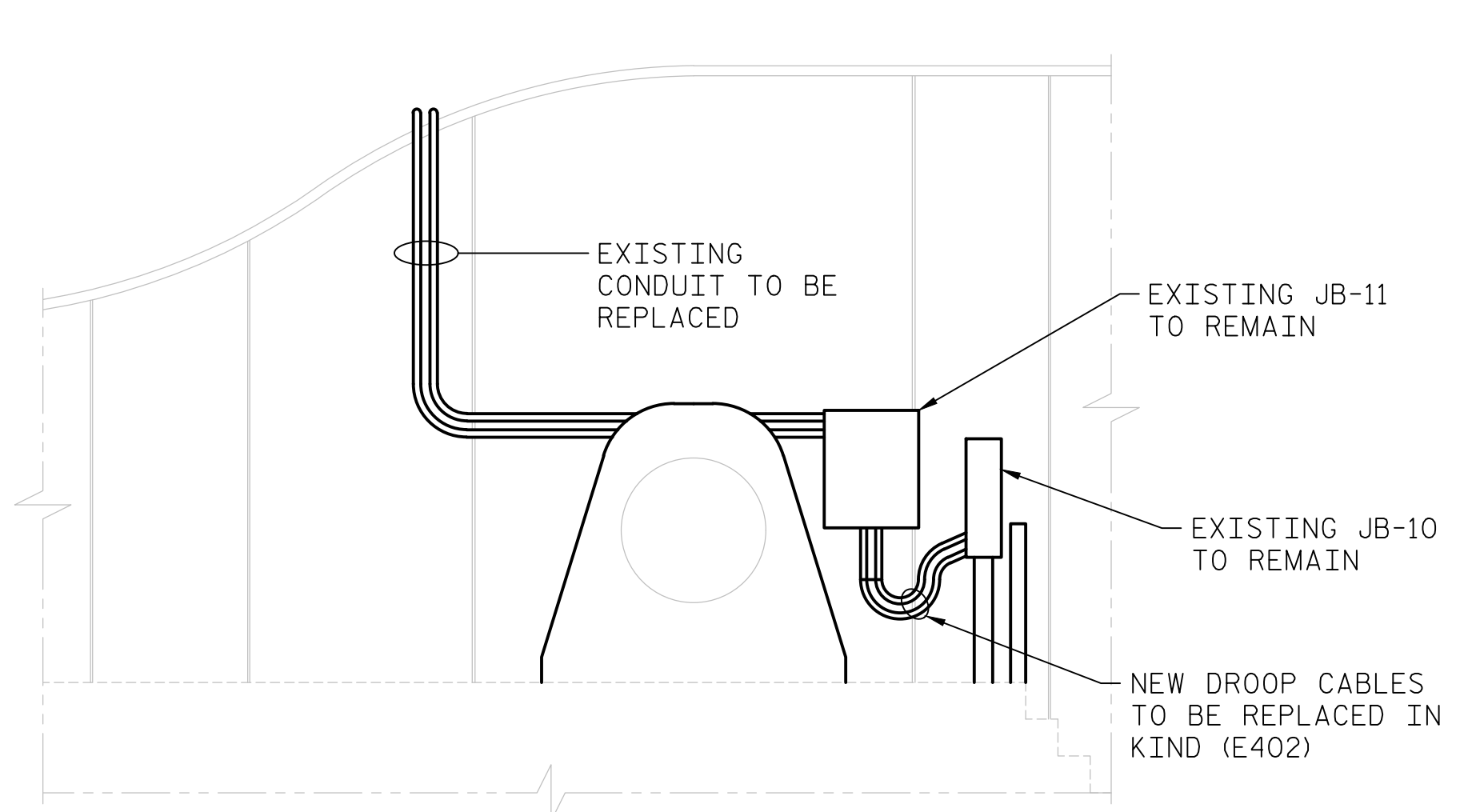
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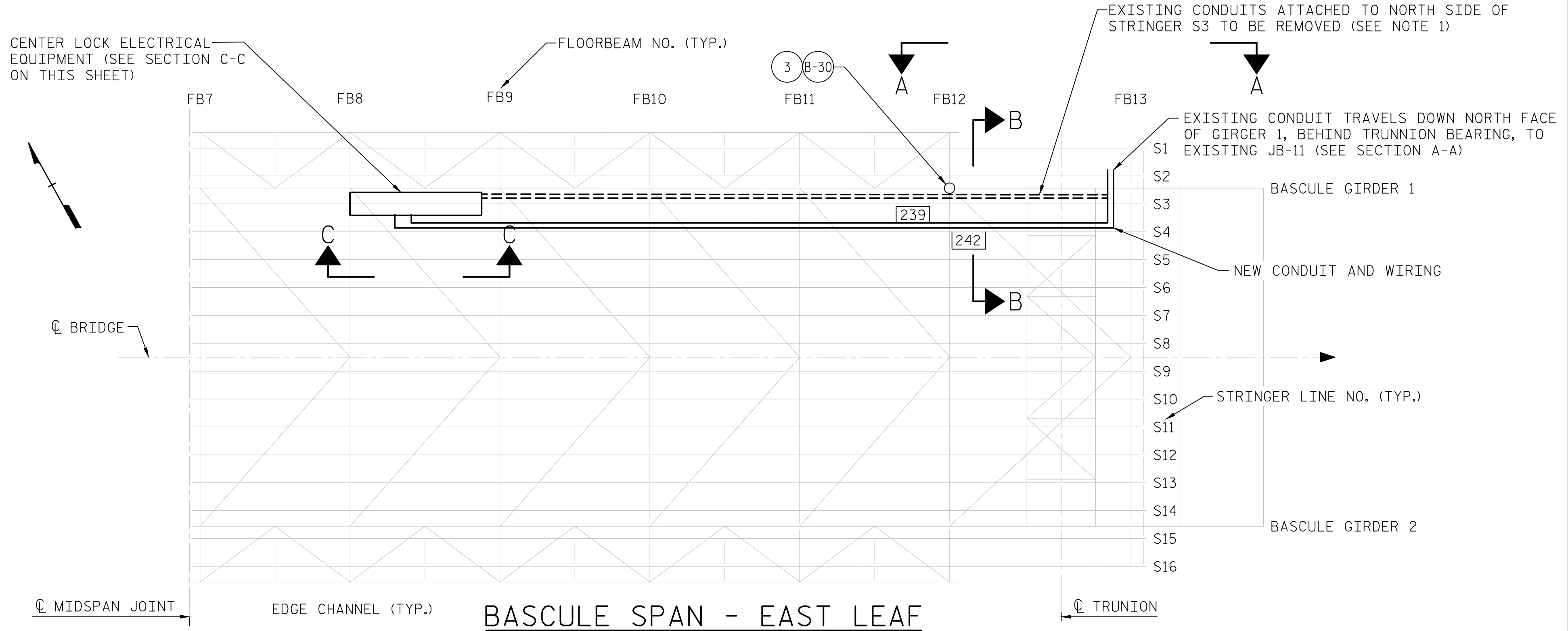
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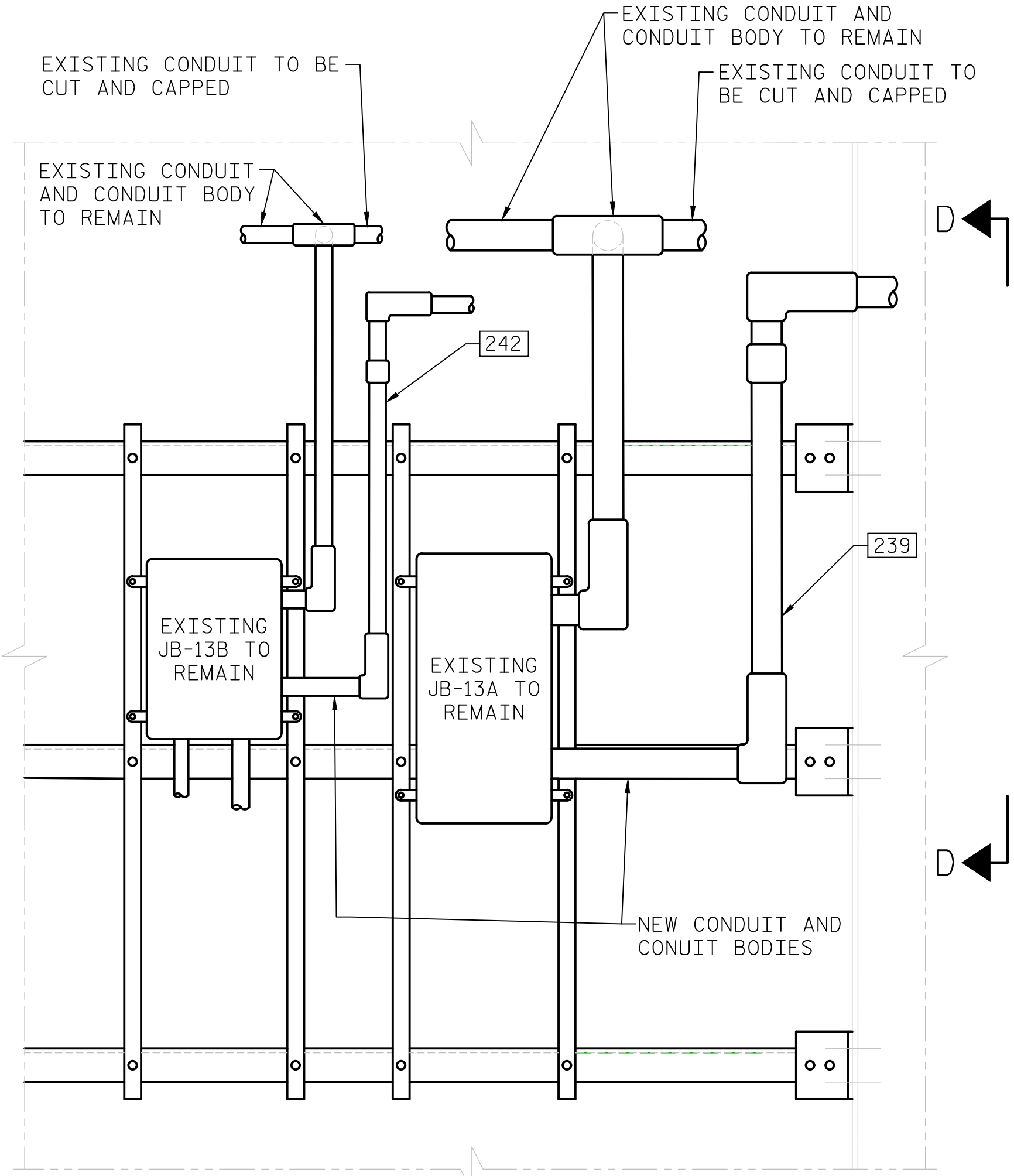
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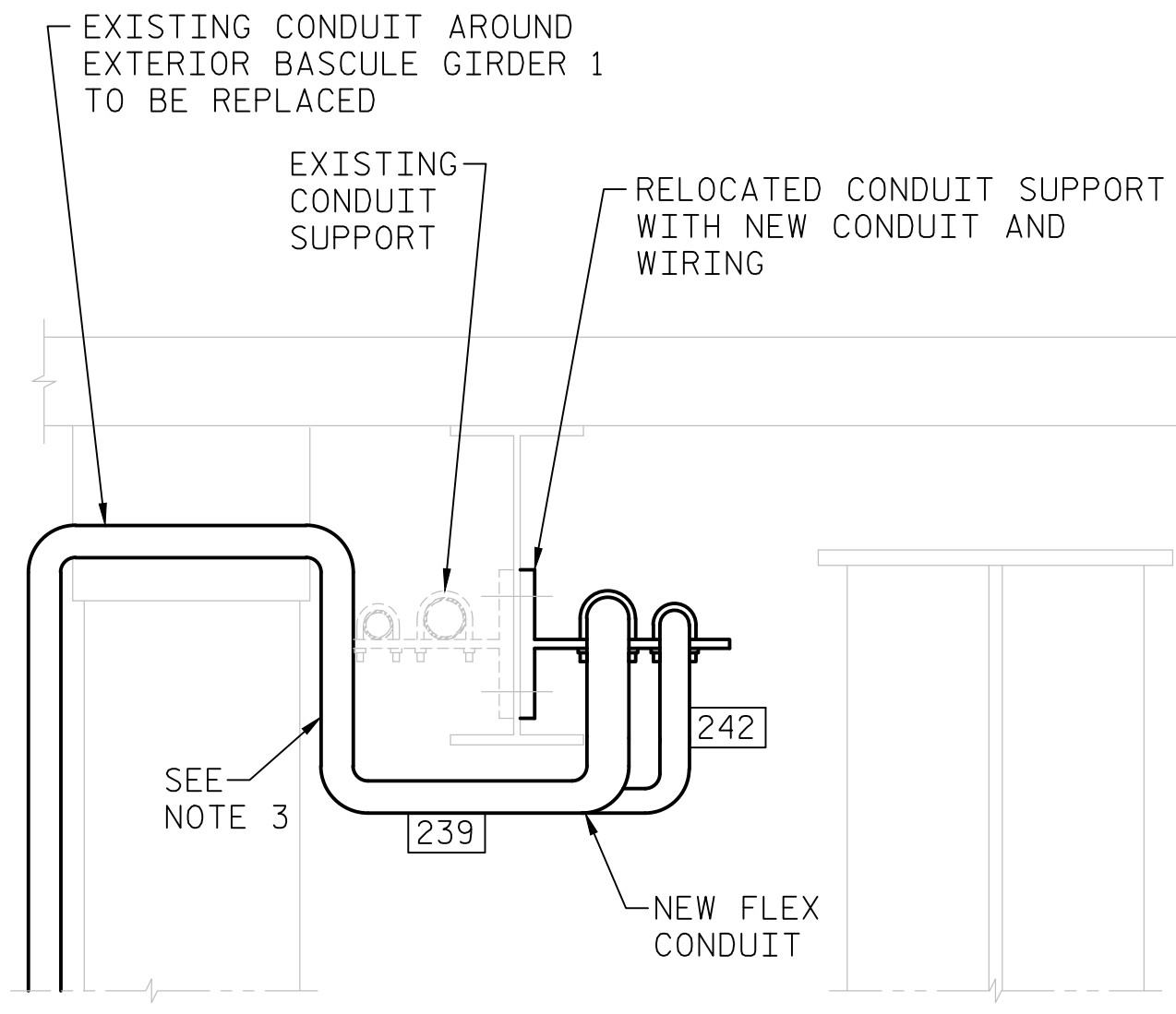
SECTION A-A
NORTHEAST TRUNNION BEARING
SCALE: NONE



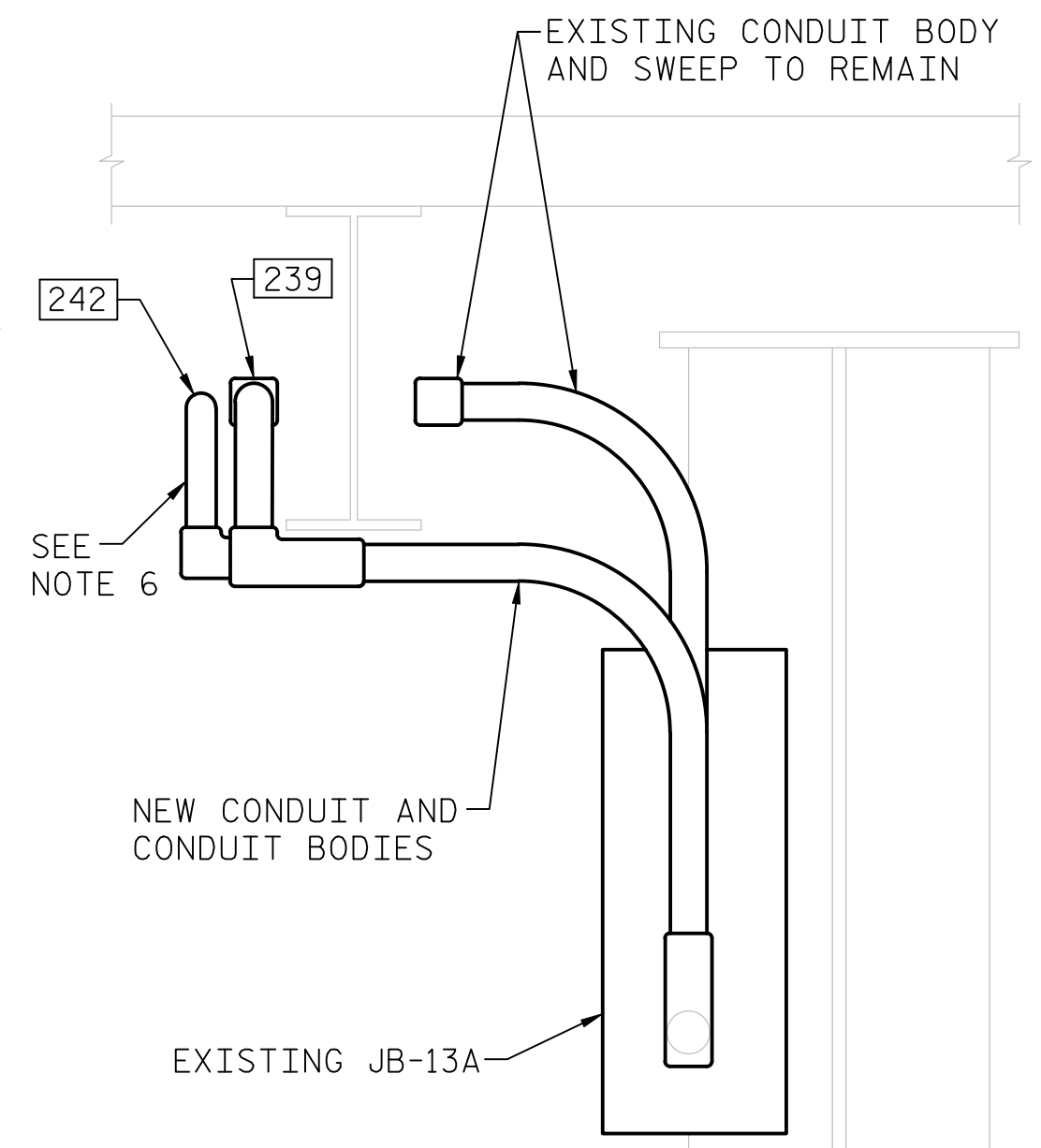
BASCULE SPAN - EAST LEAF
SCALE: NONE



SECTION C-C
NORTHEAST CENTER LOCK ELECTRICAL EQUIPMENT
SCALE: NONE



SECTION B-B
SCALE: NONE



SECTION D-D
SCALE: NONE

NOTES:

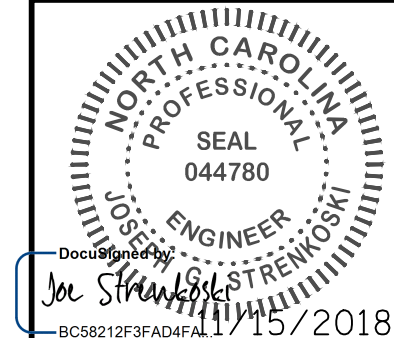
- EXISTING CONDUITS ATTACHED TO INITIAL BRACKET ON NORTH SIDE OF STRINGER S3 (AFTER FB13) UP TO CONDUIT BODIES LOCATED ABOVE CENTER LOCK ELECTRICAL JUNCTION BOXES (SEE SECTION C-C) ARE TO BE REMOVED BEFORE STRUCTURAL REPAIR TYPE 3 AND TYPE B-30 (SEE STRUCTURAL DRAWINGS) COMMENCES. NEW CONDUIT SHALL BE INSTALLED ON SOUTH SIDE OF STRINGER S3 (BETWEEN S3 AND S4) USING THE EXISTING BRACKETS AND MOUNTING LOCATIONS (SEE SECTION B-B). CONTRACTOR SHALL FIELD VERIFY PHYSICAL CONDITION OF EXISTING CONDUIT SUPPORTS AND HARDWARE BEFORE RE-USE. WHERE STRUCTURAL REPAIR ALONG STRINGER S3 INTERFERES WITH EXISTING CONDUIT BRACKET LOCATIONS, CONTRACTOR SHALL FABRICATE NEW BRACKETS TO MAINTAIN STRAIGHT CONDUIT ROUTING.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONNECTIONS BEFORE REMOVAL OF CONDUIT. NEW CONDUCTORS SHALL BE INSTALLED LIKE KIND.
- EXISTING CONDUIT AROUND EXTERIOR BASCULE GIRDER 1 IS TO BE REPLACED AND ATTACHED TO NEW FLEX CONDUIT. CONTRACTOR IS TO FIELD VERIFY ROUTING OF EXISTING CONDUIT AND DETERMINE LOCATION OF CONNECTION OF NEW RIGID CONDUIT TO NEW FLEX CONDUIT.
- CONDUIT AND ELECTRICAL EQUIPMENT SHOWN IS FOR ROUTING PURPOSES ONLY. REFER TO SHEET E-109 FOR CONDUIT LAYOUT-2 AND SHEET E-113 FOR CONDUIT SCHEDULE-2.
- EXISTING CONDUIT BODIES AS SHOWN IN SECTION C-C ARE TO REMAIN FOR USE. CONDUIT AND WIRING THAT ROUTES FROM EXISTING CONDUIT BODIES TO SOUTHEAST CENTER LOCK ELECTRICAL EQUIPMENT IS TO REMAIN FOR USE. CONDUIT THAT ROUTES FROM EXISTING CONDUIT BODIES ALONG STRINGER S2 SHALL BE CUT 2" AWAY FROM CONDUIT BODIES AND ENDS BE CAPPED.
- NEW CONDUIT ROUTING FROM NEW CONDUIT BODY TO EXISTING JB-13B SHALL BE SIMILAR TO SECTION D-D.
- REFER TO SHEET E-118 FOR FAR SIDE MOVEABLE SPAN CONDUIT RELOCATION.
- CONTRACTOR MAY SUBMIT ALTERNATE ROUTING FOR APPROVAL BY ENGINEER.

LEGEND

- XX CONDUIT SCHEDULE NUMBER (SEE NOTE 4)
- X STRUCTURAL REPAIR TYPE (SEE NOTE 1)

PROJECT NO. 15BPR.14
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CONDUIT
RELOCATION - 1



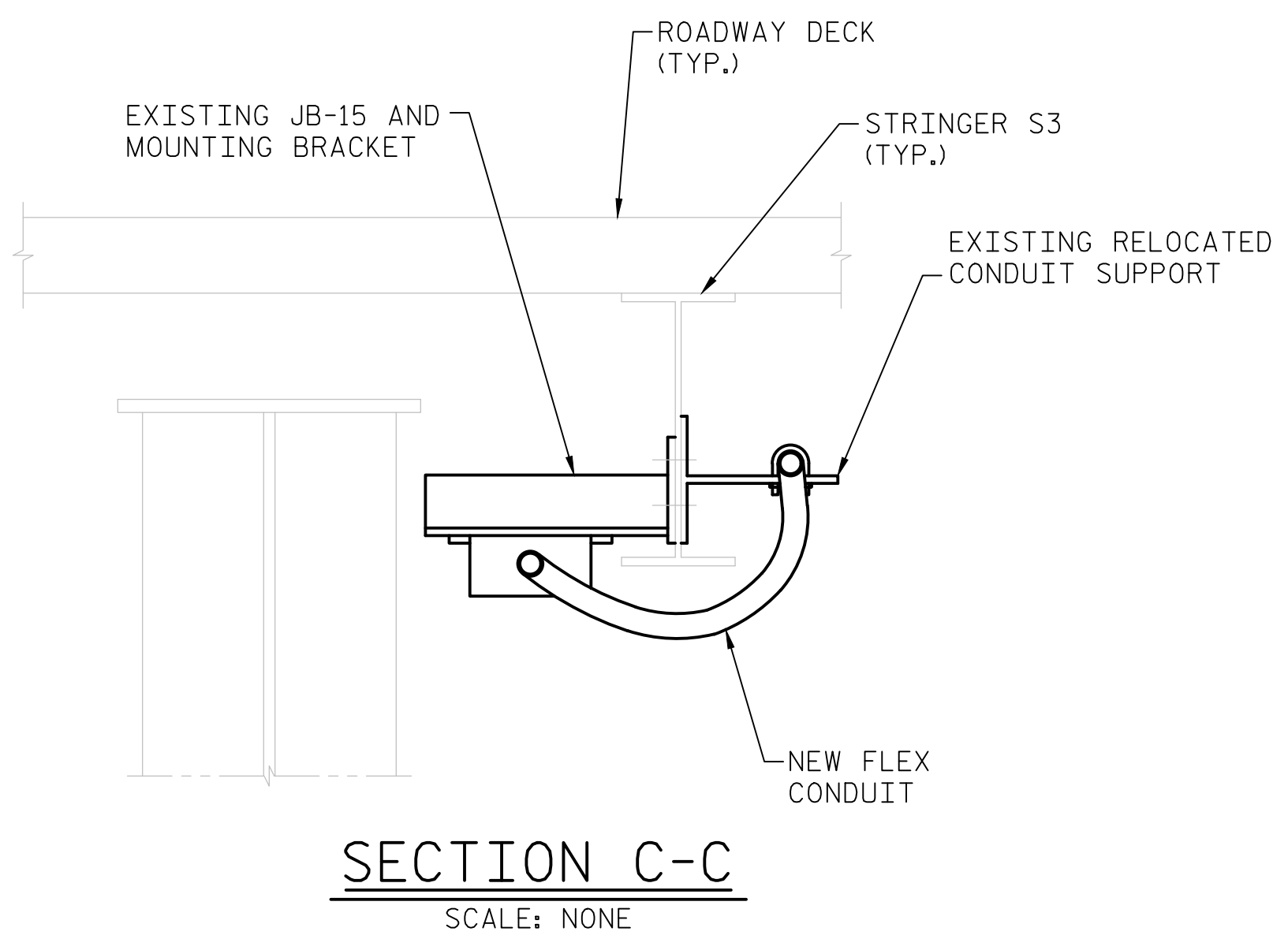
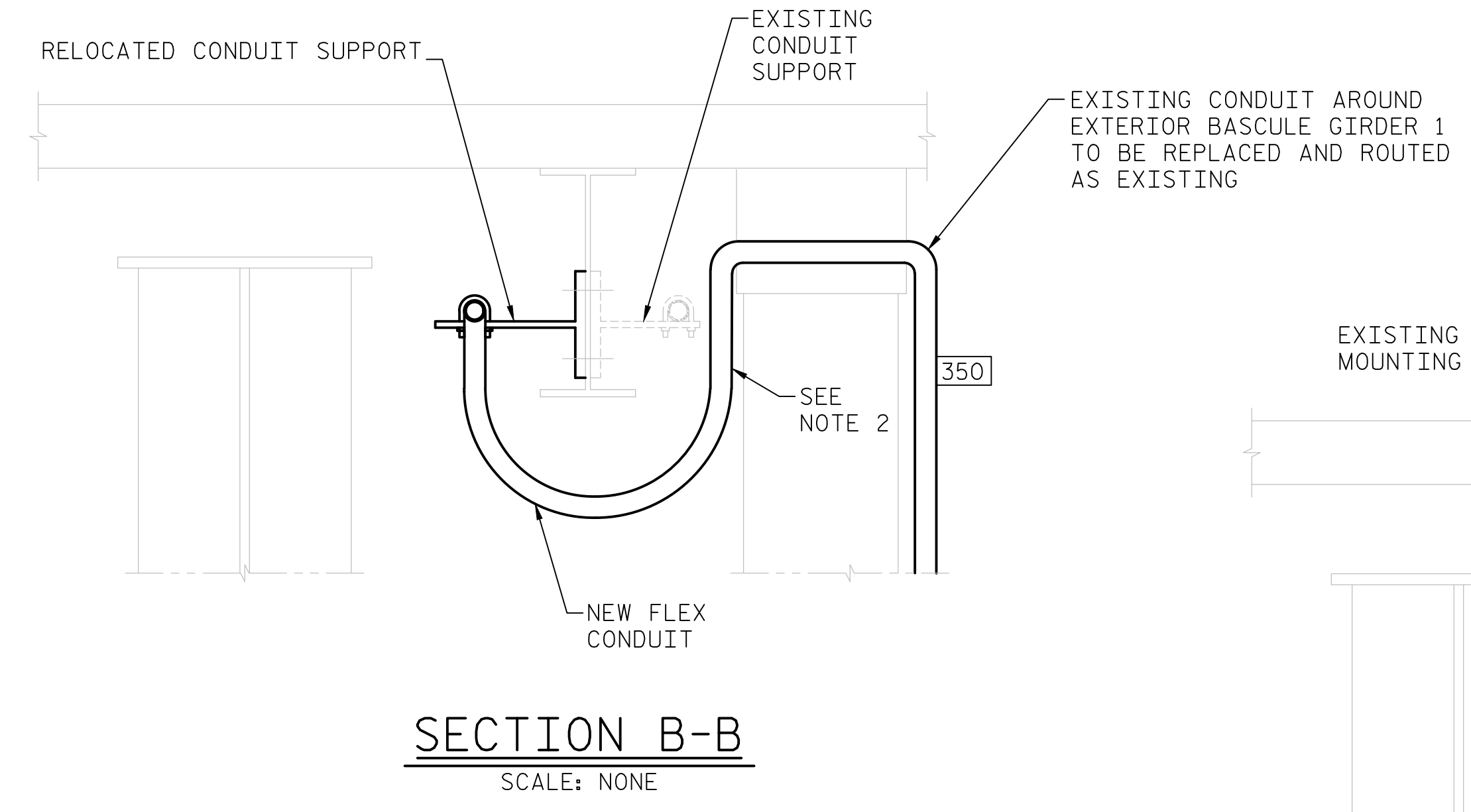
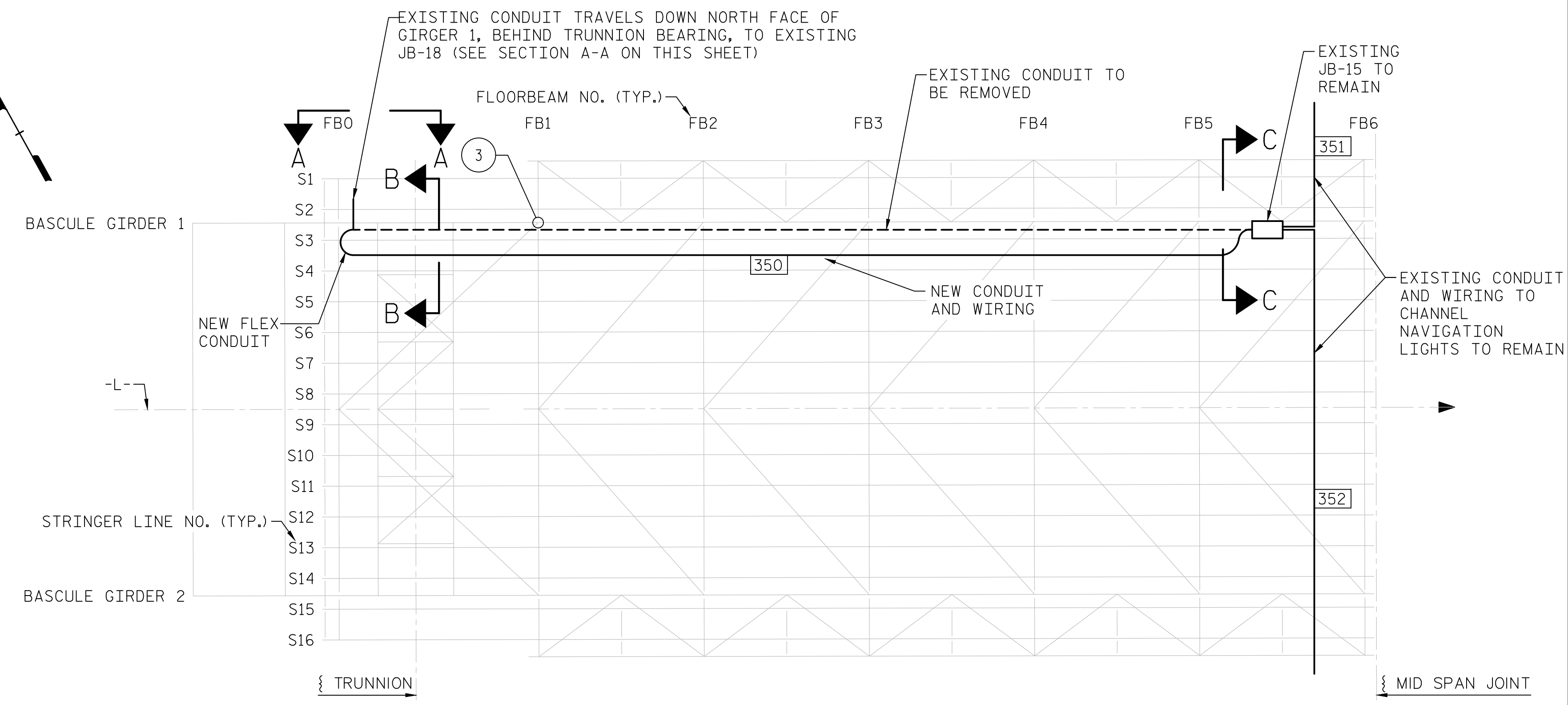
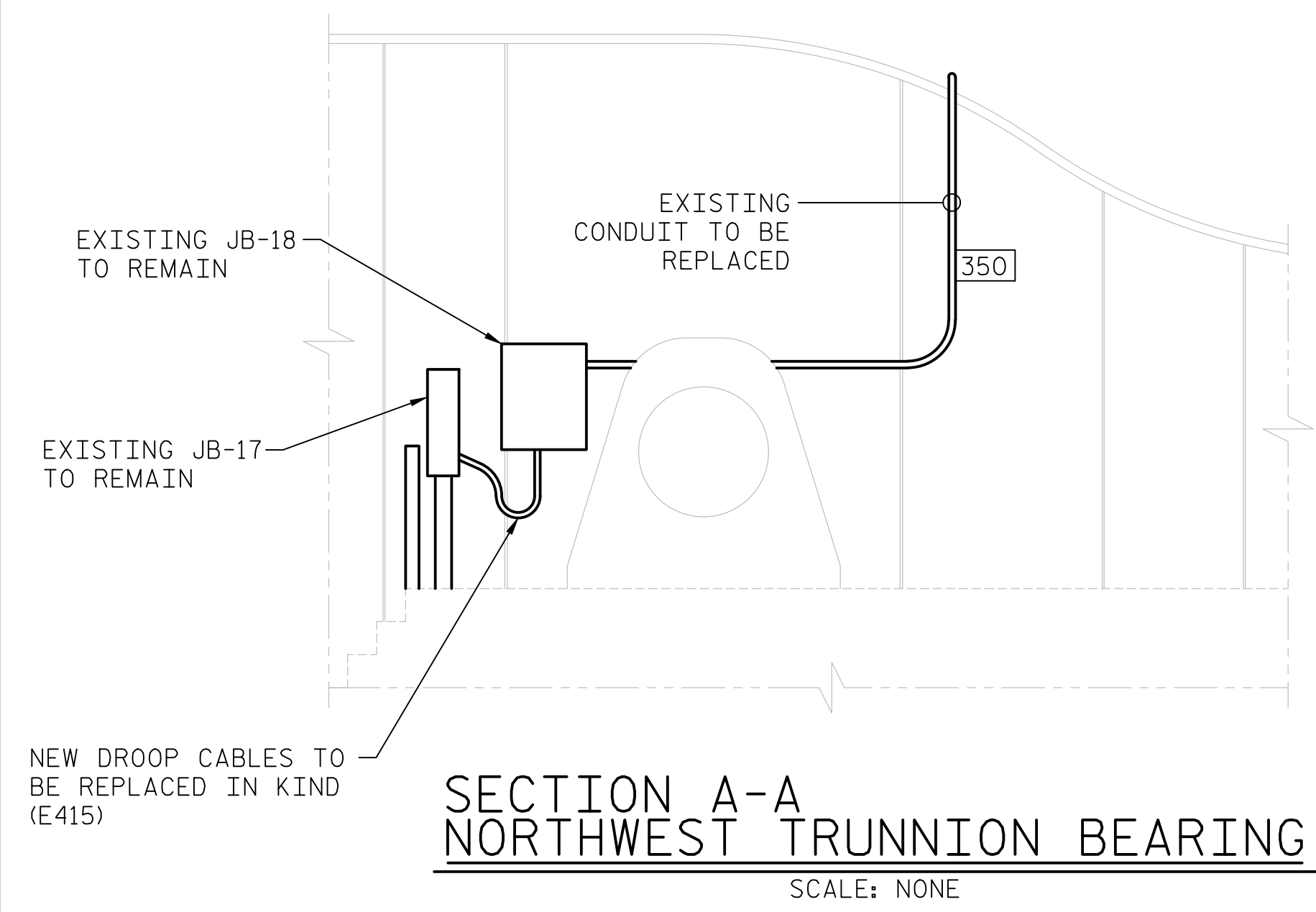
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DESIGNED BY:	J. C. RINEHART	DATE:	08/07/18
DRAWN BY:	J. C. RINEHART	DATE:	08/07/18
CHECKED BY:	L. V. BORDEN	DATE:	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/15/18



NOTES:

- EXISTING CONDUIT ATTACHED TO INITIAL BRACKET ON NORTH SIDE OF STRINGER S3 (AFTER FB0) UP TO EXISTING JB-15 IS TO BE REMOVED BEFORE STRUCTURAL REPAIR TYPE 3 (SEE STRUCTURAL DRAWINGS) COMMENCES. NEW CONDUIT SHALL BE INSTALLED ON SOUTH SIDE OF STRINGER S3 (BETWEEN S3 AND S4) USING THE EXISTING BRACKETS AND MOUNTING LOCATIONS (SEE SECTION B-B). CONTRACTOR SHALL FIELD VERIFY PHYSICAL CONDITION OF EXISTING CONDUIT SUPPORTS AND HARDWARE BEFORE RE-USE. WHERE STRUCTURAL REPAIR ALONG STRINGER S3 INTERFERES WITH EXISTING CONDUIT BRACKET LOCATIONS, CONTRACTOR SHALL FABRICATE NEW BRACKETS TO MAINTAIN STRAIGHT CONDUIT ROUTING.
- NEW RIGID CONDUIT AROUND EXTERIOR GIRDER 1 SHALL TRANSITION TO FLEX CONDUIT AND ROUTE UNDERNEATH STRINGER S3 TO BE CONNECTED TO NEW CONDUIT WITH EXISTING BRACKETS AS SHOWN ON SECTION B-B. CONTRACTOR IS TO FIELD VERIFY ROUTING OF EXISTING CONDUIT AND DETERMINE LOCATION OF CONNECTION OF NEW RIGID CONDUIT TO NEW FLEX CONDUIT.
- AFTER FB5, CONDUIT IS TO TRANSITION TO FLEX CONDUIT AND ROUTE UNDERNEATH STRINGER S3 AND TERMINATE IN EXISTING JB-15. EXISTING CONDUIT AND WIRING FROM JB-15 TO CHANNEL NAVIGATION LIGHTS IS TO REMAIN.
- CONDUIT SHOWN IS FOR ROUTING PURPOSES ONLY. REFER TO SHEET E-110 FOR CONDUIT LAYOUT-3 AND SHEET E-111 FOR CONDUIT SCHEDULE-3.
- CONTRACTOR IS TO FIELD VERIFY ALL CONNECTIONS BEFORE DISCONNECTING CONDUCTORS. EXISTING JB-15 AND ASSOCIATED TERMINAL BLOCKS ARE TO BE REUSED AND NEW WIRING BE REPLACED LIKE KIND.
- CONTRACTOR MAY SUBMIT ALTERNATE CONDUIT ROUTING FOR APPROVAL BY ENGINEER.

LEGEND

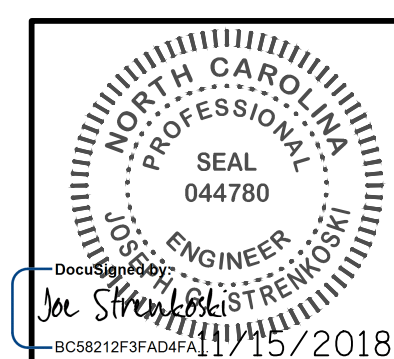
- XX CONDUIT SCHEDULE NUMBER (SEE NOTE 4)
- X STRUCTURAL REPAIR TYPE NUMBER (SEE NOTE 1)

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

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 FILE: \\mmodj101\p\proj\15\15BPR14\15BPR14_350_15BPR14_SMU_E118_640011

DESIGNED BY:	J. C. RINEHART	DATE :	08/07/18
DRAWN BY:	J. C. RINEHART	DATE :	08/07/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18

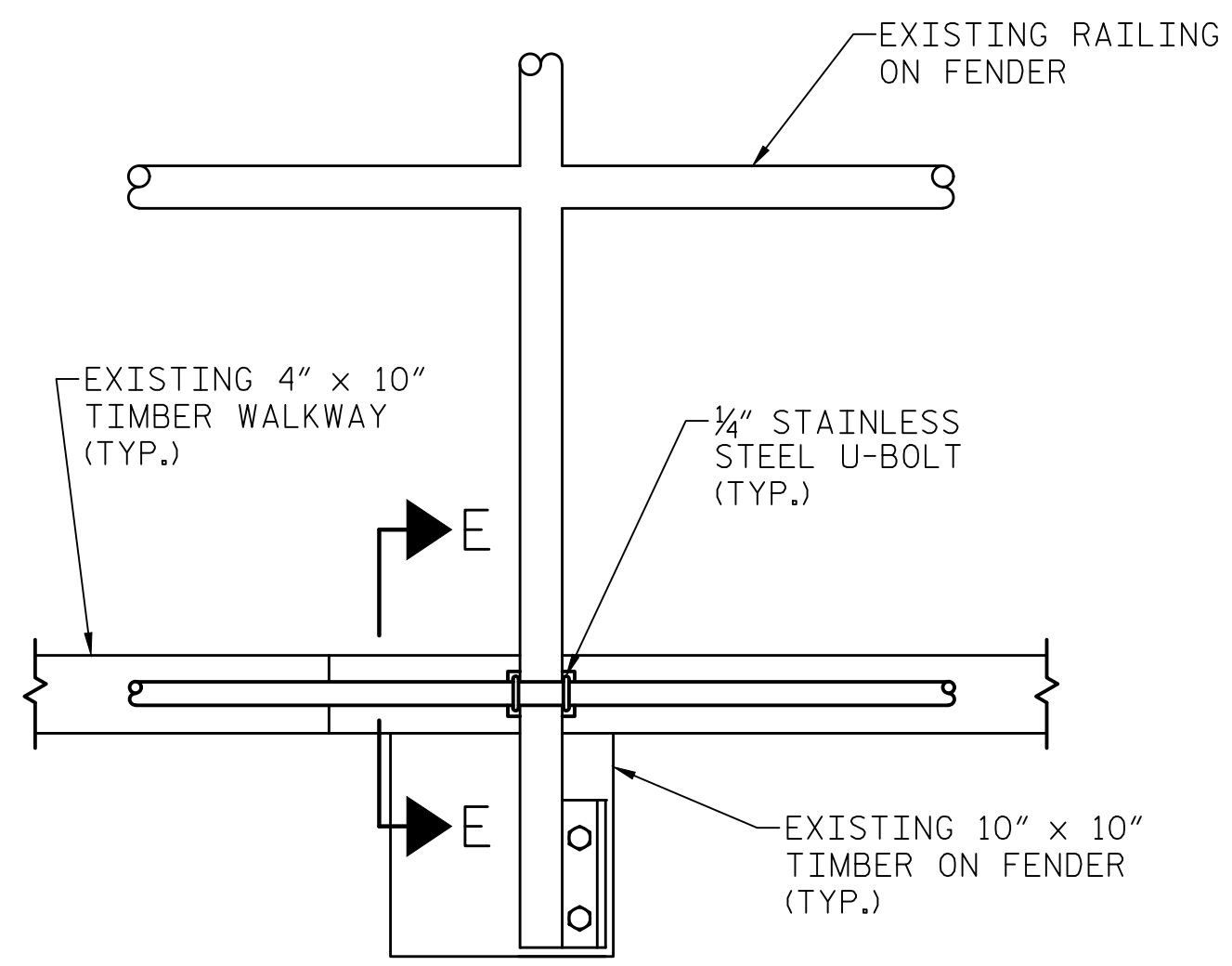

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 NC LICENSE NO. C-2979


 JOE STRENKOSKI
 ENGINEER
 License No. 044780

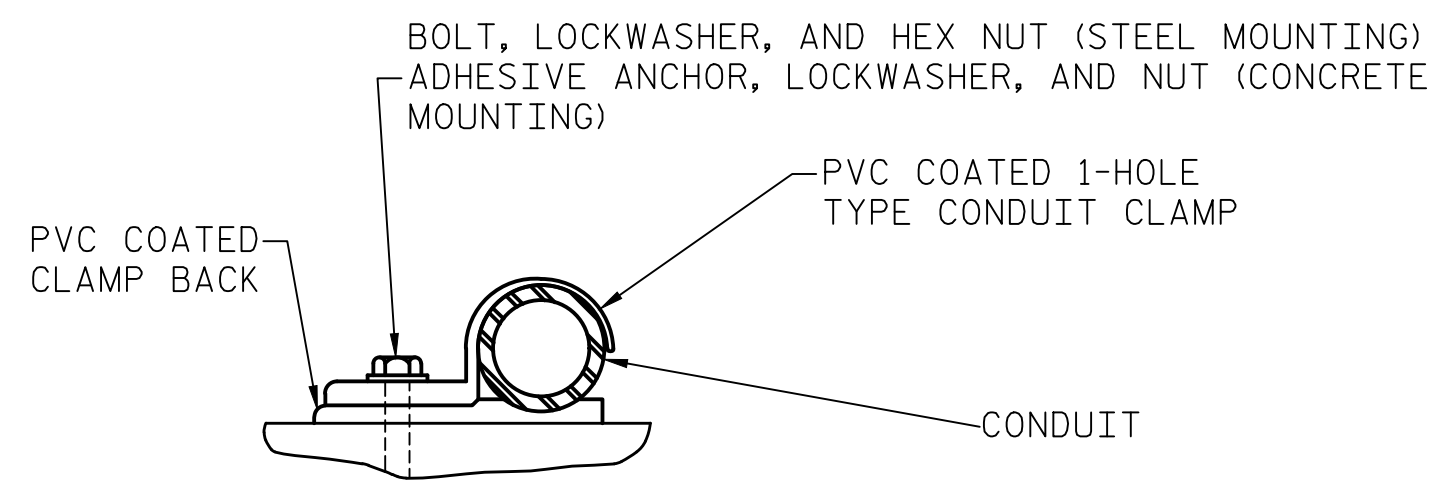
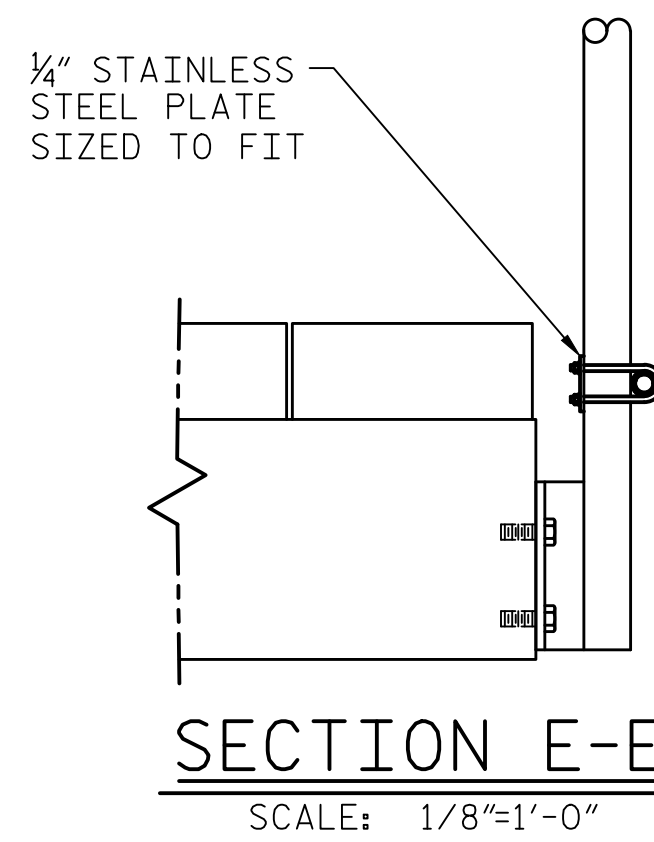
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**MOVEABLE SPAN
 CONDUIT
 RELOCATION - 2**

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-118
1			3			TOTAL SHEETS
2			4			213



**SECTION D-D
TYPICAL RAILING MOUNTED CONDUIT**
SCALE: 1/8"=1'-0"



**TYPICAL DETAIL - CONDUIT CLAMP
FOR TYPE RMC & LFMC CONDUIT**
SCALE: 1/8"=1'-0"

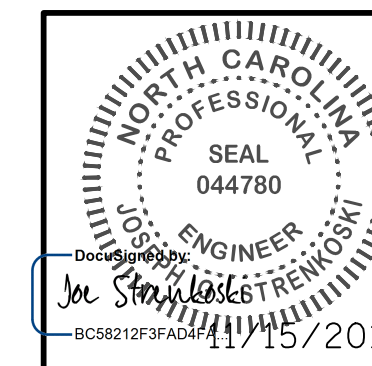
NOTES:

1. FOR SECTION D-D, REFER TO SHEET E-25.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____



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 RALEIGH
 ELECTRICAL
**CONDUIT MOUNTING
 DETAILS**

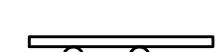

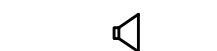




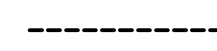
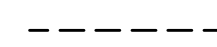
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-119
1			3			TOTAL SHEETS
2			4			213

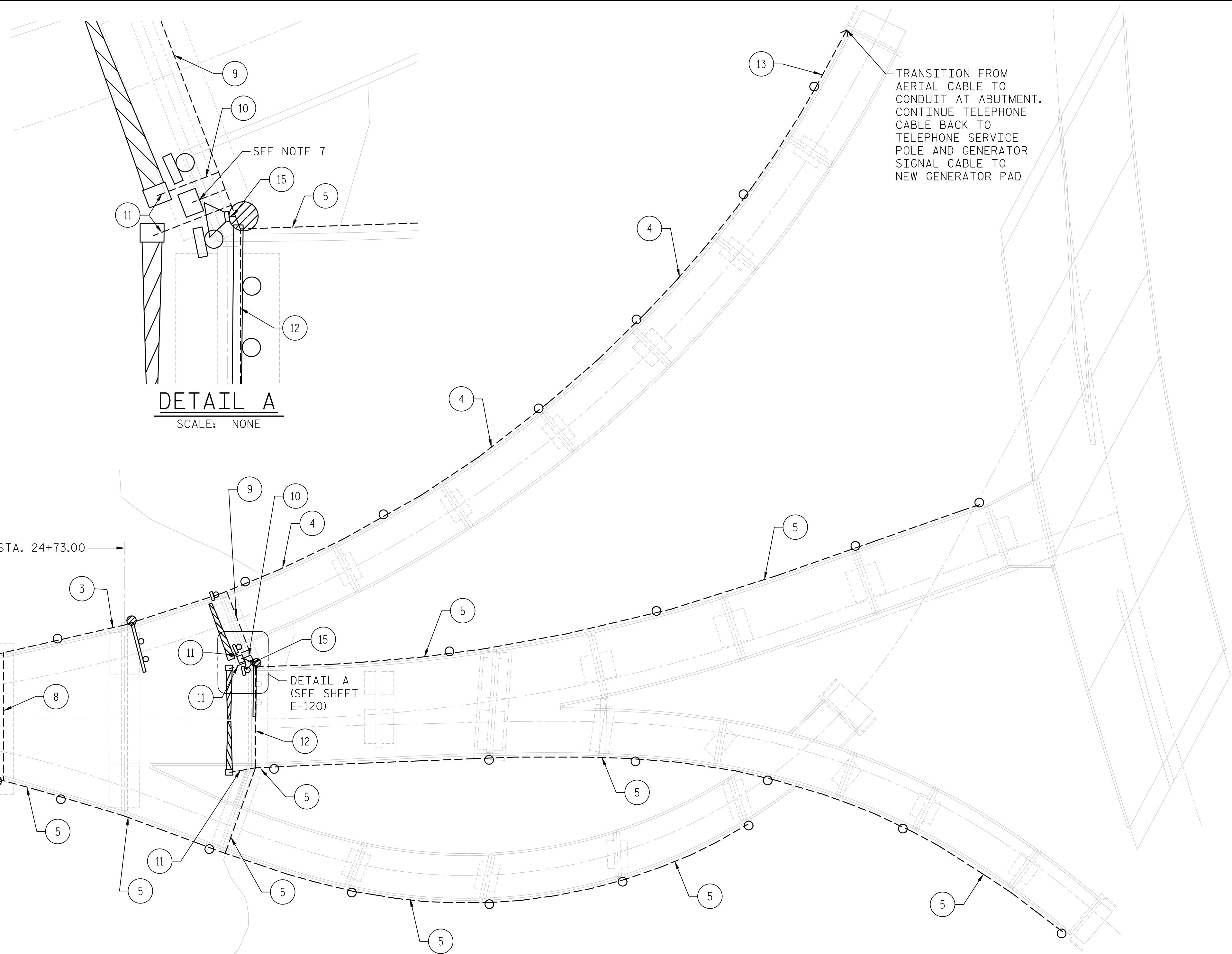
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DESIGNED BY: J. C. RINEHART DATE : 08/15/18
 DRAWN BY: J. C. RINEHART DATE : 08/15/18
 CHECKED BY: L. V. BORDEN DATE : 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE : 11/15/18

LEGEND:

-  OVERHEAD TRAFFIC SIGNAL
-  WARNING OR BARRIER GATE
-  PA SYSTEM SPEAKER
-  ROADWAY LIGHTING POLE AND FIXTURE
-  TRAFFIC SIGNAL OR OVERHEAD SIGN POLE
-  NEW CCTV CAMERA
-  POLE MOUNTED TRAFFIC SIGNAL
-  SUBMARINE CABLES
-  NEW MESSENGER CABLE AND POWER CABLE BUNDLE



TRANSITION FROM AERIAL CABLE TO CONDUIT AT ABUTMENT. CONTINUE TELEPHONE SERVICE CABLE BACK TO TELEPHONE SERVICE POLE AND GENERATOR SIGNAL CABLE TO NEW GENERATOR PAD

DETAIL A
SCALE: NONE

NEARSIDE MESSENGER CABLE ROUTING
SCALE: NONE

MATCH LINE A, SHEET E-121

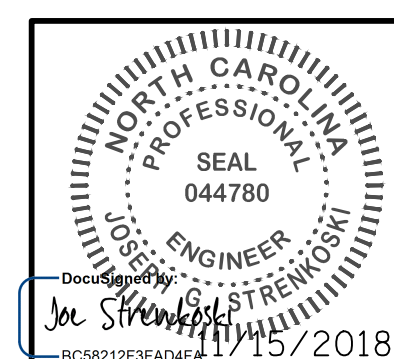
NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING GENERAL WIRING MESSENGER CABLES INCLUDING THE MESSENGER CABLE, CABLE RINGS, AND MULTIPLE CONDUCTOR POWER CABLES FOR: TRAFFIC GATES, TRAFFIC SIGNALS, ROADWAY LIGHTS, AND TELEPHONE. ALL EXISTING EYEBOLTS TO REMAIN IN PLACE TO BE REUSED FOR THE NEW MESSENGER CABLE AND CONDUCTOR BUNDLE WHEREVER APPLICABLE.
2. AT LOCATIONS WHERE USE OF EXISTING EYEBOLTS IS NOT FEASIBLE TO SUPPORT NEW MESSENGER CABLE, NEW EYEBOLTS SHALL BE INSTALLED. ALL NEW MESSENGER CABLE EQUIPMENT SHALL BE INSTALLED TO MATCH INSTALLATION OF EXISTING MESSENGER CABLE SYSTEM. REFER TO SHEETS E-124 AND E-125 FOR EXISTING MESSENGER CABLE SYSTEM DETAILS.
3. REFER TO SHEET E-121 FOR FAR SIDE MESSENGER CABLE DETAILS.
4. NUMBERS IN CIRCLES CORRESPOND TO CABLE BUNDLE NO. IN THE NEARSIDE GENERAL WIRING MESSENGER CABLE SCHEDULE ON SHEET E-122.
5. NEW MESSENGER CABLES TO ORIGINATE IN NEW NEARSIDE MESSENGER CABLE TERMINAL CABINET, MCTC-1. CABLES SHALL EXIT BOX IN 2 BUNDLES, USE (2) 3" CORD GRIPS AND FILLER AS NECESSARY FOR CABLE OPENINGS IN MCTC-1 ENCLOSURE. FOLLOW EXISTING MESSENGER CABLE ROUTING TO APPROACH FROM WORK ROOM HALLWAY. REMOVE EXISTING CABLES AND CONDUCTORS FOR TRAFFIC GATES, TRAFFIC SIGNALS, TELEPHONE, AND ROADWAY LIGHTS FROM EXISTING WORK ROOM HALLWAY JUNCTION BOXES AFTER NEW SYSTEM IS INSTALLED AND FUNCTIONAL.
6. NEARSIDE TRAFFIC SIGNAL MULTI-CONDUCTOR POWER CABLE TO TERMINATE IN CITY OWNED TRAFFIC SIGNAL CONTROL CABINET.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY:	E. N. CLAY	DATE :	09/19/18
DRAWN BY:	E. N. CLAY	DATE :	09/19/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18

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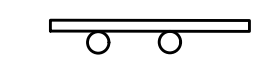








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 ELECTRICAL
**MESSENGER CABLE
 DETAILS - 1**

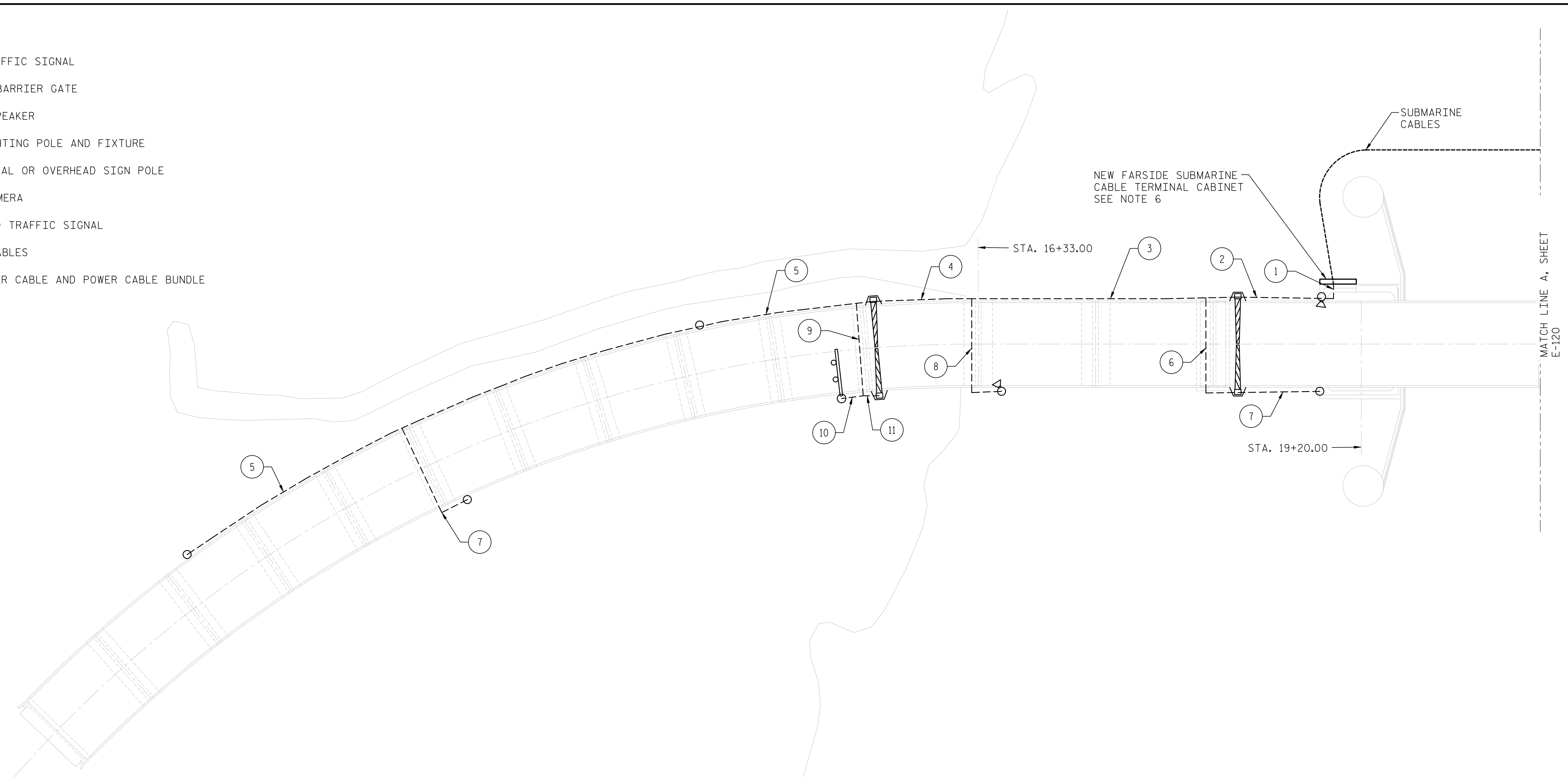
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LEGEND:

-  OVERHEAD TRAFFIC SIGNAL
-  WARNING OR BARRIER GATE
-  PA SYSTEM SPEAKER
-  ROADWAY LIGHTING POLE AND FIXTURE
-  TRAFFIC SIGNAL OR OVERHEAD SIGN POLE
-  NEW CCTV CAMERA
-  POLE MOUNTED TRAFFIC SIGNAL
-  SUBMARINE CABLES
-  NEW MESSENGER CABLE AND POWER CABLE BUNDLE

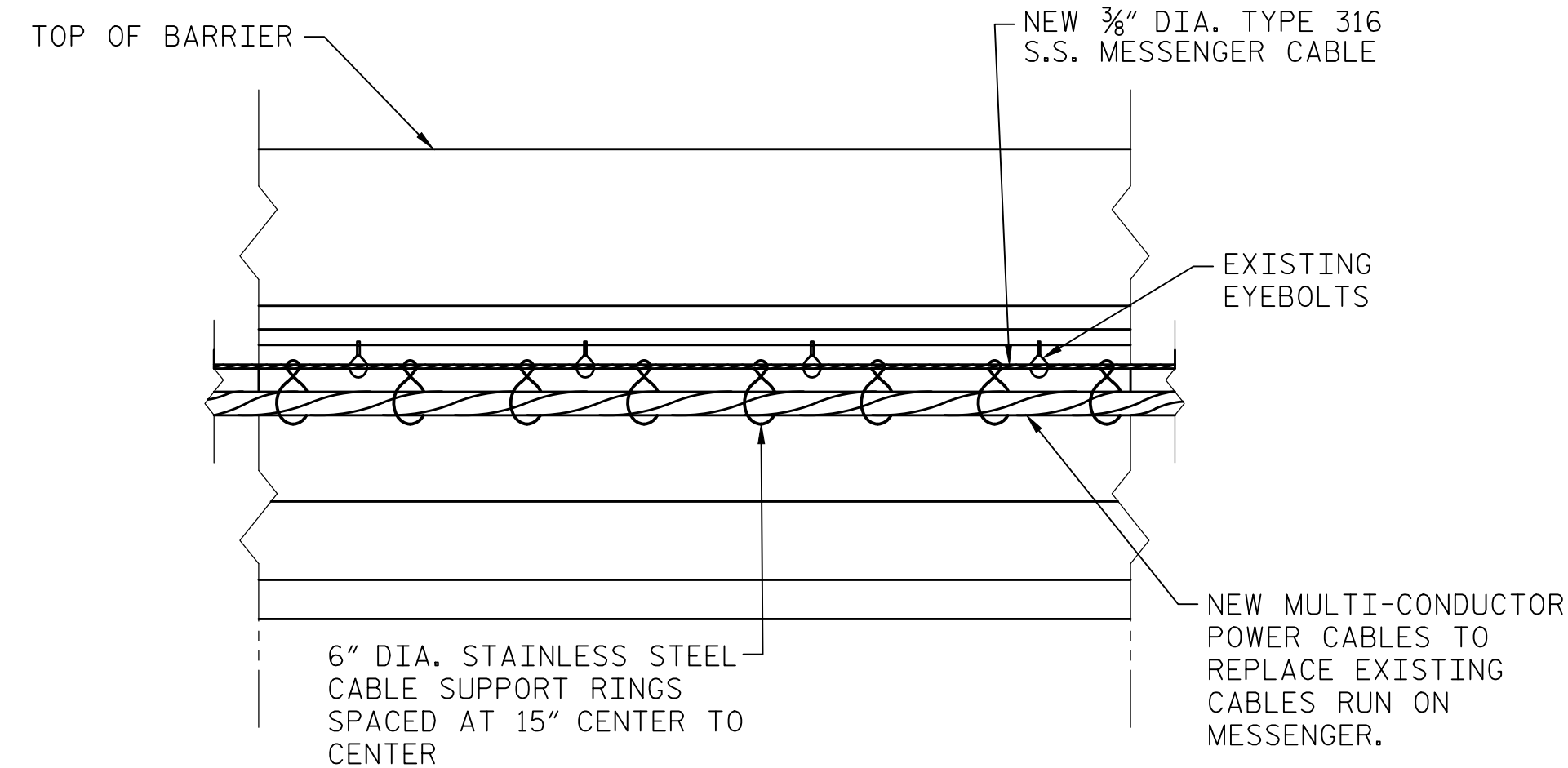


FARSIDE MESSENGER CABLE ROUTING

SCALE: NONE

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING GENERAL WIRING MESSENGER CABLES INCLUDING THE MESSENGER CABLE, CABLE RINGS, AND MULTIPLE CONDUCTOR POWER CABLES FOR: TRAFFIC GATES, TRAFFIC SIGNALS, ROADWAY LIGHTS, AND TELEPHONE. ALL EXISTING EYEBOLTS TO REMAIN IN PLACE TO BE REUSED FOR THE NEW MESSENGER CABLE AND CONDUCTOR BUNDLE WHEREVER APPLICABLE.
2. AT LOCATIONS WHERE USE OF EXISTING EYEBOLTS IS NOT FEASIBLE TO SUPPORT NEW MESSENGER CABLE, NEW EYEBOLTS SHALL BE INSTALLED. ALL NEW MESSENGER CABLE EQUIPMENT SHALL BE INSTALLED TO MATCH INSTALLATION OF EXISTING MESSENGER CABLE SYSTEM. REFER TO SHEETS E-124 AND E-125 FOR EXISTING MESSENGER CABLE SYSTEM DETAILS.
3. REFER TO SHEET E-120 FOR NEARSIDE MESSENGER CABLE DETAILS.
4. NUMBERS IN CIRCLES CORRESPOND TO CABLE BUNDLE NO. IN THE FARSIDE GENERAL WIRING MESSENGER CABLE SCHEDULE ON SHEET E-122.
5. NEW MESSENGER CABLES TO ORIGINATE AT NEW FARSIDE SUBMARINE CABLE TERMINAL CABINET. FOLLOW EXISTING ROUTING THROUGH THE COUNTERWEIGHT PIT WALL, ALONG THE INTERIOR STAIRWAY WALL AND UP TO THE APPROACH USING EXISTING EYEBOLT SUPPORTS.

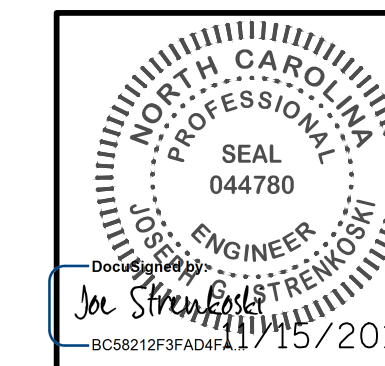


GENERAL WIRING MESSENGER CABLE TYPICAL MOUNTING DETAIL

SCALE: NONE

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**MESSENGER CABLE
 DETAILS - 2**



DESIGNED BY:	E. N. CLAY	DATE :	09/19/18
DRAWN BY:	E. N. CLAY	DATE :	09/19/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18

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2			4	

TOTAL SHEETS: 213

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NEARSIDE GENERAL WIRING MESSENGER CABLE SCHEDULE

CABLE BUNDLE NO.	NO. OF CABLES	CABLE CONDUCTOR SIZE	NO. OF CONDUCTORS PER CABLE	DESCRIPTION
1	5	10 AWG	20	TRAFFIC GATES POWER
	4	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	20	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	2	10 AWG	3	CCTV CAMERA POWER
	2	14 AWG	COAX	CCTV CAMERA CONTROL
	1	18 AWG	2 TSP	PTZ CAMERA CONTROL
	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
2	3	10 AWG	20	TRAFFIC GATES
	4	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	20	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	1	10 AWG	3	CCTV CAMERA POWER
	1	14 AWG	COAX	CCTV CAMERA CONTROL
	1	18 AWG	2 TSP	PTZ CAMERA CONTROL
	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
3	3	10 AWG	20	TRAFFIC GATES
	4	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	20	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
4	1	10 AWG	4	ROADWAY LIGHTS
	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
5	1	10 AWG	4	ROADWAY LIGHTS
6	1	10 AWG	20	TRAFFIC GATES
	1	10 AWG	3	CCTV CAMERA POWER
	1	14 AWG	COAX	CCTV CAMERA CONTROL
	2	SEE NOTE 2	8	PA SYSTEM SPEAKERS
7	1	10 AWG	3	CCTV CAMERA POWER
	1	18 AWG	COAX	CCTV CAMERA CONTROL
	1	10 AWG	4	ROADWAY LIGHTS
8	1	10 AWG	3	CCTV CAMERA POWER
	1	14 AWG	COAX	CCTV CAMERA CONTROL
	1	18 AWG	2 TSP	PTZ CAMERA CONTROL
9	3	10 AWG	20	TRAFFIC GATES POWER
	3	10 AWG	4	ROADWAY LIGHTS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	1	10 AWG	20	TRAFFIC SIGNALS
10	1	10 AWG	20	TRAFFIC SIGNALS
11	1	10 AWG	20	TRAFFIC GATES
12	1	10 AWG	20	TRAFFIC GATES
	2	10 AWG	4	ROADWAY LIGHTS
13	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
14	2	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	1	10 AWG	4	ROADWAY LIGHTS
15	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS

FARSIDE GENERAL WIRING MESSENGER CABLE SCHEDULE

CABLE BUNDLE NO.	NO. OF CABLES	CABLE CONDUCTOR SIZE	NO. OF CONDUCTORS PER CABLE	DESCRIPTION
1	4	10 AWG	20	TRAFFIC GATES
	1	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	7	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
2	4	10 AWG	20	TRAFFIC GATES
	1	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	7	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
3	2	10 AWG	20	TRAFFIC GATES
	1	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	7	TRAFFIC SIGNALS
4	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	2	10 AWG	20	TRAFFIC GATES
	1	10 AWG	4	ROADWAY LIGHTS
5	1	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	7	TRAFFIC SIGNALS
	1	10 AWG	20	TRAFFIC GATES
6	1	10 AWG	20	TRAFFIC GATES
	2	10 AWG	4	ROADWAY LIGHTS
7	2	10 AWG	4	ROADWAY LIGHTS
8	2	10 AWG	4	ROADWAY LIGHTS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
9	1	10 AWG	20	TRAFFIC GATES
	1	10 AWG	7	TRAFFIC SIGNALS
10	1	10 AWG	7	TRAFFIC SIGNALS
11	1	10 AWG	20	TRAFFIC GATES

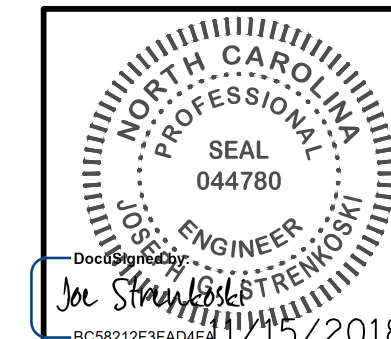
NOTES:

- CABLE BUNDLE NO. CORRESPOND TO CALLOUTS ON SHEET E-120 FOR NEARSIDE MESSENGER CABLE DETAILS AND SHEET E-121 FOR FARSIDE MESSENGER CABLE DETAILS.
- CABLE SHALL BE SYSTEM CABLE AS LISTED IN PUBLIC ADDRESS SYSTEM PARTS LIST ON SHEET E-116 ITEM NUMBER E408F.
- TSP: TWISTED SHIELDED PAIR.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

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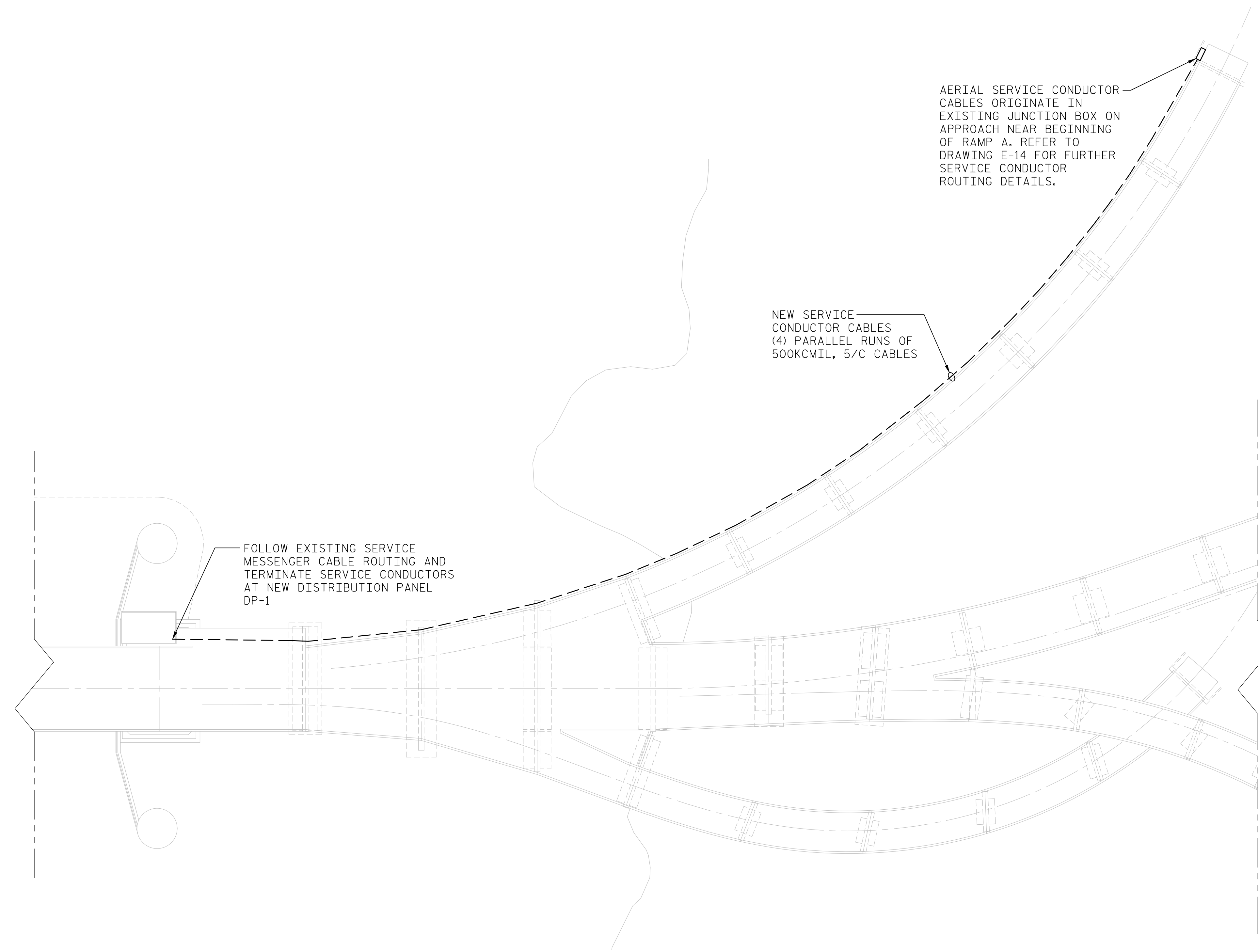
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 DRAWN BY: E. N. CLAY DATE: 09/18/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**MESSENGER CABLE
 DETAILS - 3**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-122
1			3			TOTAL SHEETS 213
2			4			

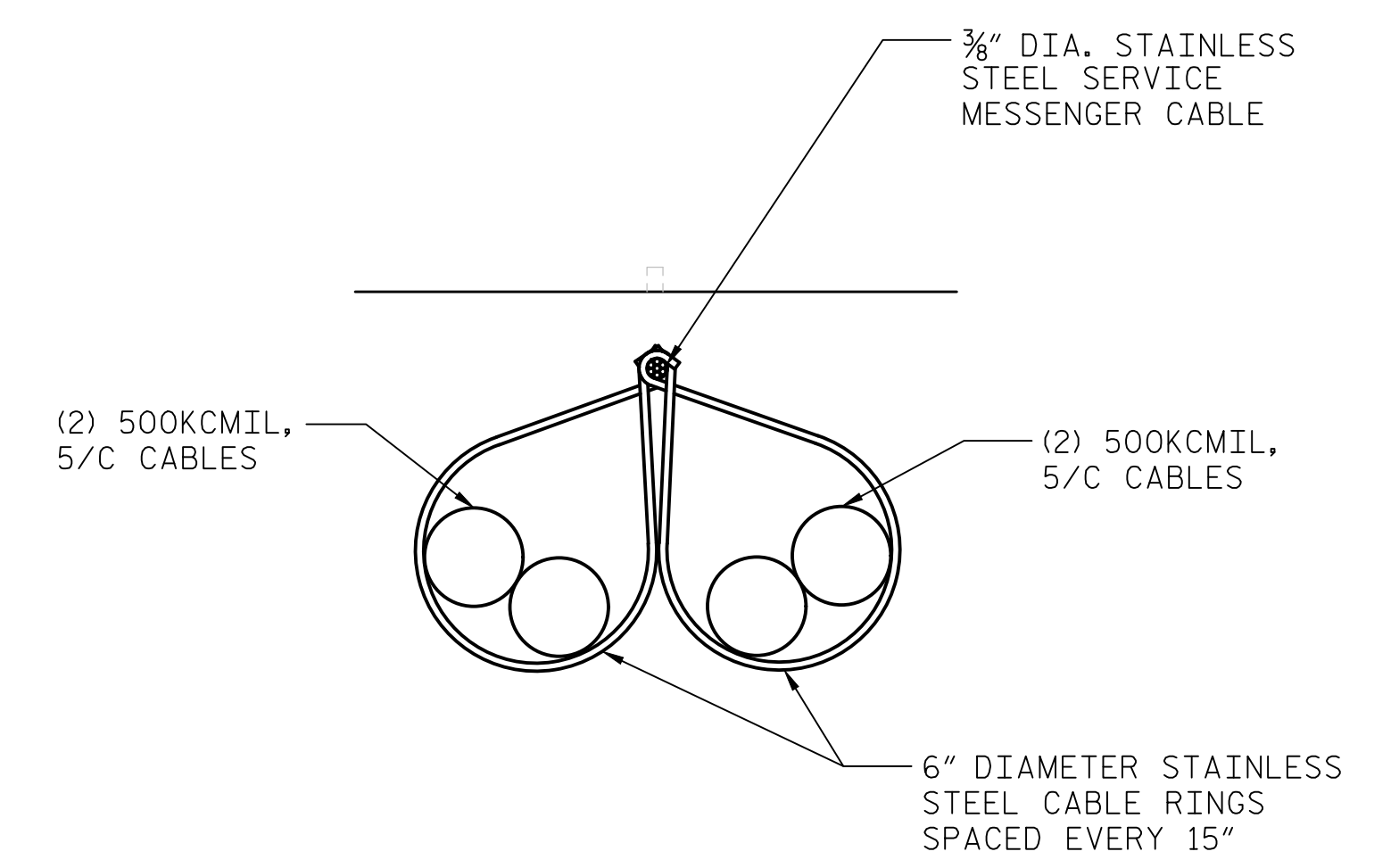
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SERVICE MESSENGER CABLE ROUTING
SCALE: NONE

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING SERVICE MESSENGER CABLES INCLUDING THE MESSENGER CABLE, CABLE RINGS, AND SERVICE CONDUCTOR POWER CABLES. ALL EXISTING EYEBOLTS TO REMAIN IN PLACE TO BE REUSED FOR THE NEW MESSENGER CABLE AND CONDUCTOR CABLES WHEREVER APPLICABLE.
2. AT LOCATIONS WHERE USE OF EXISTING EYEBOLTS IS NOT FEASIBLE TO SUPPORT NEW MESSENGER CABLE, NEW EYEBOLTS SHALL BE INSTALLED. ALL NEW MESSENGER CABLE EQUIPMENT SHALL BE INSTALLED TO MATCH INSTALLATION OF EXISTING MESSENGER CABLE SYSTEM. REFER TO SHEETS E-124 AND E-125 FOR EXISTING MESSENGER CABLE SYSTEM DETAILS.
3. FOLLOW EXISTING MESSENGER CABLE ROUTING.



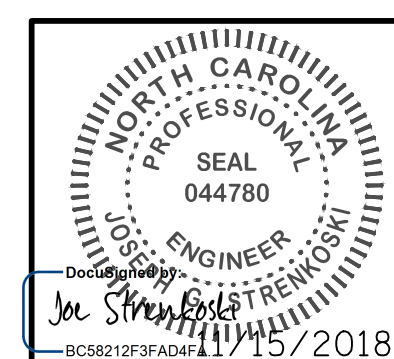
SERVICE CABLES SUPPORT
SCALE: 3/4"=1'-0"
SERVICE CONDUCTOR POWER CABLES

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

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DESIGNED BY:	E. N. CLAY	DATE :	10/31/18
DRAWN BY:	E. N. CLAY	DATE :	10/31/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18

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STATE OF NORTH CAROLINA
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**MESSENGER CABLE
DETAILS - 4**

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1			3			TOTAL SHEETS
2			4			213