



RUBY STREET FARMSIDE CONDUIT SCHEDULE (CONTINUED)

Table with columns: Run No., Circuit Terminations (To, From), Conduit (Type, Size), Length of Run, Wire (Use, Count, Size). Rows include various machinery pulls and terminal cabinets.

RUBY STREET NEARSIDE CONDUIT SCHEDULE (CONTINUED)

Table with columns: Run No., Circuit Terminations (To, From), Conduit (Type, Size), Length of Run, Wire (Use, Count, Size). Rows include machinery pulls for SE, NE, and South River areas.

RUBY STREET NEARSIDE CONDUIT SCHEDULE

Table with columns: Run No., Circuit Terminations (To, From), Conduit (Type, Size), Length of Run, Wire (Use, Count, Size). Rows include machinery pulls for SE and NE machinery boxes.

- NOTES:
1. \* Existing conduit shall be permitted to be reused by the Contractor.
2. \*\* Existing concrete encased PVC coated conduit shall be replaced.
3. Fiber optic conduit bend radius shall be greater than minimum bend radius of fiber optic cable.
4. Portions of conduit F50 beyond the bridge approach structure will require the existing sidewalk to be sawcut and refinished.



Project information table including User Name, Designer (K.M. GABLE), Checker (L.V. BORDEN), Plot Scale, and Plot Date.

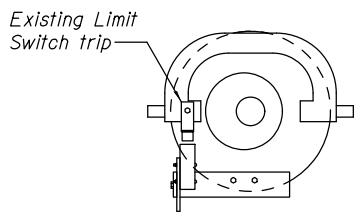
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES
LOCAL CENTRALIZED CONTROL AND OPERATION
RUBY STREET - CONDUIT TABULATION - 2

Project metadata table including F.A.P. RTE., Section, County, Total Sheets (466), Sheet No. (102), and Contract No. (60P55).

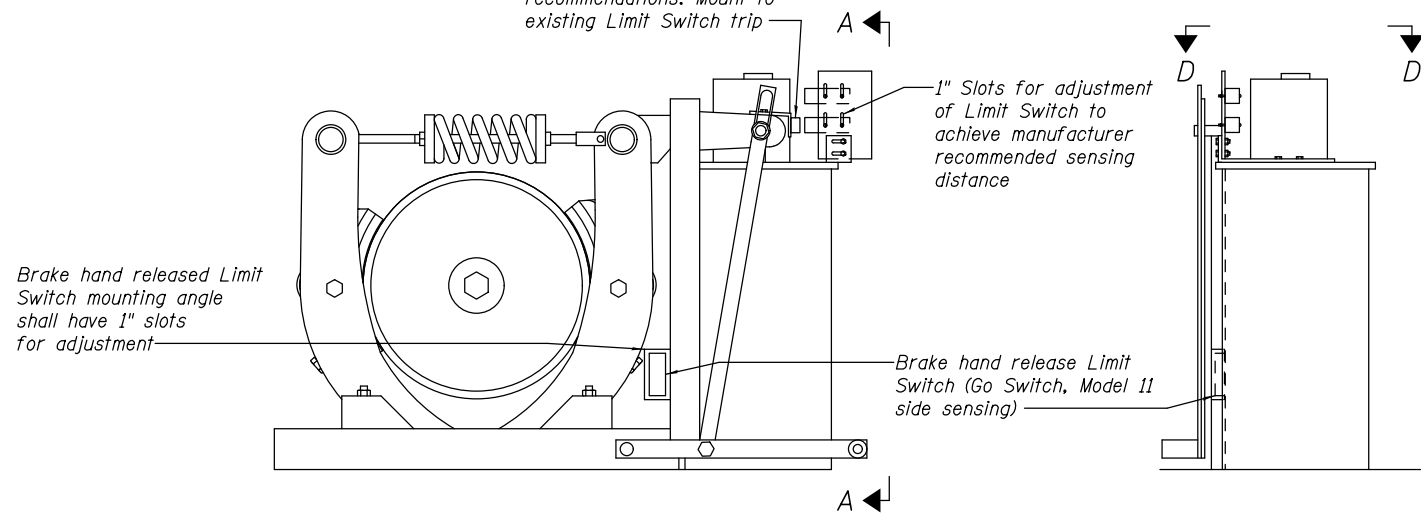




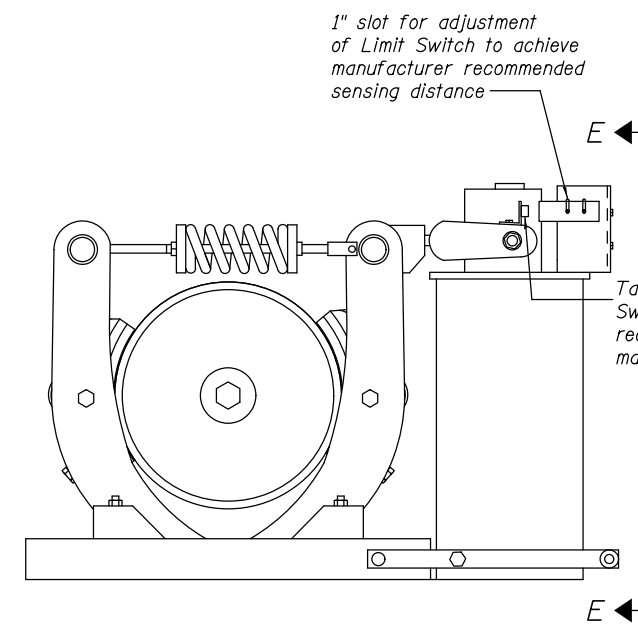


VIEW D-D

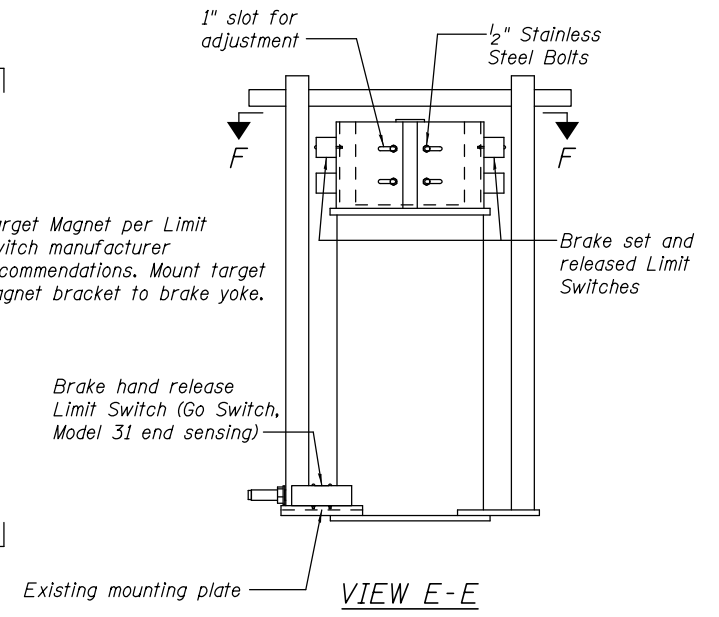
Target Magnet per Limit Switch manufacturer recommendations. Mount to existing Limit Switch trip



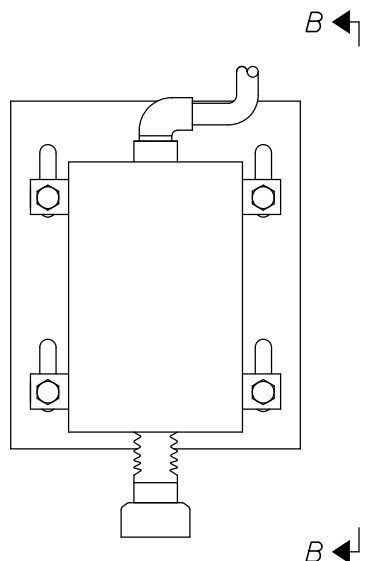
PROPOSED RUBY STREET MACHINERY BRAKES LIMIT SWITCHES



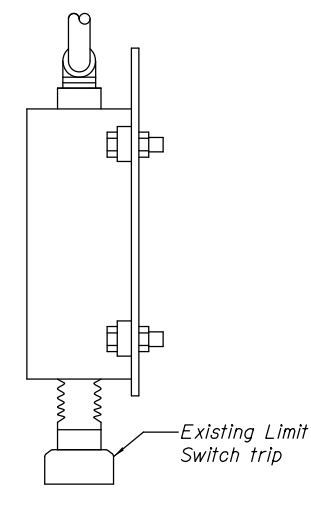
PROPOSED RUBY STREET MOTOR BRAKES LIMIT SWITCHES



VIEW E-E

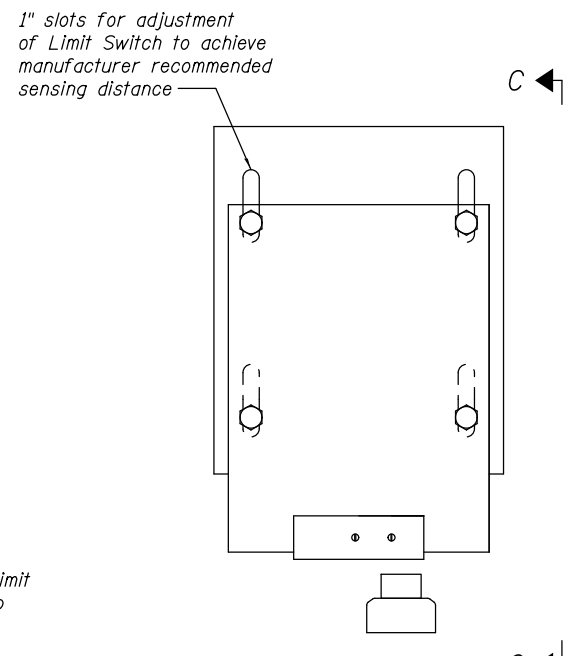


FRONT VIEW



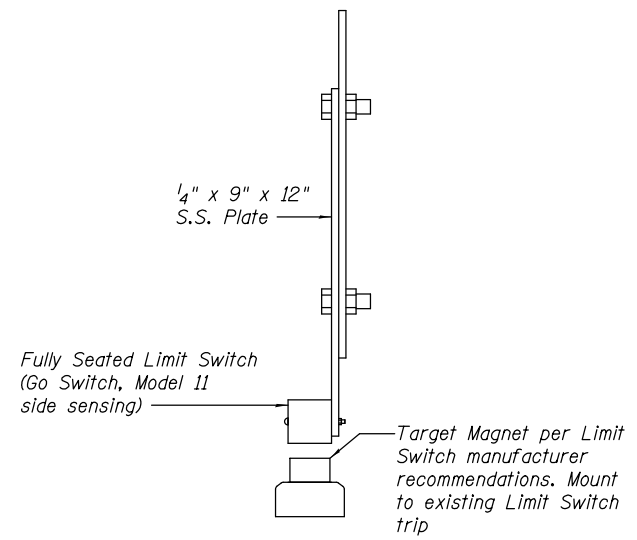
VIEW B-B

EXISTING RUBY STREET FULLY SEATED LIMIT SWITCHES

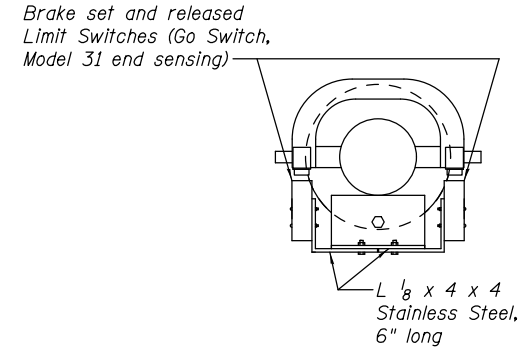


FRONT VIEW

PROPOSED RUBY STREET FULLY SEATED LIMIT SWITCHES



VIEW C-C



VIEW F-F

NOTES

1. All measurements are to be field verified prior to fabrication.
2. The Contractor shall submit Limit Switch mounting details to the Engineer for approval prior to ordering any materials or completing any work.



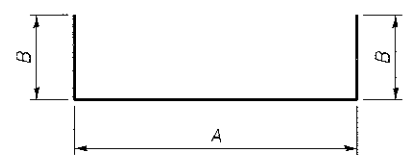
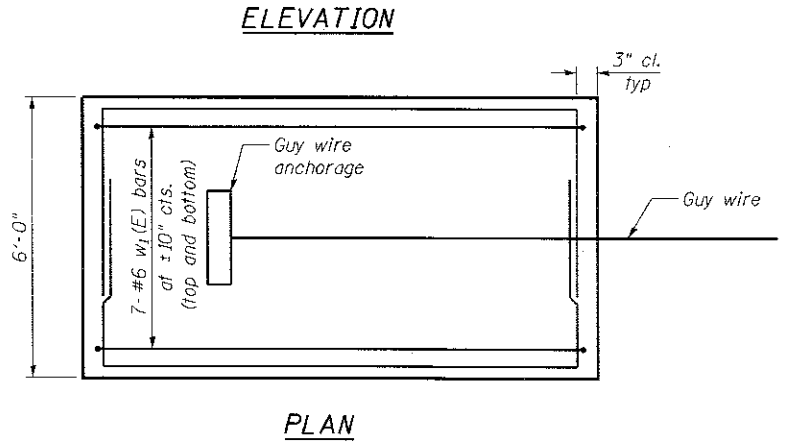
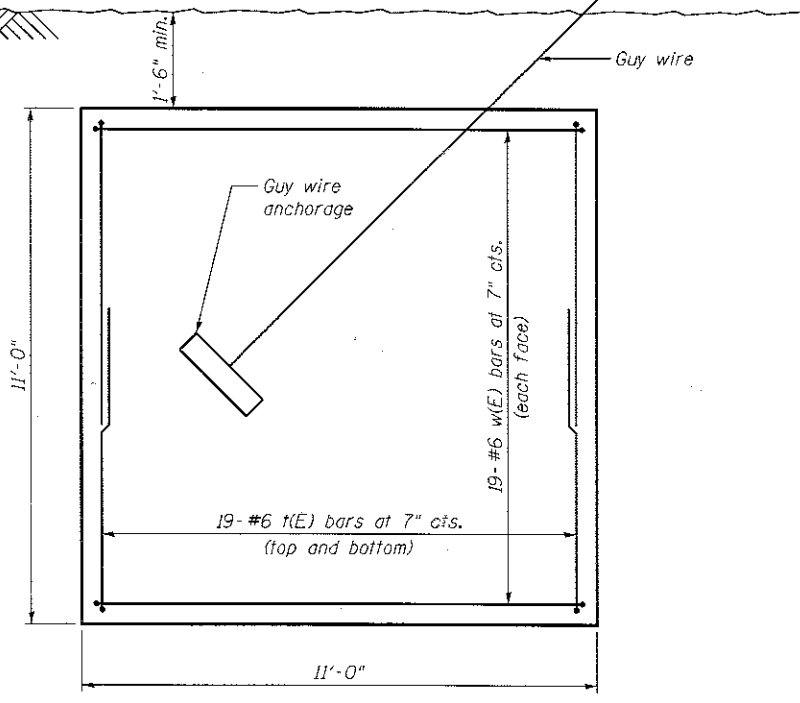
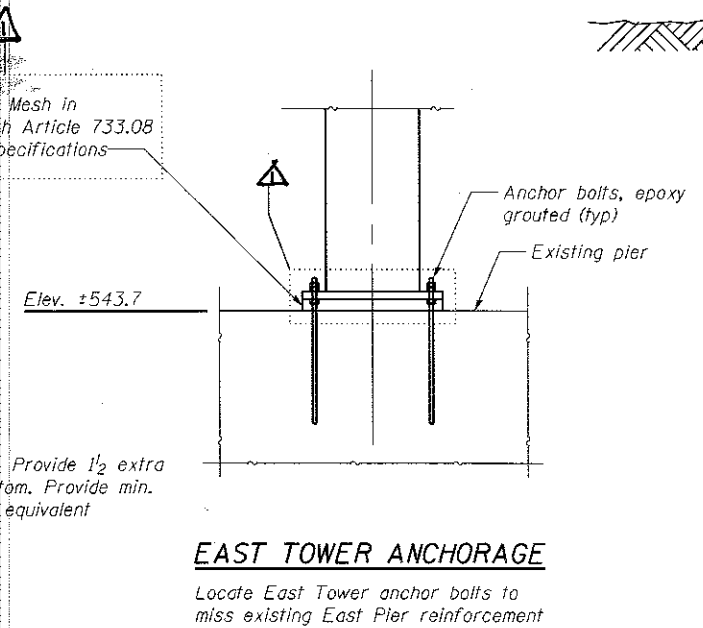
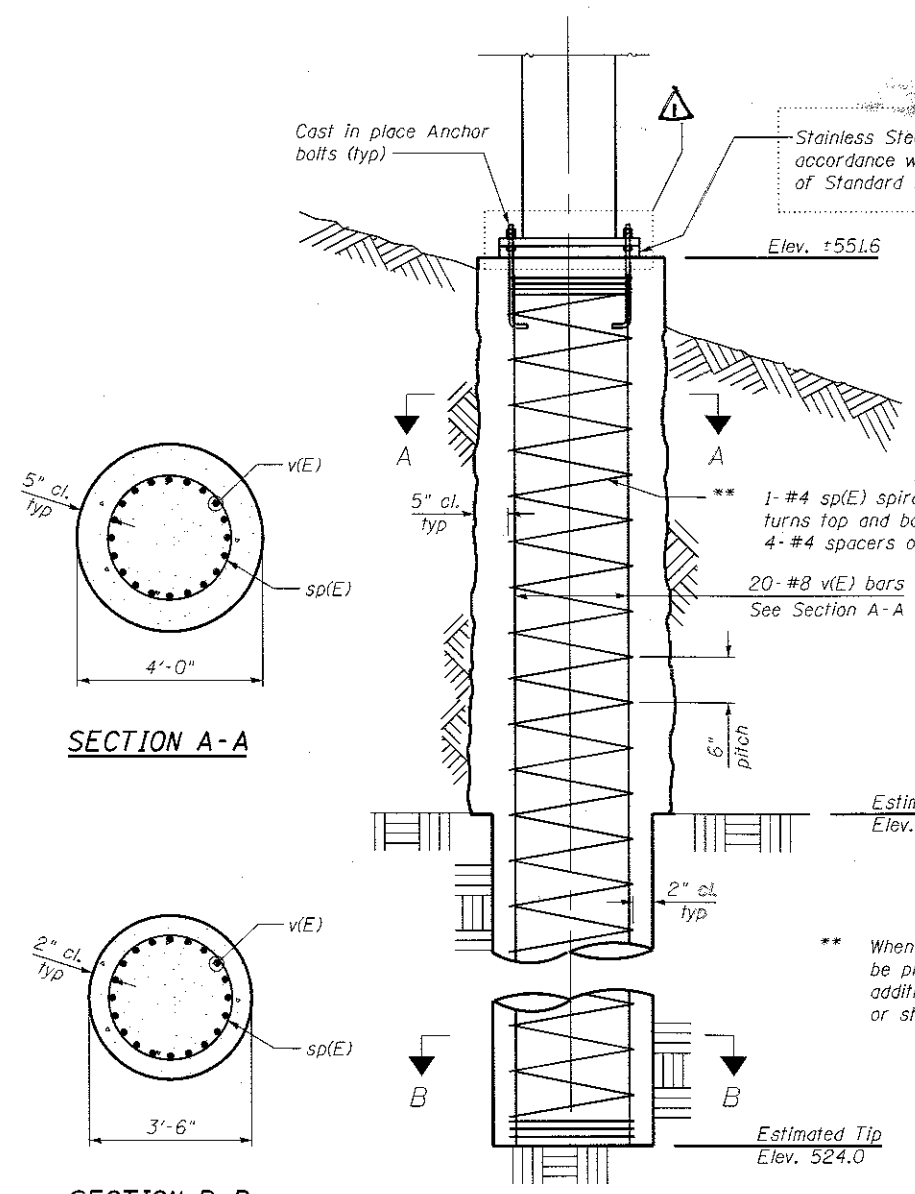
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	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.L. REED	REVISED -
PLOT DATE =	CHECKED - R.I. PETERS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
RUBY STREET - MISCELLANEOUS ELECTRICAL DETAILS  
SHEET NO. 92 OF 97 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
112	2011-045-I	WILL	466	105
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

RUBY, Drawing 01-092



Bar	A	B
t(E)	5'-6"	6'-6"
w(E)	10'-6"	4'-0"
w <sub>1</sub> (E)	10'-6"	6'-6"

t(E), w(E) and w<sub>1</sub>(E) Bars

**BILL OF MATERIAL**

Bar	No.	Size	Length	Shape
sp(E)	1	4	27'-3"	⋈
t(E)	38	6	18'-6"	┌
v(E)	20	8	27'-3"	—
w(E)	38	6	18'-6"	┌
w <sub>1</sub> (E)	14	6	23'-6"	┌
Structure Excavation			Cu. Yd.	148.9
Rock Excavation for Structures			Cu. Yd.	3
Concrete Structures			Cu. Yd.	66.0
Reinforcement Bars, Epoxy Coated			Pound	4440
Aerial Cable Support System			L. Sum	1

Space cap reinforcement to miss anchor bolts.  
\* Length is height of spiral.

**NOTES**

- The Contractor is advised that there is limited available R.O.W. for access to and construction of the west tower and west guy wire foundations.
- The Contractor shall locate the tower and guy wire foundations to avoid existing utilities.
- Foundation and anchorage details shown are for quantity estimating purposes only. Contractor shall design foundations and anchorages. Design is included in the cost of Aerial Cable Support System. See Special Provisions.
- Per the Special Provisions, a drilled shaft foundation is suggested for the west tower foundation. Therefore, the estimated quantity for Structure Excavation for the west tower foundation does not include 2 ft. of over excavation per section 502.12 (b) of the Standard Specifications. Instead, the volume has been computed using the plan diameter of the shaft multiplied by the length of the shaft in soil.

<p>MODJESKI-MASTERS Experience great bridges.</p>	USER NAME =	DESIGNED - J.T. HEGER	REVISED
		CHECKED - D.W. PETERMEIER	REVISED
	PLOT SCALE =	DRAWN - J.T. HEGER	REVISED
	PLOT DATE =	CHECKED - D.W. PETERMEIER	REVISED

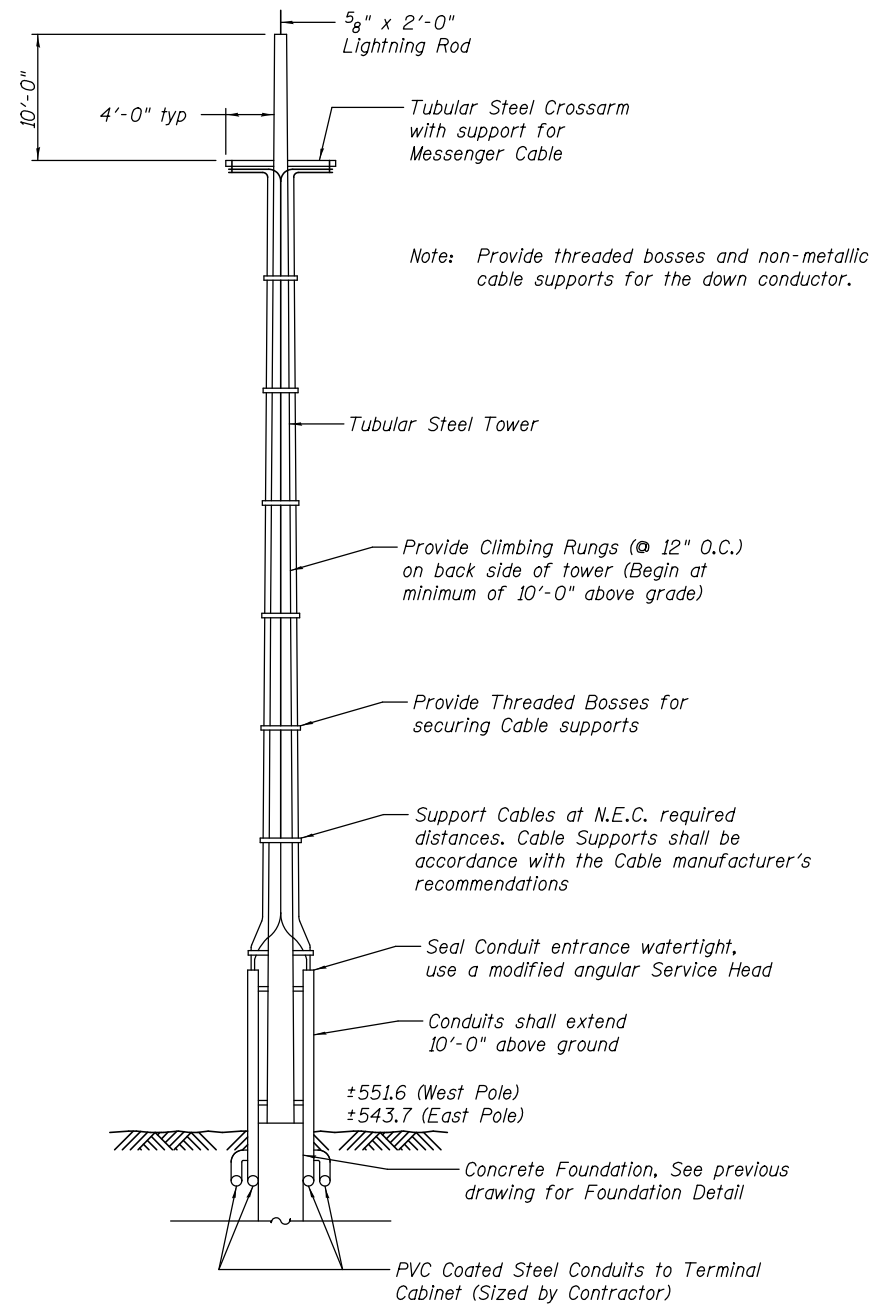
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
RUBY STREET - AERIAL CABLE DETAILS - 1

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
112	2011-045-1	WILL.	466	106
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

SHEET NO. 93 OF 97 SHEETS

REV 4-16-18



**AERIAL CABLE TOWER**  
(Typical for 2)

**NOTES:**

1. Refer to Special Provisions for additional requirements for aerial cables and aerial cable support system.
2. Size tower height to provide minimum required cable elevation as shown on the plan and elevation drawing (01-001).

PROPOSED AERIAL CONTROL AND COMMUNICATIONS CABLE(S)		
Description	Quantity	Size/Type
Fiber Optic Communications (PLC, CCTV)	2	12 Fiber
Fiber Optic Communications, Spare	2	12 Fiber
Farside Inclinator + Spare	4	1 pair, shielded 12AWG
Farside Encoders (future)	16	1 pair, shielded 12AWG
Farside Traffic Gate Limit Switches	10	10 AWG
Farside Fully Seated Limit Switch	4	10 AWG
Farside Rotary Cam Limit Switch	10	10 AWG
Farside Brake Limit Switches	16	10 AWG
Farside Over-Speed Switches	8	10 AWG
Ground	1	8 AWG
Spare	40	10 AWG

FUTURE AERIAL POWER CABLE - FOR SYSTEM DESIGN		
Description	Quantity	Size/Type
Panel BB Transformer / Sump Pump	3	6 AWG
Farside Motors (2 gates, 4 brakes)	18	10 AWG
Power Circuits	34	10 AWG
Spare	20	10 AWG
Ground	1	6 AWG
Spare	6	6 AWG

FUTURE AERIAL MAIN DRIVE CABLE - FOR SYSTEM DESIGN		
Description	Quantity	Size/Type
Farside Main Drive Motor 1 - Shielded Symmetrical VFD Cable	1	(3) - 2/0 (3) - Ground
Farside Main Drive Motor 2 - Shielded Symmetrical VFD Cable	1	(3) - 2/0 (3) - Ground
Spare Farside Main Drive Motor - Shielded Symmetrical VFD Cable	1	(3) - 2/0 (3) - Ground
Ground	1	4 AWG



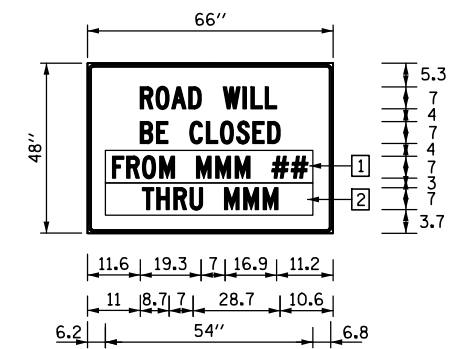
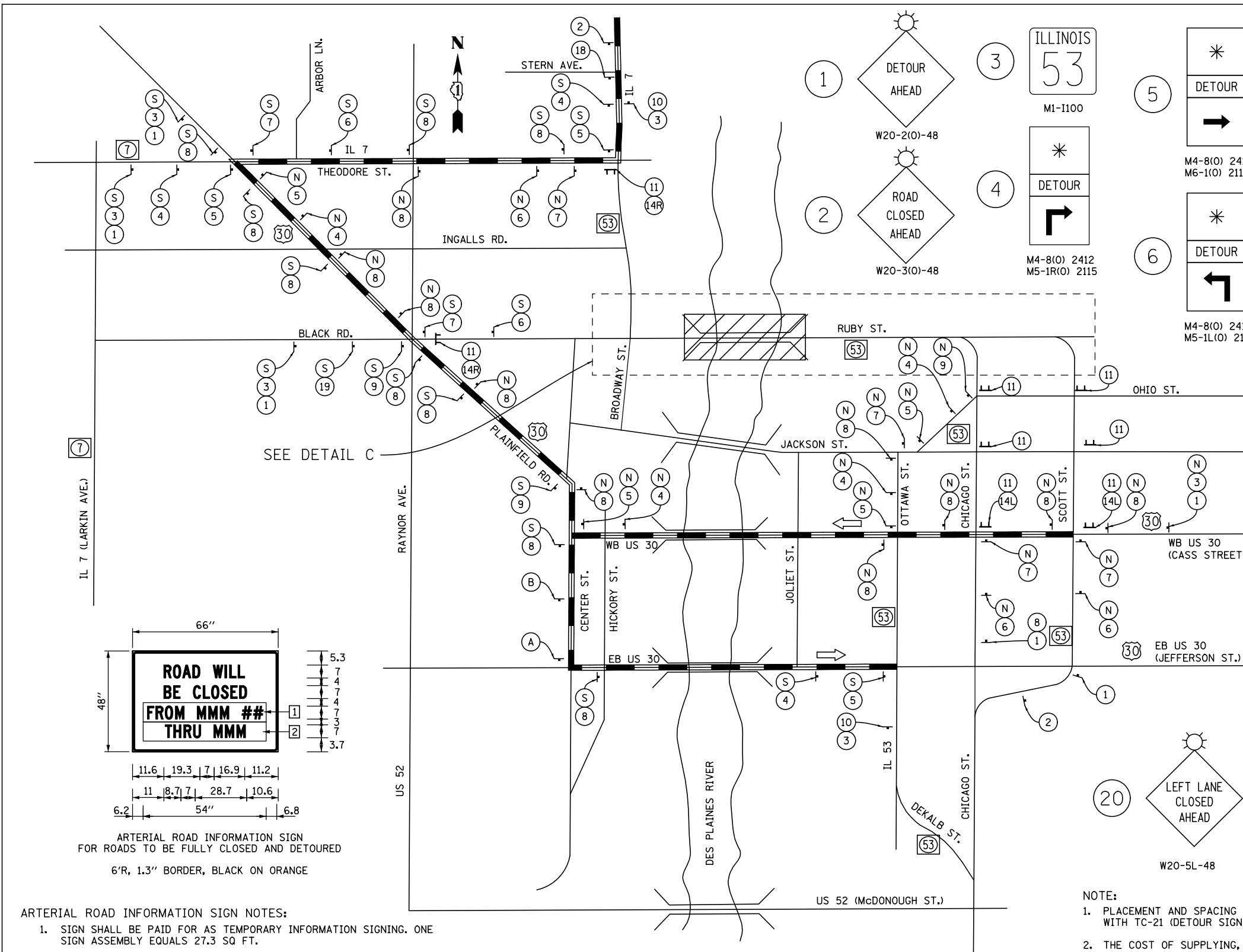
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	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED -
PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
RUBY STREET - AERIAL CABLE DETAILS - 2

SHEET NO. 94 OF 97 SHEETS

RUBY, Drawing 01-094		F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
112	2011-045-I	WILL	466	107	CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT						



ARTERIAL ROAD INFORMATION SIGN FOR ROADS TO BE FULLY CLOSED AND DETOURED  
6'R, 1.3" BORDER, BLACK ON ORANGE

**ARTERIAL ROAD INFORMATION SIGN NOTES:**

- SIGN SHALL BE PAID FOR AS TEMPORARY INFORMATION SIGNING. ONE SIGN ASSEMBLY EQUALS 27.3 SQ FT.
- OVERLAY PANELS SHALL BE "HIGHWAY C" FONT
- OVERLAY PANEL 1 TO CONTAIN STARTING DATE OF FULL CLOSURE AND DETOUR IMPLEMENTATION
- OVERLAY PANEL 2 TO CONTAIN ENDING MONTH OF FULL CLOSURE AND DETOUR. OMIT THE DATE ON PANEL; MONTH ONLY.
- ERECT SIGN ASSEMBLY (POST-MOUNTED) WITH PANELS 1 AND 2 IN PLACE ON ROAD TO BE CLOSED IN EACH DIRECTION NEAR POINT OF CLOSURE OR WITHIN SECTION TO BE FULLY CLOSED TWO (2) WEEKS PRIOR TO START DATE OF FULL CLOSURE. REMOVE ASSEMBLY AFTER CLOSURE.

**LEGEND:**

- \* SEE ROUTE MARKER - SEE SIGN 3
  - DETOUR ROUTE
  - ▨ CONSTRUCTION ZONE
  - 1 SIGN PANEL
  - 1 TYPE III BARRICADE W/2 STEADY BURN LIGHTS EACH (2 OR MORE)
  - ☀ AMBER FLASHING LIGHT
- SIGN 14 IS TO BE MOUNTED ABOVE TYPE III BARRICADE

**Sign Inventory:**

- 1: DETOUR AHEAD (W20-2(O)-48)
- 2: ROAD CLOSED AHEAD (W20-3(O)-48)
- 3: ILLINOIS 53 (MI-1100)
- 4: DETOUR (M4-8(O) 2412, M5-1(R) 2115)
- 5: DETOUR (M4-8(O) 2412, M6-1(O) 2115)
- 6: DETOUR (M4-8(O) 2412, M5-1(O) 2115)
- 7: DETOUR (M4-8(O) 2412, M6-1(O) 2115)
- 8: DETOUR (M4-8(O) 2412, M6-3(O) 2115)
- 9: DETOUR (M4-8(O) 2412, M6-2(R) 2115)
- 10: END DETOUR (M4-8(A) 3015)
- 11: BRIDGE CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY (R11-3 6030)
- 12: ROAD CLOSED TO THRU TRAFFIC (R11-4 6030)
- 13: BRIDGE CLOSED (R11-2B 4830)
- 14R: DETOUR (M4-10(R) 4818)
- 14L: DETOUR (M4-10(L) 4818)
- 15: (W4-1L-48)
- 16: SIDEWALK CLOSED (R11-1(O) 2418)
- 17: RIGHT LANE CLOSED AHEAD (W20-5R(O)-48)
- 18: ROAD CLOSED 500 FT (W20-3(O)-48)
- 19: DETOUR (M4-8(O) 2412, M5-2(R) 2115)
- 20: LEFT LANE CLOSED AHEAD (W20-5L-48)

**North Arrow:** N

**Directional Signs:** EAST, SOUTH, WEST, NORTH, SOUTH

**Route Markers:** 30, 53

**NOTE:**

- PLACEMENT AND SPACING OF SIGNS AND BARRICADES SHALL BE IN ACCORDANCE WITH TC-21 (DETOUR SIGNING FOR CLOSING STATE HIGHWAYS).
- THE COST OF SUPPLYING, ERECTING AND MAINTAINING BARRICADES, WARNING LIGHTS AND SIGNS SHALL BE INCLUDED IN THE CONTRACT COST OF TRAFFIC CONTROL AND PROTECTION (SPECIAL).
- THE CONTRACTOR SHALL DEVELOP AND MAINTAIN APPROPRIATE SIGNAL TIMINGS FOR THE FOLLOWING INTERSECTIONS, OR AS DIRECTED BY THE ENGINEER
  - A) CASS ST./PLAINFIELD RD.
  - B) CASS ST./HICKORY ST.
  - C) CASS ST./JOLIET ST.
  - D) CASS ST./OTTAWA ST.
  - E) CASS ST./CHICAGO ST.
  - F) CASS ST./SCOTT ST.
  - G) JEFFERSON ST./CENTER ST.
  - H) JEFFERSON ST./HICKORY ST.
  - I) JEFFERSON ST./JOLIET ST.
  - J) JEFFERSON ST./OTTAWA ST.
  - K) RUBY ST./BROADWAY ST.
  - L) PLAINFIELD RD./RUBY ST.
  - M) PLAINFIELD RD./INGALLS RD.
  - N) IL ROUTE 7/PLAINFIELD RD.
  - O) IL ROUTE 7 (THEODORE ST.)/ARBOR LN.
  - P) IL ROUTE 7 (THEODORE ST.)/RAYNOR AVE.
  - Q) IL ROUTE 7 (THEODORE ST.)/IL ROUTE 53 (BROADWAY ST.)



USER NAME =	DESIGNED - MGR	REVISED
	CHECKED - RAG	REVISED
PLOT SCALE =	DRAWN - MGR	REVISED
PLOT DATE =	CHECKED - T.P. LAVIN	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
RUBY STREET - S.N. 099-9901 DETOUR ROUTE - 1**

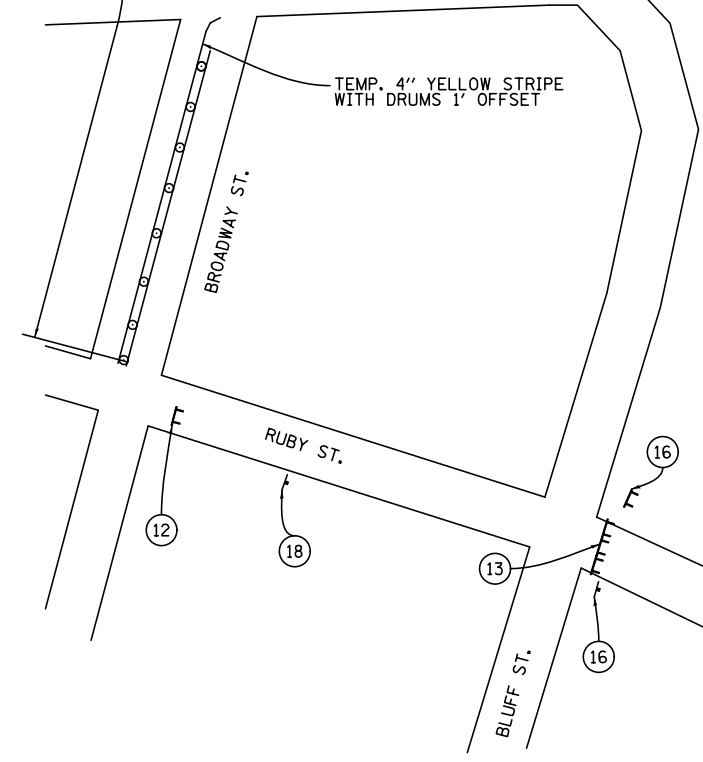
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
112	2011-045-I	WILL	466	108
CONTRACT NO. 60P55				

ILLINOIS FED. AID PROJECT

RUBY, Drawing 01-095



200'  
FOR LEFT LANE CLOSURE,  
MATCH EXISTING SKIP LINE  
PATTERN  
ARROW BOARD  
15 DRUMS MIN.  
@25' IN TANGENT  
@10' IN CURVE



DES PLAINES RIVER

90' SHIFT TAPER  
CLOSE LANE 2 BEFORE TURN ONTO RUBY  
UTILIZING IDOT STANDARD 701601

CLOSE OFF ACCESS TO LANE 2 FROM WB  
COLUMBIA ST. CHANNELIZE TRAFFIC INTO  
LANE 1.

COLUMBIA ST.

180° LANE  
CLOSURE  
TAPER

SCOTT ST.

AT RENTAL  
MAX DRIVEWAY  
R3-1 (24" X 24")

DRUMS @ 20' C-C  
CHANNELIZING ALL  
TRAFFIC FROM WB  
RUBY ST. TO SB  
CHICAGO ST.

LIBERTY ST.

JOILET ST.

CHICAGO ST.

LEGEND:

- ⊙ DRUM W/STEADY BURNING LIGHT
- ⌚ TYPE III BARRICADE W/2 STEADY BURN LIGHTS EACH (2 OR MORE)
- ⊥ SIGN PANEL
- ⊥ SIGN 14 IS TO BE MOUNTED ABOVE TYPE III BARRICADE
- ➔ ARROW BOARD

DETAIL C



USER NAME =	DESIGNED - MGR	REVISED
	CHECKED - RAG	REVISED
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PLOT DATE =	CHECKED - T.P. LAVIN	REVISED




STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
RUBY STREET - S.N. 099-9901 DETOUR ROUTE - 2  
SHEET NO. 96 OF 97 SHEETS






F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
112	2011-045-I	WILL	466	109
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

RUBY, Drawing 01-096






**ROUTE MARKERS**

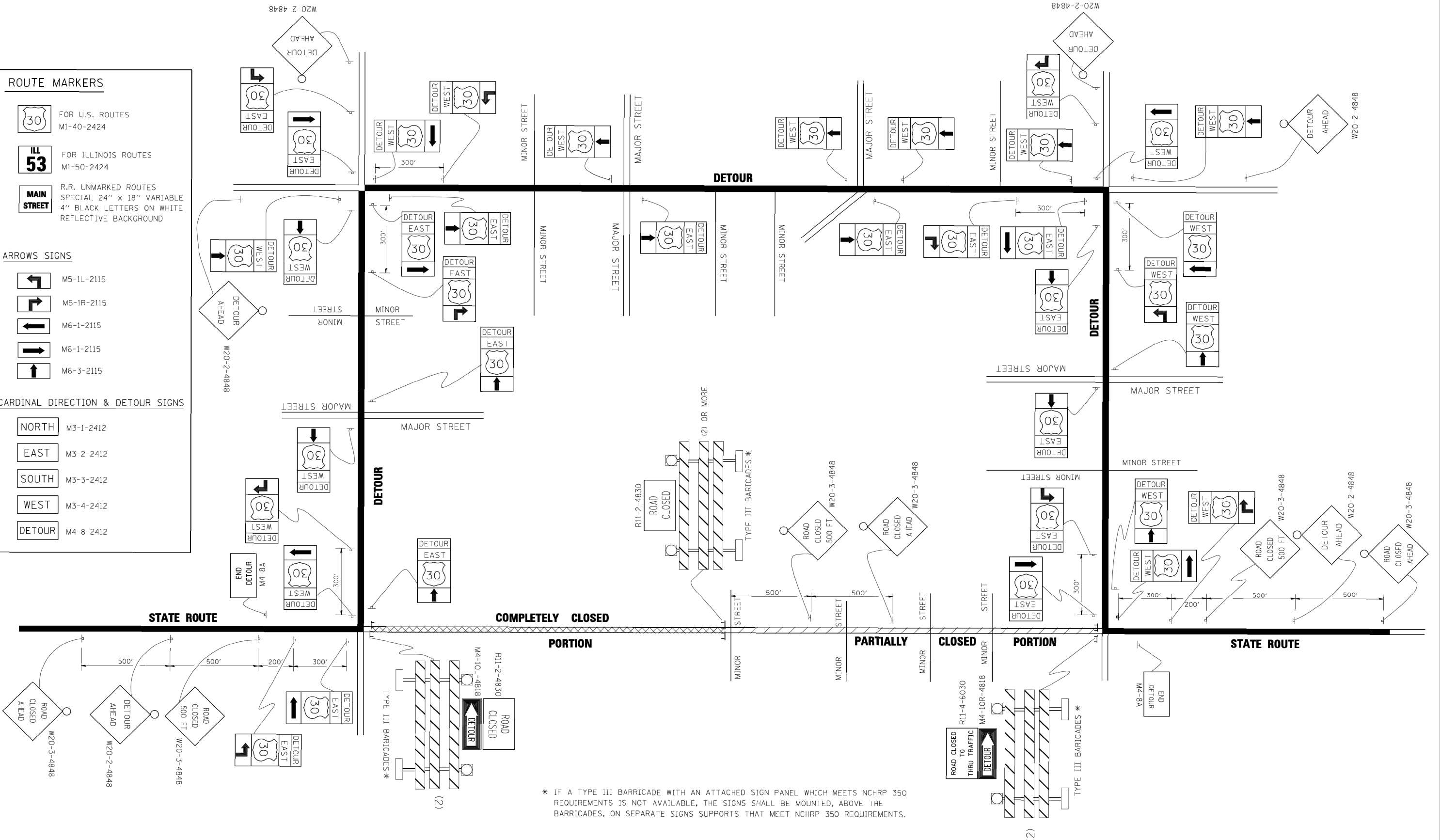
-  FOR U.S. ROUTES  
M1-40-2424
-  FOR ILLINOIS ROUTES  
M1-50-2424
-  R.R. UNMARKED ROUTES  
SPECIAL 24" x 18" VARIABLE  
4" BLACK LETTERS ON WHITE  
REFLECTIVE BACKGROUND

**ARROWS SIGNS**

-  M5-1L-2115
-  M5-1R-2115
-  M6-1-2115
-  M6-1-2115
-  M6-3-2115

**CARDINAL DIRECTION & DETOUR SIGNS**

-  NORTH M3-1-2412
-  EAST M3-2-2412
-  SOUTH M3-3-2412
-  WEST M3-4-2412
-  DETOUR M4-8-2412



\* IF A TYPE III BARRICADE WITH AN ATTACHED SIGN PANEL WHICH MEETS NCHRP 350 REQUIREMENTS IS NOT AVAILABLE, THE SIGNS SHALL BE MOUNTED, ABOVE THE BARRICADES, ON SEPARATE SIGNS SUPPORTS THAT MEET NCHRP 350 REQUIREMENTS.

**IDOT DISTRICT 1 STANDARD TC-21**



USER NAME =	DESIGNED -	REVISED
	CHECKED -	REVISED
PLOT SCALE =	DRAWN -	REVISED
PLOT DATE =	CHECKED -	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

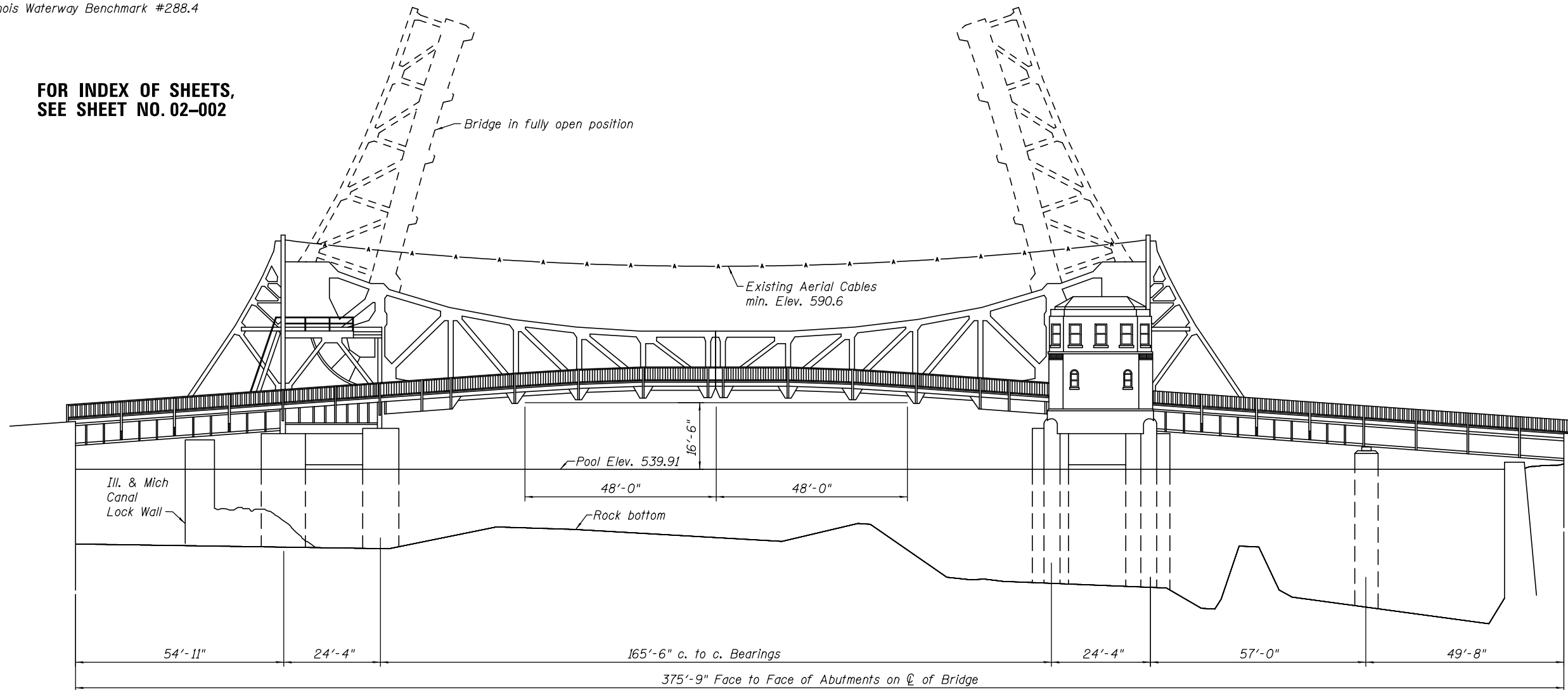
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
DETOUR SIGNING FOR CLOSING STATE HIGHWAYS**

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
112	2011-045-I	WILL	466	110
TC-21			CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT				

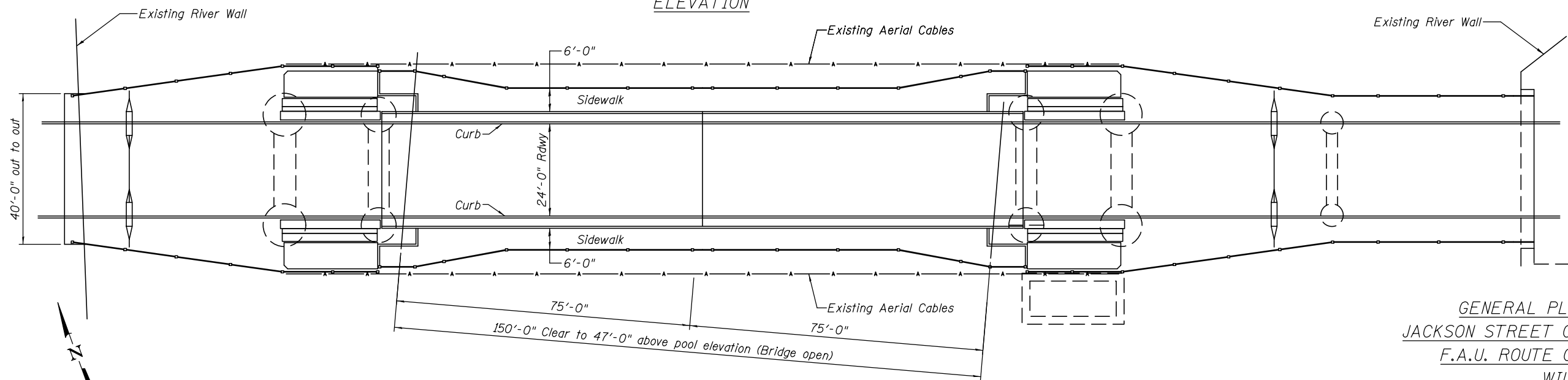
RUBY, Drawing 01-097

Benchmark:  
Illinois Waterway Benchmark #288.4

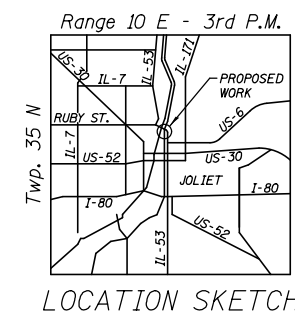
**FOR INDEX OF SHEETS,  
SEE SHEET NO. 02-002**



ELEVATION



PLAN



GENERAL PLAN AND ELEVATION  
JACKSON STREET OVER DES PLAINES RIVER  
F.A.U. ROUTE 0297 SEC. 2011-045-I  
WILL COUNTY  
STATION 000.700  
STRUCTURE NO. 099-0239



USER NAME =	DESIGNED - R.I. PETERS	REVISED -
	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.S. JOHNSON	REVISED -
PLOT DATE =	CHECKED - R.I. PETERS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	111
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-001

# INDEX OF SHEETS

<u>SHEET</u>	<u>LOCAL SHEET</u>	<u>DESCRIPTION</u>
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117	02-007	FAR SIDE MACHINERY LAYOUT
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122	02-012	PANELBOARD SCHEDULES
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138	02-028	CCTV CAMERA STRUCTURE FOUNDATION
139	02-029	BRIDGE CONTROL DIAGRAM
140 – 141	02-030 – 02-031	NEW BRIDGE CONTROL CONSOLE
142 – 145	02-032 – 02-035	CONTROL CIRCUIT LEGENDS
146 – 190	02-036 – 02-080	CONTROL CIRCUITS
191	02-081	LIMIT SWITCH TRIPPING CHARTS
192	02-082	ELECTRICAL EQUIPMENT SCHEDULE
193 – 195	02-083 – 02-085	CONDUIT DIAGRAMS
196 – 199	02-086 – 02-089	CONDUIT TABULATIONS
200	02-090	AERIAL CABLE DETAILS
201 – 204	02-091 – 02-094	MISCELLANEOUS ELECTRICAL DETAILS
205	02-095	CONDUIT MOUNTING DETAILS
206 – 207	02-096 – 02-097	CONSTRUCTION DETOUR ROUTES

JACKSON, Drawing 02-002

	USER NAME =	DESIGNED - R.I. PETERS	REVISED _____	<b>STATE OF ILLINOIS</b> <b>DEPARTMENT OF TRANSPORTATION</b>	<b>VARIOUS MOVABLE BRIDGES</b> <b>LOCAL CENTRALIZED CONTROL AND OPERATION</b> <b>JACKSON STREET - INDEX OF SHEETS</b>	F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE =	CHECKED - L.V. BORDEN	REVISED _____			0297	2011-045-I	WILL	466	112
	PLOT DATE =	DRAWN - R.L. REED	REVISED _____			ILLINOIS FED. AID PROJECT		CONTRACT NO. 60P55		

**GENERAL STRUCTURE**

- Remove wiring from existing conduit and install new wiring where applicable
- Provide and Install new wiring and conduit to Electrical equipment

**TOP OF FIXED STRUCTURE**

- Provide and Install:
- Fully Seated Limit Switch
  - Fixed Traffic Cameras
  - Aerial Terminal Cabinets

**WEST APPROACH**

- Provide and Install:
- PTZ Camera and camera pole
  - P.A. system speakers and microphones
- Other:
- Refurbish existing traffic gates

Provide and Install conduit and junction boxes for connection to the Fiber Optic Network

**WEST PIER TOP**

- Provide and Install:
- PTZ Camera
  - Thermal Imaging Camera
  - Boat Detection Sensors
- Replace:
- All conduit on pier

**EAST PIER TOP**

- Provide and Install:
- PTZ Camera
  - Thermal Imaging Camera
  - Boat Detection Sensors
- Replace:
- All conduit on pier

**WEST MACHINERY ENCLOSURE**

- Provide and Install:
- Limit Switches for existing Machinery and Motor Brakes
  - Motor Encoders for existing Motors
  - Door Switches
  - Disconnect Switches for Machinery and Motor Brakes
  - Disconnect Switches for Main Drive Motors
  - Rotary Cam Limit Switch with resolver
  - Inclinometers
  - PLC I/O Rack, Cards, and related components
  - New wiring to Electrical equipment
- Remove, Refurbish, and Reinstall Main Drive Motors

Provide and Install new fixed span terminal cabinet, movable span terminal cabinet, and flexible cable(s) to movable span

**NORTHWEST FIXED TOWER STRUCTURE (SIDEWALK ELEVATION)**

- Provide and Install:
- Power supplies and surge protection for cameras
  - Power supplies, surge protection, amplifiers, and transformers for P.A. system

Provide and Install Fixed Pedestrian Cameras on Machinery Access Walkways

Provide and Install Fixed Pedestrian Cameras on Machinery Access Walkways

Provide and Install new fixed span terminal cabinet, movable span terminal cabinet, and flexible cable(s) to movable span

Provide and Install new flexible cables to center span navigation lights

Provide and Install new fixed span terminal cabinet, movable span terminal cabinet, and flexible cable(s) to movable span

**EAST MACHINERY ENCLOSURE**

- Provide and Install:
- Limit Switches for existing Machinery and Motor Brakes
  - Motor Encoders for existing Motors
  - Door Switches
  - Disconnect Switches for Machinery and Motor Brakes
  - Disconnect Switches for Main Drive Motors
  - Rotary Cam Limit Switch with resolver
- Remove, Refurbish, and Reinstall Main Drive Motors

**EAST MACHINERY ENCLOSURE (CONT'D)**

- Provide and Install:
- Inclinometers
  - PLC I/O Rack, Cards, and related components
  - New wiring to Electrical equipment

**OPERATOR'S ROOM**

- Provide and Install:
- UPS equipment for CCTV and network equipment
  - PLC control console with HMI and hardwired relay back-up controls
  - PLC control panel
  - Network equipment to support:
    - PLC communication
    - CCTV system
    - P.A. system
    - Remote control

**OPERATOR'S ROOM (CONT'D)**

- Provide and Install:
- Power supplies and surge protection for cameras
  - Local CCTV system and monitors
  - Radios, power supplies, and surge protection for Wireless Back-up Radio System
  - Power supplies, surge protection, amplifiers, and transformers for P.A. system
  - Fire Alarm and Security System equipment
  - Marine Radio
  - New wiring to Electrical equipment

**TOP OF FIXED STRUCTURE**

- Provide and Install:
- Fully Seated Limit Switch
  - Fixed Traffic Cameras
  - Antennas for Wireless Backup Network (See Wireless Backup Network Plans for details)
  - Aerial Terminal Cabinet

**EAST APPROACH**

- Provide and Install:
- PTZ Camera and camera pole
  - P.A. system speakers and microphones
- Other:
- New pull box to generator
  - Refurbish existing traffic gates

Provide and Install empty conduit and junction boxes for future fiber connection under separate Fiber Optic Contract

**ELECTRICAL ROOM**

- Remove:
- Existing relay logic control system
  - Existing Main Drives
- Provide and Install:
- Surge Protective Device for incoming Electrical Service
  - Power Monitor (interface to PLC for remote monitoring)
  - Drive control and communication interface with PLC
  - Intrusion detection
  - Access Control for entry
  - Variable Speed Drives

**ELECTRICAL ROOM (CONT'D)**

- Provide and Install:
- Braking Resistors
  - Transformer
  - Panelboard
  - Fiber Optic Interconnect equipment
  - Fire Alarm and Security System equipment
  - New wiring to Electrical equipment
- Other:
- Interface the existing Automatic Transfer Switch to PLC for remote monitoring

**ELEVATION**

**PLAN**



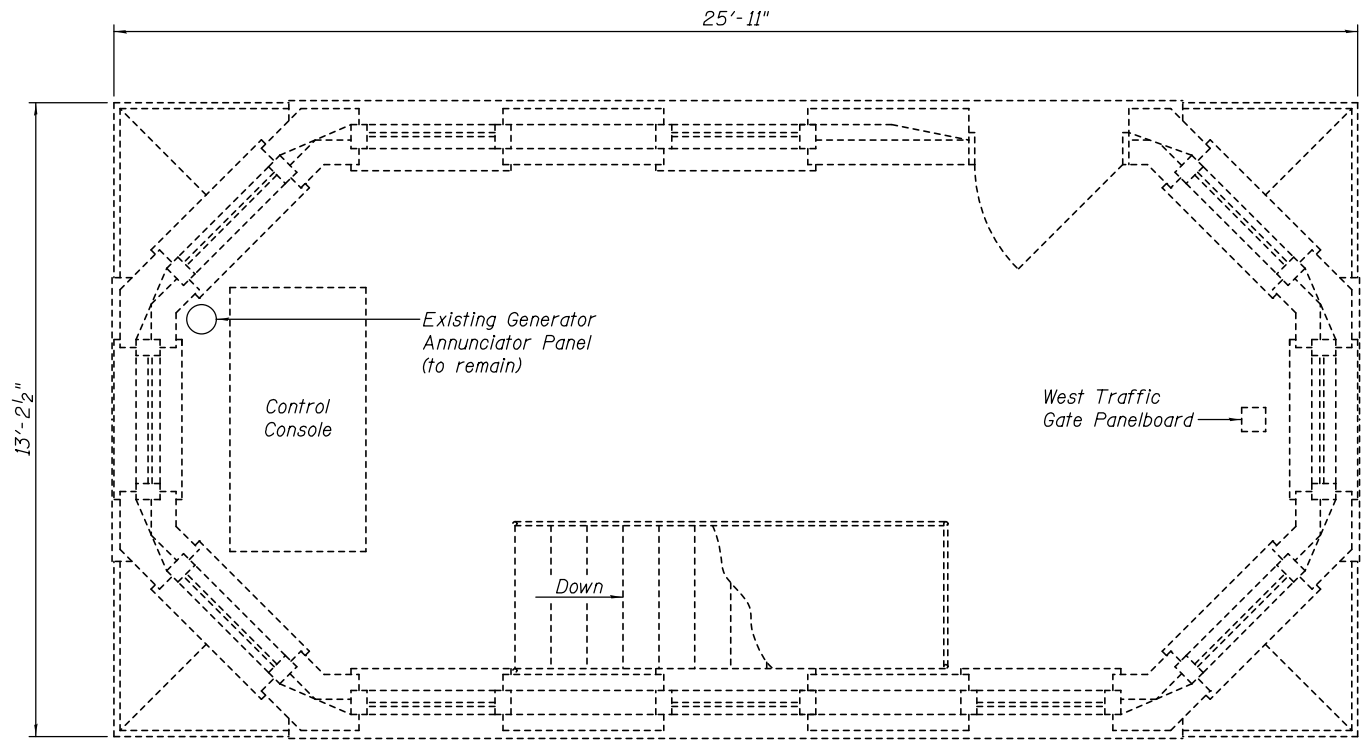
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	CHECKED - L.V. BORDEN	REVISED	___
PLOT SCALE =	DRAWN - K.M. GABLE	REVISED	___
PLOT DATE =	CHECKED - R.I. PETERS	REVISED	___

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DEPARTMENT OF TRANSPORTATION**

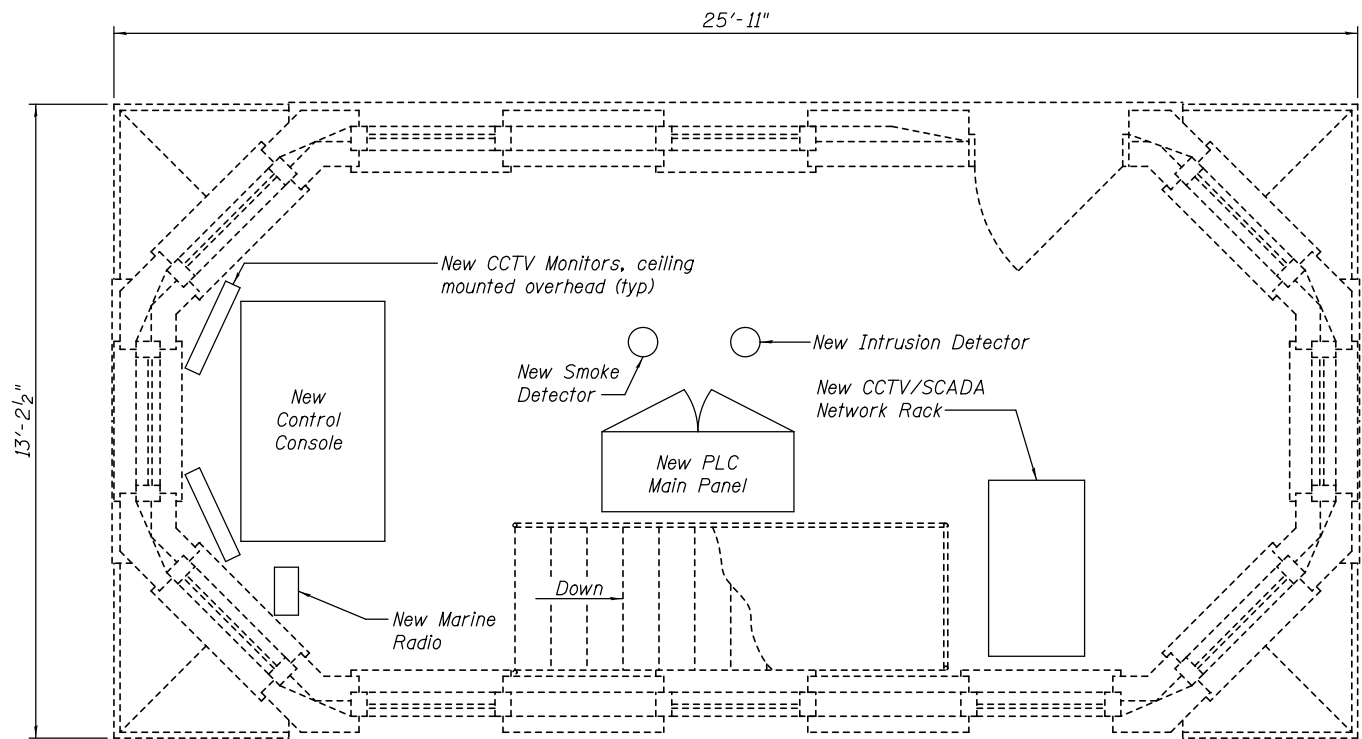
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - ELECTRICAL SCOPE PLAN AND ELEVATION**

SHEET NO. 3 OF 97 SHEETS

JACKSON, Drawing 02-003				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	113
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				



PLAN  
EXISTING OPERATOR'S ROOM FLOOR LAYOUT



PLAN  
PROPOSED OPERATOR'S ROOM FLOOR LAYOUT

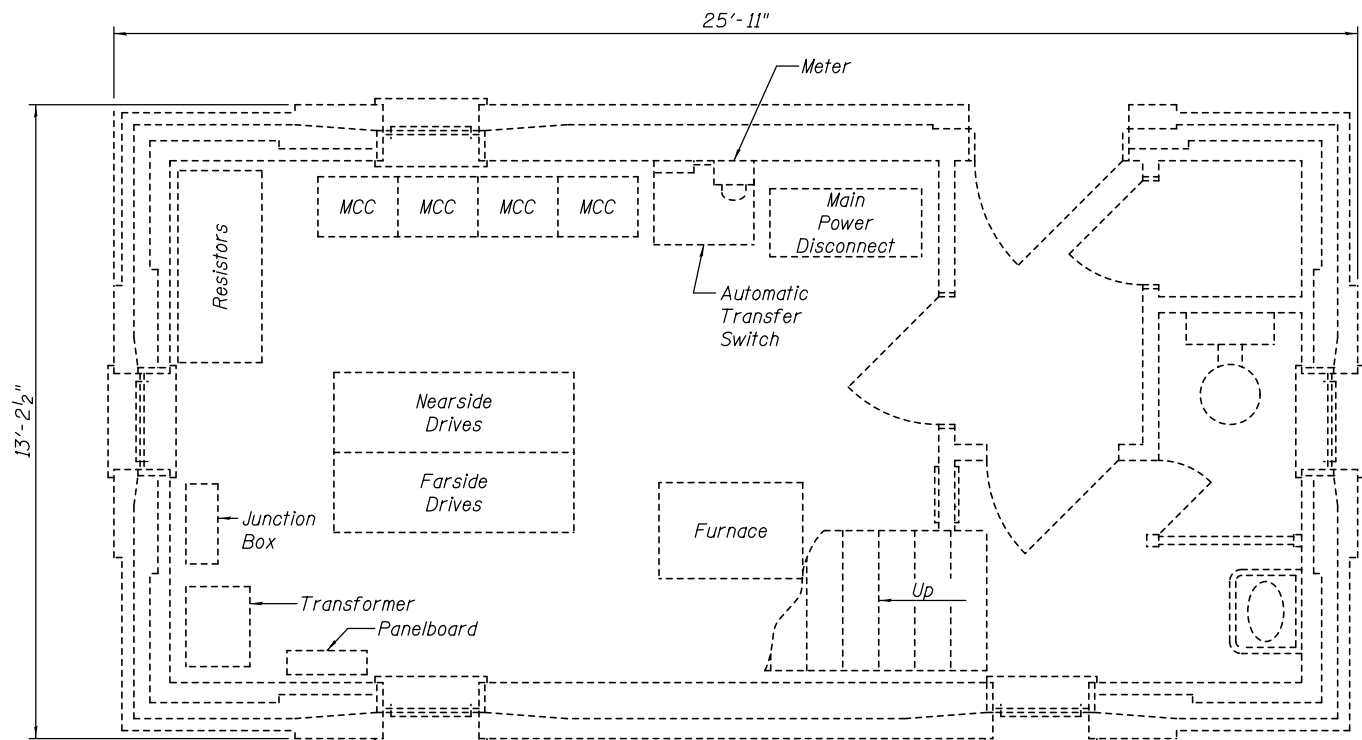
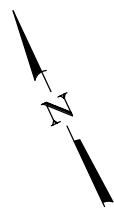


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PLOT DATE =	CHECKED - R.I. PETERS	REVISED -

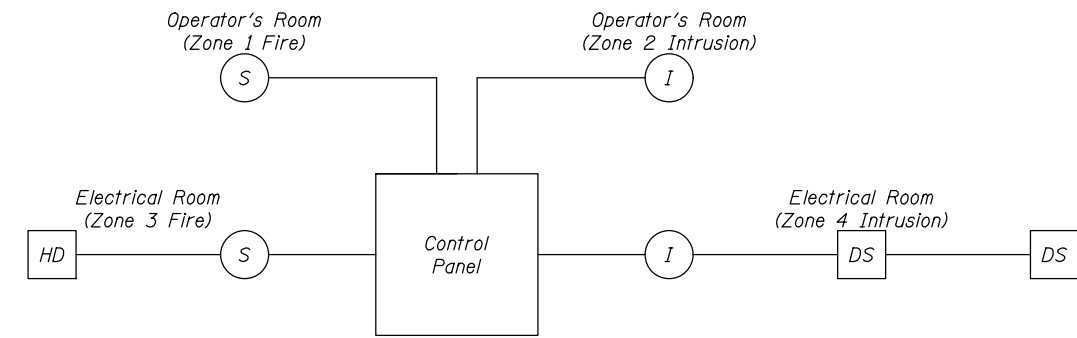
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - OPERATOR'S HOUSE DETAILS - 1

JACKSON, Drawing 02-004				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	114
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				



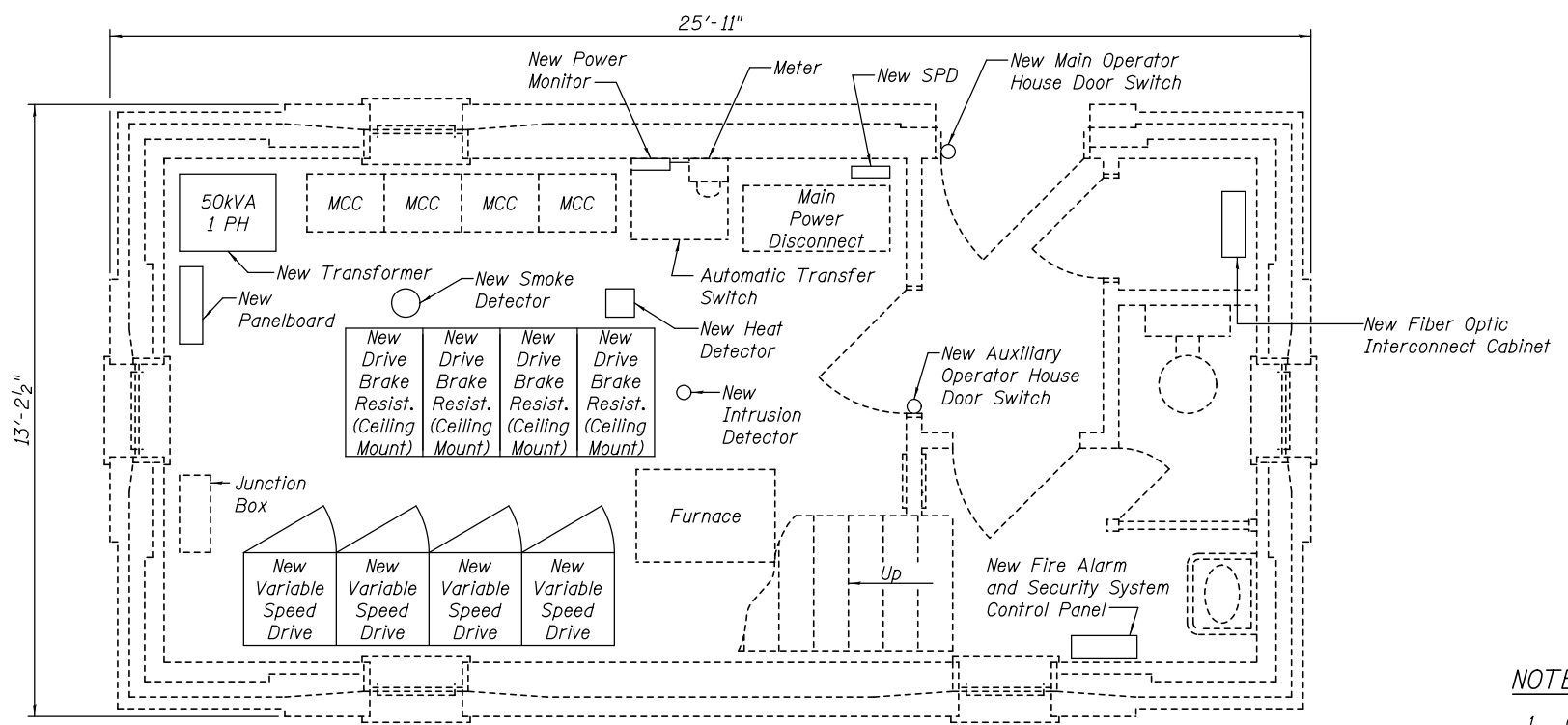
PLAN  
EXISTING ELECTRICAL ROOM FLOOR LAYOUT



FIRE ALARM AND SECURITY SYSTEM

LEGEND

- (S) Smoke Detector
- (I) Intrusion Detector
- [HD] Heat Detector
- [DS] Door Switch



PLAN  
PROPOSED ELECTRICAL ROOM FLOOR LAYOUT

NOTES:

1. Contractor is alerted to the fact that cabinets may need to be custom sized to fit available space in existing electrical rooms and to provide NEC working space around cabinets.
2. Items not labeled as new are intended to remain.

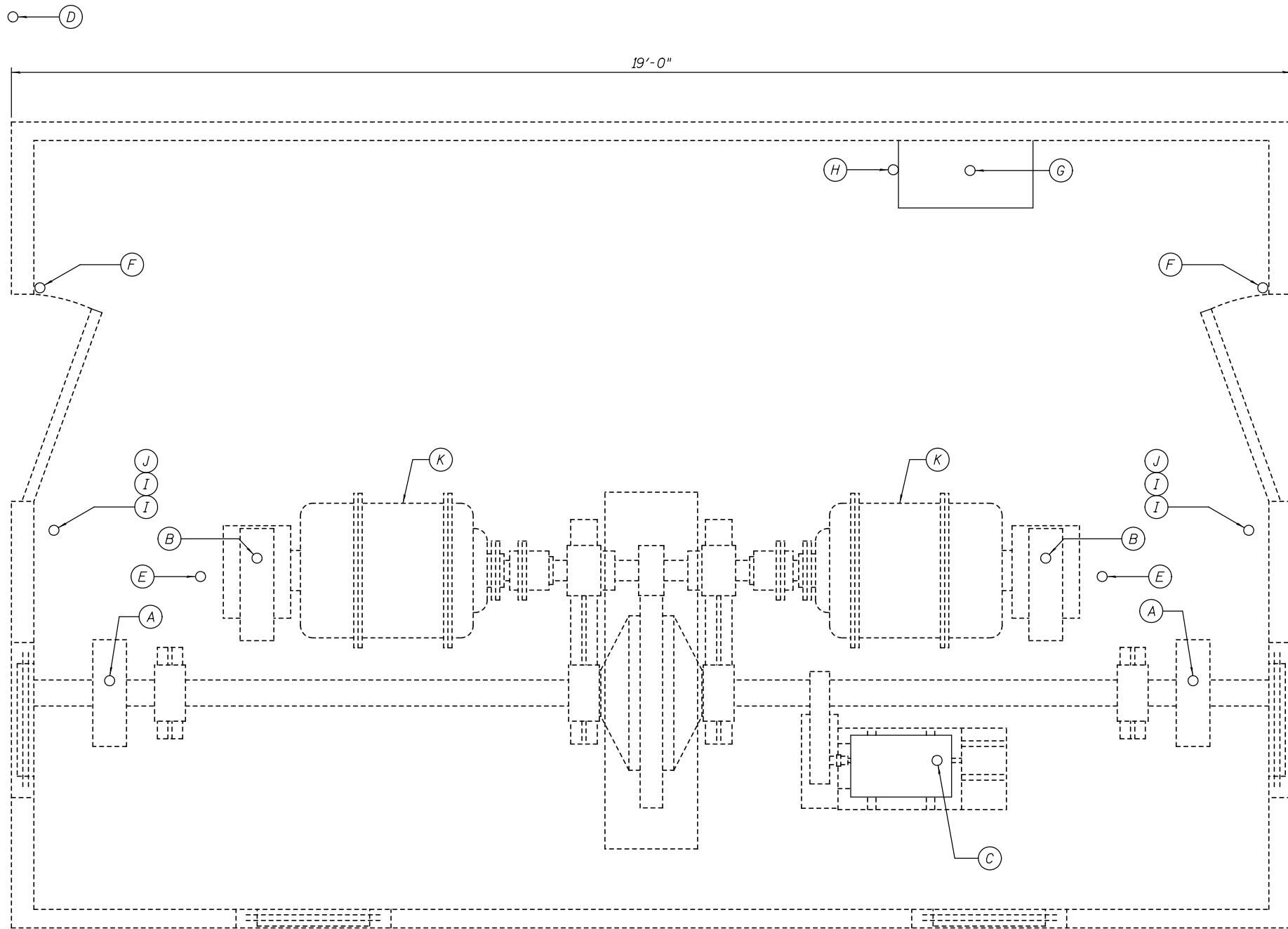
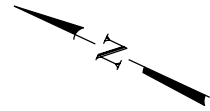


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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - OPERATOR'S HOUSE DETAILS - 2  
SHEET NO. 5 OF 97 SHEETS

JACKSON, Drawing 02-005				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	115
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				



PLAN  
JACKSON STREET EAST MACHINERY ENCLOSURE

- (A) Provide and install new brake set and brake released Limit Switches for existing Machinery Brakes (E208).
- (B) Provide and install new brake set and brake released Limit Switches for existing Motor Brakes (E208).
- (C) Provide and install new Span Position Rotary Cam Limit Switch and Resolver (E206).
- (D) Provide and install new Fully Seated Limit Switch (on Span) (E208).
- (E) Provide and install new Motor Encoders for existing Motors.
- (F) Provide and install new Door Switches (E210).
- (G) Provide and install new PLC I/O Rack, Cards, Enclosure, and related components.
- (H) Provide and install new Inclinometers (2) (E207).
- (I) Provide and install new brake disconnect switch (E106).
- (J) Provide and install new main drive motor disconnect switch (E105).
- (K) Remove, refurbish, and reinstall main drive motor.



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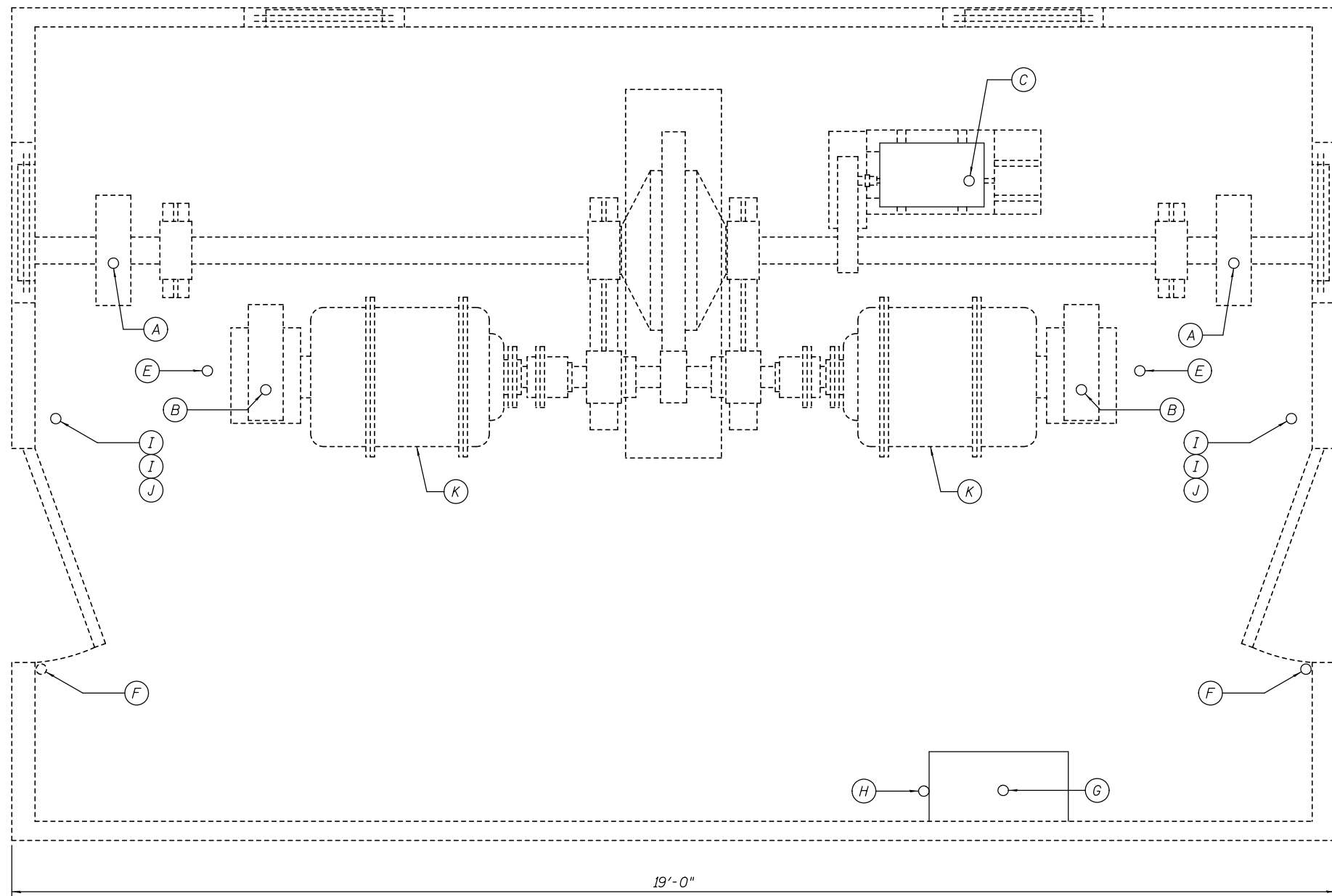
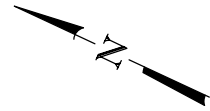
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**DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES**  
**LOCAL CENTRALIZED CONTROL AND OPERATION**  
**JACKSON STREET - NEARSIDE MACHINERY LAYOUT**

SHEET NO. 6 OF 97 SHEETS

JACKSON, Drawing 02-006		TOTAL SHEETS		SHEET NO.	
F.A.U. RTE.	SECTION	COUNTY	466	116	
0297	2011-045-I	WILL	CONTRACT NO. 60P55		
ILLINOIS FED. AID PROJECT					





PLAN  
JACKSON STREET WEST MACHINERY ENCLOSURE

- (A) Provide and install new brake set and brake released Limit Switches for existing Machinery Brakes (E208).
- (B) Provide and install new brake set and brake released Limit Switches for existing Motor Brakes (E208).
- (C) Provide and install new Span Position Rotary Cam Limit Switch and Resolver (E206).
- (D) Provide and install new Fully Seated Limit Switch (on Span) (E208).
- (E) Provide and install new Motor Encoders for existing Motors.
- (F) Provide and install new Door Switches (E210).
- (G) Provide and install new PLC I/O Rack, Cards, Enclosure, and related components.
- (H) Provide and install new Inclinometers (2) (E207).
- (I) Provide and install new brake disconnect switch (E106).
- (J) Provide and install new main drive motor disconnect switch (E105).
- (K) Remove, refurbish, and reinstall main drive motor.



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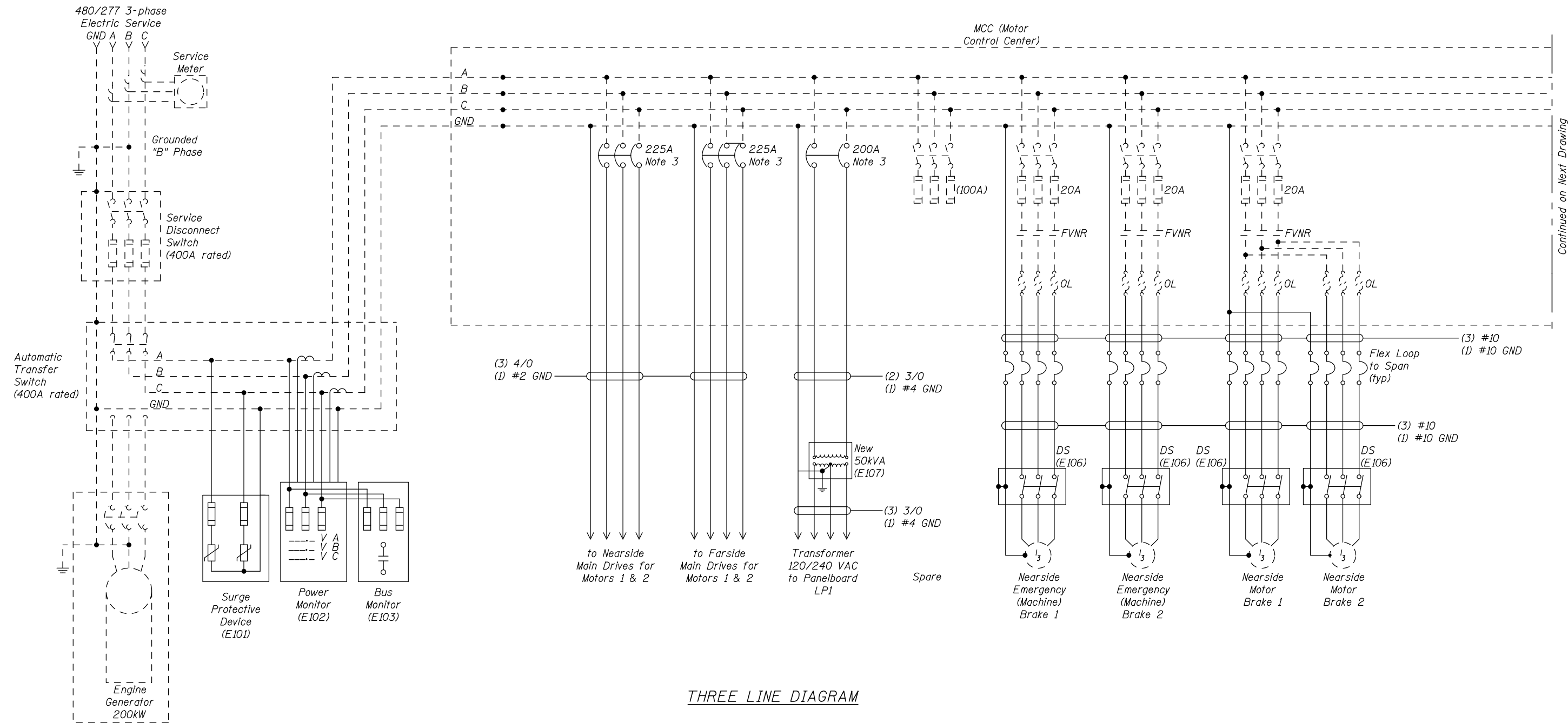
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**DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES**  
**LOCAL CENTRALIZED CONTROL AND OPERATION**  
**JACKSON STREET - FARSIDE MACHINERY LAYOUT**

SHEET NO. 7 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	117
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-007



Continued on Next Drawing

THREE LINE DIAGRAM

**LEGEND**  
 - - - - Existing Equipment, Wiring, and Conduit  
 \_\_\_\_\_ New Equipment, Wiring, and Conduit  
 (#) Motor with HP

**NOTES**

1. The Contractor shall provide an appropriately sized Nema 12 electrical enclosure for the power monitor, bus monitor, and associated components.
2. The Contractor shall be responsible for sizing all brackets, fuses, and conductors according to equipment and NEC requirements.
3. Modify MCC buckets to provide new circuit breakers.



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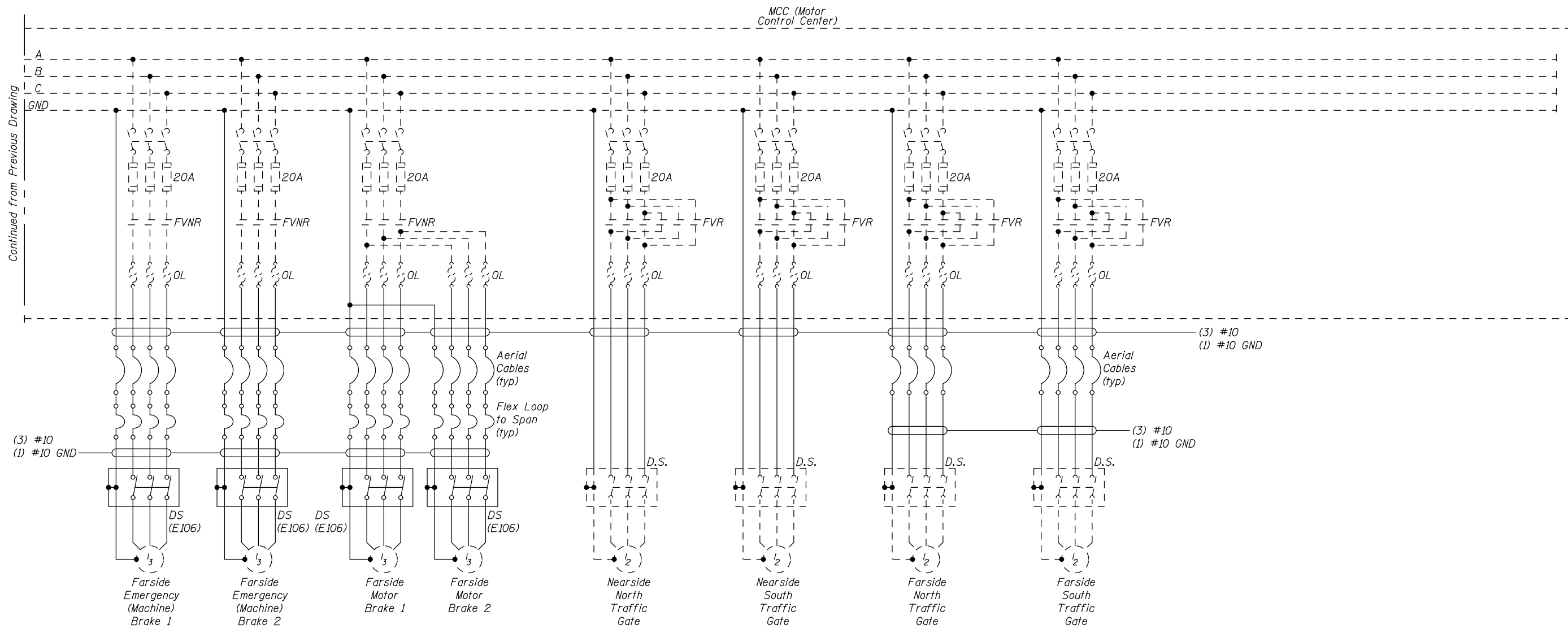
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DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - THREE LINE DIAGRAM - 1**

SHEET NO. 8 OF 97 SHEETS

JACKSON, Drawing 02-008				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	118
CONTRACT NO. 60P55				

ILLINOIS FED. AID PROJECT



THREE LINE DIAGRAM

LEGEND

- - - - Existing Equipment, Wiring, and Conduit
- New Equipment, Wiring, and Conduit
- ( # ) Motor with HP

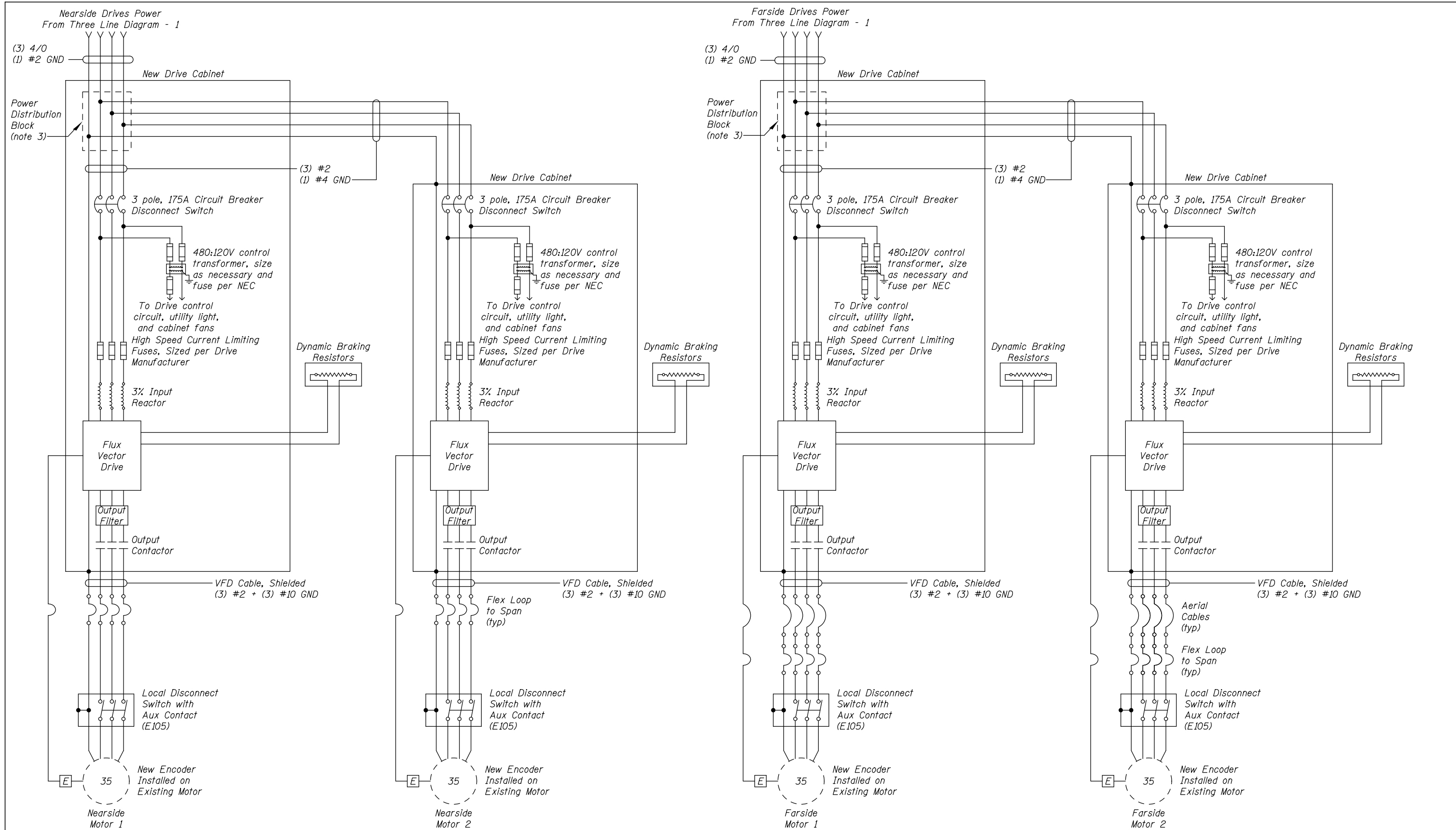


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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED -
PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - THREE LINE DIAGRAM - 2

JACKSON, Drawing 02-009				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	119
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				



**NOTES:**

1. All enclosures, motors, and peripherals shall be grounded according to the NEC and drive manufacturer's recommendations.
2. Contractor is alerted to the fact that cabinets may need to be custom size to fit available space in existing electrical rooms and to provide NEC working space around cabinets.
3. Provide power distribution blocks in new NE and NW VFD Cabinets to tap incoming feeder conductors.

**LEGEND**

- - - - Existing Equipment, Wiring, and Conduit
- New Equipment, Wiring, and Conduit
- ( # ) Motor with HP



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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

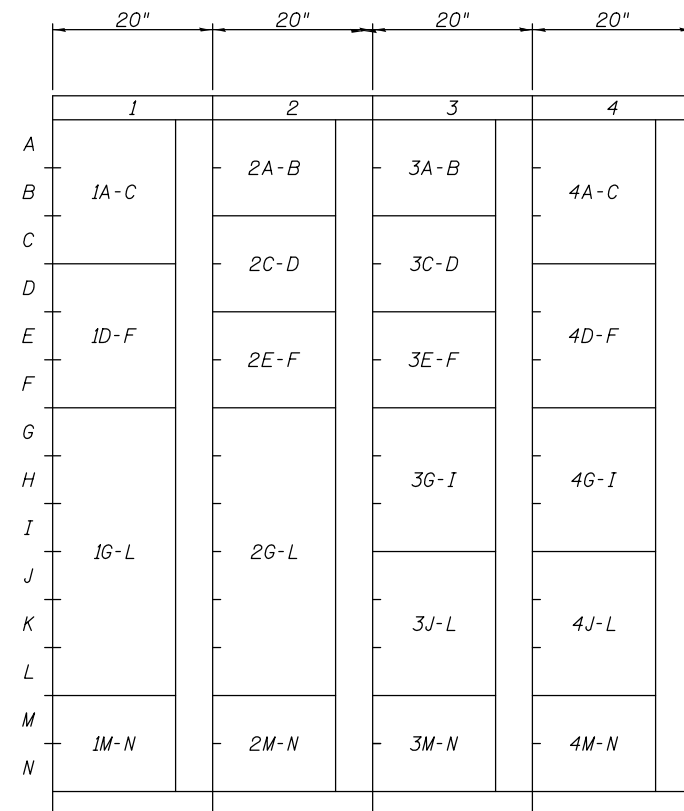
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - THREE LINE DIAGRAM - 3**

SHEET NO. 10 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	120
CONTRACT NO. 60P55				

JACKSON, Drawing 02-010

ILLINOIS FED. AID PROJECT



**ELEVATION**  
**EXISTING MOTOR CONTROL CENTER (MCC) LAYOUT**  
 Scale: None

MOTOR CONTROL CENTER DATA			
Voltage:		480V	
Phase / Wire:		3 Ph / 3W	
Bus Amperes:		600A Horizontal / 300A Vertical	
Manufacturer / Model:		Square D / Model 4, Class 8998	
Enclosure:		Nema Type 1	
Braced for:		25k Symmetrical Amps	
Unit Loc.	Description	Motor HP	Unit Type
1A-C	Incoming Main Lugs	-	ML
1D-F	Space	-	SP
1G-L	Power for Nearside Main Drive Motors 1 & 2	-	FD
1M-N	Space	-	SP
2A-B	Transformer Disconnect (Panelboard)	-	FD
2C-D	Spare Disconnect (100A Frame Size)	-	FD
2E-F	Nearside Emergency (Machine) Brake 2	1/3	FVNR
2G-L	Power for Farside Main Drive Motors 1 & 2	-	FD
2M-N	Space	-	SP
3A-B	Nearside Emergency (Machine) Brake 1	1/3	FVNR
3C-D	Farside Emergency (Machine) Brake 2	1/3	FVNR
3E-F	Farside Emergency (Machine) Brake 1	1/3	FVNR
3G-I	Nearside Motor Brakes 1 & 2	2 X 1/3	FVNR
3J-L	Farside Motor Brakes 1 & 2	2 X 1/3	FVNR
3M-N	Space	-	SP
4A-C	Nearside Traffic Gate	1/2	FVR
4D-F	Nearside Traffic Gate	1/2	FVR
4G-I	Farside Traffic Gate	1/2	FVR
4J-L	Farside Traffic Gate	1/2	FVR
4M-N	Space	-	SP

Unit Types:  
 CB - Circuit Breaker Disconnect  
 FD - Fused Disconnect  
 FVNR - Full Voltage, Non Reversing Motor Starter  
 FVR - Full Voltage, Reversing Motor Starter  
 ML - Main Lugs  
 SP - Space

**NOTES:**

- The Contractor shall field verify all MCC loads served.



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**STATE OF ILLINOIS**  
**DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES**  
**LOCAL CENTRALIZED CONTROL AND OPERATION**  
**JACKSON STREET – MCC LAYOUT**

SHEET NO. 11 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	121
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-011

PANELBOARD LP1										
Voltage:		120/240V		Location:		Operator House Electrical Room				
Phase / Wire:		1 Ph / 3W		Fed From:		MCC via 25kVA Transformer				
Bus Amperes:		125A		Mounting Enclosure:		Surface / Nema 1				
Main Circuit Breaker:		125A								
Short Circuit:		10,000 AIC								
Description	Load(Amps)		Breaker		A	B	Breaker	Load(Amps)		Description
	A	B	Poles	Amps				Amps	Poles	
Pier Lights	-	-	1	20	1	6	20	1	-	Console Power
N.S. Roadway Lights	-	-	1	20	3	6	20	1	-	F.S. Roadway Lights
Generator Block Heater	-	-	1	20	5	6	20	1	-	N.S. Lift Span Lights
Spare	-	-	1	20	7	6	20	1	-	F.S. Gate Heater
N.S. Machinery Room Lights	-	-	1	20	9	6	20	1	-	Spare
Machinery Room Receptacles	-	-	1	20	11	6	20	1	-	F.S. Traffic Lights
Air Conditioner	-	-	1	20	13	6	20	1	-	Over Console Light
Air Conditioner	-	-	1	20	15	6	20	1	-	N.S. Gate Heater
F.S. Machinery Room Lights	-	-	1	20	17	6	20	1	-	N.S. Lift Span Lights
Camera	-	-	1	20	19	6	20	1	-	Water Line Heater
Monitor Receptacles	-	-	1	20	21	6	20	1	-	East Receptacle
Tower Receptacles	-	-	1	20	23	6	20	1	-	Tower Lights
Platform Lights	-	-	1	20	25	6	20	1	-	Water Heater
Signal (Warning) Horn	-	-	1	20	27	6	30	2	15.6	Electric Toilet
Furnace	-	-	1	20	29	6	30	2	15.6	Electric Toilet

EXISTING PANELBOARD LP1 SCHEDULE

PANELBOARD LP1										
Voltage:		120/240V		Location:		Operator House Electrical Room				
Phase / Wire:		1 Ph / 3W		Fed From:		MCC via Transformer, 50kVA				
Bus Amperes:		225A		Mounting Enclosure:		Surface / Nema 1				
Main Circuit Breaker:		200A								
Short Circuit:		22,000 AIC								
Description	Load(Amps)		Breaker		A	B	Breaker	Load(Amps)		Description
	A	B	Poles	Amps				Amps	Poles	
N.S. Roadway Lights	10	-	1	20	1	6	20	1	2	Generator Block Heater
F.S. Roadway Lights	-	10	1	20	3	6	20	1	3	N.S. Gate Heater
Air Conditioner	10	-	1	20	5	6	20	1	3	F.S. Gate Heater
Air Conditioner	-	10	1	20	7	6	20	1	10	Furnace
N.S. Traffic & Gate Lights,Gongs	6	-	1	20	9	6	20	1	12	Water Line Heater
F.S. Traffic & Gate Lights,Gongs	-	6	1	20	11	6	20	1	10	Water Heater
Pier Navigation Lights	3	-	1	20	13	6	20	1	5	Tower Lights
N.S. Lift Span Navigation Lights	-	2	1	20	15	6	20	1	6	Tower Receptacles
F.S. Lift Span Navigation Lights	2	-	1	20	17	6	20	1	5	Platform Lights
Signal (Warning) Horn	-	1	1	20	19	6	20	1	9	East Receptacle
River Signal Lights	1	-	1	20	21	6	20	1	5	Over Console Light
Fire/Security System	-	2	1	20	23	6	20	1	5	N.S. Machinery Room Lights
PLC Controls	12	-	1	20	25	6	20	1	5	F.S. Machinery Room Lights
PLC Panel Auxillary	-	5	1	20	27	6	20	1	6	Machinery Room Receptacles
Nearside Remote I/O	5	-	1	20	29	6	20	1	-	(Spare)
Boat Detection	-	1	1	20	31	6	20	1	8	Network UPS / Rack
Farside Remote I/O	5	-	1	20	33	6	20	1	8	CCTV System / Rack
Nearside CCTV Cameras	-	8	1	20	35	6	20	1	4	Farside Network Equipment
Farside CCTV Cameras	8	-	1	20	37	6	20	1	8	Public Address System
Wireless Radio Equipment	-	5	1	20	39	6	20	1	16	Electric Toilet
(Spare)	-	-	1	20	41	6	20	2	16	Electric Toilet

Total Connected Load = 131 Amps/Phase  
Demand Factor = 65%  
Demand Load = 85 Amps/Phase

A	B
131	127

PROPOSED PANELBOARD LP1 SCHEDULE (E108)

NOTES:

- The Contractor shall field verify all existing circuits before starting work.
- Remove existing panelboard. Provide and install new panelboard.
- The Contractor shall provide a neat typewritten or computer printed circuit legend with circuit descriptions.
- Circuits shall be arranged as required to balance loading.
- Power for PLC and Remote I/O racks shall utilize the same (A or B) phase.



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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - PANELBOARD SCHEDULE

SHEET NO. 12 OF 97 SHEETS

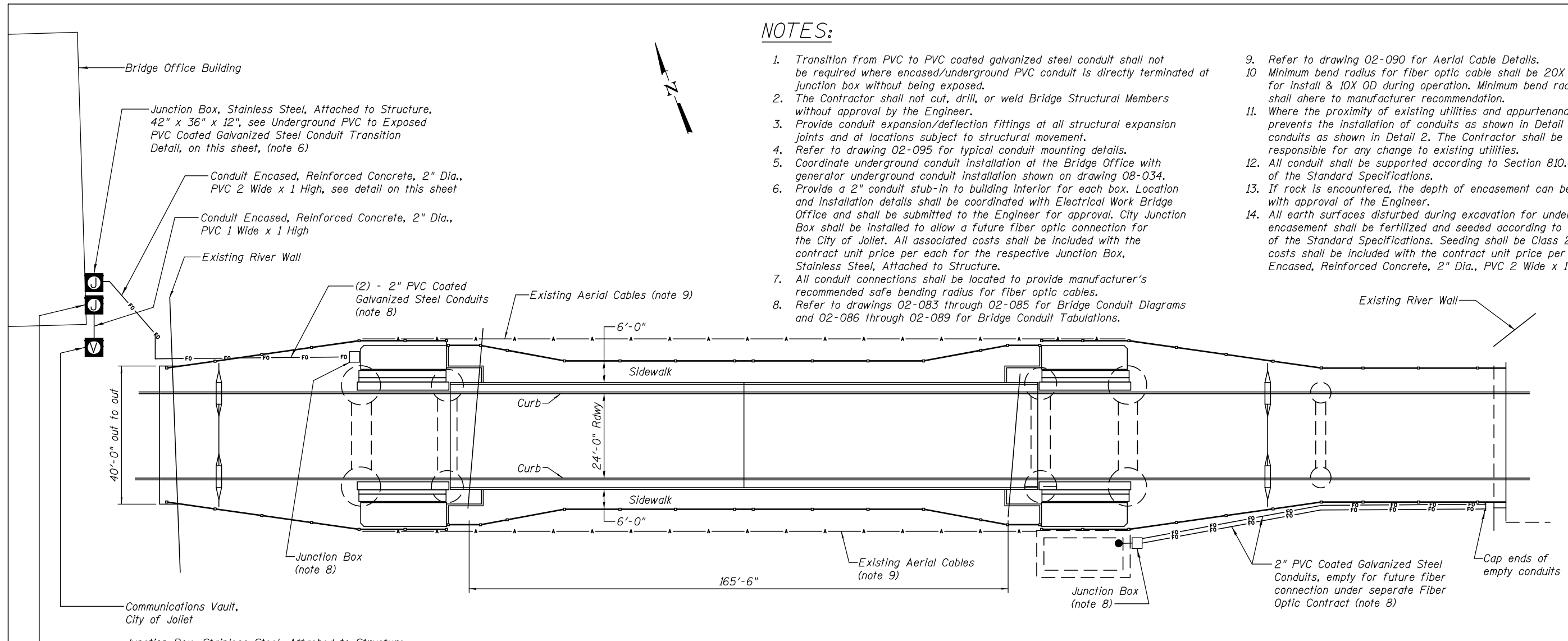
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	122
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-012

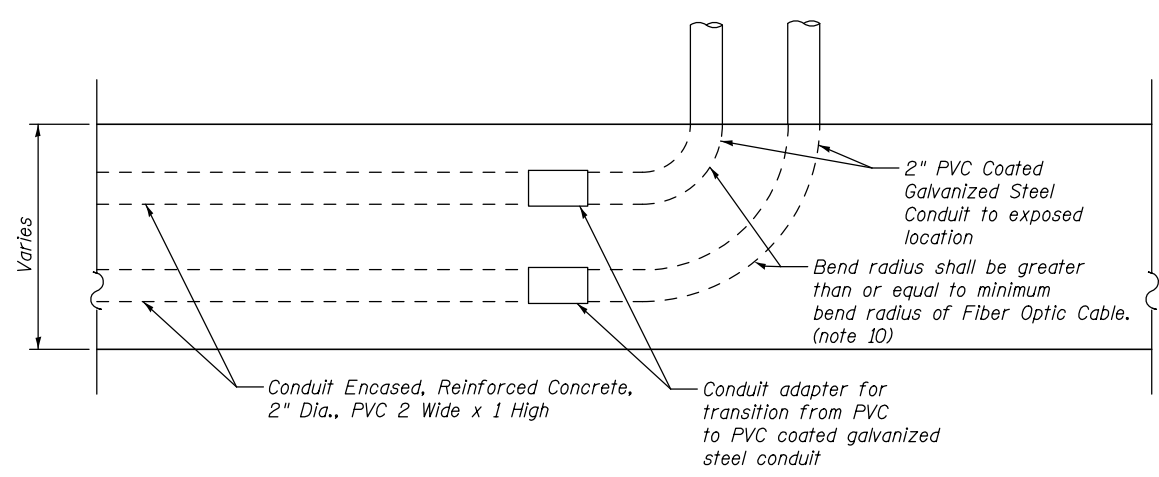
CONTRACT NO. 60P55

**NOTES:**

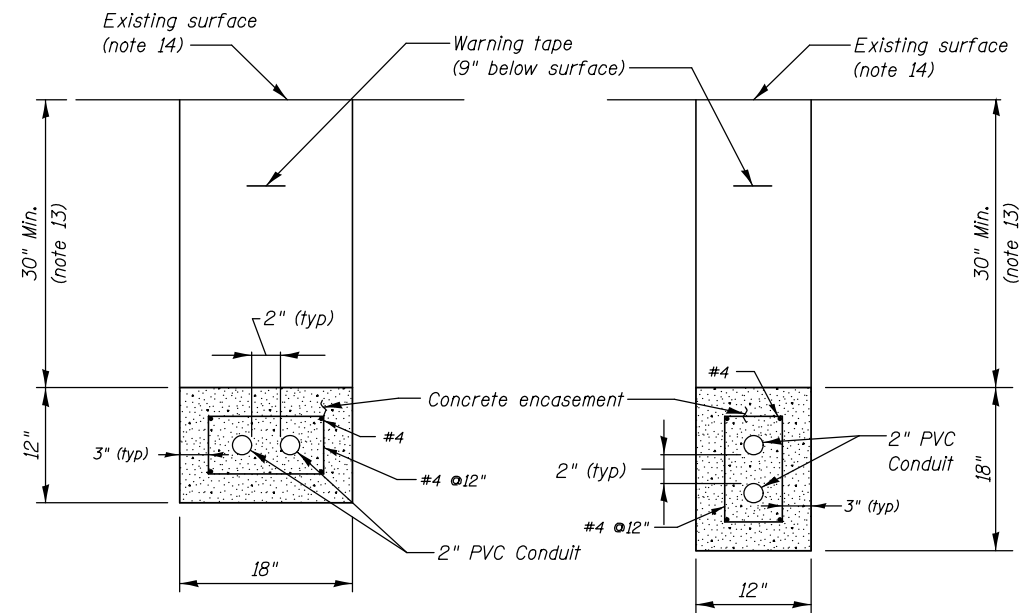
1. Transition from PVC to PVC coated galvanized steel conduit shall not be required where encased/underground PVC conduit is directly terminated at junction box without being exposed.
2. The Contractor shall not cut, drill, or weld Bridge Structural Members without approval by the Engineer.
3. Provide conduit expansion/deflection fittings at all structural expansion joints and at locations subject to structural movement.
4. Refer to drawing 02-095 for typical conduit mounting details.
5. Coordinate underground conduit installation at the Bridge Office with generator underground conduit installation shown on drawing 08-034.
6. Provide a 2" conduit stub-in to building interior for each box. Location and installation details shall be coordinated with Electrical Work Bridge Office and shall be submitted to the Engineer for approval. City Junction Box shall be installed to allow a future fiber optic connection for the City of Joliet. All associated costs shall be included with the contract unit price per each for the respective Junction Box, Stainless Steel, Attached to Structure.
7. All conduit connections shall be located to provide manufacturer's recommended safe bending radius for fiber optic cables.
8. Refer to drawings 02-083 through 02-085 for Bridge Conduit Diagrams and 02-086 through 02-089 for Bridge Conduit Tabulations.
9. Refer to drawing 02-090 for Aerial Cable Details.
10. Minimum bend radius for fiber optic cable shall be 20X OD under tension for install & 10X OD during operation. Minimum bend radius may vary and shall adhere to manufacturer recommendation.
11. Where the proximity of existing utilities and appurtenances prevents the installation of conduits as shown in Detail 1, install conduits as shown in Detail 2. The Contractor shall be solely responsible for any change to existing utilities.
12. All conduit shall be supported according to Section 810.05 of the Standard Specifications.
13. If rock is encountered, the depth of encasement can be reduced with approval of the Engineer.
14. All earth surfaces disturbed during excavation for underground conduit encasement shall be fertilized and seeded according to Section 250 of the Standard Specifications. Seeding shall be Class 2A. All associated costs shall be included with the contract unit price per foot for Conduit Encased, Reinforced Concrete, 2" Dia., PVC 2 Wide x 1 High.



**PLAN**



**UNDERGROUND PVC TO EXPOSED PVC COATED GALVANIZED STEEL CONDUIT TRANSITION DETAIL**  
(note 1)



**DETAIL 1**

**DETAIL 2**  
(note 11)

**CONDUIT ENCASED, REINFORCED CONCRETE, 2" DIA., PVC 2 WIDE X 1 HIGH**

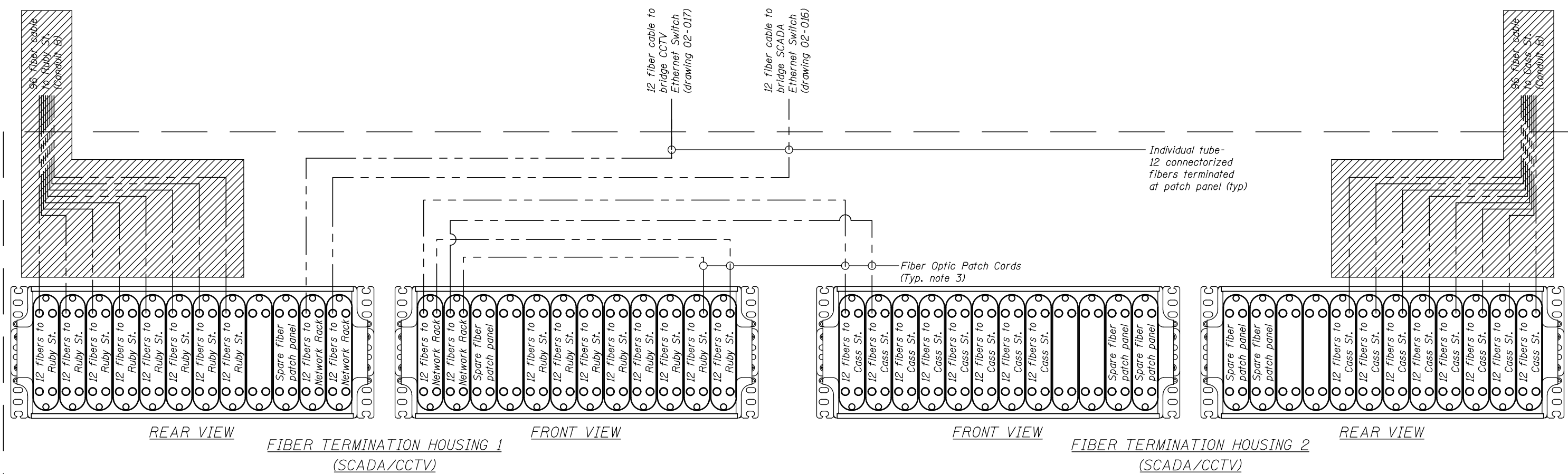


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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - FIBER OPTIC ROUTE TO OPERATOR HOUSE**  
SHEET NO. 13 OF 97 SHEETS

JACKSON, Drawing 02-013			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 123
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



Fiber optic interconnect cabinet continued on next drawing

Fiber Optic Interconnect Cabinet

**LEGEND**

- Fiber optic connection
- Denotes to be installed under future separate Fiber Optic Contract

**NOTES:**

1. Refer to sheet nos. 12 and 13 for fiber optic interconnections with other bridges.
2. All fiber optic cable shown is singlemode type.
3. Provide patch cables to interconnect all 96 fibers of main network cables between locations.



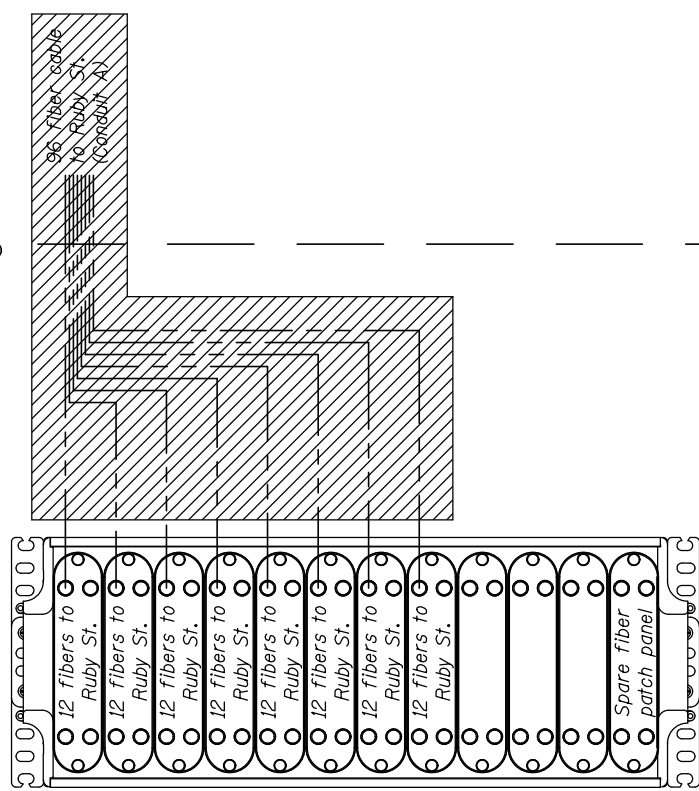
USER NAME =	DESIGNED - R.I. PETERS	REVISED -
	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED -
PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - FIBER OPTIC INTERCONNECT CABINET - 1**

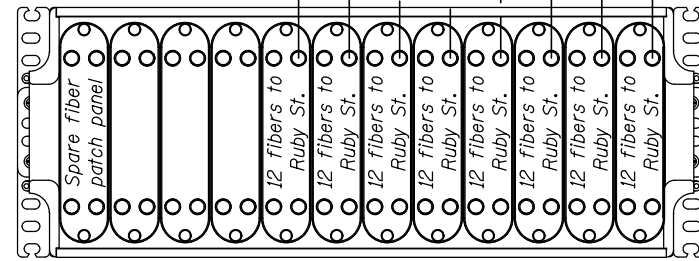
JACKSON, Drawing 02-014	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	TOTAL SHEETS
WILL	466
SHEET NO. 124	
CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT	



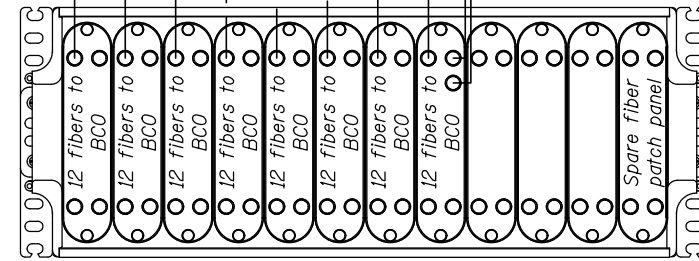


REAR VIEW

FIBER TERMINATION HOUSING 3  
(SCADA/CCTV)

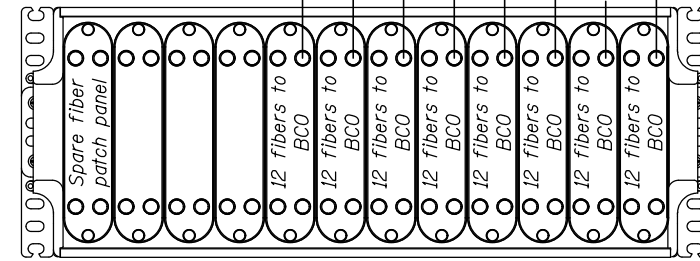


FRONT VIEW



FRONT VIEW

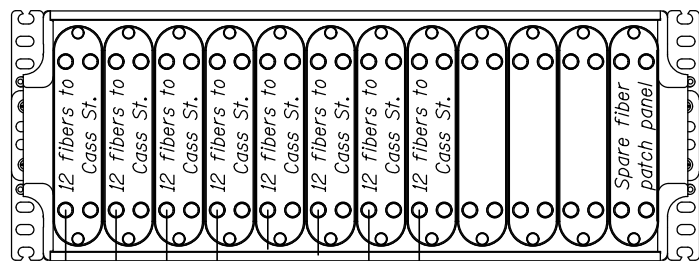
FIBER TERMINATION HOUSING 4  
(SCADA/CCTV)



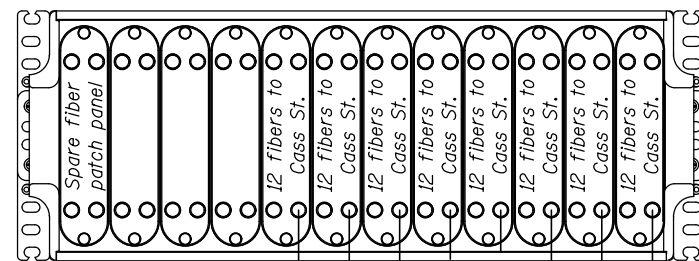
REAR VIEW

Fiber optic interconnect cabinet continued on previous drawing

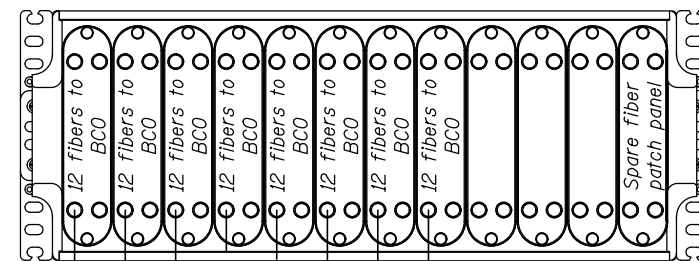
FIBER TERMINATION HOUSING 5  
(SCADA/CCTV)



REAR VIEW

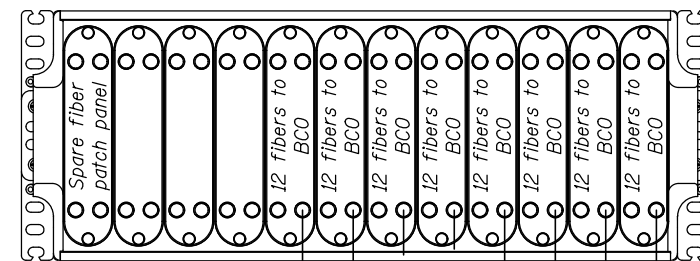


FRONT VIEW

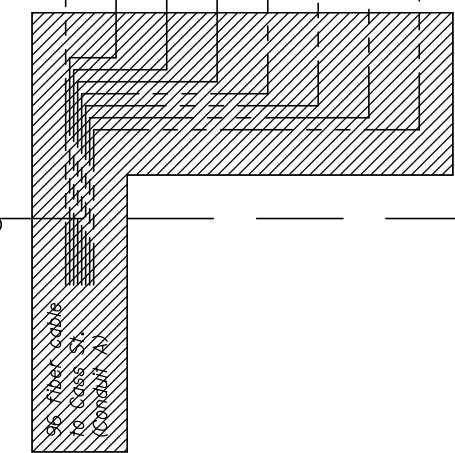


FRONT VIEW

FIBER TERMINATION HOUSING 6  
(SCADA/CCTV)



REAR VIEW



LEGEND

- Fiber optic connection
- ▨ Denotes to be installed under future separate Fiber Optic Contract

(Reserve for future connection for City of Joliet)

Individual tube-12 connectorized fibers terminated at patch panel (typ)

Fiber Optic Patch Cords

Fiber Optic Patch Cords

Fiber Optic Interconnect Cabinet

NOTES

1. Refer to sheet nos. 12 and 13 for fiber optic interconnections with other bridges.
2. All fiber optic cable shown is singlemode type.
3. Provide patch cables to interconnect all 96 fibers of main network cables between locations.

96 fiber cable to Bridge Control Office (Conduit B)

96 fiber cable to Bridge Control Office (Conduit A)



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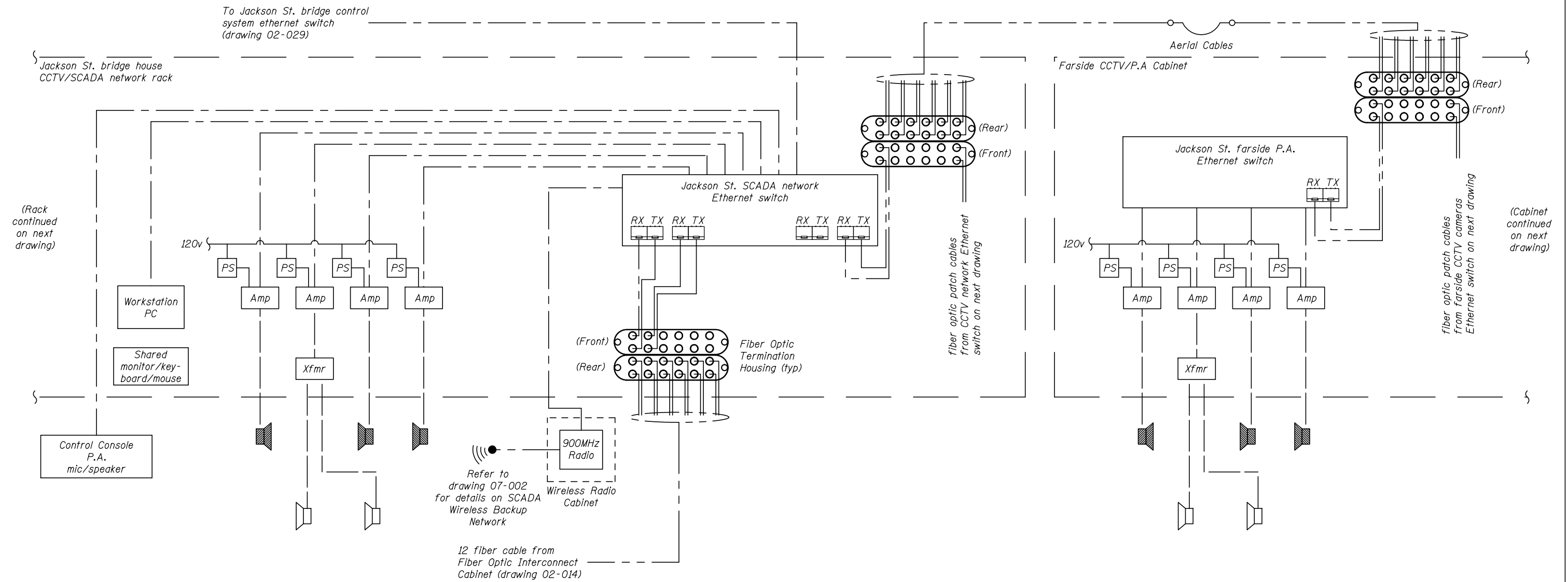
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - FIBER OPTIC INTERCONNECT CABINET - 2  
SHEET NO. 15 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	125
CONTRACT NO. 60P55				

ILLINOIS FED. AID PROJECT

JACKSON, Drawing 02-015



PUBLIC ADDRESS SYSTEMS EQUIPMENT		
Item No.	Quantity	Item Description
1	1	Rack mount workstation computer
2	1	Monitor, pointer, and keyboard for computer
3	1	Console microphone/speaker and accessories
4	8	Amplifier power supply
5	8	Network speaker amplifier
6	2	One-way speaker transformer
7	6	Two-way outdoor speaker
8	4	One-way outdoor speaker
9	10	Speaker surge protection
10	as req.	Circuit breaker
11	2	Surge Protective Device
12	1	24VDC power supply
13	1	Industrial Ethernet switch
14	1	Utility receptacle
15	as req.	Accessories and installation hardware

WIRELESS BACKUP NETWORK EQUIPMENT		
Item No.	Quantity	Item Description
1	1	900 MHz Ethernet radio
2	1	900 MHz antenna with installation hardware & accessories
3*	1	2.4 GHz Ethernet radio
4*	2	2.4 GHz antenna with installation hardware & accessories
5	3	Antenna surge suppressor
6	2	Surge Protective Device
7	2	Circuit breaker
8	2	24VDC power supply/UPS
9	as req.	Accessories and installation hardware
10	1	Wireless Radio Cabinet

SCADA SYSTEM EQUIPMENT		
Item No.	Quantity	Item Description
1	1	CCTV/SCADA network rack
2	1	Rack mounted UPS (Uninterruptible Power Supply)
3	1	SCADA network Ethernet switch
4	4	Rack mount fiber termination housings, 12 position
5	as req.	Rack accessories and hardware

**LEGEND**

- Speaker wire connection
- Fiber optic connection
- Cat6 ethernet connection
- Power connection
- Video / Comm connection
- Two-way speaker
- One-way speaker
- Wireless network antenna

\* 2.4 GHz Radio and antennas for CCTV wireless system, shown on drawing 02-017

**NOTES**

- These equipment schedules are provided for reference and do not provide an exhaustive listing of all equipment required.
- The Contractor shall be responsible for developing a complete bill of materials of equipment required.



USER NAME =	DESIGNED - R.I. PETERS	REVISED _____
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

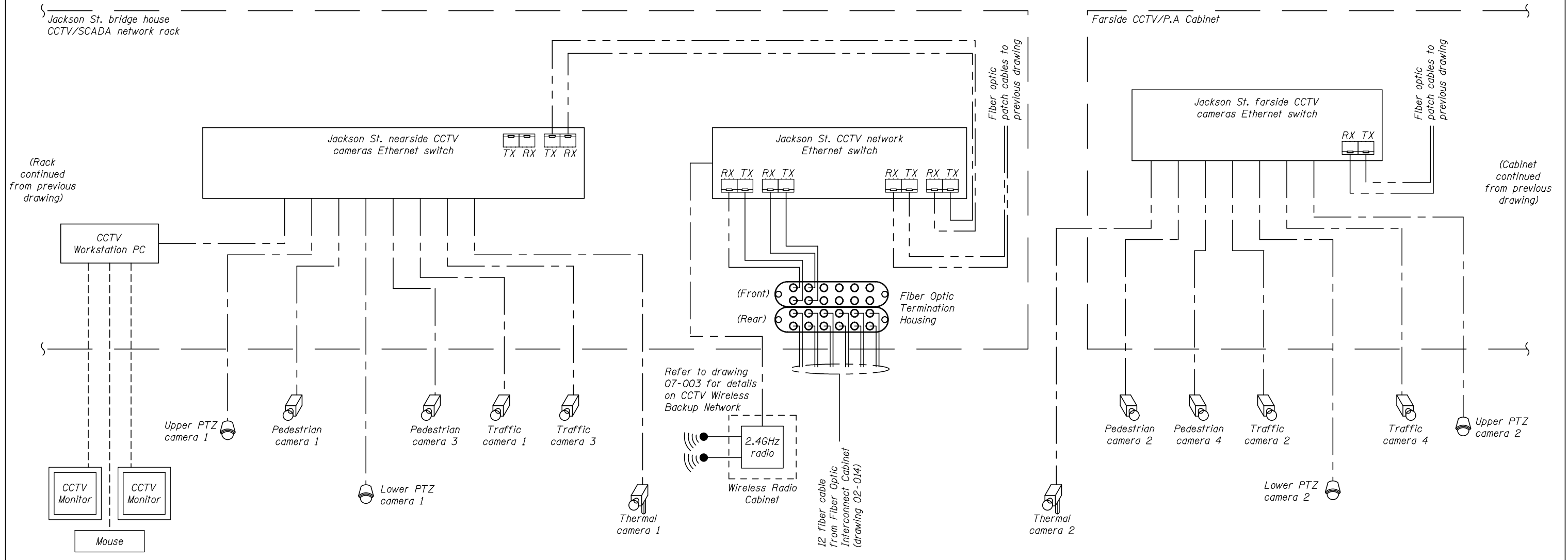
VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - SCADA ONE-LINE

SHEET NO. 16 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	126
CONTRACT NO. 60P55				

ILLINOIS FED. AID PROJECT

JACKSON, Drawing 02-016



**LEGEND**

- Fiber optic connection
- - - Cat6 connection
- Power connection
- - - - Video / Comm connection

- Pan-tilt-zoom (PTZ) camera
- Pan-tilt thermal camera
- Fixed camera
- Wireless Network Antenna

BRIDGE CONTROL CCTV SYSTEM EQUIPMENT		
Item No.	Quantity	Item Description
1	1	Rack mounted UPS (Uninterruptible Power Supply)
2	1	CCTV network Ethernet switch
3	1	Nearside CCTV camera Ethernet switch
4	4	Rack mount fiber termination housings, 12 position
5	1	CCTV Workstation PC
6	1	Mouse / pointer
7	2	31.5" 1080p video monitor
8	4	Pan-Tilt-Zoom CCTV camera with lens, enclosure, and accessories
9	2	Pan-Tilt Thermal CCTV camera with lens, enclosure, accessories
10	8	Fixed CCTV camera with lens, enclosure, accessories
11	14	CCTV ethernet surge protection
12	as req.	Camera power supplies
13	as req.	camera circuit breakers
14	as req.	POE (Power Over Ethernet) converters

BRIDGE CONTROL CCTV SYSTEM EQUIPMENT (continued)		
Item No.	Quantity	Item Description
15	1	Farside Cabinet for CCTV and public address equipment, with accessories
16	2	Surge Protective Device
17	1	Industrial cabinet UPS
18	1	24VDC power supply
19	1	Industrial Ethernet switch
20	1	Cabinet mount fiber termination housing, 12 position

**NOTES**

- These equipment schedules are provided for reference and do not provide an exhaustive listing of all equipment required.
- The Contractor shall be responsible for developing a complete bill of materials of equipment required.



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PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CCTV ONE-LINE**

SHEET NO. 17 OF 97 SHEETS

JACKSON, Drawing 02-017	
F.A.U. R.T.E.	TOTAL SHEETS
SECTION	COUNTY
0297	WILL
2011-045-I	466
SHEET NO. 127	
CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT	



JACKSON ST. PEDESTRIAN CAMERA 1	
Camera type	Fixed pedestrian
Focal length (mm.)*	4.4-132mm (30x zoom)
Camera height (ft.)	40 ft
Camera tilt (°)	-5°

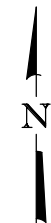
JACKSON ST. PEDESTRIAN CAMERA 2	
Camera type	Fixed pedestrian
Focal length (mm.)*	4.4-132mm (30x zoom)
Camera height (ft.)	40 ft
Camera tilt (°)	-5°

JACKSON ST. PEDESTRIAN CAMERA 3	
Camera type	Fixed pedestrian
Focal length (mm.)*	4.4-132mm (30x zoom)
Camera height (ft.)	40 ft
Camera tilt (°)	-5°

JACKSON ST. PEDESTRIAN CAMERA 4	
Camera type	Fixed pedestrian
Focal length (mm.)*	4.4-132mm (30x zoom)
Camera height (ft.)	40 ft
Camera tilt (°)	-5°

Camera height is based off of pool elevation (EL. +539.91). Location and camera height are approximate. See 'CCTV Plan and Elevation' drawings for mounting details. Camera positioning to be field adjusted at each location.

\*Zoom lens focal length shall be field adjusted to the desired field of view.



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PLOT DATE =	CHECKED - R.I. PETERS	REVISED	___

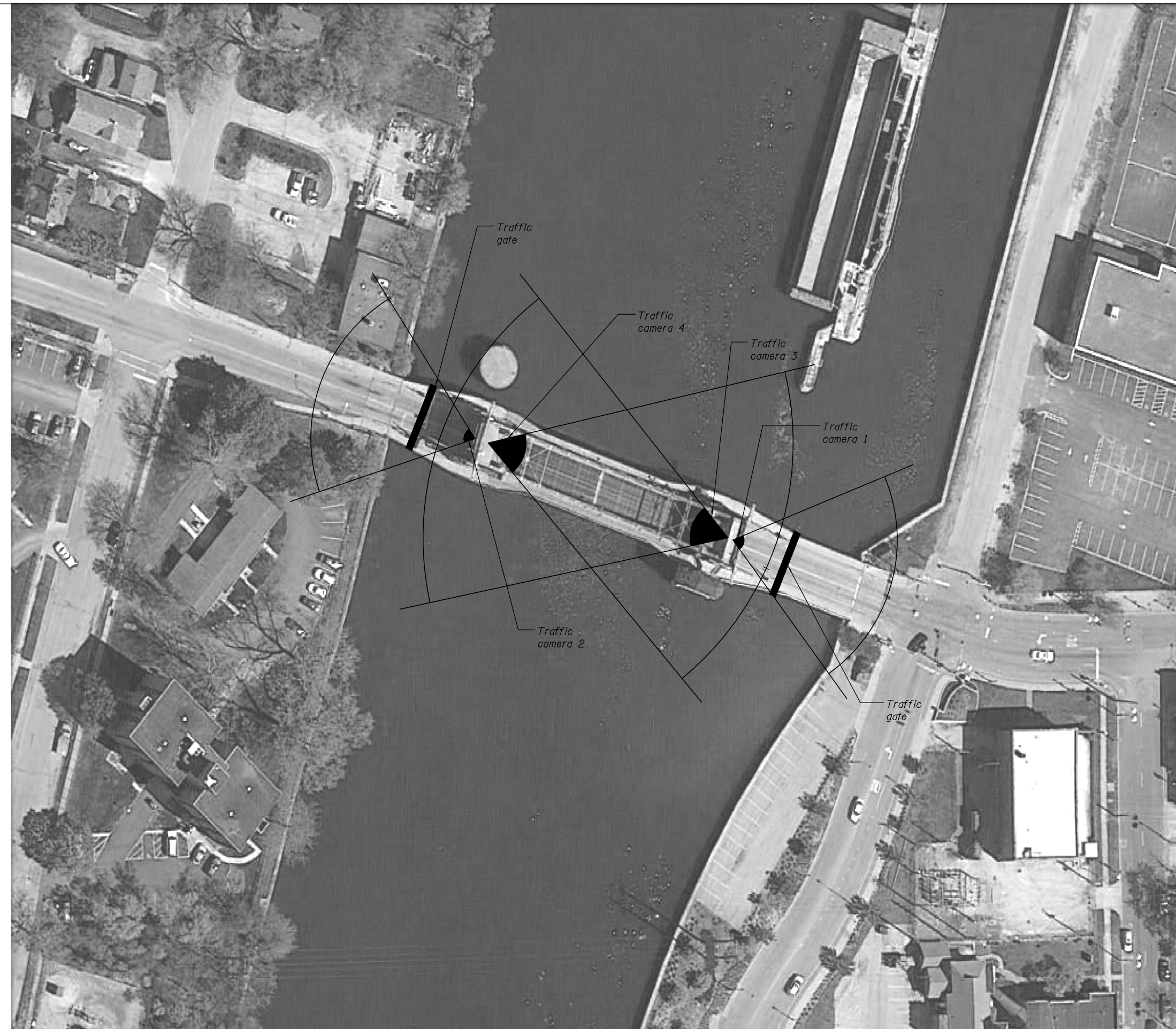
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - PEDESTRIAN CAMERA LAYOUT

SHEET NO. 18 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	128
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-018



JACKSON ST. TRAFFIC CAMERA 1	
Camera type	Fixed traffic
Focal length (mm.)*	4.4-132mm (30x zoom)
Camera height (ft.)	60 ft
Camera tilt (°)	-35°

JACKSON ST. TRAFFIC CAMERA 2	
Camera type	Fixed traffic
Focal length (mm.)*	4.4-132mm (30x zoom)
Camera height (ft.)	60 ft
Camera tilt (°)	-35°

JACKSON ST. TRAFFIC CAMERA 3	
Camera type	Fixed traffic
Focal length (mm.)*	4.4-132mm (30x zoom)
Camera height (ft.)	60 ft
Camera tilt (°)	-25°

JACKSON ST. TRAFFIC CAMERA 4	
Camera type	Fixed traffic
Focal length (mm.)*	4.4-132mm (30x zoom)
Camera height (ft.)	60 ft
Camera tilt (°)	-25°

Camera height is based off of pool elevation (EL. +539.91). Location and camera height are approximate. See 'CCTV Plan and Elevation' drawings for mounting details. Camera positioning to be field adjusted at each location.

\*Zoom lens focal length shall be field adjusted to the desired field of view.

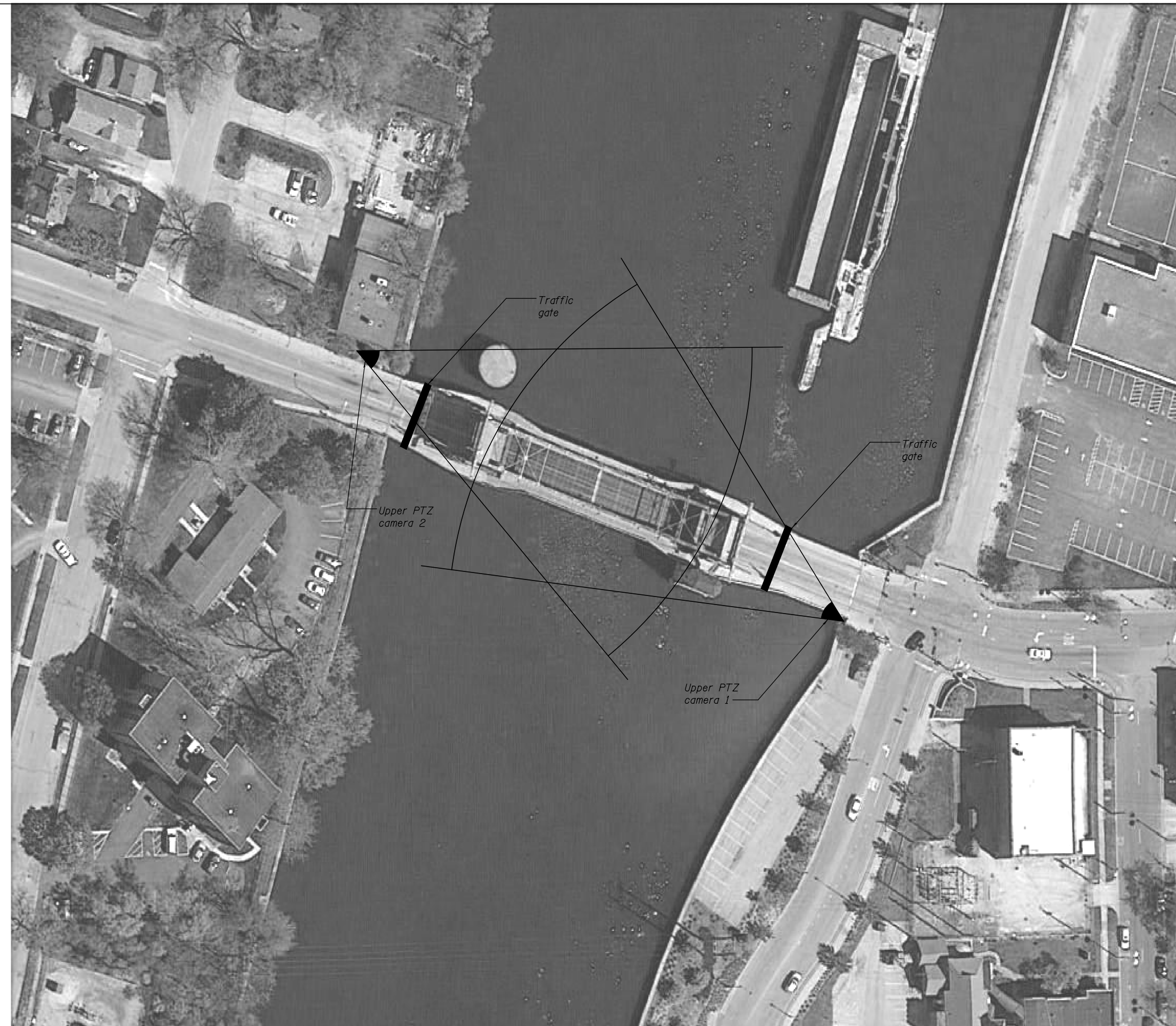


USER NAME =	DESIGNED - K.M. GABLE	REVISED	---
	CHECKED - L.V. BORDEN	REVISED	---
PLOT SCALE =	DRAWN - R.L. REED	REVISED	---
PLOT DATE =	CHECKED - R.I. PETERS	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - TRAFFIC CAMERA LAYOUT**

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	129
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				



JACKSON ST. UPPER PTZ CAMERA 1	
Camera type	Upper PTZ
Focal length (mm.)	4.4-132mm (30x zoom)
Camera height (ft.)	40 ft
Camera tilt (°)	-90° to 5°

JACKSON ST. UPPER PTZ CAMERA 2	
Camera type	Upper PTZ (at rest)
Focal length (mm.)	4.4-132mm (30x zoom)
Camera height (ft.)	40 ft
Camera tilt (°)	-90° to 5°



**NOTES:**

1. Camera field of view shown for illustration purposes and is adjustable as required.
2. Camera height is based off of pool elevation (EL. +539.91). Location and camera height are approximate. See 'CCTV Plan and Elevation' drawings for mounting details. Camera positioning to be field adjusted at each location.



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	CHECKED - L.V. BORDEN	REVISED	___
PLOT SCALE =	DRAWN - R.L. REED	REVISED	___
PLOT DATE =	CHECKED - R.I. PETERS	REVISED	___

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

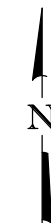
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - UPPER PTZ CAMERA LAYOUT**

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	130
CONTRACT NO. 60P55				

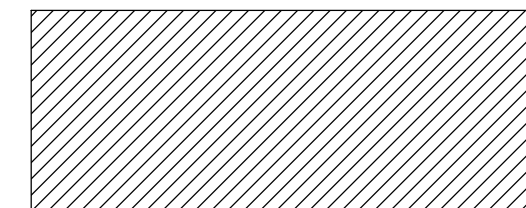


JACKSON ST. THERMAL CAMERA 1	
Camera type	Lower thermal (pan & tilt)
Focal length (mm.)	35 mm
Camera height (ft.)	9 ft
Camera tilt (°)	0°

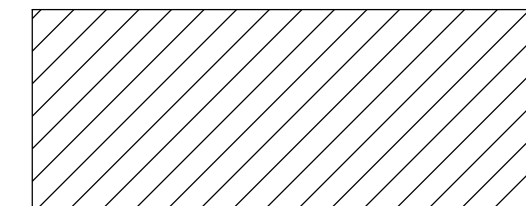
JACKSON ST. THERMAL CAMERA 2	
Camera type	Lower thermal (pan & tilt)
Focal length (mm.)	35 mm
Camera height (ft.)	9 ft
Camera tilt (°)	0°



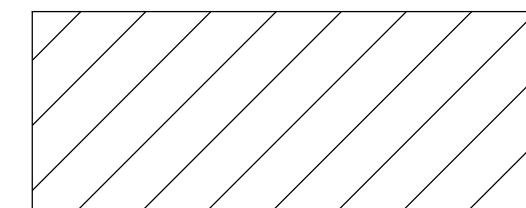
Camera height is based off of pool elevation (EL. +539.9). Location and camera height are approximate. See 'CCTV Plan and Elevation' drawings for mounting details. Camera positioning to be field adjusted at each location.



Human Identification\*  
(26 vertical Pixels on Target)



Human Recognition\*  
(8 vertical Pixels on Target)



Human Detection\*  
(2 vertical Pixels on Target)

\*Viewing distance criteria based on image resolution of 640x480 (VGA format)



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PLOT DATE =	CHECKED - R.I. PETERS	REVISED	---

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - THERMAL CAMERA LAYOUT

SHEET NO. 21 OF 97 SHEETS

JACKSON, Drawing 02-021				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	131
			CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT				



JACKSON ST. LOWER PTZ CAMERA 1	
Camera type	Lower PTZ
Focal length (mm.)	4.4-132mm (30x zoom)
Camera height (ft.)	9 ft
Camera tilt (°)	0° (at rest)

JACKSON ST. LOWER PTZ CAMERA 2	
Camera type	Lower PTZ
Focal length (mm.)	4.4-132mm (30x zoom)
Camera height (ft.)	9 ft
Camera tilt (°)	0° (at rest)



**NOTES:**

1. Camera field of view shown for illustration purposes and is adjustable as required.
2. Camera height is based off of pool elevation (EL. +539.91). Location and camera height are approximate. See 'CCTV Plan and Elevation' drawings for mounting details. Camera positioning to be field adjusted at each location.



USER NAME =	DESIGNED - K.M. GABLE	REVISED	---
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PLOT SCALE =	DRAWN - R.L. REED	REVISED	---
PLOT DATE =	CHECKED - R.I. PETERS	REVISED	---

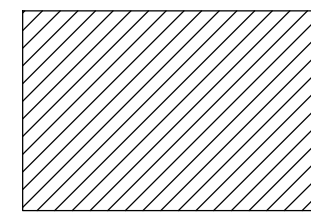
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - LOWER PTZ CAMERA LAYOUT**

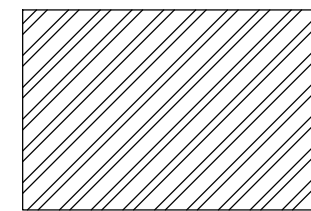
SHEET NO. 22 OF 97 SHEETS

JACKSON, Drawing 02-022				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	132
			CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT				





90db audible  
1-way speaker



2-way microphone range  
2-way speaker



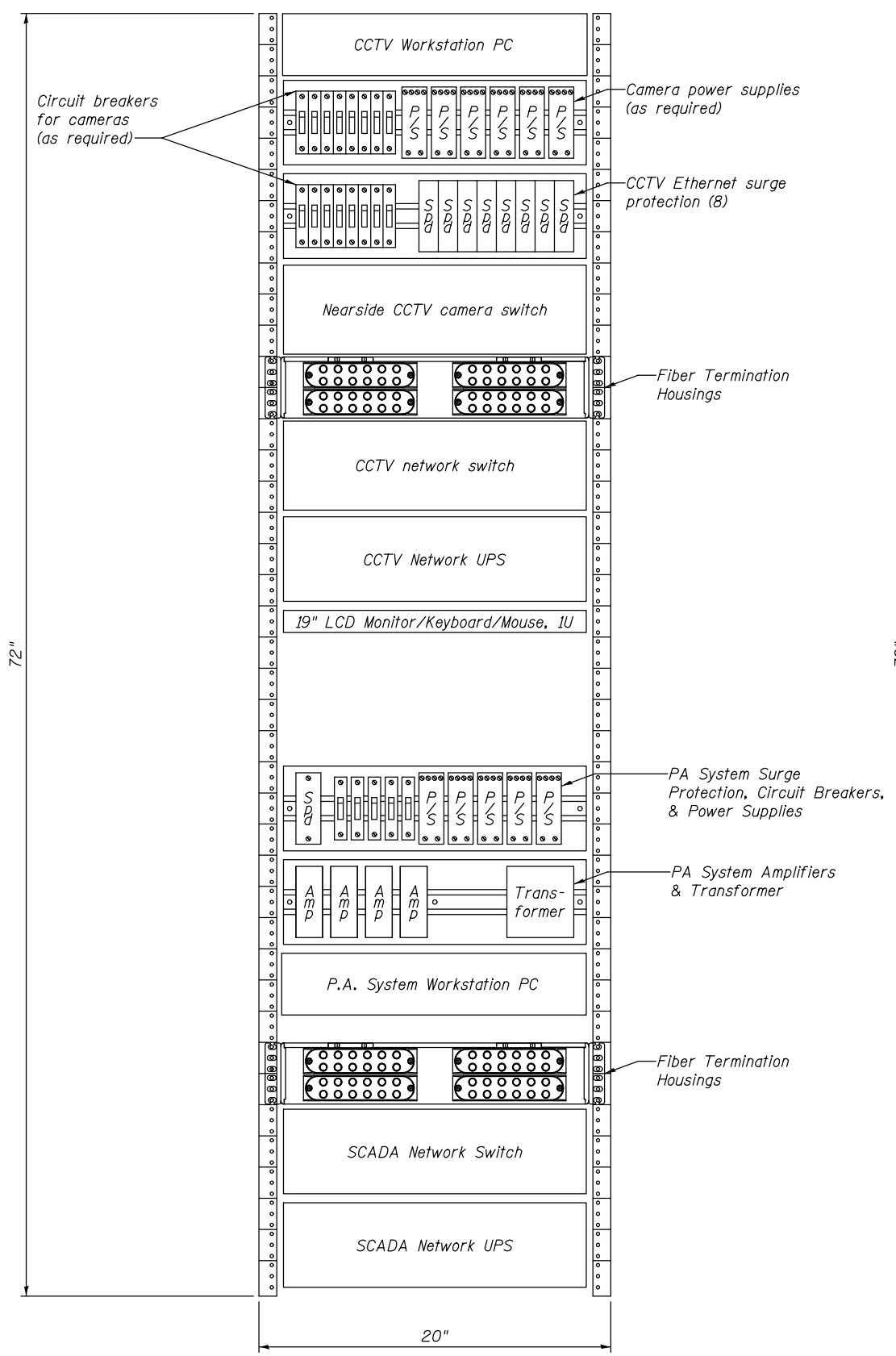
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	CHECKED - L.V. BORDEN	REVISED	---
PLOT SCALE =	DRAWN - R.L. REED	REVISED	---
PLOT DATE =	CHECKED - R.I. PETERS	REVISED	---

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

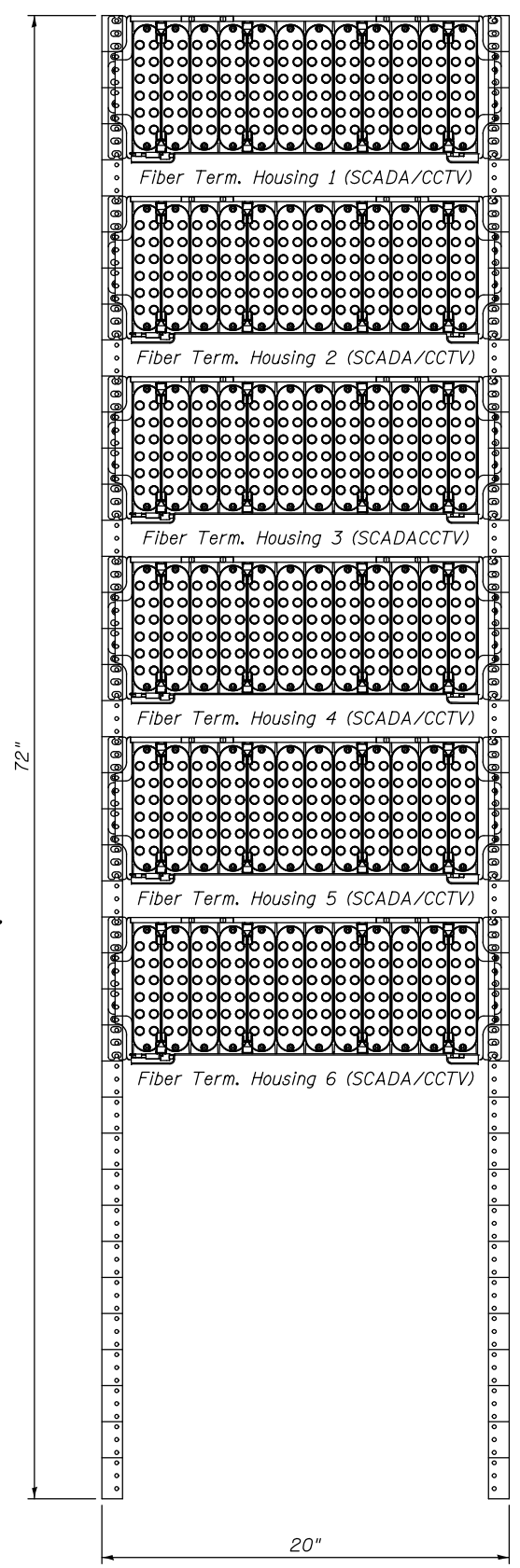
VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - P.A. SPEAKER LAYOUT

SHEET NO. 23 OF 97 SHEETS

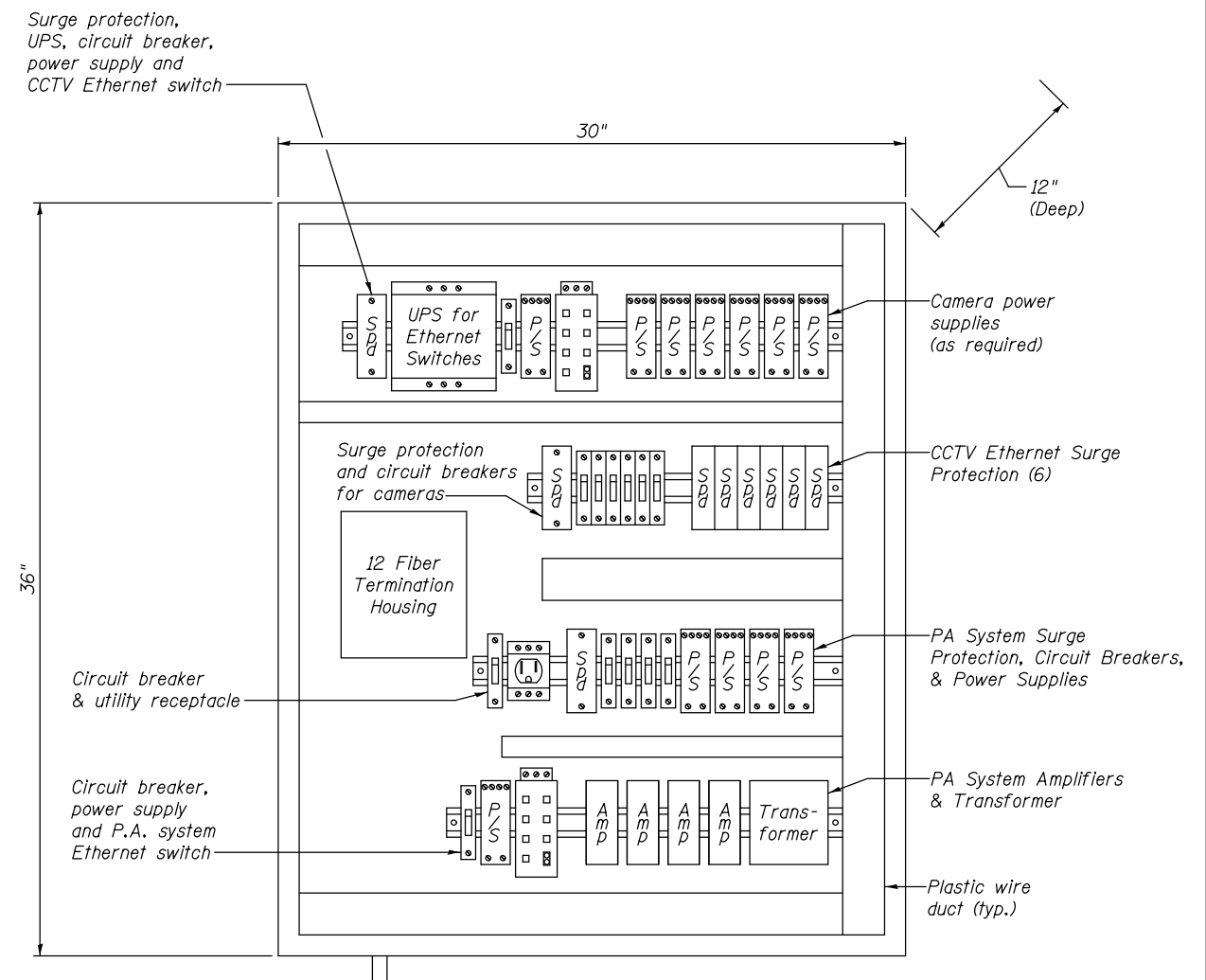
JACKSON, Drawing 02-023			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 133
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



CCTV/SCADA NETWORK RACK



FIBER OPTIC INTERCONNECT CABINET



FARSIDE CCTV/P.A. CABINET

NOTES

1. Rack and cabinet layouts shown are conceptual. The Contractor shall be responsible for developing and submitting layouts with all required components.
2. The Systems Integrator shall be responsible for coordinating cabinet sizing requirements to accommodate equipment serving all applicable systems.

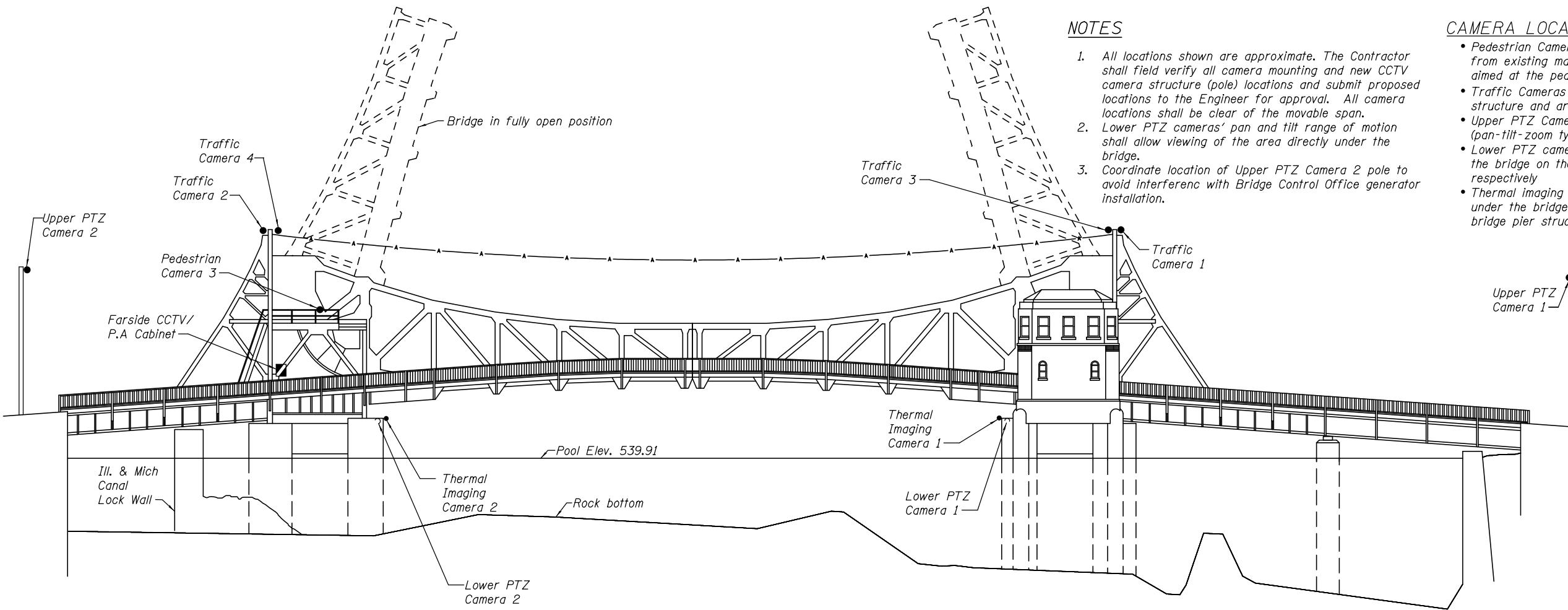


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	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED -
PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

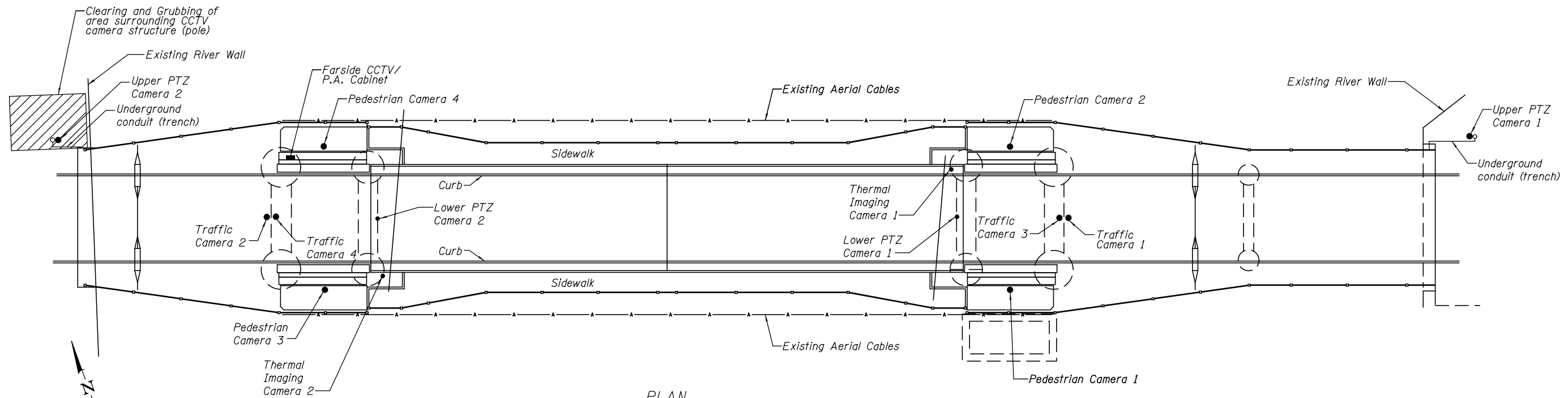
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - NETWORK CABINET DETAILS  
SHEET NO. 24 OF 97 SHEETS

JACKSON, Drawing 02-024			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 134
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



ELEVATION



PLAN

NOTES

1. All locations shown are approximate. The Contractor shall field verify all camera mounting and new CCTV camera structure (pole) locations and submit proposed locations to the Engineer for approval. All camera locations shall be clear of the movable span.
2. Lower PTZ cameras' pan and tilt range of motion shall allow viewing of the area directly under the bridge.
3. Coordinate location of Upper PTZ Camera 2 pole to avoid interference with Bridge Control Office generator installation.

CAMERA LOCATIONS AND DESCRIPTIONS

- Pedestrian Cameras 1-4 are located to be accessible from existing machinery access walkways and are aimed at the pedestrian sidewalks.
- Traffic Cameras 1-4 are located on top of the fixed span structure and are aimed at the traffic gates.
- Upper PTZ Camera 1 & 2 are pole mounted (pan-tilt-zoom type cameras)
- Lower PTZ cameras 1 and 2 are located under the bridge on the east and west pier structure respectively
- Thermal imaging cameras 1 and 2 are located under the bridge on the north east and south west bridge pier structure respectively.



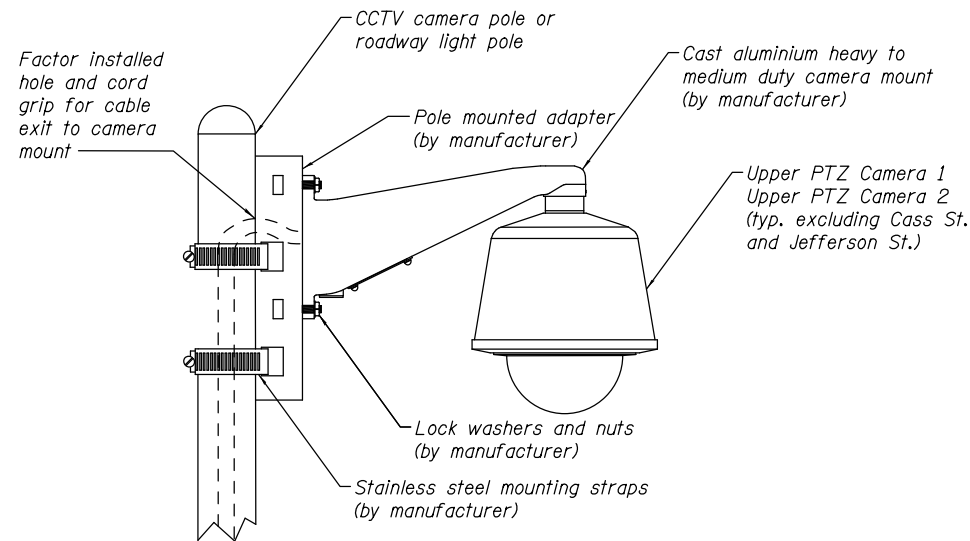
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	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.S. JOHNSON	REVISED -
PLOT DATE =	CHECKED - R.I. PETERS	REVISED -

STATE OF ILLINOIS  
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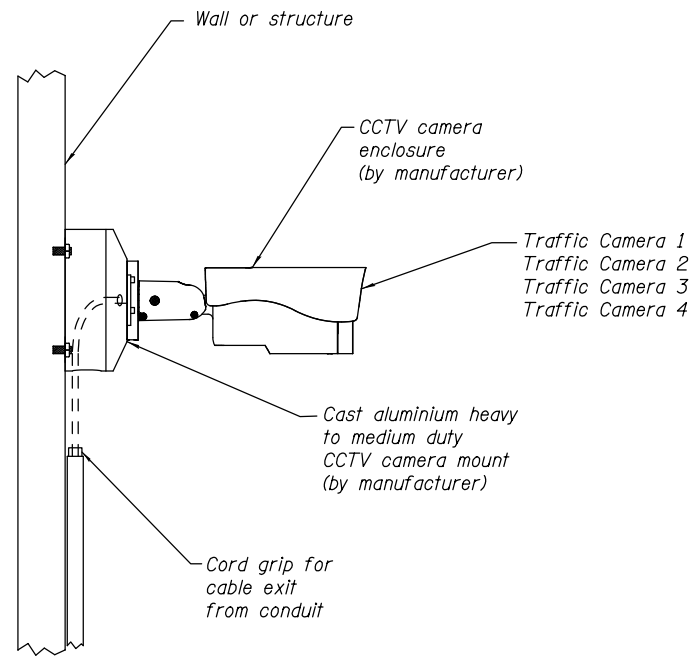
VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CCTV PLAN AND ELEVATION

SHEET NO. 25 OF 97 SHEETS

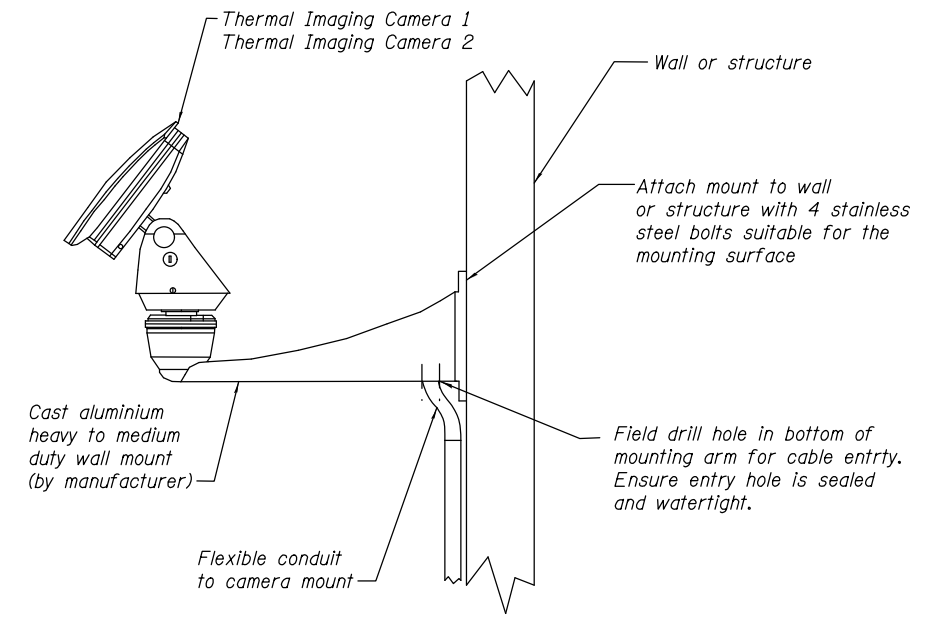
JACKSON, Drawing 02-025		F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	135	CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT						



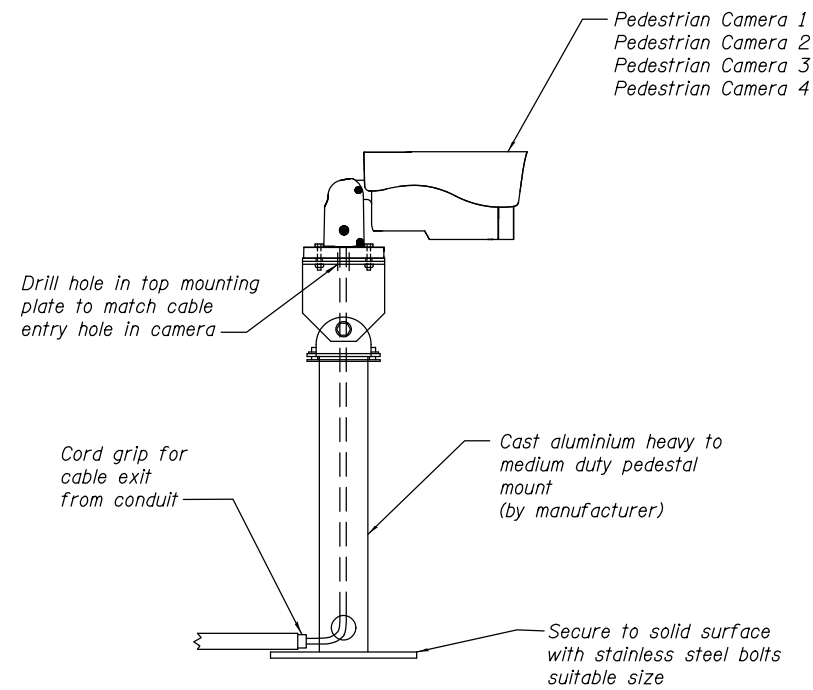
POLE MOUNTED PTZ DOME CAMERA



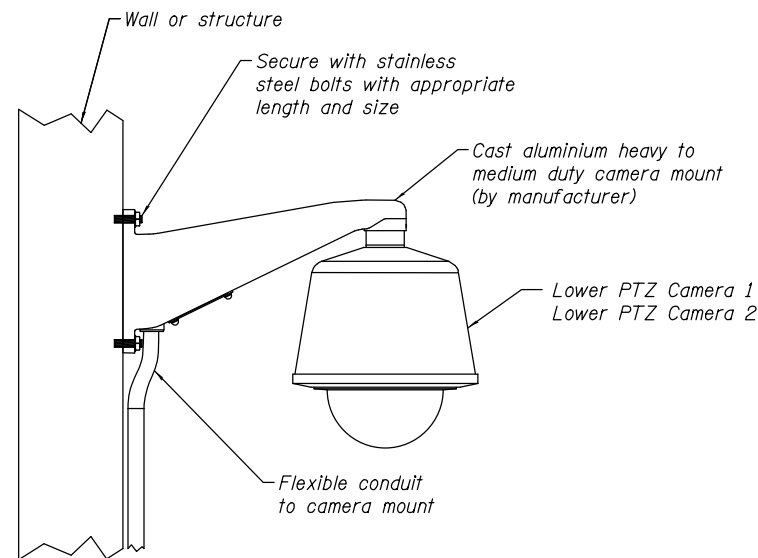
WALL OR STRUCTURE MOUNTED FIXED CAMERA



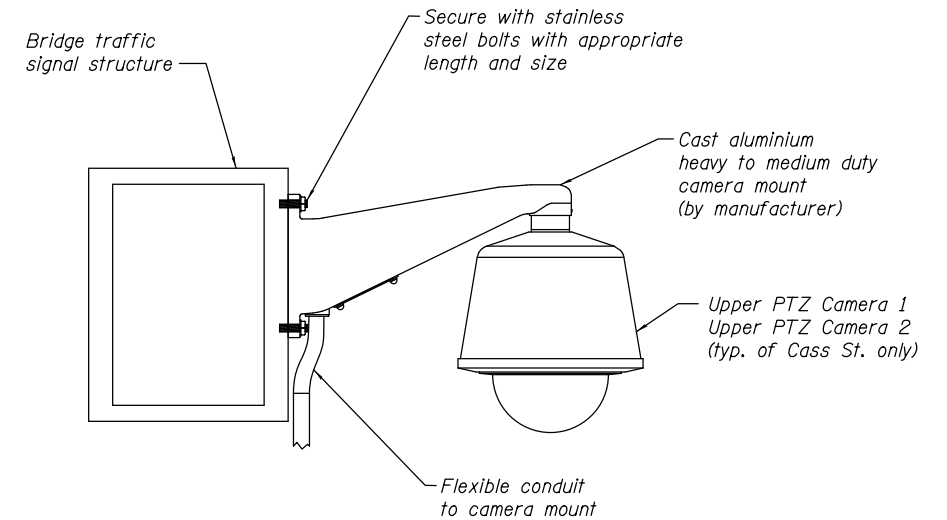
WALL OR STRUCTURE MOUNTED THERMAL IMAGING PTZ CAMERA



PEDESTAL MOUNTED FIXED CAMERA



WALL OR STRUCTURE MOUNTED PTZ DOME CAMERA



BRIDGE TRAFFIC SIGNAL STRUCTURE MOUNTED PTZ DOME CAMERA

**NOTES:**

1. For camera locations, refer to CCTV Plan and Elevation drawings.
2. Unless otherwise noted, typical of Jackson, Cass, Jefferson and McDonough.
3. Cable routing details provide one acceptable routing method. Routing may vary depending on camera manufacturer.



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	CHECKED - L.V. BORDEN	REVISED -
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PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

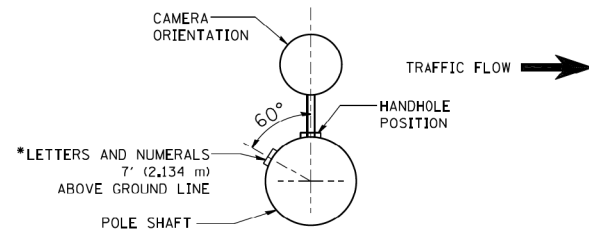
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CCTV MOUNTING DETAILS**

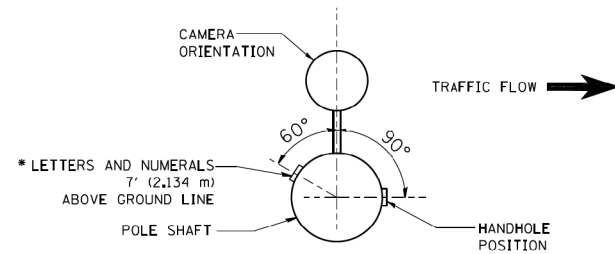
SHEET NO. 26 OF 97 SHEETS

JACKSON, Drawing 02-026		F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	136	CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT						

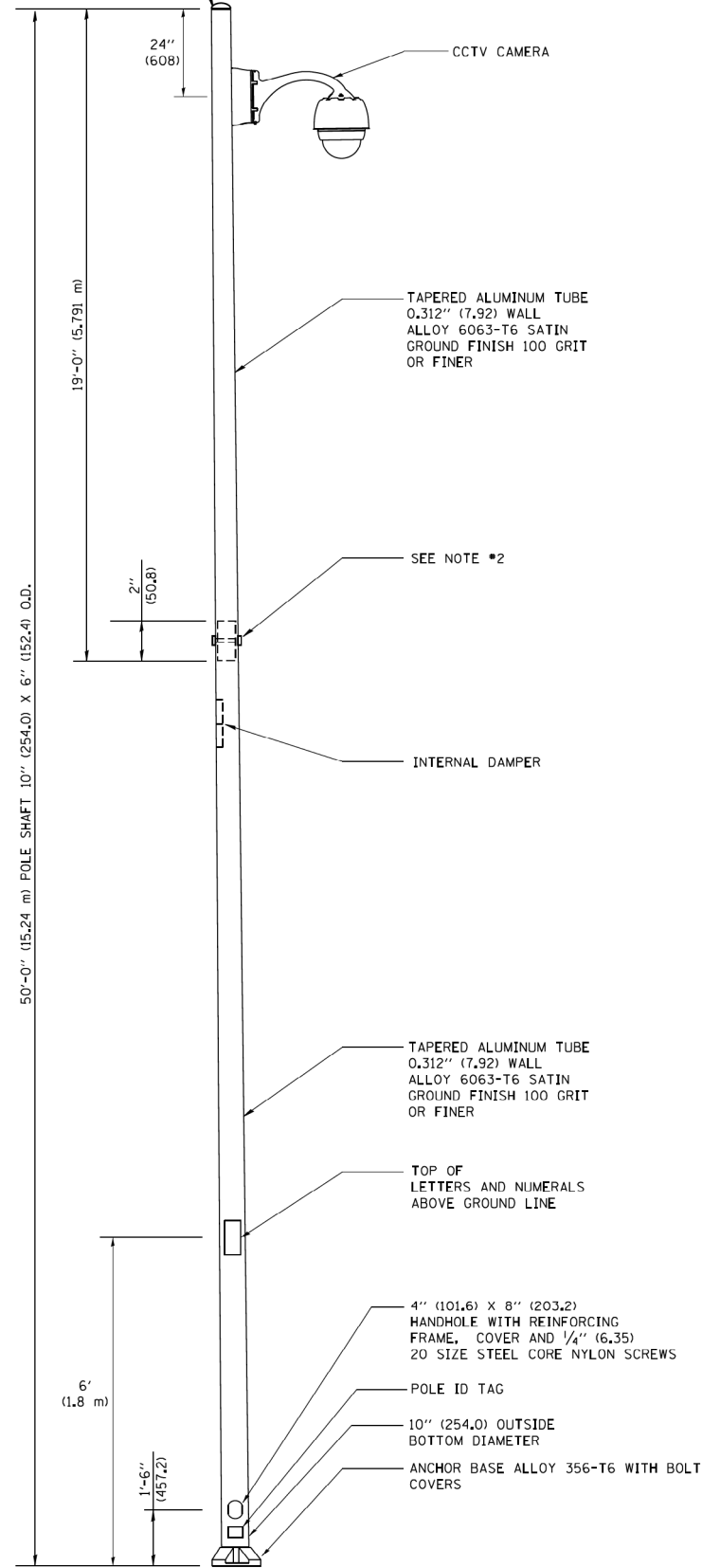
CAST ALUMINUM POLE CAP WITH 300 SERIES S.S. SCREWS



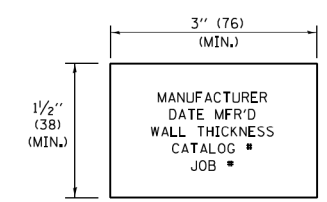
POSITION OF HANDHOLE AND CAMERA NUMBER FOR POLE MOUNTED ON BRIDGE PARAPET OR BARRIER WALL



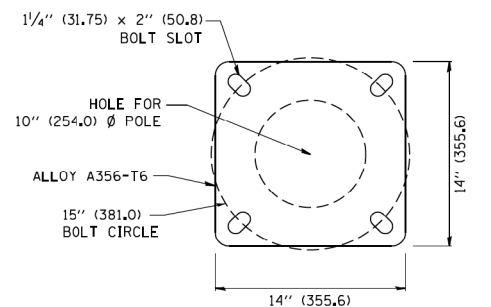
POSITION OF HANDHOLE AND CAMERA NUMBER



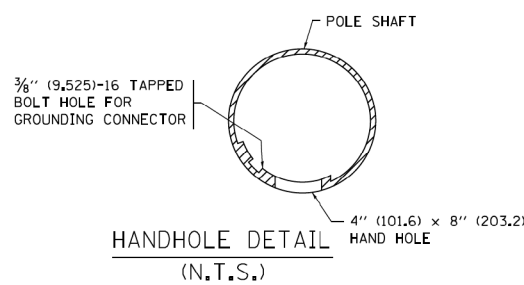
- NOTES:**
1. ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
  2. TWO PIECE SHAFT WILL BE MATCHED MARKED AND INTERCHANGEABLE BETWEEN DIFFERENT UNITS. FIELD DRILLING OF THE HOLES WILL NOT BE ALLOWED.
  3. THE POLE WILL MEET AASHTO DESIGN CRITERIA AS SPECIFIED.
  4. THE INSTALLING CONTRACTOR WILL PROVIDE A UL LISTED GROUNDING CONNECTOR, BURNDY K2C23, T&B SP4DL OR APPROVED EQUAL.
  5. POLES WILL BE INSTALLED IN ACCORDANCE TO MANUFACTURER'S INSTRUCTIONS.
  6. POLES WILL BE SET PLUMB ON THE FOUNDATION WITHOUT THE USE OF LEVELING NUTS, WASHERS OR SHIMS.



POLE ID TAG  
NTS



POLE BASE PLATE DETAIL  
15 INCH (381.0) BOLT CIRCLE



HANDHOLE DETAIL  
(N.T.S.)

- NOTES:**
1. Typical of Jackson, Cass, Jefferson and McDonough.
  2. The Contractor shall submit proposed pole locations to IDOT for approval and coordinate with local utilities prior to installation.

CCTV Camera Structure  
50' (15.24m) Mounting Height  
BE-1000



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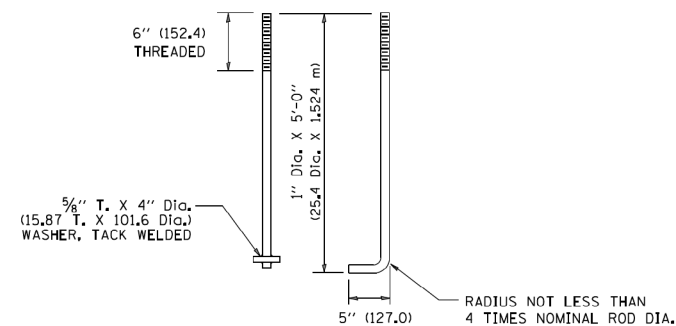
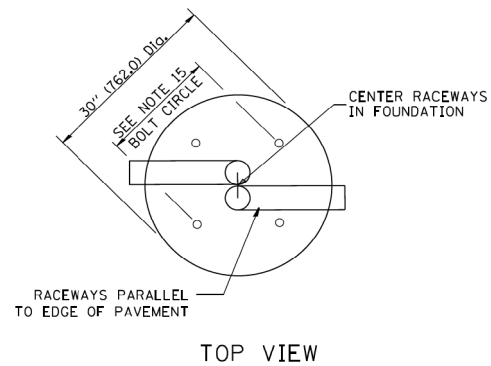
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CCTV CAMERA STRUCTURE 50' MOUNTING HEIGHT  
SHEET NO. 27 OF 97 SHEETS

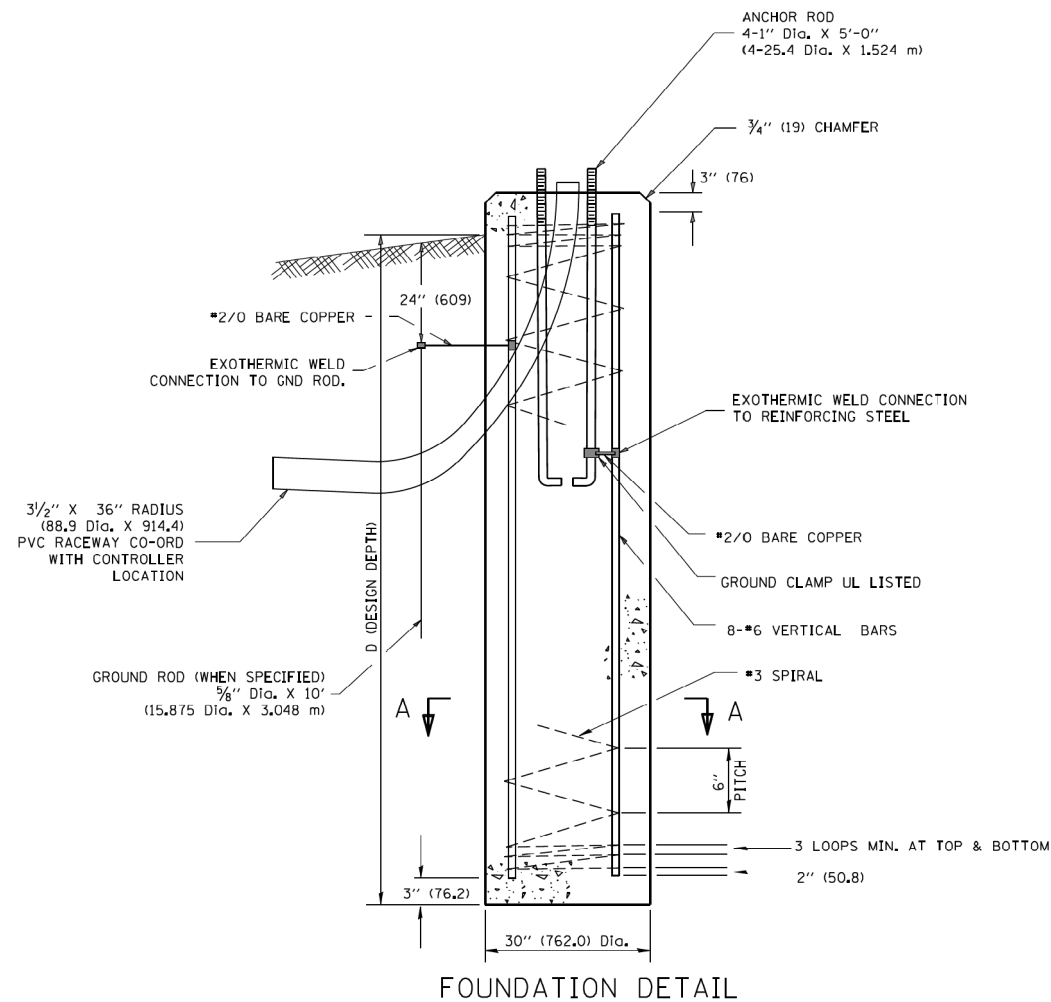
JACKSON, Drawing 02-027	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	137
CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT	

CCTV CAMERA POLE FOUNDATION DEPTH TABLE

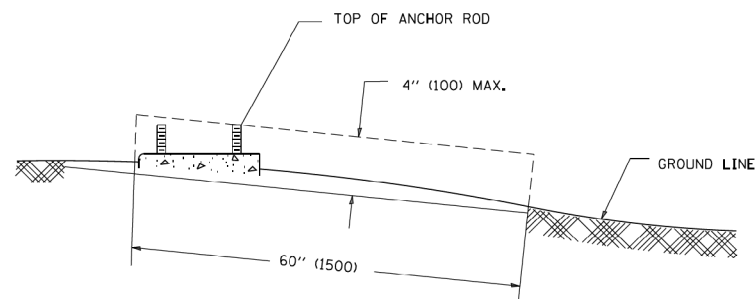
SOIL CONDITIONS	DESIGN DEPTH "D" OF FOUNDATION
SOFT CLAY Q <sub>u</sub> = 0.375 TON/SQ. FT.	13'-0" (3.96 m)
MEDIUM CLAY Q <sub>u</sub> = 0.75 TON/SQ.FT	9'-6" (2.99 m)
STIFF CLAY Q <sub>u</sub> = 1.50 TON/SQ. FT.	7'-0" (2.13 m)
LOOSE SAND φ = 34°	9'-0" (2.74 m)
MEDIUM SAND φ = 37.5°	8'-3" (2.52 m)
DENSE SAND φ = 40°	7'-9" (2.36 m)



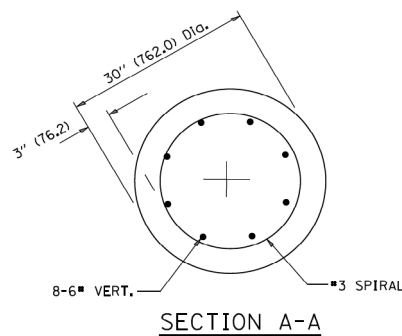
ANCHOR ROD DETAIL



FOUNDATION DETAIL



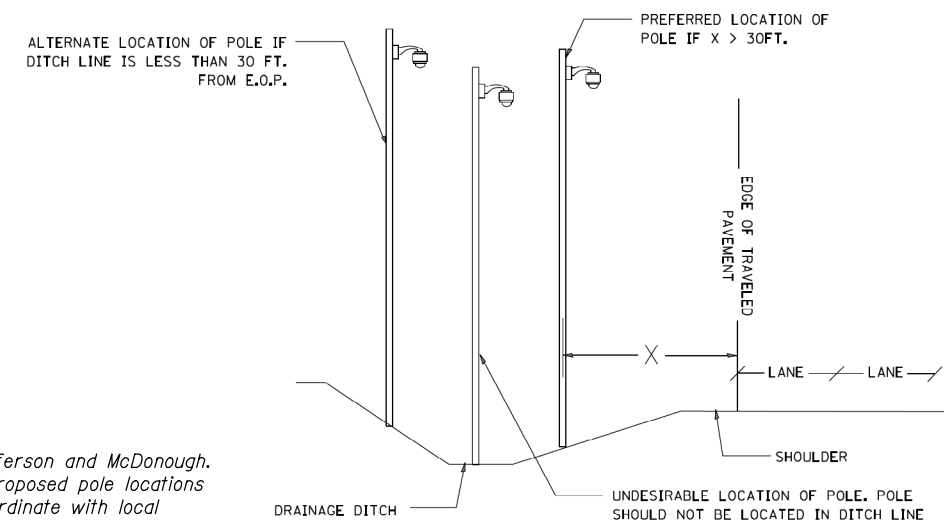
FOUNDATION EXTENSION DETAIL



SECTION A-A

NOTES

- ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
- THE ANCHOR RODS AND RACEWAYS SHALL BE PROPERLY SECURED IN PLACE BEFORE THE CONCRETE IS PLACED.
- THE FOUNDATION SHALL NOT PROTRUDE MORE THAN 100MM (4 IN.) ABOVE THE FINISHED GRADE WITHIN A 60 IN. (1.5 m) CHORD ACROSS THE FOUNDATION, WITH ANCHOR RODS INCLUDED, IN ACCORDANCE WITH AASHTO GUIDELINES. IF THE FOUNDATION HEIGHT, INCLUDING ANCHOR RODS, EXTENDS BEYOND THESE SPECIFIED LIMITS, THE FOUNDATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. SEE FOUNDATION EXTENSION DETAIL.
- THE HOLE FOR THE FOUNDATION SHALL BE MADE BY DRILLING WITH AN AUGER, OF THE SAME DIAMETER AS THE FOUNDATION. IF SOIL CONDITIONS REQUIRE THE USE OF A LINER TO FORM THE HOLE, THE LINER SHALL BE WITHDRAWN AS THE CONCRETE IS DEPOSITED.
- THE TOP OF THE FOUNDATION SHALL BE CONSTRUCTED LEVEL. A LINER OR FORM SHALL BE USED TO PRODUCE A UNIFORM SMOOTH SIDE TO THE TOP OF THE FOUNDATION. FOUNDATION TOP SHALL BE CHAMFERED 3/4-IN. (20 mm).
- THE CONCRETE SHALL BE CLASS SI. CONCRETE SHALL CURE ACCORDING TO ARTICLE 1020.13 BEFORE LIGHT POLES ARE INSTALLED.
- THE ANCHOR ROD SHALL BE A HOOK ROD TYPE. COLD BENDING OF THE ANCHOR ROD WILL NOT BE ALLOWED. THE RADIUS OF THE HOOK BEND SHALL NOT BE LESS THAN 4 TIMES THE NOMINAL DIAMETER OF THE ANCHOR ROD. A TACK WELDED ANCHOR ROD MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER.
- THE ANCHOR RODS SHALL BE ACCORDING TO ASTM F1554 GRADE 725 (GRADE 105). NUTS SHALL BE HEXAGON NUTS ACCORDING TO ASTM A 194 2H OR ASTM A 563 DH, AND WASHERS SHALL BE ACCORDING TO ASTM F 436.
- ANCHOR RODS, NUTS AND WASHERS SHALL BE COMPLETELY GALVANIZED BY EITHER THE HOT-DIPPED PROCESS CONFORMING WITH AASHTO M 232, THE MECHANICAL PLATING METHOD CONFORMING TO AASHTO M 298, CLASS 50 WITH A MAXIMUM COATING THICKNESS OF 150 UM(6 MILS) OR THE ELECTROLYTIC PROCESS ACCORDING TO ASTM F 1136.
- THE ANCHOR RODS SHALL BE THREADED A MINIMUM OF 6 INCHES (150 mm) WITH A MINIMUM OF 3 INCHES (75 mm) OF THREADED ANCHOR ROD EMBEDDED IN THE FOUNDATION.
- ANCHOR RODS SHALL PROJECT 2 3/4" (69.9 mm) ABOVE THE TOP OF THE FOUNDATION. IF BREAKAWAY COUPLINGS ARE SPECIFIED, THE CONTRACTOR SHALL CAREFULLY COORDINATE THE ANCHOR ROD PROJECTION WITH THE INSTALLATION REQUIREMENTS OF THE BREAKAWAY COUPLINGS.
- THE CONTRACTOR SHALL USE A #3 SPIRAL AT 6" (152.4 mm) PITCH OR MAY SUBSTITUTE #3 TIES AT 12" (304.8 mm) O.C. WITH THE APPROVAL OF THE ENGINEER.
- THE CABLE TRENCHES AND FOUNDATION SHALL BE BACK FILLED AND COMPACTED AS SPECIFIED BEFORE THE LIGHT POLE IS ERECTED.
- THE RACEWAYS SHALL PROJECT 1" (25.4 mm) ABOVE THE TOP OF THE FOUNDATION.
- ANCHOR ROD BOLT CIRCLE TO BE COORDINATED WITH CAMERA STRUCTURE



CAMERA POLE PLACEMENT

NOTES:

- Typical of Jackson, Cass, Jefferson and McDonough.
- The Contractor shall submit proposed pole locations to IDOT for approval and coordinate with local utilities prior to installation.

CCTV Camera Structure Foundation  
50' (15.24m) Mounting Height  
BE-1001



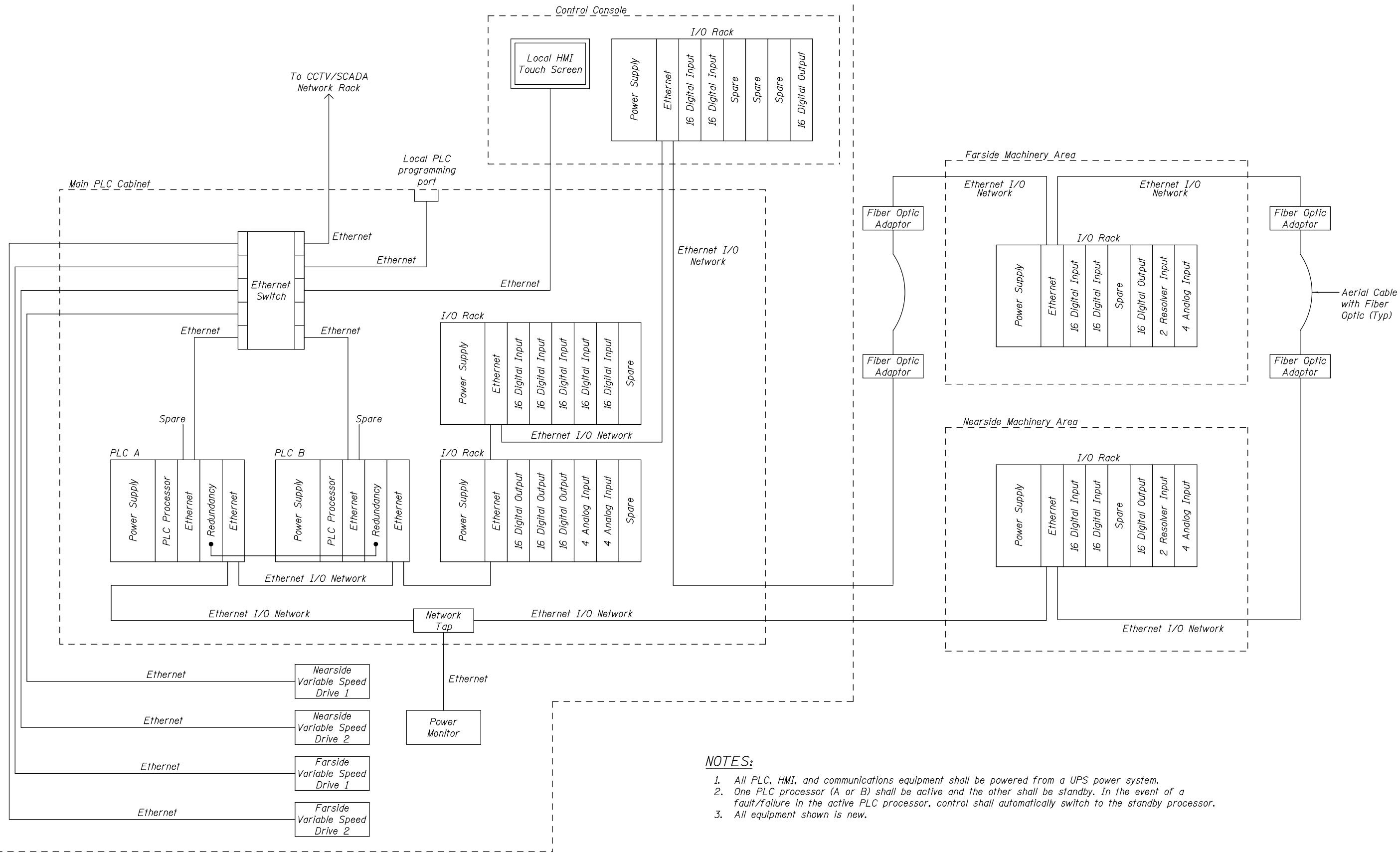
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PLOT SCALE =	CHECKED -	REVISED -
PLOT DATE =	DRAWN -	REVISED -
	CHECKED -	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CCTV CAMERA STRUCTURE FOUNDATION  
SHEET NO. 28 OF 97 SHEETS

JACKSON, Drawing 02-028			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
		CONTRACT NO.	60P55
ILLINOIS FED. AID PROJECT			

Bridge Operator House



- NOTES:**
1. All PLC, HMI, and communications equipment shall be powered from a UPS power system.
  2. One PLC processor (A or B) shall be active and the other shall be standby. In the event of a fault/failure in the active PLC processor, control shall automatically switch to the standby processor.
  3. All equipment shown is new.



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PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

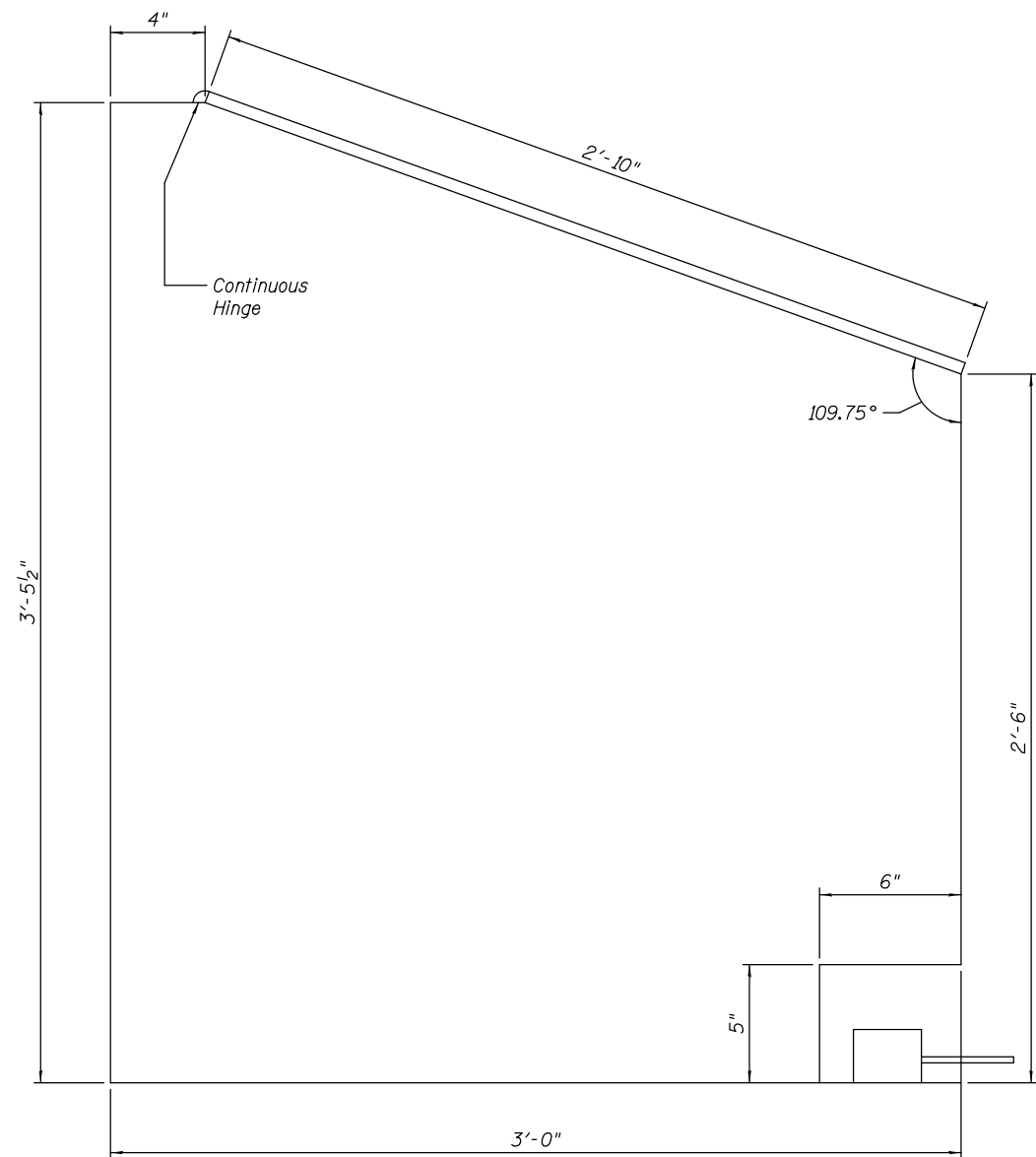
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - BRIDGE CONTROL DIAGRAM**

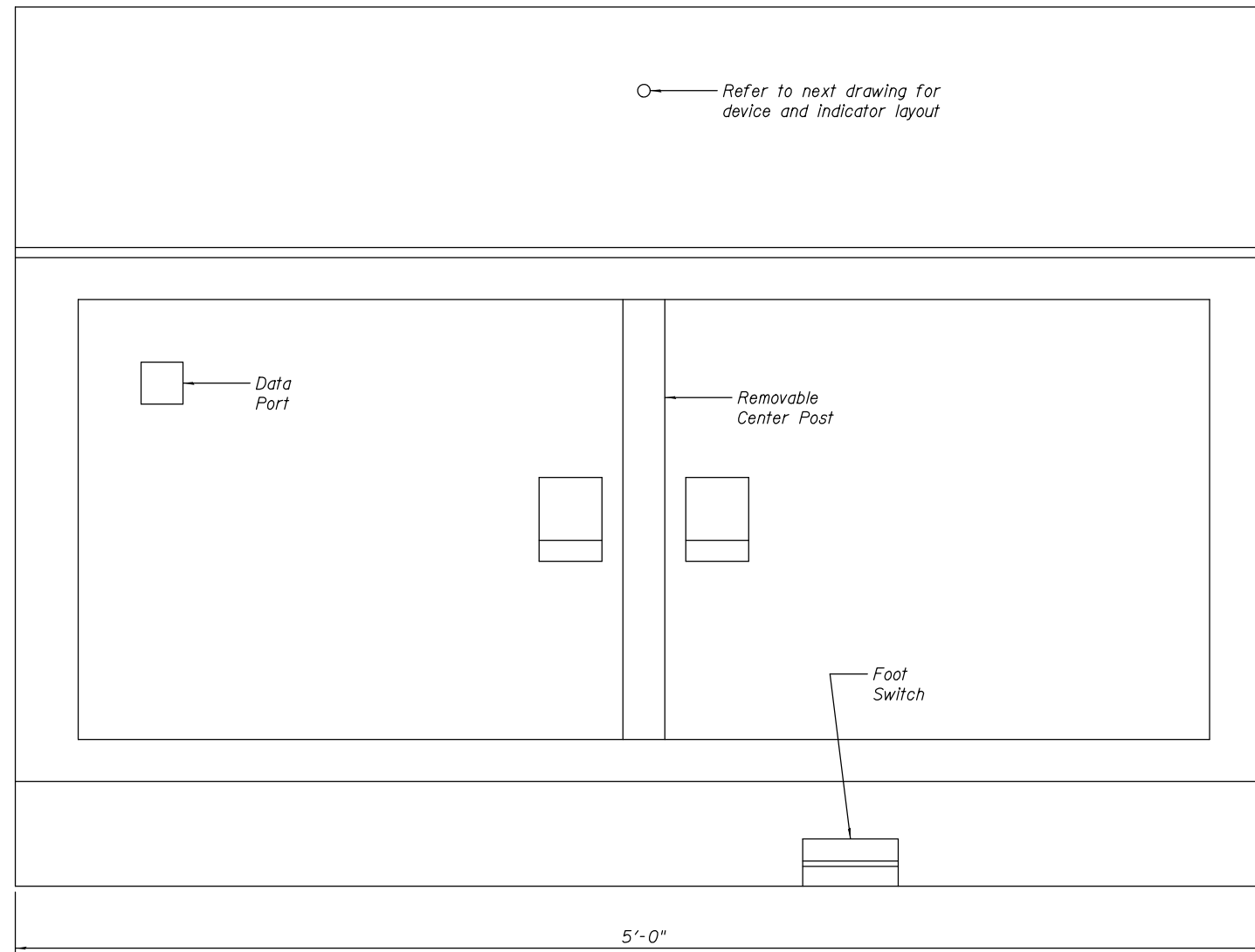
JACKSON, Drawing 02-029				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	139
CONTRACT NO. 60P55				

SHEET NO. 29 OF 97 SHEETS

ILLINOIS FED. AID PROJECT



SIDE VIEW



FRONT VIEW

**NOTES:**

1. All dimensions shown are approximate. The Contractor shall submit control console layout and design drawings to the Engineer for approval. Actual control console size shall be based on available operator house space, cabinet components required, and fabrication requirements.
2. Provide additional free standing tables for CCTV controller keyboard/joystick, marine radio, and general utility use. Tables shall be sized and shaped to be placed at either side of the new control console as required by individual control house dimensions. Table tops shall be composite wood or laminated construction, 1/2" minimum thickness with oil and moisture resistant finish. Legs, top support, cross members, and bracing shall be constructed of powder coated formed steel, minimum 16 gauge. Leg design shall allow height adjustment in 1" increments between approximately 29" to 33".



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
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PLOT SCALE =	DRAWN - R.L. REED	REVISED	---
PLOT DATE =	CHECKED - R.I. PETERS	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - NEW BRIDGE CONTROL CONSOLE - 1**

SHEET NO. 30 OF 97 SHEETS

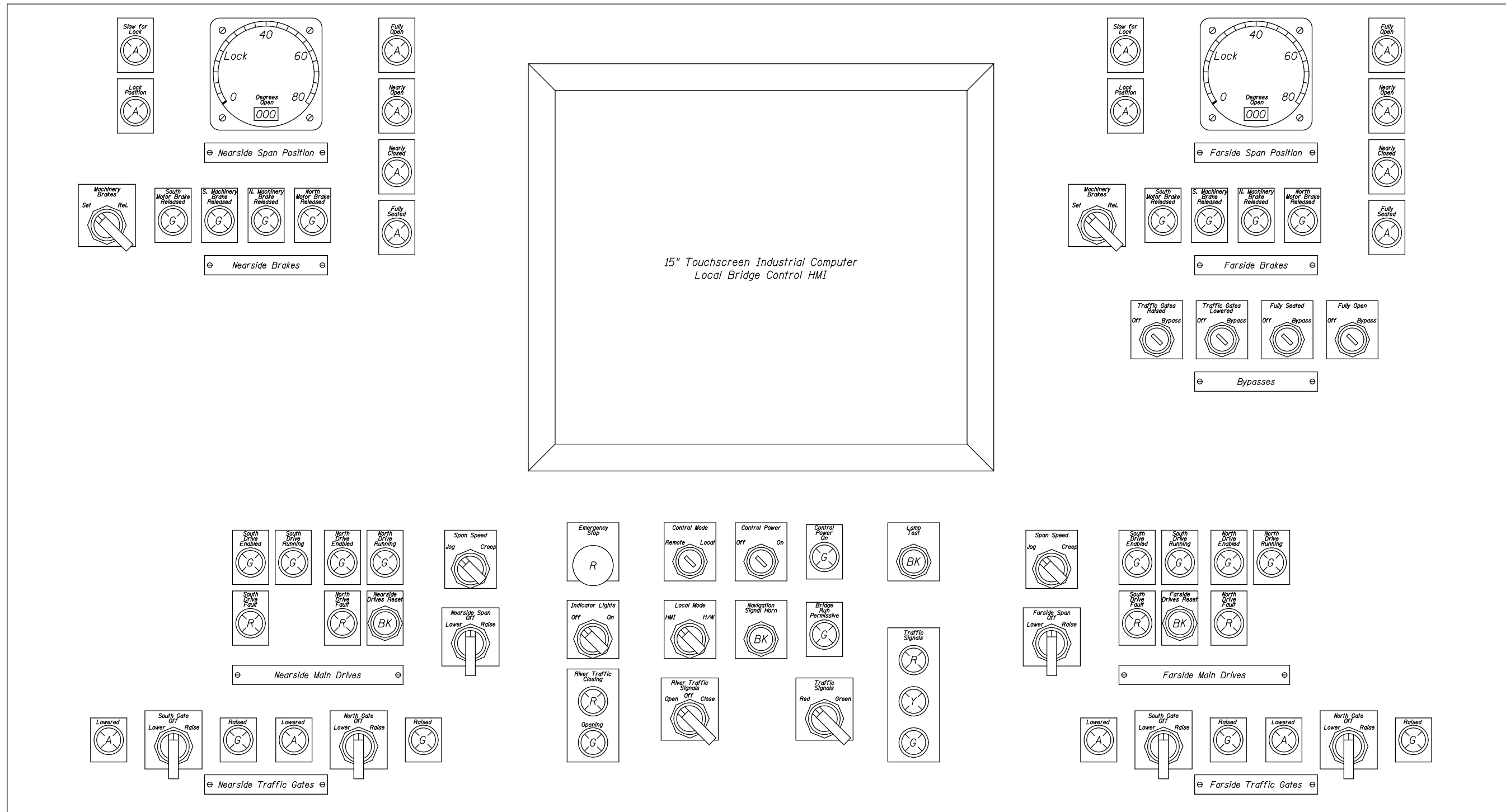
F.A.U. RTE.		SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297		2011-045-I	WILL	466	140
CONTRACT NO. 60P55					
ILLINOIS FED. AID PROJECT					

JACKSON, Drawing 02-030



5'-0"

2'-10"



CONTROL CONSOLE DEVICE AND INDICATOR LAYOUT



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PLOT DATE =	CHECKED - R.I. PETERS	REVISED -

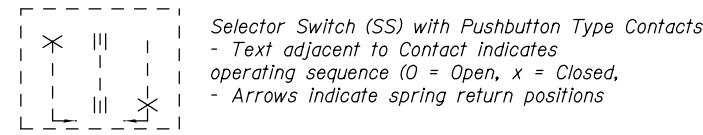
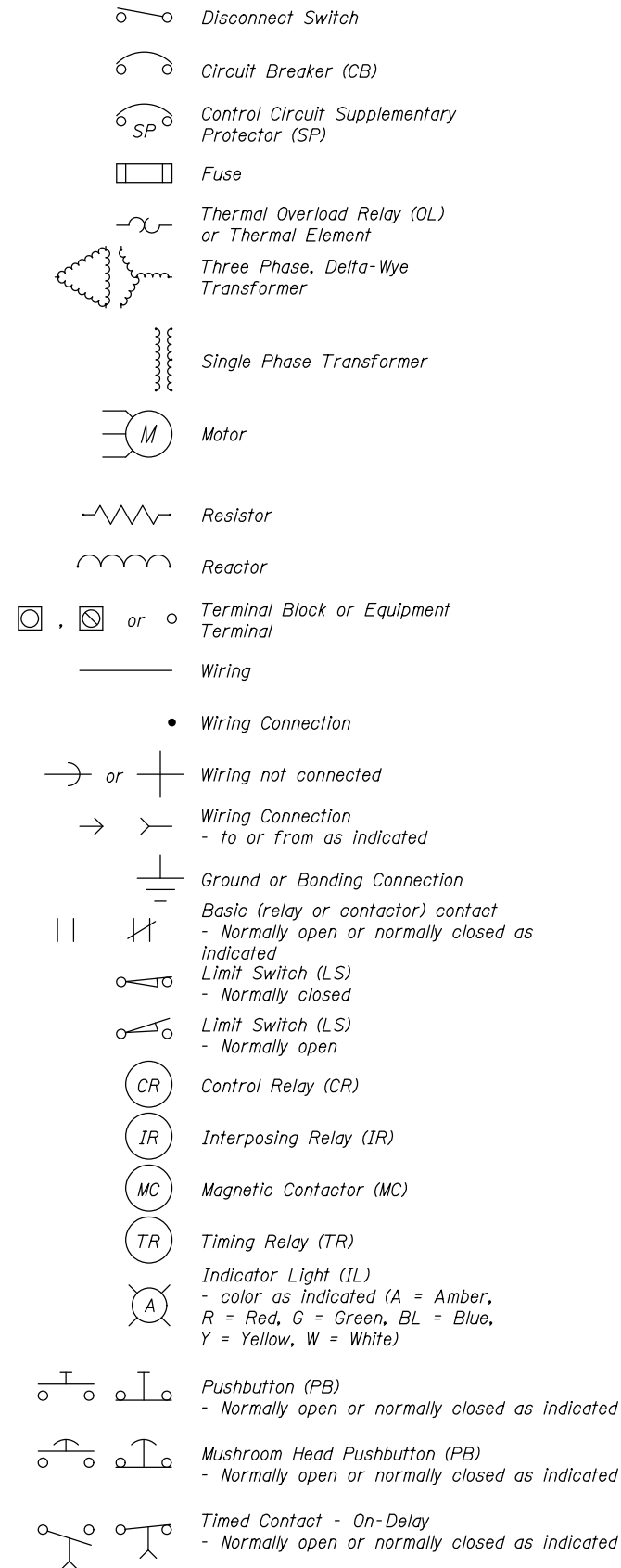
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - NEW BRIDGE CONTROL CONSOLE - 2  
SHEET NO. 31 OF 97 SHEETS

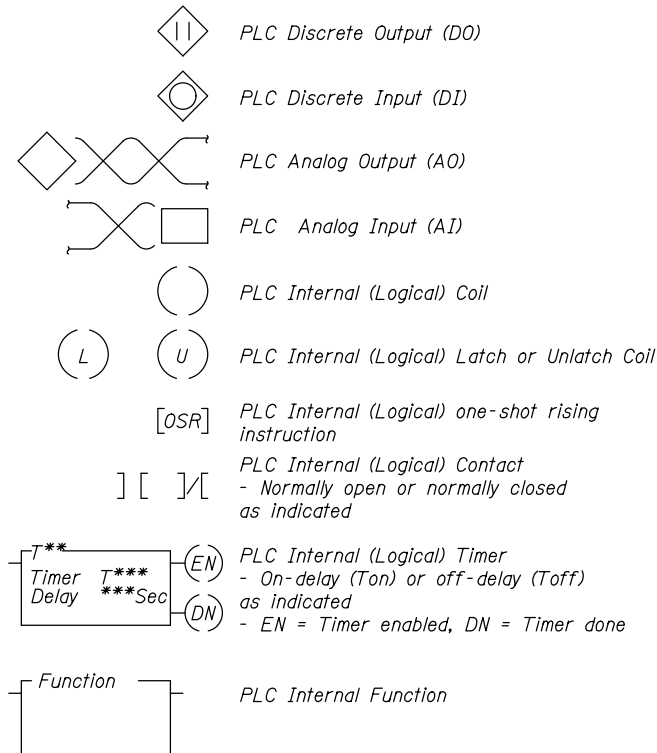
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	141
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-031

**GENERAL ELECTRICAL POWER AND CONTROL CIRCUIT SCHEMATIC SYMBOLS**



**PLC SYSTEM SYMBOLS**



**MISCELLANEOUS**

Number in parenthesis to the left of control device (Limit Switches, Pushbuttons, Selector Switches, etc.) Contacts indicates the contact designation.

Control circuit device designations are as follows.  
 N = Nearside                      F = Farside  
 N = North                          S = South

**GENERAL LEGEND**

Symbol	Description
ACK	Acknowledged
ATS	Automatic Transfer Switch
AUT	Automatic
AUX	Auxiliary
BAT	Battery
BM	Bus Monitor
BYP	Bypass
CB	Circuit Breaker
CCTV	Closed Circuit Television
CON	Contactor
CP	Control Power
CR	Control Relay
CS	Control Switch
DS	Disconnect Switch
ES	Emergency Stop
FLT	Fault
GEN	Generator
HC	Hand Crank Mechanism
HMI	Operator Interface
HW	Hard-Wired Mode
IL	Indicator Light
IN	Inclinometer Sensor
I/O	Input/Output
IR	Interposing Relay
LOC	Local Mode (HMI or HW)
LS	Limit Switch
MAN	Manual
MC	Magnetic Contactor
MCC	Motor Control Center
MD	Main Drive
OL	Motor Overload Relay
PB	Push Button
PLC	Programmable Logic Controller
REM	Remote Mode (SCADA)
RS	Resolver Sensor
SCADA	Supervisory Control and Data Acquisition
SPD	Surge Protective Device
SP	Supplementary Protection
SS	Safety Switch or Selector Switch
SW	Switch
TMR	Timer
TR	Timing Relay
UPS	Uninterruptible Power Supply
UTIL	Utility
VFD	Variable Frequency Drive



USER NAME =	DESIGNED - R.I. PETERS	REVISED _____
	CHECKED - J.G. STRENKOSKI	REVISED _____
PLOT SCALE =	DRAWN - R.L. REED	REVISED _____
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED _____

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT LEGEND - 1**

SHEET NO. 32 OF 97 SHEETS

F.A.U. RTE.		SECTION		COUNTY		TOTAL SHEETS		SHEET NO.	
0297		2011-045-I		WILL		466		142	
CONTRACT NO. 60P55									
ILLINOIS FED. AID PROJECT									

JACKSON, Drawing 02-032

LOGIC DIGITAL INPUT LEGEND

Symbol	Description	Address
ATS-G	Generator Power Source Selected	I:004
ATS-GH	Generator Power Available/Healthy	I:005
ATS-U	Utility Power Source Selected	I:002
ATS-UH	Utility Power Available/Healthy	I:003
BM	Bus Monitor Fault	I:006
CR-BDET	Boat Detection (No Boat Present)	I:021
CR-CP	Control Power On	I:301
CR-FTS	Foot Switch	I:308
CR-FNGR	Farside North Gate Raised	I:321
CR-FNGL	Farside North Gate Lowered	I:322
CR-FSGR	Farside South Gate Raised	I:323
CR-FSGL	Farside South Gate Lowered	I:324
CR-MD-FAE	Farside Main Drive A Enabled	I:071
CR-MD-FBE	Farside Main Drive B Enabled	I:074
CR-MD-FAF	Farside Main Drive A Fault	I:073
CR-MD-FBF	Farside Main Drive B Fault	I:076
CR-MD-FAR	Farside Main Drive A Running	I:072
CR-MD-FBR	Farside Main Drive B Running	I:075
CR-MD-NAE	Nearside Main Drive A Enabled	I:065
CR-MD-NBE	Nearside Main Drive B Enabled	I:068
CR-MD-NAF	Nearside Main Drive A Fault	I:067
CR-MD-NBF	Nearside Main Drive B Fault	I:070
CR-MD-NAR	Nearside Main Drive A Running	I:066
CR-MD-NBR	Nearside Main Drive B Running	I:069
CR-NNGR	Nearside North Gate Raised	I:317
CR-NNGL	Nearside North Gate Lowered	I:318
CR-NSGR	Nearside South Gate Raised	I:319
CR-NSGL	Nearside South Gate Lowered	I:320
CR-RSIGO	River Traffic Signal Opening (Signal Is Green)	I:312
CR-RSIGC	River Traffic Signal Closing (Signal Is Red)	I:313
CR-TSR	Red Traffic Signal	I:310
CR-TSY	Yellow Traffic Signal	I:311
CS-REM(REM)	Remote Scada Control Mode	I:303
CS-REM(LOC)	Local Control Mode	I:304
CS-HW(H/W)	Local Console Hard-wired Switch Controls	I:305
CS-HW(HMI)	Local HMI Controls	I:306
LS-FBAS	Farside Brake A Set	I:717
LS-FBAR	Farside Brake A Released	I:718
LS-FBAHR	Farside Brake A Hand Released (reserved)	I:725
LS-FBBS	Farside Brake B Set	I:719
LS-FBBR	Farside Brake B Released	I:720
LS-FBBHR	Farside Brake B Hand Released (reserved)	I:726
LS-FBCS	Farside Brake C Set	I:721
LS-FBCR	Farside Brake C Released	I:722
LS-FBCHR	Farside Brake C Hand Released (reserved)	I:727
LS-FBDS	Farside Brake D Set	I:723
LS-FBDR	Farside Brake D Released	I:724
LS-FBDHR	Farside Brake D Hand Released (reserved)	I:728
LS-FFS	Farside Fully Seated	I:704
LS-FSC(1)	Farside Fully Open	I:705
LS-FSC(2)	Farside Nearly Open	I:706
LS-FSC(3)	Farside Nearly Closed	I:707
LS-FSC(4)	Farside Fully Closed	I:708
LS-NBAS	Nearside Brake A Set	I:517
LS-NBAR	Nearside Brake A Released	I:518
LS-NBAHR	Nearside Brake A Hand Released (reserved)	I:525

LOGIC DIGITAL INPUT LEGEND (CONTINUED)

Symbol	Description	Address
LS-NBBS	Nearside Brake B Set	I:519
LS-NBBR	Nearside Brake B Released	I:520
LS-NBBHR	Nearside Brake B Hand Released (reserved)	I:526
LS-NBCS	Nearside Brake C Set	I:521
LS-NBCR	Nearside Brake C Released	I:522
LS-NBCHR	Nearside Brake C Hand Released (reserved)	I:527
LS-NBDS	Nearside Brake D Set	I:523
LS-NBDR	Nearside Brake D Released	I:524
LS-NBDHR	Nearside Brake D Hand Released (reserved)	I:528
LS-NFS	Nearside Fully Seated	I:504
LS-NSC(1)	Nearside Fully Open	I:505
LS-NSC(2)	Nearside Nearly Open	I:506
LS-NSC(3)	Nearside Nearly Closed	I:507
LS-NSC(4)	Nearside Fully Closed	I:508
PB-ES	Emergency Stop Push Button	I:302
PB-WH	Warning Horn Push Button	I:307
SPD	Surge Protective Device Status	I:001
	CCTV UPS Low Battery	I:332
	CCTV UPS Fault	I:331
	Farside I/O UPS Low Battery	I:702
	Farside I/O UPS Fault	I:701
	Farside Machinery Door Switches	I:703
	Operator's Room Fire Alarm	I:019
	Electrical Room Fire Alarm	I:020
	Main UPS Low Battery	I:008
	Main UPS Fault	I:007
	Nearside I/O UPS Low Battery	I:502
	Nearside I/O UPS Fault	I:501
	Nearside Machinery Door Switches	I:503
	Operator House-Main Door Switch	I:011
	Operator House-Auxiliary Door Switch	I:012

LOGIC ANALOG/SPECIALTY INPUT LEGEND

Symbol	Description	Address
	Analog Input Far Drive A Speed	I:184
	Analog Input Far Drive A Torque	I:185
	Analog Input Far Drive B Speed	I:186
	Analog Input Far Drive B Torque	I:187
	Analog Input Farside Resolver PLC Input	I:790
	Analog Input Farside Inclinator PLC Input	I:794
	Analog Input Near Drive A Speed	I:180
	Analog Input Near Drive A Torque	I:181
	Analog Input Near Drive B Speed	I:182
	Analog Input Near Drive B Torque	I:183
	Analog Input Nearside Resolver PLC Input	I:590
	Analog Input Nearside Inclinator PLC Input	I:594

LOGIC DIGITAL OUTPUT LEGEND

Symbol	Description	Address
CR-BAGR	Bypass All Gates Raised	O:354
CR-BSFS	Bypass Span Fully Seated	O:355
CR-FMWH	Farside Machinery Area Warning Horn	O:765
CR-NMWH	Nearside Machinery Area Warning Horn	O:565
CR-RR	Request Red Traffic Signal	O:353
CR-WH	Warning Horn	O:362
IR-LFNG	Lower Farside North Traffic Gate	O:104
IR-LFSG	Lower Farside South Traffic Gate	O:106
IR-LNNG	Lower Nearside North Traffic Gate	O:100
IR-LNSG	Lower Nearside South Traffic Gate	O:102
IR-MDFAC	Farside Main Drive A Creep Speed	O:133
IR-MDFBC	Farside Main Drive B Creep Speed	O:133
IR-MDFAJ	Farside Main Drive A Jog Speed	O:132
IR-MDFBJ	Farside Main Drive B Jog Speed	O:132
IR-MDFAT	Farside Main Drive A Reduced Torque Mode	O:137
IR-MDFBT	Farside Main Drive B Reduced Torque Mode	O:137
IR-MDFAE	Enable Farside Main Drive A	O:126
IR-MDFBE	Enable Farside Main Drive B	O:127
IR-MDFAL	Farside Main Drive A Lower	O:130
IR-MDFBL	Farside Main Drive B Lower	O:131
IR-MDFAR	Farside Main Drive A Raise	O:128
IR-MDFBR	Farside Main Drive B Raise	O:129
IR-MDFAS	Reset Farside Drive A Fault	O:134
IR-MDFBS	Reset Farside Drive B Fault	O:135
IR-MDNAC	Nearside Main Drive A Creep Speed	O:123
IR-MDNBC	Nearside Main Drive B Creep Speed	O:123
IR-MDNAJ	Nearside Main Drive A Jog Speed	O:122
IR-MDNBJ	Nearside Main Drive B Jog Speed	O:122
IR-MDNAT	Nearside Main Drive A Reduced Torque Mode	O:136
IR-MDNBT	Nearside Main Drive B Reduced Torque Mode	O:136
IR-MDNAE	Enable Nearside Main Drive A	O:116
IR-MDNBE	Enable Nearside Main Drive B	O:117
IR-MDNAL	Nearside Main Drive A Lower	O:120
IR-MDNBL	Nearside Main Drive B Lower	O:121
IR-MDNAR	Nearside Main Drive A Raise	O:118
IR-MDNBR	Nearside Main Drive B Raise	O:119
IR-MDNAS	Reset Nearside Drive A Fault	O:124
IR-MDNBS	Reset Nearside Drive B Fault	O:125
IR-RFBAB	Farside Main Motors Brake A and B Release	O:112
IR-RFBC	Farside North Machinery Brake C Release	O:114
IR-RFBD	Farside South Machinery Brake D Release	O:115
IR-RFNG	Raise Farside North Traffic Gate	O:105
IR-RFSG	Raise Farside South Traffic Gate	O:107
IR-RNBAB	Nearside Motor Brakes A & B Release	O:108
IR-RNBC	Nearside North Machinery Brake C Release	O:110
IR-RNBD	Nearside North Machinery Brake D Release	O:111
IR-RNNG	Raise Nearside North Traffic Gate	O:101
IR-RNSG	Raise Nearside South Traffic Gate	O:103



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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT LEGEND - 2

SHEET NO. 33 OF 97 SHEETS

JACKSON, Drawing 02-033					
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
0297	2011-045-I	WILL	466	143	
CONTRACT NO. 60P55					
ILLINOIS FED. AID PROJECT					

LOGIC DIGITAL OUTPUT LEGEND (CONTINUED)

Symbol	Description	Address
IR-RSIGO	River Traffic Signal Opening	0:359
IR-RSIGC	River Traffic Signal Closing	0:360
IR-SES1	Software Emergency Stop Relay 1	0:349
IR-SES2	Software Emergency Stop Relay 2	0:350
IR-SCP1	Software Control Power Relay 1	0:351
IR-SCP2	Software Control Power Relay 2	0:352

PLC LOGIC BINARY LEGEND (CONTINUED)

Symbol	Description
NNO	Nearside Nearly Open
NOS	Nearside Span Overspeed
NR	Nearside Raise
NS	Normal Stop
NSG	Nearside South Gate
SFS	Span Fully Seated
TSG	Traffic Signal Green
TSR	Traffic Signal Red
TSY	Traffic Signal Yellow
UMAF	Unacknowledged Major Fault
UMIF	Unacknowledged Minor Fault
WH-DLY	Warning Horn Delay Before Bridge Movement

HARDWIRED LEGEND (CONTINUED)

Symbol	Description
CR-RSIGC	River Signals Closing
CR-WHT	Warning Horn Timing Control Relay
CS-BAGL	Bypass All Gates Lowered Select, Byp or Off
CS-BAGR	Bypass All Gates Raised Select, Byp or Off
CS-BSFO	Bypass Span Fully Open Select, Byp or Off
CS-BSFS	Bypass Span Fully Seated Select, Byp or Off
CS-FBR	Farside Brake Select, Set or Release
CS-FNG	Farside North Traffic Gate Select, Raise or Lower
CS-FSG	Farside South Traffic Gate Select, Raise or Lower
CS-IL	Indicator Lights Power Select, On or Off
CS-MSCF	Manual Span Control Far Select, Raise or Lower
CS-MSCN	Manual Span Control Near Select, Raise or Lower
CS-MSSF	Manual Span Speed Far Select, Jog or Creep
CS-MSSN	Manual Span Speed Near Select, Jog or Creep
CS-NBR	Nearside Brake Select, Set or Release
CS-NNG	Nearside North Traffic Gate Select, Raise or Lower
CS-NSG	Nearside South Traffic Gate Select, Raise or Lower
CS-RSIG	River Signals Select, Open or Close
CS-TSR	Traffic Signals Select, Green or Red
MC-LFNG	Farside North Traffic Gate Lower Motor Starter
MC-LFSG	Farside South Traffic Gate Lower Motor Starter
MC-LNNG	Nearside North Traffic Gate Lower Motor Starter
MC-LNSG	Nearside South Traffic Gate Lower Motor Starter
MC-RFBAB	Farside Main Motors A & B Brake Motor Starter
MC-RFBC	Farside North Machinery Brake Motor Starter
MC-RFBD	Farside South Machinery Brake Motor Starter
MC-RFNG	Farside North Traffic Gate Raise Motor Starter
MC-RFSG	Farside South Traffic Gate Raise Motor Starter
MC-RNBAB	Nearside Main Motors A & B Brake Motor Starter
MC-RNBC	Nearside North Machinery Brake Motor Starter
MC-RNBD	Nearside South Machinery Brake Motor Starter
MC-RNNG	Nearside North Traffic Gate Raise Motor Starter
MC-RNSG	Nearside South Traffic Gate Raise Motor Starter
PB-MNRS	Nearside Main Drive Faults Reset
PB-MFRS	Farside Main Drive Faults Reset
PB-WH	Warning Horn, Push Button

PLC LOGIC BINARY LEGEND

Symbol	Description
ADE	All Drives Enabled
AGL	All Gates Lowered
AGR	All Gates Raised
BDET	Boat Detection
BMF	Bus Monitor Fault
BRP	Bridge Run Permissive
BYP AGR	Bypass All Gates Raised
BYP AGL	Bypass All Gates Lowered
BYP SFS	Bypass Span Fully Seated
BYP SFO	Bypass Span Fully Open
BYP FO	Bypass Bridge Fully Open
BYP FS	Bypass Bridge Fully Seated
BYP INHIB	Bypass Inhibit
FFC	Farside Fully Closed
FFO	Farside Fully Open
FFS	Farside Fully Seated
FFS1	Farside Span Fully Seated (Set Brakes)
FFS2	Farside Span Fully Seated (De-energize Drives)
FL	Farside Lower
FLP	Farside Lock Position
FLS	Farside Lock Slowdown
FNC	Farside Nearly Closed
FNG	Farside North Gate
FNO	Farside Nearly Open
FO	Bridge Fully Open
FOS	Farside Span Overspeed
FR	Farside Raise
FS	Bridge Fully Seated
FSG	Farside South Gate
IN-F	Farside Span Position PLC Inclinometer
IN-N	Nearside Span Position PLC Inclinometer
MAF	Major Fault
MDN-R	Near Main Drive Raise
MDF-R	Far Main Drive Raise
MIF	Minor Fault
ML	Master Lower
MR	Master Raise
NFC	Nearside Fully Closed
NFO	Nearside Fully Open
NFS	Nearside Fully Seated
NFS1	Nearside Span Fully Seated (Set Brakes)
NFS2	Nearside Span Fully Seated (De-energize Drives)
NL	Nearside Lower
NLP	Nearside Lock Position
NLS	Nearside Lock Slowdown
NNC	Nearside Nearly Closed
NNG	Nearside North Gate

HARDWIRED LEGEND

CR-FONAV	Bridge Fully Open Navigation Lights Power
CR-FSCFC	Farside Span Control Fully Closed
CR-FSCFO	Farside Span Control Fully Open
CR-FSCLP	Farside Span Control Lock Position
CR-FSCLS	Farside Span Control Lock Slowdown
CR-FSCNC	Farside Span Control Nearly Closed
CR-FSCNO	Farside Span Control Nearly Open
CR-GNG	Traffic Gate Gong
CR-MDFAL	Farside Main Drive A Lower
CR-MDFAR	Farside Main Drive A Raise
CR-MDFAS	Farside Main Drive A Reduced Torque
CR-MDFAT	Farside Main Drive A Reduced Torque
CR-MDFBL	Farside Main Drive B Lower
CR-MDFBR	Farside Main Drive B Raise
CR-MDFBS	Farside Main Drive B Reset
CR-MDFBT	Farside Main Drive B Reduced Torque
CR-MDFC	Main Drives Far Creep Speed
CR-MDFE	Main Drives Far Enable
CR-MDFJ	Main Drives Far Jog Speed
CR-MDNAL	Nearside Main Drive A Lower
CR-MDNAR	Nearside Main Drive A Raise
CR-MDNAS	Nearside Main Drive A Reset
CR-MDNAT	Nearside Main Drive A Reduced Torque
CR-MDNBL	Nearside Main Drive B Lower
CR-MDNBR	Nearside Main Drive B Raise
CR-MDNBS	Nearside Main Drive B Reset
CR-MDNBT	Nearside Main Drive B Reduced Torque
CR-MDNC	Main Drives Near Creep Speed
CR-MDNE	Main Drives Near Enable
CR-MDNJ	Main Drives Near Jog Speed
CR-MSCFL	Manual Span Control Farside Lower
CR-MSCFR	Manual Span Control Farside Raise
CR-MSCNL	Manual Span Control Nearside Lower
CR-MSCNR	Manual Span Control Nearside Raise
CR-MSCFC	Nearside Span Control Fully Closed
CR-MSCFO	Nearside Span Control Fully Open
CR-NSCLP	Nearside Span Control Lock Position
CR-NSCLS	Nearside Span Control Lock Slowdown
CR-NSCNC	Nearside Span Control Nearly Closed
CR-NSCNO	Nearside Span Control Nearly Open
CR-RFB	Farside Release Brakes
CR-RNB	Nearside Release Brakes
CR-RSIGO	River Signals Opening



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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT LEGEND - 3

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	144
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-034

SHEET NO. 34 OF 97 SHEETS

HARDWIRED TIMING RELAYS

TR-BDEF	Boat Detected Fault
TR-FFS1	Farside Span Fully Seated (Set Brakes) Delay
TR-FFS2	Farside Span Fully Seated (Deenergize Drives) Delay
TR-NFS1	Nearside Span Fully Seated (Set Brakes) Delay
TR-NFS2	Nearside Span Fully Seated (Deenergize Drives) Delay
TR-TSY	Traffic Signal Yellow Time
TR-WH	Warning Horn Time

PLC TIMERS

T1	Bus Monitor Timer
T2	Boat Detection Timer
T3	Farside Fully Seated Timer 1
T4	Farside Fully Seated Timer 2
T5	Nearside Fully Seated Timer 1
T6	Nearside Fully Seated Timer 2
T7	Warning Horn Timer



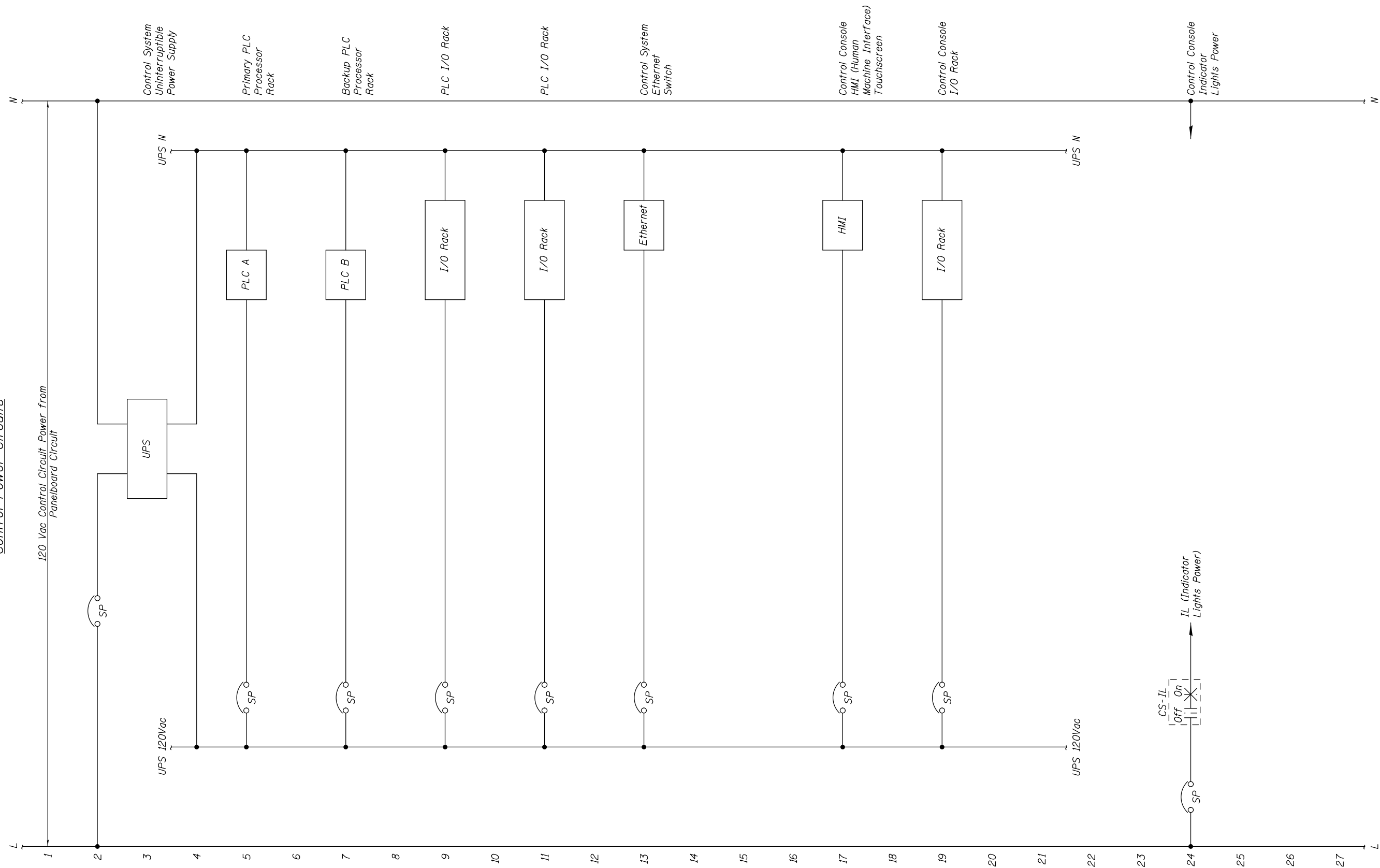
USER NAME =	DESIGNED - R.I. PETERS	REVISED	___
	CHECKED - J.G. STRENKOSKI	REVISED	___
PLOT SCALE =	DRAWN - R.L. REED	REVISED	___
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	___

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT LEGEND - 4

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	145
			CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT				

*Control Power Circuits*



**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

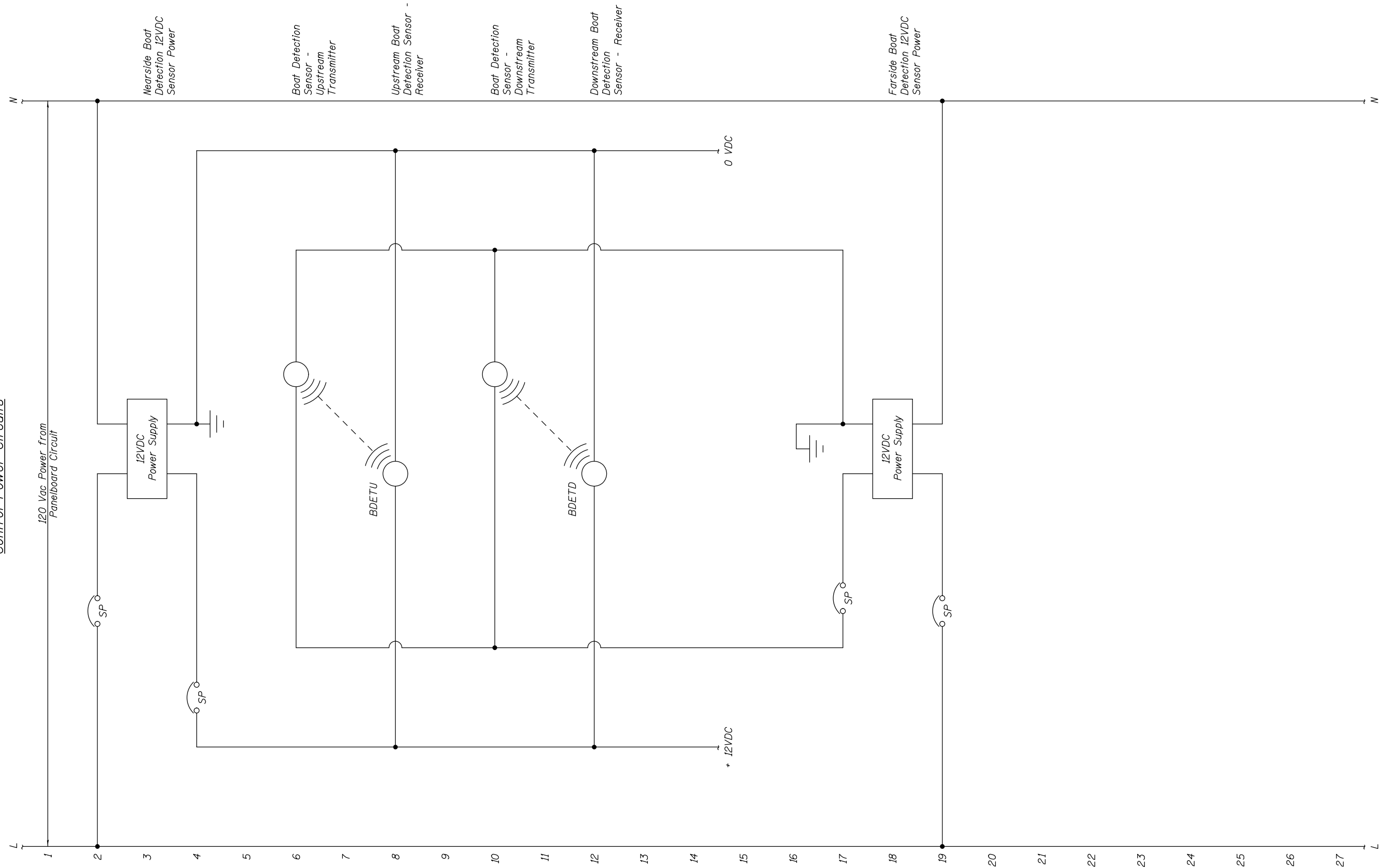
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 1**

SHEET NO. 36 OF 97 SHEETS

JACKSON, Drawing 02-036	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	146
CONTRACT NO. 60P55	

ILLINOIS FED. AID PROJECT

Control Power Circuits



NOTES:

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



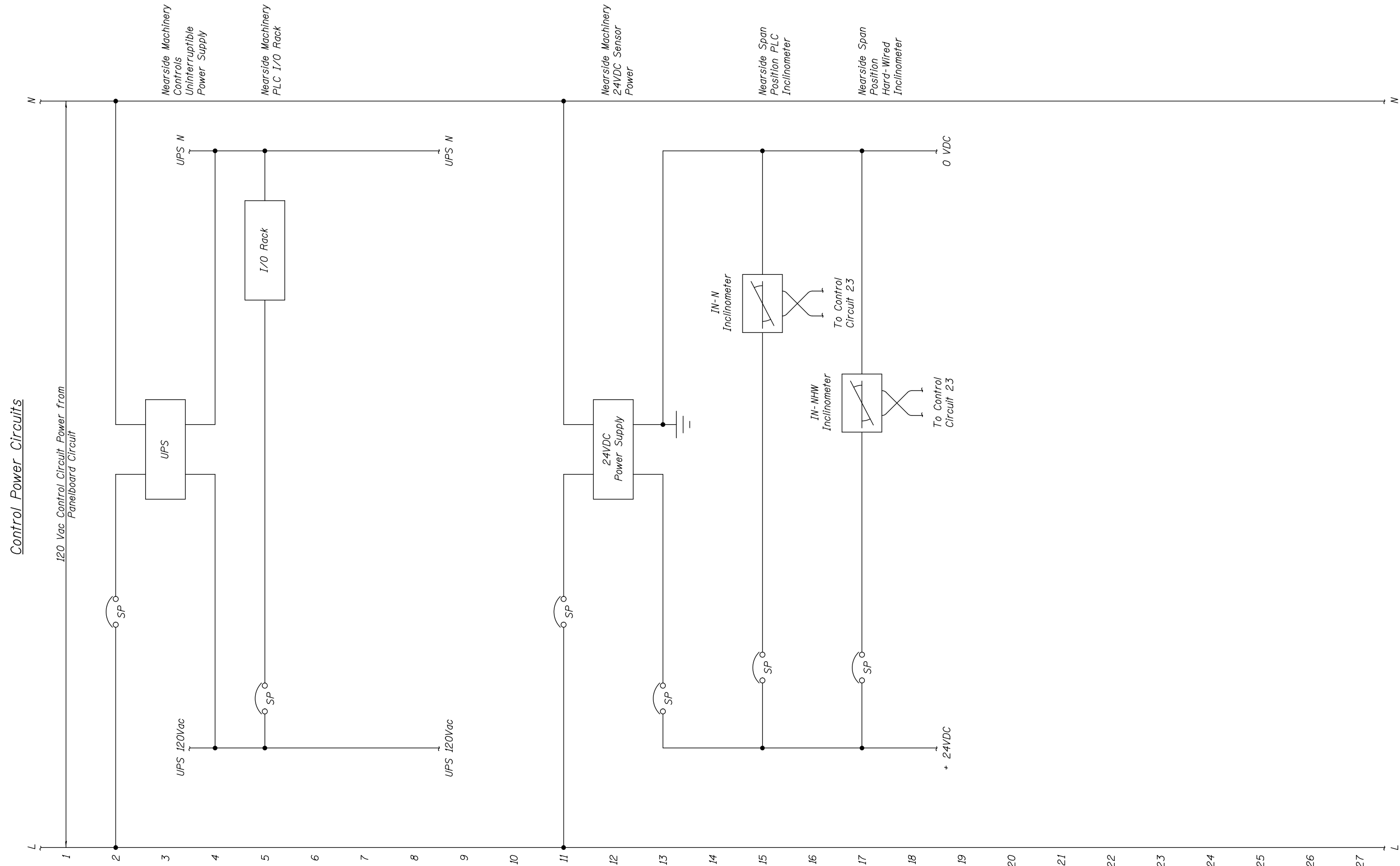
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 2

SHEET NO. 37 OF 97 SHEETS

JACKSON, Drawing 02-037		TOTAL SHEETS		SHEET NO.	
F.A.U. RTE.	SECTION	COUNTY	466	147	
0297	2011-045-I	WILL	CONTRACT NO. 60P55		
ILLINOIS FED. AID PROJECT					



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 3**

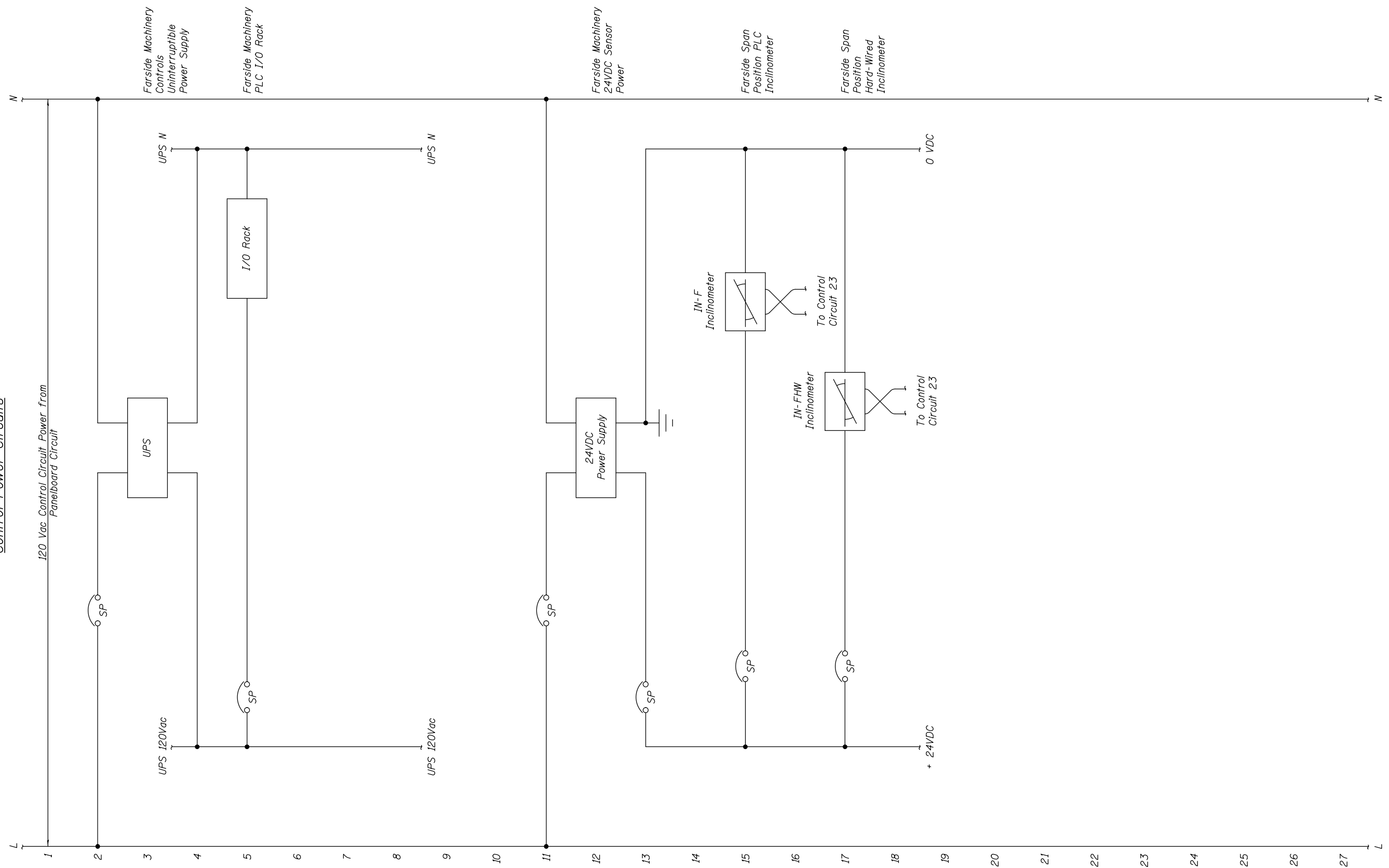
SHEET NO. 38 OF 97 SHEETS

JACKSON, Drawing 02-038			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 148
CONTRACT NO. 60P55			

ILLINOIS FED. AID PROJECT



*Control Power Circuits*



**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 4**

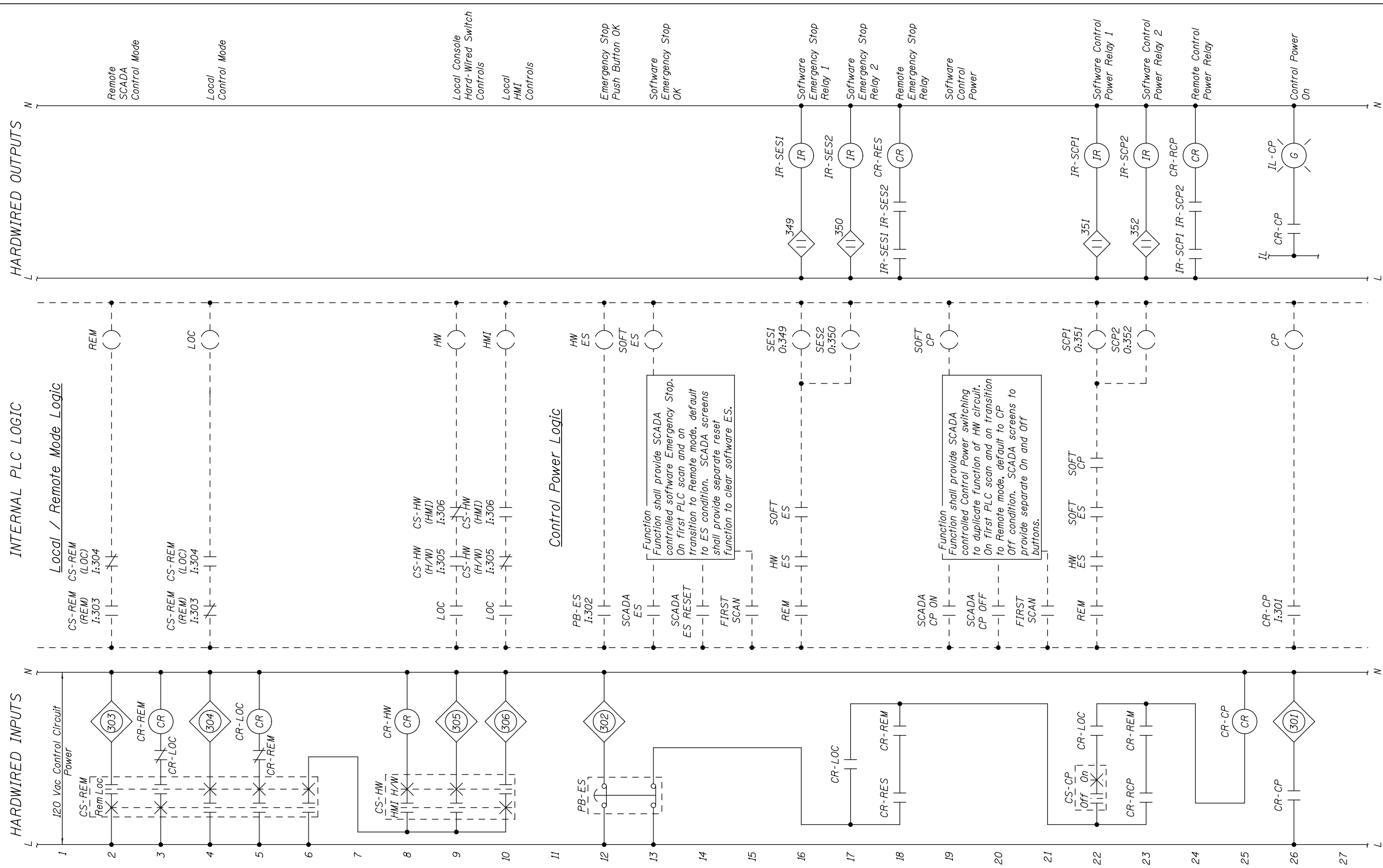
SHEET NO. 39 OF 97 SHEETS

JACKSON, Drawing 02-039			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 149
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			

HARDWIRED INPUTS

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS



Function shall provide SCADA controlled software Emergency Stop. On first PLC scan and on transition to Remote mode, default to ES condition. SCADA screens shall provide separate reset function to clear software ES.

Function shall provide SCADA controlled Control Power switching to duplicate function of HW circuit. On first PLC scan and on transition to Remote mode, default to CP Off condition. SCADA screens to provide separate On and Off buttons.

NOTES:

- Emergency stop Pushbuttons shall be illuminated type and shall be wired to illuminate when pressed.
- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 5

F.A.U. R.T.E.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	150
CONTRACT NO. 60P55				

JACKSON, Drawing 02-040

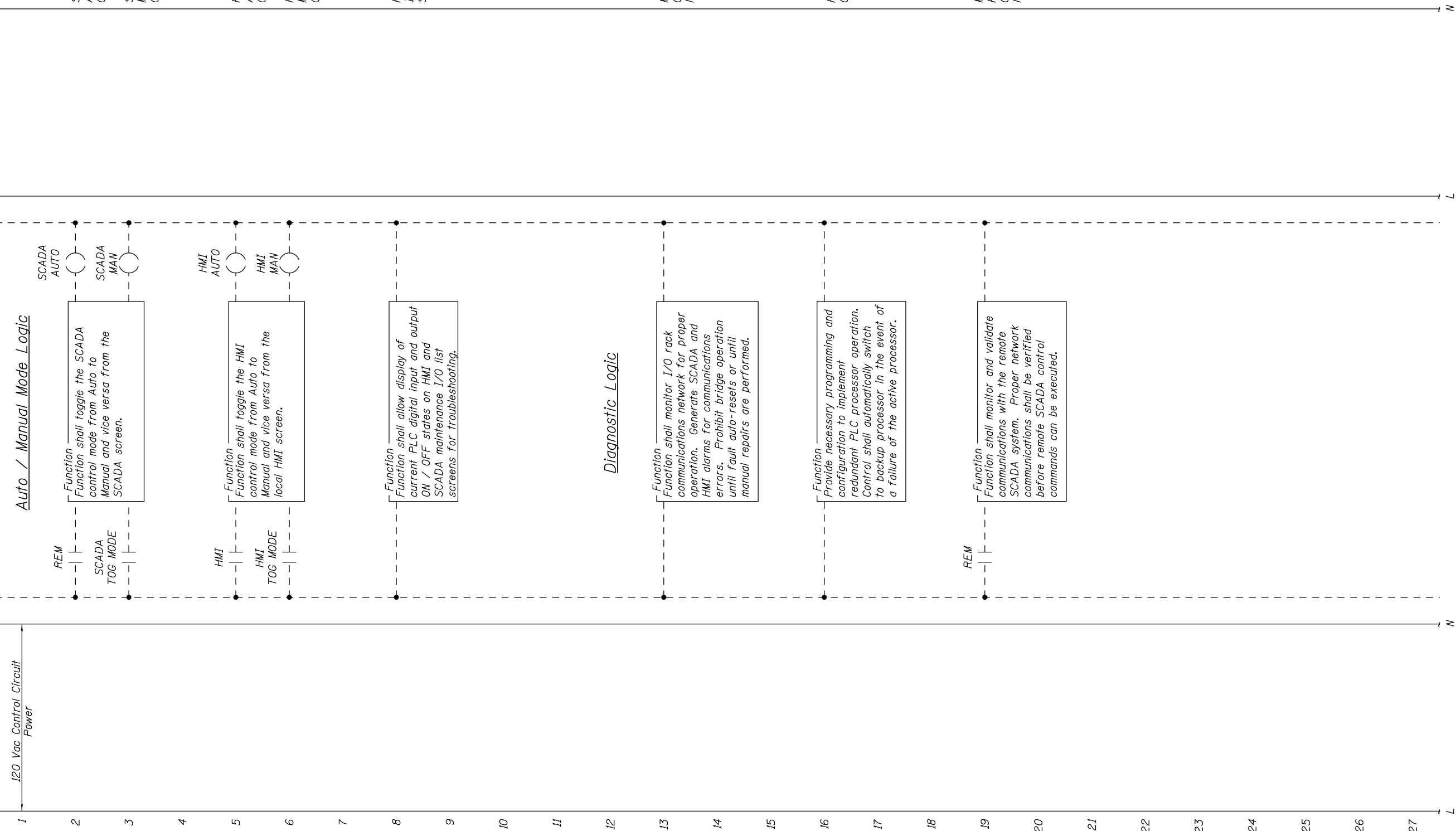
SHEET NO. 40 OF 97 SHEETS

ILLINOIS FED. AID PROJECT

HARDWIRED INPUTS

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 6**

SHEET NO. 41 OF 97 SHEETS

F.A.U. RTE.		SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297		2011-045-I	WILL	466	151
CONTRACT NO. 60P55					

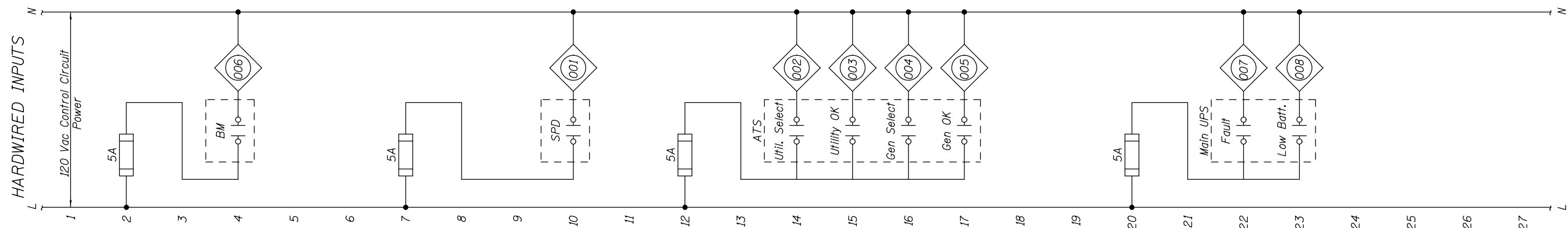
ILLINOIS FED. AID PROJECT

JACKSON, Drawing 02-041

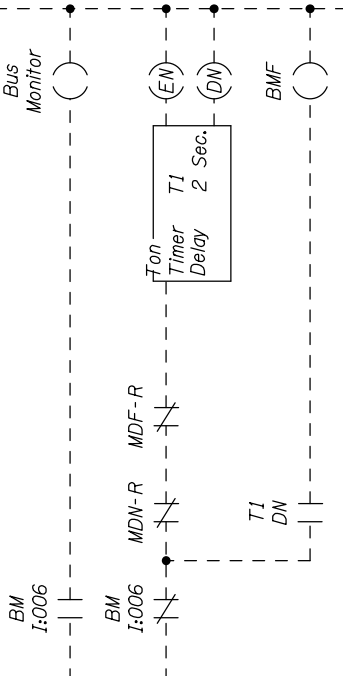
HARDWIRED INPUTS

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS



Power Monitor Logic

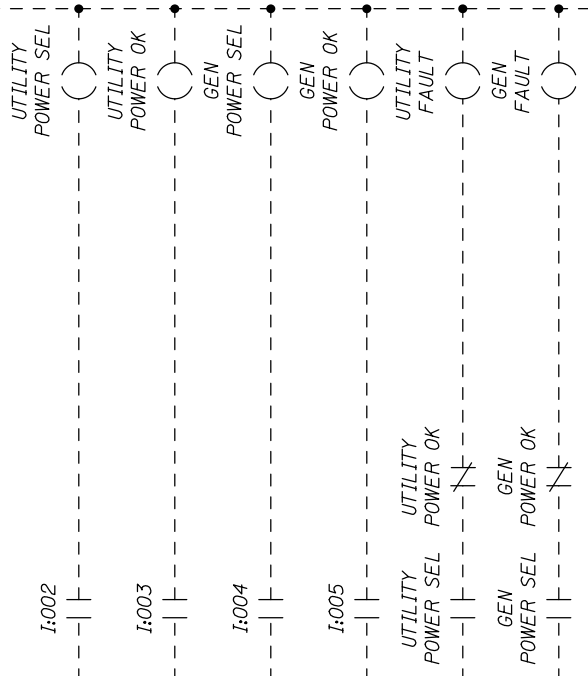


Function shall obtain status and data from power monitor including phase voltages and amps and power for HMI and SCADA display. Provide logic for alarming when values are outside of normal operation ranges.

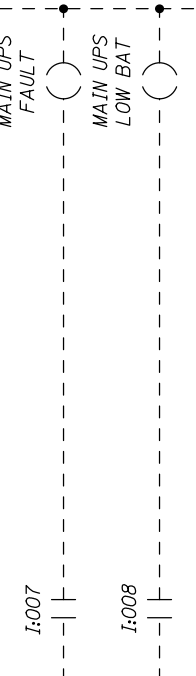
Surge Protective Device Logic



Automatic Transfer Switch Logic



UPS Logic



NOTES:

1. Provide additional timers as required to condition PLC inputs from sensing devices.
2. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



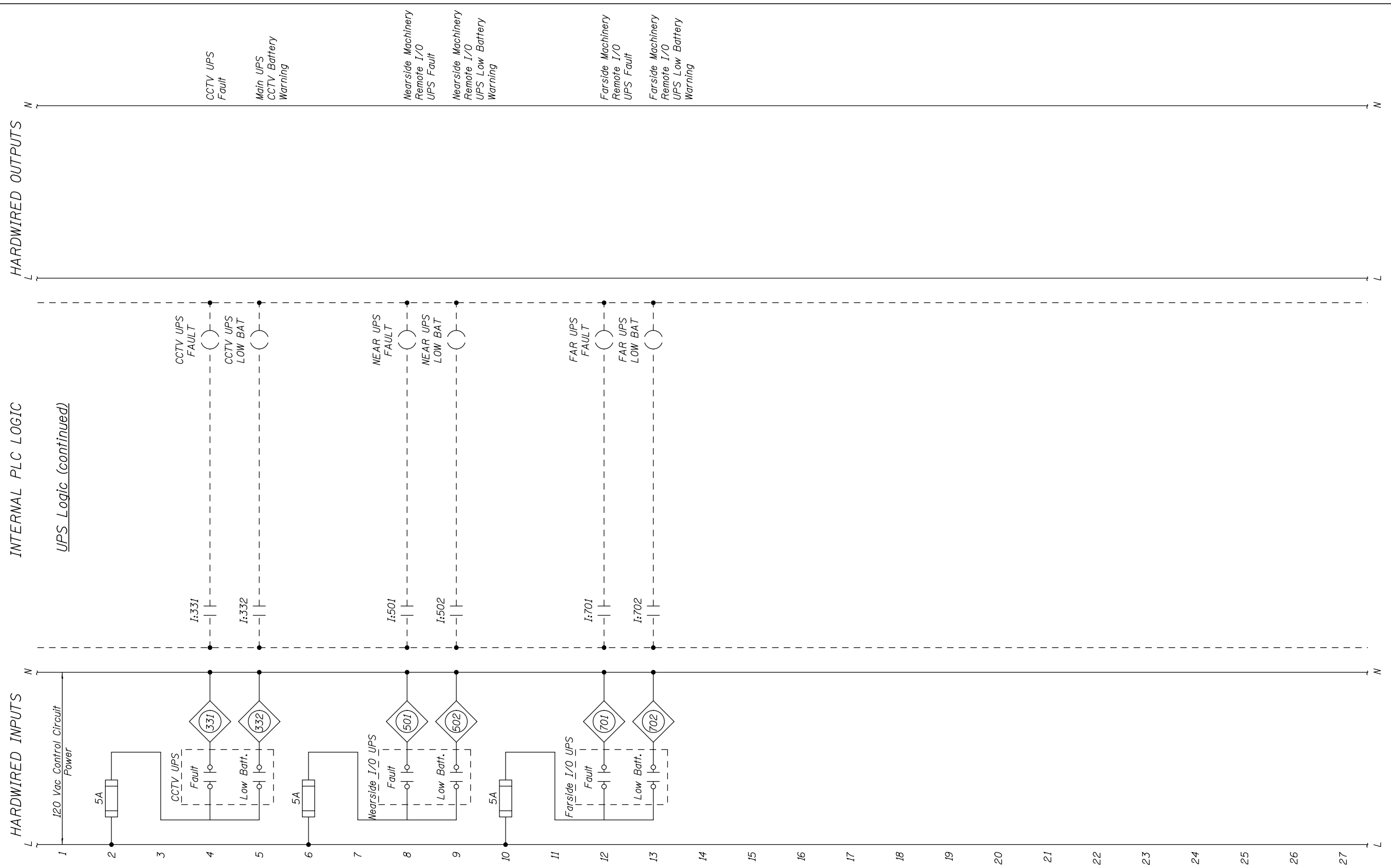
USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 7

SHEET NO. 42 OF 97 SHEETS

JACKSON, Drawing 02-042			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 152
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



- NOTES:**
1. Provide additional timers as required to condition PLC inputs from sensing devices.
  2. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



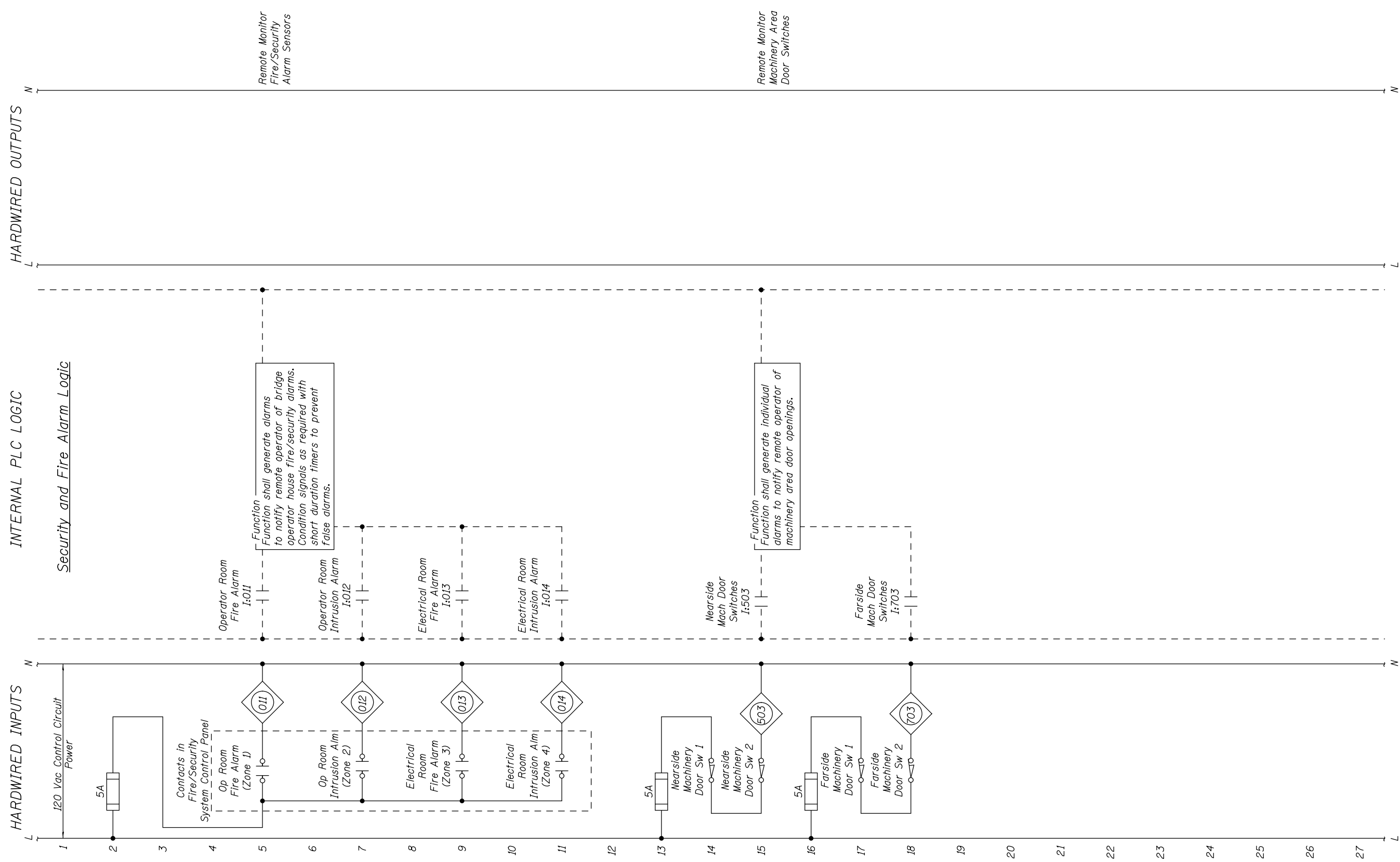
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	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
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**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 8**

SHEET NO. 43 OF 97 SHEETS

JACKSON, Drawing 02-043				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	153
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				



- NOTES:**
1. Provide additional timers as required to condition PLC inputs.
  2. Where possible, switches and sensors shall be wired to provide fail-safe operation.
  3. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



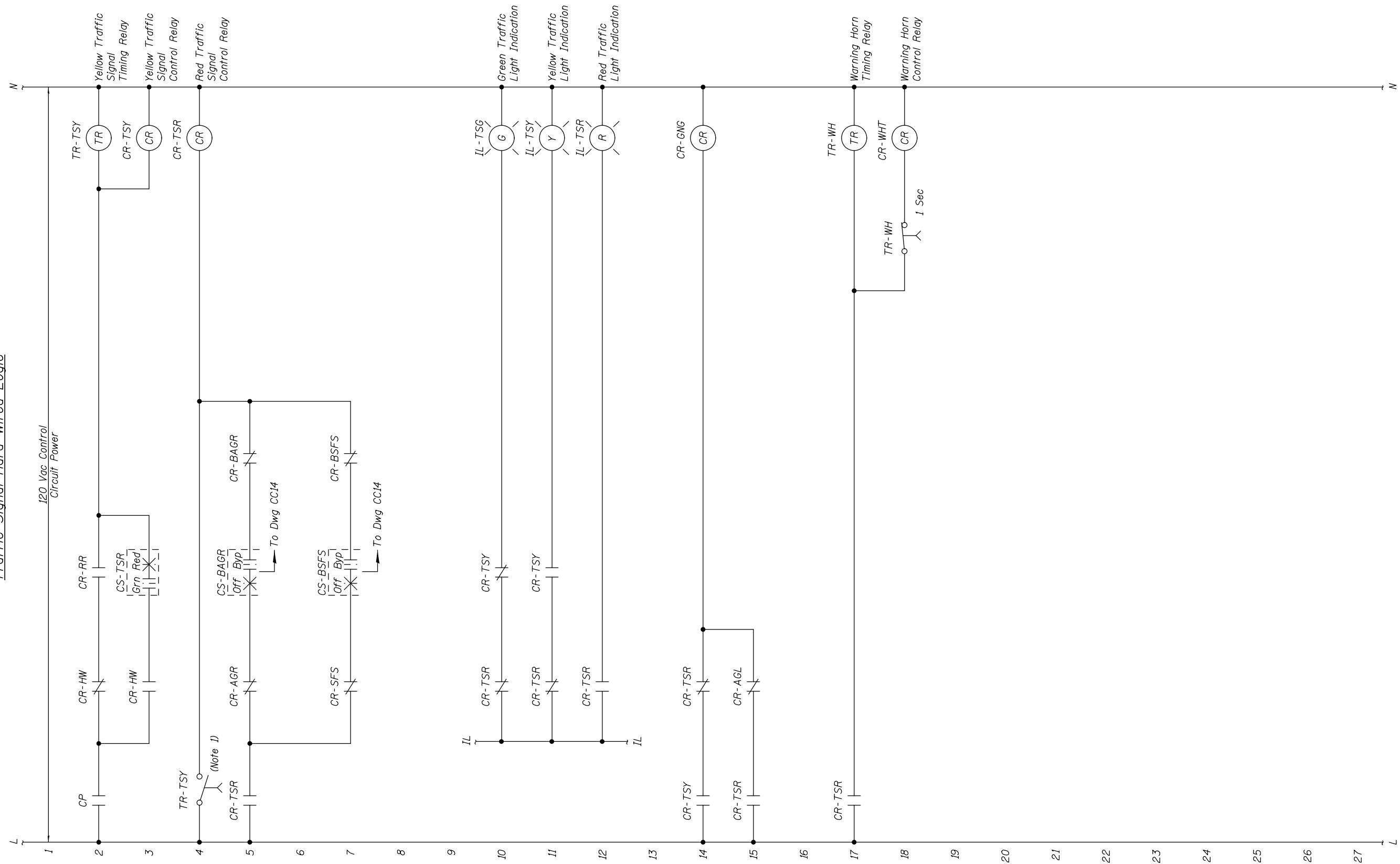
USER NAME =	DESIGNED - R.I. PETERS	REVISED	___
	CHECKED - J.G. STRENKOSKI	REVISED	___
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	___
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	___

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 9**

JACKSON, Drawing 02-044	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	154
CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT	

Traffic Signal Hard-Wired Logic



NOTES:

1. Set timer preset according to IDOT requirements for yellow light cycle time.
2. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

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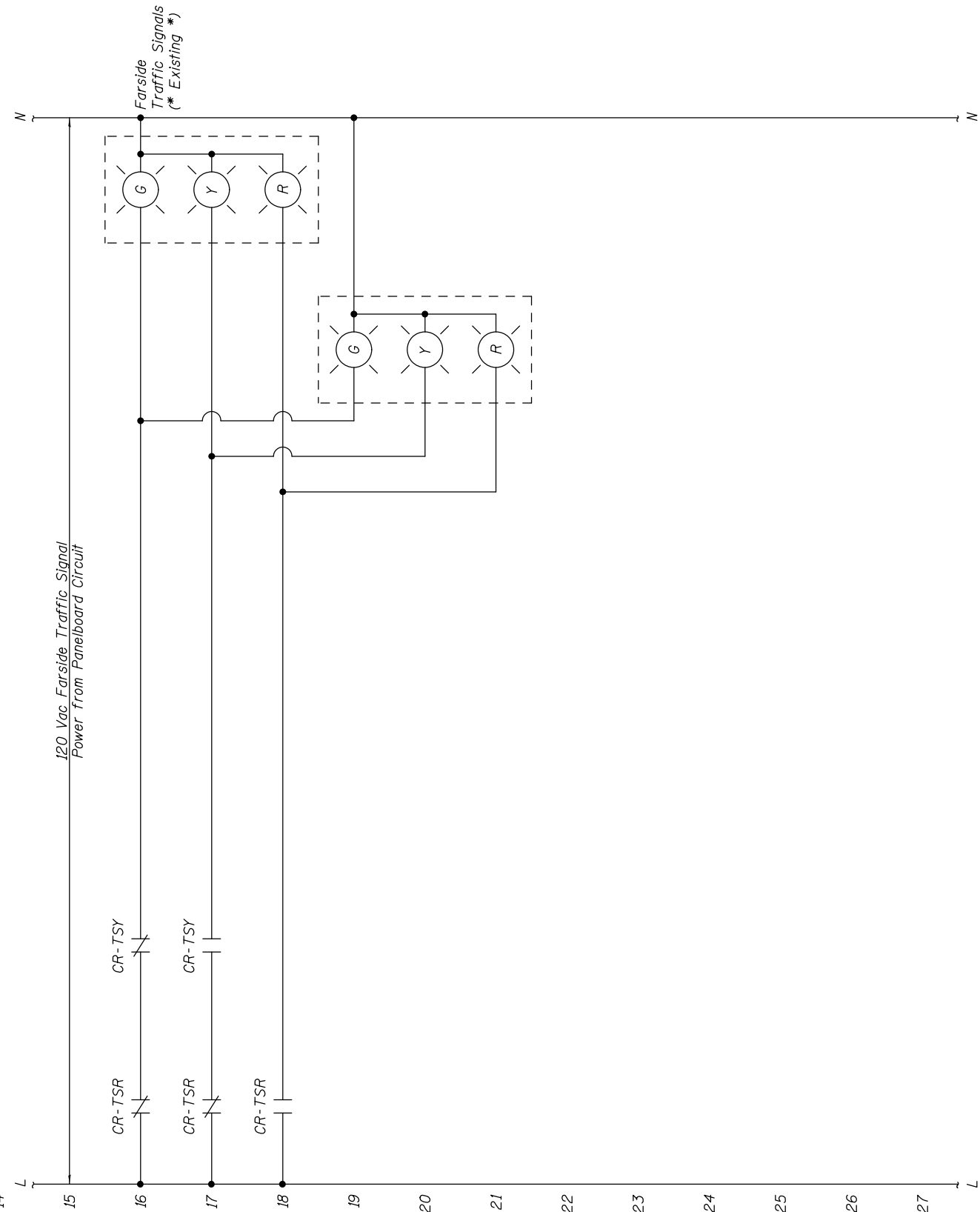
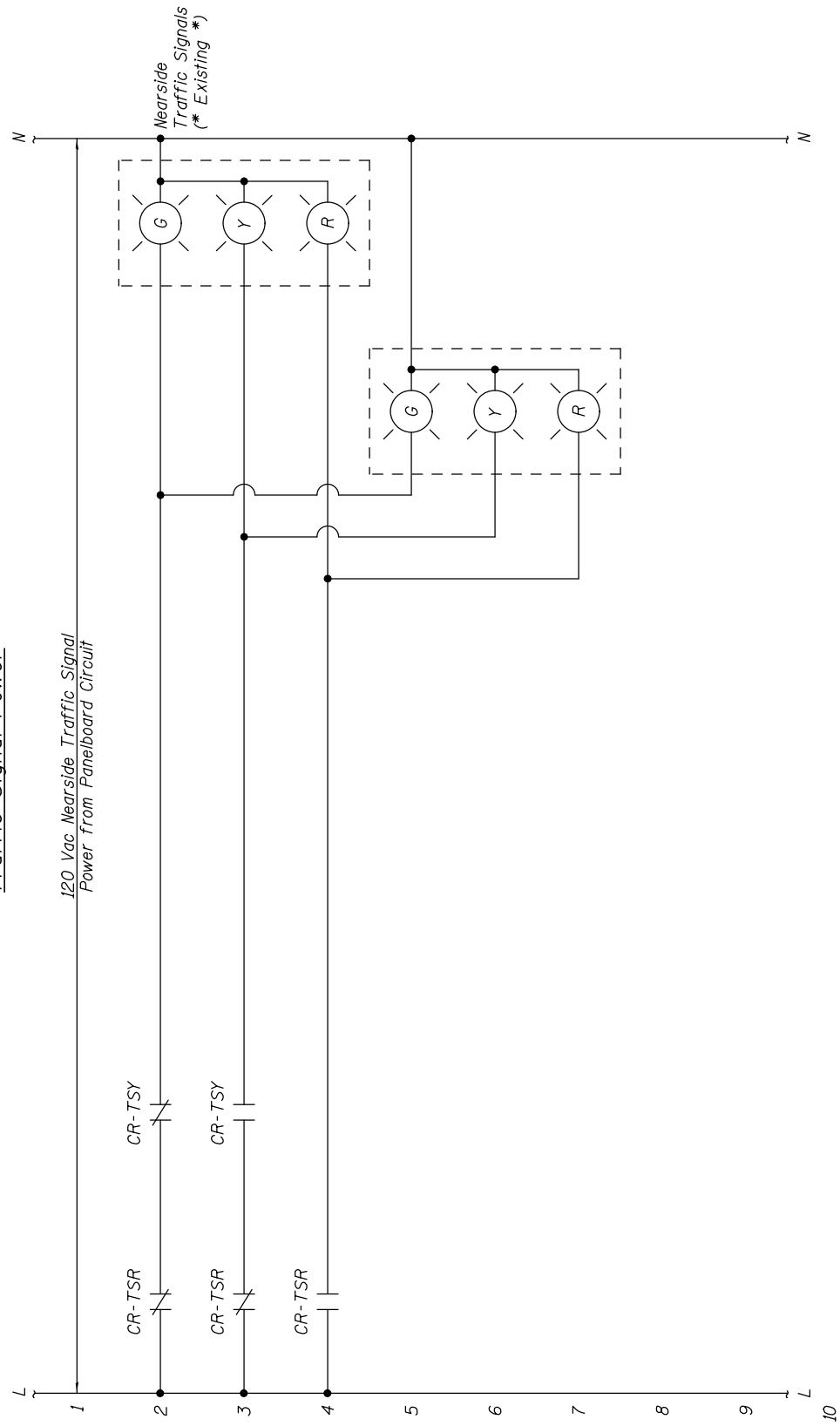
VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 10

JACKSON, Drawing 02-045	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	155
CONTRACT NO. 60P55	

SHEET NO. 45 OF 97 SHEETS

ILLINOIS FED. AID PROJECT

Traffic Signal Power



NOTES:

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

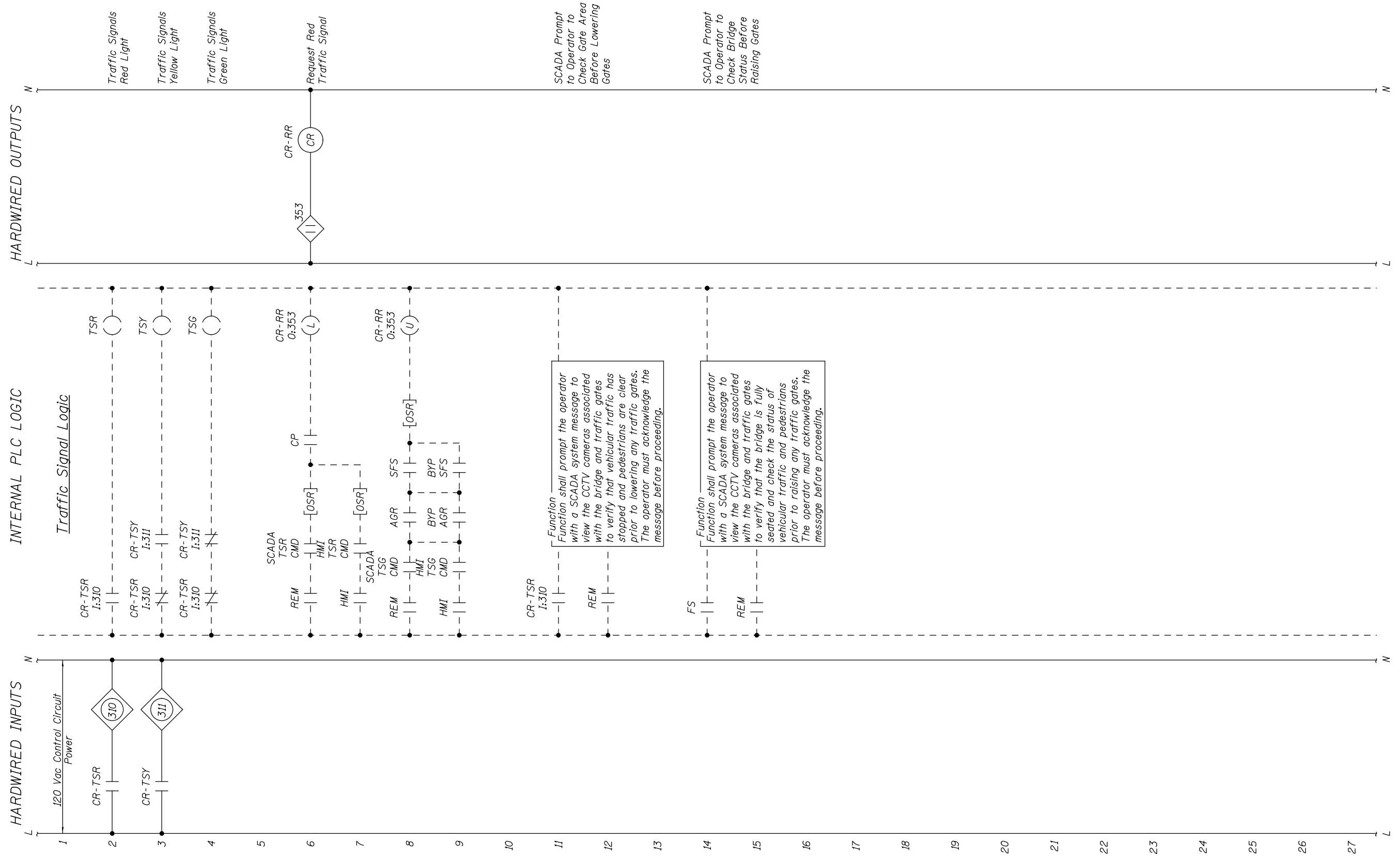
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 11

SHEET NO. 46 OF 97 SHEETS

JACKSON, Drawing 02-046	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	156
CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT	





**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

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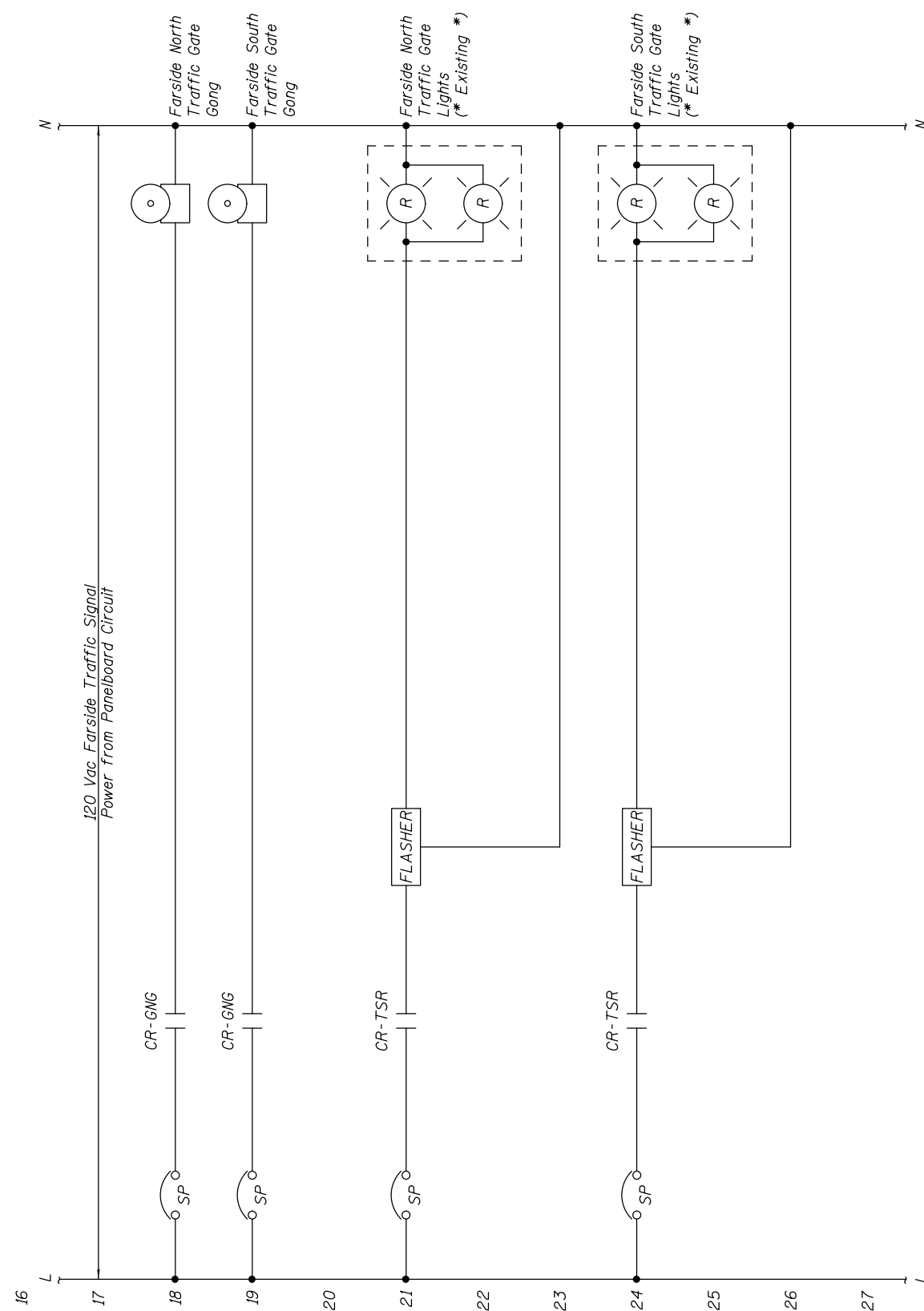
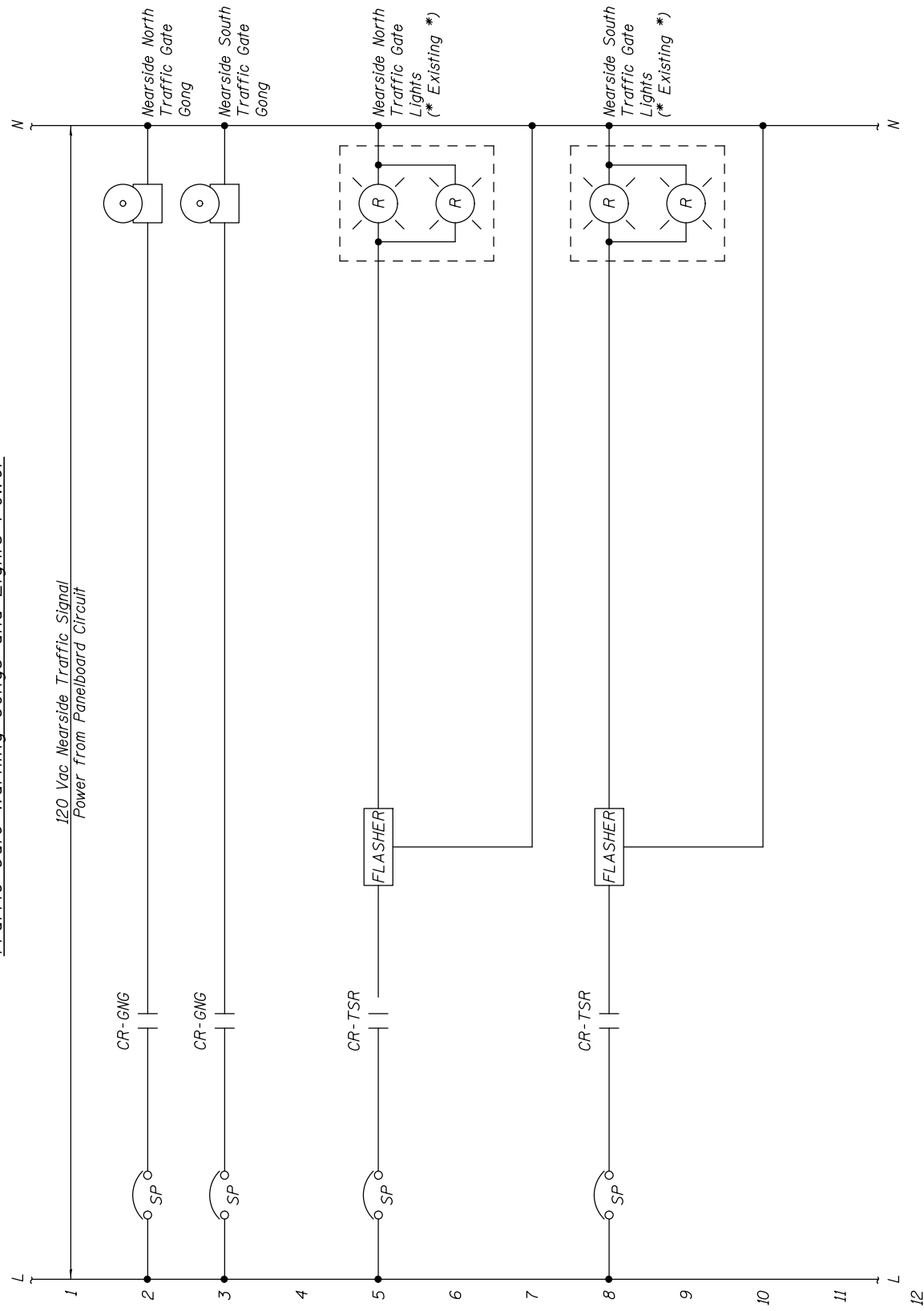
**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 12**

JACKSON, Drawing 02-047	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	157
CONTRACT NO. 60P55	

SHEET NO. 47 OF 97 SHEETS

ILLINOIS FED. AID PROJECT

*Traffic Gate Warning Gongs and Lights Power*



**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

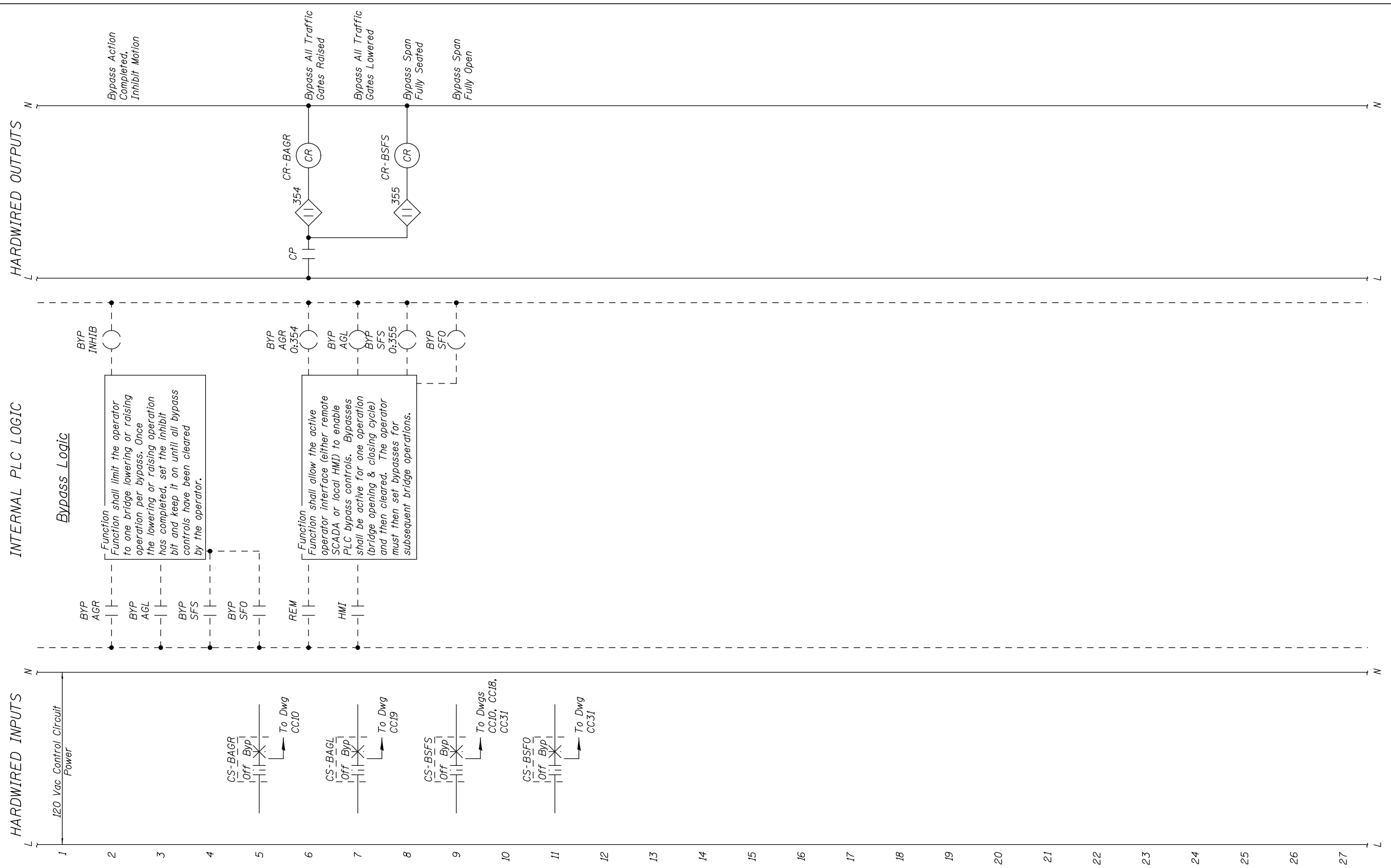
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 13**

JACKSON, Drawing 02-048	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	158
CONTRACT NO. 60P55	

SHEET NO. 48 OF 97 SHEETS

ILLINOIS FED. AID PROJECT



**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

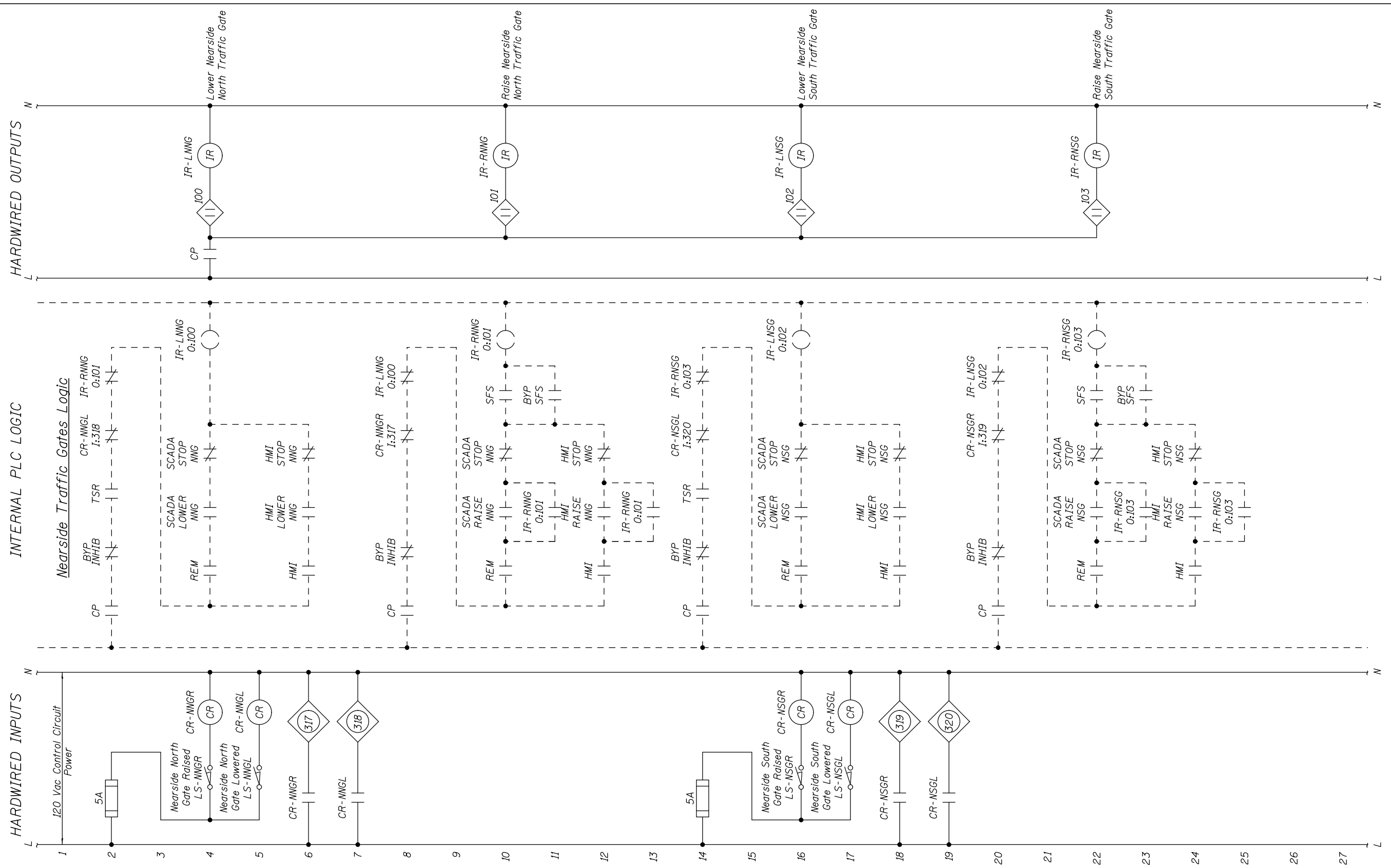
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 14**

SHEET NO. 49 OF 97 SHEETS

JACKSON, Drawing 02-049			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 159
CONTRACT NO. 60P55			

ILLINOIS FED. AID PROJECT



- NOTES:**
1. Provide additional interlocking logic to prevent off-going traffic gate from being closed until corresponding on-going gate is in the fully lowered position.
  2. Note that Cass and Jefferson bridges are normally one-way traffic flow, and the interlocking logic for these bridges will require the ability to change gate sequencing and interlocking to two-way traffic on a temporary basis.
  3. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

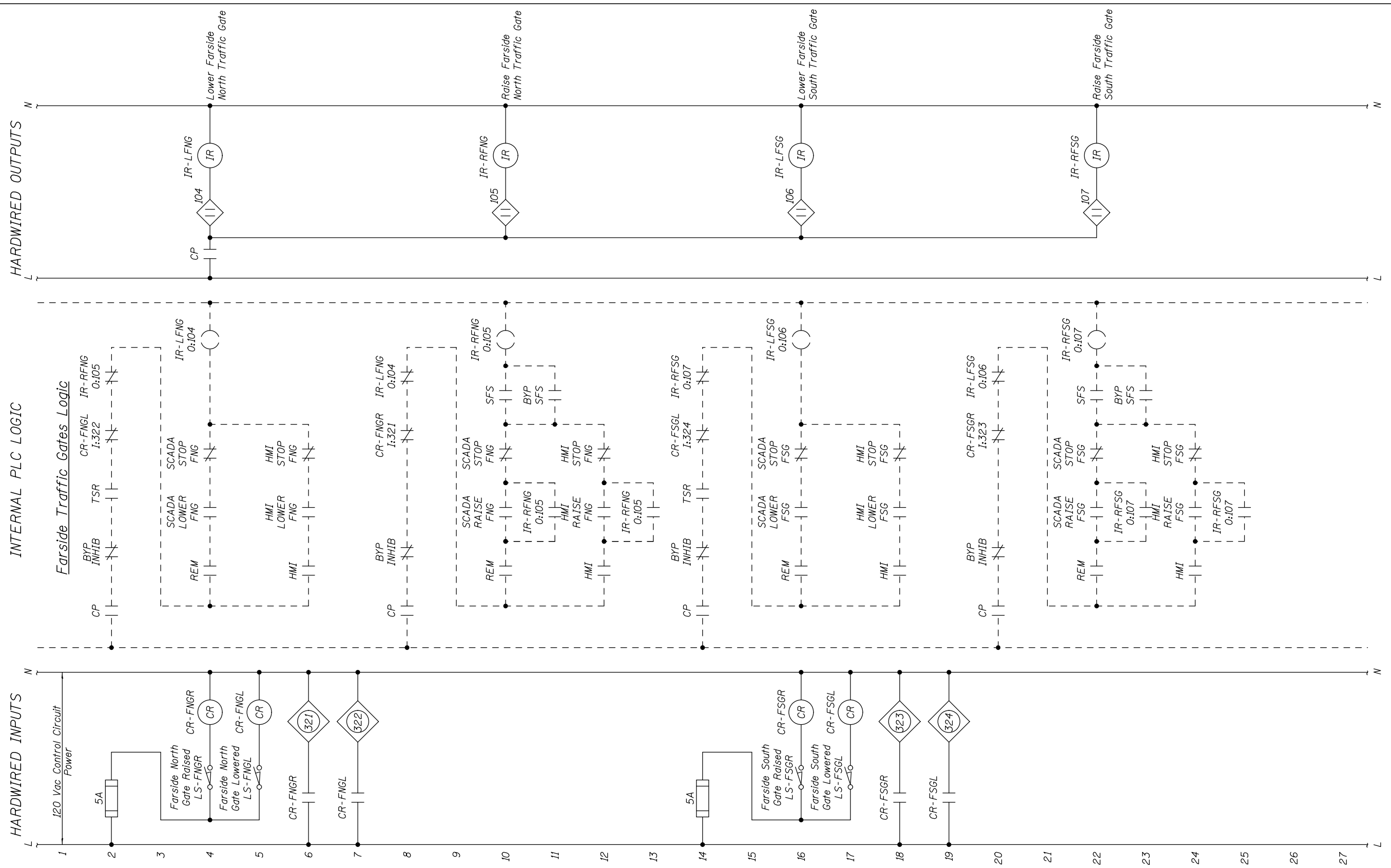
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 15**

SHEET NO. 50 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	160
CONTRACT NO. 60P55				

JACKSON, Drawing 02-050

ILLINOIS FED. AID PROJECT



- NOTES:**
1. Provide additional interlocking logic to prevent off-going traffic gate from being closed until corresponding on-going gate is in the fully lowered position.
  2. Note that Cass and Jefferson bridges are normally one-way traffic flow, and the interlocking logic for these bridges will require the ability to change gate sequencing and interlocking to two-way traffic on a temporary basis.
  3. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 16**

SHEET NO. 51 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	161
CONTRACT NO. 60P55				

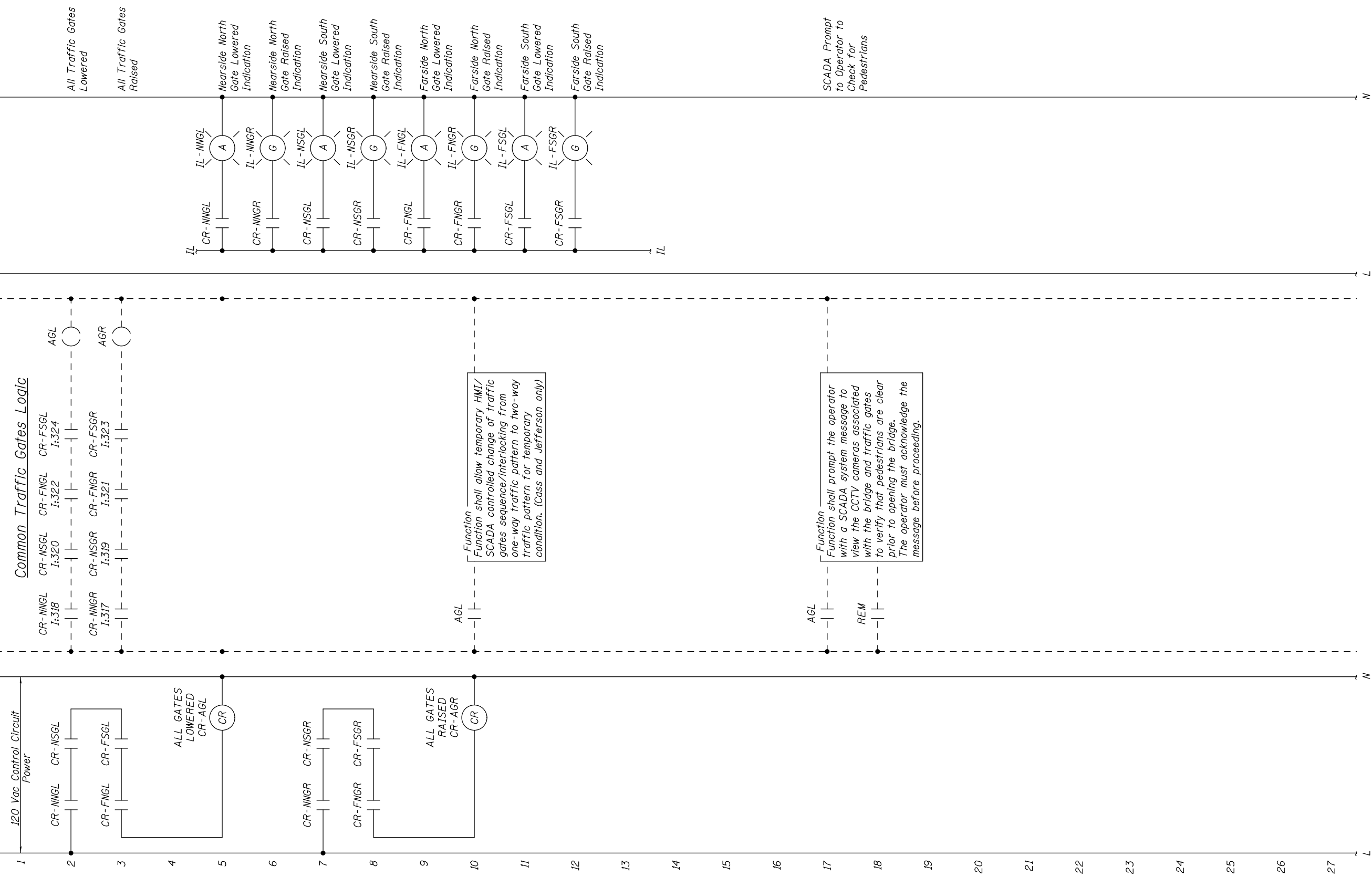
ILLINOIS FED. AID PROJECT

JACKSON, Drawing 02-051

HARDWIRED INPUTS

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

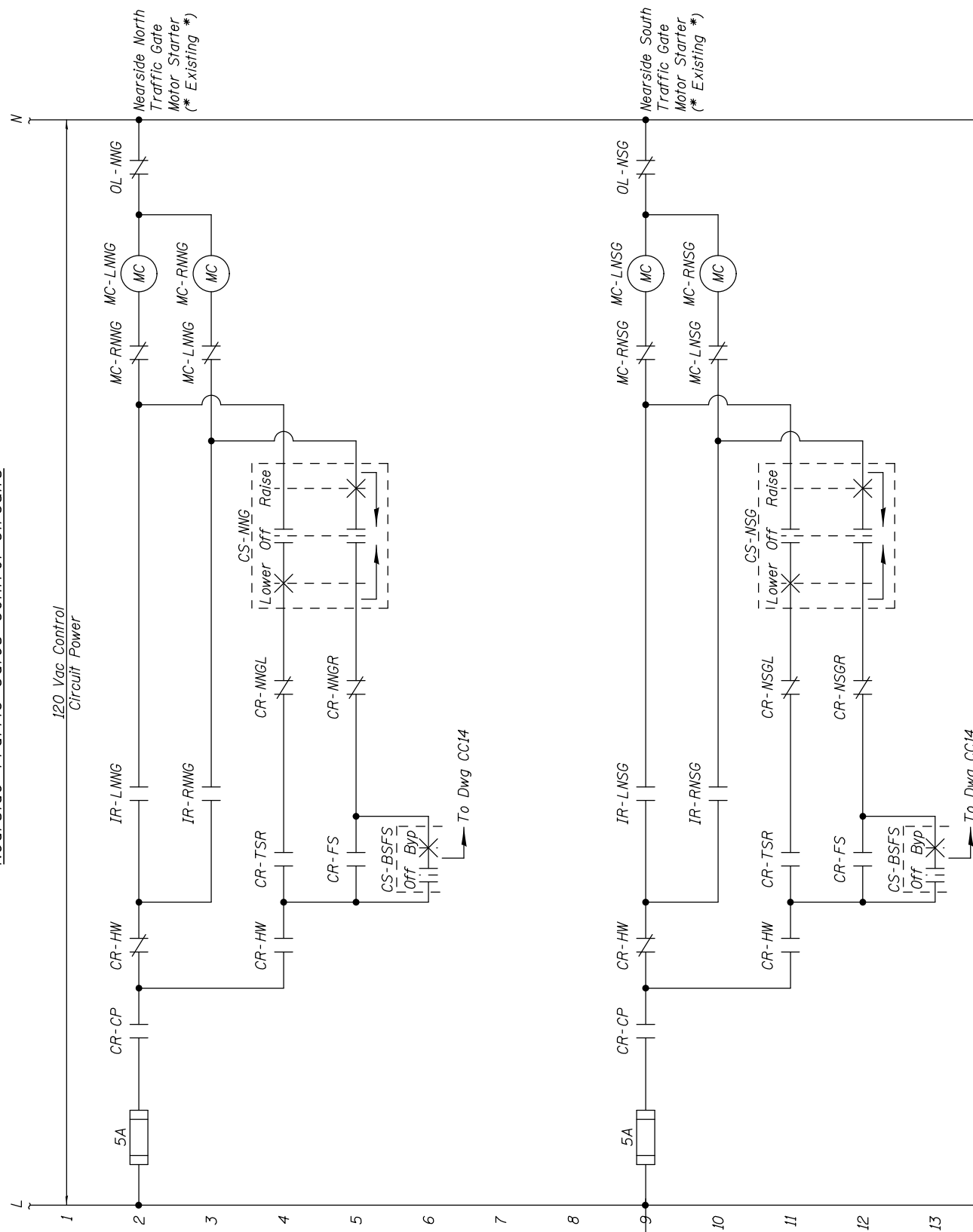
**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 17**

JACKSON, Drawing 02-052			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 162
CONTRACT NO. 60P55			

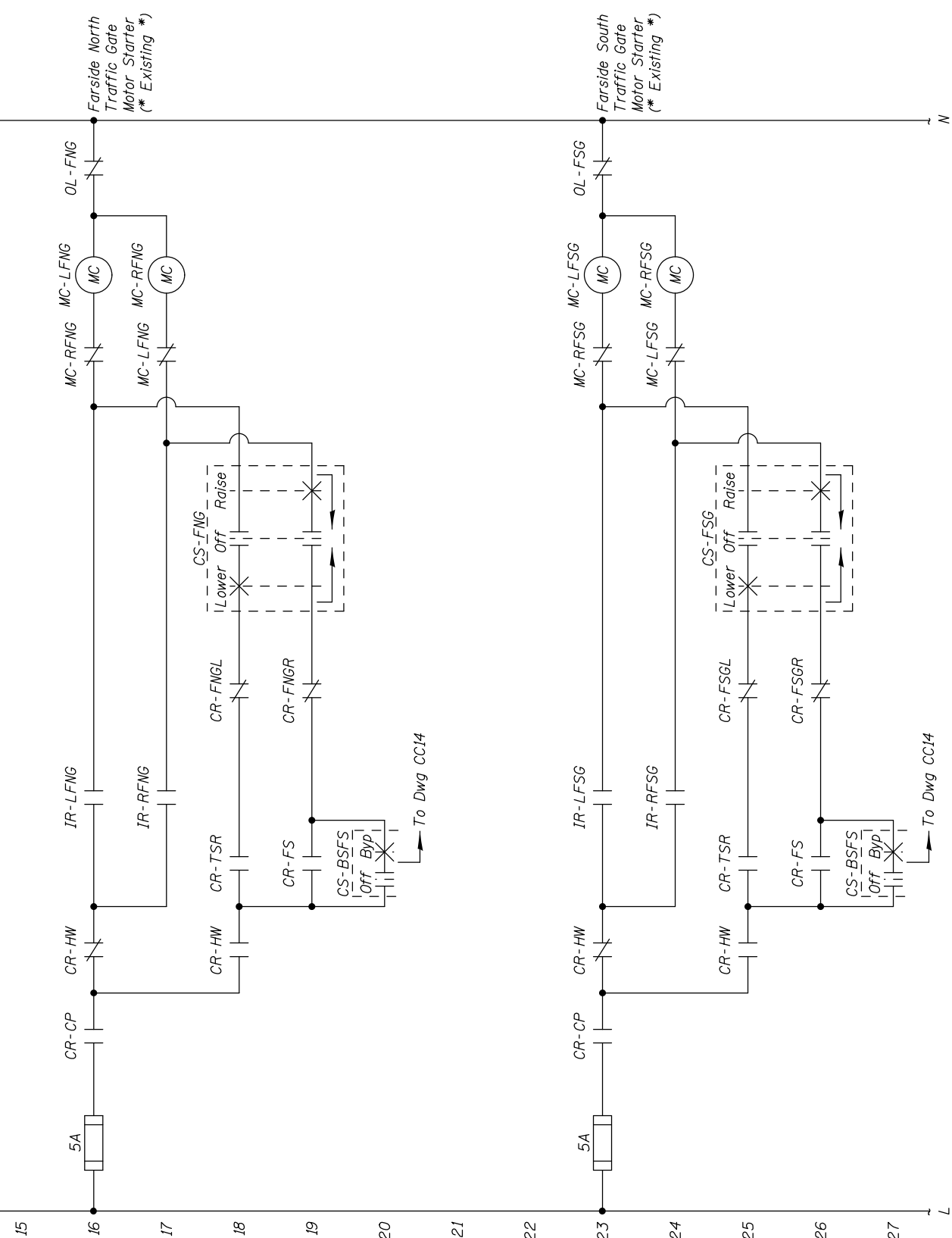
SHEET NO. 52 OF 97 SHEETS

ILLINOIS FED. AID PROJECT

Nearside Traffic Gates Control Circuits



Farside Traffic Gates Control Circuits



NOTES:

1. Rewire existing MCC starters as required to implement new control logic.
2. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED

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VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 18

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	163
CONTRACT NO. 60P55				

SHEET NO. 53 OF 97 SHEETS

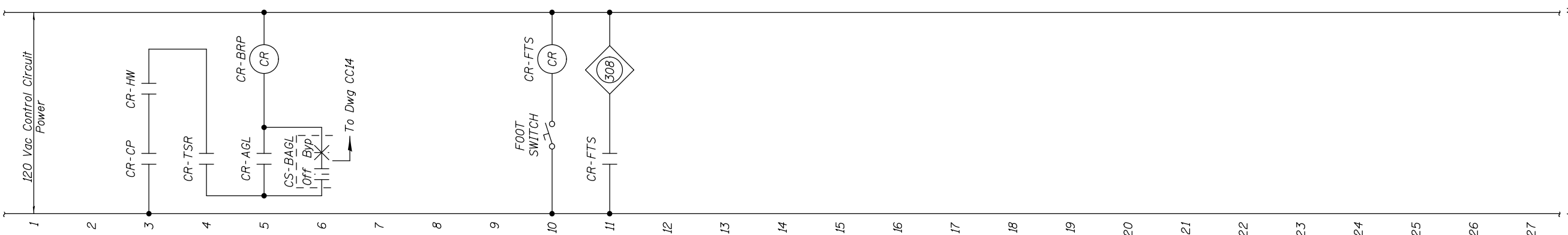
ILLINOIS FED. AID PROJECT

JACKSON, Drawing 02-053

HARDWIRED INPUTS

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS



Bridge Run Permissive Logic

**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 19**

SHEET NO. 54 OF 97 SHEETS

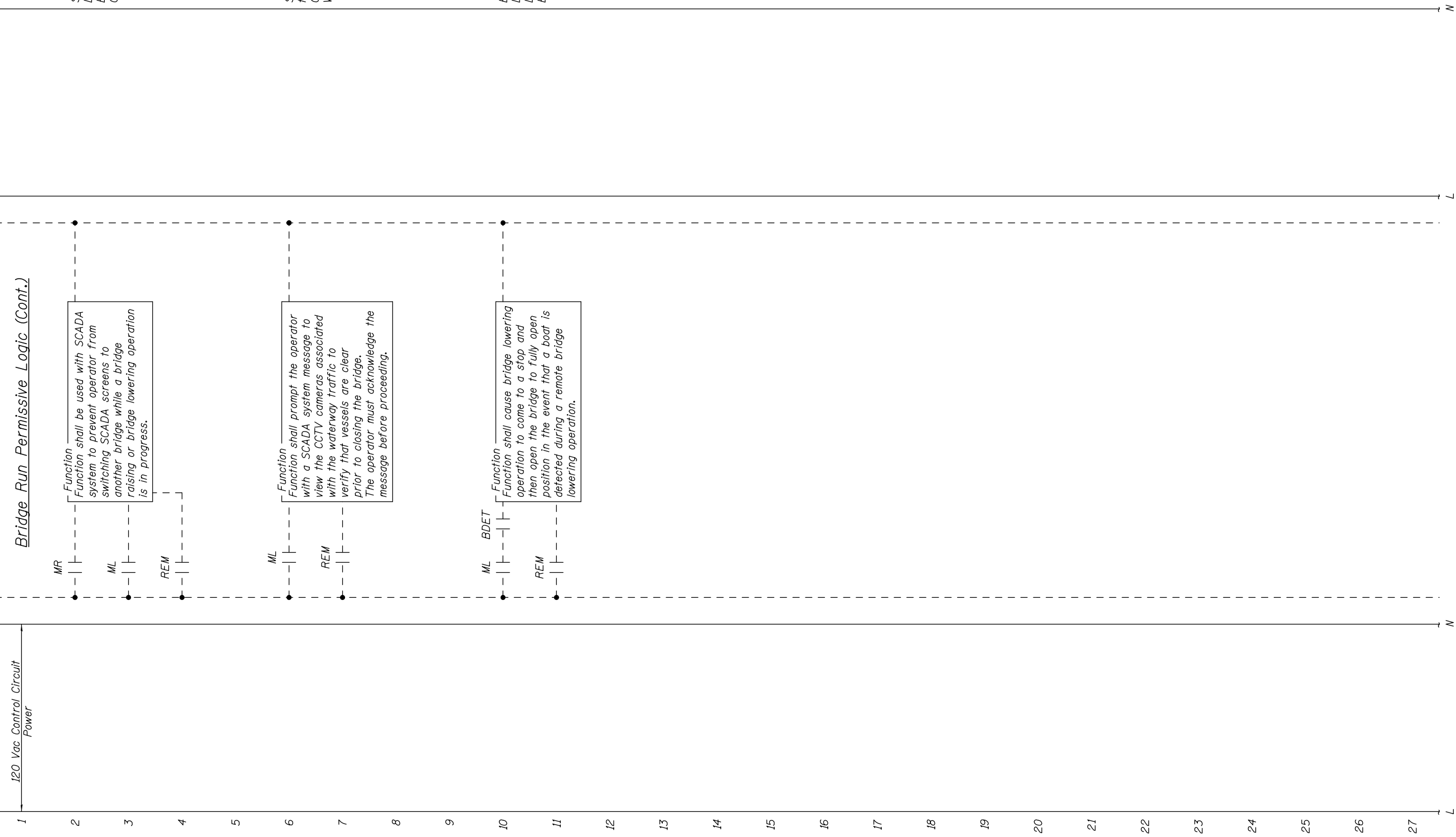
JACKSON, Drawing 02-054				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	164
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				



HARDWIRED INPUTS

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS



SCADA System Lock to This Bridge During Operation

SCADA Prompt to Operator to Check for Waterway Traffic

Boat Detected During Remote Lowering - Open Bridge Immediately

Function  
Function shall be used with SCADA system to prevent operator from switching SCADA screens to another bridge while a bridge raising or bridge lowering operation is in progress.

Function  
Function shall prompt the operator with a SCADA system message to view the CCTV cameras associated with the waterway traffic to verify that vessels are clear prior to closing the bridge. The operator must acknowledge the message before proceeding.

Function  
Function shall cause bridge lowering operation to come to a stop and then open the bridge to fully open position in the event that a boat is detected during a remote bridge lowering operation.

**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



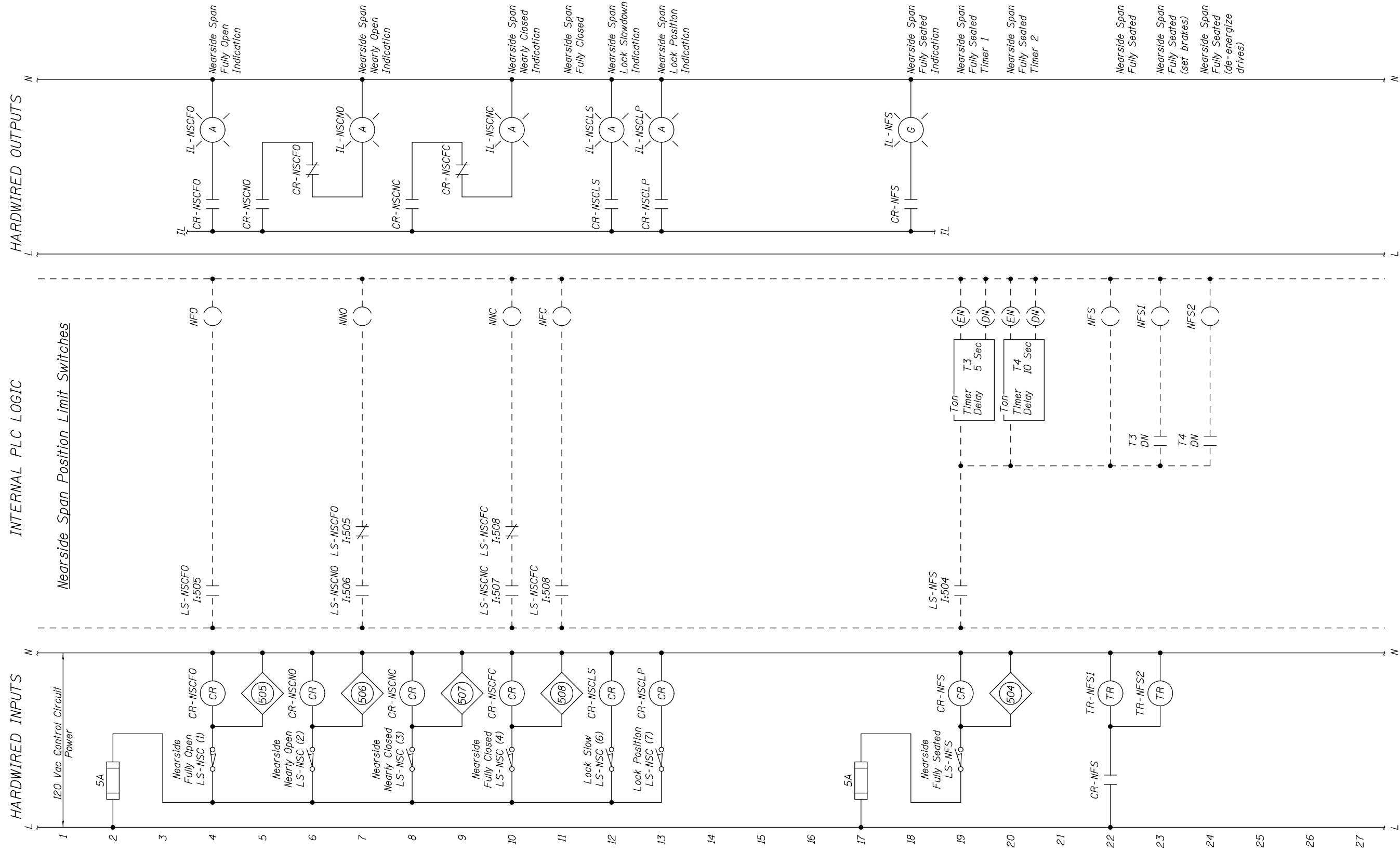
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	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 20**

SHEET NO. 55 OF 97 SHEETS

JACKSON, Drawing 02-055	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	165
CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT	



- NOTES:**
1. Provide additional de-bounce timers as required to condition PLC inputs from sensing devices.
  2. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



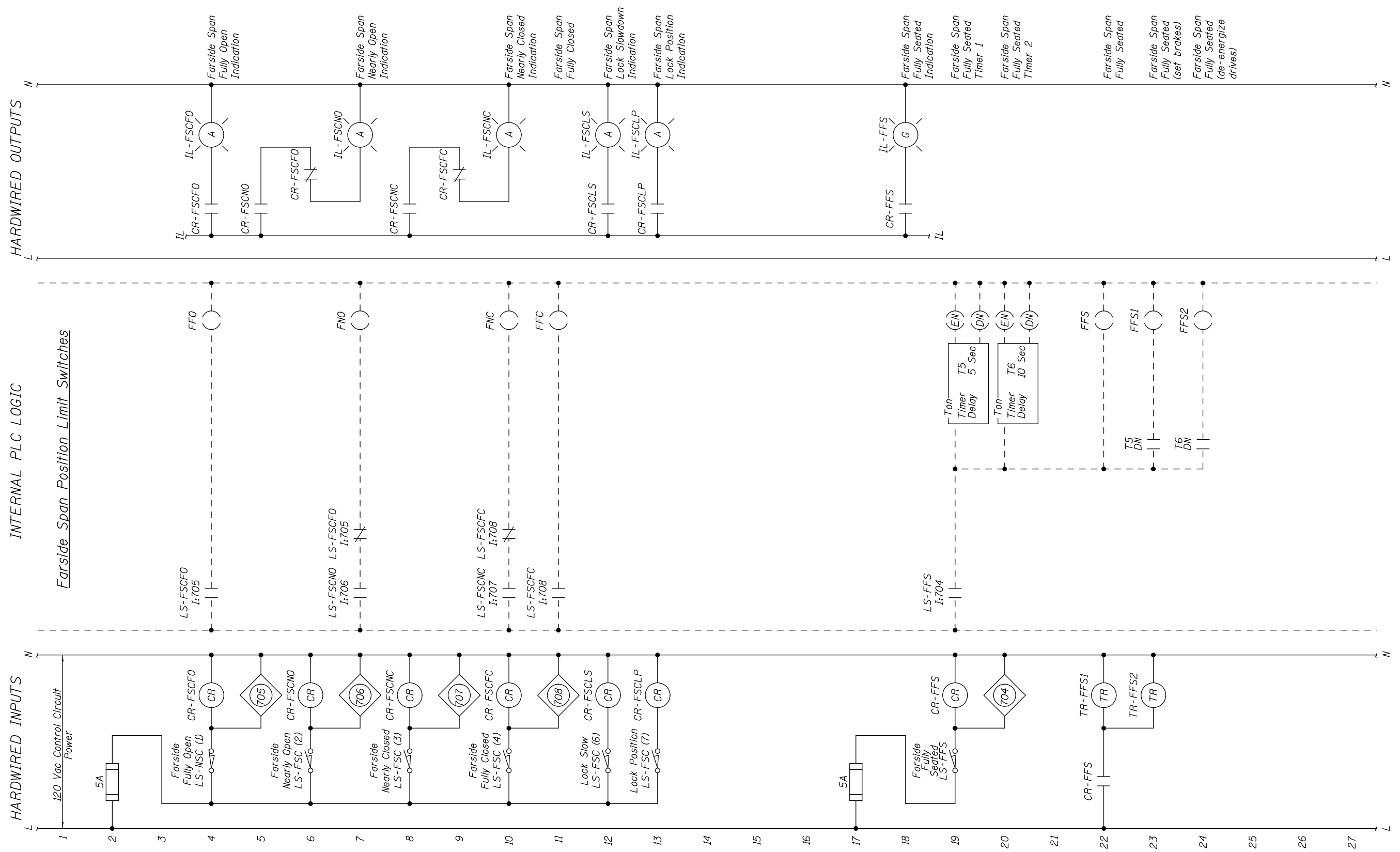
USER NAME =	DESIGNED - R.I. PETERS	REVISED
	CHECKED - J.G. STRENKOSKI	REVISED
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED

**STATE OF ILLINOIS  
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**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 21**

SHEET NO. 56 OF 97 SHEETS

JACKSON, Drawing 02-056			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 166
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



- NOTES:**
1. Provide additional de-bounce timers as required to condition PLC inputs from sensing devices.
  2. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED
	CHECKED - J.G. STRENKOSKI	REVISED
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 22**

SHEET NO. 57 OF 97 SHEETS

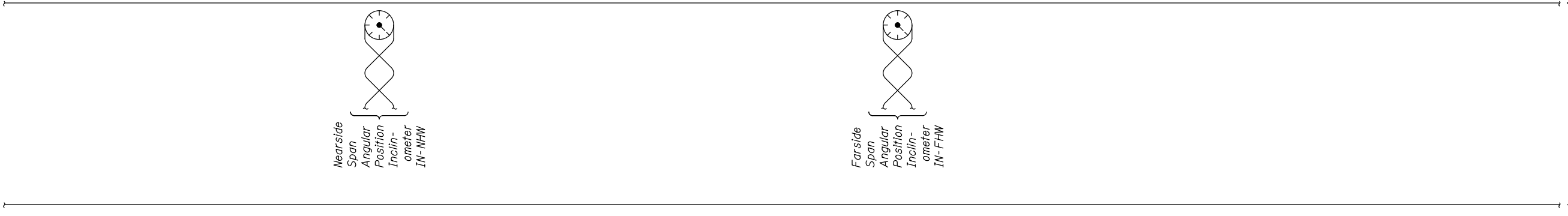
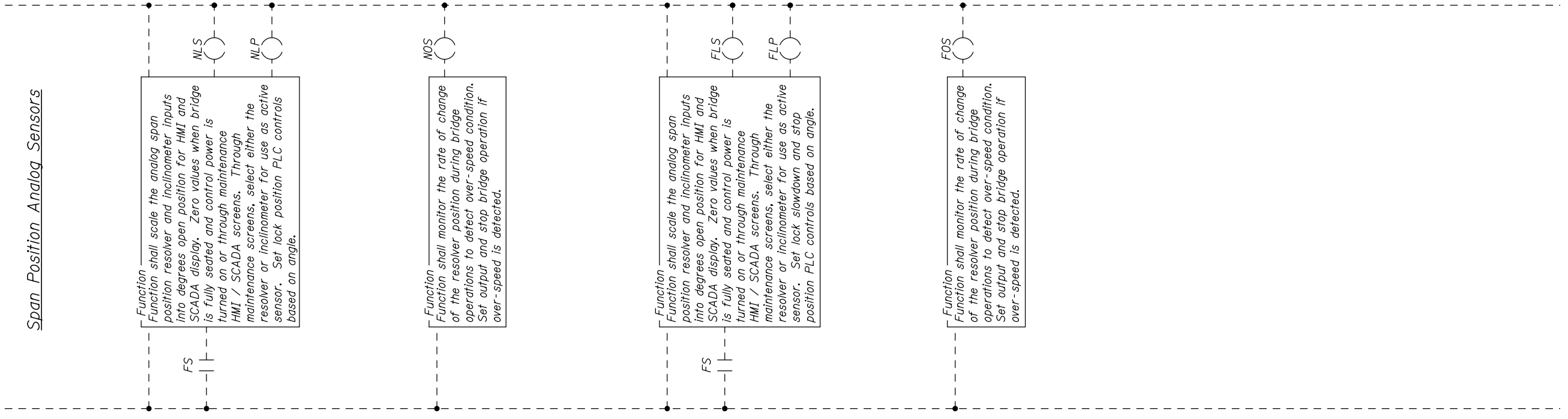
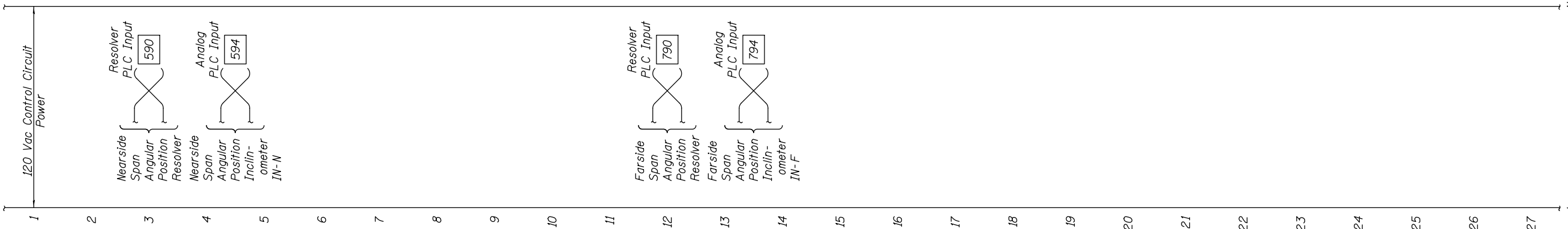
JACKSON, Drawing 02-057				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	167
CONTRACT NO. 60P55				

ILLINOIS FED. AID PROJECT

HARDWIRED INPUTS

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

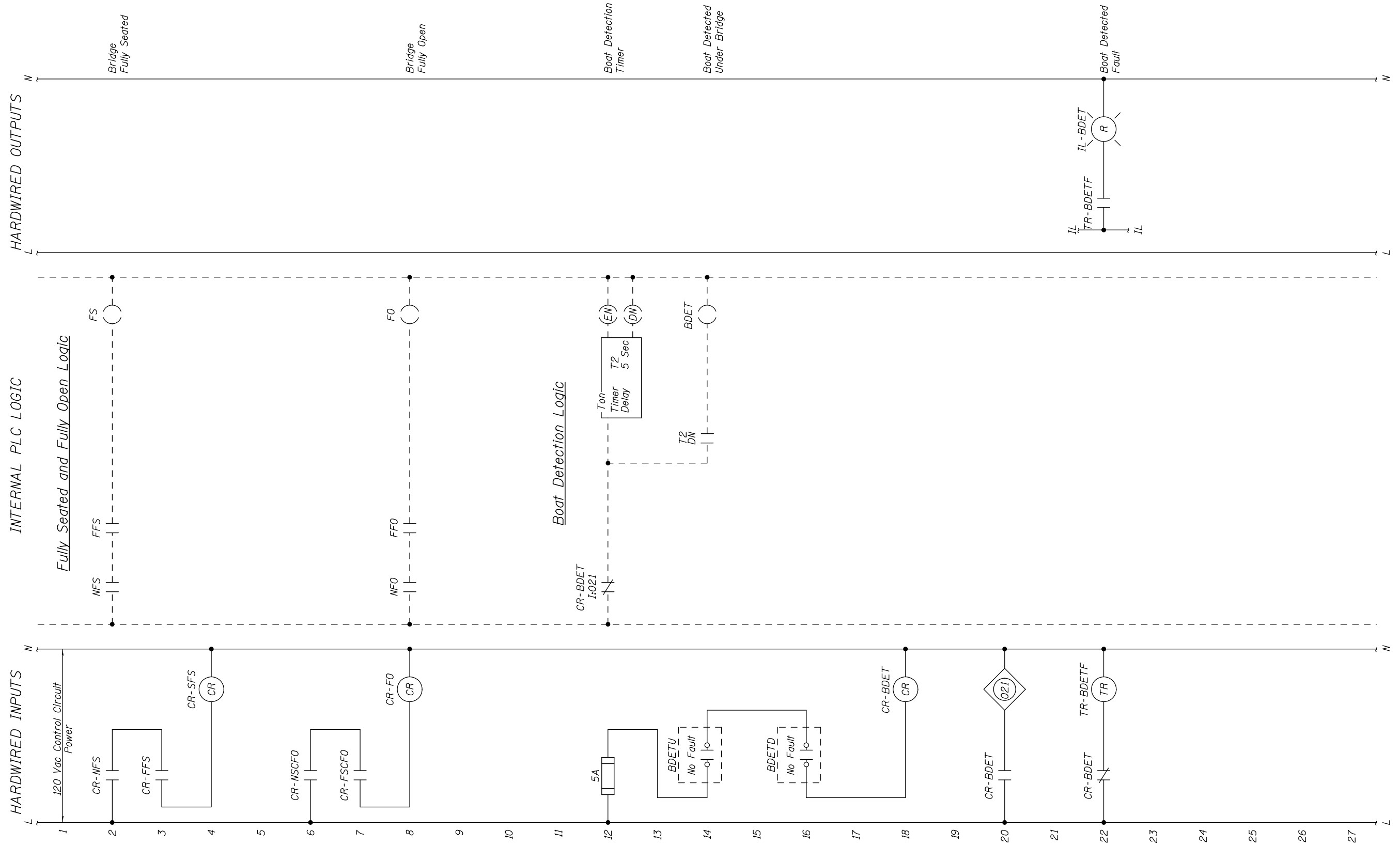
**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET – CONTROL CIRCUIT – 23**

JACKSON, Drawing 02-058			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 168
CONTRACT NO. 60P55			

SHEET NO. 58 OF 97 SHEETS

ILLINOIS FED. AID PROJECT



**NOTES:**

1. Wire all boat detection sensor contacts back to main PLC cabinet "daisy chain" contacts device-to-device.
2. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	___
	CHECKED - J.G. STRENKOSKI	REVISED	___
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	___
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	___

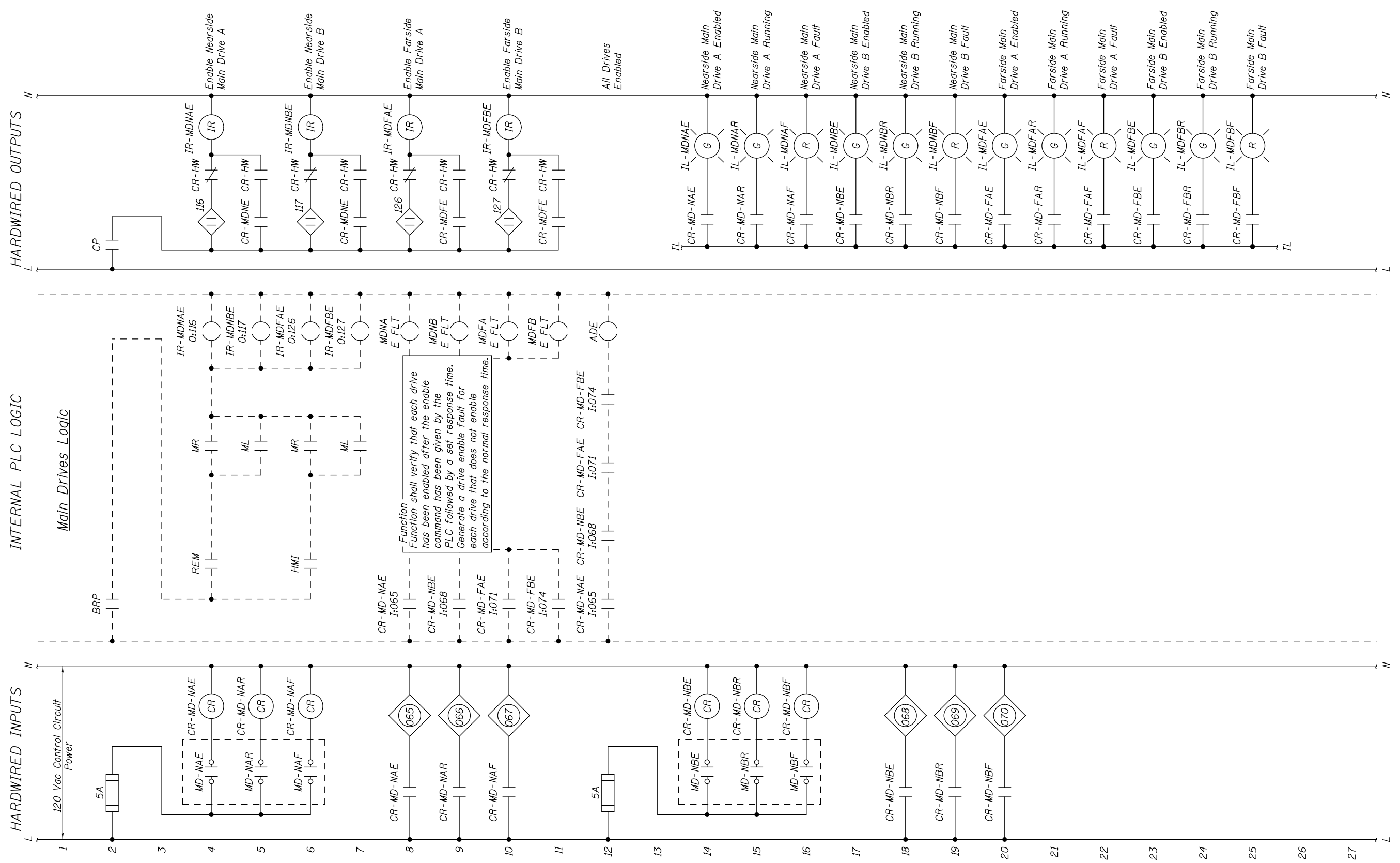
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET – CONTROL CIRCUIT – 24**

SHEET NO. 59 OF 97 SHEETS

JACKSON, Drawing 02-059	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	169
CONTRACT NO. 60P55	

ILLINOIS FED. AID PROJECT



Function shall verify that each drive has been enabled after the enable command has been given by the PLC followed by a set response time. Generate a drive enable fault for each drive that does not enable according to the normal response time.

- NOTES:**
- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED
	CHECKED - J.G. STRENKOSKI	REVISED
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 25**

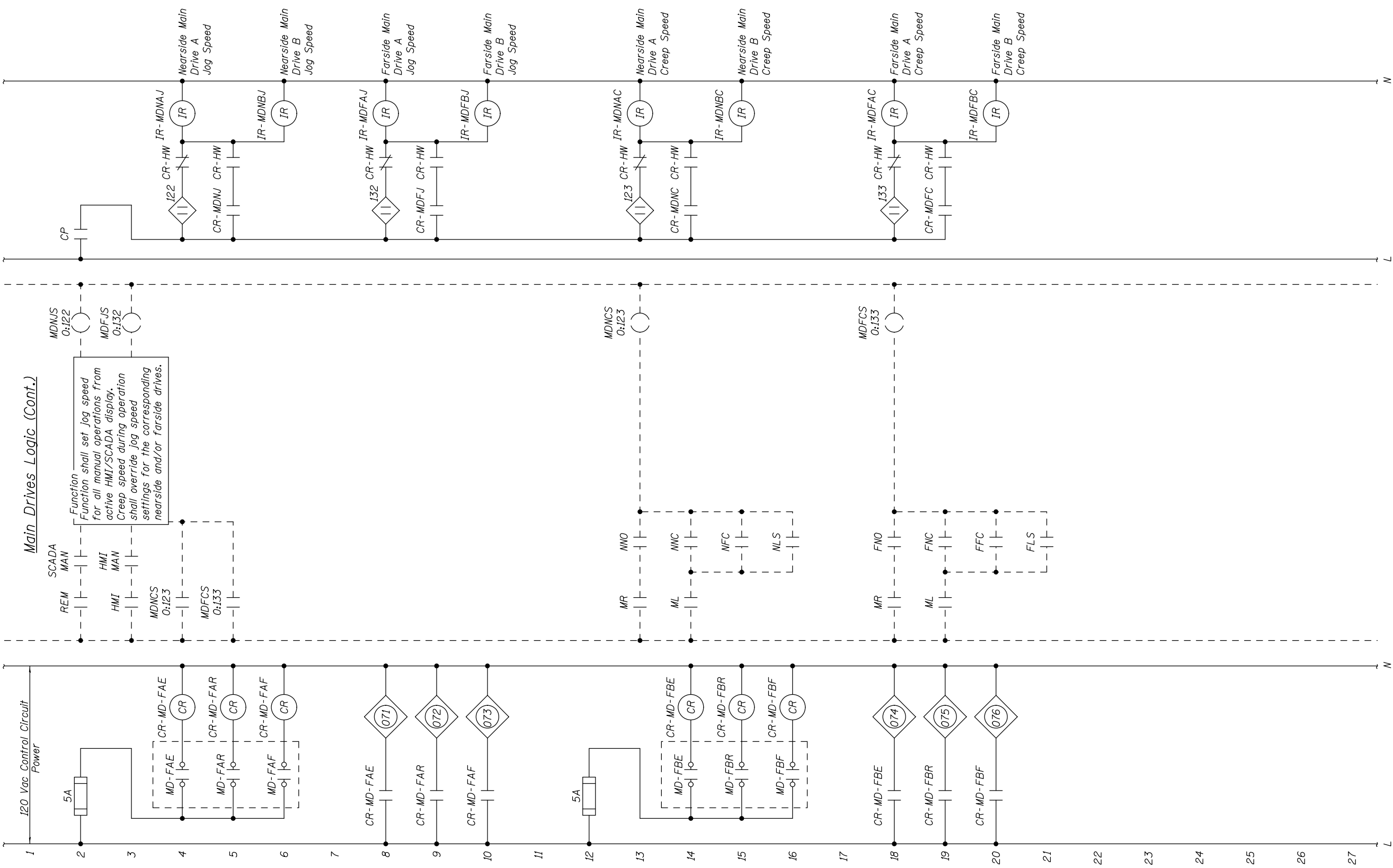
SHEET NO. 60 OF 97 SHEETS

JACKSON, Drawing 02-060				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	170
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

HARDWIRED OUTPUTS

INTERNAL PLC LOGIC

HARDWIRED INPUTS



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



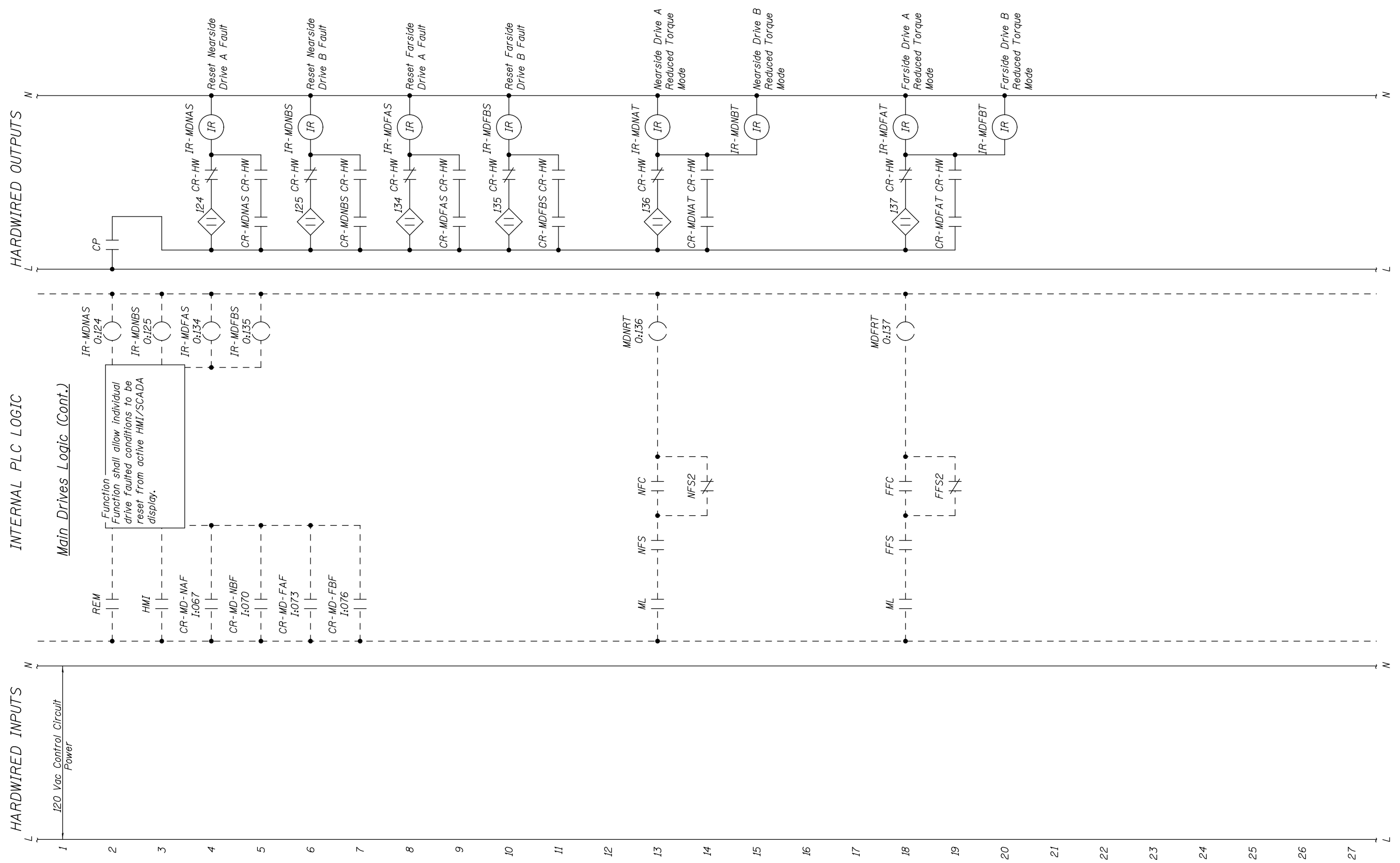
USER NAME =	DESIGNED - R.I. PETERS	REVISED
PLOT SCALE =	CHECKED - J.G. STRENKOSKI	REVISED
PLOT DATE =	DRAWN - R.I. PETERS	REVISED
	CHECKED - J.G. STRENKOSKI	REVISED

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET – CONTROL CIRCUIT – 26

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	171
CONTRACT NO. 60P55				

JACKSON, Drawing 02-061



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



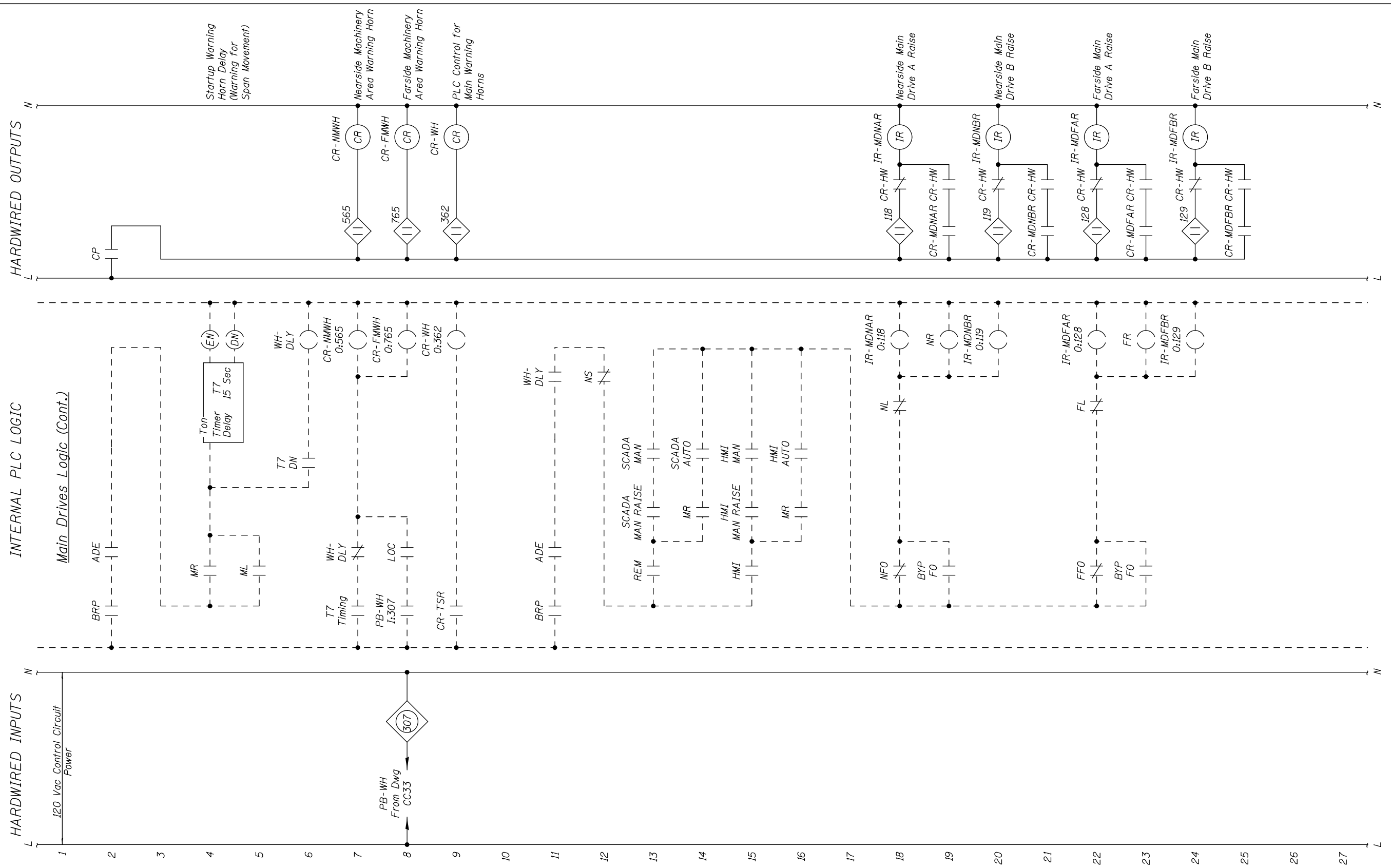
USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 27**

JACKSON, Drawing 02-062	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	172
CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT	





**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



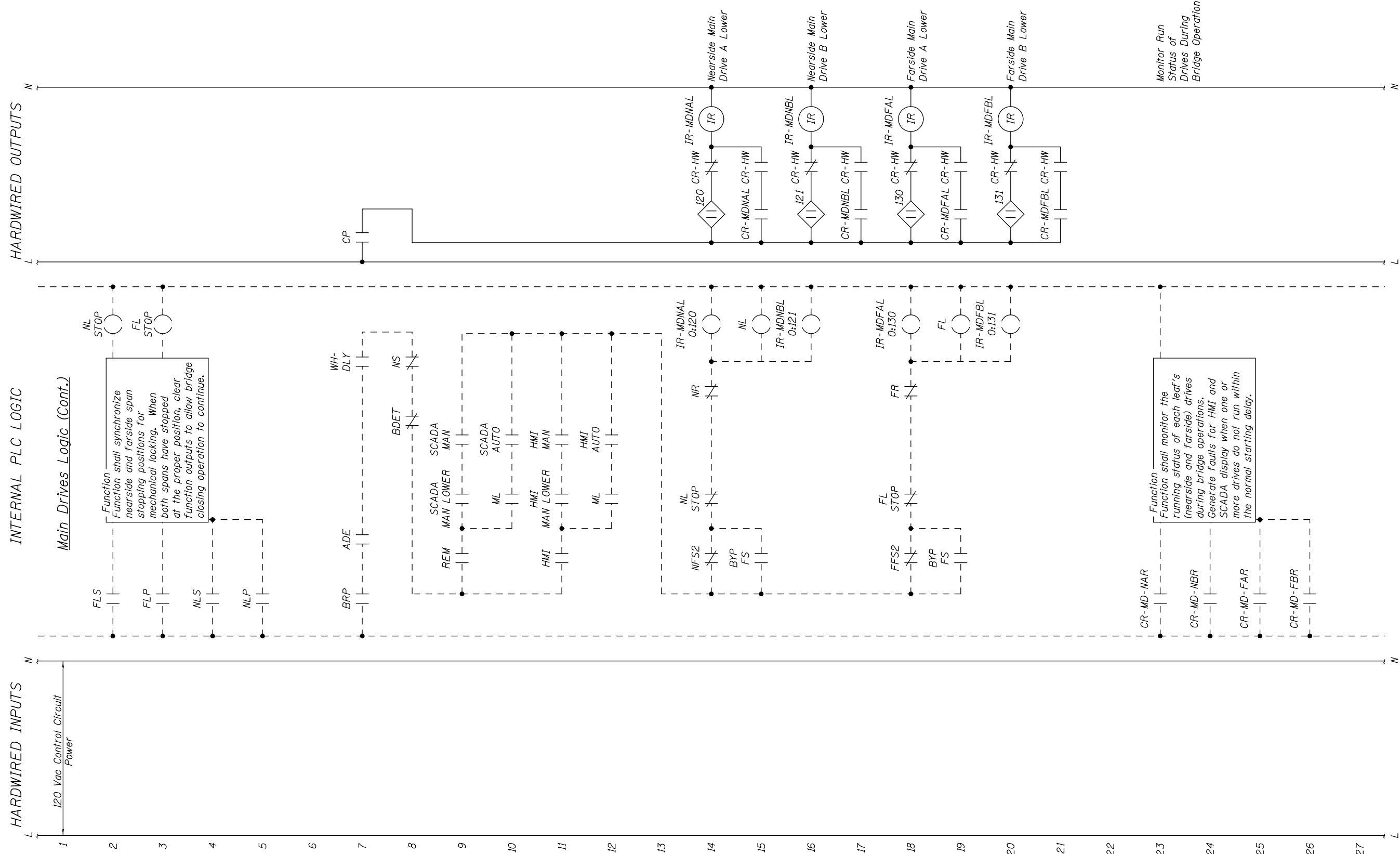
USER NAME =	DESIGNED - R.I. PETERS	REVISED	___
	CHECKED - J.G. STRENKOSKI	REVISED	___
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	___
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	___

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 28**

SHEET NO. 63 OF 97 SHEETS

JACKSON, Drawing 02-063				
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	173
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				



**NOTES:**

- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	___
	CHECKED - J.G. STRENKOSKI	REVISED	___
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	___
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	___

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

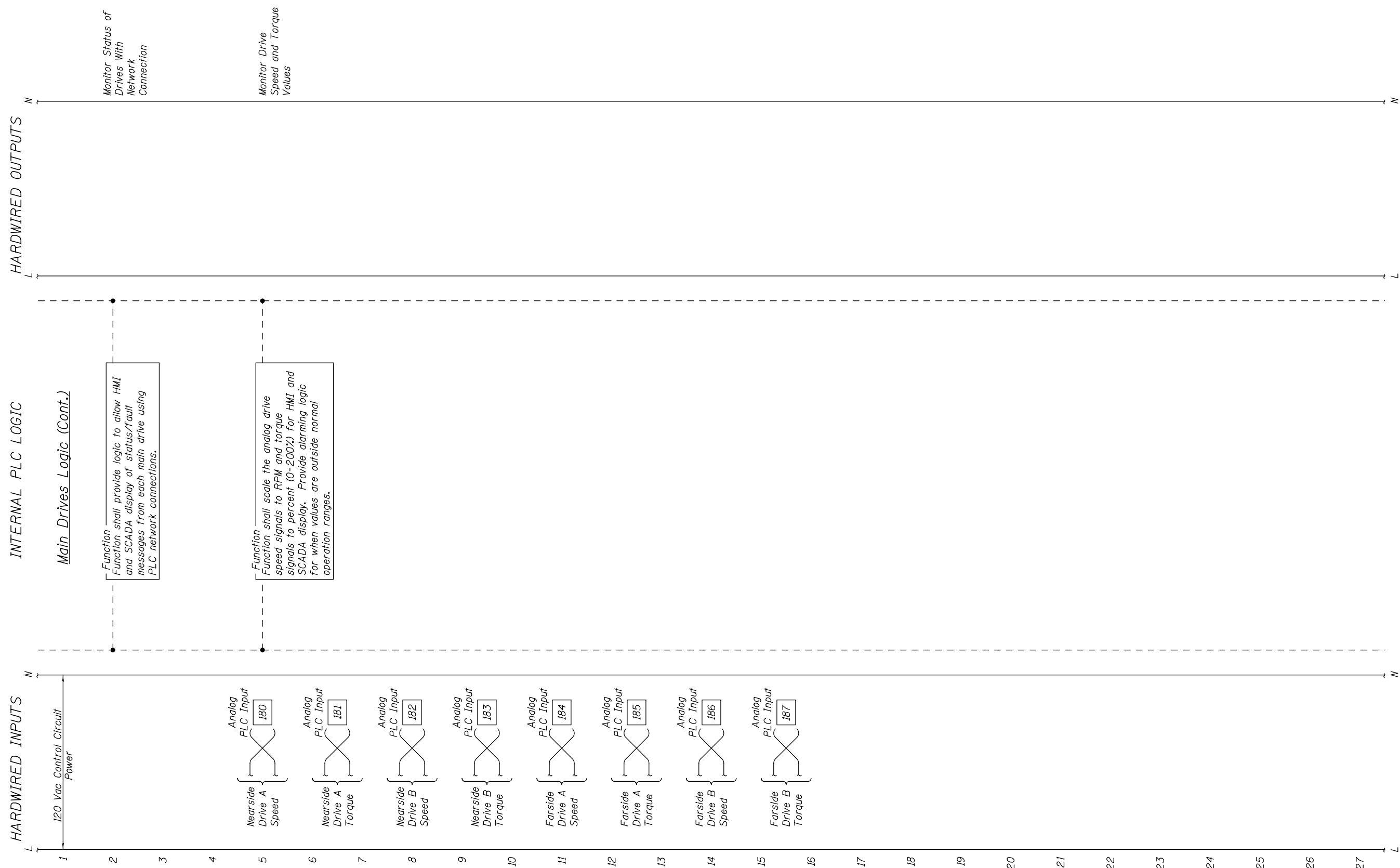
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET – CONTROL CIRCUIT – 29**

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	174
CONTRACT NO. 60P55				

SHEET NO. 64 OF 97 SHEETS

ILLINOIS FED. AID PROJECT

JACKSON, Drawing 02-064



**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

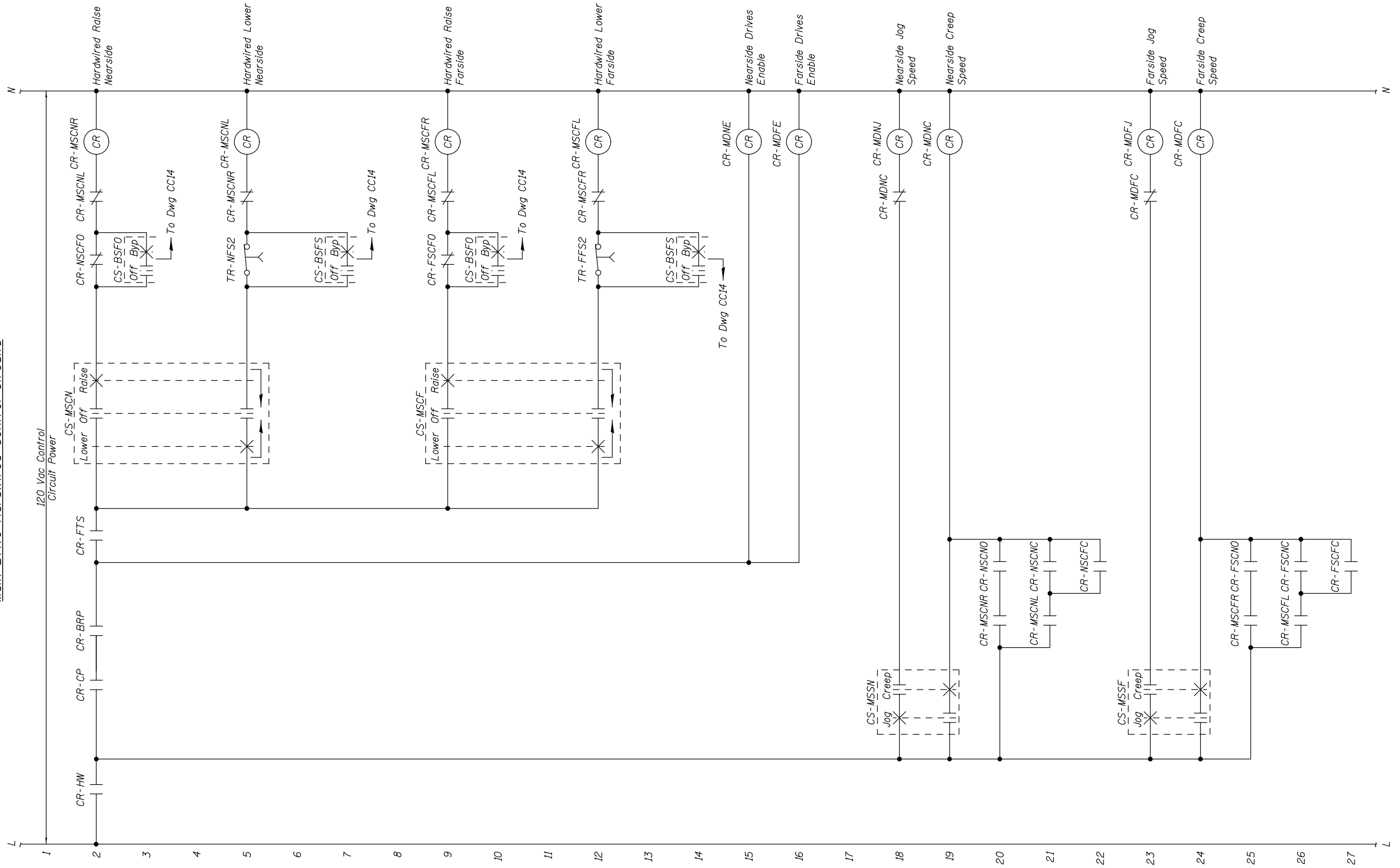
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET – CONTROL CIRCUIT – 30**

SHEET NO. 65 OF 97 SHEETS

JACKSON, Drawing 02-065			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 175
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			

Main Drive Hardwired Control Circuits



NOTES:

- For local manual operation, operator stops bridge manually at lock positions.
- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

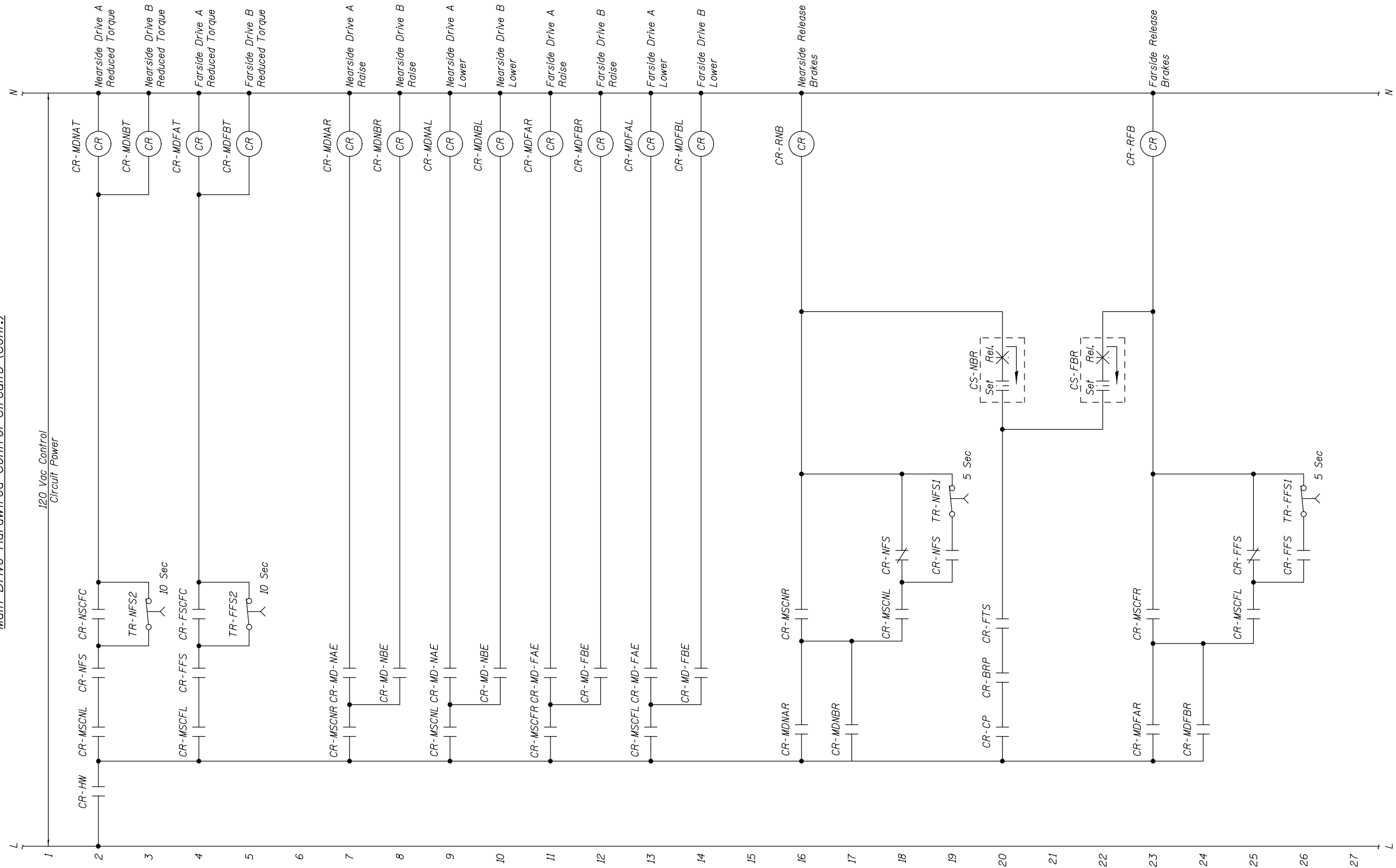
VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 31

JACKSON, Drawing 02-066			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 176
CONTRACT NO. 60P55			

SHEET NO. 66 OF 97 SHEETS

ILLINOIS FED. AID PROJECT

Main Drive Hardwired Control Circuits (Cont.)



NOTES:

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

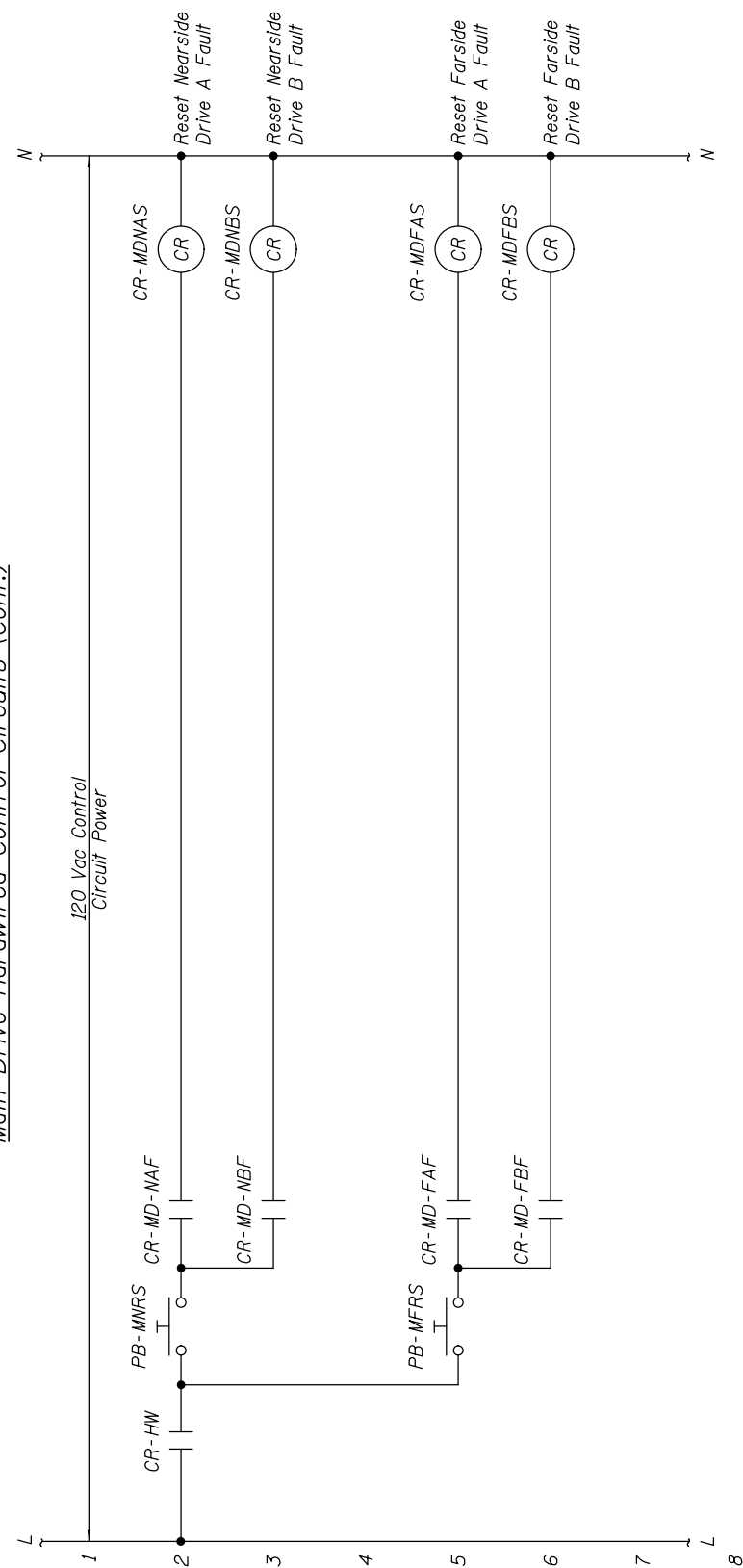
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 32

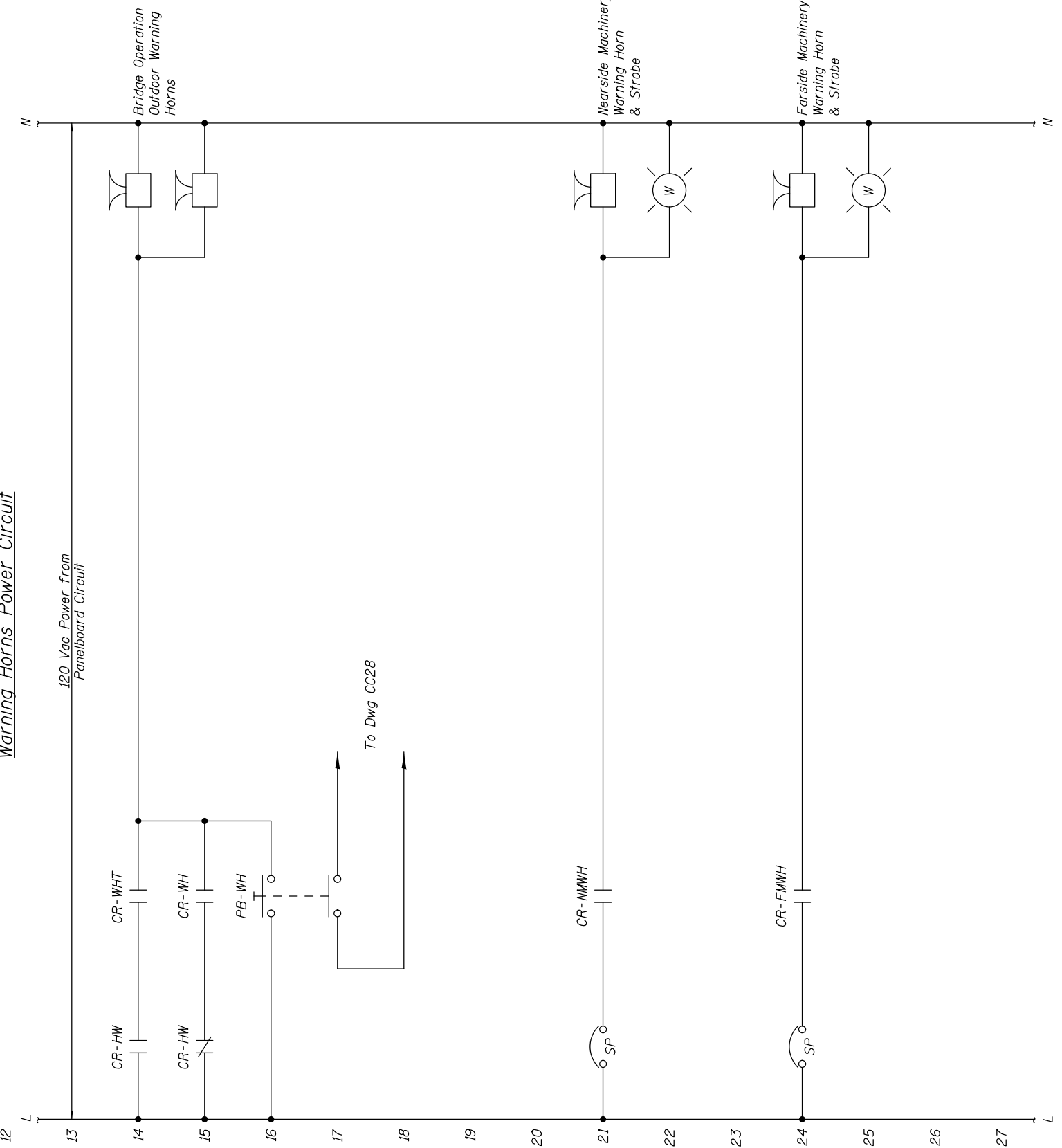
SHEET NO. 67 OF 97 SHEETS

JACKSON, Drawing 02-067			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 177
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			

Main Drive Hardwired Control Circuits (Cont.)



Warning Horns Power Circuit



**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 33**

SHEET NO. 68 OF 97 SHEETS

F.A.U. RTE.		SECTION		COUNTY		TOTAL SHEETS		SHEET NO.	
0297		2011-045-I		WILL		466		178	
CONTRACT NO. 60P55									

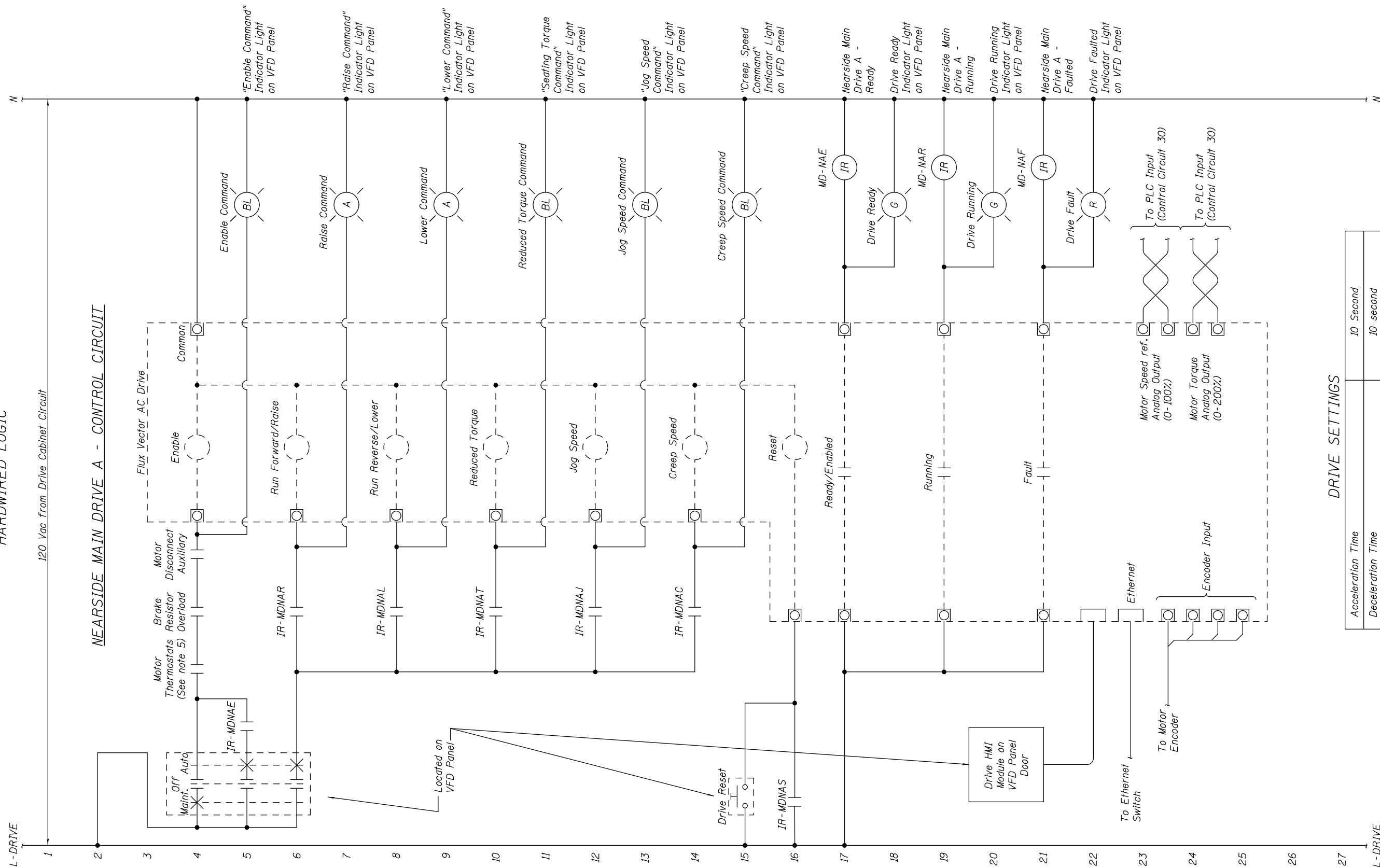
ILLINOIS FED. AID PROJECT

JACKSON, Drawing 02-068

HARDWIRED LOGIC

120 Vac from Drive Cabinet Circuit

NEARSIDE MAIN DRIVE A - CONTROL CIRCUIT



NOTES:

- Indicator Light shall be mounted on the VFD Panel and shall be push-to-test type.
- Maintenance mode is intended to be used for setup and testing with the drive HMI unit.
- The Drive shall be programmed or configured to generate a warning if the Encoder feedback is lost during operation, and open loop mode shall be permitted to complete bridge operation.
- The Drive Ethernet connection is intended to allow the PLC to access drive fault messages and drive operating conditions. No control operations shall be performed using this connection.
- Use Drive manufacture's dedicated inputs for Motor Thermostats and braking Resistor Overloads if available.
- For each leaf, provide all additional wiring and drive configuration required to provide load sharing between A and B drives.
- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.

DRIVE SETTINGS

Acceleration Time	10 Second
Deceleration Time	10 second
Stop Mode	Coast
Auto Start	False
Auto Restart	False
Motor Stall Time	20 Seconds
Maximum Torque Limit	150% Motor rated

Note: All settings shall be adjusted as required in the field.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

STATE OF ILLINOIS  
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VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 34

SHEET NO. 69 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	179
CONTRACT NO. 60P55				

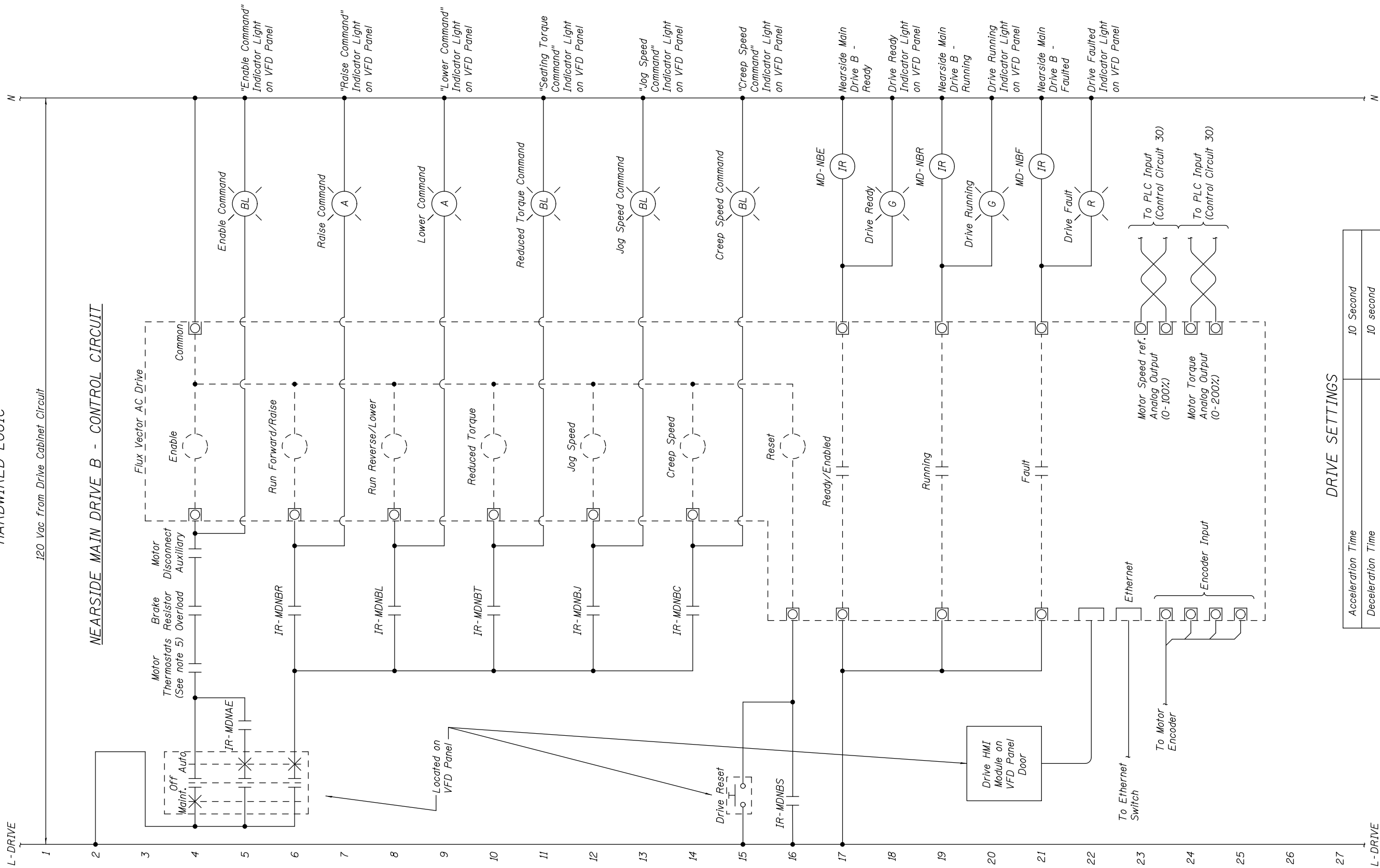
JACKSON, Drawing 02-069

ILLINOIS FED. AID PROJECT

HARDWIRED LOGIC

120 Vac from Drive Cabinet Circuit

NEARSIDE MAIN DRIVE B - CONTROL CIRCUIT



NOTES:

- Indicator Light shall be mounted on the VFD Panel and shall be push-to-test type.
- Maintenance mode is intended to be used for setup and testing with the drive HMI unit.
- The Drive shall be programmed or configured to generate a warning if the Encoder feedback is lost during operation, and open loop mode shall be permitted to complete bridge operation.
- The Drive Ethernet connection is intended to allow the PLC to access drive fault messages and drive operating conditions. No control operations shall be performed using this connection.
- Use Drive manufacturer's dedicated inputs for Motor Thermostats and braking Resistor Overloads if available.
- For each leaf, provide all additional wiring and drive configuration required to provide load sharing between A and B drives.
- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.

DRIVE SETTINGS

Acceleration Time	10 Second
Deceleration Time	10 second
Stop Mode	Coast
Auto Start	False
Auto Restart	False
Motor Stall Time	20 Seconds
Maximum Torque Limit	150% Motor rated

Note: All settings shall be adjusted as required in the field.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 35

SHEET NO. 70 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	180
CONTRACT NO. 60P55				

JACKSON, Drawing 02-070

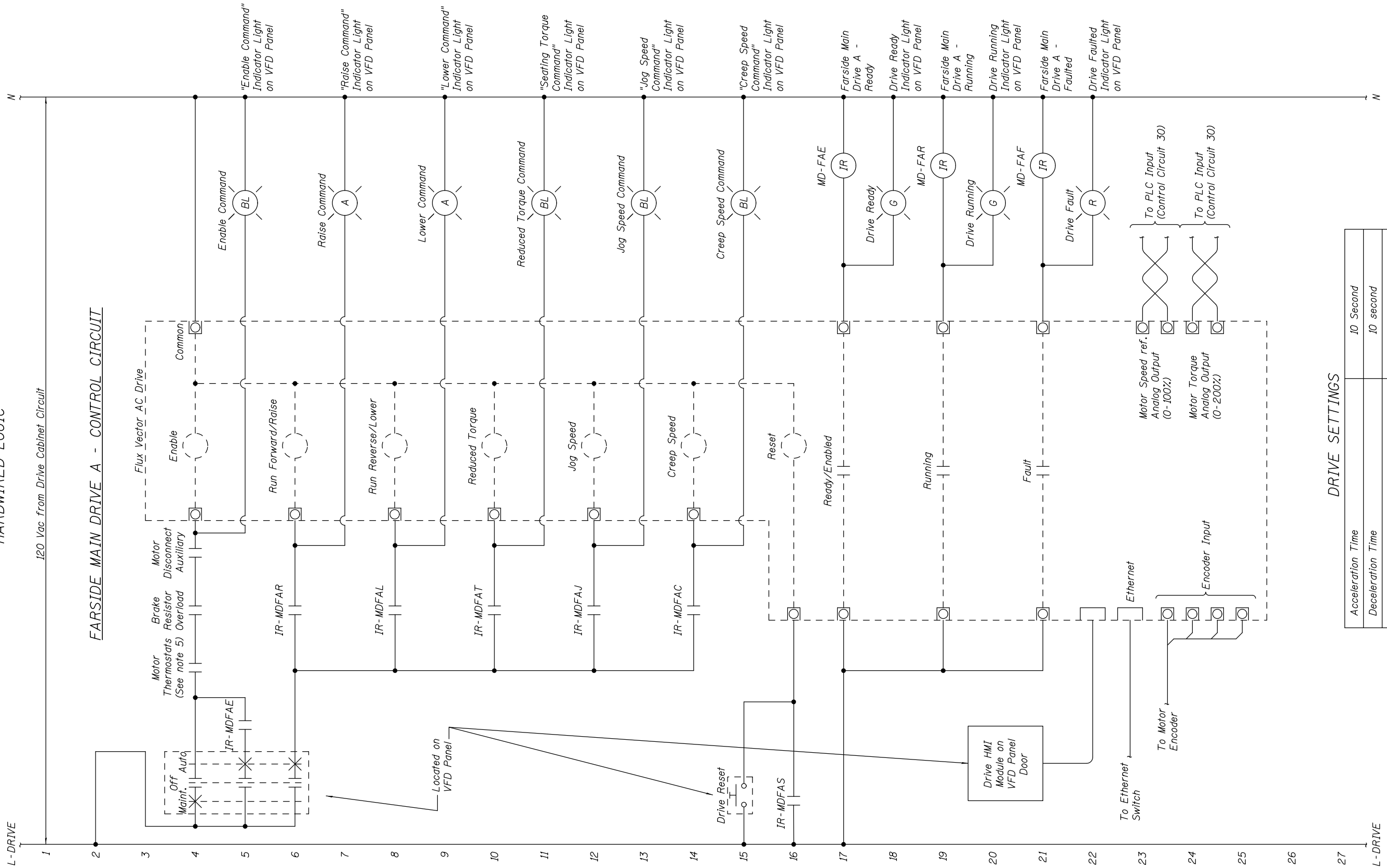
ILLINOIS FED. AID PROJECT



HARDWIRED LOGIC

120 Vac from Drive Cabinet Circuit

FARSIDE MAIN DRIVE A - CONTROL CIRCUIT



NOTES:

- Indicator Light shall be mounted on the VFD Panel and shall be push-to-test type.
- Maintenance mode is intended to be used for setup and testing with the drive HMI unit.
- The Drive shall be programmed or configured to generate a warning if the Encoder feedback is lost during operation, and open loop mode shall be permitted to complete bridge operation.
- The Drive Ethernet connection is intended to allow the PLC to access drive fault messages and drive operating conditions. No control operations shall be performed using this connection.
- Use Drive manufacture's dedicated inputs for Motor Thermostats and braking Resistor Overloads if available.
- For each leaf, provide all additional wiring and drive configuration required to provide load sharing between A and B drives.
- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.

DRIVE SETTINGS

Acceleration Time	10 Second
Deceleration Time	10 second
Stop Mode	Coast
Auto Start	False
Auto Restart	False
Motor Stall Time	20 Seconds
Maximum Torque Limit	150% Motor rated

Note: All settings shall be adjusted as required in the field.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 36

SHEET NO. 71 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	181
CONTRACT NO. 60P55				

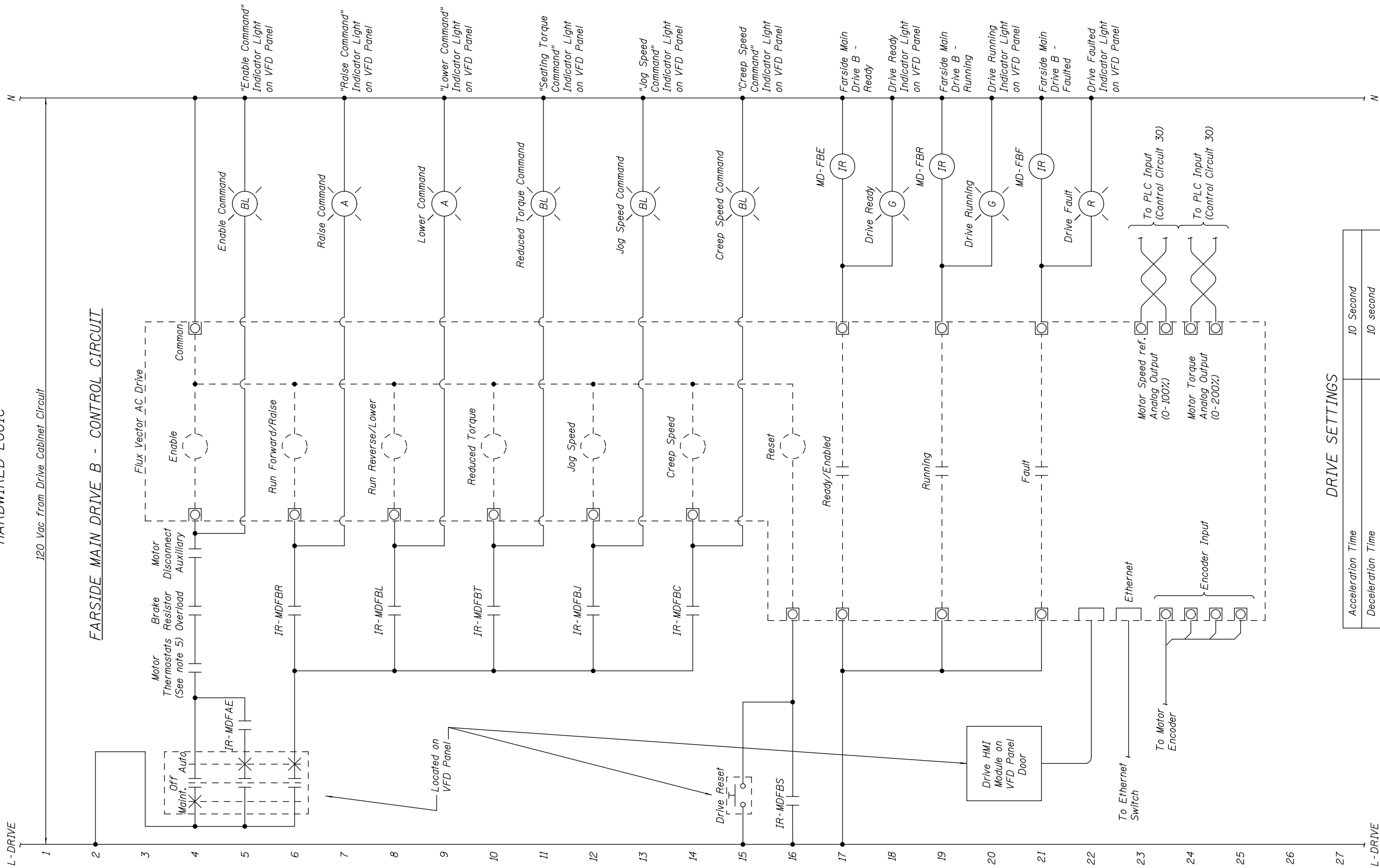
JACKSON, Drawing 02-071

ILLINOIS FED. AID PROJECT

HARDWIRED LOGIC

120 Vac from Drive Cabinet Circuit

FARSIDE MAIN DRIVE B - CONTROL CIRCUIT



NOTES:

- Indicator Light shall be mounted on the VFD Panel and shall be push-to-test type.
- Maintenance mode is intended to be used for setup and testing with the drive HMI unit.
- The Drive shall be programmed or configured to generate a warning if the Encoder feedback is lost during operation, and open loop mode shall be permitted to complete bridge operation.
- The Drive Ethernet connection is intended to allow the PLC to access drive fault messages and drive operating conditions. No control operations shall be performed using this connection.
- Use Drive manufacture's dedicated inputs for Motor Thermostats and braking Resistor Overloads if available.
- For each leaf, provide all additional wiring and drive configuration required to provide load sharing between A and B drives.
- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.

DRIVE SETTINGS

Acceleration Time	10 Second
Deceleration Time	10 second
Stop Mode	Coast
Auto Start	False
Auto Restart	False
Motor Stall Time	20 Seconds
Maximum Torque Limit	150% Motor rated

Note: All settings shall be adjusted as required in the field.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

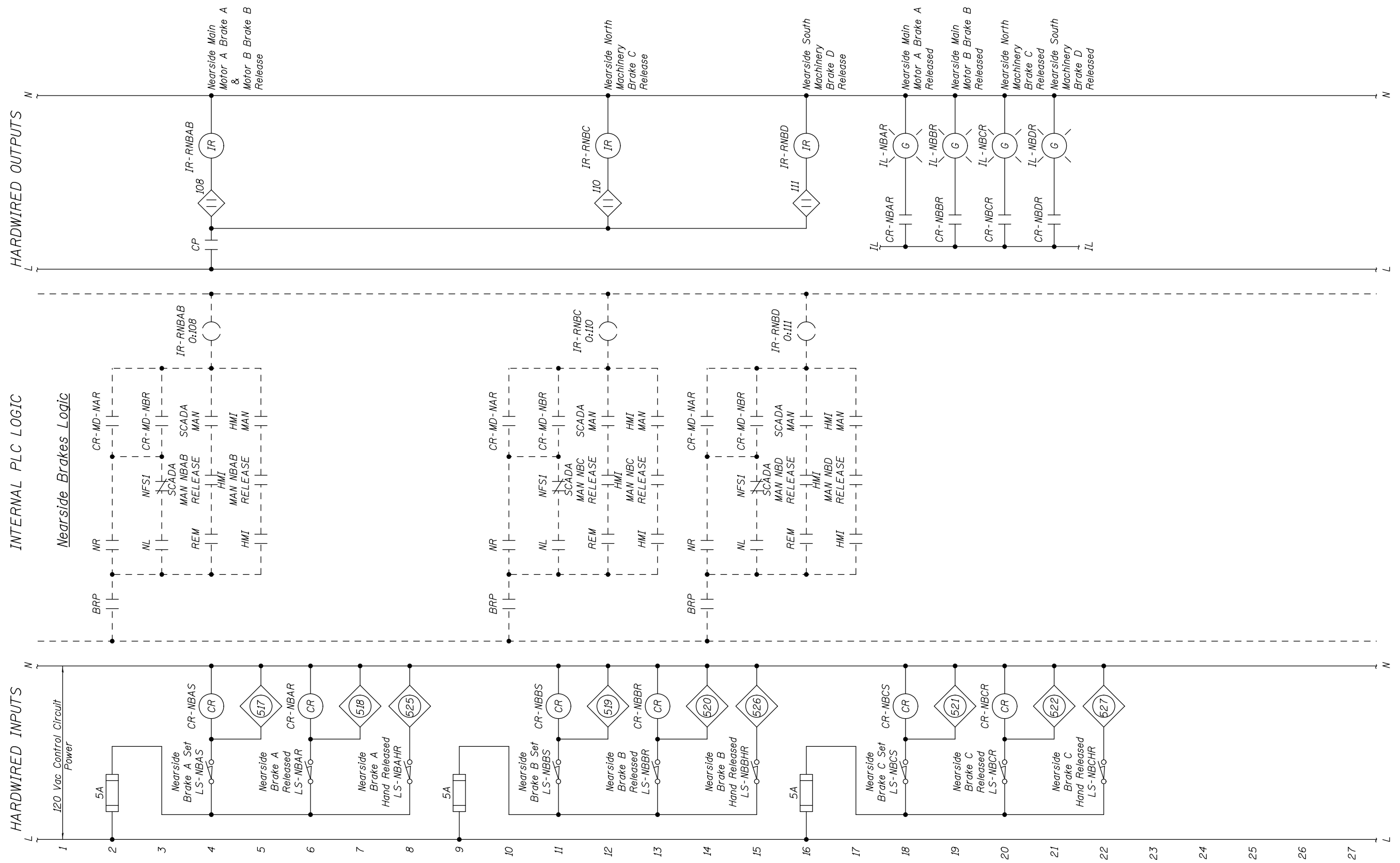
VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 37

SHEET NO. 72 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	182
CONTRACT NO. 60P55				

JACKSON, Drawing 02-072

ILLINOIS FED. AID PROJECT



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



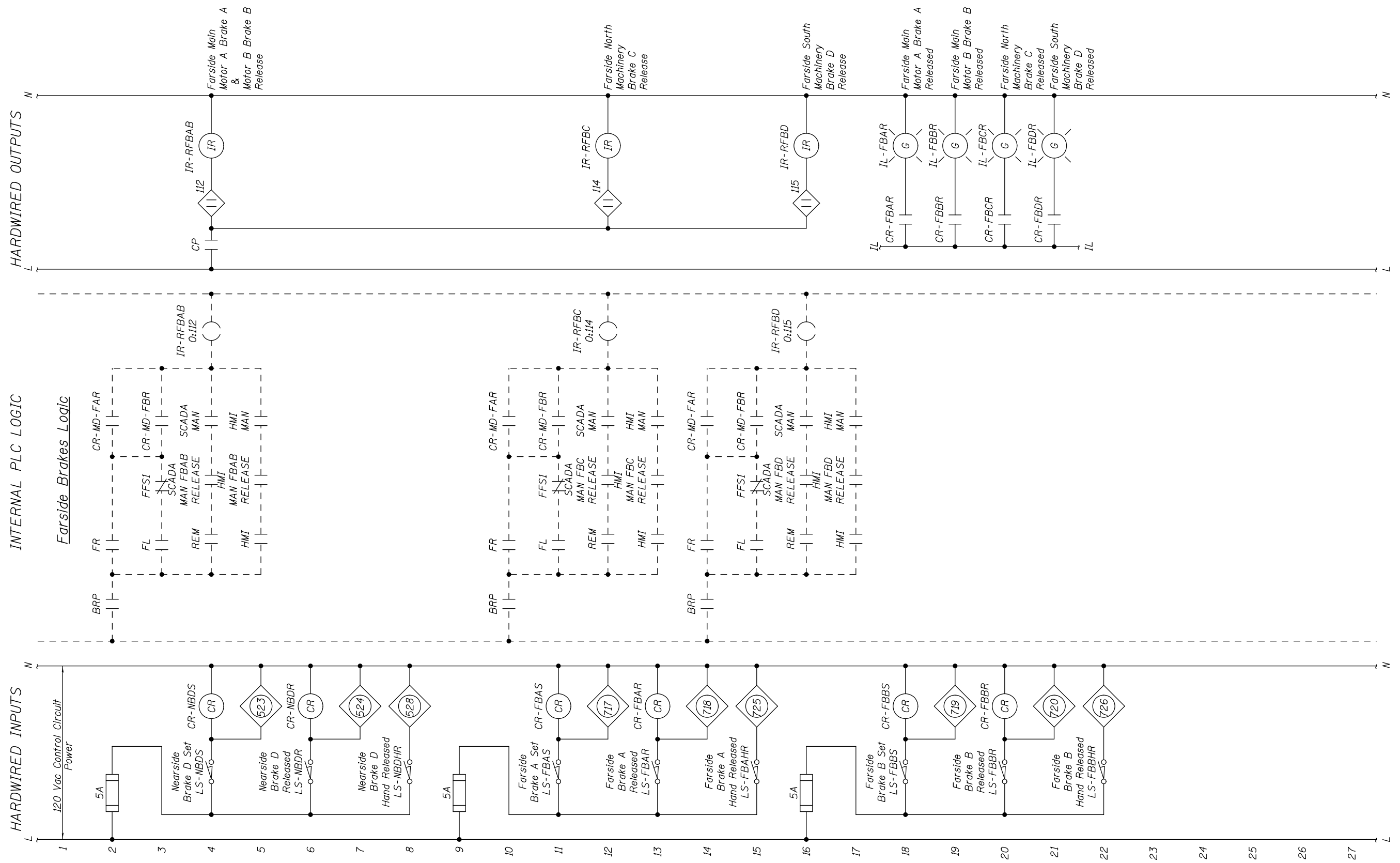
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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 38**

SHEET NO. 73 OF 97 SHEETS

JACKSON, Drawing 02-073			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 183
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

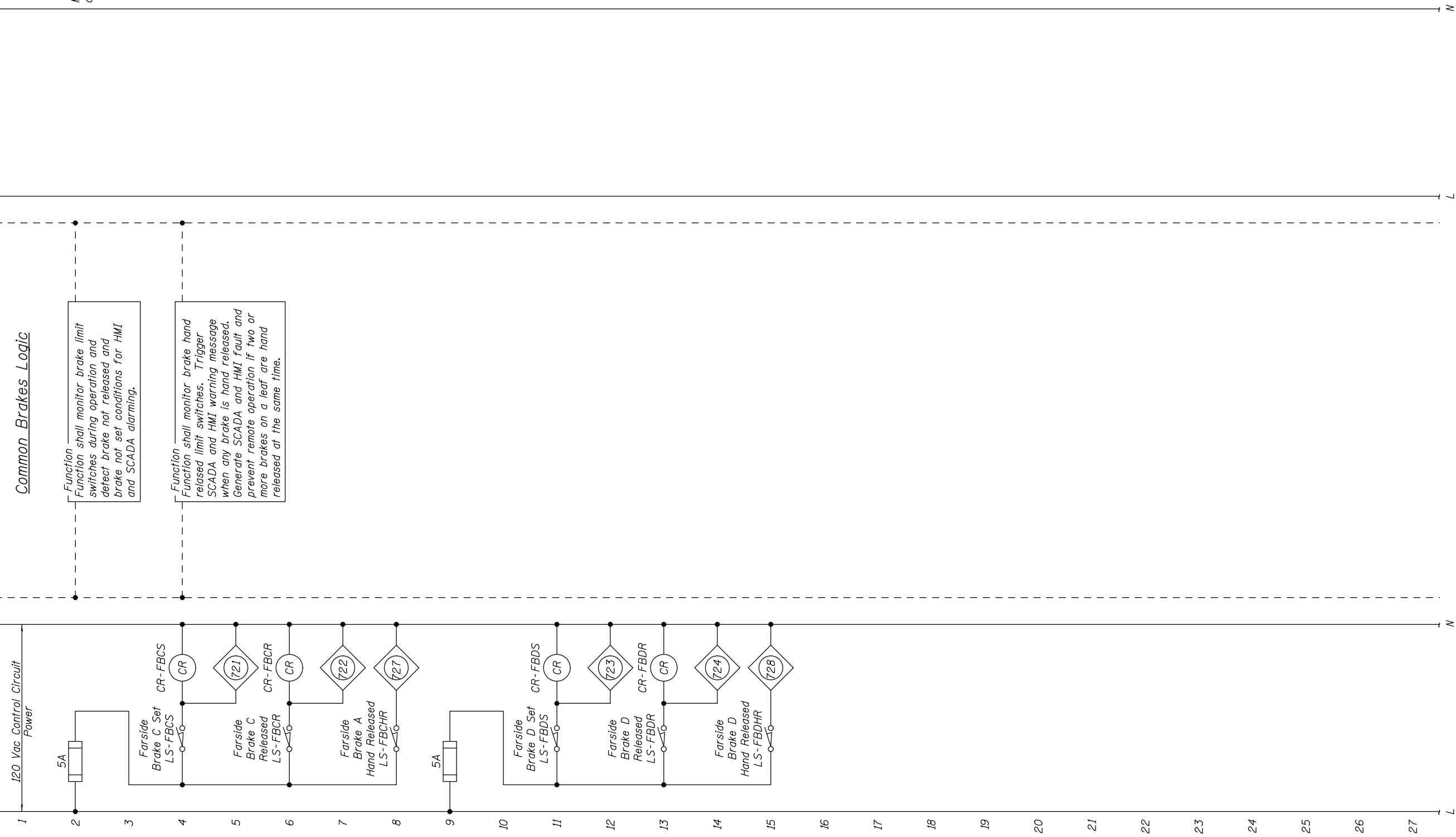
**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 39**

JACKSON, Drawing 02-074			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 184
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			

HARDWIRED INPUTS

INTERNAL PLC LOGIC

HARDWIRED OUTPUTS



Monitor Operation of Brakes

**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

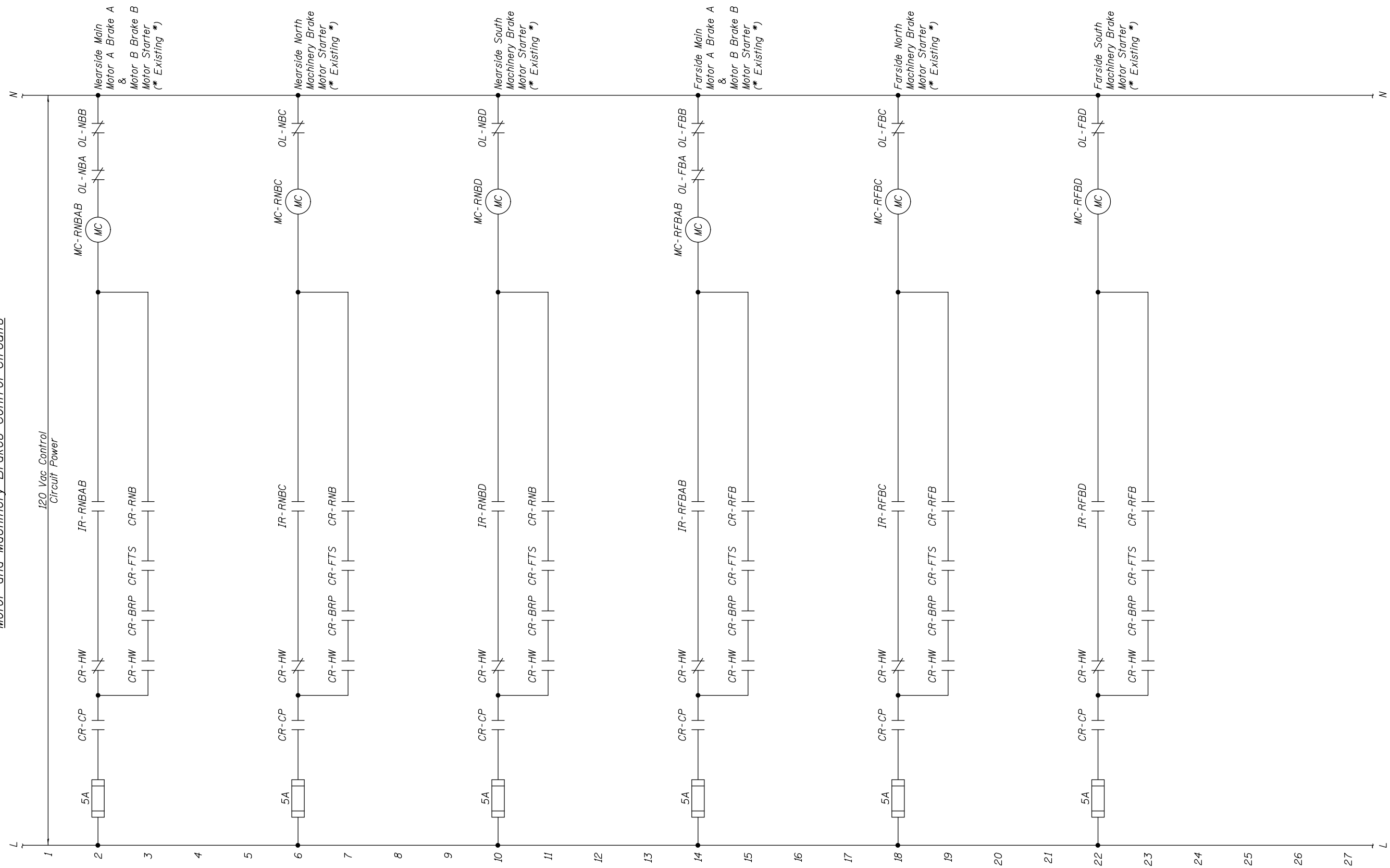
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET – CONTROL CIRCUIT – 40**

SHEET NO. 75 OF 97 SHEETS

JACKSON, Drawing 02-075		TOTAL SHEETS	SHEET NO.
F.A.U. RTE.	SECTION	COUNTY	NO.
0297	2011-045-I	WILL	185
		CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT			

*Motor and Machinery Brakes Control Circuits*



**NOTES:**

1. Rewire existing MCC starters as required to implement new control logic.
2. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 41**

SHEET NO. 76 OF 97 SHEETS

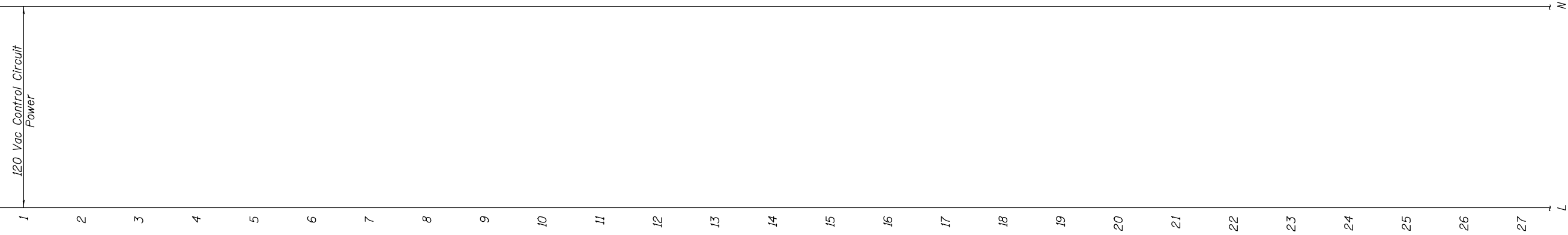
JACKSON, Drawing 02-076	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	186
CONTRACT NO. 60P55	

ILLINOIS FED. AID PROJECT

HARDWIRED INPUTS

INTERNAL PLC LOGIC

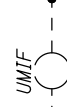
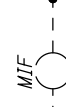
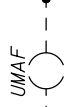
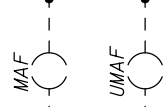
HARDWIRED OUTPUTS



Alarm Logic

Function shall detect major faults. MAF is set when any major fault is present. Major faults shall prevent the bridge from operating until the fault is acknowledged by the operator and the original fault condition clears by itself or by operator actions. Major faults include the following:  
 Main Drive Fault  
 Bridge Span Overspeed (NOS / FOS)  
 ATS - switch to generator power during bridge operation.  
 Emergency stop during bridge operation  
 Control Power loss during bridge operation  
 Bridge Opening or Closing exceeds normal operation time + 30%

Function shall detect minor faults. MIF is set when any minor fault is present. The bridge operation can continue with a minor fault present. Minor faults include the following:  
 SPD Fault (Surge Protective Device)  
 UPS Fault / Low Battery  
 Running Under Generator Power  
 Boat Detected During Lowering Operation (Bridge Opening)  
 Fire Alarm  
 Traffic gate opening or closing timeout  
 Brake release timeout



Major Fault Present  
 New, Unacknowledged Major Fault Present

Minor Fault Present  
 New, Unacknowledged Minor Fault Present

NOTES:

- Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



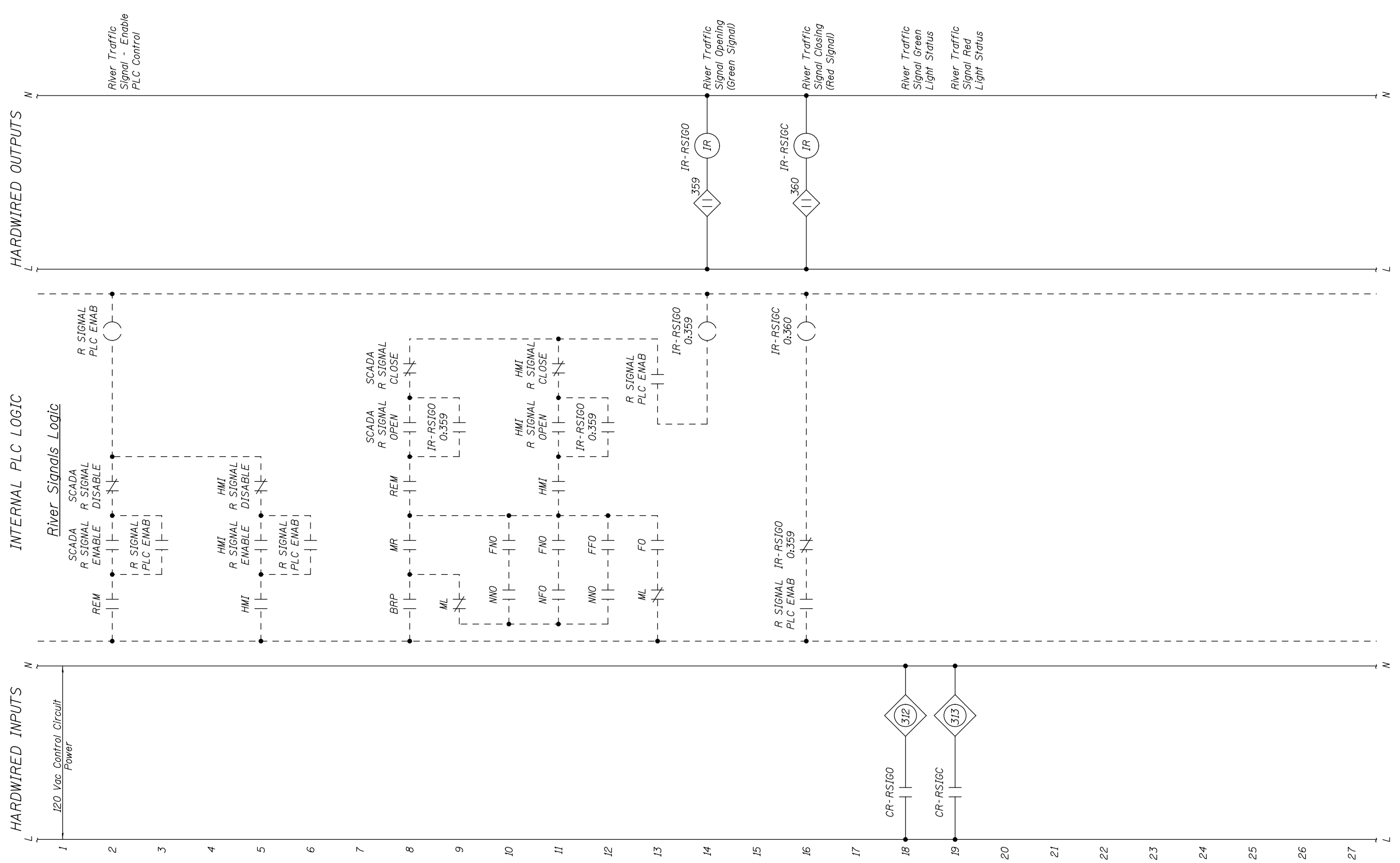
USER NAME =	DESIGNED - R.I. PETERS	REVISED	---
	CHECKED - J.G. STRENKOSKI	REVISED	---
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET - CONTROL CIRCUIT - 42

SHEET NO. 77 OF 97 SHEETS

JACKSON, Drawing 02-077			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
		SHEET NO. 187	
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



**NOTES:**  
 1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
 DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
 LOCAL CENTRALIZED CONTROL AND OPERATION  
 JACKSON STREET – CONTROL CIRCUIT – 43**

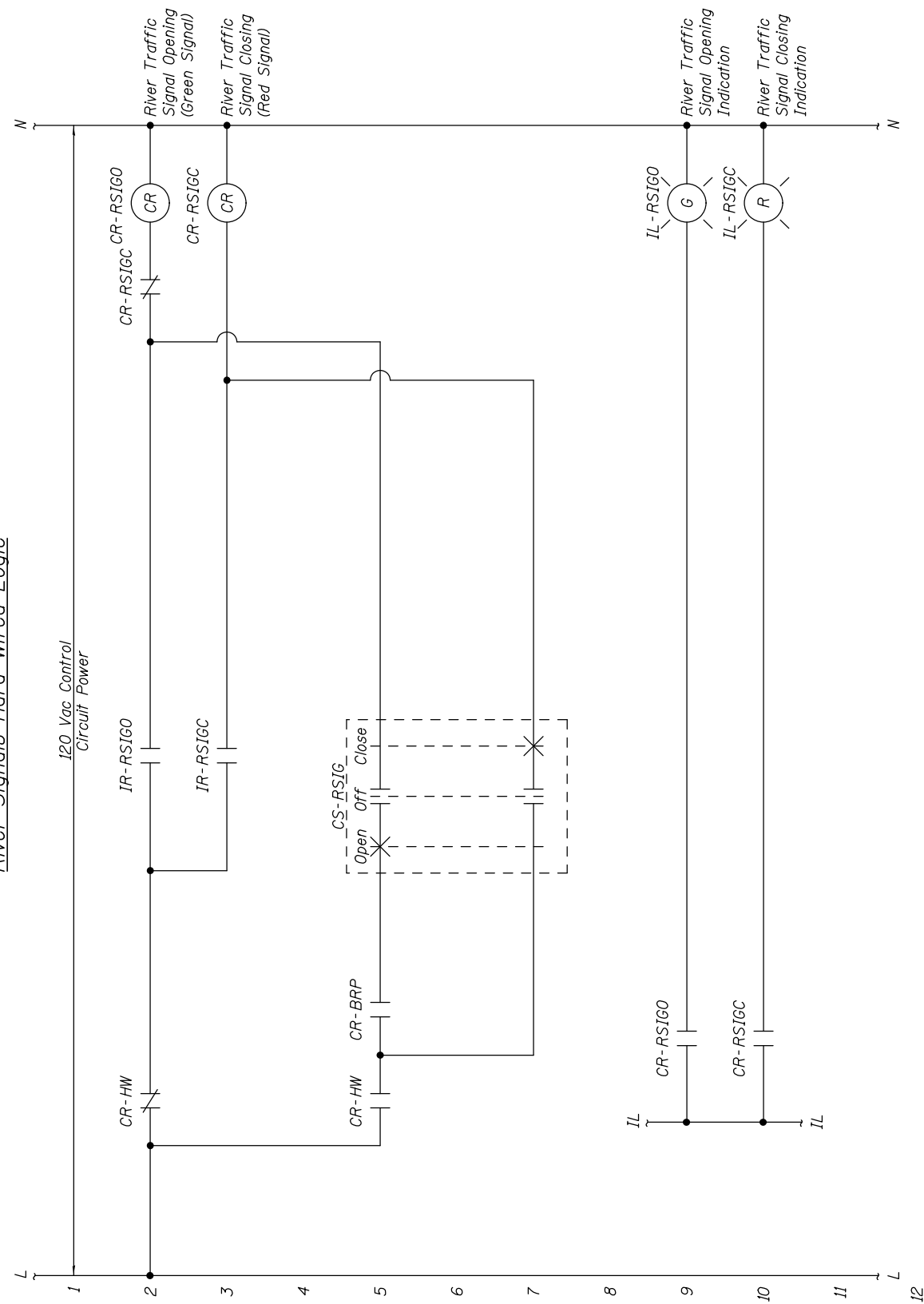
JACKSON, Drawing 02-078	
F.A.U. RTE.	SECTION
0297	2011-045-I
COUNTY	WILL
TOTAL SHEETS	466
SHEET NO.	188
CONTRACT NO. 60P55	

SHEET NO. 78 OF 97 SHEETS

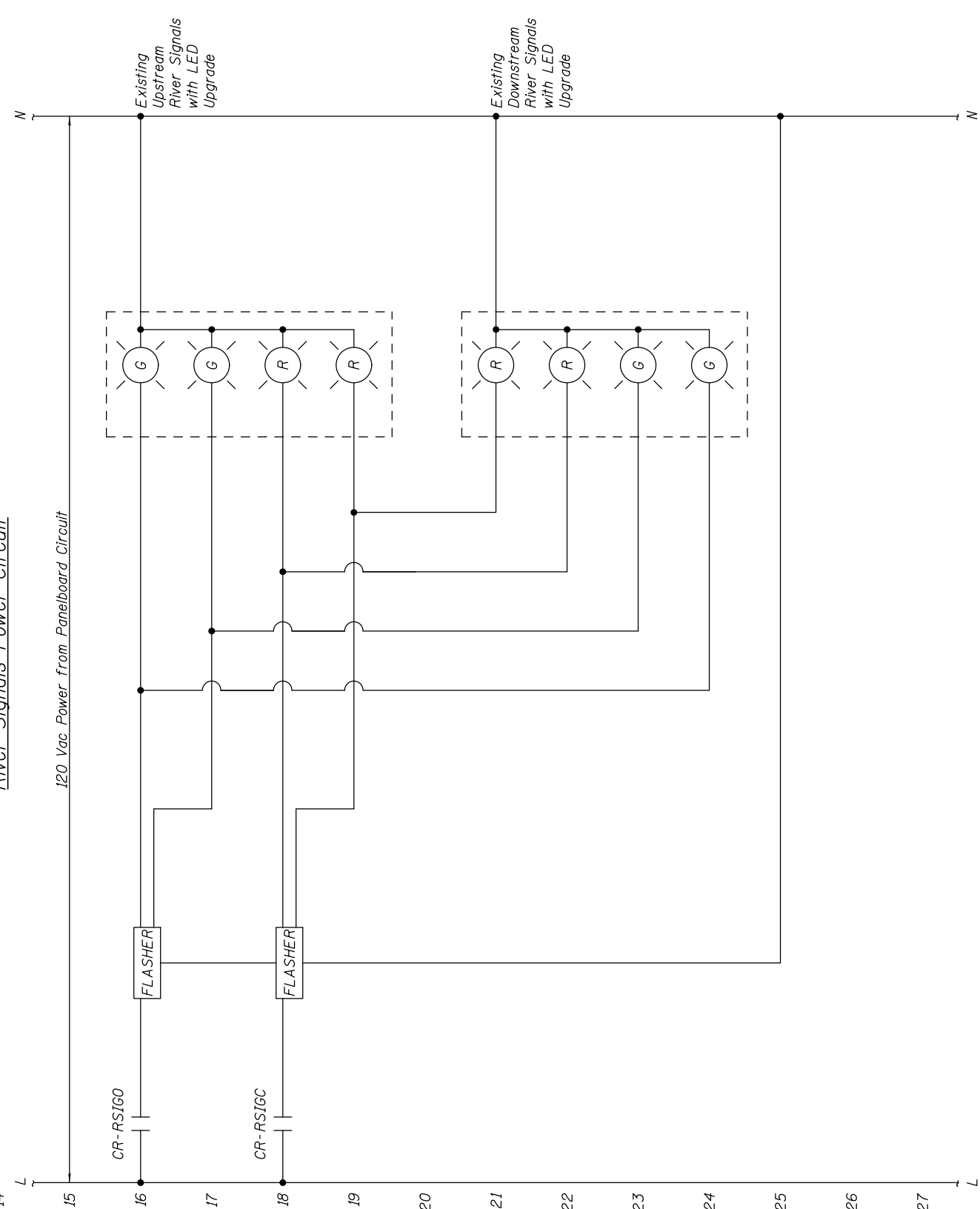
ILLINOIS FED. AID PROJECT



*River Signals Hard-Wired Logic*



*River Signals Power Circuit*



**NOTES:**

1. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.
2. Flashers shall alternately flash active lights.



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PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

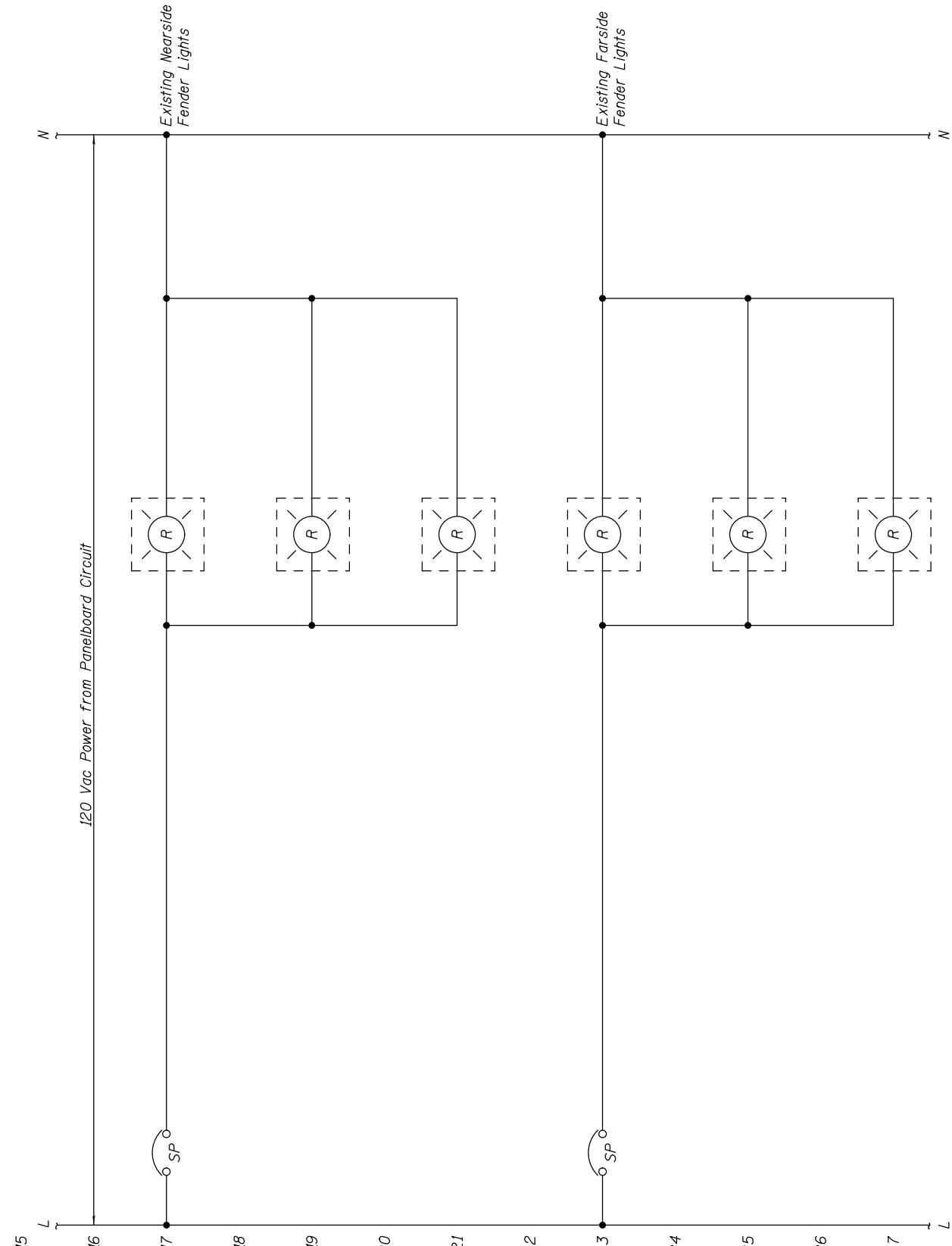
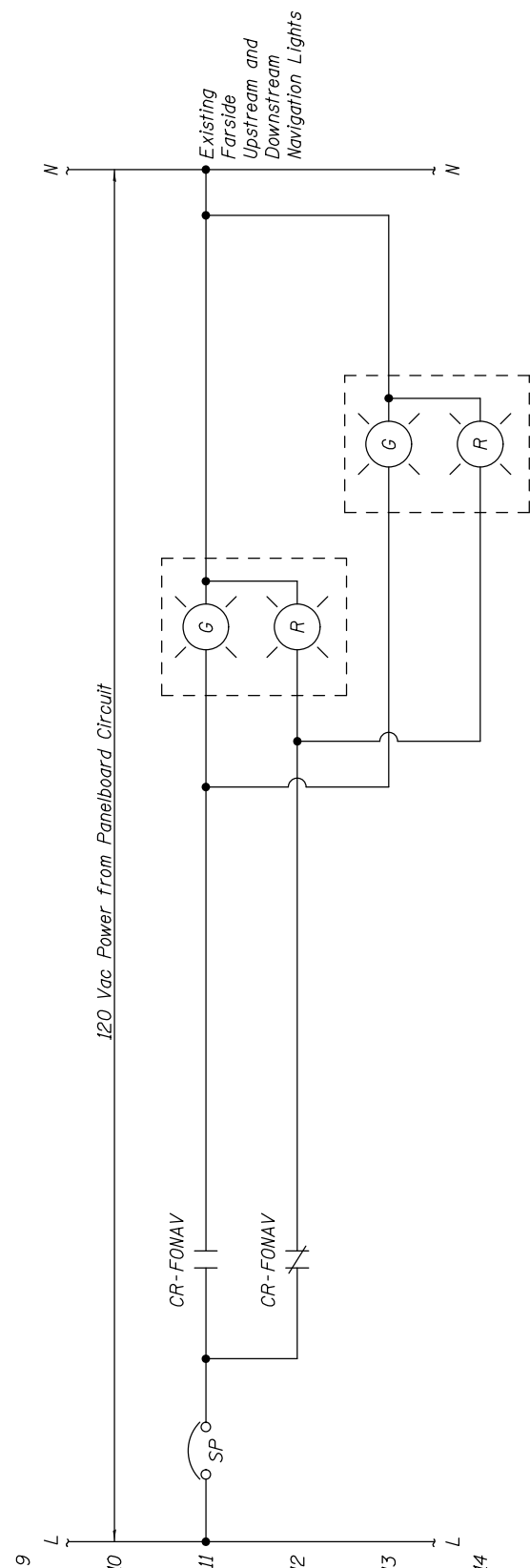
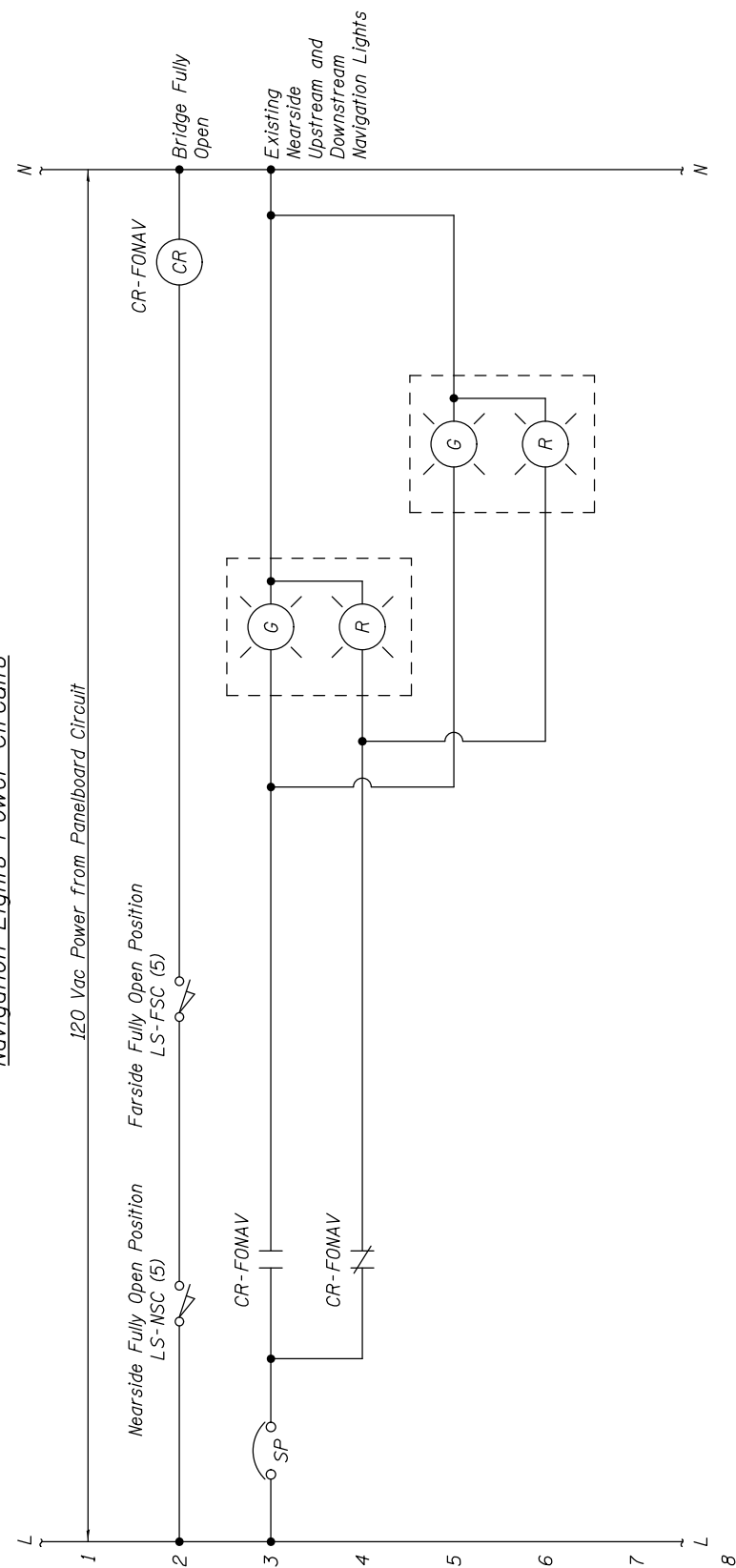
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 44**

SHEET NO. 79 OF 97 SHEETS

JACKSON, Drawing 02-079			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 189
CONTRACT NO. 60P55			

ILLINOIS FED. AID PROJECT

Navigation Lights Power Circuits



NOTES:

1. Wire all limit switch sensor contacts back to main PLC cabinet for ease of maintenance and troubleshooting. Do not field "daisy chain" contacts device-to-device.
2. Existing span navigation and fender (pier) lights shall be reused.
3. Drawing applies to Jackson Street, Cass Street, Jefferson Street and McDonough Street Bridges.



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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED	---
PLOT DATE =	CHECKED - J.G. STRENKOSKI	REVISED	---

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

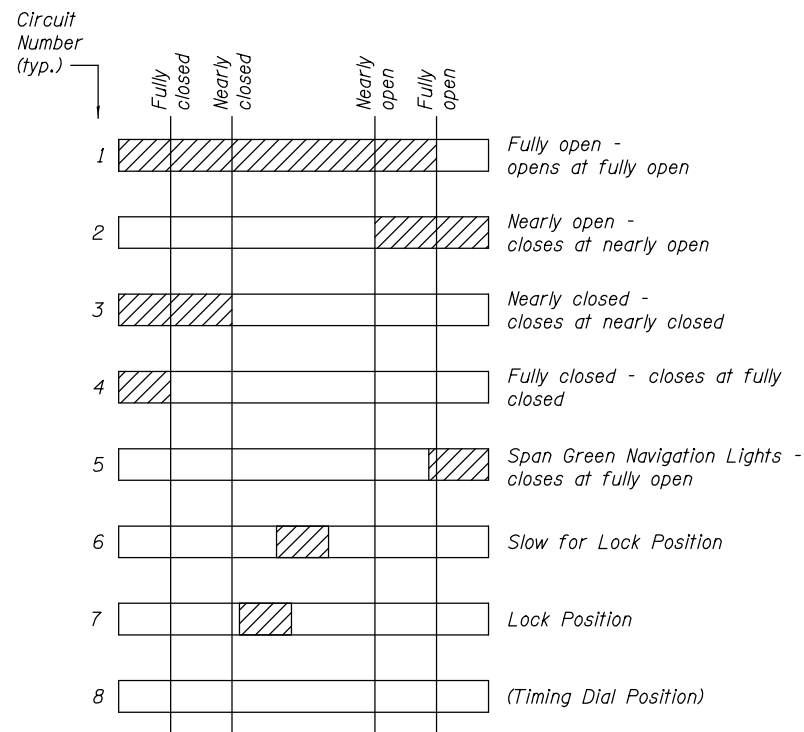
VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONTROL CIRCUIT - 45

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	190
CONTRACT NO. 60P55				

SHEET NO. 80 OF 97 SHEETS

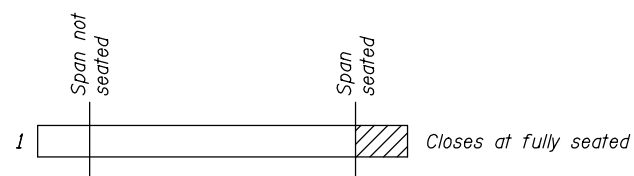
ILLINOIS FED. AID PROJECT

JACKSON, Drawing 02-080



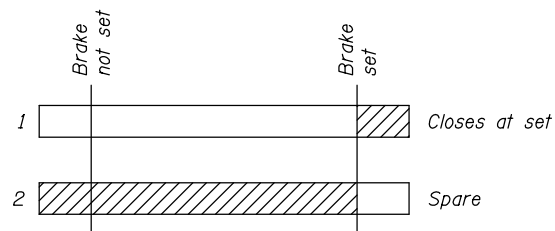
**SPAN CONTROL ROTARY CAM LIMIT SWITCH**

LS-FSC, LS-NSC



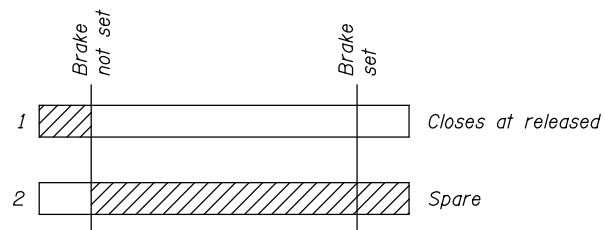
**SPAN FULLY SEATED LIMIT SWITCH**

LS-FFS, LS-NFS



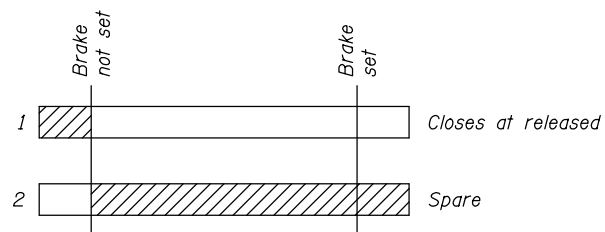
**BRAKE SET LIMIT SWITCH**

LS-FBAS, LS-FBBS, LS-FBCS,  
LS-FBDS, LS-NBAS, LS-NBBS,  
LS-NBCS, LS-NBDS



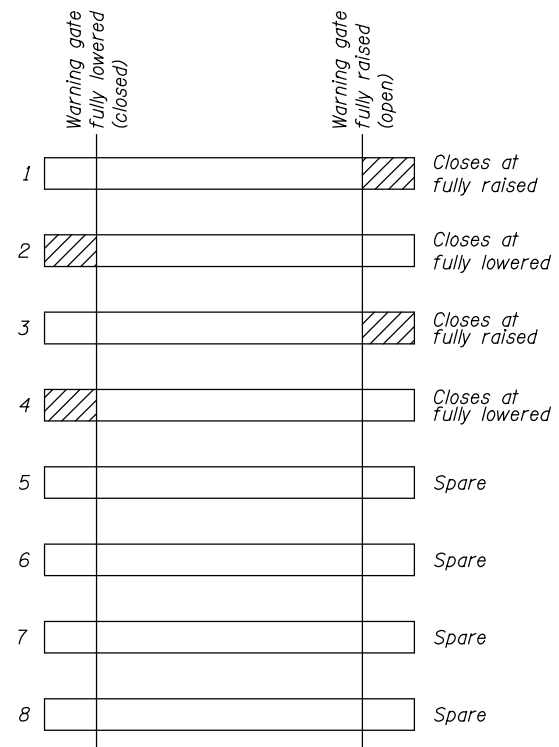
**BRAKE RELEASED LIMIT SWITCH**

LS-FBAR, LS-FBBR, LS-FBCR,  
LS-FBDR, LS-NBAR, LS-NBBR,  
LS-NBCR, LS-NBDR



**BRAKE HAND-RELEASED LIMIT SWITCH**

LS-FBAHR, LS-FBBHR, LS-FBCHR,  
LS-FBDHR, LS-NBAHR, LS-NBBHR,  
LS-NBCHR, LS-NBDHR



**TRAFFIC GATE LIMIT SWITCH**

(see drawing 02-092 for repair details)

LS-NNGR/L, LS-NSGR/L,  
LS-FNGR/L, LS-FSGR/L

**LEGEND**

Contacts closed

Contacts open



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STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - LIMIT SWITCH CHARTS

SHEET NO. 81 OF 97 SHEETS

JACKSON, Drawing 01-081		F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	191	CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT						

*GROUP 100 EQUIPMENT*

<i>Item No.</i>	<i>Quantity</i>	<i>Item Name</i>	<i>Description</i>
E101	1	Surge Protective Device (SPD)	Bridge electrical service SPD
E102	1	Power Monitor	Bridge electrical service power and energy meter
E103	1	Bus Monitor	Bridge electrical service ABC phase sequencing monitor
E104	N/A		
E105	4	100A Motor Disconnect Switch	Main drive motors
E106	8	30A Motor Disconnect Switch	Brake motors
E107	1	Transformer	Dry type transformer, 50 kVA, single phase
E108	1	120/240V Panelboard, 42 Circuit	Replacement panelboard with breakers and accessories

*GROUP 200 EQUIPMENT*

<i>Item No.</i>	<i>Quantity</i>	<i>Item Name</i>	<i>Description</i>
E201	4	Traffic Gate Warning Gong	For existing traffic gates
E202	2	Machinery Warning Horn/Light	Machinery area startup warning
E203	2	Outdoor Warning Horn	Operator house exterior warning
E204	N/A		
E205	2	Boat Detection Sensor	Microwave transmitter and receiver sensor
E206	2	Rotary Cam Limit Switch/Resolver	Bridge position sensing
E207	4	Inclinometer	Bridge open angle sensing
E208	18	Magnetic Proximity Switch	Span fully seated and brake position sensing
E209	N/A		
E210	6	Door Switch	Two piece magnetic contact switch for entry doors
E211	1	Fire Alarm & Security System	Monitor operator house for fire and intrusion

**NOTES:**

1. These equipment schedules are provided for reference and do not provide an exhaustive listing of all equipment required.
2. The Contractor shall be responsible for developing a complete bill of materials of equipment required.



USER NAME =	DESIGNED - R.I. PETERS	REVISED _____
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PLOT DATE =	CHECKED - R.I. PETERS	REVISED _____

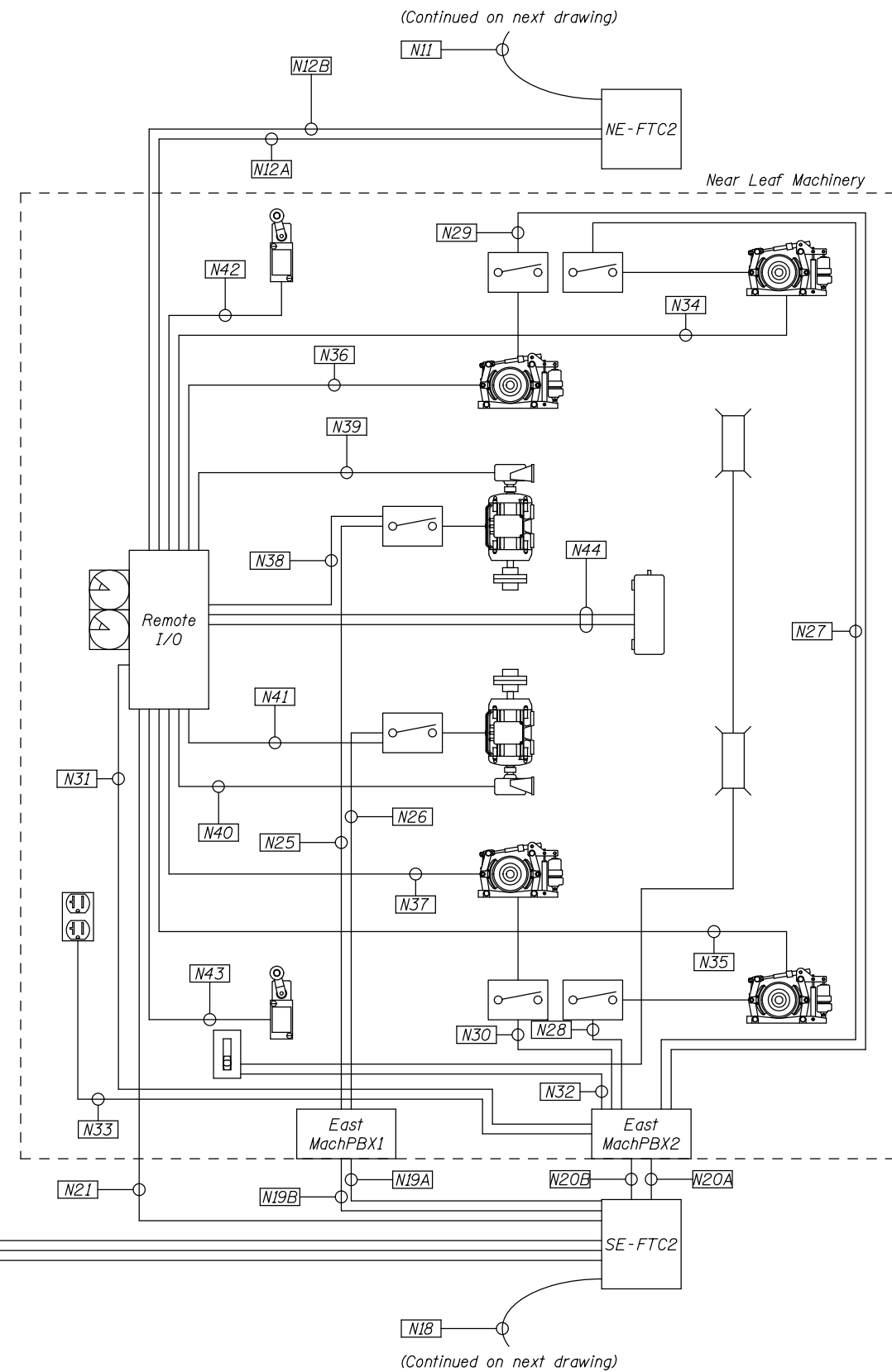
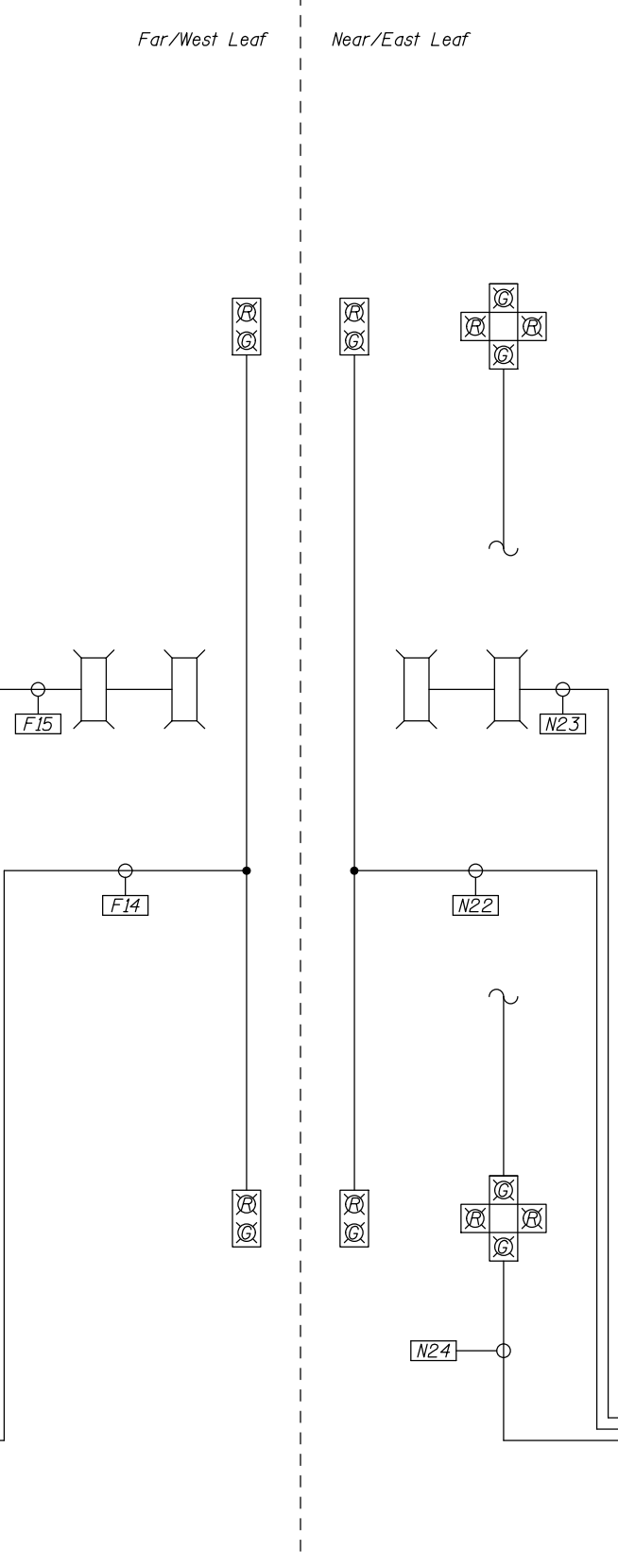
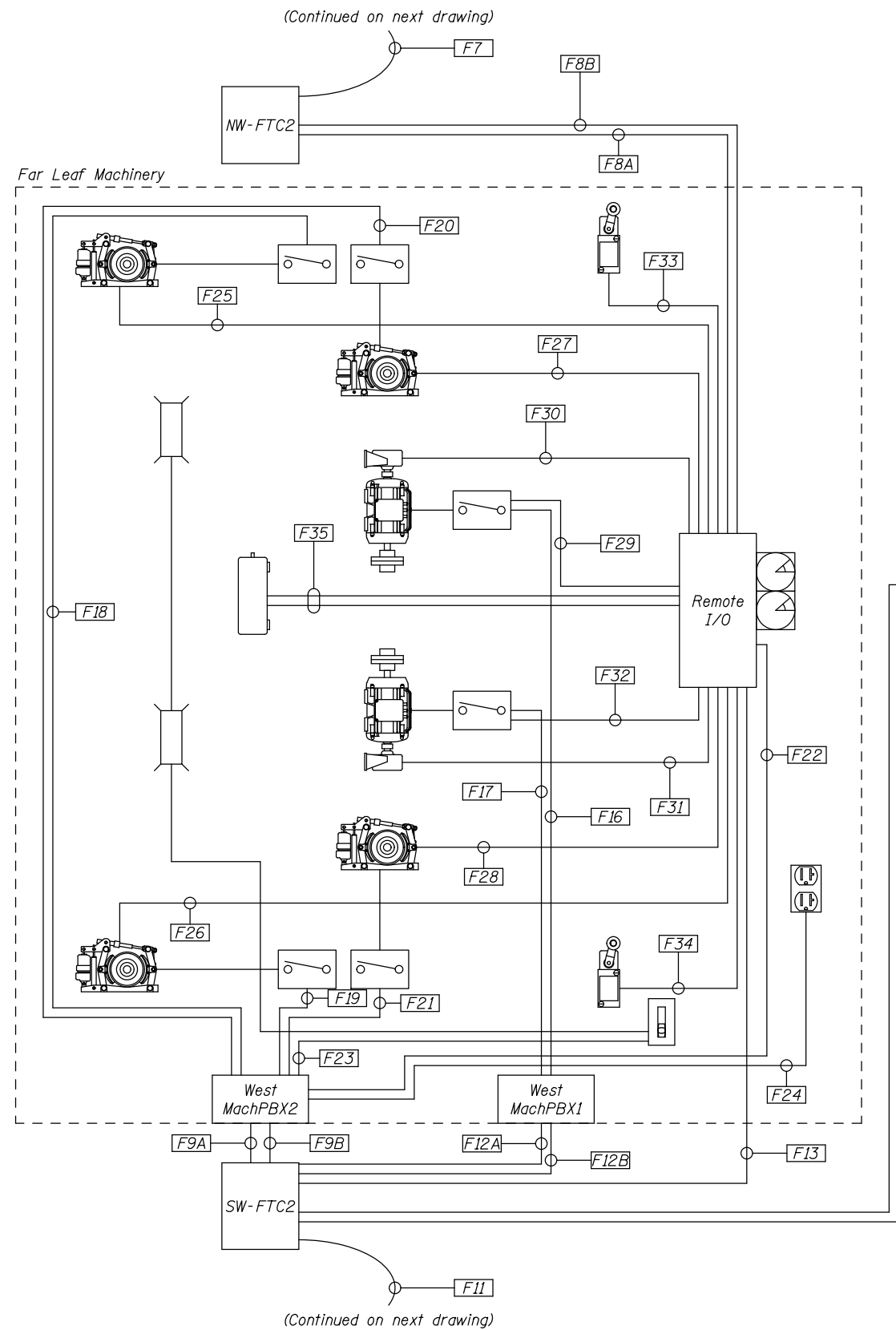
**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET – ELECTRICAL EQUIPMENT SCHEDULE**

SHEET NO. 82 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	192
			CONTRACT NO. 60P55	
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-082



**NOTES:**

1. This layout and the accompanying tabulations are for reference only. All required raceways and wiring are not necessarily shown on this layout.
2. The Contractor shall be responsible for developing a complete wiring and conduit tabulations for all conductors and cables.



USER NAME =	DESIGNED - R.I. PETERS	REVISED -
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PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

**STATE OF ILLINOIS  
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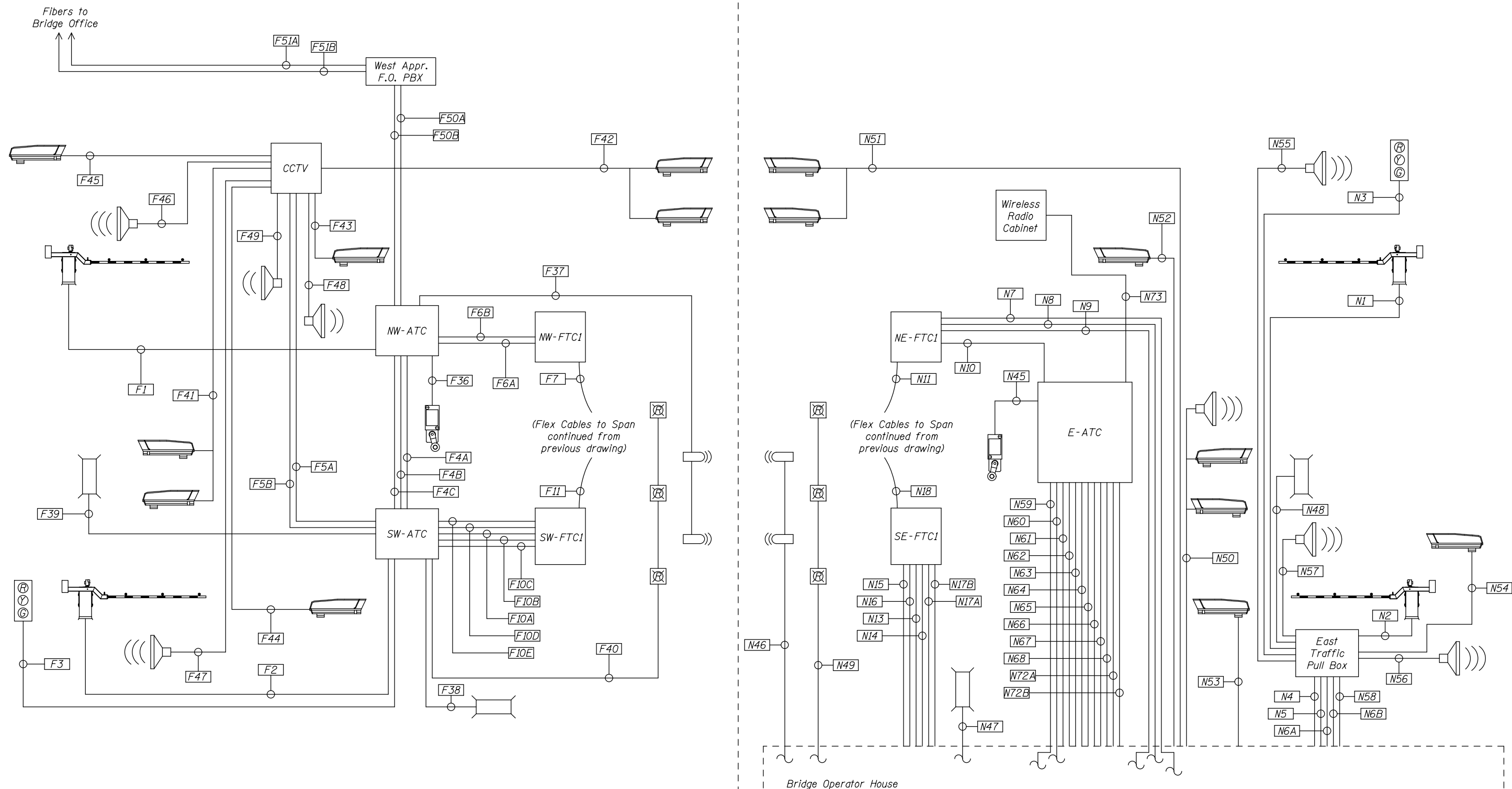
**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONDUIT DIAGRAM - 1**

SHEET NO. 83 OF 97 SHEETS

JACKSON, Drawing 02-083			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-1	WILL	466
			SHEET NO. 193
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			

Far/West Leaf

Near/East Leaf



**NOTES:**

1. This layout and the accompanying tabulations are for reference only. All required raceways and wiring are not necessarily shown on this layout.
2. The Contractor shall be responsible for developing a complete wiring and conduit tabulations for all conductors and cables.



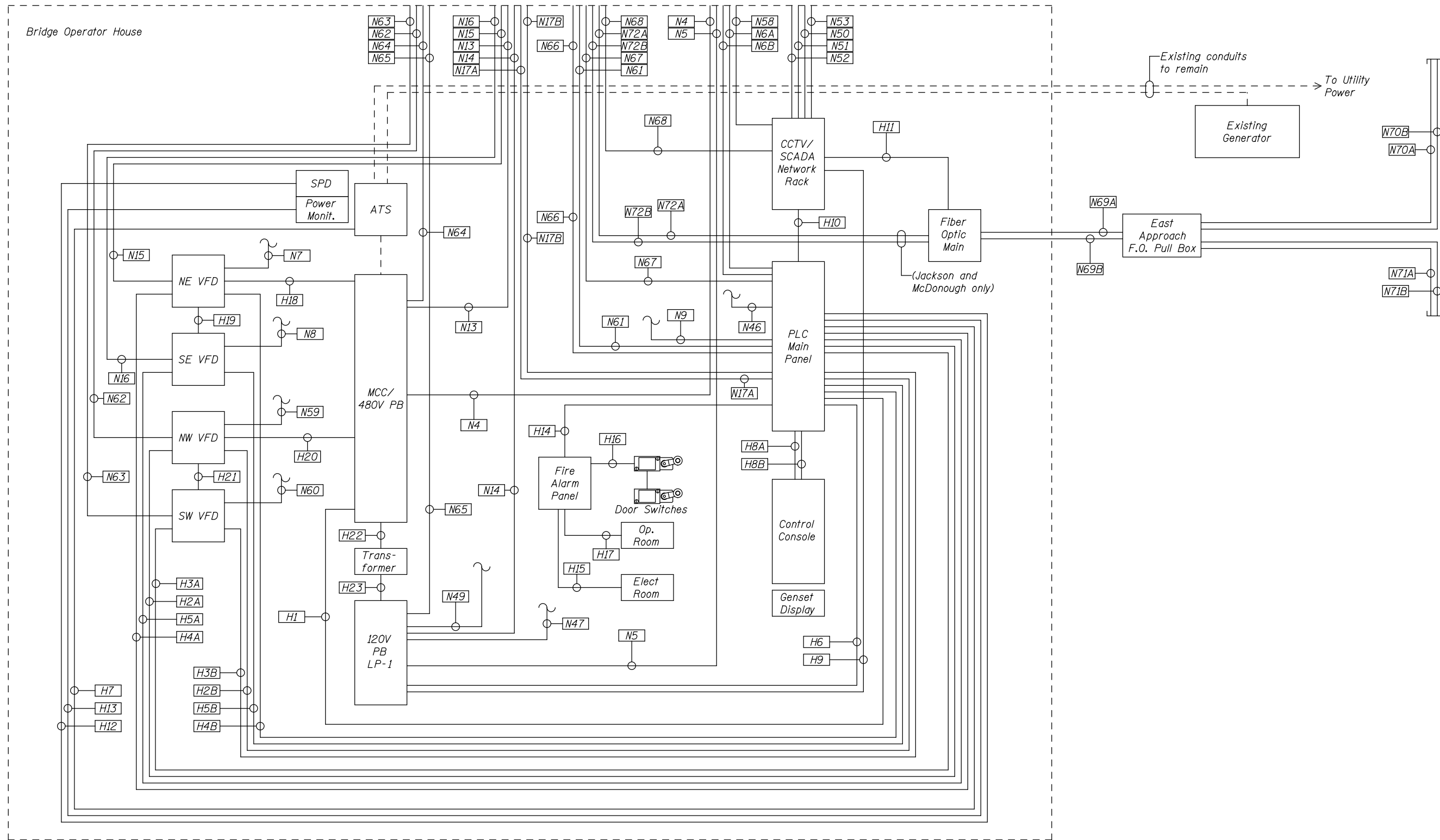
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	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED -
PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

**STATE OF ILLINOIS  
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**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONDUIT DIAGRAM - 2**

SHEET NO. 84 OF 97 SHEETS

JACKSON, Drawing 02-084			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 194
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



**NOTES:**

1. This layout and the accompanying tabulations are for reference only. All required raceways and wiring are not necessarily shown on this layout.
2. The Contractor shall be responsible for developing a complete wiring and conduit tabulations for all conductors and cables.



USER NAME =	DESIGNED - R.I. PETERS	REVISED -
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PLOT SCALE =	DRAWN - R.I. PETERS	REVISED -
PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONDUIT DIAGRAM - 3**

SHEET NO. 85 OF 97 SHEETS

F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
0297	2011-045-I	WILL	466	195
CONTRACT NO. 60P55				
ILLINOIS FED. AID PROJECT				

JACKSON, Drawing 02-085





JACKSON STREET FARMSIDE CONDUIT SCHEDULE (CONTINUED)

Run No.	Circuit Terminations		Conduit		Length of Run	Wire		
	To	From	Type	Size		Use	Count	Size
F36	NW Aerial Cables Terminal Cabinet	West Fully Seated Limit Switch	RMC	3/4"	30	120 C	2	12AWG
F37	NW Aerial Cables Terminal Cabinet	Farside Boat Detection	PVC RMC	3/4"	135	GND	1	12AWG
						12VDC	2	12AWG
F38	SW Aerial Cables Terminal Cabinet	West Fixed Structure Lights	RMC	3/4"	75	120 P	2	10AWG
						GND	1	10AWG
F39	SW Aerial Cables Terminal Cabinet	West Approach Roadway Lights	RMC	3/4"	40	120 P	2	10AWG
						GND	1	10AWG
F40	SW Aerial Cables Terminal Cabinet	West Pier Navigation Lights	PVC RMC	3/4"	195	120 P	2	10AWG
						GND	1	10AWG
F41	Farside CCTV/P.A. Cabinet	West Traffic Cameras	PVC RMC	1"	60	Power	4	12AWG
						Ethernet	2	CAT-6
						GND	2	12AWG
F42	Farside CCTV/P.A. Cabinet	West Thermal and Lower PTZ Cameras	PVC RMC	1"	100	Power	4	12AWG
						Ethernet	2	CAT-6
						GND	2	12AWG
F43	Farside CCTV/P.A. Cabinet	NW Pedestrian Camera	RMC	3/4"	40	Power	2	12AWG
						Ethernet	1	CAT-6
						GND	1	12AWG
F44	Farside CCTV/P.A. Cabinet	SW Pedestrian Camera	RMC	3/4"	110	Power	2	12AWG
						Ethernet	1	CAT-6
						GND	1	12AWG
F45**	Farside CCTV/P.A. Cabinet	West Upper PTZ Camera 2	PVC RMC	3/4"	190	Power	2	12AWG
						Ethernet	1	CAT-6
						GND	1	12AWG
F46	Farside CCTV/P.A. Cabinet	NW Gate P.A. Speaker	PVC RMC	3/4"	100	Speaker	2	AUDIO
						N/A	0	CAT-6
						GND	1	12AWG
F47	Farside CCTV/P.A. Cabinet	SW Gate P.A. Speaker	PVC RMC	3/4"	150	Speaker	2	AUDIO
						N/A	0	CAT-6
						GND	1	12AWG
F48	Farside CCTV/P.A. Cabinet	NW Approach P.A. Speaker	PVC RMC	3/4"	200	Speaker	2	AUDIO
						N/A	0	CAT-6
						GND	1	12AWG
F49	Farside CCTV/P.A. Cabinet	West One-Way P.A. Speakers	RMC	3/4"	150	Speaker	2	AUDIO
						N/A	0	CAT-6
						GND	1	12AWG
F50A***	NW Aerial Cables Terminal Cabinet	West Approach Fiber Optic Pull Box	PVC RMC	2"	145	FO	1	96 Fiber
F50B***	NW Aerial Cables Terminal Cabinet	West Approach Fiber Optic Pull Box	PVC RMC	2"	145	FO	1	96 Fiber
F51A***	West Approach Fiber Optic Pull Box	Bridge Control Office Building	PVC	2"	75	FO	1	96 Fiber
F51B***	West Approach Fiber Optic Pull Box	Bridge Control Office Building	PVC	2"	75	FO	1	96 Fiber

JACKSON STREET NEARSIDE CONDUIT SCHEDULE

Run No.	Circuit Terminations		Conduit		Length of Run	Wire		
	To	From	Type	Size		Use	Count	Size
N1	East Approach Traffic Pull Box	NE Traffic Gate	PVC RMC	2"	85	480 P	3	10AWG
						120 P	9	10AWG
						SP	3	10AWG
						120 C	5	12AWG
						SP	4	12AWG
N2	East Approach Traffic Pull Box	SE Traffic Gate	PVC RMC	2"	30	GND	1	10AWG
						480 P	3	10AWG
						120 P	9	10AWG
						SP	3	10AWG
						120 C	5	12AWG
N3	East Approach Traffic Pull Box	NE Traffic Signal	PVC RMC	1"	85	SP	4	12AWG
						GND	1	10AWG
						480 P	6	10AWG
N4	East Approach Traffic Pull Box	MCC	RMC	1 1/2"	50	SP	5	10AWG
						GND	2	10AWG
						480 P	10	10AWG
N5	East Approach Traffic Pull Box	LP1 Panelboard	RMC	1 1/2"	50	SP	2	10AWG
						GND	5	10AWG
						120 P	10	10AWG
N6A	East Approach Traffic Pull Box	PLC Main Panel	RMC	1 1/2"	50	SP	5	10AWG
						GND	1	10AWG
						120 C	15	12AWG
N6B	East Approach Traffic Pull Box	PLC Main Panel	RMC	1"	50	120 C	3	12AWG
						SP	3	12AWG
						Instrum.	4	2-Pair
N7*	NE Flexible Cable Terminal Cabinet 1 (fixed span)	NE VFD Cabinet	RMC	1 1/2"	115	SP	2	2-Pair
						GND	1	6AWG
						120 C	3	12AWG
						SP	3	12AWG
N8	NE Flexible Cable Terminal Cabinet 1 (fixed span)	SE VFD Cabinet	RMC	1 1/2"	115	Instrum.	4	2-Pair
						SP	2	2-Pair
						GND	1	6AWG
						120 C	23	12AWG
N9	NE Flexible Cable Terminal Cabinet 1 (fixed span)	PLC Main Panel	RMC	2"	115	SP	11	12AWG
						Instrum.	1	2-Pair
						SP	2	2-Pair
						GND	1	6AWG
N10*	NE Flexible Cable Terminal Cabinet 1 (fixed span)	East Aerial Cables Terminal Cabinet	RMC	1"	60	Ethernet	1	CAT-6
						120 C	29	12AWG
N11	NE Flexible Cable Terminal Cabinet 1 (fixed span)	NE Flexible Cable Terminal Cabinet 2 (movable span)	FLEX	3"	20	SP	11	12AWG
						Instrum.	9	2-Pair
						SP	2	2-Pair
						GND	1	6AWG
						Ethernet	1	CAT-6
N12A	NE Flexible Cable Terminal Cabinet 2 (movable span)	East PLC I/O Cabinet	RMC	2 1/2"	40	120 C	29	12AWG
						SP	11	12AWG
						Instrum.	9	2-Pair
						SP	2	2-Pair
N12B	NE Flexible Cable Terminal Cabinet 2 (movable span)	East PLC I/O Cabinet	RMC	1"	40	GND	1	6AWG
						Ethernet	1	CAT-6
N13*	SE Flexible Cable Terminal Cabinet 1 (fixed span)	MCC	RMC	1 1/2"	55	480 P	12	10AWG
						SP	5	10AWG
						GND	1	2AWG
N14	SE Flexible Cable Terminal Cabinet 1 (fixed span)	LP1 Panelboard	RMC	2 1/2"	55	120 P	12	10AWG
						SP	5	10AWG
						GND	1	2AWG
N15	SE Flexible Cable Terminal Cabinet 1 (fixed span)	NE VFD Cabinet	RMC	2"	55	480 VFD	1	(3) 2AWG

NOTES:

- \* Existing conduit (or partial section of conduit) shall be permitted to be reused by the Contractor.
- \*\* Use of RMC shall be permitted where conduit is exposed, mounted to the bridge structure.
- \*\*\* Denotes conduit run to contain excess slack of fiber optic cable from aerial cable assembly. Refer to drawing 02-090 for Aerial Cable Details.
- Fiber optic conduit bend radius shall be greater than minimum bend radius of fiber optic cable.
- Portion of conduit F45 shall be direct buried.



USER NAME =	DESIGNED - K.M. GABLE	REVISED -
	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.L. REED	REVISED -
PLOT DATE =	CHECKED - R.I. PETERS	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONDUIT TABULATION - 2  
SHEET NO. 87 OF 97 SHEETS

JACKSON, Drawing 02-087			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 197
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



JACKSON STREET NEARSIDE CONDUIT SCHEDULE (CONTINUED)

Run No.	Circuit Terminations		Conduit		Length of Run	Wire		
	To	From	Type	Size		Use	Count	Size
N61	East Aerial Cables Terminal Cabinet	PLC Main Panel	RMC	2½"	150	120 C	23	12AWG
						120 C	14	12AWG
						SP	10	12AWG
						Instrum.	1	2-Pair
						SP	2	2-Pair
					GND	1	6AWG	
N62	East Aerial Cables Terminal Cabinet	NW VFD Cabinet	RMC	2½"	150	480 VFD	1	(3) 2AWG
N63	East Aerial Cables Terminal Cabinet	SW VFD Cabinet	RMC	2½"	150	480 VFD	1	(3) 2AWG
N64	East Aerial Cables Terminal Cabinet	MCC	RMC	1½"	150	480 P	18	10AWG
						SP	5	10AWG
						GND	1	2AWG
N65*	East Aerial Cables Terminal Cabinet	LP1 Panelboard	RMC	2"	150	120 P	2	6AWG
						120 P	22	10AWG
						SP	5	10AWG
						GND	1	2AWG
N66*	East Aerial Cables Terminal Cabinet	PLC Main Panel	RMC	1½"	150	120 P	3	10AWG
						120 P	14	10AWG
						SP	5	10AWG
					GND	1	2AWG	
N67	East Aerial Cables Terminal Cabinet	PLC Main Panel	RMC	1"	150	FO	1	12 Fiber
N68	East Aerial Cables Terminal Cabinet	CCTV/SCADA Network Rack	RMC	1½"	150	FO	2	12 Fiber
						Ethernet	2	CAT-6
N69A	Fiber Optic Interconnect Cabinet	East Approach Fiber Optic Pull Box	PVC RMC	2"	15	Empty (note 4)		
N69B	Fiber Optic Interconnect Cabinet	East Approach Fiber Optic Pull Box	PVC RMC	2"	15	Empty (note 4)		
N70A	East Approach Fiber Optic Pull Box	Cap end of empty conduit	PVC RMC	2"	110	Empty (note 4)		
N70B	East Approach Fiber Optic Pull Box	Cap end of empty conduit	PVC RMC	2"	110	Empty (note 4)		
N71A	East Approach Fiber Optic Pull Box	Cap end of empty conduit	PVC RMC	2"	110	Empty (note 4)		
N71B	East Approach Fiber Optic Pull Box	Cap end of empty conduit	PVC RMC	2"	110	Empty (note 4)		
N72A**	East Aerial Cables Terminal Cabinet	Fiber Optic Interconnect Cabinet	RMC	2"	150	FO	1	96 Fiber
N72B**	East Aerial Cables Terminal Cabinet	Fiber Optic Interconnect Cabinet	RMC	2"	150	FO	1	96 Fiber
N73	East Aerial Cables Terminal Cabinet	Wireless Radio Cabinet	RMC	1½"	15	120 P	4	10AWG
						Ethernet	2	CAT-6
						GND	2	10AWG

JACKSON STREET OPERATOR HOUSE CONDUIT SCHEDULE (CONTINUED)

Run No.	Circuit Terminations		Conduit		Length of Run	Wire		
	To	From	Type	Size		Use	Count	Size
H3A	SW VFD Cabinet	PLC Main Panel	RMC	1"	16	120 C	14	12AWG
H3B	SW VFD Cabinet	PLC Main Panel	RMC	1"	16	GND	1	12AWG
						Instrum.	2	2-PAIR
H4A	NE VFD Cabinet	PLC Main Panel	RMC	1"	16	Ethernet	1	CAT-6
						120 C	14	12AWG
						GND	1	12AWG
H4B	NE VFD Cabinet	PLC Main Panel	RMC	1"	16	Instrum.	2	2-PAIR
						Ethernet	1	CAT-6
H5A	SE VFD Cabinet	PLC Main Panel	RMC	1"	16	120 C	14	12AWG
						GND	1	12AWG
H5B	SE VFD Cabinet	PLC Main Panel	RMC	1"	16	Instrum.	2	2-PAIR
						Ethernet	1	CAT-6
H6	LP1 Panelboard	PLC Main Panel	RMC	1½"	24	120 P	12	10AWG
						120 P	6	10AWG
						SP	2	10AWG
						GND	9	10AWG
H7	Auto Transfer Switch	PLC Main Panel	RMC	¾"	15	120 C	5	12AWG
						GND	1	12AWG
H8A	Control Console	PLC Main Panel	RMC	2½"	12	120 P	4	10AWG
						120 C	60	12AWG
						Instrum.	0	2-PAIR
						Ethernet	0	CAT-6
						GND	1	10AWG
H8B	Control Console	PLC Main Panel	RMC	2½"	12	120 C	60	12AWG
						Instrum.	2	2-PAIR
						Ethernet	3	CAT-6
						GND	1	10AWG
H9	LP1 Panelboard	CCTV/SCADA Network Rack	RMC	¾"	25	120 P	4	10AWG
						GND	1	10AWG
H10	CCTV/SCADA Network Rack	PLC Main Panel	RMC	1"	20	120 C	3	12AWG
						Ethernet	2	CAT-6
H11	CCTV/SCADA Network Rack	Fiber Optic Interconnect Cabinet	RMC	1"	18	FO	2	12 Fiber
H12	PLC Main Panel	SPD / BUS Monitor	RMC	¾"	15	120 C	4	12AWG
						GND	2	12AWG
H13	PLC Main Panel	Power Monitor	RMC	1"	15	Ethernet	1	CAT-6
H14	PLC Main Panel	Fire Alarm and Security System Control Panel	RMC	¾"	40	120 C	4	12AWG
						GND	1	12AWG
H15	Fire Alarm and Security System Control Panel	Electrical Room Detectors	RMC	1"	25	120 C	9	12AWG
						GND	3	12AWG
H16	Fire Alarm and Security System Control Panel	Door Switches	RMC	¾"	25	120 C	6	12AWG
						GND	2	12AWG
H17	Fire Alarm and Security System Control Panel	Operator Room Detectors	RMC	¾"	50	120 C	6	12AWG
						GND	2	12AWG
H18	MCC	NE VFD Cabinet	RMC	2"	25	480 P	3	4/0
						GND	1	2AWG
						480 P	3	2AWG
H19	NE VFD Cabinet	SE VFD Cabinet	RMC	1½"	6	GND	1	4AWG
						480 P	3	4/0
H20	MCC	NW VFD Cabinet	RMC	2"	25	GND	1	2AWG
						480 P	3	4/0
H21	NW VFD Cabinet	SW VFD Cabinet	RMC	1½"	6	480 P	3	2AWG
						GND	1	4AWG
H22	MCC	Transformer	RMC	1½"	20	480 P	2	3/0
						GND	1	4AWG
H23	Transformer	LP1 Panelboard	RMC	2"	15	480 P	3	3/0
						GND	1	4AWG

JACKSON STREET OPERATOR HOUSE CONDUIT SCHEDULE

Run No.	Circuit Terminations		Conduit		Length of Run	Wire		
	To	From	Type	Size		Use	Count	Size
H1	MCC	PLC Main Panel	RMC	1½"	15	120 C	16	12AWG
						SP	5	12AWG
						GND	1	12AWG
H2A	NW VFD Cabinet	PLC Main Panel	RMC	1"	16	120 C	14	12AWG
						GND	1	12AWG
H2B	NW VFD Cabinet	PLC Main Panel	RMC	1"	16	Instrum.	2	2-PAIR
						Ethernet	1	CAT-6

NOTES:

- \* Existing conduit (or partial section of conduit) shall be permitted to be reused by the Contractor.
- \*\* Denotes conduit run to contain excess slack of fiber optic cable from aerial cable assembly. Refer to drawing 02-090 for Aerial Cable Details.
- Fiber optic conduit bend radius shall be greater than minimum bend radius of fiber optic cable.
- Provide and install empty conduit for future fiber connection under separate Fiber Optic Contract.

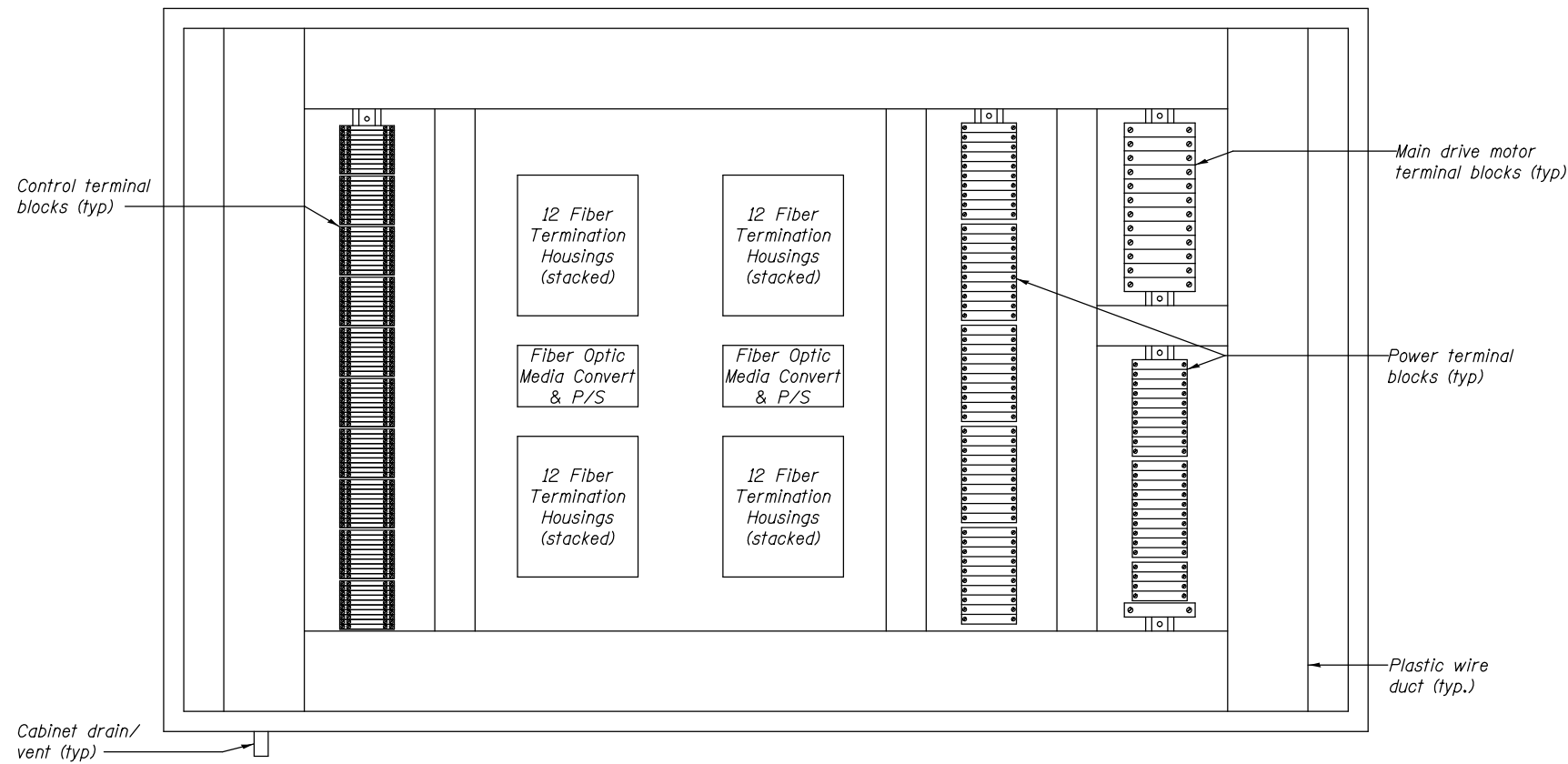


USER NAME =	DESIGNED - K.M. GABLE	REVISED -
PLOT SCALE =	CHECKED - L.V. BORDEN	REVISED -
PLOT DATE =	DRAWN - R.L. REED	REVISED -
	CHECKED - R.I. PETERS	REVISED -

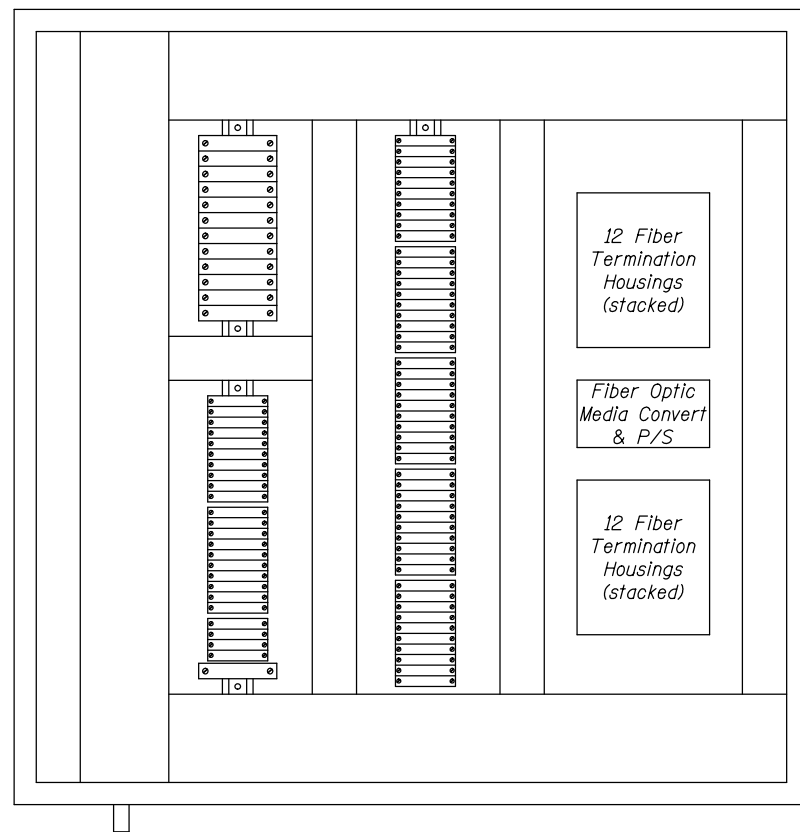
STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - CONDUIT TABULATION - 4  
SHEET NO. 89 OF 97 SHEETS

JACKSON, Drawing 02-089			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO.
			199
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			



NEARSIDE AERIAL CABLES TERMINAL CABINET LAYOUT, 36"H x 60"W x 12"D



FARSIDE AERIAL CABLES TERMINAL CABINET LAYOUTS, 36"H x 36"W x 12"D

PROPOSED AERIAL CONTROL AND COMMUNICATIONS CABLE		
Description	Quantity	Size/Type
Fiber Optic Communications, Main SCADA & CCTV Networks	1	96 Fiber, SM
Fiber Optic Communications, Local Bridge PLC and CCTV Networks	2	12 Fiber
Farside Motor Encoders	8	1 pair, shielded 12AWG
Farside Inclinator and Spares	7	1 pair, shielded 12AWG
Farside Traffic Gate Limit Switches	10	10 AWG
Farside Fully Seated Limit Switch	2	10 AWG
Farside Rotary Cam Limit Switch	9	10 AWG
Farside Brake Limit Switches	12	10 AWG
Farside Boat Detection	2	10 AWG
Motor Heater Control and Thermostat Contacts	8	10 AWG
Spare	17	10 AWG
Ground	1	6 AWG

PROPOSED AERIAL POWER & MAIN DRIVE CABLE		
Description	Quantity	Size/Type
Fiber Optic Communications, Main SCADA & CCTV Networks	1	96 Fiber, SM
Fiber Optic Communications, Local Bridge PLC and CCTV Networks	2	12 Fiber
Farside Main Drive Motor 1 - Shielded Symmetrical VFD Cable	1	(3) - 2AWG (3) - Ground
Farside Main Drive Motor 2 - Shielded Symmetrical VFD Cable	1	(3) - 2AWG (3) - Ground
Spare Farside Main Drive Motor- Shielded Symmetrical VFD Cable	1	(3) - 2AWG (3) - Ground
Farside Motors (2 gates, 4 brakes)	18	10 AWG
120 VAC, Farside CCTV/PA	2	6 AWG
120 VAC Power Circuits	39	10 AWG
240 VAC Power	3	4 AWG
Spare	10	10 AWG
Spare	2	4 AWG
Ground	1	2 AWG

**NOTES**

- Aerial cables content, cabinet sizes, and cabinet layouts shown are conceptual. The Contractor shall be responsible for determining the requirements of the aerial cable system necessary to support the Intergrated Bridge Controls System, the Bridge Control CCTV system, and all other related systems and components.
- Refer to Special Provisions for additional requirements for aerial cables and cabinets.
- Provide fiber optic termination housings as required to terminate aerial cable fiber optic cables associated with bridge local networks and to interconnect all associated bridge devices and networked components.
- For 96 fiber single mode cables in aerial cable assemblies utilized for the CCTV and SCADA networks interconnecting the six movable bridges and the Bridge Office, provide fiber optic cables with sufficient excess length on both ends required to connect (via conduit routing) to the appropriate Fiber Optic Interconnect Cabinets. Provide a minimum of 300' for the operator house end and 700' for the opposite end of each cable. Additional fiber optic cable slack shall be provided for each of the following: 100 feet at each termination point, 50 feet at each junction box and vault.



USER NAME =	DESIGNED - R.I. PETERS	REVISED -
	CHECKED - L.V. BORDEN	REVISED -
PLOT SCALE =	DRAWN - R.I. PETERS	REVISED -
PLOT DATE =	CHECKED - K.M. GABLE	REVISED -

STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION

VARIOUS MOVABLE BRIDGES  
LOCAL CENTRALIZED CONTROL AND OPERATION  
JACKSON STREET - AERIAL CABLE DETAILS  
SHEET NO. 90 OF 97 SHEETS

JACKSON, Drawing 02-090			
F.A.U. RTE.	SECTION	COUNTY	TOTAL SHEETS
0297	2011-045-I	WILL	466
			SHEET NO. 200
CONTRACT NO. 60P55			
ILLINOIS FED. AID PROJECT			