

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	2011-035-I	DUPAGE	184	1
FED. ROAD DIST. NO.	ILLINOIS	CONTRACT NO. 60P41		

D-91-014 * 181 + 3 = 184
 10 * 184 + 4 = 1880



LOCATION OF SECTION INDICATED THUS: — ■ —

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

SUBMITTED MARCH 21, 2012
Diane M. O'Keefe
 DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER

May 11, 2012
John D. Baranelli, P.E.
 acting ENGINEER OF DESIGN AND ENVIRONMENT

May 11, 2012
William R. Frezza
 acting DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

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 OF THE STATE OF ILLINOIS**

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS

PROPOSED HIGHWAY PLANS

FAP ROUTE 338: IL ROUTE 59

SECTION 2011-035-I

PROJECT: *ACNHF-0338(044)*

PUMP STATION 47 REPLACEMENT

DUPAGE COUNTY

C-91-538-11

THE PROJECT IS LOCATED IN THE CITY OF
 NAPERVILLE (PRIMARY) AND THE CITY OF
 AURORA

FOR INDEX OF SHEETS, SEE SHEET NO. 2

DESIGN DESIGNATION

NA

TRAFFIC DATA

	ADT 2009/2030	SPEED DESIGN/POSTED
IL ROUTE 59		
LIBERTY TO N AURORA	49,700/79,000	45/40



KNIGHT E/A, INC.
 Date: 3-21-12
John C. Murillo
 John C. Murillo
 Expires: 11-30-13
 Sheet No.: 1-50, 157-181



KNIGHT E/A, INC.
 Date: 3-21-12
Roxanne M. Knapp
 Roxanne M. Knapp
 Expires: 11-30-12
 Sheet No.: 64-75



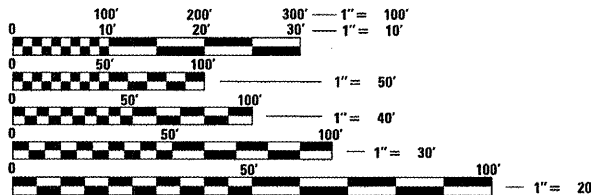
KNIGHT E/A, INC.
 Date: 3-21-12
William P. Murphy
 William P. Murphy
 Expires: 11-30-12
 Sheet No.: 51-63, 76-109



McDONOUGH ASSOCIATES INC.
 Date: 3-21-12
Andrew P. Ftacek, Jr.
 Andrew P. Ftacek, Jr.
 Expires: 11-30-13
 Sheet No.: 110-123



McDONOUGH ASSOCIATES INC.
 Date: 3-21-12
Kamil M. Yenice
 Kamil M. Yenice
 Expires: 11-30-13
 Sheet No.: 124-156

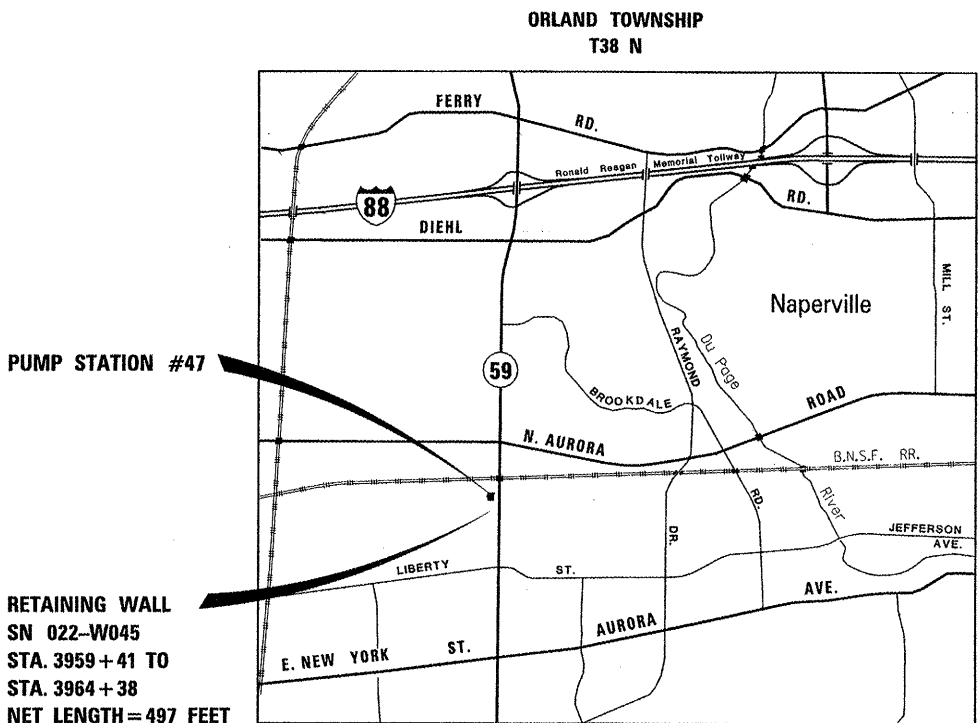


FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD
 ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT
 CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENTS
 ON REDUCED PLANS, THE ABOVE SCALES MAY BE USED.

J.U.L.I.E.
 JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
 1-800-892-0123
 OR 811

PROJECT ENGINEER — RON ZENAROSA (847)705-4212
 PROJECT MANAGER — BRIAN KUTTAB (847)705-4431

CONTRACT NO. 60P41



LOCATION MAP

NET LENGTH OF PROJECT = 675 FEET



McDonough Associates Inc.
 Engineers / Architects
 180 North Stetson Avenue Chicago, Illinois 60601

KNIGHT

Engineers & Architects

221 North LaSalle Street
 Suite 300
 Chicago, IL 60601-1211
 Phone: (312) 577-3300

Plans Prepared By:

Rev. 6-4-12

INDEX OF SHEETS

SHEET	DESCRIPTION
1	COVER
2	INDEX OF SHEETS AND HIGHWAY STANDARDS
3	GENERAL NOTES AND COMMITMENTS
4-6	SUMMARY OF QUANTITIES
7-8	SCHEDULE OF QUANTITIES
9-10	ALIGNMENT, BENCHMARKS, AND TIES
11	SUGGESTED SEQUENCE OF CONSTRUCTION
12-18	MAINTENANCE OF TRAFFIC
19	DEMOLITION PLAN
20	DRAINAGE PLAN AND PROFILE - STAGE 1
21	TEMPORARY DRAINAGE CONNECTION THROUGH RETAINING WALL SN 022-W045
22	DRAINAGE PLAN AND PROFILE - STAGE 2
23	DRAINAGE PLAN AND PROFILE - STAGE 3
24	DRAINAGE PLAN - STAGE 3
25	FLOODED PAVEMENT ALARM SYSTEM
26	DRIVEWAY PLAN
27	DRIVEWAY GRADING PLAN AT PUMP STATION DOOR ACCESS
28	SECURITY FENCE AND PARKING AREA PLAN
29-30	SECURITY FENCE AND GATE DETAILS
31	LANDSCAPING PLAN
32	EROSION CONTROL PLAN
33-44	CROSS SECTIONS
45	SUE INVESTIGATION OF UNDERGROUND UTILITIES
46-47	PLAT OF HIGHWAYS
48	TRAFFIC CONTROL AND PROTECTION FOR SIDE ROADS, INTERSECTIONS, AND DRIVEWAYS (TC-10)
49	SIGNING FOR FLAGGING OPERATIONS (TC-18)
50	ARTERIAL ROAD INFORMATION SIGN (TC-22)

RETAINING WALL SN 022-W045

51-63	STRUCTURAL PLANS
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PUMP STATION NO. 47

64-75	ARCHITECTURAL PLANS
76-109	STRUCTURAL PLANS
110-118	MECHANICAL PLANS
119-123	HEATING AND VENTILATION PLANS
124-156D.	INSTRUMENT AND CONTROL PLANS
157-181	ELECTRICAL PLANS

*
* Added 156A - 156D.

HIGHWAY STANDARDS

STANDARD NO.	TITLE
000001-06	STANDARD SYMBOLS, ABBREVIATIONS, AND PATTERNS
001001-02	AREAS OF REINFORCEMENT BARS
280001-06	TEMPORARY EROSION CONTROL SYSTEMS
442201-03	CLASS C AND D PATCHES
602401-03	MANHOLE TYPE A
602406-05	MANHOLE TYPE A 6' (1.8 M) DIAMETER
602411-03	MANHOLE TYPE A 7' (2.1 M) DIAMETER
604001-03	FRAME AND LIDS TYPE 1
606201-02	CONCRETE CURB TYPE B AND COMBINATION CONCRETE CURB AND GUTTER
635001-01	DELINEATORS
643001	SAND MODULE IMPACT ATTENUATORS
701101-02	OFF-RD OPERATIONS, MULTILANE, 15' (4.5 M) TO 24" (600 MM) FROM PAVMENT EDGE
701106-02	OFF-RD OPERATIONS, MULTILANE, MORE THAN 15' (4.5 M) AWAY
701427	LANE CLOSURE, MULTILANE, INTERMITTENT OR MOVING OPER., FOR SPEEDS < 40 MPH
701601-07	URBAN LANE CLOSURE, MULTILANE, 1W OR 2W WITH NONTRAVERSABLE MEDIAN
701901-02	TRAFFIC CONTROL DEVICES
704001-07	TEMPORARY CONCRETE BARRIER

	DESIGNED - DMS	REVISED	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	INDEX OF SHEETS AND IDOT HIGHWAY STANDARDS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	DRAWN - KEA	REVISED -			338/IL 59	2011-035-I		181	2
	CHECKED - PJO	REVISED -			CONTRACT NO. 60P41				
	DATE - 03-22-2012	REVISED -			ILLINOIS FED. AID PROJECT				
PLOT SCALE : #SCALES				SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.
PLOT DATE : #DATES									

Rev. 6-4-12

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE		
				80% FED 20% STATE	80% FED 20% STATE	80% FED 20% STATE
				ROADWAY AND DRAINAGE	RETAINING WALL SN 022-W045	PUMP STATION 47
				0004	0040	0040
				URBAN	URBAN	URBAN
60500040	REMOVING MANHOLES	EACH	8	8		
60500105	FILLING MANHOLES	EACH	1	1		
60604400	COMBINATION CURB & GUTTER, TYPE B-6.18	FOOT	60	60		
67000400	ENGINEER'S FIELD OFFICE, TYPE A	CAL MO	20	20		
67100100	MOBILIZATION	L SUM	1	1		
70103815	TRAFFIC CONTROL SURVEILLANCE	CAL DA	400	400		
70400100	TEMPORARY CONCRETE BARRIER	FOOT	750	750		
70400200	RELOCATE TEMPORARY CONCRETE BARRIER	FOOT	600	600		
78200530	BARRIER WALL MARKERS, TYPE C	EACH	80	80		
80400200	ELECTRIC UTILITY SERVICE CONNECTION	L SUM	1			1
* X0301028	PUMP STATION SCADA EQUIPMENT	L SUM	1			1
X0322121	SHEET WATERPROOFING MEMBRANE SYSTEM	SQ YD	600			600
X0322719	TEMPORARY DRAINAGE CONNECTION	EACH	1			1
X0323002	TEMPORARY ELECTRICAL SERVICE CONNECTION	EACH	1			1

* SPECIALTY ITEM

USER NAME : RUSER*	DESIGNED - DMS	REVISED - 04-06-2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES			F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	
PLOT SCALE : 1SCALE*	DRAWN - KEA	REVISED -		SCALE:	SHEET NO. 1 OF 6 SHEETS	STA.	TO STA.	338/IL 59	2011-035-I	DUPAGE	181	6A
PLOT DATE : 0DATE*	CHECKED - PJQ	REVISED -					CONTRACT NO. 60P41					
	DATE - 03-22-2012	REVISED -					ILLINOIS FED. AID PROJECT					

 Rev. 6-4-12

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE		
				80% FED 20% STATE	80% FED 20% STATE	80% FED 20% STATE
				ROADWAY AND DRAINAGE	RETAINING WALL SN 022-W045	PUMP STATION 47
				0004 URBAN	0040 URBAN	0040 URBAN
* X0324455	DRILLING AND SETTING SOLDIER PILES (IN SOIL)	CU FT	16,230		16,230	1
* X0324456	DRILLING AND SETTING SOLDIER PILES (IN ROCK)	CU FT	6,600		6,600	1
X0325405	FILL EXISTING STORM SEWERS	CU YD	67	67		
X0326694	PLUG EXISTING STORM SEWERS	CU YD	0.5	0.5		
X0335700	PUMP STATION GENERAL WORK	L SUM	1			1
* X0783300	PUMP STATION ELECTRICAL WORK	L SUM	1			1
* X0783500	PUMP STATION MECHANICAL WORK	L SUM	1			1
X2020502	BRACED EXCAVATION	CU YD	2,730			2,730
X4402302	CURB REMOVAL (PARTIAL)	FOOT	170	170		
X6028050	TEMPORARY MANHOLE	EACH	5	5		
* X6640308	CHAIN LINK GATES, (SPECIAL)	EACH	3	3		
* X6640570	CHAIN LINK FENCE, 8' (SPECIAL)	FOOT	143	143		
* X6640585	CHAIN LINK FENCE, ATTACHED TO STRUCTURE, SPECIAL	FOOT	105	105		
X6700410	ENGINEER'S FIELD OFFICE, TYPE A (SPECIAL)	CAL MO	20	20		1
X7010216	TRAFFIC CONTROL AND PROTECTION (SPECIAL)	L SUM	1	1		
Z0004522	HOT-MIX ASPHALT DRIVEWAY PAVEMENT, 6"	SQ YD	356	356		

* SPECIALTY ITEM

1 Rev. 6-4-12

	USER NAME : USER#	DESIGNED - DMS	REVISED - 04-06-2012	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	SUMMARY OF QUANTITIES	SCALE:	SHEET NO. 1 OF 6 SHEETS	STA.	TO STA.	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE : #SCALE#	DRAWN - KEA	REVISED -							338/IL 59	2011-035-I	DUPAGE	181	68
	PLOT DATE : #DATE#	CHECKED - PJO	REVISED -							CONTRACT NO. 60P41				
		DATE - 03-22-2012	REVISED -							ILLINOIS FED. AID PROJECT				

CODE NO.	ITEM	UNIT	TOTAL QUANTITY	CONSTRUCTION CODE		
				80% FED 20% STATE	80% FED 20% STATE	80% FED 20% STATE
				ROADWAY AND DRAINAGE	RETAINING WALL SN 022-W045	PUMP STATION 47
				0004 URBAN	0040 URBAN	0040 URBAN
* Z0007118	UNTREATED TIMBER LAGGING	SQ FT	4,881		4,881	
Z0007601	BUILDING REMOVAL NO. 1	L SUM	1			1
Z0013798	CONSTRUCTION LAYOUT	L SUM	1	1		
Z0026402	FURNISHING SOLDIER PILES (HP SECTION)	FOOT	828		828	
Z0026404	FURNISHING SOLDIER PILES (W SECTION)	FOOT	3,041		3,041	
Z0030240	IMPACT ATTENUATOR, TEMPORARY (NON-REDIRECTIVE), TEST LEVEL 2	EACH	1	1		
Z0030850	TEMPORARY INFORMATION SIGNING	SQ FT	50	50		
Z0046304	PIPE UNDERDRAINS FOR STRUCTURES, 4"	FOOT	495		495	
Z0048665	RAILROAD PROTECTIVE LIABILITY INSURANCE	L SUM	1	1		
* X0327394	HEATING AND VENTILATION WORK	L SUM	1			1
30300108	AGGREGATE SUBGRADE IMPROVEMENT 8"	SQ YD	943	943		
* X5051100	BRIDGE CRANE	L SUM	1			1
* 66900200	NON-SPECIAL WASTE DISPOSAL	CU YD	5850			5850
* 66900450	SPECIAL WASTE PLANS AND REPORTS	L SUM	1			1
* 66900530	SOIL DISPOSAL ANALYSIS	EACH	1			1
* SPECIALTY ITEM						

USER NAME : FUSER1	DESIGNED - DMS	REVISED - 04-06-2012
	DRAWN - KEA	REVISED -
PLOT SCALE : 1"=SCALE1	CHECKED - PJO	REVISED -
PLOT DATE : 04-07-12	DATE - 03-22-2012	REVISED -

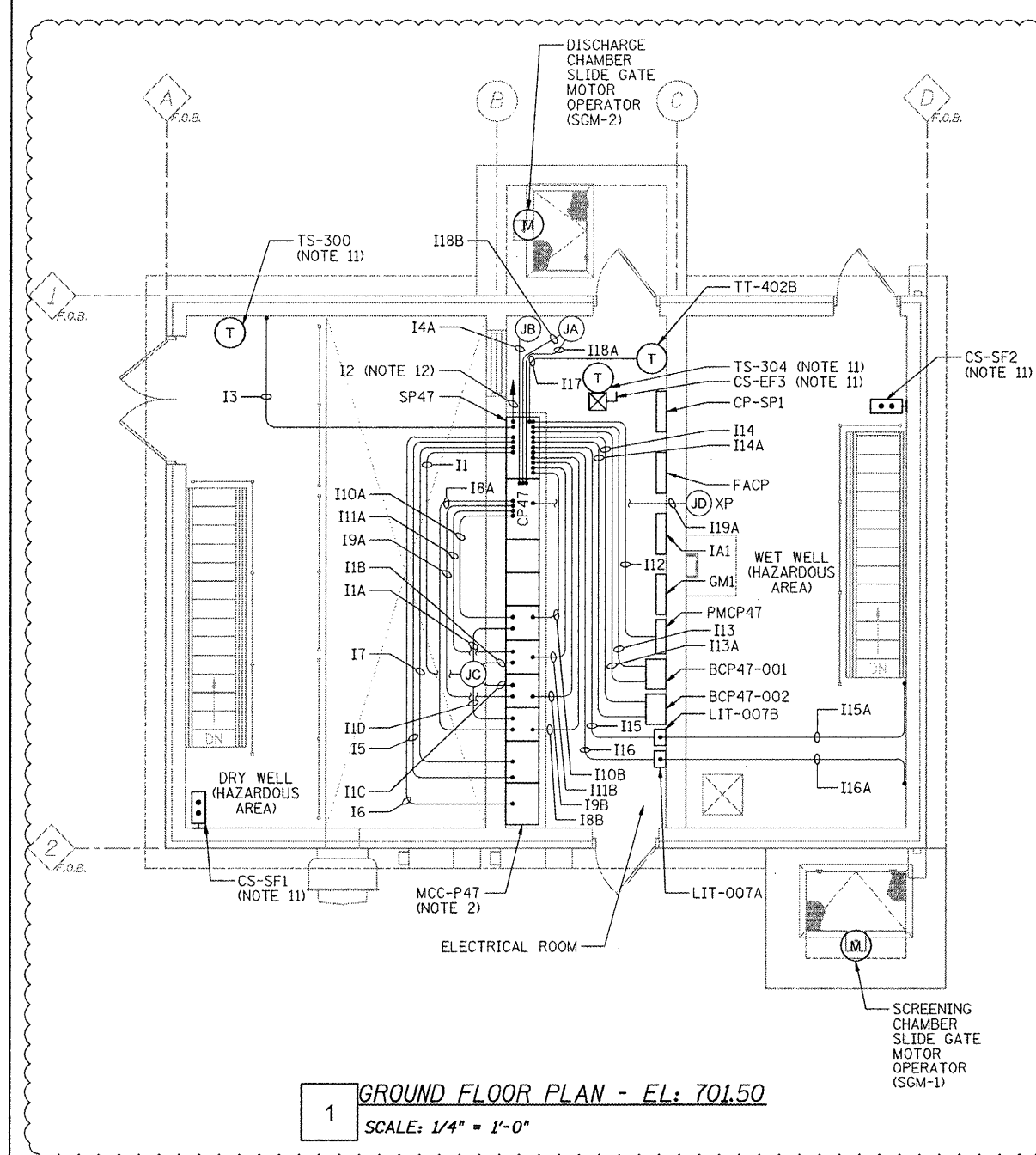
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SUMMARY OF QUANTITIES

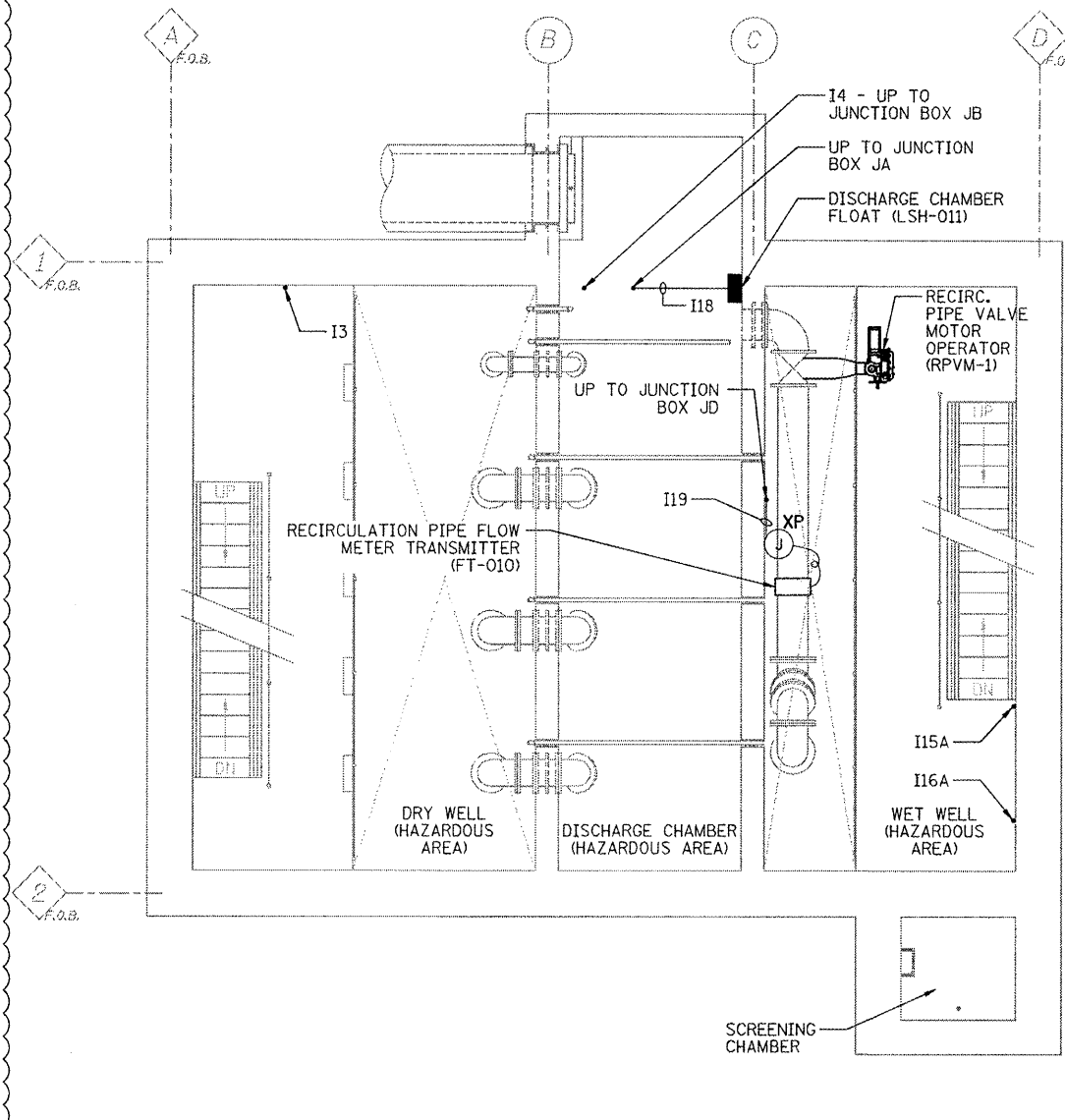
SCALE: SHEET NO. 1 OF 6 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	2011-035-1	DUPAGE	181	60
CONTRACT NO. 60P41				
ILLINOIS FED. AID PROJECT				

Rev. 6-4-12



1 GROUND FLOOR PLAN - EL: 701.50
SCALE: 1/4" = 1'-0"



2 INTERMEDIATE FLOOR PLAN (-1) - EL: 692.75, DISCHARGE EL: 694+00 HP
SCALE: 1/4" = 1'-0"

NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO SHEETS E3 AND E8 FOR DETAILS REGARDING MCC-P47.
- PROVIDE EXPLOSION-PROOF SEAL-OFF FITTINGS ON ALL CONDUIT EXITING CLASSIFIED OR RATED LOCATIONS. FITTINGS SHALL BE INSTALLED IN THE CLASSIFIED OR RATED LOCATION.
- ALL EQUIPMENT INSTALLED IN DRY WELL, WET WELL, AND DISCHARGE CHAMBER SHALL BE RATED FOR CLASS 1, DIVISION 2 EXPLOSION-PROOF ENVIRONMENT.
- INTRINSICALLY SAFE WIRING SHALL BE SEGREGATED FROM ALL OTHER TYPES OF WIRING. INTRINSICALLY SAFE WIRING SHALL BE INSTALLED IN A CONDUIT ONLY WITH OTHER INTRINSICALLY SAFE CIRCUITS IN PANELS AND EQUIPMENT. INTRINSICALLY SAFE CIRCUIT WIRING SHALL HAVE A MINIMUM OF 3 INCHES OF CLEARANCE, OR A GROUNDED METAL OR INSULATING PARTITION, BETWEEN THE INTRINSICALLY SAFE AND OTHER TYPES OF WIRING. SEE NEC ARTICLE 504.
- SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE RUN IN CONDUIT. SHIELDED CONDUCTORS SHALL NOT BE COMBINED WITH UNSHIELDED CONDUCTORS IN ANY CONDUIT. NEITHER SHIELDED NOR UNSHIELDED CONDUCTORS SHALL BE INCLUDED IN THE SAME CONDUIT AS POWER WIRING.
- SHIELDED AND UNSHIELDED CONDUCTORS SHALL HAVE A MINIMUM OF 6" SEPARATION BETWEEN CONDUIT ON PARALLEL RUNS.
- SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE SEPARATED BY STEEL BARRIERS IN ALL COMBINED SIGNAL JUNCTION BOXES AND INSTRUMENT TERMINATION CABINETS.
- CONDUCTORS SHALL NOT BE SPLICED EXCEPT AT TERMINALS OR AS DESIGNATED BY THE ENGINEER.
- THE CONDUIT PLANS ARE DIAGRAMMATIC IN NATURE, AND DO NOT SHOW A COMPLETE CONDUIT SYSTEM. PROVIDE PULL BOXES AND OTHER CONDUIT SYSTEM COMPONENTS AS REQUIRED FOR INSTALLATION AND TO MEET NEC.
- REFER TO SHEET E5 FOR ADDITIONAL DETAILS.
- (4) PAIR TELEPHONE CABLE SHALL BE CONNECTED FROM TELEPHONE MODEM IN SCADA PANEL TO TELEPHONE SERVICE.



IP-1

McDonough Associates Inc. Engineers/Architects 130 East Randolph Street - Suite 1000 Chicago, Illinois 60601 Phone: (312) 948-6600	DESIGNED <i>DKC</i>	REVISED -Addendum A 5-23-12
	CHECKED <i>KMY</i>	REVISED -
	DRAWN <i>CJM</i>	REVISED -
	CHECKED <i>KMY</i>	REVISED -
SCALE	DATE <i>03/22/2012</i>	

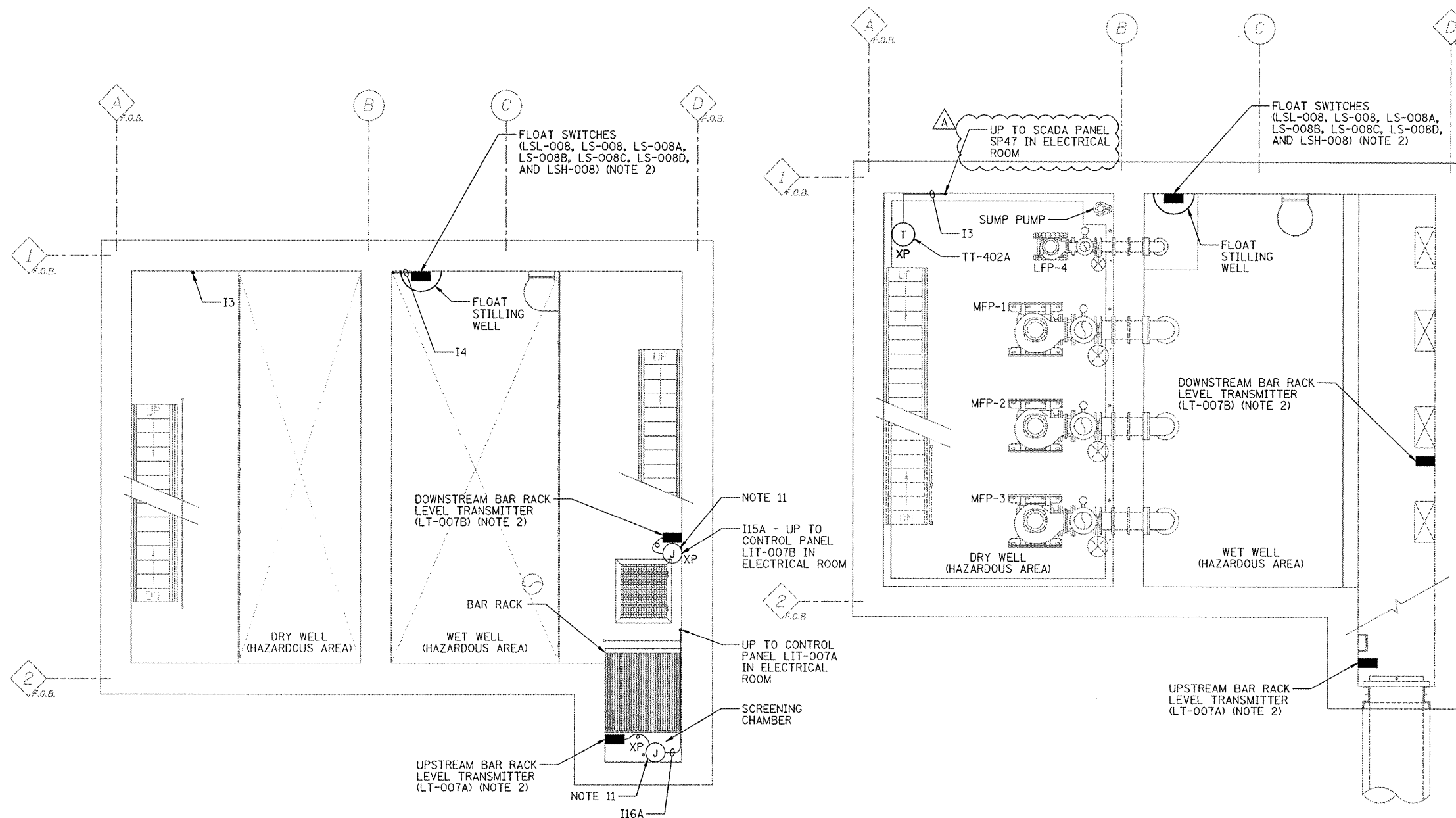
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PUMP STATION INSTRUMENTATION CONDUIT PLANS
PUMP STATION 47
SHEET NO. IP-1 OF 9 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	2011-035-I	DUPAGE	181	126
		CONTRACT NO. 60P41		
ILLINOIS		FED. AID PROJECT		

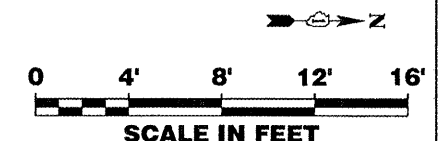
NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO MECHANICAL DRAWING M3 FOR ADDITIONAL DETAILS.
- PROVIDE EXPLOSION-PROOF SEAL-OFF FITTINGS ON ALL CONDUIT EXITING CLASSIFIED OR RATED LOCATIONS. FITTINGS SHALL BE INSTALLED IN THE CLASSIFIED OR RATED LOCATION.
- ALL EQUIPMENT INSTALLED IN DRY WELL, WET WELL, AND DISCHARGE CHAMBER SHALL BE RATED FOR CLASS 1, DIVISION 2 EXPLOSION-PROOF ENVIRONMENT.
- INTRINSICALLY SAFE WIRING SHALL BE SEGREGATED FROM ALL OTHER TYPES OF WIRING. INTRINSICALLY SAFE WIRING SHALL BE INSTALLED IN A CONDUIT ONLY WITH OTHER INTRINSICALLY SAFE CIRCUITS IN PANELS AND EQUIPMENT. INTRINSICALLY SAFE CIRCUIT WIRING SHALL HAVE A MINIMUM OF 3 INCHES OF CLEARANCE, OR A GROUNDED METAL OR INSULATING PARTITION, BETWEEN THE INTRINSICALLY SAFE AND OTHER TYPES OF WIRING. SEE NEC ARTICLE 504.
- SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE RUN IN CONDUIT. SHIELDED CONDUCTORS SHALL NOT BE COMBINED WITH UNSHIELDED CONDUCTORS IN ANY CONDUIT. NEITHER SHIELDED NOR UNSHIELDED CONDUCTORS SHALL BE INCLUDED IN THE SAME CONDUIT AS POWER WIRING.
- SHIELDED AND UNSHIELDED CONDUCTORS SHALL HAVE A MINIMUM OF 6" SEPARATION BETWEEN CONDUIT ON PARALLEL RUNS.
- SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE SEPARATED BY STEEL BARRIERS IN ALL COMBINED SIGNAL JUNCTION BOXES AND INSTRUMENT TERMINATION CABINETS.
- CONDUCTORS SHALL NOT BE SPICED EXCEPT AT TERMINALS OR AS DESIGNATED BY THE ENGINEER.
- THE CONDUIT PLANS ARE DIAGRAMMATIC IN NATURE, AND DO NOT SHOW A COMPLETE CONDUIT SYSTEM. PROVIDE PULL BOXES AND OTHER CONDUIT SYSTEM COMPONENTS AS REQUIRED FOR INSTALLATION AND TO MEET NEC.
- JUNCTION BOX TO BE MOUNTED AT ELEVATION 689.00 ABOVE TRANSDUCER PIPE HOUSING.



1 INTERMEDIATE FLOOR PLAN (-2) - EL: 684.00
SCALE: 1/4" = 1'-0"

2 WELL LEVEL FLOOR PLAN (-3) - DRY EL: 673.00, WET EL: 671.50
SCALE: 1/4" = 1'-0"



IP-2

McDonough Associates Inc. Engineers/Architects 130 East Randolph Street - Suite 1000 Chicago, Illinois 60601 Phone: (312) 946-8000	DESIGNED	DKC	REVISED - Addendum A 5-23-12
	CHECKED	KMY	REVISED -
	DRAWN	CJM	REVISED -
	CHECKED	KMY	REVISED -
SCALE			
DATE	03/22/2012		

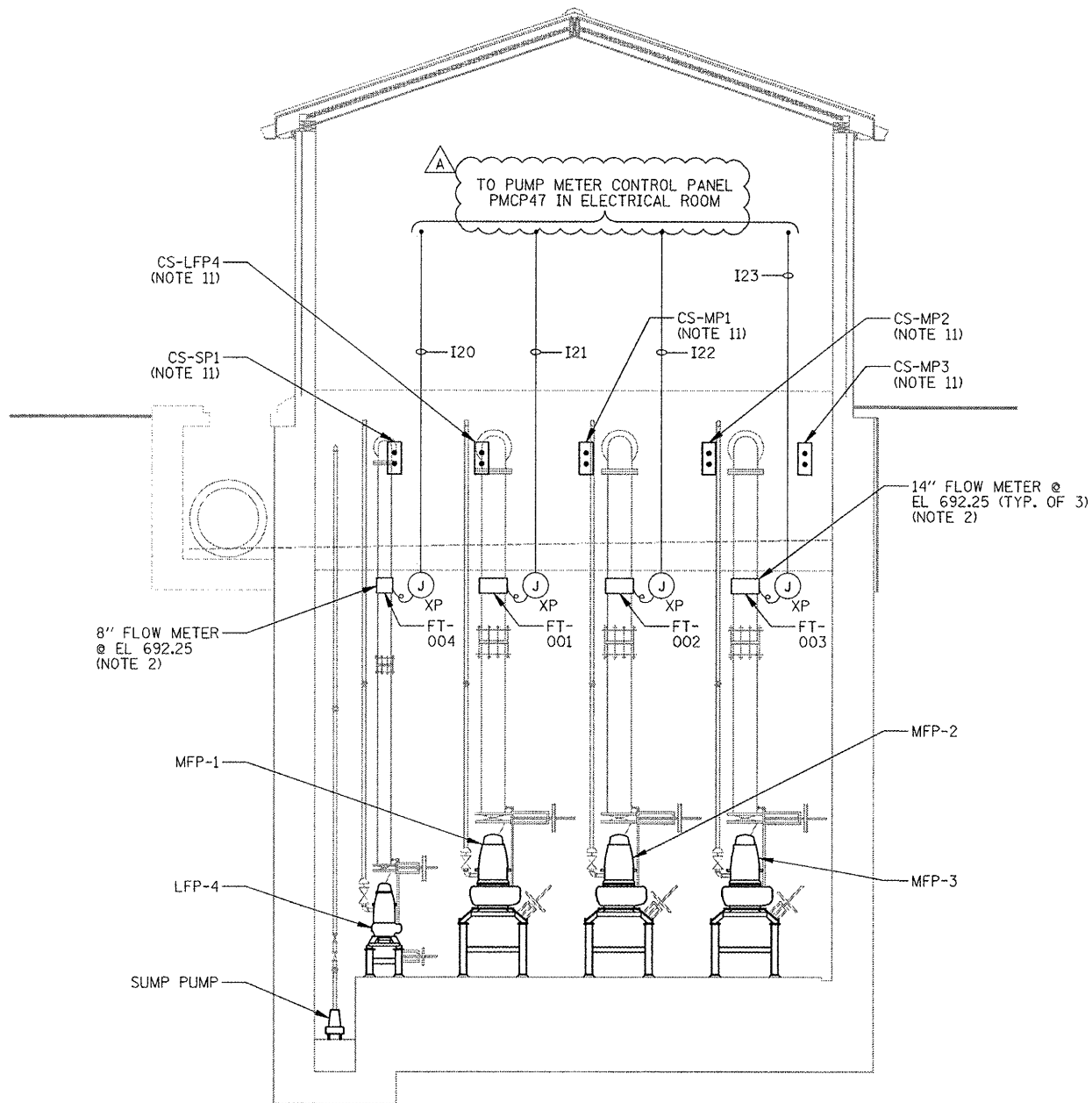
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PUMP STATION INSTRUMENTATION CONDUIT PLANS
PUMP STATION 47

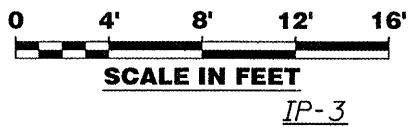
SHEET NO. IP-2 OF 9 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	2011-035-1	DUPAGE	181	127
CONTRACT NO. 60P41				
ILLINOIS FED. AID PROJECT				

- NOTES:
- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
 - REFER TO MECHANICAL DRAWING M4 FOR ADDITIONAL DETAILS.
 - PROVIDE EXPLOSION-PROOF SEAL-OFF FITTINGS ON ALL CONDUIT EXITING CLASSIFIED OR RATED LOCATIONS. FITTINGS SHALL BE INSTALLED IN THE CLASSIFIED OR RATED LOCATION.
 - ALL EQUIPMENT INSTALLED IN DRY WELL, WET WELL, AND DISCHARGE CHAMBER SHALL BE RATED FOR CLASS 1, DIVISION 2 EXPLOSION-PROOF ENVIRONMENT.
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 - SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE RUN IN CONDUIT. SHIELDED CONDUCTORS SHALL NOT BE COMBINED WITH UNSHIELDED CONDUCTORS IN ANY CONDUIT. NEITHER SHIELDED NOR UNSHIELDED CONDUCTORS SHALL BE INCLUDED IN THE SAME CONDUIT AS POWER WIRING.
 - SHIELDED AND UNSHIELDED CONDUCTORS SHALL HAVE A MINIMUM OF 6" SEPARATION BETWEEN CONDUIT ON PARALLEL RUNS.
 - SHIELDED AND UNSHIELDED CONDUCTORS SHALL BE SEPARATED BY STEEL BARRIERS IN ALL COMBINED SIGNAL JUNCTION BOXES AND INSTRUMENT TERMINATION CABINETS.
 - CONDUCTORS SHALL NOT BE SPLICED EXCEPT AT TERMINALS OR AS DESIGNATED BY THE ENGINEER.
 - THE CONDUIT PLANS ARE DIAGRAMMATIC IN NATURE, AND DO NOT SHOW A COMPLETE CONDUIT SYSTEM. PROVIDE PULL BOXES AND OTHER CONDUIT SYSTEM COMPONENTS AS REQUIRED FOR INSTALLATION AND TO MEET NEC.
 - REFER TO SHEET E6 FOR ADDITIONAL DETAILS.



1 DRY WELL SECTION
SCALE: 1/4" = 1'-0"



NOTES:
1. UNLESS NOTED OTHERWISE, ALL CONDUITS INSTALLED INDOORS SHALL BE RIGID GALVANIZED STEEL.

NUMBER	CONDUIT SIZE (IN.) (NOTE 1)	CONDUCTOR QUANTITY & SIZE	COND./CABLE INSULATION	FROM	TO
I1	1	QTY. 4-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	SCADA PANEL SP47	JUNCTION BOX JC
I1A	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	JUNCTION BOX JC	LOW FLOW PUMP STARTER (MCC-P47, SECTION 6A)
I1B	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	JUNCTION BOX JC	MFP-3 STARTER (MCC-P47, SECTION 5A)
I1C	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	JUNCTION BOX JC	MFP-2 STARTER (MCC-P47, SECTION 4A)
I1D	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	JUNCTION BOX JC	MFP-1 STARTER (MCC-P47, SECTION 3A)
I2	3/4	QTY. 1-(4) PAIR TELEPHONE CABLE	THWN	SCADA PANEL SP47	TELEPHONE SERVICE POINT
I3	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	SCADA PANEL SP47	THERMOSTAT TT-402A
I4	---	MANUFACTURER SUPPLIED CABLES	SEE SPECIFICATIONS	JUNCTION BOX JB	WET WELL FLOAT SWITCHES LSL-008, LS-008, LS-008A, LS-008B, LS-008C, LS-008D, LSH-008)
I4A	1	QTY. 18-#12 & QTY. 1-#12 GND.	THHN/THWN	CONTROL PANEL CP47	JUNCTION BOX JB
I5	3/4	QTY. 1-CATEGORY 6 DATA CABLE	PVC	SCADA PANEL SP47	ELECTRIC METERING DEVICE (MCC-P47, SECTION 2A)
I6	1	QTY. 6-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	SERVICE No. 1 BREAKER (MCC-P47, SECTION 1A)
		QTY. 6-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	SERVICE No. 2 BREAKER (MCC-P47, SECTION 2A)
I7	1	QTY. 12-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	ATS (MCC-P47, SECTION 2B)
I8A	1	QTY. 20-#12 & QTY. 1-#12 GND.	THWN	CONTROL PANEL CP47	MFP-1 STARTER (MCC-P47, SECTION 3A)
I8B	1-1/4	QTY. 24-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	MFP-1 STARTER (MCC-P47, SECTION 3A)
		QTY. 10-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	EF-1 STARTER (MCC-P47, SECTION 3B)
I9A	1	QTY. 20-#12 & QTY. 1-#12 GND.	THWN	CONTROL PANEL CP47	MFP-2 STARTER (MCC-P47, SECTION 4A)
I9B	1-1/4	QTY. 24-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	MFP-2 STARTER (MCC-P47, SECTION 4A)
		QTY. 10-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	EF-2 STARTER (MCC-P47, SECTION 4B)
I10A	1	QTY. 20-#12 & QTY. 1-#12 GND.	THWN	CONTROL PANEL CP47	LOW FLOW PUMP STARTER (MCC-P47, SECTION 6A)
I10B	1-1/4	QTY. 24-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	LOW FLOW PUMP STARTER (MCC-P47, SECTION 6A)
		QTY. 10-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	SF-2 STARTER (MCC-P47, SECTION 6B)
I11A	1	QTY. 20-#12 & QTY. 1-#12 GND.	THWN	CONTROL PANEL CP47	MFP-3 STARTER (MCC-P47, SECTION 5A)
I11B	1-1/4	QTY. 24-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	MFP-3 STARTER (MCC-P47, SECTION 5A)
		QTY. 10-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	SF-1 STARTER (MCC-P47, SECTION 5B)
I12	---	QTY. 4-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	PUMP METER CONTROL PANEL PMCP47	SCADA PANEL SP47
I13	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	SCADA PANEL SP47	PRIMARY BUBBLER CONTROL PANEL BCP47-001
I13A	3/4	QTY. 2-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	PRIMARY BUBBLER CONTROL PANEL BCP47-001
I14	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	SCADA PANEL SP47	SECONDARY BUBBLER CONTROL PANEL BCP47-002
I14A	3/4	QTY. 2-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	SECONDARY BUBBLER CONTROL PANEL BCP47-002
I15	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	SCADA PANEL SP47	DOWNSTREAM BAR RACK CONTROL PANEL LIT-007B
I15A	1	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	DOWNSTREAM BAR RACK CONTROL PANEL LIT-007B	DOWNSTREAM BAR RACK TRANSMITTER LT-007B
I16	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	SCADA PANEL SP47	UPSTREAM BAR RACK CONTROL PANEL LIT-007A
I16A	1	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	UPSTREAM BAR RACK CONTROL PANEL LIT-007A	UPSTREAM BAR RACK TRANSMITTER LT-007A
I17	3/4	QTY. 1-(2) CONDUCTOR 16 AWG SHIELDED TWISTED PAIR CABLE	PVC	SCADA PANEL SP47	THERMOSTAT TT-402B
I18	---	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	JUNCTION BOX JA	DISCHARGE CHAMBER FLOAT SWITCH LSH-011
I18A	3/4	QTY. 2-#12 & QTY. 1-#12 GND.	THWN	CONTROL PANEL CP47	JUNCTION BOX JA
I18B	3/4	QTY. 2-#12 & QTY. 1-#12 GND.	THWN	SCADA PANEL SP47	JUNCTION BOX JA
I19	3/4	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	JUNCTION BOX JD	RECIRCULATION PIPE FLOW METER TRANSMITTER FT-010
I19A	3/4	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	CONTROL PANEL CP47	JUNCTION BOX JD
I20	3/4	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	PUMP METER CONTROL PANEL PMCP47	LOW FLOW PUMP NO. 4 FLOW TRANSMITTER FT-004
I21	3/4	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	PUMP METER CONTROL PANEL PMCP47	MAIN FLOW PUMP NO. 1 FLOW TRANSMITTER FT-001
I22	3/4	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	PUMP METER CONTROL PANEL PMCP47	MAIN FLOW PUMP NO. 2 FLOW TRANSMITTER FT-002
I23	3/4	MANUFACTURER SUPPLIED CABLE	SEE SPECIFICATIONS	PUMP METER CONTROL PANEL PMCP47	MAIN FLOW PUMP NO. 3 FLOW TRANSMITTER FT-003

SCADA PANEL DIGITAL INPUTS (TBDI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
SP-50	S50	TBM1-11C	MFP-1 RUNNING
SP-50A	S50A	TBM1-11D	MFP-1 RUNNING
SP-51	S51	TBM1-13	MFP-1 OFF
SP-51A	S51A	TBM1-13A	MFP-1 OFF
SP-52	S52	TBM1-0	MFP-1 CIRCUIT BREAKER TRIPPED
SP-52A	S52A	TBM1-0A	MFP-1 CIRCUIT BREAKER TRIPPED
SP-53	S53	TBM1-32A	MFP-1 HIGH TEMP
SP-53A	S53A	TBM1-32B	MFP-1 HIGH TEMP
SP-54	S54	TBM1-29D	MFP-1 MOISTURE SENSED
SP-54A	S54A	TBM1-29E	MFP-1 MOISTURE SENSED
SP-55	S55	TBM1-14H	MFP-1 RVSS FAIL
SP-55A	S55A	TBM1-14I	MFP-1 RVSS FAIL
SP-56	S56	TBM1-9A	MFP-1 IN MANUAL MODE
SP-56A	S56A	TBM1-9B	MFP-1 IN MANUAL MODE
SP-57	S57	TBM1-11A	MFP-1 IN AUTO MODE
SP-57A	S57A	TBM1-11B	MFP-1 IN AUTO MODE
SP-58	S58	CP-521	MFP-1 FAILURE
SP-58A	S58A	CP-521A	MFP-1 FAILURE
SP-59	S59	CP-519	FLOAT CONTROL ACTIVATED
SP-59A	S59A	CP-519A	FLOAT CONTROL ACTIVATED
SP-60	S60	CP-176	MAIN FLOW PUMPS FAIL TO STOP
SP-60A	S60A	CP-176A	MAIN FLOW PUMPS FAIL TO STOP
SP-61	S61	TBM1-18	MFP-1 RVSS OVERLOAD TRIP
SP-61A	S61A	TBM1-18A	MFP-1 RVSS OVERLOAD TRIP
SP-62	S62	TBM1-15	MFP-1 HIGH TEMP/MOISTURE PROTECTION IN BYPASS MODE
SP-62A	S62A	TBM1-15A	MFP-1 HIGH TEMP/MOISTURE PROTECTION IN BYPASS MODE
SP-63	S63	CP-509	MAIN FLOW PUMP FAILURE
SP-63A	S63A	CP-509A	MAIN FLOW PUMP FAILURE
SP-64	S64	CP-515	MFP-1 FLOAT CALL
SP-64A	S64A	CP-515A	MFP-1 FLOAT CALL
SP-65	S65	TBM1-8C	MFP-1 CALLED FOR
SP-65A	S65A	TBM1-8D	MFP-1 CALLED FOR
SP-75	S75	TBM2-11C	MFP-2 RUNNING
SP-75A	S75A	TBM2-11D	MFP-2 RUNNING
SP-76	S76	TBM2-13	MFP-2 OFF
SP-76A	S76A	TBM2-13A	MFP-2 OFF
SP-77	S77	TBM2-0	MFP-2 CIRCUIT BREAKER TRIPPED
SP-77A	S77A	TBM2-0A	MFP-2 CIRCUIT BREAKER TRIPPED
SP-78	S78	TBM2-32A	MFP-2 HIGH TEMP
SP-78A	S78A	TBM2-32B	MFP-2 HIGH TEMP
SP-79	S79	TBM2-29D	MFP-2 MOISTURE SENSED
SP-79A	S79A	TBM2-29E	MFP-2 MOISTURE SENSED
SP-80	S80	TBM2-14C	MFP-2 RVSS FAIL
SP-80A	S80A	TBM2-14D	MFP-2 RVSS FAIL
SP-81	S81	TBM2-9A	MFP-2 IN MANUAL MODE
SP-81A	S81A	TBM2-9B	MFP-2 IN MANUAL MODE
SP-82	S82	TBM2-11A	MFP-2 IN AUTO MODE
SP-82A	S82A	TBM2-11B	MFP-2 IN AUTO MODE
SP-83	S83	CP-516	MFP-2 FLOAT CALL
SP-83A	S83A	CP-516A	MFP-2 FLOAT CALL

SCADA PANEL DIGITAL INPUTS (TBDI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
SP-84	S84	CP-520	CONTROL PANEL A/C POWER AVAILABLE
SP-84A	S84A	CP-520A	CONTROL PANEL A/C POWER AVAILABLE
SP-85	S85	CP-522	MFP-2 FAILURE
SP-85A	S85A	CP-522A	MFP-2 FAILURE
SP-88	S88	TBM2-18	MFP-2 RVSS OVERLOAD TRIP
SP-88A	S88A	TBM2-18A	MFP-2 RVSS OVERLOAD TRIP
SP-89	S89	TBM2-8C	MFP-2 CALLED FOR
SP-89A	S89A	TBM2-8D	MFP-2 CALLED FOR
SP-90	S90	TBM2-15	MFP-2 HIGH TEMP/MOISTURE PROTECTION IN BYPASS MODE
SP-90A	S90A	TBM2-15A	MFP-2 HIGH TEMP/MOISTURE PROTECTION IN BYPASS MODE
SP-100	S100	TBM3-11C	MFP-3 RUNNING
SP-100A	S100A	TBM3-11D	MFP-3 RUNNING
SP-101	S101	TBM3-13	MFP-3 OFF
SP-101A	S101A	TBM3-13A	MFP-3 OFF
SP-102	S102	TBM3-0	MFP-3 CIRCUIT BREAKER TRIPPED
SP-102A	S102A	TBM3-0A	MFP-3 CIRCUIT BREAKER TRIPPED
SP-103	S103	TBM3-32A	MFP-3 HIGH TEMP
SP-103A	S103A	TBM3-32B	MFP-3 HIGH TEMP
SP-104	S104	TBM3-29D	MFP-3 MOISTURE SENSED
SP-104A	S104A	TBM3-29E	MFP-3 MOISTURE SENSED
SP-105	S105	TBM3-14C	MFP-3 RVSS FAIL
SP-105A	S105A	TBM3-14D	MFP-3 RVSS FAIL
SP-106	S106	TBM3-9A	MFP-3 IN MANUAL MODE
SP-106A	S106A	TBM3-9B	MFP-3 IN MANUAL MODE
SP-107	S107	TBM3-11A	MFP-3 IN AUTO MODE
SP-107A	S107A	TBM3-11B	MFP-3 IN AUTO MODE
SP-108	S108	CP-517	MFP-3 FLOAT CALL
SP-108A	S108A	CP-517A	MFP-3 FLOAT CALL
SP-109	S109	TBM3-18	MFP-3 RVSS OVERLOAD TRIP
SP-109A	S109A	TBM3-18A	MFP-3 RVSS OVERLOAD TRIP
SP-110	S110	TBM3-8C	MFP-3 CALLED FOR
SP-110A	S110A	TBM3-8D	MFP-3 CALLED FOR
SP-111	S111	CP-523	MFP-3 FAILURE
SP-111A	S111A	CP-523A	MFP-3 FAILURE
SP-115	S115	TBM3-15	MFP-3 HIGH TEMP/MOISTURE PROTECTION IN BYPASS MODE
SP-115A	S115A	TBM3-15A	MFP-3 HIGH TEMP/MOISTURE PROTECTION IN BYPASS MODE
SP-125	S125	TBLF4-11C	LFP-4 RUNNING
SP-125A	S125A	TBLF4-11D	LFP-4 RUNNING
SP-126	S126	TBLF4-12	LFP-4 OFF
SP-126A	S126A	TBLF4-12A	LFP-4 OFF
SP-127	S127	TBLF4-0	LFP-4 CIRCUIT BREAKER TRIPPED
SP-127A	S127A	TBLF4-0A	LFP-4 CIRCUIT BREAKER TRIPPED
SP-128	S128	TBLF4-32A	LFP-4 HIGH TEMP
SP-128A	S128A	TBLF4-32B	LFP-4 HIGH TEMP
SP-129	S129	TBLF4-29D	LFP-4 MOISTURE SENSED
SP-129A	S129A	TBLF4-29E	LFP-4 MOISTURE SENSED
SP-130	S130	TBLF4-14C	LFP-4 RVSS FAIL
SP-130A	S130A	TBLF4-14D	LFP-4 RVSS FAIL
SP-131	S131	TBLF4-9A	LFP-4 IN MANUAL MODE
SP-131A	S131A	TBLF4-9B	LFP-4 IN MANUAL MODE

SCADA PANEL DIGITAL INPUTS (TBDI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
SP-132	S132	TBLF4-11A	LFP-4 IN AUTO MODE
SP-132A	S132A	TBLF4-11B	LFP-4 IN AUTO MODE
SP-133	S133	CP-518	LFP-4 FLOAT CALL
SP-133A	S133A	CP-518A	LFP-4 FLOAT CALL
SP-134	S134	TBLF4-8C	LFP-4 CALLED FOR
SP-134A	S134A	TBLF4-8D	LFP-4 CALLED FOR
SP-138	S138	TBLF4-15	LFP-4 HIGH TEMP/MOISTURE PROTECTION IN BYPASS MODE
SP-138A	S138A	TBLF4-15A	LFP-4 HIGH TEMP/MOISTURE PROTECTION IN BYPASS MODE
SP-139	S139	TBLF4-18	LFP-4 RVSS OVERLOAD TRIP
SP-139A	S139A	TBLF4-18A	LFP-4 RVSS OVERLOAD TRIP
SP-140	S140	CP-508	LOW FLOW PUMP FAILURE
SP-140A	S140A	CP-508A	LOW FLOW PUMP FAILURE
SP-150	S150	TEF3-7A	EF-3 IN MANUAL MODE
SP-150A	S150A	TEF3-7B	EF-3 IN MANUAL MODE
SP-151	S151	TEF3-8A	EF-3 IN AUTO MODE
SP-151A	S151A	TEF3-8B	EF-3 IN AUTO MODE
SP-152	S152	TEF3-9A	EF-3 MOTOR OL
SP-152A	S152A	TEF3-9B	EF-3 MOTOR OL
SP-153	S153	TEF3-10A	EF-3 ON
SP-153A	S153A	TEF3-10B	EF-3 ON
SP-154	S154	CP-512	DISCHARGE CHAMBER HIGH WATER LEVEL
SP-154A	S154A	CP-512A	DISCHARGE CHAMBER HIGH WATER LEVEL
SP-155	S155	CP-507	PAVEMENT FLOODED ALARM
SP-155A	S155A	CP-507A	PAVEMENT FLOODED ALARM
SP-156	S156	SG1-3	SCREENING CHAMBER SLIDE GATE FULLY OPENED
SP-156A	S156A	SG1-4	SCREENING CHAMBER SLIDE GATE FULLY OPENED
SP-157	S157	SG1-5	SCREENING CHAMBER SLIDE GATE FULLY CLOSED
SP-157A	S157A	SG1-6	SCREENING CHAMBER SLIDE GATE FULLY CLOSED
SP-158	S158	SG1-1	SCREENING CHAMBER SLIDE GATE INTERMEDIATE POSITION
SP-158A	S158A	SG1-2	SCREENING CHAMBER SLIDE GATE INTERMEDIATE POSITION
SP-159	S159	SG2-1	DISCHARGE CHAMBER SLIDE GATE INTERMEDIATE POSITION
SP-159A	S159A	SG2-2	DISCHARGE CHAMBER SLIDE GATE INTERMEDIATE POSITION
SP-160	S160	SG2-3	DISCHARGE CHAMBER SLIDE GATE FULLY OPENED
SP-160A	S160A	SG2-4	DISCHARGE CHAMBER SLIDE GATE FULLY OPENED
SP-161	S161	SG2-5	DISCHARGE CHAMBER SLIDE GATE FULLY CLOSED
SP-161A	S161A	SG2-6	DISCHARGE CHAMBER SLIDE GATE FULLY CLOSED
SP-162	S162	GM-7	COMBUSTIBLE GAS MONITORING SYSTEM ALARM (20% LEL)
SP-162A	S162A	GM-8	COMBUSTIBLE GAS MONITORING SYSTEM ALARM (20% LEL)
SP-163	S163	GM-5	COMBUSTIBLE GAS MONITORING SYSTEM ALARM (50% LEL)
SP-163A	S163A	GM-6	COMBUSTIBLE GAS MONITORING SYSTEM ALARM (50% LEL)
SP-164	S164	GM-9	COMBUSTIBLE GAS MONITORING SYSTEM TROUBLE
SP-164A	S164A	GM-10	COMBUSTIBLE GAS MONITORING SYSTEM TROUBLE
SP-177	S177	FA-1	FIRE ALARM PANEL ALARM
SP-177A	S177A	FA-2	FIRE ALARM PANEL ALARM
SP-178	S178	FA-3	FIRE ALARM PANEL TROUBLE
SP-178A	S178A	FA-4	FIRE ALARM PANEL TROUBLE
SP-179	S179	BC1-1	PRIMARY BUBBLER SYSTEM FAILURE
SP-179A	S179A	BC1-2	PRIMARY BUBBLER SYSTEM FAILURE
SP-181	S181	CP-28	MFP-1 IN STANDBY
SP-181A	S181A	CP-28A	MFP-1 IN STANDBY

SCADA PANEL DIGITAL INPUTS (TBDI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
SP-182	S182	CP-30	MFP-2 IN STANDBY
SP-182A	S182A	CP-30A	MFP-2 IN STANDBY
SP-183	S183	CP-32	MFP-3 IN STANDBY
SP-183A	S183A	CP-32A	MFP-3 IN STANDBY
SP-184	S184	CP-500	HIGH WATER ALARM FLOAT LSH-008
SP-184A	S184A	CP-500A	HIGH WATER ALARM FLOAT LSH-008
SP-185	S185	CP-501	LAG PUMP START FLOAT LS-008D
SP-185A	S185A	CP-501A	LAG PUMP START FLOAT LS-008D
SP-186	S186	CP-502	LEAD PUMP START/LOW FLOW PUMP STOP FLOAT LS-008C
SP-186A	S186A	CP-502A	LEAD PUMP START/LOW FLOW PUMP STOP FLOAT LS-008C
SP-187	S187	CP-503	LOW FLOW PUMP START FLOAT LS-008B
SP-187A	S187A	CP-503A	LOW FLOW PUMP START FLOAT LS-008B
SP-188	S188	CP-504	MAIN FLOW PUMPS RUN INHIBIT FLOAT LS-008A
SP-188A	S188A	CP-504A	MAIN FLOW PUMPS RUN INHIBIT FLOAT LS-008A
SP-189	S189	CP-505	LOW FLOW PUMP STOP FLOAT LS-008
SP-189A	S189A	CP-505A	LOW FLOW PUMP STOP FLOAT LS-008
SP-190	S190	CP-506	LOW WATER ALARM FLOAT LSL-008
SP-190A	S190A	CP-506A	LOW WATER ALARM FLOAT LSL-008
SP-200	S200	ATS-A	OPERATING VIA SERVICE NO. 1
SP-200A	S200A	ATS-B	OPERATING VIA SERVICE NO. 1
SP-201	S201	ATS-C	OPERATING VIA SERVICE NO. 2
SP-201A	S201A	ATS-D	OPERATING VIA SERVICE NO. 2
SP-202	S202	ATS-E	SERVICE NO. 1 POWER FAILURE
SP-202A	S202A	ATS-F	SERVICE NO. 1 POWER FAILURE
SP-203	S203	ATS-G	SERVICE NO. 2 POWER FAILURE
SP-203A	S203A	ATS-H	SERVICE NO. 2 POWER FAILURE
SP-204	S204	CB1-A	SERVICE NO. 1 BREAKER CLOSED
SP-204A	S204A	CB1-B	SERVICE NO. 1 BREAKER CLOSED
SP-205	S205	CB1-C	SERVICE NO. 1 BREAKER OPEN
SP-205A	S205A	CB1-D	SERVICE NO. 1 BREAKER OPEN
SP-206	S206	CB1-E	SERVICE NO. 1 BREAKER TRIPPED
SP-206A	S206A	CB1-F	SERVICE NO. 1 BREAKER TRIPPED
SP-207	S207	CB2-A	SERVICE NO. 2 BREAKER CLOSED
SP-207A	S207A	CB2-B	SERVICE NO. 2 BREAKER CLOSED
SP-208	S208	CB2-C	SERVICE NO. 2 BREAKER OPEN
SP-208A	S208A	CB2-D	SERVICE NO. 2 BREAKER OPEN
SP-209	S209	CB2-E	SERVICE NO. 2 BREAKER TRIPPED
SP-209A	S209A	CB2-F	SERVICE NO. 2 BREAKER TRIPPED
SP-210	S210	CP-513	RECIRCULATION PIPE VALVE FULLY OPEN
SP-210A	S210A	CP-513A	RECIRCULATION PIPE VALVE FULLY OPEN
SP-211	S211	CP-514	RECIRCULATION PIPE VALVE FULLY CLOSED
SP-211A	S211A	CP-514A	RECIRCULATION PIPE VALVE FULLY CLOSED
SP-212	S212	CP-511	PILOT LIGHT TEST
SP-212A	S212A	CP-511A	PILOT LIGHT TEST
SP-213	S213	ATS-I	ATS FAILURE
SP-213A	S213A	ATS-J	ATS FAILURE
SP-214	S214	ATS-K	ATS IN BYPASS MODE
SP-214A	S214A	ATS-L	ATS IN BYPASS MODE
SP-225	S225	UPS-ON	OPERATING VIA UPS POWER
SP-225A	S225A	UPS-ON	OPERATING VIA UPS POWER

SCADA PANEL DIGITAL INPUTS (TBDI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
SP-226	S226	UPS-LOW	UPS LOW BATTERY WARNING
SP-226A	S226A	UPS-LOW	UPS LOW BATTERY WARNING
SP-227	S227	UPS-OL	UPS FAULT/OVERLOAD
SP-227A	S227A	UPS-OL	UPS FAULT/OVERLOAD
SP-228	S228	S-16	SUMP PUMP OPERATING IN AUTO MODE
SP-228A	S228A	S-17	SUMP PUMP OPERATING IN AUTO MODE
SP-229	S229	S-20	SUMP PUMP FAULT
SP-229A	S229A	S-21	SUMP PUMP FAULT
SP-230	S230	S-18	SUMP PUMP RUNNING
SP-230A	S230A	S-19	SUMP PUMP RUNNING
SP-231	S231	S-22	SUMP PUMP HIGH WATER ALARM
SP-231A	S231A	S-23	SUMP PUMP HIGH WATER ALARM
SP-232	S232	AI-3	AEGIS PANEL INTRUSION ALARM
SP-232A	S232A	AI-4	AEGIS PANEL INTRUSION ALARM
SP-233	S233	AI-7	AEGIS PANEL ENTRY KEY IN NON-ALARM POSITION
SP-233A	S233A	AI-8	AEGIS PANEL ENTRY KEY IN NON-ALARM POSITION
SP-234	S234	CP-510	ALARM ACKNOWLEDGE
SP-234A	S234A	CP-510A	ALARM ACKNOWLEDGE
SP-235	S235	BC2-1	SECONDARY BUBBLER SYSTEM FAILURE
SP-235A	S235A	BC2-2	SECONDARY BUBBLER SYSTEM FAILURE
SP-236	S236	TEF1-5A	EF-1 IN MANUAL MODE
SP-236A	S236A	TEF1-5B	EF-1 IN MANUAL MODE
SP-237	S237	TEF1-6A	EF-1 IN AUTO MODE
SP-237A	S237A	TEF1-6B	EF-1 IN AUTO MODE
SP-238	S238	TEF1-7A	EF-1 MOTOR OL
SP-238A	S238A	TEF1-7B	EF-1 MOTOR OL
SP-239	S239	TEF1-8A	EF-1 ON
SP-239A	S239A	TEF1-8B	EF-1 ON
SP-250	S250	AI-17	AEGIS PANEL POWER AVAILABLE
SP-250A	S250A	AI-18	AEGIS PANEL POWER AVAILABLE
SP-251	S251	AI-19	AEGIS PANEL DIALER FAULT
SP-251A	S251A	AI-20	AEGIS PANEL DIALER FAULT
SP-252	S252	TEF2-5A	EF-2 IN MANUAL MODE
SP-252A	S252A	TEF2-5B	EF-2 IN MANUAL MODE
SP-253	S253	TEF2-6A	EF-2 IN AUTO MODE
SP-253A	S253A	TEF2-6B	EF-2 IN AUTO MODE
SP-254	S254	TEF2-7A	EF-2 MOTOR OL
SP-254A	S254A	TEF2-7B	EF-2 MOTOR OL
SP-255	S255	TEF2-8A	EF-2 ON
SP-255A	S255A	TEF2-8B	EF-2 ON
SP-256	S256	TSF1-8A	SF-1 IN MANUAL MODE
SP-256A	S256A	TSF1-8B	SF-1 IN MANUAL MODE
SP-257	S257	TSF1-9A	SF-1 IN AUTO MODE
SP-257A	S257A	TSF1-9B	SF-1 IN AUTO MODE
SP-258	S258	TSF1-10A	SF-1 MOTOR OL
SP-258A	S258A	TSF1-10B	SF-1 MOTOR OL
SP-259	S259	TSF1-11A	SF-1 ON
SP-259A	S259A	TSF1-11B	SF-1 ON
SP-260	S260	TSF2-7A	SF-2 IN MANUAL MODE
SP-260A	S260A	TSF2-7B	SF-2 IN MANUAL MODE

SCADA PANEL DIGITAL INPUTS (TBDI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
SP-261	S261	TSF2-8A	SF-2 IN AUTO MODE
SP-261A	S261A	TSF2-8B	SF-2 IN AUTO MODE
SP-262	S262	TSF2-9A	SF-2 MOTOR OL
SP-262A	S262A	TSF2-9B	SF-2 MOTOR OL
SP-263	S263	TSF2-10A	SF-2 ON
SP-263A	S263A	TSF2-10B	SF-2 ON

SCADA PANEL DIGITAL OUTPUTS (TBDO)			
TERM #	WIRE #	DESTINATION	DESCRIPTION OF OUTPUTS
SP-3	C211	CP-211	SCADA PANEL A/C PWR. AVAILABLE
SP-3A	C213	CP-213	SCADA PANEL A/C PWR. AVAILABLE
SP-275	S275	TBM1-8A	MFP-1 SCADA CALL
SP-275A	S275A	TBM1-8B	MFP-1 SCADA CALL
SP-276	C355	CP-355	SCADA ALARM ACKNOWLEDGEMENT
SP-276A	C356	CP-356	SCADA ALARM ACKNOWLEDGEMENT
SP-277	C40	CP-40	PRIMARY LEVEL TRANSDUCER FAILURE
SP-277A	C43	CP-43	PRIMARY LEVEL TRANSDUCER FAILURE
SP-278	C452	CP-452	LEAD PUMP CALLED FOR
SP-278A	C452A	CP-452A	LEAD PUMP CALLED FOR
SP-279	C454	CP-454	LAG PUMP CALLED FOR
SP-279A	C454A	CP-454A	LAG PUMP CALLED FOR
SP-280	C226	CP-226	SPARE FOR FUTURE
SP-280A	C228	CP-228	SPARE FOR FUTURE
SP-281	C229	CP-229	SPARE FOR FUTURE
SP-281A	C231	CP-231	SPARE FOR FUTURE
SP-300	S300	TBM2-8A	MFP-2 SCADA CALL
SP-300A	S300A	TBM2-8B	MFP-2 SCADA CALL
SP-301	C295	CP-295	DRY WELL HIGH TEMPERATURE
SP-301A	C297	CP-297	DRY WELL HIGH TEMPERATURE
SP-302	C319	CP-319	DRY WELL LOW TEMPERATURE
SP-302A	C321	CP-321	DRY WELL LOW TEMPERATURE
SP-303	C43A	CP-43	SECONDARY LEVEL TRANSDUCER FAILURE
SP-303A	C40A	CP-40A	SECONDARY LEVEL TRANSDUCER FAILURE
SP-304	C286	CP-286	BUBBLER SYSTEM WET WELL HIGH WATER ALARM
SP-304A	C288	CP-288	BUBBLER SYSTEM WET WELL HIGH WATER ALARM
SP-305	C310	CP-310	BUBBLER SYSTEM WET WELL LOW WATER ALARM
SP-305A	C312	CP-312	BUBBLER SYSTEM WET WELL LOW WATER ALARM
SP-306	C277	CP-277	SECONDARY BUBBLER SYSTEM FAILURE
SP-306A	C279	CP-279	SECONDARY BUBBLER SYSTEM FAILURE
SP-307	C313	CP-313	BAR RACK CLOGGED
SP-307A	C315	CP-315	BAR RACK CLOGGED
SP-308	C292	CP-292	ELECTRICAL ROOM HIGH TEMPERATURE
SP-308A	C294	CP-294	ELECTRICAL ROOM HIGH TEMPERATURE
SP-309	C316	CP-316	ELECTRICAL ROOM LOW TEMPERATURE
SP-309A	C318	CP-318	ELECTRICAL ROOM LOW TEMPERATURE
SP-325	S325	TBM3-8A	MFP-3 SCADA CALL
SP-325A	S325A	TBM3-8B	MFP-3 SCADA CALL
SP-326	C232	CP-232	SPARE FOR FUTURE
SP-326A	C234	CP-234	SPARE FOR FUTURE
SP-327	C256	CP-256	SPARE FOR FUTURE
SP-327A	C258	CP-258	SPARE FOR FUTURE
SP-328	C235	CP-235	SCADA PANEL PLC TROUBLE
SP-328A	C237	CP-237	SCADA PANEL PLC TROUBLE
SP-329	C259	CP-259	SCADA PANEL PLC FAILURE
SP-329A	C261	CP-261	SCADA PANEL PLC FAILURE
SP-350	S350	TBLF4-8A	LFP-4 SCADA CALL
SP-350A	S350A	TBLF4-8B	LFP-4 SCADA CALL
SP-351	C450	CP-450	PUMP OPERATION VIA BUBBLER CONTROL
SP-351A	C450A	CP-450A	PUMP OPERATION VIA BUBBLER CONTROL

SCADA PANEL DIGITAL OUTPUTS (TBDO)			
TERM #	WIRE #	DESTINATION	DESCRIPTION OF OUTPUTS
SP-352	C451	CP-451	PUMP OPERATION VIA FLOAT CONTROL
SP-352A	C451A	CP-451A	PUMP OPERATION VIA FLOAT CONTROL
SP-353	C283	CP-283	SCADA PANEL UPS LOW BATTERY
SP-353A	C285	CP-285	SCADA PANEL UPS LOW BATTERY
SP-354	C307	CP-307	SCADA PANEL UPS FAULT/OVERLOAD
SP-354A	C309	CP-309	SCADA PANEL UPS FAULT/OVERLOAD
SP-355	C331	CP-331	SPARE FOR FUTURE
SP-355A	C333	CP-333	SPARE FOR FUTURE
SP-356	C343	CP-343	SPARE FOR FUTURE
SP-356A	C345	CP-345	SPARE FOR FUTURE
SP-357	C253	CP-253	PRIMARY BUBBLER SYSTEM FAILURE
SP-357A	C255	CP-255	PRIMARY BUBBLER SYSTEM FAILURE
SP-358	C340	CP-340	SPARE FOR FUTURE
SP-358A	C342	CP-342	SPARE FOR FUTURE

SCADA PANEL ANALOG INPUTS (TBAI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
SP-400A	S400A	TBM1-0B	MFP-1 MOTOR CURRENT TRANSDUCER IT-001
SP-401A	S401A	TBM1-0C	MFP-1 MOTOR CURRENT TRANSDUCER IT-001
SP-406A	S406A	TT-402B	ELECT. ROOM THERMOSTAT TT-402B
SP-407A	S407A	TT-402B	ELECT. ROOM THERMOSTAT TT-402B
SP-429A	S429A	LIT-007A	BAR RACK LEVEL TRANSDUCER LIT-007A
SP-430A	S430A	LIT-007A	BAR RACK LEVEL TRANSDUCER LIT-007A
SP-432A	S432A	LIT-008A	WET WELL LEVEL TRANSDUCER LIT-008A
SP-433A	S433A	LIT-008A	WET WELL LEVEL TRANSDUCER LIT-008A
SP-434A	S434A	TBM2-0B	MFP-2 MOTOR CURRENT TRANSDUCER IT-002
SP-435A	S435A	TBM2-0C	MFP-2 MOTOR CURRENT TRANSDUCER IT-002
SP-451A	S451A	LIT-007B	BAR RACK LEVEL TRANSDUCER LIT-007B
SP-452A	S452A	LIT-007B	BAR RACK LEVEL TRANSDUCER LIT-007B
SP-454A	S454A	LIT-008B	WET WELL LEVEL TRANSDUCER LIT-008B
SP-455A	S455A	LIT-008B	WET WELL LEVEL TRANSDUCER LIT-008B
SP-456A	S456A	TBM3-0B	MFP-3 MOTOR CURRENT TRANSDUCER IT-003
SP-457A	S457A	TBM3-0C	MFP-3 MOTOR CURRENT TRANSDUCER IT-003
SP-475A	S475A	TBLF4-0B	LFP-4 MOTOR CURRENT TRANSDUCER IT-004
SP-476A	S476A	TBLF4-0C	LFP-4 MOTOR CURRENT TRANSDUCER IT-004

SCADA PANEL INTRINSICALLY SAFE ANALOG INPUTS (TBAIIS)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
SP-404A	S404A	FIT-001	MFP-1 FLOW METER TRANSDUCER FIT-001
SP-405A	S405A	FIT-001	MFP-1 FLOW METER TRANSDUCER FIT-001
SP-426A	S426A	FT-010	RECIRC. FLOW METER TRANSMITTER FIT-010
SP-427A	S427A	FT-010	RECIRC. FLOW METER TRANSMITTER FIT-010
SP-438A	S438A	FIT-002	MFP-2 FLOW METER TRANSDUCER FIT-002
SP-439A	S439A	FIT-002	MFP-2 FLOW METER TRANSDUCER FIT-002
SP-440A	S440A	TT-402A	DRY WELL THERMOSTAT TT-402A
SP-441A	S441A	TT-402A	DRY WELL THERMOSTAT TT-402A
SP-460A	S460A	FIT-003	MFP-3 FLOW METER TRANSDUCER FIT-003
SP-461A	S461A	FIT-003	MFP-3 FLOW METER TRANSDUCER FIT-003
SP-479A	S479A	FIT-004	LFP-4 FLOW METER TRANSDUCER FIT-004
SP-480A	S480A	FIT-004	LFP-4 FLOW METER TRANSDUCER FIT-004

SCADA PANEL ANALOG OUTPUTS (TBAO)			
TERM #	WIRE #	DESTINATION	DESCRIPTION OF OUTPUTS
SP-500A	C436	CP-436	BAR RACK DIFFERENTIAL LEVEL METER LDI-007
SP-501A	C436A	CP-436A	BAR RACK DIFFERENTIAL LEVEL METER LDI-007
SP-503A	C438	CP-438	PS47 TOTAL FLOW METER FI-013
SP-504A	C438A	CP-438A	PS47 TOTAL FLOW METER FI-013
SP-509A	C440	CP-440	WET WELL LEVEL METER LI-008
SP-510A	C440A	CP-440A	WET WELL LEVEL METER LI-008

CONTROL PANEL DIGITAL INPUTS (TBDI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
CP-40	C40	SP-277	PRIMARY LEVEL TRANSDUCER FAILURE
CP-40A	C40A	SP-303A	SECONDARY LEVEL TRANSDUCER FAILURE
CP-43	C43	SP-277A	PRIMARY LEVEL TRANSDUCER FAILURE
CP-43	C43A	SP-303	SECONDARY LEVEL TRANSDUCER FAILURE
CP-165A	C165A	TBM1-10E	MFP-1 RUNNING
CP-165B	C165B	TBM1-10F	MFP-1 RUNNING
CP-166A	C166A	TBM2-10E	MFP-2 RUNNING
CP-166B	C166B	TBM2-10F	MFP-2 RUNNING
CP-167A	C167A	TBM3-10E	MFP-3 RUNNING
CP-167B	C167B	TBM3-10F	MFP-3 RUNNING
CP-211	C211	SP-3	SCADA PANEL A/C PWR. AVAILABLE
CP-213	C213	SP-3A	SCADA PANEL A/C PWR. AVAILABLE
CP-226	C226	SP-280	SPARE FOR FUTURE
CP-228	C228	SP-280A	SPARE FOR FUTURE
CP-229	C229	SP-281	SPARE FOR FUTURE
CP-231	C231	SP-281A	SPARE FOR FUTURE
CP-232	C232	SP-326	SPARE FOR FUTURE
CP-234	C234	SP-326A	SPARE FOR FUTURE
CP-235	C235	SP-328	SCADA PANEL PLC TROUBLE
CP-237	C237	SP-328A	SCADA PANEL PLC TROUBLE
CP-253	C253	SP-357	PRIMARY BUBBLER SYSTEM FAILURE
CP-255	C255	SP-357A	PRIMARY BUBBLER SYSTEM FAILURE
CP-256	C256	SP-327	SPARE FOR FUTURE
CP-258	C258	SP-327A	SPARE FOR FUTURE
CP-259	C259	SP-329	SCADA PANEL PLC FAILURE
CP-261	C261	SP-329A	SCADA PANEL PLC FAILURE
CP-277	C277	SP-306	SECONDARY BUBBLER SYSTEM FAILURE
CP-279	C279	SP-306A	SECONDARY BUBBLER SYSTEM FAILURE
CP-283	C283	SP-353	SCADA PANEL UPS LOW BATTERY
CP-285	C285	SP-353A	SCADA PANEL UPS LOW BATTERY
CP-286	C286	SP-304	BUBBLER SYSTEM WET WELL HIGH WATER ALARM
CP-288	C288	SP-304A	BUBBLER SYSTEM WET WELL HIGH WATER ALARM
CP-292	C292	SP-308	ELECTRICAL ROOM HIGH TEMPERATURE
CP-294	C294	SP-308A	ELECTRICAL ROOM HIGH TEMPERATURE
CP-295	C295	SP-301	DRY WELL HIGH TEMPERATURE
CP-297	C297	SP-301A	DRY WELL HIGH TEMPERATURE
CP-307	C307	SP-354	SCADA PANEL UPS FAULT/OVERLOAD
CP-309	C309	SP-354A	SCADA PANEL UPS FAULT/OVERLOAD
CP-310	C310	SP-305	BUBBLER SYSTEM WET WELL LOW WATER ALARM
CP-312	C312	SP-305A	BUBBLER SYSTEM WET WELL LOW WATER ALARM
CP-313	C313	SP-307	BAR RACK CLOGGED
CP-315	C315	SP-307A	BAR RACK CLOGGED
CP-316	C316	SP-309	ELECTRICAL ROOM LOW TEMPERATURE
CP-318	C318	SP-309A	ELECTRICAL ROOM LOW TEMPERATURE
CP-319	C319	SP-302	DRY WELL LOW TEMPERATURE
CP-321	C321	SP-302A	DRY WELL LOW TEMPERATURE
CP-331	C331	SP-355	SPARE FOR FUTURE
CP-333	C333	SP-355A	SPARE FOR FUTURE
CP-340	C340	SP-358	SPARE FOR FUTURE
CP-342	C342	SP-358A	SPARE FOR FUTURE

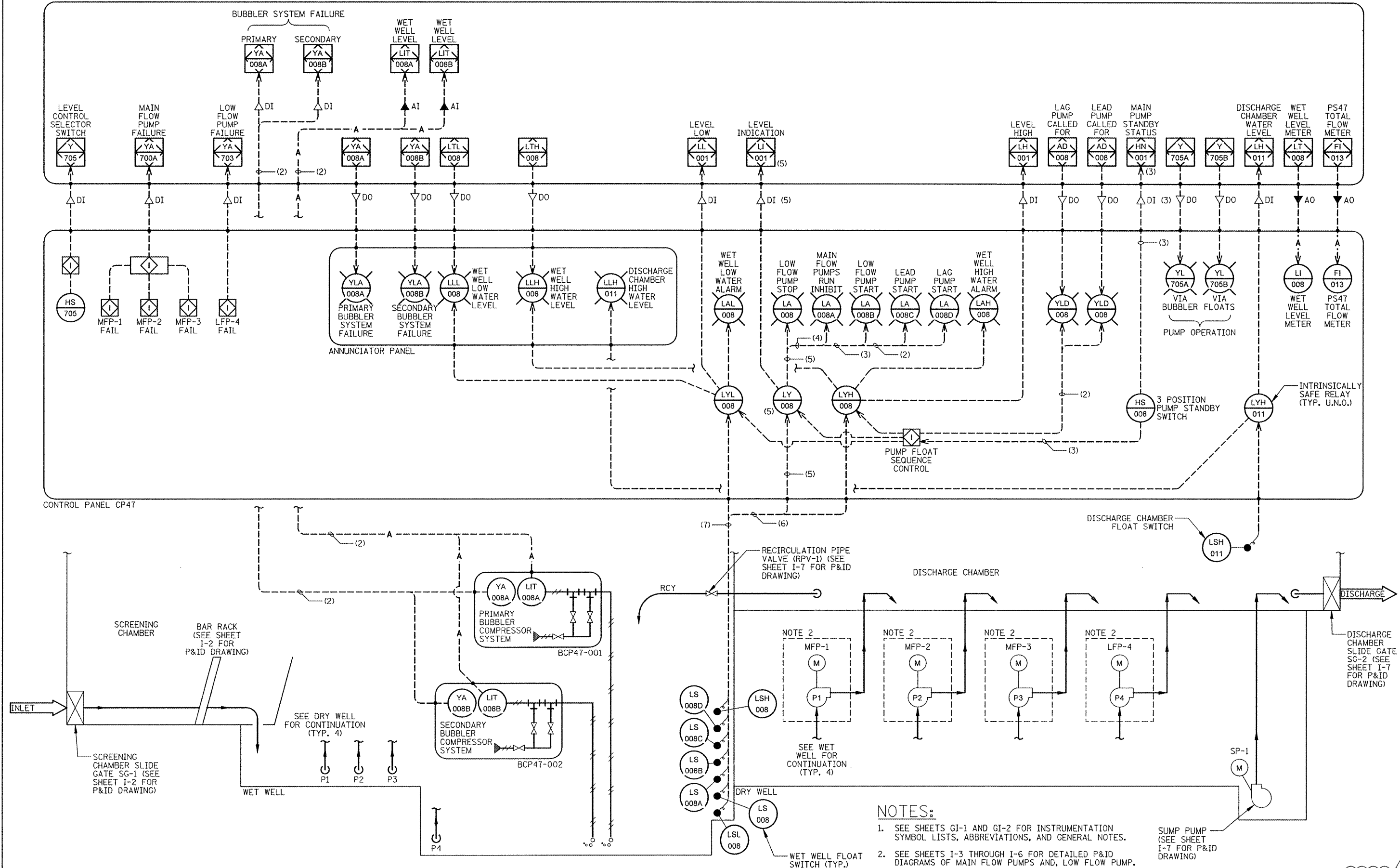
CONTROL PANEL DIGITAL INPUTS (TBDI)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
CP-343	C343	SP-356	SPARE FOR FUTURE
CP-345	C345	SP-356A	SPARE FOR FUTURE
CP-355	C355	SP-276	SCADA ALARM ACKNOWLEDGEMENT
CP-356	C356	SP-276A	SCADA ALARM ACKNOWLEDGEMENT
CP-400	C400	TBM1-7E	TIME DELAY FAIL 1
CP-400A	C400A	TBM1-7F	TIME DELAY FAIL 1
CP-401	C401	TBM2-7E	TIME DELAY FAIL 2
CP-401A	C401A	TBM2-7F	TIME DELAY FAIL 2
CP-402	C402	TBM3-7E	TIME DELAY FAIL 3
CP-402A	C402A	TBM3-7F	TIME DELAY FAIL 3
CP-403	C403	TBLF4-7E	TIME DELAY FAIL 4
CP-403A	C403A	TBLF4-7F	TIME DELAY FAIL 4
CP-404A	C404A	TBM1-12	MFP-1 NOT RUNNING
CP-404B	C404B	TBM1-12A	MFP-1 NOT RUNNING
CP-405A	C405A	TBM2-12	MFP-2 NOT RUNNING
CP-405B	C405B	TBM2-12A	MFP-2 NOT RUNNING
CP-406A	C406A	TBM3-12	MFP-3 NOT RUNNING
CP-406B	C406B	TBM3-12A	MFP-3 NOT RUNNING
CP-407A	C407A	TBLF4-13	LFP-4 NOT RUNNING
CP-407B	C407B	TBLF4-13A	LFP-4 NOT RUNNING
CP-450	C450	SP-351	PUMP OPERATION VIA BUBBLER CONTROL
CP-450A	C450A	SP-351A	PUMP OPERATION VIA BUBBLER CONTROL
CP-451	C451	SP-352	PUMP OPERATION VIA FLOAT CONTROL
CP-451A	C451A	SP-352A	PUMP OPERATION VIA FLOAT CONTROL
CP-452	C452	SP-278	LEAD PUMP CALLED FOR
CP-452A	C452A	SP-278A	LEAD PUMP CALLED FOR
CP-454	C454	SP-279	LAG PUMP CALLED FOR
CP-454A	C454A	SP-279A	LAG PUMP CALLED FOR

CONTROL PANEL INTRINSICALLY SAFE DIGITAL INPUTS (TBDIIS)			
TERM #	WIRE #	ORIGINATION	DESCRIPTION OF INPUTS
CP-58	C58	LSH-008	WET WELL HIGH WATER ALARM
CP-58A	C58A	LSH-008	WET WELL HIGH WATER ALARM
CP-63	C63	LS-008D	LAG PUMP START
CP-63A	C63A	LS-008D	LAG PUMP START
CP-68	C68	LS-008C	LEAD START/LFP-4 STOP (LAG STOP)
CP-68A	C68A	LS-008C	LEAD START/LFP-4 STOP (LAG STOP)
CP-73	C73	LS-008B	LFP-4 START (LEAD STOP/LFP-4 START)
CP-73A	C73A	LS-008B	LFP-4 START (LEAD STOP/LFP-4 START)
CP-78	C78	LS-008A	MAIN FLOW PUMPS RUN INHIBIT
CP-78A	C78A	LS-008A	MAIN FLOW PUMPS RUN INHIBIT
CP-83	C83	LS-008	LOW FLOW PUMP STOP
CP-83A	C83A	LS-008	LOW FLOW PUMP STOP
CP-88	C88	LSL-008	WET WELL LOW WATER ALARM
CP-88A	C88A	LSL-008	WET WELL LOW WATER ALARM
CP-96	C96	LSH-050	PAVEMENT FLOODED CONTROL RELAY
CP-96A	C96A	LSH-050	PAVEMENT FLOODED CONTROL RELAY
CP-413	C413	LSH-011	DISCHARGE CHAMBER HIGH WATER ALARM
CP-413A	C413A	LSH-011	DISCHARGE CHAMBER HIGH WATER ALARM
CP-429	C429	RP1-A	RECIRCULATION PIPE VALVE FULLY OPEN
CP-429A	C429A	RP1-B	RECIRCULATION PIPE VALVE FULLY OPEN
CP-432	C432	RP3-A	RECIRCULATION PIPE VALVE FULLY CLOSED
CP-432A	C432A	RP3-B	RECIRCULATION PIPE VALVE FULLY CLOSED

CONTROL PANEL DIGITAL OUTPUTS (TBDO)			
TERM #	WIRE #	DESTINATION	LINE DESCRIPTION
CP-28	S181	SP-181	MFP-1 IN STANDBY
CP-28A	S181A	SP-181A	MFP-1 IN STANDBY
CP-30	S182	SP-182	MFP-2 IN STANDBY
CP-30A	S182A	SP-182A	MFP-2 IN STANDBY
CP-32	S183	SP-183	MFP-3 IN STANDBY
CP-32A	S183A	SP-183A	MFP-3 IN STANDBY
CP-169	C169	TBM1-9C	MFP-1 FLOAT CALL
CP-169A	C169A	TBM1-9D	MFP-1 FLOAT CALL
CP-170	C170	TBM2-9C	MFP-2 FLOAT CALL
CP-170A	C170A	TBM2-9D	MFP-2 FLOAT CALL
CP-171	C171	TBM3-9C	MFP-3 FLOAT CALL
CP-171A	C171A	TBM3-9D	MFP-3 FLOAT CALL
CP-172	C172	TBLF4-9C	LFP-4 FLOAT CALL
CP-172A	C172A	TBLF4-9D	LFP-4 FLOAT CALL
CP-173	C173	AI-9	HIGH WATER ALARM FOR AEGIS SYSTEM
CP-173A	C173A	AI-10	HIGH WATER ALARM FOR AEGIS SYSTEM
CP-174	C174	AI-11	LOW WATER ALARM FOR AEGIS SYSTEM
CP-174A	C174A	AI-12	LOW WATER ALARM FOR AEGIS SYSTEM
CP-175	C175	AI-13	CONTROL PANEL CP47 POWER FAILURE
CP-175A	C175A	AI-14	CONTROL PANEL CP47 POWER FAILURE
CP-176	S60	SP-60	MAIN FLOW PUMPS FAIL TO STOP
CP-176A	S60A	SP-60A	MAIN FLOW PUMPS FAIL TO STOP
CP-202	C202	ATS-M	SERVICE NO. 1 POWER FAILURE
CP-204	C204	ATS-N	SERVICE NO. 1 POWER FAILURE
CP-205	C205	ATS-O	SERVICE NO. 2 POWER FAILURE
CP-207	C207	ATS-P	SERVICE NO. 2 POWER FAILURE
CP-238	C238	TBM1-31B	MAIN FLOW PUMP NO. 1 MOTOR WINDING TEMP/MOISTURE HIGH
CP-238	C238A	TBM1-30	MAIN FLOW PUMP NO. 1 MOTOR WINDING TEMP/MOISTURE HIGH
CP-240	C240	TBM1-31C	MAIN FLOW PUMP NO. 1 MOTOR WINDING TEMP/MOISTURE HIGH
CP-240	C240A	TBM1-30A	MAIN FLOW PUMP NO. 1 MOTOR WINDING TEMP/MOISTURE HIGH
CP-241	C241	TBM2-31B	MAIN FLOW PUMP NO. 2 MOTOR WINDING TEMP/MOISTURE HIGH
CP-241	C241A	TBM2-30	MAIN FLOW PUMP NO. 2 MOTOR WINDING TEMP/MOISTURE HIGH
CP-243	C243	TBM2-31C	MAIN FLOW PUMP NO. 2 MOTOR WINDING TEMP/MOISTURE HIGH
CP-243	C243A	TBM2-30A	MAIN FLOW PUMP NO. 2 MOTOR WINDING TEMP/MOISTURE HIGH
CP-244	C244	TBM3-31B	MAIN FLOW PUMP NO. 3 MOTOR WINDING TEMP/MOISTURE HIGH
CP-244	C244A	TBM3-30	MAIN FLOW PUMP NO. 3 MOTOR WINDING TEMP/MOISTURE HIGH
CP-246	C246	TBM3-31C	MAIN FLOW PUMP NO. 3 MOTOR WINDING TEMP/MOISTURE HIGH
CP-246	C246A	TBM3-30A	MAIN FLOW PUMP NO. 3 MOTOR WINDING TEMP/MOISTURE HIGH
CP-247	C247	TBLF4-31B	LOW FLOW PUMP MOTOR WINDING TEMP/MOISTURE HIGH
CP-247	C247A	TBLF4-30	LOW FLOW PUMP MOTOR WINDING TEMP/MOISTURE HIGH
CP-249	C249	TBLF4-31C	LOW FLOW PUMP MOTOR WINDING TEMP/MOISTURE HIGH
CP-249	C249A	TBLF4-30A	LOW FLOW PUMP MOTOR WINDING TEMP/MOISTURE HIGH
CP-250	C250	ATS-Q	ATS FAILURE
CP-252	C252	ATS-R	ATS FAILURE
CP-262	C262	TBM1-17	MAIN FLOW PUMP NO. 1 OVERLOAD TRIP
CP-264	C264	TBM1-17A	MAIN FLOW PUMP NO. 1 OVERLOAD TRIP
CP-265	C265	TBM2-17	MAIN FLOW PUMP NO. 2 OVERLOAD TRIP
CP-267	C267	TBM2-17A	MAIN FLOW PUMP NO. 2 OVERLOAD TRIP
CP-268	C268	TBM3-17	MAIN FLOW PUMP NO. 3 OVERLOAD TRIP
CP-270	C270	TBM3-17A	MAIN FLOW PUMP NO. 3 OVERLOAD TRIP

CONTROL PANEL DIGITAL OUTPUTS (TBDO)			
TERM #	WIRE #	DESTINATION	LINE DESCRIPTION
CP-271	C271	TBLF4-17	LOW FLOW PUMP OVERLOAD TRIP
CP-273	C273	TBLF4-17	LOW FLOW PUMP OVERLOAD TRIP
CP-274	C274	ATS-S	ATS IN BYPASS MODE
CP-276	C276	ATS-T	ATS IN BYPASS MODE
CP-280	C280	GM-13	COMBUSTIBLE GAS MONITOR TROUBLE
CP-282	C282	GM-14	COMBUSTIBLE GAS MONITOR TROUBLE
CP-298	C298	FA-7	FIRE PANEL TROUBLE
CP-300	C300	FA-8	FIRE PANEL TROUBLE
CP-301	C301	AI-5	INTRUSION/AEGIS SYSTEM TROUBLE
CP-301	C301A	AI-15	INTRUSION/AEGIS SYSTEM TROUBLE
CP-303	C303	AI-6	INTRUSION/AEGIS SYSTEM TROUBLE
CP-303	C303A	AI-16	INTRUSION/AEGIS SYSTEM TROUBLE
CP-304	C304	GM-11	COMBUSTIBLE GAS PRESENT
CP-306	C306	GM-12	COMBUSTIBLE GAS PRESENT
CP-322	C322	FA-5	FIRE PANEL ALARM
CP-324	C324	FA-6	FIRE PANEL ALARM
CP-325	C325	AI-1	INTRUSION ALARM
CP-327	C327	AI-2	INTRUSION ALARM
CP-334	C334	S-26	DRY WELL FLOODING ALARM
CP-336	C336	S-27	DRY WELL FLOODING ALARM
CP-337	C337	S-24	DRY WELL SUMP PUMP FAILURE
CP-339	C339	S-25	DRY WELL SUMP PUMP FAILURE
CP-417	C417	RP-1	RECIRCULATION PIPE VALVE CONTROL
CP-417A	C417A	RP-1A	RECIRCULATION PIPE VALVE CONTROL
CP-418	C418A	RP-3A	RECIRCULATION PIPE VALVE CONTROL
CP-421	C421	RP-7A	RECIRCULATION PIPE VALVE CONTROL
CP-421A	C421A	RP-7B	RECIRCULATION PIPE VALVE CONTROL
CP-423A	C423A	TBM1-14A	LOW WATER ALARM
CP-423B	C423B	TBM1-14B	LOW WATER ALARM
CP-424A	C424A	TBM2-14A	LOW WATER ALARM
CP-424B	C424B	TBM2-14B	LOW WATER ALARM
CP-425A	C425A	TBM3-14A	LOW WATER ALARM
CP-425B	C425B	TBM3-14B	LOW WATER ALARM
CP-426A	C426A	TBLF4-14A	LOW WATER ALARM
CP-426B	C426B	TBLF4-14B	LOW WATER ALARM
CP-456	C104A	TBM1-7G	MAIN FLOW PUMP NO. 1 CALLED FOR
CP-456A	C105	TBM1-7H	MAIN FLOW PUMP NO. 1 CALLED FOR
CP-457	C457	TBM2-7G	MAIN FLOW PUMP NO. 2 CALLED FOR
CP-457A	C457A	TBM2-7H	MAIN FLOW PUMP NO. 2 CALLED FOR
CP-458	C458	TBM3-7G	MAIN FLOW PUMP NO. 3 CALLED FOR
CP-458A	C458A	TBM3-7H	MAIN FLOW PUMP NO. 3 CALLED FOR
CP-459	C459	TBLF4-7G	LOW FLOW PUMP CALLED FOR
CP-459A	C459A	TBLF4-7H	LOW FLOW PUMP CALLED FOR
CP-500	S184	SP-184	HIGH WATER ALARM FLOAT LSH-008
CP-500A	S184A	SP-184A	HIGH WATER ALARM FLOAT LSH-008
CP-501	S185	SP-185	LAG PUMP START FLOAT LS-008D
CP-501A	S185A	SP-185A	LAG PUMP START FLOAT LS-008D
CP-502	S186	SP-186	LEAD PUMP START/LOW FLOW PUMP STOP FLOAT LS-008C
CP-502A	S186A	SP-186A	LEAD PUMP START/LOW FLOW PUMP STOP FLOAT LS-008C

CONTROL PANEL DIGITAL OUTPUTS (TBDO)			
TERM #	WIRE #	DESTINATION	LINE DESCRIPTION
CP-503	S187	SP-187	LOW FLOW PUMP START FLOAT LS-008B
CP-503A	S187A	SP-187A	LOW FLOW PUMP START FLOAT LS-008B
CP-504	S188	SP-188	MAIN FLOW PUMPS RUN INHIBIT FLOAT LS-008A
CP-504A	S188A	SP-188A	MAIN FLOW PUMPS RUN INHIBIT FLOAT LS-008A
CP-505	S189	SP-189	LOW FLOW PUMP STOP FLOAT LS-008
CP-505A	S189A	SP-189A	LOW FLOW PUMP STOP FLOAT LS-008
CP-506	S190	SP-190	LOW WATER ALARM FLOAT LSL-008
CP-506A	S190A	SP-190A	LOW WATER ALARM FLOAT LSL-008
CP-507	S155	SP-155	PAVEMENT FLOODED ALARM
CP-507A	S155A	SP-155A	PAVEMENT FLOODED ALARM
CP-508	S140	SP-140	LOW FLOW PUMP FAILURE
CP-508A	S140A	SP-140A	LOW FLOW PUMP FAILURE
CP-509	S63	SP-63	MAIN FLOW PUMP FAILURE
CP-509A	S63A	SP-63A	MAIN FLOW PUMP FAILURE
CP-510	S234	SP-234	ALARM ACKNOWLEDGE
CP-510A	S234A	SP-234A	ALARM ACKNOWLEDGE
CP-511	S212	SP-212	PILOT LIGHT TEST
CP-511A	S212A	SP-212A	PILOT LIGHT TEST
CP-512	S154	SP-154	DISCHARGE CHAMBER HIGH WATER LEVEL
CP-512A	S154A	SP-154A	DISCHARGE CHAMBER HIGH WATER LEVEL
CP-513	S210	SP-210	RECIRCULATION PIPE VALVE FULLY OPEN
CP-513A	S210A	SP-210A	RECIRCULATION PIPE VALVE FULLY OPEN
CP-514	S211	SP-211	RECIRCULATION PIPE VALVE FULLY CLOSED
CP-514A	S211A	SP-211A	RECIRCULATION PIPE VALVE FULLY CLOSED
CP-515	S64	SP-64	MFP-1 FLOAT CALL
CP-515A	S64A	SP-64A	MFP-1 FLOAT CALL
CP-516	S83	SP-83	MFP-2 FLOAT CALL
CP-516A	S83A	SP-83A	MFP-2 FLOAT CALL
CP-517	S108	SP-108	MFP-3 FLOAT CALL
CP-517A	S108A	SP-108A	MFP-3 FLOAT CALL
CP-518	S133	SP-133	LFP-4 FLOAT CALL
CP-518A	S133A	SP-133A	LFP-4 FLOAT CALL
CP-519	S59	SP-59	FLOAT CONTROL ACTIVATED
CP-519A	S59A	SP-59A	FLOAT CONTROL ACTIVATED
CP-520	S84	SP-84	CONTROL PANEL A/C POWER AVAILABLE
CP-520A	S84A	SP-84A	CONTROL PANEL A/C POWER AVAILABLE
CP-521	S58	SP-58	MFP-1 FAILURE
CP-521A	S58A	SP-58A	MFP-1 FAILURE
CP-522	S85	SP-85	MFP-2 FAILURE
CP-522A	S85A	SP-85A	MFP-2 FAILURE
CP-523	S111	SP-111	MFP-3 FAILURE
CP-523A	S111A	SP-111A	MFP-3 FAILURE



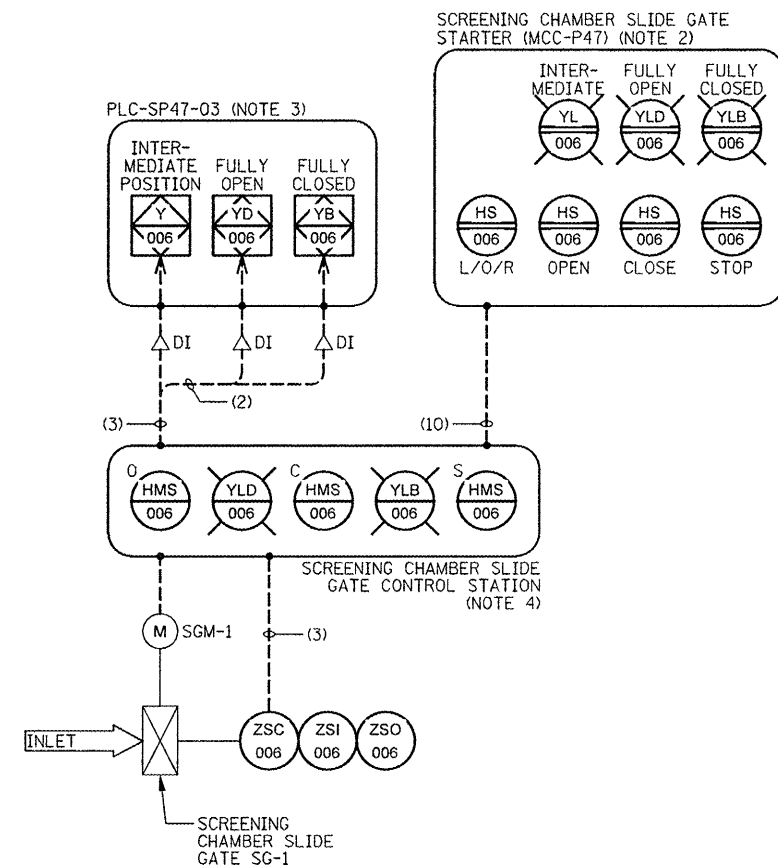
McDonough Associates Inc. Engineers/Architects 130 East Randolph Street - Suite 1000 Chicago, Illinois 60601 Phone (312) 548-6900	DESIGNED	DKC	REVISED	Addendum A 5-23-12
	CHECKED	KMY	REVISED	-
	DRAWN	CJM	REVISED	-
	CHECKED	KMY	REVISED	-
	DATE	03/22/2012		

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

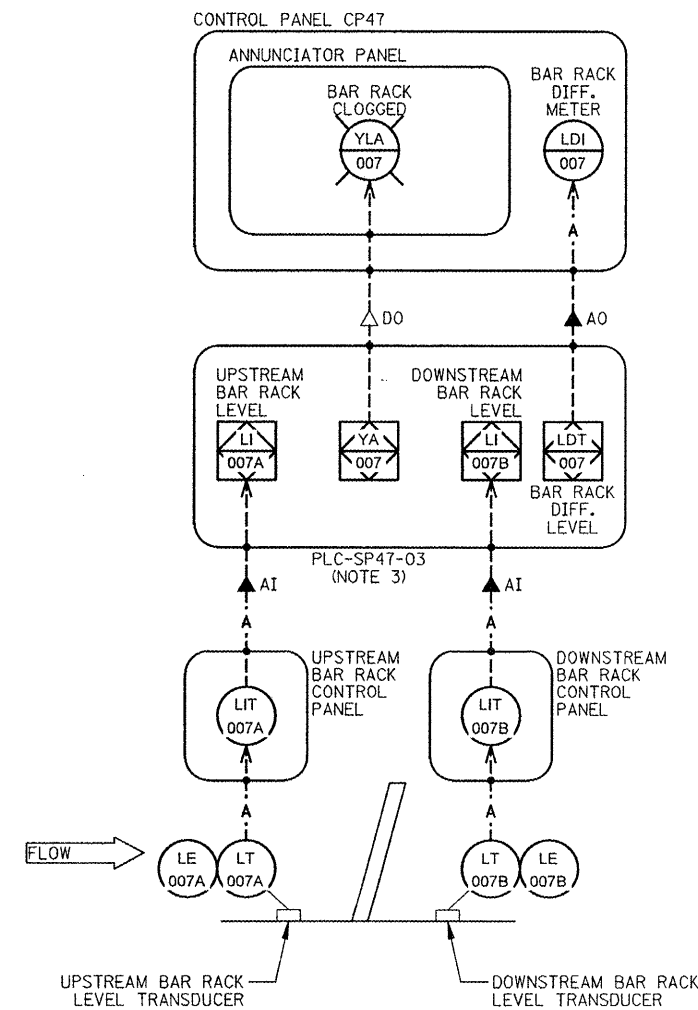
**I & C PROCESS & INSTRUMENTATION DIAGRAM
PUMP STATION 47**

SHEET NO. I-1 OF 10 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 60P41				
ILLINOIS FED. AID PROJECT				



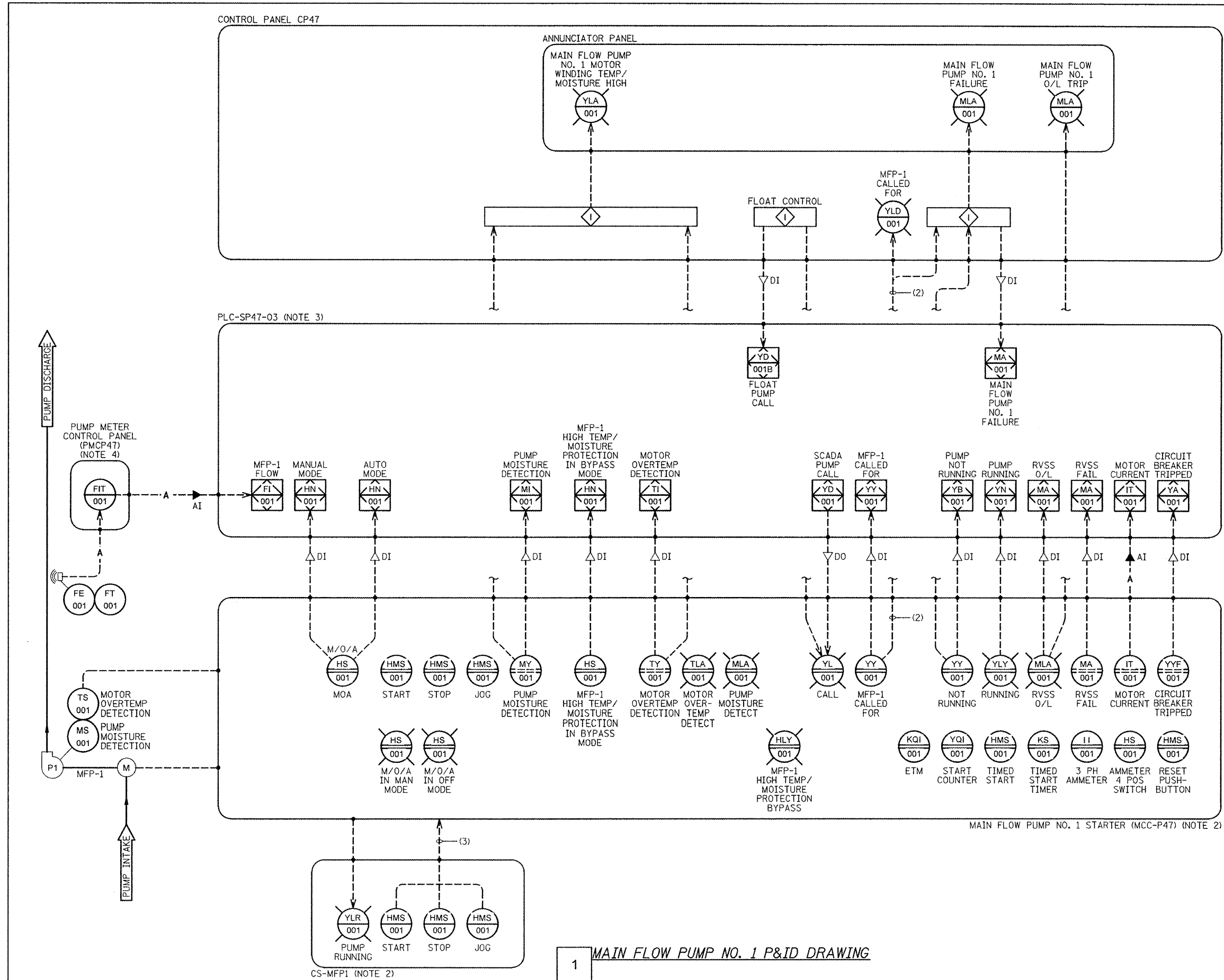
1 SCREENING CHAMBER SLIDE GATE P&ID DRAWING



2 BAR RACK P&ID DRAWING

NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO SHEET E10 FOR SLIDE GATE CONTROL WIRING DIAGRAM.
- PROVIDE INTRINSICALLY SAFE RELAYS AND BARRIERS FOR CONTROL AND INSTRUMENT CABLES RUN FROM HAZARDOUS LOCATIONS INTO CONTROL PANELS, AS REQUIRED TO INSURE SAFE OPERATION IN HAZARDOUS LOCATIONS.
- CONTROL STATION IS INTEGRAL TO ACTUATOR.



NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO SHEET E-3 FOR PUMP CONTROL WIRING DIAGRAM.
- REFER TO SPECIFICATION SECTION 40 94 23 FOR ADDITIONAL PUMP ALTERNATOR CONTROLLER REQUIREMENTS & SEQUENCE OF OPERATION.
- PUMP METER CONTROL PANEL INCLUDES A METER FOR EACH OF THE MAIN FLOW PUMPS AND THE LOW FLOW PUMP. REFER TO SHEETS I-4, I-5, I-6, AND ID-4 DETAIL 1 FOR ADDITIONAL INFORMATION.
- PROVIDE INTRINSICALLY SAFE RELAYS AND BARRIERS FOR CONTROL AND INSTRUMENT CABLES RUN FROM HAZARDOUS LOCATIONS INTO CONTROL PANELS, AS REQUIRED TO INSURE SAFE OPERATION IN HAZARDOUS LOCATIONS.

CONTROL PANEL CP47

ANNUNCIATOR PANEL

MAIN FLOW PUMP
NO. 2 MOTOR
WINDING TEMP/
MOISTURE HIGH

MAIN FLOW
PUMP NO. 2
FAILURE

MAIN FLOW
PUMP NO. 2
O/L TRIP

FLOAT CONTROL

MFP-2
CALLED FOR

PLC-SP47-03 (NOTE 3)

MFP-2 FLOW

MANUAL MODE

AUTO MODE

PUMP MOISTURE
DETECTION

MFP-2
HIGH TEMP/
MOISTURE
PROTECTION
IN BYPASS
MODE

MOTOR
OVERTEMP
DETECTION

SCADA
PUMP
CALL

MFP-2
CALLED FOR

PUMP
NOT
RUNNING

PUMP
RUNNING

RVSS
O/L

RVSS
FAIL

MOTOR
CURRENT

CIRCUIT
BREAKER
TRIPPED

FI 002

HN 002

HN 002

MI 002

HN 002

TI 002

YD 002

YY 002

YB 002

YN 002

MA 002

MA 002

IT 002

YA 002

HS 002

HMS 002

HMS 002

HMS 002

MY 002

HS 002

TY 002

TLA 002

MLA 002

YL 002

YY 002

YY 002

YLY 002

MLA 002

MA 002

IT 002

YYF 002

HS 002

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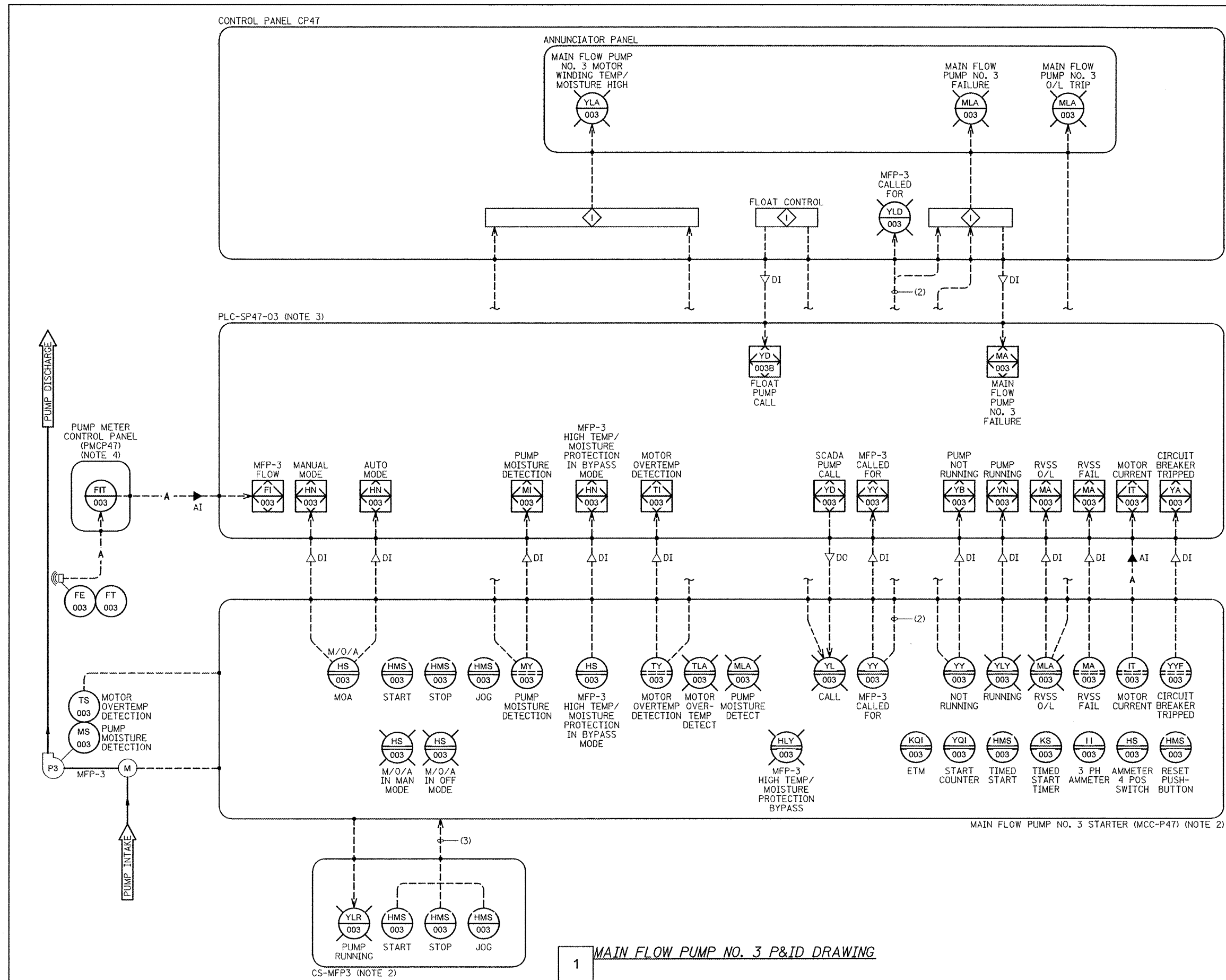
CS-MFP2 (NOTE 2)

MAIN FLOW PUMP NO. 2 STARTER (MCC-P47) (NOTE 2)

1 MAIN FLOW PUMP NO. 2 P&ID DRAWING

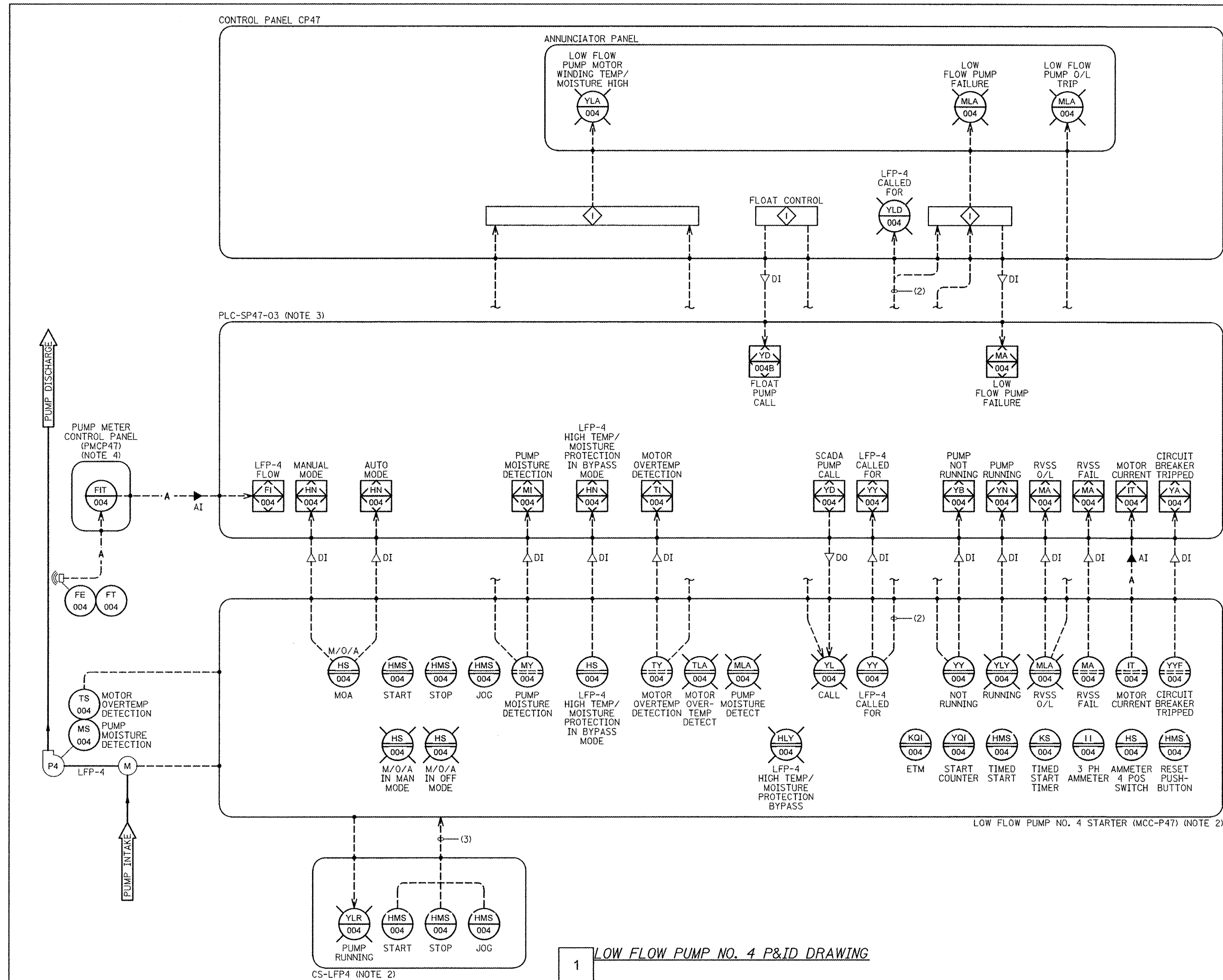
NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO SHEET E-3 FOR PUMP CONTROL WIRING DIAGRAM.
- REFER TO SPECIFICATION SECTION 40 94 23 FOR ADDITIONAL PUMP ALTERNATOR CONTROLLER REQUIREMENTS & SEQUENCE OF OPERATION.
- PUMP METER CONTROL PANEL INCLUDES A METER FOR EACH OF THE MAIN FLOW PUMPS AND THE LOW FLOW PUMP. REFER TO SHEETS I-3, I-5, I-6, AND ID-4 DETAIL 1 FOR ADDITIONAL INFORMATION.
- PROVIDE INTRINSICALLY SAFE RELAYS AND BARRIERS FOR CONTROL AND INSTRUMENT CABLES RUN FROM HAZARDOUS LOCATIONS INTO CONTROL PANELS, AS REQUIRED TO INSURE SAFE OPERATION IN HAZARDOUS LOCATIONS.



NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO SHEET E-3 FOR PUMP CONTROL WIRING DIAGRAM.
- REFER TO SPECIFICATION SECTION 40 94 23 FOR ADDITIONAL PUMP ALTERNATOR CONTROLLER REQUIREMENTS & SEQUENCE OF OPERATION.
- PUMP METER CONTROL PANEL INCLUDES A METER FOR EACH OF THE MAIN FLOW PUMPS AND THE LOW FLOW PUMP. REFER TO SHEETS I-3, I-4, I-6, AND ID-4 DETAIL 1 FOR ADDITIONAL INFORMATION.
- PROVIDE INTRINSICALLY SAFE RELAYS AND BARRIERS FOR CONTROL AND INSTRUMENT CABLES RUN FROM HAZARDOUS LOCATIONS INTO CONTROL PANELS, AS REQUIRED TO INSURE SAFE OPERATION IN HAZARDOUS LOCATIONS.



NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO SHEET E-3 FOR PUMP CONTROL WIRING DIAGRAM.
- REFER TO SPECIFICATION SECTION 40 94 23 FOR ADDITIONAL PUMP ALTERNATOR CONTROLLER REQUIREMENTS & SEQUENCE OF OPERATION.
- PUMP METER CONTROL PANEL INCLUDES A METER FOR EACH OF THE MAIN FLOW PUMPS AND THE LOW FLOW PUMP. REFER TO SHEETS I-3, I-4, I-5, AND ID-4 DETAIL 1 FOR ADDITIONAL INFORMATION.
- PROVIDE INTRINSICALLY SAFE RELAYS AND BARRIERS FOR CONTROL AND INSTRUMENT CABLES RUN FROM HAZARDOUS LOCATIONS INTO CONTROL PANELS, AS REQUIRED TO INSURE SAFE OPERATION IN HAZARDOUS LOCATIONS.

LOW FLOW PUMP NO. 4 P&ID DRAWING

McDonough Associates Inc. Engineers/Architects 100 East Randolph Street - Suite 1000 Chicago, Illinois 60601 Phone: (312) 944-0000	DESIGNED	DKC	REVISED	Addendum A 5-23-12
	CHECKED	KMY	REVISED	-
	DRAWN	CJM	REVISED	-
	CHECKED	KMY	REVISED	-
	DATE	03/22/2012	REVISED	-

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

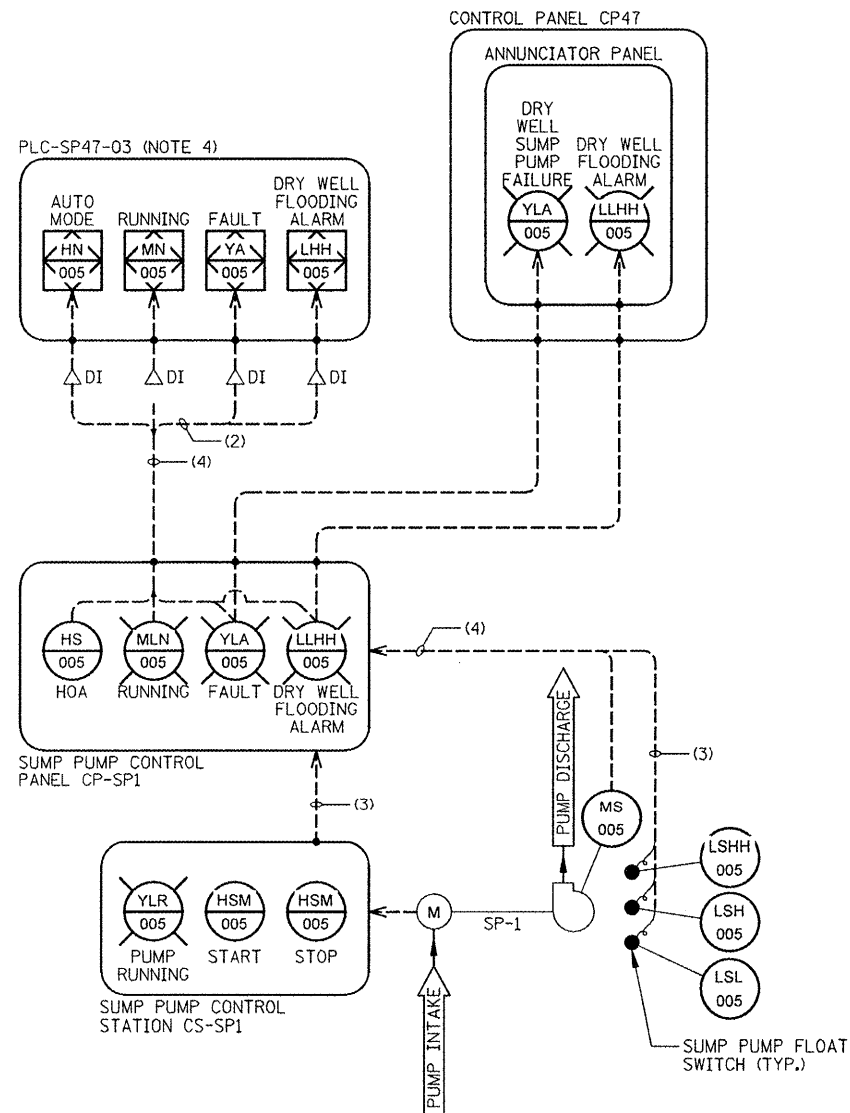
I & C LOW FLOW PUMP NO. 4 P&ID DRAWING
PUMP STATION 47

SHEET NO. I-6 OF 10 SHEETS

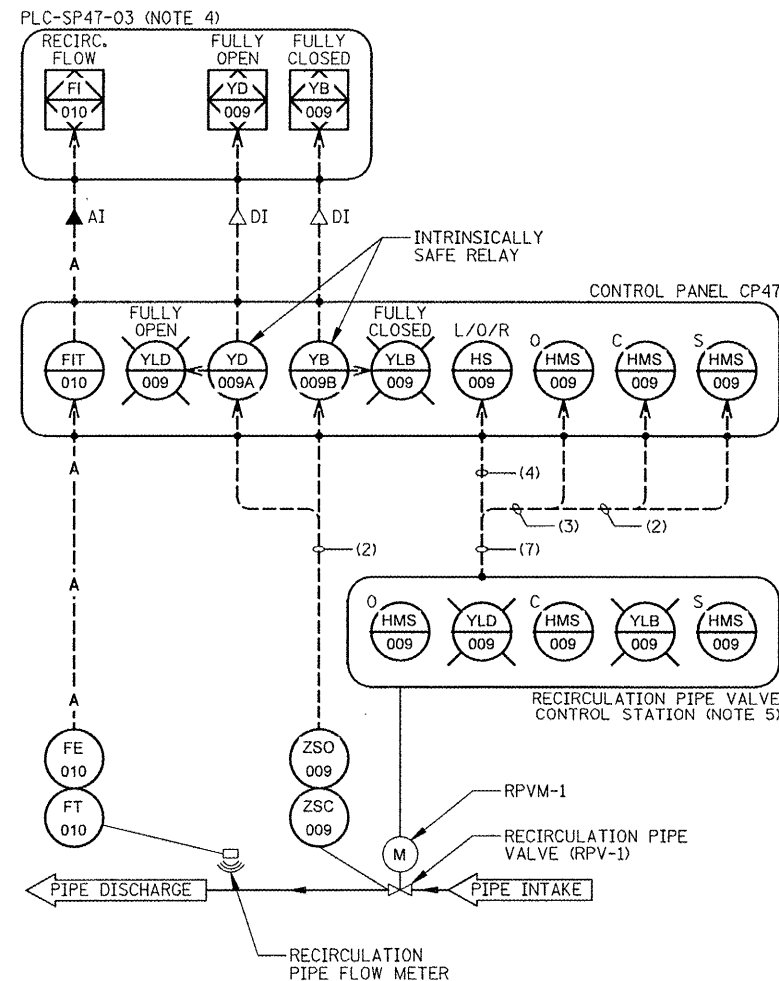
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 60P41				
ILLINOIS FED. AID PROJECT				

NOTES:

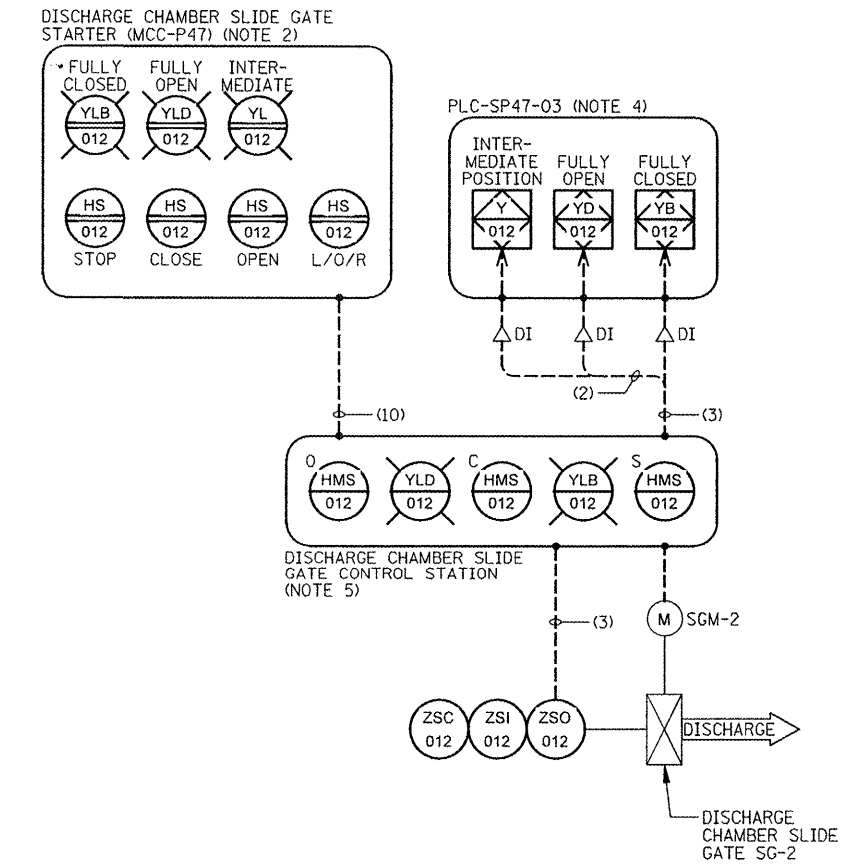
1. SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
2. REFER TO SHEET E10 FOR CONTROL WIRING DIAGRAMS FOR SLIDE GATE AND RECIRCULATION VALVE MOTORS.
3. REFER TO SHEET E10A FOR SUMP PUMP CONTROL SYSTEM BLOCK DIAGRAM.
4. PROVIDE INTRINSICALLY SAFE RELAYS AND BARRIERS FOR CONTROL AND INSTRUMENT CABLES RUN FROM HAZARDOUS LOCATIONS INTO CONTROL PANELS, AS REQUIRED TO INSURE SAFE OPERATION IN HAZARDOUS LOCATIONS.
5. CONTROL STATION IS INTEGRAL TO ACTUATOR.



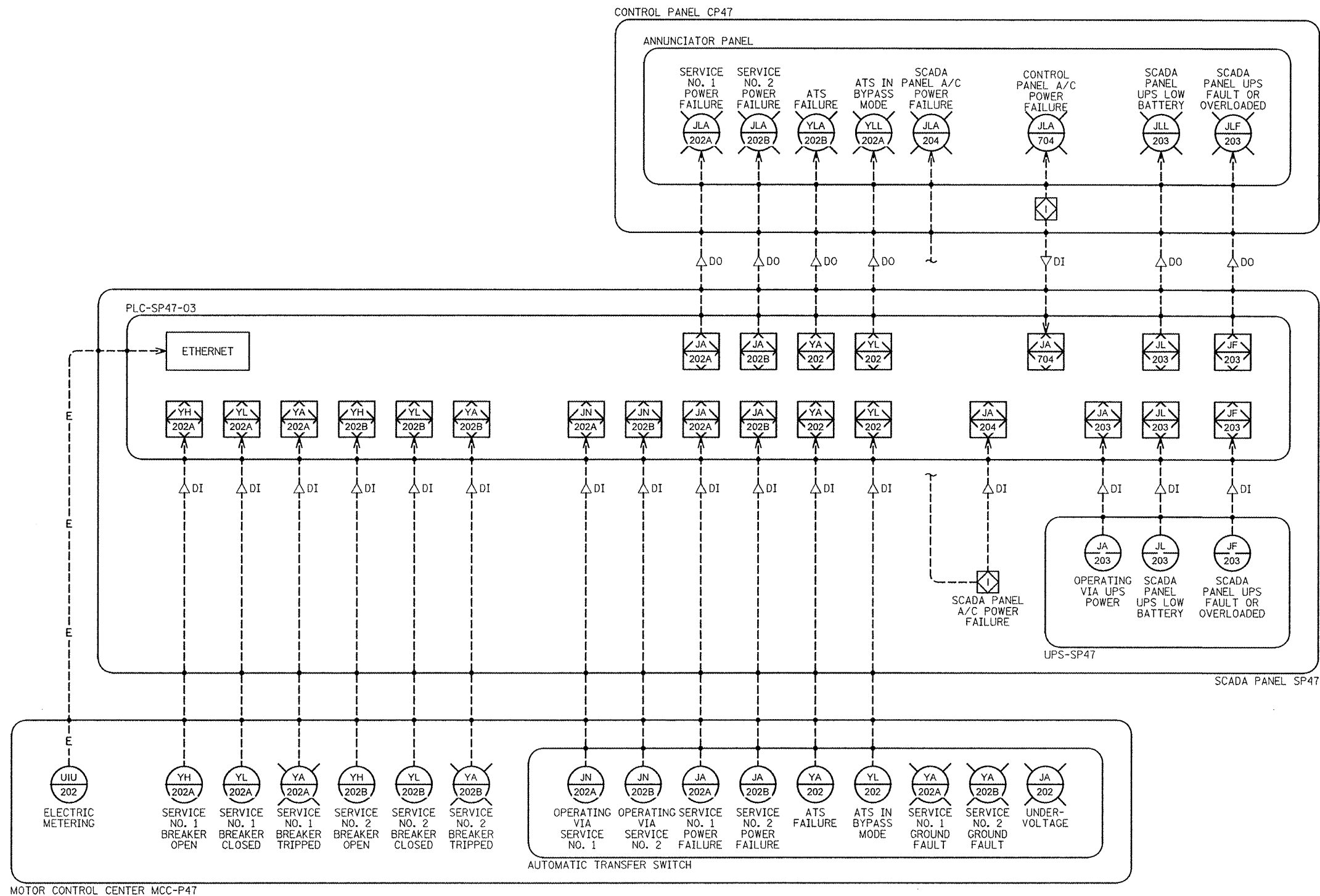
1 SUMP PUMP P&ID DRAWING



2 RECIRCULATION SYSTEM P&ID DRAWING



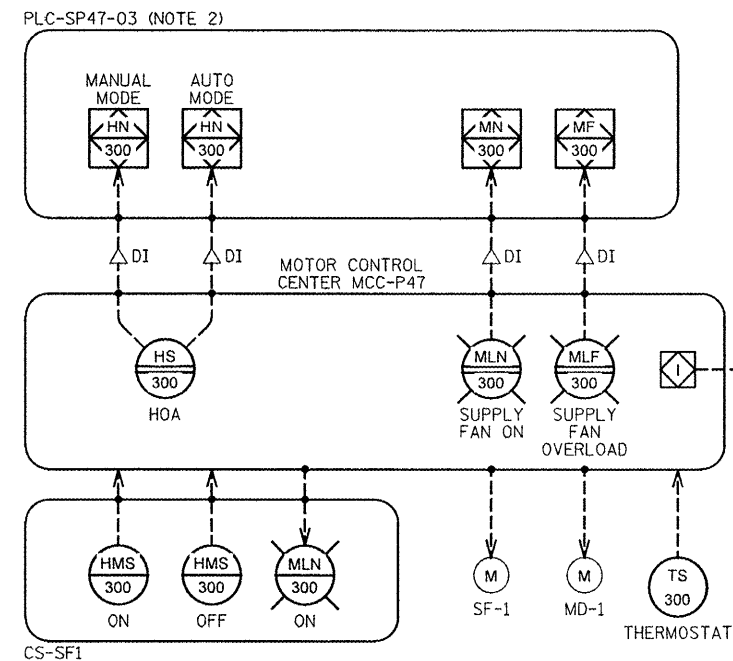
3 DISCHARGE CHAMBER SLIDE GATE P&ID DRAWING



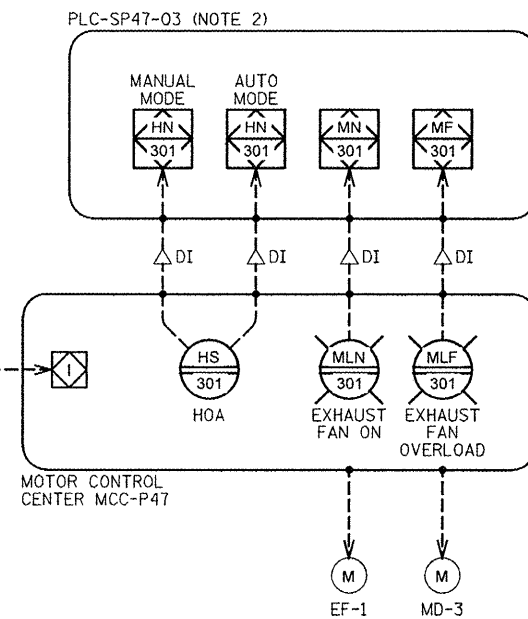
NOTES:

1. SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
2. REFER TO SPECIFICATION SECTION 40 94 23 FOR SCADA PANEL REQUIREMENTS.

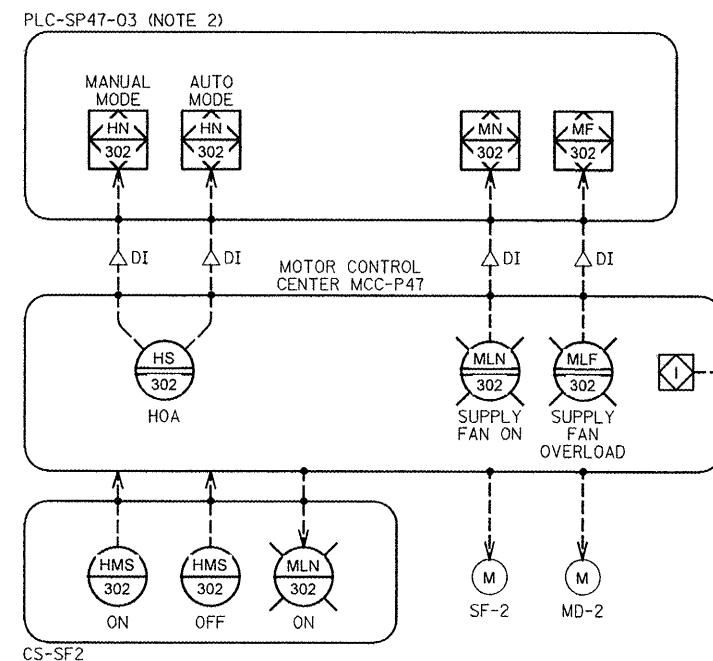
1 POWER TRANSFER P&ID DRAWING



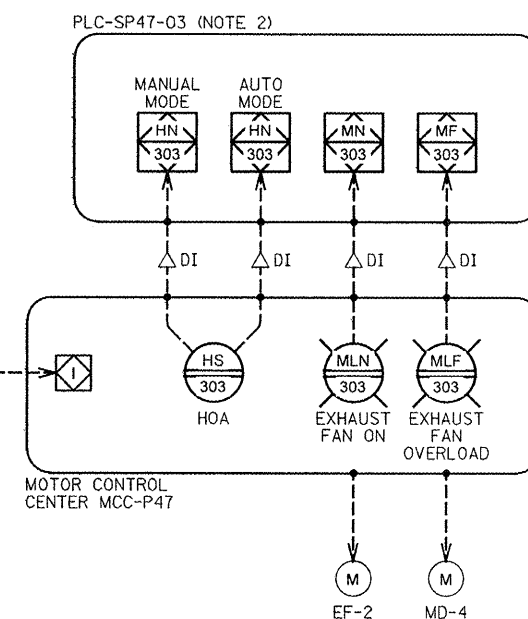
1 SUPPLY FAN SF-1 P&ID
(NOTE 3)



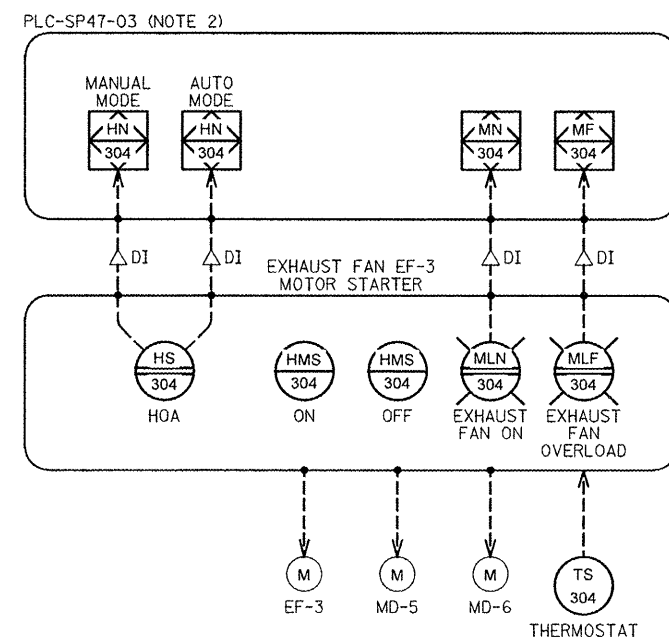
2 EXHAUST FAN EF-1 P&ID



3 SUPPLY FAN SF-2 P&ID
(NOTE 3)



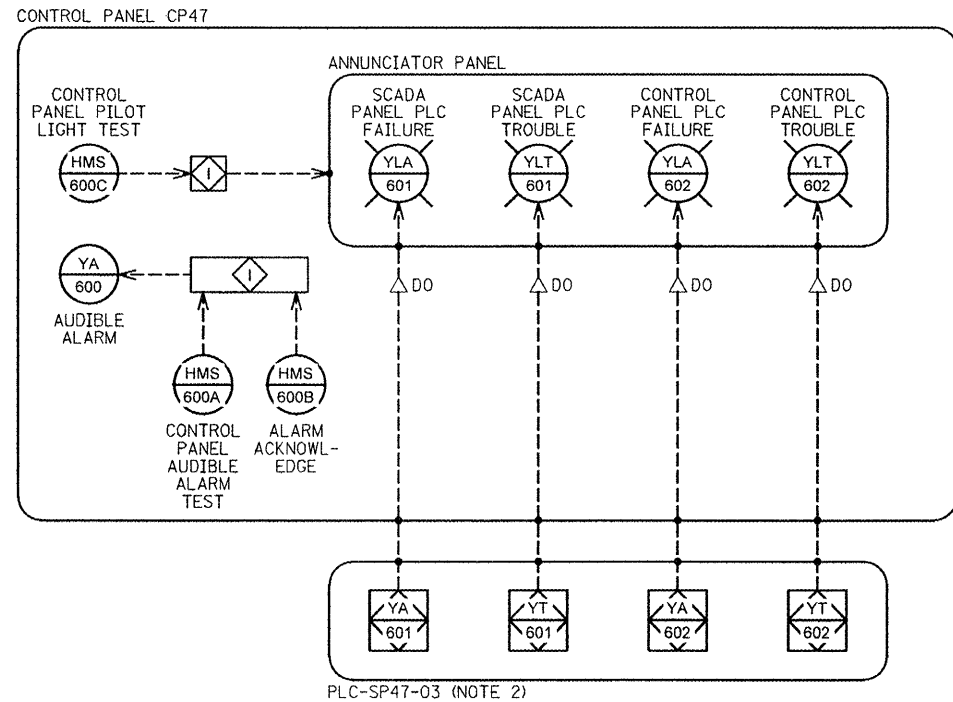
4 EXHAUST FAN EF-2 P&ID



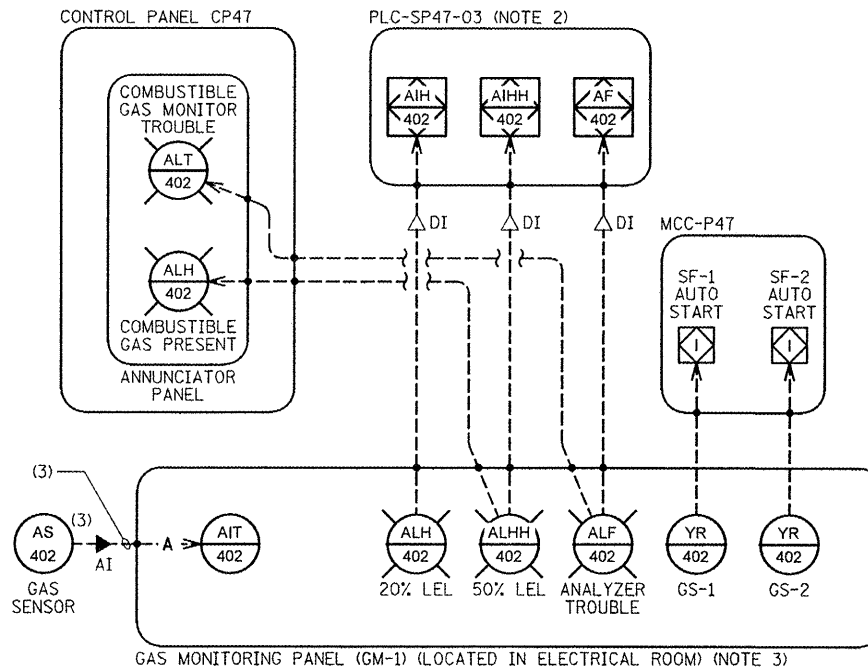
5 EXHAUST FAN EF-3 P&ID

NOTES:

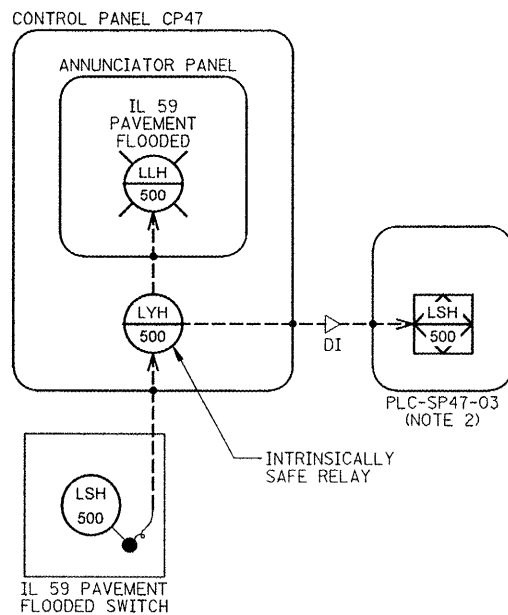
- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
- REFER TO SPECIFICATION SECTION 40 94 23 FOR SCADA REQUIREMENTS.
- REFER TO DETAIL 2 ON SHEET I-10 FOR AUTOMATIC START INPUT FROM GAS MONITORING PANEL.



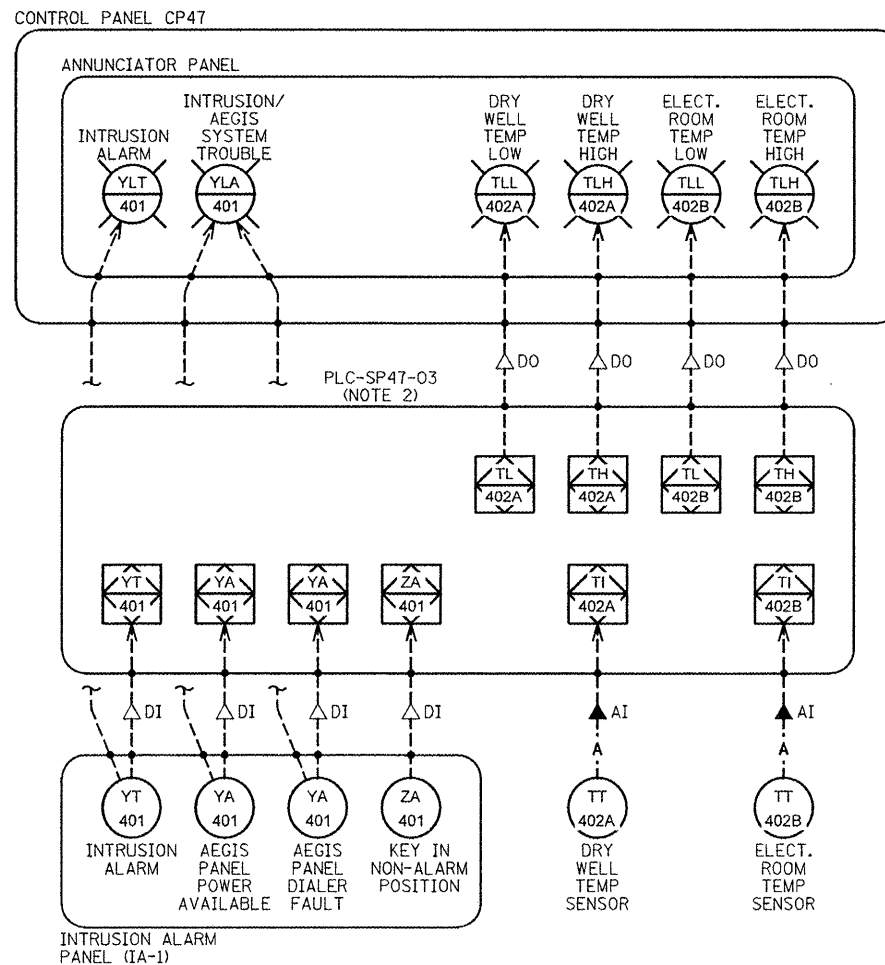
1 MISCELLANEOUS CONTROL PANEL P&ID



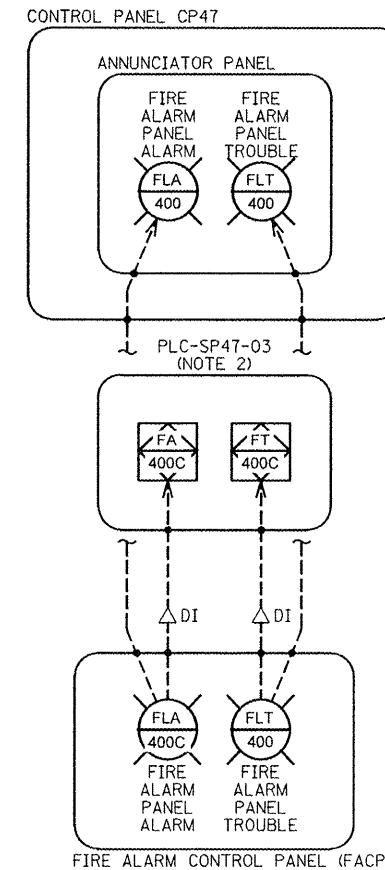
2 GAS MONITORING PANEL P&ID



3 PAVEMENT FLOOD SYSTEM P&ID

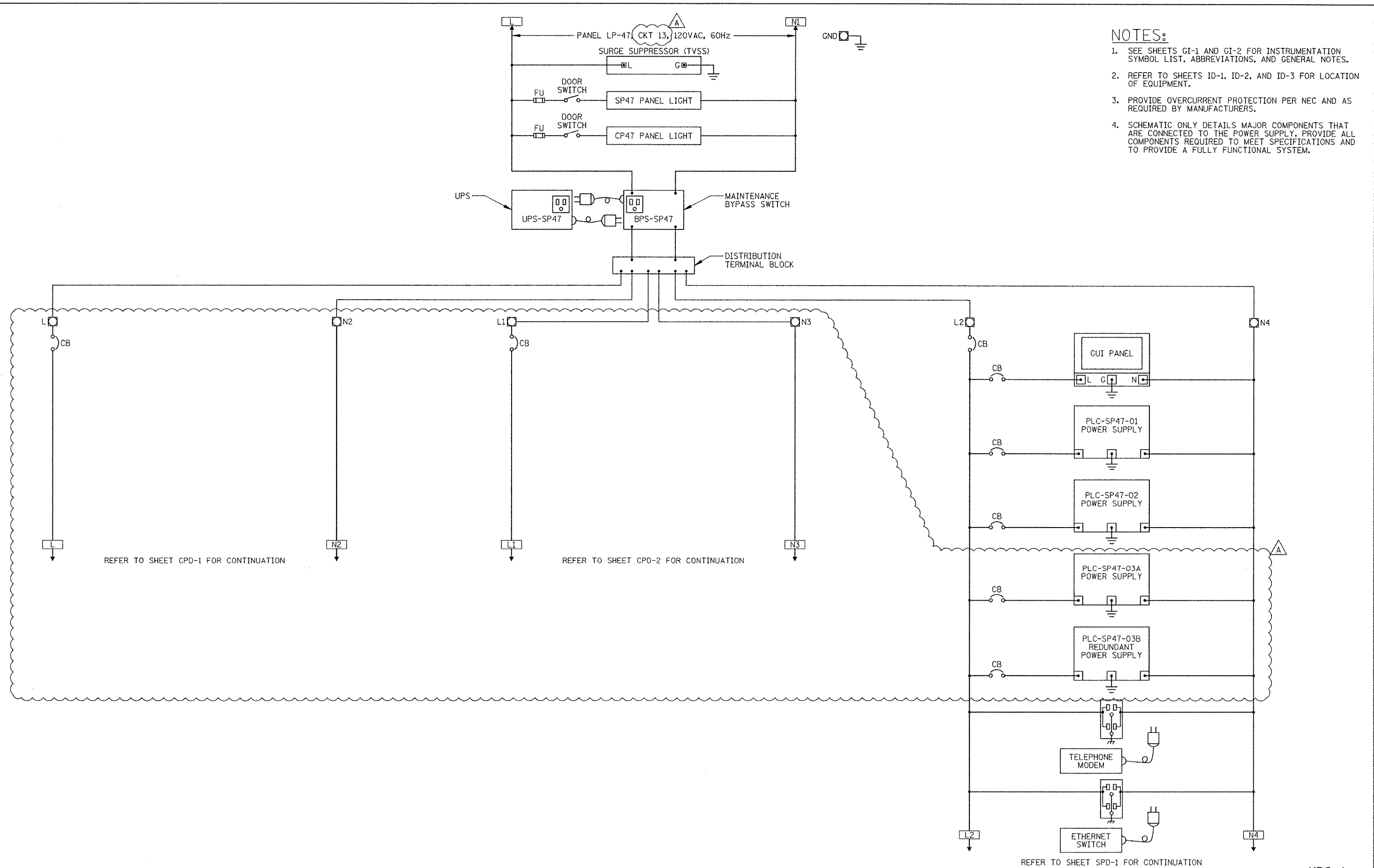


4 GENERAL BUILDING P&ID



5 FIRE ALARM CONTROL PANEL (FACP) P&ID

- NOTES:
- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LISTS, ABBREVIATIONS, AND GENERAL NOTES.
 - REFER TO SPECIFICATION SECTION 40 94 23 FOR SCADA REQUIREMENTS.
 - GAS ANALYZERS ARE LOCATED IN THE WET WELL, DRY WELL, AND DISCHARGE CHAMBER.



- NOTES:**
1. SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
 2. REFER TO SHEETS ID-1, ID-2, AND ID-3 FOR LOCATION OF EQUIPMENT.
 3. PROVIDE OVERCURRENT PROTECTION PER NEC AND AS REQUIRED BY MANUFACTURERS.
 4. SCHEMATIC ONLY DETAILS MAJOR COMPONENTS THAT ARE CONNECTED TO THE POWER SUPPLY. PROVIDE ALL COMPONENTS REQUIRED TO MEET SPECIFICATIONS AND TO PROVIDE A FULLY FUNCTIONAL SYSTEM.

McDonough Associates Inc.
Engineers/Architects
100 East Randolph Street - Suite 1000
Chicago, Illinois 60601 Phone: (312) 544-0000

DESIGNED <i>DKC</i>	REVISED <i>-Addendum A 5-23-12</i>
CHECKED <i>KMY</i>	REVISED -
DRAWN <i>CJM</i>	REVISED -
CHECKED <i>KMY</i>	REVISED -

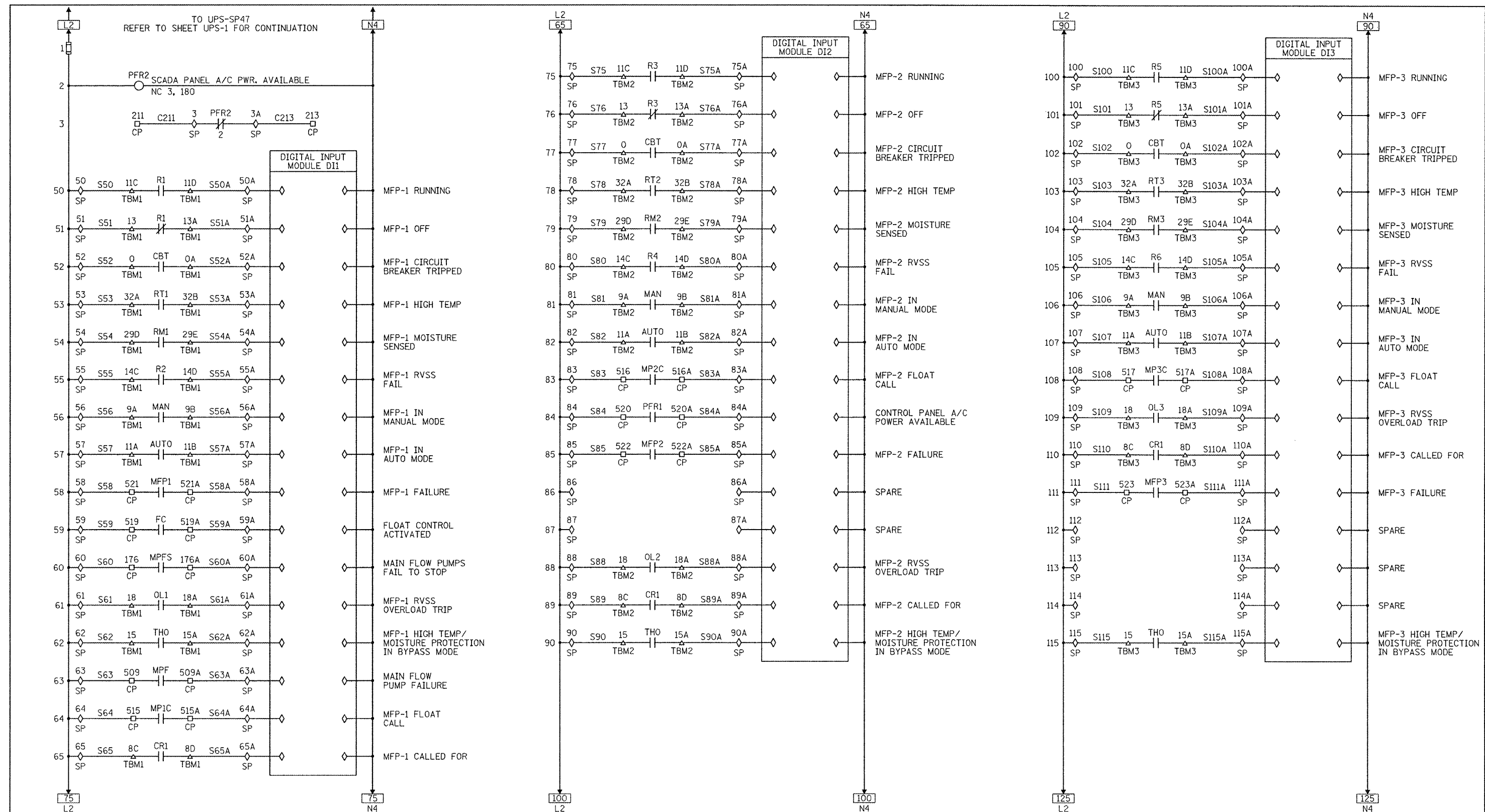
**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

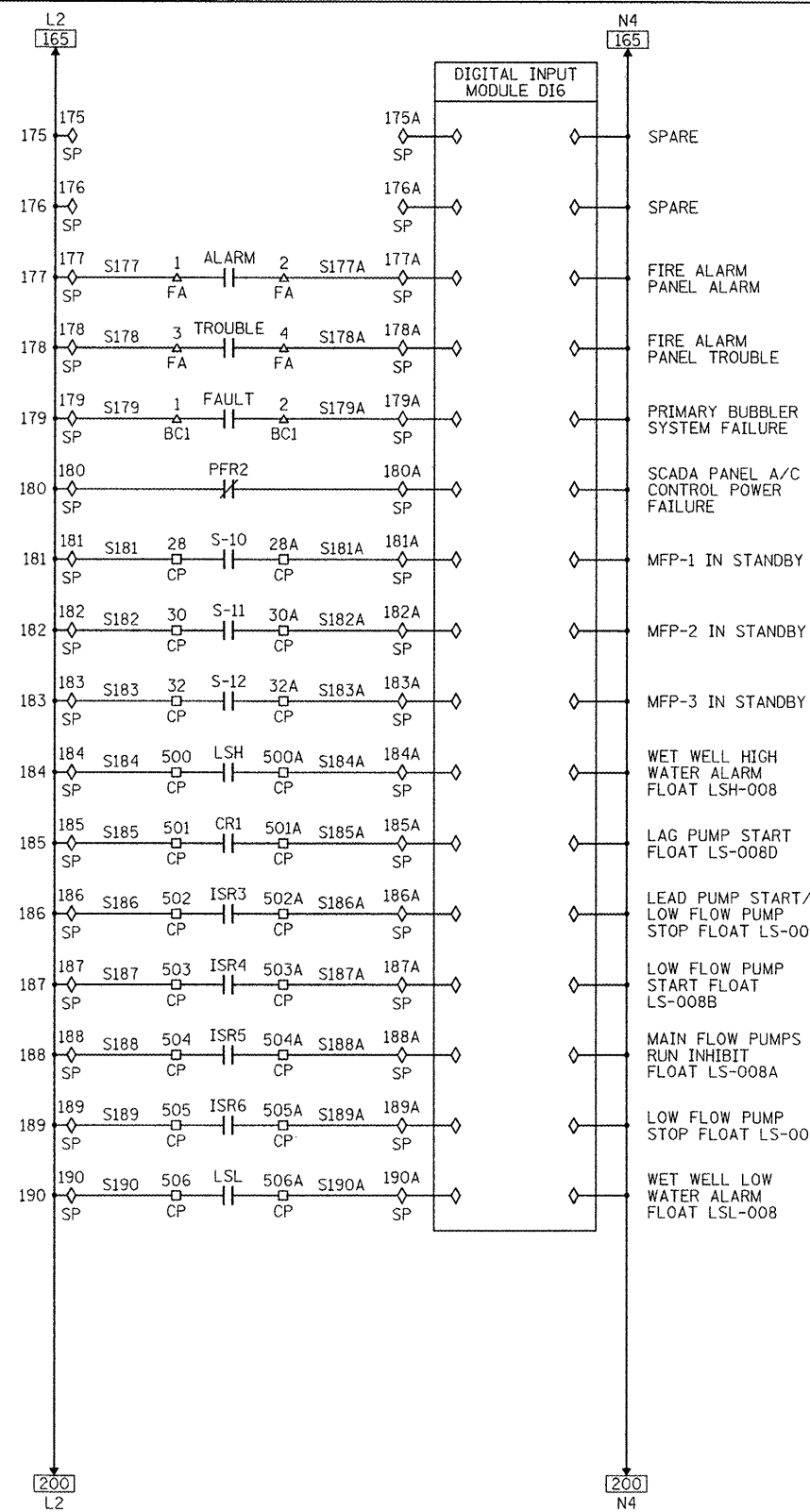
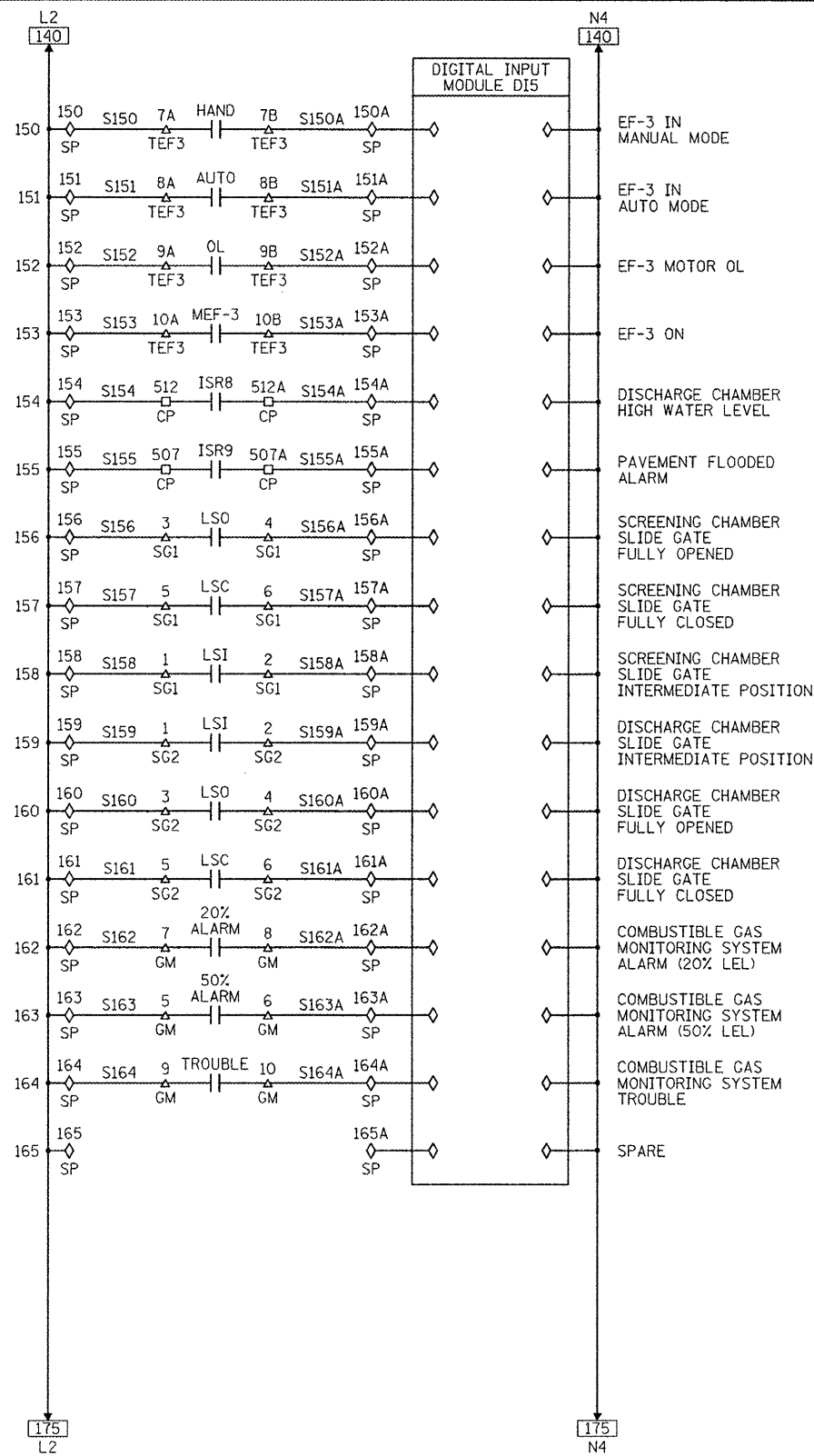
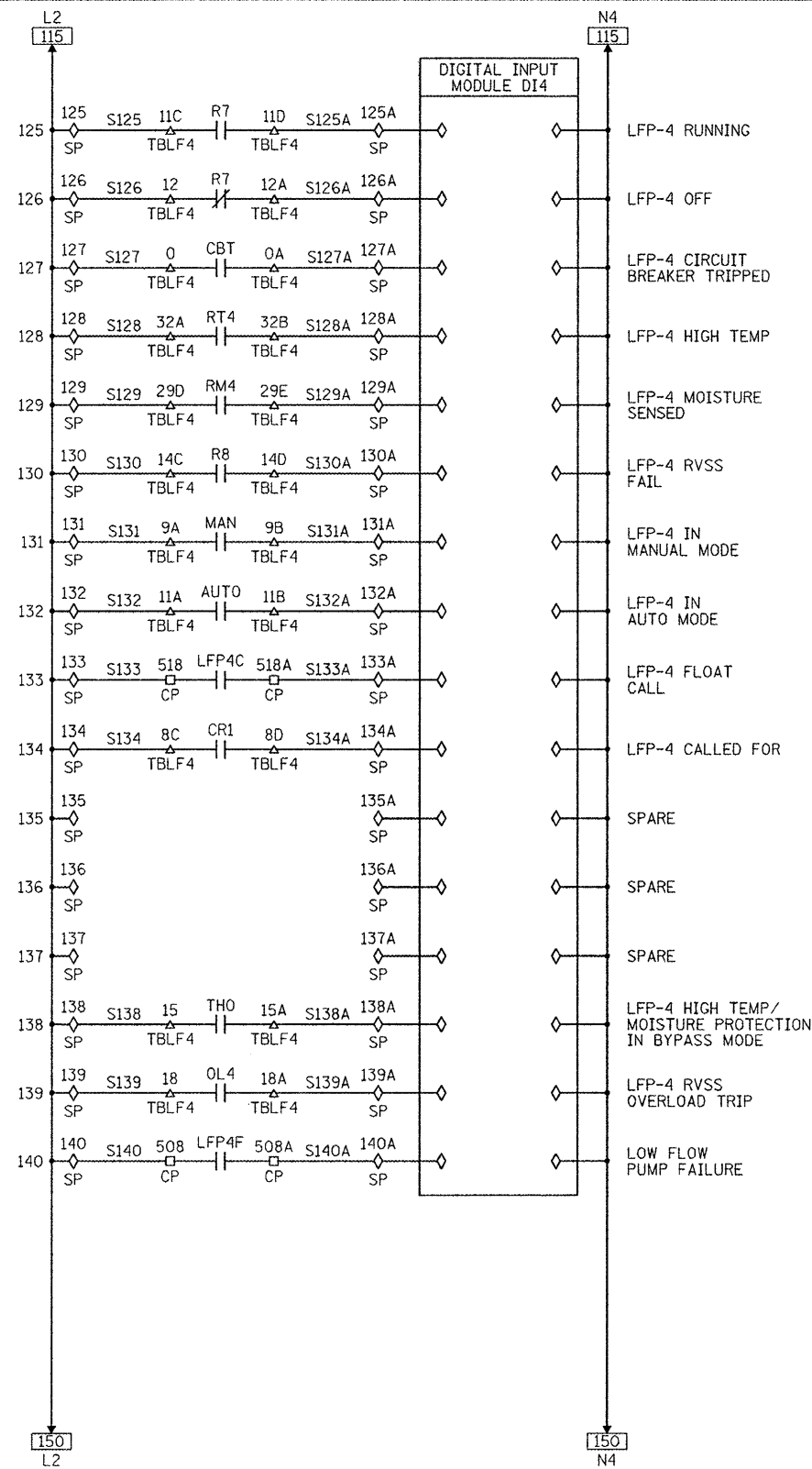
**CONTROL PANEL & SCADA PANEL POWER SCHEMATICS
PUMP STATION 47**

SHEET NO. UPS-1 OF 1 SHEETS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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CONTRACT NO. 60P41				
ILLINOIS FED. AID PROJECT				

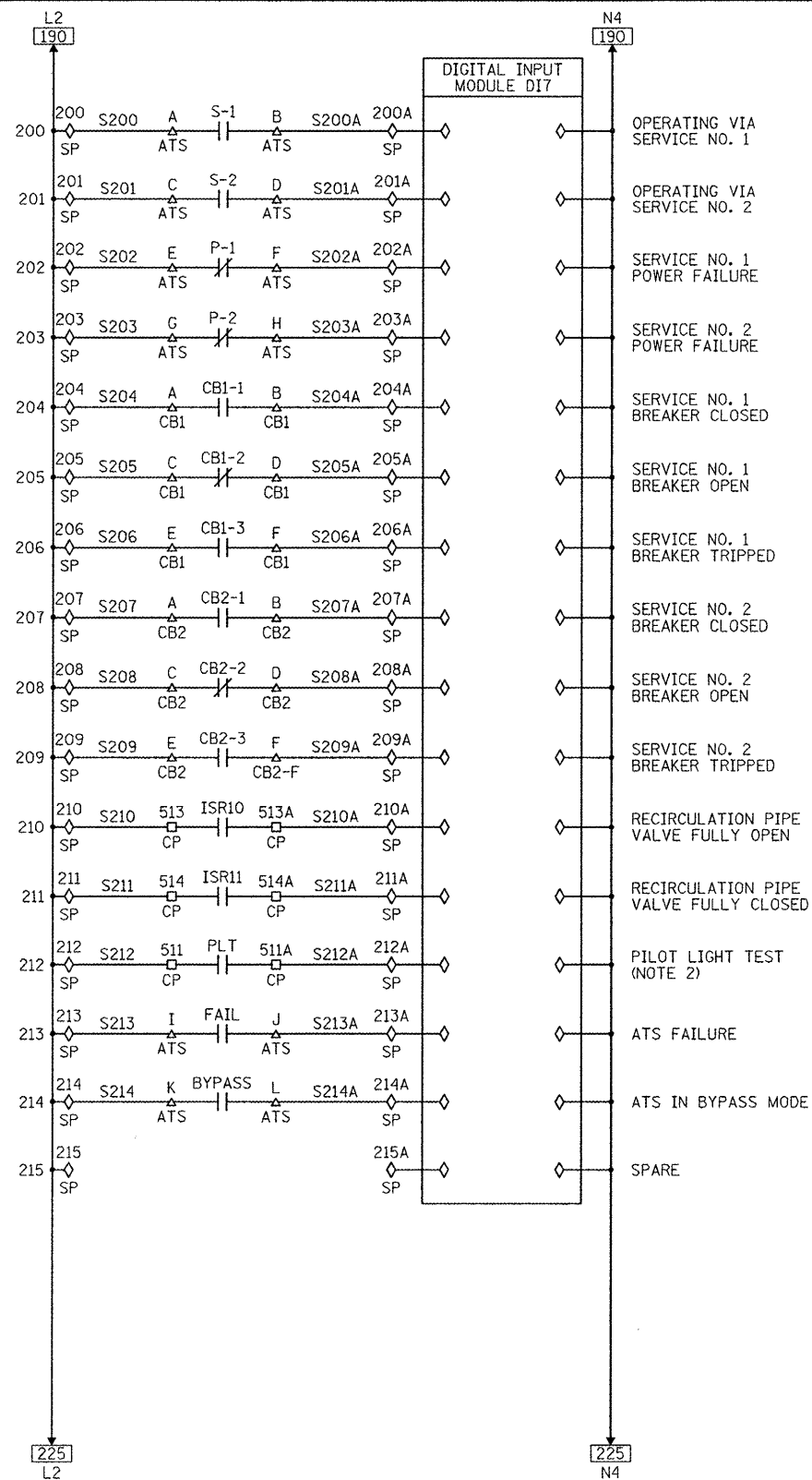
UPS-1



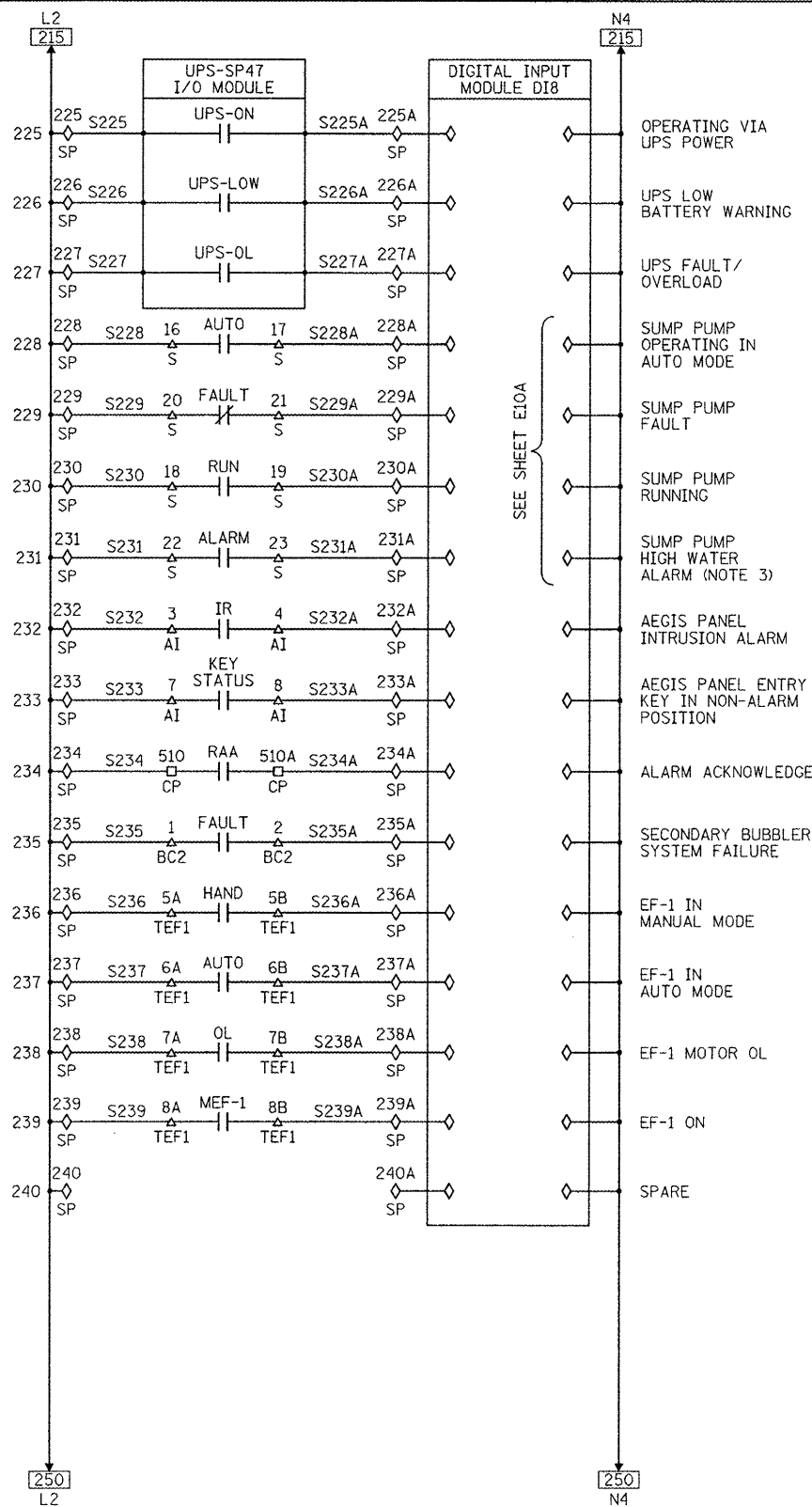


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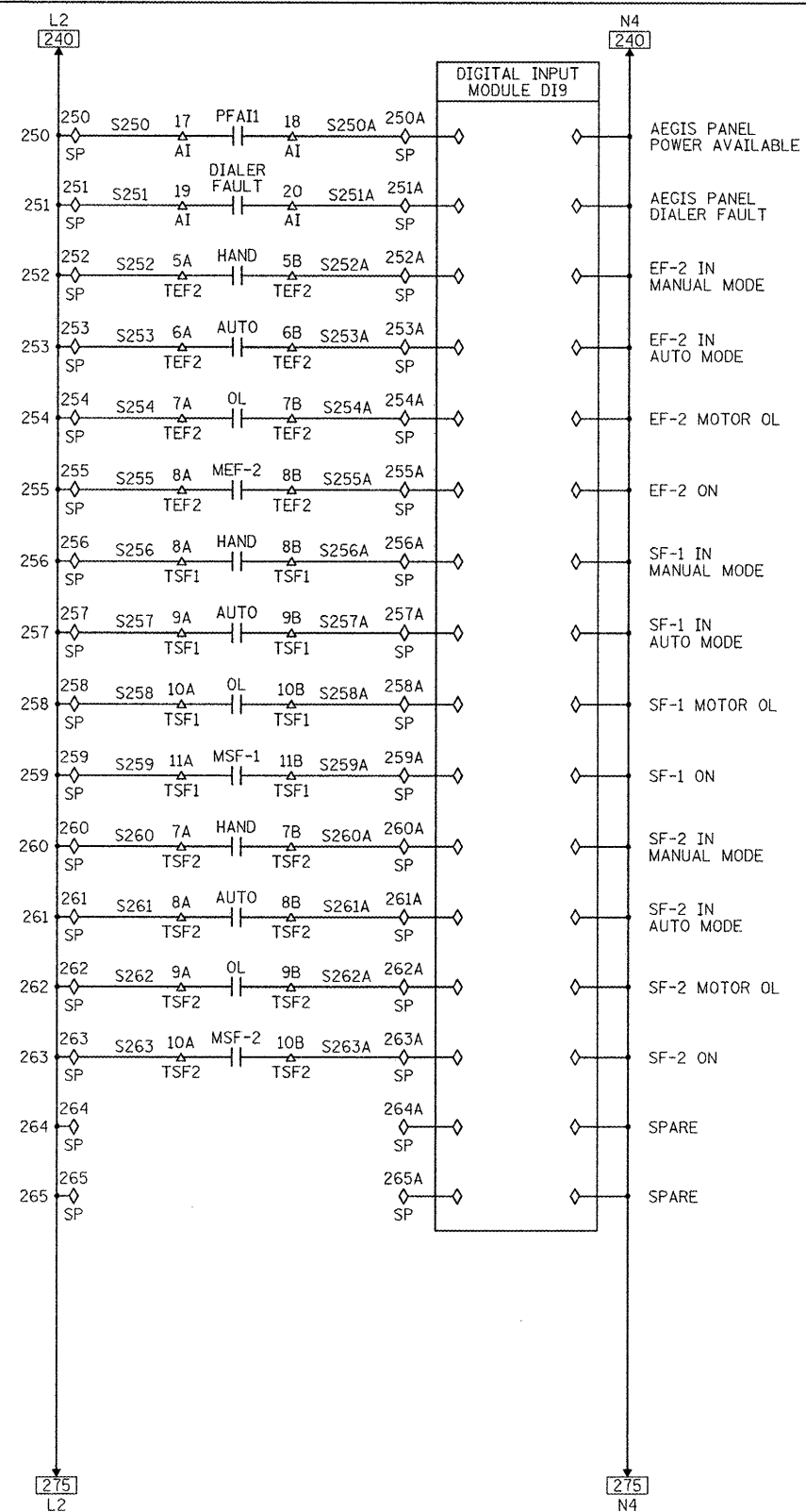
- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
- ALL INTERCONNECTING WIRES/CABLES BETWEEN PANELS SHALL TERMINATE ON TERMINAL STRIPS AND SHOULD NOT BE DIRECTLY CONNECTED TO DEVICES LOCATED IN THE PANELS.



REFER TO SHEET E3 FOR ADDITIONAL DETAILS

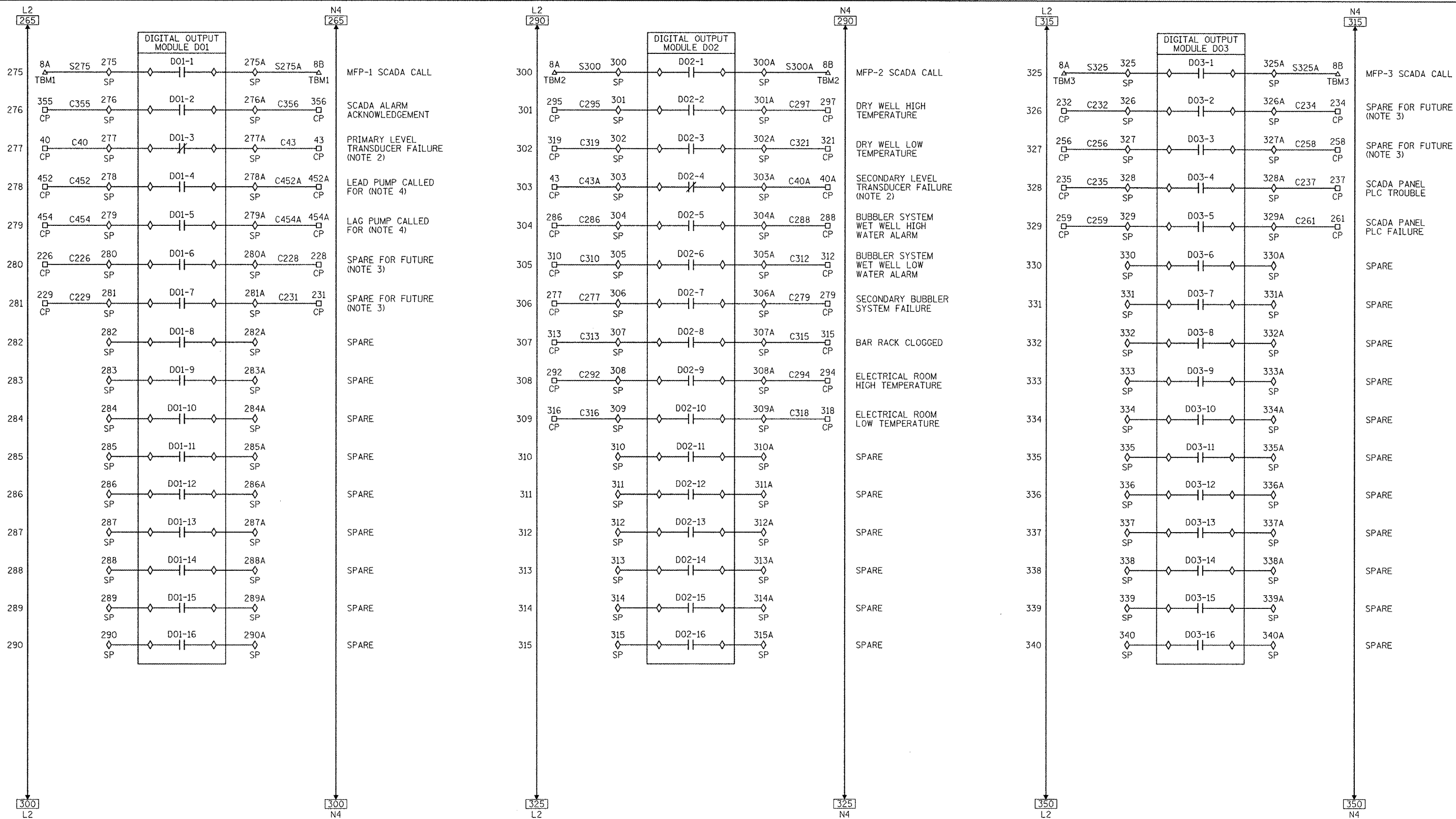


SEE SHEET E10A



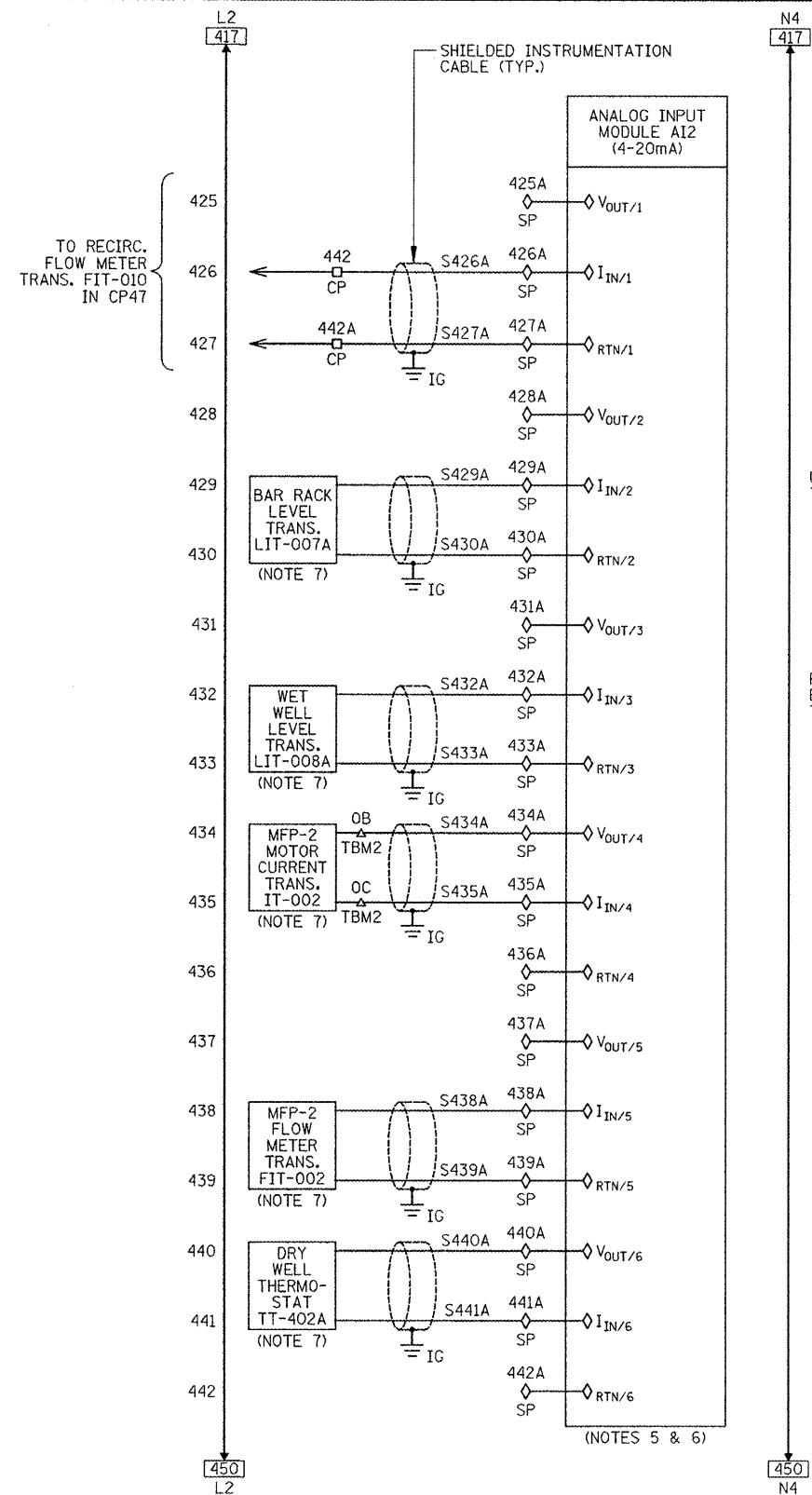
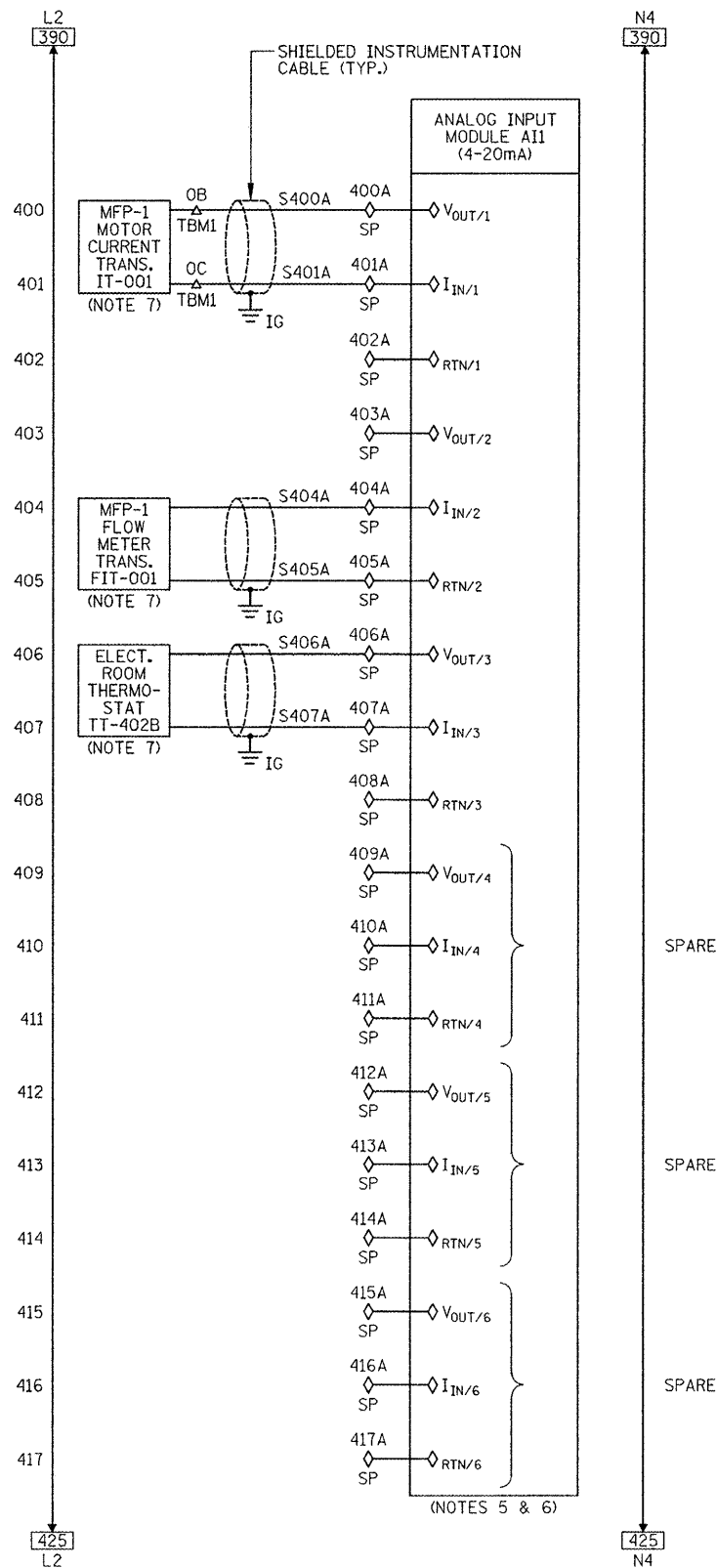
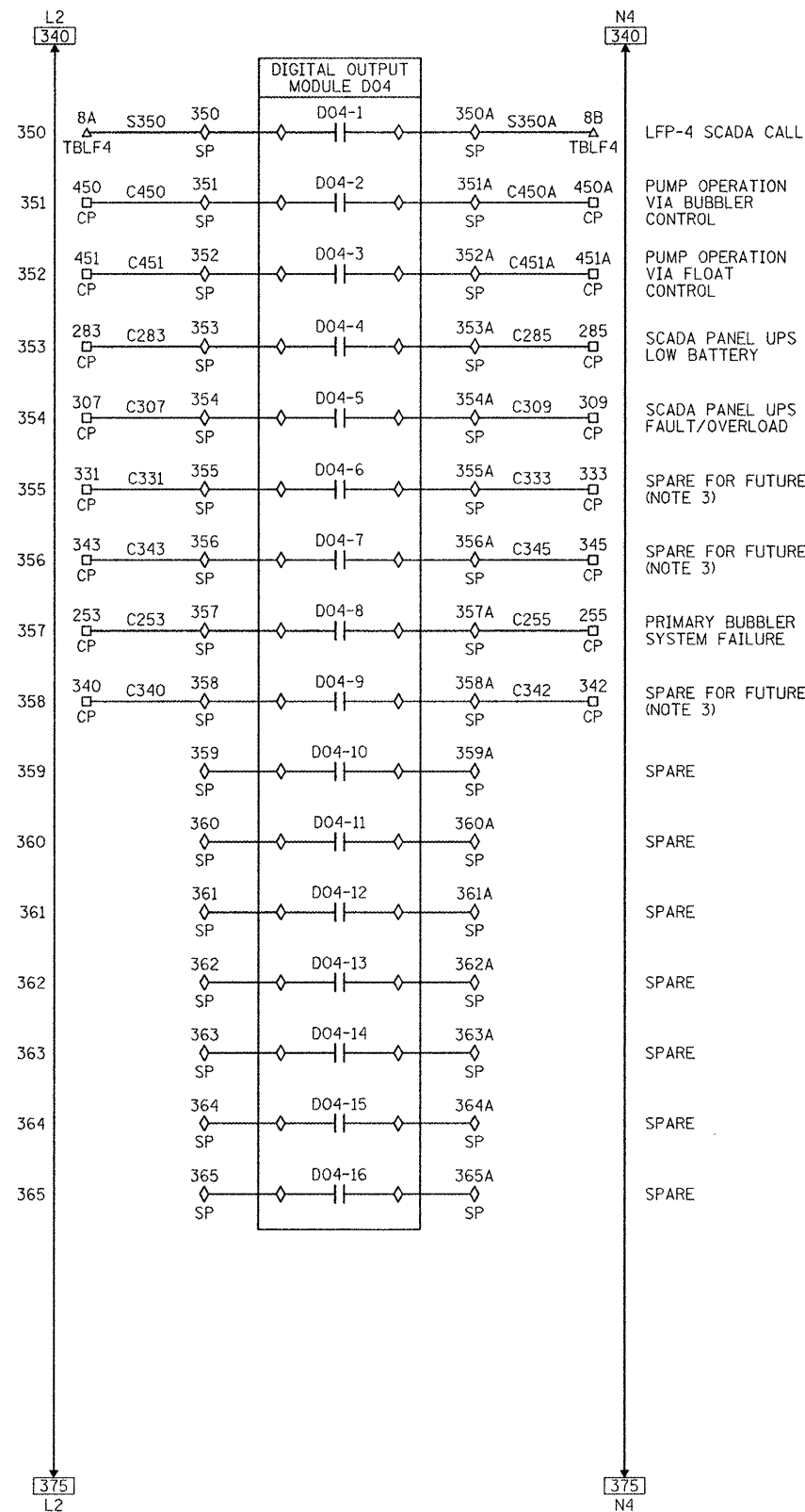
NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
- INPUT USED TO TEST THE INDIVIDUAL FLOAT SWITCH PILOT LIGHTS. REFER TO SHEET CPD-3.
- THE HIGH WATER ALARM IS USED TO PROVIDE THE "DRY WELL FLOODING ALARM".
- ALL INTERCONNECTING WIRES/CABLES BETWEEN PANELS SHALL TERMINATE ON TERMINAL STRIPS AND SHOULD NOT BE DIRECTLY CONNECTED TO DEVICES LOCATED IN THE PANELS.



NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
- PLC SHALL MONITOR STATUS OF 4-20mA INPUT FROM PRIMARY AND SECONDARY TRANSDUCERS. IF SIGNALS FROM BOTH TRANSDUCERS ARE LOST, THE FLOAT LEVELING SYSTEM SHALL AUTOMATICALLY TAKE OVER CONTROL OF PUMP OPERATION. NORMALLY CLOSED CONTACTS SHALL OPEN WHEN TRANSDUCER SIGNAL IS AVAILABLE.
- THIS OUTPUT SHALL BE HARDWIRED TO ANNUNCIATOR PANEL FOR FUTURE USE.
- PILOT LIGHT MOUNTED ON CONTROL PANEL CP47. REFER TO SHEET ID-2.
- ALL INTERCONNECTING WIRES/CABLES BETWEEN PANELS SHALL TERMINATE ON TERMINAL STRIPS AND SHOULD NOT BE DIRECTLY CONNECTED TO DEVICES LOCATED IN THE PANELS.

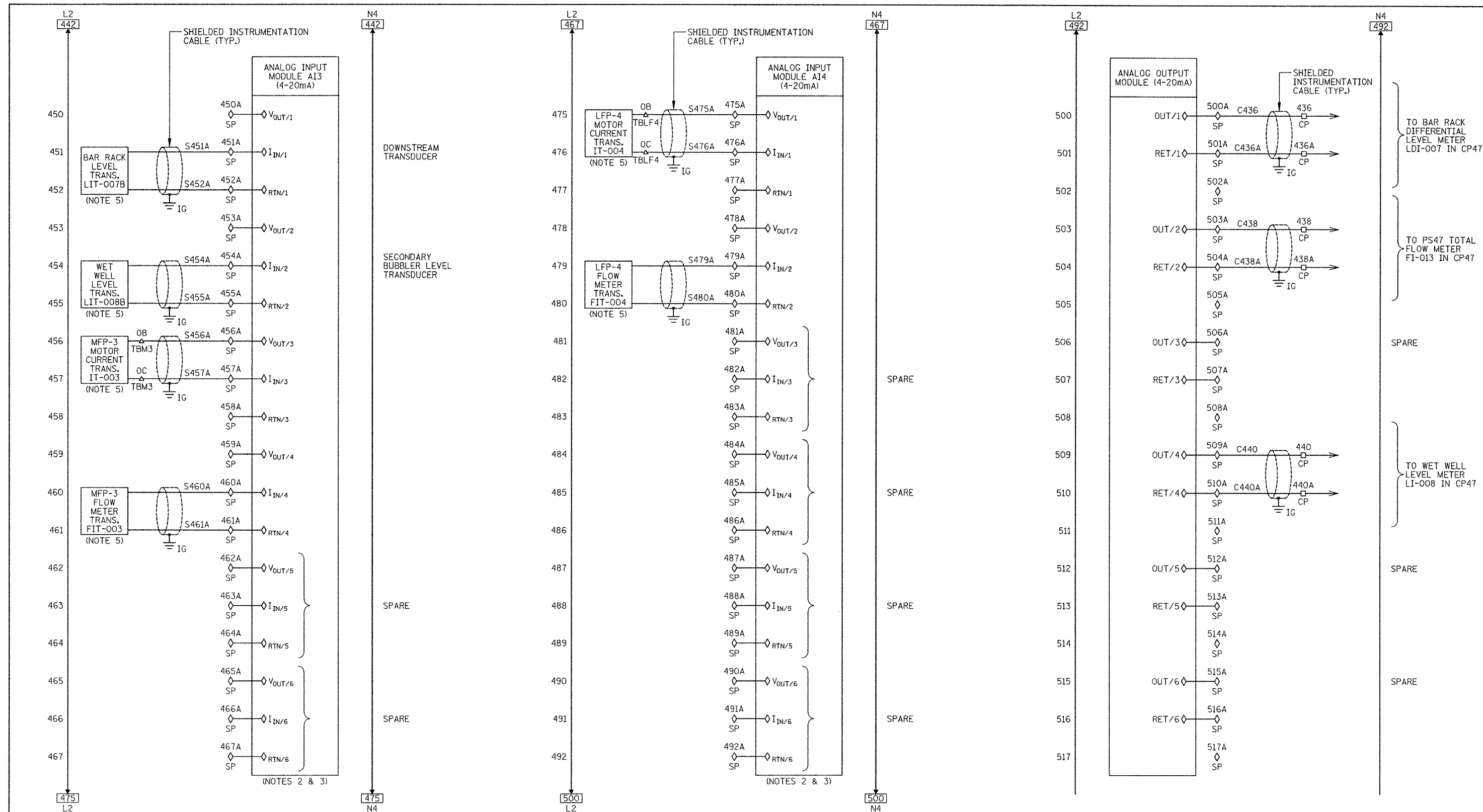


NOTES:

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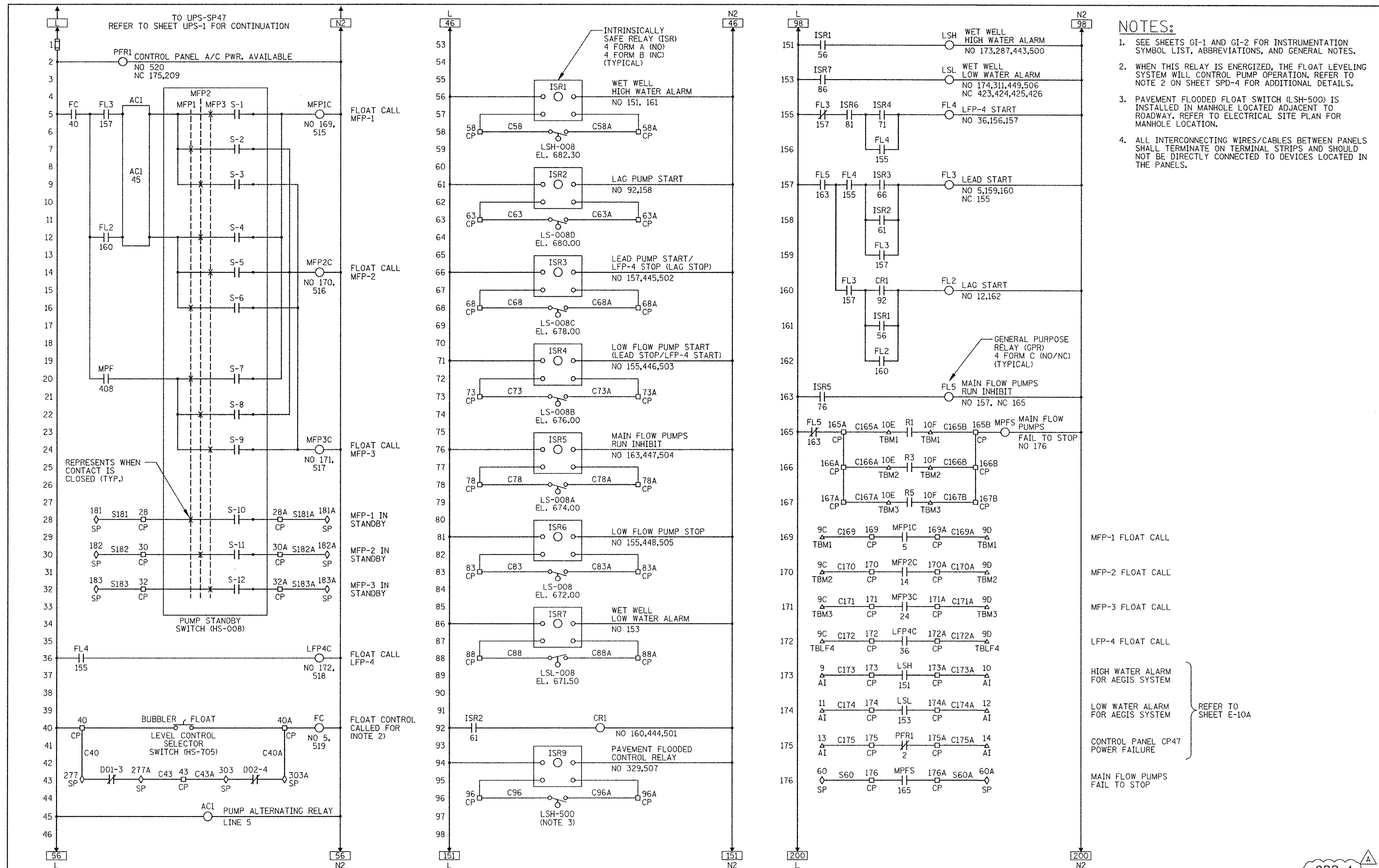
- THIS OUTPUT SHALL BE HARDWIRED TO ANNUNCIATOR PANEL FOR FUTURE USE.
- ALL INTERCONNECTING WIRES/CABLES BETWEEN PANELS SHALL TERMINATE ON TERMINAL STRIPS AND SHOULD NOT BE DIRECTLY CONNECTED TO DEVICES LOCATED IN THE PANELS.
- PROVIDE INTRINSICALLY SAFE BARRIERS FOR ALL 4-20mA INPUT SIGNALS COMING FROM THOSE DEVICES THAT ARE INSTALLED IN HAZARDOUS LOCATIONS.

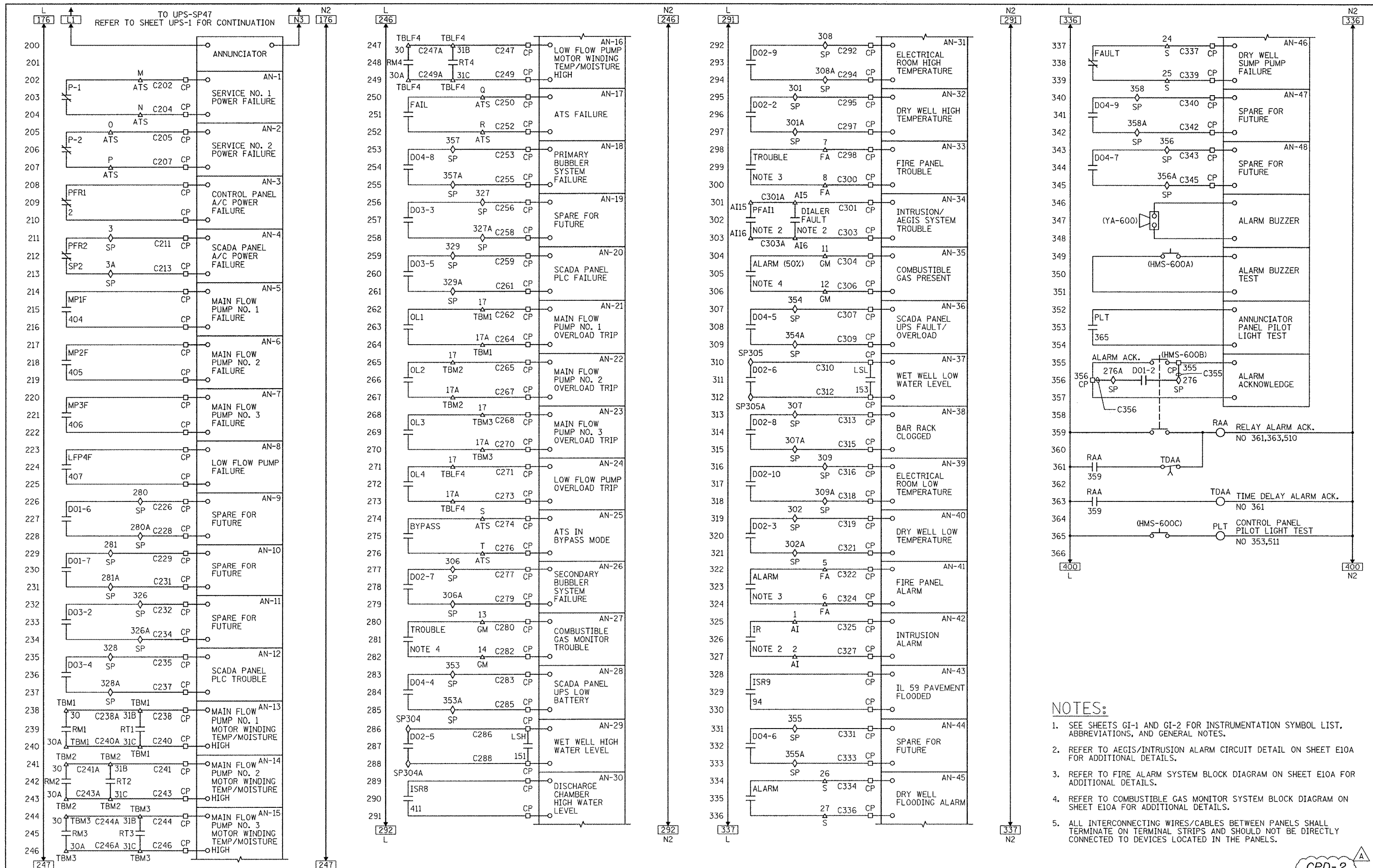
- CONTRACTOR TO VERIFY IF FIELD DEVICES SELECTED REQUIRE 2-WIRE OR 4-WIRE CONTROL AND CONNECT TO ANALOG INPUT MODULES ACCORDINGLY.
- DEVICE IS LOCATED IN THE FIELD AND NOT IN SCADA PANEL SP47. DEVICE IS BEING SHOWN HERE FOR CLARITY.



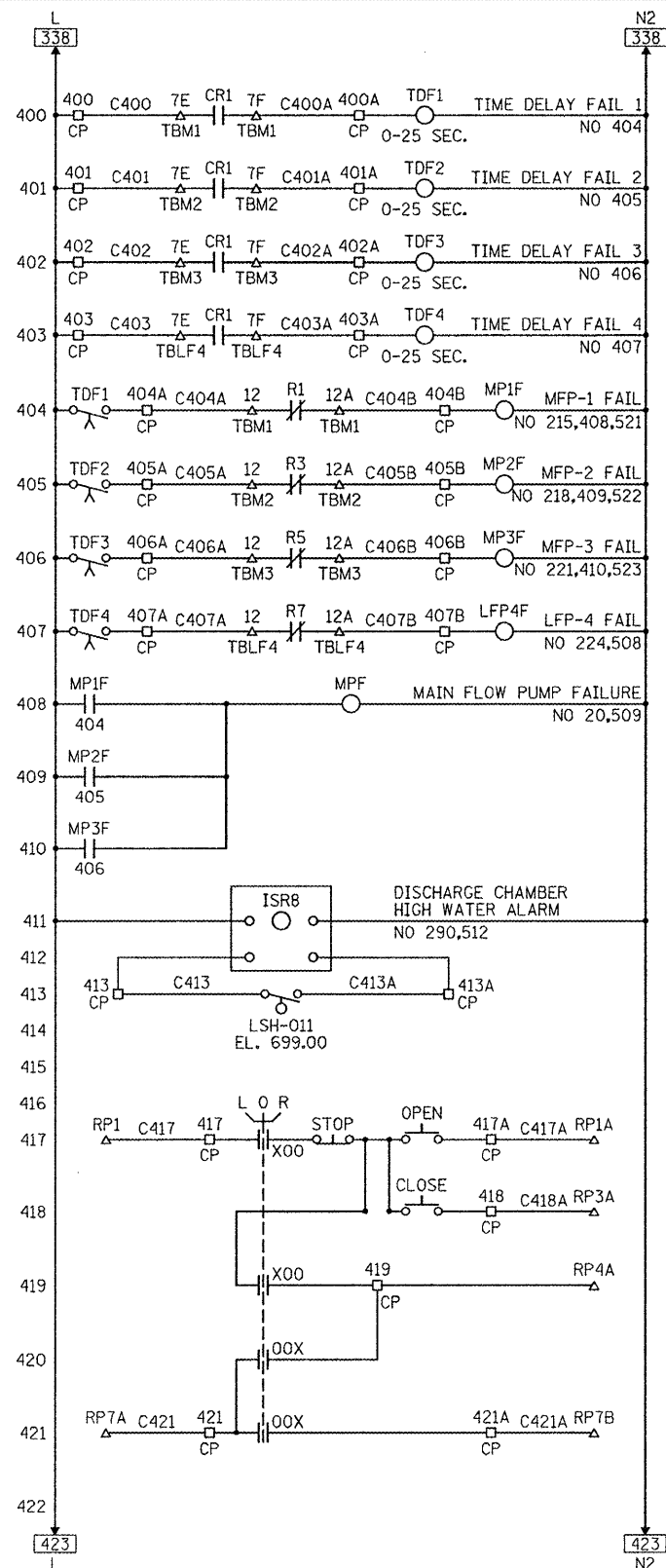
NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
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- CONTRACTOR TO VERIFY IF FIELD DEVICES SELECTED REQUIRE 2-WIRE OR 4-WIRE CONTROL AND CONNECT TO ANALOG INPUT MODULES ACCORDINGLY.
- ALL INTERCONNECTING WIRES/CABLES BETWEEN PANELS SHALL TERMINATE ON TERMINAL STRIPS AND SHOULD NOT BE DIRECTLY CONNECTED TO DEVICES LOCATED IN THE PANELS.
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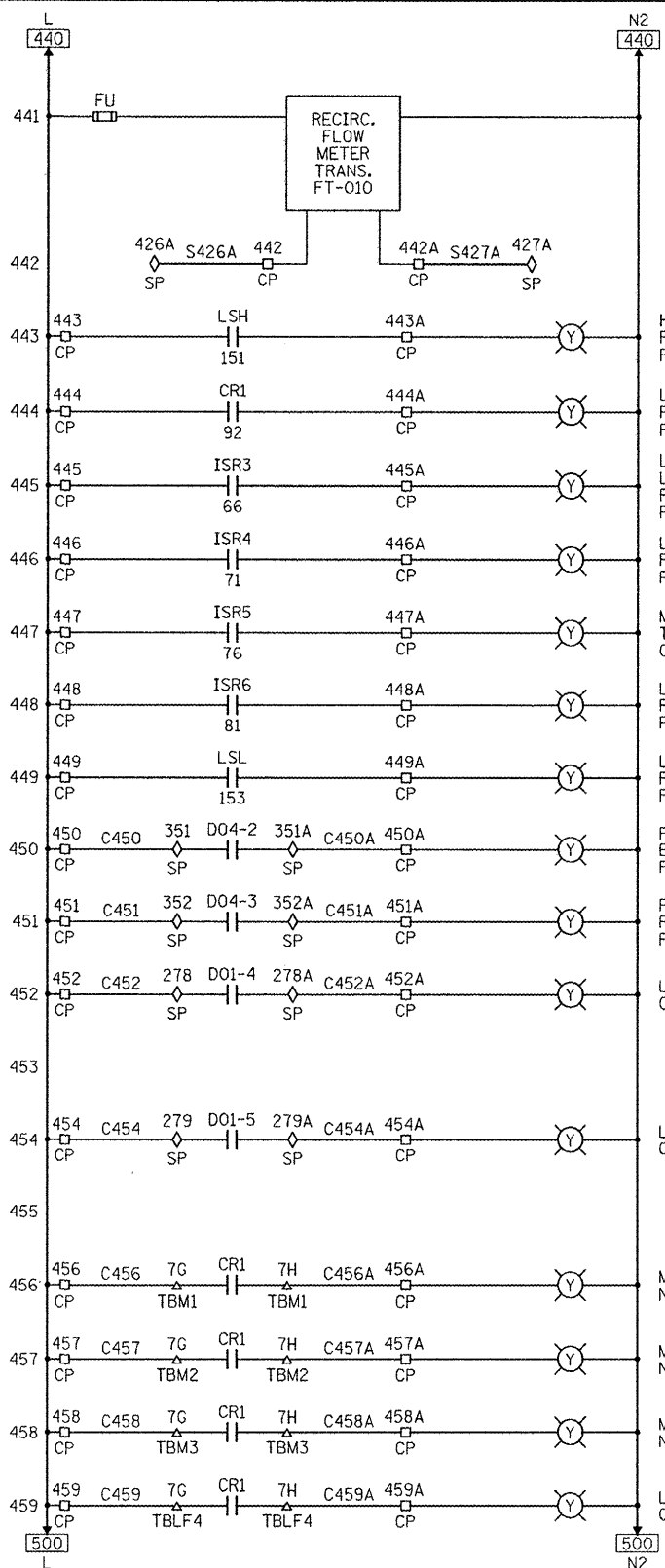
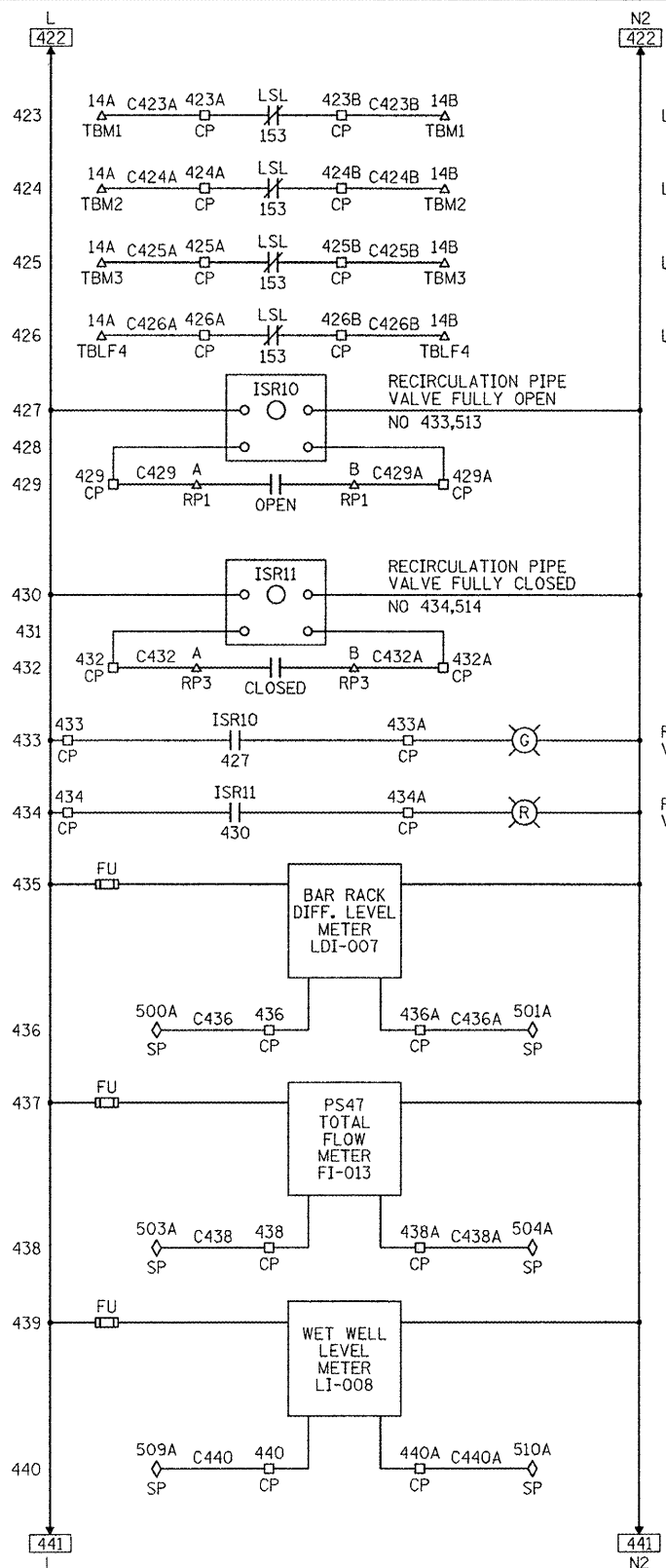




- NOTES:**
- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
 - REFER TO AEGIS/INTRUSION ALARM CIRCUIT DETAIL ON SHEET E10A FOR ADDITIONAL DETAILS.
 - REFER TO FIRE ALARM SYSTEM BLOCK DIAGRAM ON SHEET E10A FOR ADDITIONAL DETAILS.
 - REFER TO COMBUSTIBLE GAS MONITOR SYSTEM BLOCK DIAGRAM ON SHEET E10A FOR ADDITIONAL DETAILS.
 - ALL INTERCONNECTING WIRES/CABLES BETWEEN PANELS SHALL TERMINATE ON TERMINAL STRIPS AND SHOULD NOT BE DIRECTLY CONNECTED TO DEVICES LOCATED IN THE PANELS.

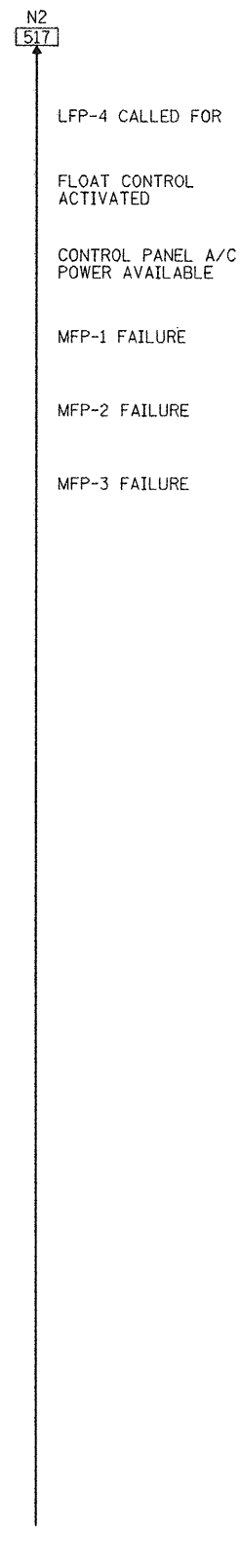
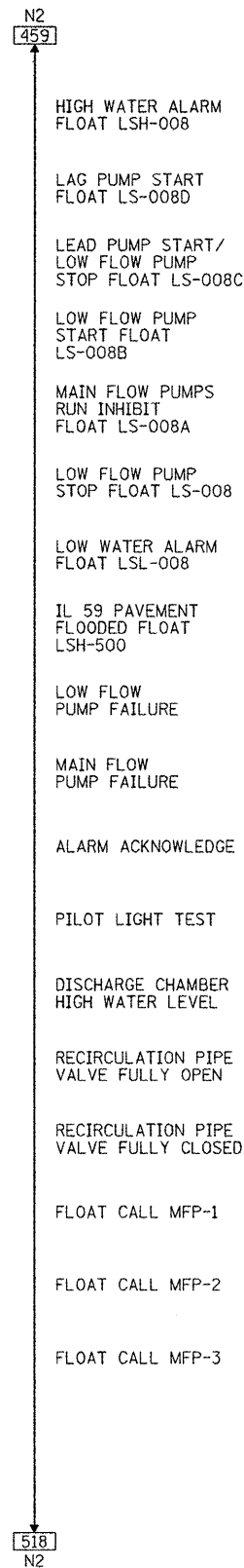
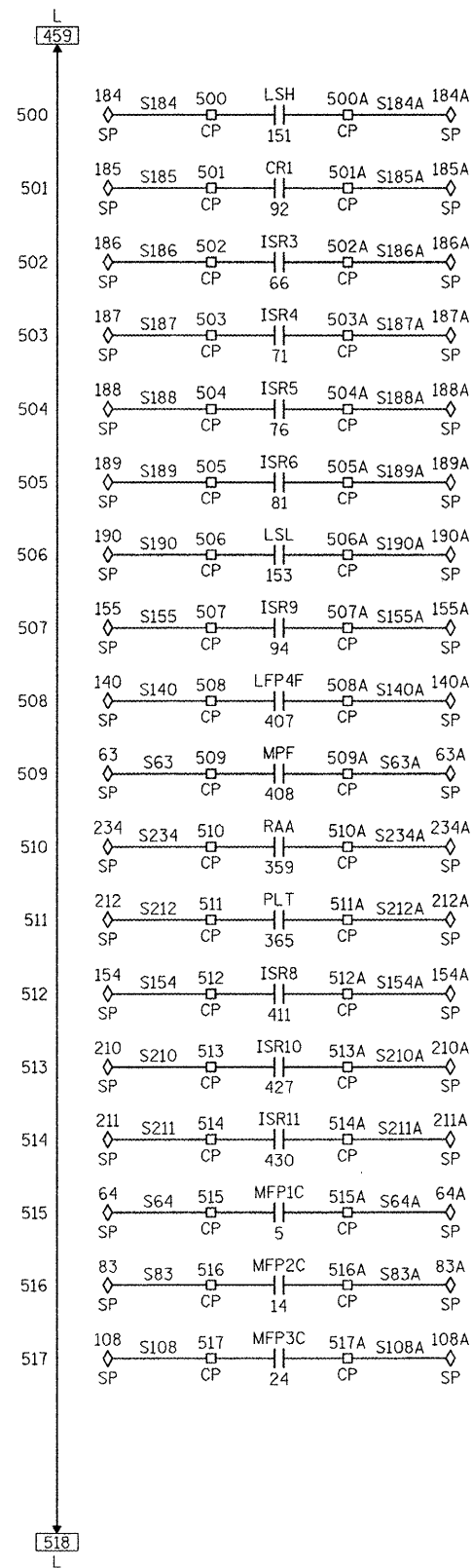


REFER TO
RECIRCULATION
PIPE VALVE
RPV-1 DETAIL
ON SHEET E10



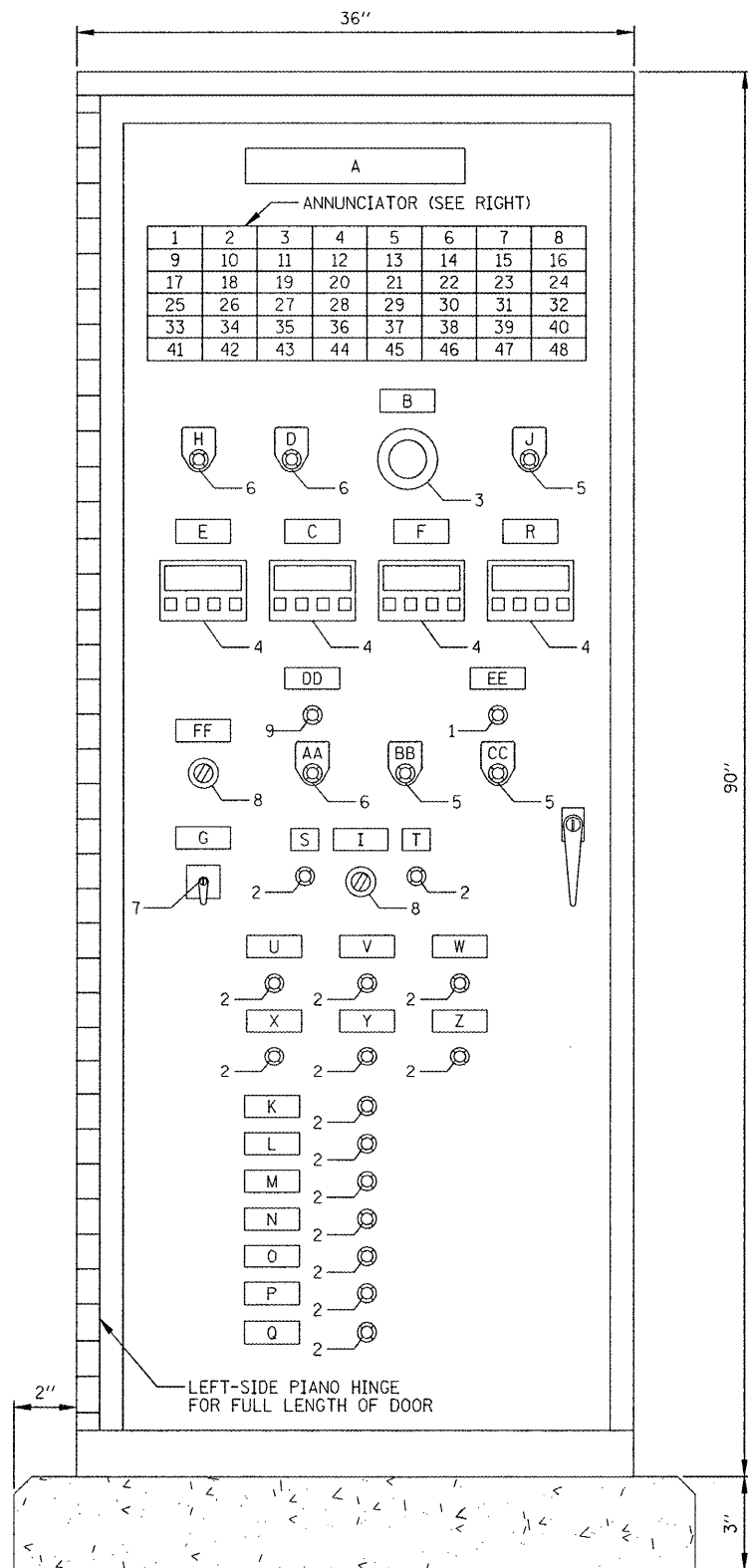
NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
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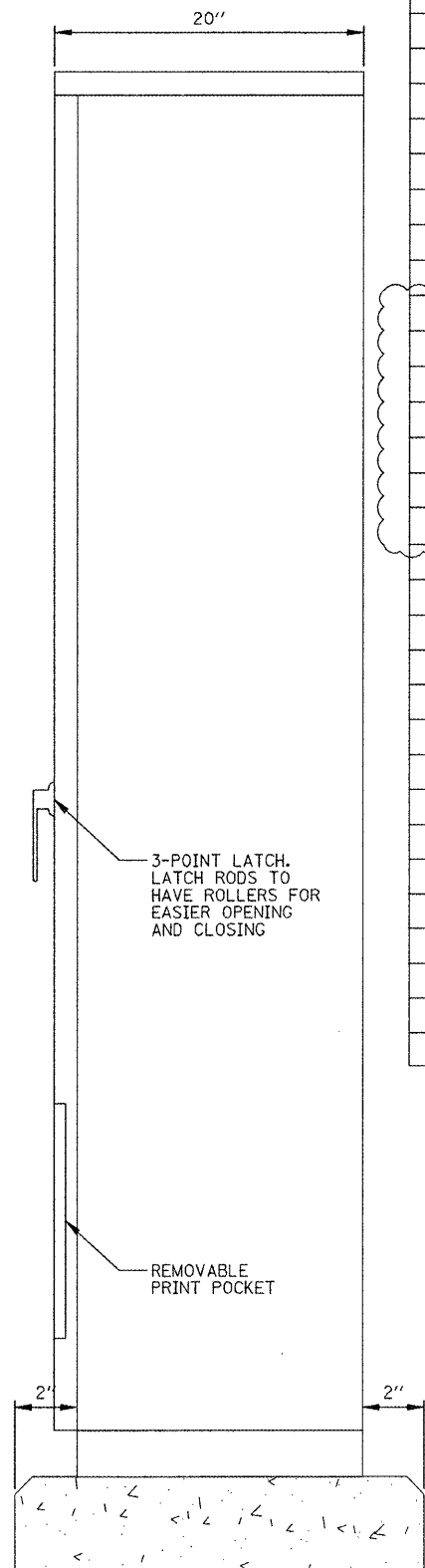


NOTES:

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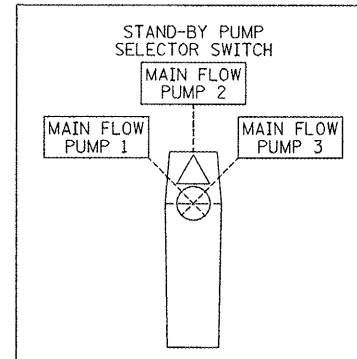


1 CONTROL PANEL CP47 FRONT VIEW
NOT TO SCALE

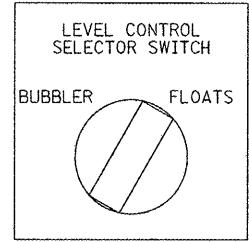


2 CONTROL PANEL CP47 SIDE VIEW
NOT TO SCALE

ITEM	NAMEPLATE SCHEDULE
A	CONTROL PANEL CP47
B	SCADA SYSTEM AUDIBLE ALARM
C	BAR RACK DIFFERENTIAL LEVEL (Ft.)
D	AUDIBLE ALARM TEST PUSHBUTTON
E	PS47 TOTAL FLOW (gpm)
F	WET WELL LEVEL (Ft.)
G	-- SEE DETAIL NO. 3 --
H	CONTROL PANEL PILOT LIGHT TEST
I	-- SEE DETAIL NO. 4 --
J	ALARM ACKNOWLEDGE
K	WET WELL HIGH WATER ALARM (682.30 FT)
L	LAG PUMP START (680.00 FT)
M	LEAD PUMP START/LOW FLOW PUMP STOP (678.00 FT)
N	LOW FLOW PUMP START (676.00 FT)
O	MAIN FLOW PUMPS RUN INHIBIT (674.00 FT)
P	LOW FLOW PUMP STOP (672.00 FT)
Q	WET WELL LOW WATER ALARM (671.50 FT)
R	RECIRCULATION FLOW METER (gpm)
S	PUMP OPERATION VIA BUBBLER CONTROL
T	PUMP OPERATION VIA FLOAT CONTROL
U	LOW FLOW PUMP CALLED FOR
V	LEAD PUMP CALLED FOR
W	LAG PUMP CALLED FOR
X	MAIN FLOW PUMP NO. 1 CALLED FOR
Y	MAIN FLOW PUMP NO. 2 CALLED FOR
Z	MAIN FLOW PUMP NO. 3 CALLED FOR
AA	RECIRCULATION PIPE VALVE OPEN
BB	RECIRCULATION PIPE VALVE STOP
CC	RECIRCULATION PIPE VALVE CLOSE
DD	RECIRCULATION PIPE VALVE FULLY OPEN
EE	RECIRCULATION PIPE VALVE FULLY CLOSED
FF	RECIRCULATION PIPE VALVE LOCAL/OFF/REMOTE



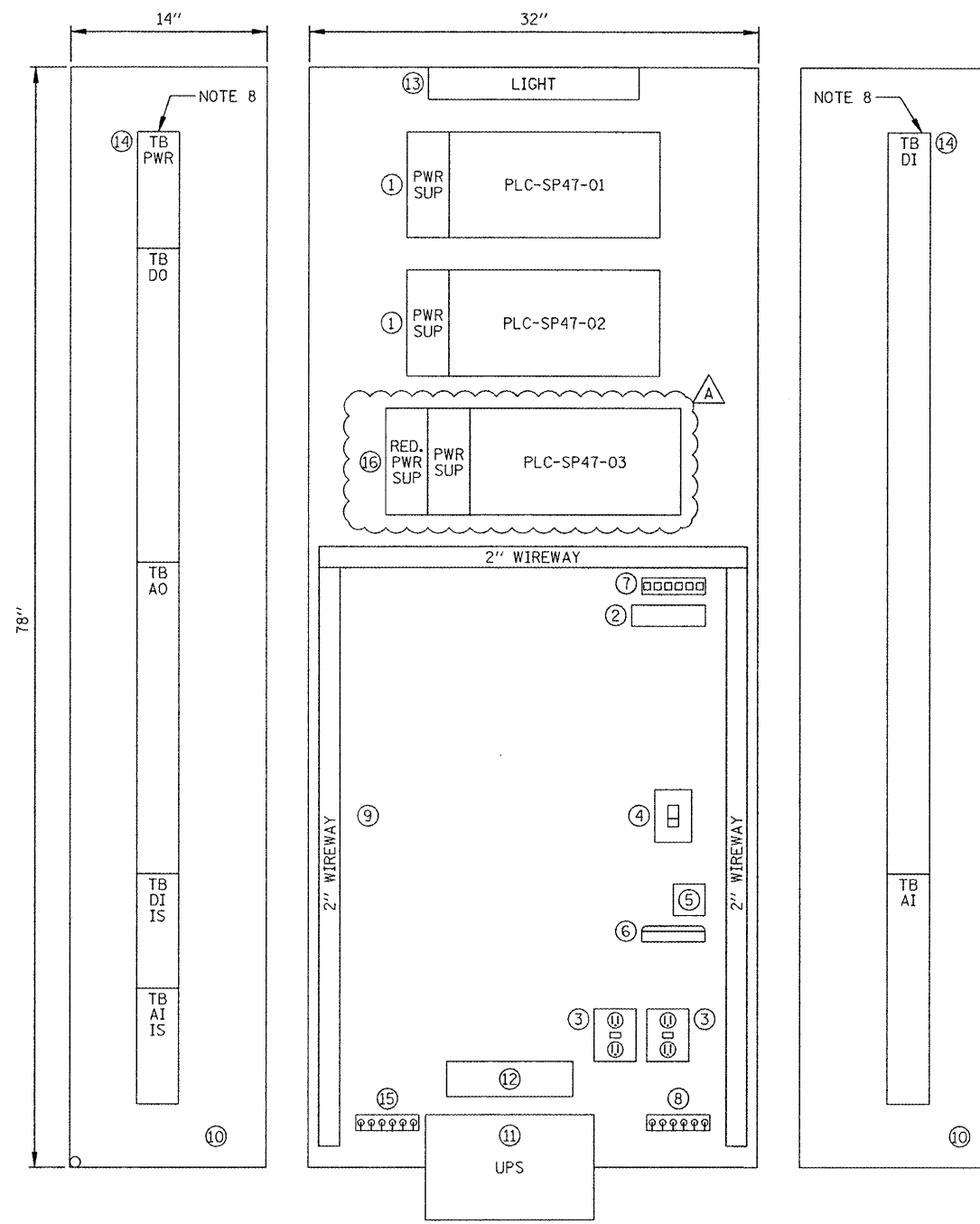
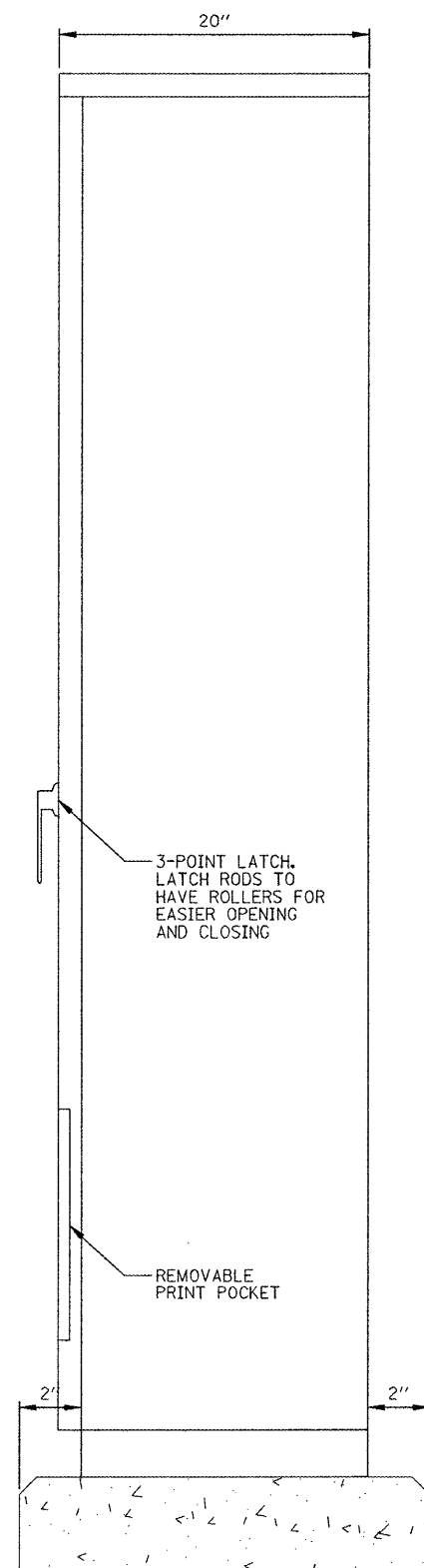
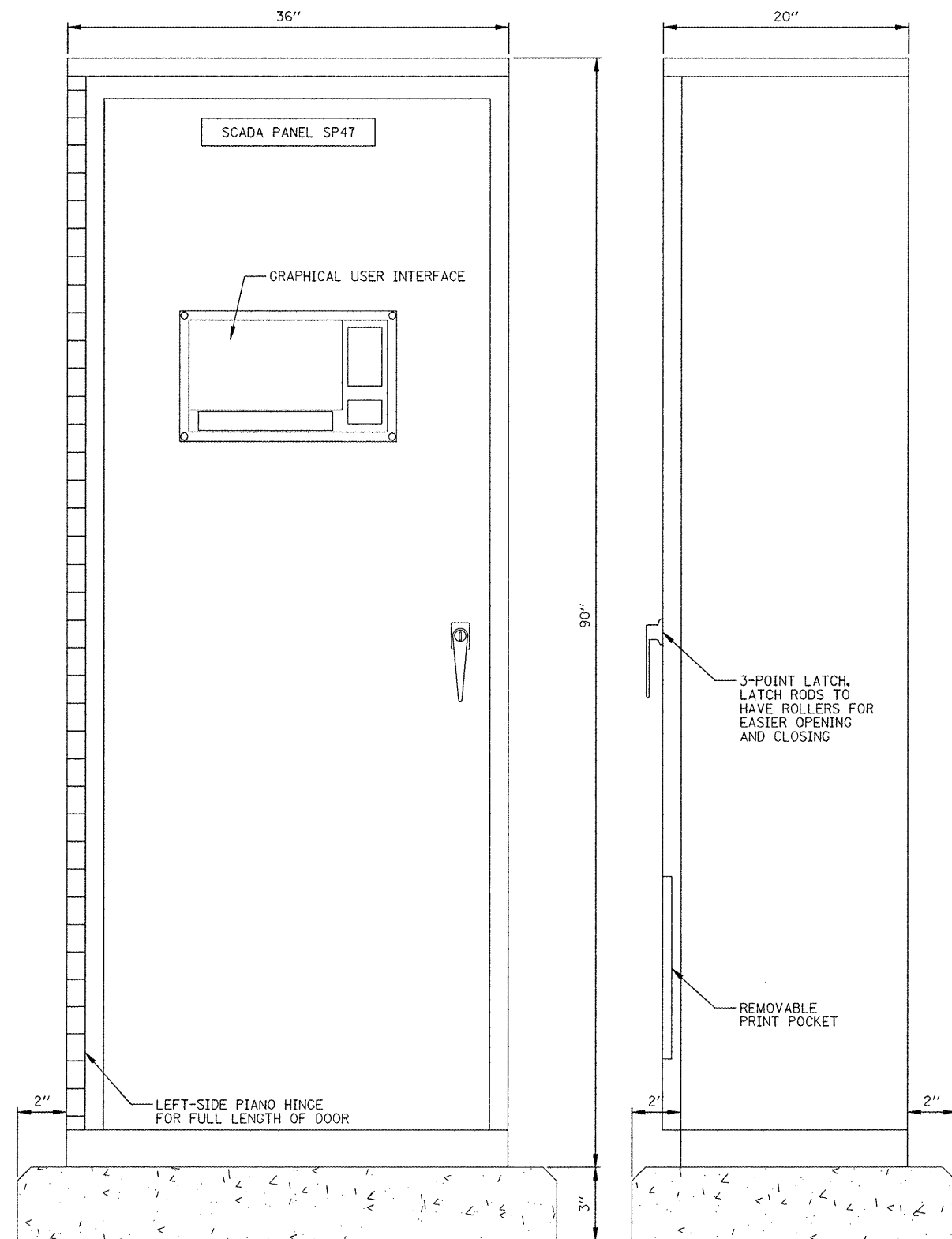
3 STAND-BY PUMP SELECTOR SWITCH (HS-008) DETAIL
NOT TO SCALE



4 LEVEL CONTROL SELECTOR SWITCH (HS-705) DETAIL
NOT TO SCALE

ITEM	DEVICE DESCRIPTION	DEVICE COLOR
1	INDICATING LIGHT	RED
2	INDICATING LIGHT	YELLOW
3	ALARM BUZZER	
4	DIGITAL METER	
5	PUSH BUTTON	RED
6	PUSH BUTTON	GREEN
7	3 POSITION PISTOL GRIP TYPE SELECTOR SWITCH	
8	2 POSITION SELECTOR SWITCH	
9	INDICATING LIGHT	GREEN

1	SERVICE NO. 1 POWER FAILURE	SERVICE NO. 2 POWER FAILURE	CONTROL PANEL A/C POWER FAILURE	SCADA PANEL A/C POWER FAILURE	MAIN FLOW PUMP NO. 1 FAILURE	MAIN FLOW PUMP NO. 2 FAILURE	MAIN FLOW PUMP NO. 3 FAILURE	LOW FLOW PUMP FAILURE	8
9	SPARE FOR FUTURE (NOTE 5)	SPARE FOR FUTURE (NOTE 5)	SPARE FOR FUTURE (NOTE 5)	SCADA PANEL PLC TROUBLE	MAIN FLOW PUMP NO. 1 MOTOR WINDING TEMP/MOISTURE HIGH	MAIN FLOW PUMP NO. 2 MOTOR WINDING TEMP/MOISTURE HIGH	MAIN FLOW PUMP NO. 3 MOTOR WINDING TEMP/MOISTURE HIGH	LOW FLOW PUMP MOTOR WINDING TEMP/MOISTURE HIGH	16
17	ATS FAILURE	PRIMARY BUBBLER SYSTEM FAILURE	SPARE FOR FUTURE (NOTE 5)	SCADA PANEL PLC FAILURE	MAIN FLOW PUMP NO. 1 OVERLOAD TRIP	MAIN FLOW PUMP NO. 2 OVERLOAD TRIP	MAIN FLOW PUMP NO. 3 OVERLOAD TRIP	LOW FLOW PUMP OVERLOAD TRIP	24
25	ATS IN BYPASS MODE	SECONDARY BUBBLER SYSTEM FAILURE	COMBUSTIBLE GAS MONITOR TROUBLE	SCADA PANEL UPS LOW BATTERY	WET WELL HIGH WATER LEVEL	DISCHARGE CHAMBER HIGH WATER LEVEL	ELECTRICAL ROOM HIGH TEMPERATURE	DRY WELL HIGH TEMPERATURE	32
33	FIRE PANEL TROUBLE	INTRUSION/AEGIS SYSTEM TROUBLE	COMBUSTIBLE GAS PRESENT	SCADA PANEL UPS FAULT/OVERLOAD	WET WELL LOW WATER LEVEL	BAR RACK CLOGGED	ELECTRICAL ROOM LOW TEMPERATURE	DRY WELL LOW TEMPERATURE	40
41	FIRE PANEL ALARM	INTRUSION ALARM	IL 59 PAVEMENT FLOODED	SPARE FOR FUTURE (NOTE 5)	DRY WELL FLOODING ALARM	DRY WELL SUMP PUMP FAILURE	SPARE FOR FUTURE (NOTE 5)	SPARE FOR FUTURE (NOTE 5)	48

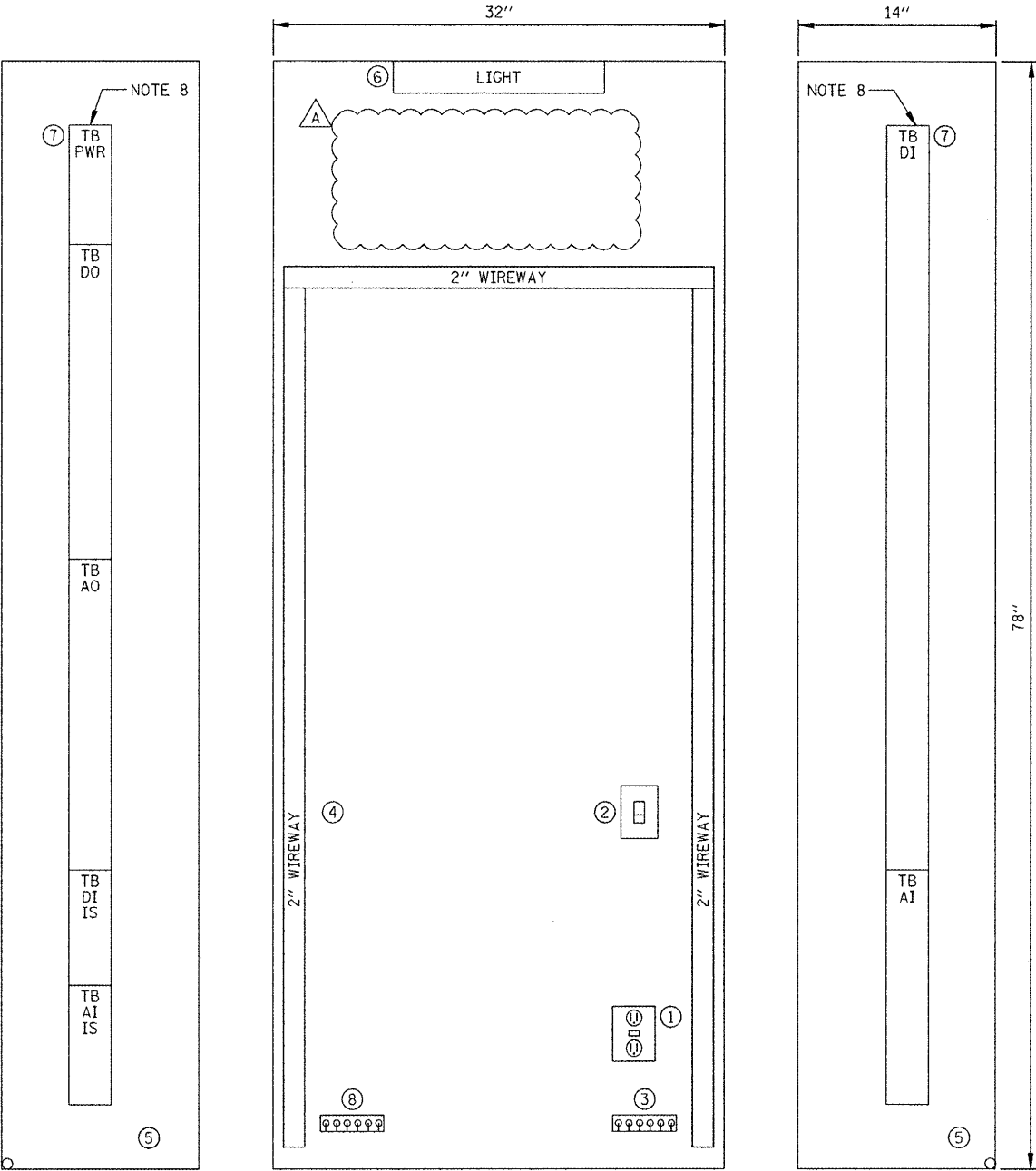


- NOTES:

1. SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
2. THE SCADA PANEL SHALL BE OF SUFFICIENT DEPTH TO ACCOMMODATE ALL DEVICES. PROPER CLEARANCE SHALL BE PROVIDED BETWEEN DOOR MOUNTED DEVICES AND PANEL MOUNTED DEVICES.
3. SCADA PANEL DETAIL PROVIDES INFORMATION REGARDING SOME OF THE MAJOR COMPONENTS TO BE MOUNTED IN THE PANEL. ANCILLARY DEVICES SUCH AS RELAYS, TIMER, POWER SUPPLIES, ETC., ARE NOT SHOWN. ALL DEVICES TO PROVIDE A FUNCTIONING SYSTEM AS DETAILED IN THE PLANS AND SPECIFICATIONS SHALL BE PROVIDED. CONTRACTOR TO PROVIDE SUBMITTAL DETAILING PANEL LAYOUT FOR ALL COMPONENTS.
4. REFER TO SPECIFICATION SECTION 40 94 23 FOR ADDITIONAL CONTROL PANEL AND INTRINSICALLY SAFE DEVICE INSTALLATION REQUIREMENTS.
5. NAMEPLATES TO BE WHITE WITH BLACK LETTERING.
6. INTRINSICALLY SAFE WIRING SHALL BE SEGREGATED FROM ALL OTHER TYPES OF WIRING. INTRINSICALLY SAFE WIRING SHALL BE INSTALLED IN A CONDUIT ONLY WITH OTHER INTRINSICALLY SAFE CIRCUITS IN PANELS AND EQUIPMENT. INTRINSICALLY SAFE CIRCUIT WIRING SHALL HAVE A MINIMUM OF 3 INCHES OF CLEARANCE, OR A GROUNDED METAL OR INSULATING PARTITION, BETWEEN THE INTRINSICALLY SAFE AND OTHER TYPES OF WIRING. SEE NEC ARTICLE 504.
7. REFER TO SHEET ID-41 DETAIL NO. 2 FOR GROUNDING REQUIREMENTS.
8. TERMINAL BLOCK DESIGNATIONS ARE AS FOLLOWS:
 - TBPWR - POWER
 - TBDI - DIGITAL INPUTS
 - TBAI - ANALOG INPUTS
 - TBDO - DIGITAL OUTPUTS
 - TBAO - ANALOG OUTPUTS
 - TBDIIS - INTRINSICALLY SAFE DIGITAL INPUTS
 - TBAIIS - INTRINSICALLY SAFE ANALOG INPUTS
9. PATCH PANEL MUST BE SUITABLE FOR SC, ST, OR LC FIBER CONNECTION. CONNECTOR, FIBER CABLE, AND FIBER PATCH CABLE TO BE PROVIDED BY OTHERS IN THE FUTURE.

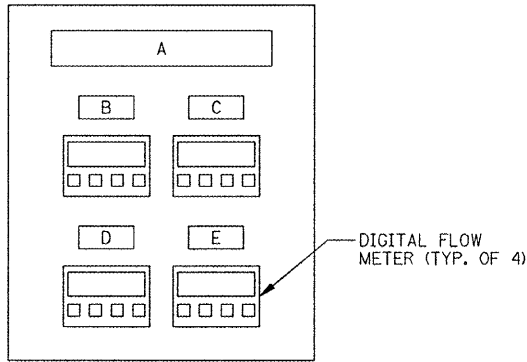
MAJOR EQUIPMENT LIST ○	
ITEM #	DESCRIPTION
1	ALLEN BRADLEY 1756-L7 CONTROL LOGIC PLC
2	ALLEN BRADLEY ETHERNET SWITCH
3	GFCI OUTLET, 125V, 20A, IN HANDY BOX
4	LIGHT SWITCH, 125V, 20A, IN HANDY BOX
5	PHONE LINE SUPPRESSOR
6	MODEM, TELEPHONE (LEASE-LINE)
7	6-PORT FIBER PATCH PANEL (NOTE 9)
8	GROUND BUS (NOTE 7)
9	BACK PANEL
10	SIDE PANEL
11	UPS, 120VAC (UPS-SP47)
12	UPS MAINTENANCE BYPASS SWITCH (BPS-SP47)
13	FLUORESCENT LIGHT, 120V, 20W
14	TERMINAL BLOCKS, 300V, SCREW TYPE
15	INSTRUMENTATION GROUND BUS (NOTE 7)
16	ALLEN BRADLEY 1756-L7 CONTROL LOGIC PLC w/ REDUNDANT POWER SUPPLY

MAJOR EQUIPMENT LIST	
ITEM #	DESCRIPTION
1	GFCI OUTLET, 125V, 20A, IN HANDY BOX
2	LIGHT SWITCH, 125V, 20A, IN HANDY BOX
3	GROUND BUS (NOTE 7)
4	BACK PANEL
5	SIDE PANEL
6	FLUORESCENT LIGHT, 120V, 20W
7	TERMINAL BLOCKS, 300V, SCREW TYPE
8	INSTRUMENTATION GROUND BUS (NOTE 7)



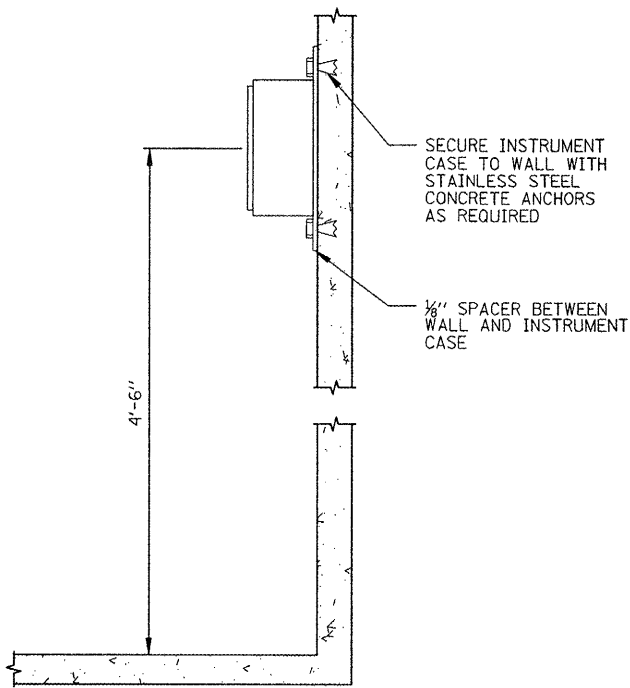
- NOTES:
- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
 - THE CONTROL PANEL SHALL BE OF SUFFICIENT DEPTH TO ACCOMMODATE ALL DEVICES. PROPER CLEARANCE SHALL BE PROVIDED BETWEEN DOOR MOUNTED DEVICES AND PANEL MOUNTED DEVICES.
 - CONTROL PANEL DETAIL PROVIDES INFORMATION REGARDING SOME OF THE MAJOR COMPONENTS TO BE MOUNTED IN THE PANEL. ANCILLARY DEVICES SUCH AS RELAYS, TIMER, POWER SUPPLIES, ETC., ARE NOT SHOWN. ALL DEVICES TO PROVIDE A FUNCTIONING SYSTEM AS DETAILED IN THE PLANS AND SPECIFICATIONS SHALL BE PROVIDED. CONTRACTOR TO PROVIDE SUBMITTAL DETAILING PANEL LAYOUT FOR ALL COMPONENTS.
 - REFER TO SPECIFICATION SECTION 40 94 23 FOR INTRINSICALLY SAFE DEVICE INSTALLATION REQUIREMENTS.
 - NAMEPLATES TO BE WHITE WITH BLACK LETTERING.
 - INTRINSICALLY SAFE WIRING SHALL BE SEGREGATED FROM ALL OTHER TYPES OF WIRING. INTRINSICALLY SAFE WIRING SHALL BE INSTALLED IN A CONDUIT ONLY WITH OTHER INTRINSICALLY SAFE CIRCUITS IN PANELS AND EQUIPMENT. INTRINSICALLY SAFE CIRCUIT WIRING SHALL HAVE A MINIMUM OF 3 INCHES OF CLEARANCE, OR A GROUNDED METAL OR INSULATING PARTITION, BETWEEN THE INTRINSICALLY SAFE AND OTHER TYPES OF WIRING. SEE NEC ARTICLE 504.
 - REFER TO SHEET ID-4 DETAIL NO. 2 FOR GROUNDING REQUIREMENTS.
 - TERMINAL BLOCK DESIGNATIONS ARE AS FOLLOWS:
TBPWR - POWER
TBDI - DIGITAL INPUTS
TBAI - ANALOG INPUTS
TBDO - DIGITAL OUTPUTS
TBAO - ANALOG OUTPUTS
TBDIIS - INTRINSICALLY SAFE DIGITAL INPUTS
TBAIIS - INTRINSICALLY SAFE ANALOG INPUTS

1 CONTROL PANEL CP47 INTERIOR DETAIL
NOT TO SCALE



ITEM	NAMEPLATE SCHEDULE
A	PS47 PUMP METER CONTROL PANEL (PMCP47)
B	MFP-1 FLOW METER (gpm)
C	MFP-2 FLOW METER (gpm)
D	MFP-3 FLOW METER (gpm)
E	LFP-4 FLOW METER (gpm)

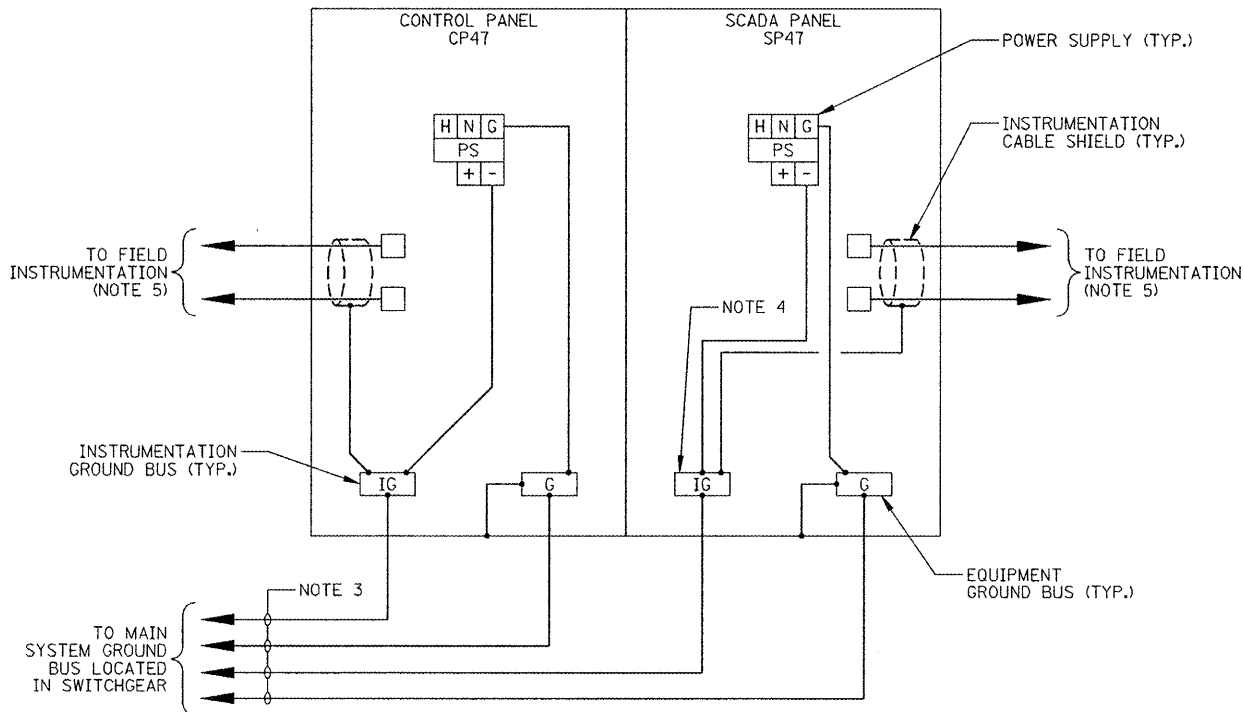
1 PUMP METER CONTROL PANEL PMCP47 DETAIL
NOT TO SCALE



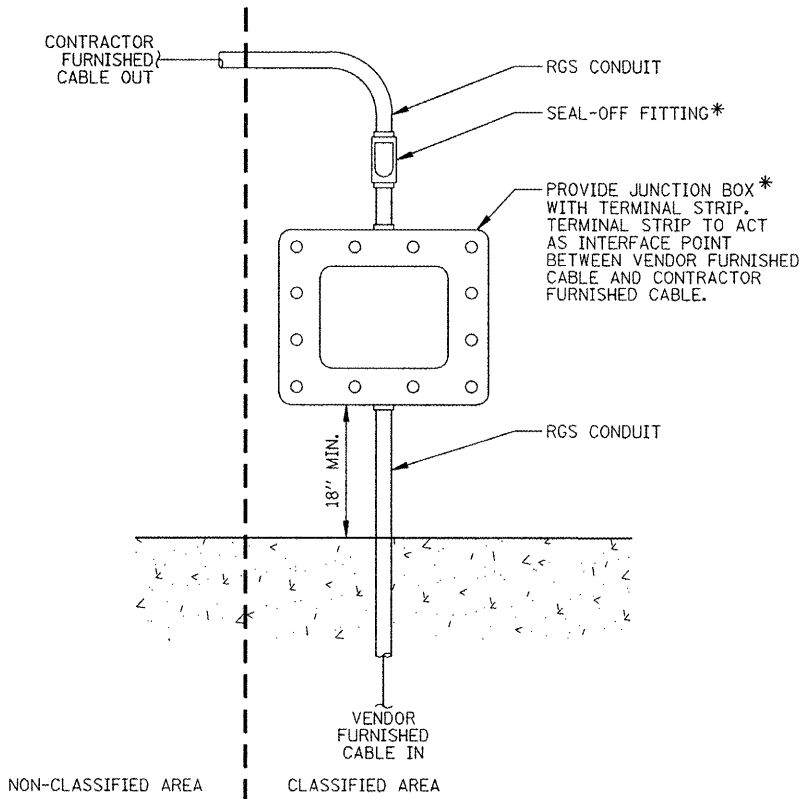
3 INSTRUMENTATION CASE MOUNTING DETAIL
NOT TO SCALE

NOTES:

- SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
- NAMEPLATES TO BE WHITE WITH BLACK LETTERING.
- PROVIDE A #4 AWG MINIMUM GROUND WIRE. GROUND WIRE MUST BE INSULATED TO ENSURE SINGLE POINT GROUND. IG GROUND WIRE TO BE GREEN w/ YELLOW LINE FOR IDENTIFICATION PURPOSES.
- IG GROUND BUS MUST BE ISOLATED FROM CONTROL PANEL.
- CABLE SHIELD MUST NOT BE CONNECTED AT FIELD DEVICE. TERMINATE SHIELD ONLY ON INSTRUMENTATION GROUND BAR AS INDICATED.

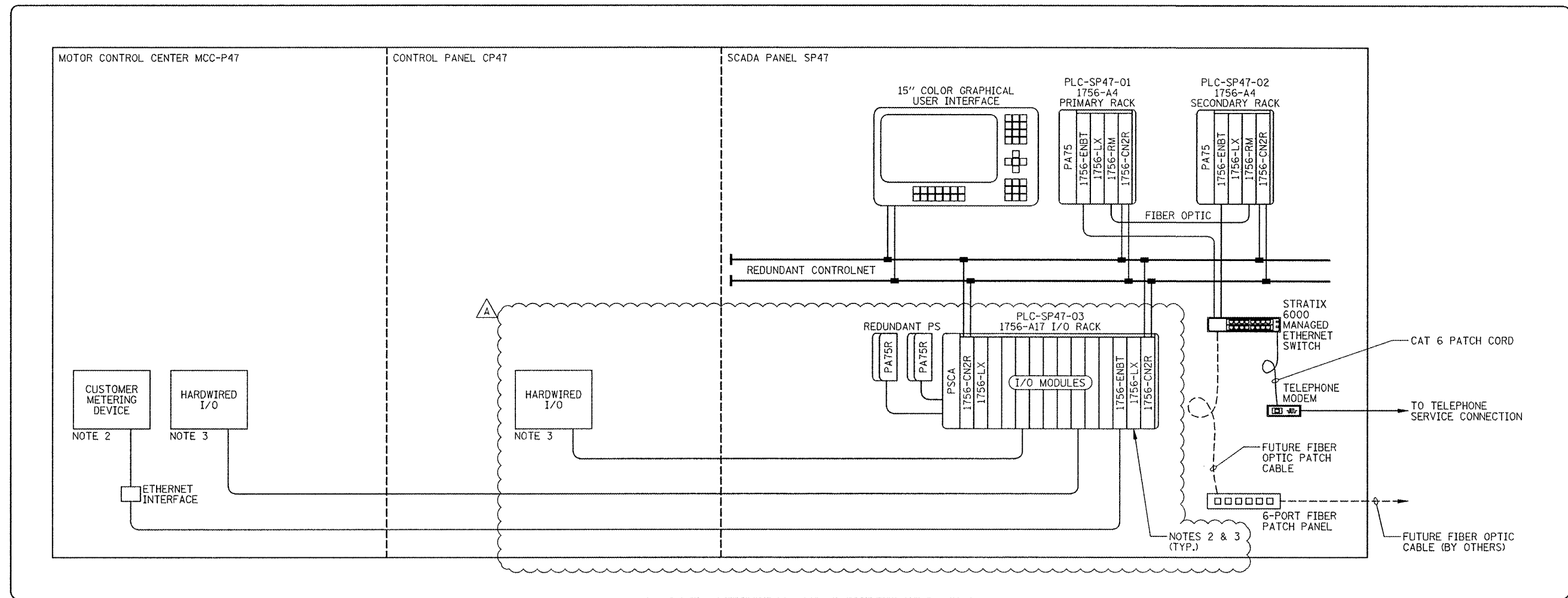


2 CONTROL AND SCADA PANEL GROUNDING DETAIL
NOT TO SCALE

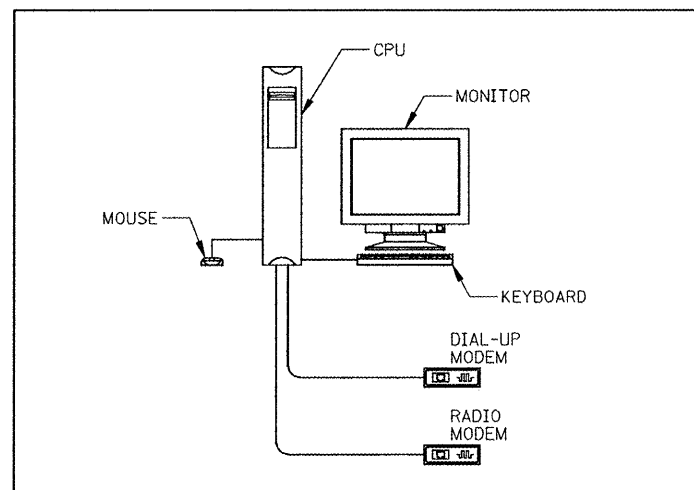


4 I & C JUNCTION BOX INSTALLATION DETAIL
NOT TO SCALE

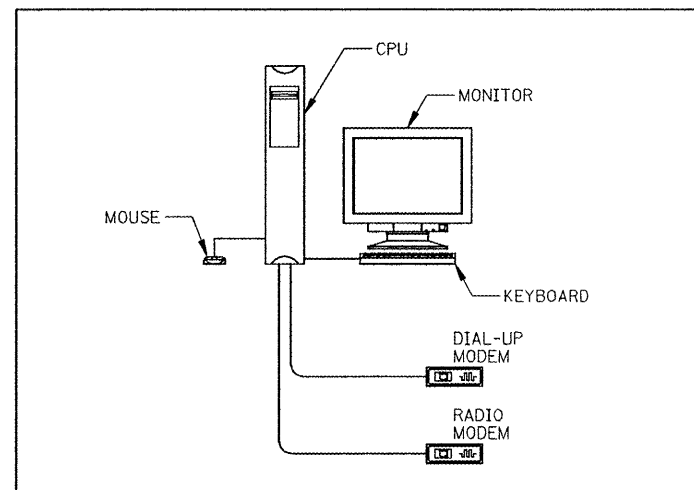
* PROVIDE NEMA 7 EXPLOSION-PROOF JUNCTION BOXES AND SEAL-OFF FITTINGS WHERE CLASSIFIED OR CORROSIVE LOCATIONS ARE IDENTIFIED ON DRAWINGS.



PUMP STATION 47



EXISTING IDOT DISTRICT 1
MONITORING STATION (NOTE 4)



EXISTING IDOT ELECTRICAL
MAINTENANCE CONTRACTOR (EMC) FACILITY (NOTE 4)

NOTES:

1. SEE SHEETS GI-1 AND GI-2 FOR INSTRUMENTATION SYMBOL LIST, ABBREVIATIONS, AND GENERAL NOTES.
2. CONTRACTOR TO SIZE CONTROLLER FOR APPLICATION. PROVIDE 25% SPARE MEMORY FOR FUTURE GROWTH.
3. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADDITIONAL PLC MODULES AS REQUIRED TO ENSURE OPERATION AS DETAILED IN THE CONTRACT DOCUMENTS.
4. REFER TO SPECIFICATION SECTION 40 94 24 - HMI IMPROVEMENTS FOR DETAILS REGARDING WORK AT THIS LOCATION.

POWER CONDUIT			CONDUCTOR QUANTITY AND SIZE (AWG-kcmil)	COND./CABLE INSULATION	FROM	TO
NUMBER	SIZE (IN.)	TYPE				
P1	3	PVC	4-300kcmil & 1-#3 GND	XHHW-2	PEDESTAL (LINE 1)	METER ENCLOSURE (LINE 1)
P1A	3	RGS	4-300kcmil & 1-#3 GND	XHHW-2	METER ENCLOSURE (LINE 1)	MCC-P47 (SECTION 1A)
P2	3	PVC	4-300kcmil & 1-#3 GND	XHHW-2	PEDESTAL (LINE 2)	METER ENCLOSURE (LINE 2)
P2A	3	RGS	4-300kcmil & 1-#3 GND	XHHW-2	METER ENCLOSURE (LINE 2)	MCC-P47 (SECTION 1B)
P3A	1	RGS	3-#4 & 1-#8 GND	THWN	MCC-P47 (SECTION 3A)	100A DISCONNECT FOR MFP-1
P3B	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 3B)	30A DISCONNECT FOR EF-1
P3B1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	EXHAUST FAN EF-1
P4A	1	RGS	3-#4 & 1-#8 GND	THWN	MCC-P47 (SECTION 4A)	100A DISCONNECT FOR MFP-2
P4B	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 4B)	30A DISCONNECT FOR EF-2
P4B1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	EXHAUST FAN EF-2
P5A	1	RGS	3-#4 & 1-#8 GND	THWN	MCC-P47 (SECTION 5A)	100A DISCONNECT FOR MFP-3
P5B	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 5B)	30A DISCONNECT FOR SF-1
P5B1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	SUPPLY FAN SF-1
P6A	1	RGS	3-#10 & 1-#10 GND	THWN	MCC-P47 (SECTION 6A)	30A DISCONNECT FOR LFP-4
P6B	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 6B)	30A DISCONNECT FOR SF-2
P6B1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	SUPPLY FAN SF-2
P7A	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7A)	30A DISCONNECT FOR SG-1
P7A1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	SLIDE GATE SG-1
P7B	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7B)	30A DISCONNECT FOR SG-2
P7B1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	SLIDE GATE SG-2
P7E	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7E)	30A DISCONNECT FOR HOIST H-1
P7E1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	JB5
P7F	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7F)	30A DISCONNECT FOR UH-2
P7F1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	UNIT HEATER UH-2
P7G	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7G)	30A DISCONNECT FOR UH-1
P7G1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	UNIT HEATER UH-1
P7H	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7H)	30A DISCONNECT FOR UH-3
P7H1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	UNIT HEATER UH-3
P7I	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7I)	30A DISCONNECT FOR UH-4
P7I1	3/4	RGS	3-#12 & 1-#12 GND	THWN	30A DISCONNECT	UNIT HEATER UH-4
P8A	3/4	RGS	3-#8 & 1-#10 GND	THWN	MCC-P47 (SECTION 8A)	MCC-P47 (TRANSFORMER T-47)
P8A1	3/4	RGS	4-#6 & 1-#10 GND	THWN	MCC-P47 (T-47)	MCC-P47 (PANEL LP-47)
P9	3/4	RGS	2-#12 & 1-#12 GND	THWN	CP-SP1	SP-1 DISCONNECT
P10	3/4	RGS	2-#12 & 1-#12 GND	THWN	PNL LP-47	GAS MONITORING SYSTEM
P11	3/4	RGS	2-#12 & 1-#12 GND	THWN	PNL LP-47	AEGIS/INTRUSION ALARM SYSTEM
P12	3/4	RGS	2-#12 & 1-#12 GND	THWN	PNL LP-47	FIRE ALARM SYSTEM (FACP)
P13	3/4	RGS	3-#12 & 1-#12 GND	THWN	PNL LP-47	SUMP PUMP CONTROL PNL (CP-SP)
P14	3	PVC	4-300kcmil & 1-#3 GND BY NAPERVILLE ELECTRIC		SERVICE NO. 1 TRANSFORMER	PEDESTAL (LINE 1)
P14A	3	PVC	FUTURE		SERVICE NO. 1 TRANSFORMER	PEDESTAL (LINE 1)
P15	3	PVC	4-300kcmil & 1-#3 GND BY NAPERVILLE ELECTRIC		SERVICE NO. 2 TRANSFORMER	PEDESTAL (LINE 2)
P15A	3	PVC	FUTURE		SERVICE NO. 2 TRANSFORMER	PEDESTAL (LINE 2)
P16	3	PVC	FUTURE		PEDESTAL (LINE 1)	METER ENCLOSURE (LINE 1)
P17	3	PVC	FUTURE		PEDESTAL (LINE 2)	METER ENCLOSURE (LINE 2)
P18	3	RGS	FUTURE		METER ENCLOSURE (LINE 1)	MCC-P47 (SECTION 1A)
P19	3	RGS	FUTURE		METER ENCLOSURE (LINE 2)	MCC-P47 (SECTION 1B)
P20	3/4	RGS	2-#12 & 1-#12 GND	THWN	BCP47-001	MCC-P47 (PANEL LP-47)
P21	3/4	RGS	2-#12 & 1-#12 GND	THWN	BCP47-002	MCC-P47 (PANEL LP-47)
P22	3/4	RGS	2-#12 & 1-#12 GND	THWN	MCC-P47 (PANEL LP-47)	LIT-JB
P23	3/4	RGS	2-#12 & 1-#12 GND	THWN	LIT-JB	LIT-007A
P24	3/4	RGS	2-#12 & 1-#12 GND	THWN	LIT-JB	LIT-007B
P25	3/4	RGS	2-#12 & 1-#12 GND	THWN	MCC-P47 (PANEL LP-47)	MOTOR OPER. VALVE
P27	3/4	RGS	2-#12 & 1-#12 GND	THWN	PNL LP-47	PMCP47 PANEL

CONTROL CONDUIT			CONDUCTOR QUANTITY AND SIZE (AWG-kcmil)	COND./CABLE INSULATION	FROM	TO
NUMBER	SIZE (IN.)	TYPE				
C3A1	1	RGS	13-#10, 5-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 3A)	JB-1
C3A2	1	RGS	5-#10 & 1-#10 GND	THWN	JB1	20A DISCONNECT FOR MFP-1
C3A3	1	RGS	8-#12 & 1-#12 GND	THWN	JB1	MFP-1 CONTROL STATION
C3B2	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 3B)	MD-3
C4A1	1	RGS	13-#10, 5-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 4A)	JB-2
C4A2	1	RGS	5-#10 & 1-#10 GND	THWN	JB2	20A DISCONNECT FOR MFP-2
C4A3	1	RGS	8-#12 & 1-#12 GND	THWN	JB2	MFP-2 CONTROL STATION
C4B2	3/4	RGS	3-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 4B)	MD-4
C5A1	1	RGS	13-#10, 5-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 5A)	JB-3
C5A2	1	RGS	5-#10 & 1-#10 GND	THWN	JB3	20A DISCONNECT FOR MFP-3
C5A3	1	RGS	8-#12 & 1-#12 GND	THWN	JB3	MFP-3 CONTROL STATION
C5B2	3/4	RGS	12-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 5B)	JB8
C5B3	3/4	RGS	3-#12 & 1-#12 GND	THWN	JB8	MD-1
C5B4	3/4	RGS	2-#12 & 1-#12 GND	THWN	JB8	THERMOSTAT (SF-1)
C5B5	3/4	RGS	7-#12 & 1-#12 GND	THWN	JB8	SF-1 CONTROL STATION
C6A1	1	RGS	13-#10, 5-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 6A)	JB4
C6A2	1	RGS	5-#10 & 1-#10 GND	THWN	JB4	20A DISCONNECT FOR LFP-4
C6A3	1	RGS	8-#12 & 1-#12 GND	THWN	JB4	LFP-4 CONTROL STATION
C6B2	3/4	RGS	10-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 6B)	JB9
C6B3	3/4	RGS	3-#12 & 1-#12 GND	THWN	JB9	MD-2
C6B4	3/4	RGS	7-#12 & 1-#12 GND	THWN	JB9	SF-2 CONTROL STATION
C7A1	3/4	RGS	8-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7A)	SLIDE GATE SG-1
C7B1	3/4	RGS	8-#12 & 1-#12 GND	THWN	MCC-P47 (SECTION 7B)	SLIDE GATE SG-2
C7F2	3/4	RGS	2-#12 & 1-#12 GND	THWN	THERMOSTAT (UH-2)	UNIT HEATER UH-2
C7G2	3/4	RGS	2-#12 & 1-#12 GND	THWN	THERMOSTAT (UH-1)	UNIT HEATER UH-1
C7H2	3/4	RGS	2-#12 & 1-#12 GND	THWN	THERMOSTAT (UH-3)	UNIT HEATER UH-3
C7I2	3/4	RGS	2-#12 & 1-#12 GND	THWN	THERMOSTAT (UH-4)	UNIT HEATER UH-4
C1	1	PVC	2-#12 & 1-#12 GND	THWN	CP-47	UNDERPASS FLOAT SENSOR
C2	3/4	RGS	2-#12 & 1-#12 GND	THWN	FIRE ALARM CONTROL PANEL	AEGIS/INTRUSION ALARM PNL
C3	3/4	RGS	4-#12 & 1-#12 GND	THWN	FIRE ALARM CONTROL PANEL	ANNUNCIATOR IN CP-47
C4	3/4	RGS	4-#12 & 1-#12 GND	THWN	MOTOR OPER. VALVE	CONTROL PANEL CP47
C5	3/4	RGS	8-#12 & 1-#12 GND	THWN	AEGIS/INTRUSION ALARM PNL	SCADA PANEL SP47
C6	3/4	RGS	2-#12 & 1-#12 GND	THWN	AEGIS/INTRUSION ALARM PNL	WEST SINGLE DOOR
C7	3/4	RGS	2-#12 & 1-#12 GND	THWN	AEGIS/INTRUSION ALARM PNL	EAST SINGLE DOOR
C8	3/4	RGS	2-#12 & 1-#12 GND	THWN	AEGIS/INTRUSION ALARM PNL	WET WELL DOOR
C9	3/4	RGS	4-#12 & 1-#12 GND	THWN	AEGIS/INTRUSION ALARM PNL	OVERRIDE SWITCH
C10	3/4	RGS	4-#12 & 1-#12 GND	THWN	AEGIS/INTRUSION ALARM PNL	PB-1
C11	3/4	RGS	2-#12 & 1-#12 GND	THWN	PB-1	SOUTH DOUBLE DOOR (LEFT DOOR)
C12	3/4	RGS	2-#12 & 1-#12 GND	THWN	PB-1	SOUTH DOUBLE DOOR (RIGHT DOOR)
C13	3/4	RGS	4-#12 & 1-#12 GND	THWN	FIRE ALARM CONTROL PANEL	PLC IN SCADA PANEL SP47
C14	3/4	RGS	7-#14 & 1-#14 GND	THWN	SP1 FLOAT SWITCHES	CONTROL PANEL CP-SP1
C15	3/4	RGS	6-#14 & 1-#14 GND	THWN	SUMP PUMP CP-SP1 PANEL	CS-SP1
C16	3/4	RGS	6-#12 & 1-#12 GND	THWN	GAS MONIT. CONTROL PNL	PLC IN SCADA PANEL SP47
C17	3/4	RGS	2-#12 & 1-#12 GND	THWN	GAS MONIT. CONTROL PNL	MCC-P47 (SECTION 5B)
C18	3/4	RGS	2-#12 & 1-#12 GND	THWN	GAS MONIT. CONTROL PNL	MCC-P47 (SECTION 6B)
C19	3/4	RGS	8-#12 & 1-#12 GND	THWN	SUMP PUMP CP-SP1 PANEL	PLC IN SCADA PANEL SP47
C20	3/4	RGS	2-#12 & 1-#12 GND	THWN	GAS MONIT. CONTROL PNL	ALARM HORN
C21	3/4	RGS	24VDC; 4-20mADC, 600 Ω CABLE	COAX	GAS MONIT. CONTROL PNL	GAS SENSOR IN DISCH. CHAMBER
C22	3/4	RGS	24VDC; 4-20mADC, 600 Ω CABLE	COAX	GAS MONIT. CONTROL PNL	GAS SENSOR IN DRY WELL
C23	3/4	RGS	24VDC; 4-20mADC, 600 Ω CABLE	COAX	GAS MONIT. CONTROL PNL	GAS SENSOR IN WET WELL
C25	3/4	RGS	2-#12 & 1-#12 GND	THWN	MOISTURE CONTROL SWITCH	CONTROL PANEL CP-SP1
C26	3/4	RGS	4-#12 & 1-#12 GND	THWN	GAS MONIT. CONTROL PNL	ANNUNC. IN CONTROL PANEL CP47
C27	3/4	RGS	6-#12 & 1-#12 GND	THWN	SUMP PUMP CP-SP1 PANEL	AEGIS/INTRUSION ALARM PNL
C28	3/4	RGS	4-#12 & 1-#12 GND	THWN	SUMP PUMP CP-SP1 PANEL	CONTROL PANEL CP47

E2

KNIGHT

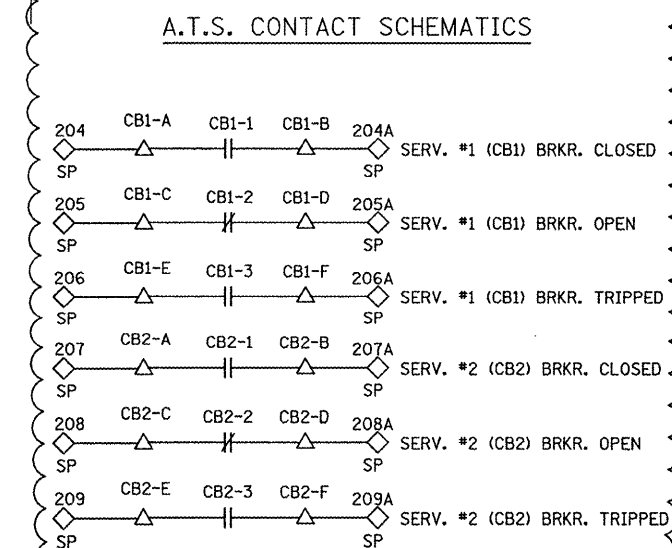
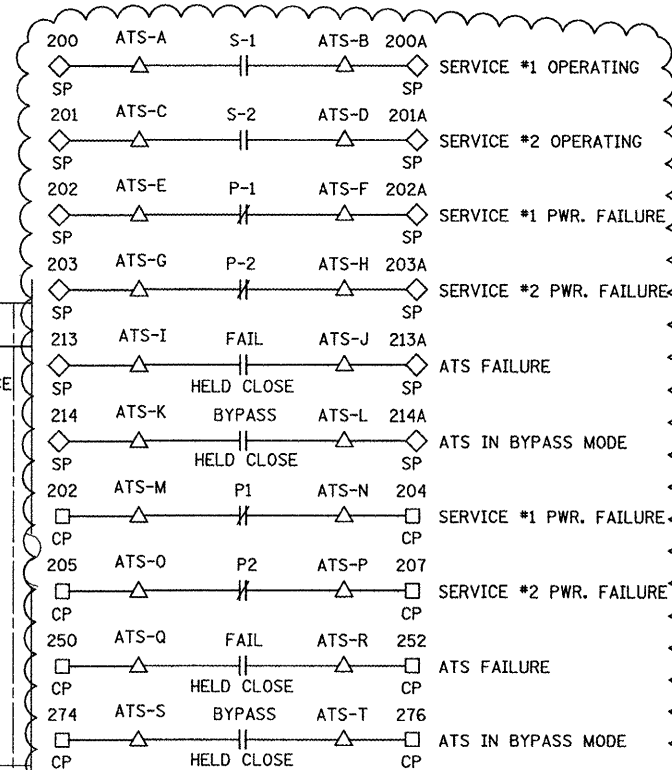
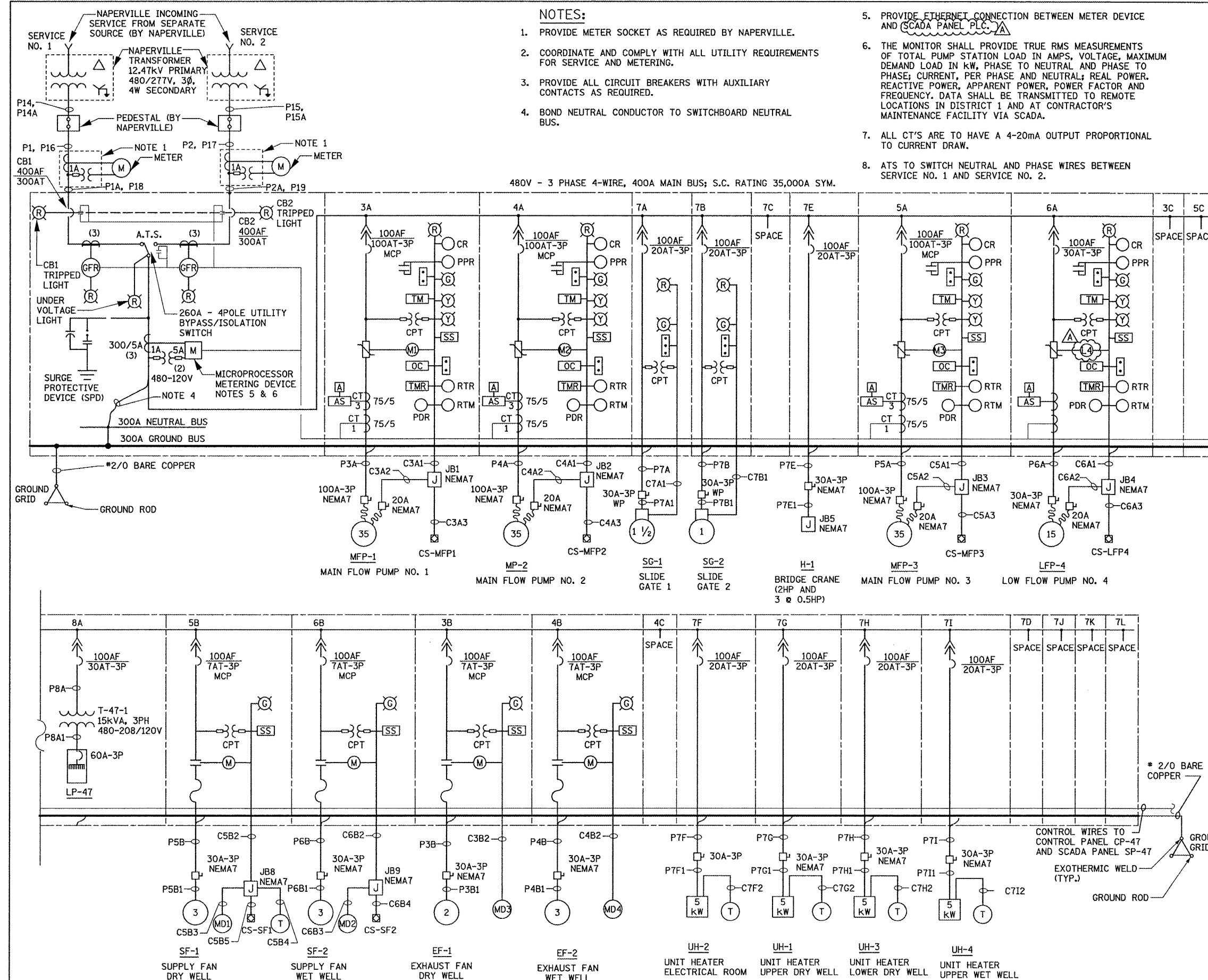
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	DRAWN - MLB	REVISED ADDENDUM A 5-23-12
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PLOT DATE = #DATE#	DATE 03-22-2012	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

CONDUIT AND WIRING SCHEDULE

SCALE: SHEET NO. OF SHEETS STA. TO STA.

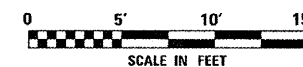
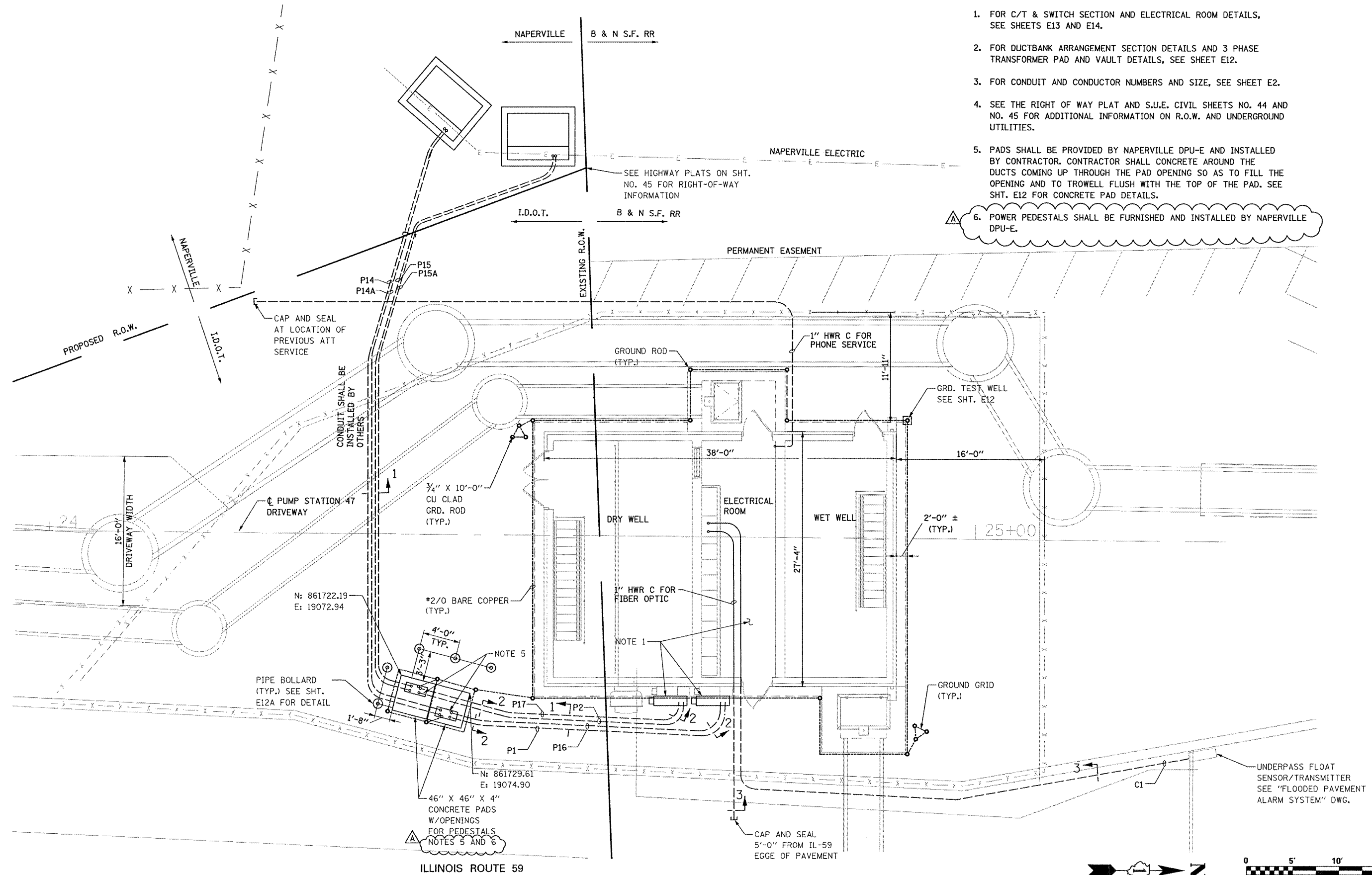
F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEET NO.
338/IL 59	2011-035-I	DUPAGE	181 158
CONTRACT NO. 60P41			
ILLINOIS FED. AID PROJECT			



E3

NOTES:

- FOR C/T & SWITCH SECTION AND ELECTRICAL ROOM DETAILS, SEE SHEETS E13 AND E14.
- FOR DUCTBANK ARRANGEMENT SECTION DETAILS AND 3 PHASE TRANSFORMER PAD AND VAULT DETAILS, SEE SHEET E12.
- FOR CONDUIT AND CONDUCTOR NUMBERS AND SIZE, SEE SHEET E2.
- SEE THE RIGHT OF WAY PLAT AND S.U.E. CIVIL SHEETS NO. 44 AND NO. 45 FOR ADDITIONAL INFORMATION ON R.O.W. AND UNDERGROUND UTILITIES.
- PADS SHALL BE PROVIDED BY NAPERVILLE DPU-E AND INSTALLED BY CONTRACTOR. CONTRACTOR SHALL CONCRETE AROUND THE DUCTS COMING UP THROUGH THE PAD OPENING SO AS TO FILL THE OPENING AND TO TROWELL FLUSH WITH THE TOP OF THE PAD. SEE SHT. E12 FOR CONCRETE PAD DETAILS.
- POWER PEDESTALS SHALL BE FURNISHED AND INSTALLED BY NAPERVILLE DPU-E.

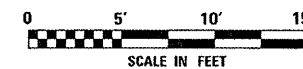
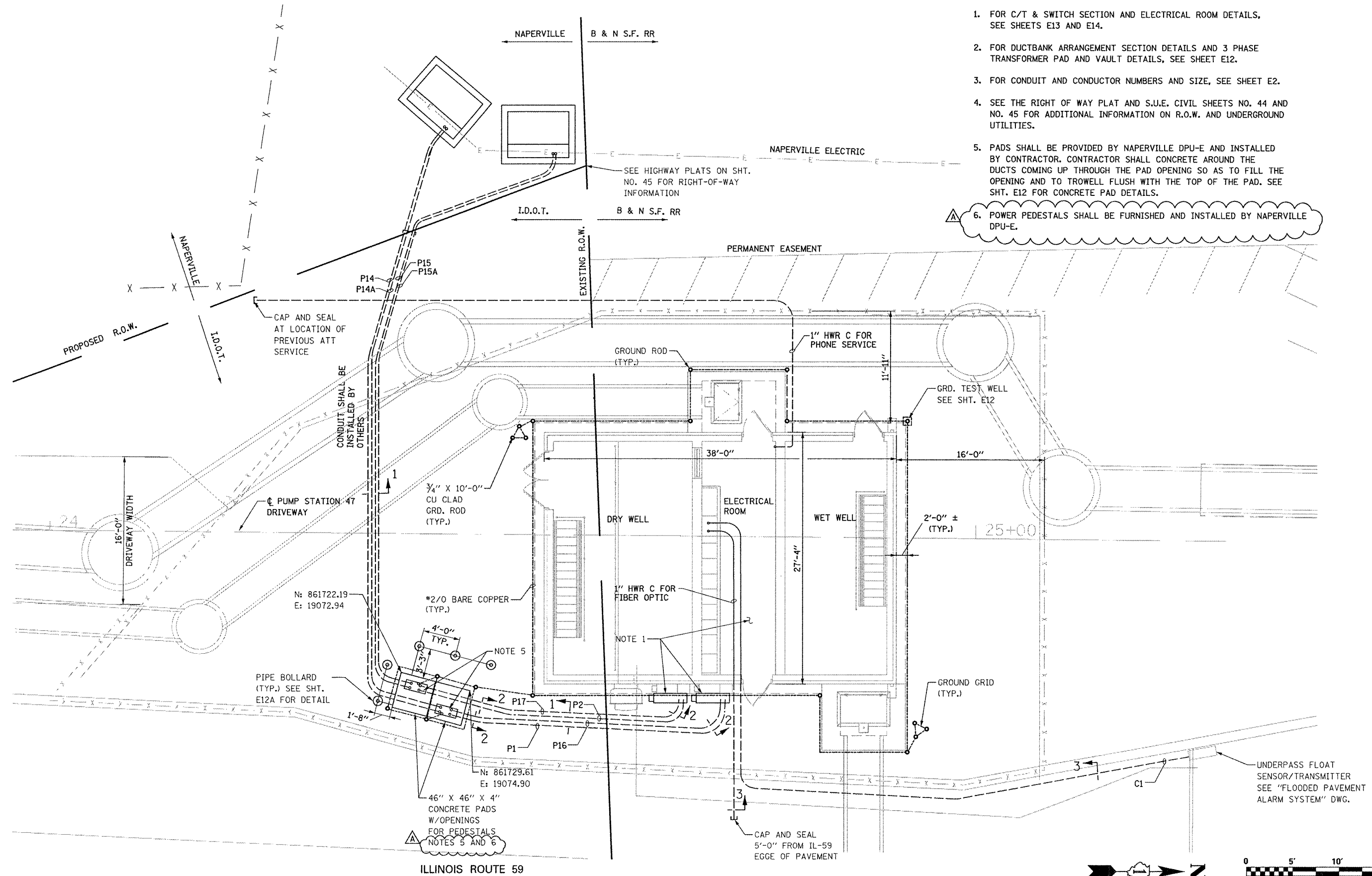


E4A

KNIGHT Engineers & Architects	USER NAME = #USER#	DESIGNED - MCP	REVISED 4-19-12	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	NEW PUMP STATION ELECTRICAL SITE PLAN					F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - MLB	REVISED ADDENDUM A 5-23-12							338/IL 59	2011-035-I	DUPAGE	181	161
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	PLOT DATE = #DATE#	DATE 03-22-2012	REVISED -							ILLINOIS FED. AID PROJECT				
										SCALE:	SHEET NO.	OF	SHEETS	STA.

NOTES:

1. FOR C/T & SWITCH SECTION AND ELECTRICAL ROOM DETAILS, SEE SHEETS E13 AND E14.
2. FOR DUCTBANK ARRANGEMENT SECTION DETAILS AND 3 PHASE TRANSFORMER PAD AND VAULT DETAILS, SEE SHEET E12.
3. FOR CONDUIT AND CONDUCTOR NUMBERS AND SIZE, SEE SHEET E2.
4. SEE THE RIGHT OF WAY PLAT AND S.U.E. CIVIL SHEETS NO. 44 AND NO. 45 FOR ADDITIONAL INFORMATION ON R.O.W. AND UNDERGROUND UTILITIES.
5. PADS SHALL BE PROVIDED BY NAPERVILLE DPU-E AND INSTALLED BY CONTRACTOR. CONTRACTOR SHALL CONCRETE AROUND THE DUCTS COMING UP THROUGH THE PAD OPENING SO AS TO FILL THE OPENING AND TO TROWEL FLUSH WITH THE TOP OF THE PAD. SEE SHT. E12 FOR CONCRETE PAD DETAILS.
6. POWER PEDESTALS SHALL BE FURNISHED AND INSTALLED BY NAPERVILLE DPU-E.



E4A

KNIGHT

Engineers & Architects

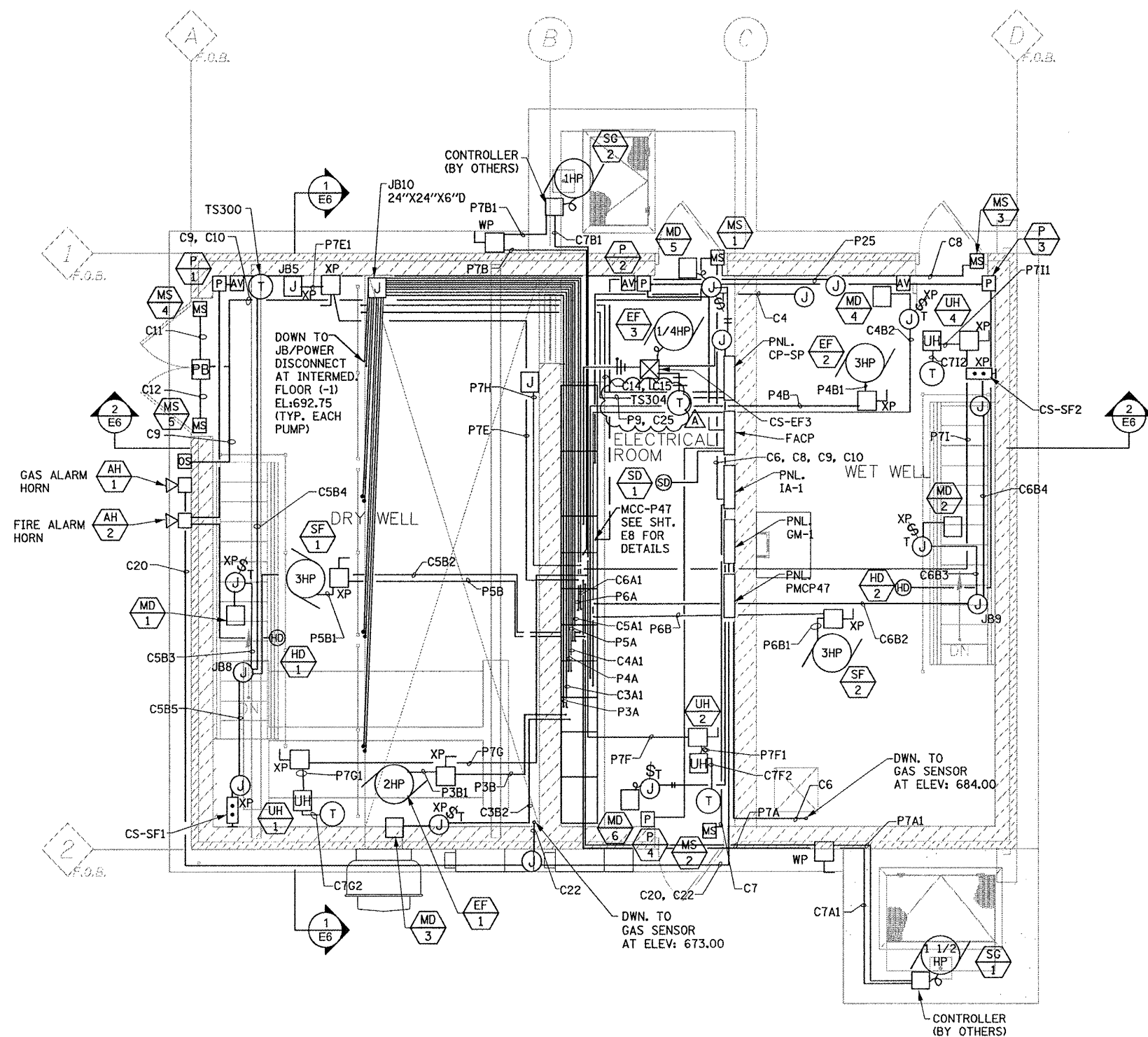
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PLOT DATE = #DATE#	CHECKED - MCP	REVISED -
	DATE 03-22-2012	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

NEW PUMP STATION
ELECTRICAL SITE PLAN

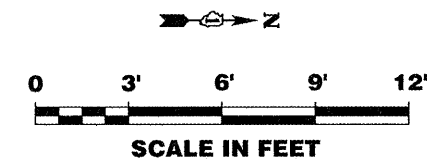
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	2011-035-I	DUPAGE	181	161
CONTRACT NO. 60P41				
ILLINOIS FED. AID PROJECT				



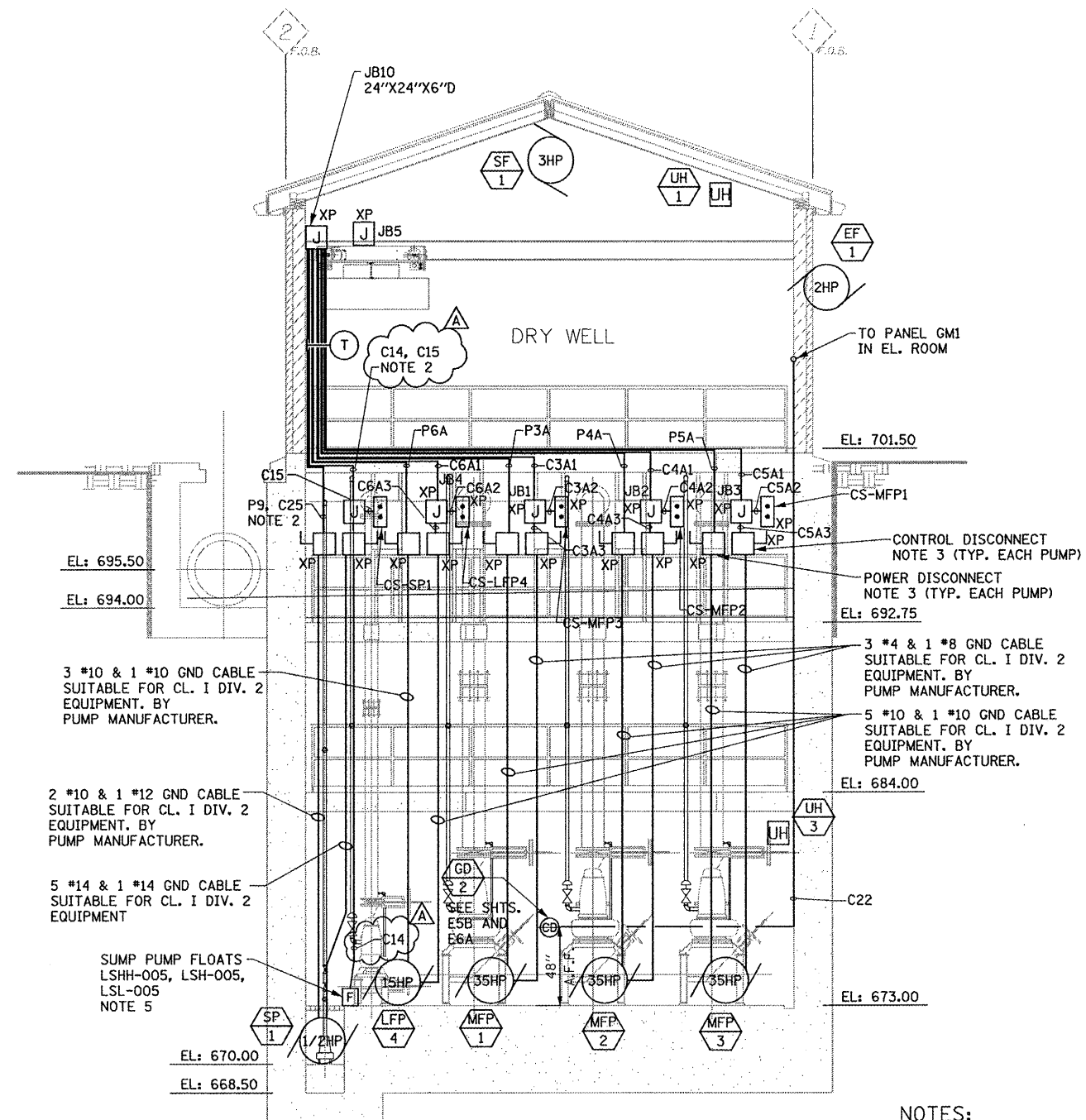
NOTES:

- FOR DETAILS OF CONDUIT AND CABLE RUNS FROM MCC TO MFP-1, MFP-2, MFP-3, LFP-4 AND SP-1, SEE SHEET E6.
- ALL OUTSIDE JUNCTION BOXES, ENCLOSURES AND DEVICES SHALL BE NEMA4X RATED.
- ELECTRICAL INSTALLATION AND EQUIPMENT WITHIN ENTIRE WET AND DRY WELL AREA SHALL BE PER N.E.C. CLASS I DIV. 2.

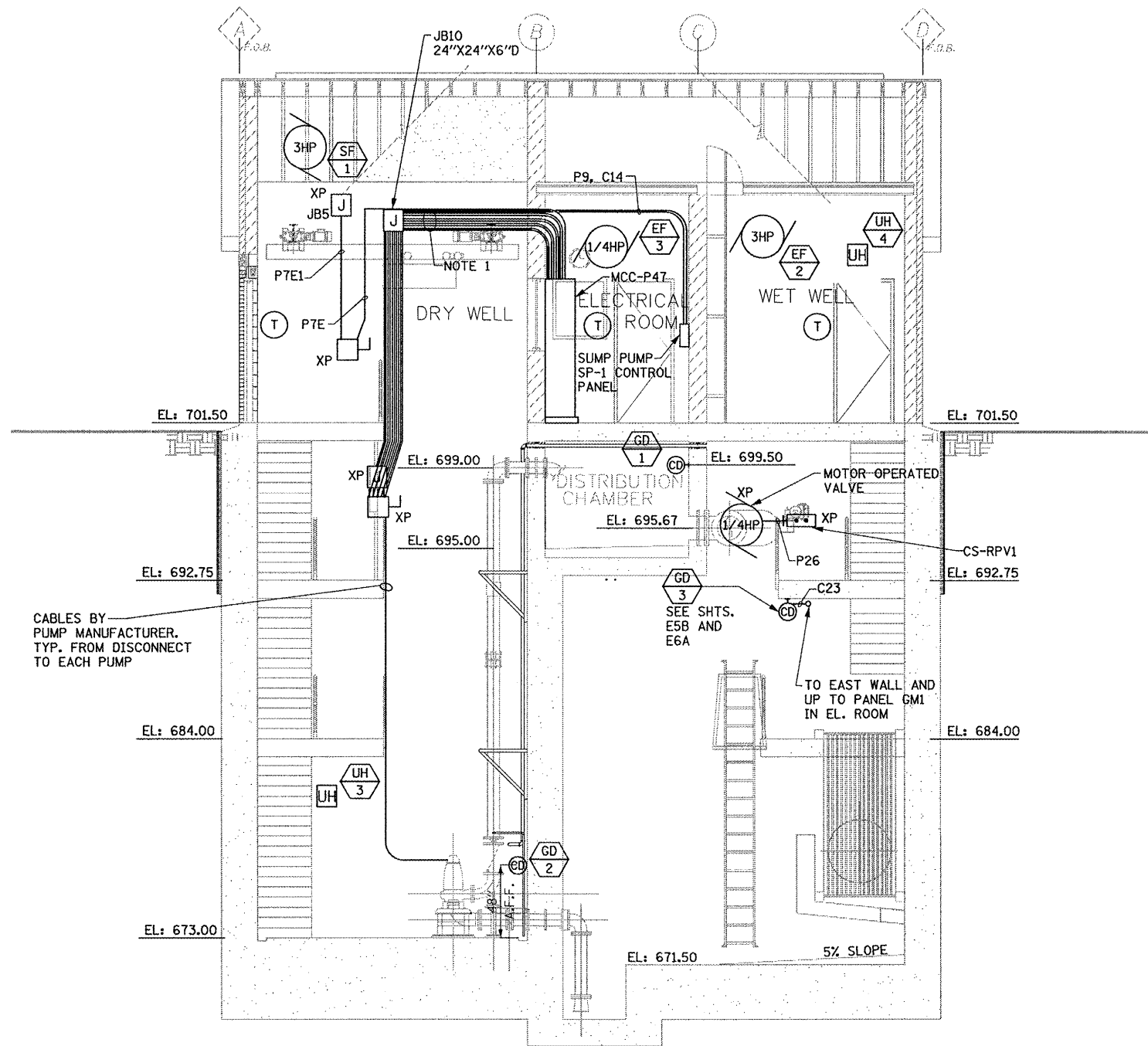


E5

KNIGHT Engineers & Architects	USER NAME = #USER#	DESIGNED - MCP	REVISED - ADDENDUM A 5-23-12	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PUMP STATION NO. 47 POWER PLANS				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
	PLOT SCALE = #SCALE#	DRAWN - MLB	REVISED -						338/IL 59	2011-035-I	DUPAGE	181	162
	CHECKED - MCP	DATE 03-22-2012	REVISED -		CONTRACT NO. 60P41				ILLINOIS FED. AID PROJECT				
	PLOT DATE = #DATE#	DATE	REVISED -		SCALE:	SHEET NO.	OF	SHEETS	STA.	TO STA.			



1 DRY WELL SECTION ELEVATION LOOKING NORTH
SCALE: 1/4" = 1'-0"



2 PUMP STATION SECTION ELEVATION LOOKING WEST
SCALE: 1/4" = 1'-0"

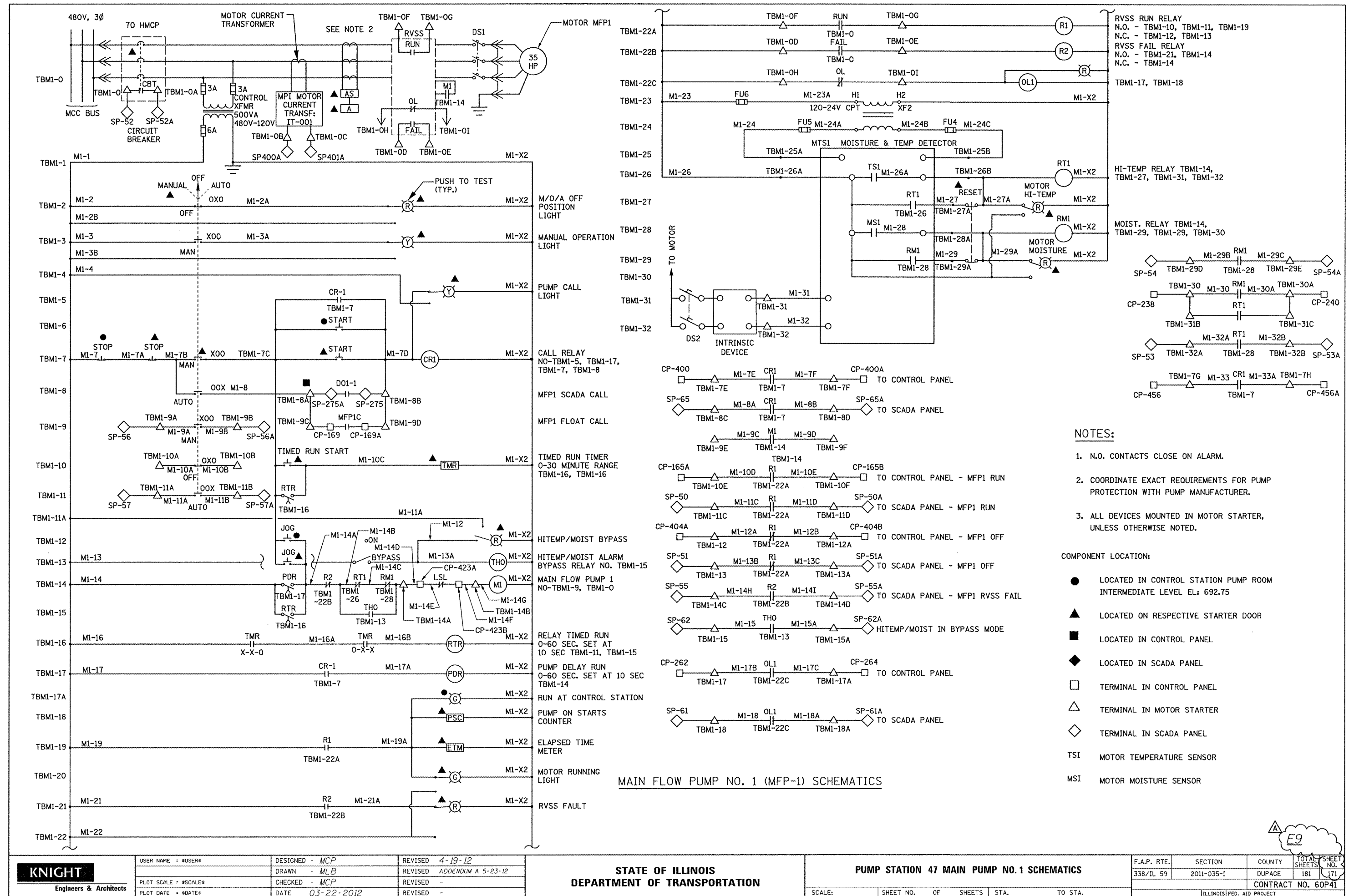
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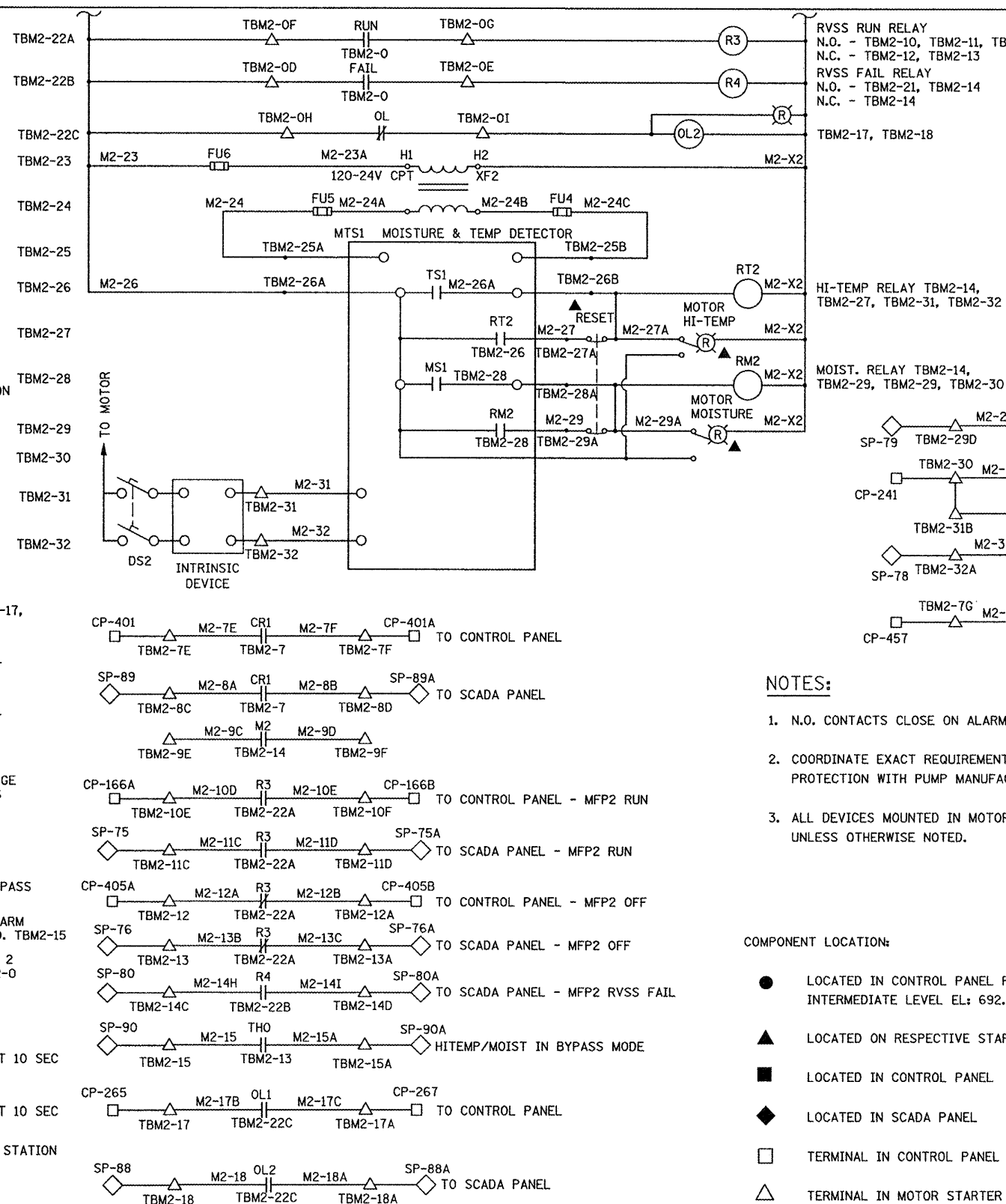
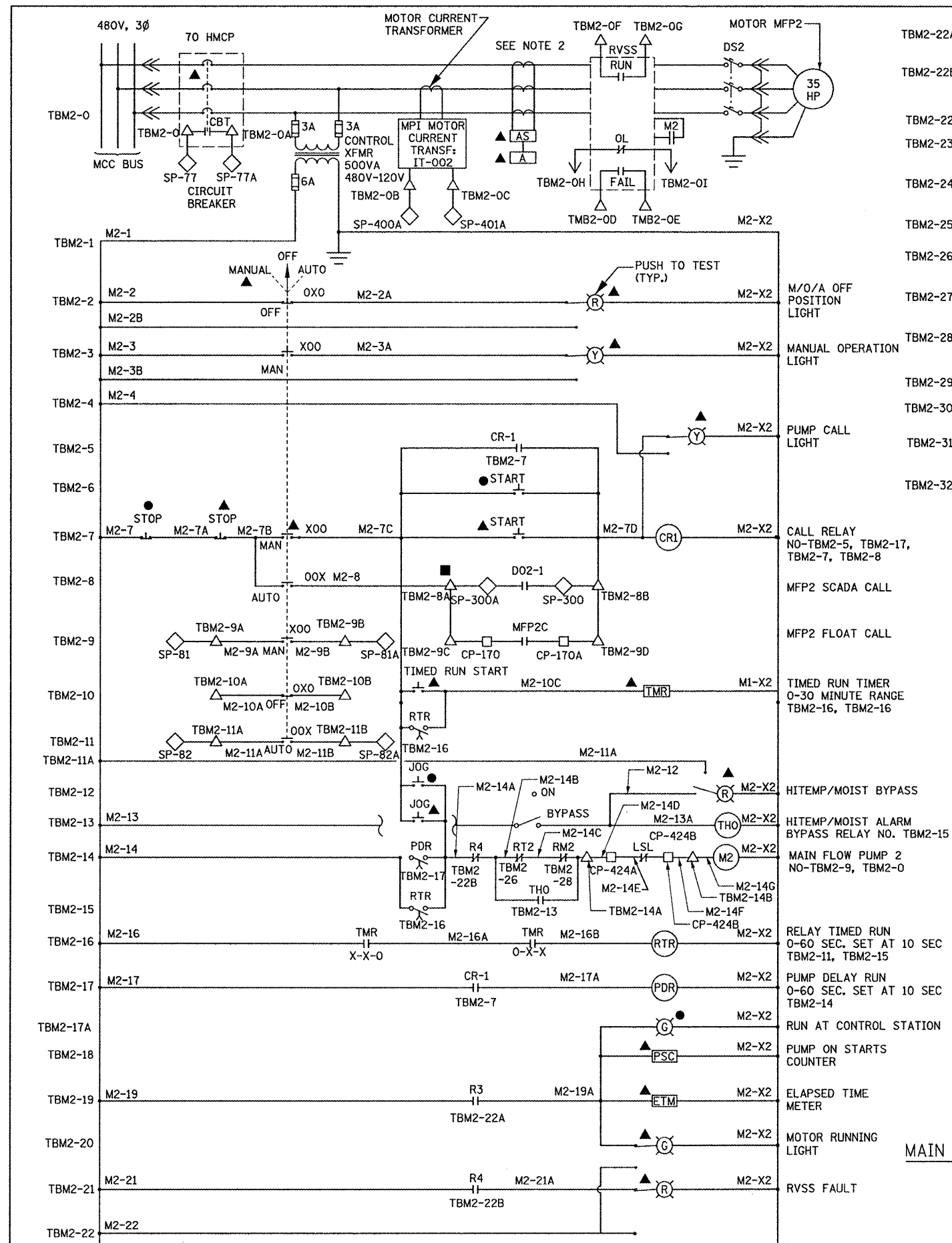
1. FOR DETAILED WIRING/CONDUIT RUNS, SEE SHEETS E5, E5A AND E5B.
2. WIRED TO SUMP PUMP CONTROL PANEL.
3. ALL DISCONNECTS AND PUSH BUTTONS SHALL BE INSTALLED APPROXIMATELY 48" ABOVE FINISHED FLOOR ON UNISTRUTS.
4. ELECTRICAL INSTALLATION AND EQUIPMENT WITHIN ENTIRE WET AND DRY WELL AREA SHALL BE PER N.E.C. CLASS I DIV. 2.
5. LSHH = 672.50, LSH = PUMP TOP ELEV OR AS PER PUMP MANUFACTURER., LSL = PUMP BOTTOM ELEV. + 10" OR AS PER PUMP MANUFACTURER



E6

KNIGHT Engineers & Architects	USER NAME = #USER#	DESIGNED - MCP	REVISED ADDENDUM A 5-23-12	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PUMP STATION NO. 47 POWER SECTION ELEVATIONS	F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - MLB	REVISED -			338/IL 59	2011-035-I	DUPAGE	181	165
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	SCALE:	SHEET NO.	OF SHEETS			STA.	TO STA.			



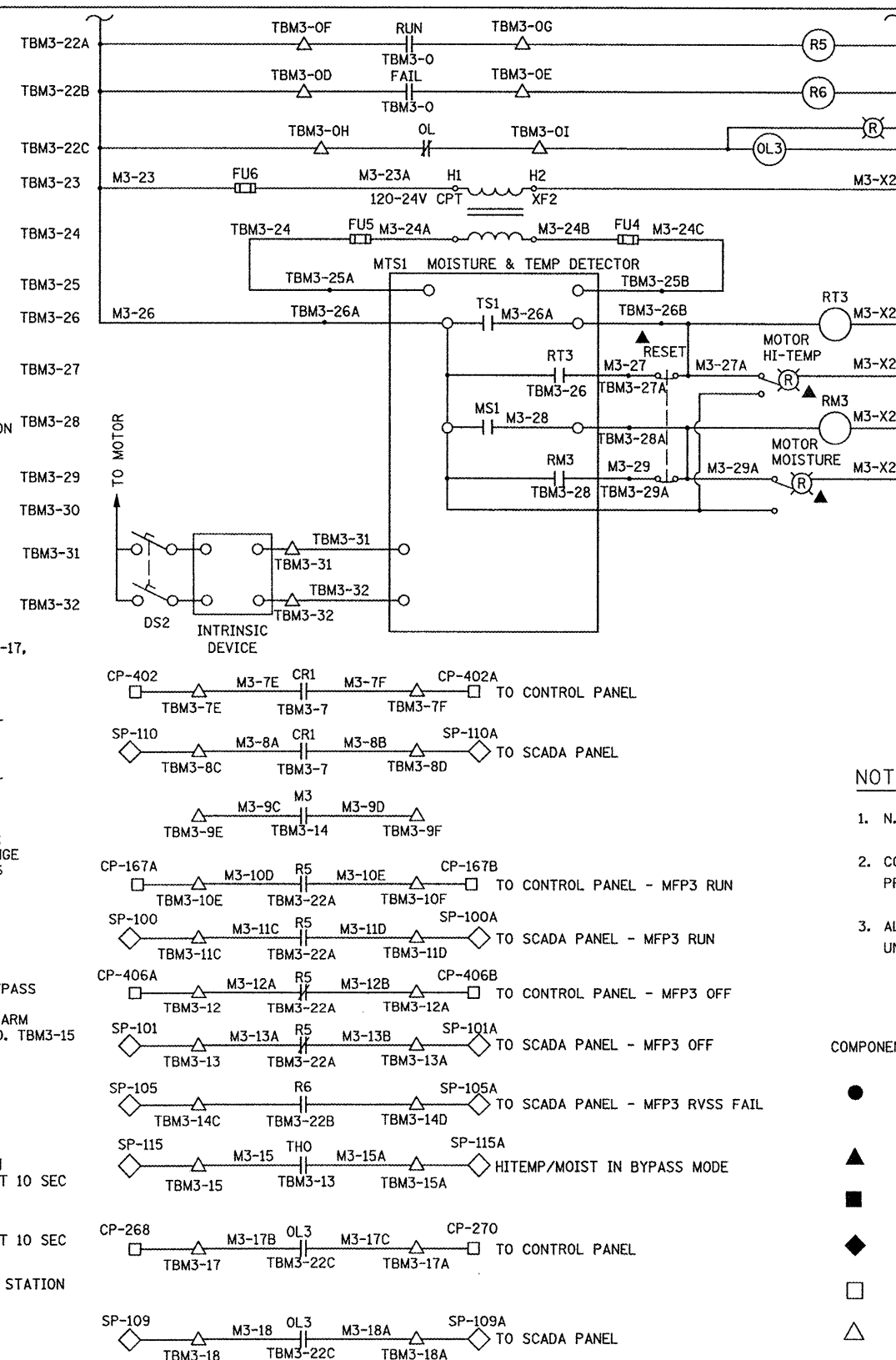
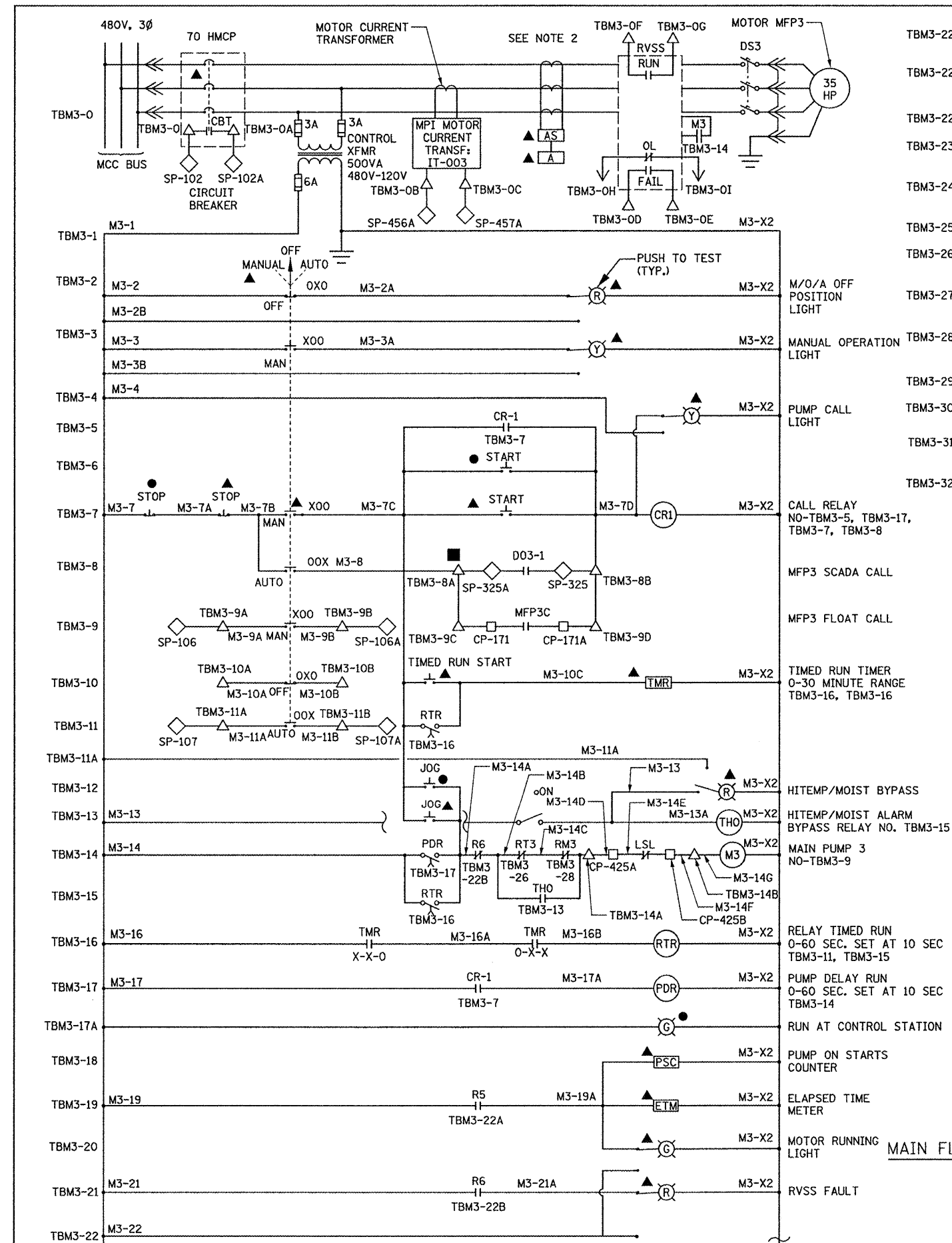


NOTES:

1. N.O. CONTACTS CLOSE ON ALARM.
2. COORDINATE EXACT REQUIREMENTS FOR PUMP PROTECTION WITH PUMP MANUFACTURER.
3. ALL DEVICES MOUNTED IN MOTOR STARTER, UNLESS OTHERWISE NOTED.

COMPONENT LOCATION:

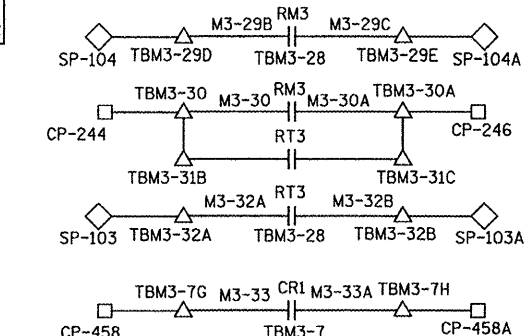
- | | |
|-----|---|
| ● | LOCATED IN CONTROL PANEL PUMP ROOM
INTERMEDIATE LEVEL EL: 692.75 |
| ▲ | LOCATED ON RESPECTIVE STARTER DOOR |
| ■ | LOCATED IN CONTROL PANEL |
| ◆ | LOCATED IN SCADA PANEL |
| □ | TERMINAL IN CONTROL PANEL |
| △ | TERMINAL IN MOTOR STARTER |
| ◇ | TERMINAL IN SCADA PANEL |
| TSI | MOTOR TEMPERATURE SENSOR |
| MSI | MOTOR MOISTURE SENSOR |



RVSS RUN RELAY
N.O. - TBM3-10, TBM3-11, TBM3-19
N.C. - TBM3-12, TBM3-13
RVSS FAIL RELAY
N.O. - TBM3-21, TBM3-14
N.C. - TBM3-14
TBM3-17, TBM3-18

HI-TEMP RELAY TBM3-14,
TBM3-27, TBM3-31, TBM3-32

MOIST. RELAY TBM3-14,
TBM3-29, TBM3-29, TBM3-30



NOTES:

1. N.O. CONTACTS CLOSE ON ALARM.
2. COORDINATE EXACT REQUIREMENTS FOR PUMP PROTECTION WITH PUMP MANUFACTURER.
3. ALL DEVICES MOUNTED IN MOTOR STARTER, UNLESS OTHERWISE NOTED.

COMPONENT LOCATION:

- LOCATED IN CONTROL STATION PUMP ROOM INTERMEDIATE LEVEL EL: 692.75
- ▲ LOCATED ON RESPECTIVE STARTER DOOR
- LOCATED IN CONTROL PANEL
- ◆ LOCATED IN SCADA PANEL
- TERMINAL IN CONTROL PANEL
- △ TERMINAL IN MOTOR STARTER
- ◇ TERMINAL IN SCADA PANEL
- TSI MOTOR TEMPERATURE SENSOR
- MSI MOTOR MOISTURE SENSOR

MAIN FLOW PUMP NO. 3 (MFP-3) SCHEMATICS

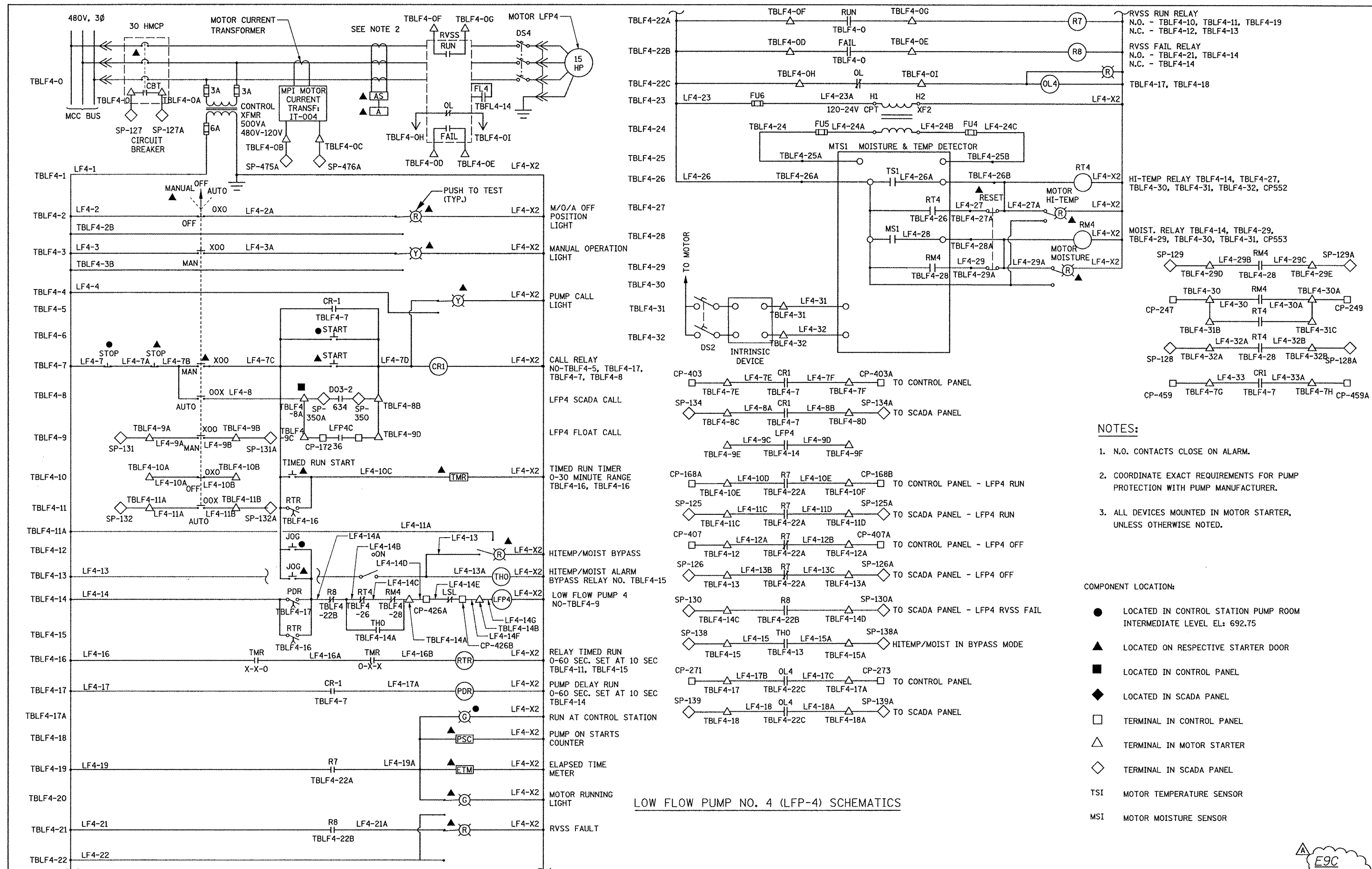
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		DATE 03-22-2012	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PUMP STATION 47 MAIN PUMP NO. 3 SCHEMATICS

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEET NO.
338/IL 59	2011-035-1	DUPAGE	181
CONTRACT NO. 60P41			173
ILLINOIS FED. AID PROJECT			



NOTES:

1. N.O. CONTACTS CLOSE ON ALARM.
2. COORDINATE EXACT REQUIREMENTS FOR PUMP PROTECTION WITH PUMP MANUFACTURER.
3. ALL DEVICES MOUNTED IN MOTOR STARTER, UNLESS OTHERWISE NOTED.

COMPONENT LOCATION:

- LOCATED IN CONTROL STATION PUMP ROOM INTERMEDIATE LEVEL EL: 692.75
- ▲ LOCATED ON RESPECTIVE STARTER DOOR
- LOCATED IN CONTROL PANEL
- ◆ LOCATED IN SCADA PANEL
- TERMINAL IN CONTROL PANEL
- △ TERMINAL IN MOTOR STARTER
- ◇ TERMINAL IN SCADA PANEL
- TSI MOTOR TEMPERATURE SENSOR
- MSI MOTOR MOISTURE SENSOR

KNIGHT

Engineers & Architects

USER NAME = *USER*	DESIGNED - MCP	REVISED - 4-19-12
PLOT SCALE = *SCALE*	DRAWN - MLB	REVISED - ADDENDUM A 5-23-12
PLOT DATE = *DATE*	CHECKED - MCP	REVISED -
	DATE 03-22-2012	REVISED -

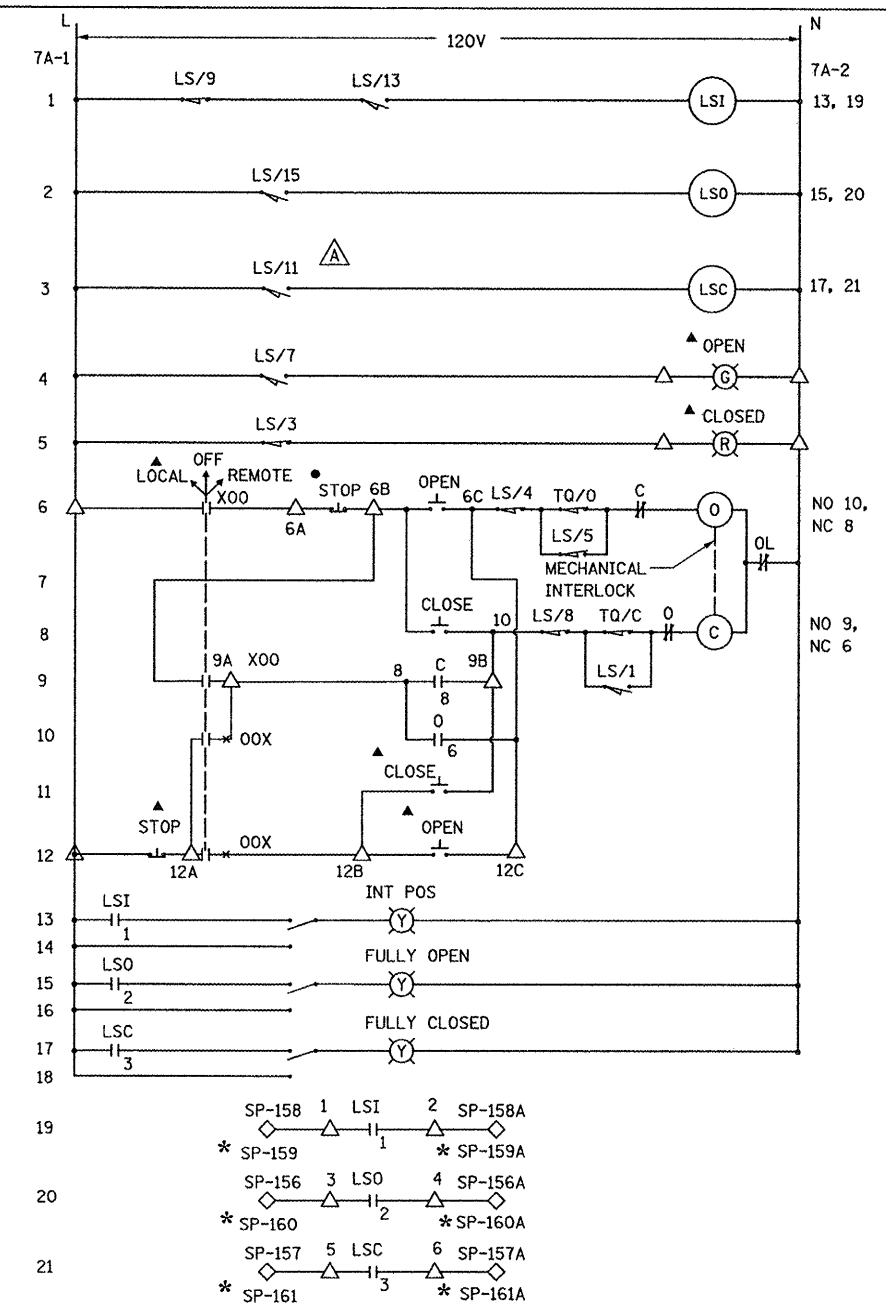
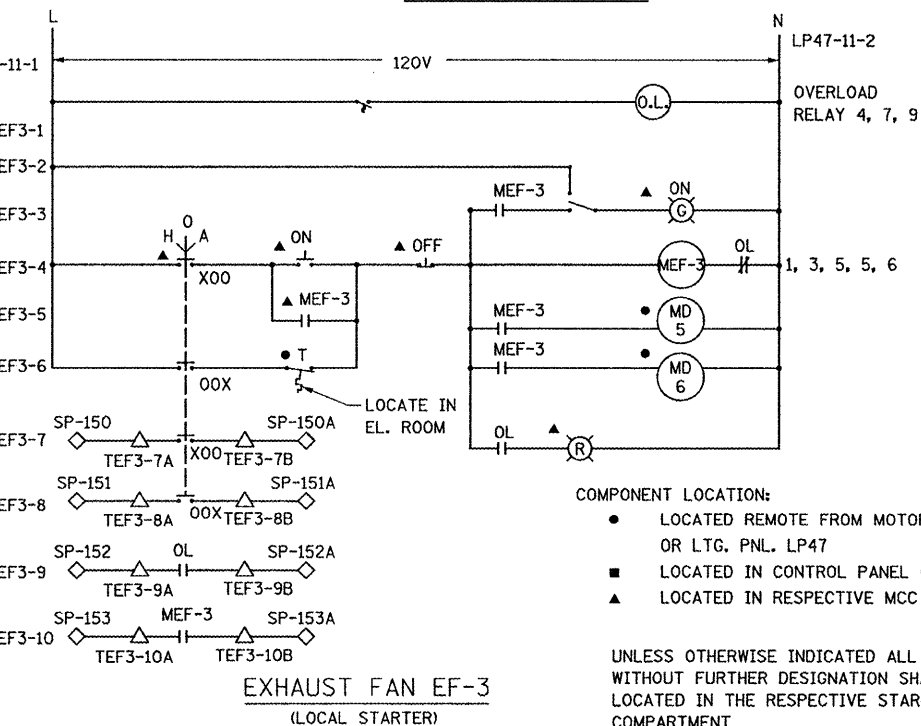
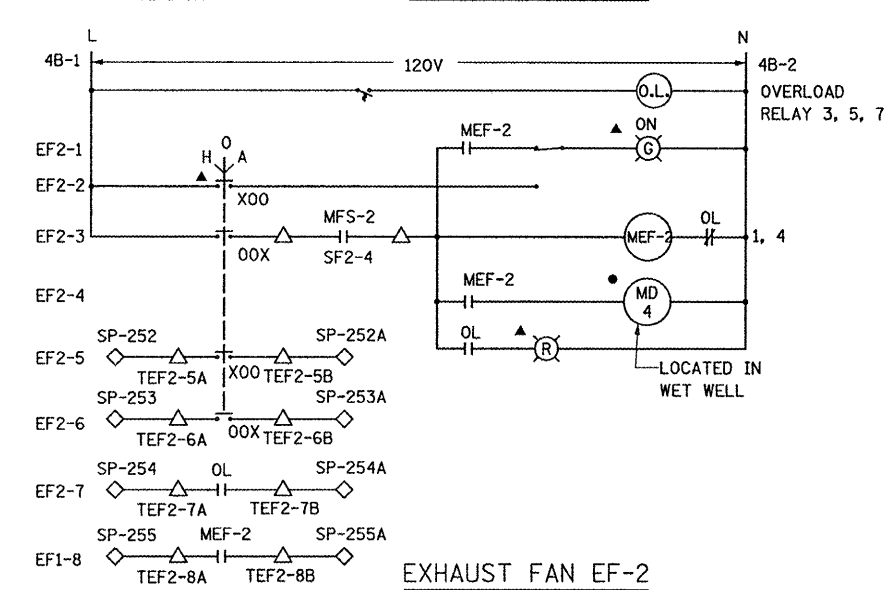
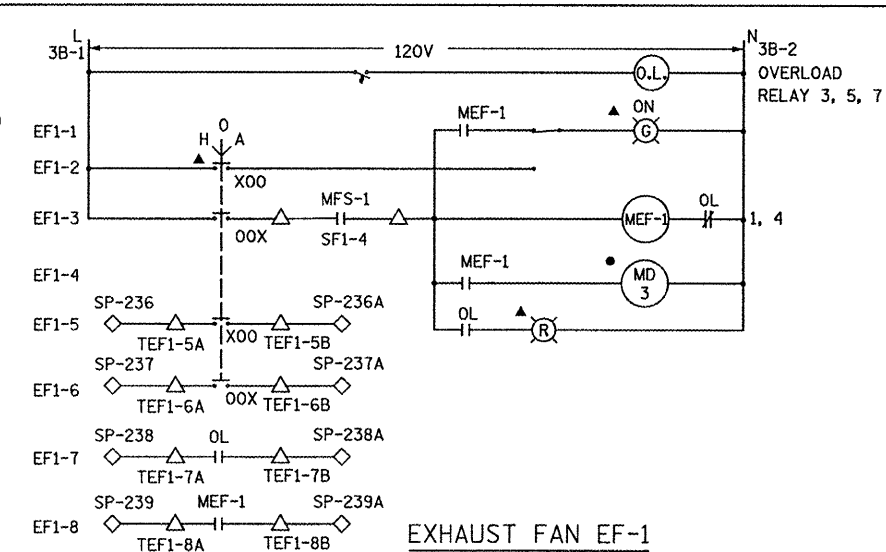
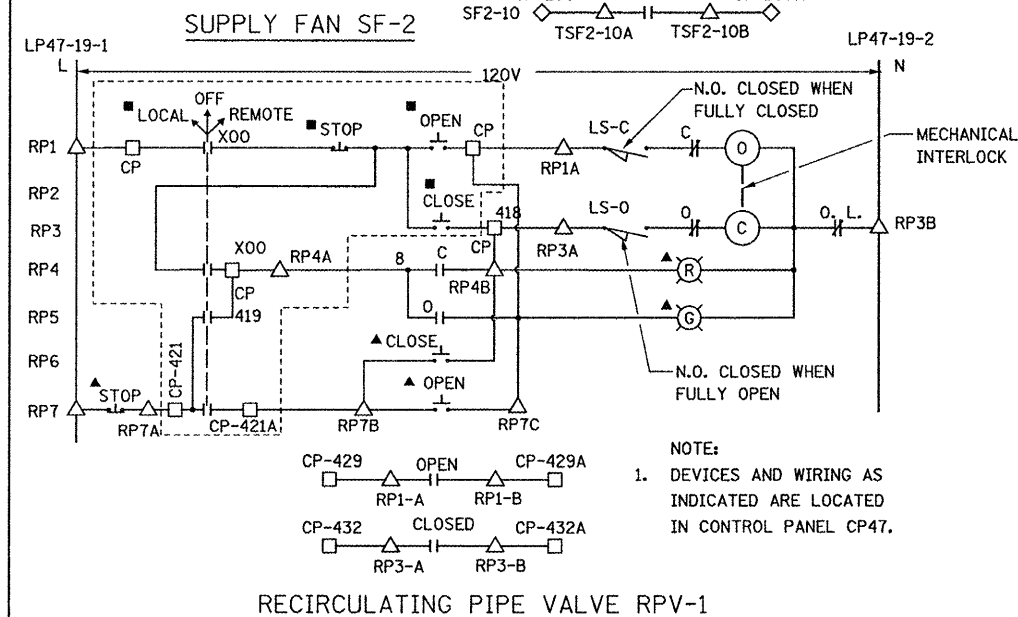
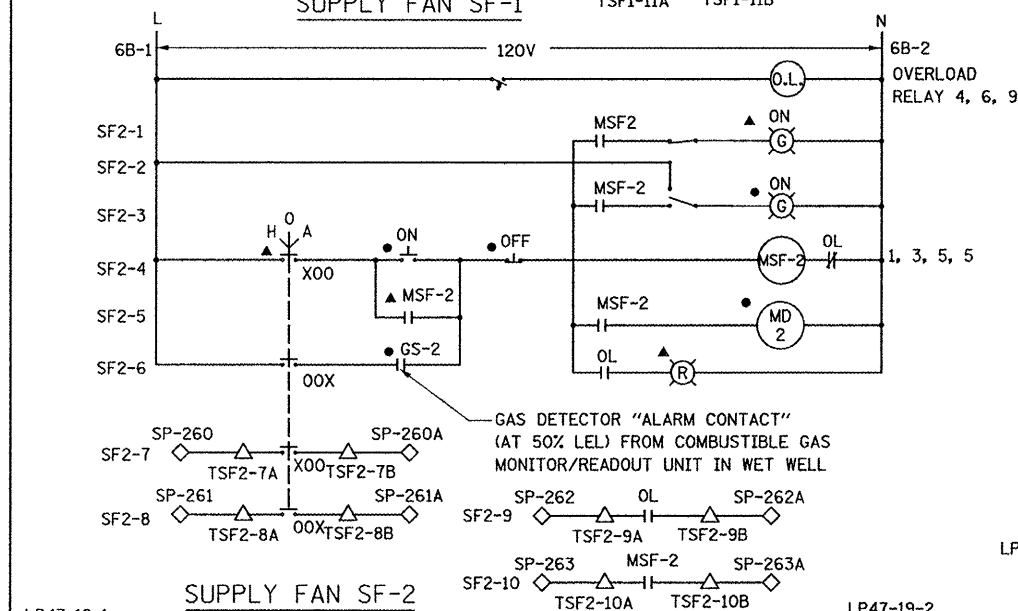
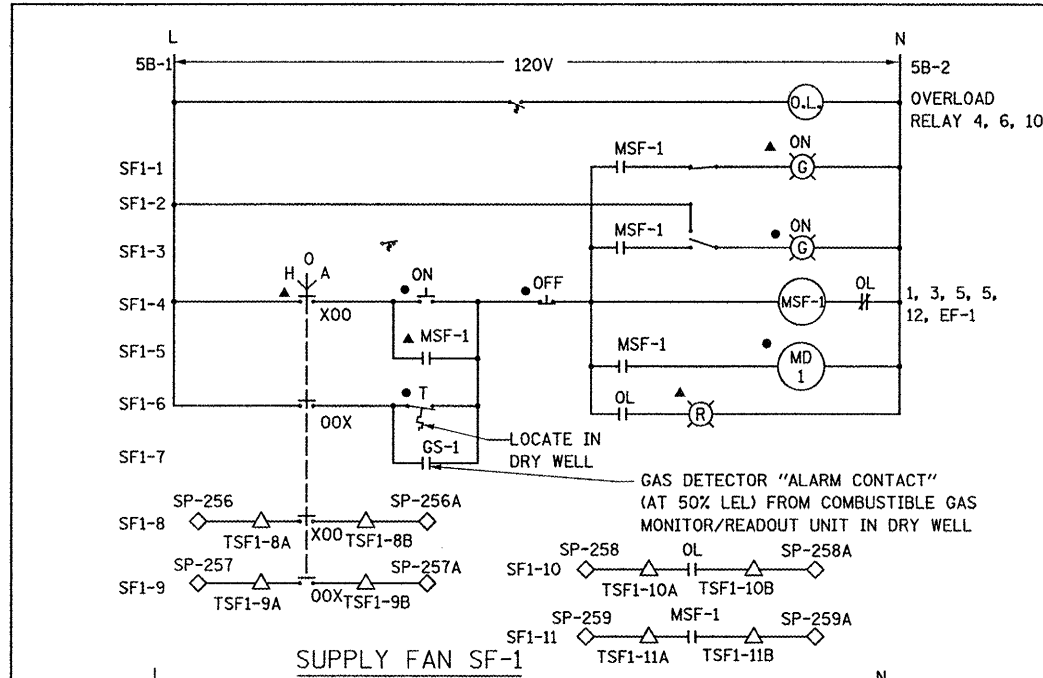
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PUMP STATION 47 LOW FLOW PUMP NO.4 SCHEMATICS

SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEET
338/IL 59	2011-035-1	DUPAGE	181
			174
			CONTRACT NO. 60P41
			ILLINOIS FED. AID PROJECT

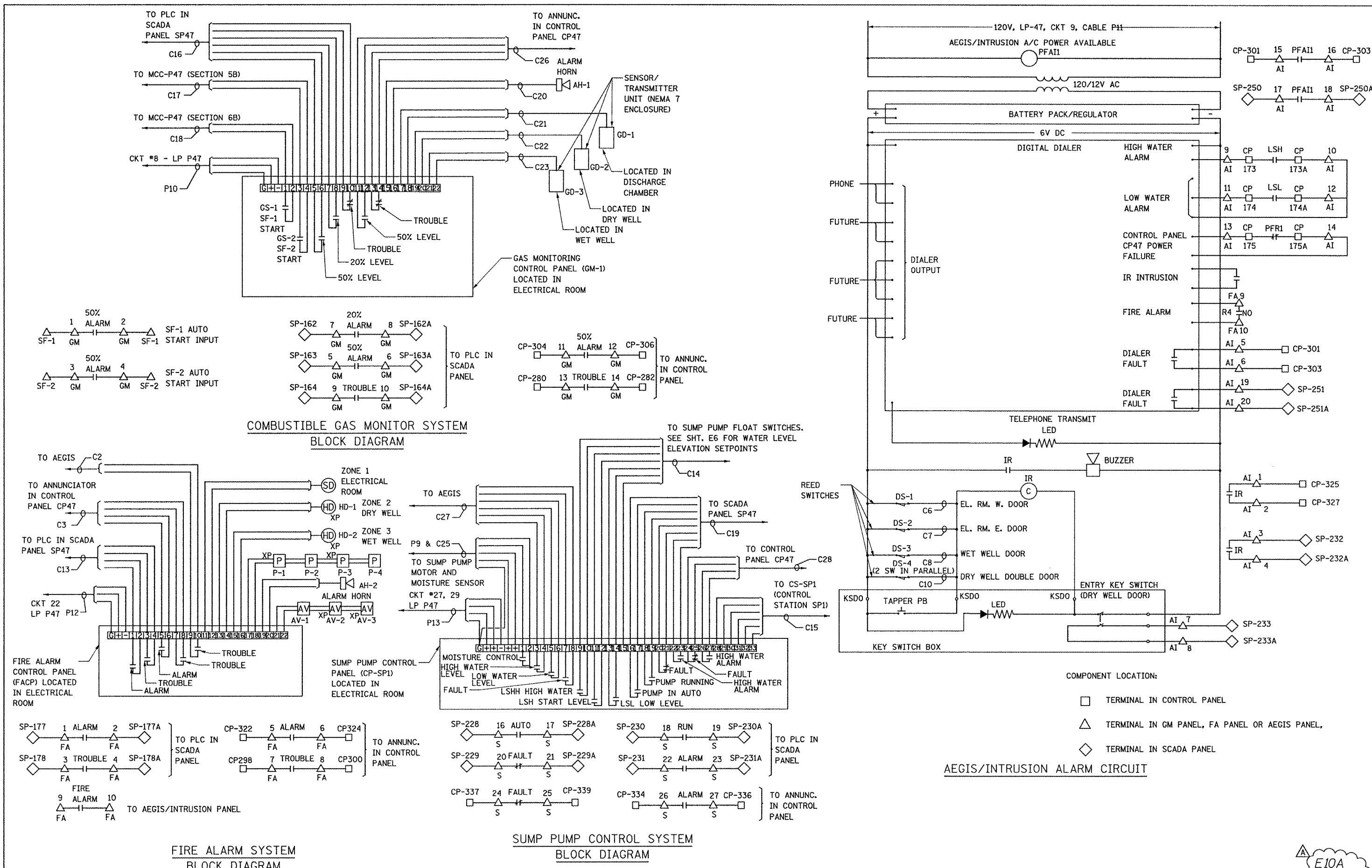
E9C



NOTES: 1. ALL ITEMS WITHOUT DESIGNATIONS ARE INTEGRAL TO MOTOR OPERATOR
2. INTRINSICALLY SAFE RELAYS MUST BE PROVIDED

SWITCH NUMBERS	OPEN	VALVE/GATE POSITION INTERMEDIATE	CLOSE
LS/8			
LS/1			
LS/4			
LS/5			
LS/11			
LS/15			
LS/7			
LS/3			
LS/9			
LS/13			

TYPICAL FOR ACTUATOR SG-1 AND SG-2 CONTACT



LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG NUMBER	VOLT	LAMPS			MOUNTING	NO. OF FIXT.	DESCRIPTION
				NO.	WATTS	TYPE			
A	LITHONIA HOLOPHANE DAY-BRIGHT	DMW-232-120-GE810IS DWAE-2-32-120 CTL4-HT0-232-12	120	2	32	FL F32 T8	PENDANT	5	FLUORESCENT FIXTURE LISTED FOR DAMP LOCATIONS, POLYESTER HOUSING, ACRYLIC GASKETED DIFFUSER WITH CAPTIVE LATCHES
B	HOLOPHANE COOPER/CROOSE HINDS HUBBEL	PETM-250PM-12-SY-CE EVMCX92250 S828/120 HLEZ-P-25-Q-X2	120	1	250	PSMH	SURFACE CEILING	3	EXPLOSION PROOF HID FIXTURE SUITABLE FOR CLASS I, DIV. 2, GROUP D LOCATION, COPPER FREE ALUMINUM BALLAST BODY, CLASS GLOBE, CEILING MOUNTED
C	HOLOPHANE COOPER/CROOSE HINDS HUBBEL	PETM-100MH-12-SY-CE EVMCX92100/120 HLEZ-H-10-Q-X2	120	1	100	PSMH	SURFACE CEILING	18	EXPLOSION PROOF HID FIXTURE SUITABLE FOR CLASS I, DIV. 2, GROUP D LOCATION, COPPER FREE ALUMINUM BALLAST BODY, CLASS GLOBE
C1	HOLOPHANE COOPER/CROOSE HINDS HUBBEL	PETM-100M-12-SY-WL EVMBX92100/120 HLEZ-H-10-Q-B2	120	1	100	PSMH	WALL	3	EXPLOSION PROOF HID FIXTURE SUITABLE FOR CLASS I, DIV. 2, GROUP D LOCATION, COPPER FREE ALUMINUM BALLAST BODY, CLASS GLOBE, WALL MOUNTED
D	LITHONIA LTG. H.E. WILLIAMS ACCULITE	WST 50M FT 120 SCWA WPSV-PSMH-50-MED-120 DT50PS-QT-FT	120	1	50	PSMH	WALL	5	WALL PACK OUTDOOR FIXTURE, DIE CAST ALUMINUM HOUSING, FULL CUTOFF
E	GREENTORCH MAGNALIGHT/LARSON ELECTRONICS	XPL-EM-R-1W-WP EXP-EXT-3W	120	1	3	LED	WALL	2	EXPLOSION PREOOF EXIT SIGN SUITABLE FOR CLASS I, DIV. 2, GROUP D LOCATIONS, HIGH INTENSITY LED, COPPER FREE ALUMINUM HOUSING AND 3 HR. BATTERY BACKUP TIME
E1	H. E. WILLIAMS COOPER/SURE-LITES HUBBEL/DUAL LITE	EXIT-R-EM-WHT EEX71R SESRWE	120	1	3	LED	WALL	2	LED LIT EXIT SIGN, WALL MOUNTED, SINGLE FACE, RED LETTERS ON WHITE BACKGROUND

LIGHTING PANEL LP-47 SCHEDULE

VOLTAGE: 120/208 V, 3PH		WIRE: 4		TOTAL CONNECTED AMPS @ 208V - 37.75	
MAIN: 60A		MOUNTING: SURFACE		PHASE A AMPS - 42.45 PHASE B AMPS - 40.2 PHASE C AMPS - 30.55	
		A B C 60A, 3PH MAIN BREAKER			
CIRCUIT USE	LOAD			LOAD	CIRCUIT USE
LIGHTS DRY WELL	6.5	20A/1P	1	2	20A/1P
LIGHTS DRY WELL	6.5	20A/1P	3	4	20A/1P
LIGHTS EL. ROOM	1.8	20A/1P	5	6	20A/1P
LIGHTS EL. ROOM	1.2	30A/1P	7	8	20A/1P
INTRUSION ALARM PANEL	4	20A/1P	9	10	20A/1P
EF-3	7.5	20A/1P	11	12	20A/1P
U.P.S.	25	30A/1P	13	14	20A/1P
EXIT SIGNS	0.5	20A/1P	15	16	20A/1P
BCP47-001	1	20A/1P	17	18	20A/1P
SPARE	-	20A/1P	19	20	20A/1P
SPARE	-	20A/1P	21	22	20A/1P
PMCP47	1	20A/1P	23	24	20A/1P
SPARE	-	20A/1P	25	26	20A/1P
SUMP PUMP CONTROL PANEL	5	20A/1P	27	28	20A/1P
	5	20A/1P	29	30	20A/1P
8	LIGHTS WET WELL	9.2	LIGHTS WET WELL	1.25	OUTSIDE LIGHTING
12	RECEPT. DRY/WET WELL, EXT.	6	RECEPT. ELECTRICAL ROOM	-	SPARE
4	GAS MONITORING PANEL	1	BCP47-002	0.5	LIT
4	FIRE ALARM PANEL	6	MOTOR OPER. VALVE (RPV-1)	-	SPARE
-	SPARE	-	SPARE	-	SPARE

E11

KNIGHT

Engineers & Architects

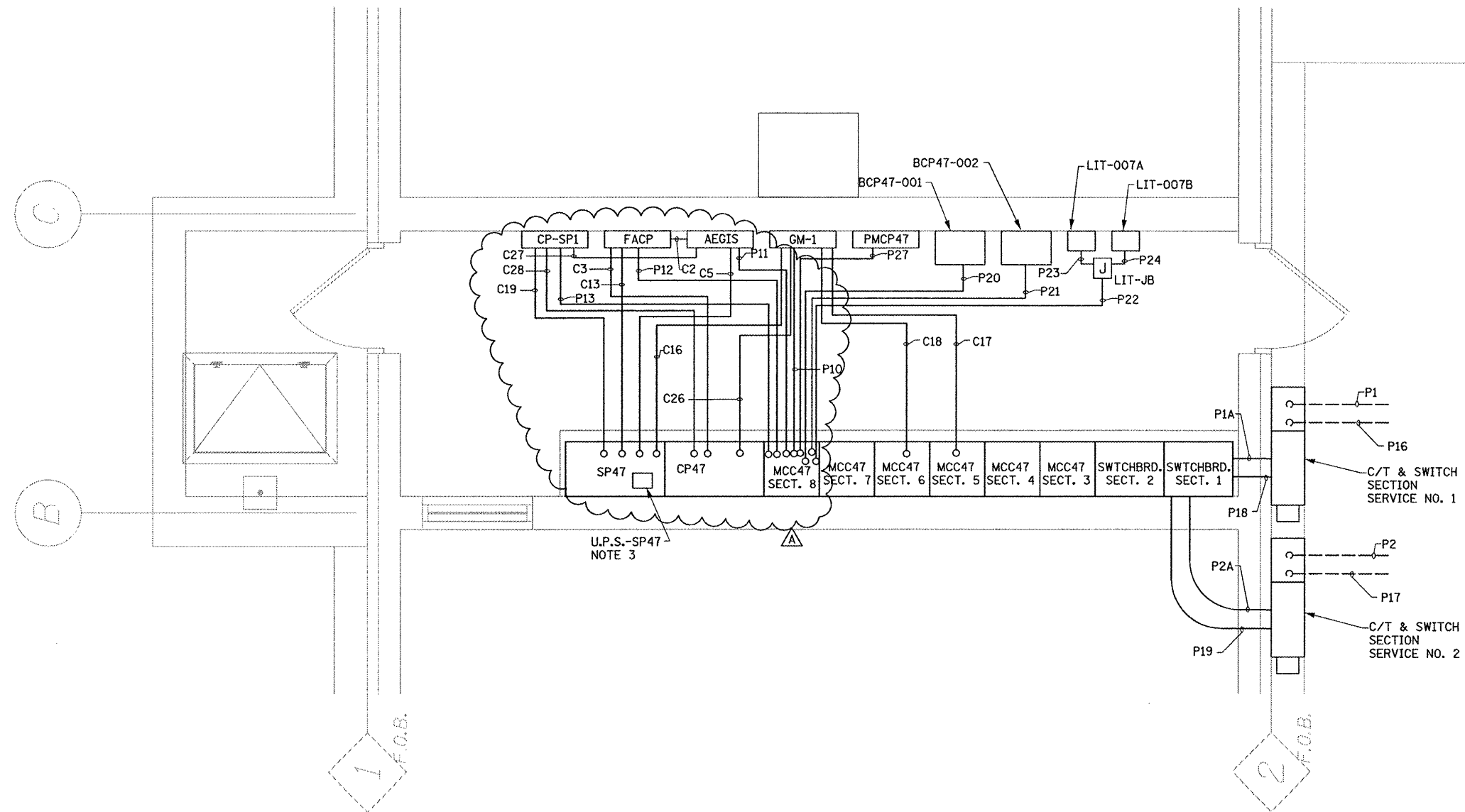
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	DRAWN - MLB	REVISED -
PLOT SCALE = *SCALE*	CHECKED - MCP	REVISED -
PLOT DATE = *DATE*	DATE 03-22-2012	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PUMP STATION 47 ELECTRICAL SCHEDULES

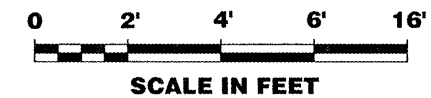
SCALE: SHEET NO. OF SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
338/IL 59	2011-035-I	DUPAGE	181	177
CONTRACT NO. 60P41				
ILLINOIS FED. AID PROJECT				



NOTES:

1. FOR CONDUIT AND CABLE RUNS FROM ELECTRICAL EQUIPMENT TO ALL OTHER EQUIPMENT/DEVICES, SEE PLAN AND SECTION ELEVATION SHEETS.
2. FOR C/T & SWITCH SECTION DETAILS, SEE SHEET E14.
3. INSTALL 3 KVA U.P.S. INSIDE SCADA PANEL SP-47. INSTALL 1 (ONE) 1 POLE 30A BREAKER IN PANEL LP-47 FOR U.P.S. CIRCUIT.
4. CP47 AND SCADA PANELS SHALL BE FED FROM UPS-CP47.



E13

KNIGHT Engineers & Architects	USER NAME = *USER*	DESIGNED - MCP	REVISED ADDENDUM A 5-23-12	STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION	PUMP STATION NO. 47 ELECTRICAL ROOM ELECTRICAL EQUIPMENT LAYOUT				F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
		DRAWN - MLB	REVISED -		338/IL 59	2011-035-I	DUPAGE	181	180				
	PLOT SCALE = *SCALE*	CHECKED - MCP	REVISED -		CONTRACT NO. 60P41								
	PLOT DATE = *DATE*	DATE 03-22-2012	REVISED -		ILLINOIS FED. AID PROJECT								
	SCALE: 1/2" = 1'-0"				SHEET NO.	OF	SHEETS	STA.	TO STA.				