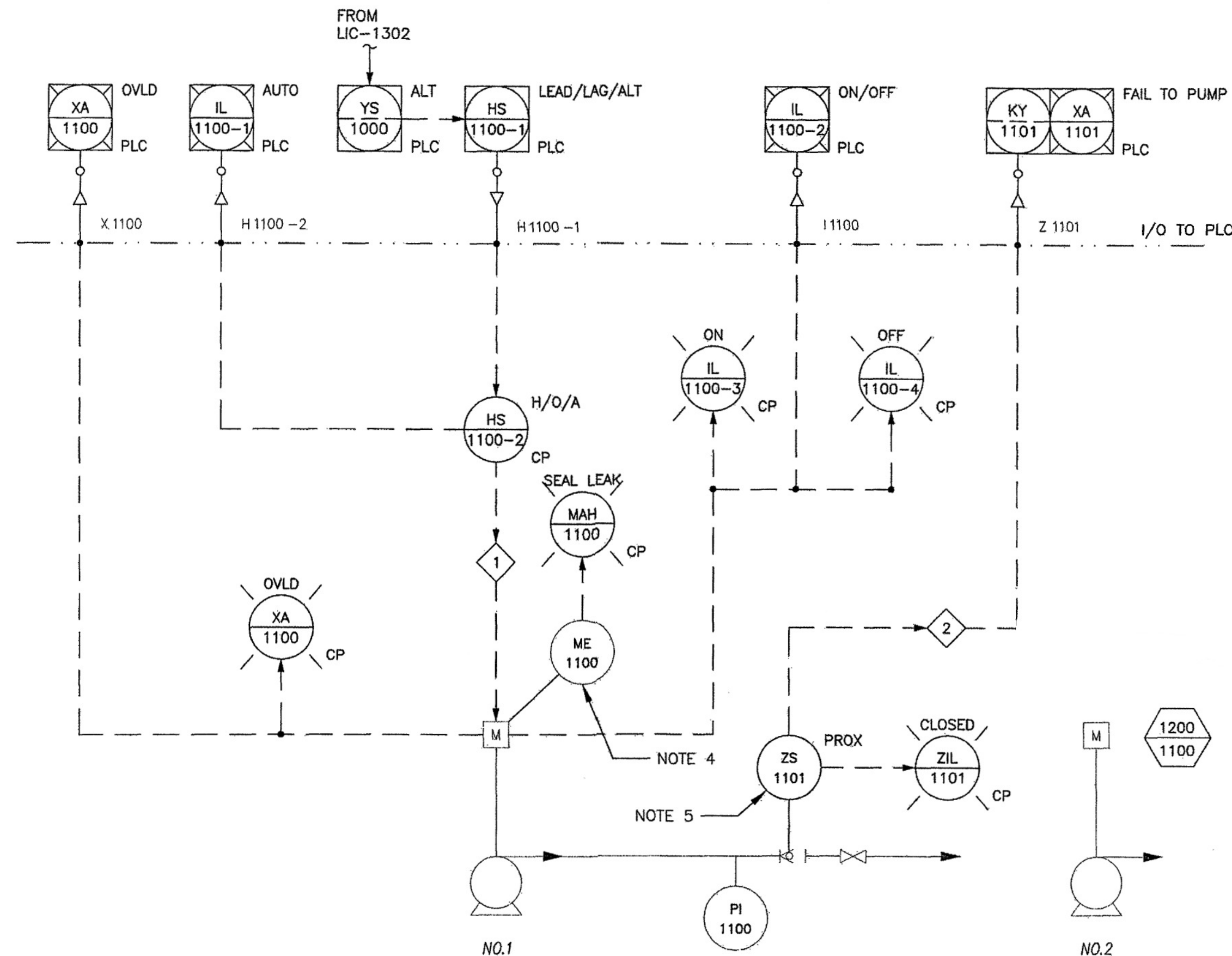
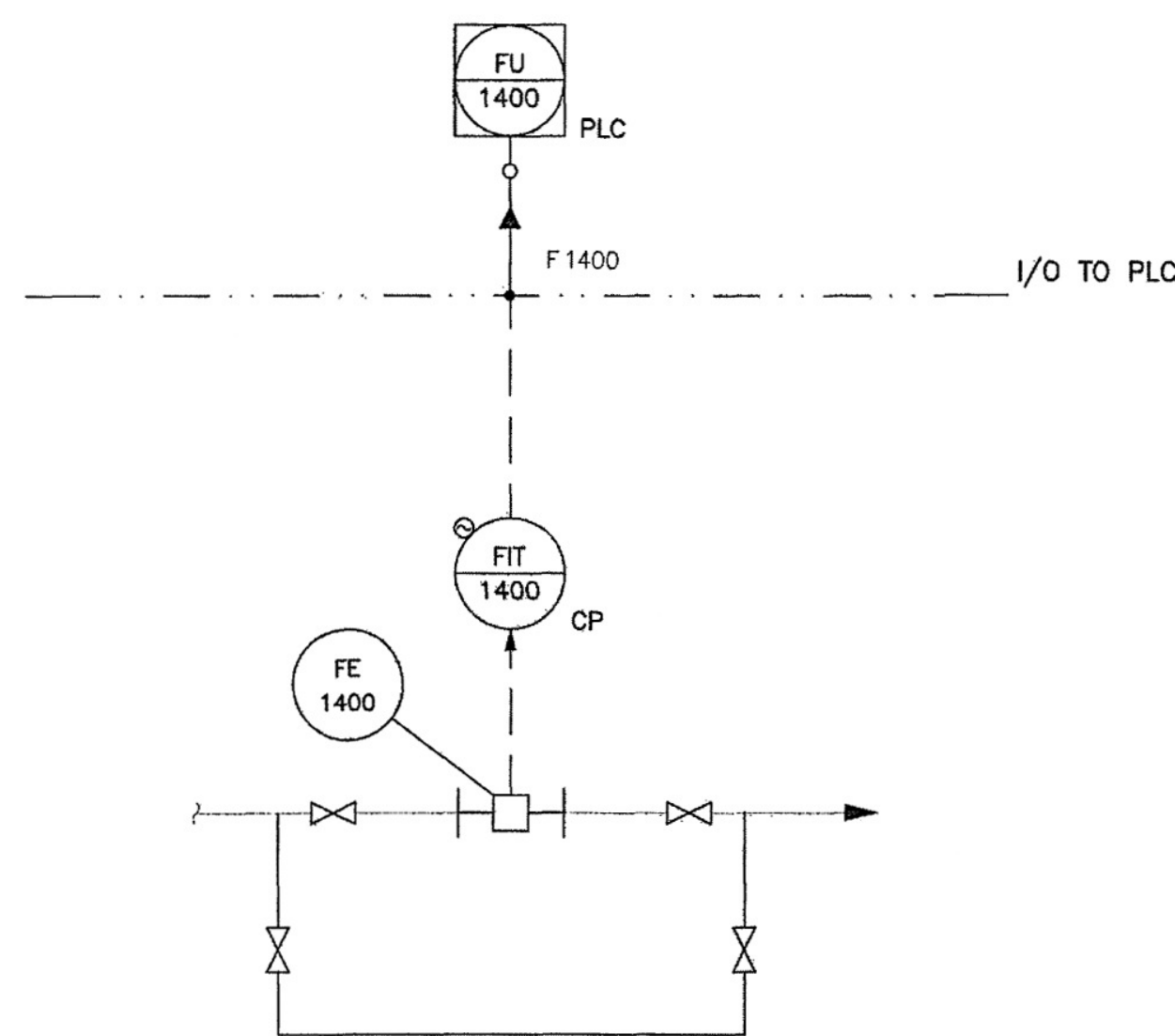


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LAST UPDATE: Tuesday, September 16, 2014 4:16:12 PM  
ARCH D - 16-Sep-14

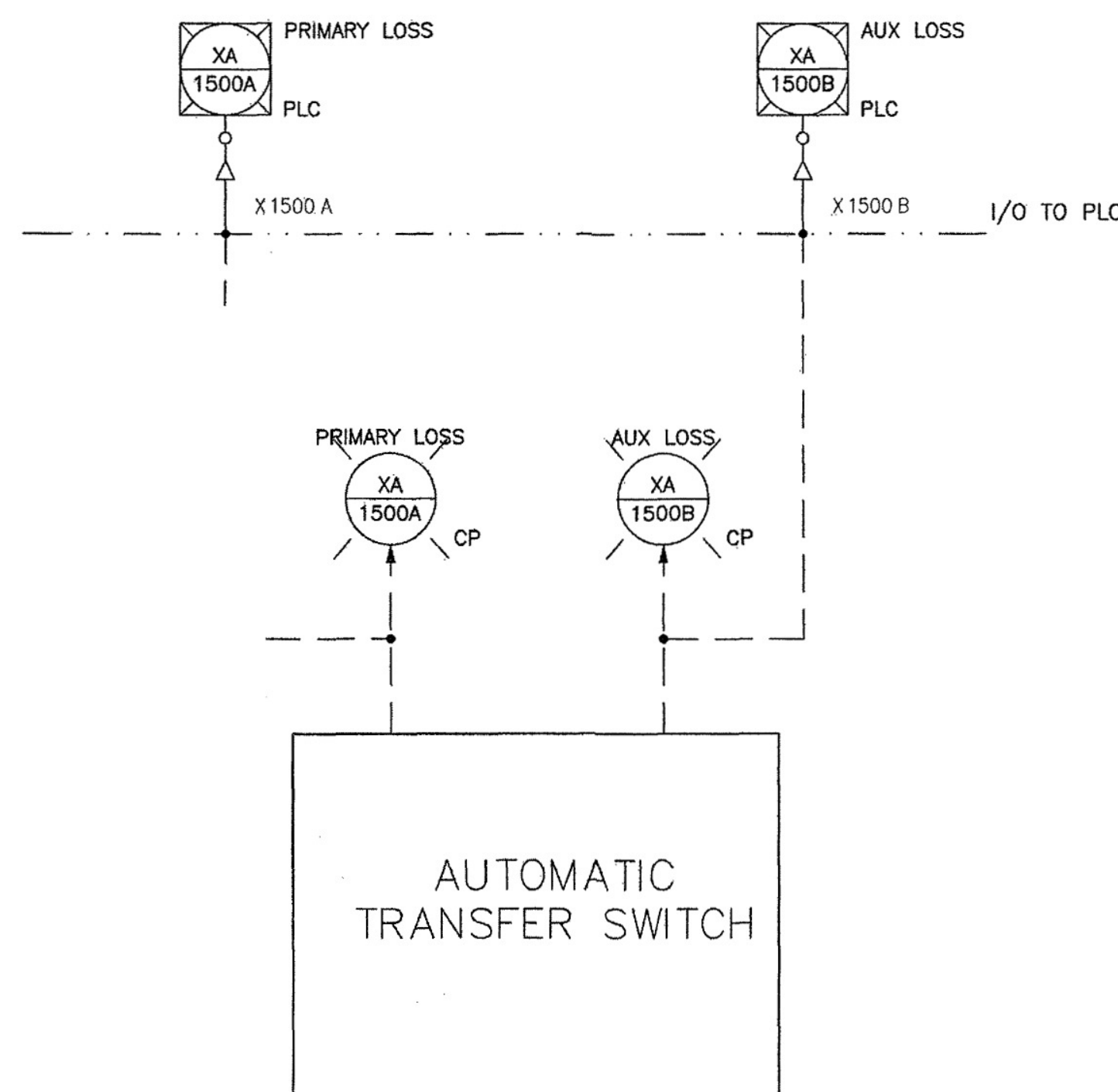
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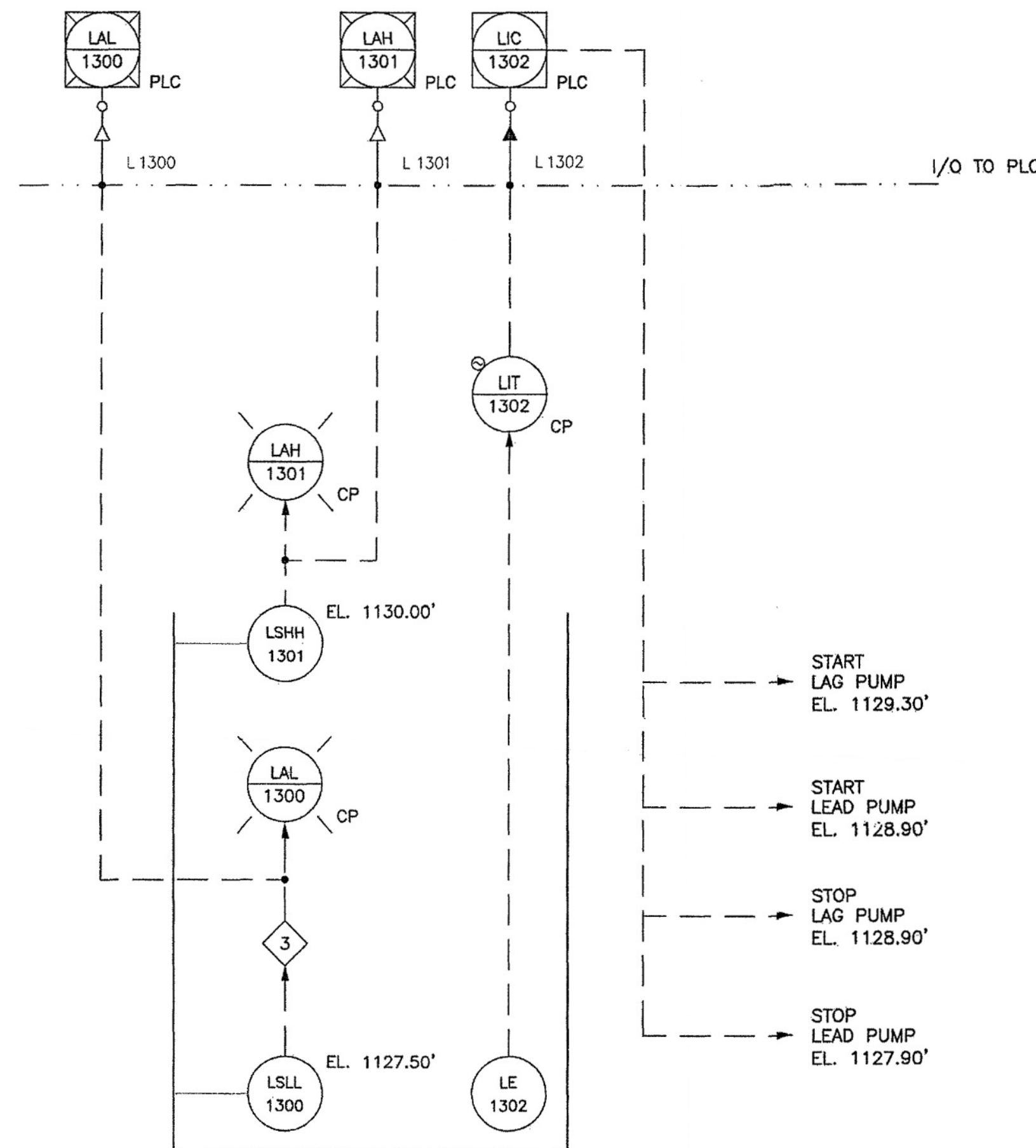
CONSTANT SPEED PUMP CONTROL



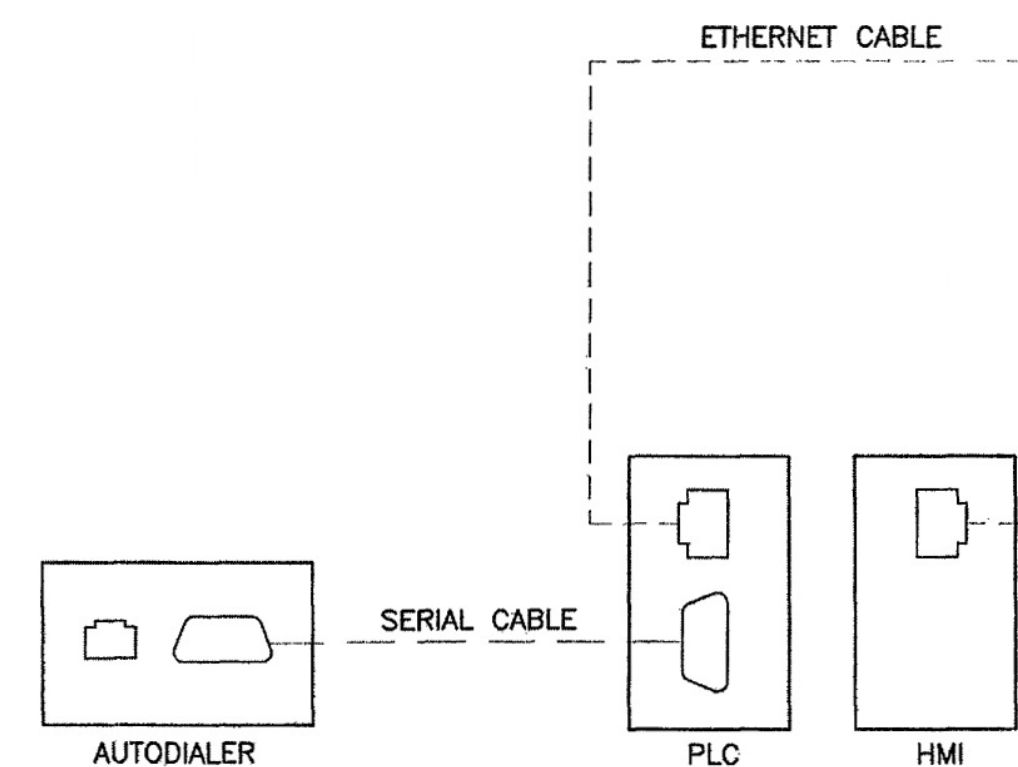
MAGNETIC FLOW METER



ELECTRICAL POWER MONITORING



WETWELL AND PUMP CONTROL



NETWORK DIAGRAM

I/O NUMBER	DESCRIPTION	TYPE	SOURCE/DESTINATION	COMMENTS
X 1100	PUMP #1 OVERLOAD	DI	OVERLOAD CONTACT	ALARM SIGNAL TO AUTODIALER
I 1100	PUMP #1 RUN STATUS	DI	MOTOR STARTER AUXILIARY	
Z 1101	PUMP #1 CHECK VALVE CLOSED	DI	PROXIMITY SWITCH	ALARM SIGNAL TO AUTODIALER
X 1200	PUMP #2 OVERLOAD	DI	OVERLOAD CONTACT	ALARM SIGNAL TO AUTODIALER
I 1200	PUMP #2 RUN STATUS	DI	MOTOR STARTER AUXILIARY	
Z 1201	PUMP #2 CHECK VALVE CLOSED	DI	PROXIMITY SWITCH	ALARM SIGNAL TO AUTODIALER
L 1300	WETWELL LOW LEVEL ALARM	DI	LOW LEVEL FLOAT SWITCH	ALARM SIGNAL TO AUTODIALER
L 1301	WETWELL HIGH LEVEL ALARM	DI	HIGH LEVEL FLOAT SWITCH	ALARM SIGNAL TO AUTODIALER
L 1302	WETWELL LEVEL	AI	LEVEL TRANSMITTER	
F 1400	PUMP STATION FLOW	AI	FLOW METER TRANSMITTER	
H 1100-1	PUMP #1 RUN COMMAND	DO	MOTOR STARTER	
H 1100-2	PUMP #1 IN AUTO	DI	H-O-A SELECTOR SWITCH	
H 1200-1	PUMP #1 RUN COMMAND	DO	MOTOR STARTER	
H 1200-2	PUMP #2 IN AUTO	DI	H-O-A SELECTOR SWITCH	
X 1500A	PRIMARY POWER LOSS	DI	AUTOMATIC TRANSFER SWITCH	ALARM SIGNAL TO AUTODIALER
X 1500B	AUXILIARY POWER LOSS	DI	AUTOMATIC TRANSFER SWITCH	ALARM SIGNAL TO AUTODIALER

PLC INPUT/OUTPUT LIST

NOTES THIS SHEET:

- FOR LEGEND, ABBREVIATIONS AND GENERAL NOTES, SEE SHEET 1001.
- SEE SHEET CS101 AND CS501 FOR INSTRUMENT LOCATIONS.
- FIELD INSTRUMENTS FE-1400, LE-1300, LE-1301, AND LE-1302 TO BE LOCATED AT POINT OF MEASUREMENT. ALL OTHER INSTRUMENTS TO BE LOCATED INSIDE CONTROL PANEL (CP).
- FIELD INSTRUMENTS ME-1100/1200 ARE EXISTING SEAL LEAK SENSORS. CONNECT SENSORS TO NEW CONTROL PANEL.
- INSTALL PROXIMITY SENSORS (ZS-1101/1201) ON EXISTING FLOMATIC BALL CHECK VALVES. PROXIMITY SENSORS SHALL BE PURCHASED FROM FLOMATIC AND INSTALLED IN ACCORDANCE TO FLOMATIC'S WRITTEN INSTRUCTIONS.
- SEE SHEET G003 FOR FIELD INSTRUMENT SPECIFICATIONS.
- PROVIDE AUTODIALER FOR REMOTE TRANSMISSION OF ALARMS. AUTODIALER SHALL BE CAPABLE OF INTERFACING WITH PLC THROUGH SERIAL COMMUNICATION PORT. COORDINATE AUTODIALER WITH PLC FOR PROPER COMMUNICATION INTERFACE. COORDINATE WITH OWNER FOR TELEMETRY REQUIREMENTS.
- EACH ALARM CONDITION INDICATED SHALL ILLUMINATE A LOCAL PILOT INDICATOR LIGHT. PILOT LIGHTS SHALL BE PUSH-TO-TEST TYPE. A NEMA 4X FLASHING RED BEACON LIGHT AND NEMA 4X HORN SHALL ALSO BE PROVIDED ON THE EXTERIOR OF THE CONTROL PANEL AND SHALL BE ACTIVATED UPON THE RECEIPT OF ANY ALARM CONDITION. PROVIDE TEST AND SILENCE BUTTONS FOR BEACON LIGHT AND ALARM HORN. BEACON LIGHT AND HORN SHALL BE MOUNTED ON THE SIDE OF THE CONTROL PANEL ENCLOSURE. PROVIDE GOOSENECK ASSEMBLY FOR BEACON LIGHT.
- CONTROL ENCLOSURE SHALL BE STAINLESS STEEL, NEMA 4X, WITH LOCKABLE DEAD FRONT PANELS. HMI, INDICATORS, SWITCHES, PUSHBUTTONS, AND PILOT LIGHTS SHALL BE MOUNTED ON SUB-PANEL, INACCESSIBLE WHEN DEAD FRONT PANELS ARE CLOSED.

INTERLOCK NOTES:

- ALTERNATE LEAD/LAG DESIGNATION AT END OF PUMPING CYCLE WHEN HS-1100-1 IS IN THE "ALT" POSITION.
- PROVIDE 10 SEC (ADJUSTABLE) TIME DELAY TO SOUND AN ALARM IF CHECK VALVE FAILS TO OPEN AFTER A PUMP HAS BEEN CALLED TO RUN.
- SOUND AN ALARM AND STOP ALL RUNNING PUMPS.

RENOVATION OF CLEARBROOK LIFT STATION

PROCESS & INSTRUMENTATION DIAGRAMS

PROJECT NO: 60153682.0001  
CAD DWG FILE: N\_1002  
DESIGNED BY: IPC  
DRAWN BY: IPC  
DEPT CHECK: WCH  
PROJ CHECK: DMH  
DATE: SEPT. 17, 2014  
SCALE: NONE

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PROFESSIONAL ENGINEER  
IAN P. CAMPER  
Lic. No. 47387  
9/17/2014