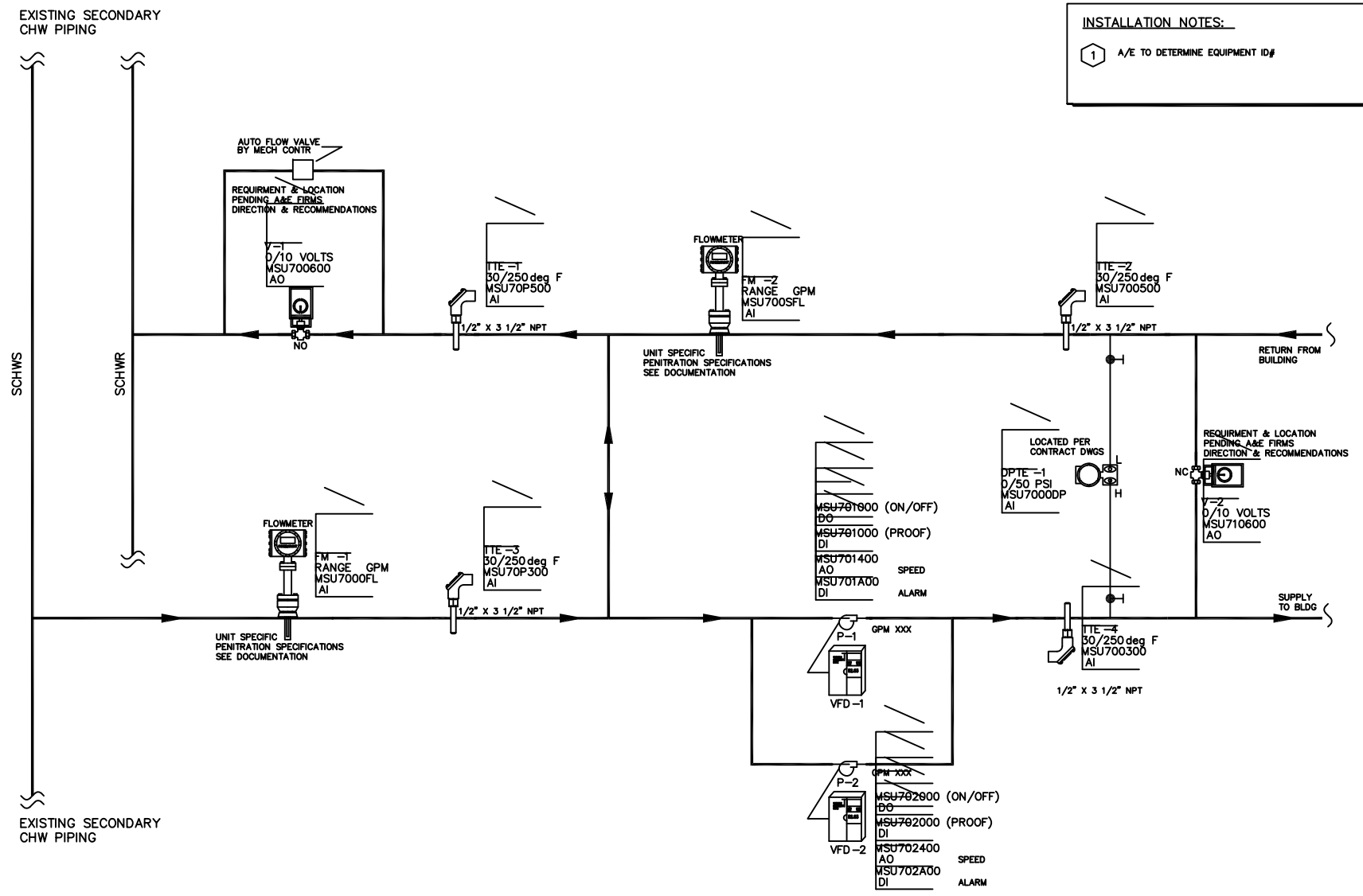


INSTALLATION NOTES:
1 A/E TO DETERMINE EQUIPMENT ID#



TERTIARY CHILLED WATER PUMPS CONTROL DIAGRAM

SEQUENCE OF OPERATION

TERTIARY PUMP & MINIMUM FLOW BYPASS VALVE CONTROL

NOTE: ALL SETPOINTS AND TIME INTERVAL SETPOINTS DESCRIBED IN SEQUENCE SHALL BE ADJUSTABLE BY SYSTEM OPERATOR. (GREAT REQUIRED VIRTUAL POINTS)

1. CHW SYSTEM TERTIARY CHILLED WATER PUMPS P-01 & P-02 SHALL HAVE START/STOP CAPABILITY FROM THE DDC SYSTEM. ONE OF THE TWO PUMPS SHALL BE ACTIVATED BY THE DDC WHEN SYSTEM IS ENABLED WHEN THE CAMPUS CHILLED WATER SYSTEM IS SET TO "OK TO RUN". THE OTHER WILL SERVE AS STANDBY.

2. DDC SHALL ALTERNATE PUMP OPERATION BASED ON MONTH, EVEN MONTHS THE EVEN NUMBERED PUMP SHALL RUN AND ON ODD MONTHS THE ODD NUMBERED PUMP SHALL RUN.
3. DDC SHALL MONITOR OPERATING STAUUS OF EACH PUMP THRU HARWIRE CONNECTIONS. UPON PUMP FAILURE, DDC SHALL ACTIVATE FAILURE ALARM AND AUTOMATICALLY START THE STANDBY PUMP.
4. VFD COMMON FAILURE ALARM FOR EACH CIRC PUMP SHALL BE MONITORED BY DDC THRU LAN COMMUNICATION CAPABILITIES.

5. TERTIARY PUMPS TO MAINTAIN DIFFERENTIAL PRESSURE AS MEASURED AT DPT. DDC SHALL MONITOR TERTIARY SYSTEM LOOP DIFFERENTIAL PRESSURE AT SPECIFIED LOCATION WITHIN THE BUILDING. SET-POINT SHALL INITIALLY BE SET TO 30FT HEAD (ACTUAL SET-POINT SHALL BE DETERMINED DURING SYSTEM COMMISSIONING AND/OR BY THE WATER BALANCE CONTRACTOR).
6. DDC SHALL MONITOR TERTIARY LOOP FLOW THRU FLOW METER FM-2 AND MODULATE THE MINIMUM FLOW BYPASS VALVE V-2 OPEN AS REQUIRED TO MAINTAIN A LOW LIMIT SETPOINT (TO BE DETERMINED BY THE A/E). VALVE SHALL REMAIN CLOSED WHEN FLOW IS ABOVE LOW LIMIT SETPOINT.

DECOUPLER VALVE

7. DECOUPLER VALVE SIZING CRITERIA DETERMINED PER ENGINEERING FIRM.

BUILDING CHW BRIDGE CONTROL

8. DDC SHALL MODULATE THE BRIDGE CONTROL VALVE V-1 TO MAINTAIN THE FLOW SETPOINT ON FLOW METER (FM-1). THE FLOW SET POINT FOR (FM-1) IS RESET TO MATCH THE FLOW RATE OF FLOW METER (FM-2). MINIMUM AND MAXIMUM FLOW RANGES TO BE DETERMINED BY THE A/E
9. DDC SHALL TOTALIZE SECONDARY CHW BTU CONSUMPTION FOR THE BUILDING BASED ON FLOW METER FM-1 AND SCHWS & R TEMPERATURES TTE-1 & TTE-3 RESPECTIVELY.

10. WHEN BOTH TERTIARY PUMPS ARE DEACTIVATED, DDC SHALL CLOSE THE BRIDGE VALVE.

ALARMING

- NORMAL**
- PUMP FAILURE
 - CHILLED WATER SUPPLY TEMPERATURE
 - DIFFERENTIAL PRESSURE (+/- 25% OF SETPOINT)
- 'ENHANCED' 24/7**

CS_STD_MEC_230923_TERTIARY_CHW_PUMPS.DWG

DATE
9/10/10

DRAWN

REVISION
7/11/16
RLANDRUM

DETAIL NO.
XXXXXX-XX

SHEET
OF ONE

