

**UNIVERSITY OF SOUTHERN MAINE
 CENTRAL HEAT PLANT UPGRADES**

PORTLAND ME

Hardware Project No.	14411
Key Part	Key Name

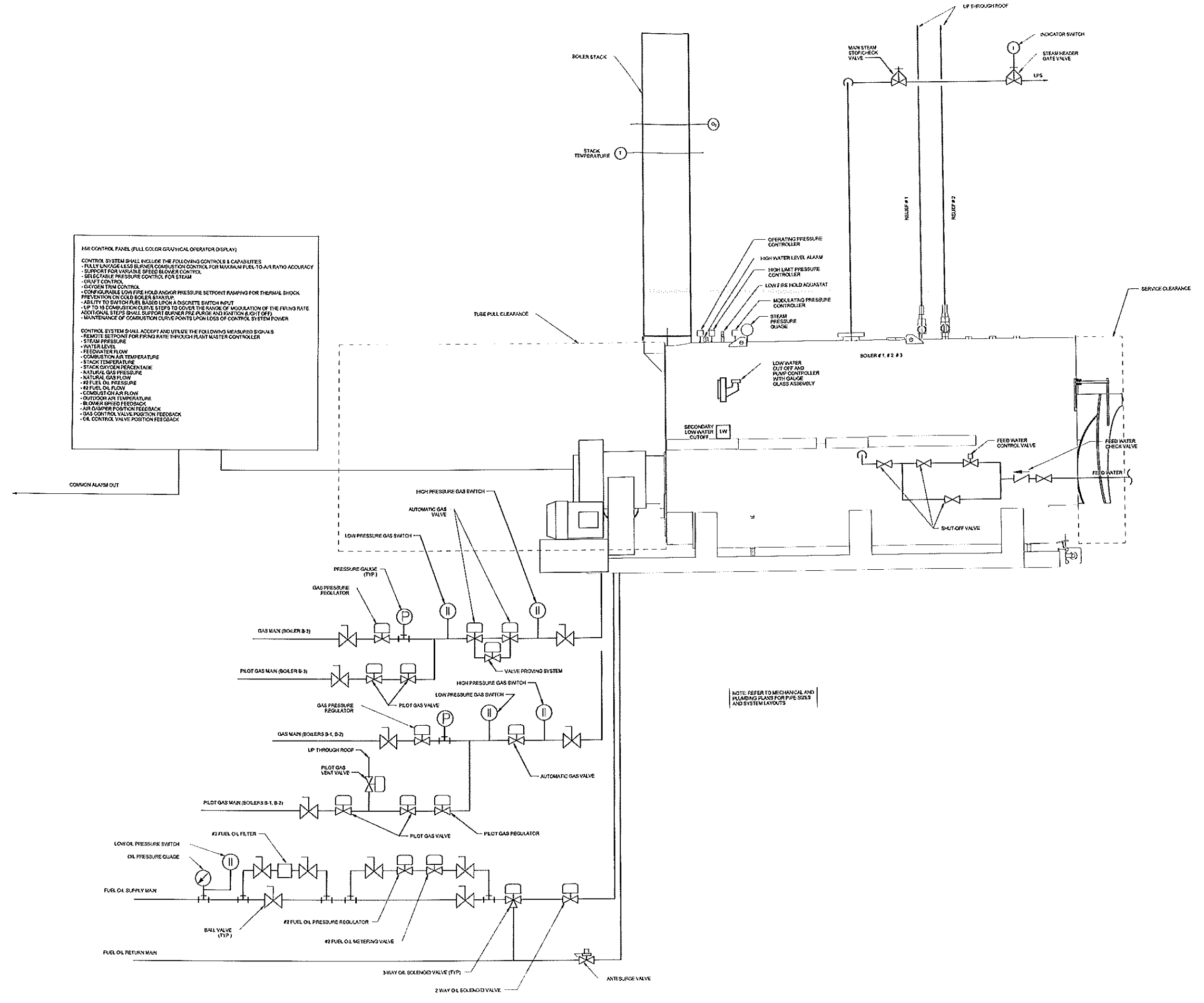
HMI CONTROL PANEL (FULL COLOR GRAPHICAL OPERATOR DISPLAY)

CONTROL SYSTEM SHALL INCLUDE THE FOLLOWING CONTROLS & CAPABILITIES

- FULLY FAULTLESS BURNER COMBUSTION CONTROL FOR MAXIMUM FUEL-TO-AIR RATIO ACCURACY
- SUPPORT FOR VARIABLE SPEED BLOWER CONTROL
- SELECTABLE PRESSURE CONTROL FOR STEAM
- DELT CONTROL
- OXYGEN TRIM CONTROL
- CONFIGURABLE LOW FIRE HOLD AND/OR PRESSURE SETPOINT RAMPING FOR THERMAL SHOCK PREVENTION ON COLD BOILER STARTUP
- ABILITY TO SWITCH FUEL BASED UPON A DISCRETE SWITCH INPUT
- UP TO 16 COMBUSTION CURVE STEPS TO COVER THE RANGE OF MODULATION OF THE FIRING RATE
- ADDITIONAL STEPS SHALL SUPPORT BURNER PRE-FIRING AND IGNITION (LIGHT OFF)
- MAINTENANCE OF COMBUSTION CURVE POINTS UPON LOSS OF CONTROL SYSTEM POWER

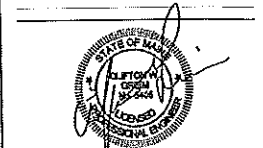
CONTROL SYSTEM SHALL ACCEPT AND UTILIZE THE FOLLOWING MEASURED SIGNALS

- REMOTE SETPOINT FOR FIRING RATE THROUGH PLANT MASTER CONTROLLER
- STEAM PRESSURE
- WATER LEVEL
- FEEDWATER FLOW
- COMBUSTION AIR TEMPERATURE
- STACK TEMPERATURE
- STACK OXYGEN PERCENTAGE
- NATURAL GAS PRESSURE
- NATURAL GAS FLOW
- #2 FUEL OIL PRESSURE
- #2 FUEL OIL FLOW
- COMBUSTION AIR FLOW
- OUTDOOR AIR TEMPERATURE
- BLOWER SPEED FEEDBACK
- AIR FLOW POSITION FEEDBACK
- GAS CONTROL VALVE POSITION FEEDBACK
- OIL CONTROL VALVE POSITION FEEDBACK



Issue and Revisions

Issue	Date	Description
08-25-14	08-25-14	REVISED SCHEMATIC DESIGN
09-05-14	09-05-14	DESIGN DEVELOPMENT
09-19-14	09-19-14	PROGRESS REVIEW
09-26-14	09-26-14	PROGRESS REVIEW
10-03-14	10-03-14	PROGRESS REVIEW
10-15-14	10-15-14	FINAL REVIEW
10-29-14	10-29-14	100% REVIEW
10-30-14	10-30-14	ISSUED FOR BID



Drawing Scale	NO SCALE
PA: PE	CG
Drawn By	JSL
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**TYPICAL BOILER
 SCHEMATIC DETAIL**

M30.1