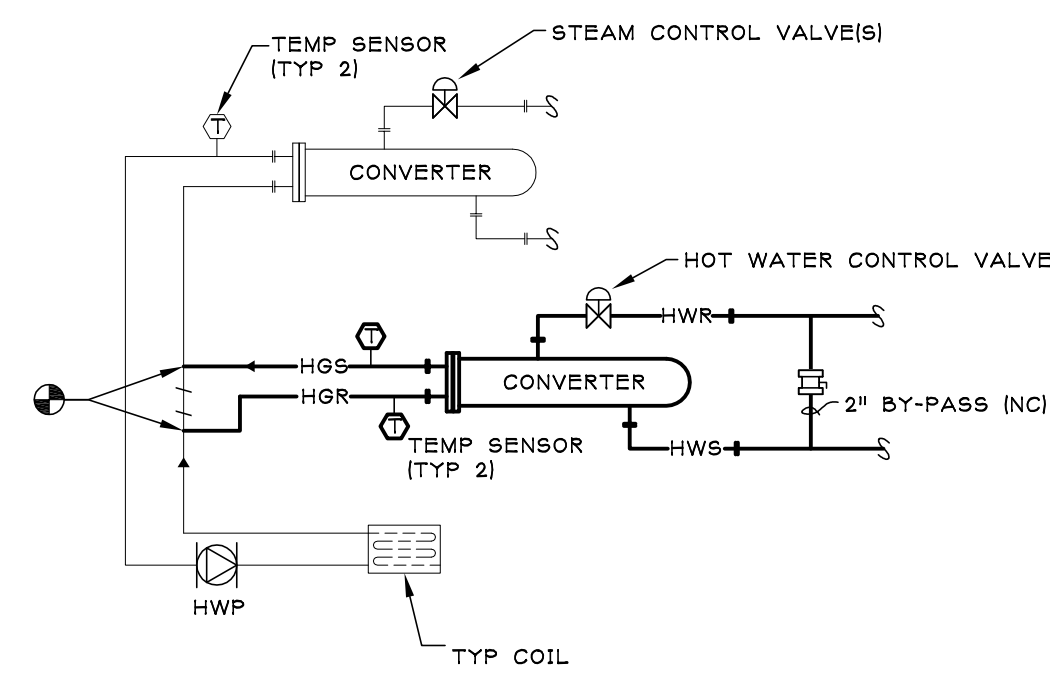


**PROVIDE DDC CONTROLS AND SEQUENCE OF OPERATION:**

**HOT WATER STATIONS (HWH-301 AND -401):**

- WHEN HOT WATER OPERATION IS ENABLED, MODULATE HOT WATER CONTROL VALVE AS PRIMARY HEAT SOURCE TO MAINTAIN SYSTEM HWH TEMPERATURE SET POINT.
- MODULATE STEAM CONTROL VALVE AS SECONDARY HEAT SOURCE TO MAINTAIN SYSTEM HWH TEMPERATURE SET POINT IF HOT WATER VALVE FAILS TO MAINTAIN SET POINT.
- MONITOR HWS & HWR TEMPERATURES
- DURING HW MODE OPERATION ALL OTHER EXISTING SEQUENCES ASSOCIATED WITH THIS EQUIPMENT REMAIN IN EFFECT.
- ON A RETURN TO STEAM MODE CLOSE HOT WATER CONTROL VALVE AND MODULATE STEAM VALVE TO MAINTAIN HWH SET POINT.

## 1 HOT WATER STATION CONTROL SCHEMATIC

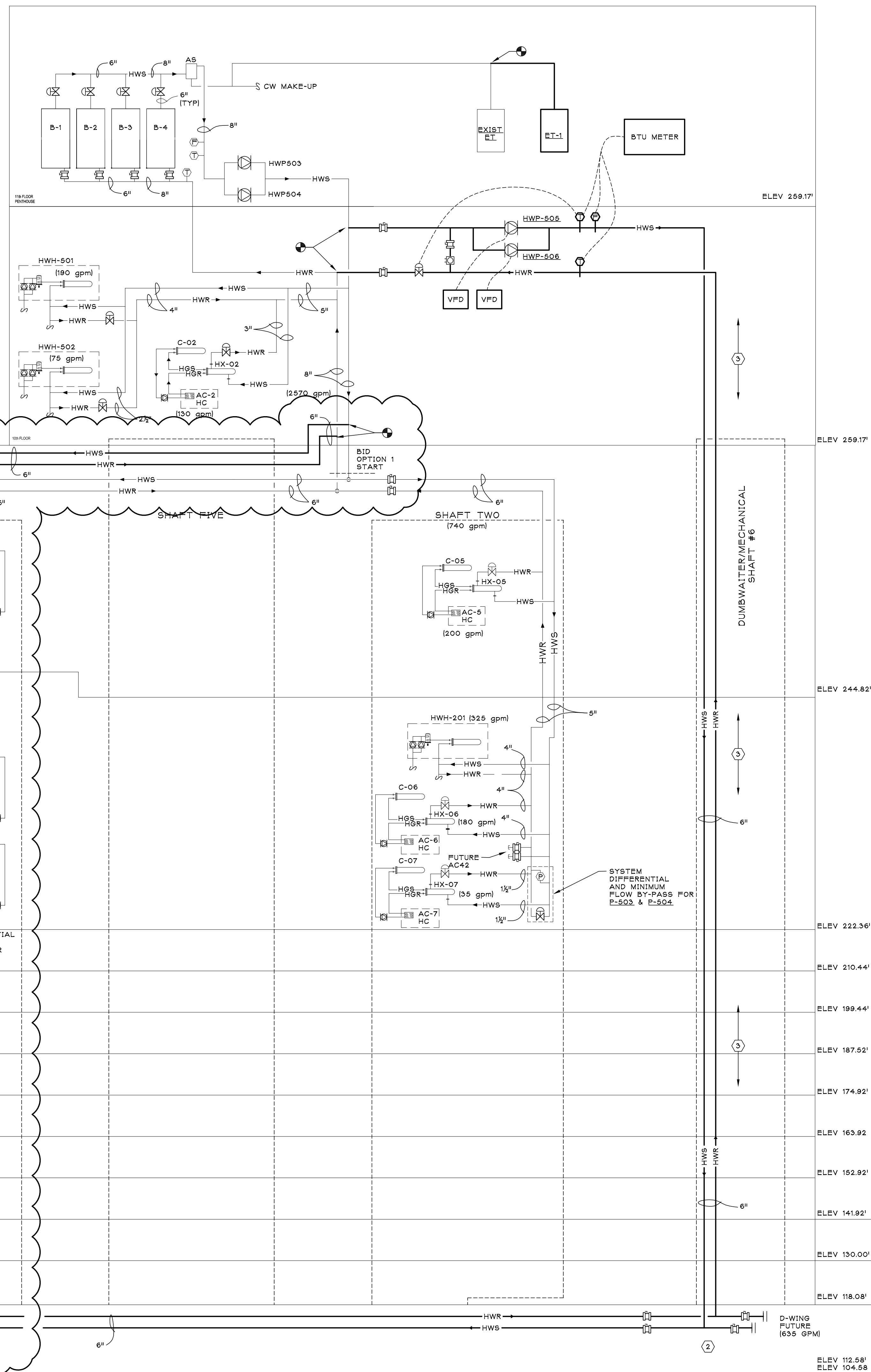


**PROVIDE DDC CONTROLS AND SEQUENCE OF OPERATION:**

**HEATING COILS (AC-8, 9, 10, 11 AND 12):**

- WHEN HOT WATER OPERATION IS ENABLED, MODULATE HOT WATER CONTROL VALVE AS PRIMARY HEAT SOURCE TO MAINTAIN HEATING COIL LAT SET POINT.
- MODULATE STEAM CONTROL VALVE AS SECONDARY HEAT SOURCE TO MAINTAIN SYSTEM HEATING COIL LAT SET POINT IF HOT WATER VALVE FAILS TO MAINTAIN SET POINT.
- MONITOR HGS & HGR TEMPERATURES
- DURING HW MODE OPERATION ALL OTHER EXISTING SEQUENCES ASSOCIATED WITH THIS EQUIPMENT REMAIN IN EFFECT.
- ON A RETURN TO STEAM MODE CLOSE HOT WATER CONTROL VALVE AND MODULATE STEAM VALVE TO MAINTAIN HEATING COIL LAT SET POINT.

## 2 HOT WATER HEATING COIL CONTROL SCHEMATIC



**PROVIDE DDC CONTROLS AND SEQUENCE OF OPERATION:**

**HOT WATER PUMPS (HWP-503 & HWP-506):**

- WHEN HOT WATER BOILERS ARE ENABLED AND THERE IS A CALL FOR HOT WATER BY HWH OR AC ON THE SYSTEM, ENABLE THE PUMPS. SELECT EITHER HOT WATER OR STEAM AS THE PRIMARY SOURCE FOR NEW AND EXISTING HEATING COILS AND HOT WATER STATIONS CONNECTED TO THE SYSTEM.
- WHEN HOT WATER PUMPS HWP-503 AND HWP-506 ARE ENABLED, STAGE PUMPS TO RUN CONTINUOUSLY IN PARALLEL UNLESS SYSTEM IS AT MINIMUM FLOW CONDITION. THEN OPERATE SINGLE PUMP. MAINTAIN SYSTEM DIFFERENTIAL PRESSURE (SEE 2 PD STATIONS BELOW) BY VARYING NUMBER AND SPEED OF PUMPS USING ASSOCIATED VFD'S AND SYSTEM BYPASS.
- MONITOR PUMP STATUS AND ALARM IF PUMP FAILS.

**PROVIDE DDC CONTROLS AND SEQUENCE OF OPERATION:**

**BTU MONITORING:**

- PROVIDED BTU MONITOR INCLUDING FLOW METER, LOCAL DISPLAY AND TEMPERATURE SENSORS.
- CALCULATE BTU OUTPUT OF HOT WATER SYSTEM USING HWS&R TEMPERATURES AND SYSTEM FLOW RATE. DISPLAY DATA IN REALTIME AND RECORD LOGS

**KEYED NOTES:**

- OFFSET PIPING TO ACCOMMODATE AVAILABLE PIPE ROUTING WITHIN SHAFT AS REQUIRED.
- PROVIDE PIPE SUPPORTS AT BASE OF RISER AND ALL OFFSETS.
- PROVIDE LATERAL BRACING AT LEAST AT 15'-0" SPACING IN VERTICAL.

Revisions		
RF1 #001 ADDENDUM	03-05-13	Date



**IPD: Engineering**  
INTEGRATED PROJECT DELIVERY

ONE WEBSTER'S LANDING  
SYRACUSE, NEW YORK 13202  
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IPD PROJECT # 11-7061-8

Drawing Title  
**BOILER PIPING SCHEMATIC AND CONTROLS**

Project Title  
**ADD HEATING HOT WATER TO SHAFTS #3 & #4**

Date  
11-16-12

Project No.  
528A7-11-711

Building Number  
1

Checked  
SBG

Drawn  
NCB

Location  
SYRACUSE

DRAWING NO.  
**MP-401**

Dwg. 6 of 9



Department of Veterans Affairs