

# DESIGN & INSTALL NEW DOMESTIC WATER PLANT VETERANS HOME BUILDING ST. JAMES, MISSOURI

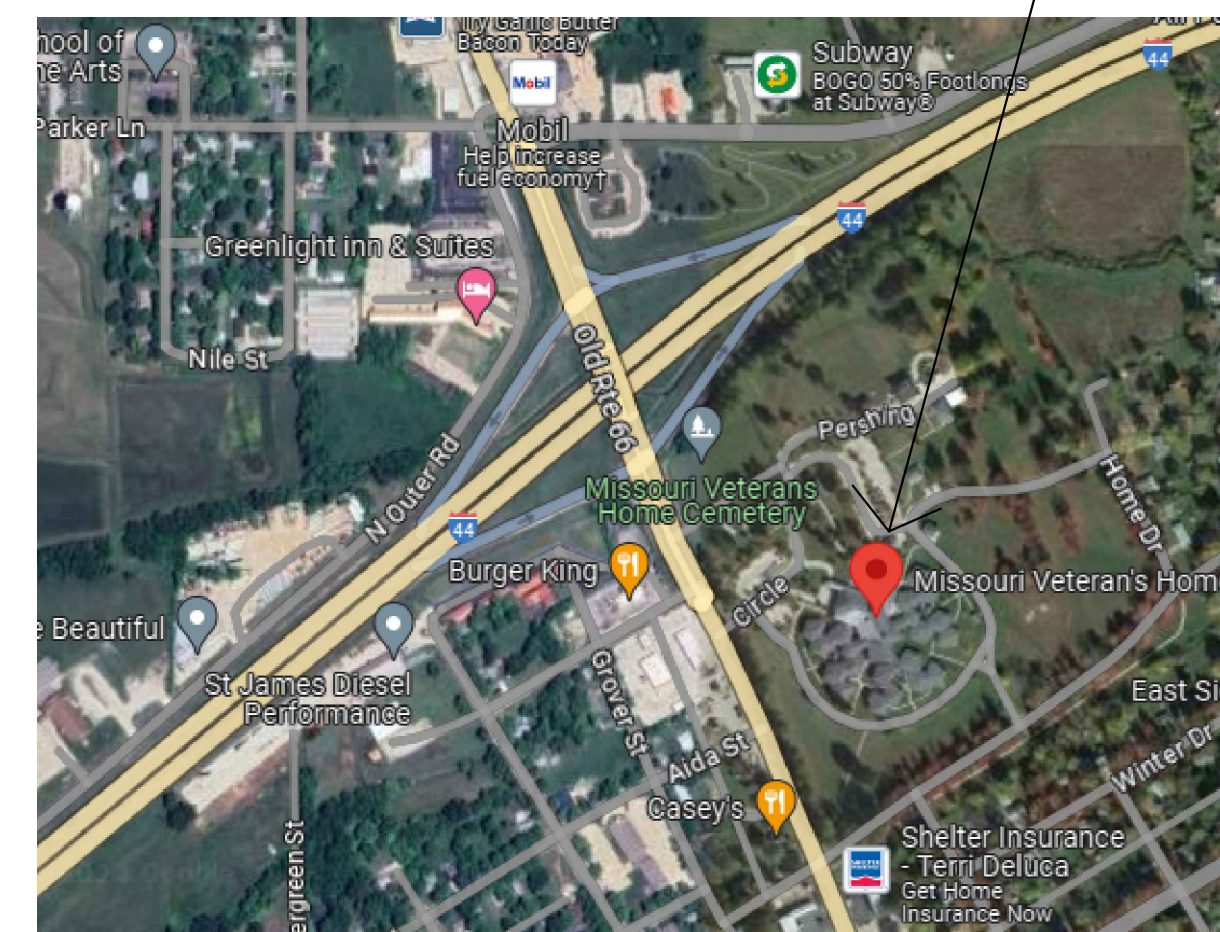
## CASCO

12 SUNNEN DR. SUITE 100  
ST. LOUIS, MO 63143  
ARCHITECTS / ENGINEERS  
314-821-1100

CASCO DIVERSIFIED CORPORATION  
MISSOURI STATE CERTIFICATE OF AUTHORITY #000613 (ENG)  
MISSOURI STATE CERTIFICATE OF AUTHORITY #000329 (ARCH)

OWNER: STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR  
DEPARTMENT OF PUBLIC SAFETY

PROJECT MANAGEMENT: OFFICE OF ADMINISTRATION  
DIVISION OF FACILITIES MANAGEMENT,  
DESIGN AND CONSTRUCTION



VICINITY MAP

ADDRESS:  
620 NORTH JEFFERSON  
ST JAMES, MO 65559



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DESIGNER: CASCO DIVERSIFIED CORP.

PROJECT NUMBER: U2409-01

SITE NUMBER: 6801  
FACILITY NUMBER: 8136801002

G-001

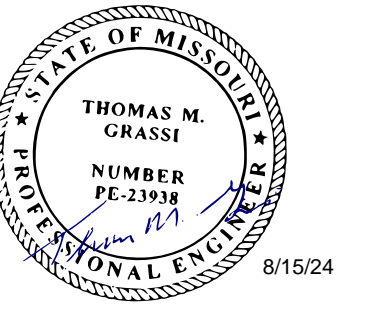
1 OF 18 SHEETS  
08/15/2024



**KEYED NOTES**

1. REMOVE PORTION OF HOT WATER RETURN PIPING FOR LAUNDRY.
2. REMOVE ALL ASSOCIATED PIPING, VALVES, PUMPS, ETC. FOR EXISTING BOILERS DURING PHASE 1.
3. REMOVE PORTION OF HOT WATER RETURN PIPING FOR MAIN BUILDING. PREPARE PIPING FOR NEW CONNECTION.
4. REMOVE PORTION OF HOT WATER PIPING. PREPARE PIPING FOR NEW CONNECTION IN PHASE 1.
5. VALVE NORMALLY CLOSED UNTIL PHASE 2.
6. ROUTE 1" HOT WATER RETURN (160°F) PIPING TO DWRP-2. ROUTE PIPING DOWNSTREAM OF DWRP-2 TO TMV-1 & 3" SOFT COLD WATER PIPING ROUTING TO THE DOMESTIC WATER STORAGE TANKS.
7. PROVIDE VALVE AND CAP FOR CONNECTION IN PHASE 2.
8. BACKFLOW PREVENTER FOR BOILER MAKE-UP WATER.
9. REMOVE PORTION OF COLD WATER PIPING. PREPARE PIPING FOR NEW CONNECTION.

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR

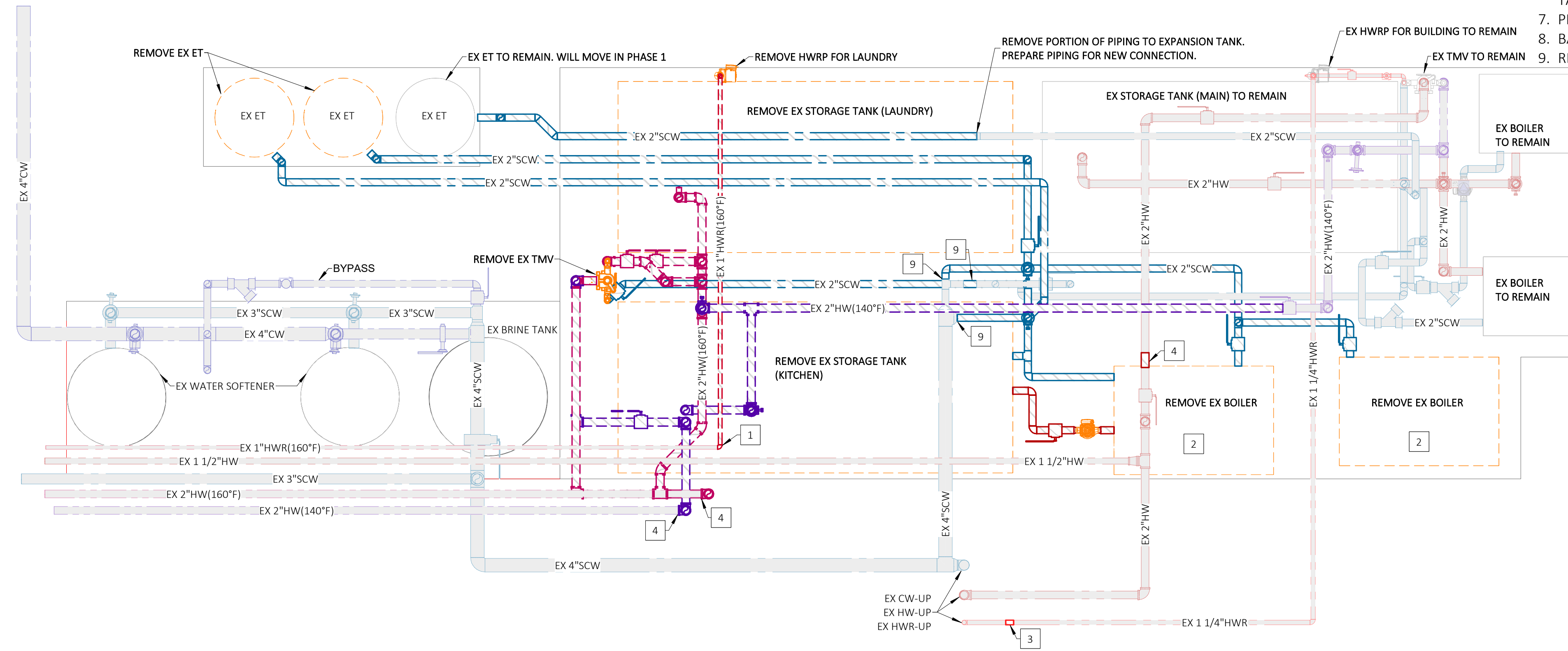


Professional of Record:  
THOMAS M. GRASSI  
LICENSE # E-23938  
EXPIRATION DATE: 12/31/24  
PROFESSIONAL SEAL  
CASCO Diversified Corporation  
MO Certificate of Authority #000329 Arch.  
MO Certificate of Authority #000613 Eng.  
Exp. Date: 12/31/25

**ALTERNATE #1 (THIS SHEET):**

**ALTERNATE NO. 1:** USE ELECTRONICALLY OPERATED THERMOSTATIC MIXING VALVES IN LIEU OF MECHANICALLY OPERATED MIXING VALVES FOR THE SUITES, KITCHEN AND LAUNDRY AREAS.

- ETMV-1 (SUITES): LEONARD NUCLEUS NV-150-LF, 72 GPM AT 10 PSI PRESSURE DROP, 1-1/4" SUPPLIES, 1-1/2" MIXED OUTLET.
- ETMV-2 (KITCHEN): LEONARD NUCLEUS NV-150-LF, 72 GPM AT 10 PSI PRESSURE DROP, 1-1/4" SUPPLIES, 1-1/2" MIXED OUTLET.
- ETMV-3 (LAUNDRY): LEONARD NUCLEUS NV-150-LF, 72 GPM AT 10 PSI PRESSURE DROP, 1-1/4" SUPPLIES, 1-1/2" MIXED OUTLET.



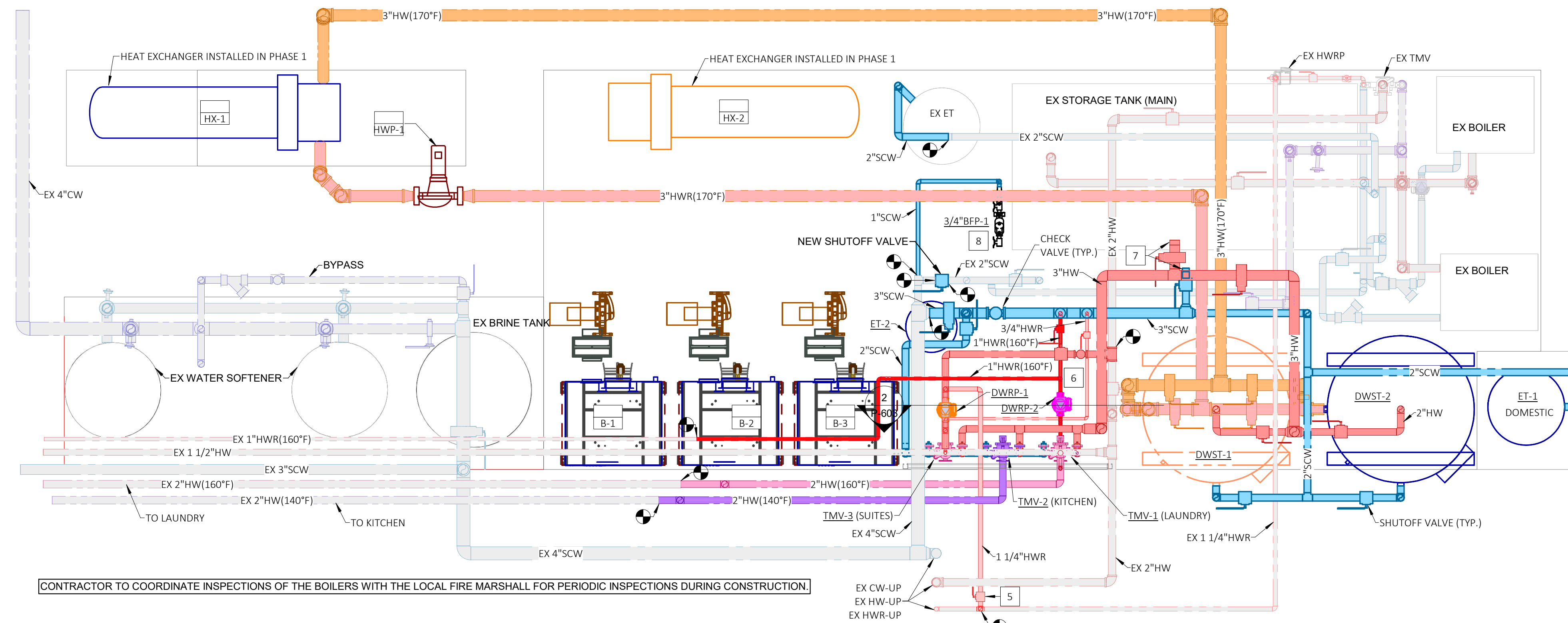
PLUMBING LEGEND	
	DEMO SOFT COLD WATER PIPING (EX SCW)
	EXISTING SOFT COLD WATER PIPING (EX SCW)
	NEW SOFT COLD WATER PIPING (SCW)
	DEMO HOT WATER PIPING (EX HW)
	EXISTING HOT WATER PIPING (EX HW)
	NEW HOT WATER PIPING (HW)
	DEMO HOT WATER PIPING (140°F) (EX HW(140°F))
	EXISTING HOT WATER PIPING (140°F) (EX HW(140°F))
	NEW HOT WATER PIPING (140°F) (HW(140°F))
	DEMO HOT WATER RETURN PIPING (EX HWR)
	EXISTING HOT WATER RETURN PIPING (EX HWR)
	NEW HOT WATER RETURN PIPING (HWR)
	DEMO HOT WATER PIPING (160°F) (EX HW(160°F))
	EXISTING HOT WATER PIPING (160°F) (EX HW(160°F))
	NEW HOT WATER PIPING (160°F) (HW(160°F))
	DEMO HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	EXISTING HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	NEW HOT WATER RETURN PIPING (160°F) (HWR(160°F))
	DEMO HOT WATER PIPING (170°F) (EX HW(170°F))
	EXISTING HOT WATER PIPING (170°F) (EX HW(170°F))
	NEW HOT WATER PIPING (170°F) (HW(170°F))
	DEMO HOT WATER RETURN PIPING (170°F) (EX HWR(170°F))
	EXISTING HOT WATER RETURN PIPING (170°F) (EX HWR(170°F))
	NEW HOT WATER RETURN PIPING (170°F) (HWR(170°F))

NOTE: HX = HEAT EXCHANGER

**1 PLUMBING - PHASE 1 DEMOLITION**

P-101 SCALE: 1/2" = 1'-0"

NOTE: MATTERPORT SURVEY LINK PROVIDED BELOW IS FOR REFERENCE ONLY, AND IS NOT INTENDED TO BE A SUBSTITUTE FOR FIELD INVESTIGATIONS BY THE CONTRACTOR.  
MATTERPORT LINK: <https://my.matterport.com/show/?m=vyscquW6hsr>



CONTRACTOR TO COORDINATE INSPECTIONS OF THE BOILERS WITH THE LOCAL FIRE MARSHALL FOR PERIODIC INSPECTIONS DURING CONSTRUCTION

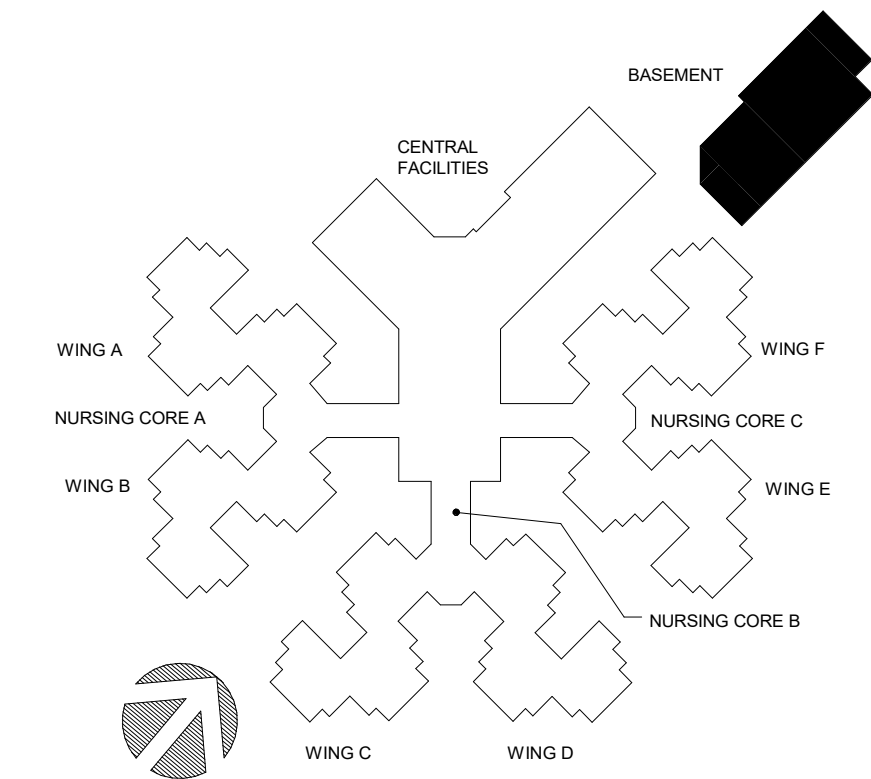
**2 PLUMBING - PHASE 1 NEW WORK**

P-101 SCALE: 1/2" = 1'-0"



**3 STAGING MAP**

P-101 SCALE: NONE



**KEY PLAN**

NOTE TO PRINTER  
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OFFICE OF  
ADMINISTRATION  
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DESIGN & INSTALL  
NEW DOMESTIC WATER  
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BUILDING

ST. JAMES VETERANS HOME  
620 NORTH JEFFERSON  
ST. JAMES, MO

PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

REVISION:  
DATE:  
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DATE:  
ISSUE DATE: 08.15.2024

CAD DWG FILE:  
DRAWN BY: DDP  
CHECKED BY: TMG  
DESIGNED BY:

SHEET TITLE:

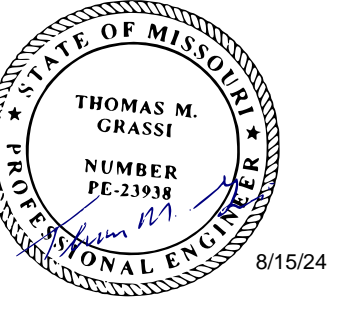
**PLUMBING - PHASE 1  
DEMOLITION & NEW**

SHEET NUMBER:

**P-101**  
2 of 18 SHEETS  
08.15.2024

**CASCO**  
CASCO DIVERSIFIED CORPORATION  
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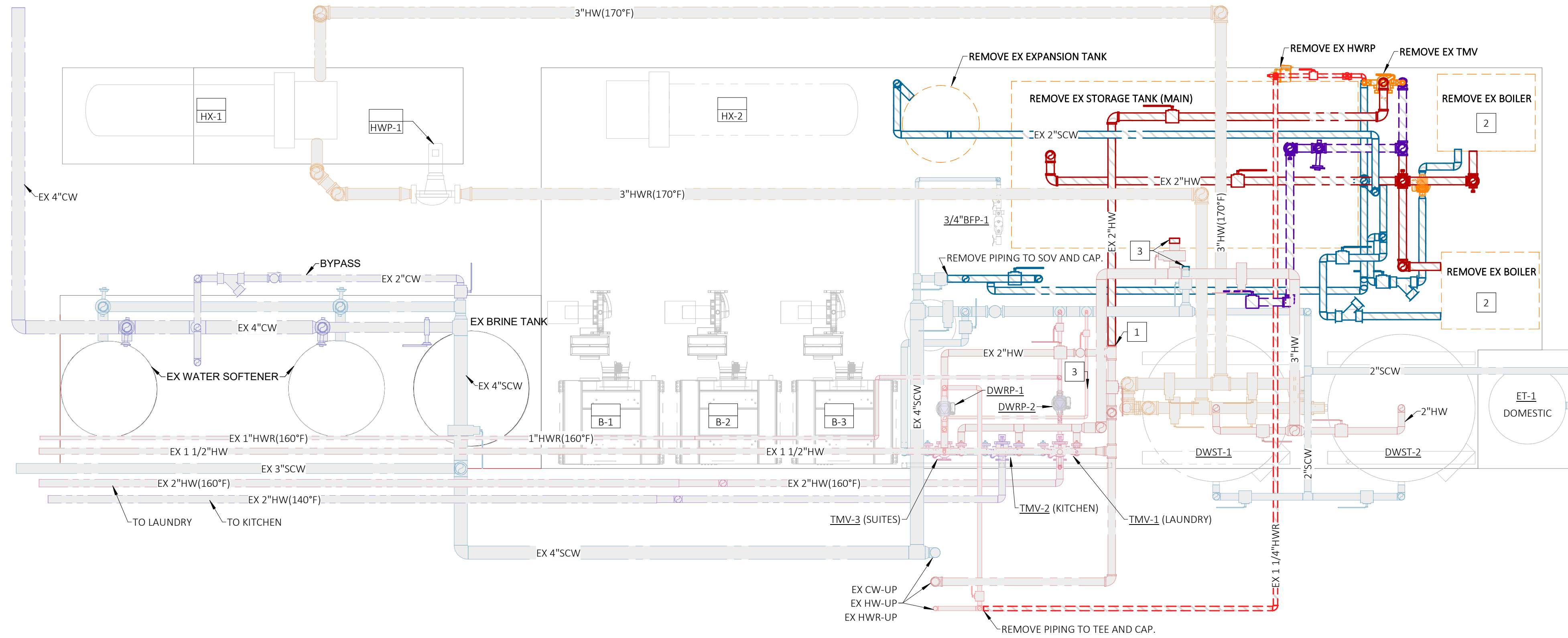
Professional of Record:  
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GENERAL NOTES

A. RETURN EXISTING BOILERS TO BE REMOVED BACK TO THE OWNER.

KEYED NOTES

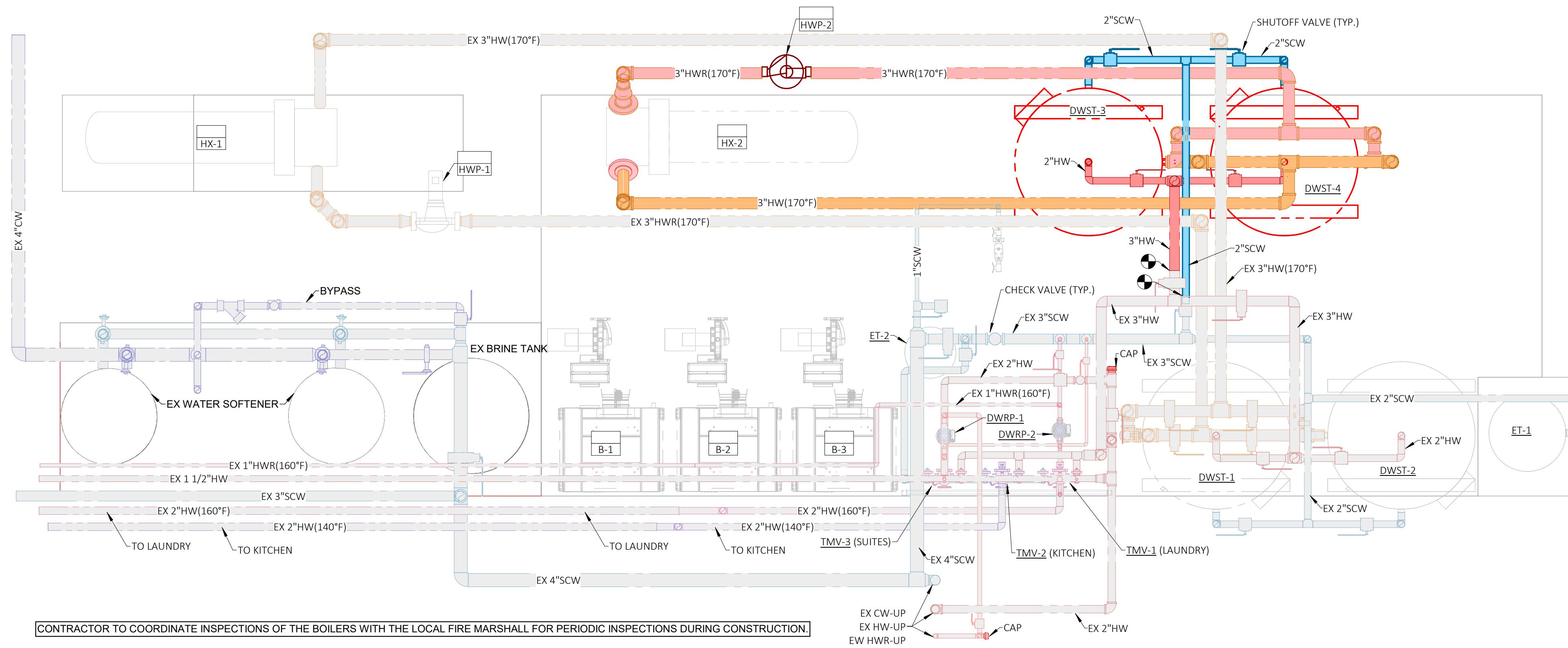
1. REMOVE PORTION OF PIPING. PREPARE PIPING FOR NEW CONNECTION.
2. REMOVE EXISTING INTAKE & VENT PIPING FOR EXISTING BOILERS TO BE REMOVED.
3. REMOVE EXISTING CAPS FOR CONNECTION TO PHASE 2 DOMESTIC WATER STORAGE TANKS.



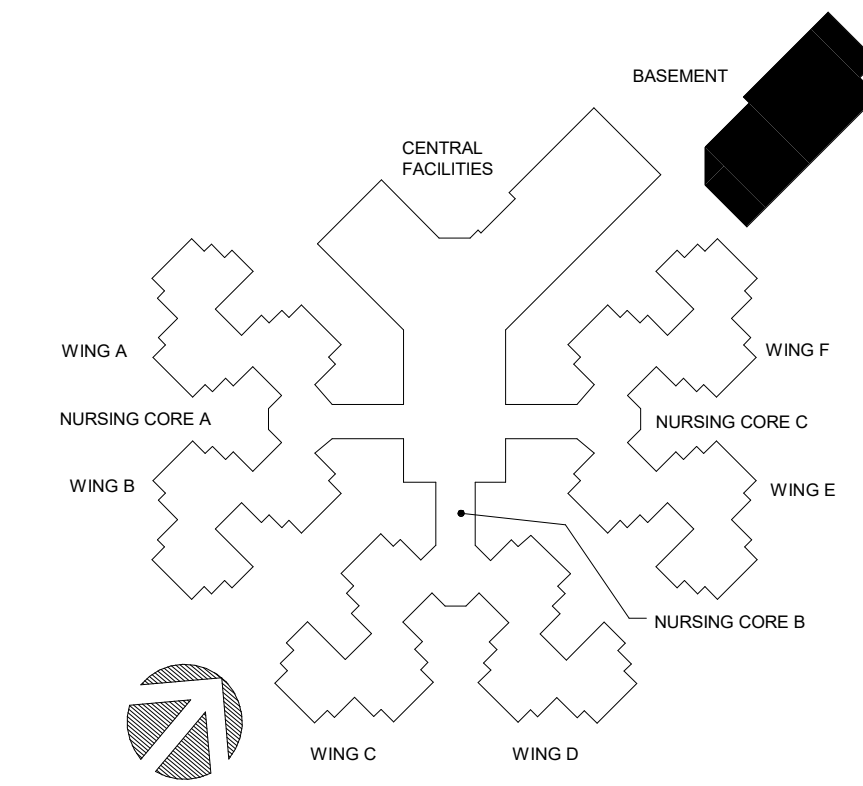
PLUMBING LEGEND	
	DEMO SOFT COLD WATER PIPING (EX SCW)
	EXISTING SOFT COLD WATER PIPING (EX SCW)
	NEW SOFT COLD WATER PIPING (SCW)
	DEMO HOT WATER PIPING (EX HW)
	EXISTING HOT WATER PIPING (EX HW)
	NEW HOT WATER PIPING (HW)
	DEMO HOT WATER PIPING (140°F) (EX HW(140°F))
	EXISTING HOT WATER PIPING (140°F) (EX HW(140°F))
	NEW HOT WATER PIPING (140°F) (HW(140°F))
	DEMO HOT WATER RETURN PIPING (EX HWR)
	EXISTING HOT WATER RETURN PIPING (EX HWR)
	NEW HOT WATER RETURN PIPING (HWR)
	DEMO HOT WATER PIPING (160°F) (EX HW(160°F))
	EXISTING HOT WATER PIPING (160°F) (EX HW(160°F))
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	DEMO HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	EXISTING HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	NEW HOT WATER RETURN PIPING (160°F) (HWR(160°F))
	HX: NEW HOT WATER PIPING (170°F) (HW(170°F))
	HX: NEW HOT WATER RETURN PIPING (170°F) (HWR(170°F))

NOTE: HX = HEAT EXCHANGER

1 PLUMBING - PHASE 2 DEMOLITION  
SCALE: 1/2" = 1'-0"



CONTRACTOR TO COORDINATE INSPECTIONS OF THE BOILERS WITH THE LOCAL FIRE MARSHALL FOR PERIODIC INSPECTIONS DURING CONSTRUCTION.



NOTE TO PRINTER  
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2 PLUMBING - PHASE 2 NEW WORK  
SCALE: 1/2" = 1'-0"

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BUILDING

ST. JAMES VETERANS HOME  
620 NORTH JEFFERSON  
ST. JAMES, MO

PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

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CAD DWG FILE:  
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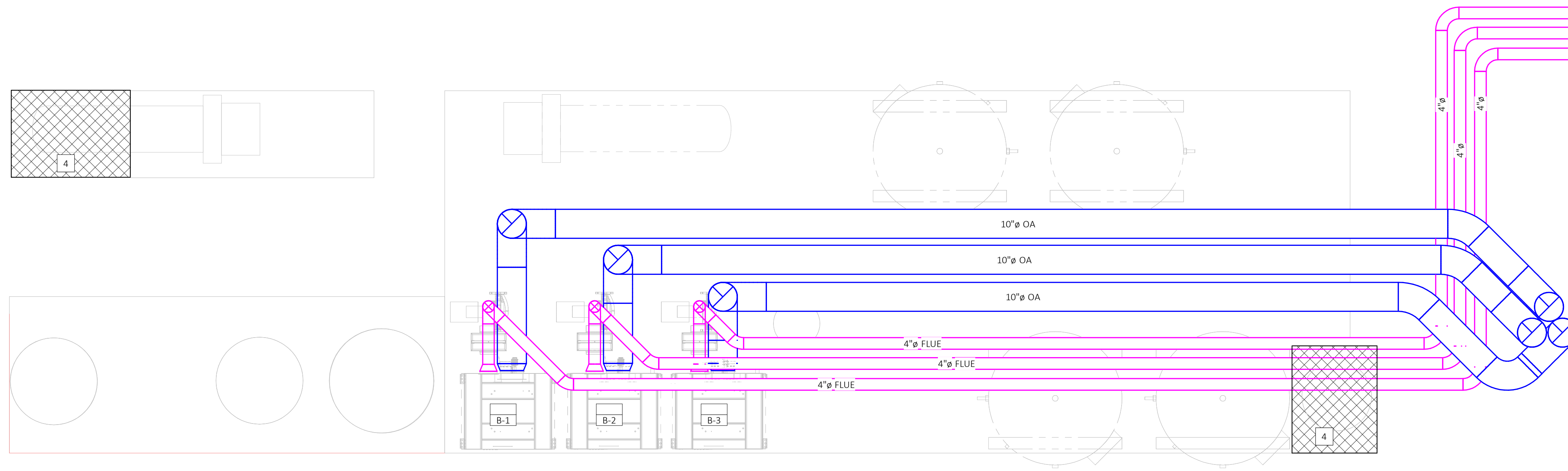
SHEET TITLE:  
**PLUMBING - PHASE 2  
DEMOLITION & NEW**

SHEET NUMBER:

**P-102**  
3 of 18 SHEETS  
08.15.2024

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**GENERAL NOTES**

- A. AFTER 10" DIAMETER FLUES FROM BOILERS PENETRATE THE ROOF, THEY SHALL BE OFFSETTED TO ALLOW RAIN CAPS TO BE INSTALLED.
- B. REFER TO THE RISER DIAGRAM LOCATED ON SHEET P-603 FOR LOCATIONS OF ALL VALVES & ACCESSORIES TO THE BOILERS & HEAT EXCHANGERS.
- C. BOILER CONNECTIONS SHALL BE FLANGED TO ALLOW EASE OF MAINTENANCE.

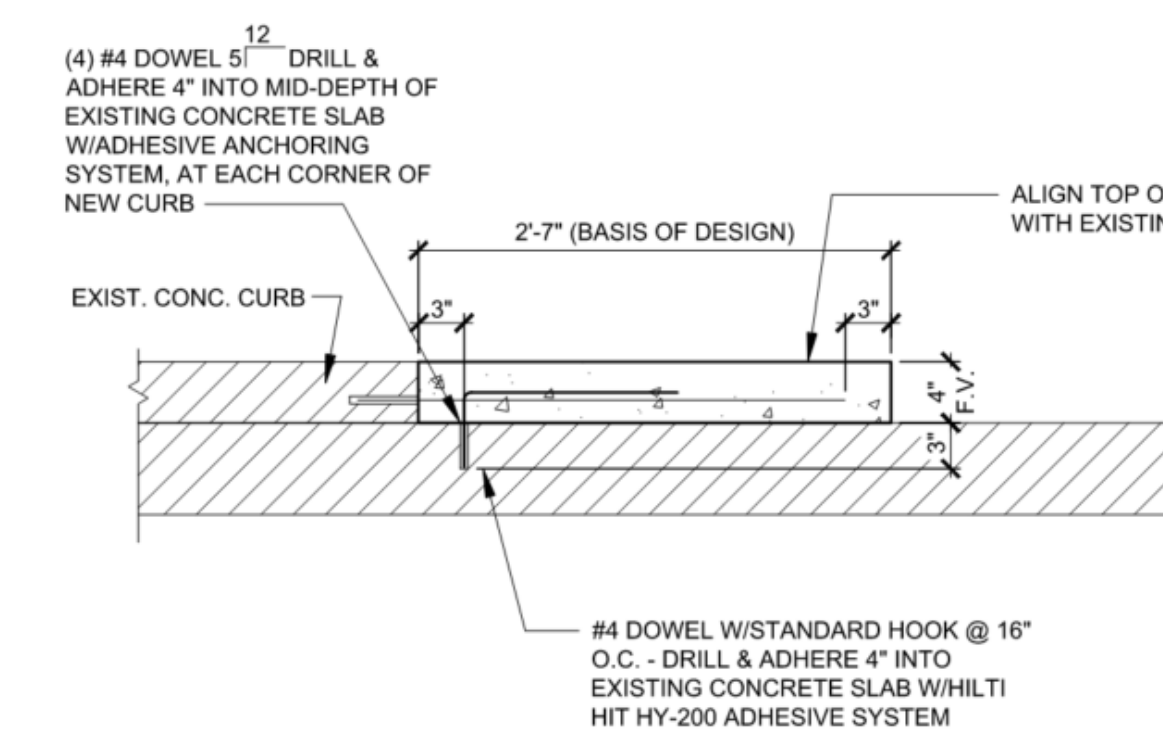
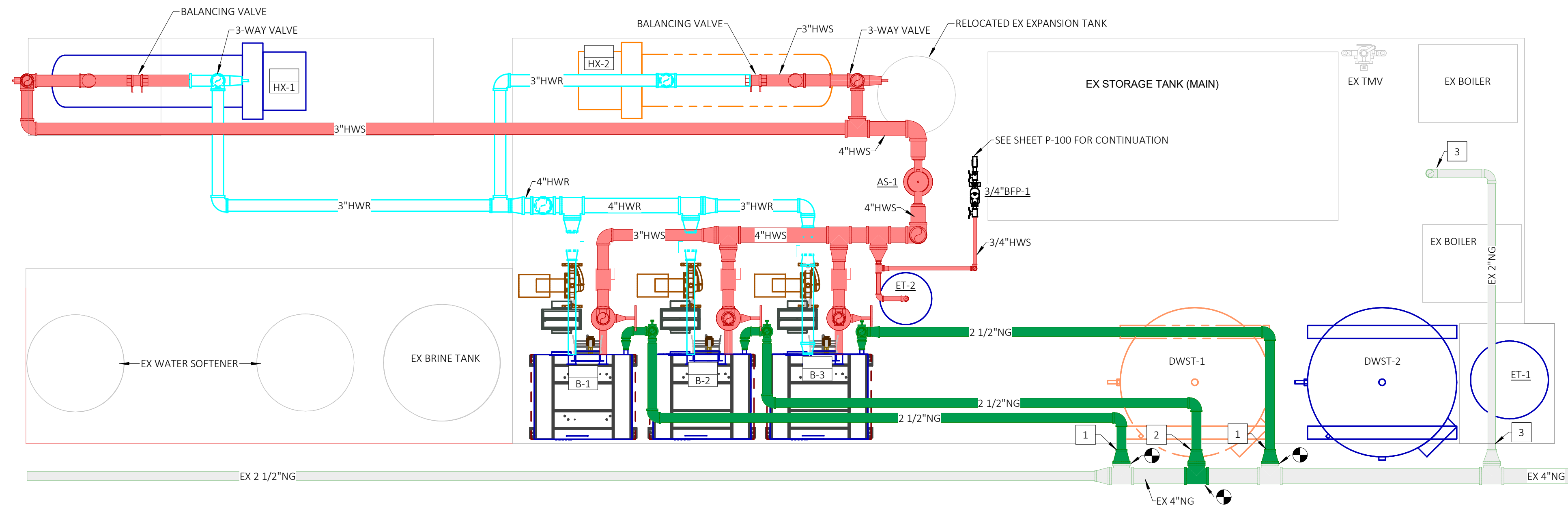
**KEYED NOTES**

- 1. CONNECT NEW 2" NATURAL GAS TO EXISTING NATURAL GAS TEE IN PHASE 1.
- 2. INSTALL NEW 2" NATURAL GAS TAP INTO EXISTING 4" NATURAL GAS MAIN IN PHASE 1.
- 3. REMOVE EXISTING 2" NATURAL GAS PIPING IN PHASE 2 BACK TO ACTIVE MAIN & CAP.
- 4. EXTEND 4" HOUSEKEEPING PAD AS SHOWN. BLOCK OUT EXISTING FLOOR DRAIN(S) AS REQUIRED TO MAINTAIN PROPER DRAINAGE.

PLUMBING LEGEND & ABBREVIATIONS	
	DEMOLISHED NATURAL GAS PIPING
	EXISTING NATURAL GAS PIPING
	NEW NATURAL GAS PIPING
	BOILER: NEW HOT WATER SUPPLY PIPING
	BOILER: NEW HOT WATER RETURN PIPING

**1** ENLARGED FLOOR PLAN - DOMESTIC WATER SOURCE HEATING EXHAUST, FLUE & PAD ENLARGEMENT - PHASE 1

P-103 SCALE: 1/2" = 1'-0"

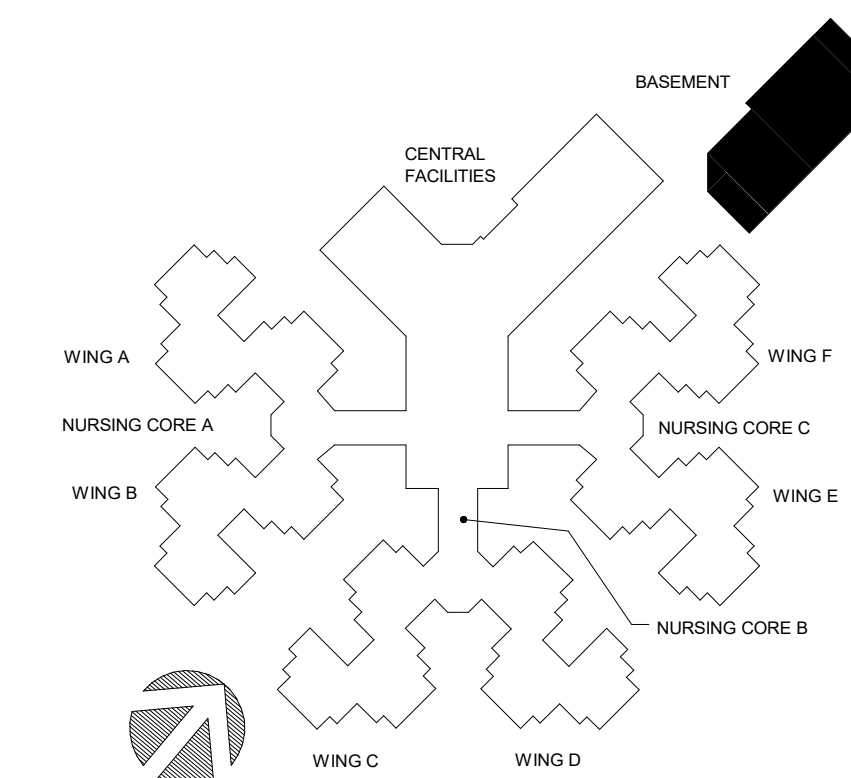


**3** NEW CONC. CURB DETAIL

P-103 SCALE: NONE

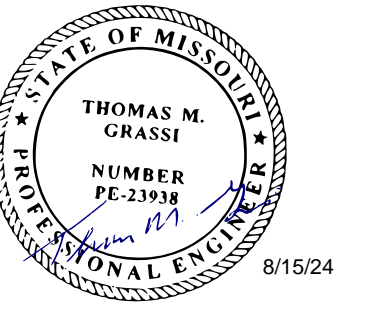
**2** ENLARGED FLOOR PLAN - DOMESTIC WATER SOURCE HEATING - PHASE 1

P-103 SCALE: 1/2" = 1'-0"



**KEY PLAN**

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THOMAS M. GRASSI  
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CASCO DIVERSIFIED CORPORATION  
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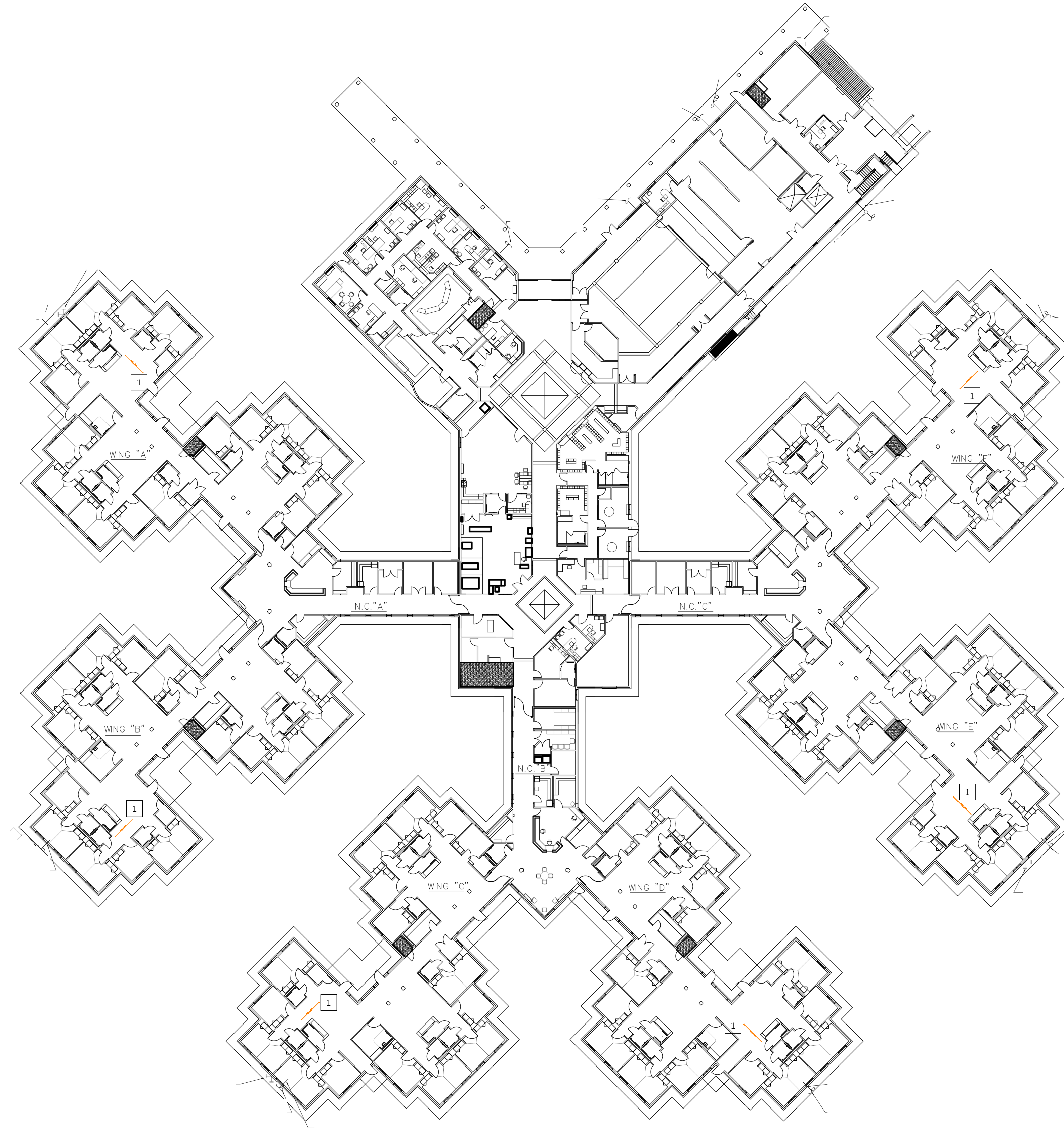
SHEET TITLE:

**PLUMBING  
BASEMENT FLOOR  
PLANS**

SHEET NUMBER:

**P-103**  
4 of 18 SHEETS  
08.15.2024

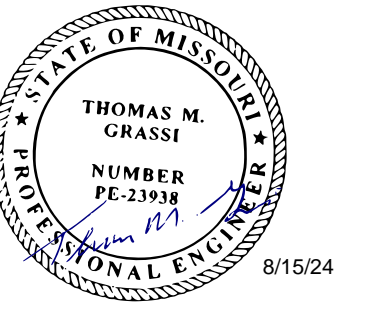




**ALTERNATE #2 (THIS SHEET):**

- 1 ALTERNATE NO. 2: REPLACE THE EXISTING BALANCING VALVES WITH THERMOSTATICALLY OPERATED BALANCING VALVE STATIONS, INCLUDING CHECK VALVES, THERMOMETER, AND STOP VALVES.

NOTE: CONTRACTOR TO FIELD VERIFY EXACT LOCATIONS OF EXISTING BALANCING VALVES.



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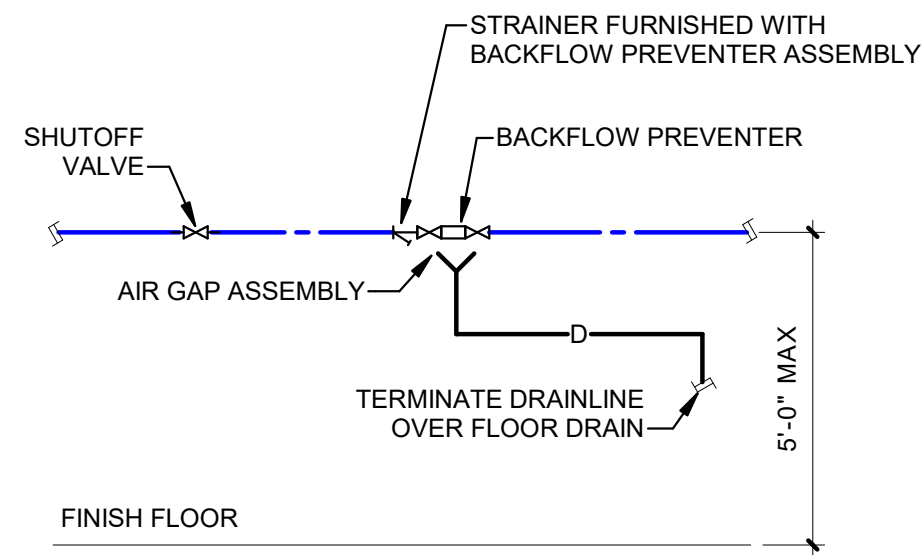
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**PLUMBING FIRST  
FLOOR PLAN -  
ALTERNATE #2**

SHEET NUMBER:

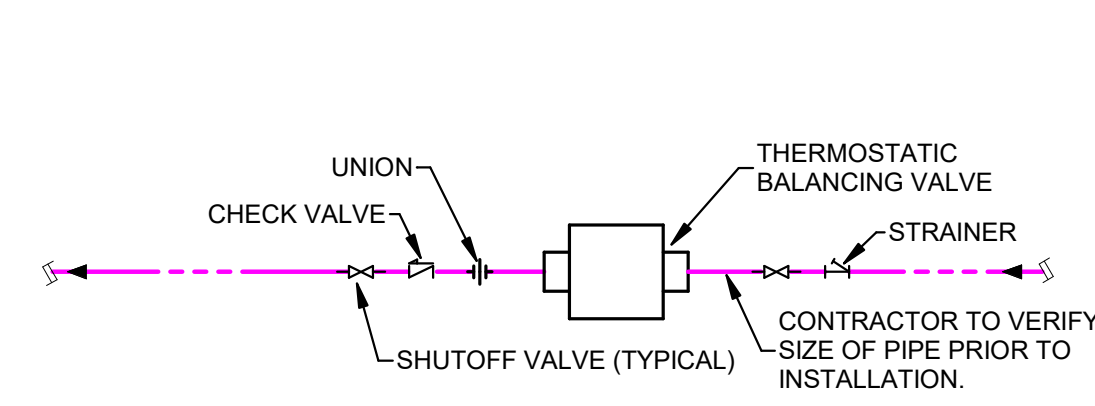
**P-104**  
5 of 18 SHEETS  
08.15.2024

1 FIRST FLOOR OVERALL - PLUMBING - ALTERNATE #2  
P-104 SCALE: 3/32" = 1'-0"



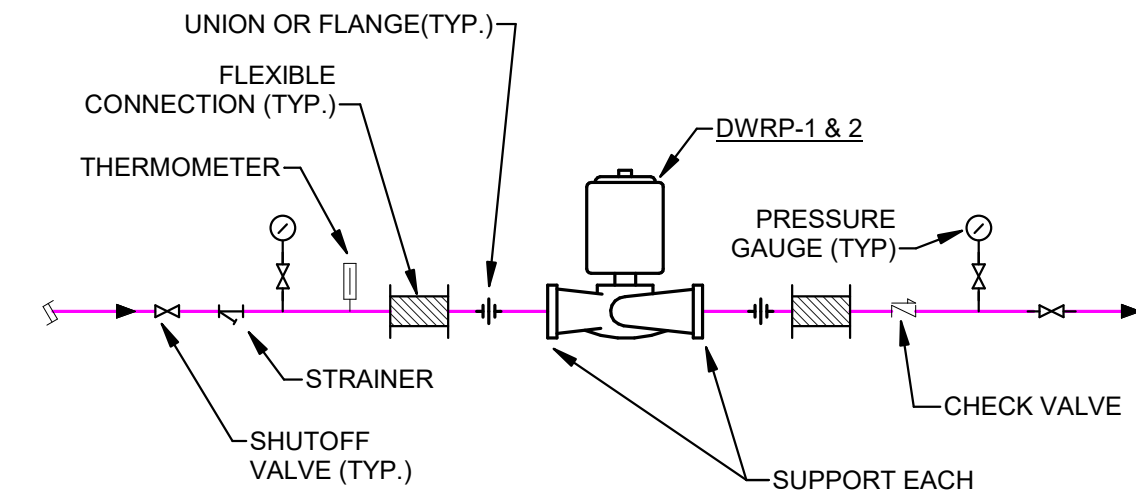


1 BACKFLOW PREVENTER  
P-501 SCALE: NONE

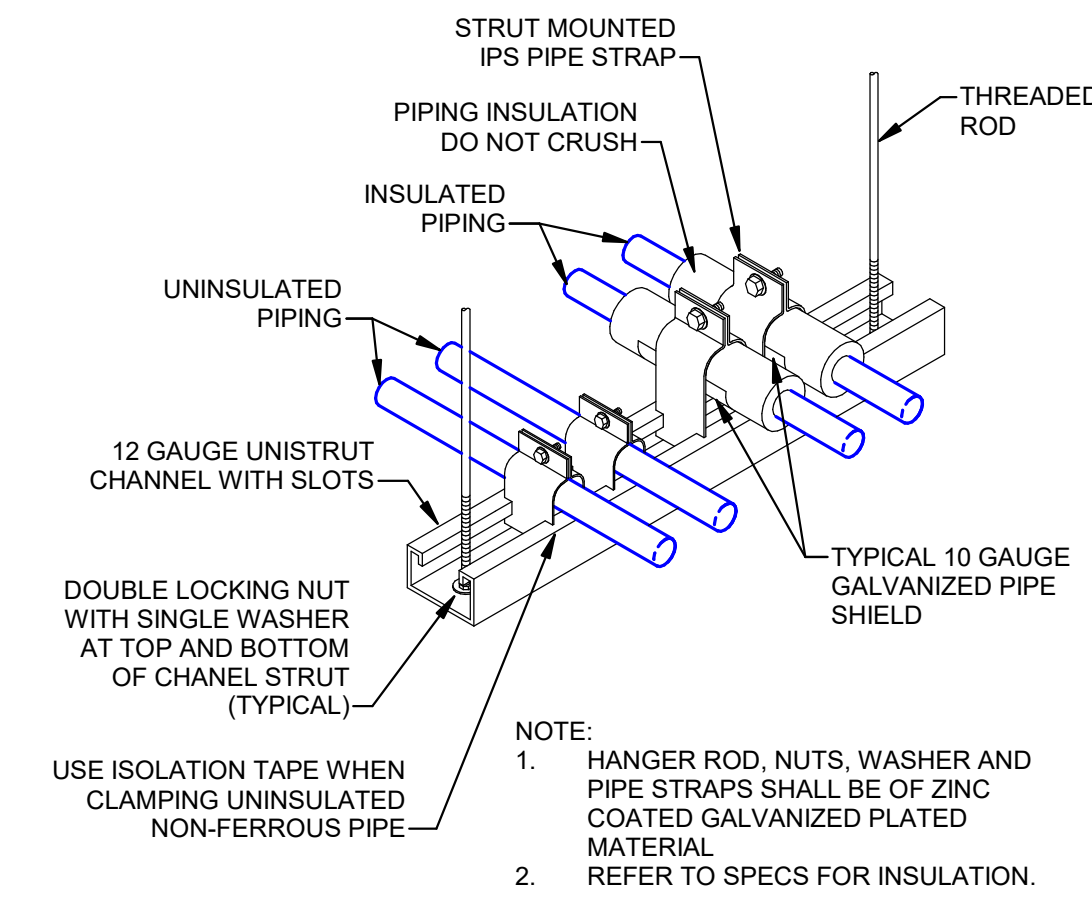


NOTE: THERMOSTATIC BALANCING VALVE MAY BE PROVIDED WITH PACKAGED CHECK VALVE, STRAINER, & SHUTOFF VALVES.

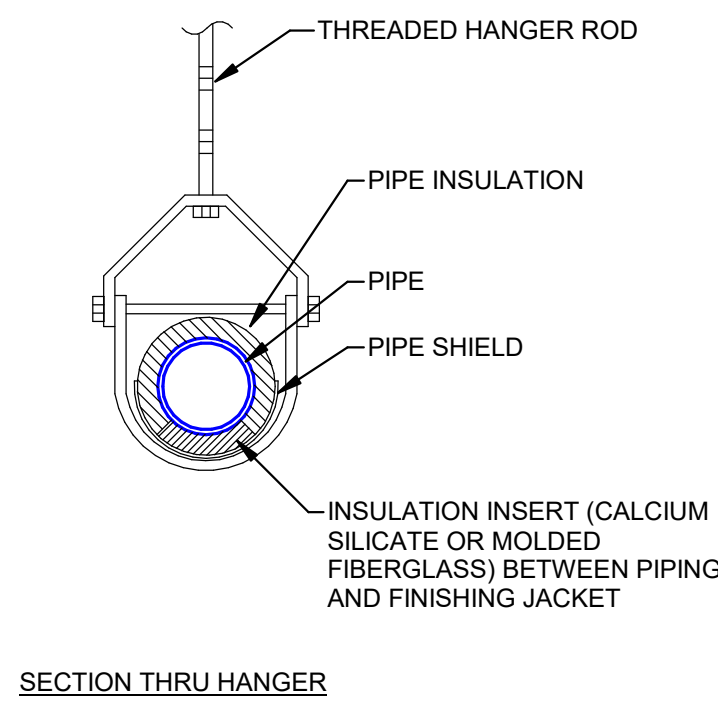
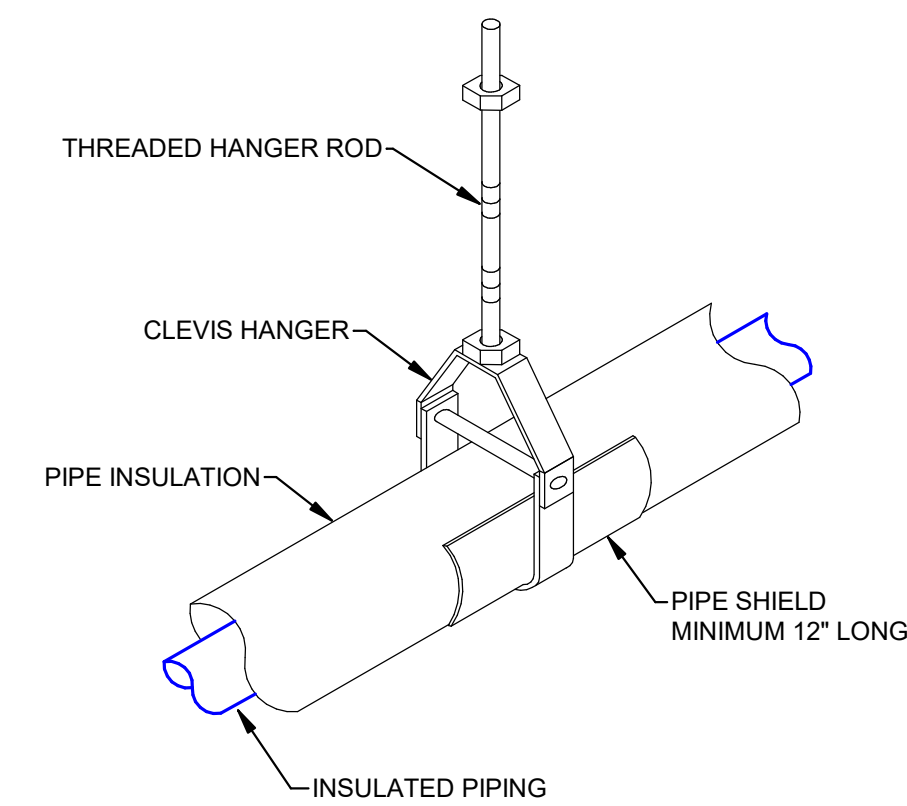
2 THERMOSTATIC BALANCING VALVE - ALTERNATE #2  
P-501 SCALE: NONE



3 DOMESTIC HOT WATER RECIRCULATING PUMP  
P-501 SCALE: NONE

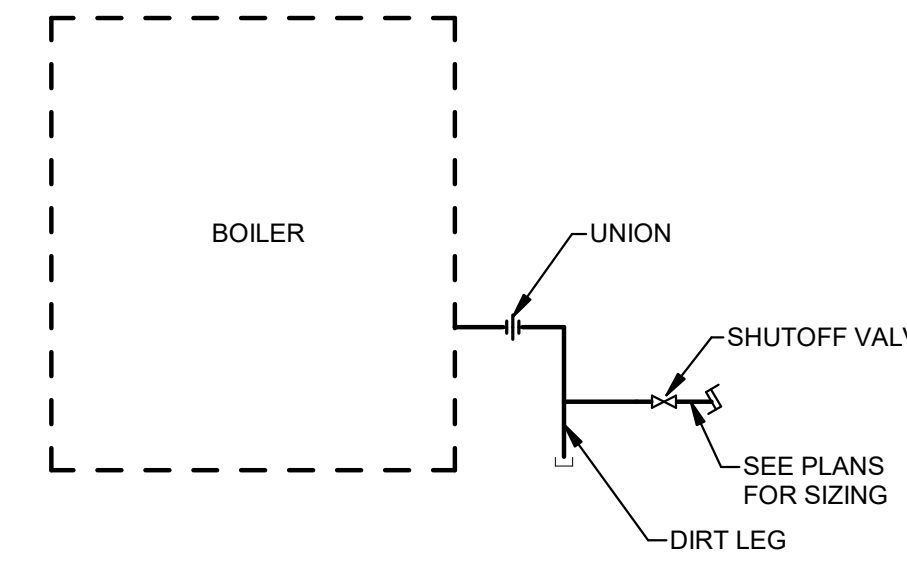


4 TRAPEZE PIPE SUPPORT  
P-501 SCALE: NONE

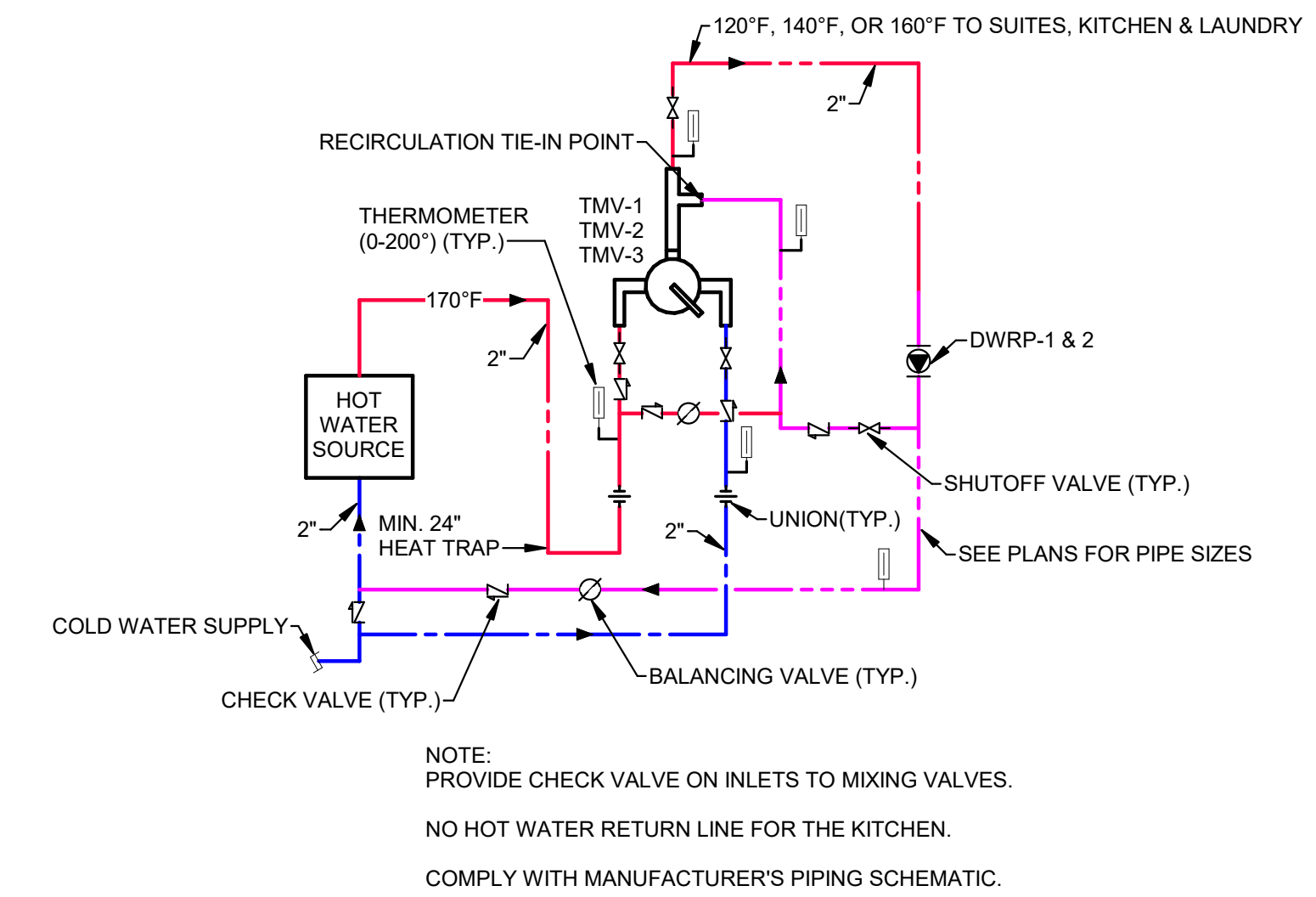


REFER TO SPECS FOR INSULATION AND HANGER SUPPORTS.

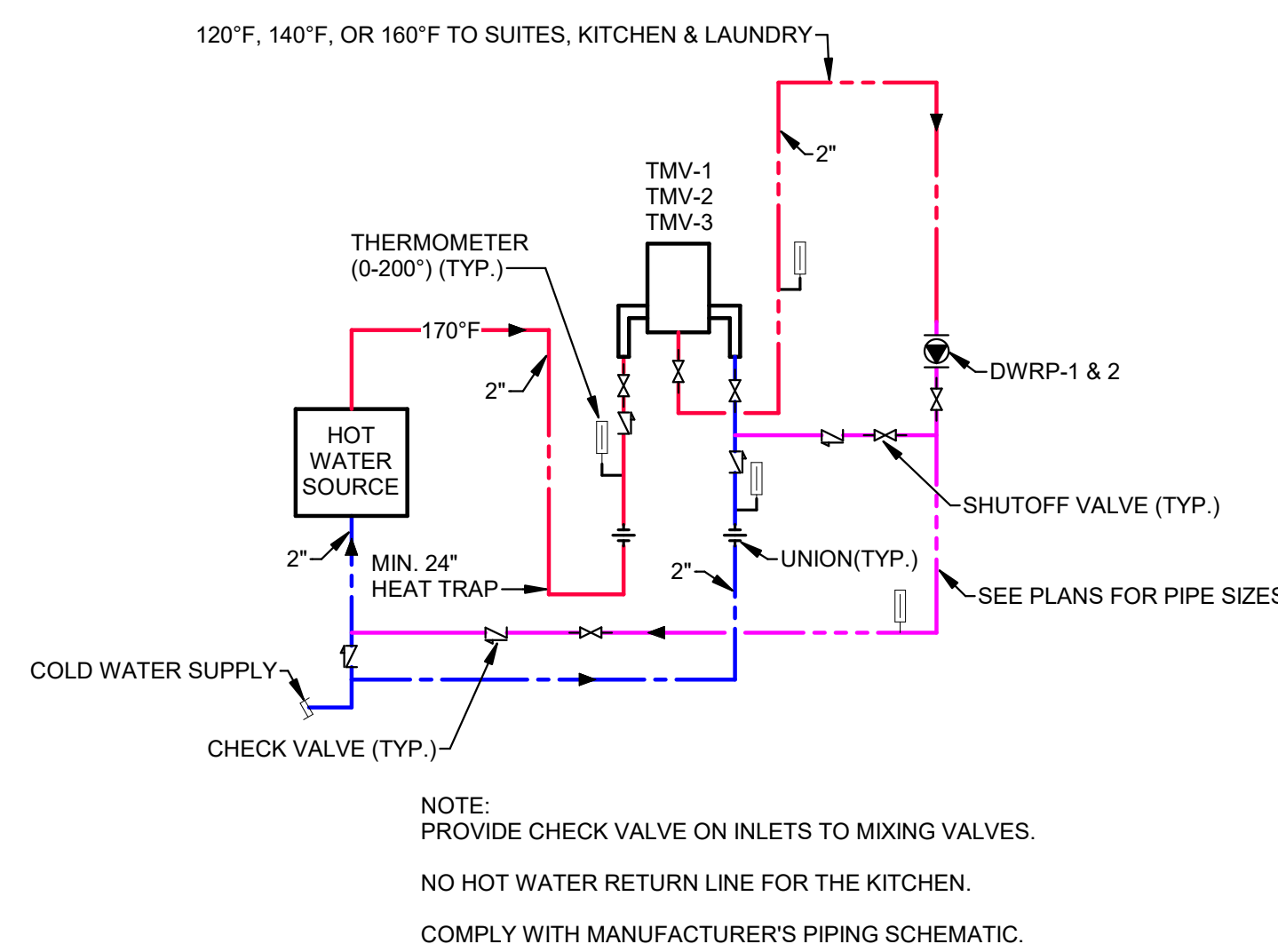
5 INSULATED PIPE HANGER SUPPORT  
P-501 SCALE: NONE



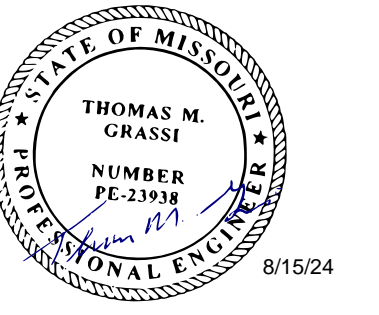
6 GAS CONNECTION AT BOILERS  
P-501 SCALE: NONE



7 THERMOSTATIC MIXING VALVE (TMV-1, 2, & 3)  
P-501 SCALE: NONE



8 ELECTRONIC THERMOSTATIC MIXING VALVE (TMV-1, 2, & 3) - ALTERNATE #1  
P-501 SCALE: NONE



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CAD DWG FILE: \_\_\_\_\_  
DRAWN BY: DDP  
CHECKED BY: TMG  
DESIGNED BY: \_\_\_\_\_

SHEET TITLE:

PLUMBING DETAILS

SHEET NUMBER:

**P-501**  
6 of 18 SHEETS  
08.15.2024



SEQUENCES OF OPERATION - DOMESTIC WATER HEATING SYSTEM:

SYSTEM GENERAL DESCRIPTION:

THIS PRIMARY DOMESTIC WATER HEATING SYSTEM SHALL BE CONTROLLED BY THE BOILER MANUFACTURER'S PACKAGED CONTROL SYSTEM. ALL SYSTEM ALARMS AND TEMPERATURE SENSORS SHALL REPORT BACK TO THE OWNER'S EXISTING SCHNEIDER ELECTRIC BUILDING AUTOMATION SYSTEM (BAS).

SCHNEIDER ELECTRIC CONTACT: C&C GROUP - BRIAN SCHEPERS, (573) 632-4247

THE SYSTEM SHALL BE BROKEN UP INTO TWO CIRCUITS- THE PRIMARY DOMESTIC WATER HEATING LOOP, AND THE DOMESTIC HOT WATER SYSTEM.

THE PRIMARY DOMESTIC WATER HEATING SYSTEM SHALL CONSIST OF THREE BOILERS, THREE PUMPS, TWO HEAT EXCHANGERS, PIPING AND VARIOUS CONTROL VALVES, DAMPERS AND OTHER CONTROL COMPONENTS.

THE DOMESTIC HOT WATER SYSTEM SHALL CONSIST OF FOUR DOMESTIC WATER STORAGE TANKS, TWO DOMESTIC WATER PUMPS, THREE DOMESTIC WATER TEMPERATURE SYSTEMS WITH ASSOCIATED THERMAL MIXING VALVES, AND TWO DOMESTIC WATER RECIRCULATING PUMPS.

**PRIMARY DOMESTIC WATER HEATING SYSTEM:**

**BOILERS:**

MANUFACTURER'S BOILER CONTROL SYSTEM SHALL STAGE BOILERS AND MODULATE HEATING INPUT AS REQUIRED TO PROVIDE A 190F (ADJUSTABLE) SUPPLY WATER TEMPERATURE IN THE PRIMARY LOOP AS SENSED BY TS-1. BOILERS SHALL BE STAGED TO ENSURE EQUAL RUN TIME / LOADING ON ALL THREE BOILERS AND THEIR ASSOCIATED PUMPS.

A MINIMUM OF ONE BOILER AND ONE PUMP SHALL PROVIDE CONTINUOUS CIRCULATION THROUGH THE PRIMARY LOOP AT ALL TIMES.

WHEN A DISABLED BOILER IS REQUIRED TO BE ENERGIZED, THE MANUFACTURERS PROGRAM SHALL:

1. OPEN THE ASSOCIATED BOILER MOTORIZED ISOLATION VALVE (CV-1, CV-2, OR CV-3),
2. ENERGIZE THE ASSOCIATED BOILERS PUMP (BP-1, BP-2, OR BP-3),
3. OPEN THE ASSOCIATED OUTSIDE AIR AND FLUE DAMPERS (WHILE ENERGIZING BURNER BLOWER).
4. ENERGIZE BURNER SEQUENCE.

WHEN A BOILER IS REQUIRED TO BE DE-ENERGIZED, A REVERSE SEQUENCE SHALL BE FOLLOWED.

WHEN ONE OR MORE BOILERS ARE OPERATING TOGETHER, THE MANUFACTURER'S CONTROL SYSTEM SHALL MODULATE HEATING OUTPUT AS REQUIRED AND STAGE THE BOILERS TO MAINTAIN PROPER PRIMARY LOOP TEMPERATURE.

**BOILER SAFETIES:**

BOILERS SHALL OPERATE WITH THEIR OWN SAFETIES AND CONTROLS. MASTER ALARMS SHALL BE ANNUNCIATED IN OWNERS EXISTING BAS.

BOILER PUMP FAILURE- IF AN ASSOCIATED PUMP IS ENABLED AND THE CURRENT SWITCH IS OFF FOR MORE THAN 30 SECONDS (ADJ), THE SYSTEM SHALL ANNUNCIATE A BOILER CIRCULATION PUMP FAILURE ALARM TO THE BAS AND DISABLE THE ASSOCIATED BOILER.

**HEAT EXCHANGERS:**

THE HEAT EXCHANGERS THREE WAY VALVES SHALL MODULATE THE PRIMARY DOMESTIC WATER FLOW TO MAINTAIN THE TEMPERATURE INSIDE THEIR RESPECTIVE DOMESTIC HOT WATER STORAGE TANKS (DWST-1, DWST-2, DWST-3, & DWST-4). THE TEMPERATURE INSIDE THE TANKS SHALL BE MAINTAINED AT 170F (ADJ) AT ALL TIMES AS SENSED BY TS-3, TS-4, TS-14, & TS-15 (DWST TEMPERATURES).

**DOMESTIC HOT WATER SYSTEM:**

DOMESTIC HOT WATER PUMPS (HWP-1 AND HWP-2) SHALL RUN CONTINUOUSLY.

DOMESTIC HOT WATER RECIRCULATION PUMPS (DWRP-1 AND DWRP-2) SHALL RUN CONTINUOUSLY. CONTROLLER SHALL MODULATE PUMP SPEED VIA VFD TO MAINTAIN A MINIMUM RECIRCULATION TEMPERATURE OF 105°F & 140°F (ADJ) AS SENSED BY TS-12 AND TS-13.

**ADDITIONAL SYSTEM MONITORING AND ALARMS:**

TS-5 / TS-7 / TS-6 / (DWST'S ENTERING WATER TEMPERATURE) AND TS-6 / TS-8 (DWST'S LEAVING WATER TEMPERATURE) SHALL BE MONITORED FOR TREND ANALYSIS.

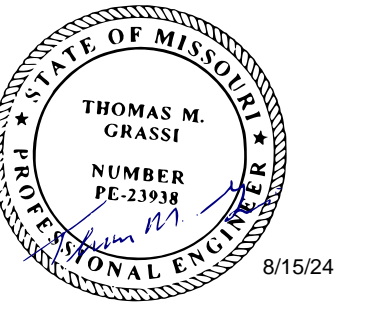
TS-9 / TS-10 / TS-11 (DOWNSTREAM THERMAL MIXING VALVE TEMPERATURES) SHALL BE MONITORED FOR TREND ANALYSIS.

TS-3 / TS-4 / TS-14 / TS-15 (DWST TEMPERATURES):

- HIGH TEMPERATURE ALARM 175F (ADJ).
- HIGH TEMPERATURE SAFETY: ABOVE 185F (ADJ), THE APPROPRIATE PRIMARY HEATING VALVE (CV-4 OR CV-5) FOR THE HEAT EXCHANGER SHALL BE MOVED TO FULL BYPASS POSITION. ABOVE 190F, ALL BOILERS SHALL BE DE-ENERGIZED.
- LOW TEMPERATURE ALARM 160F (ADJ).

NOTE: MATTERPORT SURVEY LINK PROVIDED BELOW IS FOR REFERENCE ONLY, AND IS NOT INTENDED TO BE A SUBSTITUTE FOR FIELD INVESTIGATIONS BY THE CONTRACTOR.

MATTERPORT LINK: <https://my.matterport.com/show/?m=vyscquW6hsr>



Professional of Record:  
THOMAS M. GRASSI  
LICENSE # E-23938  
EXPIRATION DATE: 12/31/24  
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**OFFICE OF  
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DESIGN AND  
CONSTRUCTION**

DESIGN & INSTALL  
NEW DOMESTIC WATER  
PLANT  
VETERANS HOME  
BUILDING

ST. JAMES VETERANS HOME  
620 NORTH JEFFERSON  
ST. JAMES, MO

PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 08.15.2024

CAD DWG FILE: \_\_\_\_\_  
DRAWN BY: DDP  
CHECKED BY: TMG  
DESIGNED BY: \_\_\_\_\_

SHEET TITLE:

**PLUMBING  
SEQUENCE OF  
OPERATIONS**

SHEET NUMBER:

**P-601**  
7 of 18 SHEETS  
08.15.2024



235233 FIRE TUBE BOILER SCHEDULE																		
PLAN DESIG.	SERVES	LOCATION	MFGR	MODEL	TYPE	FUEL	INPUT (MBH)	OUTPUT (MBH)	DESIGN PRESS...	EWT (F)	LWT (F)	FLOWRATE (GPM)	MAX WPD (FT HD)	POWER			OPERATING WEIGHT (LBS)	NOTES
														VOLTAGE	PHASE	MCA		
B-1	DOM HTG	SEE PLAN	RAYPAK	MVB-1253A	NOTE 1	NAT GAS	1,250	1,078	ASME 160	170	190	100	2.5	120	1	9	780	1-5
B-2	DOM HTG	SEE PLAN	RAYPAK	MVB-1253A	NOTE 1	NAT GAS	1,250	1,078	ASME 160	170	190	100	2.5	120	1	9	780	1-5
B-3	DOM HTG	SEE PLAN	RAYPAK	MVB-1253A	NOTE 1	NAT GAS	1,250	1,078	ASME 160	170	190	100	2.5	120	1	9	780	1-5

NOTES:  
 1. TYPE: NON-CONDENSING COPPER FIN TUBE.  
 2. BACNET INTERFACE.  
 3. PROVIDE GAS TRAIN: ASME CSD-1.  
 4. OPTIONAL ACCESSORIES SHALL INCLUDE: ASME RELIEF VALVE, FULL MODULATING CONTROLS WITH OUTPUTS TO OWNERS BUILDING AUTOMATION SYSTEM, MULTI-BOILER STAGING, AND CODE REQUIRED BOILER SAFETIES.  
 5. ALL FITTINGS, VALVES, AND SURFACES TOUCHING FLUIDS SHALL MEET AWWA STANDARDS FOR USE IN DOMESTIC WATER SYSTEMS.

232123 HYDRONIC PUMP SCHEDULE															
PLAN DESIG.	MFGR	MODEL	TYPE	SERVICE	CAPACITY (GPM)	TOTAL HEAD (FT)	MAX FLUID TEMP. (F)	FLUID TYPE	MOTOR HP	RPM	EFFICIENCY (%)	VOLTS / PHASE /...	PUMP SIZE		NOTES
													SUCTION (IN)	DISCHARGE...	
BP-1	B&G	E-80, 4X4X7B	INLINE	190F...	100	80	190	DOMESTIC	5	1760	72.5	480/3	2	2	1, 3, 4
BP-2	B&G	E-80, 4X4X7B	INLINE	190F...	100	80	190	DOMESTIC	5	1760	72.5	480/3	2	2	1, 3, 4
BP-3	B&G	E-80, 4X4X7B	INLINE	190F...	100	80	190	DOMESTIC	5	1760	72.5	480/3	2	2	1, 3, 4
HWP-1	TACO	KV-3009D	INLINE	190F...	150	55	190	DOMESTIC	5	1760	67	480/3	3	3	1, 3, 4
HWP-2	TACO	KV-3009D	INLINE	190F...	150	55	190	DOMESTIC	5	1760	67	480/3	3	3	1, 3, 4
DWRP-1	B&G	ECOCIRC XL 36-45	INLINE	120 F...	15	25	140	DOMESTIC	1/6	-	-	115/1	1.25	1.25	1, 2, 3, 4, 5
DWRP-2	B&G	ECOCIRC XL 20-35	INLINE	160 F...	3	12	160	DOMESTIC	1/12	-	-	115/1	1.25	1.25	1, 2, 3, 4, 5

NOTES:  
 1. MOTOR STARTER AND LOCAL NON-FUSED DISCONNECT SHALL BE PROVIDED BY MANUFACTURER.  
 2. ECM AND DRIVE SHALL BE PROVIDED.  
 3. SUCTION DIFFUSER WITH INTEGRAL STRAINER.  
 4. ALL FITTINGS, VALVES, AND PUMP COMPONENTS TOUCHING FLUIDS SHALL MEET AWWA STANDARDS FOR USE IN DOMESTIC WATER SYSTEMS.  
 5. DWRP-1 & DWRP-2 SHALL BE OPERATED PER PROPORTIONAL PRESSURE MODE.

232116 AIR SEPARATOR SCHEDULE														
PLAN DESIG.	MFGR	MODEL	TYPE	SERVICE	FLOWRATE (GPM)	TANK VOL (GAL)	MAX HEAD LOSS (FT)	CONNECTION (IN)	TK... (IN)	MAXIMUM DESIGN		OPERATING WEIGHT (LBS)	NOTES	
										TEMP (F)	PRESS...			
AS-1	B&G	RL-4F	TANGENTIAL	DOMESTIC	300	13	3	4	12.75	350	125	287	1	

NOTES:  
 1. ALL FITTINGS AND VALVES SHALL MEET AWWA STANDARDS FOR USE IN DOMESTIC WATER SYSTEMS.

232116 EXPANSION TANK SCHEDULE											
PLAN DESIG.	MFGR	MODEL	TYPE	SERVICE	TANK VOL (GAL)	ACCEPTANCE VOL (GAL)	TK. HEIGHT (IN)	TK... (IN)	MAXIMUM DESIGN		NOTES
									TEMP (F)	PRESS...	
ET-1	B&G	PTA-210	DIAPHRAGM	DOMESTIC	90	60	53	24	240	150	1
ET-2	B&G	PTA-30	DIAPHRAGM	DOMESTIC	15	10	25	16	240	150	1

NOTES:  
 1. ALL FITTINGS, VALVES, AND SURFACES TOUCHING FLUIDS SHALL MEET AWWA STANDARDS FOR USE IN DOMESTIC WATER SYSTEMS.

THERMOSTATIC MIXING VALVE SCHEDULE							
PLAN MARK	DESCRIPTION	MANUFACTURER	MODEL	FLOW		LEAVING TEMPERATURE	NOTES
				MINIMUM GPM	GPM @ 10 PSI LOSS		
TMV-1	THERMOSTATIC MIXING VALVE	LEONARD	TM-2020B-LF-DT	0.5	113	160°F	
TMV-2 & 3	THERMOSTATIC MIXING VALVE	LEONARD	TM-820B-LF-DT	0.5	40	SUITES: 120°F & KITCHEN: 140°F	

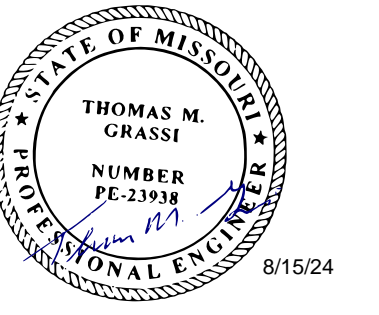
ELECTRONIC THERMOSTATIC MIXING VALVE SCHEDULE - ALTERNATE #1							
PLAN MARK	DESCRIPTION	MANUFACTURER	MODEL	FLOW		LEAVING TEMPERATURE	NOTES
				MINIMUM GPM	GPM @ 10 PSI LOSS		
ETMV-1	ELECTRONIC THERMOSTATIC MIXING VALVE	LEONARD	NUCLEUS NV-150-LF	0.25	72	120°F	
ETMV-2	ELECTRONIC THERMOSTATIC MIXING VALVE	LEONARD	NUCLEUS NV-150-LF	0.25	72	140°F	
ETMV-3	ELECTRONIC THERMOSTATIC MIXING VALVE	LEONARD	NUCLEUS NV-150-LF	0.25	72	160°F	

223450 DOMESTIC HOT WATER STORAGE TANK SCHEDULE						
PLAN DESIG.	MFGR	MODEL	TYPE	SERVICE	GAL	REMARKS
DWST-1	PVI	AQUAPLEX	DOMESTIC	HOT	300	1, 2, 3, 4
DWST-2	PVI	AQUAPLEX	DOMESTIC	HOT	300	1, 2, 3, 4
DWST-3	PVI	AQUAPLEX	DOMESTIC	HOT	300	1, 2, 3, 4
DWST-4	PVI	AQUAPLEX	DOMESTIC	HOT	300	1, 2, 3, 4

REMARKS:  
 1. PROVIDE UNIT WITH THE FOLLOWING OPTIONS: ASME RATED VESSEL, INSULATION.  
 2. DIFFUSER TUBES ON COLD WATER MAKEUP AND HEATED WATER RETURN CONNECTIONS (1.0 PSI MAX PRESSURE DROP).  
 3. MANWAY ACCESS.  
 4. ALL FITTINGS, VALVES, AND SURFACES TOUCHING FLUIDS SHALL MEET AWWA STANDARDS FOR USE IN DOMESTIC WATER SYSTEMS.

235700 SHELL AND TUBE HEAT EXCHANGER SCHEDULE													
PLAN DESIG.	MFGR	MODEL	SHELL DIAM. / LENGTH (IN)	# OF PASSES	FLUID 1 / FLUID 2	FLOWRATE		TEMP. (F) / PRESS. (#)		MAX PRESSURE LOSS (PSI)		CAPACITY (MBH)	NOTES
						FLUID 1...	FLUID 2...	FLUID 1	FLUID 2	FLUID 1	FLUID 2		
HX-1	TACO	G26408-6L	26 / 62	4	WATER /...	150	150	190/170	140/160	0.5	0.12	1,500	1, 2, 3
HX-2	TACO	G26408-6L	26 / 62	4	WATER /...	150	150	190/170	140/160	0.5	0.12	1,500	1, 2, 3

NOTES:  
 1. BASED ON A FOULING FACTOR OF 0.001.  
 2. ALL FITTINGS, VALVES, AND SURFACES TOUCHING FLUIDS SHALL MEET AWWA STANDARDS FOR USE IN DOMESTIC WATER SYSTEMS.  
 3. DOUBLE WALL HEAT EXCHANGER.



Professional of Record:  
 THOMAS M. GRASSI  
 LICENSE # E-23938  
 EXPIRATION DATE: 12/31/24  
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CAD DWG FILE:  
 DRAWN BY: DDP  
 CHECKED BY: TMG  
 DESIGNED BY:

SHEET TITLE:

PLUMBING  
 SCHEDULES

SHEET NUMBER:

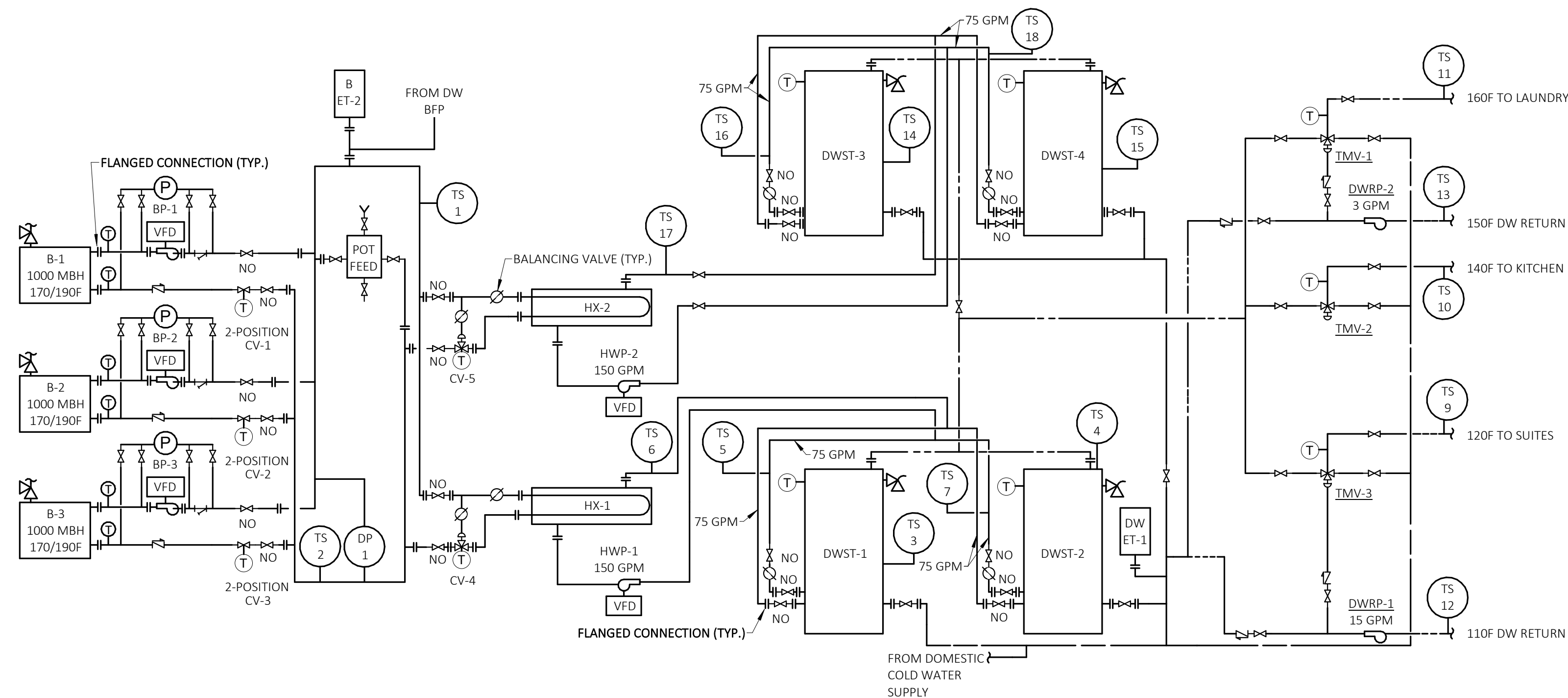
**P-602**  
 8 of 18 SHEETS  
 08.15.2024



WATER TREATMENT SYSTEM:

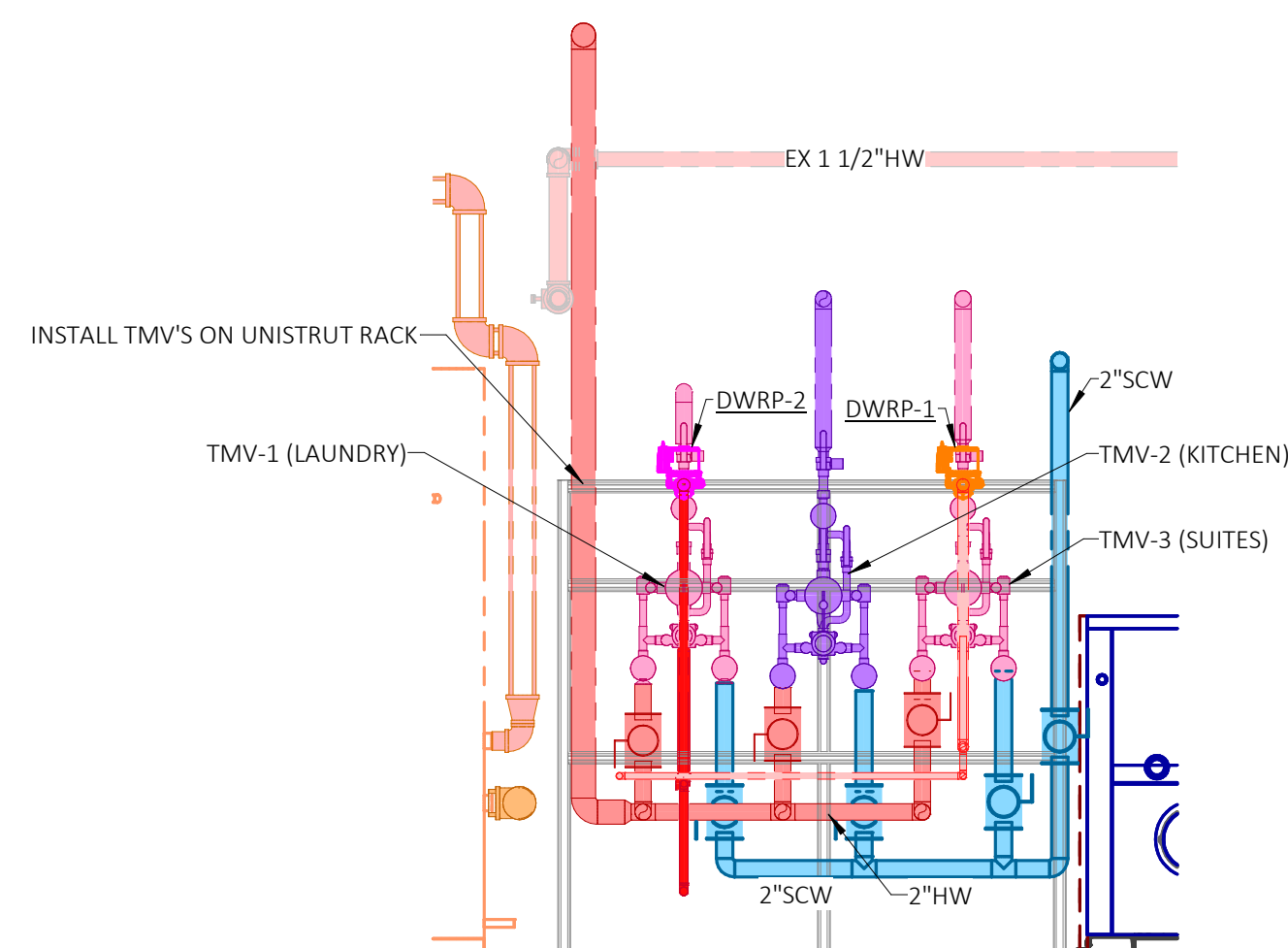
THE WINNING CONTRACTOR SHALL BE RESPONSIBLE FOR HIRING WALTER LOUIS FLUID TECHNOLOGIES FOR THE WATER TREATMENT CONTRACTOR AND INCLUDE ALL COSTS ASSOCIATED WITH INSTALLATION, EQUIPMENT, LABOR AND CHEMICALS ASSOCIATED WITH PROVIDING A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED ON THESE DOCUMENTS AND SPECIFICATIONS.

CONTACT INFO: WALTER LOUIS FLUID TECHNOLOGIES, SALES@WALTERLOUIS.COM, PH (217)-223-2017.



1 RISER DIAGRAM

P-603 SCALE: 12" = 1'-0"



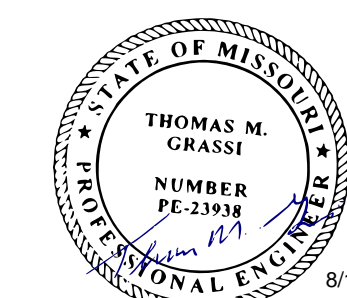
NOTE: SEE DETAIL #7 ON SHEET P-501 FOR THERMOSTATIC MIXING VALVE PIPING SCHEMATIC.

SEE DETAIL #8 ON SHEET P-501 FOR ALTERNATE #1 ELECTRONIC MIXING VALVE PIPING SCHEMATIC.

2 ELEVATION AT TMV'S

P-603 SCALE: 1/2" = 1'-0"

Points List: HEATING PLANT SYSTEM																
System Point Description	Tag	Points						Alarms								
		GRAPHIC	ANALOG HARDWARE INPUT (AI)	BINARY HARDWARE INPUT (BI)	ANALOG HARDWARE OUTPUT (AO)	BINARY HARDWARE OUTPUT (BO)	SOFTWARE POINT (SFT)	HARDWARE INTERLOCK (HDW)	TREND DATA	NETWORK (NET)	HIGH ANALOG LIMIT	LOW ANALOG LIMIT	BINARY	LATCH DIAGNOSTIC	SENSOR FAIL	COMMUNICATION FAIL
BOILER 1 ALARM	B1 ALM	X	X					X					X			
BOILER 1 ENABLE COMMAND	B1 ENB	X			X			X								
BOILER 1 STATUS	B1 STS	X	X					X								
BOILER 2 ALARM	B2 ALM	X	X					X					X			
BOILER 2 ENABLE COMMAND	B2 ENB	X			X			X								
BOILER 2 STATUS	B2 STS	X	X					X								
BOILER 3 ALARM	B3 ALM	X	X					X					X			
BOILER 3 ENABLE COMMAND	B3 ENB	X			X			X								
BOILER 3 STATUS	B3 STS	X	X					X								
BOILER LOOP ENTERING TEMPERATURE	TS-1	X	X					X		X	X				X	
BOILER LOOP LEAVING TEMPERATURE	TS-2	X	X					X		X	X				X	
BOILER PUMP 1 START STOP OUTPUT	BP-1	X			X											
BOILER PUMP 1 STATUS	BP-1	X	X													
BOILER PUMP 2 START STOP OUTPUT	BP-2	X			X											
BOILER PUMP 2 STATUS	BP-2	X	X													
BOILER PUMP 3 START STOP OUTPUT	BP-3	X			X											
BOILER PUMP 3 STATUS	BP-3	X	X													
BOILER ISOLATION VALVE OPEN SHUT	CV-1	X			X											
BOILER ISOLATION VALVE STATUS	CV-1	X	X													
BOILER ISOLATION VALVE OPEN SHUT	CV-2	X			X											
BOILER ISOLATION VALVE STATUS	CV-2	X	X													
BOILER ISOLATION VALVE OPEN SHUT	CV-3	X			X											
BOILER ISOLATION VALVE STATUS	CV-3	X	X													
HOT WATER DIFFERENTIAL PRESSURE	DP-1	X		X											X	
DOMESTIC WATER STORAGE TANK 1 TEMP	TS-3	X	X					X								
DOMESTIC WATER STORAGE TANK 2 TEMP	TS-4	X	X					X								
DOMESTIC WATER STORAGE TANK 3 TEMP	TS-14	X	X					X								
DOMESTIC WATER STORAGE TANK 4 TEMP	TS-15	X	X					X								
3-WAY CONTROL VALVE MODULATION	CV-4	X			X			X								
3-WAY CONTROL VALVE POSITION	CV-4	X	X					X								
3-WAY CONTROL VALVE MODULATION	CV-5	X			X			X								
3-WAY CONTROL VALVE POSITION	CV-5	X	X					X								
DOMESTIC HOT WATER PUMP 1 START STOP	DWP-1	X			X											
DOMESTIC HOT WATER PUMP 1 STATUS	DWP-1	X			X											
DOMESTIC HOT WATER PUMP 2 START STOP	DWP-2	X			X											
DOMESTIC HOT WATER PUMP 2 STATUS	DWP-2	X			X											
DWST-1 ENTERING TEMP	TS-5	X	X					X								
DWST-1/2 LEAVING TEMP	TS-6	X	X					X								
DWST-2 ENTERING TEMP	TS-7	X	X					X								
DWST-3 ENTERING TEMP	TS-16	X	X					X								
DWST-3/4 LEAVING TEMP	TS-17	X	X					X								
DWST-4 ENTERING TEMP	TS-18	X	X					X								
110F LOOP SUPPLY TEMPERATURE	TS-9	X	X					X								
140F LOOP SUPPLY TEMPERATURE	TS-10	X	X					X								
150F LOOP SUPPLY TEMPERATURE	TS-11	X	X					X								
DOM HOT WATER RECIRC PUMP 1 START STOP	DWRP-1	X						X								
DOM HOT WATER RECIRC PUMP 1 STATUS	DWRP-1	X			X											
DOM HOT WATER RECIRC PUMP 1 SPEED	DWRP-1	X						X								
DOM HOT WATER RECIRC PUMP 2 START STOP	DWRP-2	X						X								
DOM HOT WATER RECIRC PUMP 2 STATUS	DWRP-2	X			X											
DOM HOT WATER RECIRC PUMP 2 SPEED	DWRP-2	X						X								
BAS COMMUNICATION STATE	BAS COM							X								
BOILER PUMP 1 FAILURE	BP1 FAIL	X						X					X			
BOILER PUMP 2 FAILURE	BP2 FAIL	X						X					X			
BOILER PUMP 3 FAILURE	BP3 FAIL	X						X					X			
DOMESTIC HOT WATER PUMP 1 FAIL	DWP1 FAIL	X						X					X			
DOMESTIC HOT WATER PUMP 2 FAIL	DWP2 FAIL	X						X					X			
110F HOT WATER RESET HIGH LIMIT	110F HW RES HL	X						X								
110F HOT WATER RESET LOW LIMIT	110F HW RES LL	X						X								
110F HOT WATER SUPPLY TEMP SETPOINT	110F HW SP	X						X								
140F HOT WATER RESET HIGH LIMIT	140F HW RES HL	X						X								
140F HOT WATER RESET LOW LIMIT	140F HW RES LL	X						X								
140F HOT WATER SUPPLY TEMP SETPOINT	140F HW SP	X						X								
150F HOT WATER RESET HIGH LIMIT	150F HW RES HL	X						X								
150F HOT WATER RESET LOW LIMIT	150F HW RES LL	X						X								
150F HOT WATER SUPPLY TEMP SETPOINT	150F HW SP	X						X								



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CASCO DIVERSIFIED CORPORATION  
12 Sumner Drive, Suite 100, St. Louis, MO 63143 T: 314-821-1100

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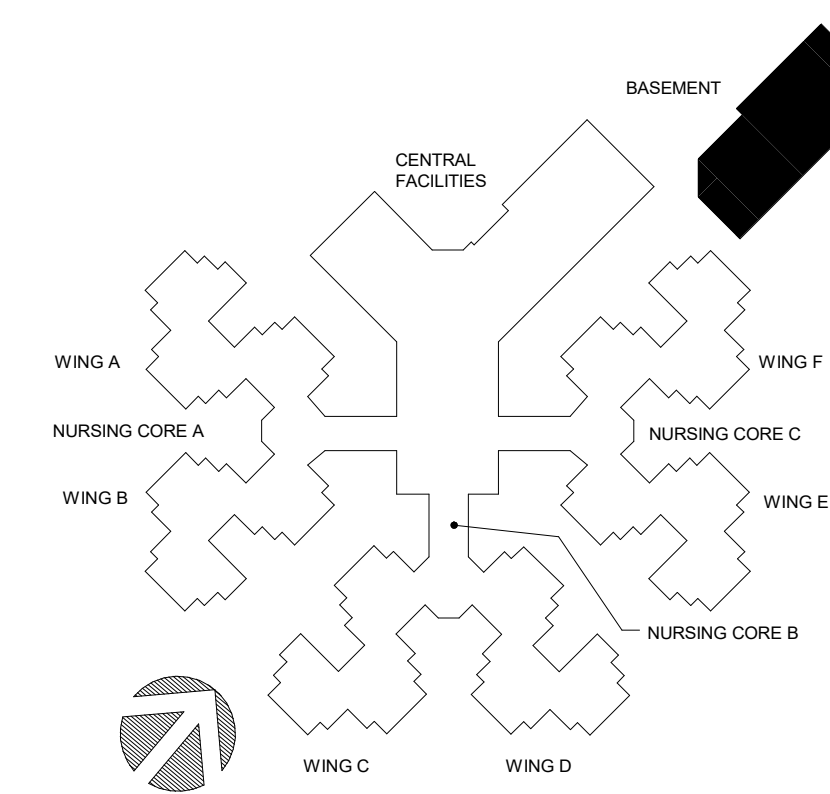
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DIAGRAMS

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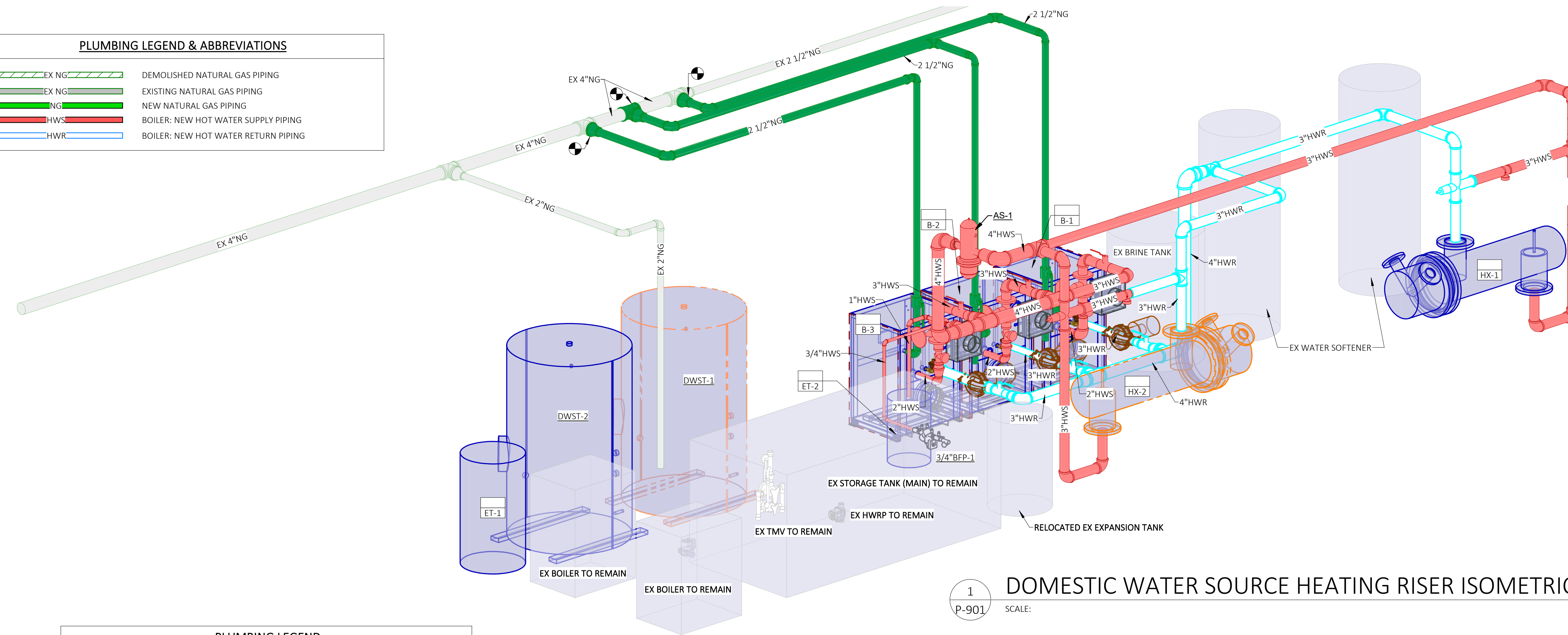
**P-603**  
9 of 18 SHEETS  
08.15.2024



NOTE TO PRINTER  
THIS DRAWING PREPARED IN COLOR. TO IMPROVE  
READABILITY, ADJUST PRINTER SETTINGS TO COLOR AND BE  
SURE THE QUALITY IS SET TO PRESENTATION OR SIMILAR.



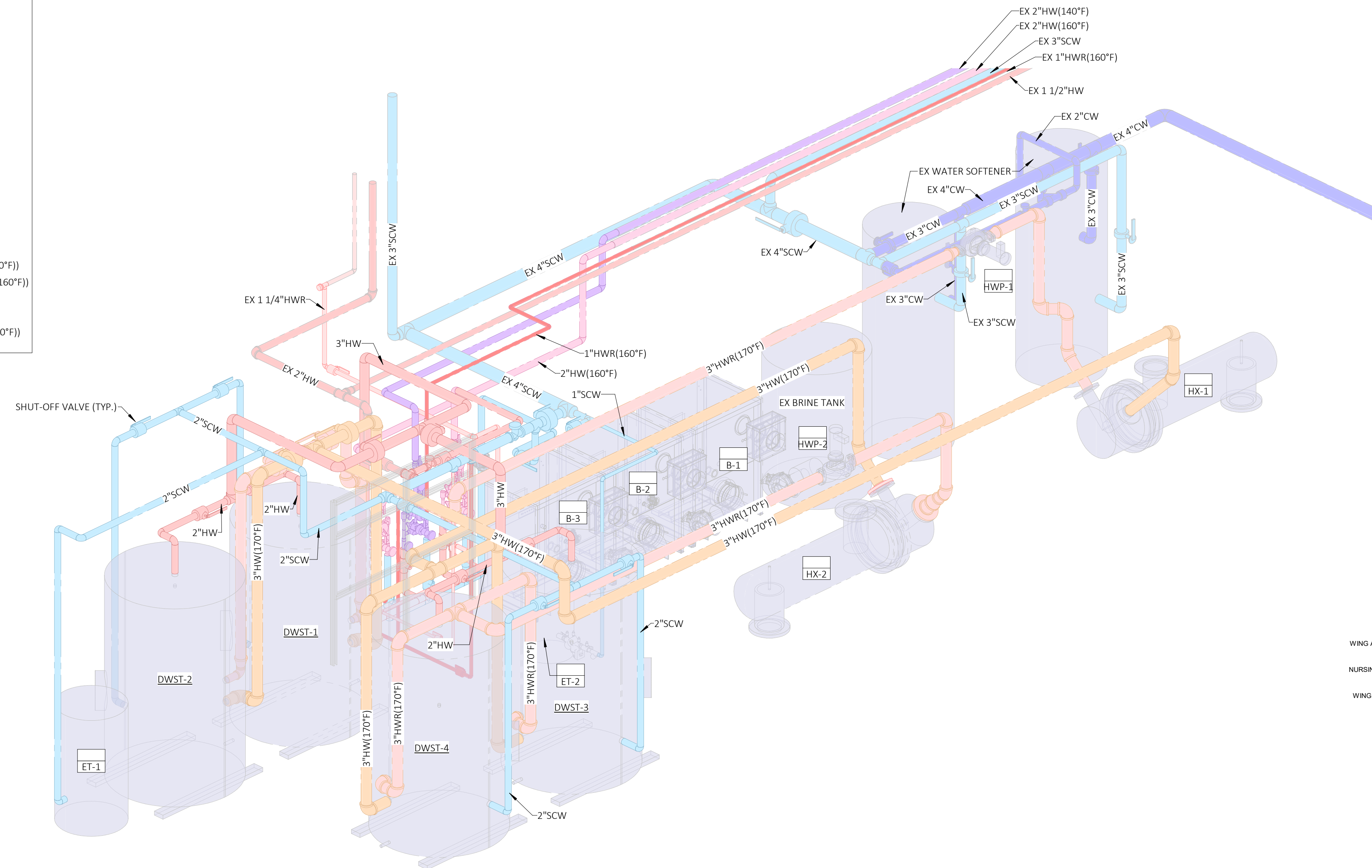
PLUMBING LEGEND & ABBREVIATIONS	
	DEMOLISHED NATURAL GAS PIPING
	EXISTING NATURAL GAS PIPING
	NEW NATURAL GAS PIPING
	BOILER: NEW HOT WATER SUPPLY PIPING
	BOILER: NEW HOT WATER RETURN PIPING



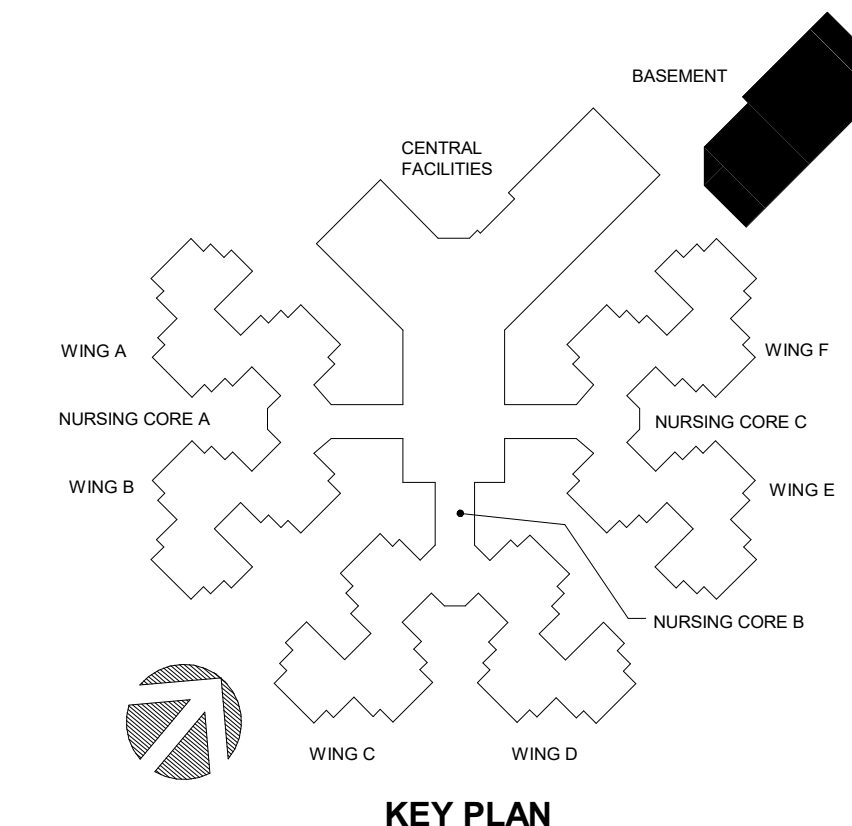
1 DOMESTIC WATER SOURCE HEATING RISER ISOMETRIC - PHASE 1  
SCALE:

PLUMBING LEGEND	
	DEMO SOFT COLD WATER PIPING (EX SCW)
	EXISTING SOFT COLD WATER PIPING (EX SCW)
	DEMO HOT WATER PIPING (EX HW)
	EXISTING HOT WATER PIPING (EX HW)
	NEW HOT WATER PIPING (HW)
	DEMO HOT WATER PIPING (140°F) (EX HW(140°F))
	EXISTING HOT WATER PIPING (140°F) (EX HW(140°F))
	NEW HOT WATER PIPING (140°F) (HW(140°F))
	DEMO HOT WATER RETURN PIPING (EX HWR)
	EXISTING HOT WATER RETURN PIPING (EX HWR)
	NEW HOT WATER RETURN PIPING (HWR)
	DEMO HOT WATER PIPING (160°F) (EX HW(160°F))
	EXISTING HOT WATER PIPING (160°F) (EX HW(160°F))
	NEW HOT WATER PIPING (160°F) (HW(160°F))
	DEMO HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	EXISTING HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	NEW HOT WATER RETURN PIPING (160°F) (HWR(160°F))
	HX: NEW HOT WATER PIPING (170°F) (HW(170°F))
	HX: NEW HOT WATER RETURN PIPING (170°F) (HWR(170°F))

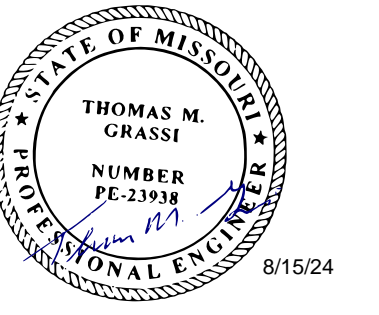
NOTE: HX = HEAT EXCHANGER



2 DOMESTIC HOT WATER RISER ISOMETRIC - PHASE 1 & 2  
SCALE:



NOTE TO PRINTER  
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DESIGN AND  
CONSTRUCTION

DESIGN & INSTALL  
NEW DOMESTIC WATER  
PLANT  
VETERANS HOME  
BUILDING

ST. JAMES VETERANS HOME  
620 NORTH JEFFERSON  
ST. JAMES, MO

PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

REVISION:  
DATE:  
REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 08.15.2024

CAD DWG FILE:  
DRAWN BY: DDP  
CHECKED BY: TMG  
DESIGNED BY:

SHEET TITLE:

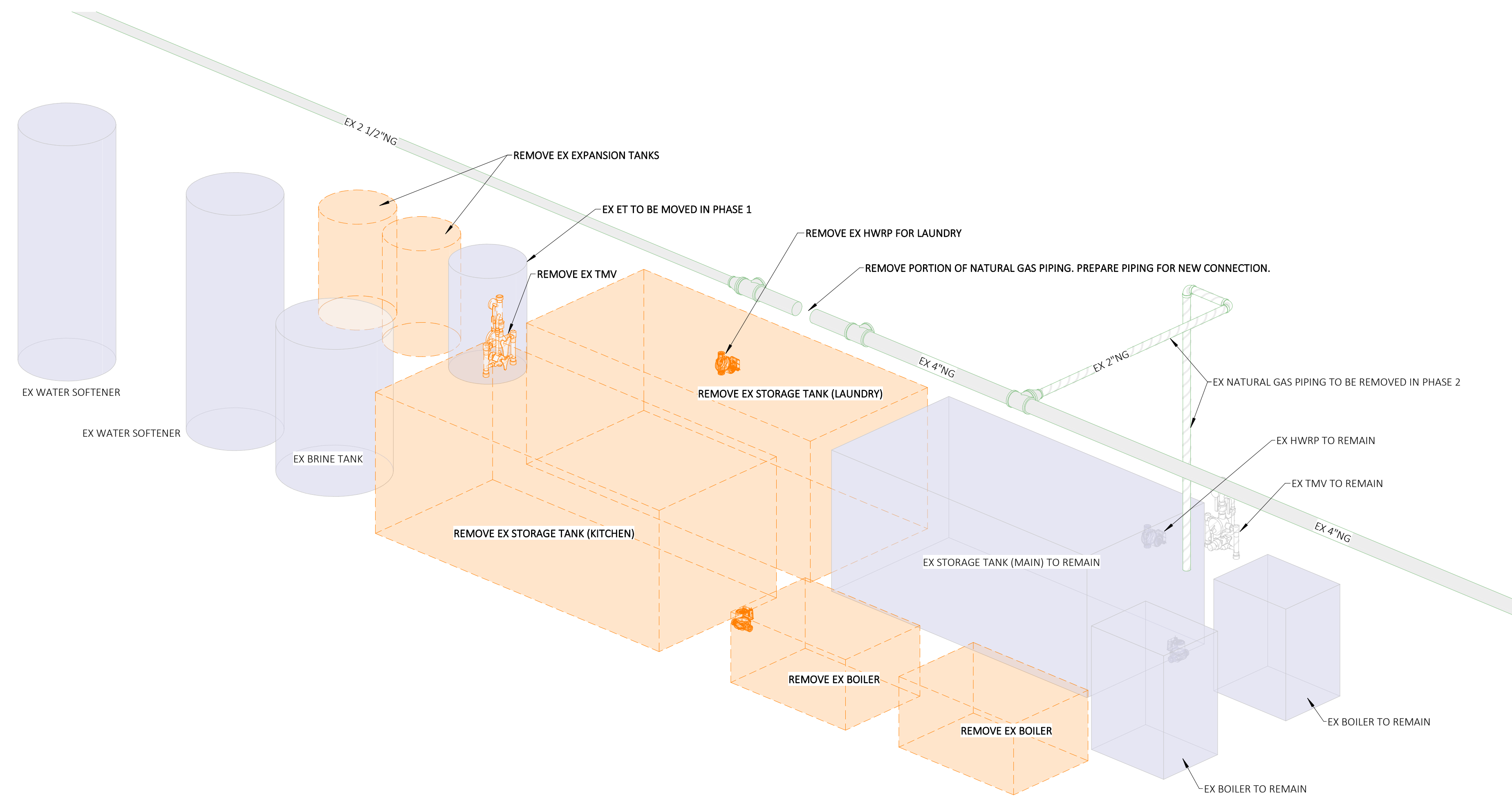
PLUMBING RISER  
ISOMETRICS

SHEET NUMBER:

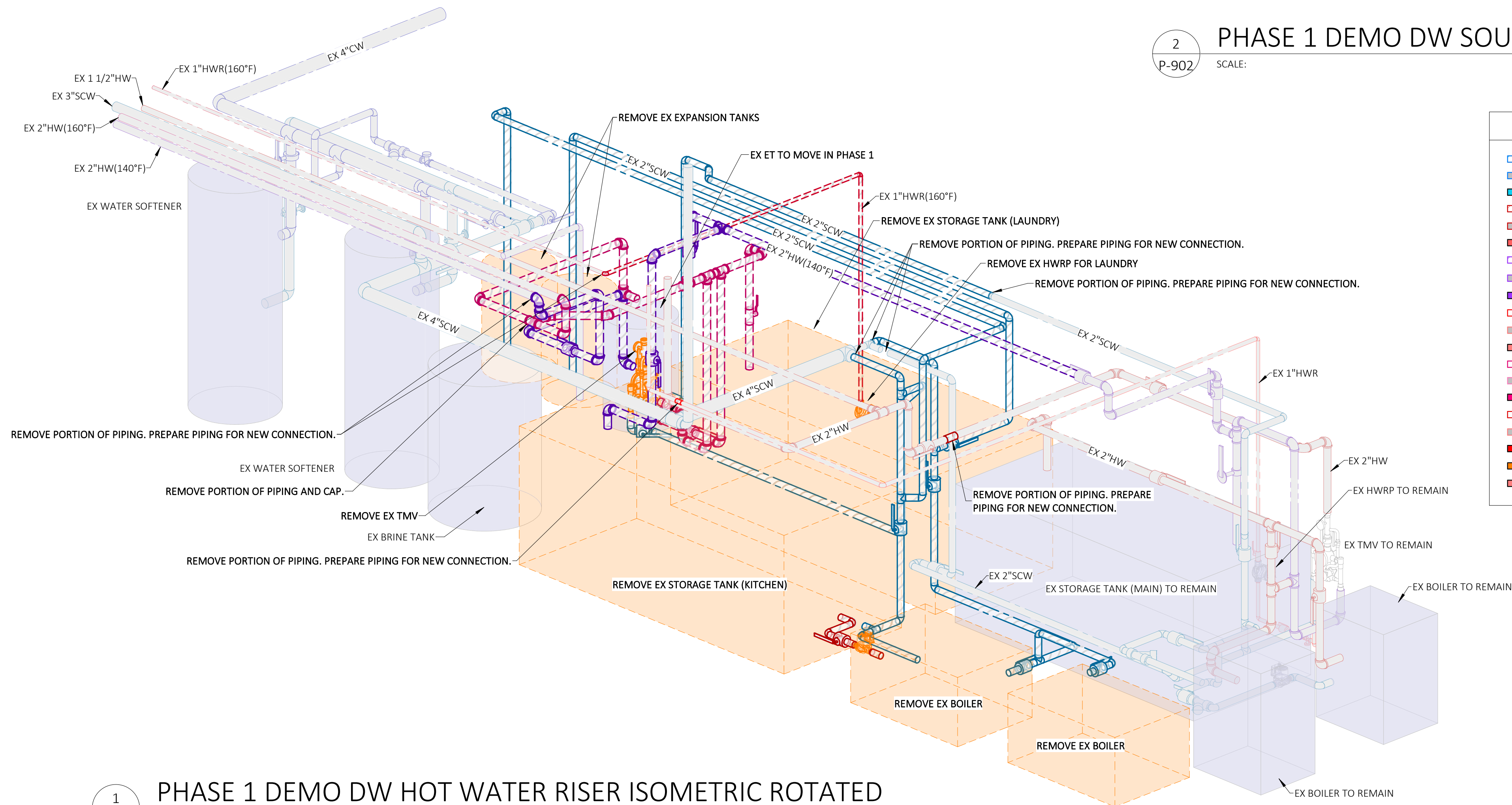
**P-901**  
10 of 18 SHEETS  
08.15.2024



PLUMBING LEGEND & ABBREVIATIONS	
	EX NG: DEMOLISHED NATURAL GAS PIPING
	EX NG: EXISTING NATURAL GAS PIPING
	NG: NEW NATURAL GAS PIPING
	HWS: BOILER: NEW HOT WATER SUPPLY PIPING
	HWR: BOILER: NEW HOT WATER RETURN PIPING



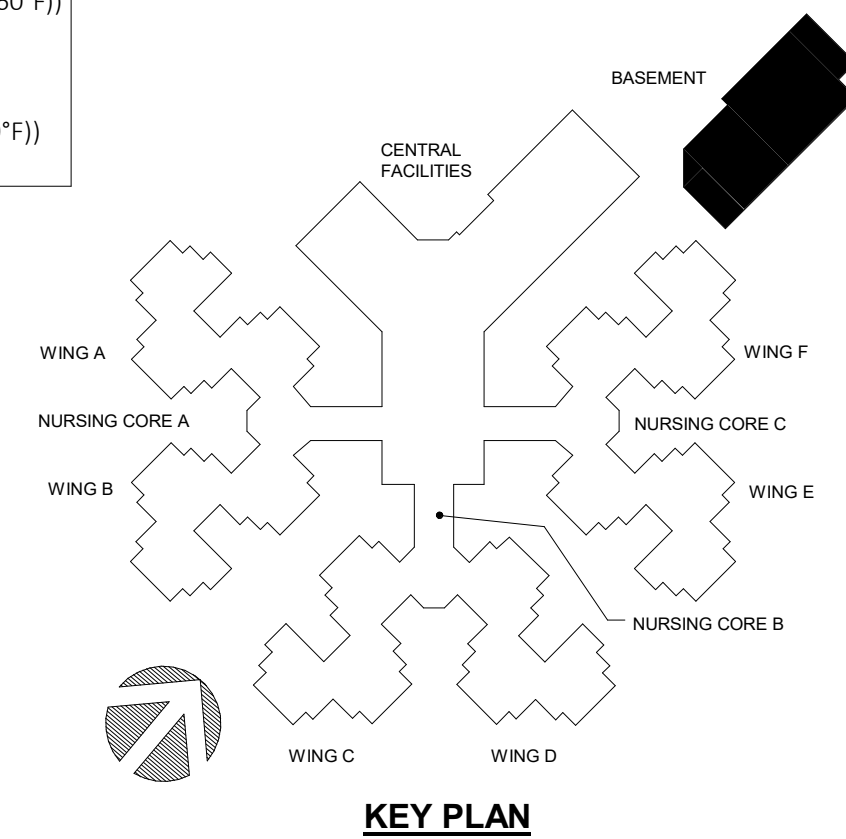
2 PHASE 1 DEMO DW SOURCE HEATING RISER ISOMETRIC ROTATED  
SCALE: P-902



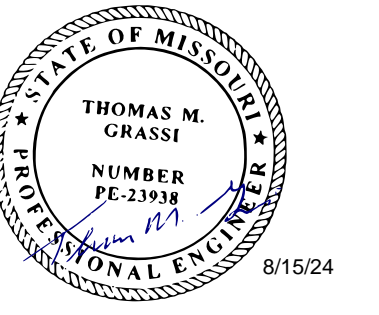
1 PHASE 1 DEMO DW HOT WATER RISER ISOMETRIC ROTATED  
SCALE: P-902

PLUMBING LEGEND	
	DEMO SOFT COLD WATER PIPING (EX SCW)
	EXISTING SOFT COLD WATER PIPING (EX SCW)
	NEW SOFT COLD WATER PIPING (SCW)
	DEMO HOT WATER PIPING (EX HW)
	EXISTING HOT WATER PIPING (EX HW)
	NEW HOT WATER PIPING (HW)
	DEMO HOT WATER PIPING (140°F) (EX HW(140°F))
	EXISTING HOT WATER PIPING (140°F) (EX HW(140°F))
	NEW HOT WATER PIPING (140°F) (HW(140°F))
	DEMO HOT WATER RETURN PIPING (EX HWR)
	EXISTING HOT WATER RETURN PIPING (EX HWR)
	NEW HOT WATER RETURN PIPING (HWR)
	DEMO HOT WATER PIPING (160°F) (EX HW(160°F))
	EXISTING HOT WATER PIPING (160°F) (EX HW(160°F))
	NEW HOT WATER PIPING (160°F) (HW(160°F))
	DEMO HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	EXISTING HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	NEW HOT WATER RETURN PIPING (160°F) (HWR(160°F))
	HX: NEW HOT WATER PIPING (170°F) (HW(170°F))
	HX: NEW HOT WATER RETURN PIPING (170°F) (HWR(170°F))

NOTE: HX = HEAT EXCHANGER



NOTE TO PRINTER  
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ST. JAMES, MO

PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 08.15.2024

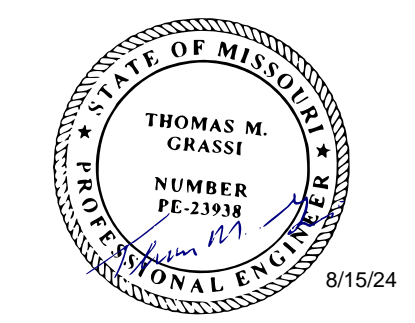
CAD DWG FILE: \_\_\_\_\_  
DRAWN BY: DDP  
CHECKED BY: TMG  
DESIGNED BY: \_\_\_\_\_

SHEET TITLE:  
PLUMBING PHASE 1  
DEMO RISER  
ISOMETRICS  
ROTATED

SHEET NUMBER:

**P-902**  
11 of 18 SHEETS  
08.15.2024





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SITE # 6801  
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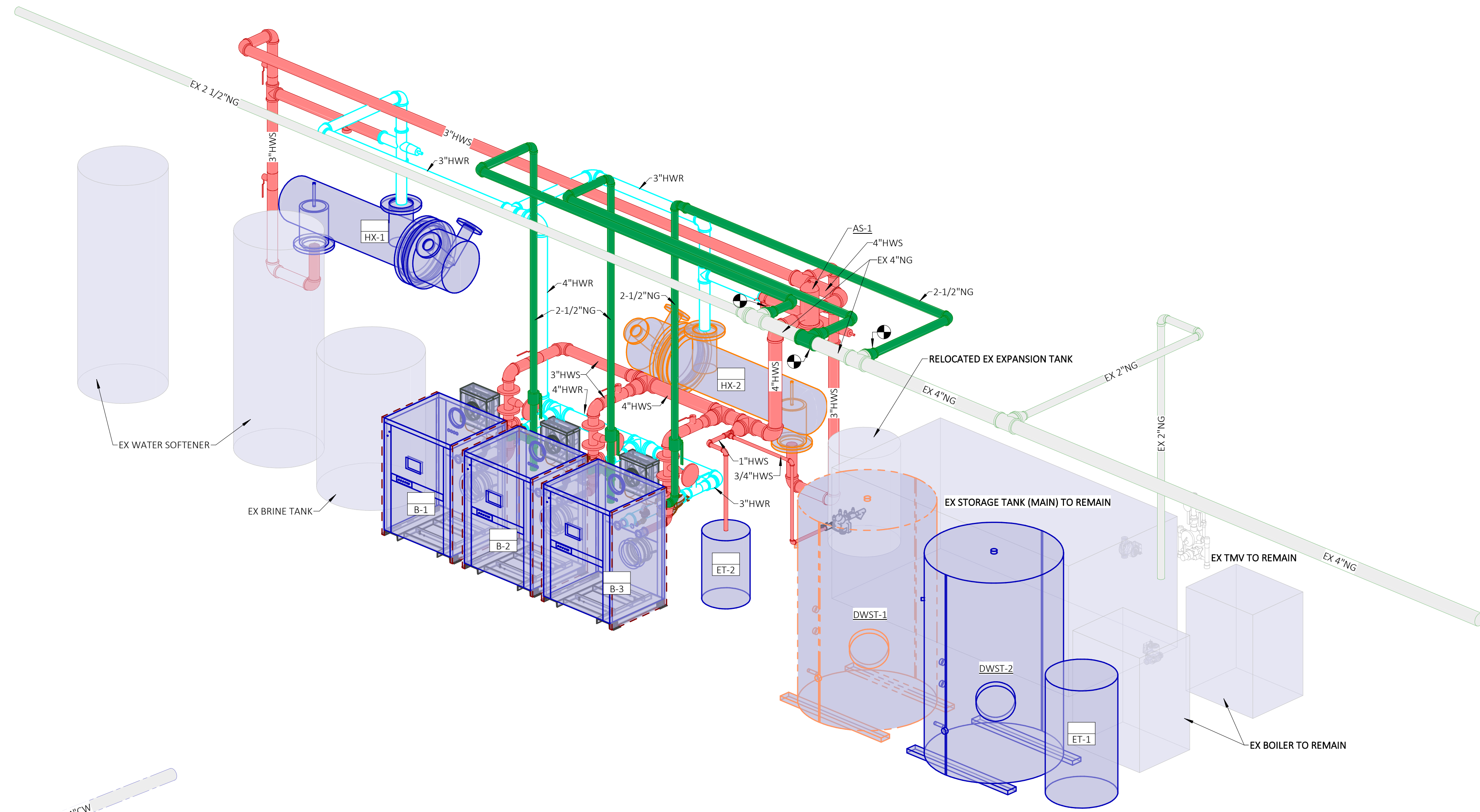
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DATE:  
REVISION:  
DATE:  
ISSUE DATE: 08.15.2024

CAD DWG FILE:  
DRAWN BY: DDP  
CHECKED BY: TMG  
DESIGNED BY:

SHEET TITLE:  
PLUMBING PHASE 1  
NEW RISER  
ISOMETRICS  
ROTATED

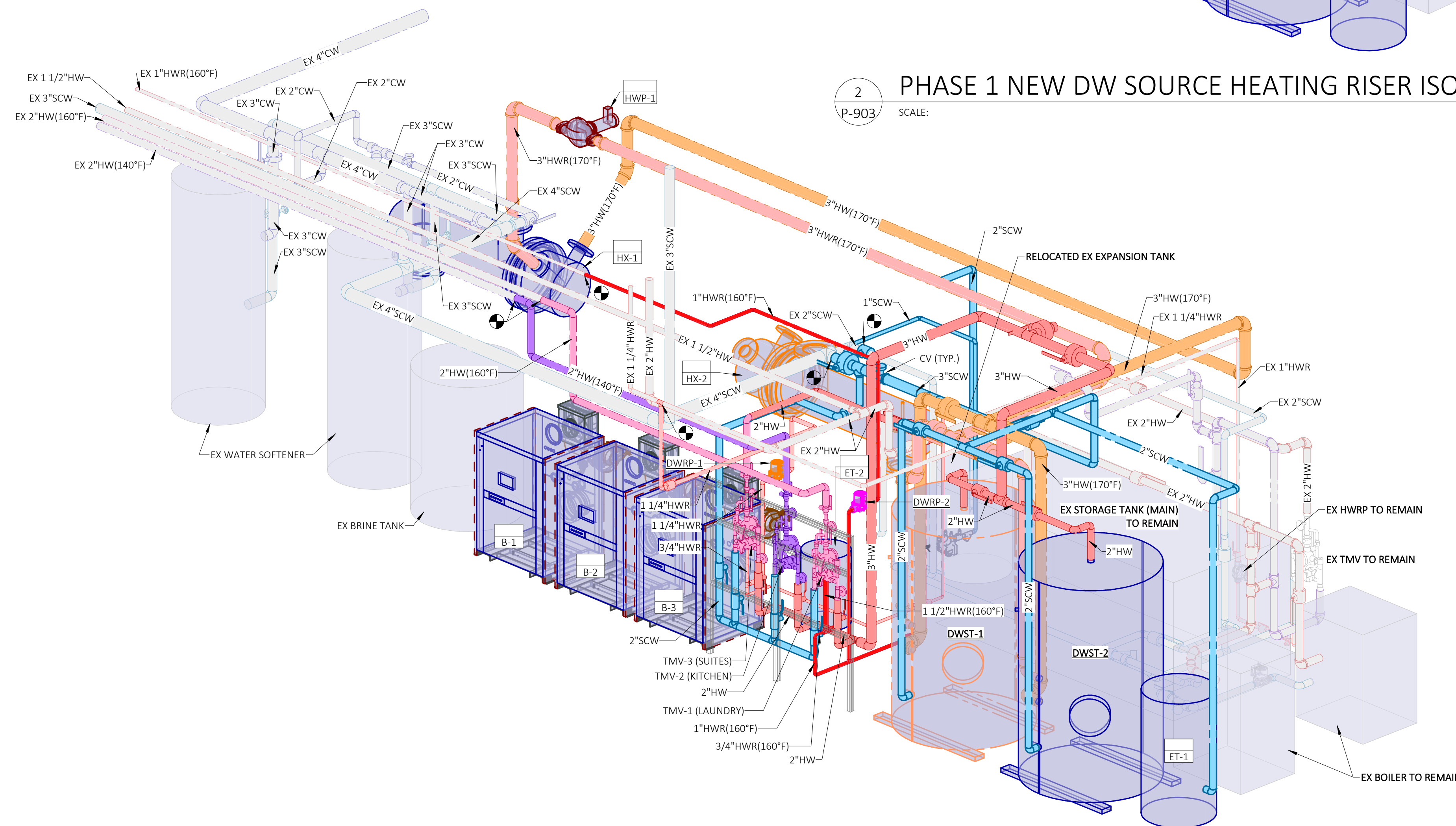
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**P-903**  
12 of 18 SHEETS  
08.15.2024



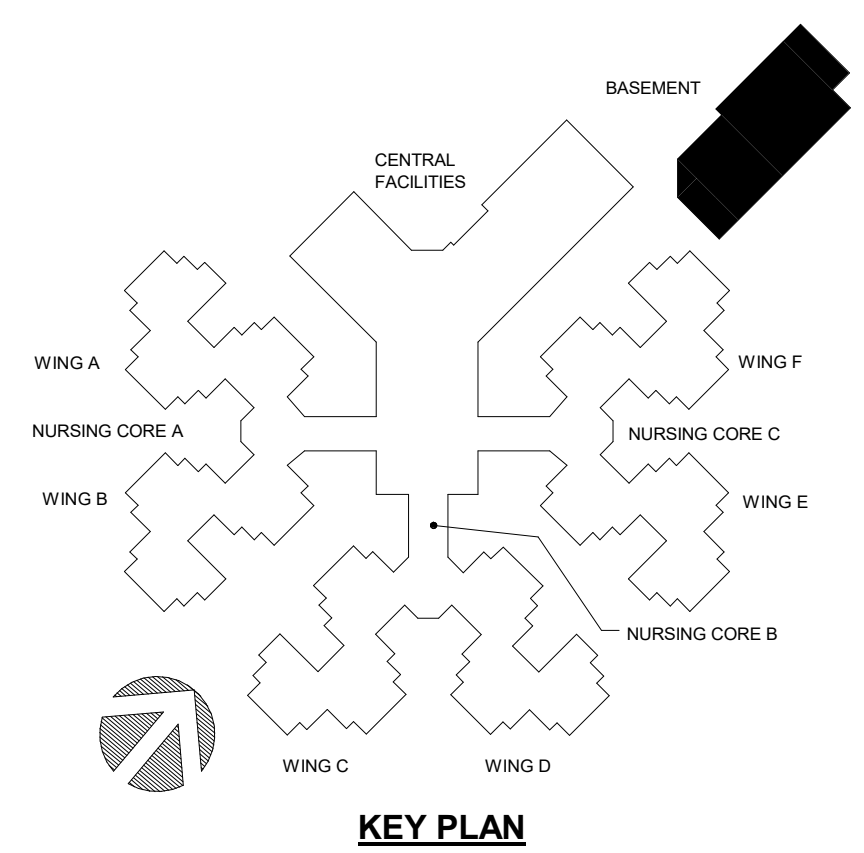
PLUMBING LEGEND & ABBREVIATIONS	
	DEMOLISHED NATURAL GAS PIPING
	EXISTING NATURAL GAS PIPING
	NEW NATURAL GAS PIPING
	BOILER: NEW HOT WATER SUPPLY PIPING
	BOILER: NEW HOT WATER RETURN PIPING

2 PHASE 1 NEW DW SOURCE HEATING RISER ISOMETRIC ROTATED  
P-903 SCALE:



PLUMBING LEGEND	
	DEMO SOFT COLD WATER PIPING (EX SCW)
	EXISTING SOFT COLD WATER PIPING (EX SCW)
	NEW SOFT COLD WATER PIPING (SCW)
	DEMO HOT WATER PIPING (EX HW)
	EXISTING HOT WATER PIPING (EX HW)
	NEW HOT WATER PIPING (HW)
	DEMO HOT WATER PIPING (140°F) (EX HW(140°F))
	EXISTING HOT WATER PIPING (140°F) (EX HW(140°F))
	NEW HOT WATER PIPING (140°F) (HW(140°F))
	DEMO HOT WATER RETURN PIPING (EX HWR)
	EXISTING HOT WATER RETURN PIPING (EX HWR)
	NEW HOT WATER RETURN PIPING (HWR)
	DEMO HOT WATER PIPING (160°F) (EX HW(160°F))
	EXISTING HOT WATER PIPING (160°F) (EX HW(160°F))
	NEW HOT WATER PIPING (160°F) (HW(160°F))
	DEMO HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	EXISTING HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	NEW HOT WATER RETURN PIPING (160°F) (HWR(160°F))
	HX: NEW HOT WATER PIPING (170°F) (HW(170°F))
	HX: NEW HOT WATER RETURN PIPING (170°F) (HWR(170°F))
NOTE: HW = HEAT EXCHANGER	

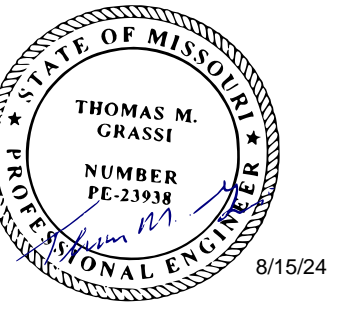
1 PHASE 1 NEW DW HOT WATER RISER ISOMETRIC ROTATED  
P-903 SCALE:



KEY PLAN

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PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

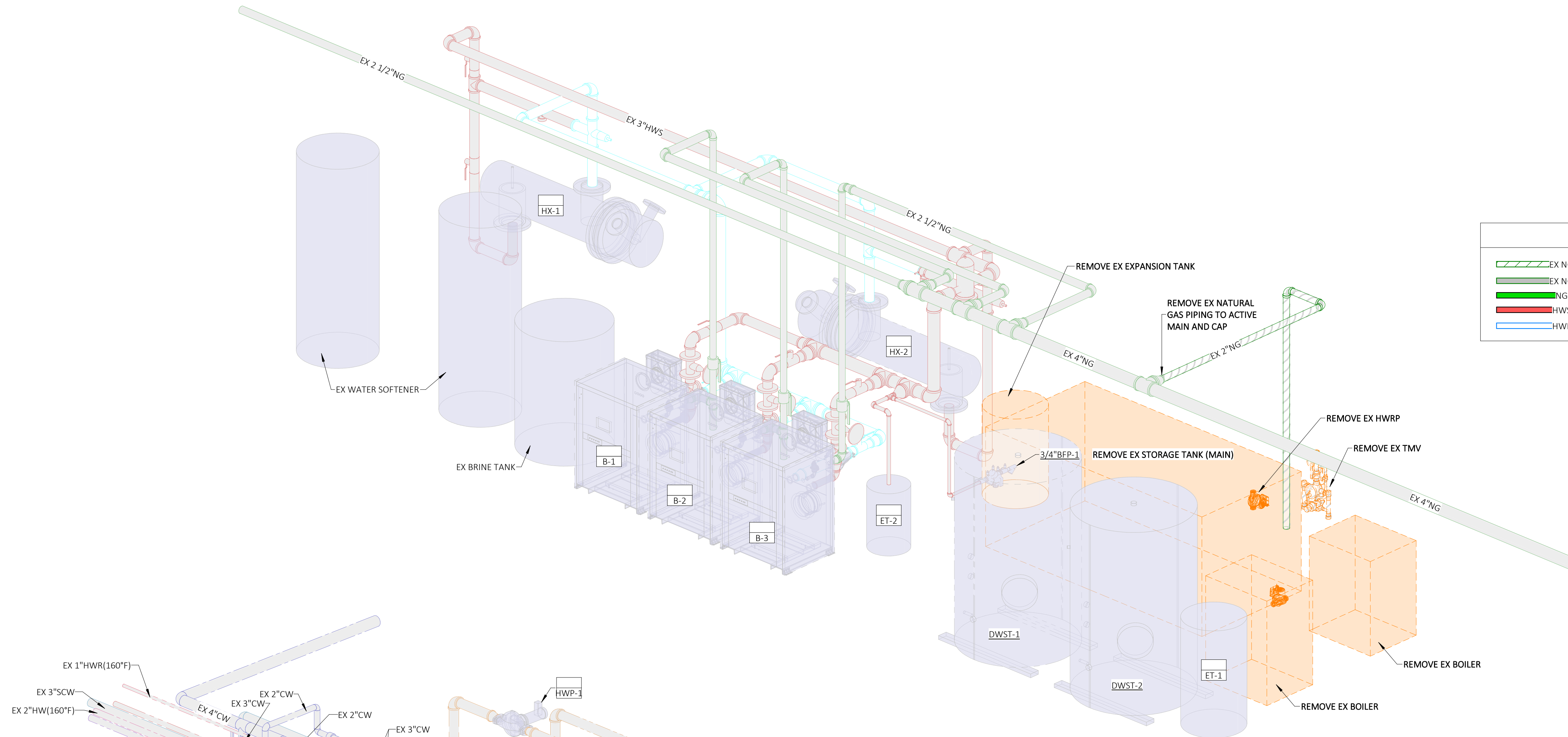
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REVISION:  
DATE:  
REVISION:  
DATE:  
ISSUE DATE: 08.15.2024

CAD DWG FILE:  
DRAWN BY: DDP  
CHECKED BY: TMG  
DESIGNED BY:

SHEET TITLE:  
PLUMBING PHASE 2  
DEMO RISER  
ISOMETRICS  
ROTATED

SHEET NUMBER:

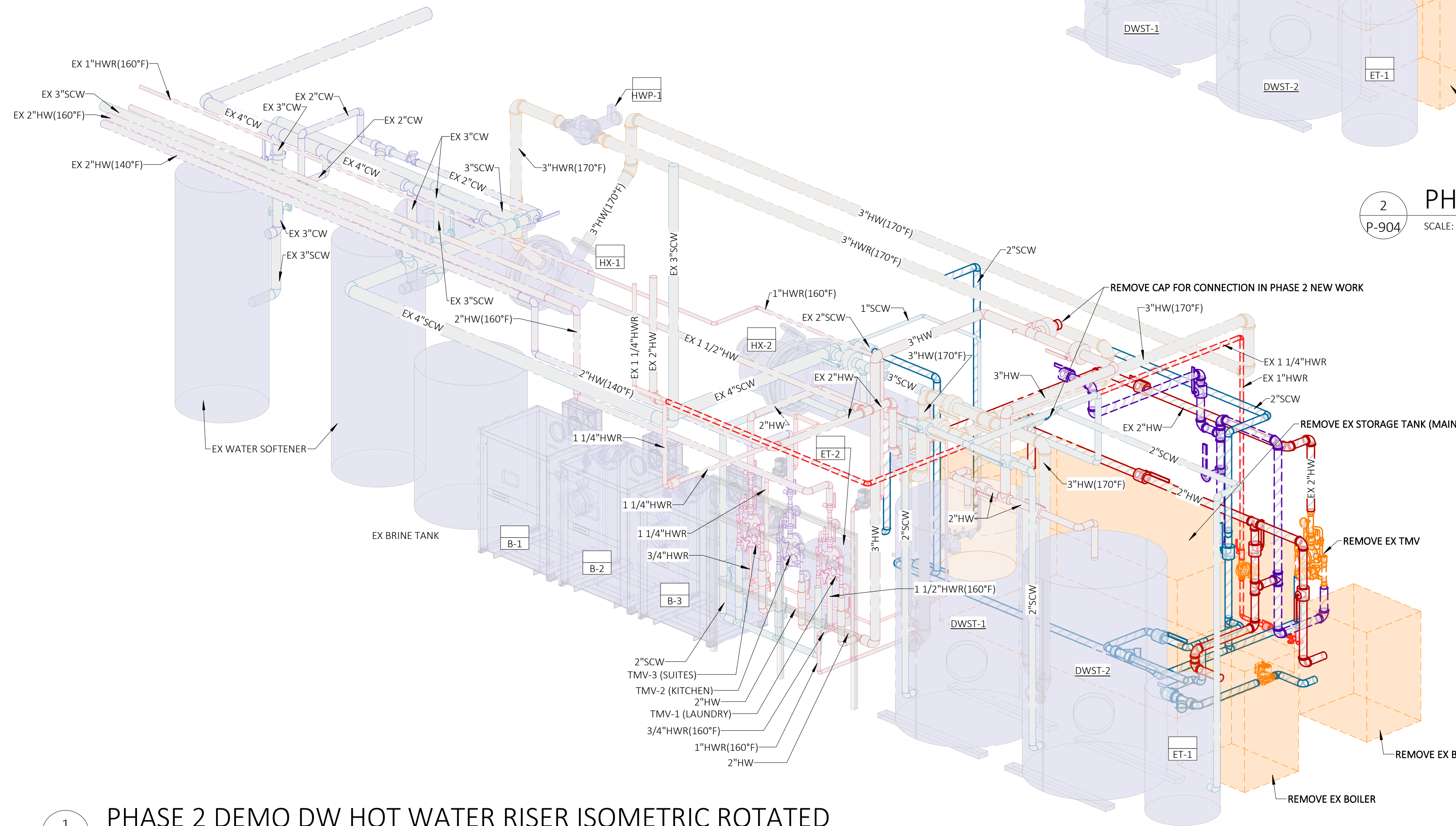
**P-904**  
13 of 18 SHEETS  
08.15.2024



**PLUMBING LEGEND & ABBREVIATIONS**

	EX NG	DEMOLISHED NATURAL GAS PIPING
	EX NG	EXISTING NATURAL GAS PIPING
	NG	NEW NATURAL GAS PIPING
	HWS	BOILER: NEW HOT WATER SUPPLY PIPING
	HWR	BOILER: NEW HOT WATER RETURN PIPING

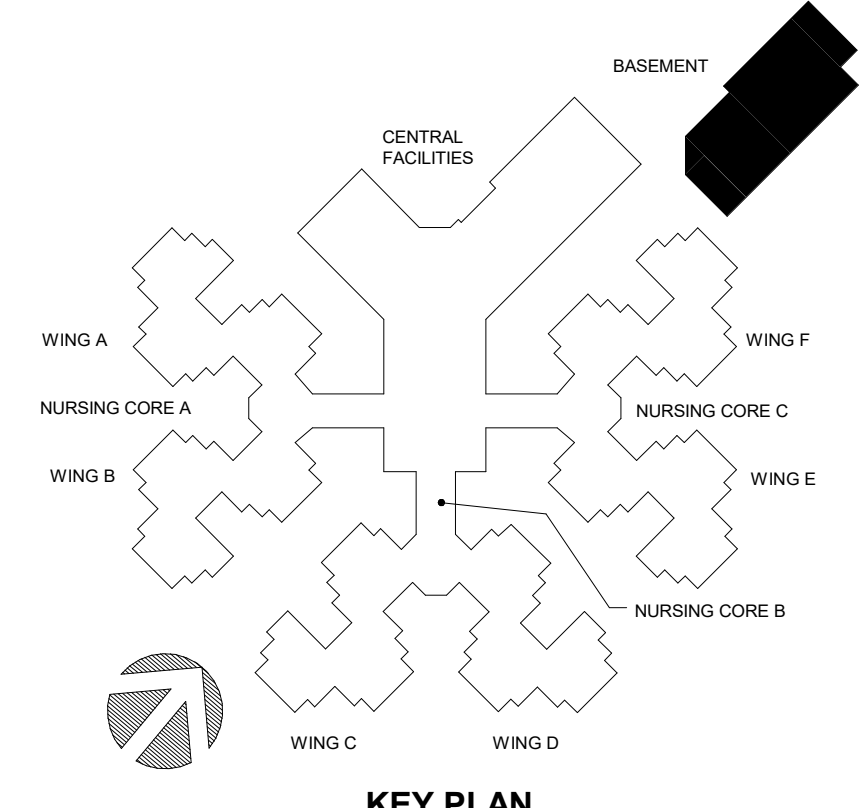
2 PHASE 2 DEMO DW SOURCE HEATING RISER ISOMETRIC ROTATED  
P-904 SCALE:



**PLUMBING LEGEND**

	DEMO SOFT COLD WATER PIPING (EX SCW)
	EXISTING SOFT COLD WATER PIPING (EX SCW)
	NEW SOFT COLD WATER PIPING (SCW)
	DEMO HOT WATER PIPING (EX HW)
	EXISTING HOT WATER PIPING (EX HW)
	NEW HOT WATER PIPING (HW)
	DEMO HOT WATER PIPING (140°F) (EX HW(140°F))
	EXISTING HOT WATER PIPING (140°F) (EX HW(140°F))
	NEW HOT WATER PIPING (140°F) (HW(140°F))
	DEMO HOT WATER RETURN PIPING (EX HWR)
	EXISTING HOT WATER RETURN PIPING (EX HWR)
	NEW HOT WATER RETURN PIPING (HWR)
	DEMO HOT WATER PIPING (160°F) (EX HW(160°F))
	EXISTING HOT WATER PIPING (160°F) (EX HW(160°F))
	NEW HOT WATER PIPING (160°F) (HW(160°F))
	DEMO HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	EXISTING HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	NEW HOT WATER RETURN PIPING (160°F) (HWR(160°F))
	HX: NEW HOT WATER PIPING (170°F) (HW(170°F))
	HX: NEW HOT WATER RETURN PIPING (170°F) (HWR(170°F))

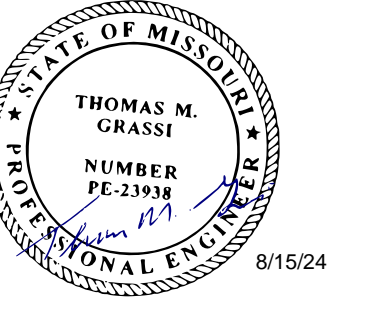
NOTE: HX = HEAT EXCHANGER



NOTE TO PRINTER  
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1 PHASE 2 DEMO DW HOT WATER RISER ISOMETRIC ROTATED  
P-904 SCALE:





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PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

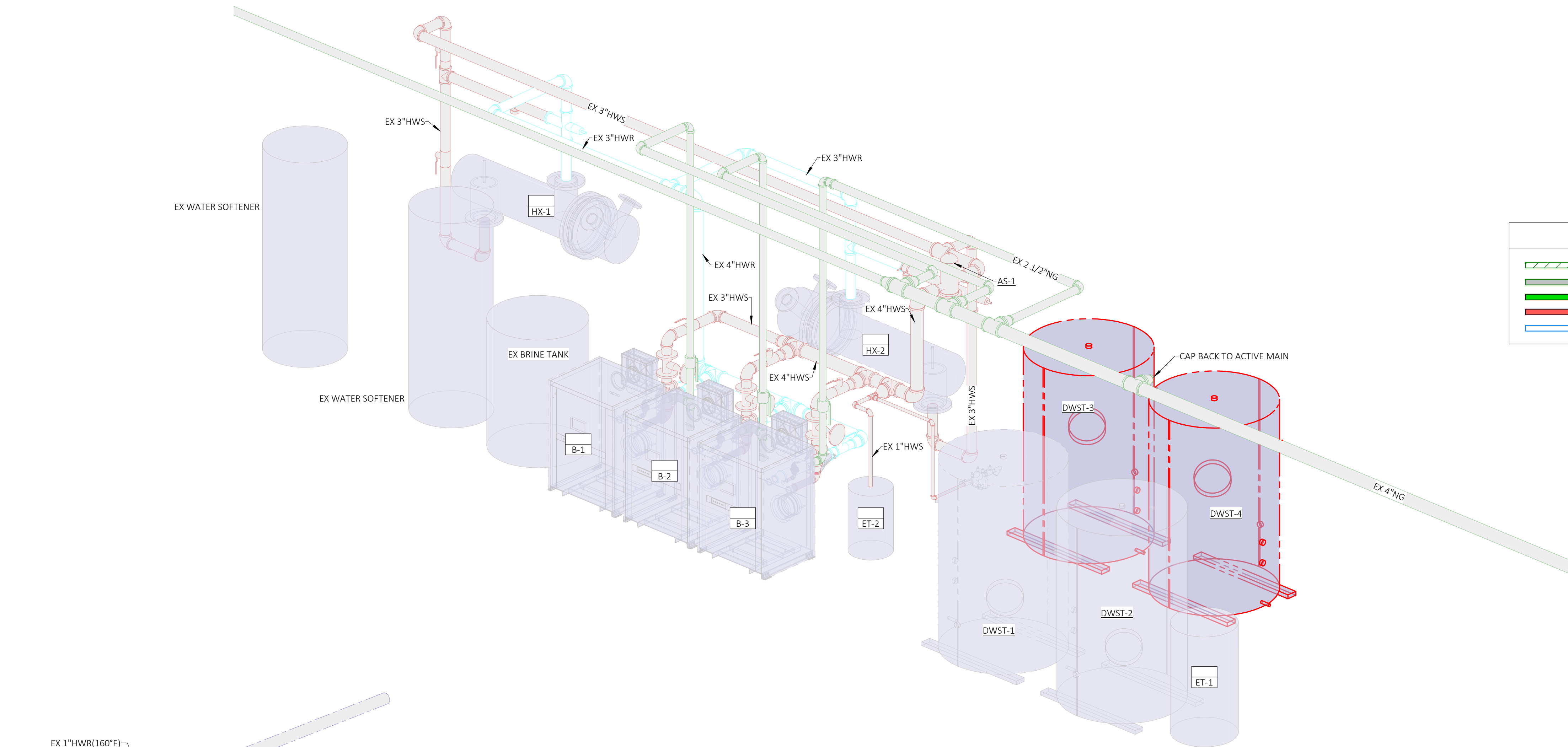
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DATE: \_\_\_\_\_  
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DATE: \_\_\_\_\_  
ISSUE DATE: 08.15.2024

CAD DWG FILE: \_\_\_\_\_  
DRAWN BY: DDP  
CHECKED BY: TMG  
DESIGNED BY: \_\_\_\_\_

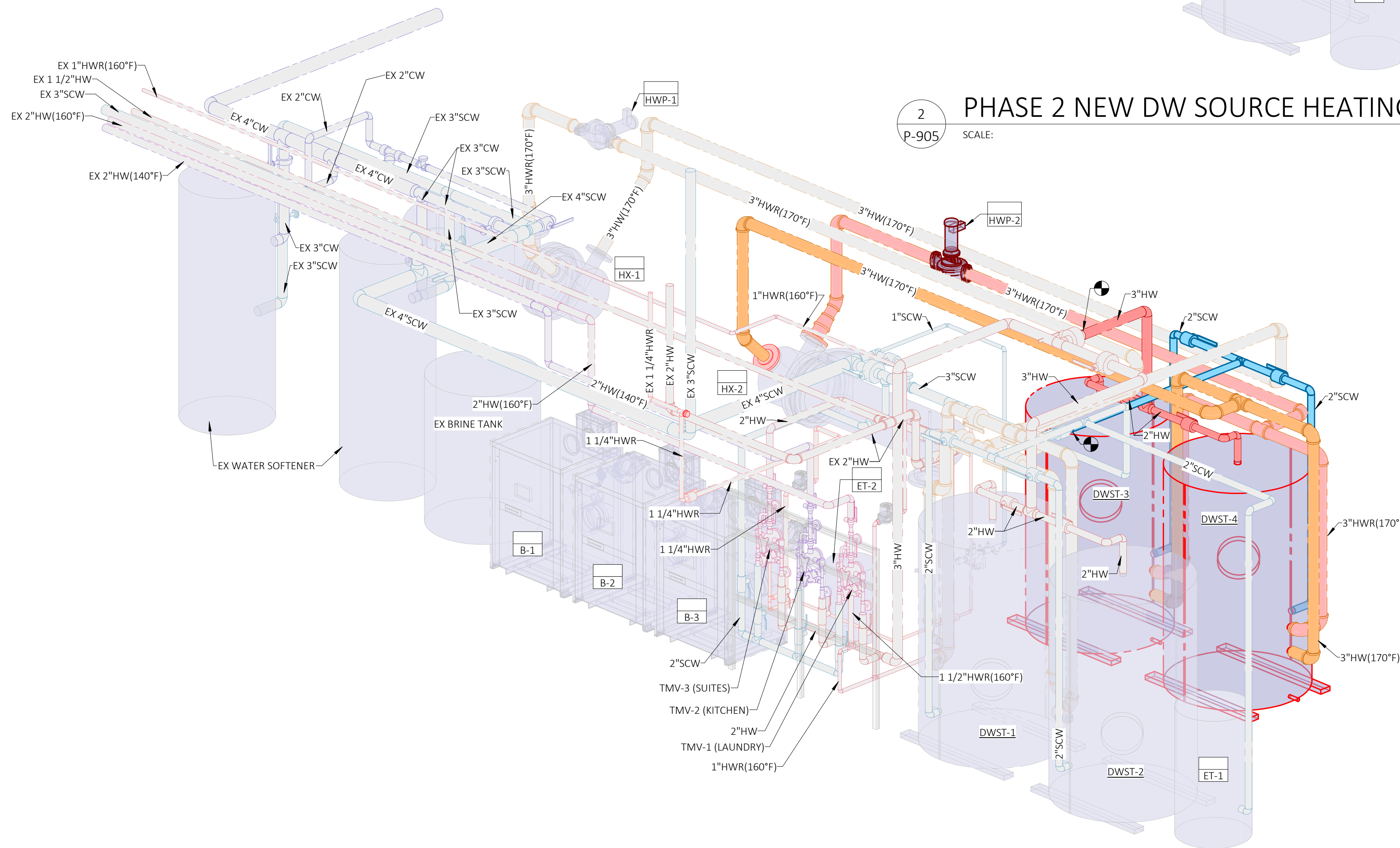
SHEET TITLE:  
PLUMBING PHASE 2  
NEW RISER  
ISOMETRICS  
ROTATED

SHEET NUMBER:

**P-905**  
14 of 18 SHEETS  
08.15.2024

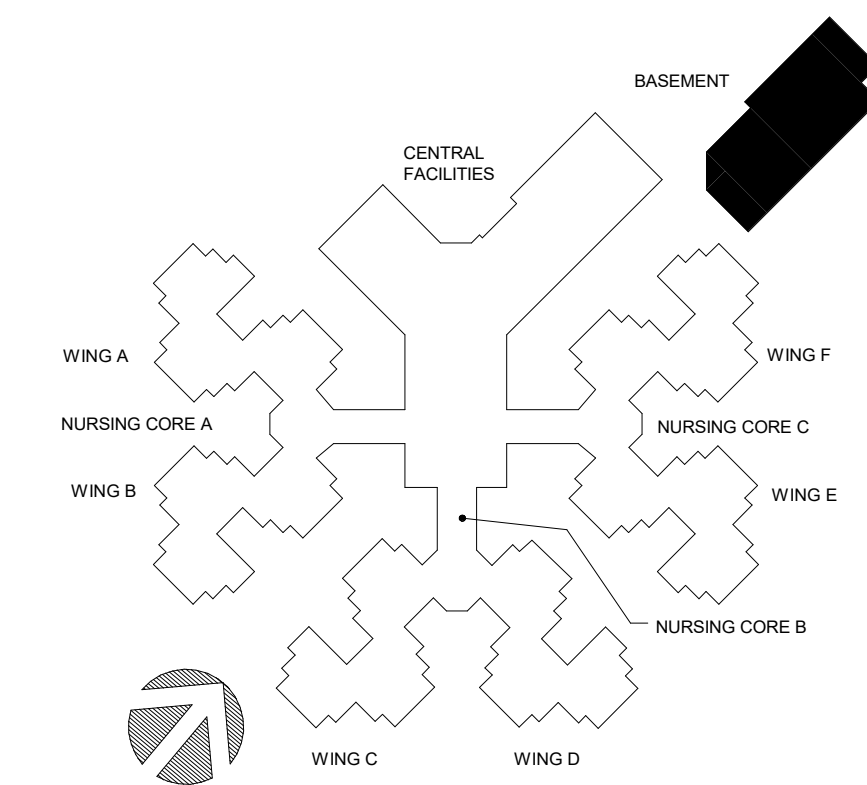


PLUMBING LEGEND & ABBREVIATIONS	
	EX NG: DEMOLISHED NATURAL GAS PIPING
	EX NG: EXISTING NATURAL GAS PIPING
	NG: NEW NATURAL GAS PIPING
	HWS: BOILER: NEW HOT WATER SUPPLY PIPING
	HWR: BOILER: NEW HOT WATER RETURN PIPING



2 PHASE 2 NEW DW SOURCE HEATING RISER ISOMETRIC ROTATED  
P-905 SCALE:

PLUMBING LEGEND	
	DEMO SOFT COLD WATER PIPING (EX SCW)
	EXISTING SOFT COLD WATER PIPING (EX SCW)
	NEW SOFT COLD WATER PIPING (SCW)
	DEMO HOT WATER PIPING (EX HW)
	EXISTING HOT WATER PIPING (EX HW)
	NEW HOT WATER PIPING (HW)
	DEMO HOT WATER PIPING (140°F) (EX HW(140°F))
	EXISTING HOT WATER PIPING (140°F) (EX HW(140°F))
	NEW HOT WATER PIPING (140°F) (HW(140°F))
	DEMO HOT WATER RETURN PIPING (EX HWR)
	EXISTING HOT WATER RETURN PIPING (EX HWR)
	NEW HOT WATER RETURN PIPING (HWR)
	DEMO HOT WATER PIPING (160°F) (EX HW(160°F))
	EXISTING HOT WATER PIPING (160°F) (EX HW(160°F))
	NEW HOT WATER PIPING (160°F) (HW(160°F))
	DEMO HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	EXISTING HOT WATER RETURN PIPING (160°F) (EX HWR(160°F))
	NEW HOT WATER RETURN PIPING (160°F) (HWR(160°F))
	HX: NEW HOT WATER PIPING (170°F) (HW(170°F))
	HX: NEW HOT WATER RETURN PIPING (170°F) (HWR(170°F))
NOTE: HX = HEAT EXCHANGER	



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1 PHASE 2 NEW DW HOT WATER RISER ISOMETRIC ROTATED  
P-905 SCALE:



# ELECTRICAL SYMBOLS LEGEND

## ELECTRICAL GENERAL NOTES

- ALL MOUNTING HEIGHTS ARE TO THE CENTER OF THE REFERENCED FIXTURE/DEVICE, UNLESS OTHERWISE NOTED.
- ALL MOUNTED HEIGHTS ARE STANDARD UNLESS OTHERWISE NOTED.

## LIGHTING FIXTURE GENERAL NOTES

- ALPHA-NUMERIC DESIGNATIONS DENOTES TYPE. SEE LIGHTING FIXTURE SCHEDULE FOR DESCRIPTION.
- SEE LIGHTING FIXTURE SCHEDULE FOR FIXTURE DESCRIPTION AND MOUNTING HEIGHTS.

### LIGHTING FIXTURES

A1	CEILING MOUNTED LUMINAIRE
B2	WALL MOUNTED LUMINAIRE
C3	CEILING MOUNTED OR PENDANT MOUNTED LUMINAIRE
D4	WALL MOUNTED LUMINAIRE CEILING MOUNTED (LEFT) AND WALL MOUNTED (RIGHT) EXIT SIGNS. SHADED PORTION INDICATES FACE, WITH DIRECTIONAL ARROW(S) AS INDICATED
	COMBINATION EXIT LIGHT WITH EMERGENCY LIGHTING HEADS
	WALL MOUNTED EMERGENCY LIGHT
	BOLLARD FIXTURE
	LIGHT POLE WITH SINGLE HEAD LUMINAIRE
	LIGHT POLE WITH MULTIPLE HEADS (NUMBER OF HEADS AS INDICATED BY SYMBOL)
	SHADING DENOTES NIGHT LIGHT (NL) FIXTURE
	SHADING DENOTES EMERGENCY LIGHT (EM) FIXTURE
	FIXTURE CIRCUITRY NOTATION: LB-J - PANEL AND CIRCUIT NUMBER TO WHICH FIXTURE IS CONNECTED a,b - LETTER(S) OF SWITCH(ES) CONTROLLING FIXTURE NL - NIGHT LIGHT (UNSWITCHED CIRCUIT)

### WIRING DEVICES

XX	SWITCH - "XX" INDICATES SWITCH TYPE, EACH TYPE IS DESCRIBED AS BELOW:	
2	D	DIMMER SWITCH - AS ABOVE, 1000 WATT RATING OR 0-10V AS REQUIRED
3	OS	WALL MOUNTED OCCUPANCY SENSOR SWITCH - AS ABOVE. "OS2" INDICATES DUAL RELAY
4	FC	FAN CONTROL SWITCH - AS ABOVE
K	P	SWITCH WITH PILOT LIGHT - AS ABOVE
T	M	MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION - MOUNT ON SIDE OF UNIT OR AT 46" AFF

D	DIMMER CONTROLLER, AS NOTED ON PLAN
TS	TIME SWITCH - MOUNT 60" AFF
PC/PC	PHOTOCELL WALL MOUNTED (LEFT) OR CEILING MOUNTED (RIGHT)
LC	LIGHTING CONTROLLER
OS	CEILING MOUNTED OCCUPANCY SENSOR SWITCH. "OS2" INDICATES DUAL RELAY
VS	UNION BOX OR POINT OF CONNECTION - MOUNT 18" AEE OR AT HEIGHT REQUIRED BY RESPECTIVE EQUIPMENT ITEM MFR CEILING MOUNTED VACANCY SENSOR, MANUAL ON/AUTO OFF
⊕	DUPLEX RECEPTACLE - MOUNT 18" AFF
⊕	QUADPLEX RECEPTACLE - AS ABOVE
⊕	SINGLEPLEX RECEPTACLE - AS ABOVE
⊕	DUPLEX RECEPTACLE AS ABOVE - SPLIT WIRED, TOP HALF SWITCHED
⊕	GFI DUPLEX RECEPTACLE - AS ABOVE
⊕	GFI QUADPLEX RECEPTACLE - AS ABOVE
⊕	CEILING MOUNTED DUPLEX RECEPTACLE, FLUSH IN CEILING
⊕	FLOOR MOUNTED DUPLEX RECEPTACLE WITH BRASS PLATE AND CARPET FLANGE
XX	RECEPTACLE - "XX" INDICATES RECEPTACLE TYPE. EACH TYPE IS DESCRIBED BELOW: AC - ABOVE COUNTER RECEPTACLE - AS ABOVE, 42" AFF UNLESS NOTED OTHERWISE CR - CONTROLLED RECEPTACLE GFI - GROUND FAULT CURRENT INTERRUPTING HG - HOSPITAL GRADE TP - TEMPER PROOF USB - RECEPTACLE WITH USB OUTLETS WP - WEATHER PROOF
⊕	SPECIAL PURPOSE OUTLET - AS ABOVE. TYPE AS REQUIRED BY RESPECTIVE EQUIPMENT MFR
⊕	PLUG-IN STRIP - AS ABOVE

⊕	COMBINATION POWER & DATA/VOICE FLOOR BOX OR POKE THRU - "FF" INDICATES FURNITURE FEED
⊕	POWER POLE WITH 120 VOLT DUPLEX RECEPTACLES
⊕	POWER POLE, TWO COMPARTMENT- ONE WITH 120 VOLT DUPLEX RECEPTACLES AND ONE WITH TELEPHONE OUTLETS
⊕	POWER POLE, TWO COMPARTMENT- ONE WITH 120 VOLT DUPLEX RECEPTACLES AND ONE WITH DATA OUTLETS
⊕	POWER POLE, TWO COMPARTMENT- ONE WITH 120 VOLT DUPLEX RECEPTACLES AND ONE WITH DATA AND TELEPHONE OUTLETS

### MOTORS AND EQUIPMENT

30/20/3	DISCONNECT SWITCH, FUSED (LEFT) OR NON-FUSED (RIGHT) AS INDICATED - MOUNT 60" AFF. 30/20/3 INDICATES SWITCH AMPS/FUSE AMPS/POLES
⊕	MOTOR STARTER, NEMA SIZE TO SUIT EQUIPMENT SERVED, WITH HAND-OFF-AUTO SELECTOR SWITCH
⊕	COMBINATION MOTOR STARTER, AS ABOVE AND DISCONNECT SWITCH
⊕	ENCLOSED CIRCUIT BREAKER, AMPS/POLES RATING AS INDICATED
⊕	CONTROL PANEL FOR EQUIPMENT ITEM INDICATED ON PLAN
⊕	VARIABLE FREQUENCY DRIVE FOR EQUIPMENT ITEM INDICATED ON PLAN
⊕	MULTIPLE PUSH BUTTONS - MOUNT 46" AFF, AS INDICATED
⊕	ELECTRIC MOTOR
⊕	NEW BRANCH CIRCUIT PANELBOARD - MOUNT TOP 78" AFF
⊕	EXISTING BRANCH CIRCUIT PANELBOARD
⊕	SWITCHBOARD, DISTRIBUTION PANEL OR MOTOR CONTROL CENTER
⊕	DRY-TYPE TRANSFORMER
⊕	KILOWATT HOUR METER BASE

### CIRCUITRY DESIGNATIONS

⊕	BRANCH CIRCUITRY. ARROW INDICATES HOME RUN TO PANEL. SHORT SLASH MARKS INDICATE "HOT" WIRES, LONG SLASH MARK INDICATES "NEUTRAL" WIRE, LONG SLASH WITH SOLID CIRCLE INDICATES GREEN GROUNDING CONDUCTOR
---	BRANCH CIRCUITRY AS ABOVE, CONCEALED IN FLOOR SLAB OR UNDERGROUND
---	BRANCH CIRCUITRY AS ABOVE, CONCEALED IN WALLS OR ABOVE CEILINGS
↕	CIRCUITRY UP (LEFT) AND CIRCUITRY DOWN (RIGHT)

### AUXILIARY SYSTEMS

S	SPEAKER - CEILING MOUNTED
SM	SPEAKER - WALL MOUNT 84" AFF
SM	SPEAKER - CEILING MOUNTED SOUND MASKING
INT	INTERCOM STATION - MOUNT 46" AFF
V	VOLUME CONTROL - MOUNT 46" AFF
M	DUPLEX MICROPHONE OUTLET - MOUNT 18" AFF
M	DUPLEX MICROPHONE OUTLET - FLOOR MOUNTED
M	MICROPHONE OUTLET - CEILING MOUNTED FOR CORD HUNG DEVICE
TC	TIME CLOCK
⊕	PUSHBUTTON, TRIPLE (LEFT) AND SINGLE (RIGHT) AS INDICATED - MOUNT 46" AFF
⊕	BELL - MOUNT 84" AFF
⊕	VOICE OUTLET - MOUNT 18" AFF; W INDICATES WALL MOUNT 46" AFF
⊕	DATA OUTLET - MOUNT 18" AFF
⊕	FLOOR MOUNTED DATA OUTLET
⊕	COMBINATION VOICE & DATA OUTLET - MOUNT 18" AFF
⊕	FLOOR MOUNTED COMBINATION VOICE & DATA OUTLET
⊕	WIRELESS ACCESS POINT - CEILING MOUNTED
⊕	TELEPHONE TERMINAL BOARD - 3/4" FIRE RETARDANT PLYWOOD, 4' x 8'
⊕	TELEPHONE TERMINAL CABINET 24" x 36" x 6" (UNO) WITH FIRE RETARDANT PLYWOOD BACK AND HINGED DOOR WITH KEY LOCK
⊕	RECESSED T.V. OUTLET - MOUNT BEHIND TV LOCATION
⊕	CLOCK OUTLET - MOUNT 78" AFF
⊕	GENERATOR ANNUNCIATOR PANEL

### ONE-LINE DIAGRAMS

⊕	TRANSFORMER
⊕	CURRENT TRANSFORMER
⊕	POTENTIAL TRANSFORMER
⊕	PANEL (1 OR 2 SECTIONS AS INDICATED)
⊕	FUSE - 30 = DISCONNECT SWITCH AMP RATING (20) = FUSE RATING
⊕	MOLDED CASE CIRCUIT BREAKER - 30 = AMP FRAME "AF" RATING (20) = AMP FRAME "AT" RATING
⊕	CIRCUIT BREAKER, DRAWOUT TYPE - AS ABOVE
⊕	KILOWATT HOUR METER
⊕	SHUNT TRIP
⊕	GROUND FAULT RELAY
⊕	GROUND FAULT PROTECTION
⊕	AUTOMATIC TRANSFER SWITCH
⊕	POTHEAD
⊕	STRESS CONES
⊕	LIGHTNING ARRESTER
⊕	VOLTMETER
⊕	VOLTMETER SWITCH
⊕	AMMETER
⊕	AMMETER SWITCH
⊕	PLUG-IN DISCONNECT SWITCH, FUSED: 30 = DISCONNECT SWITCH AMP RATING (20) = FUSE RATING
⊕	MOTOR STARTER, SINGLE SPEED, 0 = STARTER SIZE
⊕	MOTOR STARTER, MULTIPLE SPEED, 0 = STARTER SIZE
⊕	ALTERNATING MOTOR CONTROLLER
⊕	KIRK KEY INTERLOCK

### SECURITY SYSTEM

IAP	INTRUSION ALARM PANEL
KP	KEY PAD
MD	MOTION DETECTOR
C	DOOR CONTACT
DH	MAGNETIC DOOR HOLD
PP	PUSH PLATE
ADO	AUTOMATIC DOOR OPERATOR
CR	CARD READER/PROX READER
SCP	SECURITY CONTROL PANEL
RTE	REQUEST TO EXIT
IE	INTERCOM
ES	ELECTRIC STRIKE (FURNISHED BY DIVISION 8)
EH	ELECTRIFIED HARDWARE (FURNISHED BY DIVISION 8)
ML	MAGNETIC LOCK (FURNISHED BY DIVISION 8)
GB	GLASS BREAK SENSOR
⊕	VIDEO SURVEILLANCE CAMERA
A	DURESS/HOLD UP ALARM
P	PANIC BUTTON
PB	PUSH BUTTON

### NURSE CALL SYSTEMS

N	NURSE CALL PUSH BUTTON, UNLESS NOTED OTHERWISE
NCCP	NURSE CALL CONTROL PANEL
⊕	NURSE CALL LIGHT MOUNTED AT 90° UNLESS NOTED OTHERWISE

### FIRE ALARM SYSTEM

FACP	FIRE ALARM CONTROL PANEL - MOUNT TOP 72" AFF
FAAP	FIRE ALARM ANNUNCIATOR PANEL - MOUNT TOP 72" AFF
DACT	DIGITAL ALARM COMMUNICATOR TRANSMITTER
FAPS	FIRE ALARM POWER SUPPLY - MOUNTED 72" AFF
F	MANUAL PULL STATION - MOUNT 46" AFF
SD	SMOKE DETECTOR - CEILING MOUNTED
SD	SINGLE STATION SMOKE ALARM - CEILING MOUNTED - "CO" INDICATES COMBINATION CARBON MONOXIDE ALARM
SD	DUCT MOUNTED SMOKE DETECTOR WITH SAMPLING TUBES
SD	DUCT MOUNTED SMOKE DETECTOR'S REMOTE ANNUNCIATOR LAMP AND TEST SWITCH-MOUNT ON CEILING, (UNO)
F	HEAT DETECTOR - CEILING MOUNTED
CO	CARBON MONOXIDE DETECTOR - CEILING MOUNTED
⊕	WALL MOUNTED VISUAL STROBE - MOUNT 80" AFF TO BOTTOM OF FLASHER; (NUMERALS INDICATE CANDELA)
⊕	WALL MOUNTED HORN OR SPEAKER - MOUNT 80" AFF; SHADING DENOTES COMBINATION AUDIBLE/VISUAL APPLIANCE (NUMERALS INDICATE CANDELA)
⊕	VISUAL STROBE - CEILING MOUNTED; (NUMERALS INDICATE CANDELA). FINISH TO MATCH CEILING
⊕	HORN OR SPEAKER - CEILING MOUNTED; SHADING DENOTES COMBINATION AUDIBLE/VISUAL APPLIANCE. (NUMERALS INDICATE CANDELA). FINISH TO MATCH CEILING
⊕	CHIME - MOUNT 90" AFF, AS ABOVE
⊕	EXTERIOR FA BELL - MOUNT 90" AFF
F	FIRE ALARM MAGNETIC DOOR HOLDER
R	INTERFACE RELAY FOR CODE REQUIRED ACTION, OR AS NOTED ON PLANS; SEE SPECIFICATION
CM	CONTROL MODULE FOR CODE REQUIRED ACTION; SEE SPECIFICATION
MM	MONITOR MODULE FOR CODE REQUIRED ACTION, OR AS NOTED ON PLANS; SEE SPECIFICATION
TS	SPRINKLER TAMPER SWITCH (FURNISHED BY FPC)
FS	SPRINKLER FLOW SWITCH (FURNISHED BY FPC)
PS	SPRINKLER PRESSURE SWITCH (FURNISHED BY FPC)

### ABBREVIATIONS

AC	ABOVE COUNTER, +42" AFF UNLESS NOTED OTHERWISE
AIC	AMP INTERRUPTING CURRENT
AFC	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFI/AFCI	ARC FAULT CIRCUIT INTERRUPTER TYPE DEVICE
ATS	AUTOMATIC TRANSFER SWITCH
CATV	CABLE TELEVISION
EC	ELECTRICAL CONTRACTOR
ELEV	ELEVATOR CONTRACTOR
EM	EMERGENCY
EWIC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING
FLA	FULL LOAD AMPS
FPC	FIRE PROTECTION CONTRACTOR
FSS	FUSIBLE SAFETY SWITCH
GC	GENERAL CONTRACTOR
GFI/GFCI	GROUND FAULT CIRCUIT INTERRUPTER TYPE DEVICE
HID	HIGH INTENSITY DISCHARGE
IG	ISOLATED GROUND TYPE DEVICE
KEC	KITCHEN EQUIPMENT CONTRACTOR
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MFR	MANUFACTURER
MH	MOUNTING HEIGHT
MIN	MINIMUM
NF	NON-FUSED SWITCH
NTS	NOT TO SCALE
PC	PLUMBING CONTRACTOR
RT	RAINTIGHT
TP	TAMPER PROOF TYPE DEVICE
TCC	TEMPERATURE CONTROL CONTRACTOR
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTABLE POWER SUPPLY
USB	UNIVERSAL SERIES BUS PORT
WP	WEATHERPROOF

### MISCELLANEOUS

XX #	MECHANICAL EQUIPMENT ITEM IDENTIFICATION PER EQUIPMENT SCHEDULE ON DRAWINGS
⊕	MISCELLANEOUS EQUIPMENT NUMBER. SEE MISCELLANEOUS EQUIPMENT SCHEDULE
#	KEYNOTE SYMBOL

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



Professional of Record:  
DAVID A. TRETTER  
LICENSE # 021293  
EXPIRATION DATE: 12/31/25

PROFESSIONAL SEAL

CASCO Diversified Corporation  
MO Certificate of Authority #000329 Arch.  
MO Certificate of Authority #000613 Eng.  
Exp. Date: 12/31/25

**CASCO**  
CASCO DIVERSIFIED CORPORATION  
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OFFICE OF  
ADMINISTRATION  
DIVISION OF  
FACILITIES  
MANAGEMENT,  
DESIGN AND  
CONSTRUCTION

DESIGN & INSTALL  
NEW DOMESTIC WATER  
PLANT  
VETERANS HOME  
BUILDING

ST. JAMES VETERANS HOME  
620 NORTH JEFFERSON  
ST. JAMES, MO

PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 08.15.2024

CAD DWG FILE: \_\_\_\_\_  
DRAWN BY: AJS  
CHECKED BY: DAT  
DESIGNED BY: KJC

SHEET TITLE:

ELECTRICAL LEGEND  
& SYMBOLS

SHEET NUMBER:

**E-001**  
15 of 18 SHEETS  
08.15.2024



## GENERAL CONSTRUCTION NOTES

- ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR NECESSARY PERMITS, LICENSES, INSPECTIONS AND FEES FROM THE LOCAL AUTHORITIES HAVING JURISDICTION. CONTRACTOR SHALL BE LICENSED BY LOCAL AND/OR STATE AUTHORITIES HAVING JURISDICTION.
- ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), NATIONAL ELECTRICAL CODE (NEC), INTERNATIONAL BUILDING CODE (IBC) AND OTHER APPLICABLE LOCAL, STATE AND NATIONAL CODES.
- ALL ELECTRICAL MATERIALS USED ON THIS PROJECT SHALL BE "UL" LISTED AND LABELED.
- THE ENTIRE ELECTRICAL SYSTEM AND ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND AS SHOWN ON THE DRAWINGS. PROVIDE A GROUND WIRE IN EACH POWER CONDUIT, SIZED PER THE NEC.
- CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING A COMPLETE SYSTEM PER CONTRACT DRAWINGS AND ENSURING THAT THE SYSTEM IS OPERATIONAL UPON JOB COMPLETION, PRIOR TO TURNOVER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH ALL OTHER TRADES AND DISCIPLINES TO AVOID CONFLICTS AND TO VERIFY ALL EQUIPMENT CONNECTIONS, COORDINATE ALL WIRING DEVICE LOCATIONS AND ELEVATIONS INDICATED ON THE PLANS WITH THE OWNER, ARCHITECT AND FINAL FURNITURE/EQUIPMENT LAYOUTS, PRIOR TO ROUGH-IN.
- CONTRACTOR SHALL GUARANTEE ALL LABOR AND MATERIALS INSTALLED OR FURNISHED UNDER THIS CONTRACT FOR A PERIOD OF NOT LESS THAN ONE YEAR AFTER FINAL ACCEPTANCE OF THE BUILDING.
- MAINTAIN AND VERIFY ELECTRICAL EQUIPMENT CLEARANCES AND WORKING SPACE PER NEC.
- PROVIDE ELECTRICAL SYSTEMS WITH IDENTIFICATION AS INDICATED IN THE SPECIFICATIONS AND REQUIRED BY THE NEC.
- IF ANYTHING ON THE PLANS IS NOT IN COMPLIANCE WITH NATIONAL, STATE OR LOCAL CODES, THE ENGINEER SHALL BE ADVISED BY THE ELECTRICAL CONTRACTOR DURING THE BIDDING PROCESS. THERE ARE TO BE NO CHANGES TO THE CONTRACT DOCUMENTS WITHOUT WRITTEN PERMISSION FROM THE ENGINEER.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS FOR NEW WORK, SAFETY, ETC., IN ACCORDANCE WITH ALL AUTHORITIES HAVING JURISDICTION. (I.E. OSHA, NEC, ETC.)
- THE CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS FOR PHASING AND SCHEDULING OF THIS PROJECT. COORDINATE WITH OWNER'S FIELD REPRESENTATIVE.
- VERIFY ALL INDICATED DIMENSIONS BY FIELD MEASUREMENTS. NOTIFY ENGINEER OF ANY DISCREPANCIES.
- PROVIDE ACCESS PANELS OR DOORS WHERE EQUIPMENT OR DEVICES ARE REQUIRED TO BE ACCESSIBLE ARE CONCEALED BEHIND INACCESSIBLE SURFACES.
- PRIOR TO TURNOVER, THE CONTRACTOR SHALL REMOVE ALL RUBBISH, DIRT, DEBRIS AND STAINS ON THEIR WORK OR CAUSED BY THEIR WORK AND SHALL THOROUGHLY CLEAN ALL EQUIPMENT, FIXTURES, DEVICES, ETC. CONTRACTOR SHALL REPLACE, TOUCH-UP OR REFINISH THE FACTORY FINISH ON EQUIPMENT, FIXTURES, DEVICES, ETC. MARRED DURING SHIPMENT, INSTALLATION OR CONSTRUCTION.
- PANELBOARD SHALL BE EQUIPPED WITH BOLT-ON TYPE BREAKERS, PHENOLIC NAME TAGS AND KEYPED LOCK AND LATCH. EACH PANEL SHALL BE PROVIDED WITH TWO KEYS WITH ALL PANELS KEYED ALIKE. ALL CIRCUIT BREAKERS USED TO SWITCH LIGHT FIXTURES SHALL BE TYPE SWD AND SHALL BE APPROVED FOR THE PURPOSE. ALL CIRCUIT BREAKERS SERVING HVAC EQUIPMENT SHALL BE HACR TYPE.
- ALL CIRCUITS INDICATED ON THESE DRAWINGS ARE 20A, 1P CIRCUIT BREAKERS IN PANELS UNLESS NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER IDENTIFICATION AND LABELING OF ALL CIRCUIT BREAKERS. EACH PANELBOARD SHALL BE EQUIPPED WITH A TYPE WRITTEN CIRCUIT DIRECTORY.
- MINIMUM WIRE SIZE SHALL BE #12 AWG UNLESS OTHERWISE NOTED. MINIMUM CONDUIT SIZE SHALL BE 1/2" UNLESS OTHERWISE NOTED. ALL CONDUIT BELOW SLABS OR EXTERIOR TO BUILDING SHALL BE MINIMUM 1". PROVIDE A NYLON/POLY PULL CORD IN ALL EMPTY CONDUITS.
- ELECTRICAL CONTRACTOR SHALL PROVIDE TYPE THHN OR THWN COPPER CONDUCTORS FOR ALL INTERIOR BUILDING WIRE AND SHALL PROVIDE TYPE XHHW-2 COPPER CONDUCTORS FOR ALL EXTERIOR FEEDERS AND BRANCH CIRCUITS.
- VOLTAGE DROP MINIMUM WIRE SIZING (20A CIRCUIT) USE: 120V CIRCUIT OVER 100' SHALL BE #10 MINIMUM; 120V CIRCUIT OVER 175' SHALL BE #8 MINIMUM; 208V CIRCUIT OVER 200' SHALL BE #10 MINIMUM; 277V CIRCUIT OVER 200' SHALL BE #10 MINIMUM. MINIMUM WIRE SIZE FOR ANY 20A BRANCH CIRCUIT SHALL BE #12. FURTHERMORE, CONSIDER ALL DERATING OF CONDUCTORS AS REQUIRED IN ACCORDANCE WITH THE APPLICABLE NEC.
- ELECTRICAL CONTRACTOR SHALL HAVE THE OPTION OF GROUPING HOME RUNS IN ONE CONDUIT, PER THE REQUIREMENTS OF SECTION 310 OF THE NATIONAL ELECTRICAL CODE. NO MORE THAN FOUR (4) CIRCUITS SHALL BE ALLOWED TO BE GROUPED AND INSTALLED IN A SINGLE JUNCTION BOX. EC SHALL BE RESPONSIBLE FOR INCREASING CONDUCTOR SIZE AND DERATING. HOME RUNS WITH MORE THAN THREE CIRCUITS SHALL BE #10 AWG. CONDUCTOR MINIMUM. PROVIDE DEDICATED NEUTRALS FOR EACH PHASE CONDUCTOR AND CONSIDER THEM AS A CURRENT CARRYING CONDUCTOR FOR DERATING.
- ALL HOME RUNS SHALL BE IN EMT CONDUIT. MC CABLE IS PERMITTED ABOVE CEILINGS FROM HOMERUNS TO FIXTURES AND WIRING DEVICES WITHIN WALLS AND FURRED COLUMNS. REFER TO ELECTRICAL SPECIFICATIONS FOR MORE DETAILED INFORMATION.
- SUPPORT ALL CONDUITS FROM STRUCTURAL WALLS, SLABS, MEMBERS AND ROOF JOISTS. DO NOT SUPPORT CONDUITS FROM CEILING TIE WIRES, DUCTWORK, PIPING, ROOF DECK OR OTHER NON-STRUCTURAL MEMBERS.
- SUPPORTING OF ELECTRICAL CONDUITS: THE INDIVIDUAL BRANCH CIRCUIT CONDUIT AND ASSOCIATED 4" X 4" JUNCTION BOXES MAY BE SUPPORTED FROM FLOOR/ROOF JOISTS. ALL LARGER FEEDER CONDUITS AND/OR CLUSTER OR GROUPS OF BRANCH CIRCUIT CONDUITS SHALL BE SUPPORTED ON STEEL TRAPEZE WITH STEEL CHANNEL ATTACHED TO STEEL OR WOOD JOIST/BEAMS WITH PROPER ATTACHMENTS. NO SUPPORT SHALL BE ATTACHED TO THE ROOF DECK (NO EXCEPTIONS). HANG CONDUIT FROM TOP CHORD OF BAR JOIST WHEN ATTACHING HOME RUNS TO JOIST.
- INTERIOR AND EXTERIOR LIGHT FIXTURES SHALL BE FURNISHED AND INSTALLED AS SHOWN ON THE DRAWINGS AND AS CALLED OUT IN THE LIGHTING FIXTURE SCHEDULE.
- ALL WIRING DEVICES SHALL BE FLUSH MOUNTED, UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL BE RUN WITHIN WALL CAVITIES, BELOW FLOOR AND ABOVE CEILINGS. SURFACE MOUNTED ELECTRICAL WORK SHALL NOT BE USED UNLESS SPECIFICALLY NOTED ON THE PLANS.
- ALL WALL AND CEILING FIXTURES AND DEVICES SHALL BE INDEPENDENTLY AND SECURELY MOUNTED SO THEY ARE NOT DEPENDENT ON CEILING FINISH FOR SUPPORT AND CAN NOT BE ROTATED OR DISPLACED. FIXTURES AND DEVICES MOUNTED IN SUSPENDED ACOUSTICAL CEILING TILE SHALL HAVE CHANNEL SUPPORTS ACROSS THE MAIN GRID RUNNERS OR GRID SUPPORTS SECURELY ANCHORED SO AS NOT TO CAUSE TILE TO SAG OR SO FIXTURE OR DEVICE CAN NOT BE LIFTED, ROTATED OR DISPLACED.
- ALL OPENINGS IN FIRE AND/OR SMOKE RATED WALLS, FLOORS, AND PARTITIONS FOR CONDUITS SHALL BE SEALED WITH RED FIRE RESISTANT FOAM OR PUTTY TO MAINTAIN THE FIRE AND/OR SMOKE RATING. ALL OPENINGS IN FIRE RATED AND/OR SMOKE WALLS, FLOORS, AND PARTITIONS FOR CABLING SHALL BE SEALED WITH WIREMOLD FLAMESTOPPER, STI EZ-PATH, HILTI SPEED SLEEVE OR EQUIVALENT.
- RECEPTACLES/WIRING DEVICES SHALL NOT BE INSTALLED BACK-TO-BACK, INSTALL ON OPPOSITE SIDES OF WALL STUDS; WHERE DEVICES EXIST ALONG FIRE WALLS, COVER WITH UL LISTED PUTTY PACKS.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES, DIMENSIONAL LOCATION OF FIXTURES IN DRYWALL CEILING, ETC. LOCATION OF FLOOR BOXES AND RECEPTACLES, INCLUDING MOUNTING HEIGHTS. ALL RECEPTACLES AND COVER PLATE COLORS SHALL BE APPROVED BY ARCHITECT.
- OWNER RESERVES THE RIGHT TO RELOCATE ANY LIGHT FIXTURE, RECEPTACLE, ETC., BEFORE BEING INSTALLED 10'-0" FROM LOCATION AS SHOWN ON PLANS AT NO ADDITIONAL EXPENSE TO THE OWNER.
- NO CONDUIT OR CABLES SHALL BE INSTALLED EXPOSED IN FINISHED AREA. NON-CEILING AREA CONDUITS SHALL BE INSTALLED EXPOSED IN A NEAT WORKMAN LIKE MANNER AND SHALL BE PAINTED TO MATCH ADJACENT FINISHES.
- TELEPHONE, IT, AUDIO, VIDEO, SECURITY AND FIRE ALARM CABLE WIRING IN WALLS AND FLOOR SHALL BE ROUTED IN CONDUIT FROM DEVICE/JUNCTION BOX TO ABOVE AN ACCESSIBLE CEILING OR IN ATTIC SPACE; 1" EMT MINIMUM. NO SPlicing OF TELEPHONE OR DATA CABLES SHALL BE PERMITTED. ALL CABLES SHALL BE BUNDLED AND SUPPORTED FROM STRUCTURE ABOVE, NO MORE THAN 60" O.C. DO NOT LAY CABLES ON CEILING SYSTEM. PROVIDE J-HOOKS AND/OR CABLE TRAY SYSTEM. MAINTAIN 12" CLEARANCE ABOVE CEILING. COLOR CODE EACH CABLE BY USAGE.
- ALL SIGNAL AND CONTROL CABLES SHALL BE MINIMUM #18 STRANDED COPPER, UNLESS NOTED OTHERWISE. ALL CONNECTIONS AND SPLICES TO BE MADE BY USE OF "STA-KON" CONNECTORS AND TERMINAL STRIPS. PROVIDE SHORT CIRCUIT RATING OF REPLACEMENT EQUIPMENT TO MATCH EXISTING OR AS NOTED ON THESE DRAWINGS. PROVIDE ARC-FLASH LABEL FOR REPLACEMENT AND NEW EQUIPMENT. PROVIDE COORDINATION STUDY DEMONSTRATING NEW AND REPLACEMENT EQUIPMENT IS COORDINATED WITH EXISTING EQUIPMENT THAT IS IMMEDIATELY UPSTREAM AND DOWNSTREAM.

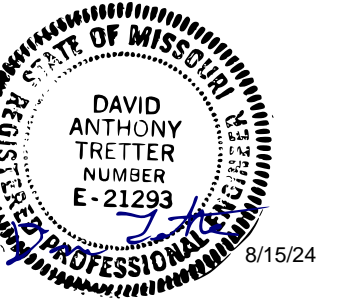
## GENERAL DEMO NOTES

- THE ELECTRICAL CONTRACTOR SHALL REMOVE, CAP AND/OR RELOCATE EQUIPMENT, OUTLETS, CONDUIT, WIRE, TC., AS SHOWN AND SPECIFIED ON THE DRAWINGS, AND AS MAY BECOME NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS. IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO VISIBLY EXAMINE ALL EXISTING WALLS DESIGNATED FOR REMOVAL OR MODIFICATION TO DETERMINE THE CONDUIT AND THE WIRING THAT WILL REQUIRE CAPPING AND/OR REMOVAL. THE CONTRACTOR SHALL BE HELD TO HAVING VISITED THE SITE AND TAKEN ALL EXISTING CONDITIONS INTO CONSIDERATION.
- PROTECT ADJACENT MATERIALS INDICATED TO REMAIN. INSTALL AND MAINTAIN DUST AND NOISE BARRIERS TO KEEP DIRT, DUST, AND NOISE FROM BEING TRANSMITTED TO ADJACENT AREAS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE.
- LOCATE, IDENTIFY, AND PROTECT ELECTRICAL SERVICES PASSING THROUGH DEMOLITION AREA AND SERVING OTHER AREAS OUTSIDE THE DEMOLITION LIMITS. MAINTAIN SERVICES TO AREAS OUTSIDE DEMOLITION LIMITS. WHEN SERVICES MUST BE INTERRUPTED, INSTALL TEMPORARY SERVICES FOR AFFECTED AREAS.
- MAINTAIN AND PROTECT EXISTING BUILDING SERVICES WHICH TRANSIT THE AREA AFFECTED BY SELECTIVE DEMOLITION.
- MAINTAIN CIRCUIT CONTINUITY TO ALL EXISTING FIXTURES, EQUIPMENT, OUTLETS, ETC., TO REMAIN IN USE WHETHER NOTED ON THE PLANS OR NOT. FIELD VERIFY EXISTING ITEMS TO REMAIN IN USE. WIRING FOR EXISTING CIRCUITS WHICH MUST BE RE-ROUTED OR WHICH ARE PARTIALLY ABANDONED, SHALL BE RECONNECTED TO SERVICE THE REMAINING OUTLETS ON THE CIRCUIT.
- IN THE DEMOLITION WORK, REMOVE ALL UNUSED WIRING AND CABLES AND UNUSED CONDUIT THAT IS EXPOSED OR WITHIN ACCESSIBLE CEILINGS WHICH IS AFFECTED BY AND IS IN THE AREA OF THE WORK OF THIS CONTRACT.
- THE INTENTION OF THE ELECTRICAL DEMOLITION IS TO DISCONNECT AND REMOVE ALL ELECTRICAL WORK MADE VOID BY THE SCOPE OF THE CONSTRUCTION AND ALTERATION. FIELD VERIFY EXACT MATERIAL QUANTITIES REQUIRED TO BE REMOVED.
- WHERE ELECTRICAL EQUIPMENT, CONDUIT, BOXES, AND SUPPORTING HARDWARE ARE REMOVED, PATCH, AND FINISH THE SURFACE AS REQUIRED TO MATCH THE EXISTING, UNLESS OTHERWISE NOTED.
- WHERE BURIED CONDUITS EXTENDING OUT OF A CONCRETE SLAB BECOME ABANDONED, CUT AND GRIND THE CONDUITS OFF FLUSH WITH TOP OF SLAB AND PLUG WITH NON-SHRINK WATERPROOF GROUT FILL.
- ALL REMOVED MATERIALS, OTHER THAN REMOVED MATERIALS TO BE RELOCATED, OR STORED, OR TURNED OVER TO THE OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE PROJECT SITE.
- ACCEPTANCE OF CONTRACT MEANS INSTALLER ACCEPTS EXISTING CONDITIONS.
- CONTRACTOR SHALL COORDINATE ALL DEMOLITION WORK WITH ALL OTHER TRADES.
- IN WALLS OR FLOORS WHERE A FLUSH DEVICE IS BEING REMOVED, BUT THE WALL OR FLOOR REMAINS OR FOR ANY OUTLET WHICH MUST REMAIN, BUT HAS A DEVICE REMOVED, PROVIDE A BLANK COVER OVER THE OUTLET. MATCH THE COLOR AND MATERIAL OF EXISTING REMAINING COVERS IN THE ROOM OR SPACE.
- LEGALLY DISPOSE OF HAZARDOUS MATERIALS AND BALLASTS OR OTHER EQUIPMENT CONTAINING PCB'S AND LAMPS CONTAINING MERCURY. COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS.
- MODIFY EXISTING PANEL DIRECTORIES (OR REPLACE) FOR PANELS WHICH HAVE HAD ALTERATIONS TO THE CIRCUITS ORIGINATING THEREIN. DESCRIBE THE LOAD AND LOCATION.
- WHERE WORK IS TO BE PERFORMED ABOVE EXISTING ACCESSIBLE CEILINGS, CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING CEILING TILES AND GRID WITHOUT DAMAGE. STORAGE OF EXISTING TILES AND GRID WHILE WORK IS BEING PERFORMED, AND INSTALLATION OF EXISTING GRID AND TILES AFTER DIVISION 26, 27 AND 28 WORK IS COMPLETED.
- ALL EXISTING ELECTRICAL WORK AND ASSOCIATED RACEWAY AND WIRING WHICH HAS BEEN MADE OBSOLETE BY THE WORK AND/OR IS SHOWN DASHED ON THE ELECTRICAL DEMOLITION DRAWINGS, SHALL BE DISCONNECTED AND REMOVED, UNLESS OTHERWISE NOTED. ALTHOUGH AN ATTEMPT HAS BEEN MADE TO INDICATE ALL OF THIS WORK, TOTAL ACCURACY IS NOT GUARANTEED. CONTRACTOR SHALL VISIBLY EXAMINE ALL AREAS AND WALLS AND CEILINGS SCHEDULED FOR REMOVAL TO DETERMINE EXISTING ELECTRICAL ITEMS TO REMAIN.

ELECTRICAL EQUIPMENT SCHEDULE									
PLAN MARK	VOLTAGE	PHASE	FED BY	MCA/HP	MOCP	DISC BY	DISC. TYPE	FEEDER	
BP-3	480 V	3	MCC-C	5 HP	20	FWU		3 #12 & #12 GRD, 3/4" C.	
BP-2	480 V	3	MCC-C	5 HP	20	FWU		3 #12 & #12 GRD, 3/4" C.	
BP-1	480 V	3	MCC-C	5 HP	20	FWU		3 #12 & #12 GRD, 3/4" C.	
B-1	120 V	1	CJ	9 MCA	20	EC	30A/NF	2 #12 & #12 GRD, 3/4" C.	
B-2	120 V	1	CJ	9 MCA	20	EC	30A/NF	2 #12 & #12 GRD, 3/4" C.	
B-3	120 V	1	CJ	9 MCA	20	EC	30A/NF	2 #12 & #12 GRD, 3/4" C.	
HWP-1	480 V	3	MCC-C	5 HP	20	FWU		3 #12 & #12 GRD, 3/4" C.	
HWP-2	480 V	3	MCC-C	5 HP	20	FWU		3 #12 & #12 GRD, 3/4" C.	
DWRP-1	120 V	1	CJ	1/6 HP	20	FWU		2 #12 & #12 GRD, 3/4" C.	
DWRP-2	120 V	1	CJ	1/12 HP	20	FWU		2 #12 & #12 GRD, 3/4" C.	
TMV-3		1	CJ	1 MCA	20	EC	RECP	2 #12 & #12 GRD, 3/4" C.	
TMV-2		1	CJ	1 MCA	20	EC	RECP	2 #12 & #12 GRD, 3/4" C.	
TMV-1		1	CJ	1 MCA	20	EC	RECP	2 #12 & #12 GRD, 3/4" C.	

FWU: FURNISHED WITH UNIT

STATE OF MISSOURI  
MICHAEL L. PARSON,  
GOVERNOR



Professional Record:  
DAVID A. TRETTER  
LICENSE # 021293  
EXPIRATION DATE: 12/31/25  
PROFESSIONAL SEAL

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MO Certificate of Authority #000813 Eng.  
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CONSTRUCTION

DESIGN & INSTALL  
NEW DOMESTIC WATER  
PLANT  
VETERANS HOME  
BUILDING

ST. JAMES VETERANS HOME  
620 NORTH JEFFERSON  
ST. JAMES, MO

PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_  
DATE: \_\_\_\_\_  
ISSUE DATE: 08.15.2024

CAD DWG FILE: \_\_\_\_\_  
DRAWN BY: AJS  
CHECKED BY: DAT  
DESIGNED BY: KJC

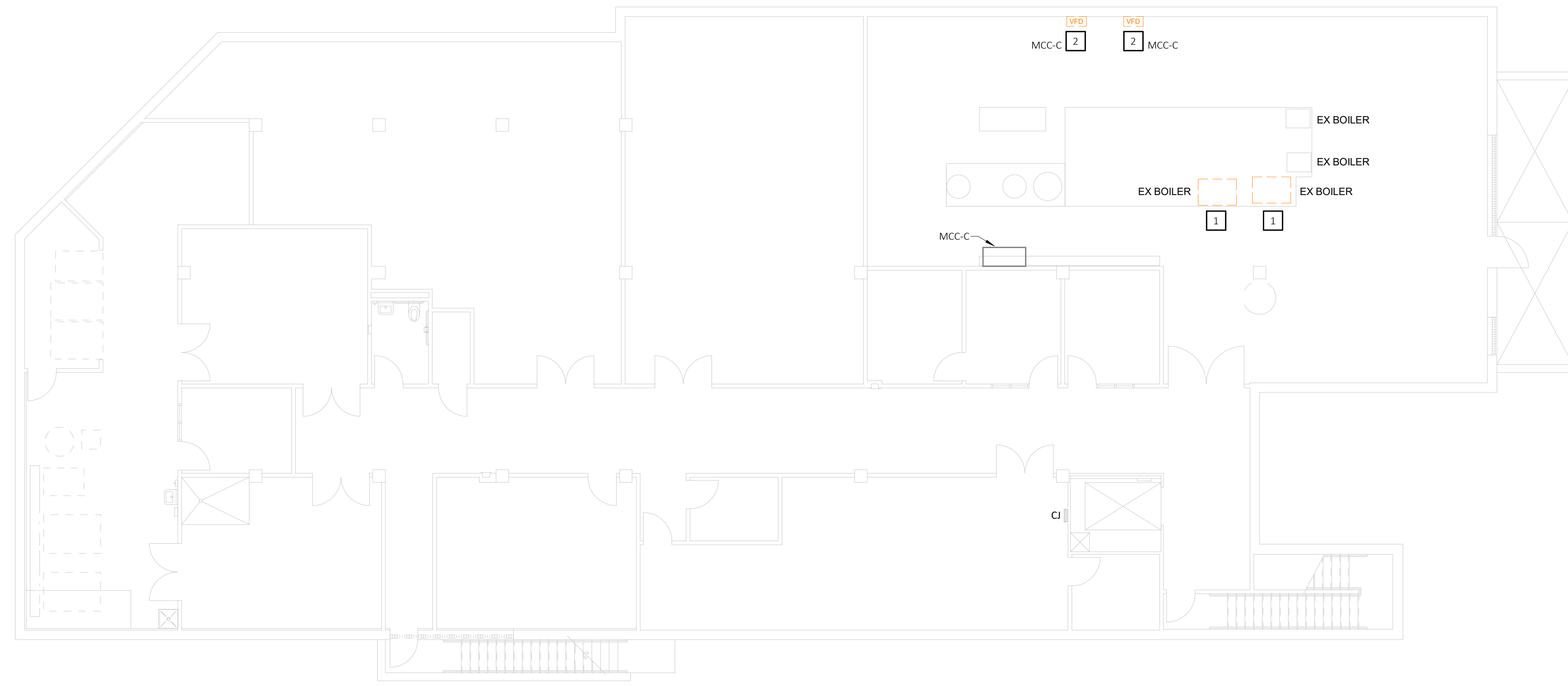
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ELECTRICAL  
GENERAL NOTES &  
SCHEDULES

SHEET NUMBER:

**E-002**  
16 of 18 SHEETS  
08.15.2024

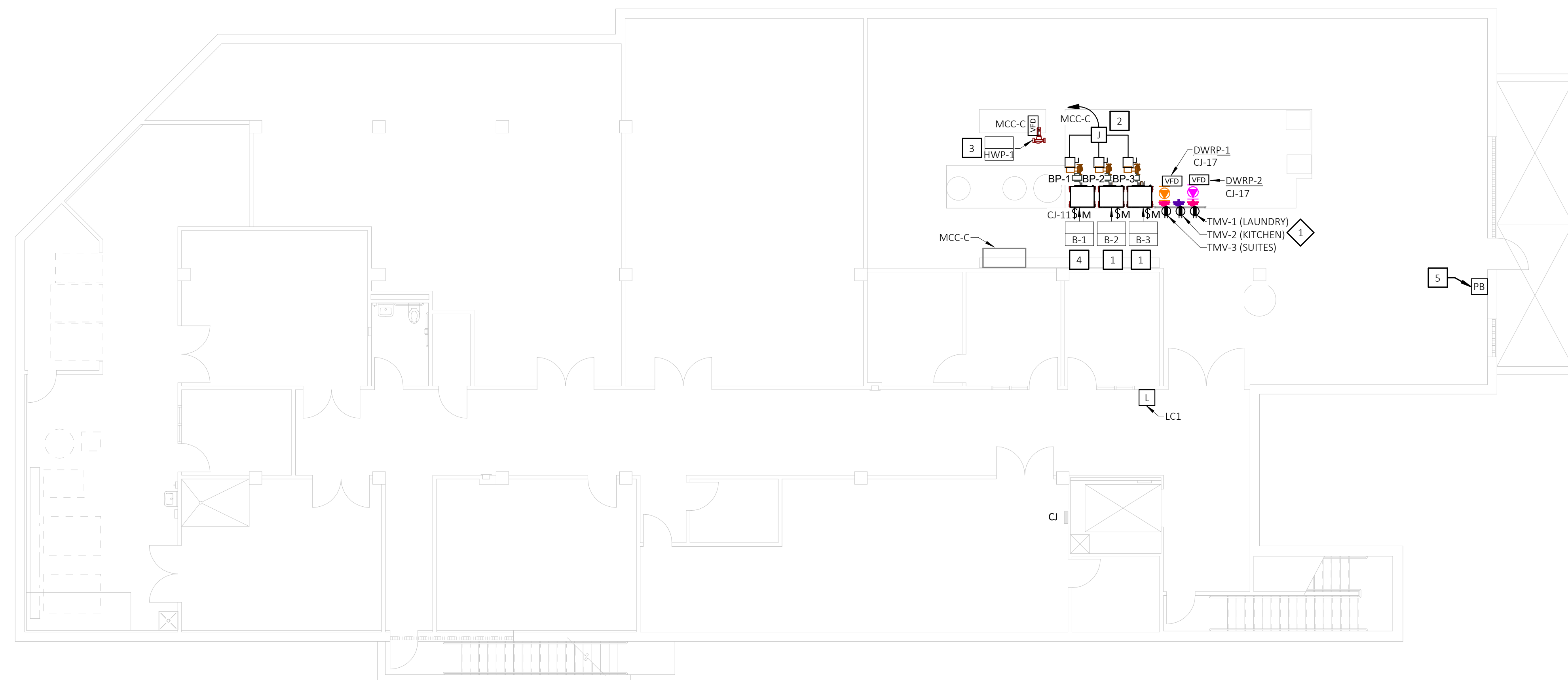




1 BASEMENT FLOOR PLAN - ELECTRICAL DEMOLITION - PHASE 1  
E-101 SCALE: 1/8" = 1'-0"

# Keynotes - Demo

- 1 EXISTING BOILER TO BE DEMOLISHED. EC SHALL DISCONNECT EXISTING BOILER WIRING AND MAINTAIN CIRCUIT FOR RECONNECTION WITH NEW BOILER.
- 2 EXISTING HOT WATER PUMP AND VFD TO BE DEMOLISHED. EC SHALL DISCONNECT EXISTING CIRCUIT FROM VFD AND MAINTAIN FOR RECONNECTION WITH NEW PUMP.



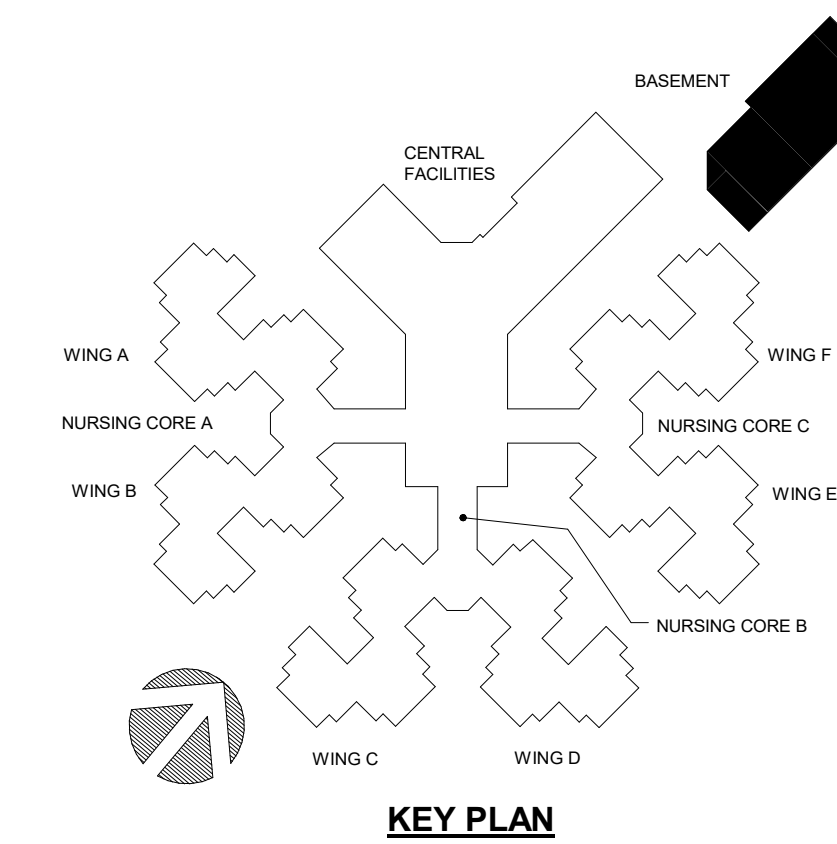
2 BASEMENT FLOOR PLAN - ELECTRICAL RENOVATION - PHASE 1  
E-101 SCALE: 1/8" = 1'-0"

# Keynotes - Reno

- 1 EC SHALL MAINTAIN EXISTING WATER HEATER WIRING AND EXTEND IF NEED FOR RECONNECTION WITH NEW BOILER. VERIFY EXISTING CIRCUIT IS ROUTED THROUGH CONTACTOR "LC1" FOR SHUTDOWN SEQUENCE.
- 2 EC SHALL PROVIDE CIRCUIT FROM MCC-C SPARE BUCKET FOR (3) NEW BOILER PUMPS. PROVIDE 3#8 CU & 1#8 GND, 3/4" C. FROM MCC-C TO JUNCTION BOX WITH TERMINAL BLOCK. EC SHALL PROVIDE 30A FUSED DISCONNECT WITH 20A FUSES FOR EACH BOILER PUMP.
- 3 EC SHALL EXTEND EXISTING HOT WATER PUMP CIRCUIT AND MAKE CONNECTION TO NEW HOT WATER PUMP FACTORY FURNISHED VFD.
- 4 EC SHALL PROVIDE NEW 20A, 120V CIRCUIT FROM SPARE BREAKER IN PANEL "CJ" FOR NEW BOILER. ROUTE CIRCUIT THROUGH CONTACTOR "LC1" FOR SHUTDOWN SEQUENCE.
- 5 EXISTING EMERGENCY BOILER SHUTDOWN BUTTON INTERLOCKS WITH CONTACTOR "LC1" SO THAT GAS FIRED EQUIPMENT IN BOILER ROOMS SHUTS DOWN UPON ACTIVATION.

# Keynotes - Reno Alternate #1

- 1 EC SHALL PROVIDE NEW 20A, 120V CIRCUIT FROM SPARE BREAKER IN PANEL "CJ" FOR (3) NEW THERMOSTATIC MIXING VALVES.



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PROJECT # U2409-01  
SITE # 6801  
FACILITY # 8136801002

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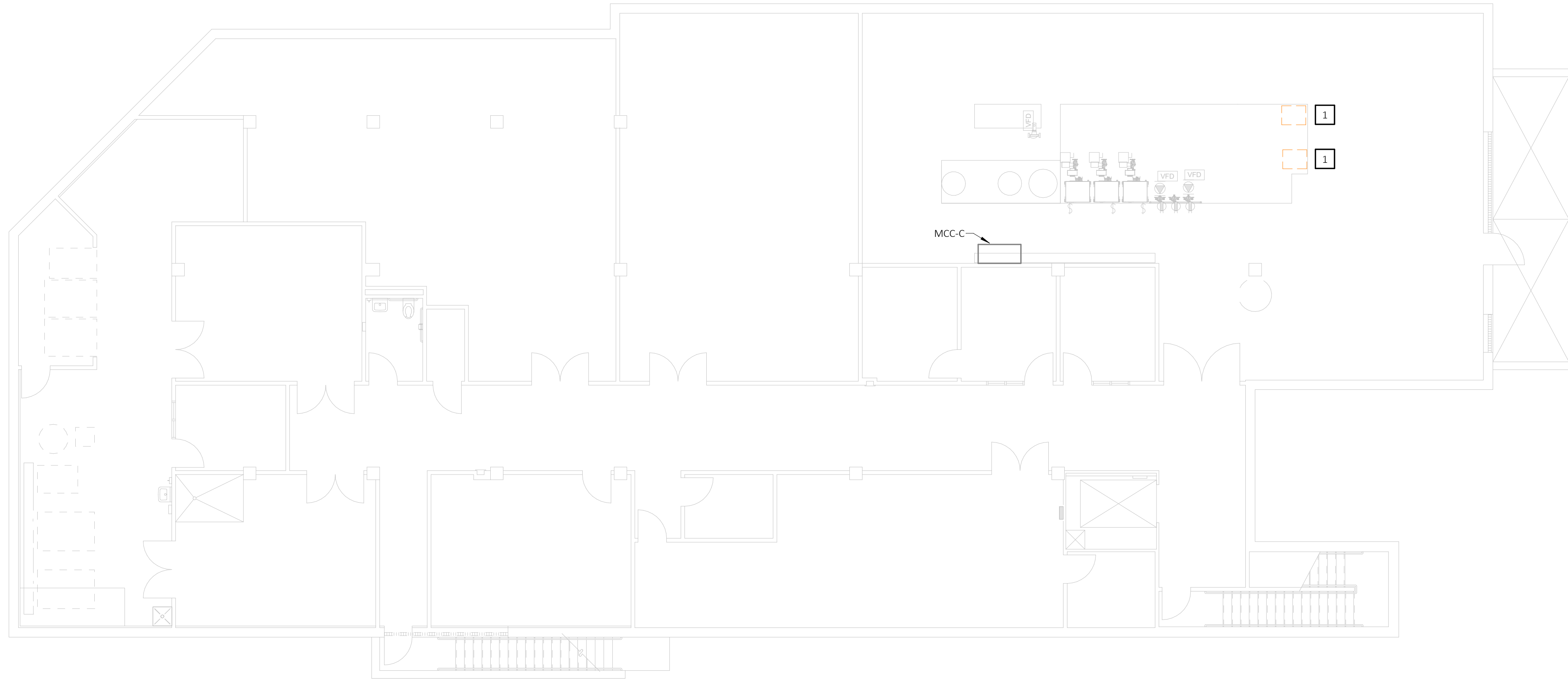
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CHECKED BY: DAT  
DESIGNED BY: KJC

SHEET TITLE:  
**ELECTRICAL  
BASEMENT FLOOR  
PLAN - PHASE 1**

SHEET NUMBER:

**E-101**  
17 of 18 SHEETS  
08.15.2024

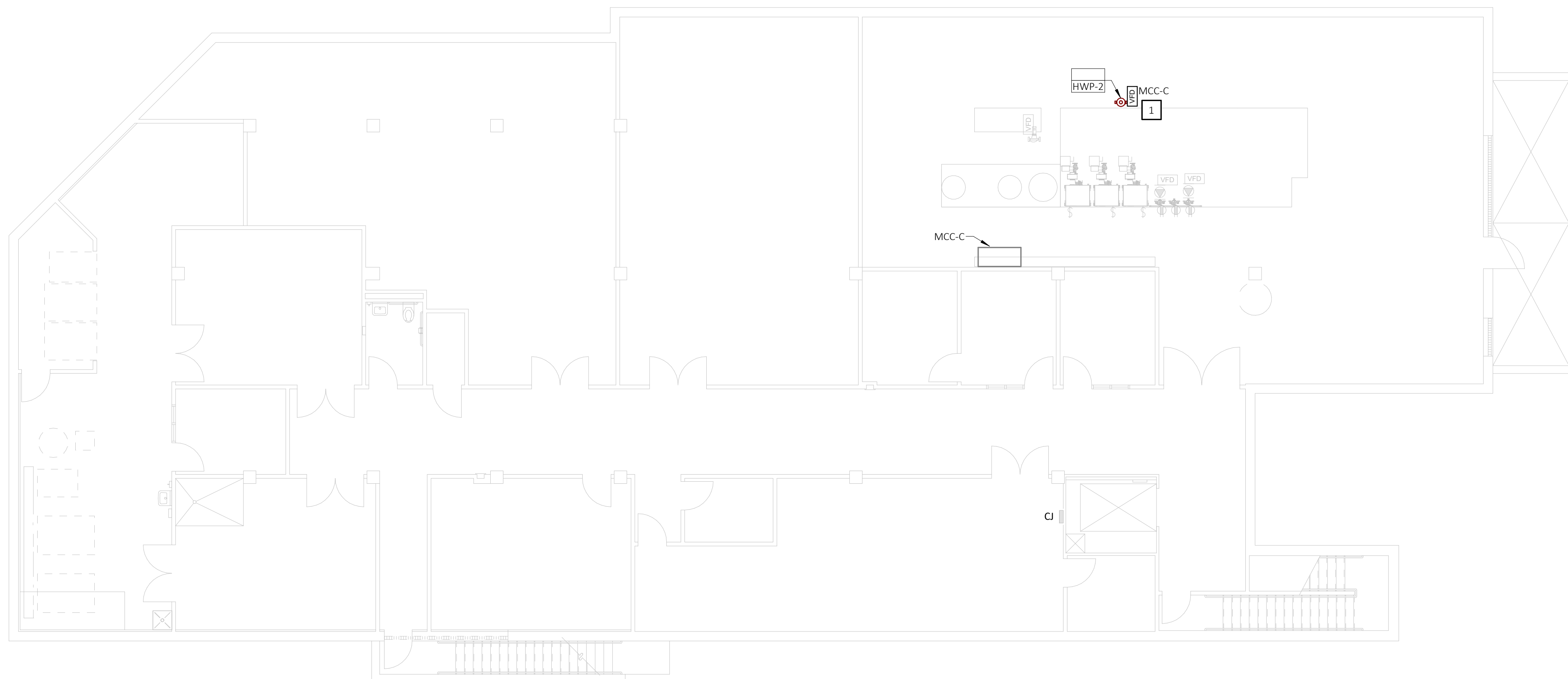




### # Keynotes - Demo

- 1 EXISTING BOILER TO BE DEMOLISHED. EC SHALL DISCONNECT BOILER AND REMOVE CONDUIT AND WIRING BACK TO SOURCE PANEL.

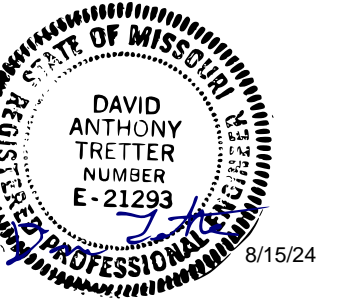
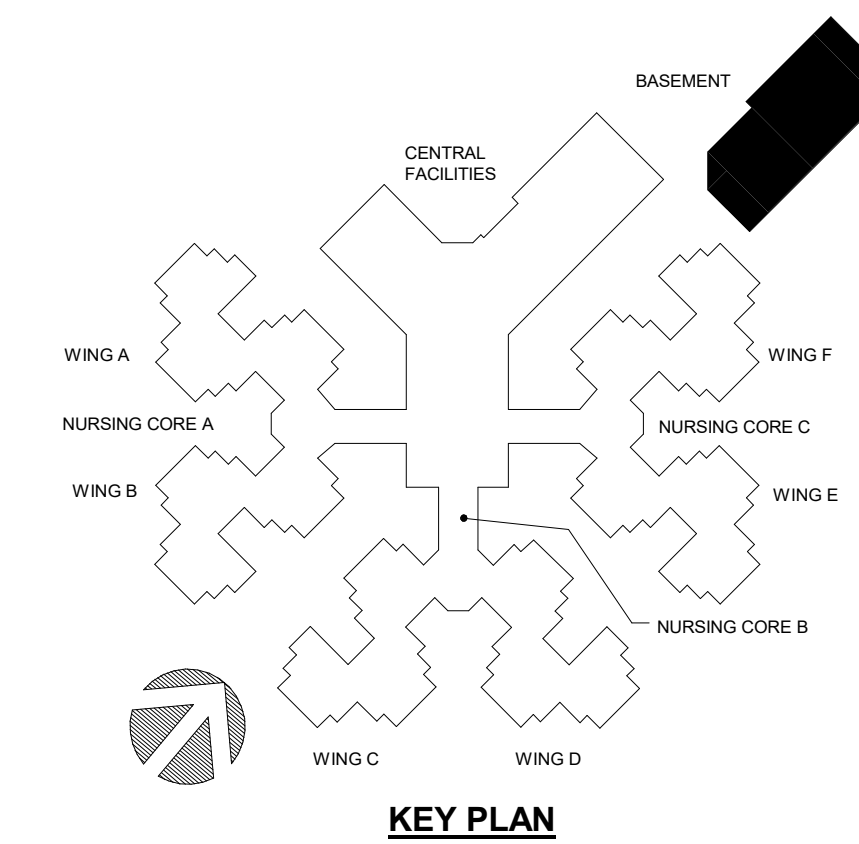
1 BASEMENT FLOOR PLAN - ELECTRICAL DEMOLITION - PHASE 2  
 SCALE: 1/8" = 1'-0"



### # Keynotes - Reno

- 1 EC SHALL EXTEND EXISTING HOT WATER PUMP CIRCUIT AND MAKE CONNECTION TO NEW HOT WATER PUMP FACTORY FURNISHED VFD.

2 BASEMENT FLOOR PLAN - ELECTRICAL RENOVATION - PHASE 2  
 SCALE: 1/8" = 1'-0"



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CAD DWG FILE: \_\_\_\_\_  
 DRAWN BY: AJS  
 CHECKED BY: DAT  
 DESIGNED BY: KJC

SHEET TITLE:  
**ELECTRICAL  
BASEMENT FLOOR  
PLAN - PHASE 2**

SHEET NUMBER:

**E-102**  
18 of 18 SHEETS  
08.15.2024